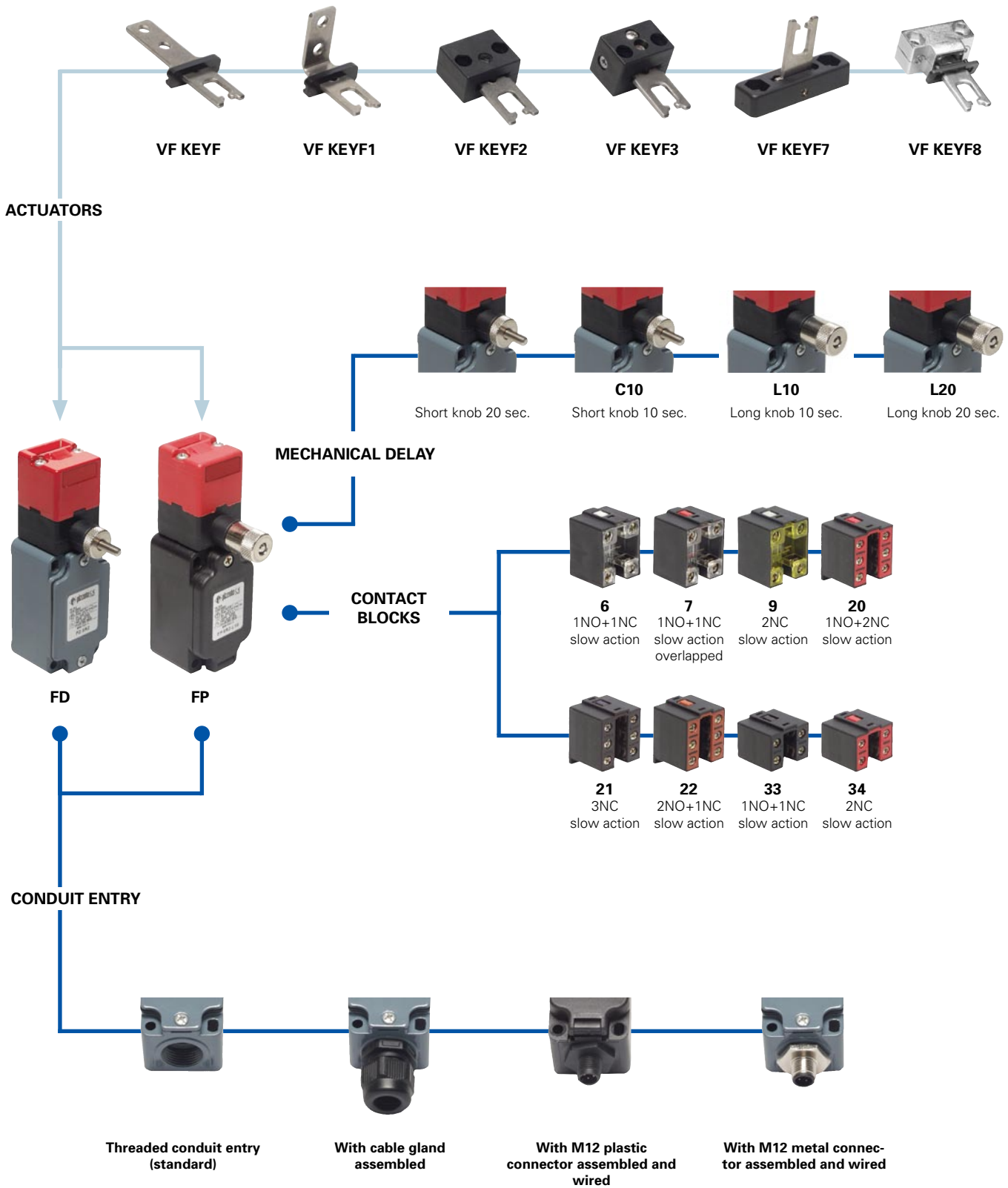
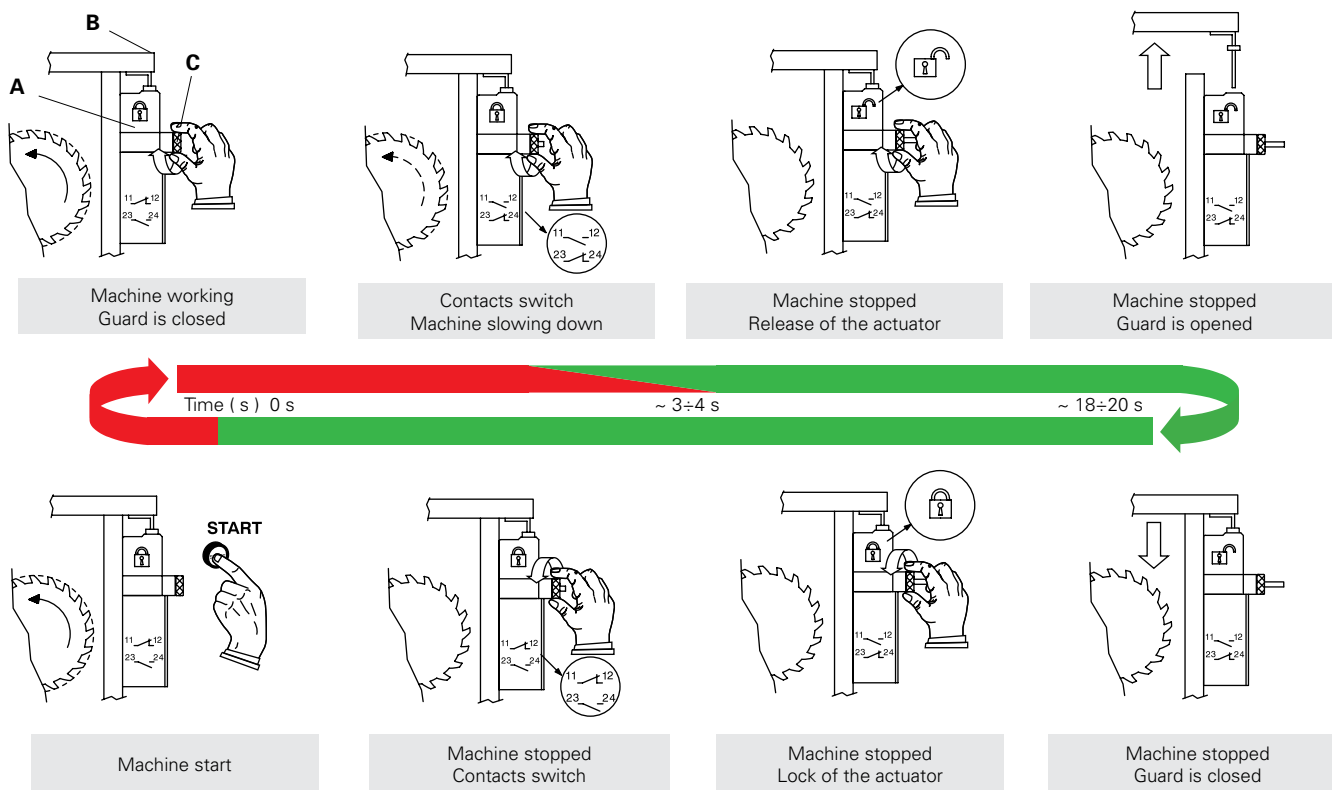


Selection diagram



Working cycle (FP 6R2-F1)

The switch is fixed to the machine body (A), while the stainless steel actuator is fastened to the guard (B). Once installed, the switch will firmly lock the actuator. In order to remove the actuator, the knob (C) has to be rotated. On the first turns the electrical contacts will positively open, then, after about 20 seconds (or 10 seconds depending on the knob version), the actuator will be released. In order to close the guard, the knob must be rotated in the opposite direction. This switch doesn't need power supply or timer and can be easily installed on old machines without important changes in their electrical circuit. The knob (C) may be supplied in a short (standard) or in a long version.



Code structure

Attention! The feasibility of a code number does not mean the effective availability of a product. Please contact our sales office.

article options
FD 6R2-L10F1GM2K50

| | | | |
|---|---|---|---|
| Housing FD metal housing, one conduit entry FP polymer housing, one conduit entry | | Preinstalled cable gland or connectors no cable gland or connector (standard) K21 with assembled cable gland suitable for Ø 6 to Ø 12 mm cables range K40 with M12 metal connector assembled and wired, 8 poles (only for contact blocks 20, 21, 22) For the complete list of all combinations, please contact our technical office. | |
| Contact blocks 6 1NO+1NC, slow action 7 1NO+1NC, slow action overlapped 9 2NC, slow action 20 1NO+2NC, slow action 21 3NC, slow action 22 2NO+1NC, slow action 33 1NO+1NC, slow action 34 2NC, slow action | | Threaded conduit entry PG 13,5 (standard) M2 M20x1,5 | |
| Mechanical delay short knob 20 s (standard) C10 short knob 10 s L10 long knob 10 s L20 long knob 20 s | Actuators without actuator (standard) F with straight actuator F1 with right-angled actuator F2 with jointed actuator F3 with jointed actuator adjustable in two directions F7 with jointed actuator adjustable in one direction F8 with universal actuator | | Contacts type silver contacts (standard) G silver contacts gold plated 1 µm |



Main data

- Metal housing or polymer housing, one conduit entry
- Protection degree IP67
- 8 contact blocks available
- 6 stainless steel actuators available
- M12 assembled connector versions
- Silver contacts gold plated versions
- Strong actuator locking (1000N)
- Manual actuator unlocking
- Versions with different unlocking delay times

Markings and quality marks:



Approval IMQ: EG605 (FD series)
EG606 (FP series)

Approval UL: E131787

Approval CCC: 2007010305230000
(FD series)
2007010305230014
(FP series)

Approval ECU: 1010151

Technical data

Housing

Housing type FP made of glass-reinforced polymer, self-extinguishing, shock-proof thermoplastic resin and with double insulation \square

Housing type FD made of metal, coated with baked epoxy powder.

FD and FP series one conduit entry

Protection degree: IP67 (electrical contacts)

General data

Ambient temperature: from -25°C to +80°C

Version for operation in ambient temperature from -40°C to +80°C on request

Max operating frequency: 360 operations cycles¹/hour

Mechanical endurance: 500.000 operations cycles¹

Max actuating speed: 0,5 m/s

Min. actuating speed: 1 mm/s

Max holding force: 1000 N

Max backlash of the actuator: 4,5 mm

(1) One operation cycle means two movements, one to close and one to open contacts, as foreseen by IEC 947-5-1 standard.

Cross section of the conductors (flexible copper wire)

Contact blocks 20, 21, 22, 33, 34: min. 1 x 0,34 mm² (1 x AWG 22)

max. 2 x 1,5 mm² (2 x AWG 16)

Contact blocks 6, 7, 9: min. 1 x 0,5 mm² (1 x AWG 20)

max. 2 x 2,5 mm² (2 x AWG 14)

In conformity with standards:

IEC 60947-5-1, EN 60947-5-1, IEC 60204-1, EN 60204-1, EN 1088, EN ISO 12100-1, EN ISO 12100-2, IEC 529, EN 60529, NFC 63-140, VDE 0660-200, VDE 0113, CENELEC EN 50013, BG-GS-ET-15.

Approvals:

IEC 60947-5-1, UL 508, GB14048.5-2001

In conformity with requirements requested by:

Low Voltage Directive 2006/95/EC, Machinery Directive 2006/42/EC and Electromagnetic Compatibility 2004/108/EC.

Positive contact opening in conformity with standards:

IEC 60947-5-1, EN 60947-5-1, VDE 0660-206.

⚠ If not expressly indicated in this chapter, for the right installation and the correct utilization of all articles see requirements indicated from page 6/1 to page 6/8.

Electrical data

Utilization categories

without connector

Thermal current (I_{th}): 10 A
Rated insulation voltage (U_i): 500 VAC 600 VDC
400 VAC for contact blocks 20, 21, 22, 33, 34
Protection against short circuits: fuse 10 A 500 V type aM
Pollution degree: 3

Alternate current: AC15 (50...60 Hz)
U_e (V) 250 400 500
I_e (A) 6 4 1
Direct current: DC13
U_e (V) 24 125 250
I_e (A) 6 1,1 0,4

with 4 or 5 poles M12 connector

Thermal current (I_{th}): 4 A
Rated insulation voltage (U_i): 250 VAC 300 VDC
Protection against short circuits: fuse 4 A 500 V type gG
Pollution degree: 3

Alternate current: AC15 (50...60 Hz)
U_e (V) 24 120 250
I_e (A) 4 4 4
Direct current: DC13
U_e (V) 24 125 250
I_e (A) 4 1,1 0,4

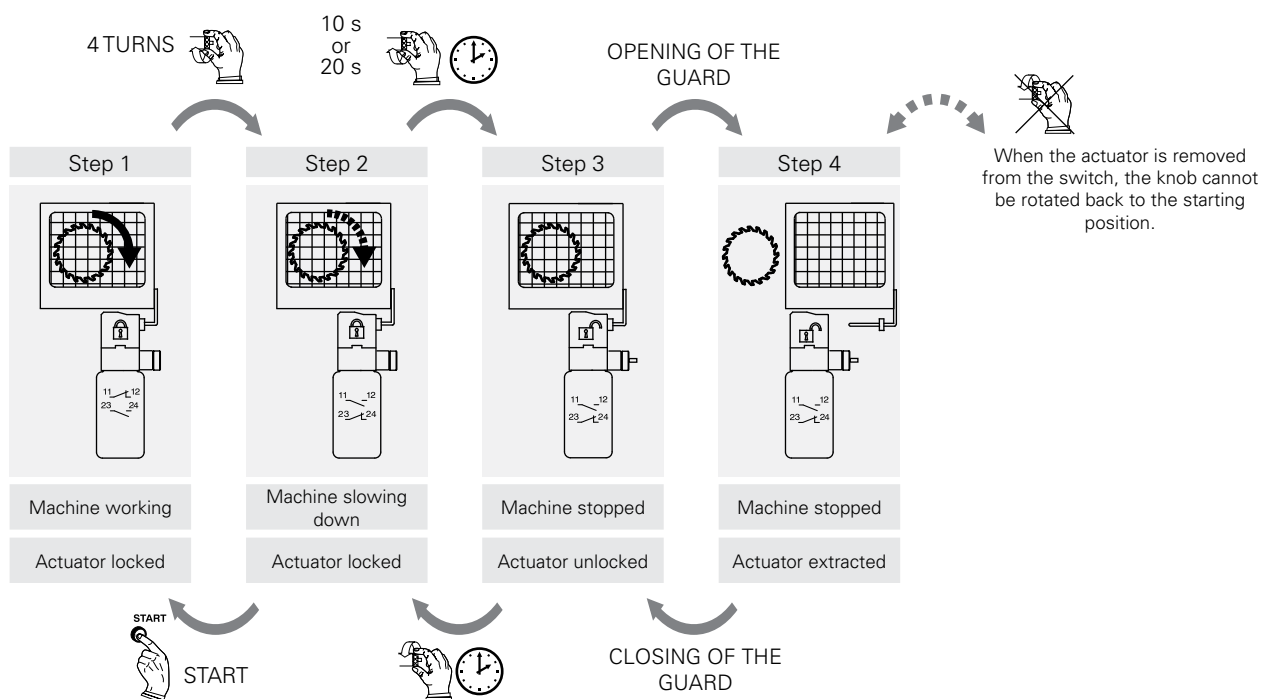
with 8 poles M12 connector

Thermal current (I_{th}): 2 A
Rated insulation voltage (U_i): 30 VAC 36 VDC
Protection against short circuits: fuse 2 A 500 V type gG
Pollution degree: 3

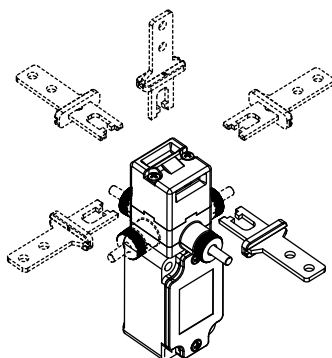
Alternate current: AC15 (50...60 Hz)
U_e (V) 24
I_e (A) 2
Direct current: DC13
U_e (V) 24
I_e (A) 2

Example of working cycle steps with FD 6R2-F1

These switches are used on machines where the hazardous conditions remain for a while, even after the machine has been switched off, for example because of mechanical inertia of the pulleys, saw disks, mills. This switch has its ideal application where the guard is not open frequently and the installation of a switch with solenoid would be too expensive.

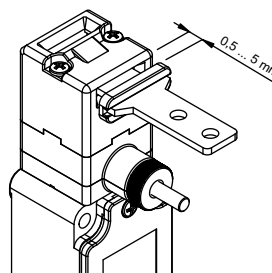


Rotating heads and knobs



The head can be quickly rotated on each of the 4 sides of the switch by unfastening the two fixing screws. The mechanical delay device can be rotated in 90° steps as well. This enables the switch to assume 32 different configurations.

Actuator regulation zone



This switch has a wide backlash of the actuator into the head (4,5 mm) for an easier installation. With closed door, check that the actuator doesn't knock straight against the head of the switch; it must be in the adjustment zone (0,5...5 mm)

Limits of utilization

Do not use where dust and dirt may penetrate in any way into the head and deposit there, in particular where metal dust, concrete or chemicals are spread.

Do not use where explosive or inflammable gas is present.

Data type approved by IMQ, CCC and EZU

Rated insulation voltage (Ui): 500 VAC
400 VAC for contact blocks 20, 21, 22, 33, 34

Thermal current (Ith): 10 A

Protection against short circuits: fuse 10 A 500 V type aM

Protection degree: IP67

MV terminals (screw clamps)

Pollution degree 3

Utilization category: AC15

Operation voltage (Ue): 400 VAC (50 Hz)

Operation current (Ie): 3 A

Forms of the contact element: Zb, Y+Y, Y+Y+X, Y+Y+Y, Y+X+X

Positive opening of contacts on contact block 6, 7, 9, 20, 21, 22, 33, 34

In conformity with standards: EN60947-1, EN 60947-5-1 and subsequent modifications and completions, fundamental requirements of the Low Voltage Directive 73/23 EEC and subsequent modifications and completions.

Please contact our technical service for the list of type approved products.

Data type approved by UL

Utilization categories Q300 (69 VA, 125-250 VDC)

A600 (720 VA, 120-600 VAC)

Data of the housing type 1, 4X (indoor use only), 12, 13

In conformity with standard: UL 508

For all contact blocks use 60 or 75 °C copper (Cu) conductor and wire size No. 12-14 AWG. Terminal tightening torque of 7,1 Lb-In.

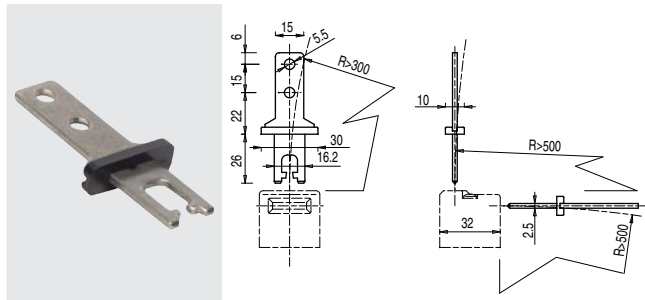
Please contact our technical service for the list of type approved products.

Stainless steel actuators

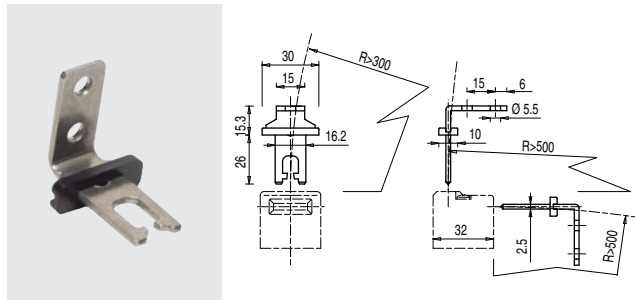
10 pcs packs

IMPORTANT: These actuators must be used with FD, FP, FL, FC or FS series only (e.g. FD 6R2)

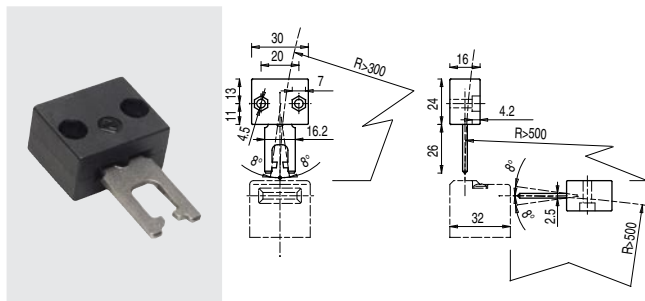
| Article | Description |
|---------|-------------------|
| VF KEYF | Straight actuator |



| Article | Description |
|----------|-----------------------|
| VF KEYF1 | Right-angled actuator |

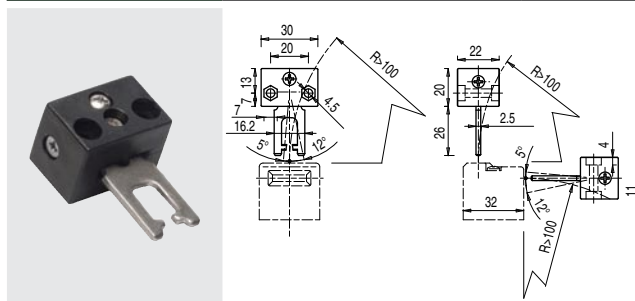


| Article | Description |
|----------|------------------|
| VF KEYF2 | Jointed actuator |



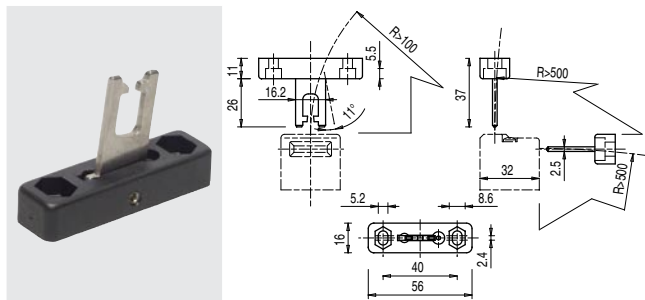
The actuator can flex in four directions for applications where the door alignment is not precise

| Article | Description |
|----------|---|
| VF KEYF3 | Jointed actuator adjustable in two directions |



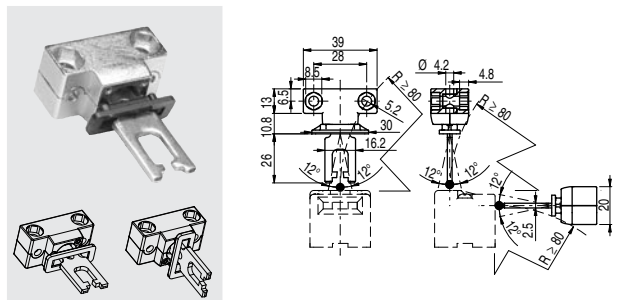
Actuator adjustable in two directions for doors with reduced dimensions.

| Article | Description |
|----------|--|
| VF KEYF7 | Jointed actuator adjustable in one direction |



Actuator adjustable in one direction for doors with reduced dimensions.

| Article | Description |
|----------|--------------------|
| VF KEYF8 | Universal actuator |



Jointed and two directions adjustable actuator for doors with reduced dimensions. The actuator has two couples of fixing holes and it is possible to rotate the actuator-working plan (see picture).

Accessories

| Article | Description |
|---------|-------------------------------|
| VF KB1 | Actuator entry locking device |



Padlockable device to lock the actuator entry in order to prevent from the accidental closing of the door behind operators while they are inside the machine. To be used only with FD, FL, FC and FS series with metal heads.



Accessories See page 5/1

Items with code on the **green** background are available in stock