

METROL

**NITROGEN
GAS SPRINGS**

MANUFACTURED IN THE UK



NITRO-SPRINGS

The engineers choice

METROL



METROL SPRINGS LIMITED

**5 Clayfield Close,
Moulton Park Industrial Estate,
Northampton,
NN3 6QF, UK.**

Tel: +44 (0)1604 499332

Fax: +44 (0)1604 493390

Email: sales@metrol.com

www.metrol.com



GAS SPRINGS BY FORCE

INITIAL FORCE
(daN)



MODELS



DIAMETER
(MM)



| | INITIAL FORCE (daN) | MODELS | DIAMETER (MM) |
|---|------------------------|---|------------------|
| 1 | 30 - 200 | NG0, NG1, NG2 EX0170 | 19 - 32 |
| 2 | 250 - 420 | ISNG0250 EX0320 EX0360, G-EX0360 HDG0042 | 25 - 38 |
| 3 | 500 - 700 | EX0500, ISNG0500, G-EX0500 HDG007 | 38 - 45 |
| 4 | 750 - 1000 | EX0750, ISNG0750, G-EX0750, RSNG0750 EX1000, MX1000, G-EX1000 HDG010 | 32 - 50 |
| 5 | 1500 - 1800 | EX1500, ISNG1500, G-EX1500, RSNG1500, DSNG1500 HDG018 | 50 - 75 |
| 6 | 2400 - 2900 | EX2400, MX2400, G-EX2400 HDG029 | 63 - 75 |
| 7 | 3000 - 4700 | ISNG3000, RSNG3000, DSNG3000 EX4200, MX4200, G-EX4200 HDG047 | 75 - 95 |
| 8 | 5000 - 6600 | ISNG5000, DSNG5000, RSNG5000 EX6600, MX6600 | 120 |
| 9 | 7500 - 11800 | ISNG7500, DSNG7500, RSNG7500, HDG075 EX9500, MX9500, ISNG10000 HDG118 | 120 - 195 |

| INITIAL FORCE | ISNG | RSNG | EX | G-EX | MX | DSNG | HDG | MINI | DIA. | STROKE |
|---------------|-----------|----------|--------|----------|--------|----------|---------|-------------------|-----------|----------|
| 30 - 200 | | | EX0170 | | | | | NG0 NG1 NG2 | 19 - 32 | 7 - 125 |
| 250 - 320 | ISNG0250 | | EX0320 | | | | | | 25 - 38 | 7 - 125 |
| 360 - 420 | | | EX0360 | G-EX0360 | | | HDG0042 | | 25 - 32 | 6 - 125 |
| 500 - 700 | ISNG0500 | | EX0500 | G-EX0500 | | | | | 38 - 45 | 7 - 160 |
| 750 | ISNG0750 | RSNG0750 | EX0750 | G-EX0750 | | | HDG007 | | 32 - 45 | 6 - 300 |
| 1000 | | | EX1000 | G-EX1000 | MX1000 | | HDG010 | | 38 - 50 | 6 - 300 |
| 1500 - 1800 | ISNG1500 | RSNG1500 | EX1500 | G-EX1500 | | DSNG1500 | HDG018 | | 50 - 75 | 6 - 300 |
| 2400 | | | EX2400 | G-EX2400 | MX2400 | | | | 75 | 16 - 300 |
| 2900 - 3000 | ISNG3000 | RSNG3000 | | | | DSNG3000 | HDG029 | | 63 - 95 | 10 - 300 |
| 4200 - 4700 | | | EX4200 | G-EX4200 | MX4200 | | HDG047 | | 75 - 95 | 16 - 300 |
| 5000 - 6600 | ISNG5000 | RSNG5000 | EX6600 | | MX6600 | DSNG5000 | | | 120 | 25 - 300 |
| 7500 - 9500 | ISNG7500 | RSNG7500 | EX9500 | | MX9500 | DSNG7500 | HDG075 | | 150 | 25 - 300 |
| 10000+ | ISNG10000 | | | | | | HDG118 | | 120 - 195 | 10 - 300 |

| SERIES | DESCRIPTION | MODELS | STROKE LENGTHS | INITIAL FORCE | TOTAL LENGTH | BODY DIA. | OVERVIEW PAGE |
|-------------------|---|----------|--------------------|---------------|--------------------|-----------|---------------|
| MINI NITRO | Rod sealed, colour coded mini Nitro Springs. | NG0 | 7 - 125 | 180 | 42 + (2 X stroke) | 19 | 21 |
| | | NG1 | 10 - 125 | 200 | 42 + (2 X stroke) | 25 | 22 |
| | | NG2 | 10 - 125 | 200 | 50 + (2 X stroke) | 32 | 24 |
| EX RANGE | Rod sealed, high force, most compact gas spring available. | EX0170 | 7 - 125 | 170 | 30 + (2 X stroke) | 19 | 23 |
| | | EX0320 | 7 - 125 | 320 | 30 + (2 X stroke) | 25 | 27 |
| | | EX0360 | 10 - 125 | 360 | 30 + (2 X stroke) | 32 | 28 |
| | | EX0500 | 10 - 125 | 500 | 30 + (2 X stroke) | 38 | 32 |
| | | EX0750 | 10 - 125 | 750 | 32 + (2 X stroke) | 45 | 37 |
| | | EX1000 | 13 - 125 | 1000 | 38 + (2 X stroke) | 50 | 41 |
| | | EX1500 | 13 - 125 | 1500 | 44 + (2 X stroke) | 63 | 46 |
| | | EX2400 | 16 - 125 | 2400 | 45 + (2 X stroke) | 75 | 53 |
| | | EX4200 | 16 - 125 | 4200 | 58 + (2 X stroke) | 95 | 61 |
| | | EX6600 | 16 - 125 | 6600 | 68 + (2 X stroke) | 120 | 69 |
| EX9500 | 19 - 125 | 9500 | 78 + (2 X stroke) | 150 | 76 | | |
| G-EX RANGE | Extended version of the EX, with a G1/8 port and deeper tapped holes in the base. | G-EX0360 | 10 - 125 | 360 | 40 + (2 X stroke) | 32 | 29 |
| | | G-EX0500 | 10 - 125 | 500 | 40 + (2 X stroke) | 38 | 33 |
| | | G-EX0750 | 10 - 125 | 750 | 47 + (2 X stroke) | 45 | 38 |
| | | G-EX1000 | 13 - 125 | 1000 | 52 + (2 X stroke) | 50 | 42 |
| | | G-EX1500 | 13 - 125 | 1500 | 52 + (2 X stroke) | 63 | 47 |
| | | G-EX2400 | 16 - 125 | 2400 | 59 + (2 X stroke) | 75 | 54 |
| | | G-EX4200 | 16 - 125 | 4200 | 62 + (2 X stroke) | 95 | 62 |
| ISNG RANGE | Optimum design for gas spring durability conforming to ISO 11901 standard. | ISNG0250 | 10 - 125 | 250 | 50 + (2 X stroke) | 38 | 26 |
| | | ISNG0500 | 10 - 160 | 500 | 85 + (2 X stroke) | 45 | 34 |
| | | ISNG0750 | 13 - 300 | 750 | 95 + (2 X stroke) | 50 | 39 |
| | | ISNG1500 | 25 - 300 | 1500 | 110 + (2 X stroke) | 75 | 48 |
| | | ISNG3000 | 25 - 300 | 3000 | 120 + (2 X stroke) | 95 | 58 |
| | | ISNG5000 | 25 - 300 | 5000 | 140 + (2 X stroke) | 120 | 66 |
| | | ISNG7500 | 25 - 300 | 7500 | 155 + (2 X stroke) | 150 | 72 |
| ISNG10000 | 25 - 300 | 10000 | 160 + (2 X stroke) | 195 | 78 | | |
| MX RANGE | MX combines the power of the EX range with standard size of the ISNG range. | MX1000 | 13 - 300 | 1000 | 95 + (2 X stroke) | 50 | 43 |
| | | MX2400 | 25 - 300 | 2400 | 110 + (2 X stroke) | 75 | 55 |
| | | MX4200 | 25 - 300 | 4200 | 120 + (2 X stroke) | 95 | 63 |
| | | MX6600 | 25 - 300 | 6600 | 140 + (2 X stroke) | 120 | 70 |
| | | MX9500 | 25 - 300 | 9500 | 155 + (2 X stroke) | 150 | 77 |
| RSNG RANGE | Reduced impact gas spring with damped return. | RSNG0750 | 25 - 300 | 750 | 95 + (2 X stroke) | 50 | 40 |
| | | RSNG1500 | 25 - 300 | 1500 | 110 + (2 X stroke) | 75 | 49 |
| | | RSNG3000 | 25 - 300 | 3000 | 120 + (2 X stroke) | 95 | 59 |
| | | RSNG5000 | 25 - 300 | 5000 | 140 + (2 X stroke) | 120 | 67 |
| | | RSNG7500 | 25 - 300 | 7500 | 155 + (2 X stroke) | 150 | 73 |
| DSNG RANGE | Die separation spring based on ISNG sizes. | DSNG1500 | 25 - 300 | 1500 | 110 + (2 X stroke) | 75 | 50 |
| | | DSNG3000 | 25 - 300 | 3000 | 120 + (2 X stroke) | 95 | 60 |
| | | DSNG5000 | 25 - 300 | 5000 | 140 + (2 X stroke) | 120 | 68 |
| | | DSNG7500 | 25 - 300 | 7500 | 155 + (2 X stroke) | 150 | 74 |
| HDG RANGE | Ultra high force compact bore sealed gas spring. | HDG042 | 6 - 50 | 420 | 56 - 195 | 25 | 30 |
| | | HDG007 | 6 - 50 | 700 | 63 - 195 | 32 | 35 |
| | | HDG010 | 6 - 50 | 1000 | 61 - 230 | 38 | 44 |
| | | HDG018 | 6 - 50 | 1800 | 66 - 271 | 50 | 51 |
| | | HDG029 | 10 - 50 | 2900 | 85 - 256 | 63.2 | 56 |
| | | HDG047 | 10 - 50 | 4700 | 80 - 273 | 75 | 64 |
| | | HDG075 | 10 - 50 | 7500 | 90 - 279 | 95 | 75 |
| | | HDG118 | 10 - 50 | 11800 | 100 - 320 | 120 | 79 |

Metrol Springs Ltd, established in 1984, design and manufacture nitrogen gas springs under the registered brand name "Nitro-Springs".

All Nitro-Springs are manufactured in the UK to the highest standards to meet the arduous demands of the metal stamping industry. Modern manufacturing facilities using the latest in production and design technology, ensure consistent, high quality, long life products that are competitively priced.

All our cylinders are designed and manufactured in accordance with our ISO9001:2008 quality system and conform to the rigorous standards of the European Pressure Equipment Directive (PED97/23/EC).

Metrol Springs is a dynamic and progressive company, equipped to meet the needs of our customers. With a worldwide distribution network; spares, technical support and advice are never far away.

We pride ourselves in a high level of service and support for our products wherever you are in the world.

In addition to our standard range of Nitro-Springs, we are able to design and manufacture non-standard sizes and bespoke products to meet the requirements for a wide range of applications in all types of industry. For information and assistance, please contact our technical department.

Nitro-Springs are covered by a comprehensive 2 year, 100,000 stroke metre guarantee.



METROL.com

MANUFACTURERS OF NITRO-SPRINGS HEREBY
GUARANTEE FOR TWO YEARS OR 100,000 STROKE/M

Metrol Springs Warrants its products to be free from manufacturing defects for a period of two years or working life of 100,000 stroke metres. The warranty is only valid if the product has been used within strict accordance with our user guidelines. The warranty shall not apply to any product that has been subjected to damage, alteration, abuse, misuse, misapplication or improper maintenance.

This warranty constitutes our entire and only warranty. There being no other warranties, expressed or implied in law or in fact including implied warranties of fitness and merchantability.

For more information on warranty issues, call the factory direct for all authorisations:
Metrol Springs Limited, 5 Clayfield Close, Moulton Park Industrial Estate, Northampton, NN3 6QF, UK
Tel: +44 (0) 1604 499332 Fax: +44 (0) 1604 493390 Email: sales@metrol.com



SAFETY FEATURES

If misused or damaged, gas springs can be a potential safety hazard. In order to minimise any hazard, Metrol gas springs have in-built active safety designs that safely degas the spring in case of over stroke or over-pressurisation.



DESIGN & MODELLING

Designs are evaluated using software modelling to determine safety factors and failure modes.



DYNAMIC TESTING

Metrol gas springs are tested to validate designs by;
Fatigue testing over 2 million cycles at maximum pressure.
Burst test (over-pressurisation)
Sealing components life tests.
Field trials.



SAFETY & MAINTENANCE TRAINING

Metrol and authorised distributors offer essential safety training for the operation and maintenance of Metrol gas springs and gas spring systems.

CHARGING, OVERHAUL AND MAINTENANCE OF METROL GAS SPRINGS

Before attempting any work on a gas spring system the person must have attended and passed the Metrol training course. Upon completion of the course a certificate of competence is issued.

Attempting to perform work on a spring without completing the course may infringe safety and have a negative impact on the life of the product.

Overhaul and maintenance instructions are found in the manual. This manual is available to people who have completed the Metrol training course.

USE ONLY NITROGEN WHEN CHARGING - THE USE OF OXYGEN WILL CAUSE AN EXPLOSION.

TO DEGAS



Withdraw the port plug.



Discharge the gas spring with the vent key, pressing slightly on the valve.



Only certified trained personnel should perform work on gas springs.



Wear safety goggles.
Invert cylinder when degassing.



When charging, ensure piston rod is fully extended.

Maximum charge pressure must not be exceeded.

GAS SPRING IDENTIFICATION



ALL METROL GAS SPRINGS are permanently marked on the cylinder.

- ← MODEL TYPE / STROKE (e.g. ISNG1500/050)
- ← MAX CHARGE PRESSURE
- ← WARNING - USE ONLY NITROGEN
- ← SERIAL NUMBER
- ← DATE OF MANUFACTURE
- ← CE / PED / 97/23/EC (WHERE APPLICABLE ON CYLINDERS OVER 1L @150 BAR)

TOOL SAFETY WARNING PLATES

MET: 8218 - MINI WARNING PLATE



MET: 8219 - LARGE WARNING PLATE



The nominal stroke listed in the catalogue may be utilised fully. However, it is strongly recommended that 5mm or 10% of the nominal stroke length is not used. This is to prevent 'overstroke' as a result of a change in the tool or a mishap.



USE ONLY NITROGEN



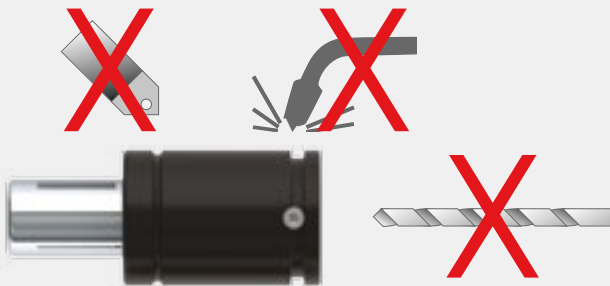
MAX. 80°C

MAX WORKING TEMPERATURE



PROTECT FROM DAMAGE

Any damage to the Gas Spring could affect safety and life of the product. The spring should be degassed and disposed of.

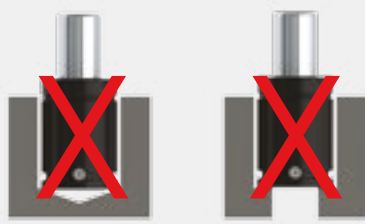
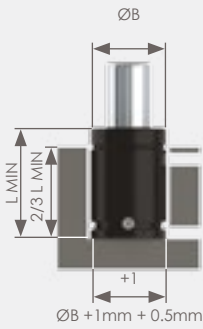


DO NOT MODIFY, MACHINE, DRILL OR WELD.



There is specific equipment to measure gas spring force. Please see page 105 for gas spring test unit.

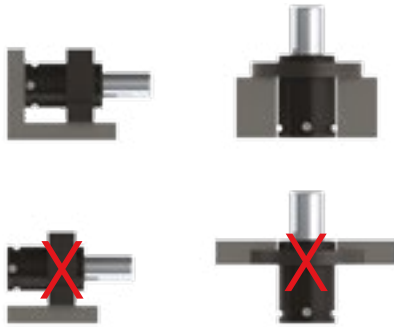
ASSEMBLY GUIDE



Ensure the gas spring sits on a flat surface. Uneven surfaces can cause side loading or structural damage.

Where possible, positively retain springs on a flat surface. Ensure bolts are tight and the spring cannot move.

Do not use the threaded hole in piston, this is for maintenance only.



Always use a torque wrench to tighten.

| Thread | Torque |
|--------|-----------|
| M6 | 10Nm |
| M8 | 24Nm |
| M10 | 45Nm |
| M12 | 80Nm |
| M16 | 160-180Nm |

Nitro-Springs have a range of fixing elements. Instructions must be adhered to. Incorrect fixing methods may reduce product life and can affect safety.



Gas springs should be protected from grinding dust during tool construction or maintenance.

Grinding dust can adhere to the piston surface and mix with oil to create a grinding paste which can damage the main seal.

If grinding has taken place near the springs, then the piston should be cleaned before operation.



Protect gas springs from liquid or solid contamination.

Pockets should be cleaned regularly and equipped with drainage.



Do not use gas springs in such a way that the piston rod is released freely from its compressed position. This could cause internal damage.

Side loading gas springs is the most common cause for failure and should be avoided at all times. Metrol Gas Springs are robustly designed to minimise the impact of side loading with the following features.

FLEXI GUIDE DESIGN



Specially designed piston guides allow the piston to flex under side loads to eliminate metal to metal contact, which can damage the piston rod surface (large side forces still result in heat build up which can damage the seals).

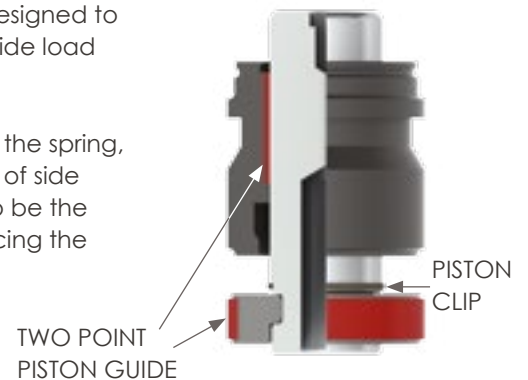


ROD AND STOP GUIDED SPRINGS

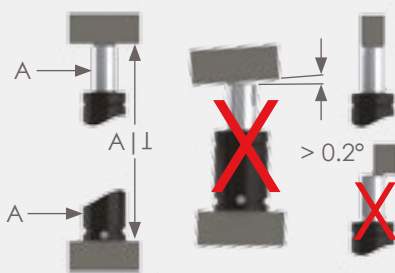


The rod and stop guided springs utilise a two guide system. The main guide in the seal unit is designed to offer maximum guidance reducing the side load impact on the main seal.

The stop is also guided through the bore of the spring, with two areas of guidance the effects of side loading is reduced. This is considered to be the optimum design for durability and reducing the impact side loading.



DESIGN GUIDE FOR REDUCING SIDE LOADING



Gas Springs must always work completely perpendicular to the contact surface. Side forces will dramatically reduce the life of the product.



Thrust plates protect against damage to the piston top and the tool contact area. Damage can introduce side loading, reducing the life of the gas spring. (Please see page 85)

GAS SPRING OVERVIEW OF RANGES PAGES 10 TO 19

30 - 200KG PAGES 20 TO 24

250 - 420KG PAGES 25 TO 30

500 - 700KG PAGES 31 TO 35

750 - 1000KG PAGES 36 TO 44

1500 - 1800KG PAGES 45 TO 51

2400 - 2900KG PAGES 52 TO 56

3000 - 4700KG PAGES 57 TO 64

5000 - 6600KG PAGES 65 TO 70

7500 - 11800KG PAGES 71 TO 79

FASTENING ACCESSORIES PAGES 80 TO 85

HOSE SYSTEMS PAGES 86 TO 103

GAS SPRING ACCESSORIES PAGES 104 TO 110

Originally designed to replace die springs, the Mini Nitro-Springs are a versatile range. Available in 19, 25 and 32mm diameters. Mini Nitro-Springs can be pre-set to four different pressures, represented by the colours, green, blue, red and yellow.

An upper and lower C groove can be used for attachment with a front flange.



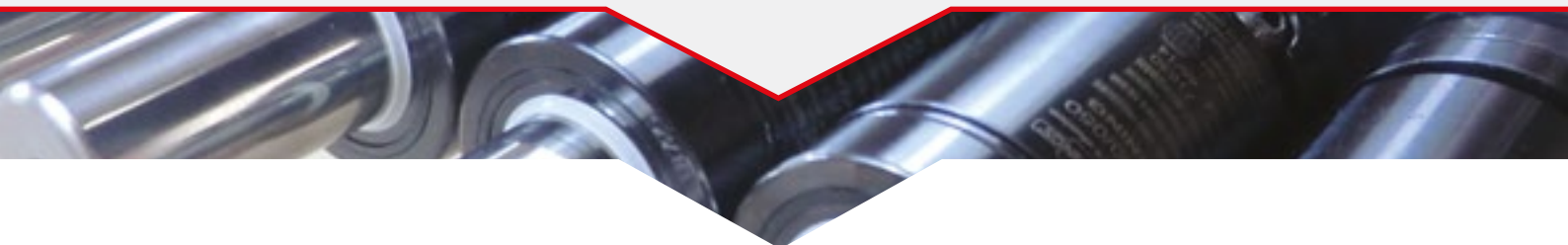
| SPRING TYPE | Ø D |
|-------------|--------|
| NG0 | M6 X 1 |
| NG1 | M6 X 1 |
| NG2 | M6 X 1 |



PED
97/23/EC

USE ONLY NITROGEN

| | | |
|---------------------------|--------------------------|-----------------------------------|
| MAX. PRESSURE: 180 BAR | MIN. PRESSURE: 20 BAR | MAX. PISTON VELOCITY: 1.6M/SEC |
|---------------------------|--------------------------|-----------------------------------|



| MODEL | P | B | INITIAL FORCE (daN) | STROKE RANGE | C | MOUNTING OPTIONS | PIPE SYSTEM | | OVERHAUL |
|-------|----|------|---------------------|--------------|---|---------------------|-------------|-------|----------|
| | | | | | | | MICRO 24 | CNOMO | |
| NG0 | 8 | 19 | 90 | 7 - 125 | 1 | DP, TH, FF | x | x | x |
| NG1 | 12 | 24.9 | 200 | 10 - 125 | 1 | DP, TH, FF, ES | x | x | x |
| NG2 | 12 | 32 | 200 | 10 - 125 | 1 | DP, TH, FF, SFF, SF | x | x | x |

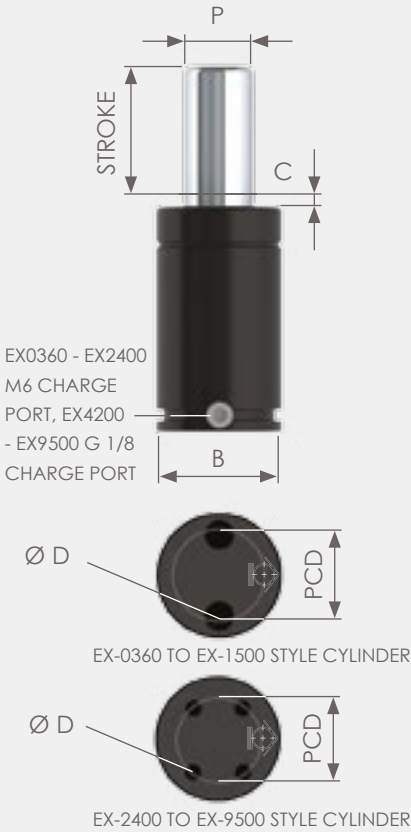
The EX range is our most powerful, compact rod sealed gas spring. Special rod guiding elements in the seal unit reduce side load impact to prevent rod and seal wear, increasing durability and seal life.

EX0170 and EX0320 have upper and lower C grooves for front flange mounting.

EX-0360 > EX-9500 the upper C groove and lower U groove allow numerous flange mounting options.

EX-0360 > EX-2400 there is an M6 side port for charging and also connecting in series using the Micro hose system or CNOMO hose system.

EX-4200 > EX-9500 there is a G1/8 side port for charging and connecting in series using the CNOMO hose system.



| SPRING TYPE | PCD | Ø D | TAPPED HOLE DEPTH |
|-------------|-------|---------|-------------------|
| EX0170 | - | M6 X 1 | 5mm |
| EX0320 | - | M6 X 1 | 5mm |
| EX0360 | 20 | M6 X 2 | 6mm |
| EX0500 | 20/25 | M6 X 2 | 6mm |
| EX0750 | 20 | M8 X 2 | 6mm |
| EX1000 | 20 | M8 X 2 | 6mm |
| EX1500 | 20 | M8 X 2 | 6mm |
| EX2400 | 40 | M8 X 4 | 6mm |
| EX4200 | 60 | M8 X 4 | 12mm |
| EX6600 | 80 | M10 X 4 | 12mm |
| EX9500 | 100 | M10 X 4 | 13mm |



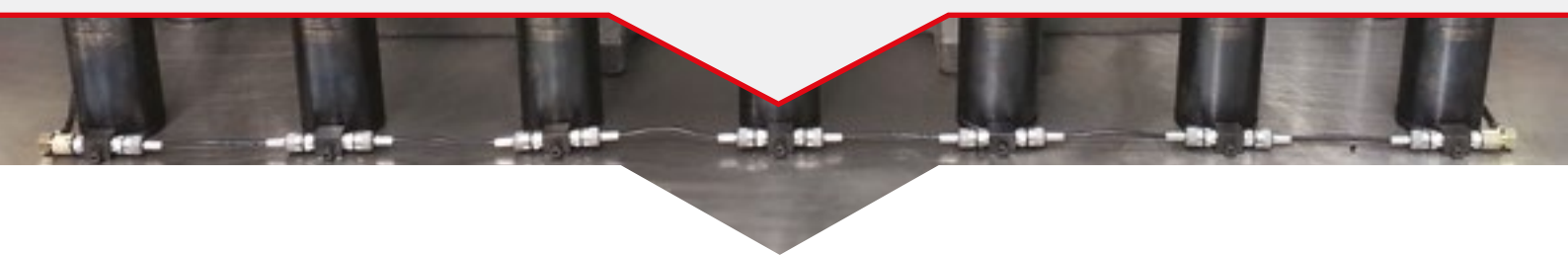
USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT AVAILABLE

ISO 97/23/EC

PED



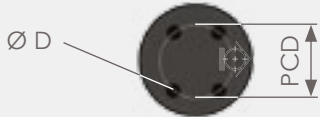
| MODEL | P | B | INITIAL FORCE (daN) | STROKE RANGE | C | MOUNTING OPTIONS | PIPE SYSTEM | | OVERHAUL |
|--------|----|------|---------------------|--------------|---|-------------------------|-------------|-------|----------|
| | | | | | | | MICRO | CNOMO | |
| EX0170 | 11 | 19 | 170 | 7 - 125 | 1 | DP, TH, FF | × | × | × |
| EX0320 | 15 | 24.9 | 320 | 7 - 125 | 1 | DP, TH, FF, ES | × | × | × |
| EX0360 | 16 | 32 | 360 | 10 - 125 | 2 | TH, FF, SF | ✓ | ✓ | ✓ |
| EX0500 | 20 | 38 | 500 | 10 - 125 | 2 | TH, FF, SF, SFF, ES | ✓ | ✓ | ✓ |
| EX0750 | 25 | 45 | 750 | 10 - 125 | 2 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |
| EX1000 | 28 | 50 | 1000 | 13 - 125 | 3 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |
| EX1500 | 36 | 63 | 1500 | 13 - 125 | 3 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |
| EX2400 | 45 | 75 | 2400 | 16 - 125 | 3 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |
| EX4200 | 60 | 95 | 4200 | 16 - 125 | 3 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |
| EX6600 | 75 | 120 | 6600 | 16 - 125 | 3 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |
| EX9500 | 90 | 150 | 9500 | 19 - 125 | 3 | TH, FF, SF, SFF, BP | ✓ | ✓ | ✓ |



M6 CHARGE PORT
G-EX0360
G1/8 CHARGE
PORT G-EX0500
TO G-EX4200



G-EX0360 TO G-EX1500 STYLE CYLINDER



G-EX2400 TO G-EX4200 STYLE CYLINDER

The G-EX range is based upon the high tonnage compact EX range, but with a longer body incorporating deeper tapped holes in the base for fixing.

G-EX0360 > G-EX4200 the upper C groove and lower U groove allow numerous flange mounting options.

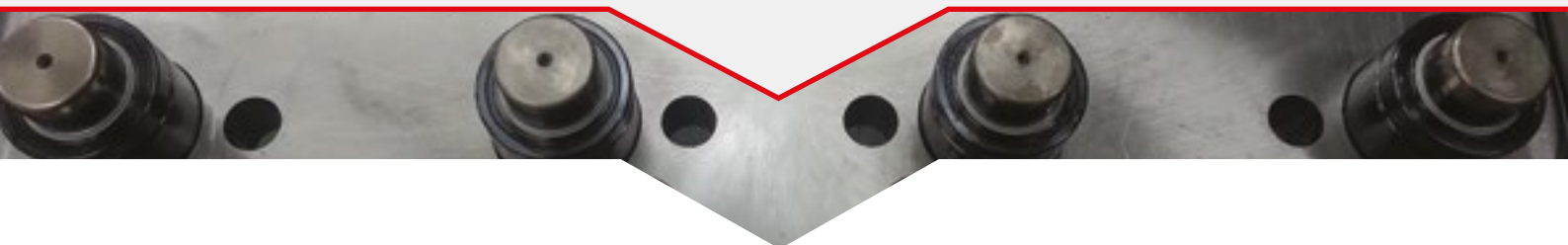
G-EX0360 has an M6 port for direct connection to the Micro Hose System. G-EX0500 to G-EX4200 have a G1/8 port for direct connection to the CNOMO Hose system.

| SPRING TYPE | PCD | Ø D | TAPPED HOLE DEPTH |
|-------------|-----|--------|-------------------|
| G-EX0360 | 20 | M6 X 2 | 15mm |
| G-EX0500 | 25 | M6 X 2 | 15mm |
| G-EX0750 | 20 | M8 X 2 | 16mm |
| G-EX1000 | 20 | M8 X 2 | 16mm |
| G-EX1500 | 20 | M8 X 2 | 16mm |
| G-EX2400 | 40 | M8 X 4 | 16mm |
| G-EX4200 | 60 | M8 X 4 | 16mm |

USE ONLY NITROGEN

| | | |
|---------------------------|--------------------------|-----------------------------------|
| MAX. PRESSURE: 150 BAR | MIN. PRESSURE: 20 BAR | MAX. PISTON VELOCITY: 1.6M/SEC |
|---------------------------|--------------------------|-----------------------------------|

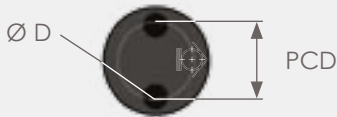
SERVICE KIT AVAILABLE



| MODEL | P | B | INITIAL FORCE (daN) | STROKE RANGE | C | MOUNTING OPTIONS | PIPE SYSTEM | | OVERHAUL |
|----------|----|----|---------------------|--------------|---|-------------------------|-------------|-------|----------|
| | | | | | | | MICRO | CNOMO | |
| G-EX0360 | 16 | 32 | 360 | 10 - 125 | 2 | TH, FF, SF | ✓ | ✓ | ✓ |
| G-EX0500 | 20 | 38 | 500 | 10 - 125 | 2 | TH, FF, SF, SFF, ES | ✓ | ✓ | ✓ |
| G-EX0750 | 25 | 45 | 750 | 10 - 125 | 2 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |
| G-EX1000 | 28 | 50 | 1000 | 13 - 125 | 3 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |
| G-EX1500 | 36 | 63 | 1500 | 13 - 125 | 3 | TH, FF, SF, SFF, BP | ✓ | ✓ | ✓ |
| G-EX2400 | 45 | 75 | 2400 | 16 - 125 | 3 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |
| G-EX4200 | 60 | 95 | 4200 | 16 - 125 | 3 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |



CHARGE
PORT M6
ISNG0250
G1/8 ISNG0500
ISNG10000



ISNG0250 TO ISNG0750 CYLINDER



ISNG1500 TO ISNG10000 CYLINDER

The ISNG range is the optimum design for gas spring durability and conforms to the ISO11901 gas spring standard. ISNG range includes strokes up to 300mm and incorporates longer seal unit guides and bore guided piston stops for maximum durability.


The ISNG range can be connected in series using the CNOMO hose system. Upper C-Groove and Lower U-Groove give numerous flange mounting options.

| SPRING TYPE | PCD | Ø D | TAPPED HOLE DEPTH |
|-------------|-------|---------|-------------------|
| ISNG0250 | 20/25 | M6 X 2 | 8mm |
| ISNG0500 | 20 | M8 X 2 | 12.5mm |
| ISNG0750 | 20 | M8 X 2 | 12.5mm |
| ISNG1500 | 40 | M8 X 4 | 13mm |
| ISNG3000 | 60 | M8 X 4 | 13mm |
| ISNG5000 | 80 | M10 X 4 | 13mm |
| ISNG7500 | 100 | M10 X 4 | 13mm |
| ISNG10000 | 120 | M12 X 4 | 16mm |



USE ONLY NITROGEN

| | | |
|---------------------------|--------------------------|-----------------------------------|
| MAX. PRESSURE: 150 BAR | MIN. PRESSURE: 20 BAR | MAX. PISTON VELOCITY: 1.6M/SEC |
|---------------------------|--------------------------|-----------------------------------|

 SERVICE KIT AVAILABLE

 ISO 11901

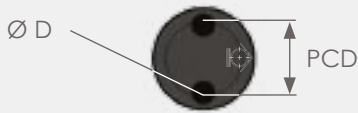
 PED 97/23/EC



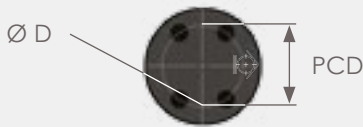
| MODEL | P | B | INITIAL FORCE (daN) | STROKE RANGE | C | MOUNTING OPTIONS | PIPE SYSTEM | | OVERHAUL |
|-----------|----|-----|---------------------|--------------|---|-------------------------|-------------|-------|----------|
| | | | | | | | MICRO | CNOMO | |
| ISNG0250 | 14 | 38 | 250 | 10 - 125 | 2 | TH, FF, SF, SFF, ES | ✓ | ✓ | ✓ |
| ISNG0500 | 20 | 45 | 500 | 10 - 160 | 2 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |
| ISNG0750 | 25 | 50 | 750 | 12.7 - 300 | 3 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |
| ISNG1500 | 36 | 75 | 1500 | 25 - 300 | 3 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |
| ISNG3000 | 50 | 95 | 3000 | 25 - 300 | 3 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |
| ISNG5000 | 65 | 120 | 5000 | 25 - 300 | 3 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |
| ISNG7500 | 80 | 150 | 7500 | 25 - 300 | 3 | TH, FF, SF, SFF, BP | ✓ | ✓ | ✓ |
| ISNG10000 | 95 | 195 | 10000 | 25 - 300 | 3 | TH, FF, SF, SFF, BP | ✓ | ✓ | ✓ |



G1/8 CHARGE PORT



MX-1000 STYLE CYLINDER



MX-2400 TO MX-9500 STYLE CYLINDER

The MX range combines the force of the EX range in the envelope sizes of the full height ISNG range, providing a high force durable gas spring.

MX range includes strokes up to 300mm and incorporates longer seal unit guides and bore guided piston stops for maximum durability.

The MX range can be connected in series using the CNOMO hose system. Upper C-Groove and Lower U-Groove give numerous flange mounting options.

| SPRING TYPE | PCD | Ø D | TAPPED HOLE DEPTH |
|-------------|-----|---------|-------------------|
| MX1000 | 20 | M8 X 2 | 12.5mm |
| MX2400 | 40 | M8 X 4 | 13mm |
| MX4200 | 60 | M8 X 4 | 13mm |
| MX6600 | 80 | M10 X 4 | 13mm |
| MX9500 | 100 | M10 X 4 | 13mm |



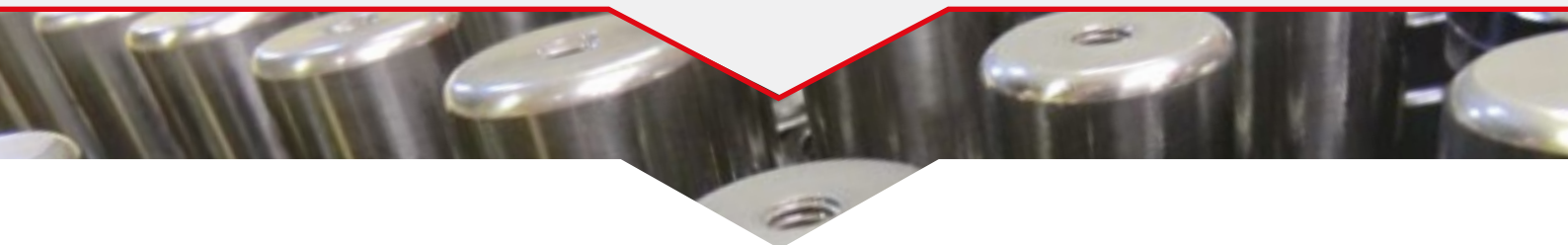
USE ONLY NITROGEN

| | | |
|------------------------|-----------------------|--------------------------------|
| MAX. PRESSURE: 150 BAR | MIN. PRESSURE: 20 BAR | MAX. PISTON VELOCITY: 1.6M/SEC |
|------------------------|-----------------------|--------------------------------|

SERVICE KIT AVAILABLE

ISO 9001

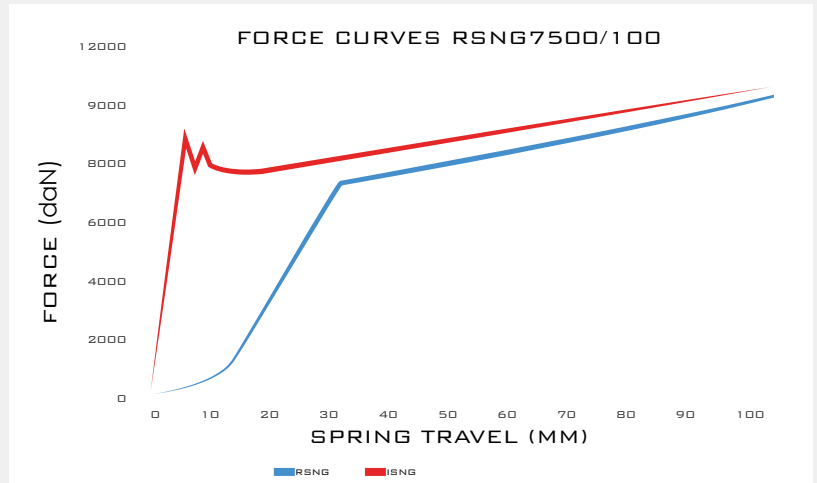
PED
97/23/EC



| MODEL | P | B | INITIAL FORCE (daN) | STROKE RANGE | C | MOUNTING OPTIONS | PIPE SYSTEM | | OVERHAUL |
|--------|----|-----|---------------------|--------------|---|-------------------------|-------------|-------|----------|
| | | | | | | | MICRO | CNOMO | |
| MX1000 | 28 | 50 | 1000 | 13 - 300 | 3 | TH, BP, FF, SFF, SF, ES | ✓ | ✓ | ✓ |
| MX2400 | 45 | 75 | 2400 | 25 - 300 | 3 | TH, BP, FF, SFF, SF, ES | ✓ | ✓ | ✓ |
| MX4200 | 60 | 95 | 4200 | 25 - 300 | 3 | TH, BP, FF, SFF, SF, ES | ✓ | ✓ | ✓ |
| MX6600 | 75 | 120 | 6600 | 25 - 300 | 3 | TH, BP, FF, SFF, SF, ES | ✓ | ✓ | ✓ |
| MX9500 | 90 | 150 | 9500 | 25 - 300 | 3 | TH, BP, FF, SFF, SF | ✓ | ✓ | ✓ |

Reduced force on contact and damped return stroke.

- ✓ Reduces pad bounce and improved part transfer efficiency
- ✓ Increased production rates through higher SPM
- ✓ Reduction in noise with quieter working environment
- ✓ Reduced force going through the press ram at initial contact
- ✓ Reduces wear and maintenance on the press



UP TO 20MM DAMPING ZONE FOR IMPROVED PERFORMANCE

Available in standard ISO sizes for **750, 1500, 3000, 5000** and **7500kg** gas springs.

- ✓ Standard ISO fixing flanges
- ✓ Low contact force / damped return stroke from 10mm to 20mm
- ✓ Full range of stroke sizes available from 25mm to 300mm
- ✓ Can be retro-fitted in place of standard ISO springs
- ✓ Flexible working pressure range, between 50 to 150 bar
- ✓ Can be used on pipe systems

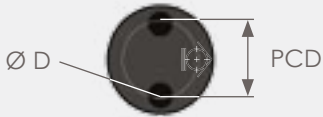


Standard 2 year 100,000 stroke metre guarantee!

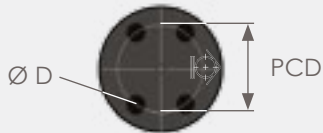
Patent Pending



G1/8 CHARGE PORT



RSNG0750 STYLE CYLINDER



RSNG1500 TO RSNG7500 STYLE CYLINDER

The RSNG gas spring reduces shock loading on the initial contact and provides damping on the return stroke.

The RSNG dimensions are based on the ISNG (ISO) dimensions and are interchangeable. RSNG range includes strokes up to 300mm.

The RSNG range can be connected in series using the CNOMO hose system. Upper C-Groove and Lower U-Groove give numerous flange mounting options.

The RSNG must be mounted piston side up.

| SPRING TYPE | PCD | Ø D | TAPPED HOLE DEPTH |
|-------------|-----|---------|-------------------|
| RSNG0750 | 20 | M8 X 2 | 12.5 |
| RSNG1500 | 40 | M8 X 4 | 13 |
| RSNG3000 | 60 | M8 X 4 | 13 |
| RSNG5000 | 80 | M10 X 4 | 13 |
| RSNG7500 | 100 | M10 X 4 | 13 |

USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR

MIN. PRESSURE: 50 BAR

MAX. PISTON VELOCITY: 1.6M/SEC

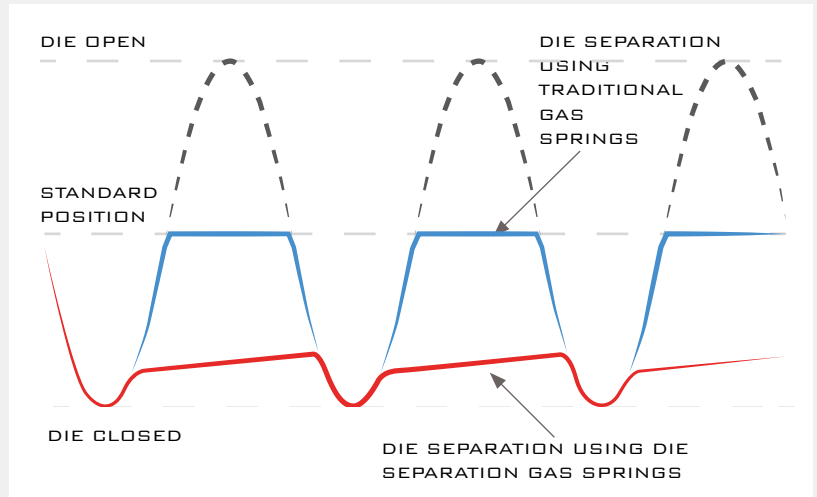


PED
97/23/EC

| MODEL | P | B | MAX FORCE (daN) | STROKE RANGE | C | MOUNTING OPTIONS | PIPE SYSTEM | | OVERHAUL |
|----------|----|-----|-----------------|--------------|---|-------------------------|-------------|-------|----------|
| | | | | | | | MICRO | CNOMO | |
| RSNG0750 | 25 | 50 | 750 | 25 - 300 | 3 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |
| RSNG1500 | 36 | 75 | 1500 | 25 - 300 | 3 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |
| RSNG3000 | 50 | 95 | 3000 | 25 - 300 | 3 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |
| RSNG5000 | 65 | 120 | 5000 | 25 - 300 | 3 | TH, FF, SF, SFF, ES, BP | ✓ | ✓ | ✓ |
| RSNG7500 | 80 | 150 | 7500 | 25 - 300 | 3 | TH, FF, SF, SFF, BP | ✓ | ✓ | ✓ |

After initial full cycle, only a few millimetres of the stroke is compressed at the bottom end of the spring's travel on each press cycle.

- ✓ Reduces energy required per press cycle
- ✓ Reduces force going through the ram
- ✓ Reduces wear on the press
- ✓ Reduces unnecessary wear on the gas springs



The **Greener**, Energy Efficient Solution to Die Separation...

Available in standard ISO sizes for **1500, 3000, 5000** and **7500kg** gas springs.

- ✓ Standard ISO fixing flanges
- ✓ Full range stroke sizes available from 25mm to 300mm
- ✓ Can be retro-fitted in place of standard ISO springs
- ✓ Fully serviceable and easy to overhaul



Standard 2 year 100,000 stroke metre guarantee!



The DSNG Die Separation Spring is designed for slow return of the piston rod so during each press cycle only a fraction of the stroke is used, reducing the force required by the press and the wear on the gas spring.

The DSNG dimensions are based on the ISNG (ISO) dimensions and are interchangeable.

Stroke lengths up to 300mm are available.

Upper C-Groove and Lower U-Groove give numerous flange mounting options.

| SPRING TYPE | PCD | Ø D | TAPPED HOLE DEPTH |
|-------------|-----|---------|-------------------|
| DSNG1500 | 40 | M8 X 4 | 13 |
| DSNG3000 | 60 | M8 X 4 | 13 |
| DSNG5000 | 80 | M10 X 4 | 13 |
| DSNG7500 | 100 | M10 X 4 | 13 |

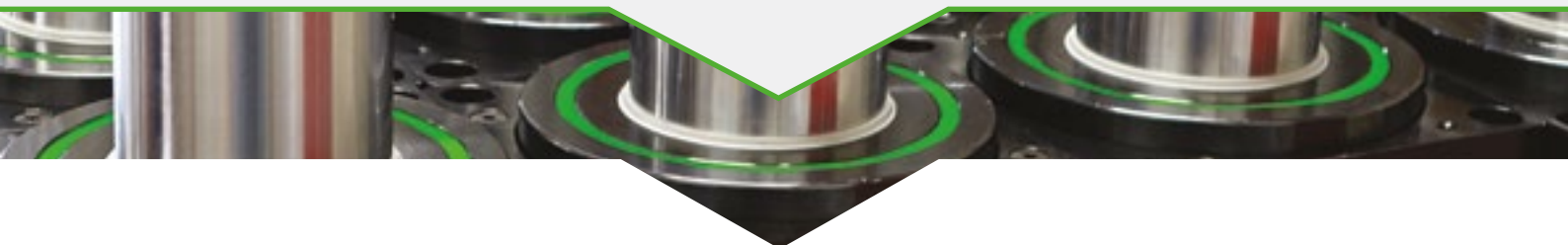


USE ONLY NITROGEN

| | | |
|---------------------------|--------------------------|-----------------------------------|
| MAX. PRESSURE: 150 BAR | MIN. PRESSURE: 50 BAR | MAX. PISTON VELOCITY: 1.6M/SEC |
|---------------------------|--------------------------|-----------------------------------|

SERVICE KIT AVAILABLE

PED
97/23/EC



| MODEL | P | B | MAX FORCE (daN) | STROKE RANGE | C | MOUNTING OPTIONS | PIPE SYSTEM | | OVERHAUL |
|----------|----|-----|-----------------|--------------|---|---------------------|-------------|-------|----------|
| | | | | | | | MICRO | CNOMO | |
| DSNG1500 | 36 | 75 | 1500 | 25 - 300 | 3 | TH, FF, SF, SFF, BP | x | x | ✓ |
| DSNG3000 | 50 | 95 | 3000 | 25 - 300 | 3 | TH, FF, SF, SFF, BP | x | x | ✓ |
| DSNG5000 | 65 | 120 | 5000 | 25 - 300 | 3 | TH, FF, SF, SFF, BP | x | x | ✓ |
| DSNG7500 | 80 | 150 | 7500 | 25 - 300 | 3 | TH, FF, SF, SFF, BP | x | x | ✓ |



CHARGE PORT
M6 - HDG0042-
HDG018
G1/8 - HDG029-
HDG118



The HDG range is a compact bore sealed gas spring, giving maximum force for the cylinder diameter.

Stroke lengths up to 50mm are available.


Upper and lower C-Grooves allow the springs to be clamped using flanges, in addition to the tapped holes in the base.

It is always recommended that the springs be positively retained.

| SPRING TYPE | PCD | Ø D | TAPPED HOLE DEPTH |
|----------------|-----|---------------|-------------------|
| HDG0042 | - | M6 X 1 | - |
| HDG007 | 15 | M6 X 2 | 5.5mm |
| HDG010 | 17 | M6 X 2 | 6.5mm |
| HDG018 | 26 | M6 X 2 | 6.5mm |
| HDG029 | 34 | M8 X 2 | 9mm |
| HDG047 | 40 | M8 X 4 | 9mm |
| HDG075 | 52 | M8 X 4 | 9mm |
| HDG118 | 68 | M8 X 4 | 10mm |

USE ONLY NITROGEN

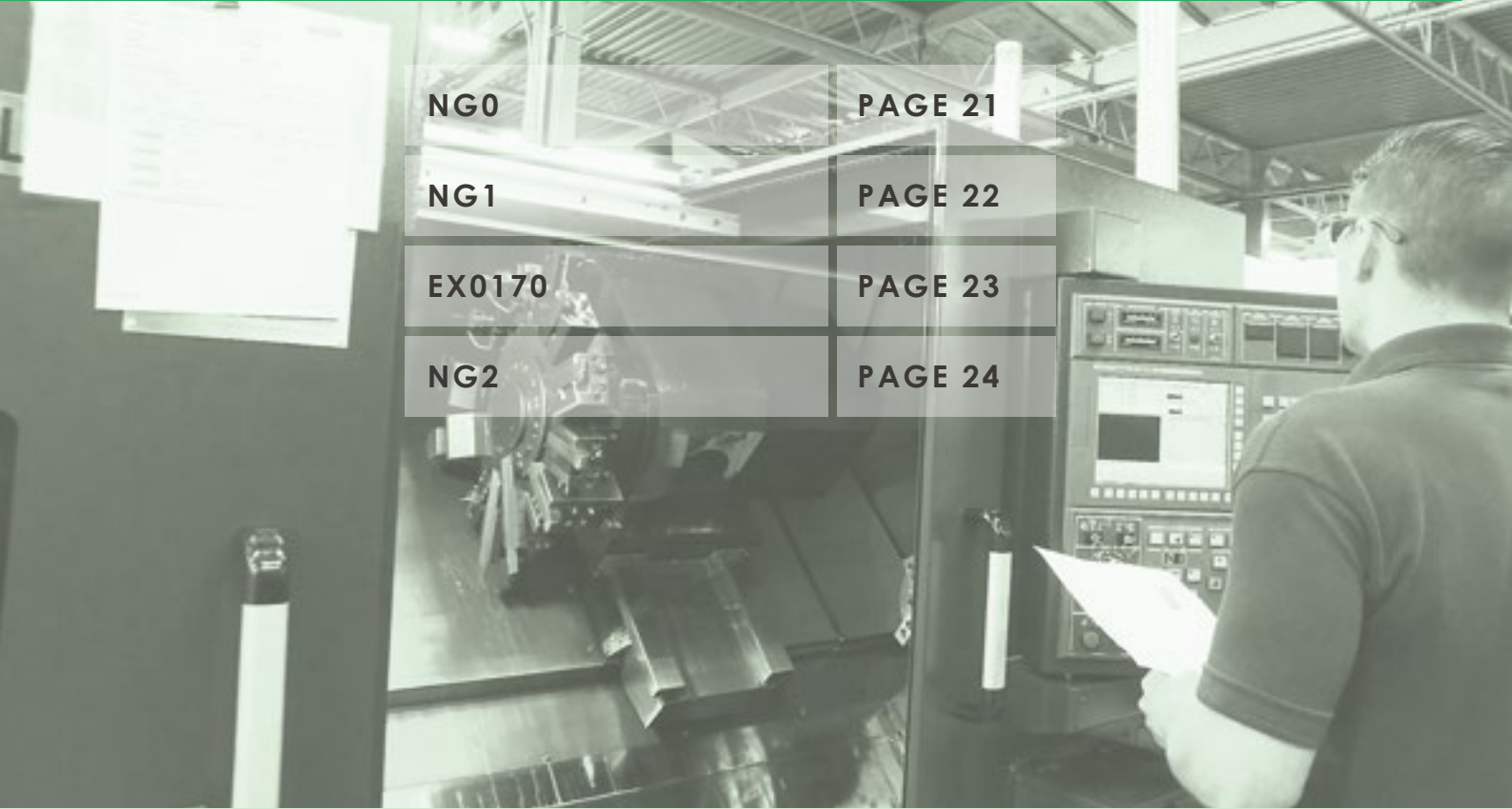
| | | |
|---------------------------|--------------------------|-----------------------------------|
| MAX. PRESSURE: 150 BAR | MIN. PRESSURE: 20 BAR | MAX. PISTON VELOCITY: 0.8M/SEC |
|---------------------------|--------------------------|-----------------------------------|

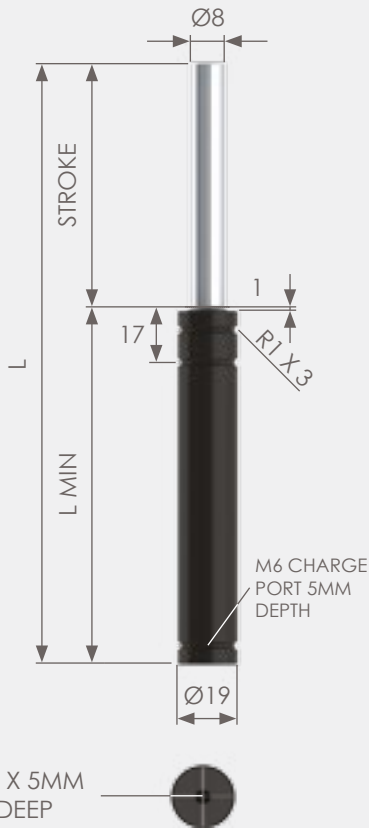
 SERVICE KIT AVAILABLE



| MODEL | P | B | INITIAL FORCE (daN) | STROKE RANGE | C | MOUNTING OPTIONS | PIPE SYSTEM | | OVERHAUL |
|----------------|----|------|---------------------|--------------|---|------------------|-------------|-------|----------|
| | | | | | | | MICRO | CNOMO | |
| HDG0042 | 12 | 24.9 | 420 | 6 - 50 | 1 | DP, TH, FF | x | x | ✓ |
| HDG007 | 20 | 32 | 740 | 6 - 50 | 3 | TH, FF, SFF | x | x | ✓ |
| HDG010 | 20 | 38 | 1060 | 6 - 50 | 3 | TH, FF, SFF | x | x | ✓ |
| HDG018 | 30 | 50 | 1800 | 6 - 50 | 3 | TH, FF, SFF | x | x | ✓ |
| HDG029 | 38 | 63.2 | 2950 | 6 - 50 | 3 | TH, FF, SFF | x | x | ✓ |
| HDG047 | 50 | 75 | 4700 | 10 - 50 | 3 | TH, FF, SFF | x | x | ✓ |
| HDG075 | 65 | 95 | 7500 | 10 - 50 | 3 | TH, FF, SFF | x | x | ✓ |
| HDG118 | 80 | 120 | 11800 | 10 - 50 | 3 | TH, FF, SFF | x | x | ✓ |

30 - 200KG



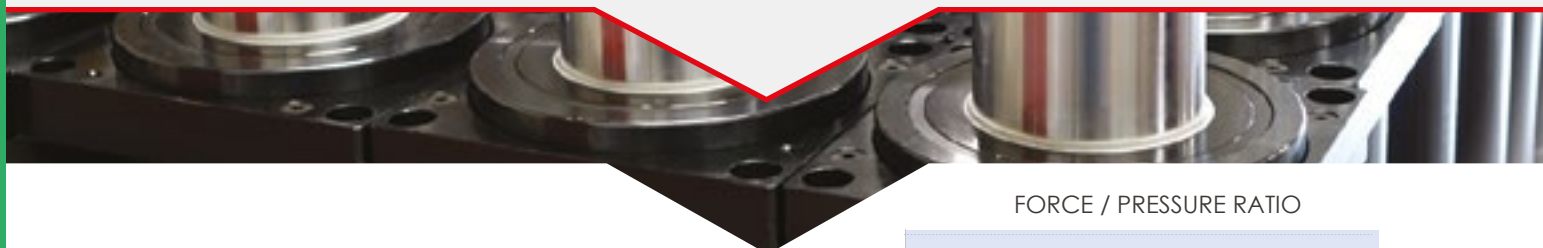


| MODEL | CHARGING PRESSURE (BAR) | FORCE (daN) @20° C | | COLOUR |
|-------------|-------------------------|--------------------|-----|--------|
| | | INITIAL | END | |
| NGO-060-XXX | 60 | 30 | 53 | Green |
| NGO-100-XXX | 100 | 50 | 80 | Blue |
| NGO-140-XXX | 140 | 70 | 105 | Red |
| NGO-180-XXX | 180 | 90 | 135 | Yellow |

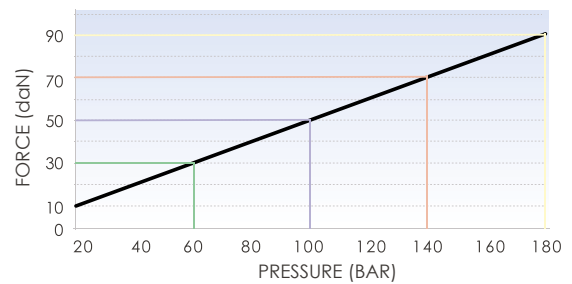
SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

| TYPE | STROKE | L | L MIN |
|------|--------|-------|-------|
| NGO | 7 | 56 | 49 |
| | 10 | 62 | 52 |
| | 15 | 72 | 57 |
| | 25 | 92 | 67 |
| | 38.1 | 118.2 | 80.1 |
| | 50 | 142 | 92 |
| | 63.5 | 172 | 108.5 |
| | 80 | 205 | 125 |
| | 100 | 245 | 145 |
| | 125 | 295 | 170 |

USE ONLY NITROGEN
 MAX. PRESSURE: 180 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1.6M/SEC



FORCE / PRESSURE RATIO



MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Drop-in Pocket

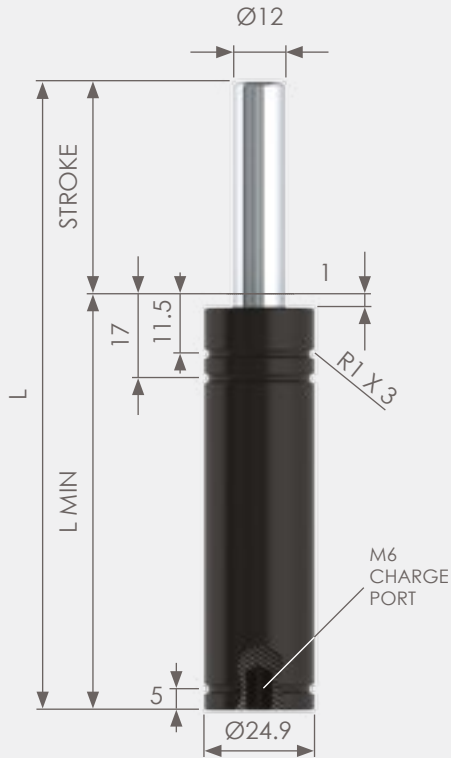


M6 Tapped Hole
Only for strokes up to 25mm



Front Flange
19 FF

Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: NGO x 7 + FF



M6 X 5MM DEEP



| MODEL | CHARGING PRESSURE (BAR) | FORCE (daN) @20° C | | COLOUR |
|-------------|-------------------------|--------------------|-----|--------|
| | | INITIAL | END | |
| NG1-050-XXX | 45 | 50 | 65 | Green |
| NG1-100-XXX | 90 | 100 | 131 | Blue |
| NG1-150-XXX | 135 | 150 | 196 | Red |
| NG1-200-XXX | 180 | 200 | 262 | Yellow |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

| TYPE | STROKE | L | L MIN |
|------|--------|-------|-------|
| NG1 | 10 | 62 | 52 |
| | 12.7 | 67.4 | 54.7 |
| | 15 | 72 | 57 |
| | 16 | 74 | 58 |
| | 25 | 92 | 67 |
| | 38.1 | 118.2 | 80.1 |
| | 50 | 142 | 92 |
| | 63.5 | 172 | 108.5 |
| | 80 | 205 | 125 |
| | 100 | 245 | 145 |
| | 125 | 295 | 170 |

USE ONLY NITROGEN

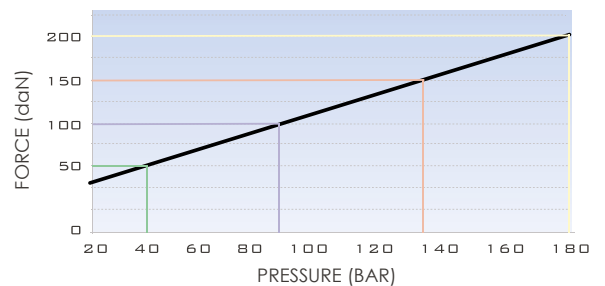
MAX. PRESSURE: 180 BAR

MIN. PRESSURE: 20 BAR

MAX. PISTON VELOCITY: 1.6M/SEC



FORCE / PRESSURE RATIO



MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Drop-in Pocket

BODY Ø +1.0
-0.5



Front Flange



M6 Tapped Hole
Only for strokes up to 25mm



End Support
25 ES

Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: NG1 x 10 + FF

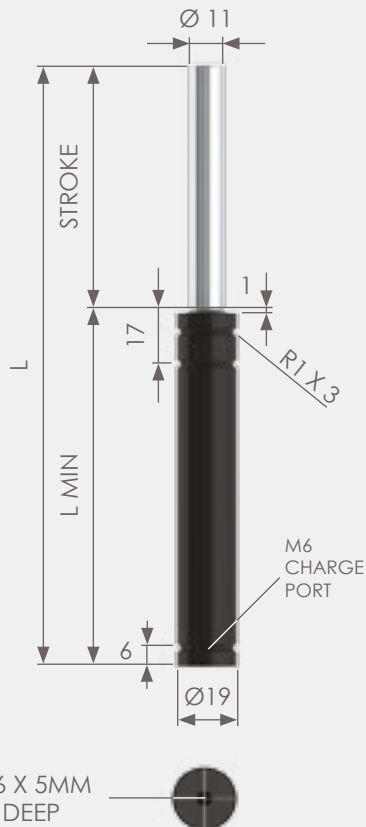


Designed & Manufactured in the UK

www.metrol.com

Distributed & Supported Worldwide





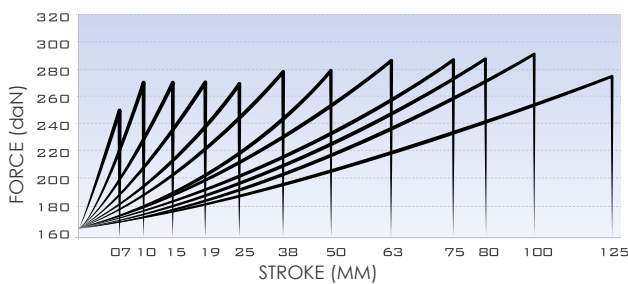
| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| EX0170-007 | 170 | 250 | 37 | 44 | 0.002 | 0.06 |
| EX0170-010 | | 270 | 40 | 50 | 0.002 | 0.06 |
| EX0170-015 | | 270 | 45 | 60 | 0.004 | 0.07 |
| EX0170-019 | | 270 | 49 | 68 | 0.005 | 0.07 |
| EX0170-025 | | 270 | 55 | 80 | 0.006 | 0.08 |
| EX0170-038 | | 280 | 68 | 106 | 0.009 | 0.09 |
| EX0170-050 | | 280 | 80 | 130 | 0.012 | 0.10 |
| EX0170-063 | | 285 | 93 | 156 | 0.015 | 0.12 |
| EX0170-075 | | 285 | 110 | 185 | 0.018 | 0.14 |
| EX0170-080 | | 285 | 115 | 195 | 0.019 | 0.14 |
| EX0170-100 | | 280 | 135 | 235 | 0.024 | 0.16 |
| EX0170-125 | | 275 | 160 | 285 | 0.030 | 0.19 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

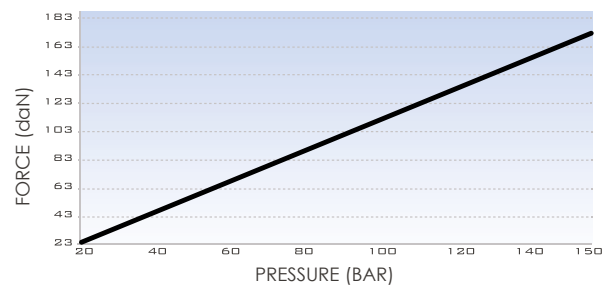
USE ONLY NITROGEN
MAX. PRESSURE: 150 BAR
MIN. PRESSURE: 20 BAR
MAX. PISTON VELOCITY: 1.6M/SEC



FORCE CURVE



FORCE / PRESSURE RATIO



MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Drop-in Pocket

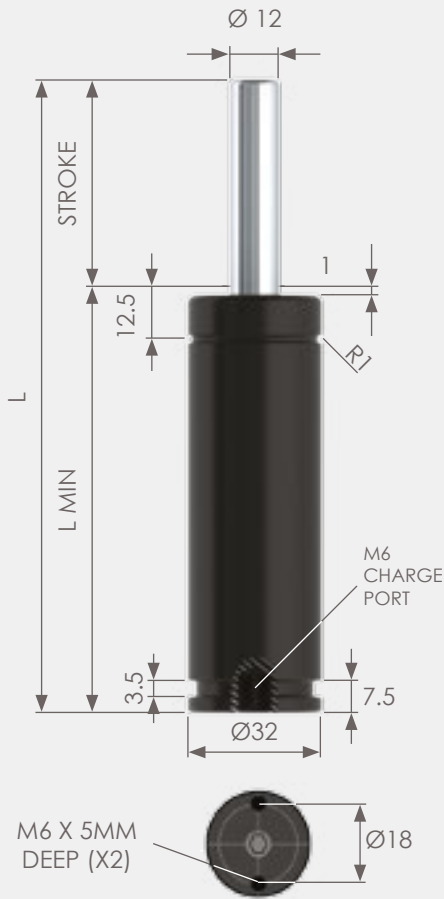


Front Flange
Ø19 FF



M6 Tapped Hole
Only for strokes up to 25mm

Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: EX0170 X 007 + FF

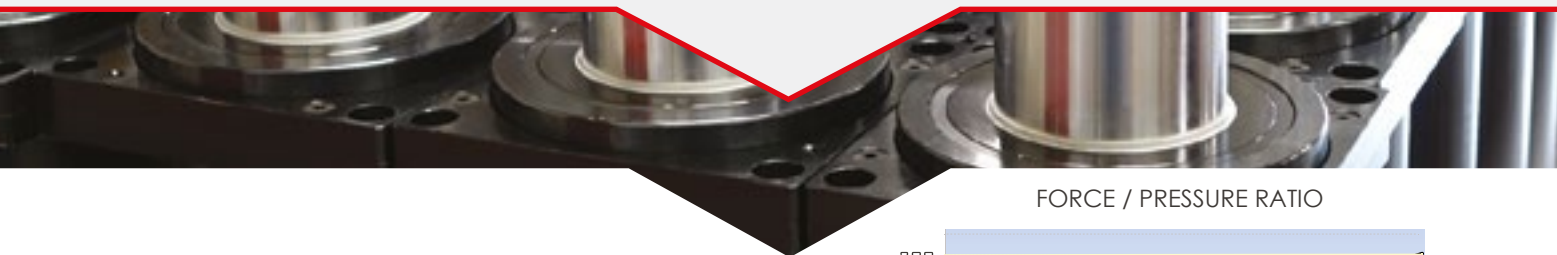


| MODEL | CHARGING PRESSURE (BAR) | FORCE (daN) @20° C | | COLOUR |
|-------------|-------------------------|--------------------|-----|--------|
| | | INITIAL | END | |
| NG2-050-XXX | 45 | 50 | 65 | Green |
| NG2-100-XXX | 90 | 100 | 131 | Blue |
| NG2-150-XXX | 135 | 150 | 196 | Red |
| NG2-200-XXX | 180 | 200 | 262 | Yellow |

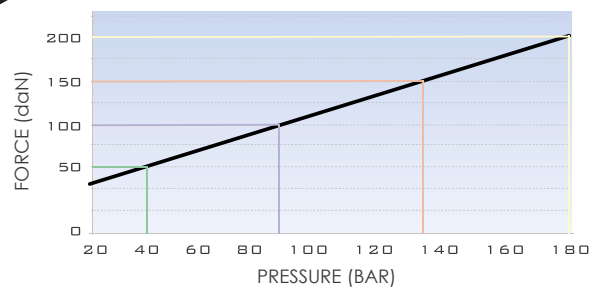
SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

| TYPE | STROKE | L | L MIN |
|------|--------|-------|-------|
| NG2 | 10 | 70 | 60 |
| | 12.7 | 75.4 | 62.7 |
| | 16 | 82 | 66 |
| | 25 | 100 | 75 |
| | 38.1 | 126.2 | 88.1 |
| | 50 | 150 | 100 |
| | 63.5 | 177 | 113.5 |
| | 80 | 210 | 130 |
| | 100 | 250 | 150 |
| | 125 | 300 | 175 |

USE ONLY NITROGEN
 MAX. PRESSURE: 180 BAR
 MIN. PRESSURE: 20 BAR
 MAX. PISTON VELOCITY: 1.6M/SEC



FORCE / PRESSURE RATIO



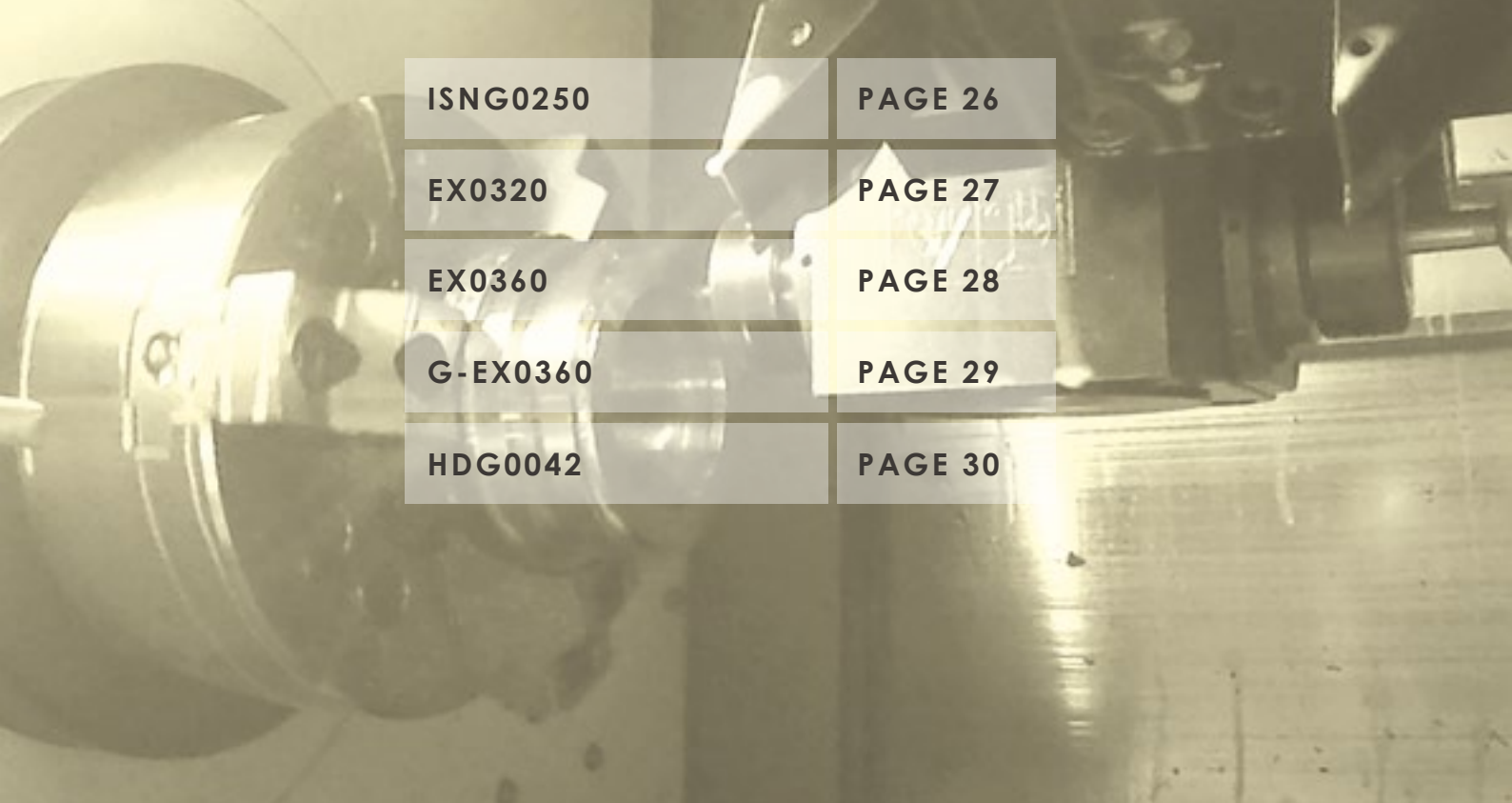
MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



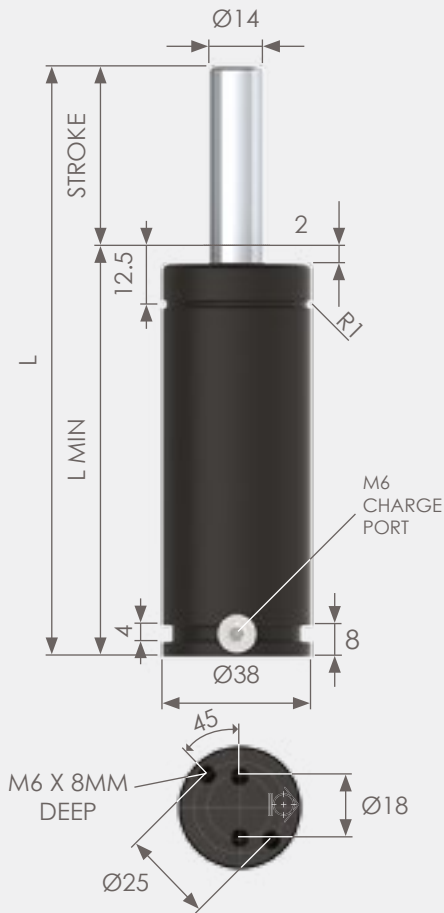
Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: NG2 x 10 + FF

250 - 420KG



| | |
|----------|---------|
| ISNG0250 | PAGE 26 |
| EX0320 | PAGE 27 |
| EX0360 | PAGE 28 |
| G-EX0360 | PAGE 29 |
| HDG0042 | PAGE 30 |





| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-------|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| ISNG0250-010 | 250 | 410 | 60 | 70 | 0.011 | 0.40 |
| ISNG0250-013 | | 410 | 62.7 | 75.4 | 0.013 | 0.42 |
| ISNG0250-016 | | 410 | 66 | 82 | 0.016 | 0.43 |
| ISNG0250-025 | | 410 | 75 | 100 | 0.023 | 0.48 |
| ISNG0250-038 | | 410 | 88.1 | 126.2 | 0.032 | 0.54 |
| ISNG0250-050 | | 410 | 100 | 150 | 0.041 | 0.60 |
| ISNG0250-063 | | 410 | 113.5 | 177 | 0.051 | 0.67 |
| ISNG0250-080 | | 410 | 130 | 210 | 0.062 | 0.75 |
| ISNG0250-100 | | 410 | 150 | 250 | 0.077 | 0.85 |
| ISNG0250-125 | | 410 | 175 | 300 | 0.096 | 0.97 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



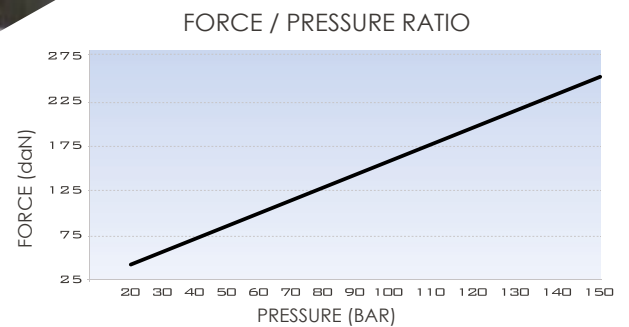
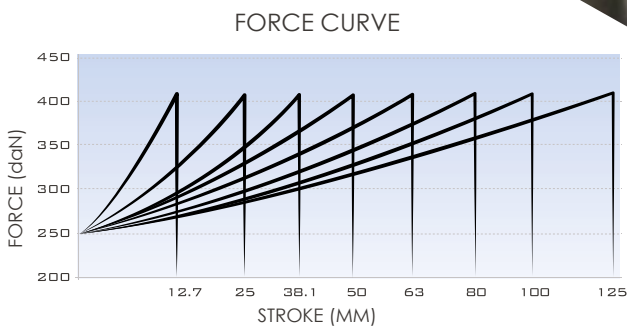
USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT ISNG0250

ISO 11901

PED 97/23/EC

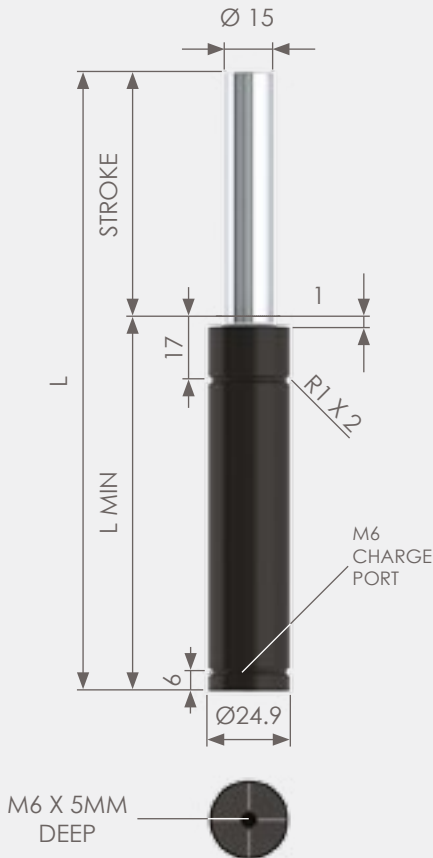


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: ISNG0250 x 010 + FF



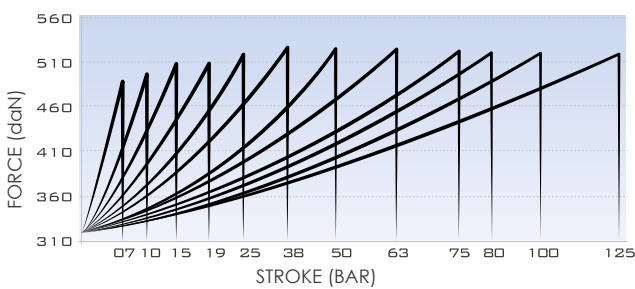
| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| EX0320-007 | 320 | 480 | 37 | 44 | 0.004 | 0.10 |
| EX0320-010 | | 490 | 40 | 50 | 0.005 | 0.11 |
| EX0320-015 | | 510 | 45 | 60 | 0.007 | 0.12 |
| EX0320-019 | | 510 | 49 | 68 | 0.009 | 0.13 |
| EX0320-025 | | 520 | 55 | 80 | 0.011 | 0.14 |
| EX0320-038 | | 530 | 68 | 106 | 0.017 | 0.16 |
| EX0320-050 | | 530 | 80 | 130 | 0.022 | 0.19 |
| EX0320-063 | | 530 | 93 | 156 | 0.028 | 0.21 |
| EX0320-075 | | 530 | 110 | 185 | 0.034 | 0.24 |
| EX0320-080 | | 530 | 115 | 195 | 0.036 | 0.25 |
| EX0320-100 | | 530 | 135 | 235 | 0.044 | 0.29 |
| EX0320-125 | | 530 | 160 | 285 | 0.055 | 0.33 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

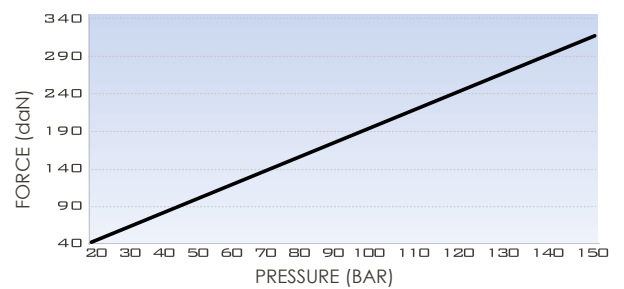
USE ONLY NITROGEN
 MAX. PRESSURE: 150 BAR
 MIN. PRESSURE: 20 BAR
 MAX. PISTON VELOCITY: 1.6M/SEC



FORCE CURVE



FORCE / PRESSURE RATIO



MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



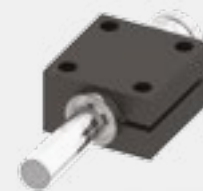
Drop-in Pocket



Front Flange

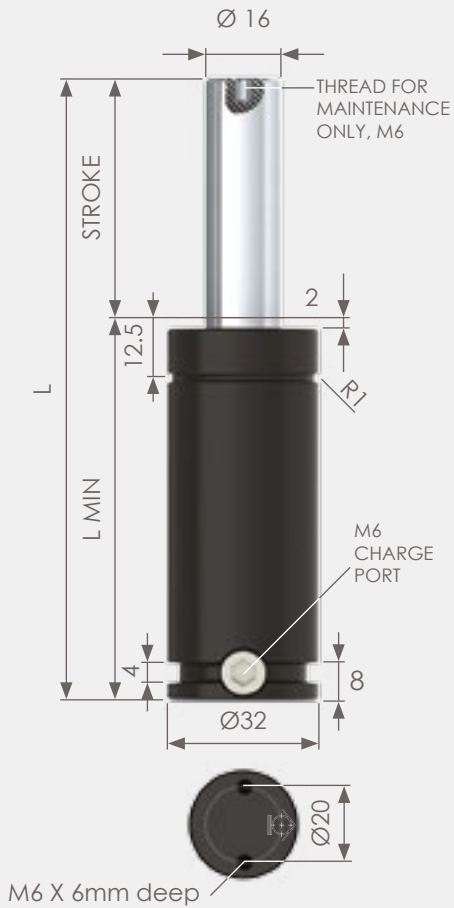


M6 Tapped Hole
Only for strokes up to 25mm



End Support
25 ES

Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: EX0320 x 007 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| EX0360-010 | 360 | 520 | 40 | 50 | 0.01 | 0.17 |
| EX0360-013 | | 510 | 43 | 56 | 0.01 | 0.18 |
| EX0360-016 | | 515 | 46 | 62 | 0.01 | 0.19 |
| EX0360-019 | | 520 | 49 | 68 | 0.01 | 0.20 |
| EX0360-025 | | 527 | 55 | 80 | 0.02 | 0.22 |
| EX0360-032 | | 532 | 62 | 94 | 0.02 | 0.24 |
| EX0360-038 | | 535 | 68 | 106 | 0.03 | 0.26 |
| EX0360-050 | | 540 | 80 | 130 | 0.03 | 0.29 |
| EX0360-063 | | 552 | 93 | 156 | 0.04 | 0.33 |
| EX0360-075 | | 553 | 105 | 180 | 0.05 | 0.37 |
| EX0360-080 | | 546 | 110 | 190 | 0.05 | 0.39 |
| EX0360-100 | | 548 | 130 | 230 | 0.06 | 0.45 |
| EX0360-125 | | 550 | 155 | 280 | 0.08 | 0.52 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



USE ONLY NITROGEN

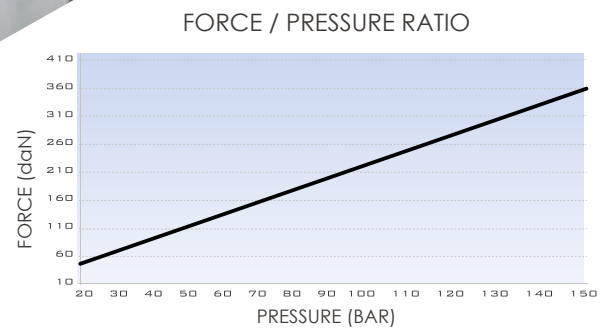
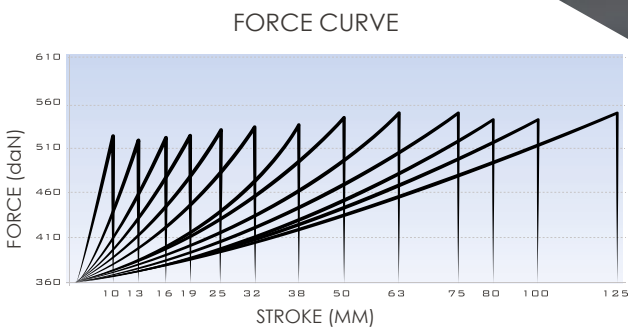
MAX. PRESSURE: 150 BAR

MIN. PRESSURE: 20 BAR

MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT EX0360

PED 97/23/EC

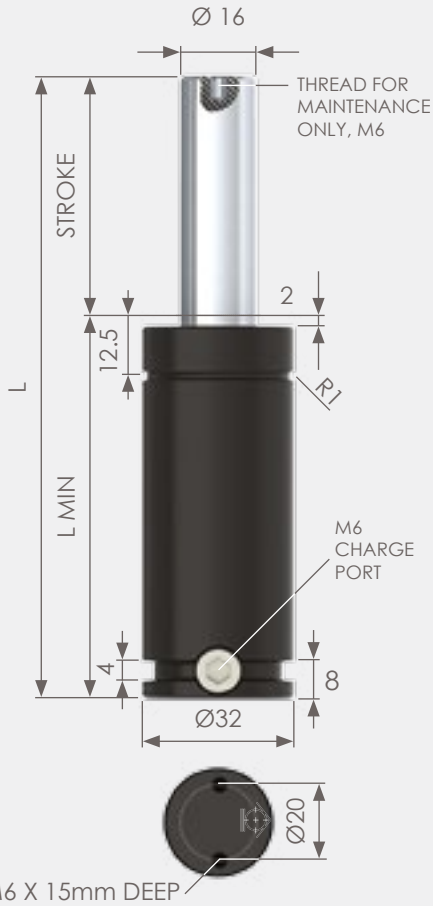


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: EX0360 x 010 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| G-EX0360-010 | 360 | 520 | 50 | 60 | 0.01 | 0.17 |
| G-EX0360-013 | | 510 | 53 | 66 | 0.01 | 0.18 |
| G-EX0360-016 | | 515 | 56 | 72 | 0.01 | 0.19 |
| G-EX0360-019 | | 520 | 59 | 78 | 0.01 | 0.20 |
| G-EX0360-025 | | 527 | 65 | 90 | 0.02 | 0.22 |
| G-EX0360-032 | | 532 | 72 | 104 | 0.02 | 0.24 |
| G-EX0360-038 | | 535 | 78 | 116 | 0.03 | 0.26 |
| G-EX0360-050 | | 540 | 90 | 140 | 0.03 | 0.29 |
| G-EX0360-063 | | 552 | 103 | 166 | 0.04 | 0.33 |
| G-EX0360-075 | | 553 | 115 | 190 | 0.05 | 0.37 |
| G-EX0360-080 | | 546 | 120 | 200 | 0.05 | 0.39 |
| G-EX0360-100 | | 548 | 140 | 240 | 0.06 | 0.45 |
| G-EX0360-125 | | 550 | 165 | 290 | 0.08 | 0.52 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

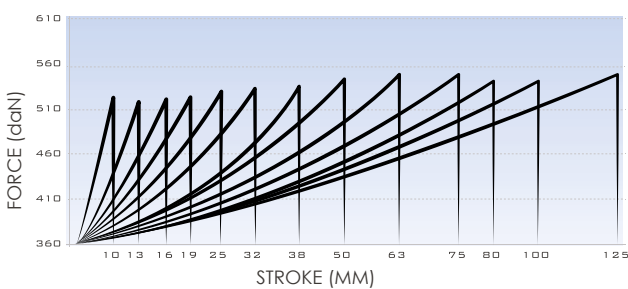
USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR → MIN. PRESSURE: 20 BAR → MAX. PISTON VELOCITY: 1.6M/SEC

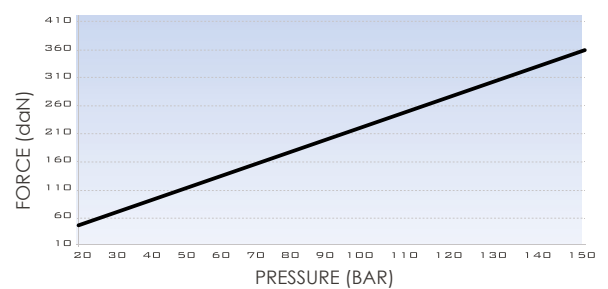
SERVICE KIT G-EX0360



FORCE CURVE



FORCE / PRESSURE RATIO

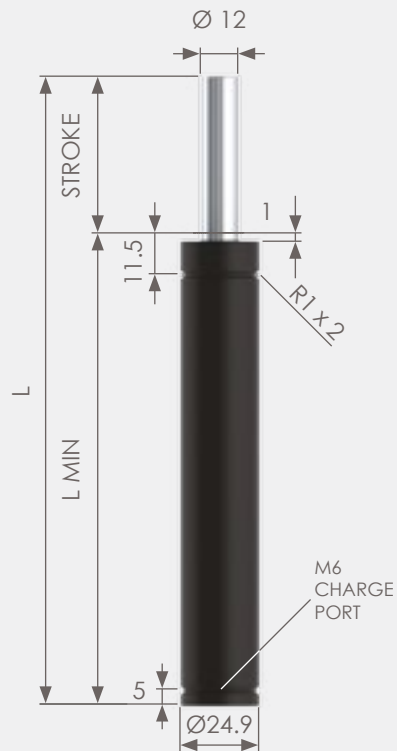


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: G-EX0360 x 010 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| HDG0042-06 | 420 | 700 | 50 | 56 | 0.003 | 0.13 |
| HDG0042-10 | | 690 | 60 | 70 | 0.005 | 0.15 |
| HDG0042-16 | | 690 | 75 | 91 | 0.008 | 0.18 |
| HDG0042-25 | | 690 | 95 | 120 | 0.011 | 0.22 |
| HDG0042-32 | | 760 | 108 | 140 | 0.021 | 0.24 |
| HDG0042-40 | | 760 | 125 | 165 | 0.026 | 0.27 |
| HDG0042-50 | | 760 | 145 | 195 | 0.032 | 0.31 |

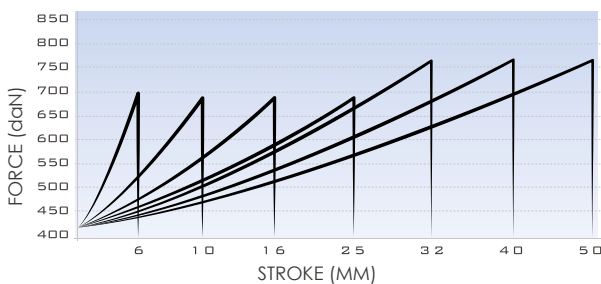
SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

USE ONLY NITROGEN
 MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 0.8M/SEC

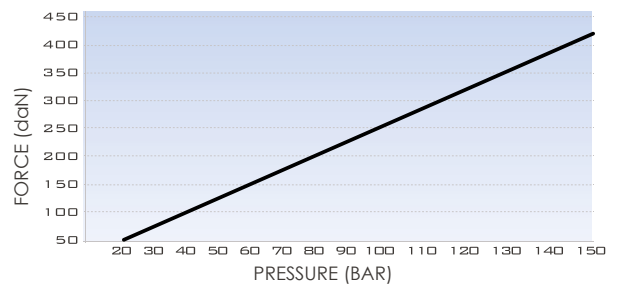
SERVICE KIT HDG0042



FORCE CURVE



FORCE / PRESSURE RATIO



MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Drop-in Pocket



Front Flange 25 FF



M6 Tapped Hole

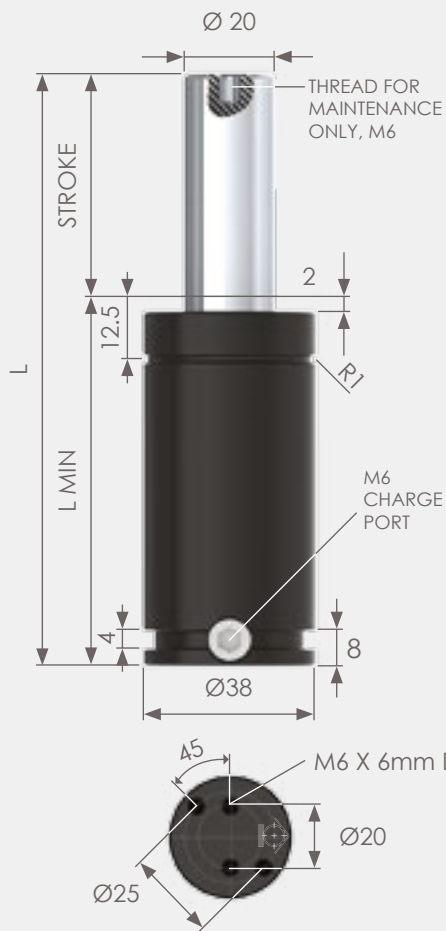
Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: HDG0042 x 06 + FF

500 - 700KG



| | |
|----------|---------|
| EX0500 | PAGE 32 |
| G-EX0500 | PAGE 33 |
| ISNG0500 | PAGE 34 |
| HDG007 | PAGE 35 |





| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| EX0500-010 | 500 | 764 | 40 | 50 | 0.01 | 0.25 |
| EX0500-013 | | 746 | 43 | 56 | 0.01 | 0.26 |
| EX0500-016 | | 754 | 46 | 62 | 0.02 | 0.27 |
| EX0500-019 | | 767 | 49 | 68 | 0.02 | 0.28 |
| EX0500-025 | | 779 | 55 | 80 | 0.03 | 0.31 |
| EX0500-032 | | 788 | 62 | 94 | 0.03 | 0.34 |
| EX0500-038 | | 795 | 68 | 106 | 0.04 | 0.36 |
| EX0500-050 | | 803 | 80 | 130 | 0.05 | 0.40 |
| EX0500-063 | | 825 | 93 | 156 | 0.06 | 0.45 |
| EX0500-075 | | 826 | 105 | 180 | 0.07 | 0.50 |
| EX0500-080 | | 814 | 110 | 190 | 0.08 | 0.52 |
| EX0500-100 | | 817 | 130 | 230 | 0.10 | 0.60 |
| EX0500-125 | | 821 | 155 | 280 | 0.12 | 0.70 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

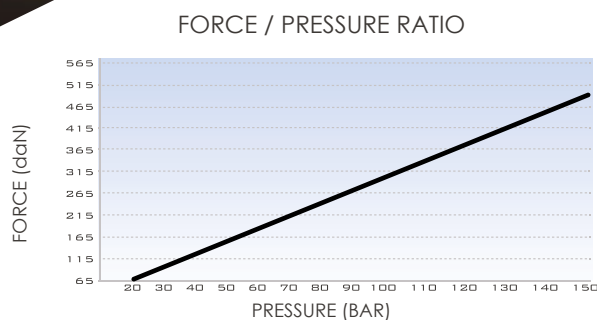
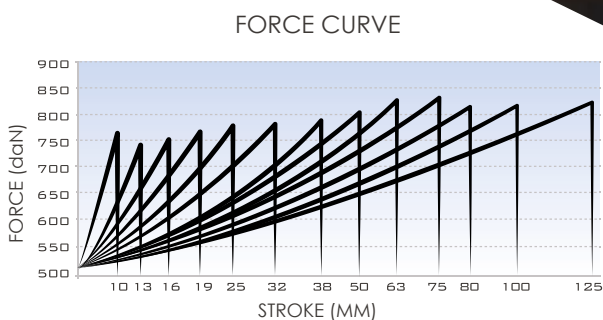


USE ONLY NITROGEN
 MAX. PRESSURE: 150 BAR
 MIN. PRESSURE: 20 BAR
 MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT EX0500

ISO

PED 97/23/EC

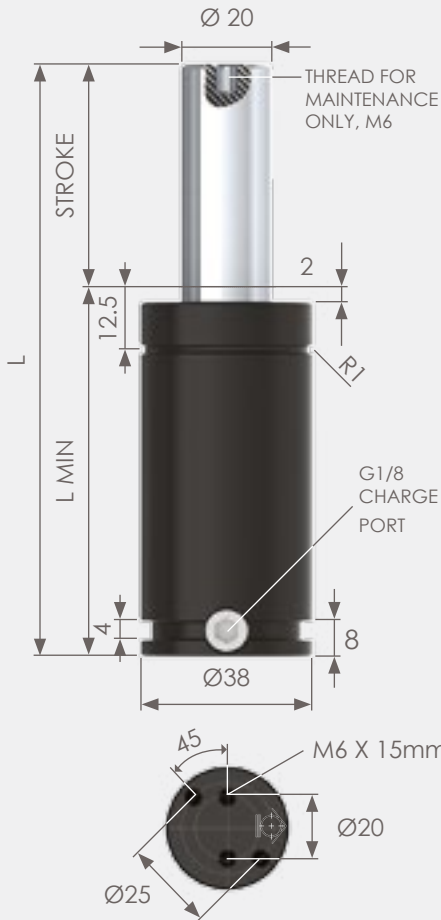


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: EX0500 X 010 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| G-EX0500-010 | 500 | 764 | 50 | 60 | 0.01 | 0.33 |
| G-EX0500-013 | | 746 | 53 | 66 | 0.01 | 0.34 |
| G-EX0500-016 | | 754 | 56 | 72 | 0.02 | 0.36 |
| G-EX0500-019 | | 767 | 59 | 78 | 0.02 | 0.37 |
| G-EX0500-025 | | 779 | 65 | 90 | 0.03 | 0.39 |
| G-EX0500-032 | | 788 | 72 | 104 | 0.03 | 0.42 |
| G-EX0500-038 | | 795 | 78 | 116 | 0.04 | 0.44 |
| G-EX0500-050 | | 803 | 90 | 140 | 0.05 | 0.49 |
| G-EX0500-063 | | 825 | 103 | 166 | 0.06 | 0.54 |
| G-EX0500-075 | | 826 | 115 | 190 | 0.07 | 0.58 |
| G-EX0500-080 | | 814 | 120 | 200 | 0.08 | 0.60 |
| G-EX0500-100 | | 817 | 140 | 240 | 0.10 | 0.68 |
| G-EX0500-125 | | 821 | 165 | 290 | 0.12 | 0.77 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



USE ONLY NITROGEN

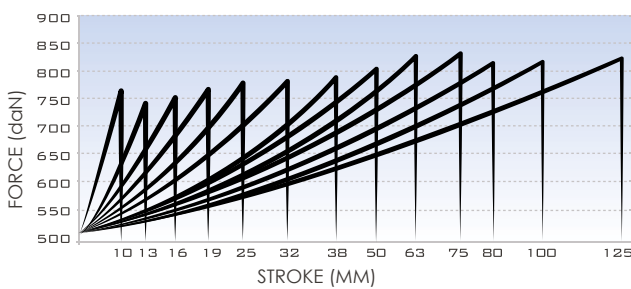
MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1M/SEC

SERVICE KIT G-EX0500

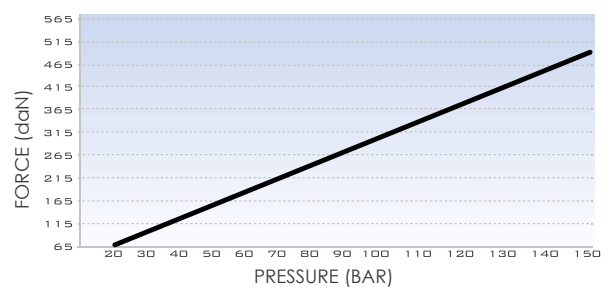
PED
97/23/EC



FORCE CURVE



FORCE / PRESSURE RATIO



MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: G-EX0500 x 010 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-------|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| ISNG0500-010 | 500 | 600 | 95 | 105 | 0.023 | 0.93 |
| ISNG0500-012 | | 612 | 97.7 | 110 | 0.025 | 0.95 |
| ISNG0500-025 | | 660 | 110 | 135 | 0.038 | 1.04 |
| ISNG0500-038 | | 670 | 123.1 | 161.2 | 0.051 | 1.13 |
| ISNG0500-050 | | 685 | 135 | 185 | 0.063 | 1.21 |
| ISNG0500-063 | | 710 | 148.5 | 212 | 0.077 | 1.31 |
| ISNG0500-080 | | 710 | 165 | 245 | 0.093 | 1.43 |
| ISNG0500-100 | | 710 | 185 | 285 | 0.114 | 1.57 |
| ISNG0500-125 | | 710 | 210 | 335 | 0.139 | 1.74 |
| ISNG0500-160 | | 710 | 245 | 405 | 0.175 | 1.99 |

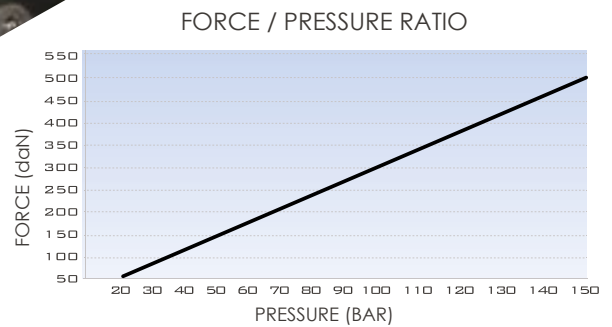
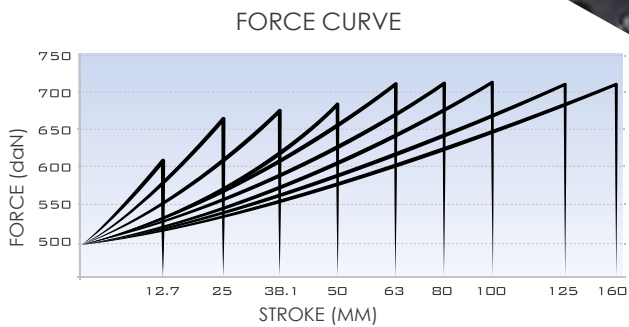
SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



USE ONLY NITROGEN
 MAX. PRESSURE: 150 BAR
 MIN. PRESSURE: 20 BAR
 MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT ISNG0500

ISO 11901
 PED 97/23/EC

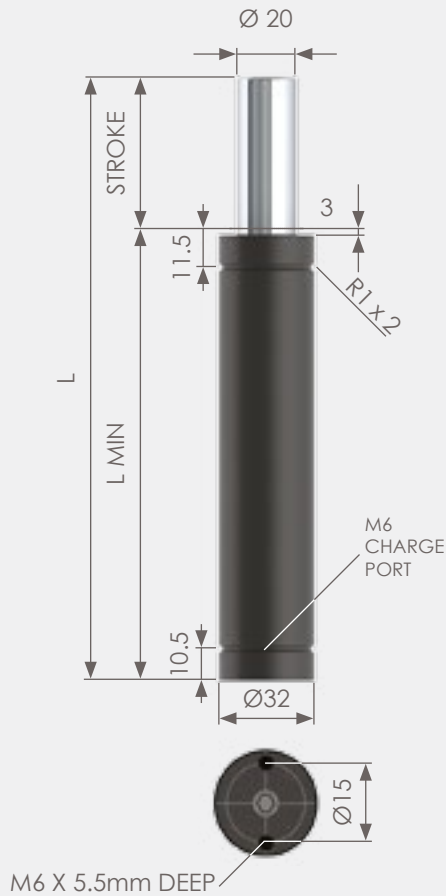


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: ISNG0500 x 010 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|-----------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| HDG007-06 | 740 | 980 | 57 | 63 | 0.012 | 0.20 |
| HDG007-10 | | 1000 | 65 | 75 | 0.017 | 0.24 |
| HDG007-16 | | 1100 | 77 | 93 | 0.024 | 0.28 |
| HDG007-25 | | 1200 | 95 | 120 | 0.034 | 0.33 |
| HDG007-32 | | 1200 | 108 | 140 | 0.042 | 0.37 |
| HDG007-40 | | 1200 | 125 | 165 | 0.052 | 0.42 |
| HDG007-50 | | 1200 | 145 | 195 | 0.063 | 0.48 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

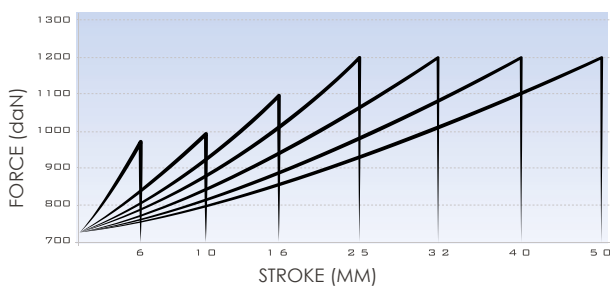
USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR → MIN. PRESSURE: 20 BAR → MAX. PISTON VELOCITY: 0.8M/SEC

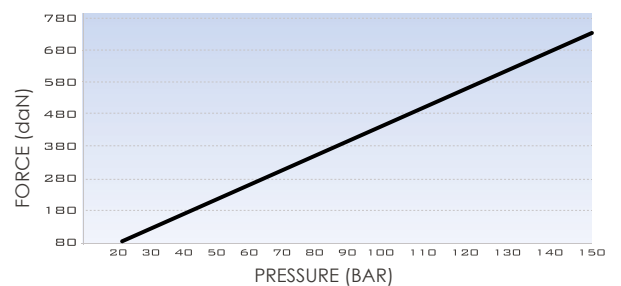
SERVICE KIT HDG007



FORCE CURVE



FORCE / PRESSURE RATIO



MOUNTING EXAMPLES

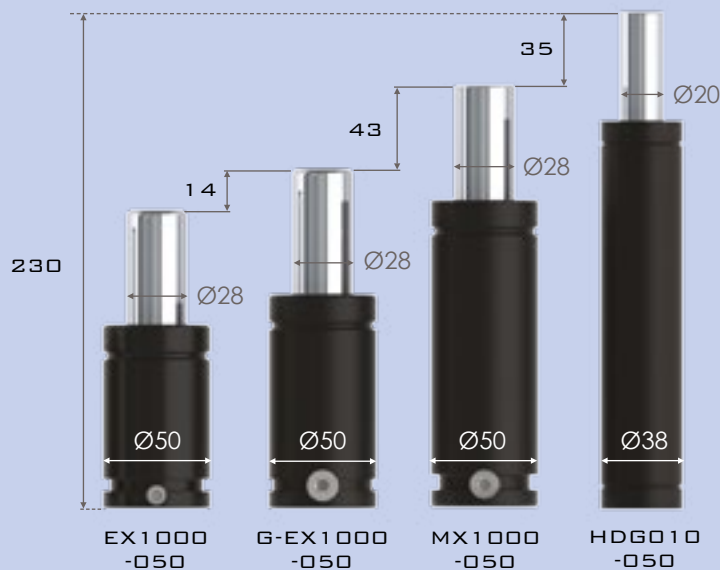
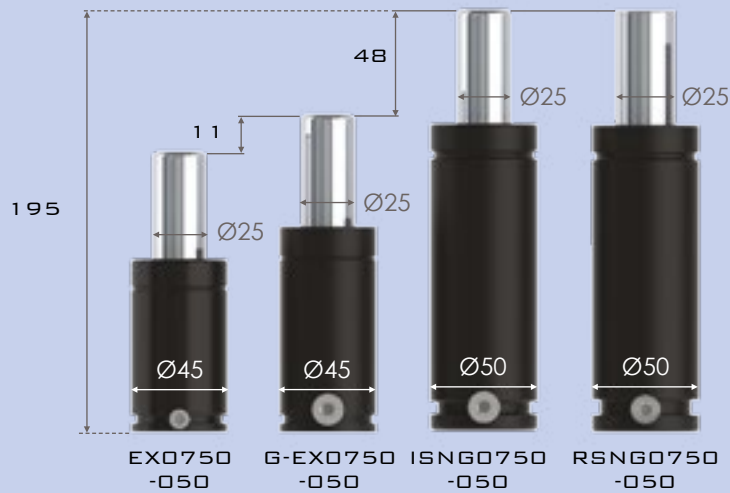
(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84

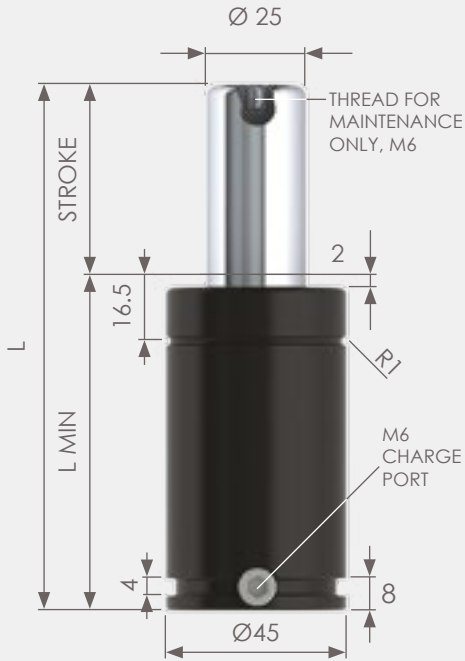


Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: HDG007 x 06 + FF

750 - 1000KG

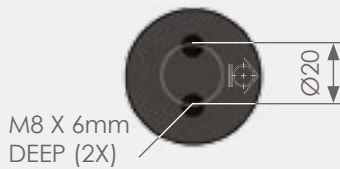
| | | | |
|----------|---------|----------|---------|
| EX0750 | PAGE 37 | EX1000 | PAGE 41 |
| G-EX0750 | PAGE 38 | G-EX1000 | PAGE 42 |
| ISNG0750 | PAGE 39 | MX1000 | PAGE 43 |
| RSNG0750 | PAGE 40 | HDG010 | PAGE 44 |





| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| EX0750-010 | 750 | 1105 | 42 | 52 | 0.02 | 0.37 |
| EX0750-013 | | 1085 | 45 | 58 | 0.02 | 0.39 |
| EX0750-016 | | 1100 | 48 | 64 | 0.03 | 0.41 |
| EX0750-019 | | 1120 | 51 | 70 | 0.03 | 0.41 |
| EX0750-025 | | 1145 | 57 | 82 | 0.04 | 0.45 |
| EX0750-032 | | 1160 | 64 | 96 | 0.05 | 0.50 |
| EX0750-038 | | 1170 | 70 | 108 | 0.05 | 0.53 |
| EX0750-050 | | 1180 | 82 | 132 | 0.07 | 0.61 |
| EX0750-063 | | 1220 | 95 | 158 | 0.09 | 0.69 |
| EX0750-075 | | 1225 | 107 | 182 | 0.10 | 0.77 |
| EX0750-080 | | 1210 | 112 | 192 | 0.11 | 0.80 |
| EX0750-100 | | 1215 | 132 | 232 | 0.13 | 0.93 |
| EX0750-125 | | 1220 | 157 | 282 | 0.17 | 1.09 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



USE ONLY NITROGEN
MAX. PRESSURE: 150 BAR
MIN. PRESSURE: 20 BAR
MAX. PISTON VELOCITY: 1.6M/SEC

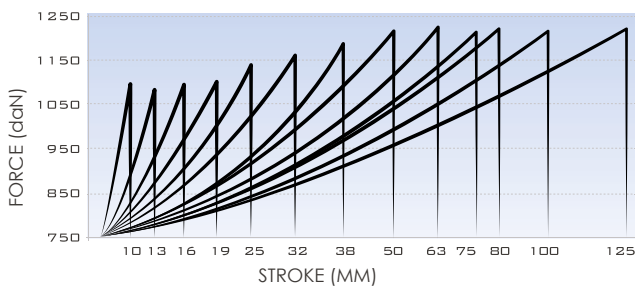
SERVICE KIT EX0750

ISO

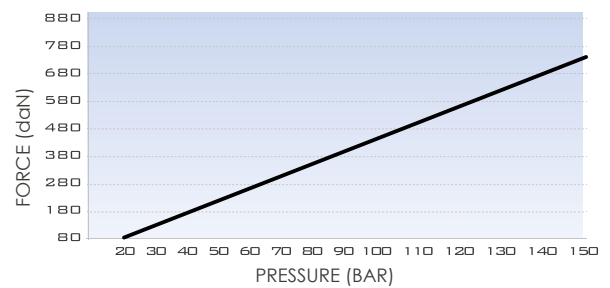
PED 97/23/EC



FORCE CURVE



FORCE / PRESSURE RATIO

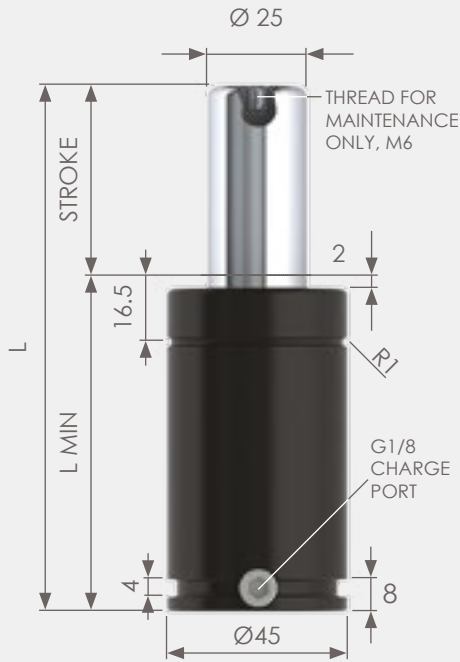


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84

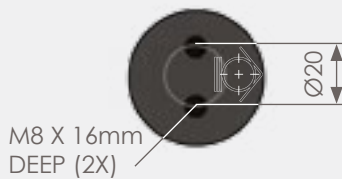


Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: EX0750 x 010 + FF



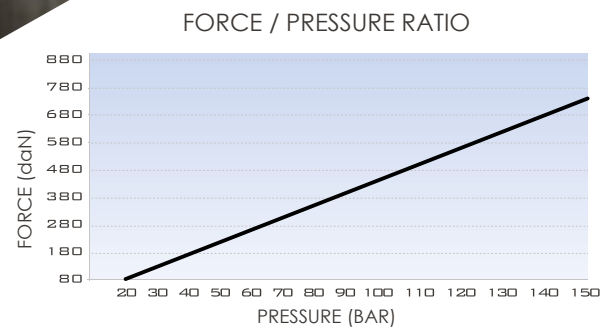
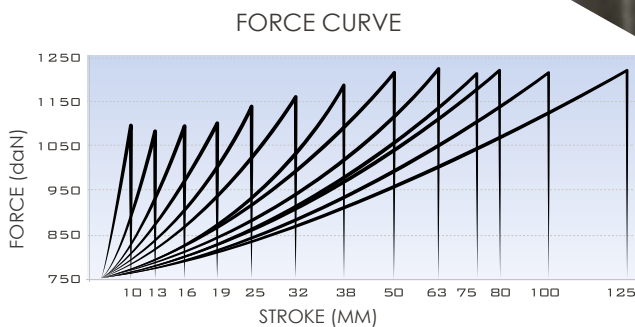
| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| G-EX0750-010 | 750 | 1105 | 57 | 67 | 0.02 | 0.37 |
| G-EX0750-013 | | 1085 | 60 | 73 | 0.02 | 0.39 |
| G-EX0750-016 | | 1100 | 63 | 79 | 0.03 | 0.41 |
| G-EX0750-019 | | 1120 | 66 | 85 | 0.03 | 0.41 |
| G-EX0750-025 | | 1145 | 72 | 97 | 0.04 | 0.45 |
| G-EX0750-032 | | 1160 | 79 | 111 | 0.05 | 0.50 |
| G-EX0750-038 | | 1170 | 85 | 123 | 0.05 | 0.53 |
| G-EX0750-050 | | 1180 | 97 | 147 | 0.07 | 0.61 |
| G-EX0750-063 | | 1220 | 110 | 173 | 0.09 | 0.69 |
| G-EX0750-075 | | 1225 | 122 | 197 | 0.10 | 0.77 |
| G-EX0750-080 | | 1210 | 127 | 207 | 0.11 | 0.80 |
| G-EX0750-100 | | 1215 | 147 | 247 | 0.13 | 0.93 |
| G-EX0750-125 | | 1220 | 172 | 297 | 0.17 | 1.09 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



USE ONLY NITROGEN
 MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT G-EX0750

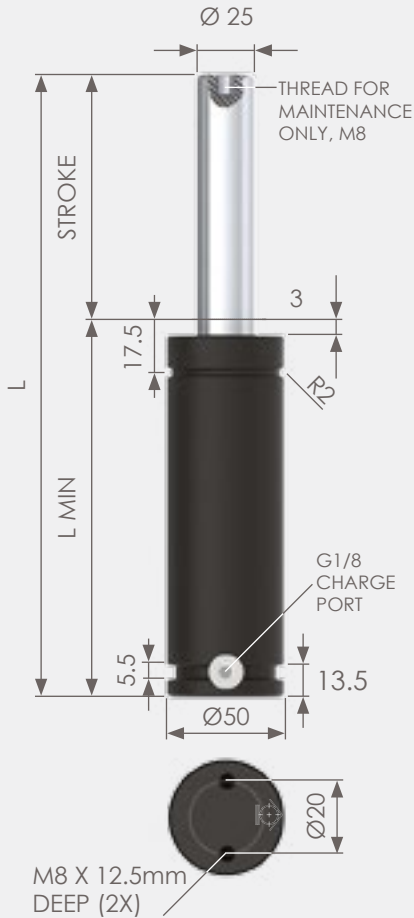


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: G-EX0750 x 010 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-------|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| ISNG0750-012 | 750 | 1140 | 107.7 | 120.4 | 0.03 | 1.33 |
| ISNG0750-025 | | 1160 | 120 | 145 | 0.04 | 1.44 |
| ISNG0750-038 | | 1170 | 133.1 | 171.2 | 0.06 | 1.57 |
| ISNG0750-050 | | 1185 | 145 | 195 | 0.07 | 1.68 |
| ISNG0750-063 | | 1190 | 158.5 | 222 | 0.09 | 1.78 |
| ISNG0750-080 | | 1200 | 175 | 255 | 0.11 | 1.94 |
| ISNG0750-100 | | 1200 | 195 | 295 | 0.14 | 2.13 |
| ISNG0750-125 | | 1200 | 220 | 345 | 0.17 | 2.37 |
| ISNG0750-160 | | 1200 | 255 | 415 | 0.21 | 2.70 |
| ISNG0750-200 | | 1210 | 295 | 495 | 0.26 | 3.10 |
| ISNG0750-250 | | 1210 | 345 | 595 | 0.33 | 3.60 |
| ISNG0750-300 | | 1210 | 395 | 695 | 0.39 | 4.10 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



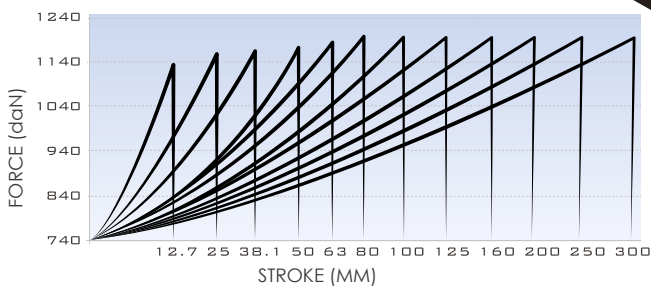
USE ONLY NITROGEN
 MAX. PRESSURE: 150 BAR
 MIN. PRESSURE: 20 BAR
 MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT ISNG0750

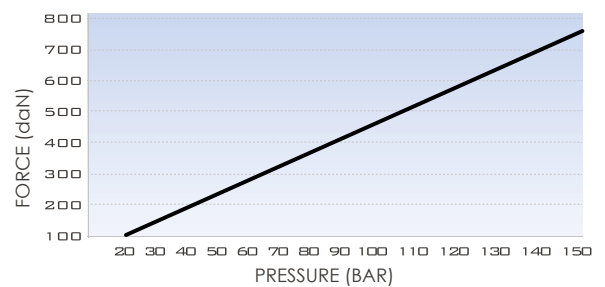
ISO 11901
 PED 97/23/EC



FORCE CURVE



FORCE / PRESSURE RATIO

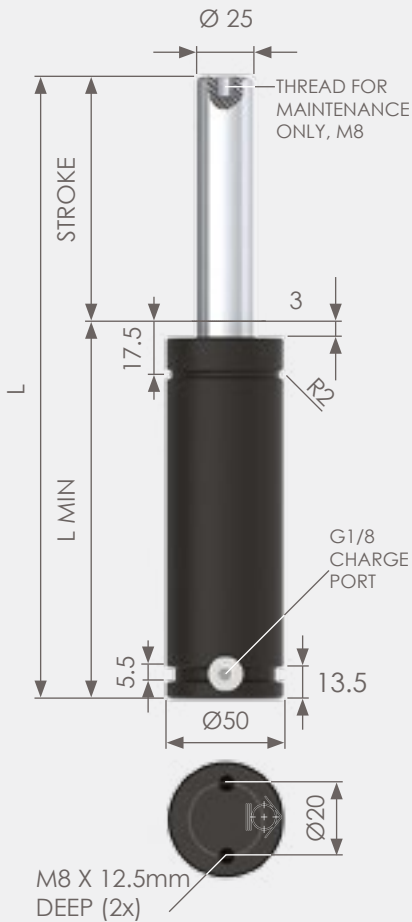


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: ISNG0750 x 12.7 + FF



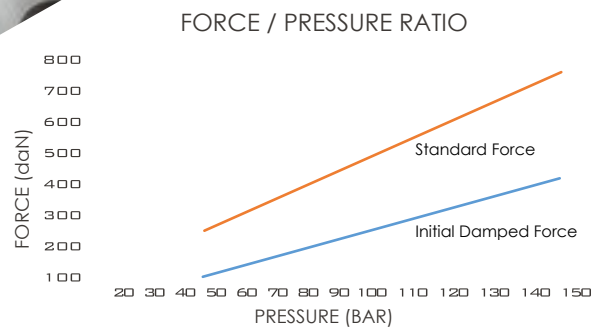
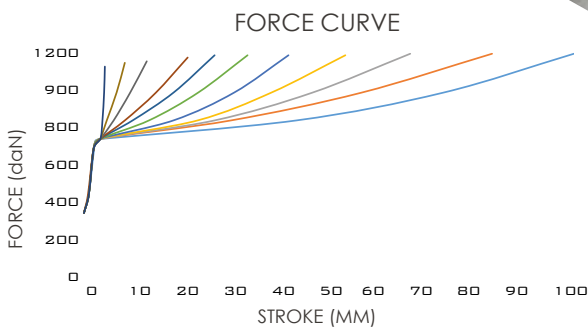
| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-------|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| RSNG0750-025 | | 1160 | 120 | 145 | 0.04 | 1.44 |
| RSNG0750-038 | | 1170 | 133.1 | 171.2 | 0.06 | 1.57 |
| RSNG0750-050 | | 1185 | 145 | 195 | 0.07 | 1.68 |
| RSNG0750-063 | | 1190 | 158.5 | 222 | 0.09 | 1.78 |
| RSNG0750-080 | | 1200 | 175 | 255 | 0.11 | 1.94 |
| RSNG0750-100 | | 1200 | 195 | 295 | 0.14 | 2.13 |
| RSNG0750-125 | | 1200 | 220 | 345 | 0.17 | 2.37 |
| RSNG0750-160 | | 1200 | 255 | 415 | 0.21 | 2.70 |
| RSNG0750-200 | | 1210 | 295 | 495 | 0.26 | 3.10 |
| RSNG0750-250 | | 1210 | 345 | 595 | 0.33 | 3.60 |
| RSNG0750-300 | | 1210 | 395 | 695 | 0.39 | 4.10 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT
RSNG0750



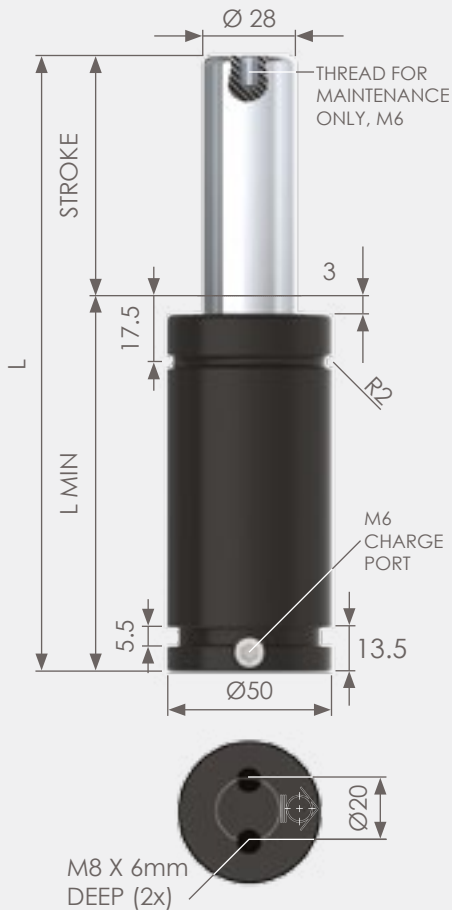
MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84

Must be mounted rod side up.



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: RSNG0750 x 12.7 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| EX1000-013 | 1000 | 1564 | 51 | 64 | 0.03 | 0.50 |
| EX1000-016 | | 1580 | 54 | 70 | 0.04 | 0.52 |
| EX1000-019 | | 1610 | 57 | 76 | 0.04 | 0.54 |
| EX1000-025 | | 1630 | 63 | 88 | 0.05 | 0.59 |
| EX1000-032 | | 1650 | 70 | 102 | 0.06 | 0.64 |
| EX1000-038 | | 1660 | 76 | 114 | 0.07 | 0.70 |
| EX1000-050 | | 1680 | 88 | 138 | 0.09 | 0.79 |
| EX1000-063 | | 1730 | 101 | 164 | 0.11 | 0.89 |
| EX1000-075 | | 1730 | 113 | 188 | 0.13 | 0.99 |
| EX1000-080 | | 1700 | 118 | 198 | 0.14 | 1.03 |
| EX1000-100 | | 1710 | 138 | 238 | 0.17 | 1.19 |
| EX1000-125 | | 1715 | 163 | 288 | 0.21 | 1.39 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



USE ONLY NITROGEN
 MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1.6M/SEC

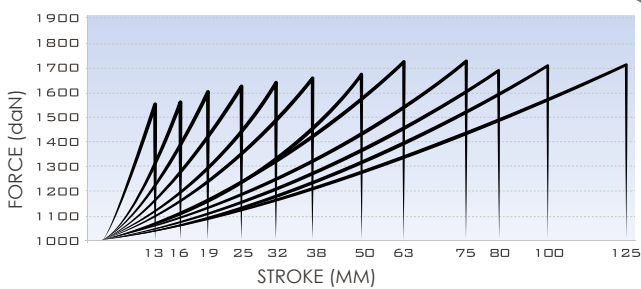
SERVICE KIT EX1000

ISO

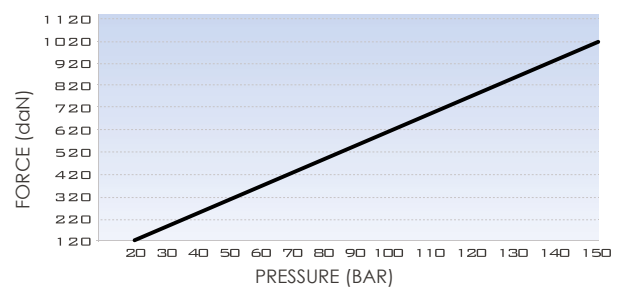
PED 97/23/EC



FORCE CURVE



FORCE / PRESSURE RATIO

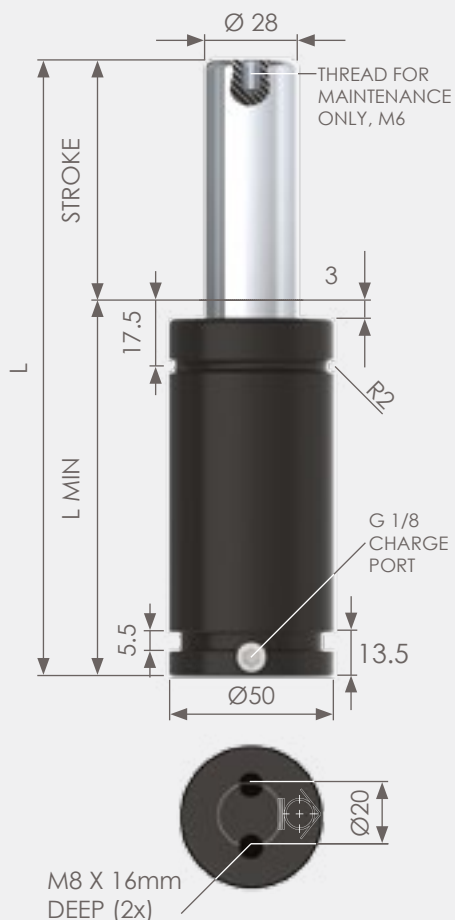


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: EX1000 x 013 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| G-EX1000-013 | 1000 | 1564 | 65 | 78 | 0.03 | 0.50 |
| G-EX1000-016 | | 1580 | 68 | 84 | 0.04 | 0.52 |
| G-EX1000-019 | | 1610 | 71 | 90 | 0.04 | 0.54 |
| G-EX1000-025 | | 1630 | 77 | 102 | 0.05 | 0.59 |
| G-EX1000-032 | | 1650 | 84 | 116 | 0.06 | 0.64 |
| G-EX1000-038 | | 1660 | 90 | 128 | 0.07 | 0.70 |
| G-EX1000-050 | | 1680 | 102 | 152 | 0.09 | 0.79 |
| G-EX1000-063 | | 1730 | 115 | 178 | 0.11 | 0.89 |
| G-EX1000-075 | | 1730 | 127 | 202 | 0.13 | 0.99 |
| G-EX1000-080 | | 1700 | 132 | 212 | 0.14 | 1.03 |
| G-EX1000-100 | | 1710 | 152 | 252 | 0.17 | 1.19 |
| G-EX1000-125 | | 1715 | 177 | 302 | 0.21 | 1.39 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR

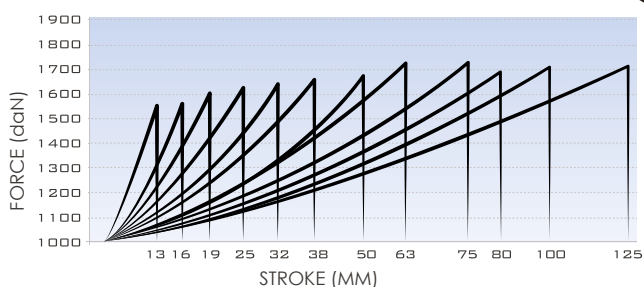
MIN. PRESSURE: 20 BAR

MAX. PISTON VELOCITY: 1.6M/SEC

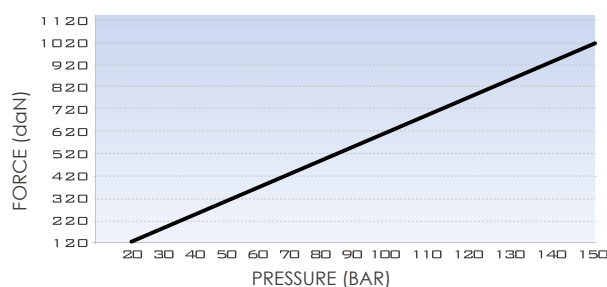
SERVICE KIT G-EX1000



FORCE CURVE



FORCE / PRESSURE RATIO

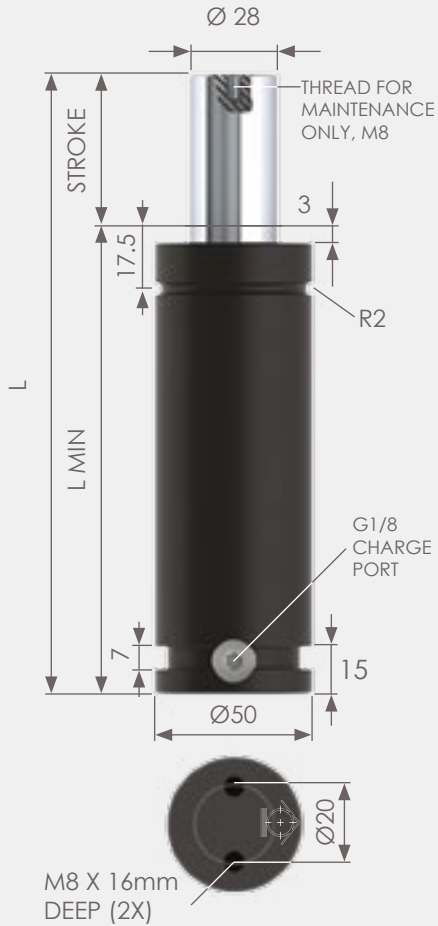


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: G-EX1000 x 013 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| MX1000-013 | 920 | 1120 | 108 | 121 | 0.06 | 1.17 |
| MX1000-025 | | 1210 | 120 | 145 | 0.07 | 1.27 |
| MX1000-038 | | 1280 | 133 | 171 | 0.09 | 1.32 |
| MX1000-050 | | 1320 | 145 | 195 | 0.11 | 1.37 |
| MX1000-063 | | 1350 | 158 | 221 | 0.13 | 1.58 |
| MX1000-075 | | 1370 | 170 | 245 | 0.15 | 1.71 |
| MX1000-080 | | 1380 | 175 | 255 | 0.16 | 1.73 |
| MX1000-100 | | 1410 | 195 | 295 | 0.19 | 1.90 |
| MX1000-125 | | 1430 | 220 | 345 | 0.23 | 2.11 |
| MX1000-150 | | 1450 | 245 | 395 | 0.27 | 2.32 |
| MX1000-160 | | 1450 | 255 | 415 | 0.28 | 2.40 |
| MX1000-175 | | 1460 | 270 | 445 | 0.30 | 2.53 |
| MX1000-200 | | 1470 | 295 | 495 | 0.34 | 2.74 |
| MX1000-250 | | 1480 | 345 | 595 | 0.42 | 2.96 |
| MX1000-300 | | 1490 | 395 | 695 | 0.49 | 3.58 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

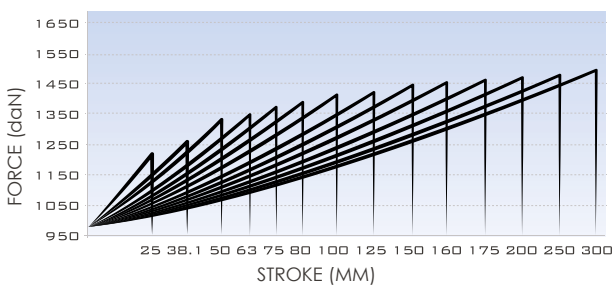
USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1.6M/SEC

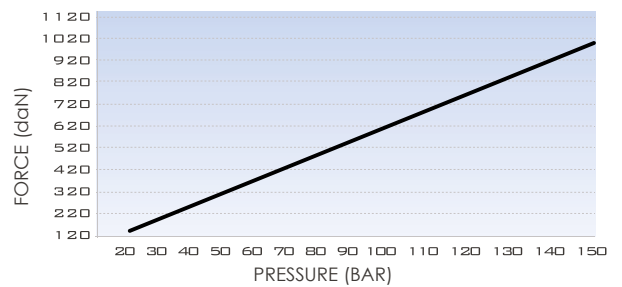
SERVICE KIT
MX1000

ISO PED
97/23/EC

FORCE CURVE



FORCE / PRESSURE RATIO

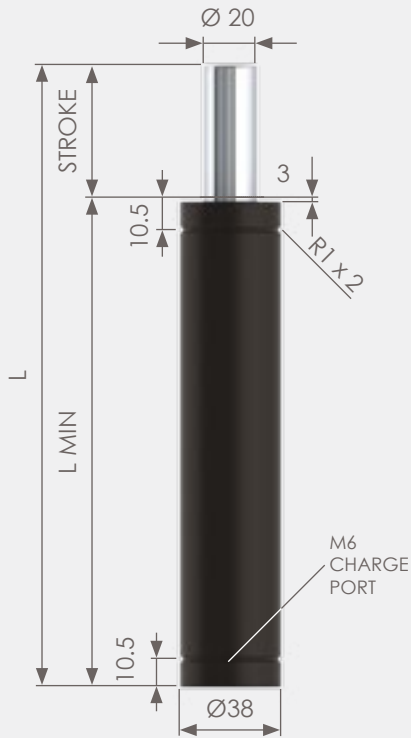


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84

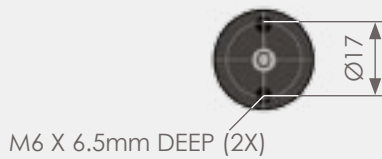


Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: MX1000 x 013 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|-----------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| HDG010-06 | 1060 | 1600 | 55 | 61 | 0.014 | 0.3 |
| HDG010-10 | | 1600 | 68 | 78 | 0.024 | 0.4 |
| HDG010-16 | | 1600 | 84 | 100 | 0.036 | 0.5 |
| HDG010-25 | | 1600 | 110 | 135 | 0.056 | 0.6 |
| HDG010-32 | | 1600 | 135 | 167 | 0.074 | 0.7 |
| HDG010-40 | | 1600 | 155 | 195 | 0.092 | 0.8 |
| HDG010-50 | | 1600 | 180 | 230 | 0.110 | 0.9 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

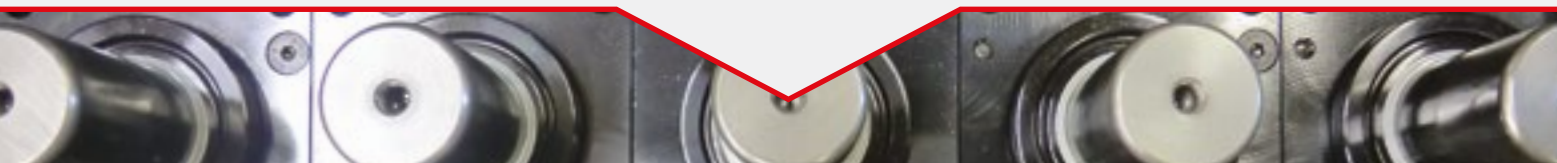


USE ONLY NITROGEN
 MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 0.8M/SEC

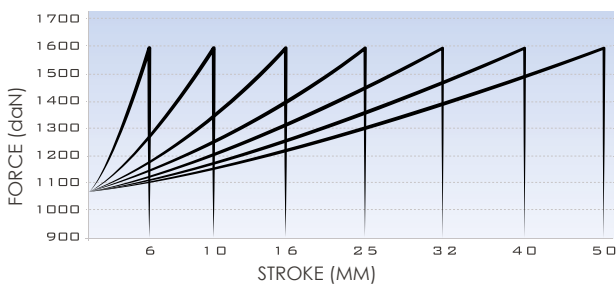
SERVICE KIT HDG010



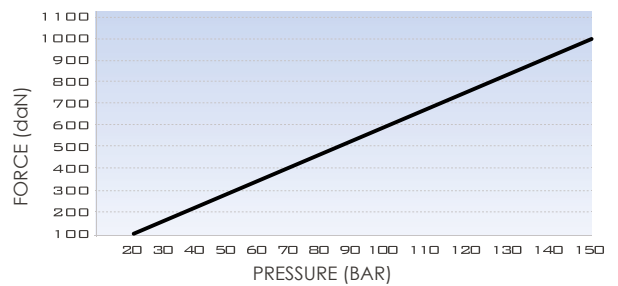
PED
97/23/EC



FORCE CURVE



FORCE / PRESSURE RATIO



MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84

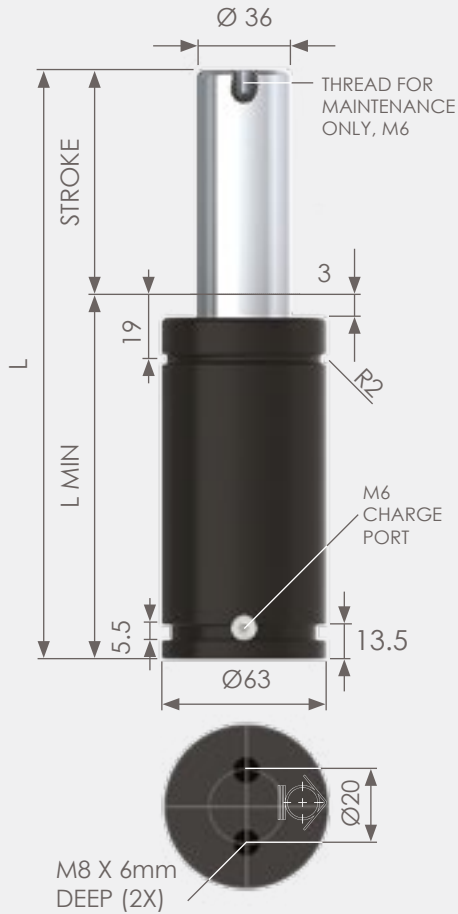


Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: HDG010 x 06 + FF

1 5 0 0 - 1 8 0 0 K G

| | |
|----------|---------|
| EX1500 | PAGE 46 |
| G-EX1500 | PAGE 47 |
| ISNG1500 | PAGE 48 |
| RSNG1500 | PAGE 49 |
| DSNG1500 | PAGE 50 |
| HDG018 | PAGE 51 |





| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| EX1500-013 | 1500 | 2300 | 57 | 70 | 0.05 | 0.89 |
| EX1500-016 | | 2330 | 60 | 76 | 0.06 | 0.93 |
| EX1500-019 | | 2380 | 63 | 82 | 0.07 | 0.96 |
| EX1500-025 | | 2430 | 69 | 94 | 0.08 | 1.03 |
| EX1500-032 | | 2460 | 76 | 108 | 0.11 | 1.08 |
| EX1500-038 | | 2480 | 82 | 120 | 0.12 | 1.15 |
| EX1500-050 | | 2510 | 94 | 144 | 0.15 | 1.28 |
| EX1500-063 | | 2580 | 107 | 170 | 0.19 | 1.43 |
| EX1500-075 | | 2590 | 119 | 194 | 0.22 | 1.57 |
| EX1500-080 | | 2550 | 124 | 204 | 0.24 | 1.63 |
| EX1500-100 | | 2560 | 144 | 244 | 0.29 | 1.86 |
| EX1500-125 | | 2580 | 169 | 294 | 0.36 | 2.15 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR

MIN. PRESSURE: 20 BAR

MAX. PISTON VELOCITY: 1.6M/SEC

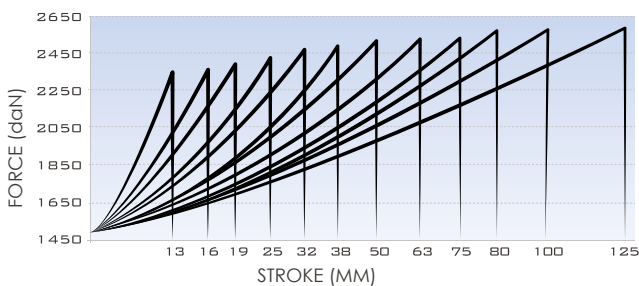
SERVICE KIT EX1500

ISO 97/23/EC

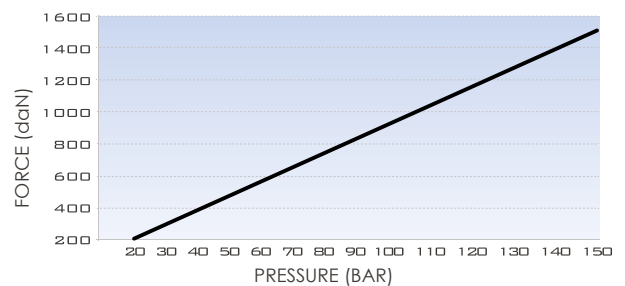
PED



FORCE CURVE



FORCE / PRESSURE RATIO

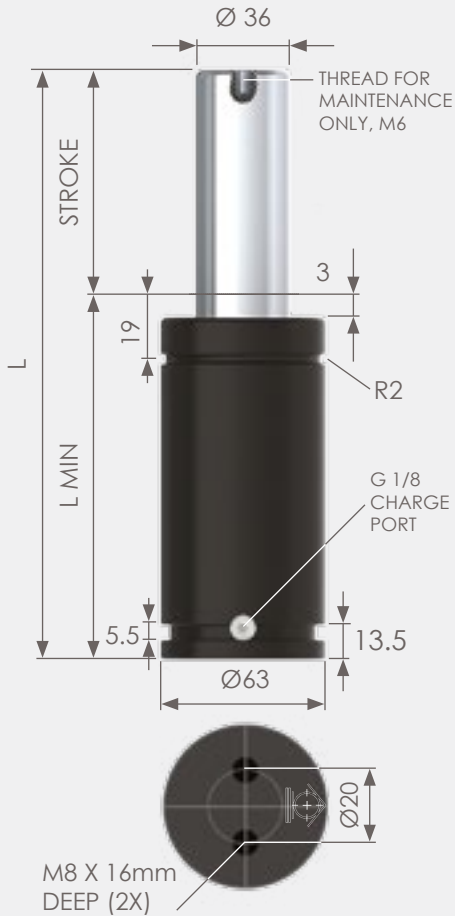


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: EX1500 x 013 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| G-EX1500-013 | 1500 | 2300 | 65 | 78 | 0.05 | 0.89 |
| G-EX1500-016 | | 2330 | 68 | 84 | 0.06 | 0.93 |
| G-EX1500-019 | | 2380 | 71 | 90 | 0.07 | 0.96 |
| G-EX1500-025 | | 2430 | 77 | 102 | 0.08 | 1.03 |
| G-EX1500-032 | | 2460 | 84 | 116 | 0.11 | 1.08 |
| G-EX1500-038 | | 2480 | 90 | 128 | 0.12 | 1.15 |
| G-EX1500-050 | | 2510 | 102 | 152 | 0.15 | 1.28 |
| G-EX1500-063 | | 2580 | 115 | 178 | 0.19 | 1.43 |
| G-EX1500-075 | | 2590 | 127 | 202 | 0.22 | 1.57 |
| G-EX1500-080 | | 2550 | 132 | 212 | 0.24 | 1.63 |
| G-EX1500-100 | | 2560 | 152 | 252 | 0.29 | 1.86 |
| G-EX1500-125 | | 2580 | 177 | 302 | 0.36 | 2.15 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR

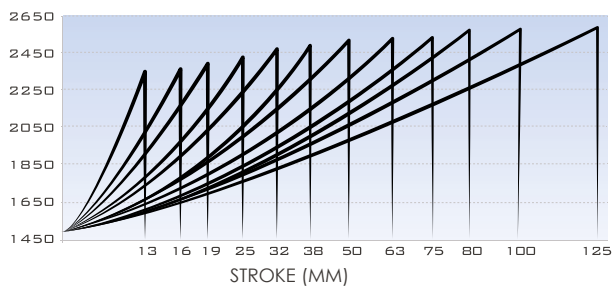
MIN. PRESSURE: 20 BAR

MAX. PISTON VELOCITY: 1.6M/SEC

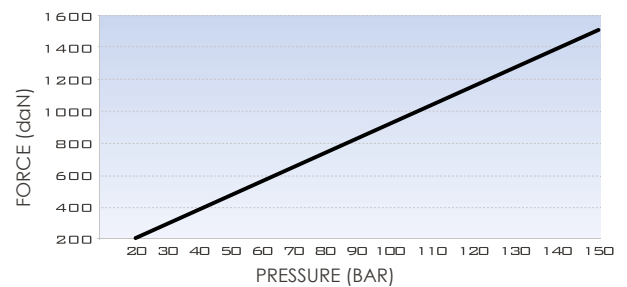
SERVICE KIT G-EX1500



FORCE CURVE



FORCE / PRESSURE RATIO

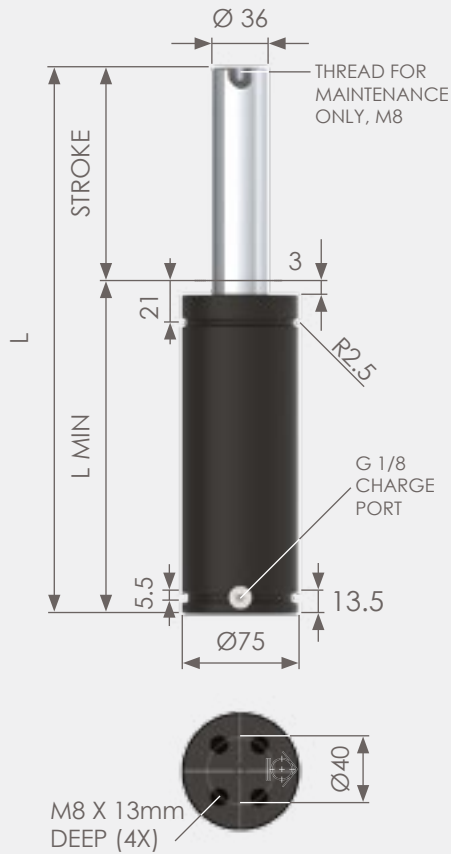


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: G-EX1500 x 013 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-------|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| ISNG1500-025 | 1500 | 2040 | 135 | 160 | 0.10 | 3.65 |
| ISNG1500-038 | | 2060 | 148.1 | 186.2 | 0.15 | 3.89 |
| ISNG1500-050 | | 2090 | 160 | 210 | 0.18 | 4.11 |
| ISNG1500-063 | | 2130 | 173.5 | 237 | 0.22 | 4.35 |
| ISNG1500-080 | | 2115 | 190 | 270 | 0.28 | 4.66 |
| ISNG1500-100 | | 2140 | 210 | 310 | 0.34 | 5.02 |
| ISNG1500-125 | | 2160 | 235 | 360 | 0.42 | 5.48 |
| ISNG1500-160 | | 2165 | 270 | 430 | 0.53 | 6.12 |
| ISNG1500-200 | | 2160 | 310 | 510 | 0.68 | 6.90 |
| ISNG1500-250 | | 2180 | 360 | 610 | 0.81 | 7.80 |
| ISNG1500-300 | | 2200 | 410 | 710 | 0.96 | 8.90 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR

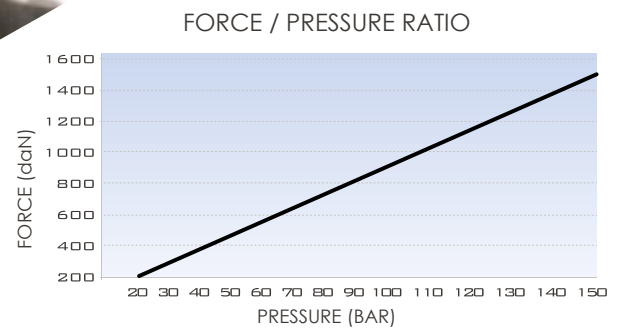
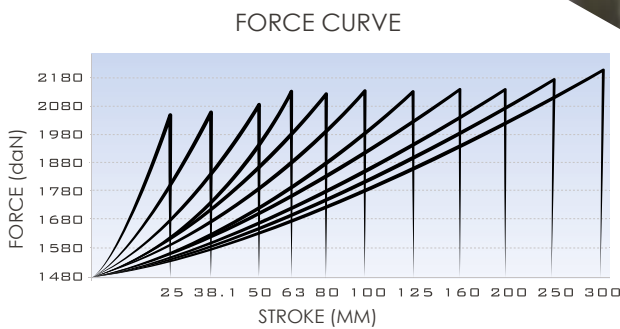
MIN. PRESSURE: 20 BAR

MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT ISNG1500

ISO 11901

PED 97/23/EC

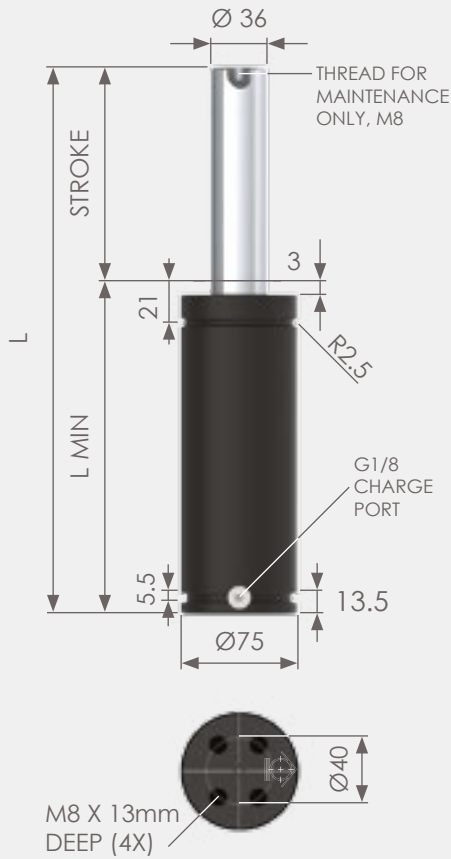


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: ISNG1500 x 025 + FF

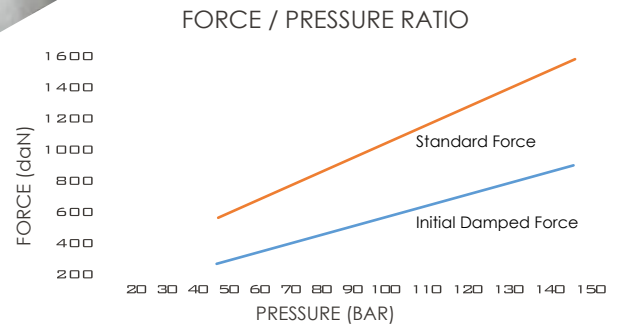
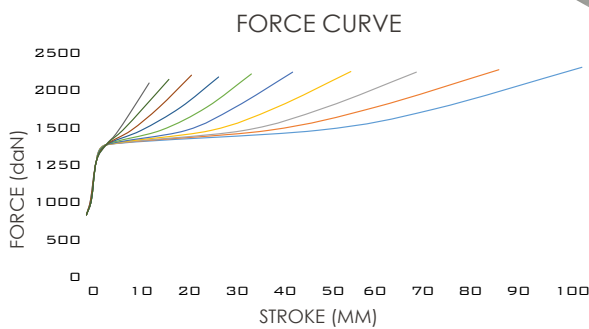


| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-------|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| RSNG1500-025 | 1500 | 2040 | 135 | 160 | 0.10 | 3.65 |
| RSNG1500-038 | | 2060 | 148.1 | 186.2 | 0.15 | 3.89 |
| RSNG1500-050 | | 2090 | 160 | 210 | 0.18 | 4.11 |
| RSNG1500-063 | | 2130 | 173.5 | 237 | 0.22 | 4.35 |
| RSNG1500-080 | | 2115 | 190 | 270 | 0.28 | 4.66 |
| RSNG1500-100 | | 2140 | 210 | 310 | 0.34 | 5.02 |
| RSNG1500-125 | | 2160 | 235 | 360 | 0.42 | 5.48 |
| RSNG1500-160 | | 2165 | 270 | 430 | 0.53 | 6.12 |
| RSNG1500-200 | | 2160 | 310 | 510 | 0.68 | 6.90 |
| RSNG1500-250 | | 2180 | 360 | 610 | 0.81 | 7.80 |
| RSNG1500-300 | | 2200 | 410 | 710 | 0.96 | 8.90 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

USE ONLY NITROGEN
 MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT RSNG1500



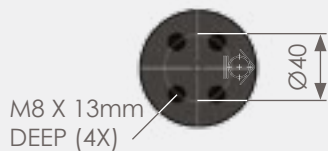
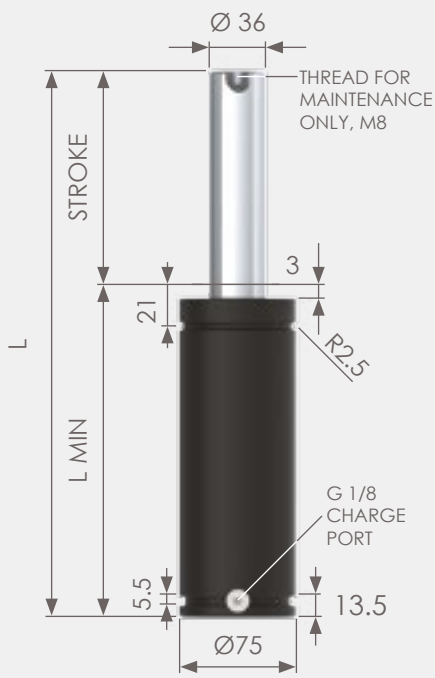
MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84

Must be mounted rod side up.

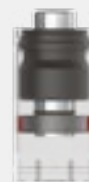


Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: RSNG1500 x 025 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-------|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| DSNG1500-025 | 1500 | 2040 | 135 | 160 | 0.10 | 3.65 |
| DSNG1500-038 | | 2060 | 148.1 | 186.2 | 0.15 | 3.89 |
| DSNG1500-050 | | 2090 | 160 | 210 | 0.18 | 4.11 |
| DSNG1500-063 | | 2130 | 173.5 | 237 | 0.22 | 4.35 |
| DSNG1500-080 | | 2115 | 190 | 270 | 0.28 | 4.66 |
| DSNG1500-100 | | 2140 | 210 | 310 | 0.34 | 5.02 |
| DSNG1500-125 | | 2160 | 235 | 360 | 0.42 | 5.48 |
| DSNG1500-160 | | 2165 | 270 | 430 | 0.53 | 6.12 |
| DSNG1500-200 | | 2160 | 310 | 510 | 0.68 | 6.90 |
| DSNG1500-250 | | 2180 | 360 | 610 | 0.81 | 7.80 |
| DSNG1500-300 | | 2200 | 410 | 710 | 0.96 | 8.90 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



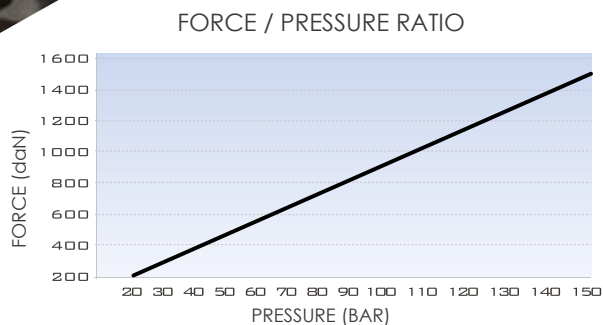
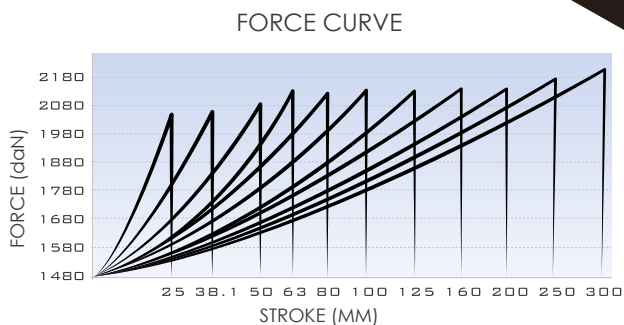
USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR

MIN. PRESSURE: 50 BAR

MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT
DSNG1500

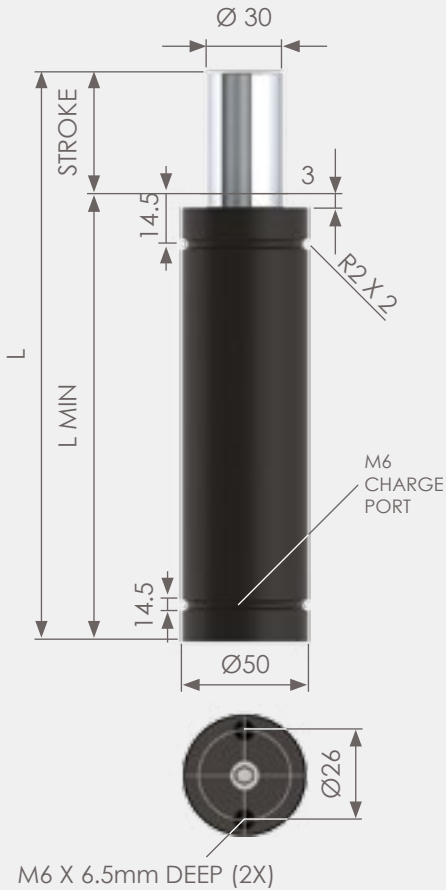


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: DSNG1500 x 025 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|-----------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| HDG018-06 | 1800 | 2500 | 60 | 66 | 0.030 | 0.6 |
| HDG018-10 | | 2500 | 70 | 80 | 0.044 | 0.7 |
| HDG018-16 | | 2500 | 90 | 106 | 0.072 | 0.8 |
| HDG018-25 | | 2500 | 110 | 135 | 0.100 | 1.0 |
| HDG018-32 | | 2500 | 130 | 162 | 0.126 | 1.1 |
| HDG018-40 | | 2500 | 150 | 190 | 0.150 | 1.2 |
| HDG018-50 | | 2500 | 170 | 220 | 0.179 | 1.3 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR

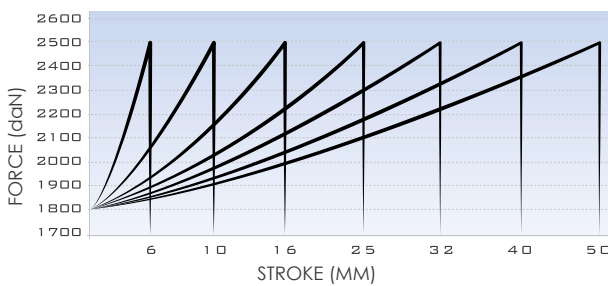
MIN. PRESSURE: 20 BAR

MAX. PISTON VELOCITY: 0.8M/SEC

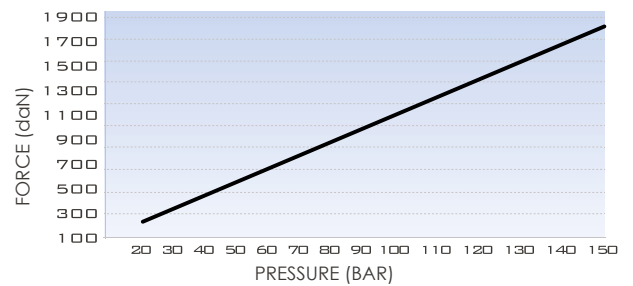
SERVICE KIT HDG018



FORCE CURVE



FORCE / PRESSURE RATIO



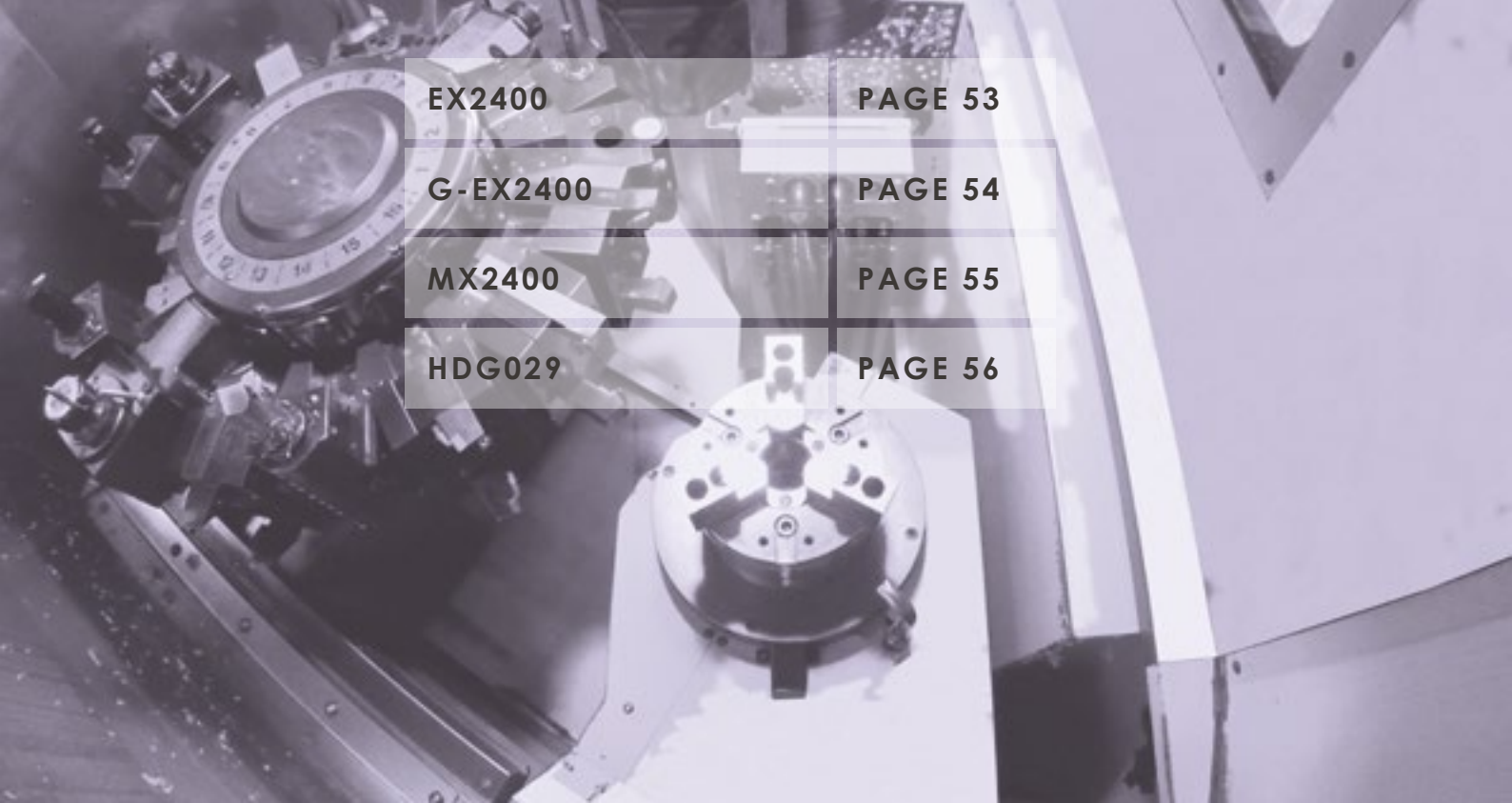
MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: HDG018 x 06 + FF

2400 - 2900KG



| | |
|----------|---------|
| EX2400 | PAGE 53 |
| G-EX2400 | PAGE 54 |
| MX2400 | PAGE 55 |
| HDG029 | PAGE 56 |





| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| EX2400-016 | 2400 | 3370 | 61 | 77 | 0.09 | 1.34 |
| EX2400-019 | | 3460 | 64 | 83 | 0.10 | 1.38 |
| EX2400-025 | | 3570 | 70 | 95 | 0.13 | 1.45 |
| EX2400-032 | | 3640 | 77 | 109 | 0.16 | 1.56 |
| EX2400-038 | | 3700 | 83 | 121 | 0.18 | 1.65 |
| EX2400-050 | | 3780 | 95 | 145 | 0.23 | 1.84 |
| EX2400-063 | | 3900 | 108 | 171 | 0.28 | 2.20 |
| EX2400-075 | | 3930 | 120 | 195 | 0.33 | 2.26 |
| EX2400-080 | | 3880 | 125 | 205 | 0.35 | 2.32 |
| EX2400-100 | | 3920 | 145 | 245 | 0.43 | 2.66 |
| EX2400-125 | | 3960 | 170 | 295 | 0.54 | 3.05 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



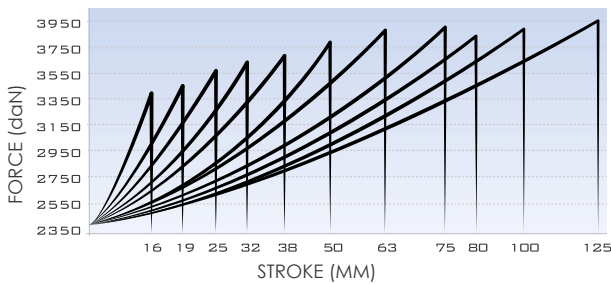
USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1.6M/SEC

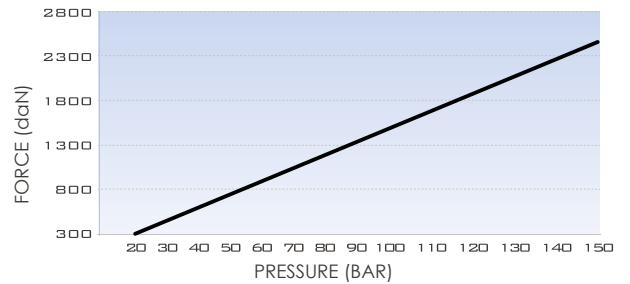
SERVICE KIT EX2400

ISO 97/23/EC PED

FORCE CURVE



FORCE / PRESSURE RATIO



MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: EX2400 x 016 + FF



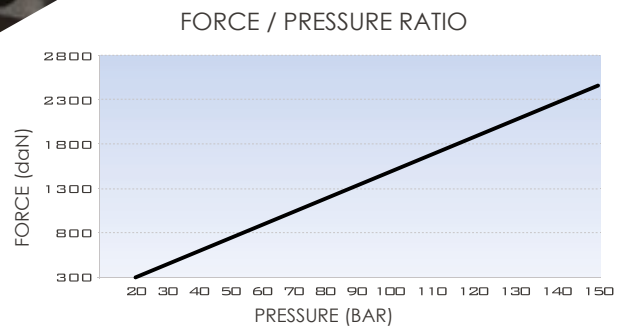
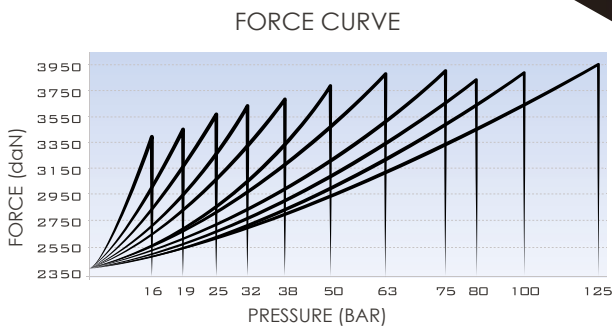
| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| G-EX2400-016 | 2400 | 3370 | 75 | 91 | 0.09 | 1.34 |
| G-EX2400-019 | | 3460 | 78 | 97 | 0.10 | 1.38 |
| G-EX2400-025 | | 3570 | 84 | 109 | 0.13 | 1.45 |
| G-EX2400-032 | | 3640 | 91 | 123 | 0.16 | 1.56 |
| G-EX2400-038 | | 3700 | 97 | 135 | 0.18 | 1.65 |
| G-EX2400-050 | | 3780 | 109 | 159 | 0.23 | 1.84 |
| G-EX2400-063 | | 3900 | 122 | 185 | 0.28 | 2.20 |
| G-EX2400-075 | | 3930 | 134 | 209 | 0.33 | 2.26 |
| G-EX2400-080 | | 3880 | 139 | 219 | 0.35 | 2.32 |
| G-EX2400-100 | | 3920 | 159 | 259 | 0.43 | 2.66 |
| G-EX2400-125 | | 3960 | 184 | 309 | 0.54 | 3.05 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT G-EX2400

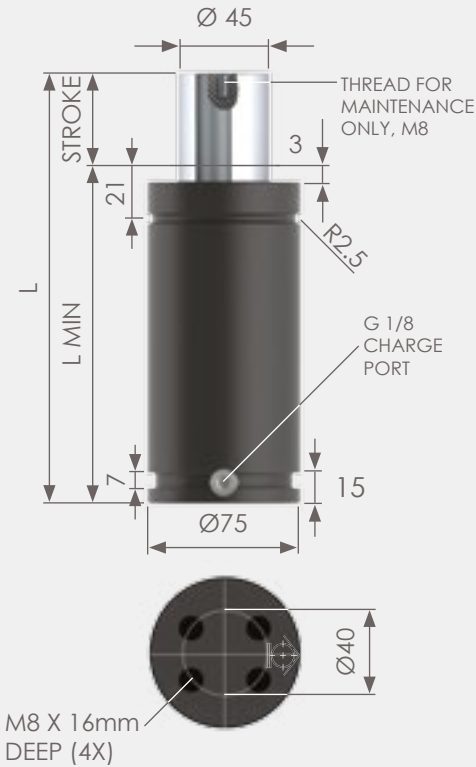


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: G-EX2400 x 016 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| MX2400-025 | 2400 | 3710 | 135 | 160 | 0.23 | 3.1 |
| MX2400-038 | | 3760 | 148 | 186 | 0.28 | 3.3 |
| MX2400-050 | | 3790 | 160 | 210 | 0.33 | 3.5 |
| MX2400-063 | | 3810 | 173 | 236 | 0.38 | 3.7 |
| MX2400-075 | | 3830 | 185 | 260 | 0.43 | 3.89 |
| MX2400-080 | | 3830 | 190 | 270 | 0.45 | 3.97 |
| MX2400-100 | | 3850 | 210 | 310 | 0.53 | 4.29 |
| MX2400-125 | | 3870 | 235 | 360 | 0.63 | 4.68 |
| MX2400-150 | | 3880 | 260 | 410 | 0.73 | 5.07 |
| MX2400-160 | | 3880 | 270 | 430 | 0.77 | 5.23 |
| MX2400-175 | | 3890 | 285 | 460 | 0.83 | 5.47 |
| MX2400-200 | | 3890 | 310 | 510 | 0.93 | 5.86 |
| MX2400-250 | | 3900 | 360 | 610 | 1.17 | 6.65 |
| MX2400-300 | | 3910 | 410 | 710 | 1.33 | 7.44 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



USE ONLY NITROGEN

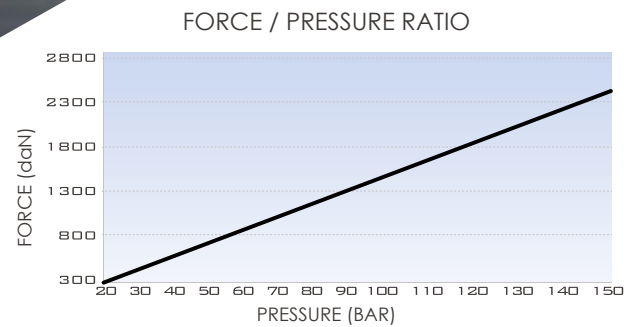
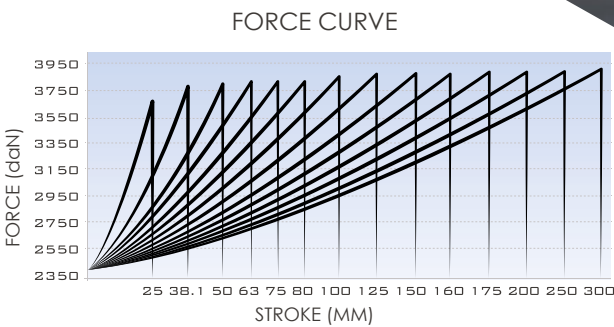
MAX. PRESSURE: 150 BAR

MIN. PRESSURE: 20 BAR

MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT MX2400

ISO PED 97/23/EC

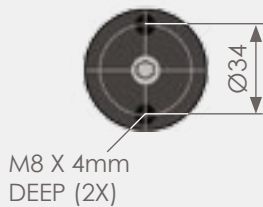


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: MX2400 x 025 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|-----------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| HDG029-10 | 2950 | 3850 | 75 | 85 | 0.08 | 1.1 |
| HDG029-16 | | 4100 | 87 | 103 | 0.12 | 1.3 |
| HDG029-25 | | 4300 | 105 | 130 | 0.16 | 1.5 |
| HDG029-32 | | 4420 | 118 | 150 | 0.20 | 1.6 |
| HDG029-40 | | 4520 | 135 | 175 | 0.24 | 1.8 |
| HDG029-50 | | 4580 | 155 | 205 | 0.29 | 2.1 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

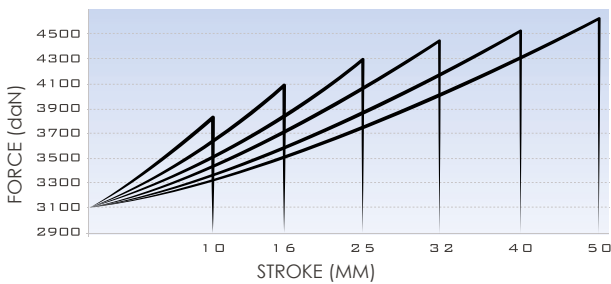
USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 0.8M/SEC

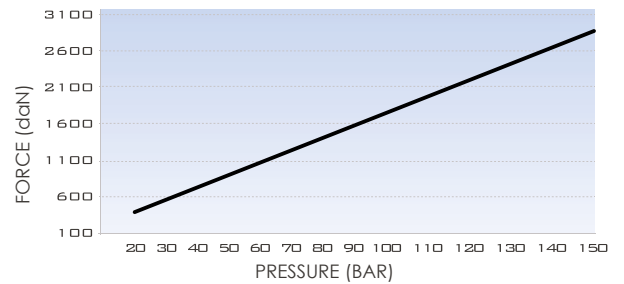
KEY SERVICE KIT HDG029



FORCE CURVE



FORCE / PRESSURE RATIO



MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



2 X M8 Tapped Holes



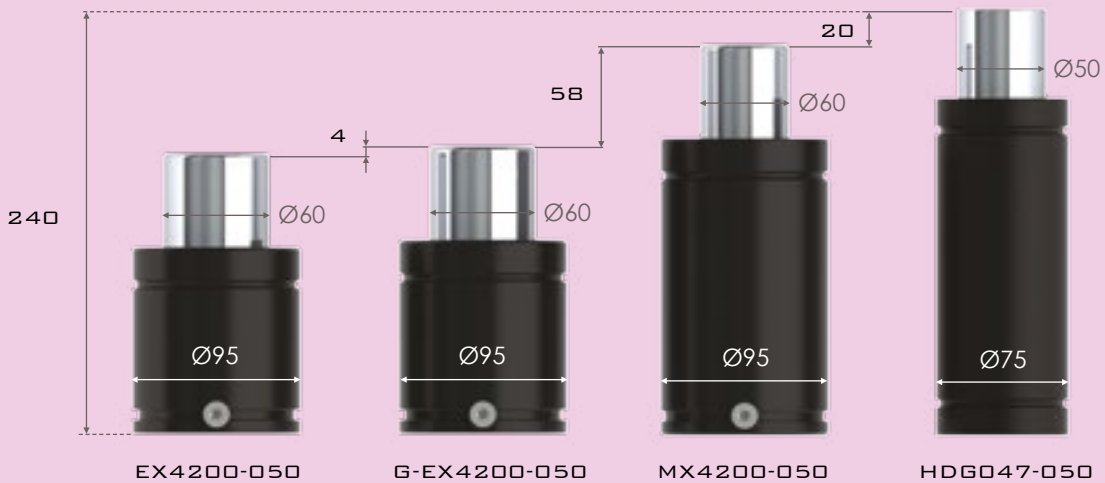
Square Front Flange
63 SFF - 63 SFFA

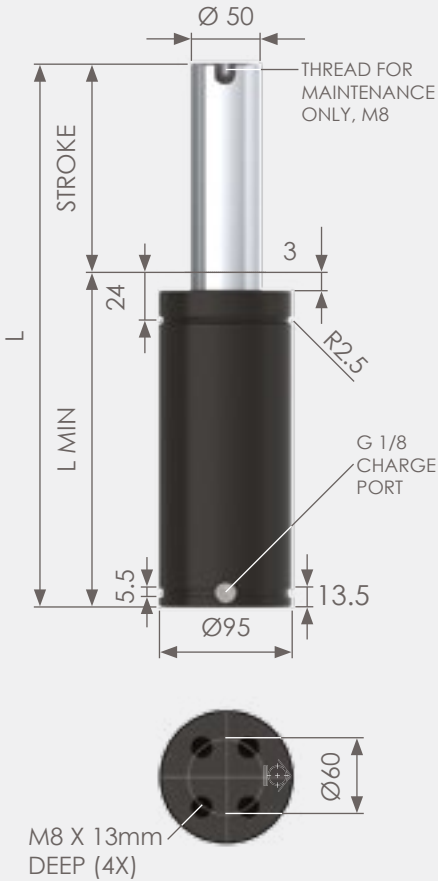
Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: HDG029 x 10 + SFF

3000 - 4700KG



| | | | |
|----------|---------|----------|---------|
| ISNG3000 | PAGE 56 | EX4200 | PAGE 59 |
| RSNG3000 | PAGE 57 | G-EX4200 | PAGE 60 |
| DSNG3000 | PAGE 58 | MX4200 | PAGE 61 |
| | | HDG047 | PAGE 62 |





| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-------|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| ISNG3000-025 | 3000 | 4140 | 145 | 170 | 0.20 | 6.45 |
| ISNG3000-038 | | 4210 | 158.1 | 196.2 | 0.26 | 6.87 |
| ISNG3000-050 | | 4320 | 170 | 220 | 0.32 | 7.25 |
| ISNG3000-063 | | 4480 | 183.5 | 247 | 0.38 | 7.67 |
| ISNG3000-080 | | 4500 | 200 | 280 | 0.46 | 8.20 |
| ISNG3000-100 | | 4570 | 220 | 320 | 0.56 | 8.83 |
| ISNG3000-125 | | 4570 | 245 | 370 | 0.69 | 9.63 |
| ISNG3000-160 | | 4580 | 280 | 440 | 0.87 | 10.74 |
| ISNG3000-200 | | 4560 | 320 | 520 | 1.07 | 12.20 |
| ISNG3000-250 | | 4540 | 370 | 620 | 1.32 | 13.70 |
| ISNG3000-300 | | 4590 | 420 | 720 | 1.57 | 15.30 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR

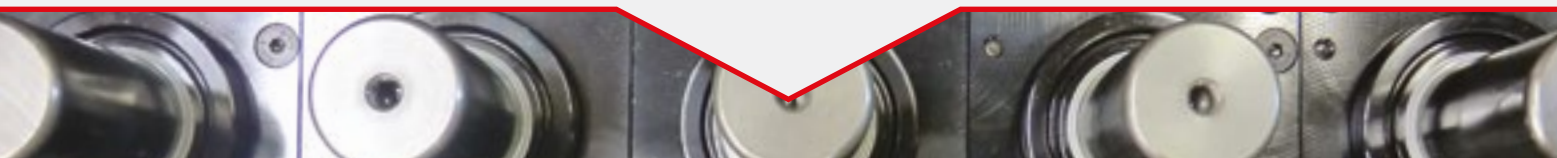
MIN. PRESSURE: 20 BAR

MAX. PISTON VELOCITY: 1.6M/SEC

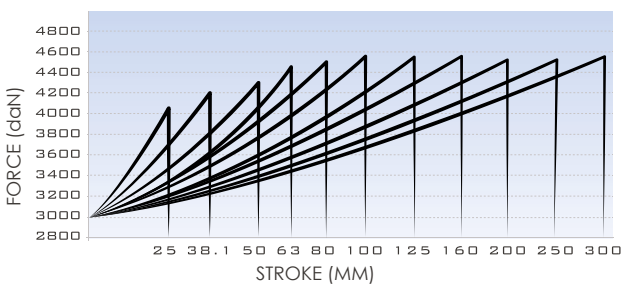
SERVICE KIT ISNG3000

ISO 11901

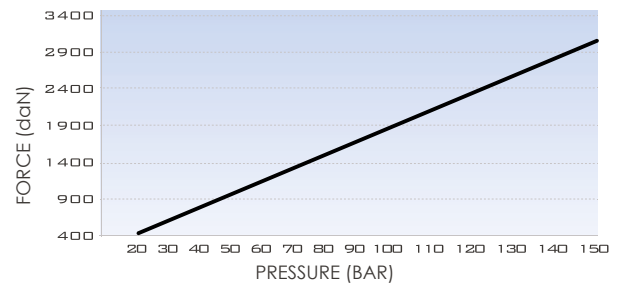
PED 97/23/EC



FORCE CURVE



FORCE / PRESSURE RATIO

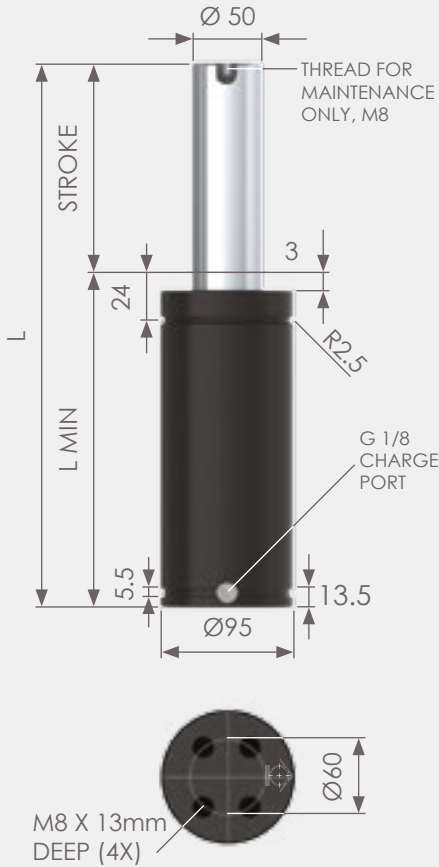


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: ISNG3000 x 025 + FF

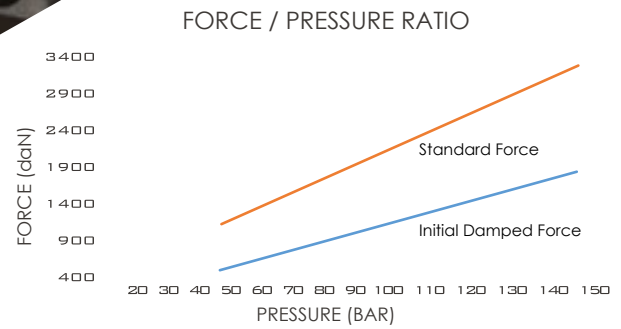
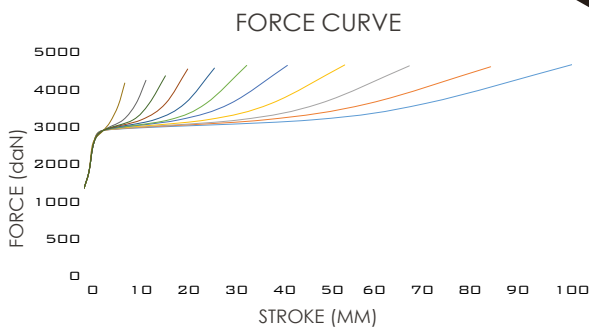
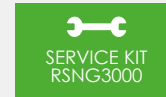


| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-------|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| RSNG3000-025 | 3000 | 4140 | 145 | 170 | 0.20 | 6.45 |
| RSNG3000-038 | | 4210 | 158.1 | 196.2 | 0.26 | 6.87 |
| RSNG3000-050 | | 4320 | 170 | 220 | 0.32 | 7.25 |
| RSNG3000-063 | | 4480 | 183.5 | 247 | 0.38 | 7.67 |
| RSNG3000-080 | | 4500 | 200 | 280 | 0.46 | 8.20 |
| RSNG3000-100 | | 4570 | 220 | 320 | 0.56 | 8.83 |
| RSNG3000-125 | | 4570 | 245 | 370 | 0.69 | 9.63 |
| RSNG3000-160 | | 4580 | 280 | 440 | 0.87 | 10.74 |
| RSNG3000-200 | | 4560 | 320 | 520 | 1.07 | 12.20 |
| RSNG3000-250 | | 4540 | 370 | 620 | 1.32 | 13.70 |
| RSNG3000-300 | | 4590 | 420 | 720 | 1.57 | 15.30 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 50 BAR MAX. PISTON VELOCITY: 1.6M/SEC



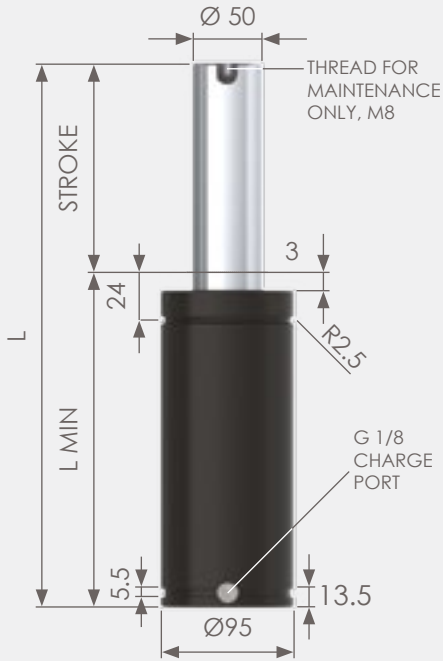
MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84

Must be mounted rod side up.

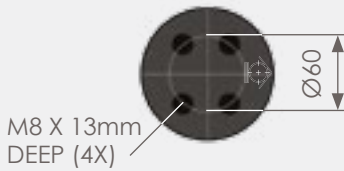


Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: RSNG3000 x 025 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-------|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| DSNG3000-025 | 3000 | 4140 | 145 | 170 | 0.20 | 6.45 |
| DSNG3000-038 | | 4210 | 158.1 | 196.2 | 0.26 | 6.87 |
| DSNG3000-050 | | 4320 | 170 | 220 | 0.32 | 7.25 |
| DSNG3000-063 | | 4480 | 183.5 | 247 | 0.38 | 7.67 |
| DSNG3000-080 | | 4500 | 200 | 280 | 0.46 | 8.20 |
| DSNG3000-100 | | 4570 | 220 | 320 | 0.56 | 8.83 |
| DSNG3000-125 | | 4570 | 245 | 370 | 0.69 | 9.63 |
| DSNG3000-160 | | 4580 | 280 | 440 | 0.87 | 10.74 |
| DSNG3000-200 | | 4560 | 320 | 520 | 1.07 | 12.20 |
| DSNG3000-250 | | 4540 | 370 | 620 | 1.32 | 13.70 |
| DSNG3000-300 | | 4590 | 420 | 720 | 1.57 | 15.30 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



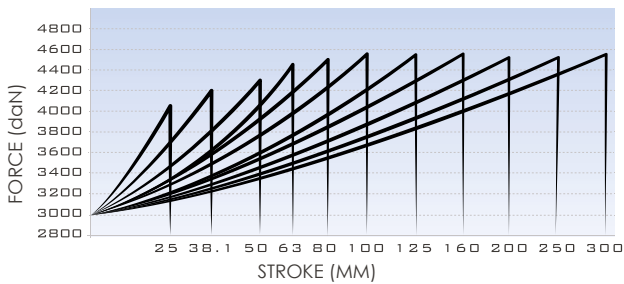
USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 50 BAR MAX. PISTON VELOCITY: 1.6M/SEC

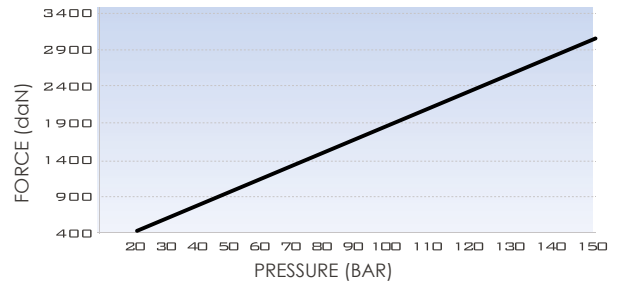
SERVICE KIT
DSNG3000



FORCE CURVE



FORCE / PRESSURE RATIO

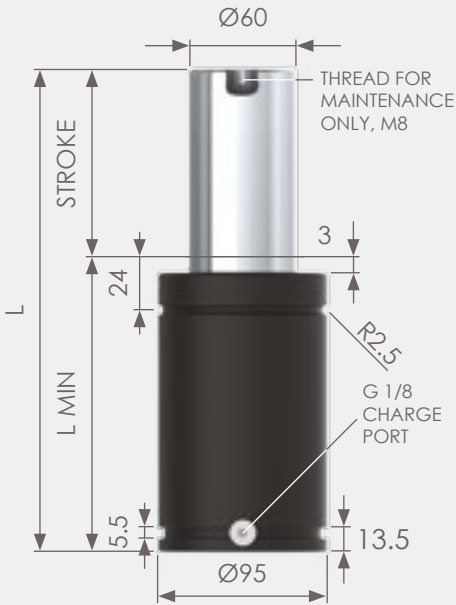


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84

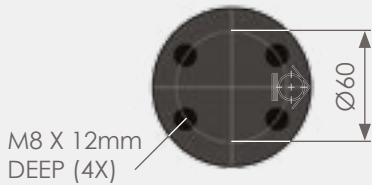


Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: DSNG3000 x 025 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| EX4200-016 | 4200 | 6620 | 74 | 90 | 0.15 | 2.81 |
| EX4200-019 | | 6620 | 77 | 96 | 0.18 | 2.88 |
| EX4200-025 | | 6620 | 83 | 108 | 0.26 | 2.96 |
| EX4200-032 | | 6620 | 90 | 122 | 0.30 | 3.13 |
| EX4200-038 | | 6620 | 96 | 134 | 0.32 | 3.28 |
| EX4200-050 | | 6620 | 108 | 158 | 0.40 | 3.57 |
| EX4200-063 | | 6620 | 121 | 184 | 0.49 | 4.10 |
| EX4200-075 | | 6620 | 133 | 208 | 0.58 | 4.20 |
| EX4200-080 | | 6620 | 138 | 218 | 0.61 | 4.32 |
| EX4200-100 | | 6620 | 158 | 258 | 0.74 | 4.81 |
| EX4200-125 | | 6620 | 183 | 308 | 0.91 | 5.42 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

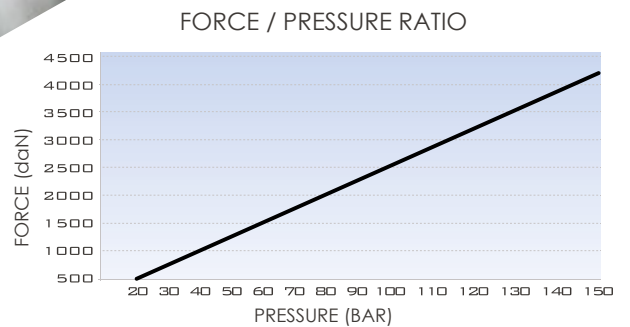
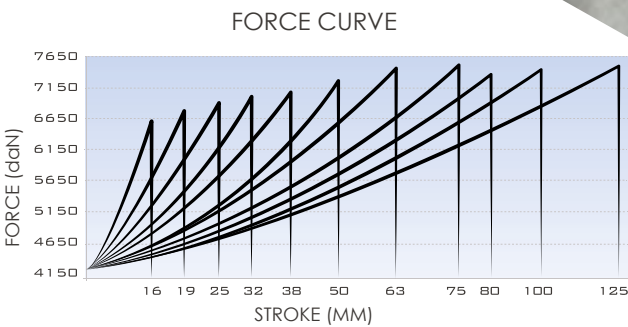


USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT EX4200

ISO PED 97/23/EC

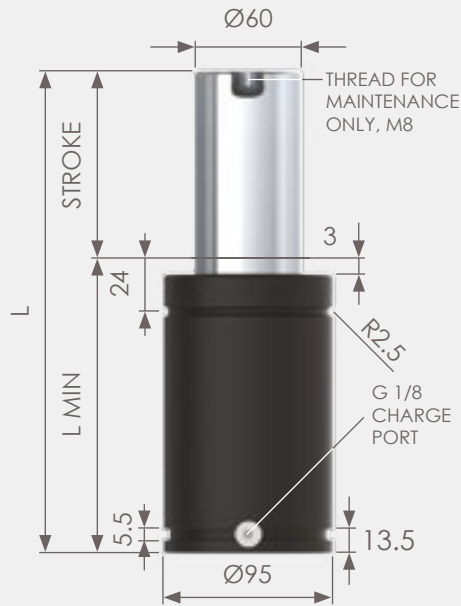


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84

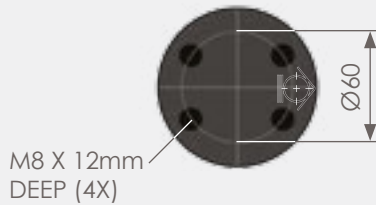


Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: EX4200 x 016 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| G-EX4200-016 | 4200 | 6620 | 78 | 94 | 0.15 | 2.81 |
| G-EX4200-019 | | 6620 | 81 | 100 | 0.18 | 2.88 |
| G-EX4200-025 | | 6620 | 87 | 112 | 0.26 | 2.96 |
| G-EX4200-032 | | 6620 | 94 | 126 | 0.30 | 3.13 |
| G-EX4200-038 | | 6620 | 100 | 138 | 0.32 | 3.28 |
| G-EX4200-050 | | 6620 | 112 | 162 | 0.40 | 3.57 |
| G-EX4200-063 | | 6620 | 125 | 188 | 0.49 | 4.10 |
| G-EX4200-075 | | 6620 | 137 | 212 | 0.58 | 4.20 |
| G-EX4200-080 | | 6620 | 142 | 222 | 0.61 | 4.32 |
| G-EX4200-100 | | 6620 | 162 | 262 | 0.74 | 4.81 |
| G-EX4200-125 | | 6620 | 187 | 312 | 0.91 | 5.42 |

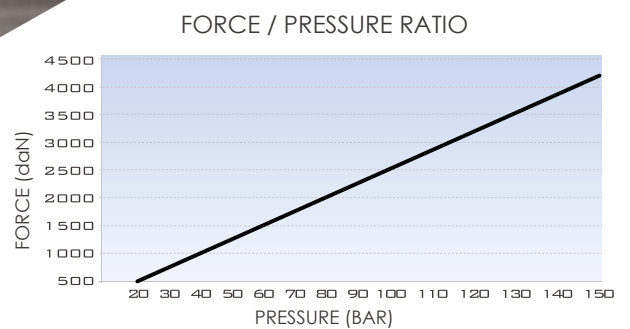
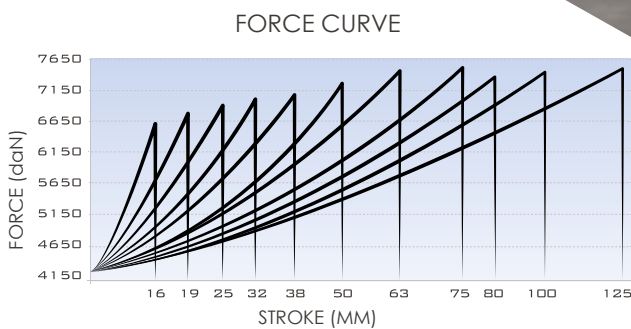
SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1M/SEC

SERVICE KIT
G-EX4200

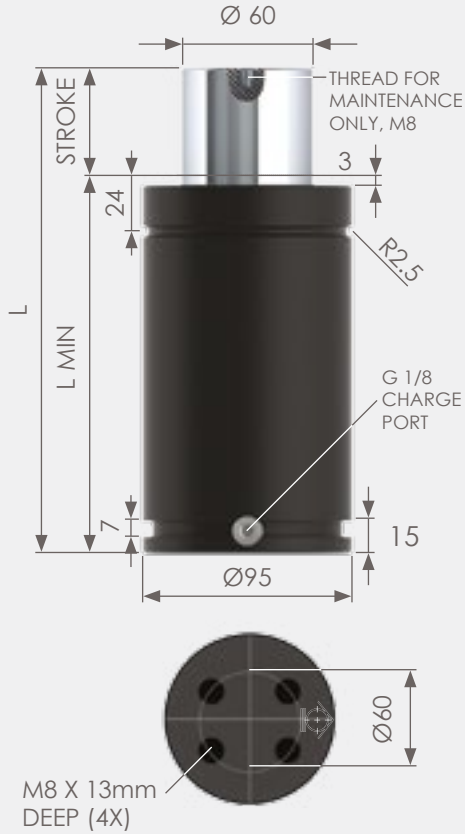


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: G-EX4200 x 016 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| MX4200-025 | 4200 | 5210 | 145 | 170 | 0.43 | 5.08 |
| MX4200-038 | | 5510 | 158 | 196 | 0.52 | 5.41 |
| MX4200-050 | | 5720 | 170 | 220 | 0.60 | 5.71 |
| MX4200-063 | | 5900 | 183 | 246 | 0.68 | 6.05 |
| MX4200-075 | | 6030 | 195 | 270 | 0.76 | 6.35 |
| MX4200-080 | | 6080 | 200 | 280 | 0.80 | 6.48 |
| MX4200-100 | | 6250 | 220 | 320 | 0.93 | 6.99 |
| MX4200-125 | | 6400 | 245 | 370 | 1.10 | 7.63 |
| MX4200-150 | | 6510 | 270 | 420 | 1.27 | 8.27 |
| MX4200-160 | | 6550 | 280 | 440 | 1.33 | 8.53 |
| MX4200-175 | | 6600 | 295 | 470 | 1.43 | 8.91 |
| MX4200-200 | | 6680 | 320 | 520 | 1.60 | 9.55 |
| MX4200-250 | | 6790 | 370 | 620 | 1.93 | 11.08 |
| MX4200-300 | | 6870 | 420 | 720 | 2.27 | 12.11 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



USE ONLY NITROGEN

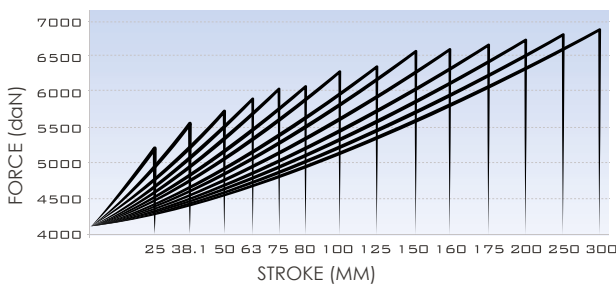
MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT MX4200

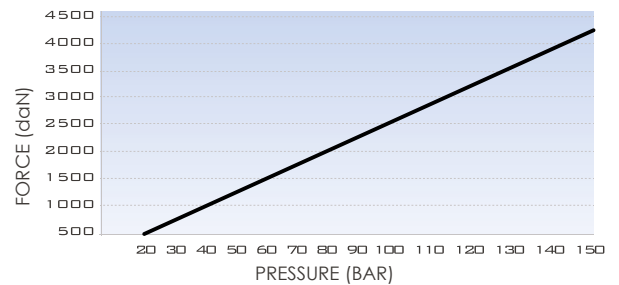
ISO PED 97/23/EC



FORCE CURVE



FORCE / PRESSURE RATIO

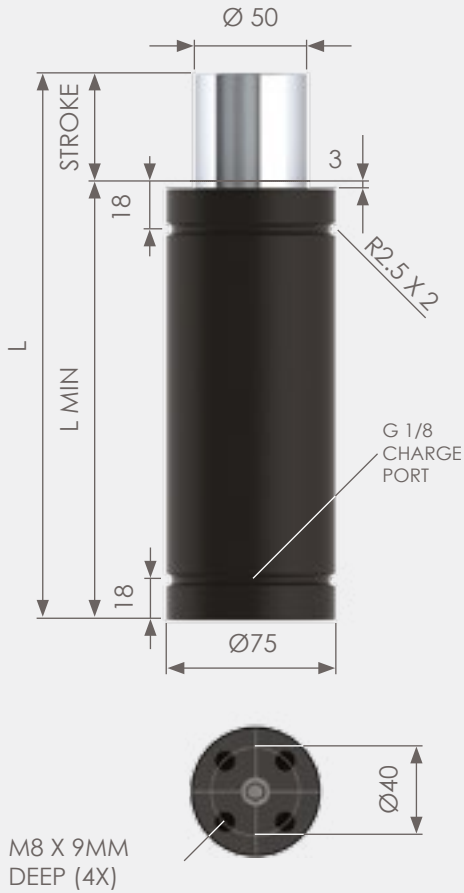


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: MX4200 x 025 + FF



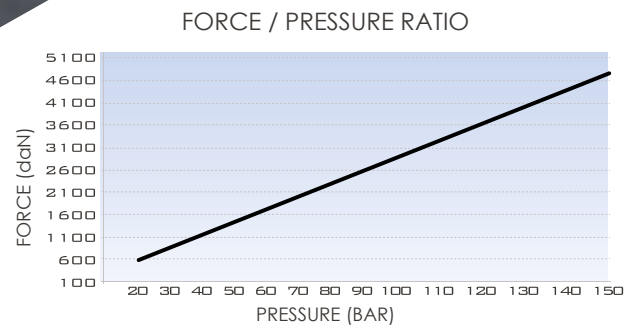
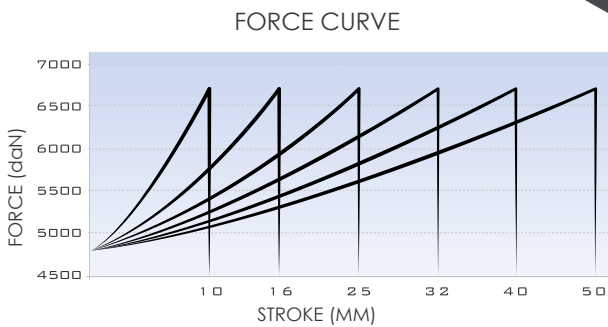
| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|-----------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| HDG047-10 | 4700 | 6700 | 70 | 80 | 0.10 | 1.4 |
| HDG047-16 | | 6700 | 90 | 106 | 0.17 | 1.7 |
| HDG047-25 | | 6700 | 110 | 135 | 0.24 | 2.0 |
| HDG047-32 | | 6700 | 135 | 167 | 0.32 | 2.4 |
| HDG047-40 | | 6700 | 160 | 200 | 0.41 | 2.8 |
| HDG047-50 | | 6700 | 190 | 240 | 0.52 | 3.3 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 50 BAR MAX. PISTON VELOCITY: 0.8M/SEC

SERVICE KIT HDG047



MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84

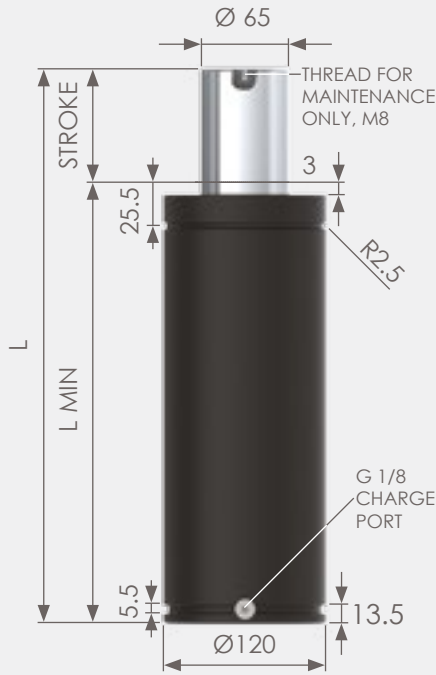


Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: HDG047 x 10 + FF

5000 - 6600KG

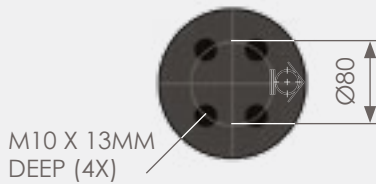
| | |
|-----------------|----------------|
| ISNG5000 | PAGE 66 |
| RSNG5000 | PAGE 67 |
| DSNG5000 | PAGE 68 |
| EX6600 | PAGE 69 |
| MX6600 | PAGE 70 |





| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-------|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| ISNG5000-025 | 5000 | 6900 | 165 | 190 | 0.32 | 12.40 |
| ISNG5000-038 | | 7010 | 178.1 | 216.2 | 0.42 | 13.10 |
| ISNG5000-050 | | 7210 | 190 | 240 | 0.51 | 13.70 |
| ISNG5000-063 | | 7450 | 203.5 | 267 | 0.60 | 14.40 |
| ISNG5000-080 | | 7510 | 220 | 300 | 0.73 | 15.30 |
| ISNG5000-100 | | 7550 | 240 | 340 | 0.89 | 16.40 |
| ISNG5000-125 | | 7560 | 265 | 390 | 1.09 | 17.70 |
| ISNG5000-160 | | 7560 | 300 | 460 | 1.36 | 19.60 |
| ISNG5000-200 | | 7590 | 340 | 540 | 1.68 | 20.70 |
| ISNG5000-250 | | 7560 | 390 | 640 | 2.07 | 22.40 |
| ISNG5000-300 | | 7540 | 440 | 740 | 2.46 | 24.66 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



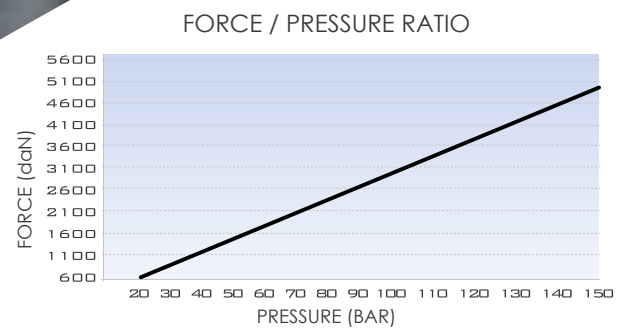
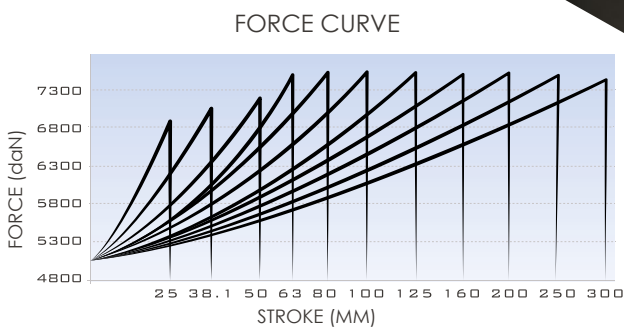
USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT ISNG5000

ISO 11901

PED 97/23/EC

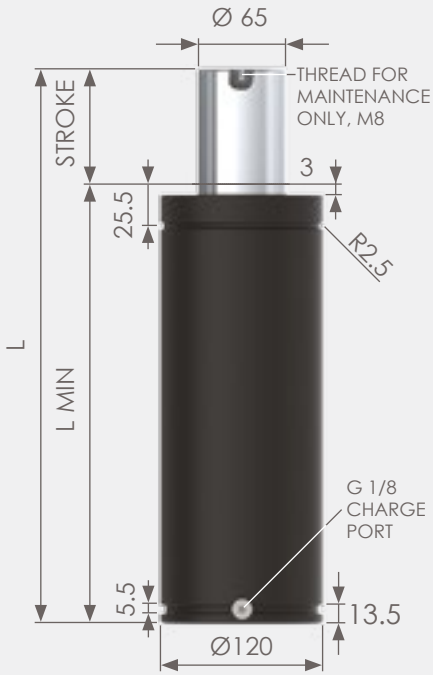


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84

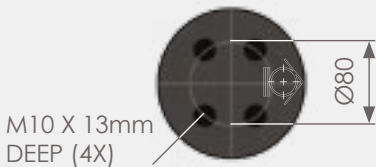


Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: ISNG5000 x 025 + FF



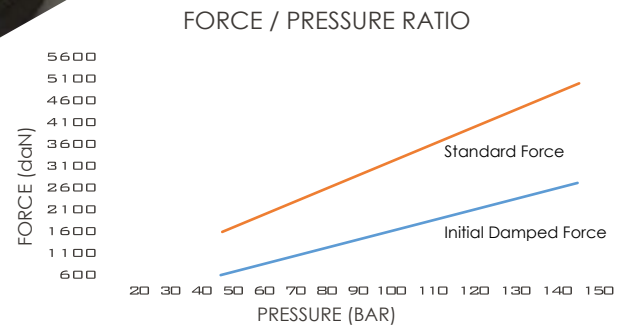
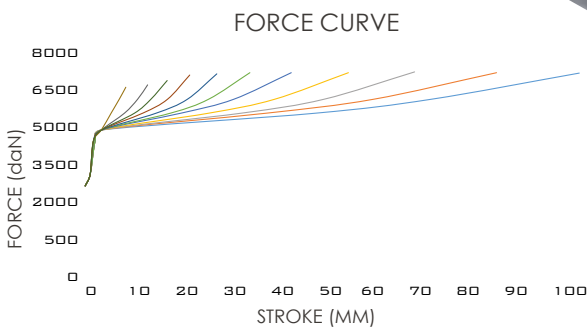
| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-------|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| RSNG5000-025 | 5000 | 6900 | 165 | 190 | 0.32 | 12.40 |
| RSNG5000-038 | | 7010 | 178.1 | 216.2 | 0.42 | 13.10 |
| RSNG5000-050 | | 7210 | 190 | 240 | 0.51 | 13.70 |
| RSNG5000-063 | | 7450 | 203.5 | 267 | 0.60 | 14.40 |
| RSNG5000-080 | | 7510 | 220 | 300 | 0.73 | 15.30 |
| RSNG5000-100 | | 7550 | 240 | 340 | 0.89 | 16.40 |
| RSNG5000-125 | | 7560 | 265 | 390 | 1.09 | 17.70 |
| RSNG5000-160 | | 7560 | 300 | 460 | 1.36 | 19.60 |
| RSNG5000-200 | | 7590 | 340 | 540 | 1.68 | 20.70 |
| RSNG5000-250 | | 7560 | 390 | 640 | 2.07 | 22.40 |
| RSNG5000-300 | | 7540 | 440 | 740 | 2.46 | 24.66 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



USE ONLY NITROGEN
 MAX. PRESSURE: 150 BAR MIN. PRESSURE: 50 BAR MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT RSNG5000



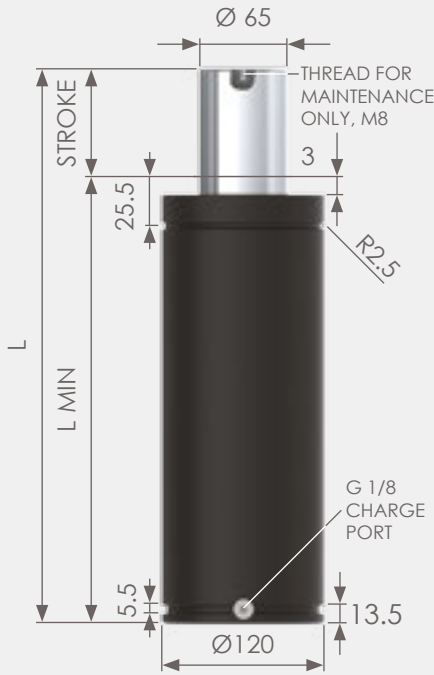
MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84

Must be mounted rod side up.

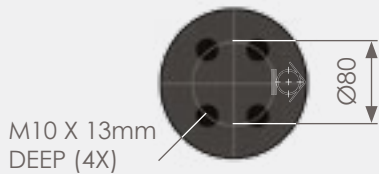


Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: RSNG5000 x 025 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-------|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| DSNG5000-025 | 5000 | 6900 | 165 | 190 | 0.32 | 12.40 |
| DSNG5000-038 | | 7010 | 178.1 | 216.2 | 0.42 | 13.10 |
| DSNG5000-050 | | 7210 | 190 | 240 | 0.51 | 13.70 |
| DSNG5000-063 | | 7450 | 203.5 | 267 | 0.60 | 14.40 |
| DSNG5000-080 | | 7510 | 220 | 300 | 0.73 | 15.30 |
| DSNG5000-100 | | 7550 | 240 | 340 | 0.89 | 16.40 |
| DSNG5000-125 | | 7560 | 265 | 390 | 1.09 | 17.70 |
| DSNG5000-160 | | 7560 | 300 | 460 | 1.36 | 19.60 |
| DSNG5000-200 | | 7590 | 340 | 540 | 1.68 | 20.70 |
| DSNG5000-250 | | 7560 | 390 | 640 | 2.07 | 22.40 |
| DSNG5000-300 | | 7540 | 440 | 740 | 2.46 | 24.66 |

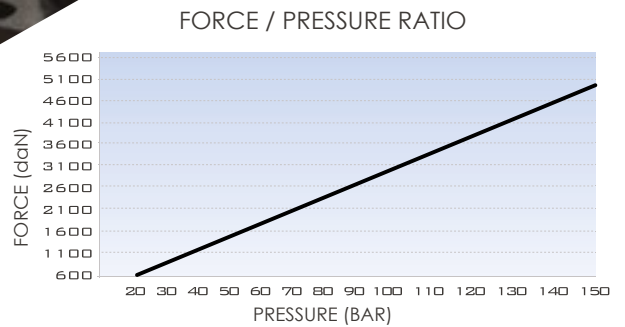
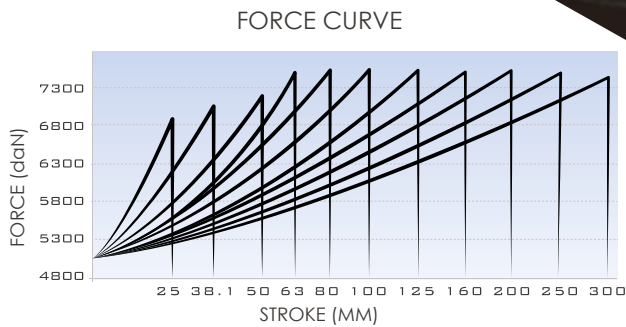
SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 50 BAR MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT DSNG5000

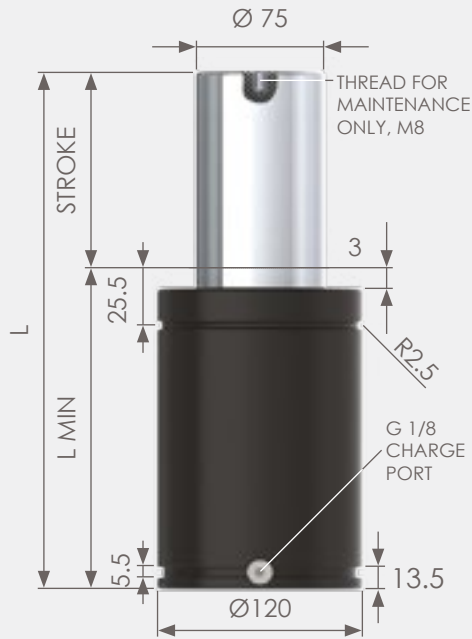


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84

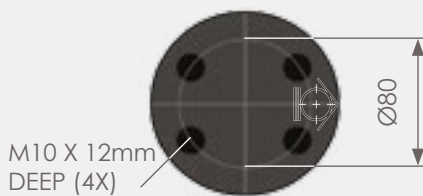


Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: DSNG5000 x 025 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| EX6600-016 | 6630 | 7520 | 84 | 100 | 0.32 | 5.00 |
| EX6600-019 | | 7700 | 87 | 106 | 0.35 | 5.11 |
| EX6600-025 | | 7940 | 93 | 118 | 0.42 | 5.34 |
| EX6600-032 | | 8150 | 100 | 132 | 0.49 | 5.61 |
| EX6600-038 | | 8340 | 106 | 144 | 0.56 | 5.84 |
| EX6600-050 | | 8670 | 118 | 168 | 0.69 | 6.31 |
| EX6600-063 | | 9030 | 131 | 194 | 0.83 | 6.81 |
| EX6600-075 | | 9250 | 143 | 218 | 0.90 | 7.27 |
| EX6600-080 | | 9250 | 148 | 228 | 1.01 | 7.46 |
| EX6600-100 | | 9530 | 168 | 268 | 1.23 | 8.23 |
| EX6600-125 | | 9800 | 193 | 318 | 1.50 | 9.19 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



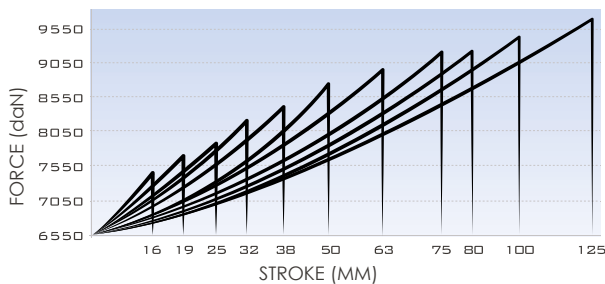
USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1.6M/SEC

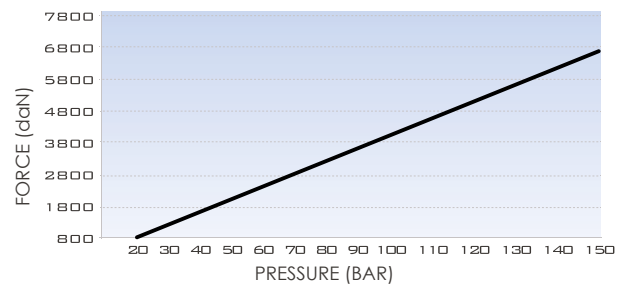
SERVICE KIT EX6600

ISO PED 97/23/EC

FORCE CURVE



FORCE / PRESSURE RATIO

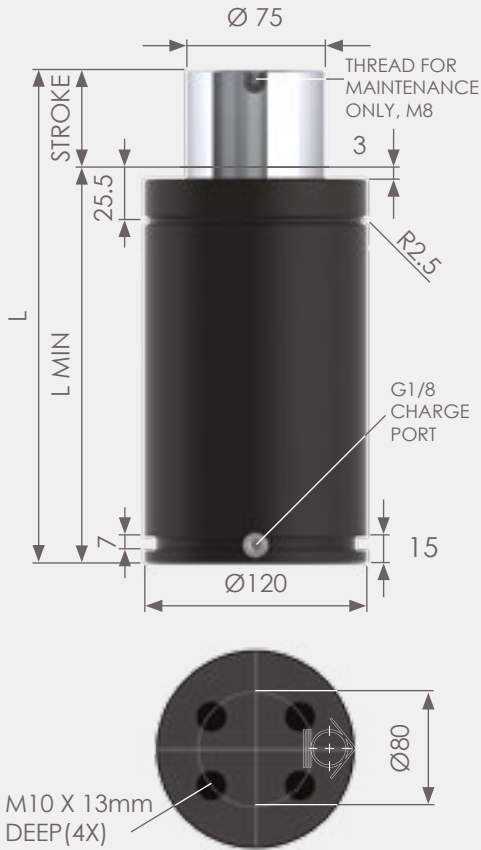


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: EX6600 x 016 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| MX6600-025 | 6630 | 7950 | 165 | 190 | 0.73 | 9.28 |
| MX6600-038 | | 8390 | 178 | 216 | 0.87 | 9.81 |
| MX6600-050 | | 8700 | 190 | 240 | 1.00 | 10.30 |
| MX6600-063 | | 8970 | 203 | 266 | 1.13 | 10.83 |
| MX6600-075 | | 9180 | 215 | 290 | 1.26 | 11.32 |
| MX6600-080 | | 9260 | 220 | 300 | 1.31 | 11.52 |
| MX6600-100 | | 9510 | 240 | 340 | 1.53 | 12.33 |
| MX6600-125 | | 9760 | 265 | 390 | 1.79 | 13.35 |
| MX6600-150 | | 9950 | 290 | 440 | 2.05 | 14.36 |
| MX6600-160 | | 10010 | 300 | 460 | 2.16 | 14.77 |
| MX6600-175 | | 10100 | 315 | 490 | 2.36 | 15.38 |
| MX6600-200 | | 10220 | 340 | 540 | 2.58 | 16.40 |
| MX6600-250 | | 10400 | 390 | 640 | 3.11 | 18.43 |
| MX6600-300 | | 10530 | 440 | 740 | 3.64 | 20.46 |

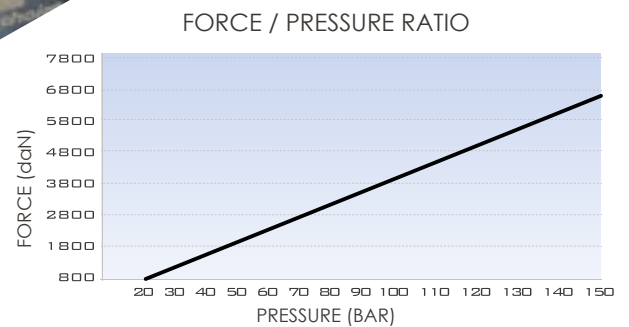
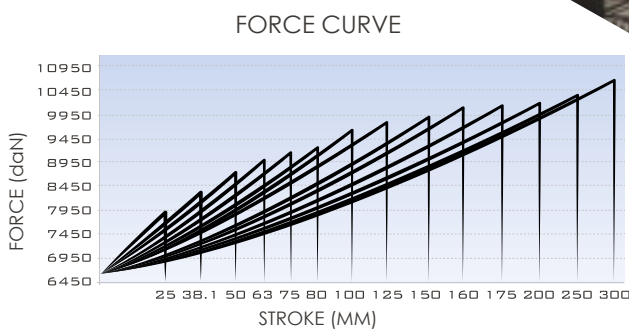


USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT MX6600

ISO 97/23/EC



MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: MX6600 x 025 + FF

7500 - 11800KG

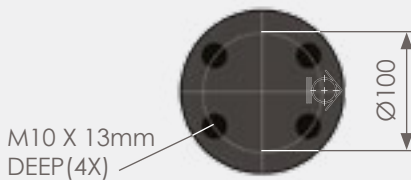
| | | | |
|----------|---------|-----------|---------|
| ISNG7500 | PAGE 72 | EX9500 | PAGE 76 |
| RSNG7500 | PAGE 73 | MX9500 | PAGE 77 |
| DSNG7500 | PAGE 74 | ISNG10000 | PAGE 78 |
| HDG075 | PAGE 75 | HDG118 | PAGE 79 |





| MODEL | SPRING FORCE (daN) | | L | | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-------|--------------|-------------|
| | INITIAL | MAXIMUM | MIN | L | | |
| ISNG7500-025 | 7500 | 10100 | 180 | 205 | 0.51 | 20.30 |
| ISNG7500-038 | | 10500 | 193.1 | 231.2 | 0.67 | 21.40 |
| ISNG7500-050 | | 10500 | 205 | 255 | 0.81 | 22.40 |
| ISNG7500-063 | | 10550 | 218.5 | 282 | 0.98 | 23.50 |
| ISNG7500-080 | | 10550 | 235 | 315 | 1.18 | 24.80 |
| ISNG7500-100 | | 10550 | 255 | 355 | 1.43 | 26.50 |
| ISNG7500-125 | | 10550 | 280 | 405 | 1.74 | 28.50 |
| ISNG7500-160 | | 10530 | 315 | 475 | 2.17 | 31.40 |
| ISNG7500-200 | | 10520 | 355 | 555 | 2.66 | 34.70 |
| ISNG7500-250 | | 10590 | 405 | 655 | 3.27 | 38.80 |
| ISNG7500-300 | | 10560 | 455 | 755 | 3.88 | 42.90 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



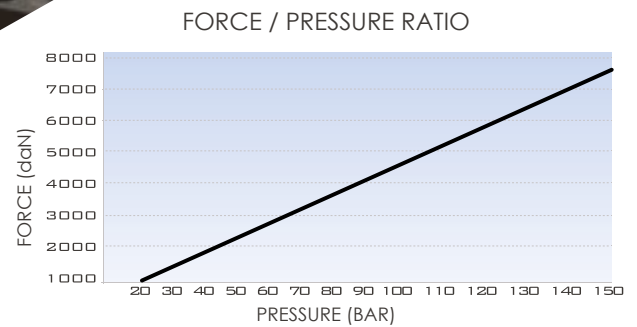
USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT ISNG7500

ISO 11901

PED 97/23/EC



MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84

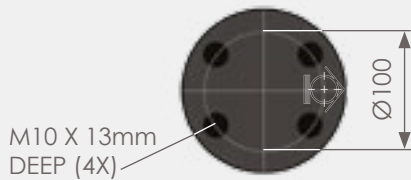


Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: ISNG7500 x 025 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-------|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| RSNG7500-025 | 7500 | 10100 | 180 | 205 | 0.51 | 20.30 |
| RSNG7500-038 | | 10500 | 193.1 | 231.2 | 0.67 | 21.40 |
| RSNG7500-050 | | 10500 | 205 | 255 | 0.81 | 22.40 |
| RSNG7500-063 | | 10550 | 218.5 | 282 | 0.98 | 23.50 |
| RSNG7500-080 | | 10550 | 235 | 315 | 1.18 | 24.80 |
| RSNG7500-100 | | 10550 | 255 | 355 | 1.43 | 26.50 |
| RSNG7500-125 | | 10550 | 280 | 405 | 1.74 | 28.50 |
| RSNG7500-160 | | 10530 | 315 | 475 | 2.17 | 31.40 |
| RSNG7500-200 | | 10520 | 355 | 555 | 2.66 | 34.70 |
| RSNG7500-250 | | 10590 | 405 | 655 | 3.27 | 38.80 |
| RSNG7500-300 | | 10560 | 455 | 755 | 3.88 | 42.90 |

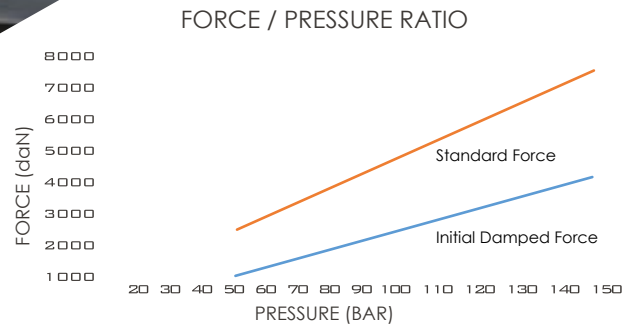
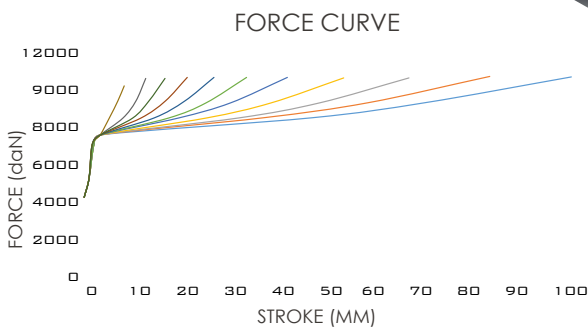
SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



USE ONLY NITROGEN

| | | |
|------------------------|-----------------------|--------------------------------|
| MAX. PRESSURE: 150 BAR | MIN. PRESSURE: 50 BAR | MAX. PISTON VELOCITY: 1.6M/SEC |
|------------------------|-----------------------|--------------------------------|

SERVICE KIT RSNG7500



MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84

Must be mounted rod side up.

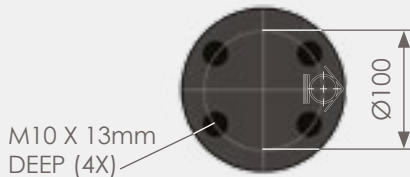


Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: RSNG7500 x 025 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|--------------|--------------------|---------|-------|-------|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| DSNG7500-025 | 7500 | 10100 | 180 | 205 | 0.51 | 20.30 |
| DSNG7500-038 | | 10500 | 193.1 | 231.2 | 0.67 | 21.40 |
| DSNG7500-050 | | 10500 | 205 | 255 | 0.81 | 22.40 |
| DSNG7500-063 | | 10550 | 218.5 | 282 | 0.98 | 23.50 |
| DSNG7500-080 | | 10550 | 235 | 315 | 1.18 | 24.80 |
| DSNG7500-100 | | 10550 | 255 | 355 | 1.43 | 26.50 |
| DSNG7500-125 | | 10550 | 280 | 405 | 1.74 | 28.50 |
| DSNG7500-160 | | 10530 | 315 | 475 | 2.17 | 31.40 |
| DSNG7500-200 | | 10520 | 355 | 555 | 2.66 | 34.70 |
| DSNG7500-250 | | 10590 | 405 | 655 | 3.27 | 38.80 |
| DSNG7500-300 | | 10560 | 455 | 755 | 3.88 | 42.90 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 50 BAR MAX. PISTON VELOCITY: 1.6M/SEC

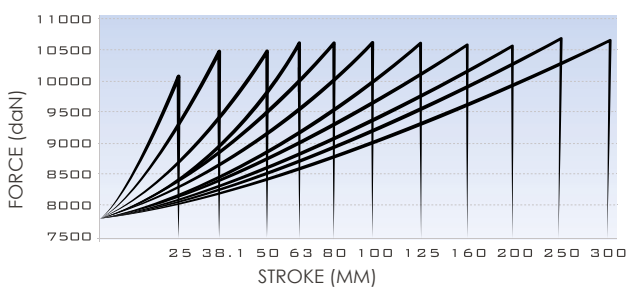
SERVICE KIT DSNG7500



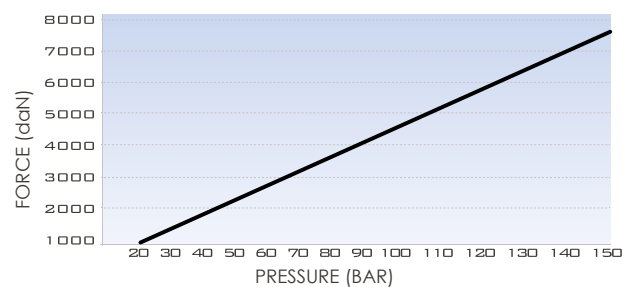
PED
97/23/EC



FORCE CURVE



FORCE / PRESSURE RATIO



MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



4 X M10 Tapped Holes



Square Front Flange
150 SFF



Front Flange
150 FF

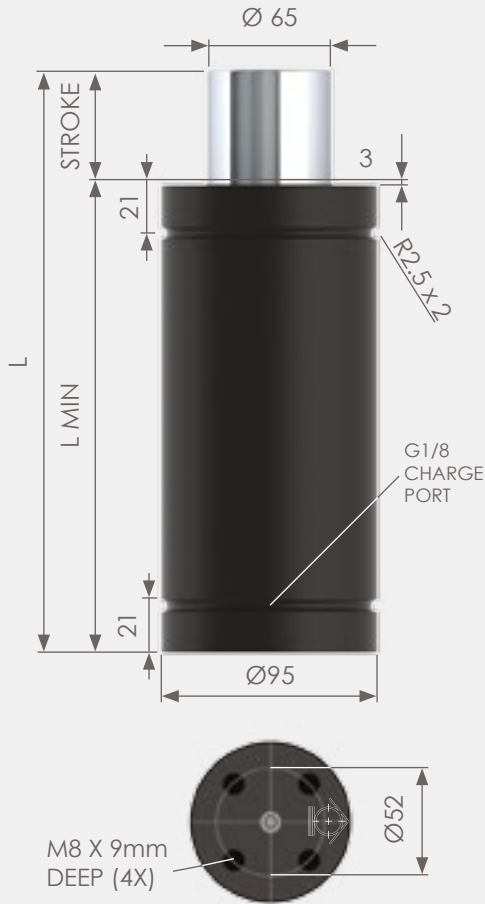


Square Flange
150 SF



Base Plate
150 BP

Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: DSNG7500 x 025 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|-----------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| HDG075-10 | 7500 | 10400 | 80 | 90 | 0.18 | 2.8 |
| HDG075-16 | | 10400 | 100 | 116 | 0.30 | 3.2 |
| HDG075-25 | | 10900 | 120 | 145 | 0.41 | 3.7 |
| HDG075-32 | | 10500 | 150 | 182 | 0.57 | 4.4 |
| HDG075-40 | | 10700 | 170 | 210 | 0.68 | 4.8 |
| HDG075-50 | | 10600 | 205 | 255 | 0.87 | 5.6 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



PED
97/23/EC

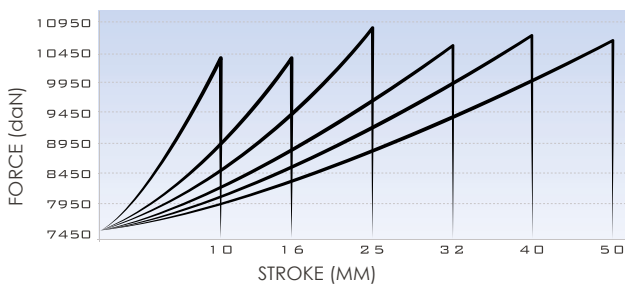
USE ONLY NITROGEN

MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 0.8M/SEC

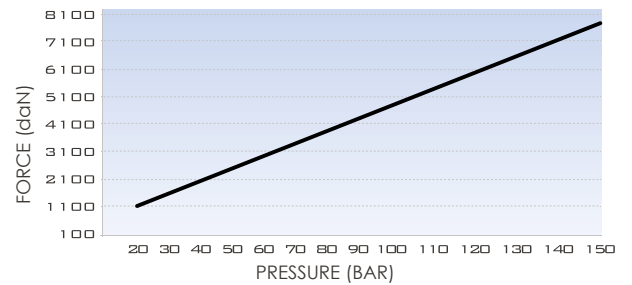
SERVICE KIT
HDG075



FORCE CURVE



FORCE / PRESSURE RATIO

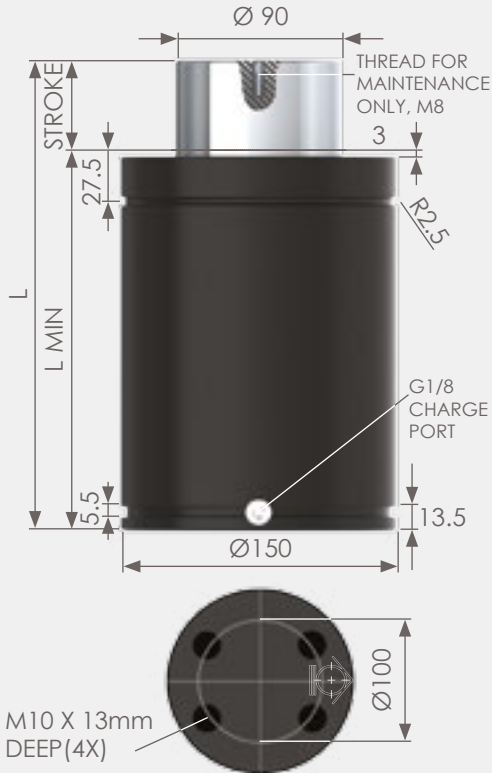


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: HDG075 x 10 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| EX9500-019 | 9500 | 13370 | 97 | 116 | 0.49 | 9.86 |
| EX9500-025 | | 13930 | 103 | 128 | 0.58 | 10.23 |
| EX9500-032 | | 14060 | 110 | 142 | 0.70 | 10.67 |
| EX9500-038 | | 14320 | 116 | 154 | 0.80 | 11.04 |
| EX9500-050 | | 14800 | 128 | 178 | 0.99 | 11.79 |
| EX9500-063 | | 15270 | 141 | 204 | 1.20 | 12.60 |
| EX9500-075 | | 15510 | 153 | 228 | 1.39 | 13.35 |
| EX9500-080 | | 15470 | 158 | 238 | 1.47 | 13.66 |
| EX9500-100 | | 15730 | 178 | 278 | 1.79 | 14.91 |
| EX9500-125 | | 16000 | 203 | 328 | 2.20 | 16.47 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



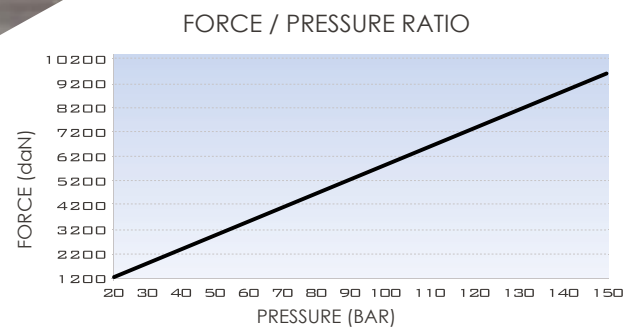
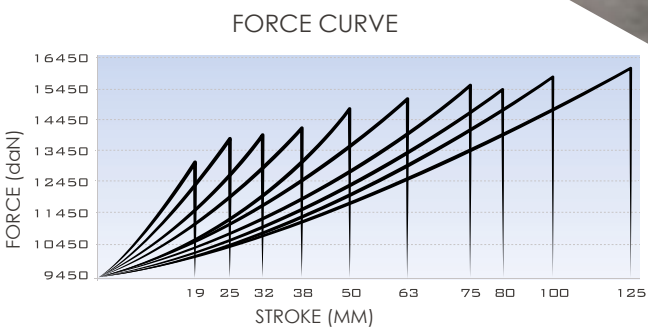
USE ONLY NITROGEN

| | | |
|------------------------|-----------------------|--------------------------------|
| MAX. PRESSURE: 150 BAR | MIN. PRESSURE: 20 BAR | MAX. PISTON VELOCITY: 1.6M/SEC |
|------------------------|-----------------------|--------------------------------|

SERVICE KIT EX9500

ISO

PED 97/23/EC

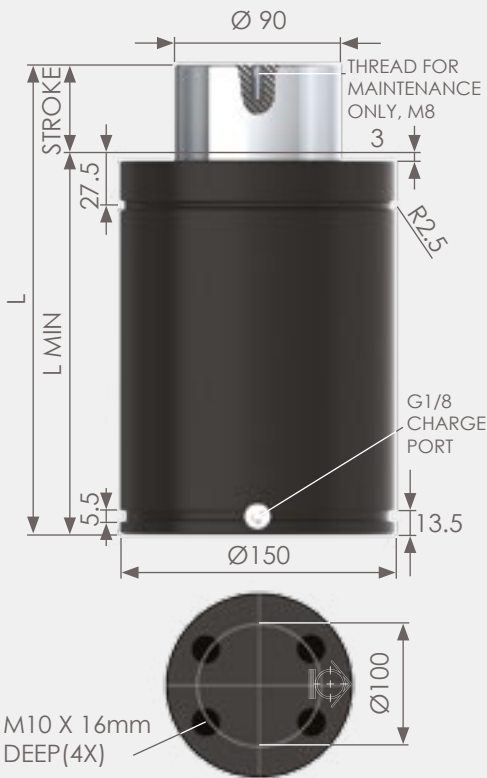


MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: EX9500 x 019 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|------------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| MX9500-025 | 9500 | 11320 | 180 | 205 | 1.09 | 16.79 |
| MX9500-038 | | 11900 | 193 | 231 | 1.30 | 17.70 |
| MX9500-050 | | 12330 | 205 | 255 | 1.49 | 18.48 |
| MX9500-063 | | 12700 | 218 | 281 | 1.69 | 19.32 |
| MX9500-075 | | 12970 | 230 | 305 | 1.88 | 20.10 |
| MX9500-080 | | 13080 | 235 | 315 | 1.96 | 20.42 |
| MX9500-100 | | 13430 | 255 | 355 | 2.28 | 31.72 |
| MX9500-125 | | 13760 | 280 | 405 | 2.67 | 23.35 |
| MX9500-150 | | 14020 | 305 | 455 | 3.07 | 24.97 |
| MX9500-160 | | 14100 | 315 | 475 | 3.23 | 25.62 |
| MX9500-175 | | 14220 | 330 | 505 | 3.47 | 26.59 |
| MX9500-200 | | 14380 | 355 | 555 | 3.86 | 28.21 |
| MX9500-250 | | 14630 | 405 | 655 | 4.65 | 31.46 |
| MX9500-300 | | 14820 | 455 | 755 | 5.44 | 34.70 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



USE ONLY NITROGEN

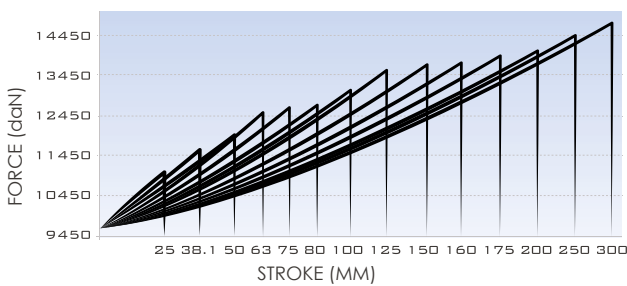
MAX. PRESSURE: 150 BAR MIN. PRESSURE: 20 BAR MAX. PISTON VELOCITY: 1.6M/SEC

SERVICE KIT
MX9500

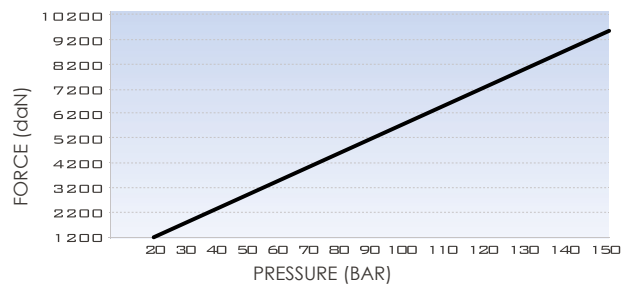
ISO PED
97/23/EC



FORCE CURVE



FORCE / PRESSURE RATIO



MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84

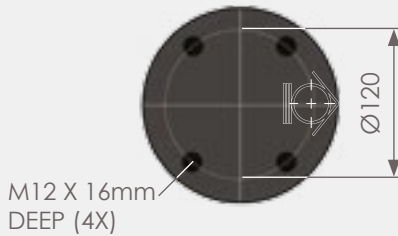


Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: MX9500 x 25 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|---------------|--------------------|---------|-------|-------|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| ISNG10000-025 | 10000 | 13800 | 185 | 210 | 0.87 | 35.90 |
| ISNG10000-038 | | 14300 | 198.1 | 236.2 | 1.13 | 37.60 |
| ISNG10000-050 | | 14700 | 210 | 260 | 1.37 | 39.20 |
| ISNG10000-063 | | 15000 | 223.5 | 287 | 1.64 | 41.00 |
| ISNG10000-080 | | 15200 | 240 | 320 | 1.98 | 43.20 |
| ISNG10000-100 | | 15600 | 260 | 360 | 2.38 | 45.80 |
| ISNG10000-125 | | 15700 | 285 | 410 | 2.88 | 49.10 |
| ISNG10000-160 | | 15800 | 320 | 480 | 3.59 | 54.50 |
| ISNG10000-200 | | 16000 | 360 | 560 | 4.39 | 60.00 |
| ISNG10000-250 | | 16000 | 410 | 660 | 5.40 | 66.50 |
| ISNG10000-300 | | 16000 | 460 | 760 | 6.40 | 73.00 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



USE ONLY NITROGEN

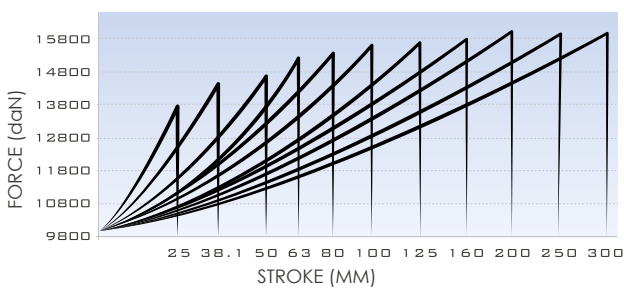
MAX. PRESSURE: 150 BAR

MIN. PRESSURE: 20 BAR

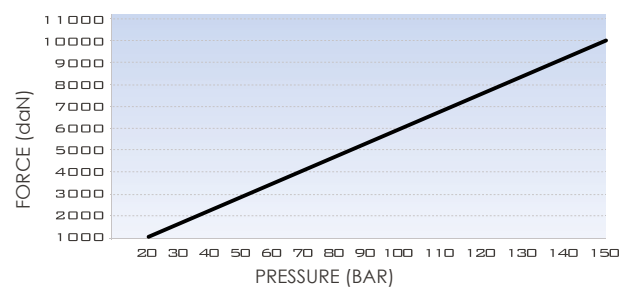
MAX. PISTON VELOCITY: 1.6M/SEC



FORCE CURVE



FORCE / PRESSURE RATIO



MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



4 X M12 Tapped Holes



Square Front Flange 195 SFF



Front Flange 195 FF



Square Flange 195 SF



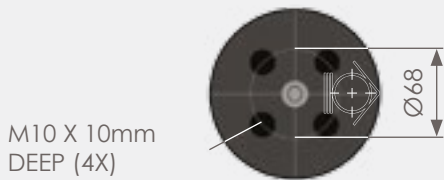
Base Plate 195 BP

Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: ISNG10000 x 025 + FF



| MODEL | SPRING FORCE (daN) | | L MIN | L | GAS VOL. (L) | WEIGHT (KG) |
|-----------|--------------------|---------|-------|-----|--------------|-------------|
| | INITIAL | MAXIMUM | | | | |
| HDG118-10 | 11800 | 16050 | 90 | 100 | 0.33 | 4.95 |
| HDG118-16 | | 15400 | 110 | 126 | 0.50 | 5.55 |
| HDG118-25 | | 16100 | 130 | 155 | 0.68 | 6.17 |
| HDG118-32 | | 16500 | 155 | 187 | 0.88 | 6.90 |
| HDG118-40 | | 16100 | 180 | 220 | 1.00 | 7.65 |
| HDG118-50 | | 16150 | 210 | 260 | 1.35 | 8.55 |

SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



M10 X 10mm DEEP (4X)

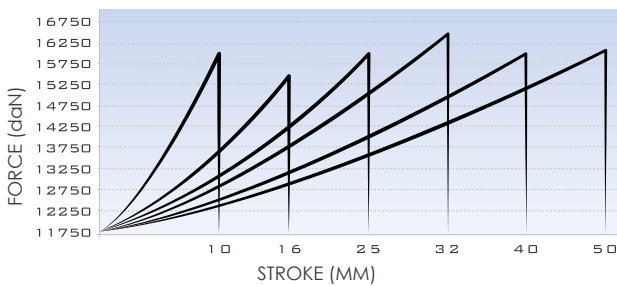
USE ONLY NITROGEN

| | | |
|------------------------|-----------------------|--------------------------------|
| MAX. PRESSURE: 150 BAR | MIN. PRESSURE: 20 BAR | MAX. PISTON VELOCITY: 0.8M/SEC |
|------------------------|-----------------------|--------------------------------|

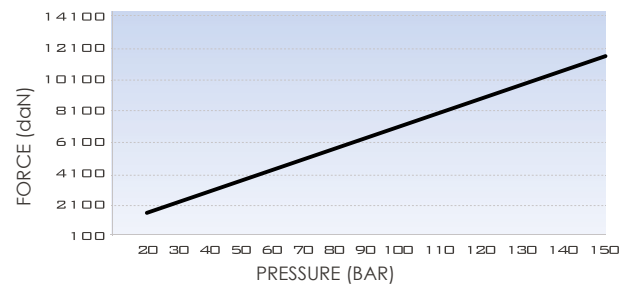
SERVICE KIT HDG118



FORCE CURVE



FORCE / PRESSURE RATIO



MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 81-84



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: HDG118 x 10 + FF

FASTENING ACCESSORIES

FASTENING ACCESSORIES

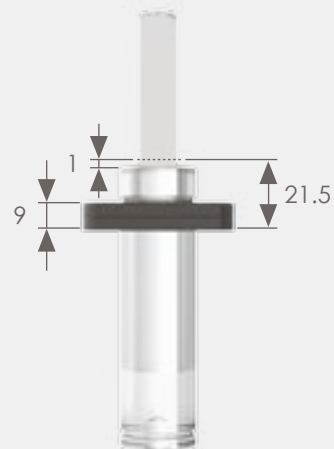
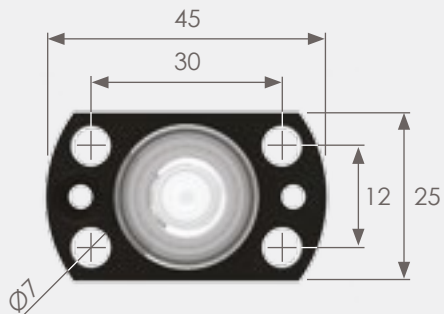
PAGE 81 - 84

THRUST PLATES

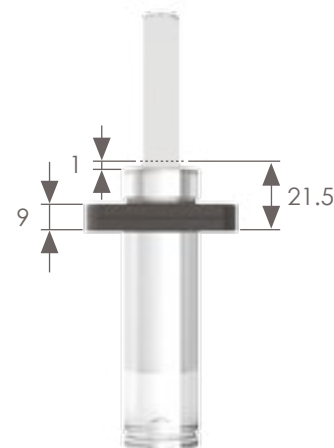
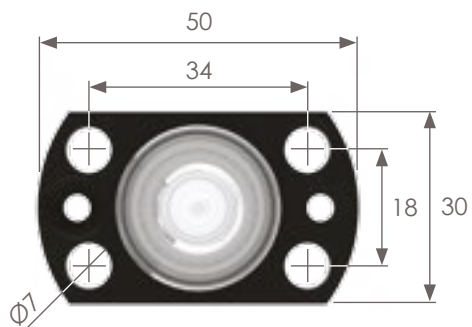
PAGE 85



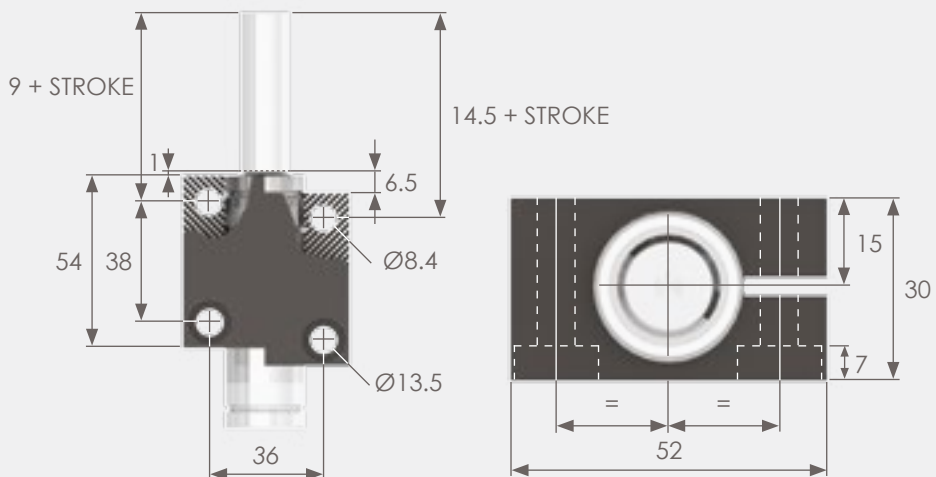
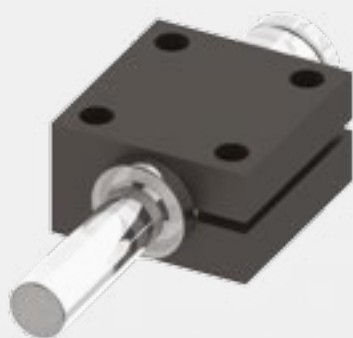
FRONT FLANGE-19FF



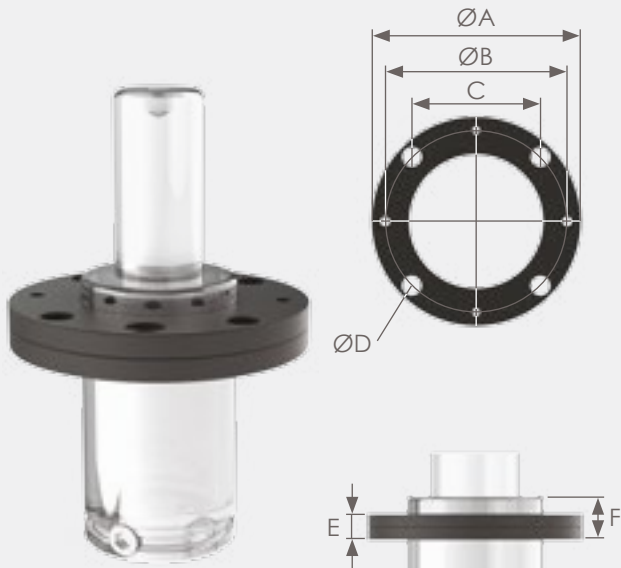
FRONT FLANGE-25FF



END SUPPORT-25ES

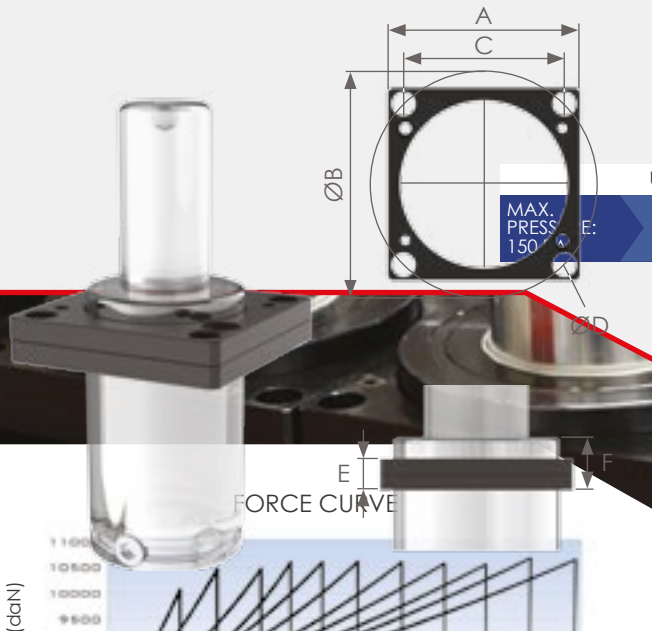


FRONT FLANGE (FF)



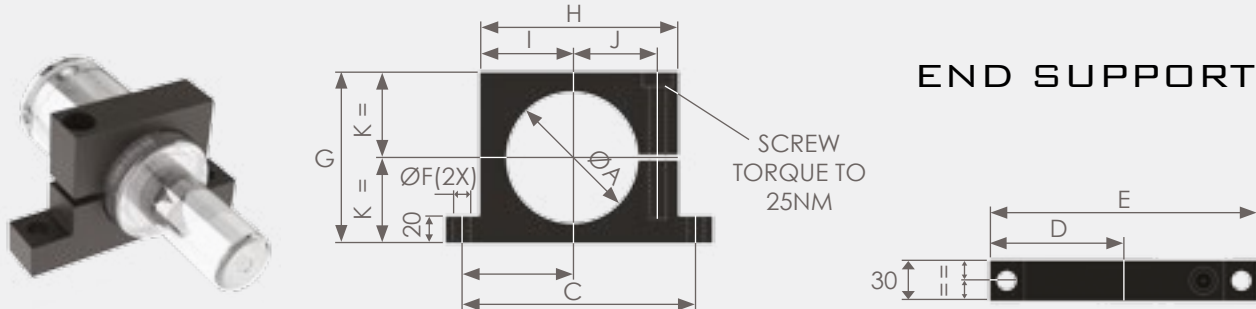
| FF-TYPE | ØA | ØB | C | ØD | E | F |
|---------|----------------------------------|-------|-------|------|----|----|
| 19 FF | For Full Dimensions, See Page 81 | | | | | |
| 25 FF | For Full Dimensions, See Page 81 | | | | | |
| 32 FF | 60 | 49.5 | 35 | 7 | 9 | 15 |
| 38 FF | 68 | 56.5 | 40 | 7 | 9 | 15 |
| 45 FF | 86 | 70.7 | 50 | 9 | 13 | 21 |
| 50 FF | 95 | 80 | 56.5 | 9 | 13 | 21 |
| 63 FF | 122 | 104 | 73.5 | 11 | 16 | 26 |
| 75 FF | 122 | 104 | 73.5 | 11 | 16 | 26 |
| 95 FF | 150 | 130 | 92 | 13.5 | 18 | 30 |
| 120 FF | 175 | 155 | 109.5 | 13.5 | 21 | 33 |
| 150 FF | 220 | 195 | 138 | 17.5 | 27 | 38 |
| 195 FF | 290 | 240.4 | 170 | 17.5 | 27 | 44 |

SQUARE FRONT FLANGE (SFF)



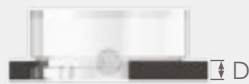
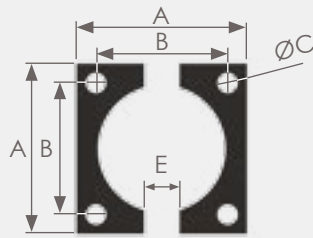
| SFF-TYPE | ØA | ØB | C | ØD | E | F |
|----------|-----|-------|-------|------|----|----|
| 32 SFF | 45 | 49.5 | 35 | 7 | 9 | 15 |
| 38 SFF | 52 | 56.5 | 40 | 7 | 9 | 15 |
| 45 SFF | 64 | 70.7 | 50 | 9 | 13 | 21 |
| 50 SFF | 70 | 80 | 56.5 | 9 | 13 | 21 |
| 63 SFF-A | 80 | 90.5 | 64 | 11 | 16 | 24 |
| 63 SFF | 90 | 104 | 73.5 | 11 | 16 | 24 |
| 75 SFF | 90 | 104 | 73.5 | 11 | 16 | 26 |
| 95 SFF | 110 | 130 | 92 | 13.5 | 18 | 30 |
| 120 SFF | 130 | 155 | 109.5 | 13.5 | 21 | 33 |
| 150 SFF | 162 | 195 | 138 | 17.5 | 27 | 38 |
| 195 SFF | 210 | 240.4 | 170 | 17.5 | 27 | 43 |

END SUPPORT (ES)

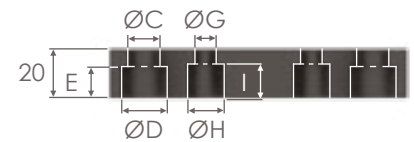
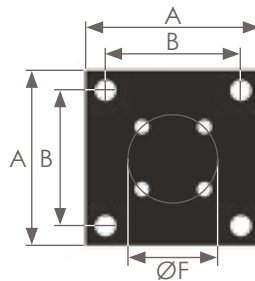
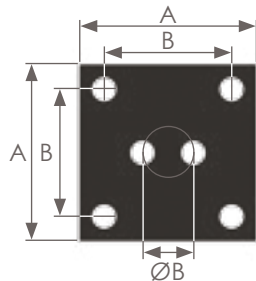


| ES-TYPE | ØA | ØB | C | ØD | E | ØF | G | H | I | ØSCREW | J | K |
|---------|-----|------|-----|------|-----|------|-----|-----|------|--------|------|------|
| 38 ES | 38 | 34 | 77 | 43 | 95 | 9 | 55 | 59 | 25 | M6 | 25 | 27.5 |
| 45 ES | 45 | 37.5 | 82 | 46 | 100 | 9 | 60 | 66 | 29 | M8 | 29 | 30 |
| 50 ES | 50 | 50 | 110 | 60 | 130 | 9 | 80 | 90 | 40 | M8 | 37.5 | 40 |
| 63 ES | 75 | 63.5 | 137 | 75 | 160 | 11 | 105 | 115 | 52.5 | M10 | 50 | 52.5 |
| 75 ES | 95 | 80 | 170 | 92.5 | 195 | 13 | 125 | 145 | 67.5 | M12 | 62.5 | 62.5 |
| 120 ES | 120 | 92.5 | 195 | 105 | 220 | 13.5 | 148 | 165 | 77.5 | M12 | 76.2 | 74 |

SQUARE FLANGE (SF)

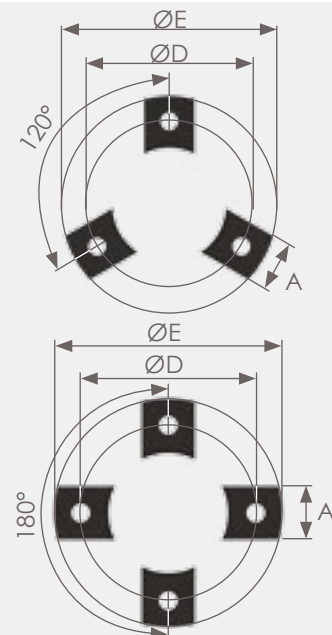


| SF-TYPE | A | B | ØC | D | E |
|---------|-----|-------|------|----|----|
| 32 SF | 50 | 35 | 7 | 7 | 12 |
| 38 SF | 55 | 40 | 7 | 7 | 12 |
| 45 SF | 70 | 50 | 9 | 7 | 20 |
| 50 SF | 75 | 56.5 | 9 | 12 | 24 |
| 63 SF | 100 | 73.5 | 11 | 12 | 24 |
| 75 SF | 100 | 73.5 | 11 | 12 | 24 |
| 95 SF | 120 | 92 | 13.5 | 12 | 24 |
| 120 SF | 140 | 109.5 | 13.5 | 12 | 24 |
| 150 SF | 190 | 138 | 17.5 | 12 | 24 |
| 195 SF | 210 | 170 | 17.5 | 13 | 24 |



BASE PLATE (BP)

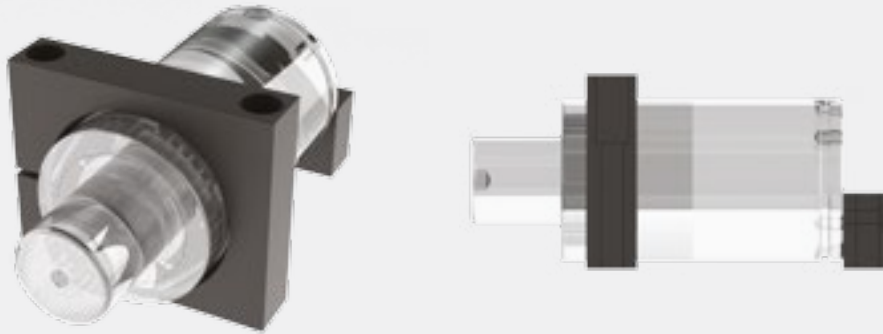
| BP-TYPE | A | B | ØC | ØD | E | ØF | ØG | ØH | I |
|---------|-----|-------|------|----|----|-----|------|----|----|
| 45 BP | 70 | 50 | 9 | 15 | 12 | 20 | 9 | 15 | 14 |
| 50 BP | 75 | 56.5 | 9 | 15 | 12 | 20 | 9 | 15 | 14 |
| 63 BP | 100 | 73.5 | 10.5 | 18 | 12 | 20 | 9 | 15 | 12 |
| 75 BP | 100 | 73.5 | 11 | 18 | 12 | 40 | 9 | 15 | 14 |
| 95 BP | 120 | 92 | 13.5 | 20 | 13 | 60 | 9 | 15 | 14 |
| 120 BP | 140 | 109.5 | 13.5 | 20 | 13 | 80 | 11 | 18 | 15 |
| 150 BP | 190 | 138 | 17.5 | 26 | 17 | 100 | 11 | 18 | 15 |
| 195 BP | 210 | 170 | 17.5 | 26 | 17 | 100 | 13.5 | 20 | 13 |



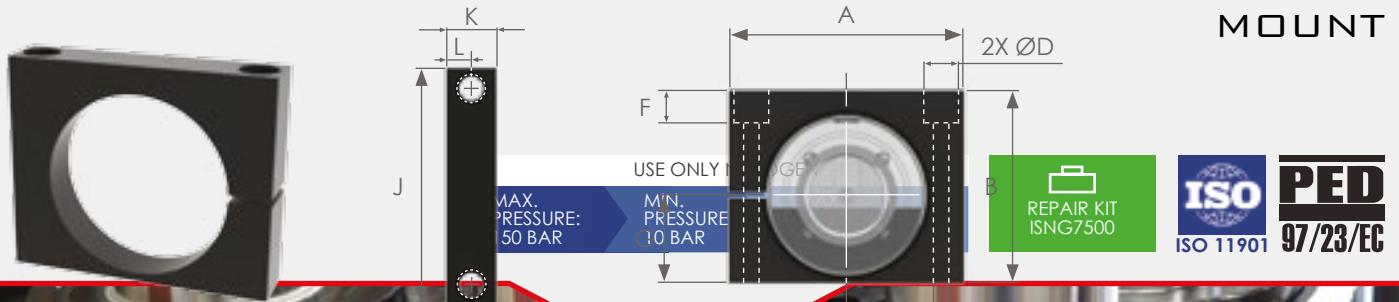
FOOT (F)

| F-TYPE | A | B | C | D | E |
|--------|----|----|----|------|------|
| 45 F | 25 | 7 | 9 | 70.7 | 95.8 |
| 50 F | 30 | 12 | 9 | 80 | 110 |
| 75 F | 30 | 12 | 11 | 104 | 134 |
| 95 F | 40 | 12 | 13 | 130 | 170 |
| 120 F | 50 | 12 | 13 | 155 | 195 |
| 150 F | 60 | 12 | 17 | 184 | 220 |

The horizontal mount (HM) conforms to the ford WDX35-62 standard.

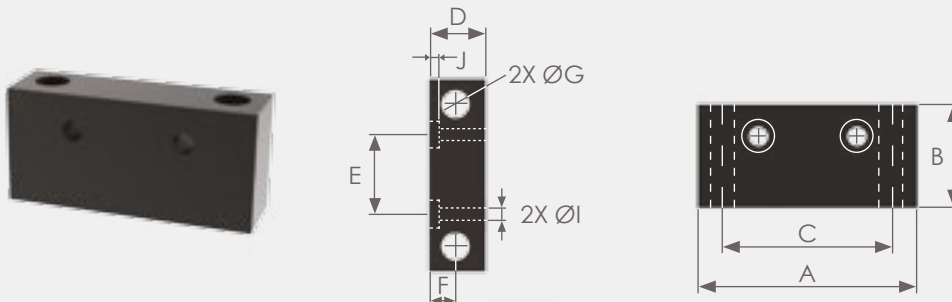


Mount and the support are supplied as a kit.



| FLANGE TYPE | A | B | ØD | ØE | F | G | I | J | K | L |
|-------------|-----|-----|----|------|----|------|----|-----|----|-----|
| 38HM | 74 | 54 | 15 | 9 | 16 | 23.9 | 20 | 54 | 10 | 3 |
| 50HM | 90 | 70 | 18 | 11 | 25 | 30 | 30 | 68 | 15 | 4.5 |
| 75HM | 125 | 94 | 20 | 13.5 | 19 | 42 | 30 | 100 | 15 | 6 |
| 95HM | 140 | 115 | 20 | 13.5 | 40 | 52.5 | 30 | 115 | 15 | 6 |

SUPPORT



| FLANGE TYPE | A | B | C | D | E | F | ØG | ØI | J |
|-------------|----|----|----|----|------|----|------|----|---|
| 38HM | 60 | 38 | 40 | 28 | 18 | 16 | 9 | 6 | 4 |
| 50HM | 65 | 45 | 44 | 28 | 20 | 15 | 11 | 8 | 5 |
| 75HM | 80 | 45 | 57 | 28 | 21.3 | 16 | 13.5 | 8 | 5 |
| 95HM | 95 | 45 | 70 | 28 | 42.4 | 13 | 13.5 | 8 | 5 |

THRUST PLATES FOR GAS SPRINGS

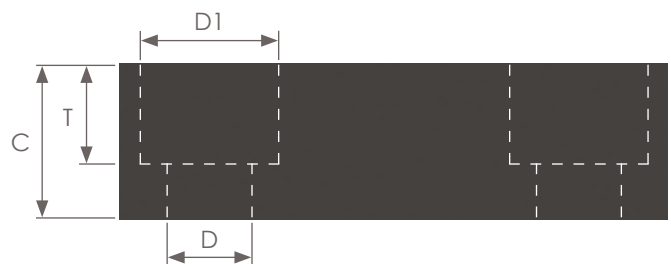
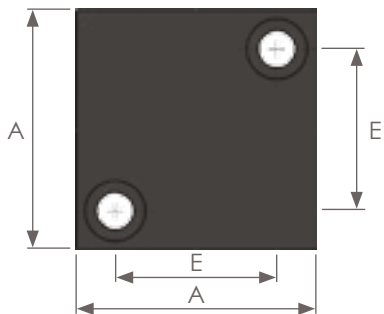


Thrust plates protect against damage to the piston top and the tool contact area. Damage can introduce side loading, reducing the life of the gas spring.

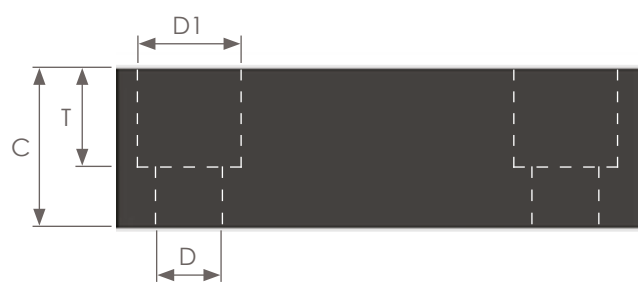
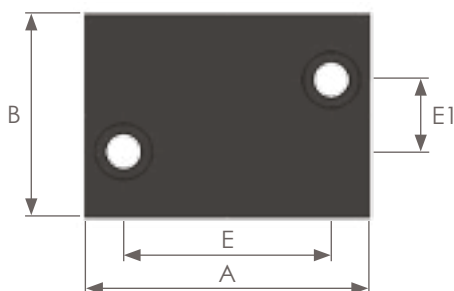
Material:
Tool Steel DIN 90MnCrV8 (1.2842),
hardened 55 - 60 HRC



| ORDER NO | MAX. PISTON ROD DIAMETER | A | C | D | D1 | E | T |
|----------|--------------------------|-----|----|----|----|-----|----|
| TP15 | 15 | 40 | 15 | 9 | 15 | 21 | 10 |
| TP15-2 | 15 | 40 | 15 | 7 | 11 | 24 | 7 |
| TP25 | 25 | 56 | 20 | 11 | 18 | 32 | 13 |
| TP50 | 50 | 71 | 20 | 11 | 18 | 48 | 13 |
| TP50-2 | 50 | 70 | 15 | 9 | 15 | 50 | 9 |
| TP65 | 65 | 90 | 12 | 9 | 15 | 64 | 9 |
| TP80 | 80 | 90 | 20 | 11 | 18 | 67 | 13 |
| TP80-2 | 80 | 90 | 15 | 9 | 15 | 70 | 9 |
| TP95 | 95 | 140 | 20 | 11 | 18 | 110 | 13 |

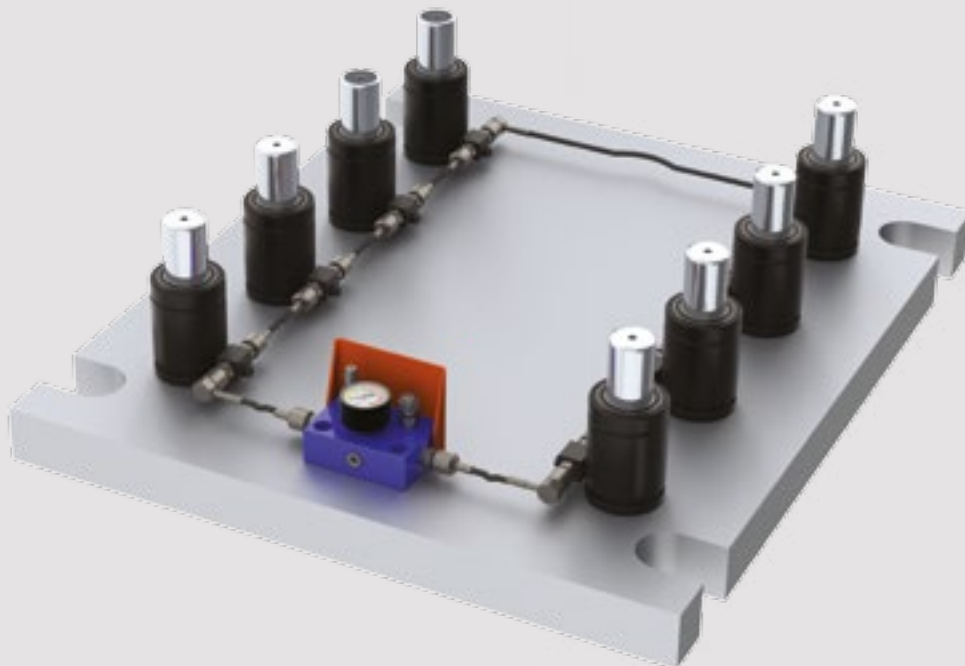


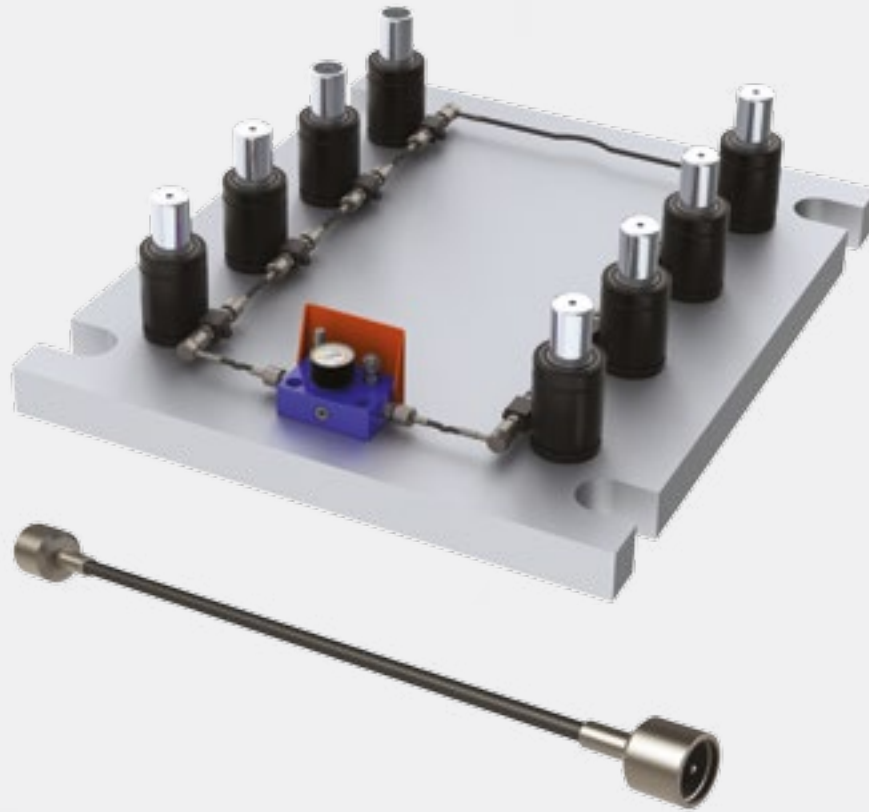
| ORDER NO | MAX. PISTON ROD DIAMETER | A | B | C | D | D1 | E | E1 | T |
|----------|--------------------------|-----|-----|----|----|----|----|----|----|
| TPR15 | 15 | 50 | 25 | 12 | 7 | 11 | 32 | 8 | 7 |
| TPR20 | 20 | 55 | 30 | 12 | 7 | 11 | 40 | 14 | 7 |
| TPR25 | 25 | 70 | 35 | 15 | 9 | 15 | 48 | 14 | 9 |
| TPR36 | 36 | 75 | 50 | 15 | 9 | 15 | 56 | 30 | 9 |
| TPR50 | 50 | 85 | 60 | 15 | 9 | 15 | 66 | 40 | 9 |
| TPR65 | 65 | 100 | 80 | 20 | 11 | 18 | 72 | 56 | 11 |
| TPR80 | 80 | 110 | 100 | 20 | 11 | 18 | 85 | 75 | 11 |



HOSE SYSTEMS

| | |
|---|----------------------|
| CNOMO SYSTEM INTRODUCTION | PAGE 87 |
| CNOMO HOSES | PAGE 88 |
| CNOMO ADAPTORS | PAGE 89-92 |
| CNOMO HOSE SYSTEM EXAMPLES | PAGE 93 |
| MICRO SYSTEM INTRODUCTION | PAGE 94 |
| MICRO HOSES | PAGE 95 |
| MICRO GAS SPRING CONNECTIONS | PAGE 95 - 100 |
| MICRO HOSE TO HOSE ADAPTORS | PAGE 95 |
| MICRO HOSE SYSTEM EXAMPLES | PAGE 101 |
| CONTROL PANELS & MULTIPLE ADAPTORS | PAGE 102 |
| DO'S & DONT'S | PAGE 103 |





Features:

- ✓ Material: Black polyamide construction with synthetic fibre braid.
- ✓ Minimum bend radius: 20mm
- ✓ Max working pressure: 500bar

Advantages:

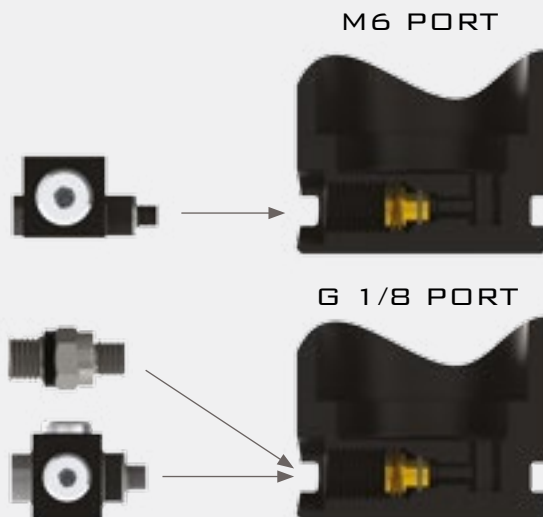
- ✓ O-ring Sealed and vibration resistant hose fitting.
- ✓ Finger tighten hoses
- ✓ A complete hose can be removed and system remains charged
- ✓ Large range of adaptors
- ✓ Direct connection of G1/8 port to hose

No direct hose to spring connection available for M6 port

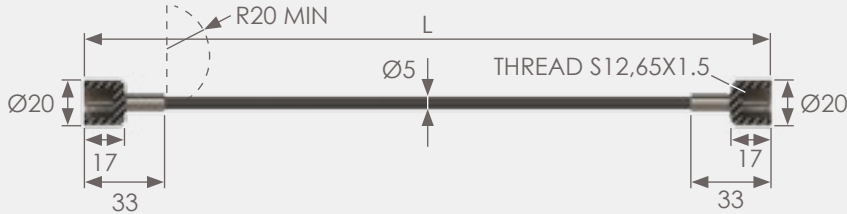
MET1054-1057 – SPRING TO T-ADAPTOR

MET1040 – SPRING TO HOSE ADAPTOR

MET1050 – 1053 – SPRING TO T-ADAPTOR

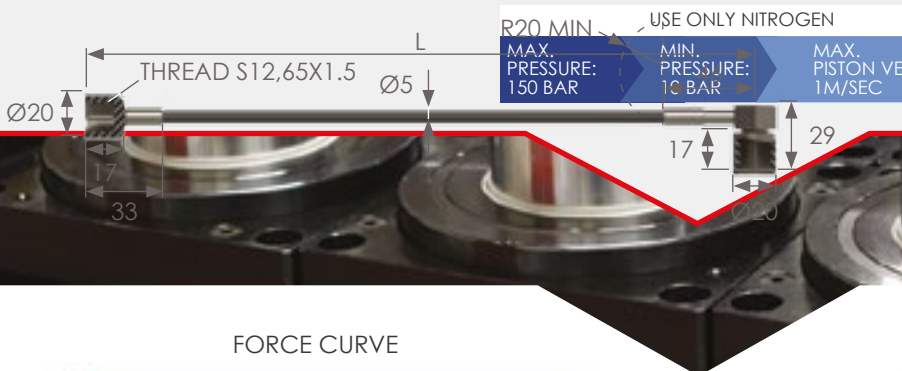


KEVLAR BRAIDED HOSE WITH STRAIGHT FITTINGS



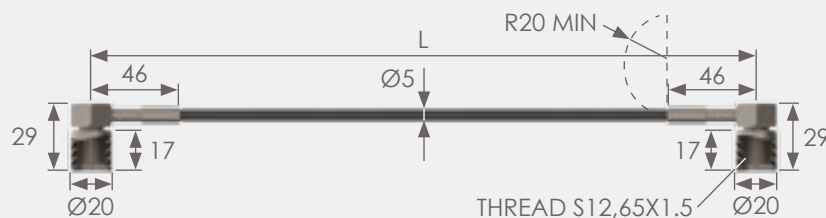
| ORDER NO. | LENGTH (L) |
|----------------------|------------------------|
| MET 1000 | 200 |
| MET 1001 | 300 |
| MET 1002 | 400 |
| MET 1003 | 500 |
| MET 1004 | 600 |
| MET 1005 | 800 |
| MET 1006 | 1000 |
| MET 1007 | 1200 |
| MET 1008 | 1500 |
| MET 1009 | 2000 |
| MET 1010 | 2500 |
| MET 1011 | 3000 |
| MET 1012 | CUSTOMER SPECIFICATION |
| MINIMUM LENGTH 100MM | |

KEVLAR BRAIDED HOSE WITH STRAIGHT AND COMPACT 90 FITTING



| ORDER NO. | LENGTH (L) |
|----------------------|------------------------|
| MET 1013 | 200 |
| MET 1014 | 300 |
| MET 1015 | 400 |
| MET 1016 | 500 |
| MET 1017 | 600 |
| MET 1018 | 800 |
| MET 1019 | 1000 |
| MET 1020 | 1200 |
| MET 1021 | 1500 |
| MET 1022 | 2000 |
| MET 1023 | 2500 |
| MET 1024 | 3000 |
| MET 1025 | CUSTOMER SPECIFICATION |
| MINIMUM LENGTH 100MM | |

KEVLAR BRAIDED HOSE WITH COMPACT 90 FITTINGS

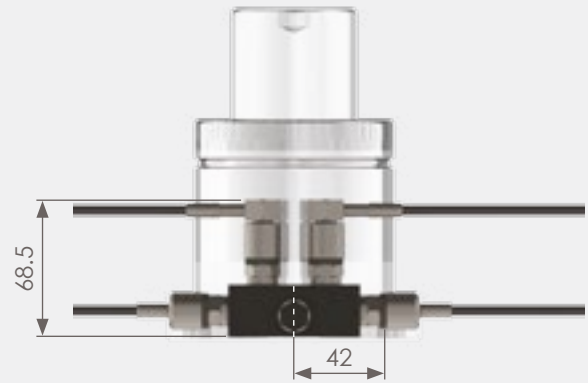
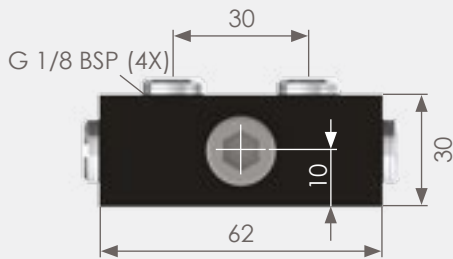
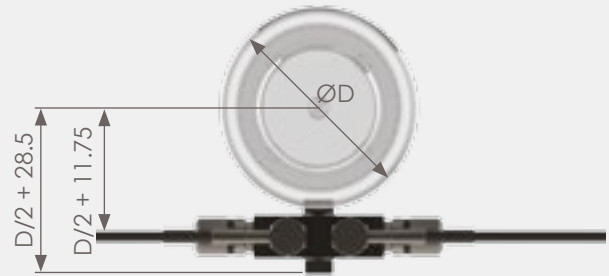
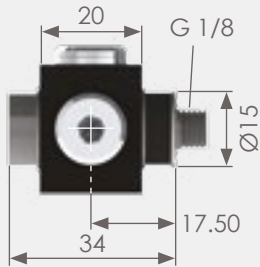


| ORDER NO. | LENGTH (L) |
|----------------------|------------------------|
| MET 1026 | 200 |
| MET 1027 | 300 |
| MET 1028 | 400 |
| MET 1029 | 500 |
| MET 1030 | 600 |
| MET 1031 | 800 |
| MET 1032 | 1000 |
| MET 1033 | 1200 |
| MET 1034 | 1500 |
| MET 1035 | 2000 |
| MET 1036 | 2500 |
| MET 1037 | 3000 |
| MET 1038 | CUSTOMER SPECIFICATION |
| MINIMUM LENGTH 100MM | |

4 X M10 Tapped Holes Square Front Flange 120 SF Front Flange 120 FF Square Flange 120 SF Base Plate 120 BP End Support 120 ES
Please see page 109 for CNOMO hose components MET1080 (Straight end) MET1081 (90 degree end) and MET1082 (Micro base hose)
Please note: gas springs should always be positively retained when possible. Order: Spring Type x Stroke + Mounting Type ie: MX1000 x 50 + FF

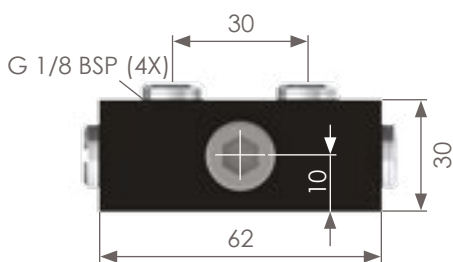
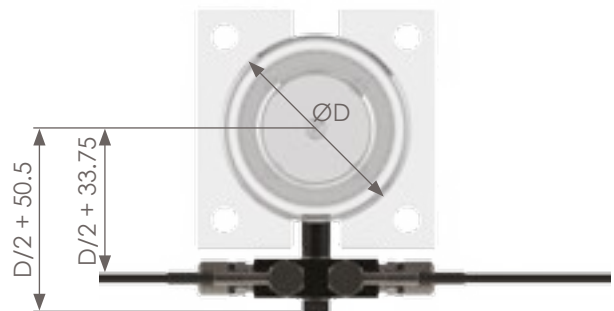
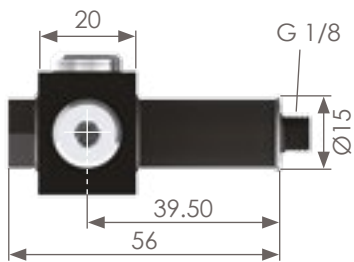
MET 1050

4 way multiple adaptor

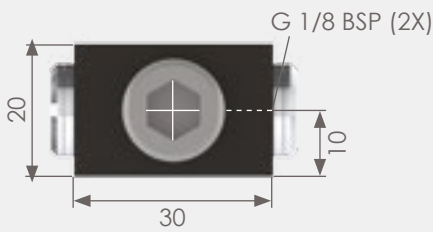
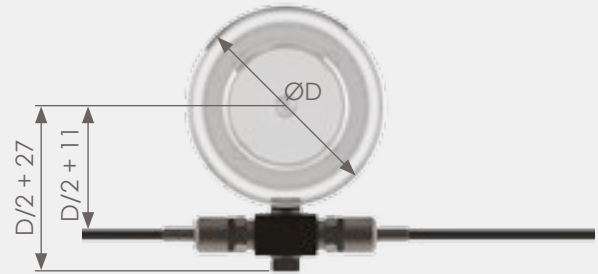
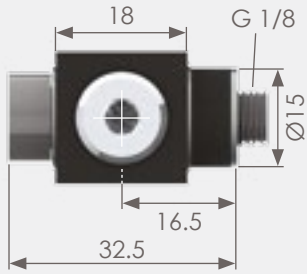


MET 1051

Multiple adaptor when springs are clamped using SF flange

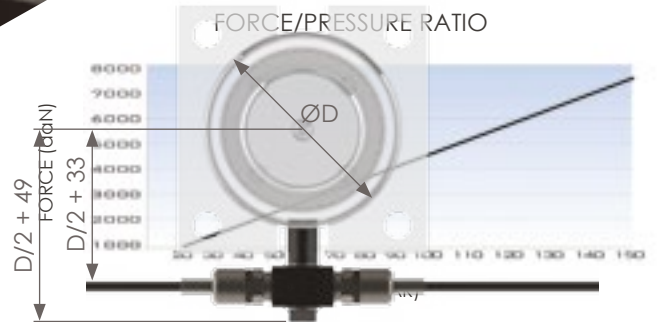
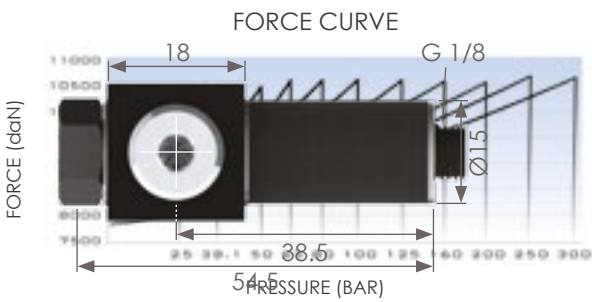


MET 1052



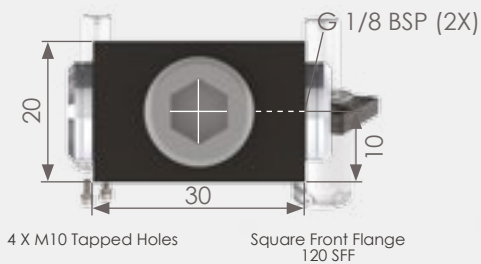
MET 1053

When springs are clamped using E Flange.



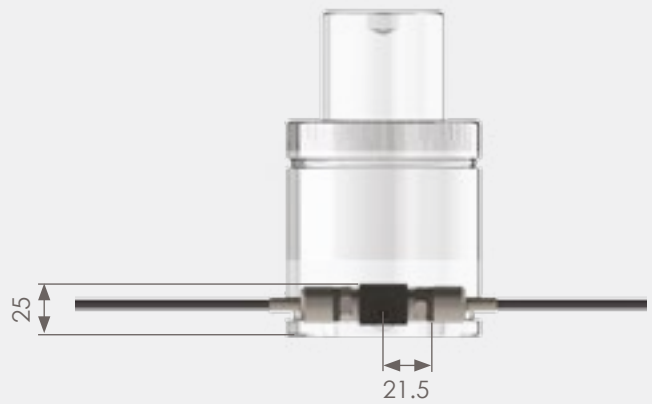
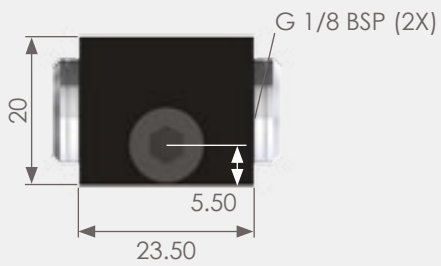
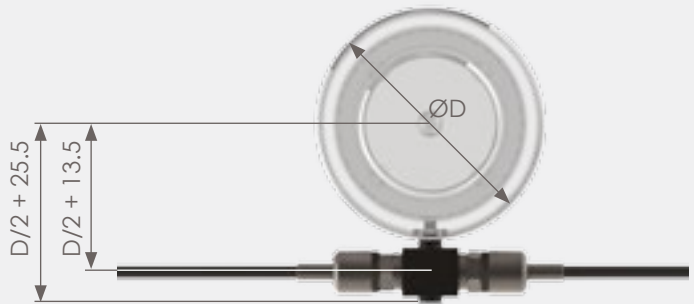
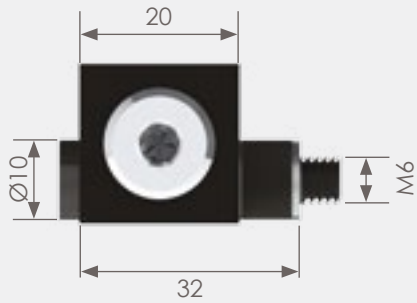
MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 48-49



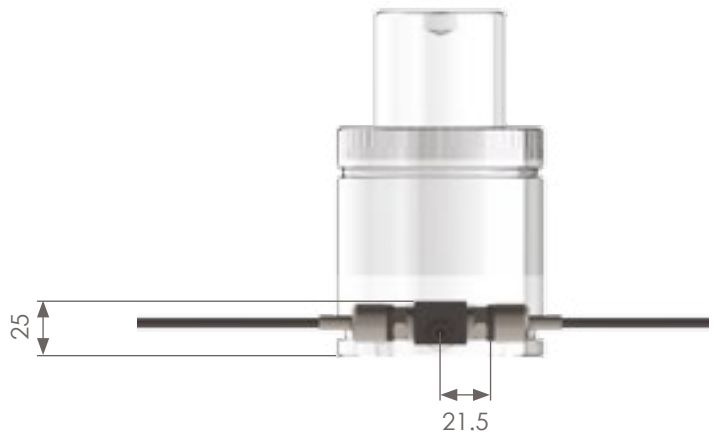
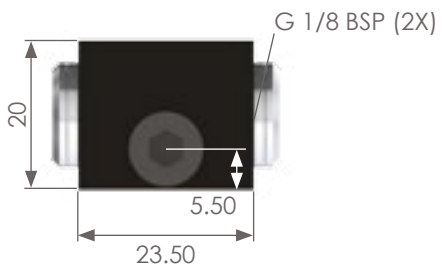
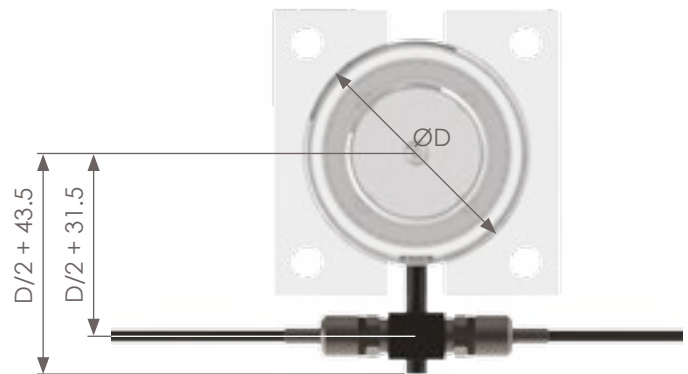
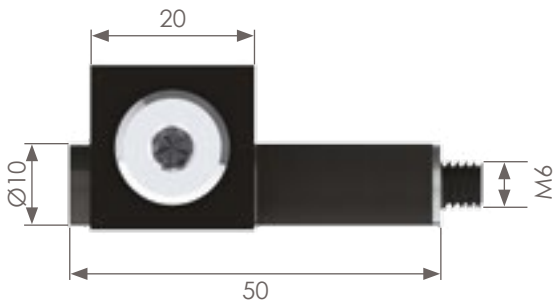
Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: MX1000 x 50 + FF

MET 1054

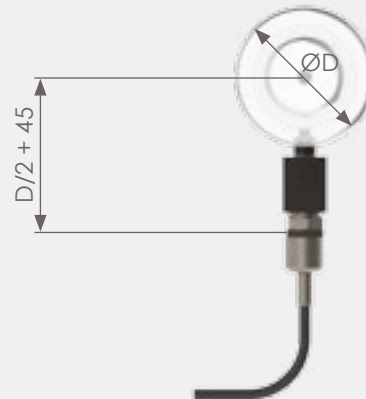
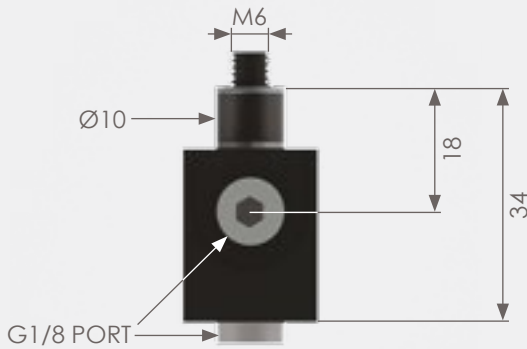


MET 1055

When using SF Flange.

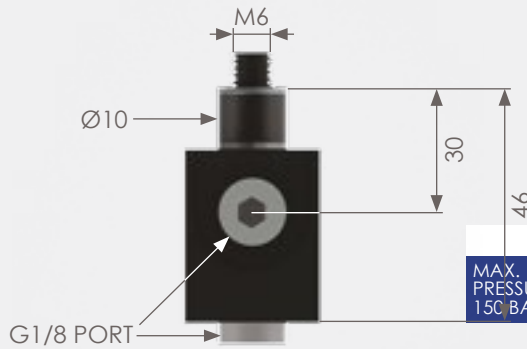


MET 1056

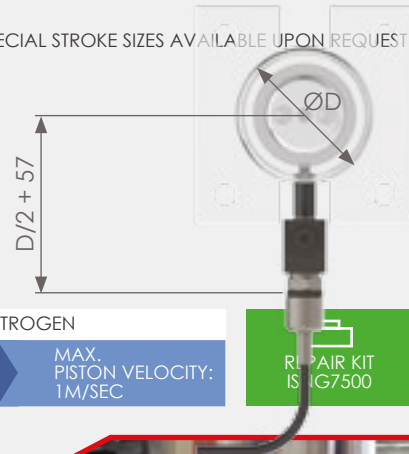


MET 1057

When using SF Flange.



SPECIAL STROKE SIZES AVAILABLE UPON REQUEST



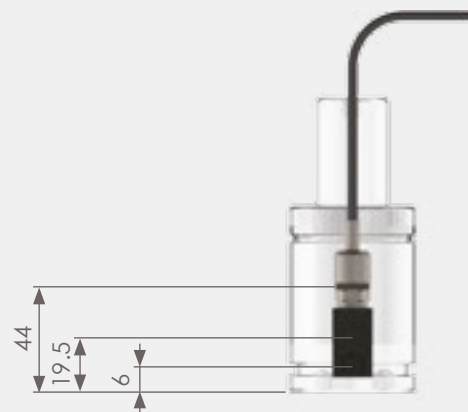
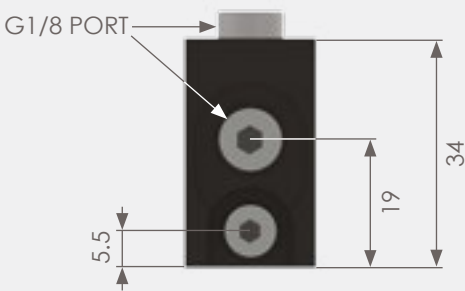
USE ONLY NITROGEN
MAX. PRESSURE: 150 BAR
MIN. PRESSURE: 10 BAR
MAX. PISTON VELOCITY: 1M/SEC

REPAIR KIT
ISO 15017

ISO 11901

PED
97/23/EC

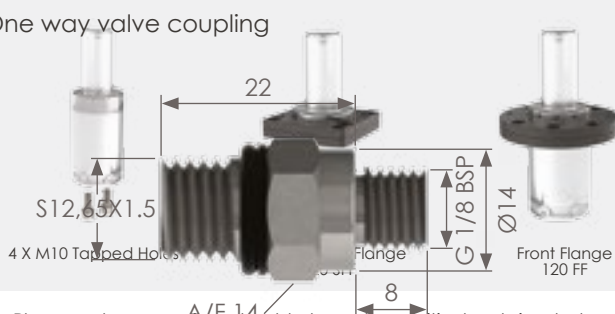
MET 1056 & 1057



MOUNTING EXAMPLES

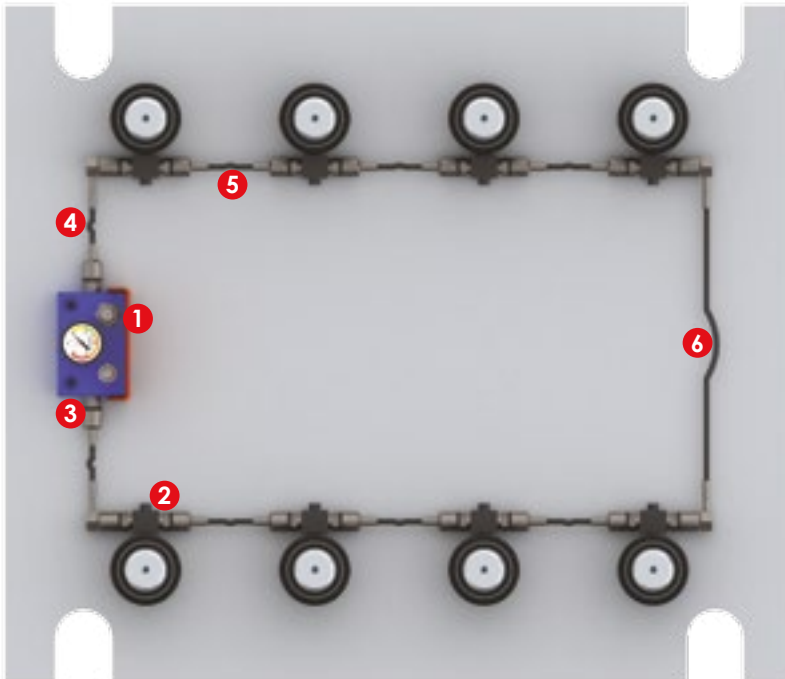
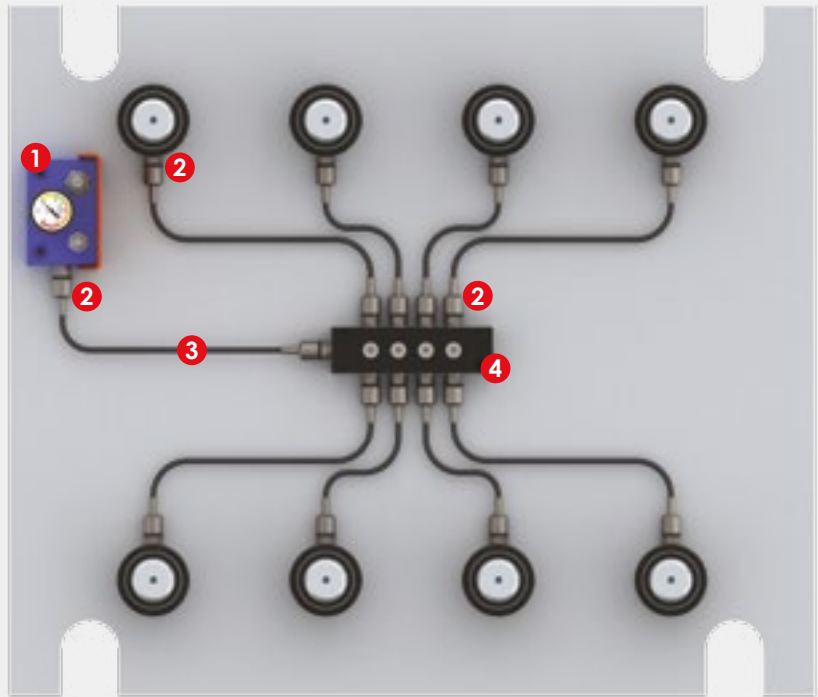
(Dimensions are mm, unless otherwise stated) for other possible mounting options see pages 48-49

One way valve coupling

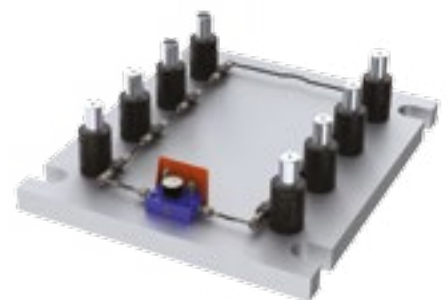


Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke x Hose Type ie: MX1000 x 50 + FF

- 1 MET111 Control Panel
- 2 MET1040
- 3 MET1012
- 4 MET1060



- 1 MET111 Control Panel
- 2 MET1052
- 3 MET1040
- 4 MET1025
- 5 MET1012
- 6 MET1038





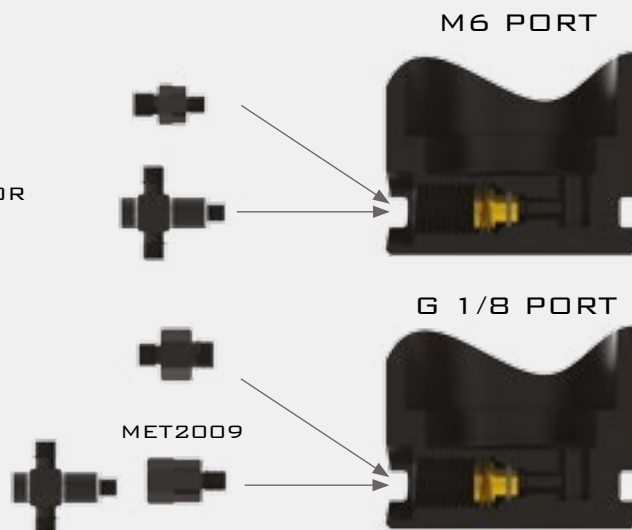
| | |
|---|--|
| <p>Features:</p> <ul style="list-style-type: none"> ✓ Material: Black polyamide construction with synthetic fibre braid. ✓ Minimum bend radius: 20mm ✓ Max working pressure: 500bar | <p>Advantages:</p> <ul style="list-style-type: none"> ✓ Dual sealed to prevent leaking ✓ Compact hose fittings and adaptors where space is restricted. ✓ Direct connection of M6 and G1/8 port to hose |
|---|--|

MET2001 - HOSE TO SPRING ADAPTOR

MET2010 TO MET2017 - SPRING TO T-ADAPTOR

MET2002 - SPRING TO HOSE ADAPTOR

MET2010 TO 2017 - SPRING TO T-ADAPTOR



The micro hose system is primarily used with M6 ports or where space is limited. The dual seal system prevents leaking and gives protection against vibration and rotation.

Custom hose lengths for the Micro range can be specified.

BASIC INFORMATION

Material: Polyamide Black

External Dimension: 5mm

Volume: 3ml/meter

Outer Casing: Perforated

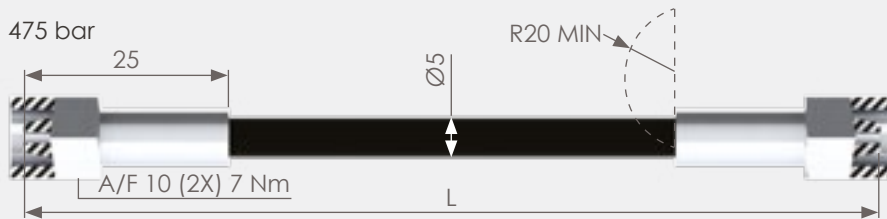
Min. Bend Radius: 20mm

Temperature Range: -20°C 80°C

Max. Working Pressure: 475 bar

| ORDER NO. | LENGTH (L) |
|-----------|------------------------|
| MET 2020 | 200 |
| MET 2021 | 300 |
| MET 2022 | 400 |
| MET 2023 | 500 |
| MET 2024 | 600 |
| MET 2025 | 800 |
| MET 2026 | 1000 |
| MET 2027 | 1200 |
| MET 2028 | 1500 |
| MET 2030 | CUSTOMER SPECIFICATION |

MINIMUM LENGTH 80MM

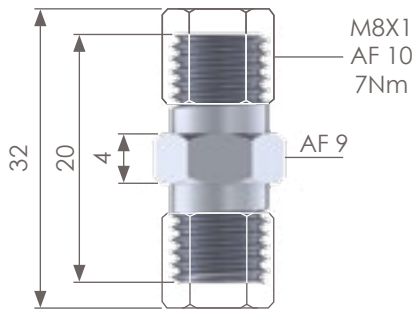


Please see page 109 for MICRO hose components MET1085 (Straight end) and MET1082 (Micro bore hose).

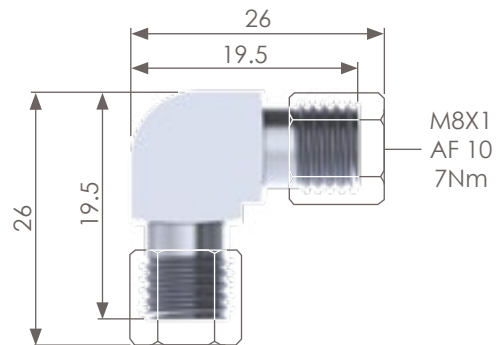
MICRO HOSE ADAPTORS

The following adaptors are used to connect Micro Hose .

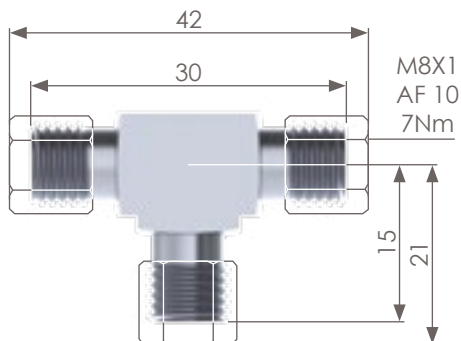
MET 2004



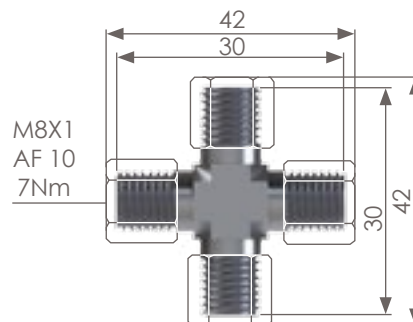
MET 2005



MET 2006

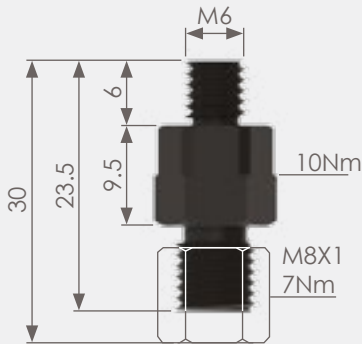


MET 2007



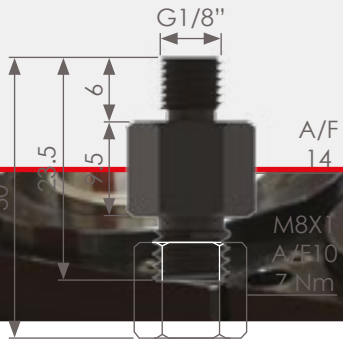
MET 2001

For connection of hose to gas spring with M6 Port.

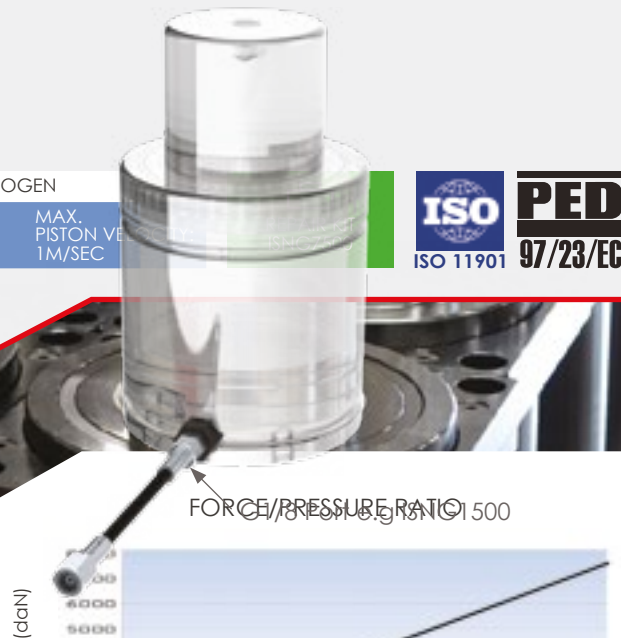


MET 2002

For connection to control panel or gas spring with G1/8 Port.

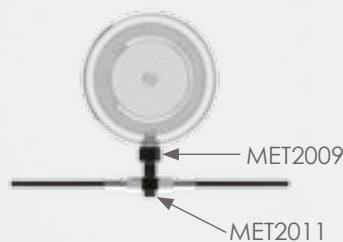
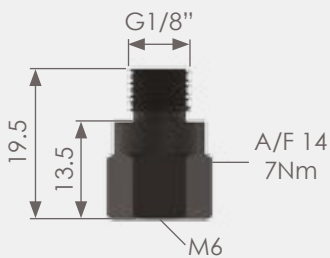


USE ONLY NITROGEN
MAX. PRESSURE: 150 BAR MIN. PRESSURE: 10 BAR MAX. PISTON VELOCITY: 1M/SEC



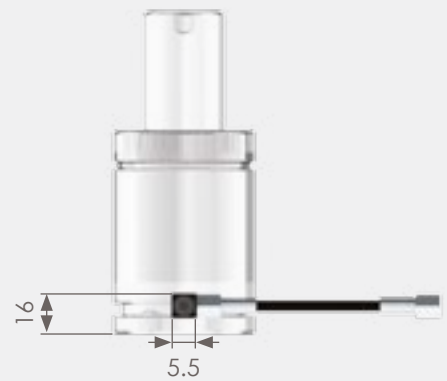
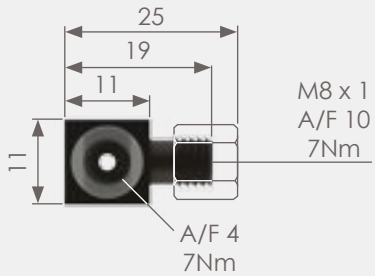
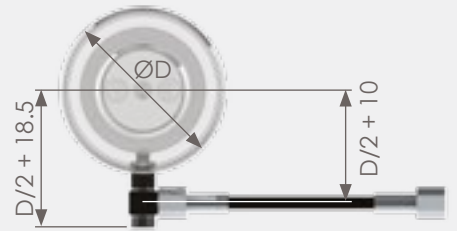
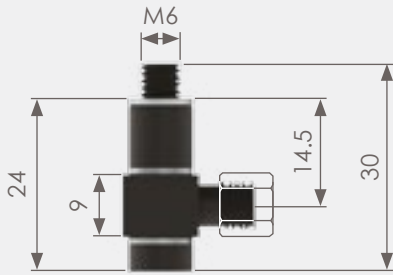
MET 2009

Adapter for Connection of G1/8 Port when using T-adaptor on the Micro Hose System.



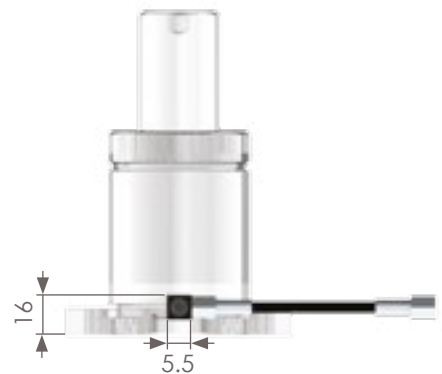
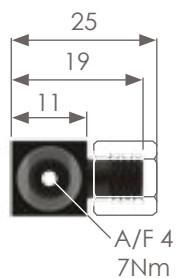
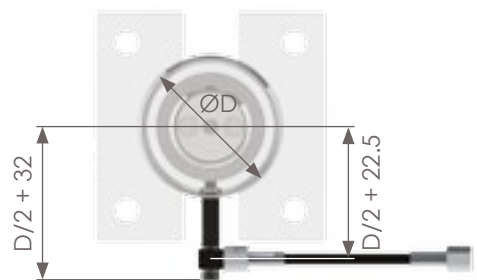
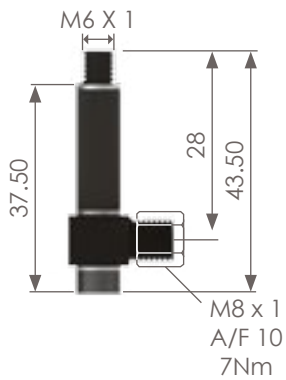
(All dimensions are mm, unless otherwise stated)

MET 2010

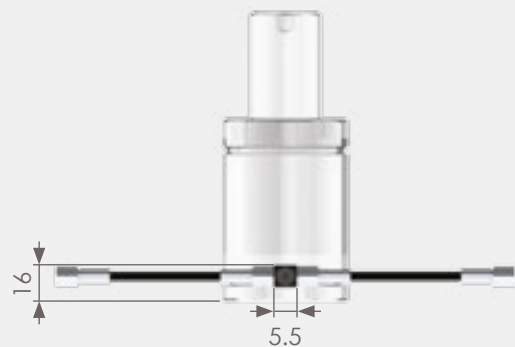
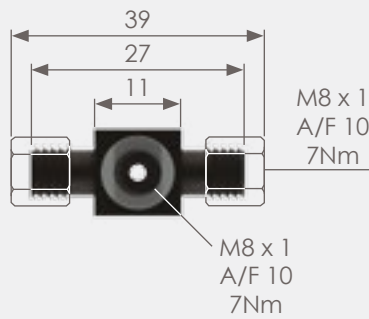
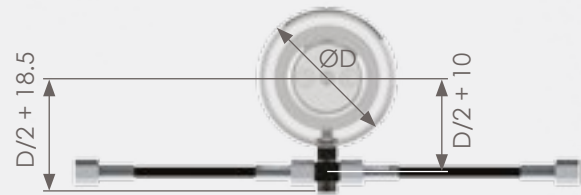
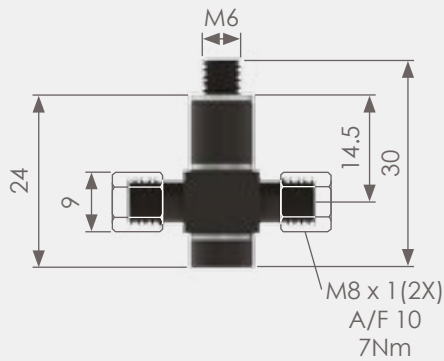


MET 2014

When using SF Flange.

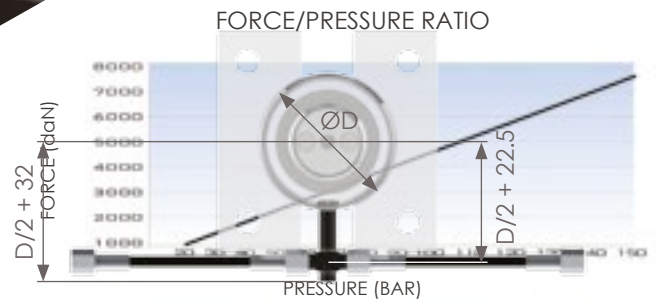
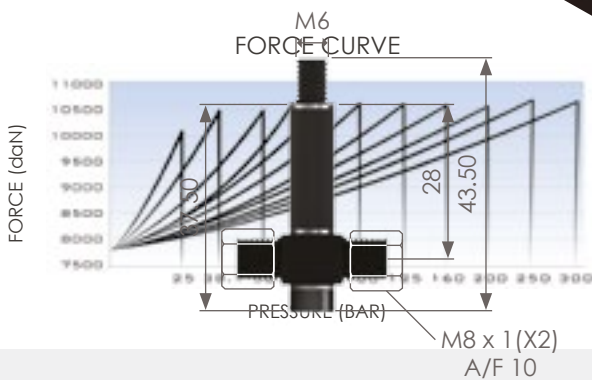


MET 2011



MET 2015

When using SF Flange.



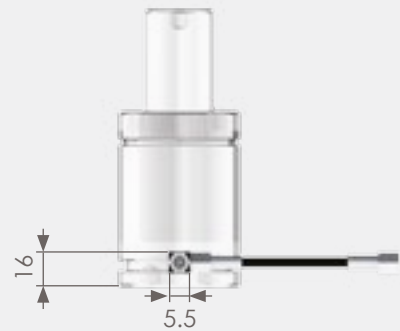
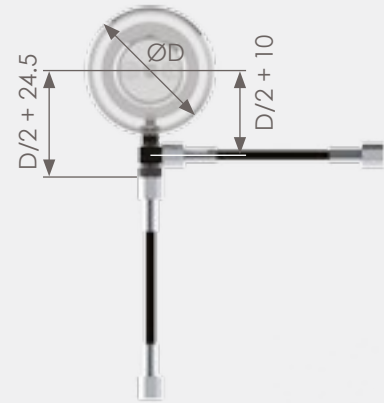
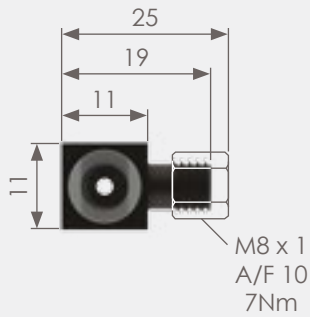
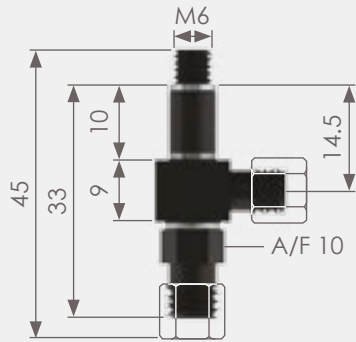
MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 48-49



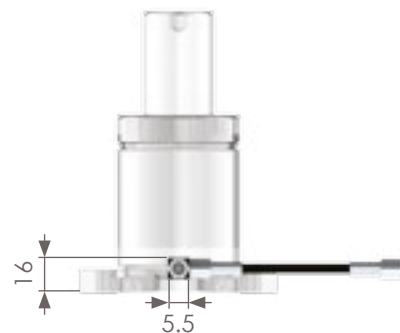
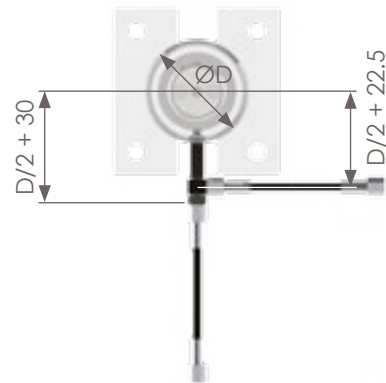
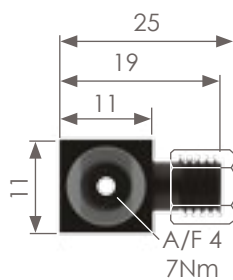
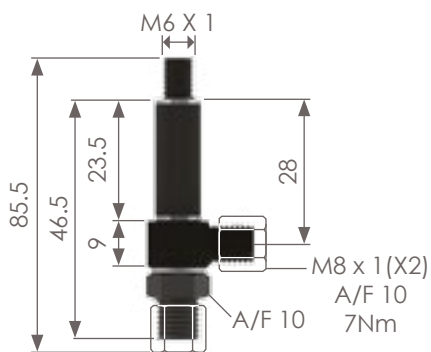
Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: MX1000 x 50 + FF

MET 2012

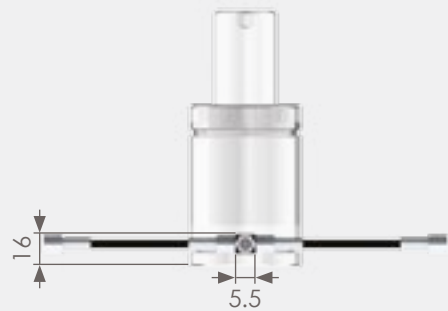
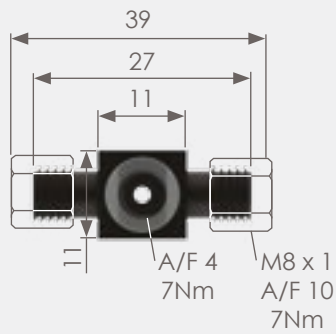
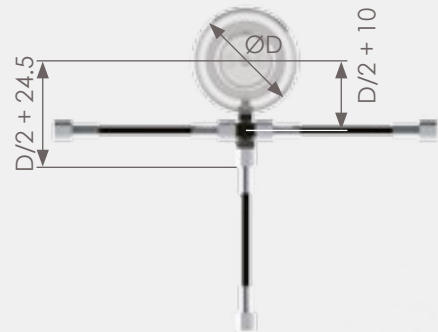
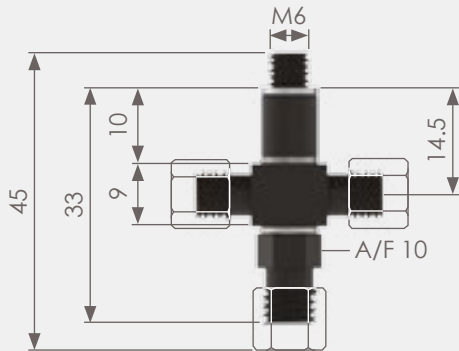


MET 2016

When using SF Flange.

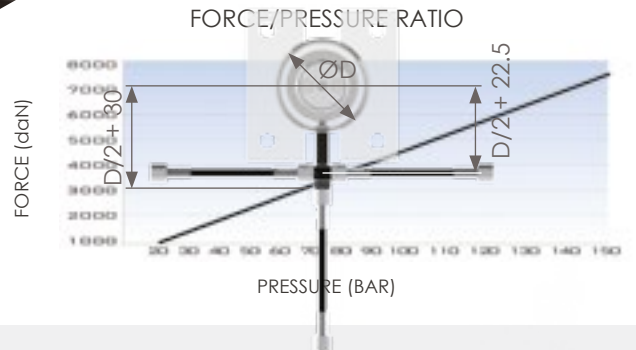
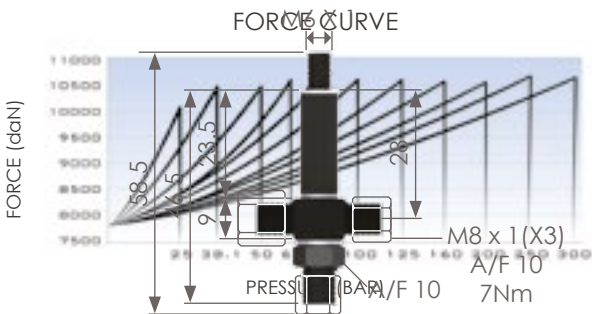


MET 2013



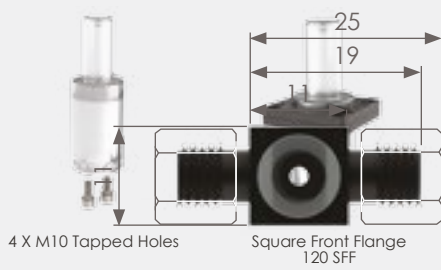
MET 2017

When using SF Flange



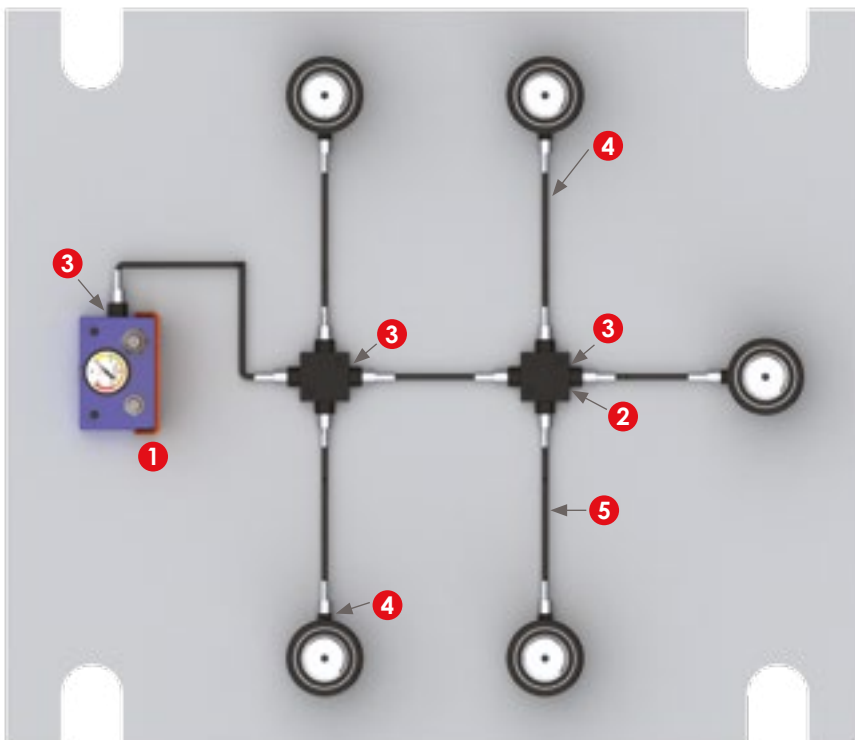
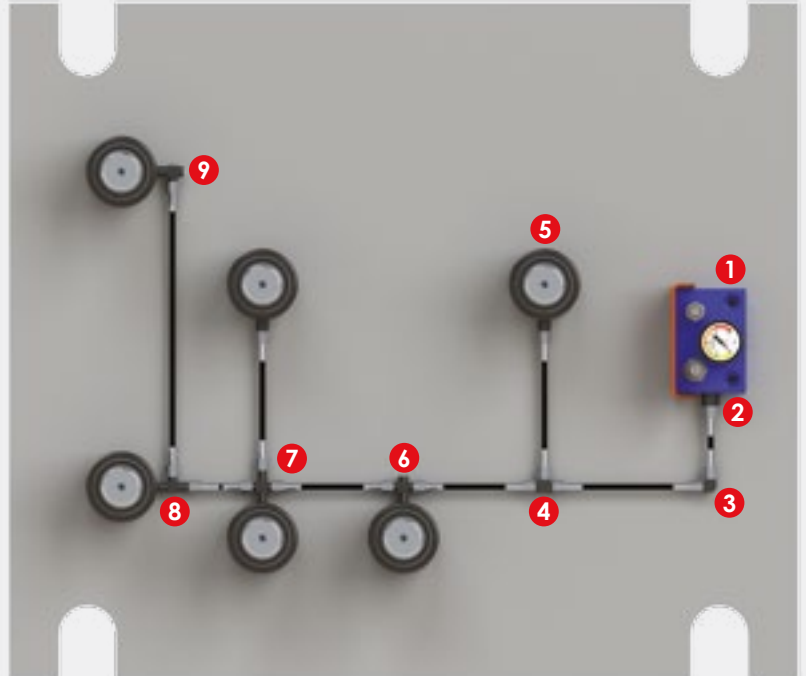
MOUNTING EXAMPLES

(all dimensions are mm, unless otherwise stated) for other possible mounting options see pages 48-49



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: MX1000 x 50 + FF

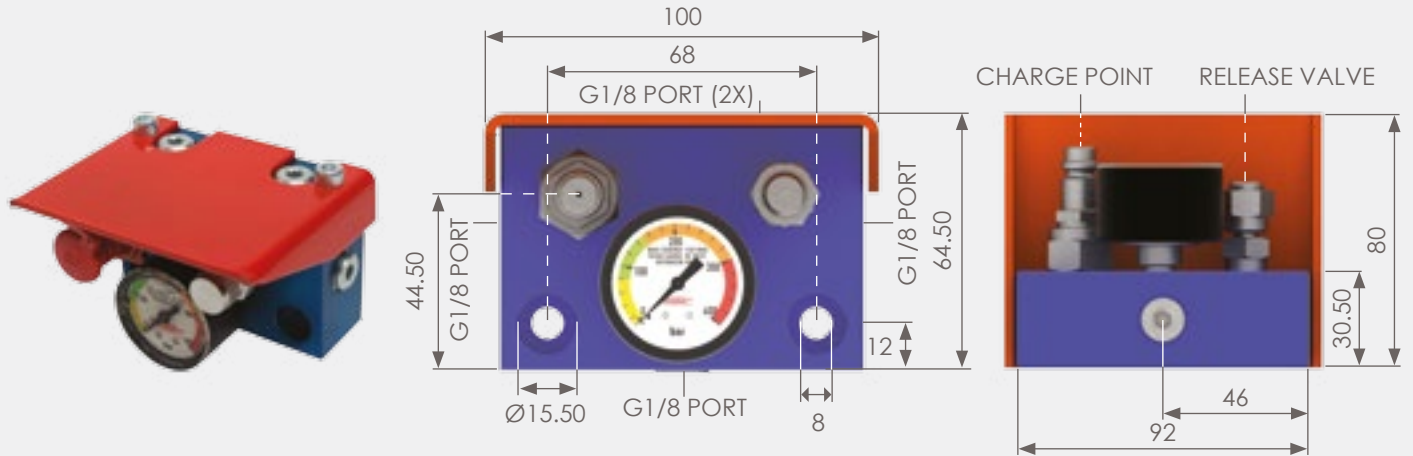
- 1 MET111 Control Panel
- 2 MET2002
- 3 MET2005
- 4 MET2006
- 5 MET2001
- 6 MET2011
- 7 MET2013
- 8 MET2012
- 9 MET2010



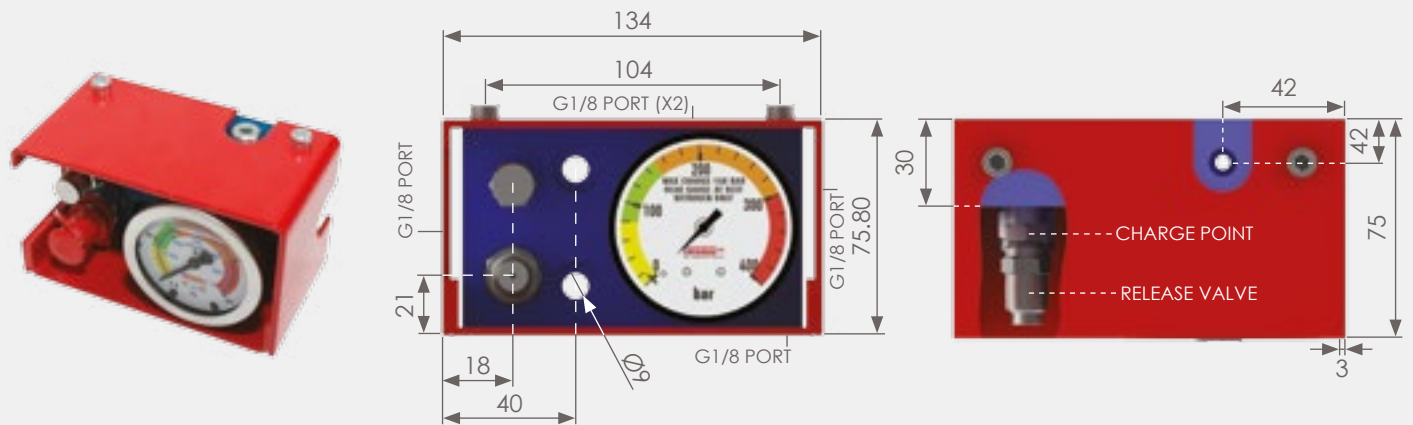
- 1 MET111 Control Panel
- 2 MET1061
- 3 MET2002
- 4 MET2001
- 5 MET2030



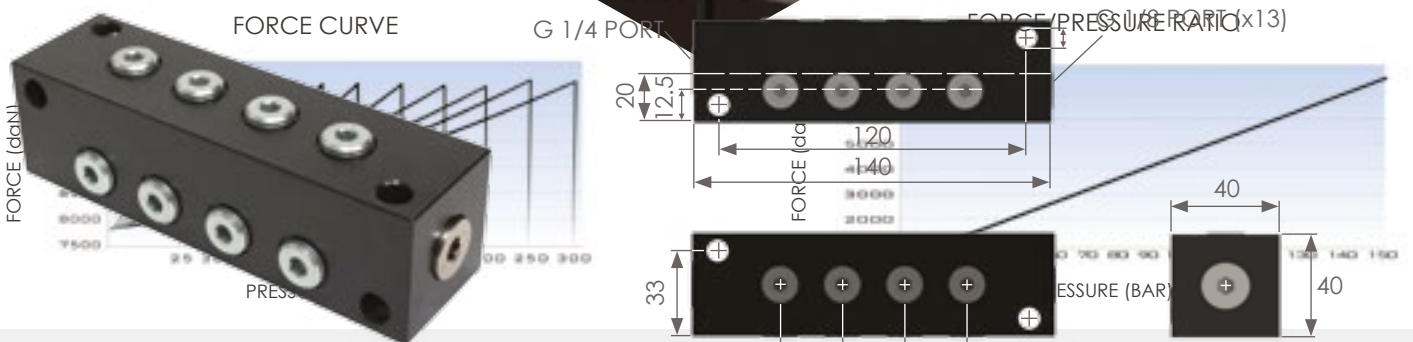
MET 111 - MINI CONTROL PANEL



MET 222 - STANDARD CONTROL PANEL

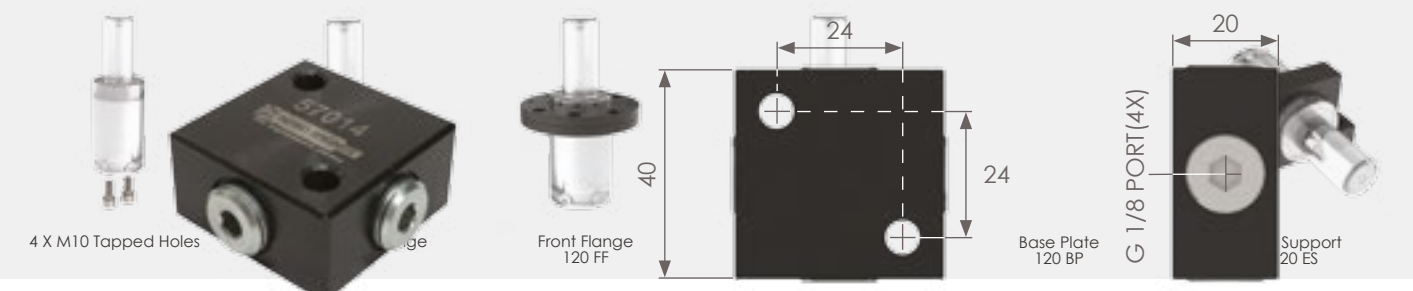


MET 1000 - 14 WAY ADAPTOR



MOUNTING EXAMPLES

MET 1001 - 4 WAY ADAPTOR (All dimensions in mm, unless otherwise stated) for other possible mounting options see pages 48-49



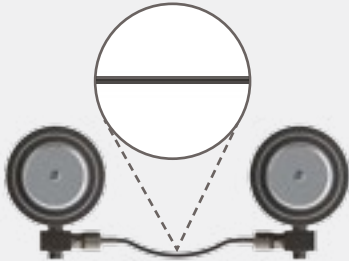
Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: MX1000 x 50 + FF

HOSE INSTALLATION GUIDELINES

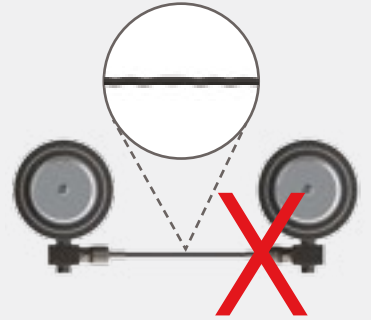
Never exceed maximum values given for pressure and temperature for the hoses. Make sure all hoses and couplings are perfectly clean before fitting.



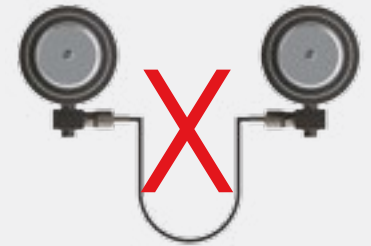
Select a hose length that will allow for a certain amount of movement.



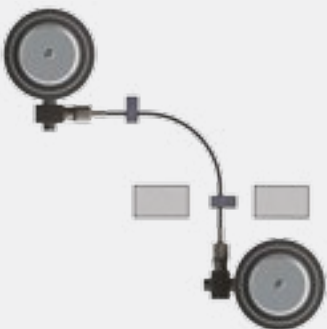
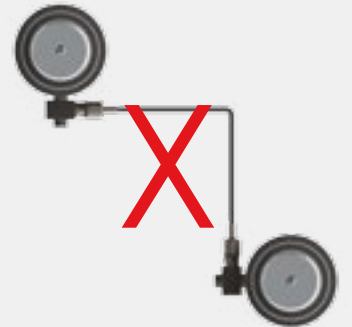
The longitudinal marking on the hose must not be twisted after fitting.



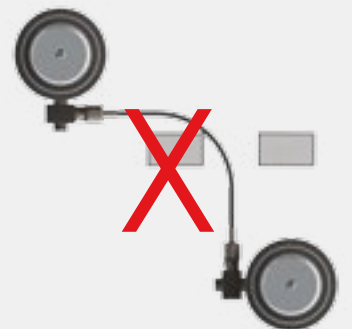
Select hose couplings that avoid sharp bends in the hose.



Never go below the recommended minimum bend radius of the hose.



Fix the hose correctly to avoid mechanical damage.



MET009 hose clip for both CNOMO and MICRO hose systems

GAS SPRING ACCESSORIES

| | |
|-----------------------------------|-----------------|
| GAS SPRING TEST STANDS | PAGE 105 |
| GAS SPRING CHARGING | PAGE 106 |
| SERVICE KIT | PAGE 107 |
| TOOL KIT & ACCESSORIES | PAGE 108 |
| HOSE MAKING ACCESSORIES | PAGE 109 |
| PRESSURE MONITOR SYSTEM | PAGE 110 |



To check that a gas spring is at the correct force, a test stand should be used. Testing in any other way could be dangerous and cause a safety issue.

Designed to measure the initial gas spring force with an accurate easy to read digital display.

MET: 8220 **BENCH MOUNTED TEST STAND**

10t Light duty test stand with digital display.

For use with lower tonnage gas springs and short stroke full height springs. Maximum gas spring height 280mm.



Gas spring force should be checked with a test stand only!

MET: 8223 **FLOOR MOUNTED TEST STAND**

20t Heavy Duty test stand with digital display.

For use on all gas spring types including high tonnage and long strokes.



Gas spring force should be checked with a test stand only!





MET: 8200
HOSE & SHUT OFF VALVE



MET: 8201
REGULATOR



MET: 8202
CHARGE UNIT - G 1/8



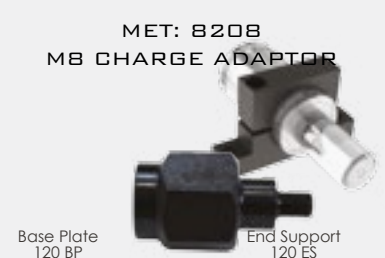
MET: 8205
FEMALE CHARGE FITTING



MET: 8206
M6 CHARGE ADAPTOR



MET: 8208
M8 CHARGE ADAPTOR



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: MX1000 x 50 + FF

NITRO-SPRING SERVICE KITS

Kit includes:

- ✓ Complete seal unit.
- ✓ Retaining Clip & Dust Seal.
- ✓ Valve.
- ✓ Oil Bottle.
- ✓ Plug & Valve.

* See gas spring data page for overhaul kit part number.



MET: 8101
G1/8 PORT

MET: 8102
M6 PORT



IMPORTANT SAFETY INFORMATION

ONLY TRAINED AND CERTIFIED PERSONS SHOULD ATTEMPT TO CARRY OUT
MAINTENANCE WORK ON GAS SPRINGS.



MET: 8216 GAS SPRING TOOL KIT

Provides all necessary equipment to overhaul and maintain Nitro-Springs.



150 BAR 10 BAR 1M/SEC ISO 11901 97/23/EG



MET: 8206 M6 CHARGE ADAPTER



MET: 8208 M8 CHARGE ADAPTER



MET: 8205 FEMALE CHARGE FITTING



MET: 8003 CLIP REMOVING TOOL



MET: 8000 SEAL UNIT DEPRESSOR



MET: 8217 LEAK DETECTOR SPRAY



Please note: gas springs should always be positively retained where possible. How to order: Spring Type x Stroke + Mounting Type ie: MX1000 x 50 + FF

HOSE MAKING ACCESSORIES

MET: 1080
CNOMO END FITTING - STRAIGHT



MET: 1081
CNOMO END FITTING - 90 DEGREE



MET: 1085
MICRO HOSE END



MET: 1082 - MICRO BORE HOSE
5MM DIA. HOSE FOR BOTH MICRO AND CNOMO
HOSE SYSTEMS



MET: 1086
HOSE CUTTERS



MET: 1087
PORTABLE HOSE CRIMPING MACHINE



MET: 1088
BENCH MOUNT HOSE CRIMPING MACHINE



MET: 1089
PNEUMATIC FOOT OPERATED PEDAL



The digital pressure monitor switch is ideal for piped gas spring systems where the pressure is critical, if the pressure drops below a certain level the tool produces a bad part. The pressure monitor can be set to the critical pressure levels, should the pressure in the system fall or rise below the set levels then the press unit will alarm and can be stopped automatically.



- ✓ Digital display.
- ✓ NO or NC (selectable).
- ✓ Supply Voltage 12-30V dc.
- ✓ 2 switching outputs.
- ✓ Connection G1/4.
- ✓ Easy set with 3 digit password protection.

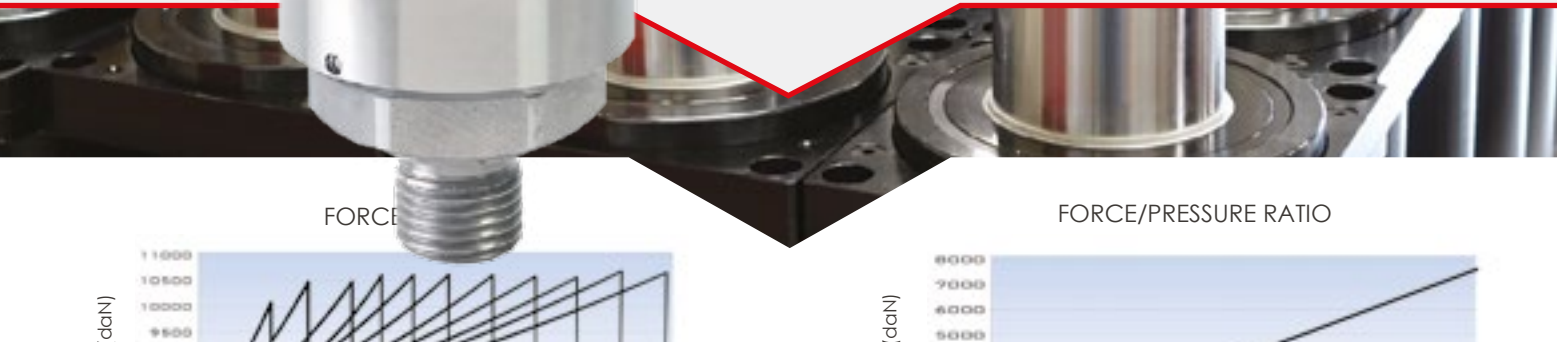
SPECIAL STROKE SIZES AVAILABLE UPON REQUEST

USE ONLY NITROGEN

MAX. PRESSURE:
10 BAR

MIN. PRESSURE:
10 BAR

MAX. PISTON VELOCITY:
1M/SEC



MET8400 pressure switch connected to MET222 control panel.





NITRO-SPRINGS
The engineer's choice

EX150

WARNING

DO NOT OPEN - HIGH
PRESSURE
DO NOT DIRECT AGAINST
PERSONS OR PROPERTY



Metrol Springs Limited

5 Clayfield Close, Moulton Park Industrial Estate, Northampton, NN3 6QF, UK.

Tel: +44 1604 499332

Fax: +44 1604 493390

Email: sales@metrol.com

www.metrol.com