CLAMPING AND BRAKING ELEMENTS
FOR LINEAR GUIDES AND RODS
PNEUMATIC AND MANUAL UNITS

2013
ERRE.DI. Automation has been manufacturing and supplying quality automation components and systems for over 30 years. We design, realize and test an extensive range of clamping and braking elements for linear guides and rods.

Within our own facilities, through the use of our own machinery we produce 95% of our completed product, thus eliminating the dependency upon outside sources. Because of this self-sufficiency, we are able to guarantee the reliability of components and a prompt response to engineering and design problems.

In addition to our standard production, we can provide tailor-made solutions to best meets the customers’ needs in every industrial sector including aerospace, robotics, machine tool, automotive, industrial automation, packaging and material handling.

Summary

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Having gone through an adequate period of design, analysis, development and testing (5 million tightening cycles) Erre.Di. is able to offer locking devices for linear guides and rods that present the following characteristics:

- High clamping force with minimum space required
- Extremely easy installation
- Carriage Locking without backlash or stiffening during the processing
- No reaction on the carriage and therefore no wear of the blocking parts
- Possibility to have, in the same space, a normally open blockage for both single and double effect, and a normally closed system that meets safety requirements (e.g. on vertical axes) holding the system in place in case of power failure.

All the locking devices undergo treatments to protect against corrosion: hard anodizing for Aluminum elements and electrolytic nickel plating bath for Steel elements.

The normal application of forces, produced by the amplification system, is uniformly distributed on the clamping elements without straining individual points that may affect the rail.

The high efficiency of the system and the high-speed clamping make our devices particularly suitable for application with linear motors and machine tools as well as in various handling systems.

FIELDS OF APPLICATION:
- Woodworking machine
- Metal working machine
- Glass working machine
- Packaging machinery
- Automation and Robotics
- Handling systems

![Image of a locking device]

<table>
<thead>
<tr>
<th>Type</th>
<th>Profile</th>
<th>Guide</th>
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<td>T</td>
<td>01 Thk 02 Hiwin 03 Ina 04 Iko 05 Nsk 06 Abba</td>
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<td>07 Pmi 08 Sbc 09 DryLin 10 Rollon 11 SBI</td>
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The codes in the product Series are:

- FRC
- FRCBP
- FRCMC
- FRCMAN
- FRCBS
- FRCBSM

The encoding of the pneumatic Working type parameter is as follows:

- SE: operating Normally Open - Air to close
- SEM: operating Normally Closed - Air to open
- DE: operating Normally Open - Air to close and to open
- DEM: operating Normally Closed - Air to open and to close

For Special locking devices, built for customer’s need, the code is followed by the letters SP.

Clamping elements can optionally be supplied with a “spacer” plate made in Steel, used to align the height of the clamping element with the height of the sliding guides.

![Image of clamping elements with spacer plate]
FRC pneumatic clamping element

The tightening is done using an amplification system with inclined plane. Made in construction steel, for high axial and horizontal stiffness.

## Guide size
S 15 ÷ 55

## Guide type
T / S (see table A)

## Operation type
Norm. Open

## Body
Steel

## Operating Temp.
-20°C ÷ 80°C

## Operation Pressure
5 ÷ 8 bar

FRC pneumatic clamping element


Type | Guide | Clamping force [N] | SEM | SE | DE | DEM |
--- | --- | --- | --- | --- | --- | --- |
FRC S 15 | 400 | 650 | 650 | 1050 | 57 | 43 | 3 | 21 | 24 | 15 | 15 | 12,5 | 62 | 15,5 | 19 | 5 | 15 | M4x5 | 37 | 6 |
FRC T 15 | 400 | 650 | 650 | 1050 | 60 | 43 | 2,5 | 21,5 | 24 | 15 | 15 | 12,5 | 62 | 15,5 | 19 | 5,3 | 15,5 | M4x5 | 37 | 6 |
FRC S 20 | 600 | 1000 | 1000 | 1600 | 68 | 39 | 3 | 27 | 30 | 20 | 20 | 14 | 61 | 21 | 22 | 5 | 7 | M5x5 | 18,5 | 5,5 |
FRC T 20 | 600 | 1000 | 1000 | 1600 | 70 | 39 | 2,5 | 25,5 | 28 | 20 | 20 | 14 | 61 | 21 | 22 | 5 | 5 | M5x5 | 18,5 | 5 |
FRC S 25 | 750 | 1200 | 1200 | 1950 | 75 | 39 | 3,5 | 32,5 | 36 | 20 | 20 | 14 | 63,5 | 24 | 24,5 | 6,6 | 9,5 | M6x8 | 19,5 | 5,5 |
FRC T 25 | 750 | 1200 | 1200 | 1950 | 77 | 39 | 8 | 28 | 36 | 20 | 20 | 14 | 63,5 | 24 | 24,5 | 6 | 5 | M6x8 | 19 | 5 |
FRC S 30 | 1050 | 1750 | 1750 | 2800 | 87 | 43 | 3,5 | 38,5 | 42 | 22 | 22 | 10,5 | 71 | 29 | 28 | 8,5 | 8,5 | M8x8 | 16,5 | 16,5 |
FRC T 30 | 1050 | 1750 | 1750 | 2800 | 87 | 43 | 7 | 35 | 42 | 22 | 22 | 10,5 | 71 | 29 | 28 | 5 | 5 | M8x8 | 16,5 | 16,5 |
FRC S 35 | 1250 | 2000 | 2000 | 3250 | 106 | 46 | 5,5 | 42,5 | 48 | 24 | 24 | 7,5 | 78 | 36 | 32 | 5,5 | 10 | M10x8 | 21 | 8 |
FRC T 35 | 1250 | 2000 | 2000 | 3250 | 106 | 46 | 5,5 | 42,5 | 48 | 24 | 24 | 7,5 | 78 | 35 | 32 | 12 | 12 | M10x8 | 23 | 6,5 |
FRC S 45 | 1500 | 2300 | 2300 | 3800 | 116 | 50 | 8 | 52 | 60 | 26 | 26 | 12 | 82 | 46 | 32 | 15 | 8 | M10x19 | 20,5 | 21 |
FRC T 45 | 1500 | 2300 | 2300 | 3800 | 120 | 50 | 8 | 52 | 60 | 26 | 26 | 12 | 82 | 46 | 32 | 15 | 8 | M10x19 | 20 | 20 |
FRC S 55 | 2000 | 3000 | 3000 | 5000 | 128 | 49 | 11 | 59 | 70 | 30 | 30 | 9,5 | 82 | 54 | 33 | 17 | 10 | M10x19 | 20,5 | 18,5 |
FRC T 55 | 2000 | 3000 | 3000 | 5000 | 136 | 49 | 16 | 54 | 70 | 30 | 30 | 9,5 | 82 | 55 | 33 | 13 | 8 | M10x19 | 18,5 | 18,5 |
### FRCDP double piston element

New line created to obtain a high clamping force in small spaces. 
Dual Locking Action: with a pair of pistons for each tightening part.

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### Clamping force [N]

- A [mm]
- B [mm]
- C [mm]
- D [mm]
- E [mm]
- F [mm]
- G [mm]
- H [mm]
- L [mm]
- M [mm]
- N [mm]
- P [mm]
- Q [mm]
- R [mm]
- S [mm]
- T [mm]

### Diagram

- Dual piston system: high clamping force. Small size. Short reaction time.
- Locking element without the use of energy. High clamping force thanks to a double piston. Small size. Short reaction times.
FRCMC single cylinder element

Locking element compact and inexpensive. These characteristics are obtained using a single contact section. The braking action is allowed by the floating system of the body that ensures:

- the clamping of the rail guide on one side by the contact section and on the other by the body itself;
- a symmetrical distribution of clamping force on the linear guide;
- absolutely no friction between the linear guide with the body and with the contact section when the clamping is released.

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- Air connection M3
- We recommend use of compressed air hose ø4x6
FRCMAN manual clamping element

Simple and reliable, this clamping element is manually controlled. By acting on the adjustable locking lever (resumption handle), the contact profiles press with sync on the surfaces of the rail. The floating profiles of contact ensure a symmetrical distribution of force on the linear guide.

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Simple and inexpensive, floating locking contacts

The position of the manual lever is adjustable.
The construction of the body in Ergal Aluminum allows to improve the mechanical properties of the element and to reduce the price. The double piston system produces clamping forces that are 50% higher than the normal mechanism, maintaining a very limited size.

**FRCBS braking element for rods**

Dual Locking Action: Uses a pair of pistons for each tightening part. The body of the locking element is made of Ergal Aluminum.

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- Air connection M5
- We recommend use of compressed air hose Ø6x4
ERRE.DI. Automation also produces special locking elements according to particular needs of customers

ERRE.DI. provides added value by means of its capabilities and availability starting with the design stage: the best synergies with customers are made possible when there is real collaboration during the creation of new products.

The Engineering Department uses the most advanced design software available on the market for the development of all components of the locking elements.

Design, manufacturing and testing are carried out daily within our own facilities to guarantee reliability and precision of all the products.

The requirements include using a smaller element, extremely easy to install and/or replace in the system where it is used:

- Fewer parts of the production machine need to be displaced;
- Eliminates the need to slide the blocking element along the whole length of the guide.

The rod blocking device can be used with rod bore from 20 to 25.

The device is normally locked. It is unlocked by applying a pneumatic signal. Therefore it is possible to block the cylinder in case of pressure drop or to stop the movement in intermediate position.

If the device is used normally open, the pneumatic is used to lock the cylinder.

**FRCBSM rod blocking device**

The entire range of FRCBSM blocking is under construction and will be available in the 2014 version.

For further information, please contact our Sales Department at sales@erredisrl.it