

## Gas Springs and Dampers

for Medical Technology and Rehab Applications

**BLOC-O-LIFT®**

**HYDRO-LIFT®**

**LIFT-O-MAT®**

**STAB-O-MAT®**

**STAB-O-SHOC®**



# We Move Things – Gas Springs and Dampers from STABILUS

**Moving, damping,  
stabilising.  
Creating comfort and  
safety in all areas of  
life is our business.**

Ideas are promptly followed by solutions. Innovative thoughts become reality. The gas springs and hydraulic dampers from STABILUS make our lives a great deal more comfortable, quieter and especially, safer.

Safety, reliability and consistent top quality have made us what we are today – a world market leader and global supplier. More than 120 million units supplied per year speak for themselves.

This success comes from the fact that for STABILUS customer satisfaction, customer proximity and service are major company goals. The application areas for our gas springs and dampers can be described in two words: "Almost omnipresent." In house and home, healthcare and nursing, on the job. In offices, on roads, in industry. On the ground, on the water, in the air:

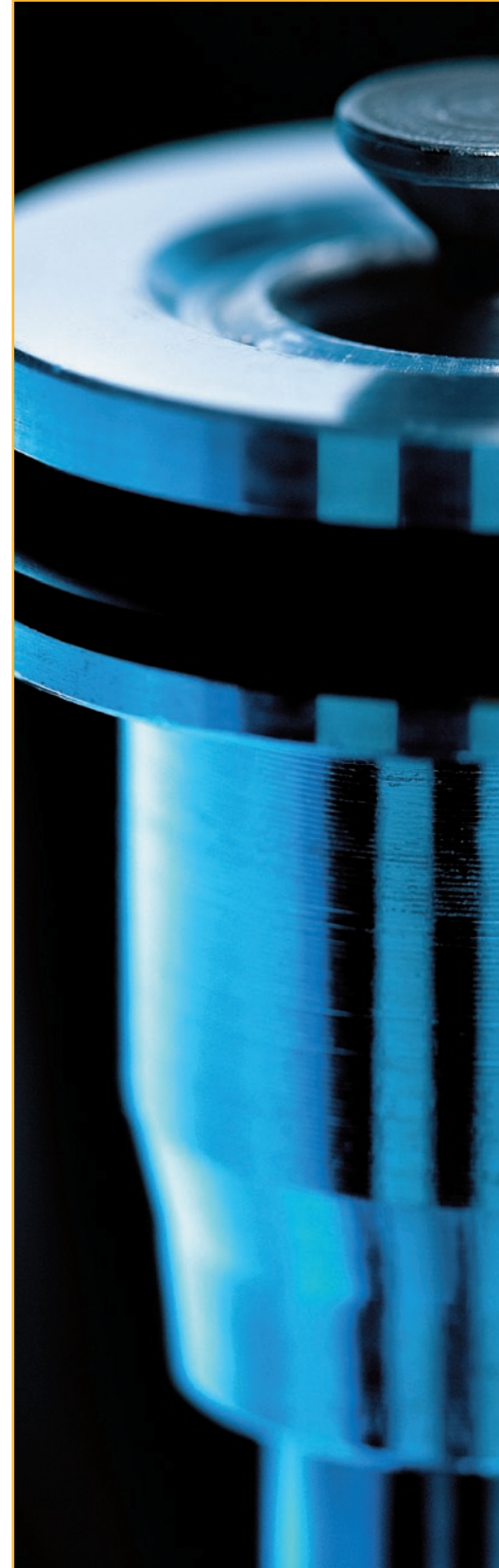
**STABILUS ...technology gives  
comfort.**

**Side by side with the  
customer. Aware of our  
responsibility.**

STABILUS products are unique: We take a standard product and customise it according to the requirements and wishes of our customers. Or we develop a new one. We refine, optimise, improve. Continuously.

Around the globe, we take the holistic approach; while we are fully aware of our responsibility towards our communities and the environment. In development and production, our primary focus is on modern, environmentally friendly production technologies; we do not lose sight of the environmentally compatible disposal of our products either. Our **DIN ISO 14001 certification and the EMAS validation** are proof of that. In addition, we comply with customer and legal requirements regarding hazardous materials in products (e.g., CrVI-free products).

**Your satisfaction is our goal.**





**STABILUS  
Gas springs and dampers.  
Safe and reliable.**

Opening. Closing. Holding.  
Damping. In medical and rehab  
technology in particular, comfort  
and safety are the top require-  
ments when using any kind of  
equipment. STABILUS can help  
in a broad range of applications.  
Without compromise.  
Unequivocal. Customer-oriented.  
Forward-looking.

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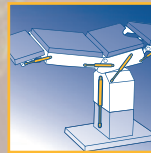


# Gas Springs and Dampers for Medical Technology and Rehab Applications

STABILUS gas springs and dampers are used in operating, treatment, and therapy rooms, in hospital wards, in nursing, as well as in the management of hospitals, physicians' offices, treatment and rehab centres. Gas springs and dampers support lifting, lowering, adjusting, and setting of movable design elements in medical equipment comfortably, safely, and accurately. They provide additional comfort and mobility, support the user, and clearly reduce risks.

STABILUS gas springs and dampers feature the following benefits for the respective applications:

- Fully self-contained
- Maintenance-free
- Low-noise
- Safety during power outages
- Fast, individual height adjustment
- Progressive, effortless adjustment options
- No e-smog
- No fire hazard
- Mechanical actuation systems, therefore no leaks



## Medical beds:

Locking gas springs from STABILUS are used in operating tables, therapy beds and massage tables. In addition to comfortable height adjustment, they allow progressive, easy adjustments of the back, head, and leg sections to the desired incline. Even weight fluctuations between defined limits, for example due to varying body weights, can be covered.



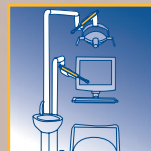
## Home care and hospital beds:

STABILUS gas springs make it easy to individually set resting and reading positions as well as height adjustment. With their support, adjusting the head-section and main sections is comfortable and without strain. Oilhydraulic dampers from STABILUS ensure safe and comfortable lowering of the head panel and the side rails.



## Hospital overbed tables:

With the locking gas springs, the table top height can be adjusted easily, even under varying weights, and folded away quickly when necessary.



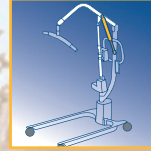
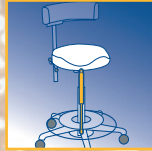
## Brackets:

In fixed and swivelling brackets for monitors, lamps, and medical equipment, the STABILUS gas springs allow variable, smooth, and even positioning of the function element across the entire usage range. For example, due to variable articulation joints, objects of different weights can be moved.



**Physician's and treatment stools:**

When equipped with STABILUS gas springs, the user can quickly and individually adjust their height. Here, manual actuation and, in particular, foot actuation (3rd hand) is possible.

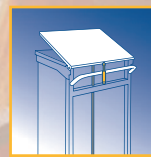


**Patient hosts:**

STABILUS dampers are installed as safety components, should an electrical or pneumatic actuator fail. If the actuator fails, the damper brakes the speed, thereby preventing a fast fall or slamming of the patient seat.

**Wheelchairs:**

In wheelchairs, gas springs provide ease of height and incline adjustment for backrest and seat. This facilitates getting in and out of bed. STABILUS dampers are used to dampen the running wheels.



**Sanitary containers, trash cans:**

With STABILUS dampers, the lids and covers of sanitary or trash containers in hospital environments close quietly and safely.

**Scoters:**

STABILUS products are installed in various scooter applications (electric scooters). The gas springs support comfortable height and incline regulation of steering column, seat, and get-up function. If needed, they can hold the lid of the battery box open. Dampers provide enhanced driving comfort, thereby relieving strain on spine and discs.



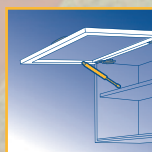
**Walkers:**

In walkers, STABILUS gas springs allow fast and individual height adjustments to the respective user.



**Cabinets and furniture:**

Here, STABILUS gas springs are used for safe and easy opening and closing of covers and cabinet doors.





# STABILUS - The Vanguard in Quality, Service, Consulting, Innovation

## Quality for the most exacting demands

We guarantee our customers the highest product quality – world-wide.

Our quality management for each process starts in preliminary planning and stays with the product from the idea to series maturity. Our testing labs continuously monitor the quality of products and processes. STABILUS gas springs and dampers are maintenance-free. Designed for the respective requirements, they can work for years reliably without failing. Our goal is "zero defect production!" That is why not only end products, but all production lines designed by STABILUS are monitored on a regular basis. With our consistent quality we meet the high requirements of international standards, such as DIN EN ISO 9001-2000, ISO/TS 16949-2002, ISO 14001-2004.

**We live quality. You can rely on us.**



## Service includes application consulting

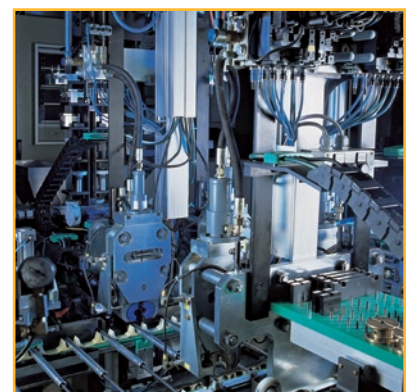
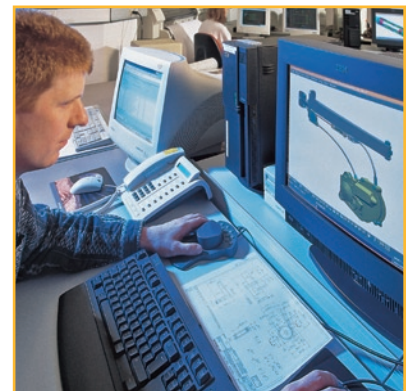
Each installation situation has its specific requirements. Providing individual solutions for your task is what drives us. We offer service, meaning extensive application consulting, including installation proposal and construction of samples. Systems and standards are defined in consultation with our customer. From the initial idea to series maturity of the optimum individual solution, the expertise of our pool of engineers, specialists and experienced application consultants will be at your call.

**Put us to the test! We will grow with your demands.**

## Innovation

Easier, larger, stronger, more compact! Production processes are improved, existing products become more powerful: Our engineers are always working on technical innovations. New areas of application. New materials. New views. New "perspectives" – independent of customer inquiries, we research and develop for the future, facing the demands of progress.

**Welcome future.  
What can we do for you?**



# Advantages and Properties of Gas Springs and Dampers

STABILUS offers a broad standard product line yielding a wide variety of gas springs and dampers with different dimensions, speed curves, and push-out variants. To develop your individual solution to series maturity, we do not have to "reinvent the wheel;" working from a large selection of "basics" we can save development time.

Besides the benefits of gas springs in medical and rehab

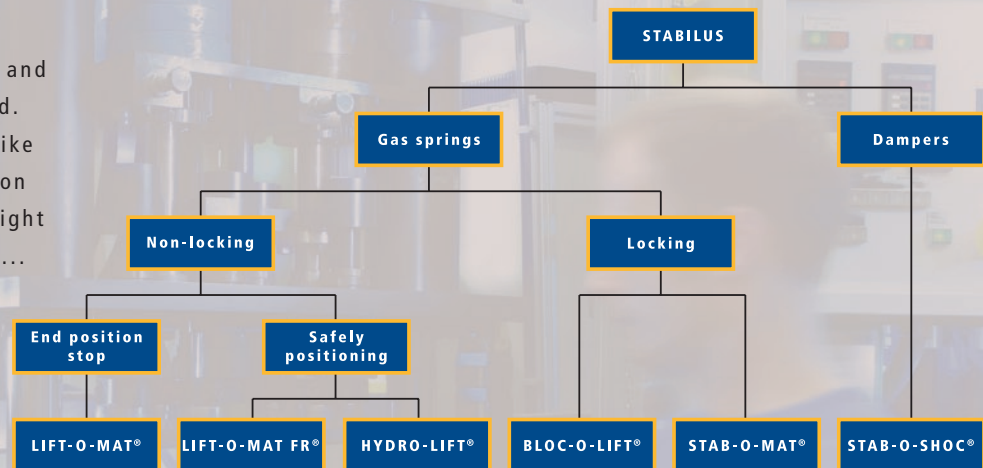
technology, STABILUS products feature a number of fundamental technical properties:

- Broad selection of sizes and force variants
- Compact design for installation in the smallest of spaces
- Flat spring characteristic curve; i.e., low force increase, even for high forces or large strokes
- Linear, progressive, or decreasing spring characteristic curve
- Wide variety of end fittings

- Optionally flat or steep spring characteristic curve
- Infinitely variable locking into position (product-specific)
- End position stop (extended or compressed)
- Elastic or rigid behaviour in the locked position
- Mechanical actuation systems for locking gas springs
- Additional functions, such as electrical switches, protective tube, STOP function
- Override-functions for overload protection

## Which Gas Spring, which Damper for which Application?

The uses for our gas springs and dampers are nearly unlimited. In this overview, we would like to give you a little orientation guideline for selecting the right product for your application...



	LIFT-O-MAT®	LIFT-O-MAT FR®	HYDRO-LIFT®	BLOC-O-LIFT®	STAB-O-MAT®	STAB-O-SHOC®
Beds (home care beds, hospital beds)	•		•	•		•
Night stands (clinic and rehab)	•		•	•		
Tables (treatment, massage, operation)	•		•	•		•
Stools (physicians, treatment)	•			•	•	•
Wheelchairs and scooters	•			•		•
Walkers	•			•		•
Easy chair	•		•	•		
Trash cans, waste bins	•	•				•
Swivel arms and brackets (monitor)	•	•	•	•		•
Lamp and lighting stands	•	•	•	•		•
Cabinet furniture (clinic and rehab)	•	•	•	•		•

# Locking Gas Springs

## BLOC-O-LIFT®

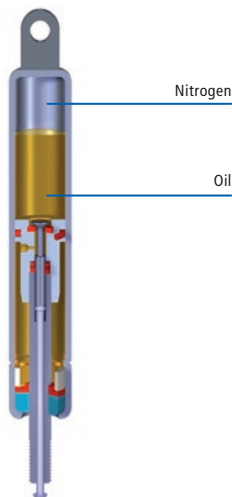


### BLOC-O-LIFT rigid or spring-locking

BLOC-O-LIFT gas springs fulfil functions such as adjusting with force support, damping, and progressive locking. We achieve this with a special piston valve system. If the valve is open, BLOC-O-LIFT provides force support and damping. If the valve is closed, the gas spring locks and provides very high resistance to any motion.

BLOC-O-LIFT can have spring or rigid locking. The rigid locking version is available as orientation-specific or non-orientation specific.

- Infinitely variable locking into position



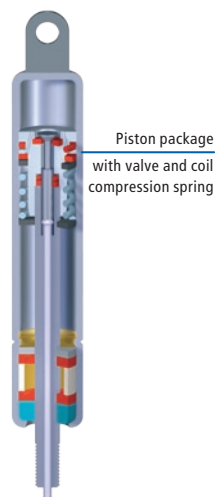
#### Applications:

- Walkers, wheelchairs
- Hospital and home care beds
- Massage, treatment tables
- Operating tables

### BLOC-O-LIFT with override function

This locking gas spring with additional override function protects applications from overload and facilitates the handling for the user. The override function is available for the tension or compression direction; it can be realised in gas springs with arbitrary installation orientation as well as those for vertical installation.

- Infinitely variable locking into position with tension or compression override function



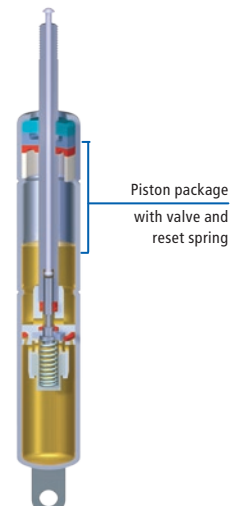
#### Applications:

- Head and foot sections of treatment tables, hospital beds, massage tables

### BLOC-O-LIFT OBТ over-bed-table

BLOC-O-LIFT OBТ permits variable height adjustment. The upward movement of the table does not require actuation. In the compression direction, BLOC-O-LIFT OBТ can be locked progressively. Usually, the OBТ function of gas springs is used in vertical installation. Compression without actuation can be realised also (KOMBI-LIFT function).

- Safe and fast lifting without actuation



#### Applications:

- Hospital overbed tables



**STABILUS  
BLOC-O-LIFT®**  
HOHER DRUCK  
NICHT ÖFFNEN, NICHT ERHITZEN  
ENTSORGUNGSVORSCHRIFT BEACHTEN  
HIGH PRESSURE  
DO NOT OPEN, DO NOT HEAT  
OBSERVE DISPOSAL INSTRUCTIONS  
HAUTE PRESSION  
NE PAS OUVRIRE, NE PAS CHAUFFER  
RESPECTER LES INSTRUCTIONS DE  
RECYCLAGE  
D-88720 KOBLENZ, GERMANY



### **BLOC-O-LIFT with corrosion-protected tappet**

In this patented STABILUS solution, the tappet itself is made from stainless steel and sealed with an additional lip seal where the tappet exits the piston rod. This prevents splashed water from entering, counteracting any corrosion transfer between tappet and piston rod.

When retrofitted, a standard BLOC-O-LIFT can be easily replaced with a BLOC-O-LIFT with a corrosion-proof tappet, since this component is independent of the installation length.





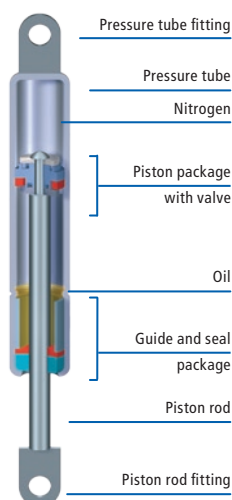
# Non-locking Gas Springs

## LIFT-O-MAT® and HYDRO-LIFT®

### LIFT-O-MAT

LIFT-O-MAT standard gas springs are non-locking gas springs. They are used whenever components, such as doors, covers, and lids, must be brought into a defined end position. LIFT-O-MAT supports the damping action through its extension force, ensuring smooth motion.

- Optimised weight compensation during lifting and lowering
- Dampened adjustment motion over defined ranges or continuously, also with dynamic damping regardless of installation orientation
- Controlled extension speed
- Great control over the damping characteristics for dynamic damping



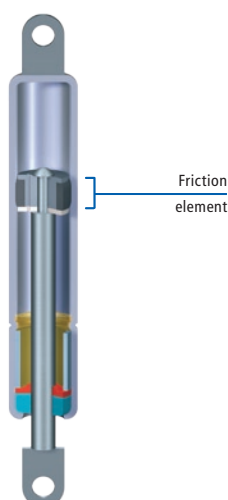
#### Applications:

- Heavy swivel arms and brackets

### LIFT-O-MAT FR

The LIFT-O-MAT FR features a special piston package with an integrated friction element, which – in addition to force support – allows variable holding over the entire adjustment range. This gas spring is used to safely position the application, without the need to use a stop or an actuation mechanism.

- Progressive positioning without an actuation mechanism
- Especially for offsetting small weight fluctuations



#### Applications:

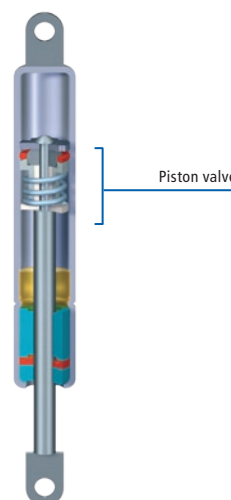
- Top cabinet doors
- Freely movable brackets in medical technology

### HYDRO-LIFT

HYDRO-LIFT is a gas spring featuring a special piston package with a valve closing system, which – in addition to force support – allows progressive positioning over the entire adjustment range. Depending on the design of the HYDRO-LIFT, the hold function can be active across the entire adjustment range, or in one or more partial ranges of the stroke.

Unlike the gas-filled version, the oil-filled features limited, rigid locking and switching in the compression direction. This is primarily used for little weights. This eliminates bounce.

- Holds the application without an actuation mechanism
- Especially for larger weight fluctuations within defined limits



#### Applications:

- Foot sections in hospital beds
- Lamp stands, monitor arms and brackets in medical technology.

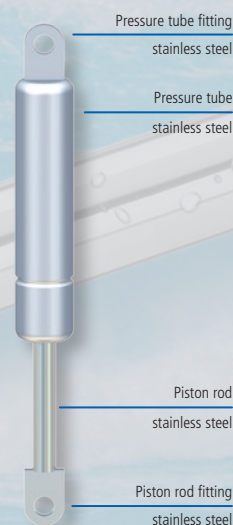




**LIFT-O-MAT INOX LINE**

The LIFT-O-MAT INOX LINE is a gas spring that is particularly corrosion resistant due to the use of V4A steel (see DIN EN 100 88-1). Excellent corrosion protection in acid or alkaline environments. The gas spring is not magnetic; the oils used are biodegradable and are classified as "no hazard to water" in the water hazard class (WGK).

- Corrosion-resistant
- Non-magnetic
- Easy-to-clean surface



**Applications:**

- Equipment in operating theatres, labs, radiology suites

# Dampers

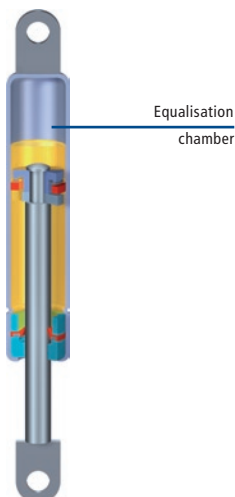
## STAB-O-SHOC®



### STAB-O-SHOC HD15

The standard STAB-O-SHOC is a non-pressurised hydraulic damper. STAB-O-SHOC is orientation-specific and achieves its optimum function in almost vertical installation with force transmission without a return stroke, in a single direction of movement. Special variants with horizontal function are also possible, as are models providing force support during extension or path-dependent damping.

- For lower damping forces
- Speed-dependent damping of motion and vibration
- Controlled opening and closing
- Relief of hinges and adjacent components



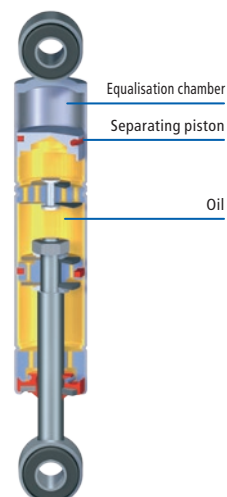
#### Applications:

- Side rails of hospital beds
- Trash cans

### STAB-O-SHOC HD24/HD29

STAB-O-SHOC HD24/HD29 is a hydraulic vibration damper for high loads. As standard, the dampers are orientation-specific. A wide range of special models are also available, for example for force transmission without a return stroke in any direction of movement. The characteristic curve can be adapted to the application at the factory: decreasing, progressive, or almost linear. Pressure-loaded and path-specific models are also available.

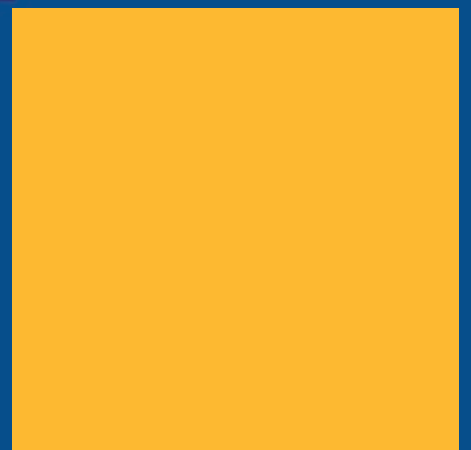
- Can be used for high forces
- Speed-dependent damping of motion and vibration
- Controlled opening and closing



#### Applications:

- Relief of hinges and adjacent components
- Vibration damping
- Used in accident prevention



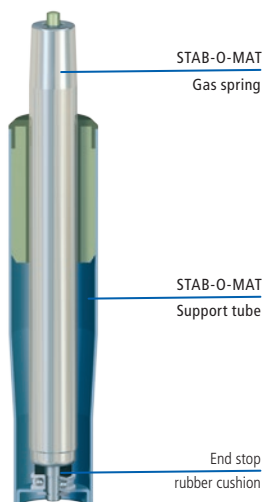


# STAB-O-MAT® Gas Springs for Comfortable Height Adjustment in Swivel Chairs

## STAB-O-MAT

STAB-O-MAT are locking gas springs, especially for variable, comfortable seat height adjustment of physicians' stools, office swivel chairs, or task chairs. Special requirements posed on seating furniture are also taken into consideration, such as chairs that do not spin or roll away. Meets certain values for electrostatic discharge.

- Complete column or gas spring
- Strokes of 50 - 300 mm
- Swivelling and non-swivelling versions
- Outer tube models
- Telescope column with a disproportionate adjustment range
- Adjustable actuation tappets
- Different actuation systems
- Column with stop function



### Applications:

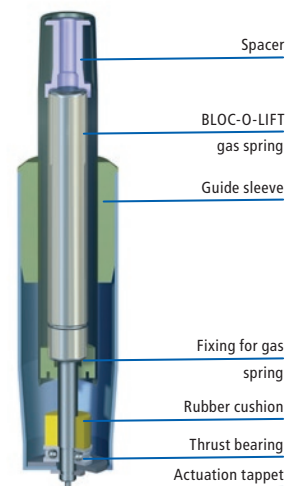
- Height adjustment of physicians' chairs and stools



## BLOC-O-LIFT column

The BLOC-O-LIFT column is a self-supporting, locking gas spring for height adjustment via foot actuation. It allows both spring and rigid locking.

- Same general benefits as STAB-O-MAT
- Foot actuation (3rd hand)
- Spring and rigid locking



### Applications:

- „Hands free“ foot actuation in physicians' stools and chairs



## One-on-One Solutions

### Step-by-step to custom-tailored products

The uses for our gas springs and dampers are nearly unlimited – yet our customers think of new ones all the time.

“We can do it – with your help” is the motto for our application engineers who design new products and applications together with our customers. Your ideas inspire us.

We have developed special programs that we use to simulate the desired motions and to create installation suggestions. Together with our customer we design custom-tailored solutions – from improvements of existing products to completely new product developments.

We are here to support you with our expertise.

For more than 70 years, STABILUS has been designing innovative solutions for active safety and increased comfort for humans and technology.

**If you want to move something too – talk to us!**





- production facilities
- representatives

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