



## What is a Gas Spring ?

A gas spring is an entirely self contained hydropneumatic ram, which has the characteristics of a compression spring. It has a further benefit of providing a controlled rate of movement. At the end of the extension stroke oil damping occurs due to hydraulically cushioned zone. In its simplest version the gas spring consists of an outer tube and finely ground and polished rod called piston rod, on the end of which a piston is anchored which moves inside the tube through a sealing system. The tube contains nitrogen gas under pressure. The extension force of the gas spring is determined by the pressure that nitrogen exerts on the cross section of piston rod. A certain quantity of oil is introduced in the gas spring which lubricates the seal and also exerts a slowing down action while the rod extends and ensures more gentle and jointless movements.

### Usage Instructions :

- 1) Always fit the piston rod down and within  $60^{\circ}$  of the vertical. If the piston rod changes from pointing down to pointing up during operation install such that it is pointing down most of the time.
- 2) Ball joints supplied are recommended to be used whenever possible as it eliminates misalignment. If using eyelet fitting support on both sides and allow some float.
- 3) Do not lubricate the gas spring. The best maintenance needed for a gas spring is to use it occasionally.
- 4) Even mirror damage, corrosion or paint residues on the piston rod may result in the failure of the unit. The gas springs must not be damaged or deformed.
- 5) Gas springs are not safety parts and wear out after certain period of time. Corrosion must be avoided to achieve higher life expectancy and fatigue strength.
- 6) Gas springs are filled with nitrogen at very high pressure. Do not heat, open or subject to excessive tensions.

### Benefits of Gas Springs

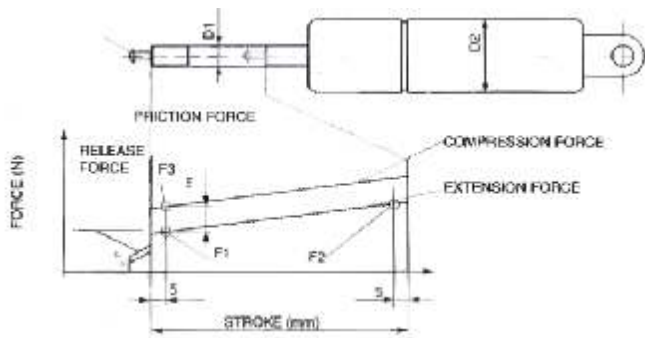
- 1) Self contained unit and maintenance free.
- 2) Safe to use with easy finger tip control.
- 3) Custom design sized to your application
- 4) Custom force setting
- 5) Many different designs & sizes for flexibility of mounting.

### **Block : For variable Positioning & Infinite Adjustment. :**

Atlas offers various types of gas springs for infinite adjustment which can be blocked in any particular position, with spring or rigid blocking in the extension or compression direction depending on the design. In spring blocking type the piston moves over the stroke in the gas medium as the gas is compressible. In rigid blocking type the piston locks within an oil volume which is trapped by the separating piston as the oil is not compressible. The variable blocking is achieved by integrating the valve into the piston, which separates both the pressure chambers. When the valve is closed, thereby interrupting the exchange of gas between both pressure chambers, the gas spring is blocked. The valve closes automatically when the valve pin is released externally. Infinite blocking, controlled speed, extension force as required, small dimensions and compact design are some of the essential advantages offered by block type of gas spring.



## Technical Information



- D1 = Piston rod diameter (in mm)
- D2 = Pressure tube outer diameter (in mm)
- F = Extension force (in Newton)
- A = Max. Stroke (in mm)
- B = Extended Length (in mm)

## Selection Chart

D1 (in mm)	D2 (in mm)	A (in mm)	B (in mm)	F(Range) (in Newton)
10	28	20	149	200-1200
10	28	20	149	200-1200
10	28	20	149	200-1200
10	28	20	149	200-1200
10	28	20	149	200-1200
10	28	20	149	200-1200
10	28	20	149	200-1200
10	28	20	149	200-1200
10	28	20	149	200-1200
10	28	20	149	200-1200
10	28	20	149	200-1200
10	28	20	149	200-1200

- \* Only the standard sizes are shown in this chart
- \* Other sizes are also accepted. Please contact us for further information

## Applications

- 1 Recliners in luxury bus seats, car seats, train seats
- 2 In hospital furniture such as patient beds, massage couches, stretchers surgical tables, physiotherapeutic beds, operation tables etc.
- 3 In office and executive chairs for backrest adjustment
- 4 Drafting tables, work benches, massage couches, footrests, steering column adjustment.
- 5 Leisure and health equipment

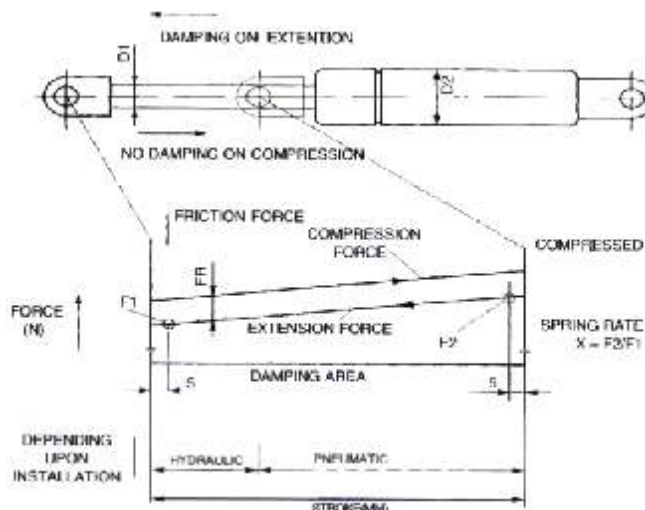


## Lift : For lowering, lifting, moving, adjusting :

Atlas offers various types of gas springs and struts which are used for lowering, lifting, moving, adjusting and tilting. Lift gas springs offer weight compensation, force support, compact design, selectable extension force with controlled speed, dampening and well defined cushioning. They are available with both hydraulic and dynamic damping according to application and type of fitting. Various end connections are also available for practical and swift installation.



## Technical Information



- D1 = Piston rod diameter (in mm)
- D2 = Pressure tube outer diameter (in mm)
- F = Extension force (in Newton)
- A = Max. Stroke (in mm)
- B = Center Distance (in mm)

## Select your own Gas spring:

You can select and design the gas spring for a specific application by using the following application sketch and approximation formula.

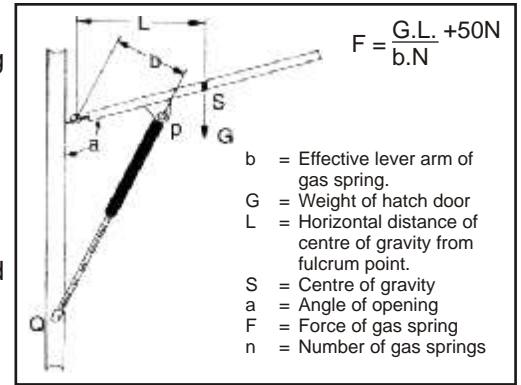
The following application details are required :

Weight and dimensions

Opening angle

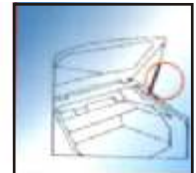
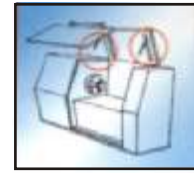
Fixing points for gas springs.

With the help of above data the stroke length, extended length, the desired extension force can be calculated.



## Applications

- 1 Automobile industry in cars for hatchback door and front bonnet: in luxury buses for opening and closing of engine hoods, bus luggage boots, glove compartment, bus air ventilator, head rack compartment.
- 2 In engineering industry for lifting machinery covers and other lid opening like Photocopier machines, printing machines and Textile Machinery.
- 3 Gas springs are also used as vibration dampers for steering systems, engines, trailers, washing machines, seats and two wheelers.
- 4 Open lids in kitchen cupboards and ensure comfortable lifting of bedding drawers and head sections of bed.
- 5 Exercisers and other health equipments.
- 6 Opening of roof windows and awnings.



## Selection Chart - Lift Gas Spring

D1 (in mm)	D2 (in mm)	A (in mm)	B (in mm)	F(Range) (in Newton)
6	15	20	105	50-400
6	15	40	145	50-400
6	15	60	185	50-400
6	15	80	225	50-400
6	15	100	265	50-400
6	15	120	305	50-400
6	15	150	365	50-400
8	16	60	205	300-500
8	18	70	230	200-400
8	18	90	290	200-350
8	18	140	365	300-650
8	18	160	405	300-650
8	18	180	445	200-800
8	18	200	485	200-700
8	18	220	525	200-700
8	18	250	600	200-700
10	22	90	270	300-500
10	22	150	405	200-700
10	22	200	505	200-1000

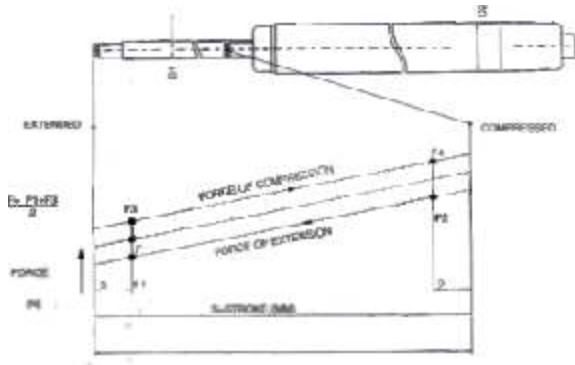
D1 (in mm)	D2 (in mm)	A (in mm)	B (in mm)	F(Range) (in Newton)
10	28	100	285	300-1200
10	22	230	575	400-600
10	22	240	845	250-800
10	22	250	610	300-1100
10	22	300	755	300-700
10	28	150	385	300-1200
10	28	200	485	300-1200
10	28	250	585	300-1200
10	28	300	685	300-1200
10	28	350	785	300-1200
10	28	400	885	300-1200
14	28	100	302	200-2000
14	28	150	402	200-2000
14	28	200	502	200-2000
14	28	250	602	200-2000
14	28	300	702	200-2000
14	28	350	802	200-2000
14	28	400	902	200-2000
14	28	500	1102	200-2000

## Mat : For height and backrest adjustment :

Atlas offers Mat type of gas springs in chairs for stepless height adjustment and back rest adjustment. Till the introduction of gas springs, the chairs were adjusted by means of manual systems and spindles but now gas springs are being widely used as compact element for the chair height adjustment. Mat Gas springs facilities ergonomic charesteristic in the seating systems worldwide. When the chair is under load, with the simple control over the release lever the chair glides gently downwards. When the chair is not under load, the chair rises up at the consant speed to the desired height hen it is arrested by the release of the lever. Mat gas spring comprises of an additional supporting column around the gas spring which performs the guiding function. A similar types of gas spring is used for the adjustment of the seat angle and backrest of swivel chairs.



## Technical Information



- D1 = Piston rod diameter (in mm)  
 D2 = Pressure tube outer diameter (in mm)  
 F = Extension force (in Newton)  
 A = Max. Stroke (in mm)  
 B = Extended Length (in mm)

## Applications

- 1 Swivel chairs for smooth height adjustment
- 2 Executive chairs for efficient and infinite adjustment
- 3 Industrial chairs and stools for ergonomic seating in industry
- 4 Dental Stools and ophthalmic chairs
- 5 Driver seats for buses, tractors and construction equipment
- 6 Work tables
- 7 In beauty parlour chairs with adjustment for back, height and in facial beds.



## Selection Chart

D1 (in mm)	D2 (in mm)	A (in mm)	B (in mm)	F(Range) (in Newton)
10	28	75	300	300-400
10	28	100	355	300-400
10	28	125	400	300-400
10	28	150	455	300-400
10	28	200	565	300-400
10	28	225	600	300-400
10	28	250	665	300-400

- \* Only the standard sizes are shown in this chart  
 \* Other sizes are also accepted. Please contact us for further information



## End Connections

Different end connections are available depending on the applications. We offer wide range of plastic and metal hinge eyes, angular ball joints, clevis eyes in various sizes as per the convenience of installation.



Offered by :

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