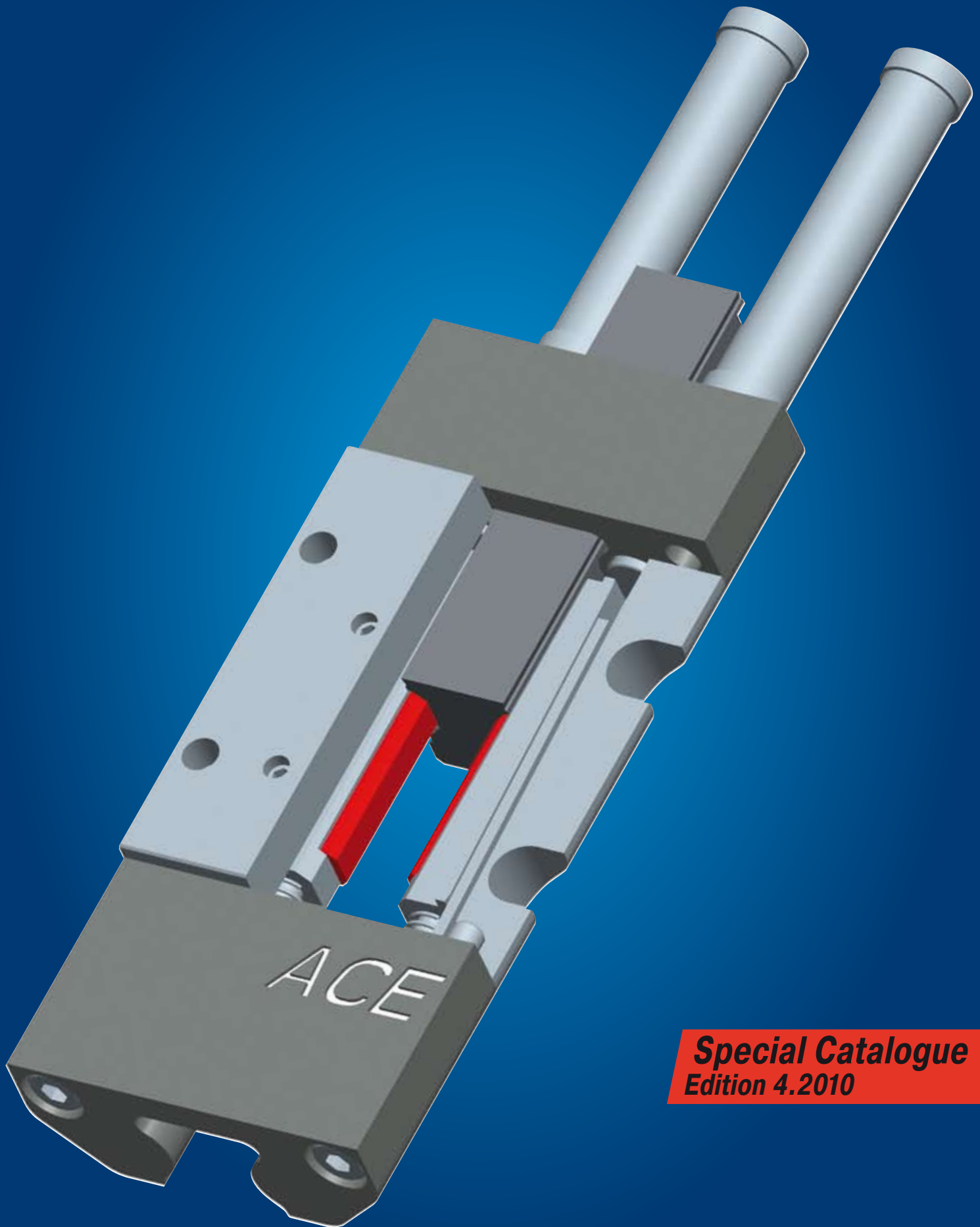


**ACE**

**Clamp and Safety Systems**



**Special Catalogue**  
Edition 4.2010

**Dear Customer,  
Dear Reader,**

You are probably wondering “Why a new special catalogue?”

Well, the main catalogue offers all products for the effective end position damping and the controlled total movement. The following pages provide solutions for controlled fixing in the operational process, be it linear or rotary. We face the challenges of **brakes and clamps**.

Next to the ACE-LOCKED-series for rail-, rod- and rotation clamping successfully introduced in 2006, the clamping with safety functions for Z-axes of the **LOCKED LZ-P series** supplements the range of solutions.

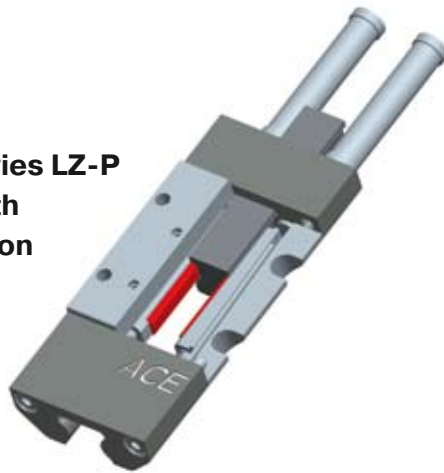
The LOCKED LZ-P offers utmost holding force and was especially designed for the safe and reliable clamping in gravity-loaded axes.

Initially the **LOCKED LZ-P** was developed for the pneumatic operation. In future it will also be available as electrical version.

Use your individual LOCKED solution for a safe operational process.

In connection with the tried and tested SCS safety shock absorbers or the TUBUS profile dampers, ACE offers an all-round carefree package in matters of industrial break- and clamping systems.

**LOCKED-Series LZ-P**  
**Clamping with**  
**safety function**  
**for Z-axes**



Further information on the ACE world of industrial damping technology can be found in the current main catalogue or at the ACE international homepage at **[www.acecontrols-int.com](http://www.acecontrols-int.com)**.



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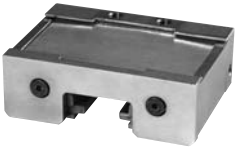
### **LOCKED-Series Type PL** Process Clamping for Linear Rail Systems



- Your advantages:**
- Maximum clamping force
  - Shortest reaction time
  - Compact design
  - Easy to mount

|   |       |
|---|-------|
| Process clamping for linear rails and guideways PL  | 4 - 5 |
| Process clamping for linear rails and guideways PLK | 6 - 7 |
| Process clamping for linear rails and guideways PLA | 8 - 9 |

### **LOCKED-Series Type SL** Safety Clamping with Emergency Stop for Linear Rail Systems



- Your advantages:**
- Maximum safety
  - Shortest stopping distance
  - For all common rail profiles

|  |         |
|--|---------|
| Safety clamping for linear rails and guideways SL  | 10 - 11 |
| Safety clamping for linear rails and guideways SLK | 12 - 13 |

### **LOCKED-Series Type LZ-P** Clamping with Safety Function for Z-Axes



- Your advantages:**
- Maximum safety
  - Shortest stopping distance

|   |         |
|---|---------|
| Clamping with safety function for Z-axes LZ-P | 14 - 15 |
| Design and function PL/SL-Series              | 16      |
| Mounting and installation hints PL/SL-Series  | 17 - 18 |
| Request form for linear rail clamping         | 19      |

### **LOCKED-Series Type P** Pneumatic Rod Clamping



- Your advantages:**
- Maximum clamping force
  - Model for ISO cylinders
  - Compact design
  - Static safety clamping
  - Modular construction

|  |         |
|--|---------|
| Pneumatic rod clamping P                         | 20      |
| Pneumatic rod clamping, standard model PN        | 21      |
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| Pneumatic rod clamping with additional safety PZ | 23      |
| Pneumatic rod clamping compact PRK               | 24 - 25 |
| Design and function PN/PISO/PZ/PRK               | 26      |
| Request form for pneumatic rod clamping          | 27      |

### **LOCKED-Series Type R** Pneumatic Rotational Clamping



- Your advantages:**
- Maximum holding torque
  - Compact design
  - Static safety clamping
  - Optional shaft flanges

|  |         |
|--|---------|
| Pneumatic rotational clamping R                | 28 - 30 |
| Accessories and installation hints             | 31      |
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### **ACE Worldwide**



|                            |         |
|----------------------------|---------|
| International distributors | 34 - 35 |
|----------------------------|---------|

The innovative pneumatic clamping elements of the new **ACE LOCKED Series PL** were designed for a secure and reliable **process clamping** directly on the linear guide. They are adapted individually to the linear guide employed in each case and are available for almost all traditional rail sizes and manufacturers, for example, **INA, STAR/Rexroth, THK, NSK, Schneeberger, HiWin** and many more. Special profiles are also available on request.

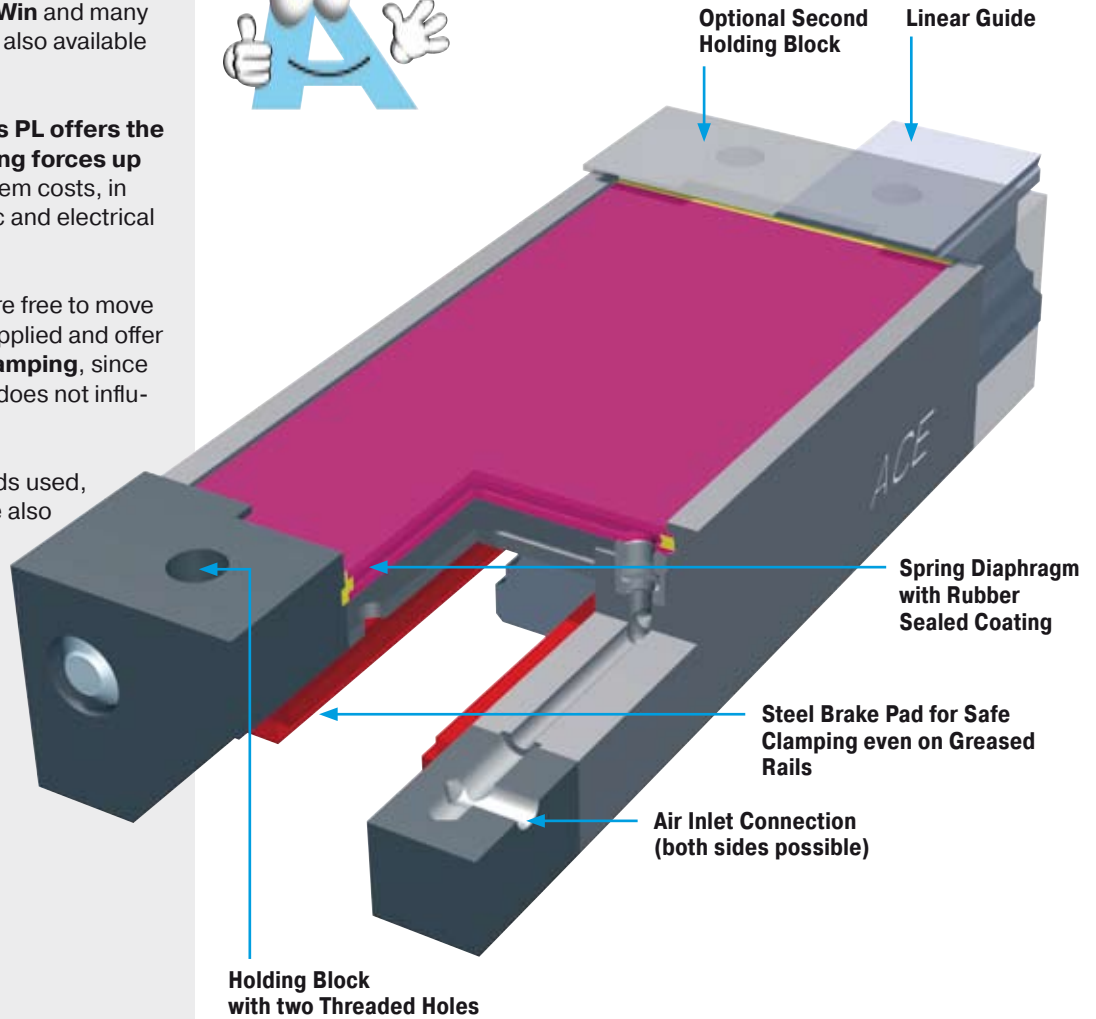
The **ACE LOCKED Series PL** offers the **highest process clamping forces up to 10 000 N** with low system costs, in comparison with hydraulic and electrical solutions.

The clamping elements are free to move when compressed air is applied and offer **optimal static safety clamping**, since failure of the pneumatics does not influence the clamping.

By means of the steel pads used, 100% clamping forces are also achieved where greased rails are necessary.



"All common rail profiles available!"



**Rail sizes:** 20 to 65 mm

**Minimum holding forces:** 900 to 10 000 N (6 bar type)

**Clamping cycles:** 1 000 000. For higher values please consult ACE.

**Material:** Clamping body and milled parts: Tool steel.  
Spring steel plate: Spring steel.  
Brake pads: Steel

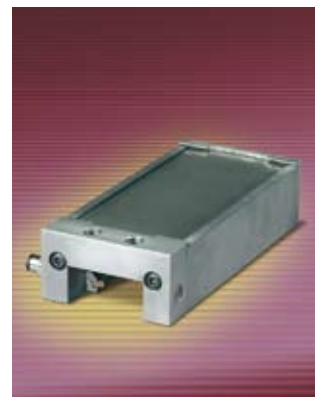
**Mounting:** In any position

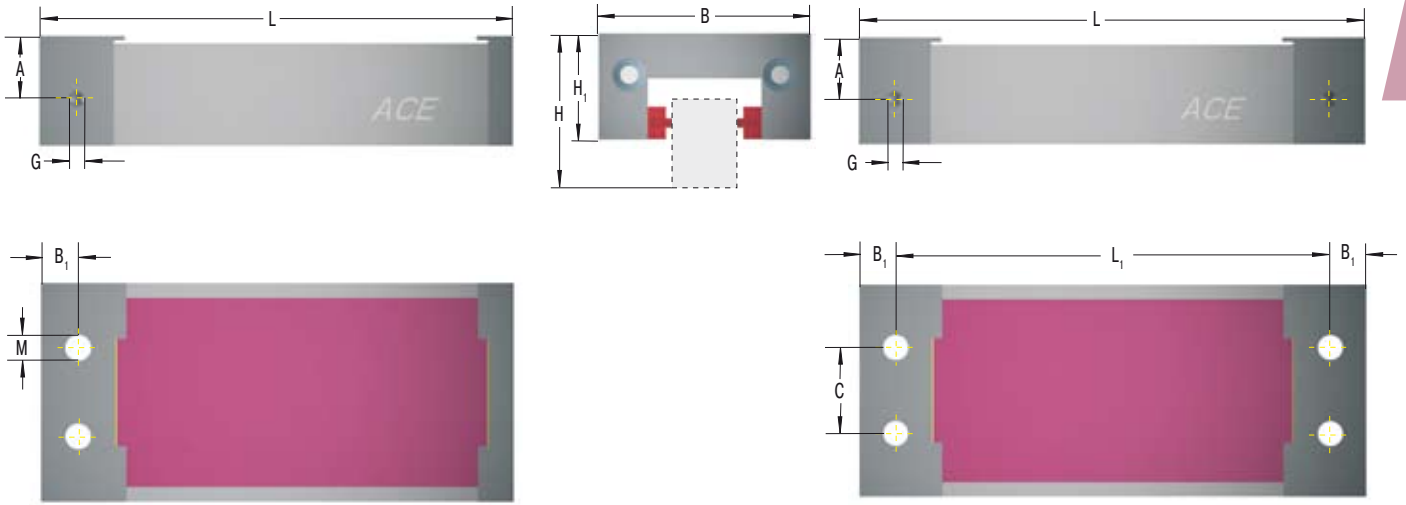
**Operating pressure:** 4 bar or 6 bar (standard type)

**Pneumatic medium:** Dried filtered air

**Operating temperature range:** 15 to 45 °C

**On request:** Wipers, special profiles and removal kit





**Beginning at rail size 45, we recommend the use of a second holding block for improved guidance.**

**Ordering Example**

Linear process clamping \_\_\_\_\_  
 Rail nominal size 45 \_\_\_\_\_  
 Number of holding blocks 2 \_\_\_\_\_  
 6B = 6 bar type \_\_\_\_\_  
 4B = 4 bar type \_\_\_\_\_  
 Series number assigned by ACE \_\_\_\_\_

**PL45-2-6B-X**

**Complete Details Required when Ordering**

Rail manufacturer, rail type, rail size  
 Carriage type name  
 Number of clamping cycles per hour  
 Operating pressure: 4 bar or 6 bar  
 Number of holding blocks

**The calculation and selection of the correct clamping device should be made or approved by ACE. To assist you, please use the request form on page 19. For general information see pages 16 to 18.**

**Dimensions and Capacity Chart**

| Type    | L     | L <sub>1</sub> | B   | low carriage |                | A    | high carriage |                | A    | B <sub>1</sub> | C  | G    | M   | Holding Force <sup>1</sup> |          | Weight<br>kg |
|---------|-------|----------------|-----|--------------|----------------|------|---------------|----------------|------|----------------|----|------|-----|----------------------------|----------|--------------|
|         |       |                |     | H            | H <sub>1</sub> |      | H             | H <sub>1</sub> |      |                |    |      |     | at 4 bar                   | at 6 bar |              |
| PL 20-1 | 97.5  | -              | 43  | 30           | 19.5           | 13.5 | -             | -              | -    | 6              | 12 | M5   | M5  | 540                        | 900      | 0.32         |
| PL 25-1 | 117.5 | -              | 47  | 36           | 25             | 15.5 | 40            | 29             | 19.5 | 6              | 16 | M5   | M6  | 780                        | 1 200    | 0.5          |
| PL 30-1 | 126.5 | -              | 59  | 42           | 29.5           | 17.0 | 45            | 32.5           | 20   | 10             | 18 | M5   | M8  | 1 100                      | 1 800    | 0.9          |
| PL 35-1 | 156.5 | -              | 69  | 48           | 35             | 22.5 | 55            | 42             | 29.5 | 10             | 22 | G1/8 | M10 | 1 800                      | 2 800    | 1.26         |
| PL 45-1 | 176.5 | -              | 80  | 60           | 42             | 26.5 | 70            | 52             | 36.5 | 10             | 28 | G1/8 | M10 | 2 400                      | 4 000    | 2.3          |
| PL 45-2 | 191.5 | 171.2          | 80  | 60           | 42             | 26.5 | 70            | 52             | 36.5 | 10             | 28 | G1/8 | M10 | 2 400                      | 4 000    | 2.3          |
| PL 55-1 | 202.5 | -              | 98  | 70           | 49             | 28.0 | 80            | 59             | 38   | 12.5           | 34 | G1/8 | M10 | 3 600                      | 6 000    | 3.9          |
| PL 55-2 | 221.5 | 196.2          | 98  | 70           | 49             | 28.0 | 80            | 59             | 38   | 12.5           | 34 | G1/8 | M10 | 3 600                      | 6 000    | 4.1          |
| PL 65-1 | 259.5 | -              | 120 | 90           | 64             | 38.0 | 100           | 74             | 48   | 15             | 44 | G1/8 | M12 | 6 000                      | 10 000   | 5            |
| PL 65-2 | 281.5 | 251.5          | 120 | 90           | 64             | 38.0 | 100           | 74             | 48   | 15             | 44 | G1/8 | M12 | 6 000                      | 10 000   | 5.2          |

<sup>1</sup> The holding forces as shown in the capacity chart were determined on dry rails for roller systems (STAR, INA). Different holding forces may occur for other rails.

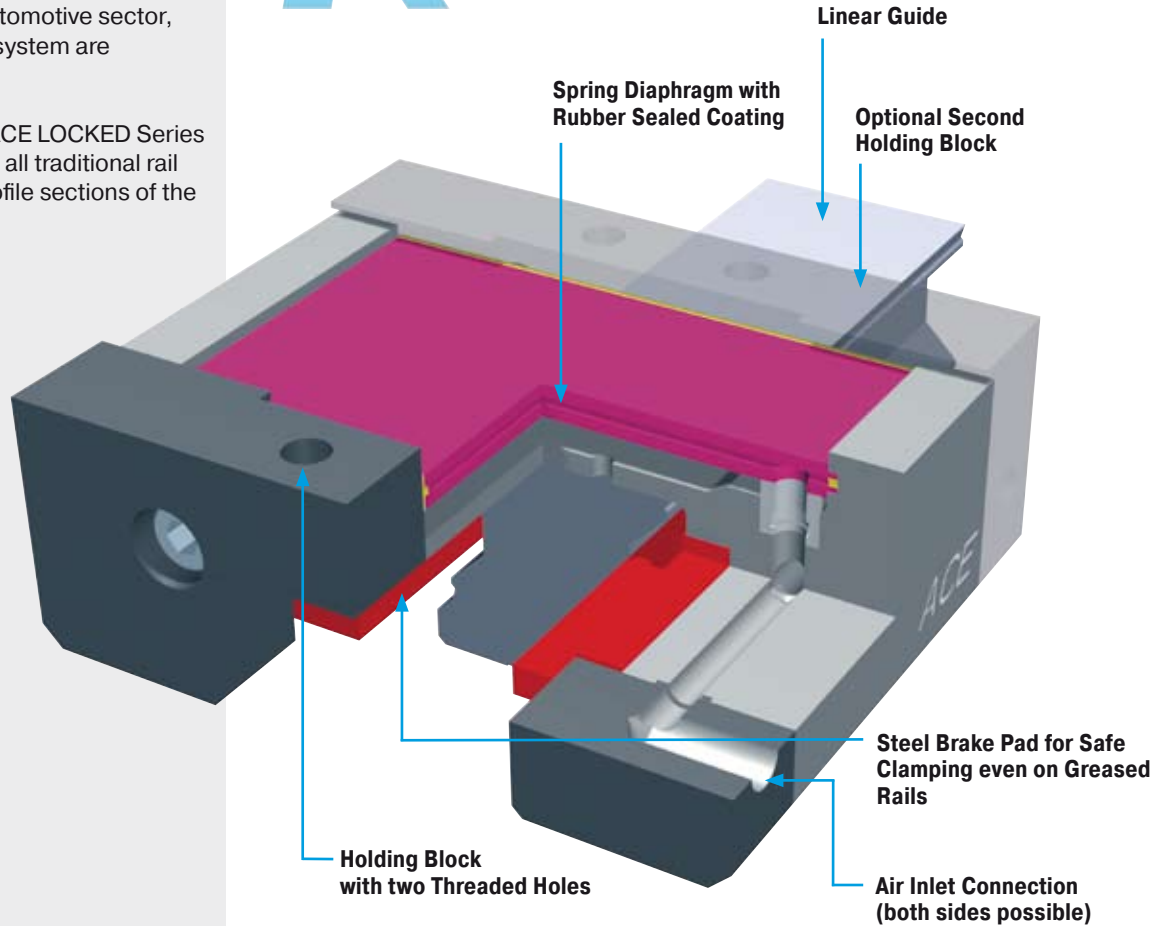
As the big brother of the PL Series, the **ACE LOCKED Series PLK** clamps directly on the respective linear guide by means of the patented spring steel sheet system. Clamping and stopping forces of up to 2100 N are achieved by small, **compact designs** when vented.

The clamping is released by applying compressed air. Both a 4-bar activated system, e.g. for the automotive sector, and a 6-bar activated system are available.

Also, the types of the ACE LOCKED Series PLK can be adapted to all traditional rail sizes (15 to 55) and profile sections of the individual providers.



*"Highest holding forces in a compact design!"*



**Rail sizes:** 15 to 55 mm

**Minimum holding forces:** 450 to 2 100 N (6 bar type)

**Clamping cycles:** 1 000 000. For higher values please consult ACE.

**Material:** Clamping body and milled parts: Tool steel. Spring steel plate: Spring steel. Brake pads: Steel

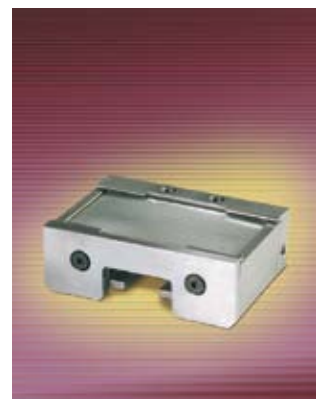
**Mounting:** In any position

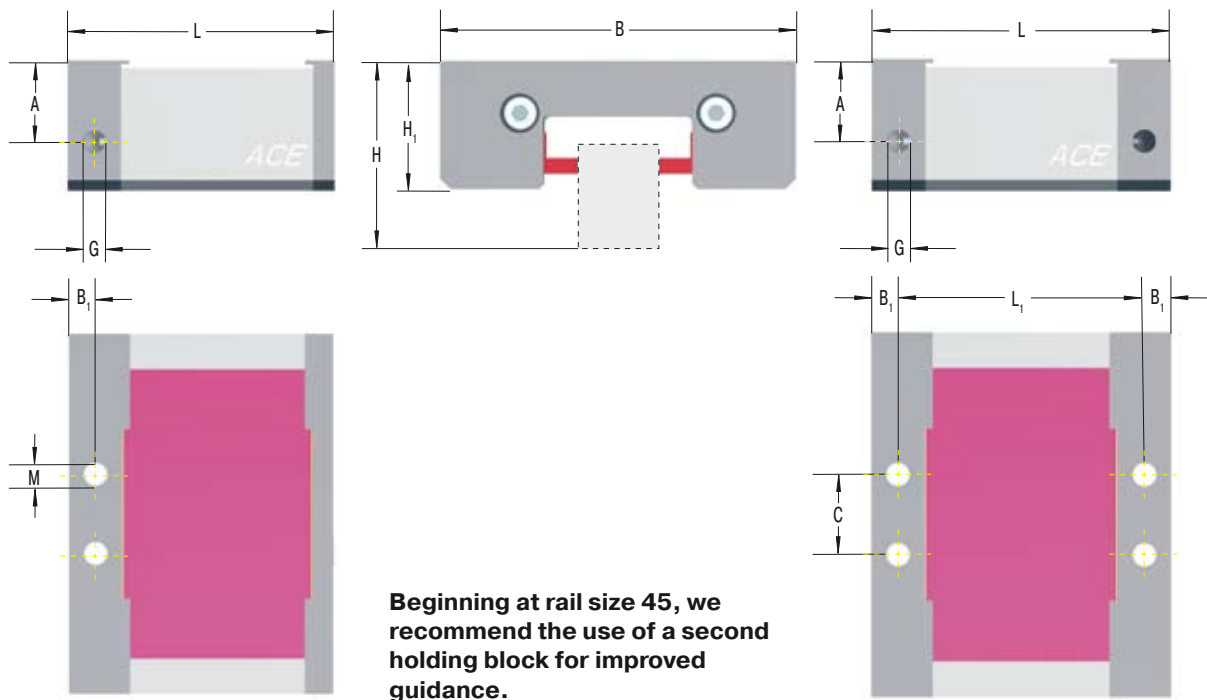
**Operating pressure:** 4 bar or 6 bar (standard type)

**Pneumatic medium:** Dried filtered air

**Operating temperature range:** 15 to 45 °C

**On request:** Wipers, special profiles and removal kit





### Ordering Example

Linear process clamping Compact \_\_\_\_\_  
 Rail nominal size 55 \_\_\_\_\_  
 Number of holding blocks 2 \_\_\_\_\_  
 6B = 6 bar type \_\_\_\_\_  
 4B = 4 bar type \_\_\_\_\_  
 Series number assigned by ACE \_\_\_\_\_

**PLK55-2-6B-X**

### Complete Details Required when Ordering

Rail manufacturer, rail type, rail size  
 Carriage type name  
 Number of clamping cycles per hour  
 Operating pressure: 4 bar or 6 bar  
 Number of holding blocks

The calculation and selection of the correct clamping device should be made or approved by ACE. To assist you, please use the request form on page 19. For general information see pages 16 to 18.

### Dimensions and Capacity Chart

| Type     | L     | L <sub>1</sub> | B   | low carriage |                | A    | high carriage |                | A    | B <sub>1</sub> | C  | G    | M   | Holding Force <sup>1</sup> |          | Weight<br>kg |
|----------|-------|----------------|-----|--------------|----------------|------|---------------|----------------|------|----------------|----|------|-----|----------------------------|----------|--------------|
|          |       |                |     | H            | H <sub>1</sub> |      | H             | H <sub>1</sub> |      |                |    |      |     | at 4 bar                   | at 6 bar |              |
| PLK 15-1 | 55.5  | -              | 45  | 24           | 18             | 14   | -             | -              | 14   | 5              | 12 | M5   | M5  | 300                        | 450      | 0.5          |
| PLK 20-1 | 55.5  | -              | 54  | 30           | 22             | 16   | -             | -              | 16   | 5              | 16 | M5   | M6  | 430                        | 650      | 0.6          |
| PLK 25-1 | 55.5  | -              | 75  | 36           | 25.5           | 16   | 40            | 29.5           | 16   | 5              | 16 | M5   | M6  | 530                        | 800      | 0.7          |
| PLK 30-1 | 67.0  | -              | 82  | 42           | 30             | 21   | 45            | 33             | 21   | 8.75           | 18 | M5   | M8  | 750                        | 1 150    | 0.9          |
| PLK 35-1 | 67.0  | -              | 96  | 48           | 35             | 21.2 | 55            | 42             | 21.2 | 8.75           | 22 | G1/8 | M10 | 820                        | 1 250    | 1.27         |
| PLK 45-1 | 80.0  | -              | 116 | 60           | 45             | 27.5 | 70            | 55             | 27.5 | 10             | 28 | G1/8 | M10 | 950                        | 1 500    | 2            |
| PLK 45-2 | 92.0  | 72.0           | 116 | 60           | 45             | 27.5 | 70            | 55             | 27.5 | 10             | 28 | G1/8 | M10 | 950                        | 1 500    | 2.2          |
| PLK 55-1 | 100.0 | -              | 136 | 70           | 49             | 30.5 | 80            | 59             | 30.5 | 10             | 34 | G1/8 | M10 | 1 300                      | 2 100    | 2.8          |
| PLK 55-2 | 112.0 | 92.0           | 136 | 70           | 49             | 30.5 | 80            | 59             | 30.5 | 10             | 34 | G1/8 | M10 | 1 300                      | 2 100    | 3            |

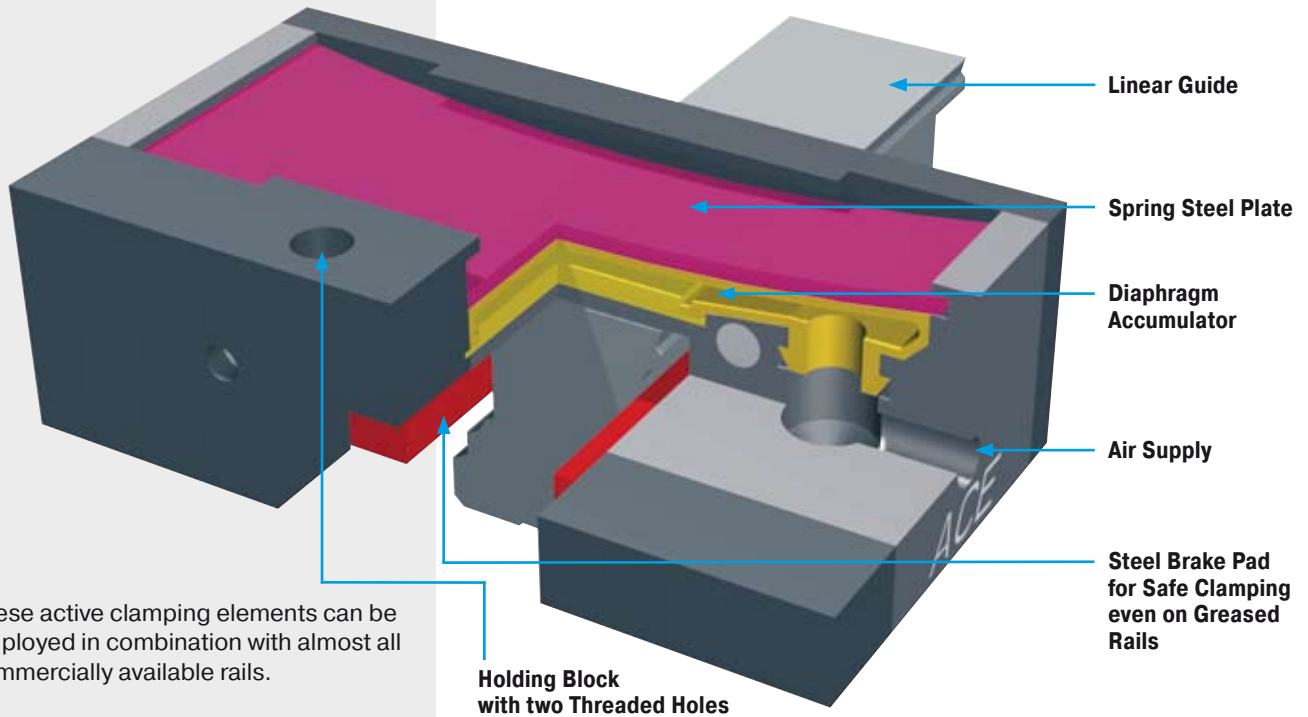
<sup>1</sup> The holding forces as shown in the capacity chart were determined on dry rails for roller systems (STAR, INA). Different holding forces may occur for other rails.

The active clamping elements of the **ACE LOCKED Series PLA** offer the highest clamping forces in a compact construction design. The PLA Series clamps through air activation, with the shortest reaction times.

The lowest costs result from a functional structure, a small number of component parts and pneumatic control technology. The work and function methods are described on page 16.



*"Active process clamping by pneumatic operation!"*



These active clamping elements can be employed in combination with almost all commercially available rails.

On request, special customer-specific sizes can be produced.

**Rail sizes:** 20, 25 and 35 mm

**Minimum holding forces:** up to 1250 N (6 bar type)

**Clamping cycles:** 1 000 000. For higher values please consult ACE.

**Material:** Clamping body and milled parts: Tool steel. Spring steel plate: Spring steel. Brake pads: Steel

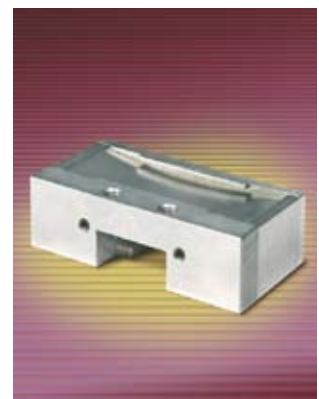
**Mounting:** In any position

**Operating pressure:** 4 bar or 6 bar (standard type)

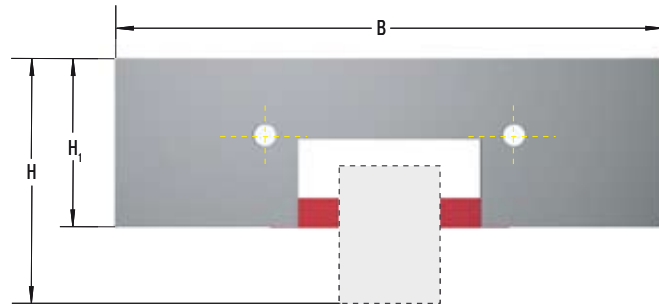
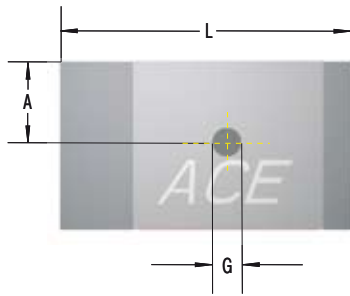
**Pneumatic medium:** Dried filtered air

**Operating temperature range:** 15 to 45 °C

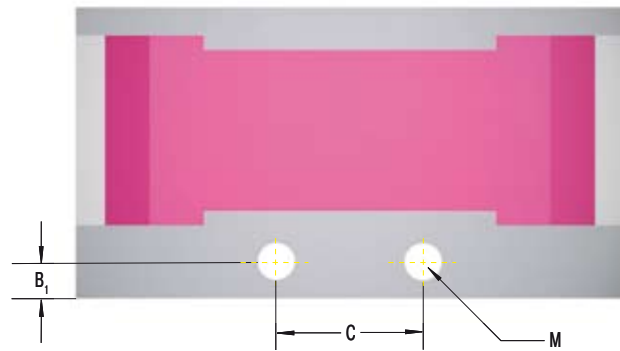
**On request:** Wipers and special profiles







“On request available with sintered graphite brake pads for deceleration use!”



### Ordering Example

Linear process clamping Active \_\_\_\_\_  
 Rail nominal size 25 \_\_\_\_\_  
 6B = 6 bar type \_\_\_\_\_  
 4B = 4 bar type \_\_\_\_\_  
 Series number assigned by ACE \_\_\_\_\_

PLA25-6B-X

### Complete Details Required when Ordering

Rail manufacturer, rail type, rail size  
 Carriage type name  
 Number of clamping cycles per hour  
 Operating pressure: 4 bar or 6 bar

The calculation and selection of the correct clamping device should be made or approved by ACE. To assist you, please use the request form on page 19. For general information see pages 16 to 18.

### Dimensions and Capacity Chart

| Type  | L  | B  | low carriage |                | A  | high carriage |                | A  | B <sub>1</sub> | C  | G    | M  | Holding Force <sup>1</sup> |          | Weight<br>kg |
|-------|----|----|--------------|----------------|----|---------------|----------------|----|----------------|----|------|----|----------------------------|----------|--------------|
|       |    |    | H            | H <sub>1</sub> |    | H             | H <sub>1</sub> |    |                |    |      |    | at 4 bar                   | at 6 bar |              |
| PLA20 | 40 | 75 | 30           | 23             | 15 | -             | -              | 15 | 5              | 16 | M5   | M6 | 390                        | 650      | 0.53         |
| PLA25 | 40 | 75 | 36           | 23             | 15 | 40            | 27             | 15 | 5              | 16 | M5   | M6 | 480                        | 800      | 0.53         |
| PLA35 | 67 | 96 | 48           | 35             | 20 | 55            | 42             | 20 | 8.75           | 28 | G1/8 | M8 | 750                        | 1 250    | 1.14         |

<sup>1</sup> The holding forces as shown in the capacity chart were determined on dry rails for roller systems (STAR, INA). Different holding forces may occur for other rails.

The safety clamping elements of the **LOCKED Series SL** work using the same principle as the PL and PLK Types and clamp directly on the open area of the guide rail. Through utilization of **special brake linings from low-wear sintered metal**, they offer an additional **emergency stop braking function**, as well as a clamping function.

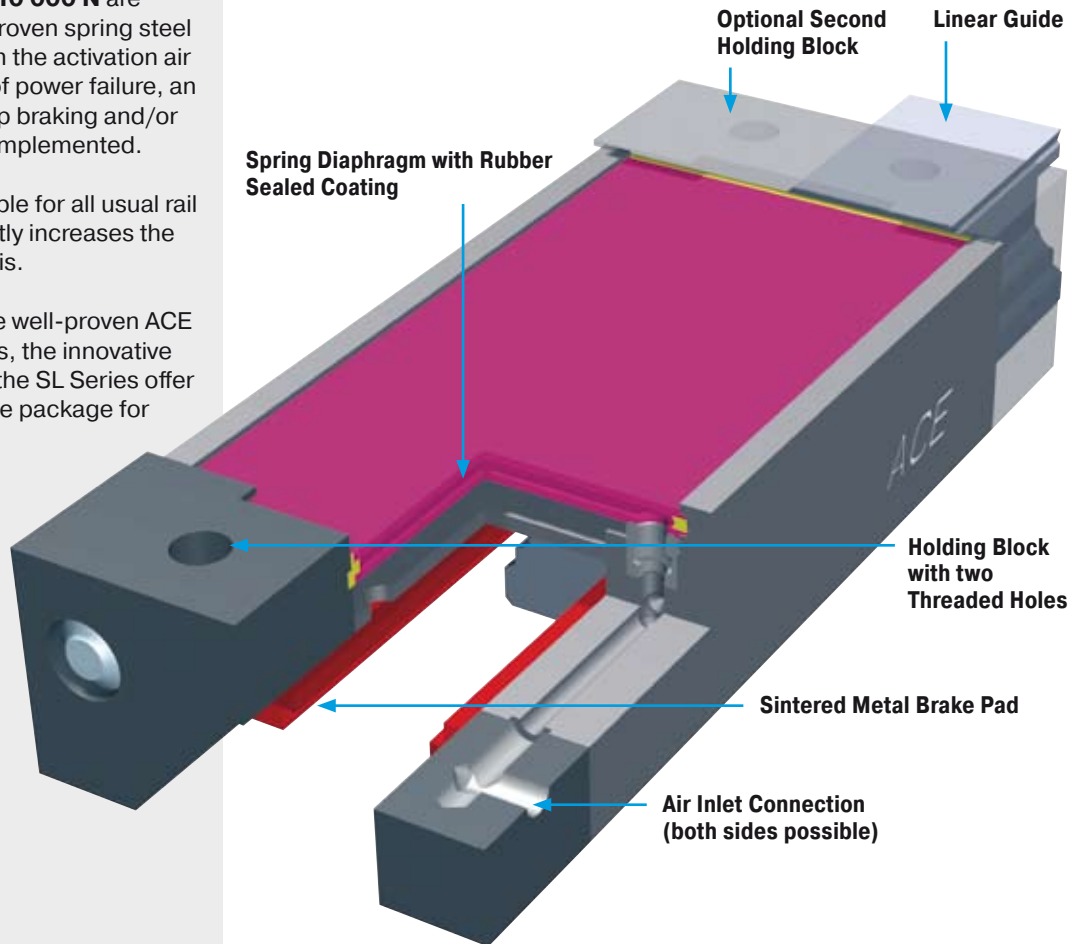
Stopping forces up to **10 000 N** are achieved by the well-proven spring steel sheet technology when the activation air is exhausted. In case of power failure, an instant emergency stop braking and/or **safety clamping** are implemented.

The SL Series is available for all usual rail profiles, and significantly increases the safety of your linear axis.

In combination with the well-proven ACE safety shock absorbers, the innovative clamping elements of the SL Series offer an all-round, worry-free package for your linear axes.



*"Clamping and emergency stop braking with sintered metal brake pads!"*



**Rail sizes:** 20 to 65 mm

**Minimum holding forces:** 900 to 10 000 N (6 bar type)

**Clamping cycles/emergency use:** 1 000 000/500

**Material:** Clamping body and milled parts: Tool steel. Spring steel plate: Spring steel. Brake pads: Sintered metal

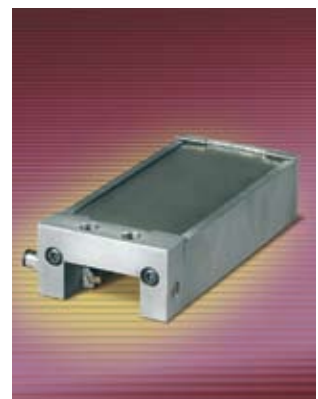
**Mounting:** In any position

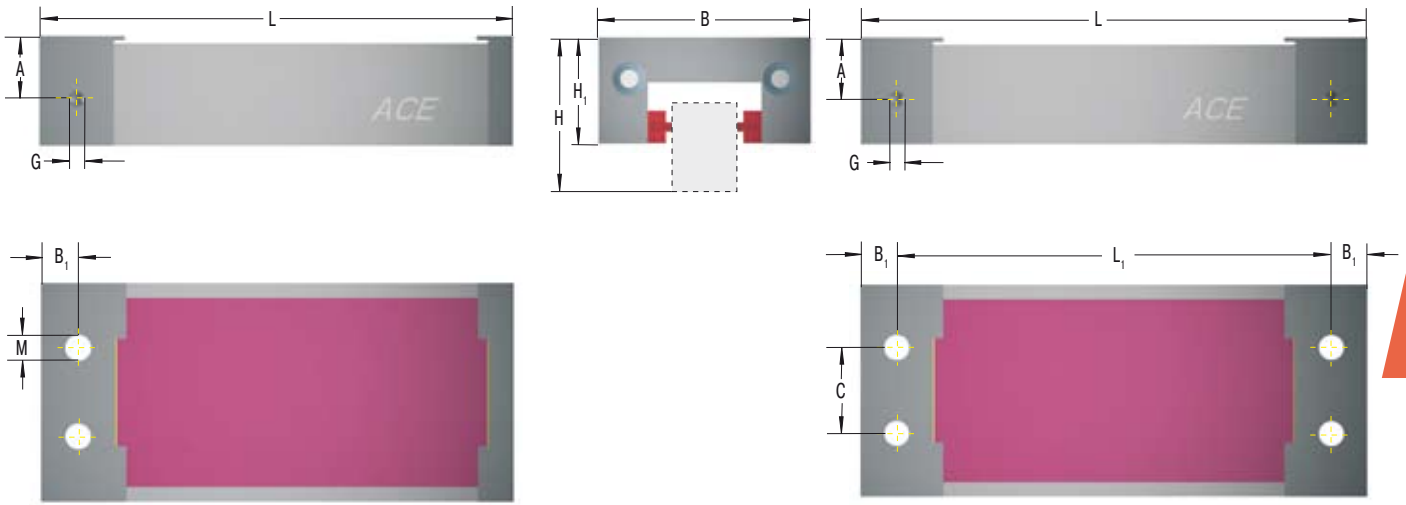
**Operating pressure:** 4 bar or 6 bar (standard type)

**Pneumatic medium:** Dried filtered air

**Operating temperature range:** 15 to 45 °C

**On request:** Wipers, special profiles and removal kit





**Beginning at rail size 45, we recommend the use of a second holding block for improved guidance.**

**Ordering Example**

Linear safety clamping \_\_\_\_\_  
 Rail nominal size 65 \_\_\_\_\_  
 Number of holding blocks 2 \_\_\_\_\_  
 6B = 6 bar type \_\_\_\_\_  
 4B = 4 bar type \_\_\_\_\_  
 Series number assigned by ACE \_\_\_\_\_

**SL65-2-6B-X**

**Complete Details Required when Ordering**

- Rail manufacturer, rail type, rail size
- Carriage type name
- Number of clamping cycles per hour
- Operating pressure: 4 bar or 6 bar
- Number of holding blocks

**The calculation and selection of the correct clamping device should be made or approved by ACE. To assist you, please use the request form on page 19. For general information see pages 16 to 18.**

**Dimensions and Capacity Chart**

| Type    | L     | L <sub>1</sub> | B   | low carriage |                |      | high carriage |                |      | A    | B <sub>1</sub> | C    | G   | M     | Holding Force <sup>1</sup> |          | Weight kg |
|---------|-------|----------------|-----|--------------|----------------|------|---------------|----------------|------|------|----------------|------|-----|-------|----------------------------|----------|-----------|
|         |       |                |     | H            | H <sub>1</sub> | A    | H             | H <sub>1</sub> | A    |      |                |      |     |       | at 4 bar                   | at 6 bar |           |
| SL 20-1 | 97.5  | -              | 43  | 30           | 19.5           | 13.5 | -             | -              | -    | 6    | 12             | M5   | M5  | 540   | 900                        | 0.32     |           |
| SL 25-1 | 117.5 | -              | 47  | 36           | 25             | 15.5 | 40            | 29             | 19.5 | 6    | 16             | M5   | M6  | 780   | 1 200                      | 0.5      |           |
| SL 30-1 | 126.5 | -              | 59  | 42           | 29.5           | 17   | 45            | 32.5           | 20   | 10   | 18             | M5   | M8  | 1 100 | 1 800                      | 0.9      |           |
| SL 35-1 | 156.5 | -              | 69  | 48           | 35             | 22.5 | 55            | 42             | 29.5 | 10   | 22             | G1/8 | M10 | 1 800 | 2 800                      | 1.26     |           |
| SL 45-1 | 176.5 | -              | 80  | 60           | 42             | 26.5 | 70            | 52             | 36.5 | 10   | 28             | G1/8 | M10 | 2 400 | 4 000                      | 2.3      |           |
| SL 45-2 | 191.5 | 171.2          | 80  | 60           | 42             | 26.5 | 70            | 52             | 36.5 | 10   | 28             | G1/8 | M10 | 2 400 | 4 000                      | 2.3      |           |
| SL 55-1 | 202.5 | -              | 98  | 70           | 49             | 28   | 80            | 59             | 38   | 12.5 | 34             | G1/8 | M10 | 3 600 | 6 000                      | 3.9      |           |
| SL 55-2 | 221.5 | 196.2          | 98  | 70           | 49             | 28   | 80            | 59             | 38   | 12.5 | 34             | G1/8 | M10 | 3 600 | 6 000                      | 4.1      |           |
| SL 65-1 | 259.5 | -              | 120 | 90           | 64             | 38   | 100           | 74             | 48   | 15   | 44             | G1/8 | M12 | 6 000 | 10 000                     | 5        |           |
| SL 65-2 | 281.5 | 251.2          | 120 | 90           | 64             | 38   | 100           | 74             | 48   | 15   | 44             | G1/8 | M12 | 6 000 | 10 000                     | 5.2      |           |

<sup>1</sup> The holding forces as shown in the capacity chart were determined on dry rails for roller systems (STAR, INA). Different holding forces may occur for other rails.

The safety clamping elements of the **LOCKED Series SLK** also offer two functions combined into one clamping element through the use of special brake linings of low-wear sintered metal. As well as a purely clamping function, braking is possible with emergency stop directly on the rail, in the case of a possible power failure.

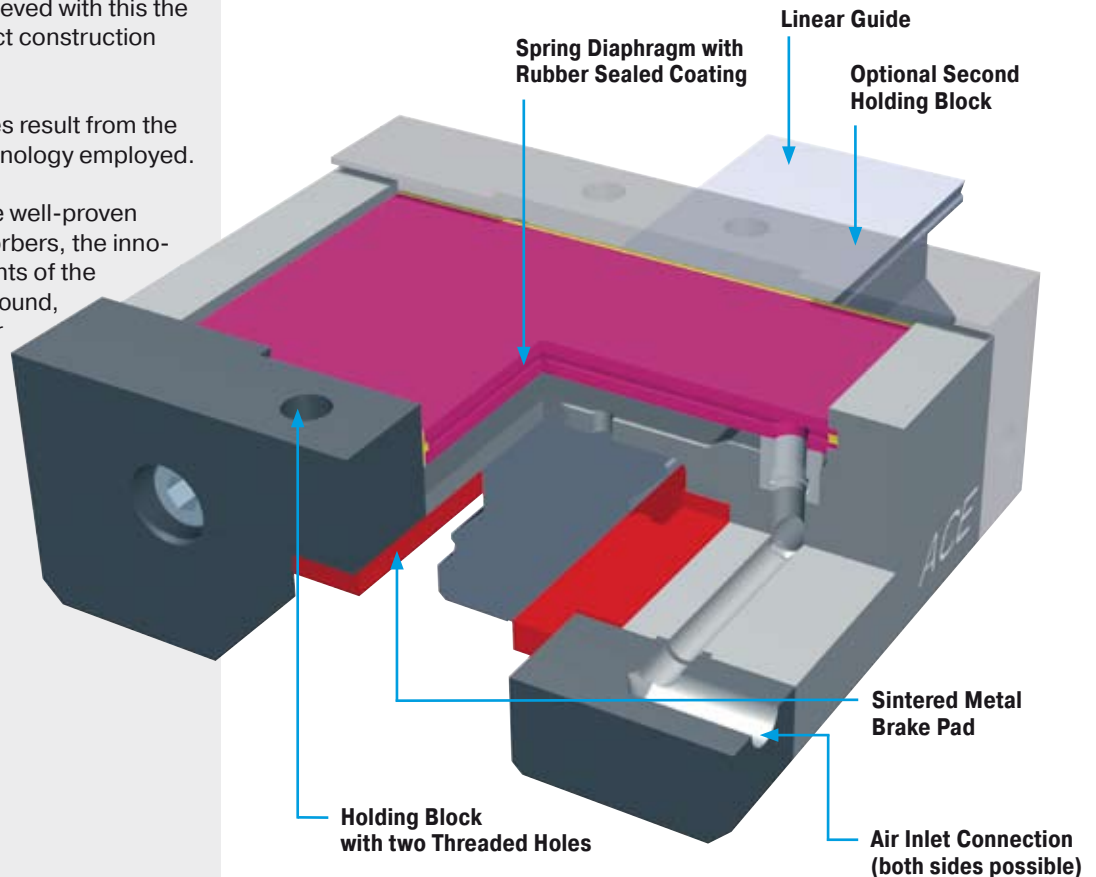
On almost all commercially available linear guides, the highest stopping and braking forces are achieved with this the smallest, most compact construction design.

Minimum reaction times result from the spring steel sheet technology employed.

In combination with the well-proven ACE safety shock absorbers, the innovative clamping elements of the SLK Series offer an all-round, worry-free package for your linear axes.



*"Clamping and emergency stop braking with sintered metal brake pads!"*



**Rail sizes:** 15 to 55 mm

**Minimum holding forces:** 450 to 2 100 N (6 bar type)

**Clamping cycles/emergency use:** 1 000 000/500

**Material:** Clamping body and milled parts: Tool steel. Spring steel plate: Spring steel. Brake pads: Sintered metal

**Mounting:** In any position

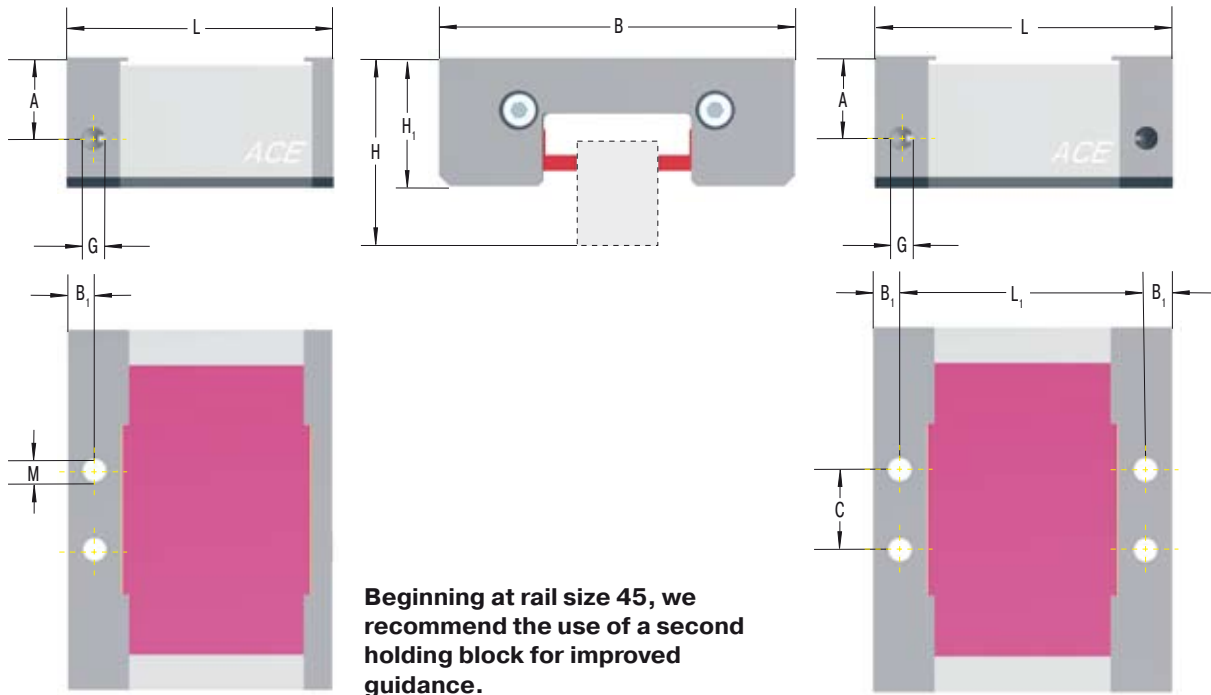
**Operating pressure:** 4 bar or 6 bar (standard type)

**Pneumatic medium:** Dried filtered air

**Operating temperature range:** 15 to 45 °C

**On request:** Wipers, special profiles and removal kit





### Ordering Example

Linear safety clamping Compact \_\_\_\_\_  
 Rail nominal size 45 \_\_\_\_\_  
 Number of holding blocks 2 \_\_\_\_\_  
 6B = 6 bar type \_\_\_\_\_  
 4B = 4 bar type \_\_\_\_\_  
 Series number assigned by ACE \_\_\_\_\_

**SLK45-2-6B-X**

### Complete Details Required when Ordering

Rail manufacturer, rail type, rail size  
 Carriage type name  
 Number of clamping cycles per hour  
 Operating pressure: 4 bar or 6 bar  
 Number of holding blocks

The calculation and selection of the correct clamping device should be made or approved by ACE. To assist you, please use the request form on page 19. For general information see pages 16 to 18.

### Dimensions and Capacity Chart

| Type     | L    | L <sub>1</sub> | B   | low carriage |                |      | high carriage |                |      | B <sub>1</sub> | C  | G    | M   | Holding Force <sup>1</sup> |          | Weight<br>kg |
|----------|------|----------------|-----|--------------|----------------|------|---------------|----------------|------|----------------|----|------|-----|----------------------------|----------|--------------|
|          |      |                |     | H            | H <sub>1</sub> | A    | H             | H <sub>1</sub> | A    |                |    |      |     | at 4 bar                   | at 6 bar |              |
| SLK 15-1 | 55.5 | -              | 45  | 24           | 18             | 14   | -             | -              | 14   | 5              | 12 | M5   | M5  | 300                        | 450      | 0.5          |
| SLK 20-1 | 55.5 | -              | 54  | 30           | 22             | 16   | -             | -              | 16   | 5              | 16 | M5   | M6  | 430                        | 650      | 0.6          |
| SLK 25-1 | 55.5 | -              | 75  | 36           | 25.5           | 16   | 40            | 29.5           | 16   | 5              | 16 | M5   | M6  | 530                        | 800      | 0.7          |
| SLK 30-1 | 67   | -              | 82  | 42           | 30             | 21   | 45            | 33             | 21   | 8.75           | 18 | M5   | M8  | 750                        | 1 150    | 0.9          |
| SLK 35-1 | 67   | -              | 96  | 48           | 35             | 21.2 | 55            | 42             | 21.2 | 8.75           | 22 | G1/8 | M10 | 820                        | 1 250    | 1.27         |
| SLK 45-1 | 80   | -              | 116 | 60           | 45             | 27.5 | 70            | 55             | 27.5 | 10             | 28 | G1/8 | M10 | 950                        | 1 500    | 2            |
| SLK 45-2 | 92   | 72             | 116 | 60           | 45             | 27.5 | 70            | 55             | 27.5 | 10             | 28 | G1/8 | M10 | 950                        | 1 500    | 2.2          |
| SLK 55-1 | 100  | -              | 136 | 70           | 49             | 30.5 | 80            | 59             | 30.5 | 10             | 34 | G1/8 | M10 | 1 300                      | 2 100    | 2.8          |
| SLK 55-2 | 112  | 92             | 136 | 70           | 49             | 30.5 | 80            | 59             | 30.5 | 10             | 34 | G1/8 | M10 | 1 300                      | 2 100    | 3            |

<sup>1</sup> The holding forces as shown in the capacity chart were determined on dry rails for roller systems (STAR, INA). Different holding forces may occur for other rails.

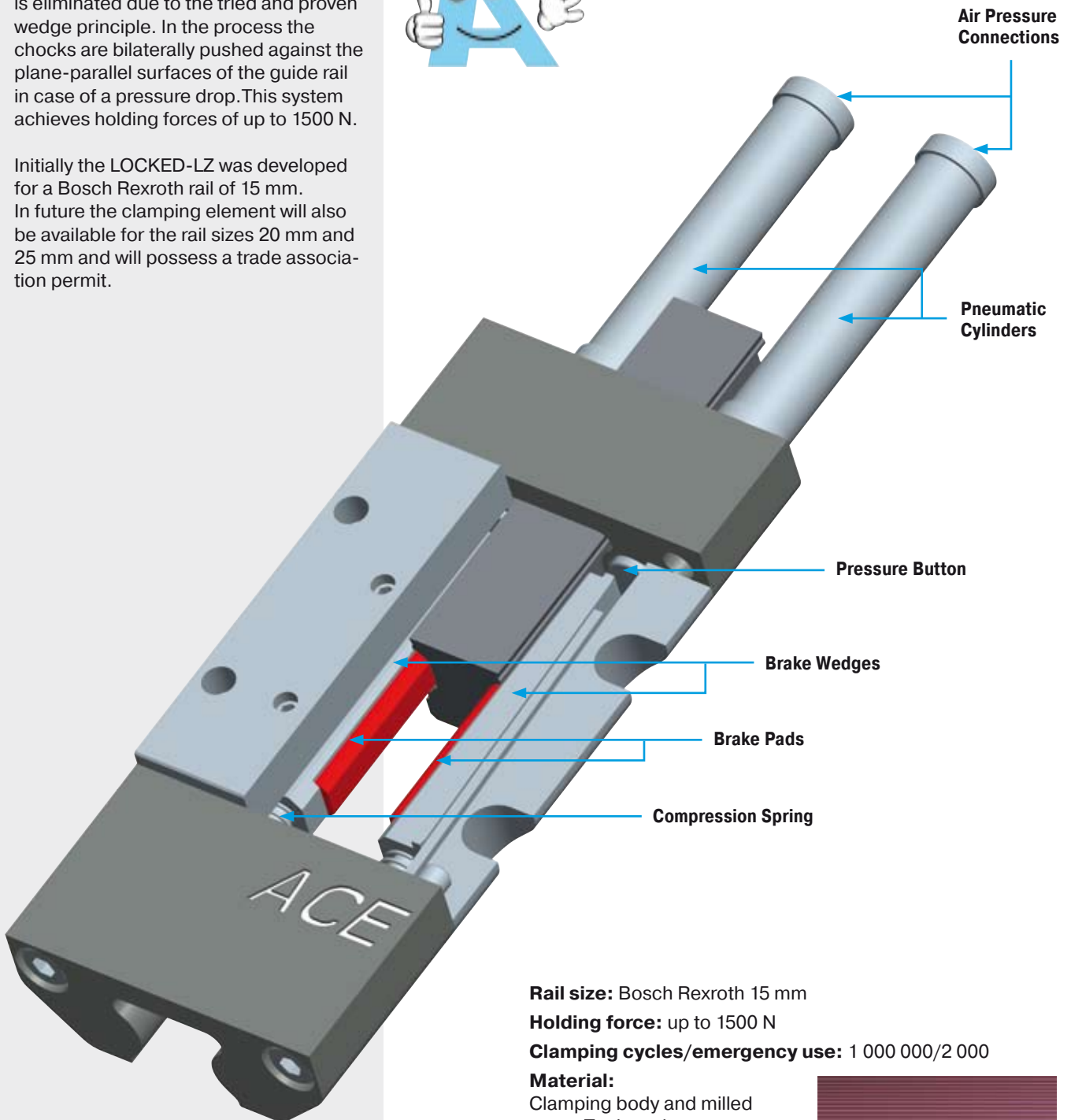
The innovative pneumatic clamping element of the new **LOCKED-LZ series** was especially designed for the safe and reliable clamping of vertical axes (Z-axes).

The movement of the gravity-loaded axis is eliminated due to the tried and proven wedge principle. In the process the chocks are bilaterally pushed against the plane-parallel surfaces of the guide rail in case of a pressure drop. This system achieves holding forces of up to 1500 N.

Initially the LOCKED-LZ was developed for a Bosch Rexroth rail of 15 mm. In future the clamping element will also be available for the rail sizes 20 mm and 25 mm and will possess a trade association permit.

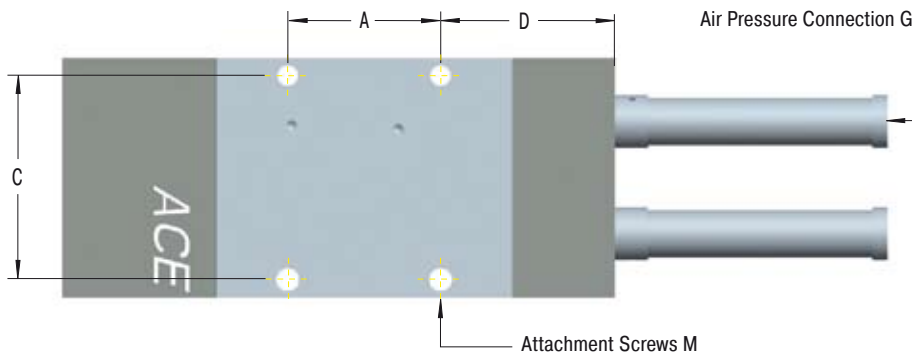
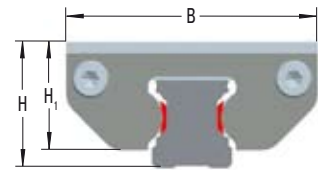


"Highest clamping forces on the 15 mm rail!"



- Rail size:** Bosch Rexroth 15 mm
- Holding force:** up to 1500 N
- Clamping cycles/emergency use:** 1 000 000/2 000
- Material:**  
Clamping body and milled parts: Tool steel.
- Effective direction:**  
Z-axes toward gravity
- Operating pressure:**  
4 to 6 bar
- Pneumatic medium:**  
Dried filtered air
- Operating temperature range:**  
0 °C to 60 °C





### Ordering Example

Process clamping Z-axis \_\_\_\_\_  
 Rail nominal size 15 \_\_\_\_\_  
 Series number assigned by ACE \_\_\_\_\_

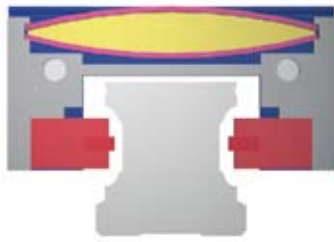
**LZ-P15-X**

The calculation and selection of the clamping element should be made or approved by ACE.

Issue 04.2010 Specifications subject to change

### Dimensions and Capacity Chart

| Type     | L     | B  | H  | H <sub>1</sub> | A  | C  | D  | G  | M  | Holding Force<br>N | Weight<br>kg |
|----------|-------|----|----|----------------|----|----|----|----|----|--------------------|--------------|
| LZ-P15-X | 108.5 | 47 | 24 | 20             | 30 | 40 | 34 | M3 | M4 | 1 500              | 0.4          |



#### Functional Principle LOCKED-PL/PLK/SL/SLK

##### Released:

The chamber filled with compressed air between the spring steel plates relaxes and thus releases the clamping/brake pads from the rail. The clamping element is now free to move.

Example: STAR/Rexroth-installation



##### Engaged:

The clamping force of the mechanically pre-stressed spring steel plates is transferred to the clamping/brake pads as holding force. The clamping element is clamped on the guide rail.

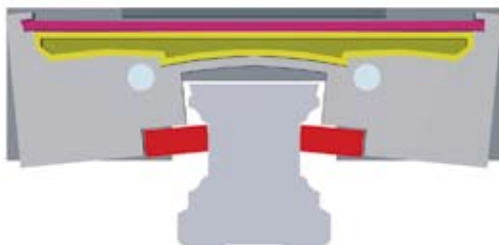


#### Functional Principle LOCKED-PLA

##### Released:

The clamping force of the mechanically pre-stressed spring steel plates releases the clamping pads from the guide rail. The clamping element is free to move.

Example: STAR/Rexroth-installation

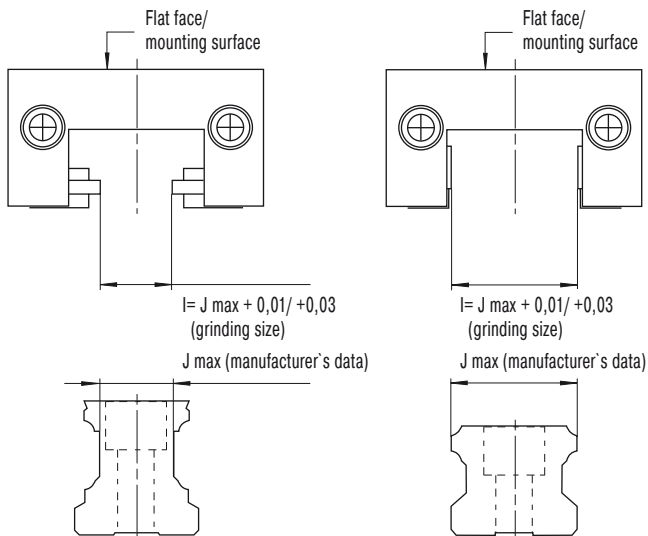


##### Engaged:

The membrane filled with compressed air relaxes the spring steel plate and the resulting force is transferred to the clamping pads. The clamping element is clamped to the guide rail.



#### Slot Dimensions between Braking and Clamping Linings and Linear Guide Rail



The internal dimension "l" between the linings of every LOCKED rail clamping is ground to an exact value. This is always 0.01 to 0.03 mm greater than the upper limit J max. of the respective linear guide rail (see drawing), resulting from the manufacturer's directives. The maximum holding force results at J max. and, in the most unfavorable case, holding force losses up to 30 % can occur (see table).

| Air Gap Lining/Linear Guide Rail (mm) | Loss in Holding Force (%) |
|---------------------------------------|---------------------------|
| 0.01                                  | 5                         |
| 0.03                                  | 10                        |
| 0.05                                  | 20                        |
| 0.07                                  | 30                        |

#### Clamping



#### Position Clamping

The types of the LOCKED Series PL, PLK and PLA are designed for clamping directly on the linear guide. The clamping linings are produced from tool steel and offer 100 % clamping force, even in the case of lubricated rails.

#### Braking



#### Position Clamping and Emergency Stop Braking

With the Typical SL, SLK, low-wear sinter graphite linings are employed. These enable both a position clamping, as well as emergency stop braking on the linear guide. In case of lubricated rails, a stopping force of 60 % of the nominal stopping force should be considered.

#### High Holding Block



#### Low Holding Block



#### Attachment to the Guide Units

According to the respective configuration of the linear guide used, selection can be either a high or a low fixing element (holding block). Above a rail nominal size of 45 mm, we recommend the utilization of a second holding block for improved guidance.

### Mounting and Installation

The LOCKED Types PL/PLK/SL and SLK are opened with compressed air (according to design type with 4 bar or 6 bar) and placed over the rail, and after that attached to the installation surface using the fixing screws. The bolts are initially tightened by hand only.

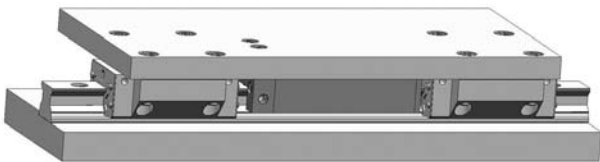
Now the air pressure is reduced to 0 bar or increased to the required pressure (Type PLA), and in this way the clamping is activated. By means of this procedure, the LOCKED Type is centered on the rail.

After the LOCKED Type is centered in the planned position, the fixing screws are tightened in several steps up to the pre-defined tightening torque.

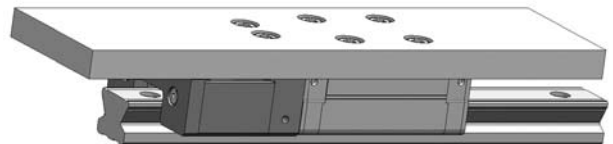
After the installation, it should be checked that the LOCKED model is free to move in the opened status over the entire rail length.

Further information and references can be taken from the assembly and operating instructions in the download area of the ACE home page at [www.acecontrols-int.com](http://www.acecontrols-int.com).

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LOCKED-PL/SL installed position (proposal)



LOCKED-PLK/SLK installed position (proposal)

### General

In order to enable the transmission of the stopping forces indicated in the performance tables, a suitable rigid connection of the used linear guide system to the transporter wagon(s) is necessary.

The installation surface of the LOCKED Types, through the utilization of high and low fixing elements (holding block), is always at the same height as the installation surfaces of the transporter wagons employed in the linear guide (low or high). Special heights of LOCKED Types, as well as adaptations to smaller rail sizes, are available on request.

The installation surface for the fixing of the LOCKED Type must be machined and have a geometrically trouble-free planed surface.

Check the air supply, line length and supply, and check and test the valve selection.

The working pressure of the LOCKED clamping elements prescribed in each case is to be adhered to absolutely over the entire operating time. Any non-compliance can lead to the destruction of the clamping elements and to voiding the guarantee.

National regulations and safety recommendations should be considered. **Clamping units are not used for securing floating loads.**

In case of an unfavorable tolerance-pair-matching, system-dependent stopping-force losses of up to 30 % can occur.

### List of Questions for your LOCKED Solution

ACE LOCKED rail clamping systems can be adjusted individually to suit different applications. The criteria on the right decide the actual configuration of the system. Please enter the information as completely and with as much detail as possible to find a solution for your application quickly.

Application  horizontal  vertical (with PLC) ACE calculation example 10  vertical (free fall) ACE calculation example 6

System must  engage with air  release with air

Holding force \_\_\_\_\_ Newton      Air pressure \_\_\_\_\_ bar

Required stop \_\_\_\_\_ mm      Reaction time system \_\_\_\_\_ sec.

Application as  brake system  emergency brake  fall arrester

clamping system for positional clamping  process clamp positional clamping when moving

Clamping cycles/hour \_\_\_\_\_      Moving load \_\_\_\_\_ kg

Required minimum life time \_\_\_\_\_ (no. of clamping cycles)

Operating mode  dry  oiled  greased

Exact name of oil/grease \_\_\_\_\_

Rail manufacturer, model, size \_\_\_\_\_

Carriage model \_\_\_\_\_

Clamping used at present/comparison model \_\_\_\_\_

Special requirements \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Quantity/year \_\_\_\_\_

### Sender

Company \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

Department \_\_\_\_\_

Name/position \_\_\_\_\_

Telephone \_\_\_\_\_

Fax \_\_\_\_\_

E-Mail \_\_\_\_\_

**Please copy, complete and fax to ACE: Fax +49-(0)2173-9226-89**



*"We would be pleased to discuss any specific applications with our overseas customers. Please make an appointment for us to visit you."*

The innovative **LOCKED Series P** offers pneumatic rod clamping in both directions of motion, for rod diameters from 16 mm up to 50 mm. The forces achieved with hydraulic clamping are matched and often exceeded with **stopping forces up to 27 000 N**.

LOCKED-P is an optimal safety clamping, because failure of the pneumatics means instant clamping of the system. ACE LOCKED is a much more cost effective solution to hydraulic systems.

The ACE LOCKED-P clamping elements are advantageous due to their compact construction, and thus enable short rod lengths.

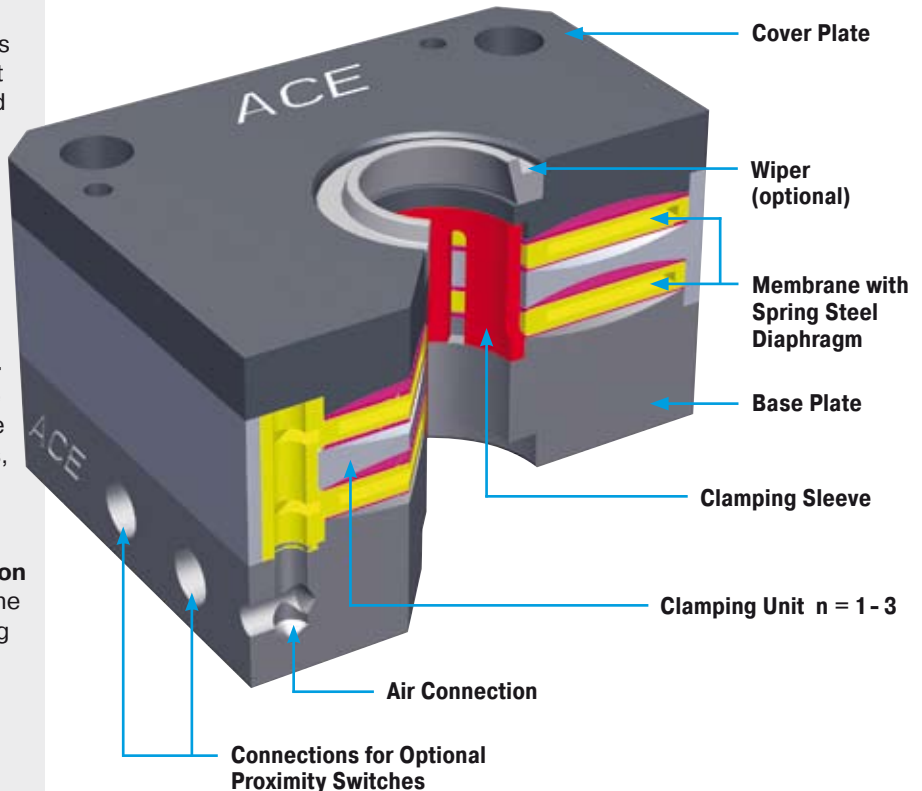
By the use of a **modular system**, several segments can be stacked, so that the necessary clamping force can be sized individually for every application.

In case of the versions for **ISO pneumatic cylinders**, cover and base plates are coordinated dimensionally to the flange measurements of the standard cylinders, in accordance with ISO 15552.

Within the LOCKED Series P, ACE also offers a version with **additional protection for the highest safety demands**, in the case of vertical axes. After the clamping of the piston rod, the clamping can be released again only if the axis is driven vertically upward.



*"On request also useable as torque lock."*



**Rod diameter:** 20 to 40 mm (hardened piston rod recommended)

**Holding forces:** up to 27 000 N

**Clamping cycles:** 1 000 000.  
For higher values please consult ACE.

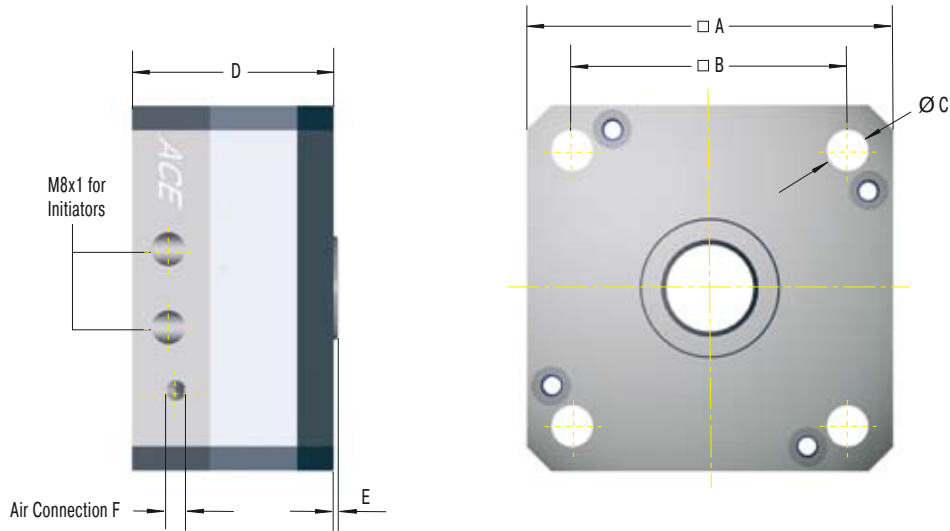
**Material:** Clamping body and milled parts: Tool steel. Spring steel plate: Spring steel. Clamping sleeve: Alum-bronze

**Operating pressure:** 4 bar (automotive) or 6 bar

**Pneumatic medium:** Dried filtered air

**Operating temperature range:** 10 to 45 °C





“Standard model LOCKED-PN:  
Including standard cover plate, one to three  
clamping units and base plate with connections for  
initiators and air supply. Suitable for linear and  
rotational applications.”



### Ordering Example

Rod clamping standard model \_\_\_\_\_ **PN80-25-3-4B**  
 Cylinder nominal diameter 80 mm \_\_\_\_\_  
 Rod diameter 25 mm \_\_\_\_\_  
 Number of clamping units 3 \_\_\_\_\_  
 6B = 6 bar type \_\_\_\_\_  
 4B = 4 bar type \_\_\_\_\_

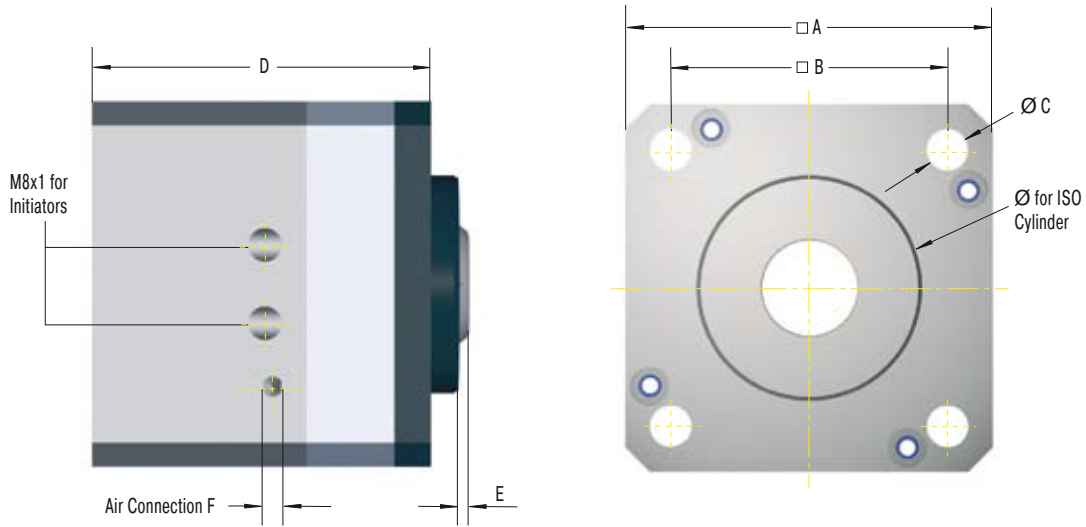
Standard rod sizes are listed in the capacity charts below. Special diameters are also available on request.

The calculation and selection of the correct clamping device should be made or approved by ACE. To assist you, please use the request form on page 27.

### Dimensions and Capacity Chart

| Type       | Holding force <sup>1</sup> |      |      |      |      |      | Holding Torque <sup>1</sup> |                             |                              |                              | Weight<br>kg |
|------------|----------------------------|------|------|------|------|------|-----------------------------|-----------------------------|------------------------------|------------------------------|--------------|
|            | A                          | B    | C    | D    | E    | F    | Opening pressure 4 bar<br>N | Opening pressure 6 bar<br>N | Opening pressure 4 bar<br>Nm | Opening pressure 6 bar<br>Nm |              |
| PN63-20-1  | 75                         | 56.5 | 8.5  | 41.5 | 2.1  | M5   | 1 400                       | 2 000                       | 15                           | 20                           | 0.7          |
| PN63-20-2  | 75                         | 56.5 | 8.5  | 59.5 | 2.1  | M5   | 2 520                       | 3 600                       | 25                           | 35                           | 1.13         |
| PN63-20-3  | 75                         | 56.5 | 8.5  | 77.5 | 2.1  | M5   | 3 780                       | 5 400                       | 35                           | 50                           | 1.56         |
| PN80-25-1  | 96                         | 72   | 10.5 | 43.5 | 2.14 | G1/8 | 2 100                       | 3 000                       | 25                           | 35                           | 1.3          |
| PN80-25-2  | 96                         | 72   | 10.5 | 63.5 | 2.14 | G1/8 | 3 780                       | 5 400                       | 40                           | 60                           | 2.2          |
| PN80-25-3  | 96                         | 72   | 10.5 | 83.5 | 2.14 | G1/8 | 5 670                       | 8 100                       | 65                           | 95                           | 3.1          |
| PN125-40-1 | 145                        | 110  | 13   | 51.6 | 3    | G1/8 | 7 000                       | 10 000                      | 140                          | 200                          | 3.65         |
| PN125-40-2 | 145                        | 110  | 13   | 75.2 | 3    | G1/8 | 12 600                      | 18 000                      | 250                          | 360                          | 5.85         |
| PN125-40-3 | 145                        | 110  | 13   | 98.8 | 3    | G1/8 | 18 900                      | 27 000                      | 375                          | 540                          | 8.05         |

<sup>1</sup> The listed holding forces are reached under optimum conditions. We recommend a safety factor of > 10 %. Please note that surface, material and cleanliness of the rod as well as wear and tear and the use of rod wipers lead to different holding forces. Test the clamping needed for series production or safety applications in its specific application environment and measure the actual values.

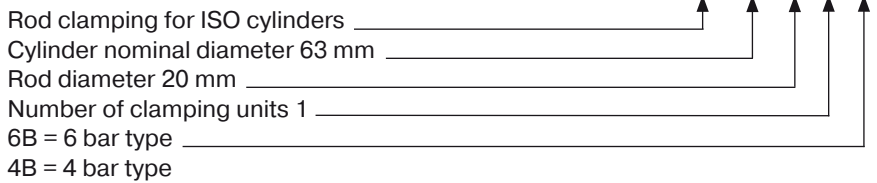


*“LOCKED-PISO: Including standard cover plate, one to three clamping units and base plate, adjusted to the particular ISO cylinder.”*



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### Ordering Example



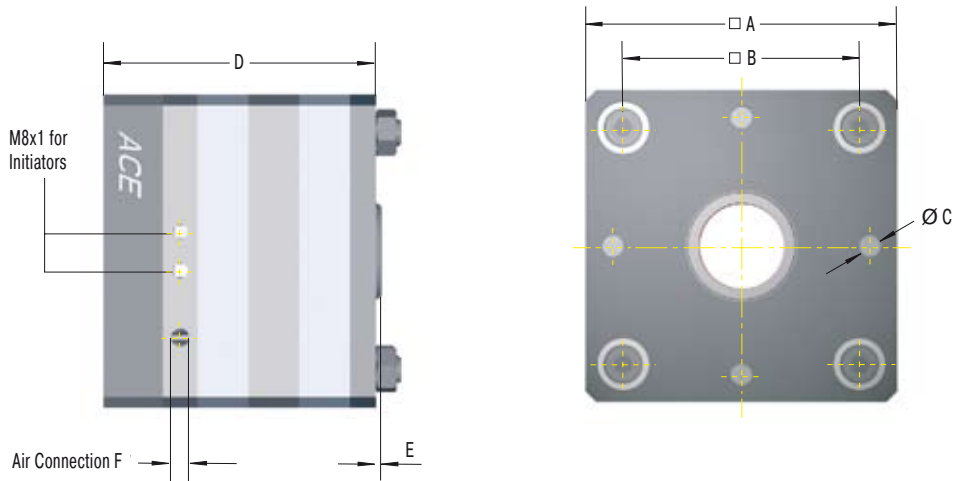
Standard rod sizes are listed in the capacity charts below. Special diameters are also available on request.

The calculation and selection of the correct clamping device should be made or approved by ACE. To assist you, please use the request form on page 27.

### Dimensions and Capacity Chart

| Type         | Holding Force <sup>1</sup> |      |      |       |      |      | Holding Torque <sup>1</sup> |        |                        |     | Weight<br>kg |
|--------------|----------------------------|------|------|-------|------|------|-----------------------------|--------|------------------------|-----|--------------|
|              | A                          | B    | C    | D     | E    | F    | Opening pressure 4 bar      |        | Opening pressure 6 bar |     |              |
|              |                            |      |      |       |      |      | N                           | N      | Nm                     | Nm  |              |
| PISO63-20-1  | 75                         | 56.5 | 8.5  | 69.5  | 2.1  | M5   | 1 400                       | 2 000  | 15                     | 20  | 1            |
| PISO63-20-2  | 75                         | 56.5 | 8.5  | 87.5  | 2.1  | M5   | 2 520                       | 3 600  | 25                     | 35  | 1.43         |
| PISO63-20-3  | 75                         | 56.5 | 8.5  | 105.5 | 2.1  | M5   | 3 780                       | 5 400  | 35                     | 50  | 1.86         |
| PISO80-25-1  | 96                         | 72   | 10.5 | 67.5  | 2.14 | G1/8 | 2 100                       | 3 000  | 25                     | 35  | 1.8          |
| PISO80-25-2  | 96                         | 72   | 10.5 | 87.5  | 2.14 | G1/8 | 3 780                       | 5 400  | 40                     | 60  | 2.7          |
| PISO80-25-3  | 96                         | 72   | 10.5 | 107.5 | 2.14 | G1/8 | 5 670                       | 8 100  | 65                     | 95  | 5.6          |
| PISO125-40-1 | 145                        | 110  | 13   | 95.6  | 3    | G1/8 | 7 000                       | 10 000 | 140                    | 200 | 3.65         |
| PISO125-40-2 | 145                        | 110  | 13   | 119.2 | 3    | G1/8 | 12 600                      | 18 000 | 250                    | 360 | 8.05         |
| PISO125-40-3 | 145                        | 110  | 13   | 142.8 | 3    | G1/8 | 18 900                      | 27 000 | 375                    | 540 | 10.25        |

<sup>1</sup> The listed holding forces are reached under optimum conditions. We recommend a safety factor of > 10 %. Please note that surface, material and cleanliness of the rod as well as wear and tear and the use of rod wipers lead to different holding forces. Test the clamping needed for series production or safety applications in its specific application environment and measure the actual values.



### Ordering Example

Rod clamping with additional safety **PZ125-40-2-6B**  
 Cylinder nominal diameter 125 mm  
 Rod diameter 40 mm  
 Number of clamping units 2  
 6B = 6 bar type  
 4B = 4 bar type

Standard rod sizes are listed in the capacity charts below. Special diameters are also available on request.

The calculation and selection of the correct clamping device should be made or approved by ACE. To assist you, please use the request form on page 27.

### Dimensions and Capacity Chart

| Type       | A   | B   | C   | D     | E | F    | Holding Force <sup>1</sup>  |                             | Weight<br>kg |
|------------|-----|-----|-----|-------|---|------|-----------------------------|-----------------------------|--------------|
|            |     |     |     |       |   |      | Opening pressure 4 bar<br>N | Opening pressure 6 bar<br>N |              |
| PZ125-40-1 | 145 | 120 | M12 | 90.8  | 3 | G1/8 | 7 000                       | 10 000                      | 5.3          |
| PZ125-40-2 | 145 | 120 | M12 | 114.4 | 3 | G1/8 | 12 600                      | 18 000                      | 7.55         |
| PZ125-40-3 | 145 | 120 | M12 | 138   | 3 | G1/8 | 18 900                      | 27 000                      | 9.8          |

<sup>1</sup> The listed holding forces are reached under optimum conditions. We recommend a safety factor of > 10 %. Please note that surface, material and cleanliness of the rod as well as wear and tear and the use of rod wipers lead to different holding forces. Test the clamping needed for series production or safety applications in its specific application environment and measure the actual values.

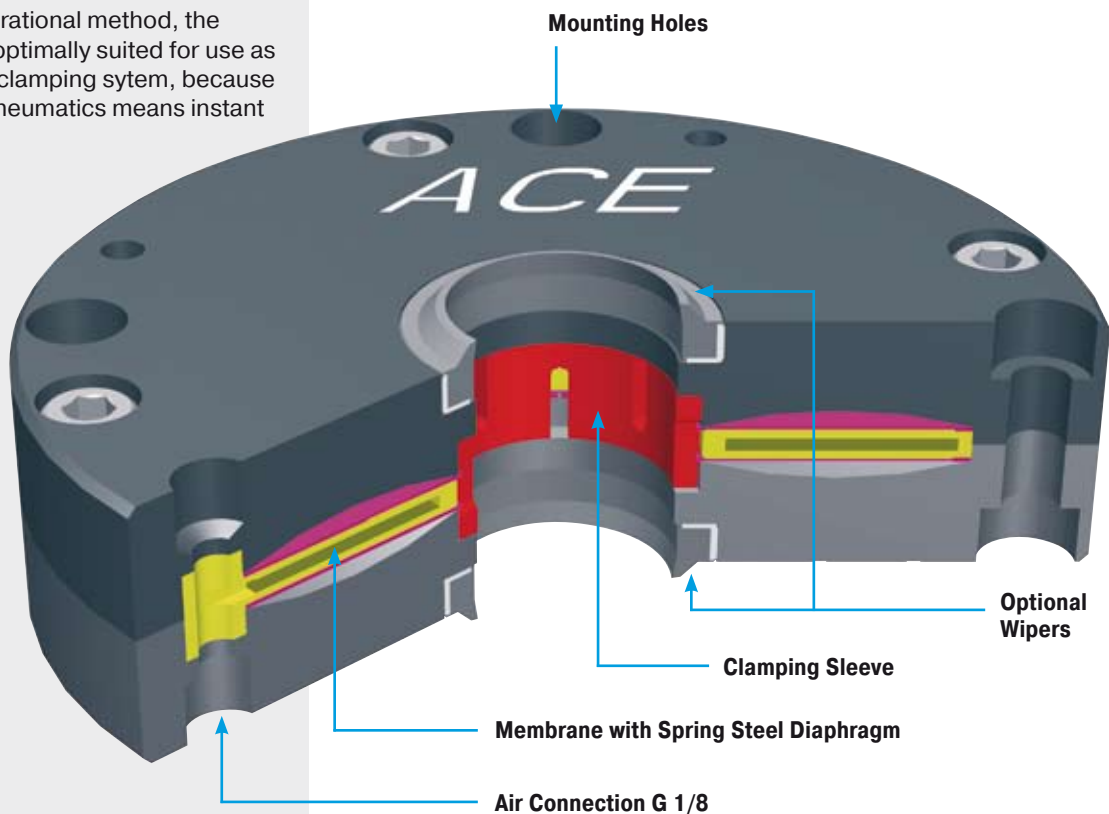
The **LOCKED Series PRK** is a pneumatic rod clamping in a compact construction design. The small installation height enables utilization in the case of limited construction space.

Installation heights of 28 to 34 mm offer clamping forces up to 5000 N.

The clamping forces are applied in both tension and compression. The clamping is implemented by a membrane/spring steel sheet system, and is released through the application of compressed air, either 4 bar or alternatively 6 bar.

Due to the operational method, the PRK Series is optimally suited for use as a static safety clamping system, because failure of the pneumatics means instant clamping.

*"Rod clamping  
in a compact design!"*



**Rod diameter:** 20 to 40 mm (special diameters on request; hardened piston rod recommended)

**Holding forces:** up to 5 000 N

**Clamping cycles:** 1 000 000.  
For higher values please consult ACE.

**Material:** Clamping body and milled parts: Tool steel. Spring steel plate: Spring steel. Clamping sleeve: Alum-bronze

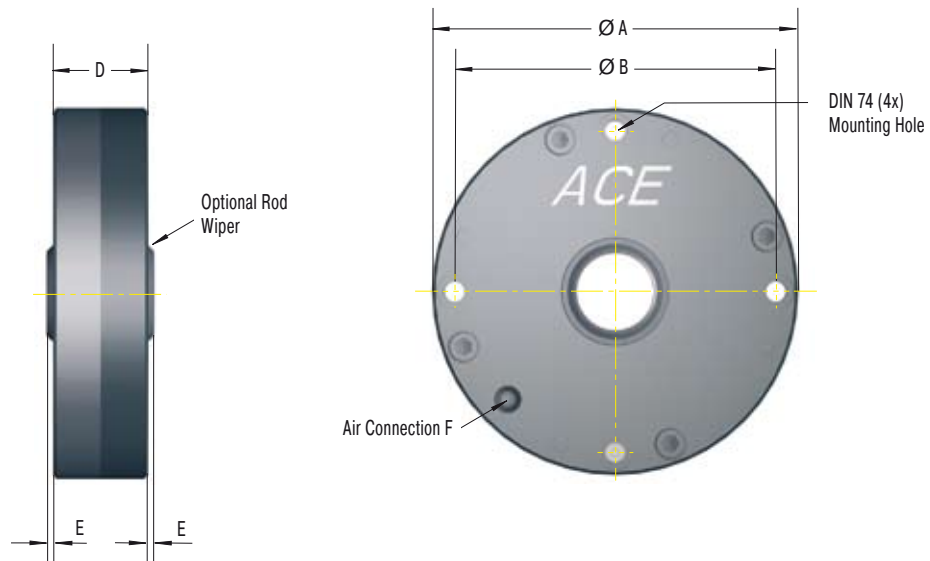
**Operating pressure:** 4 bar (automotive) or 6 bar

**Pneumatic medium:** Dried filtered air

**Operating temperature range:** 10 to 45 °C







### Ordering Example

Rod clamping Compact PRK80-25-6B  
 Nominal diameter 80 mm  
 Rod diameter 25 mm  
 6B = 6 bar type  
 4B = 4 bar type

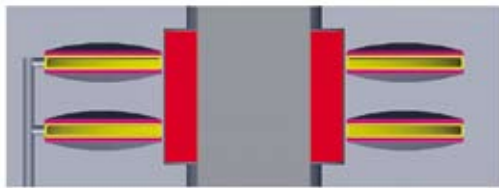
Standard rod sizes are listed in the capacity charts below. Special diameters are also available on request.

The calculation and selection of the correct clamping device should be made or approved by ACE. To assist you, please use the request form on page 27.

### Dimensions and Capacity Chart

| Type      | Dimensions |     |    |    |      |      | Holding Force <sup>1</sup>  |                             | Holding Torque <sup>1</sup>  |                              | Weight<br>kg |
|-----------|------------|-----|----|----|------|------|-----------------------------|-----------------------------|------------------------------|------------------------------|--------------|
|           | A          | B   | C  | D  | E    | F    | Opening pressure 4 bar<br>N | Opening pressure 6 bar<br>N | Opening pressure 4 bar<br>Nm | Opening pressure 6 bar<br>Nm |              |
| PRK63-20  | 92         | 80  | M5 | 28 | 2.1  | G1/8 | 700                         | 1 000                       | 7                            | 10                           | 1.15         |
| PRK80-25  | 118        | 104 | M6 | 30 | 2.14 | G1/8 | 1 050                       | 1 500                       | 12                           | 17                           | 2.1          |
| PRK125-40 | 168        | 152 | M6 | 34 | 3    | G1/8 | 3 500                       | 5 000                       | 70                           | 100                          | 4.9          |

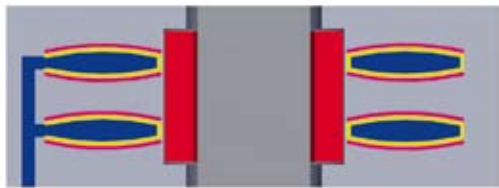
<sup>1</sup> The listed holding forces are reached under optimum conditions. We recommend a safety factor of > 10 %. Please note that surface, material and cleanliness of the rod as well as wear and tear and the use of rod wipers lead to different holding forces. Test the clamping needed for series production or safety applications in its specific application environment and measure the actual values.



#### Functional Principle LOCKED-PN/PISO/PRK

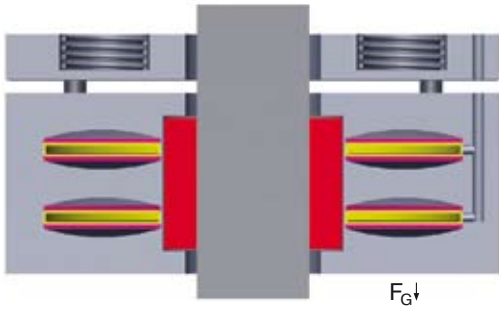
##### Engaged:

The clamping force of the mechanically pre-stressed spring steel plates system is transferred as a holding force into the clamping sleeve. The rod or shaft is engaged.



##### Released:

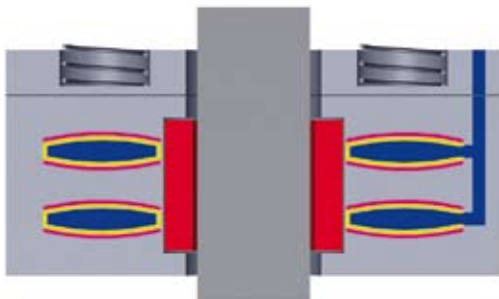
The membrane filled with compressed air relaxes the spring steel plate system and releases the clamping sleeve.



#### Safety Function for Vertical Axes

##### Engaged:

In case of emergency clamping, a shut-off valve is activated by the weight of the load and the clamping cannot be released.



##### Released:

The shut-off valve can be deactivated only when the load is taken off.



#### Intelligent component system solution for PN, PISO and PZ:

By connecting up to three clamping units between the base and deck plates, it is possible to easily increase the clamping force.

#### Notes on safety

Design-related, the addition of the individual component tolerances leads to an elastic axial tolerance allowance. This axial tolerance allowance can be up to 500 µm in the clamped status, according to implementation!

The axis/shaft/rod must be machined with at least h9-fit (or better) above h5.

Deviations from the prescribed tolerance can lead to reduction of the stopping force, or functional failure.



### List of Questions for your LOCKED-P Solution

ACE LOCKED-P systems can be adjusted to suit different applications. The criteria on the right decide the actual configuration of the system. Please enter the information as completely and with as much detail as possible to find a solution for your application quickly.

Desired LOCKED-P model accd. to chart \_\_\_\_\_

Standard air pressure  4 bar  6 bar  
(System can only open with air)

Application  horizontal  vertical (with PLC) ACE calculation example 10

Desired clamping force \_\_\_\_\_ Newton No. of modules \_\_\_\_\_

Required stop \_\_\_\_\_ mm Reaction time system \_\_\_\_\_ sec

Clamping cycles/hour \_\_\_\_\_ Moving load \_\_\_\_\_ kg

Required minimum life time \_\_\_\_\_ (no. of clamping cycles)

Operating mode  dry  oiled  greased

Exact name of oil/grease \_\_\_\_\_

Piston rod diameter in mm \_\_\_\_\_

Manufacturer of cylinder \_\_\_\_\_

Model name \_\_\_\_\_

Special requirements \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Quantity/year \_\_\_\_\_

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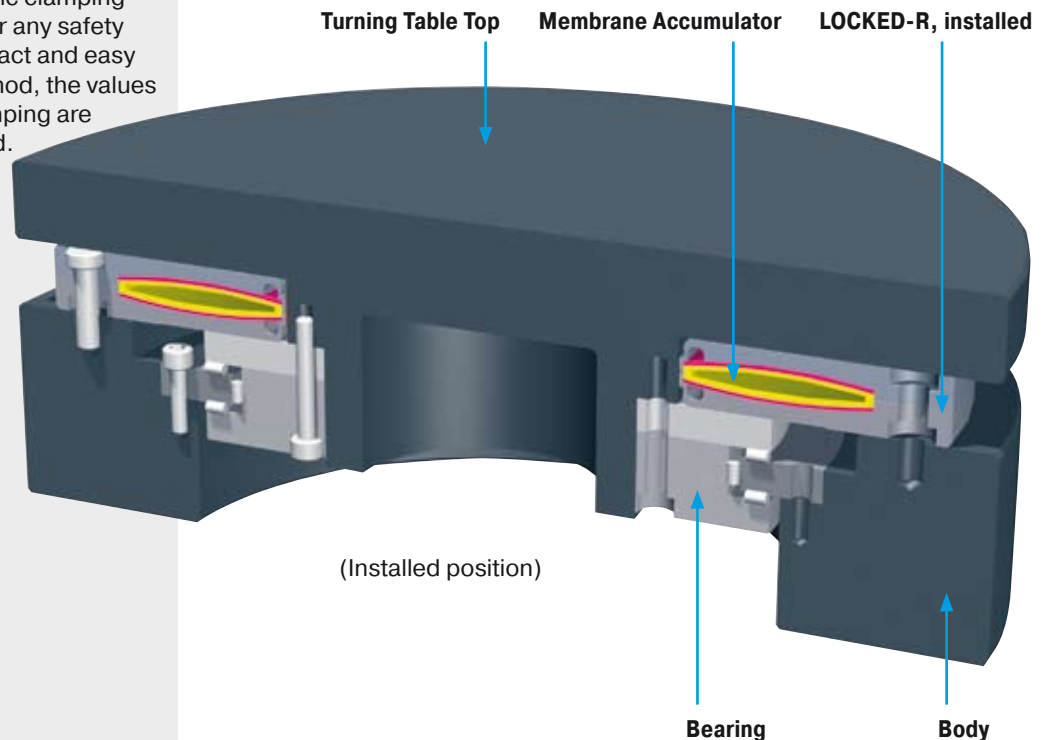
The innovative pneumatic clamping elements of the **LOCKED Series R** from ACE offer the highest forces and brake torques for the clamping of rotary motions directly on the shaft. They are available in standard sizes for shaft diameters from 50 to 340 mm. Through the membrane/spring steel sheet system, a pressure decrease results in **instant static safety clamping**.

Through the utilization of pneumatic quick-acting valves, extremely short reaction times can be realized. The costs are low in comparison with hydraulic clamping systems, which do not offer any safety clamping. In spite of compact and easy to install construction method, the values achieved by hydraulic clamping are matched or even exceeded.

In addition, custom-built designs for YRT bearings, as well as active clamping elements, are available. ACE recommends the utilization of the optional shaft flanges as wear protection.



*"Detailed mounting and operating instructions in the download area of [www.acecontrols-int.com/](http://www.acecontrols-int.com/)!"*



**Shaft diameter:** 50 to 340 mm (up to 460 mm for the YRT model)

**Maximum holding torque:** 2580 Nm (up to 4680 Nm with additional compressed air)

**Clamping cycles:** 1 000 000.  
For higher values please consult ACE.

**Material:** Clamping body hardened fine-grain structural steel, inner bore ground.

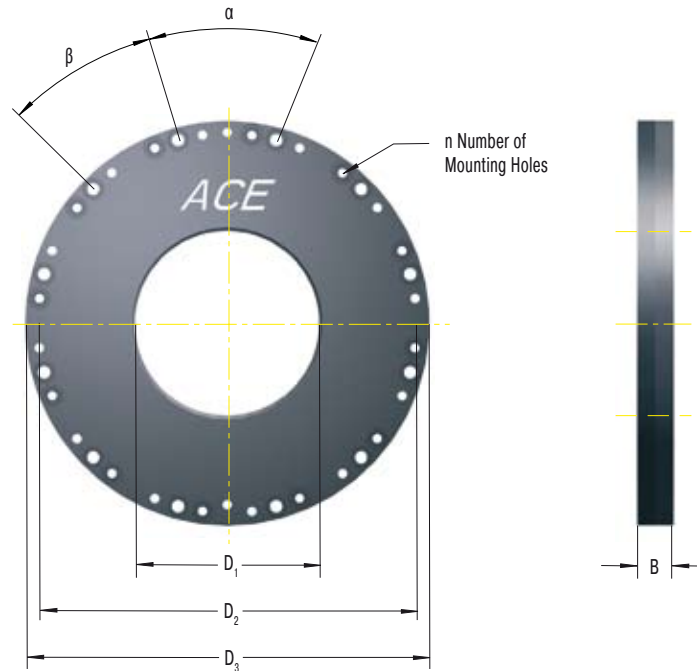
Optionally fitting shaft flange: C45 standard or steel coated

**Operating pressure:** 4 bar or 6 bar (standard type)

**Pneumatic medium:** Dried filtered air

**Operating temperature range:** 10 to 45 °C





**Ordering Example**

Rotational clamping element → **R80-Z-6B**  
 Shaft nominal diameter 80 mm → **R80-Z-6B**  
 Z= Increased force with additional air → **R80-Z-6B**  
 6B = 6 bar type → **R80-Z-6B**  
 4B = 4 bar type → **R80-Z-6B**

**Complete Details Required when Ordering**

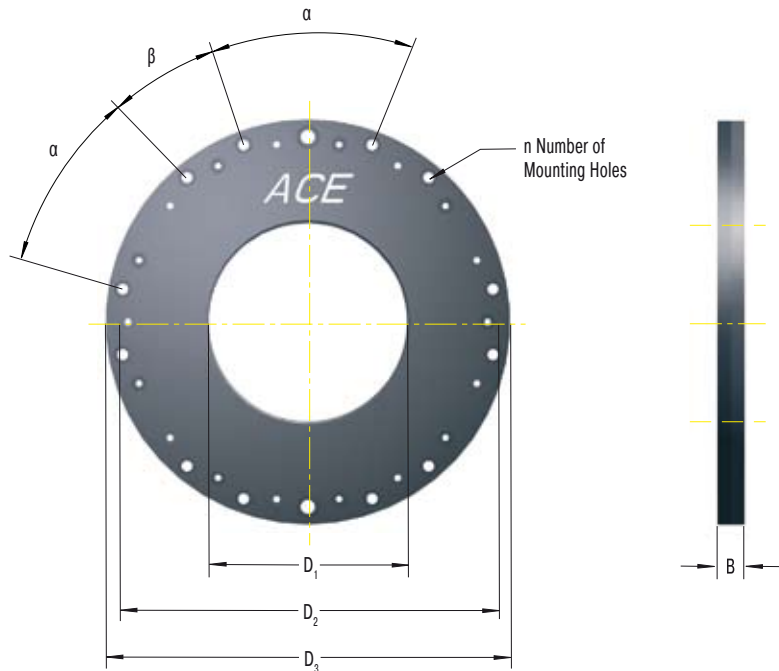
Desired opening pressure 4 bar or 6 bar  
 Option: with additional air

The calculation and selection of the correct clamping device should be made or approved by ACE. To assist you, please use the request form on page 33.

Installation drawings of the different types are available on request.

**Dimensions and Capacity Chart**

| Type | D <sub>1</sub> opened | Shaft Diameter | D <sub>2</sub> | D <sub>3</sub> | B  | n  | α  | β  | Holding Torque |          | Holding Torque additional air |          | Weight kg |
|------|-----------------------|----------------|----------------|----------------|----|----|----|----|----------------|----------|-------------------------------|----------|-----------|
|      |                       |                |                |                |    |    |    |    | at 6 bar       | at 4 bar | at 6 bar                      | at 4 bar |           |
| R50  | 50+0.03/+0.05         | 50-0.01/-0.025 | 134            | 145            | 15 | 8  | 45 | 45 | 60             | 42       | 108                           | 76       | 1.7       |
| R60  | 60+0.03/+0.05         | 60-0.01/-0.025 | 144            | 155            | 15 | 8  | 45 | 45 | 84             | 59       | 153                           | 107      | 1.9       |
| R70  | 70+0.03/+0.05         | 70-0.01/-0.025 | 154            | 165            | 15 | 12 | 30 | 30 | 114            | 80       | 210                           | 147      | 2.1       |
| R80  | 80+0.03/+0.05         | 80-0.01/-0.025 | 164            | 175            | 15 | 12 | 30 | 30 | 150            | 105      | 270                           | 189      | 2.3       |
| R90  | 90+0.03/+0.05         | 90-0.01/-0.025 | 174            | 185            | 15 | 12 | 30 | 30 | 189            | 132      | 342                           | 239      | 2.5       |



### Ordering Example

Rotational clamping element **R180-Z-6B**  
 Shaft nominal diameter 180 mm  
 Z= Increased force with additional air  
 6B = 6 bar type  
 4B = 4 bar type

### Complete Details Required when Ordering

Desired opening pressure 4 bar or 6 bar  
 Option: with additional air

30

The calculation and selection of the correct clamping device should be made or approved by ACE. To assist you, please use the request form on page 33.

Installation drawings of the different types are available on request.

Custom-built designs for YRT bearings (e.g. INA, Rodriguez) are also available on request.

### Dimensions and Capacity Chart

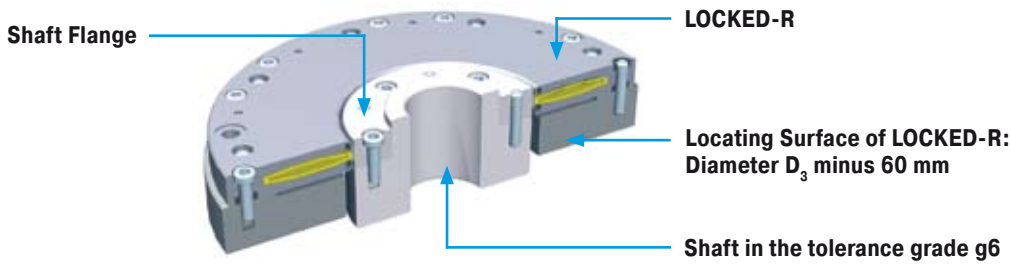
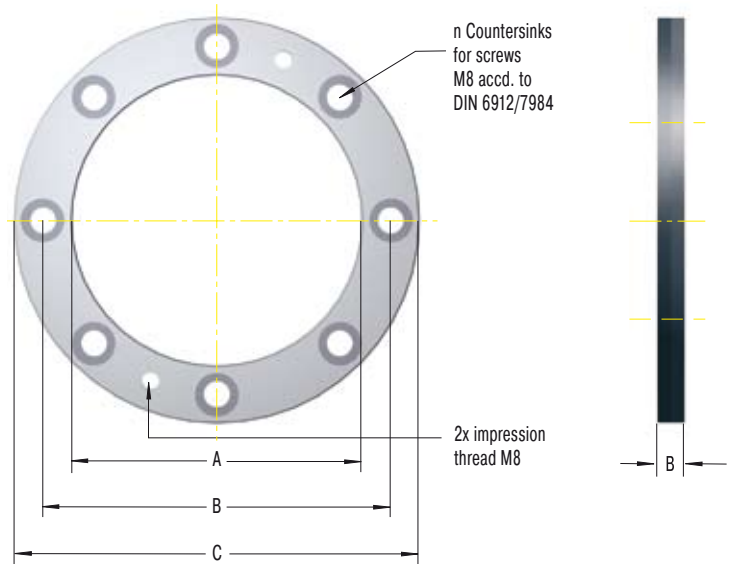
| Type | D <sub>1</sub> opened | Shaft Diameter  | D <sub>2</sub> | D <sub>3</sub> | B  | n  | α  | β  | Holding Torque |          | Holding Torque additional air |          | Weight kg |
|------|-----------------------|-----------------|----------------|----------------|----|----|----|----|----------------|----------|-------------------------------|----------|-----------|
|      |                       |                 |                |                |    |    |    |    | at 6 bar       | at 4 bar | at 6 bar                      | at 4 bar |           |
| R100 | 100+0.04/+0.06        | 100-0.01/-0.025 | 210            | 228            | 16 | 12 | 40 | 20 | 240            | 168      | 420                           | 294      | 4.1       |
| R120 | 120+0.04/+0.06        | 120-0.01/-0.025 | 230            | 248            | 16 | 12 | 40 | 20 | 336            | 235      | 600                           | 420      | 4.6       |
| R140 | 140+0.04/+0.06        | 140-0.01/-0.025 | 250            | 268            | 16 | 12 | 40 | 20 | 456            | 319      | 840                           | 588      | 5.1       |
| R160 | 160+0.04/+0.06        | 160-0.01/-0.025 | 270            | 288            | 16 | 12 | 40 | 20 | 600            | 420      | 1 080                         | 756      | 5.6       |
| R180 | 180+0.04/+0.06        | 180-0.01/-0.025 | 290            | 308            | 20 | 16 | 30 | 15 | 750            | 525      | 1 380                         | 966      | 7.7       |
| R200 | 200+0.05/+0.07        | 200-0.01/-0.03  | 310            | 328            | 20 | 16 | 30 | 15 | 930            | 651      | 1 680                         | 1 176    | 8.3       |
| R220 | 220+0.05/+0.07        | 220-0.01/-0.03  | 330            | 348            | 20 | 16 | 30 | 15 | 1 110          | 777      | 2 040                         | 1 428    | 8.9       |
| R240 | 240+0.05/+0.07        | 240-0.01/-0.03  | 350            | 368            | 20 | 24 | 20 | 10 | 1 350          | 945      | 2 400                         | 1 680    | 9.5       |
| R260 | 260+0.05/+0.07        | 260-0.01/-0.03  | 370            | 388            | 22 | 24 | 20 | 10 | 1 560          | 1 092    | 2 820                         | 1 974    | 11.2      |
| R280 | 280+0.05/+0.07        | 280-0.01/-0.03  | 390            | 408            | 22 | 24 | 20 | 10 | 1 800          | 1 260    | 3 240                         | 2 268    | 11.9      |
| R300 | 300+0.05/+0.07        | 300-0.01/-0.03  | 410            | 428            | 22 | 24 | 20 | 10 | 2 100          | 1 470    | 3 720                         | 2 604    | 12.6      |
| R320 | 320+0.05/+0.07        | 320-0.01/-0.03  | 430            | 448            | 22 | 24 | 20 | 10 | 2 340          | 1 638    | 4 200                         | 2 940    | 13.1      |
| R340 | 340+0.05/+0.07        | 340-0.01/-0.03  | 450            | 468            | 22 | 24 | 20 | 10 | 2 580          | 1 806    | 4 680                         | 3 276    | 14.0      |

### Optional Shaft Flanges

The LOCKED Series R is also available as a complete solution, with the shaft flanges produced according to your specifications. Material: Case hardened steel or plasma coated steel.

#### Mounting Dimensions of Shaft Flanges LOCKED-R

| Type             | Ø A       | Ø B         | Ø C                      | n Countersinks for DIN 6912/7984 | n  |
|------------------|-----------|-------------|--------------------------|----------------------------------|----|
| WF 100           | 60        | 80          | 100                      |                                  | 8  |
| WF 120           | 80        | 100         | 120                      |                                  | 8  |
| WF 140           | 100       | 120         | 140                      |                                  | 8  |
| WF 160           | 110       | 136         | 160                      |                                  | 12 |
| WF 180           | 130       | 156         | 180                      |                                  | 12 |
| WF 200           | 150       | 176         | 200                      |                                  | 12 |
| WF 220           | 170       | 196         | 220                      |                                  | 12 |
| WF 240           | 190       | 216         | 240                      |                                  | 12 |
| WF 260           | 210       | 236         | 260                      |                                  | 12 |
| WF 280           | 230       | 256         | 280                      |                                  | 12 |
| WF 300           | 250       | 276         | 300                      |                                  | 12 |
| WF 320           | 270       | 296         | 320                      |                                  | 12 |
| <b>Tolerance</b> | <b>H7</b> | <b>±0,1</b> | <b>-0,010<br/>-0,030</b> |                                  |    |



### General

In order to enable the transmission of maximum clamping forces, a connection to the machine structure is necessary which is as stiff as possible.

The indicated holding torques can be achieved only with proper installation and application of the system.

### Shaft Flange Installation Information

The shaft must be manufactured to the tolerance grade g6. The shaft flange is placed on plane side down, screwed on lightly and aligned to corresponding circularity.

The **necessary tightening torque** for the fixing screws M8/12.9 is **44 Nm**, in order to transmit the maximum torques.

Detailed mounting and operating instructions can be found at [www.acecontrols-int.com](http://www.acecontrols-int.com).

#### Functional Principle LOCKED-R



##### Released

The membrane filled with compressed air relaxes the spring steel plate system and releases the clamping ring. The shaft is free to move.



##### Engaged:

The clamping force of the membrane/spring steel plates systems is transferred to the holding force of the clamping ring. The shaft is clamped.



##### Engaged with additional air:

By filling the outer membrane chamber with additional compressed air (4 or 6 bar), there is the possibility to increase the clamping force. The clamping element is engaged in this condition.





**List of Questions for your LOCKED-R Solution**

ACE LOCKED-R systems can be adjusted individually to different applications. The criteria on the right decide the actual configuration of the system. Please enter the information as completely and with as much detail as possible to find a solution for your application quickly.

Required LOCKED-R model accd. to chart \_\_\_\_\_

Required clamping cycles \_\_\_\_\_

Clamping moment \_\_\_\_\_ Nm

Intended air pressure  4 bar  6 bar

Optional shaft flange: \_\_\_\_\_

Dimensions, if differing from standard model:

Inner diameter D<sub>1</sub> \_\_\_\_\_ mm

Mounting diameter D<sub>2</sub> \_\_\_\_\_ mm

Outer diameter D<sub>3</sub> \_\_\_\_\_ mm

Height B \_\_\_\_\_ mm

Special requirements \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Quantity/year \_\_\_\_\_

**Sender**

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Address \_\_\_\_\_

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Department \_\_\_\_\_

Name/position \_\_\_\_\_

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