

KOMBI-LIFT

Functional Description

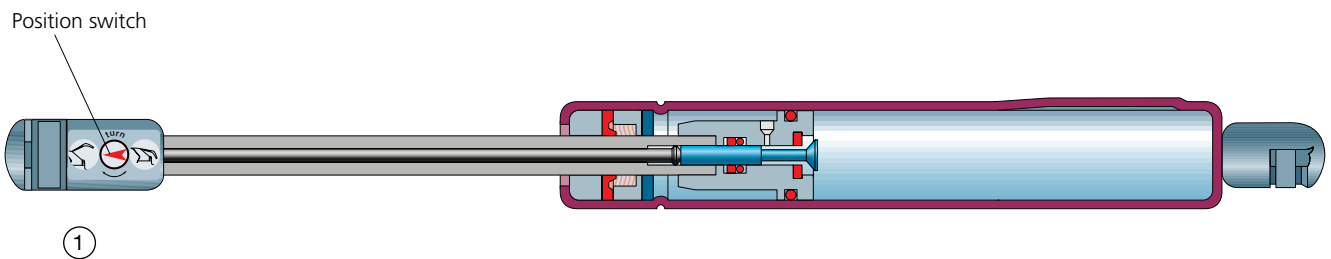
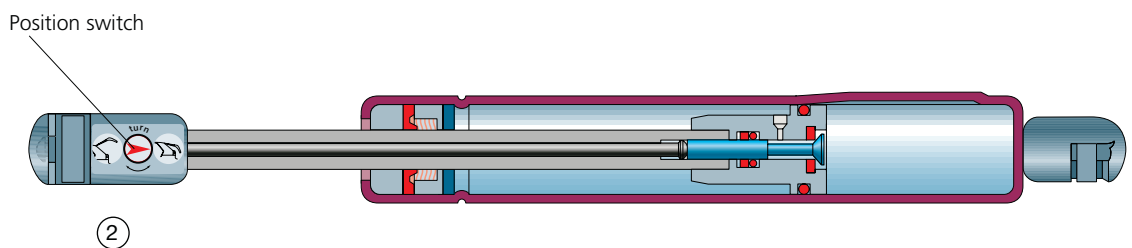
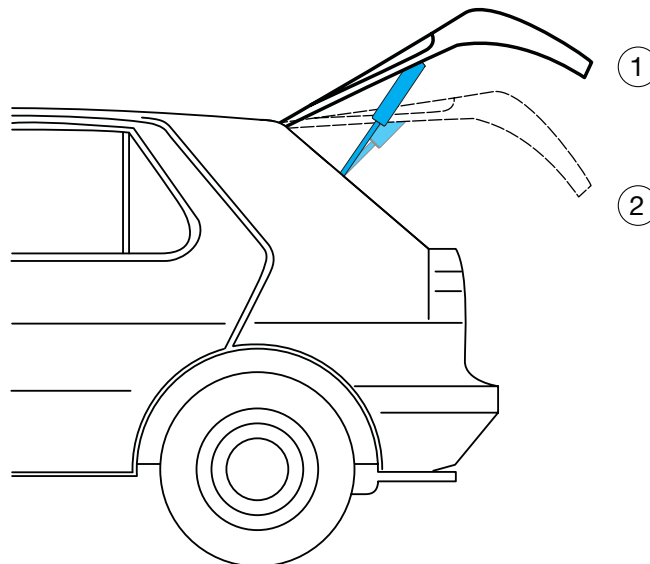
The main characteristic of the KOMBI-LIFT is to allow a door to open up to and stop at two selectable positions.

When using two springs per door, one LIFT-O-MAT can be used together with one KOMBI-LIFT.

The piston rod of the KOMBI-LIFT is equipped with a switch with which two positions can be selected. In

the first position, the door opens over the entire opening angle right up to the end-position. In the second position, the door stops at a specified opening angle. Further complete opening of the door can be achieved by setting the switch to position 1.

The closing operation is performed by manual support. During any subsequent opening, the door will open according to the last selected position.



HYDRO-LIFT-T

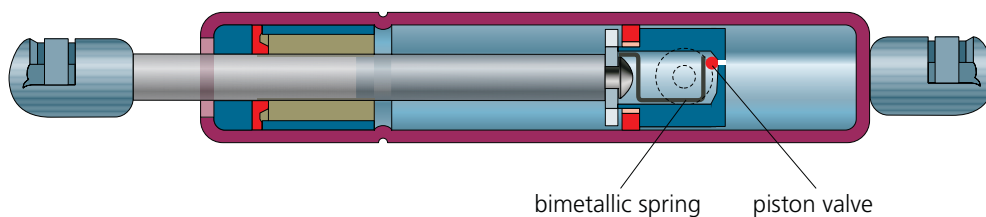
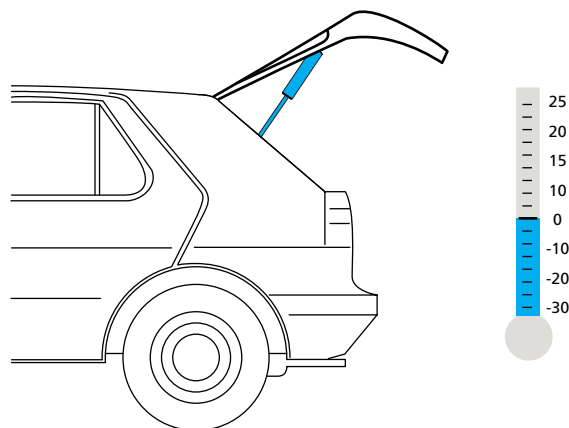
Functional Description

The opening and closing forces of doors equipped with gas springs are influenced by temperature. At low temperatures the gas medium contracts and the spring forces decrease. At higher temperatures the gas medium expands and the spring forces increase.

The HYDRO-LIFT-T was designed to minimize the impact of temperature on the operating forces of a door. The device is equipped with an additional, bimetal controlled piston valve. At temperatures higher than +10°C the valve stays inactive and

does not influence the functional characteristic of the gas spring. At temperatures below 10°C the valve closes and the holding force increases. This function allows a substantially lower extension force to be used in order to ensure a reliable holding force at temperatures as low as -30°C.

The overall decreased force level lowers the load on the attachments of the gas spring and optimizes the door operation towards more comfortable, lower closing efforts.



MULTIFUNCTIONAL-COLUMN

Functional Description

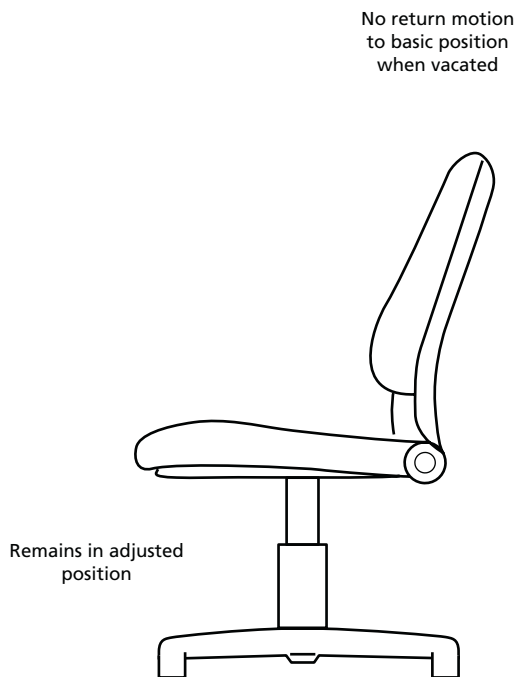
The STAB-O-MAT column allows the vacated chair to remain at the adjusted seat height and allows the actual seat to rotate.

This is obviously an advantage when the chair is always used by the same person. Once the user has adjusted his chair to his ideal sitting height, it will remain in that position until a change is required.

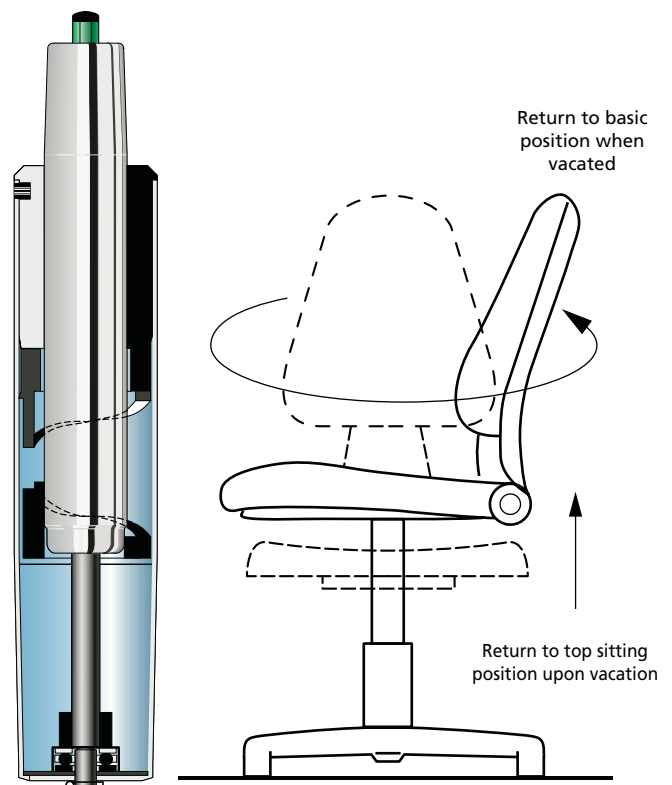
Not all chairs must retain the preadjusted position when vacated. For such applications STABILUS have developed the MULTIFUNCTIONAL-COLUMN.

These columns maintain the familiar steady control of the seat adjustment when in use but on vacation, the chairs will automatically return to their highest seat position. In addition to this, they will swivel return to their basic neutral position.

STAB-O-MAT[®] Column



MULTIFUNCTIONAL-COLUMN



ELEKTRO-LIFT

Functional Description

The main characteristic of the ELEKTRO-LIFT gas spring is that it transmits electric current. This allows current to be transmitted on a moving flap without having to use disturbing cable connections.

Stabilus distinguishes 3 variations of ELEKTRO-LIFT gas springs:

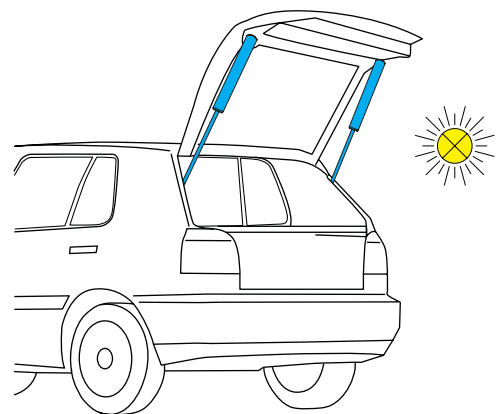
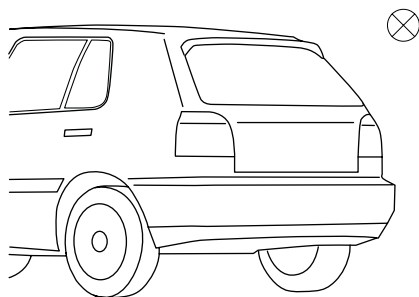
- The ELEKTRO-LIFT gas spring for permanent current conduction as a straightforward mass conductor, using metal end-fittings.
- The ELEKTRO-LIFT gas spring for current conduction, equipped with plastic end-fittings and electric connectors.

- The ELEKTRO-LIFT gas spring with switch, which is fitted to the piston rod.

The switch-cap which is fixed to the pressure tube causes the circuit to open when the gas spring is fully compressed. As soon as the sliding contact touches the piston rod during extension of the piston rod, the circuit is closed.

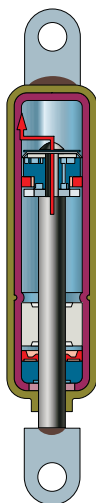
The maximum current is 26A at 12V.

The ELEKTRO-LIFT gas spring is used as a switch for the light in the boot or as a current transmission element for heated rear windows, rear-window wipers, etc.

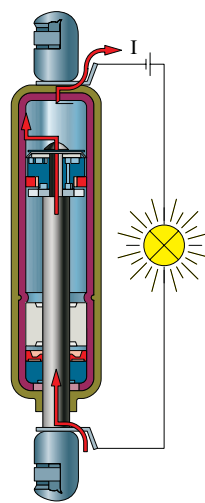


Design Variation

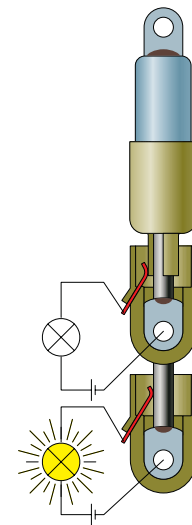
ELEKTRO-LIFT
(as mass conductor)



ELEKTRO-LIFT
without switch
(for current conduction)



ELEKTRO-LIFT
with fixed switch



DORSTOP®

Functional Description

The DORSTOP is a hydraulic door arrester for stepless control of doors. Because of its specific design options this product is especially suitable for the stepless arresting of vehicle doors.

Conventional, mechanical door arresters only stop in one or two positions, close to the full opening of the door. Frequently, the end of the opening process results in an undesired, uncontrollable change in door position in the opening or closing direction.

The DORSTOP arrests the door in the position required by the user at any opening angle and without any undesired or uncontrollable move-

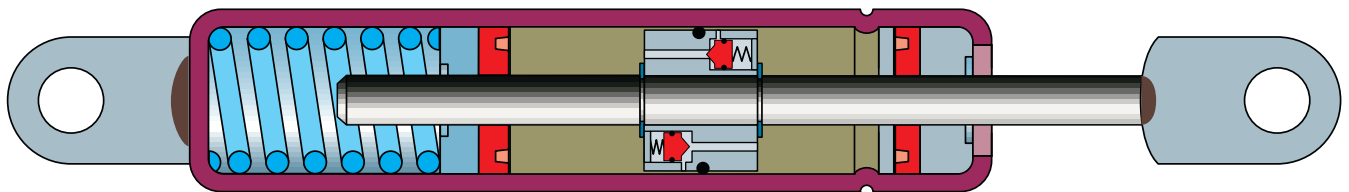
ment through the holding force defined by the vehicle manufacturer.

The advantages in narrow parking spaces or garages are obvious.

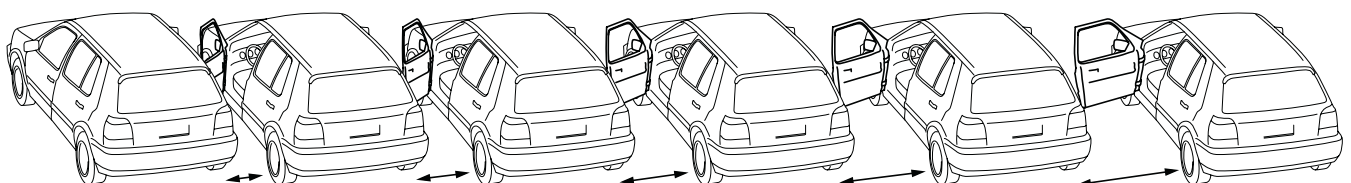
Getting in and out is made easier in all door opening positions, even when the vehicle is positioned on a gradient, as the door is supported within the range of the defined opening holding force.

End-damping in the DORSTOP prevents a reverse spring motion of the door from opening to undesired closing.

The load on the door hinges is considerably reduced.



DORSTOP®: Door arresting in all opening positions.



Bowden cable release system for lockable gas springs

Functional Description

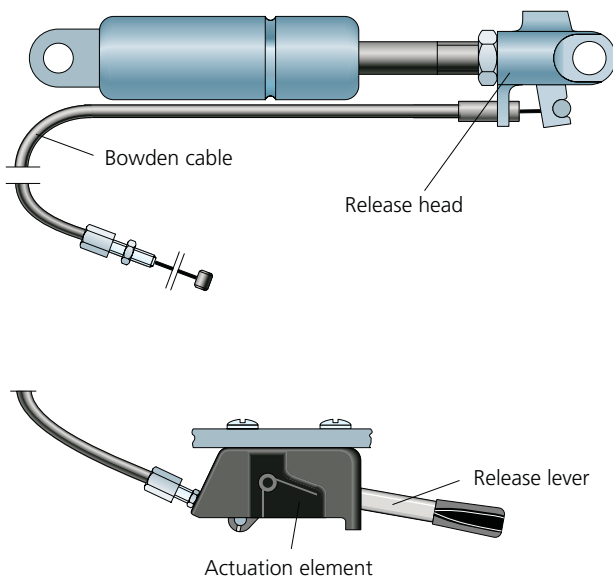
For decades now, gas springs from the product ranges BLOC-O-LIFT, STAB-O-MAT and STAB-O-BLOC have been successfully used.

The locking element is activated by a lever which acts upon the release pin.

A lever acting directly onto the release pin is not always possible or desirable. Bowden cable release allows flexibility in the positioning of the actuation element.

STABILUS offers robust and compact kits consisting of a release head, Bowden cable and actuation element.

BLOC-O-LIFT®
Release head for Bowden cable system



**STAB-O-BLOC® -Telescope/
STAB-O-MAT®** Bowden cable system

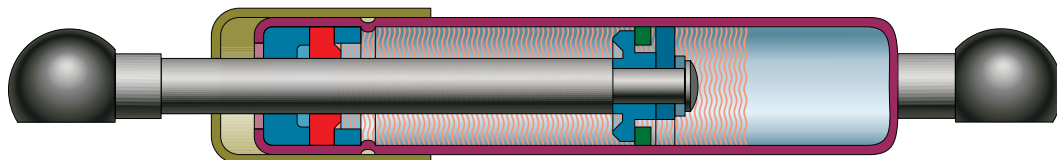
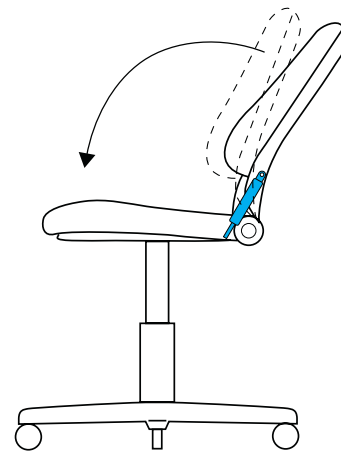
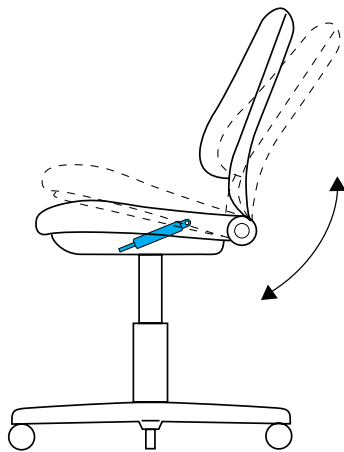


Hydraulic STAB-O-SHOC-dampers in swivel chairs

Functional Description

Sometimes, for cost reasons, mechanical adjusting systems are used for backrest and seat angle adjustment. The adjustment can often only be carried out only in fixed steps, which can be jerky and undamped.

Hydraulic STAB-O-SHOC dampers dampen the adjustment and provide additional comfort when correctly adapted to the individual chair kinematics.



LIFT-O-MAT[®] with dynamic damping

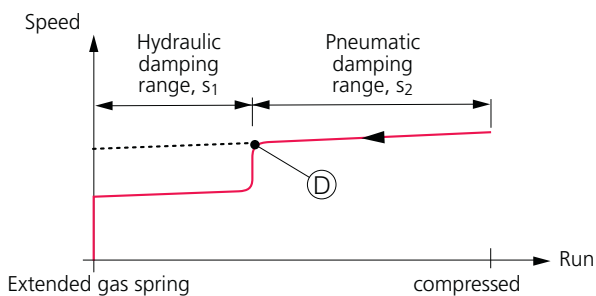
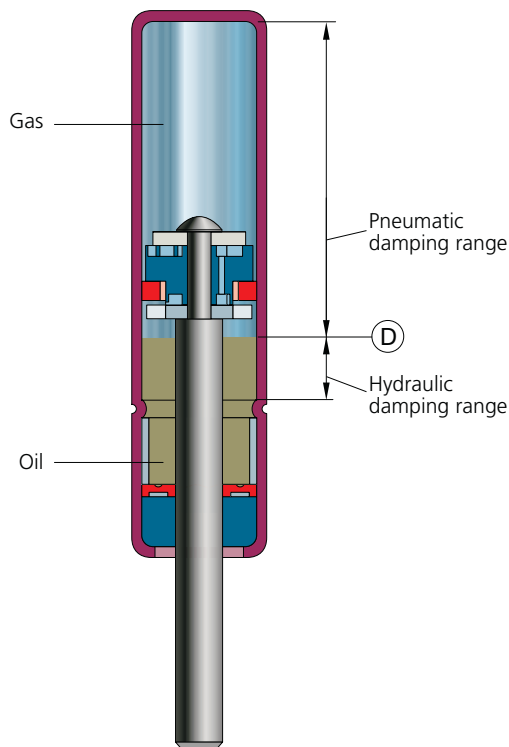
Functional Description

LIFT-O-MAT's are gas springs that balance weights and raise and drop them in a speed controlled manner. An oil cushion can ensure end damping depending on the mounting position and motion sequence.

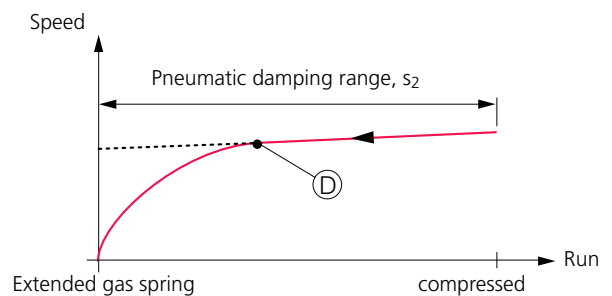
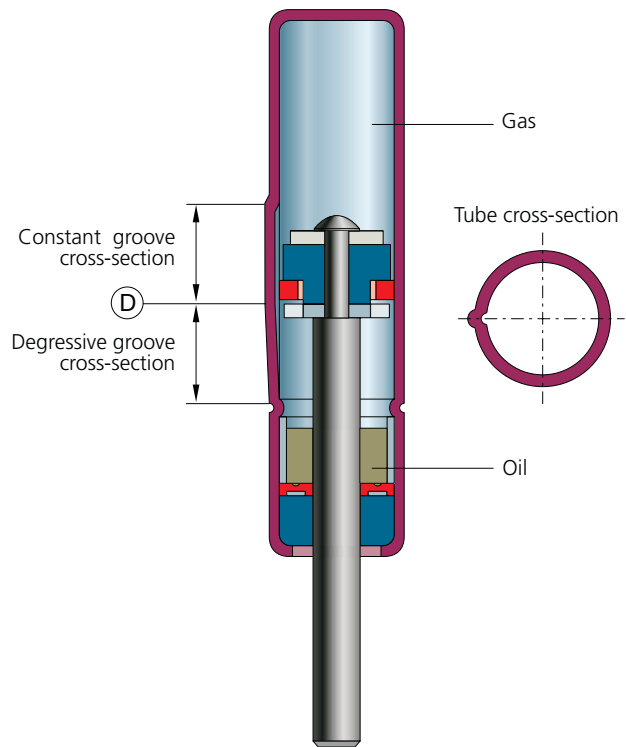
Often, however, it is impossible to obtain an optimal hydraulic damping because of the given mounting position and motion sequence.

Here the LIFT-O-MAT with dynamic damping offers distinct advantages. The individual design of the overflow groove located in the pressure tube offers an optimal adaptability of the product to the relevant application.

Hydraulic damping



Dynamic damping



LIFT-O-MAT[®] with Telescopic Tube

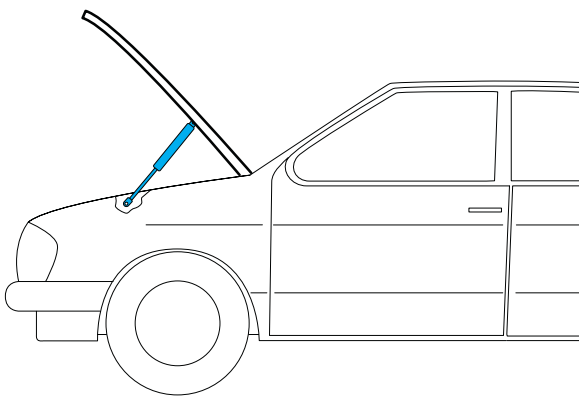
Functional Description

The STABILUS LIFT-O-MAT gas spring opens in a speed controlled and dampened manner over the defined total stroke of the device up to the stop.

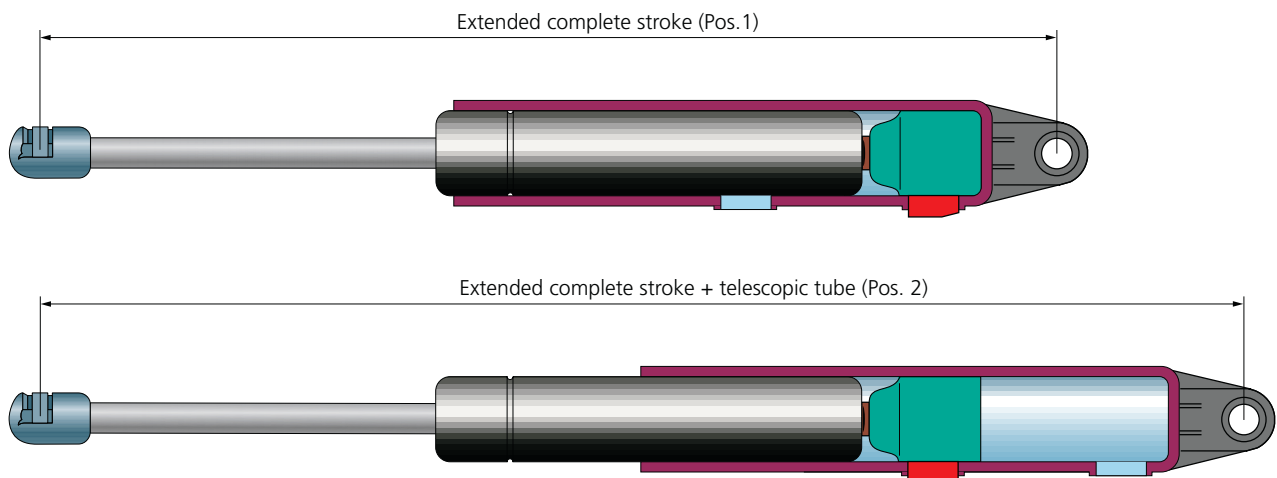
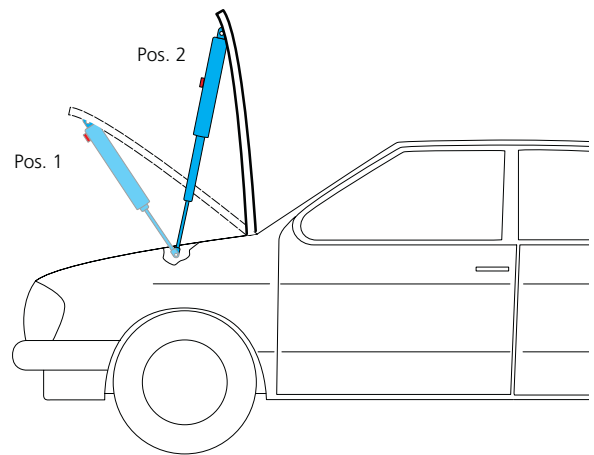
In some applications for special situations, a lengthening of the stroke and hence an increasing of the opening angle is required. For instance, when an engine hood must be opened further than the normal position for repair work.

This greater opening angle is obtained with a telescopic tube fitted over the pressure tube. To advise this a release fitted to the gas spring is activated. The additional opening is obtained manually until the device locks into the end position, thus main-taining the hood in the fully opened position. After release the hood can again be safely closed in a dampened manner.

LIFT-O-MAT[®]



LIFT-O-MAT[®] with Telescopic Tube



LIFT-O-MAT® with end-position locking

Functional Description

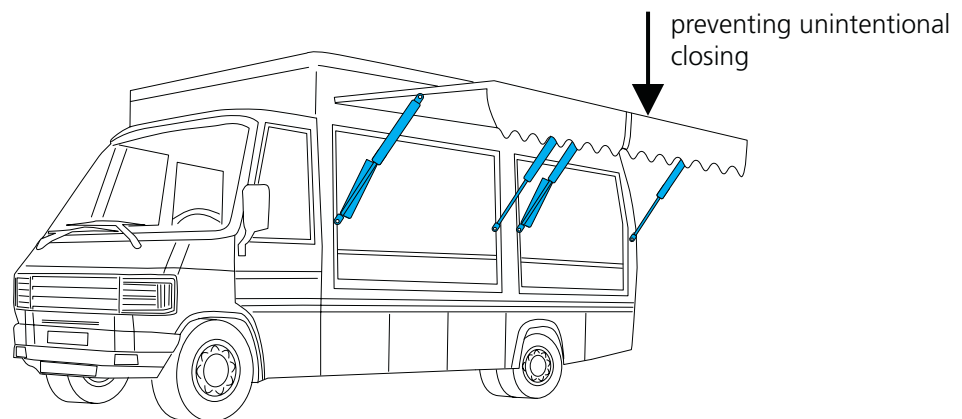
The main characteristic of the LIFT-O-MAT gas spring with end-position locking is the increased holding force in extended position.

STABILUS offers 2 design variations with end-position locking:

- with external end-position locking, which is activated by means of a support tube fitted to the piston rod.
- with internal end-position locking, which uses locking elements mounted to the piston rod and in the pressure tube.

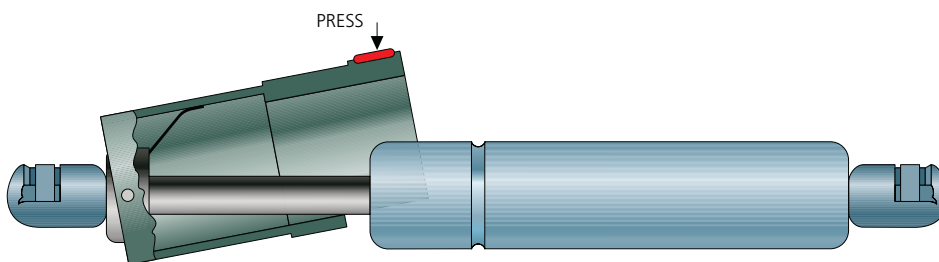
LIFT-O-MAT gas springs with end-position locking are used in applications where unintentional closing must be prevented, for instance mobile sales stands and doors for service purposes, to counterbalance wind, snow or other additional loads.

When two gas springs per application are used with the variation with internal end-position locking, only one needs to be equipped with the locking system - the second gas spring can be a LIFT-O-MAT gas spring without additional locking.

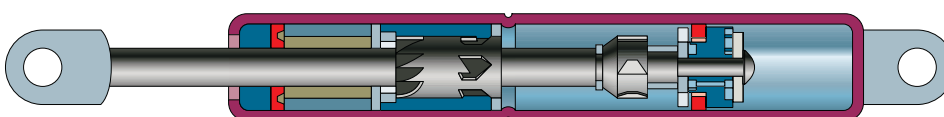


Design Variations

LIFT-O-MAT® external locking



LIFT-O-MAT® internal locking



INTER-STOP®

Functional Description

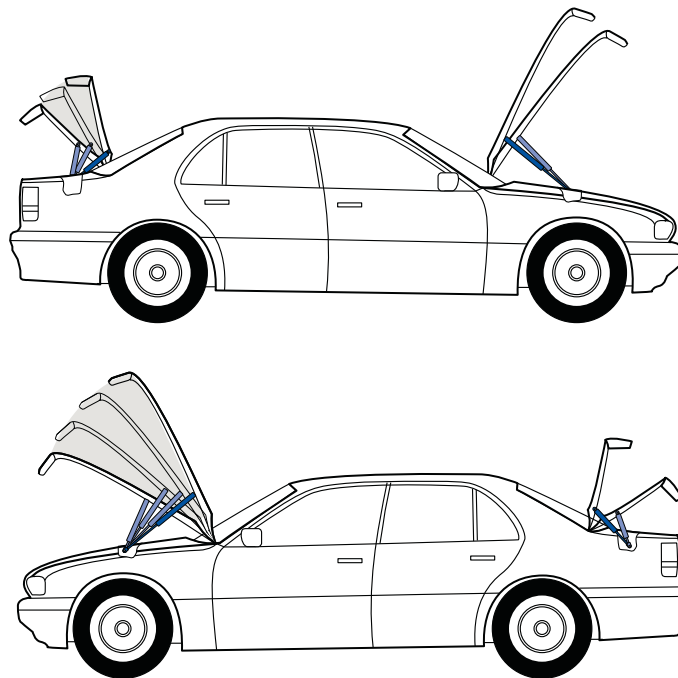
The main characteristic of the INTER-STOP gas spring is that it divides the stroke into two sections.

In the first section, the INTER-STOP extends in the same way as a LIFT-O-MAT gas spring. The door stops at a specified holding point.

In the second stroke section, the door can be stopped in any opening position by stopping it manually.

With a second design variation, the INTER-STOP also opens up to a specified holding point. As soon as the holding point is overcome, the door opens automatically up to the end position.

The closing of the door is achieved in the same way as with a standard LIFT-O-MAT gas spring.

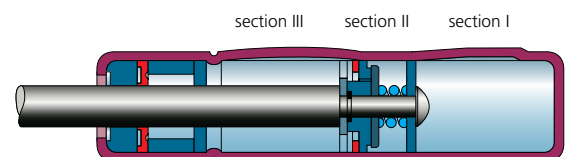
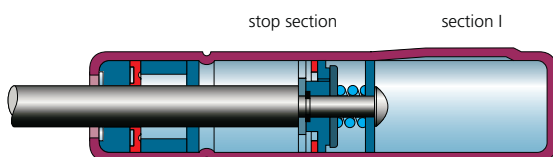


Design Variations

To obtain different opening functions two design variations are available

INTER-STOP® with holding function in stop section

INTER-STOP® without holding section



MULTI-STOP®

Functional Description

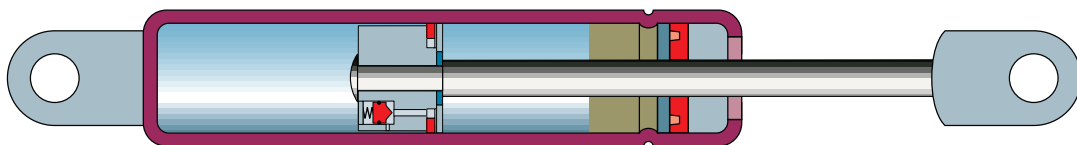
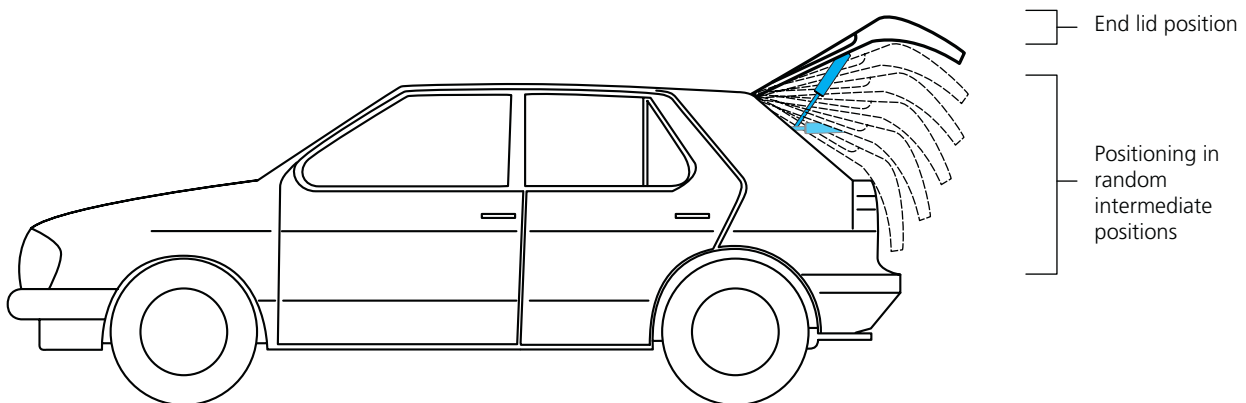
The essential characteristic of the MULTI-STOP gas spring is the option of positioning flaps in any desired opening angle.

First, the MULTI-STOP opens the flap in the same way as a LIFT-O-MAT gas spring over the total section up to the end position.

If required, the flap can be stopped in any desired opening position by low manual force.

By the interruption of the closing process, here again the option of a random positioning can be achieved.

The possibility of a stepless positioning is achieved by the special piston design of the MULTI-STOP gas spring.



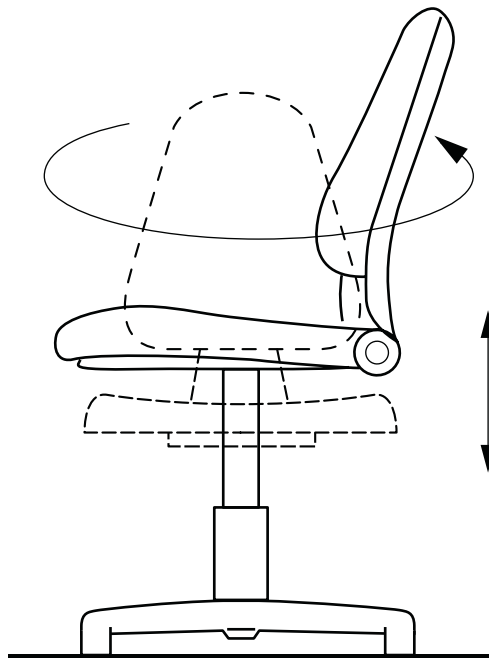
SWIVEL RESISTANT STAB-O-BLOC® COLUMN

Functional Description

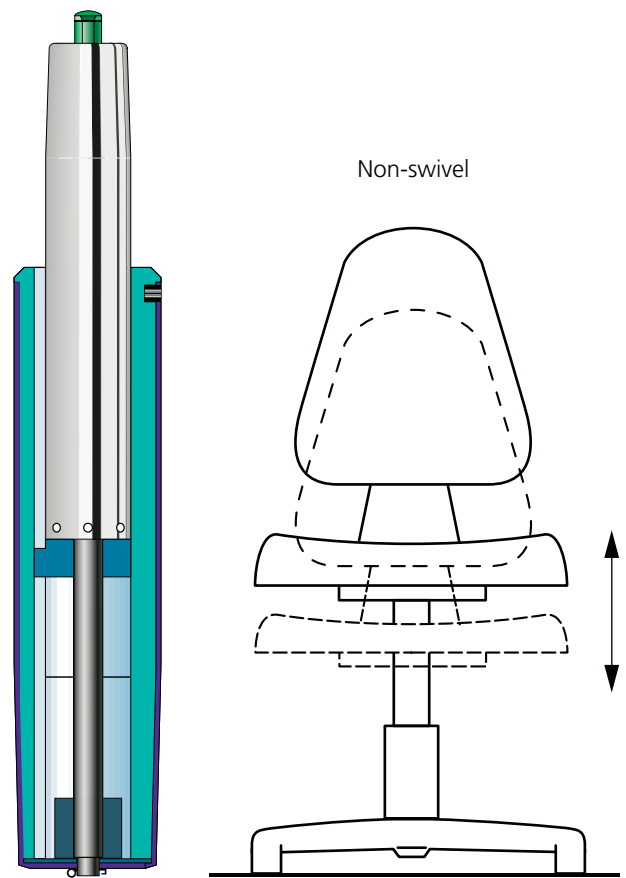
The advantages of infinitely adjustable STAB-O-BLOC height adjustment for swivel chairs have resulted in the international introduction of this height adjustment element for swivel chairs produced by STABILUS since the early seventies.

Not all chairs must or may swivel. For such applications STABILUS have designed the swivel resistant STAB-O-BLOC column, offering all the advantages of the conventional STAB-O-BLOC columns. The swivel function is excluded.

STAB-O-BLOC® column



Swivel resistant STAB-O-BLOC® column



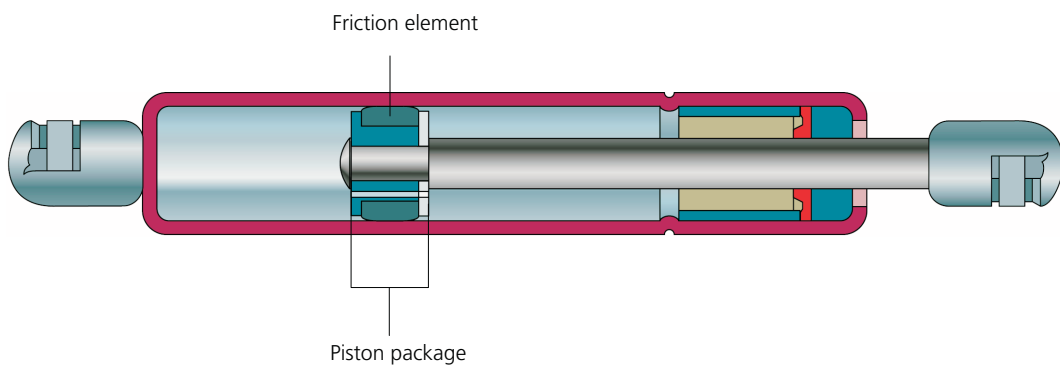
FRICTION-LIFT-O-MAT

Functional Description

STABILUS-LIFT -O-MAT gas springs distinguish themselves by their low friction and break-away force. Usually this leads to an optimal function in a great number of applications for the LIFT-O-MAT adjustment element.

In certain applications, however, the LIFT-O-MAT gas spring must also arrest in any position during the adjustment path.

For these applications the STABILUS-FRICTION-LIFT-O-MAT was designed, which provides weight balancing in which friction is so high that e. g. a flap remains in any position and manual support is required for adjustment.



STAB-O-MAT®/STAB-O-BLOC® - COLUMN

with additional depth cushioning

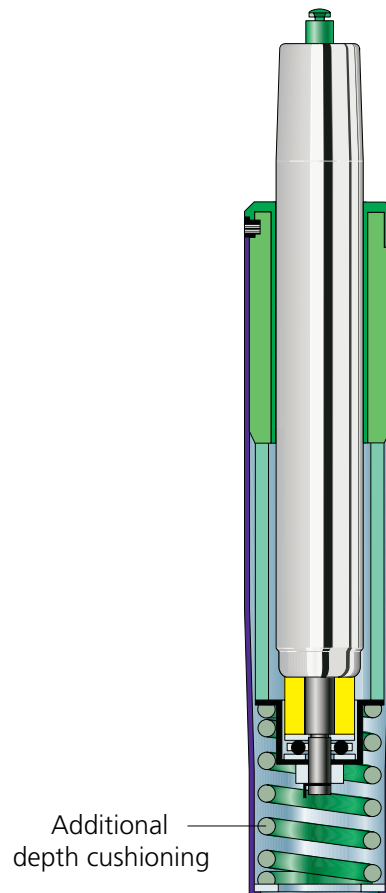
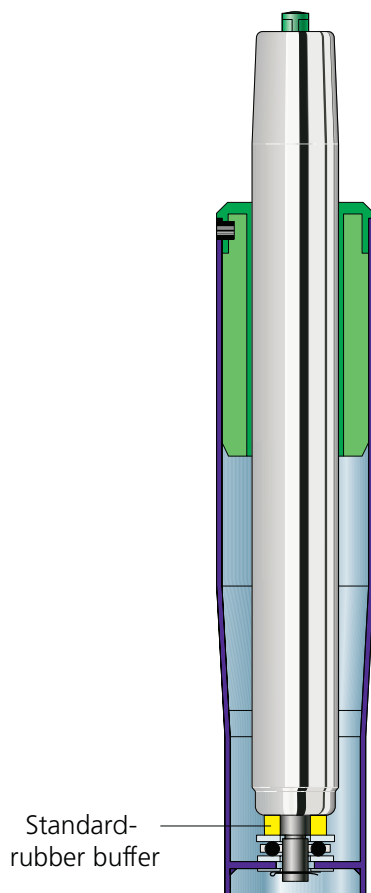
Functional Description

STAB-O-MAT swivel chair columns have a comfortable spring deflection over the entire adjustment range. However, in the bottom position it is only limited.

An optimization of the spring deflection comfort, especially in the bottom adjustment range, is obtained with STAB-O-MAT swivel chair columns with integrated depth cushioning.

Standard

With additional depth cushioning



STAB-O-BLOC[®] with comfortable spring deflection

Functional Description

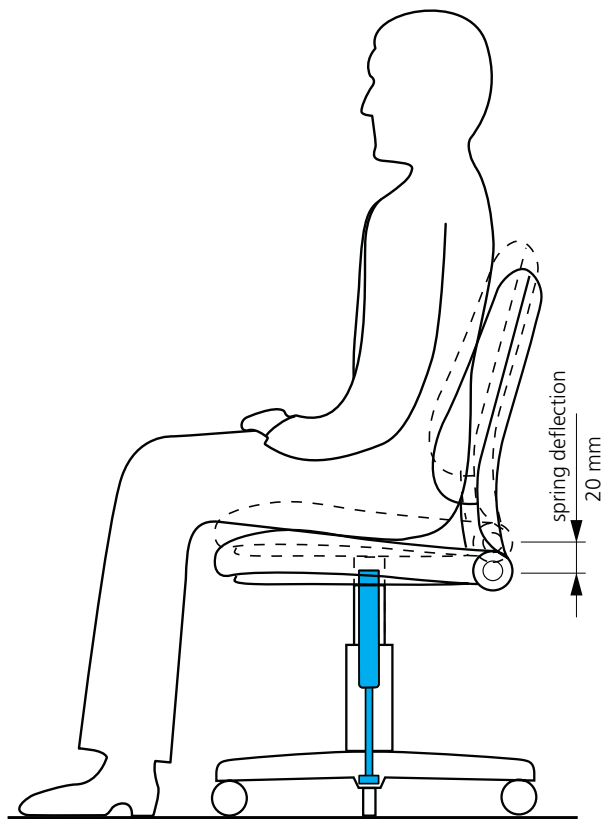
The STAB-O-BLOC for infinitely adjustable swivel chair height adjustment has a spring deflection in the selected position.

The spring deflection in a standard chair is of approximately 20 mm.

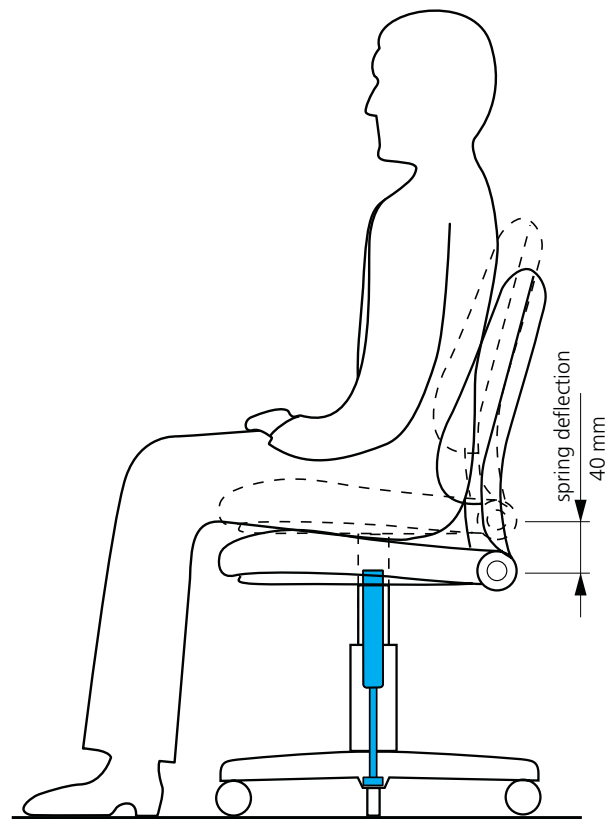
The spring deflection can be doubled to 40 mm by selecting a corresponding diameter for the piston rod/pressure tube. This solution does not require any additional construction space or components.

In the bottom sitting position the comfortable spring deflection is progressively dampened by a special arresting buffer.

STAB-O-BLOC[®]



STAB-O-BLOC[®] with comfortable spring deflection



Column with telescopic stand tube

Functional Description

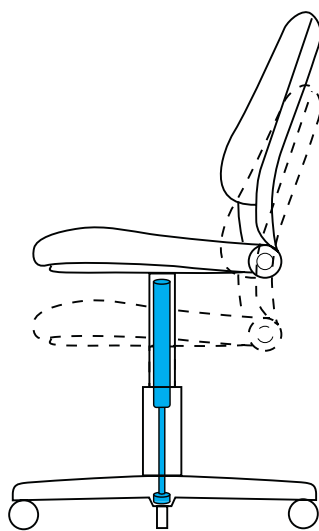
The height adjustment of standard swivel chair columns is limited by the height of the stand tube.

A greater gas spring stroke can only be obtained by lengthening the stand tube and thereby raising the lowest possible sitting position.

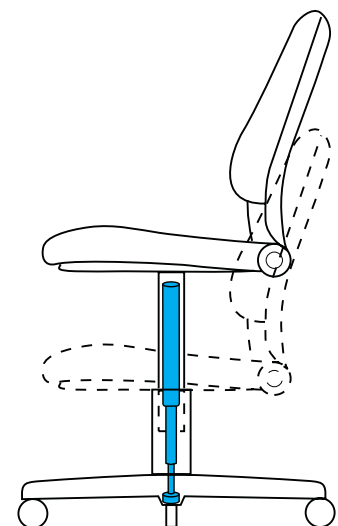
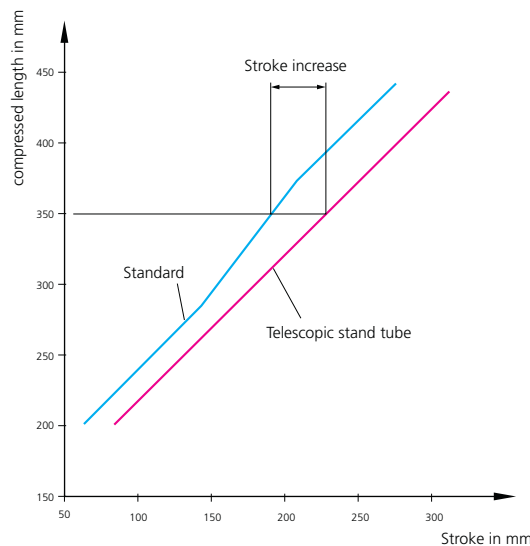
This is undesirable due to shorter persons also being provided with an ergonomically optimal sitting position.

The Stabilus telescopic swivel chair column solves this problem.

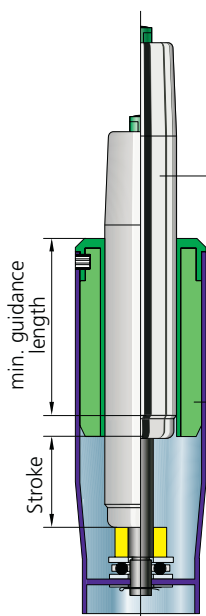
Given an equivalent stand tube length it allows for a 50 % greater gas spring stroke.



Standard stand tube



Telescopic stand tube

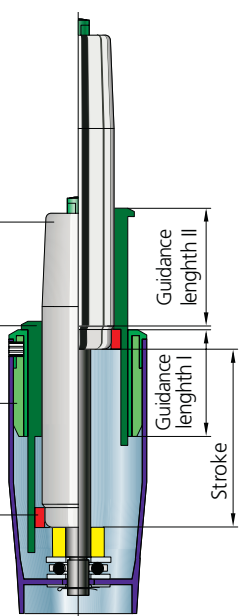


Gas spring taper for fixing the gas spring into the chair control

Telescopic tube with guide bush

Stand tube guide bush

Pin



Guidance length II

Guidance length I

Stroke

BLOC-O-LIFT[®] with pressure relief valve

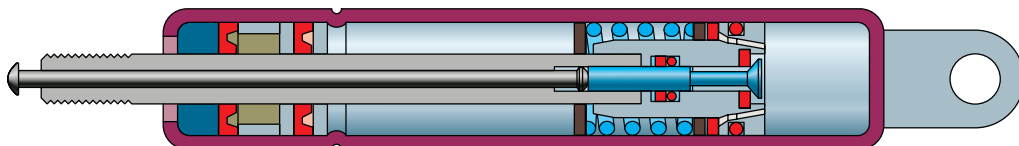
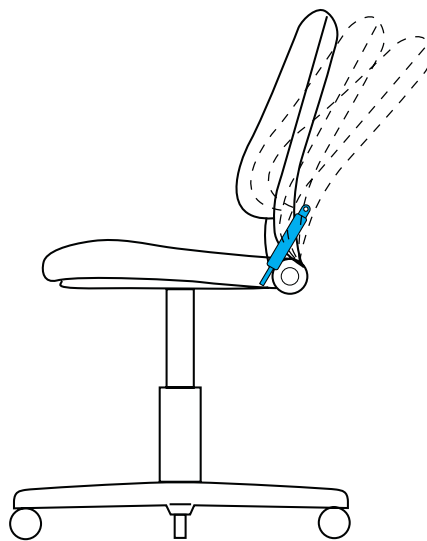
Functional Description

The BLOC-O-LIFT gas spring has been used since the 1960's as a compact and efficient adjustment element with variable positioning in a wide variety of applications.

Depending on the design, the adjustment element allows for rigid locking in the extension or compression direction up to the physical limits of the device.

Depending on the individual application it might be required to provide a secure protection against overload, i.e. against mechanically firm locking of the device. (For instance in case of a passenger's seat, it might be required that the backrest of the front seat, although locked, has to be moved out of the way to open an escape route.)

This can be achieved with an additional pressure relief valve.



LIFT-O-MAT[®] with dynamic compression and extension damping

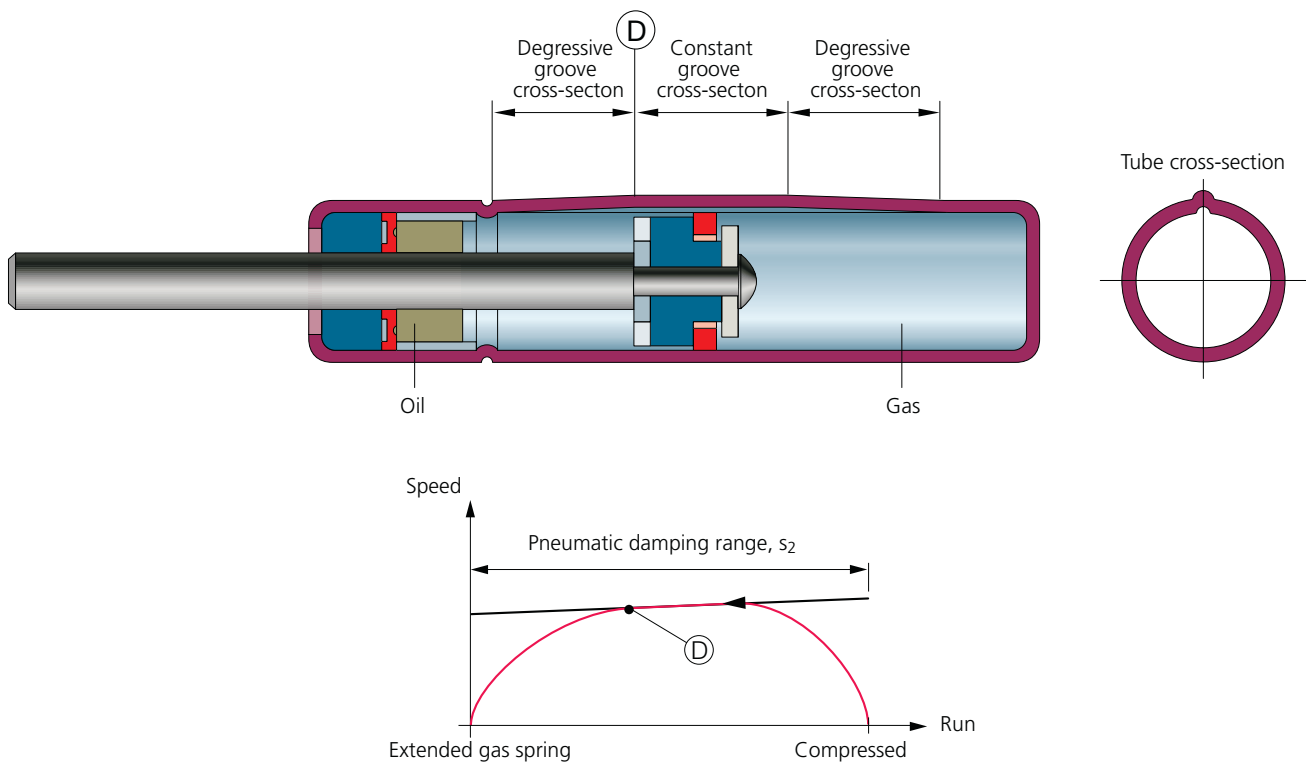
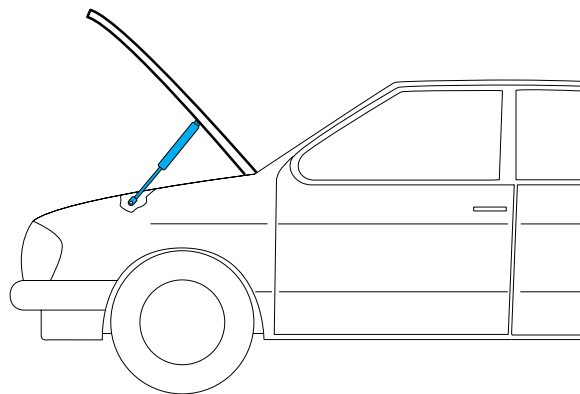
Functional Description

LIFT-O-MATs are gas springs allowing weight compensation, speed-controlled lifting and lowering, as well as defined damping. Depending on the individual application, damping can be provided hydraulically with an oil chamber or position-independently through dynamic damping. In this case damping occurs via an overflow groove located in the pressure tube.

Usually damping is arranged in such a way that the gas spring is dampened during extension whereas compression is undamped.

Depending on the application, additional compression damping is also possible. In some cases the bonnet must be specially damped during closing as rapid closing could cause damage to the vehicle components.

LIFT-O-MAT[®] with dynamic compression and extension damping



LIFT-O-MAT[®] With aluminium pressure tube

Functional Description

Light weight construction has reached a high importance in the automotive industry and will continue to do so in the future.

The STABILUS light weight gas spring once more proves the high adaptability of the product range to the market's requirements.

Compared to a gas spring of „traditional“ design but of the same dimensions, approximately 25% weight can be saved.

This essential functional advantage is being achieved by using an aluminium material pressure tube.



LIFT-O-MAT[®] With high corrosion resistancy

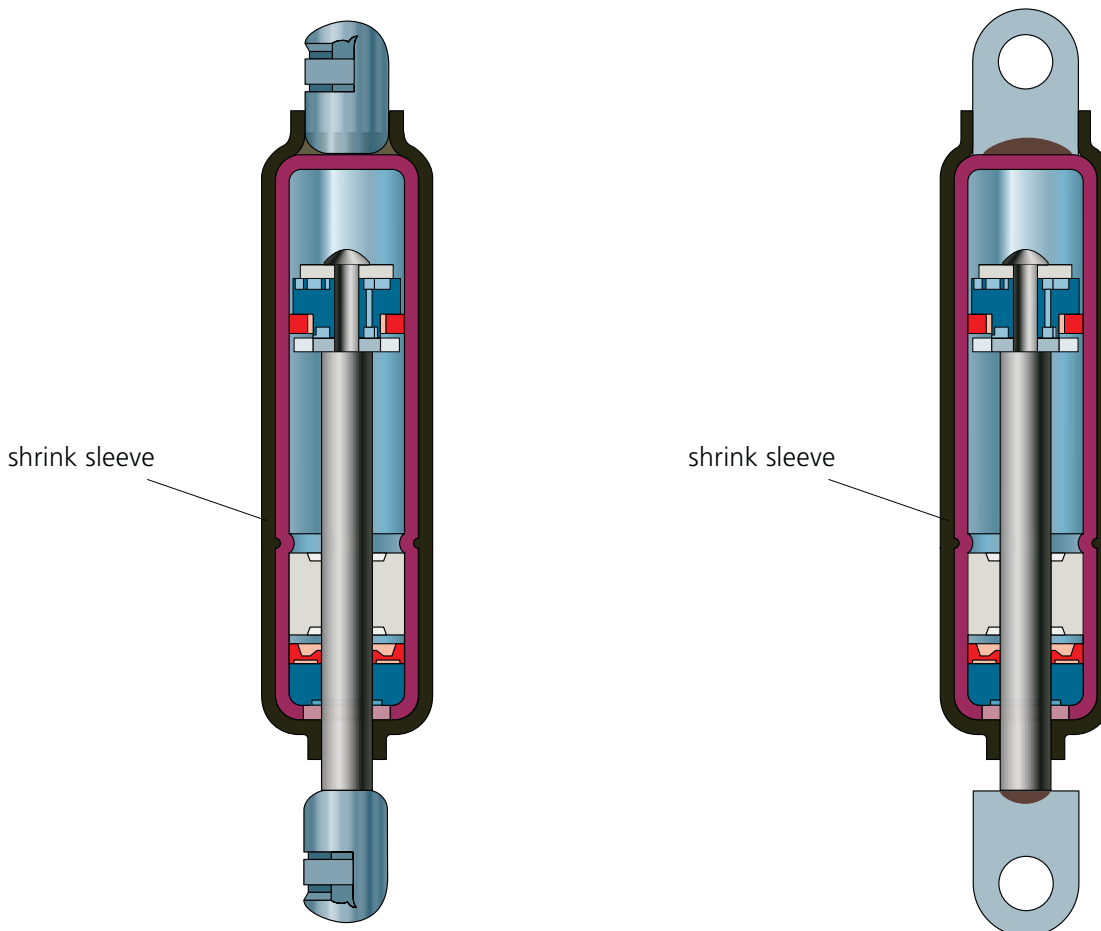
Functional Description

In order to satisfy customer requirements for constantly increasing corrosion resistancy, STABILUS developed the "Lift-O-Mat" gas spring with high corrosion resistancy.

Due to the superior material properties of the gas spring components further improvements to withstand chemical and mechanical influences could be achieved.

Several years ago STABILUS replaced the chrome plated piston rod with the Nislide rod and now further corrosion improvements can be accomplished by utilizing a plastic shrink sleeve as a cover for the pressure tube.

Exact positioning of the sleeve during the assembly process provides additional protection against entry of dirt into the gas spring, thereby a higher functional reliability is being accomplished.



DAMPER[®] with bottom valve

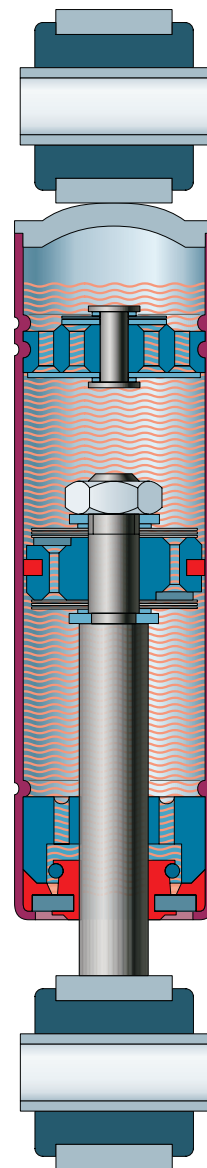
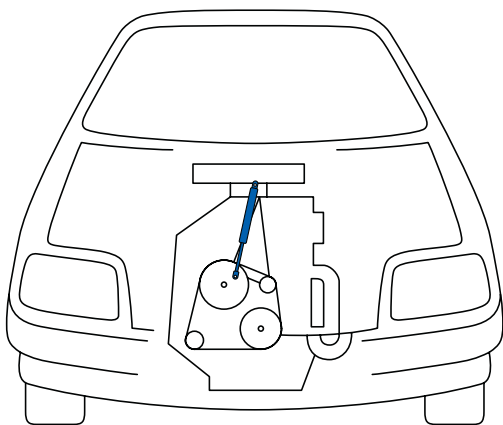
Functional Description

A damper with a bottom valve is positive acting without slip, which means that the full damping force is already available at the beginning of the stroke due to the bottom valve.

The damping rate can be customised to individual specifications. It can furthermore be varied along the length of the stroke using bypass grooves.

Long functional life, excellent quality and safety standards and high performance capabilities are further features of this damper design.

Its main areas of application are in tensioning systems, for engine mounts, in drivers' seats and as engine pitch damper.



DAMPER[®] with membrane

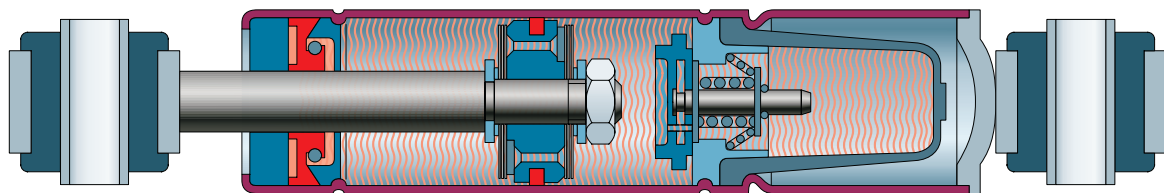
Functional Description

Dampers with membranes are hydraulic dampers and are mainly used in engines and in drivers' seats.

This damper is characterised by high capability feature in conjunction with a long life as well as high quality and safety standards.

Dampers with membranes can be mounted in any position. The reduced outer diameter is a further advantage which is achieved by placing the membrane behind the bottom valve.

The damping rate can be customised to individual specifications along the length of the stroke by setting bypass grooves.



PLUNGER-DAMPER

Functional Description

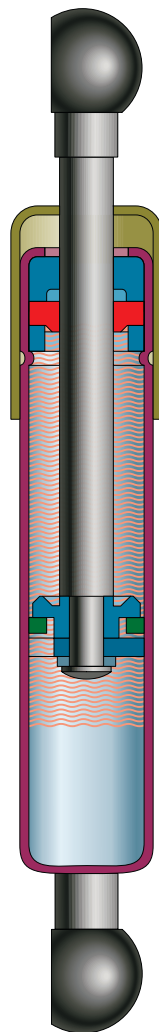
Plunger - dampers are hydraulic dampers that are mounted vertically. A certain degree of tilt is permissible.

The special feature of the plunger - damper is its simple construction. Straightforward production processes implied thereby mean that the plunger - damper can be offered at a low price.

Further characteristics are represented by high quality and safety standards, an extraordinary capability feature and by a very long life.

The damping rate can be customised to individual specifications along the length of the stroke by setting bypass grooves. Plunger-dampers are available in various dimensions, adjusted to the Package space and loading requirements.

Plunger - dampers are mainly used as regulating dampers for diesel pumps, transmission system dampers, washing machine dampers, drivers' seat dampers and in doors and hatches.



TA-DAMPER®

Functional Description

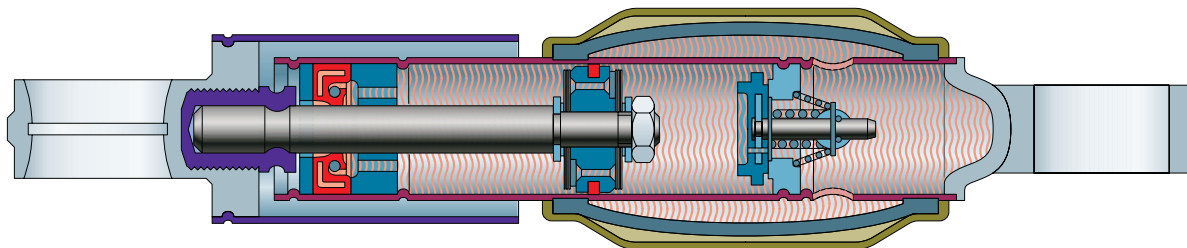
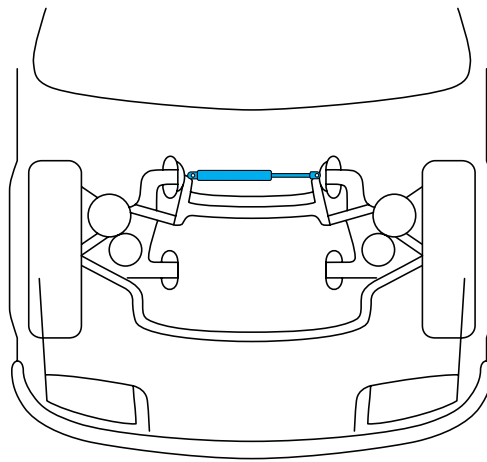
TA-dampers are hydraulic dampers that were developed for steering systems.

Due to their extraordinary capability feature coupled with a long life, excellent quality and safety standards, this damper is a standard component of sophisticated steering systems.

A special feature of the TA-damper is the placement of the membrane outside the pressure tube. This reduces construction lengths to a minimum. A further advantage is represented by the fact that it can be mounted in any position.

The damping characteristics can be individually adjusted. TA-dampers are also available in various dimensions for high forces and other special requirements.

Apart from its application in steering systems in passenger cars, busses and construction equipment, the TA-damper is also used in the inclination adjustments of hospital beds and as an engine pitch damper.



BLOC-O-LIFT® for seat height adjustment

Functional Description

Stabilus developed a hydraulic system for continuous height adjustment of vehicle seats. The target of this development was to achieve a suspension characteristic especially suitable for the seat ergonomics as well as extremely low friction.

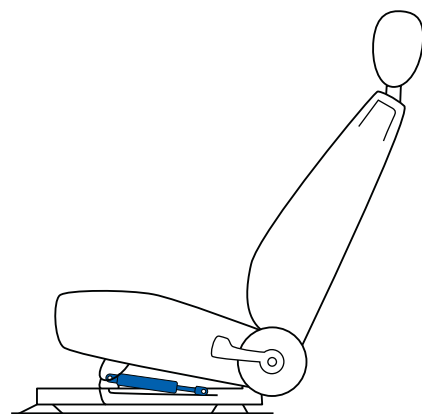
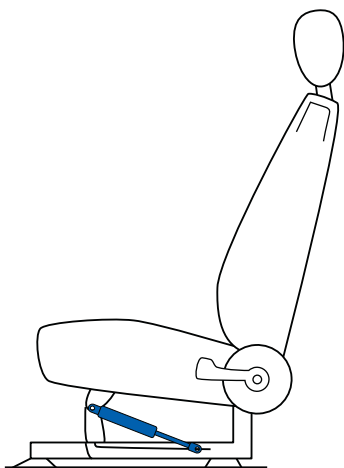
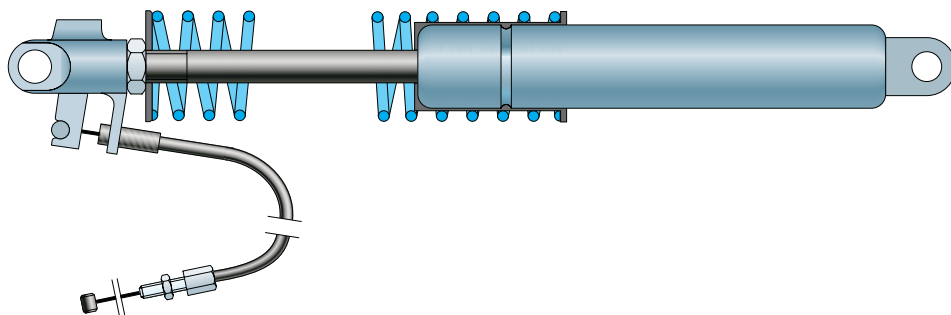
This product provides considerable advantages compared to other adjustment systems. It allows quick, precise and continuous height adjustment of seats with low operating efforts.

Also - like all gas springs - the unit has a large capacity for force storage at a rather low weight and compact dimensions.

Compared with the mechanic or electric systems, a simpler construction of the seat can be achieved. The seat height adjustment is similar to office chairs.

The design combination with a coil spring shown below, if necessary with a progressive characteristic, allows adaptation of the forces to the individual geometry of the seat.

This design meets the crash-requirements of the European, as well as of the North American market.



STAB-O-MAT®/STAB-O-BLOC® - COLUMN

with improved spring function at lowest seat position

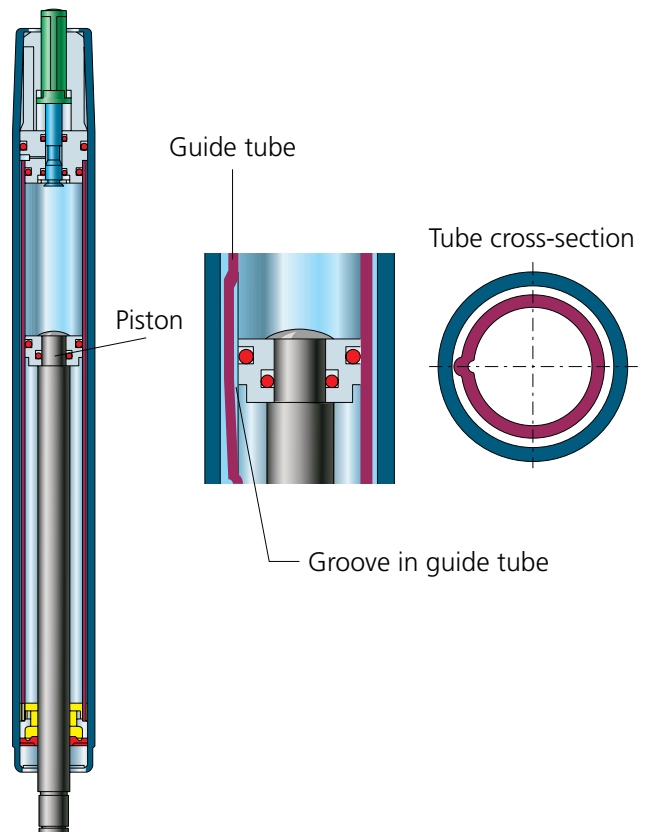
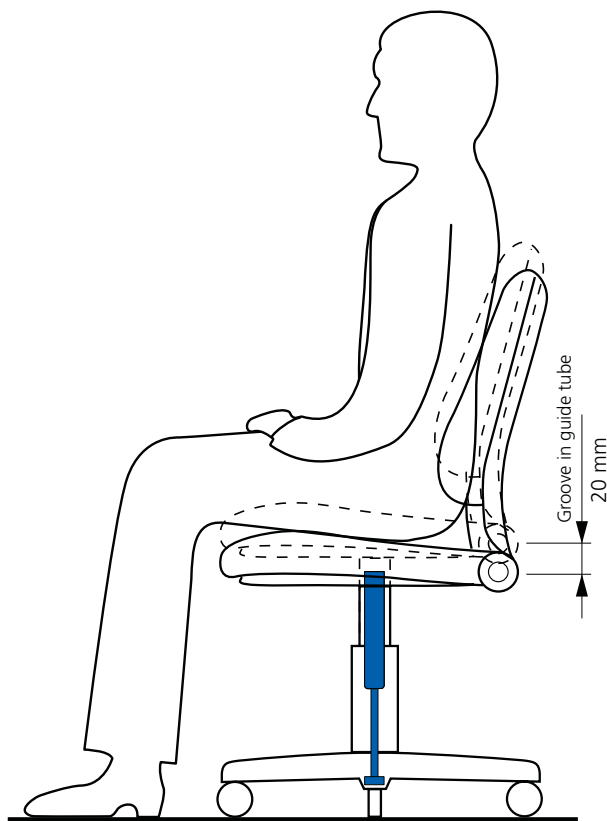
Functional Description

The STAB-O-MAT / STAB-O-BLOC for the stepless swivel-chair height adjustment has a spring effect at any chosen seat position. However, when the seat position is adjusted to its lowest setting the spring function is limited as the gas spring is in direct contact with a rubber bumper. Stabilus has developed a special feature providing

improved spring function at this seat position. Utilizing the proven Dynamic Damping technology (with groove in the guide tube) the seat chair drops with smooth damping onto the rubber bushing. The dynamic damping effect thereby improves the comfort of the gas spring with the special final stop feature furthermore.

STAB-O-MAT®/STAB-O-BLOC® Column with improved spring function at lowest seat position

Spring function at lowest seat position ca. 20 mm



STAB-O-MAT®

with increased adjustment

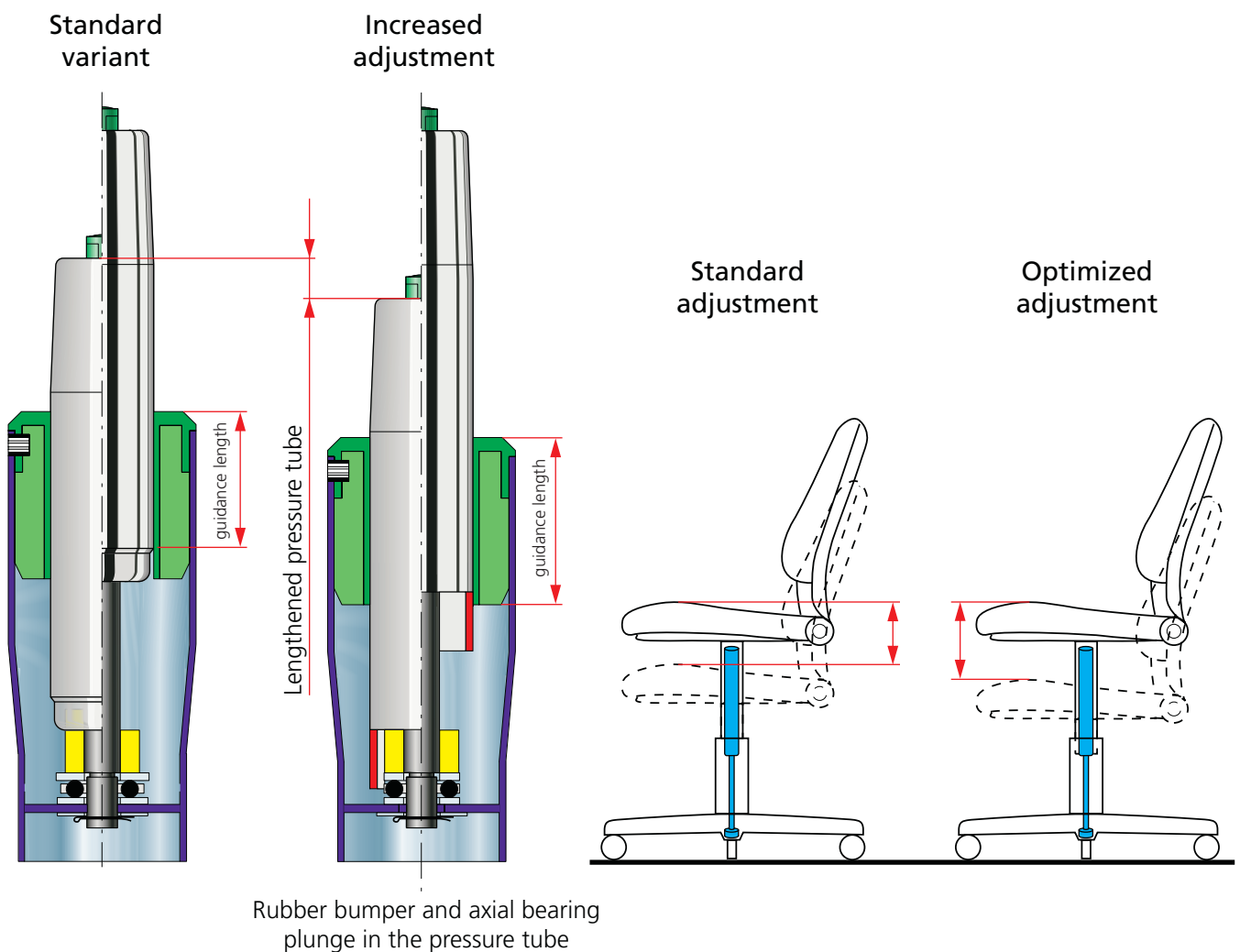
Functional Description

The height adjustment of STAB-O-MAT-columns is limited by the guidance length. The limitation occurs in the lower sitting position by contact of the rubber bumper on the close area of the gas spring.

An increase of the adjustment area automatically creates a lengthening of the stand tube. Thus the lowest possible sitting position is raised in order to secure the necessary guidance length in the plastic bushing.

This is often undesirable as also chair users of limited height should be provided with an ergonomically optimal sitting position.

The STABILUS variant with increased adjustment, by a different pressure tube design, allows the plunging of the rubber bumper in the lower tube area, thus making possible an additional adjustment of approx. 15 mm.



BLOC-O-LIFT® Function Variants

Functional Description

BLOC-O-LIFT are infinitely adjustable, hydropneumatic adjusting elements with extension force and defined damping. The devices are suitable for the infinite adjustment and locking of a large variety of applications.

The gas springs can be supplied in a rigid-locking or a more elastic-locking version. The rigid-locking version can be orientation-independent or orientation-dependent.

The choice of gas spring design depends on the required function. The locking function in hospital

beds should be rigid, whereas a chair height adjustment requires more elastic locking for improved comfort. The specific version for rigid blocking depends on the main direction of the load in the application.

The blocking is easily released via the release lever. The release stroke may be selected at 2.5 mm or 1 mm. The gas springs can be combined with STABILUS release head with lever and Bowden cable activation.

Elastic locking

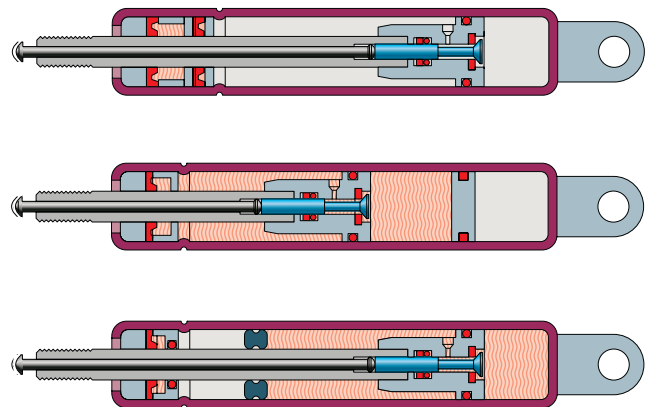
e.g. chair height adjustment, seat back rest adjustment

Rigid blocking, in pulling direction with floating piston in the pressure tube

e.g. seat incline adjustment, synchronised adjustment, hospital beds, vehicle seat adjustment

Rigid blocking, in compressed direction with floating piston on piston rod

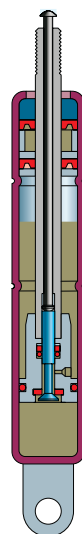
e.g. steering column adjustment, vehicle seat adjustment, hospital beds



Orientation-dependent rigid blocking

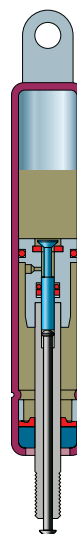
in the compressed direction with piston rod orientation upwards

e.g. table height adjustment, seat incline adjustment



in the extended direction with piston rod orientation downwards

e.g. synchronised adjustment, steering column adjustment



DORSTOP®

Functional Description

Stepless holding

vehicle door does not strike obstructions

- in narrow parking spaces
- in garages

vehicle door is held open

- also when parked up or down hill
- even in tilted vehicle orientations
- and gusts of winds

vehicle door stops exactly in desired position

- cautious positioning is not necessary
- door stay does not initiate any undesired movement of the door

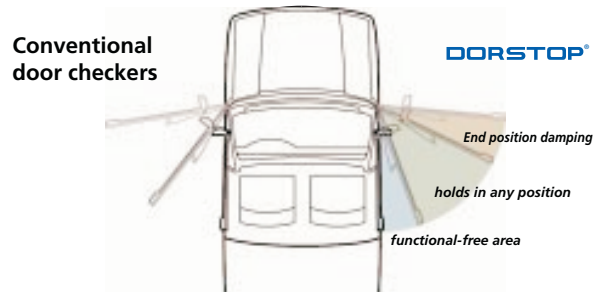
End position damping

vehicle door comes to a gentle stop

- in end position, e.g. during gusty winds down hill and tilted vehicle orientations
- in open position without bounce back of the door

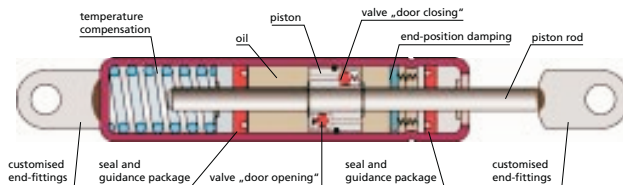
Easy door operation avoids injury and damage

Product comparison



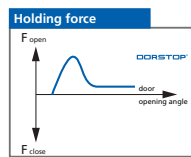
Product comparison	Conventional door checkers	DORSTOP®
technical operation	mechanical	hydraulic
secure holding	in pre-determined holding positions (locking)	stepless in any position
damping	none	end damping is model-specific adjusted
maintenance	???	none
force support	???	e.g. can be adapted as opening aid/ support for specific models
positioning force needed	fluctuating: 	constant:

Characteristics



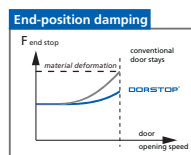
Holding force

- amount of force is adapted to specific model
- pleasantly perceptible



End-position damping

- model-specific adaptation of end damping angle and force

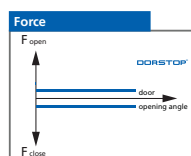


Functional-free area

- DORSTOP® function is deactivated
- optimally adapted to model-specific door angles

Force

- constant level of force without going through locking positions
- pleasantly low



End-fittings

- end-fittings for model-specific requirements
- e.g. ball-sockets for compensating offset and structural tolerances

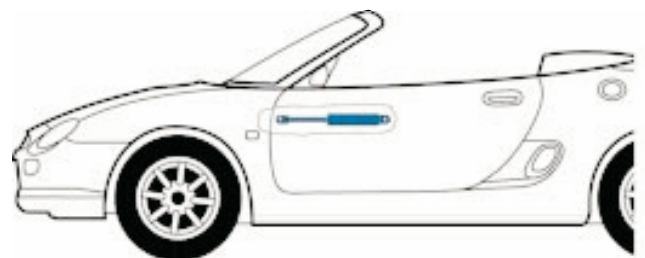
Requirements

Required installation space

- length approx. 400 mm (model-specific, depending on door kinematics)
- diameter approx. 22 mm

Structurally strong and reliable connections

- high stiffness of DORSTOP® connections is required in working direction



STAB-O-MAT® / STAB-O-BLOC® - COLUMN

with additional stop function

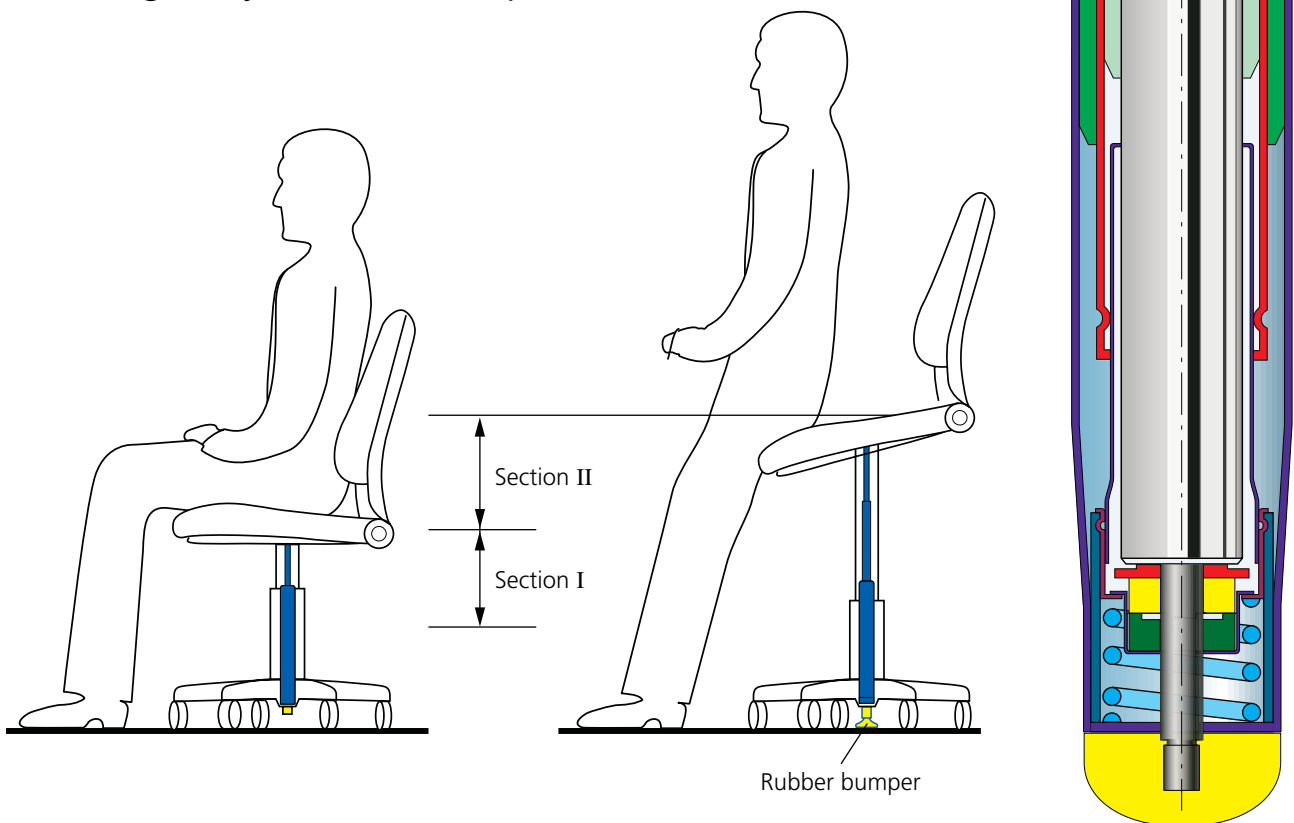
Functional Description

The STAB-O-BLOC-telescopic column with stroke-dependent stop function secures standing aids from rolling away above a pre-set set seat height position. In the lower seat height positions, the chair moves on the castors in the usual way. After a pre-determined height is reached, a rubber bumper contacts the floor preventing the chair from rolling away when used as a standing aid.

The STABILUS product demonstrates outstanding compliance with the requirements of office chair standard DIN 4551 and work chair standard DIN 88 877.

I. Standard Height Adjustment

II. Height Adjustment with stop-function



Driver Seat Dampers

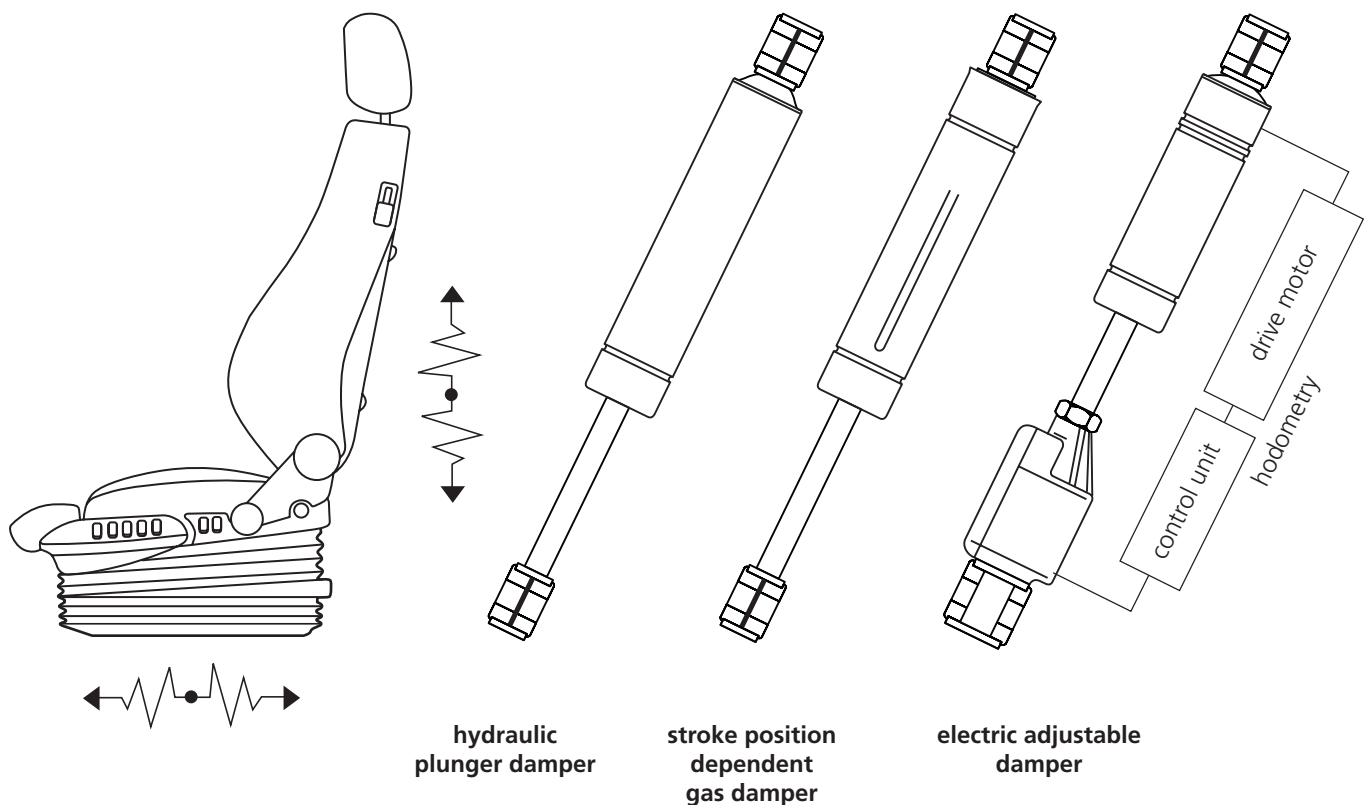
Functional Description

Commercial vehicle seats are increasingly being designed ergonomically in order to preserve, as best as possible, damper performance and the well-being of the driver. Apart from the pure form of the seat and the material used, spring-action technology particularly determines positive seating comfort. To achieve this, modern spring-damper systems provide the driver with far-reaching protection against vehicle vibrations and sudden shocks. Such protection prevents premature fatigue and adverse aftereffects.

STABILUS offers a wide range of driver seat dampers for ergonomic spring-action cushioning of driver seats. They range from classical hydraulic plunger dampers to path-controlled gas dampers

down to electrically adjustable dampers, which can be adapted to the respective situation and individual seating comfort. This wide range of products enables STABILUS to offer, for any application, the appropriate seat damper that fulfills all technical as well as economic requirements.

In order to ensure achieving the optimal cushioning and seating comfort for the respective application, damping characteristics should be individually adapted. In doing so, STABILUS is able to draw upon its many years of experience and state-of-the-art damper technology: for example, bypass grooves or electromotive adjustment damper systems.



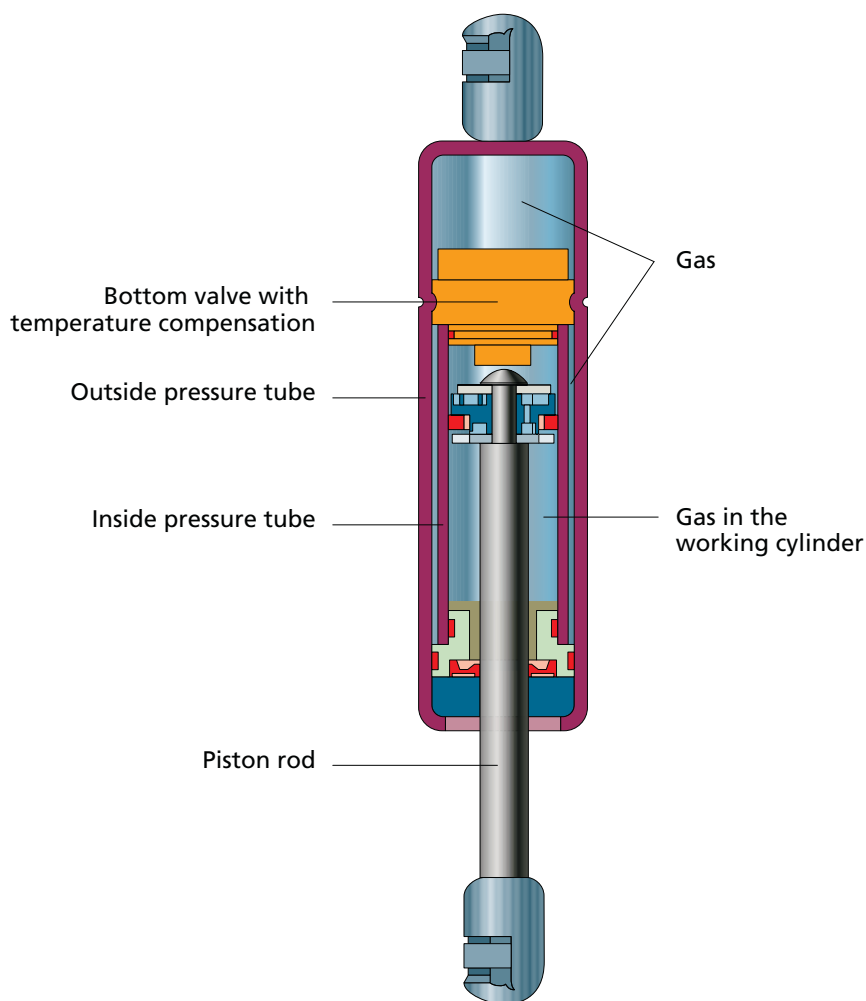
LIFT-O-MAT-T

Functional Description

The fill medium nitrogen in the gas spring is subject to pressure fluctuations due to temperature influences. This results in a force change of the gas spring, which in turn affects the opening and closing forces. In lower temperatures, the fill medium contracts and the extension force is reduced.


In order to minimize the temperature influence in certain applications, the LIFT-O-MAT-T model with temperature compensation can be installed.

In low temperatures, an additional gas chamber is connected through a valve, in order to increase the gas volume. The force curve of the gas spring in the application can be designed as follows: a higher gas volume is added at lower temperatures, thus compensating for the reduced extension force that would otherwise result, while closing forces do not increase disproportionately at higher temperatures.



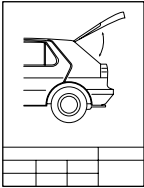
Application Engineering Competence

- 1** Product Development
Generate Design Concept



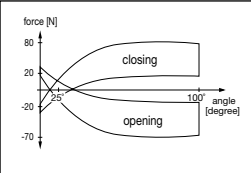
According to CAD data, concept layouts are being generated in order to apply our products to optimum performance. Tools: CATIA/C3P/AutoCAD

- 2** Proposals




CAD data are transferred, which allow installation and tolerance studies and thus lead to first product proposals.

- 3** Calculation of Kinematics




Calculation of kinematics
Gas spring design
Evaluation of opening and closing forces

- 4** Design



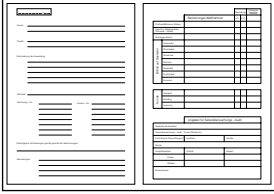
Computer-supported design of gas spring
Manufacturability study

- 5** Tuning



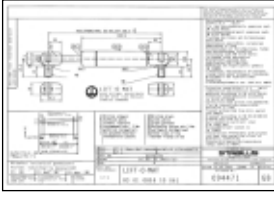
By means of our service car and our Expo-mobile gas springs and dampers are being manufactured and adjusted at the customer's site.

- 6** Sign-off



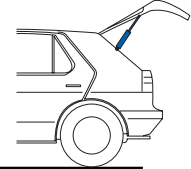
Sign-off procedure
= Confirmation of the tuning results together with the customer

- 7** Introduction into Series Production



Computer-supported design of the STABILUS bill of materials and process routings

- 8** Customer Satisfaction



Fulfilment of functional and quality requirements results in customer satisfaction.

STABILUS gas springs - a versatile application profile

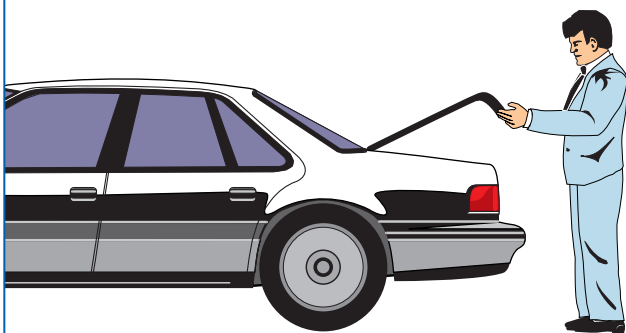
LIFT-O-MAT® **MULTI-STOP®** **INTER-STOP®**

A gas spring's function is only as good as the design of its application.

The number of gas spring applications increases constantly. Parallel to this, the requirements for comfort in the automotive industry gain a higher importance.

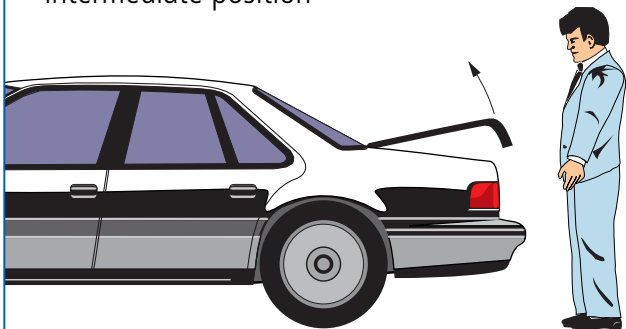
In order to adapt the function of the door to these high requirements, the STABILUS product range with its versatile combination possibilities offers the gas spring as an adaptable design component.

Manual operation



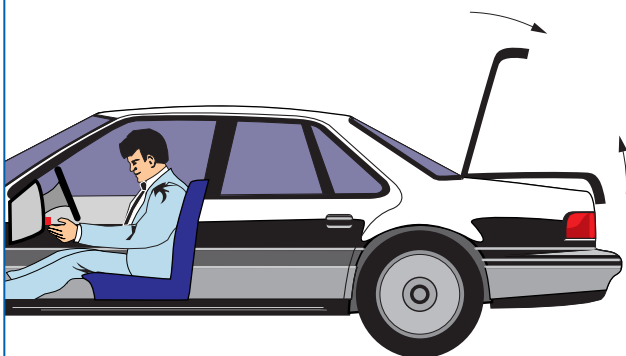
The LIFT -O-MAT gas spring can be adapted perfectly to the individual door kinematics. Thereby the gas spring offers the expected convenience for easy manual operation of tailgates, trunk lids and bonnets.

Automatic opening to an intermediate position



Also additional functional demands like automatic opening to an intermediate position can be realized with gas springs. The products MULTI-STOP, INTER-STOP as well as LIFT-O-MAT gas springs (with individually chosen spring characteristic by using additional mechanical spring (POP-UP SPRING)) offer these possibilities.

Remote control



Even if a self-opening of the door is intended, the use of a suitable gas spring offers the desired solution. According to the customer's wish a comfortable self-opening can be achieved, either only partially or over the whole opening angle.

The closing process can be executed manually or also with remote control by using additional hydraulic or electric components which then have to be adapted to the individual application.

BLOC-O-LIFT[®] with Release-Stop

Today's ergonomic requirements demand certain seat- and backrest-behaviour in swivel-chairs. The step-less adjustment is achieved with the small dimensioned locking gas spring BLOC-O-LIFT.

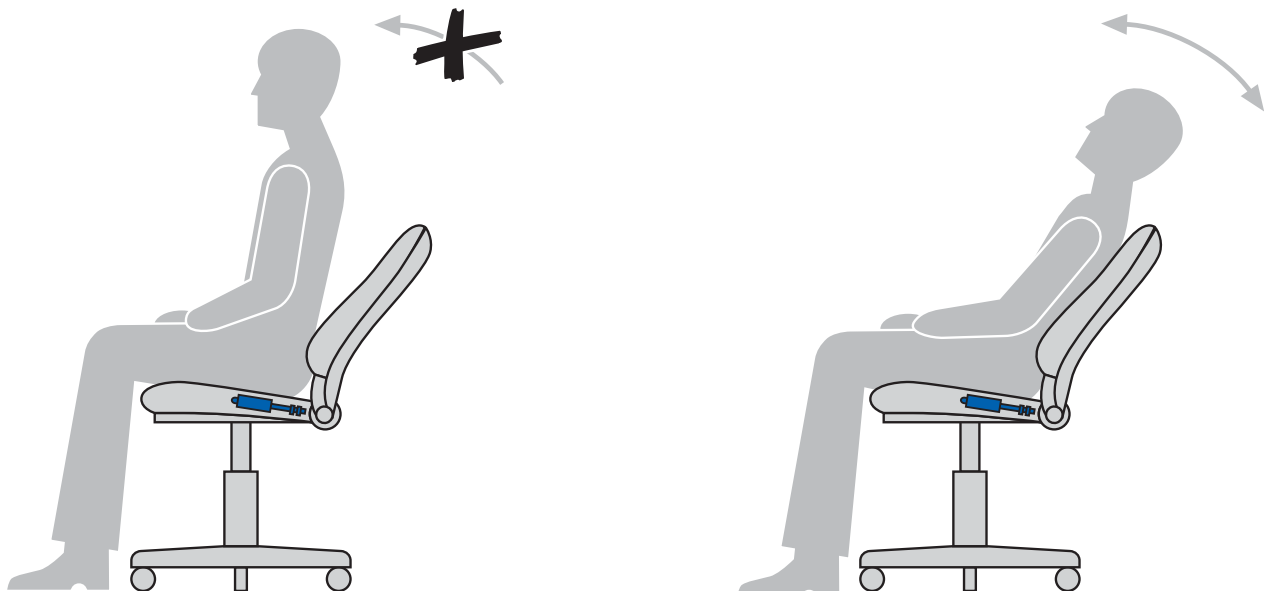
The newest ergonomic requirement for the backrest, in particular, is that it remains in contact with the back of the user and „flows with the body“ even during quick movements. This feature requires less damping in the gas spring to fasten its response.

A problem that results from this is that if the backrest-lever is released whilst the seat-back is reclined and unstressed, the seat-back jumps

forward rapidly into the upright position, the possible consequence being to hit the user in the back.

BLOC-O-LIFT with release-stop is the solution to this problem. An on-off valve in the gas spring prevents any adjustment of the backrest unless the back itself is under load. Leaning on the back releases the on-off valve allowing the backrest to follow the user. When this force is undetected, the backrest remains locked in its position.

Stabilus offers for each installation of backrest and seat-tilt function the optimal technical solution with the BLOC-O-LIFT with release-stop.



Adjustment only possible under load