

Gas springs, Dampers and Adjustment systems

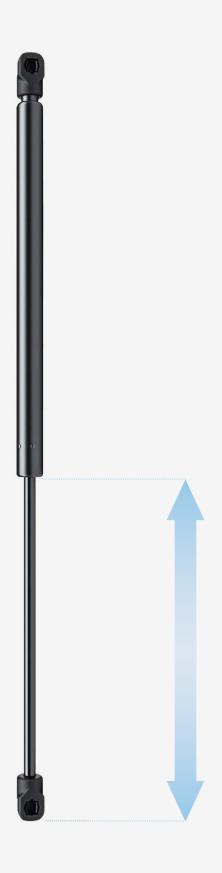
Product catalog

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Mechanical Systems



Gas spring Liftline (standard program)

Liftline is an excellent gas spring progam offered by SUSPA. Successfully proven in the market for decades and always state-of-the art through constant innovation.

The SUSPA Liftline program includes five basic types: the types 16-12, 16-1, 16-2, 16-4 and 16-6.

The main differences are in the tube and piston rod diameters and the different extension forces. This way, we can meet your specific technical requirements with the optimal gas spring type.

Туре	Ø Tube (mm)	Ø Piston rod (mm)	Stroke max. (mm)	Extension force F ₁ (N)
16-12*	12	4	150	40 - 180
16-1*	15	6	150	50 - 420
16-2*	18.5	8	250	80 - 750
16-3	22	8	495	100 - 1,200
16-4*	22	10	495	100 - 1,200
16-6*	28	14	500	200 - 2,000

^{*} Standard program, pages 9-13



Configure your individual gas strut at www.suspa.com/global/configurator

Applications







Tailgate

Steering columns

Kitchen cabinet

Machinery lids

Gas spring Liftline

Design and functionality

How force and effective cushioning are produced

Gas springs are hydropneumatic adjustment elements. They consist of a pressure tube plus piston rod with piston unit. Connecting elements on the pressure tube and the piston rod allow appropriate connection to your application.

At the core of the SUSPA gas spring is the special seal and guide system. This ensures hermetic sealing of the cavity with low friction, even under extreme environmental conditions.

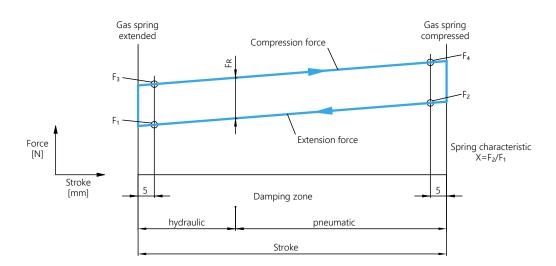
The gas spring is filled with non-toxic nitrogen at high pressures. This produces a charging pressure that in turn exerts an effect on the cross section of the piston rod, generating the extension force. If the extension force of the gas spring is greater than the force of the counterbalance, the piston rod extends; if the extension force is smaller, it retracts. The speed of the extension is determined by the flow cross section in the damping system.

In addition to nitrogen, the cavity contains a defined quantity of oil for lubrication and end position cushioning. The cushioning effect of a gas spring can be determined depending on the requirements and the task involved.

Pressure tube Pneumatic medium Piston assembly Hydraulic medium Sealing and guidance package Piston rod

Spring characteristic

As seen in the graphic, the spring characteristic curve shows the force path of the gas spring over the stroke, from the extended to the retracted state and back. The spring characteristic illustrates the balance of power of F_2/F_1 . For the design of gas springs, the force F_1 is, in addition to the dimensions, the most important criterion.

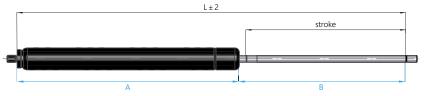


Gas spring Liftline Type 16-12 (standard program)

Ø tube 12 mm, Ø piston rod 4 mm, max. stroke 150 mm, extension force 40-180 N

Type 16-12 Thread/Thread







Fitting AM4

All dimensions in mm, The standard color of the tube is black or white aluminum, and the piston rod is black.

Fitting BM4

Select length, stroke and extension force

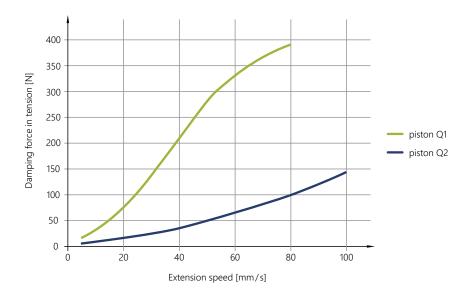
Length L (mm) ±2	Stroke (mm)	Technical data	Extension force F ₁
72	20	16-12 - 49 - 23 - AM4 - BM4 -	
92	30	16-12 - 59 - 33 - AM4 - BM4 -	Select the desired
112	40	16-12 - 69 - 43 - AM4 - BM4 -	extension force F₁:
132	50	16-12 - 79 - 53 - AM4 - BM4 -	$40 \text{N} \le F_1 \le 180 \text{N}$
152	60	16-12 - 89 - 63 - AM4 - BM4 -	* The maximum F ₁ extension force
192	80	16-12 - 109 - 83 - AM4 - BM4 -	depends on the customer's application.
232	100	16-12 - 129 - 103 - AM4 - BM4 -	Please contact us for your individual layout.
272*	120	16-12 - 149 - 123 - AM4 - BM4 -	
332*	150	16-12 - 179 - 153 - AM4 - BM4 -	





Damping behaviour

Type 16-12 can be used without extension force as a damper. The damping behavior can be chosen according to your needs. The characteristic curve shows the damping force depending on the extension speed.



Fittings

Type 16-12

Fitti	ng	Material	Attachement name	Order number	Ø	С		
	Clevis	steel galva- nized	A457 - B457	06710559	4.1	M4	5.50	7 13 17
10	Fork head	steel galva- nized	A446 - B446	06710497	4	M4	4 0	16 6 21
80	Ball joint	steel galva- nized	A456 - B456	16810007		M4	21 16 0 5 MM	Ball 96