

T3F Series

HIGH FORCE GAS SPRINGS WITH G1/8 CHARGING PORT

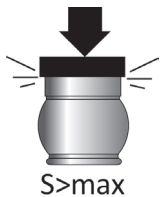
**INTRODUCING
COMPLETE RANGE OF GAS
SPRINGS MEETING FCA
GLOBAL DIE ENGINEERING
STANDARDS**



HYSON
Metal Forming Solutions™

Since 1964 HYSON Metal Forming Solutions 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 that enable our customers to provide safer working environments.

Our nitrogen gas springs, which comply with all major industry standards are designed to reduce risk of tool damage and injuries due to parts separating under high pressure and include at least one vital 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 with drawing fluid, deformation of the safety lip guide or separation of disc will occur.



Overload Protection:

Reduce injuries and press damage with Overload Protection - In case of jammed tool, part or rod side-load, the piston rod is designed for controlled gas venting between the seal and piston rod with a specially designed guide and fundamental safety stop.



PED - Pressure Equipment Directive

The majority of HYSON nitrogen gas springs are PED (Pressure Equipment Directive) approved to withstand a minimum of 2 million full cycles according to PED 2014/68/EU. 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 safety reliability and operational excellence. The Pressure Equipment Directive (PED) replaces all previous European legislation governing the design, manufacture and testing of pressure vessels.

POWERFUL AND COMPACT | G 1/8 CHARGING PORT

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General Information

HYSON Metal Forming Solutions, headquartered in Brecksville Ohio, is a world class engineered product and manufacturing company providing high-quality, safety-engineered force and motion control to a wide range of industries and applications. Throughout the years, the company has remained at the forefront of technical innovation, developing forming 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 AS-9100, ISO 9001:2008 certification and PED certifications attest to our ongoing commitment to the highest standards of quality.

T3F Product Value

- The highest force nitrogen gas spring in the smallest space.
- Meets FCA Global Die Engineering Standards

T3F Series Features

- 750 model: G 1/8 Port with M6 Charge port
- 1000, 1500 and 2400 models: G 1/8 Charging ports
- Deeper bottom threads when compared to T3 Series
- 10mm height difference when compared to T3 Series
- Powerful contact forces ranging from 7400 to 24000 N (1665-5395 lbf)

ISO 9001:2008
certification



ISO 9001:2008 certification

Focused on meeting customer expectations, ISO 9001 is an internationally recognized standard for quality management with certificates issued to organization in 178 countries. This highly regarded certification reflects HYSON's ongoing commitment to deliver solutions that meet the highest quality standards.

Product Specifications

Pressure medium	Nitrogen
Max. charge pressure	150 bar (at 20° C)
Min. charge pressure	25 bar (at 20° C)
Operating temperature	0 to +80° C
Force increase by temperature	0.3 %/° C
Recommended max strokes/min	~ 25-100 (at 20° C)
Max. piston rod velocity	1.6 m/s

CAD Files available at www.HysonSolutions.com

Repair Kits

Gas Spring	Order Number
T3F-750	T3SK-750
T3F-1000	T3SK-1000
T3F-1500	T3SK-1500
T3F-2400	T3SK-2400

Pressure Adjusting

Tool	Part Number
Pressure Indicator	1229335
Straight Fitting	3014016

Ordering Instructions

T3F Model Size	x	Stroke Length
T3F-750, T3F-1000, T3F-1500, T3F-2400	X	See dimensional information Charts - pages 4-7

T3F Charge Fittings

Gas Springs	Order Number
T3F-750	T2-770-T3
T3F-1000 T3F-1500 T3F-2400	T2-770-G 1/8-P

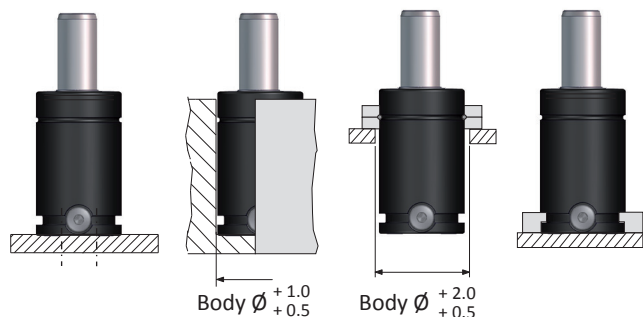
Ordering Instructions for FCA

Model	x	Stroke	x	Charge Pressure
T3F-750 T3F-1000 T3F-1500 T3F-2400	X	See Dimensional Information Charts	X	See note

Note! FCA Global Die Engineering standards require 120 bar/1750 psi charge pressure. All orders shipped at full charge pressure (150 bar/2175 psi) unless otherwise noted on purchase order.

Mounting Options

Upper C-groove, lower U-groove and bottom threaded holes allow for various standard mounting possibilities



Base mount Drop-in Top mount Foot mount

T3F-750

Compact, High Force Gas Springs

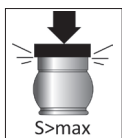
Advanced Safety Features



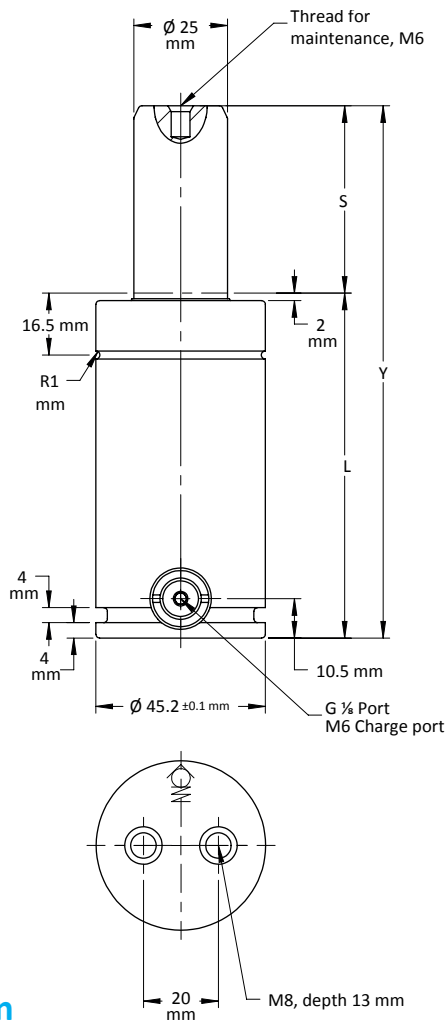
Overload Protection



Overpressure Protection



Overstroke Protection



T3F-750 Dimensional Information

Order Number Model x Stroke	Stroke S	Contact Force*		Full Stroke Force*		Cylinder Height Y ± 0.25	Body Height L
	mm	N	lbf	N	lbf	mm	mm
Preferred Stroke Lengths (optimal delivery)							
T3F-750x50	50	7400	1665	11800	2655	142	92
T3F-750x80	80			11900	2675	202	122
T3F-750x100	100			11900	2675	242	142
Alternate Stroke Lengths							
T3F-750x10	10	7400	1665	12100	2720	62	52
T3F-750x13	13			12100	2720	68	55
T3F-750x16	16			12100	2720	74	58
T3F-750x19	19			11700	2630	80	61
T3F-750x25	25			11800	2655	92	67
T3F-750x32	32			11800	2655	106	74
T3F-750x38	38			11800	2655	118	80
T3F-750x63	63			11800	2655	168	105
T3F-750x75	75			11900	2675	192	117
T3F-750x125	125			11900	2675	292	167

See Cross Reference to FCA Global Die Engineering Standards on page 8.

* At full charge

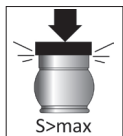
**Advanced
Safety Features**



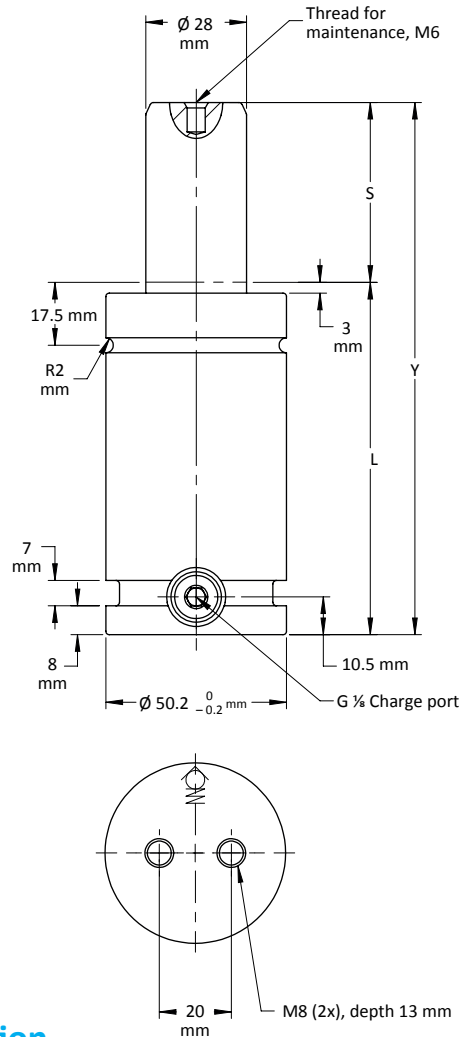
V > max
Overload
Protection



P > max
Overpressure
Protection



S > max
Overstroke
Protection



T3F-1000 Dimensional Information

Order Number Model x Stroke	Stroke S	Contact Force*		Full Stroke Force*		Cylinder Height Y ± 0.25	Body Height L
	mm	N	lbf	N	lbf	mm	mm
Preferred Stroke Lengths (optimal delivery)							
T3F-1000x50	50	9200	2070	146000	3280	148	98
T3F-1000x80	80			148000	3325	208	128
T3F-1000x100	100			148000	3325	248	148
T3F-1000x125	125			148000	3325	298	173
Alternate Stroke Lengths							
T3F-1000x13	13	9200	2070	138000	3105	74	61
T3F-1000x16	16			138000	3105	80	64
T3F-1000x19	19			140000	3145	86	67
T3F-1000x25	25			142000	3190	98	73
T3F-1000x32	32			143000	3215	112	80
T3F-1000x38	38			145000	3260	124	86
T3F-1000x63	63			147000	3305	174	111
T3F-1000x75	75			147000	3305	198	123

See Cross Reference to FCA Global Die Engineering Standards on page 8.

* At full charge

T3F-1500

Compact, High Force Gas Springs

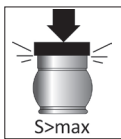
Advanced Safety Features



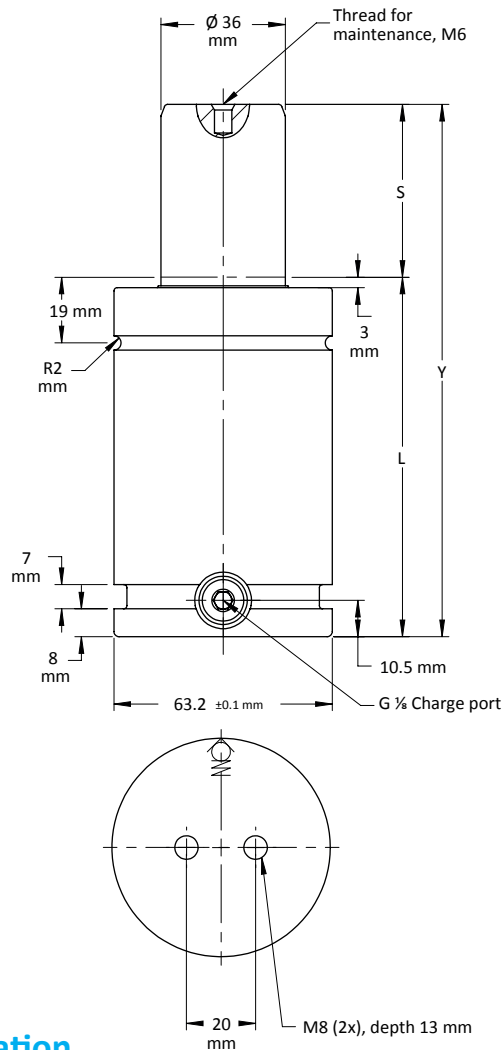
V>max
Overload
Protection



P>max
Overpressure
Protection



S>max
Overstroke
Protection



T3F-1500 Dimensional Information

Order Number Model x Stroke	Stroke S	Contact Force*		Full Stroke Force*		Cylinder Height Y ± 0.25	Body Height L
	mm	N	lbf	N	lbf	mm	mm
Preferred Stroke Lengths (optimal delivery)							
T3F-1500x50	50	9200	2070	24000	5395	154	104
T3F-1500x80	80			24200	5440	214	134
T3F-1500x100	100			24300	5465	254	154
T3F-1500x125	125			24300	5465	304	179
Alternate Stroke Lengths							
T3F-1500x13	13	9200	2070	24000	5395	80	67
T3F-1500x16	16			24100	5420	86	70
T3F-1500x19	19			24200	5440	92	73
T3F-1500x25	25			24300	5365	104	79
T3F-1500x32	32			23800	5355	118	86
T3F-1500x38	38			23900	5375	130	92
T3F-1500x63	63			24100	5420	180	117
T3F-1500x75	75			24200	5440	204	129

See Cross Reference to FCA Global Die Engineering Standards on page 8.

* At full charge

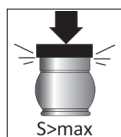
Advanced Safety Features



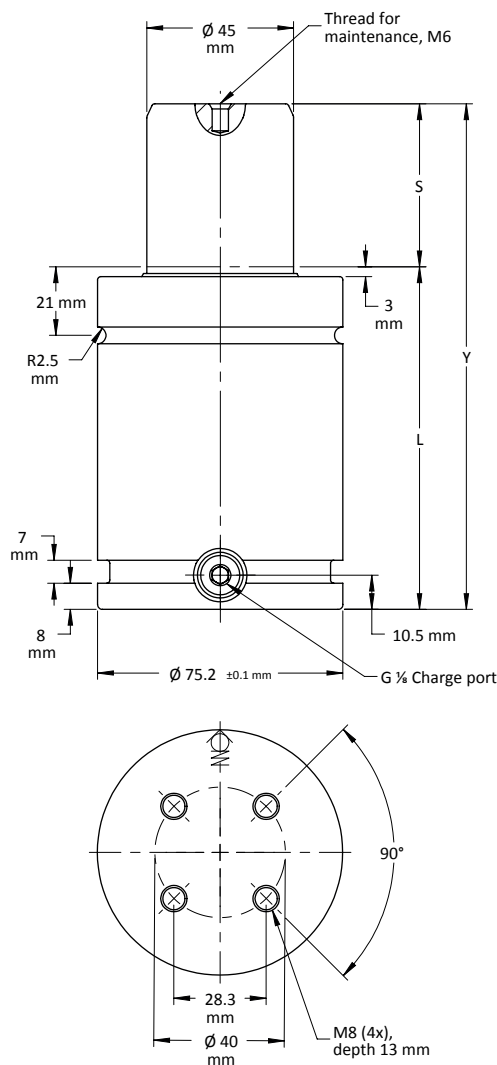
Overload
Protection



Overpressure
Protection



Overstroke
Protection



T3F-2400 Dimensional Information

Order Number Model x Stroke	Stroke S	Contact Force*		Full Stroke Force*		Cylinder Height Y ± 0.25	Body Height L
	mm	N	lbf	N	lbf	mm	mm
Preferred Stroke Lengths (optimal delivery)							
T3F-2400x50	50	9200	2070	39200	8815	155	105
T3F-2400x80	80			39200	8815	215	135
T3F-2400x100	100			39300	8835	255	155
T3F-2400x125	125			39300	8835	305	180
Alternate Stroke Lengths							
T3F-2400x16	16	9200	2070	38300	8610	87	71
T3F-2400x19	19			38500	8655	93	74
T3F-2400x25	25			38700	8700	105	80
T3F-2400x32	32			38600	8680	119	87
T3F-2400x38	38			38400	8635	131	93
T3F-2400x63	63			39200	8815	181	118
T3F-2400x75	75			39200	8815	205	130

See Cross Reference to FCA Global Die Engineering Standards on page 8.

* At full charge

Cross reference FCA 075.90.60 – HYSON Metal Forming Solution

kN	FCA Commodity Code	HYSON Order No.
1.7	39-673-0200	T3-170x10
	39-673-0201	T3-170x15
	39-673-0202	T3-170x25
	39-673-0203	T3-170x38
	39-673-0204	T3-170x50
	39-673-0205	T3-170x63
	39-673-0206	T3-170x80
	39-673-0207	T3-170x100
	39-673-0208	T3-170x125
3.5	39-673-0210	T3-350x10
	39-673-0211	T3-350x13
	39-673-0212	T3-350x16
	39-673-0214	T3-350x25
	39-673-0215	T3-350x38
	39-673-0216	T3-350x50
	39-673-0217	T3-350x63
	39-673-0218	T3-350x80
	39-673-0219	T3-350x100
	39-673-0220	T3-350x125
5.0	39-673-0222	T3-500x10
	39-673-0223	T3-500x13
	39-673-0224	T3-500x16
	39-673-0226	T3-500x25
	39-673-0227	T3-500x38
	39-673-0228	T3-500x50
	39-673-0229	T3-500x63
	39-673-0230	T3-500x80
	39-673-0231	T3-500x100
	39-673-0232	T3- 500x125

kN	FCA Commodity Code	HYSON Order No.
7.5	39-673-0234	T3F-750x13
	39-673-0235	T3F-750x25
	39-673-0236	T3F-750x38
	39-673-0237	T3F-750x50
	39-673-0238	T3F-750x63
	39-673-0239	T3F-750x80
	39-673-0240	T3F-750x100
	39-673-0241	T3F-750x125
	39-673-0242	T3F-1000x13
	39-673-0243	T3F-1000x25
10	39-673-0244	T3F-1000x38
	39-673-0245	T3F-1000x50
	39-673-0246	T3F-1000x63
	39-673-0247	T3F-1000x80
	39-673-0248	T3F-1000x100
	39-673-0249	T3F-1000x125
15	39-673-0251	T3F-1500x13
	39-673-0252	T3F-1500x25
	39-673-0253	T3F-1500x38
	39-673-0254	T3F-1500x50
	39-673-0255	T3F-1500x63
	39-673-0256	T3F-1500x80
	39-673-0257	T3F-1500x100
	39-673-0258	T3F-1500x125
24	39-673-0260	T3F-2400x25
	39-673-0261	T3F-2400x38
	39-673-0262	T3F-2400x50
	39-673-0263	T3F-2400x63
	39-673-0264	T3F-2400x80
	39-673-0265	T3F-2400x100
	39-673-0266	T3F-2400x125

kN	FCA Commodity-Code	HYSON Order No.
42	39-673-0268	T3-4200x25
	39-673-0269	T3-4200x38
	39-673-0270	T3-4200x50
	39-673-0271	T3-4200x63
	39-673-0272	T3-4200x80
	39-673-0273	T3-4200x100
	39-673-0274	T3-4200x125
66	39-673-0276	T3-6600x25
	39-673-0277	T3-6600x38
	39-673-0278	T3-6600x50
	39-673-0279	T3-6600x63
	39-673-0280	T3-6600x80
	39-673-0281	T3-6600x100
	39-673-0282	T3-6600x125
95	39-673-0284	T3-9500x25
	39-673-0285	T3-9500x38
	39-673-0286	T3-9500x50
	39-673-0287	T3-9500x63
	39-673-0288	T3-9500x80
	39-673-0289	T3-9500x100
	39-673-0290	T3-9500x125
199	39-673-0292	T3-20000x25
	39-673-0293	T3-20000x38
	39-673-0294	T3-20000x50
	39-673-0295	T3-20000x63
	39-673-0296	T3-20000x80
	39-673-0297	T3-20000x100
	39-673-0298	T3-20000x125

Ordering Instructions for FCA

Model	x	Stroke	x	Charge Pressure
T3F-750		See		
T3F-1000	X	Dimensional	X	See note
T3F-1500		Information		
T3F-2400		Charts		

Note! FCA Global Die Engineering standards require 120 bar/1750 psi charge pressure. All orders shipped at full charge pressure (150 bar/2175 psi) unless otherwise noted on purchase order.

HYSON Nitrogen Gas Spring Selection Guide

							Genuinely Hyson Safety Features		
Force Ranking per Body diameter	Spring Series Application	Product Line	Model	Contact Force	Stroke Length	Seal Type	Overload Protection	Over-pressure Protection	Over-stroke Protection
Tanker Series									
3	High Force High Contamination Resistance	Tanker T & S	TNKT 1000, TNKT 2400, TNKT 4200, TNKT 6600, TNKS 1000, TNKS 2400, TNKS 4200, TNKS 6600,	9,630 N up to 68,435 N	13 mm up to 225 mm	Bore	N/A	✓	N/A
4	High Performance and High Speed	Tanker 400 XP	TNK 400, TNK 400HS	3940 N	6.3 mm up to 76.2 mm	Bore		✓	
T2 Series									
4	Mechanical and Coil Spring Replacement	T2 Mini	T2-50, T2-70, T2-90, T2-180, T2-200, T2SS3-16, T2SS3- 16GM, T2SS2-24	149 N up to 3,090 N	7 mm up to 125 mm	Rod	✓	N/A	✓
4	High Force Compact Height	T2B	T2-750P, T2B-1500, T2B-3000, T2B-5000	7,300 N up to 49,800 N	12.7 mm up to 304.8 mm	Rod	✓		N/A
T3 Series									
3	HIGH Force SHORTEST Height	T3	T3-170, T3-320, T3-350, T3-500, T3-750, T3-1000, T3-1500, T3-2400, T3-4200, T3-6600, T3-9500, T3-20000	1,700 N up to 200,000 N	7 mm up to 125 mm	Rod	✓	✓	✓
3	HIGH Force Short Height	T3T	T3T-350, T3T-500 , T3T-750, T3T-1000, T3T-1500, T3T-2400, T3T-4200, T3T-6600, T3T-9500	3,600 N up to 95,000 N	10 mm up to 125 mm	Rod	✓	✓	✓
T4 Series									
3	HIGH Force Full Height	T4	T4-750, T4-1000, T4-1500, T4-2400, T4-4200, T4-6600, T4-9500, T4-20000	7,400 N up to 200,000 N	12.7 mm up to 300 mm	Rod	✓	✓	✓
1	HIGHEST Force Short Height	T4SC	T4SC-420, T4SC-740, T4SC-1000, T4SC-1800, T4SC-2900, T4SC-4700, T4SC-7500, T4SC-11800, T4SC-18300	4,250 N up to 183,000 N	6 mm up to 65 mm	Bore	✓	✓	✓
T5 Series									
2	Ultra High Force Compact Design	T5	T5-500, T5-1000, T5-1900	5,100 N up to 19,200 N	10 mm up to 80 mm	Rod	✓	✓	✓
NP Series									
4	High Force Full Height ISO for Automotive	NP	NP-250, NP-500,NP-750, NP-1500, NP-3000, NP-5000, NP-7500, NP-10000	4,700 N up to 106,000 N	10 mm up to 300 mm	Rod	✓	✓	✓
4	Ultra High Force Shorter Height	NPL	NPL-750, NPL-1500, NPL-3000, NPL-5000, NPL-7500	7,400 N up to 75,000 N	12.5 mm up to 250 mm	Rod	✓	✓	✓
Stock Lifters									
N/A	Guided Lifting Systems	SL	T2SL-090, T2SL-200, T2-SLT-170, T2SLE-170, T2SLM-300, T2SRL-800	1,700 n up to 7,100 N	23 mm up to 210 mm	Rod	N/A		
Specialty Solutions									
N/A	High Working Temperatures	T2M T3M	T2M-16, T2M 24, T3M-300, T3M-500, T3M-750, T3M-1000	420 N up to 9,200	10 mm up to 80 mm	Rod	✓	✓	✓
	Die Separation	NDS	NDS-3000, NDS-5000, NDS-7500	30,000 N up to 75,000 N	80 mm up to 300 mm	Rod	✓	✓	✓
	Smooth Return Series	SRS	SRS 750, SRS 1500, SRS 3000, SRS 5000	7,400 N up to 50,000 N	80 mm up to 300 mm	Rod	✓	✓	✓
Delay Systems									
N/A	Controllable Gas Springs	CS2	CS2 1500 CS2 3000, CS2 5000, CSC 500	15,000 N up to 75,000 N	4 mm up to 160 mm	Rod	N/A		



HYSON

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