

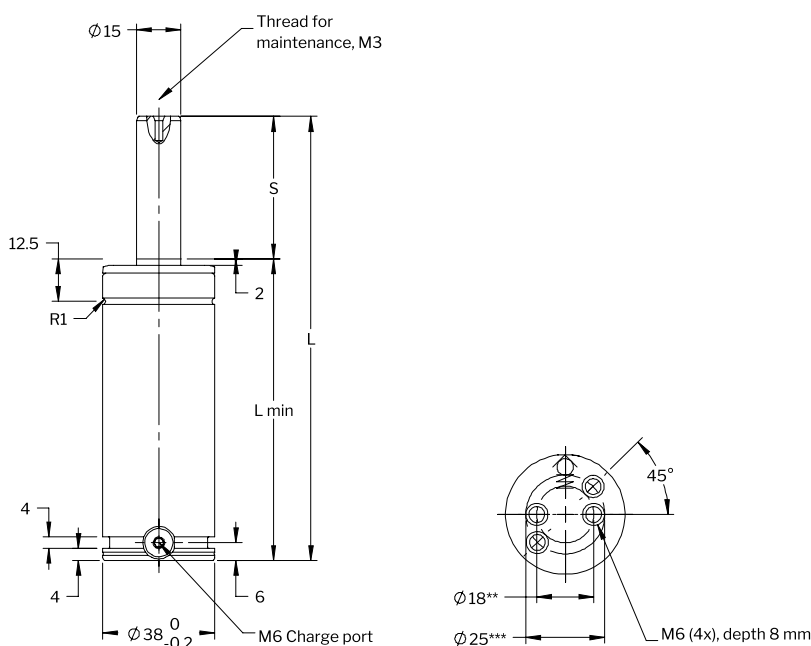
The TU line constitutes our standard line of gas springs. Sizes 250 to 10000 conform to the ISO 11901 gas spring standard as well as VDI 3003.

Basic information

For general information see "About gas springs".

Pressure medium	Nitrogen
Max. charging pressure (at 20°C)	150 bar
Min. charging pressure (at 20°C)	25 bar
Operating temperature	0 to +80°C
Force increase by temperature	0.3%/°C
Recommended max strokes/min (at 20°C)	~ 80-100
Max piston rod velocity	1.6 m/s
Rod surface	Nitrided
Tube surface	Black oxide
Repair kit	3026638

Automotive standard: VDI 3003, ISO 11901-1-5000 WDX356203-0202DMS
 GMGDS 90.25.00-2.5 39D878xx, B2 4005 21680xx, B2 4006 33834xx, B2 4006 21710xx, B2 4006 33834xx, 03322xx, N00135992x, N001374093, X346590500, R100287063, X346590823, 39-673-564x, 39-673-565x, N03020x, K32S0-0250-25, 304417x, M-2401-TD-01-250

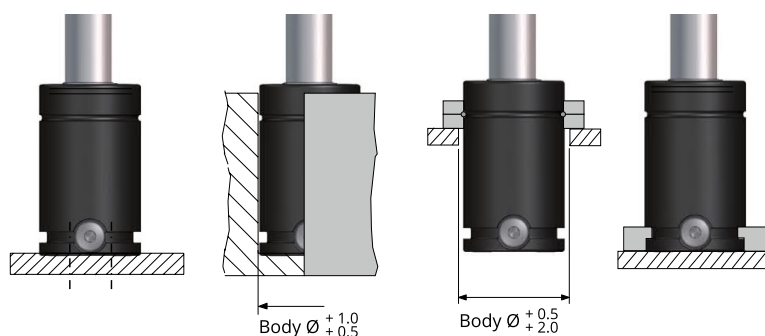


Order No.	S stroke	Force in N at 180 bar/+20°C		Force in lbf at 180 bar/+20°C		L ±0.25	L min.	Gas vol. (l)	Weight (kg)	ISO
		Initial	End force*	Initial	End force*					
TU 250-010	10	2,650	3,500	600	790	70	60	0.011	0.40	✓
TU 250-013	12.7		3,500			75.4	62.7	0.013	0.42	
TU 250-016	16		3,500			82	66	0.016	0.43	✓
TU 250-025	25 ■		3,500			100	75	0.023	0.48	✓
TU 250-038	38.1		3,500			126.2	88.1	0.032	0.54	
TU 250-050	50 ■		3,500			150	100	0.041	0.60	✓
TU 250-064	63.5		3,500			177	113.5	0.051	0.67	
TU 250-080	80 ■		3,500			210	130	0.062	0.75	✓
TU 250-100	100		3,500			250	150	0.077	0.85	✓
TU 250-125	125		3,500			300	175	0.096	0.97	✓

* Isothermal end force at full stroke.

■ Recommended stroke length for optimal delivery.

Mounting possibilities



Base mount

Drop - in

Top mount
FC, FCS

Foot mount
FFC

Recommended mounts



FC-250

FCS-250

FFC-250

HMF-250

S-250

231

235

237

246

252

Additional mounts

FCN-250

HM-250

K-250

L-250

231

245

247

248

Note!

For dimensions on all mount options, refer to “Mounts” in chapter 3.

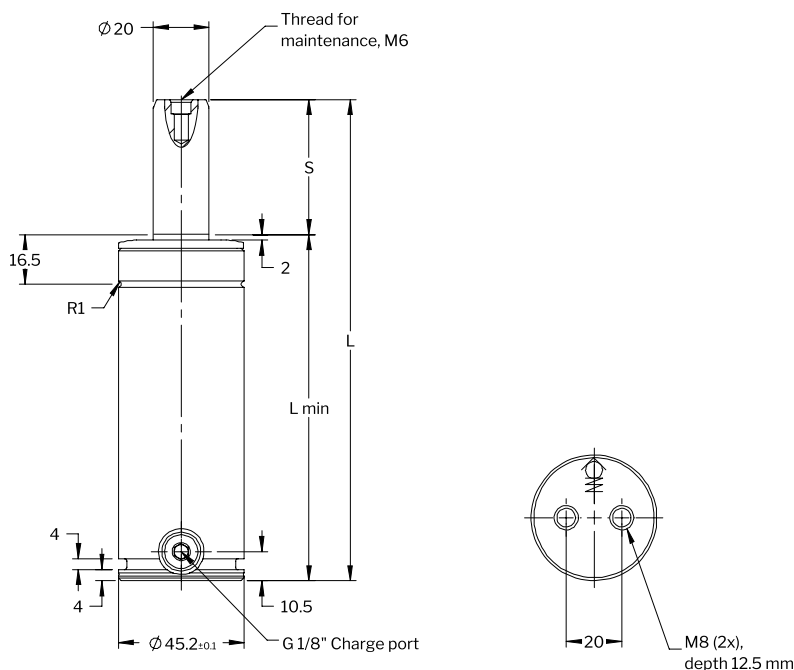
The TU line constitutes our standard line of gas springs. Sizes 250 to 10000 conform to the ISO 11901 gas spring standard.

Basic information

For general information see "About gas springs".

Pressure medium	Nitrogen
Max. charging pressure (at 20°C)	150 bar
Min. charging pressure (at 20°C)	25 bar
Operating temperature	0 to +80°C
Force increase by temperature	0.3%/°C
Recommended max strokes/min (at 20°C)	~ 40-80
Max piston rod velocity	1.6 m/s
Rod surface	Nitrided
Tube surface	Black oxide
Repair kit	2026637-0500

Automotive standard: VDI 3003, ISO 11901-1-5000, GMGDS 90.25.00-5, 39D878xx, B2 4006 21710xx, B2 4005 21680xx, B2 4006 2171243, 03322xx, X34659033x, Z000307844, X34659033x, Z000234960, X34659033x, Z000287855, N000539337, X346590829, R10003612x, 39-673-500x, 39-673-501x, MES E7231 PG230-PG23D-05, K32S0-0500, 304417x, 304418x, SD116322-500, M-2401-TD-06-500

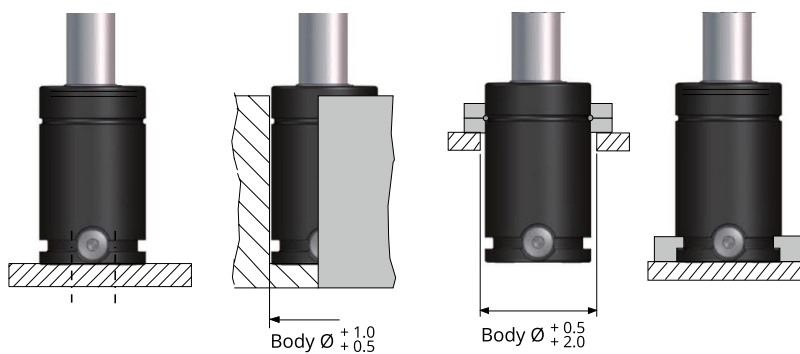


Order No.	S stroke	Force in N at 180 bar/+20°C		Force in lbf at 180 bar/+20°C		L ±0.25	L min.	Gas vol. (l)	Weight (kg)	ISO
		Initial	End force*	Initial	End force*					
TU 500-010	10	4,700	6,000	1,055	1,350	105	95	0.023	0.93	
TU 500-013	12.7		6,100		1,370	110.4	97.7	0.025	0.95	
TU 500-025	25 ■		6,400		1,440	135	110	0.038	1.04	✓
TU 500-038	38.1		6,500		1,460	161.2	123.1	0.051	1.13	
TU 500-050	50 ■		6,600		1,480	185	135	0.063	1.21	✓
TU 500-064	63.5		6,600		1,480	212	148.5	0.077	1.31	
TU 500-080	80 ■		6,700		1,510	245	165	0.093	1.43	✓
TU 500-100	100		6,700		1,510	285	185	0.114	1.57	✓
TU 500-125	125		6,700		1,510	335	210	0.139	1.74	✓
TU 500-160	160 ■		6,700		1,510	405	245	0.175	1.99	✓

* Isothermal end force at full stroke.

■ Recommended stroke length for optimal delivery.

Mounting possibilities



Base mount

Drop - in

Top mount
FC, FCSFoot mount
FFC

Recommended mounts



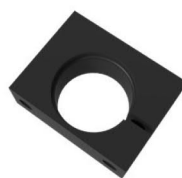
FC-500

 231

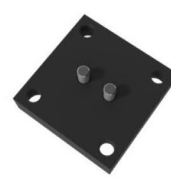

FCS-500

 235


FFC-500

 237


HMF-500

 246


MP-500

 249


S-500

 252

Additional mounts

FCSC-500

 236

K-500

 247

L-500

 248

NMP-750

 250

Note!

For dimensions on all mount options, refer to “Mounts” in chapter 3.

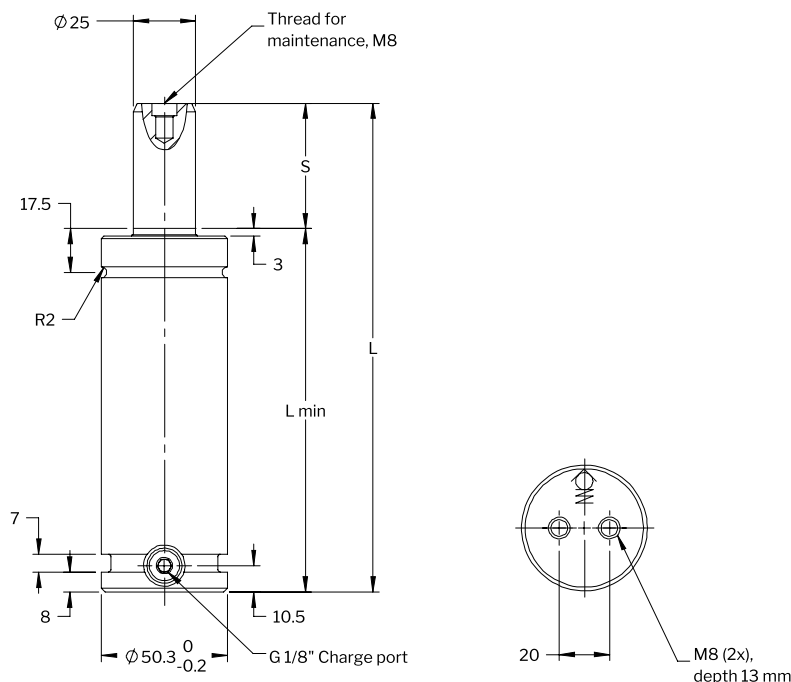
The standard line of gas springs is the TU line. Sizes 250 to 10 000 correspond to the ISO 11901 standard for gas springs.

Basic information

For general information see “About gas springs”.

Pressure medium	Nitrogen
Max. charging pressure (at 20°C)	150 bar
Min. charging pressure (at 20°C)	25 bar
Operating temperature	0 to +80°C
Force increase by temperature	0.3%/°C
Recommended max strokes/min (at 20°C)	~ 15-40
Max piston rod velocity	1.6 m/s
Rod surface	Nitrided
Tube surface	Black oxide
Repair kit	3019817

Automotive standard: ISO 11901-1-7500, WDX356203-07xxDMS, GMGDS 90.25.00-7.5, 39D878xx, B2 4006 21710xx, B2 4006 32521xx, B2 4006 32841xx, B2 4006 0996826, B2 4006 3273512, B2 4006 3344894, 03322xx, X34659033x, Z000304414, X346590260, X346590253, R10003620x, X3465906xx, R100036210, 39-673-510x, 39-673-511x, 39-673-512x, 39-673-5130, N03070x, N03071x, N030720, MES E7231 PG230-PG23D-07, K32S0-0750, 304418x, 997594x, 997595x, SD116322-750, M-2401-TD-1-750



Order No.	S stroke	Force in N at 150 bar/+20°C		Force in lbf at 150 bar/+20°C		L ±0.25	L min.	Gas vol. (l)	Weight (kg)	ISO
		Initial	End force*	Initial	End force*					
TU 750-013	12.7	7,400	12,000	1,665	2,700	120.4	107.7	0.03	1.33	
TU 750-025	25 ■		12,000		2,700	145	120	0.04	1.44	✓
TU 750-038	38.1		12,000		2,700	171.2	133.1	0.06	1.57	
TU 750-050	50 ■		12,000		2,700	195	145	0.07	1.68	✓
TU 750-064	63.5		12,000		2,700	222	158.5	0.09	1.78	
TU 750-080	80 ■		12,000		2,700	255	175	0.11	1.94	✓
TU 750-100	100		12,000		2,700	295	195	0.14	2.13	✓
TU 750-125	125		12,100		2,720	345	220	0.17	2.37	✓
TU 750-160	160 ■		12,100		2,720	415	255	0.21	2.70	✓
TU 750-175	175		12,100		2,720	445	270	0.23	2.84	
TU 750-200	200		12,100		2,720	495	295	0.26	3.08	✓
TU 750-225	225		12,100		2,720	545	320	0.29	3.32	
TU 750-250	250		12,100		2,720	595	345	0.33	3.55	✓
TU 750-300	300		12,100		2,720	695	395	0.39	4.03	✓

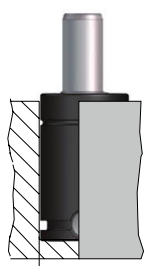
* Isothermal end force at full stroke.

■ Recommended stroke length for optimal delivery.

Mounting possibilities

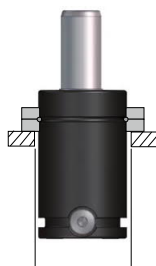


Base mount
MP



Body $\varnothing$ $+0.5$
 $+1.0$

Drop - in

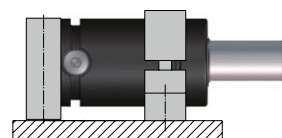


Body $\varnothing$ $+0.5$
 $+2.0$

Top mount
FC, FCS,
FCSC



Foot mount
K, FFC



Body mount
FAC, SA, S, HM

Recommended mounts



FC-750

231



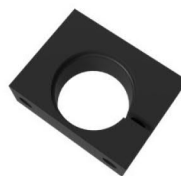
FCS-750

235



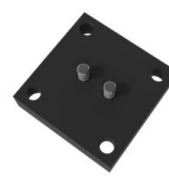
FFC-750

237



HMF-750

246



MP-750

249



S-750

252

Additional mounts

FAC-750

230

FCSC-750

236

FFL-750

238

FSL-750

241

FSS-750

243

HM-750

245

K-750

247

L-750

248

NMP-1000

250

RM-750

251

SA-750

253

Note!

For dimensions on all mount options, refer to “Mounts” in chapter 3.

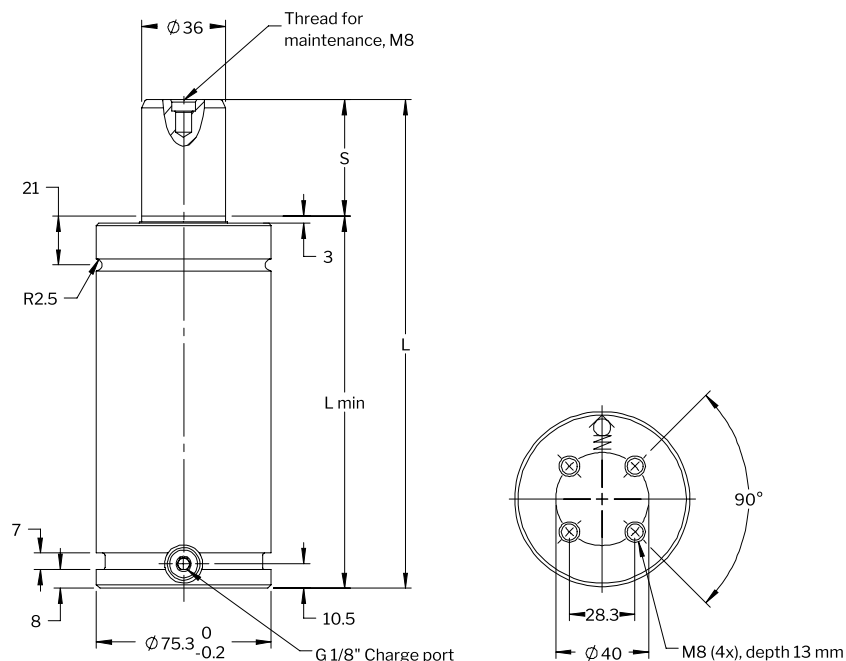
The TU line constitutes our standard line of gas springs. Sizes 250 to 10,000 conform to the ISO 11901 gas spring standard.

Basic information

For general information see "About gas springs".

Pressure medium	Nitrogen
Max. charging pressure (at 20°C)	150 bar
Min. charging pressure (at 20°C)	25 bar
Operating temperature	0 to +80°C
Force increase by temperature	0.3%/°C
Recommended max strokes/min (at 20°C)	~ 15-40
Max piston rod velocity	1.6 m/s
Rod surface	Nitrided
Tube surface	Black oxide
Repair kit	2014068-02

Automotive standard: VDI 3003, ISO 11901-1-15000, WDX356203-15xxDMS, GMGDS 90.25.00-15, 39D878xx, B2 4006 0998614, B2 4006 21710xx, B2 4006 3273508, B2 4006 3860208, B2 4006 3352603, B2 4006 09677xx, 03323xx, X3465902xx, X3465900xx, Z000296562, X346590618, X346590004, R1000362xx, R1002297xx, 39-673-52xx, N0315xx, MES E7231 PG230-PG23D-15, K32S0-1500, 997595x, 304418x, 997595x, 997596x, SD116322-1500, M-2401-TD-7-1500, 90201402297



Order No.	S stroke	Force in N at 150 bar/+20°C		Force in lbf at 150 bar/+20°C		L ± 0.25	L min.	Gas vol. (l)	Weight (kg)	ISO
		Initial	End force*	Initial	End force*					
TU 1500-025	25 ■	15,000	23,000	3,375	5,170	160	135	0.10	3.65	✓
TU 1500-038	38.1					186.2	148.1	0.15	3.89	
TU 1500-050	50 ■					210	160	0.18	4.11	✓
TU 1500-064	63.5					237	173.5	0.22	4.35	
TU 1500-080	80 ■					270	190	0.28	4.66	✓
TU 1500-100	100					310	210	0.34	5.02	✓
TU 1500-125	125					360	235	0.42	5.48	✓
TU 1500-160	160 ■					430	270	0.53	6.12	✓
TU 1500-175	175					460	285	0.60	6.34	
TU 1500-200	200					510	310	0.68	6.86	✓
TU 1500-225	225					560	335	0.76	7.26	
TU 1500-250	250					610	360	0.81	7.77	✓
TU 1500-300	300					710	410	0.96	8.69	✓

* Isothermal end force at full stroke. ■ Recommended stroke length for optimal delivery.

Mounting possibilities



Base mount
MP



Body Ø +0.5
+1.0

Drop - in

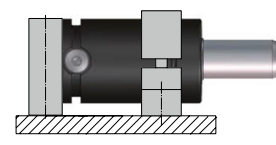


Body Ø +0.5
+2.0

Top mount
FC, FCS



Foot mount
K, FFC



Body mount
FAC, SA, S, HM

Recommended mounts



FC-1500

 231



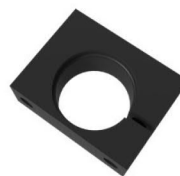
FCS-1500

 235



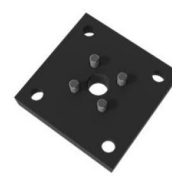
FFC-1500

 237



HMF-1500

 246



MP-1500

 249



S-1500

 252

Additional mounts

FAC-1500

 230

FCSC-1500

 236

FFL-1500

 238

FSL-1500

 241

FSS-1500

 243

HM-1500

 245

K-1500

 247

L-1500

 248

NMP-2400

 250

RM-1500

 251

SA-1500

 253

Note!

For dimensions on all mount options, refer to “Mounts” in chapter 3.

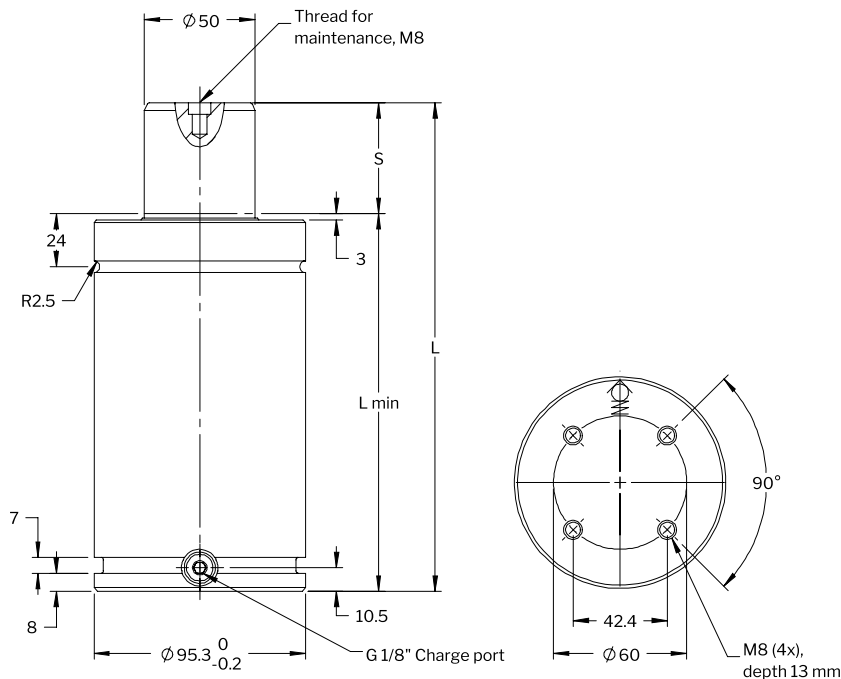
The TU line constitutes our standard line of gas springs. Sizes 250 to 10,000 conform to the ISO 11901 gas spring standard.

Basic information

For general information see "About gas springs".

Pressure medium	Nitrogen
Max. charging pressure (at 20°C)	150 bar
Min. charging pressure (at 20°C)	25 bar
Operating temperature	0 to +80°C
Force increase by temperature	0.3%/°C
Recommended max strokes/min (at 20°C)	~ 15-40
Max piston rod velocity	1.6 m/s
Rod surface	Nitrided
Tube surface	Black oxide
Repair kit	3019025

Automotive standard: VDI 3003, ISO 11901-1-30000, WDX356203-30xxDMS, GMGDS 90.25.00-30, 39D878xx, B2 4006 3881189, B2 4006 21710xx, B2 4006 33834xx, B2 4006 3286139, B2 4006 3373105, X3465900xx, X3465902xx, Z0004590xx, X3465903xx, R1000362xx, R100229769, R100229773, 39-673-53xx, N03300x, N03301x, N033020, MES E7231 PG230-PG23D-30, K32S0-3000, 99759xx, 3044189, 99759xx, 304419x, SD116322-3000, M-2401-TD-13-3000



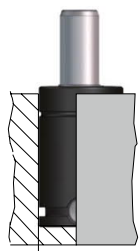
Order No.	S stroke	Force in N at 150 bar/+20°C		Force in lbf at 150 bar/+20°C		L ±0.25	L min.	Gas vol. (l)	Weight (kg)	ISO
		Initial	End force*	Initial	End force*					
TU 3000-025	25 ■	30,000	42,000	6,750	9,440	170	145	0.20	6.45	✓
TU 3000-038	38.1		43,000		9,670	196.2	158.1	0.26	6.87	
TU 3000-050	50 ■		44,000		9,890	220	170	0.32	7.25	✓
TU 3000-064	63.5		45,000		10,100	247	183.5	0.38	7.67	
TU 3000-080	80 ■		46,000		10,340	280	200	0.46	8.20	✓
TU 3000-100	100		47,000		10,570	320	220	0.56	8.83	✓
TU 3000-125	125		47,000		10,570	370	245	0.69	9.63	✓
TU 3000-160	160 ■		47,000		10,570	440	280	0.87	10.74	✓
TU 3000-175	175		48,000		10,790	470	295	0.95	11.20	
TU 3000-200	200		48,000		10,790	520	320	1.07	12.00	✓
TU 3000-225	225		48,000		10,790	570	345	1.20	12.80	
TU 3000-250	250		48,000		10,790	620	370	1.32	13.59	✓
TU 3000-300	300		48,000		10,790	720	420	1.57	15.18	✓

* Isothermal end force at full stroke. ■ Recommended stroke length for optimal delivery.

Mounting possibilities



Base mount
MP



Body Ø +0.5
+1.0

Drop - in

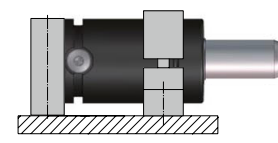


Body Ø +0.5
+2.0

Top mount
FC, FCS



Foot mount
K, FFC



Body mount
FAC, SA, S, HM

Recommended mounts



FC-3000

 231



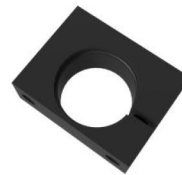
FCS-3000

 235



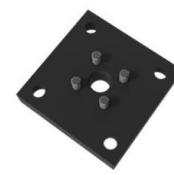
FFC-3000

 237



HMF-3000

 246



MP-3000

 249



S-3000

 252

Additional mounts

FAC-3000

 230

FCSC-3000

 236

FFL-3000

 238

FSL-3000

 241

FSS-3000

 243

HM-3000

 245

K-3000

 247

L-3000

 248

NMP-4200

 250

RM-3000

 251

SA-3000

 253

Note!

For dimensions on all mount options, refer to “Mounts” in chapter 3.

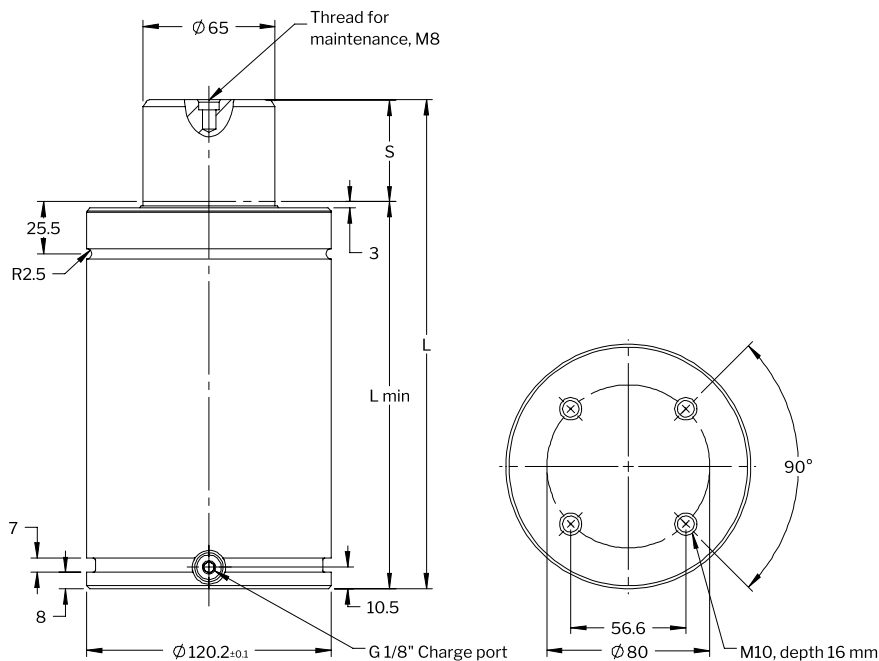
The TU line constitutes our standard line of gas springs. Sizes 250 to 10,000 conform to the ISO 11901 gas spring standard.

Basic information

For general information see "About gas springs".

Pressure medium	Nitrogen
Max. charging pressure (at 20°C)	150 bar
Min. charging pressure (at 20°C)	25 bar
Operating temperature	0 to +80°C
Force increase by temperature	0.3%/°C
Recommended max strokes/min (at 20°C)	~ 15-40
Max piston rod velocity	1.6 m/s
Rod surface	Nitrided
Tube surface	Black oxide
Repair kit	3018876

Automotive standard: VDI 3003, ISO 11901-1-50000, WDX356203-50xxDMS, GMGDS 90.25.00-50, 39D878xx, B2 4005 21680xx, B2 4006 21710xx, 03323xx, Z000410553, X346590027, Z00049215x, Z000301877, Z000239128, Z000134786, R1000362xx, X346590834, R100229774, R100228812, 39-673-54xx, N03500x, N03501x, N03501x, N03501x, N035020, MES E7231 PG230-PG23D-5A, K32S0-5000, 304419x, 997597x, 9975980, SD116322-5000, M-2401-TD-19-5000



Order No.	S stroke	Force in N at 150 bar/+20°C		Force in lbf at 150 bar/+20°C		L ±0.25	L min.	Gas vol. (l)	Weight (kg)	ISO
		Initial	End force*	Initial	End force*					
TU 5000-025	25	50,000	71,000	11,240	15,960	190	165	0.32	12.40	✓
TU 5000-038	38.1		75,000		16,860	216.2	178.1	0.42	13.10	
TU 5000-050	50		77,000		17,310	240	190	0.51	13.70	✓
TU 5000-064	63.5		80,000		17,990	267	203.5	0.60	14.40	
TU 5000-080	80 ■		81,000		18,210	300	220	0.73	15.30	✓
TU 5000-100	100 ■		82,000		18,430	340	240	0.89	16.40	✓
TU 5000-125	125 ■		82,000		18,430	390	265	1.09	17.70	✓
TU 5000-160	160 ■		83,000		18,660	460	300	1.36	19.60	✓
TU 5000-175	175		84,000		18,880	490	315	1.49	20.40	
TU 5000-200	200 ■		84,000		18,880	540	340	1.68	21.70	✓
TU 5000-225	225		84,000		18,880	590	365	1.88	22.10	
TU 5000-250	250		84,000		18,880	640	390	2.07	22.40	✓
TU 5000-300	300		84,000		18,880	740	440	2.46	27.10	✓

* Isothermal end force at full stroke.

■ Recommended stroke length for optimal delivery.

Mounting possibilities



Base mount
MP



Body Ø + 0.5
+ 1.0

Drop - in

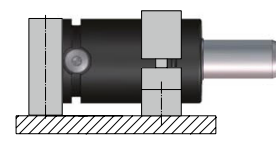


Body Ø + 0.5
+ 2.0

Top mount
FC, FCS, FCSC



Foot mount
K, FFC



Body mount
FAC, SA, S, HM

Recommended mounts



FC-5000

 231



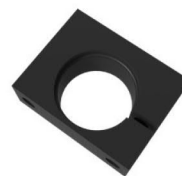
FCS-5000

 235



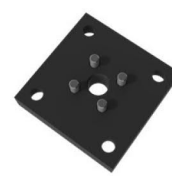
FFC-5000

 237



HMF-5000

 246



MP-5000

 249



S-5000

 252

Additional mounts

FAC-5000

 230

FCSC-5000

 236

FFL-5000

 238

FSL-5000

 241

FSS-5000

 243

K-5000

 247

L-5000

 248

RM-5000

 251

SA-5000

 253

Note!

For dimensions on all mount options, refer to “Mounts” in chapter 3.

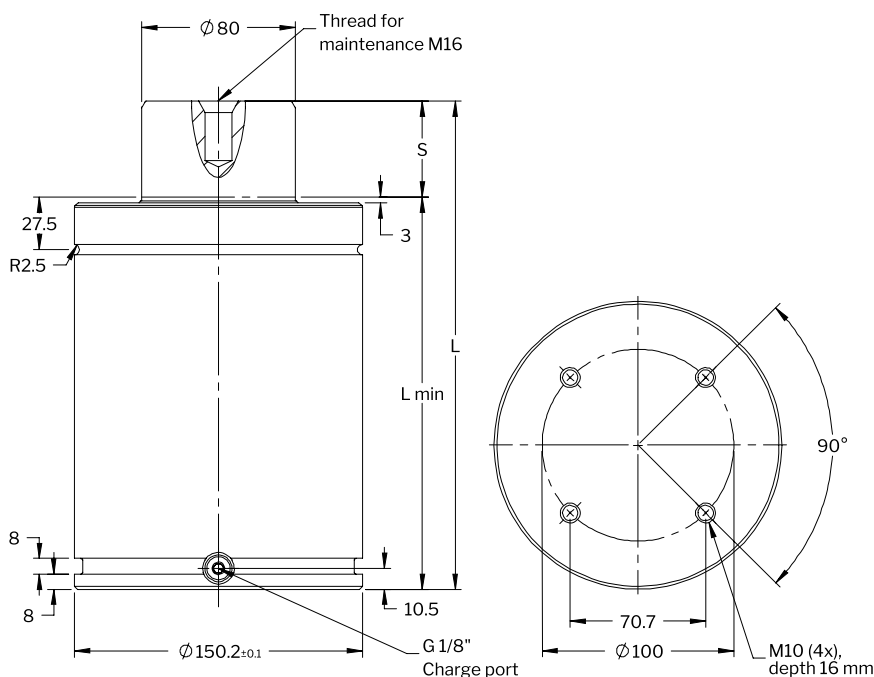
The TU line constitutes our standard line of gas springs. Sizes 250 to 10000 conform to the ISO 11901 gas spring standard.

Basic information

For general information see "About gas springs".

Pressure medium	Nitrogen
Max. charging pressure (at 20°C)	150 bar
Min. charging pressure (at 20°C)	25 bar
Operating temperature	0 to +80°C
Force increase by temperature	0.3%/°C
Recommended max strokes/min (at 20°C)	~ 15-40
Max piston rod velocity	1.6 m/s
Rod surface	Nitrided
Tube surface	Black oxide
Repair kit	3018877

Automotive standard: VDI 3003, ISO 11901-1-75000, WDX356203-75xxDMS, GMGDS 90.25.00-75, 39D878xx, B2 4005 21680xx, B2 4006 21710xx, 03323xx, Z00049238x, Z000487363, N000741822, N000701263, R1001753xx, R1001607xx, R10022977x, 39-673-55xx, N03750x, N03751x, N037520, MES E7231 PG230-PG23D-7A, 304419x, 3044200, SD116322-7500



Order No.	S stroke	Force in N at 150 bar/+20°C		Force in lbf at 150 bar/+20°C		L ± 0.25	L min.	Gas vol. (l)	Weight (kg)	ISO
		Initial	End force*	Initial	End force*					
TU 7500-025	25	75,000	105,000	16,860	23,600	205	180	0.51	20.30	✓
TU 7500-038	38.1		110,000		24,730	231.2	193.1	0.67	21.40	
TU 7500-050	50		113,000		25,400	255	205	0.81	22.40	✓
TU 7500-064	63.5		115,000		25,850	282	218.5	0.98	23.50	
TU 7500-080	80 ■		117,000		26,300	315	235	1.18	24.80	✓
TU 7500-100	100 ■		119,000		26,750	355	255	1.43	26.50	✓
TU 7500-125	125 ■		121,000		27,200	405	280	1.74	28.50	✓
TU 7500-160	160 ■		122,000		27,430	475	315	2.17	31.40	✓
TU 7500-175	175		123,000		27,650	505	330	2.06	32.60	
TU 7500-200	200 ■		123,000		27,650	555	355	2.66	34.70	✓
TU 7500-225	225		124,000		27,880	605	380	2.96	36.80	
TU 7500-250	250		124,000		27,880	655	405	3.27	38.80	✓
TU 7500-300	300		124,000		27,880	755	455	3.88	42.90	✓

* Isothermal end force at full stroke.

■ Recommended stroke length for optimal delivery.

Mounting possibilities



Base mount
MP



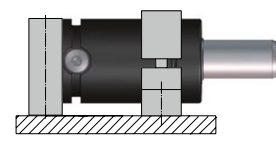
Body Ø +0.5
+1.0
Drop - in



Body Ø +0.5
+2.0
Top mount
FC, FCS, FCSC



Foot mount
K, FFC



Body mount
S

Recommended mounts



FC-7500

 231



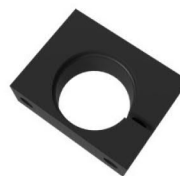
FCS-7500

 235



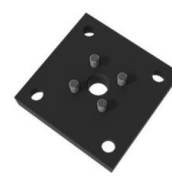
FFC-7500

 237



HMF-7500

 246



MP-7500

 249



S-7500

 252

Additional mounts

FCSC-7500

 236

FFL-7500

 238

FSL-7500

 241

FSS-7500

 243

K-7500

 247

L-7500

 248

RM-7500

 251

Note!

For dimensions on all mount options, refer to “Mounts” in chapter 3.

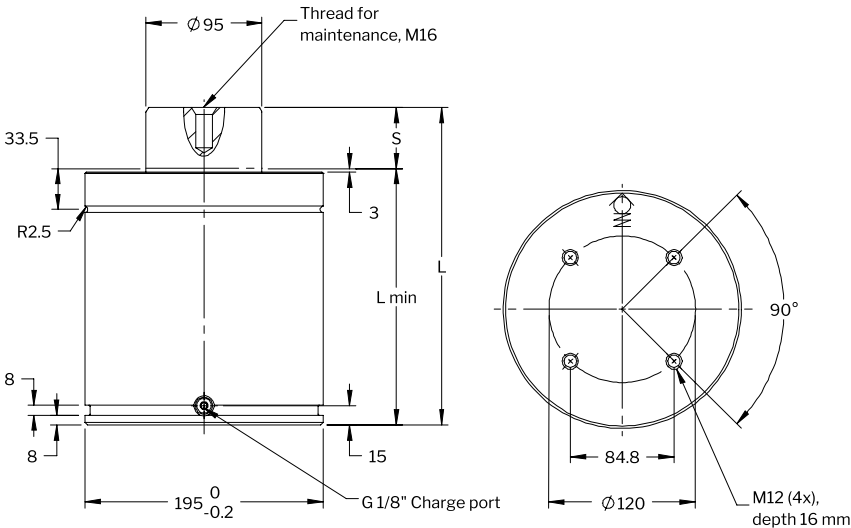
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Basic information

For general information see “About gas springs”.

Pressure medium	Nitrogen
Max. charging pressure (at 20°C)	150 bar
Min. charging pressure (at 20°C)	25 bar
Operating temperature	0 to +80°C
Force increase by temperature	0.3%/°C
Recommended max strokes/min (at 20°C)	~ 15-40
Max piston rod velocity	1.6 m/s
Rod surface	Nitrided
Tube surface	Black oxide
Repair kit	3019037

Automotive standard: VDI 3003, ISO 11901-1-100000, GMGDS 90.25.00-100, 39D878xx, 03441xx, R1001607xx, R10022977x, 39-673-56xx, N03990x, N03991x, N039920, 305396x, 305397x



Order No.	S stroke	Force in N at 150 bar/+20°C		Force in lbf at 150 bar/+20°C		L ± 0.25	L min.	Gas vol. (l)	Weight (kg)	
		Initial	End force*	Initial	End force*					
TU 10000-025	25	106,000	138,000	23,830	31,020	210	185	0.87	35.90	
TU 10000-038	38.1		143,000		32,150	236.2	198.1	1.13	37.60	
TU 10000-050	50		147,000		33,050	260	210	1.37	39.20	✓
TU 10000-064	63.5		150,000		33,720	287	223.5	1.64	41.00	
TU 10000-080	80 ■		152,000		34,170	320	240	1.98	43.20	✓
TU 10000-100	100 ■		156,000		35,070	360	260	2.38	45.80	✓
TU 10000-125	125 ■		157,000		35,300	410	285	2.88	49.10	✓
TU 10000-160	160 ■		158,000		35,520	480	320	3.59	53.70	✓
TU 10000-200	200 ■		160,000		35,970	560	360	4.39	59.00	✓
TU 10000-250	250		160,000		35,970	660	410	5.40	65.60	✓
TU 10000-300	300		160,000		35,970	760	460	6.40	72.20	✓

* Isothermal end force at full stroke. ■ Recommended stroke length for optimal delivery.

Mounting possibilities

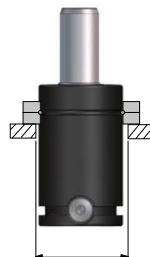


Base mount
MP



Body Ø $+0.5$
 $+1.0$

Drop - in



Body Ø $+0.5$
 $+2.0$

Top mount
FCS



Foot mount
K, FFC

Recommended mounts



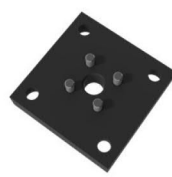
FCS-10000

 235



FFC-10000

 237



MP-10000

 249

Additional mounts

K-10000

 247

Note!

For dimensions on all mount options, refer to “Mounts” in chapter 3.