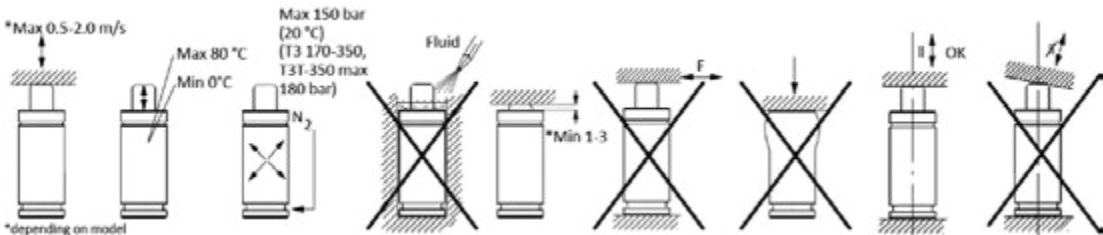


# User Guide

To achieve the best possible service-life and safety from the Gas Spring, the instructions below must be followed. The Gas Spring is intended for use in tool and machine applications. For marking and general information of the product, see the back page.

## Use of Nitrogen Gas Springs



## Product Specifications

Pressure Medium	Nitrogen gas, N <sub>2</sub>
Max. charging pressure (T3 170-350, T3T-350 max. 180 bar)	150 bar/2175 psi
Min. charging pressure	20 bar/290 psi
Operating temperature	0 to +80° C
Max. piston rod velocity	1.6 m/s (T4SC 0.8 m/s)
Force increase by temp	0.3% / °C

## Mounting Instructions

Secure the Gas Spring to the tool/machine whenever possible, using the threaded hole(s) in the base of the Gas Spring or a suitable Flange.

The threaded hole in the piston rod top should not be used for mounting purposes. It is only to be used when servicing the Gas Spring.

Do not use the Gas Spring in such a way that the piston rod is released freely from its compressed position, as this could cause internal damage to the Gas Spring.

Make sure the Gas Spring is mounted parallel to the direction of the compression stroke.

Ensure the contact surface of the piston rod top is perpendicular to the direction of the compression stroke and is sufficiently hardened.

The Gas Spring should not be subjected to side loads.

Protect the piston rod against mechanical damage and contact with fluids.

We do not recommend the last 5 mm or the last 10% of the nominal stroke being utilized.

The maximum charging pressure (at 20 °C) must not be exceeded, as it may affect the safety of the product.

Exceeding the Gas Spring's recommended operating temperature will shorten the service life of the Gas Spring.





## NP Series

NP-500 to NP-10000

Full Height ISO Nitrogen  
Gas Springs



### 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

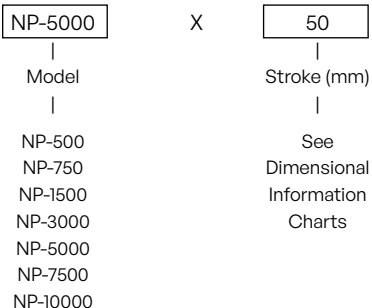
- Guide features built-in pressure relief if assembled upside down.
- Secondary piston retaining ring for extra protection.
- Overload, overstroke and overpressure protection vents internal gas pressure in a controlled manner.



## Product Specifications

Pressure medium ..... Nitrogen  
 Min. charging pressure ..... 25 bar  
 Max. charging pressure ..... 150 bar  
 Operating temperature ..... 0° to 80°C  
 Force increase by temperature ..... ±0.3% per °C  
 Recommended max strokes/min ..... ~15-40 except for NP-500 which is ~40-80  
 Max piston rod velocity ..... 96m per min.  
 Inlet valve ..... 56-072-5500  
 Charge fitting ..... T2-770-G1/8-P

## Ordering Options



## Repair Kits

Gas Spring	NP Repair kit number
NP-500	3026631
NP-750	3019999
NP-1500	3020000
NP-3000	3020001
NP-5000	3020002
NP-7500	3020003
NP-10000	3020004

Gas Spring Model	Page
NP-500	14
NP-750	16
NP-1500	18
NP-3000	20
NP-5000	22
NP-7500	24
NP-10000	26

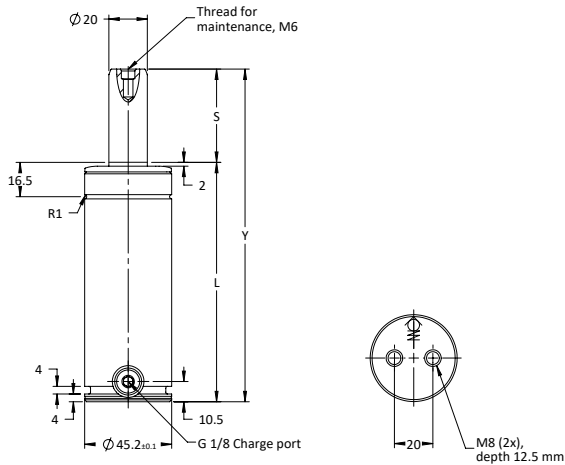
NP-500 provides full stroke force between 6,000 N (1,350 lbf) and 6,700 N (1,510 lbf) and is available in 10 stroke lengths.

A variety of mounting options are available which utilize the upper C-groove, lower U-groove and bottom threaded holes.

### Basic Information

For general information see “About Gas Springs”.

Min. charging pressure (at 20°C) .....	25 bar
Max. charging pressure (at 20°C) .....	150 bar
Contact Force at max. pressure (N) .....	4700
Contact Force at max. pressure (lbf) .....	1055
Recommended max strokes/min (at 20°C) .....	~ 40-80
Cylinder diameter (mm) .....	45
Charge port .....	G 1/8"
Repair kit .....	3019997
Operating temperature .....	0 to +80°C
Max piston rod velocity .....	1.6 m/s
Force increase by temperature .....	±0.3%/°C
Pressure medium .....	Nitrogen



Order number Model X Stroke	Stroke		Contact Force		Full Stroke Force		Cylinder Height		Body Height		Gas vol. ℓ	Weight	
	S		2175 psi at 68 °F		N	lbf.	Y ±0.25		L			kg	lb
	mm	in	N	lbf.			mm	in	mm	in			
<b>Preferred Stroke Lengths (optimal delivery)</b>													
NP-500x25	25	0.98	4,700	1,055	6,400	1,440	135	5.31	110	4.33	0.038	1.04	2.293
NP-500x50	50	1.97			6,600	1,480	185	7.28	135	5.31	0.063	1.21	2.668
NP-500x80	80	3.15			6,700	1,510	245	9.65	165	6.50	0.093	1.43	3.153
NP-500x100	100	3.94			6,700	1,510	285	11.22	185	7.28	0.114	1.57	3.461
NP-500x125	125	4.92			6,700	1,510	335	13.19	210	8.27	0.139	1.74	3.836
<b>Alternative Stroke Lengths</b>													
NP-500x10	10	0.39	4,700	1,055	6,000	1,350	105	4.13	95	3.74	0.023	0.93	2.050
NP-500x12.7	12.7	0.50			6,100	1,370	110.4	4.35	97.7	3.85	0.025	0.95	2.094
NP-500x38.1	38.1	1.50			6,500	1,460	161.2	6.35	123.1	4.85	0.051	1.13	2.491
NP-500x63.5	63.5	2.50			6,600	1,480	212	8.35	148.5	5.85	0.077	1.31	2.888
NP-500x160	160	6.30			6,700	1,510	405	15.94	245	9.65	0.175	1.99	4.387

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



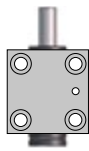
## Mounting Possibilities



Body  $\varnothing_{+2.0}^{+0.5}$   
Top Mount  
FC, FCS,  
FCSC



Foot Mount  
FFC, LM-lug,  
L



Body Mount  
HMF, S



Base Mount  
MP, RM

## Recommended Flanges



FC-500

235



FCS-500

238



FFC-500

240



HMF-500

243



MP-500

246



S-500

248

## Additional Flanges



FCSC-500

239



SF-500

249



HM-500

242



LM-LUG-500

244



L-500

245



RM-500

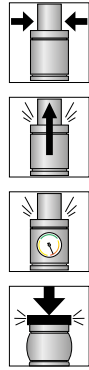
247

### Note!

For dimensions on all mounting flanges, refer to "Flanges" in chapter 3.

**NP-750 provides full stroke force between 12,000 N (2,700 lbf) and 12,100 N (2,720 lbf) and is available in 12 stroke lengths.**

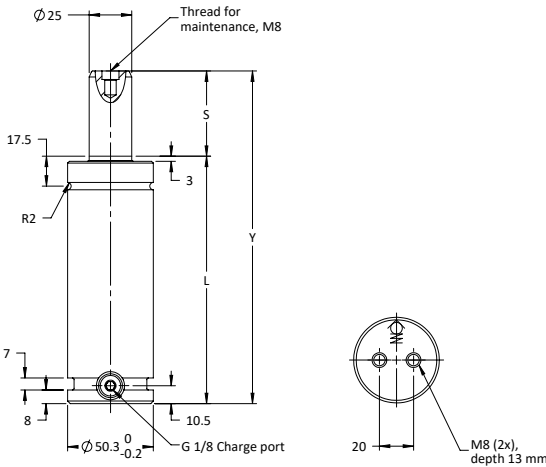
A variety of mounting options are available which utilize the upper C-groove, lower U-groove and bottom threaded holes.



### Basic Information

For general information see "About Gas Springs".

Min. charging pressure (at 20°C) .....	25 bar
Max. charging pressure (at 20°C) .....	150 bar
Contact Force at max. pressure (N) .....	7400
Contact Force at max. pressure (lbf) .....	1665
Recommended max strokes/min (at 20°C) .....	~ 15-40
Cylinder diameter (mm) .....	50
Charge port .....	G 1/8"
Repair kit .....	3019999
Operating temperature .....	0 to +80°C
Max piston rod velocity .....	1.6 m/s
Force increase by temperature .....	±0.3%/°C
Pressure medium .....	Nitrogen



Order number Model X Stroke	Stroke		Contact Force		Full Stroke Force		Cylinder Height		Body Height		Gas vol. ℓ	Weight	
	S		2175 psi at 68 ° F		N	lbf.	Y ±0.25		L			kg	lb
	mm	in	N	lbf.			mm	in	mm	in			
<b>Preferred Stroke Lengths (optimal delivery)</b>													
NP-750x25	25.0	0.98	7,400	1,665	12,000	2,700	145	5.71	120	4.72	0.04	1.44	3,175
NP-750x50	50	1.97			12,000	2,700	195	7.68	145	5.71	0.07	1.68	3,704
NP-750x80	80	3.15			12,000	2,700	255	10.04	175	6.89	0.11	1.94	4,277
NP-750x100	100	3.94			12,000	2,700	295	11.61	195	7.68	0.14	2.13	4,696
NP-750x125	125	4.92			12,100	2,720	345	13.58	220	8.66	0.17	2.37	5,225
NP-750x160	160	6.30			12,100	2,720	415	16.34	255	10.04	0.21	2.70	5,952
<b>Alternative Stroke Lengths</b>													
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	2,932
NP-750x38.1	38.1	1.50			12,000	2,700	171.2	6.74	133.1	5.24	0.06	1.57	3,461
NP-750x63.5	63.5	2.50			12,000	2,700	222	8.74	158.5	6.24	0.09	1.78	3,924
NP-750x200	200	7.87			12,100	2,720	495	19.49	295	11.61	0.26	3.08	6,790
NP-750x250	250	9.84			12,100	2,720	595	23.43	345	13.58	0.33	3.55	7,826
NP-750x300	300	11.81			12,100	2,720	695	27.36	395	15.55	0.39	4.03	8,885

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



## Mounting Possibilities

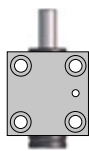


Body  $\varnothing_{+2.0}^{+0.5}$

Top Mount  
FC, FCS,  
FCSC



Foot Mount  
FFC, SF,  
LM-lug, L



Body Mount  
HM, HMF, S



Base Mount  
MP, RM

## Recommended Flanges



FC-750

235



FCS-750

238



FFC-750

240



HMF-750

243



MP-750

246



S-750

248

## Additional Flanges



FCSC-750

239



SF-750

249



HM-750

242



LM-LUG-750

244



L-750

245



RM-750

247

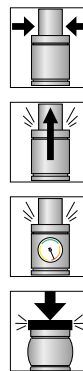
### Note!

For dimensions on all mounting flanges, refer to "Flanges" in chapter 3.



NP-1500 provides full stroke force 23,000 (5,170 lbf) and is available in 12 stroke lengths.

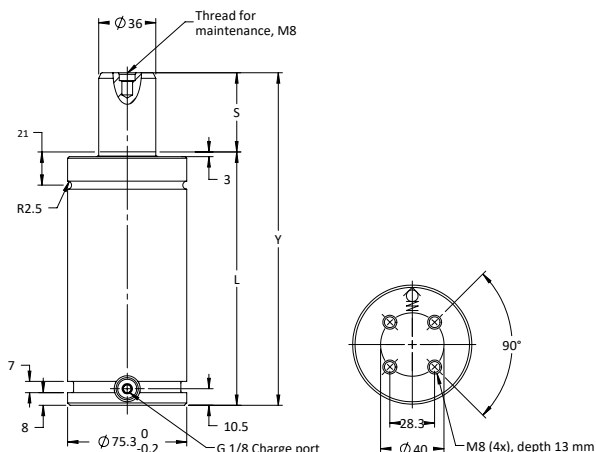
Strokes 25, 50, 80, 100, 125 and 160 are offered as a part of the Hyson Preferred Program which provides optimal delivery.



### Basic Information

For general information see "About Gas Springs".

Min. charging pressure (at 20°C)	25 bar
Max. charging pressure (at 20°C)	150 bar
Contact Force at max. pressure (N)	15000
Contact Force at max. pressure (lbf)	3375
Recommended max strokes/min (at 20°C)	~ 15-40
Cylinder diameter (mm)	75
Charge port	G 1/8"
Repair kit	3020000
Operating temperature	0 to +80°C
Max piston rod velocity	1.6 m/s
Force increase by temperature	±0.3%/°C
Pressure medium	Nitrogen



Order number Model X Stroke	Stroke		Contact Force		Full Stroke Force		Cylinder Height		Body Height		Gas vol. ℓ	Weight	
	S		2175 psi at 68 °F		N	lbf.	Y ±0.25 Y ±0.010		L			kg	lb
	mm	in	N	lbf.			mm	in	mm	in			
<b>Preferred Stroke Lengths (optimal delivery)</b>													
NP-1500x25	25.0	0.98	15,000	3,375	23,000	5,170	160	6.30	135	5.31	0.10	3.65	7.474
NP-1500x50	50	1.97					210	8.27	160	6.30	0.18	4.11	8.047
NP-1500x80	80	3.15					270	10.63	190	7.48	0.28	4.66	8.576
NP-1500x100	100	3.94					310	12.2	210	8.27	0.34	5.02	9.061
NP-1500x125	125	4.92					360	14.17	235	9.25	0.42	5.48	9.590
NP-1500x160	160	6.30					430	16.93	270	10.63	0.53	6.12	10.274
<b>Alternative Stroke Lengths</b>													
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	11.067
NP-1500x38.1	38.1	1.50					186.2	7.33	148.1	5.83	0.15	3.89	12.081
NP-1500x63.5	63.5	2.50					237	9.33	173.5	6.83	0.22	4.35	13.492
NP-1500x200	200	7.87					510	20.08	310	12.20	0.68	6.86	15.124
NP-1500x250	250	9.84					610	24.02	360	14.17	0.81	7.77	17.130
NP-1500x300	300	11.81					710	27.95	410	16.14	0.96	8.69	19.158

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



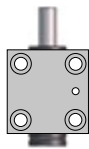
## Mounting Possibilities



Body  $\varnothing_{+2.0}^{+0.5}$   
Top Mount  
FC, FCS,  
FCSC



Foot Mount  
FFC, SF, LM-lug,  
L



Body Mount  
HM, HMF,  
S



Base Mount  
MP, RM

## Recommended Flanges



FC-1500

235



FCS-1500

238



FFC-1500

240



HMF-1500

243



MP-1500

246



S-1500

248

## Additional Flanges



FCSC-1500

239



SF-1500

249



HM-1500

242



LM-1500

244



L-1500

245



RM-1500

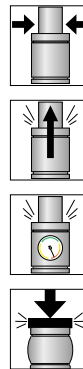
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### Note!

For dimensions on all mounting flanges, refer to "Flanges" in chapter 3.

**NP-3000 provides full stroke force between 42,000 N (9,440 lbf) and 48,000 N (10,790 lbf) and is available in 12 stroke lengths.**

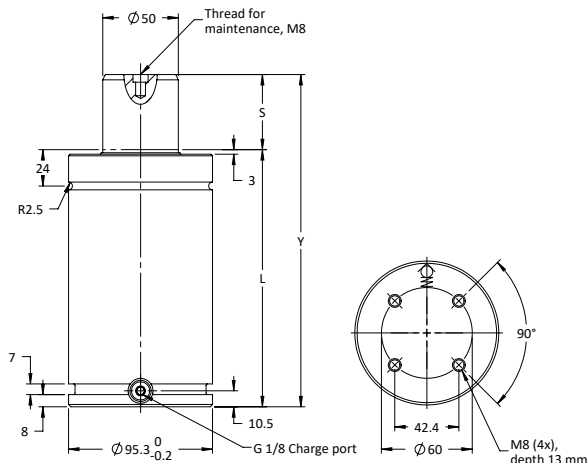
Strokes 25, 50, 80, 100, 125 and 160 are offered as a part of the Hyson Preferred Program which provides optimal delivery.



**Basic Information**

For general information see “About Gas Springs”.

Min. charging pressure (at 20°C) .....	25 bar
Max. charging pressure (at 20°C) .....	150 bar
Contact Force at max. pressure (N) .....	30000
Contact Force at max. pressure (lbf) .....	6750
Recommended max strokes/min (at 20°C) .....	~ 15-40
Cylinder diameter (mm) .....	95
Charge port .....	G 1/8”
Repair kit .....	3020001
Operating temperature .....	0 to +80°C
Max piston rod velocity .....	1.6 m/s
Force increase by temperature .....	±0.3%/°C
Pressure medium .....	Nitrogen



Order number Model X Stroke	Stroke		Contact Force		Full Stroke Force		Cylinder Height		Body Height		Gas vol. ℓ	Weight	
	S		2175 psi at 68 ° F		N	lbf.	Y ±0.010		L			kg	lb
	mm	in	N	lbf.			mm	in	mm	in			
<b>Preferred Stroke Lengths (optimal delivery)</b>													
NP-3000x25	25	0.98	30,000	6,750	42,000	9,440	170.0	6.69	145	5.71	0.20	6.45	14.220
NP-3000x50	50	1.97			44,000	9,890	220	8.66	170	6.69	0.32	7.25	15.984
NP-3000x80	80	3.15			46,000	10,340	280	11.02	200	7.87	0.46	8.20	18.078
NP-3000x100	100	3.94			47,000	10,570	320	12.60	220	8.66	0.56	8.83	19.467
NP-3000x125	125	4.92			47,000	10,570	370	14.57	245	9.65	0.69	9.63	21.231
NP-3000x160	160	6.30			47,000	10,570	440	17.32	280	11.02	0.87	10.74	23.678
<b>Alternative Stroke Lengths</b>													
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	12.787
NP-3000x38.1	38.1	1.50			43,000	9,670	196.2	7.72	158.1	6.22	0.26	6.87	15.146
NP-3000x63.5	63.5	2.50			45,000	10,100	247	9.72	183.5	7.22	0.38	7.67	16.909
NP-3000x200	200	7.87			48,000	10,790	520	20.47	320	12.60	1.07	12.00	26.455
NP-3000x250	250	9.84			48,000	10,790	620	24.41	370	14.57	1.32	13.59	29.961
NP-3000x300	300	11.81			48,000	10,790	720	28.35	420	16.54	1.57	15.18	33.466

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

## Mounting Possibilities



Body  $\varnothing_{+2.0}^{+0.5}$   
Top Mount  
FC, FCS,  
FCSC



Foot Mount  
FFC, SF,  
LM-lug, L



Base Mount  
MP, RM

## Recommended Flanges



FC-3000

235



FCS-3000

238



FFC-3000

240



HMF-3000

243



MP-3000

246



S-3000

248

## Additional Flanges



FCSC-3000

239



SF-3000

249



HM-3000

242



LM-3000

244



L-3000

245



RM-3000

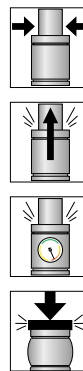
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### Note!

For dimensions on all mounting flanges, refer to "Flanges" in chapter 3.

NP-5000 provides full stroke force between 71,000 N (15,960 lbf) and 84,000 N (18,880 lbf) and is available in 11 stroke lengths.

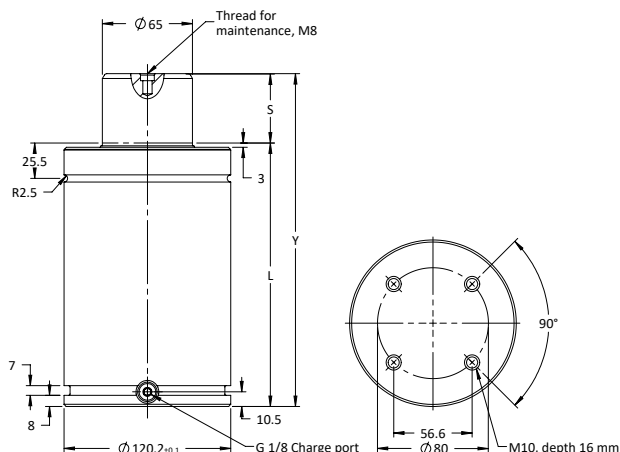
Strokes 25, 50, 80, 100, 125 and 160 are offered as a part of the Hyson Preferred Program which provides optimal delivery.



### Basic Information

For general information see “About Gas Springs”.

Min. charging pressure (at 20°C)	25 bar
Max. charging pressure (at 20°C)	150 bar
Contact Force at max. pressure (N)	50000
Contact Force at max. pressure (lbf)	11240
Recommended max strokes/min (at 20°C)	~ 15-40
Cylinder diameter (mm)	120
Charge port	G 1/8"
Repair kit	3020002
Operating temperature	0 to +80°C
Max piston rod velocity	1.6 m/s
Force increase by temperature	±0.3%/°C
Pressure medium	Nitrogen



Order number Model X Stroke	Stroke		Contact Force		Full Stroke Force		Cylinder Height		Body Height		Gas vol. ℓ	Weight	
	S		2175 psi at 68 ° F		N	lbf.	Y ±0.25	Y ±0.010	L			kg	lb
	mm	in	N	lbf.			mm	in	mm	in			
<b>Preferred Stroke Lengths (optimal delivery)</b>													
NP-5000x25	25	0.98	50,000	11,240	71,000	15,960	190	7.48	165	6.50	0.32	12.40	27,337
NP-5000x50	50	1.97			77,000	17,310	240	9.45	190	7.48	0.51	13.70	30,203
NP-5000x80	80	3.15			81,000	18,210	300	11.81	220	8.66	0.73	15.30	33,731
NP-5000x100	100	3.94			82,000	18,430	340	13.39	240	9.45	0.89	16.40	36,156
NP-5000x125	125	4.92			82,000	18,430	390	15.35	265	10.43	1.09	17.70	39,022
NP-5000x160	160	6.30			83,000	18,660	460	18.11	300	11.81	1.36	19.60	43,211
<b>Alternative Stroke Lengths</b>													
NP-5000x38.1	38.1	1.50	50,000	11,240	75,000	16,860	216.2	8.51	178.1	7.01	0.42	13.10	28,881
NP-5000x63.5	63.5	2.50			80,000	17,990	267	10.51	203.5	8.01	0.60	14.40	31,747
NP-5000x200	200	7.87			84,000	18,880	540	21.26	340	13.39	1.68	21.70	47,840
NP-5000x250	250	9.84			84,000	18,880	640	25.20	390	15.35	2.07	22.40	49,384
NP-5000x300	300	11.81			84,000	18,880	740	29.13	440	17.32	2.46	27.10	59,745

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



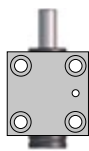
## Mounting Possibilities



Body  $\varnothing_{+2.0}^{+0.5}$   
Top Mount  
FC, FCS,  
FCSC



Foot Mount  
FFC, SF,  
LM-lug, L



Body Mount  
HMF, S



Base Mount  
MP, RM

## Recommended Flanges



FC-5000



FCS-5000



FFC-5000



HMF-5000



MP-5000



S-5000



## Additional Flanges



FCSC-5000



SF-5000



LM-5000



L-5000



RM-5000

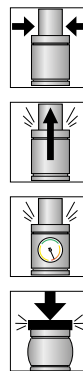


### Note!

For dimensions on all mounting flanges, refer to "Flanges" in chapter 3.

**NP-7500 provides full stroke force between 105,000 N (23,600 lbf) and 124,000 N (27,780 lbf) and is available in 11 stroke lengths.**

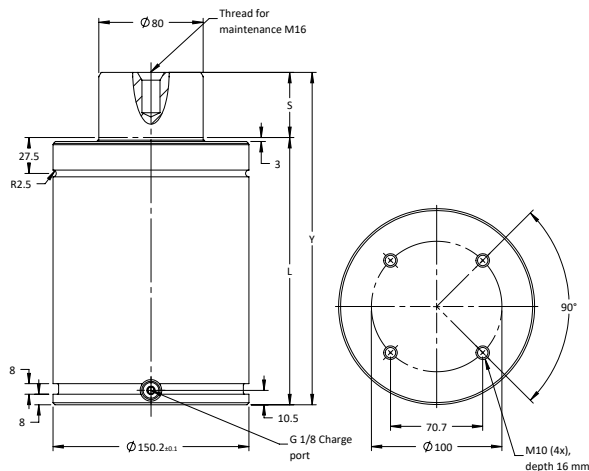
Strokes 25, 50, 80, 100, 125 and 160 are offered as a part of the Hyson Preferred Program which provides optimal delivery.



### Basic Information

For general information see "About Gas Springs".

Min. charging pressure (at 20°C) .....	25 bar
Max. charging pressure (at 20°C) .....	150 bar
Contact Force at max. pressure (N) .....	75000
Contact Force at max. pressure (lbf) .....	16860
Recommended max strokes/min (at 20°C) .....	~ 15-40
Cylinder diameter (mm) .....	150
Charge port .....	G 1/8"
Repair kit .....	3020003
Operating temperature .....	0 to +80°C
Max piston rod velocity .....	1.6 m/s
Force increase by temperature .....	±0.3%/°C
Pressure medium .....	Nitrogen



Order number Model X Stroke	Stroke		Contact Force		Full Stroke Force		Cylinder Height		Body Height		Gas vol. ℓ	Weight	
	S		2175 psi at 68 ° F		N	lbf.	Y ±0.25	Y ±0.010	L			kg	lb
	mm	in	mm	in			mm	in					
<b>Preferred Stroke Lengths (optimal delivery)</b>													
NP-7500x25	25	0.98	75,000	16,860	105,000	23,600	205	8.07	180	7.09	0.51	20.30	44.754
NP-7500x50	50	1.97			113,000	25,400	255	10.04	205	8.07	0.81	22.40	49.384
NP-7500x80	80	3.15			117,000	26,300	315	12.40	235	9.25	1.18	24.80	54.675
NP-7500x100	100	3.94			119,000	26,750	355	13.98	255	10.04	1.43	26.50	58.422
NP-7500x125	125	4.92			121,000	27,200	405	15.94	280	11.02	1.74	28.50	62.832
NP-7500x160	160	6.30			122,000	27,430	475	18.70	315	12.40	2.17	31.40	69.225
<b>Alternative Stroke Lengths</b>													
NP-7500x38.1	38.1	1.50	75,000	16,860	110,000	24,730	231.2	9.10	193.1	7.60	0.67	21.40	47.179
NP-7500x63.5	63.5	2.50			115,000	25,850	282	11.10	218.5	8.60	0.98	23.50	51.809
NP-7500x200	200	7.87			123,000	27,650	555	21.85	355	13.98	2.66	34.70	76.500
NP-7500x250	250	9.84			124,000	27,880	655	25.79	405	15.94	3.27	38.80	85.539
NP-7500x300	300	11.81			124,000	27,880	755	29.72	455	17.91	3.88	42.90	94.578

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



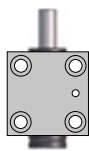
## Mounting Possibilities



Body  $\varnothing_{+0.5}^{-2.0}$   
Top Mount  
FC, FCS,  
FCSC



Foot Mount  
FFC, SF,  
LM-lug, L



Body Mount  
HMF, S



Base Mount  
MP, RM

## Recommended Flanges



FC-7500

235



FCS-7500

238



FFC-7500

240



HMF-7500

243



MP-7500

246



S-7500

248

## Additional Flanges



FCSC-7500

239



SF-7500

249



LM-LUG-7500

242



L-7500

244



RM-7500

247

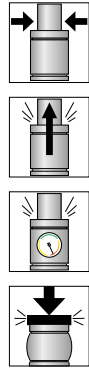
### Note!

For dimensions on all mounting flanges, refer to "Flanges" in chapter 3.



**NP-10000 provides full stroke force between 138,000 N (31,020 lbf) and 160,000 N (35,970 lbf) and is available in 11 stroke lengths.**

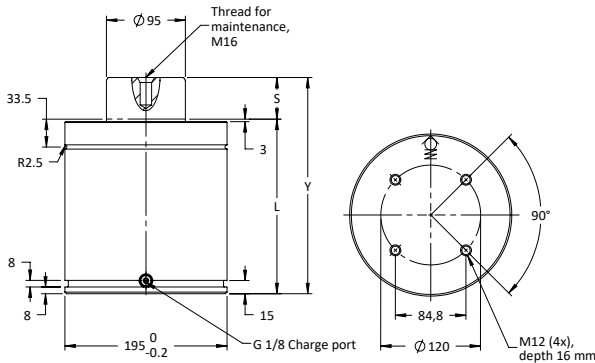
Strokes 50, 80, 100, 125, 160, 200, and 250 are offered as a part of the Hyson Preferred Program which provides optimal delivery.



### Basic Information

For general information see "About Gas Springs".

Min. charging pressure (at 20°C)	25 bar
Max. charging pressure (at 20°C)	150 bar
Contact Force at max. pressure (N)	106000
Contact Force at max. pressure (lbf)	23830
Recommended max strokes/min (at 20°C)	~ 15-40
Cylinder diameter (mm)	195
Charge port	G 1/8"
Repair kit	3020004
Operating temperature	0 to +80°C
Max piston rod velocity	1.6 m/s
Force increase by temperature	±0.3%/°C
Pressure medium	Nitrogen



Order number Model X Stroke	Stroke		Contact Force		Full Stroke Force		Cylinder Height		Body Height		Gas vol. ℓ	Weight	
	S		2175 psi at 68 ° F		N	lbf.	Y ±0.25 Y ±0.010		L			kg	lb
	mm	in	N	lbf.			mm	in	mm	in			
<b>Preferred Stroke Lengths (optimal delivery)</b>													
NP-10000x50*	50	1.97	106,000	23,830	147,000	33,050	260	10.24	210	8.27	1.37	39.20	86.421
NP-10000x80*	80	3.15			152,000	34,170	320	12.60	240	9.45	1.98	43.20	95.240
NP-10000x100*	100	3.94			156,000	35,070	360	14.17	260	10.24	2.38	45.80	100.972
NP-10000x125*	125	4.92			157,000	35,300	410	16.14	285	11.22	2.88	49.10	108.247
NP-10000x160*	160	6.30			158,000	35,520	480	18.90	320	12.60	3.59	53.70	118.388
NP-10000x200*	200	7.87			160,000	35,970	560	22.05	360	14.17	4.39	59.00	130.073
NP-10000x250*	250	9.84			160,000	35,970	660	25.98	410	16.14	5.40	65.60	144.623
<b>Alternative Stroke Lengths</b>													
NP-10000x25	25	0.98	106,000	23,830	138,000	31,020	210	8.27	185	7.28	0.87	35.90	79.146
NP-10000x38.1	38.1	1.50			143,000	32,150	236.2	9.30	198.1	7.80	1.13	37.60	82.894
NP-10000x63.5	63.5	2.50			150,000	33,720	287	11.30	223.5	8.80	1.64	41.00	90.390
NP-10000x300	300	11.81			160,000	35,970	760	29.92	460	18.11	6.40	72.20	159.174

\* Recommended stroke length for optimal delivery

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



## Mounting Possibilities



Body  $\varnothing_{+2.0}^{+0.5}$   
Top Mount  
FCS



Foot Mount  
FFC, LM-lug



Base Mount  
MP

## Recommended Flanges



FCS-10000



238



FFC-10000



240



MP-10000



246

## Additional Flanges



LM-LUG-10000



242

### Note!

For dimensions on all mounting flanges, refer to "Flanges" in chapter 3.