

METROL

SAS
SPECIAL APPLICATION SOLUTIONS



HEAVY DUTY INDUSTRIAL GAS SPRINGS

Counterbalance • Lift • Damping • Tensioning
Clamping • Suspension • Anti-vibration
Safety overload device • Ejectors

INTRODUCTION & CONTENTS

Metrol Springs Ltd, part of the Lesjöfors group, is the UK's largest manufacturer of nitrogen gas springs. We specialise in heavy duty industrial gas springs, with a diameter from 12mm to 200mm, that can produce forces of up to 20 tonnes. What is so unique to our products is that we have the capability to design and manufacture bespoke products that satisfy individual customer demands across a wide range of industries.

Metrol cylinders are designed and manufactured using the ISO9001: 2015 quality system and adhere to the high standards of the European Pressure Equipment Directive PED 2014/68/ EU.

Metrol Springs is a dynamic and progressive company, capable of

meeting the needs of any customer. This is achieved through our worldwide distribution network, technical support, and professional advice.

Wherever you are in the world, we are only a phone call away...That is why, here at Metrol, our excellent customer care and communication is at the forefront of our business.

Our team are available to provide expert knowledge on spring servicing, repairs and replacements, as well as supporting you in selecting the right product. Not only do we provide you with the highest quality gas springs, but we also pride ourselves on our unwavering customer relationships and support.



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METROL

SPECIALIST APPLICATIONS // PAGE 03

SPECIALIST APPLICATIONS

Our self contained springs are unlike any other with their ability to store energy without requiring power to:

- Push
- Pull
- Torque
- Counterbalance
- Dampen
- Produce constant force

Metrol's gas springs are used in a wide variety of industries including:

- Agriculture
- Automation
- Automotive
- Defence
- Food Processing Equipment
- Industrial Machinery
- Marine/ Offshore/ Subsea
- Mining/ Drilling
- Transportation

In addition, our customised designs enable us to make products that suit individual applications and industries, making the possibilities endless.



PERFORMANCE & DURABILITY



Metrol specialises in the design and manufacturing of gas spring products. Our springs are designed to perform in the most demanding environments. This is achieved through our latest sealing technology, specialist materials, and protective finishes. The statistics below reinforce the strength and longevity of our springs!

- **High Cycle Rates**
With cycles per minute rates up to 150 per minute.
- **Long life**
100,000 stroke metres standard seal life.

- **High Force**
With the option of bore and rod sealed springs, high forces of up to 20 tonnes can be achieved with compact springs.
- **Stroke range**
From 7mm up to 2000mm.
- **CE Marking & PED** 
Metrol products conform to PED 2014/68/EU and we are able to manufacture and CE mark gas springs.

A close-up photograph showing a person's hand holding a small, black, cylindrical gas spring. To the right, a much larger, industrial-grade gas spring is visible, highlighting the wide range of sizes METROL manufactures.

Take a look at the
contrast in the size of our
gas springs!

CE MARKED PRODUCTS

The scope of our product
is so broad and immense
due to our unique ability to
manufacture CE marked gas
springs.

These springs conform to the
pressure equipment directive
68/2014/EU.

*Example of Metrol's
specialist gas spring with CE
marking*



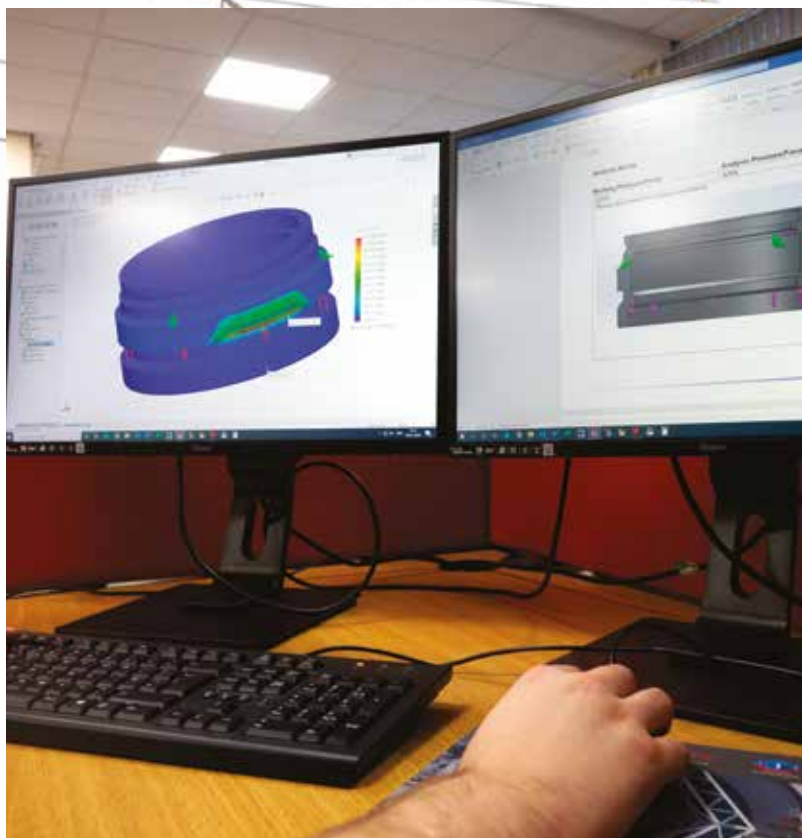


GAS SPRING DESIGN

At Metrol's facility based in Northampton we are able to complete the whole product process from:

- concept to design
- prototyping
- testing
- volume manufacturing

This allows for unique bespoke designs that meet every customer's individual requirements in such a short time.



Metrol's in-house testing facilities





THE MANUFACTURING PROCESS

Located centrally within the UK, our main office and manufacturing facility has seen significant investment over the years with the latest automated CNC machinery. Bespoke automation and manufacturing systems ensure efficiency, allowing Metrol to produce high quality, innovative products at competitive prices that are demanded globally by our customers.

GAS SPRINGS THAT PERFORM IN THE MOST DEMANDING ENVIRONMENTS

High performance piston coatings ensure excellent resistance against abrasion, impact and corrosion. We provide protective covers for springs that may be subject to moving debris, or objects that could damage the piston surfaces.

At Metrol, we utilise the latest seal and wiper technology. These high performance polymers ensure durability and longevity and prevent spring contamination.

A range of wiper & seal components to prevent spring contamination





Range of specialist piston coatings

With material and fluid ingress a major cause of failure, Metrol's wiper technology ensures that our gas springs are unaffected working in highly contaminated conditions.

Metal scrapers remove highly adhesive material

PRESSURE MONITORING & CONTROL

Metrol's gas springs can be connected to a control panel, allowing for the adjustment and monitoring of pressure systems. Additionally, gas springs can be connected in series to ensure equal performance from each spring.

Metrol hose systems offer a high degree of flexibility and are o-ring sealed, providing leak free connections.

Gas spring pressure is indicated using either analogue or digital gauges. The digital gauge is also used for remote monitoring, as it alerts the user if the pressure drops.

Flanged gas springs connected to a control panel with CNOMO hoses



Gas spring connected to digital pressure sensor with low pressure alarm



CUSTOM FIXING METHODS

*Custom gas spring
end connections*

Fixing a Metrol Gas Spring is never a problem. There are a range of options, including our very own custom designed solutions.

These include:

- Threaded cylinders
- Rear mount threads
- Eye and clevis mounts
- Rose end bearings



*Metrol threaded body
gas springs*



*Custom gas spring manufactured
in complete 316 stainless steel*

STAINLESS STEEL GAS SPRINGS

- Marine, offshore, subsea, and food processing
- They are specifically designed so that all exposed components of the gas spring can be manufactured using 316 and other stainless steels with high corrosion resistance properties, or are protected using specialist coatings.
- Custom made end fittings
- Food grade oil available

*High grade stainless steel
gas springs available from
Metrol*



The gas spring overhaul service at Metrol

GAS SPRING MAINTENANCE & OVERHAUL

Metrol's Gas Springs are designed to be maintenance free during operation, however should the need arise, we offer a full service for testing, charging and overhaul. This can be carried out at our facility in Northampton, through our distributor network or by trained customer personnel, giving further extension of our long life products.

A full range of equipment is available from Metrol including training courses.



HIGH FORCE LONG STROKE GAS SPRINGS

CUSTOM SIZES AVAILABLE

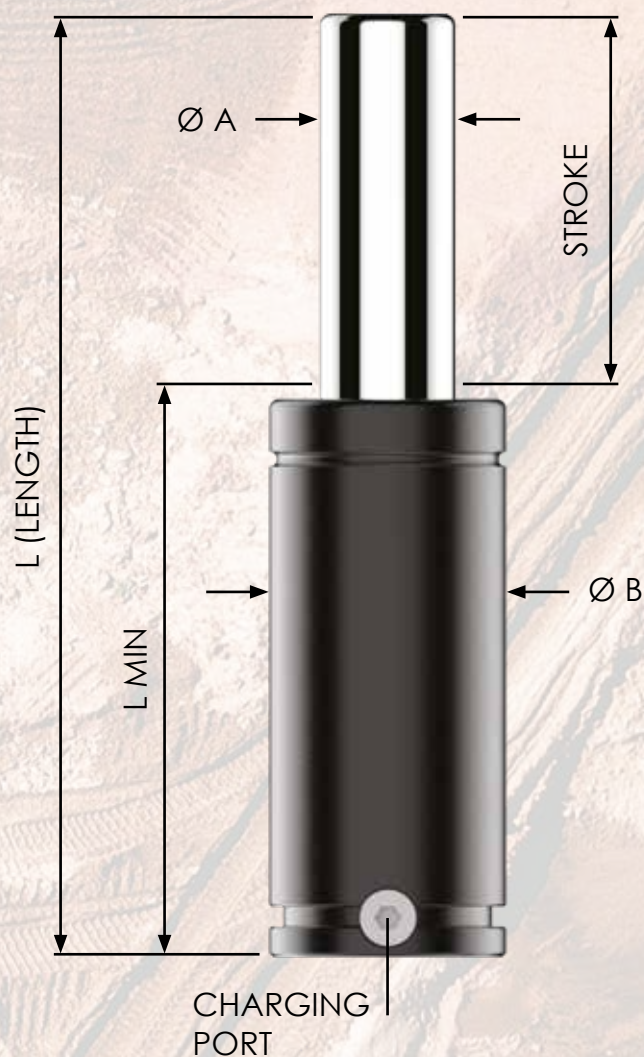
	A (mm)	B (mm)	STROKE (S) (mm)	L	L MIN	CONTACT FORCE (daN)
HNG0250	14	38	10-125	Sx2+50mm	S+50mm	250
HNG0500	20	45	10-300	Sx2+85mm	S+85mm	500
HNG0500	20	45	300+	Sx2+123mm	S+123mm	500
HNG0750	25	50	13-300	Sx2+95mm	S+95mm	750
HNG0750	25	50	300+	Sx2+147mm	S+147mm	750
HNG1500	36	75	25-300	Sx2+110mm	S+110mm	1500
HNG1500	36	75	300+	Sx2+172mm	S+172mm	1500
HNG3000	50	95	25-300	Sx2+120mm	S+120mm	3000
HNG3000	50	95	300+	Sx2+192mm	S+192mm	3000
HNG5000	65	120	25-300	Sx2+140mm	S+140mm	5000
HNG5000	65	120	300+	Sx2+230mm	S+230mm	5000
HNG7500	80	150	25-300	Sx2+155mm	S+155mm	7500
HNG7500	80	150	300+	Sx2+249mm	S+249mm	7500
HNG10000	95	195	25-300	Sx2+210mm	S+210mm	10000
HNG10000	95	195	300+	Sx2+304mm	S+304mm	10000

AVAILABLE AS STANDARD OR IN STAINLESS STEEL

Example of a long stroke specialist gas spring manufactured at Metrol

	A (mm)	B (mm)	STROKE (S) (mm)	L	L MIN	CONTACT FORCE (daN)
HMX1000	28	50	13-300	Sx2+95mm	S+95mm	1000
HMX1000	28	50	300+	Sx2+125mm	S+125mm	1000
HMX2400	45	75	25-300	Sx2+110mm	S+110mm	2400
HMX2400	45	75	300+	Sx2+159mm	S+159mm	2400
HMX4200	60	95	25-300	Sx2+120mm	S+120mm	4200
HMX4200	60	95	300+	Sx2+170mm	S+170mm	4200
HMX6600	75	120	25-300	Sx2+140mm	S+140mm	6600
HMX6600	75	120	300+	Sx2+201mm	S+201mm	6600
HMX9500	90	150	25-300	Sx2+155mm	S+155mm	9500
HMX9500	90	150	300+	Sx2+249mm	S+249mm	9500

AVAILABLE AS STANDARD OR IN STAINLESS STEEL



MICRO GAS SPRINGS

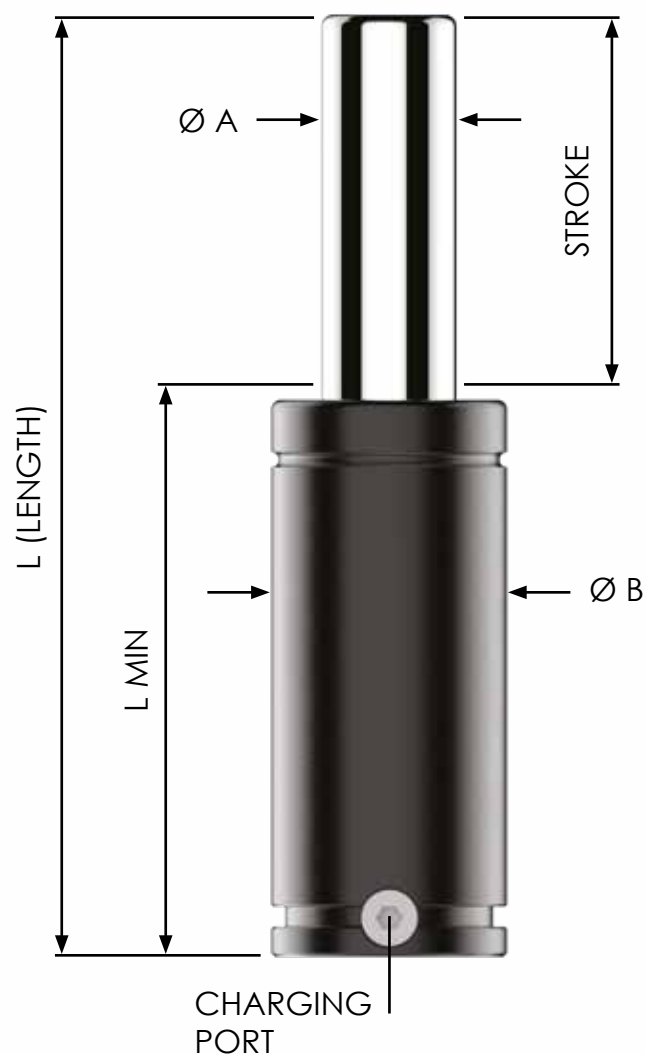
Metrol's range of micro gas springs are designed to deliver high force in a compact design. The strength of these springs can be seen with our 12mm (diameter) spring that exerts 500N, and our 25mm (diameter) spring that produces an impressive 4250N!



*Specialist gas
springs are child's
play here at Metrol!*



Some of Metrol's
smallest gas springs



	A (mm)	B (mm)	STROKE (S) (mm)	L	L MIN	CONTACT FORCE (daN)
MNE16	6	12	10-125	Sx2+45mm	S+45mm	5.7-42
MNE24	12	20	10-125	Sx2+45mm	S+45mm	23-170
MS12	6	12	7-125	Sx2+42mm	S+42mm	13-50
MS15	7	15	7-125	Sx2+42mm	S+42mm	18-70
NG0	8	19	7-125	Sx2+42mm	S+42mm	30-90
NG1	12	25	10-200	Sx2+42mm	S+42mm	50-200
EX0170	11	19	7-125	Sx2+30mm	S+30mm	170
EX0320	15	24.9	7-125	Sx2+30mm	S+30mm	320
HGD0042	12	24.9	6-50	56-195	-	425
EX0360	16	32	10-125	Sx2+30mm	S+30mm	360

AVAILABLE AS STANDARD OR IN STAINLESS STEEL

ROD SEALED COMPACT RANGE

	A (mm)	B (mm)	STROKE (S) (mm)	L	L MIN	CONTACT FORCE (daN)
EX0170	11	19	7-125	Sx2+30mm	S+30mm	170
EX0320	15	25	7-125	Sx2+30mm	S+30mm	320
EX0360	16	32	10-125	Sx2+30mm	S+30mm	360
EX0500	20	38	10-125	Sx2+30mm	S+30mm	470
EX0750	25	45	10-125	Sx2+32mm	S+32mm	740
EX1000	28	50	13-125	Sx2+38mm	S+38mm	920
EX1500	36	63	13-125	Sx2+44mm	S+44mm	1500
EX2400	45	75	16-125	Sx2+45mm	S+45mm	2400
EX4200	60	95	16-125	Sx2+58mm	S+58mm	4200
EX6600	75	120	16-125	Sx2+68mm	S+68mm	6630
EX9500	90	150	19-125	Sx2+78mm	S+78mm	9500

ROD SEALED VS BORE SEALED

Metrol manufacture both rod and bore sealed gas springs.

Bore sealed gas springs produce nearly twice the force of rod sealed springs for the same cylinder diameter, however, the length of the cylinder is much longer.

BORE SEALED HIGH FORCE RANGE

	A (mm)	B (mm)	STROKE (S) (mm)	L	CONTACT FORCE (daN)
HDG0042	12	25	6-50	56-195	425
HDG007	20	32	6-50	63-195	740
HDG010	20	38	6-50	61-230	1060
HDG018	30	50	6-65	66-271	1800
HDG029	45	63	10-65	85-256	2950
HDG047	50	75	10-65	80-273	4700
HDG075	65	95	10-65	90-279	7500
HDG118	80	120	10-65	100-320	11800

**AVAILABLE AS STANDARD
OR IN STAINLESS STEEL**

*Difference between a
rod sealed (left) and bore
sealed gas spring (right)*

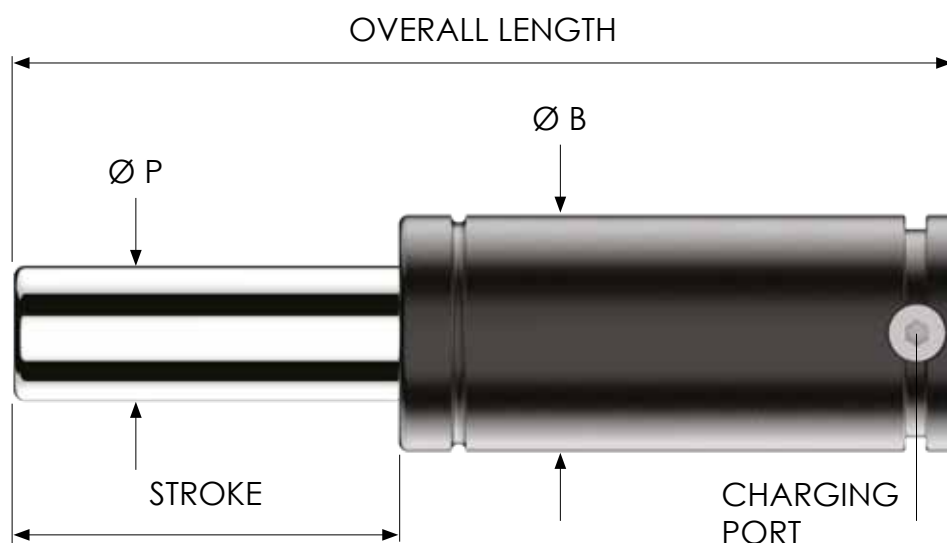


CUSTOM GAS SPRINGS

FORCE REQUIRED: _____

STROKE: _____

OVERALL LENGTH: _____



ROD & BODY END FITTINGS

CLEVIS FORK



THREAD



PLAIN EYE



BEARING EYE



ENVIRONMENTAL / WORKING CONDITIONS

Please provide information on any specific requirements due to the environment in which the gas spring will be installed.

METROL

SAS

SPECIAL APPLICATION SOLUTIONS

a company of

LESJÖFORS

SPRINGS & PRESSINGS



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