PRESS DIE COMPONENTS BY DAYTON PROGRESS

MiSUMi

GAS SPRINGS

FOR PRESS AND MOLD DIES

DAYTON®

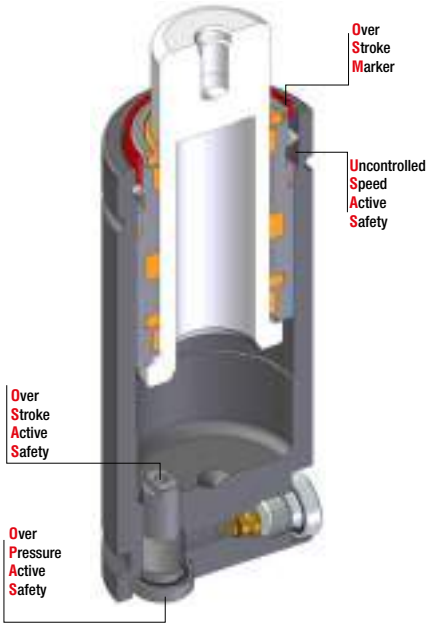
a MISUMI Group Company

MISUMI gas springs are ready

1 Variety of Compact High Load Gas Springs (GSP, GSQ, GSN, MGSN, MGSL, MGSM) Suitable mainly for steel and progressive dies

GSP GSQ GSN MGSN MGSL MGSM

2 Designed for operations under high temperature Up to 120° / Special Seals and guides for high temperature / Longer Life than other standard series



UP to 120°C / *248°F*

LONG LIFE thanks to special seals and guides for High Temperature

see page 38 for more information

3 Wide variety of stock for Cylinder, Fixing, Linked System Component and Maintenance Kit

Mold-EX-Press

Speed up your die design!

You can find the latest version of Mold-EX-Press at our homepage:
https://www.daytonprogress.de/en/downloads/cad-data/mold-ex-press

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Order MISUMI gas springs online*

https://de.misumi-ec.com/

MiSUMi

Web Ordering System

*Supplier and business partner will be MISUMI Europe GmbH.
All MISUMI items can also be ordered per email or phone via DAYTON PROGRESS.
See last page for contact information.

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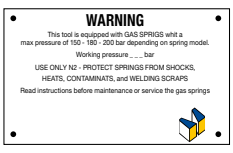
GAS SPRINGS



SW

Secondary rod wiper
Zweitabstreifer
Racleur de tige secondaire
Rascador de vástago secundario
Anillo raspador secundário

More info: p. 192

Benefits

EN
- Excellent protection from liquid and solid contaminants
- Maximum chemical resistance to lubricants thanks to high-performance polyurethane
- Longer lifetime for guiding elements and dynamic seals
- Minimal loss of nominal stroke
- Easy to insert
- No restrictions when positioning the cylinder

FR
- Excellente protection contre contaminants liquides et solides
- Résistance chimique maximale aux lubrifiants grâce au polyuréthane de haute performance
- Plus longue durée de vie pour les élément de guidage et les joints dynamiques
- Perte minimale de la course nominale
- Facile à insérer
- Pas de limitations dans le positionnement du ressort-gaz

DE
- ausgezeichneter Schutz gegen feste und flüssige Verunreinigungen
- maximale chemische Beständigkeit gegen Schmierstoffe durch das Hochleistungs-Polyurethan
- längere Lebensdauer für Führungselemente und dynamische Dichtungen
- minimaler Verlust des Nennhubes
- einfaches Einsetzen
- keine Einschränkungen für die Positionierung der Gasdruckfeder

PT
- Excelente protecção contra contaminantes líquidos e sólidos
- Máxima resistência química aos lubrificantes graças ao poliuretano de alto desempenho
- Tempo de vida mais longo para os elementos de guiamento e vedações dinâmicas
- Perda mínima de curso nominal
- Fácil de inserir
- Não há restrições ao posicionar o cilindro

ES
- Protección óptima contra los contaminantes líquidos y sólidos
- Máxima resistencia química a lubricantes gracias al poliuretano de alto rendimiento
- Mayor vida útil para elementos de guía y juntas dinámicas
- Pérdida mínima de carrera nominal
- Fácil de colocar
- Ninguna limitación para el posicionamiento del cilindro

SKUDO

Active Protection from Contaminants
Aktiver Schutz vor Verunreinigungen
Protection Active contre les Contaminants
Protección Activa contra Contaminantes
Capa Protetora Contra Resíduos

Standard on: GSSC - GSRS

Upon request for other models

Benefits

EN
- Eliminates damages to guiding and sealing components caused by contaminants
- Significantly increases the life of cylinders used in severe working environments
- Does not alter the height of the cylinder
- Does not wear out

FR
- Élimine tout endommagement du joint et des éléments de guidage du fait de contaminants
- Augmente de manière signifi cative la vie du ressort en présence de contaminants liquides et solides
- Ne change pas la hauteur du ressort à gaz
- Est une protection qui n'est pas soumise à aucune usure

DE
- Schützt vor Verunreinigungen, die Schäden an den Führungs- und Dichtungselementen hervorrufen
- Steigert erheblich die Lebenszeit der Gasdruckfeder bei erschwerten Arbeitsbedingungen
- Verändert die Gesamthöhe der Gasdruckfeder nicht
- Ist ein Schutz, der nicht verschleißt

PT
- Elimina danos causados por residuos nos aneis de vedação e guiamento
- Aumenta significativamente a vida dos cilindros usados em ambientes de trabalho com resíduos
- Não altera a altura do cilindro
- É uma proteção que não desgasta

ES
- Elimina daños de contaminantes a los componentes que garantizan la estanqueidad y guiado
- Aumenta significativamente la vida del cilindro en presencia de contaminantes líquidos y sólidos
- No aumenta la altura del cilindro
- Es una protección que no sufre desgaste

Precautions for the use of gas springs

—GUIDE—

■Precautions for the use of gas springs

If a gas spring is used under any of the conditions listed below, malfunction may result in a major accident or in product trouble.
Be sure to read the following precautions before using gas springs.

■ Danger prevention

① Never disassemble, weld, fuse, heat, or modify gas springs.
Gas springs contain high-pressure gas. Failure to observe this precaution may cause damage to the cylinders with risks for operator and equipment and/or reduction of the gas spring lifetime.
② If gas springs are heated over 80° C, the heat will deteriorate the gas seal, possibly resulting in gas leakage and in a reduction of the spring lifetime.
A clearance of approximately 0.5 mm (2mm for GSSC, GSML and GSP) on each side of the spring is recommended in order to dissipate heat and prevent contact with the mounting holes.

■Disposal method

③ Wear protective goggles and discharge the gas from the cylinder before disposing of the spring.
Cut the mounting bolt hole all the way through and verify that the nitrogen gas is discharged completely before disposing.

■Preventing gas leakage

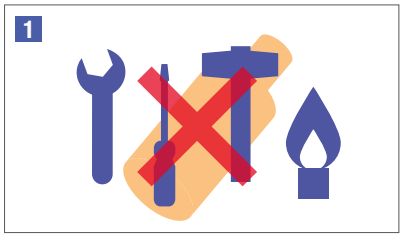
④ Do not use gas springs under any of the conditions listed below.
Failure to observe these precautions may result in gas leakage and other major accident.

	Conditions of use that may cause problems	Resulting problem	Consequence
a	An oblique load or transverse load is applied.	Eccentric load and/or Spring damage	Gas leakage
b	Gas spring is not fixed with bolts.		
c	Sub-guides are not used or the number is insufficient.		
d	The load distribution is not even in all four directions inside the die.		
e	There is an obstruction which contacts the gas spring inside the die.		
f	The gas spring is fixed in place using the tap hole on the end of the piston rod.		
g	The pressure on the piston rod is not applied to the entire surface.		
h	The piston rod contact face is deformed.		
i	The piston rod is cut.		
j	Welding spatter has adhered to the piston rod.	Seal damage	
k	Cutting particles or metal particles have adhered to the piston rod.		
l	The piston rod is dented.		
m	The shot limit is exceeded.		
n	A large amount of lubricant (especially chlorine-based lubricant) is applied.		
o	The gas spring is exposed to moisture, steam or chemicals.		
p	The gas has been recharged or the pressure has been adjusted.	Loss of durability	Gas leakage and/or major other accidents
q	Overstroking (see OSAS features in p. 9)		
r	The gas spring is used at high temperatures (above 40°C) or low temperatures (below 0°C)		
s	Conditions in which the piston rod is released abruptly. (see USAS features in p. 10)		
t	The cylinder has been ground.		
u	The gas spring is used or stored outdoors, or in a humid location.		
v	An extension pin is mounted on the end of the piston rod.		
w	The gas spring is disassembled, welded, fused, heated, or modified.	Unexpected problems	
x	The gas spring is incorporated in a building or a vehicle.		
y	Other unintended uses (uses other than in a die)		
z	Failure to use proper thread lock on all the fixing screws		
aa	Failure to check the correct positioning and fixing of the cylinders during tool maintenance		

Precautions for the use of gas springs

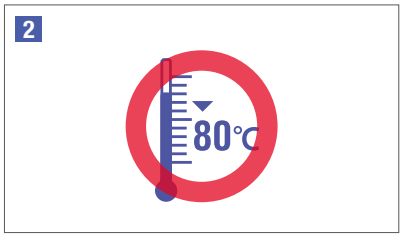
—GUIDE—

1



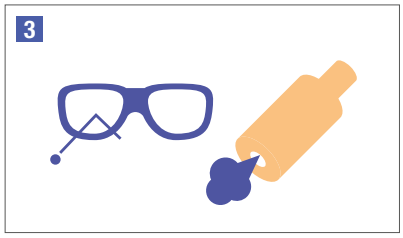
Do not attempt to disassemble, weld, fuse, heat, or modify the product.

2



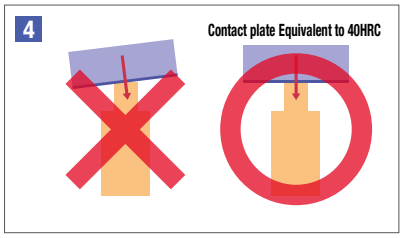
Operating environment temperature range 0~40°C, gas spring surface temperature 80°C or less.

3



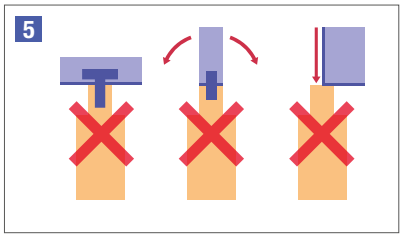
Wear safety goggles and discharge gas before disposal.

4



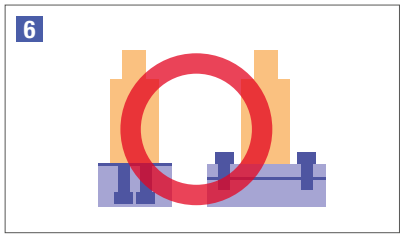
Do not apply oblique or transverse loads.

5



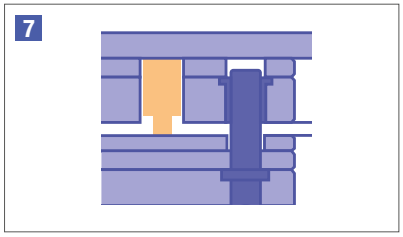
Do not use threaded hole at hole for fastening the spring. Do not use extension pin. Always apply pressure to the entire end surface.

6



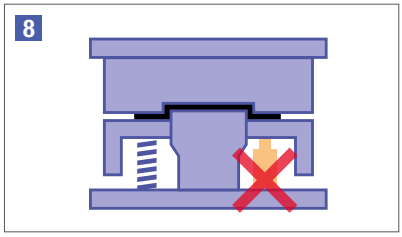
Fasten with bolts and flange.

7



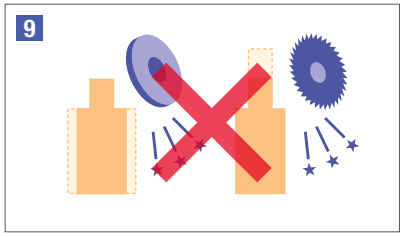
Use sub guide pins to prevent eccentric loads.

8



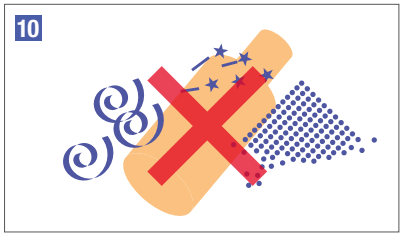
Equalize the load.

9



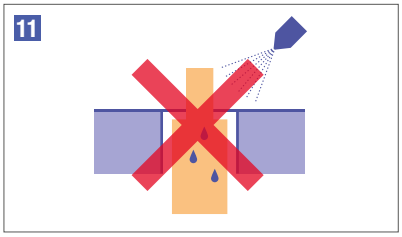
Do not grind the cylinder or cut the piston rod.

10



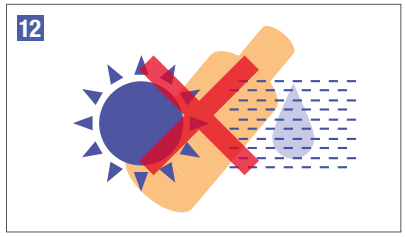
Be careful of weld spatters, cut particles, and metal particles.

11



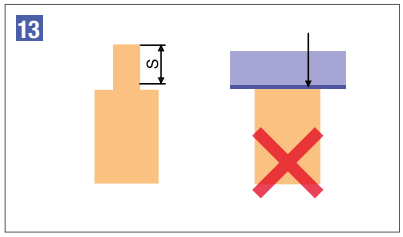
Do not apply excessive lubricant.

12



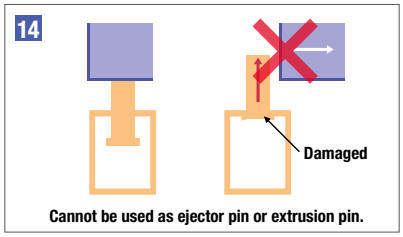
Do not use or store outdoors or at high humidity place.

13



Do not overstroke.

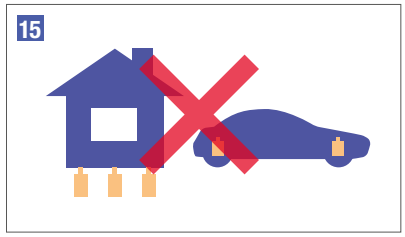
14



Cannot be used as ejector pin or extrusion pin.

Do not allow the piston rod to be released abruptly.

15

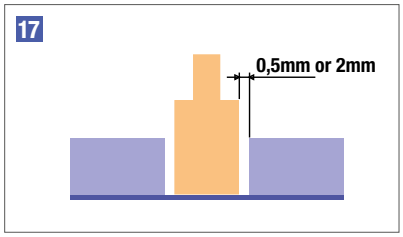


Do not incorporate in a building or vehicle.

16

Do not use for applications other than dies.

17



Keep clearance 0.5mm or 2mm per side.
2mm for GSSC, GSML and GSP
0.5mm for all other Models

Gas spring safety devices [1]

A safety device will help reduce damage in the event of unexpected troubles.

OSAS
Over Stroke Active Safety

VDI 3003

What is OSAS?

A safety device which, during cases of over stroke, exhausts the internal nitrogen gas, thereby helping prevent the gas spring from deforming or rupturing from abnormal internal pressure rises.
An OSAS reduces the risk of over stroke related trouble arising from changes in die height during regrinding or from design and/or processing errors.

USAS
Uncontrolled Speed Active Safety

VDI 3003

What is USAS?

A safety device which, during instances where the movement of the piston rod becomes uncontrollable, prevents the internal components of the gas spring from breaking and the piston rod from flying off.
The USAS lowers the risk of troubles or issues occurring if the movement of the piston rod becomes uncontrollable during abnormal mold operations.

OPAS
Over Pressure Active Safety

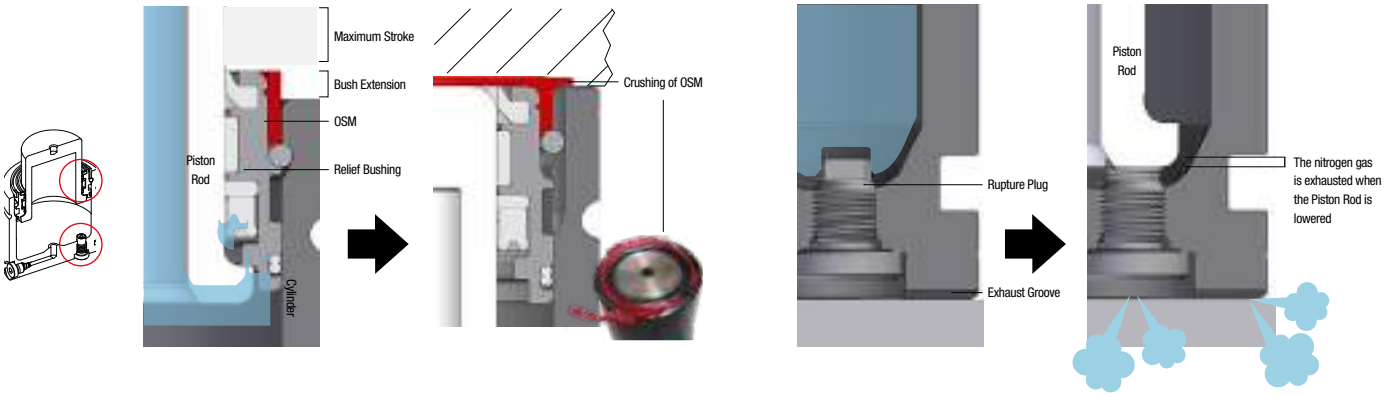
VDI 3003

What is OPAS?

A safety device which, in the event of machine oil or some other substance getting into the gas spring and causing abnormal rises in pressure, exhausts the internal nitrogen gas, thereby preventing the gas spring from deforming and/or rupturing.
The OPAS lowers the risk of troubles or issues occurring due to a rise in pressure in the event of press machine oil or some other substance getting into the gas spring.

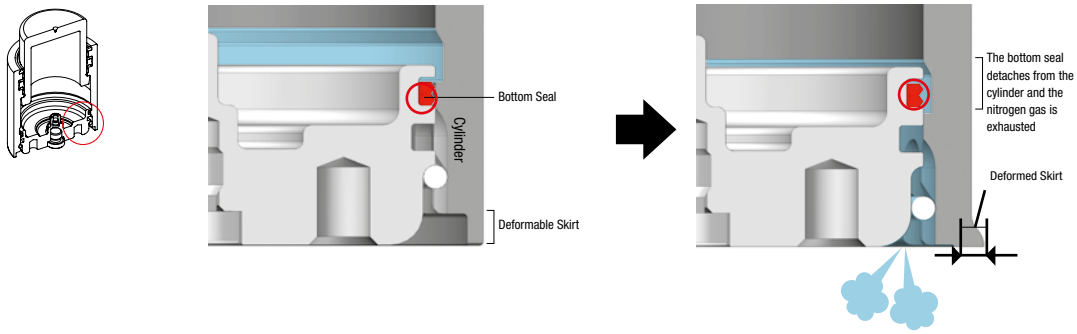
OSAS Structure

■Bushing Seal Types



In the event of an over stroke, the piston rod hits and breaks the plug at the bottom of the cylinder. Thus, the internal nitrogen is exhausted through the broken plug via the exhaust groove.
You can check that the OSAS has been activated if the height of bushing is the same as of cylinder.

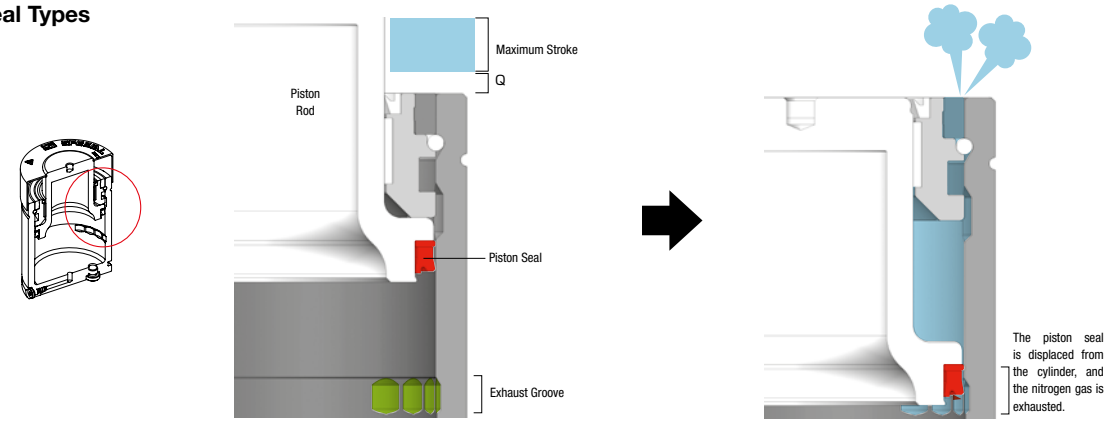
■Bottom Seal Types



Should the cylinder lower during instances of over stroke, the bottom seal will detach from the contact point with the cylinder and the cylinder itself will deform at the base, causing a gas exhaust groove to form.
The internal nitrogen gas will then be exhausted via the exhaust groove.
You can check that the OSAS has been activated if the deformable skirt deforms.

The clearance between the outer diameter (d) of the gas spring cylinder and the counterbored holes of the mold must be equal to or greater than 2 mm (on one side) in order to ensure correct operation of the safety devices.
(outer diameter of the mold's counterbored hole= outer diameter of the gas spring cylinder + 4 mm)

■Piston Seal Types

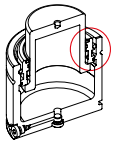


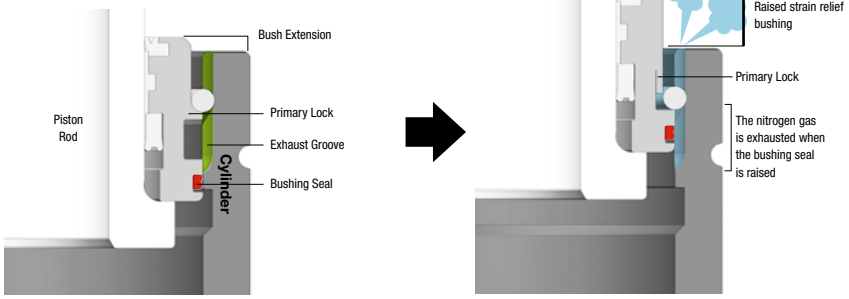
Should the piston rod is pressed down to Q instances of over stroke, piston seal will detach from the contact point with the cylinder, causing a gas exhaust groove to form.
The internal nitrogen gas will then be exhausted via the exhaust groove.
You can check that the OSAS has been activated if the piston rod is at the same height as the cylinder.

Gas spring safety devices (3)

USAS Structure

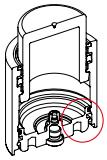
■Bushing Seal Types

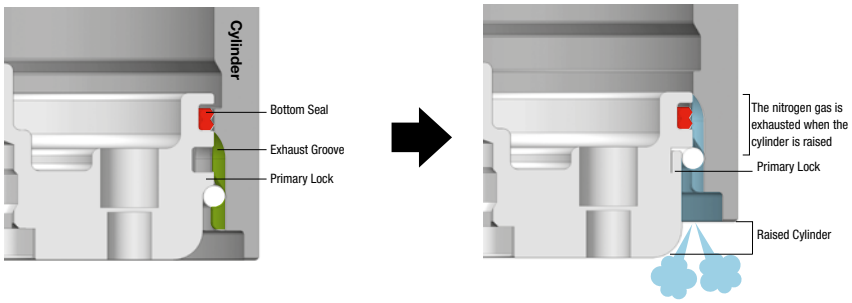




Should the movement of the piston rod become uncontrolled, the primary lock will change shape and the relief bushing will pop out. The internal nitrogen gas will be exhausted via the exhaust groove before the piston rod and/or relief bushing become damaged.
You can judge the USAS has worked if the height of bushing extension is above the standard.
See the relevant product page for more information regarding the protrusion heights of relief bushing.

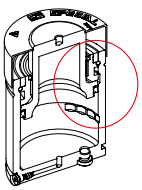
■Bottom Seal Types

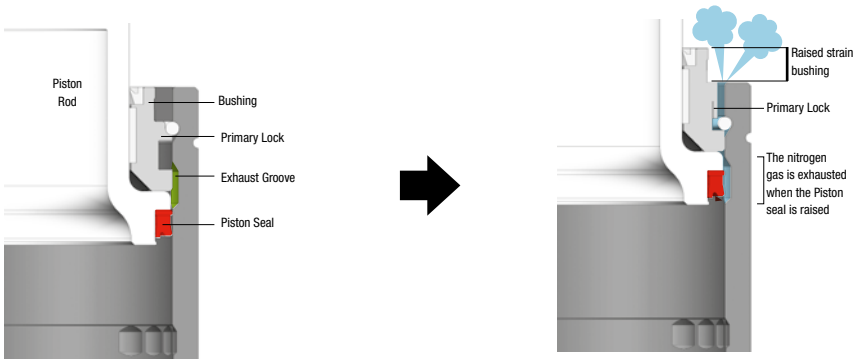




Should the movement of the piston rod become uncontrolled, the cylinder will pop up, and the primary lock will change shape. The internal nitrogen gas will then be exhausted via the exhaust groove before the piston rod and/or cylinder become damaged.
You can judge the USAS has worked if the cylinder is raised.

■Piston Seal Types





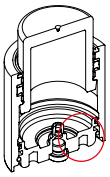
Should the movement of the piston rod become uncontrolled, the bushing will pop up, and the primary lock will change shape. The internal nitrogen gas will then be exhausted via the exhaust groove before the piston rod and/or relief bushing become damaged.
You can judge the USAS has worked if the bush protrudes from the cylinder.

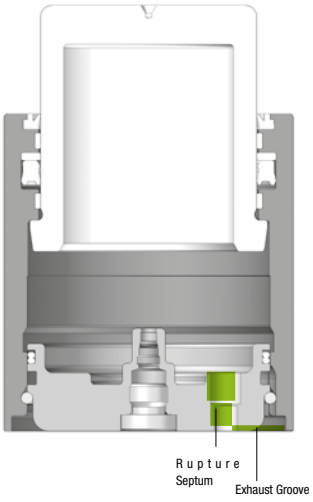
OPAS Structure

■Rupture Plug Type

The rupture plug on the base of the gas spring will break should the internal pressure exceed the specified value.
Consequently, the internal nitrogen gas will be exhausted via the exhaust groove.
You can check that the OPAS has been activated if the rupture plug is loosened.
The release valve cannot be disassembled.

■Rupture Septum Types





The rupture septum on the base of the gas spring will break should the internal pressure exceed the specified value.
Consequently, the internal nitrogen gas will be exhausted via the exhaust groove.
You can check that the OPAS has been activated if the rupture septum is open.

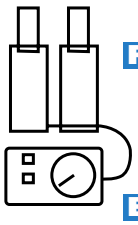
There is a chance the internal mechanisms and components have got damaged when the OSAS, USAS, or OPAS operate. As such, please ensure you replace the gas spring.

User information

EN All cylinders which can be connected to the system and are specifically coded (_ - N) are supplied without the one-way valve, without pressure and with only the closure plug of the connection hole (excluding GSU90, GSU200). If you wish to convert independent cylinders into system-connectable cylinders, order the necessary hoses and connections, and follow the specific instructions for every series published on site www.daytonprogress.de.

DE Alle Gasdruckfedern, die in ein Verbundsystem integrierbar sind und mit entsprechenden Zusatzangaben (_- N) bestellt werden, werden ohne Rückschlagventil, unbefüllt und nur mit der in der Anschlussöffnung montierten Verschlussschraube geliefert (Ausnahmen: GSU90, GSU200). Sollen eigenständig arbeitende Gasdruckfedern für die Nutzung in einem Verbundsystem umgebaut werden, genügt es, die erforderlichen Anschlüsse und Leitungen zu bestellen, sowie die für die jeweilige Serie auf der Internetseite www.daytonprogress.de veröffentlichten Hinweise zu beachten.

NON SELF CONTAINED

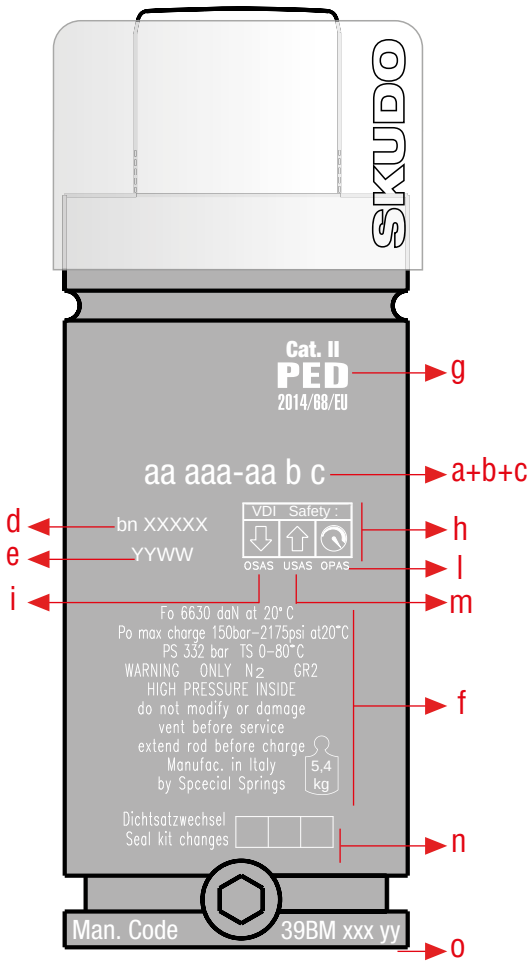


FR Tous les cylindres qui peuvent être raccordés au système et qui possèdent un code d'identification spécifique (_ - N) sont fournis sans valve unidirectionnelle ni pression. Seul le bouchon de fermeture de l'orifice de raccordement est fourni (sauf GSU90, GSU200). Au cas où l'on souhaiterait transformer des cylindres autonomes en cylindres à système raccordables, il suffira de commander les raccords et les tubes nécessaires puis de suivre les instructions spécifiques de chaque série, publiées sur le site www.daytonprogress.de.

ES Todos los cilindros que se pueden conectar al sistema, específicamente codificados (_ - N), se suministran sin válvula unidireccional y sin presión, sólo con el tapón de cierre del orificio de conexión (menos GSU90, GSU200). Si se desea transformar cilindros autónomos en cilindros conectables a sistema, es suficiente pedir los empalmes y los tubos necesarios y seguir las instrucciones específicas para cada serie publicadas en el sitio www.daytonprogress.de.

PT Todos os cilindros que podem ser ligados ao sistema e especificamente codificados (_ - N) são fornecidos sem válvula unidirecional, sem pressão e somente com a tampa de fechamento do furo de ligação (Não incluída GSU90, GSU200). Caso queira-se transformar cilindros autónomos em cilindros acopláveis ao sistema, basta encomendar as conexões e tubos necessários e seguir as instruções específicas para cada série, publicadas no site www.daytonprogress.de.

LASER MARKING



EN
a) Callout
b) Revision indicator
c) Hosed-system version
d) Batch number
e) Production date
f) General info
g) PED Category
h) Safety pictograms
i) Over stroke active safety
l) Over pressure active safety
m) Uncontrolled speed active safety
n) Number of seal replacements
o) Maintenance kit

DE
a) Modellcode
b) Revisionsindex
c) Version kann an das System angeschlossen werden
d) Produktionsposten
e) Herstellungsdatum
f) Allgemeine Informationen
g) PED Kategorie
h) Sichereitspiktogramme
i) Aktiven überhubsicherung
l) Aktive überdruck-sicherheitsvorrichtung
m) Aktiver Schutz bei Unkontrolliertem Rückhub
n) Anzahl der Dichtungswechsel
o) Wartung set

FR
a) Référence modèle
b) N de révision
c) Version pouvant être reliée à un système
d) Lot de production
e) Date de fabrication
f) Information générales
g) Catégorie PED
h) Pictogrammes de sécurité
i) Securite active outre-course
l) Securite active outre-pression
m) Securité Active pour Rétour Incontrôlé
n) Nombre de remplacements du joints
o) Set manutention

ES
a) Código de modelo
b) Indicador de revisión
c) Versión conectable a sistema
d) Lote de producción
e) Fecha de fabricación
f) Información general
g) Categoría PED
h) Pictrogramas de seguridad
i) Seguridad activa de fin de carrera
l) Seguridad activa ultra presión
m) Securidad Activa de Retorno Incontrolado
n) Número dos cambios de la junta
o) Set mantenimiento

PT
a) Código do modelo
b) Índice de revisão
c) Versão que pode ser ligada em sistema
d) Lote de produção
e) Data de produção
f) Informações gerais
g) Classe de risco PED
h) Pictogramas de segurança
i) Segurança ativa mecânica
l) Segurança ativa sobrepressão
m) Segurança para Retorno da Haste
n) Número das substituições da vedação
o) Manutenção de conjunto

CE

PED
2014/68/EU

EN ALL MISUMI nitrogen cylinders fulfill the requirements of the European directive concerning pressure equipment (2014/68/EU), applied in the European Union from 19th July 2016.
This directive sets out the standards for pressure equipment and defines them as vessels, piping and accessories subject to a maximum allowable pressure PS greater than 0,5 bar.
In particular, according to the directive 2014/68/EU, pressure equipments are classified by category and they shall bear the CE marking with the identification number of the manufacturer when the result of pressure P(bar) X fluid volume Vo(dm³) is 50 or more. The CE marking is mandatory for Categories II and III, but discretionary for Category I.
All gas cylinders which result of P x Vo is less than 50 are subject to Article 4.3 of the same directive and they do not bear the CE marking.

DE Alle Stickstoff-Gasdruckfedern von MISUMI erfüllen die Forderungen der ab dem 19. Juli 2016 in der Europäischen Union anzuwendenden Richtlinie 2014/68/EU über die Druckgeräte. Diese Richtlinie legt die Anforderungen an die Druckgeräte fest und definiert diese als Behälter, Rohrleitungen und Ausrüstungsteile mit einem max. zulässigen inneren Überdruck (PS) von mehr als 0,5 bar.
Im Einzelnen werden Druckgeräte gemäß der Richtlinie 2014/68/EU in Kategorien eingestuft und müssen mit der CE-Kennzeichnung und der Identifikationsnummer des Herstellers beschriftet werden, wenn der errechnete Wert des Produktes von Druck (P) multipliziert mit dem Befüllungsvolumen Vo (dm3) größer als 50 ist. Die CE-Kennzeichnung ist für die Kategorien II und III zwingend, jedoch nicht für die Kategorie I. Die Gasdruckfedern, bei denen der errechnete Wert des Produktes von Druck (P) multipliziert mit dem Befüllungsvolumen Vo (dm3) kleiner als 50 ist, tragen gemäß dem Artikel 4.3 der genannten Richtlinie keine CE-Kennzeichnung.

FR TOUS les cylindres-ressorts à l'azote de MISUMI satisfont aux prescriptions de la Directive Européenne sur les équipements sous pression 2014/68/EU, qui s'applique dans l'Union Européenne à partir du 19 juillet 2016.
Cette Directive fixe les exigences envers les équipements sous pression et les définit comme les récipients, les tuyauteries et les accessoires soumis à une pression maximale admissible PS supérieure à 0,5 bar.
Plus spécifiquement, la Directive 2014/68/EU prévoit la classification en catégories et l'obligation du marquage CE avec le numéro d'identification du fabricant pour les équipements dont le résultat de la pression P (bar) X le volume du fluide Vo (dm³) est de 50 ou plus. Le marquage CE est obligatoire pour les catégories II et III, mais facultatif pour la catégorie I.
Tous les cylindres-ressorts à l'azote dont le produit de P X Vo est moins de 50 sont réglementés par l'article 4.3 de la même directive et ne portent pas le marquage CE.

ES TODOS los cilindros de nitrógeno MISUMI cumplen con los requerimientos de la Directiva Europea sobre los equipos a presión 2014/68/EU, que se aplica en toda la Unión Europea a partir del 19 de julio de 2016.
Esta Directiva reglamenta y define como equipos a presión los recipientes, las tuberías y los accesorios sometidos a una presión máxima admisible PS superior a 0,5 bar.
Más concretamente, la directiva 2014/68/EU prevé la clasificación en categorías y la obligación del marcado CE con el número identificativo del fabricante para los equipos cuyo resultado de la presión P (bar) x el volumen del fluido Vo (dm³) seja de 50 o más. El marcado CE es obligatorio para las categorías II y III, pero facultativa para la categoría I.
Todos los cilindros de nitrógeno cuyo resultado P x V es menor de 50 están sujetos al artículo 4.3 de la directiva y no llevan el marcado CE.

PT TODOS os cilindros de nitrogénio MISUMI satisfazem os requisitos da Diretiva Europeia para equipamentos sob pressão 2014/68/EU, que se aplica na União Europeia a partir de 19 de julho de 2016.
Esa Diretiva regulamenta os equipamentos sob pressão e os define como os recipientes, os tubagens e os acessórios sujeitos a uma pressão máxima admissível PS superior a 0,5 bar.
Em particular, a directiva 2014/68/EU prevê a classificação em categorias e a obrigação da marcação CE com o número de identificação do fabricante para os equipamentos cujo o resultado de pressão P (bar) X volume fluido Vo(dm³) é igual ou superior a 50. A marcação CE è obrigatória para as categorias II e III, mas discricionária para a categoria I.
Todos os cilindros de nitrogénio, através da qual resultam P x Vo é inferior a 50 estão sujeitos ao artigo 4.3 da mesma directiva e não ostentam a marcação CE.

$$F_0 = P \cdot S$$

EN To calculate the initial force of each gas cylinder, multiply the maximum charging pressure (P) to the area of sealing, rod or piston, of the gasket seal.

DE Zur Berechnung der Anfangskraft (Fo) einer Gasdruckfeder, muss der angegebene maximale Befülldrück (P) mit der von der Dichtung abgedichteten Fläche an der Kolbenstange oder Kolben (S) multipliziert werden.

FR Pour calculer la force initiale (Fo) d'un cylinder à gaz, il suffit de multiplier la pression maximum de chargement (P) pour la surface de retenue, tige ou piston, du joint (S).

ES Para calcular la fuerza inicial (Fo) de un cilindro de gas, se multiplica la presión máxima de carga (P) poe el área de junta, vástago o pistón, de la guarnición(S).

PT Para calcular a força inicial (Fo) de um cilindro a gás, basta multiplicar a pressão de carga máxima (P) pela área de estanquidade do haste/pistão, da guarnição.

Isothermal force

Metric units

$$F_{x_i} = P \cdot S \cdot \left(\frac{1}{1 - \frac{S}{V_0} \cdot \frac{Cx}{10}} \right)^n$$

Imperial units

$$F_{x_i} = P \cdot S \cdot \left(\frac{1}{1 - \frac{S}{V_0} \cdot Cx} \right)$$

Tab. 1

P	n
≤100 bar	1,09
150 bar	1,19
200 bar	1,31

EN To calculate the intermediate isothermal force (Fx_i) to a specific working stroke (Cx), use the formula by replacing the relative numeric values. The exponent (n) varies in function of the charging pressure (P) as indicated in Tab.1. For intermediate pressure values, it is possible to calculate the (n) value proportionally.

DE Zur Berechnung der isothermischen Zwischenkraft (Fx_i) bei einem bestimmten Arbeitshub (Cx) verwenden Sie die nebenstehende Formel und setzen Sie entsprechend die im Katalog angegebenen Werte ein. Der Exponent (n) ist abhängig von dem Befülldrück (P). Mit Hilfe der Angaben in der Tab.1 können Zwischenwerte des Druckes proportional berechnet werden.

FR Pour calculer la force intermédiaire isothermique (Fx_i) d'un ressort à gaz à une course de travail saisi (Cx), vous devez utiliser cette formule en substituant les chiffres relatives aux valeurs numériques. L'Exposant (n) varie en fonction de la pression de chargement (P), comme montré dans le Tab.1. Pour les valeurs intermédiaires de pression, il est possible de calculer la valeur (n) de façon proportionnelle.

ES Para calcular la fuerza isoterma intermedial (Fx_i) para una carrera de trabajo determinada (Cx) aplicar la fórmula mediante la sustitución de los valores numéricos correspondientes. El exponente (n) varía en función de la presión de carga (P) como se muestra en Tab.1.Para valores intermedios de presión, es posible calcular el valor de (n) de manera proporcional.

PT Para calcular a força isotérmica intermediária (Fx_i) para um determinado curso de trabalho (Cx) aplicar a fórmula através da substituição dos valores numéricos relevantes. O expoente (n) varia in função da pressão de carga (P), como mostrado na Tab.1.Para os valores intermédios de pressão, é possível calcular o valor de (N) proporcionalmente.

Polytropic force

Metric units

$$F_{x_p} = P \cdot S \cdot \left(\frac{1}{1 - \frac{S}{V_0} \cdot \frac{Cx}{10}} \right)^{1,58}$$

Imperial units

$$F_{x_p} = P \cdot S \cdot \left(\frac{1}{1 - \frac{S}{V_0} \cdot Cx} \right)^{1,58}$$

EN To calculate the approximated value of polytropic intermediate force (Fx_p) to a specific working stroke (Cx), use the formula by replacing the relative numeric values. The exponent (n) for the polytropic force shall be assumed to be equal to 1,58 for the majority of normal applications

DE Zur Berechnung der ungefähren polytropischen Zwischenkraft (Fx_p) bei einem bestimmten Arbeitshub (Cx) verwenden Sie die nebenstehende Formel und setzen Sie entsprechend die im Katalog angegebenen Werte ein. Der Exponent (n) beträgt im Normalfall 1,58.

FR Pour calculer la valeur de force polytrophique intermédiaire (Fx_p) d'un ressort à gaz à une course de travail saisie (Cx), vous devez utiliser cette formule en substituant les chiffres relatives aux valeurs numériques. L'Exposant (n) peut être assumé comme 1,58 pour la majorité d'utilisations courantes.

ES Para calcular un valor aproximado de la fuerza intermedia politrópica (Fx_p) para una carrera de trabajo determinada (Cx), aplicar la fórmula mediante la sustitución de los valores numéricos correspondientes. El exponente (n) para la fuerza de politrópico puede suponerse como igual a 1,58 para la mayoría de las aplicaciones normales.

PT Para calcular um valor aproximado da força intermediária politrópica (Fx_p) para um determinado curso de trabalho (Cx), aplicar a fórmula através da substituição dos valores numéricos relevantes. O expoente (n) para a força politrópica pode ser assumido como sendo igual a 1,58 para a maioria das aplicações normais.

$$P_n = \frac{F_n}{S}$$

EN To determine the pressure level required to achieve a force (Fn) different from the nominal one (Fo), divide the required force (Fn) by the area of sealing, rod or piston, of the gasket seal.

DE Zur Berechnung des benötigten Befülldruckes (Pn) für eine spezifische Anfangskraft (Fn), die von der im Katalog angegebenen Anfangskraft abweicht, muss die gewünschte Anfangskraft (Fn) durch die von der Dichtung abgedichteten Fläche an der Kolbenstange oder Kolben dividiert werden.

FR Pour calculer la pression de chargement nécessaire pour obtenir une force (Fn) différente de la force nominale (Fo) il suffit de diviser la force requise (Fn) par la surface d'étanchéité (tige ou piston) du joint.

ES Para calcular la presión de carga necesaria a fin de obtener una fuerza (Fn) distinta de la nominal (Fo), se divide la fuerza pedida (Fn) por el área de estanqueidad, vástago o pistón, de la guarnición.

PT Para determinar a pressão de carga necessária para obter uma força (Fn) diferente da nominal (Fo), basta dividir a força necessária (Fn) pela área de estanquidade do embolo/pistão, da guarnição.

Max Speed

EN Do not exceed the maximum rod speed indicated. Exceeding speeds can reduce the cylinder's life.

DE Die angegebene max. Geschwindigkeit der Kolbenstange darf nicht überschritten werden. Höhere Geschwindigkeiten können die Lebensdauer der Gasdruckfedern reduzieren.

FR Ne pas excéder la vitesse maximale de la tige indiquée pour chaque modèle. Vitesses supérieures a peuvent réduire la durée des vérins.

ES No exceder la velocidad máxima del vástago indicada para cada modelo. Velodicades mas altas pueden reducir la duracion del cilindro.

PT Não exceda a velocidade máxima da haste indicada para cada modelo. Velocidades mais elevadas podem reduzir a vida útil do cilindro.

SPM ⇓ Strokes per Minute

EN The maximum frequency range of use recommended to 100 % Cu is indicated for evey model. The lower value is referred to the longer stroke, the higher value refers to the shorter stroke. Higher frequencies can reduce the cylinder duration.

DE Für jeden Typ ist eine empfohlene max. Hubzahl (SPM) unter Berücksichtigung des max. Hubes (Cu) angegeben. Der kleine Wert bezieht sich auf den größten auswählbaren Hub, während der größere Wert sich auf den kleinsten auswählbaren Hub bezieht. Höhere Hubzahlen reduzieren die Lebensdauer der Gasdruckfedern.

FR Pour chaque modèle, on indique le champ de fréquence maximale d'usage recommandé au 100% de Cu. La valeur inferieure se réfère a la course plus longue, tandis quel la valeur inférieure à la course plus courte. Fréquences supérieures peuvent réduire la durées des vérins.

ES Para cada modelo, se indica el rango frecuencia máxima de de uso recomendada al 100%. El valor inferior indicado es válido para carrera mas lunga, mientras que el valor superior se refiere a carrera mas corta.. frecuencias más altas pueden reducir la duración de los cilindros.

PT Para cada modelo se indica o intervalo de frequência máxima do uso recomendada al 100% Cu. O valor mais baixo é relatado para o curso mais longo, o mais elevado para o curso mais corto. frequências mais elevadas podem reduzir a duração dos cilindros.

LIFE WARRANTY

EN If correctly installed and under normal working conditions, MISUMI nitrogen cylinders can guarantee a life of ***200.000 linear meters*** of stroke. Heavy working conditions or external causes that would cause malfunctioning may reduce the life significantly. The warranty is valid for the indicated life within ***1 year*** from the purchase date. Warranty will not be applied to mechanical damages or damages caused by negligence, misuse and noncompliance with the warning and indications contained in the instruction sheet.

DE Bei korrektem Einbau und unter normalen Betriebsbedingungen, ist für die MISUMI Gasdruckfedern eine Lebensdauer von 200.000 m Gesamthub gewährleistet. Kritische Betriebsbedingungen oder äußere Einflüsse, die zu Störungen führen, können die Lebensdauer wesentlich verringern. Die Garantie gilt für die angegebene Dauer innerhalb von einem Jahr ab Kaufdatum. Die Garantie erlischt mit sofortiger Wirkung bei von den Vorschriften und Richtlinien, die zusammen mit den Produkten geliefert werden,abweichendem Einsatz bzw. mechanischer Beschädigung.

FR Si correctement installées et avec des normales conditions d'usage, les ressorts à l'azote MISUMI sont garantis pour une durée de ***200.000 mètres linéaires*** des course. Des conditions de travail critiques ou d'autres cause externes qui provoquent des mal fonctionnements pourraient réduire, même significativement, la durée. La garantie est valable pour la durée indiquée entre ***1 an*** de la date d'achat. Des utilisations différentes des prescriptions des lignes-guide spécifiées et fournies avec les produits, ou encore des endommagements mécaniques causeront l'immédiate décadence de la garantie.

ES Con una instalación correcta y en condiciones normales de trabajo, los cilindros resorte de nitrógeno de MISUMI están garantizados para una duración de ***200.000 metros lineales*** de carrera. Condiciones de trabajo críticas o causas externas che provoquen funcionamientos incorrectos pueden reducir, incluso de manera significativa, la vida útil. La garantía es válida para la duración indicada, máximo ***1 año*** desde fecha de compra. Usos diferentes a los prescritos y a las líneas guía especificadas y suministradas con el producto o daños mecánicos serán causa inmediata decadencia de la garantía.

PT Se correctamente instalados e em condições normais de trabalho, os cilindros de nitrogênio MISUMI podem garantir uma duração de ***200.000 metros lineares*** de curso.Condições criticas ou causas externas que possam causar mau funcionamento de trabalho pode reduzir a duração de uma forma significativa.A garantia é válida durante o período indicado dentro de ***1 ano*** até a data de compra.Ou qualquer uso diferente respeito das prescrições e orientações fornecidas e especificada com os produtos, ou danos mecânicos causaria a decadência garantia imediata.

F_{1i} isothermal end force

EN For all models, both the isothermal and polytropic end force are indicated in the catalog.

The isothermal end force with 100% Cu, is a value calculated on static conditions and can be considered sufficient for a normal use of cylinders.

The Polytropic end force, with 100% Cu, is a more realistic value when the cylinder is working. Though, being the temperature of the gas inside the cylinder not constant, and depending from several factors, the Polytropic end force should be calculated case by case. The influencing factors are, for example: nominal stroke, working stroke, press speed, number of cycles per minutes, gas volume, working and environment temperature etc.

MISUMI, for user information, indicates the approximated values of polytropic force calculated at thermal regime, 100% Cu, ca 30 SPM costant press speed and room temperaturet at around 20°C. For further details please contact MISUMI.

DE In unserem Katalog ist für alle Gasdruckfedern sowohl die isotherme als auch die polytrope Endkraft angegeben.

Die isotherme Endkraft bei 100 % Cu ist ein Wert, der unter beinahe statischen Bedingungen ermittelt worden ist und der unter normalen Einsatzbedingungen der Gasdruckfeder als ausreichend genau betrachtet werden kann.

Die polytrope Endkraft bei 100 % Cu ist ein realistischer Wert wenn die Gasdruckfeder in Betrieb ist. Da jedoch die Temperatur des Stickstoffs im Inneren der Gasdruckfeder nicht konstant ist und abhängig ist vom Nominalhub, vom Arbeitshub, der Pressengeschwindigkeit, der Anzahl Zyklen pro Minute, dem Volumen des Stickstoffgases, der Raum- und Arbeitstemperatur, etc. müsste die polytrope Endkraft für jede Anwendung berechnet werden.

MISUMI, gibt jedoch zur Information auch den annähernde Wert der polytropen Kraft an, der bei stabiler Betriebstemperatur, 100 % Cu, ca. 30 Hübe pro Minute, konstanter Pressengeschwindigkeit und ca. 20°C Raumtemperatur ermittelt worden ist. Für weitere Informationen wenden Sie sich bitte direkt an MISUMI.

F_{1p} Polytropic end force

FR Pour tous les modèles, on indique sur le catalogue, soit la force finale isothermique, que celle polytrophique.

La force finale isothermique, avec 100% de Cu, est une valeur calculée en conditions statiques et peut être considérée suffisante en l'usage normal des cylindres.

La force finale polytrophique, avec 100% de Cu, est une valeur plus réaliste lorsque le cylindre est en travail. Toutefois, étant donné que la température du gaz à l'intérieur du cylindre n'est pas constante et dépend de différents facteurs, tels que: course nominale, course de travail, vitesse de la presse, nombre de cycles par minute, volume du gaz, température de travail et de l'environnement etc., la force polytrophique finale doit être calculé au cas par cas.

MISUMI, cependant, à des buts d'information, indique aussi les valeurs approximés de la force polytrophique calculés au régime thermique, 100% Cu, environ. 30 SPM, presse à vitesse constante et température ambiante 20 °C. Pour tous renseignements complémentaires, contactez MISUMI.

ES Para todos los modelos, se indica en el catálogo, tanto la fuerza final isotérmica, como la politrópica.

La fuerza final isotérmica con 100% de Cu, es un valor calculado en condiciones estáticas y puede considerarse suficiente en el uso normal de los cilindros.

La fuerza politrópica finale con 100% de Cu, es un valor más realista cuando el cilindro está en trabajo. Dado que, sin embargo, la temperatura del gas dentro del cilindro no es constante y depende de varios factores, tales como: carrera nominal, la carrera de trabajo, la velocidad de la prensa, el número de ciclos por minuto, el volumen del gas, la temperatura del medio ambiente y trabajo, etc., la fuerza politrópica final debe calcularse caso por caso.

MISUMI, sin embargo, a titulo informativo, indica los valores aproximados de fuerza politrópica calculados a régimen térmico, 100% Cu, ca. 30 SPM, velocidad constante de prensas y temperatura ambiente a 20 °C. Para más informaciónes póngase en contacto con MISUMI.

PT Para todos os modelos, é indicada no catálogo tanto a força final isotérmica, que a politrópica.

A força final isotérmica com 100% de Cu, é um valor calculado em condições estáticas e pode ser considerada suficiente, em utilização normal dos cilindros..

A força politrópica finale com 100% de Cu, é um valor mais realista quando o cilindro estiver em trabalho. Uma vez que, no entanto, a temperatura do gás no interior do cilindro não é constante e depende de vários factores, tais como: curso nominal, o curso de trabalho, a velocidade de impressão, o número de ciclos por minuto, o volume do gás, a temperatura do ambiente e trabalhar etc., o a força politrópica final deve ser calculado caso a caso.

MISUMI, no entanto, para fins de informação, indica os valores aproximados da força politrópica calculados a regime térmico 100% Cu, ca. 30 SPM, velocidade constante de prensas e temperatura ambiente a. 20 °C. Para mais informações contacte MISUMI.

EN If pressure losses occur after extended use or particularly heavy applications, this indicates that the sealing gaskets are worn or damaged. Using special tools and kits, and with the support of videos and detailed instructions, it is possible to restore the original seal and guide conditions. Maintenance must only be conducted by qualified personnel. Errors would cause serious injury or reduce the working life of the cylinders. Before carrying out any work on the system, fully exhaust all pressure and ensure that the rod is fully retracted into the body.

DE Wird nach langer Betriebstätigkeit oder besonders beanspruchender Verwendung ein Druckverlust festgestellt, bedeutet dies, dass die Dichtungen allmählich abgenutzt sind oder beschädigt wurden. Es ist mit Hilfe von zweckmäßigem Werkzeug oder Sets sowie spezifischen Videos und detaillierten Anweisungen möglich, die Ausgangsbedingungen von Dichtung und Führung wiederherzustellen. Die Wartung sollte nur von qualifiziertem Personal vorgenommen werden. Etwaige Fehler können schwerwiegende Sicherheitsrisiken hervorrufen oder die Lebensdauer der Zylinder einschränken. Entladen Sie den Druck und stellen Sie sicher, dass der Schaft komplett in den Körper eingeführt ist, bevor Sie Eingriffe vornehmen.

FR Si des pertes de pression se produisent après un long fonctionnement ou avec des applications particulièrement lourdes, cela signifie que les joints de rétenue ont commencé à s'usurer ou qu'ils sont endommagés. L'utilisation d'outils et de kits appropriés, ainsi que le support de vidéos spécifiques et d'instructions détaillées permettront de rétablir les conditions d'origine de rétenue et de guidage. La maintenance doit être effectuée uniquement par du personnel qualifié. Les éventuelles erreurs peuvent engendrer de graves risques pour la sécurité ou limiter la durée de vie des cylindres. Avant d'effectuer toute opération, décharger complètement la pression et s'assurer que la tige soit complètement comprimée dans le corps.

ES Si, después de mucho tiempo funcionando, o en caso de aplicaciones muy pesadas, se produjesen pérdidas de presión, significa que las guarniciones han comenzado a desgastarse o han sufrido algún desperfecto. En esos casos es perfectamente posible restablecer las condiciones originales de la guarnición o la guía mediante kits de herramientas especiales y vídeos de instrucciones específicas. El mantenimiento debe ser efectuado única y exclusivamente por personal cualificado. Cualquier error podría causar graves riesgos de seguridad o limitar la vida útil de los cilindros. Antes de cualquier reparación, descargar completamente la presión y asegurarse de que el vástago quede completamente

PT No caso em que, após um longo funcionamento ou por aplicações particularmente gravosas, se verifiquem perdas de pressão, isso significa que os vedantes começaram a desgastar-se ou foram danificadas. Portanto, com a utilização dos utensílios e dos conjuntos, com o apoio de vídeos específicos e de instruções detalhadas é possível restabelecer as condições originais de estanquidade e guidamento. A manutenção só deve ser executada por pessoal qualificado. Erros eventuais podem ser a causa de riscos graves para a segurança ou limitar a duração dos cilindros. Antes de executar qualquer intervenção, descarregar completamente a pressão e assegurar-se de que o embolo recolhido.

Download step-by-step guide instructions at: http://www.specialsprings.com

PED 2014/68/EU

CE

EN As prescribed by the guidelines of PED 2014/68/EU, the company taking care of the maintenance for cylinders laser marked CE by the producer (P x Vo =/> 50), must get them checked by a certified body. Otherwise, the maintenance can be carried out exclusively by MISUMI.

DE Wie in der Richtlinie PED 2014/68/EU vorgeschrieben übernimmt die Firma, die die Instandhaltung von Gasdruckfedern durchführt, die vom Hersteller mit CE-Kennzeichnung versehen worden sind (P x Vo =/> 50), die volle Verantwortung dafür, diese von einer zugelassenen Zertifizierungsanstalt nachprüfen zu lassen. Andernfalls können diese Instandhaltungsarbeiten ausschließlich von MISUMI durchgeführt werden.

FR Selon le mode prévu par les indicationes de la directive PED 2014/68/EU, l'entreprise qui s'occupe de l'entretien des cilindres marqués CE par le producteur (P x Vo =/> 50), assume la responsabilité de les faire réexaminer par un institut de certificatión qualifié. Autrement, les entretienes peuvent être effectuées exclusivement par MISUMI.

ES Como las indicaciones de la directiva PED 2014/68/EU estipulan, la empresa que provee al mantenimiento de los cilindros grabado CE por el productor (P x Vo =/> 50), se hace cargo de que una empresa certificada y capacitada les controle. De otra manera los mantenimientos pueden ser llevado exclusivamente por MISUMI.

PT De acordo com as directrizes PED 2014/68/EU a fabrica que fornece a manutenção dos cilindros com a marca CE do fabricante (P x Vo =/> 50) assume a responsabilidade de reexaminar os mesmos por uma entidade de certificação creditada. De outra forma tais manutenções poderão ser efectuadas exclusivamente pela MISUMI.

How to select callout

1. Compact High Load Type & Mold Die Type

(GSP, GSQ, GSN, MGSN, MGSL, MGSM, MMGS)

Code	Body Ø	Stroke
GSP	19	-25

2. Selective Charging Pressure Type

(GSNE, GSNG, GSU)

Code	Model	Stroke	Force color code
GSNE	16	-1.5	-RD

Identification of initial forces, please see "Force color code table".

Code	Model	Stroke	Force color code	P
GSNE	16	-1.5	-BK	-BAR100

For BK, please mention your requested initial force with -BAR after -BK.

3. Other Type

(GSHT, GSV, GSK, GSSC, GSML, GSSH, GST, GSKS, GSF, GSH, GSRS)

Standard Callout

Code	Model	Stroke	Alteration
GSV	170	-7	

Linkable with hoses, cylinder supplied without pressure and one-way valve

Code	Model	Stroke	Alteration
GSV	170	-7	-N

Alteration to allow user specified pressure

Code	Model	Stroke	Alteration
GSV	170	-7	-CP

Will supplied with additional seal and without pressure, for Easy Manifold systems.

Code	Model	Stroke	Alteration
GSV	170	-7	-E

Will supplied with additional seal and without pressure, for Easy Manifold systems (VW Standard).

Code	Model	Stroke	Alteration
GSV	750	-7	-EV

Will supplied with additional seal and without pressure, for Easy Manifold systems.

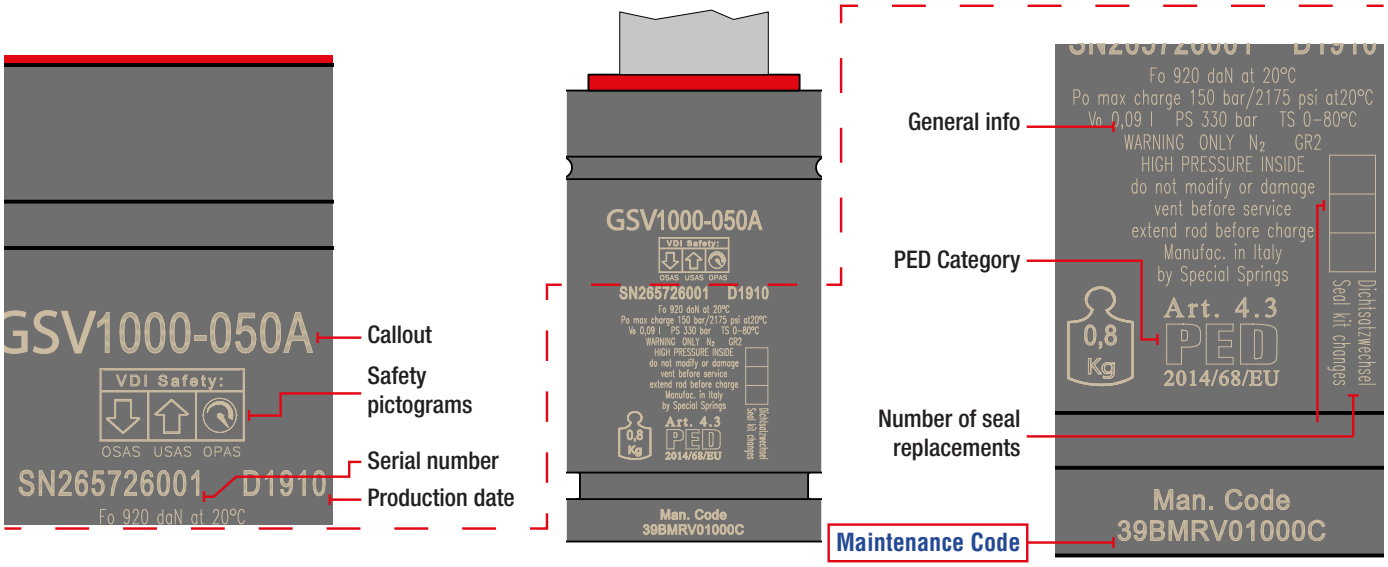
Code	Model	Stroke	Alteration
GSSC	750	-7	-ED

Include Secondary Wiper

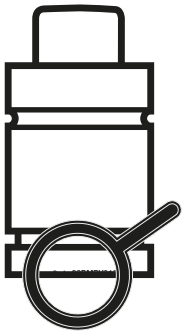
Code	Model	Stroke	Alteration
GSV	170	-7	-W

Please enter your required pressure in "BAR" on your purchase order in the following format using 4 digit numbers;
"BARxxxx" E.g BAR0050, BAR0100

All MISUMI nitrogen cylinders are permanently laser marked for easy and long lasting identification and traceability.

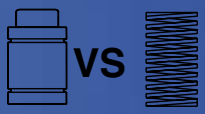


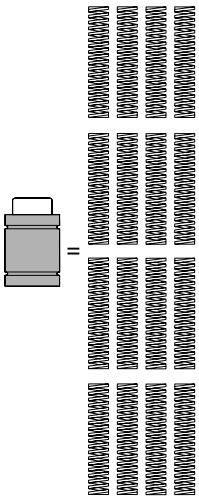
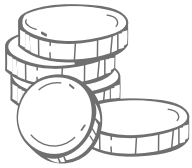
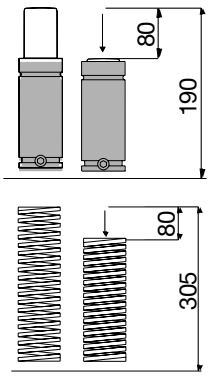
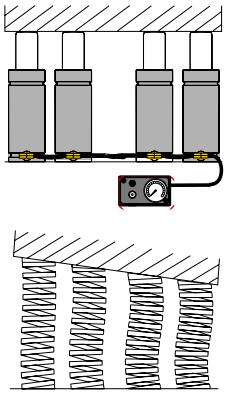
To order a maintenance kit, you are requested to communicate the **Man. Code**, generally marked on the bottom of the body, to your MISUMI supplier.

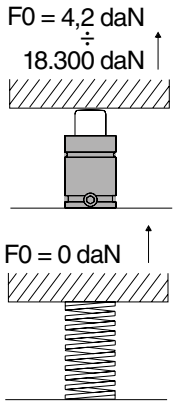
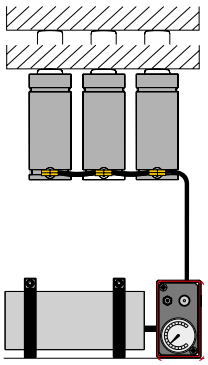
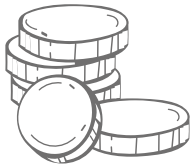
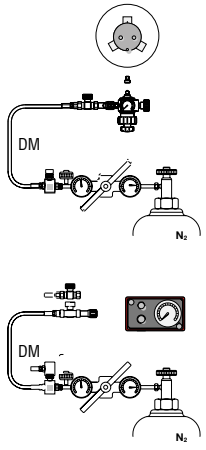


HOW TO ORDER

example: GSRK-39BMRV01000C



	BENEFITS	RESULT
Less Space 	Considerable reduction of the required surface, height and volume. No need for retaining and pre-load devices. Deutliche Reduzierung des Platzbedarfs. Vorrichtungen zum Vorspannen und Führen werden nicht benötigt Réduction importante de la surface, de la hauteur et du volume occupés. Élimination de dispositifs de pré-charge et guidage. Notable reducción de la superficie, de la altura y del volumen ocupados. Eliminación de dispositivos de precarga y guía. Redução notável da superfície, da altura e do volume ocupados. Eliminação de dispositivos de pré-carga e guidamento.	**Save Money** 
Lower Height 	Considerable height reduction for the same working deflection and force. Compact tool construction. Wesentliche Reduzierung des Höhenbedarfs bei gleichem Hub und gleicher Kraft. Kompaktere Werkzeugkonstruktion. Réduction importante des encombrements en hauteur avec une course et une force équivalente. Construction plus compacte du moule. Notable reducción de la altura con igual fuerza y carrera. Construcción más compacta del molde. Redução notável em altura com igual força e corsu. Costrução mais compacta da Ferramenta.	
Controlled Force 	The force is balanced and positioned where required. Pressure is always visible and quality of molded parts is constant. Longer life for tools. Die Kraft ist stets ausgeglichen und positionierbar an den erforderlichen Stellen. Ständige Anzeige des Betriebsdrucks und konstante Qualität der zu fertigenden Teile. Längere Lebensdauer der Werkzeuge. La force est équilibrée et positionnée là où elle est exigée. Visualisation continue de la pression et qualité constante des pièces moulées. Durée de vie majeure des outils. Fuerza equilibrada y posicionable donde se precisa. Visualización continua de la presión y calidad constante de las piezas moldeadas. Mayor duración de las herramientas. Força equilibrada e posicionáve onde é necessária. Visualização contínua da pressão e constante qualidade das peças estampadas. Maior duração das ferramentas.	

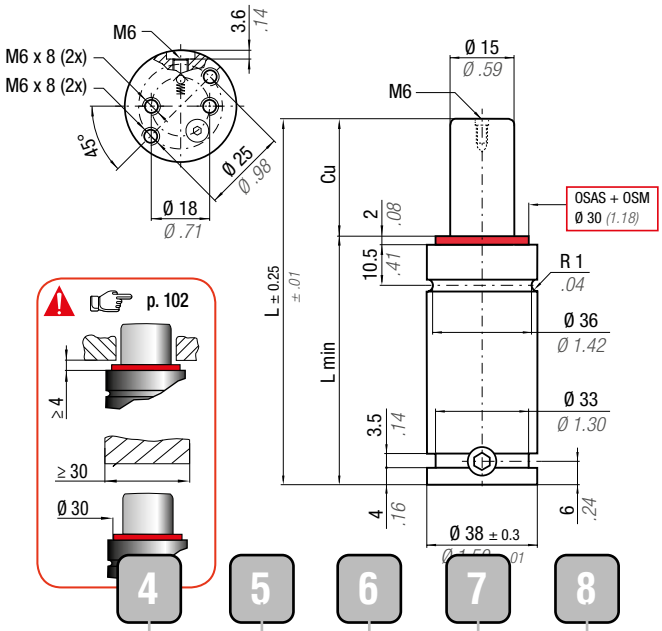
	BENEFITS	RESULT
Large initial Forces 	No pre-loading needed. Easier and quicker fitting. Einfacher Einbau, da externe Vorspannung nicht benötigt wird Elimination de la pré-charge et application plus facile. Eliminación de la precarga y mayor facilidad de aplicación. Eliminação da pré-carga e maior facilidade de aplicação.	
Almost Constant 	Better control and reduction of force increase. Better quality of molded parts and lower rejection rate in production. Bessere Kontrolle und Reduzierung der Krafterhöhung. Bessere Qualität der fertigen Werkstücke und weniger Ausschuss bei der Produktion. Meilleur contrôle et réduction de l'augmentation de la force. Une meilleure qualité des pièces moulées et une quantité inférieure de pièces rejetées en production. Mejor control y reducción del aumento de la fuerza. Mejor calidad de las piezas moldeadas y menos piezas rechazadas en producción. Melhor controlo e redução do incremento da força. Melhor qualidade das peças estampadas e menos peças rejeitadas na produção.	**Save Money** 
Adjustable Forces 	Adjustable forces and flexible use. Einstellbare Kräfte und flexibler Einsatz. Forces réglables et flexibilité d'utilisation. Fuerzas regulables y flexibilidad de utilización. Forças reguláveis e flexibilidade de utilização.	

1

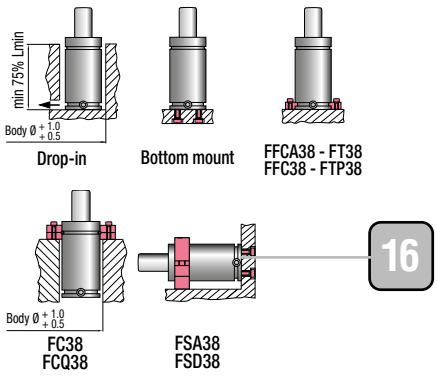
GSK 250

2

ISO 11901 - 1	VDI 3003	B2 4006 (BMW)	EM24.54.700 (Renault)
B8 3180 220 000 001(MB)	K 32 S (Nissan)	E24.54.815.G (PSA)	
SES-K 5404e (Suzuki)	39D 878 (VW)	075.90.55 (FCA)	



Fixings



16

OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

*** $F1_i$ =** Isothermal end force p. 17 at 100% Cu

**** $F1_p$ =** Polytrophic end force at 100% Cu

4 5 6 7 8 9

3

N2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	150 bar 2175 psi	20 bar 290 psi	1.77 cm² 0.274 in²	~ 80 - 100 (at 20°C)	1.8 m/s	GSRK-39BMSC00250E

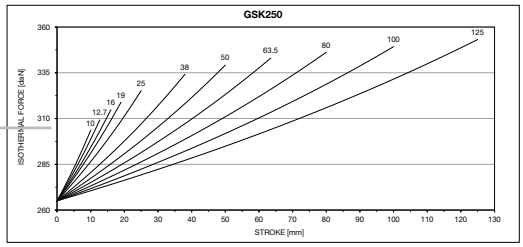
10

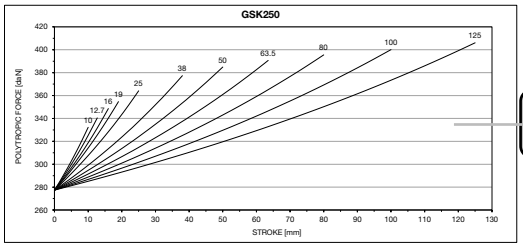
CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	F0 Initial force daN	F0 lb	$F1_i$ * End force daN	$F1_i$ lb	$F1_p$ ** End force daN	$F1_p$ lb	V0 cm³	V0 in³	~Kg	~lb	PED 2014/68/EU
GSK250-10	10	0.39	70	2.76	60	2.36	11		12		13		14		0.40	0.88	✓
GSK250-12.7	12.7	0.50	75.4	2.97	62.7	2.47									0.41	0.90	✓
GSK250-16	16	0.63	82	3.23	66	2.60									0.43	0.95	✓
GSK250-19	19	0.75	88	3.46	69	2.72	260 ± 5%	585	319	717	354	797	23.0	1.40	0.45	0.99	✓
GSK250-25	25	0.98	100	3.94	75	2.95			325	731	364	818	28.0	1.71	0.48	1.06	✓
GSK250-38	38	1.50	126	4.96	88	3.46	150 bar 2175 psi		334	751	377	848	38.0	2.32	0.54	1.19	✓
GSK250-50	50	1.97	150	5.91	100	3.94			339	762	385	865	47.0	2.87	0.60	1.32	✓
GSK250-63.5	63.5	2.50	177	6.97	113.5	4.47	+ 20 °C +68 °F		343	771	391	878	58.0	3.54	0.66	1.46	✓
GSK250-80	80	3.15	210	8.27	130	5.12			346	778	395	889	70.0	4.27	0.74	1.63	✓
GSK250-100	100	3.94	250	9.84	150	5.91			349	784	399	898	85.0	5.19	0.81	1.79	✓
GSK250-125	125	4.92	300	11.81	175	6.89			351	789	403	906	105.0	6.41	0.98	2.16	✓

15

Order Callout Example:
GSK250-50
GSK250-50-N
GSK250-50-CP

17





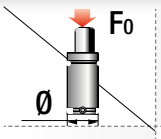
18

1 Gas spring model Gasdruckfeder Modell Modèle de Ressorts Gaz Modelo de cilindro de nitrógeno Modelo de cilindro de nitrogênio	**2** International / Automotive Standards (ISO, VDI, ecc.) Internationale / Automobil-Standards (ISO, VDI, ecc.) Standards internationaux / automobiles (ISO, VDI, ecc.) Estándares internacionales / automóvil (ISO, VDI, ecc.) Padrões internacionais / automóvel (ISO, VDI, ecc.)
3 Pressure medium Druckgas Gaz de chargement Gas de carga Gás de carga	**4** Working temperature Betriebstemperatur Température de fonctionnement Temperatura de funcionamiento Temperatura de funcionamento
5 $\Delta P / \Delta t$	**6** Max charging pressure Maximaler Ladedruck Pression de chargement maximum Presión máx de carga Pressão máxima de carga
7 Min charging pressure Minimaler Ladedruck Pression de chargement minimum Presión mín de carga Pressão mínima de carga	**8** Rod/piston seal area Dichtungsbereich Kolbenstange/Kolben Zone d'étanchéité tige/piston Área de estanqueidad vástago/pistón Área de estanquidade do embolo/pistão
9 Strokes / minute Hube / Minute Cycles / minute Cyclos / minuto Pancadas / minuto	**10** Code Bestell-Nummer Référence Código Codigo
11 Initial force at 20°C Ausgangsleistung bei 20°C Force initiale a 20°C Fuerza inicial à 20°C Força inicial a 20°C	**12** Isothermal end force Isothermische Endfestigkeit Force finale isothermique fuerza finale isotérmica força final isotérmica
13 Polytropic end force polytropische Endfestigkeit force finale politrophique fuerza finale politrópica força finale politrópica	**14** Initial gas volume Ausgangswert Gasvolumen Volumen inicial de gas Volume de gaz initial Volume de gás inicial
15 PED classification PED Einstufung Classification PED Clasificación PED Classificação PED	**16** Fixings Befestigungen Fixé Bridas Fixação
17 Isothermal end force graph Isothermische Kraft Gráfico de fuerza final isotérmica Graphique de force de fin isothermique Gráfico isotérmico da força final	**18** Polytrophic end force graph Polytropische Kraft Gráfico de fuerza final politrófica Graphique de force d'extrémité polytrophique Gráfico de força final politrófica

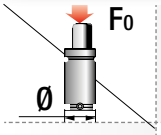
⚠ Tutte le dimensioni senza tolleranza si intendono nominali.
All dimensions are nominal unless tolerance is stated.
Alle Massgangen ohne Toleranzen sind Nennmasse.

Sauf specifications de tolerances, totes le dimensions sont des valeurs nominales.
Todas las dimensiones son nominales excepto cuando se indica la tolerancia.
Todas as medidas são nominalis excepto quando la tolerancia é mencionada.

Selection tab



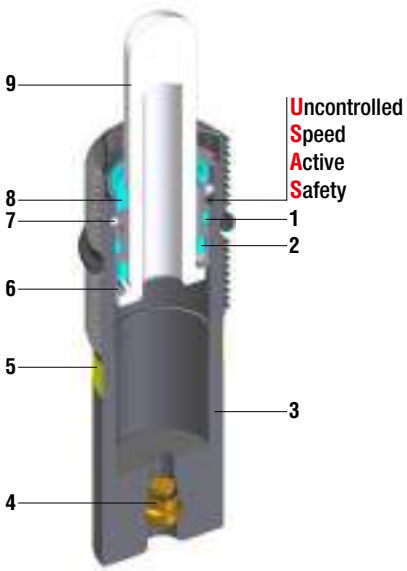
Ø	40 50	70 100	150 200	250 320	360 495	500 680	740 775	900 1000	1060 1410	1500 2000
M12 x 1.25	GSU50 MGSM12									
15		GSU70								
16		MGSN16								
M 16 x 1.5	GSNG16 x 1.5 GSNE16 x 1.5	MGSM16								
M 16 x 2	GSNE16 x 2									
19		GSU90 MGSL19	GSP19 GSV170 MGSN19							
M 24 x 1.5			GSNG24 x 1.5 GSNE24 X 1.5							
25			GSU200 MGSL25	GSP25 GSML300 GSV320	GSSC400 MGSN25					
32			GSK150	GSU300 GSSH300	GSV350 GSRS350 GST350 GSN32	GSML500 GSP32 GSQ700 MGSN32	GSSC750			
38			MMGSA-38	GSK250 MMGSB-38	GSSH500 GSV500 GSRS500 GST500 HT500 T1 HT500 T2		GSN38	GSML1000 GSP38	GSSC1000	
M 38 x 1.5				GSKF250	GSSHF500					
45					GSKS500 GSK500 MMGSA-45	MMGSB-45	GSSH700 GSV750 GSRS750 GSF750 GST750 GSH750 HT700 T1 HT700 T1			
50						MMGSA-50 MMGSB-50	GSK750 GSKS750	GSSH1000 GSV1000 GSRS1000 GSF1000 GST1000 GSH1000 HT1000 T1 HT1000 T1	GSV1200 GSRS1200 GSF1200 GST1200	GSSC1800 GSML1800 GSP50 GSN50
63										GSV1500 GSRS1500 GSF1500 GST1500 GSH1500 GSSH1500 GSN63
75										GSKS1500 GSK1500



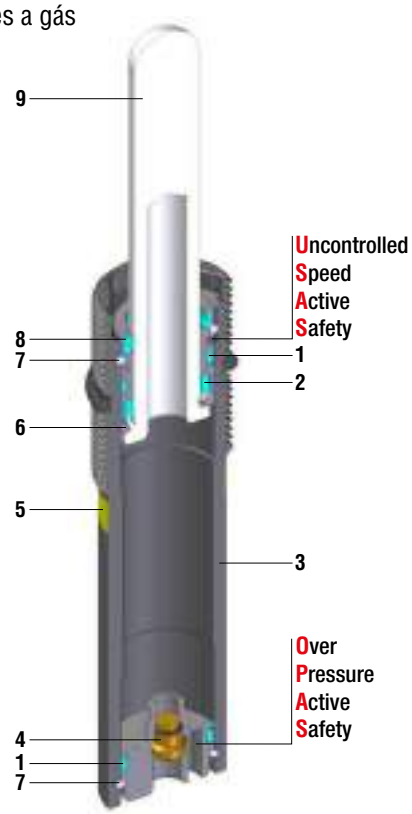
Ø \ F0	2035 2385	2830 3000	3180	4240	4418 4980	6630	7540 7700	9540	10600 12720	18400 19910
63		GSSC3000 GSP63	GSML3000							
75	GSSH2400 GSV2400 GSRS2400 GSF2400 GST2400 GSH2400				GSSC4700 GSML4700					
95		GSKS3000 GSK3000		GSSH4200 GSV4200 GSRS4200 GST4200 GSH4200			GSSC7500 GSML7500			
120					GSK5000	GSSH6600 GSV6600 GSRS6600 GST6600 GSH6600			GSSC12000 GSML12000	
150							GSK7500	GSSH9500 GSV9500 GSRS9500 GST9500	GSV12000	GSSC18500
195									GSK10000	GSV20000 GSSH18500

GSNE :	VDI	BMW	Ford
	VW		
GSNG :	VDI	GM	FCA

Gas ejectors - Federnde Druckstücke
Èjecteurs de gaz - Eyectores de gas - Ejectores a gás



Cu 10 ÷ 50



Cu 60 ÷ 125

1	Dual ring seal
2	Rod seal
3	Body
4	Valve
5	Force color code
6	Bush
7	Retaining ring
8	Rod wiper
9	Rod (nitrited superfinished)

SEALING	ROD SEAL
DESIGN	BUSH - BODY DESIGN

Available versions

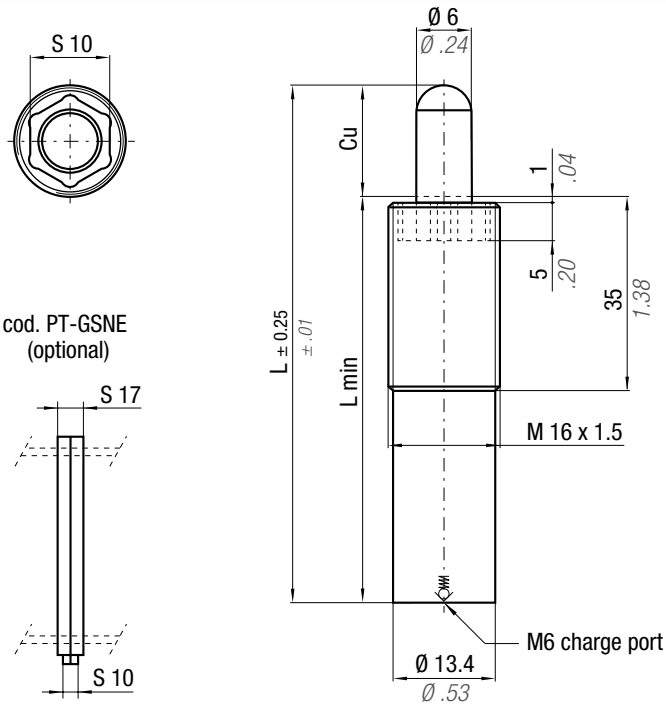
Standard code

Self contained

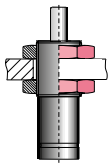
Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO
	mm	*inch*	mm	*inch*	daN	*lb*				
GSNE16-1.5	M 16 x 1.5	*M 16 x 1.5*	10 - 125	*0.39 - 4.92*	3 - 42	*7 - 95*	-	✓	-	-
GSNE16-2	M 16 x 2	*M 16 x 2*	10 - 125	*0.39 - 4.92*	3 - 42	*7 - 95*	-	✓	-	-
GSNG16-1.5	M 16 x 1.5	*M 16 x 1.5*	10 - 100	*0.39 - 3.94*	3 - 42	*7 - 95*	-	✓	-	-
GSNE24-1.5	M 24 x 1.5	*M 24 x 1.5*	10 - 50	*0.39 - 1.97*	11 - 170	*25 - 382*	-	✓	-	-
GSNE24-1.5	M 24 x 1.5	*M 24 x 1.5*	60 - 125	*2.36 - 4.92*	11 - 170	*25 - 382*	-	✓	✓	-
GSNG24-1.5	M 24 x 1.5	*M 24 x 1.5*	10 - 50	*0.39 - 1.97*	11 - 170	*25 - 382*	-	✓	-	-
GSNG24-1.5	M 24 x 1.5	*M 24 x 1.5*	60 - 100	*2.36 - 3.94*	11 - 170	*25 - 382*	-	✓	✓	-

VDI 3004	W-DX35-60M (Ford)	39D 549 (VW)

GSNE 16 x 1.5



Fixings



DM 16

*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

**** $F1_p$ =** Polytrophic end force at 100% Cu

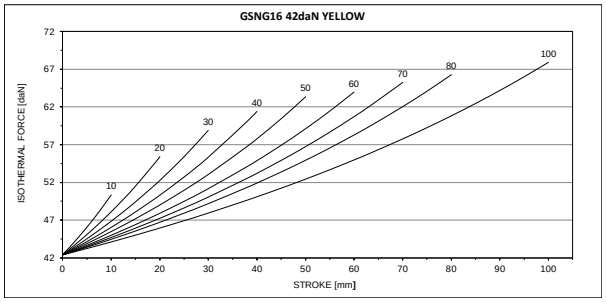
N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	10 bar *145 psi*	0.28 cm² *0.043 in²*	~ 50 - 100 (at 20°C)	1.8 m/s	Disposable

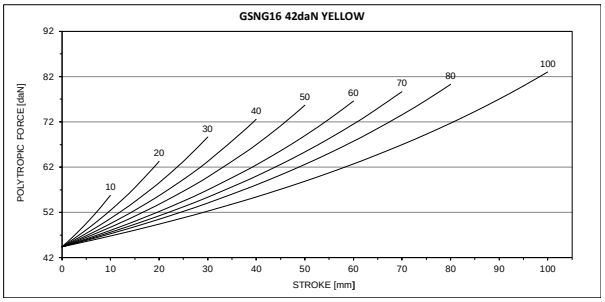
CALLOUT	Cu		L		L min				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	~Kg	*~lb*	
GSNE16-1.5-10-...	10	*0.39*	65	*2.56*	55	*2.17*	0.05	*0.11*	✓
GSNE16-1.5-20-...	20	*0.79*	85	*3.35*	65	*2.56*	0.06	*0.13*	✓
GSNE16-1.5-30-...	30	*1.18*	105	*4.13*	75	*2.95*	0.07	*0.15*	✓
GSNE16-1.5-40-...	40	*1.57*	125	*4.92*	85	*3.35*	0.07	*0.15*	✓
GSNE16-1.5-50-...	50	*1.97*	145	*5.71*	95	*3.74*	0.08	*0.18*	✓
GSNE16-1.5-60-...	60	*2.36*	165	*6.50*	105	*4.13*	0.08	*0.18*	✓
GSNE16-1.5-70-...	70	*2.76*	185	*7.28*	115	*4.53*	0.09	*0.20*	✓
GSNE16-1.5-80-...	80	*3.15*	205	*8.07*	125	*4.92*	0.10	*0.22*	✓
GSNE16-1.5-100-...	100	*3.94*	245	*9.65*	145	*5.71*	0.11	*0.24*	✓
GSNE16-1.5-125-...	125	*4.92*	295	*11.61*	170	*6.69*	0.12	*0.26*	✓

Force color code	P		F0 Initial force ± 5% +20°C *+68°F*		$F1_i$ End force*	$F1_p$ End force**
	bar	*psi*	daN	*lb*		
PR	12	*174*	4	*9*	1.56 x F0	2.03 x F0
GR	20	*290*	6	*14*	1.56 x F0	2.03 x F0
BU	40	*580*	11	*25*	1.56 x F0	2.03 x F0
RD	75	*1088*	21	*47*	1.56 x F0	2.03 x F0
YW	150	*2175*	42	*95*	1.56 x F0	2.03 x F0
BK	10-150	*145-2175*	3-42	*7-95*	1.56 x F0	2.03 x F0

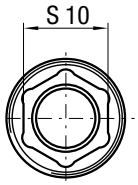
P = nominal charging pressure

Order Callout Example:
GSNE16-1.5-50-YW
GSNE16-1.5-50-BK-BAR50

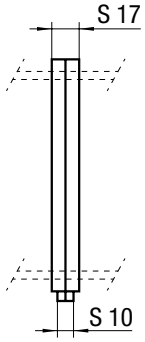


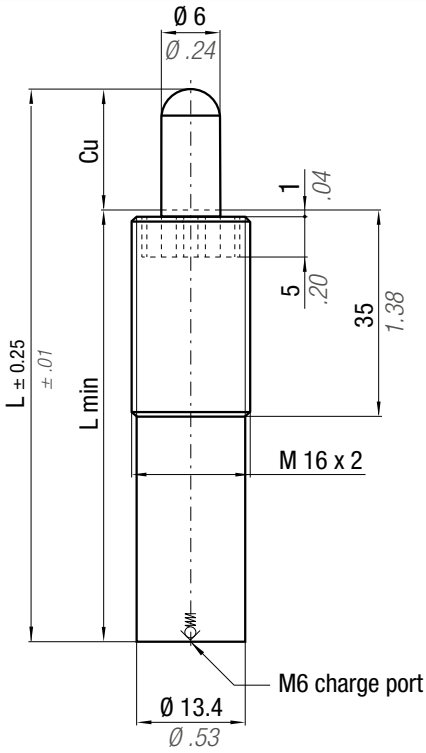


GSNG 16 x 2

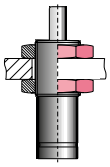


cod. PT-GSNE
(optional)





Fixings



39DM16-2A

*** $F1_i$ =** Isothermal end force at 100% Cu p. 16 **** $F1_p$ =** Polytrophic end force at 100% Cu

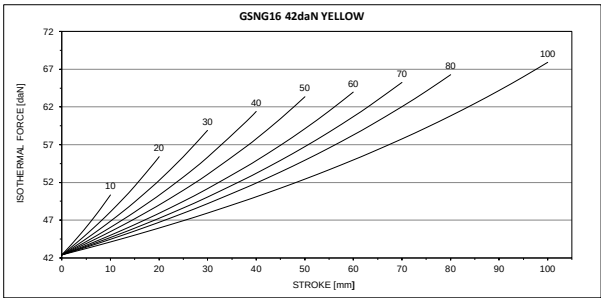
N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	10 bar *145 psi*	0.28 cm² *0.043 in²*	~ 50 - 100 (at 20°C)	1.8 m/s	Disposable

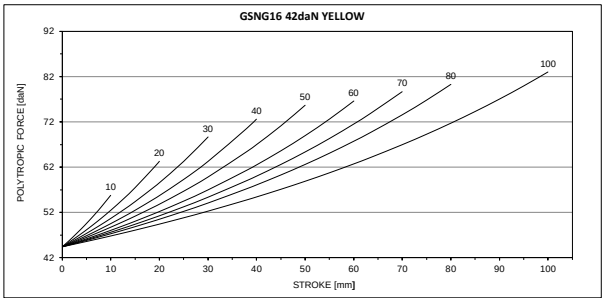
CALLOUT	Cu		L		L min				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	~Kg	*~lb*	
GSNE16-2-10-...	10	*0.39*	65	*2.56*	55	*2.17*	0.05	*0.11*	✓
GSNE16-2-20-...	20	*0.79*	85	*3.35*	65	*2.56*	0.06	*0.13*	✓
GSNE16-2-30-...	30	*1.18*	105	*4.13*	75	*2.95*	0.07	*0.15*	✓
GSNE16-2-40-...	40	*1.57*	125	*4.92*	85	*3.35*	0.07	*0.15*	✓
GSNE16-2-50-...	50	*1.97*	145	*5.71*	95	*3.74*	0.08	*0.18*	✓
GSNE16-2-60-...	60	*2.36*	165	*6.50*	105	*4.13*	0.08	*0.18*	✓
GSNE16-2-70-...	70	*2.76*	185	*7.28*	115	*4.53*	0.09	*0.20*	✓
GSNE16-2-80-...	80	*3.15*	205	*8.07*	125	*4.92*	0.10	*0.22*	✓
GSNE16-2-100-...	100	*3.94*	245	*9.65*	145	*5.71*	0.11	*0.24*	✓
GSNE16-2-125-...	125	*4.92*	295	*11.61*	170	*6.69*	0.12	*0.26*	✓

Force color code	P		F0 Initial force ± 5% +20°C *+68°F*		$F1_i$ End force*	$F1_p$ End force**
	bar	*psi*	daN	*lb*		
PR	12	*174*	4	*9*	1.56 x F0	2.03 x F0
GR	20	*290*	6	*14*	1.56 x F0	2.03 x F0
BU	40	*580*	11	*25*	1.56 x F0	2.03 x F0
RD	75	*1088*	21	*47*	1.56 x F0	2.03 x F0
YW	150	*2175*	42	*95*	1.56 x F0	2.03 x F0
BK	10-150	*145-2175*	3-42	*7-95*	1.56 x F0	2.03 x F0

P = nominal charging pressure

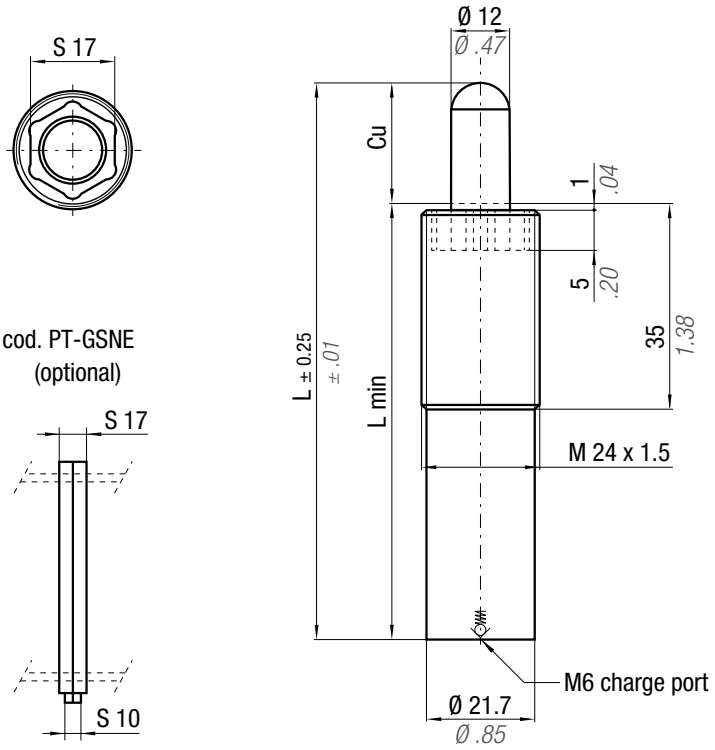
Order Callout Example:
GSNE16-2-50-YW
GSNE16-2-50-BK-BAR50



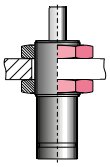


VDI 3004	W-DX35-60M (Ford)	39D 549 (VW)

GSNE 24 x 1.5



Fixings



DM24

*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

**** $F1_p$ =** Polytrophic end force at 100% Cu

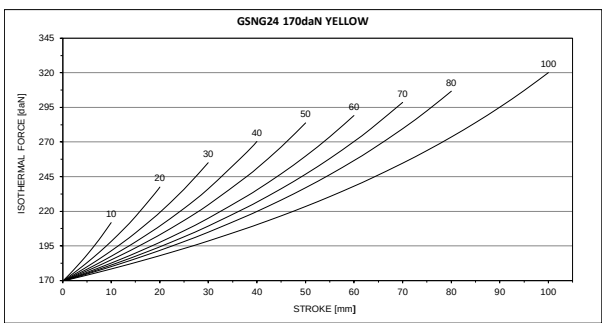
N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	10 bar *145 psi*	1.13 cm² *0.175 in²*	~ 50 - 100 (at 20°C)	1.8 m/s	Disposable

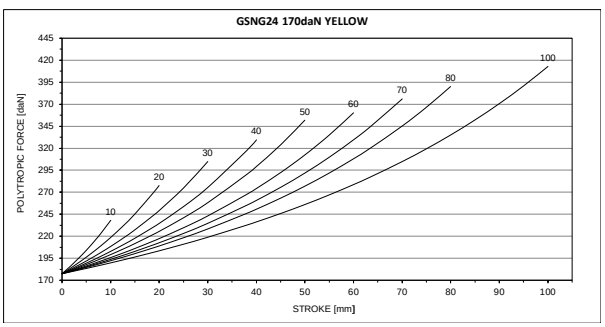
CALLOUT	Cu		L		L min				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	~Kg	*~lb*	
GSNE24-1.5-10-...	10	*0.39*	65	*2.56*	55	*2.17*	0.16	*0.35*	✓
GSNE24-1.5-20-...	20	*0.79*	85	*3.35*	65	*2.56*	0.18	*0.40*	✓
GSNE24-1.5-30-...	30	*1.18*	105	*4.13*	75	*2.95*	0.20	*0.44*	✓
GSNE24-1.5-40-...	40	*1.57*	125	*4.92*	85	*3.35*	0.23	*0.51*	✓
GSNE24-1.5-50-...	50	*1.97*	145	*5.71*	95	*3.74*	0.25	*0.55*	✓
GSNE24-1.5-60-...	60	*2.36*	165	*6.50*	105	*4.13*	0.27	*0.59*	✓
GSNE24-1.5-70-...	70	*2.76*	185	*7.28*	115	*4.53*	0.29	*0.64*	✓
GSNE24-1.5-80-...	80	*3.15*	205	*8.07*	125	*4.92*	0.30	*0.66*	✓
GSNE24-1.5-100-...	100	*3.94*	245	*9.65*	145	*5.71*	0.33	*0.73*	✓
GSNE24-1.5-125-...	125	*4.92*	295	*11.61*	170	*6.69*	0.35	*0.77*	✓

Force color code	P		F0 Initial force ± 5% +20°C *+68°F*		$F1_i$ End force*	$F1_p$ End force**
	bar	*psi*	daN	*lb*		
GR	20	*290*	23	*52*	1.85 x F0	2.53 x F0
BU	40	*580*	45	*101*	1.85 x F0	2.53 x F0
RD	75	*1088*	85	*191*	1.85 x F0	2.53 x F0
YW	150	*2175*	170	*382*	1.85 x F0	2.53 x F0
BK	10-150	*145-2175*	11-170	*25-382*	1.85 x F0	2.53 x F0

P = nominal charging pressure

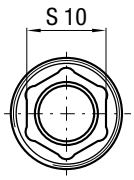
Order Callout Example:
GSNE24-1.5-50-YW
GSNE24-1.5-50-BK-BAR50



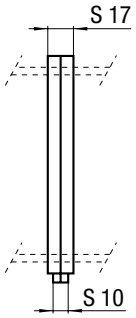


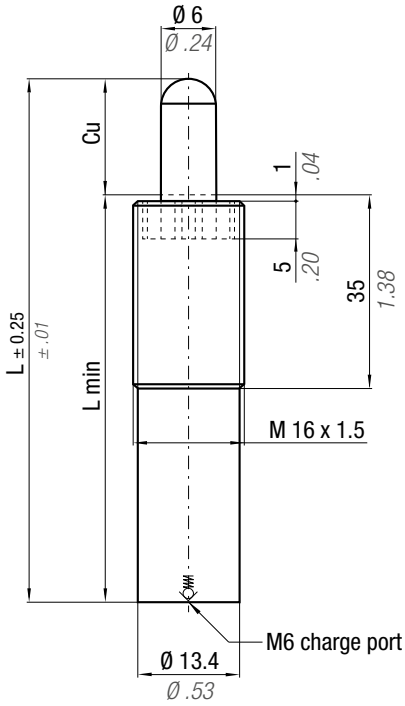
GSNG 16 x 1.5

VDI 3004	B2 4036 (BMW)	075.90.40 (FCA)
90.25.97 (GM)	90.25.28 (GM)	39D 549 (VW)
W-DX35-60M (Ford)		

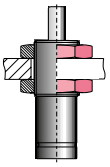


cod. PT-GSNE
(optional)





Fixings



DM16

*** $F1_i$ =**
Isothermal end force at 100% Cu p. 16

**** $F1_p$ =**
Polytrophic end force at 100% Cu

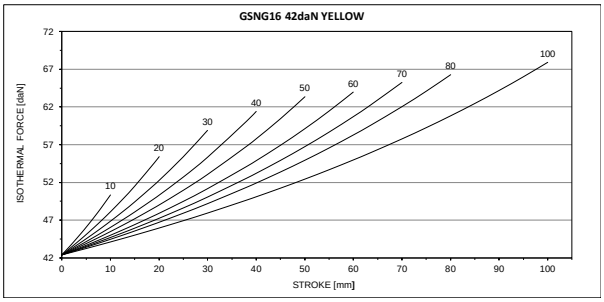
N_2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	150 bar *2175 psi*	10 bar *145 psi*	0.28 cm² *0.043 in²*	~ 50 - 100 (at 20°C)	1.8 m/s	Disposable

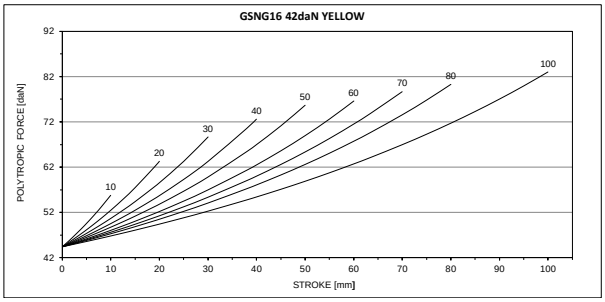
CALLOUT	Cu		L		L min				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	~Kg	*~lb*	
GSNG16-1.5-10-...	10	*0.39*	80	*3.15*	70	*2.76*	0.05	*0.11*	✓
GSNG16-1.5-20-...	20	*0.79*	100	*3.94*	80	*3.15*	0.06	*0.13*	✓
GSNG16-1.5-30-...	30	*1.18*	120	*4.72*	90	*3.54*	0.07	*0.15*	✓
GSNG16-1.5-40-...	40	*1.57*	140	*5.51*	100	*3.94*	0.07	*0.15*	✓
GSNG16-1.5-50-...	50	*1.97*	160	*6.30*	110	*4.33*	0.08	*0.18*	✓
GSNG16-1.5-60-...	60	*2.36*	180	*7.09*	120	*4.72*	0.08	*0.18*	✓
GSNG16-1.5-70-...	70	*2.76*	200	*7.87*	130	*5.12*	0.09	*0.20*	✓
GSNG16-1.5-80-...	80	*3.15*	220	*8.66*	140	*5.51*	0.10	*0.22*	✓
GSNG16-1.5-100-...	100	*3.94*	260	*10.24*	160	*6.30*	0.11	*0.24*	✓

Force color code	P		F0 Initial force ± 5%		$F1_i$	$F1_p$
	bar	*psi*	+20°C daN	*+68°F lb*	End force*	End force**
GR	20	*290*	6	*13*	1.39 x F0	1.67 x F0
BU	40	*580*	11	*25*	1.39 x F0	1.67 x F0
RD	75	*1088*	21	*47*	1.39 x F0	1.67 x F0
YW	150	*2175*	42	*94*	1.39 x F0	1.67 x F0
BK	10-150	*145-2175*	3-42	*7-95*	1.39 x F0	1.67 x F0

P = nominal charging pressure

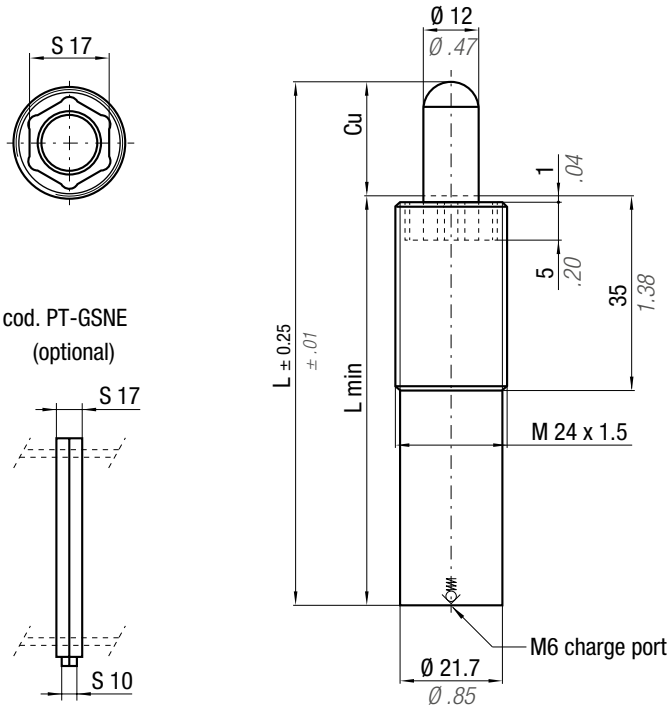
Order Callout Example:
GSNG16-1.5-50-YW
GSNG16-1.5-50-BK-BAR50



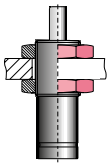


VDI 3004	075.90.40 (FCA)	W-DX35-60M (Ford)
90.25.96 (GM)	39D 549 (VW)	90.25.95 (GM)

GSNG 24 x 1.5



Fixings



DM24

*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

**** $F1_p$ =** Polytrophic end force at 100% Cu

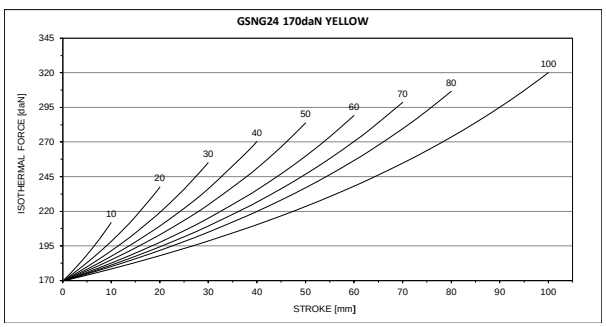
N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	10 bar *145 psi*	1.13 cm^2 *0.175 in^2*	~ 50 - 100 (at 20°C)	1.8 m/s	Disposable

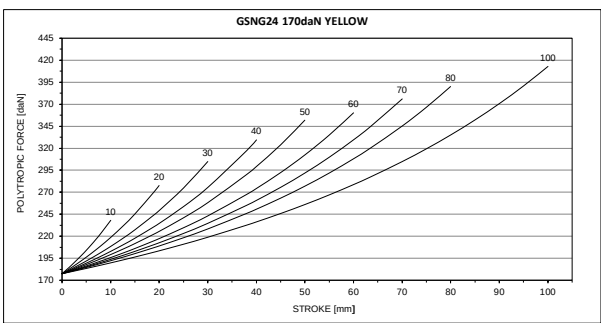
CALLOUT	Cu		L		L min				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	~Kg	*~lb*	
GSNG24-1.5-10-...	10	*0.39*	80	*3.15*	70	*2.76*	0.15	*0.33*	✓
GSNG24-1.5-20-...	20	*0.79*	100	*3.94*	80	*3.15*	0.17	*0.37*	✓
GSNG24-1.5-30-...	30	*1.18*	120	*4.72*	90	*3.54*	0.19	*0.42*	✓
GSNG24-1.5-40-...	40	*1.57*	140	*5.51*	100	*3.94*	0.22	*0.49*	✓
GSNG24-1.5-50-...	50	*1.97*	160	*6.30*	110	*4.33*	0.24	*0.53*	✓
GSNG24-1.5-60-...	60	*2.36*	180	*7.09*	120	*4.72*	0.26	*0.57*	✓
GSNG24-1.5-70-...	70	*2.76*	200	*7.87*	130	*5.12*	0.28	*0.62*	✓
GSNG24-1.5-80-...	80	*3.15*	220	*8.66*	140	*5.51*	0.29	*0.64*	✓
GSNG24-1.5-100-...	100	*3.94*	260	*10.24*	160	*6.30*	0.31	*0.68*	✓

Force color code	P		F0 Initial force ± 5% +20°C *+68°F*		$F1_i$ End force*	$F1_p$ End force**
	bar	*psi*	daN	*lb*		
GR	20	*290*	23	*52*	1.55 x F0	2.02 x F0
BU	40	*580*	45	*101*	1.55 x F0	2.02 x F0
BR	60	*870*	67	*151*	1.55 x F0	2.02 x F0
RD	75	*1088*	85	*191*	1.55 x F0	2.02 x F0
YW	150	*2175*	170	*382*	1.55 x F0	2.02 x F0
BK	10-150	*145-2175*	11-170	*25-382*	1.55 x F0	2.02 x F0

P = nominal charging pressure

Order Callout Example:
GSNG24-1.5-50-YW
GSNG24-1.5-50-BK-BAR50

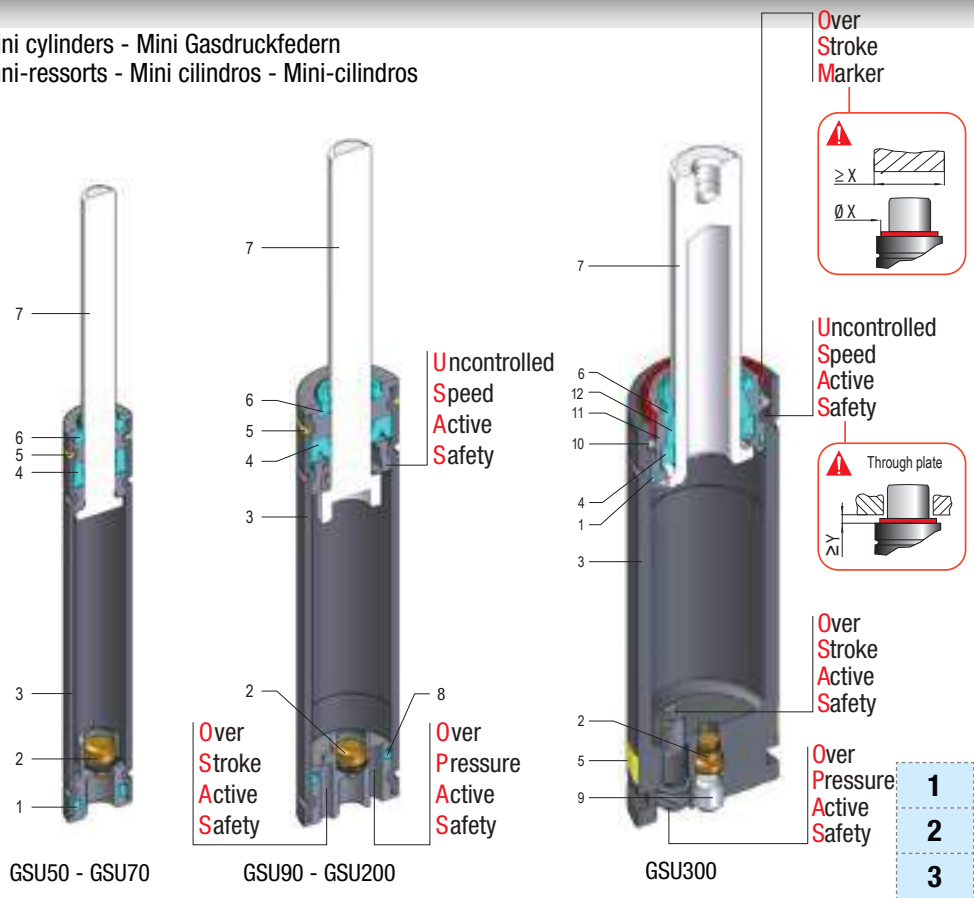




GSU series

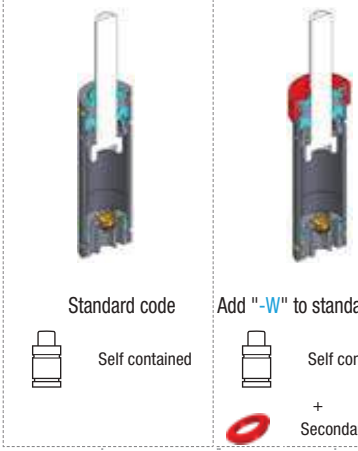
VDI	BMW	FCA
Ford	MB	PSA
VW		

Mini cylinders - Mini Gasdruckfedern
Mini-ressorts - Mini cilindros - Mini-cilindros



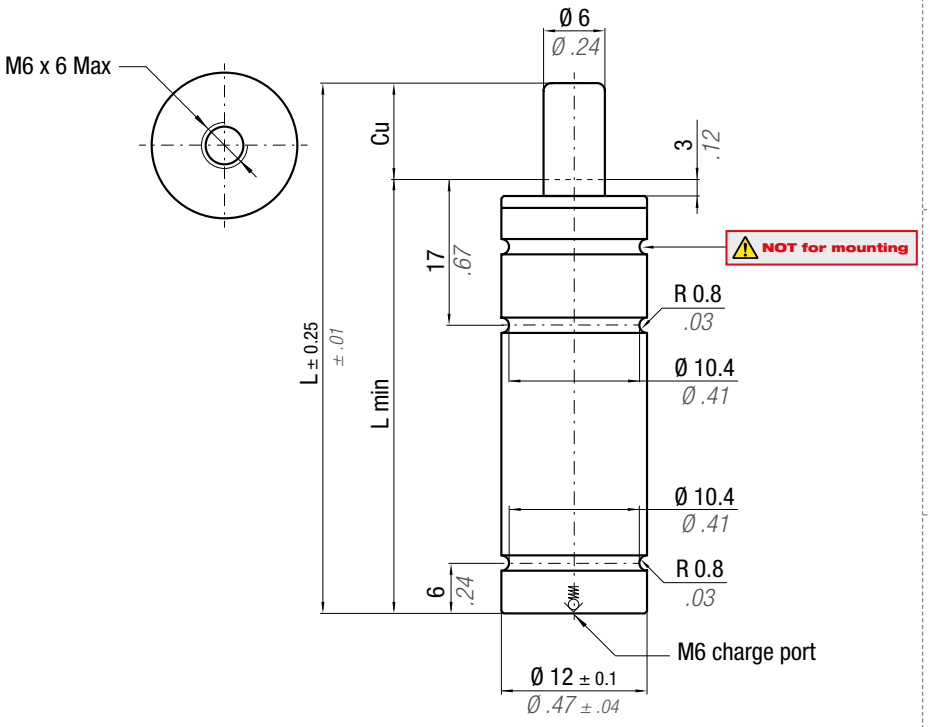
1	Dual ring seal
2	Valve
3	Body
4	Rod seal
5	Force color code
6	Rod wiper
7	Rod (Nitrited Superfinished)
8	O-ring
9	Stopper
10	Retaining ring
11	Bush
12	Guide ring

Available versions

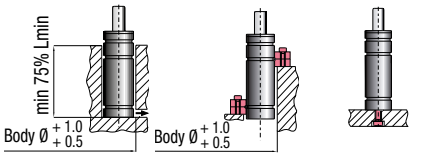


SEALING	ROD SEAL
DESIGN	RETAINING GROOVE DESIGN BUSH-BODY DESIGN (M300 only)

Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO	SW
	mm	inch	mm	inch	daN	lb					
GSU50	12	0.47	7 - 125	0.28 - 4.92	6 - 50	13 - 112	-	-	-	-	✓
GSU70	15	0.59	7 - 125	0.28 - 4.92	8 - 70	18 - 157	-	-	-	-	✓
GSU90	19	0.75	7 - 125	0.28 - 4.92	5 - 90	11 - 202	✓	✓	✓	-	✓
GSU90TBI	1" 8 THD	1" 8 THD	7 - 125	0.28 - 4.92	5 - 90	11 - 202	✓	✓	✓	-	-
GSU200	25	0.98	7 - 200	0.28 - 4.92	17 - 200	38 - 450	✓	✓	✓	-	✓
GSU300	32	1.26	7 - 125	0.28 - 4.92	80 - 320	180 - 719	✓	✓	✓	-	✓



Fixings



Drop-In | FCC12 | Bottom mount

Force color code	P bar	P psi	F0 Initial force ± 5% at +20°C +68°F daN	F0 lb
GR	45	653	13	29
BU	90	1305	25	56
RD	135	1958	38	85
YW	180	2610	50	112
BK	20-180	290-2610	6-50	13-112

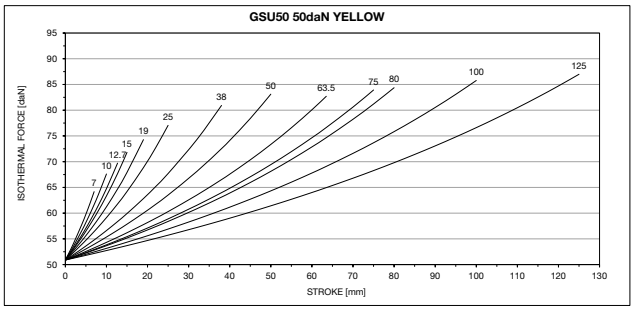
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

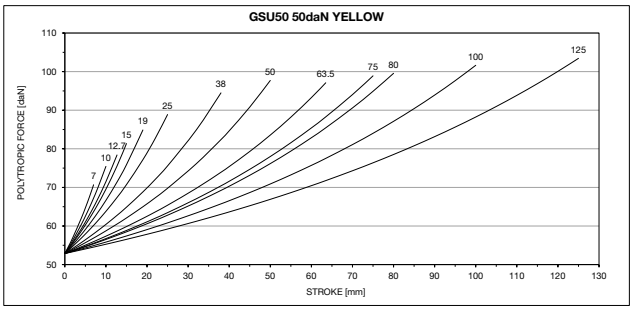
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	180 bar 2610 psi	20 bar 290 psi	0.28 cm² 0.043 in²	~ 100 - 150 (at 20°C)	1.8 m/s	Disposable

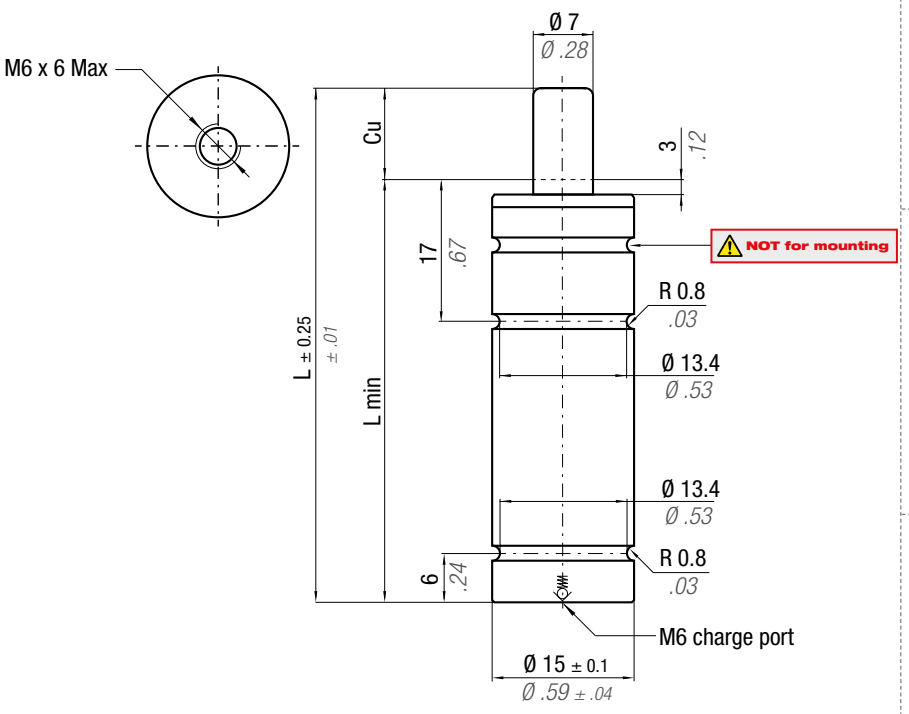
CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	$F1_i$ * End force daN	$F1_i$ * End force lb	$F1_p$ ** End force daN	$F1_p$ ** End force lb	Vo cm³	Vo in³	~Kg	~lb	PED 2014/68/EU
GSU50-7-...	7	0.28	56	2.20	49	1.93	1.34 x F0		1.56 x F0		-	-	0.03	0.07	✓
GSU50-10-...	10	0.39	62	2.441	52	2.05	1.41 x F0		1.67 x F0		-	-	0.03	0.07	✓
GSU50-12.7-...	12.7	0.50	67.4	2.65	54.7	2.15	1.44 x F0		1.72 x F0		-	-	0.03	0.07	✓
GSU50-15-...	15	0.59	72	2.83	57	2.24	1.48 x F0		1.79 x F0		-	-	0.03	0.07	✓
GSU50-19-...	19	0.75	80	3.15	61	2.40	1.52 x F0		1.85 x F0		-	-	0.03	0.07	✓
GSU50-25-...	25	0.98	92	3.62	67	2.64	1.56 x F0		1.92 x F0		-	-	0.03	0.07	✓
GSU50-38-...	38	1.50	118	4.65	80	3.15	1.61 x F0		2.01 x F0		-	-	0.04	0.09	✓
GSU50-50-...	50	1.97	142	5.59	92	3.62	1.63 x F0		2.05 x F0		-	-	0.05	0.11	✓
GSU50-63.5-...	63.5	2.50	172	6.77	108.5	4.27	1.61 x F0		2.01 x F0		-	-	0.06	0.13	✓
GSU50-75-...	75	2.95	195	7.68	120	4.72	1.63 x F0		2.04 x F0		-	-	0.06	0.13	✓
GSU50-80-...	80	3.15	205	8.07	125	4.92	1.63 x F0		2.05 x F0		-	-	0.07	0.15	✓
GSU50-100-...	100	3.94	245	9.65	145	5.71	1.65 x F0		2.08 x F0		-	-	0.08	0.18	✓
GSU50-125-...	125	4.92	295	11.61	170	6.69	1.67 x F0		2.11 x F0		-	-	0.09	0.20	✓

Order Callout Example:
GSU50-50-YW
GSU50-50-BK-BAR50

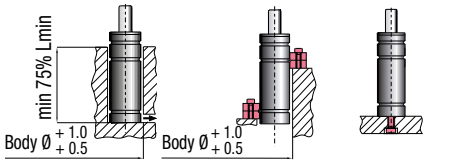




GSU 70



Fixings



Drop-In | FCC15 | Bottom mount

Force color code	P bar	P psi	F0 Initial force ± 5% at +20°C +68°F daN	F0 lb
GR	45	653	18	40
BU	90	1305	35	79
RD	135	1958	50	112
YW	180	2610	70	157
BK	20-180	290-2610	8-70	18-157

* $F1_i$ = Isothermal end force at 100% Cu

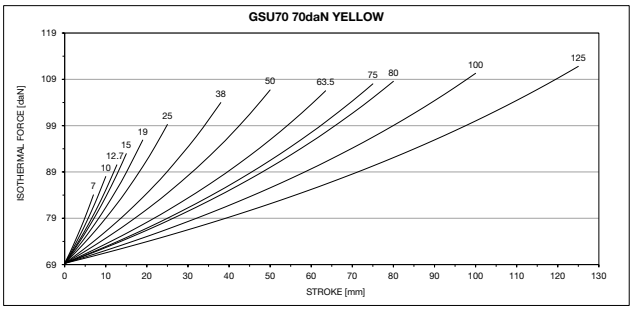
p. 16

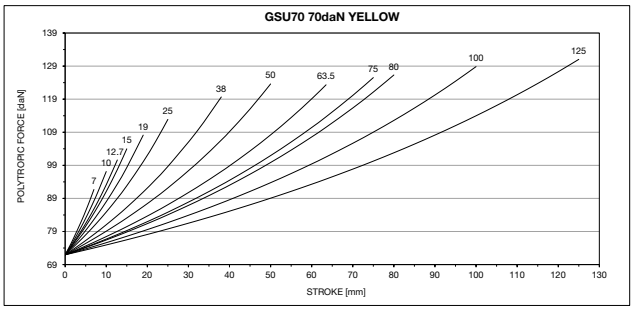
** $F1_p$ = Polytrophic end force at 100% Cu

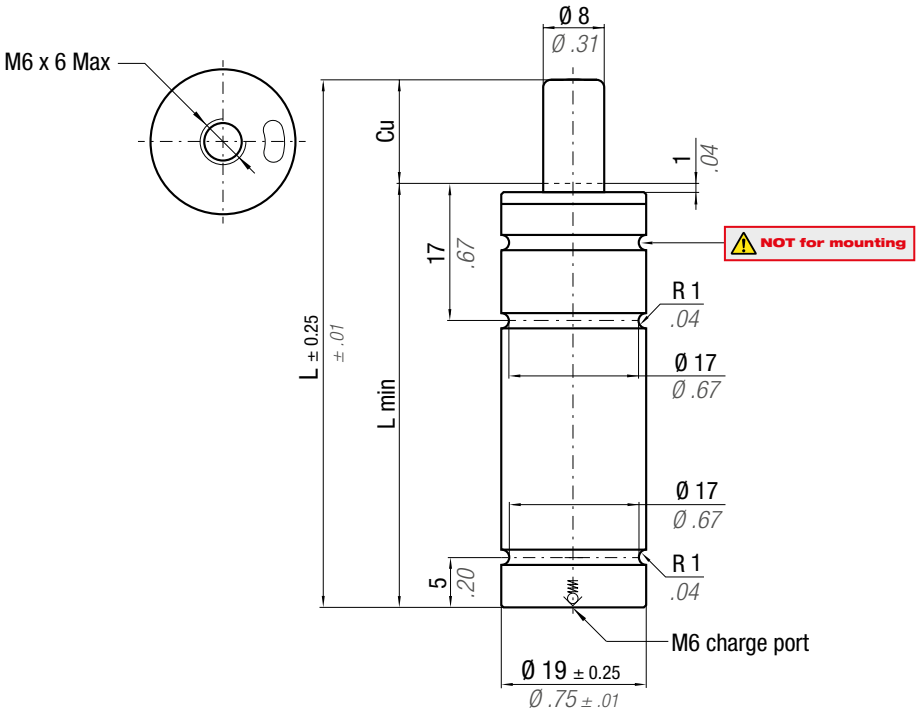
N2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	180 bar 2610 psi	20 bar 290 psi	0.38 cm² 0.059 in²	~ 100 - 150 (at 20°C)	1.8 m/s	Disposable

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	$F1_i$ End force * daN	$F1_i$ lb	$F1_p$ End force ** daN	$F1_p$ lb	Vo cm³	Vo in³	~Kg	~lb	PED 2014/68/EU
GSU70-7-...	7	0.28	56	2.20	49	1.93	1.28 x F0		1.47 x F0		-	-	0.04	0.09	✓
GSU70-10-...	10	0.39	62	2.44	52	2.05	1.34 x F0		1.56 x F0		-	-	0.05	0.11	✓
GSU70-12.7-...	12.7	0.50	67.4	2.65	54.7	2.15	1.37 x F0		1.61 x F0		-	-	0.05	0.11	✓
GSU70-15-...	15	0.59	72	2.83	57	2.24	1.40 x F0		1.66 x F0		-	-	0.05	0.11	✓
GSU70-19-...	19	0.75	80	3.15	61	2.40	1.43 x F0		1.72 x F0		-	-	0.05	0.11	✓
GSU70-25-...	25	0.98	92	3.62	67	2.64	1.47 x F0		1.78 x F0		-	-	0.06	0.13	✓
GSU70-38-...	38	1.50	118	4.65	80	3.15	1.51 x F0		1.85 x F0		-	-	0.07	0.15	✓
GSU70-50-...	50	1.97	142	5.59	92	3.62	1.54 x F0		1.89 x F0		-	-	0.08	0.18	✓
GSU70-63.5-...	63.5	2.50	172	6.77	108.5	4.27	1.52 x F0		1.87 x F0		-	-	0.09	0.20	✓
GSU70-75-...	75	2.95	195	7.68	120	4.72	1.54 x F0		1.89 x F0		-	-	0.10	0.22	✓
GSU70-80-...	80	3.15	205	8.071	125	4.92	1.54 x F0		1.90 x F0		-	-	0.10	0.22	✓
GSU70-100-...	100	3.94	245	9.65	145	5.71	1.56 x F0		1.93 x F0		-	-	0.12	0.26	✓
GSU70-125-...	125	4.92	295	11.61	170	6.69	1.57 x F0		1.95 x F0		-	-	0.14	0.31	✓

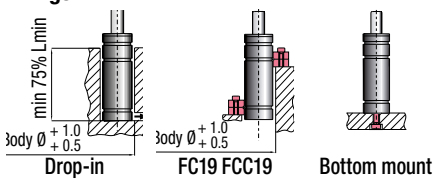
Order Callout Example:
GSU70-50-YW
GSU70-50-BK-BAR50







Fixings



Force color code	P bar	P psi	Fo Initial force ± 5% at +20°C +68°F daN	Fo lb
OR	10	145	5	11
PR	20	290	10	22
GR	60	870	30	67
BU	100	1450	50	112
RD	140	2030	70	157
YW	180	2610	90	202
BK	10-180	145-2610	5-90	11-202

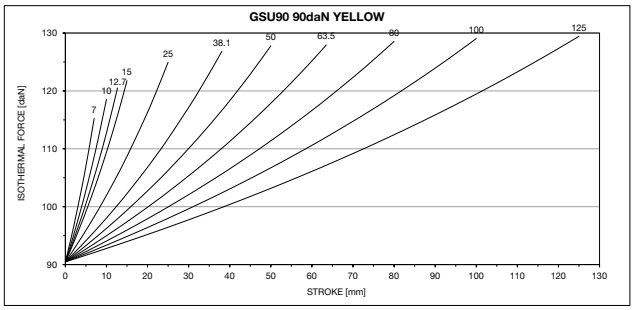
* $F1_i$ = Isothermal end force at 100% Cu p. 16

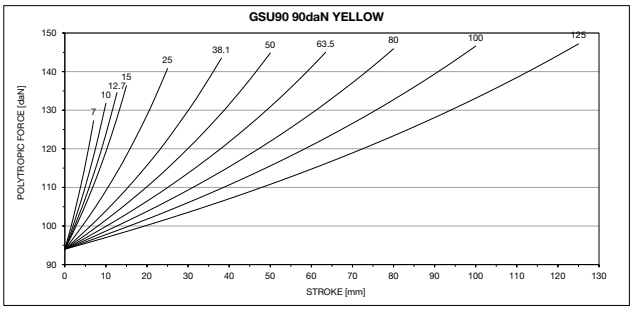
** $F1_p$ = Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	180 bar 2610 psi	10 bar 145 psi	0.5 cm² 0.078 in²	~ 100 - 150 (at 20°C)	1.8 m/s	Disposable

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	$F1_i$ * End force daN	$F1_i$ * End force lb	$F1_p$ ** End force daN	$F1_p$ ** End force lb	Vo cm³	Vo in³	~Kg	~lb	PED 2014/68/EU
GSU90-7-...	7	0.28	56	2.20	49	1.93	1.16 x F0		1.30 x F0		-	-	0.07	0.15	✓
GSU90-10-...	10	0.39	62	2.44	52	2.05	1.19 x F0		1.36 x F0		-	-	0.07	0.15	✓
GSU90-12.7-...	12.7	0.50	67.4	2.65	54.7	2.15	1.22 x F0		1.40 x F0		-	-	0.08	0.18	✓
GSU90-15-...	15	0.59	72	2.83	57	2.24	1.23 x F0		1.42 x F0		-	-	0.08	0.18	✓
GSU90-25-...	25	0.98	92	3.62	67	2.64	1.28 x F0		1.50 x F0		-	-	0.09	0.20	✓
GSU90-38.1-...	38.1	1.50	118.2	4.65	80.1	3.15	1.31 x F0		1.55 x F0		-	-	0.11	0.24	✓
GSU90-50-...	50	1.97	142	5.59	92	3.62	1.33 x F0		1.58 x F0		-	-	0.12	0.26	✓
GSU90-63.5-...	63.5	2.50	172	6.77	108.5	4.27	1.33 x F0		1.57 x F0		-	-	0.14	0.31	✓
GSU90-80-...	80	3.15	205	8.07	125	4.92	1.34 x F0		1.59 x F0		-	-	0.15	0.33	✓
GSU90-100-...	100	3.94	245	9.65	145	5.71	1.35 x F0		1.61 x F0		-	-	0.17	0.37	✓
GSU90-125-...	125	4.92	295	11.61	170	6.69	1.36 x F0		1.63 x F0		-	-	0.20	0.44	✓

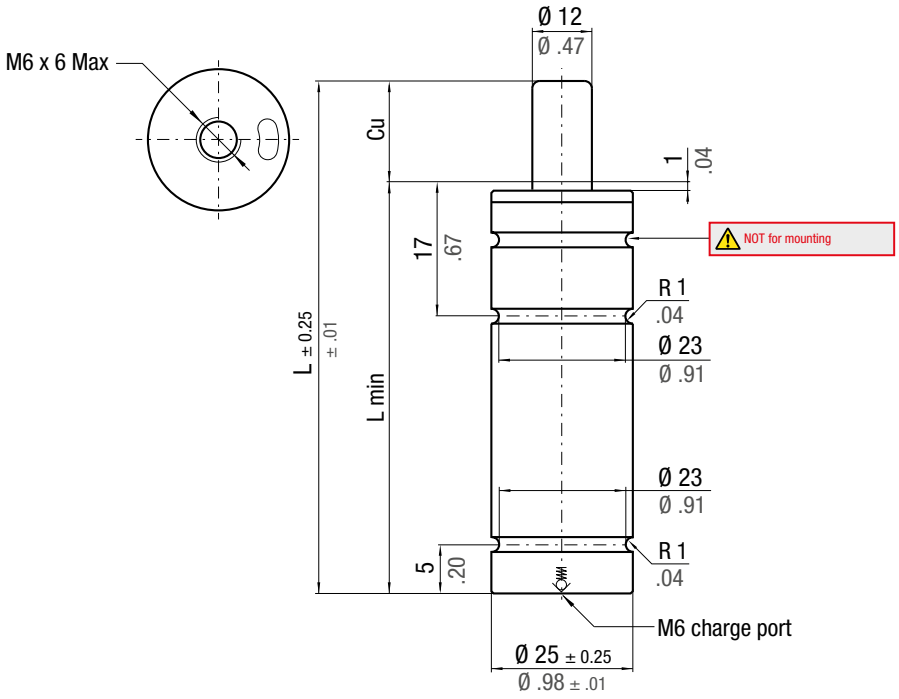
Order Callout Example:
GSU90-50-YW
GSU90-50-BK-BAR50



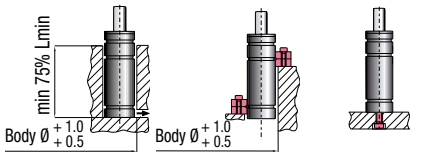


GSU 200

ISO 11901 - 1	VDI 3003 - Blatt 2	B2 4007 (BMW)
B8 3180 220 000 002(MB)	E24.54.815.G (PSA)	39D 878 (VW)
075.90.50 (FCA)		



Fixings



Drop-In | FC25 FCC25 | Bottom mount

Force color code	P bar	P psi	F0 Initial force ± 5% at +20°C +68°F daN	F0 lb
OR	15	218	17	38
PR	25	363	28	63
GR	45	653	50	112
BU	90	1305	100	225
RD	135	1958	150	337
YW	180	2610	200	450
BK	10-180	145-2610	11-200	25-450

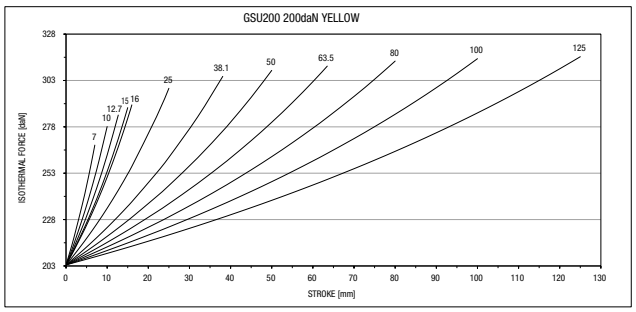
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

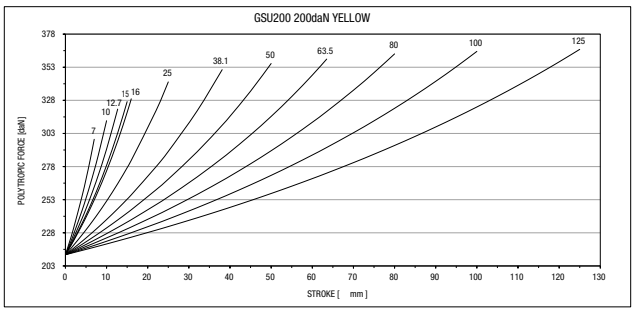
**** $F1_p$ =** Polytrophic end force at 100% Cu

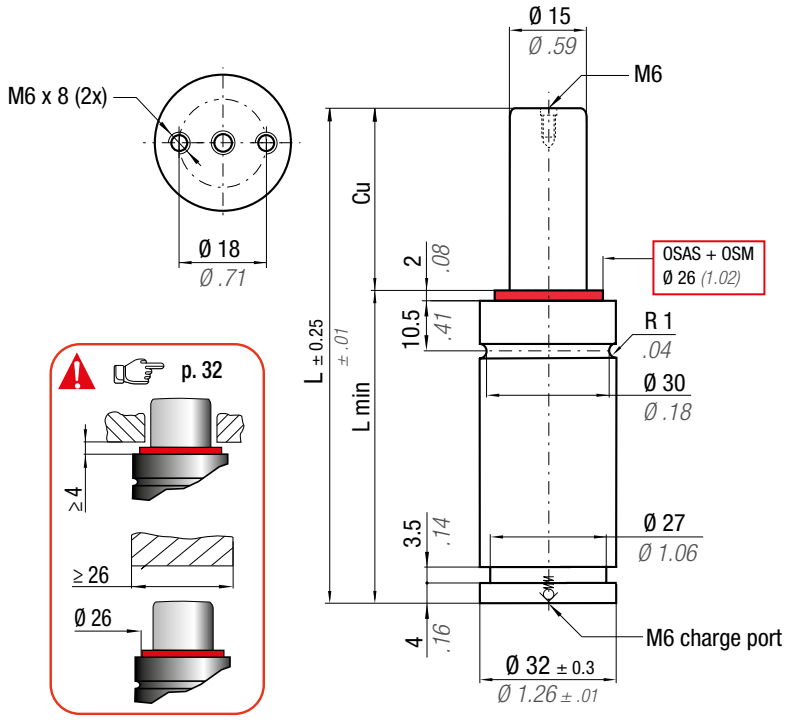
N2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	180 bar 2610 psi	10 bar 145 psi	1.13 cm² 0.175 in²	~ 50 - 80 (at 20°C)	1.8 m/s	Disposable

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	$F1_i$ * End force daN	$F1_i$ * End force lb	$F1_p$ ** End force daN	$F1_p$ ** End force lb	V0 cm³	V0 in³	~Kg	~lb	PED 2014/68/EU
GSU200-7-...	7	0.28	56	2.20	49	1.93	1.20 x F0		1.35 x F0		-	-	0.12	0.26	✓
GSU200-10-...	10	0.39	62	2.44	52	2.05	1.24 x F0		1.42 x F0		-	-	0.13	0.29	✓
GSU200-12.7-...	12.7	0.50	67.4	2.65	54.7	2.15	1.27 x F0		1.47 x F0		-	-	0.13	0.29	✓
GSU200-15-...	15	0.59	72	2.83	57	2.24	1.30 x F0		1.50 x F0		-	-	0.14	0.31	✓
GSU200-16-...	16	0.63	74	2.91	58	2.28	1.30 x F0		1.50 x F0		-	-	0.14	0.31	✓
GSU200-25-...	25	0.98	92	3.62	67	2.64	1.36 x F0		1.60 x F0		-	-	0.16	0.35	✓
GSU200-38.1-...	38.1	1.50	118.2	4.65	80.1	3.15	1.40 x F0		1.67 x F0		-	-	0.19	0.42	✓
GSU200-50-...	50	1.97	142	5.59	92	3.62	1.42 x F0		1.71 x F0		-	-	0.20	0.44	✓
GSU200-63.5-...	63.5	2.50	172	6.77	108.5	4.27	1.42 x F0		1.70 x F0		-	-	0.23	0.51	✓
GSU200-80-...	80	3.15	205	8.07	125	4.92	1.43 x F0		1.73 x F0		-	-	0.26	0.57	✓
GSU200-100-...	100	3.94	245	9.65	145	5.71	1.45 x F0		1.75 x F0		-	-	0.30	0.66	✓
GSU200-125-...	125	4.92	295	11.61	170	6.69	1.46 x F0		1.78 x F0		-	-	0.34	0.75	✓
GSU200-150-...	150	5.91	353	13.90	203	7.99	1.57 x F0		1.81 x F0		-	-	0.42	0.93	✓
GSU200-160-...	160	6.30	373	14.69	213	8.39	1.57 x F0		1.81 x F0		-	-	0.45	0.99	✓
GSU200-175-...	175	6.89	403	15.87	228	8.98	1.57 x F0		1.82 x F0		-	-	0.47	1.04	✓
GSU200-200-...	200	7.87	453	17.83	253	9.96	1.58 x F0		1.83 x F0		-	-	0.52	1.15	✓

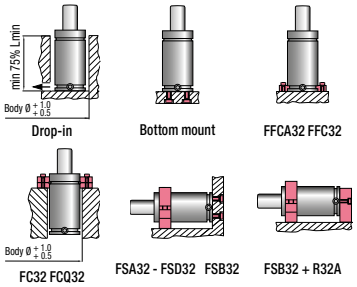
Order Callout Example:
GSU200-50-YW
GSU200-50-BK-BAR50







Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

Force color code	P bar	P psi	F0 Initial force ± 5% at +20°C +68°F daN	F0 lb
GR	45	653	80	180
BU	90	1305	160	360
RD	135	1958	240	540
YW	180	2610	320	719
BK	10-180	145-2610	18-320	40-719

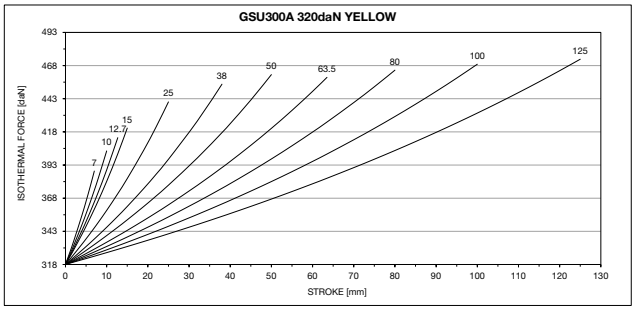
* $F1_i$ = Isothermal end force at 100% Cu p. 16

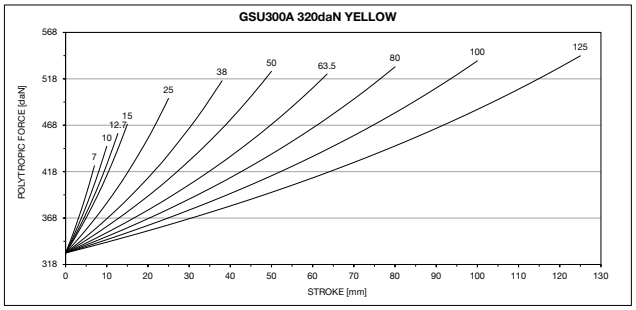
** $F1_p$ = Polytrophic end force at 100% Cu

N2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	180 bar 2610 psi	10 bar 145 psi	1.77 cm² 0.274 in²	~ 50 - 80 (at 20°C)	1.8 m/s	GSRK-39BMMCI32A

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	$F1_i$ * End force daN	$F1_i$ * End force lb	$F1_p$ ** End force daN	$F1_p$ ** End force lb	Vo cm³	Vo in³	~Kg	~lb	PED 2014/68/EU
GSU300-7-...	7	0.28	56	2.20	49	1.93	1.17 x F0		1.30 x F0		-	-	0.21	0.01	✓
GSU300-10-...	10	0.39	62	2.44	52	2.05	1.21 x F0		1.37 x F0		-	-	0.22	0.01	✓
GSU300-12.7-...	12.7	0.50	67.4	2.65	54.7	2.15	1.24 x F0		1.41 x F0		-	-	0.23	0.01	✓
GSU300-15-...	15	0.59	72	2.83	57	2.24	1.26 x F0		1.44 x F0		-	-	0.24	0.01	✓
GSU300-25-...	25	0.98	92	3.62	67	2.64	1.32 x F0		1.53 x F0		-	-	0.26	0.01	✓
GSU300-38-...	38	1.50	118	4.65	80	3.15	1.36 x F0		1.60 x F0		-	-	0.30	0.01	✓
GSU300-50-...	50	1.97	142	5.59	92	3.62	1.38 x F0		1.64 x F0		-	-	0.34	0.01	✓
GSU300-63.5-...	63.5	2.50	172	6.77	108.5	4.27	1.38 x F0		1.63 x F0		-	-	0.39	0.02	✓
GSU300-80-...	80	3.15	205	8.07	125	4.92	1.40 x F0		1.66 x F0		-	-	0.44	0.02	✓
GSU300-100-...	100	3.94	245	9.65	145	5.71	1.41 x F0		1.68 x F0		-	-	0.50	0.02	✓
GSU300-125-...	125	4.92	295	11.61	170	6.69	1.42 x F0		1.70 x F0		-	-	0.57	0.02	✓

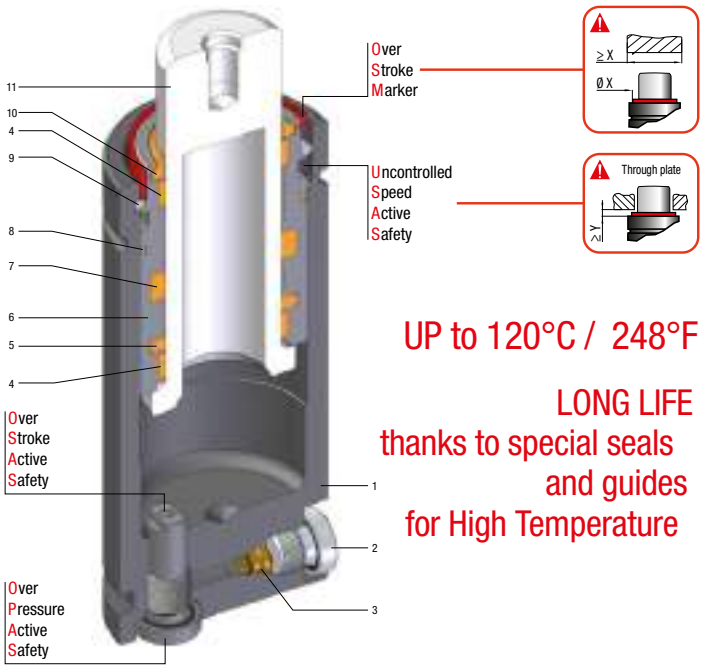
Order Callout Example:
GSU300-50-YW
GSU300-50-BK-BAR50





GSHT series

ISO standard, high force, for high temperature
ISO Standard, erhöhte Kraft, für Hochtemperatur - Standard ISO, force majorée, pour haute température
ISO standard, fuerza potenciada, para alta temperatura - Norma ISO, força permitida, de alta temperatura



UP to 120°C / 248°F

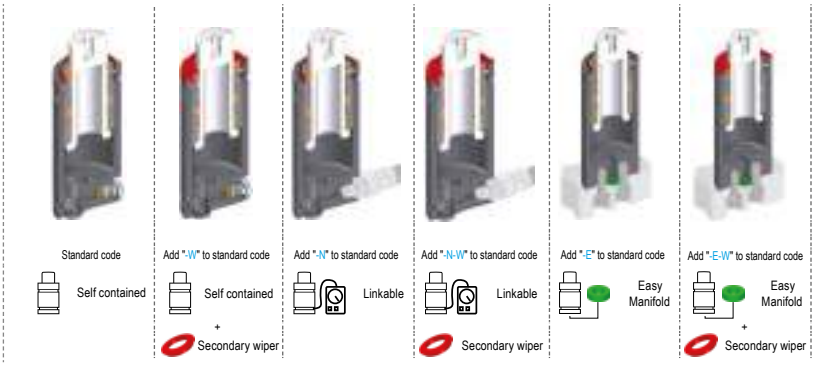
LONG LIFE
thanks to special seals and guides for High Temperature

1	Body
2	Valve
3	Plug
4	Guide ring*
5	Rod seal*
6	Bush
7	Rod seal*
8	Dual ring seal*
9	Retaining ring
10	Rod wiper*
11	Rod (nitrited superfinished)

* special design and materials for high temperature.

SEALING	ROD SEAL
DESIGN	BUSH - BODY DESIGN

Available versions



Order Callout Example:
GSHT500-10-T1
GSHT500-10-T1-W
GSHT500-10-T1-N
GSHT500-10-T1-N-W
GSHT500-10-T1-E
GSHT500-10-T1-E-W

Model	Body Ø		Stroke Cu		Initial force F0								
	mm	inch	mm	inch	daN	lb	HIGH TEMPERATURE		OSAS	USAS	OPAS	SKUDO	SW
GSHT 500 T1	38	1.50	10 - 125	0.39 - 4.92	495	1113	✓	-	✓	✓	✓	-	✓
GSHT 700 T1	45	1.77	10 - 200	0.39 - 7.87	775	1742	✓	-	✓	✓	✓	-	✓
GSHT 1000 T1	50	1.97	13 - 300	0.51 - 11.81	970	2181	✓	-	✓	✓	✓	-	✓
GSHT 500 T2	38	1.50	10 - 125	0.39 - 4.92	480	1079	-	✓	✓	✓	✓	-	✓
GSHT 700 T2	45	1.77	10 - 200	0.39 - 7.87	750	1686	-	✓	✓	✓	✓	-	✓
GSHT 1000 T2	50	1.97	13 - 300	0.51 - 11.81	940	2113	-	✓	✓	✓	✓	-	✓

✓ Built-in as standard ✓ Optional upon request

T1

Working temperature
Betriebstemperatur
Température de fonctionnement
Temperatura de funcionamiento
Temperatura de funcionamento

80 ÷ 100°C
176 ÷ 212°F

P max

125 bar
1813 psi

T2

Working temperature
Betriebstemperatur
Température de fonctionnement
Temperatura de funcionamiento
Temperatura de funcionamento

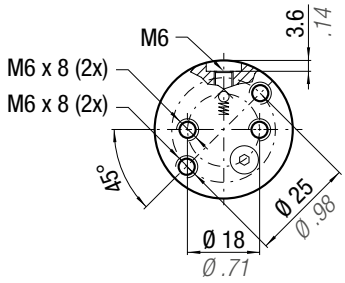
100 ÷ 120°C
212 ÷ 248°F

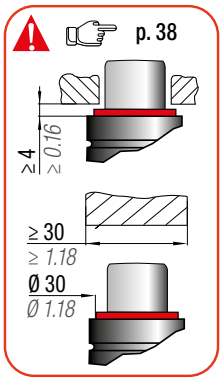
P max

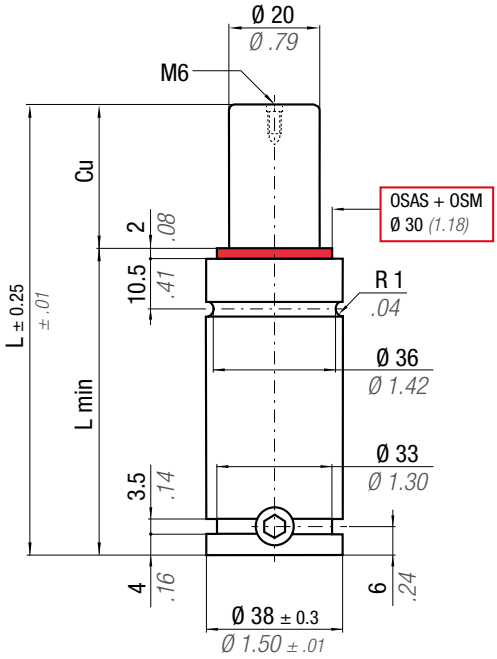
115 bar
1668 psi

GSHT 500 T1

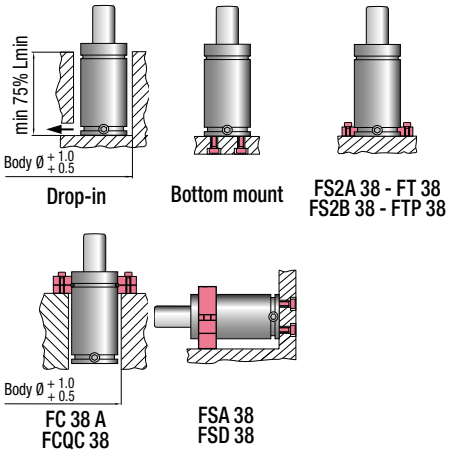
—80 ÷ 100°C / 176 ÷ 212°F—







Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

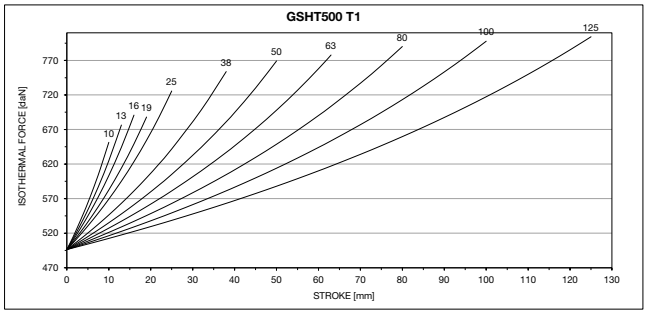
**** $F1_p$ =** Polytrophic end force at 100% Cu

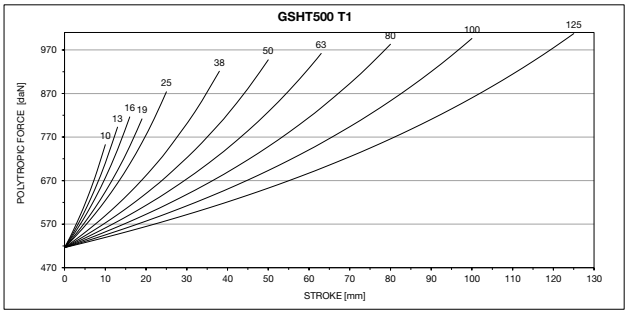
N_2	°F 176 - 212 / °C 80 - 100	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	125 bar / 1813 psi	20 bar / 290 psi	3.14 cm² / 0.478in²	~ 5 - 20	1 m/s	GSRK-39BMMMGS00038B

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	F0 Initial force daN	F0 lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	V0 cm³	V0 in³	~Kg	~lb	PED 2014/68/EU
GSHT500-10-T1	10	0.39	70	2.76	60	2.36			653	1469	756	1699	13.5	0.82	0.31	0.68	✓
GSHT500-13-T1	13	0.51	75.7	2.98	62.7	2.47			678	1525	796	1789	15.8	0.96	0.32	0.71	✓
GSHT500-16-T1	16	0.63	82	3.23	66	2.60	390	877	692	1557	819	1841	18.6	1.13	0.34	0.75	✓
GSHT500-19-T1	19	0.75	88	3.46	69	2.72	+ 20°C	+ 68°F	689	1550	814	1830	21.2	1.29	0.35	0.77	✓
GSHT500-25-T1	25	0.98	100	3.94	75	2.95			727	1634	876	1970	26.4	1.61	0.38	0.84	✓
GSHT500-38-T1	38	1.50	126	4.96	88	3.46			755	1697	923	2075	37.6	2.29	0.44	0.97	✓
GSHT500-50-T1	50	1.97	150	5.91	100	3.94	495	1113	770	1731	949	2133	47.9	2.92	0.5	1.10	✓
GSHT500-63-T1	63	2.48	176.5	6.95	113.5	4.47	+ 100°C	+ 212°F	778	1750	963	2165	59.4	3.62	0.56	1.23	✓
GSHT500-80-T1	80	3.15	210	8.27	130	5.12			791	1777	984	2212	73.7	4.50	0.64	1.41	✓
GSHT500-100-T1	100	3.94	250	9.84	150	5.91			798	1794	997	2242	90.9	5.54	0.73	1.61	✓
GSHT500-125-T1	125	4.92	300	11.81	175	6.89			805	1809	1008	2267	112.4	6.86	0.85	1.87	✓

End force at 100°C / 212°F

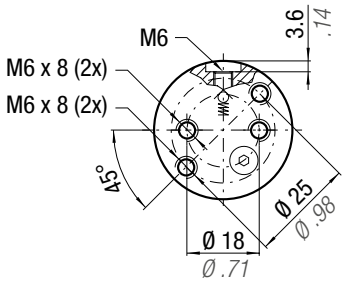
Order Callout Example:
GSHT500-50-T1

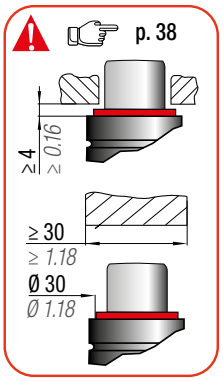


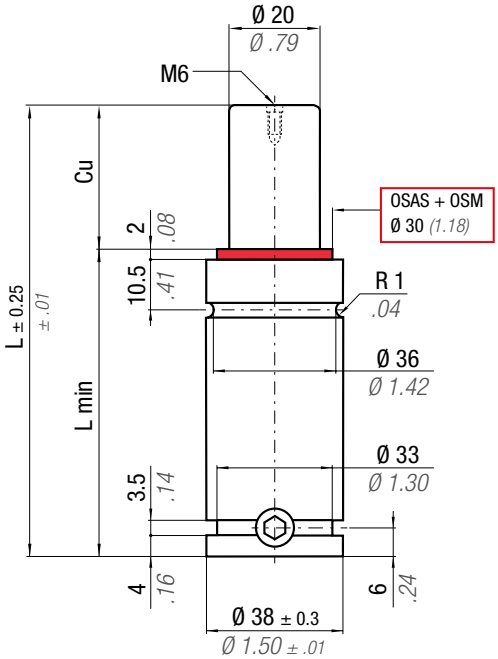


GSHT 500 T2

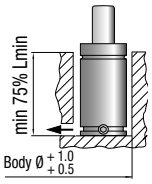
—100 ÷ 120°C / 212 ÷ 248°F—





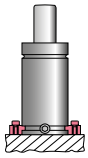


Fixings

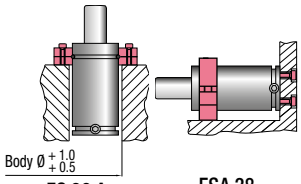


Drop-in

Bottom mount



FS2A 38 - FT 38
FS2B 38 - FTP 38



FC 38 A
FCQC 38

FSA 38
FSD 38

OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

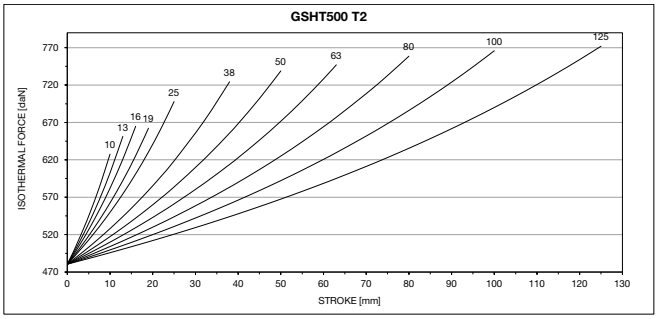
**** $F1_p$ =** Polytrophic end force at 100% Cu

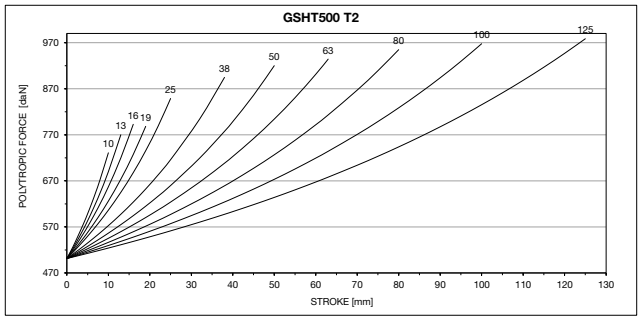
N_2	°F 212 - 248 / °C 100 - 120	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	115 bar *1668 psi*	20 bar *290 psi*	3.14 cm² *0.487 in²*	~ 5 - 20	1 m/s	GSRK-39BMMMGS00038B

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	F0 Initial force daN	F0 lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	V0 cm³	V0 in³	~Kg	~lb	PED 2014/68/EU
GSHT500-10-T2	10	0.39	70	2.76	60	2.36			630	1415	734	1650	13.5	0.82	0.31	0.68	✓
GSHT500-13-T2	13	0.51	75.7	2.98	62.7	2.47			653	1468	773	1738	15.8	0.96	0.32	0.71	✓
GSHT500-16-T2	16	0.63	82	3.23	66	2.60	360	809	666	1498	795	1788	18.6	1.13	0.34	0.75	✓
GSHT500-19-T2	19	0.75	88	3.46	69	2.72	+ 20°C	+ 68°F	664	1492	791	1777	21.2	1.29	0.35	0.77	✓
GSHT500-25-T2	25	0.98	100	3.94	75	2.95			699	1572	851	1913	26.4	1.61	0.38	0.84	✓
GSHT500-38-T2	38	1.50	126	4.96	88	3.46			725	1631	896	2015	37.6	2.29	0.44	0.97	✓
GSHT500-50-T2	50	1.97	150	5.91	100	3.94	480	1079	740	1663	921	2072	47.9	2.92	0.5	1.10	✓
GSHT500-63-T2	63	2.48	176.5	6.95	113.5	4.47	+ 120°C	+ 248°F	748	1681	936	2103	59.4	3.62	0.56	1.23	✓
GSHT500-80-T2	80	3.15	210	8.27	130	5.12			759	1707	956	2149	73.7	4.50	0.64	1.41	✓
GSHT500-100-T2	100	3.94	250	9.84	150	5.91			766	1723	969	2177	90.9	5.54	0.73	1.61	✓
GSHT500-125-T2	125	4.92	300	11.81	175	6.89			772	1736	979	2202	112.4	6.86	0.85	1.87	✓

End force at 120°C / 248°F

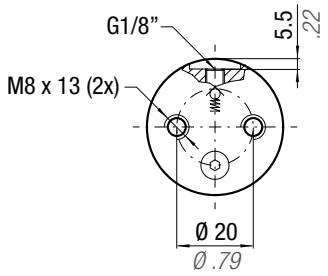
Order Callout Example:
GSHT500-50-T2

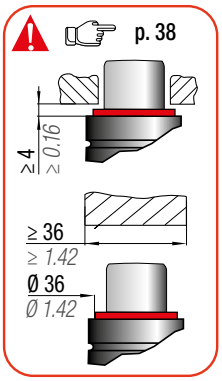


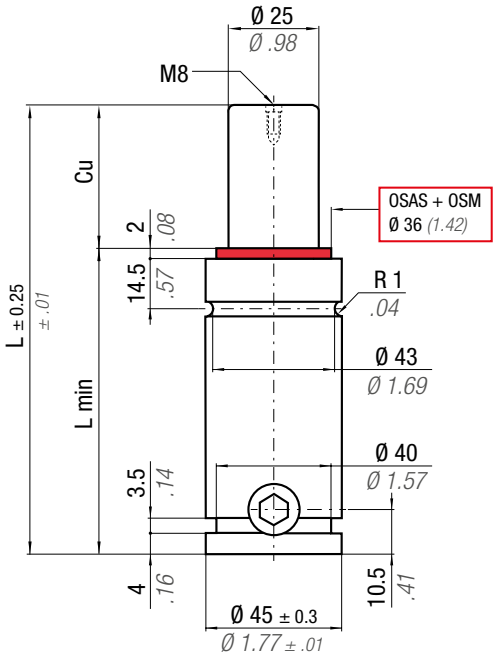


GSHT 700 T1

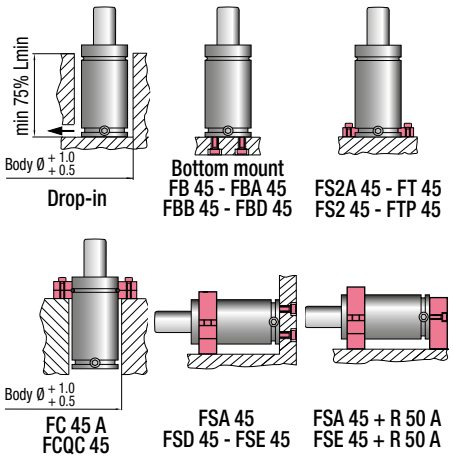
—80 ÷ 100°C / 176 ÷ 212°F—







Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

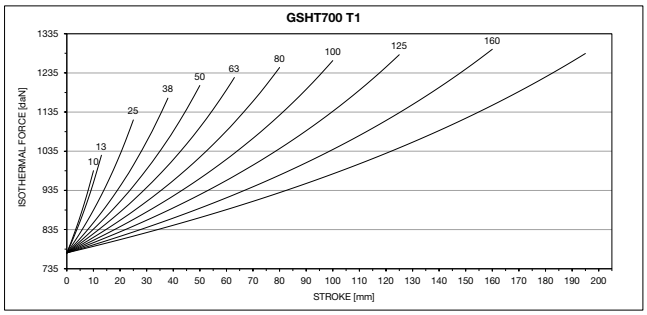
**** $F1_p$ =** Polytrophic end force at 100% Cu

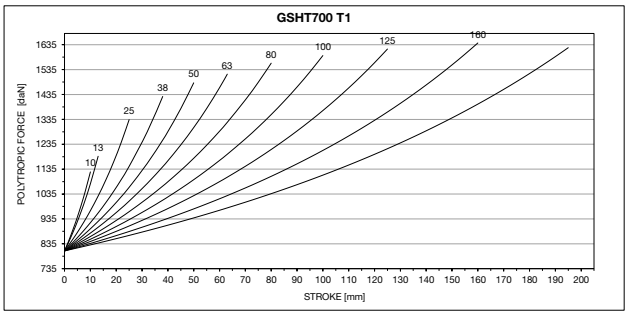
N_2	°F 176 - 212 / °C 80 - 100	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	125 bar / 1813 psi	20 bar / 290 psi	4.91 cm² / 0.761 in²	~ 5 - 20	1 m/s	GSRK-39BMMMGS00045B

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ End force *		$F1_p$ End force **		V0				PED 2014/68/EU
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	
GSHT700-10-T1	10	0.39	105	4.13	95	3.74			988	2221	1128	2536	25.9	1.58	0.90	1.98	✓
GSHT700-13-T1	13	0.50	110.7	4.35	97.7	3.85			1027	2309	1191	2677	29.4	1.79	0.91	2.01	✓
GSHT700-25-T1	25	0.98	135	5.31	110	4.33	615	1383	1117	2511	1337	3006	45.0	2.75	1.00	2.20	✓
GSHT700-38-T1	38	1.50	161	6.34	123	4.84	+ 20°C		1172	2635	1430	3214	61.5	3.75	1.09	2.40	✓
GSHT700-50-T1	50	1.97	185	7.28	135	5.31	+ 68°F		1204	2707	1484	3336	76.8	4.68	1.17	2.58	✓
GSHT700-63-T1	63	2.48	211.5	8.33	148.5	5.85			1224	2752	1519	3414	93.9	5.73	1.26	2.78	✓
GSHT700-80-T1	80	3.15	245	9.65	165	6.50			1250	2809	1562	3512	115.0	7.02	1.37	3.02	✓
GSHT700-100-T1	100	3.94	285	11.22	185	7.28	775	1742	1267	2849	1593	3581	140.4	8.56	1.51	3.33	✓
GSHT700-125-T1	125	4.92	335	13.19	210	8.27	+ 100°C		1282	2882	1619	3639	172.2	10.50	1.67	3.68	✓
GSHT700-160-T1	160	6.30	405	15.94	245	9.65	+ 212°F		1296	2913	1643	3693	216.8	13.22	1.91	4.21	✓
GSHT700-200-T1	200	7.87	485	19.09	285	11.22			1306	2936	1661	3734	267.7	16.33	2.20	4.85	✓

End force at 100°C / 212°F

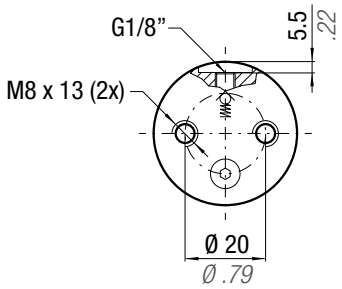
Order Callout Example:
GSHT700-50-T1

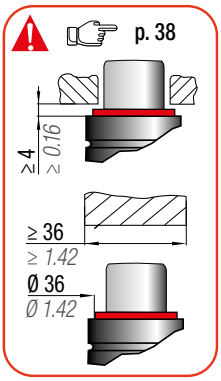


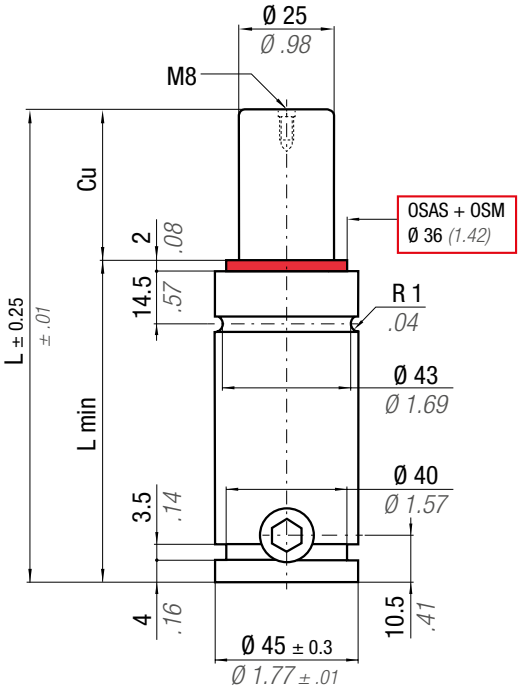


GSHT 700 T2

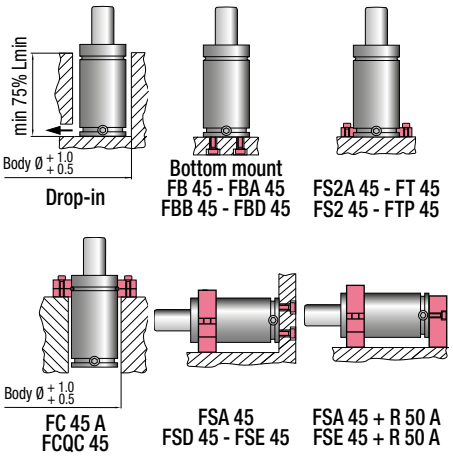
—100 ÷ 120°C / 212 ÷ 248°F—







Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

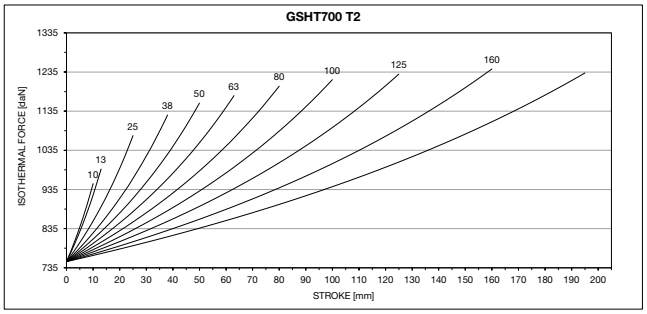
**** $F1_p$ =** Polytrophic end force at 100% Cu

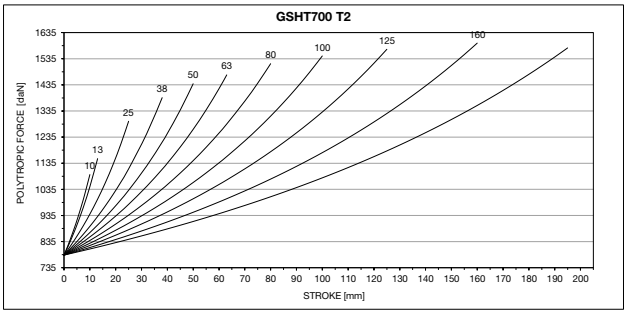
N2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	212 - 248 / 100 - 120	± 0.33 %/°C	115 bar *1668 psi*	20 bar *290 psi*	4.91 cm² *0.761 in²*	~ 5 - 20	1 m/s	GSRK-39BMMMGS00045B

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0		~Kg	~lb	PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*			
GSHT700-10-T2	10	*0.39*	105	*4.13*	95	*3.74*			952	*2141*	1096	*2463*	25.9	*1.58*	0.90	*1.98*	✓
GSHT700-13-T2	13	*0.50*	110.7	*4.35*	97.7	*3.85*			989	*2224*	1156	*2600*	29.4	*1.79*	0.91	*2.01*	✓
GSHT700-25-T2	25	*0.98*	135	*5.31*	110	*4.33*	565	*1270*	1074	*2415*	1299	*2919*	45.0	*2.75*	1.00	*2.20*	✓
GSHT700-38-T2	38	*1.50*	161	*6.34*	123	*4.84*	+ 20°C		1126	*2532*	1388	*3121*	61.5	*3.75*	1.09	*2.40*	✓
GSHT700-50-T2	50	*1.97*	185	*7.28*	135	*5.31*	*+ 68°F*		1157	*2600*	1441	*3240*	76.8	*4.68*	1.17	*2.58*	✓
GSHT700-63-T2	63	*2.48*	211.5	*8.33*	148.5	*5.85*			1176	*2643*	1475	*3316*	93.9	*5.73*	1.26	*2.78*	✓
GSHT700-80-T2	80	*3.15*	245	*9.65*	165	*6.50*	750	*1686*	1200	*2697*	1518	*3412*	115.0	*7.02*	1.37	*3.02*	✓
GSHT700-100-T2	100	*3.94*	285	*11.22*	185	*7.28*	+ 120°C		1216	*2734*	1547	*3478*	140.4	*8.56*	1.51	*3.33*	✓
GSHT700-125-T2	125	*4.92*	335	*13.19*	210	*8.27*	*+ 248°F*		1230	*2766*	1572	*3535*	172.2	*10.50*	1.67	*3.68*	✓
GSHT700-160-T2	160	*6.30*	405	*15.94*	245	*9.65*			1243	*2795*	1596	*3587*	216.8	*13.22*	1.91	*4.21*	✓
GSHT700-200-T2	200	*7.87*	485	*19.09*	285	*11.22*			1253	*2817*	1613	*3627*	267.7	*16.33*	2.20	*4.85*	✓

End force at 120°C / 248°F

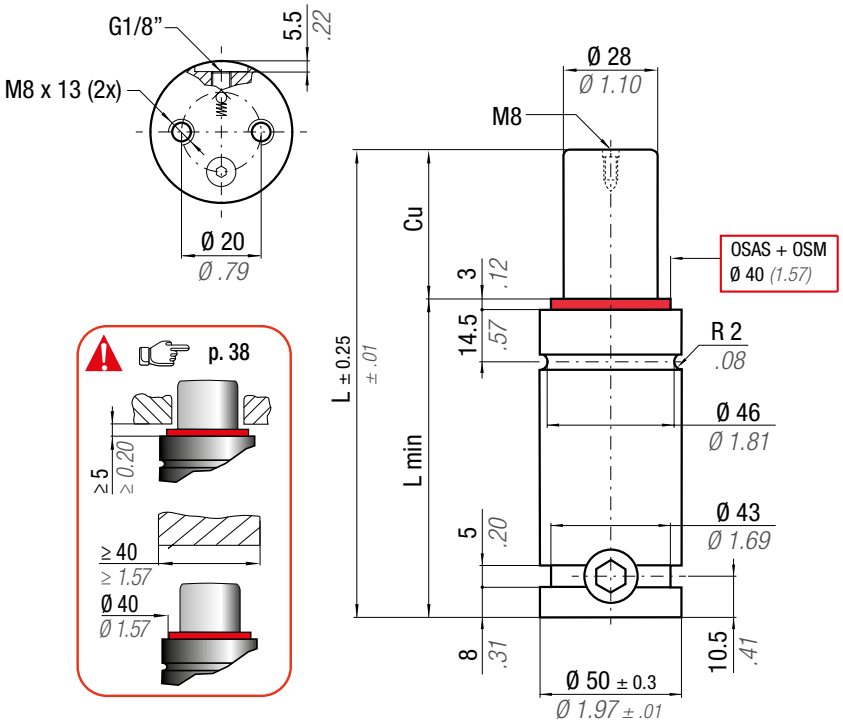
Order Callout Example:
GSHT700-50-T2



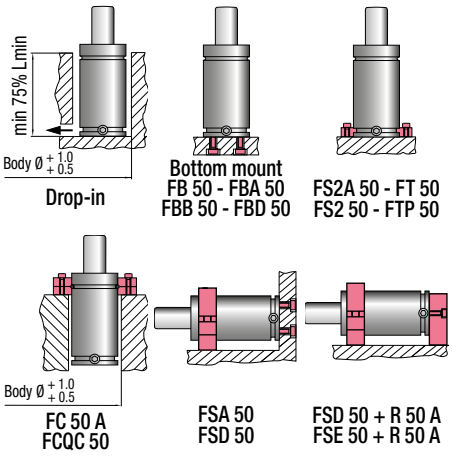


GSHT 1000 T1

—80 ÷ 100°C / 176 ÷ 212°F—



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

**** $F1_p$ =** Polytrophic end force at 100% Cu

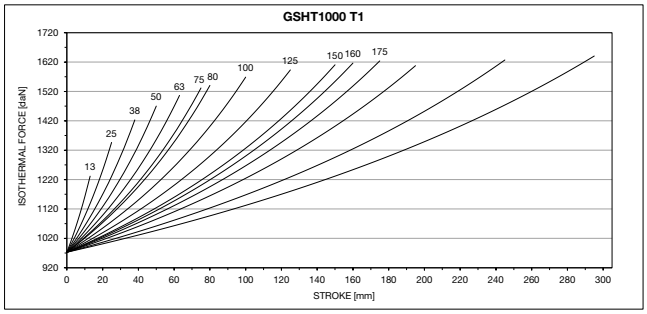
N_2	°F 176 - 212 / °C 80 - 100	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	125 bar / 1813 psi	20 bar / 290 psi	6.15 cm² / 0.953 in²	~ 5 - 20	1 m/s	GSRK-39BMHT01000A

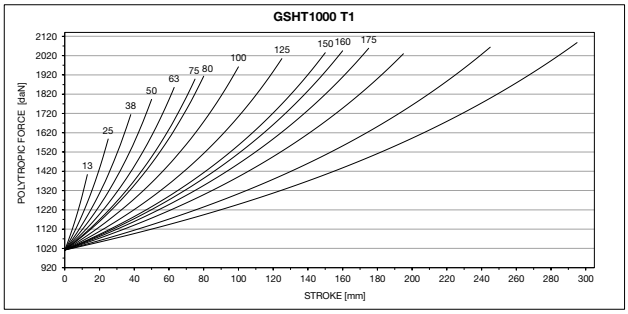
CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	Fo Initial force daN	Fo lb	$F1_i$ * End force daN	$F1_i$ lb	$F1_p$ ** End force daN	$F1_p$ lb	Vo cm³	Vo in³	~Kg	~lb	PED 2014/68/EU
GSHT1000-13-T1	13	0.50	120.7	4.74	107.7	4.24			1234	2774	1407	3163	42.8	2.61	1.21	2.67	✓
GSHT1000-25-T1	25	0.98	145	5.71	120	4.72			1349	3032	1591	3576	62.1	3.79	1.32	2.91	✓
GSHT1000-38-T1	38	1.50	171	6.73	133	5.24			1425	3203	1717	3860	82.5	5.03	1.43	3.15	✓
GSHT1000-50-T1	50	1.97	195	7.68	145	5.71			1472	3308	1796	4037	101.3	6.18	1.53	3.37	✓
GSHT1000-63-T1	63	2.48	221	8.74	158	6.22	770	1731	1508	3390	1857	4175	121.8	7.43	1.64	3.62	✓
GSHT1000-75-T1	75	2.95	245	9.65	170	6.69	+ 20°C		1533	3446	1900	4272	140.6	8.58	1.74	3.84	✓
GSHT1000-80-T1	80	3.15	255	10.04	175	6.89	+ 68°F		1542	3466	1915	4305	148.5	9.06	1.78	3.92	✓
GSHT1000-100-T1	100	3.94	295	11.61	195	7.68			1570	3529	1963	4414	179.9	10.97	1.96	4.32	✓
GSHT1000-125-T1	125	4.92	345	13.58	220	8.66			1594	3584	2006	4509	219.1	13.37	2.17	4.78	✓
GSHT1000-150-T1	150	5.91	395	15.55	245	9.65	970	2181	1611	3623	2036	4578	258.4	15.76	2.38	5.25	✓
GSHT1000-160-T1	160	6.30	415	16.34	255	10.04	+ 100°C		1617	3635	2046	4600	274.1	16.72	2.46	5.42	✓
GSHT1000-175-T1	175	6.89	445	17.52	270	10.63	+ 212°F		1624	3652	2059	4629	297.7	18.16	2.59	5.71	✓
GSHT1000-200-T1	200	7.87	495	19.49	295	11.61			1635	3675	2077	4669	337	20.56	2.79	6.15	✓
GSHT1000-250-T1	250	9.84	595	23.43	345	13.58			1649	3708	2103	4728	415.5	25.35	3.21	7.08	✓
GSHT1000-300-T1	300	11.81	695	27.36	395	15.55			1660	3731	2121	4768	494	30.13	3.63	8.00	✓

End force at 100°C / 212°F

Order Callout Example:

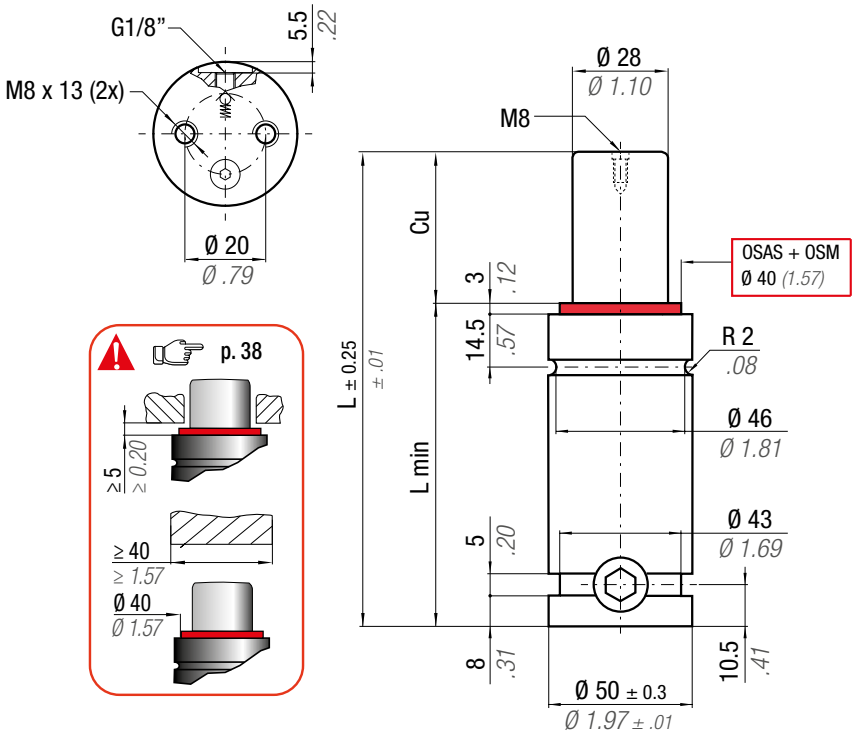
GSHT1000-50-T1



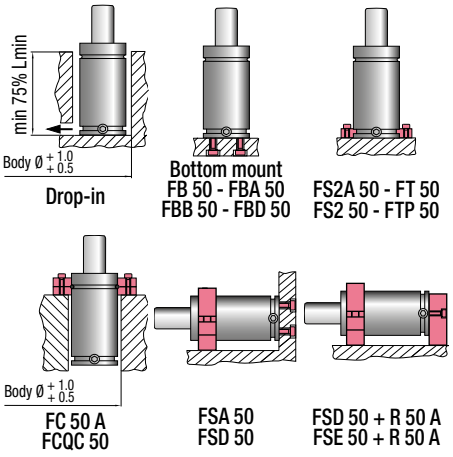


GSHT 1000 T2

—100 ÷ 120°C / 212 ÷ 248°F—



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

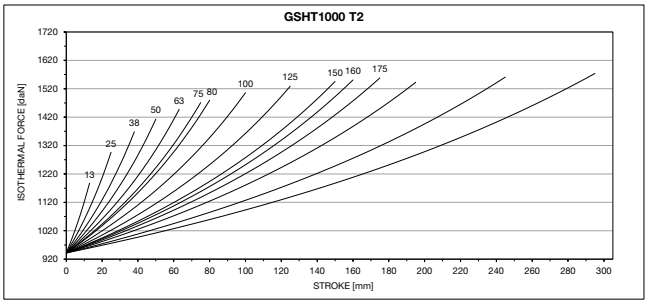
**** $F1_p$ =** Polytrophic end force at 100% Cu

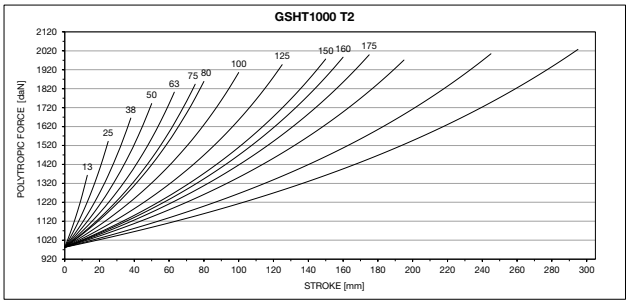
N2	°F 212 - 248 / °C 100 - 120	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	115 bar *1668 psi*	20 bar *290 psi*	6.15 cm² *0.953 in²*	~ 5 - 20	1 m/s	GSRK-39BMHT01000A

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	Fo Initial force daN	Fo lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	Vo cm³	Vo in³	~Kg	~lb	PED 2014/68/EU
GSHT1000-13-T2	13	0.50	120.7	4.74	107.7	4.24			1190	2675	1366	3072	42.8	2.61	1.21	2.67	✓
GSHT1000-25-T2	25	0.98	145	5.71	120	4.72			1298	2918	1545	3474	62.1	3.79	1.32	2.91	✓
GSHT1000-38-T2	38	1.50	171	6.73	133	5.24			1370	3080	1668	3749	82.5	5.03	1.43	3.15	✓
GSHT1000-50-T2	50	1.97	195	7.68	145	5.71			1414	3179	1744	3921	101.3	6.18	1.53	3.37	✓
GSHT1000-63-T2	63	2.48	221	8.74	158	6.22	705	1585	1449	3256	1804	4055	121.8	7.43	1.64	3.62	✓
GSHT1000-75-T2	75	2.95	245	9.65	170	6.69	+ 20°C		1472	3310	1845	4149	140.6	8.58	1.74	3.84	✓
GSHT1000-80-T2	80	3.15	255	10.04	175	6.89	+ 68°F		1480	3328	1860	4182	148.5	9.06	1.78	3.92	✓
GSHT1000-100-T2	100	3.94	295	11.61	195	7.68			1507	3387	1907	4287	179.9	10.97	1.96	4.32	✓
GSHT1000-125-T2	125	4.92	345	13.58	220	8.66			1530	3439	1948	4380	219.1	13.37	2.17	4.78	✓
GSHT1000-150-T2	150	5.91	395	15.55	245	9.65	940	2113	1546	3476	1978	4446	258.4	15.76	2.38	5.25	✓
GSHT1000-160-T2	160	6.30	415	16.34	255	10.04	+ 120°C		1552	3488	1987	4468	274.1	16.72	2.46	5.42	✓
GSHT1000-175-T2	175	6.89	445	17.52	270	10.63	+ 248°F		1558	3504	2000	4496	297.7	18.16	2.59	5.71	✓
GSHT1000-200-T2	200	7.87	495	19.49	295	11.61			1568	3525	2017	4535	337	20.56	2.79	6.15	✓
GSHT1000-250-T2	250	9.84	595	23.43	345	13.58			1582	3556	2043	4592	415.5	25.35	3.21	7.08	✓
GSHT1000-300-T2	300	11.81	695	27.36	395	15.55			1592	3578	2060	4631	494	30.13	3.63	8.00	✓

End force at 120°C / 248°F

Order Callout Example:
GSHT1000-50-T2

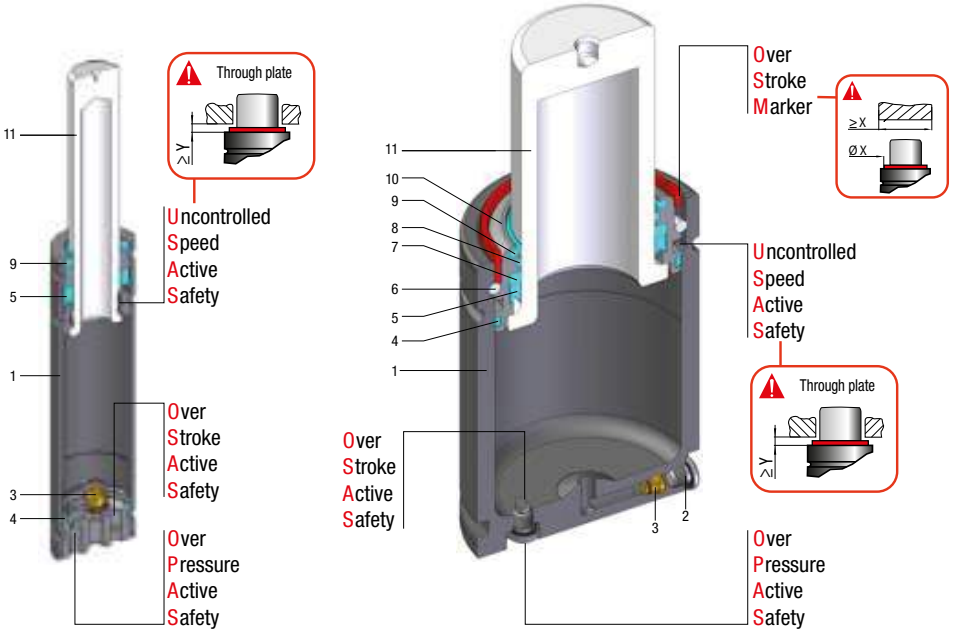




GSV series

ISO	VDI	BMW	Nissan
Ford	Mazda	MB	
PSA	VW	FCA	

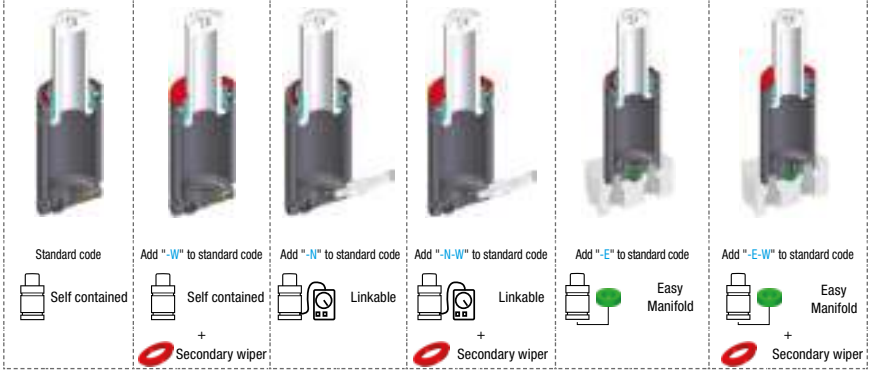
Minimum height, maximum force - Minimale Höhe, maximale Kraft
Hauteur minimale, force maximale - Mínima altura, máxima fuerza - Altura mínima, força máxima



1	Dual ring seal
2	Body
3	Plug
4	Valve
5	Retaining ring
6	Rod seal
7	Back-up ring
8	Guide ring
9	Rod wiper
10	Bush
11	Rod (nitrited superfinished)

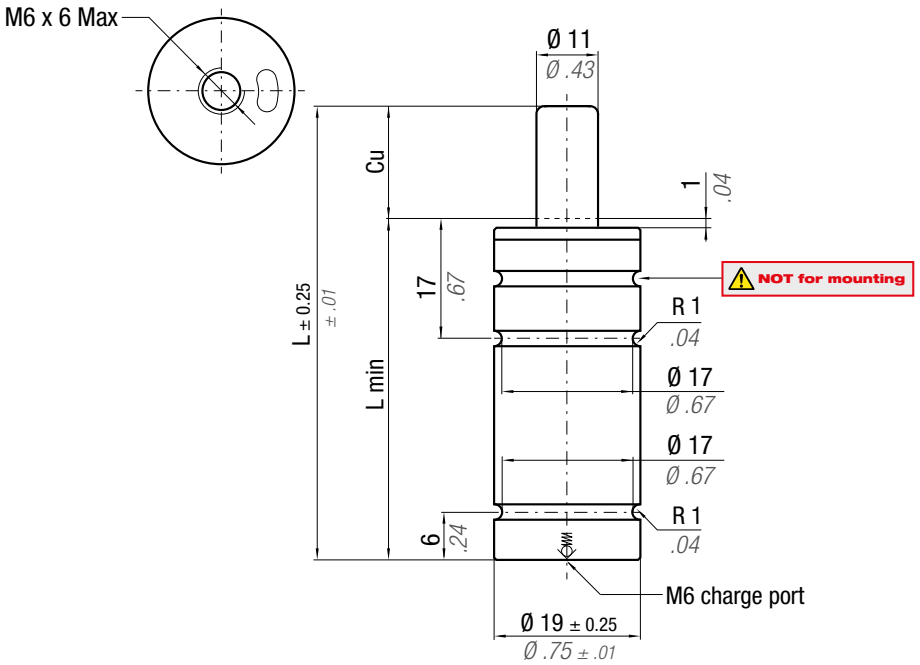
SEALING	ROD SEAL
DESIGN	BUSH - BODY DESIGN

Available versions

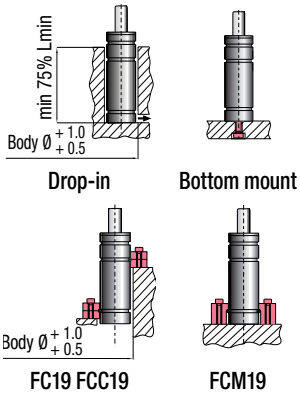


Order Callout Example:
GSV2400-50
GSV2400-50-W
GSV2400-50-N
GSV2400-50-N-W
GSV2400-50-E
GSV2400-50-E-W

Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	daN	lb				
GSV170	19	0.75	7 - 125	0.28 - 4.92	170	382	✓	✓	✓	-
GSV320	25	0.98	7 - 125	0.28 - 4.92	320	719	✓	✓	✓	-
GSV350	32	1.26	10 - 125	0.39 - 4.92	360	809	✓	✓	✓	-
GSV500	38	1.50	10 - 125	0.39 - 4.92	470	1057	✓	✓	✓	-
GSV750*	45	1.77	10 - 125	0.39 - 4.92	740	1664	✓	✓	✓	-
GSV1000*	50	1.97	10 - 125	0.39 - 4.92	920	2068	✓	✓	✓	-
GSV1200*	50	1.97	10 - 125	0.39 - 4.92	1060	2383	✓	✓	✓	-
GSV1500*	63	2.48	10 - 125	0.39 - 4.92	1530	3440	✓	✓	✓	-
GSV2400	75	2.95	10 - 125	0.39 - 4.92	2385	5362	✓	✓	✓	-
GSV4200	95	3.74	16 - 125	0.63 - 4.92	4240	9532	✓	✓	✓	-
GSV6600	120	4.72	16 - 125	0.63 - 4.92	6630	14905	✓	✓	✓	-
GSV9500	150	5.91	19 - 125	0.75 - 4.92	9540	21447	✓	✓	✓	-
GSV12000	150	5.91	19 - 125	0.75 - 4.92	11780	26470	✓	✓	✓	-
GSV20000	195	7.68	19 - 125	0.75 - 4.92	19910	44738	✓	✓	✓	-



Fixings



*** $F1_i$ =** Isothermal end force at 100% Cu

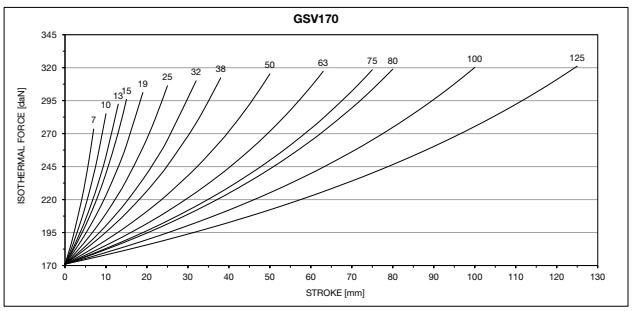
p. 16

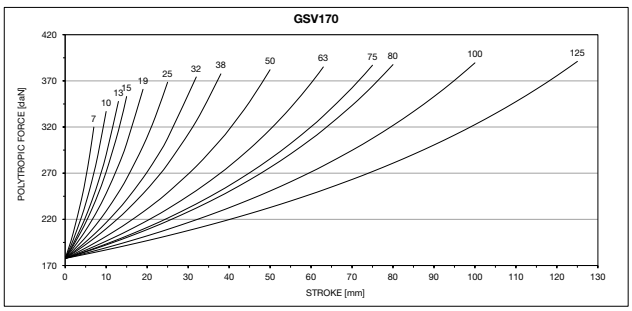
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	180 bar *2610 psi*	20 bar *290 psi*	0.95 cm² *0.147 in²*	~ 40 - 100 (at 20°C)	1.8 m/s	Disposable

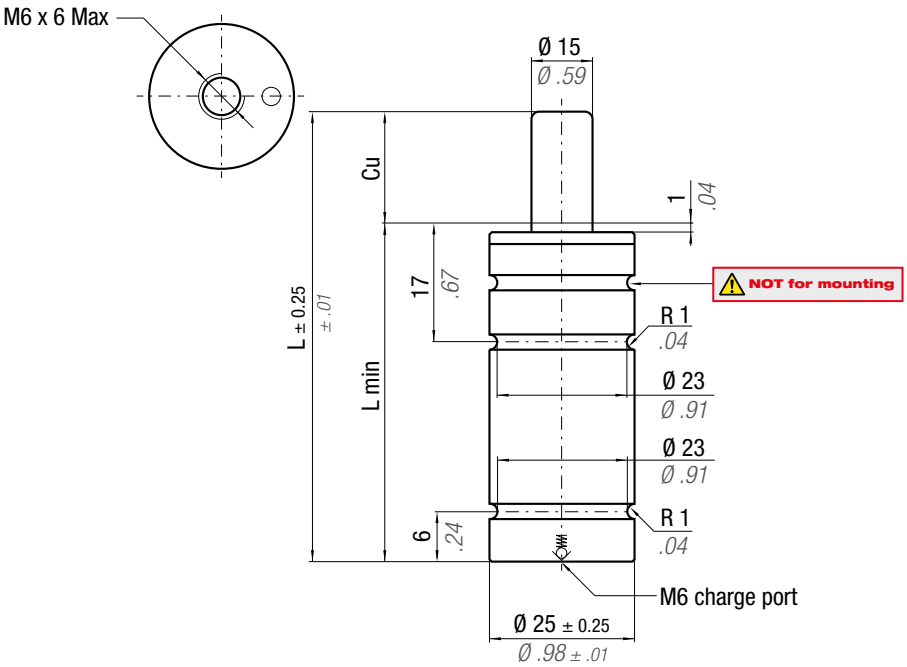
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSV170-7	7	*0.28*	44	*1.73*	37	*1.46*			256	*576*	295	*663*	2.0	*0.12*	0.06	*0.13*	✓
GSV170-10	10	*0.39*	50	*1.97*	40	*1.57*			270	*607*	315	*707*	3.0	*0.18*	0.06	*0.13*	✓
GSV170-13	13	*0.51*	56	*2.20*	43	*1.69*			279	*628*	328	*738*	4.0	*0.24*	0.07	*0.15*	✓
GSV170-15	15	*0.59*	60	*2.36*	45	*1.77*			284	*638*	335	*753*	4.0	*0.24*	0.07	*0.15*	✓
GSV170-19	19	*0.75*	68	*2.68*	49	*1.93*	170 *382* ± 5%		291	*654*	346	*777*	5.0	*0.31*	0.07	*0.16*	✓
GSV170-25	25	*0.98*	80	*3.15*	55	*2.17*			298	*670*	356	*801*	7.0	*0.43*	0.08	*0.17*	✓
GSV170-32	32	*1.26*	94	*3.7*	62	*2.44*	180 bar *2610psi*		304	*683*	365	*820*	8.0	*0.49*	0.09	*0.19*	✓
GSV170-38	38	*1.5*	106	*4.17*	68	*2.68*			307	*690*	370	*831*	10.0	*0.61*	0.09	*0.20*	✓
GSV170-50	50	*1.97*	130	*5.12*	80	*3.15*			312	*700*	376	*846*	13.0	*0.79*	0.11	*0.23*	✓
GSV170-63	63	*2.48*	156	*6.14*	93	*3.66*	+ 20 °C *+68 °F*		315	*707*	381	*857*	16.0	*0.98*	0.12	*0.26*	✓
GSV170-75	75	*2.95*	185	*7.28*	110	*4.33*			304	*684*	366	*822*	19.0	*1.16*	0.14	*0.30*	✓
GSV170-80	80	*3.15*	195	*7.68*	115	*4.53*			306	*687*	368	*826*	21.0	*1.28*	0.14	*0.31*	✓
GSV170-100	100	*3.94*	235	*9.25*	135	*5.31*			310	*696*	373	*840*	25.0	*1.55*	0.16	*0.36*	✓
GSV170-125	125	*4.92*	285	*11.22*	160	*6.3*			313	*703*	379	*851*	31.0	*1.91*	0.19	*0.42*	✓

Order Callout Example:
GSV170-50
GSV170-50-CP
GSV2400-050-A

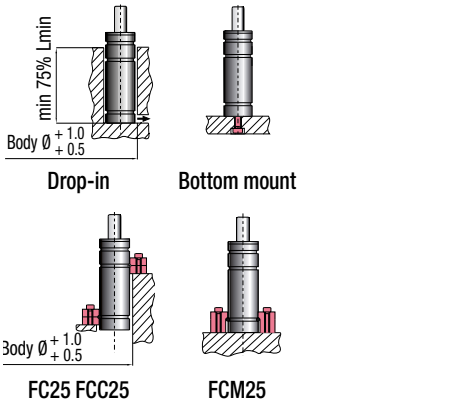




GSV 320



Fixings



*** $F1_i$ =** Isothermal end force at 100% Cu

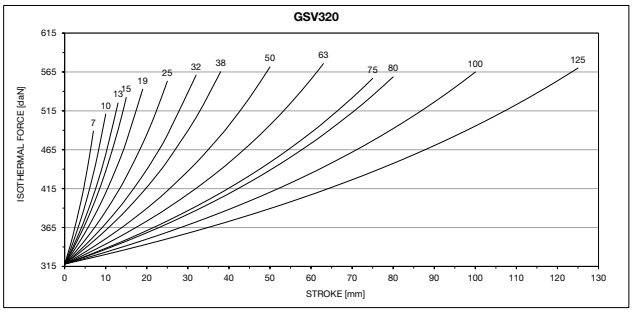
p. 16

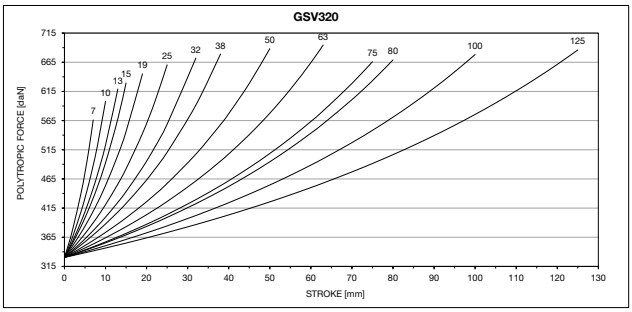
**** $F1_p$ =** Polytrophic end force at 100% Cu

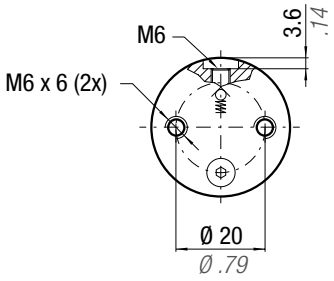
N2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	180 bar *2610 psi*	20 bar *290 psi*	1.77 cm² *0.27 in²*	~ 40 - 100 (at 20°C)	1.8 m/s	Disposable

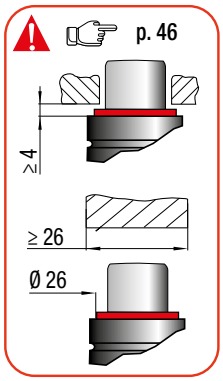
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSV320-7	7	*0.28*	44	*1.73*	37	*1.46*			465	*1045*	531	*1194*	5.0	*0.31*	0.10	*0.22*	✓
GSV320-10	10	*0.39*	50	*1.97*	40	*1.57*			489	*1098*	566	*1272*	6.0	*0.37*	0.10	*0.23*	✓
GSV320-13	13	*0.51*	56	*2.20*	43	*1.69*			505	*1135*	589	*1324*	8.0	*0.49*	0.11	*0.24*	✓
GSV320-15	15	*0.59*	60	*2.36*	45	*1.77*			513	*1154*	602	*1353*	8.0	*0.49*	0.11	*0.24*	✓
GSV320-19	19	*0.75*	68	*2.68*	49	*1.93*	320	*719*	526	*1183*	620	*1394*	10.0	*0.61*	0.12	*0.26*	✓
GSV320-25	25	*0.98*	80	*3.15*	55	*2.17*	± 5%		539	*1212*	640	*1439*	13.0	*0.79*	0.13	*0.28*	✓
GSV320-32	32	*1.26*	94	*3.70*	62	*2.44*			549	*1234*	654	*1470*	16.0	*0.98*	0.14	*0.31*	✓
GSV320-38	38	*1.50*	106	*4.17*	68	*2.68*	180 bar *2610psi*		555	*1248*	663	*1490*	19.0	*1.16*	0.15	*0.33*	✓
GSV320-50	50	*1.97*	130	*5.12*	80	*3.15*			563	*1266*	676	*1520*	24.0	*1.46*	0.17	*0.37*	✓
GSV320-63	63	*2.48*	156	*6.14*	93	*3.66*	+ 20 °C *+68 °F*		569	*1279*	684	*1538*	30.0	*1.83*	0.19	*0.42*	✓
GSV320-75	75	*2.95*	185	*7.28*	110	*4.33*			552	*1240*	658	*1479*	38.0	*2.32*	0.22	*0.48*	✓
GSV320-80	80	*3.15*	195	*7.68*	115	*4.53*			554	*1245*	662	*1488*	40.0	*2.44*	0.23	*0.50*	✓
GSV320-100	100	*3.94*	235	*9.25*	135	*5.31*			561	*1261*	672	*1511*	49.0	*2.99*	0.26	*0.57*	✓
GSV320-125	125	*4.92*	285	*11.22*	160	*6.30*			567	*1274*	681	*1531*	60.0	*4.08*	0.30	*0.66*	✓

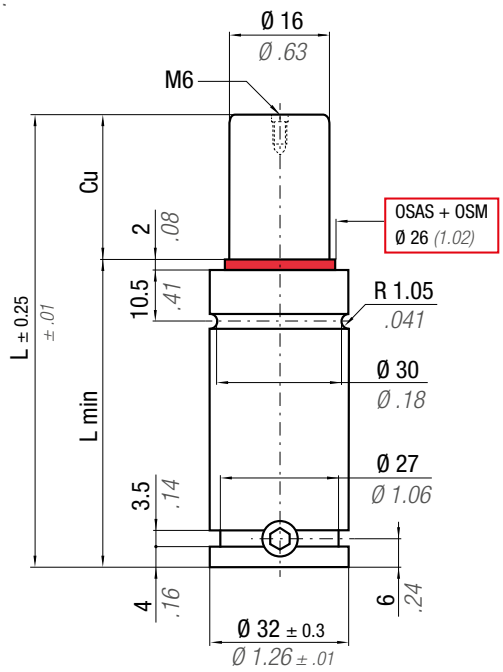
Order Callout Example:
GSV320-50
GSV320-50-CP



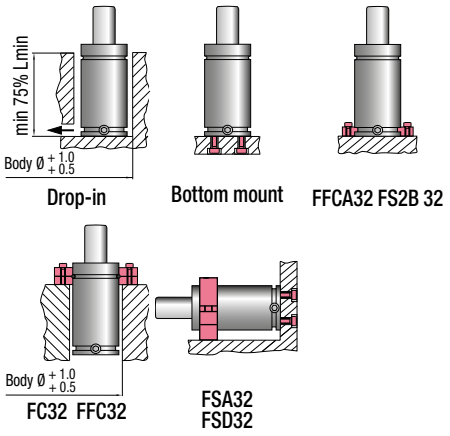








Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

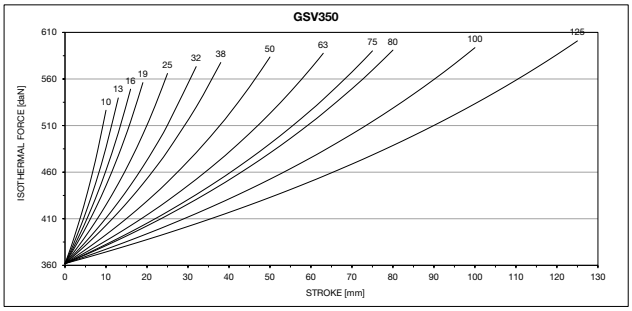
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

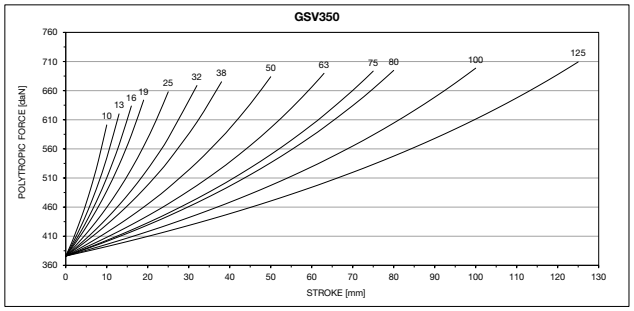
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	180 bar *2610 psi*	20 bar *290 psi*	2.01 cm² *0.312 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV00350C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	
GSV350-10	10	0.39	50	1.97	40	1.57			524	1179	598	1345	8.0	0.49	0.17	0.36	✓
GSV350-13	13	0.51	56	2.20	43	1.69			538	1209	617	1388	10.0	0.61	0.18	0.39	✓
GSV350-16	16	0.63	62	2.44	46	1.81			547	1231	631	1419	12.0	0.73	0.19	0.41	✓
GSV350-19	19	0.75	68	2.68	49	1.93			555	1247	642	1442	13.0	0.79	0.19	0.43	✓
GSV350-25	25	0.98	80	3.15	55	2.17	360 ± 5%	809	565	1269	656	1475	17.0	1.04	0.21	0.47	✓
GSV350-32	32	1.26	94	3.70	62	2.44			572	1286	667	1500	21.0	1.28	0.24	0.52	✓
GSV350-38	38	1.50	106	4.17	68	2.68	180 bar		577	1297	674	1515	25.0	1.53	0.26	0.56	✓
GSV350-50	50	1.97	130	5.12	80	3.15	*2610psi*		583	1310	683	1535	32.0	1.95	0.30	0.65	✓
GSV350-63	63	2.48	156	6.14	93	3.66	+ 20 °C	+68 °F	587	1320	689	1549	40.0	2.44	0.34	0.74	✓
GSV350-75	75	2.95	180	7.09	105	4.13			590	1326	693	1557	47.0	2.87	0.38	0.83	✓
GSV350-80	80	3.15	190	7.48	110	4.33			591	1328	694	1560	50.0	3.05	0.39	0.86	✓
GSV350-100	100	3.94	230	9.06	130	5.12			593	1334	698	1569	62.0	3.78	0.46	1.01	✓
GSV350-125	125	4.92	280	11.02	155	6.10			595	1338	701	1576	77.0	4.70	0.54	1.18	✓

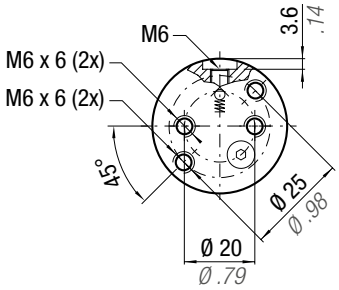
Order Callout Example:
GSV350-50
GSV350-50-N
GSV350-50-CP

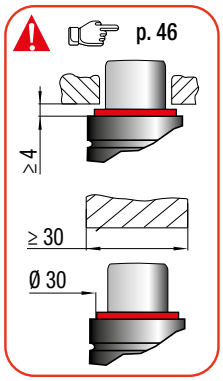


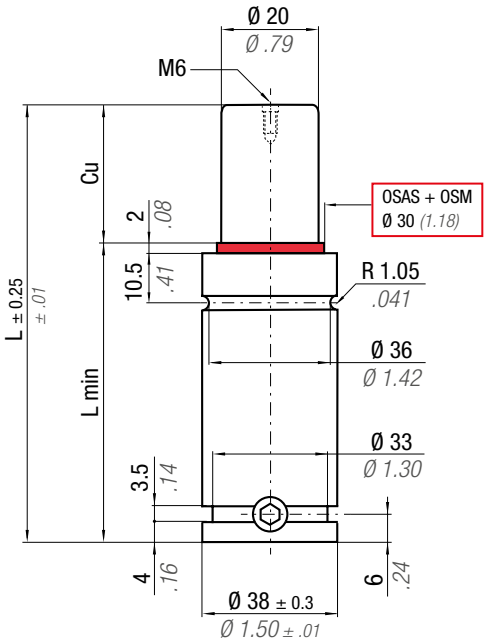


GSV 500

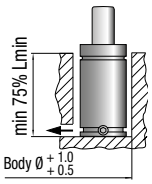
ISO 11901 - 3	VDI 3003 - Blatt 3	B2 4005 (BMW)
W-DX35-6204 (Ford)	B8 3180 220 000 004(MB)	K 32 H (Nissan)
39D 997 (VW)	075.90.60 (FCA)	E24.54.815.G (PSA)





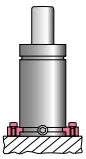


Fixings

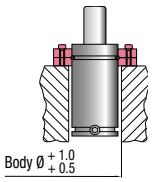


Drop-in

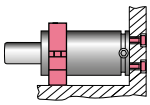
Bottom mount



FFCA38 - FT 38
FFC38 - FTP38



FC 38
FCQ38



FSA38
FSD38

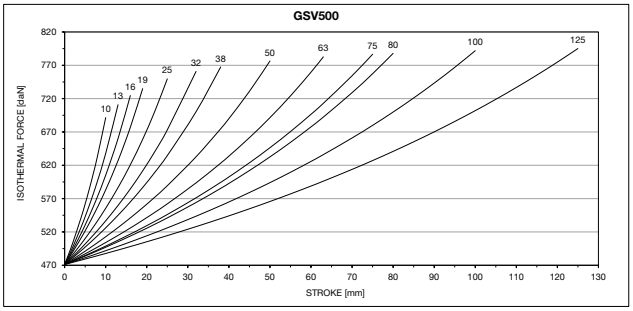
OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

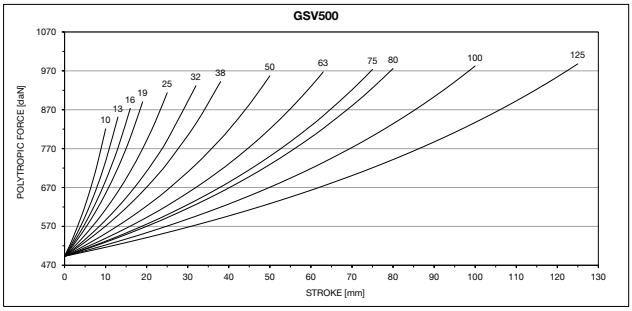
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16 **** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	3.14 cm² *0.487 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV00500C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSV500-10	10	*0.39*	50	*1.97*	40	*1.57*			693	*1559*	824	*1852*	11.0	*0.67*	0.27	*0.60*	✓
GSV500-13	13	*0.51*	56	*2.20*	43	*1.69*			713	*1602*	854	*1920*	14.0	*0.85*	0.25	*0.55*	✓
GSV500-16	16	*0.63*	62	*2.44*	46	*1.81*			726	*1633*	876	*1969*	17.0	*1.04*	0.26	*0.57*	✓
GSV500-19	19	*0.75*	68	*2.68*	49	*1.93*			736	*1656*	892	*2005*	19.0	*1.16*	0.28	*0.62*	✓
GSV500-25	25	*0.98*	80	*3.15*	55	*2.17*	470 ± 5%	*1057*	751	*1688*	916	*2059*	24.0	*1.46*	0.31	*0.68*	✓
GSV500-32	32	*1.26*	94	*3.70*	62	*2.44*			762	*1713*	933	*2097*	30.0	*1.83*	0.34	*0.75*	✓
GSV500-38	38	*1.50*	106	*4.17*	68	*2.68*	150 bar	*2175psi*	768	*1727*	944	*2122*	35.0	*2.14*	0.37	*0.82*	✓
GSV500-50	50	*1.97*	130	*5.12*	80	*3.15*			777	*1747*	958	*2154*	46.0	*2.81*	0.43	*0.95*	✓
GSV500-63	63	*2.48*	156	*6.14*	93	*3.66*			783	*1761*	968	*2176*	57.0	*3.48*	0.49	*1.08*	✓
GSV500-75	75	*2.95*	180	*7.09*	105	*4.13*	+ 20 °C	*+68 °F*	787	*1769*	975	*2192*	67.0	*4.09*	0.54	*1.19*	✓
GSV500-80	80	*3.15*	190	*7.48*	110	*4.33*			788	*1772*	977	*2196*	72.0	*4.39*	0.57	*1.26*	✓
GSV500-100	100	*3.94*	230	*9.06*	130	*5.12*			792	*1781*	983	*2210*	89.0	*5.43*	0.66	*1.46*	✓
GSV500-125	125	*4.92*	280	*11.02*	155	*6.10*			795	*1788*	989	*2223*	110.0	*6.71*	0.78	*1.72*	✓

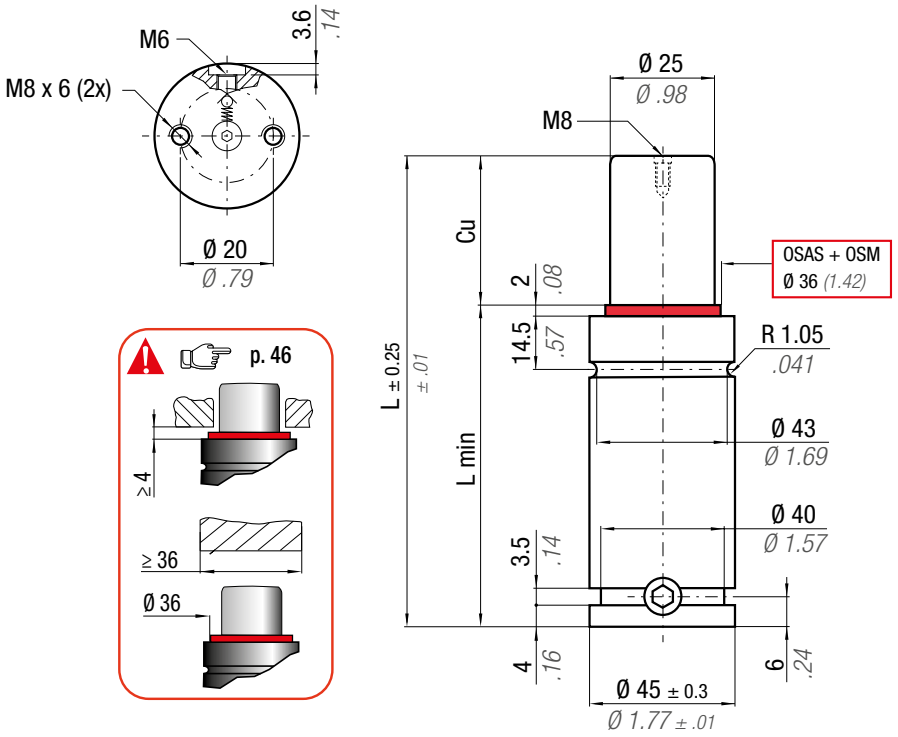
Order Callout Example:
GSV500-50
GSV500-50-N
GSV500-50-CP



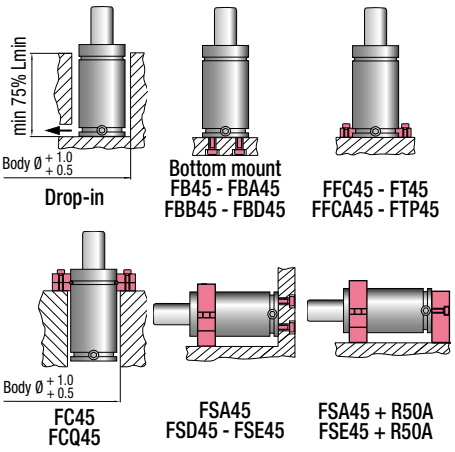


ISO 11901 - 3	VDI 3003 - Blatt 3	B2 4005 (BMW)
B8 3180 220 000 004(MB)	E24.54.815.G (PSA)	39D 997 (VW)
W-DX35-6204 (Ford)		

GSV 750



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

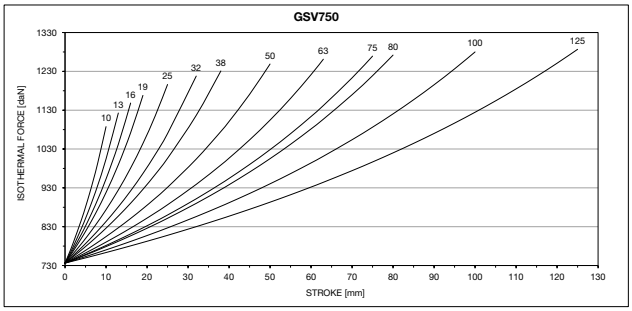
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

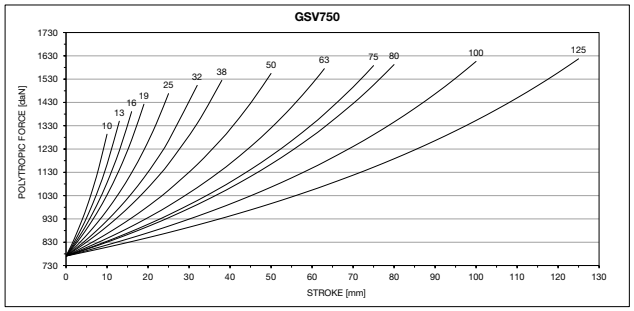
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar 2175 psi	20 bar 290 psi	4.91 cm² 0.761 in²	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV00750C

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	F0 Initial force daN	F0 lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	V0 cm³	V0 in³	~Kg	~lb	PED 2014/68/EU
GSV750-10	10	0.39	52	2.05	42	1.65	740 ± 5%	1664	1091	2452	1298	2918	18.0	1.10	0.36	0.79	✓
GSV750-13	13	0.51	58	2.28	45	1.77			1125	2530	1354	3044	21.0	1.28	0.38	0.84	✓
GSV750-16	16	0.63	64	2.52	48	1.89			1151	2587	1395	3136	25.0	1.53	0.40	0.88	✓
GSV750-19	19	0.75	70	2.76	51	2.01			1170	2631	1426	3206	29.0	1.77	0.42	0.93	✓
GSV750-25	25	0.98	82	3.23	57	2.24			1198	2694	1471	3307	37.0	2.26	0.45	0.99	✓
GSV750-32	32	1.26	96	3.78	64	2.52			1220	2742	1506	3386	46.0	2.81	0.50	1.10	✓
GSV750-38	38	1.50	108	4.25	70	2.76			1232	2771	1527	3433	53.0	3.23	0.54	1.19	✓
GSV750-50	50	1.97	132	5.20	82	3.23	150 bar 2175psi		1250	2810	1556	3498	68.0	4.15	0.61	1.34	✓
GSV750-63	63	2.48	158	6.22	95	3.74			1262	2838	1577	3545	85.0	5.19	0.70	1.54	✓
GSV750-75	75	2.95	182	7.17	107	4.21	+ 20 °C	+68 °F	1270	2855	1590	3574	100.0	6.10	0.78	1.72	✓
GSV750-80	80	3.15	192	7.56	112	4.41			1273	2861	1594	3583	107.0	6.53	0.81	1.79	✓
GSV750-100	100	3.94	232	9.13	132	5.20			1281	2879	1607	3613	132.0	8.05	0.94	2.07	✓
GSV750-125	125	4.92	282	11.10	157	6.18			1287	2894	1618	3637	164.0	10.00	1.10	2.43	✓

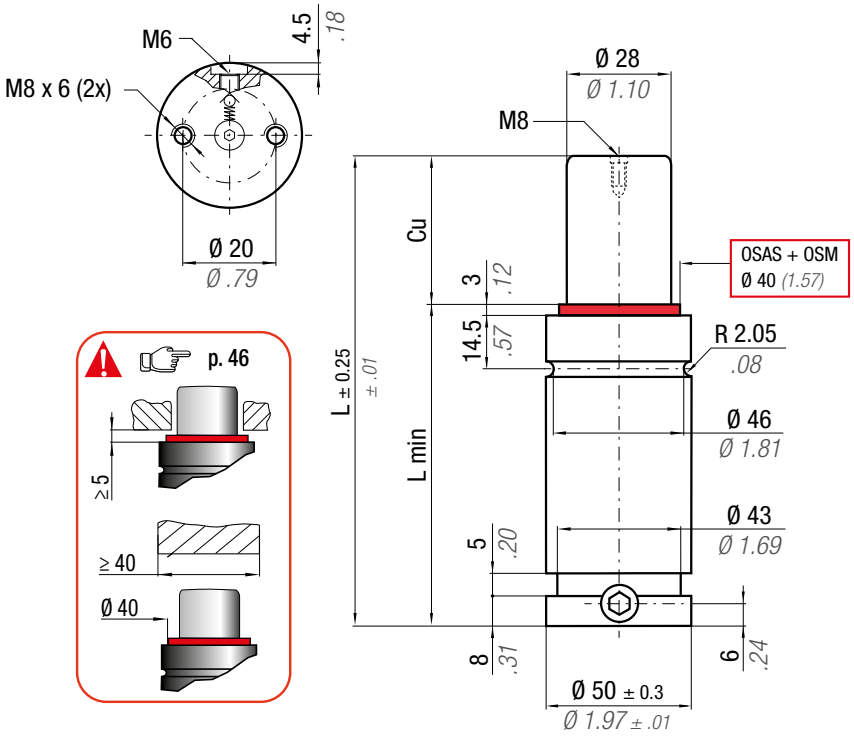
Order Callout Example:
GSV750-50
GSV750-50-N
GSV750-50-CP



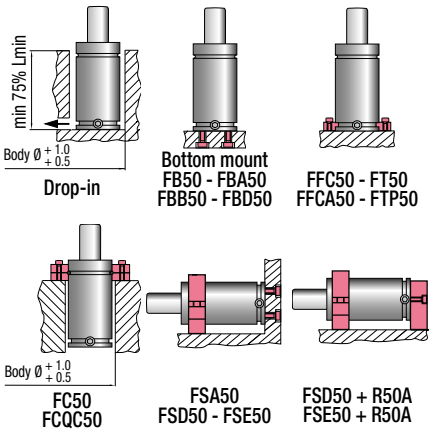


GSV 1000

ISO 11901 - 3	VDI 3003 - Blatt 3	B2 4005 (BMW)
B8 3180 220 000 004(MB)	E24.54.815.G (PSA)	39D 997 (VW)
W-DX35-6204 (Ford)		



Fixings



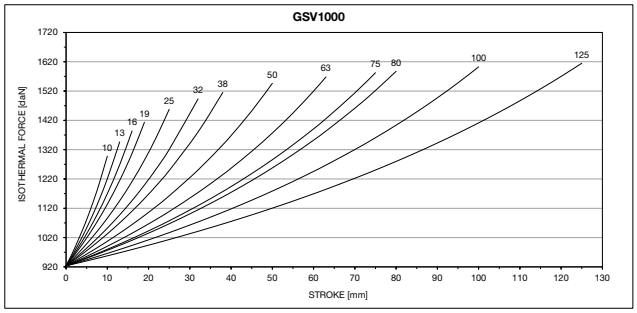
OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

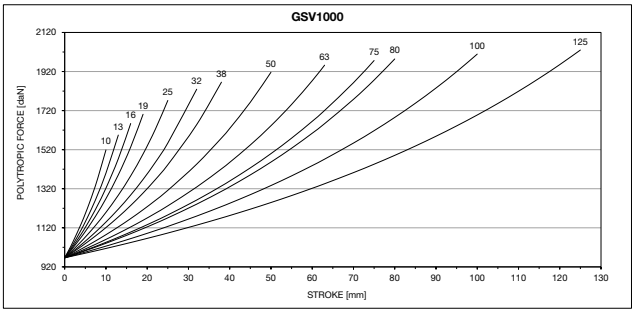
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16 **** $F1_p$ =** Polytrophic end force at 100% Cu

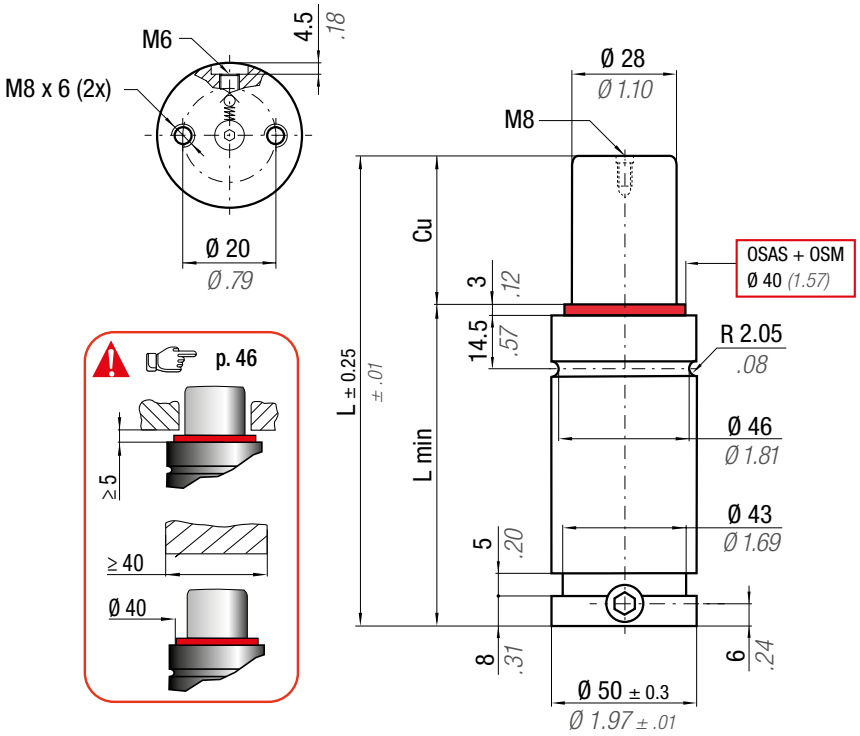
N_2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	6.15 cm² *0.953 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV01000C

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	Fo daN	Fo lb	$F1_i$ * daN	$F1_i$ * lb	$F1_p$ ** daN	$F1_p$ ** lb	Vo cm³	Vo in³	~Kg	~lb	PED 2014/68/EU
GSV1000-10	10	0.39	58	2.28	48	1.89	920 ± 5%	2068	1300	2923	1523	3424	25.0	1.53	0.49	1.08	✓
GSV1000-13	13	0.51	64	2.52	51	2.01			1349	3033	1599	3595	29.0	1.77	0.51	1.12	✓
GSV1000-16	16	0.63	70	2.76	54	2.13			1386	3117	1658	3727	34.0	2.07	0.54	1.19	✓
GSV1000-19	19	0.75	76	2.99	57	2.24			1416	3183	1705	3833	39.0	2.38	0.56	1.23	✓
GSV1000-25	25	0.98	88	3.46	63	2.48			1460	3282	1775	3990	48.0	2.93	0.61	1.34	✓
GSV1000-32	32	1.26	102	4.02	70	2.76			1495	3361	1832	4118	59.0	3.60	0.67	1.48	✓
GSV1000-38	38	1.50	114	4.49	76	2.99	150 bar *2175 psi*		1517	3410	1868	4199	69.0	4.21	0.72	1.59	✓
GSV1000-50	50	1.97	138	5.43	88	3.46			1548	3479	1919	4314	88.0	5.37	0.81	1.79	✓
GSV1000-63	63	2.48	164	6.46	101	3.98			1570	3528	1955	4395	108.0	6.59	0.92	2.03	✓
GSV1000-75	75	2.95	188	7.40	113	4.45	+ 20 °C *+68 °F*		1584	3560	1978	4447	127.0	7.75	1.01	2.23	✓
GSV1000-80	80	3.15	198	7.80	118	4.65			1589	3571	1986	4465	135.0	8.24	1.05	2.31	✓
GSV1000-100	100	3.94	238	9.37	138	5.43			1603	3604	2011	4521	166.0	10.13	1.21	2.67	✓
GSV1000-125	125	4.92	288	11.34	163	6.42			1616	3632	2031	4566	205.0	12.51	1.41	3.11	✓

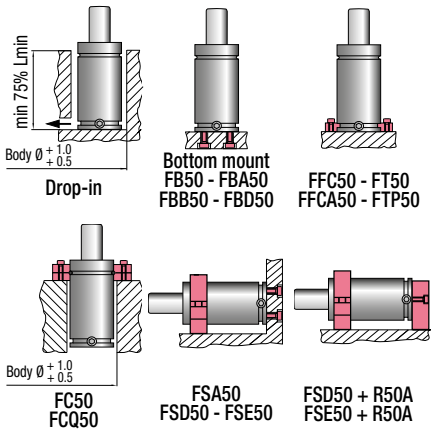
Order Callout Example:
GSV1000-50
GSV1000-50-N
GSV1000-50-CP







Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

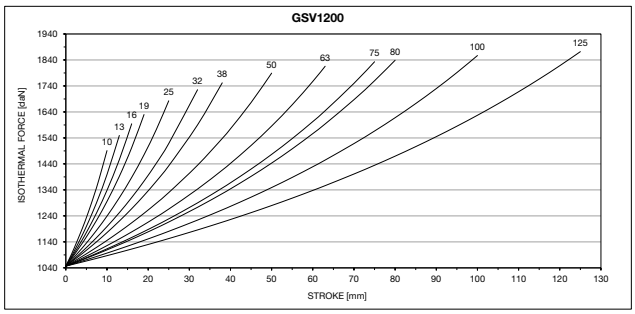
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

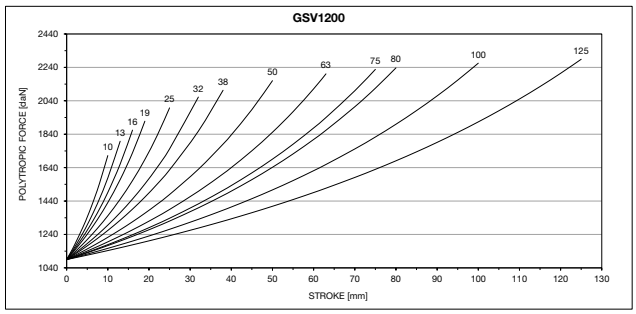
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	170 bar *2465 psi*	20 bar *290 psi*	6.15 cm² *0.953 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV01200C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSV1200-10	10	*0.39*	58	*2.28*	48	*1.89*			1494	*3359*	1717	*3859*	25.0	*1.53*	0.49	*1.08*	✓
GSV1200-13	13	*0.51*	64	*2.52*	51	*2.01*			1553	*3490*	1802	*4052*	30.0	*1.83*	0.51	*1.12*	✓
GSV1200-16	16	*0.63*	70	*2.76*	54	*2.13*			1597	*3591*	1869	*4202*	34.0	*2.07*	0.54	*1.19*	✓
GSV1200-19	19	*0.75*	76	*2.99*	57	*2.24*			1633	*3671*	1922	*4321*	39.0	*2.38*	0.56	*1.23*	✓
GSV1200-25	25	*0.98*	88	*3.46*	63	*2.48*	1060 ± 5%	*2383*	1685	*3789*	2001	*4500*	48.0	*2.93*	0.61	*1.34*	✓
GSV1200-32	32	*1.26*	102	*4.02*	70	*2.76*			1728	*3884*	2066	*4644*	59.0	*3.60*	0.67	*1.48*	✓
GSV1200-38	38	*1.50*	114	*4.49*	76	*2.99*	170 bar	*2465 psi*	1754	*3943*	2106	*4735*	69.0	*4.21*	0.72	*1.59*	✓
GSV1200-50	50	*1.97*	138	*5.43*	88	*3.46*			1791	*4026*	2163	*4863*	88.0	*5.37*	0.81	*1.79*	✓
GSV1200-63	63	*2.48*	164	*6.46*	101	*3.98*	+ 20 °C	*+68 °F*	1817	*4085*	2204	*4954*	108.0	*6.59*	0.92	*2.03*	✓
GSV1200-75	75	*2.95*	188	*7.40*	113	*4.45*			1834	*4124*	2230	*5013*	127.0	*7.75*	1.01	*2.23*	✓
GSV1200-80	80	*3.15*	198	*7.80*	118	*4.65*			1840	*4137*	2239	*5033*	135.0	*8.24*	1.05	*2.31*	✓
GSV1200-100	100	*3.94*	238	*9.37*	138	*5.43*			1858	*4177*	2267	*5096*	166.0	*10.13*	1.21	*2.67*	✓
GSV1200-125	125	*4.92*	288	*11.34*	163	*6.42*			1873	*4210*	2290	*5148*	205.0	*12.51*	1.41	*3.11*	✓

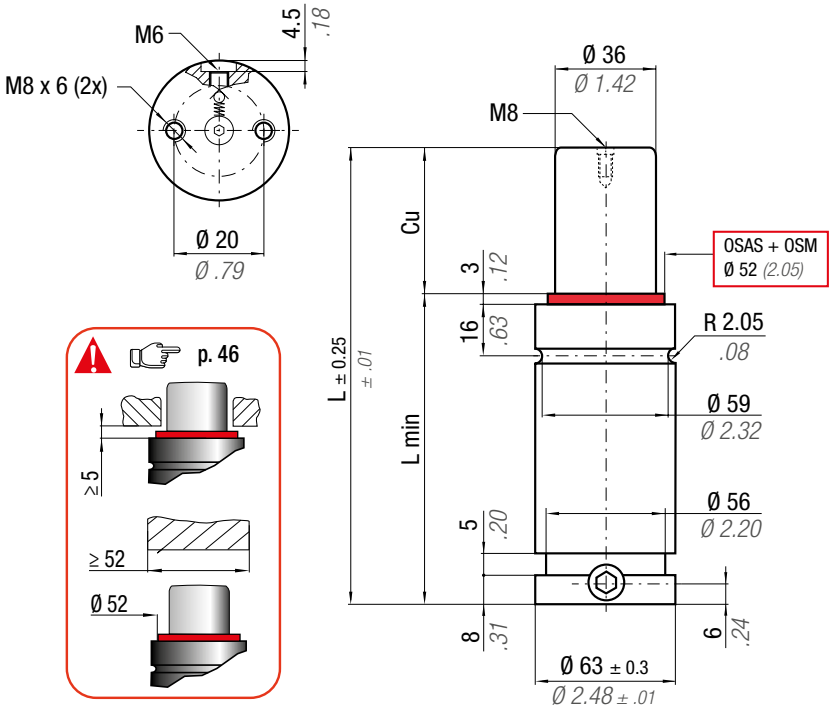
Order Callout Example:
GSV1200-50
GSV1200-50-N
GSV1200-50-CP



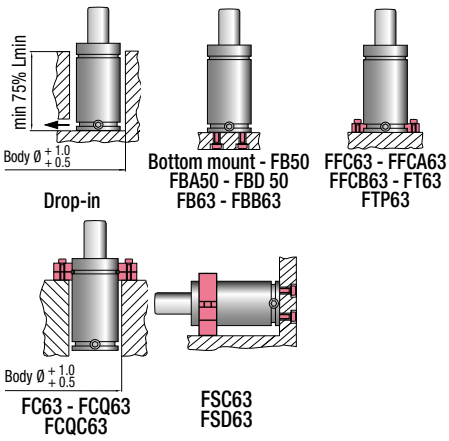


GSV 1500

ISO 11901 - 3	VDI 3003 - Blatt 3	B2 4005 (BMW)
B8 3180 220 000 004(MB)	39D 997 (VW)	W-DX35-6204 (Ford)



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

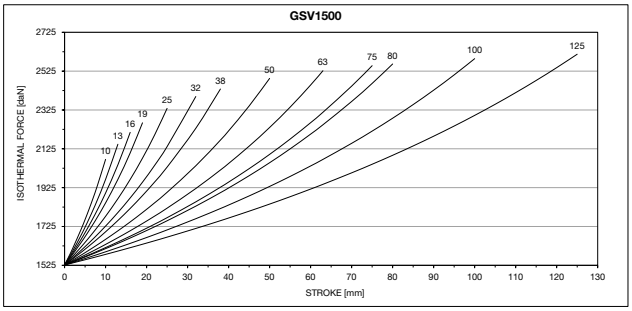
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

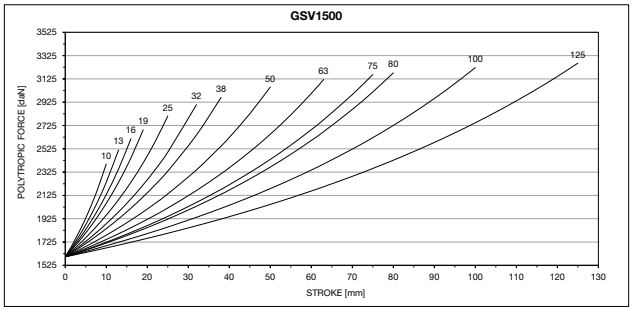
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	10.18 cm² *1.578 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV01500C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSV1500-10	10	*0.39*	64	*2.52*	54	*2.13*			2074	*4663*	2400	*5395*	45.0	*2.75*	0.88	*1.94*	✓
GSV1500-13	13	*0.51*	70	*2.76*	57	*2.24*			2152	*4838*	2521	*5667*	53.0	*3.23*	0.91	*2.01*	✓
GSV1500-16	16	*0.63*	76	*2.99*	60	*2.36*			2213	*4975*	2616	*5881*	61.0	*3.72*	0.96	*2.12*	✓
GSV1500-19	19	*0.75*	82	*3.23*	63	*2.48*			2262	*5085*	2693	*6054*	69.0	*4.21*	0.99	*2.18*	✓
GSV1500-25	25	*0.98*	94	*3.70*	69	*2.72*	1530 *3440* ± 5%		2336	*5252*	2811	*6319*	85.0	*5.19*	1.06	*2.34*	✓
GSV1500-32	32	*1.26*	108	*4.25*	76	*2.99*			2397	*5389*	2908	*6537*	103.0	*6.28*	1.14	*2.51*	✓
GSV1500-38	38	*1.50*	120	*4.72*	82	*3.23*			2435	*5475*	2971	*6679*	119.0	*7.26*	1.21	*2.67*	✓
GSV1500-50	50	*1.97*	144	*5.67*	94	*3.70*	150 bar *2175 psi*		2490	*5597*	3059	*6877*	151.0	*9.21*	1.36	*3.00*	✓
GSV1500-63	63	*2.48*	170	*6.69*	107	*4.21*			2529	*5685*	3123	*7021*	186.0	*11.35*	1.52	*3.35*	✓
GSV1500-75	75	*2.95*	194	*7.64*	119	*4.69*	+ 20 °C *+68 °F*		2555	*5743*	3165	*7115*	217.0	*13.24*	1.66	*3.66*	✓
GSV1500-80	80	*3.15*	204	*8.03*	124	*4.88*			2563	*5763*	3180	*7149*	231.0	*14.09*	1.72	*3.79*	✓
GSV1500-100	100	*3.94*	244	*9.61*	144	*5.67*			2590	*5824*	3224	*7248*	284.0	*17.32*	1.95	*4.30*	✓
GSV1500-125	125	*4.92*	294	*11.57*	169	*6.65*			2613	*5875*	3262	*7333*	350.0	*21.36*	2.24	*4.94*	✓

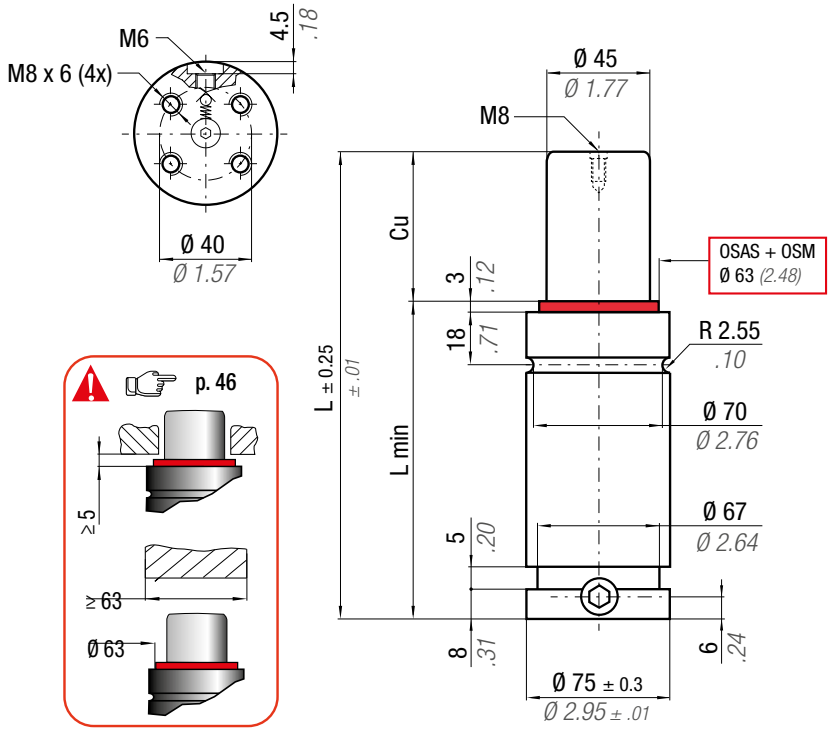
Order Callout Example:
GSV1500-50
GSV1500-50-N
GSV1500-50-CP



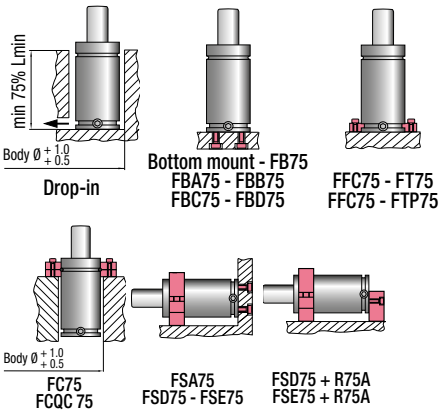


ISO 11901 - 3	VDI 3003 - Blatt 3	B2 4005 (BMW)
B8 3180 220 000 004(MB)	E24.54.815.G (PSA)	39D 997 (VW)
W-DX35-6204 (Ford)		

GSV 2400



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

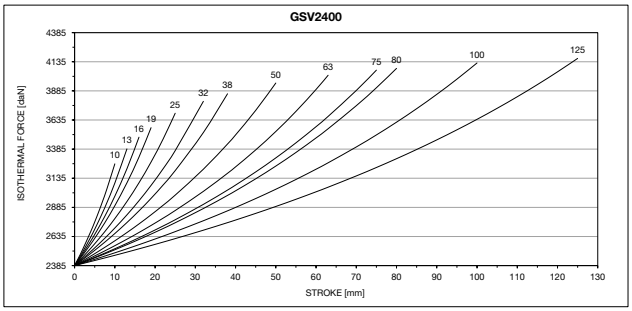
**** $F1_p$ =** Polytrophic end force at 100% Cu

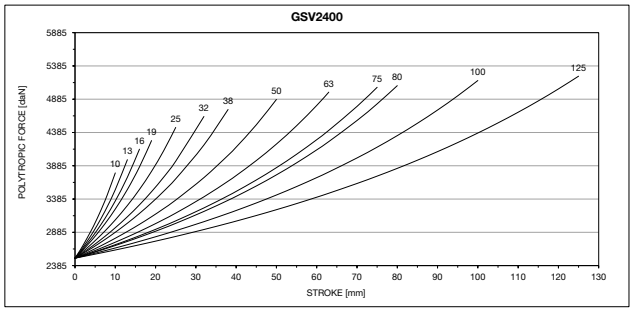
N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	15.90 cm² *2.465 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV02400C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ End force *		$F1_p$ End force **		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSV2400-10	10	*0.39*	65	*2.56*	55	*2.17*	2385 ± 5%	*5362*	3264	*7338*	3786	*8511*	69.0	*4.21*	1.25	*2.76*	✓
GSV2400-13	13	*0.51*	71	*2.80*	58	*2.28*			3392	*7626*	3984	*8956*	81.0	*4.94*	1.30	*2.87*	✓
GSV2400-16	16	*0.63*	77	*3.03*	61	*2.40*			3493	*7852*	4142	*9312*	93.0	*5.67*	1.35	*2.98*	✓
GSV2400-19	19	*0.75*	83	*3.27*	64	*2.52*			3574	*8035*	4271	*9602*	105.0	*6.41*	1.40	*3.09*	✓
GSV2400-25	25	*0.98*	95	*3.74*	70	*2.76*			3698	*8313*	4468	*10044*	129.0	*7.87*	1.50	*3.31*	✓
GSV2400-32	32	*1.26*	109	*4.29*	77	*3.03*			3800	*8542*	4632	*10413*	157.0	*9.58*	1.61	*3.55*	✓
GSV2400-38	38	*1.50*	121	*4.76*	83	*3.27*			3864	*8687*	4737	*10649*	181.0	*11.04*	1.70	*3.75*	✓
GSV2400-50	50	*1.97*	145	*5.71*	95	*3.74*			3956	*8893*	4887	*10986*	230.0	*14.03*	1.89	*4.17*	✓
GSV2400-63	63	*2.48*	171	*6.73*	108	*4.25*			4022	*9042*	4996	*11231*	282.0	*17.20*	2.10	*4.63*	✓
GSV2400-75	75	*2.95*	195	*7.68*	120	*4.72*			4066	*9140*	5068	*11393*	330.0	*20.13*	2.29	*5.05*	✓
GSV2400-80	80	*3.15*	205	*8.07*	125	*4.92*			4081	*9174*	5093	*11450*	350.0	*21.35*	2.37	*5.22*	✓
GSV2400-100	100	*3.94*	245	*9.65*	145	*5.71*			4127	*9278*	5169	*11620*	431.0	*26.29*	2.68	*5.91*	✓
GSV2400-125	125	*4.92*	295	*11.61*	170	*6.69*			4166	*9365*	5234	*11767*	532.0	*32.45*	3.07	*6.77*	✓

150 bar *2175 psi*	+ 20 °C *+68 °F*

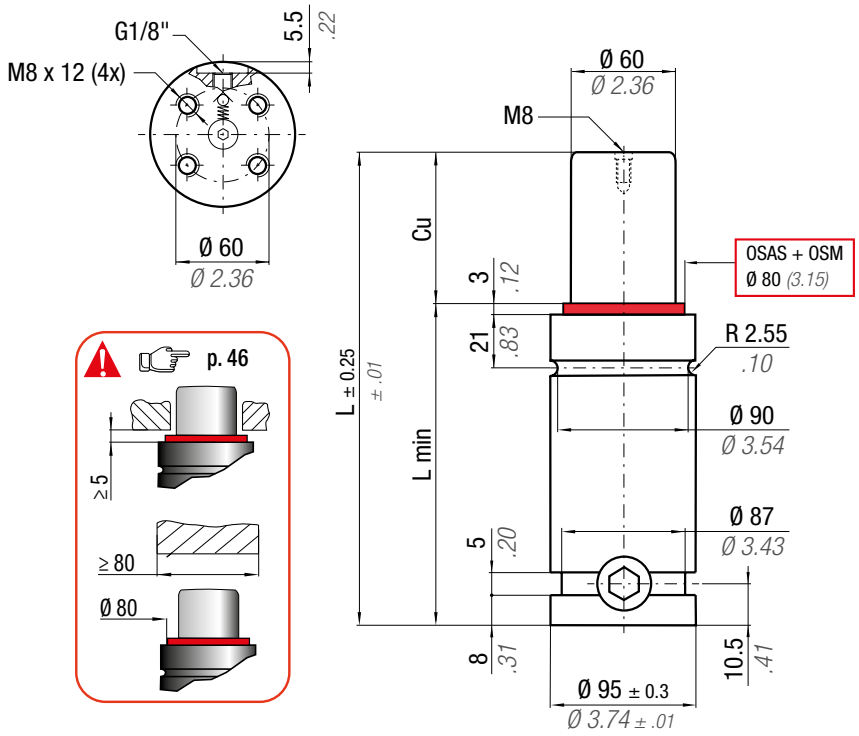
Order Callout Example:
GSV2400-50
GSV2400-50-N
GSV2400-50-CP



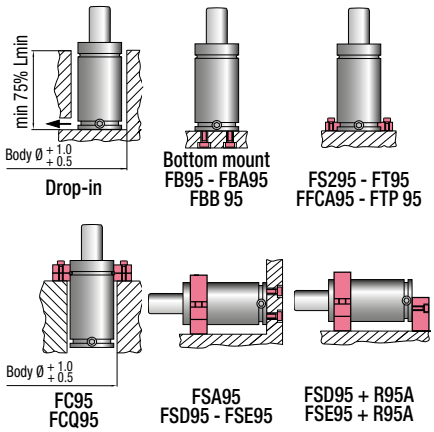


GSV 4200

ISO 11901 - 3	VDI 3003 - Blatt 3	B2 4005 (BMW)
W-DX35-6204 (Ford)	PG 24D (Mazda)	B8 3180 220 000 004(MB)
39D 997 (VW)	075.90.60 (FCA)	E24.54.815.G (PSA)



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

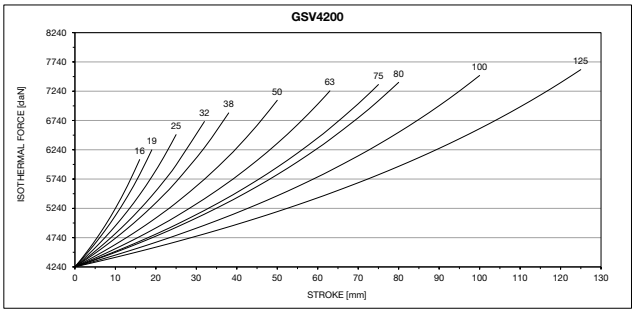
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

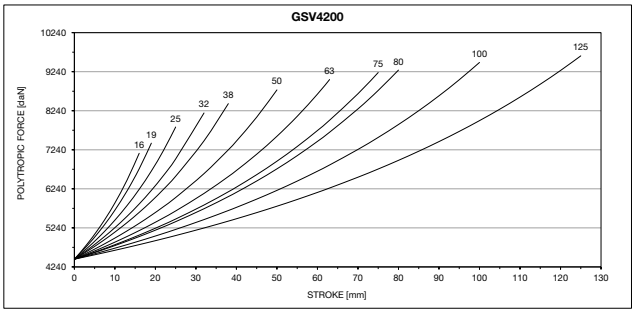
**** $F1_p$ =** Polytrophic end force at 100% Cu

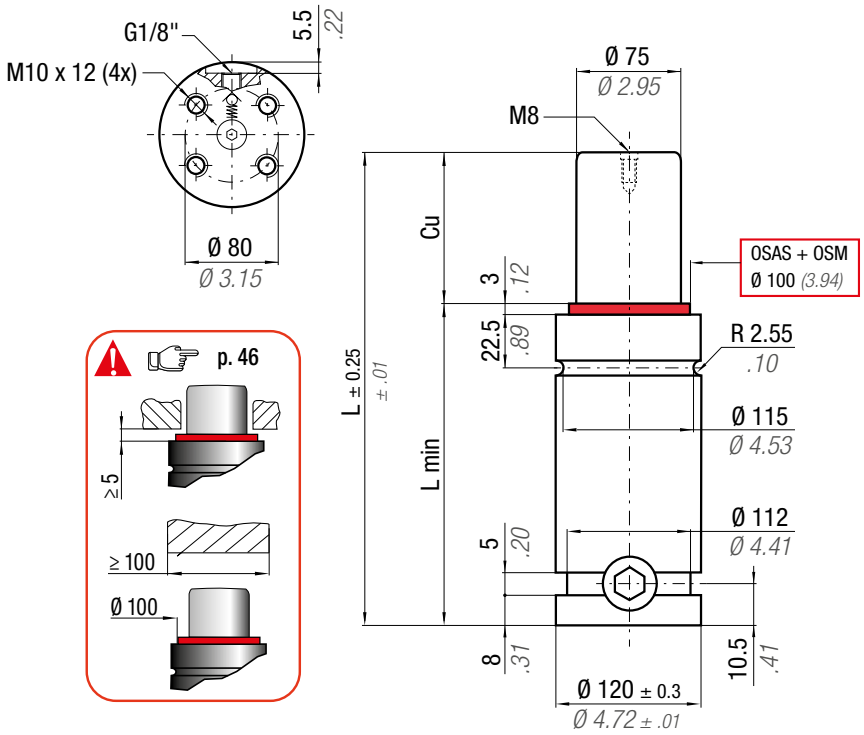
N2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	28.27 cm² *4.382 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV04200C

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	Fo Initial force daN	Fo lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	Vo cm³	Vo in³	~Kg	~lb	PED 2014/68/EU
GSV4200-16	16	*0.63*	90	*3.54*	74	*2.91*	4240 ± 5%	*9532*	6080	*13669*	7162	*16101*	173.0	*10.55*	2.76	*6.08*	✓
GSV4200-19	19	*0.75*	96	*3.78*	77	*3.03*			6246	*14041*	7421	*16683*	193.0	*11.77*	2.84	*6.26*	✓
GSV4200-25	25	*0.98*	108	*4.25*	83	*3.27*			6506	*14626*	7834	*17612*	234.0	*14.27*	2.99	*6.59*	✓
GSV4200-32	32	*1.26*	122	*4.80*	90	*3.54*			6729	*15128*	8194	*18421*	281.0	*17.14*	3.16	*6.97*	✓
GSV4200-38	38	*1.50*	134	*5.28*	96	*3.78*			6876	*15458*	8432	*18956*	322.0	*19.64*	3.31	*7.30*	✓
GSV4200-50	50	*1.97*	158	*6.22*	108	*4.25*	150 bar *2175 psi*		7091	*15940*	8783	*19745*	403.0	*24.58*	3.61	*7.96*	✓
GSV4200-63	63	*2.48*	184	*7.24*	121	*4.76*			7251	*16301*	9048	*20341*	491.0	*29.95*	3.94	*8.69*	✓
GSV4200-75	75	*2.95*	208	*8.19*	133	*5.24*			7359	*16543*	9227	*20743*	572.0	*34.89*	4.24	*9.35*	✓
GSV4200-80	80	*3.15*	218	*8.58*	138	*5.43*	+ 20 °C *+68 °F*		7396	*16626*	9288	*20880*	606.0	*36.97*	4.36	*9.61*	✓
GSV4200-100	100	*3.94*	258	*10.16*	158	*6.22*			7512	*16888*	9483	*21319*	741.0	*45.20*	4.86	*10.71*	✓
GSV4200-125	125	*4.92*	308	*12.13*	183	*7.20*			7612	*17113*	9651	*21696*	910.0	*55.51*	5.48	*12.08*	✓

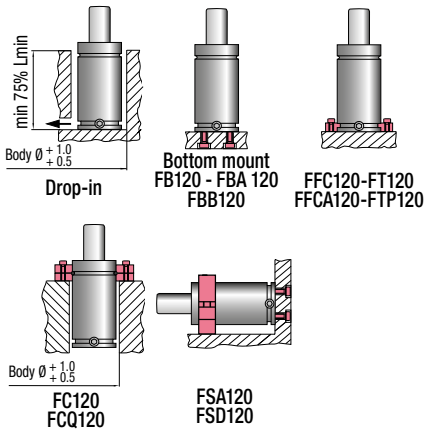
Order Callout Example:
GSV4200-50
GSV4200-50-N
GSV4200-50-CP







Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

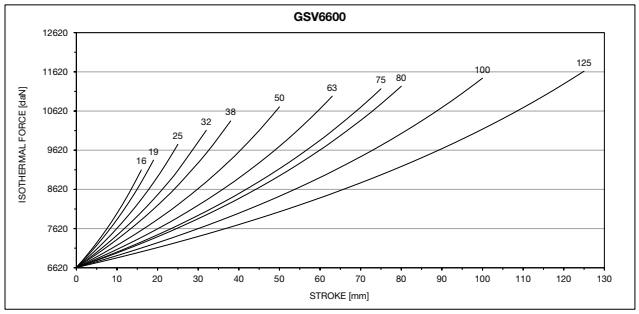
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

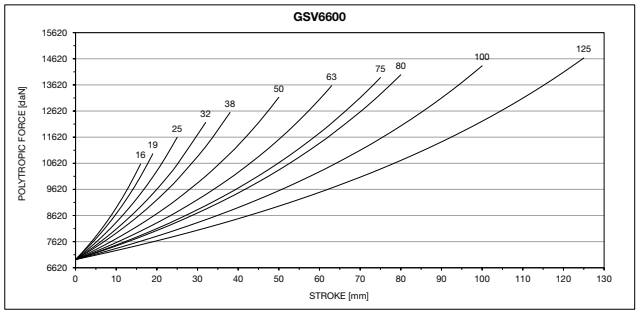
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	44.18 cm² *6.848 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV06600C

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	F0 Initial force daN	F0 lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	V0 cm³	V0 in³	~Kg	~lb	PED 2014/68/EU
GSV6600-16	16	0.63	100	3.94	84	3.31	6630 ± 5%	14904	9125	20515	10607	23845	300.0	18.30	5.12	11.29	✓
GSV6600-19	19	0.75	106	4.17	87	3.43			9376	21077	10995	24718	332.0	20.25	5.23	11.53	✓
GSV6600-25	25	0.98	118	4.65	93	3.66			9779	21985	11628	26141	396.0	24.16	5.47	12.06	✓
GSV6600-32	32	1.26	132	5.20	100	3.94			10136	22787	12195	27415	471.0	28.73	5.75	12.68	✓
GSV6600-38	38	1.50	144	5.67	106	4.17			10375	23325	12578	28276	535.0	32.64	5.99	13.21	✓
GSV6600-50	50	1.97	168	6.61	118	4.65	150 bar *2175 psi*		10733	24129	13157	29578	663.0	40.44	6.47	14.26	✓
GSV6600-63	63	2.48	194	7.64	131	5.16			11006	24743	13604	30583	801.0	48.86	6.99	15.41	✓
GSV6600-75	75	2.95	218	8.58	143	5.63			11193	25163	13911	31273	930.0	56.73	7.47	16.47	✓
GSV6600-80	80	3.15	228	8.98	148	5.83	+ 20 °C *+68 °F*		11258	25308	14018	31514	983.0	59.96	7.67	16.91	✓
GSV6600-100	100	3.94	268	10.55	168	6.61			11463	25771	14359	32280	1197.0	73.02	8.46	18.65	✓
GSV6600-125	125	4.92	318	12.52	193	7.60			11642	26171	14656	32948	1464.0	89.30	9.46	20.86	✓

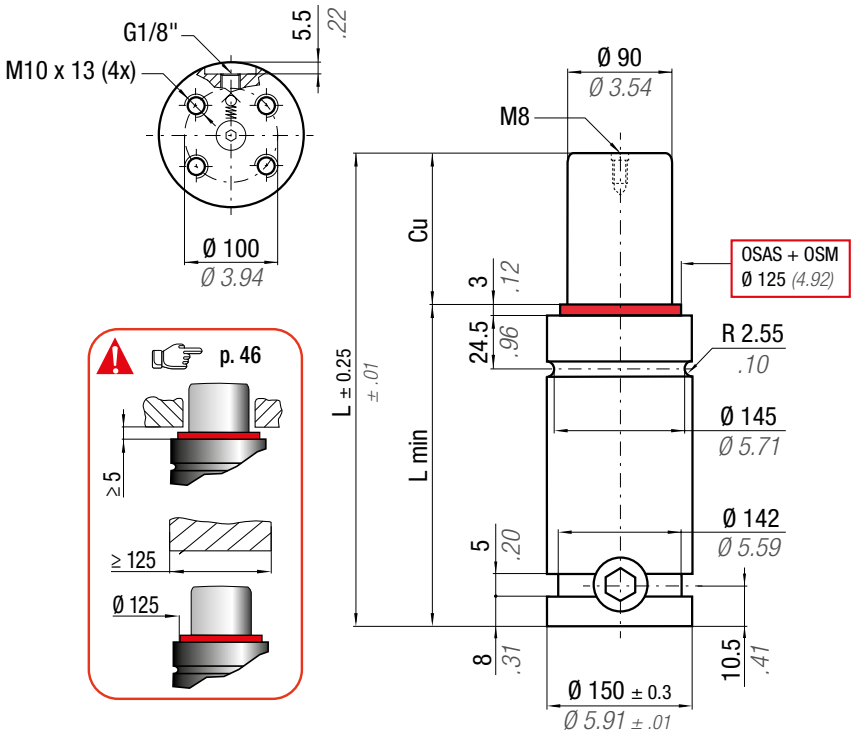
Order Callout Example:
GSV6600-50
GSV6600-50-N
GSV6600-50-CP



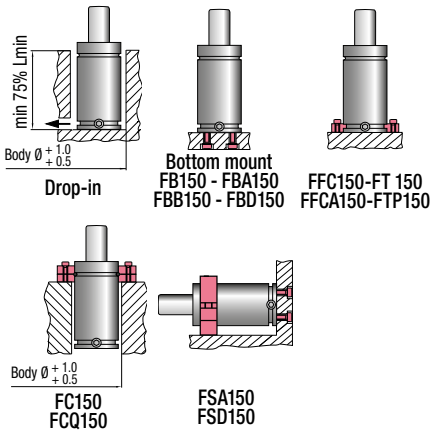


GSV 9500

ISO 11901 - 3	VDI 3003 - Blatt 3	B2 4005 (BMW)
W-DX35-6204 (Ford)	PG 24D (Mazda)	B8 3180 220 000 004(MB)
075.90.60 (FCA)	39D 997 (VW)	



Fixings



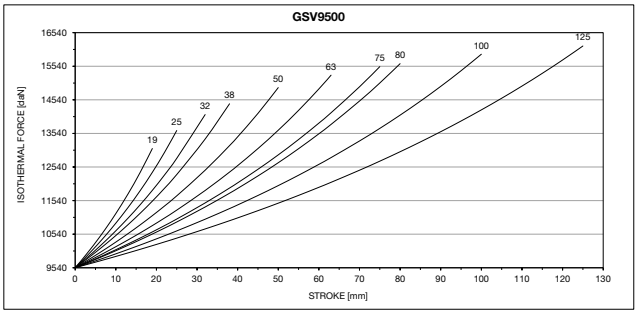
OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

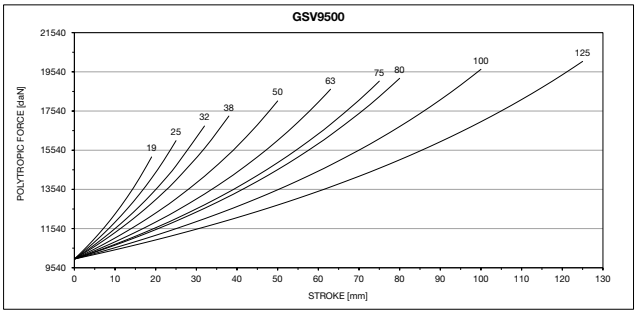
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16 **** $F1_p$ =** Polytrophic end force at 100% Cu

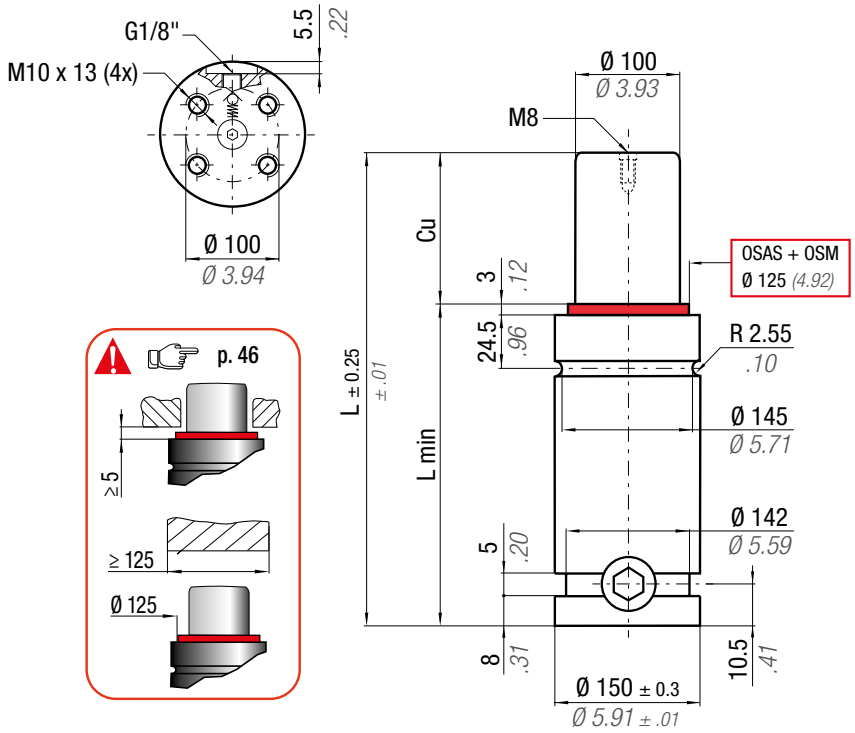
N2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	63.62 cm² *9.864 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV09500C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSV9500-19	19	*0.75*	116	*4.57*	97	*3.82*	9540 ± 5%	*21446*	13101	*29453*	15214	*34202*	517.0	*31.54*	9.56	*21.08*	✓
GSV9500-25	25	*0.98*	128	*5.04*	103	*4.06*			13637	*30656*	16044	*36068*	614.0	*37.45*	9.93	*21.89*	✓
GSV9500-32	32	*1.26*	142	*5.59*	110	*4.33*			14112	*31726*	16792	*37750*	727.0	*44.35*	10.37	*22.86*	✓
GSV9500-38	38	*1.50*	154	*6.06*	116	*4.57*			14432	*32445*	17299	*38890*	823.0	*50.20*	10.74	*23.68*	✓
GSV9500-50	50	*1.97*	178	*7.01*	128	*5.04*	150 bar *2175 psi*		14914	*33528*	18070	*40623*	1017.0	*62.04*	11.49	*25.33*	✓
GSV9500-63	63	*2.48*	204	*8.03*	141	*5.55*			15283	*34358*	18666	*41963*	1226.0	*74.79*	12.30	*27.12*	✓
GSV9500-75	75	*2.95*	228	*8.98*	153	*6.02*			15536	*34927*	19078	*42889*	1420.0	*86.62*	13.05	*28.77*	✓
GSV9500-80	80	*3.15*	238	*9.37*	158	*6.22*	+ 20 °C *+68 °F*		15625	*35125*	19222	*43213*	1500.0	*91.50*	13.37	*29.48*	✓
GSV9500-100	100	*3.94*	278	*10.94*	178	*7.01*			15905	*35756*	19681	*44245*	1823.0	*111.20*	14.61	*32.21*	✓
GSV9500-125	125	*4.92*	328	*12.91*	203	*7.99*			16148	*36303*	20082	*45146*	2226.0	*135.79*	16.18	*35.67*	✓

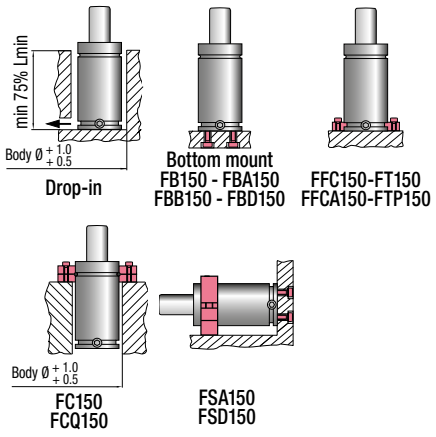
Order Callout Example:
GSV9500-50
GSV9500-50-N
GSV9500-50-CP







Fixings



OSAS + OSM	=	OVER STROKE ACTIVE SAFETY	+	OVER STROKE MARKER

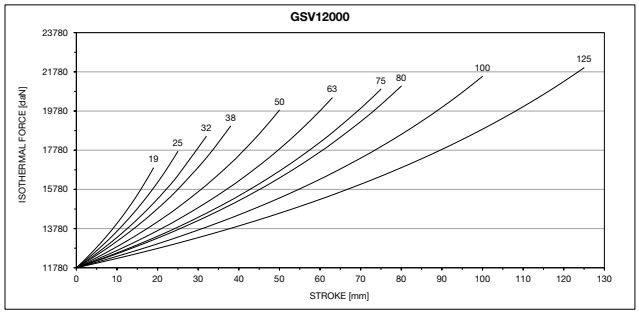
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

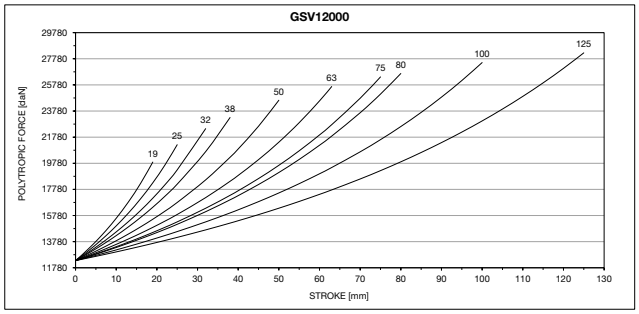
**** $F1_p$ =** Polytrophic end force at 100% Cu

N2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar 2175 psi	20 bar 290 psi	78.54 cm² 12.173 in²	~ 20 - 80 (at 20°C)	1.8 m/s	GSRK-39BMRV12000C

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	F0 Initial force daN	F0 lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	V0 cm³	V0 in³	~Kg	~lb	PED 2014/68/EU
GSV12000-19	19	0.75	116	4.57	97	3.82			16891	37973	19896	44728	571.0	34.83	9.34	20.59	✓
GSV12000-25	25	0.98	128	5.04	103	4.06			17735	39870	21225	47716	675.0	41.18	9.73	21.45	✓
GSV12000-32	32	1.26	142	5.59	110	4.33	11780	26470	18503	41596	22454	50479	796.0	48.56	10.18	22.44	✓
GSV12000-38	38	1.50	154	6.06	116	4.57	± 5%		19030	42780	23307	52396	900.0	54.90	10.57	23.30	✓
GSV12000-50	50	1.97	178	7.01	128	5.04			19837	44596	24629	55368	1108.0	67.59	11.35	25.02	✓
GSV12000-63	63	2.48	204	8.03	141	5.55	150 bar 2175 psi		20469	46016	25676	57722	1332.0	81.25	12.20	26.90	✓
GSV12000-75	75	2.95	228	8.98	153	6.02			20909	47006	26412	59377	1540.0	93.94	12.97	28.59	✓
GSV12000-80	80	3.15	238	9.37	158	6.22	+ 20 °C	+68 °F	21063	47353	26671	59959	1626.0	99.19	13.30	29.32	✓
GSV12000-100	100	3.94	278	10.94	178	7.01			21559	48467	27507	61838	1972.0	120.29	14.60	32.19	✓
GSV12000-125	125	4.92	328	12.91	203	7.99			21995	49447	28249	63506	2405.0	146.71	16.22	35.76	✓

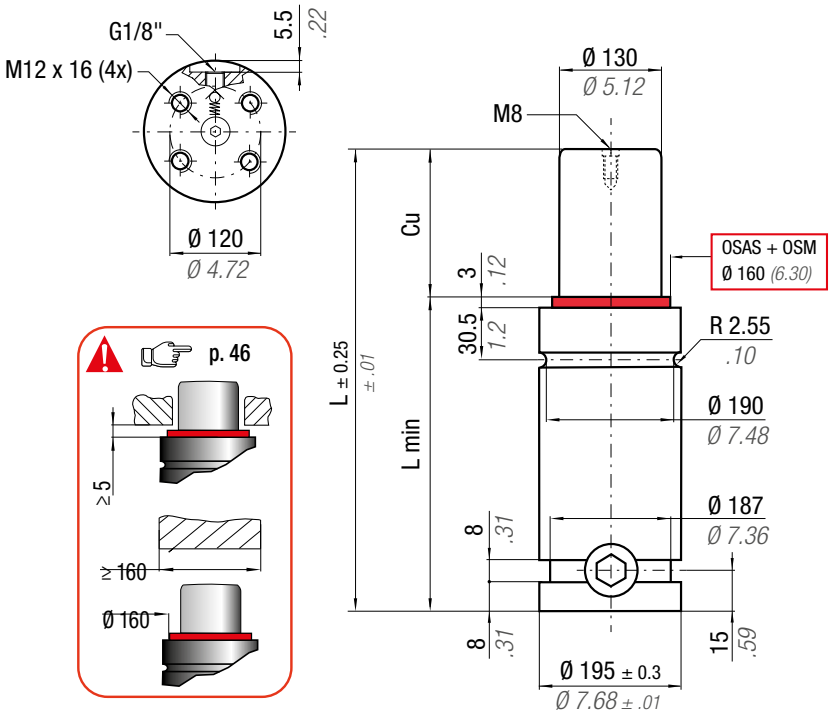
Order Callout Example:
GSV12000-50
GSV12000-50-N
GSV12000-50-CP



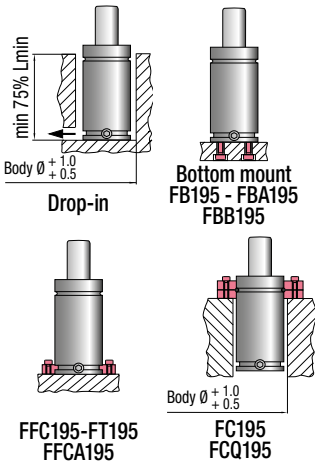


GSV 20000

075.90.60 (FCA)		



Fixings



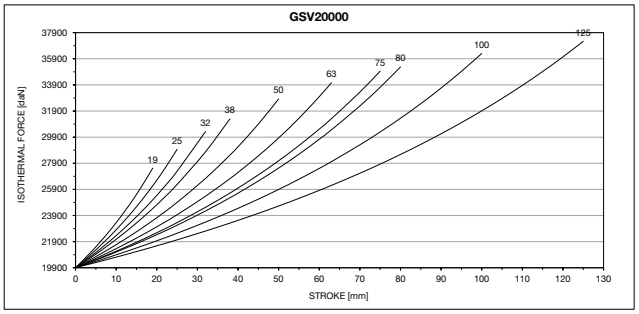
OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

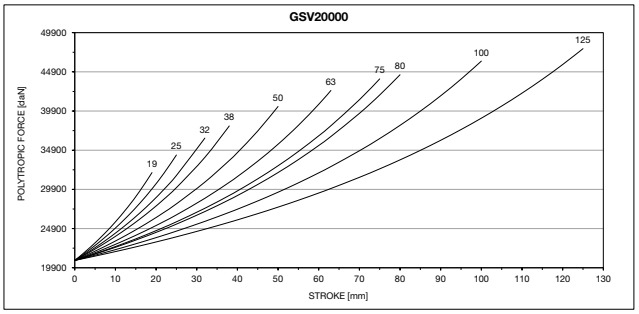
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16 **** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	132.73 cm² *20.573 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV20000C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0		~Kg	~lb	PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*			
GSV20000-19	19	*0.75*	148	*5.83*	129	*5.08*	19910 *44738* ± 5% 150 bar *2175 psi* + 20 °C *+68 °F*		26987	*60669*	31207	*70156*	1118.0	*68.20*	21.58	*47.58*	✓
GSV20000-25	25	*0.98*	160	*6.30*	135	*5.32*			28383	*63807*	33368	*75014*	1288.0	*78.57*	22.29	*49.14*	✓
GSV20000-32	32	*1.26*	174	*6.85*	142	*5.59*			29722	*66817*	35474	*79749*	1486.0	*90.65*	23.12	*50.97*	✓
GSV20000-38	38	*1.50*	186	*7.32*	148	*5.83*			30681	*68973*	37002	*83184*	1656.0	*101.02*	23.84	*52.56*	✓
GSV20000-50	50	*1.97*	210	*8.27*	160	*6.30*			32220	*72433*	39486	*88768*	1995.0	*121.70*	25.26	*55.69*	✓
GSV20000-63	63	*2.48*	236	*9.29*	173	*6.81*			33486	*75280*	41560	*93431*	2362.0	*144.08*	26.80	*59.08*	✓
GSV20000-75	75	*2.95*	260	*10.24*	185	*7.28*			34403	*77341*	43077	*96841*	2702.0	*164.82*	28.22	*62.21*	✓
GSV20000-80	80	*3.15*	270	*10.63*	190	*7.48*			34731	*78079*	43624	*98071*	2843.0	*173.42*	28.81	*63.52*	✓
GSV20000-100	100	*3.94*	310	*12.21*	210	*8.27*			35811	*80506*	45434	*102140*	3409.0	*207.95*	31.19	*68.76*	✓
GSV20000-125	125	*4.92*	360	*14.17*	235	*9.25*			36794	*82716*	47097	*105878*	4116.0	*251.08*	34.16	*75.31*	✓

Order Callout Example:
GSV20000-50
GSV20000-50-N
GSV20000-50-CP

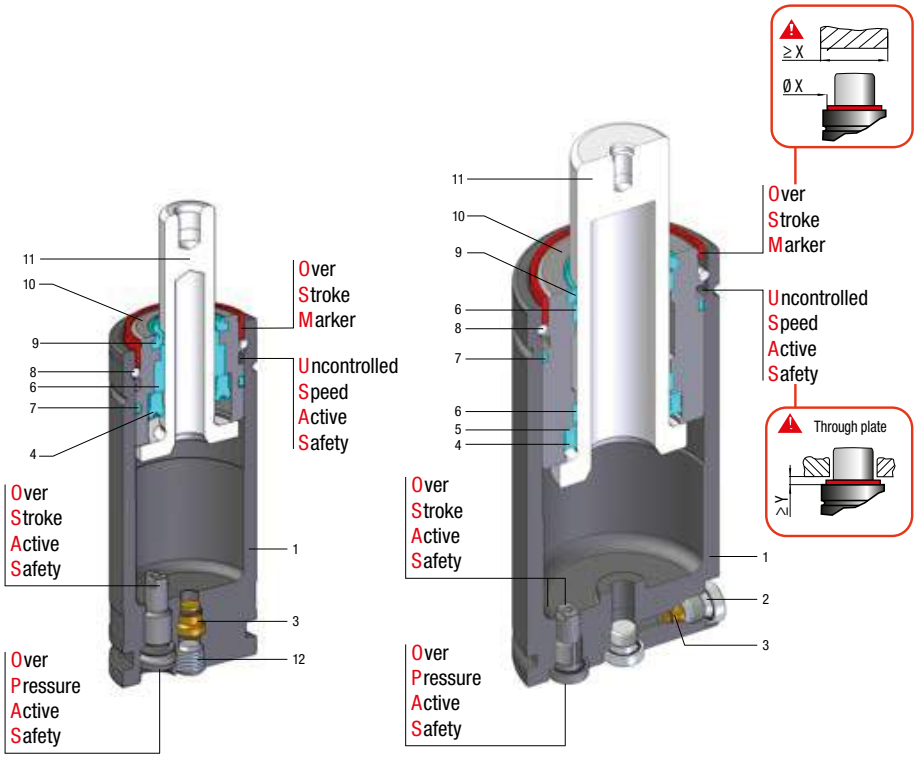




GSK series

ISO	VDI	BMW	FCA
Ford	Mazda	MB	Nissan
PSA	Reanult	Suzuki	VW

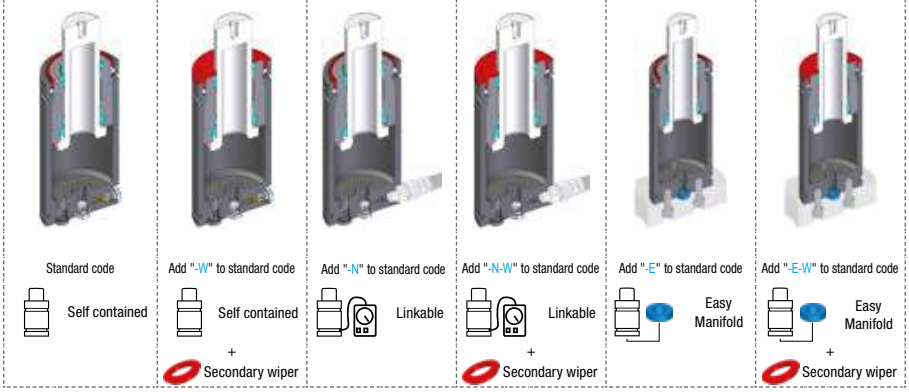
ISO 11901 standard - ISO 11901 standard
Conforme ISO 11901 - ISO 11901 standard - Norma ISO 11901



1	Back-up ring
2	Rod seal
3	Body
4	Plug
5	Valve
6	Guide ring
7	Dual ring
8	Retaining ring
9	Rod wiper
10	Bush
11	Rod (nitrited superfinished)

SEALING	ROD SEAL
DESIGN	BUSH - BODY DESIGN

Available versions

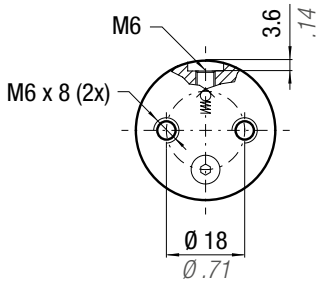


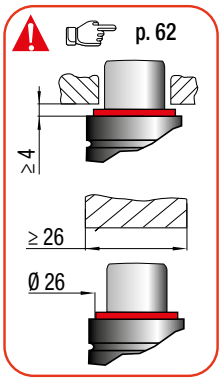
Order Callout Example:
GSK1500-50
GSK1500-50-W
GSK1500-50-N
GSK1500-50-N-W
GSK1500-50-E
GSK1500-50-E-W

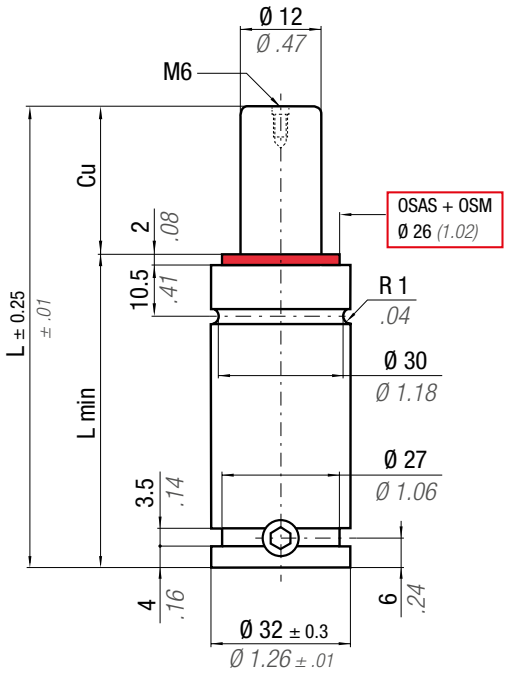
Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	-daN	lb				
GSK150	32	1.26	10 - 125	0.39 - 4.92	170	382	✓	✓	✓	-
GSK200	32	1.26	10 - 125	0.39 - 4.92	170	382	✓	✓	✓	-
GSK250	38	1.50	10 - 125	0.39 - 4.92	260	585	✓	✓	✓	-
GSKF250	M 38 X 1.5	M 38 X 1.5	10 - 125	0.39 - 4.92	260	585	✓	✓	✓	-
GSK500	45	1.77	10 - 200	0.39 - 6.30	470	1057	✓	✓	✓	-
GSK750	50	1.97	13 - 300	0.51 - 11.81	740	1664	✓	✓	✓	-
GSK1500	75	2.95	13 - 300	0.51 - 11.81	1530	3440	✓	✓	✓	-
GSK3000	95	3.74	13 - 300	0.51- 11.81	2945	6621	✓	✓	✓	-
GSK5000	120	4.72	25 - 300	0.98 - 11.81	4980	11195	✓	✓	✓	-
GSK7500	150	5.91	25 - 300	0.98 - 11.81	7540	16950	✓	✓	✓	-
GSK10000	195	7.68	25 - 300	0.98 - 11.81	10600	23830	✓	✓	✓	-

ISO 11901 - 1	VDI 3003	075.90.55 (FCA)
B8 3180 220 000 001(MB)	E24.54.815.G (PSA)	EM24.54.700 (Renault)
B2 4006 (BMW)	39D 878 (VW)	

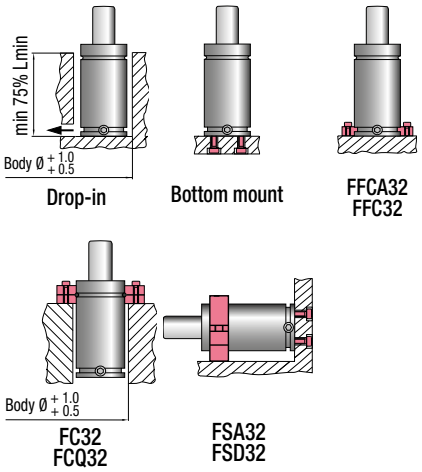
GSK 150







Fixings



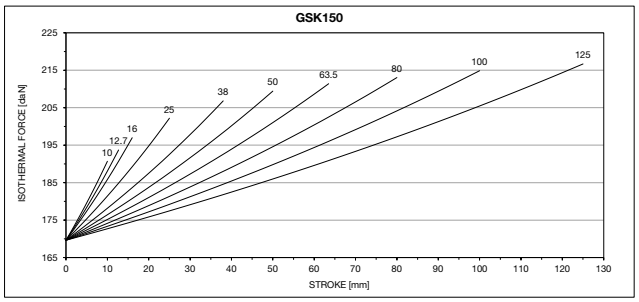
OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

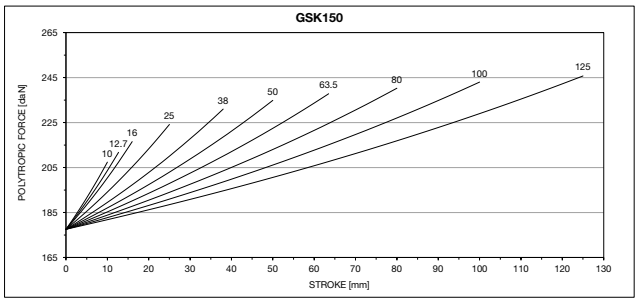
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16 **** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	1.13 cm² *0.175 in²*	~ 80 - 100 (at 20°C)	1.8 m/s	GSRK-39BMSC00150E

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ End force *		$F1_p$ End force **		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSK150-10	10	*0.39*	70	*2.76*	60	*2.36*	170 *382* ± 5% 150 bar *2175 psi* + 20 °C *+68 °F*		191	*429*	207	*466*	12.0	*0.73*	0.28	*0.62*	✓
GSK150-12.7	12.7	*0.51*	75.4	*2.97*	62.7	*2.47*			194	*435*	212	*476*	14.0	*0.85*	0.29	*0.64*	✓
GSK150-16	16	*0.63*	82	*3.23*	66	*2.60*			197	*442*	216	*486*	16.0	*0.98*	0.30	*0.66*	✓
GSK150-25	25	*0.98*	100	*3.94*	75	*2.95*			202	*455*	224	*504*	21.0	*1.28*	0.33	*0.73*	✓
GSK150-38	38	*1.50*	126	*4.96*	88	*3.46*			207	*465*	231	*519*	28.0	*1.71*	0.36	*0.79*	✓
GSK150-50	50	*1.97*	150	*5.91*	100	*3.94*			209	*471*	235	*528*	35.0	*2.14*	0.40	*0.88*	✓
GSK150-63.5	63.5	*2.48*	177	*6.97*	113.5	*4.47*			211	*475*	238	*535*	43.0	*2.62*	0.44	*0.97*	✓
GSK150-80	80	*3.15*	210	*8.27*	130	*5.12*			213	*479*	240	*540*	52.0	*3.17*	0.49	*1.08*	✓
GSK150-100	100	*3.94*	250	*9.84*	150	*5.91*			214	*482*	242	*545*	63.0	*3.84*	0.55	*1.21*	✓
GSK150-125	125	*4.92*	300	*11.81*	175	*6.89*			216	*485*	244	*549*	78.0	*4.76*	0.64	*1.41*	✓

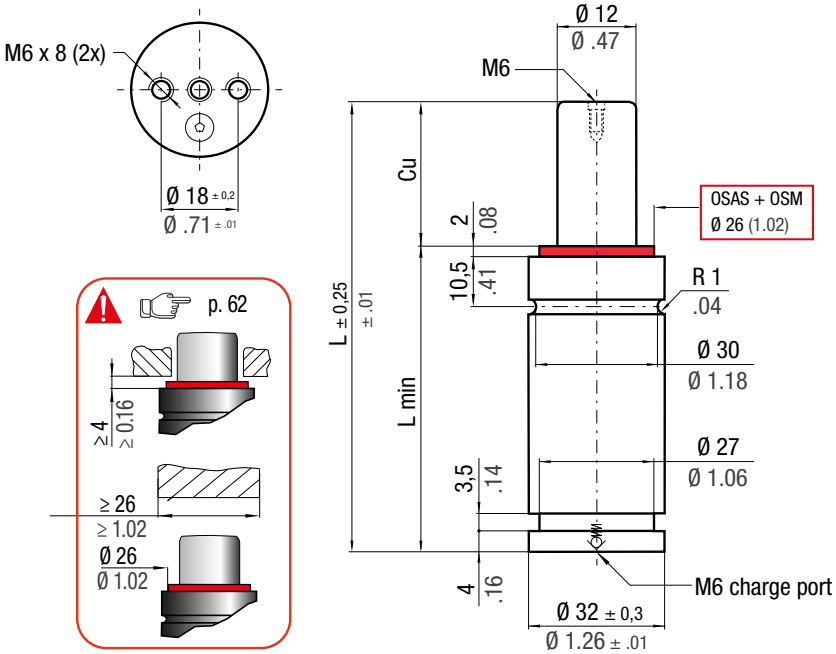
Order Callout Example:
GSK150-50
GSK150-50-N
GSK150-50-CP



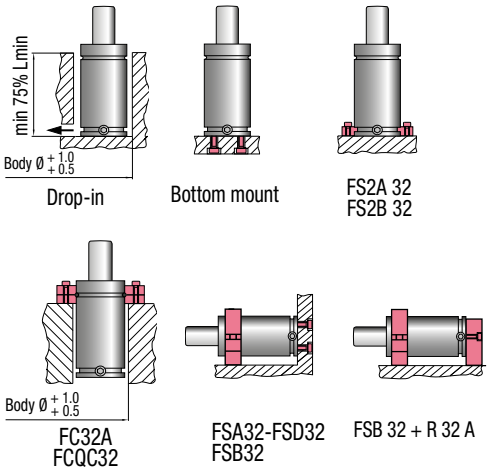


GSK 200

ISO 11901 - 1	VDI 3003	90.25.00 (GM)	39D 878 (VW)
B8 3180 220 000 001(MB)	B2 4006 (BMW)	E24.54.815.G (PSA)	EM24.54.700 (Renault)
075.90.55 (FCA)			



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

* $F1_i$ = Isothermal end force at 100% Cu p. 16

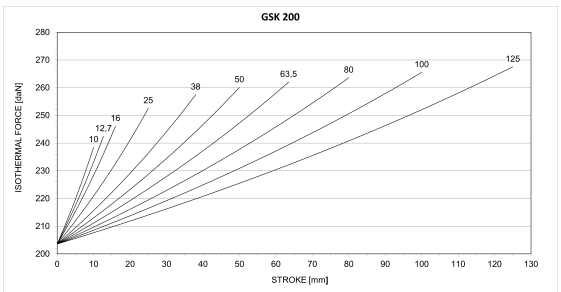
** $F1_p$ = Polytrophic end force at 100% Cu

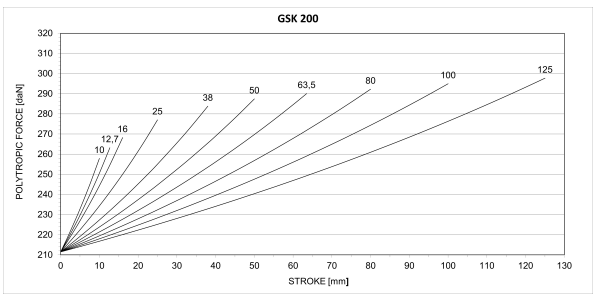
N_2	0 - 80 °C 32 - 176 °F	ΔP ± 0.33 %/°C	P max 180 bar 2610 psi	P min 20 bar 290 psi	S 1.13 cm² 0.175 in²	SPM ~ 80 - 100 (at 20°C)	Max Speed 1.8 m/s	Maintenance kit GSRK-39BMSC00150E

CALLOUT	Cu		L		L min		$F1_i$ * End force		$F1_p$ ** End force		V0		~Kg	~lb	PED 2014/68/EU
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	cm³	in³			
GSK200-10	10	0.39	70	2.76	60	2.36	1,15	F0	1,28	F0	9,6	0.59	0,26	0.56	✓
GSK200-13	12.7	0.51	75.4	2.97	62.7	2.47	1,17	F0	1,30	F0	11,1	0.68	0,26	0.58	✓
GSK200-16	16	0.63	82	3.23	66	2.60	1,19	F0	1,33	F0	13,0	0.79	0,27	0.60	✓
GSK200-25	25	0.98	100	3.94	75	2.95	1,22	F0	1,37	F0	18,0	1.10	0,30	0.65	✓
GSK200-38	38	1.50	126	4.96	88	3.46	1,24	F0	1,40	F0	25,3	1.54	0,33	0.73	✓
GSK200-50	50	1.97	150	5.91	100	3.94	1,25	F0	1,42	F0	32,0	1.95	0,37	0.81	✓
GSK200-63	63.5	2.48	177	6.97	113.5	4.47	1,26	F0	1,43	F0	39,6	2.42	0,41	0.89	✓
GSK200-80	80	3.15	210	8.27	130	5.12	1,26	F0	1,44	F0	48,9	2.98	0,45	0.99	✓
GSK200-100	100	3.94	250	9.84	150	5.91	1,27	F0	1,46	F0	59,6	3.64	0,51	1.13	✓
GSK200-125	125	4.92	300	11.81	175	6.89	1,28	F0	1,47	F0	72,7	4.44	0,59	1.30	✓

Force color code	P bar	P psi	F0 Initial force ± 5% at +20°C +68°F daN	F0 lb
GR	45	653	50	112
BU	90	1305	100	225
RD	135	1958	150	337
YW	180	2610	200	450
BK	20-180	290-2610	22-200	49-450

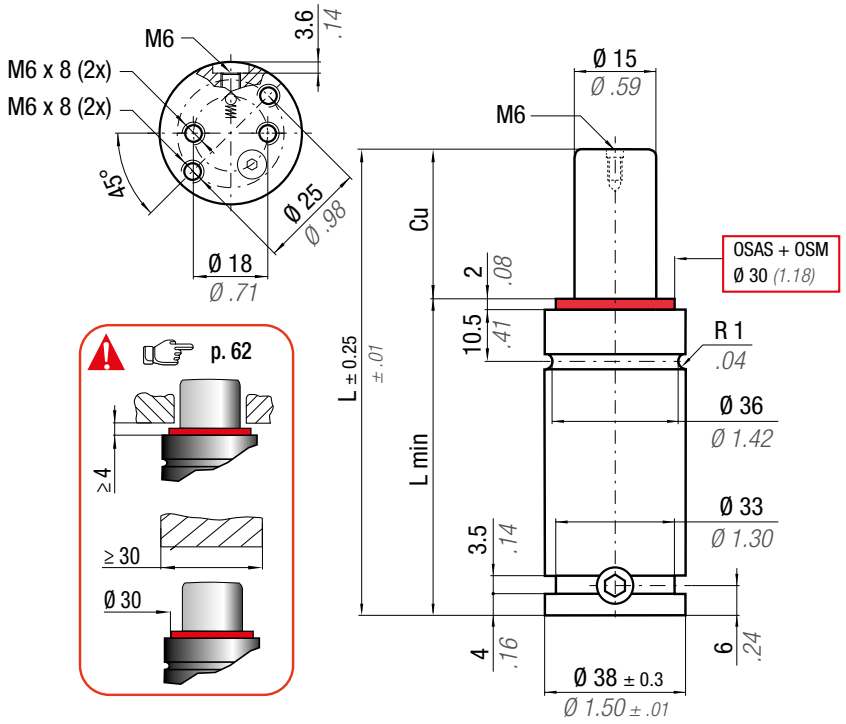
Order Callout Example:
GSK200-50-YW



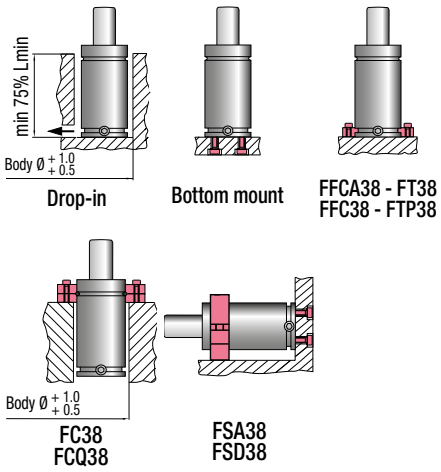


ISO 11901 - 1	VDI 3003	B2 4006 (BMW)	EM24.54.700 (Renault)
B8 3180 220 000 001(MB)	K 32 S (Nissan)	E24.54.815.G (PSA)	
SES-K 5404e (Suzuki)	39D 878 (VW)	075.90.55 (FCA)	

GSK 250



Fixings



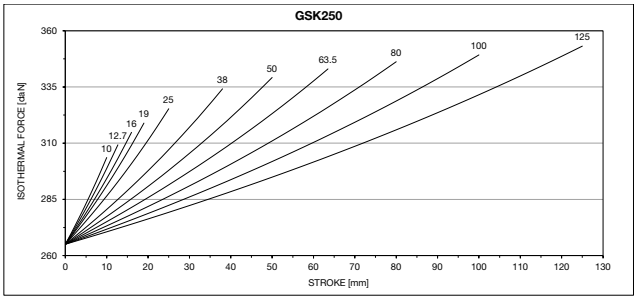
OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

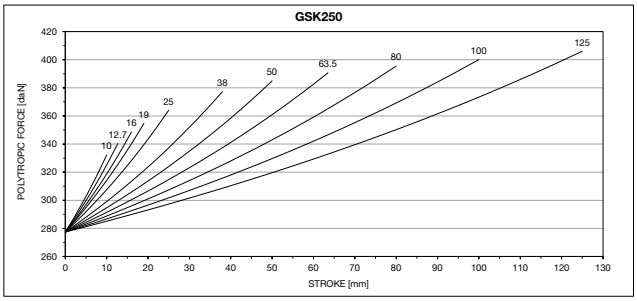
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16 **** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	1.77 cm² *0.274 in²*	~ 80 - 100 (at 20°C)	1.8 m/s	GSRK-39BMSC00250E

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	F0 daN	F0 lb	$F1_i$ * daN	$F1_i$ * lb	$F1_p$ ** daN	$F1_p$ ** lb	V0 cm³	V0 in³	~Kg	~lb	PED 2014/68/EU
GSK250-10	10	0.39	70	2.76	60	2.36	260 ± 5%	585	303	682	332	746	16.0	0.98	0.40	0.88	✓
GSK250-12.7	12.7	0.50	75.4	2.97	62.7	2.47			309	695	340	765	19.0	1.16	0.41	0.90	✓
GSK250-16	16	0.63	82	3.23	66	2.60			315	707	348	783	21.0	1.28	0.43	0.95	✓
GSK250-19	19	0.75	88	3.46	69	2.72			319	717	354	797	23.0	1.40	0.45	0.99	✓
GSK250-25	25	0.98	100	3.94	75	2.95			325	731	364	818	28.0	1.71	0.48	1.06	✓
GSK250-38	38	1.50	126	4.96	88	3.46	150 bar *2175 psi*		334	751	377	848	38.0	2.32	0.54	1.19	✓
GSK250-50	50	1.97	150	5.91	100	3.94			339	762	385	865	47.0	2.87	0.60	1.32	✓
GSK250-63.5	63.5	2.50	177	6.97	113.5	4.47	+ 20 °C *+68 °F*		343	771	391	878	58.0	3.54	0.66	1.46	✓
GSK250-80	80	3.15	210	8.27	130	5.12			346	778	395	889	70.0	4.27	0.74	1.63	✓
GSK250-100	100	3.94	250	9.84	150	5.91			349	784	399	898	85.0	5.19	0.81	1.79	✓
GSK250-125	125	4.92	300	11.81	175	6.89			351	789	403	906	105.0	6.41	0.98	2.16	✓

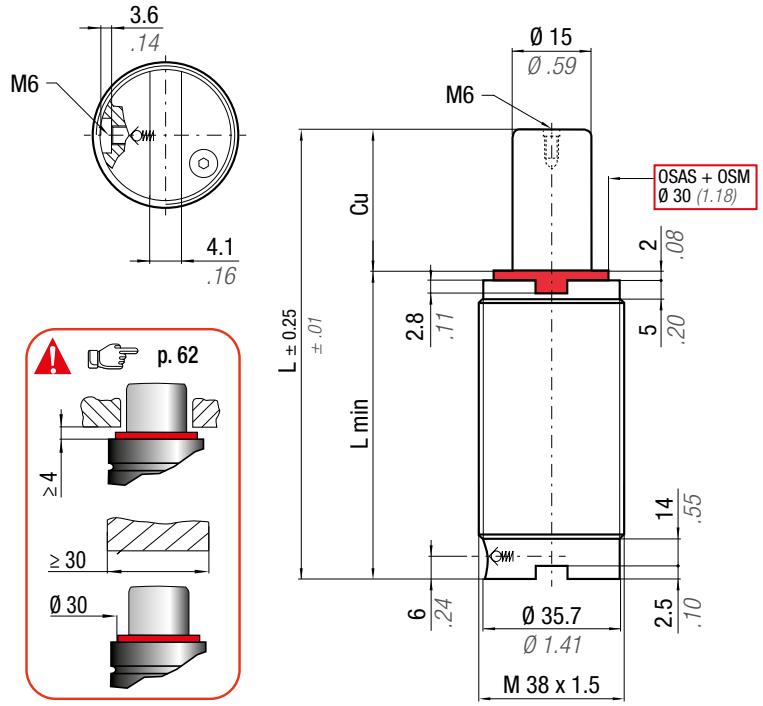
Order Callout Example:
GSK250-50
GSK250-50-N
GSK250-50-CP



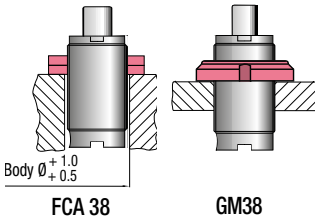


GSKF 250

—Threaded—



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

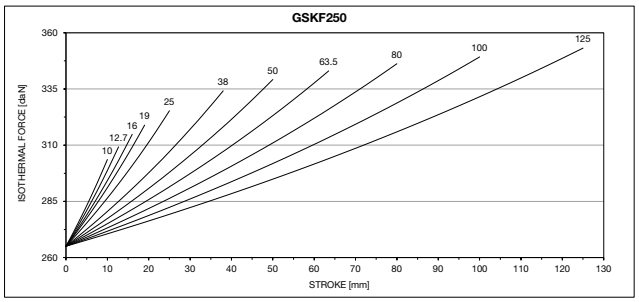
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

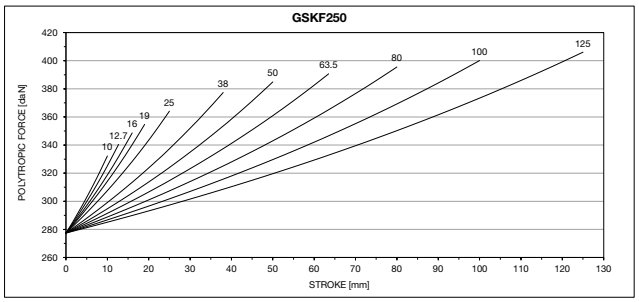
**** $F1_p$ =** Polytrophic end force at 100% Cu

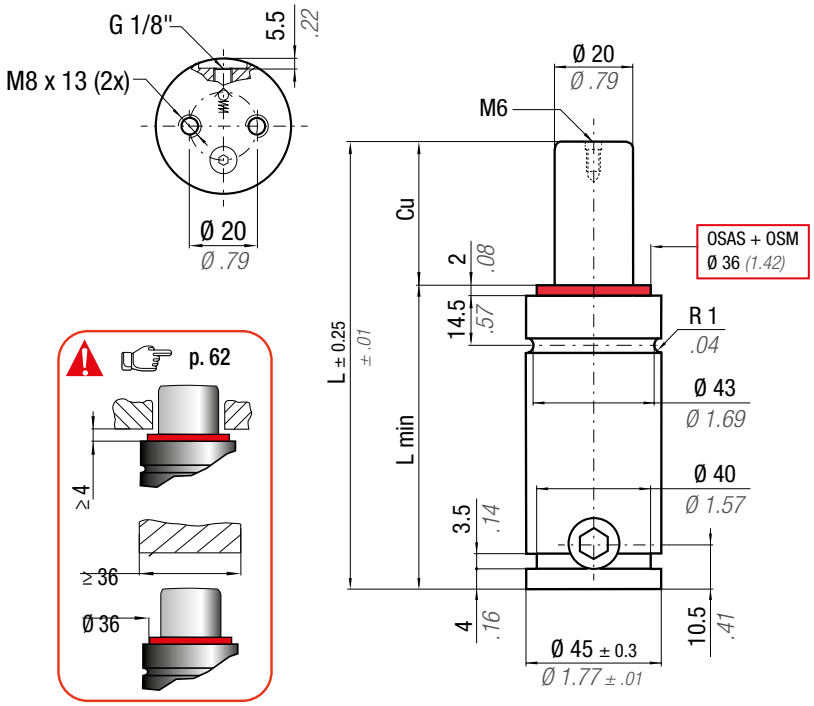
N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	1.77 cm² *0.274 in²*	~ 80 - 100 (at 20°C)	1.8 m/s	GSRK-39BMSC00250E

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ End force *		$F1_p$ End force **		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSKF250-10	10	*0.39*	70	*2.76*	60	*2.36*	260 *585* ± 5% 150 bar *2175 psi* + 20 °C *+68 °F*		303	*682*	332	*746*	16.0	*0.98*	0.37	*0.81*	✓
GSKF250-12.7	12.7	*0.50*	75.4	*2.97*	62.7	*2.47*			309	*695*	340	*765*	19.0	*1.16*	0.38	*0.84*	✓
GSKF250-16	16	*0.63*	82	*3.23*	66	*2.60*			315	*707*	348	*783*	21.0	*1.28*	0.39	*0.86*	✓
GSKF250-19	19	*0.75*	88	*3.46*	69	*2.72*			319	*717*	354	*797*	23.0	*1.40*	0.42	*0.92*	✓
GSKF250-25	25	*0.98*	100	*3.94*	75	*2.95*			325	*731*	364	*818*	28.0	*1.71*	0.44	*0.97*	✓
GSKF250-38	38	*1.50*	126	*4.96*	88	*3.46*			334	*751*	377	*848*	38.0	*2.32*	0.50	*1.10*	✓
GSKF250-50	50	*1.97*	150	*5.91*	100	*3.94*			339	*762*	385	*865*	47.0	*2.87*	0.55	*1.21*	✓
GSKF250-63.5	63.5	*2.50*	177	*6.97*	113.5	*4.47*			343	*771*	391	*878*	58.0	*3.54*	0.63	*1.39*	✓
GSKF250-80	80	*3.15*	210	*8.27*	130	*5.12*			346	*778*	395	*889*	70.0	*4.27*	0.70	*1.54*	✓
GSKF250-100	100	*3.94*	250	*9.84*	150	*5.91*			349	*784*	399	*898*	86.0	*5.25*	0.75	*1.65*	✓
GSKF250-125	125	*4.92*	300	*11.81*	175	*6.89*			351	*789*	403	*906*	105.0	*6.41*	0.93	*2.05*	✓

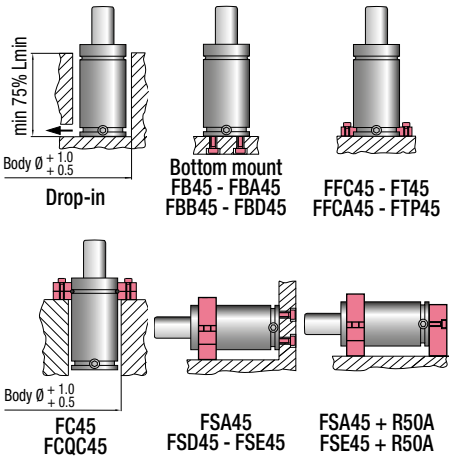
Order Callout Example:
GSKF250-50
GSKF250-50-N
GSKF250-50-CP







Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

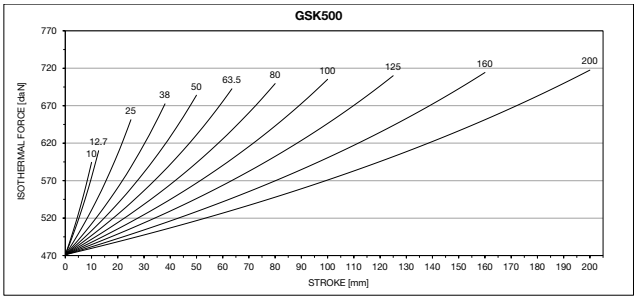
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

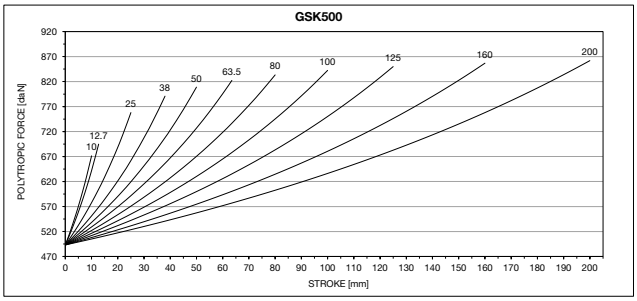
**** $F1_p$ =** Polytrophic end force at 100% Cu

N2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	3.14 cm² *0.487 in²*	~ 40 - 80 (at 20°C)	1.8 m/s	GSRK-39BMSC00500D

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	
GSK500-10	10	0.39	105	4.13	95	3.74			595	1338	673	1512	18.0	1.10	0.90	1.98	✓
GSK500-12.7	12.7	0.50	110.4	4.35	97.7	3.85			611	1373	696	1565	20.0	1.22	1.00	2.20	✓
GSK500-25	25	0.98	135	5.31	110	4.33			652	1466	759	1707	33.0	2.01	1.09	2.40	✓
GSK500-38	38	1.50	161	6.34	123	4.84	470	1057	673	1513	792	1780	46.0	2.81	1.20	2.65	✓
GSK500-50	50	1.97	185	7.28	135	5.31	± 5% 150 bar *2175 psi*		685	1539	810	1820	58.0	3.54	1.29	2.84	✓
GSK500-63.5	63.5	2.50	212	8.35	148.5	5.85			693	1558	823	1850	72.0	4.39	1.38	3.04	✓
GSK500-80	80	3.15	245	9.65	165	6.50			700	1573	834	1875	89.0	5.43	1.50	3.31	✓
GSK500-100	100	3.94	285	11.22	185	7.28	+ 20 °C *+68 °F*		706	1586	843	1895	109.0	6.65	1.64	3.62	✓
GSK500-125	125	4.92	335	13.19	210	8.27			710	1597	850	1912	135.0	8.24	1.85	4.08	✓
GSK500-160	160	6.30	405	15.94	245	9.65			715	1606	857	1927	170.0	10.37	2.10	4.63	✓
GSK500-200	200	7.87	485	19.09	285	11.22			728	1637	878	1974	205.0	12.51	2.36	5.20	✓

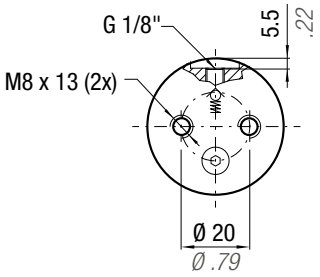
Order Callout Example:
GSK500-50
GSK500-50-N
GSK500-50-CP

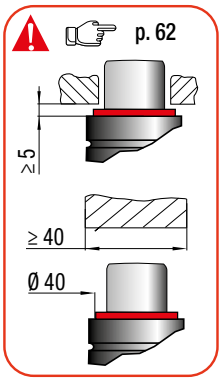


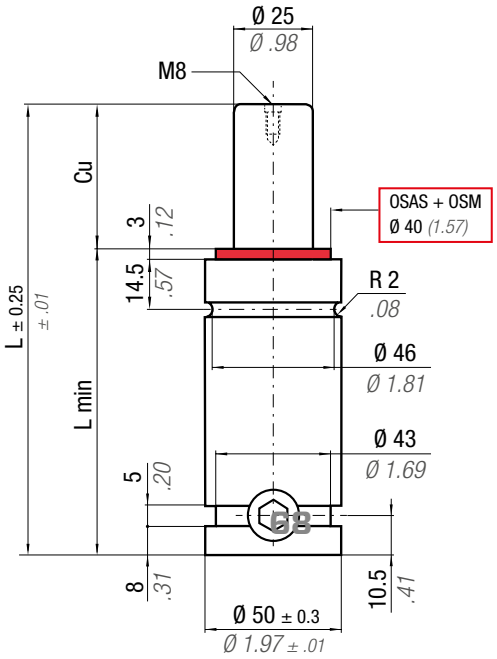


GSK 750

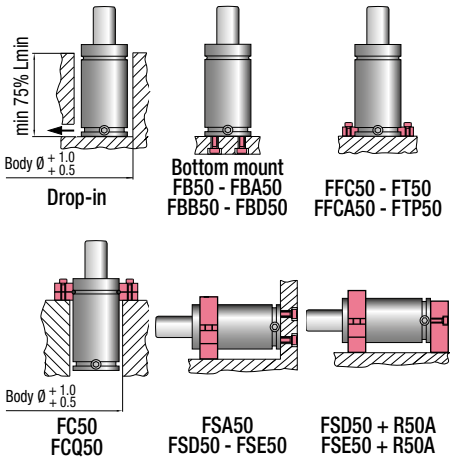
ISO 11901 - 1	VDI 3003	B2 4006 (BMW)	075.90.55 (FCA)
W-DX35-6203 (Ford)	PG23D (Mazda)	B8 3180 220 000 001(MB)	K 32 S (Nissan)
E24.54.815.G (PSA)	EM24.54.700 (Renault)	SES-K 5404e (Suzuki)	39D 878 (VW)







Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

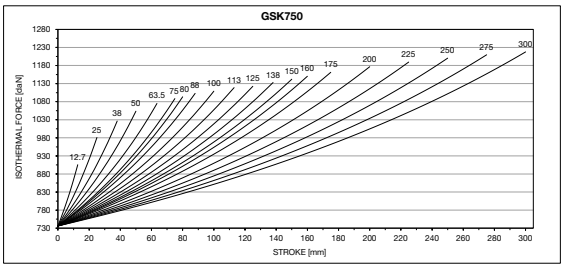
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

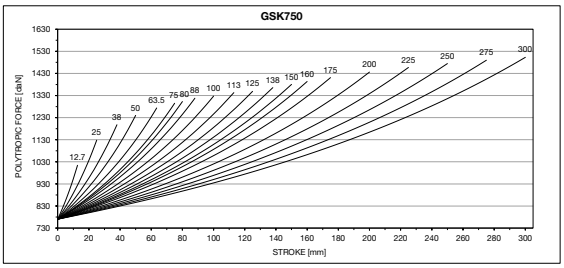
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	4.91 cm² *0.761 in²*	~ 15 - 50 (at 20°C)	1.8 m/s	GSRK-39BMSC00750D

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	F0 Initial force daN	F0 lb	$F1_i$ End force * daN	$F1_i$ lb	$F1_p$ End force ** daN	$F1_p$ lb	V0 cm³	V0 in³	~Kg	~lb	PED 2014/68/EU
GSK750-12.7	12.7	0.50	120.4	4.74	107.7	4.24			902	2028	1009	2269	40.0	2.44	1.24	2.73	✓
GSK750-25	25	0.98	145	5.71	120	4.72			977	2197	1122	2523	58.0	3.54	1.34	2.95	✓
GSK750-38	38	1.50	171	6.73	133	5.24			1023	2300	1192	2681	77.0	4.70	1.45	3.20	✓
GSK750-50	50	1.97	195	7.68	145	5.71			1050	2362	1235	2777	95.0	5.80	1.54	3.40	✓
GSK750-63.5	63.5	2.50	222	8.74	158.5	6.24			1072	2410	1269	2854	115.0	7.02	1.65	3.64	✓
GSK750-75	75	2.95	245	9.65	170	6.69			1086	2441	1291	2902	132.0	8.05	1.75	3.86	✓
GSK750-80	80	3.15	255	10.04	175	6.89			1091	2452	1299	2920	140.0	8.54	1.79	3.95	✓
GSK750-88	88	3.46	270	10.63	182	7.17	740 ± 5%	1664	1101	2475	1314	2954	150.0	9.15	1.85	4.08	✓
GSK750-100	100	3.94	295	11.61	195	7.68			1107	2488	1324	2976	169.0	10.31	1.96	4.32	✓
GSK750-113	113	4.45	320	12.60	207	8.15			1117	2511	1340	3012	188.0	11.47	2.06	4.54	✓
GSK750-125	125	4.92	345	13.58	220	8.66	150 bar *2175 psi*		1121	2519	1346	3026	206.0	12.57	2.16	4.76	✓
GSK750-138	138	5.43	370	14.57	232	9.13			1131	2543	1363	3064	224.0	13.66	2.27	5.00	✓
GSK750-150	150	5.91	395	15.55	245	9.65	+ 20 °C *+68 °F*		1140	2563	1378	3098	239.0	14.58	2.39	5.27	✓
GSK750-160	160	6.30	415	16.34	255	10.04			1149	2582	1391	3126	252.0	15.37	2.49	5.49	✓
GSK750-175	175	6.89	445	17.52	270	10.63			1160	2608	1408	3165	271.0	16.53	2.64	5.82	✓
GSK750-200	200	7.87	495	19.49	295	11.61			1175	2642	1434	3223	302.0	18.42	2.89	6.37	✓
GSK750-225	225	8.86	545	21.46	320	12.60			1188	2671	1455	3271	334.0	20.37	3.13	6.90	✓
GSK750-250	250	9.84	595	23.43	345	13.58			1199	2696	1472	3310	365.0	22.27	3.32	7.32	✓
GSK750-275	275	10.83	645	25.39	370	14.57			1208	2716	1488	3345	396.0	24.16	3.63	8.00	✓
GSK750-300	300	11.81	695	27.36	395	15.55			1216	2735	1501	3374	428.0	26.11	3.88	8.55	✓

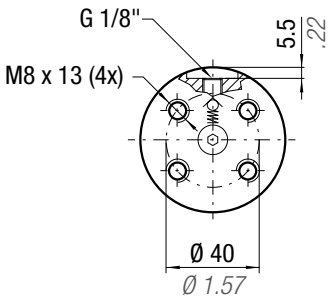
Order Callout Example:
GSK750-50
GSK750-50-N
GSK750-50-CP

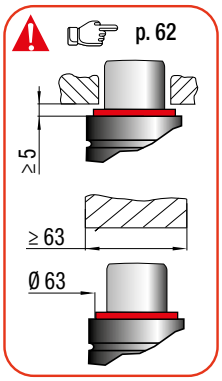


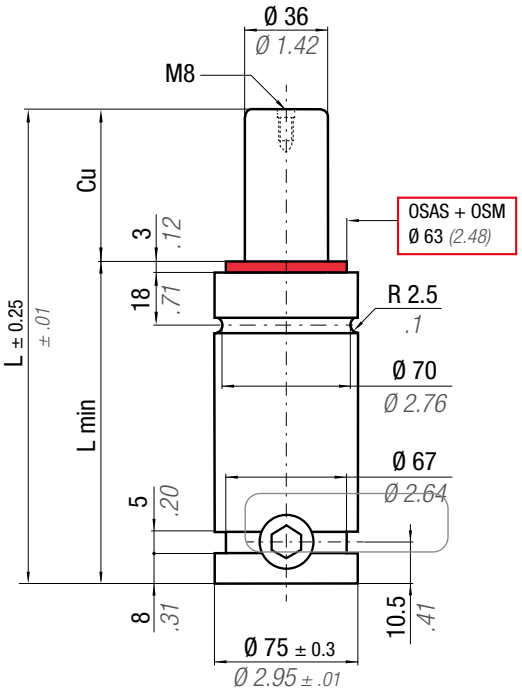


ISO 11901 - 1	VDI 3003	B2 4006 (BMW)	075.90.55 (FCA)
W-DX35-6203 (Ford)	PG23D (Mazda)	B8 3180 220 000 001(MB)	K 32 S (Nissan)
E24.54.815.G (PSA)	EM24.54.700 (Renault)	SES-K 5404e (Suzuki)	39D 878 (VW)

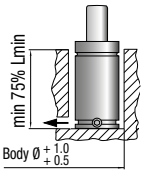
GSK 1500



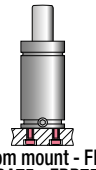




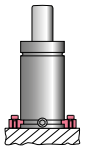
Fixings



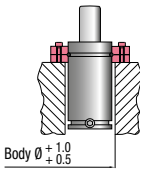
Drop-in



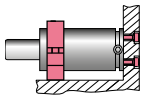
Bottom mount - FB75
FBA75 - FBB75
FBC75 - FBD75



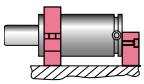
FFC75 - FT75
FFCA75 - FTP75



FC75
FCQ75



FSA75
FSD75 - FSE75



FSD75 + R75A
FSE75 + R75A

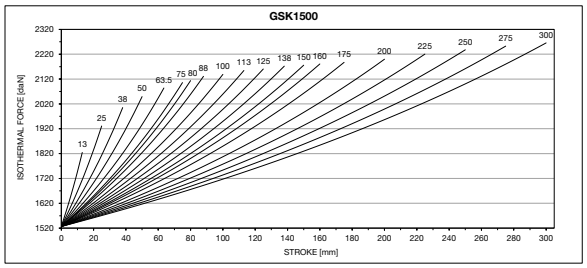
OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

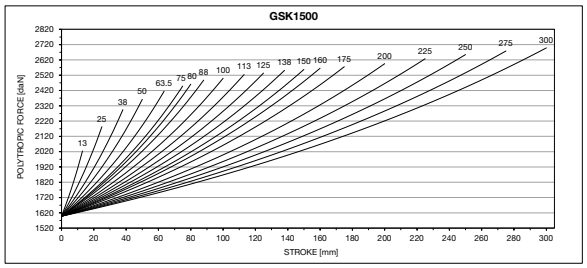
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16 **** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	10.18 cm² *1.578 in²*	~ 15 - 50 (at 20°C)	1.8 m/s	GSRK-39BMSC01500D-CU-13-80 GSRK-39BMSC01500DH-CU-88-300

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	
GSK1500-13	13	0.51	135	5.31	122	4.80			1819	4089	2016	4532	97.0	5.92	3.26	7.19	✓
GSK1500-25	25	0.98	160	6.30	135	5.31			1925	4329	2174	4888	144.0	8.78	3.47	7.65	✓
GSK1500-38	38	1.50	186	7.32	148	5.83			2000	4496	2287	5141	191.0	11.65	3.67	8.09	✓
GSK1500-50	50	1.97	210	8.27	160	6.30			2045	4596	2355	5294	234.0	14.27	3.85	8.49	✓
GSK1500-63.5	63.5	2.50	237	9.33	173.5	6.83			2080	4675	2409	5415	283.0	17.26	4.05	8.93	✓
GSK1500-75	75	2.95	260	10.24	185	7.28			2102	4725	2443	5492	324.0	19.76	4.23	9.33	✓
GSK1500-80	80	3.15	270	10.63	190	7.48			2110	4743	2455	5519	342.0	20.86	4.30	9.48	✓
GSK1500-88	88	3.46	285	11.22	197	7.76	1530 *3440* ± 5%		2130	4788	2486	5589	367.0	22.39	4.42	9.74	✓
GSK1500-100	100	3.94	310	12.20	210	8.27			2136	4802	2495	5609	414.0	25.25	4.60	10.14	✓
GSK1500-113	113	4.45	335	13.19	222	8.74			2151	4836	2520	5665	459.0	28.00	4.78	10.54	✓
GSK1500-125	125	4.92	360	14.17	235	9.25	150 bar *2175 psi*		2158	4851	2529	5685	505.0	30.81	4.97	10.96	✓
GSK1500-138	138	5.43	385	15.16	247	9.72			2169	4876	2548	5728	550.0	33.55	5.16	11.38	✓
GSK1500-150	150	5.91	410	16.14	260	10.24	+ 20 °C *+68 °F*		2173	4885	2554	5742	595.0	36.30	5.35	11.79	✓
GSK1500-160	160	6.30	430	16.93	270	10.63			2178	4896	2562	5760	631.0	38.49	5.50	12.13	✓
GSK1500-175	175	6.89	460	18.11	285	11.22			2185	4912	2572	5782	685.0	41.79	5.73	12.63	✓
GSK1500-200	200	7.87	510	20.08	310	12.20			2198	4941	2592	5828	772.0	47.09	6.13	13.51	✓
GSK1500-225	225	8.86	560	22.05	335	13.19			2219	4989	2625	5901	850.0	51.85	6.60	14.55	✓
GSK1500-250	250	9.84	610	24.02	360	14.17			2236	5027	2652	5962	928.0	56.61	7.08	15.61	✓
GSK1500-275	275	10.83	660	22.05	385	15.16			2251	5060	2676	6016	1006.0	61.37	7.55	16.64	✓
GSK1500-300	300	11.81	710	27.95	410	16.14			2264	5089	2696	6061	1084.0	66.12	8.02	17.68	✓

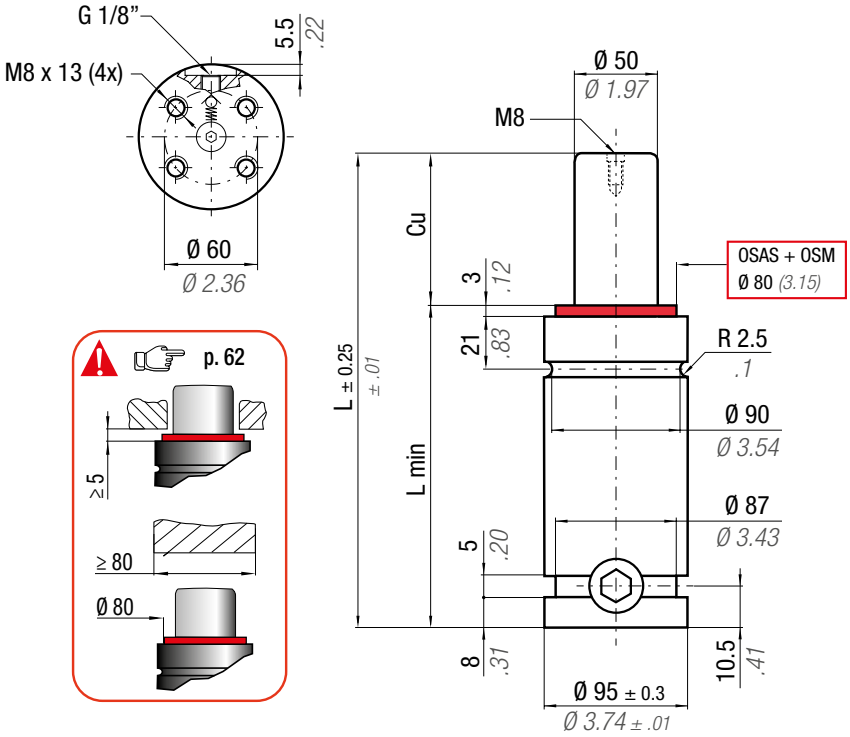
Order Callout Example:
GSK1500-50
GSK1500-50-N
GSK1500-50-CP



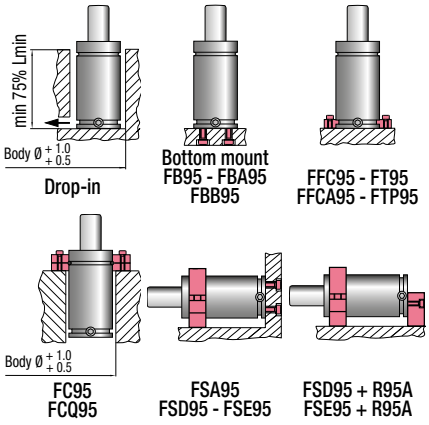


GSK 3000

ISO 11901 - 1	VDI 3003	B2 4006 (BMW)	075.90.55 (FCA)
W-DX35-6203 (Ford)	PG23D (Mazda)	B8 3180 220 000 001(MB)	K 32 S (Nissan)
E24.54.815.G (PSA)	EM24.54.700 (Renault)	SES-K 5404e (Suzuki)	39D 878 (VW)



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

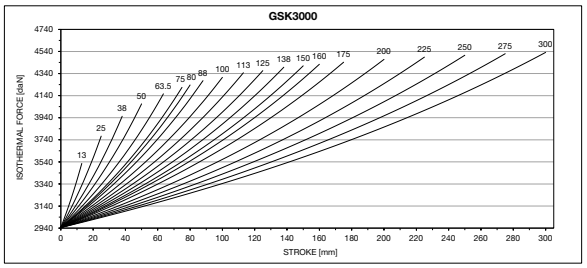
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

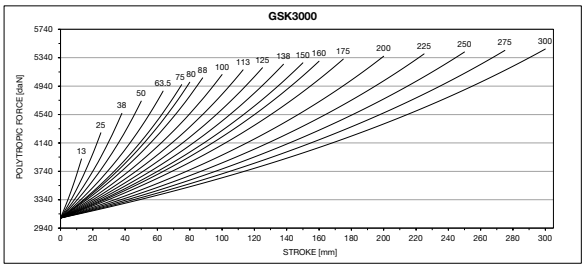
**** $F1_p$ =** Polytrophic end force at 100% Cu

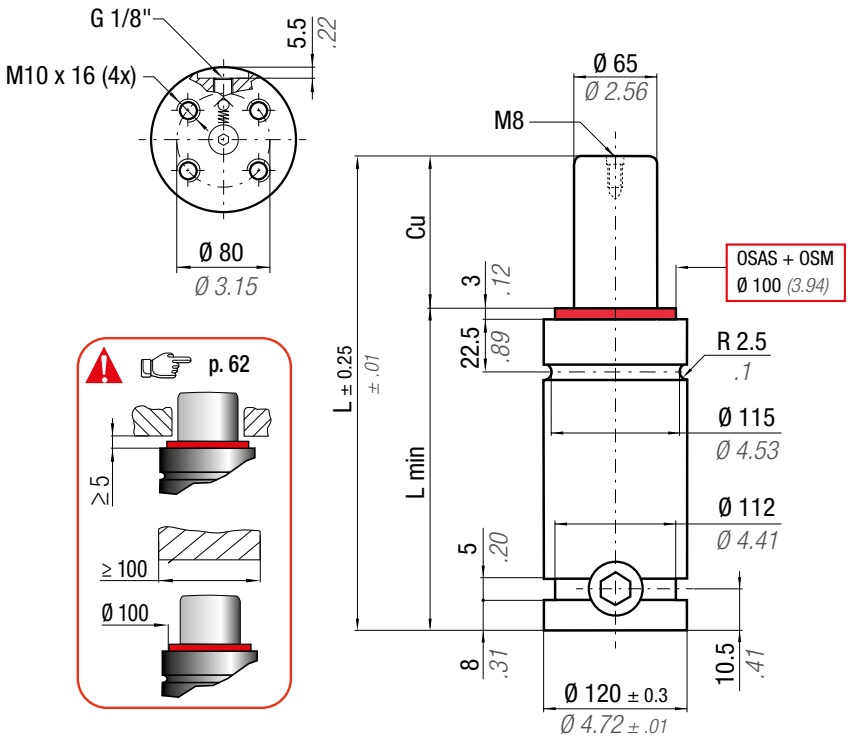
N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	19.63 cm² *3.043 in²*	~ 15 - 50 (at 20°C)	1.8 m/s	GSRK-39BMSC03000D-CU-13-80 39BMSC03000DH Cu 88 ÷ 300

CALLOUT	Cu mm	Cu *inch*	L mm	L *inch*	L min mm	L min *inch*	F0 Initial force daN	F0 *lb*	$F1_i$ * End force daN	$F1_i$ * *lb*	$F1_p$ ** End force daN	$F1_p$ ** *lb*	V0 cm³	V0 *in³*	~Kg	~*lb*	PED 2014/68/EU
GSK3000-13	13	*0.51*	145	*5.71*	132	*5.20*			3528	*7931*	3917	*8806*	181.0	*11.04*	5.57	*12.28*	✓
GSK3000-25	25	*0.98*	170	*6.69*	145	*5.71*			3775	*8487*	4286	*9636*	261.0	*15.92*	5.90	*13.01*	✓
GSK3000-38	38	*1.50*	196	*7.72*	158	*6.22*			3955	*8891*	4559	*10250*	340.0	*20.74*	6.21	*13.69*	✓
GSK3000-50	50	*1.97*	220	*8.66*	170	*6.69*			4067	*9143*	4732	*10638*	413.0	*25.19*	6.50	*14.33*	✓
GSK3000-63.5	63.5	*2.50*	247	*9.72*	183.5	*7.22*			4158	*9347*	4873	*10954*	496.0	*30.26*	6.83	*15.06*	✓
GSK3000-75	75	*2.95*	270	*10.63*	195	*7.68*			4216	*9478*	4964	*11160*	566.0	*34.53*	7.10	*15.65*	✓
GSK3000-80	80	*3.15*	280	*11.02*	200	*7.87*			4238	*9527*	4997	*11234*	596.0	*36.36*	7.22	*15.92*	✓
GSK3000-88	88	*3.46*	295	*11.61*	207	*8.15*	2945 *6621* ± 5%		4277	*9615*	5059	*11373*	642.0	*39.16*	7.41	*16.34*	✓
GSK3000-100	100	*3.94*	320	*12.60*	220	*8.66*			4307	*9683*	5105	*11476*	718.0	*43.80*	7.67	*16.91*	✓
GSK3000-113	113	*4.45*	345	*13.58*	232	*9.13*			4348	*9775*	5171	*11625*	795.0	*48.50*	7.97	*17.57*	✓
GSK3000-125	125	*4.92*	370	*14.57*	245	*9.65*	150 bar *2175 psi*		4367	*9817*	5201	*11692*	871.0	*53.13*	8.27	*18.23*	✓
GSK3000-138	138	*5.43*	395	*15.55*	257	*10.12*			4398	*9887*	5250	*11802*	947.0	*57.77*	8.57	*18.89*	✓
GSK3000-150	150	*5.91*	420	*16.54*	270	*10.63*	+ 20 °C *+68 °F*		4411	*9916*	5270	*11847*	1023.0	*62.40*	8.87	*19.56*	✓
GSK3000-160	160	*6.30*	440	*17.32*	280	*11.02*			4425	*9948*	5292	*11897*	1085.0	*66.19*	9.11	*20.08*	✓
GSK3000-175	175	*6.89*	470	*18.50*	295	*11.61*			4443	*9988*	5322	*11964*	1176.0	*71.74*	9.47	*20.88*	✓
GSK3000-200	200	*7.87*	520	*20.47*	320	*12.60*			4469	*10047*	5362	*12055*	1329.0	*81.07*	10.08	*22.22*	✓
GSK3000-225	225	*8.86*	570	*22.44*	345	*13.58*			4489	*10092*	5395	*12128*	1481.0	*90.34*	10.68	*23.55*	✓
GSK3000-250	250	*9.84*	620	*24.41*	370	*14.57*			4506	*10130*	5422	*12189*	1634.0	*99.67*	11.28	*24.87*	✓
GSK3000-275	275	*10.83*	670	*26.38*	395	*15.55*			4520	*10161*	5444	*12239*	1786.0	*108.95*	11.88	*26.19*	✓
GSK3000-300	300	*11.81*	720	*28.35*	420	*16.54*			4532	*10188*	5463	*12282*	1939.0	*118.28*	12.49	*27.54*	✓

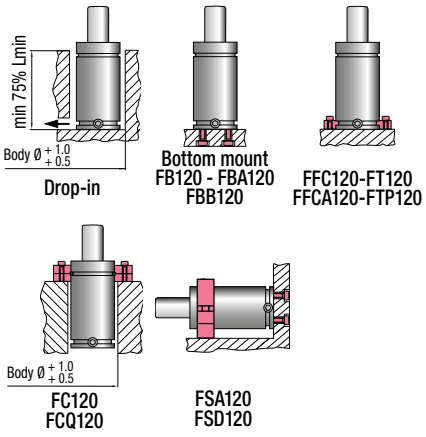
Order Callout Example:
GSK3000-50
GSK3000-50-N
GSK3000-50-CP







Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

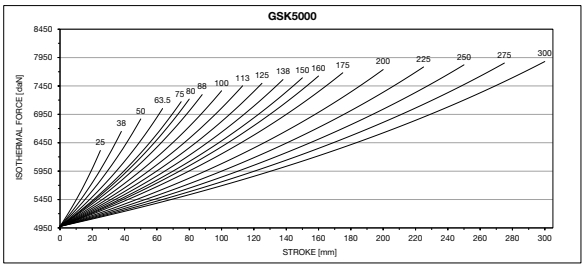
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

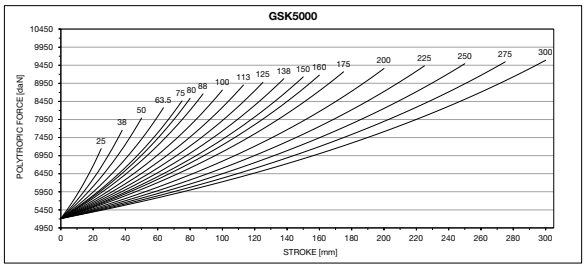
**** $F1_p$ =** Polytrophic end force at 100% Cu

N2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	33.18 cm² *5.143 in²*	~ 15 - 50 (at 20°C)	1.8 m/s	GSRK-39BMSC05000D Cu 25 ÷ 80 GSRK-39BMSC05000DH-CU-88-300

CALLOUT	Cu mm	Cu *inch*	L mm	L *inch*	L min mm	L min *inch*	F0 Initial force daN	F0 *lb*	$F1_i$ * End force daN	$F1_i$ * *lb*	$F1_p$ ** End force daN	$F1_p$ ** *lb*	V0 cm³	V0 *in³*	~Kg	~lb	PED 2014/68/EU
GSK5000-25	25	*0.98*	190	*7.48*	165	*6.50*			6316	*14199*	7148	*16068*	457.0	*27.88*	10.94	*24.12*	✓
GSK5000-38	38	*1.50*	216	*8.50*	178	*7.01*			6652	*14955*	7657	*17214*	583.0	*35.56*	11.46	*25.26*	✓
GSK5000-50	50	*1.97*	240	*9.45*	190	*7.48*			6872	*15448*	7994	*17972*	699.0	*42.64*	11.94	*26.32*	✓
GSK5000-63.5	63.5	*2.50*	267	*10.51*	203.5	*8.01*			7077	*15910*	8313	*18688*	823.0	*50.20*	12.56	*27.69*	✓
GSK5000-75	75	*2.95*	290	*11.42*	215	*8.46*			7176	*16132*	8467	*19035*	941.0	*57.40*	12.94	*28.53*	✓
GSK5000-80	80	*3.15*	300	*11.81*	220	*8.66*			7221	*16232*	8537	*19193*	989.0	*60.33*	13.15	*28.99*	✓
GSK5000-88	88	*3.46*	315	*12.40*	227	*8.94*			7300	*16411*	8662	*19473*	1061.0	*64.72*	13.39	*29.52*	✓
GSK5000-100	100	*3.94*	340	*13.39*	240	*9.45*	4980 ± 5%	*11195*	7367	*16562*	8768	*19712*	1182.0	*72.10*	13.89	*30.62*	✓
GSK5000-113	113	*4.45*	365	*14.37*	252	*9.92*			7454	*16757*	8906	*20021*	1303.0	*79.48*	14.40	*31.75*	✓
GSK5000-125	125	*4.92*	390	*15.35*	265	*10.43*			7499	*16858*	8977	*20181*	1424.0	*86.86*	14.90	*32.85*	✓
GSK5000-138	138	*5.43*	415	*16.34*	277	*10.91*	150 bar	*2175 psi*	7564	*17005*	9081	*20415*	1545.0	*94.25*	15.40	*33.95*	✓
GSK5000-150	150	*5.91*	440	*17.32*	290	*11.42*			7595	*17074*	9130	*20525*	1665.0	*101.57*	15.90	*35.05*	✓
GSK5000-160	160	*6.30*	460	*18.11*	300	*11.81*	+ 20 °C	*+68 °F*	7627	*17145*	9181	*20639*	1762.0	*107.48*	16.30	*35.94*	✓
GSK5000-175	175	*6.89*	490	*19.29*	315	*12.40*			7668	*17238*	9247	*20788*	1907.0	*116.33*	16.90	*37.26*	✓
GSK5000-200	200	*7.87*	540	*21.26*	340	*13.39*			7726	*17369*	9340	*20997*	2148.0	*131.03*	17.91	*39.48*	✓
GSK5000-225	225	*8.86*	590	*23.23*	365	*14.37*			7773	*17474*	9415	*21166*	2390.0	*145.79*	18.91	*41.69*	✓
GSK5000-250	250	*9.84*	640	*25.20*	390	*15.35*			7811	*17560*	9477	*21305*	2632.0	*160.55*	19.91	*43.89*	✓
GSK5000-275	275	*10.83*	690	*27.17*	415	*16.34*			7843	*17632*	9529	*21422*	2873.0	*175.25*	20.92	*46.12*	✓
GSK5000-300	300	*11.81*	740	*29.13*	440	*17.32*			7871	*17694*	9573	*21521*	3115.0	*190.02*	21.92	*48.33*	✓

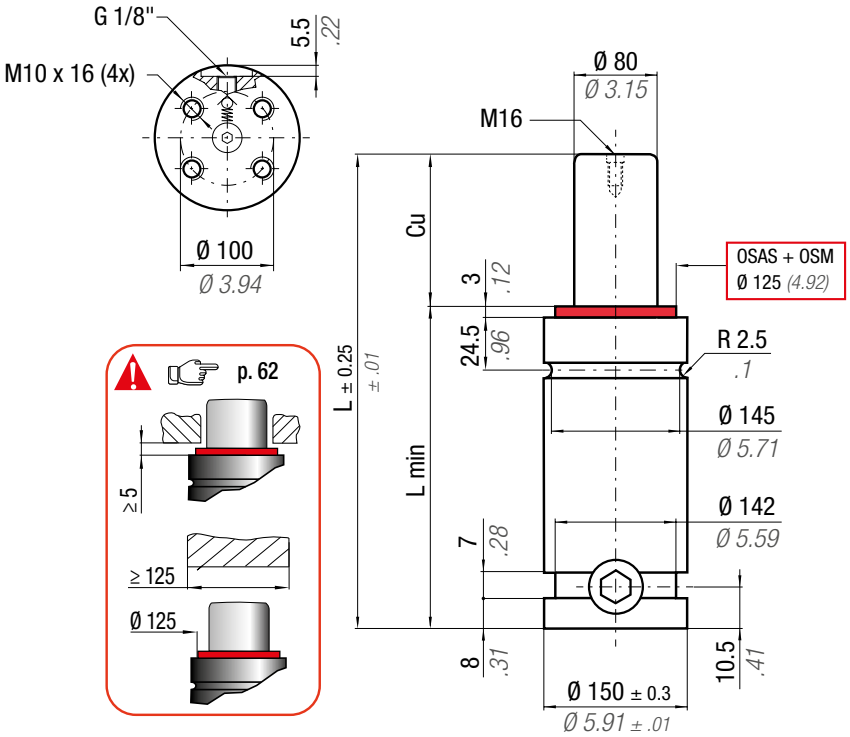
Order Callout Example:
GSK5000-50
GSK5000-50-N
GSK5000-50-CP



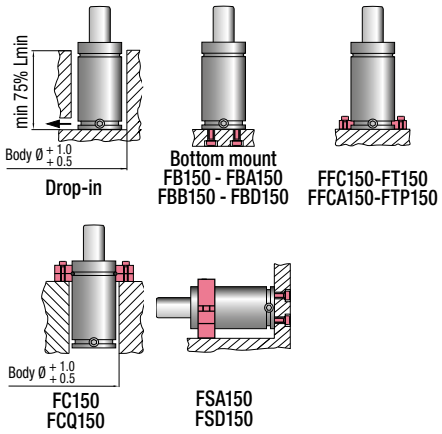


GSK 7500

ISO 11901 - 1	VDI 3003	B2 4006 (BMW)	E24.54.815.G (PSA)
W-DX35-6203 (Ford)	PG23D (Mazda)	B8 3180 220 000 001(MB)	
EM24.54.700 (Renault)	39D 878 (VW)	075.90.55 (FCA)	



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

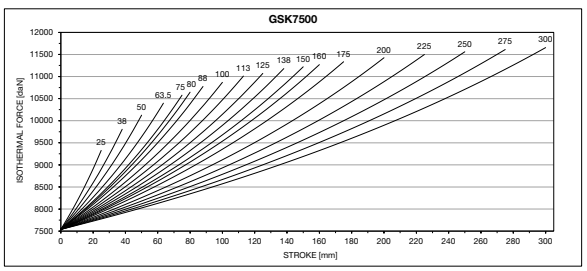
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

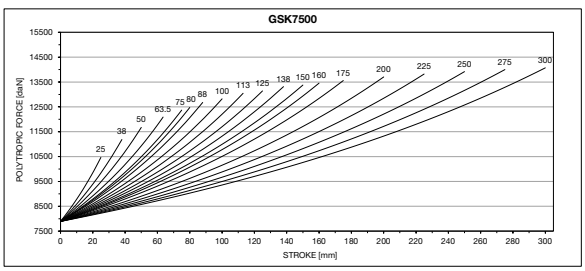
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	50.27 cm² *7.792 in²*	~ 15 - 50 (at 20°C)	1.8 m/s	GSRK-39BMSC07500D-CU-13-80 GSRK-39BMSC07500DH-CU-88-300

CALLOUT	Cu mm	Cu *inch*	L mm	L *inch*	L min mm	L min *inch*	F0 Initial force daN	F0 *lb*	$F1_i$ * End force daN	$F1_i$ * *lb*	$F1_p$ ** End force daN	$F1_p$ ** *lb*	V0 cm³	V0 *in³*	~Kg	~lb	PED 2014/68/EU
GSK7500-25	25	0.98	205	8.07	180	7.09			9330	20975	10472	23543	767.0	46.79	18.71	41.25	✓
GSK7500-38	38	1.50	231	9.09	193	7.60			9809	22052	11192	25161	963.0	58.74	19.50	42.99	✓
GSK7500-50	50	1.97	255	10.04	205	8.07			10129	22771	11679	26255	1144.0	69.78	20.24	44.62	✓
GSK7500-63.5	63.5	2.50	282	11.10	218.5	8.60			10400	23380	12095	27191	1348.0	82.23	21.06	46.43	✓
GSK7500-75	75	2.95	305	12.1	230	9.06			10581	23787	12375	27820	1522.0	92.84	21.76	47.97	✓
GSK7500-80	80	3.15	315	12.40	235	9.25			10648	23938	12480	28057	1597.0	97.42	22.07	48.66	✓
GSK7500-88	88	3.46	330	12.99	242	9.53			10778	24230	12682	28510	1706.0	104.07	22.45	49.49	✓
GSK7500-100	100	3.94	355	13.98	255	10.04	7540 ± 5%	16950	10871	24439	12828	28838	1899.0	115.84	23.23	51.21	✓
GSK7500-113	113	4.45	380	14.96	267	10.51			11013	24758	13051	29340	2083.0	127.06	23.98	52.87	✓
GSK7500-125	125	4.92	405	15.94	280	11.02	150 bar	2175 psi	11073	24893	13146	29553	2276.0	138.84	24.76	54.59	✓
GSK7500-138	138	5.43	430	16.93	292	11.50			11182	25138	13318	29940	2460.0	150.06	25.51	56.24	✓
GSK7500-150	150	5.91	455	17.91	305	12.1			11222	25228	13382	30084	2654.0	161.89	26.28	57.94	✓
GSK7500-160	160	6.30	475	18.70	315	12.40	+ 20 °C	+68 °F	11272	25340	13459	30258	2805.0	171.11	26.90	59.30	✓
GSK7500-175	175	6.89	505	19.88	330	12.99			11337	25487	13563	30491	3031.0	184.89	27.81	61.31	✓
GSK7500-200	200	7.87	555	21.85	355	13.98			11427	25689	13707	30815	3409.0	207.95	29.34	64.68	✓
GSK7500-225	225	8.86	605	23.82	380	14.96			11501	25855	13824	31078	3786.0	230.95	30.87	68.06	✓
GSK7500-250	250	9.84	655	25.79	405	15.94			11562	25992	13921	31296	4164.0	254.00	32.39	71.41	✓
GSK7500-275	275	10.83	705	27.76	430	16.93			11613	26107	14003	31480	4541.0	277.00	33.92	74.78	✓
GSK7500-300	300	11.81	755	29.72	455	17.91			11657	26206	14073	31637	4919.0	300.06	35.45	78.15	✓

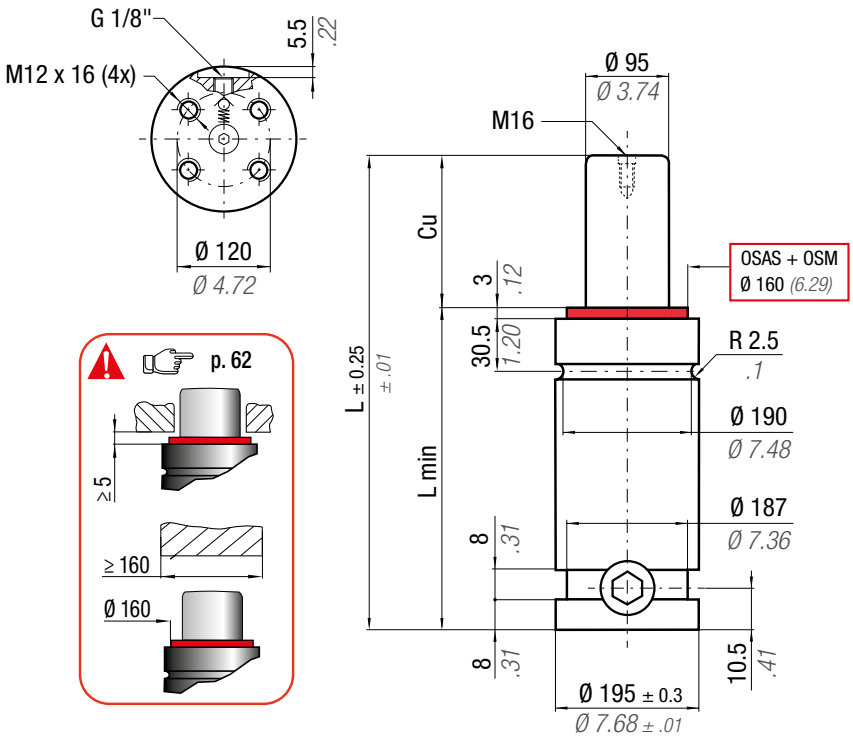
Order Callout Example:
GSK7500-50
GSK7500-50-N
GSK7500-50-CP



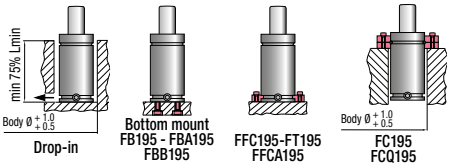


ISO 11901 - 1	VDI 3003	075.90.55 (FCA)
EM24.54.700 (Renault)	39D 878 (VW)	B8 3180 220 000 001(MB)

GSK 10000



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

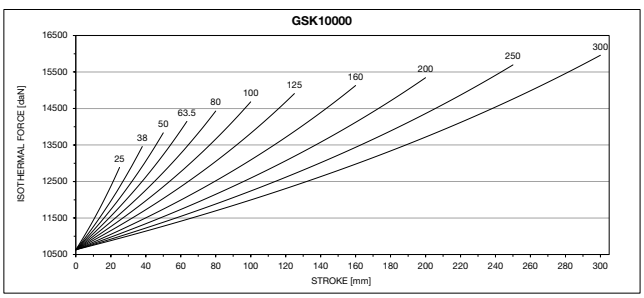
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

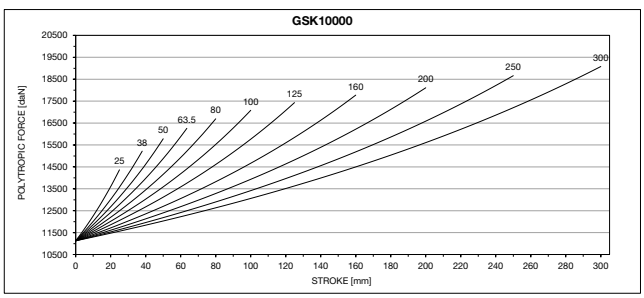
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	70.88 cm² *10.986 in²*	~ 15 - 50 (at 20°C)	1.8 m/s	GSRK-39BMSC10000D

CALLOUT	Cu		L		L min		Fo Initial force		$F1_i$ * End force		$F1_p$ ** End force		Vo				PED 2014/68/EU
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	
GSK10000-25	25	0.98	210	8.27	185	7.28	10600 *23830* ± 5% 150 bar *2175 psi* + 20 °C *+68 °F*		12892	28981	14373	32311	1186.0	72.35	33.73	74.36	✓
GSK10000-38	38	1.50	236	9.29	198	7.80			13463	30267	15225	34228	1497.0	91.32	35.08	77.34	✓
GSK10000-50	50	1.97	260	10.24	210	8.27			13838	31108	15790	35497	1784.0	108.82	36.32	80.07	✓
GSK10000-63.5	63.5	2.50	287	11.30	223.5	8.80			14151	31812	16266	36567	2108.0	128.59	37.72	83.16	✓
GSK10000-80	80	3.15	320	12.60	240	9.45			14434	32450	16700	37543	2503.0	152.68	39.44	86.95	✓
GSK10000-100	100	3.94	360	14.17	260	10.24			14686	33015	17087	38414	2982.0	181.90	41.51	91.51	✓
GSK10000-125	125	4.92	410	16.14	285	11.22			14912	33524	17438	39202	3581.0	218.44	44.11	97.25	✓
GSK10000-160	160	6.30	480	18.90	320	12.60			15132	34018	17780	39971	4419.0	269.56	47.74	105.25	✓
GSK10000-200	200	7.87	560	22.05	360	14.17			15345	34498	18114	40722	5343.0	325.92	52.17	115.02	✓
GSK10000-250	250	9.84	660	25.98	410	16.14			15696	35286	18665	41961	6348.0	387.23	58.87	129.79	✓
GSK10000-300	300	11.81	760	29.92	460	18.11			15960	35879	19083	42901	7354.0	448.59	65.57	144.56	✓

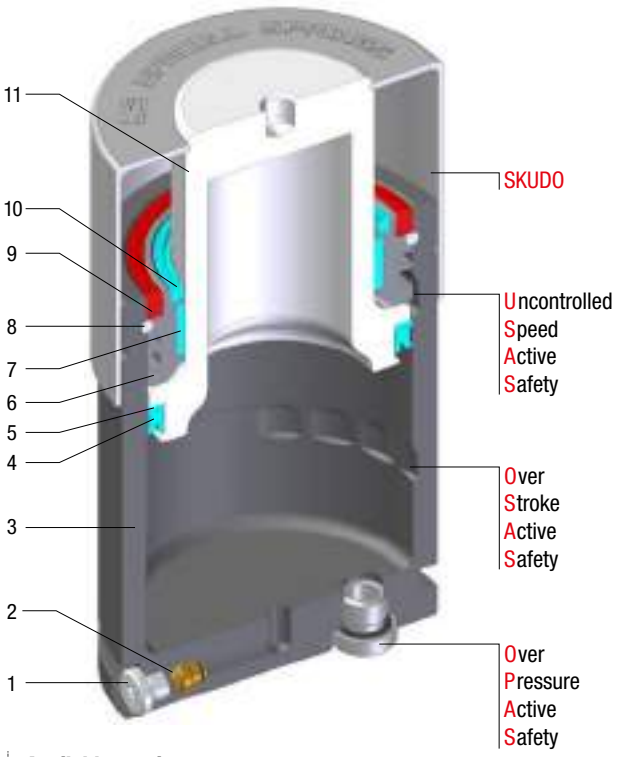
Order Callout Example:
GSK10000-50
GSK10000-50-N
GSK10000-50-CP





GSSC series

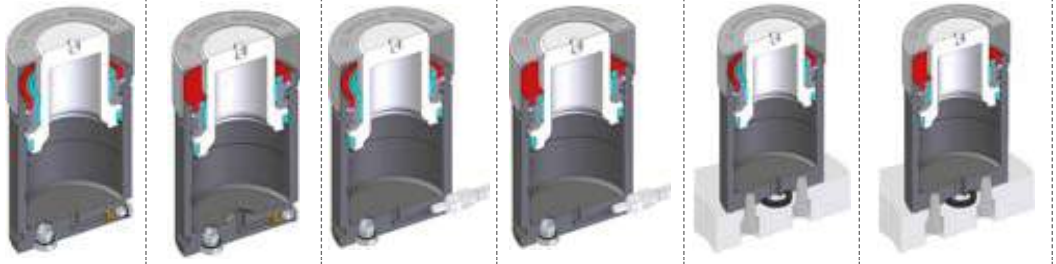
Maximum force, piston sealed + SKUDO - Maximale Kraft, Kolbendichtung + SKUDO - Force maximale,
piston étanche + SKUDO - Máxima fuerza, estanqueidad pistón + SKUDO - Força máxima, estanquidade no pistão + SKUDO



1	Plug
2	Valve
3	Body
4	Piston seal
5	Back-up ring
6	Bush
7	Guide ring
8	Retaining ring
9	Outer seal
10	Rod wiper
11	Rod (nitrited superfinished)

SEALING	PISTON SEAL
DESIGN	PISTON - BODY DESIGN

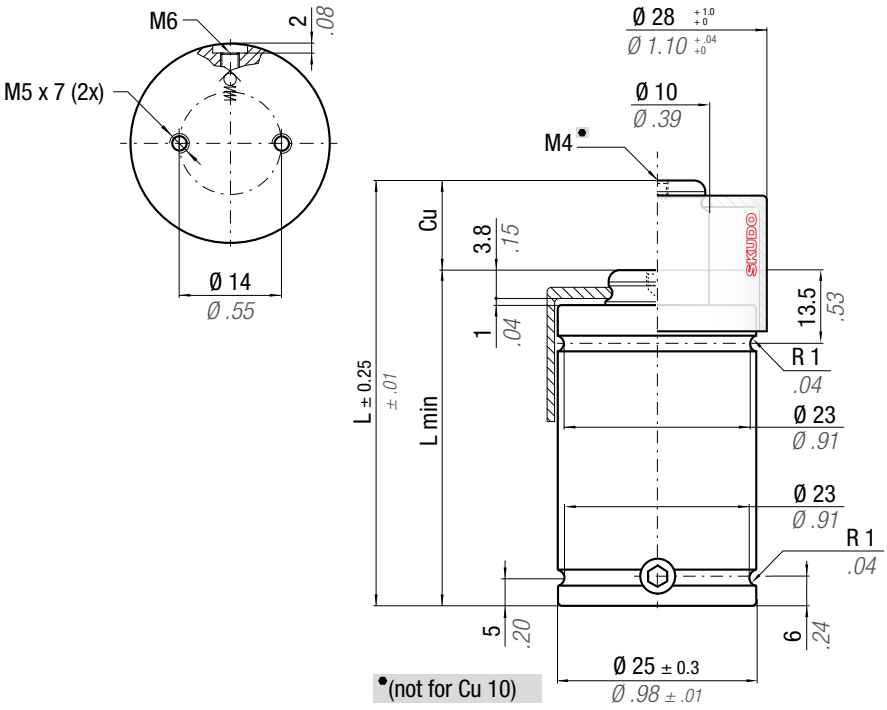
Available versions



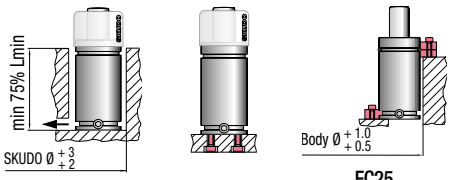
Standard code	Add "-W" to standard code	Add "-N" to standard code	Add "-N-W" to standard code	Add "-ED" to standard code	Add "-ED-W" to standard code
Self contained	Self contained + Secondary wiper	Linkable	Linkable + Secondary wiper	Easy Manifold	Easy Manifold + Secondary wiper

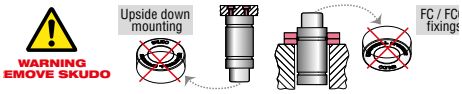
Order Callout Example:
GSSC1800-50
GSSC1800-50-W
GSSC1800-50-N
GSSC1800-50-N-W
GSSC1800-50-ED
GSSC1800-50-ED-W

Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	daN	lb				
GSSC400	25	0.98	6 - 50	0.39 - 1.97	425	955	-	-	-	✓
GSSC750	32	1.26	6 - 50	0.39 - 1.97	740	1664	✓	✓	✓	✓
GSSC1000	38	1.50	6 - 50	0.24 - 1.97	1060	2383	✓	✓	✓	✓
GSSC1800	50	1.97	6 - 65	0.24 - 1.97	1885	4238	✓	✓	✓	✓
GSSC3000	63	2.48	10 - 65	0.39 - 1.97	2945	6620	✓	✓	✓	✓
GSSC4700	75	2.95	10 - 65	0.39 - 1.97	4675	10510	✓	✓	✓	✓
GSSC7500	95	3.74	10 - 65	0.39 - 1.97	7540	16950	✓	✓	✓	✓
GSSC12000	120	4.72	10 - 65	0.39 - 1.97	11780	26481	✓	✓	✓	✓
GSSC18500	150	5.91	10 - 65	0.39 - 1.97	18410	41386	✓	✓	✓	✓



Fixings





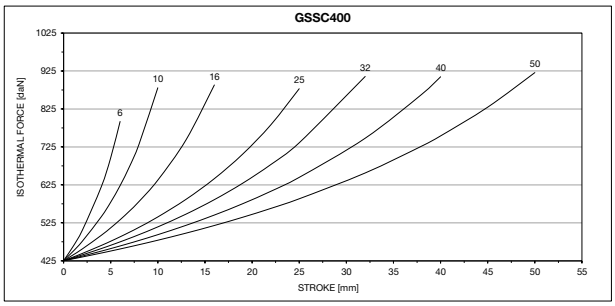
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

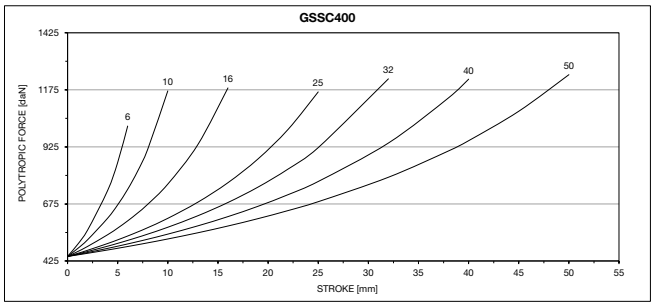
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	2.84 cm² *0.440 in²*	~ 50 - 100 (at 20°C)	0.8 m/s	Disposable

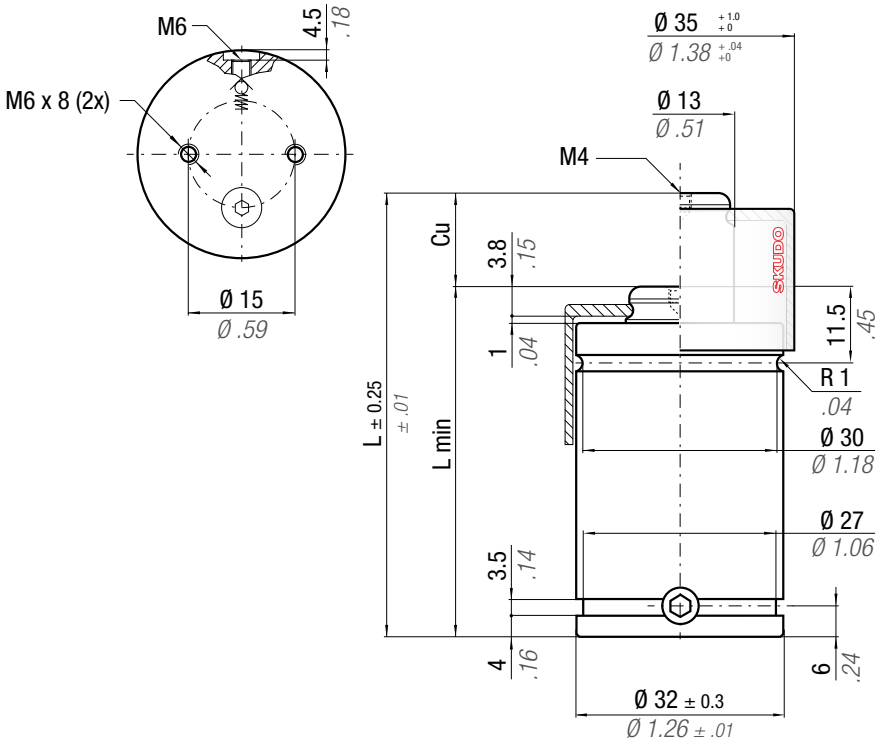
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSSC400-6	6	*0.24*	56	*2.2*	50	*1.97*	425 ± 5%	*955*	789	*1774*	1011	*2273*	4.0	*0.24*	0.13	*0.29*	✓
GSSC400-10	10	*0.39*	70	*2.76*	60	*2.36*			871	*1958*	1153	*2592*	6.0	*0.37*	0.16	*0.35*	✓
GSSC400-16	16	*0.63*	91	*3.58*	75	*2.95*			881	*1981*	1171	*2633*	10.0	*0.61*	0.18	*0.40*	✓
GSSC400-25	25	*0.98*	120	*4.72*	95	*3.74*	150 bar *2175psi*		876	*1969*	1162	*2612*	16.0	*0.98*	0.23	*0.51*	✓
GSSC400-32	32	*1.26*	140	*5.51*	108	*4.25*			907	*2040*	1217	*2736*	19.0	*1.16*	0.24	*0.53*	✓
GSSC400-40	40	*1.57*	165	*6.50*	125	*4.92*	+ 20 °C *+68 °F*		907	*2039*	1217	*2736*	24.0	*1.46*	0.28	*0.62*	✓
GSSC400-50	50	*1.97*	195	*7.68*	145	*5.71*			919	*2065*	1238	*2783*	30.0	*1.83*	0.31	*0.68*	✓

Order Callout Example:
GSSC400-50
GSSC400-50-N
GSSC400-50-CP

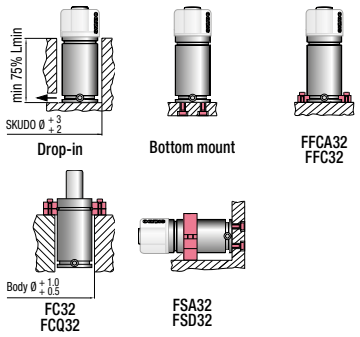


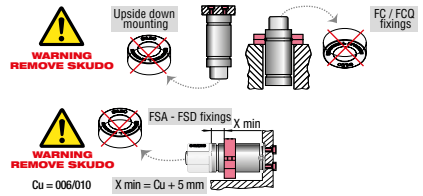


GSSC 750



Fixings





*** $F1_i$ =**
Isothermal end force at 100% Cu

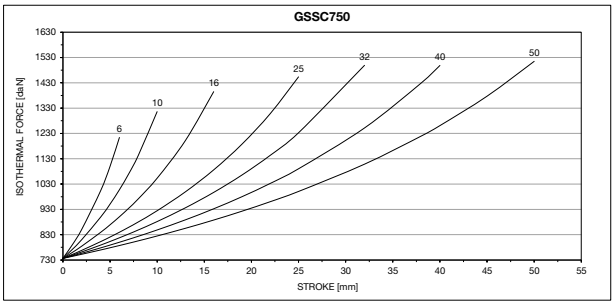
p. 16

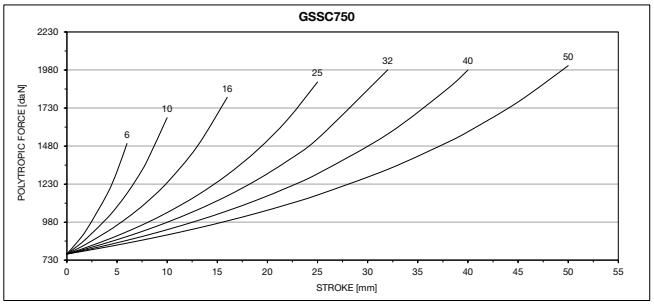
**** $F1_p$ =**
Polytrophic end force at 100% Cu

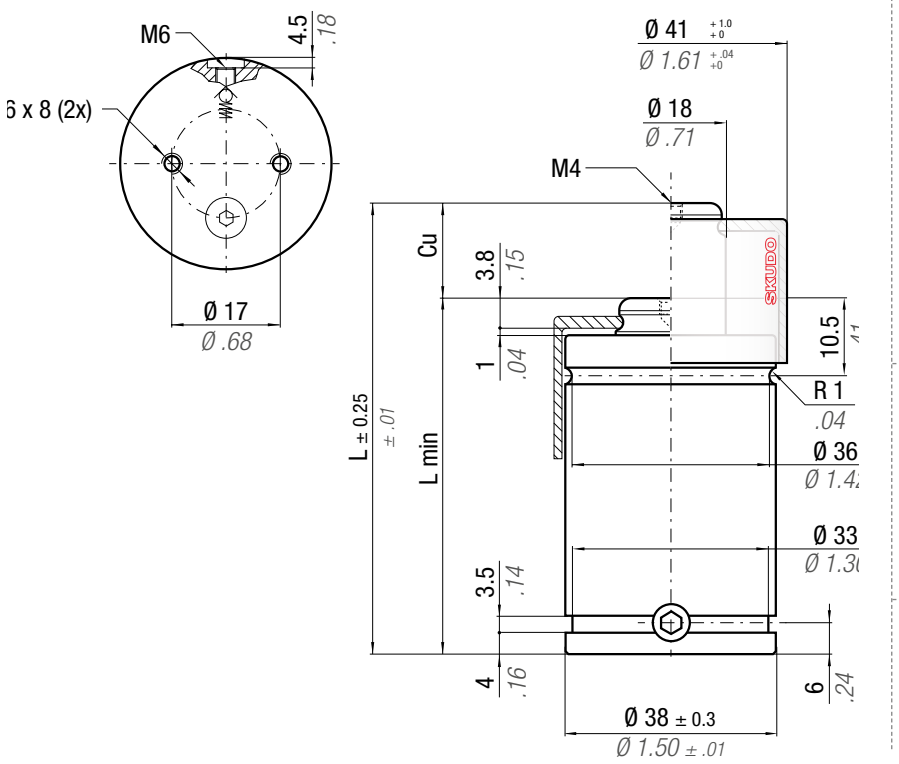
N2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	4.91 cm² *0.761 in²*	~ 50 - 100 (at 20°C)	0.8 m/s	GSRK-39BMKE00750B

CALLOUT	Cu		L		L min		Fo Initial force		$F1_i$ * End force		$F1_p$ ** End force		Vo				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSSC750-6	6	*0.24*	63	*2.48*	57	*2.24*	740 *1664* ± 5%		1207	*2714*	1486	*3341*	9.0	*0.55*	0.23	*0.51*	✓
GSSC750-10	10	*0.39*	75	*2.95*	65	*2.56*			1310	*2945*	1656	*3723*	13.0	*0.79*	0.25	*0.55*	✓
GSSC750-16	16	*0.63*	93	*3.66*	77	*3.03*			1390	*3125*	1792	*4029*	19.0	*1.16*	0.29	*0.64*	✓
GSSC750-25	25	*0.98*	120	*4.72*	95	*3.74*	150 bar *2175psi*		1450	*3259*	1895	*4260*	28.0	*1.71*	0.33	*0.73*	✓
GSSC750-32	32	*1.26*	140	*5.51*	108	*4.25*			1496	*3363*	1975	*4440*	35.0	*2.14*	0.37	*0.82*	✓
GSSC750-40	40	*1.57*	165	*6.50*	125	*4.92*			1496	*3363*	1975	*4440*	44.0	*2.68*	0.42	*0.92*	✓
GSSC750-50	50	*1.97*	195	*7.68*	145	*5.71*	+ 20 °C *+68 °F*		1513	*3400*	2004	*4505*	54.0	*3.29*	0.47	*1.04*	✓

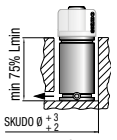
Order Callout Example:
GSSC750-50
GSSC750-50-N
GSSC750-50-CP





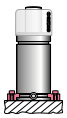


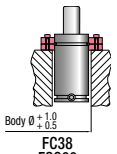
Fixings



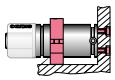
Drop-in

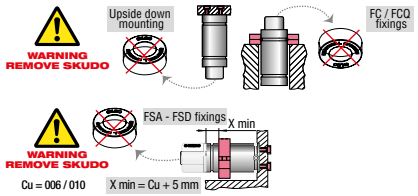

Bottom mount


FFCA38 - FT38
FFC38 - FTP38



FC38
FCQ38


FSA38
FSD38



*** $F1_i$ =**
Isothermal end force at 100% Cu p. 16

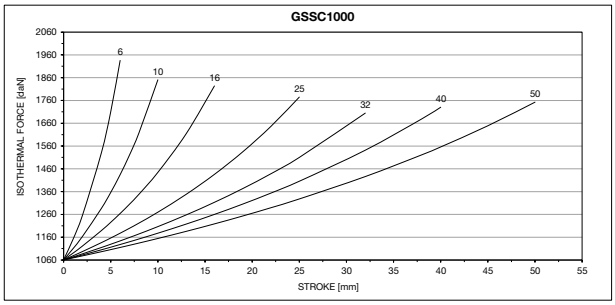
**** $F1_p$ =**
Polytrophic end force at 100% Cu

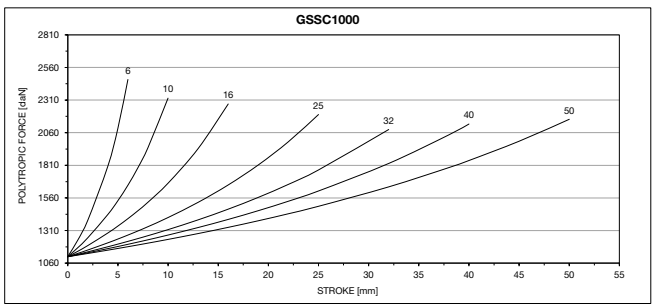
N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	7.07 cm² *1.096 in²*	~ 50 - 100 (at 20°C)	0.8 m/s	GSRK-39BMKE01000B

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0		~Kg	~lb	PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*			
GSSC1000-6	6	*0.24*	61	*2.40*	55	*2.17*	1060 *2383* ± 5%		1902	*4277*	2412	*5422*	11.0	*0.67*	0.33	*0.72*	✓
GSSC1000-10	10	*0.39*	78	*3.07*	68	*2.68*			1834	*4123*	2297	*5164*	19.0	*1.16*	0.38	*0.84*	✓
GSSC1000-16	16	*0.63*	100	*3.94*	84	*3.31*			1814	*4078*	2264	*5090*	31.0	*1.89*	0.44	*0.97*	✓
GSSC1000-25	25	*0.98*	135	*5.31*	110	*4.33*	150 bar *2175psi*		1769	*3977*	2190	*4923*	51.0	*3.11*	0.53	*1.17*	✓
GSSC1000-32	32	*1.26*	167	*6.57*	135	*5.31*			1701	*3824*	2079	*4674*	69.0	*4.21*	0.63	*1.39*	✓
GSSC1000-40	40	*1.57*	195	*7.68*	155	*6.10*			1727	*3883*	2121	*4768*	84.0	*5.12*	0.70	*1.54*	✓
GSSC1000-50	50	*1.97*	230	*9.06*	180	*7.09*	+ 20 °C *+68 °F*		1750	*3934*	2159	*4854*	103.0	*6.28*	0.79	*1.74*	✓

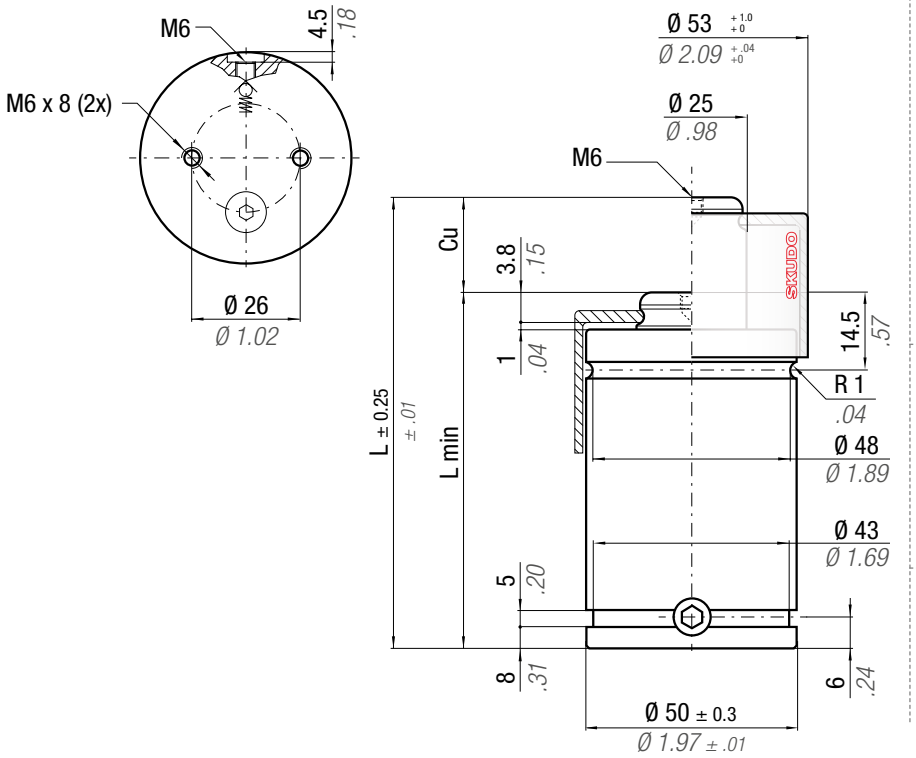
◆ Disposable

Order Callout Example:
GSSC1000-50
GSSC1000-50-N
GSSC1000-50-CP

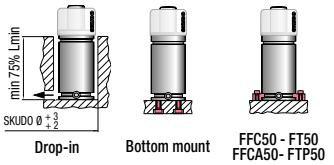




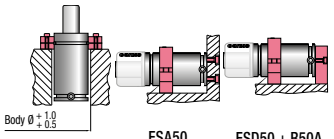
GSSC 1800



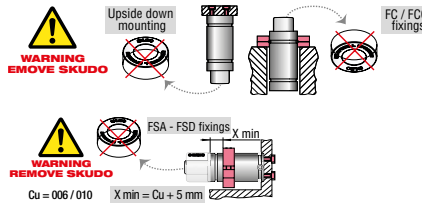
Fixings



Drop-in | Bottom mount | FFC50 - FT50 FFCA50- FTP50



FCB50 - FCQB50 | FSA50 FSD50 - FSE50 | FSD50 + R50A FSE50 + R50A



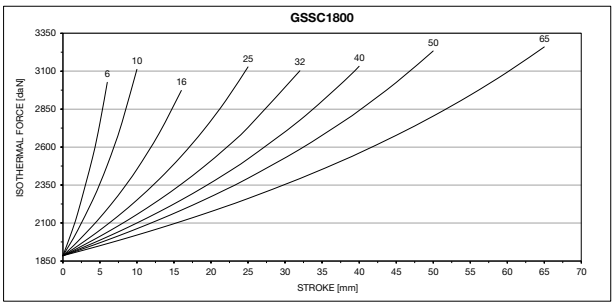
*** $F1_i$ =**
Isothermal end force at 100% Cu p. 16

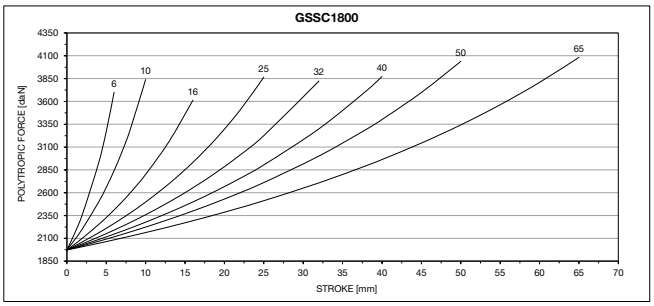
**** $F1_p$ =**
Polytrophic end force at 100% Cu

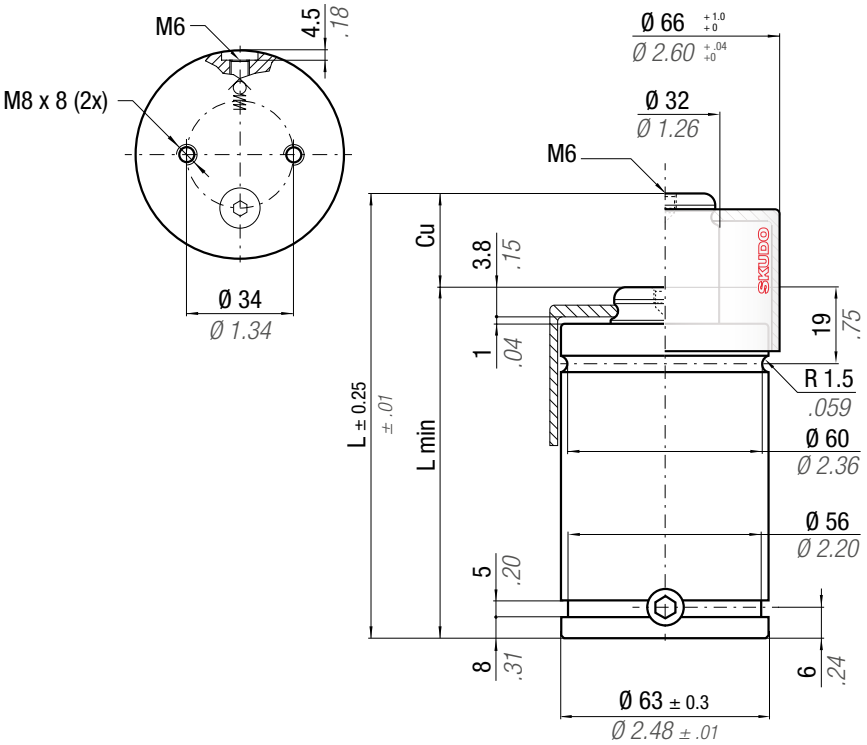
N_2	°F	°C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176	0 - 80	± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	12.57 cm² *1.948 in²*	~ 50 - 100 (at 20°C)	0.8 m/s	GSRK-39BMKE01800B

CALLOUT	Cu mm	Cu *inch*	L mm	L *inch*	L min mm	L min *inch*	Fo Initial force daN	Fo *lb*	$F1_i$ * End force daN	$F1_i$ * *lb*	$F1_p$ ** End force daN	$F1_p$ ** *lb*	Vo cm³	Vo *in³*	~Kg	*~lb*	PED 2014/68/EU
GSSC1800-6	6	*0.24*	66	*2.60*	60	*2.36*	1885 ± 5%	*4238*	3046	*6847*	3731	*8388*	23.0	*1.40*	0.63	*1.39*	✓
GSSC1800-10	10	*0.39*	80	*3.15*	70	*2.76*			3125	*7026*	3860	*8678*	36.0	*2.20*	0.69	*1.52*	✓
GSSC1800-16	16	*0.63*	106	*4.17*	90	*3.54*			2979	*6698*	3623	*8145*	63.0	*3.84*	0.81	*1.79*	✓
GSSC1800-25	25	*0.98*	135	*5.31*	110	*4.33*			3133	*7044*	3874	*8709*	90.0	*5.49*	0.94	*2.07*	✓
GSSC1800-32	32	*1.26*	162	*6.38*	130	*5.12*	150 bar	*2175psi*	3106	*6983*	3830	*8610*	117.0	*7.14*	1.06	*2.34*	✓
GSSC1800-40	40	*1.57*	190	*7.48*	150	*5.91*			3135	*7049*	3877	*8716*	145.0	*8.85*	1.19	*2.62*	✓
GSSC1800-50	50	*1.97*	220	*8.66*	170	*6.69*	+ 20 °C	*+68 °F*	3236	*7275*	4043	*9089*	172.0	*10.49*	1.31	*2.89*	✓
GSSC1800-65	65	*2.56*	271	*10.67*	206	*8.11*			3262	*7333*	4086	*9186*	221.0	*13.48*	1.53	*3.37*	✓

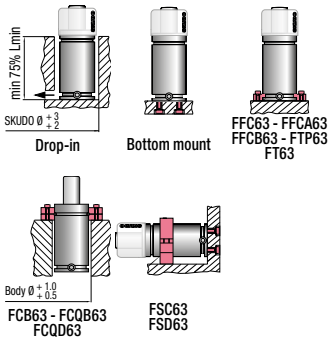
Order Callout Example:
GSSC1800-50
GSSC1800-50-N
GSSC1800-50-CP

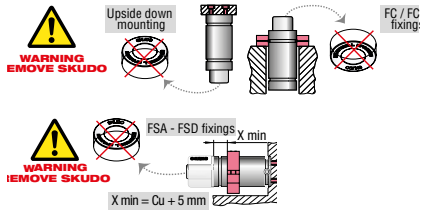






Fixings





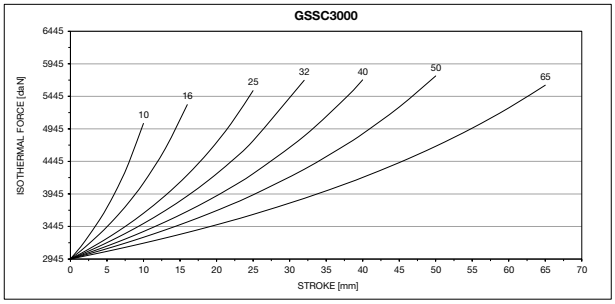
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

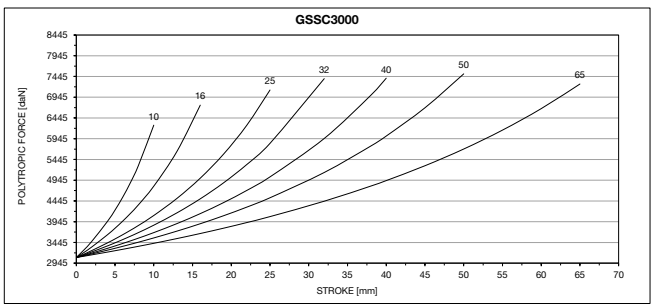
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	19.63 cm² *3.043 in²*	~ 80 - 100 (at 20°C)	0.8 m/s	GSRK-39BMKE03000B

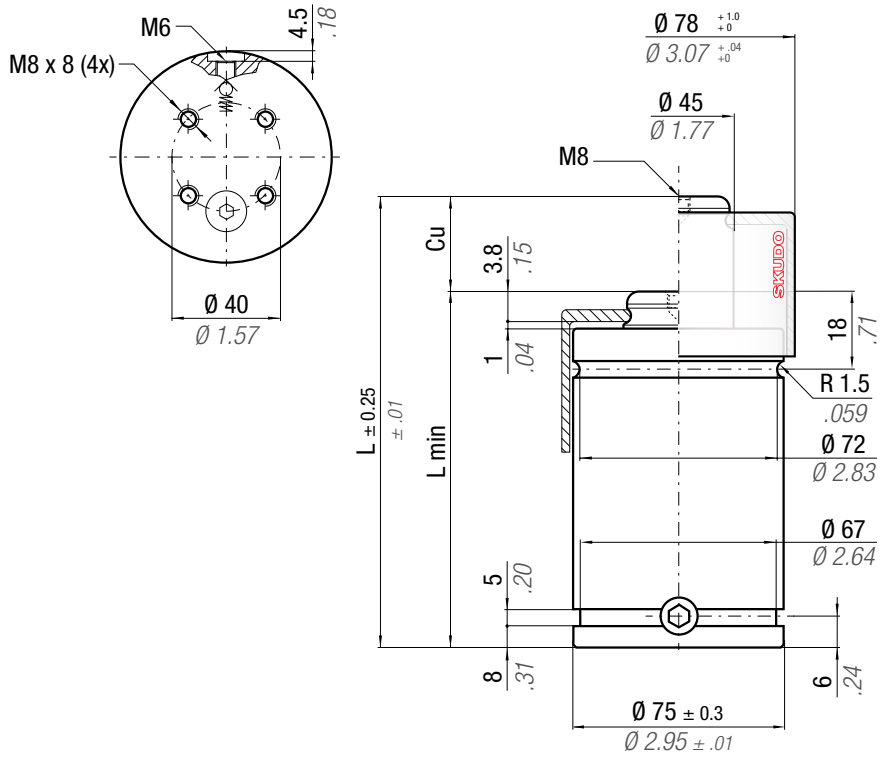
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0		~Kg	~lb	PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*			
GSSC3000-10	10	*0.39*	85	*3.35*	75	*2.95*	2945 *6620* ± 5% 150 bar *2175psi* + 20 °C *+68 °F*		5084	*11429*	6363	*14305*	53.0	*3.23*	1.23	*2.71*	✓
GSSC3000-16	16	*0.63*	103	*4.06*	87	*3.43*			5362	*12053*	6829	*15352*	79.0	*4.82*	1.36	*3.00*	✓
GSSC3000-25	25	*0.98*	130	*5.12*	105	*4.13*			5566	*12512*	7176	*16132*	119.0	*7.26*	1.55	*3.42*	✓
GSSC3000-32	32	*1.26*	150	*5.91*	118	*4.65*			5721	*12861*	7443	*16733*	147.0	*8.97*	1.69	*3.73*	✓
GSSC3000-40	40	*1.57*	175	*6.89*	135	*5.31*			5722	*12863*	7445	*16737*	184.0	*11.22*	1.86	*4.10*	✓
GSSC3000-50	50	*1.97*	205	*8.07*	155	*6.10*			5778	*12989*	7542	*16955*	227.0	*13.85*	2.07	*4.56*	✓
GSSC3000-65	65	*2.56*	256	*10.08*	191	*7.52*			5630	*12657*	7287	*16382*	304.0	*18.54*	2.44	*5.38*	✓

Order Callout Example:
GSSC3000-50
GSSC3000-50-N
GSSC3000-50-CP

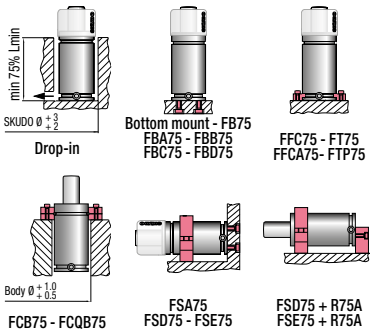


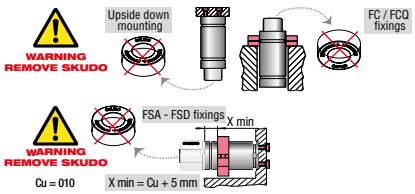


GSSC 4700



Fixings





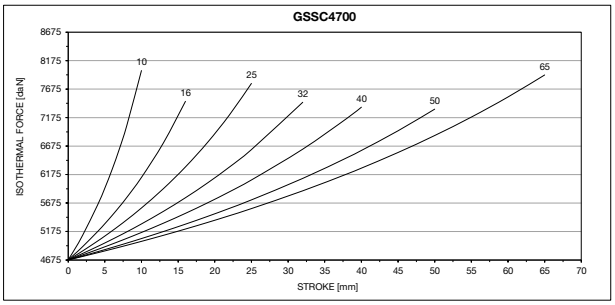
$F1_i$ = Isothermal end force at 100% Cu p. 16

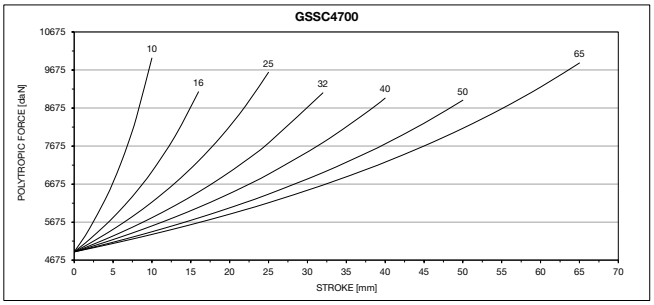
$F1_p$ = Polytrophic end force at 100% Cu

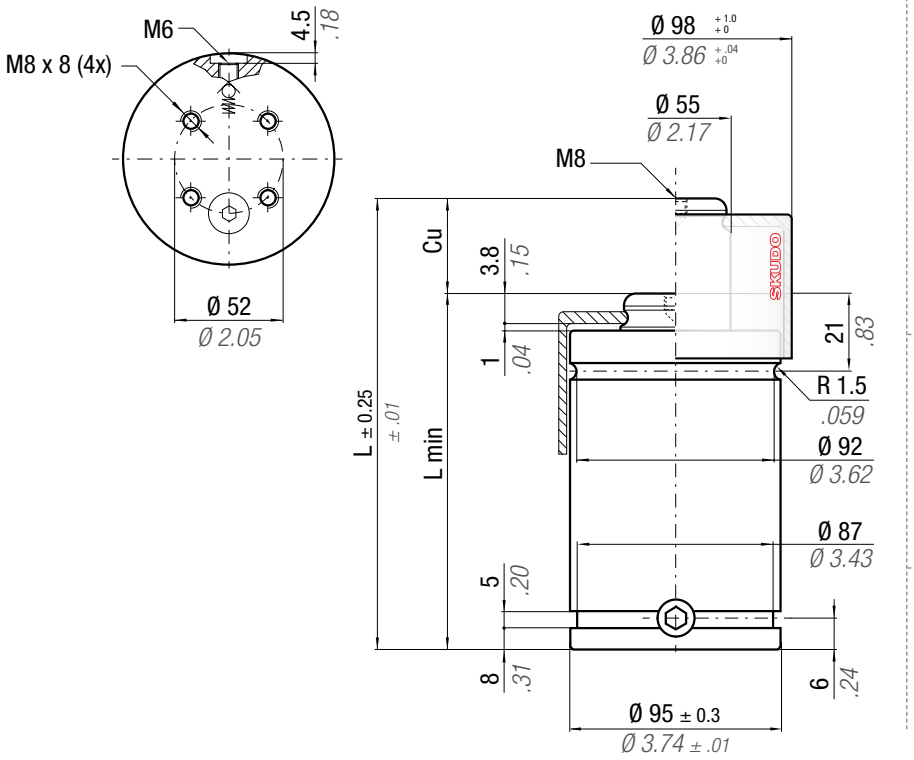
N_2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	31.17 cm² *4.831 in²*	~ 80 - 100 (at 20°C)	0.8 m/s	GSRK-39BMKE04700B

CALLOUT	Cu		L		L min		Fo Initial force		$F1_i$ * End force		$F1_p$ ** End force		Vo				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSSC4700-10	10	*0.39*	80	*3.15*	70	*2.76*	4675 *10510* ± 5%		8017	*18023*	10013	*22510*	86.0	*5.25*	1.62	*3.57*	✓
GSSC4700-16	16	*0.63*	106	*4.17*	90	*3.54*			7467	*16788*	9112	*20485*	153.0	*9.33*	1.85	*4.08*	✓
GSSC4700-25	25	*0.98*	135	*5.31*	110	*4.33*			7780	*17491*	9622	*21631*	224.0	*13.66*	2.10	*4.63*	✓
GSSC4700-32	32	*1.26*	167	*6.57*	135	*5.31*	150 bar *2175psi*		7447	*16742*	9079	*20410*	308.0	*18.79*	2.39	*5.27*	✓
GSSC4700-40	40	*1.57*	200	*7.87*	160	*6.30*			7360	*16547*	8939	*20096*	393.0	*23.97*	2.68	*5.91*	✓
GSSC4700-50	50	*1.97*	240	*9.45*	190	*7.48*	+ 20 °C *+68 °F*		7326	*16469*	8883	*19970*	496.0	*30.26*	3.03	*6.68*	✓
GSSC4700-65	65	*2.56*	273	*10.75*	208	*8.19*			7926	*17818*	9862	*22171*	565.0	*34.47*	3.30	*7.28*	✓

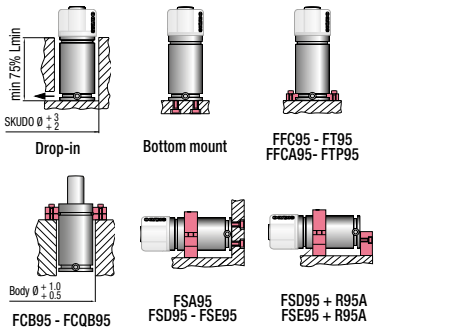
Order Callout Example:
GSSC4700-50
GSSC4700-50-N
GSSC4700-50-CP

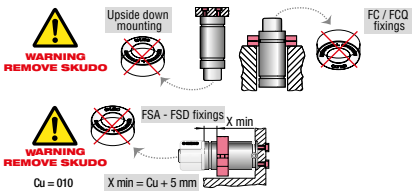






Fixings



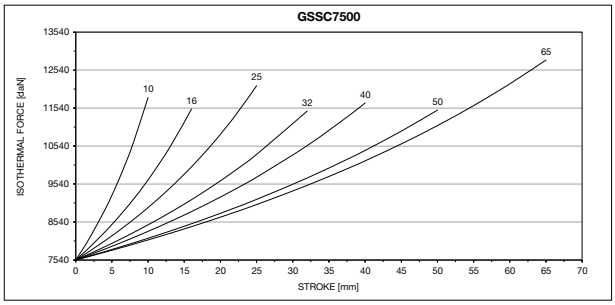


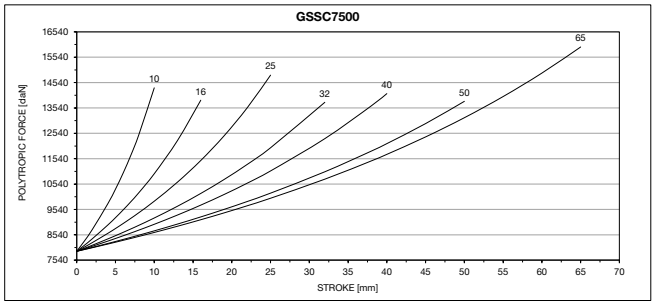
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16 **** $F1_p$ =** Polytrophic end force at 100% Cu

N2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	50.27 cm² *7.791 in²*	~ 80 - 100 (at 20°C)	0.8 m/s	GSRK-39BMKE07500B

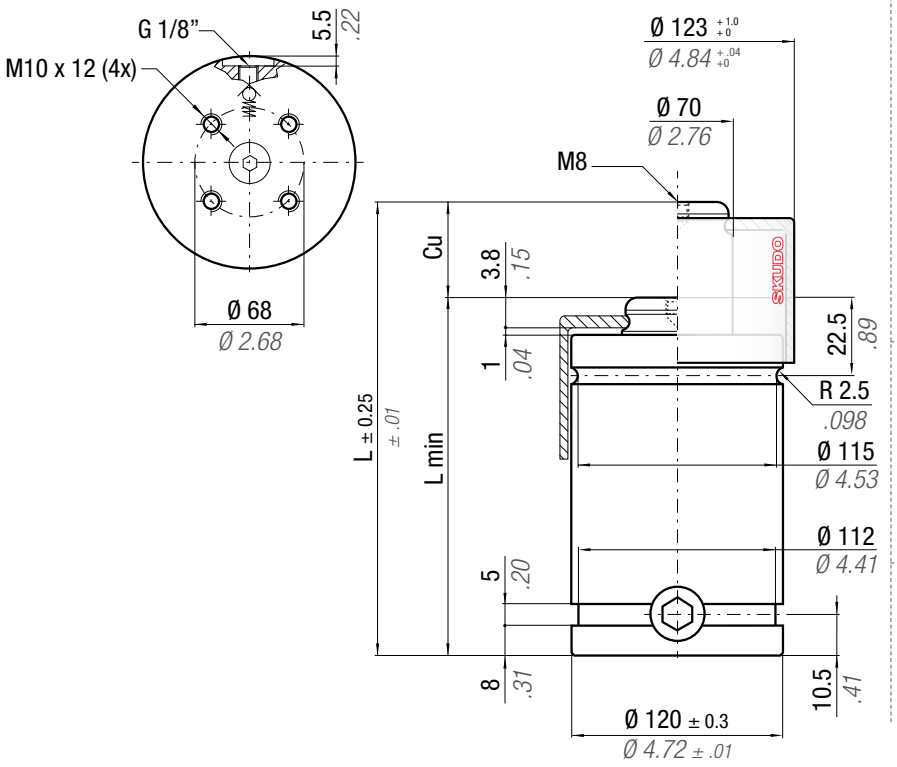
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSSC7500-10	10	*0.39*	90	*3.54*	80	*3.15*	7540 *16950* ± 5%		11910	*26775*	14481	*32555*	158.0	*9.64*	2.89	*6.37*	✓
GSSC7500-16	16	*0.63*	116	*4.57*	100	*3.94*			11563	*25995*	13924	*31302*	266.0	*16.23*	3.26	*7.19*	✓
GSSC7500-25	25	*0.98*	145	*5.71*	120	*4.72*			12169	*27357*	14901	*33499*	379.0	*23.12*	3.64	*8.02*	✓
GSSC7500-32	32	*1.26*	182	*7.17*	150	*5.91*			11486	*25821*	13800	*31024*	540.0	*32.94*	4.18	*9.22*	✓
GSSC7500-40	40	*1.57*	210	*8.27*	170	*6.69*	150 bar *2175 psi*		11697	*26297*	14138	*31783*	652.0	*39.77*	4.56	*10.05*	✓
GSSC7500-50	50	*1.97*	255	*10.04*	205	*8.07*			11502	*25857*	13825	*31080*	841.0	*51.30*	5.19	*11.44*	✓
GSSC7500-65	65	*2.56*	279	*10.98*	214	*8.43*	+ 20 °C *+68 °F*		12826	*28834*	15978	*35920*	907.0	*55.33*	5.46	*12.40*	✓

Order Callout Example:
GSSC7500-50
GSSC7500-50-N
GSSC7500-50-CP

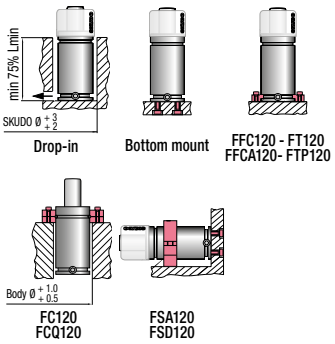


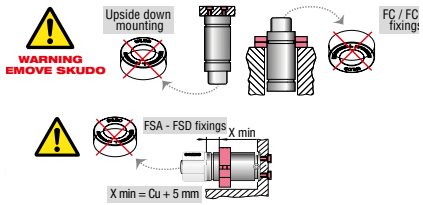


GSSC 12000



Fixings





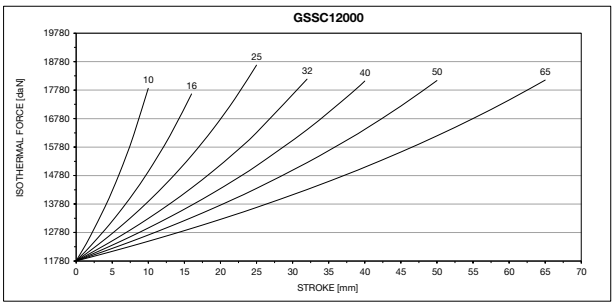
*** $F1_i$ =**
Isothermal end force at 100% Cu p. 16

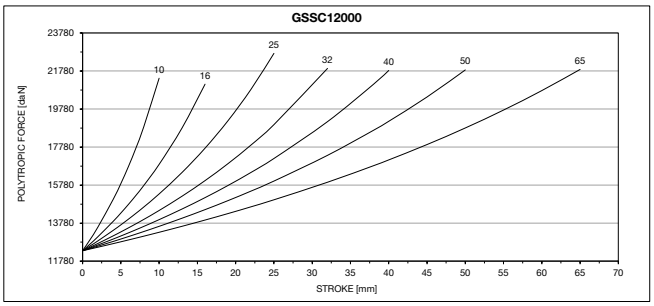
**** $F1_p$ =**
Polytrophic end force at 100% Cu

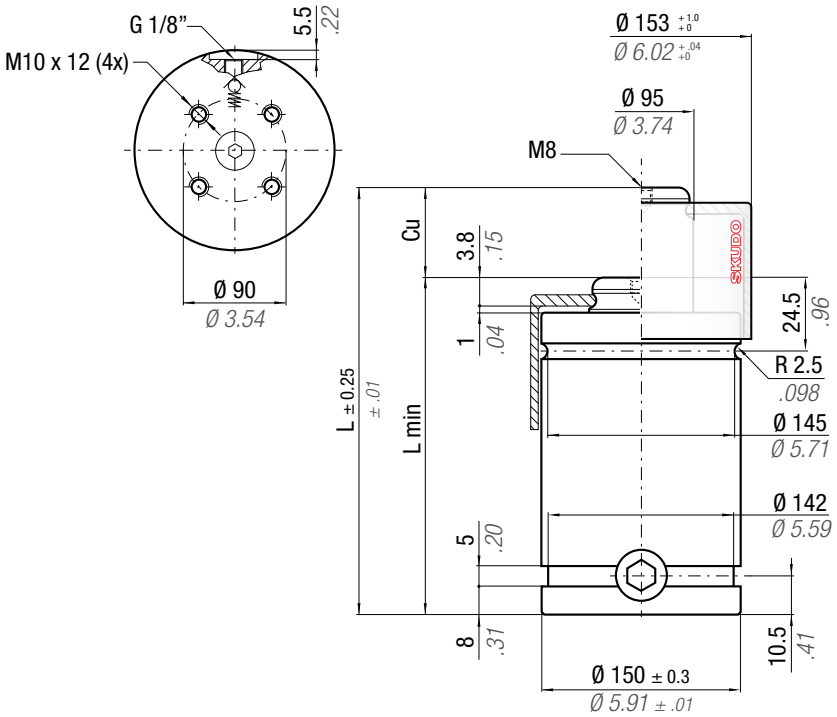
N2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	78.54 cm² *12.174 in²*	~ 50 - 100 (at 20°C)	0.8 m/s	GSRK-39BMKE12000B

CALLOUT	Cu		L		L min		Fo Initial force		$F1_i$ * End force		$F1_p$ ** End force		Vo				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSSC12000-10	10	*0.39*	100	*3.94*	90	*3.54*	11780 ± 5%	*26482*	17843	*40113*	21398	*48105*	267.0	*16.29*	5.49	*12.10*	✓
GSSC12000-16	16	*0.63*	126	*4.96*	110	*4.33*			17646	*39670*	21084	*47399*	436.5	*26.63*	6.11	*13.47*	✓
GSSC12000-25	25	*0.98*	155	*6.10*	130	*5.12*			18657	*41943*	22704	*51041*	613.0	*37.39*	6.76	*14.90*	✓
GSSC12000-32	32	*1.26*	187	*7.36*	155	*6.10*	150 bar *2175psi*		18166	*40838*	21913	*49262*	824.0	*50.26*	7.54	*16.62*	✓
GSSC12000-40	40	*1.57*	220	*8.66*	180	*7.09*			18098	*40687*	21805	*49020*	1037.0	*63.26*	8.31	*18.32*	✓
GSSC12000-50	50	*1.97*	260	*10.24*	210	*8.27*	+ 20 °C *+68 °F*		18116	*40727*	21834	*49085*	1294.0	*78.93*	9.25	*20.9*	✓
GSSC12000-65	65	*2.56*	320	*12.60*	255	*10.04*			18133	*40765*	21860	*49143*	1679.0	*102.42*	10.66	*23.50*	✓

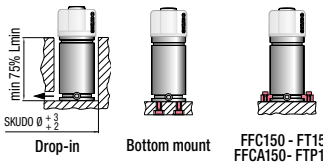
Order Callout Example:
GSSC12000-50
GSSC12000-50-N
GSSC12000-50-CP

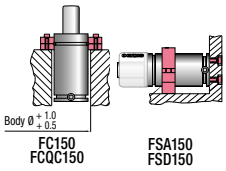


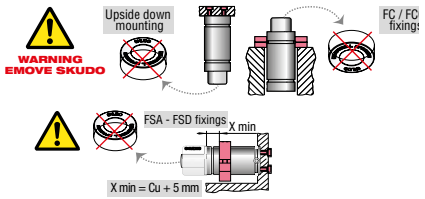




Fixings







*** $F1_i$ =**
Isothermal end force at 100% Cu

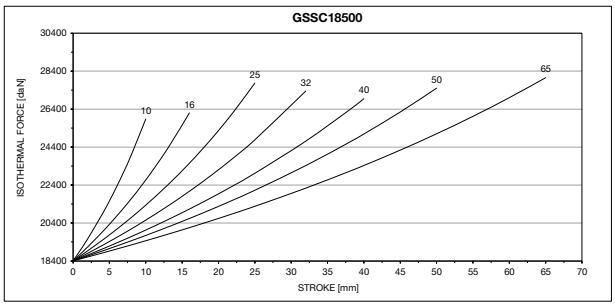
p. 16

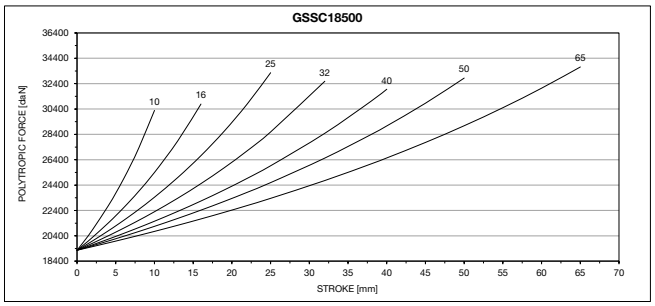
**** $F1_p$ =**
Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	122.72 cm² *19.022 in²*	~ 50 - 100 (at 20°C)	0.8 m/s	GSRK-39BMKE18500B

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0		~Kg	~lb	PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*			
GSSC18500-10	10	*0.39*	110	*4.33*	100	*3.94*	18410 ± 5%	*41386*	25880	*58181*	30288	*68090*	493.0	*30.07*	9.31	*20.53*	✓
GSSC18500-16	16	*0.63*	136	*5.35*	120	*4.72*			26201	*58903*	30788	*69214*	765.0	*46.67*	10.28	*22.66*	✓
GSSC18500-25	25	*0.98*	165	*6.50*	140	*5.51*			27771	*62431*	33260	*74771*	1050.0	*64.05*	11.30	*24.91*	✓
GSSC18500-32	32	*1.26*	197	*7.76*	165	*6.50*			27347	*61479*	32588	*73261*	1388.0	*84.67*	12.51	*27.58*	✓
GSSC18500-40	40	*1.57*	235	*9.25*	195	*7.68*	150 bar *2175psi*		26947	*60580*	31957	*71842*	1791.0	*109.25*	13.93	*30.71*	✓
GSSC18500-50	50	*1.97*	270	*10.63*	220	*8.66*			27505	*61833*	32838	*73823*	2142.0	*130.66*	15.19	*33.49*	✓
GSSC18500-65	65	*2.56*	323	*12.72*	258	*10.16*	+ 20 °C *+68 °F*		28055	*63070*	33713	*75790*	2674.0	*163.11*	17.10	*37.70*	✓

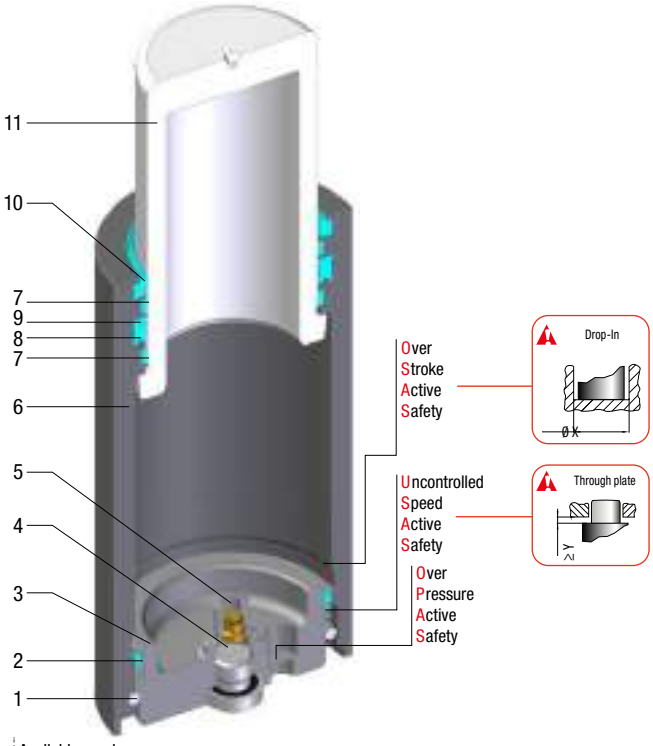
Order Callout Example:
GSSC18500-50
GSSC18500-50-N
GSSC18500-50-CP





GSML series

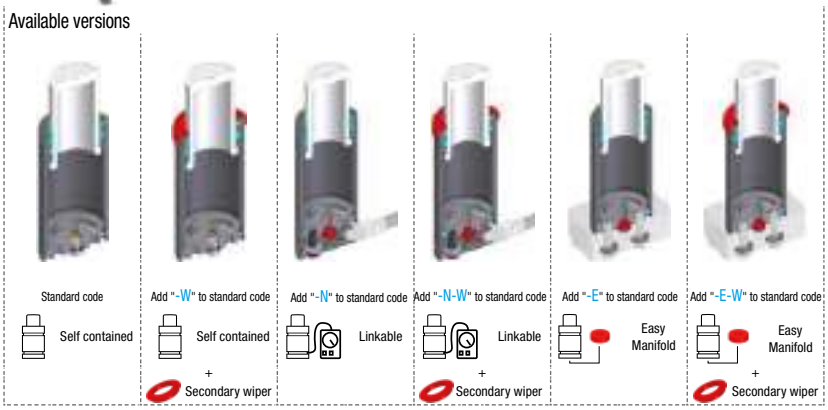
Maximum force, rod sealed - Maximale Kraft, Kolbenstange dichtung
Forces maximale, joint de tige - Máxima fuerza, estanqueidad vástago - Força máxima, estanquidade na haste



1	Retaining ring
2	Dual ring seal
3	Bottom base
4	Plug
5	Valve
6	Body
7	Guide ring
8	Rod seal
9	Back-up ring
10	Rod wiper
11	Rod (nitrited superfinished)

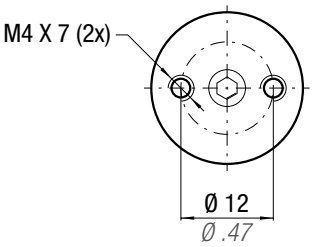
SEALING	ROD SEAL
DESIGN	BUSH - BODY DESIGN

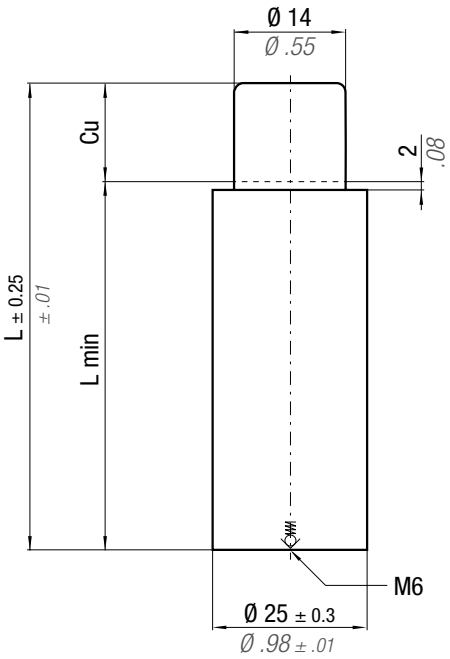
Available versions

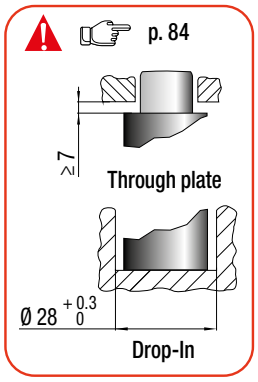


Order Callout Example:
GSML1800-50
GSML1800-50-W
GSML1800-50-N
GSML1800-50-N-W
GSML1800-50-E
GSML1800-50-E-W

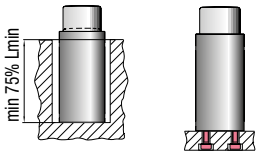
Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	daN	lb				
GSML300	25	0.98	10 - 80	0.39 - 3.15	310	697	✓	✓	-	-
GSML500	32	1.26	10 - 80	0.39 - 3.15	510	1147	✓	✓	-	-
GSML1000	38	1.50	10 - 80	0.39 - 3.15	980	2203	✓	✓	✓	-
GSML1000N	38	1.50	10 - 80	0.39 - 3.15	980	2203	✓	✓	✓	-
GSML1800	50	1.97	15 - 80	0.59 - 3.15	1925	4327	✓	✓	✓	-
GSML1800N	50	1.97	15 - 80	0.59 - 3.15	1925	4327	✓	✓	✓	-
GSML3000	63	2.48	15 - 80	0.59 - 3.15	3180	11071	✓	✓	✓	-
GSML3000N	63	2.48	15 - 80	0.59 - 3.15	3180	11071	✓	✓	✓	-
GSML4700	75	2.95	15 - 80	0.59 - 3.15	4925	11071	✓	✓	✓	-
GSML4700N	75	2.95	15 - 80	0.59 - 3.15	4925	11071	✓	✓	✓	-
GSML7500	95	3.74	15 - 80	0.59 - 3.15	7700	17310	✓	✓	✓	-
GSML7500N	95	3.74	15 - 80	0.59 - 3.15	7700	17310	✓	✓	✓	-
GSML12000	120	4.72	15 - 80	0.59 - 3.15	12720	28595	✓	✓	✓	-
GSML12000N	120	4.72	15 - 80	0.59 - 3.15	12720	28595	✓	✓	✓	-







Fixings



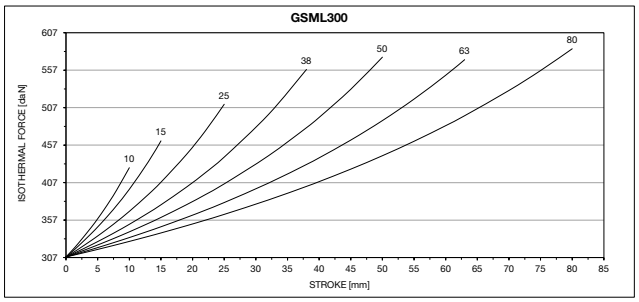
*** $F1_i$ =**
Isothermal end force at 100% Cu p. 16

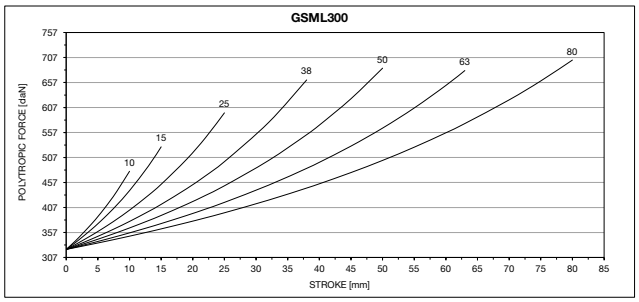
**** $F1_p$ =**
Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	200 bar *2900 psi*	20 bar *290 psi*	1.54 cm² *0.239 in²*	~ 40 - 80 (at 20°C)	1.6 m/s	Disposable

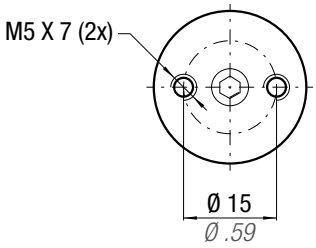
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0		~Kg	~lb	PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*			
GSML300-10	10	*0.39*	75	*2.95*	65	*2.56*	310 ± 5%	*697*	424	*954*	476	*1070*	7.0	*0.43*	0.17	*0.37*	✓
GSML300-15	15	*0.59*	85	*3.35*	70	*2.76*			460	*1034*	524	*1178*	9.0	*0.55*	0.18	*0.40*	✓
GSML300-25	25	*0.98*	105	*4.13*	80	*3.15*			509	*1143*	592	*1331*	12.0	*0.73*	0.21	*0.46*	✓
GSML300-38	38	*1.50*	130	*5.12*	92	*3.62*	200 bar *2900 psi*		555	*1248*	658	*1479*	16.0	*0.98*	0.24	*0.53*	✓
GSML300-50	50	*1.97*	155	*6.10*	105	*4.13*			572	*1286*	682	*1533*	20.0	*1.22*	0.27	*0.60*	✓
GSML300-63	63	*2.48*	185	*7.28*	122	*4.80*			569	*1279*	678	*1524*	26.0	*1.59*	0.31	*0.68*	✓
GSML300-80	80	*3.15*	220	*8.66*	140	*5.51*	+20 °C *+68 °F*		584	*1313*	699	*1571*	32.0	*1.95*	0.35	*0.77*	✓

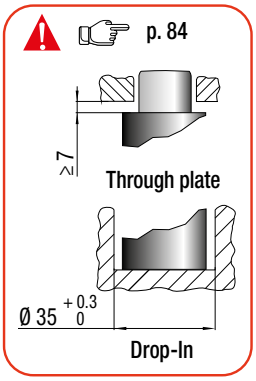
Order Callout Example:
GSML300-50
GSML300-50-CP

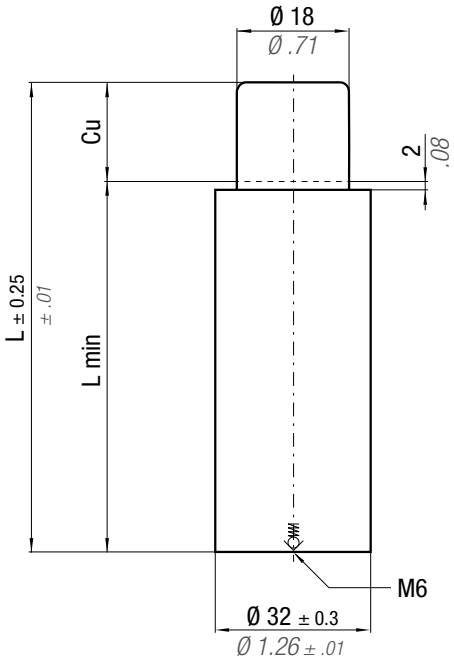




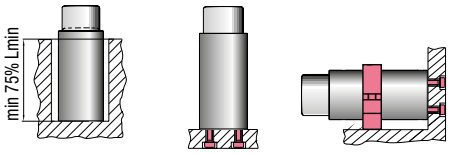
GSML 500







Fixings



Drop-In | Bottom mount | FSA32 - FSD32

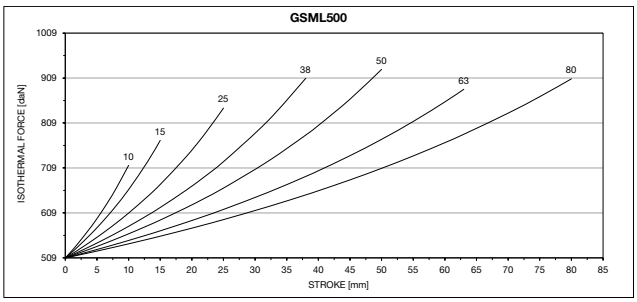
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

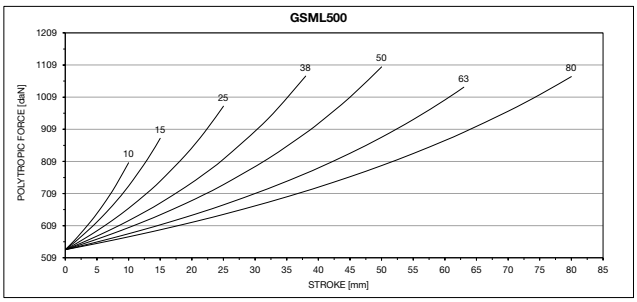
**** $F1_p$ =** Polytrophic end force at 100% Cu

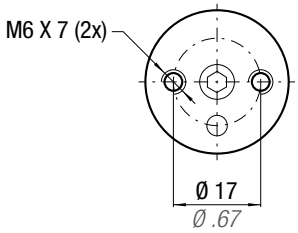
N_2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	200 bar / 2900 psi	20 bar / 290 psi	2.54 cm² / 0.394 in²	~ 40 - 80 (at 20°C)	1.6 m/s	Disposable

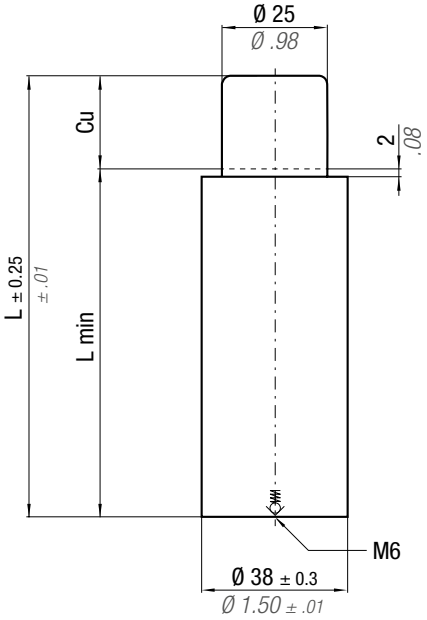
CALLOUT	Cu		L		L min		Fo Initial force		$F1_i$ * End force		$F1_p$ ** End force		Vo				PED 2014/68/EU
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	
GSML500-10	10	0.39	75	2.95	65	2.56	510 ± 5%	1147	708	1592	796	1789	11.0	0.67	0.28	0.62	✓
GSML500-15	15	0.59	85	3.35	70	2.76			763	1715	871	1958	14.0	0.85	0.30	0.66	✓
GSML500-25	25	0.98	105	4.13	80	3.15			835	1877	971	2183	20.0	1.22	0.34	0.75	✓
GSML500-38	38	1.50	130	5.12	92	3.62	200 bar 2900 psi		902	2028	1065	2394	27.0	1.65	0.39	0.86	✓
GSML500-50	50	1.97	155	6.10	105	4.13			923	2075	1095	2462	35.0	2.14	0.43	0.95	✓
GSML500-63	63	2.48	190	7.48	127	5.00			881	1981	1035	2327	47.0	2.87	0.51	1.12	✓
GSML500-80	80	3.15	225	8.86	145	5.71	+20 °C	+68 °F	904	2032	1069	2403	57.0	3.48	0.57	1.26	✓

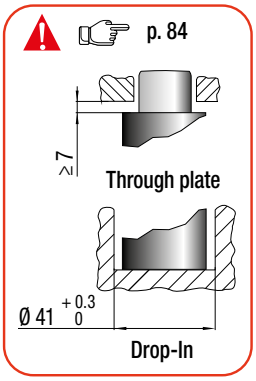
Order Callout Example:
GSML500-50
GSML500-50-CP



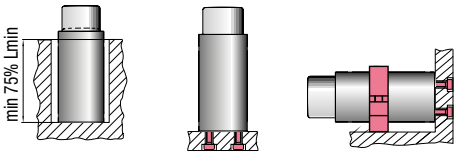








Fixings



Drop-In | Bottom mount | FSA38 - FSD38

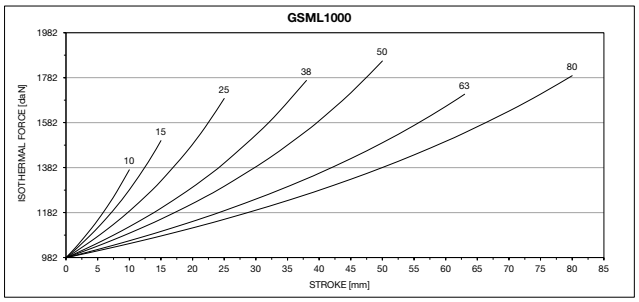
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

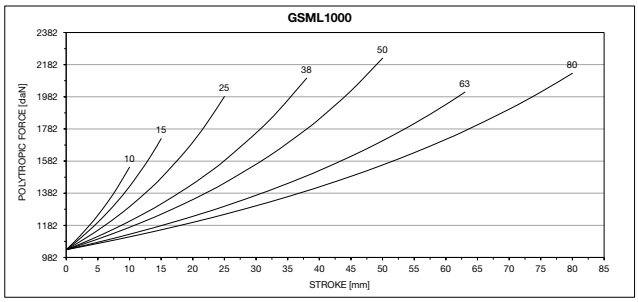
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	200 bar *2900 psi*	20 bar *290 psi*	4.91 cm² *0.761 in²*	~ 40 - 80 (at 20°C)	1.6 m/s	GSRK-39BMML01000C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0		~Kg	~lb	PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*			
GSML1000-10	10	*0.39*	75	*2.95*	65	*2.56*	980 ± 5%	*2203*	1371	*3081*	1542	*3467*	22.0	*1.34*	0.37	*0.82*	✓
GSML1000-15	15	*0.59*	85	*3.35*	70	*2.76*			1500	*3372*	1719	*3864*	27.0	*1.65*	0.39	*0.86*	✓
GSML1000-25	25	*0.98*	105	*4.13*	80	*3.15*			1687	*3793*	1981	*4453*	36.0	*2.20*	0.45	*0.99*	✓
GSML1000-38	38	*1.50*	135	*5.31*	97	*3.82*	200 bar *2900 psi*		1768	*3974*	2095	*4710*	52.0	*3.17*	0.53	*1.17*	✓
GSML1000-50	50	*1.97*	160	*6.30*	110	*4.33*			1854	*4169*	2220	*4991*	64.0	*3.90*	0.60	*1.32*	✓
GSML1000-63	63	*2.48*	205	*8.07*	142	*5.59*			1708	*3839*	2010	*4519*	90.0	*5.49*	0.73	*1.61*	✓
GSML1000-80	80	*3.15*	240	*9.45*	160	*6.30*	+20 °C *+68 °F*		1790	*4024*	2127	*4782*	107.0	*6.53*	0.82	*1.81*	✓

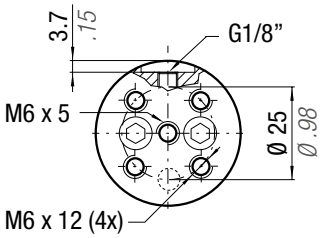
Order Callout Example:
GSML1000-50
GSML1000-50-CP

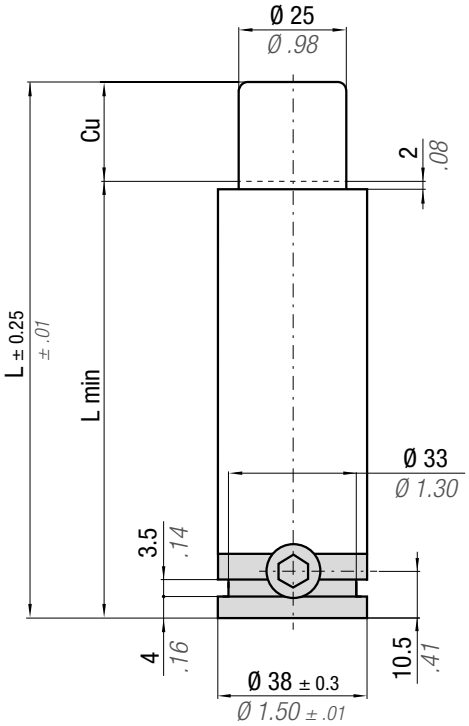


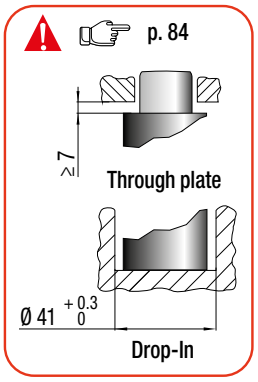


GSML 1000 N

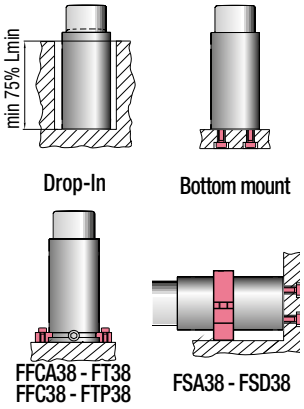
—Linkable G1/8"—







Fixings



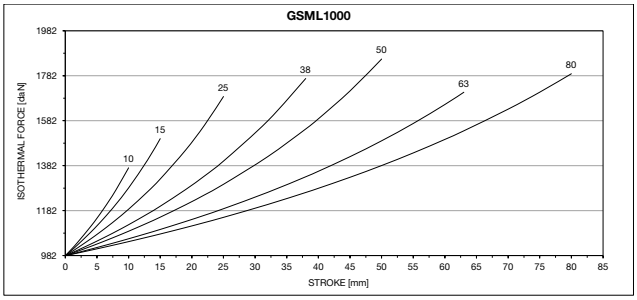
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

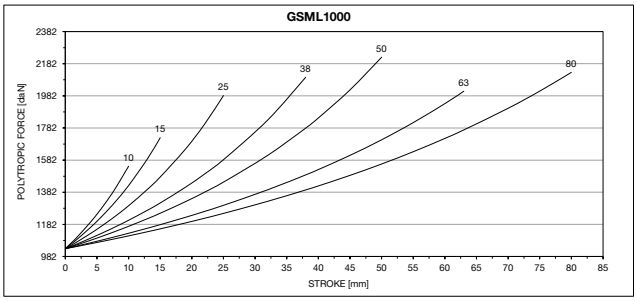
**** $F1_p$ =** Polytrophic end force at 100% Cu

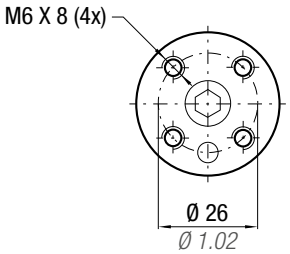
N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	200 bar *2900 psi*	20 bar *290 psi*	4.91 cm² *0.761 in²*	~ 40 - 80 (at 20°C)	1.6 m/s	39BMML01000C

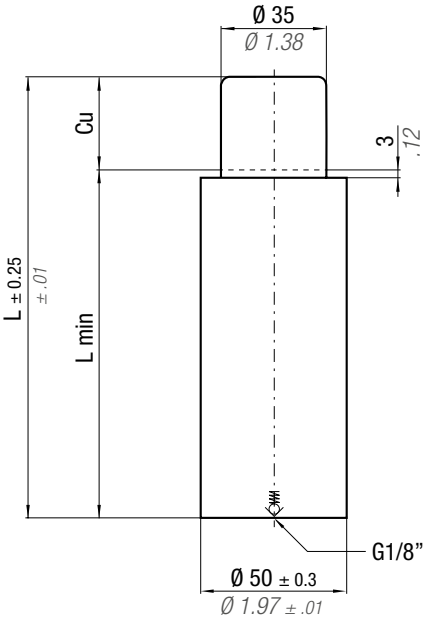
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSML1000-10-N	10	*0.39*	95	*3.74*	85	*3.35*	980 ± 5%	*2203*	1371	*3081*	1542	*3467*	22.0	*1.34*	0.52	*1.15*	✓
GSML1000-15-N	15	*0.59*	105	*4.13*	90	*3.54*			1500	*3372*	1719	*3864*	27.0	*1.65*	0.55	*1.21*	✓
GSML1000-25-N	25	*0.98*	125	*4.92*	100	*3.94*			1687	*3793*	1981	*4453*	36.0	*2.20*	0.60	*1.32*	✓
GSML1000-38-N	38	*1.50*	155	*6.10*	117	*4.61*	200 bar *2900 psi*		1768	*3974*	2095	*4710*	52.0	*3.17*	0.68	*1.50*	✓
GSML1000-50-N	50	*1.97*	180	*7.09*	130	*5.12*			1854	*4169*	2220	*4991*	64.0	*3.90*	0.75	*1.65*	✓
GSML1000-63-N	63	*2.48*	225	*8.86*	162	*6.38*			1708	*3839*	2010	*4519*	90.0	*5.49*	0.88	*1.94*	✓
GSML1000-80-N	80	*3.15*	260	*10.24*	180	*7.09*	+20 °C	*+68 °F*	1790	*4024*	2127	*4782*	107.0	*6.53*	0.98	*2.16*	✓

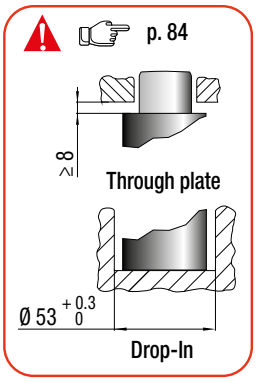
Order Callout Example:
GSML1000-50-N



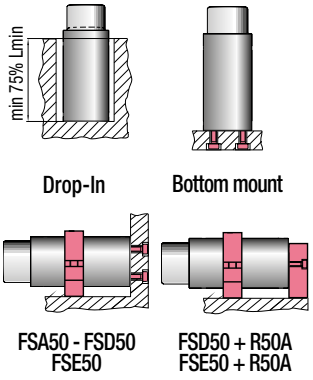








Fixings



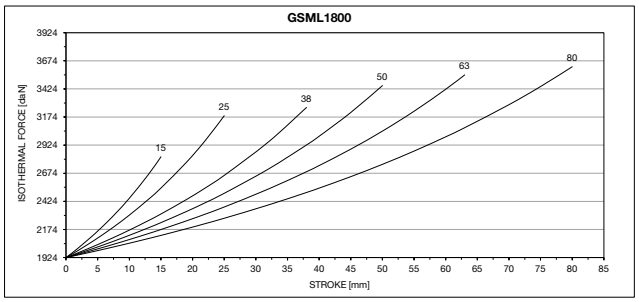
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

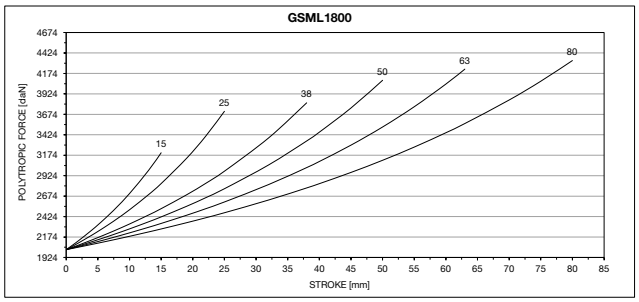
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	200 bar *2900 psi*	20 bar *290 psi*	9.62 cm² *1.491 in²*	~ 40 - 80 (at 20°C)	1.6 m/s	GSRK-39BMML01800C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSML1800-15	15	*0.59*	95	*3.74*	80	*3.15*	1925	*4327*	2818	*6334*	3200	*7194*	57.0	*3.48*	0.76	*1.68*	✓
GSML1800-25	25	*0.98*	115	*4.53*	90	*3.54*	± 5%		3182	*7154*	3706	*8331*	75.0	*4.58*	0.85	*1.87*	✓
GSML1800-38	38	*1.50*	150	*5.91*	112	*4.41*	200 bar		3257	*7321*	3811	*8567*	111.0	*6.77*	1.01	*2.23*	✓
GSML1800-50	50	*1.97*	175	*6.89*	125	*4.92*	*2900 psi*		3451	*7758*	4087	*9188*	134.0	*8.17*	1.12	*2.47*	✓
GSML1800-63	63	*2.48*	205	*8.07*	142	*5.59*			3546	*7972*	4224	*9496*	163.0	*9.94*	1.26	*2.78*	✓
GSML1800-80	80	*3.15*	245	*9.65*	165	*6.50*	+20 °C	*+68 °F*	3619	*8136*	4329	*9732*	201.0	*12.26*	1.44	*3.17*	✓

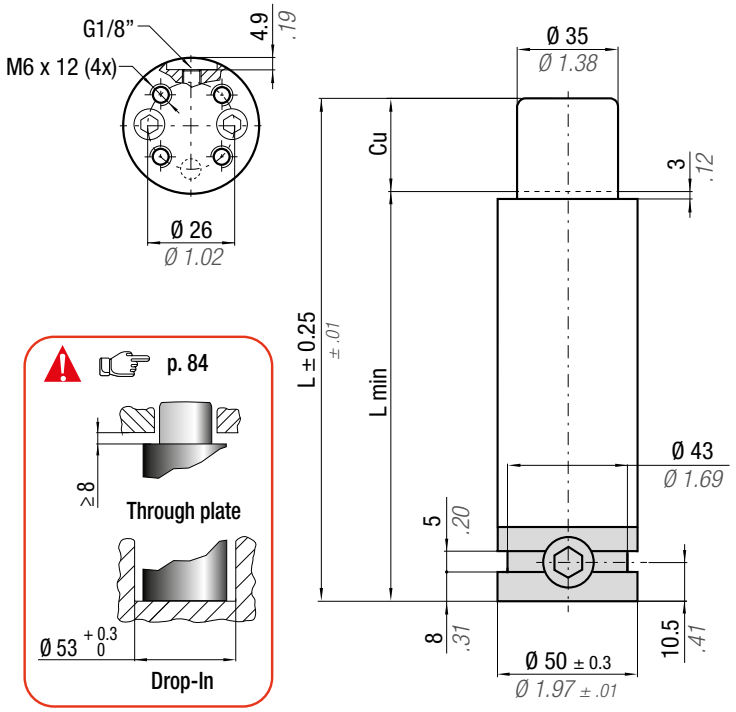
Order Callout Example:
GSML1800-50
GSML1800-50-CP



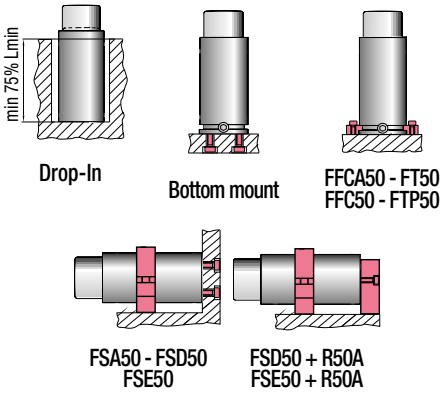


GSML 1800 N

—Linkable G1/8"—



Fixings



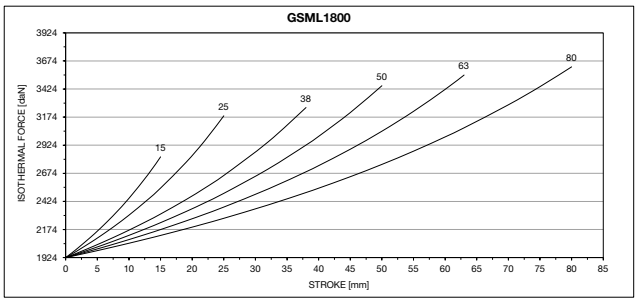
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

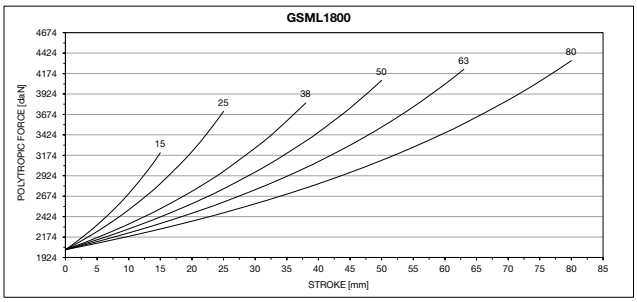
**** $F1_p$ =** Polytrophic end force at 100% Cu

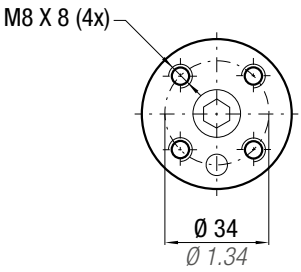
N2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	200 bar *2900 psi*	20 bar *290 psi*	9.62 cm² *1.491 in²*	~ 40 - 80 (at 20°C)	1.6 m/s	GSRK-39BMML01800C

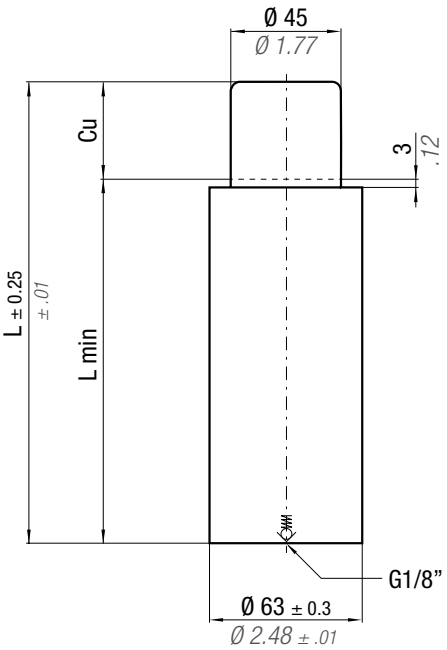
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSML1800-15-N	15	*0.59*	115	*4.53*	100	*3.94*	1925	*4327*	2818	*6334*	3200	*7194*	57.0	*3.48*	1.03	*2.27*	✓
GSML1800-25-N	25	*0.98*	135	*5.31*	110	*4.33*	± 5%		3182	*7154*	3706	*8331*	75.0	*4.58*	1.12	*2.47*	✓
GSML1800-38-N	38	*1.50*	170	*6.69*	132	*5.20*			3257	*7321*	3811	*8567*	111.0	*6.77*	1.28	*2.82*	✓
GSML1800-50-N	50	*1.97*	195	*7.68*	145	*5.71*	200 bar *2900 psi*		3451	*7758*	4087	*9188*	134.0	*8.17*	1.39	*3.06*	✓
GSML1800-63-N	63	*2.48*	225	*8.86*	162	*6.38*			3546	*7972*	4224	*9496*	163.0	*9.94*	1.53	*3.37*	✓
GSML1800-80-N	80	*3.15*	265	*10.43*	185	*7.28*	+20 °C	*+68 °F*	3619	*8136*	4329	*9732*	201.0	*12.26*	1.71	*3.77*	✓

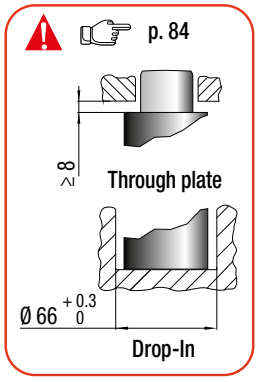
Order Callout Example:
GSML1800-50-N



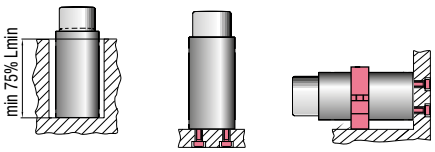








Fixings



Drop-In | Bottom mount | FSC63 - FSD63

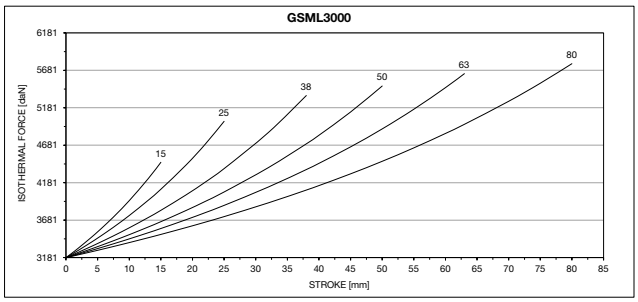
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

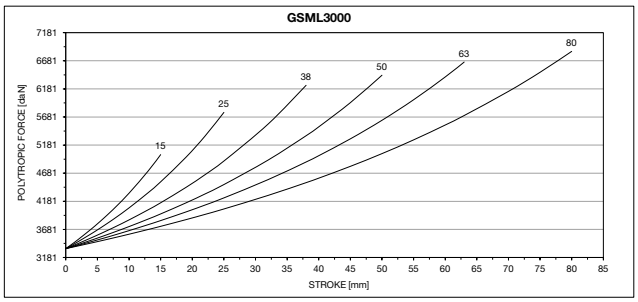
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	200 bar *2900 psi*	20 bar *290 psi*	15.90 cm² *2.464 in²*	~ 40 - 80 (at 20°C)	1.6 m/s	GSRK-39BMML03000C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSML3000-15	15	*0.59*	100	*3.94*	85	*3.35*	3180	*7149*	4450	*10003*	5007	*11256*	106.0	*6.47*	1.25	*2.76*	✓
GSML3000-25	25	*0.98*	120	*4.72*	95	*3.74*	± 5%		4996	*11231*	5757	*12942*	136.0	*8.30*	1.38	*3.04*	✓
GSML3000-38	38	*1.50*	150	*5.91*	112	*4.41*	200 bar		5340	*12005*	6239	*14026*	185.0	*11.29*	1.57	*3.46*	✓
GSML3000-50	50	*1.97*	180	*7.09*	130	*5.12*	*2900 psi*		5468	*12292*	6419	*14430*	235.0	*14.34*	1.78	*3.92*	✓
GSML3000-63	63	*2.48*	210	*8.27*	147	*5.79*			5633	*12664*	6654	*14959*	283.0	*17.26*	1.98	*4.37*	✓
GSML3000-80	80	*3.15*	250	*9.84*	170	*6.69*	+20 °C	*+68 °F*	5766	*12963*	6844	*15386*	349.0	*21.29*	2.24	*4.94*	✓

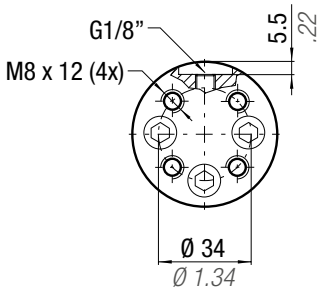
Order Callout Example:
GSML3000-50
GSML3000-50-CP

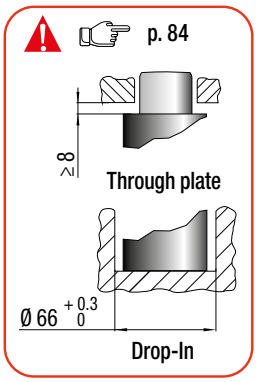


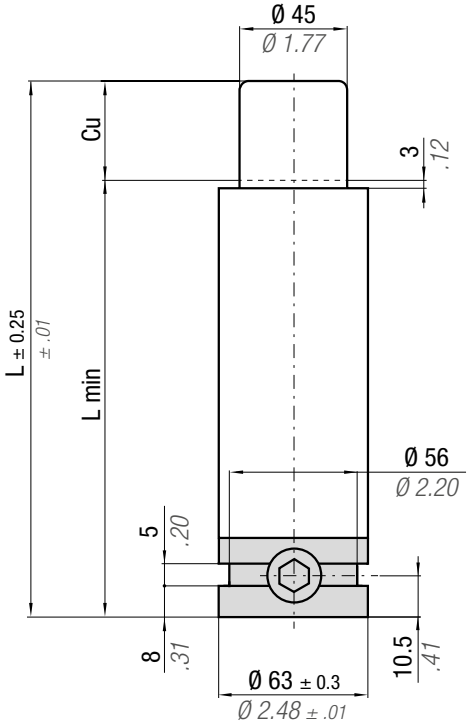


GSML 3000 N

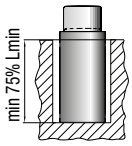
—Linkable G1/8"—





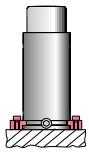


Fixings

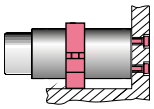


Drop-In

Bottom mount



FFC63 - FFCA63
FFCB63 - FT63
FTP63



FSC63 - FSD63

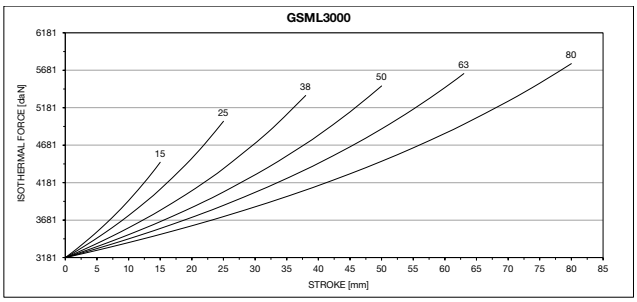
*** $F1_i$ =**
Isothermal end force at 100% Cu p. 16

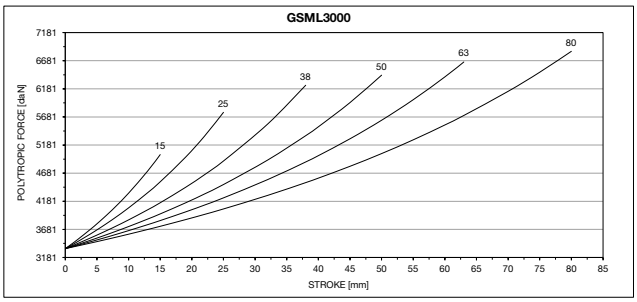
**** $F1_p$ =**
Polytrophic end force at 100% Cu

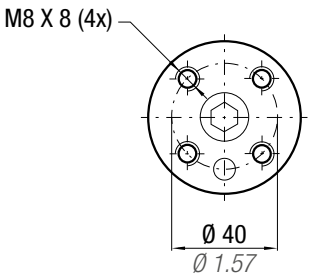
N2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	200 bar *2900 psi*	20 bar *290 psi*	15.90 cm² *2.464 in²*	~ 40 - 80 (at 20°C)	1.6 m/s	GSRK-39BMML03000B

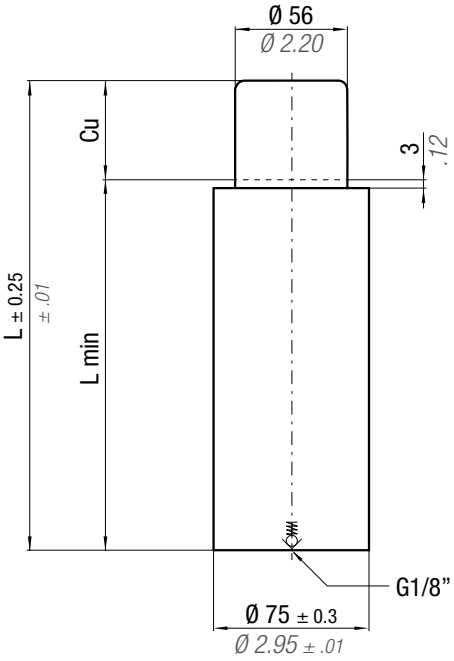
CALLOUT	Cu		L		L min		Fo Initial force		$F1_i$ * End force		$F1_p$ ** End force		Vo				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSML3000-15-N	15	*0.59*	120	*4.72*	105	*4.13*	3180	*7149*	4450	*10003*	5007	*11256*	106.0	*6.47*	1.67	*3.68*	✓
GSML3000-25-N	25	*0.98*	140	*5.51*	115	*4.53*	± 5%		4996	*11231*	5757	*12942*	136.0	*8.30*	1.80	*3.97*	✓
GSML3000-38-N	38	*1.50*	170	*6.69*	132	*5.20*	200 bar *2900 psi*		5340	*12005*	6239	*14026*	185.0	*11.29*	2.00	*4.41*	✓
GSML3000-50-N	50	*1.97*	200	*7.87*	150	*5.91*			5468	*12292*	6419	*14430*	235.0	*14.34*	2.20	*4.85*	✓
GSML3000-63-N	63	*2.48*	230	*9.06*	167	*6.57*			5633	*12664*	6654	*14959*	283.0	*17.26*	2.40	*5.29*	✓
GSML3000-80-N	80	*3.15*	270	*10.63*	190	*7.48*	+20 °C	*+68 °F*	5766	*12963*	6844	*15386*	349.0	*21.29*	2.66	*5.86*	✓

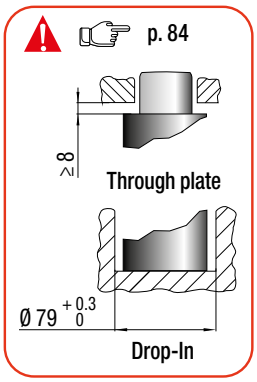
Order Callout Example:
GSML3000-50-N



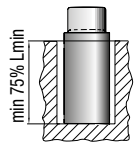




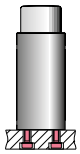




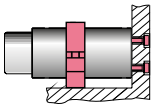
Fixings



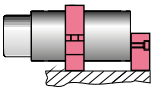
Drop-In



Bottom mount - FB75
FBA75 - FBB75
FBC75 - FBD75



FSA75 - FSD75
FSE75



FSD75 + R75A
FSE75 + R75A

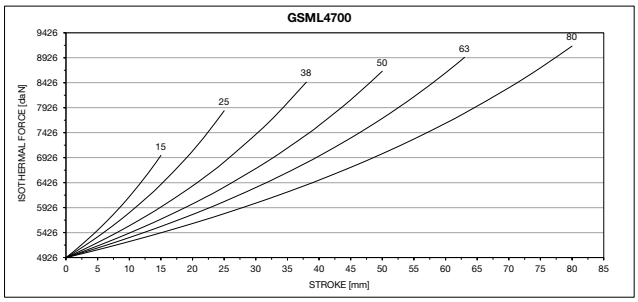
*** $F1_i$ =**
Isothermal end force at 100% Cu p. 16

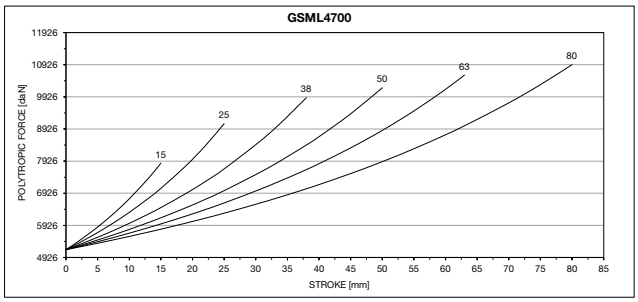
**** $F1_p$ =**
Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	200 bar *2900 psi*	20 bar *290 psi*	24.63 cm² *3.817 in²*	~ 30 - 70 (at 20°C)	1.6 m/s	GSRK-39BMML04700C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSML4700-15	15	*0.59*	100	*3.94*	85	*3.35*	4925	*11071*	6966	*15660*	7856	*17661*	159.0	*9.70*	1.72	*3.79*	✓
GSML4700-25	25	*0.98*	120	*4.72*	95	*3.74*	± 5%		7858	*17665*	9085	*20424*	205.0	*12.51*	1.90	*4.19*	✓
GSML4700-38	38	*1.5*	150	*5.91*	112	*4.41*			8432	*18956*	9891	*22236*	278.0	*16.96*	2.17	*4.78*	✓
GSML4700-50	50	*1.97*	180	*7.09*	130	*5.12*	200 bar *2900 psi*		8651	*19448*	10201	*22933*	353.0	*21.53*	2.44	*5.38*	✓
GSML4700-63	63	*2.48*	210	*8.27*	147	*5.79*			8929	*20073*	10598	*23825*	425.0	*25.93*	2.72	*6.00*	✓
GSML4700-80	80	*3.15*	250	*9.84*	170	*6.69*	+20 °C	*+68 °F*	9155	*20581*	10922	*24554*	523.0	*31.90*	3.08	*6.79*	✓

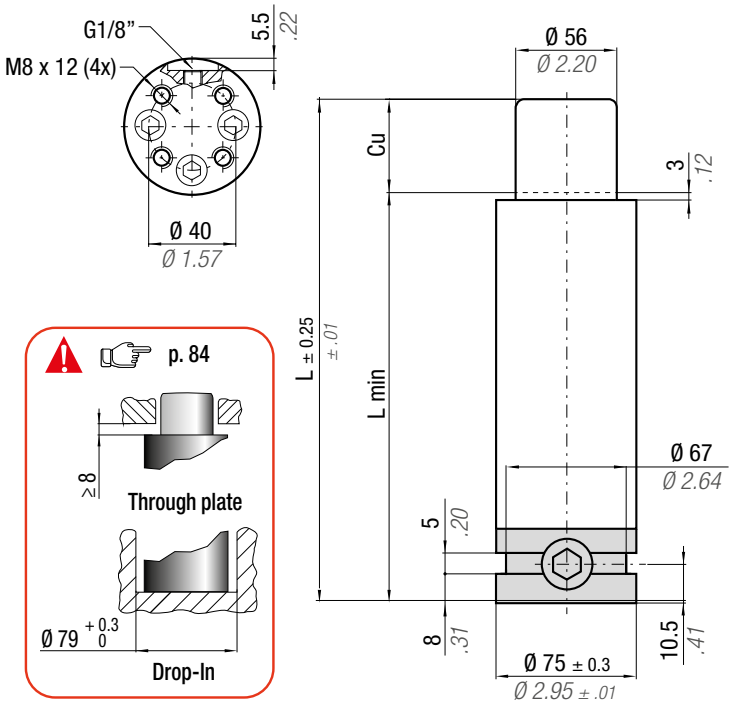
Order Callout Example:
GSML4700-50
GSML4700-50-CP



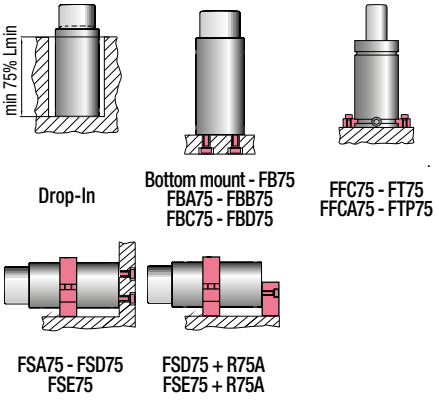


GSML 4700 N

—Linkable G1/8"—



Fixings



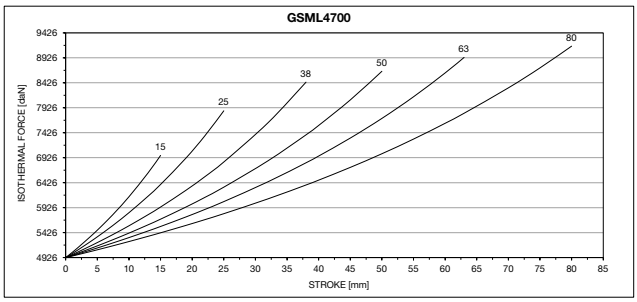
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

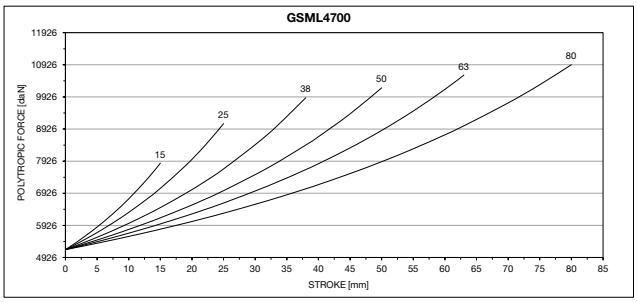
**** $F1_p$ =** Polytrophic end force at 100% Cu

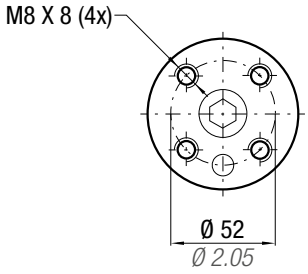
N2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	200 bar *2900 psi*	20 bar *290 psi*	24.63 cm² *3.817 in²*	~ 30 - 70 (at 20°C)	1.6 m/s	GSRK-39BMML04700C

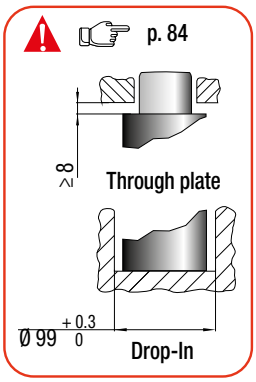
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSML4700-15-N	15	*0.59*	120	*4.72*	105	*4.13*	4925	*11071*	6966	*15660*	7856	*17661*	159.0	*9.70*	2.34	*5.16*	✓
GSML4700-25-N	25	*0.98*	140	*5.51*	115	*4.53*	± 5%		7858	*17665*	9085	*20424*	205.0	*12.51*	2.51	*5.53*	✓
GSML4700-38-N	38	*1.50*	170	*6.69*	132	*5.20*	200 bar *2900 psi*		8432	*18956*	9891	*22236*	278.0	*16.96*	2.75	*6.06*	✓
GSML4700-50-N	50	*1.97*	200	*7.87*	150	*5.91*			8651	*19448*	10201	*22933*	353.0	*21.53*	3.06	*6.75*	✓
GSML4700-63-N	63	*2.48*	230	*9.06*	167	*6.57*			8929	*20073*	10598	*23825*	425.0	*25.93*	3.33	*7.34*	✓
GSML4700-80-N	80	*3.15*	270	*10.63*	190	*7.48*	+20 °C	*+68 °F*	9155	*20581*	10922	*24554*	523.0	*31.90*	3.70	*8.16*	✓

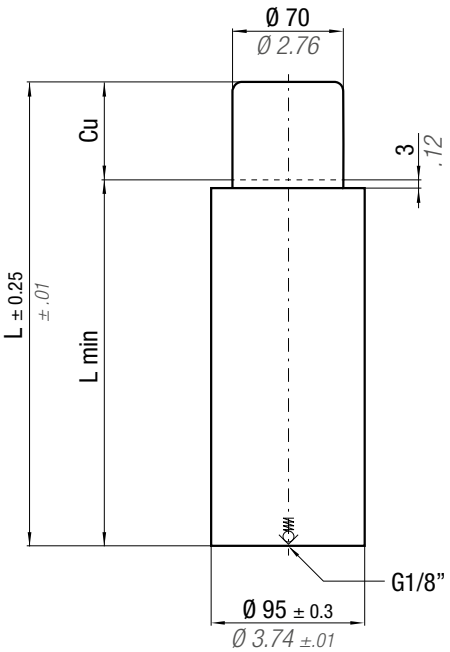
Order Callout Example:
GSML4700-50-N



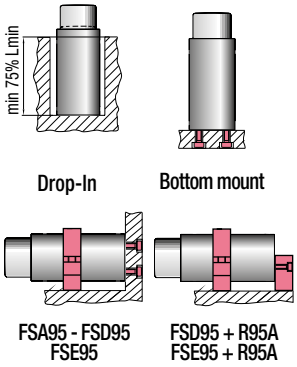








Fixings



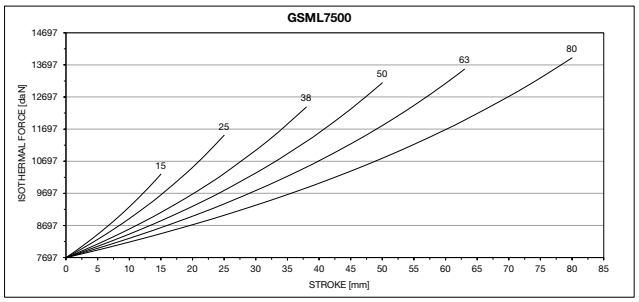
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

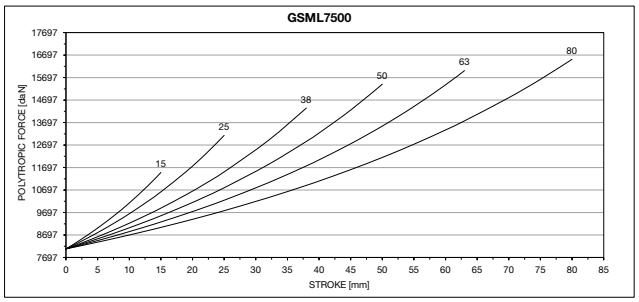
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	200 bar *2900 psi*	20 bar *290 psi*	38.48 cm² *5.964 in²*	~ 20 - 60 (at 20°C)	1.6 m/s	GSRK-39BMML07500C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ End force *		$F1_p$ End force **		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSML7500-15	15	*0.59*	115	*4.53*	100	*3.94*	7700 ± 5%	*17310*	10289	*23131*	11469	*25783*	291.0	*17.75*	3.30	*7.28*	✓
GSML7500-25	25	*0.98*	135	*5.31*	110	*4.33*			11499	*25851*	13116	*29486*	365.0	*22.27*	3.58	*7.89*	✓
GSML7500-38	38	*1.50*	165	*6.50*	127	*5.00*	200 bar *2900 psi*		12377	*27825*	14333	*32222*	481.0	*29.34*	4.01	*8.84*	✓
GSML7500-50	50	*1.97*	190	*7.48*	140	*5.51*			13130	*29517*	15391	*34600*	575.0	*35.08*	4.36	*9.61*	✓
GSML7500-63	63	*2.48*	220	*8.66*	157	*6.18*			13557	*30477*	15996	*35960*	691.0	*42.15*	4.75	*10.47*	✓
GSML7500-80	80	*3.15*	260	*10.24*	180	*7.09*	+20 °C	*+68 °F*	13910	*31271*	16500	*37093*	874.0	*53.31*	5.36	*11.82*	✓

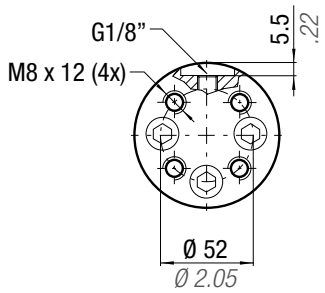
Order Callout Example:
GSML7500-50
GSML7500-50-CP

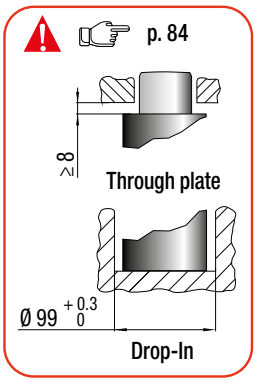


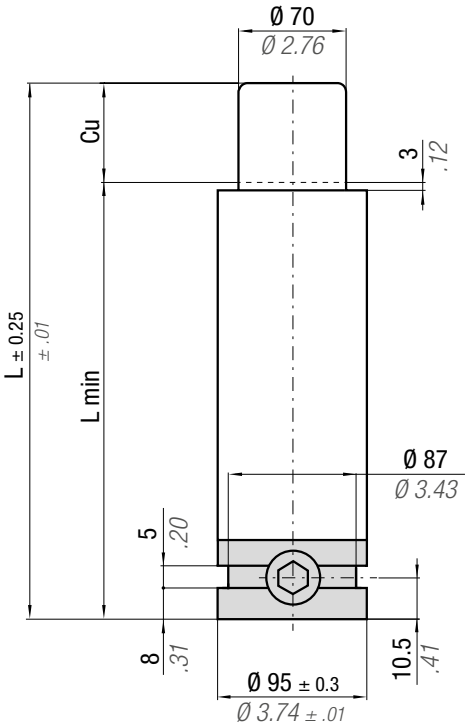


GSML 7500 N

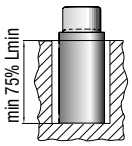
—Linkable G1/8"—



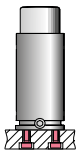




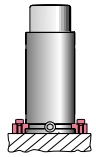
Fixings



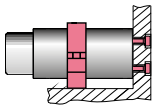
Drop-In



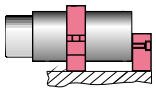
Bottom mount



FFCA95 - FT95
FFC95 - FTP95



FSA95 - FSD95
FSE95



FSD95 + R95A
FSE95 + R95A

*** $F1_i$ =**

Isothermal end force at 100% Cu p. 16

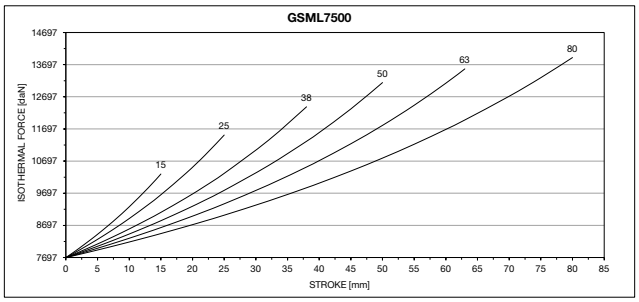
**** $F1_p$ =**

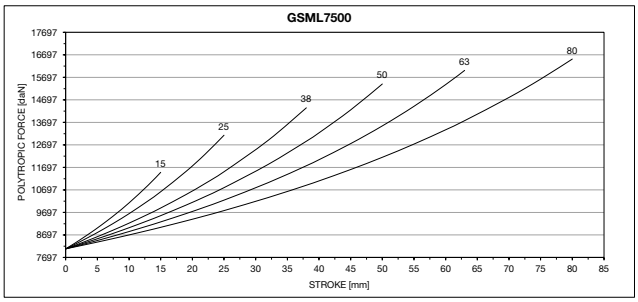
Polytrophic end force at 100% Cu

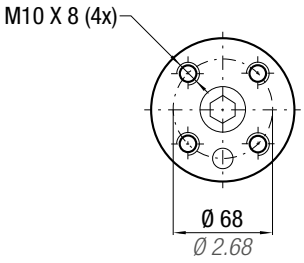
N2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	200 bar *2900 psi*	20 bar *290 psi*	38.48 cm² *5.964 in²*	~ 20 - 60 (at 20°C)	1.6 m/s	GSRK-39BMML07500C

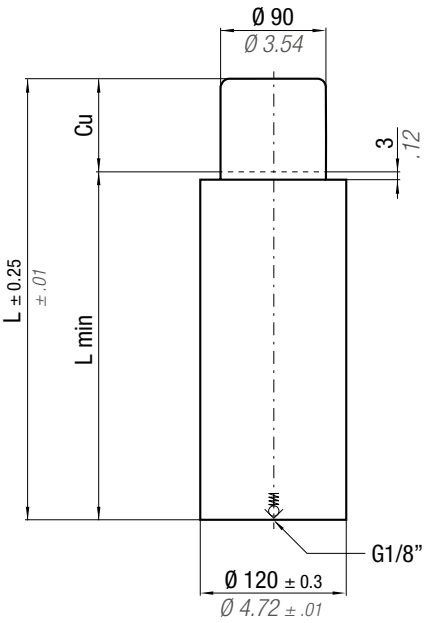
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSML7500-15-N	15	*0.59*	135	*5.31*	120	*4.72*	7700	*17310*	10289	*23131*	11469	*25783*	291.0	*17.75*	4.32	*9.52*	✓
GSML7500-25-N	25	*0.98*	155	*6.10*	130	*5.12*	± 5%		11499	*25851*	13116	*29486*	365.0	*22.27*	4.60	*10.14*	✓
GSML7500-38-N	38	*1.50*	185	*7.28*	147	*5.79*	200 bar *2900 psi*		12377	*27825*	14333	*32222*	481.0	*29.34*	5.03	*11.09*	✓
GSML7500-50-N	50	*1.97*	210	*8.27*	160	*6.30*			13130	*29517*	15391	*34600*	575.0	*35.08*	5.38	*11.86*	✓
GSML7500-63-N	63	*2.48*	240	*9.45*	177	*6.97*			13557	*30477*	15996	*35960*	691.0	*42.15*	5.81	*12.81*	✓
GSML7500-80-N	80	*3.15*	280	*11.02*	200	*7.87*	+20 °C	*+68 °F*	13910	*31271*	16500	*37093*	874.0	*53.31*	6.39	*14.09*	✓

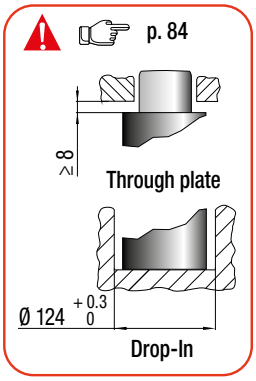
Order Callout Example:
GSML7500-50-N



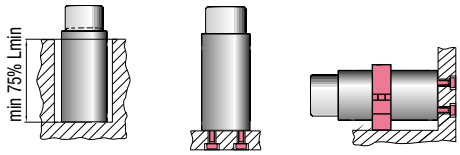








Fixings



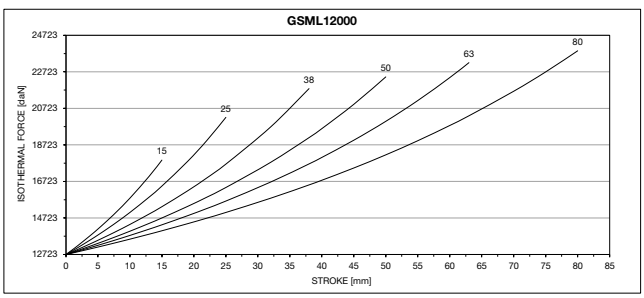
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

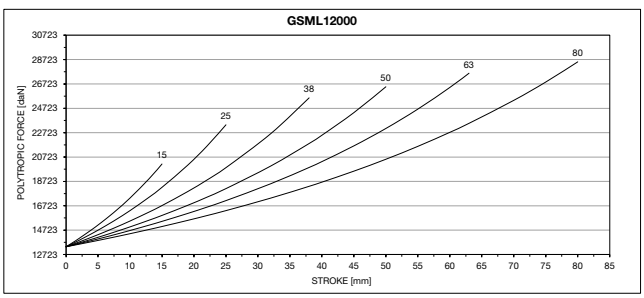
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	200 bar *2900 psi*	20 bar *290 psi*	63.62 cm² *9.861 in²*	~ 20 - 50 (at 20°C)	1.6 m/s	GSRK-39BMML12000C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0		~Kg	~lb	PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*			
GSML12000-15	15	*0.59*	115	*4.53*	100	*3.94*	12720	*28595*	17877	*40189*	20134	*45263*	417.0	*25.44*	5.82	*12.83*	✓
GSML12000-25	25	*0.98*	135	*5.31*	110	*4.33*	± 5%		20211	*45436*	23346	*52484*	534.0	*32.57*	6.29	*13.87*	✓
GSML12000-38	38	*1.50*	165	*6.50*	127	*5*			21787	*48979*	25558	*57457*	718.0	*43.80*	7.01	*15.45*	✓
GSML12000-50	50	*1.97*	195	*7.68*	145	*5.71*	200 bar *2900 psi*		22429	*50422*	26470	*59507*	906.0	*55.27*	7.74	*17.06*	✓
GSML12000-63	63	*2.48*	225	*8.86*	162	*6.38*			23211	*52180*	27586	*62016*	1089.0	*66.43*	8.46	*18.65*	✓
GSML12000-80	80	*3.15*	265	*10.43*	185	*7.28*	+20 °C	*+68 °F*	23860	*53639*	28520	*64116*	1335.0	*81.44*	9.43	*20.79*	✓

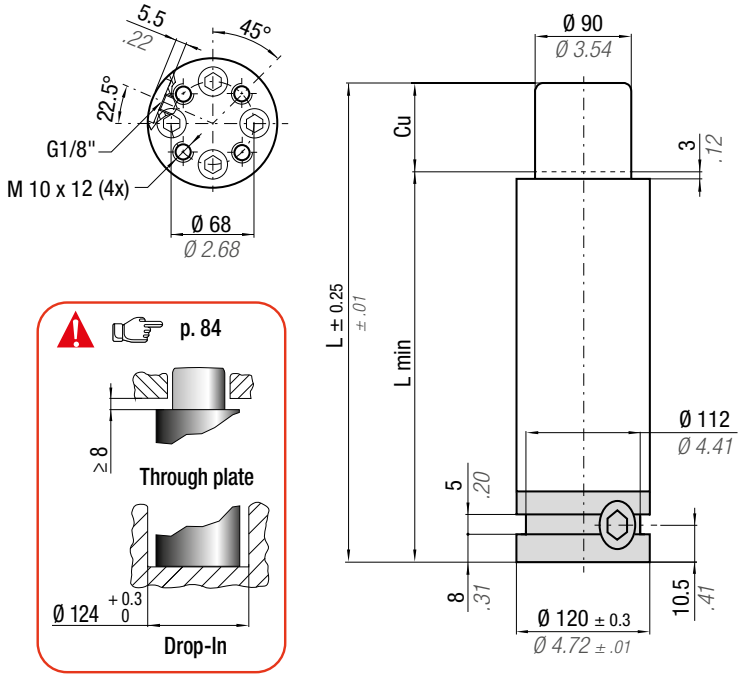
Order Callout Example:
GSML12000-50
GSML12000-50-CP



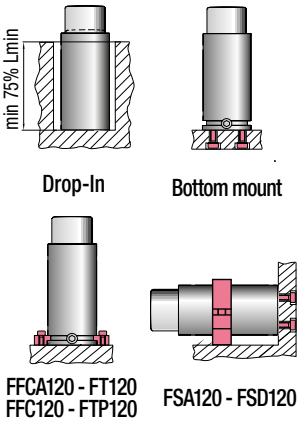


GSML 12000 N

—Linkable G1/8”—



Fixings



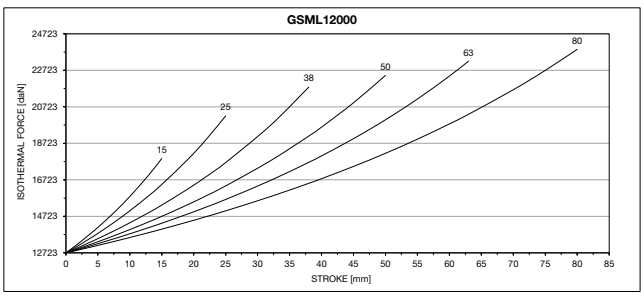
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

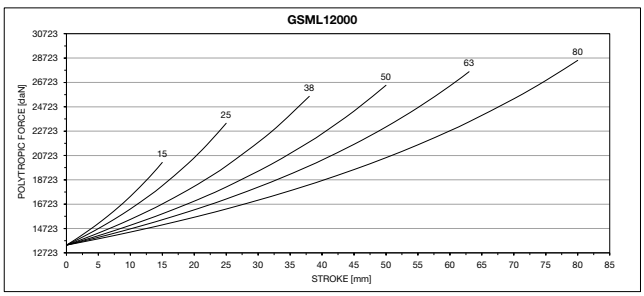
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	200 bar *2900 psi*	20 bar *290 psi*	63.62 cm² *9.861 in²*	~ 20 - 50 (at 20°C)	1.6 m/s	GSRK-39BMML12000C

CALLOUT	Cu		L		L min		Fo Initial force		$F1_i$ * End force		$F1_p$ ** End force		Vo		~Kg	~lb	PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*			
GSML12000-15	15	*0.59*	135	*5.31*	120	*4.72*	12720	*28595*	17877	*40189*	20134	*45263*	417.0	*25.44*	7.45	*16.42*	✓
GSML12000-25	25	*0.98*	155	*6.10*	130	*5.12*	± 5%		20211	*45436*	23346	*52484*	534.0	*32.57*	7.92	*17.46*	✓
GSML12000-38	38	*1.50*	185	*7.28*	147	*5.79*			21787	*48979*	25558	*57457*	718.0	*43.80*	8.64	*19.05*	✓
GSML12000-50	50	*1.97*	215	*8.46*	165	*6.50*	200 bar *2900 psi*		22429	*50422*	26470	*59507*	906.0	*55.27*	9.37	*20.66*	✓
GSML12000-63	63	*2.48*	245	*9.65*	182	*7.17*			23211	*52180*	27586	*62016*	1089.0	*66.43*	10.09	*22.24*	✓
GSML12000-80	80	*3.15*	285	*11.22*	205	*8.07*	+20 °C	*+68 °F*	23860	*53639*	28520	*64116*	1335.0	*81.44*	11.06	*24.38*	✓

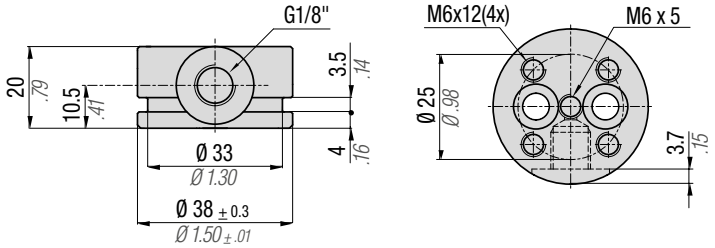
Order Callout Example:
GSML12000-50-N



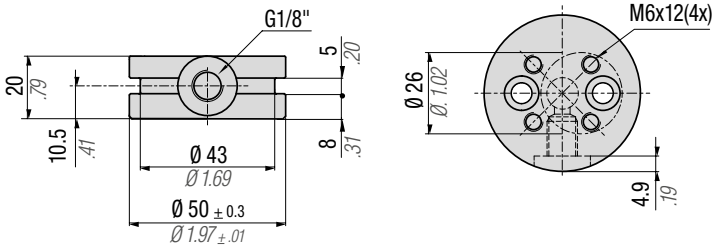


Special kit to convert self-contained cylinders
Spezial-Set zum Umbau eigenständiger Zylinder
Kit spécial pour transformer les cylindres autonomes
Kit especial para transformar cilindros autónomos
Kit especial para transformar cilindros autónomos

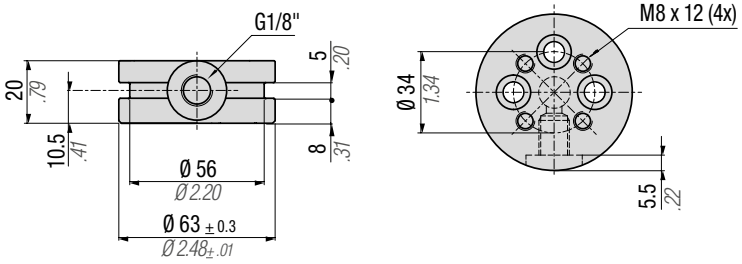
GSFML 1000



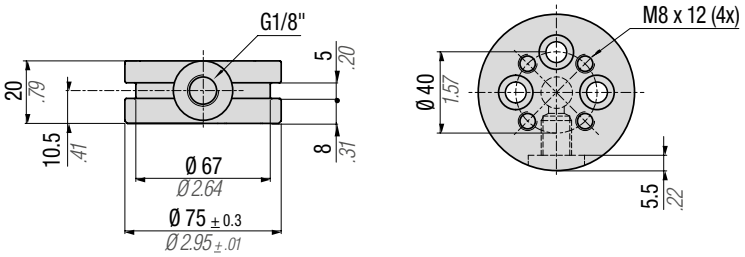
GSFML 1800



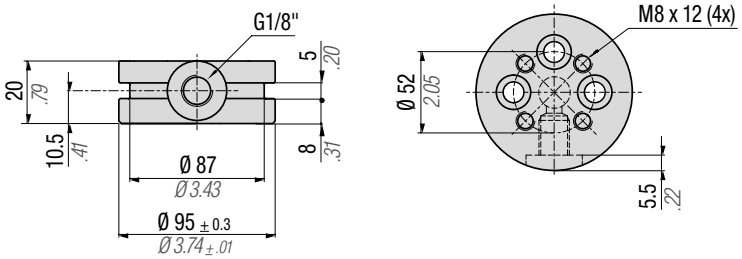
GSFML 3000



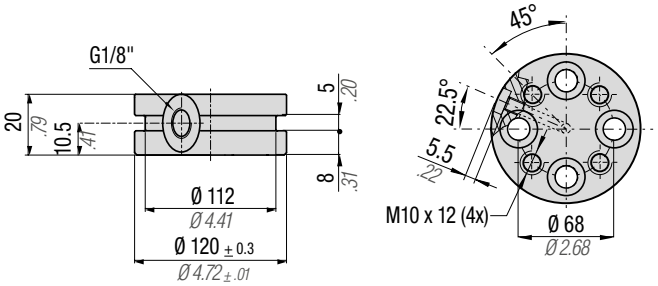
GSFML 4700



GSFML 7500



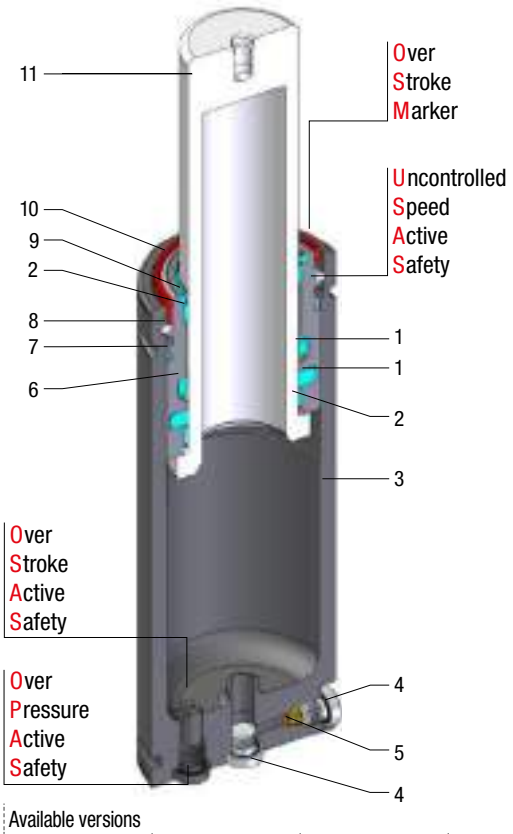
GSFML 12000



GSSH series

ISO	VDI	BMW
FCA	VW	

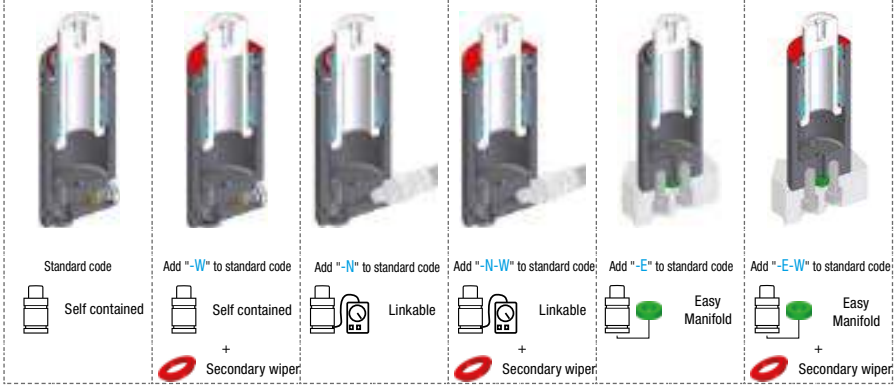
ISO standard, high force - ISO Standard, erhöhte Kraft
Standard ISO, force majorée - ISO standard, fuerza potenciada - Norma ISO, força permitida



1	Rod seal
2	Guide ring
3	Body
4	Plug
5	Valve
6	Back-up ring
7	Dual ring
8	Retaining ring
9	Rod wiper
10	Bush
11	Rod (nitrited superfinished)

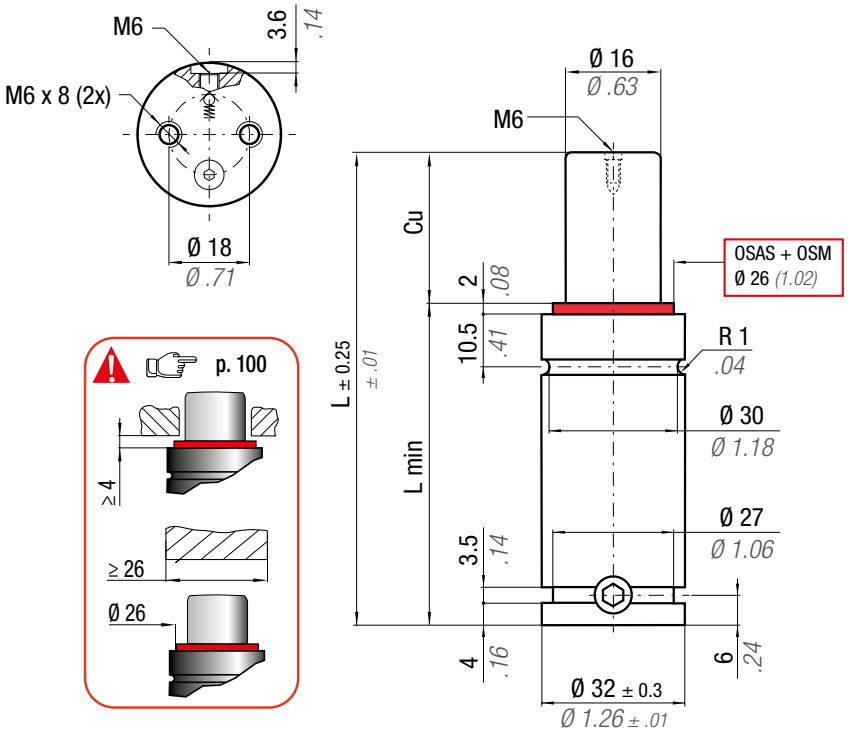
SEALING	ROD SEAL
DESIGN	BUSH - BODY DESIGN

Available versions

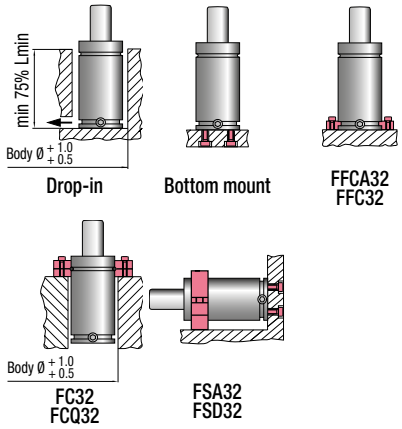


Order Callout Example:
GSSH2400-50
GSSH2400-50-W
GSSH2400-50-N
GSSH2400-50-N-W
GSSH2400-50-E
GSSH2400-50-E-W

Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	daN	lb				
GSSH300	32	1.26	10 - 125	0.39 - 4.92	300	674	✓	✓	✓	-
GSSH500	38	1.50	10 - 125	0.39 - 4.92	470	1057	✓	✓	✓	-
GSSHF500	M 38 X 1.5	M 38 X 1.5	10 - 125	0.39 - 4.92	470	1057	✓	✓	✓	-
GSSH700	45	1.77	10 - 160	0.51 - 6.30	680	1529	✓	✓	✓	-
GSSH1000	50	1.97	13 - 300	0.51 - 11.81	920	2383	✓	✓	✓	-
GSSH1500	63	2.48	13 - 300	0.51 - 11.81	1530	3440	✓	✓	✓	-
GSSH2400	75	2.95	25 - 300	0.98 - 11.81	2385	5362	✓	✓	✓	-
GSSH4200	95	3.74	25 - 300	0.98 - 11.81	4240	9532	✓	✓	✓	-
GSSH6600	120	4.72	25 - 300	0.98 - 11.81	6630	14905	✓	✓	✓	-
GSSH9500	150	5.91	25 - 300	0.98 - 11.81	9540	21446	✓	✓	✓	-
GSSH18500	195	7.68	25 - 300	0.98 - 11.81	18400	41365	✓	✓	✓	-



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

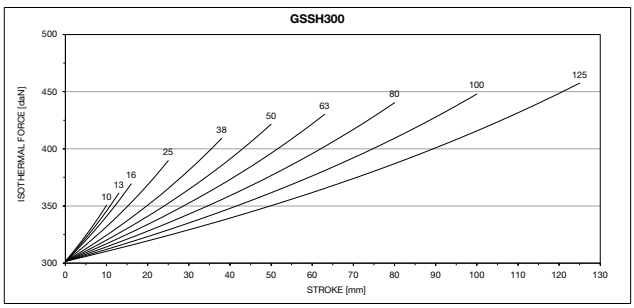
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

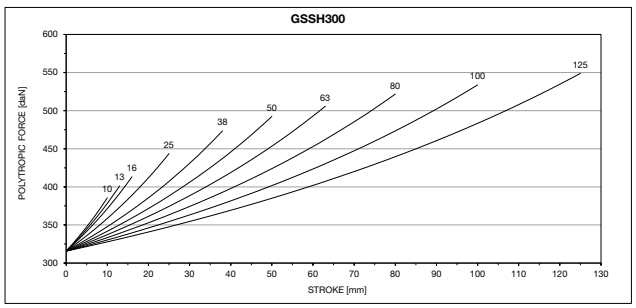
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	2.01 cm² *0.312 in²*	~ 30 ÷ 100 (at 20°C)	1.8 m/s	GSRK-39BMRV00350C

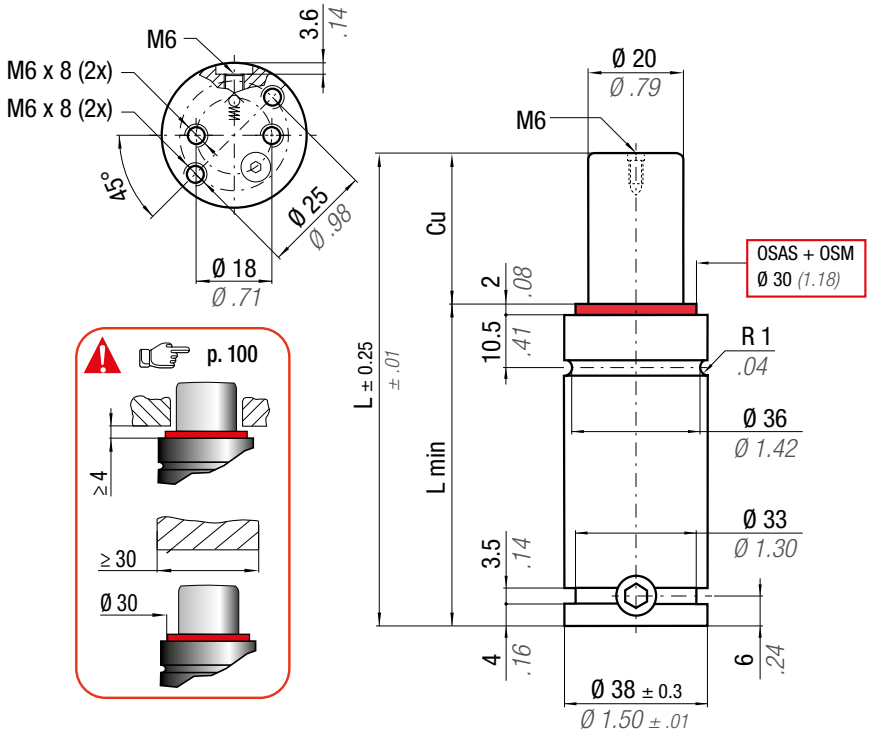
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSSH300-10	10	*0.39*	70	*2.76*	60	*2.36*			350	*787*	385	*865*	17.0	*1.04*	0.22	*0.49*	✓
GSSH300-13	13	*0.51*	75.7	*2.98*	62.7	*2.47*			361	*811*	400	*900*	19.0	*1.16*	0.23	*0.51*	✓
GSSH300-16	16	*0.63*	82	*3.23*	66	*2.60*	300 *674* ± 5%		369	*829*	412	*927*	21.0	*1.28*	0.24	*0.53*	✓
GSSH300-25	25	*0.98*	100	*3.94*	75	*2.95*			389	*875*	443	*995*	26.0	*1.59*	0.26	*0.57*	✓
GSSH300-38	38	*1.50*	126	*4.96*	88	*3.46*			409	*919*	473	*1062*	34.0	*2.07*	0.31	*0.68*	✓
GSSH300-50	50	*1.97*	150	*5.91*	100	*3.94*	150 bar *2175 psi*		421	*947*	492	*1105*	41.0	*2.50*	0.35	*0.77*	✓
GSSH300-63	63	*2.48*	176.5	*6.95*	113.5	*4.47*			430	*966*	505	*1136*	49.0	*2.99*	0.39	*0.86*	✓
GSSH300-80	80	*3.15*	210	*8.27*	130	*5.12*	+ 20 °C *+68 °F*		440	*989*	521	*1171*	59.0	*3.60*	0.44	*0.97*	✓
GSSH300-100	100	*3.94*	250	*9.84*	150	*5.91*			448	*1006*	533	*1199*	71.0	*4.33*	0.51	*1.12*	✓
GSSH300-125	125	*4.92*	300	*11.81*	175	*6.89*			454	*1022*	544	*1223*	86.0	*5.25*	0.59	*1.30*	✓

Order Callout Example:
GSSH300-50
GSSH300-50-N
GSSH300-50-CP

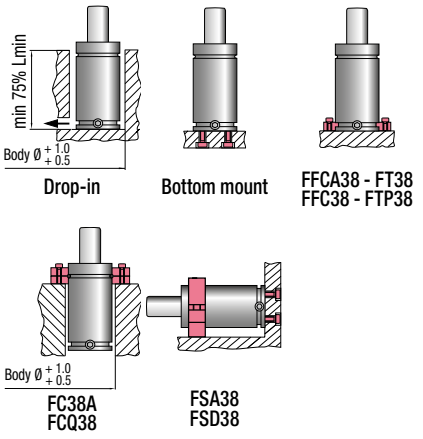




GSSH 500



Fixings



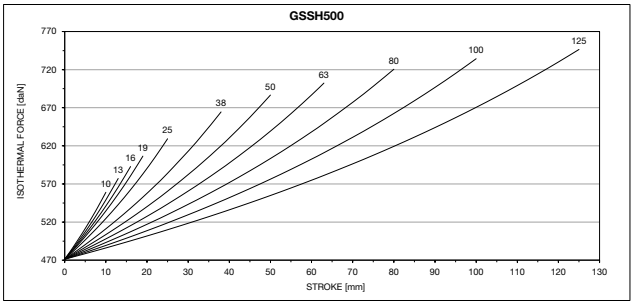
OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

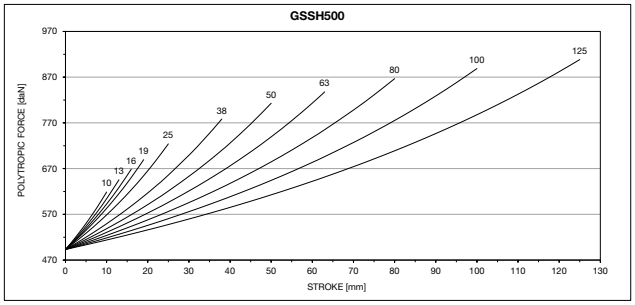
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16 **** $F1_p$ =** Polytrophic end force at 100% Cu

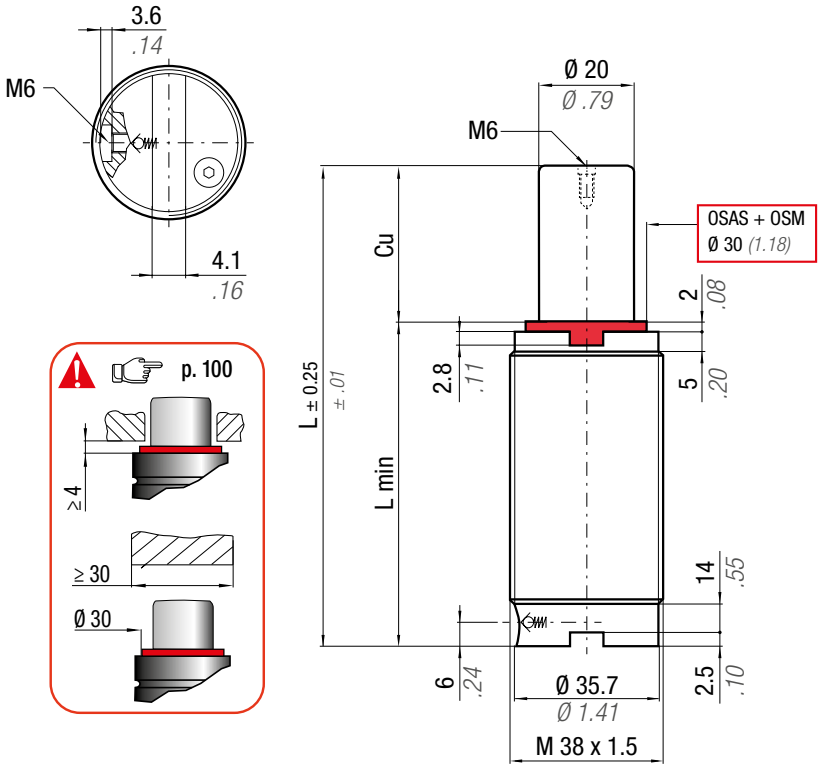
N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	3.14 cm² *0.487 in²*	~ 30 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV00500C

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	Fo Initial force daN	Fo lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	Vo cm³	Vo in³	~Kg	~lb	PED 2014/68/EU
GSSH500-10	10	*0.39*	70	*2.76*	60	*2.36*	470 ± 5%	*1057*	559	*1257*	619	*1391*	24.0	*1.46*	0.32	*0.71*	✓
GSSH500-13	13	*0.51*	75.7	*2.98*	62.7	*2.47*			578	*1300*	647	*1455*	26.0	*1.59*	0.33	*0.73*	✓
GSSH500-16	16	*0.63*	82	*3.23*	66	*2.60*			593	*1333*	669	*1504*	29.0	*1.77*	0.34	*0.75*	✓
GSSH500-19	19	*0.75*	88	*3.46*	69	*2.72*			606	*1363*	690	*1550*	31.0	*1.89*	0.36	*0.79*	✓
GSSH500-25	25	*0.98*	100	*3.94*	75	*2.95*			629	*1415*	724	*1628*	36.0	*2.20*	0.39	*0.86*	✓
GSSH500-38	38	*1.50*	126	*4.96*	88	*3.46*	150 bar *2175 psi*		664	*1494*	778	*1750*	48.0	*2.93*	0.45	*0.99*	✓
GSSH500-50	50	*1.97*	150	*5.91*	100	*3.94*			687	*1544*	813	*1828*	58.0	*3.54*	0.50	*1.10*	✓
GSSH500-63	63	*2.48*	176.5	*6.95*	113.5	*4.47*	+ 20 °C *+68 °F*		702	*1579*	838	*1883*	70.0	*4.27*	0.57	*1.26*	✓
GSSH500-80	80	*3.15*	210	*8.27*	130	*5.12*			721	*1620*	867	*1948*	84.0	*5.12*	0.64	*1.41*	✓
GSSH500-100	100	*3.94*	250	*9.84*	150	*5.91*			734	*1651*	889	*1998*	101.0	*6.16*	0.74	*1.63*	✓
GSSH500-125	125	*4.92*	300	*11.81*	175	*6.89*			746	*1678*	908	*2042*	123.0	*7.50*	0.86	*1.90*	✓

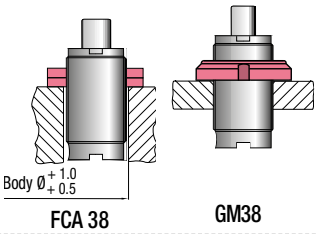
Order Callout Example:
GSSH500-50
GSSH500-50-N
GSSH500-50-CP







Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

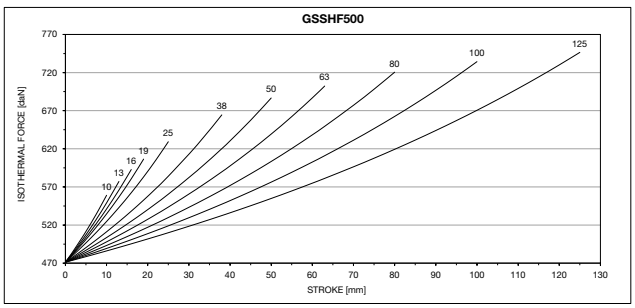
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

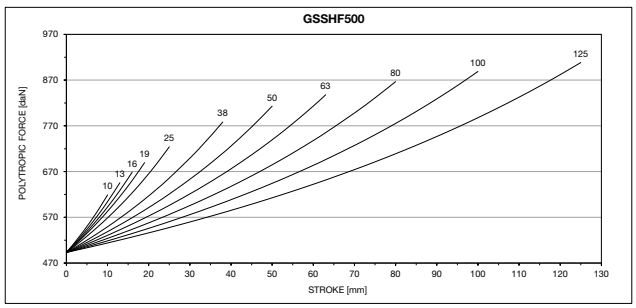
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	3.14 cm² *0.487 in²*	~ 30 ÷ 100 (at 20°C)	1.8 m/s	GSRK-39BMRV00500B

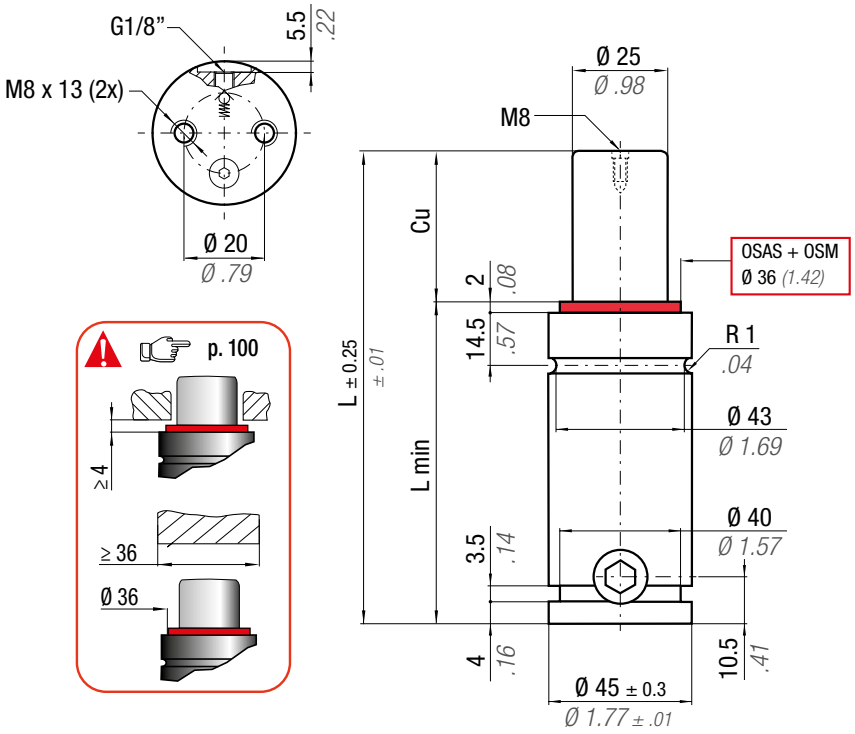
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSSHF500-10	10	*0.39*	70	*2.76*	60	*2.36*			559	*1257*	619	*1391*	24.0	*1.46*	0.31	*0.68*	✓
GSSHF500-13	13	*0.51*	75.7	*2.98*	62.7	*2.47*			578	*1300*	647	*1455*	26.0	*1.59*	0.32	*0.71*	✓
GSSHF500-16	16	*0.63*	82	*3.23*	66	*2.60*			593	*1333*	669	*1504*	29.0	*1.77*	0.34	*0.75*	✓
GSSHF500-19	19	*0.75*	88	*3.46*	69	*2.72*	470 *1057* ± 5%		606	*1363*	690	*1550*	31.0	*1.89*	0.35	*0.77*	✓
GSSHF500-25	25	*0.98*	100	*3.94*	75	*2.95*			629	*1415*	724	*1628*	36.0	*2.20*	0.38	*0.84*	✓
GSSHF500-38	38	*1.50*	126	*4.96*	88	*3.46*	150 bar *2175 psi*		664	*1494*	778	*1750*	48.0	*2.93*	0.44	*0.97*	✓
GSSHF500-50	50	*1.97*	150	*5.91*	100	*3.94*			687	*1544*	813	*1828*	58.0	*3.54*	0.50	*1.10*	✓
GSSHF500-63	63	*2.48*	176.5	*6.95*	113.5	*4.47*	+ 20 °C *+68 °F*		702	*1579*	838	*1883*	70.0	*4.27*	0.56	*1.23*	✓
GSSHF500-80	80	*3.15*	210	*8.27*	130	*5.12*			721	*1620*	867	*1948*	84.0	*5.12*	0.64	*1.41*	✓
GSSHF500-100	100	*3.94*	250	*9.84*	150	*5.91*			734	*1651*	889	*1998*	101.0	*6.16*	0.73	*1.61*	✓
GSSHF500-125	125	*4.92*	300	*11.81*	175	*6.89*			746	*1678*	908	*2042*	123.0	*7.50*	0.85	*1.87*	✓

Order Callout Example:
GSSHF500-50
GSSHF500-50-N
GSSHF500-50-CP

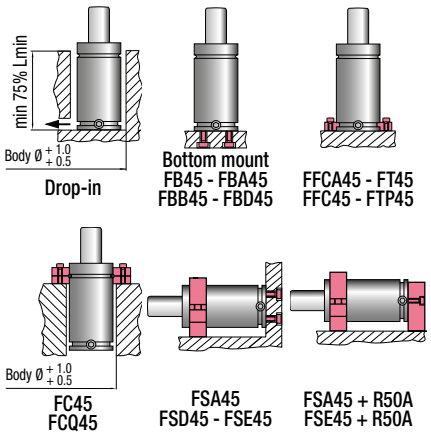




GSSH 700



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

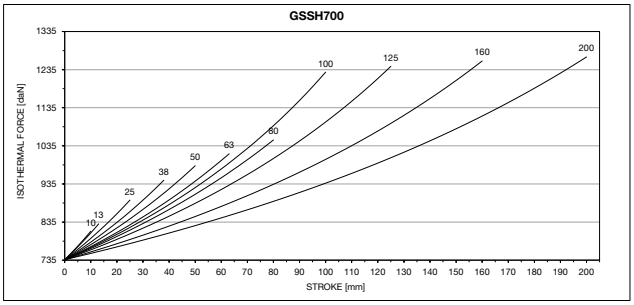
**** $F1_p$ =** Polytrophic end force at 100% Cu

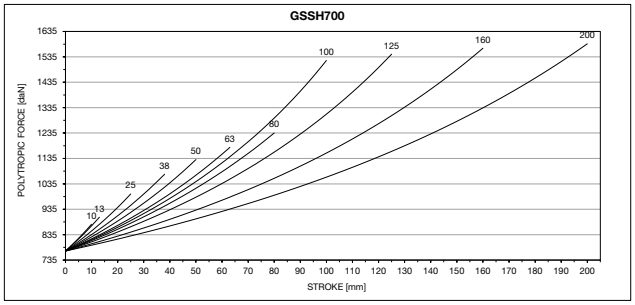
N2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	4.91 cm² *0.761 in²*	~ 20 ÷ 100 (at 20°C)	1.8 m/s	See Tab below

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	
GSSH700-10	10	0.39	105	4.13	95	3.74			811	1823	876	1969	63.0	3.84	0.90	1.98	✓
GSSH700-13	13	0.50	110.7	4.35	97.7	3.85			830	1866	904	2032	67.0	4.09	0.91	2.01	✓
GSSH700-25	25	0.98	135	5.31	110	4.33	740	1664	893	2008	995	2237	82.0	5.00	1.00	2.20	✓
GSSH700-38	38	1.50	161	6.34	123	4.84	± 5%		945	2124	1073	2412	99.0	6.04	1.09	2.40	✓
GSSH700-50	50	1.97	185	7.28	135	5.31			983	2210	1131	2543	114.0	6.95	1.17	2.58	✓
GSSH700-63	63	2.48	211.5	8.33	148.5	5.85	150 bar *2175 psi*		1014	2280	1179	2650	131.0	7.99	1.26	2.78	✓
GSSH700-80	80	3.15	245	9.65	165	6.50			1050	2360	1235	2776	152.0	9.27	1.37	3.02	✓
GSSH700-100	100	3.94	285	11.22	185	7.28	+ 20 °C *+68 °F*		1228	2761	1520	3418	140.0	8.54	1.51	3.33	✓
GSSH700-125	125	4.92	335	13.19	210	8.27			1244	2796	1546	3475	172.0	10.49	1.67	3.68	✓
GSSH700-160	160	6.30	405	15.94	245	9.65			1258	2827	1569	3527	217.0	13.24	1.91	4.21	✓

Order Callout Example:
GSSH700-50
GSSH700-50-N
GSSH700-50-CP

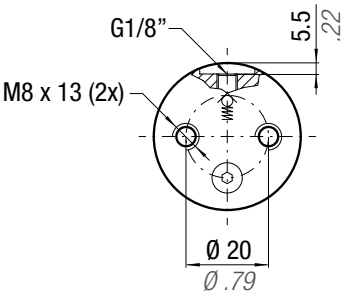
Model (Cu)	Rev.	Maintenance kit
GSSH700 (010 ÷ 080)	C	GSRK-39BMRV00750B
GSSH700 (100 ÷ 160)	C	GSRK-39BMH00700C
GSSH700 (010 ÷ 160)	D	GSRK-39BMH00700D

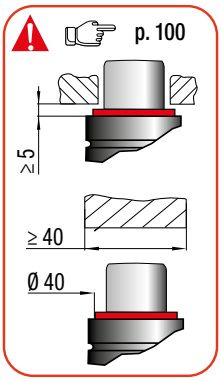


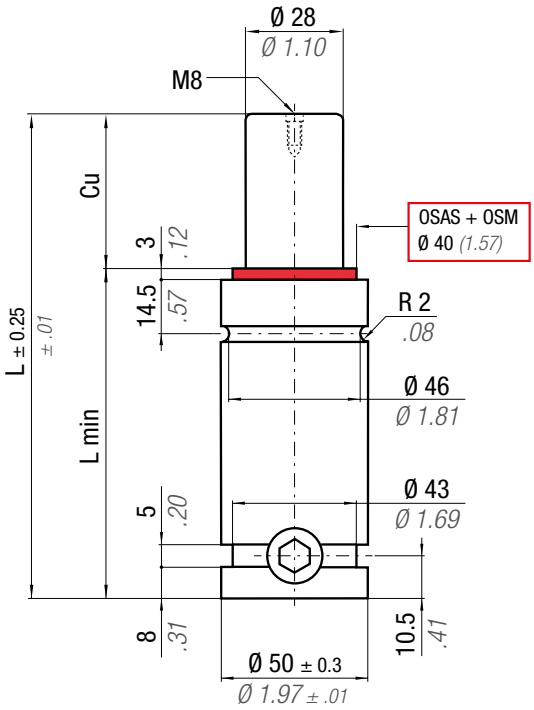


ISO 11901 - 4	VDI 3003 Blatt 4	B2 4008 (BMW)
39D 838 (VW)	075.90.65 (FCA)	

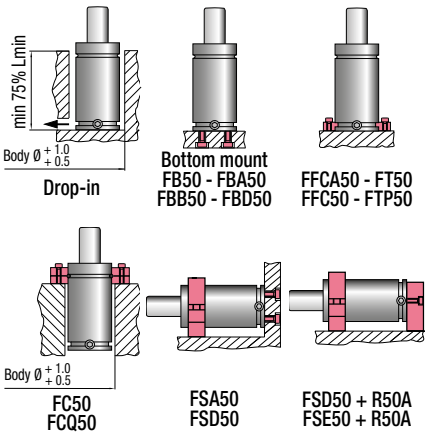
GSSH 1000







Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

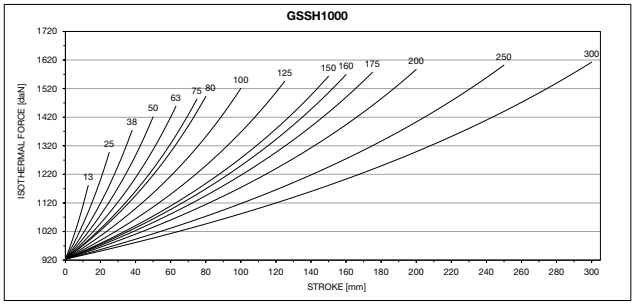
**** $F1_p$ =** Polytrophic end force at 100% Cu

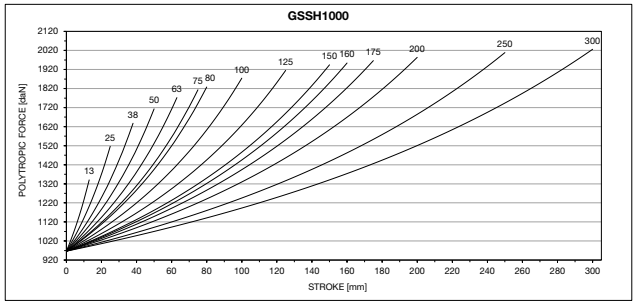
N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	6.15 cm² *0.953 in²*	~ 15 ÷ 100 (at 20°C)	1.8 m/s	See Tab below

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	
GSSH1000-13	13	0.50	120.7	4.74	107.7	4.24			1181	2655	1340	3012	43.0	2.62	1.21	2.67	✓
GSSH1000-25	25	0.98	145	5.71	120	4.72			1297	2916	1517	3410	62.0	3.78	1.32	2.91	✓
GSSH1000-38	38	1.50	171	6.73	133	5.24			1374	3089	1638	3682	83.0	5.06	1.43	3.15	✓
GSSH1000-50	50	1.97	195	7.68	145	5.71			1421	3195	1713	3851	101.0	6.16	1.53	3.37	✓
GSSH1000-63	63	2.48	221	8.74	158	6.22	920 *2068* ± 5%		1458	3278	1772	3984	122.0	7.44	1.64	3.62	✓
GSSH1000-75	75	2.95	245	9.65	170	6.69			1483	3334	1814	4078	141.0	8.60	1.74	3.84	✓
GSSH1000-80	80	3.15	255	10.04	175	6.89			1492	3354	1828	4110	149.0	9.09	1.78	3.92	✓
GSSH1000-100	100	3.94	295	11.61	195	7.68	150 bar *2175 psi*		1521	3419	1874	4214	180.0	10.98	1.96	4.32	✓
GSSH1000-125	125	4.92	345	13.58	220	8.66			1546	3475	1915	4305	219.0	13.36	2.17	4.78	✓
GSSH1000-150	150	5.91	395	15.55	245	9.65			1563	3515	1944	4371	258.0	15.74	2.38	5.25	✓
GSSH1000-160	160	6.30	415	16.34	255	10.04	+ 20 °C *+68 °F*		1569	3528	1954	4393	274.0	16.71	2.46	5.42	✓
GSSH1000-175	175	6.89	445	17.52	270	10.63			1577	3545	1966	4421	298.0	18.18	2.59	5.71	✓
GSSH1000-200	200	7.87	495	19.49	295	11.61			1587	3568	1984	4459	337.0	20.56	2.79	6.15	✓
GSSH1000-250	250	9.84	595	23.43	345	13.58			1602	3602	2009	4515	416.0	25.38	3.21	7.08	✓
GSSH1000-300	300	11.81	695	27.36	395	15.55			1613	3625	2026	4554	494.0	30.13	3.63	8.00	✓

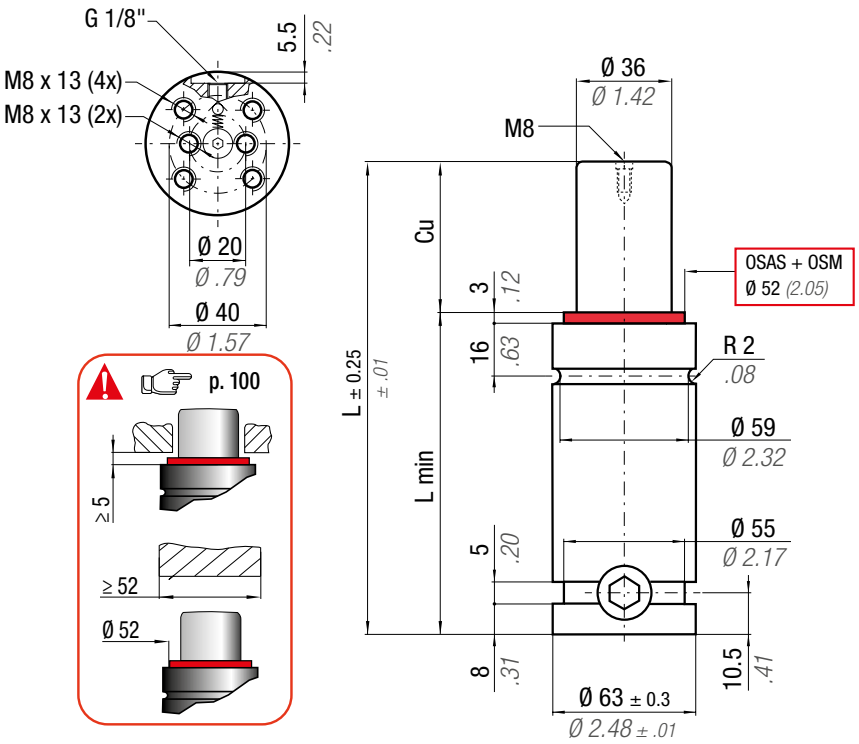
Order Callout Example:
GSSH1000-50
GSSH1000-50-N
GSSH1000-50-CP

Model (Cu)	Rev.	Maintenance kit
GSSH1000 (013 ÷ 080)	C	GSRK-39BMRV01000B
GSSH1000 (100 ÷ 300)	C	GSRK-39BMH01000D
GSSH1000 (013 ÷ 300)	D	GSRK-39BMH01000D

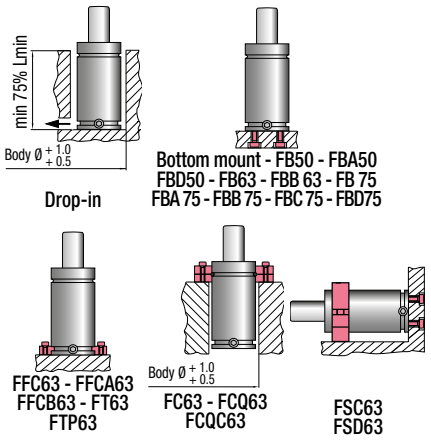




GSSH 1500



Fixings



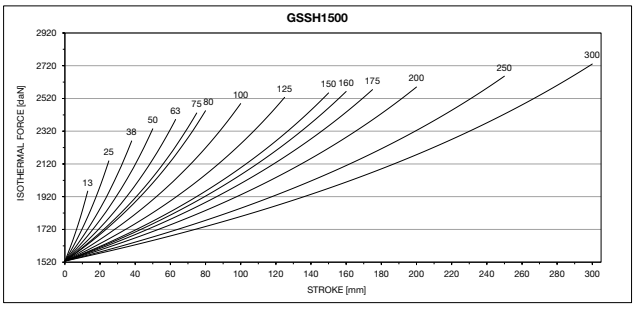
OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

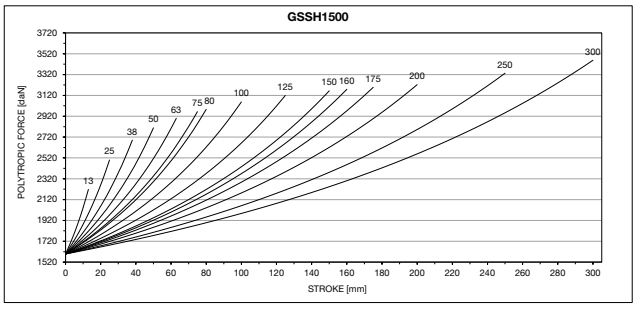
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16 **** $F1_p$ =** Polytrophic end force at 100% Cu

N2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	10.17 cm² *1.576 in²*	~ 15 ÷ 100 (at 20°C)	1.8 m/s	GSRK-39BMH01500C-CU-13-80 GSRK-39BMH01500CH-CU-100-300

CALLOUT	Cu		L		L min		Fo Initial force		$F1_i$ * End force		$F1_p$ ** End force		Vo				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSSH1500-13	13	*0.51*	120.7	*4.75*	107.7	*4.24*			1954	*4393*	2217	*4984*	71.0	*4.33*	1.98	*4.37*	✓
GSSH1500-25	25	*0.98*	145	*5.71*	120	*4.72*			2139	*4809*	2500	*5620*	103.0	*6.28*	2.13	*4.70*	✓
GSSH1500-38	38	*1.50*	171	*6.73*	133	*5.24*			2261	*5083*	2691	*6050*	138.0	*8.42*	2.29	*5.05*	✓
GSSH1500-50	50	*1.97*	195	*7.68*	145	*5.71*			2335	*5249*	2809	*6315*	170.0	*10.37*	2.44	*5.38*	✓
GSSH1500-63	63	*2.48*	221	*8.70*	158	*6.22*	1530 *3440*		2392	*5377*	2900	*6519*	204.0	*12.44*	2.60	*5.73*	✓
GSSH1500-75	75	*2.95*	245	*9.65*	170	*6.69*	± 5%		2431	*5465*	2964	*6663*	236.0	*14.40*	2.75	*6.06*	✓
GSSH1500-80	80	*3.15*	255	*10.04*	175	*6.89*			2445	*5497*	2986	*6713*	249.0	*15.19*	2.81	*6.19*	✓
GSSH1500-100	100	*3.94*	295	*11.61*	195	*7.68*	150 bar		2489	*5595*	3057	*6872*	302.0	*18.42*	3.03	*6.68*	✓
GSSH1500-125	125	*4.92*	345	*13.58*	220	*8.66*	*2175 psi*		2527	*5681*	3119	*7012*	369.0	*22.51*	3.34	*7.36*	✓
GSSH1500-150	150	*5.91*	395	*15.55*	245	*9.65*			2554	*5742*	3164	*7113*	435.0	*26.54*	3.64	*8.02*	✓
GSSH1500-160	160	*6.30*	415	*16.34*	255	*10.04*	+ 20 °C *+68 °F*		2563	*5762*	3178	*7144*	462.0	*28.18*	3.77	*8.31*	✓
GSSH1500-175	175	*6.89*	445	*17.52*	270	*10.63*			2574	*5787*	3197	*7187*	501.0	*30.56*	3.95	*8.71*	✓
GSSH1500-200	200	*7.87*	495	*19.49*	295	*11.61*			2590	*5823*	3223	*7246*	568.0	*34.65*	4.26	*9.39*	✓
GSSH1500-250	250	*9.84*	595	*23.43*	345	*13.58*			2656	*5971*	3333	*7493*	684.0	*41.72*	4.99	*11.00*	✓
GSSH1500-300	300	*11.81*	695	*27.36*	395	*15.55*			2731	*6140*	3458	*7774*	790.0	*48.19*	5.81	*12.81*	✓

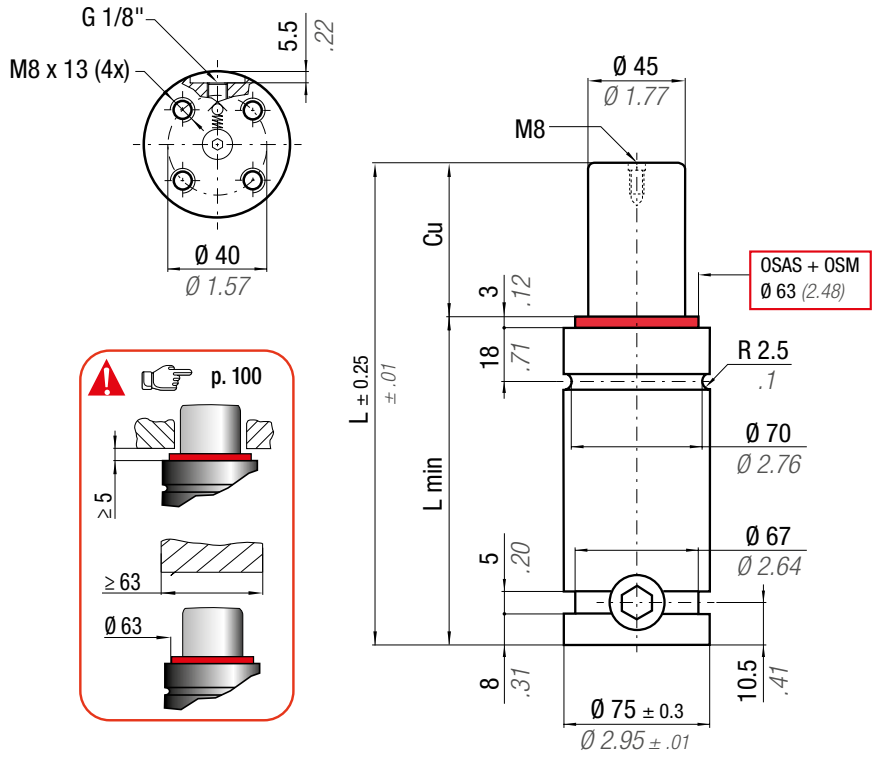
Order Callout Example:
GSSH1500-50
GSSH1500-50-N
GSSH1500-50-CP



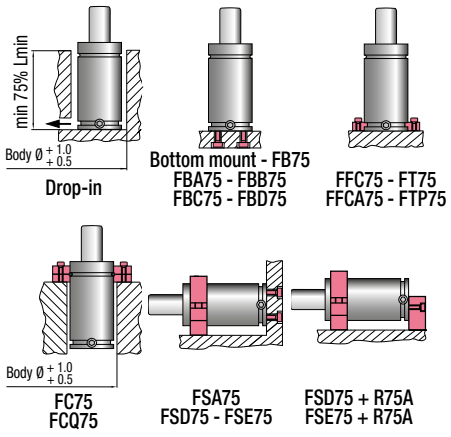


ISO 11901 - 4	VDI 3003 Blatt 4	B2 4008 (BMW)
39D 838 (VW)	075.90.65 (FCA)	

GSSH 2400



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

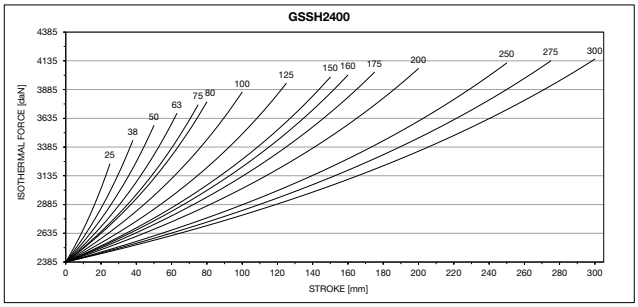
**** $F1_p$ =** Polytrophic end force at 100% Cu

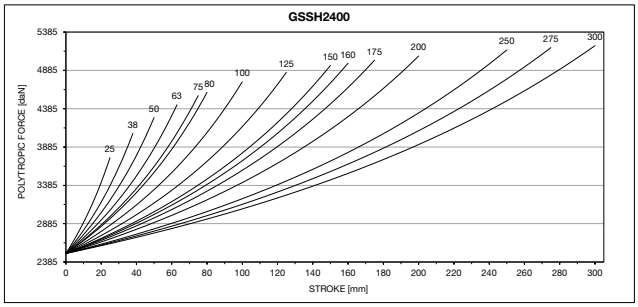
N2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	15.9 cm² *2.465 in²*	~ 15 ÷ 100 (at 20°C)	1.8 m/s	See Tab below

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSSH2400-25	25	*0.98*	160	*6.30*	135	*5.31*			3238	*7279*	3745	*8419*	176.0	*10.74*	3.34	*7.36*	✓
GSSH2400-38	38	*1.50*	186	*7.32*	148	*5.83*			3442	*7738*	4062	*9132*	228.0	*13.91*	3.55	*7.83*	✓
GSSH2400-50	50	*1.97*	210	*8.27*	160	*6.30*			3573	*8032*	4269	*9597*	276.0	*16.84*	3.75	*8.27*	✓
GSSH2400-63	63	*2.48*	236	*9.31*	173	*6.81*			3678	*8268*	4436	*9973*	329.0	*20.07*	3.96	*8.73*	✓
GSSH2400-75	75	*2.95*	260	*10.24*	185	*7.28*	2385 *5362*		3752	*8435*	4555	*10240*	377.0	*23.00*	4.15	*9.15*	✓
GSSH2400-80	80	*3.15*	270	*10.63*	190	*7.48*	± 5%		3778	*8493*	4597	*10334*	397.0	*24.22*	4.23	*9.33*	✓
GSSH2400-100	100	*3.94*	310	*12.20*	210	*8.27*			3863	*8684*	4735	*10645*	478.0	*29.16*	4.51	*9.94*	✓
GSSH2400-125	125	*4.92*	360	*14.17*	235	*9.25*	150 bar		3939	*8855*	4859	*10923*	578.0	*35.26*	4.91	*10.82*	✓
GSSH2400-150	150	*5.91*	410	*16.14*	260	*10.24*	*2175 psi*		3994	*8979*	4949	*11126*	679.0	*41.42*	5.32	*11.73*	✓
GSSH2400-160	160	*6.30*	430	*16.93*	270	*10.63*			4012	*9019*	4979	*11193*	719.0	*43.86*	5.49	*12.10*	✓
GSSH2400-175	175	*6.89*	460	*18.11*	285	*11.22*	+ 20 °C *+68 °F*		4036	*9073*	5018	*11281*	779.0	*47.52*	5.73	*12.63*	✓
GSSH2400-200	200	*7.87*	510	*20.08*	310	*12.20*			4068	*9145*	5072	*11403*	880.0	*53.68*	6.14	*13.54*	✓
GSSH2400-250	250	*9.84*	610	*24.02*	360	*14.17*			4116	*9253*	5152	*11582*	1081.0	*65.94*	6.95	*15.32*	✓
GSSH2400-275	275	*10.83*	660	*25.98*	385	*15.16*			4135	*9296*	5182	*11650*	1182.0	*72.10*	7.36	*16.23*	✓
GSSH2400-300	300	*11.81*	710	*27.95*	410	*16.14*			4150	*9330*	5208	*11707*	1283.0	*78.26*	7.77	*17.13*	✓

Order Callout Example:
GSSH2400-50
GSSH2400-50-N
GSSH2400-50-CP

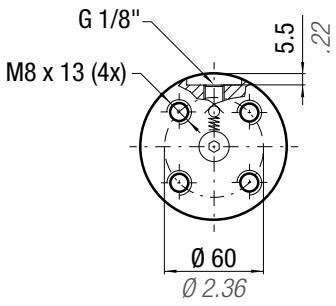
Model (Cu)	Rev.	Maintenance kit
GSSH2400 (025 ÷ 080)	C	GSRK-39BMRV02400B
GSSH2400 (025 ÷ 080)	D	GSRK-39BMH02400D
GSSH2400 (100 ÷ 300)	C - D	GSRK-39BMH02400DH

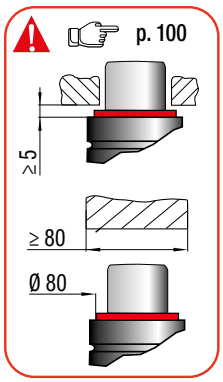


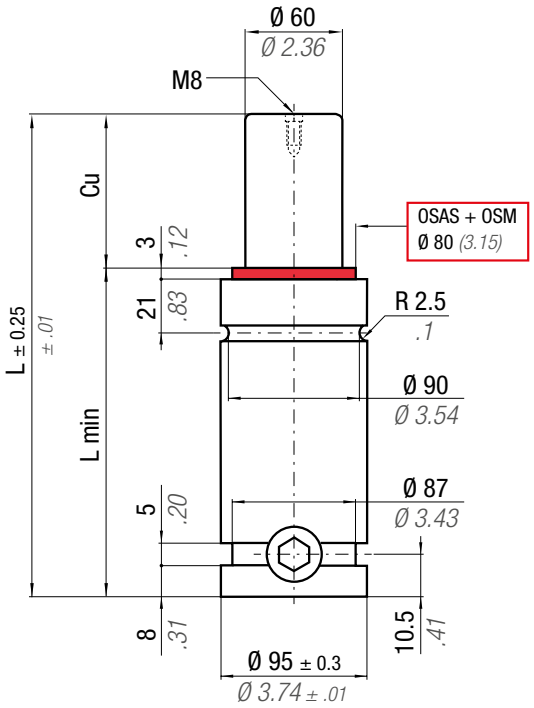


GSSH 4200

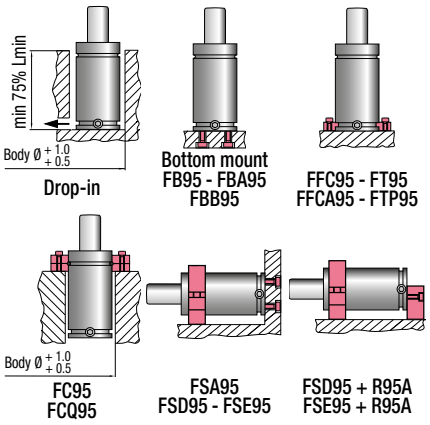
ISO 11901 - 4	VDI 3003 Blatt 4	B2 4008 (BMW)
39D 838 (VW)	075.90.65 (FCA)	







Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

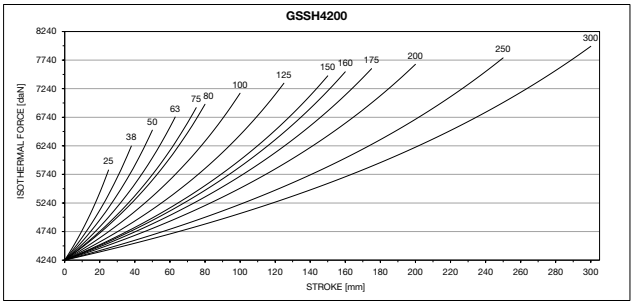
**** $F1_p$ =** Polytrophic end force at 100% Cu

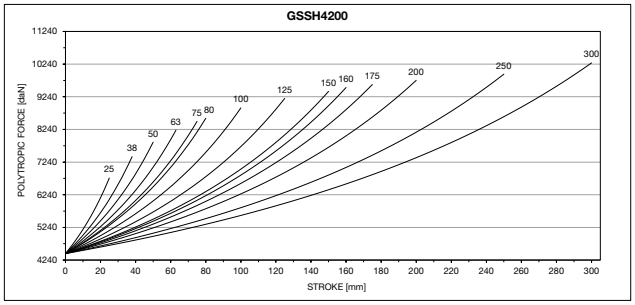
N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	28.27 cm² *4.382 in²*	~ 15 ÷ 100 (at 20°C)	1.8 m/s	See Tab below

CALLOUT	Cu		L		L min		Fo Initial force		$F1_i$ * End force		$F1_p$ ** End force		Vo				PED 2014/68/EU
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	
GSSH4200-25	25	0.98	170	6.69	145	5.71			5817	13077	6753	15181	303.0	18.48	5.76	12.70	✓
GSSH4200-38	38	1.50	196	7.72	158	6.22			6236	14019	7407	16652	388.0	23.67	6.12	13.49	✓
GSSH4200-50	50	1.97	220	8.66	170	6.69			6515	14646	7850	17648	467.0	28.49	6.45	14.22	✓
GSSH4200-63	63	2.48	246	9.70	183	7.20			6744	15161	8217	18473	552.0	33.67	6.80	14.99	✓
GSSH4200-75	75	2.95	270	10.63	195	7.68	4240 *9532* ± 5%		6908	15530	8484	19073	631.0	38.49	7.13	15.72	✓
GSSH4200-80	80	3.15	280	11.02	200	7.87			6967	15662	8581	19291	663.0	40.44	7.27	16.03	✓
GSSH4200-100	100	3.94	320	12.60	220	8.66			7160	16097	8898	20003	794.0	48.43	7.76	17.11	✓
GSSH4200-125	125	4.92	370	14.57	245	9.65	150 bar *2175 psi*		7336	16491	9188	20656	958.0	58.44	8.45	18.63	✓
GSSH4200-150	150	5.91	420	16.54	270	10.63			7465	16781	9403	21140	1122.0	68.44	9.13	20.13	✓
GSSH4200-160	160	6.30	440	17.32	280	11.02			7507	16877	9475	21300	1187.0	72.41	9.40	20.72	✓
GSSH4200-175	175	6.89	470	18.50	295	11.61	+ 20 °C *+68 °F*		7564	17004	9569	21512	1285.0	78.39	9.82	21.65	✓
GSSH4200-200	200	7.87	520	20.47	320	12.60			7642	17179	9701	21808	1449.0	88.39	10.50	23.15	✓
GSSH4200-250	250	9.84	620	24.41	370	14.57			7758	17440	9897	22248	1776.0	108.34	11.87	26.17	✓
GSSH4200-300	300	11.81	720	28.35	420	16.54			7839	17623	10035	22560	2104.0	128.34	13.24	29.19	✓

Order Callout Example:
GSSH4200-50
GSSH4200-50-N
GSSH4200-50-CP

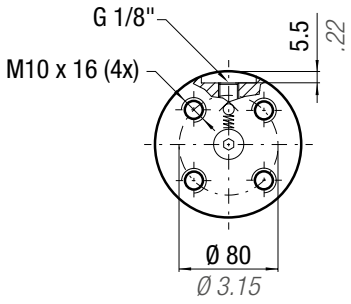
Model (Cu)	Rev.	Maintenance kit
GSSH4200 (025 ÷ 080)	C	GSRK-39BMRV04200B
GSSH4200 (025 ÷ 080)	D	GSRK-39BMH04200D
GSSH4200 (100 ÷ 300)	C - D	GSRK-39BMH04200DH

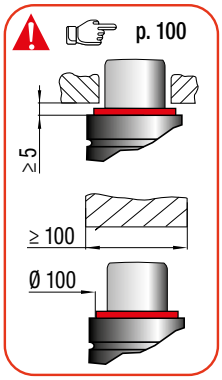


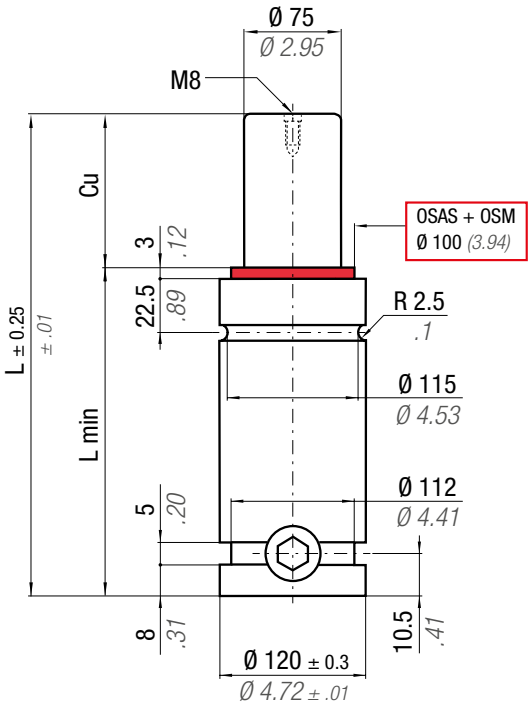


ISO 11901 - 4	VDI 3003 Blatt 4	B2 4008 (BMW)
39D 838 (VW)	075.90.65 (FCA)	

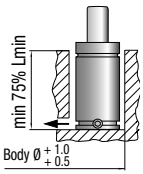
GSSH 6600



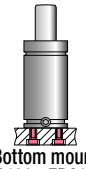




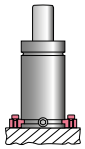
Fixings



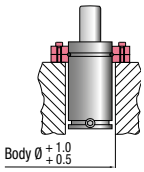
Drop-in



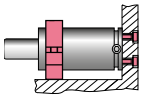
Bottom mount
FB120 - FBA120
FBB120



FFC120-FT120
FFCA120-FTP120



FC120
FCQ120



FSA120
FSD120

OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

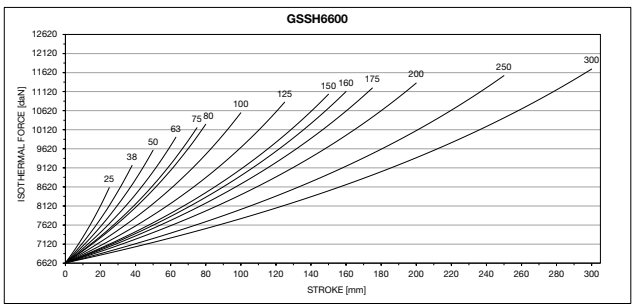
**** $F1_p$ =** Polytrophic end force at 100% Cu

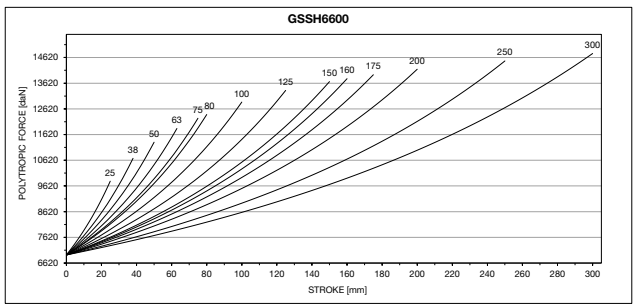
N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	44.18 cm² *6.848 in²*	~ 15 ÷ 100 (at 20°C)	1.8 m/s	See Tab below

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	
GSSH6600-25	25	0.98	190	7.48	165	6.50			8601	19336	9806	22045	561.0	34.22	10.35	22.82	✓
GSSH6600-38	38	1.50	216	8.50	178	7.01			9183	20644	10696	24046	700.0	42.70	10.89	24.01	✓
GSSH6600-50	50	1.97	240	9.45	190	7.48			9585	21548	11323	25455	828.0	50.51	11.37	25.07	✓
GSSH6600-63	63	2.48	266	10.47	203	7.99			9924	22310	11857	26656	967.0	58.99	11.93	26.30	✓
GSSH6600-75	75	2.95	290	11.42	215	8.46	6630 *14904* ± 5% 150 bar *2175 psi* + 20 °C *+68 °F*		10174	22872	12255	27550	1095.0	66.80	12.39	27.32	✓
GSSH6600-80	80	3.15	300	11.81	220	8.66			10264	23074	12400	27876	1149.0	70.09	12.60	27.78	✓
GSSH6600-100	100	3.94	340	13.39	240	9.45			10565	23751	12885	28967	1362.0	83.08	13.30	29.32	✓
GSSH6600-125	125	4.92	390	15.35	265	10.43			10844	24378	13339	29987	1629.0	99.37	14.33	31.59	✓
GSSH6600-150	150	5.91	440	17.32	290	11.42			11053	24848	13681	30756	1864.0	113.70	15.35	33.84	✓
GSSH6600-160	160	6.30	460	18.11	300	11.81			11123	25005	13975	31417	2003.0	122.18	15.75	34.72	✓
GSSH6600-175	175	6.89	490	19.29	315	12.40			11215	25212	13948	31356	2164.0	132.00	16.36	36.07	✓
GSSH6600-200	200	7.87	540	21.26	340	13.39			11345	25505	14163	31840	2431.0	148.29	17.38	38.32	✓
GSSH6600-250	250	9.84	640	25.20	390	15.35			11540	25943	14486	32566	2965.0	180.87	19.42	42.81	✓
GSSH6600-300	300	11.81	740	29.13	440	17.32			11713	26332	14775	33216	3485.0	212.59	21.57	47.55	✓

Order Callout Example:
GSSH6600-50
GSSH6600-50-N
GSSH6600-50-CP

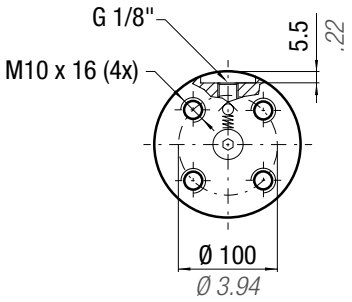
Model (Cu)	Rev.	Maintenance kit
GSSH6600 (025 ÷ 080)	C	GSRK-39BMRV06600B
GSSH6600 (025 ÷ 080)	D	GSRK-39BMH06600D
GSSH6600 (100 ÷ 300)	C - D	GSRK-39BMH06600DH

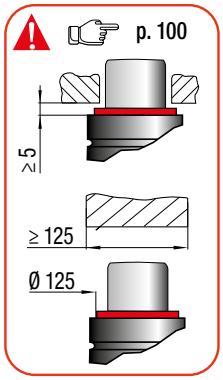


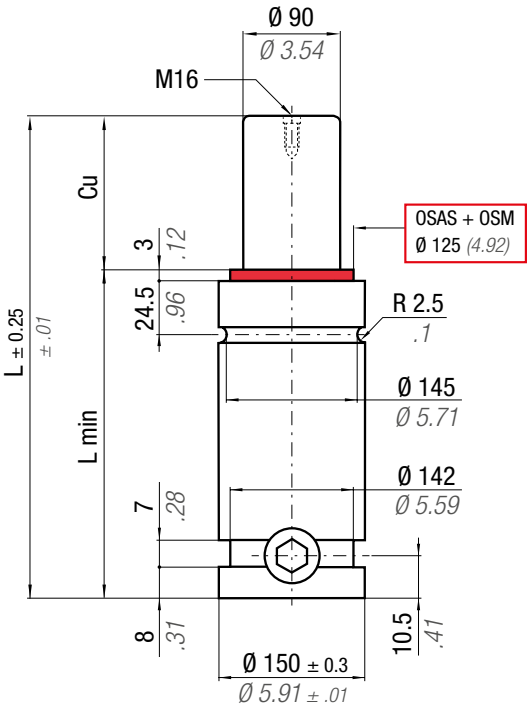


GSSH 9500

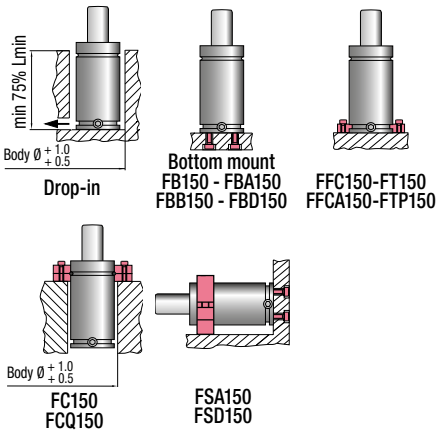
ISO 11901 - 4	VDI 3003 Blatt 4	B2 4008 (BMW)
39D 838 (VW)	075.90.65 (FCA)	







Fixings



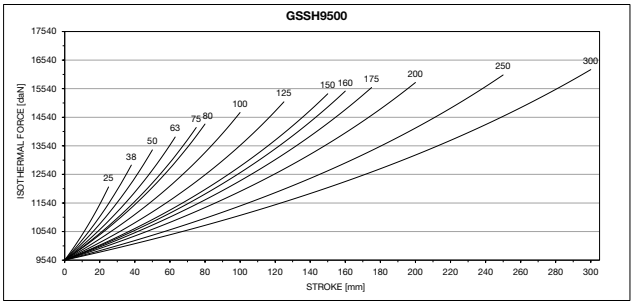
OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

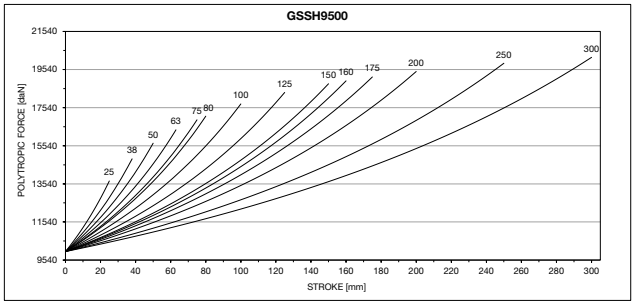
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16 **** $F1_p$ =** Polytrophic end force at 100% Cu

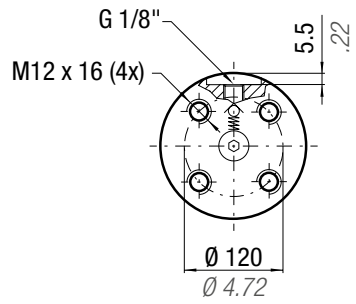
N_2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	63.62 cm² *9.861 in²*	~ 15 ÷ 80 (at 20°C)	1.8 m/s	GSRK-39BMH09500C

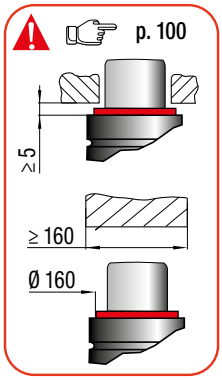
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	
GSSH9500-25	25	0.98	205	8.07	180	7.09			12101	27204	13691	30779	879.0	53.62	18.00	39.68	✓
GSSH9500-38	38	1.50	231	9.09	193	7.60			12866	28925	14853	33390	1089.0	66.43	18.82	41.49	✓
GSSH9500-50	50	1.97	255	10.04	205	8.07			13398	30121	15673	35235	1282.0	78.20	19.58	43.17	✓
GSSH9500-63	63	2.48	281	11.06	218	8.58			13848	31132	16376	36815	1492.0	91.01	20.41	45.00	✓
GSSH9500-75	75	2.95	305	12.01	230	9.06	9540	21446	14181	31881	16901	37995	1685.0	102.79	21.17	46.67	✓
GSSH9500-80	80	3.15	315	12.40	235	9.25	± 5%		14302	32152	17092	38425	1766.0	107.73	21.49	47.38	✓
GSSH9500-100	100	3.94	355	13.98	255	10.04			14705	33058	17735	39869	2088.0	127.37	22.76	50.18	✓
GSSH9500-125	125	4.92	405	15.94	280	11.02	150 bar *2175 psi*		15080	33901	18337	41224	2491.0	151.95	24.35	53.68	✓
GSSH9500-150	150	5.91	455	17.91	305	12.01			15361	34534	18793	42249	2894.0	176.53	25.94	57.19	✓
GSSH9500-160	160	6.30	475	18.70	315	12.40	+ 20 °C *+68 °F*		15455	34745	18946	42593	3055.0	186.36	26.58	58.60	✓
GSSH9500-175	175	6.89	505	19.88	330	12.99			15581	35027	19150	43052	3297.0	201.12	27.53	60.69	✓
GSSH9500-200	200	7.87	555	21.85	355	13.98			15756	35421	19437	43697	3700.0	225.70	29.12	64.20	✓
GSSH9500-250	250	9.84	655	25.79	405	15.94			16020	36014	19870	44670	4506.0	274.87	32.30	71.21	✓
GSSH9500-300	300	11.81	755	29.72	455	17.91			16208	36437	20181	45368	5312.0	324.03	35.47	78.20	✓

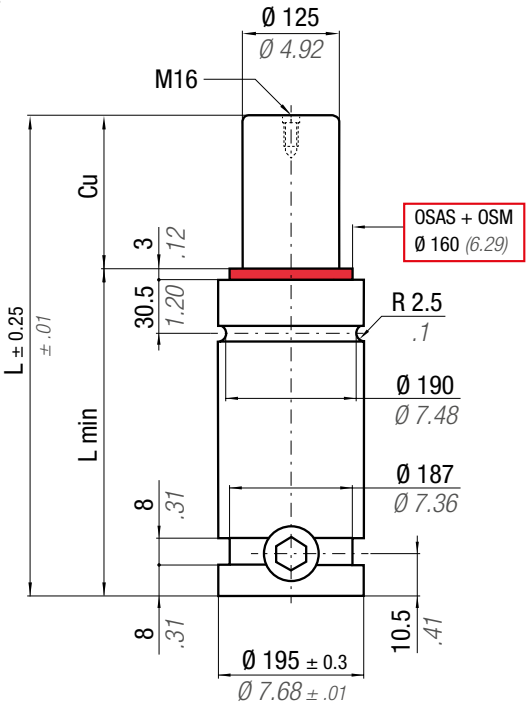
Order Callout Example:
GSSH9500-50
GSSH9500-50-N
GSSH9500-50-CP



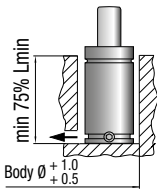






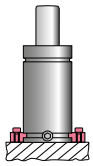


Fixings

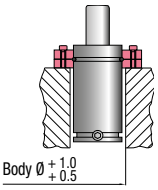


Drop-in

Bottom mount
FB195 - FBA 95
FBB195



FFC195-FT195
FFCA195



FC195
FCQ195

OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

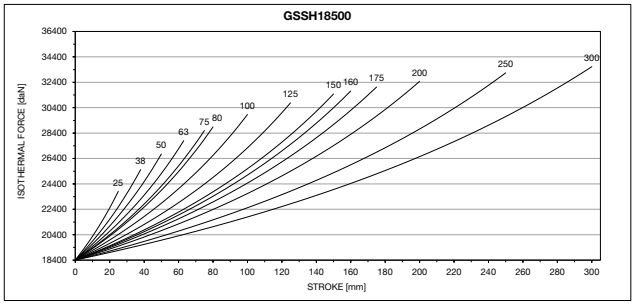
* $F1_i$ = Isothermal end force at 100% Cu p. 16

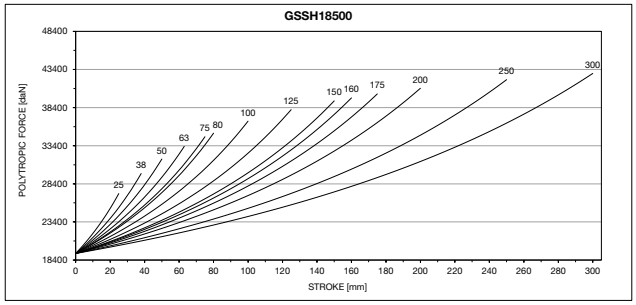
** $F1_p$ = Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	122.7 cm² *19.019 in²*	~ 10 ÷ 70 (at 20°C)	1.8 m/s	GSRK-39BMH18500C

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	F0 Initial force daN	F0 lb	$F1_i$ * End force daN	$F1_i$ lb	$F1_p$ ** End force daN	$F1_p$ lb	V0 cm³	V0 in³	~Kg	~lb	PED 2014/68/EU
GSSH18500-25	25	0.98	210	8.27	185	7.28	18400 ± 5%	41363	24062	54094	27495	61811	1522.0	92.84	31.06	68.48	✓
GSSH18500-38	38	1.50	236	9.29	198	7.80			25812	58028	30182	67852	1886.0	115.05	32.53	71.72	✓
GSSH18500-50	50	1.97	260	10.24	210	8.27			27045	60800	32111	72188	2221.0	135.48	33.89	74.71	✓
GSSH18500-63	63	2.50	286	11.30	223	8.80			28022	62996	33660	75671	2599.0	158.54	35.36	77.96	✓
GSSH18500-80	80	3.15	320	12.60	240	9.45			29171	65579	35505	79818	3060.0	186.66	37.28	82.19	✓
GSSH18500-100	100	3.94	360	14.17	260	10.24	150 bar *2175 psi*		30132	67739	37066	83328	3619.0	220.76	39.54	87.17	✓
GSSH18500-125	125	4.92	410	16.14	285	11.22			30132	67739	38544	86650	4318.0	263.40	42.37	93.41	✓
GSSH18500-160	160	6.30	480	18.90	320	12.60	+ 20 °C *+68 °F*		31942	71808	40050	90036	5297.0	323.12	46.33	102.14	✓
GSSH18500-200	200	7.87	560	22.05	360	14.17			32675	73456	41276	92792	6415.0	391.32	50.85	112.11	✓
GSSH18500-250	250	9.84	660	25.98	410	16.14			33321	74909	42363	95236	7813.0	476.59	56.51	124.58	✓
GSSH18500-300	300	11.81	760	29.92	460	18.11			33582	75495	42805	96229	9282.0	566.20	62.16	137.04	✓

Order Callout Example:
GSSH18500-50
GSSH18500-50-N
GSSH18500-50-CP

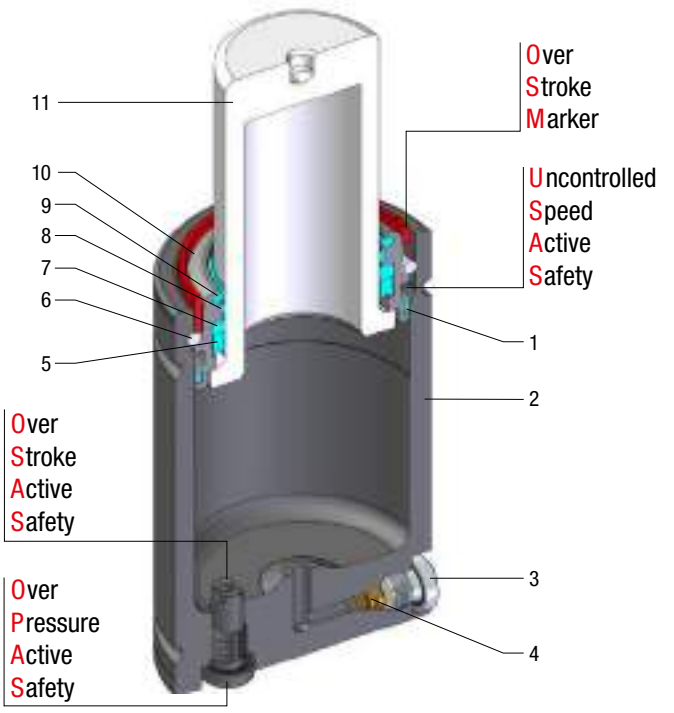




GST series

Mazda	Nissan	PSA
Toyota		

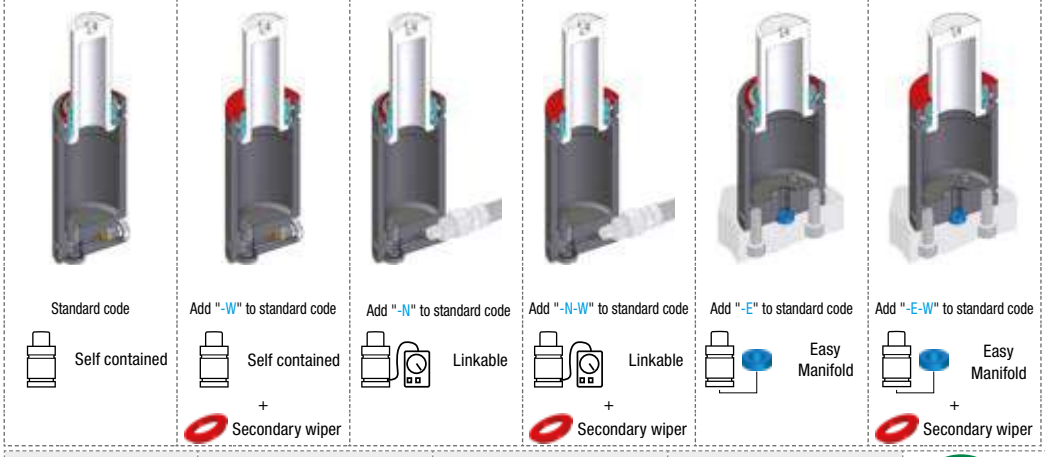
Minimum height, maximum force, hose cylinders with G1/8 charging port
Minimale Höhe, maximale Kraft, Gdf. mit G1/8 Öffnung verbindbar - Hauteur minimale, force maximale, cylindres raccordés avec trou G1/8 gaz
Mínima altura, máxima fuerza, cilindros conectados con agujero G1/8 gas - Altura mínima, força máxima, cilindros conectados com furo G1/8 gás



1	Dual ring seal
2	Body
3	Plug
4	Valve
5	Rod seal
6	Retaining ring
7	Back-up ring
8	Guide ring
9	Rod wiper
10	Bush
11	Rod (nitrited superfinished)

SEALING	ROD SEAL
DESIGN	BUSH - BODY DESIGN

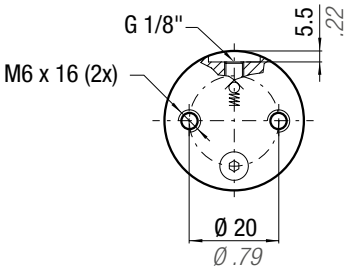
Available versions

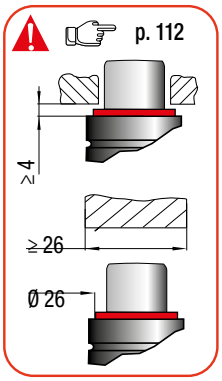


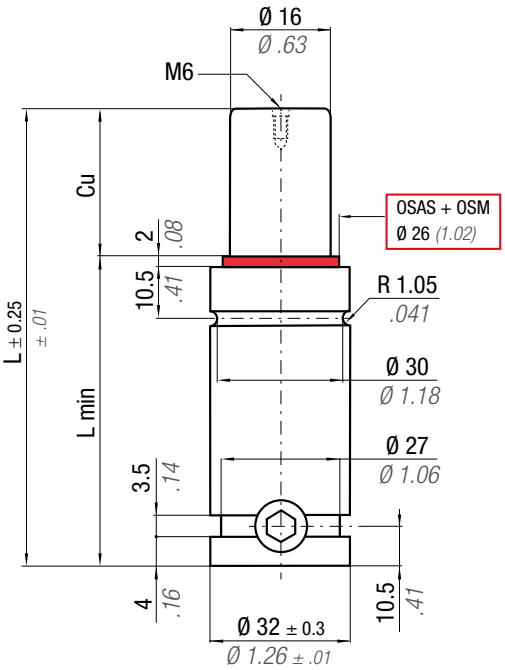
Standard code	Add "-W" to standard code	Add "-N" to standard code	Add "-N-W" to standard code	Add "-E" to standard code	Add "-E-W" to standard code
Self contained	Self contained + Secondary wiper	Linkable	Linkable + Secondary wiper	Easy Manifold	Easy Manifold + Secondary wiper

Order Callout Example:
GST2400-50
GST2400-50-W
GST2400-50-N
GST2400-50-N-W
GST2400-50-E
GST2400-50-E-W

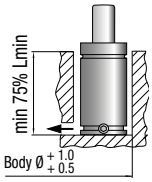
Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	daN	lb				
GST350	32	1.26	10 - 125	0.39 - 4.92	360	809	✓	✓	✓	-
GST500	38	1.50	10 - 125	0.39 - 4.92	470	1057	✓	✓	✓	-
GST750	45	1.77	10 - 125	0.39 - 4.92	740	1664	✓	✓	✓	-
GST1000	50	1.97	10 - 125	0.39 - 4.92	920	2068	✓	✓	✓	-
GST1200	50	1.97	10 - 125	0.39 - 4.92	1060	2383	✓	✓	✓	-
GST1500	63	2.48	10 - 125	0.39 - 4.92	1530	3440	✓	✓	✓	-
GST2400	75	2.95	10 - 125	0.39 - 4.92	2385	5362	✓	✓	✓	-
GST4200	95	3.74	16 - 125	0.63 - 4.92	4240	9532	✓	✓	✓	-
GST6600	120	4.72	16 - 125	0.63 - 4.92	6630	14905	✓	✓	✓	-
GST9500	150	5.91	19 - 125	0.75 - 4.92	9540	21447	✓	✓	✓	-





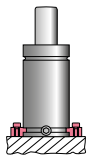


Fixings

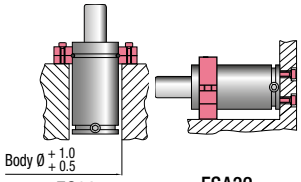


Drop-in

Bottom mount



FFCA32 - FFC32
FFC32



FC32
FCQ32

FSA32
FSD32

OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

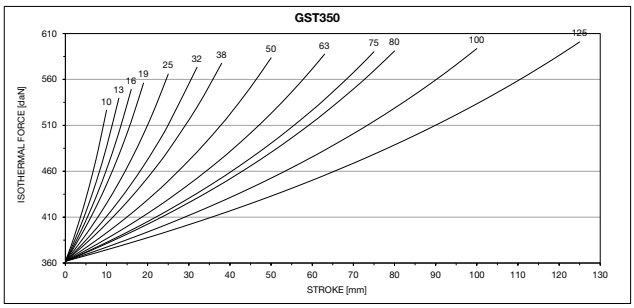
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

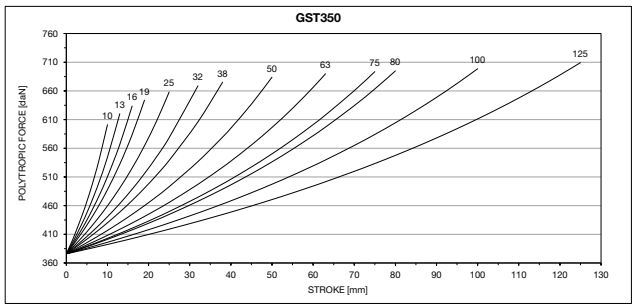
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	180 bar *2610 psi*	20 bar *290 psi*	2.01 cm² *0.312 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV00350C

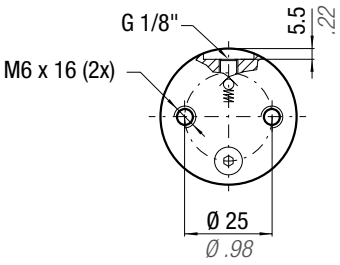
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GST350-10	10	*0.39*	60	*2.36*	50	*1.97*			523	*1176*	596	*1340*	8.0	*0.49*	0.22	*0.48*	✓
GST350-13	13	*0.51*	66	*2.60*	53	*2.09*			536	*1206*	615	*1384*	10.0	*0.61*	0.23	*0.50*	✓
GST350-16	16	*0.63*	72	*2.83*	56	*2.20*			546	*1228*	629	*1415*	12.0	*0.73*	0.24	*0.52*	✓
GST350-19	19	*0.75*	78	*3.07*	59	*2.32*			553	*1244*	640	*1439*	13.0	*0.79*	0.25	*0.54*	✓
GST350-25	25	*0.98*	90	*3.54*	65	*2.56*	360 *809* ± 5%		564	*1267*	655	*1472*	17.0	*1.04*	0.27	*0.60*	✓
GST350-32	32	*1.26*	104	*4.09*	72	*2.83*			571	*1285*	666	*1497*	21.0	*1.28*	0.29	*0.64*	✓
GST350-38	38	*1.50*	116	*4.57*	78	*3.07*	180 bar *2610psi*		576	*1295*	673	*1513*	25.0	*1.53*	0.31	*0.68*	✓
GST350-50	50	*1.97*	140	*5.51*	90	*3.54*			582	*1309*	682	*1533*	32.0	*1.95*	0.35	*0.77*	✓
GST350-63	63	*2.48*	166	*6.54*	103	*4.06*	+ 20 °C *+68 °F*		587	*1319*	688	*1547*	40.0	*2.44*	0.39	*0.86*	✓
GST350-75	75	*2.95*	190	*7.48*	115	*4.53*			589	*1325*	692	*1556*	47.0	*2.87*	0.43	*0.95*	✓
GST350-80	80	*3.15*	200	*7.87*	120	*4.72*			590	*1327*	693	*1559*	50.0	*3.05*	0.45	*0.99*	✓
GST350-100	100	*3.94*	240	*9.45*	140	*5.51*			593	*1333*	698	*1568*	62.0	*3.79*	0.51	*1.12*	✓
GST350-125	125	*4.92*	290	*11.42*	165	*6.50*			595	*1338*	701	*1576*	77.0	*4.71*	0.59	*1.30*	✓

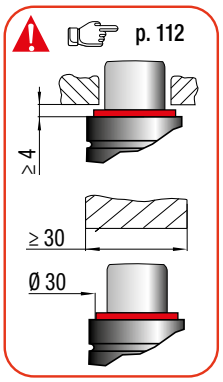
Order Callout Example:
GST350-50
GST350-50-N
GST350-50-CP

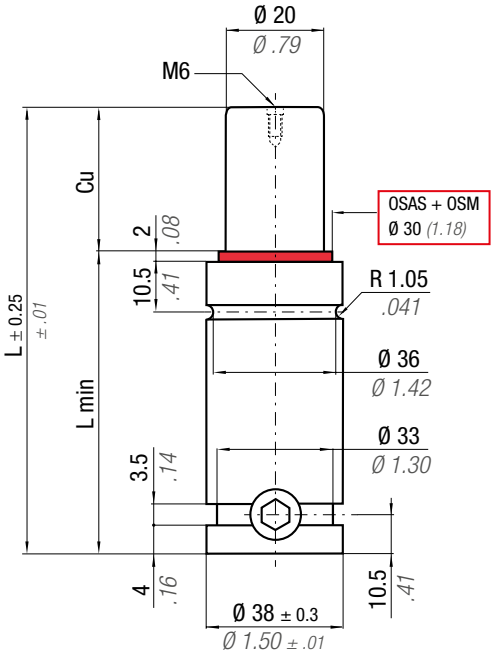




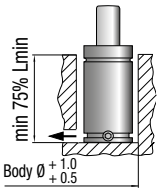
PG24D (Mazda)		





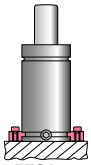


Fixings

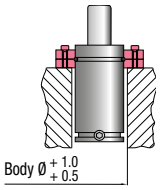


Drop-in

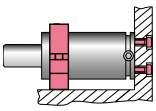
Bottom mount



FFCA38
FFC38 - FFC38
FT38 - FTP38



FC38
FCQ38



FSA38
FSD38

OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

*** $F1_i$ =** Isothermal end force at 100% Cu

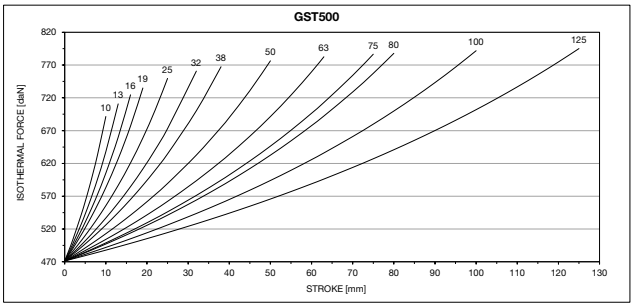
p. 16

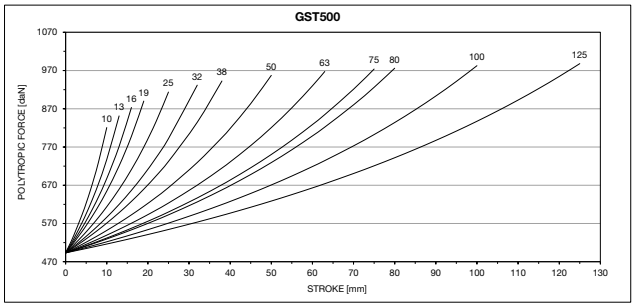
**** $F1_p$ =** Polytrophic end force at 100% Cu

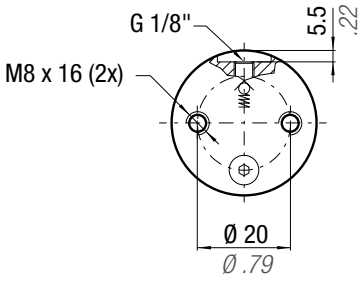
N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	3.14 cm² *0.487 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV00500C

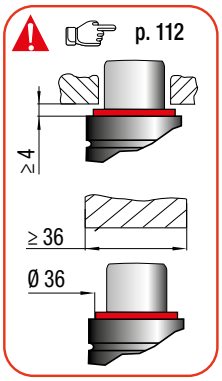
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	
GST500-10	10	0.39	60	2.36	50	1.97			692	1555	821	1845	11.0	0.67	0.32	0.71	✓
GST500-13	13	0.51	66	2.60	53	2.09			711	1598	851	1914	14.0	0.85	0.34	0.75	✓
GST500-16	16	0.63	72	2.83	56	2.20			725	1629	873	1963	17.0	1.04	0.36	0.79	✓
GST500-19	19	0.75	78	3.07	59	2.32			735	1652	890	2001	19.0	1.16	0.37	0.82	✓
GST500-25	25	0.98	90	3.54	65	2.56	470 ± 5%	1057	750	1685	914	2054	24.0	1.46	0.40	0.88	✓
GST500-32	32	1.26	104	4.09	72	2.83			761	1710	932	2094	30.0	1.83	0.43	0.95	✓
GST500-38	38	1.50	116	4.57	78	3.07	150 bar		767	1725	942	2119	36.0	2.20	0.46	1.01	✓
GST500-50	50	1.97	140	5.51	90	3.54	*2175psi*		776	1746	957	2152	46.0	2.81	0.52	1.15	✓
GST500-63	63	2.48	166	6.54	103	4.06			783	1759	967	2175	57.0	3.48	0.58	1.28	✓
GST500-75	75	2.95	190	7.48	115	4.53	+ 20 °C *+68 °F*		787	1768	974	2189	67.0	4.09	0.63	1.39	✓
GST500-80	80	3.15	200	7.87	120	4.72			788	1771	976	2194	72.0	4.39	0.66	1.46	✓
GST500-100	100	3.94	240	9.45	140	5.51			792	1780	983	2209	89.0	5.43	0.75	1.65	✓
GST500-125	125	4.92	290	11.42	165	6.50			795	1788	988	2221	110.0	6.71	0.87	1.92	✓

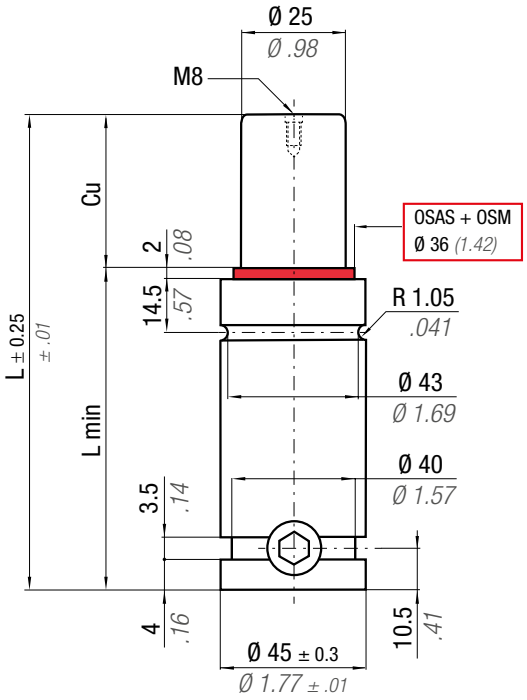
Order Callout Example:
GST500-50
GST500-50-N
GST500-50-CP



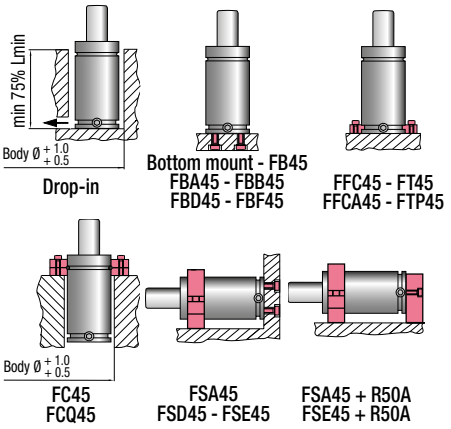








Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

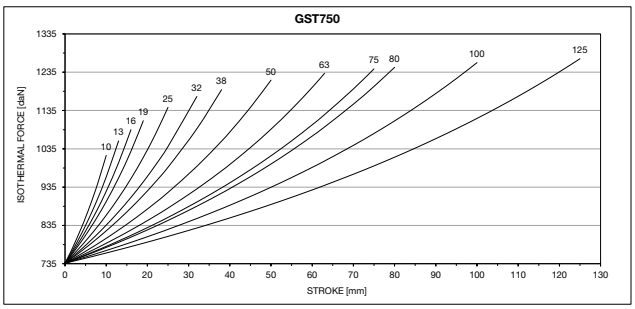
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

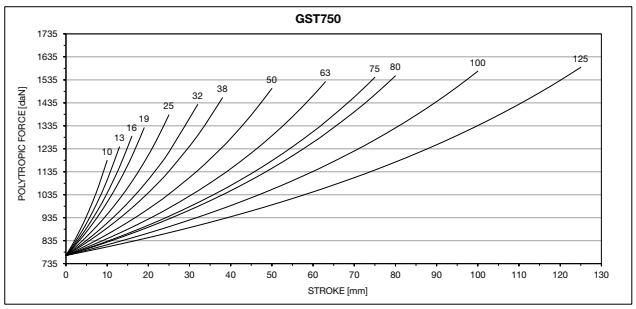
**** $F1_p$ =** Polytrophic end force at 100% Cu

N2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	4.91 cm² *0.761 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV00750C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GST750-10	10	*0.39*	67	*2.64*	57	*2.24*			1018	*2288*	1184	*2662*	21.0	*1.28*	0.50	*1.10*	✓
GST750-13	13	*0.51*	73	*2.87*	60	*2.36*			1056	*2373*	1243	*2794*	24.0	*1.46*	0.52	*1.15*	✓
GST750-16	16	*0.63*	79	*3.11*	63	*2.48*			1085	*2439*	1289	*2898*	28.0	*1.71*	0.54	*1.19*	✓
GST750-19	19	*0.75*	85	*3.35*	66	*2.60*			1108	*2492*	1326	*2981*	32.0	*1.95*	0.56	*1.23*	✓
GST750-25	25	*0.98*	97	*3.82*	72	*2.83*	740 ± 5%	*1664*	1143	*2570*	1382	*3107*	40.0	*2.44*	0.60	*1.32*	✓
GST750-32	32	*1.26*	111	*4.37*	79	*3.11*			1172	*2634*	1428	*3210*	49.0	*2.99*	0.64	*1.41*	✓
GST750-38	38	*1.50*	123	*4.84*	85	*3.35*	150 bar		1189	*2674*	1457	*3275*	56.0	*3.42*	0.68	*1.50*	✓
GST750-50	50	*1.97*	147	*5.79*	97	*3.82*	*2175psi*		1214	*2730*	1497	*3365*	72.0	*4.39*	0.76	*1.68*	✓
GST750-63	63	*2.48*	173	*6.81*	110	*4.33*	+ 20 °C	*+68 °F*	1232	*2770*	1527	*3433*	88.0	*5.37*	0.84	*1.85*	✓
GST750-75	75	*2.95*	197	*7.76*	122	*4.80*			1244	*2796*	1546	*3476*	103.0	*6.28*	0.92	*2.03*	✓
GST750-80	80	*3.15*	207	*8.15*	127	*5.00*			1248	*2805*	1552	*3489*	110.0	*6.71*	0.95	*2.09*	✓
GST750-100	100	*3.94*	247	*9.72*	147	*5.79*			1260	*2832*	1573	*3536*	135.0	*8.24*	1.08	*2.38*	✓
GST750-125	125	*4.92*	297	*11.69*	172	*6.77*			1270	*2855*	1589	*3572*	167.0	*10.19*	1.24	*2.73*	✓

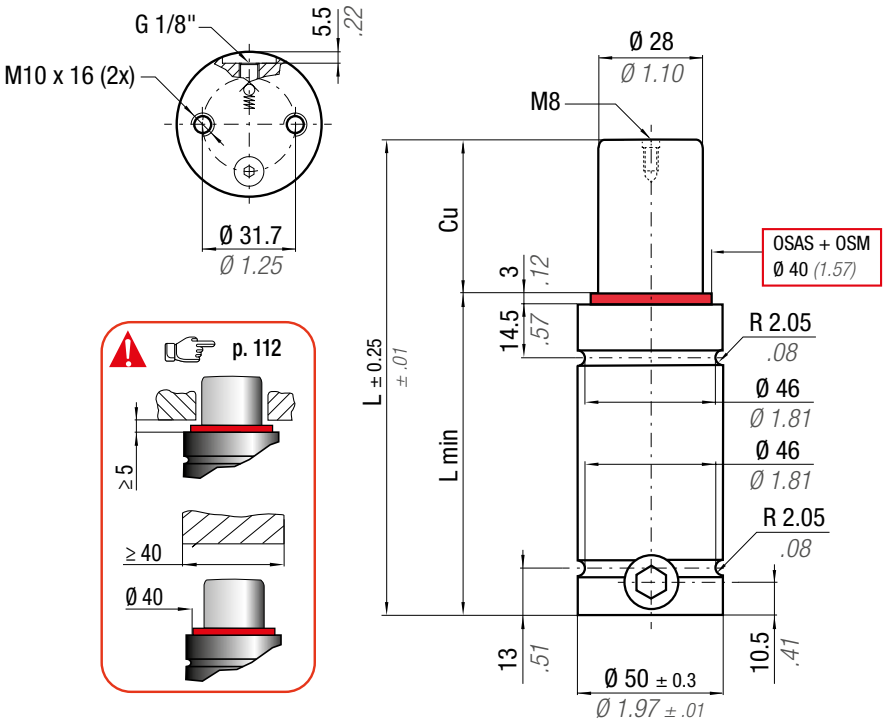
Order Callout Example:
GST750-50
GST750-50-N
GST750-50-CP



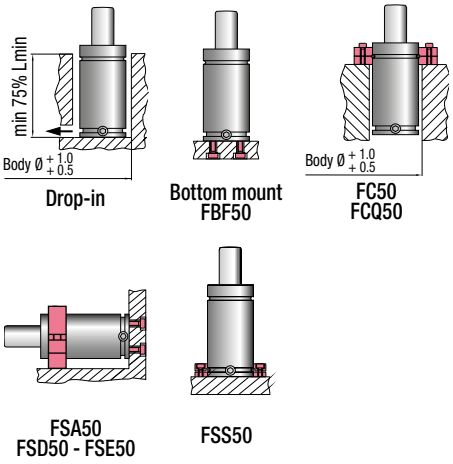


GST 1000

K 32 R (Nissan)	E24.54.815.G (PSA)	SMS DNH 3203n Rev.3 (TOYOTA)



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

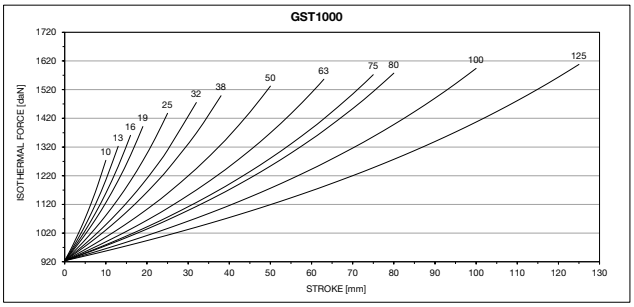
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

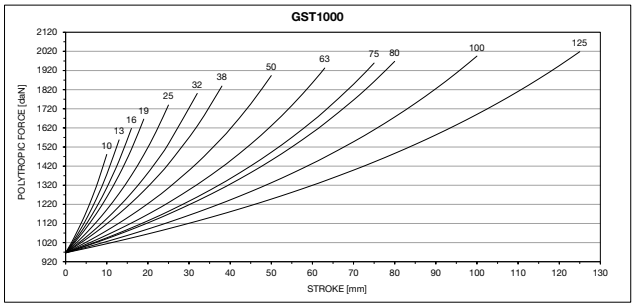
**** $F1_p$ =** Polytrophic end force at 100% Cu

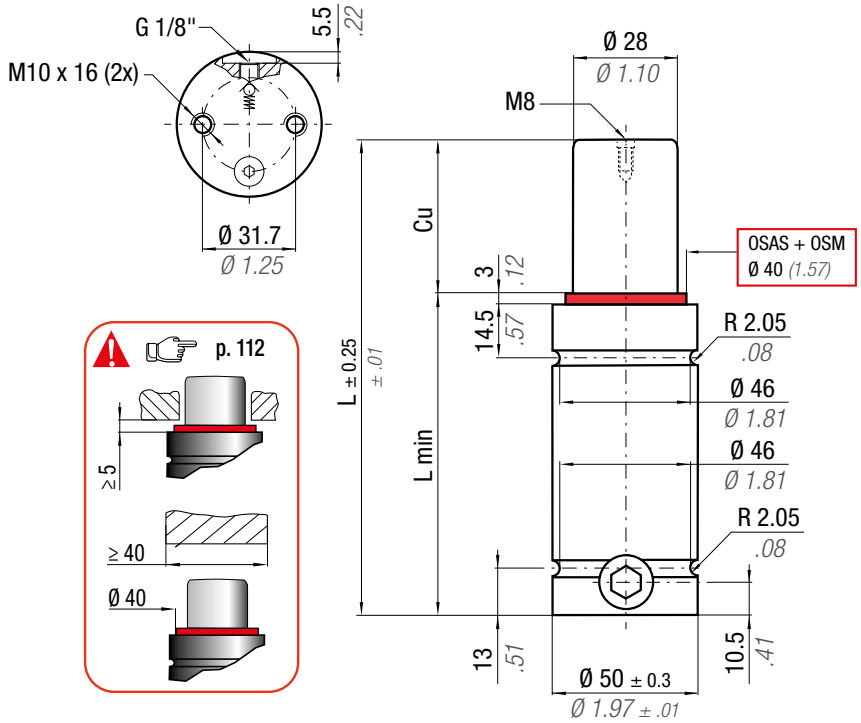
N_2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	6.15 cm² *0.953 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV01000C

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	Fo daN	Fo lb	$F1_i$ * daN	$F1_i$ * lb	$F1_p$ ** daN	$F1_p$ ** lb	Vo cm³	Vo in³	~Kg	~lb	PED 2014/68/EU
GST1000-10	10	0.39	72	2.83	62	2.44	920 ± 5%	2068	1274	2863	1481	3329	26.0	1.59	0.68	1.50	✓
GST1000-13	13	0.51	78	3.07	65	2.56			1323	2973	1557	3500	31.0	1.89	0.70	1.54	✓
GST1000-16	16	0.63	84	3.31	68	2.68			1361	3059	1617	3635	35.0	2.14	0.73	1.61	✓
GST1000-19	19	0.75	90	3.54	71	2.80			1391	3128	1666	3745	40.0	2.44	0.75	1.65	✓
GST1000-25	25	0.98	102	4.02	77	3.03			1437	3232	1739	3909	50.0	3.05	0.80	1.76	✓
GST1000-32	32	1.26	116	4.57	84	3.31			1475	3316	1800	4047	61.0	3.72	0.86	1.90	✓
GST1000-38	38	1.50	128	5.04	90	3.54			1499	3369	1838	4132	70.0	4.27	0.90	1.98	✓
GST1000-50	50	1.97	152	5.98	102	4.02	150 bar *2175 psi*		1532	3445	1893	4256	89.0	5.43	1.00	2.20	✓
GST1000-63	63	2.48	178	7.01	115	4.53			1556	3499	1933	4346	109.0	6.65	1.10	2.43	✓
GST1000-75	75	2.95	202	7.95	127	5.00	+ 20 °C *+68 °F*		1572	3534	1959	4404	128.0	7.81	1.20	2.65	✓
GST1000-80	80	3.15	212	8.35	132	5.20			1578	3546	1968	4424	136.0	8.30	1.24	2.73	✓
GST1000-100	100	3.94	252	9.92	152	5.98			1594	3584	1995	4485	167.0	10.19	1.40	3.09	✓
GST1000-125	125	4.92	302	11.89	177	6.97			1608	3615	2018	4537	207.0	12.63	1.60	3.53	✓

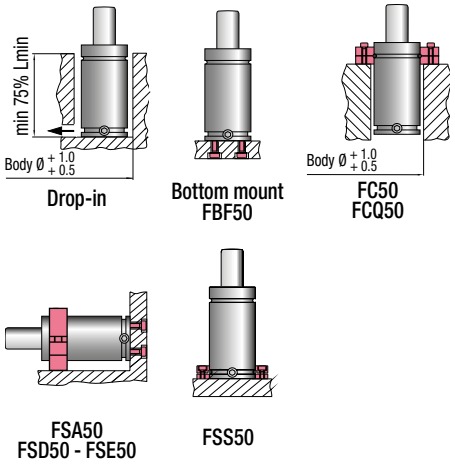
Order Callout Example:
GST1000-50
GST1000-50-N
GST1000-50-CP







Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

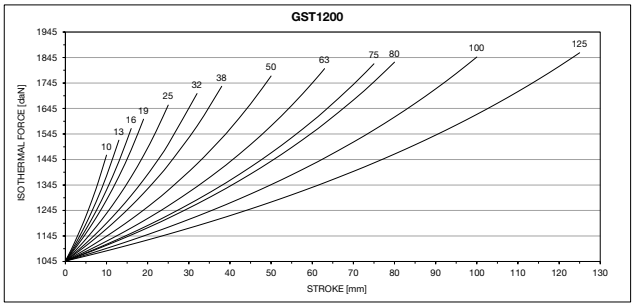
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

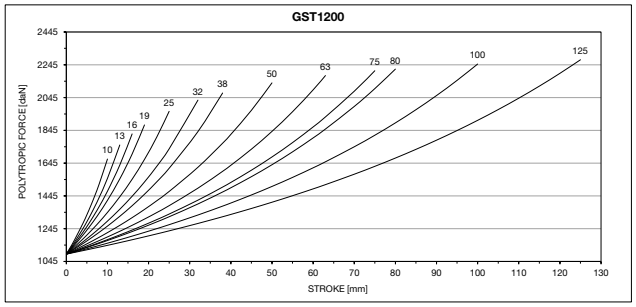
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	170 bar *2465 psi*	20 bar *290 psi*	6.15 cm² *0.953 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV01200C

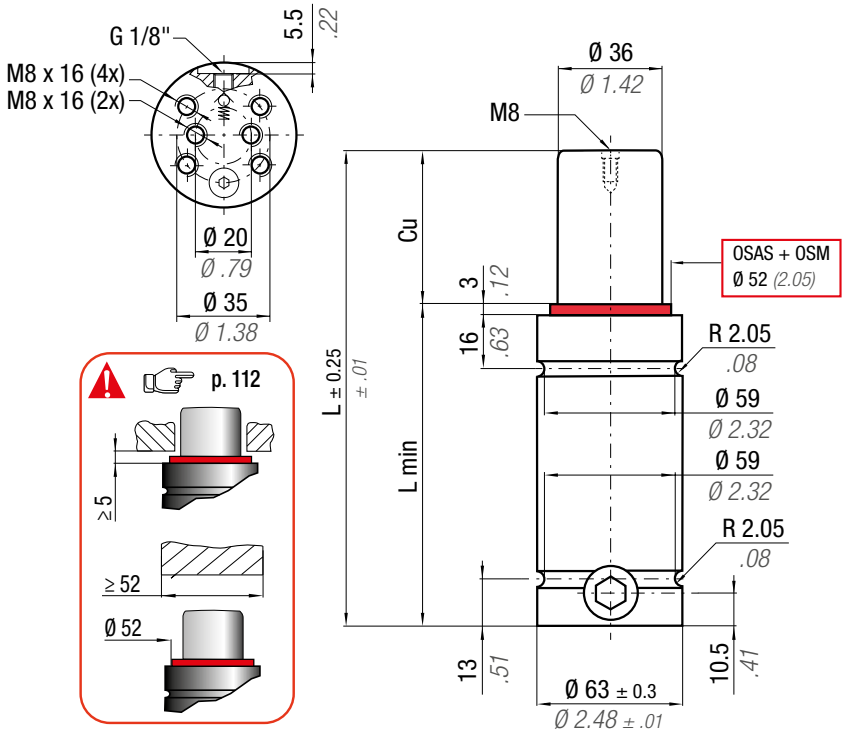
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GST1200-10	10	*0.39*	72	*2.83*	62	*2.44*	1060 *2383* ± 5% 170 bar *2465 psi* + 20 °C *+68 °F*		1462	*3287*	1670	*3754*	26.0	*1.59*	0.68	*1.50*	✓
GST1200-13	13	*0.51*	78	*3.07*	65	*2.56*			1521	*3419*	1755	*3946*	31.0	*1.89*	0.70	*1.54*	✓
GST1200-16	16	*0.63*	84	*3.31*	68	*2.68*			1566	*3522*	1823	*4098*	35.0	*2.14*	0.73	*1.61*	✓
GST1200-19	19	*0.75*	90	*3.54*	71	*2.80*			1603	*3604*	1878	*4221*	40.0	*2.44*	0.75	*1.65*	✓
GST1200-25	25	*0.98*	102	*4.02*	77	*3.03*			1658	*3728*	1961	*4408*	50.0	*3.05*	0.80	*1.76*	✓
GST1200-32	32	*1.26*	116	*4.57*	84	*3.31*			1704	*3830*	2029	*4562*	61.0	*3.72*	0.86	*1.90*	✓
GST1200-38	38	*1.50*	128	*5.04*	90	*3.54*			1732	*3894*	2073	*4660*	70.0	*4.27*	0.90	*1.98*	✓
GST1200-50	50	*1.97*	152	*5.98*	102	*4.02*			1772	*3985*	2134	*4798*	89.0	*5.43*	1.00	*2.20*	✓
GST1200-63	63	*2.48*	178	*7.01*	115	*4.53*			1801	*4050*	2179	*4899*	109.0	*6.65*	1.10	*2.43*	✓
GST1200-75	75	*2.95*	202	*7.95*	127	*5.00*			1820	*4092*	2208	*4965*	128.0	*7.81*	1.20	*2.65*	✓
GST1200-80	80	*3.15*	212	*8.35*	132	*5.20*			1827	*4107*	2218	*4987*	136.0	*8.30*	1.24	*2.73*	✓
GST1200-100	100	*3.94*	252	*9.92*	152	*5.98*			1847	*4152*	2249	*5057*	167.0	*10.19*	1.40	*3.09*	✓
GST1200-125	125	*4.92*	302	*11.89*	177	*6.97*			1864	*4190*	2275	*5115*	207.0	*12.63*	1.60	*3.53*	✓

Order Callout Example:
GST1200-50
GST1200-50-N
GST1200-50-CP

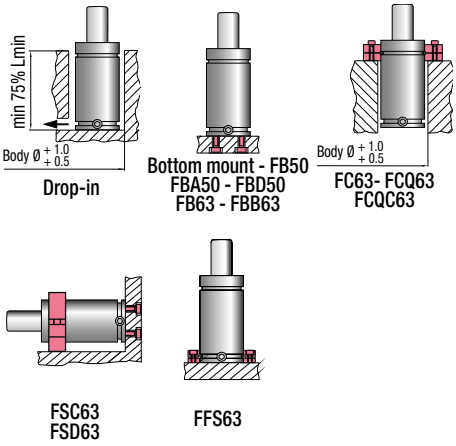




GST 1500



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

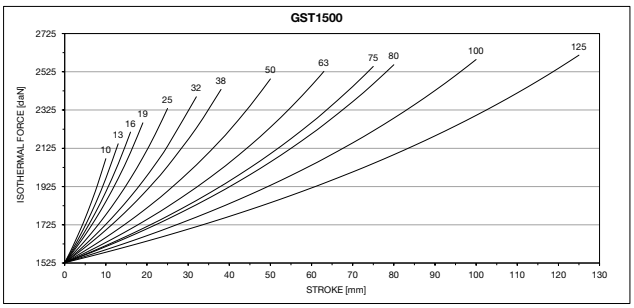
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

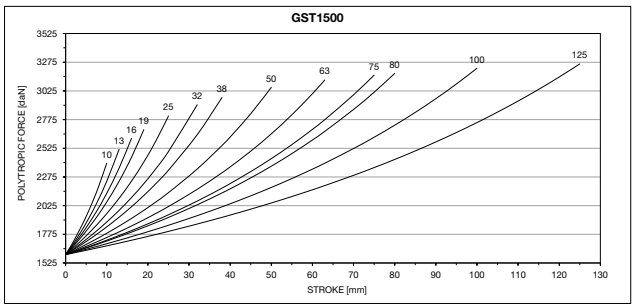
**** $F1_p$ =** Polytrophic end force at 100% Cu

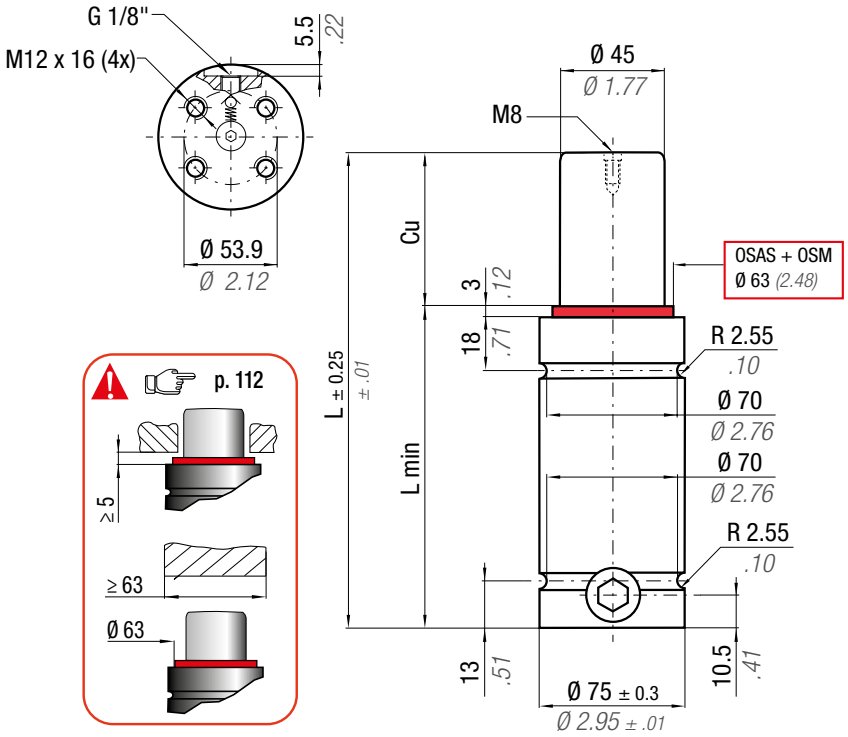
N_2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	10.18 cm² *1.578 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV01500C

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	F0 Initial force daN	F0 lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	V0 cm³	V0 in³	~Kg	~lb	PED 2014/68/EU
GST1500-10	10	*0.39*	72	*2.83*	62	*2.44*	1530 ± 5%	*3440*	2071	*4655*	2395	*5384*	45.0	*2.75*	1.05	*2.31*	✓
GST1500-13	13	*0.51*	78	*3.07*	65	*2.56*			2149	*4830*	2515	*5654*	53.0	*3.23*	1.09	*2.40*	✓
GST1500-16	16	*0.63*	84	*3.31*	68	*2.68*			2210	*4967*	2611	*5870*	61.0	*3.72*	1.13	*2.49*	✓
GST1500-19	19	*0.75*	90	*3.54*	71	*2.80*			2258	*5076*	2687	*6041*	69.0	*4.21*	1.16	*2.56*	✓
GST1500-25	25	*0.98*	102	*4.02*	77	*3.03*			2333	*5245*	2806	*6308*	85.0	*5.19*	1.23	*2.71*	✓
GST1500-32	32	*1.26*	116	*4.57*	84	*3.31*			2394	*5382*	2904	*6528*	104.0	*6.34*	1.31	*2.89*	✓
GST1500-38	38	*1.50*	128	*5.04*	90	*3.54*			2433	*5469*	2966	*6668*	119.0	*7.26*	1.38	*3.04*	✓
GST1500-50	50	*1.97*	152	*5.98*	102	*4.02*			2488	*5592*	3055	*6868*	151.0	*9.21*	1.53	*3.37*	✓
GST1500-63	63	*2.48*	178	*7.01*	115	*4.53*			2527	*5681*	3120	*7014*	186.0	*11.35*	1.69	*3.73*	✓
GST1500-75	75	*2.95*	202	*7.95*	127	*5.00*			2553	*5739*	3163	*7111*	218.0	*13.30*	1.83	*4.03*	✓
GST1500-80	80	*3.15*	212	*8.35*	132	*5.20*			2562	*5759*	3177	*7142*	231.0	*14.09*	1.89	*4.17*	✓
GST1500-100	100	*3.94*	252	*9.92*	152	*5.98*			2589	*5821*	3222	*7243*	284.0	*17.32*	2.12	*4.67*	✓
GST1500-125	125	*4.92*	302	*11.89*	177	*6.97*			2612	*5872*	3260	*7329*	350.0	*21.35*	2.41	*5.31*	✓

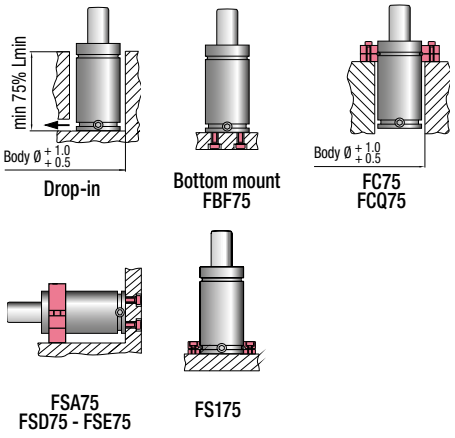
Order Callout Example:
GST1500-50
GST1500-50-N
GST1500-50-CP







Fixings



OSAS + OSM	=	OVER STROKE ACTIVE SAFETY	+	OVER STROKE MARKER

*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

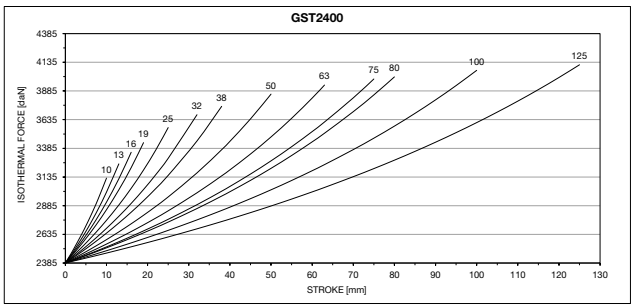
**** $F1_p$ =** Polytrophic end force at 100% Cu

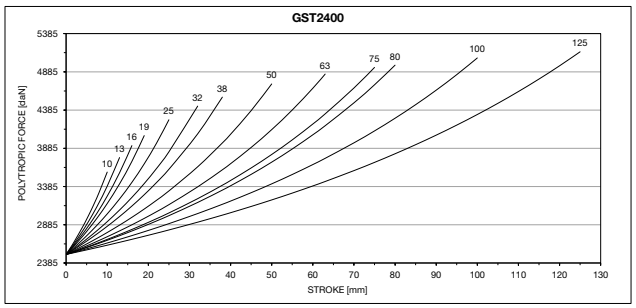
N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar 2175 psi	20 bar 290 psi	15.90 cm² 2.465 in²	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV02400C

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	F0 Initial force daN	F0 lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	V0 cm³	V0 in³	~Kg	~lb	PED 2014/68/EU
GST2400-10	10	0.39	79	3.11	69	2.72	2385 ± 5%	5362	3125	7026	3574	8035	78.0	4.76	1.44	3.17	✓
GST2400-13	13	0.51	85	3.35	72	2.83			3249	7305	3763	8460	90.0	5.49	1.64	3.62	✓
GST2400-16	16	0.63	91	3.58	75	2.95			3350	7532	3920	8813	103.0	6.28	1.74	3.84	✓
GST2400-19	19	0.75	97	3.82	78	3.07			3434	7721	4051	9107	115.0	7.02	1.78	3.92	✓
GST2400-25	25	0.98	109	4.29	84	3.31			3566	8016	4258	9572	139.0	8.48	1.88	4.14	✓
GST2400-32	32	1.26	123	4.84	91	3.58			3678	8268	4436	9973	170.0	10.37	1.99	4.39	✓
GST2400-38	38	1.50	135	5.31	97	3.82			3751	8433	4554	10238	191.0	11.65	2.08	4.59	✓
GST2400-50	50	1.97	159	6.26	109	4.29			3858	8672	4726	10624	239.0	14.58	2.27	5.00	✓
GST2400-63	63	2.48	185	7.28	122	4.80			3937	8850	4855	10914	292.0	17.81	2.48	5.47	✓
GST2400-75	75	2.95	209	8.23	134	5.28			3989	8969	4942	11110	340.0	20.74	2.67	5.89	✓
GST2400-80	80	3.15	219	8.62	139	5.47			4008	9010	4972	11178	360.0	21.96	2.74	6.04	✓
GST2400-100	100	3.94	259	10.20	159	6.26			4065	9138	5066	11389	441.0	26.90	3.06	6.75	✓
GST2400-125	125	4.92	309	12.17	184	7.24			4113	9247	5147	11571	541.0	33.00	3.45	7.61	✓

150 bar 2175 psi	+ 20 °C +68 °F

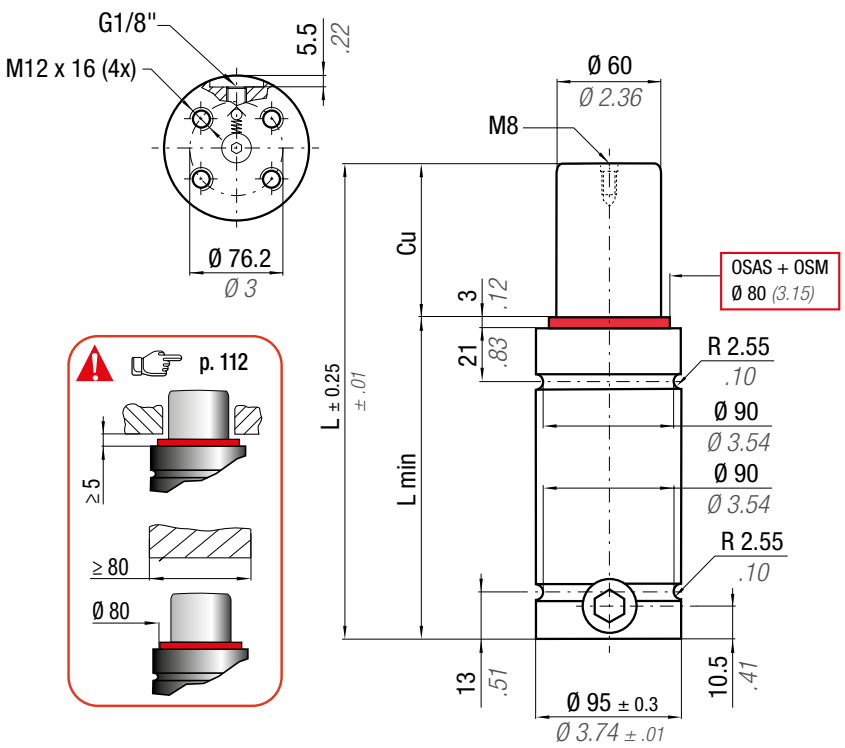
Order Callout Example:
GST2400-50
GST2400-50-N
GST2400-50-CP



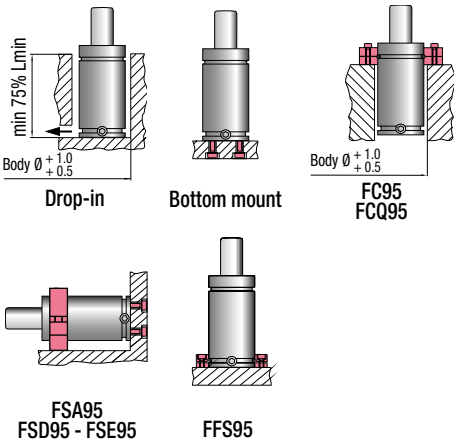


GST 4200

K 32 R (Nissan)	E24.54.815.G (PSA)	SMS DNH 3203n Rev.3 (TOYOTA)



Fixings



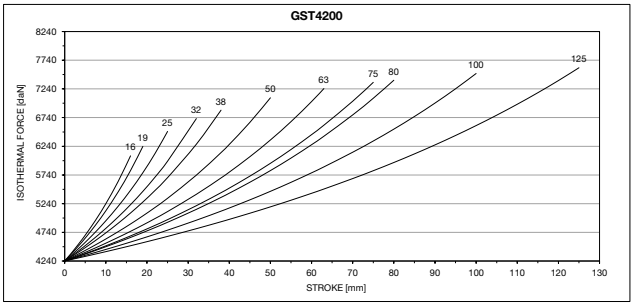
OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

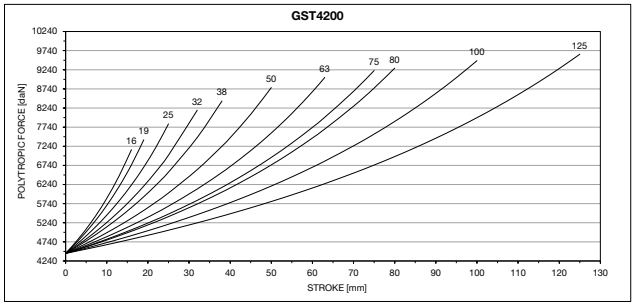
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16 **** $F1_p$ =** Polytrophic end force at 100% Cu

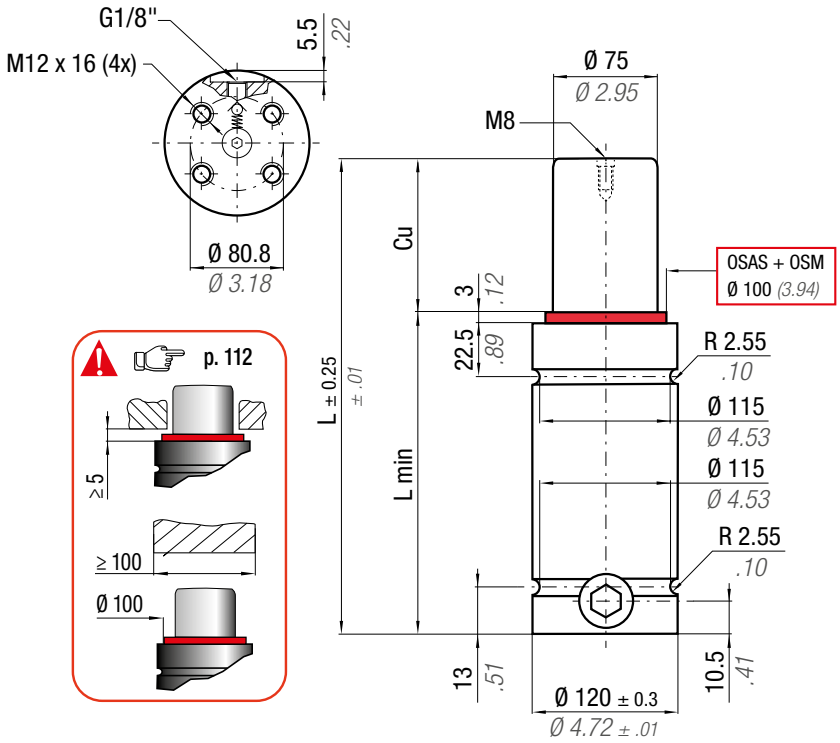
N_2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	28.27 cm² *4.382 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV04200C

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	Fo Initial force daN	Fo lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	Vo cm³	Vo in³	~Kg	~lb	PED 2014/68/EU
GST4200-16	16	*0.63*	94	*3.70*	78	*3.07*	4240 ± 5%	*9532*	6073	*13653*	7150	*16074*	174.0	*10.61*	2.97	*6.55*	✓
GST4200-19	19	*0.75*	100	*3.94*	81	*3.19*			6238	*14024*	7409	*16656*	194.0	*11.83*	3.05	*6.72*	✓
GST4200-25	25	*0.98*	112	*4.41*	87	*3.43*			6499	*14609*	7823	*17587*	235.0	*14.34*	3.20	*7.05*	✓
GST4200-32	32	*1.26*	126	*4.96*	94	*3.70*			6723	*15113*	8183	*18396*	282.0	*17.20*	3.37	*7.43*	✓
GST4200-38	38	*1.50*	138	*5.43*	100	*3.94*			6870	*15443*	8421	*18931*	323.0	*19.70*	3.52	*7.76*	✓
GST4200-50	50	*1.97*	162	*6.38*	112	*4.41*	150 bar *2175 psi*		7085	*15928*	8774	*19725*	404.0	*24.64*	3.82	*8.42*	✓
GST4200-63	63	*2.48*	188	*7.40*	125	*4.92*			7246	*16289*	9039	*20320*	492.0	*30.01*	4.14	*9.13*	✓
GST4200-75	75	*2.95*	212	*8.35*	137	*5.39*			7354	*16533*	9219	*20725*	573.0	*34.95*	4.44	*9.79*	✓
GST4200-80	80	*3.15*	222	*8.74*	142	*5.59*	+ 20 °C *+68 °F*		7391	*16616*	9281	*20865*	606.0	*36.97*	4.57	*10.08*	✓
GST4200-100	100	*3.94*	262	*10.31*	162	*6.38*			7509	*16880*	9477	*21305*	742.0	*45.26*	5.07	*11.18*	✓
GST4200-125	125	*4.92*	312	*12.28*	187	*7.36*			7609	*17105*	9645	*21683*	911.0	*55.57*	5.69	*12.54*	✓

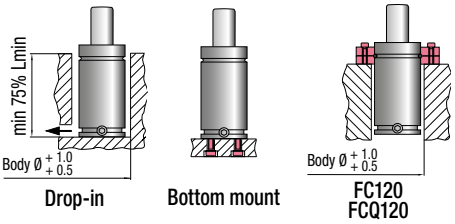
Order Callout Example:
GST4200-50
GST4200-50-N
GST4200-50-CP

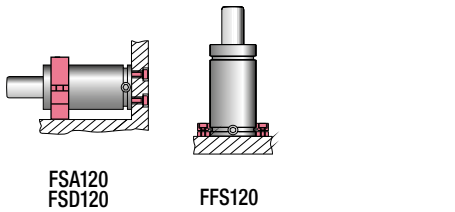






Fixings





OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

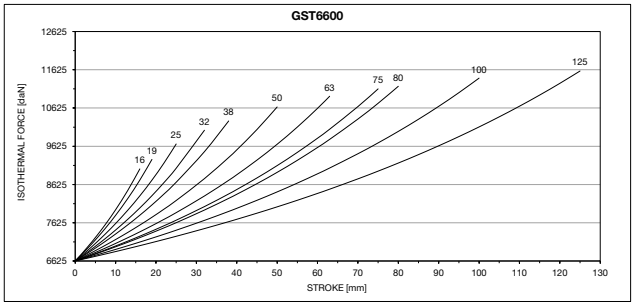
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

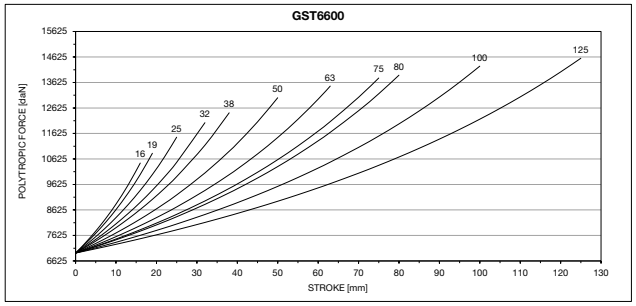
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	44.18 cm² *6.848 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV06600C

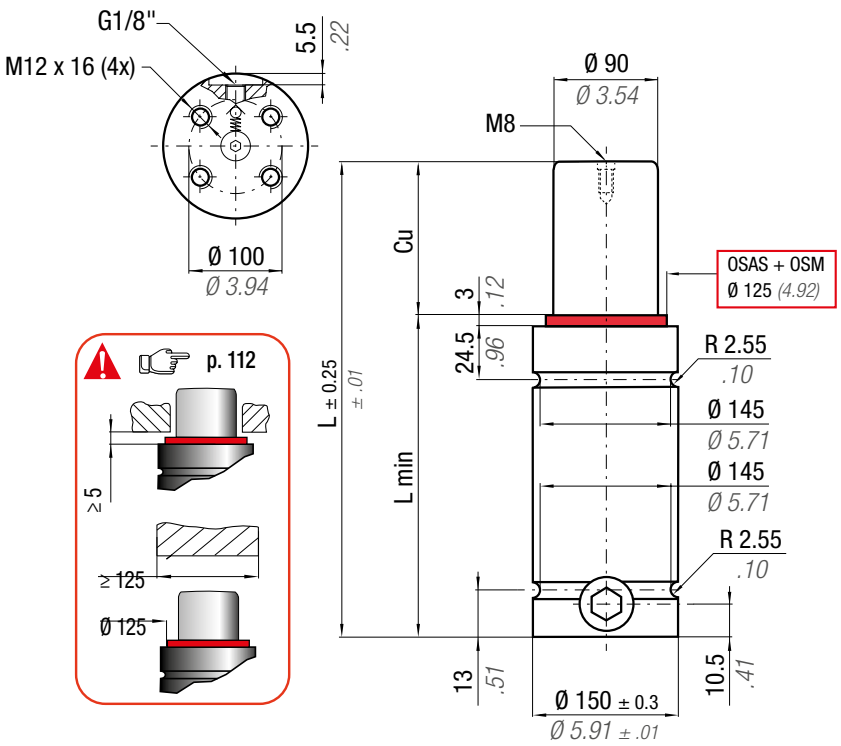
CALLOUT	Cu		L		L min		Fo Initial force		$F1_i$ * End force		$F1_p$ ** End force		Vo		~Kg	~lb	PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*			
GST6600-16	16	*0.63*	104	*4.09*	88	*3.46*	6630 *14904* ± 5% 150 bar *2175 psi* + 20 °C *+68 °F*		9032	*20306*	10464	*23524*	309.0	*18.85*	5.41	*11.93*	✓
GST6600-19	19	*0.75*	110	*4.33*	91	*3.58*			9281	*20864*	10847	*24385*	341.0	*20.80*	5.53	*12.19*	✓
GST6600-25	25	*0.98*	122	*4.80*	97	*3.82*			9684	*21771*	11478	*25804*	405.0	*24.71*	5.77	*12.72*	✓
GST6600-32	32	*1.26*	136	*5.35*	104	*4.09*			10044	*22579*	12047	*27083*	479.0	*29.22*	6.05	*13.34*	✓
GST6600-38	38	*1.50*	148	*5.83*	110	*4.33*			10286	*23124*	12435	*27955*	544.0	*33.18*	6.25	*13.78*	✓
GST6600-50	50	*1.97*	172	*6.77*	122	*4.80*			10652	*23946*	13025	*29281*	672.0	*40.99*	6.77	*14.93*	✓
GST6600-63	63	*2.48*	198	*7.80*	135	*5.31*			10932	*24577*	13483	*30311*	811.0	*49.47*	7.25	*15.98*	✓
GST6600-75	75	*2.95*	222	*8.74*	147	*5.79*			11125	*25011*	13800	*31024*	939.0	*57.28*	7.77	*17.13*	✓
GST6600-80	80	*3.15*	232	*9.13*	152	*5.98*			11193	*25162*	13910	*31271*	992.0	*60.51*	7.97	*17.57*	✓
GST6600-100	100	*3.94*	272	*10.71*	172	*6.77*			11407	*25643*	14264	*32067*	1206.0	*73.57*	8.76	*19.31*	✓
GST6600-125	125	*4.92*	322	*12.68*	197	*7.76*			11593	*26061*	14574	*32764*	1473.0	*89.85*	9.76	*21.52*	✓

Order Callout Example:
GST6600-50
GST6600-50-N
GST6600-50-CP

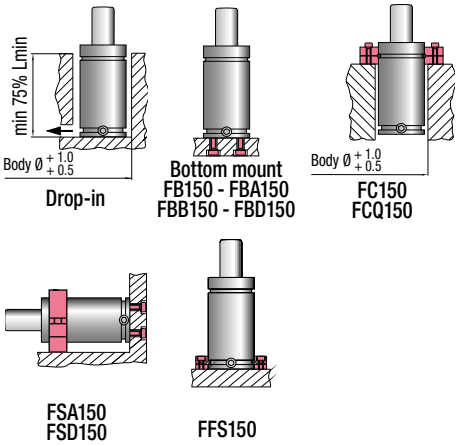




GST 9500



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

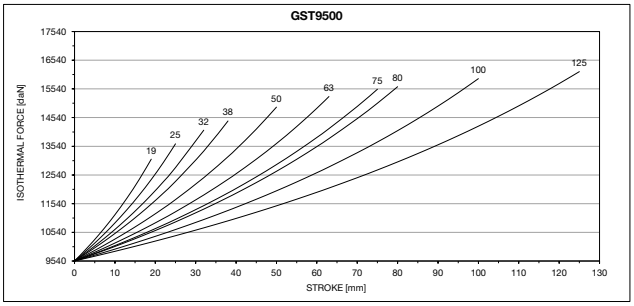
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

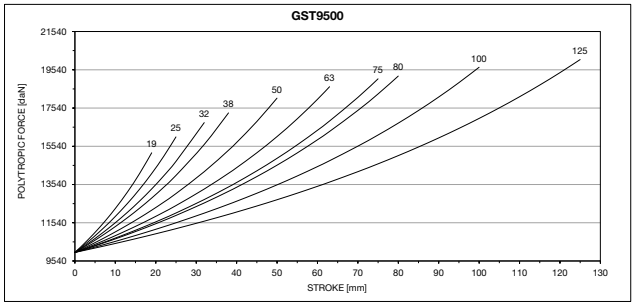
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	63.62 cm² *9.864 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV09500C

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	F0 Initial force daN	F0 lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	V0 cm³	V0 in³	~Kg	~lb	PED 2014/68/EU
GST9500-19	19	*0.75*	116	*4.57*	97	*3.82*			13206	*29688*	15375	*34564*	506.0	*30.87*	9.58	*21.12*	✓
GST9500-25	25	*0.98*	128	*5.04*	103	*4.06*			13741	*30892*	16208	*36437*	603.0	*36.78*	9.95	*21.94*	✓
GST9500-32	32	*1.26*	142	*5.59*	110	*4.33*	9540	*21446*	14214	*31954*	16952	*38110*	716.0	*43.68*	10.39	*22.91*	✓
GST9500-38	38	*1.50*	154	*6.06*	116	*4.57*	± 5%		14530	*32665*	17455	*39240*	812.0	*49.53*	10.76	*23.72*	✓
GST9500-50	50	*1.97*	178	*7.01*	128	*5.04*			15003	*33729*	18214	*40947*	1006.0	*61.37*	11.51	*25.38*	✓
GST9500-63	63	*2.48*	204	*8.03*	141	*5.55*	150 bar *2175 psi*		15364	*34539*	18797	*42257*	1215.0	*74.12*	12.32	*27.16*	✓
GST9500-75	75	*2.95*	228	*8.98*	153	*6.02*			15610	*35093*	19198	*43159*	1409.0	*85.95*	13.07	*28.81*	✓
GST9500-80	80	*3.15*	238	*9.37*	158	*6.22*	+ 20 °C *+68 °F*		15696	*35285*	19338	*43474*	1489.0	*90.83*	13.38	*29.50*	✓
GST9500-100	100	*3.94*	278	*10.94*	178	*7.01*			15967	*35895*	19783	*44474*	1812.0	*110.53*	14.63	*32.25*	✓
GST9500-125	125	*4.92*	328	*12.91*	203	*7.99*			16202	*36423*	20170	*45344*	2215.0	*135.12*	16.19	*35.69*	✓

Order Callout Example:
GST9500-50
GST9500-50-N
GST9500-50-CP

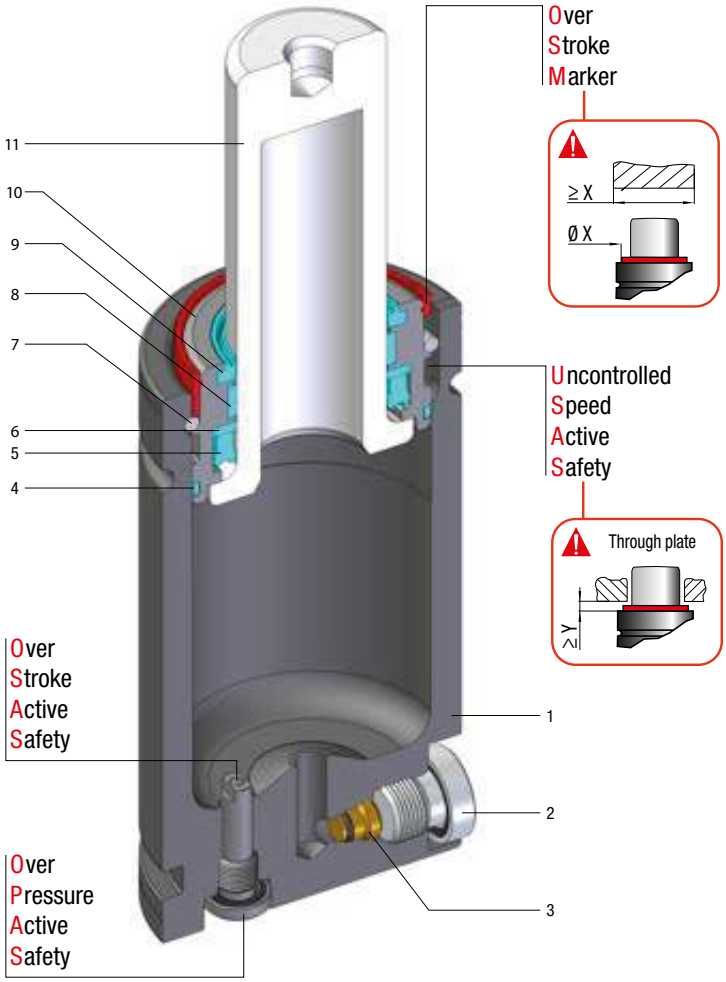




GSKS series

MB	Reanult	Suzuki

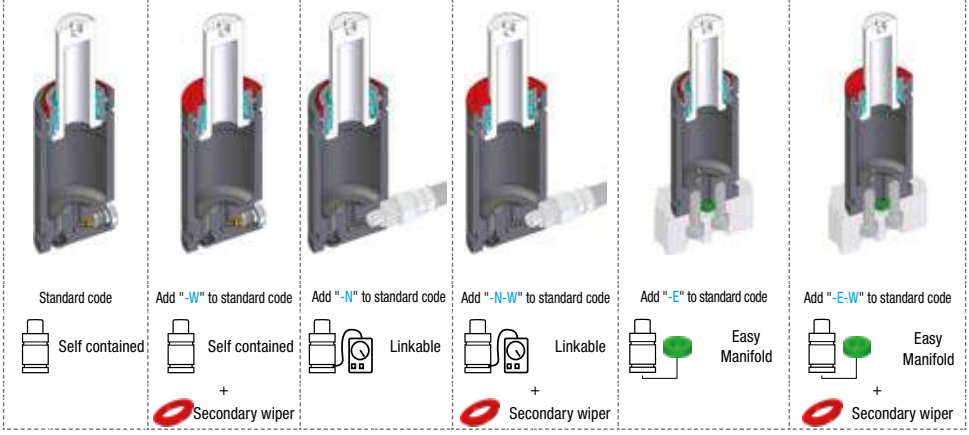
ISO forces, reduced height - ISO Kräfte, Reduzierte Höhe
Forces ISO, Hauteur réduite - ISO fuerzas, altura reducida - Forças ISO, altura reduzida



1	Body
2	Valve
3	Plug
4	Dual ring seal
5	Rod seal
6	Back-up ring
7	Retaining ring
8	Guide ring
9	Rod wiper
10	Bush
11	Rod (nitrited superfinished)

SEALING	ROD SEAL
DESIGN	BUSH - BODY DESIGN

Available versions

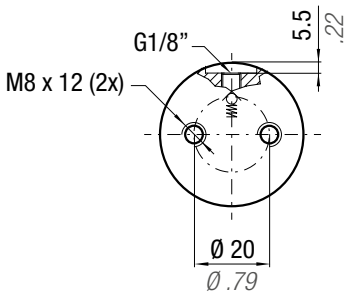


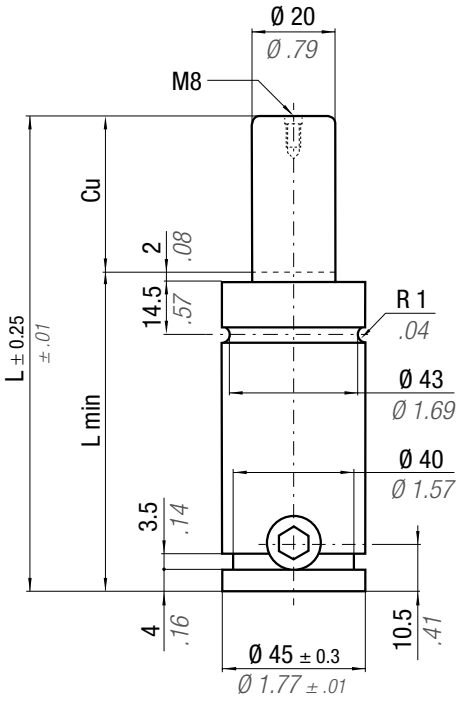
Order Callout Example:
GSKS750-50
GSKS750-50-W
GSKS750-50-N
GSKS750-50-N-W
GSKS750-50-E
GSKS750-50-E-W

Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	daN	lb				
GSKS500	45	1.77	6 - 125	0.24 - 4.92	470	1057	✓	✓	✓	-
GSKS750	50	1.97	6 - 125	0.24 - 4.92	740	1664	✓	✓	✓	-
GSKS1500	75	2.95	25 - 100	0.98 - 3.94	1530	3440	✓	✓	✓	-
GSKS3000	95	3.74	25 - 100	0.98 - 3.94	2945	6621	✓	✓	✓	-

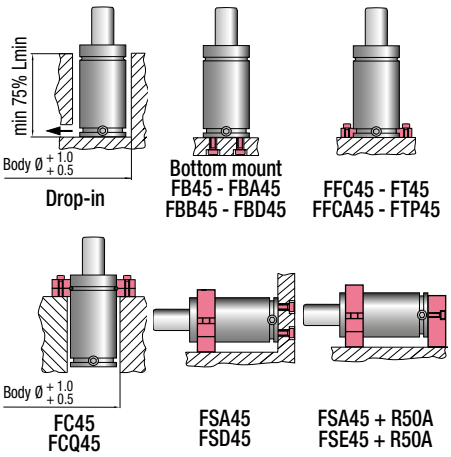
EM24.54.700 (Renault)	SES-K 5404e (Suzuki)	

GSKS 500





Fixings



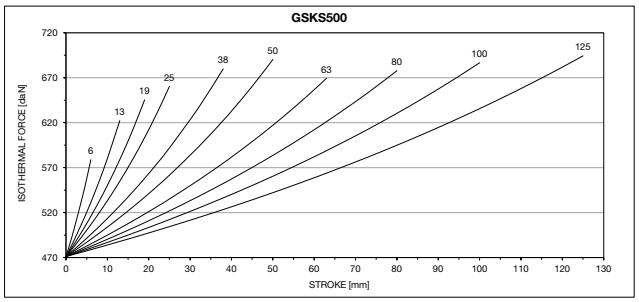
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

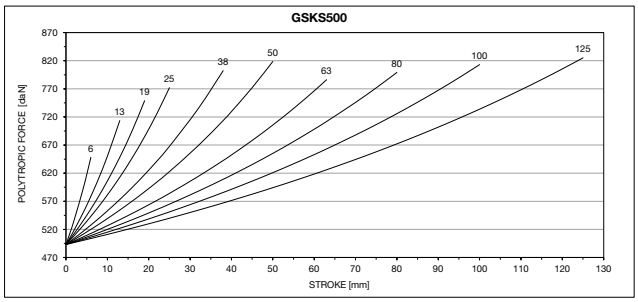
**** $F1_p$ =** Polytrophic end force at 100% Cu

N2	°F	°C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176	0 - 80	± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	3.14 cm² *0.487 in²*	~ 40 - 100 (at 20°C)	1.8 m/s	GSRK-39BMS00500A

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ End force *		$F1_p$ End force **		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSKS500-6	6	*0.24*	62	*2.44*	56	*2.20*			579	*1301*	648	*1457*	12.0	*0.73*	0.54	*1.19*	✓
GSKS500-13	13	*0.51*	76	*2.99*	63	*2.48*			622	*1399*	714	*1604*	20.0	*1.22*	0.58	*1.28*	✓
GSKS500-19	19	*0.75*	88	*3.46*	69	*2.72*	470 *1057*		645	*1451*	749	*1683*	26.0	*1.59*	0.62	*1.37*	✓
GSKS500-25	25	*0.98*	100	*3.94*	75	*2.95*	± 5%		660	*1485*	772	*1736*	32.0	*1.95*	0.67	*1.48*	✓
GSKS500-38	38	*1.50*	126	*4.96*	88	*3.46*			680	*1528*	802	*1804*	45.0	*2.75*	0.77	*1.70*	✓
GSKS500-50	50	*1.97*	150	*5.91*	100	*3.94*	150 bar *2175 psi*		690	*1552*	819	*1840*	57.0	*3.48*	0.85	*1.87*	✓
GSKS500-63	63	*2.48*	176	*6.93*	113	*4.45*			669	*1505*	786	*1767*	78.0	*4.76*	0.90	*1.98*	✓
GSKS500-80	80	*3.15*	210	*8.27*	130	*5.12*	+ 20 °C *+68 °F*		678	*1524*	799	*1797*	96.0	*5.86*	1.01	*2.23*	✓
GSKS500-100	100	*3.94*	250	*9.84*	150	*5.91*			687	*1544*	813	*1828*	116.0	*7.08*	1.16	*2.56*	✓
GSKS500-125	125	*4.92*	300	*11.81*	175	*6.89*			694	*1561*	825	*1855*	141.0	*8.60*	1.35	*2.98*	✓

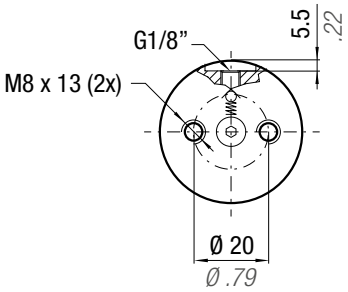
Order Callout Example:
GSKS500-50
GSKS500-50-N
GSKS500-50-CP

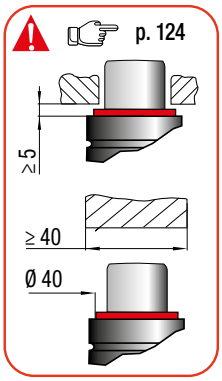


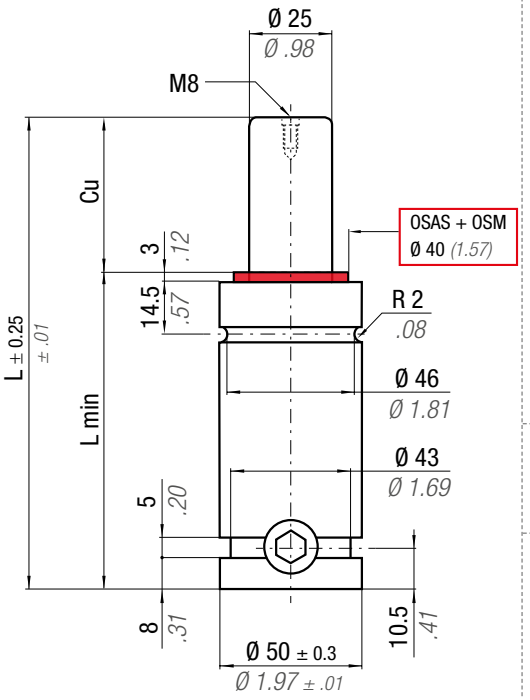


GSKS 750

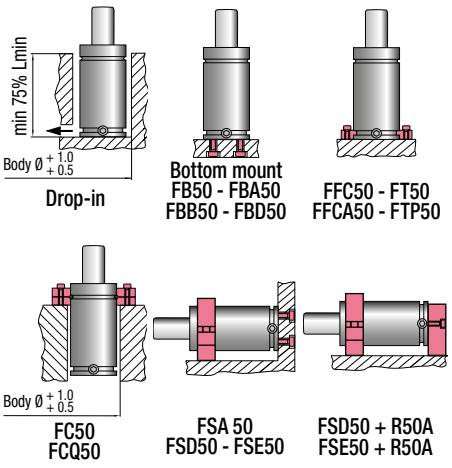
B8 3180 220 000 003(MB)	EM24.54.700 (Renault)	SES-K 5404e (Suzuki)







Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

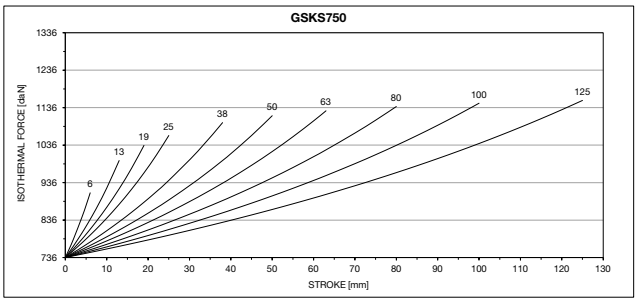
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

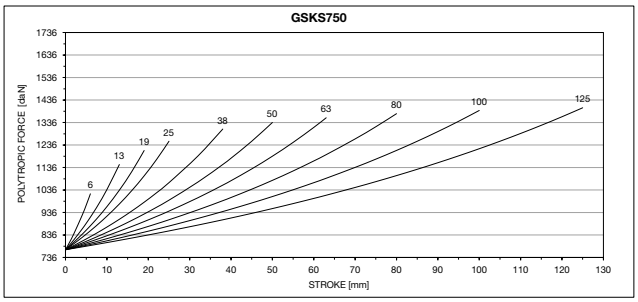
**** $F1_p$ =** Polytrophic end force at 100% Cu

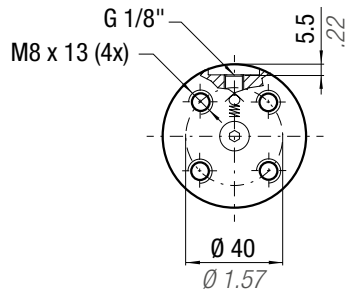
N2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	4.91 cm² *0.761 in²*	~ 30 - 80 (at 20°C)	1.8 m/s	GSRK-39BMS00750B

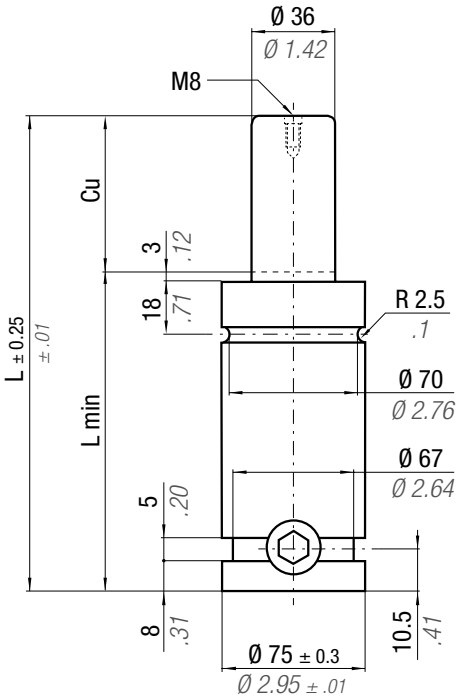
CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	F0 Initial force daN	F0 lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	V0 cm³	V0 in³	~Kg	~lb	PED 2014/68/EU
GSKS750-6	6	0.24	62	2.44	56	2.20			909	2044	1019	2291	18.0	1.10	0.60	1.32	✓
GSKS750-13	13	0.51	76	2.99	63	2.48			995	2237	1149	2583	29.0	1.77	0.66	1.46	✓
GSKS750-19	19	0.75	88	3.46	69	2.72	740 ± 5%	1664	1035	2327	1212	2725	38.0	2.32	0.71	1.57	✓
GSKS750-25	25	0.98	100	3.94	75	2.95			1062	2387	1253	2817	46.0	2.81	0.75	1.65	✓
GSKS750-38	38	1.50	126	4.96	88	3.46			1096	2464	1307	2938	66.0	4.03	0.85	1.87	✓
GSKS750-50	50	1.97	150	5.91	100	3.94	150 bar *2175 psi*		1114	2504	1336	3003	84.0	5.12	0.95	2.09	✓
GSKS750-63	63	2.48	176	6.93	113	4.45			1128	2536	1357	3051	103.0	6.28	1.05	2.31	✓
GSKS750-80	80	3.15	210	8.27	130	5.12	+ 20 °C +68 °F		1139	2561	1375	3091	128.0	7.81	1.18	2.60	✓
GSKS750-100	100	3.94	250	9.84	150	5.91			1148	2581	1390	3125	158.0	9.64	1.33	2.93	✓
GSKS750-125	125	4.92	300	11.81	175	6.89			1155	2597	1401	3150	195.0	11.90	1.52	3.35	✓

Order Callout Example:
GSKS750-50
GSKS750-50-N
GSKS750-50-CP

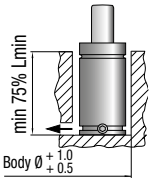






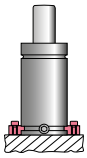


Fixings

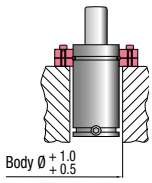


Drop-in

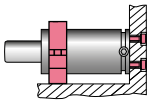
Bottom mount
FB75 - FBA75
FBB75 - FBC75



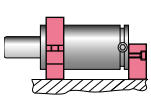
FFC75 - FT75
FFCA75 - FTP75



FC75
FCQ75



FSA75
FSD75 - FSE75



FSD75 + R75A
FSE75 + R75A

*** $F1_i$ =**
Isothermal end force at 100% Cu

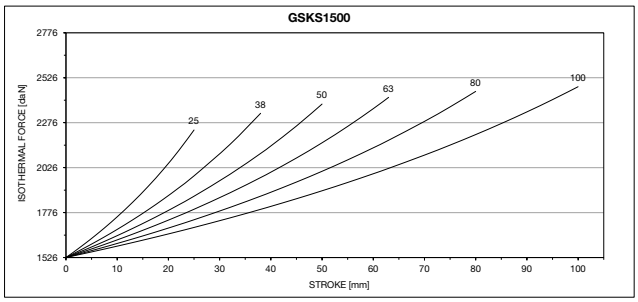
p. 16

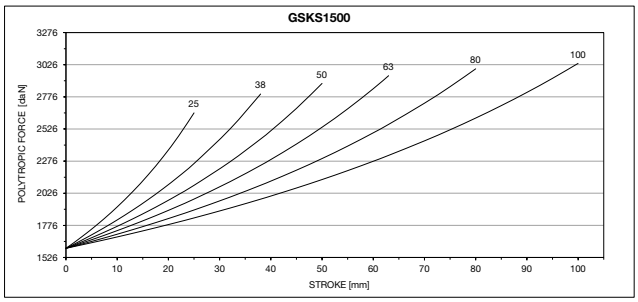
**** $F1_p$ =**
Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	10.18 cm² *1.578 in²*	~ 20 - 80 (at 20°C)	1.8 m/s	GSRK-39BMS01500A

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ End force *		$F1_p$ End force **		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSKS1500-25	25	*0.98*	110	*4.33*	85	*3.35*	1530	*3440*	2235	*5026*	2651	*5960*	93.0	*5.67*	2.25	*4.96*	✓
GSKS1500-38	38	*1.50*	136	*5.35*	98	*3.86*	± 5%		2328	*5234*	2798	*6290*	130.0	*7.93*	2.53	*5.58*	✓
GSKS1500-50	50	*1.97*	160	*6.30*	110	*4.33*			2380	*5349*	2880	*6476*	164.0	*10.00*	2.78	*6.13*	✓
GSKS1500-63	63	*2.48*	186	*7.32*	123	*4.84*	150 bar *2175 psi*		2417	*5433*	2941	*6611*	200.0	*12.20*	3.06	*6.75*	✓
GSKS1500-80	80	*3.15*	220	*8.66*	140	*5.51*			2450	*5508*	2994	*6731*	248.0	*15.13*	3.42	*7.54*	✓
GSKS1500-100	100	*3.94*	260	*10.24*	160	*6.30*	+ 20 °C *+68 °F*		2476	*5566*	3036	*6826*	305.0	*18.61*	3.84	*8.47*	✓

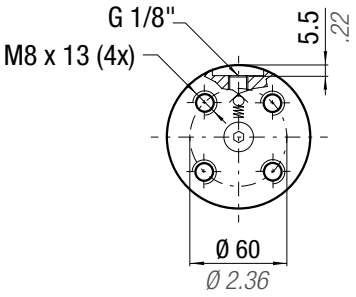
Order Callout Example:
GSKS1500-50
GSKS1500-50-N
GSKS1500-50-CP

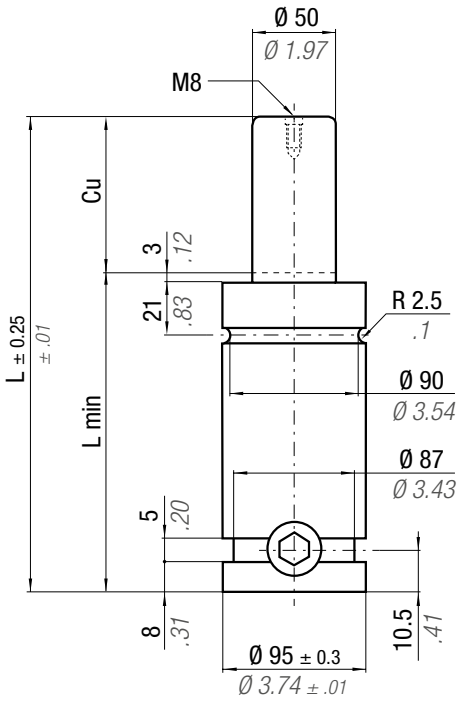




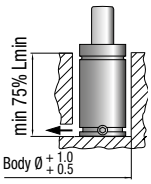
GSKS 3000

EM24.54.700 (Renault)		



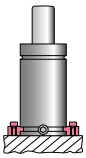


Fixings

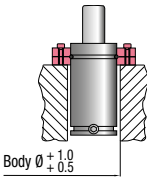


Drop-in

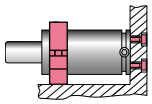
Bottom mount
FB95 - FBA95
FBB95



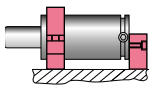
FFC95 - FT95
FFCA95 - FTP95



FC95
FCQ95



FSA95
FSD95 - FSE95



FSD95 + R95A
FSE95 + R95A

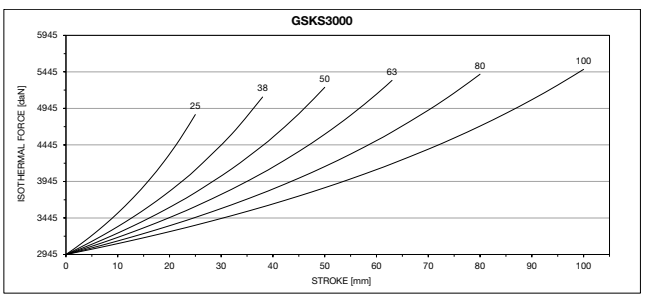
*** $F1_i$ =**
Isothermal end force at 100% Cu p. 16

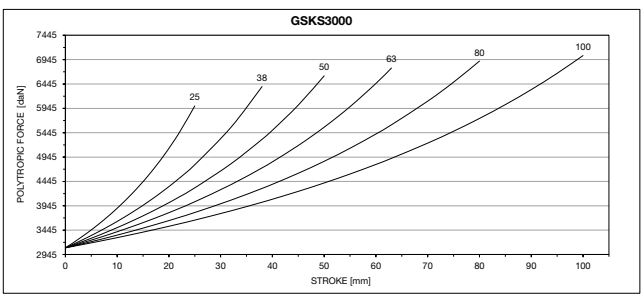
**** $F1_p$ =**
Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	19.63 cm² *3.043 in²*	~ 15 - 60 (at 20°C)	1.8 m/s	GSRK-39BMS03000A

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSKS3000-25	25	*0.98*	120	*4.72*	95	*3.74*	2945	*6621*	4860	*10927*	5995	*13477*	143.0	*8.72*	4.13	*9.11*	✓
GSKS3000-38	38	*1.50*	146	*5.75*	108	*4.25*	± 5%		5101	*11467*	6391	*14368*	202.0	*12.32*	4.61	*10.16*	✓
GSKS3000-50	50	*1.97*	170	*6.69*	120	*4.72*			5233	*11764*	6612	*14865*	256.0	*15.62*	5.04	*11.11*	✓
GSKS3000-63	63	*2.48*	196	*7.72*	133	*5.24*	150 bar *2175 psi*		5328	*11979*	6773	*15227*	315.0	*19.22*	5.51	*12.15*	✓
GSKS3000-80	80	*3.15*	230	*9.06*	150	*5.91*			5413	*12168*	6916	*15547*	392.0	*23.91*	6.13	*13.51*	✓
GSKS3000-100	100	*3.94*	270	*10.63*	170	*6.69*	+ 20 °C *+68 °F*		5479	*12317*	7028	*15800*	483.0	*29.46*	6.86	*15.12*	✓

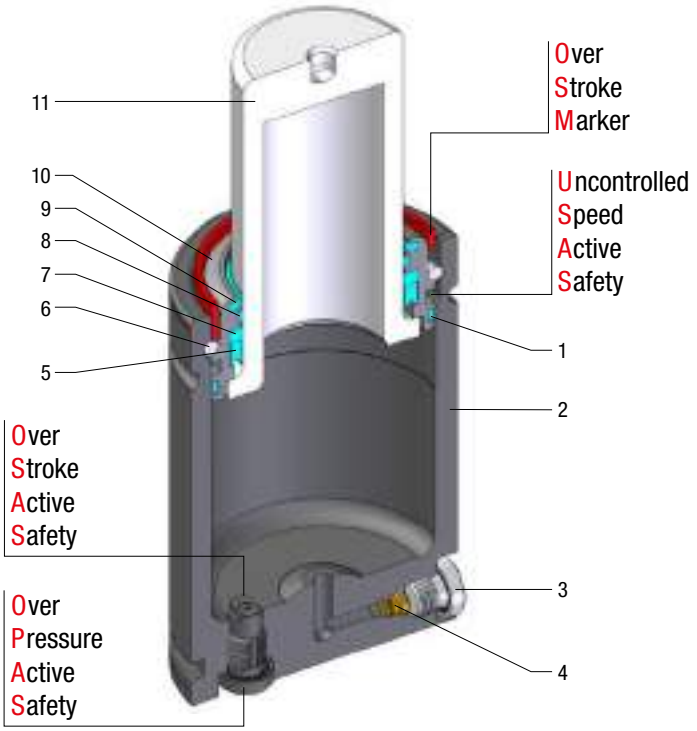
Order Callout Example:
GSKS3000-50
GSKS3000-50-N
GSKS3000-50-CP





FCA		

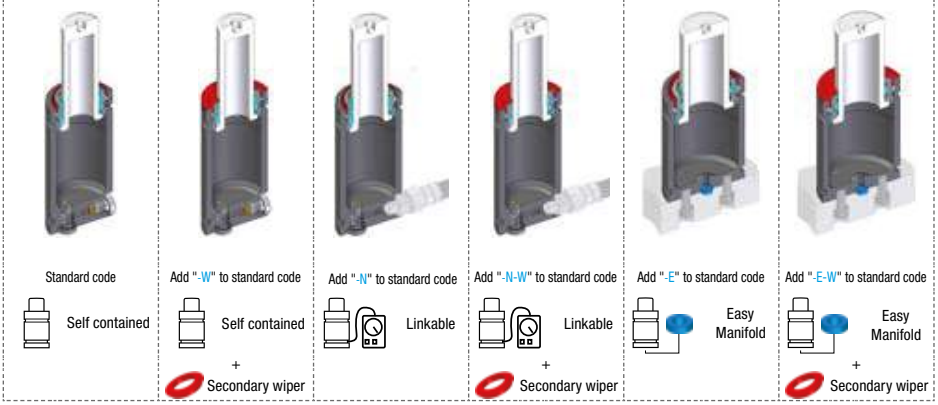
Minimum height, maximum force, hose cylinders with G1/8 charging port -
Minimale Höhe, maximale Kraft, Gdf. mit G1/8 Öffnung verbindbar - Hauteur minimale, force maximale, cylindres raccordés avec trou G1/8 gaz -
Mínima altura, máxima fuerza, cilindros conectados con agujero G1/8 gas - Altura mínima, força máxima, cilindros conectados com furo G1/8 gás



1	Dual ring seal
2	Body
3	Plug
4	Valve
5	Rod seal
6	Retaining ring
7	Back-up ring
8	Guide ring
9	Rod wiper
10	Bush
11	Rod (nitrited superfinished)

SEALING	ROD SEAL
DESIGN	BUSH - BODY DESIGN

Available versions



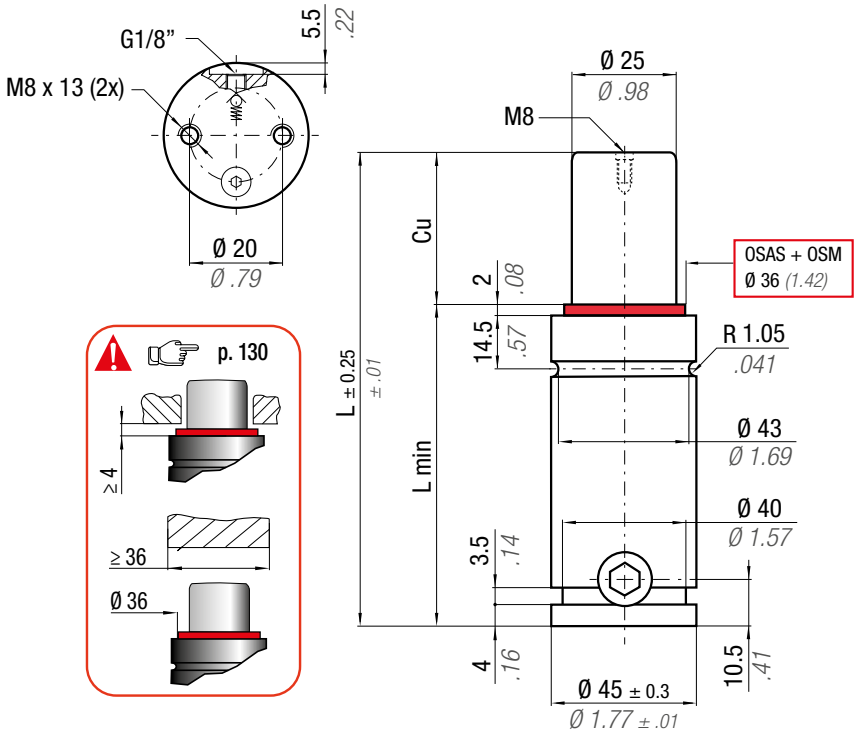
Order Callout Example:
GSF2400-50
GSF2400-50-W
GSF2400-50-N
GSF2400-50-N-W
GSF2400-50-E
GSF2400-50-E-W

Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	daN	lb				
GSF750	45	1.77	10 - 125	0.39 - 4.92	740	1664	✓	✓	✓	-
GSF1000	50	1.97	13 - 125	0.51 - 4.92	920	2068	✓	✓	✓	-
GSF1200	50	1.97	13 - 125	0.51 - 4.92	1060	2383	✓	✓	✓	-
GSF1500	63	2.48	13 - 125	0.51 - 4.92	1530	3440	✓	✓	✓	-
GSF2400	75	2.95	16 - 125	0.63 - 4.92	2385	5362	✓	✓	✓	-
	95	3.74								
	120	4.72								
	150	5.91								
	150	5.91								
	195	7.68								

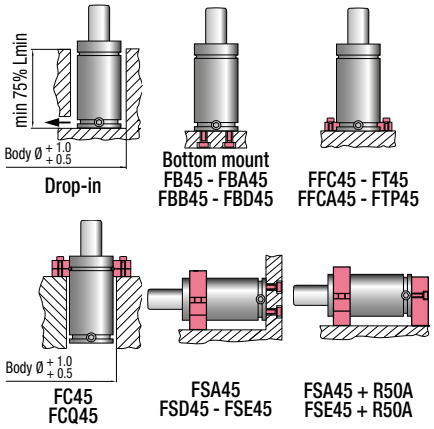
☞ GSV series

075.90.60 (FCA)		

GSF 750
—Linkable G1/8"—



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

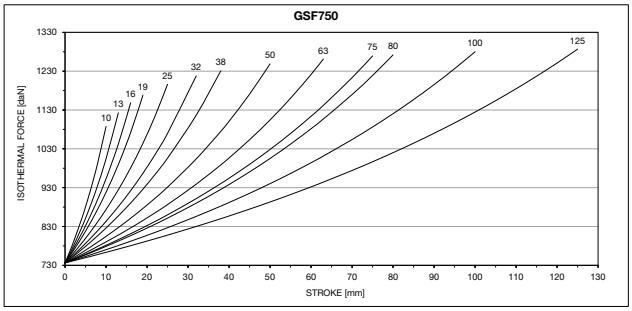
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

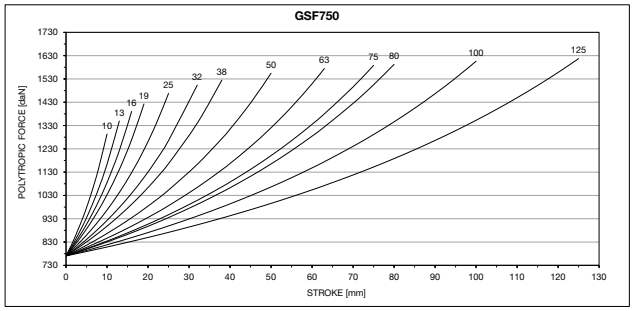
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	4.91 cm² *0.761 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV00750C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSF750-10	10	*0.39*	62	*2.44*	52	*2.05*	740 *1664* ± 5% 150 bar *2175psi* + 20 °C *+68 °F*		1091	*2452*	1298	*2918*	18.0	*1.10*	0.47	*1.04*	✓
GSF750-13	13	*0.51*	68	*2.68*	55	*2.17*			1125	*2530*	1354	*3044*	21.0	*1.28*	0.48	*1.06*	✓
GSF750-16	16	*0.63*	74	*2.91*	58	*2.28*			1151	*2587*	1395	*3136*	25.0	*1.53*	0.50	*1.10*	✓
GSF750-19	19	*0.75*	80	*3.15*	61	*2.40*			1170	*2631*	1426	*3206*	29.0	*1.77*	0.52	*1.15*	✓
GSF750-25	25	*0.98*	92	*3.62*	67	*2.64*			1198	*2694*	1471	*3307*	37.0	*2.26*	0.56	*1.23*	✓
GSF750-32	32	*1.26*	106	*4.17*	74	*2.91*			1220	*2742*	1506	*3386*	46.0	*2.81*	0.61	*1.34*	✓
GSF750-38	38	*1.50*	118	*4.65*	80	*3.15*			1232	*2771*	1527	*3433*	53.0	*3.23*	0.65	*1.43*	✓
GSF750-50	50	*1.97*	142	*5.59*	92	*3.62*			1250	*2810*	1556	*3498*	68.0	*4.15*	0.72	*1.59*	✓
GSF750-63	63	*2.48*	168	*6.61*	105	*4.13*			1262	*2838*	1577	*3545*	85.0	*5.19*	0.81	*1.79*	✓
GSF750-75	75	*2.95*	192	*7.56*	117	*4.61*			1270	*2855*	1590	*3574*	100.0	*6.10*	0.88	*1.94*	✓
GSF750-80	80	*3.15*	202	*7.95*	122	*4.80*			1273	*2861*	1594	*3583*	107.0	*6.53*	0.92	*2.03*	✓
GSF750-100	100	*3.94*	242	*9.53*	142	*5.59*			1281	*2879*	1607	*3613*	132.0	*8.05*	1.04	*2.29*	✓
GSF750-125	125	*4.92*	292	*11.50*	167	*6.57*			1287	*2894*	1618	*3637*	164.0	*10.00*	1.21	*2.67*	✓

Order Callout Example:
GSF750-50
GSF750-50-N
GSF750-50-CP

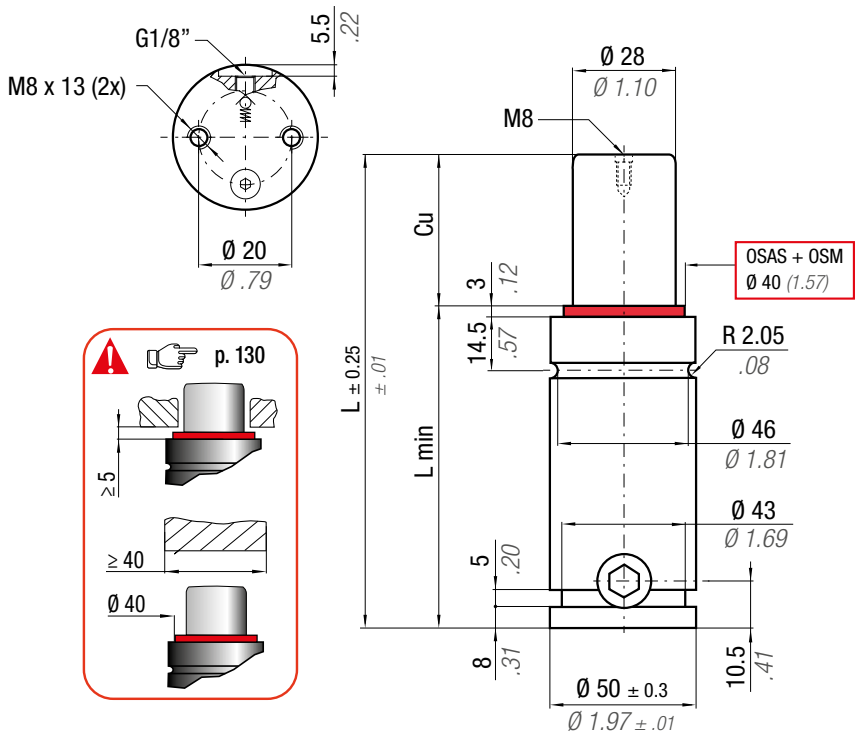




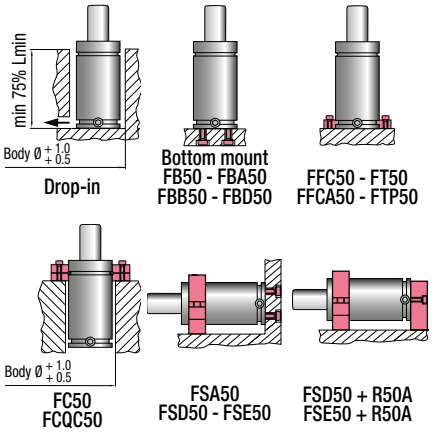
GSF 1000

—Linkable G1/8"—

075.90.60 (FCA)		



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

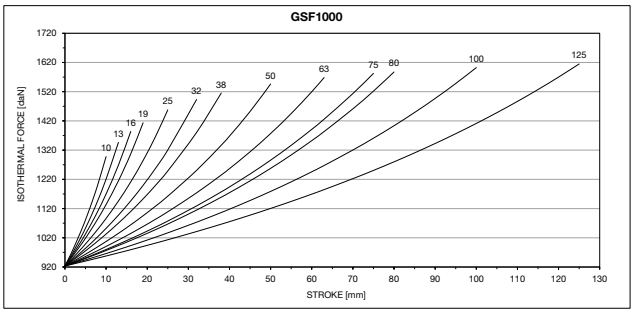
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

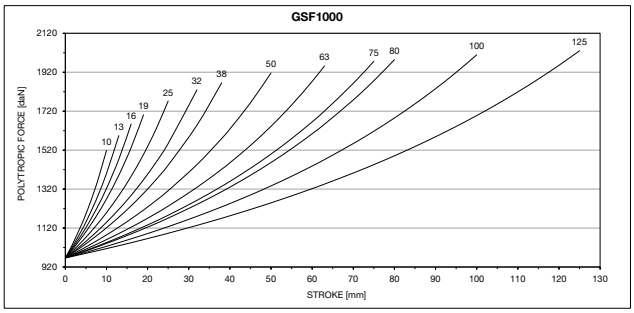
**** $F1_p$ =** Polytrophic end force at 100% Cu

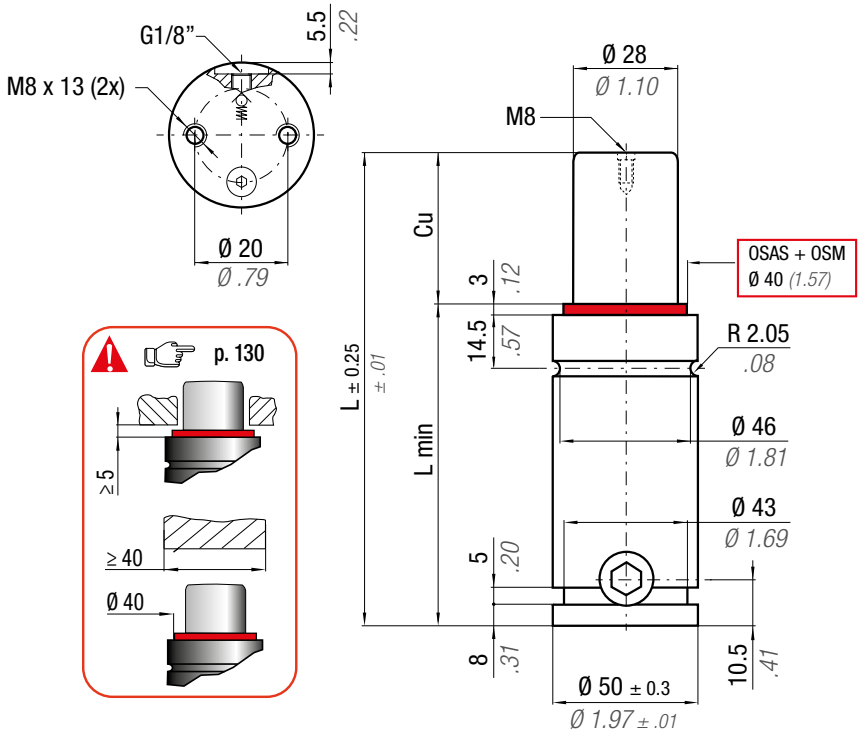
N2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	6.15 cm² *0.953 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV01000C

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	Fo Initial force daN	Fo lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	Vo cm³	Vo in³	~Kg	~lb	PED 2014/68/EU
GSF1000-13	13	0.51	74	2.91	61	2.40			1349	3033	1599	3595	29.0	1.77	0.65	1.43	✓
GSF1000-16	16	0.63	80	3.15	64	2.52			1386	3117	1658	3727	34.0	2.07	0.68	1.50	✓
GSF1000-19	19	0.75	86	3.39	67	2.64			1416	3183	1705	3833	39.0	2.38	0.70	1.54	✓
GSF1000-25	25	0.98	98	3.86	73	2.87	920	2068	1460	3282	1775	3990	48.0	2.93	0.75	1.65	✓
GSF1000-32	32	1.26	112	4.41	80	3.15	± 5%		1495	3361	1832	4118	59.0	3.60	0.81	1.79	✓
GSF1000-38	38	1.50	124	4.88	86	3.39			1517	3410	1868	4199	69.0	4.21	0.85	1.87	✓
GSF1000-50	50	1.97	148	5.83	98	3.86	150 bar	*2175 psi*	1548	3479	1919	4314	88.0	5.37	0.95	2.09	✓
GSF1000-63	63	2.48	174	6.85	111	4.37			1570	3528	1955	4395	108.0	6.59	1.05	2.31	✓
GSF1000-75	75	2.95	198	7.80	123	4.84	+ 20 °C	*+68 °F*	1584	3560	1978	4447	127.0	7.75	1.15	2.54	✓
GSF1000-80	80	3.15	208	8.19	128	5.04			1589	3571	1986	4465	135.0	8.24	1.19	2.62	✓
GSF1000-100	100	3.94	248	9.76	148	5.83			1603	3604	2011	4521	166.0	10.13	1.35	2.98	✓
GSF1000-125	125	4.92	298	11.73	173	6.81			1616	3632	2031	4566	205.0	12.51	1.55	3.42	✓

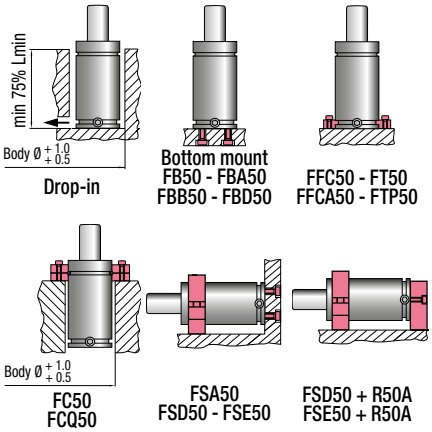
Order Callout Example:
GSF1000-50
GSF1000-50-N
GSF1000-50-CP







Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

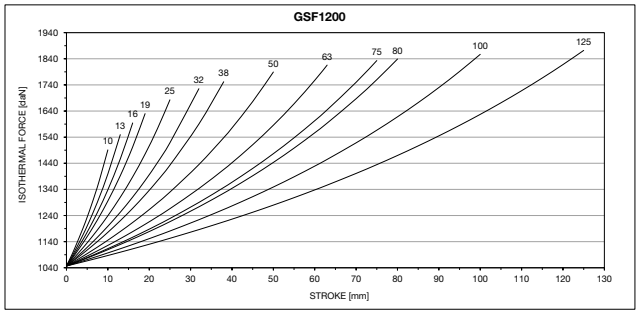
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

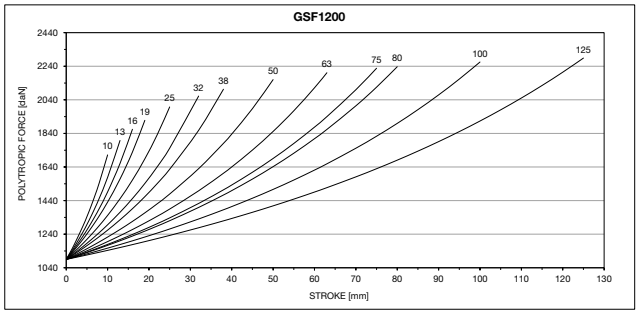
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	170 bar *2465 psi*	20 bar *290 psi*	6.15 cm² *0.953 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV01200C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSF1200-13	13	*0.51*	74	*2.91*	61	*2.40*			1553	*3490*	1802	*4052*	29.0	*1.77*	0.65	*1.43*	✓
GSF1200-16	16	*0.63*	80	*3.15*	64	*2.52*			1597	*3591*	1869	*4202*	34.0	*2.07*	0.68	*1.50*	✓
GSF1200-19	19	*0.75*	86	*3.39*	67	*2.64*			1633	*3671*	1922	*4321*	39.0	*2.38*	0.70	*1.54*	✓
GSF1200-25	25	*0.98*	98	*3.86*	73	*2.87*	1060	*2383*	1685	*3789*	2001	*4500*	48.0	*2.93*	0.75	*1.65*	✓
GSF1200-32	32	*1.26*	112	*4.41*	80	*3.15*	± 5%		1728	*3884*	2066	*4644*	59.0	*3.60*	0.81	*1.79*	✓
GSF1200-38	38	*1.50*	124	*4.88*	86	*3.39*			1754	*3943*	2106	*4735*	69.0	*4.21*	0.85	*1.87*	✓
GSF1200-50	50	*1.97*	148	*5.83*	98	*3.86*	170 bar *2465 psi*		1791	*4026*	2163	*4863*	88.0	*5.37*	0.95	*2.09*	✓
GSF1200-63	63	*2.48*	174	*6.85*	111	*4.37*			1817	*4085*	2204	*4954*	108.0	*6.59*	1.05	*2.31*	✓
GSF1200-75	75	*2.95*	198	*7.80*	123	*4.84*	+ 20 °C *+68 °F*		1834	*4124*	2230	*5013*	127.0	*7.75*	1.15	*2.54*	✓
GSF1200-80	80	*3.15*	208	*8.19*	128	*5.04*			1840	*4137*	2239	*5033*	135.0	*8.24*	1.19	*2.62*	✓
GSF1200-100	100	*3.94*	248	*9.76*	148	*5.83*			1858	*4177*	2267	*5096*	166.0	*10.13*	1.35	*2.98*	✓
GSF1200-125	125	*4.92*	298	*11.73*	173	*6.81*			1873	*4210*	2290	*5148*	205.0	*12.51*	1.55	*3.42*	✓

Order Callout Example:
GSF1200-50
GSF1200-50-N
GSF1200-50-CP

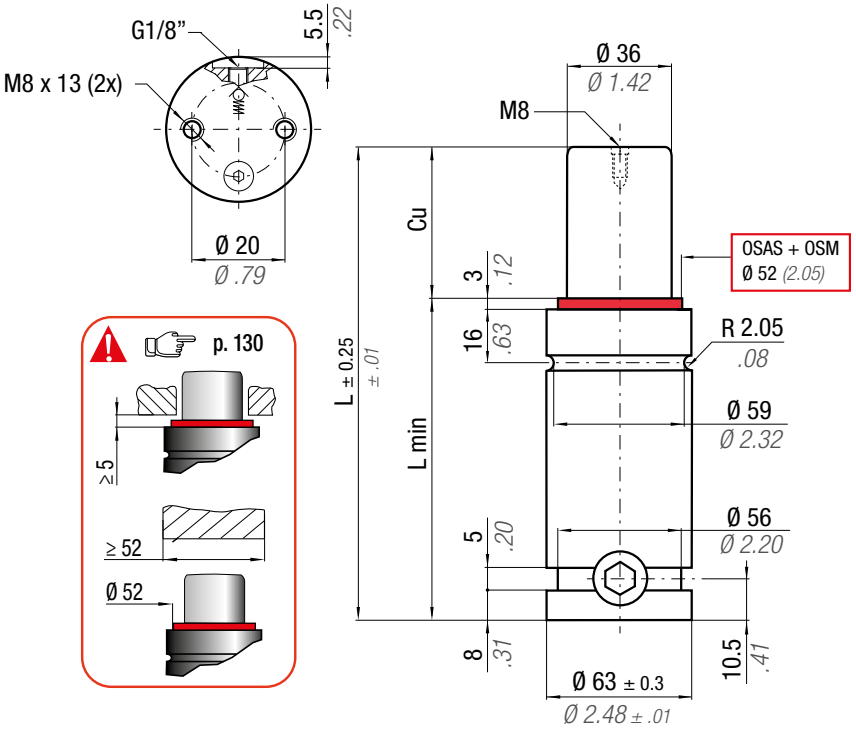




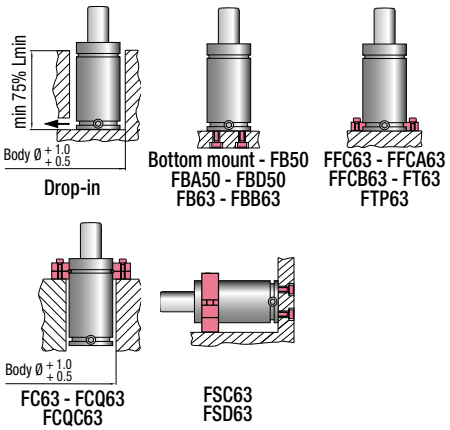
GSF 1500

—Linkable G1/8"—

075.90.60 (FCA)		



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

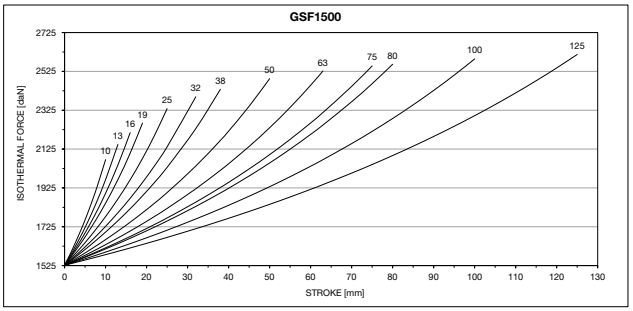
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

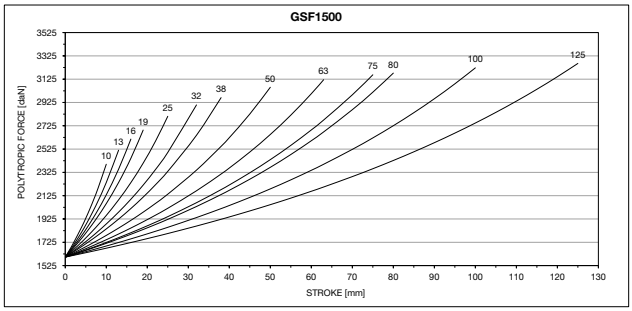
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	10.18 cm² *1.578 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV01500C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSF1500-13	13	*0.51*	80	*3.15*	67	*2.64*			2152	*4838*	2521	*5667*	53.0	*3.23*	1.15	*2.54*	✓
GSF1500-16	16	*0.63*	86	*3.39*	70	*2.76*			2213	*4975*	2616	*5881*	61.0	*3.72*	1.18	*2.60*	✓
GSF1500-19	19	*0.75*	92	*3.62*	73	*2.87*			2262	*5085*	2693	*6054*	69.0	*4.21*	1.22	*2.69*	✓
GSF1500-25	25	*0.98*	104	*4.09*	79	*3.11*	1530	*3440*	2336	*5252*	2811	*6319*	85.0	*5.19*	1.29	*2.84*	✓
GSF1500-32	32	*1.26*	118	*4.65*	86	*3.39*	± 5%		2397	*5389*	2908	*6537*	103.0	*6.28*	1.37	*3.02*	✓
GSF1500-38	38	*1.50*	130	*5.12*	92	*3.62*			2435	*5475*	2971	*6679*	119.0	*7.26*	1.44	*3.17*	✓
GSF1500-50	50	*1.97*	154	*6.06*	104	*4.09*	150 bar *2175 psi*		2490	*5597*	3059	*6877*	151.0	*9.21*	1.58	*3.48*	✓
GSF1500-63	63	*2.48*	180	*7.09*	117	*4.61*			2529	*5685*	3123	*7021*	186.0	*11.35*	1.74	*3.84*	✓
GSF1500-75	75	*2.95*	204	*8.03*	129	*5.08*	+ 20 °C *+68 °F*		2555	*5743*	3165	*7115*	217.0	*13.24*	1.88	*4.14*	✓
GSF1500-80	80	*3.15*	214	*8.43*	134	*5.28*			2563	*5763*	3180	*7149*	231.0	*14.09*	1.94	*4.28*	✓
GSF1500-100	100	*3.94*	254	*10.00*	154	*6.06*			2590	*5824*	3224	*7248*	284.0	*17.32*	2.18	*4.81*	✓
GSF1500-125	125	*4.92*	304	*11.97*	179	*7.05*			2613	*5875*	3262	*7333*	350.0	*21.35*	2.47	*5.45*	✓

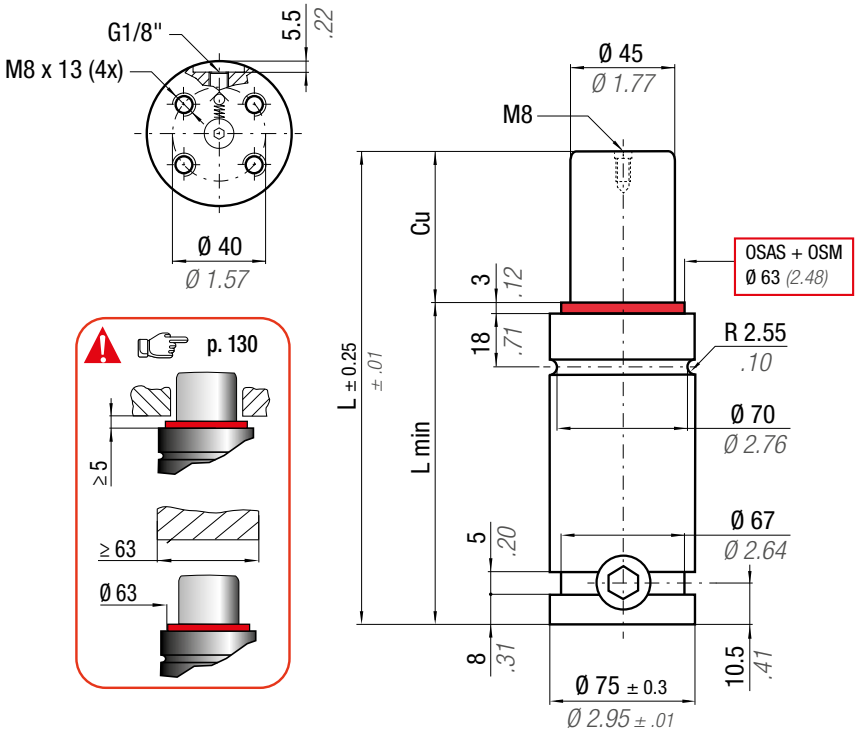
Order Callout Example:
GSF1500-50
GSF1500-50-N
GSF1500-50-CP



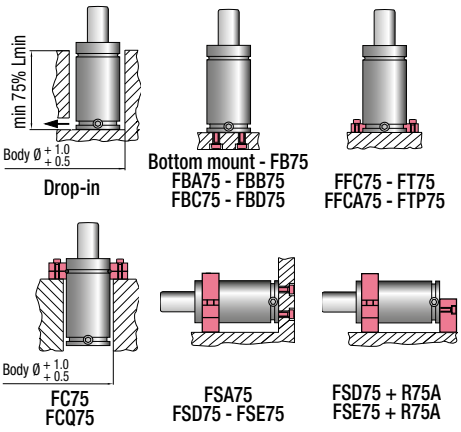


075.90.60 (FCA)		

GSF 2400
—Linkable G1/8"—



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

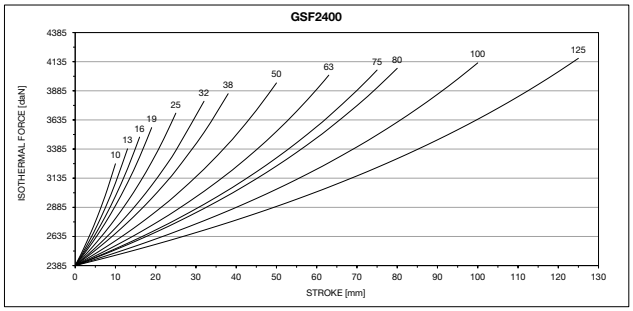
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

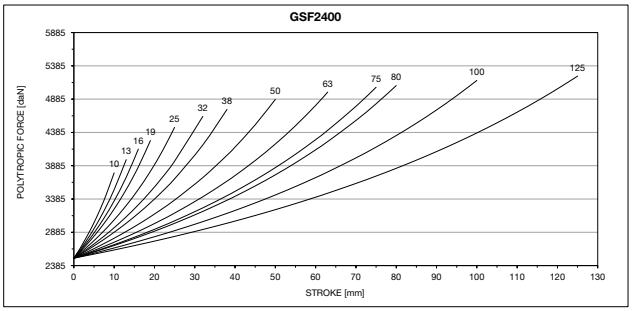
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	15.90 cm² *2.465 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV02400C

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	F0 Initial force daN	F0 lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	V0 cm³	V0 in³	~Kg	~lb	PED 2014/68/EU
GSF2400-16	16	0.63	87	3.43	71	2.80	2385 ± 5%	5362	3493	7852	4142	9312	93.0	5.67	1.68	3.70	✓
GSF2400-19	19	0.75	93	3.66	74	2.91			3574	8035	4271	9602	105.0	6.41	1.73	3.81	✓
GSF2400-25	25	0.98	105	4.13	80	3.15			3698	8313	4468	10044	129.0	7.87	1.82	4.01	✓
GSF2400-32	32	1.26	119	4.69	87	3.43			3800	8542	4632	10413	157.0	9.58	1.93	4.25	✓
GSF2400-38	38	1.50	131	5.16	93	3.66			3864	8687	4737	10649	181.0	11.04	2.03	4.48	✓
GSF2400-50	50	1.97	155	6.10	105	4.13	150 bar *2175 psi*		3956	8893	4887	10986	230.0	14.03	2.21	4.87	✓
GSF2400-63	63	2.48	181	7.13	118	4.65			4022	9042	4996	11231	282.0	17.20	2.42	5.34	✓
GSF2400-75	75	2.95	205	8.07	130	5.12			4066	9140	5068	11393	330.0	20.13	2.61	5.75	✓
GSF2400-80	80	3.15	215	8.46	135	5.31	+ 20 °C *+68 °F*		4081	9174	5093	11450	350.0	21.35	2.69	5.93	✓
GSF2400-100	100	3.94	255	10.04	155	6.10			4127	9278	5169	11620	431.0	26.29	3.00	6.61	✓
GSF2400-125	125	4.92	305	12.01	180	7.09			4166	9365	5234	11767	532.0	32.45	3.40	7.50	✓

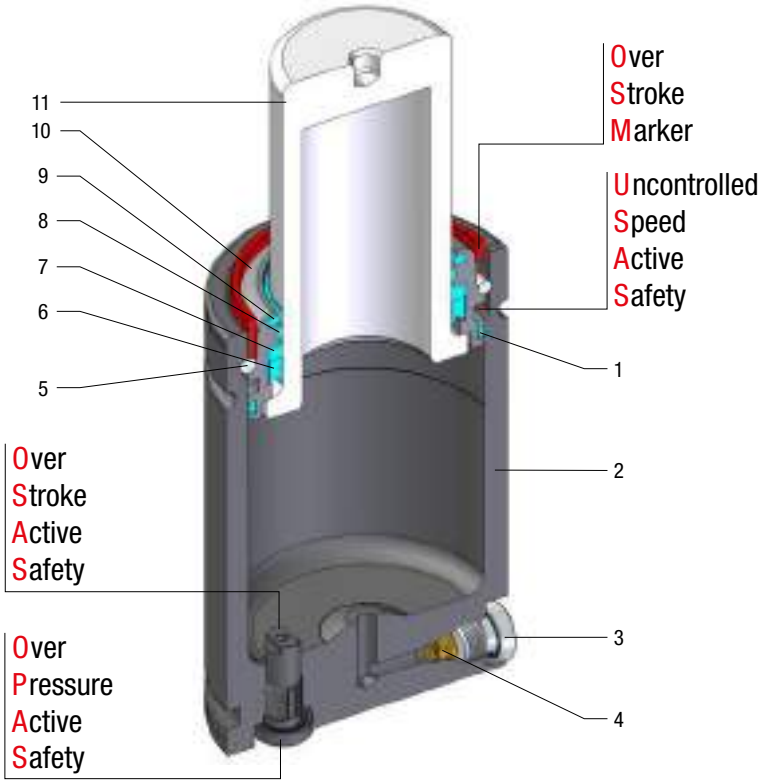
Order Callout Example:
GSF2400-50
GSF2400-50-N
GSF2400-50-CP





GSH series

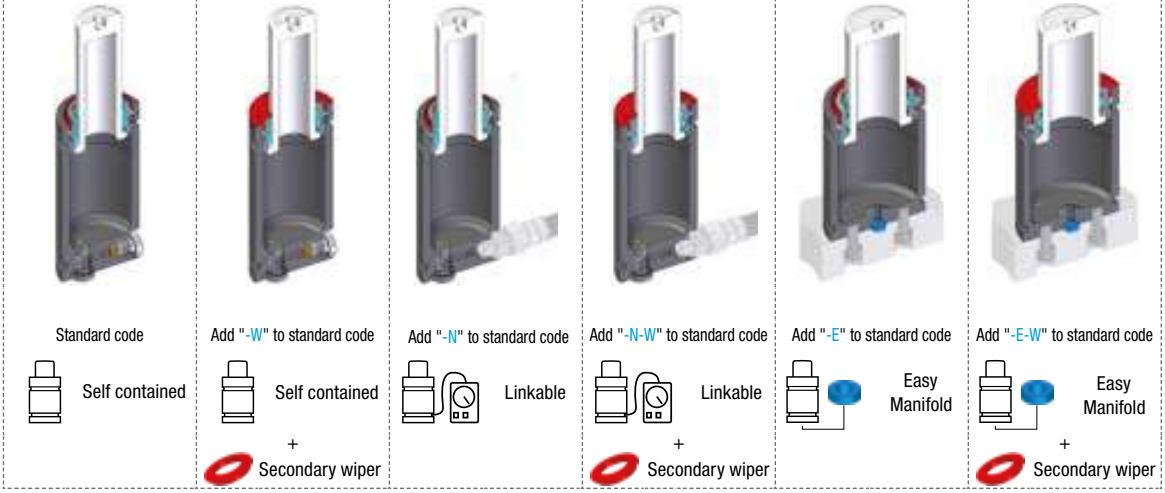
Minimum height, maximum force, hose cylinders with G1/8 charging port -
Minimale Höhe, maximale Kraft, Gdf. mit G1/8 Öffnung verbindbar - Hauteur minimale, force maximale, cylindres raccordés avec trou G1/8 gaz -
Mínima altura, máxima fuerza, cilindros conectados con agujero G1/8 gas - Altura mínima, força máxima, cilindros conectados com furo G1/8 gás



1	Dual ring seal
2	Body
3	Plug
4	Valve
5	Retaining ring
6	Rod seal
7	Back-up ring
8	Guide ring
9	Rod wiper
10	Bush
11	Rod (nitrited superfinished)

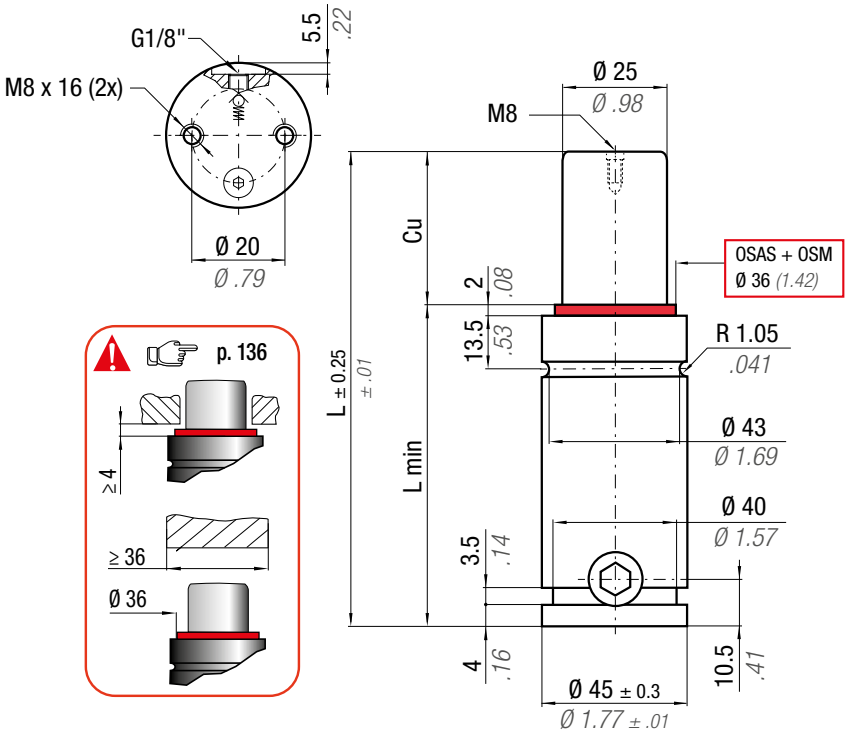
SEALING	ROD SEAL
DESIGN	BUSH - BODY DESIGN

Available versions

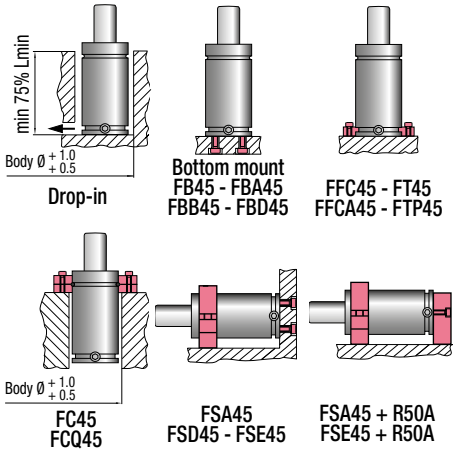


Order Callout Example:
GSH2400-50
GSH2400-50-W
GSH2400-50-N
GSH2400-50-N-W
GSH2400-50-E
GSH2400-50-E-W

Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	daN	lb				
GSH750	45	1.77	10 - 125	0.39 - 4.92	740	1664	✓	✓	✓	-
GSH1000	50	1.97	10 - 125	0.39 - 4.92	920	2068	✓	✓	✓	-
GSH1500	63	2.48	10 - 125	0.39 - 4.92	1530	3440	✓	✓	✓	-
GSH2400	75	2.95	10 - 125	0.39 - 4.92	2385	5362	✓	✓	✓	-
GSH4200	95	3.74	16 - 125	0.63 - 4.92	4240	9532	✓	✓	✓	-
GSH6600	120	4.72	16 - 125	0.63 - 4.92	6630	14905	✓	✓	✓	-



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

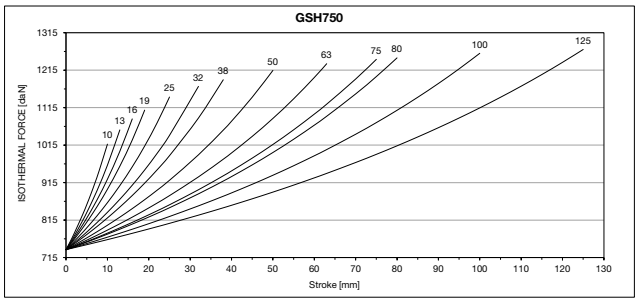
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

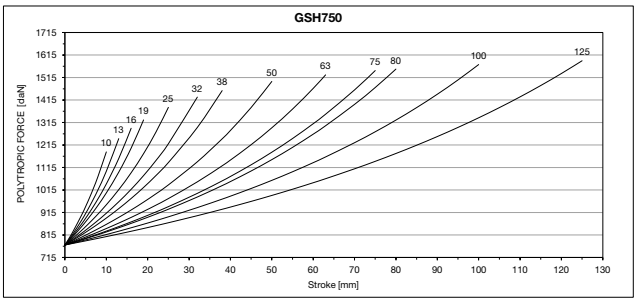
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	4.91 cm² *0.761 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV00750C

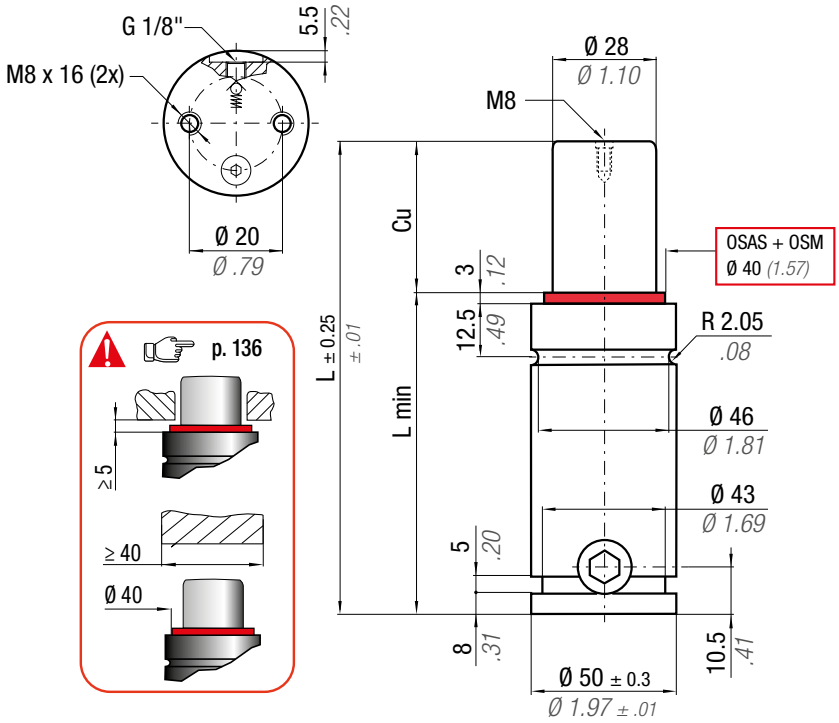
CALLOUT	Cu		L		L min		Fo Initial force		$F1_i$ * End force		$F1_p$ ** End force		Vo		~Kg	~lb	PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*			
GSH750-10	10	*0.39*	67	*2.64*	57	*2.24*			1018	*2288*	1184	*2662*	21.0	*1.28*	0.50	*1.10*	✓
GSH750-13	13	*0.51*	73	*2.87*	60	*2.36*			1056	*2373*	1243	*2795*	24.0	*1.46*	0.52	*1.15*	✓
GSH750-16	16	*0.63*	79	*3.11*	63	*2.48*			1085	*2439*	1289	*2899*	28.0	*1.71*	0.54	*1.19*	✓
GSH750-19	19	*0.75*	85	*3.35*	66	*2.60*			1108	*2492*	1326	*2982*	32.0	*1.95*	0.56	*1.23*	✓
GSH750-25	25	*0.98*	97	*3.82*	72	*2.83*	740 ± 5%	*1664*	1143	*2570*	1382	*3107*	40.0	*2.44*	0.60	*1.32*	✓
GSH750-32	32	*1.26*	111	*4.37*	79	*3.11*			1172	*2634*	1428	*3210*	49.0	*2.99*	0.64	*1.41*	✓
GSH750-38	38	*1.50*	123	*4.84*	85	*3.35*	150 bar	*2175psi*	1189	*2674*	1457	*3275*	56.0	*3.42*	0.68	*1.50*	✓
GSH750-50	50	*1.97*	147	*5.79*	97	*3.82*			1214	*2730*	1497	*3366*	72.0	*4.39*	0.76	*1.68*	✓
GSH750-63	63	*2.48*	173	*6.81*	110	*4.33*	+ 20 °C	*+68 °F*	1232	*2770*	1527	*3432*	88.0	*5.37*	0.84	*1.85*	✓
GSH750-75	75	*2.95*	197	*7.76*	122	*4.80*			1244	*2796*	1546	*3475*	103.0	*6.28*	0.92	*2.03*	✓
GSH750-80	80	*3.15*	207	*8.15*	127	*5.00*			1248	*2805*	1552	*3490*	110.0	*6.71*	0.95	*2.09*	✓
GSH750-100	100	*3.94*	247	*9.72*	147	*5.79*			1260	*2832*	1573	*3535*	135.0	*8.24*	1.08	*2.38*	✓
GSH750-125	125	*4.92*	297	*11.69*	172	*6.77*			1270	*2855*	1589	*3573*	167.0	*10.19*	1.24	*2.73*	✓

Order Callout Example:
GSH750-50
GSH750-50-N
GSH750-50-CP

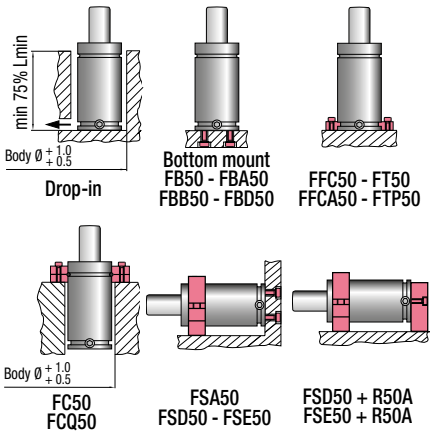




GSH 1000



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

**** $F1_p$ =** Polytrophic end force at 100% Cu

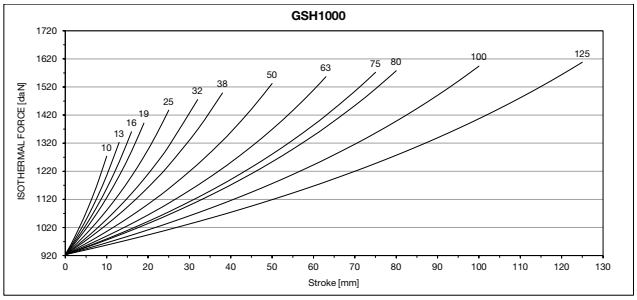
N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	6.15 cm² *0.953 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV01000C

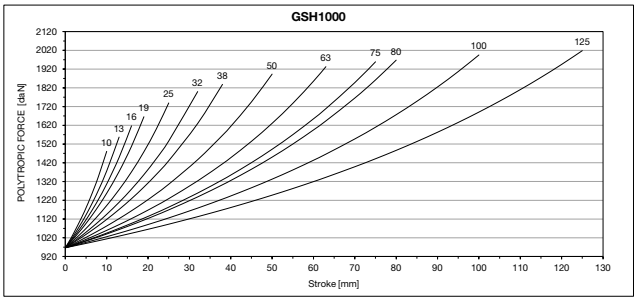
CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	F0 Initial force daN	F0 lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	V0 cm³	V0 in³	~Kg	~lb	PED 2014/68/EU
GSH1000-10	10	0.39	72	2.83	62	2.44	920 ± 5%	2068	1274	2863	1481	3329	26.0	1.59	0.67	1.48	✓
GSH1000-13	13	0.51	78	3.07	65	2.56			1323	2973	1557	3500	31.0	1.89	0.70	1.54	✓
GSH1000-16	16	0.63	84	3.31	68	2.68			1361	3059	1617	3635	35.0	2.14	0.72	1.59	✓
GSH1000-19	19	0.75	90	3.54	71	2.80			1391	3128	1666	3745	40.0	2.44	0.75	1.65	✓
GSH1000-25	25	0.98	102	4.02	77	3.03			1437	3232	1739	3909	50.0	3.05	0.79	1.74	✓
GSH1000-32	32	1.26	116	4.57	84	3.31			1475	3316	1800	4047	61.0	3.72	0.85	1.87	✓
GSH1000-38	38	1.50	128	5.04	90	3.54			1499	3369	1838	4132	70.0	4.27	0.90	1.98	✓
GSH1000-50	50	1.97	152	5.98	102	4.02			1532	3445	1893	4256	89.0	5.43	0.99	2.18	✓
GSH1000-63	63	2.48	178	7.01	115	4.53			1556	3499	1933	4346	109.0	6.65	1.10	2.43	✓
GSH1000-75	75	2.95	202	7.95	127	5.00			1572	3534	1959	4404	128.0	7.81	1.19	2.62	✓
GSH1000-80	80	3.15	212	8.35	132	5.20			1578	3546	1968	4424	136.0	8.30	1.23	2.71	✓
GSH1000-100	100	3.94	252	9.92	152	5.98			1594	3584	1995	4485	167.0	10.19	1.39	3.06	✓
GSH1000-125	125	4.92	302	11.89	177	6.97			1608	3615	2018	4537	207.0	12.63	1.60	3.53	✓

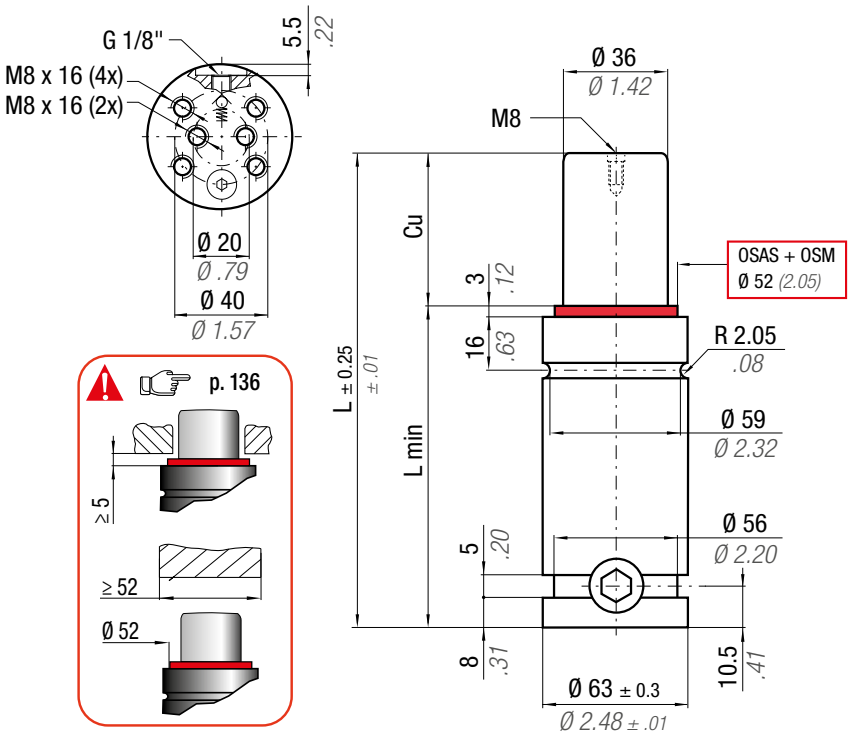
150 bar *2175 psi*

+ 20 °C *+68 °F*

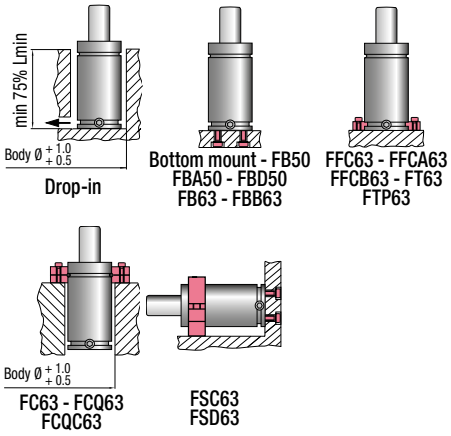
Order Callout Example:
GSH1000-50
GSH1000-50-N
GSH1000-50-CP







Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

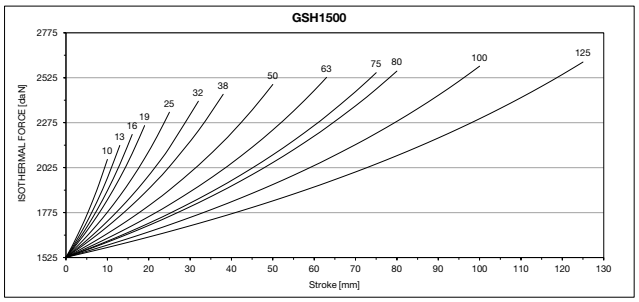
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

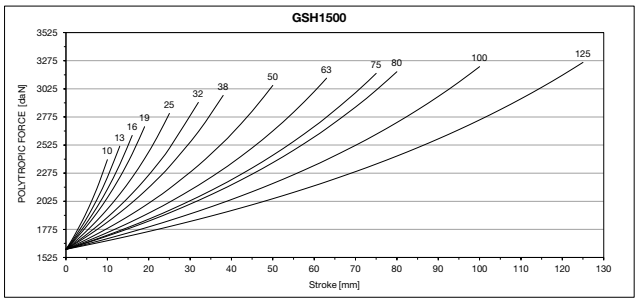
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	10.18 cm² *1.578 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV01500C

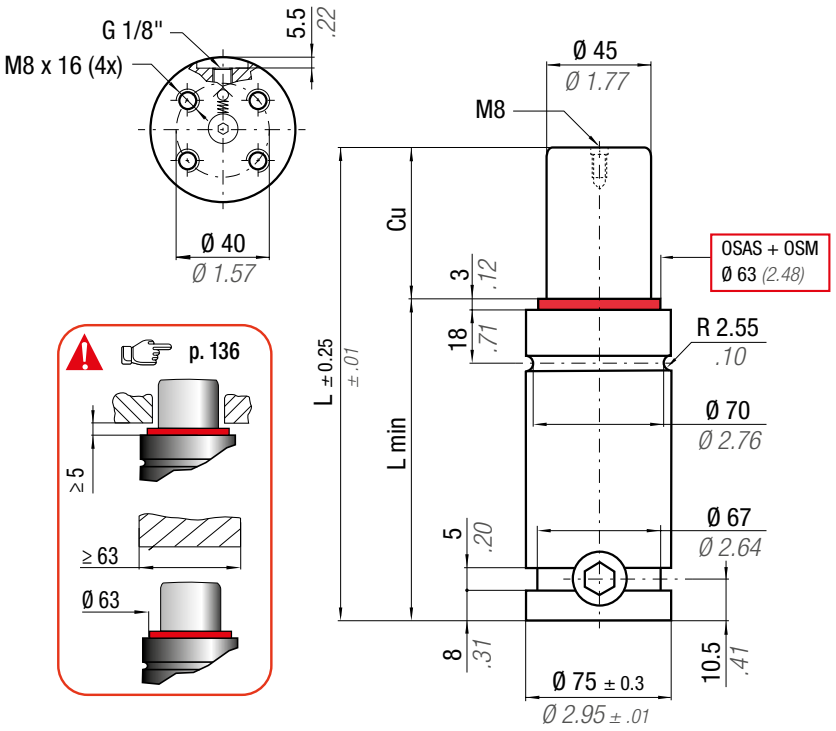
CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	Fo Initial force daN	Fo lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	Vo cm³	Vo in³	~Kg	~lb	PED 2014/68/EU
GSH1500-10	10	0.39	72	2.83	62	2.44	1530 ± 5%	3440	2071	4655	2395	5384	45.0	2.75	1.04	2.29	✓
GSH1500-13	13	0.51	78	3.07	65	2.56			2149	4830	2515	5654	53.0	3.23	1.08	2.38	✓
GSH1500-16	16	0.63	84	3.31	68	2.68			2210	4967	2611	5870	61.0	3.72	1.11	2.45	✓
GSH1500-19	19	0.75	90	3.54	71	2.80			2259	5078	2688	6043	69.0	4.21	1.15	2.54	✓
GSH1500-25	25	0.98	102	4.02	77	3.03			2333	5245	2806	6308	85.0	5.19	1.22	2.69	✓
GSH1500-32	32	1.26	116	4.57	84	3.31			2394	5382	2904	6528	104.0	6.34	1.30	2.87	✓
GSH1500-38	38	1.50	128	5.04	90	3.54			2433	5469	2966	6668	119.0	7.26	1.37	3.02	✓
GSH1500-50	50	1.97	152	5.98	102	4.02	150 bar	2175 psi	2488	5592	3055	6868	151.0	9.21	1.51	3.33	✓
GSH1500-63	63	2.48	178	7.01	115	4.53			2527	5681	3120	7014	186.0	11.35	1.67	3.68	✓
GSH1500-75	75	2.95	202	7.95	127	5.00	+ 20 °C	+68 °F	2553	5739	3163	7111	218.0	13.30	1.81	3.99	✓
GSH1500-80	80	3.15	212	8.35	132	5.20			2562	5759	3177	7142	231.0	14.09	1.87	4.12	✓
GSH1500-100	100	3.94	252	9.92	152	5.98			2589	5821	3222	7243	284.0	17.32	2.11	4.65	✓
GSH1500-125	125	4.92	302	11.89	177	6.97			2612	5872	3260	7329	350.0	21.35	2.40	5.29	✓

Order Callout Example:
GSH1500-50
GSH1500-50-N
GSH1500-50-CP

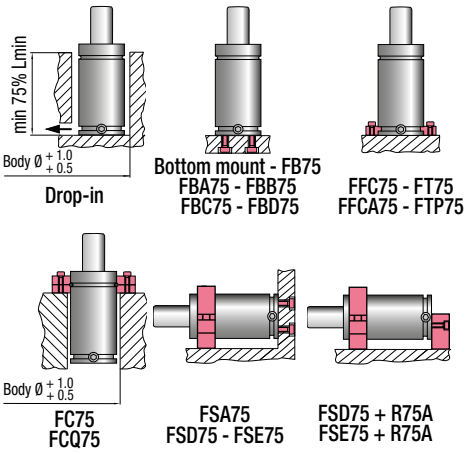




GSH 2400



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

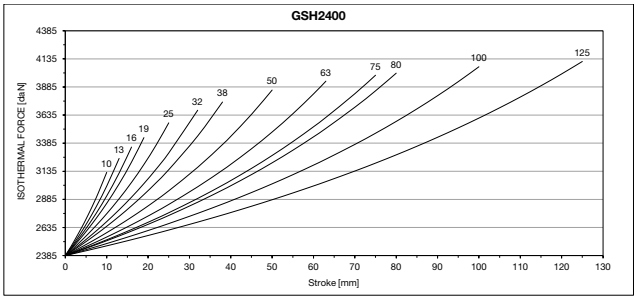
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

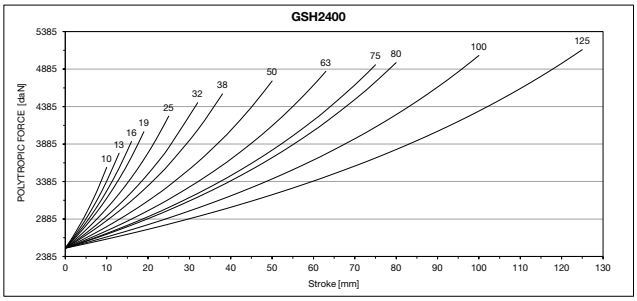
**** $F1_p$ =** Polytrophic end force at 100% Cu

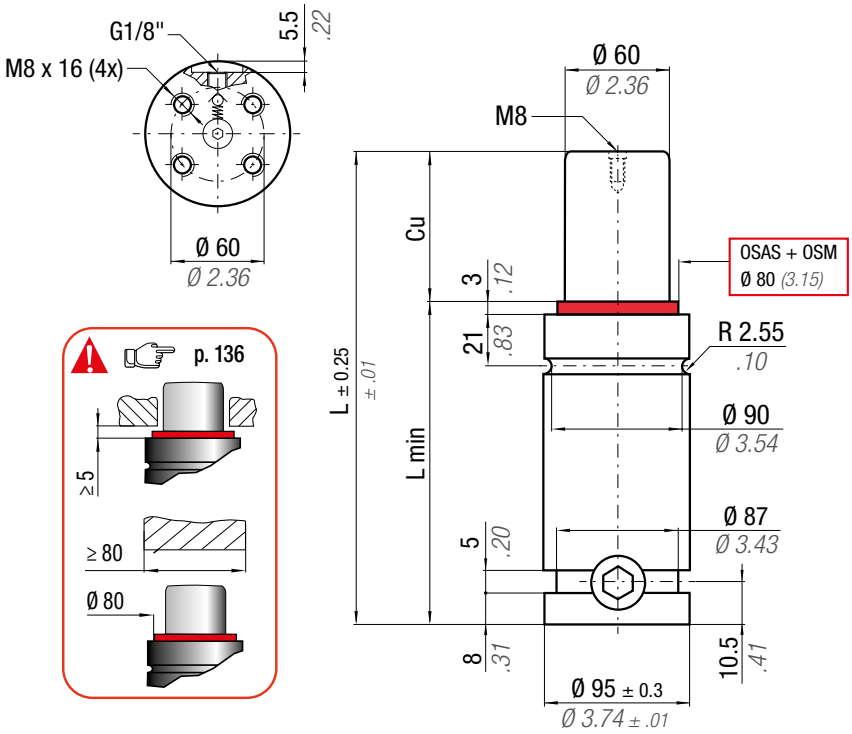
N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	15.90 cm² *2.465 in²*	~ 20 - 100 (at 20°C)	18 m/s	GSRK-39BMRV02400C

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	F0 Initial force daN	F0 lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	V0 cm³	V0 in³	~Kg	~lb	PED 2014/68/EU
GSH2400-10	10	0.39	79	3.11	69	2.72	2385 ± 5%	5362	3125	7026	3574	8035	78.0	4.76	1.65	3.64	✓
GSH2400-13	13	0.51	85	3.35	72	2.83			3249	7305	3763	8460	90.0	5.49	1.70	3.75	✓
GSH2400-16	16	0.63	91	3.58	75	2.95			3350	7532	3920	8813	103.0	6.28	1.75	3.86	✓
GSH2400-19	19	0.75	97	3.82	78	3.07			3434	7721	4051	9107	115.0	7.02	1.79	3.95	✓
GSH2400-25	25	0.98	109	4.29	84	3.31			3566	8016	4258	9572	139.0	8.48	1.89	4.17	✓
GSH2400-32	32	1.26	123	4.84	91	3.58			3678	8268	4436	9973	167.0	10.19	1.99	4.39	✓
GSH2400-38	38	1.50	135	5.31	97	3.82	150 bar *2175 psi*		3751	8433	4554	10238	191.0	11.65	2.09	4.61	✓
GSH2400-50	50	1.97	159	6.26	109	4.29			3858	8672	4726	10624	239.0	14.58	2.28	5.03	✓
GSH2400-63	63	2.48	185	7.28	122	4.80			3937	8850	4855	10914	292.0	17.81	2.49	5.49	✓
GSH2400-75	75	2.95	209	8.23	134	5.28	+ 20 °C *+68 °F*		3989	8969	4942	11110	340.0	20.74	2.68	5.91	✓
GSH2400-80	80	3.15	219	8.62	139	5.47			4008	9010	4972	11178	360.1	21.97	2.75	6.06	✓
GSH2400-100	100	3.94	259	10.20	159	6.26			4065	9138	5066	11389	441.0	26.90	3.07	6.77	✓
GSH2400-125	125	4.92	309	12.17	184	7.24			4113	9247	5147	11571	541.0	33.00	3.46	7.63	✓

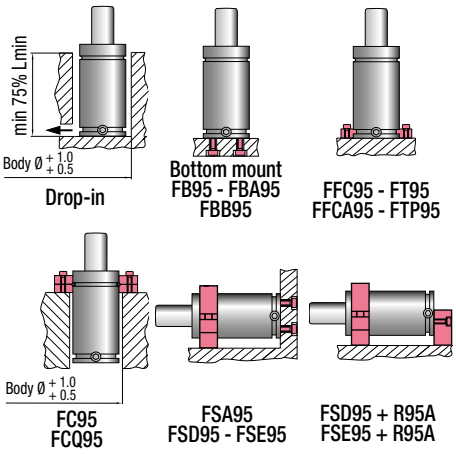
Order Callout Example:
GSH2400-50
GSH2400-50-N
GSH2400-50-CP







Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

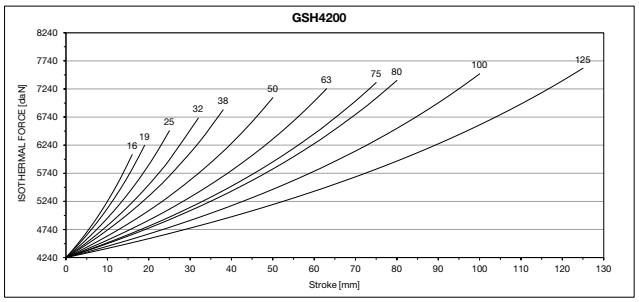
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

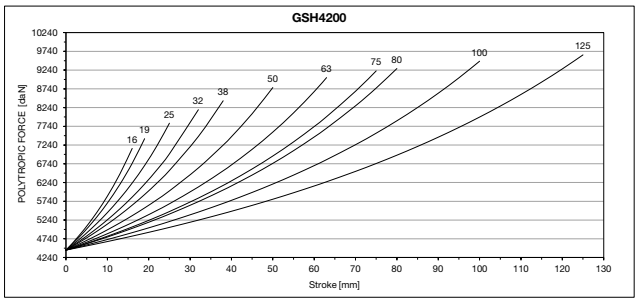
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	28.27 cm² *4.382 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV04200C

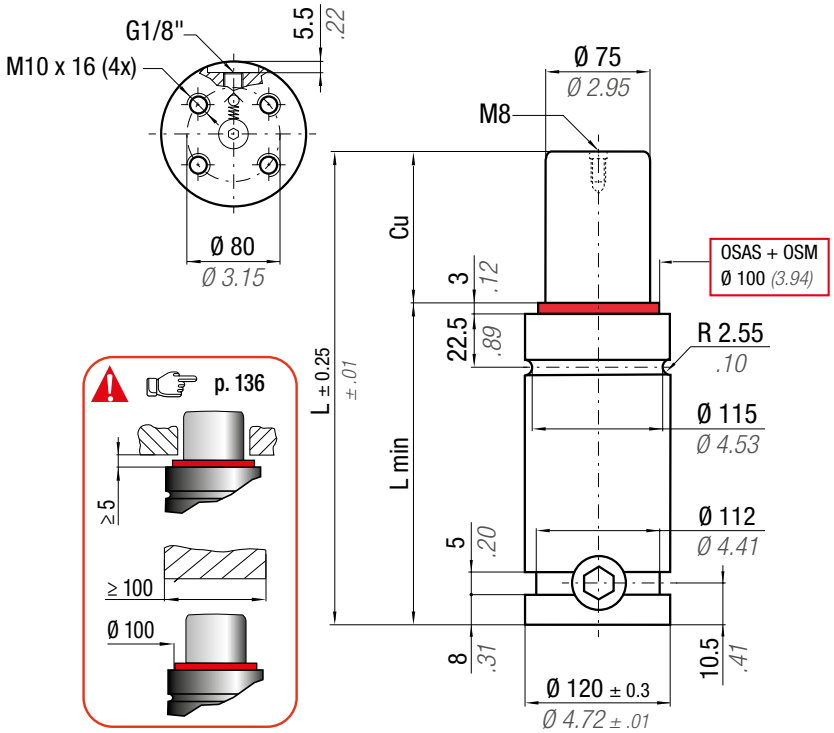
CALLOUT	Cu mm	Cu *inch*	L mm	L *inch*	L min mm	L min *inch*	Fo Initial force daN	Fo *lb*	$F1_i$ * End force daN	$F1_i$ * *lb*	$F1_p$ ** End force daN	$F1_p$ ** *lb*	Vo cm³	Vo *in³*	~Kg	*~lb*	PED 2014/68/EU
GSH4200-16	16	*0.63*	94	*3.70*	78	*3.07*	4240 ± 5%	*9532*	6073	*13653*	7150	*16074*	174.0	*10.61*	2.98	*6.57*	✓
GSH4200-19	19	*0.75*	100	*3.94*	81	*3.19*			6238	*14024*	7409	*16656*	194.0	*11.83*	3.05	*6.72*	✓
GSH4200-25	25	*0.98*	112	*4.41*	87	*3.43*			6499	*14609*	7823	*17587*	235.0	*14.34*	3.20	*7.05*	✓
GSH4200-32	32	*1.26*	126	*4.96*	94	*3.70*			6723	*15113*	8183	*18396*	282.0	*17.20*	3.38	*7.45*	✓
GSH4200-38	38	*1.50*	138	*5.43*	100	*3.94*			6870	*15443*	8421	*18931*	323.0	*19.70*	3.52	*7.76*	✓
GSH4200-50	50	*1.97*	162	*6.38*	112	*4.41*	150 bar *2175 psi*		7085	*15928*	8774	*19725*	404.0	*24.64*	3.82	*8.42*	✓
GSH4200-63	63	*2.48*	188	*7.40*	125	*4.92*			7246	*16289*	9039	*20320*	492.0	*30.01*	4.15	*9.15*	✓
GSH4200-75	75	*2.95*	212	*8.35*	137	*5.39*	+ 20 °C *+68 °F*		7354	*16533*	9219	*20725*	573.0	*34.95*	4.45	*9.81*	✓
GSH4200-80	80	*3.15*	222	*8.74*	142	*5.59*			7391	*16616*	9281	*20865*	606.0	*36.97*	4.57	*10.08*	✓
GSH4200-100	100	*3.94*	262	*10.31*	162	*6.38*			7509	*16880*	9477	*21305*	742.0	*45.26*	5.07	*11.18*	✓
GSH4200-125	125	*4.92*	312	*12.28*	187	*7.36*			7609	*17105*	9645	*21683*	911.0	*55.57*	5.69	*12.54*	✓

Order Callout Example:
GSH4200-50
GSH4200-50-N
GSH4200-50-CP

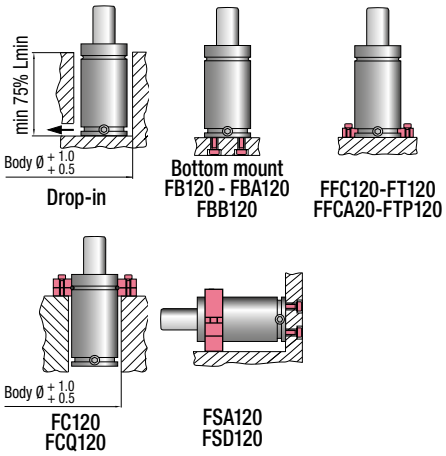




GSH 6600



Fixings



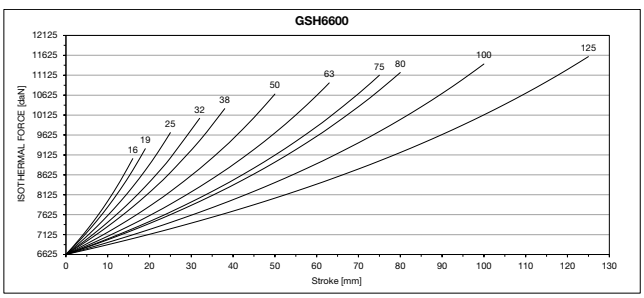
OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

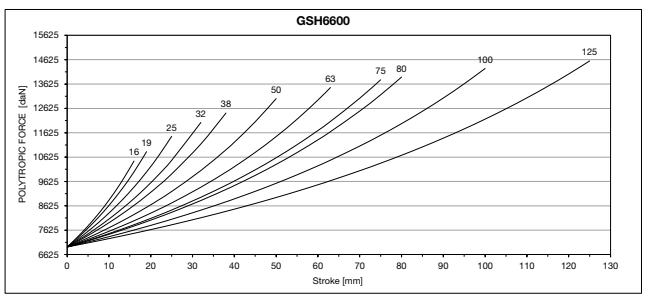
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16 **** $F1_p$ =** Polytrophic end force at 100% Cu

N2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	44.18 cm² *6.848 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV06600C

CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	F0 Initial force daN	F0 lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	V0 cm³	V0 in³	~Kg	~lb	PED 2014/68/EU
GSH6600-16	16	0.63	104	4.09	88	3.46	6630 ± 5%	14904	9032	20306	10464	23524	309.0	18.85	5.40	11.90	✓
GSH6600-19	19	0.75	110	4.33	91	3.58			9281	20864	10847	24385	341.0	20.80	5.52	12.17	✓
GSH6600-25	25	0.98	122	4.80	97	3.82			9684	21771	11478	25804	405.0	24.71	5.76	12.70	✓
GSH6600-32	32	1.26	136	5.35	104	4.09			10044	22579	12047	27083	479.0	29.22	6.04	13.32	✓
GSH6600-38	38	1.50	148	5.83	110	4.33			10286	23124	12435	27955	544.0	33.18	6.28	13.85	✓
GSH6600-50	50	1.97	172	6.77	122	4.80	150 bar	2175 psi	10652	23946	13025	29281	672.0	40.99	6.76	14.90	✓
GSH6600-63	63	2.48	198	7.80	135	5.31			10932	24577	13483	30311	811.0	49.47	7.28	16.05	✓
GSH6600-75	75	2.95	222	8.74	147	5.79			11125	25011	13800	31024	939.0	57.28	7.75	17.09	✓
GSH6600-80	80	3.15	232	9.13	152	5.98	+ 20 °C	+68 °F	11193	25162	13910	31271	992.0	60.51	7.95	17.53	✓
GSH6600-100	100	3.94	272	10.71	172	6.77			11407	25643	14264	32067	1206.0	73.57	8.75	19.29	✓
GSH6600-125	125	4.92	322	12.68	197	7.76			11593	26061	14574	32764	1473.0	89.85	9.75	21.50	✓

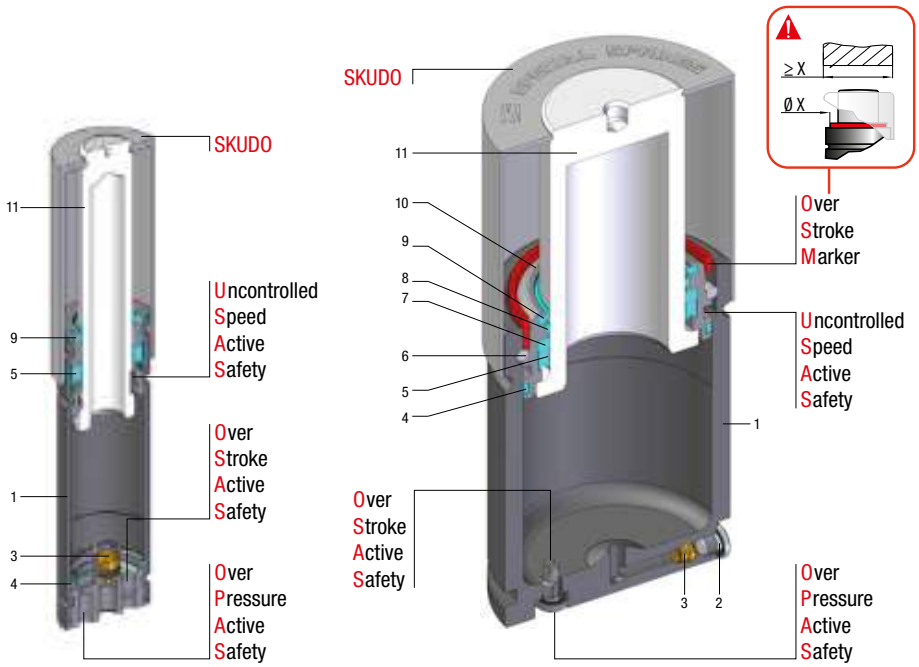
Order Callout Example:
GSH6600-50
GSH6600-50-N
GSH6600-50-CP





GSRS series

Minimum height, maximum force + SKUDO - Minimale Höhe, maximale Kraft + SKUDO
Hauteur minimale, force maximale + SKUDO - Mínima altura, máxima fuerza + SKUDO - Altura mínima, força máxima + SKUDO



1	Dual ring seal
2	Body
3	Plug
4	Valve
5	Retaining ring
6	Rod seal
7	Back-up ring
8	Guide ring
9	Rod wiper
10	Bush
11	Rod (nitrited superfinished)

SEALING	ROD SEAL
DESIGN	BUSH - BODY DESIGN

Available versions

Standard code

Self contained

Add "-N" to standard code

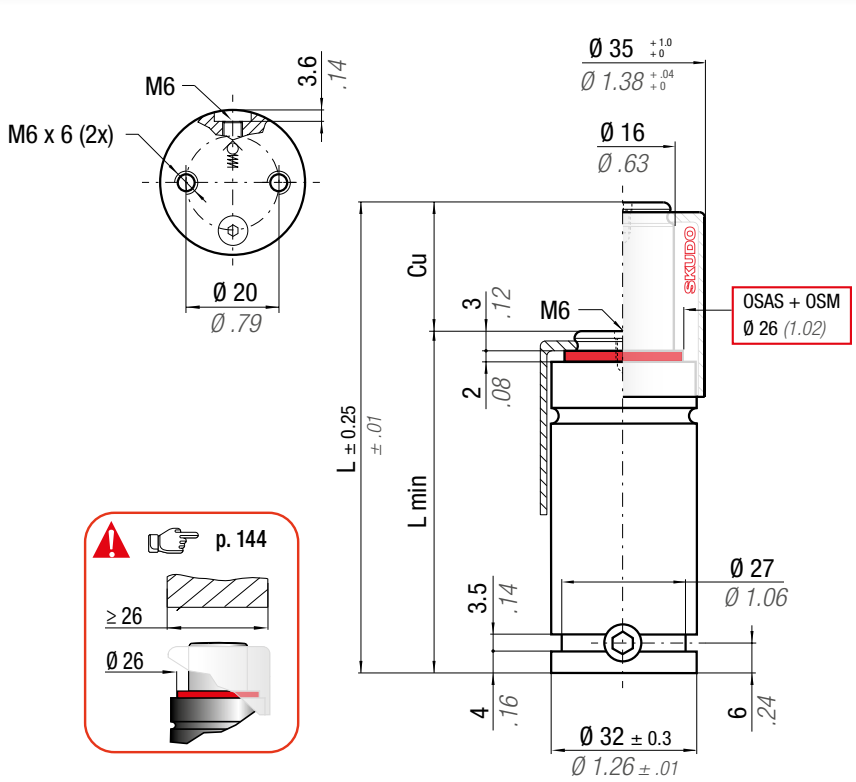
Linkable

Add "-E" to standard code

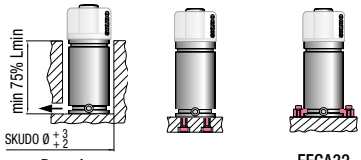
Easy Manifold

Order Callout Example:
GSRS2400-47
GSRS2400-47-N
GSRS2400-47-E

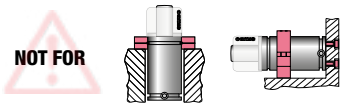
Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	daN	lb				
GSRS170	19	0.75	7 - 122	0.28 - 4.80	170	382	✓	✓	✓	✓
GSRS320	25	0.98	7 - 122	0.28 - 4.80	320	719	✓	✓	✓	✓
GSRS350	32	1.26	7 - 122	0.28 - 4.80	360	809	✓	✓	✓	✓
GSRS500	38	1.50	7 - 122	0.28 - 4.80	470	1057	✓	✓	✓	✓
GSRS750	45	1.77	7 - 122	0.28 - 4.80	740	1664	✓	✓	✓	✓
GSRS1000	50	1.97	10 - 122	0.39 - 4.80	920	2068	✓	✓	✓	✓
GSRS1200	50	1.97	10 - 122	0.39 - 4.80	1060	2383	✓	✓	✓	✓
GSRS1500	63	2.48	10 - 122	0.39 - 4.80	1530	3440	✓	✓	✓	✓
GSRS2400	75	2.95	13 - 122	0.51 - 4.80	2385	5362	✓	✓	✓	✓
GSRS4200	95	3.74	13 - 122	0.51 - 4.80	4240	9532	✓	✓	✓	✓
GSRS6600	120	4.72	13 - 122	0.51 - 4.80	6630	14905	✓	✓	✓	✓
GSRS9500	150	5.91	16 - 122	0.63 - 4.80	9540	21447	✓	✓	✓	✓



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER



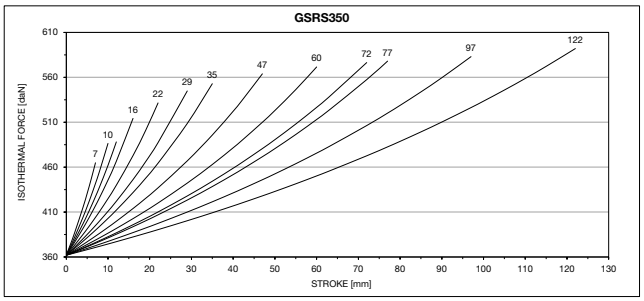
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

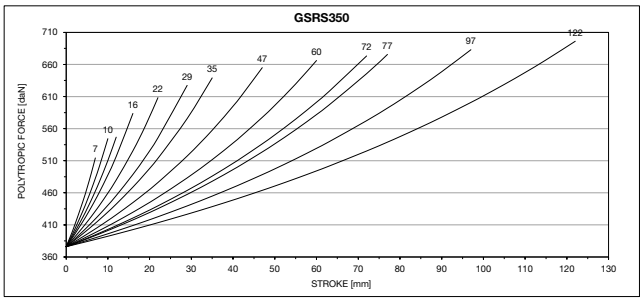
**** $F1_p$ =** Polytrophic end force at 100% Cu

N2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	180 bar *2610 psi*	20 bar *290 psi*	2.01 cm² *0.312 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV00350C

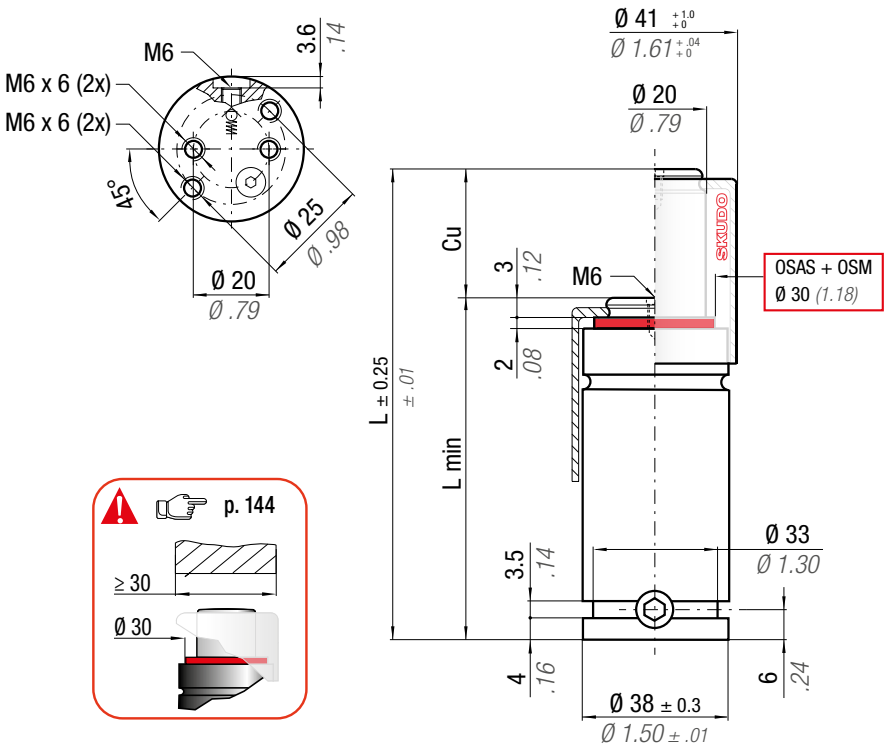
CALLOUT	Cu		L		L min		Fo Initial force		$F1_i$ * End force		$F1_p$ ** End force		Vo				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSRS350-7	7	*0.28*	50	*1.97*	43	*1.69*			458	*1030*	505	*1136*	8.0	*0.49*	0.16	*0.36*	✓
GSRS350-10	10	*0.39*	56	*2.20*	46	*1.81*			478	*1075*	533	*1199*	10.0	*0.61*	0.17	*0.38*	✓
GSRS350-13	13	*0.51*	62	*2.44*	49	*1.93*			493	*1109*	554	*1245*	12.0	*0.73*	0.18	*0.40*	✓
GSRS350-16	16	*0.63*	68	*2.68*	52	*2.05*	360	*809*	505	*1134*	570	*1282*	14.0	*0.85*	0.19	*0.42*	✓
GSRS350-22	22	*0.87*	80	*3.15*	58	*2.28*	± 5%		521	*1171*	593	*1333*	18.0	*1.10*	0.21	*0.46*	✓
GSRS350-29	29	*1.14*	94	*3.70*	65	*2.56*			533	*1199*	611	*1374*	22.0	*1.34*	0.23	*0.51*	✓
GSRS350-35	35	*1.38*	106	*4.17*	71	*2.80*	180 bar		541	*1216*	622	*1399*	26.0	*1.59*	0.25	*0.55*	✓
GSRS350-47	47	*1.85*	130	*5.12*	83	*3.27*	*2610 psi*		552	*1240*	637	*1432*	33.0	*2.01*	0.29	*0.63*	✓
GSRS350-60	60	*2.36*	156	*6.14*	96	*3.78*			559	*1256*	648	*1456*	41.0	*2.50*	0.33	*0.72*	✓
GSRS350-72	72	*2.83*	180	*7.09*	108	*4.25*	+ 20 °C *+68 °F*		563	*1266*	654	*1471*	49.0	*2.99*	0.36	*0.80*	✓
GSRS350-77	77	*3.03*	190	*7.48*	113	*4.45*			565	*1270*	657	*1476*	52.0	*3.17*	0.38	*0.83*	✓
GSRS350-97	97	*3.82*	230	*9.06*	133	*5.24*			570	*1281*	663	*1492*	65.0	*3.97*	0.44	*0.96*	✓
GSRS350-122	122	*4.80*	280	*11.02*	158	*6.22*			574	*1289*	669	*1504*	80.0	*4.88*	0.51	*1.13*	✓

Order Callout Example:
GSRS350-47
GSRS350-47-N
GSRS350-47-CP

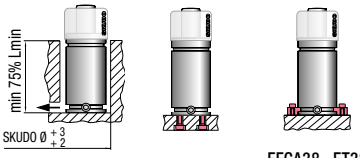




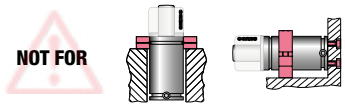
GSRS 500



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER



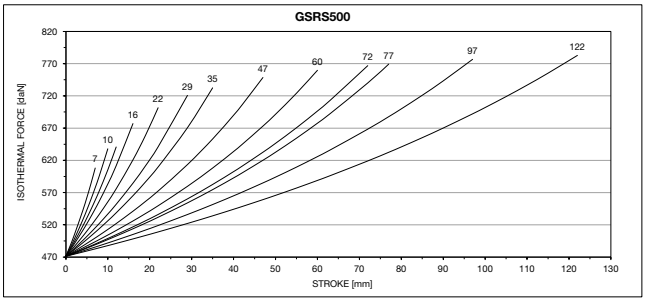
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

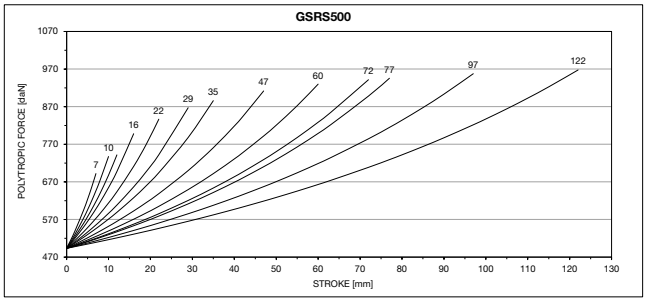
**** $F1_p$ =** Polytrophic end force at 100% Cu

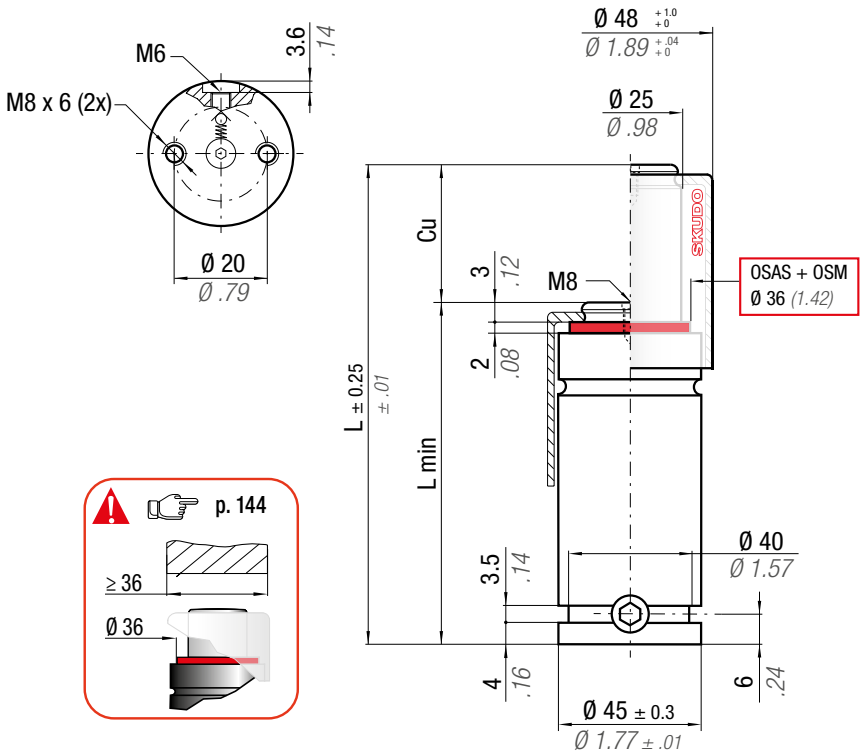
N2	°F 32 - 176	°C 0 - 80	ΔP ± 0.33 %/°C	P max 150 bar 2175 psi	P min 20 bar 290 psi	S 3.14 cm² 0.487 in²	SPM ~ 20 - 100 (at 20°C)	Max Speed 1.8 m/s	Maintenance kit GSRK-39BMRV00500C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	inch	mm	inch	mm	inch	daN	lb	daN	lb	daN	lb	cm³	in³	~Kg	~lb	
GSRS500-7	7	0.28	50	1.97	43	1.69			609	1370	694	1560	11.0	0.67	0.24	0.53	✓
GSRS500-10	10	0.39	56	2.20	46	1.81			639	1437	739	1661	14.0	0.85	0.25	0.55	✓
GSRS500-13	13	0.51	62	2.44	49	1.93			661	1486	773	1738	17.0	1.04	0.26	0.57	✓
GSRS500-16	16	0.63	68	2.68	52	2.05			678	1524	800	1798	19.0	1.16	0.28	0.62	✓
GSRS500-22	22	0.87	80	3.15	58	2.28			703	1579	838	1884	24.0	1.46	0.31	0.68	✓
GSRS500-29	29	1.14	94	3.70	65	2.56	470 ± 5%	1057	722	1622	868	1951	30.0	1.83	0.34	0.75	✓
GSRS500-35	35	1.38	106	4.17	71	2.80			733	1648	887	1994	35.0	2.14	0.37	0.82	✓
GSRS500-47	47	1.85	130	5.12	83	3.27	150 bar 2175psi		749	1684	913	2053	46.0	2.81	0.42	0.93	✓
GSRS500-60	60	2.36	156	6.14	96	3.78			760	1709	931	2093	57.0	3.48	0.48	1.06	✓
GSRS500-72	72	2.83	180	7.09	108	4.25			767	1725	942	2118	67.0	4.09	0.54	1.19	✓
GSRS500-77	77	3.03	190	7.48	113	4.45	+ 20 °C	+68 °F	770	1730	946	2127	72.0	4.39	0.56	1.23	✓
GSRS500-97	97	3.82	230	9.06	133	5.24			777	1747	958	2154	89.0	5.43	0.66	1.46	✓
GSRS500-122	122	4.80	280	11.02	158	6.22			783	1760	968	2176	110.0	6.71	0.77	1.70	✓

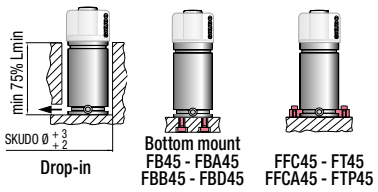
Order Callout Example:
GSRS500-47
GSRS500-47-N
GSRS500-47-CP



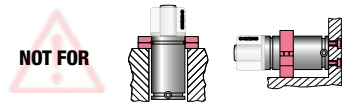




Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER



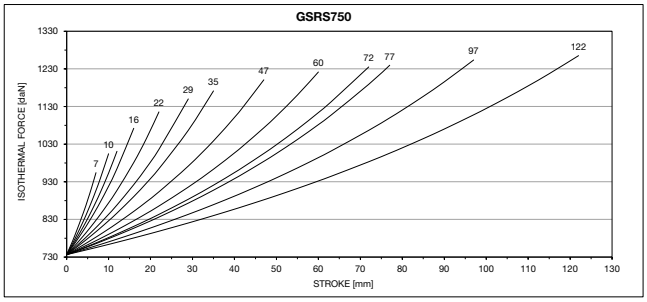
* $F1_i$ = Isothermal end force at 100% Cu p. 16

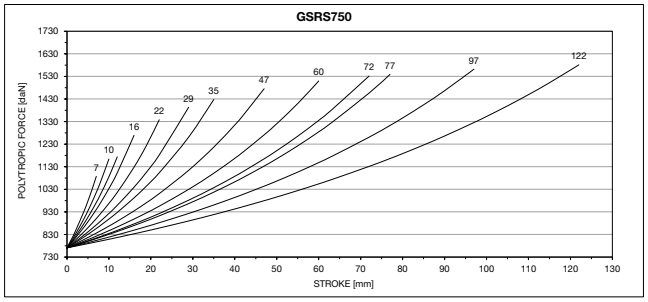
** $F1_p$ = Polytrophic end force at 100% Cu

N_2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	4.91 cm² *0.761 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV00750C

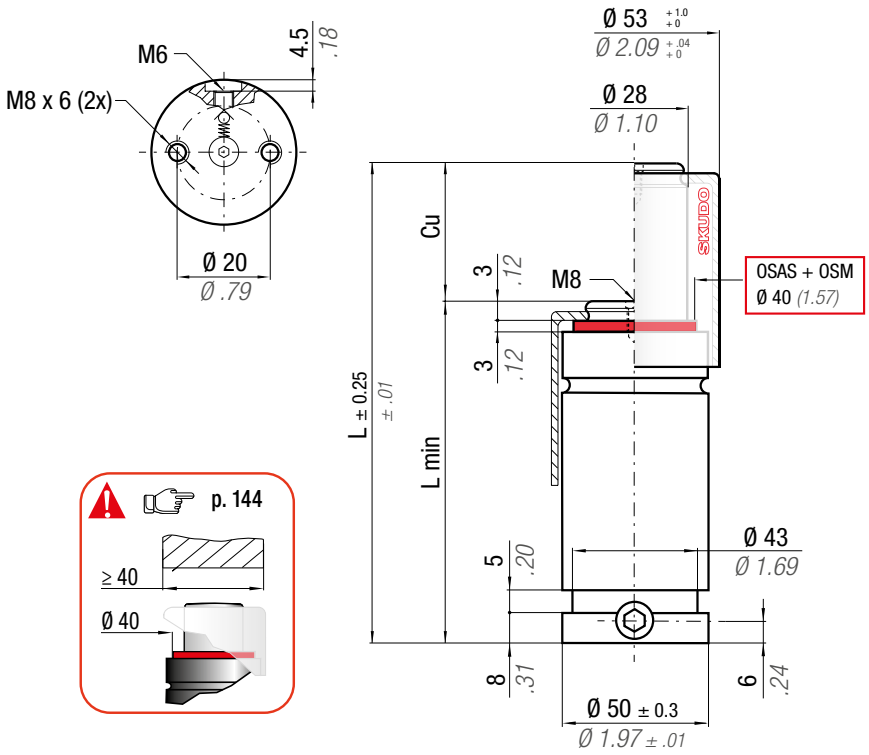
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSRS750-7	7	*0.28*	52	*2.05*	45	*1.77*			956	*2148*	1090	*2450*	18.0	*1.10*	0.36	*0.79*	✓
GSRS750-10	10	*0.39*	58	*2.28*	48	*1.89*			1006	*2262*	1166	*2621*	21.0	*1.28*	0.38	*0.84*	✓
GSRS750-13	13	*0.51*	64	*2.52*	51	*2.01*			1044	*2347*	1225	*2754*	25.0	*1.53*	0.39	*0.86*	✓
GSRS750-16	16	*0.63*	70	*2.76*	54	*2.13*	740 ± 5%	*1664*	1074	*2414*	1272	*2860*	29.0	*1.77*	0.41	*0.90*	✓
GSRS750-22	22	*0.87*	82	*3.23*	60	*2.36*			1117	*2511*	1340	*3012*	37.0	*2.26*	0.45	*0.99*	✓
GSRS750-29	29	*1.14*	96	*3.78*	67	*2.64*			1151	*2588*	1395	*3136*	46.0	*2.81*	0.50	*1.10*	✓
GSRS750-35	35	*1.38*	108	*4.25*	73	*2.87*	150 bar	*2175psi*	1173	*2636*	1429	*3213*	53.0	*3.23*	0.54	*1.19*	✓
GSRS750-47	47	*1.85*	132	*5.20*	85	*3.35*			1202	*2702*	1477	*3320*	68.0	*4.15*	0.61	*1.34*	✓
GSRS750-60	60	*2.36*	158	*6.22*	98	*3.86*			1223	*2748*	1511	*3397*	85.0	*5.19*	0.70	*1.54*	✓
GSRS750-72	72	*2.83*	182	*7.17*	110	*4.33*	+ 20 °C	*+68 °F*	1236	*2778*	1533	*3446*	100.0	*6.10*	0.77	*1.70*	✓
GSRS750-77	77	*3.03*	192	*7.56*	115	*4.53*			1240	*2788*	1540	*3462*	107.0	*6.53*	0.81	*1.79*	✓
GSRS750-97	97	*3.82*	232	*9.13*	135	*5.31*			1254	*2819*	1563	*3514*	132.0	*8.05*	0.93	*2.05*	✓
GSRS750-122	122	*4.80*	282	*11.10*	160	*6.30*			1266	*2845*	1582	*3556*	164.0	*10.00*	1.10	*2.43*	✓

Order Callout Example:
GSRS750-47
GSRS750-47-N
GSRS750-47-CP

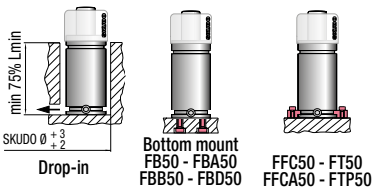




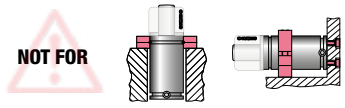
GSRS 1000



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER



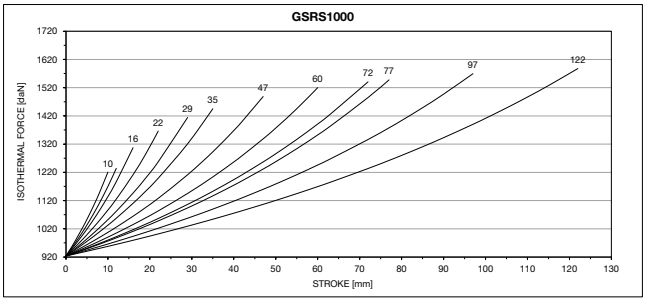
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

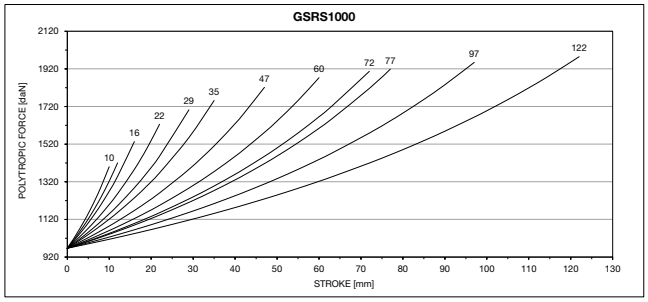
**** $F1_p$ =** Polytrophic end force at 100% Cu

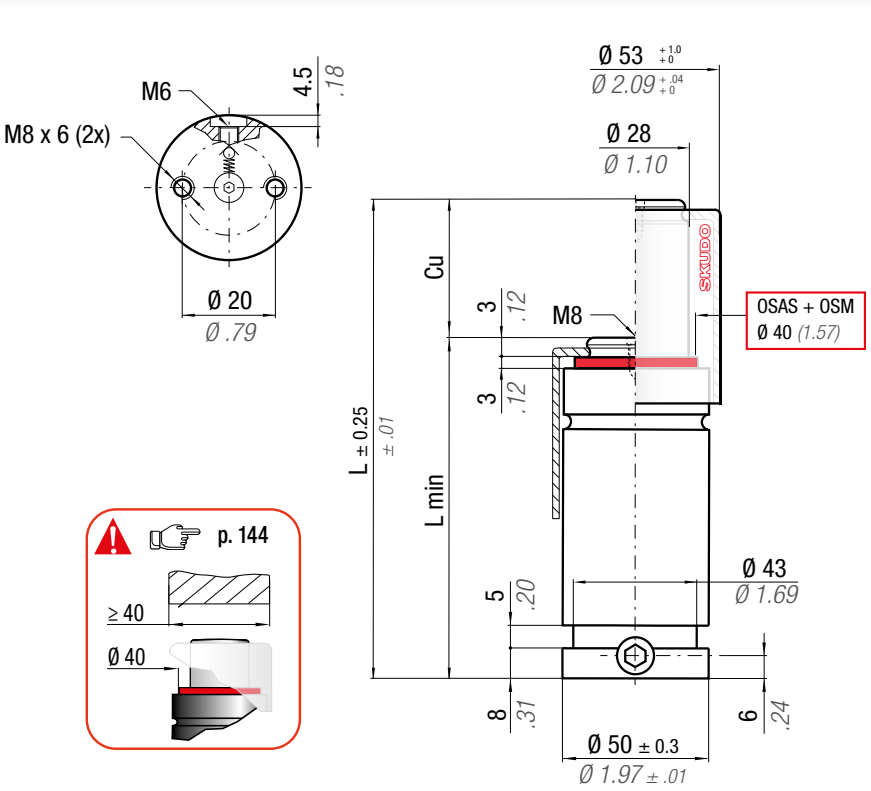
N2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	6.15 cm² *0.953 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV01000C

CALLOUT	Cu mm	Cu *inch*	L mm	L *inch*	L min mm	L min *inch*	F0 Initial force daN	F0 *lb*	$F1_i$ * End force daN	$F1_i$ * *lb*	$F1_p$ ** End force daN	$F1_p$ ** *lb*	V0 cm³	V0 *in³*	~Kg	~lb	PED 2014/68/EU
GSRS1000-10	10	0.39	64	2.52	54	2.13	920 ± 5%	*2068*	1222	2748	1402	3152	29.0	1.77	0.51	1.12	✓
GSRS1000-13	13	0.51	70	2.76	57	2.24			1270	2856	1476	3318	34.0	2.07	0.54	1.19	✓
GSRS1000-16	16	0.63	76	2.99	60	2.36			1309	2943	1536	3453	39.0	2.38	0.56	1.23	✓
GSRS1000-22	22	0.87	88	3.46	66	2.60			1368	3075	1628	3660	48.0	2.93	0.61	1.34	✓
GSRS1000-29	29	1.14	102	4.02	73	2.87			1416	3183	1705	3833	59.0	3.60	0.67	1.48	✓
GSRS1000-35	35	1.38	114	4.49	79	3.11			1446	3252	1754	3943	69.0	4.21	0.71	1.57	✓
GSRS1000-47	47	1.85	138	5.43	91	3.58			1490	3349	1824	4101	88.0	5.37	0.81	1.79	✓
GSRS1000-60	60	2.36	164	6.46	104	4.09			1521	3419	1875	4215	108.0	6.59	0.91	2.01	✓
GSRS1000-72	72	2.83	188	7.40	116	4.57			1542	3466	1908	4289	127.0	7.75	1.05	2.31	✓
GSRS1000-77	77	3.03	198	7.80	121	4.76			1549	3481	1920	4316	135.0	8.24	1.09	2.40	✓
GSRS1000-97	97	3.82	238	9.37	141	5.55			1570	3530	1956	4397	166.0	10.13	1.21	2.67	✓
GSRS1000-122	122	4.80	288	11.34	166	6.54			1588	3571	1986	4465	205.0	12.51	1.41	3.11	✓

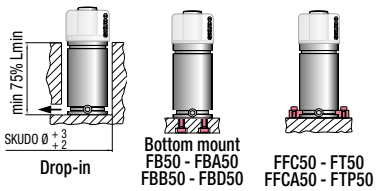
Order Callout Example:
GSRS1000-47
GSRS1000-47-N
GSRS1000-47-CP



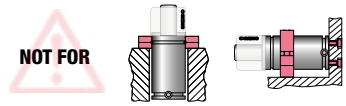




Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER



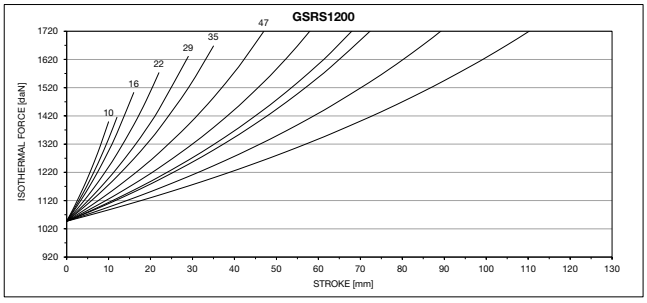
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

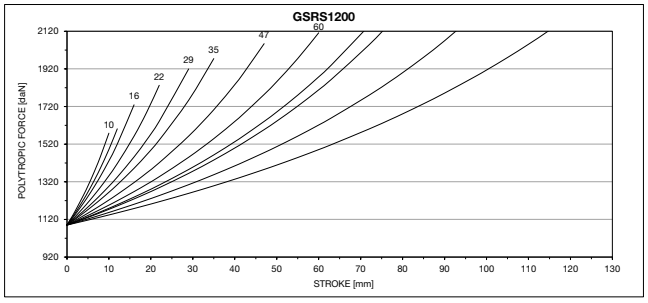
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	170 bar *2465 psi*	20 bar *290 psi*	6.15 cm² *0.953 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV01000C

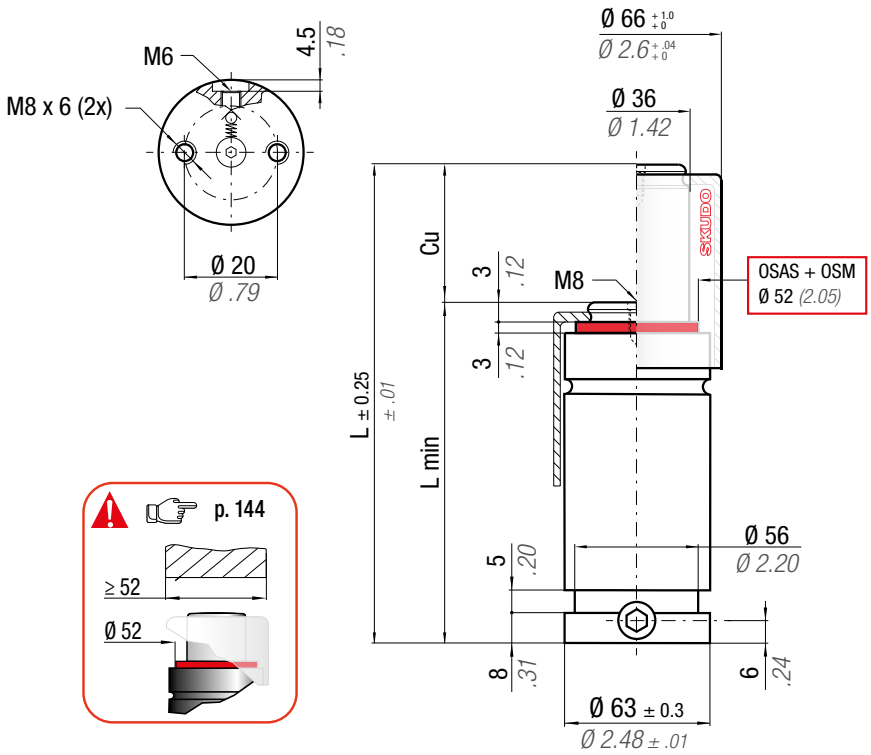
CALLOUT	Cu		L		L min		Fo Initial force		$F1_i$ * End force		$F1_p$ ** End force		Vo				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSRS1200-10	10	*0.39*	64	*2.52*	54	*2.13*			1401	*3150*	1581	*3554*	30.0	*1.83*	0.51	*1.12*	✓
GSRS1200-13	13	*0.51*	70	*2.76*	57	*2.24*			1458	*3278*	1664	*3741*	34.0	*2.07*	0.54	*1.19*	✓
GSRS1200-16	16	*0.63*	76	*2.99*	60	*2.36*			1505	*3383*	1732	*3893*	39.0	*2.38*	0.56	*1.23*	✓
GSRS1200-22	22	*0.87*	88	*3.46*	66	*2.60*	1060	*2383*	1575	*3540*	1836	*4127*	48.0	*2.93*	0.61	*1.34*	✓
GSRS1200-29	29	*1.14*	102	*4.02*	73	*2.87*	± 5%		1633	*3670*	1922	*4321*	59.0	*3.60*	0.67	*1.48*	✓
GSRS1200-35	35	*1.38*	114	*4.49*	79	*3.11*			1669	*3753*	1977	*4445*	69.0	*4.21*	0.71	*1.57*	✓
GSRS1200-47	47	*1.85*	138	*5.43*	91	*3.58*	170 bar		1721	*3870*	2056	*4622*	88.0	*5.37*	0.81	*1.79*	✓
GSRS1200-60	60	*2.36*	164	*6.46*	104	*4.09*	*2465 psi*		1759	*3954*	2114	*4752*	108.0	*6.59*	0.91	*2.01*	✓
GSRS1200-72	72	*2.83*	188	*7.40*	116	*4.57*	+ 20 °C *+68 °F*		1784	*4010*	2152	*4837*	127.0	*7.75*	1.05	*2.31*	✓
GSRS1200-77	77	*3.03*	198	*7.80*	121	*4.76*			1792	*4029*	2165	*4866*	135.0	*8.24*	1.09	*2.40*	✓
GSRS1200-97	97	*3.82*	238	*9.37*	141	*5.55*			1818	*4087*	2205	*4957*	166.0	*10.13*	1.21	*2.67*	✓
GSRS1200-122	122	*4.80*	288	*11.34*	166	*6.54*			1840	*4136*	2239	*5033*	205.0	*12.51*	1.41	*3.11*	✓

Order Callout Example:
GSRS1200-47
GSRS1200-47-N
GSRS1200-47-CP

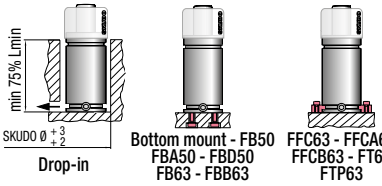




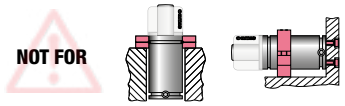
GSRS 1500



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER



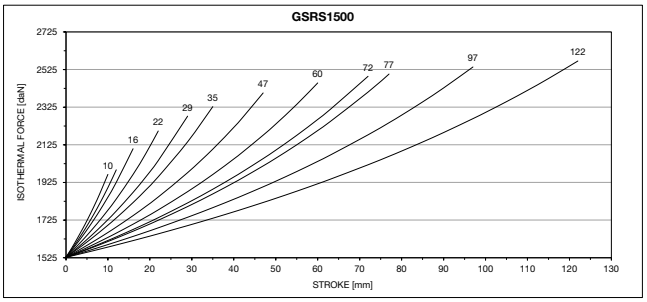
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

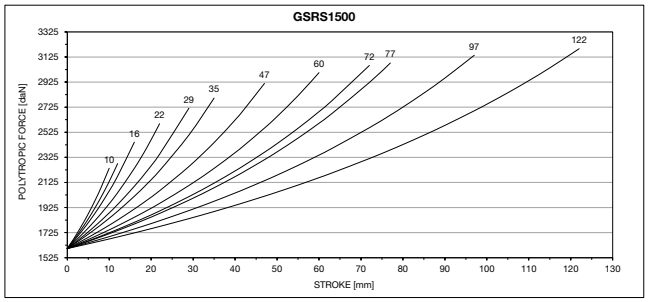
**** $F1_p$ =** Polytrophic end force at 100% Cu

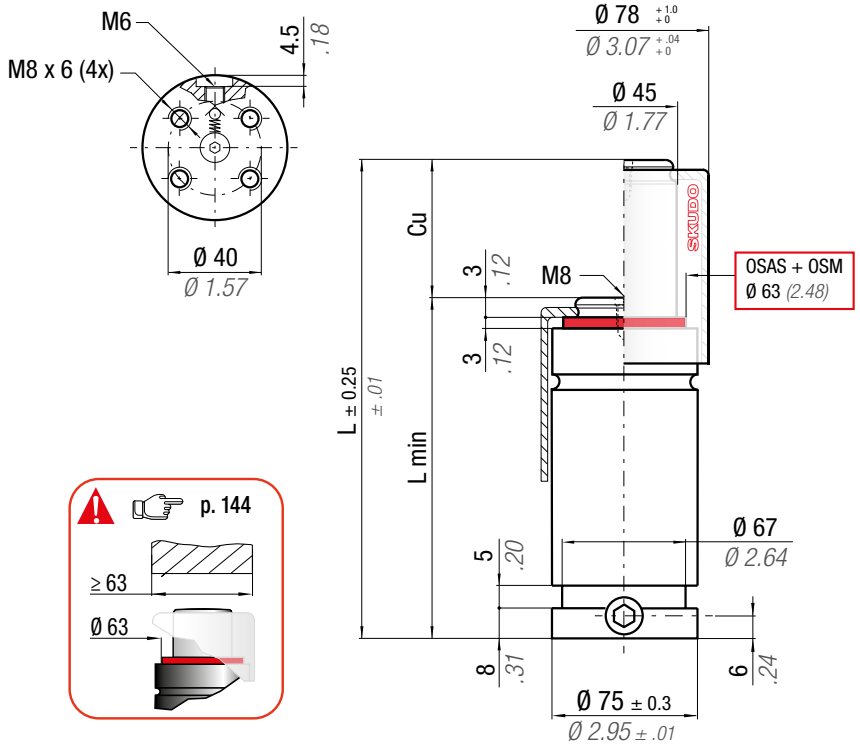
N2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	10.18 cm² *1.578 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV01500C

CALLOUT	Cu		L		L min		Fo Initial force		$F1_i$ * End force		$F1_p$ ** End force		Vo		~Kg	~lb	PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSRS1500-10	10	*0.39*	70	*2.76*	60	*2.36*	1530 ± 5% 150 bar *2175 psi* + 20 °C *+68 °F*	*3440*	1970	*4428*	2241	*5038*	53.0	*3.23*	0.92	*2.03*	✓
GSRS1500-13	13	*0.51*	76	*2.99*	63	*2.48*			2045	*4597*	2355	*5294*	61.0	*3.72*	0.96	*2.12*	✓
GSRS1500-16	16	*0.63*	82	*3.23*	66	*2.60*			2106	*4735*	2450	*5508*	69.0	*4.21*	0.99	*2.18*	✓
GSRS1500-22	22	*0.87*	94	*3.70*	72	*2.83*			2201	*4947*	2596	*5836*	85.0	*5.19*	1.06	*2.34*	✓
GSRS1500-29	29	*1.14*	108	*4.25*	79	*3.11*			2279	*5124*	2720	*6115*	103.0	*6.28*	1.14	*2.51*	✓
GSRS1500-35	35	*1.38*	120	*4.72*	85	*3.35*			2330	*5238*	2801	*6297*	119.0	*7.26*	1.21	*2.67*	✓
GSRS1500-47	47	*1.85*	144	*5.67*	97	*3.82*			2402	*5401*	2917	*6558*	151.0	*9.21*	1.35	*2.98*	✓
GSRS1500-60	60	*2.36*	170	*6.69*	110	*4.33*			2455	*5520*	3003	*6751*	186.0	*11.35*	1.51	*3.33*	✓
GSRS1500-72	72	*2.83*	194	*7.64*	122	*4.80*			2490	*5599*	3060	*6879*	217.0	*13.24*	1.65	*3.64*	✓
GSRS1500-77	77	*3.03*	204	*8.03*	127	*5.00*			2502	*5625*	3079	*6922*	231.0	*14.09*	1.71	*3.77*	✓
GSRS1500-97	97	*3.82*	244	*9.61*	147	*5.79*			2540	*5709*	3141	*7061*	284.0	*17.32*	1.94	*4.28*	✓
GSRS1500-122	122	*4.80*	294	*11.57*	172	*6.77*			2571	*5780*	3193	*7178*	350.0	*21.35*	2.23	*4.92*	✓

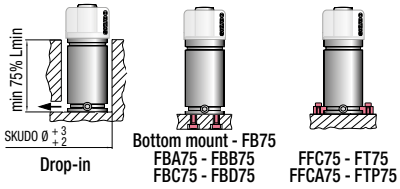
Order Callout Example:
GSRS1500-47
GSRS1500-47-N
GSRS1500-47-CP



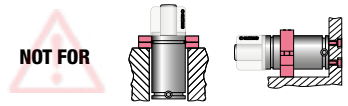




Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER



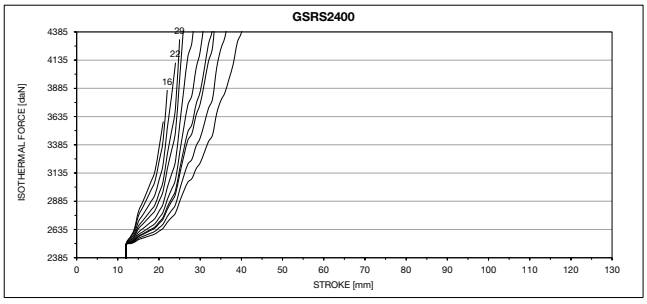
$F1_i$ = Isothermal end force at 100% Cu p. 16

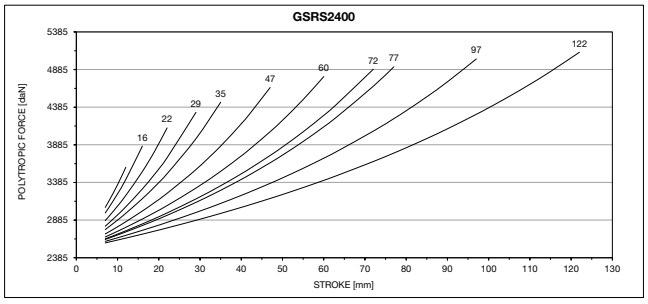
$F1_p$ = Polytrophic end force at 100% Cu

N2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	15.90 cm² *2.465 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV02400C

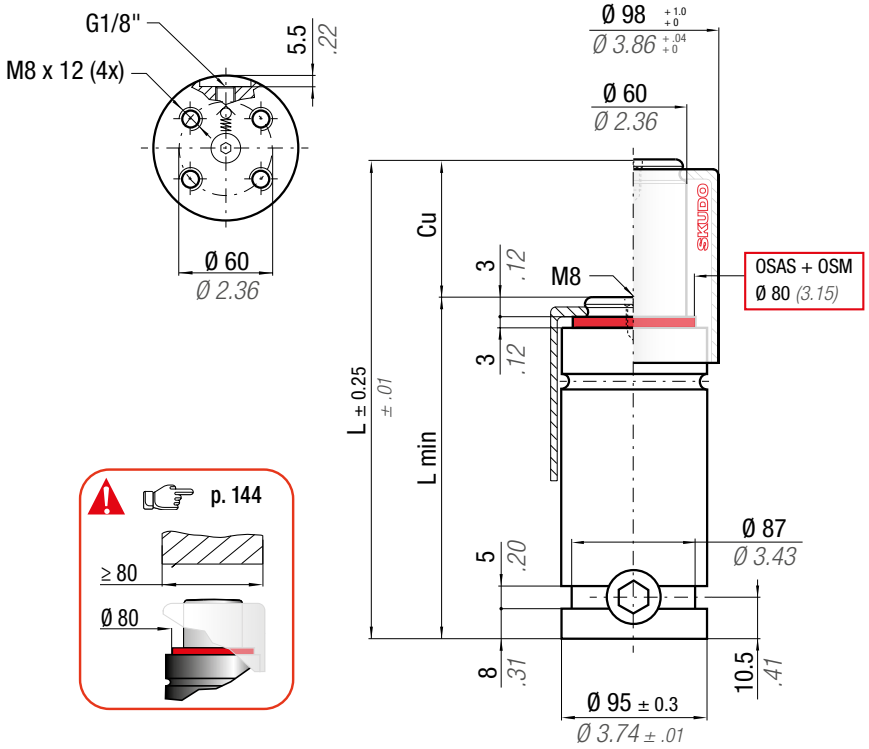
CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	Fo Initial force daN	Fo lb	$F1_i$ * End force daN	$F1_i$ * lb	$F1_p$ ** End force daN	$F1_p$ ** lb	Vo cm³	Vo in³	~Kg	~lb	PED 2014/68/EU
GSRS2400-13	13	*0.51*	77	*3.03*	64	*2.52*	2385 ± 5%	*5362*	3220	*7238*	3718	*8358*	93.0	*5.67*	1.36	*3.00*	✓
GSRS2400-16	16	*0.63*	83	*3.27*	67	*2.64*			3320	*7465*	3873	*8707*	105.0	*6.41*	1.40	*3.09*	✓
GSRS2400-22	22	*0.87*	95	*3.74*	73	*2.87*			3476	*7814*	4115	*9251*	129.0	*7.87*	1.50	*3.31*	✓
GSRS2400-29	29	*1.14*	109	*4.29*	80	*3.15*			3606	*8107*	4322	*9716*	157.0	*9.58*	1.61	*3.55*	✓
GSRS2400-35	35	*1.38*	121	*4.76*	86	*3.39*			3690	*8296*	4456	*10017*	181.0	*11.04*	1.70	*3.75*	✓
GSRS2400-47	47	*1.85*	145	*5.71*	98	*3.86*	150 bar *2175 psi*		3811	*8568*	4651	*10456*	230.0	*14.03*	1.89	*4.17*	✓
GSRS2400-60	60	*2.36*	171	*6.73*	111	*4.37*			3900	*8768*	4796	*10782*	282.0	*17.20*	2.09	*4.61*	✓
GSRS2400-72	72	*2.83*	195	*7.68*	123	*4.84*			3959	*8900*	4892	*10998*	330.0	*20.13*	2.28	*5.03*	✓
GSRS2400-77	77	*3.03*	205	*8.07*	128	*5.04*	+ 20 °C *+68 °F*		3979	*8946*	4925	*11072*	350.0	*21.35*	2.36	*5.20*	✓
GSRS2400-97	97	*3.82*	245	*9.65*	148	*5.83*			4042	*9087*	5029	*11306*	431.0	*26.29*	2.67	*5.89*	✓
GSRS2400-122	122	*4.80*	295	*11.61*	173	*6.81*			4096	*9207*	5117	*11503*	532.0	*32.45*	3.07	*6.77*	✓

Order Callout Example:
GSRS2400-47
GSRS2400-47-N
GSRS2400-47-CP

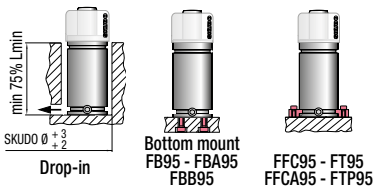




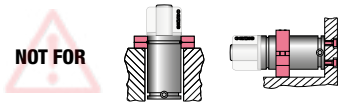
GSRS 4200



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

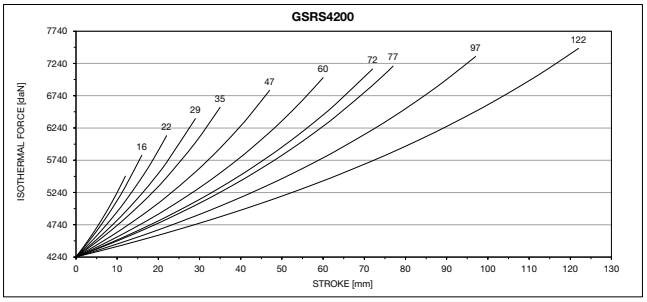


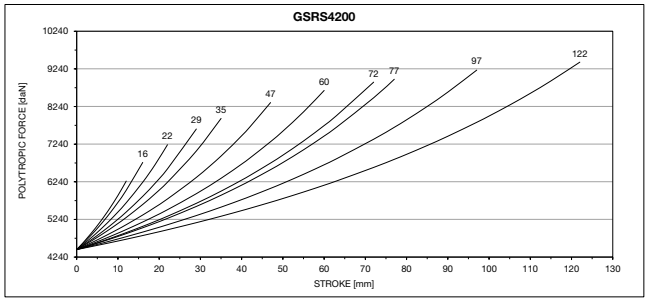
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16 **** $F1_p$ =** Polytrophic end force at 100% Cu

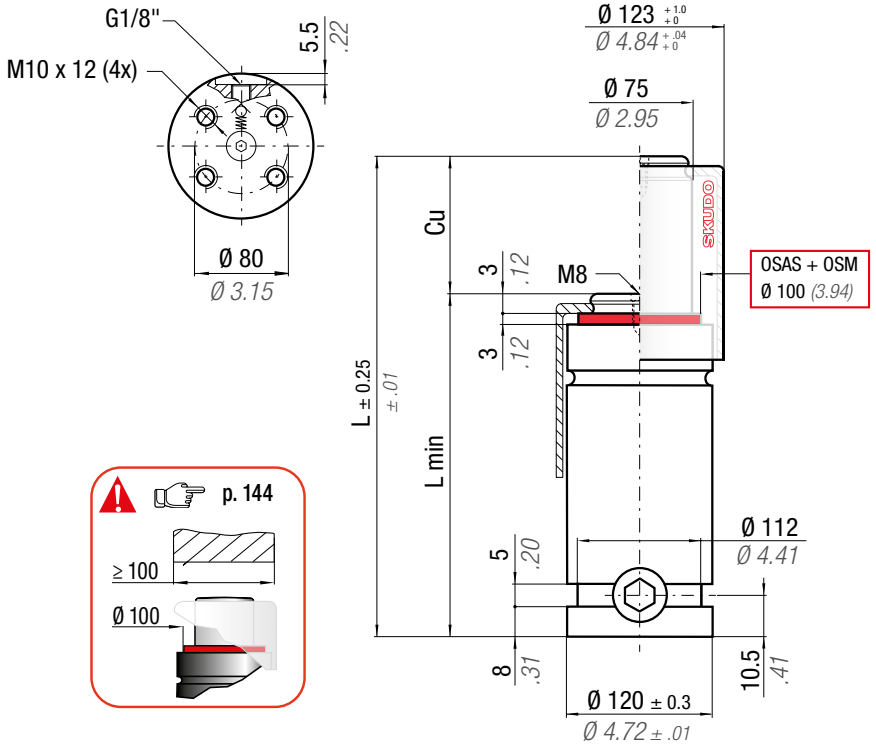
N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	28.27 cm² *4.382 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV04200C

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSRS4200-13	13	*0.51*	90	*3.54*	77	*3.03*	4240 ± 5%	*9532*	5633	*12664*	6471	*14547*	173.0	*10.55*	2.76	*6.08*	✓
GSRS4200-16	16	*0.63*	96	*3.78*	80	*3.15*			5823	*13090*	6761	*15199*	194.0	*11.83*	2.83	*6.24*	✓
GSRS4200-22	22	*0.87*	108	*4.25*	86	*3.39*			6125	*13771*	7232	*16258*	234.0	*14.27*	2.98	*6.57*	✓
GSRS4200-29	29	*1.14*	122	*4.80*	93	*3.66*			6390	*14365*	7650	*17198*	281.0	*17.14*	3.16	*6.97*	✓
GSRS4200-35	35	*1.38*	134	*5.28*	99	*3.90*			6566	*14761*	7931	*17830*	322.0	*19.64*	3.30	*7.28*	✓
GSRS4200-47	47	*1.85*	158	*6.22*	111	*4.37*	150 bar *2175 psi*		6827	*15347*	8351	*18774*	403.0	*24.58*	3.60	*7.94*	✓
GSRS4200-60	60	*2.36*	184	*7.24*	124	*4.88*			7024	*15790*	8673	*19498*	491.0	*29.95*	3.93	*8.66*	✓
GSRS4200-72	72	*2.83*	208	*8.19*	136	*5.35*			7158	*16091*	8893	*19992*	572.0	*34.89*	4.20	*9.26*	✓
GSRS4200-77	77	*3.03*	218	*8.58*	141	*5.55*	+ 20 °C *+68 °F*		7204	*16195*	8970	*20165*	606.0	*36.97*	4.35	*9.59*	✓
GSRS4200-97	97	*3.82*	258	*10.16*	161	*6.34*			7350	*16524*	9212	*20709*	741.0	*45.20*	4.85	*10.69*	✓
GSRS4200-122	122	*4.80*	308	*12.13*	186	*7.32*			7476	*16807*	9423	*21184*	910.0	*55.51*	5.47	*12.06*	✓

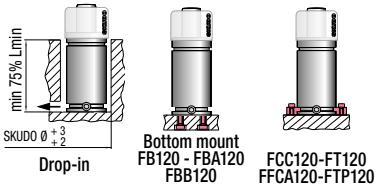
Order Callout Example:
GSRS4200-47
GSRS4200-47-N
GSRS4200-47-CP



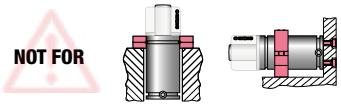




Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER



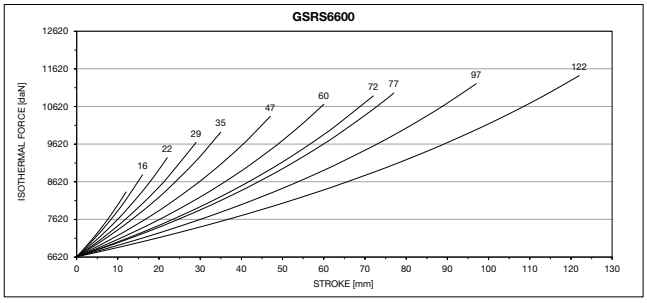
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

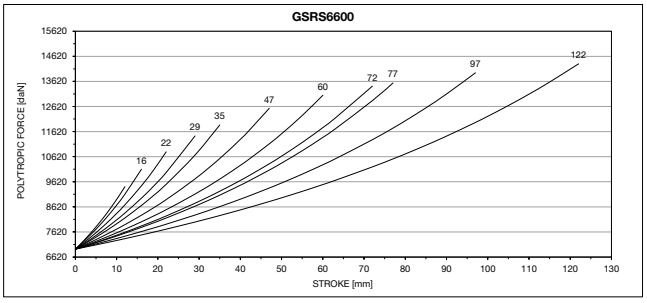
**** $F1_p$ =** Polytrophic end force at 100% Cu

N2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	44.18 cm² *6.848 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV06600C

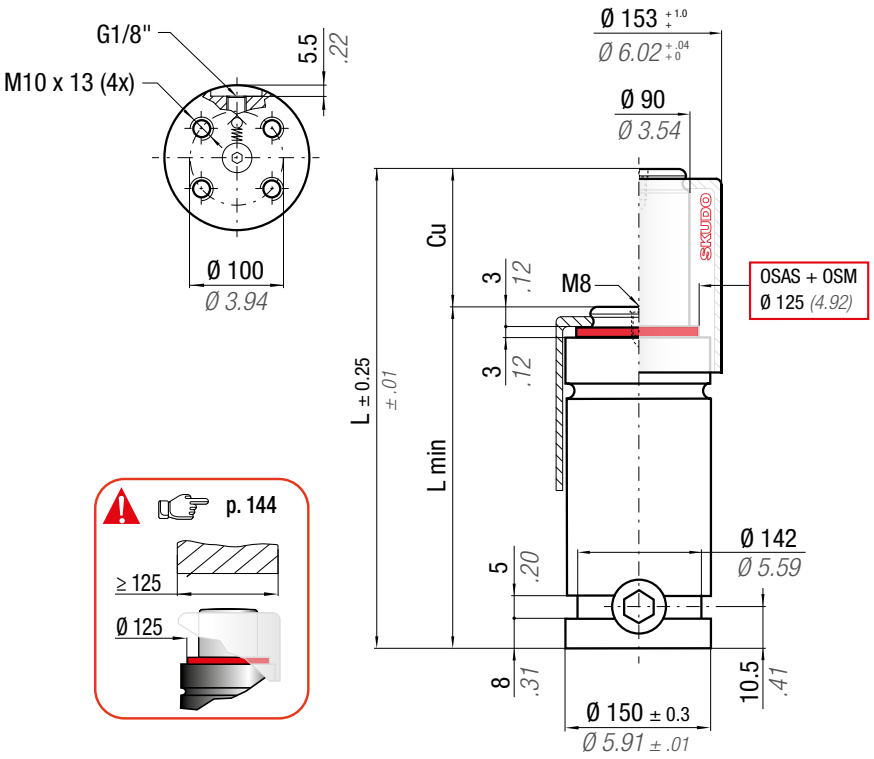
CALLOUT	Cu mm	Cu inch	L mm	L inch	L min mm	L min inch	Fo daN	Fo lb	$F1_i$ * daN	$F1_i$ * lb	$F1_p$ ** daN	$F1_p$ ** lb	Vo cm³	Vo in³	~Kg	~lb	PED 2014/68/EU
GSRS6600-13	13	0.51	100	3.94	87	3.43	6630 ± 5%	*14904*	8535	*19187*	9705	*21818*	300.0	*18.30*	5.06	*11.16*	✓
GSRS6600-16	16	0.63	106	4.17	90	3.54			8812	*19811*	10127	*22766*	332.0	*20.25*	5.17	*11.40*	✓
GSRS6600-22	22	0.87	118	4.65	96	3.78			9265	*20829*	10824	*24333*	396.0	*24.16*	5.42	*11.95*	✓
GSRS6600-29	29	1.14	132	5.20	103	4.06			9671	*21742*	11458	*25759*	471.0	*28.73*	5.69	*12.54*	✓
GSRS6600-35	35	1.38	144	5.67	109	4.29			9946	*22360*	11892	*26734*	535.0	*32.64*	5.93	*13.07*	✓
GSRS6600-47	47	1.85	168	6.61	121	4.76	150 bar *2175 psi*		10362	*23296*	12557	*28229*	663.0	*40.44*	6.40	*14.11*	✓
GSRS6600-60	60	2.36	194	7.64	134	5.28			10684	*24018*	13077	*29398*	802.0	*48.92*	6.90	*15.21*	✓
GSRS6600-72	72	2.83	218	8.58	146	5.75			10905	*24515*	13438	*30210*	930.0	*56.73*	7.40	*16.31*	✓
GSRS6600-77	77	3.03	228	8.98	151	5.94	+ 20 °C *+68 °F*		10982	*24689*	13564	*30493*	983.0	*59.96*	7.60	*16.76*	✓
GSRS6600-97	97	3.82	268	10.55	171	6.73			11229	*25243*	13970	*31406*	1197.0	*73.02*	8.40	*18.52*	✓
GSRS6600-122	122	4.80	318	12.52	196	7.72			11443	*25726*	14326	*32206*	1464.0	*89.30*	9.40	*20.72*	✓

Order Callout Example:
GSRS6600-47
GSRS6600-47-N
GSRS6600-47-CP

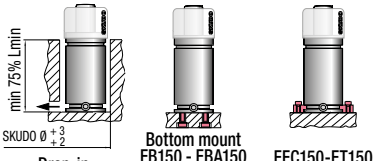




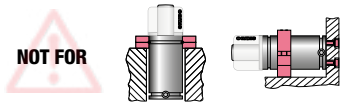
GSRS 9500



Fixings



OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

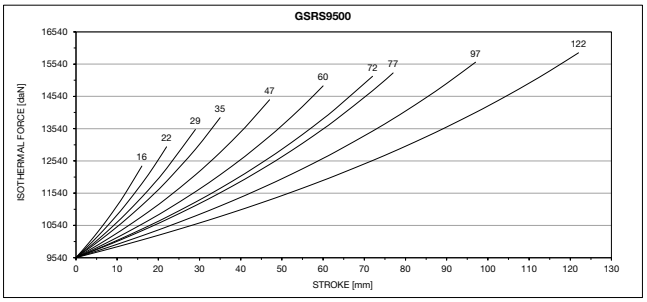


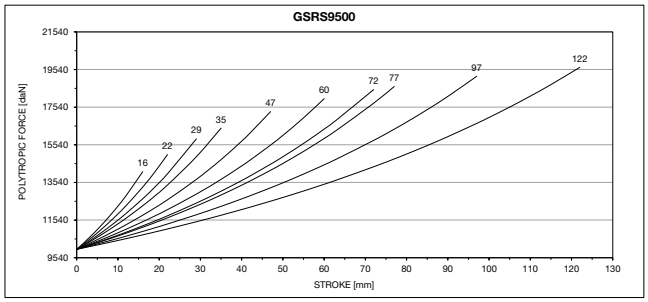
$F1_i$ = Isothermal end force at 100% Cu p. 16 **$F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	150 bar *2175 psi*	20 bar *290 psi*	63.62 cm² *9.861 in²*	~ 20 - 100 (at 20°C)	1.8 m/s	GSRK-39BMRV09500C

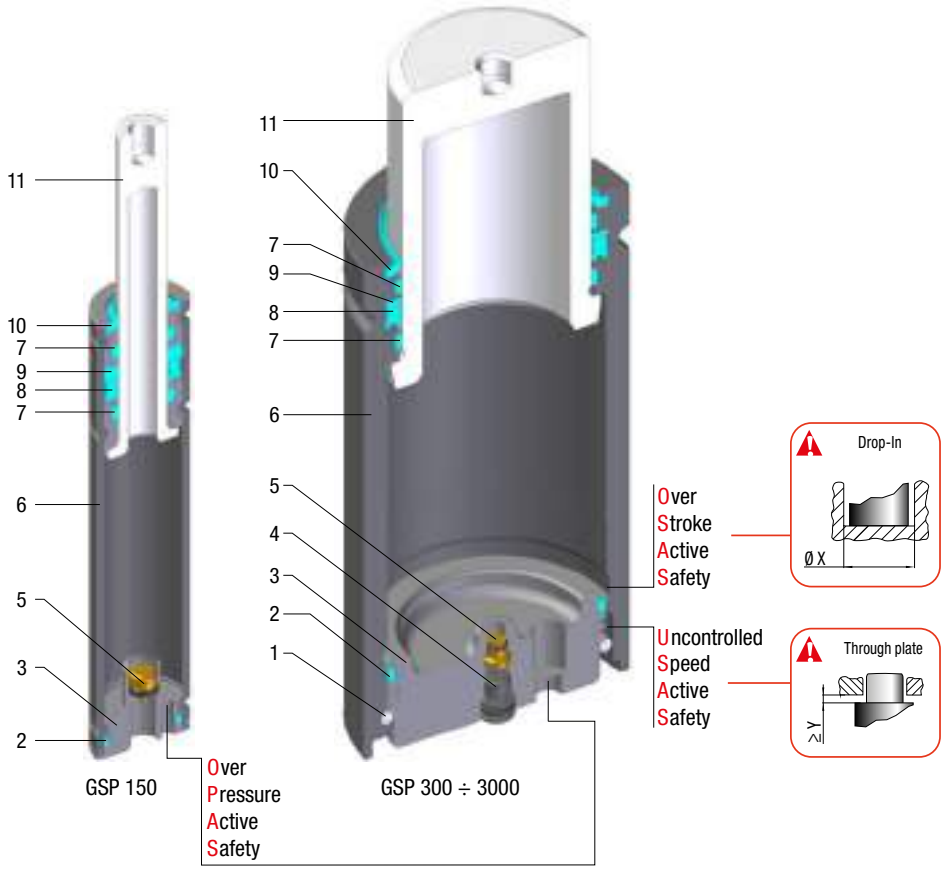
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~*lb*	
GSRS9500-16	16	*0.63*	116	*4.57*	100	*3.94*			12388	*27849*	14124	*31752*	517.0	*31.54*	9.51	*20.97*	✓
GSRS9500-22	22	*0.87*	128	*5.04*	106	*4.17*			12985	*29192*	15035	*33800*	614.0	*37.45*	9.90	*21.83*	✓
GSRS9500-29	29	*1.14*	142	*5.59*	113	*4.45*	9540 ± 5%	*21446*	13523	*30401*	15867	*35670*	727.0	*44.35*	10.30	*22.71*	✓
GSRS9500-35	35	*1.38*	154	*6.06*	119	*4.69*			13888	*31222*	16439	*36956*	823.0	*50.20*	10.70	*23.59*	✓
GSRS9500-47	47	*1.85*	178	*7.01*	131	*5.16*	150 bar *2175 psi*		14443	*32470*	17317	*38930*	1017.0	*62.04*	11.40	*25.13*	✓
GSRS9500-60	60	*2.36*	204	*8.03*	144	*5.67*			14873	*33436*	18004	*40475*	1226.0	*74.79*	12.20	*26.90*	✓
GSRS9500-72	72	*2.83*	228	*8.98*	156	*6.14*			15170	*34104*	18483	*41551*	1420.0	*86.62*	13.00	*28.66*	✓
GSRS9500-77	77	*3.03*	238	*9.37*	161	*6.34*	+ 20 °C *+68 °F*		15274	*34337*	18651	*41929*	1500.3	*91.52*	13.30	*29.32*	✓
GSRS9500-97	97	*3.82*	278	*10.94*	181	*7.13*			15606	*35083*	19191	*43143*	1823.0	*111.20*	14.60	*32.19*	✓
GSRS9500-122	122	*4.80*	328	*12.91*	206	*8.11*			15896	*35735*	19666	*44211*	2226.0	*135.79*	16.10	*35.49*	✓

Order Callout Example:
GSRS9500-47
GSRS9500-47-N
GSRS9500-47-CP





Maximum force, rod sealed - Maximale Kraft, Kolbenstange dichtung
Forces maximale, joint de tige - Máxima fuerza, estanqueidad vástago - Força máxima, estanquidade na haste



1	Retaining ring
2	Dual ring seal
3	Bottom base
4	Plug
5	Valve
6	Body
7	Guide ring
8	Rod seal
9	Back-up ring
10	Rod wiper
11	Rod (nitrited superfinished)

SEALING	ROD SEAL
DESIGN	BOTTOM BASE - BODY DESIGN

Available versions

Standard code

Self contained

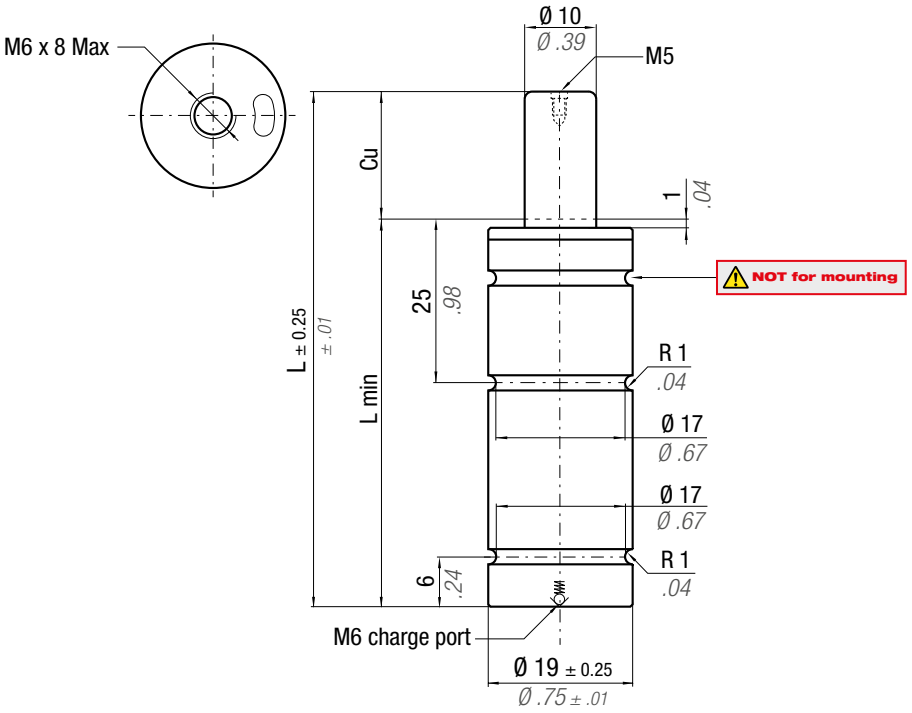
Add "-W" to standard code

Self contained

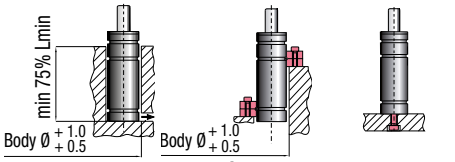
+

Secondary wiper

Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	daN	lb				
GSP19	19	0.75	15 - 80	0.59 - 3.15	150	337	-	-	✓	-
GSP25	25	0.98	15 - 80	0.59 - 3.15	300	674	✓	✓	-	-
GSP32	32	1.26	10 - 80	0.59 - 3.15	500	1124	✓	✓	-	-
GSP38	38	1.50	10 - 80	0.39 - 3.15	1000	2248	✓	✓	✓	-
GSP50	50	1.97	10 - 80	0.39 - 3.15	2000	4496	✓	✓	✓	-
GSP63	63	2.48	10 - 80	0.39 - 3.15	3000	6744	✓	✓	✓	-



Fixings



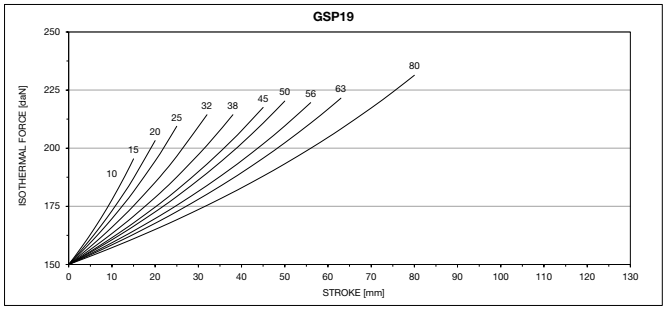
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

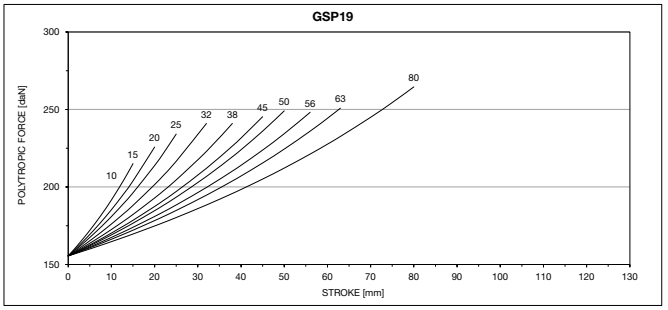
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	191 bar *2770 psi*	20 bar *290 psi*	0.79 cm² *0.122 in²*	~ 40 - 80 (at 20°C)	1.8 m/s	Disposable

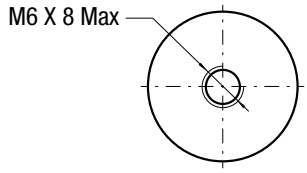
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSP19-10	10	*0.39*	75	*2.95*	65	*2.56*	150 *337* ± 5% 191 bar *2770 psi* + 20 °C *+68 °F*		185	*416*	201	*452*	5.22	*0.32*	0.09	*0.20*	✓
GSP19-15	15	*0.59*	85	*3.35*	70	*2.76*			195	*438*	214	*481*	6.4	*0.39*	0.09	*0.20*	✓
GSP19-20	20	*0.79*	95	*3.74*	75	*2.95*			203	*456*	225	*506*	7.5	*0.46*	0.10	*0.22*	✓
GSP19-25	25	*0.98*	105	*4.13*	80	*3.15*			209	*470*	234	*526*	8.6	*0.52*	0.11	*0.24*	✓
GSP19-32	32	*1.26*	120	*4.72*	88	*3.46*			214	*481*	241	*542*	10.4	*0.63*	0.11	*0.24*	✓
GSP19-38	38	*1.50*	135	*5.31*	97	*3.82*			214	*481*	241	*542*	12.4	*0.76*	0.12	*0.26*	✓
GSP19-45	45	*1.77*	150	*5.91*	105	*4.13*			217	*488*	245	*551*	14.1	*0.86*	0.13	*0.29*	✓
GSP19-50	50	*1.97*	160	*6.30*	110	*4.33*			220	*495*	249	*560*	15.3	*0.93*	0.14	*0.31*	✓
GSP19-56	56	*2.20*	175	*6.89*	119	*4.69*			219	*492*	248	*558*	17.2	*1.05*	0.14	*0.31*	✓
GSP19-63	63	*2.48*	190	*7.48*	127	*5.00*			221	*497*	251	*564*	19.0	*1.16*	0.15	*0.33*	✓
GSP19-80	80	*3.15*	220	*8.66*	140	*5.51*			231	*519*	264	*593*	22.0	*1.34*	0.17	*0.37*	✓

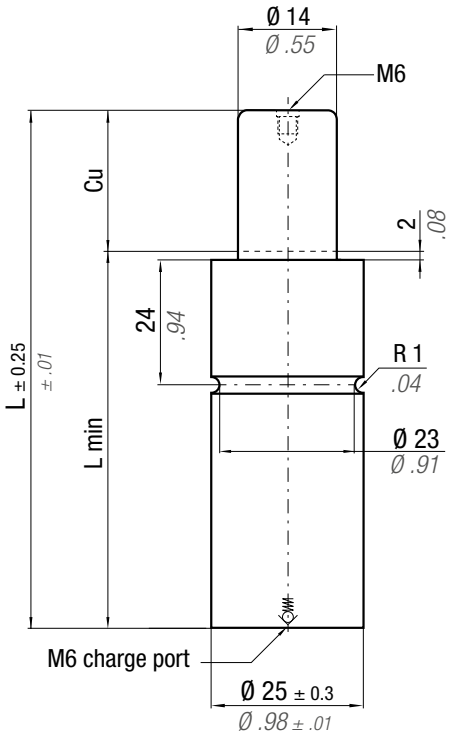
Order Callout Example:
GSP19-50

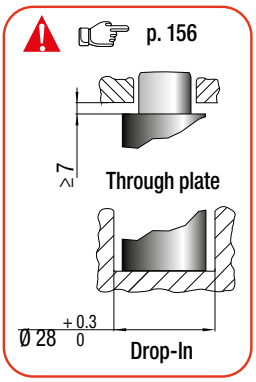




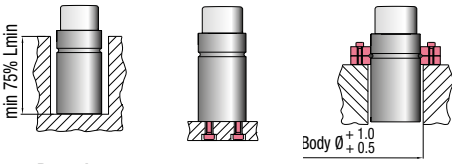
GSP 25







Fixings



*** $F1_i$ =**
Isothermal end force at 100% Cu

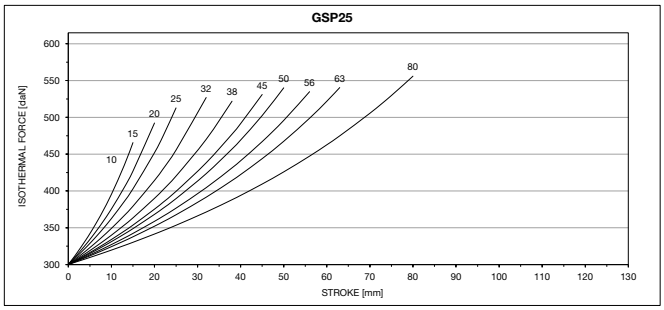
p. 16

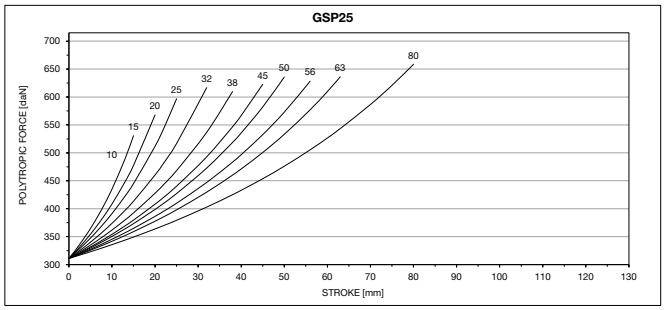
**** $F1_p$ =**
Polytrophic end force at 100% Cu

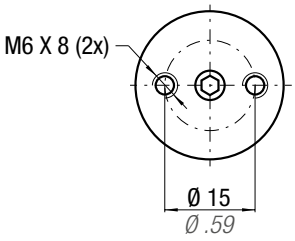
N2	°F / °C	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
	32 - 176 / 0 - 80	± 0.33 %/°C	195 bar *2828 psi*	20 bar *290 psi*	1.54 cm² *0.239 in²*	~ 40 - 80 (at 20°C)	1.6 m/s	Disposable

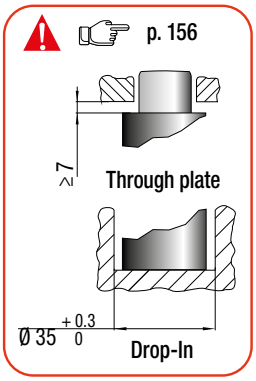
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSP25-10	10	*0.39*	75	*2.95*	65	*2.56*	300 *674* ± 5%		430	*967*	481	*1081*	6.38	*0.39*	0.17	*0.37*	✓
GSP25-15	15	*0.59*	85	*3.35*	70	*2.76*			462	*1039*	526	*1182*	8.2	*0.50*	0.18	*0.40*	✓
GSP25-20	20	*0.79*	95	*3.74*	75	*2.95*			489	*1099*	563	*1266*	9.8	*0.60*	0.20	*0.44*	✓
GSP25-25	25	*0.98*	105	*4.13*	80	*3.15*			510	*1147*	592	*1331*	11.5	*0.70*	0.21	*0.46*	✓
GSP25-32	32	*1.26*	120	*4.72*	88	*3.46*			524	*1178*	613	*1378*	14.1	*0.86*	0.23	*0.51*	✓
GSP25-38	38	*1.50*	135	*5.31*	97	*3.82*	195 bar *2828 psi*		520	*1169*	606	*1362*	17.0	*1.04*	0.25	*0.55*	✓
GSP25-45	45	*1.77*	150	*5.91*	105	*4.13*			529	*1189*	620	*1394*	19.6	*1.20*	0.27	*0.60*	✓
GSP25-50	50	*1.97*	160	*6.30*	110	*4.33*			538	*1209*	633	*1423*	21.3	*1.30*	0.28	*0.62*	✓
GSP25-56	56	*2.20*	175	*6.89*	119	*4.69*	+ 20 °C *+68 °F*		533	*1198*	626	*1407*	24.1	*1.47*	0.30	*0.66*	✓
GSP25-63	63	*2.48*	190	*7.48*	127	*5.00*			539	*1212*	634	*1425*	26.7	*1.63*	0.32	*0.71*	✓
GSP25-80	80	*3.15*	225	*8.86*	145	*5.71*			555	*1248*	656	*1475*	32.7	*1.99*	0.36	*0.79*	✓

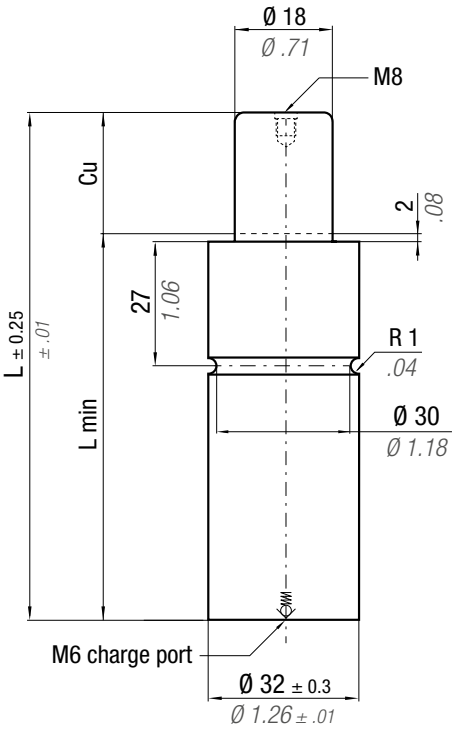
Order Callout Example:
GSP25-50



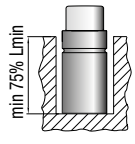






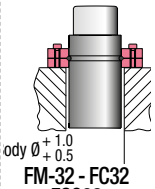


Fixings

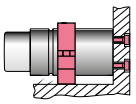


Drop-In

Bottom mount FBE32



FM-32 - FC32 FCQ32



FSA32 - FSD32

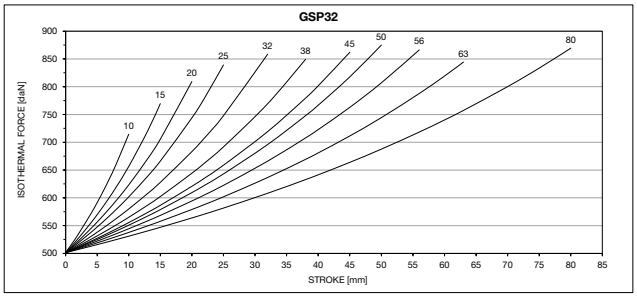
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

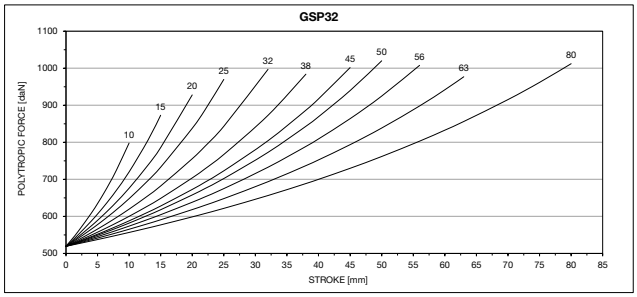
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	197 bar *2857 psi*	20 bar *290 psi*	2.54 cm² *0.394 in²*	~ 40 - 80 (at 20°C)	1.6 m/s	Disposable

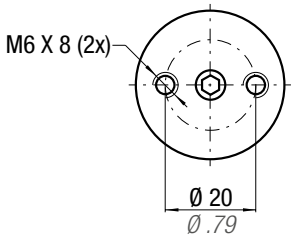
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSP32-10	10	*0.39*	75	*2.95*	65	*2.56*	500 *1124* ± 5% 197 bar *2857 psi* + 20 °C *+68 °F*		659	*1481*	723	*1625*	13.4	*0.82*	0.29	*0.64*	✓
GSP32-15	15	*0.59*	85	*3.35*	70	*2.76*			709	*1594*	790	*1776*	16.4	*1.00*	0.31	*0.68*	✓
GSP32-20	20	*0.79*	95	*3.74*	75	*2.95*			747	*1679*	842	*1893*	19.3	*1.18*	0.33	*0.73*	✓
GSP32-25	25	*0.98*	105	*4.13*	80	*3.15*			778	*1749*	884	*1987*	22.2	*1.35*	0.34	*0.75*	✓
GSP32-32	32	*1.26*	120	*4.72*	88	*3.46*			803	*1805*	919	*2066*	26.8	*1.63*	0.37	*0.82*	✓
GSP32-38	38	*1.50*	135	*5.31*	97	*3.82*			804	*1807*	920	*2068*	31.8	*1.94*	0.40	*0.88*	✓
GSP32-45	45	*1.77*	150	*5.91*	105	*4.13*			820	*1843*	943	*2120*	36.4	*2.22*	0.43	*0.95*	✓
GSP32-50	50	*1.97*	160	*6.30*	110	*4.33*			834	*1875*	963	*2165*	39.3	*2.40*	0.45	*0.99*	✓
GSP32-56	56	*2.20*	175	*6.89*	119	*4.69*			831	*1868*	958	*2154*	44.3	*2.70*	0.48	*1.06*	✓
GSP32-63	63	*2.48*	195	*7.68*	132	*5.20*			816	*1834*	937	*2106*	51.4	*3.14*	0.52	*1.15*	✓
GSP32-80	80	*3.15*	230	*9.06*	150	*5.91*			844	*1897*	976	*2194*	61.8	*3.77*	0.59	*1.30*	✓

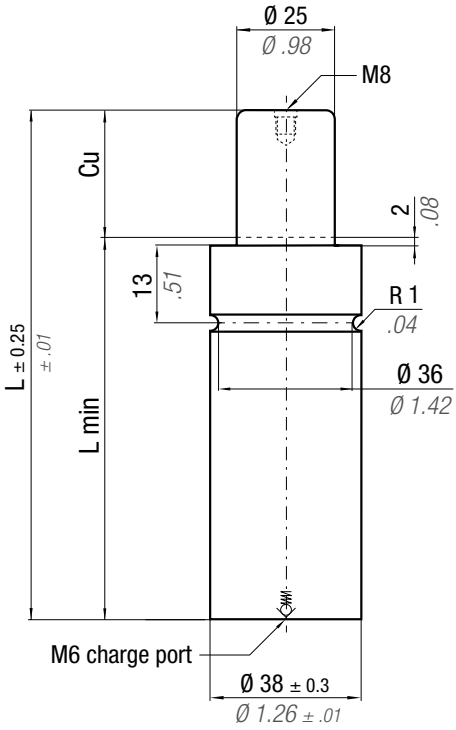
Order Callout Example:
GSP32-50

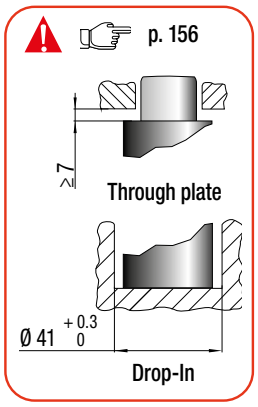




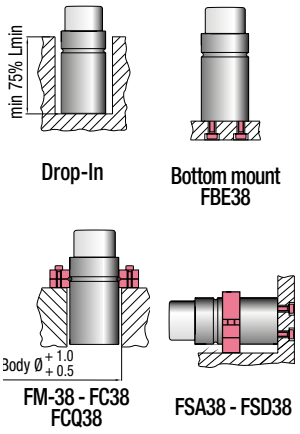
GSP 38







Fixings



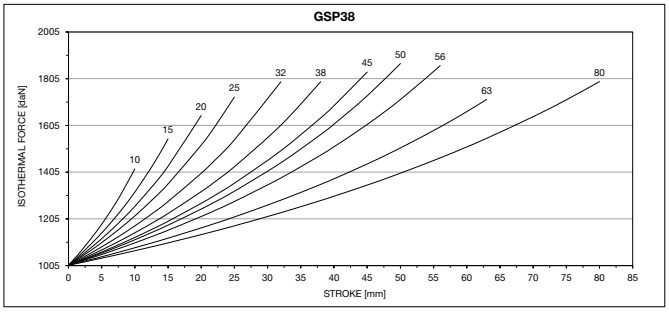
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

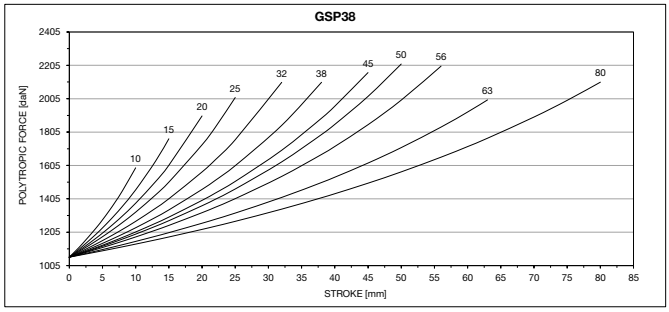
**** $F1_p$ =** Polytrophic end force at 100% Cu

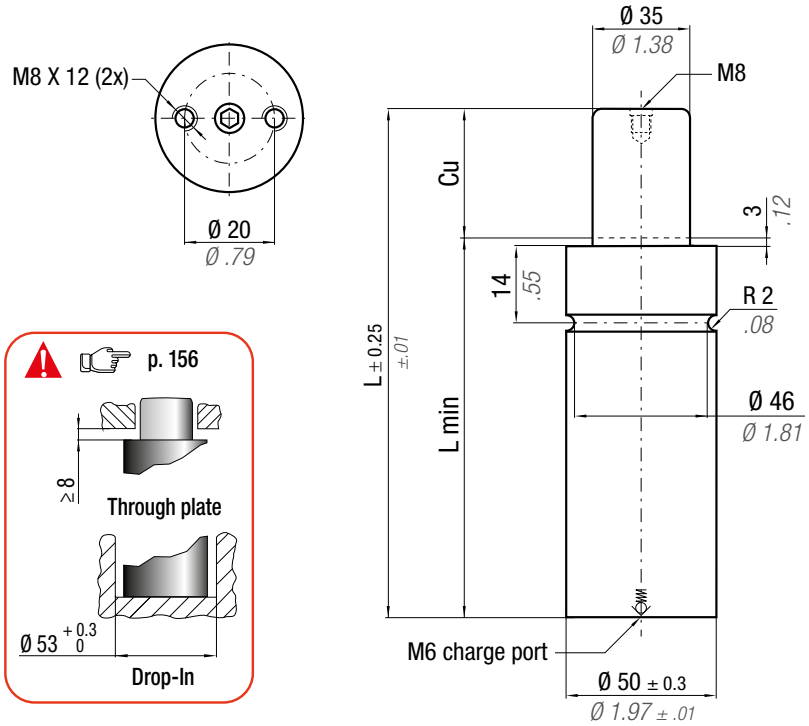
N2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	205 bar *2973 psi*	20 bar *290 psi*	4.91 cm² *0.761 in²*	~ 40 - 80 (at 20°C)	1.6 m/s	GSRK-39BMMP01000A

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0		~Kg	~lb	PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*			
GSP38-10	10	*0.39*	75	*2.95*	65	*2.56*			1417	*3186*	1588	*3570*	21.5	*1.31*	0.37	*0.82*	✓
GSP38-15	15	*0.59*	85	*3.35*	70	*2.76*			1545	*3473*	1762	*3961*	26.6	*1.62*	0.39	*0.86*	✓
GSP38-20	20	*0.79*	95	*3.74*	75	*2.95*	1000 *2248* ± 5%		1645	*3698*	1898	*4267*	31.6	*1.93*	0.41	*0.90*	✓
GSP38-25	25	*0.98*	105	*4.13*	80	*3.15*			1724	*3876*	2009	*4516*	36.7	*2.24*	0.44	*0.97*	✓
GSP38-32	32	*1.26*	120	*4.72*	88	*3.46*			1789	*4022*	2100	*4721*	44.5	*2.71*	0.48	*1.06*	✓
GSP38-38	38	*1.50*	135	*5.31*	97	*3.82*	205 bar *2973 psi*		1790	*4024*	2101	*4723*	52.8	*3.22*	0.51	*1.12*	✓
GSP38-45	45	*1.77*	150	*5.91*	105	*4.13*			1832	*4118*	2159	*4854*	60.6	*3.70*	0.55	*1.21*	✓
GSP38-50	50	*1.97*	160	*6.30*	110	*4.33*			1868	*4199*	2210	*4968*	65.7	*4.01*	0.58	*1.28*	✓
GSP38-56	56	*2.20*	175	*6.89*	119	*4.69*	+ 20 °C *+68 °F*		1859	*4179*	2198	*4941*	74.0	*4.51*	0.62	*1.37*	✓
GSP38-63	63	*2.48*	205	*8.07*	142	*5.59*			1716	*3858*	1997	*4489*	93.1	*5.68*	0.70	*1.54*	✓
GSP38-80	80	*3.15*	240	*9.45*	160	*6.30*			1792	*4029*	2103	*4728*	111.1	*6.78*	0.79	*1.74*	✓

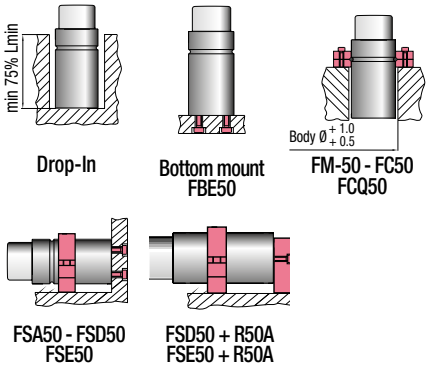
Order Callout Example:
GSP38-50







Fixings



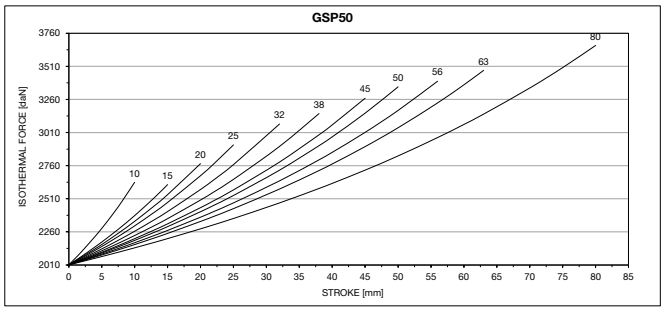
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

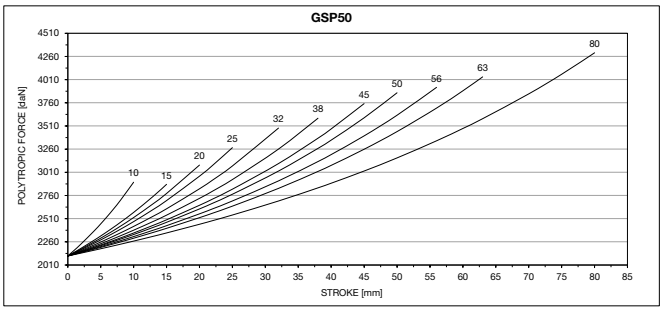
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	209 bar *3031 psi*	20 bar *290 psi*	9.62 cm² *1.491 in²*	~ 40 - 80 (at 20°C)	1.6 m/s	GSRK-39BMMP02000A

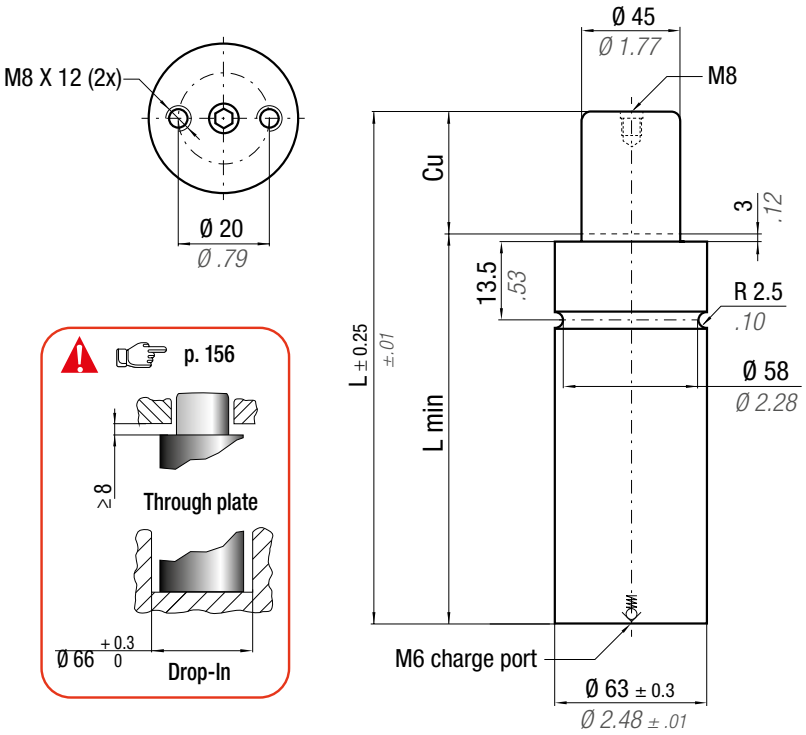
CALLOUT	Cu mm	Cu *inch*	L mm	L *inch*	L min mm	L min *inch*	F0 Initial force daN	F0 *lb*	$F1_i$ * End force daN	$F1_i$ * *lb*	$F1_p$ ** End force daN	$F1_p$ ** *lb*	V0 cm³	V0 *in³*	~Kg	~lb	PED 2014/68/EU
GSP50-10	10	*0.39*	90	*3.54*	80	*3.15*	2000 ± 5%	*4496*	2641	*5937*	2911	*6544*	52.0	*3.17*	0.76	*1.68*	✓
GSP50-15	15	*0.59*	115	*4.53*	100	*3.94*			2621	*5892*	2885	*6486*	80.0	*4.88*	0.89	*1.96*	✓
GSP50-20	20	*0.79*	125	*4.92*	105	*4.13*			2780	*6250*	3094	*6956*	89.1	*5.44*	0.93	*2.05*	✓
GSP50-25	25	*0.98*	135	*5.31*	110	*4.33*			2922	*6569*	3283	*7380*	98.3	*6.00*	0.98	*2.16*	✓
GSP50-32	32	*1.26*	150	*5.91*	118	*4.65*			3080	*6924*	3495	*7857*	112.3	*6.85*	1.04	*2.29*	✓
GSP50-38	38	*1.50*	165	*6.50*	127	*5.00*	209 bar *3031 psi*		3159	*7102*	3601	*8095*	127.1	*7.75*	1.11	*2.45*	✓
GSP50-45	45	*1.77*	180	*7.09*	135	*5.31*			3275	*7362*	3759	*8451*	141.1	*8.61*	1.18	*2.60*	✓
GSP50-50	50	*1.97*	190	*7.48*	140	*5.51*			3361	*7556*	3876	*8714*	150.3	*9.17*	1.22	*2.69*	✓
GSP50-56	56	*2.20*	205	*8.07*	149	*5.87*	+ 20 °C *+68 °F*		3403	*7650*	3934	*8844*	165.0	*10.07*	1.29	*2.84*	✓
GSP50-63	63	*2.48*	220	*8.66*	157	*6.18*			3485	*7835*	4047	*9098*	179.1	*10.93*	1.36	*3.00*	✓
GSP50-80	80	*3.15*	255	*10.04*	175	*6.89*			3673	*8257*	4308	*9685*	211.4	*12.90*	1.51	*3.33*	✓

Order Callout Example:
GSP50-50

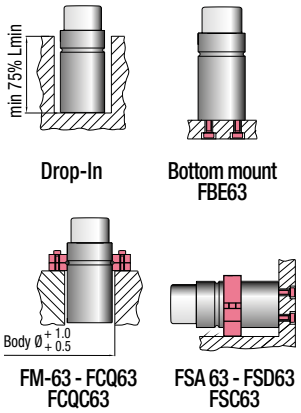




GSP 63



Fixings



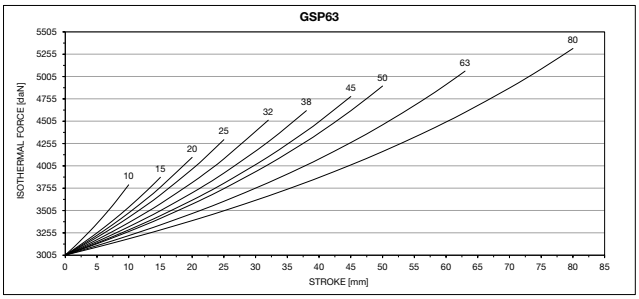
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

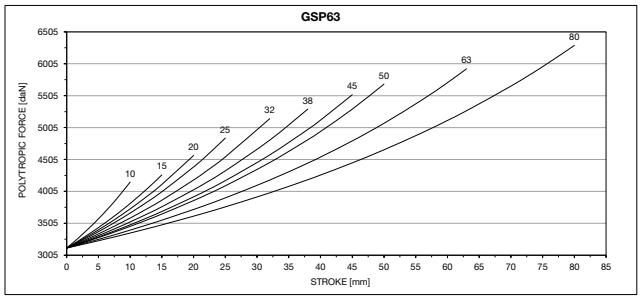
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	189 bar *1741 psi*	20 bar *290 psi*	15.90 cm² *2.465 in²*	~ 40 - 80 (at 20°C)	1.6 m/s	GSRK-39BMMP03000A

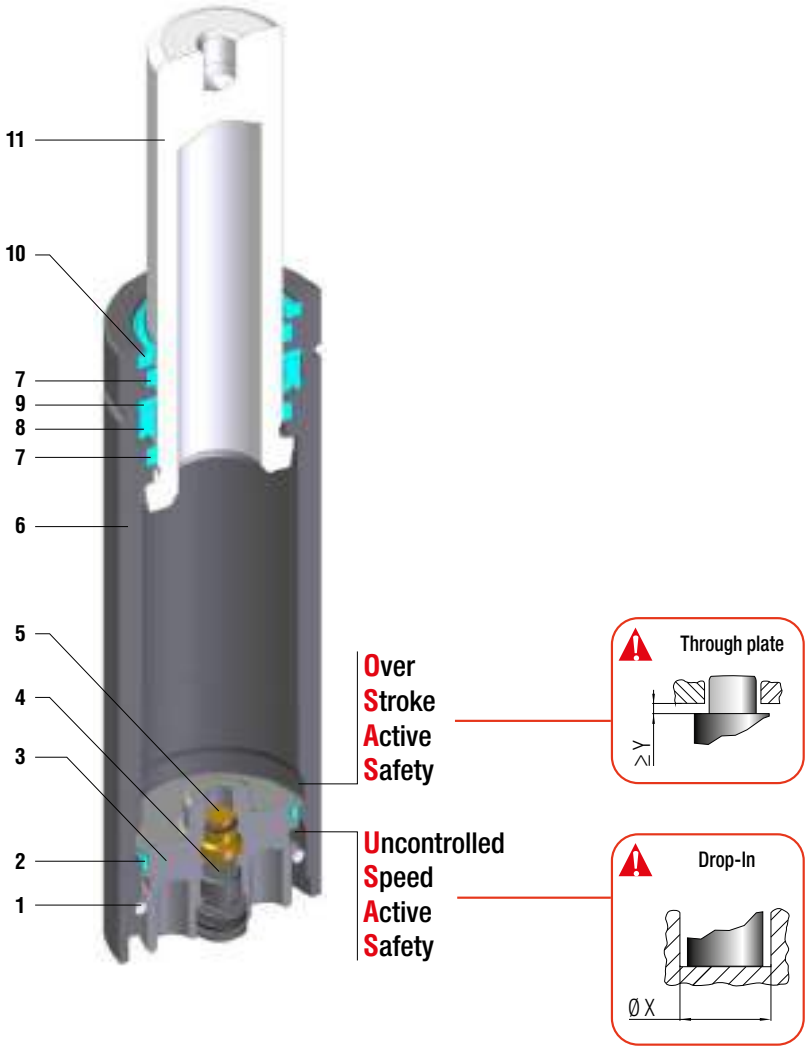
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSP63-10	10	*0.39*	95	*3.74*	85	*3.35*	3000 *6744* ± 5% 189 bar *2741 psi* + 20 °C *+68 °F*		3862	*8682*	4243	*9539*	89.7	*5.47*	1.25	*2.76*	✓
GSP63-15	15	*0.59*	115	*4.53*	100	*3.94*			3932	*8839*	4339	*9754*	126.4	*7.71*	1.40	*3.09*	✓
GSP63-20	20	*0.79*	125	*4.92*	105	*4.13*			4165	*9363*	4657	*10469*	141.8	*8.65*	1.46	*3.22*	✓
GSP63-25	25	*0.98*	135	*5.31*	110	*4.33*			4370	*9824*	4941	*11108*	157.2	*9.59*	1.52	*3.35*	✓
GSP63-32	32	*1.26*	150	*5.91*	118	*4.65*			4593	*10325*	5253	*11809*	180.9	*11.03*	1.62	*3.57*	✓
GSP63-38	38	*1.50*	165	*6.50*	127	*5.00*			4696	*10557*	5399	*12137*	205.8	*12.55*	1.72	*3.79*	✓
GSP63-45	45	*1.77*	180	*7.09*	135	*5.31*			4856	*10917*	5626	*12648*	229.6	*14.01*	1.82	*4.01*	✓
GSP63-50	50	*1.97*	190	*7.48*	140	*5.51*			4975	*11184*	5795	*13028*	245.0	*14.95*	1.89	*4.17*	✓
GSP63-63	63	*2.48*	220	*8.66*	157	*6.18*			5137	*11548*	6029	*13554*	293.6	*17.91*	2.08	*4.59*	✓
GSP63-80	80	*3.15*	255	*10.04*	175	*6.89*			5389	*12115*	6395	*14377*	348.2	*21.24*	2.31	*5.09*	✓

Order Callout Example:
GSP63-50





Ø 32 — Maximum force, rod sealed - Maximale Kraft, Kolbenstange dichtung
Forces maximale, joint de tige - Máxima fuerza, estanqueidad vástago - Força máxima, estanquidade na haste



Available version

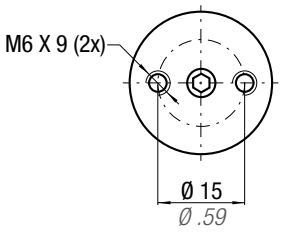
Standard code

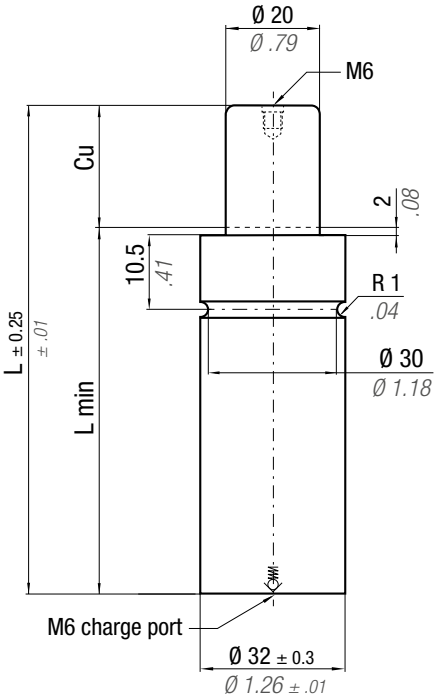
Self contained

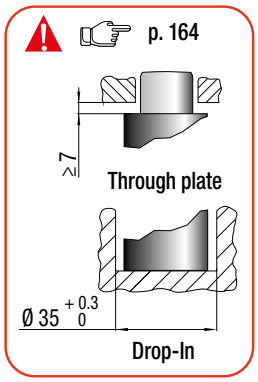
SEALING	ROD SEAL
DESIGN	BOTTOM BASE - BODY DESIGN

1	Retaining ring	**5**	Valve	**9**	Back-up ring
2	Dual ring seal	**6**	Body	**10**	Rod wiper
3	Bottom base	**7**	Guide ring	**11**	Rod (nitrited superfinished)
4	Plug	**8**	Rod seal		

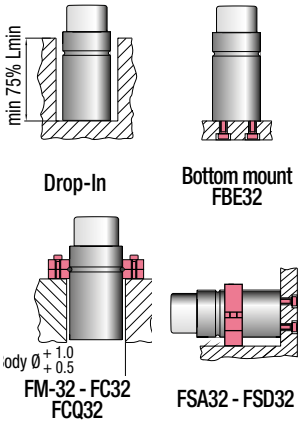
Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO
	mm	*inch*	mm	*inch*	daN	*lb*				
GSQ32	32	*1.26*	10 - 80	*0.39 - 3.15*	660	*1484*	✓	✓	-	-







Fixings



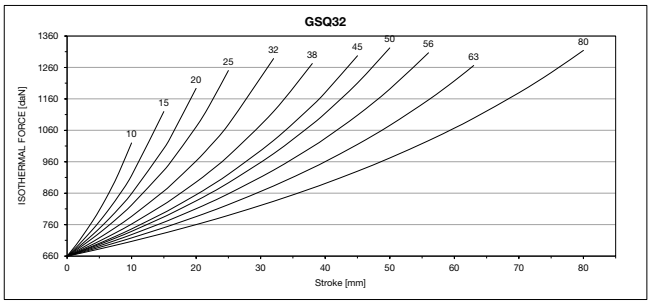
*** $F1_i$ =** Isothermal end force at 100% Cu p. 16

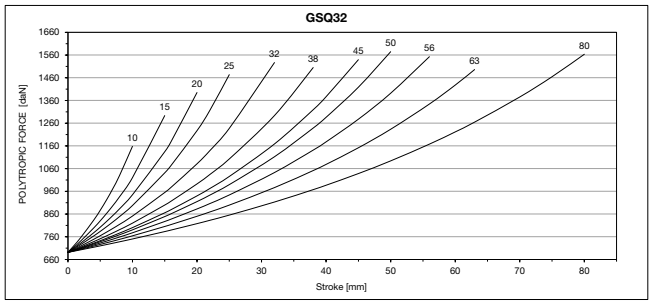
**** $F1_p$ =** Polytrophic end force at 100% Cu

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	210 bar *3045 psi*	20 bar *290 psi*	3.14 cm² *0.487 in²*	~ 40 - 80 (at 20°C)	1.6 m/s	Disposable

CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ End force *		$F1_p$ End force **		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSQ32-10	10	*0.39*	75	*2.95*	65	*2.56*	660 *1484* ± 5% 210 bar *3045 psi* + 20 °C *+68 °F*		987	*2219*	1114	*2504*	12.0	*0.73*	0.29	*0.64*	✓
GSQ32-15	15	*0.59*	85	*3.35*	70	*2.76*			1084	*2437*	1244	*2797*	15.0	*0.92*	0.31	*0.68*	✓
GSQ32-20	20	*0.79*	95	*3.74*	75	*2.95*			1157	*2601*	1344	*3021*	18.0	*1.10*	0.33	*0.73*	✓
GSQ32-25	25	*0.98*	105	*4.13*	80	*3.15*			1214	*2729*	1423	*3199*	21.0	*1.28*	0.35	*0.77*	✓
GSQ32-32	32	*1.26*	120	*4.72*	88	*3.46*			1256	*2824*	1482	*3332*	26.0	*1.59*	0.38	*0.84*	✓
GSQ32-38	38	*1.50*	135	*5.31*	97	*3.82*			1246	*2801*	1468	*3300*	32.0	*1.95*	0.41	*0.90*	✓
GSQ32-45	45	*1.77*	150	*5.91*	105	*4.13*			1273	*2862*	1506	*3386*	36.0	*2.20*	0.44	*0.97*	✓
GSQ32-50	50	*1.97*	160	*6.30*	110	*4.33*			1299	*2920*	1542	*3467*	39.0	*2.38*	0.46	*1.01*	✓
GSQ32-56	56	*2.20*	175	*6.89*	119	*4.69*			1287	*2893*	1525	*3428*	45.0	*2.75*	0.49	*1.08*	✓
GSQ32-63	63	*2.48*	195	*7.68*	132	*5.20*			1250	*2810*	1474	*3314*	52.0	*3.17*	0.53	*1.17*	✓
GSQ32-80	80	*3.15*	230	*9.06*	150	*5.91*			1300	*2923*	1543	*3469*	63.0	*3.84*	0.60	*1.32*	✓

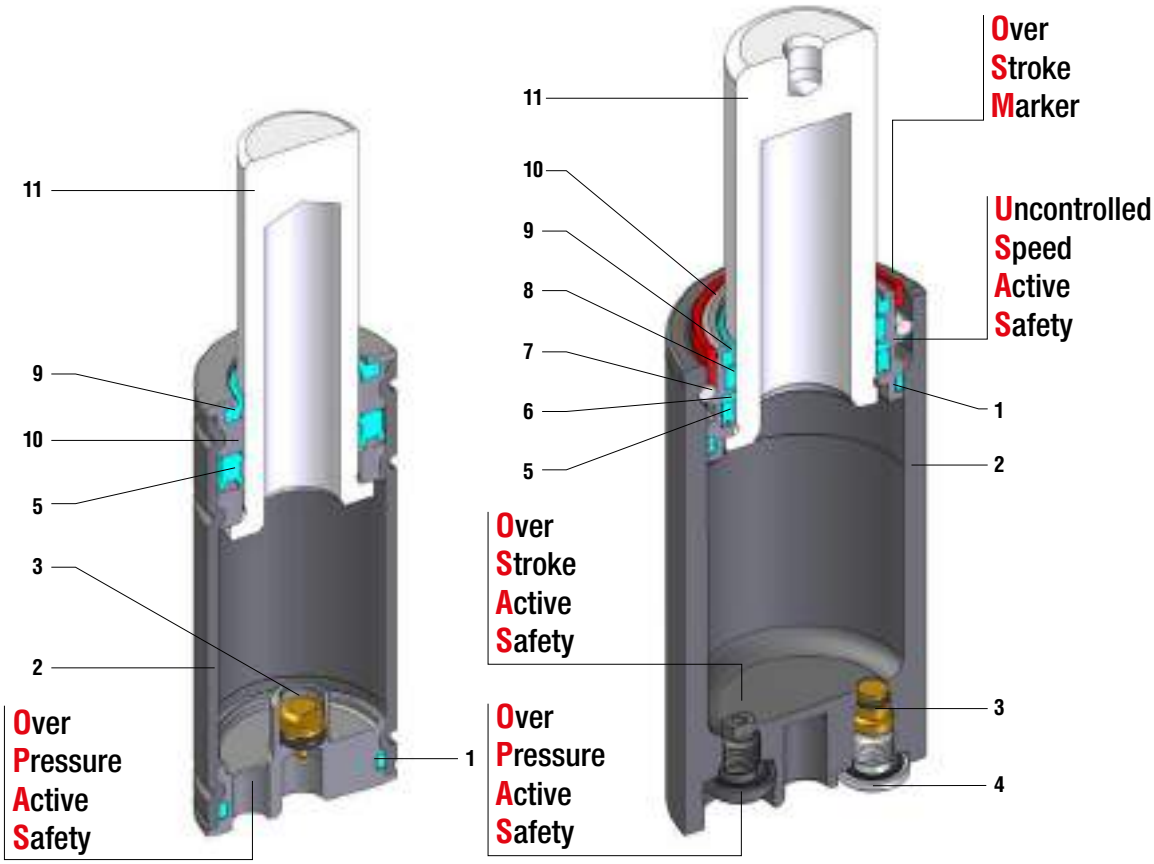
Order Callout Example:
GSQ32-50





GSN series

Features a lower height and is ideal for those occasions where a high-load capability is required.



GSN 25

GSN 32 ÷ 63

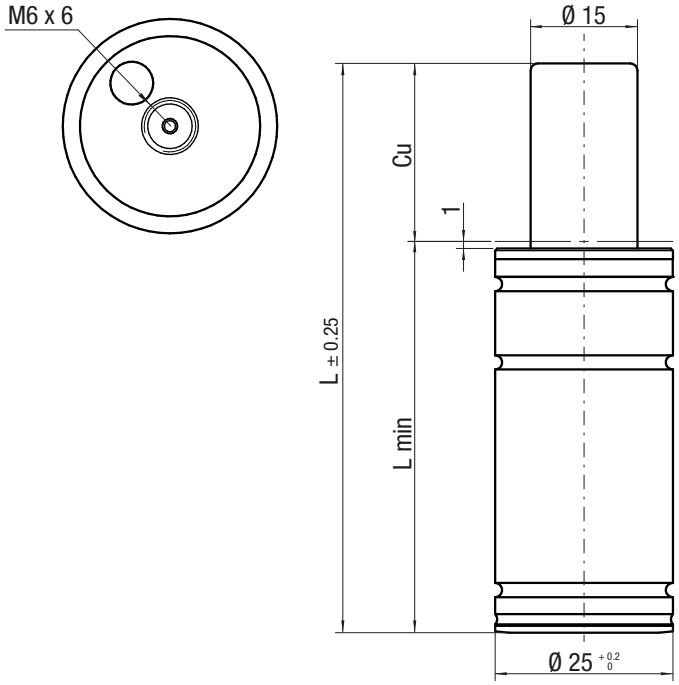
1	Dual ring seal
2	Body
3	Valve
4	Plug
5	Rod seal
6	Back-up ring
7	Retaining ring
8	Guide ring
9	Rod wiper
10	Bush
11	Rod (nitrited superfinished)

Available versions

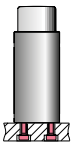
Standard code

Self contained

Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO
	mm	inch	mm	inch	daN	lb				
GSN25	25	0.98	10-80	0.39-3.15	300	674	-	-	✓	-
GSN32	32	1.26	10-80	0.39-3.15	375	843	✓	✓	✓	-
GSN38	38	1.50	10-80	0.39-3.15	750	1685	✓	✓	✓	-
GSN50	50	1.97	10-80	0.39-3.15	1500	3371	✓	✓	✓	-
GSN63	63	2.48	5-100	0.20-3.94	2000	4494	✓	-	✓	-



Fixings



Bottom mount

BM25
(Under development)

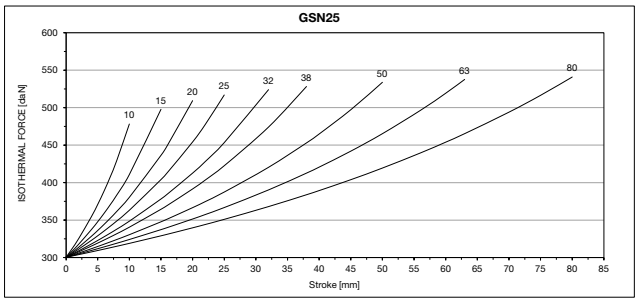
*** $F1_i$ =**
Isothermal end force at 100% Cu p. 16

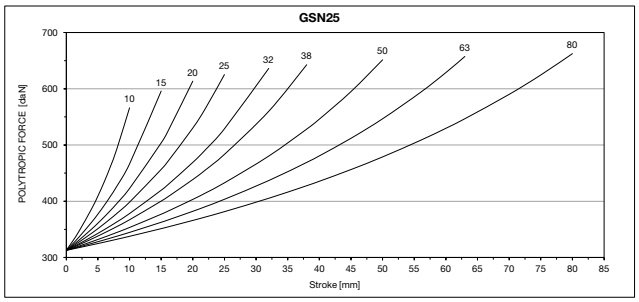
**** $F1_p$ =**
Polytrophic end force at 100% Cu

N_2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	170 bar *2466 psi*	20 bar *290 psi*	1.77 cm² *0.274 in²*	~ 40 - 100 (at 20°C)	1.6 m/s	Disposable

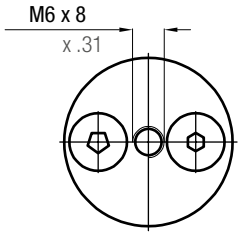
CALLOUT	Cu		L		L min		F0 Initial force		$F1_i$ * End force		$F1_p$ ** End force		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	~lb	
GSN25-10	10	*0.39*	50	*1.97*	40	*1.57*	300 *674* ± 10% 170 bar *2466 psi* +20 °C *+68 °F*		478	*1075*	566	*1273*	5.65	*0.34*	0.10	*0.22*	✓
GSN25-15	15	*0.59*	60	*2.36*	45	*1.77*			498	*1120*	596	*1340*	7.91	*0.48*	0.11	*0.24*	✓
GSN25-20	20	*0.79*	70	*2.76*	50	*1.97*			509	*1144*	614	*1379*	10.18	*0.62*	0.12	*0.26*	✓
GSN25-25	25	*0.98*	80	*3.15*	55	*2.17*			517	*1162*	625	*1406*	12.45	*0.76*	0.13	*0.29*	✓
GSN25-32	32	*1.26*	94	*3.70*	62	*2.44*			524	*1178*	636	*1430*	15.62	*0.95*	0.14	*0.31*	✓
GSN25-38	38	*1.50*	106	*4.17*	68	*2.68*			528	*1187*	643	*1445*	18.34	*1.12*	0.15	*0.33*	✓
GSN25-50	50	*1.97*	130	*5.12*	80	*3.15*			534	*1200*	651	*1465*	23.79	*1.45*	0.17	*0.37*	✓
GSN25-63	63	*2.48*	156	*6.14*	93	*3.66*			538	*1209*	657	*1478*	29.68	*1.81*	0.19	*0.42*	✓
GSN25-80	80	*3.15*	190	*7.48*	110	*4.33*			541	*1216*	662	*1489*	37.39	*2.28*	0.22	*0.49*	✓

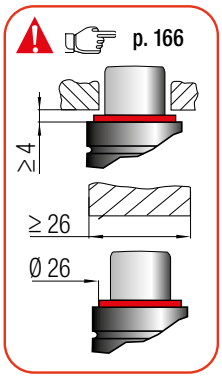
Order Callout Example:
GSN25-50

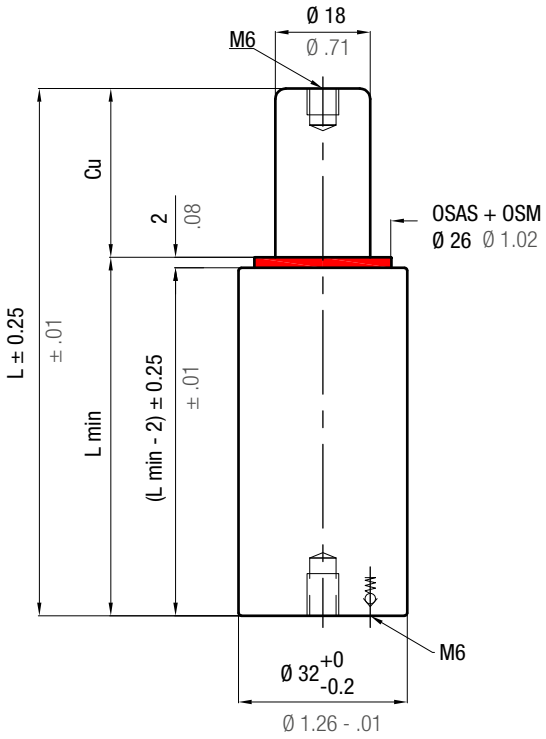




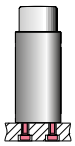
GSN 32







Fixings



Bottom mount

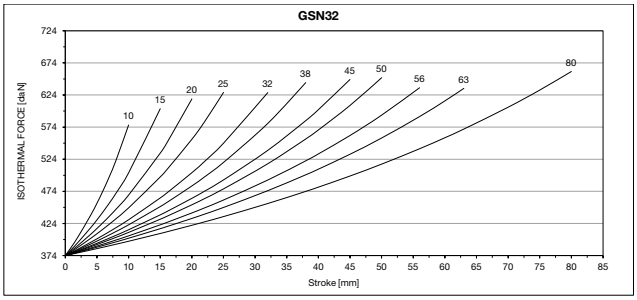
BM32

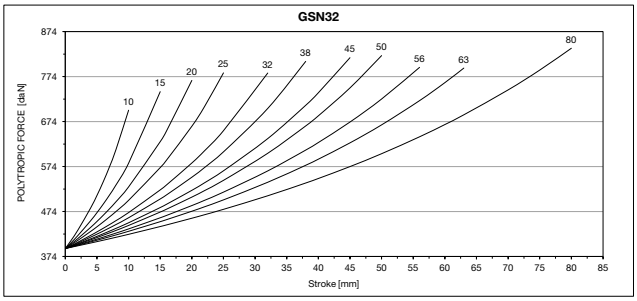
OSAS + OSM	=	OVER STROKE ACTIVE SAFETY	+	OVER STROKE MARKER

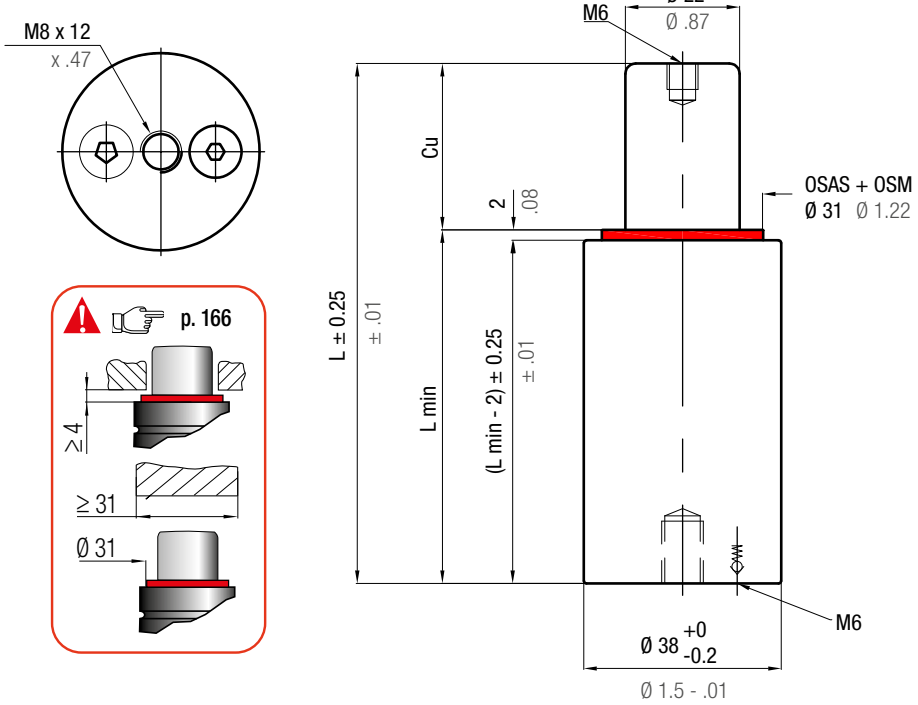
N2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	147 bar *2132 psi*	20 bar *290 psi*	2.54 cm² *0.394 in²*	~ 30 - 100 (at 20°C)	1.6 m/s	GSRK-39BMGSN00032A

CALLOUT	Cu		L		L min		F0 Initial force		F1 End force *		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSN32-10	10	*0.39*	55	*2.17*	45	*1.77*			569	*1279*	8.29	*0.51*	0.20	*0.44*	✓
GSN32-15	15	*0.59*	65	*2.56*	50	*1.97*			595	*1337*	11.51	*0.70*	0.22	*0.49*	✓
GSN32-20	20	*0.79*	75	*2.95*	55	*2.17*			612	*1375*	14.73	*0.90*	0.24	*0.53*	✓
GSN32-25	25	*0.98*	85	*3.35*	60	*2.36*	375 *843* ± 10%		622	*1398*	17.95	*1.10*	0.25	*0.55*	✓
GSN32-32	32	*1.26*	100	*3.94*	68	*2.68*			623	*1400*	22.99	*1.40*	0.28	*0.62*	✓
GSN32-38	38	*1.50*	111	*4.37*	73	*2.87*	147 bar *2132 psi*		639	*1436*	26.33	*1.61*	0.30	*0.66*	✓
GSN32-45	45	*1.77*	125	*4.92*	80	*3.15*			645	*1449*	30.83	*1.88*	0.32	*0.71*	✓
GSN32-50	50	*1.97*	135	*5.31*	85	*3.35*			648	*1456*	34.05	*2.08*	0.34	*0.75*	✓
GSN32-56	56	*2.20*	150	*5.91*	94	*3.70*	+20 °C *+68 °F*		633	*1422*	39.51	*2.41*	0.36	*0.79*	✓
GSN32-63	63	*2.48*	165	*6.50*	102	*4.02*			632	*1420*	44.55	*2.72*	0.39	*0.86*	✓
GSN32-80	80	*3.15*	195	*7.68*	115	*4.53*			658	*1479*	53.38	*3.26*	0.44	*0.97*	✓

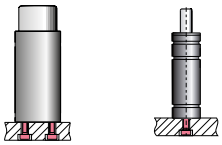
Order Callout Example:
GSN32-10







Fixings



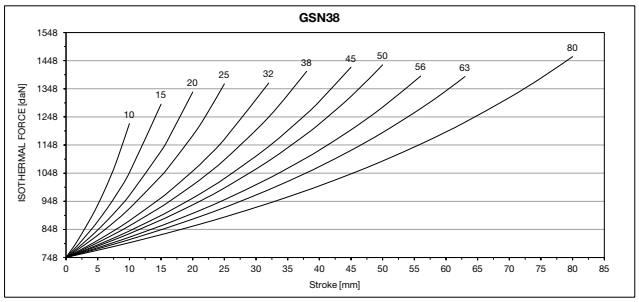
Bottom mount BM38

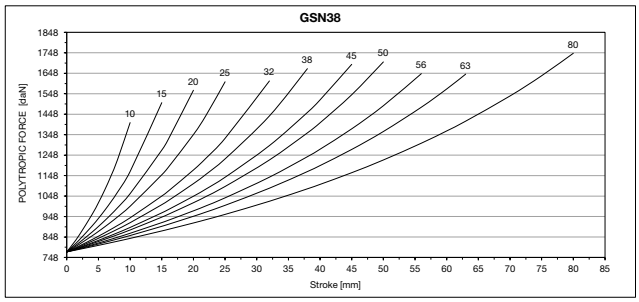
OSAS + OSM	=	OVER STROKE ACTIVE SAFETY	+	OVER STROKE MARKER

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	197 bar *2857 psi*	20 bar *290 psi*	3.81 cm² *0.591 in²*	~ 30 - 100 (at 20°C)	1.6 m/s	GSRK-39BMGSN00038A

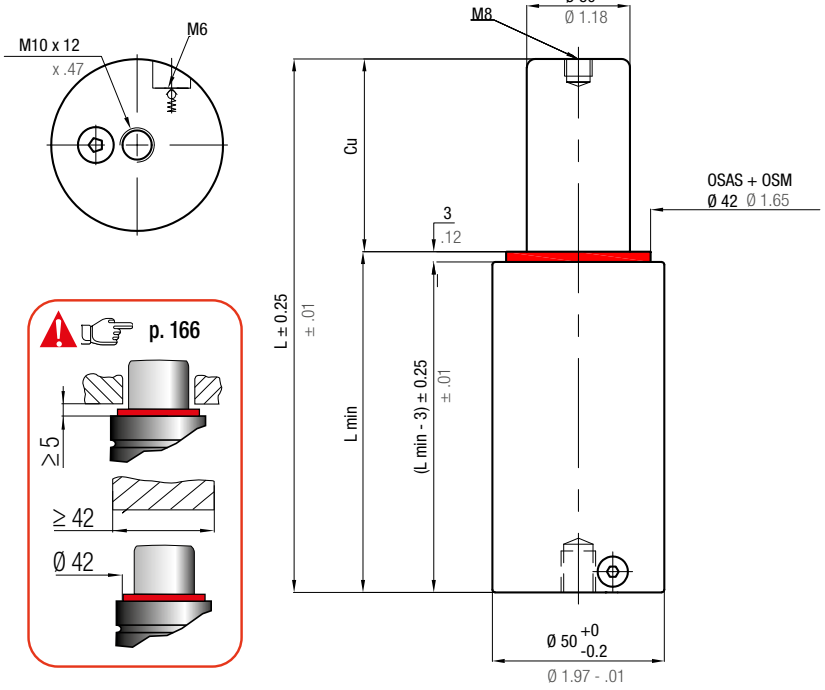
CALLOUT	Cu mm	Cu *inch*	L mm	L *inch*	L min mm	L min *inch*	F0 Initial force daN	F0 *lb*	F1 End force * daN	F1 *lb*	V0 cm³	V0 *in³*	~Kg	*~lb*	PED 2014/68/EU
GSN38-10	10	*0.39*	55	*2.17*	45	*1.77*			1224	*2751*	12.10	*0.74*	0.29	*0.64*	✓
GSN38-15	15	*0.59*	65	*2.56*	50	*1.97*			1293	*2906*	16.65	*1.02*	0.32	*0.71*	✓
GSN38-20	20	*0.79*	75	*2.95*	55	*2.17*			1336	*3002*	21.19	*1.29*	0.34	*0.75*	✓
GSN38-25	25	*0.98*	85	*3.35*	60	*2.36*	750 *1685* ± 10%		1365	*3067*	25.73	*1.57*	0.37	*0.82*	✓
GSN38-32	32	*1.26*	100	*3.94*	68	*2.68*			1368	*3074*	32.85	*2.00*	0.40	*0.88*	✓
GSN38-38	38	*1.50*	111	*4.37*	73	*2.87*			1410	*3169*	37.55	*2.29*	0.43	*0.95*	✓
GSN38-45	45	*1.77*	125	*4.92*	80	*3.15*	197 bar *2857 psi*		1425	*3202*	43.91	*2.68*	0.46	*1.01*	✓
GSN38-50	50	*1.97*	135	*5.31*	85	*3.35*			1433	*3220*	48.45	*2.96*	0.49	*1.08*	✓
GSN38-56	56	*2.20*	150	*5.91*	94	*3.70*	+20 °C *+68 °F*		1393	*3130*	56.17	*3.43*	0.53	*1.17*	✓
GSN38-63	63	*2.48*	165	*6.50*	102	*4.02*			1391	*3126*	63.28	*3.86*	0.56	*1.23*	✓
GSN38-80	80	*3.15*	195	*7.68*	115	*4.53*			1462	*3285*	75.71	*4.62*	0.63	*1.39*	✓

Order Callout Example:
GSN38-10

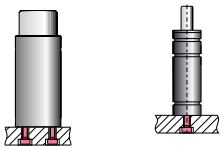




GSN 50



Fixings



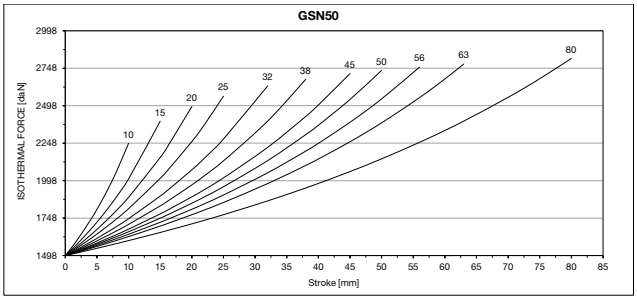
Bottom mount BM50

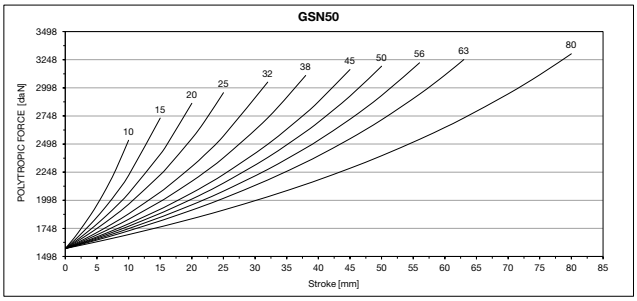
OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

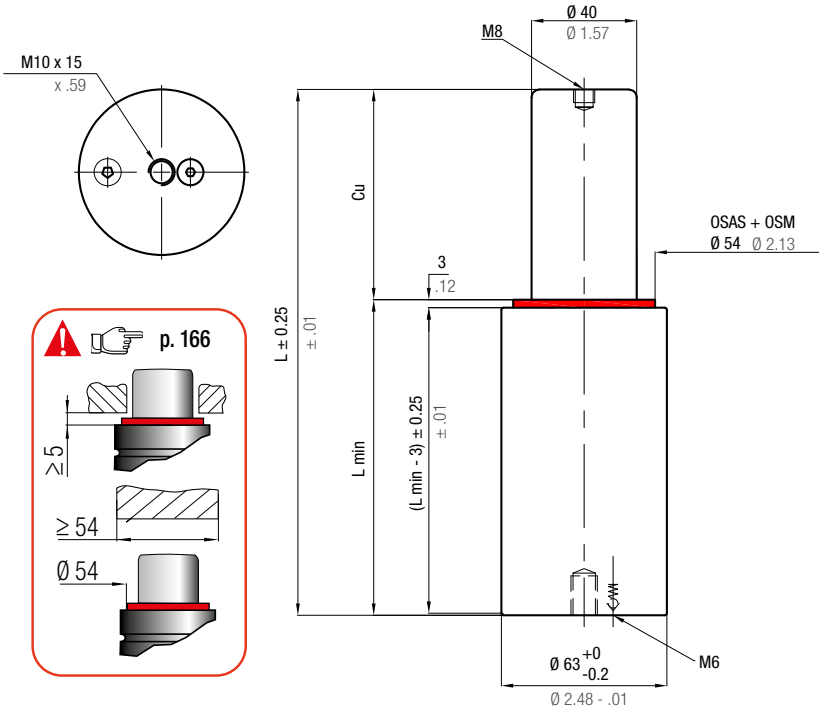
N2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	212 bar *3075 psi*	20 bar *290 psi*	7.07 cm² *1.097 in²*	~ 25 - 95 (at 20°C)	1.6 m/s	GSRK-39BMGSN00050A

CALLOUT	Cu		L		L min		F0 Initial force		F1 End force *		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSN50-10	10	*0.39*	60	*2.36*	50	*1.97*			2247	*5049*	27.06	*1.65*	0.53	*1.17*	✓
GSN50-15	15	*0.59*	70	*2.76*	55	*2.17*			2395	*5382*	35.89	*2.19*	0.57	*1.26*	✓
GSN50-20	20	*0.79*	80	*3.15*	60	*2.36*			2492	*5600*	44.72	*2.73*	0.60	*1.32*	✓
GSN50-25	25	*0.98*	90	*3.54*	65	*2.56*	1500 *3371* ± 10%		2562	*5757*	53.55	*3.27*	0.64	*1.41*	✓
GSN50-32	32	*1.26*	105	*4.13*	73	*2.87*			2631	*5912*	65.91	*4.02*	0.69	*1.52*	✓
GSN50-38	38	*1.50*	116	*4.57*	78	*3.07*			2674	*6009*	76.50	*4.67*	0.73	*1.61*	✓
GSN50-45	45	*1.77*	130	*5.12*	85	*3.35*	212 bar *3075 psi*		2712	*6094*	88.86	*5.42*	0.78	*1.72*	✓
GSN50-50	50	*1.97*	140	*5.51*	90	*3.54*			2734	*6144*	97.69	*5.96*	0.82	*1.81*	✓
GSN50-56	56	*2.20*	155	*6.10*	99	*3.90*	+20 °C *+68 °F*		2756	*6193*	108.28	*6.61*	0.87	*1.92*	✓
GSN50-63	63	*2.48*	170	*6.69*	107	*4.21*			2777	*6240*	120.64	*7.36*	0.93	*2.05*	✓
GSN50-80	80	*3.15*	200	*7.87*	120	*4.72*			2814	*6324*	150.65	*9.19*	1.03	*2.27*	✓

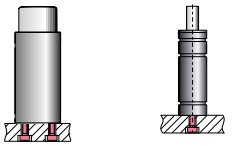
Order Callout Example:
GSN50-10







Fixings



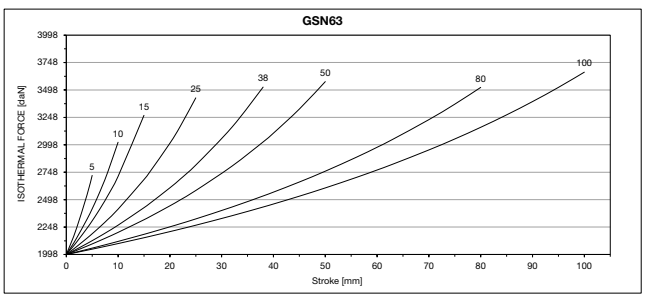
Bottom mount BM63

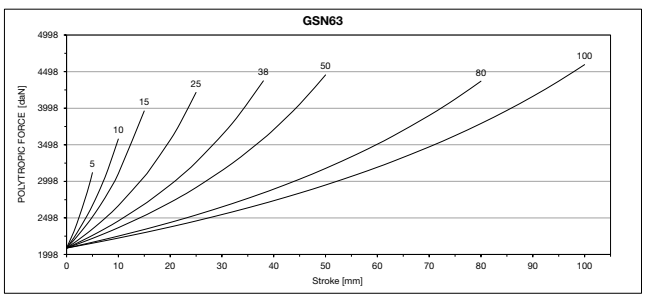
OSAS + OSM = OVER STROKE ACTIVE SAFETY + OVER STROKE MARKER

N2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	159 bar *2306 psi*	20 bar *290 psi*	12.58 cm² *1.953 in²*	~ 20 - 100 (at 20°C)	1.6 m/s	GSRK-39BMGSN00063A

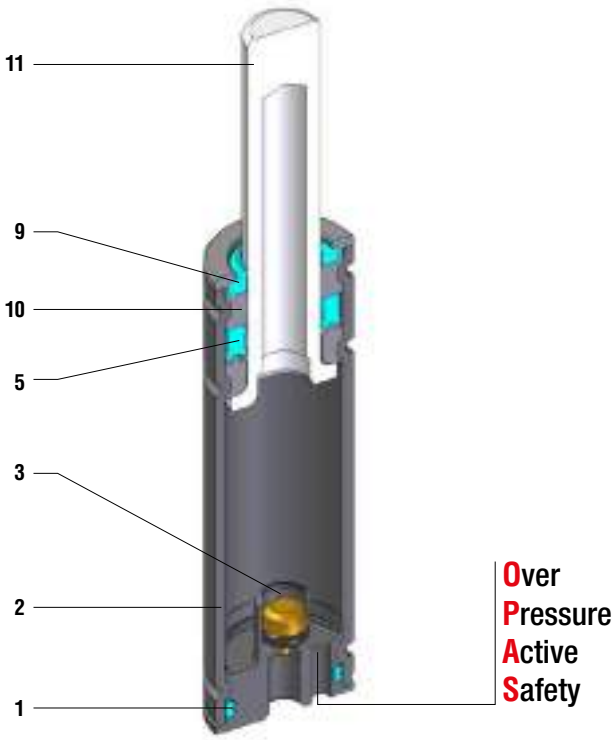
CALLOUT	Cu		L		L min		F0 Initial force		F1 End force *		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
GSN63-5	5	*0.20*	45	*1.77*	40	*1.57*	2000 *4494* ± 10%		2719	*6110*	27.99	*1.71*	0.71	*1.57*	✓
GSN63-10	10	*0.39*	55	*2.17*	45	*1.77*			3021	*6789*	43.46	*2.65*	0.76	*1.68*	✓
GSN63-15	15	*0.59*	65	*2.56*	50	*1.97*			3267	*7342*	56.52	*3.45*	0.83	*1.83*	✓
GSN63-25	25	*0.98*	85	*3.35*	60	*2.36*	159 bar *2306 psi*		3426	*7699*	87.46	*5.34*	0.93	*2.05*	✓
GSN63-38	38	*1.50*	111	*4.37*	73	*2.87*			3524	*7919*	127.69	*7.79*	1.05	*2.32*	✓
GSN63-50	50	*1.97*	135	*5.31*	85	*3.35*			3574	*8031*	164.83	*10.06*	1.18	*2.60*	✓
GSN63-80	80	*3.15*	200	*7.87*	120	*4.72*	+20 °C *+68 °F*		3521	*7912*	269.11	*16.42*	1.52	*3.35*	✓
GSN63-100	100	*3.94*	235	*9.25*	135	*5.31*			3660	*8225*	319.55	*19.50*	1.69	*3.73*	✓

Order Callout Example:
GSN63-5

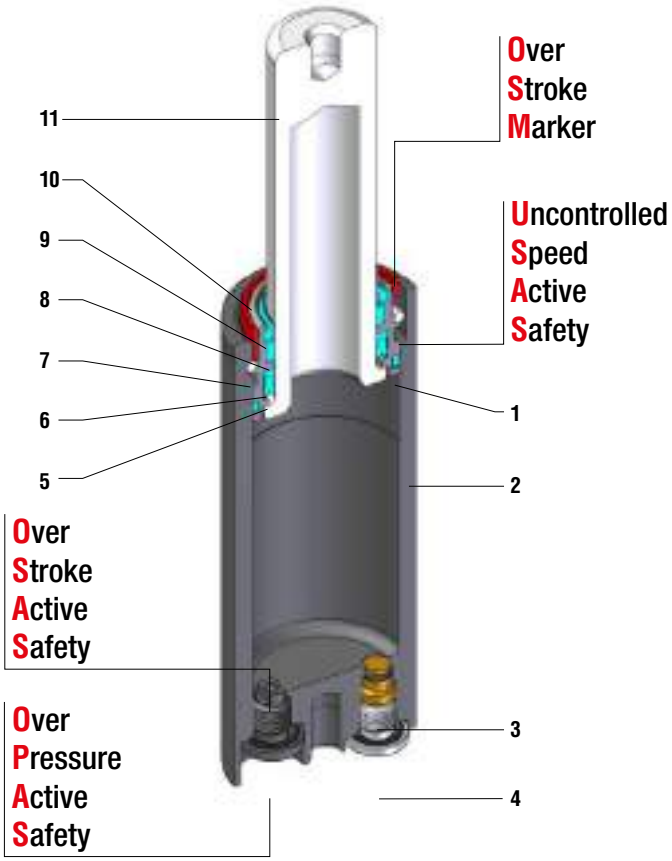




An entry level gas spring model.
Features a small diameter, ensuring that it even fits within compact molds.



MGSN 16 ÷ 25



MGSN 32

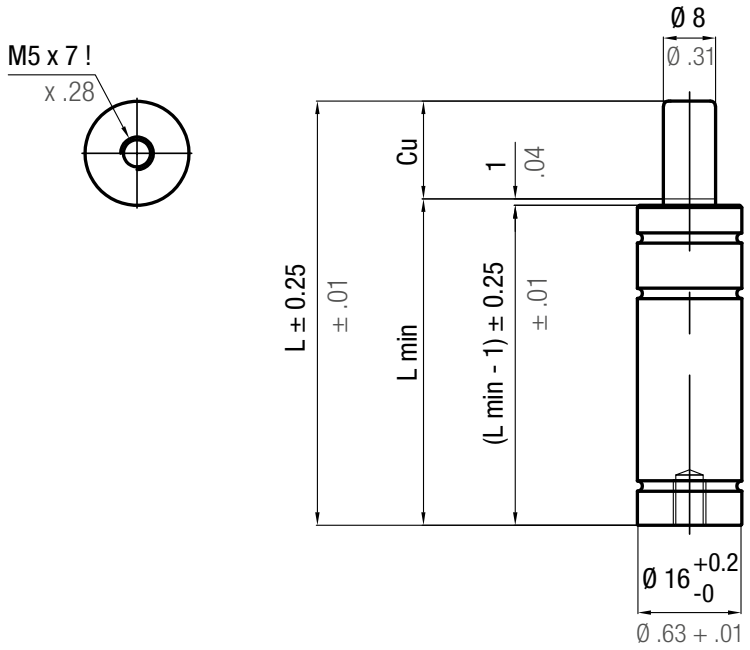
Available versions

Standard code

Self contained

1	Dual ring seal
2	Body
3	Valve
4	Plug
5	Rod seal
6	Back-up ring
7	Retaining ring
8	Guide ring
9	Rod wiper
10	Bush
11	Rod (nitrited superfinished)

Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO
	mm	*inch*	mm	*inch*	daN	*lb*				
MGSN16	16	*0.63*	10-38	*0.39-1.50*	100	*225*	-	-	-	-
MGSN19	19	*0.75*	10-38	*0.39-1.50*	170	*382*	-	-	✓	-
MGSN25	25	*0.98*	10-38	*0.39-1.50*	360	*809*	-	-	✓	-
MGSN32	32	*1.26*	10-80	*0.39-3.15*	510	*1146*	✓	✓	✓	-

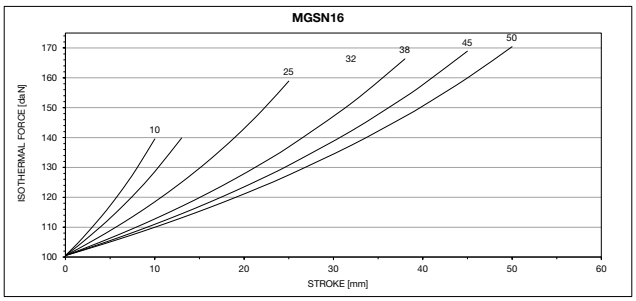


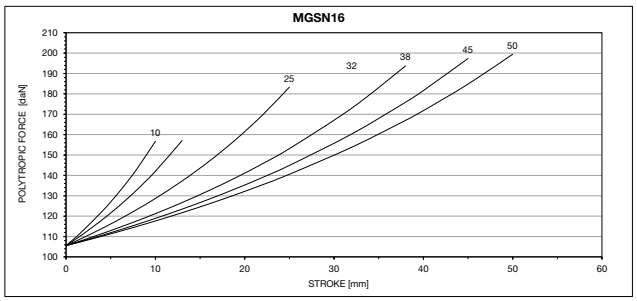
! The mounting taps (Ma) for the MGSN16–25 also operate as gas exhaust vents.
Screwing in the mounting screws to a depth that exceeds that of the tap is may cause of gas leakage.

N_2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	200 bar *2900 psi*	20 bar *290 psi*	0.5 cm² *0.078 in²*	~ 140 - 110 (at 20°C)	1.6 m/s	Disposable

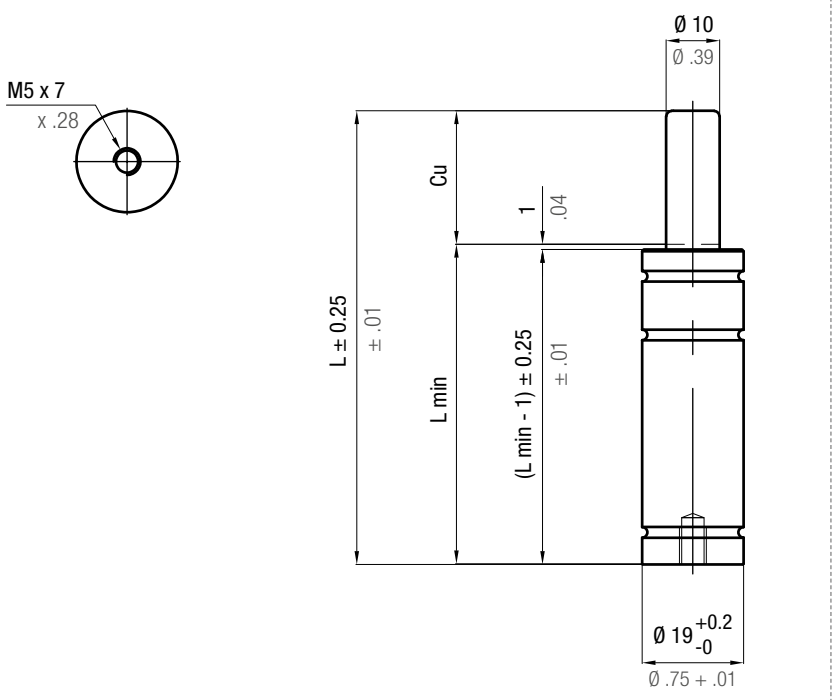
CALLOUT	Cu		L		L min		F0 Initial force		F1 End force *		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
MGSN16-10	10	*0.39*	55	*2.17*	45	*1.77*	100 ± 10% 200 bar +20 °C	*225 2901 psi +68 °F*	141	*317*	2.27	*0.14*	0.05	*0.11*	✓
MGSN16-15	15	*0.59*	65	*2.56*	50	*1.97*			150	*337*	2.93	*0.18*	0.05	*0.11*	✓
MGSN16-25	25	*0.98*	85	*3.35*	60	*2.36*			161	*362*	4.26	*0.26*	0.06	*0.13*	✓
MGSN16-38	38	*1.50*	111	*4.37*	73	*2.87*			169	*380*	5.99	*0.37*	0.07	*0.15*	✓
MGSN16-45	45	*1.77*	125	*4.92*	80	*3.15*			169	*380*	6.92	*0.42*	0.07	*0.16*	✓
MGSN16-50	50	*1.97*	135	*5.31*	85	*3.35*			170	*382*	7.58	*0.46*	0.08	*0.17*	✓

Order Callout Example:
MGSN16-10





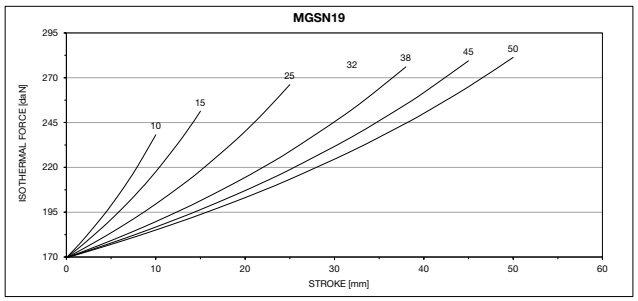
MGSN 19

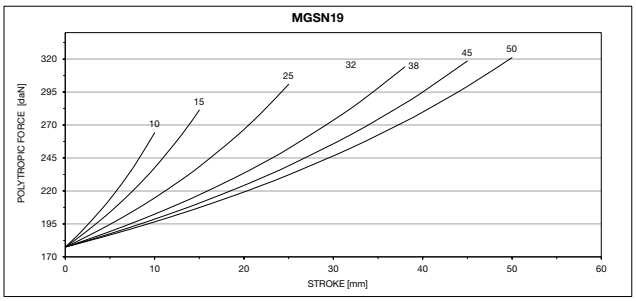


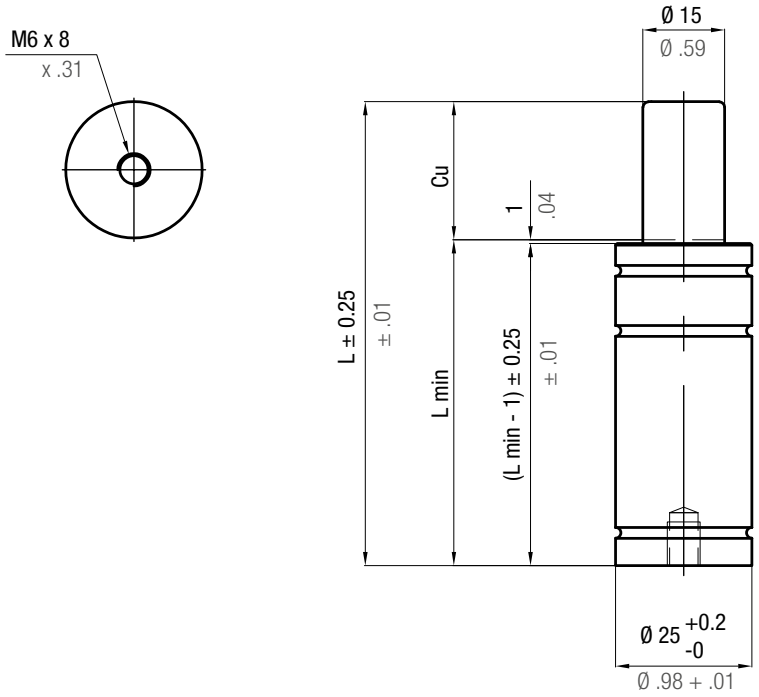
N2	°F 32 - 176	°C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	216 bar *3133 psi*	20 bar *290 psi*	0.79 cm² *0.123 in²*	~ 140 -110 (at 20°C)	1.6 m/s	Disposable

CALLOUT	Cu		L		L min		F0 Initial force		F1 End force *		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
MGSN19-10	10	*0.39*	55	*2.17*	45	*1.77*	170	*382*	237	*533*	3.53	*0.22*	0.06	*0.13*	✓
MGSN19-15	15	*0.59*	65	*2.56*	50	*1.97*	± 10%		251	*564*	4.66	*0.28*	0.07	*0.15*	✓
MGSN19-25	25	*0.98*	85	*3.35*	60	*2.36*	216 bar		265	*596*	6.91	*0.42*	0.08	*0.18*	✓
MGSN19-38	38	*1.50*	111	*4.37*	73	*2.87*	*3133 psi*		276	*620*	9.85	*0.60*	0.09	*0.20*	✓
MGSN19-45	45	*1.77*	125	*4.92*	80	*3.15*	+20 °C	*+68 °F*	279	*627*	11.43	*0.70*	0.10	*0.22*	✓
MGSN19-50	50	*1.97*	135	*5.31*	85	*3.35*			281	*632*	12.55	*0.77*	0.11	*0.24*	✓

Order Callout Example:
MGSN19-25



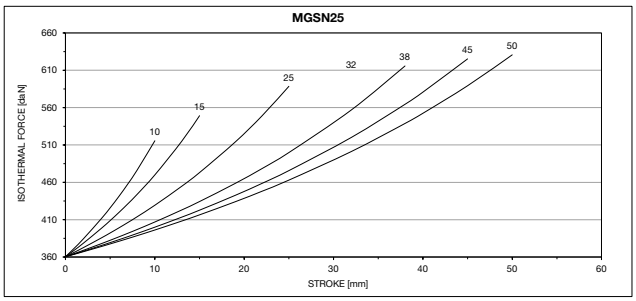


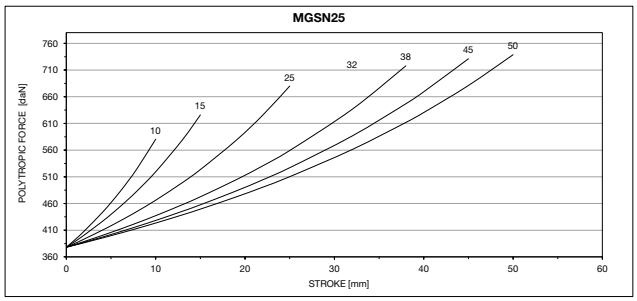


N2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	204 bar *2959 psi*	20 bar *290 psi*	1.76 cm² *0.273 in²*	~ 100 - 60 (at 20°C)	1.6 m/s	Disposable

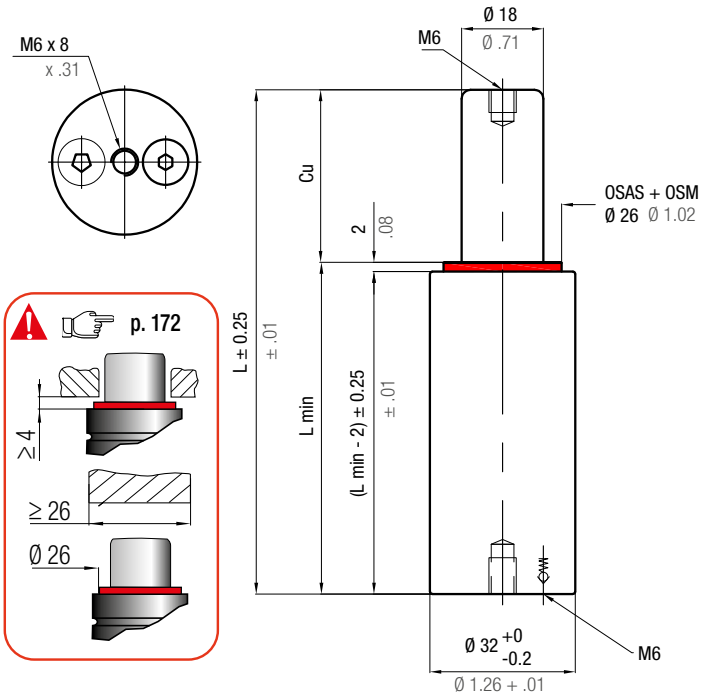
CALLOUT	Cu mm	Cu *inch*	L mm	L *inch*	L min mm	L min *inch*	F0 Initial force daN	F0 *lb*	F1 End force * daN	F1 *lb*	V0 cm³	V0 *in³*	~Kg	*~lb*	PED 2014/68/EU
MGSN25-10	10	*0.39*	55	*2.17*	45	*1.77*	360 ± 10% 204 bar +20 °C	*809 2959 psi +68 °F*	540	*1213*	6.50	*0.40*	0.11	*0.24*	✓
MGSN25-15	15	*0.59*	65	*2.56*	50	*1.97*			572	*1285*	8.77	*0.54*	0.12	*0.26*	✓
MGSN25-20	20	*0.79*	75	*2.95*	55	*2.17*			572	*1286*	11.97	*0.73*	0.13	*0.28*	✓
MGSN25-25	25	*0.98*	85	*3.35*	60	*2.36*			608	*1366*	13.30	*0.81*	0.13	*0.29*	✓
MGSN25-32	32	*1.26*	99	*3.90*	67	*2.64*			605	*1360*	17.42	*1.06*	0.15	*0.32*	✓
MGSN25-38	38	*1.50*	111	*4.37*	73	*2.87*			631	*1418*	19.20	*1.17*	0.16	*0.35*	✓
MGSN25-45	45	*1.77*	125	*4.92*	80	*3.15*			625	*1405*	23.31	*1.42*	0.17	*0.37*	✓
MGSN25-50	50	*1.97*	135	*5.31*	85	*3.35*			631	*1419*	25.58	*1.56*	0.18	*0.39*	✓

Order Callout Example:
MGSN25-25





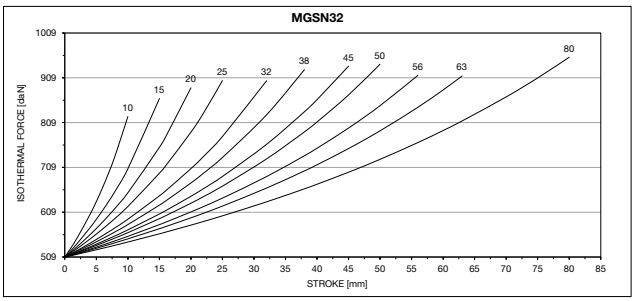
MGSN 32

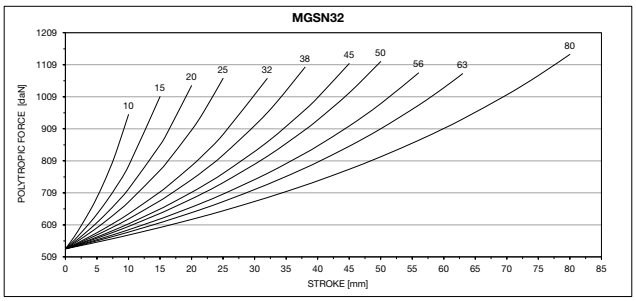


N2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	200 bar *2900 psi*	20 bar *290 psi*	2.55 cm² *0.396 in²*	~ 95 - 25 (at 20°C)	1.6 m/s	GSRK-39BMGSN00032A

CALLOUT	Cu		L		L min		F0 Initial force		F1 End force *		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
MGSN32-10	10	*0.39*	55	*2.17*	45	*1.77*			809	*1818*	8.29	0.51	0.20	*0.44*	✓
MGSN32-15	15	*0.59*	65	*2.56*	50	*1.97*			851	*1912*	11.51	0.70	0.22	*0.49*	✓
MGSN32-20	20	*0.79*	75	*2.95*	55	*2.17*			877	*1971*	14.73	0.90	0.24	*0.53*	✓
MGSN32-25	25	*0.98*	85	*3.35*	60	*2.36*	510 *1146* ± 10%		894	*2009*	17.95	1.10	0.25	*0.55*	✓
MGSN32-32	32	*1.26*	100	*3.94*	68	*2.68*			896	*2013*	22.99	1.40	0.28	*0.62*	✓
MGSN32-38	38	*1.50*	111	*4.37*	73	*2.87*	200 bar		921	*2070*	26.33	1.61	0.30	*0.66*	✓
MGSN32-45	45	*1.77*	125	*4.92*	80	*3.15*			929	*2088*	30.83	1.88	0.32	*0.71*	✓
MGSN32-50	50	*1.97*	135	*5.31*	85	*3.35*	+20 °C *+68 °F*		934	*2099*	34.05	2.08	0.34	*0.75*	✓
MGSN32-56	56	*2.20*	150	*5.91*	94	*3.70*			910	*2045*	39.51	2.41	0.36	*0.79*	✓
MGSN32-63	63	*2.48*	165	*6.50*	102	*4.02*			909	*2043*	44.55	2.72	0.39	*0.86*	✓
MGSN32-80	80	*3.15*	195	*7.68*	115	*4.53*			951	*2137*	53.38	3.26	0.44	*0.97*	✓

Order Callout Example:
MGSN32-56





MGSL series

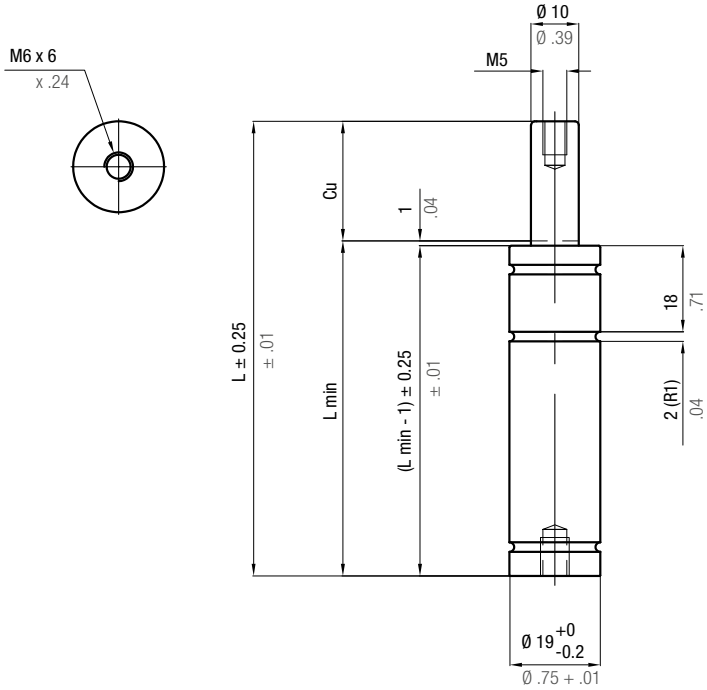
Ideal for those occasions requiring a slightly stronger load than with coil springs.

Available versions

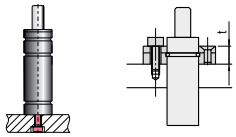
Standard code

Self contained

Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO
	mm	*inch*	mm	*inch*	daN	*lb*				
MGSL19	19	*0.75*	10-80	*0.39-3.15*	80	*180*	-	-	✓	-
MGSL25	25	*0.98*	10-80	*0.39-3.15*	160	*360*	✓	✓	-	-



Fixings



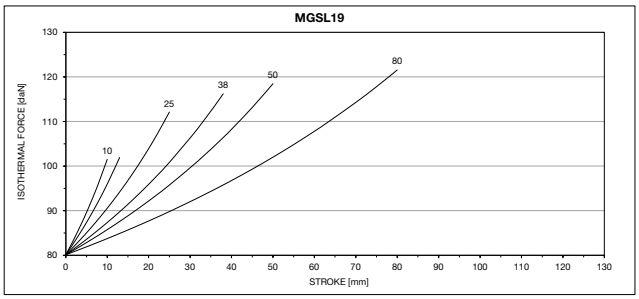
Bottom mount H19

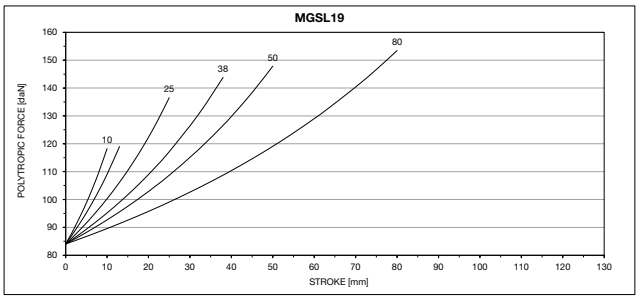
F19

N2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	102 bar *1479 psi*	20 bar *290 psi*	0.79 cm² *0.123 in²*	~ 150 - 105 (at 20°C)	1.6 m/s	Disposable

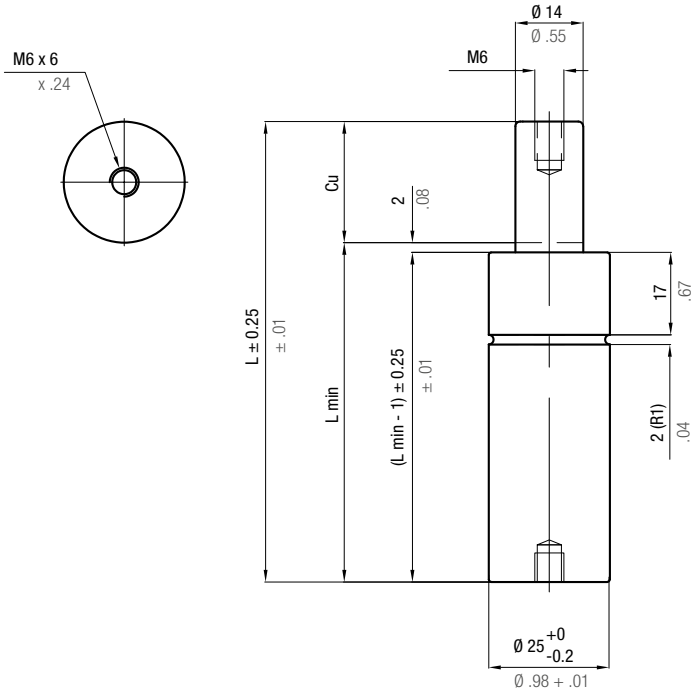
CALLOUT	Cu mm	Cu *inch*	L mm	L *inch*	L min mm	L min *inch*	F0 Initial force daN	F0 *lb*	F1 End force * daN	F1 *lb*	V0 cm³	V0 *in³*	~Kg	*~lb*	PED 2014/68/EU
MGSL19-10	10	*0.39*	65	*2.56*	55	*2.17*	80 ± 10% 102 bar *1479 psi* +20 °C *+68 °F*	*180*	104	*234*	4.04	*0.25*	0.08	*0.18*	✓
MGSL19-15	15	*0.59*	75	*2.95*	60	*2.36*			110	*247*	5.17	*0.32*	0.08	*0.18*	✓
MGSL19-25	25	*0.98*	95	*3.74*	70	*2.76*			118	*265*	7.42	*0.45*	0.09	*0.20*	✓
MGSL19-38	38	*1.50*	121	*4.76*	83	*3.27*			123	*276*	10.36	*0.63*	0.11	*0.24*	✓
MGSL19-50	50	*1.97*	145	*5.71*	95	*3.74*			126	*283*	13.06	*0.80*	0.12	*0.26*	✓
MGSL19-80	80	*3.15*	205	*8.07*	125	*4.92*			130	*292*	19.83	*1.21*	0.15	*0.33*	✓

Order Callout Example:
MGSL19-10

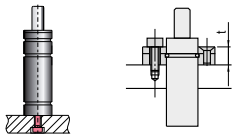




MGSL 25



Fixings



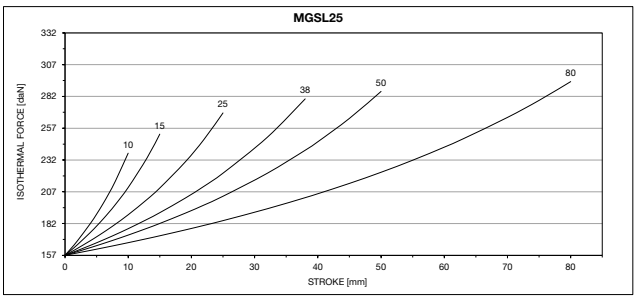
Bottom mount H25

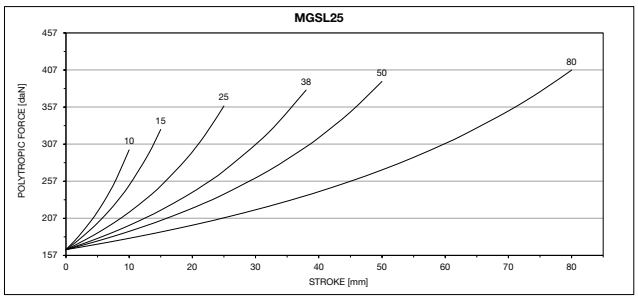
F25

N2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	102 bar *1479 psi*	20 bar *290 psi*	1.54 cm² *0.239 in²*	~ 80 -55 (at 20°C)	1.6 m/s	Disposable

CALLOUT	Cu mm	Cu *inch*	L mm	L *inch*	L min mm	L min *inch*	F0 Initial force daN	F0 *lb*	F1 End force * daN	F1 *lb*	V0 cm³	V0 *in³*	~Kg	*~lb*	PED 2014/68/EU
MGSL25-10	10	*0.39*	65	*2.56*	55	*2.17*	160 ± 10% 102 bar +20 °C	*360 1479 psi +68 °F*	237	*533*	4.89	*0.30*	0.15	*0.33*	✓
MGSL25-15	15	*0.59*	75	*2.95*	60	*2.36*			253	*569*	6.56	*0.40*	0.16	*0.35*	✓
MGSL25-25	25	*0.98*	95	*3.74*	70	*2.76*			271	*609*	9.90	*0.60*	0.18	*0.40*	✓
MGSL25-38	38	*1.50*	121	*4.76*	83	*3.27*			283	*636*	14.24	*0.87*	0.22	*0.49*	✓
MGSL25-50	50	*1.97*	145	*5.71*	95	*3.74*			289	*649*	18.25	*1.11*	0.25	*0.55*	✓
MGSL25-80	80	*3.15*	205	*8.07*	125	*4.92*			297	*667*	28.26	*1.72*	0.32	*0.71*	✓

Order Callout Example:
MGSL25-10





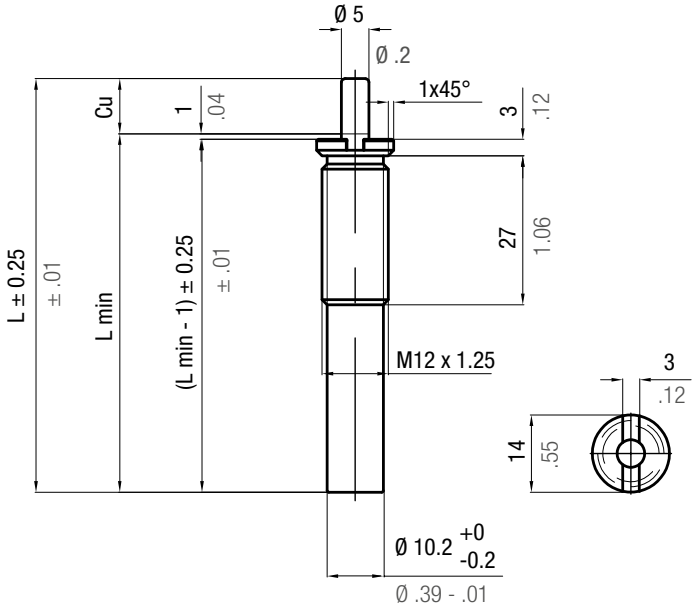
A screw retaining type.

Available versions

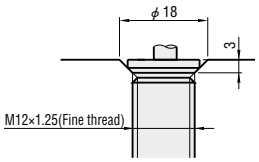
Standard code

Self contained

Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO
	mm	*inch*	mm	*inch*	daN	*lb*				
MGSM12	12	*0.47*	10-15	*0.39-0.59*	40	*90*	-	-	-	-
MGSM16	16	*0.63*	10-25	*0.39-0.98*	80	*180*	-	-	-	-



How to mount

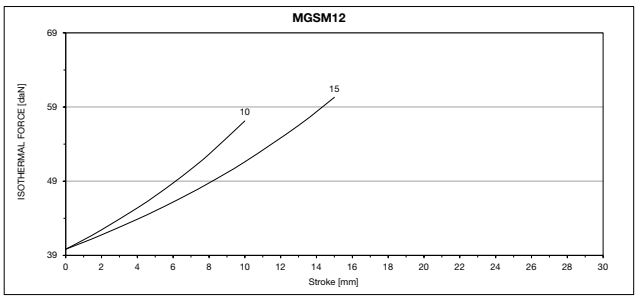


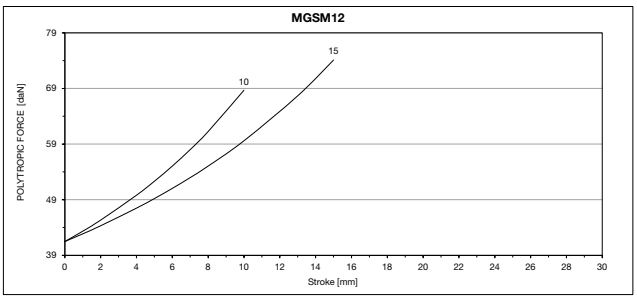
Machine the mounting screws in the manner listed above and ensure the MGSM's flange and the mounting surface are in contact.
As well as preventing the flange part from spinning too much, this also stops it from coming loose so easily.

N2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	120 bar *1740 psi*	20 bar *290 psi*	0.33 cm² *0.051 in²*	~ 80 - 75 (at 20°C)	0.8 m/s	Disposable

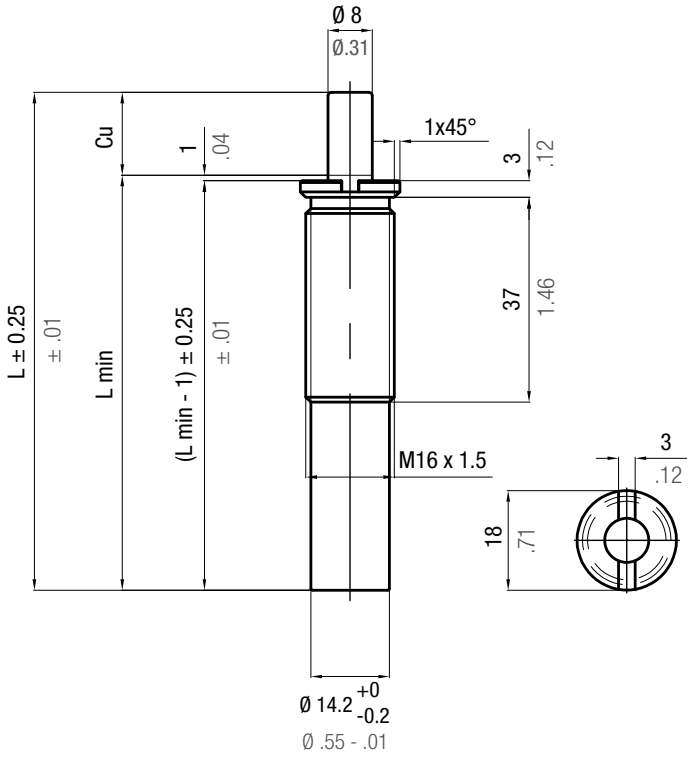
CALLOUT	Cu		L		L min		F0 Initial force		F1 End force *		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
MGSM12-10	10	*0.39*	75	*2.95*	65	*2.56*	40	*90*	60	*135*	1.21	*0.07*	0.04	*0.09*	✓
MGSM12-15	15	*0.59*	90	*3.54*	75	*2.95*	120 bar		63	*142*	1.62	*0.10*	0.04	*0.09*	✓

Order Callout Example:
MGSM12-10

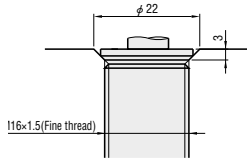




MGSM 16



How to mount

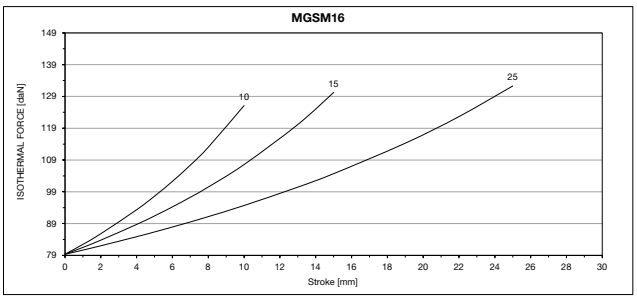


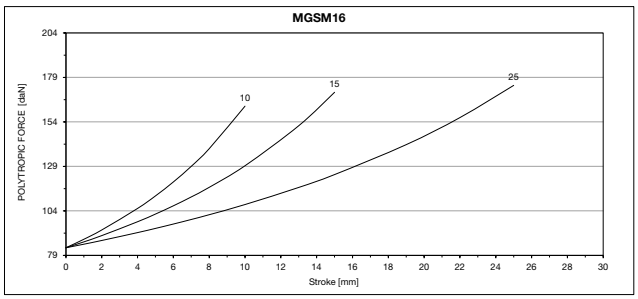
Machine the mounting screws in the manner listed above and ensure the MGSM's flange and the mounting surface are in contact.
As well as preventing the flange part from spinning too much, this also stops it from coming loose so easily.

N2	°F 32 - 176 / °C 0 - 80	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	101 bar *1465 psi*	20 bar *290 psi*	0.79 cm² *0.123 in²*	~ 80 - 65 (at 20°C)	0.8 m/s	Disposable

CALLOUT	Cu		L		L min		F0 Initial force		F1 End force *		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
MGSM16-10	10	*0.39*	75	*2.95*	65	*2.56*	80	*180*	124	*279*	2.27	*0.14*	0.08	*0.18*	✓
MGSM16-15	15	*0.59*	90	*3.54*	75	*2.95*	101 bar		133	*299*	3.23	*0.20*	0.09	*0.20*	✓
MGSM16-25	25	*0.98*	120	*4.72*	95	*3.74*	+20 °C	*+68 °F*	144	*324*	5.25	*0.32*	0.10	*0.22*	✓

Order Callout Example:
MGSM16-25





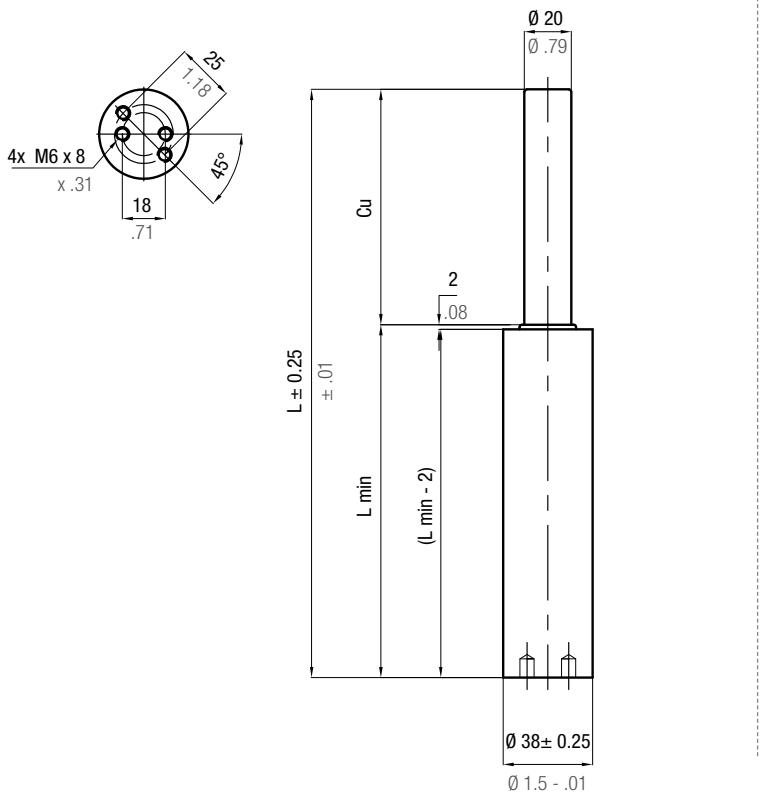
MMGS series for plastic mold dies

Available versions

Standard code

Self contained

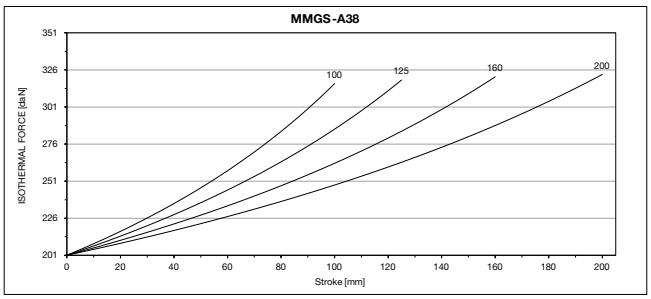
Model	Body Ø		Stroke Cu		Initial force F0		OSAS	USAS	OPAS	SKUDO
	mm	*inch*	mm	*inch*	daN	*lb*				
MMGS-A38	38	*1.50*	100-200	*3.94-7.87*	200	*449*	-	-	-	-
MMGS-A45	45	*1.77*	100-200	*3.94-7.87*	450	*1012*	-	-	-	-
MMGS-A50	50	*1.97*	100-250	*3.94-9.84*	550	*1236*	-	-	-	-
MMGS-B38	38	*1.50*	100-200	*3.94-7.87*	250	*562*	-	-	-	-
MMGS-B45	45	*1.77*	100-200	*3.94-7.87*	500	*1124*	-	-	-	-
MMGS-B50	50	*1.97*	100-250	*3.94-9.84*	650	*1461*	-	-	-	-

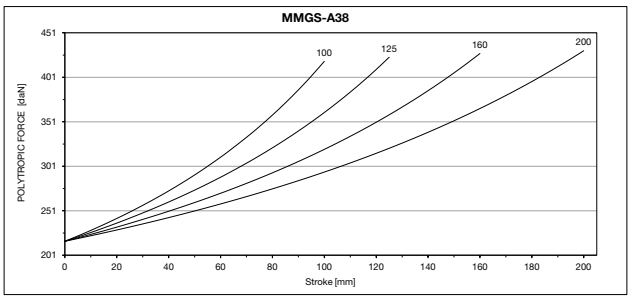


N2	°F 32 - 212 / °C 0 - 100	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	64 bar *928 psi*	20 bar *290 psi*	3.14 cm² *0.487 in²*	~ 25 - 17 (at 20°C)	0.8 m/s	GSRK-39BMMMGS00038A

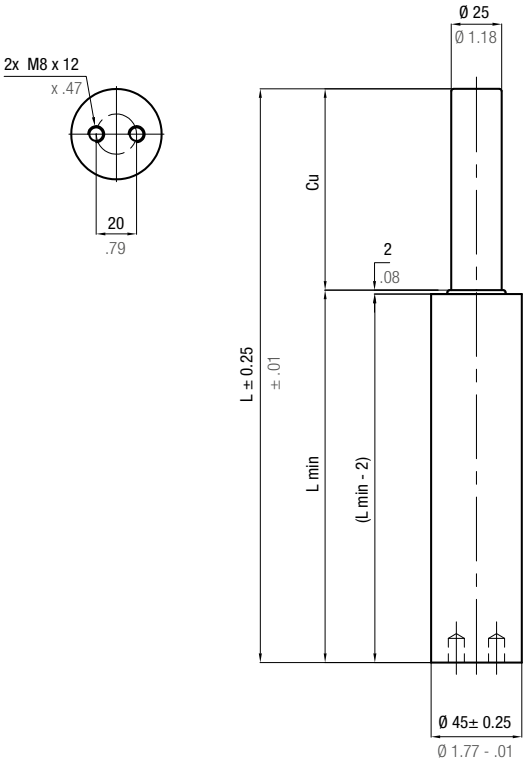
CALLOUT	Cu		L		L min		F0 Initial force		F1 End force *		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
MMGS-A38-100	100	*3.94*	250	*9.84*	150	*5.91*	200	*449*	317	*712*	92.13	*5.62*	0.85	*1.87*	✓
MMGS-A38-125	125	*4.92*	300	*11.81*	175	*6.89*	± 10%		319	*717*	113.65	*6.94*	0.93	*2.05*	✓
MMGS-A38-160	160	*6.30*	370	*14.57*	210	*8.27*	64 bar	*928 psi*	321	*721*	143.78	*8.77*	1.21	*2.67*	✓
MMGS-A38-200	200	*7.87*	450	*17.72*	250	*9.84*	+20 °C	*+68 °F*	323	*726*	178.21	*10.87*	1.37	*3.02*	✓

Order Callout Example:
MMGS-A38-125





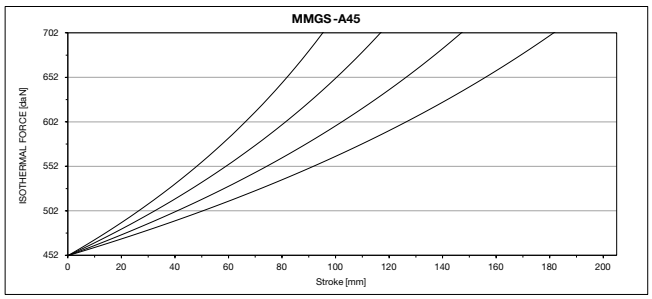
MMGS-A 45

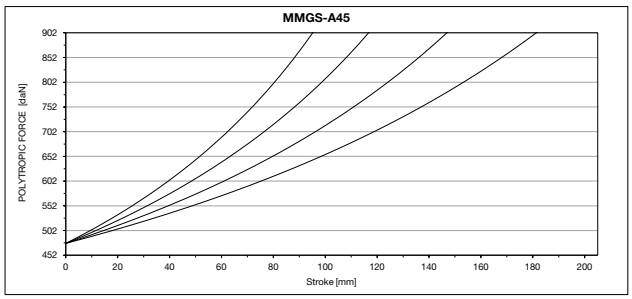


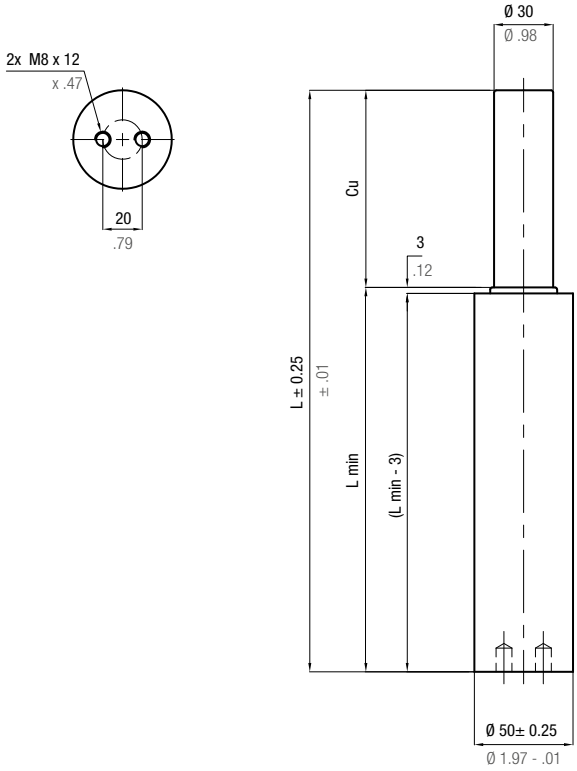
N2	°F 32 - 212	°C 0 - 100	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
			± 0.33 %/°C	92 bar *1334 psi*	20 bar *290 psi*	4.91 cm² *0.762 in²*	~ 25 - 17 (at 20°C)	0.8 m/s	GSRK-39BMMMGS00045A

CALLOUT	Cu		L		L min		F0 Initial force		F1 End force *		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
MMGS-A45-100	100	*3.94*	285	*11.22*	185	*7.28*	450	*1012*	722	*1622*	140.43	*8.57*	1.76	*3.88*	✓
MMGS-A45-125	125	*4.92*	335	*13.19*	210	*8.27*	± 10%		730	*1640*	172.24	*10.51*	1.98	*4.37*	✓
MMGS-A45-160	160	*6.30*	405	*15.94*	245	*9.65*	92 bar	*1334 psi*	738	*1658*	216.78	*13.23*	2.28	*5.03*	✓
MMGS-A45-200	200	*7.87*	485	*19.09*	285	*11.22*	+20 °C	*+68 °F*	743	*1670*	267.67	*16.33*	2.60	*5.73*	✓

Order Callout Example:
MMGS-A45-160



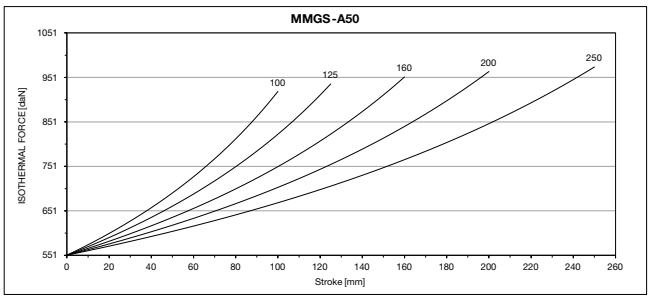


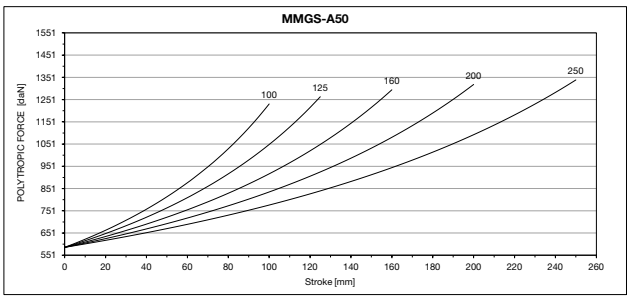


N_2	°F 32 - 212 / °C 0 - 100	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	78 bar *1131 psi*	20 bar *290 psi*	7.07 cm² *1.097 in²*	~ 25 - 15 (at 20°C)	0.8 m/s	GSRK-39BMMMGS00050A

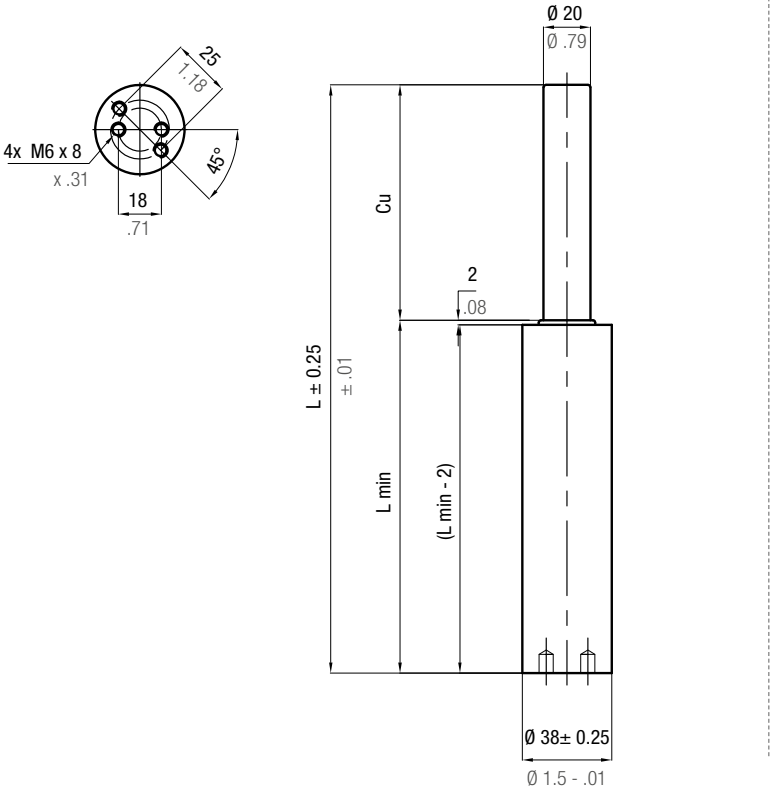
CALLOUT	Cu		L		L min		F0 Initial force		F1 End force *		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
MMGS-A50-100	100	*3.94*	295	*11.61*	195	*7.68*	550	*1236*	920	*2067*	188.74	*11.52*	2.31	*5.09*	✓
MMGS-A50-125	125	*4.92*	345	*13.58*	220	*8.66*	± 10%		936	*2103*	229.66	*14.01*	2.59	*5.71*	✓
MMGS-A50-160	160	*6.30*	415	*16.34*	255	*10.04*	78 bar *1131 psi*		952	*2139*	286.95	*17.51*	2.95	*6.50*	✓
MMGS-A50-200	200	*7.87*	495	*19.49*	295	*11.61*	+20 °C *+68 °F*		964	*2166*	352.42	*21.51*	3.32	*7.32*	✓
MMGS-A50-250	250	*9.84*	595	*23.43*	345	*13.58*			974	*2189*	434.26	*26.50*	3.78	*8.33*	✓

Order Callout Example:
MMGS-A50-200





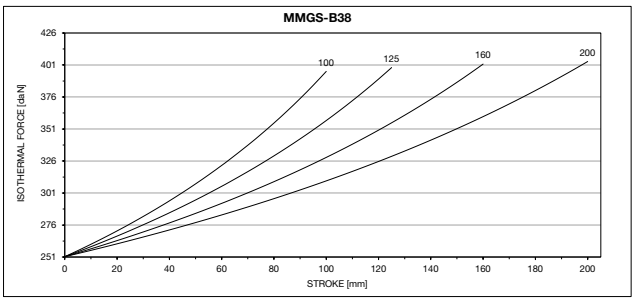
MMGS-B 38

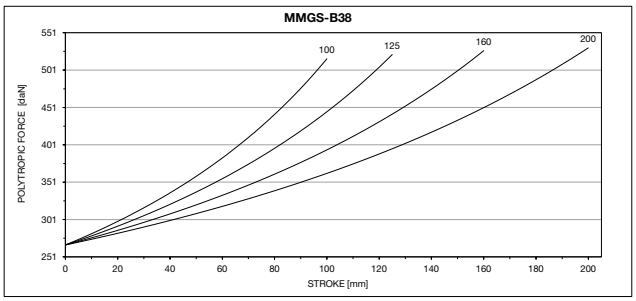


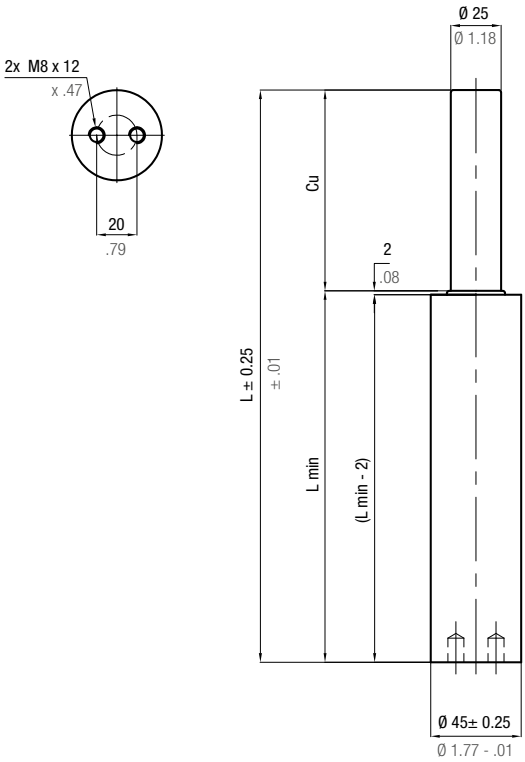
N2	°F 32 - 212 / °C 0 - 100	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	80 bar *1160 psi*	20 bar *290 psi*	3.14 cm² *0.487 in²*	~ 25 - 17 (at 20°C)	0.8 m/s	GSRK-39BMMMGS00038A

CALLOUT	Cu		L		L min		F0 Initial force		F1 End force *		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
MMGS-B38-100	100	*3.94*	250	*9.84*	150	*5.91*	250	*562*	396	*890*	92.13	*5.62*	0.85	*1.87*	✓
MMGS-B38-125	125	*4.92*	300	*11.81*	175	*6.89*	± 10%		399	*897*	113.65	*6.94*	0.93	*2.05*	✓
MMGS-B38-160	160	*6.30*	370	*14.57*	210	*8.27*	80 bar	*1160 psi*	402	*903*	143.78	*8.77*	1.21	*2.67*	✓
MMGS-B38-200	200	*7.87*	450	*17.72*	250	*9.84*	+20 °C	*+68 °F*	404	*908*	178.21	*10.87*	1.37	*3.02*	✓

Order Callout Example:
MMGS-B38-125



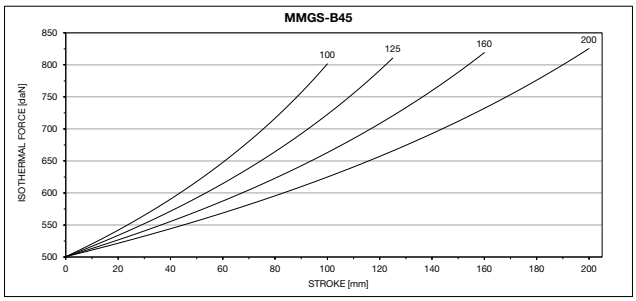


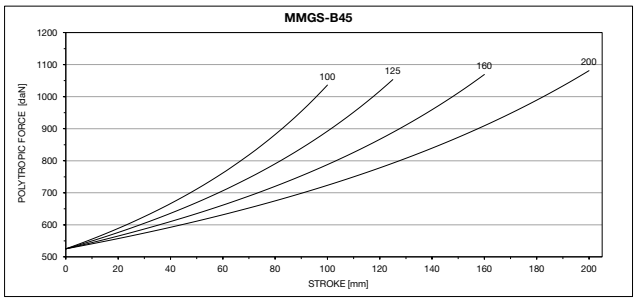


N2	°F 32 - 212 / °C 0 - 100	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	102 bar *1479 psi*	20 bar *290 psi*	4.91 cm² *0.762 in²*	~ 25 - 17 (at 20°C)	0.8 m/s	GSRK-39BMMMGS00045A

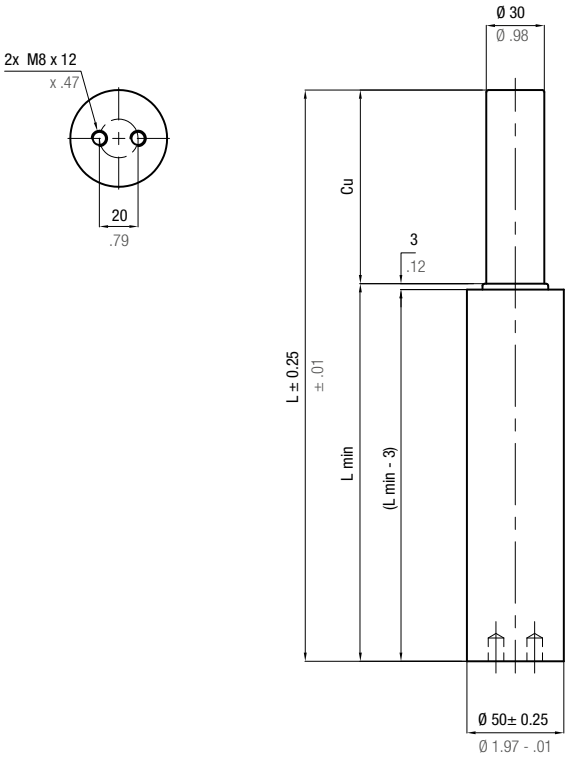
CALLOUT	Cu		L		L min		F0 Initial force		F1 End force *		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
MMGS-B45-100	100	*3.94*	285	*11.22*	185	*7.28*	500	*1124*	802	*1802*	140.43	*8.57*	1.76	*3.88*	✓
MMGS-B45-125	125	*4.92*	335	*13.19*	210	*8.27*	± 10%		811	*1822*	172.24	*10.51*	1.98	*4.37*	✓
MMGS-B45-160	160	*6.30*	405	*15.94*	245	*9.65*	102 bar	*1479 psi*	819	*1840*	216.78	*13.23*	2.28	*5.03*	✓
MMGS-B45-200	200	*7.87*	485	*19.09*	285	*11.22*	+20 °C	*+68 °F*	825	*1854*	267.67	*16.33*	2.60	*5.73*	✓

Order Callout Example:
MMGS-B45-160





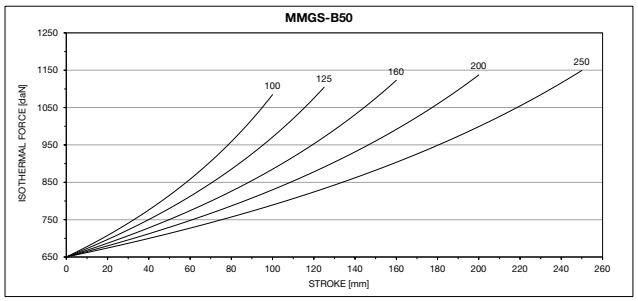
MMGS-B 50

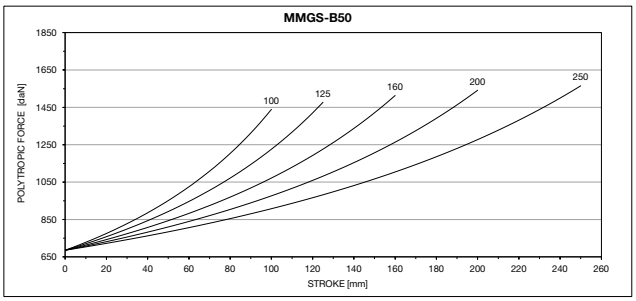


N2	°F 32 - 212 / °C 0 - 100	ΔP	P max	P min	S	SPM	Max Speed	Maintenance kit
		± 0.33 %/°C	92 bar *1334 psi*	20 bar *290 psi*	7.07 cm² *1.097 in²*	~ 25 - 15 (at 20°C)	0.8 m/s	GSRK-39BMMMGS00050A

CALLOUT	Cu		L		L min		F0 Initial force		F1 End force *		V0				PED 2014/68/EU
	mm	*inch*	mm	*inch*	mm	*inch*	daN	*lb*	daN	*lb*	cm³	*in³*	~Kg	*~lb*	
MMGS-B50-100	100	*3.94*	295	*11.61*	195	*7.68*	650 *1461* ± 10% 92 bar *1334 psi* +20 °C *+68 °F*		1085	*2438*	188.74	*11.52*	2.31	*5.09*	✓
MMGS-B50-125	125	*4.92*	345	*13.58*	220	*8.66*			1104	*2481*	229.66	*14.01*	2.59	*5.71*	✓
MMGS-B50-160	160	*6.30*	415	*16.34*	255	*10.04*			1123	*2524*	286.95	*17.51*	2.95	*6.50*	✓
MMGS-B50-200	200	*7.87*	495	*19.49*	295	*11.61*			1137	*2555*	352.42	*21.51*	3.32	*7.32*	✓
MMGS-B50-250	250	*9.84*	595	*23.43*	345	*13.58*			1149	*2582*	434.26	*26.50*	3.78	*8.33*	✓

Order Callout Example:
MMGS-B50-200





SW - secondary wiper

EN In addition to the SKUDO protection, which is standard on series GSSC and GSRS, MISUMI offers a complete range of secondary wipers to improve performances of nitrogen cylinders used in heavy contamined environments.
The new secondary wipers, made in polyurethane, are designed for a perfect fitting with many series of nitrogen cylinders.
See the charts on the next page and select the correct Secondary Wiper Callout from Cylinder Callout.
The secondary wiper must be ordered separately from the cylinders.

DE Neben dem SKUDO-Schutz, der standardmäßig auf der Produktreihe GSSC und GSRS installiert ist, bietet MISUMI ein komplettes Sortiment an Sekundärabstreifer zur Verbesserung der Leistungen von Gasdruckfedern, die in stark kontaminierten Umgebungen eingesetzt werden.
Die neuen Sekundärabstreifer, hergestellt aus Polyurethan, sind für eine perfekte Montage mit vielen Serien von Gasdruckfedern ausgelegt. Wählen Sie den korrekten Sekundärabstreifer aus der Tabelle auf der folgenden Seite in Abhängigkeit vom Gasdruckfeder Code.
Die Sekundärabstreifer müssen separat von den Gasdruckfedern bestellt werden.

FR En plus de la protection SKUDO installée en standard sur les séries GSSC et GSRS, MISUMI offre une gamme complète de joints racleurs secondaires pour améliorer les performances des ressorts à gaz utilisés dans les environnements fortement contaminés.
Les nouveaux joints racleurs secondaires, fabriqués en polyuréthane, sont conçus pour une parfaite fixation avec de nombreuses séries de ressorts à gaz. Reportez-vous aux tableaux de la page suivante et sélectionnez la référence du joint racleur du vérin à gaz qui vous intéresse.
Les joint racleurs sont à commander séparément des vérins.

ES Además de la protección SKUDO instalada como estándar en las series GSSC y GSRS, MISUMI ofrece una gama completa de rascadores secundarios para mejorar las prestaciones de los cilindros de nitrógeno utilizados en entornos muy contaminados.
Los nuevos rascadores secundarios de poliuretano están diseñados para un ajuste perfecto con muchas series de cilindros de nitrógeno. Consulte las tablas de la página siguiente para elegir los rascadores secundarios correctos en función del tipo de cilindros.
Los rascadores secundarios se deben pedir por separado de los cilindros.

PT Além da protecção SKUDO instalada como padrão na série GSSC e GSRS, MISUMI oferece uma gama completa de raspadores secundários para melhorar os desempenhos dos cilindros de nitrogênio utilizados em ambientes muito contaminados.
Os novos raspadores secundários, feitos de poliuretano, são projetados para um perfeito montagem com muitas séries de cilindros de nitrogênio. Verifique as tabelas da página seguinte e selecione o raspador secundário indicado, de modo a obter a referência completa da mola a gás.
O raspador secundário terá ser encomendado separadamente da mola a gás.

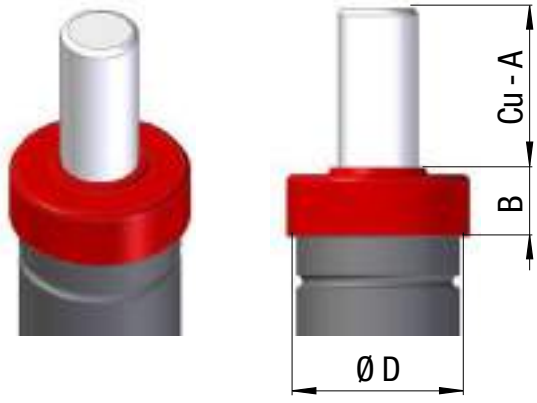
Cylinder Callout	A mm	B mm	Secondary Wiper Callout
GSU 300	2	4	GSSW195-130
GSV / GST 350	2	4	GSSW32-16
GSV / GST 500	2	4	GSSW38-20
GSV / GSF / GSH / GST 750	2	4	GSSW45-25
GSV / GSF / GSH / GST 1000	2	5	GSSW50-28
GSV / GSF / GST 1200	2	5	GSSW50-28
GSV / GSF / GSH / GST 1500	2.5	5.5	GSSW63-36
GSV / GSF / GSH / GST 2400	2.5	5.5	GSSW75-45
GSV / GSH / GST 4200	2.5	5.5	GSSW95-60
GSV / GSH / GST 6600	2.5	5.5	GSSW120-75
GSV / GST 9500	3	6	GSSW150-90
GSV 12000	3	6	GSSW150-100
GSV 30000	3	6	GSSW195-130
GSSH 300	2	4	GSSW32-16
GSSH 500 / GSSHF 500	2	4	GSSW38-20
GSSH 700	2	4	GSSW45-25
GSSH 1000	2	5	GSSW50-28
GSSH 1500	2.5	5.5	GSSW63-36
GSSH 2400	2.5	5.5	GSSW75-45
GSSH 4200	2.5	5.5	GSSW95-60
GSSH 6600	2.5	5.5	GSSW120-75
GSSH 9500	3	6	GSSW150-90
GSSH 18500	3	6	GSSW150-100

A = Nominal stroke reduction Cu = Nominal stroke

Cylinder Callout	A mm	B mm	Secondary Wiper Callout
GSK 150	2	4	GSSW32-12
GSK 250	2	4	GSSW38-15
GSK 500	2	4	GSSW45-20
GSKS / GSK 750	2	5	GSSW50-25
GSK 1500	2.5	5.5	GSSW75-36
GSK 3000	2.5	5.5	GSSW95-50
GSK 5000	3	6	GSSW120-65
GSK 7500	3	6	GSSW150-80
GSK 10000	3	6	GSSW195-95

⚠ The installation of the secondary wiper will require the removal of the active safety marker OSM where mounted.

Cylinder Callout	A mm	B mm	Ø D mm	Secondary Wiper Callout
GSU 50	-	9.5	15	GSSW12-6
GSU 70	-	9.5	18	GSSW15-7
GSU 90	2.5	10.5	22	GSSW19-8
GSU 200	2.5	10.5	28	GSSW25-12
GSV 170	2.5	9.5	22	GSSW19-11
GSV 320	2.5	9.5	28	GSSW25-15



A = Nominal stroke reduction Cu = Nominal stroke

EN The following table shows the references for each MISUMI standards. See example below.

DE Die folgende Tabelle zeigt die Verweise für jede MISUMI Standards. Siehe Beispiel unten.

FR Le tableau suivant indique les références pour chacune des normes MISUMI. Voir l'exemple ci-dessous.

ES La siguiente tabla muestra las referencias de las normas para cada MISUMI. Consulte el siguiente ejemplo.

PT A tabela a seguir mostra as referências para cada normas MISUMI. Veja o exemplo abaixo.

Reference to standards	Standards	
0	//	MISUMI
1	ISO 11901-2	
2	VDI 3003	
3	B2 4009	BMW
4	W-DX35-62M	Ford
5	W-DX35-80M	Ford
6	W-DX40-80M	Ford
7	90.25.01	General Motors
8	90.25.02	General Motors
9	90.25.03	General Motors
10	90.25.04	General Motors
11	90.25.06	General Motors
12	90.25.07	General Motors
13	90.25.455	General Motors
14	B8 0132 110 008 801	Mercedes Benz

Reference to standards	Standards	
15	B8 0138 100 000 001	Mercedes Benz
16	B8 0134 300 000 001	Mercedes Benz
17	B8 0134 400 008 801	Mercedes Benz
18	B8	Mercedes Benz
19	E24.54.815.G	Peugeot - Citroën
20	EM24.54.700	Renault
21	39D 848	Volkswagen
22	075.90.70	FCA
23	075.90.75	FCA
24	075.90.80	FCA
25	075.90.85	FCA
26	075.90.90	FCA
27	075.90.95	FCA
28	075.90.40	FCA

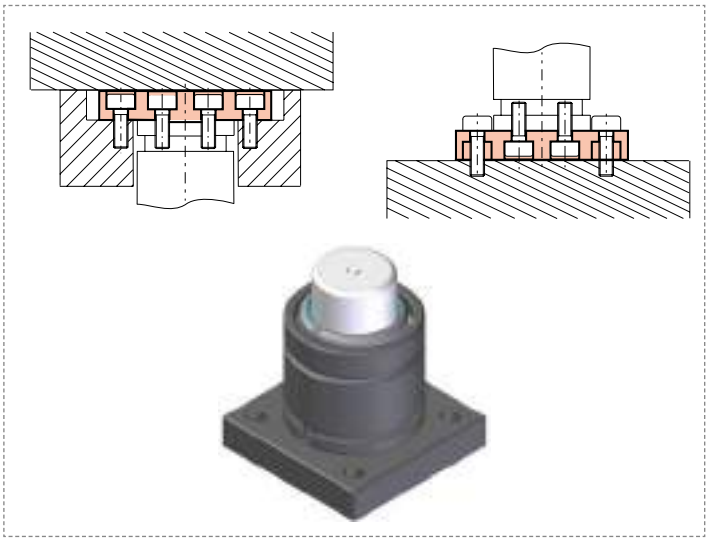
How to read the table

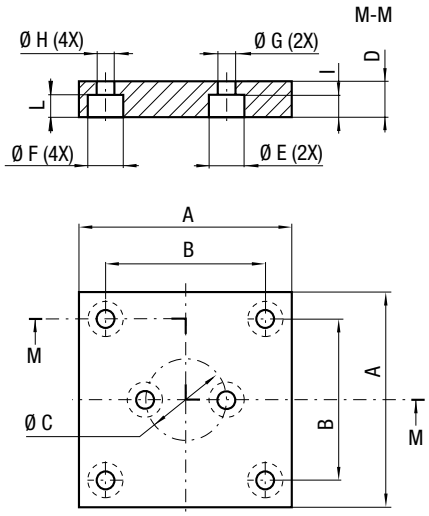
CALLOUT	Reference to standards	A		B		Ø C		D		Ø E		Ø F		Ø G		Ø H		I		L	
		mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*
FB45	1-2-10-19-20	70	*2.76*	50	*1.97*	20	*0.79*	20	*0.79*	15	*0.59*	15	*0.59*	9	*0.35*	9	*0.35*	14	*0.55*	12	*0.47*

MISUMI CALLOUT

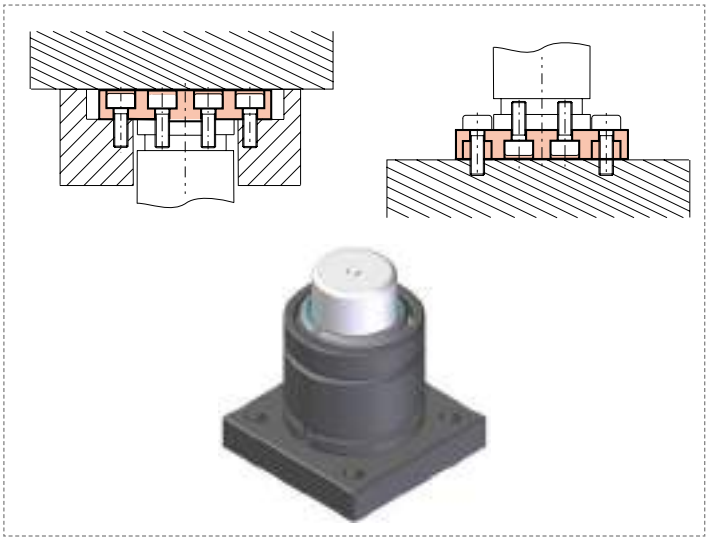
1 = ISO 11901-2
2 = VDI 3003
10 = 90.25.04
19 = E24.54.815.G
20 = EM24.54.700

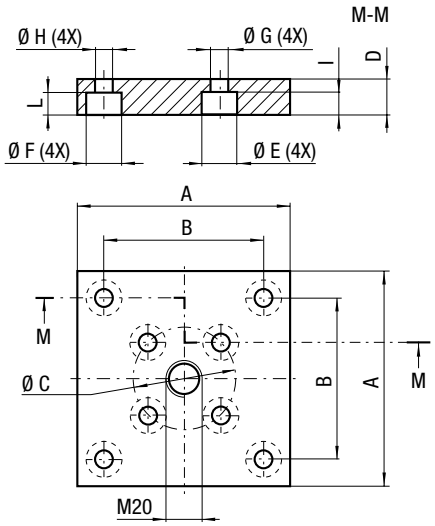
Dimension



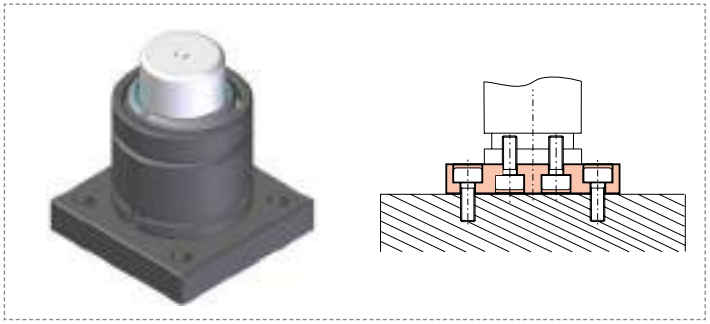


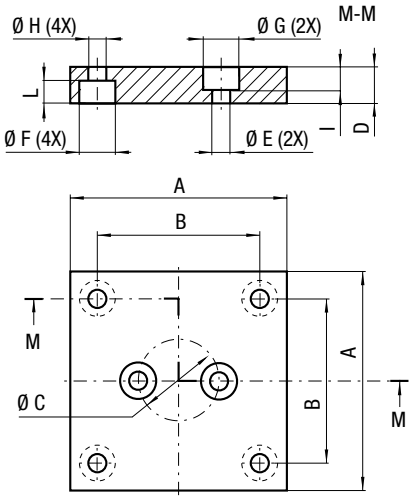
CALLOUT	Reference to standards	A		B		Ø C		D		Ø E		Ø F		Ø G		Ø H		I		L	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FB45	1-2-10-19-20	70	2.76	50	1.97	20	0.79	20	0.79	15	0.59	15	0.59	9	0.35	9	0.35	14	0.55	12	0.47
FB50	1-2-10-19-20	75	2.95	56.5	2.22	20	0.79	20	0.79	15	0.59	15	0.59	9	0.35	9	0.35	14	0.55	12	0.47
FB63	0	100	3.94	73.5	2.89	20	0.79	20	0.79	15	0.59	18	0.71	9	0.35	11	0.43	12	0.47	12	0.47



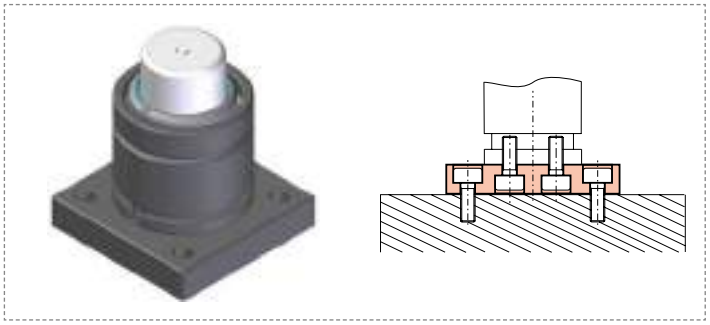


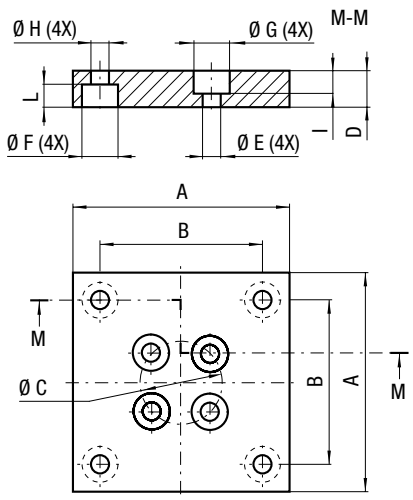
CALLOUT	Reference to standards	A		B		Ø C		D		Ø E		Ø F		Ø G		Ø H		I		L	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FB75	1-2-10-19-20	100	3.94	73.5	2.89	40	1.57	20	0.79	15	0.59	18	0.71	9	0.35	11	0.43	14	0.55	12	0.47
FB95	1-2-10-19-20	120	4.72	92	3.62	60	2.36	20	0.79	15	0.59	20	0.79	9	0.35	13.5	0.53	14	0.55	13	0.51
FB120	1-2-10-19-20	140	5.51	109.5	4.31	80	3.15	20	0.79	18	0.71	20	0.79	11	0.43	13.5	0.53	15	0.59	13	0.51
FB150	1-2-10-20	190	7.48	138	5.43	100	3.94	25	0.98	18	0.71	26	1.02	11	0.43	17.5	0.69	15	0.59	17	0.67
FB195	1-2-10-20	210	8.27	170	6.69	120	4.72	25	0.98	20	0.79	26	1.02	13.5	0.53	17.5	0.69	13	0.51	17	0.67



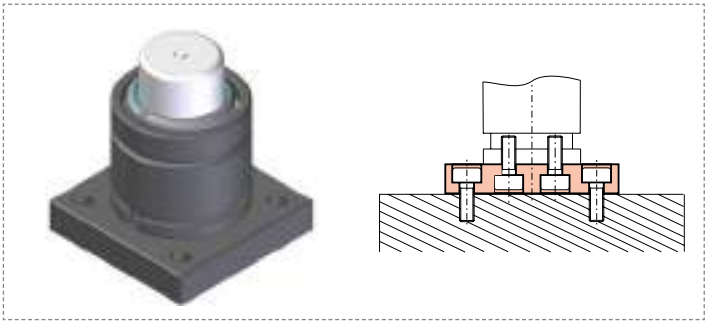


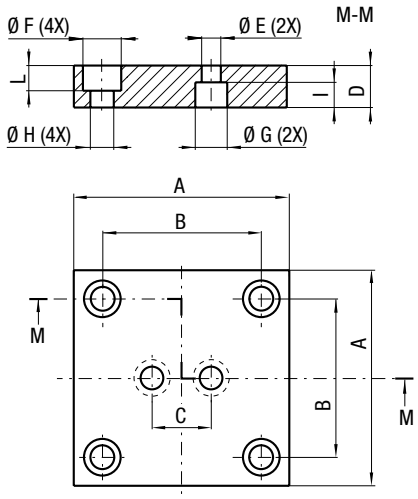
CALLOUT	Reference to standards	A		B		Ø C		D		Ø E		Ø F		Ø G		Ø H		I		L	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FBA45	20	70	2.76	50	1.97	20	0.79	20	0.79	9	0.35	18	0.71	15	0.59	11	0.43	14	0.55	12	0.47
FBA50	20	75	2.95	56.5	2.22	20	0.79	20	0.79	9	0.35	18	0.71	15	0.59	11	0.43	14	0.55	12	0.47



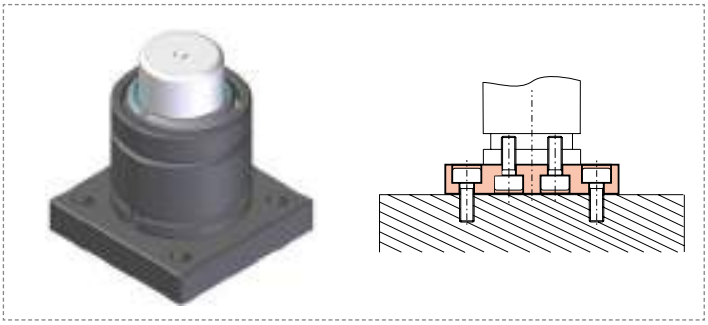


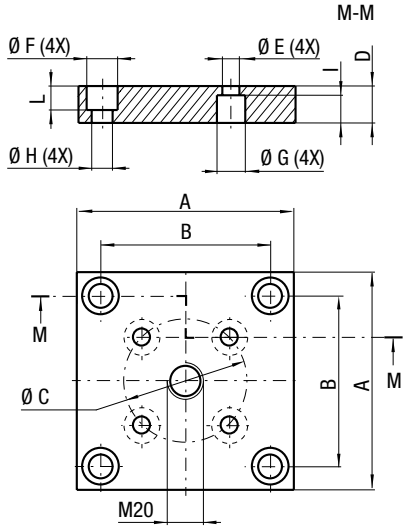
CALLOUT	Reference to standards	A		B		Ø C		D		Ø E		Ø F		Ø G		Ø H		I		L	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FBA75	20	100	3.94	73.5	2.89	40	1.57	20	0.79	9	0.35	18	0.71	15	0.59	11	0.43	14	0.55	12	0.47
FBA95	20	120	4.72	92	3.62	60	1.57	20	0.79	9	0.35	20	0.79	15	0.59	13.5	0.53	14	0.55	13	0.51
FBA120	20	140	5.51	109.5	4.31	80	3.15	20	0.79	11	0.43	20	0.79	18	0.71	13.5	0.53	15	0.59	13	0.51
FBA150	20	190	7.48	138	5.43	100	3.94	25	0.98	11	0.43	26	1.02	18	0.71	17.5	0.69	15	0.59	17	0.67
FBA195	20	210	8.27	170	6.69	120	4.72	25	0.98	13.5	0.53	26	1.02	20	0.79	17.5	0.69	15	0.59	17	0.67



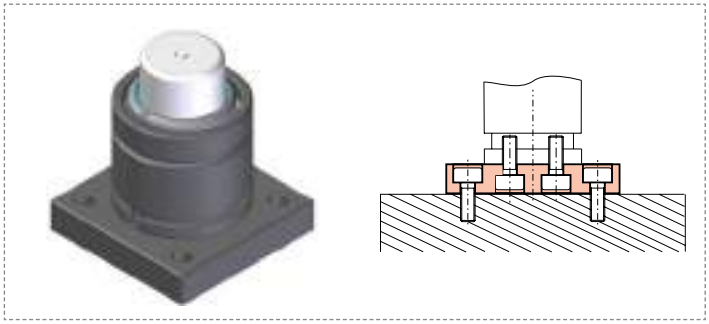


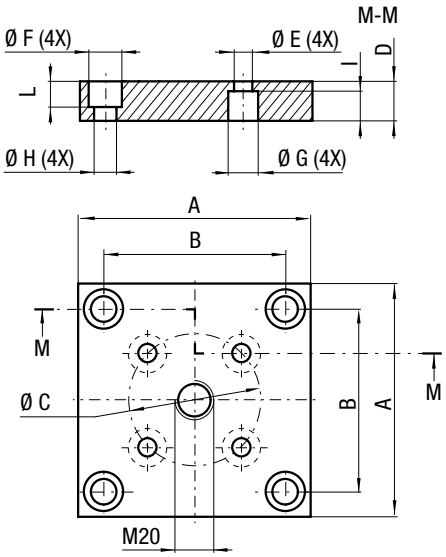
CALLOUT	Reference to standards	A		B		C		D		Ø E		Ø F		Ø G		Ø H		I		L	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FBB45	3-14	70	2.76	50	1.97	20	0.79	20	0.79	9	0.35	15	0.59	15	0.59	9	0.35	12	0.47	12	0.47
FBB50	3-14	75	2.95	56.5	2.22	20	0.79	20	0.79	9	0.35	15	0.59	15	0.59	9	0.35	12	0.47	12	0.47
FBB63	3-14	100	3.94	73.5	2.89	20	0.79	20	0.79	9	0.35	18	0.71	15	0.59	11	0.43	12	0.47	12	0.47



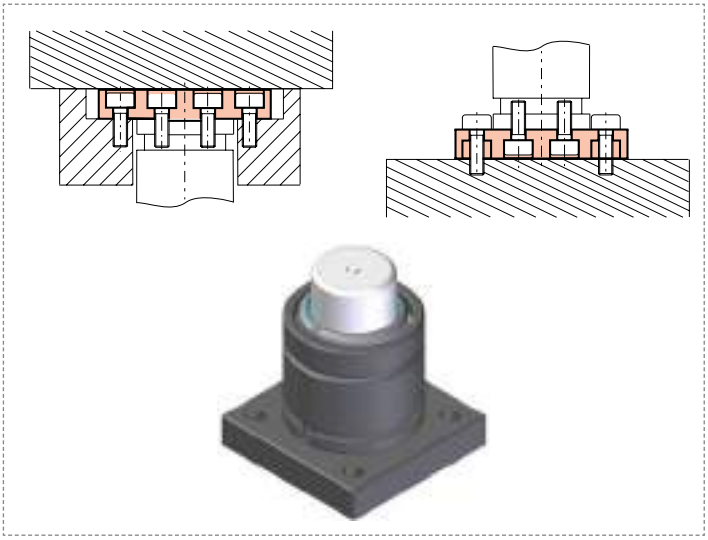


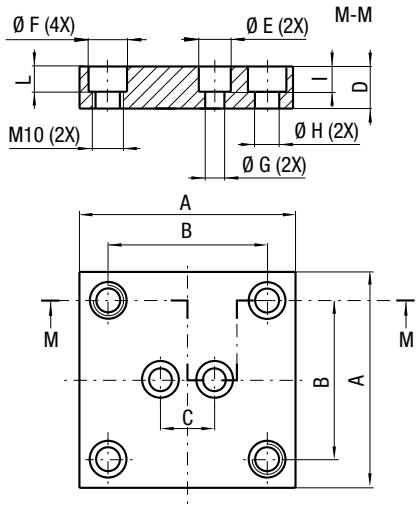
CALLOUT	Reference to standards	A		B		Ø C		D		Ø E		Ø F		Ø G		Ø H		I		L	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FBB75	3-14	100	3.94	73.5	2.89	40	1.57	20	0.79	9	0.35	18	0.71	15	0.59	11	0.43	12	0.47	14	0.55
FBB95	3-14	120	4.72	92	3.62	60	2.36	20	0.79	9	0.35	20	0.79	15	0.59	13.5	0.53	14	0.55	13	0.51
FBB120	3-14	140	5.51	109.5	4.31	80	3.15	20	0.79	11	0.43	20	0.79	18	0.71	13.5	0.53	15	0.59	13	0.51
FBB150	3-14	190	7.48	138	5.43	100	3.94	20	0.79	11	0.43	20	0.79	18	0.71	13.5	0.53	15	0.59	13	0.51
FBB195	14	210	8.27	170	6.69	120	4.72	25	0.98	13.5	0.53	26	1.02	20	0.98	17.5	0.69	15	0.59	17	0.67



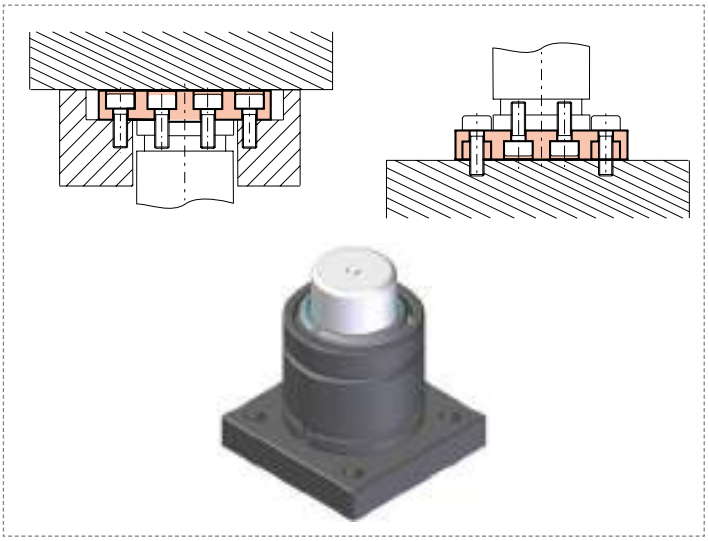


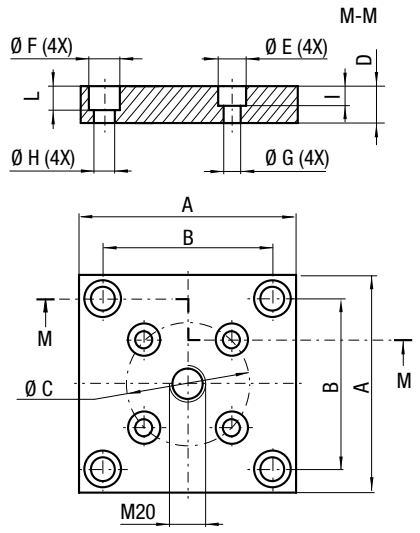
CALLOUT	Reference to standards	A		B		Ø C		D		Ø E		Ø F		Ø G		Ø H		I		L	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FBC75	0	100	3.94	73.5	2.89	40	1.57	20	0.79	9	0.35	18	0.71	15	0.59	11	0.43	12	0.47	15	0.55



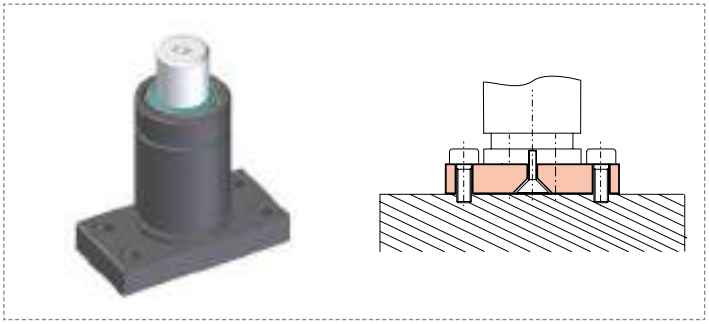


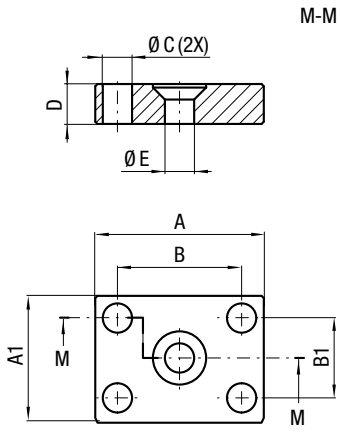
CALLOUT	Reference to standards	A		B		C		D		Ø E		Ø F		Ø G		Ø H		I		L	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FBD45	3	70	2.76	50	1.97	20	0.79	20	0.79	15	0.59	15	0.59	9	0.35	9	0.35	12	0.47	12	0.47
FBD50	3	75	2.95	56.5	2.22	20	0.79	20	0.79	15	0.59	15	0.59	9	0.35	9	0.35	12	0.47	12	0.47



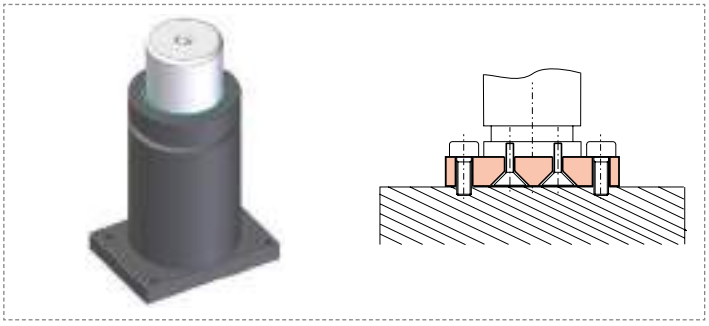


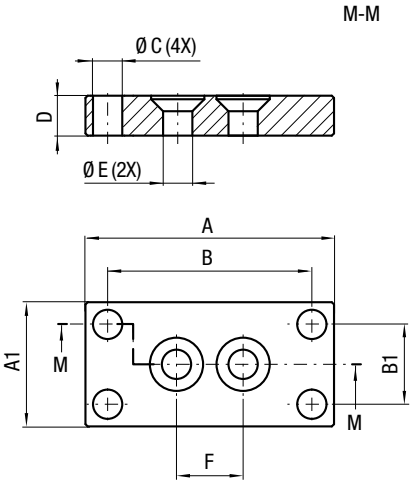
CALLOUT	Reference to standards	A		B		Ø C		D		Ø E		Ø F		Ø G		Ø H		I		L	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FBD75	3	100	3.94	73.5	2.89	40	1.57	20	0.79	15	0.59	18	0.71	9	0.35	11	0.43	12	0.47	15	0.59
FBD150	3-8	190	7.48	138	5.43	100	3.94	20	0.79	18	0.71	26	1.02	11	0.43	17.5	0.69	15	0.59	17	0.67



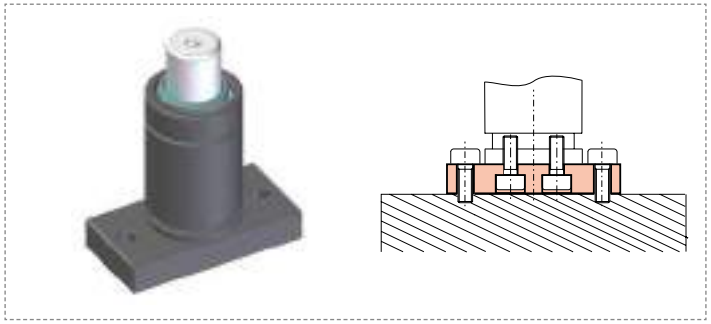


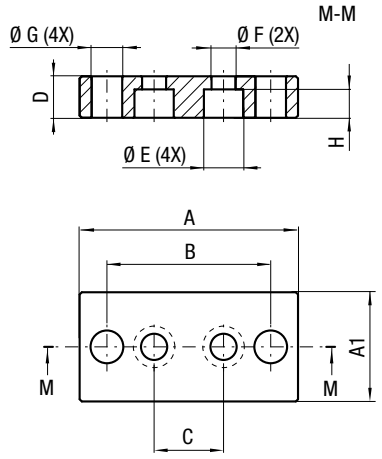
CALLOUT	Reference to standards	A		A1		B		B1		Ø C		D		Ø E	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FBE19	0	38	1.50	28	1.10	28	1.10	18	0.71	6.6	0.26	9	0.35	6.6	0.26
FBE25	0	44	1.73	28	1.10	34	1.34	18	0.71	6.6	0.26	9	0.35	6.6	0.26



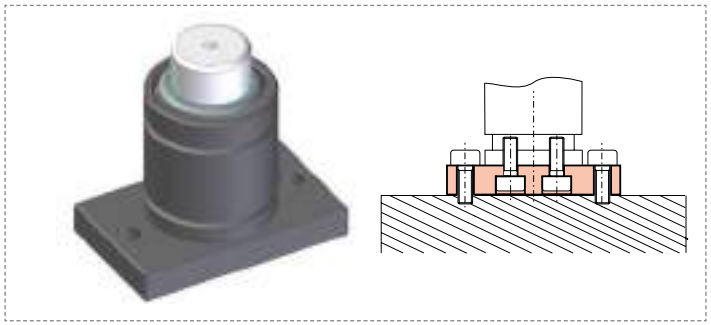


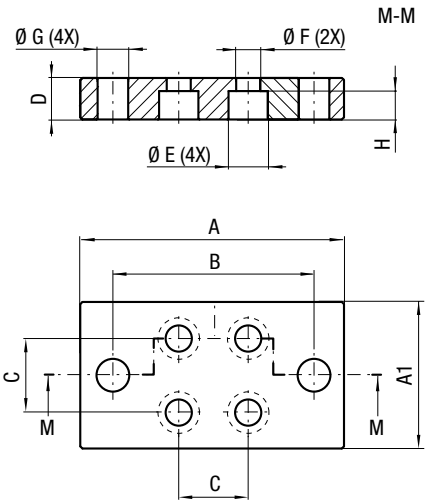
CALLOUT	Reference to standards	A		A1		B		B1		Ø C		D		Ø E		F	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FBE32	0	51	2.01	32	1.26	41	1.61	22	0.87	6.6	0.26	9	0.35	6.6	0.26	15	0.59
FBE38	0	57	2.24	38	1.50	47	1.85	28	1.10	6.6	0.26	9	0.35	6.6	0.26	20	0.79
FBE50	0	69	2.72	50	1.97	59	2.32	40	1.57	6.6	0.26	9	0.35	9	0.35	20	0.79
FBE63	0	84	3.31	65	2.56	70	2.76	50	1.97	6.6	0.26	9	0.35	9	0.35	20	0.79



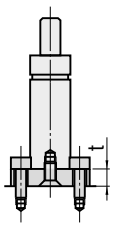


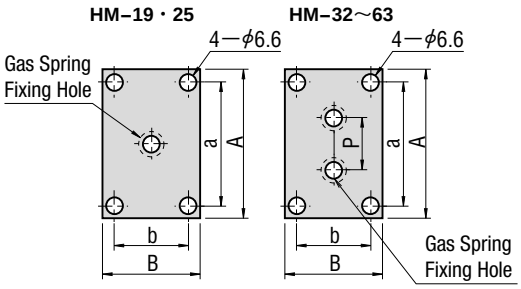
CALLOUT	Reference to standards	A		A1		B		C		D		Ø E		Ø F		Ø G		H	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FBF45	0	90	3.54	45	1.77	70	2.76	20	0.79	16	0.63	14	0.55	9	0.35	9	0.35	10	0.39
FBF50	0	100	3.94	50	1.97	75	2.95	31.8	1.25	19	0.75	18	0.71	11	0.43	14	0.55	13	0.51



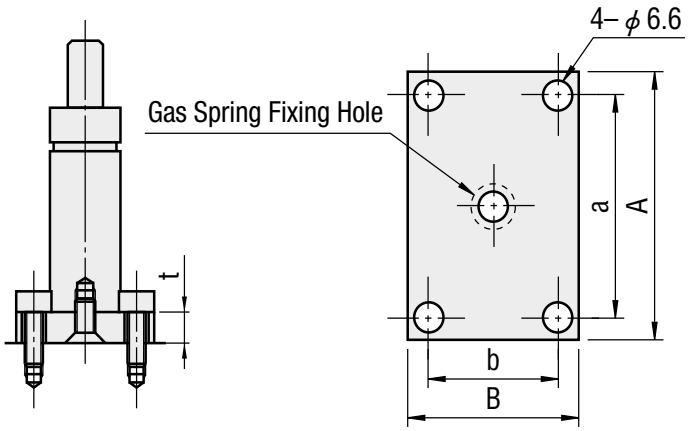


CALLOUT	Reference to standards	A		A1		B		C		D		Ø E		Ø F		Ø G		H	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FBF75	0	130	5.12	80	3.15	105	4.13	38.1	1.50	19	0.75	20	0.79	14	0.55	14	0.55	13	0.51

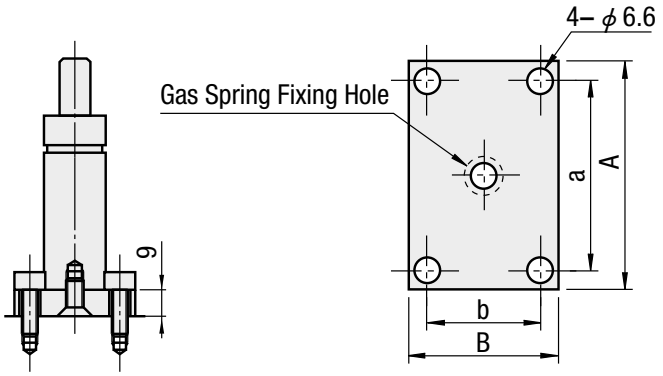




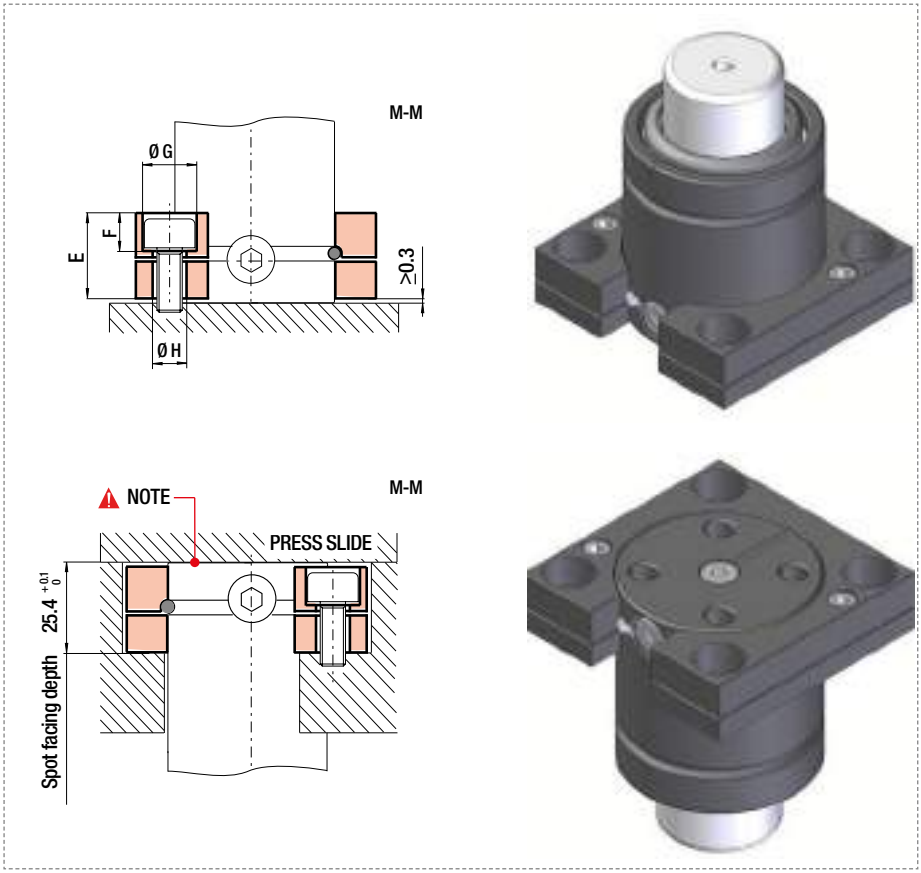
CALLOUT	Reference to standards	A		A1		B		B1		Ø C		D		Ø E		F	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
HM-19	0	38	965	28	711	28	711	18	457	6.6	168	9	229	6.6	168	-	-
HM-25	0	44	1118	28	711	34	864	18	457	6.6	168	9	229	6.6	168	-	-
HM-32	0	51	1295	32	813	41	1041	22	559	6.6	168	9	229	6.6	168	15	381
HM-38	0	57	1448	38	965	47	1194	28	711	6.6	168	9	229	6.6	168	20	508
HM-50	0	69	1753	50	1270	59	1499	40	1016	6.6	168	9	229	6.6	168	20	508
HM-63	0	84	2134	65	1651	70	1778	50	1270	6.6	168	9	229	6.6	168	20	508



CALLOUT	Reference to standards	A		A1		B		B1		Ø C		D		Ø E	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
H-19	0	38	965	28	711	28	711	18	457	6.6	168	9	229	6.6	168
H-25	0	44	1118	28	711	34	864	18	457	6.6	168	9	229	6.6	168



CALLOUT	Reference to standards	A		A1		B		B1		Ø C		D		Ø E	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
BM-32	0	51	1295	32	813	41	1041	22	559	6.6	168	9	229	6.6	168
BM-38	0	57	1448	38	965	47	1194	28	711	6.6	168	9	229	6.6	168
BM-50	0	69	1753	50	1270	59	1499	40	1016	6.6	168	9	229	6.6	168
BM-63	0	82	2083	63	1600	72	1829	53	1346	6.6	168	9	229	6.6	168



CALLOUT	Reference to standards	A		B		C		Ø D		E		F		ØG		ØH	
		mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*
FFS50	0	75	*2.95*	53.9	*2.12*	30	*1.18*	50.5	*1.99*	25	*0.98*	11	*0.43*	17	*0.67*	11	*0.43*
FFS63	0	100	*3.94*	73.5	*2.89*	30	*1.18*	63.5	*2.50*	25	*0.98*	11	*0.43*	17	*0.67*	11	*0.43*
FFS75	0	100	*3.94*	76.2	*3.00*	30	*1.18*	75.5	*2.97*	25	*0.98*	13	*0.51*	20	*0.79*	13	*0.51*
FFS95	0	125	*4.92*	98.3	*3.87*	30	*1.18*	95.5	*3.76*	25	*0.98*	13	*0.51*	20	*0.79*	13	*0.51*
FSS120	0	140	*5.51*	114.3	*4.50*	30	*1.18*	120.5	*4.74*	25	*0.98*	13	*0.51*	20	*0.79*	13	*0.51*
FSS150	0	175	*6.89*	139.7	*5.50*	30	*1.18*	150.5	*5.93*	25	*0.98*	17	*0.67*	25	*0.98*	17	*0.67*

NOTE

EN Make sure there is always a contact between the bottom cylinder surface and the press slide. Max gap allowed is 0.1mm

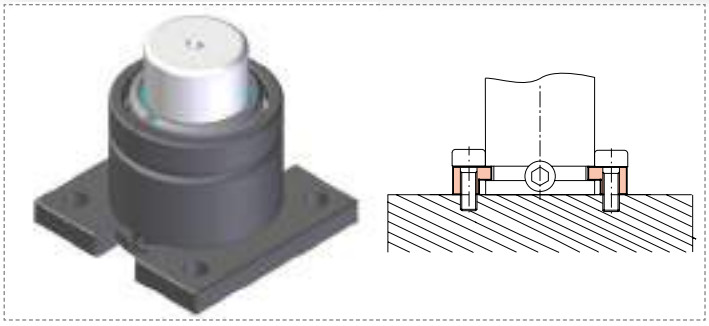
DE Es muss immer ein Kontakt zwischen der Arbeitsfläche der Presse und dem Boden der Gasdruckfeder gewährleistet sein. Es ist ein maximale Lücke von 0.1mm erlaubt

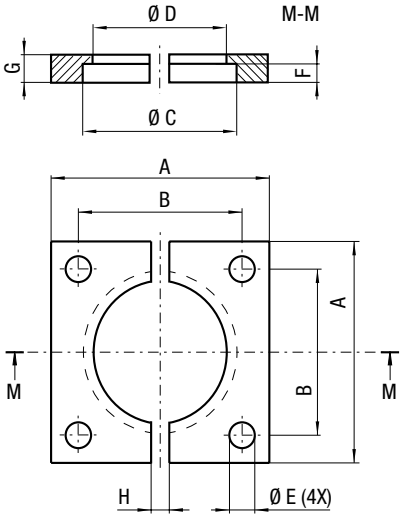
FR Toujours consentir un contact entre la surface du fond du cylindre et la presse. Gap maximum permis est 0.1mm

ES Garantizar siempre un contacto entre la base del cilindro y la corredera del troquel. Espacio máximo permitido es de 0.1mm

PT Garantir sempre o contacto entre o fundo do cilindro e o dispositivo de pressão. Tolerância máxima permitida de 0.1mm

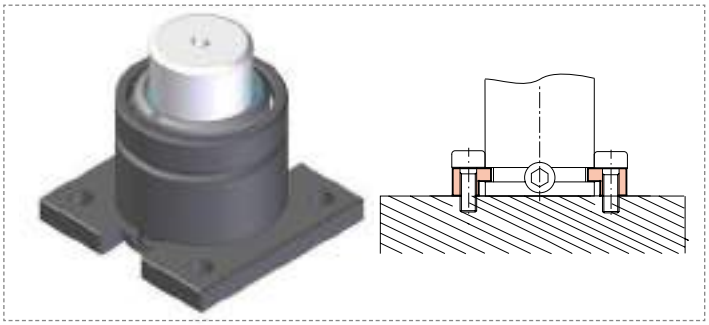
FFC:	ISO	VDI	BMW
	General Motors	Mercedes Benz	Volkswagen
	Ford		

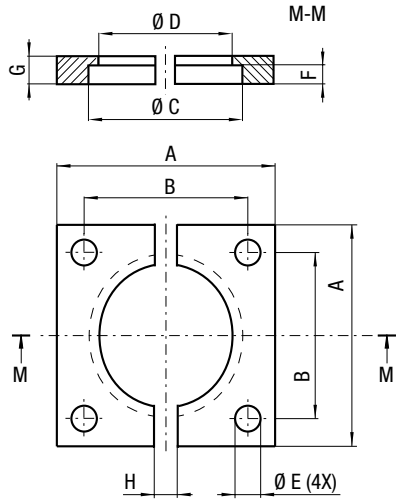




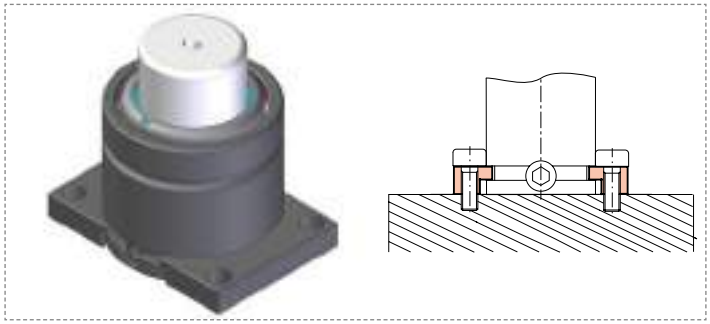
CALLOUT	Reference to standards	A		B		Ø C		Ø D		Ø E		F		G		H	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FFC32	1-3-4-7-15	50	1.97	35	1.38	32.5	1.28	28.5	1.12	6.6	0.26	4	0.16	7	0.28	5	0.20
FFC38	1-3-4-7-15	55	2.17	40	1.57	38.5	1.52	34.5	1.36	7	0.28	4	0.16	7	0.28	5	0.20
FFC45	1-2-3-4-7-15-21-26	70	2.76	50	1.97	45.5	1.79	41.5	1.63	9	0.35	4	0.16	7	0.28	20	0.79
FFC50	1-2-3-4-7-15-21-26	75	2.95	56.5	2.22	50.5	1.99	44.5	1.75	9	0.35	8	0.31	12	0.47	24	0.95
FFC63	0	85	3.35	63.5	2.50	63.5	2.50	57.5	2.26	11	0.43	8	0.31	12	0.47	24	0.95
FFC75	1-2-3-4-7-15-21-26	100	3.94	73.5	2.89	75.5	2.97	68.5	2.70	11	0.43	8	0.31	12	0.47	24	0.95
FFC95	1-2-3-4-7-15-21-26	120	4.72	92	3.62	95.5	3.76	88.5	3.48	13.5	0.53	8	0.31	12	0.47	24	0.95
FFC120	1-2-3-4-7-15-21-26	140	5.51	109.5	4.31	120.5	4.74	113.5	4.47	13.5	0.53	8	0.31	12	0.47	24	0.95
FFC150	1-2-3-4-7-15-21-26	190	7.48	138	5.43	150.5	5.93	143.5	5.65	17.5	0.69	8	0.31	12	0.47	24	0.95
FFC195	1-2-4-7-15-21-26	210	8.27	170	6.69	195.5	7.70	188	7.40	17.5	0.69	8	0.31	13	0.51	24	0.95

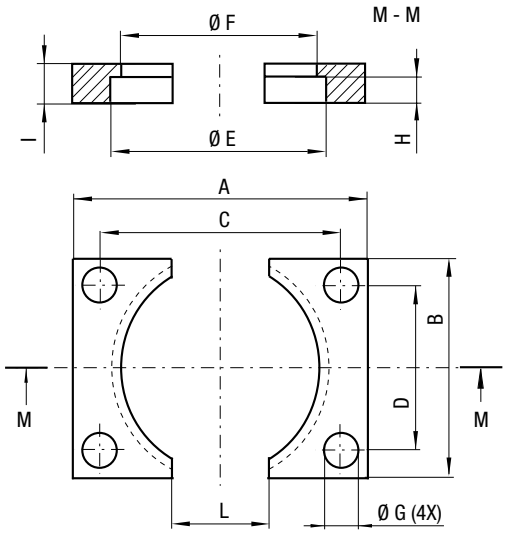
FFCB:	VDI	BMW	Ford	Mercedes Benz
	Volkswagen			



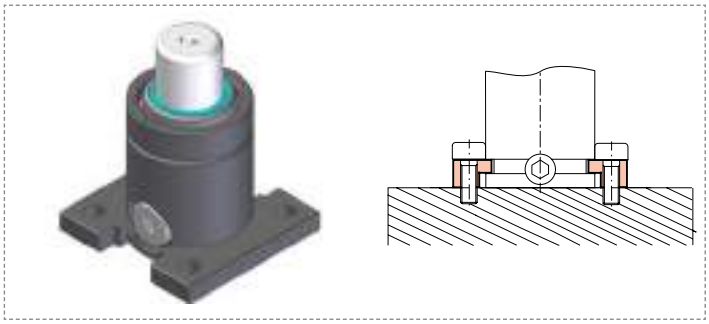


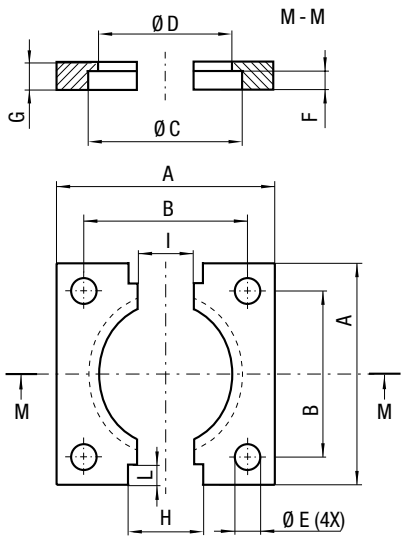
CALLOUT	Reference to standards	A		B		Ø C		Ø D		Ø E		F		G		H	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FFCB32	2-21-26	50	1.97	35	1.38	32.5	1.28	28.5	1.12	6.6	0.26	4	0.16	7	0.28	12	0.47
FFCB38	2-21-26	55	2.17	40	1.57	38.5	1.52	34.5	1.36	6.6	0.26	4	0.16	7	0.28	12	0.47
FFCB63	2-3-4-15-21	100	3.94	73.5	2.89	64	2.52	57.5	2.60	11	0.43	8	0.32	12	0.47	24	0.95



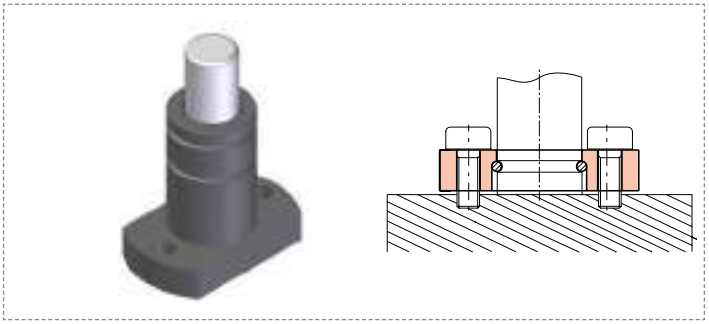


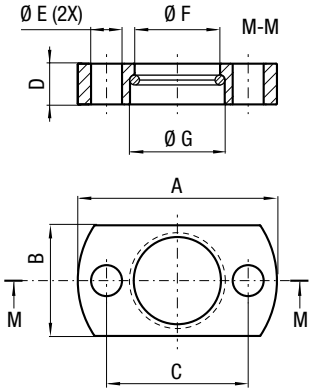
CALLOUT	Reference to standards	A		B		C		D		Ø E		Ø F		Ø G		H		I		L	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FFCA32	0	50	1.97	27	1.06	40	1.57	18	0.71	32.5	1.28	28.5	1.12	6.6	0.26	4	0.16	7	0.28	20	0.79
FFCA38	0	55	2.17	33	1.30	44	1.73	20	0.79	38.5	1.52	34.5	1.36	6.6	0.26	4	0.16	7	0.28	20	0.79
FFCA45	0	70	2.76	40	1.57	57	2.24	27	1.06	45.5	1.79	41.5	1.63	9	0.35	4	0.16	7	0.28	25	0.98
FFCA50	0	75	2.95	45	1.77	62	2.44	32	1.26	50.5	1.99	44.5	1.75	9	0.35	8	0.31	12	0.47	25	0.98
FFCA63	0	85	3.35	58	2.28	69	2.72	42	1.65	63.5	2.5	57.5	2.26	11	0.43	8	0.31	12	0.47	30	1.18
FFCA75	0	100	3.94	70	2.76	84	3.31	54	2.13	75.5	2.97	68.5	2.7	11	0.43	8	0.31	12	0.47	30	1.18
FFCA95	0	120	4.72	90	3.54	100	3.94	70	2.76	95.5	3.76	88.5	3.48	13.5	0.53	8	0.31	12	0.47	40	1.57
FFCA120	0	140	5.51	115	4.53	120	4.72	95	3.74	120.5	4.74	113.5	4.47	13.5	0.53	8	0.31	12	0.47	50	1.97
FFCA150	0	190	7.48	145	5.71	165	6.5	120	4.72	150.5	5.93	143.5	5.65	17.5	0.69	8	0.31	12	0.47	60	2.36
FFCA195	0	210	8.27	190	7.48	185	7.28	165	6.50	195.5	7.70	188	7.40	17.5	0.69	8	0.31	13	0.51	80	3.15



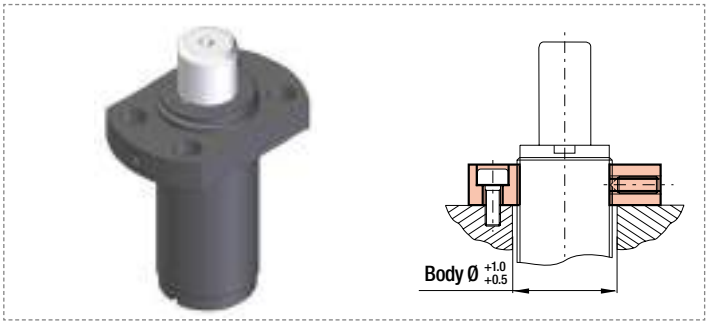


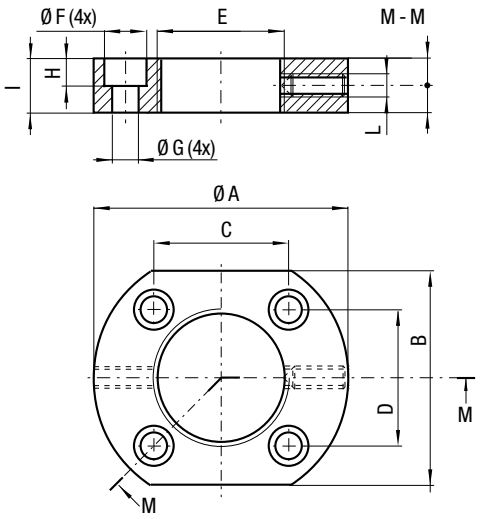
CALLOUT	Reference to standards	A		B		C		D		Ø E		F		G		H		I		L	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FFCC32	0	50	1.97	35	1.38	32.5	1.28	28.5	1.12	6.6	0.26	4	0.16	7	0.28	21	0.83	17	0.67	6.5	0.26
FFCC38	0	55	2.17	40	1.57	38.5	1.52	34.5	1.36	6.6	0.26	4	0.16	7	0.28	21	0.83	17	0.67	6.5	0.26





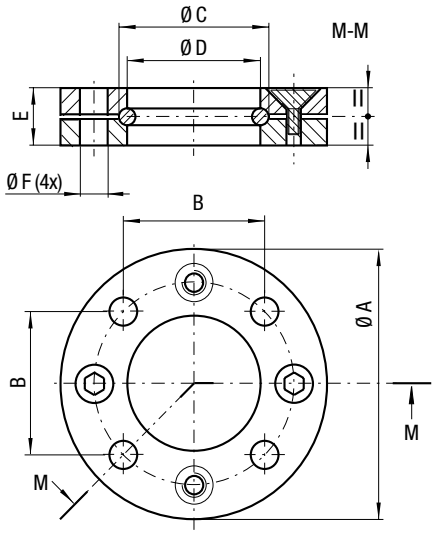
CALLOUT	Reference to standards	A		B		C		D		Ø E		Ø F		Ø G	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FCM19	0	45	1.77	25	0.98	32	1.26	9.2	0.36	7	0.28	19.3	0.76	21.4	0.84
FCM25	0	50	1.97	30	1.18	38	1.50	9.2	0.36	7	0.28	25.3	1.00	27.4	1.08



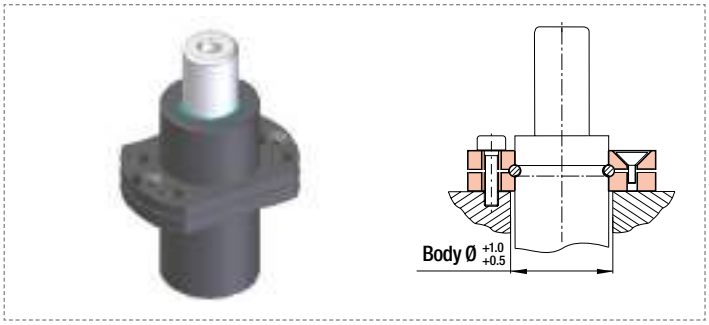


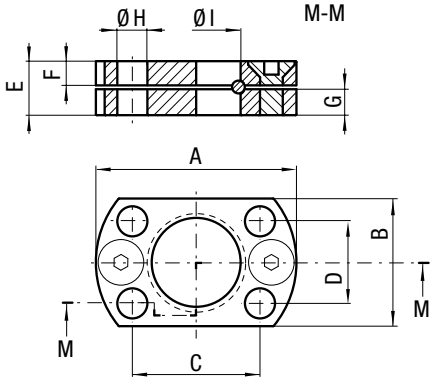
CALLOUT	Reference to standards	Ø A		B		C		D		E	Ø F		Ø G		H		I		L
		mm	inch	mm	inch	mm	inch	mm	inch		mm	inch	mm	inch	mm	inch	mm	inch	
FCA38	0	75	2.95	50	1.97	50.3	1.98	29	1.14	M 38 x 1.5	14	0.55	9	0.35	8	0.31	12	0.47	M6

For **KE** series only

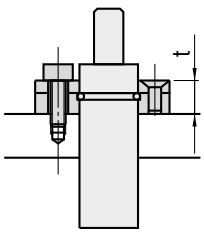


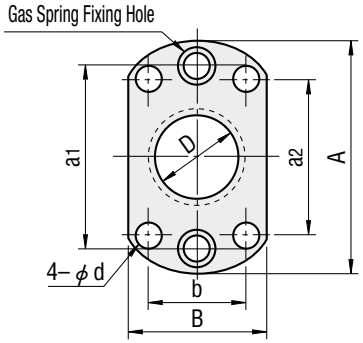
CALLOUT	Reference to standards	Ø A		B		Ø C		Ø D		E		Ø F	
		mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*
FCB50	0	95	*3.74*	56.5	*2.22*	52	*2.05*	50.5	*1.99*	13	*0.51*	9	*0.35*
FCB63	0	122	*4.80*	73.5	*2.89*	66	*2.60*	63.5	*2.50*	16	*0.63*	11	*0.43*
FCB75	0	122	*4.80*	73.5	*2.89*	78	*3.07*	75.5	*2.97*	16	*0.63*	11	*0.43*
FCB95	0	150	*5.91*	92	*3.62*	98	*3.86*	95.5	*3.76*	18	*0.71*	13.5	*0.53*





CALLOUT	Reference to standards	A		B		C		D		E		F		G		Ø H		Ø I	
		mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*
FCD-19	0	44	*1.73*	28	*1.10*	28	*1.10*	18	*0.71*	11	*0.43*	5.2	*0.20*	5.6	*0.22*	6.6	*0.26*	19.5	*0.77*
FCD-25	0	50	*1.97*	30	*1.18*	34	*1.34*	18	*0.71*	11	*0.43*	5.2	*0.20*	5.6	*0.22*	6.6	*0.26*	25.5	*1.00*
FCD-32	0	57	*2.24*	39	*1.54*	40	*1.57*	22	*0.87*	11	*0.43*	5.2	*0.20*	5.6	*0.22*	6.6	*0.26*	32.5	*1.28*
FCD-38	0	63	*2.48*	46	*1.81*	45	*1.77*	26	*1.02*	11	*0.43*	5.2	*0.20*	5.6	*0.22*	6.6	*0.26*	38.5	*1.52*
FCD-50	0	75	*2.95*	58	*2.28*	54	*2.13*	34	*1.34*	11	*0.43*	6.2	*0.24*	4.6	*0.18*	6.6	*0.26*	50.5	*1.99*
FCD-63	0	98	*3.86*	76	*2.99*	74	*2.91*	40	*1.57*	13	*0.51*	8.9	*0.35*	3.9	*0.15*	9	*0.35*	63.5	*2.50*

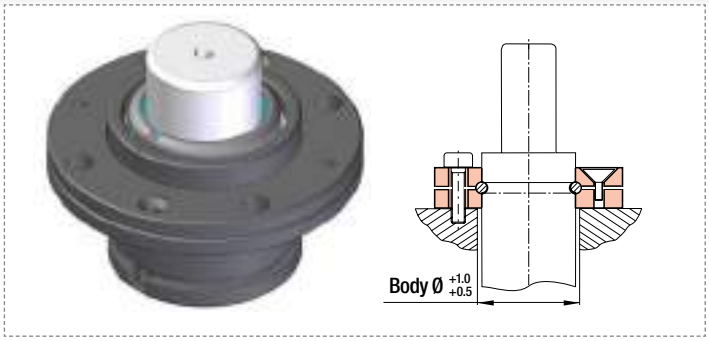


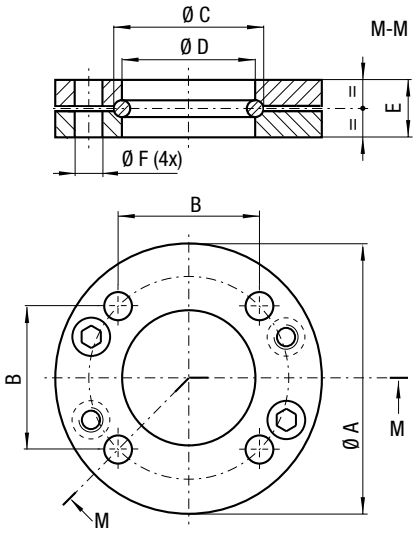


CALLOUT	Reference to standards	A		B		C		D		E		Ø H		Ø I	
		mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*	mm	*inch*
F-19	0	44	*1118*	28	*711*	28	*711*	18	*457*	11	*279*	6.6	*168*	19	*483*
F-25	0	50	*1270*	30	*762*	34	*864*	18	*457*	11	*279*	6.6	*168*	25	*635*

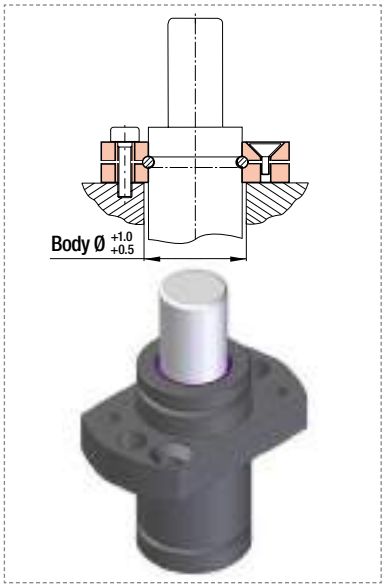
FC/FCC

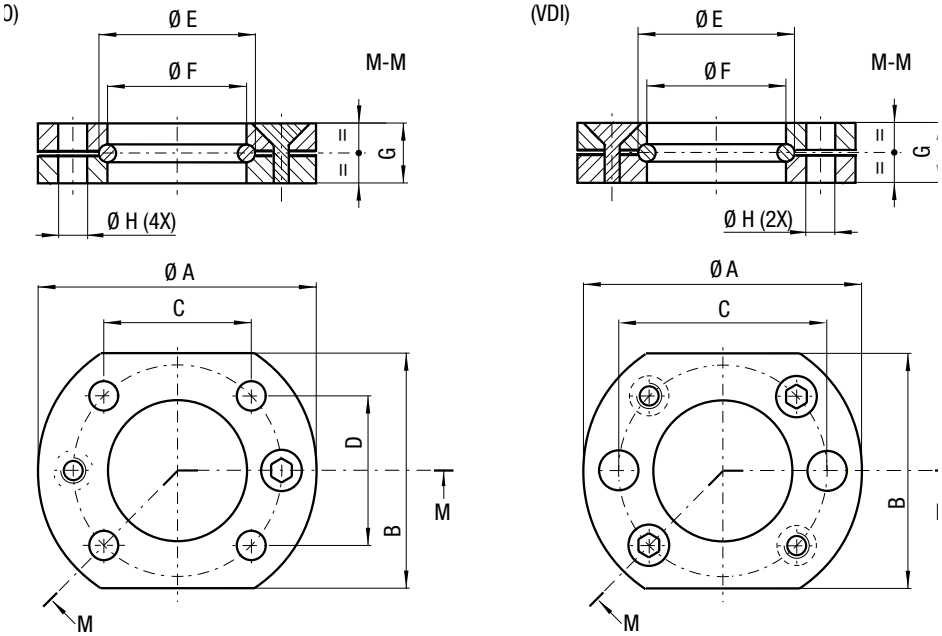
ISO	VDI	BMW
General Motors	Mercedes Benz	Peugeot - Citroën
Ford	Volkswagen	



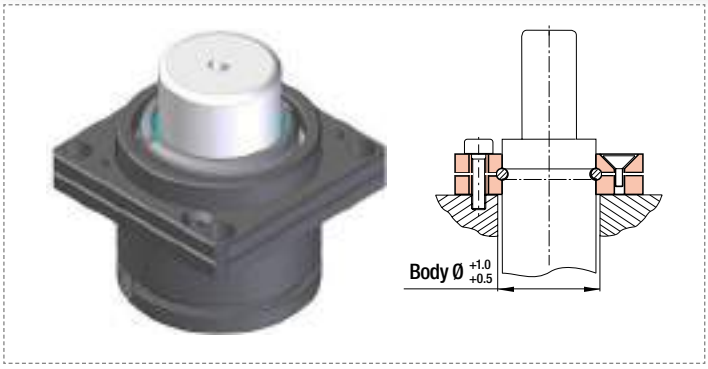


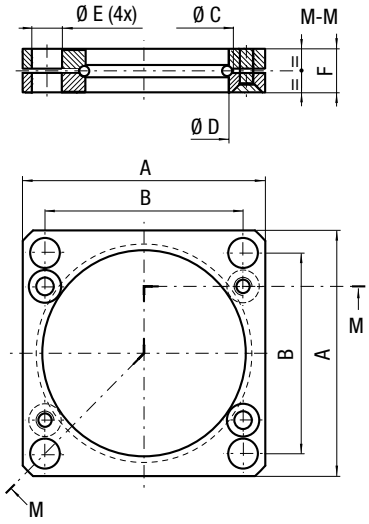
CALLOUT	Reference to standards	Ø A		B		Ø C		Ø D		E		Ø F	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FC32	1-2-3-9-16-24	60	2.36	35	1.38	34	1.34	32.5	1.28	9	0.35	7	0.28
FC38	1-2-3-9-16-24	68	2.68	40	1.57	40	1.57	38.5	1.52	9	0.35	7	0.28
FC45	1-2-3-9-16-24	86	3.39	50	1.97	47	1.85	45.5	1.79	13	0.51	9	0.35
FC50	1-2-3-9-16-24	95	3.74	56.5	2.22	54	2.13	50.5	1.99	13	0.51	9	0.35
FC63	0	122	4.80	73.5	2.89	67	2.64	63.5	2.50	16	0.63	11	0.43
FC75	1-2-3-9-16-24	122	4.80	73.5	2.89	80	3.15	75.5	2.97	16	0.63	11	0.43
FC95	1-2-3-9-16-24	150	5.91	92	3.62	100	3.94	95.5	3.76	18	0.71	13.5	0.53
FC120	1-2-3-9-16-24	175	6.89	109.5	4.31	125	4.92	120.5	4.74	21	0.83	13.5	0.53
FC150	1-2-3-9-16-24	220	8.66	138	5.43	155	6.10	150.5	5.93	27	1.06	17.5	0.69
FC195	1-2-9-16-24	290	11.42	170	6.69	200	7.87	195.5	7.70	27	1.06	17.5	0.69



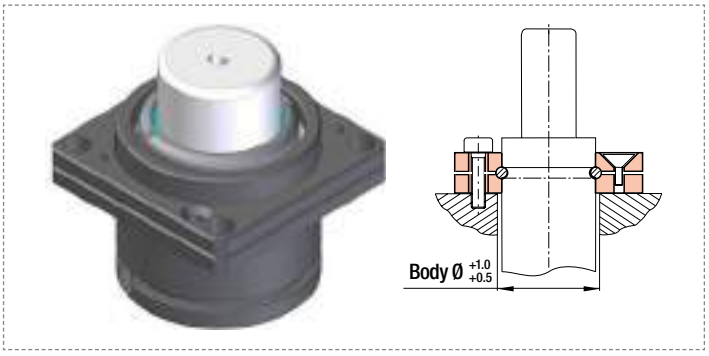


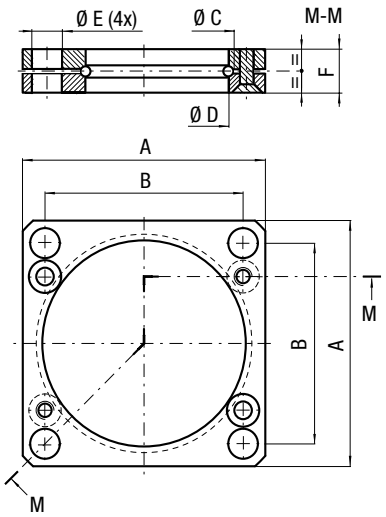
CALLOUT	Reference to standards	Ø A		B		C		D		Ø E		Ø F		G		Ø H	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FCC12	0	34	1.34	21	0.83	24	0.94	-	-	13.7	0.54	12.5	0.49	9	0.35	6.6	0.26
FCC15	0	37	1.36	24	0.94	27	1.06	-	-	16.7	0.66	15.5	0.61	9	0.35	6.6	0.26
FC19	1-5-19	44	1.73	25	0.98	30	1.18	12	0.47	21.9	0.86	19.5	0.77	9	0.35	6.6	0.26
FC25	1-5-19	50	1.97	30	1.18	34	1.34	18	0.71	27.9	1.10	25.5	1.00	9	0.35	6.6	0.26
FCC19	2-3-17-21-23	44	1.73	25	0.98	32	1.26	-	-	21	0.83	19.5	0.77	9	0.35	6.6	0.26
FCC25	2-3-17-19-21-23	50	1.97	30	1.18	38	1.50	-	-	27	1.06	25.5	1.00	9	0.35	6.6	0.26





CALLOUT	Reference to standards	A		B		Ø C		Ø D		Ø E		F	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FCQ32	2-4-8-25	45	1.77	35	1.38	34	1.34	32.5	1.28	7	0.28	9	0.26
FCQ38	1-2-3-4-8-25	52	2.05	40	1.57	40	1.57	38.5	1.52	7	0.28	9	0.35
FCQ45	1-2-3-4-8-25	64	2.52	50	1.97	47	1.85	45.5	1.79	9	0.35	13	0.51
FCQ50	1-2-3-4-8-25	70	2.76	56.5	2.22	54	2.13	50.5	1.99	9	0.35	13	0.51
FCQ63	2-3-25	90	3.54	73.5	2.89	67	2.64	63.45	2.50	11	0.43	16	0.63
FCQC63	2-4-21	80	3.15	64	2.52	67	2.64	63.45	2.50	11	0.43	16	0.63
FCQ75	1-2-3-4-8-25	90	3.54	73.5	2.89	80	3.15	75.5	2.97	11	0.43	16	0.63
FCQ95	1-2-3-4-8-25	110	4.33	92	3.62	100	3.94	95.5	3.76	13.5	0.53	18	0.71
FCQ120	1-2-3-4-8-25	130	5.12	109.5	4.31	125	4.92	120.5	4.74	13.5	0.53	21	0.83
FCQ150	1-2-3-4-8-25	162	6.38	138	5.43	155	6.10	150.5	5.93	17.5	0.69	27	1.06
FCQ195	1-2-4-8-25	210	8.27	170	6.69	200	7.87	195.5	7.70	17.5	0.69	27	1.06





CALLOUT	Reference to standards	A		B		Ø C		Ø D		Ø E		F	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FCQB50	0	70	2.76	56.5	2.22	52	2.05	50.5	1.99	9	0.35	13	0.51
FCQB63	0	90	3.54	73.5	2.89	66	2.60	63.5	2.50	11	0.43	16	0.63
FCQD63	0	80	3.15	64	2.52	66	2.60	63.5	2.50	11	0.43	16	0.63
FCQB75	0	90	3.54	73.5	2.89	78	3.07	75.5	2.97	11	0.43	16	0.63
FCQB95	0	110	4.33	92	3.62	98	3.86	95.5	3.76	13.5	0.53	18	0.71

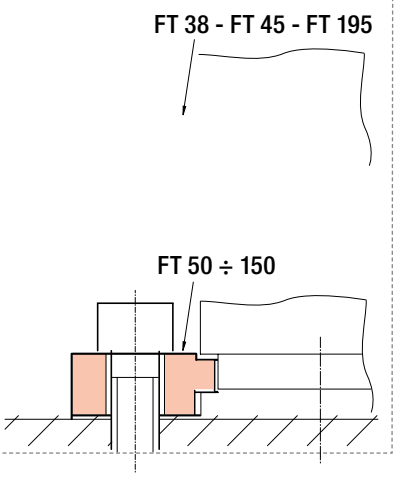


Fig. 1

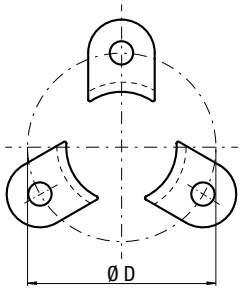
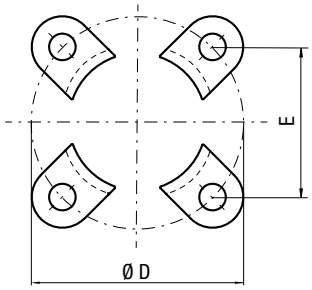
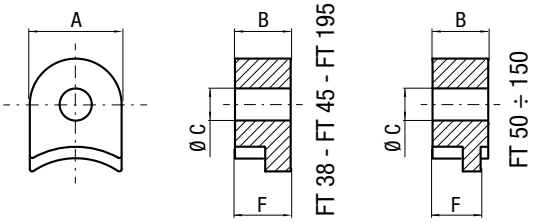


Fig. 2

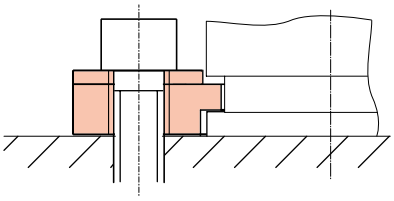


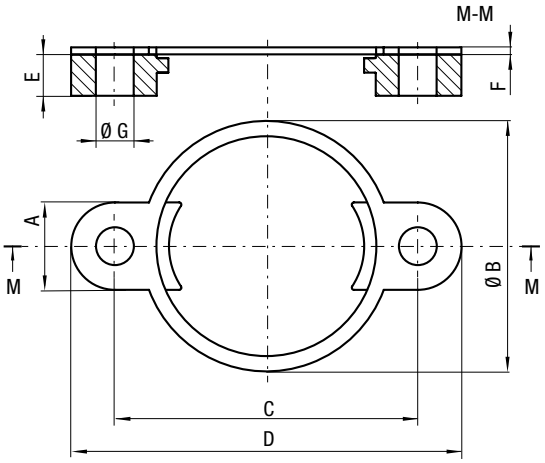


Std. box 1 pz =

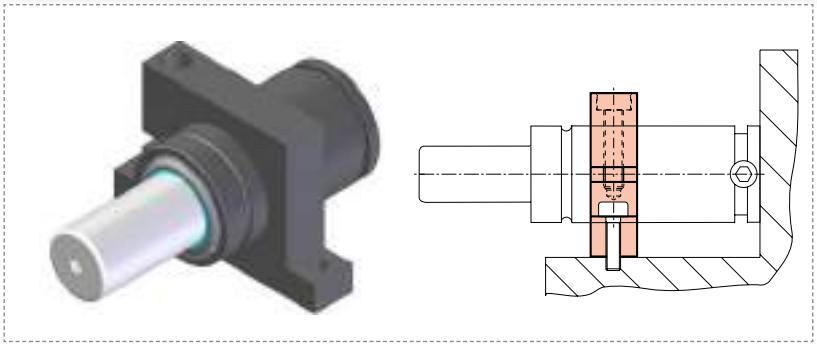
Order ex. FT 38 - 3pz =

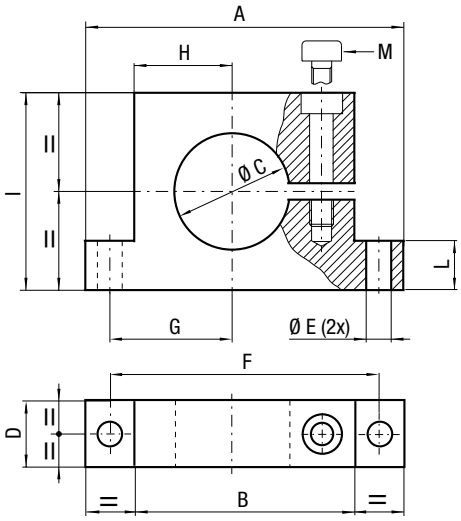
CALLOUT	Reference to standards	A		B		C		Ø D		E		F		Rif. Fig
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
FT38	0	20	0.79	7	0.28	7	0.28	56.6	2.23	-	-	7	0.28	Fig. 1
FT45	0	25	0.98	7	0.28	9	0.35	70.7	2.78	-	-	7	0.28	
FT50	0	30	1.18	14.2	0.56	13	0.51	80	3.15	-	-	13	0.51	
FT63	0	30	1.18	14.2	0.56	13	0.51	92	3.62	65	2.56	13	0.51	Fig. 2
FT75	0	30	1.18	14.2	0.56	13	0.51	104	4.09	73.5	2.89	13	0.51	
FT95	0	40	1.57	14.2	0.56	17	0.67	130	5.12	92	3.62	13	0.51	
FT120	0	50	1.97	14.2	0.56	17	0.67	155	6.1	109.5	4.31	13	0.51	
FT150	0	50	1.97	14.2	0.56	21	0.83	195	7.68	138	5.43	13	0.51	
FT195	0	58	2.28	16	0.63	21	0.83	240	9.45	169	6.65	16	0.63	





CALLOUT	Reference to standards	A		Ø B		C		D		E		F		Ø G	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FTP38	0	20	0.79	48	1.89	56.6	2.23	76.6	3.02	7	0.28	2.5	0.10	7	0.28
FTP45	0	25	0.98	56	2.20	70.7	2.78	95.7	3.77	7	0.28	2.5	0.10	9	0.35
FTP50	0	30	1.18	61	2.40	80	3.15	110	4.33	14.2	0.56	2.5	0.10	13	0.51
FTP63	0	30	1.18	73	2.87	92	3.62	122	4.80	14.2	0.56	2.5	0.10	13	0.51
FTP75	0	30	1.18	86	3.39	104	4.09	134	5.28	14.2	0.56	2.5	0.10	13	0.51
FTP95	0	40	1.57	106	4.17	130	5.12	170	6.69	14.2	0.56	2.5	0.10	17	0.67
FTP120	0	50	1.97	131	5.16	155	6.10	205	8.07	14.2	0.56	2.5	0.10	17	0.67
FTP150	0	50	1.97	170	6.69	195	7.68	245	9.65	14.2	0.56	2.5	0.10	21	0.83

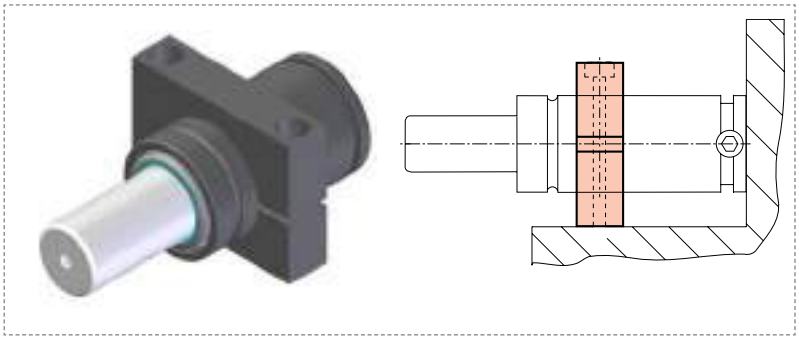


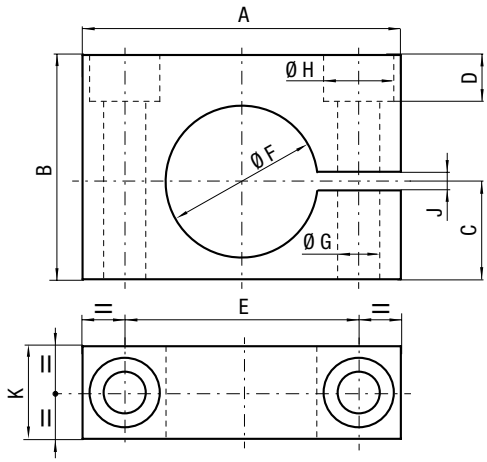


CALLOUT	Reference to standards	A		B		Ø C		D		Ø E		F		G		H		I		L		M
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	
FSA32	1-2-3-13-19	90	3.54	54	2.13	32	1.26	20	0.79	9	0.35	72	2.83	31	1.22	22	0.87	45	1.77	15	0.59	M8
FSA38	1-2-3-13-19	95	3.74	59	2.32	38	1.50	20	0.79	9	0.35	77	3.03	34	1.34	25	0.98	55	2.17	15	0.59	M8
FSA45	1-2-3-13-19	100	3.94	64	2.52	45	1.77	20	0.79	9	0.35	82	3.23	37	1.46	28	1.10	60	2.36	15	0.59	M8
FSA50	1-2-3-13-19	130	5.12	90	3.54	50	1.97	30	1.18	9	0.35	110	4.33	50	1.97	40	1.57	80	3.15	20	0.79	M8
FSA75	1-2-3-13-19	160	6.30	115	4.53	75	2.95	30	1.18	11	0.43	137	5.39	63.5	2.50	52.5	2.07	105	4.13	20	0.79	M10
FSA95	1-2-3-13-19	195	7.68	145	5.71	95	3.74	30	1.18	13.5	0.53	170	6.69	80	3.15	67.5	2.66	125	4.92	20	0.79	M12
FSA120	1-2-3-13-19	220	8.66	165	6.50	120	4.72	30	1.18	13.5	0.53	195	7.68	92.5	3.64	77.5	3.05	148	5.83	20	0.79	M12
FSA150	1-2-3-13-19	260	10.24	200	7.87	150	5.91	30	1.18	13.5	0.53	230	9.06	110	4.33	95	3.74	200	7.87	20	0.79	M12

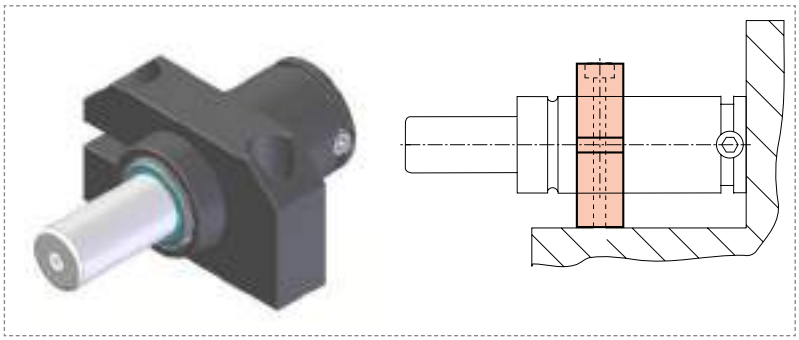
FSB - FSC - FSD :

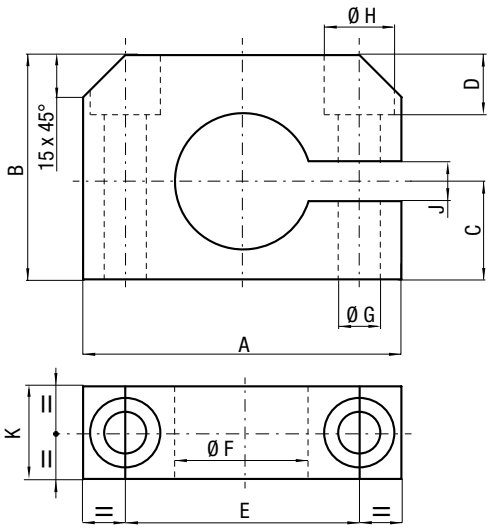
VDI	BMW	Ford	Mercedes Benz



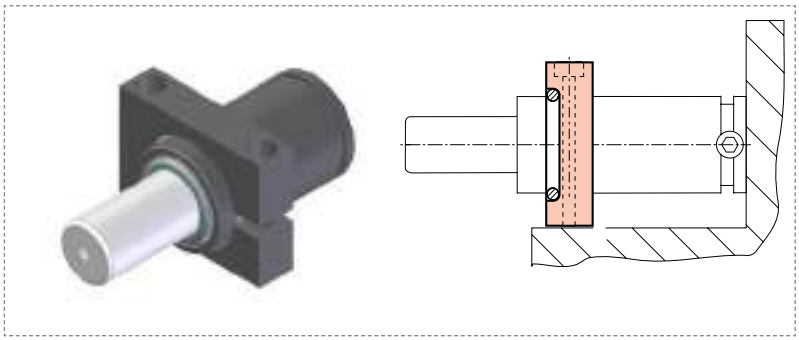


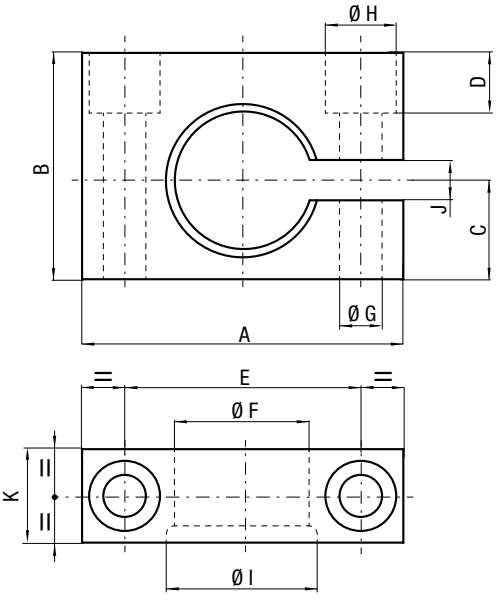
CALLOUT	Reference to standards	A		B		C		D		E		Ø F		Ø G		Ø H		J		K	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FSB32	6	80	3.15	63	2.48	38.5	1.52	18	0.71	56	2.20	32	1.26	10.5	0.41	17	0.67	6	0.24	25	0.98
FSD32	2-3-12-18-21-27	68	2.68	48	1.89	20.9	0.82	10	0.39	50	1.97	32.5	1.28	9	0.35	15	0.59	4	0.16	20	0.79
FSD38	2-3-12-18-21-27	74	2.91	54	2.13	23.9	0.94	16	0.63	54	2.13	38.5	1.52	9	0.35	15	0.59	4	0.16	20	0.79
FSD45	2-3-12-18-21-27	80	3.15	60	2.36	27.5	1.08	22	0.87	60	2.36	45.5	1.79	9	0.35	15	0.59	4	0.16	20	0.79
FSD50	2-3-4-12-18-21-27	90	3.54	70	2.76	30	1.18	25	0.98	68	2.68	50.5	1.99	11	0.43	18	0.71	5	0.20	30	1.18
FSC63	0	105	4.13	80	3.15	40	1.57	11	0.43	80	3.15	63	2.48	10.5	0.41	17	0.67	10	0.39	30	1.18
FSD63	2-18-21-27	108	4.25	82	3.23	36.5	1.44	27	1.06	84	3.31	63.5	2.50	11	0.43	18	0.71	5	0.20	30	1.18
FSD75	2-3-4-12-18-21-27	125	4.92	94	3.70	42	1.65	32	1.26	100	3.94	75.5	2.97	13.5	0.53	20	0.79	5	0.20	30	1.18
FSD95	2-3-4-12-18-21-27	140	5.51	115	4.53	52.5	2.07	33	1.30	115	4.53	95.5	3.76	13.5	0.53	20	0.79	5	0.20	30	1.18
FSD120	2-3-12-18-21-27	170	6.69	140	5.51	65	2.56	58	2.28	145	5.71	120.5	4.74	13.5	0.53	20	0.79	7	0.28	30	1.18
FSD150	2-3-12-18-21-27	200	7.87	170	6.69	80	3.15	68	2.68	175	6.89	150.5	5.93	13.5	0.53	20	0.79	7	0.28	30	1.18



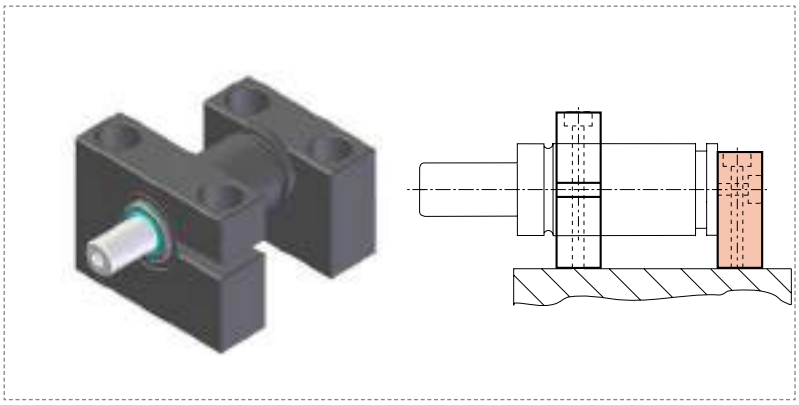


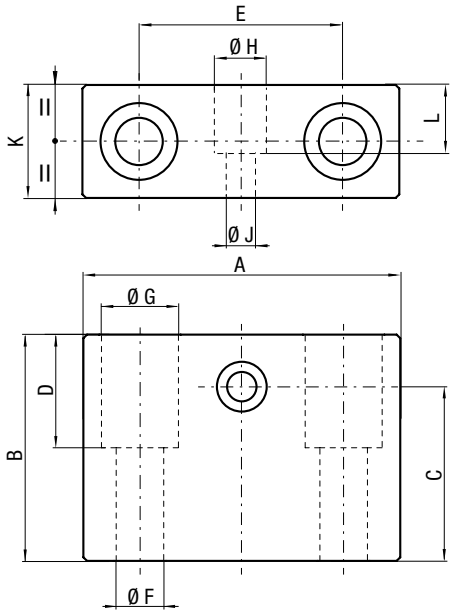
CALLOUT	Reference to standards	A		B		C		D		E		Ø F		Ø G		Ø H		J		K	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FSE45	0	100	3.94	60	2.36	30	1.18	20	0.79	70	2.76	45.3	1.78	11	0.43	18	0.71	10	0.39	25	0.98



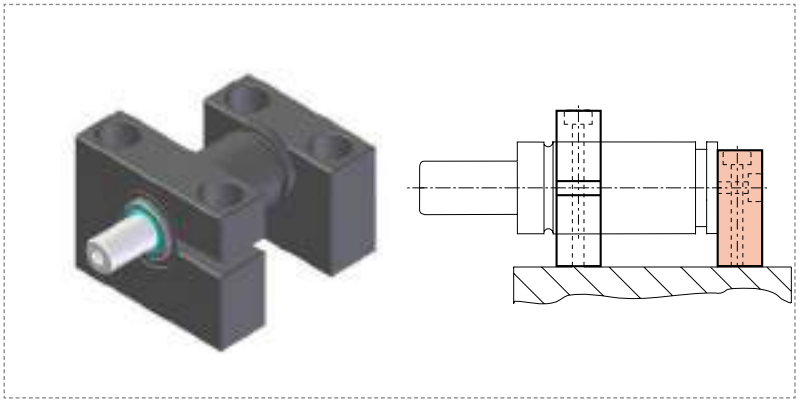


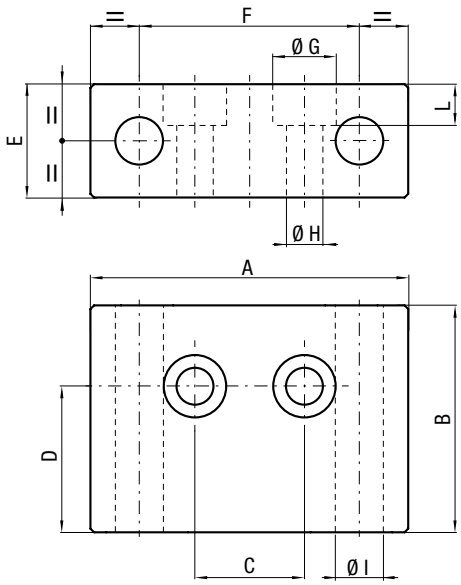
CALLOUT	Reference to standards	A		B		C		D		E		Ø F		Ø G		Ø H		Ø I		J		K	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FSE50	11	90	3.54	70	2.76	30	1.18	25	0.98	68	2.68	50.3	1.98	11	0.43	18	0.71	54.1	2.13	10	0.39	30	1.18
FSE75	11	125	4.92	94	3.70	42	1.65	19	0.75	100	3.94	75.3	2.96	13	0.51	20	0.79	80.1	3.15	10	0.39	30	1.18
FSE95	11	140	5.51	115	4.53	52.5	2.07	40	1.57	115	4.53	95.3	3.75	13	0.51	20	0.79	100.1	3.94	10	0.39	30	1.18



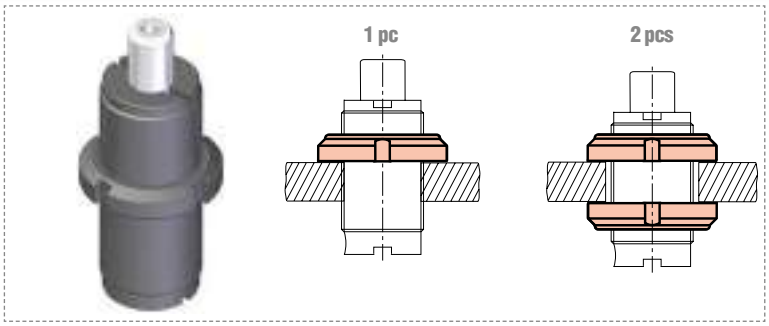


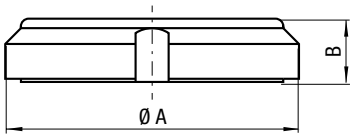
CALLOUT	Reference to standards	A		B		C		D		E		Ø F		Ø G		Ø H		Ø J		L		K	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FSR32	5	70	2.76	50	1.97	38.5	1.52	25	0.98	45	1.77	10.5	0.41	17	0.67	11	0.43	6.5	0.26	15	0.59	25	0.98

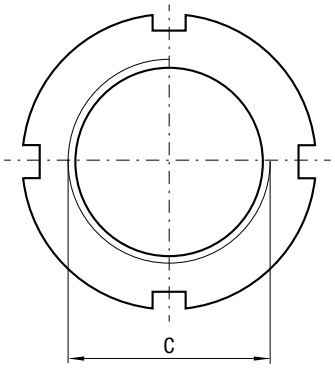




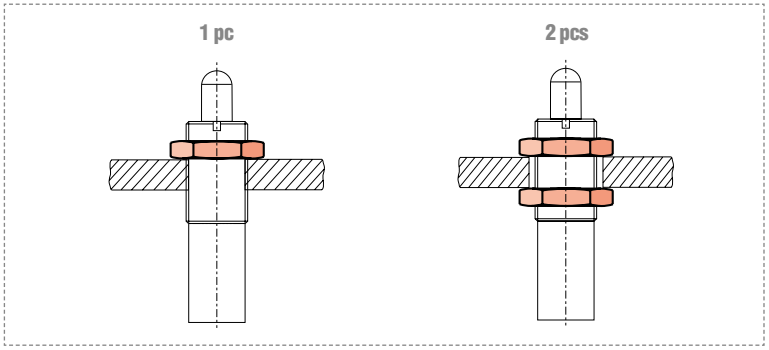
CALLOUT	Reference to standards	A		B		C		D		E		F		Ø G		Ø H		L		Ø I	
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
FSR50	11	65	2.56	45	1.77	20	0.79	30	1.18	28	1.10	44	1.73	14	0.55	9	0.35	10	0.39	11	0.43
FSR75	11	80	3.15	45	1.77	28.3	1.11	27.8	1.09	28	1.10	57	2.24	14	0.55	9	0.35	10	0.39	14	0.55
FSR95	11	95	3.74	45	1.77	42.4	1.67	31.2	1.23	28	1.10	70	2.76	14	0.55	9	0.35	10	0.39	14	0.55

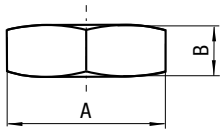


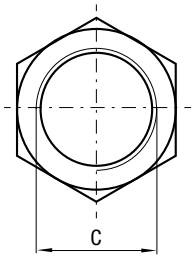




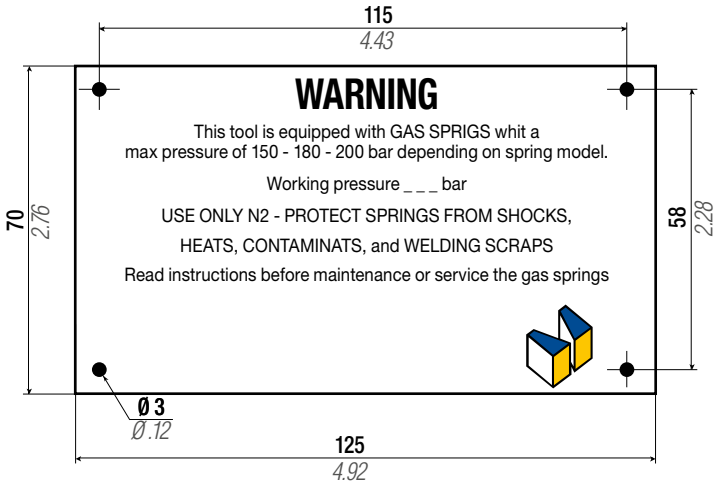
CALLOUT (1 pc)	Reference to standards	Ø A		B		C
		mm	*inch*	mm	*inch*	
FGM38	0	53	*2.09*	12	*0.47*	M 38 X 1.5
FGM45	0	62	*2.44*	12.3	*0.48*	M 45 X 1.5
FGM50	0	68	*2.68*	12.9	*0.51*	M 50 X 1.5







CALLOUT (1 pc)	Reference to standards	A	B		C
			mm	*inch*	
FDM16	0-28	S24	8	*0.31*	M 16 x 1.5
FDM16-2	0	S24	8	*0.31*	M 16 x 2
FDM24	0-28	S36	10	*0.39*	M 24 x 1.5
FDI1-8	0	S38	14	*0.55*	1" - 8



EN	Advice plate	Code	GSWP-EN
DE	Schilder	Bestell-nummer	GSWP-DE
FR	Plaquettes	Référence	GSWP-FR
ES	Placas	Codigo	GSWP-ES
PT	Etiquetas	Codigo	GSWP-PT

Linked system selection procedure

—COMPACT TYPE— MICRO CONE 32°

Suitable for M6 charging port type gas spring.
※1 ※2 ※3
Blue words represent the catalog No. of relevant components.

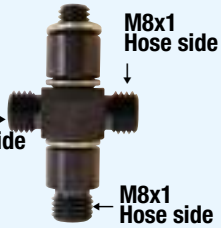
Selection procedure 1 Check the gas spring type

<M6 charging port type>

GSV350~2400
GSK150/250
GSSC4200~7500

For G1/8" charging port type, refer to the hand screw type selection procedure.

Selection procedure 2 Select adapter

Number of hoses connected from gas spring		
1	2	3
 ← M6 Gas spring side ← M8x1 Hose side LSCN-S-S-M6-M-M8	 M6 Gas spring side ↓ ← M8x1 Hose side ← M8x1 Hose side LSCN-S-T-M6-M-M8	 M6 Gas spring side ↓ M8x1 Hose side ↓ M8x1 Hose side → ← M8x1 Hose side LSCN-S-ST-M6-M-M8
 M6 Gas spring side ↓ ← M8x1 Hose side LSCN-S-L-M6-M-M8	 M6 Gas spring side ↓ ← M8x1 Hose side M8x1 Hose side LSCN-S-SL-M6-M-M8	

Selection procedure 3 Decide the hose length and clip quantity.

LSHS5.5-SS-□

□ is L dimension.

LSCL-6

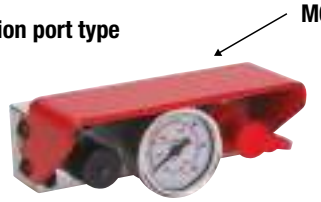
Selection procedure 4 Decide the adapter quantity for connecting to the control panel.

← M8x1 Hose side
← M6 Control panel side

LSCN-S-S-M6-M-M8

+

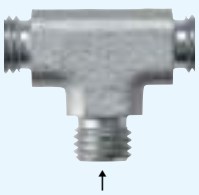
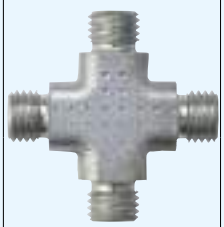
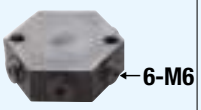
M6 insertion port type



← M6

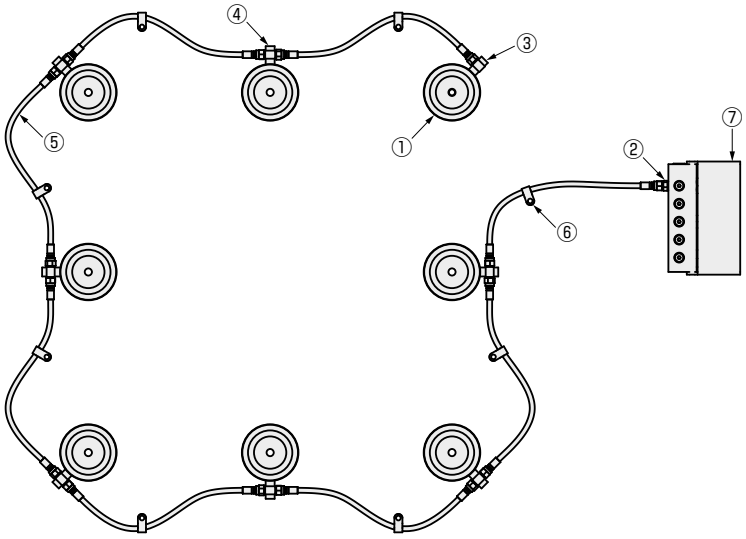
LSCT-C

■When the hose is branched

Number of branches	3	4	6	10
Product name	Adapter		Distribution block	
Component used	 3-M8x1 LSCN-S-T-M8-M-M8	 4-M8x1 LSCN-S-X-M8-M-M8	Adapter LSCN-S-S-M6-M-M8  4-M6 LSDB-S-4-M6	 6-M6 LSDB-R-6-M6  6-M6 LSDB-H-6-M6	Adapter LSCN-S-S-M8-MG1  10-G1/8" LSDB-R-10-G1

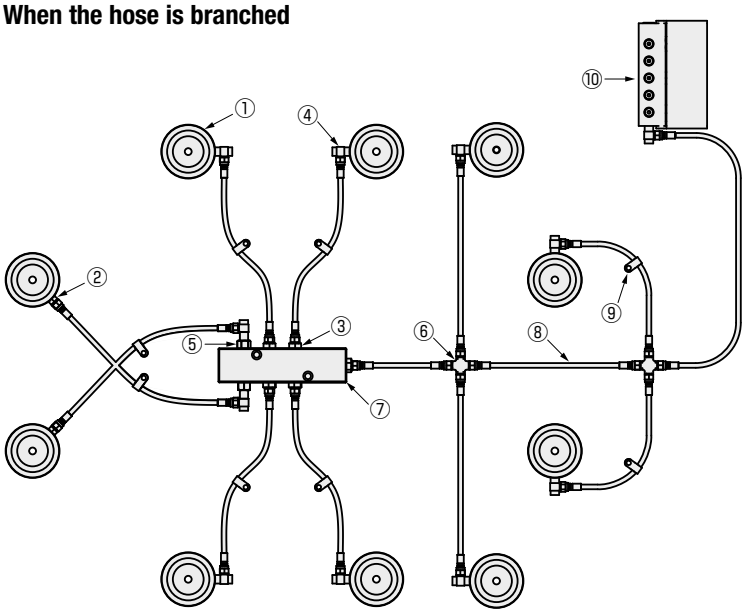
■Example of use

When the hose is not branched



List of components used			
No.	Product name	Type	Quantity
①	GAS SPRING	GSV1500	8
②	ADAPTER	LSCN-S-S-M6-M-M8	1
③	ADAPTER	LSCN-S-L-M6-M-M8	1
④	ADAPTER	LSCN-S-T-M6-M-M8	7
⑤	HOSE	LSHS5.5-SS	8
⑥	CLIP	LSCL-6	8
⑦	CONTROL PANEL	LSCT-C	1

When the hose is branched



List of components used			
No.	Product name	Type	Quantity
①	GAS SPRING	GSV1500	10
②	ADAPTER	LSCN-S-S-M6-M-M8	2
③	ADAPTER	LSCN-S-S-M8-M-G1	5
④	ADAPTER	LSCN-S-L-M6-M-M8	11
⑤	ADAPTER	LSCN-S-S-G1-F-M6	2
⑥	ADAPTER	LSCN-S-X-M8-M-M8	2
⑦	DISTRIBUTION BLOCK	LSDB-R-10-G1	1
⑧	HOSE	LSHS5.5-SS	13
⑨	CLIP	LSCL-6	8
⑩	CONTROL PANEL	LSCT-C	1

※ 1. If hand screw type is preferred, refer to the hand screw type selection procedure.
※ 2. Cannot be used only for gas springs with linked system.
※ 3. For products other than compact type and hand screw type, please consult us.

Linked system selection procedure

—HAND SCREW TYPE—

Suitable for G1/8" charging port type gas spring.

※ 1 ※ 2 ※ 3

Blue words represent the catalog No. of relevant components.

Selection procedure 1 Check the gas spring type

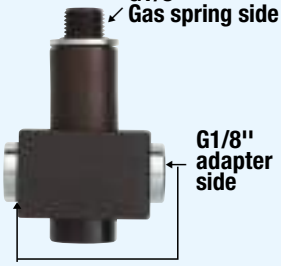
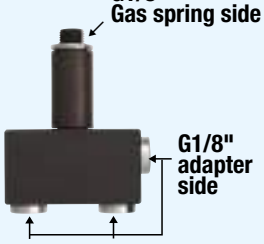
<G1/8" charging port type>

GSV4200-6600
GST all size
GSK500-10000
GSH all size
GSSC12000/18500

For M6 charging port type, refer to the compact type selection procedure.

Selection procedure 2 Select adapter

Number of hoses connected from gas spring

1	2	3	4
 G1/8" Gas spring side, S12.65 Hose side LSCN-S-S-G1-M-5.1	 G1/8" Gas spring side, G1/8" adapter side LSCN-□-T-G1-F-G1 + LSCN-S-S-G1-M-5.1	 G1/8" Gas spring side, G1/8" adapter side LSCN-□-S2-G1-F-G1 + LSCN-S-S-G1-M-5.1	 G1/8" Gas spring side, G1/8" adapter side LSCN-□-T2-G1-F-G1 + LSCN-S-S-G1-M-5.1
 G1/8" adapter side, G1/8" Gas spring side LSCN-□-L-G1-F-G1 + LSCN-S-S-G1-M-5.1			

Word in □ varies with L dimension.

Selection procedure 3 Decide the hose length and clip quantity.

LSHS5.1-SS-□

LSHS5.1-SL-□

LSHS5.1-LL-□

LSCL-6

□ is L dimension.

Selection procedure 4 Decide the adapter quantity for connecting to the control panel.

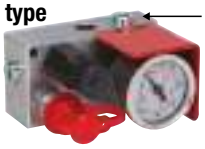
S12.65 Hose side

G1/8" Control panel side

LSCN-S-S-G1-M-5.1

+

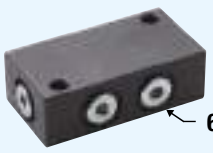
G1/8" insertion port type



G1/8"

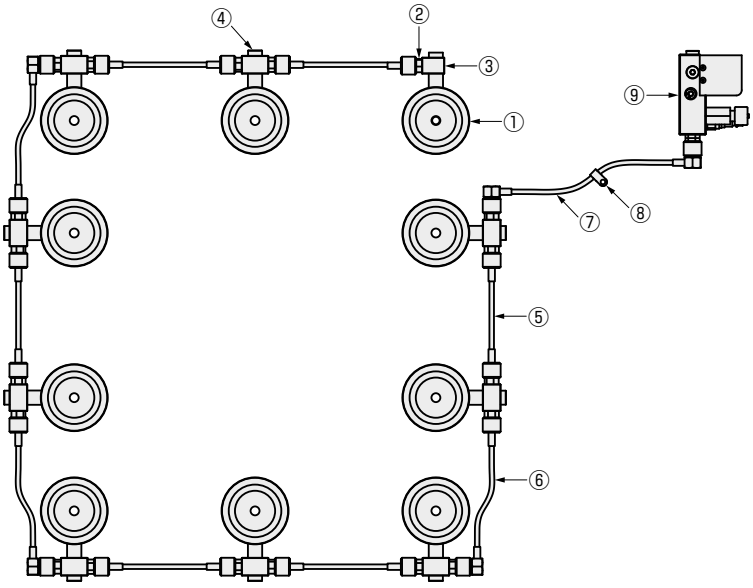
LSCT-F

■When the hose is branched

Number of branches	3	4	6	10
Product name	Distribution block			
Component used	Adapter LSCN-S-S-G1-M-5.1			
	 3-G1/8" LSDB-S-3-G1	 4-G1/8" LSDB-S-4-G1	 6-G1/8" LSDB-R-6-G1  6-G1/8" LSDB-H-6-G1	 10-G1/8" LSDB-R-10-G1

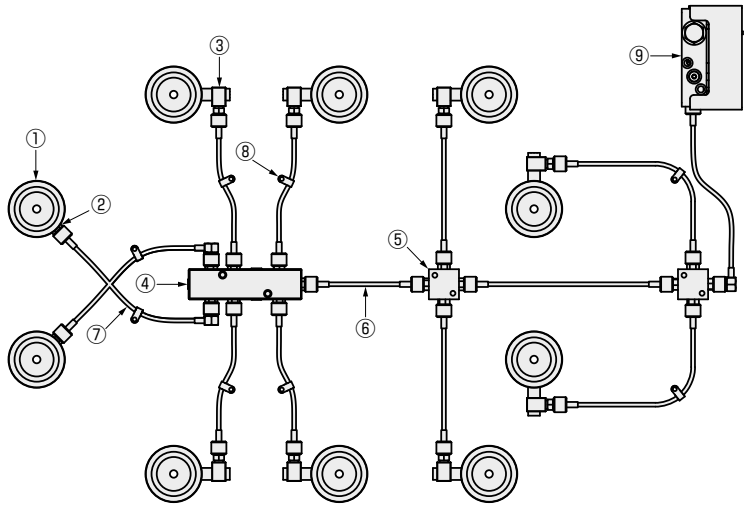
■Example of use

When the hose is not branched



List of components used			
No.	Product name	Type	Quantity
①	GAS SPRING	GST2400	10
②	ADAPTER	LSCN-S-S-G1-M-5.1	20
③	ADAPTER	LSCN-S-L-G1-F-G1	1
④	ADAPTER	LSCN-S-T-G1-F-G1	9
⑤	HOSE	LSHS5.1-SS	6
⑥	HOSE	LSHS5.1-SL	3
⑦	HOSE	LSHS5.1-LL	1
⑧	CLIP	LSCL-6	1
⑨	CONTROL PANEL	LSCT-F	1

When the hose is branched



List of components used			
No.	Product name	Type	Quantity
①	GAS SPRING	GST2400	10
②	ADAPTER	LSCN-S-S-G1-M-5.1	26
③	ADAPTER	LSCN-S-L-G1-F-G1	8
④	DISTRIBUTION BLOCK	LSDB-R-10-G1	1
⑤	DISTRIBUTION BLOCK	LSDB-S-4-G1	1
⑥	HOSE	LSHS5.1-SS	10
⑦	HOSE	LSHS5.1-SL	3
⑧	CLIP	LSCL-6	8
⑨	CONTROL PANEL	LSCT-F	1

※ 1. If compact type is preferred, refer to the compact type selection procedure. For connection between gas spring and compact type adapter, use the conversion adapter LSCN-S-S-G1-F-M6. Connect male screw to gas spring and female screw to each adapter.
※ 2. Cannot be used only for gas springs with linked system.
※ 3. For products other than compact type and hand screw type, please consult us.

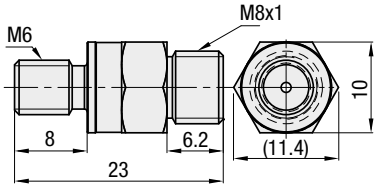
Suitable for M6 charging port type gas spring.

■Hose connection adapter

For connecting gas spring and hose. Connect M6 screw to gas spring and M8 screw to hose.

RoHS

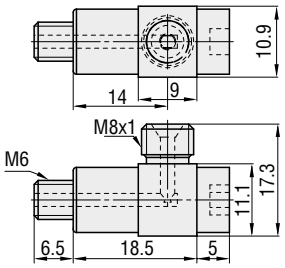
LSCN-S-S-M6-M-M8
MICRO Cone 32°



M Sulphur compound free-cutting steel
S Zinc coating
Max. tightening torque 6Nm

RoHS

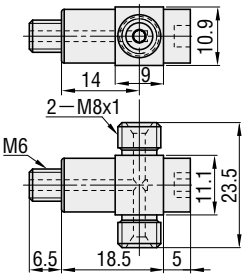
LSCN-S-L-M6-M-M8
MICRO Cone 32°



M Equivalent to S45C
S Black oxide (Fe3O4)
Max. tightening torque 6Nm

RoHS

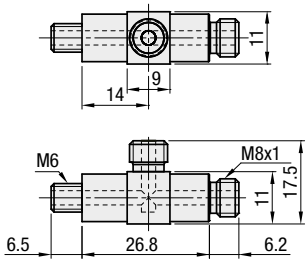
LSCN-S-T-M6-M-M8
MICRO Cone 32°



M Equivalent to S45C
S Black oxide (Fe3O4)
Max. tightening torque 6Nm

RoHS

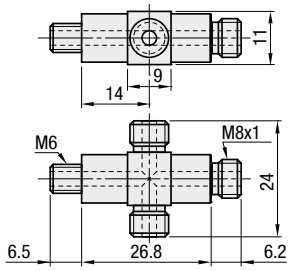
LSCN-S-SL-M6-M-M8
MICRO Cone 32°



M Equivalent to S45C
S Black oxide (Fe3O4)
Max. tightening torque 6Nm

RoHS

LSCN-S-ST-M6-M-M8
MICRO Cone 32°



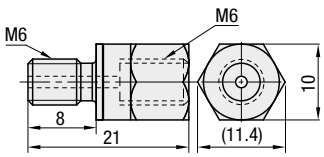
M Equivalent to S45C
S Black oxide (Fe3O4)
Max. tightening torque 6Nm

■Extension adapter when using FFC/FFS plate

In order to prevent interference in FCC/FFS, extension adapter is needed when using FFC/FFS. Connect male screw to gas spring and female screw to hose connection adapter.

RoHS

LSCN-S-S-M6-F-M6



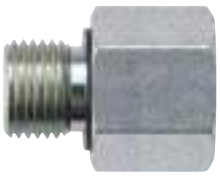
M Sulphur compound free-cutting steel
S Zinc coating
Max. tightening torque 6Nm

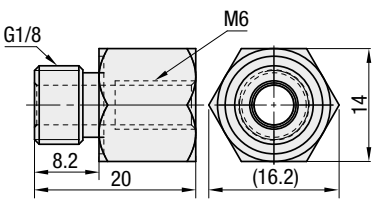
■Conversion adapter for G1/8" charging port type gas spring

Adapters is needed in case of using compact type hose for G1/8" charging port type gas springs.

RoHS

LSCN-S-S-G1-F-M6





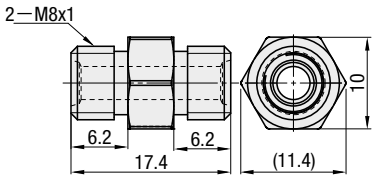
M Sulphur compound free-cutting steel
S Zinc coating
Max. tightening torque 25Nm

■Hose extension adapter

For connecting one hose with another.

RoHS

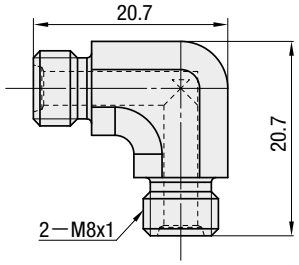
LSCN-S-S-M8-M-M8
MICRO Cone 32°



M Sulphur compound free-cutting steel
S Zinc coating
Max. tightening torque 6Nm

RoHS

LSCN-S-L-M8-M-M8
MICRO Cone 32°



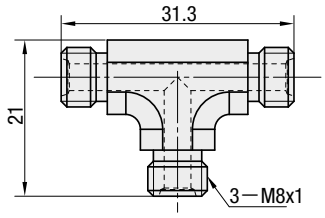
M Sulphur compound free-cutting steel
S Zinc coating
Max. tightening torque 6Nm

■Hose branching adapter

For hose branching.

RoHS

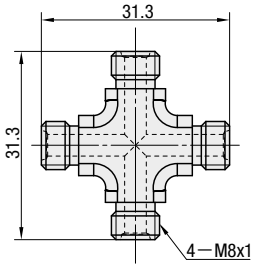
LSCN-S-T-M8-M-M8
MICRO Cone 32°



M Sulphur compound free-cutting steel
S Zinc coating
Max. tightening torque 6Nm

RoHS

LSCN-S-X-M8-M-M8
MICRO Cone 32°



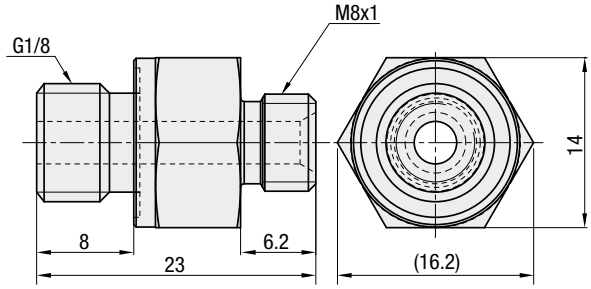
M Sulphur compound free-cutting steel
S Zinc coating
Max. tightening torque 6Nm

■G1/8" insertion port connection adapter

For connecting hose with G1/8" insertion part control panel or distribution block. Connect M8 screw to hose and G1/8" screw to control panel or distribution block.

RoHS

LSCN-S-S-M8-M-G1
MICRO Cone 32°



M Sulphur compound free-cutting steel
S Zinc coating
Max. tightening torque 6Nm for M8
25Nm for G1/8"

■M6 insertion part connection adapter

For connecting hose with M6 insertion port control panel or distribution block, use LSCN-S-S-M6-M-M8. Connect M8 screw to hose and M6 screw to control panel or distribution block.

Order

Catalog No.
LSCN-S-S-M6-M-M8

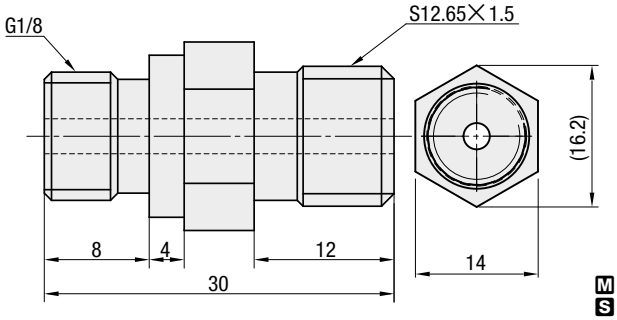
Suitable for G1/8" charging port type gas spring.

■Hose connection adapter

For connecting gas spring and hose. Connect G1/8" screw to gas spring and S12.65 screw to hose.
This adapter is always needed to connect hose with other adapter. Connect G1/8" screw to female screw of other adapter and S12.65 to hose.

RoHS

LSCN-S-S-G1-M-5.1



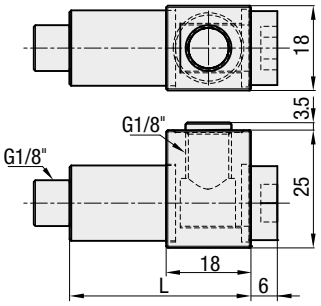
M Sulphur compound free-cutting steel
S Zinc coating
Max. tightening torque 25Nm

■Connecting adapter between gas spring and hose connection adapter

For connecting gas spring with hose or connecting one gas spring with several hoses. Connect male screw to gas spring and female screw to hose connection adapter.

RoHS

LSCN-□-L-G1-F-G1

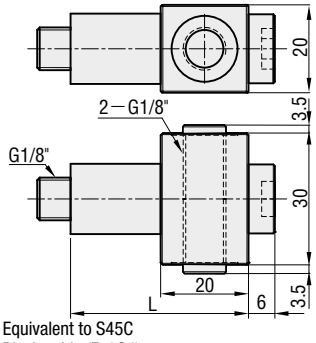


M Equivalent to S45C
S Black oxide (Fe304)
Max. tightening torque 25Nm

L	Catalog No.
24	LSCN-S-L-G1-F-G1
38.5	LSCN-L-L-G1-F-G1
48	LSCN-X-L-G1-F-G1

RoHS

LSCN-□-T-G1-F-G1

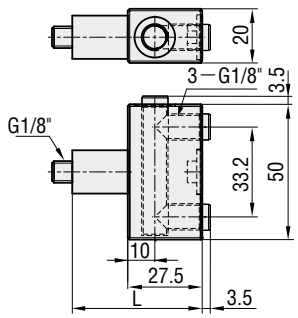


M Equivalent to S45C
S Black oxide (Fe304)
Max. tightening torque 25Nm

L	Catalog No.
26	LSCN-S-T-G1-F-G1
40.5	LSCN-L-T-G1-F-G1
50	LSCN-X-T-G1-F-G1

RoHS

LSCN-□-S2-G1-F-G1

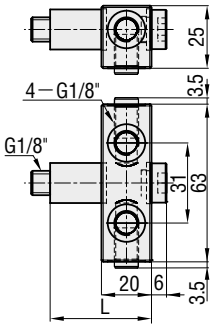


M Equivalent to S45C
S Black oxide (Fe304)
Max. tightening torque 25Nm

L	Catalog No.
33.5	LSCN-S-S2-G1-F-G1
48	LSCN-L-S2-G1-F-G1
57.5	LSCN-X-S2-G1-F-G1

RoHS

LSCN-□-T2-G1-F-G1



M Equivalent to S45C
S Black oxide (Fe304)
Max. tightening torque 25Nm

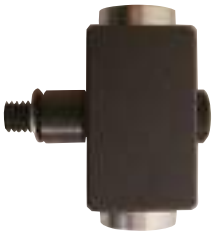
L	Catalog No.
26	LSCN-S-T2-G1-F-G1
40.5	LSCN-L-T2-G1-F-G1
50	LSCN-X-T2-G1-F-G1

The female screw for connection is attached with cover cap. Remove the cover cap before connection.

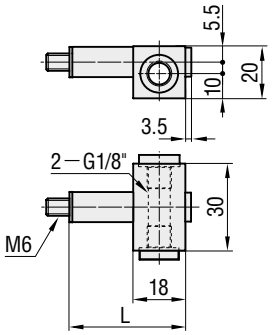
■Conversion adapter for M6 charging port type gas spring

Adapter is needed in case of using hand screw type hose for M6 charging port type gas springs.
Connect male screw to gas spring and female screw to hose.

RoHS



LSCN-□-T-M6-F-G1

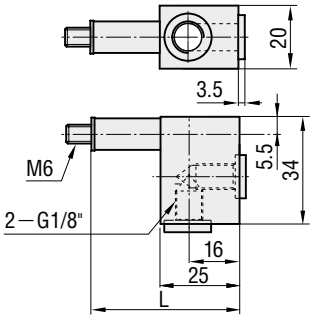


M Equivalent to S45C
S Black oxide (Fe304)
Max. tightening torque 25Nm

L	Catalog No.
26	LSCN-S-T-M6-F-G1
42	LSCN-L-T-M6-F-G1

RoHS

LSCN-□-L-M6-F-G1



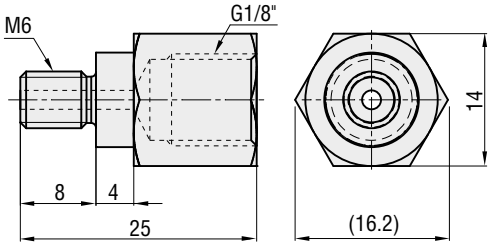
M Equivalent to S45C
S Black oxide (Fe304)
Max. tightening torque 25Nm

L	Catalog No.
33	LSCN-S-L-M6-F-G1
49	LSCN-L-L-M6-F-G1

The female screw for connection is attached with cover cap. Remove the cover cap before connection.

RoHS

LSCN-S-S-M6-F-G1



M Sulphur compound free-cutting steel
S Zinc coating
Max. tightening torque 6Nm

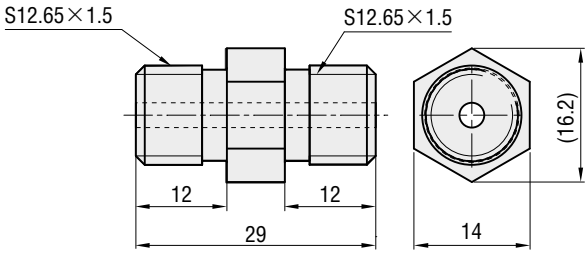
Counter bore about 5mm depth to prevent interference in press die.

■Hose extension adapter

For connecting one hose with another.

RoHS

LSCN-S-S-5.1-M-5.1



M Sulphur compound free-cutting steel
S Zinc coating

■G1/8" insertion port connection adapter

For connecting hose with G1/8" insertion port control panel or distribution block, use LSCN-S-S-G1-M-5.1.
Connect S12.65 screw to hose and G1/8" screw to control panel or distribution block.

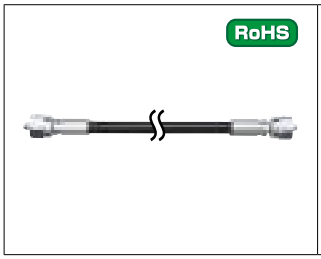
■M6 insertion port connection adapter

For connecting hose with M6 insertion port control panel or distribution block, use LSCN-S-S-G1-M-5.1 and conversion adapter for M6 charging port type gas spring.
Connect S12.65 screw of LSCN-S-S-G1-M-5.1 to hose, M6 screw of conversion adapter to control panel or distribution block.

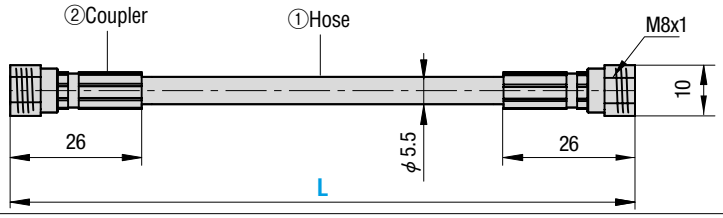
Order

Catalog No.
LSCN-S-S-G1-M-5.1

■For compact type



LSHS5.5-SS-□ **MICRO Cone 32°**



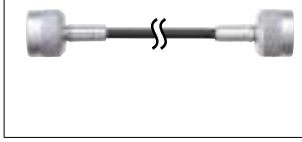
S
① Hose

Inner Surface	Outer Surface
Polyamide	Polyurethane

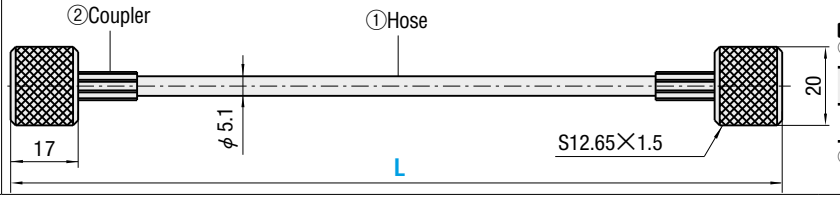
② Joint Equivalent to S45C
Max. Tightening Torque 6Nm

Catalog No.	L (Configurable L<1000 10mm increments L ≧ 1000 20mm increments)
LSHS5.5-SS	90-5000

■For hand screw type



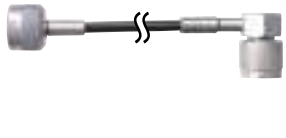
LSHS5.1-SS-□



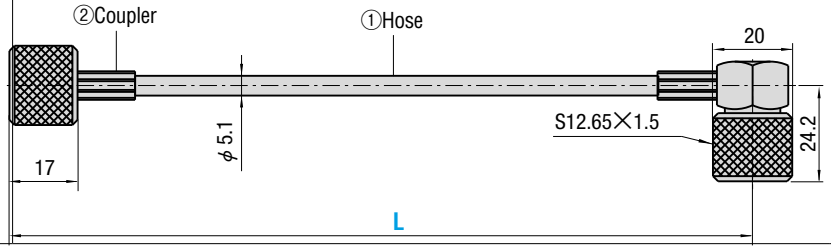
S
① Hose

Inner Surface	Outer Surface
Polyamide	Polyurethane

② Joint Equivalent to S45C



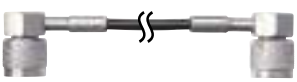
LSHS5.1-SL-□



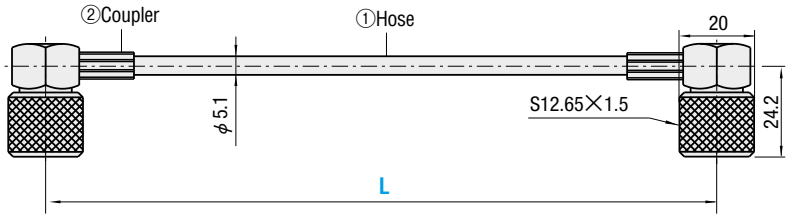
S
① Hose

Inner Surface	Outer Surface
Polyamide	Polyurethane

② Joint Equivalent to S45C



LSHS5.1-LL-□



S
① Hose

Inner Surface	Outer Surface
Polyamide	Polyurethane

② Joint Equivalent to S45C

Catalog No.	L (Configurable L<1000 10mm increments L ≧ 1000 20mm increments)
LSHS5.1-SS	90-5000
LSHS5.1-SL	110-5000
LSHS5.1-LL	110-5000

5000mm
Specification and performance of the hoses

	Outer Diameter mm	Normal Pressure MPa	Max. Burst Pressure MPa	Min. Bending Radius
For compact type	5.5	63	189	R20
For hand screw type	5.1	63	195	R20

Order

Catalog No.
LSHS5.1-SS-110

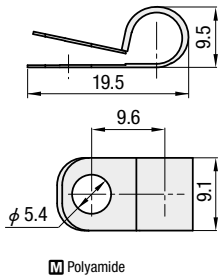
Alterations

Catalog No.	-	L	-	(S)
LSHS5.5-SS	-	400	-	S010

Alternations	Code	Spec.
ID Number	S	ID number is shown to hoses. It can be used for real thing checks with a plan. Please designate 3 digits of number as S.

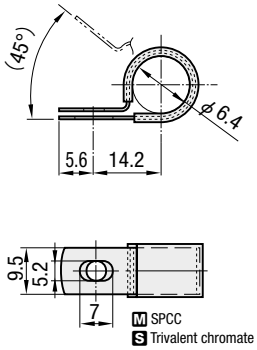
RoHS

LSCL-6



Ⓜ Polyamide

LSCL-6S



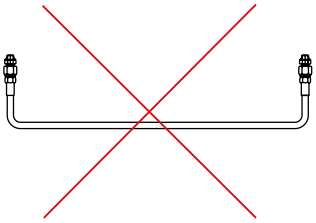
Ⓜ SPCC
Ⓢ Trivalent chromate
PVC coating

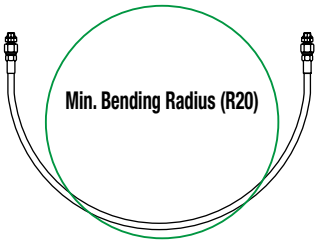
Order

Catalog No.
LSCL-6

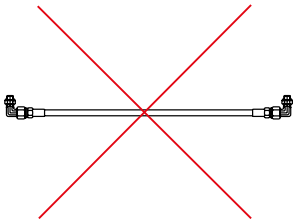
■Precautions for hose handling

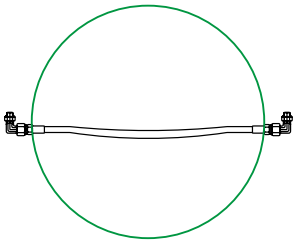
1. Rotate at a radius larger than the smallest bend radius (R20).



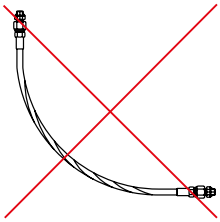


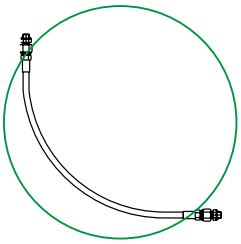
2. Keep sufficient margin such that the hose is not pulled (hose length criteria: 10 to 20% extra of piping route).



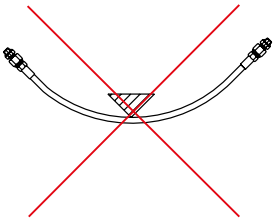


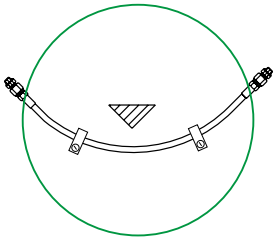
3. Connect such that the hose is not twisted.





4. Fix the hose in the mold with the grip such that it does not spring away due to the pulsation of internal pressure or vibration of the press.



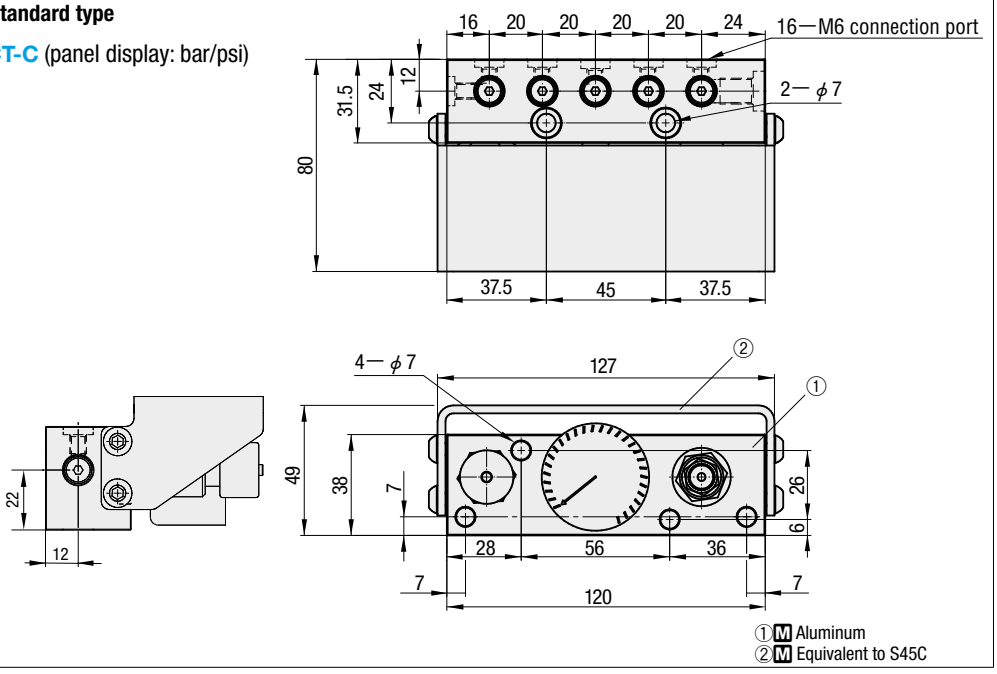


■Inlet M6 type　M6 standard type　Convenient for compact hose connections

RoHS

M6 standard type

LSCT-C (panel display: bar/psi)



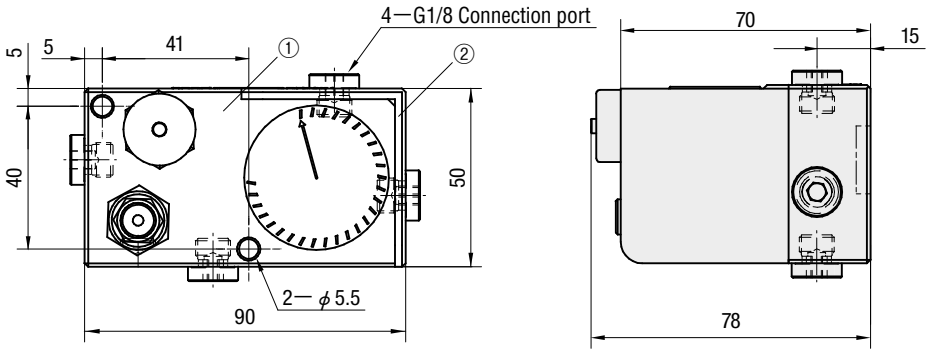
Connection fittings:
When connecting to the compact type hose use LSCN-S-S-M6-M-M8, when connecting the manual tightening type hose use LSCN-S-S-G1-M-5.1 and pipe fittings used while using the inlet M6 type gas spring.

■Inlet G1/8 type
G1/8 Standard type　Connects easily to the manual tightening type.

RoHS

G1/8 Standard type

LSCT-F (panel display: bar/psi)



Connection fittings:
When connecting to the compact type hose use LSCN-S-S-M8-G1 and LSCN-S-S-G1-M-5.1 when connecting to the manual tightening type.

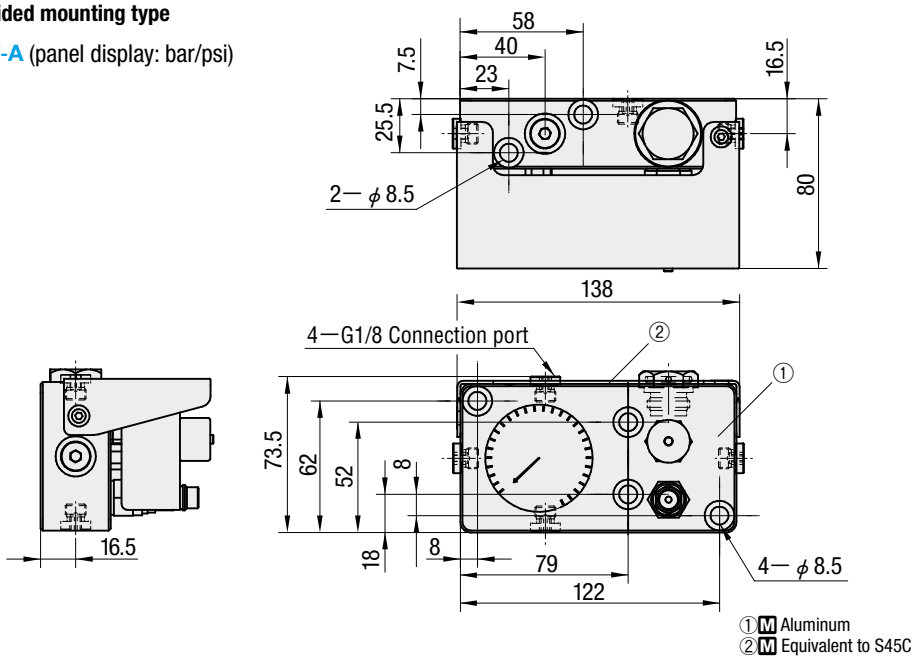
● **1bar=1kgf/cm^2=0.1MPa　1MPa=10kgf/cm^2=145psi**

■Inlet G1/8 type
Two-sided mounting type　You can change the mounting direction to match the mold.

RoHS

Two-sided mounting type

LSCT-A (panel display: bar/psi)



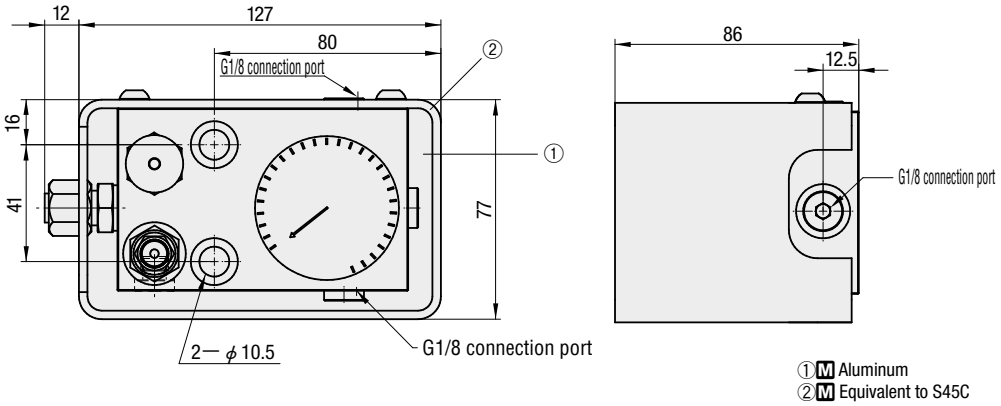
Connection fittings:
Use LSCN-S-S-M8-M-G1 when connecting to compact type hose and LSCN-S-S-G1-M-5.1 when connecting to the manual tightening type.

■The entire circumference protected type
Excellent for protecting protruding parts such as a panel.

RoHS

The entire circumference protected type

LSCT-D (panel display: bar/psi)
LSCT-DM (panel display: MPa/bar)



Connection fittings:
Use LSCN-S-S-M8-M-G1 when connecting to compact type hose and LSCN-S-S-G1-M-5.1 when connecting to the manual tightening type.

The female thread that is used for connection has an attached cover cap. Remove the cover cap before connecting.

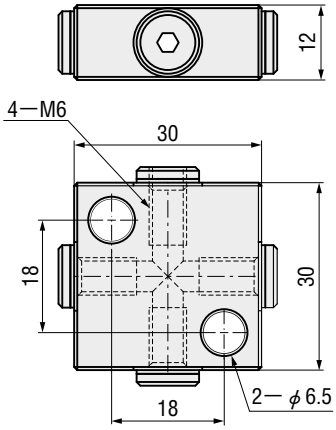
Order

Catalog No.
LSCT-A

■M6 insertion port type

RoHS

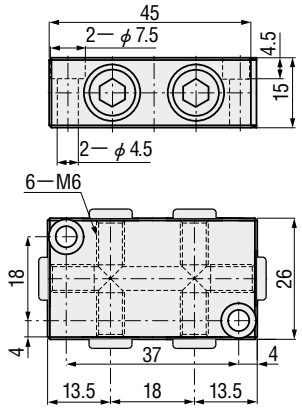
LSDB-S-4-M6



M Equivalent to S45C
S Black oxide (Fe304)

RoHS

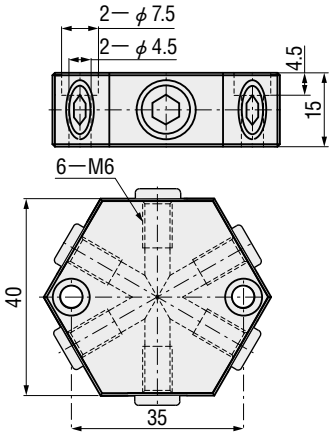
LSDB-R-6-M6



M Equivalent to S45C
S Black oxide (Fe304)

RoHS

LSDB-H-6-M6



M Equivalent to S45C
S Black oxide (Fe304)

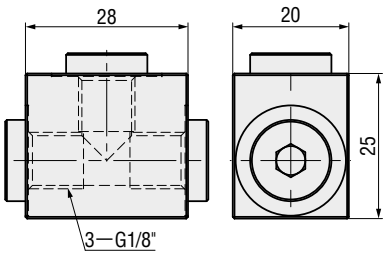
Connection adapter:

Use LSCN-S-S-M6-M-M8 to connect the hose for compact type.
Use LSCN-S-S-G1-M-5.1 and the conversion adapter for M6 charging port type gas spring when connecting the hose for hand screw type.

■G1/8" insertion port type

RoHS

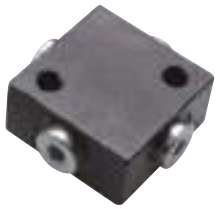
LSDB-S-3-G1

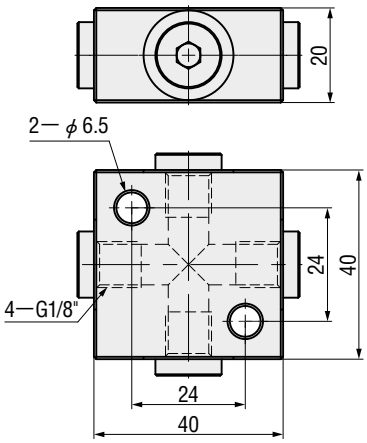


M Equivalent to S45C
S Black oxide (Fe304)

RoHS

LSDB-S-4-G1





M Equivalent to S45C
S Black oxide (Fe304)

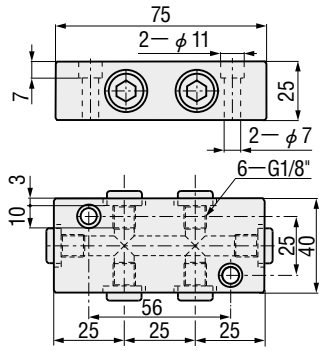
Connection adapter:

Use LSCN-S-S-M8-M-G1 to connect the hose for compact type, LSCN-S-S-G1-M-5.1 to connect the hose for hand screw type.

■G1/8" insertion port type

RoHS

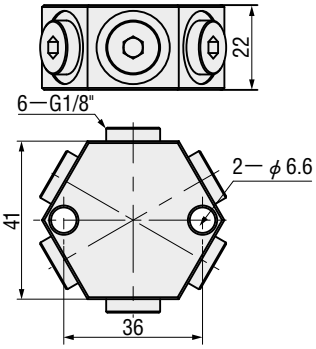
LSDB-R-6-G1



M Equivalent to S45C
S Black oxide (Fe304)

RoHS

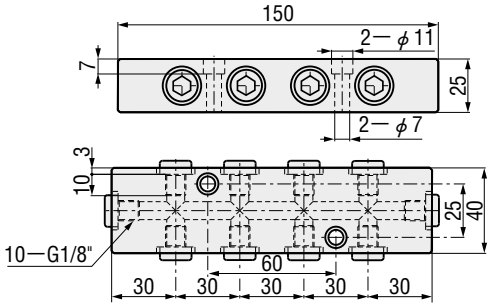
LSDB-H-6-G1



M Equivalent to S45C
S Black oxide (Fe304)

RoHS

LSDB-R-10-G1



M Equivalent to S45C
S Black oxide (Fe304)

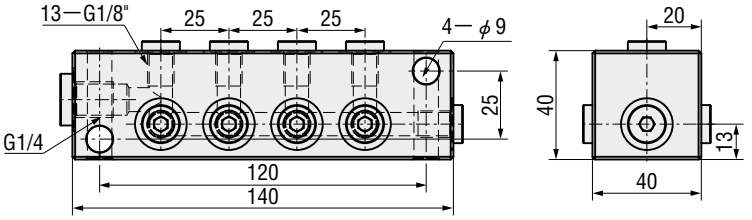
Connection adapter:

Use LSCN-S-S-M8-M-G1 to connect the hose for compact type.
Use LSCN-S-S-G1-M-5.1 to connect the hose for hand screw type.

■G1/8" insertion port type (with G1/4" type)

RoHS

LSDB-R-13-G1-1-G2

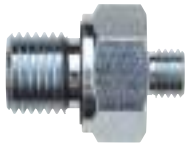


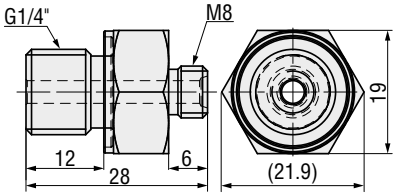
M Equivalent to S45C
S Black oxide (Fe304)

■G1/4" insertion port connection adapter

RoHS

LSCN-S-S-G2-M-M8



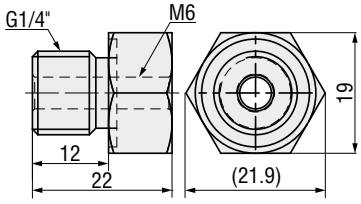


M Sulfur composite free-cutting steel
S Zinc coating
Max. tightening torque 60Nm

Use to connect the hose for compact type.

RoHS

LSCN-S-S-G2-F-M6



M Sulfur composite free-cutting steel
S Zinc coating
Max. tightening torque 60Nm

Used for connecting the hand screw type hose.

The female screw for connection is attached with cover cap. Remove the cover cap before connection.
(Excluding LSCN-S-S-G2-F-M6)

Order

Catalog No.
LSDB-R-6-G1

Linked system installation procedure

Do not charge any gas other than Nitrogen. Or it may cause serious accidents including explosion.

■Installation precautions

- **Check that no foreign substances adhere to the hose or connector before assembly. Contamination of foreign substances may result in gas leakage.**
- **When discharging gas, never allow anyone to be exposed to the injection port. The operator must wear protective glasses. Lubricant oil may blow out from inside the gas spring.**
- **Check that the gas is completely discharged before assembly. The piston rod will drop if it is pressed down when the gas is completely discharged.**
- **When tightening the adapters, follow the max. tightening torque indicated on the adapter product page. Exceeding the max. tightening torque will cause damage of adapter and result in gas leakage.**
- **When charging the gas, do not exceed the Nitrogen gas charge pressure indicated on each gas spring product page. The gas spring may be damaged if the charging pressure exceeds gas spring specifications.**
- **Do not remove any hose or connections during operation and/or while gas is charged. Follow linked system de-installation procedure.**

■Tools to prepare

Nitrogen gas charging kit (Contents)
・Hose ・Gas changing device ・Adapter

Catalog No.
LSTL-CK

Connecting part for nitrogen tank

Catalog No.
LSTL-CH

Fixing part for nitrogen tank

Catalog No.
LSTL-CF

Degassing jig (Set for M6・G1/8" charging port type)

Catalog No.
LSTL-GL

※ The appearance of LSTL-GL has been changed. There is no change on the function.

T-bolt (Set for M6・G1/8" charging port type)

Catalog No.
LSTL-TB

Hexagon wrench (Set for M6・G1/8" charging port type)

Catalog No.
LSTL-HW

Special screwdriver for valve removal

Catalog No.
LSTL-VD

Spanner

Protective glasses

Gas leakage detecting spray

Nitrogen gas Pressure 18MPa (183kgf/cm²)

GAS SPRINGS with Linked System

Spanners, protective glasses, Gas leakage detecting spray can be purchased from WOS.

■Procedure and precautions

1. Remove the protective cap with hexagon wrench.

2. Use a degassing jig (LSTL-GL) to discharge gas.

When gas is drawn out rapidly, the gas charge valve will be damaged.

3. Press the gas spring against to check that the piston rod pushed.

4. Remove the gas charge valve with the special screwdriver (LSTL-VD).

5. Install the adapter to the gas spring. (Pay attention to the tightening torque)

6. Connect the hose to the adapter installed in Step 5. (For compact type, pay attention to the tightening torque)

7. Connect to the adapter to branch the hose.

Same for distribution blocks.

If the cover cap is attached, remove it before connection.

8. Remove the control panel cap with hexagon wrench.

9. Install the conversion adapter the control panel insertion port.

10. Connect the hose to the control panel. (For compact type, pay attention to the tightening torque)

11. Use T-bolt (LSTL-TB) to pull up the piston rod.

12. Check that the adjustment valve on control panel is closed.

13. Check that the valve on Nitrogen gas tank is closed.

■Procedure and precautions (continued)

14. Remove the red cap of the control panel, and insert the hose end of Nitrogen gas charging kit (LSTL-CK)

15. Check that the hose valve is closed.

16. Open the valve on Nitrogen gas tank.

17. Open the hose valve.

18. Close the hose valve once the pressure rises to the target pressure. (ever exceed the gas spring charge pressure)

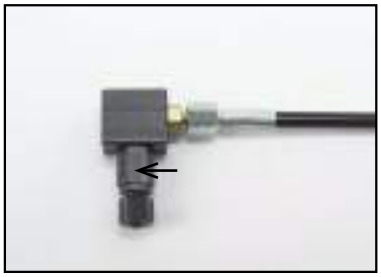
19. If the pressure exceeds the target, gradually open the adjustment valve on the control panel to discharge the gas.

20. Check that the hose valve and control panel valve are closed.

21. Close the valve on Nitrogen gas tank.

22. Remove the hose from the control panel.

23. Loosen the valve on the gas tank side to release the residual pressure in the hose.



24. Use gas leakage detection spray to check that no large bubbles appear.

The same procedure is applied to inspection of gas leakage during maintenance.

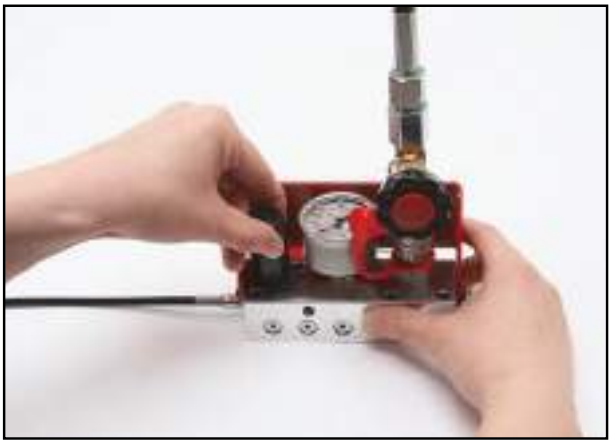
[Reference]
Gas leaking status (bubbles appear.

■De-installation precautions

- When discharging the gas, never stand in front of the adjustment valve. And the operator must wear protective glasses. Lubricant oil may blow out from inside the gas spring.

■Procedure and precautions

1. Gradually open the adjustment valve on control panel to discharge the gas.



2. Check that the monitor on control panel reads zero.

3. Remove the hose from the gas spring.

4. Remove the adapter from the gas spring.

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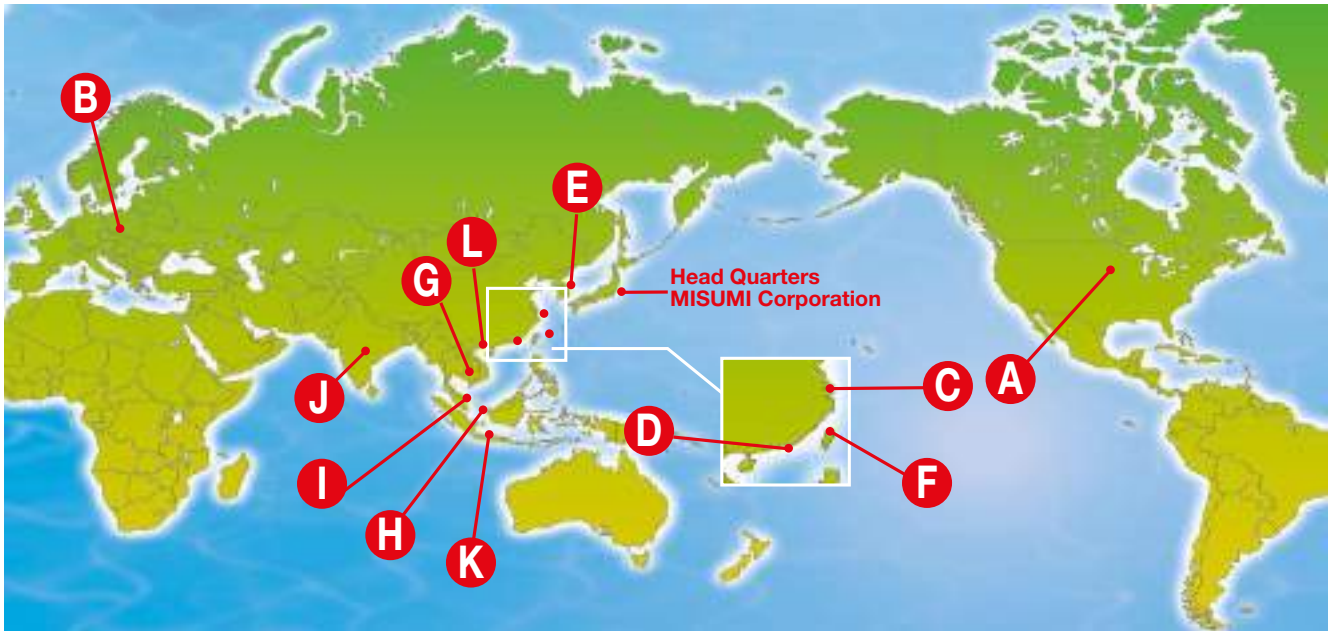

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B MISUMI Europa GmbH	Call: +49 (0) 6966-8173-0 FAX: +49 (0) 6966-8173-360	Franklinstrasse 61-63, 60486 Frankfurt am Main, Germany	Central/Eastern Europe (CEE) Africa Turkey
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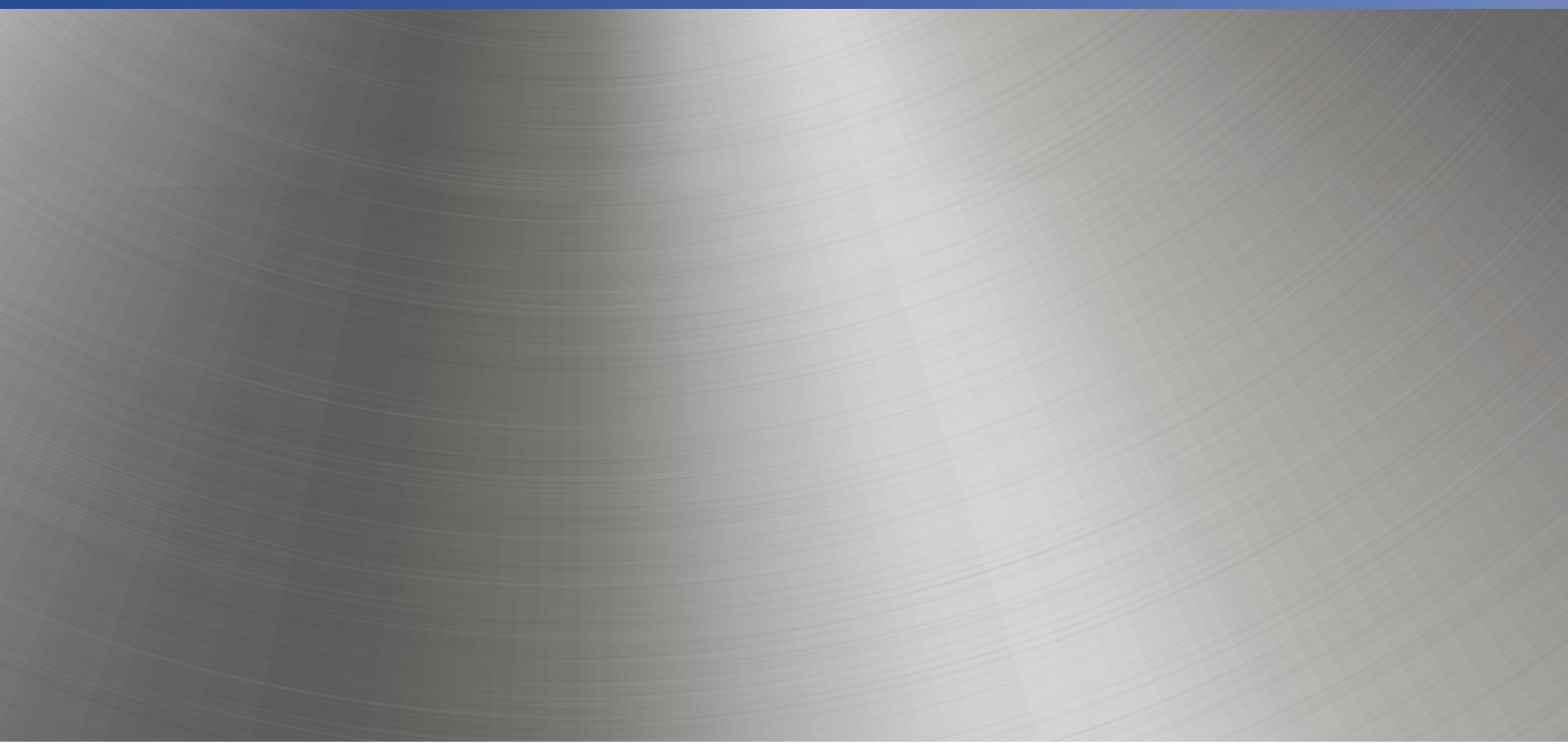

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