NP Series

NP-500 to NP-10000

Full Height ISO Nitrogen Gas Springs

2 million

Certified to ISO 9001:2008

TÜVRheinland
Precisely Right.

HYSON
Metal Forming Solutions™

General Information

HYSON, headquartered in Brecksville Ohio, is a world class engineering and manufacturing company providing high-quality, safety-engineered force and motion control products and services to a wide range of industries and applications. Throughout the years, the company has remained at the forefront of technical innovation, developing force generating solutions for critical machine, vehicle and precision metal processing applications. Our success lies with our commitment to continually improve ourselves, our processes and our products to ensure we meet or exceed our customer's expectations. Our ISO-9001 and PED certifications attest to our ongoing commitment to the highest standards of quality.

PED - Pressure Equipment Directive

APPROVED PED 2014/68/EU 2 million

HYSON nitrogen gas springs are designed to meet customer expectations for reliability, safety and service lifetime. The design, manufacture and testing of HYSON gas springs has been approved ac-cording to the European Pressure Equipment Directive (2014/68/EU).

The Pressure Equipment Directive (PED) replaces all previous European legislation governing the design, manufacture and testing of pressure vessels.

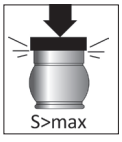
Product Features

- Seven models with contact forces from 1,055 to 23,830 lbs
- Extended stroke lengths to 300 mm/11.81 in
- Variety of mounting options available
- Fully meets ISO 11901 and major automotive die standards
- Flexible guide absorbs lateral movement and misalignments in the die

Advanced Safety Features

Overload Protection

Overpressure Protection



Overstroke Protection

- Guide features built-in pressure relief if assembled upside down
- Secondary piston retaining ring for extra protection
- Overload, Overstroke and Overpressure protection vents internal gas pressure in a controlled manner

Product Specifications

Pressure Medium	Nitrogen
Max. Charging Pressure	150 bar/2175 psi
Min. Charging Pressure	25 bar/365 psi
Operating Temperature	0° to 80°C/32° to 176°F
Force Increase by Temperature	±0.3% per °C/±0.009% per °F
Recommended Max. Strokes/Min.	~15-40 except for NP-500 which is ~40-80
Max. Piston Rod Velocity	96m per min./ 315 ft per min.
Inlet Valve	56-072-5500
Charge Fitting	T2-770-G1/8-P

Ordering Options

NP-5000 X 50

Model: NP-500, NP-750, NP-1500, NP-3000, NP-5000, NP-7500, NP-10000

Stroke (mm): See Dimensional Information Charts

Repair Kits

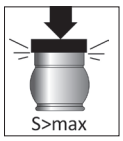
Gas Spring	NP Repair kit number
NP-500	3019997
NP-750	3019999
NP-1500	3020000
NP-3000	3020001
NP-5000	3020002
NP-7500	3020003
NP-10000	3020004

Note! The NP cylinders have the same external dimensions as the earlier "N" versions. However, the NP uses a different seal kit due to internal changes. Contact Hyson Customer Service to order older style "N" Seal Kits.

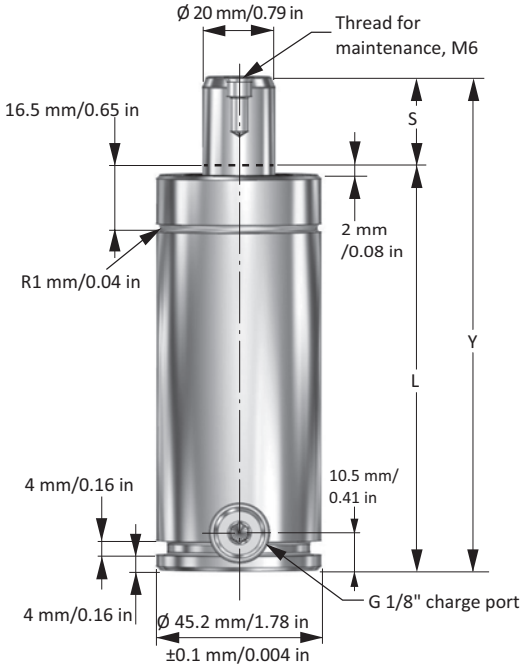
Advanced Safety Features

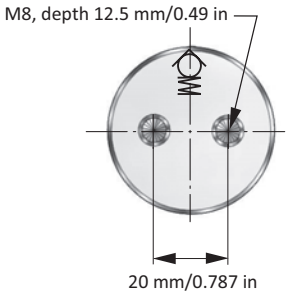
Overload Protection

Overpressure Protection



Overstroke Protection





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Order No.	S stroke mm	S stroke in	Contact Force 2175 psi at 68 ° F N	Contact Force 2175 psi at 68 ° F lbf.	Full Stroke Force N	Full Stroke Force lbf.	Y ±0.25 mm	Y ±0.010 in	L mm	L in	Gas volume (l)	Weight (kg)
NP-500x10	10	0.39	4,700	1,055	6,000	1,350	105	4.13	95	3.74	0.023	0.93
NP-500x12.7	12.7	0.50			6,100	1,370	110.4	4.35	97.7	3.85	0.025	0.95
*NP-500x25	25	0.98			6,400	1,440	135	5.31	110	4.33	0.038	1.04
NP-500x38.1	38.1	1.50			6,500	1,460	161.2	6.35	123.1	4.85	0.051	1.13
*NP-500x50	50	1.97			6,600	1,480	185	7.28	135	5.31	0.063	1.21
NP-500x63.5	63.5	2.50			6,600	1,480	212	8.35	148.5	5.85	0.077	1.31
*NP-500x80	80	3.15			6,700	1,510	245	9.65	165	6.50	0.093	1.43
*NP-500x100	100	3.94			6,700	1,510	285	11.22	185	7.28	0.114	1.57
*NP-500x125	125	4.92			6,700	1,510	335	13.19	210	8.27	0.139	1.74
NP-500x160	160	6.30			6,700	1,510	405	15.94	245	9.65	0.175	1.99

* Recommended stroke length for optimal delivery

Note! All dimensions are nominal. Data shown are typical. Actual data for any particular unit may vary.

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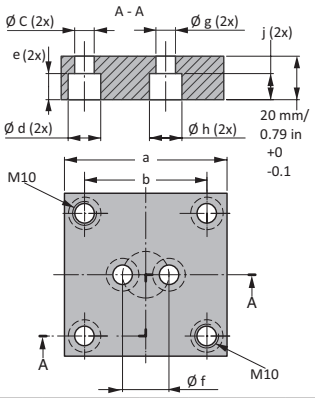
Note! All flanges ordered separately

MP

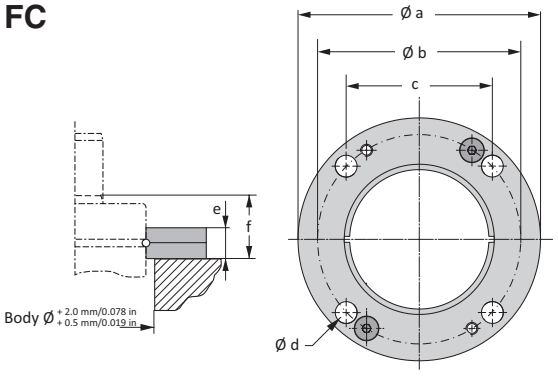


Note! Comes complete with screws to mount gas spring.

Order No.	a		b	
	mm	in	mm	in
MP-0500	70	2.76	50	1.97

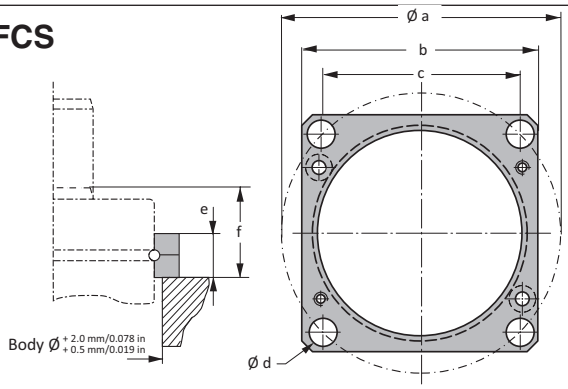
Ø c		Ø d		e		Ø f		Ø g		Ø h		j	
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
9	0.35	15	0.59	12	0.47	20	0.79	9	0.35	15	0.59	14	0.55

FC



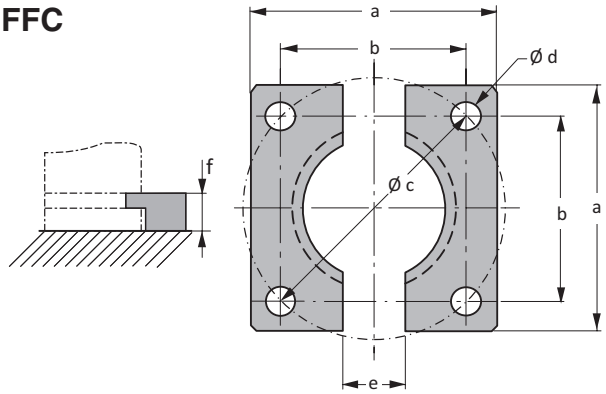
Order No.	Ø a		Ø b		c		Ø d		e		f	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
FC-0500	86	3.39	70.7	2.78	50	1.97	9	0.35	13	0.51	23	0.91

FCS



Order No.	Ø a		b		c		Ø d		e		f	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
FCS-0500	70.7	2.78	64	2.52	50	1.97	9	0.35	13	0.51	23	0.91

FFC

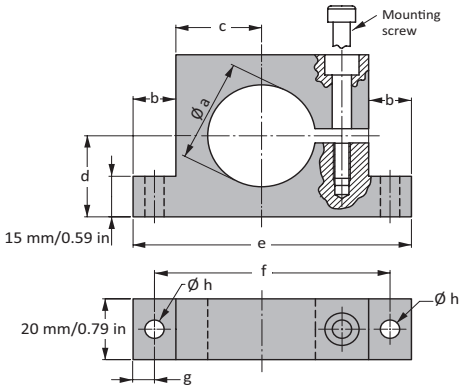


Order No.	a		b		Ø c		Ø d		e		f	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
FFC-0500	70	2.78	50	1.97	70.7	2.78	9	0.35	20	0.79	6.5	0.26

S

Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or base mounting option.

The mounting screw (M8) should be tightened with torque 25 Nm.



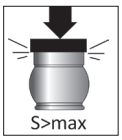
Order No.	Ø a	
	mm	in
S-0500	45.4	1.79

b		c		d		e		f		g		Ø h	
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
17	0.67	29	1.14	30	1.18	100	3.94	82	3.23	9	0.35	9	0.35

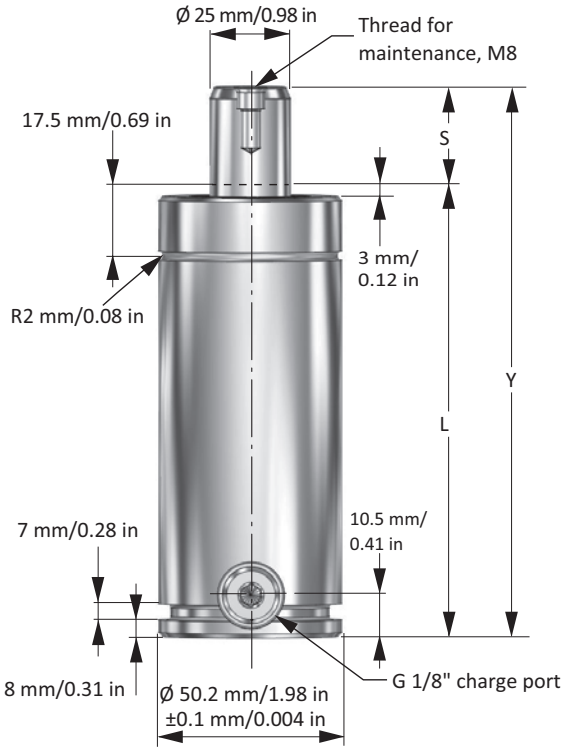
Advanced Safety Features

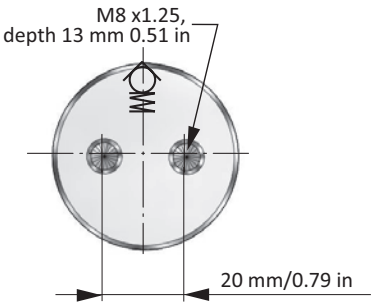
Overload Protection

Overpressure Protection



Overstroke Protection





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Order No.	S stroke mm	S stroke in	Contact Force 2175 psi at 68 ° F N	Contact Force 2175 psi at 68 ° F lbf.	Full Stroke Force N	Full Stroke Force lbf.	Y ±0.25 mm	Y ±0.010 in	L mm	L in	Gas volume (l)	Weight (kg)
NP-750x12.7	12.7	0.50	7,400	1,665	12,000	2,700	120.4	4.74	107.7	4.24	0.03	1.33
*NP-750x25	25.0	0.98			12,000	2,700	145	5.71	120	4.72	0.04	1.44
NP-750x38.1	38.1	1.50			12,000	2,700	171.2	6.74	133.1	5.24	0.06	1.57
*NP-750x50	50	1.97			12,000	2,700	195	7.68	145	5.71	0.07	1.68
NP-750x63.5	63.5	2.50			12,000	2,700	222	8.74	158.5	6.24	0.09	1.78
*NP-750x80	80	3.15			12,000	2,700	255	10.04	175	6.89	0.11	1.94
*NP-750x100	100	3.94			12,000	2,700	295	11.61	195	7.68	0.14	2.13
*NP-750x125	125	4.92			12,100	2,720	345	13.58	220	8.66	0.17	2.37
*NP-750x160	160	6.30			12,100	2,720	415	16.34	255	10.04	0.21	2.70
NP-750x200	200	7.87			12,100	2,720	495	19.49	295	11.61	0.26	3.08
NP-750x250	250	9.84			12,100	2,720	595	23.43	345	13.58	0.33	3.55
NP-750x300	300	11.81			12,100	2,720	695	27.36	395	15.55	0.39	4.03

* Recommended stroke length for optimal delivery

Note: All dimensions are nominal. Data shown are typical. Actual data for any particular unit may vary.

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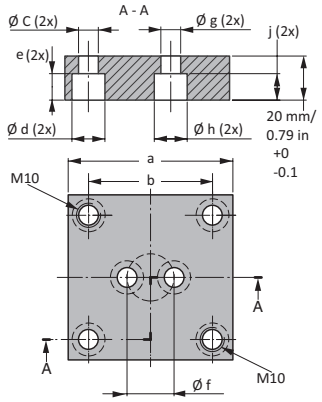
Note! All flanges ordered separately

MP

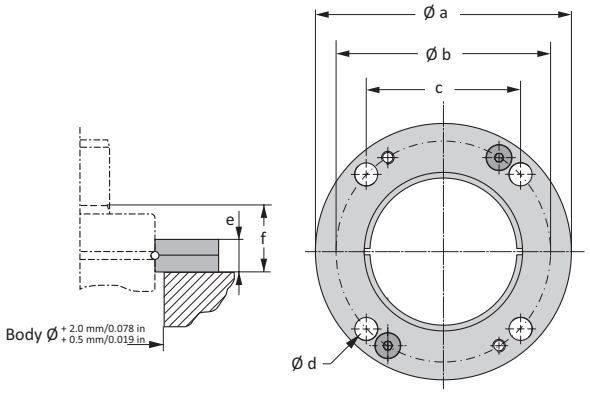


Note! Comes complete with screws to mount gas spring.

Order No.	a mm	a in	b mm	b in
MP-0750	75	2.95	56.5	2.22

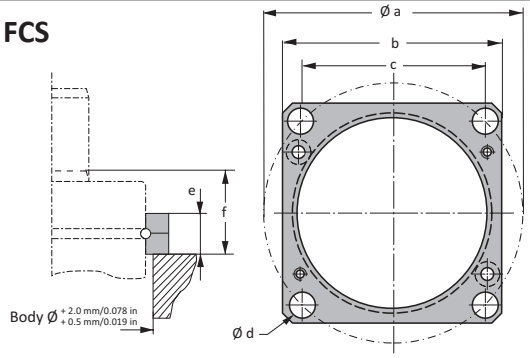
Ø c mm	Ø c in	Ø d mm	Ø d in	e mm	e in	Ø f mm	Ø f in	Ø g mm	Ø g in	Ø h mm	Ø h in	j mm	j in
9	0.35	15	0.59	12	0.47	20	0.79	9	0.35	15	0.59	14	0.55

FC



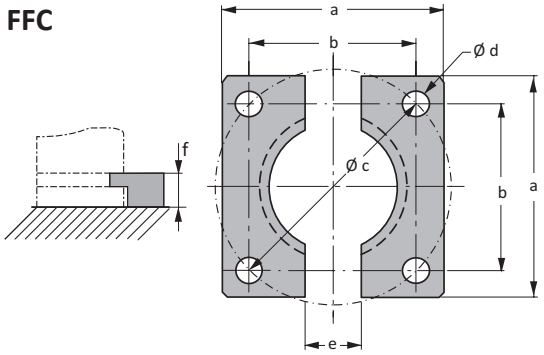
Order No.	Ø a mm	Ø a in	Ø b mm	Ø b in	c mm	c in	Ø d mm	Ø d in	e mm	e in	f mm	f in
FC-0750	95	3.74	80	3.15	56.5	2.22	9	0.35	13	0.51	24	0.94

FCS



Order No.	Ø a mm	Ø a in	b mm	b in	c mm	c in	Ø d mm	Ø d in	e mm	e in	f mm	f in
FCS-0750	80	3.15	70	2.76	56.5	2.22	9	0.35	13	0.51	24	0.94

FFC

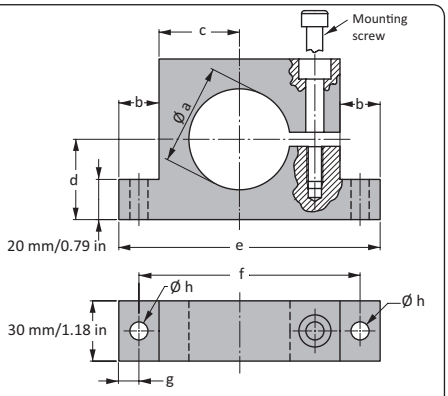


Order No.	a mm	a in	b mm	b in	c mm	c in	Ø d mm	Ø d in	e mm	e in	f mm	f in
FFC-0750	75	2.95	56.5	2.22	80	3.15	9	0.35	24	0.94	12	0.47

S

Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or base mounting option

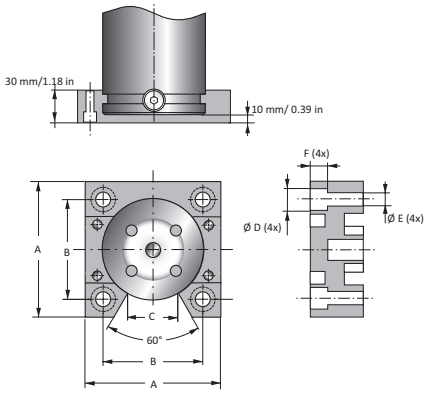
The mounting screw (M8) should be tightened with torque 25 Nm.



Order No.	Ø a mm	Ø a in
S-0750	50.4	1.98

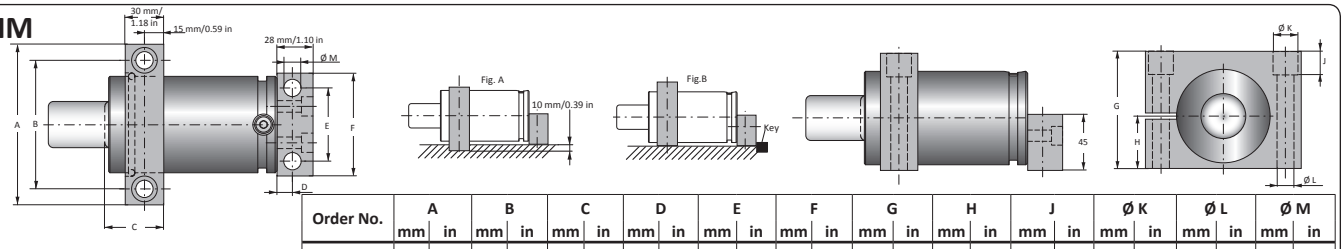
b mm	b in	c mm	c in	d mm	d in	e mm	e in	f mm	f in	g mm	g in	h mm	h in
20	0.79	40	1.57	40	1.57	130	5.12	110	4.33	10	0.39	9	0.35

RM



Order No.	A mm	A in	B mm	B in	C mm	C in	Ø D mm	Ø D in	Ø E mm	Ø E in	F mm	F in
RM-0750	80	3.15	56.5	2.22	21.1	0.83	18	0.71	11	0.43	11	0.43

HM

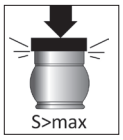


Order No.	A mm	A in	B mm	B in	C mm	C in	D mm	D in	E mm	E in	F mm	F in	G mm	G in	H mm	H in	J mm	J in	Ø K mm	Ø K in	Ø L mm	Ø L in	Ø M mm	Ø M in
HM-0750	90	3.54	68	2.68	43	1.69	13	0.51	44	1.73	65	2.56	70	2.76	30	1.18	25	0.98	18	0.71	11	0.43	11	0.43

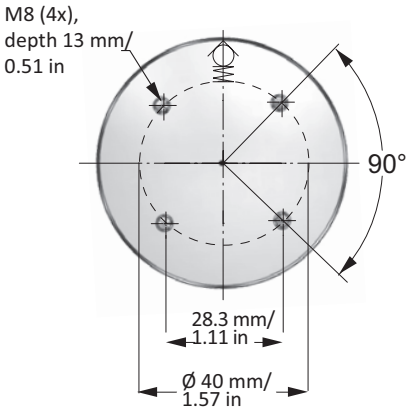
Advanced Safety Features

Overload Protection

Overpressure Protection



Overstroke Protection



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Order No.	S stroke mm	S stroke in	Contact Force 2175 psi at 68 ° F N	Contact Force 2175 psi at 68 ° F lbf.	Full Stroke Force N	Full Stroke Force lbf.	Y ±0.25 mm	Y ±0.010 in	L mm	L in	Gas vol. (l)	Weight (kg)
NP-1500x12.7	12.7	0.50	15,000	3,375	23,000	5,170	135.4	5.33	123	4.84	0.07	3.39
*NP-1500x25	25.0	0.98					160	6.30	135	5.31	0.10	3.65
NP-1500x38.1	38.1	1.50					186.2	7.33	148.1	5.83	0.15	3.89
*NP-1500x50	50	1.97					210	8.27	160	6.30	0.18	4.11
NP-1500x63.5	63.5	2.50					237	9.33	173.5	6.83	0.22	4.35
*NP-1500x80	80	3.15					270	10.63	190	7.48	0.28	4.66
*NP-1500x100	100	3.94					310	12.2	210	8.27	0.34	5.02
*NP-1500x125	125	4.92					360	14.17	235	9.25	0.42	5.48
*NP-1500x160	160	6.30					430	16.93	270	10.63	0.53	6.12
NP-1500x200	200	7.87					510	20.08	310	12.20	0.68	6.86
NP-1500x250	250	9.84					610	24.02	360	14.17	0.81	7.77
NP-1500x300	300	11.81					710	27.95	410	16.14	0.96	8.69

* Recommended stroke length for optimal delivery

Note: All dimensions are nominal. Data shown are typical. Actual data for any particular unit may vary.

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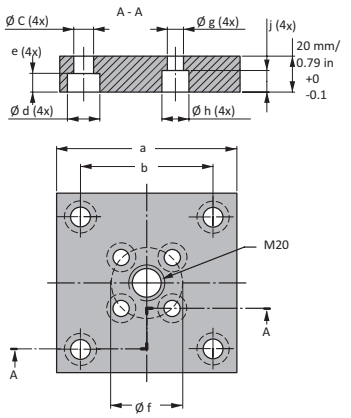
Note! All flanges ordered separately

MP

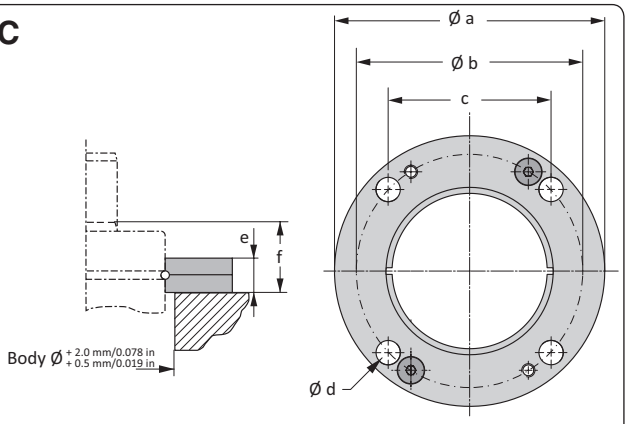


Note! Comes complete with screws to mount gas spring.

Order No.	a		b	
	mm	in	mm	in
MP-1500	100	3.94	73.5	2.89

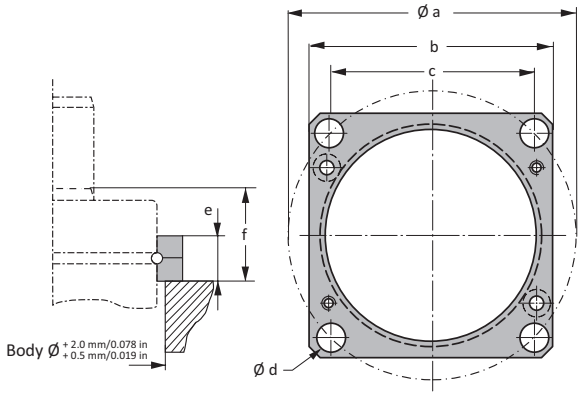
Ø c		Ø d		e		Ø f		Ø g		Ø h		j	
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
11	0.43	18	0.71	12	0.47	40	1.57	9	0.35	15	0.59	14	0.55

FC



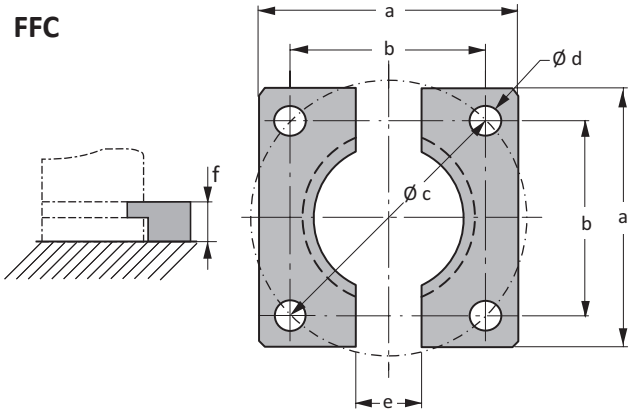
Order No.	Ø a		Ø b		c		Ø d		e		f	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
FC-1500	122	4.80	104	4.09	73.5	2.89	11	0.43	16	0.63	29	1.14

FCS



Order No.	Ø a		b		c		Ø d		e		f	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
FCS-1500	104	4.09	90	3.54	73.5	2.89	11	0.43	16	0.63	29	1.14

FFC

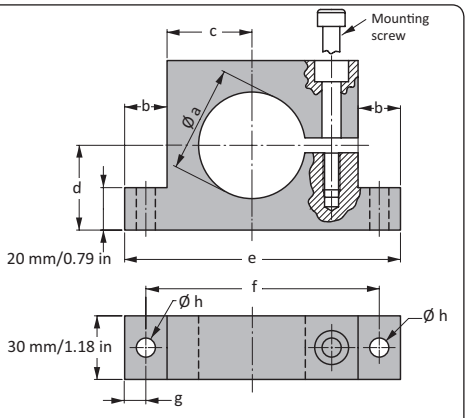


Order No.	a		b		c		Ø d		e		f	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
FFC-1500	100	3.94	73.5	2.89	104	4.09	11	0.43	24	0.94	12	0.47

S

Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or base mounting option.

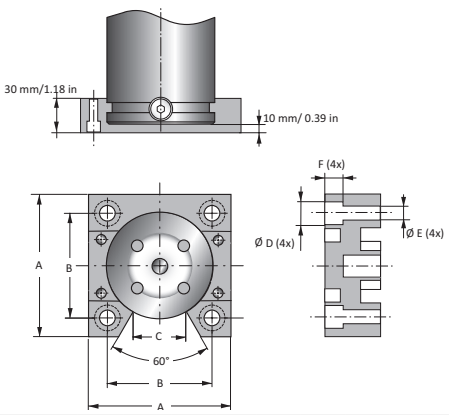
The mounting screw (M10) should be tightened with torque 52 Nm.



Order No.	Ø a	
	mm	in
S-1500	75.4	2.97

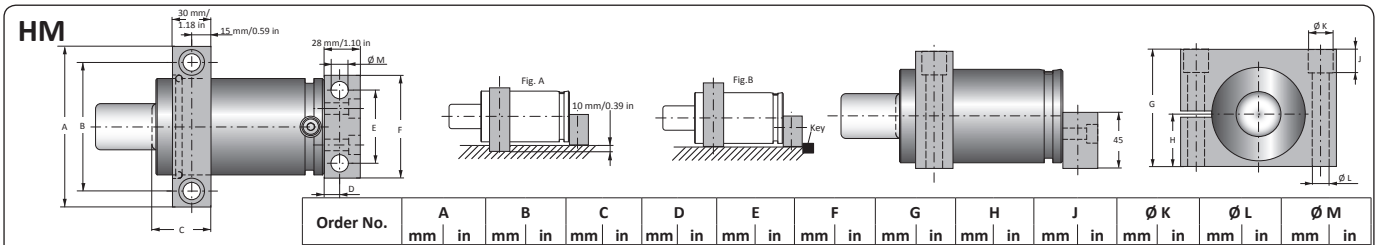
b		c		d		e		f		g		h	
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
22.5	0.89	52.5	2.07	52.5	2.07	160	6.30	137	5.39	11.5	0.45	11	0.43

RM



Order No.	A		B		C		Ø D		Ø E		F	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
RM-1500	100	3.94	73.5	2.89	33.7	1.33	18	0.71	11	0.43	11	0.43

HM

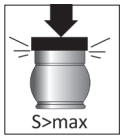


Order No.	A		B		C		D		E		F		G		H		J		Ø K		Ø L		Ø M	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
HM-1500	125	4.92	100	3.94	45	1.77	12	0.47	57	2.24	80	3.15	94	3.70	42	1.65	19	0.75	20	0.79	13.5	0.53	13.5	0.53

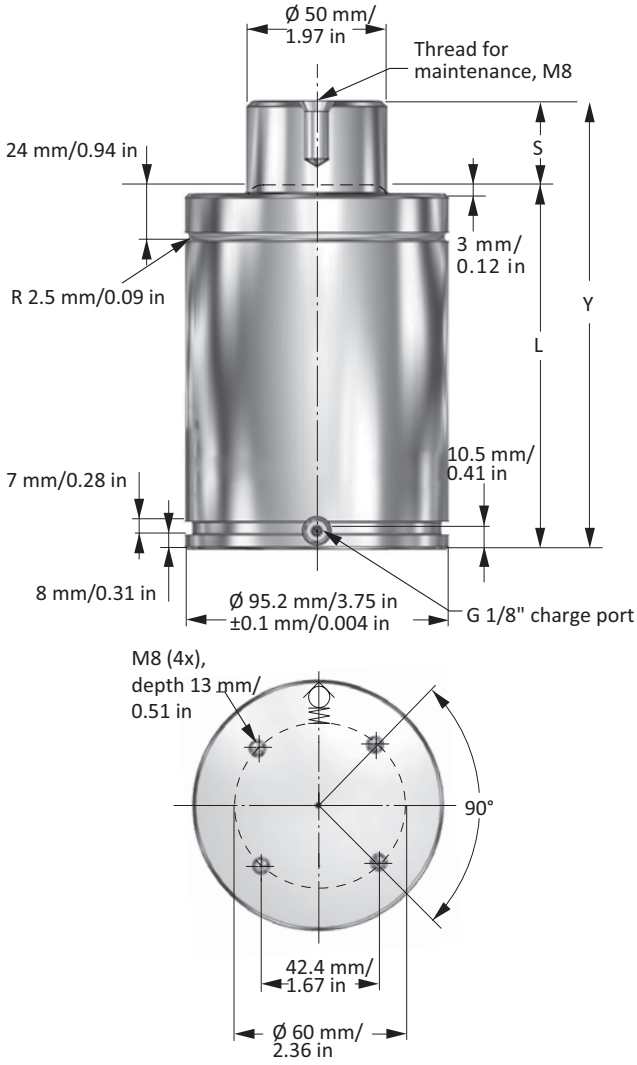
Advanced Safety Features

Overload Protection

Overpressure Protection



Overstroke Protection



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Order No.	S stroke mm	S stroke in	Contact Force 2175 psi at 68 ° F N	Contact Force 2175 psi at 68 ° F lbf.	Full Stroke Force N	Full Stroke Force lbf.	Y ±0.25 mm	Y ±0.010 in	L mm	L in	Gas volume (l)	Weight (kg)
NP-3000x12.7	12.7	0.50	30,000	6,750	42,000	9,440	145.4	5.72	133	5.22	0.14	5.8
*NP-3000x25	25	0.98			42,000	9,440	170.0	6.69	145	5.71	0.20	6.45
NP-3000x38.1	38.1	1.50			43,000	9,670	196.2	7.72	158.1	6.22	0.26	6.87
*NP-3000x50	50	1.97			44,000	9,890	220	8.66	170	6.69	0.32	7.25
NP-3000x63.5	63.5	2.50			45,000	10,100	247	9.72	183.5	7.22	0.38	7.67
*NP-3000x80	80	3.15			46,000	10,340	280	11.02	200	7.87	0.46	8.20
*NP-3000x100	100	3.94			47,000	10,570	320	12.60	220	8.66	0.56	8.83
*NP-3000x125	125	4.92			47,000	10,570	370	14.57	245	9.65	0.69	9.63
*NP-3000x160	160	6.30			47,000	10,570	440	17.32	280	11.02	0.87	10.74
NP-3000x200	200	7.87			48,000	10,790	520	20.47	320	12.60	1.07	12.00
NP-3000x250	250	9.84			48,000	10,790	620	24.41	370	14.57	1.32	13.59
NP-3000x300	300	11.81			48,000	10,790	720	28.35	420	16.54	1.57	15.18

* Recommended stroke length for optimal delivery

Note! All dimensions are nominal. Data shown are typical. Actual data for any particular unit may vary.

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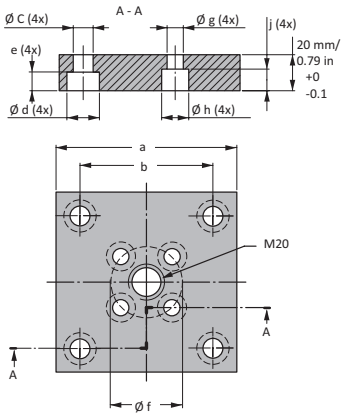
Note! All flanges ordered separately

MP

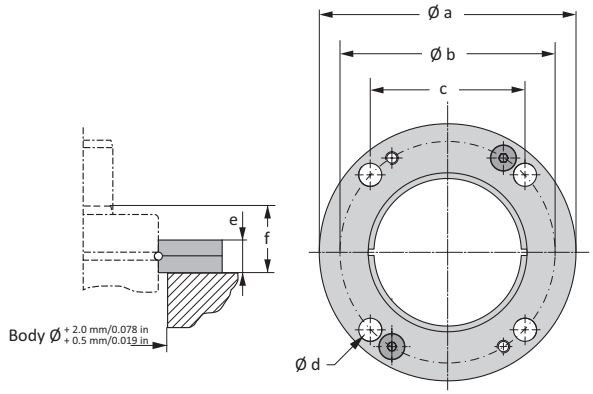


Note!
Comes complete with screws to mount gas spring.

Order No.	a mm	a in	b mm	b in
MP-3000	120	4.72	92	3.62

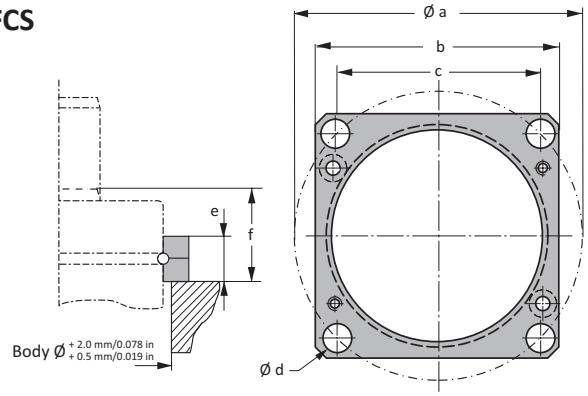
Ø c mm	Ø c in	Ø d mm	Ø d in	e mm	e in	Ø f mm	Ø f in	Ø g mm	Ø g in	Ø h mm	Ø h in	j mm	j in
13.5	0.53	20	0.79	13	0.51	60	2.36	9	0.35	15	0.59	14	0.55

FC



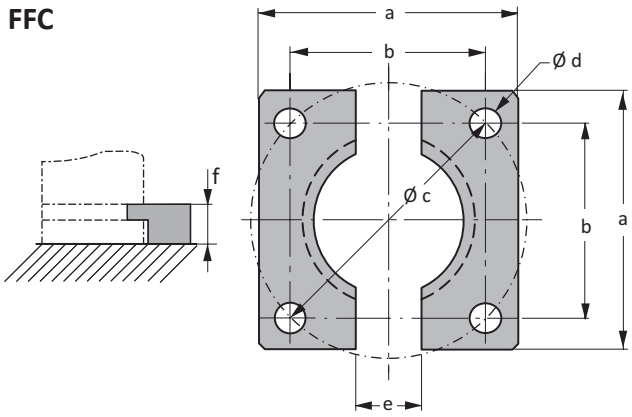
Order No.	Ø a mm	Ø a in	Ø b mm	Ø b in	c mm	c in	Ø d mm	Ø d in	e mm	e in	f mm	f in
FC-3000	150	5.91	130	5.12	92	3.62	13.5	0.53	18	0.71	33	1.30

FCS



Order No.	Ø a mm	Ø a in	b mm	b in	c mm	c in	Ø d mm	Ø d in	e mm	e in	f mm	f in
FCS-3000	130	5.12	110	4.33	92	3.62	13.5	0.53	18	0.71	33	1.30

FFC

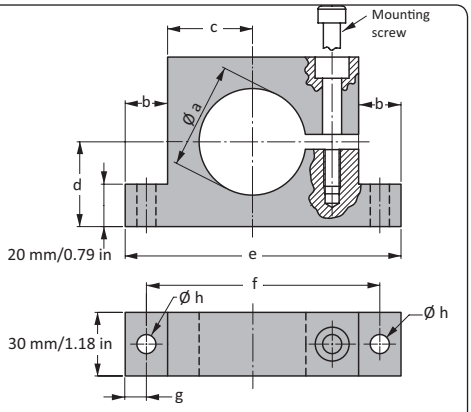


Order No.	a mm	a in	b mm	b in	Ø c mm	Ø c in	Ø d mm	Ø d in	e mm	e in	f mm	f in
FFC-3000	120	4.72	92	3.62	130	5.12	13.5	0.53	24	0.94	12	0.47

S

Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or base mounting option.

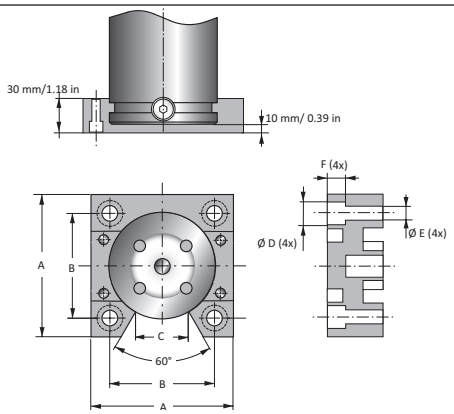
The mounting screw (M12) should be tightened with torque 91 Nm.



Order No.	Ø a mm	Ø a in
S-3000	95.4	3.76

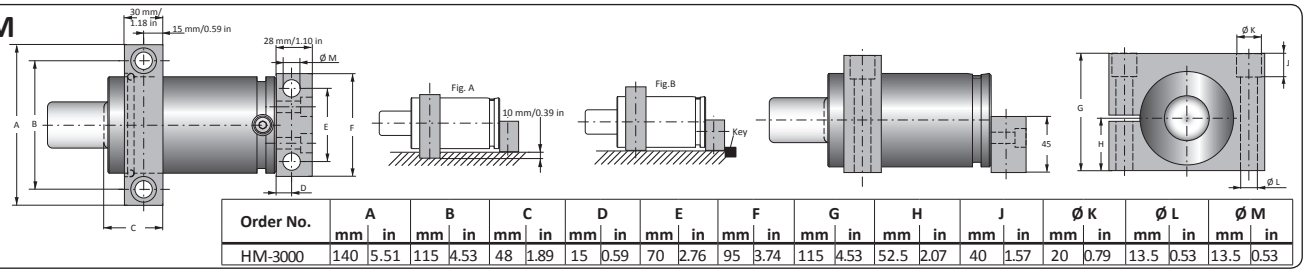
b mm	b in	c mm	c in	d mm	d in	e mm	e in	f mm	f in	g mm	g in	h mm	h in
25	0.98	67.5	2.66	62.5	2.46	195	7.68	170	6.69	12.5	0.49	13	0.51

RM



Order No.	A mm	A in	B mm	B in	C mm	C in	Ø D mm	Ø D in	Ø E mm	Ø E in	F mm	F in
RM-3000	120	4.72	92	3.62	43.2	1.70	20	0.79	13.5	0.53	13	0.51

HM

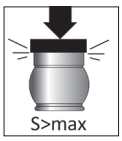


Order No.	A mm	A in	B mm	B in	C mm	C in	D mm	D in	E mm	E in	F mm	F in	G mm	G in	H mm	H in	J mm	J in	Ø K mm	Ø K in	Ø L mm	Ø L in	Ø M mm	Ø M in
HM-3000	140	5.51	115	4.53	48	1.89	15	0.59	70	2.76	95	3.74	115	4.53	52.5	2.07	40	1.57	20	0.79	13.5	0.53	13.5	0.53

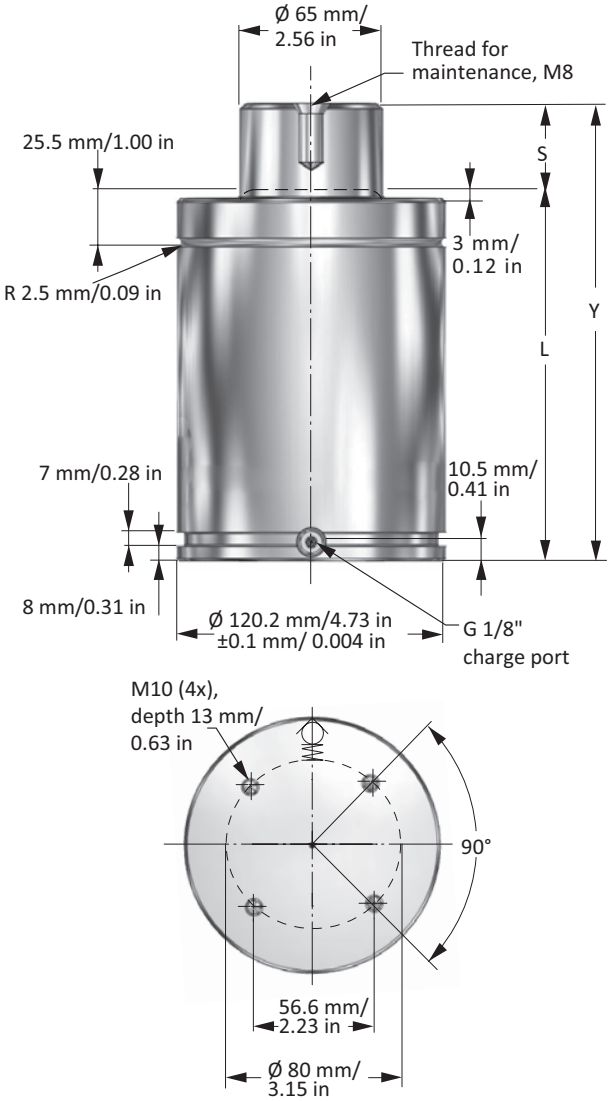
Advanced Safety Features

Overload Protection

Overpressure Protection



Overstroke Protection



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Order No.	S stroke mm	S stroke in	Contact Force 2175 psi at 68 ° F N	Contact Force 2175 psi at 68 ° F lbf.	Full Stroke Force N	Full Stroke Force lbf.	Y ±0.25 mm	Y ±0.010 in	L mm	L in	Gas volume (l)	Weight (kg)
*NP-5000x25	25	0.98			71,000	15,960	190	7.48	165	6.50	0.32	12.40
NP-5000x38.1	38.1	1.50			75,000	16,860	216.2	8.51	178.1	7.01	0.42	13.10
*NP-5000x50	50	1.97			77,000	17,310	240	9.45	190	7.48	0.51	13.70
NP-5000x63.5	63.5	2.50			80,000	17,990	267	10.51	203.5	8.01	0.60	14.40
*NP-5000x80	80	3.15			81,000	18,210	300	11.81	220	8.66	0.73	15.30
*NP-5000x100	100	3.94	50,000	11,240	82,000	18,430	340	13.39	240	9.45	0.89	16.40
*NP-5000x125	125	4.92			82,000	18,430	390	15.35	265	10.43	1.09	17.70
*NP-5000x160	160	6.30			83,000	18,660	460	18.11	300	11.81	1.36	19.60
NP-5000x200	200	7.87			84,000	18,880	540	21.26	340	13.39	1.68	21.70
NP-5000x250	250	9.84			84,000	18,880	640	25.20	390	15.35	2.07	22.40
NP-5000x300	300	11.81			84,000	18,880	740	29.13	440	17.32	2.46	27.10

* Recommended stroke length for optimal delivery

Note: All dimensions are nominal. Data shown are typical. Actual data for any particular unit may vary.

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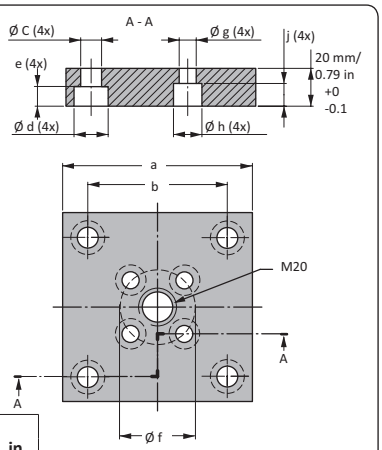
Note! All flanges ordered separately

MP

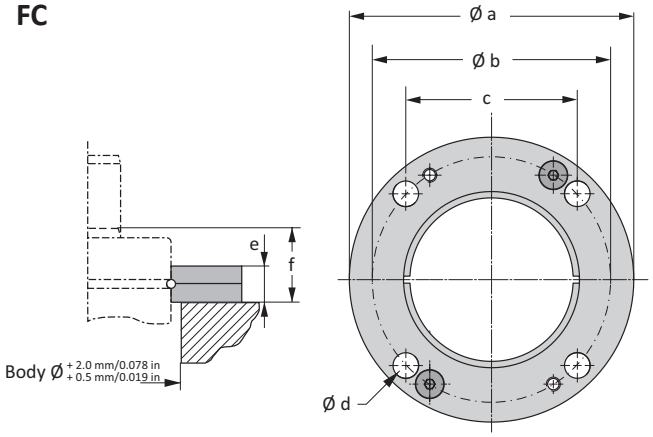


Note!
Comes complete with screws to mount gas spring.

Order No.	a mm	a in	b mm	b in
MP-5000	140	5.51	109.5	4.31

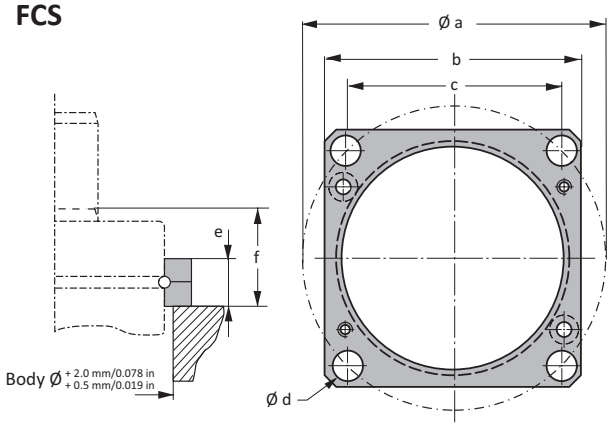
Ø c mm	Ø c in	Ø d mm	Ø d in	e mm	e in	Ø f mm	Ø f in	Ø g mm	Ø g in	Ø h mm	Ø h in	j mm	j in
13.5	0.53	20	0.79	13	0.51	80	3.15	11	0.43	18	0.71	15	0.59

FC



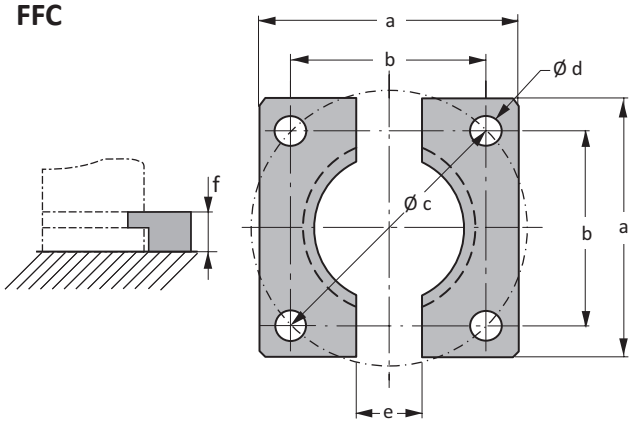
Order No.	Ø a mm	Ø a in	Ø b mm	Ø b in	c mm	c in	Ø d mm	Ø d in	e mm	e in	f mm	f in
FC-5000	175	6.89	155	6.10	109.5	4.31	13.5	0.53	21	0.83	36	1.42

FCS



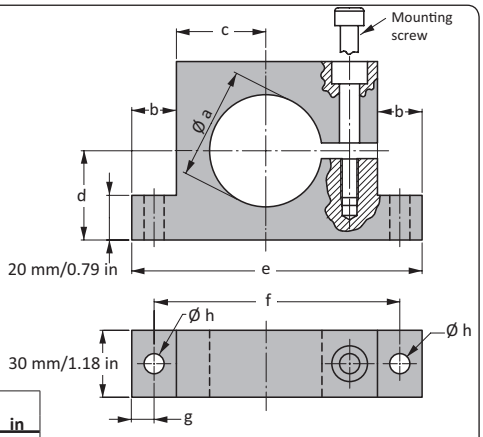
Order No.	Ø a mm	Ø a in	b mm	b in	c mm	c in	Ø d mm	Ø d in	e mm	e in	f mm	f in
FCS-5000	155	6.10	130	5.12	109.5	4.31	13.5	0.53	21	0.83	36	1.42

FFC



Order No.	a mm	a in	b mm	b in	Ø c mm	Ø c in	Ø d mm	Ø d in	e mm	e in	f mm	f in
FFC-5000	140	5.51	109.5	4.31	155	6.10	13.5	0.53	24	0.94	12	0.47

S



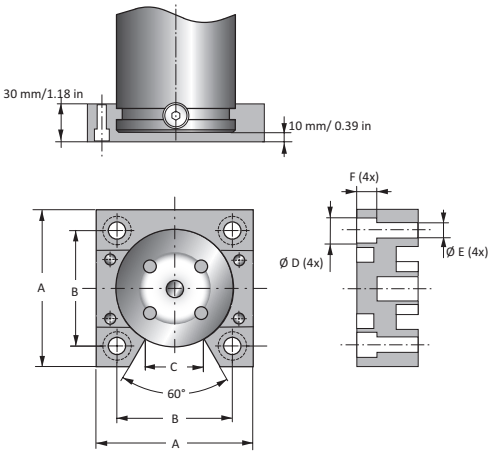
Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or base mounting option.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a mm	Ø a in
S-5000	120.4	4.74

b mm	b in	c mm	c in	d mm	d in	e mm	e in	f mm	f in	g mm	g in	Ø h mm	Ø h in
27.5	1.08	77.5	3.05	74	2.91	220	8.66	195	7.68	12.5	0.49	13	0.51

RM

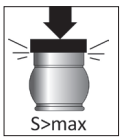


Order No.	A mm	A in	B mm	B in	C mm	C in	Ø D mm	Ø D in	Ø E mm	Ø E in	F mm	F in
RM-5000	140	5.51	109.5	4.31	55.7	2.19	20	0.79	13.5	0.53	13	0.51

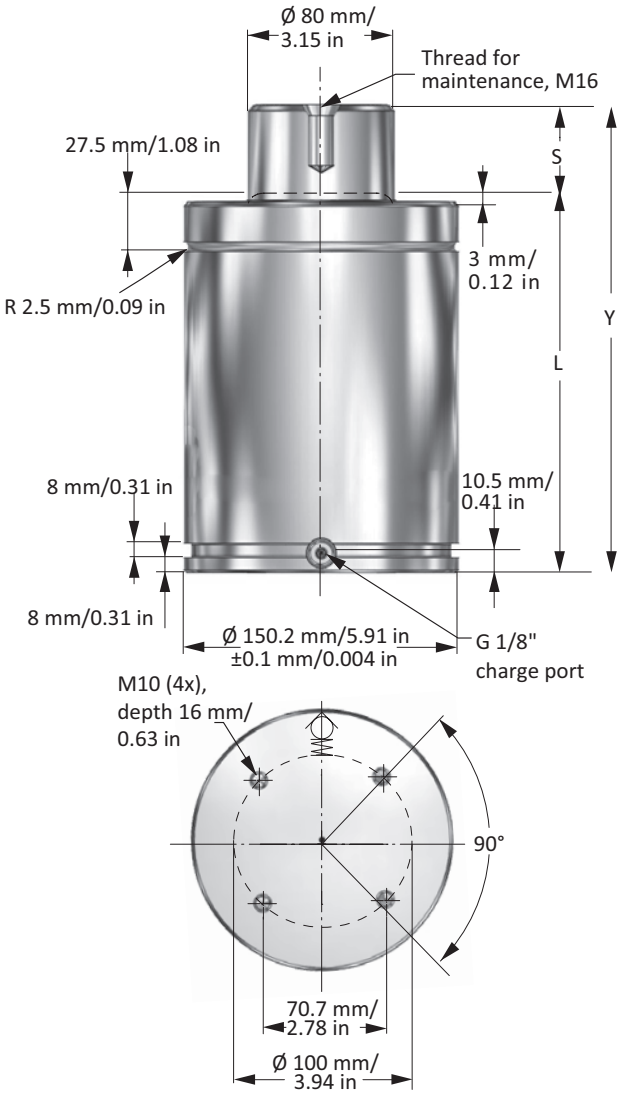
Advanced Safety Features

Overload Protection

Overpressure Protection



Overstroke Protection



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Order No.	S stroke mm	S stroke in	Contact Force 2175 psi at 68 ° F N	Contact Force 2175 psi at 68 ° F lbf.	Full Stroke Force N	Full Stroke Force lbf.	Y ±0.25 mm	Y ±0.010 in	L mm	L in	Gas volume (l)	Weight (kg)
*NP-7500x25	25	0.98	75,000	16,860	105,000	23,600	205	8.07	180	7.09	0.51	20.30
NP-7500x38.1	38.1	1.50			110,000	24,730	231.2	9.10	193.1	7.60	0.67	21.40
*NP-7500x50	50	1.97			113,000	25,400	255	10.04	205	8.07	0.81	22.40
NP-7500x63.5	63.5	2.50			115,000	25,850	282	11.10	218.5	8.60	0.98	23.50
*NP-7500x80	80	3.15			117,000	26,300	315	12.40	235	9.25	1.18	24.80
*NP-7500x100	100	3.94			119,000	26,750	355	13.98	255	10.04	1.43	26.50
*NP-7500x125	125	4.92			121,000	27,200	405	15.94	280	11.02	1.74	28.50
*NP-7500x160	160	6.30			122,000	27,430	475	18.70	315	12.40	2.17	31.40
NP-7500x200	200	7.87			123,000	27,650	555	21.85	355	13.98	2.66	34.70
NP-7500x250	250	9.84			124,000	27,880	655	25.79	405	15.94	3.27	38.80
NP-7500x300	300	11.81			124,000	27,880	755	29.72	455	17.91	3.88	42.90

* Recommended stroke length for optimal delivery

Note: All dimensions are nominal. Data shown are typical. Actual data for any particular unit may vary.

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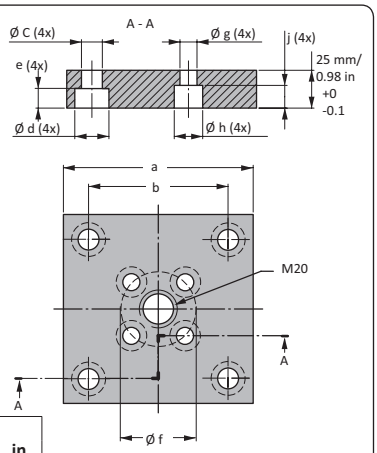
Note! All flanges ordered separately

MP

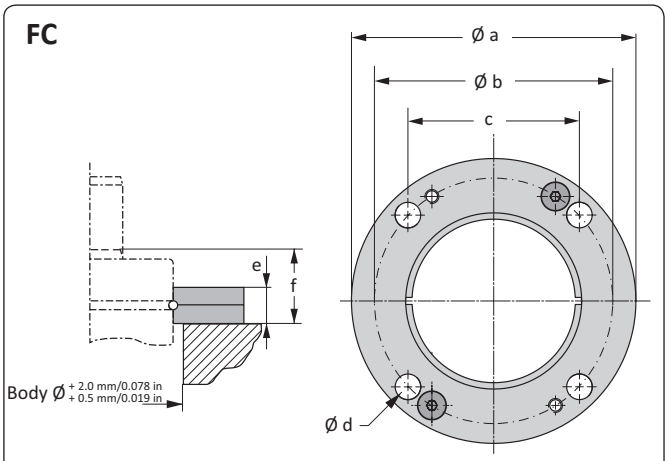


Note! Comes complete with screws to mount gas spring.

Order No.	a		b	
	mm	in	mm	in
MP-7500	190	7.48	138	5.43

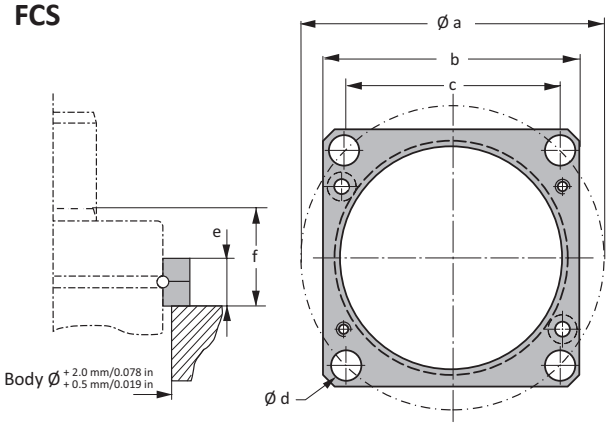
c		d		e		f		g		h		j	
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
17.5	0.69	26	1.02	17	0.67	100	3.94	11	0.43	18	0.71	20	0.59

FC



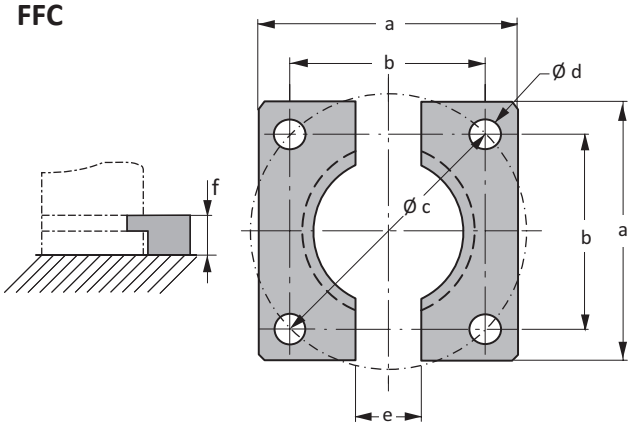
Order No.	Ø a		Ø b		c		Ø d		e		f	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
FC-7500	220	8.66	195	7.68	138	5.43	17.5	0.69	27	1.06	41	1.61

FCS



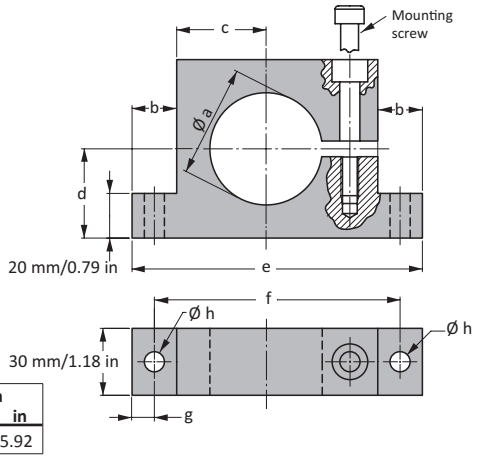
Order No.	Ø a		b		c		Ø d		e		f	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
FCS-7500	195	7.68	162	6.38	138	5.43	17.5	0.69	27	1.06	41	1.61

FFC



Order No.	a		b		c		Ø d		e		f	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
FFC-7500	190	7.48	138	5.43	195.2	7.69	17.5	0.69	24	0.94	12	0.47

S



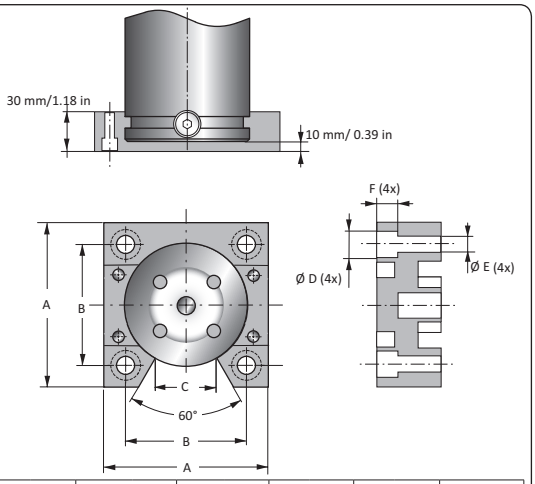
Note! Support S is designed to be used in combination with flanges mounted in the U or C groove or base mounting option.

The mounting screw (M12) should be tightened with torque 91 Nm.

Order No.	Ø a	
	mm	in
S-7500	150.4	5.92

b		c		d		e		f		g		h	
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
30	1.18	95	3.74	100	3.94	260	10.24	230	9.06	15	0.59	13	0.51

RM

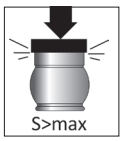


Order No.	A		B		C		Ø D		Ø E		F	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
RM-7500	190	7.48	138	5.43	70.7	2.78	26	1.02	18	0.71	17	0.67

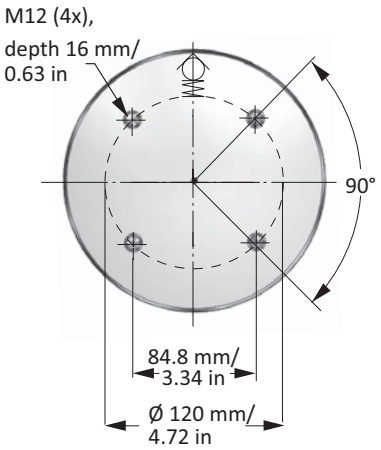
Advanced Safety Features

Overload Protection

Overpressure Protection



Overstroke Protection



APPROVED PED 2014/68/EU
2 million

Order No.	S stroke mm	S stroke in	Contact Force 2175 psi at 68 ° F N	Contact Force 2175 psi at 68 ° F lbf.	Full Stroke Force N	Full Stroke Force lbf.	Y ±0.25 mm	Y ±0.010 in	L mm	L in	Gas volume (l)	Weight (kg)
NP-10000x25	25	0.98			138,000	31,020	210	8.27	185	7.28	0.87	35.90
NP-10000x38.1	38.1	1.50			143,000	32,150	236.2	9.30	198.1	7.80	1.13	37.60
*NP-10000x50	50	1.97			147,000	33,050	260	10.24	210	8.27	1.37	39.20
NP-10000x63.5	63.5	2.50			150,000	33,720	287	11.30	223.5	8.80	1.64	41.00
*NP-10000x80	80	3.15			152,000	34,170	320	12.60	240	9.45	1.98	43.20
*NP-10000x100	100	3.94	106,000	23,830	156,000	35,070	360	14.17	260	10.24	2.38	45.80
*NP-10000x125	125	4.92			157,000	35,300	410	16.14	285	11.22	2.88	49.10
*NP-10000x160	160	6.30			158,000	35,520	480	18.90	320	12.60	3.59	53.70
*NP-10000x200	200	7.87			160,000	35,970	560	22.05	360	14.17	4.39	59.00
*NP-10000x250	250	9.84			160,000	35,970	660	25.98	410	16.14	5.40	65.60
NP-10000x300	300	11.81			160,000	35,970	760	29.92	460	18.11	6.40	72.20

Note: All dimensions are nominal. Data shown are typical. Actual data for any particular unit may vary.

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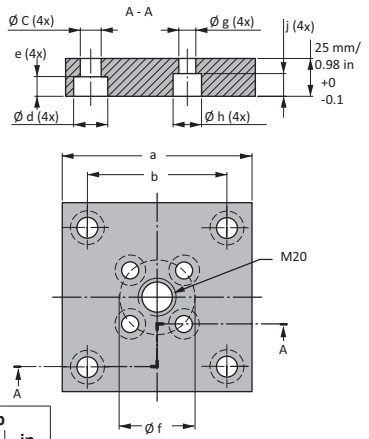
Note! All flanges ordered separately

MP

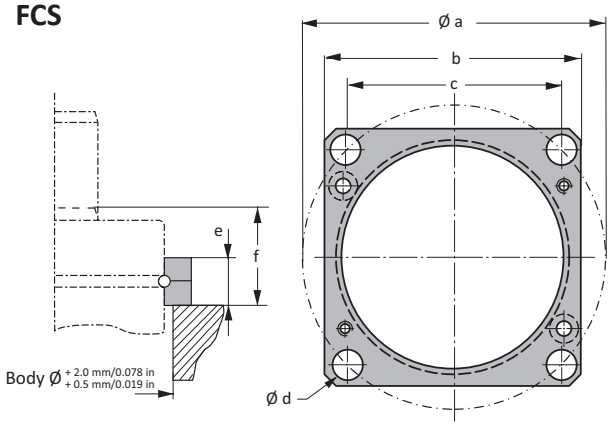


Note! Comes complete with screws to mount gas spring.

Order No.	a		b	
	mm	in	mm	in
MP-10000	210	8.27	170	6.69

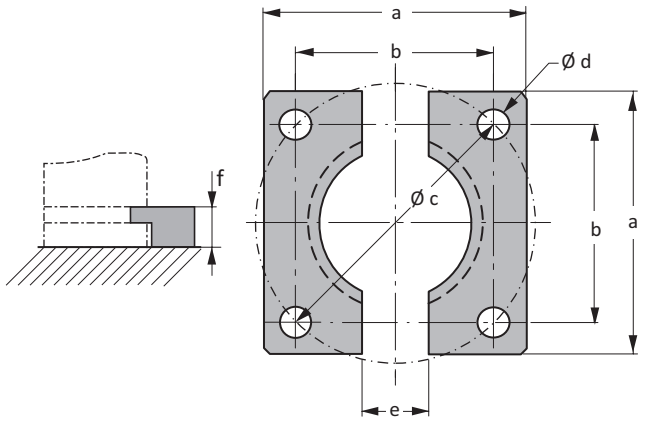
c		d		e		f		g		h		j	
mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
17.5	0.69	26	1.02	17	0.67	120	4.72	13.5	0.53	20	0.79	13	0.51

FCS



Order No.	Ø a		b		c		Ø d		e		f	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
FCS-10000	240.4	9.46	210	8.27	170	6.69	17.5	0.69	27	1.06	47	1.85

FFC



Order No.	a		b		c		Ø d		e		f	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
FFC-10000	210	8.27	170	6.69	240.4	9.46	17.5	0.69	24	0.94	13	0.51

All forces are in lbs.

At initial contact, nitrogen gas springs provide instantaneous force. As the piston rod is compressed, the output force increases. Both the contact force and full stroke force are tabulated in the Dimensional Information Charts for each gas spring. It may be useful, however, to know the output force at an intermittent travel distance between the minimum and maximum values. These charts provide that.

NP-500 Force Chart lbf @ 150 bar/2175 psi

	mm	0	10	12.7	25	38.1	50	63.5	80	100	125	160
	in	0	0.39	0.5	0.98	1.5	1.97	2.5	3.15	3.94	4.92	6.3
mm	in											
10	0.39	1,055	1,350									
12.7	0.5	1,055	1,303	1,370								
25	0.98	1,055	1,209	1,251	1,440							
38.1	1.5	1,055	1,161	1,190	1,321	1,460						
50	1.97	1,055	1,140	1,163	1,268	1,379	1,480					
63.5	2.5	1,055	1,122	1,140	1,222	1,310	1,390	1,480				
80	3.15	1,055	1,116	1,132	1,207	1,286	1,358	1,440	1,540			
100	3.94	1,055	1,101	1,113	1,169	1,228	1,283	1,344	1,419	1,510		
125	4.92	1,055	1,091	1,101	1,146	1,194	1,237	1,286	1,346	1,419	1,510	
160	6.3	1,055	1,083	1,091	1,126	1,163	1,197	1,236	1,283	1,339	1,410	1,510

NP-750 Force Chart lbf @ 150bar/ 2175psi

	mm	0	12.7	25	38.1	50	63.5	80	100	125	160	200	250	300
	in	0	0.5	0.98	1.5	1.97	2.5	3.15	3.94	4.92	6.3	7.87	9.84	11.81
mm	in													
12.7	0.5	1,665	2,700											
25	0.98	1,665	2,191	2,700										
38.1	1.5	1,665	2,010	2,344	2,700									
50	1.97	1,665	1,928	2,183	2,454	2,700								
63.5	2.5	1,665	1,872	2,072	2,286	2,480	2,700							
80	3.15	1,665	1,829	1,988	2,158	2,312	2,487	2,700						
100	3.94	1,665	1,796	1,924	2,059	2,183	2,322	2,493	2,700					
125	4.92	1,665	1,772	1,876	1,987	2,087	2,201	2,340	2,509	2,720				
160	6.3	1,665	1,749	1,830	1,916	1,995	2,084	2,193	2,324	2,489	2,720			
200	7.87	1,665	1,732	1,797	1,866	1,929	2,000	2,087	2193	2,324	2,509	2,720		
250	9.84	1,665	1,719	1,771	1,826	1,876	1,933	2,003	2,087	2,193	2,340	2,509	2,720	
300	11.81	1,665	1,710	1,753	1,799	1,841	1,888	1,946	2,017	2,105	2,228	2,368	2,544	2,720

NP-1500 Force Chart lbf @ 150bar/ 2175psi

	mm	0	12.7	25	38.1	50	63.5	80	100	125	160	200	250	300
	in	0	0.5	0.98	1.5	1.97	2.5	3.15	3.94	4.92	6.3	7.87	9.84	11.81
mm	in													
12.7	0.5	3,375	5,170											
25	0.98	3,375	4,287	5,170										
38.1	1.5	3,375	3,973	4,553	5,170									
50	1.97	3,375	3,831	4,273	4,743	5,170								
63.5	2.5	3,375	3,734	4,082	4,452	4,788	5,170							
80	3.15	3,375	3,660	3,936	4,230	4,497	4,800	5,170						
100	3.94	3,375	3,603	3,824	4,059	4,273	4,515	4,811	5,170					
125	4.92	3,375	3,557	3,734	3,922	4,093	4,287	4,524	4,811	5,170				
160	6.3	3,375	3,517	3,655	3,802	3,936	4,087	4,273	4,497	4,777	5,170			
200	7.87	3,375	3,489	3,599	3,717	3,824	3,945	4,093	4,273	4,497	4,811	5,170		
250	9.84	3,375	3,466	3,555	3,649	3,734	3,831	3,949	4,093	4,273	4,524	4,811	5,170	
300	11.81	3,375	3,451	3,525	3,603	3,674	3,755	3,854	3,973	4,123	4,332	4,572	4,871	5,170

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NP-3000 Force Chart lbf @ 150bar/ 2175psi

	mm	0	12.7	25	38.1	50	63.5	80	100	125	160	200	250	300
	in	0	0.5	0.98	1.5	1.97	2.5	3.15	3.94	4.92	6.3	7.87	9.84	11.81
mm	in													
12.7	0.5	6,750	9,440											
25	0.98	6,750	8,117	9,440										
38.1	1.5	6,750	7,723	8,666	9,670									
50	1.97	6,750	7,548	8,320	9,143	9,890								
63.5	2.5	6,750	7,420	8,069	8,760	9,388	10,100							
80	3.15	6,750	7,320	7,872	8,460	8,994	9,600	10,340						
100	3.94	6,750	7,235	7,705	8,205	8,660	9,176	9,806	10,570					
125	4.92	6,750	7,138	7,514	7,914	8,278	8,691	9,195	9,806	10,570				
160	6.3	6,750	7,053	7,347	7,660	7,944	8,266	8,660	9,138	9,734	10,570			
200	7.87	6,750	7,007	7,255	7,520	7,760	8,033	8,366	8,770	9,275	9,982	10,790		
250	9.84	6,750	6,955	7,154	7,366	7,558	7,776	8,043	8,366	8,770	9,336	9,982	10,790	
300	11.81	6,750	6,921	7087	7,263	7,423	7,605	7,827	8,097	8,433	8,905	9,443	10,117	10,790

NP-5000 Force Chart lbf @ 150bar/ 2175psi

	mm	0	12.7	25	38.1	50	63.5	80	100	125	160	200	250	300
	in	0	0.5	0.98	1.5	1.97	2.5	3.15	3.94	4.92	6.3	7.87	9.84	11.81
mm	in													
25	0.98	11,240	13,638	15,960										
38.1	1.5	11,240	13,113	14,928	16,860									
50	1.97	11,240	12,782	14,275	15,865	17,310								
63.5	2.5	11,240	12,590	13,897	15,290	16,555	17,990							
80	3.15	11,240	12,346	13,418	14,559	15,596	16,772	18,210						
100	3.94	11,240	12,153	13,038	13,979	14,835	15,806	16,992	18,430					
125	4.92	11,240	11,971	12,678	13,432	14,116	14,893	15,842	16,992	18,430				
160	6.3	11,240	11,829	12,399	13,007	13,559	14,185	14,950	15,878	17,037	18,660			
200	7.87	11,240	11,725	12,195	12695	13,150	13,666	14,296	15,060	16,015	17,352	18,880		
250	9.84	11,240	11,628	12,004	12,404	12,768	13,181	13,685	14,296	15,060	16,130	17,352	18,880	
300	11.81	11,240	11,563	11,877	12,210	12,513	12,857	13,277	13,787	14,423	15,315	16,333	17,607	18,880

NP-7500 Force Chart lbf @ 150bar/ 2175psi

	mm	0	12.7	25	38.1	50	63.5	80	100	125	160	200	250	300
	in	0	0.5	0.98	1.5	1.97	2.5	3.15	3.94	4.92	6.3	7.87	9.84	11.81
mm	in													
25	0.98	16,860	20,284	23,600										
38.1	1.5	16,860	19,483	22,024	24,730									
50	1.97	16,860	19,029	21,130	23,367	25,400								
63.5	2.5	16,860	18,658	20,399	22,254	23,939	25,850							
80	3.15	16,860	18,359	19,810	21,356	22,760	24,353	26,300						
100	3.94	16,860	18,116	19,333	20,628	21,805	23,140	24,772	26,750					
125	4.92	16,860	17,911	18,928	20,012	20,996	22,113	23,478	25,132	27,200				
160	6.3	16,860	17,699	18,512	19,377	20,163	21,055	22,145	23,466	25,118	27,430			
200	7.87	16,860	17,545	18,209	18,915	19,558	20,286	21,176	22,255	23,604	25,492	27,650		
250	9.84	16,860	17,420	17,962	18,539	19,064	19,659	20,386	21,268	22,370	23,913	25,676	27,880	
300	11.81	16,860	17,327	17,778	18,260	18,697	19,193	19,799	20,533	21452	22,737	24,207	26,043	27,880

NP-10000 Force Chart lbf @ 150bar/ 2175psi

	mm	0	25	38.1	50	63.5	80	100	125	160	200	220	250	300
	in	0	0.98	1.5	1.97	2.5	3.15	3.94	4.92	6.3	7.87	8.66	9.84	11.81
mm	in													
25	0.98	23,830	31,020											
38.1	1.5	23,830	29,289	32,150										
50	1.97	23,830	28,440	30,856	33,050									
63.5	2.5	23,830	27,724	29,764	31,617	33,720								
80	3.15	23,830	27,061	28,754	30,293	32,037	34,170							
100	3.94	23,830	26,640	28,112	29,450	30,967	32,822	35,070						
125	4.92	23,830	26,124	27,326	28,418	29,657	31,171	33,006	35,300					
160	6.3	23,830	25,657	26,614	27,483	28,469	29,675	31,136	32,963	35,520				
200	7.87	23,830	25,348	26,143	26,865	27,684	28,686	29900	31,418	33,542	35,970			
250	9.84	23,830	25,044	25,680	26,258	26,914	27,715	28,686	29,900	31,600	33542	34,513	35,970	
300	11.81	23,830	24,842	25,372	25,853	26,400	27,067	27,877	28,888	30,305	31,923	32733	33,947	35,970

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