

NPL Series

LOW HEIGHT GAS SPRINGS

*IDEAL FOR STAMPING
APPLICATIONS WHERE
HEIGHT IS RESTRICTED*



GENUINELY HYSON

Since 1964 Hyson has been dedicated to providing safer and more reliable products with worldwide support and service. We are continually at the forefront of innovative product design, and engineer forward-thinking features into our self-contained springs which enable our customers to provide safer working environments.

Our nitrogen gas springs, which comply with all major industry standards, are designed to reduce the risk of tool damage and injuries and include at least one of the following safety features:



Overstroke Protection:

In the event of an overstroke, the Hyson cylinder is designed to fail-safe and release pressure in a pre-defined manner with deformation or knockout plug.



Overpressure Protection:

Designed to vent excessive gas in the event that the spring becomes overpressured, deformation of the safety lip guide or separation of disc will occur.



Overload Protection:

The piston rod is designed for controlled gas venting between the seal and piston rod with a specially designed guide and fundamental safety stop in the event of an overload caused by a jammed tool, part or rod side-load.



Additionally, the majority of Hyson springs are **PED** (Pressure Equipment Directive) approved to withstand a minimum of 2 million full cycles according to PED97/23/EC. Many of our competitors are in compliance of PED, but compliance is unequal to the 2 million cycle test and approval that Hyson gas springs have undergone. This is one more assurance that with Hyson Nitrogen Gas Springs you receive an added value of reliability and operational excellence.

***IDEAL FOR STAMPING APPLICATIONS WHERE HEIGHT IS RESTRICTED.
NPL Series is 25mm – 50mm shorter than NP series.***

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General Information

Hyson, headquartered in Brecksville, Ohio, is a world class engineering and manufacturing company that provides high-quality, safety-engineered force control solutions for a wide range of applications and industries, including automotive, aerospace, appliance, medical and HVAC. Hyson partners with our customers to understand applications and provide the best solutions for each one. We are a full service force control provider for critical machine, vehicle and precision metal processing applications, meaning we can supply dependent upon each customer’s needs, including: gas springs, cam systems, cushions, manifolds to knockout systems.

Our success lies with our commitment to continually improve ourselves, our processes and our products to ensure we meet or exceed our customers’ expectations. Our ISO-9001, AS-9000 and PED certifications attest to our ongoing commitment to the highest standards of quality.

PED – Pressure Equipment Directive

Hyson 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 according to the European Pressure Equipment Directive (97/23/EC).



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

NPL Spring Value

- Lower Height
 - Provides the force needed in a shorter profile where height is restricted.
- Force adjustability & increased productivity
 - Our gas springs are adjustable simply by modifying gas pressure through a hoses control panel while the die is in the press.
- Balanced, consistent force
 - Our gas springs provide for a balanced pad and high quality parts while, as coil springs start to fatigue and break, the pad can become imbalanced resulting in poor quality parts.

Product Features

- Five models with contact forces from 7,400 N to 75,000 N/*1,665 lbf to 16,860 lbf*.
- Stroke lengths from 12.5 mm to 250 mm/*.49 in to 9.84 in*
- Diameters available from 50 mm to 150 mm/*1.98 in to 5.61 in*
- Variety of mounting options available
- Flexible guide absorbs lateral movement and misalignments in the die
- Upper C-groove, lower U-groove and bottom threaded holes enable various standard mounting possibilities

Advanced Safety Features

- **Over-Pressure Protection:** designed to safely vent excessive gas pressure in the event of an over-pressure situation such as over-charged gas springs or the ingestion of large amounts of drawing or cooling fluids.
- **Over-Stroke Protection:** A patented system allows the venting of gas in a pre-determined manner with deformation or knock-out plug in the event of a mechanical overload of the gas spring body.
- **Overload Protection:** In the case of blockage in the tool that causes excessive piston return speed, a specially-designed rod and integral safety stops retain the piston rod in the gas spring and allow gas to vent safely.



Overload
Protection



Overpressure
Protection



Overstroke
Protection

Product Specifications

Pressure Medium	Nitrogen
Max. Charging Pressure	150 bar/2,175 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 @ 20°C/68°F
Max. Piston Rod Velocity	1.6 m/s /315 ft per min.
Max. Utilized stroke	100%
Inlet Valve	
NPL-750	4018112
NPL-1500, NPL-3000, NPL-5000 & NPL-7500	56-072-5500
Charge Fitting	T2-770-G1/8-P

Ordering Instructions

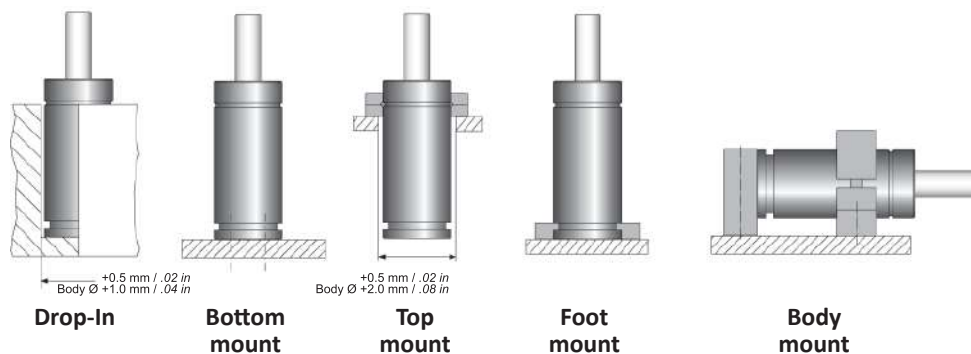
NPL-750	X	25
Model		Stroke
NPL-750 NPL-1500 NPL-3000 NPL-5000 NPL-7500		See Dimensional Information Charts

All gas springs shipped at maximum charge pressure unless otherwise specified.

Repair Kits

Gas Spring	Repair Kit Part Number
NPL-750	3324118
NPL-1500	3324144
NPL-3000	3324171
NPL-5000	3324178
NPL-7500	3325027

Mounting Options



Advanced Safety Features



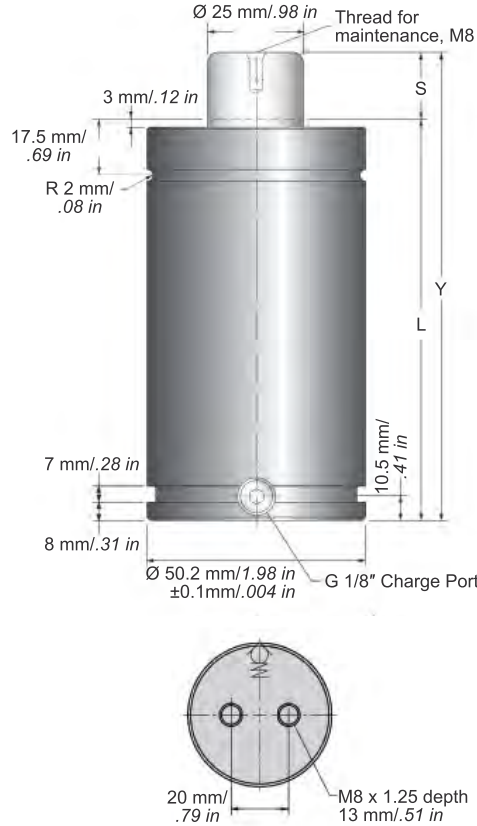
Overload Protection



Overpressure Protection



Overstroke Protection



NPL-750 Dimensional Information

Order Number Model X Stroke	Stroke S		Contact Force**		Full Stroke Force**		Y		L		Gas Volume	Weight	
	mm	in	N	lbf	N	lbf	± 0.25	± 0.010	mm	in	ℓ	kg	lbs
							mm	in					
NPL-750X12.5	12.5	.49	7,400	1,665	11,400	2,560	95	3.74	82.5	3.25	0.03	.97	2.14
*NPL-750X25	25	.98			11,700	2,630	120	4.72	95	3.35	0.04	1.08	2.38
NPL-750X37.5	37.5	1.48			11,800	2,650	145	5.71	107.5	4.23	0.06	1.20	2.65
*NPL-750X50	50	1.97			11,900	2,670	170	6.69	120	4.72	0.08	1.32	2.91
NPL-750X62.5	62.5	2.46			11,900	2,670	195	7.68	132.5	5.22	0.09	1.42	3.13
NPL-750X75	75	2.95			11,900	2,675	220	8.66	145	5.71	0.11	1.53	3.37
*NPL-750X80	80	3.15			11,900	2,670	230	9.06	150	5.91	0.11	1.58	3.48
NPL-750X87.5	87.5	3.44			11,900	2,670	245	9.65	157.5	6.20	0.11	1.65	3.64
*NPL-750X100	100	3.94			11,900	2,670	270	10.63	170	6.69	0.14	1.77	3.90
NPL-750X112.5	112.5	4.43			12,000	2,700	295	11.61	182.5	7.19	0.15	1.89	4.17
*NPL-750X125	125	4.92			12,000	2,700	320	12.60	195	7.68	0.15	2.01	4.43
NPL-750X137.5	137.5	5.41			12,000	2,700	345	13.58	207.5	8.17	0.17	2.13	4.70
NPL-750X150	150	5.91			12,000	2,700	370	14.57	220	8.66	0.19	2.25	4.96
*NPL-750X160	160	6.30			12,000	2,700	390	15.35	230	9.06	0.20	2.34	5.16
NPL-750X175	175	6.89			12,000	2,700	420	16.54	245	9.65	0.23	2.48	5.47
NPL-750X200	200	7.87			12,000	2,700	470	18.50	270	10.63	0.26	2.72	6.00
NPL-750X225	225	8.86			12,000	2,700	520	20.47	295	11.61	0.30	2.96	6.53
NPL-750X250	250	9.84			12,000	2,700	570	22.44	320	12.60	0.33	3.19	7.03

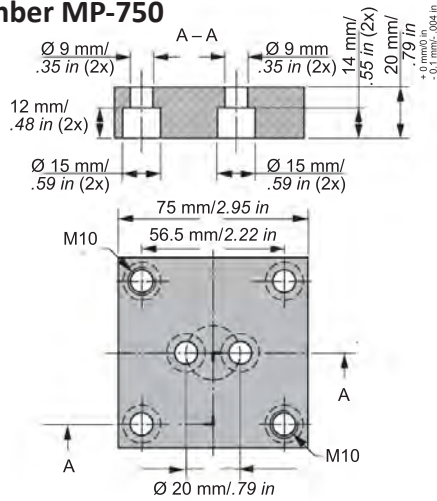
* Recommended stroke lengths for optimal delivery

** At full charge

Note: All flanges ordered separately.

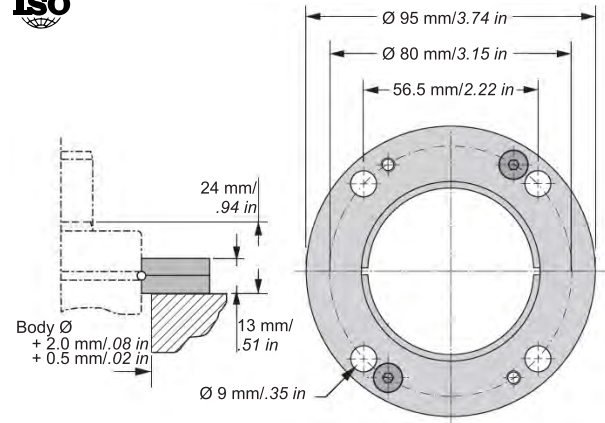
Mounting Options

MP - Bottom Mounting Plate
Order Number MP-750

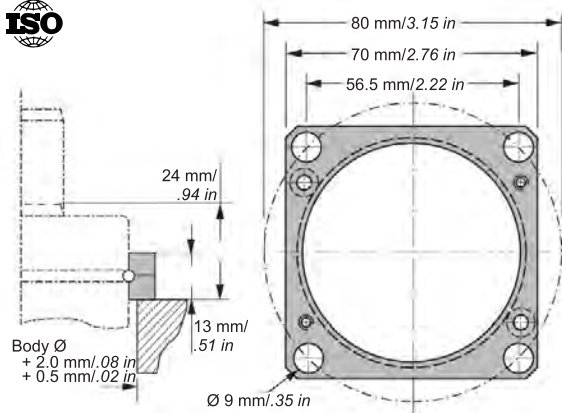


Note: Comes complete with screws to mount gas spring.

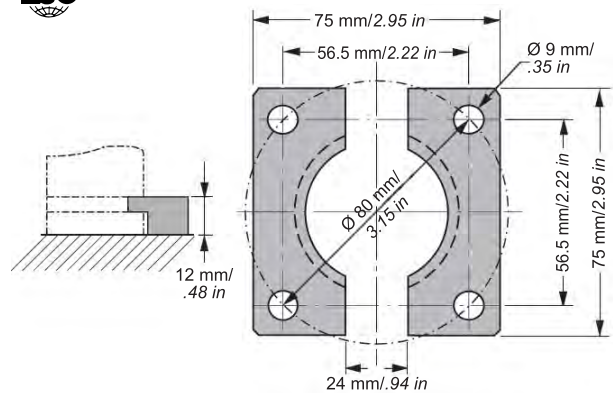
FC - Circular Flange
Order Number FC-750



FCS - Upper Square Flange
Order Number FCS-750



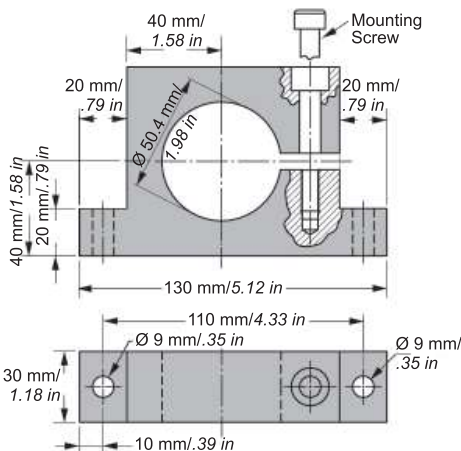
FFC - Lower Square Flange
Order Number FFC-750



S - Support Mount
Order Number S-750



Note: Support S is designed to be used in combination with flanges mounted in the U or C groove.



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

Advanced Safety Features



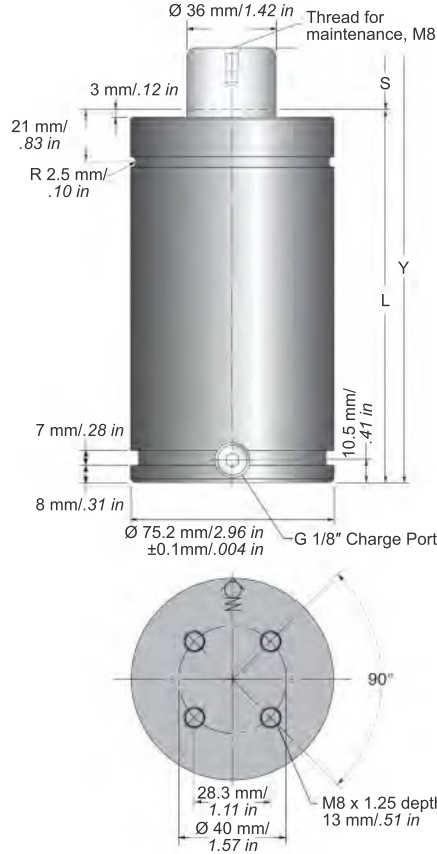
Overload Protection



Overpressure Protection



Overstroke Protection



NPL-1500 Dimensional Information

Order Number Model X Stroke	Stroke S		Contact Force**		Full Stroke Force**		Y		L		Gas Volume ℓ	Weight	
	mm	in	N	lbf	N	lbf	± 0.25 mm	± 0.010 in	mm	in		kg	lbs
NPL-1500X12.5	12.5	.49	15,000	3,375	18,000	4,050	110	4.33	97.5	3.84	0.11	2.65	5.84
*NPL-1500X25	25	.98			19,200	4,320	135	5.31	110	4.33	0.15	2.88	6.35
NPL-1500X37.5	37.5	1.48			20,000	4,500	160	6.30	122.5	4.82	0.19	3.11	6.86
*NPL-1500X50	50	1.97			20,400	4,590	185	7.28	135	5.31	0.23	3.34	7.36
NPL-1500X62.5	62.5	2.46			20,700	4,650	210	8.27	147.5	5.81	0.27	3.57	7.87
NPL-1500X75	75	2.95			20,900	4,700	235	9.25	160	6.30	0.31	3.88	8.55
*NPL-1500X80	80	3.15			21,000	4,720	245	9.65	165	6.50	0.33	3.89	8.58
NPL-1500X87.5	87.5	3.44			21,100	4,740	260	10.24	172.5	6.79	0.35	4.03	8.88
*NPL-1500X100	100	3.94			21,200	4,770	285	11.22	185	7.28	0.39	4.26	9.39
NPL-1500X112.5	112.5	4.43			21,400	4,810	310	12.20	197.5	7.78	0.43	4.49	9.90
*NPL-1500X125	125	4.92			21,500	4,830	335	13.19	210	8.27	0.47	4.71	10.38
NPL-1500X137.5	137.5	5.41			22,000	4,950	360	14.17	222.5	8.76	0.49	4.94	10.89
NPL-1500X150	150	5.91			22,000	4,950	385	15.16	235	9.25	0.52	5.17	11.40
*NPL-1500X160	160	6.30			22,100	4,970	405	15.95	245	9.65	0.56	5.36	11.82
NPL-1500X175	175	6.89			22,100	4,970	435	17.13	260	10.24	0.60	5.63	12.41
NPL-1500X200	200	7.87			22,100	4,970	485	19.09	285	11.22	0.68	6.09	13.43
NPL-1500X225	225	8.86			22,200	4,990	535	21.06	310	12.20	0.76	6.55	14.44
NPL-1500X250	250	9.84			22,200	4,990	585	23.03	335	13.19	0.84	7.01	15.45

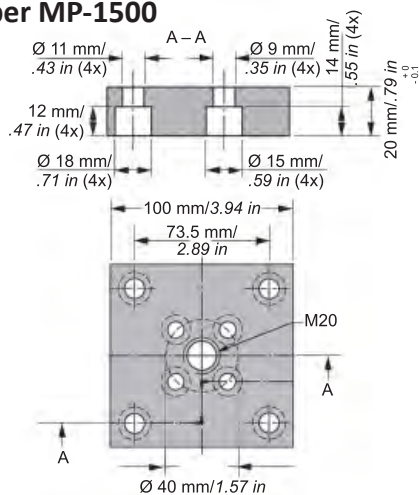
* Recommended stroke lengths for optimal delivery

** At full charge

Note: All flanges ordered separately.

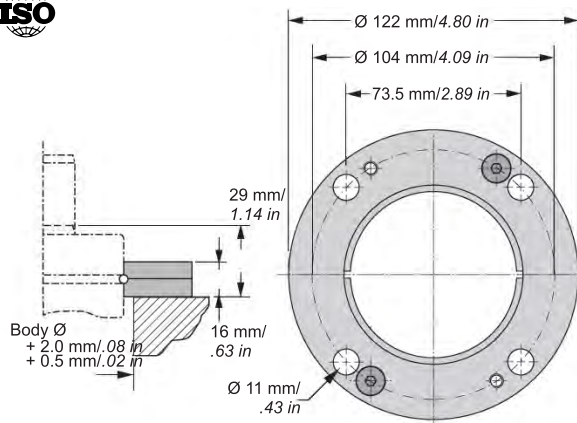
Mounting Options

MP - Bottom Mounting Plate
Order Number MP-1500

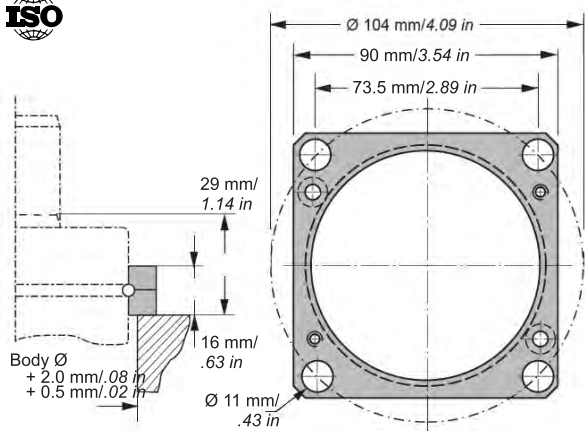


Note: Comes complete with screws to mount gas spring.

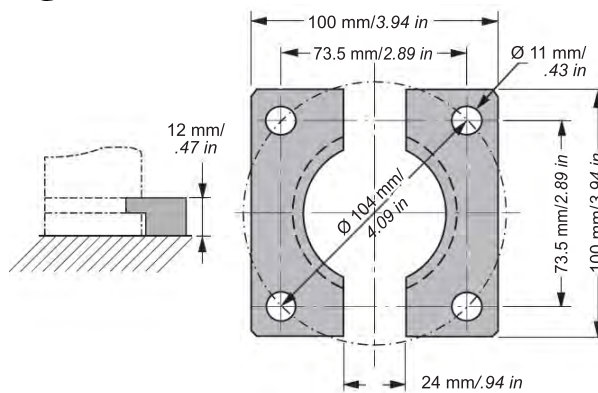
FC - Circular Flange
Order Number FC-1500



FCS - Upper Square Flange
Order Number FCS-1500



FFC - Lower Square Flange
Order Number FFC-1500

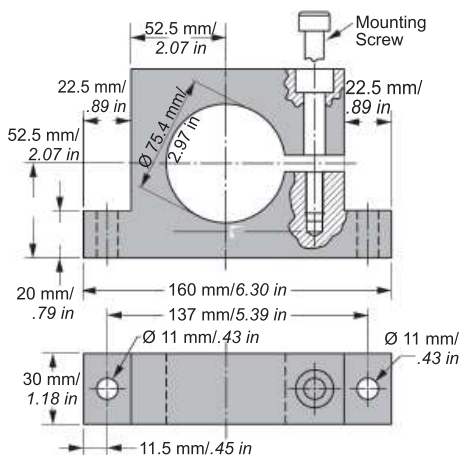


S - Support Mount
Order Number S-1500



Note: Support S is designed to be used in combination with flanges mounted in the U or C groove.

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



Advanced Safety Features



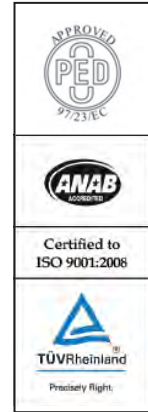
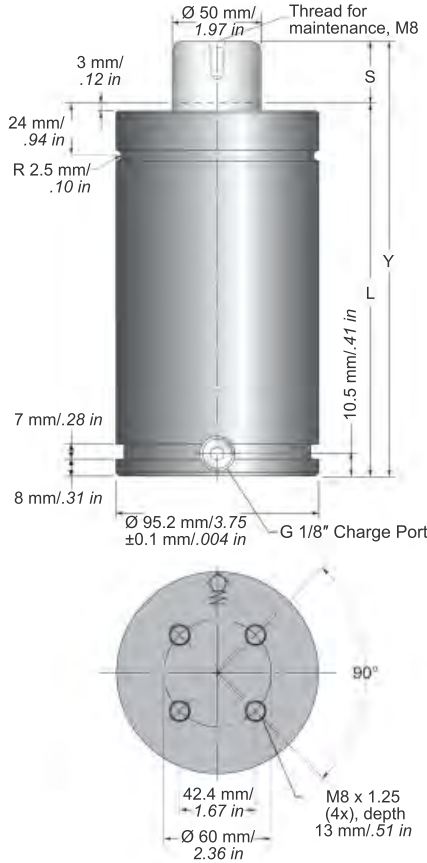
Overload Protection



Overpressure Protection



Overstroke Protection



NPL-3000 Dimensional Information

Order Number Model X Stroke	Stroke S		Contact Force**		Full Stroke Force**		Y		L		Gas Volume	Weight	
	mm	in	N	lbf	N	lbf	± 0.25	± 0.010	mm	in	ℓ	kg	lbs
							mm	in					
NPL-3000X12.5	12.5	.49	30,000	6,750	38,700	8,710	120	4.72	107.5	4.23	0.14	4.84	10.67
*NPL-3000X25	25	.98			41,800	9,400	145	5.71	120	4.72	0.21	5.24	11.55
NPL-3000X37.5	37.5	1.48			43,500	9,770	170	6.69	132.5	5.22	0.27	5.64	12.43
*NPL-3000X50	50	1.97			44,400	9,980	195	7.68	145	5.71	0.33	6.03	13.29
NPL-3000X62.5	62.5	2.46			45,100	10,130	220	8.66	157.5	6.20	0.40	6.43	14.18
NPL-3000X75	75	2.95			45,500	10,230	245	9.65	170	6.69	0.46	6.83	15.06
*NPL-3000X80	80	3.15			45,600	10,260	255	10.04	175	6.89	0.48	7.12	15.70
NPL-3000X87.5	87.5	3.44			45,800	10,300	270	10.63	182.5	7.19	0.52	7.23	15.94
*NPL-3000X100	100	3.94			46,100	10,360	295	11.61	195	7.68	0.58	7.62	16.80
NPL-3000X112.5	112.5	4.43			46,300	10,410	320	12.60	207.5	8.17	0.65	8.02	17.68
*NPL-3000X125	125	4.92			46,500	10,450	345	13.58	220	8.66	0.71	8.41	18.54
NPL-3000X137.5	137.5	5.41			46,600	10,490	370	14.57	232.5	9.15	0.77	8.84	19.49
NPL-3000X150	150	5.91			46,800	10,510	395	15.55	245	9.65	0.84	9.21	20.30
*NPL-3000X160	160	6.30			46,900	10,530	415	16.34	255	10.04	0.89	9.53	21.01
NPL-3000X175	175	6.89			47,000	10,560	445	17.52	270	10.63	0.96	10.00	22.05
NPL-3000X200	200	7.87			47,100	10,590	495	19.49	295	11.61	1.09	10.79	23.79
NPL-3000X225	225	8.86			47,200	10,620	545	21.46	320	12.60	1.21	11.59	25.55
NPL-3000X250	250	9.84			47,300	10,640	595	23.43	345	13.58	1.34	12.38	27.29

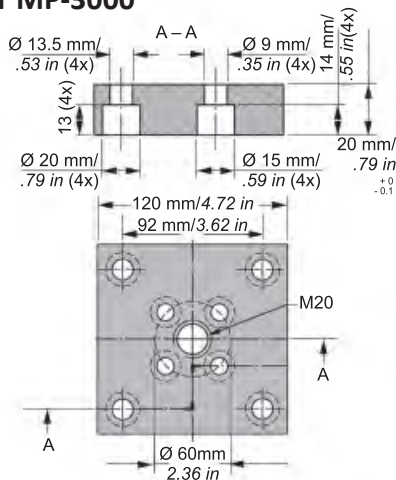
* Recommended stroke lengths for optimal delivery

** At full charge

Note: All flanges ordered separately.

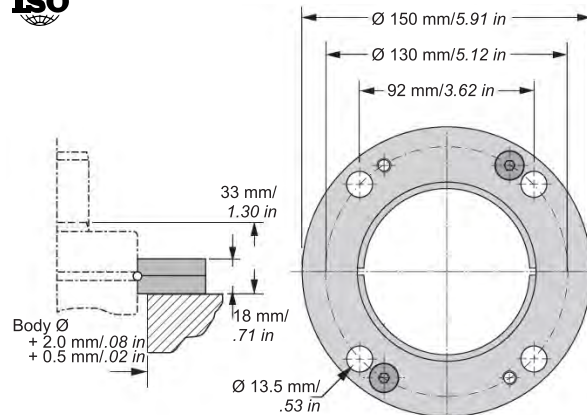
Mounting Options

MP - Bottom Mounting Plate
Order Number MP-3000

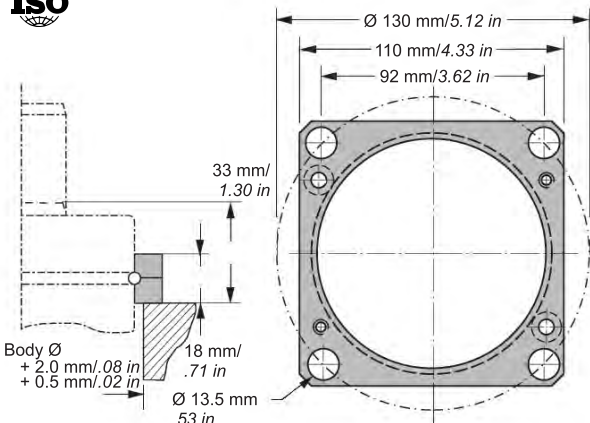


Note: Comes complete with screws to mount gas spring.

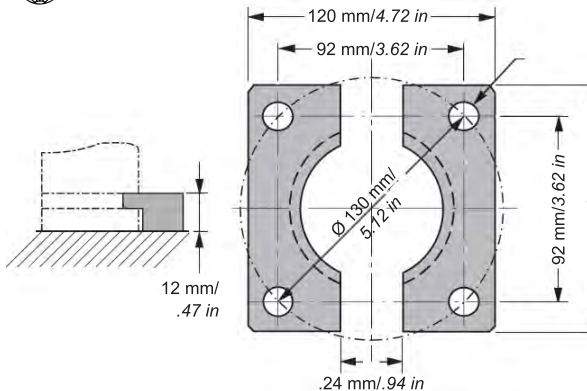
FC - Circular Flange
Order Number FC-3000



FCS - Upper Square Flange
Order Number FCS-3000



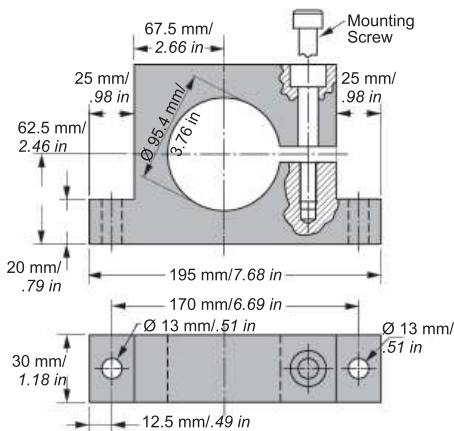
FFC - Lower Square Flange
Order Number FFC-3000



S - Support Mount
Order Number S-3000



Note: Support S is designed to be used in combination with flanges mounted in the U or C groove.



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

Advanced Safety Features



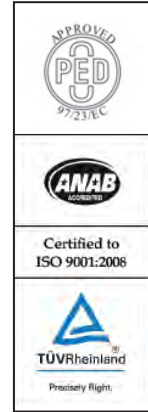
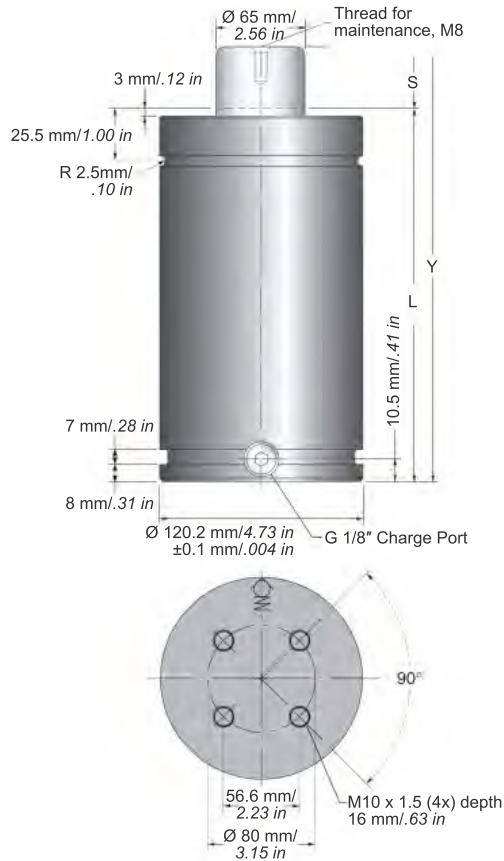
Overload Protection



Overpressure Protection



Overstroke Protection



NPL-5000 Dimensional Information

Order Number Model X Stroke	Stroke S		Contact Force**		Full Stroke Force**		Y		L		Gas Volume	Weight	
	mm	in	N	lbf	N	lbf	± 0.25	± 0.010	mm	in		ℓ	kg
							mm	in					
*NPL-5000X25	25	.98	50,000	11,240	80,100	18,000	152.5	6.00	127.5	5.02	0.2	9.04	19.93
NPL-5000X37.5	37.5	1.48			81,900	18,410	177.5	6.99	140	5.51	0.3	9.70	21.38
*NPL-5000X50	50	1.97			82,800	18,620	202.5	7.97	152.5	6.00	0.4	10.35	22.82
NPL-5000X62.5	62.5	2.46			83,500	18,760	227.5	8.96	165	6.50	0.5	11.01	24.27
NPL-5000X75	75	2.95			83,800	18,850	252.5	9.94	177.5	6.99	0.6	11.67	25.73
*NPL-5000X80	80	3.15			84,000	18,870	262.5	10.33	182.5	7.19	0.7	11.93	26.30
NPL-5000X87.5	87.5	3.44			84,100	18,920	277.5	10.93	190	7.48	0.7	12.32	27.16
*NPL-5000X100	100	3.94			84,400	18,970	302.5	11.91	202.5	7.97	0.8	12.98	28.62
NPL-5000X112.5	112.5	4.43			84,500	19,000	327.5	12.89	215	8.46	0.9	13.64	30.07
*NPL-5000X125	125	4.92			84,700	19,040	352.5	13.88	227.5	8.96	1.0	14.30	31.53
NPL-5000X137.5	137.5	5.41			84,800	19,070	377.5	14.86	240	9.45	1.1	14.96	32.98
NPL-5000X150	150	5.91			84,900	19,090	402.5	15.85	252.5	9.94	1.2	15.62	34.44
*NPL-5000X160	160	6.30			85,000	19,100	422.5	16.63	262.5	10.33	1.3	16.14	35.58
NPL-5000X175	175	6.89			85,100	19,130	452.5	17.81	277.5	10.93	1.4	16.94	37.35
NPL-5000X200	200	7.87			85,200	19,160	502.5	19.78	302.5	11.91	1.6	18.25	40.23
NPL-5000X225	225	8.86			85,300	19,180	552.5	21.75	327.5	12.89	1.8	19.57	43.14
NPL-5000X250	250	9.84			85,400	19,190	602.5	23.72	352.5	13.88	2.0	20.89	46.05

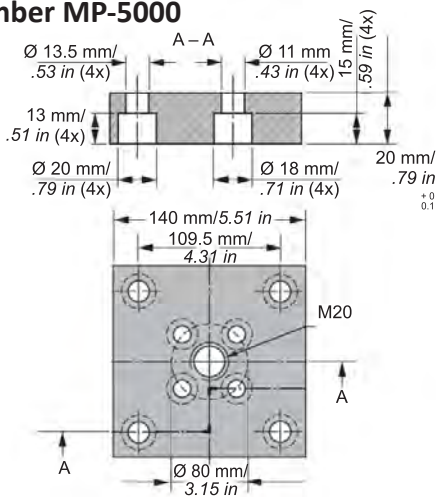
* Recommended stroke lengths for optimal delivery

** At full charge

Note: All flanges ordered separately.

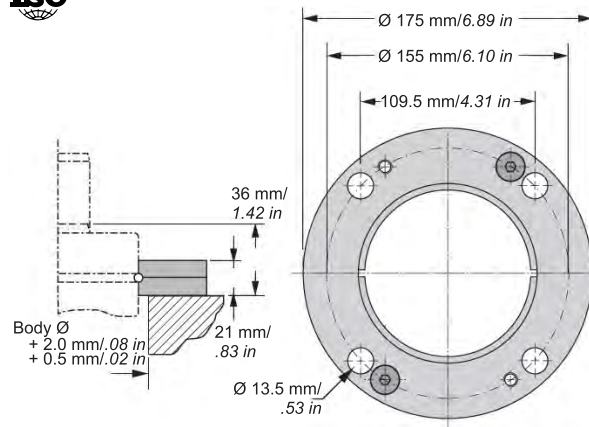
Mounting Options

MP - Bottom Mounting Plate
Order Number MP-5000

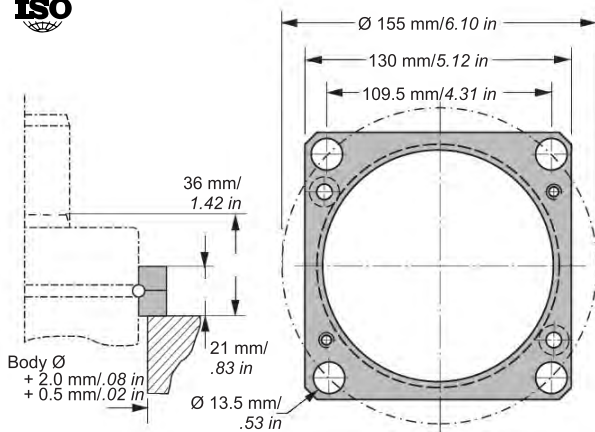


Note: Comes complete with screws to mount gas spring.

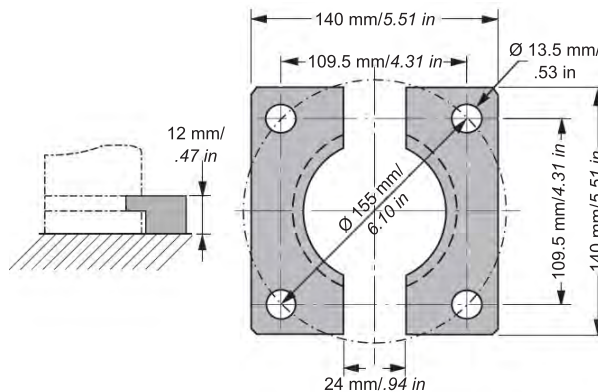
FC - Circular Flange
Order Number FC-5000



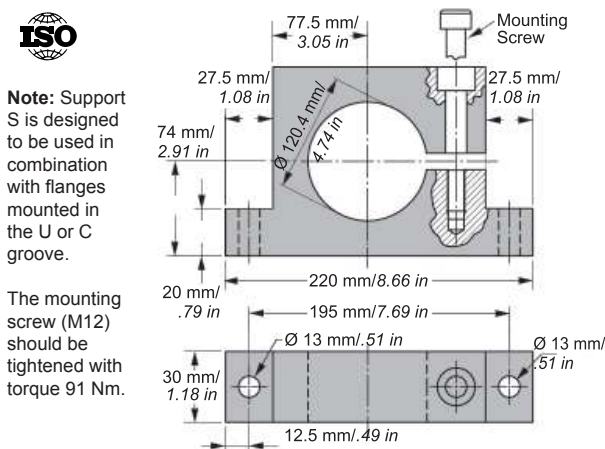
FCS - Upper Square Flange
Order Number FCS-5000



FFC - Lower Square Flange
Order Number FFC-5000



S - Support Mount
Order Number S-5000



Note: Support S is designed to be used in combination with flanges mounted in the U or C groove.

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

Advanced Safety Features



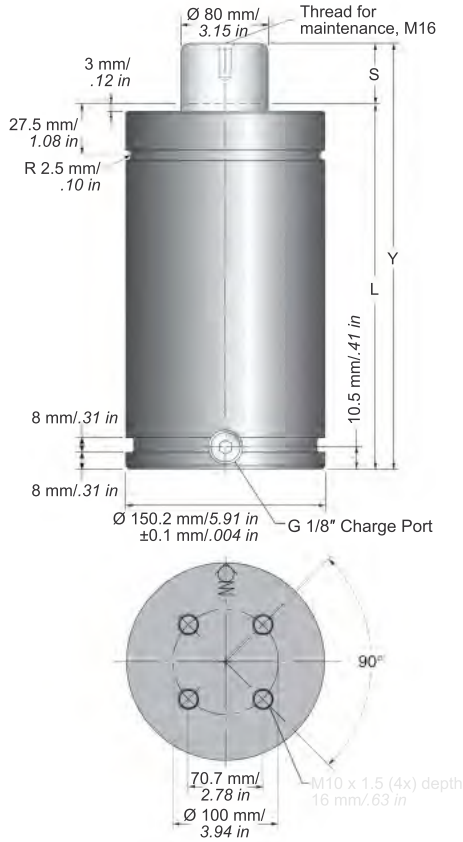
Overload Protection



Overpressure Protection



Overstroke Protection



NPL-7500 Dimensional Information

Order Number Model X Stroke	Stroke S		Contact Force**		Full Stroke Force**		Y		L		Gas Volume	Weight	
	mm	in	N	lbf	N	lbf	± 0.25	± 0.010	mm	in	ℓ	kg	lbs
							mm	in					
*NPL-7500X25	25	.98	75,000	16,860	99,900	22,450	155	6.10	130	5.12	0.6	13.6	29.98
NPL-7500X37.5	37.5	1.48			104,100	23,400	180	7.09	142.5	5.61	0.7	14.5	31.97
*NPL-7500X50	50	1.97			106,800	24,010	205	8.07	155	6.10	0.9	15.4	33.95
NPL-7500X62.5	62.5	2.46			108,700	24,440	230	9.06	167.5	6.59	1.0	16.3	35.94
NPL-7500X75	75	2.95			110,100	24,750	255	10.04	180	7.09	1.3	17.2	37.92
*NPL-7500X80	80	3.15			115,600	25,990	265	10.43	185	7.28	1.4	17.5	38.58
NPL-7500X87.5	87.5	3.44			111,200	25,000	280	11.02	192.5	7.58	1.6	18.0	39.68
*NPL-7500X100	100	3.94			112,000	25,180	305	12.01	205	8.07	1.8	18.9	41.67
NPL-7500X112.5	112.5	4.43			112,700	25,340	330	12.99	217.5	8.56	1.9	19.8	43.65
*NPL-7500X125	125	4.92			113,300	25,470	355	13.98	230	9.06	2.1	20.7	45.64
NPL-7500X137.5	137.5	5.41			113,700	25,560	380	14.96	242.5	9.55	2.3	21.6	47.62
NPL-7500X150	150	5.91			114,100	25,650	405	15.94	255	10.04	2.4	22.5	49.60
*NPL-7500X160	160	6.30			114,400	25,720	425	16.73	265	10.43	2.6	23.2	51.15
NPL-7500X175	175	6.89			114,800	25,810	453	17.83	280	11.02	3.0	24.3	53.57
NPL-7500X200	200	7.87			115,300	25,920	505	19.88	305	12.01	3.3	26.1	57.54
NPL-7500X225	225	8.86			115,700	26,010	555	21.85	330	12.99	3.3	27.8	61.29
NPL-7500X250	250	9.84			116,000	26,080	605	23.82	355	13.98	3.6	29.6	65.26

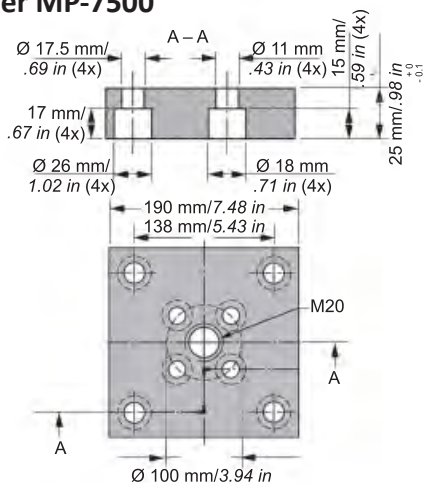
* Recommended stroke lengths for optimal delivery

** At full charge

Note: All flanges ordered separately.

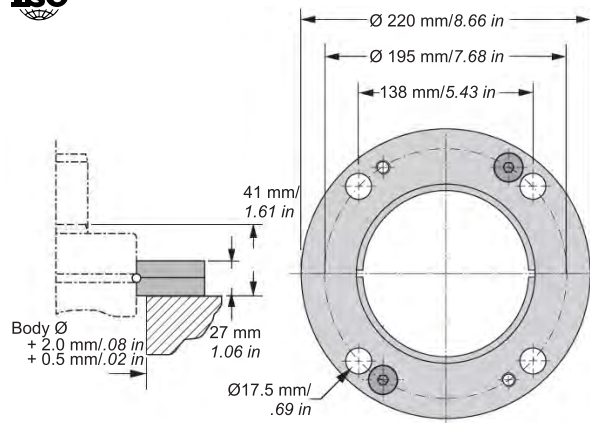
Mounting Options

MP - Bottom Mounting Plate
Order Number MP-7500

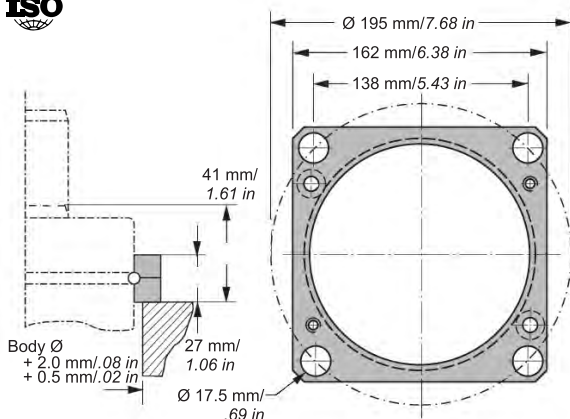


Note: Comes complete with screws to mount gas spring.

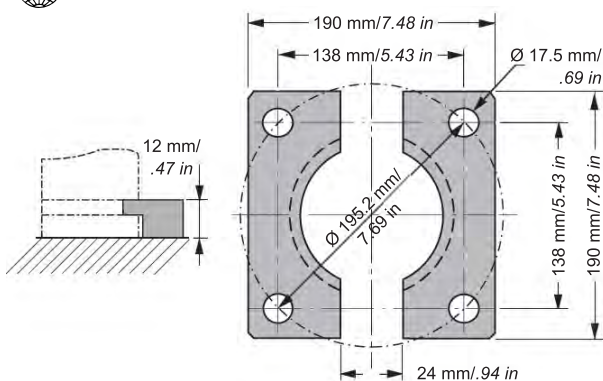
FC - Circular Flange
Order Number FC-7500



FCS - Upper Square Flange
Order Number FCS-7500



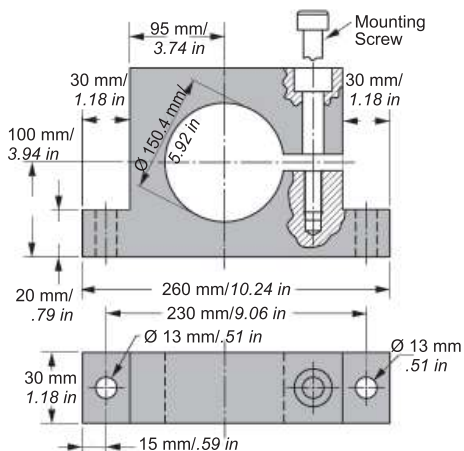
FFC - Lower Square Flange
Order Number FFC-7500



S - Support Mount
Order Number S-7500



Note: Support S is designed to be used in combination with flanges mounted in the U or C groove.



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



Sales partner in Mexico:



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