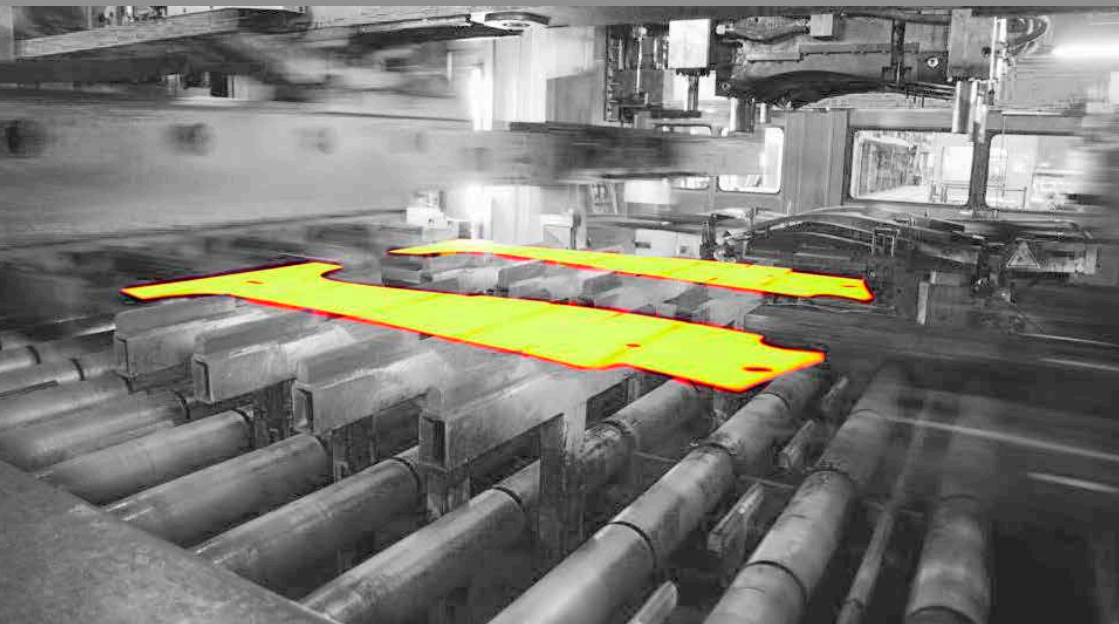




CONTROLLED GAS SPRINGS USER'S GUIDE

- Locking pinston rod and return at will
- Specially suited for hot stamping
- Pneumatic protection fitted as standard
- Rod protection available on request
- Longer lifetime
- Cost saving and productivity increasing
- Posibility of monitoring



BSF SPEED CONTROL

ADVANTAGES



- **Locking** the piston rod compressed.



- **Return** the piston rod at will.



- Compatible with **ISO** dimensions.



- **Saves costs.**

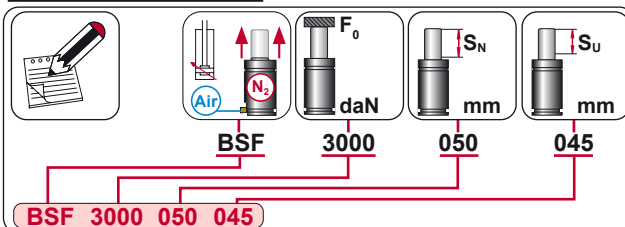


- Increases **productivity.**

TECHNICAL DATA

MODEL	F ₀ daN	Ø mm	S mm	L1 mm	Pmax bar	Charge Port		
BSF 1500	1500	Ø95	5 - 160	138 - 440	150	G1/8"	600 CP-	✓
BSF 3000	3000	Ø120	5 - 160	158 - 460	150	G1/8"	600 CP-	✓
BSF 5000	5000	Ø150	5 - 160	173 - 475	150	G1/8"	600 CP-	✓
BSF 7500	7500	Ø195	5 - 160	178 - 480	150	G1/8"	600 CP-	✓

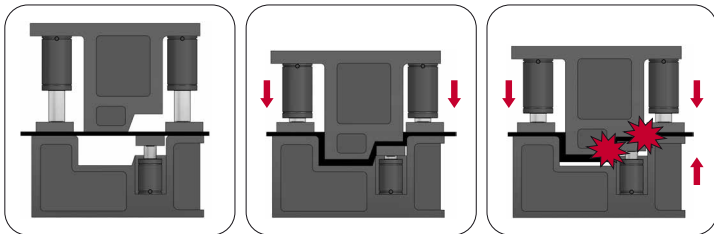
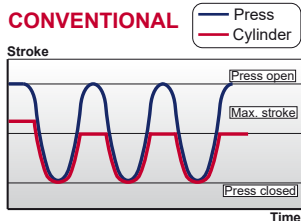
HOW TO ORDER



BSF APPLICATION REQUEST FORM

CHALLENGE

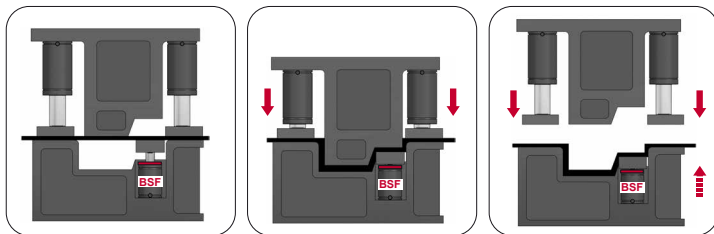
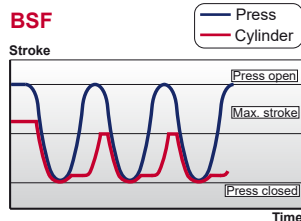
CONVENTIONAL



Certain forming applications (eg draw die) require the action of **two independent-separate parts**. The use of conventional gas springs in these operations causes **deformation of the metalsheet piece**.

SOLUTION

BSF



BSF gas spring piston rod can be locked in the compressed position (1mm bounce back), what allows **two metal forming steps with a single press stroke**.

REQUIRED DATA



- Application need gas springs with lockable piston rod? (**yes / no**).....



- Is a max. 1 mm gas spring back acceptable? (**yes / no**).....



- Initial Force (**daN**).....



- Nominal Stroke (**mm**).....



- Useful Stroke (**mm**).....



- Number of cycles per minute.....

- Die manufacturer.....

- Stamping plant.....

N₂	Use 100% of Useful Stroke	Vmax 0,5 m/s	bar psi 20 290	bar psi 150 2175	°C °F 0 32	°C °F 80 176	Consult
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REQUIRED DATA



- Application need gas springs with lockable piston rod? (yes / no).....



- Is a max. 1 mm gas spring back acceptable? (yes / no).....



- Initial Force (daN).....



- Nominal Stroke (mm).....



- Useful Stroke (mm).....



- Number of cycles per minute.....

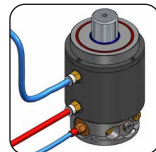
- Die manufacturer.....

- Stamping plant.....

MAXIMUM WORKING FREQUENCY AND COOLING

The energy provided by the press to the gas spring to compress it in every press cycle is greater than the energy used by the gas spring to return to its extended position, after locked down. The difference in energy (transmitted from press and used from gas spring) is transformed into heat inside the gas spring. Consequently, to avoid overheating in Speed Controlled gas springs, heat generation must be either limited (SPM strokes per minute) or dissipated (TRL cooling systems).

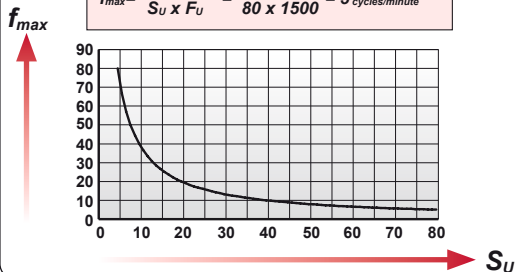
NOMINAL FORCE (daN)	MAXIMUM WORKING FREQUENCY (f_{max})	
	WITHOUT REFRIGERATION	WITH REFRIGERATION
1500	$f_{max} = \frac{600000}{S_U \times F_U}$	$f_{max} = \frac{1000000}{S_U \times F_U}$



EXAMPLE:

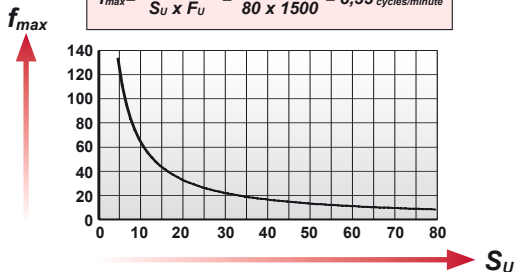
BSF 1500 080 at 1500 daN, without refrigeration

$$f_{max} = \frac{600000}{S_U \times F_U} = \frac{600000}{80 \times 1500} = 5 \text{ cycles/minute}$$



BSF 1500 080 at 1500 daN, with refrigeration

$$f_{max} = \frac{1000000}{S_U \times F_U} = \frac{1000000}{80 \times 1500} = 8,33 \text{ cycles/minute}$$



How to Order:

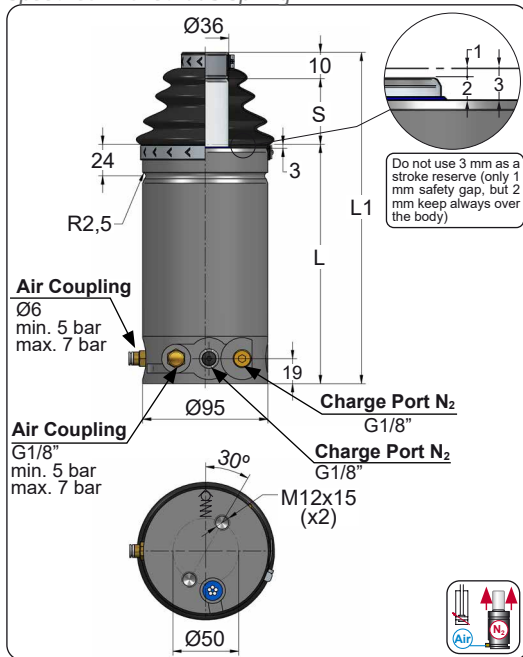
BSF 1500 050 045

Useful Stroke
Nominal Stroke

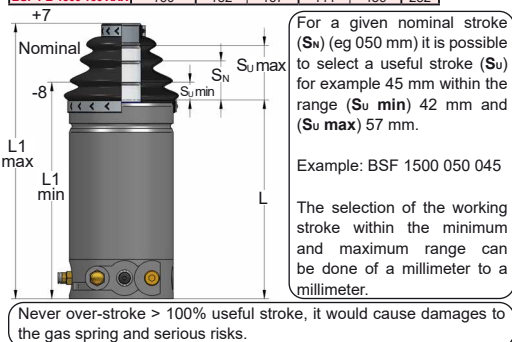
BSF-PB 1500

Speed Controlled Gas Spring

AZOL
GAS

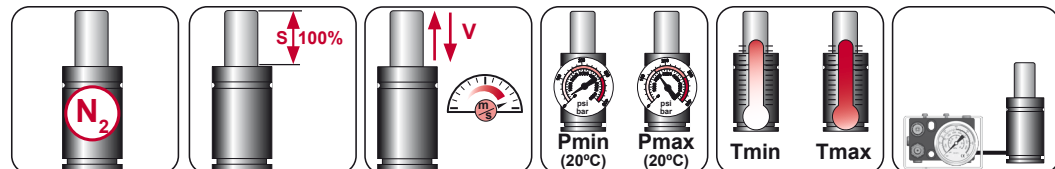
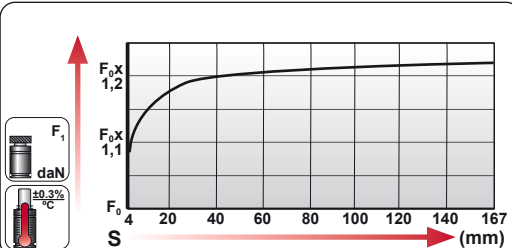
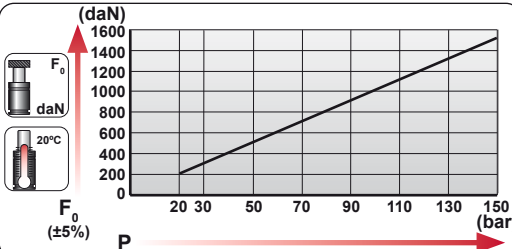
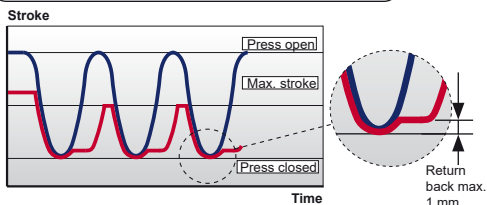


ORDER	NOMINAL STROKE S_N (mm)	USEFUL STROKE S_U (mm)		$L1 \pm 0.25$ (mm)		L (mm)
		$S_{U \min}$	$S_{U \max}$	$L1 \min$	$L1 \max$	
BSF-PB 1500 010 XXX	10	4	17	146	159	132
BSF-PB 1500 020 XXX	20	12	27	164	179	142
BSF-PB 1500 030 XXX	30	22	37	184	199	152
BSF-PB 1500 040 XXX	40	32	47	204	219	162
BSF-PB 1500 050 XXX	50	42	57	224	239	172
BSF-PB 1500 060 XXX	60	52	67	244	259	182
BSF-PB 1500 070 XXX	70	62	77	264	279	192
BSF-PB 1500 080 XXX	80	72	87	284	299	202
BSF-PB 1500 090 XXX	90	82	97	304	319	212
BSF-PB 1500 100 XXX	100	92	107	324	339	222
BSF-PB 1500 110 XXX	110	102	117	344	359	232
BSF-PB 1500 120 XXX	120	112	127	364	379	242
BSF-PB 1500 130 XXX	130	122	137	384	399	252
BSF-PB 1500 140 XXX	140	132	147	404	419	262
BSF-PB 1500 150 XXX	150	142	157	424	439	272
BSF-PB 1500 160 XXX	160	152	167	444	459	282



CODE			F_0 	F_1
	bar	psi	daN	daN
BSF-PB 1500 050 050	150	2175	1530	1840

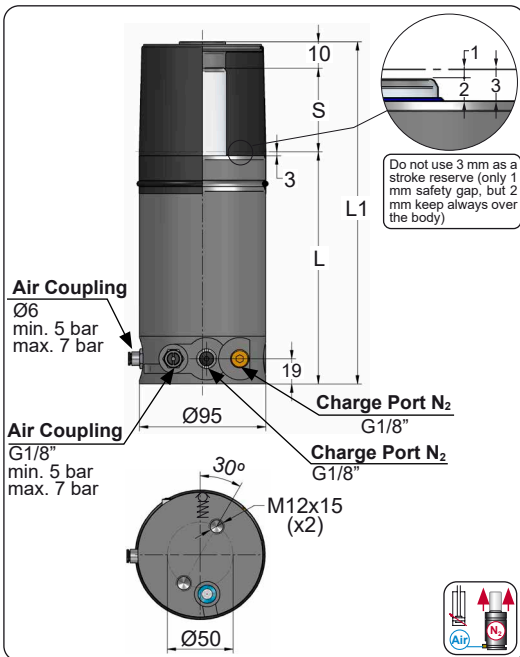
Only if using 100% useful stroke will ensure a maximum bounce back of 1mm.
WARNING: should not be used 100% useful stroke, the bounce back will be higher than 1 mm.



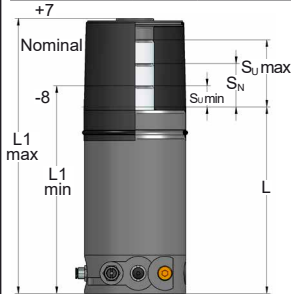
N_2	Use 100% of Useful Stroke	V_{max} 0,5 m/s	bar psi	bar psi	°C	°F	°C	°F	Consult
			20 290	150 2175	0	32	80	176	

BSF-PT 1500

Speed Controlled Gas Spring



ORDER	NOMINAL STROKE S _n (mm)	USEFUL STROKE S _u (mm)		L1 ±0.25 (mm)		L (mm)
		S _u min	S _u max	L1 min	L1 max	
BSF PT 1500 010 XXX	10	4	17	146	159	132
BSF PT 1500 020 XXX	20	12	27	164	179	142
BSF PT 1500 030 XXX	30	22	37	184	199	152
BSF PT 1500 040 XXX	40	32	47	204	219	162
BSF PT 1500 050 XXX	50	42	57	224	239	172
BSF PT 1500 060 XXX	60	52	67	244	259	182
BSF PT 1500 070 XXX	70	62	77	264	279	192
BSF PT 1500 080 XXX	80	72	87	284	299	202
BSF PT 1500 090 XXX	90	82	97	304	319	212
BSF PT 1500 100 XXX	100	92	107	324	339	222
BSF PT 1500 110 XXX	110	102	117	344	359	232
BSF PT 1500 120 XXX	120	112	127	364	379	242
BSF PT 1500 130 XXX	130	122	137	384	399	252
BSF PT 1500 140 XXX	140	132	147	404	419	262
BSF PT 1500 150 XXX	150	142	157	424	439	272
BSF PT 1500 160 XXX	160	152	167	444	459	282



For a given nominal stroke (S_N) (eg 050 mm) it is possible to select a useful stroke (S_u) for example 45 mm within the range ($S_u \text{ min}$) 42 mm and ($S_u \text{ max}$) 57 mm.

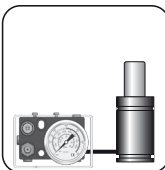
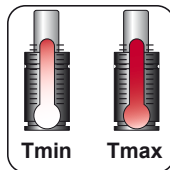
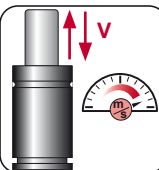
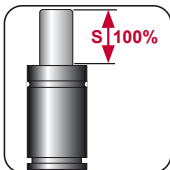
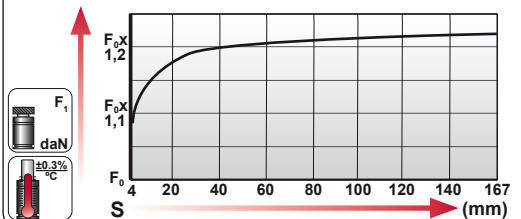
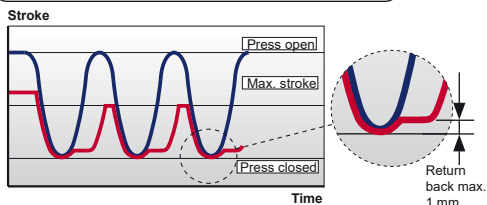
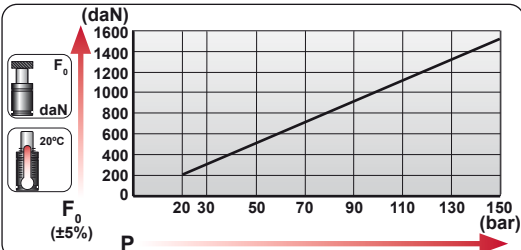
Example: BSF 1500 050 045

The selection of the working stroke within the minimum and maximum range can be done of a millimeter to a millimeter.

Never over-stroke > 100% useful stroke, it would cause damages to the gas spring and serious risks.

CODE				
	bar	psi	daN	daN
BSF-PT 1500 050 050	150	2175	1530	1840

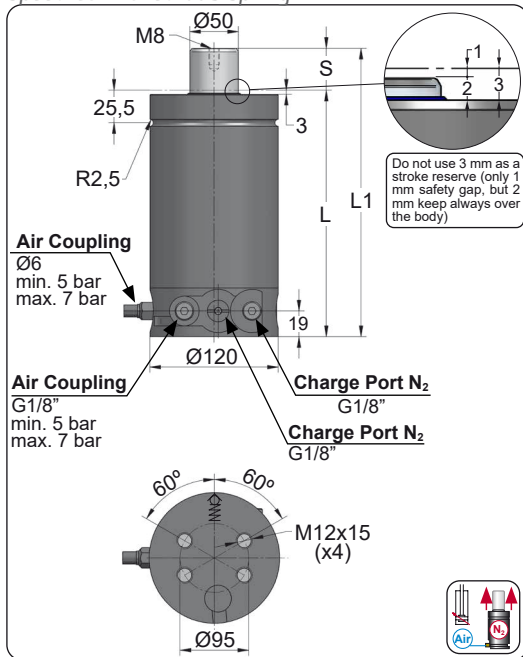
Only if using 100% useful stroke will ensure a maximum bounce back of 1mm. WARNING: should not be used 100% useful stroke, the bounce back will be higher than 1 mm.



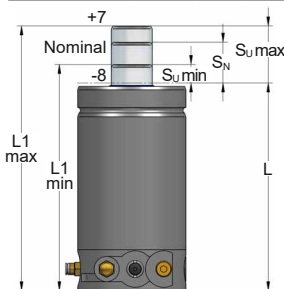
N₂	Use 100% of Useful Stroke	Vmax 0,5 m/s	bar psi 20 290	bar psi 150 2175	°C °F 0 32	°C °F 80 176	Consult
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BSF 3000

Speed Controlled Gas Spring

AZOL
GAS


ORDER	NOMINAL STROKE S_N (mm)	USEFUL STROKE S_U (mm)		$L1 \pm 0.25$ (mm)		L (mm)
		$S_{U \min}$	$S_{U \max}$	$L1 \min$	$L1 \max$	
BSF 3000 010 XXX	10	4	17	156	169	152
BSF 3000 020 XXX	20	12	27	174	189	162
BSF 3000 030 XXX	30	22	37	194	209	172
BSF 3000 040 XXX	40	32	47	214	229	182
BSF 3000 050 XXX	50	42	57	234	249	192
BSF 3000 060 XXX	60	52	67	254	269	202
BSF 3000 070 XXX	70	62	77	274	289	212
BSF 3000 080 XXX	80	72	87	294	309	222
BSF 3000 090 XXX	90	82	97	314	329	232
BSF 3000 100 XXX	100	92	107	334	349	242
BSF 3000 110 XXX	110	102	117	354	369	252
BSF 3000 120 XXX	120	112	127	374	389	262
BSF 3000 130 XXX	130	122	137	394	409	272
BSF 3000 140 XXX	140	132	147	414	429	282
BSF 3000 150 XXX	150	142	157	434	449	292
BSF 3000 160 XXX	160	152	167	454	469	302



For a given nominal stroke (S_N) (eg 050 mm) it is possible to select a useful stroke (S_U) for example 45 mm within the range ($S_{U \min}$) 42 mm and ($S_{U \max}$) 57 mm.

Example: BSF 1500 050 045

The selection of the working stroke within the minimum and maximum range can be done of a millimeter to a millimeter.

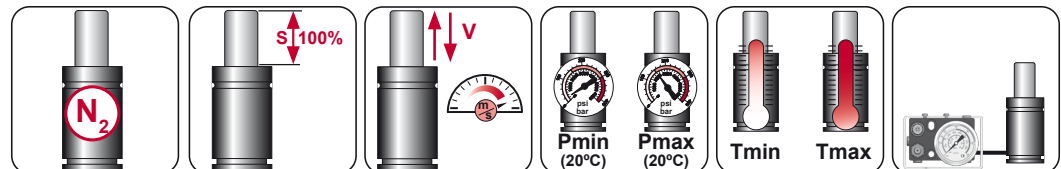
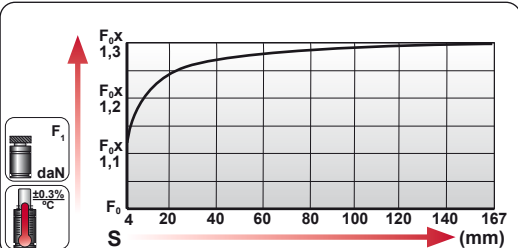
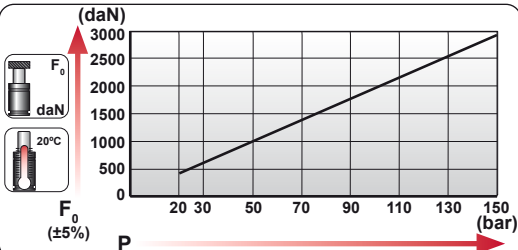
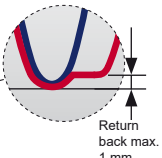
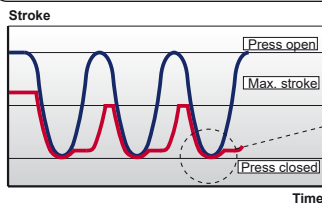
Never over-stroke > 100% useful stroke, it would cause damages to the gas spring and serious risks.

CODE				
	bar	psi	daN	daN
BSF 3000 050 050	150	2175	2945	3760

Only if using 100% useful stroke will ensure a maximum bounce back of 1mm. WARNING: should not be used 100% useful stroke, the bounce back will be higher than 1 mm.



WARNING!



N_2	Use 100% of Useful Stroke	V_{max} 0,5 m/s	bar psi	bar psi	°C	°F	°C	°F	Consult
			20 290	150 2175	0	32	80	176	

REQUIRED DATA



- Application need gas springs with lockable piston rod? (yes / no).....



- Is a max. 1 mm gas spring back acceptable? (yes / no).....



- Initial Force (daN).....



- Nominal Stroke (mm).....



- Useful Stroke (mm).....



- Number of cycles per minute.....

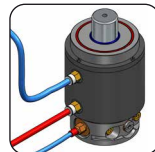
- Die manufacturer.....

- Stamping plant.....

MAXIMUM WORKING FREQUENCY AND COOLING

The energy provided by the press to the gas spring to compress it in every press cycle is greater than the energy used by the gas spring to return to its extended position, after locked down. The difference in energy (transmitted from press and used from gas spring) is transformed into heat inside the gas spring. Consequently, to avoid overheating in Speed Controlled gas springs, heat generation must be either limited (SPM strokes per minute) or dissipated (TRL cooling systems).

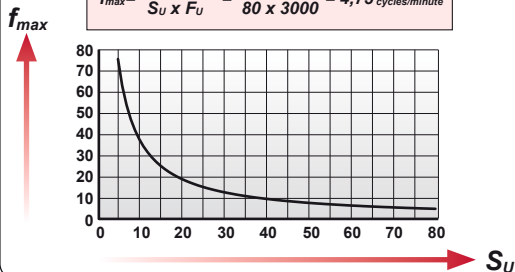
NOMINAL FORCE (daN)	MAXIMUM WORKING FREQUENCY (f_{max})	
	WITHOUT REFRIGERATION	WITH REFRIGERATION
3000	$f_{max} = \frac{1140000}{S_U \times F_U}$	$f_{max} = \frac{2000000}{S_U \times F_U}$



EXAMPLE:

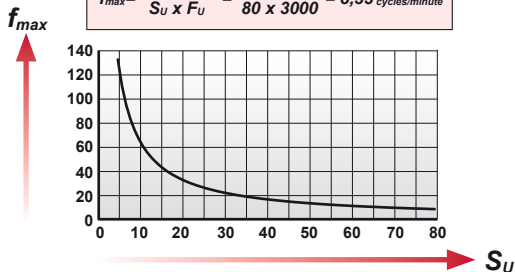
BSF 3000 080 at 3000 daN, without refrigeration

$$f_{max} = \frac{1140000}{S_U \times F_U} = \frac{1140000}{80 \times 3000} = 4,75 \text{ cycles/minute}$$



BSF 3000 080 at 3000 daN, with refrigeration

$$f_{max} = \frac{2000000}{S_U \times F_U} = \frac{2000000}{80 \times 3000} = 8,33 \text{ cycles/minute}$$



How to Order:

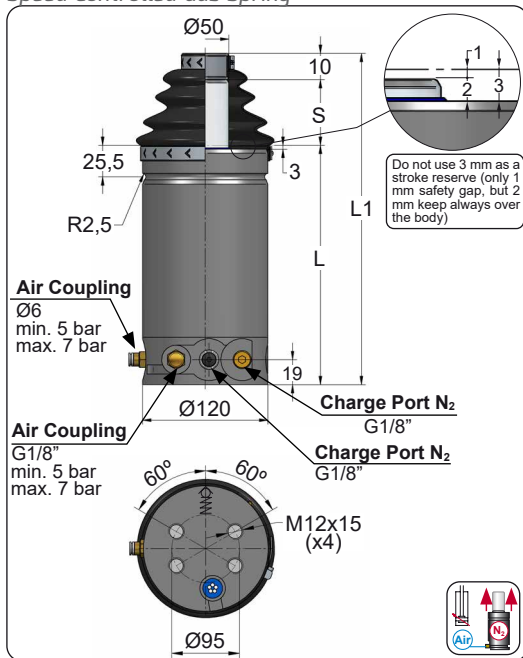
BSF 3000 050 045

Useful Stroke
Nominal Stroke

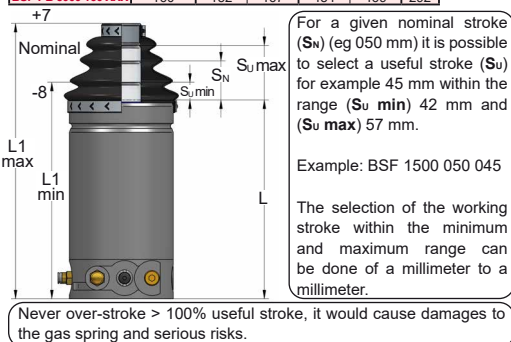
BSF-PB 3000

Speed Controlled Gas Spring

AZOL
GAS

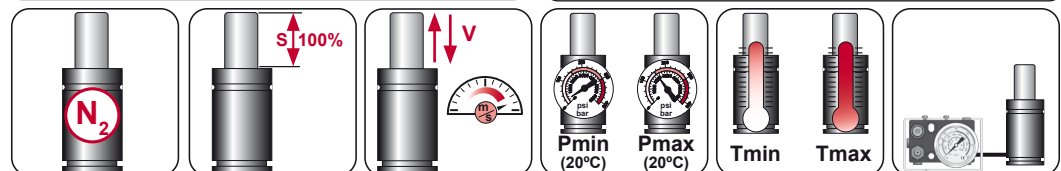
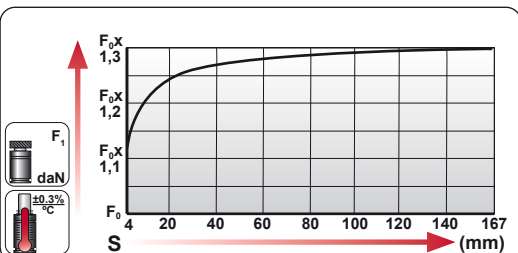
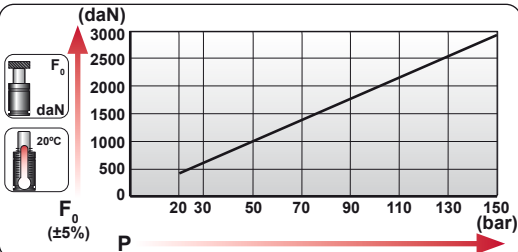
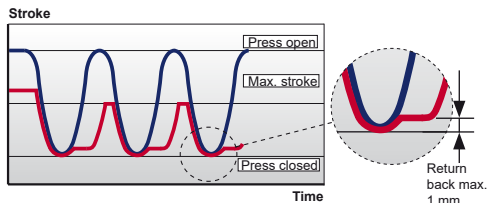


ORDER	NOMINAL STROKE S _N (mm)	USEFUL STROKE S _U (mm)		L1 ±0.25 (mm)		L (mm)
		S _U min	S _U max	L1 min	L1 max	
BSF-PB 3000 010 XXX	10	4	17	156	169	142
BSF-PB 3000 020 XXX	20	12	27	174	189	152
BSF-PB 3000 030 XXX	30	22	37	194	209	162
BSF-PB 3000 040 XXX	40	32	47	214	229	172
BSF-PB 3000 050 XXX	50	42	57	234	249	182
BSF-PB 3000 060 XXX	60	52	67	254	269	192
BSF-PB 3000 070 XXX	70	62	77	274	289	202
BSF-PB 3000 080 XXX	80	72	87	294	309	212
BSF-PB 3000 090 XXX	90	82	97	314	329	222
BSF-PB 3000 100 XXX	100	92	107	334	349	232
BSF-PB 3000 110 XXX	110	102	117	354	369	242
BSF-PB 3000 120 XXX	120	112	127	374	389	252
BSF-PB 3000 130 XXX	130	122	137	394	409	262
BSF-PB 3000 140 XXX	140	132	147	414	429	272
BSF-PB 3000 150 XXX	150	142	157	434	449	282
BSF-PB 3000 160 XXX	160	152	167	454	469	292

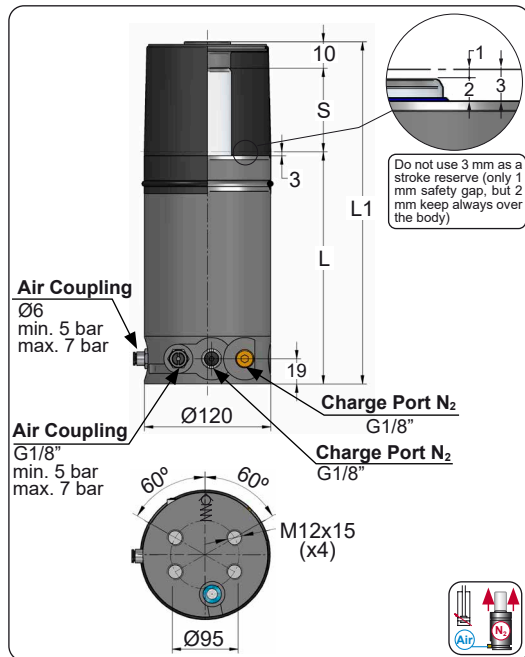


CODE				
	bar	psi	daN	daN
BSF-PB 3000 050 050	150	2175	2945	3760

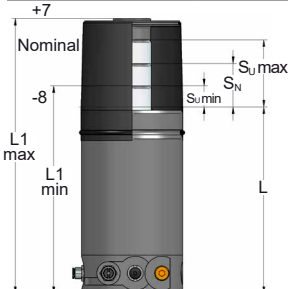
Only if using 100% useful stroke will ensure a maximum bounce back of 1mm. **WARNING:** should not be used 100% useful stroke, the bounce back will be higher than 1 mm.



N ₂	Use 100% of Useful Stroke	Vmax 0,5 m/s	bar psi	bar psi	°C °F	°C °F	°C °F	Consult
			20 290	150 2175	0 32	80 176		



ORDER	NOMINAL STROKE S _N (mm)	USEFUL STROKE S _U (mm)		L1 ±0.25 (mm)		L (mm)
		S _U min	S _U max	L1 min	L1 max	
BSF-PT 3000 010 XXX	10	4	17	156	169	142
BSF-PT 3000 020 XXX	20	12	27	174	189	152
BSF-PT 3000 030 XXX	30	22	37	194	209	162
BSF-PT 3000 040 XXX	40	32	47	214	229	172
BSF-PT 3000 050 XXX	50	42	57	234	249	182
BSF-PT 3000 060 XXX	60	52	67	254	269	192
BSF-PT 3000 070 XXX	70	62	77	274	289	202
BSF-PT 3000 080 XXX	80	72	87	294	309	212
BSF-PT 3000 090 XXX	90	82	97	314	329	222
BSF-PT 3000 100 XXX	100	92	107	334	349	232
BSF-PT 3000 110 XXX	110	102	117	354	369	242
BSF-PT 3000 120 XXX	120	112	127	374	389	252
BSF-PT 3000 130 XXX	130	122	137	394	409	262
BSF-PT 3000 140 XXX	140	132	147	414	429	272
BSF-PT 3000 150 XXX	150	142	157	434	449	282
BSF-PT 3000 160 XXX	160	152	167	454	469	292



For a given nominal stroke (S_N) (eg 050 mm) it is possible to select a useful stroke (S_U) for example 45 mm within the range ($S_U \min$) 42 mm and ($S_U \max$) 57 mm.

Example: BSF 1500 050 045

The selection of the working stroke within the minimum and maximum range can be done of a millimeter to a millimeter.

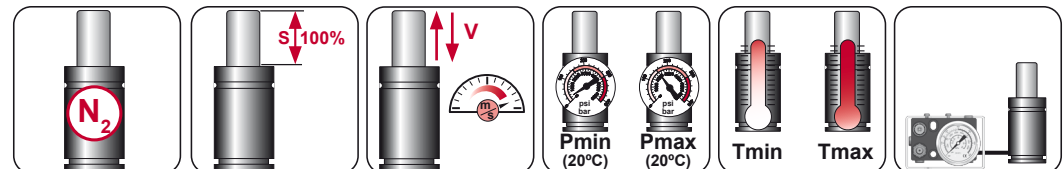
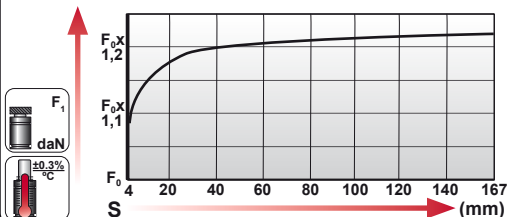
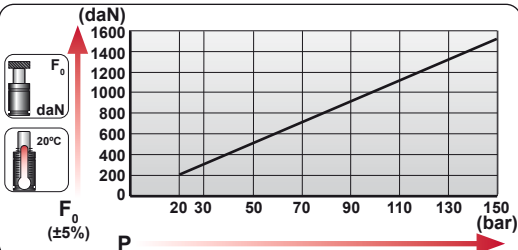
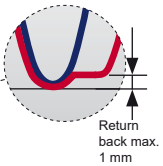
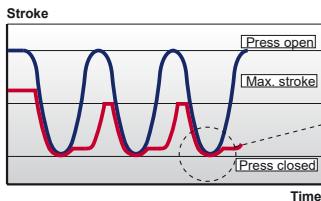
Never over-stroke > 100% useful stroke, it would cause damages to the gas spring and serious risks.

CODE				
	bar	psi	daN	daN
BSF-PT 3000 050 050	150	2175	2945	3760

Only if using 100% useful stroke will ensure a maximum bounce back of 1mm. **WARNING:** should not be used 100% useful stroke, the bounce back will be higher than 1 mm.



WARNING!

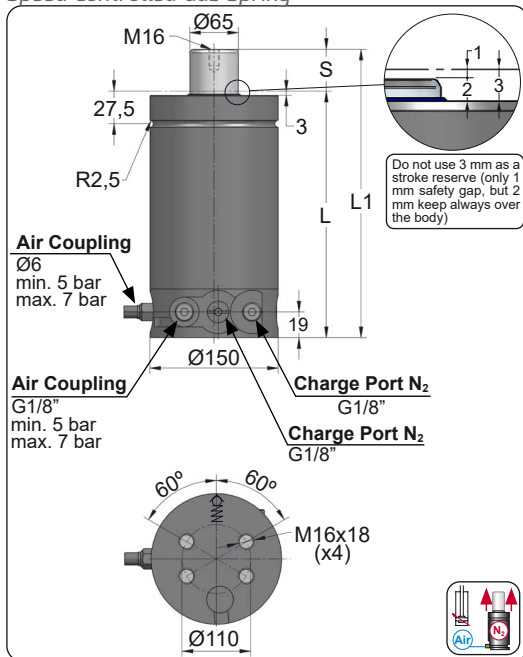


N ₂	Use 100% of Useful Stroke	Vmax 0,5 m/s	bar psi	bar psi	°C °F	°C °F	°C °F	Consult
			20 290	150 2175	0 32	80 176		

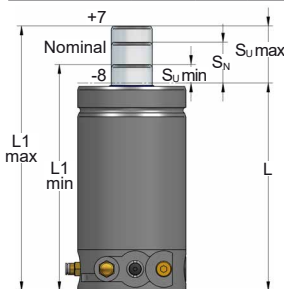
BSF 5000

Speed Controlled Gas Spring

AZOL
GAS



ORDER	NOMINAL STROKE S_N (mm)	USEFUL STROKE S_U (mm)		$L1 \pm 0.25$ (mm)		L (mm)
		S_U min	S_U max	$L1$ min	$L1$ max	
BSF 5000 010 XXX	10	4	17	181	194	177
BSF 5000 020 XXX	20	12	27	199	214	187
BSF 5000 030 XXX	30	22	37	219	234	197
BSF 5000 040 XXX	40	32	47	239	254	207
BSF 5000 050 XXX	50	42	57	259	274	217
BSF 5000 060 XXX	60	52	67	279	294	227
BSF 5000 070 XXX	70	62	77	299	314	237
BSF 5000 080 XXX	80	72	87	319	334	247
BSF 5000 090 XXX	90	82	97	339	354	257
BSF 5000 100 XXX	100	92	107	359	374	267
BSF 5000 110 XXX	110	102	117	379	394	277
BSF 5000 120 XXX	120	112	127	399	414	287
BSF 5000 130 XXX	130	122	137	419	434	297
BSF 5000 140 XXX	140	132	147	439	454	307
BSF 5000 150 XXX	150	142	157	459	474	317
BSF 5000 160 XXX	160	152	167	479	494	327



For a given nominal stroke (S_N) (eg 050 mm) it is possible to select a useful stroke (S_U) for example 45 mm within the range (S_U min) 42 mm and (S_U max) 57 mm.

Example: BSF 1500 050 045

The selection of the working stroke within the minimum and maximum range can be done of a millimeter to a millimeter.

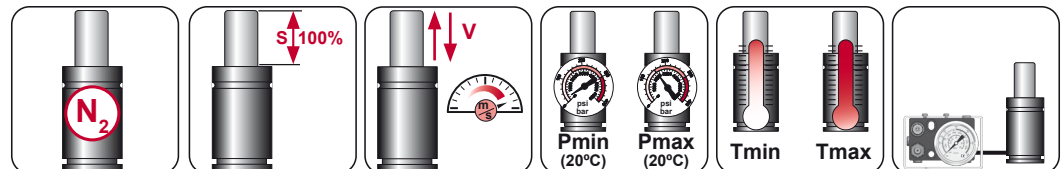
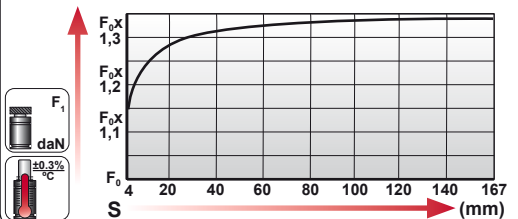
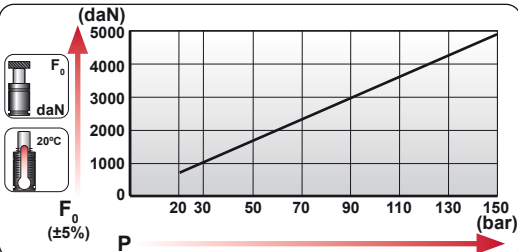
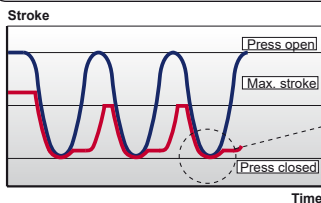
Never over-stroke > 100% useful stroke, it would cause damages to the gas spring and serious risks.

CODE			F_0	F_1
	bar	psi	daN	daN
BSF 5000 050 050	150	2175	4980	6565

Only if using 100% useful stroke will ensure a maximum bounce back of 1mm. WARNING: should not be used 100% useful stroke, the bounce back will be higher than 1 mm.



WARNING!



N_2	Use 100% of Useful Stroke	V_{max} 0,5 m/s	bar psi	bar psi	°C	°F	°C	°F	Consult
			20 290	150 2175	0	32	80	176	

REQUIRED DATA



- Application need gas springs with lockable piston rod? (yes / no).....



- Is a max. 1 mm gas spring back acceptable? (yes /no).....



- Initial Force (daN).....



- Nominal Stroke (mm).....



- Useful Stroke (mm).....



- Number of cycles per minute.....

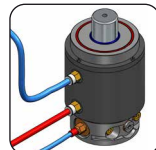
- Die manufacturer.....

- Stamping plant.....

MAXIMUM WORKING FREQUENCY AND COOLING

The energy provided by the press to the gas spring to compress it in every press cycle is greater than the energy used by the gas spring to return to its extended position, after locked down. The difference in energy (transmitted from press and used from gas spring) is transformed into heat inside the gas spring. Consequently, to avoid overheating in Speed Controlled gas springs, heat generation must be either limited (SPM strokes per minute) or dissipated (TRL cooling systems).

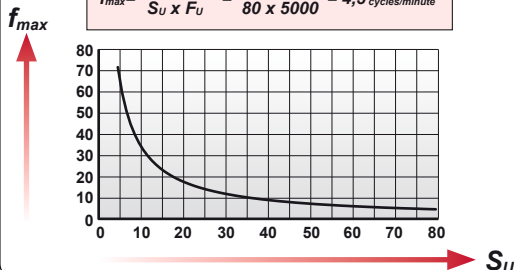
NOMINAL FORCE (daN)	MAXIMUM WORKING FREQUENCY (f_{max})	
	WITHOUT REFRIGERATION	WITH REFRIGERATION
5000	$f_{max} = \frac{1800000}{S_U \times F_U}$	$f_{max} = \frac{3100000}{S_U \times F_U}$



EXAMPLE:

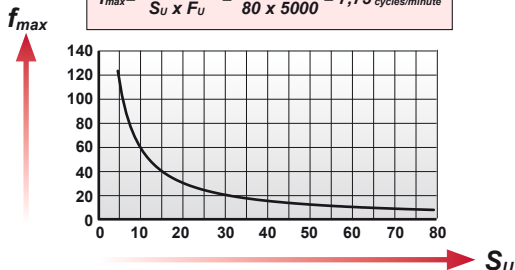
BSF 5000 080 at 5000 daN, without refrigeration

$$f_{max} = \frac{1800000}{S_U \times F_U} = \frac{1800000}{80 \times 5000} = 4,5 \text{ cycles/minute}$$



BSF 5000 080 at 5000 daN, with refrigeration

$$f_{max} = \frac{3100000}{S_U \times F_U} = \frac{3100000}{80 \times 5000} = 7,75 \text{ cycles/minute}$$



How to Order:

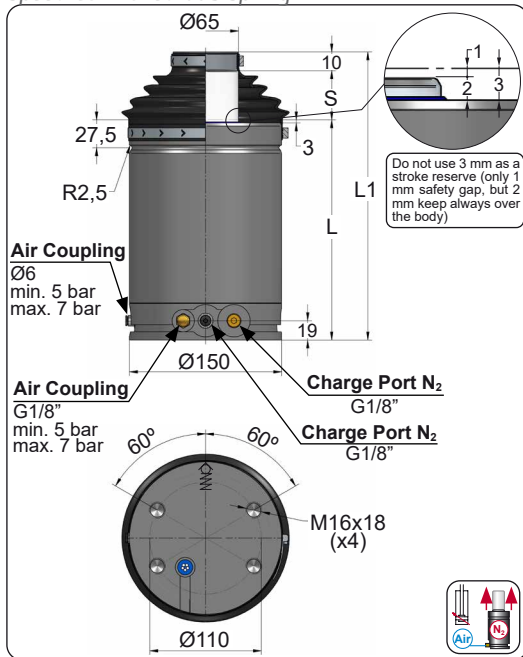
BSF 5000 050 045

Useful Stroke
Nominal Stroke

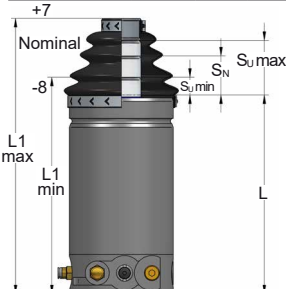
BSF-PB 5000

Speed Controlled Gas Spring

AZOL
GAS



ORDER	NOMINAL STROKE S _N (mm)	USEFUL STROKE S _U (mm)		L1 ±0.25 (mm)		L (mm)
		S _U min	S _U max	L1 min	L1 max	
BSF-PB 5000 010 XXX	10	4	17	181	194	167
BSF-PB 5000 020 XXX	20	12	27	199	214	177
BSF-PB 5000 030 XXX	30	22	37	219	234	187
BSF-PB 5000 040 XXX	40	32	47	239	254	197
BSF-PB 5000 050 XXX	50	42	57	259	274	207
BSF-PB 5000 060 XXX	60	52	67	279	294	217
BSF-PB 5000 070 XXX	70	62	77	299	314	227
BSF-PB 5000 080 XXX	80	72	87	319	334	237
BSF-PB 5000 090 XXX	90	82	97	339	354	247
BSF-PB 5000 100 XXX	100	92	107	359	374	257
BSF-PB 5000 110 XXX	110	102	117	379	394	267
BSF-PB 5000 120 XXX	120	112	127	399	414	277
BSF-PB 5000 130 XXX	130	122	137	419	434	287
BSF-PB 5000 140 XXX	140	132	147	439	454	297
BSF-PB 5000 150 XXX	150	142	157	459	474	307
BSF-PB 5000 160 XXX	160	152	167	479	494	317



For a given nominal stroke (S_N) (eg 050 mm) it is possible to select a useful stroke (S_U) for example 45 mm within the range (S_U min) 42 mm and (S_U max) 57 mm.

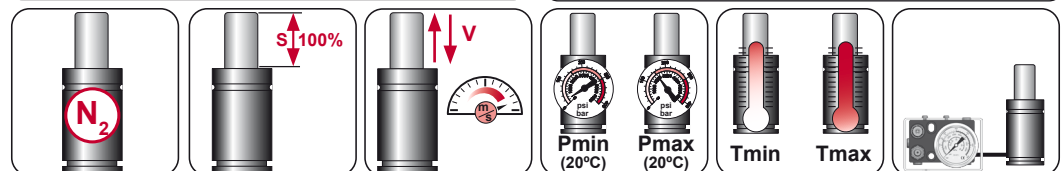
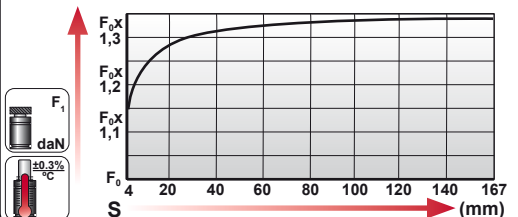
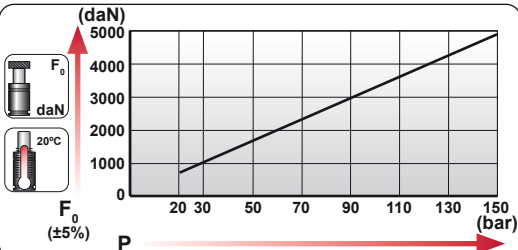
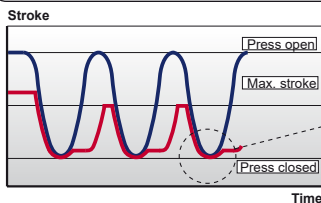
Example: BSF 1500 050 045

The selection of the working stroke within the minimum and maximum range can be done of a millimeter to a millimeter.

Never over-stroke > 100% useful stroke, it would cause damages to the gas spring and serious risks.

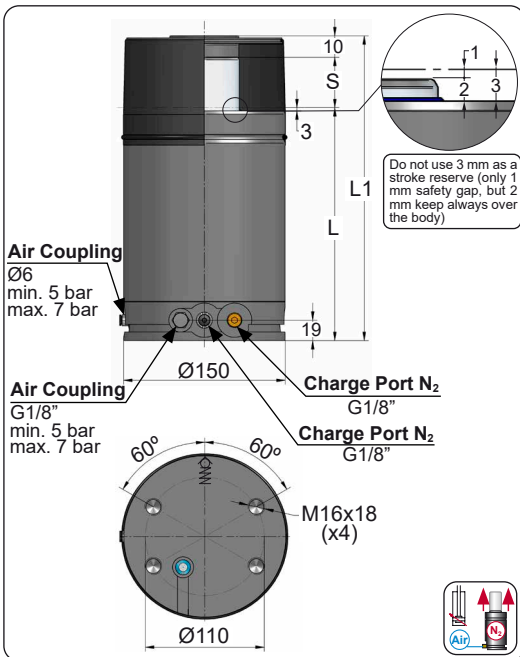
CODE				
	bar	psi		
BSF-PB 5000 050 050	150	2175	4980	6565

Only if using 100% useful stroke will ensure a maximum bounce back of 1mm. **WARNING:** should not be used 100% useful stroke, the bounce back will be higher than 1 mm.

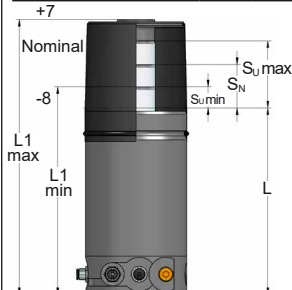


N ₂	Use 100% of Useful Stroke	Vmax 0,5 m/s	bar psi	bar psi	°C °F	°C °F	°C °F	Consult
			20 290	150 2175	0 32	80 176		

BSF-PT 5000



ORDER	NOMINAL STROKE S _N (mm)	USEFUL STROKE S _u (mm)		L1 ±0.25 (mm)		L (mm)
		S _u min	S _u max	L1 min	L1 max	
BSF-PT 5000 010 XXX	10	4	17	181	194	167
BSF-PT 5000 020 XXX	20	12	27	198	214	177
BSF-PT 5000 030 XXX	30	22	37	219	234	187
BSF-PT 5000 040 XXX	40	32	47	236	254	197
BSF-PT 5000 050 XXX	50	42	57	255	274	207
BSF-PT 5000 060 XXX	60	52	67	273	294	217
BSF-PT 5000 070 XXX	70	62	77	296	314	227
BSF-PT 5000 080 XXX	80	72	87	319	334	237
BSF-PT 5000 090 XXX	90	82	97	336	354	247
BSF-PT 5000 100 XXX	100	92	107	355	374	257
BSF-PT 5000 110 XXX	110	102	117	375	394	267
BSF-PT 5000 120 XXX	120	112	127	395	414	277
BSF-PT 5000 130 XXX	130	122	137	415	434	287
BSF-PT 5000 140 XXX	140	132	147	435	454	297
BSF-PT 5000 150 XXX	150	142	157	455	474	307
BSF-PT 5000 160 XXX	160	152	167	475	494	317



For a given nominal stroke (S_N) (eg 050 mm) it is possible to select a useful stroke (S_u) for example 45 mm within the range (S_u min) 42 mm and (S_u max) 57 mm.

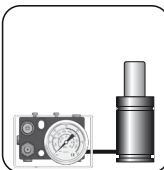
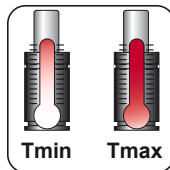
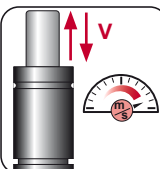
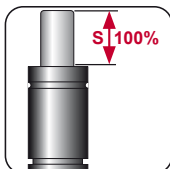
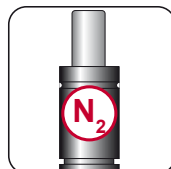
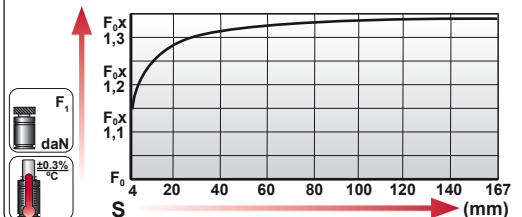
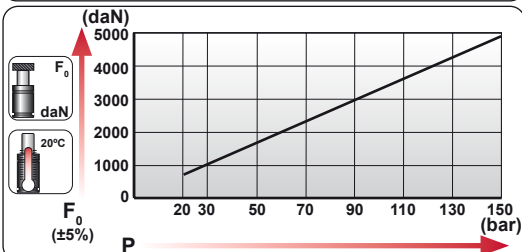
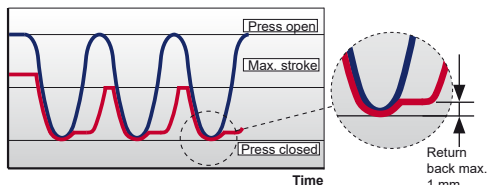
Example: BSF 1500 050 045

The selection of the working stroke within the minimum and maximum range can be done of a millimeter to a millimeter.

Never over-stroke > 100% useful stroke, it would cause damages to the gas spring and serious risks.

CODE				
	bar	psi	daN	daN
BSF-PT 5000 050 050	150	2175	4980	6565

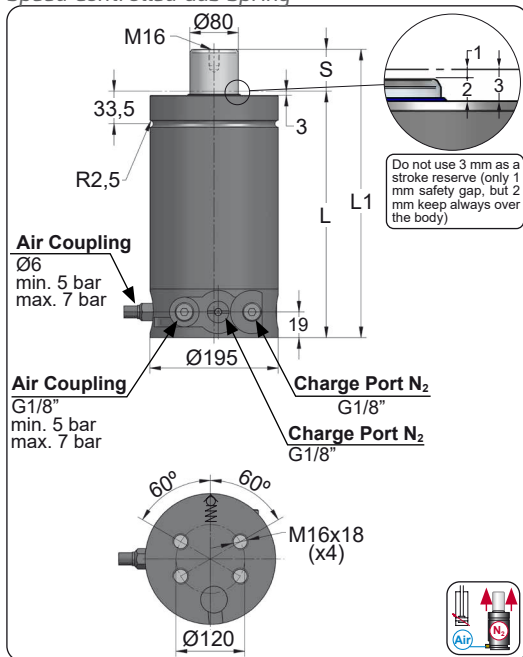
Only if using 100% useful stroke will ensure a maximum bounce back of 1mm. WARNING: should not be used 100% useful stroke, the bounce back will be higher than 1 mm.



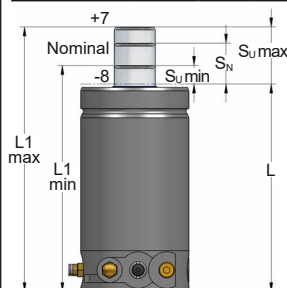
N ₂	Use 100% of Useful Stroke	Vmax 0,5 m/s	bar psi 20 290	bar psi 150 2175	°C °F 0 32	°C °F 80 176	Consult
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BSF 7500

Speed Controlled Gas Spring

AZOL
GAS


ORDER	NOMINAL STROKE S_N (mm)	USEFUL STROKE S_U (mm)		$L1 \pm 0.25$ (mm)		L (mm)
		$S_{U \min}$	$S_{U \max}$	$L1 \min$	$L1 \max$	
BSF 7500 010 XXX	10	4	17	201	214	197
BSF 7500 020 XXX	20	12	27	219	234	207
BSF 7500 030 XXX	30	22	37	239	254	217
BSF 7500 040 XXX	40	32	47	259	274	227
BSF 7500 050 XXX	50	42	57	279	294	237
BSF 7500 060 XXX	60	52	67	299	314	247
BSF 7500 070 XXX	70	62	77	319	334	257
BSF 7500 080 XXX	80	72	87	339	354	267
BSF 7500 090 XXX	90	82	97	359	374	277
BSF 7500 100 XXX	100	92	107	379	394	287
BSF 7500 110 XXX	110	102	117	399	414	297
BSF 7500 120 XXX	120	112	127	419	434	307
BSF 7500 130 XXX	130	122	137	439	454	317
BSF 7500 140 XXX	140	132	147	459	474	327
BSF 7500 150 XXX	150	142	157	479	494	337
BSF 7500 160 XXX	160	152	167	499	514	347



For a given nominal stroke (S_N) (eg 050 mm) it is possible to select a useful stroke (S_U) for example 45 mm within the range ($S_{U \min}$) 42 mm and ($S_{U \max}$) 57 mm.

Example: BSF 1500 050 045

The selection of the working stroke within the minimum and maximum range can be done of a millimeter to a millimeter.

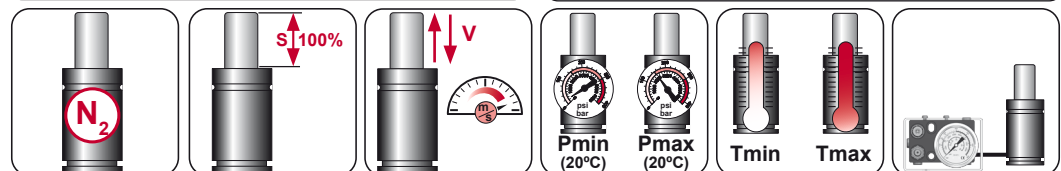
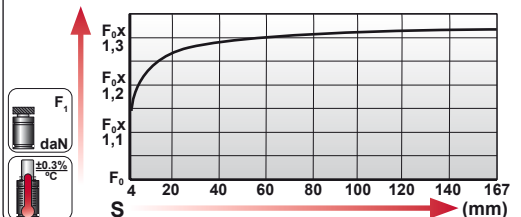
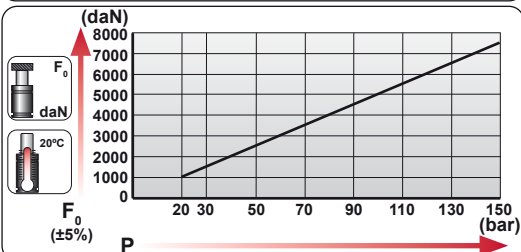
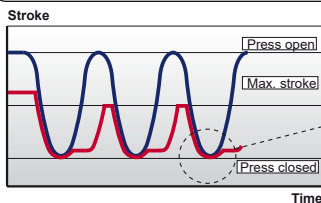
Never over-stroke > 100% useful stroke, it would cause damages to the gas spring and serious risks.

ORDER			F_0	F_1
	bar	psi	daN	daN
BSF 7500 050 050	150	2175	7540	9765

Only if using 100% useful stroke will ensure a maximum bounce back of 1mm. WARNING: should not be used 100% useful stroke, the bounce back will be higher than 1 mm.



WARNING!



N ₂	Use 100% of Useful Stroke	Vmax 0,5 m/s	bar psi	bar psi	°C °F	°C °F	°C °F	Consult
			20 290	150 2175	0 32	80 176		

REQUIRED DATA



- Application need gas springs with lockable piston rod? (yes / no).....



- Is a max. 1 mm gas spring back acceptable? (yes / no).....



- Initial Force (daN).....



- Nominal Stroke (mm).....



- Useful Stroke (mm).....



- Number of cycles per minute.....

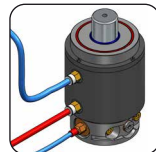
- Die manufacturer.....

- Stamping plant.....

MAXIMUM WORKING FREQUENCY AND COOLING

The energy provided by the press to the gas spring to compress it in every press cycle is greater than the energy used by the gas spring to return to its extended position, after locked down. The difference in energy (transmitted from press and used from gas spring) is transformed into heat inside the gas spring. Consequently, to avoid overheating in Speed Controlled gas springs, heat generation must be either limited (SPM strokes per minute) or dissipated (TRL cooling systems).

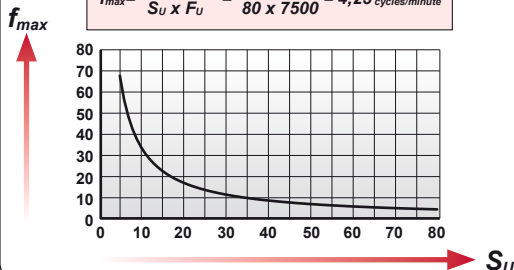
NOMINAL FORCE (daN)	MAXIMUM WORKING FREQUENCY (f_{max})	
	WITHOUT REFRIGERATION	WITH REFRIGERATION
7500	$f_{max} = \frac{2550000}{S_U \times F_U}$	$f_{max} = \frac{4300000}{S_U \times F_U}$



EXAMPLE:

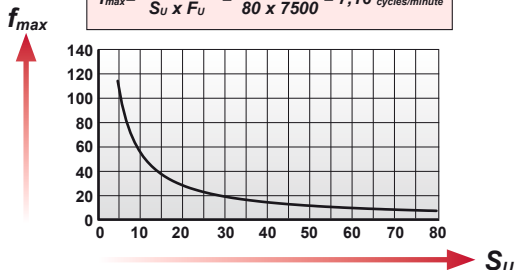
BSF 7500 080 at 7500 daN, without refrigeration

$$f_{max} = \frac{2550000}{S_U \times F_U} = \frac{2550000}{80 \times 7500} = 4,25 \text{ cycles/minute}$$



BSF 7500 080 at 7500 daN, with refrigeration

$$f_{max} = \frac{4300000}{S_U \times F_U} = \frac{4300000}{80 \times 7500} = 7,16 \text{ cycles/minute}$$



How to Order:

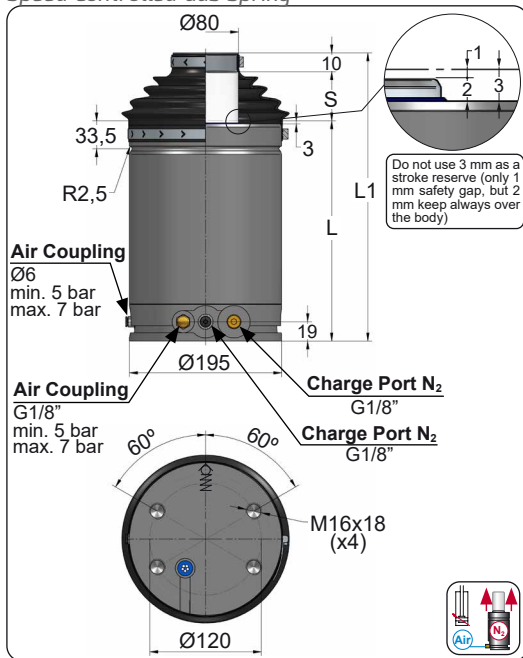
BSF 7500 050 045

Useful Stroke
Nominal Stroke

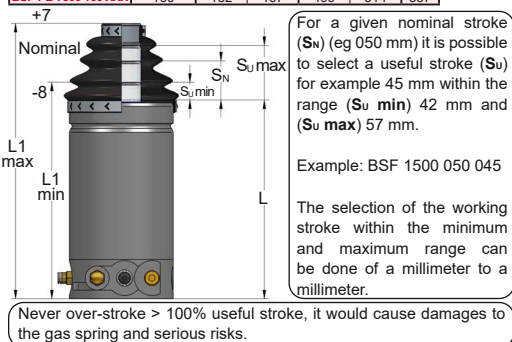
BSF-PB 7500

Speed Controlled Gas Spring

AZOL
GAS



ORDER	NOMINAL STROKE S_N (mm)	USEFUL STROKE S_U (mm)		$L1 \pm 0.25$ (mm)		L (mm)
		S_U min	S_U max	$L1$ min	$L1$ max	
BSF-PB 7500 010 XXX	10	4	17	201	214	187
BSF-PB 7500 020 XXX	20	12	27	219	234	197
BSF-PB 7500 030 XXX	30	22	37	239	254	207
BSF-PB 7500 040 XXX	40	32	47	259	274	217
BSF-PB 7500 050 XXX	50	42	57	279	294	227
BSF-PB 7500 060 XXX	60	52	67	299	314	237
BSF-PB 7500 070 XXX	70	62	77	319	334	247
BSF-PB 7500 080 XXX	80	72	87	339	354	257
BSF-PB 7500 090 XXX	90	82	97	359	374	267
BSF-PB 7500 100 XXX	100	92	107	379	394	277
BSF-PB 7500 110 XXX	110	102	117	399	414	287
BSF-PB 7500 120 XXX	120	112	127	419	434	297
BSF-PB 7500 130 XXX	130	122	137	439	454	307
BSF-PB 7500 140 XXX	140	132	147	459	474	317
BSF-PB 7500 150 XXX	150	142	157	479	494	327
BSF-PB 7500 160 XXX	160	152	167	499	514	337

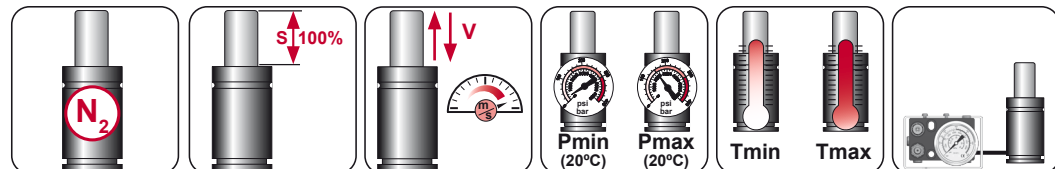
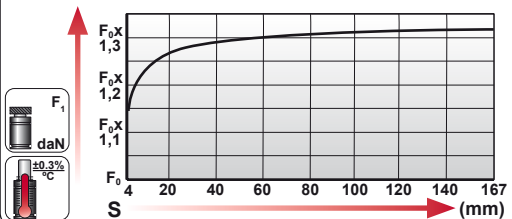
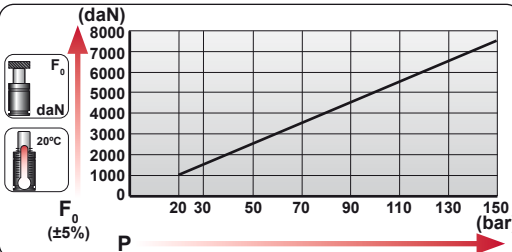
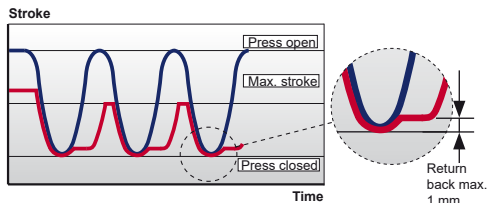


ORDER			F_0 	F_1
	bar	psi	daN	daN
BSF-PB 7500 050 050	150	2175	7540	9765

Only if using 100% useful stroke will ensure a maximum bounce back of 1mm. **WARNING:** should not be used 100% useful stroke, the bounce back will be higher than 1 mm.



WARNING!

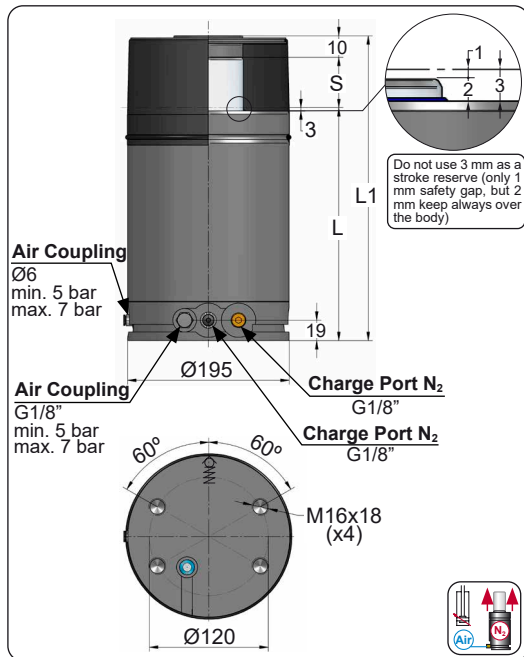


N_2	Use 100% of Useful Stroke	V_{max} 0,5 m/s	bar psi	bar psi	°C °F	°C °F	°C °F	Consult
			20 290	150 2175	0 32	80 176		

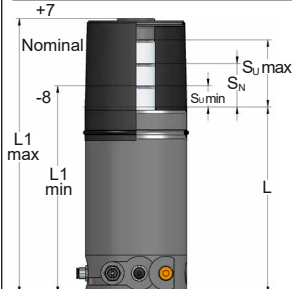
AZOL
GAS

BSF-PT 7500

Speed Controlled Gas Spring



ORDER	NOMINAL STROKE S_N (mm)	USEFUL STROKE S_U (mm)		$L1 \pm 0.25$ (mm)		L (mm)
		$S_{U \min}$	$S_{U \max}$	$L1 \min$	$L1 \max$	
BSF-PT 7500 010 XXX	10	4	17	201	214	187
BSF-PT 7500 020 XXX	20	12	27	219	234	197
BSF-PT 7500 030 XXX	30	22	37	239	254	207
BSF-PT 7500 040 XXX	40	32	47	259	274	217
BSF-PT 7500 050 XXX	50	42	57	279	294	227
BSF-PT 7500 060 XXX	60	52	67	299	314	237
BSF-PT 7500 070 XXX	70	62	77	319	334	247
BSF-PT 7500 080 XXX	80	72	87	339	354	257
BSF-PT 7500 090 XXX	90	82	97	359	374	267
BSF-PT 7500 100 XXX	100	92	107	379	394	277
BSF-PT 7500 110 XXX	110	102	117	399	414	287
BSF-PT 7500 120 XXX	120	112	127	419	434	297
BSF-PT 7500 130 XXX	130	122	137	439	454	307
BSF-PT 7500 140 XXX	140	132	147	459	474	317
BSF-PT 7500 150 XXX	150	142	157	479	494	327
BSF-PT 7500 160 XXX	160	152	167	499	514	337



For a given nominal stroke (S_N) (eg 050 mm) it is possible to select a useful stroke (S_U) for example 45 mm within the range ($S_{U \min}$) 42 mm and ($S_{U \max}$) 57 mm.

Example: BSF 1500 050 045

The selection of the working stroke within the minimum and maximum range can be done of a millimeter to a millimeter.

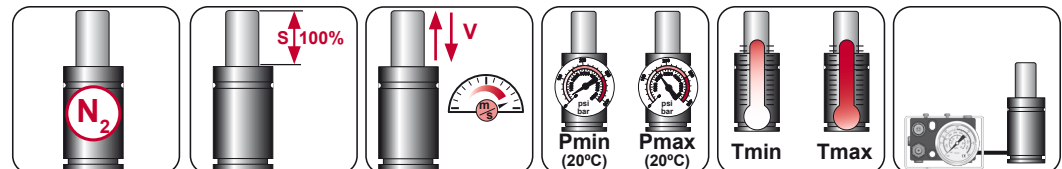
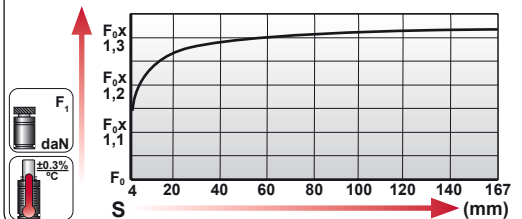
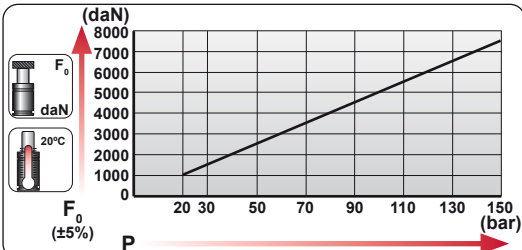
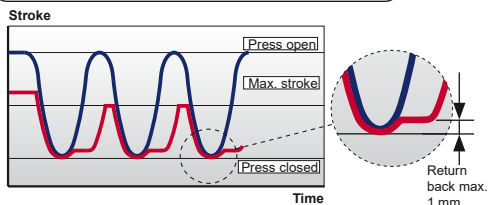
Never over-stroke > 100% useful stroke, it would cause damages to the gas spring and serious risks.

ORDER			F_0	F_1
	bar	psi	daN	daN
BSF-PT 7500 050 050	150	2175	7540	9765

Only if using 100% useful stroke will ensure a maximum bounce back of 1mm. **WARNING:** should not be used 100% useful stroke, the bounce back will be higher than 1 mm.

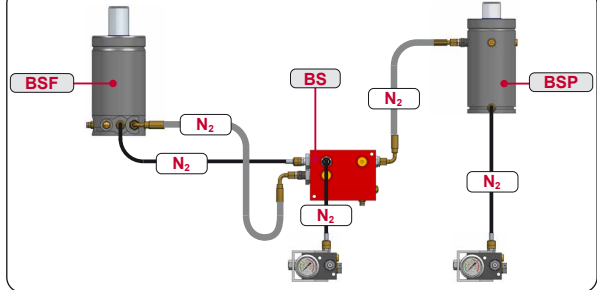
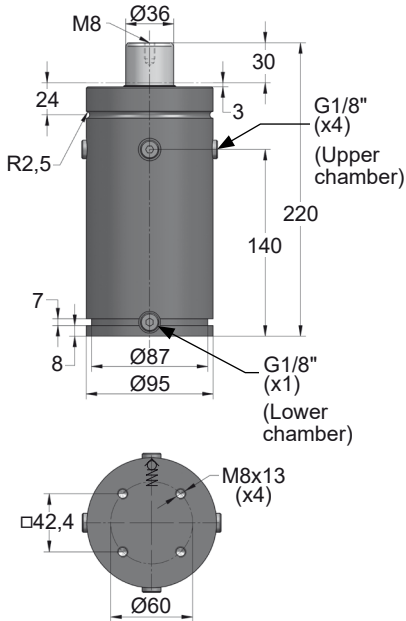


WARNING!

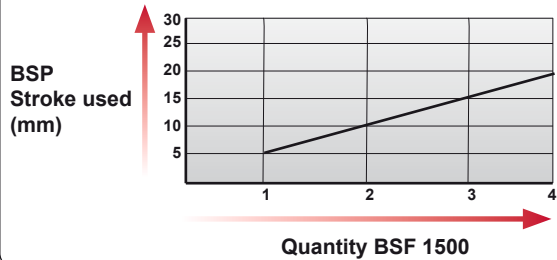


N_2	Use 100% of Useful Stroke	V_{max} 0,5 m/s	bar psi	bar psi	°C °F	°C °F	°C °F	Consult
			20 290	150 2175	0 32	80 176		

BSP 1500



The maximum quantity of BSF that can be connected to each BSP depends on the BSP stroke used.



CODE				
	bar	psi	daN	daN
BSP 1500 030	150	2175	1530	1840

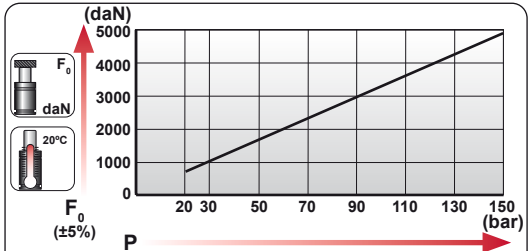
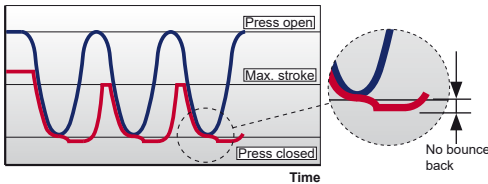
BSF bounce back effect can be eliminated by connecting BSF active gas spring to a BSP passive gas spring.

BSP passive must be compressed by the press-tool, but it cannot be used as a conventional gas spring into the operational area of the tool.

BSP passive does not require cooling system.



Stroke



Force in (daN) per stroke used (mm) at 150 bar

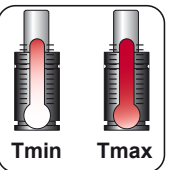
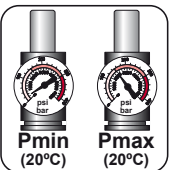
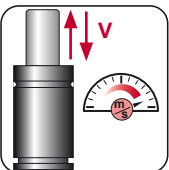
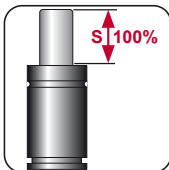
CODE	5 (mm)	10 (mm)	15 (mm)	20 (mm)	25 (mm)	30 (mm)	35 (mm)
BSP 1500	3600	5200	6700	8200	9900	11900	---

How to order:

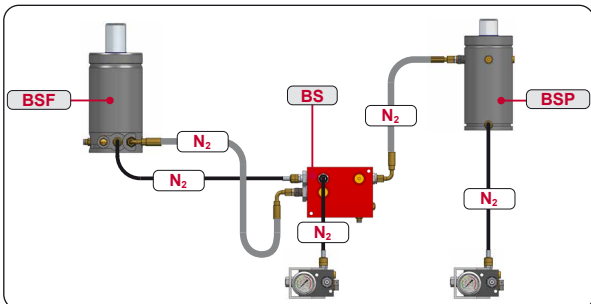
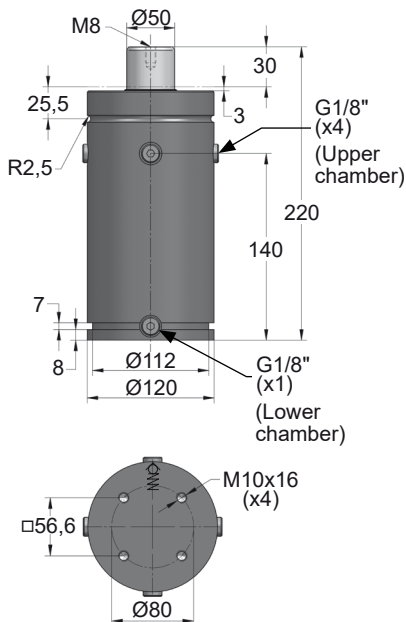
BSP 1500 030



Nominal Stroke
Force
Model BSF



N ₂	Vmax 0,5 m/s	bar psi	bar psi	°C °F	°C °F	°C °F	°C °F
		20 290	150 2175	0	32	80	176



The maximum quantity of BSF that can be connected to each BSP depends on the BSP stroke used.



CODE				
	bar	psi	daN	daN
BSP 3000 030	150	2175	2945	3760

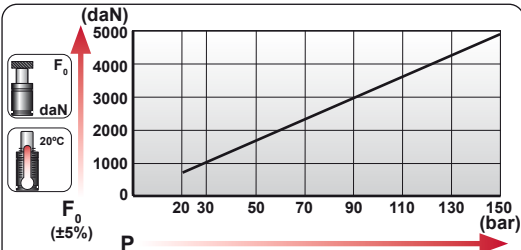
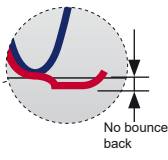
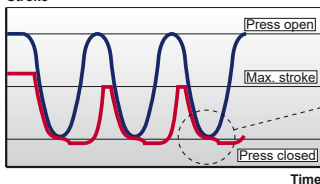
BSF bounce back effect can be eliminated by connecting BSF active gas spring to a BSP passive gas spring.

BSP passive must be compressed by the press-tool, but it cannot be used as a conventional gas spring into the operational area of the tool.

BSP passive does not require cooling system.



Stroke



Force in (daN) per stroke used (mm) at 150 bar

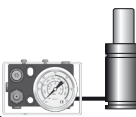
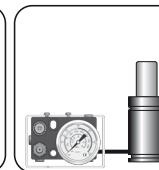
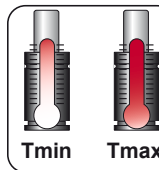
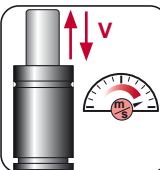
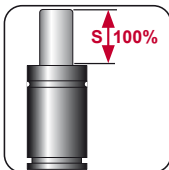
CODE	5 (mm)	10 (mm)	15 (mm)	20 (mm)	25 (mm)	30 (mm)	35 (mm)
BSP 3000	6000	8300	10400	12300	14400	16800	---

How to order:

BSP 3000 030

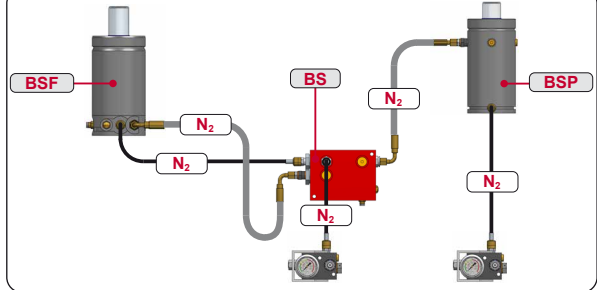
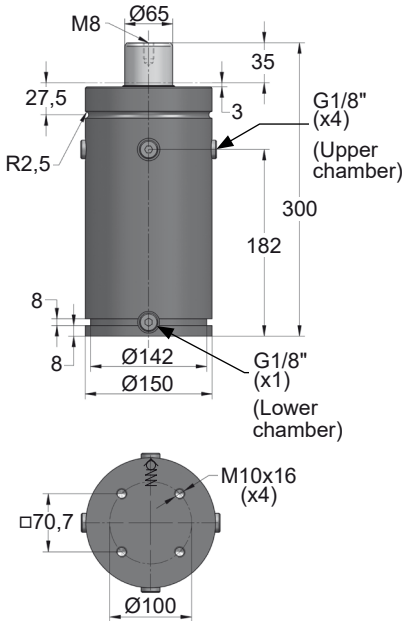


Nominal Stroke
Force
Model BSF

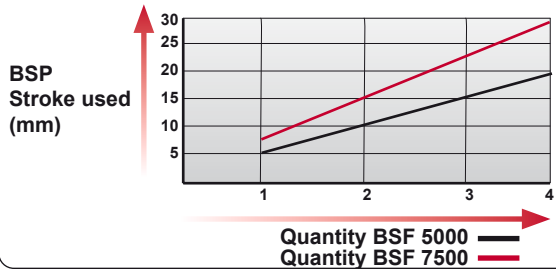


N ₂	Vmax 0,5 m/s	bar psi	bar psi	°C	°F	°C	°F
		20 290	150 2175	0	32	80	176

BSP 5000

**AZOL
GAS**


The maximum quantity of BSF that can be connected to each BSP depends on the BSP stroke used.



CODE				
	bar	psi	daN	daN
BSP 5000 035	150	2175	4980	6565

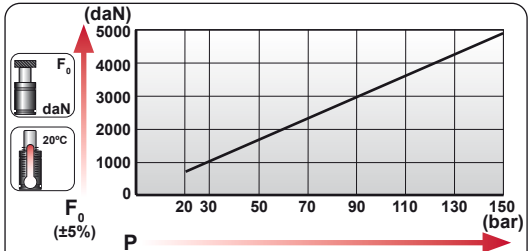
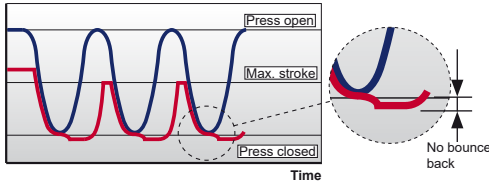
BSF bounce back effect can be eliminated by connecting BSF active gas spring to a BSP passive gas spring.

BSF passive must be compressed by the press-tool, but it cannot be used as a conventional gas spring into the operational area of the tool.

BSF passive does not require cooling system.

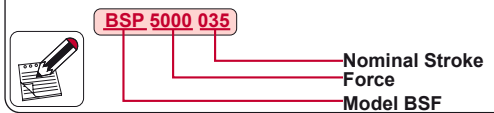


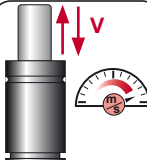
Stroke



Force in (daN) per stroke used (mm) at 150 bar							
CODE	5 (mm)	10 (mm)	15 (mm)	20 (mm)	25 (mm)	30 (mm)	35 (mm)
BSP 5000	7800	10200	12500	14700	16800	19000	21300

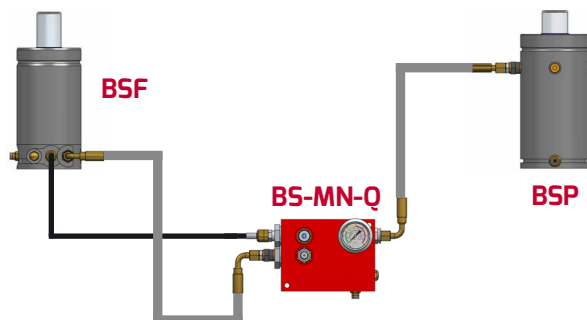
How to order:



							
N ₂	Use 100% of Useful Stroke	Vmax 0,5 m/s	bar psi 20 290	bar psi 150 2175	°C °F 0 32	°C °F 80 176	Consult

The system without bounce back is made of the following parts:

- Active gas spring (BSF or BSF-TRL)
- Passive gas spring (BSP)
- Controller (BS-MN-Q or BS-SKK)

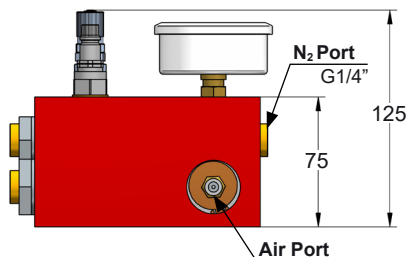
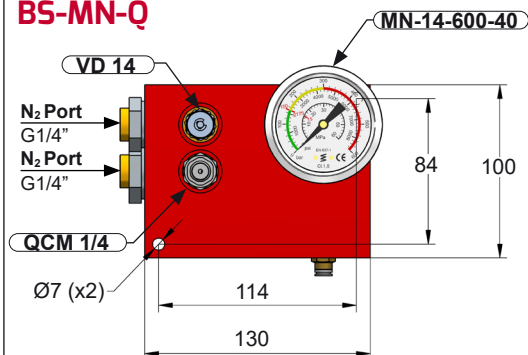


BSF is the active gas spring providing the required force in the tool.

BSP is the passive gas spring used to prevent the bounce back of BSF active gas spring.

The system works by connecting the active gas spring BSF (lower chamber) to a passive gas spring BSP (upper chamber) through a controller BS.

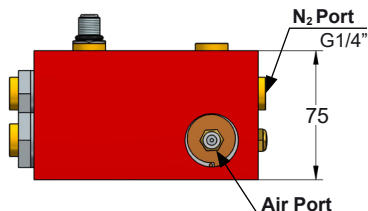
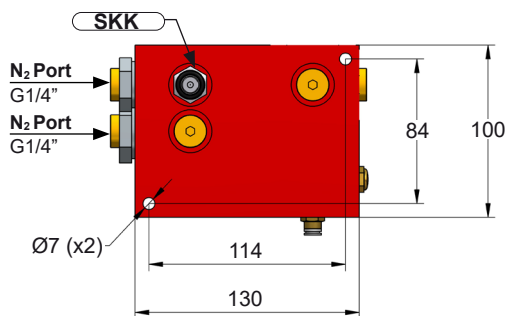
BS-MN-Q



BS-MN-Q: controller used to charge, drain and verify the pressure in the system.

Suited for tools with visual access to the controller.

BS-SKK

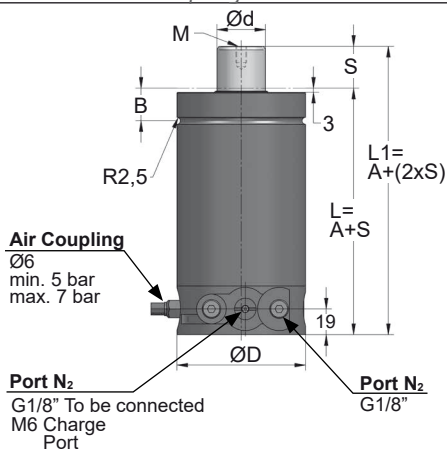
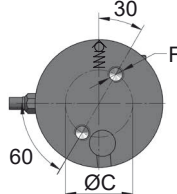
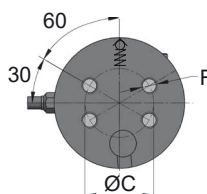


BS-SKK: the control of pressure is made through a control panel connected to the BS controller fitting.

Suited for tools without visual access to the controller.

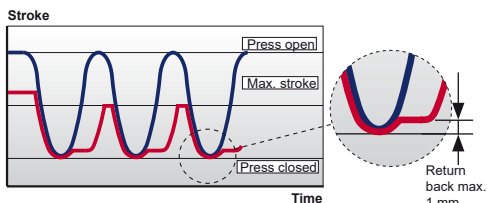
BSV

Speed Controlled Gas Spring

**AZOL
GAS****BSV 1500****BSV 3000
BSV 5000
BSV 7500**

ORDER	STROKE S (mm)	A (mm)	B (mm)	C (mm)	ØD (mm)	Ød (mm)	F	M
BSV 1500	10-160	125	24	50	95	36	M12x15 (x2)	M8
BSV 3000	10-160	135	25,5	95	120	50	M12x15 (x4)	M8
BSV 5000	10-160	160	27,5	110	150	65	M16x18 (x4)	M16
BSV 7500	10-160	180	33,5	120	195	80	M16x18 (x4)	M16

Only if using 100% useful stroke will ensure a maximum bounce back of 1mm.
WARNING: should not be used 100% useful stroke, the bounce back will be higher than 1 mm.

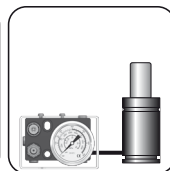
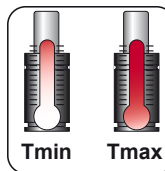
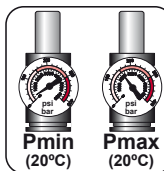
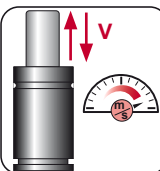
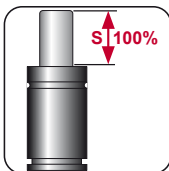


CODE				
	bar	psi	daN	daN
BSV 1500 050	150	2175	1530	1840
BSV 3000 050	150	2175	2945	3760
BSV 5000 050	150	2175	4980	6565
BSV 7500 050	150	2175	7540	9765

**How to Order:****BSV 1500 050**

**Stroke (10-160mm)
in increments of 1mm**

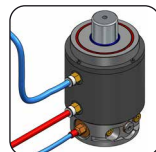
Force (1500-3000-5000-7500)



N₂	Use 100% of Useful Stroke	Vmax 0,5 m/s	bar psi 20 290	bar psi 150 2175	°C °F 0 32	°C °F 80 176	Consult
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MAXIMUM WORKING FREQUENCY AND COOLING

The energy provided by the press to the gas spring to compress it in every press cycle is greater than the energy used by the gas spring to return to its extended position, after locked down. The difference in energy (transmitted from press and used from gas spring) is transformed into heat inside the gas spring. Consequently, to avoid overheating in Speed Controlled gas springs, heat generation must be either limited (SPM strokes per minute) or dissipated (TRL cooling systems).



NOMINAL FORCE (daN)	MAXIMUM WORKING FREQUENCY (f_{max})	
	WITHOUT REFRIGERATION	WITH REFRIGERATION
1500	$f_{max} = \frac{600000}{S \times F_U}$	$f_{max} = \frac{1000000}{S \times F_U}$

NOMINAL FORCE (daN)	MAXIMUM WORKING FREQUENCY (f_{max})	
	WITHOUT REFRIGERATION	WITH REFRIGERATION
3000	$f_{max} = \frac{1140000}{S \times F_U}$	$f_{max} = \frac{2000000}{S \times F_U}$

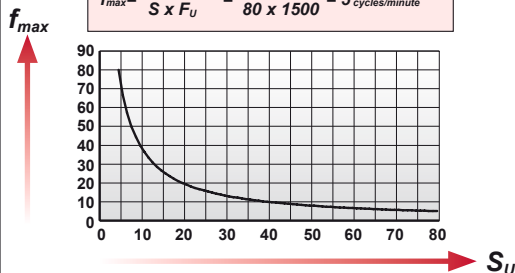
NOMINAL FORCE (daN)	MAXIMUM WORKING FREQUENCY (f_{max})	
	WITHOUT REFRIGERATION	WITH REFRIGERATION
5000	$f_{max} = \frac{1800000}{S \times F_U}$	$f_{max} = \frac{3100000}{S \times F_U}$

NOMINAL FORCE (daN)	MAXIMUM WORKING FREQUENCY (f_{max})	
	WITHOUT REFRIGERATION	WITH REFRIGERATION
7500	$f_{max} = \frac{2550000}{S \times F_U}$	$f_{max} = \frac{4300000}{S \times F_U}$

EXAMPLE:

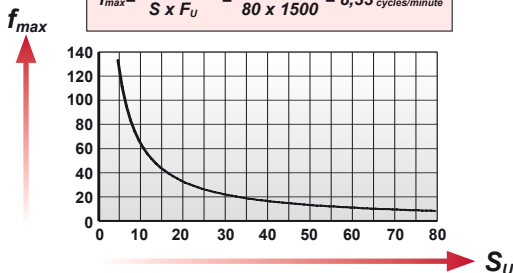
BSV 1500 080 at 1500 daN, without refrigeration

$$f_{max} = \frac{600000}{S \times F_U} = \frac{600000}{80 \times 1500} = 5 \text{ cycles/minute}$$



BSV 1500 080 at 1500 daN, with refrigeration

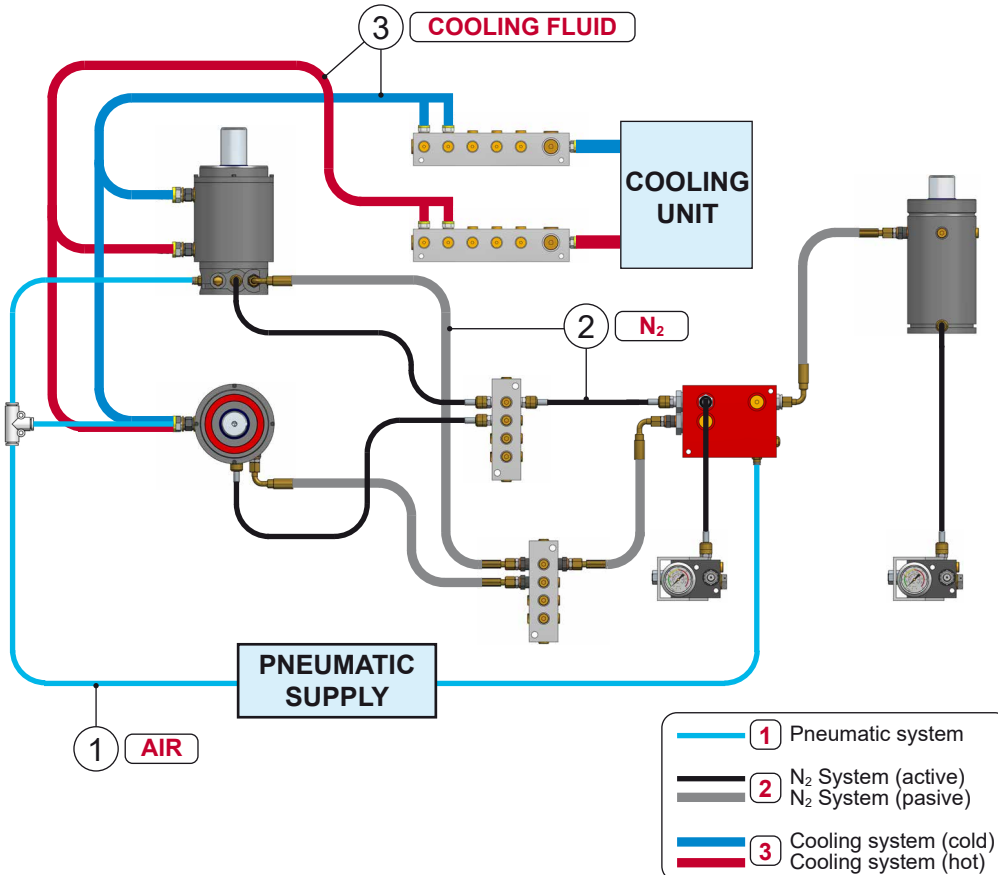
$$f_{max} = \frac{1000000}{S \times F_U} = \frac{1000000}{80 \times 1500} = 8,33 \text{ cycles/minute}$$



ACCESSORIES

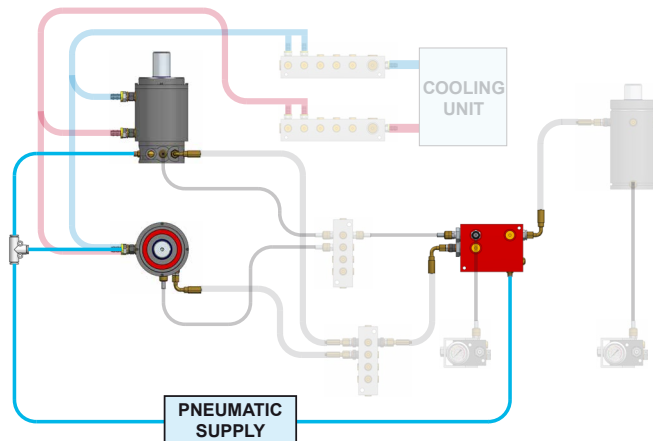


EXAMPLE OF CONTROLLED GAS SPRINGS SYSTEMS



	TYPE OF SYSTEM	MEDIUM	OPTION / OBLIGATORY	FUNCTION
1	Pneumatic Control System	AIR	Obligatory use	Used to lock and unlock BSF piston rod
2	N ₂ Hosed System	N ₂	Optional use	Used to connect into a circuit all the BSF (same N ₂ pressure)
3	Cooling System	Cooling Fluid	Optional use	Used to refrigerate BSF controlled gas springs

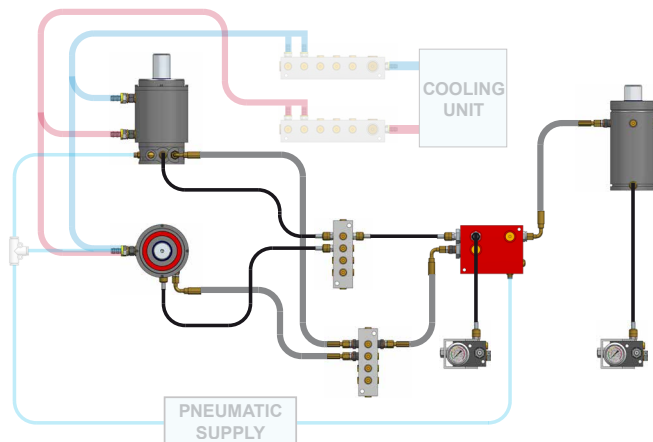
1 PNEUMATIC CONTROL SYSTEM



Used to lock and unlock
BSF piston rod.

Used also to connect
BSF active gas spring to
BSP passive gas spring
through BS- controller.

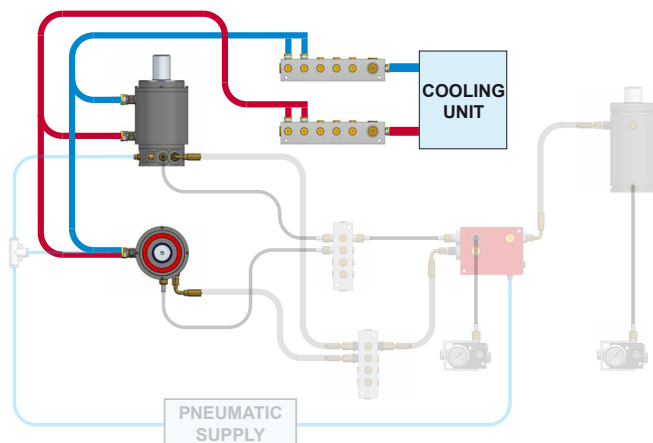
2 N₂ HOSED SYSTEM



Used to connect into a circuit
all the BSF (same N_2 pressure)

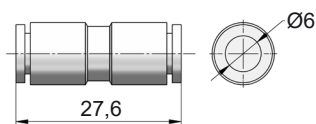
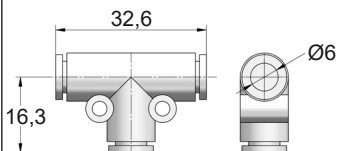
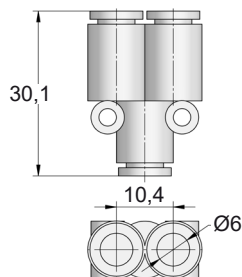
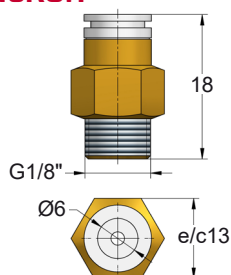
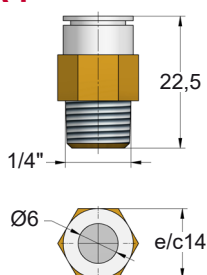
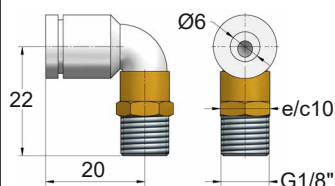
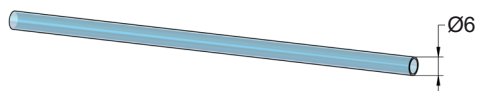
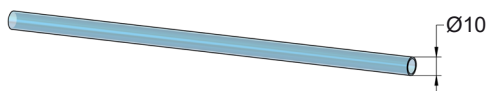
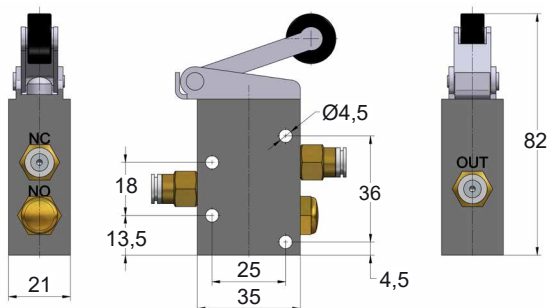
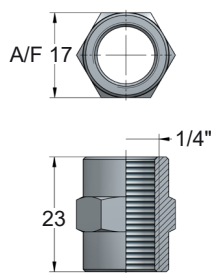
Used also to connect BSF active gas spring to BSP passive gas spring (prevent bounce back 1 mm)

3 COOLING SYSTEM



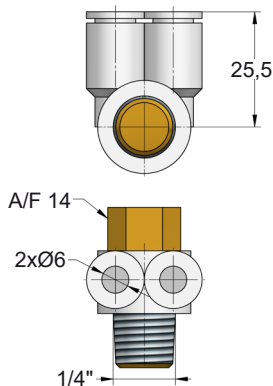
Used to refrigerate BSF active gas springs

PNEUMATIC ACCESSORIES

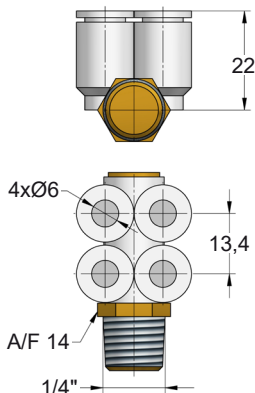
N6R6**N6T6****N6Y6****N6R8.1****N6R4****N6L8****GFN 06****GFN 10****IBS****4RHT4**

PNEUMATIC ACCESSORIES

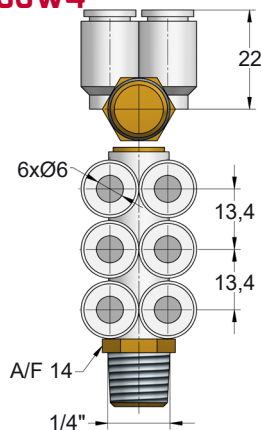
N62W4



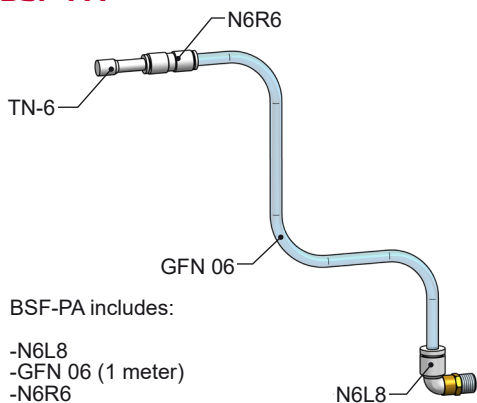
N64W4



N66W4



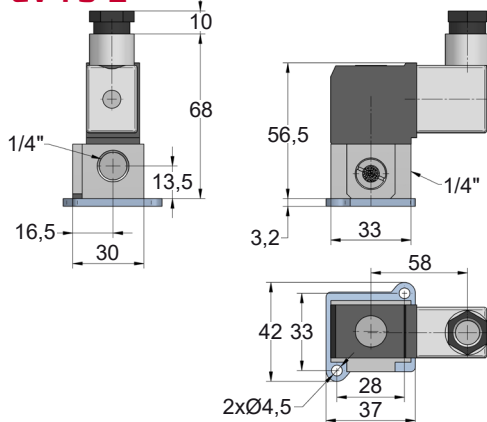
BSF-PA



BSF-PA includes:

- N6L8
- GFN 06 (1 meter)
- N6R6
- TN-6

EV4 3-2



EV4 3-2 -W

The electrovalve assembly includes:

- EV4 3-2
- N10L4
- N10R4
- N6_W4 (Indicate the number of ways)

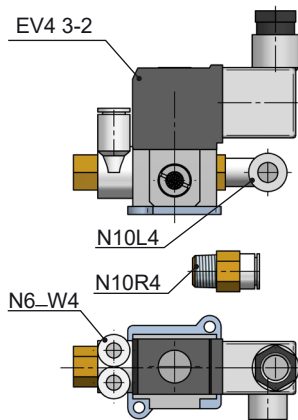
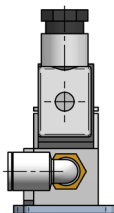
The electrovalve EV4 3-2-W is able to control up to 6 BSF gas springs, or up to 1 active+passive system (BSF + BSP).

HOW TO ORDER



EV4 3-2_W

Nº of ways (2,4,6)



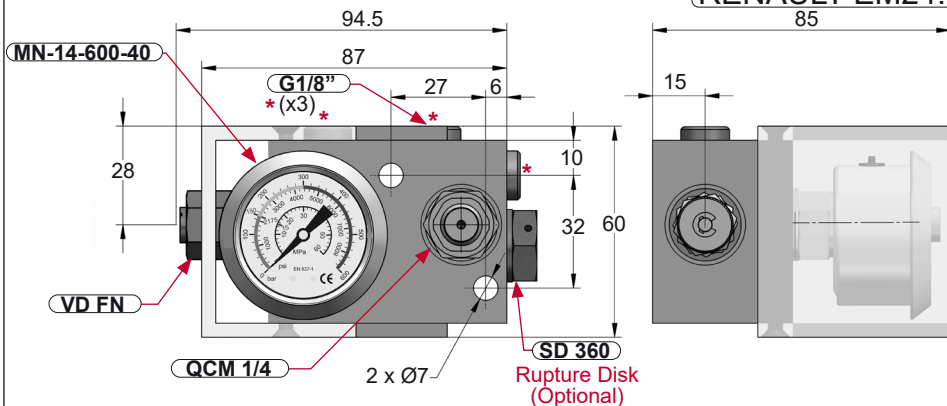
N₂ ACCESSORIES

**AZOL
GAS**

600-CPGM _ _ V1

GM 90.25

RENAULT EM24.54.700



MN-14-600-40

 bar psi
 600 8000


SD 360

 bar psi
 360 5220

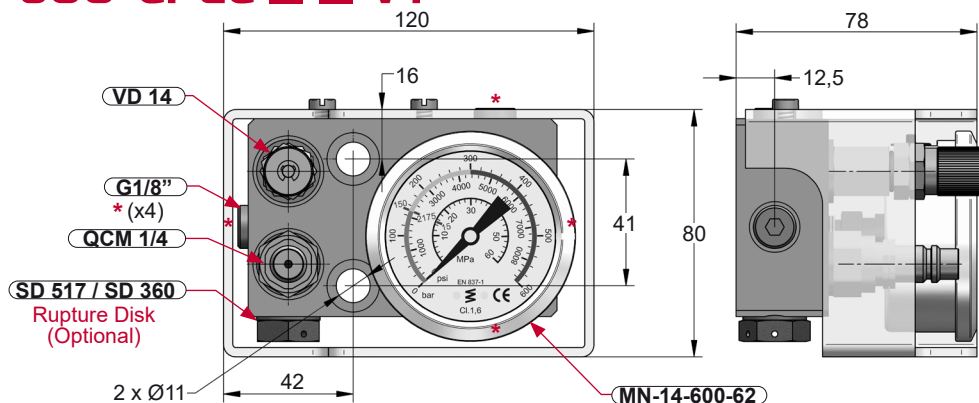
 ENG ORDER
 DEU BESTELL
 FRA COMMANDE
 ITA ORDINE
 ESP PEDIDO
 POR PEDIDO
~~SD 360~~

SD 360

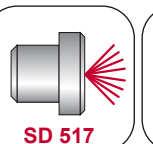
600-CPGM 03 V1

600-CPGM 04 V1

600-CPLC _ _ V1



MN-14-600-62

 bar psi
 600 8000


SD 517

 bar psi
 517 7500


SD 360

 bar psi
 360 5220

 ENG ORDER
 DEU BESTELL
 FRA COMMANDE
 ITA ORDINE
 ESP PEDIDO
 POR PEDIDO
~~SD~~

SD 517

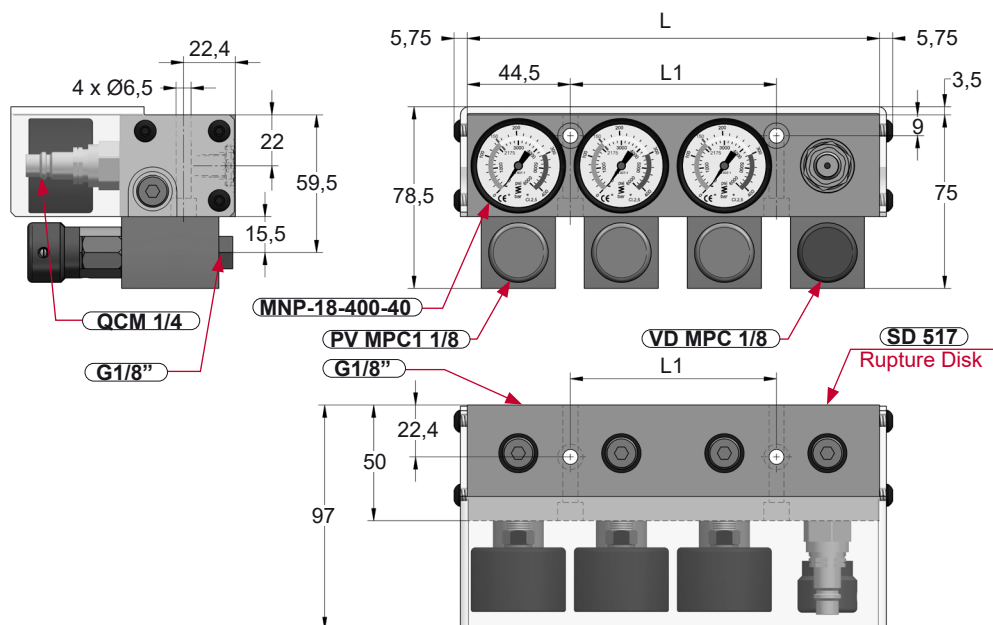


SD 360

600-CPLC 01 V1

600-CPLC 02 V1

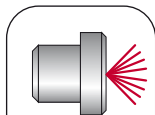
600-CPLC 03 V1

400-CPFG _ 02

ORDER	Qty. testing units	L (mm)	L1 (mm)
400-CPFG2 02	2	133.5	44.5
400-CPFG3 02	3	178	89
400-CPFG4 02	4	222.5	133.5
400-CPFG5 02	5	267	178
400-CPFG6 02	6	311.5	222.5
400-CPFG8 02	8	400.5	311.5
400-CPFG10 02	10	489.5	400.5

**MNP-18-400-40**

bar psi
400 6000

**SD 517**

bar psi
517 7500



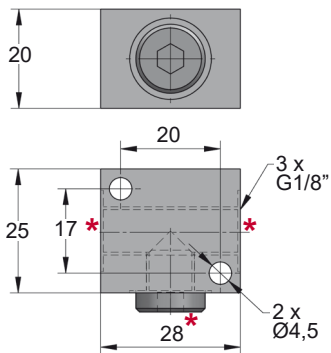
ENG ORDER
DEU BESTELL
FRA COMMANDE
ITA ORDINE
ESP PEDIDO
POR PEDIDO

**SD 517****SD 517****400-CPFG2 02**

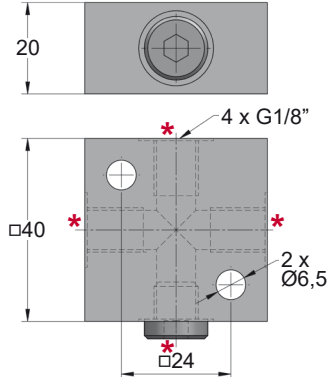
N₂ ACCESSORIES

**AZOL
GAS**

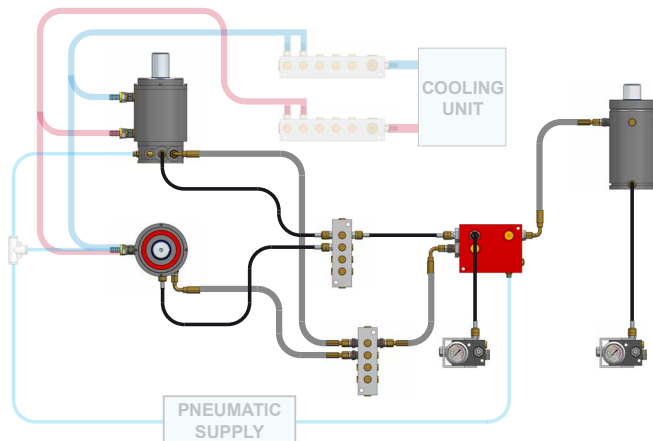
PLD 2

3 Ports
*** G1/8"**


PLF 2

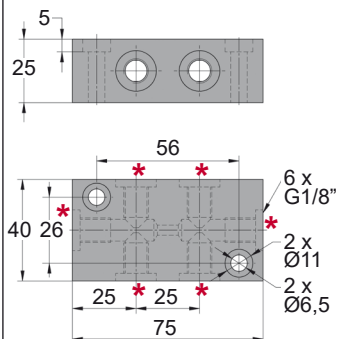
4 Ports
*** G1/8"**


N₂ HOSED SYSTEM

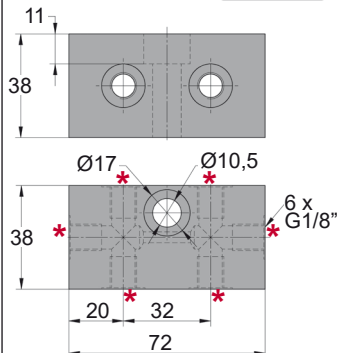


Used to connect BSF active gas spring to BSP passive gas spring.

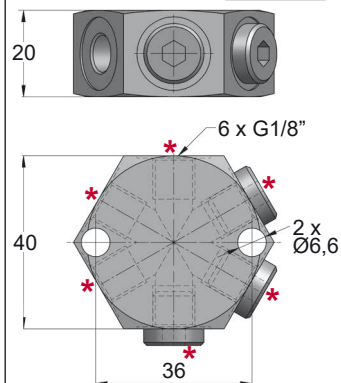
PLF 4

6 Ports
*** G1/8"**


PLD 4

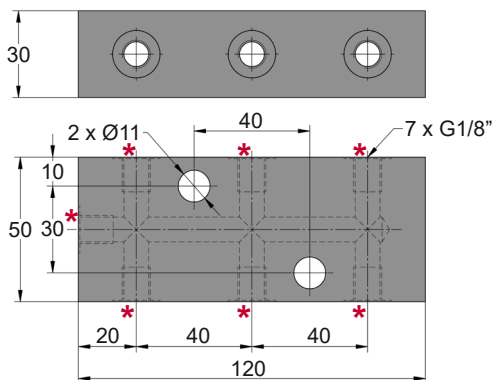
6 Ports
*** G1/8"**


PLH 1/8

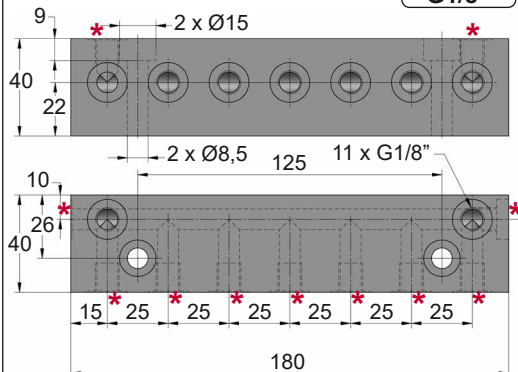
6 Ports
*** G1/8"**


N₂ ACCESSORIES

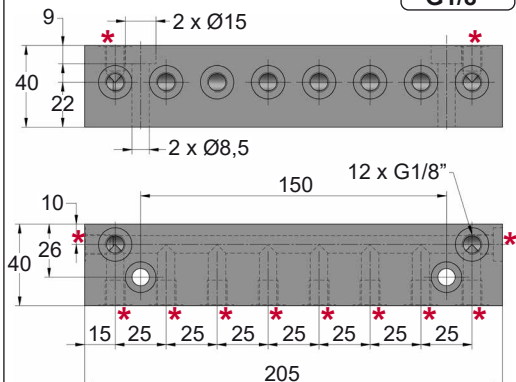
PLD 6

7 Ports
*** G1/8"**


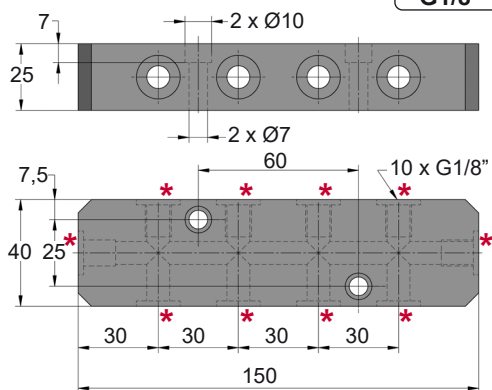
PLD 7

11 Ports
*** G1/8"**


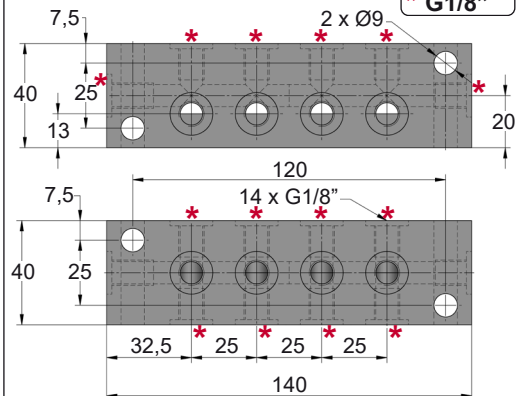
PLD 8

12 Ports
*** G1/8"**


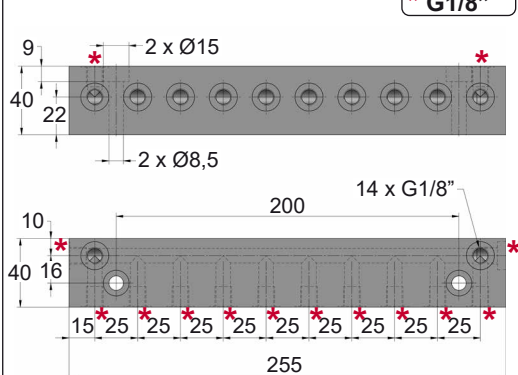
PLF 8

10 Ports
*** G1/8"**


PLK 8

14 Ports
*** G1/8"**


PLD 10

14 Ports
*** G1/8"**


N₂ ACCESSORIES

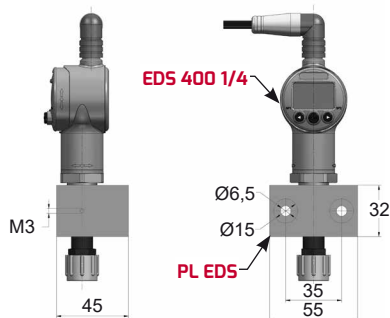
**AZOL
GAS**


ELECTRONIC PRESSURE SWITCH

GM 90.25.225

GM KIT

EDS GM



Electronic Pressure Switch according to GM standard GM 90.25.225.

It is supplied with EDS 400 1/4 (with 5 meters cable ZBE 90 (90°)) and block PL EDS.

OPTIONS:

Cable 5 meters:

- ZBE R (Straight)

Adapters:

- KRM8 (M8x1)
- SKK L (S12,65x1,5)
- DRM8 (M12x1,5)

ACCESSORIES

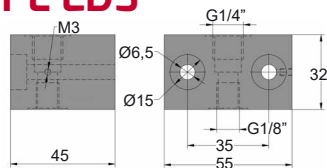
ZBE R



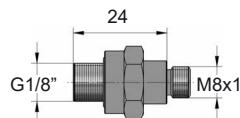
ZBE 90



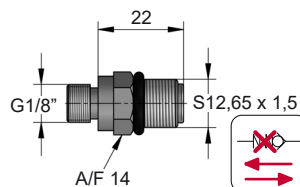
PL EDS



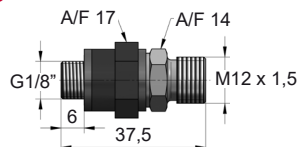
KRM8



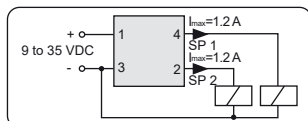
SKK L



DRM8



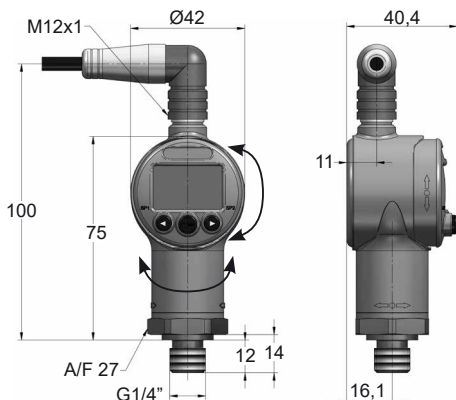
WARNING



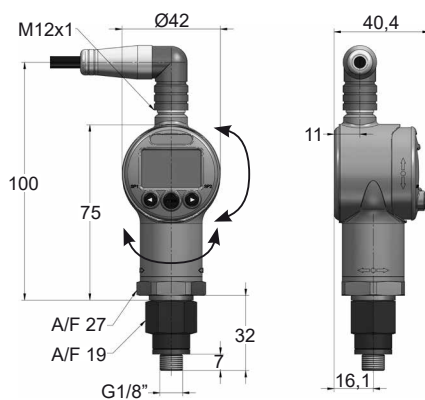
The electronic pressure switch must be connected by a qualified electrician in accordance to the regulations of the country where they will be used.

The local and international regulations for the electric equipment installation must be observed.

EDS 400 1/4



EDS 400 1/8



HOW TO ORDER


EDS 400 1/4
EDS 400 1/4

HOW TO ORDER


EDS 400 1/8
EDS 400 1/8

TECHNICAL DATA

Mechanical connection:	G1/4" - G1/8"
Measuring range:	0 - 400 bar
Max. pressure:	800 bar
Burst pressure:	2000 bar
Operating temperature:	-25 °C to +80 °C.
Torque:	20 Nm
Protection class (IEC 60529)	IP67
Weight:	120 g

Switching current:	max. 1.2 A
Supply voltage:	9 - 35 VDC
Electrical connection:	M12x1 (4 pole)
Output: (2 switching outputs)	2 PNP Pin 2,4

APPLICATIONS

The EDS 400 is a compact electronic pressure switch with integrated digital display for relative pressure measurement. It allows control and monitor gas spring hosed systems pressure, and it is recommended when it is necessary to stop any process if pressure is higher or lower to a pre-set value.

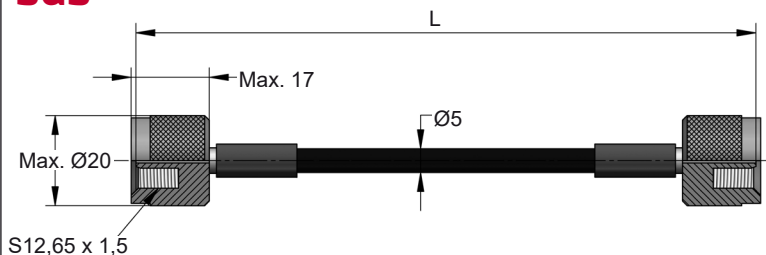
The digital display shows the pressure in bar, PSI or MPa and also rotates for a higher versatility.

The electronic pressure switch is equipped with two switching outputs than can be easily programmed.

N₂ ACCESSORIES (ACTIVE)

**AZOL
GAS**

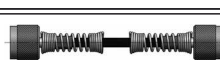
SGS



ORDER	L ₋₀ ⁺⁵ (mm)
SGS 200	200
SGS 300	300
SGS 400	400
SGS 500	500
SGS 630	630
SGS 800	800
SGS 1000	1000
SGS 1200	1200
SGS 1250	1250
SGS 1500	1500
SGS 2000	2000
SGS 2500	2500
SGS 3000	3000

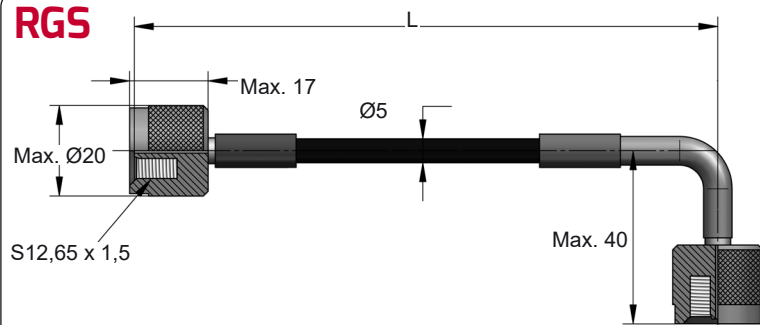


ENG ORDER
DEU BESTELL
FRA COMMANDE
ITA ORDINE
ESP PEDIDO
POR PEDIDO


SGS 200

SGS 200 G

EM.24.54.700
90.25
W-DX35-72
SMS DNH 3217n

RGS



ORDER	L ₋₀ ⁺⁵ (mm)
RGS 200	200
RGS 300	300
RGS 400	400
RGS 500	500
RGS 630	630
RGS 800	800
RGS 1000	1000
RGS 1200	1200
RGS 1250	1250
RGS 1500	1500
RGS 2000	2000
RGS 2500	2500
RGS 3000	3000



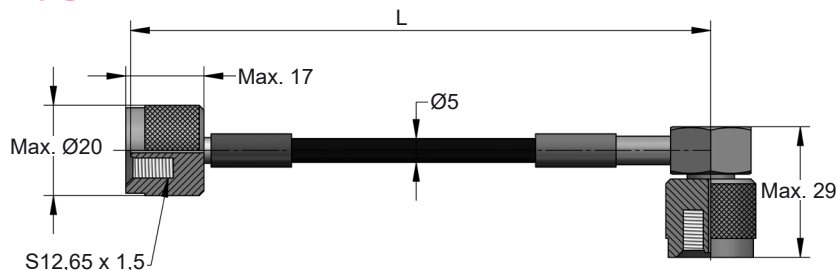
ENG ORDER
DEU BESTELL
FRA COMMANDE
ITA ORDINE
ESP PEDIDO
POR PEDIDO


RGS 200

RGS 200 G

ORDER	L ₋₀ ⁺⁵ (mm)
PGS 200	200
PGS 300	300
PGS 400	400
PGS 500	500
PGS 630	630
PGS 800	800
PGS 1000	1000
PGS 1200	1200
PGS 1250	1250
PGS 1500	1500
PGS 2000	2000
PGS 2500	2500
PGS 3000	3000

PGS



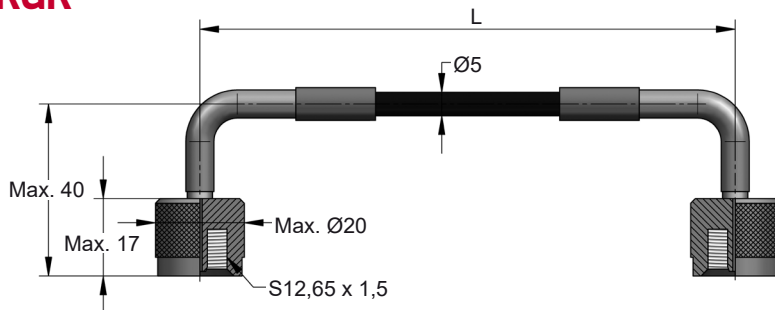
ENG ORDER
DEU BESTELL
FRA COMMANDE
ITA ORDINE
ESP PEDIDO
POR PEDIDO


PGS 200

PGS 200 G

EM.24.54.700
90.25
W-DX35-72
SMS DNH 3217n

RGR



ORDER	L ⁺⁵ ₋₀ (mm)
RGR 200	200
RGR 300	300
RGR 400	400
RGR 500	500
RGR 630	630
RGR 800	800
RGR 1000	1000
RGR 1200	1200
RGR 1250	1250
RGR 1500	1500
RGR 2000	2000
RGR 2500	2500
RGR 3000	3000

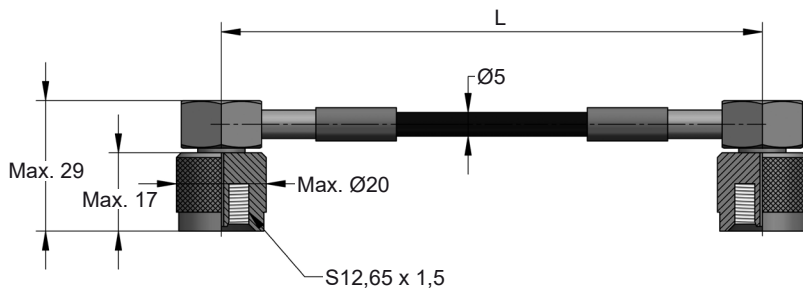


ENG ORDER
DEU BESTELL
FRA COMMANDE
ITA ORDINE
ESP PEDIDO
POR PEDIDO


RGR 200

RGR 200 G

PGP



ORDER	L ⁺⁵ ₋₀ (mm)
PGP 200	200
PGP 300	300
PGP 400	400
PGP 500	500
PGP 630	630
PGP 800	800
PGP 1000	1000
PGP 1200	1200
PGP 1250	1250
PGP 1500	1500
PGP 2000	2000
PGP 2500	2500
PGP 3000	3000



ENG ORDER
DEU BESTELL
FRA COMMANDE
ITA ORDINE
ESP PEDIDO
POR PEDIDO


PGP 200

PGP 200 G

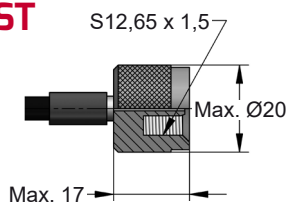
EM.24.54.700

90.25

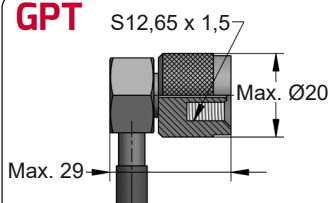
W-DX35-72

SMS DNH 3217n

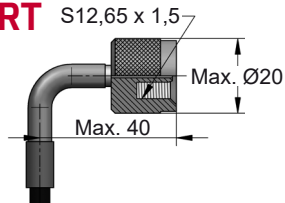
GST



GPT



GRT



GF 02

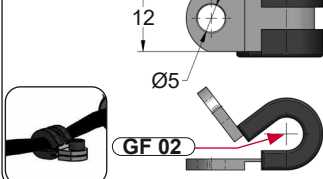


Pmax
630 bar

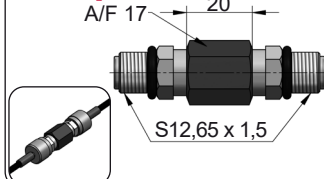
Tmax
100 °C

Rmin
20 mm

RBP 5



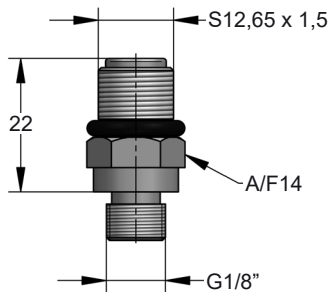
CM 1/8



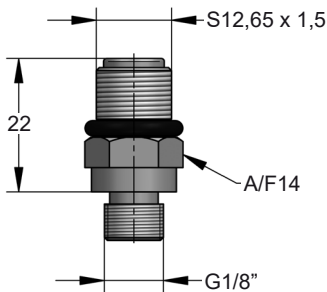
N₂ ACCESSORIES (ACTIVE)

**AZOL
GAS**

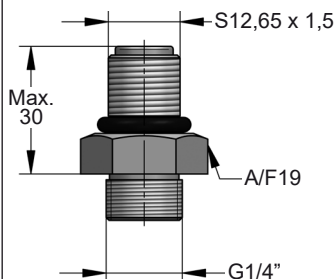

SKK 12R 1/8



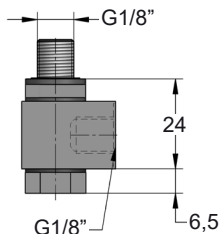
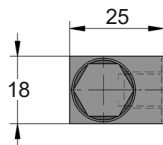
SKK L



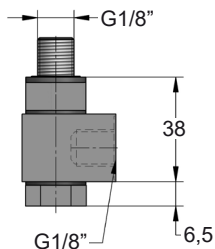
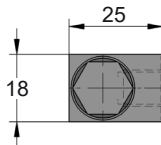
SKK 12R 1/4



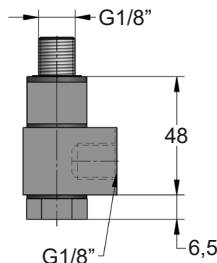
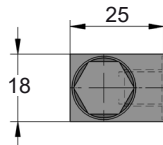
CF 01 24



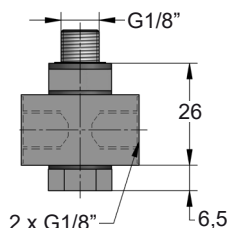
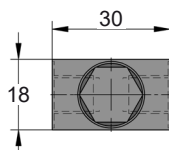
CF 01 38



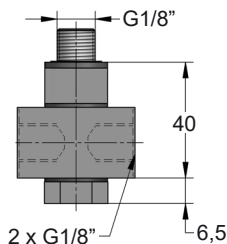
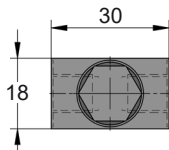
CF 01 48



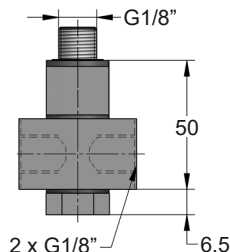
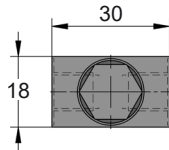
CF 02 26



CF 02 40

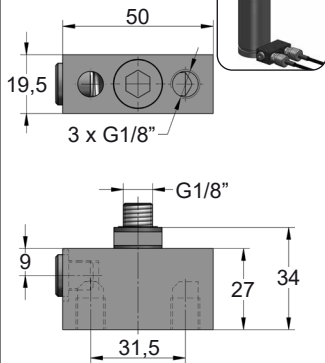


CF 02 50

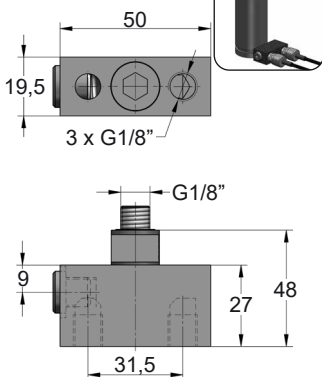


N₂ ACCESSORIES (ACTIVE)

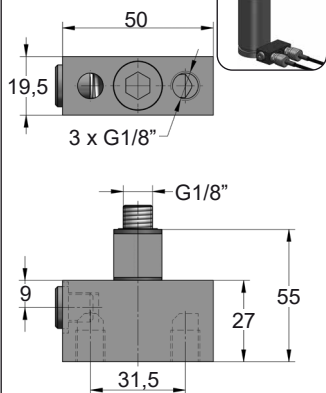
CF 03 34



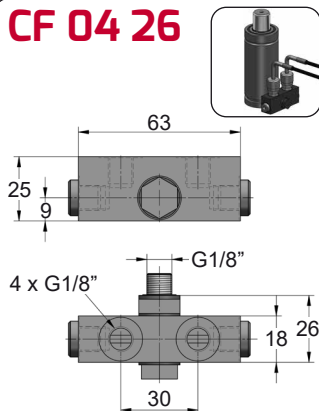
CF 03 48



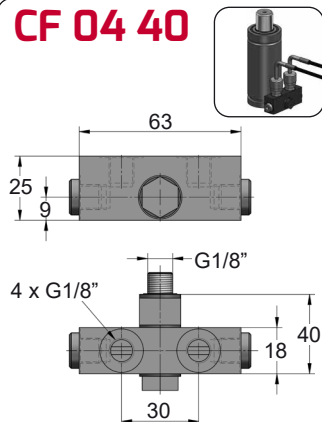
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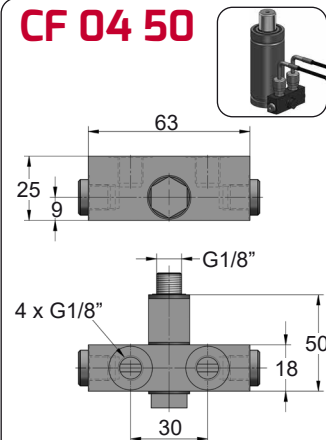
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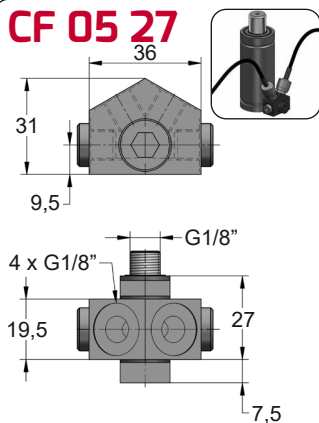
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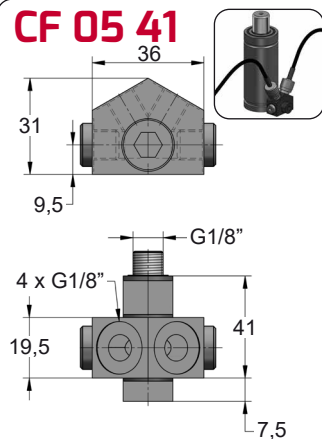
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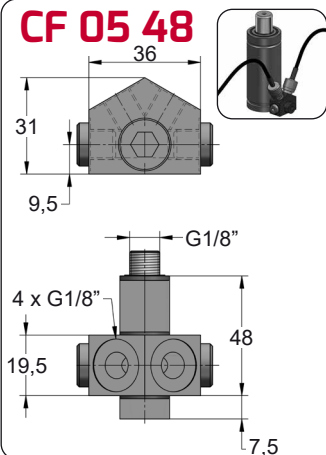
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CF 05 41



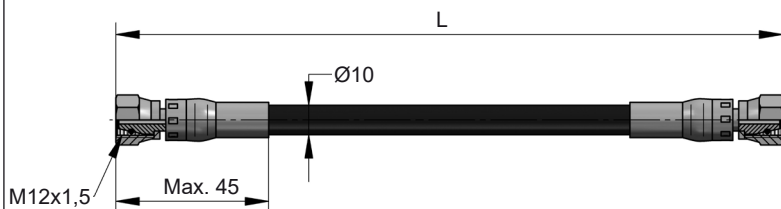
CF 05 48



N₂ ACCESSORIES (PASSIVE)

**AZOL
GAS**

TNRR



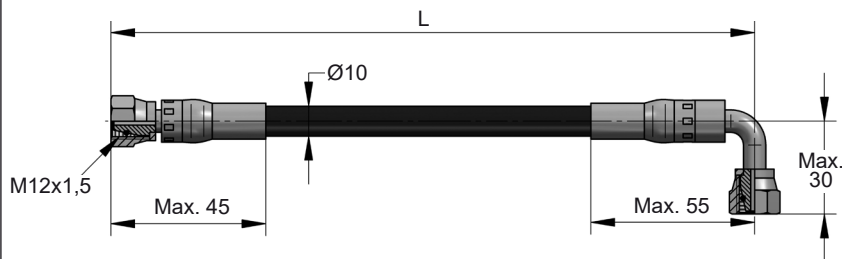
ORDER	L ⁺⁵ ₋₀ (mm)
TNRR 200	200
TNRR 300	300
TNRR 400	400
TNRR 500	500
TNRR 630	630
TNRR 800	800
TNRR 1000	1000
TNRR 1200	1200
TNRR 1250	1250
TNRR 1500	1500
TNRR 2000	2000
TNRR 2500	2500
TNRR 3000	3000



ENG ORDER
DEU BESTELL
FRA COMMANDE
ITA ORDINE
ESP PEDIDO
POR PEDIDO


TNRR 200

TNRL



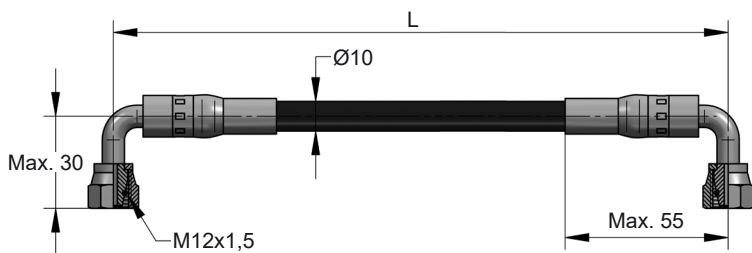
ORDER	L ⁺⁵ ₋₀ (mm)
TNRL 200	200
TNRL 300	300
TNRL 400	400
TNRL 500	500
TNRL 630	630
TNRL 800	800
TNRL 1000	1000
TNRL 1200	1200
TNRL 1250	1250
TNRL 1500	1500
TNRL 2000	2000
TNRL 2500	2500
TNRL 3000	3000



ENG ORDER
DEU BESTELL
FRA COMMANDE
ITA ORDINE
ESP PEDIDO
POR PEDIDO


TNRL 200

TNLL



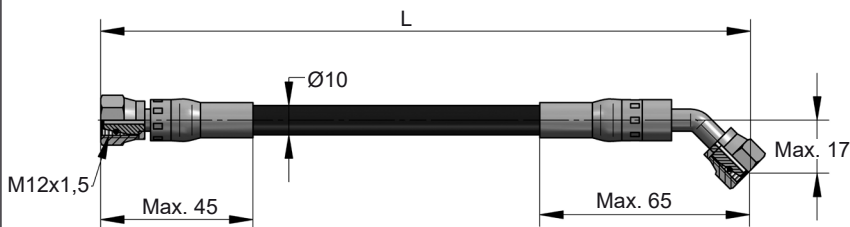
ORDER	L ⁺⁵ ₋₀ (mm)
TNLL 200	200
TNLL 300	300
TNLL 400	400
TNLL 500	500
TNLL 630	630
TNLL 800	800
TNLL 1000	1000
TNLL 1200	1200
TNLL 1250	1250
TNLL 1500	1500
TNLL 2000	2000
TNLL 2500	2500
TNLL 3000	3000



ENG ORDER
DEU BESTELL
FRA COMMANDE
ITA ORDINE
ESP PEDIDO
POR PEDIDO


TNLL 200

TNRC



ORDER	L ₋₀ ⁺⁵ (mm)
TNRC 200	200
TNRC 300	300
TNRC 400	400
TNRC 500	500
TNRC 630	630
TNRC 800	800
TNRC 1000	1000
TNRC 1200	1200
TNRC 1250	1250
TNRC 1500	1500
TNRC 2000	2000
TNRC 2500	2500
TNRC 3000	3000

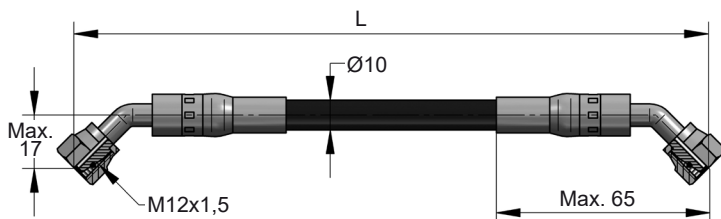


ENG ORDER
DEU BESTELL
FRA COMMANDE
ITA ORDINE
ESP PEDIDO
POR PEDIDO



TNRC 200

TNCC



ORDER	L ₋₀ ⁺⁵ (mm)
TNCC 200	200
TNCC 300	300
TNCC 400	400
TNCC 500	500
TNCC 630	630
TNCC 800	800
TNCC 1000	1000
TNCC 1200	1200
TNCC 1250	1250
TNCC 1500	1500
TNCC 2000	2000
TNCC 2500	2500
TNCC 3000	3000

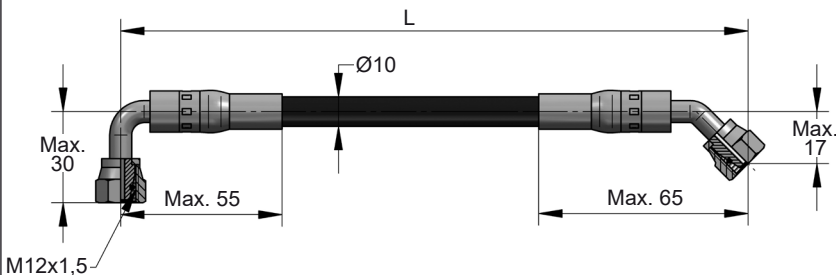


ENG ORDER
DEU BESTELL
FRA COMMANDE
ITA ORDINE
ESP PEDIDO
POR PEDIDO



TNCC 200

TNLC



ORDER	L ₋₀ ⁺⁵ (mm)
TNLC 200	200
TNLC 300	300
TNLC 400	400
TNLC 500	500
TNLC 630	630
TNLC 800	800
TNLC 1000	1000
TNLC 1200	1200
TNLC 1250	1250
TNLC 1500	1500
TNLC 2000	2000
TNLC 2500	2500
TNLC 3000	3000



ENG ORDER
DEU BESTELL
FRA COMMANDE
ITA ORDINE
ESP PEDIDO
POR PEDIDO

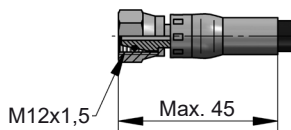


TNLC 200

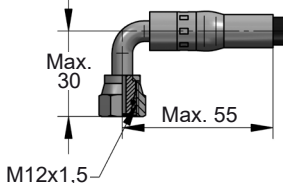
N₂ ACCESSORIES (PASSIVE)

**AZOL
GAS**

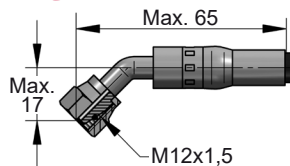

TNRT



TNLT



TNCT



GF 05



Pmax
345 bar

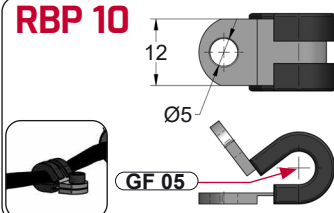


Tmax
100 °C

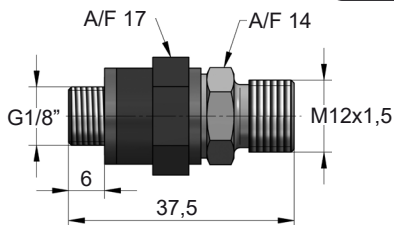


Rmin
40 mm

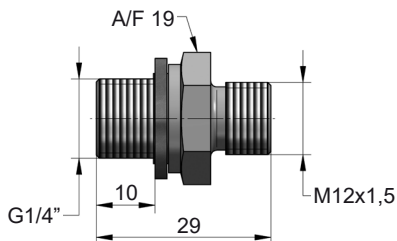
RBP 10



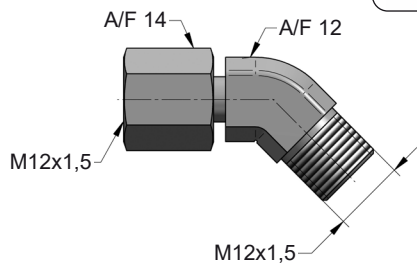
DRM8



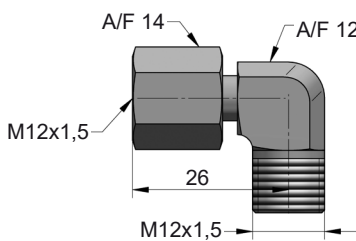
DRM4

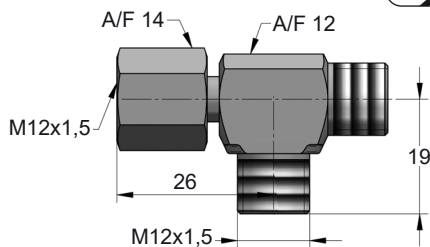
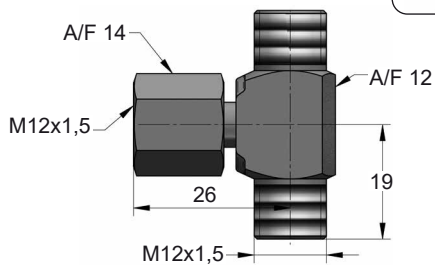
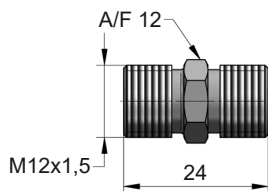
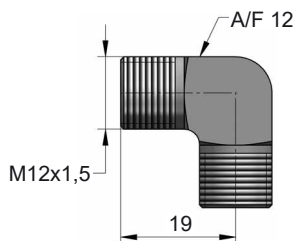
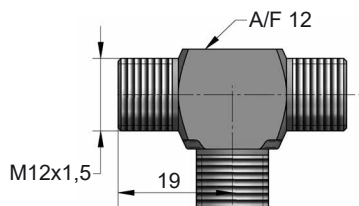
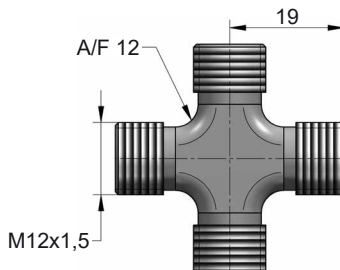


DLFD



DCFD

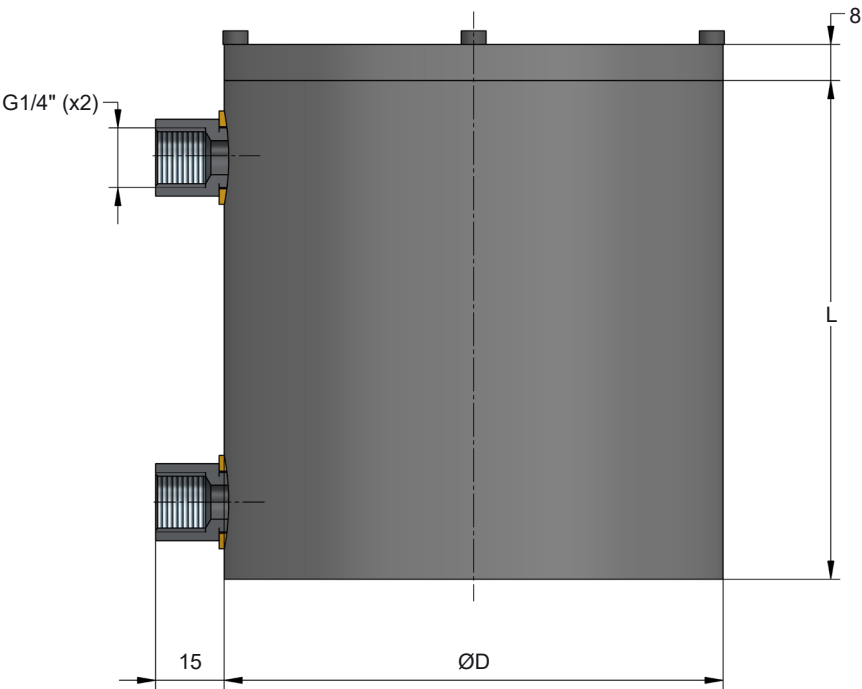


DWFD**DTFD****DIMD****DCMD****DTMD****DXMD**

COOLING ACCESSORIES

AZOL
GAS

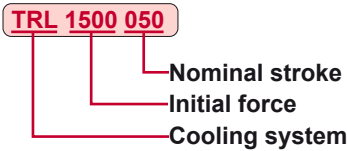
TRL



MODEL	ØD (mm)	ØL (mm)
TRL 1500 _ _ _	Ø110	S+60
TRL 3000 _ _ _	Ø135	S+70
TRL 5000 _ _ _	Ø165	S+95
TRL 7500 _ _ _	Ø210	S+110

HOW TO ORDER

Order only the cooling jacket as follows: TRL + Force + Nominal stroke



COOLING ACCESSORIES

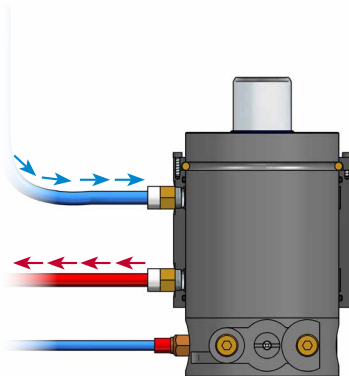
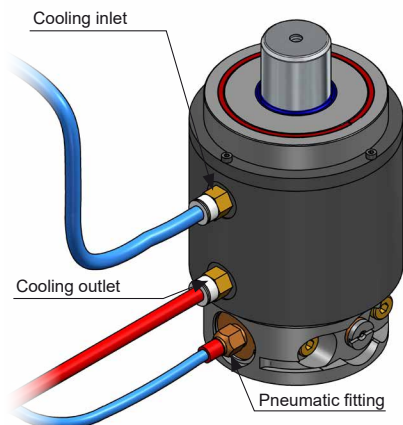
COOLING SYSTEM

Cooling jackets are used to decrease the temperature in speed controlled gas springs.

The cooling jacket is supplied with G1/4" coupling, a superior coupling (inlet) and inferior coupling (outlet).

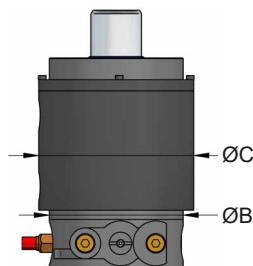
The cooling jacket is connected to a circuit through an adapter on each coupling G1/4" and a tube.

The refrigerating fluid flows through the circuit decreasing the temperature on gas spring, what makes possible to increase the working frequency (SPM).



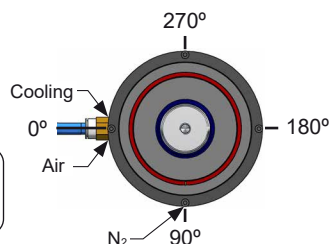
TECHNICAL DATA

The cooling jacket increases the cylinder diameter 15mm.



MODEL	ØB (mm)	ØC (mm)
BSF-TRL 1500	Ø95	Ø110
BSF-TRL 3000	Ø120	Ø135
BSF-TRL 5000	Ø150	Ø165
BSF-TRL 7500	Ø195	Ø210

The cooling jacket can be oriented, if nothing specified it is supplied at 0°



HOW TO ORDER

Order speed controlled gas spring with cooling system just by adding -TRL

Example:

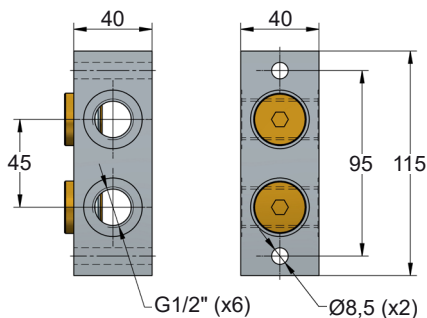
BSF 1500 050 045 with cooling system

BSF-TRL 1500 050 045

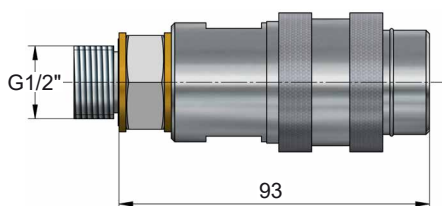
Cooling system

COOLING ACCESSORIES

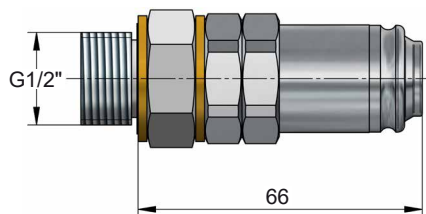
CBBS



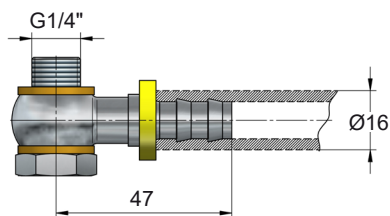
QTRF 1/2



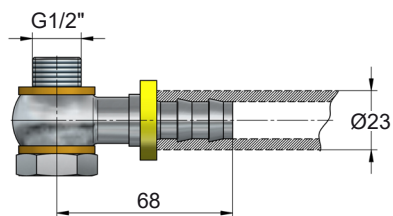
QTRM 1/2



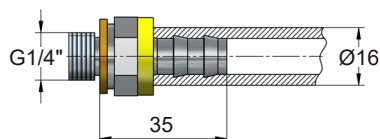
BSLT 16 1/4



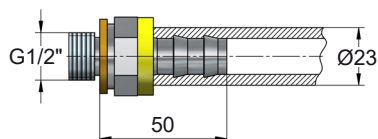
BSLT 23 1/2



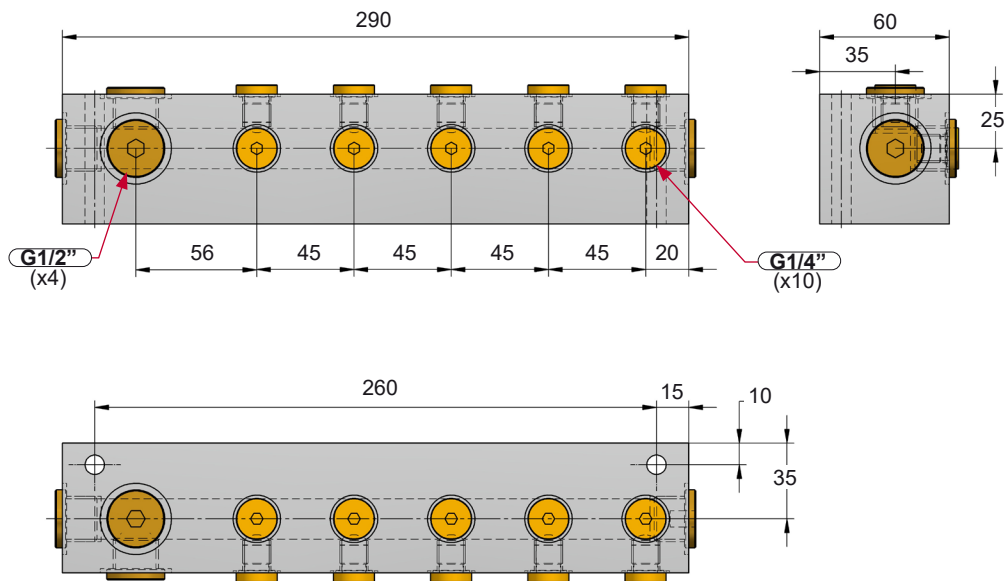
BSRT 16 1/4



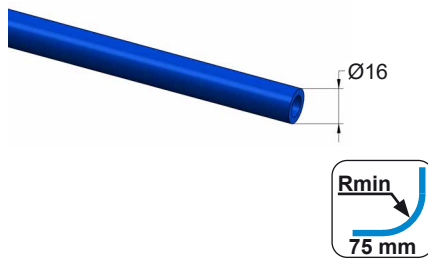
BSRT 23 1/2



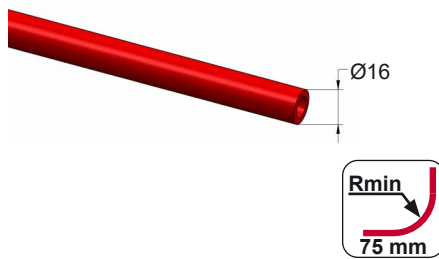
PLBS 10



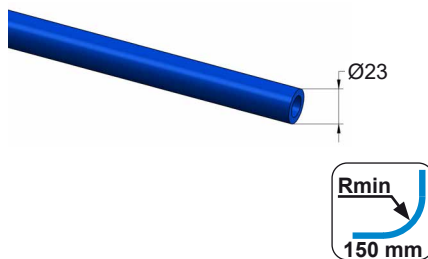
GFNA 16



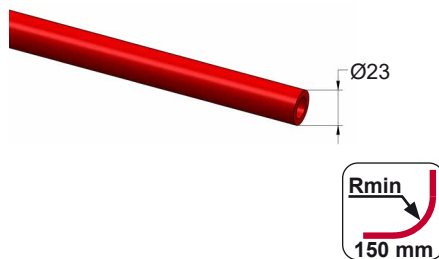
GFNR 16



GFNA 23



GFNR 23





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