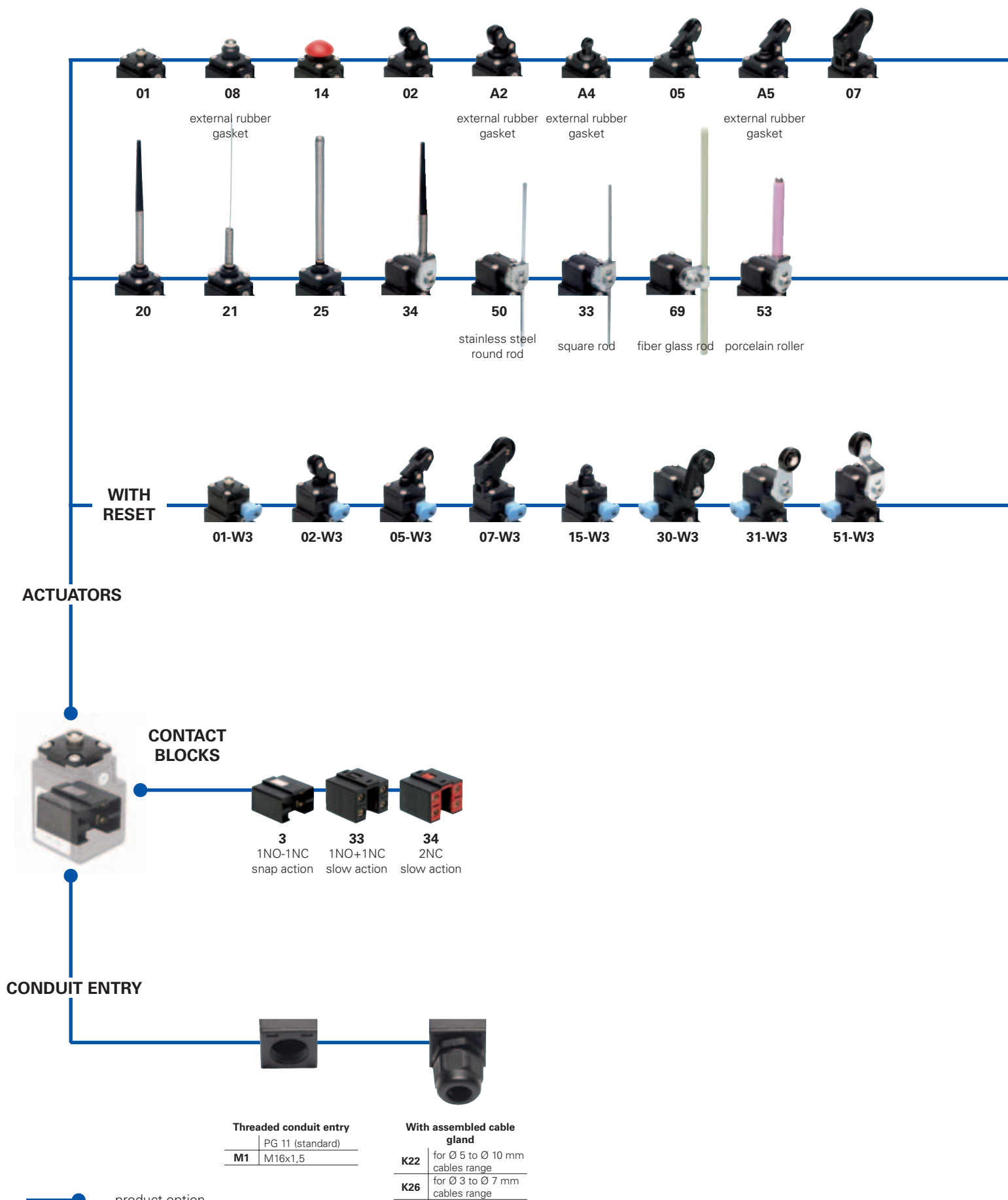


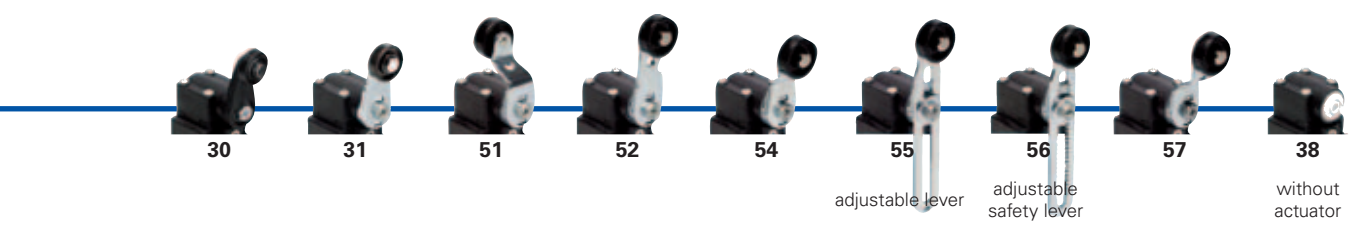
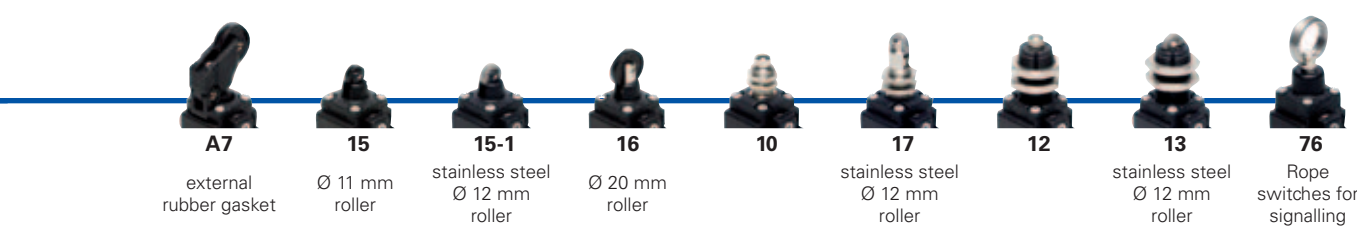
Selection diagram



● product option
 → accessory sold separately



- 1
- 1A
- 1B
- 2
- 2A
- 2B
- 2C
- 2D
- 2E
- 3
- 3A
- 3B
- 3C
- 4
- 4A
- 4B
- 4C
- 4D
- 4E
- 4F
- 4G
- 4H
- 5
- 6



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
FK 302-1W3XGM1K22





<p>Housing</p> <p>FK polymer housing, one conduit entry</p> <p>Contact blocks</p> <p>3 1NO-1NC, snap action</p> <p>33 1NO+1NC, slow action</p> <p>34 2NC, slow action</p> <p>Actuators</p> <p>01 short plunger</p> <p>02 roller lever</p> <p>05 offset roller lever</p> <p>... ..</p> <p>Suffix</p> <p>no suffix (standard)</p> <p>1 with stainless steel roller: - Ø 12 mm for actuator A4, 15 - Ø 14 mm for actuators A2, 02, A5, 05 - Ø 20 mm for actuators 30, 31, 51, 52, 54, 55, 56, 57</p> <p>2 with Ø 35 mm polymer roller (see special loose actuators on page 2/98)</p> <p>3 with Ø 50 mm rubber roller (see special loose actuators on page 2/98)</p> <p>4 with Ø 50 mm overhanging rubber roller (see special loose actuators on page 2/98)</p>	<p>Preinstalled cable gland</p> <p>no cable gland (standard)</p> <p>K22 with assembled cable gland suitable for Ø 5 to Ø 10 mm cables range</p> <p>K26 with assembled cable gland suitable for Ø 3 to Ø 7 mm cables range</p> <p>Threaded conduit entry</p> <p>PG 11 (standard)</p> <p>M1 M16x1,5</p> <p>Contacts type</p> <p>silver contacts (standard)</p> <p>G silver contacts gold plated 1 µm (contact block 3 excluded)</p> <p>External metallic parts</p> <p>zinc plated steel (standard)</p> <p>X stainless steel</p> <p>Reset hooking</p> <p>without reset (standard)</p> <p>W simultaneous reset hooking</p>	
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Main data

- Polymer housing, one conduit entry
- Protection degree IP67
- 3 contact blocks available
- 46 actuators available
- External stainless steel parts versions
- Silver contacts gold plated versions


Markings and quality marks:

Approval IMQ: EG610
 Approval UL: E131787
 Approval CCC: 2007010305230013
 Approval ECU: 1010151

Technical data

Housing

Made of glass-reinforced polymer, self-extinguishing, shock-proof thermoplastic resin and with double insulation 
 One threaded conduit entry
 Protection degree: IP67 according to EN 60529

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: 3600 operations cycles¹/hour
 Mechanical endurance: 20 million operations cycles¹
 Assembling position: any
 Driving torque for installation: see pages 6/1-6/10
 (1) One operation cycle means two movements, one to close and one to open contacts, as foreseen by EN 60947-5-1 standard.

Cross section of the conductors (flexible copper wire)

Contact blocks 33, 34:	min.	1 x 0,34 mm ²	(1 x AWG 22)
	max.	2 x 1,5 mm ²	(2 x AWG 16)
Contact blocks 3:	min.	1 x 0,5 mm ²	(1 x AWG 20)
	max.	2 x 1,5 mm ²	(2 x AWG 16)

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 60529, EN 60529, NFC 63-140, VDE 0660-200, VDE 0113, CENELEC EN 50013.

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.

Installation for safety applications:

Use only switches marked with the symbol . The safety circuit must always be connected with the **NC contacts** (normally closed contacts: 11-12, 21-22 or 31-32) as stated in the **standard EN 60947-5-1, encl. K, par. 2**. The switch must be actuated with **at least up to the positive opening travel** shown in the travels diagrams on page 6/6. The switch must be actuated **at least with the positive opening force**, shown in brackets, underneath each article, near the value of the min. force.

 **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 6/10.**

Electrical data

Utilization categories

without connector	Thermal current (I _{th}):	10 A	Alternate current: AC15 (50...60 Hz)			
	Rated insulation voltage (U _i):	500 Vac 600 Vdc	U _e (V)	250	400	500
		400 Vac 600 Vdc	I _e (A)	6	4	1
		for contact blocks 33, 34	Direct current: DC13			
	Conditional short circuit current:	1000 A according to EN 60947-5-1	U _e (V)	24	125	250
	Protection against short circuits:	fuse 10 A 500 V type aM	I _e (A)	6	1,1	0,4
Pollution degree:	3					



Data type approved by IMQ, CCC and EZU

Rated insulation voltage (Ui): 500 Vac
400 Vac for contact blocks 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,

Positive opening of contacts on contact block 33, 34

In conformity with standards: EN 60947-1, EN 60947-5-1 and subsequent modifications and completions, fundamental requirements of the Low Voltage Directive 2006/95/CE and subsequent modifications and completions.

Please contact our technical service for the list of 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

For all contact blocks except 2 and 3 use 60 or 75 °C copper (Cu) conductor and wire size No. 12-14 AWG. Terminal tightening torque of 7,1 lb in (0,8 Nm).

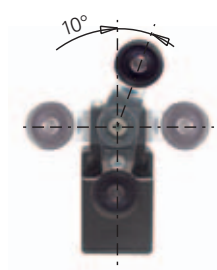
For contact blocks 2 and 3 use 60 or 75 °C copper (Cu) conductor and wire size No. 14 AWG. Terminal tightening torque of 12 lb in (1.4 Nm).

In conformity with standard: UL 508

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

Adjustable levers

In switches with revolving lever it is possible to adjust the lever with 10° steps for the whole 360° range. The positive movement transmission is always guaranteed thanks to the particular geometrical coupling between the lever and the revolving shaft as prescribed for safety applications by the German standard BG-GS-ET-15.



Overturning levers

It's possible to fasten the lever on switches on straight or reverse side, maintaining the positive coupling. In this way it is possible to obtain two different work plans of the lever.



Rotating heads

In all switches, it is possible to rotate the head in 90° steps.



- 1
- 1A
- 1B
- 2
- 2A
- 2B
- 2C
- 2D
- 2E
- 3
- 3A
- 3B
- 3C
- 4
- 4A
- 4B
- 4C
- 4D
- 4E
- 4F
- 4G
- 4H
- 5
- 6

Contacts type:

R = snap action
L = slow action

Contact blocks

	With stainless steel roller on request	With external rubber gasket	With external rubber gasket
3 R	FK 301 1NO-1NC	FK 302 1NO-1NC	FK 3A2 1NO-1NC
33 L	FK 3301 \oplus 1NO+1NC	FK 3302 \oplus 1NO+1NC	FK 33A2 \oplus 1NO+1NC
34 L	FK 3401 \oplus 2NC	FK 3402 \oplus 2NC	FK 34A2 \oplus 2NC
Max speed	page 6/5 - type 4	page 6/5 - type 3	page 6/5 - type 3
Min. force	5 N (25 N \oplus)	4 N (25 N \oplus)	4,3 N (25 N \oplus)
Travel diagrams	page 6/6 - group 1	page 6/6 - group 2	page 6/6 - group 2

Contact blocks

	With stainless steel roller on request	With external rubber gasket	With external rubber gasket
3 R	FK 305 1NO-1NC	FK 3A5 1NO-1NC	FK 307 1NO-1NC
33 L	FK 3305 \oplus 1NO+1NC	FK 33A5 \oplus 1NO+1NC	FK 3307 \oplus 1NO+1NC
34 L	FK 3405 \oplus 2NC	FK 34A5 \oplus 2NC	FK 3407 \oplus 2NC
Max speed	page 6/5 - type 3	page 6/5 - type 3	page 6/5 - type 3
Min. force	4 N (25 N \oplus)	4,3 N (25 N \oplus)	4 N (25 N \oplus)
Travel diagrams	page 6/6 - group 2	page 6/6 - group 2	page 6/6 - group 3

Contact blocks

	With external rubber gasket	Fixed only by threaded head in vertical position		
3 R	FK 308 1NO-1NC	FK 310 1NO-1NC	FK 312 1NO-1NC	FK 313 1NO-1NC
33 L	FK 3308 \oplus 1NO+1NC	FK 3310 \oplus 1NO+1NC	FK 3312 \oplus 1NO+1NC	FK 3313 \oplus 1NO+1NC
34 L	FK 3408 \oplus 2NC	FK 3410 \oplus 2NC	FK 3412 \oplus 2NC	FK 3413 \oplus 2NC
Max speed	page 6/5 - type 4	page 6/5 - type 4	page 6/5 - type 4	page 6/5 - type 2
Min. force	5 N (25 N \oplus)	5 N (25 N \oplus)	5 N (25 N \oplus)	5 N (25 N \oplus)
Travel diagrams	page 6/6 - group 1	page 6/6 - group 1	page 6/6 - group 1	page 6/6 - group 1

Accessories See page 5/1

All measures in the drawings are in mm



Contacts type:

R = snap action
L = slow action

Contact blocks

	Ø 11 mm polymer roller		Ø 12 mm stainless steel roller	
3	R FK 314	1NO-1NC	FK 315	1NO-1NC
33	L FK 3314	1NO+1NC	FK 3315	1NO+1NC
34	L FK 3414	2NC	FK 3415	2NC
Max speed	page 6/5 - type 4		page 6/5 - type 2	
Min. force	6 N (25 N \ominus)		5 N (25 N \ominus)	
Travel diagrams	page 6/6 - group 1		page 6/6 - group 1	

Contact blocks

	Fixed only by threaded head in vertical position	With external rubber gasket	With external rubber gasket	With external rubber gasket
3	R FK 317	1NO-1NC	FK 321	1NO-1NC
33	L FK 3317	1NO+1NC	FK 3321	1NO+1NC
34	L FK 3417	2NC	FK 3421	2NC
Max speed	page 6/5 - type 2		1 m/s	
Min. force	5 N (25 N \ominus)		0,05 Nm	
Travel diagrams	page 6/6 - group 1		page 6/6 - group 4	

Contact blocks

	With Ø 20 mm stainless steel roller on request	Other rollers available. See page 2/98	3x3 mm square rod	
3	R FK 330	1NO-1NC	FK 333	1NO-1NC
33	L FK 3330	1NO+1NC	FK 3333	1NO+1NC
34	L FK 3430	2NC	FK 3433	2NC
Max speed	page 6/5 - type 1		1,5 m/s	
Min. force	0,05 Nm (0,25 Nm \ominus)		0,05 Nm	
Travel diagrams	page 6/6 - group 5		page 6/6 - group 5	

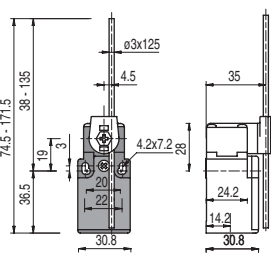
Items with code on the green background are available in stock

2B Position switches FK series

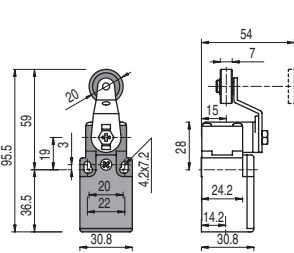
Contacts type:

R = snap action
L = slow action

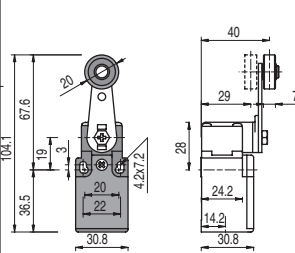
Ø 3 mm stainless steel round rod



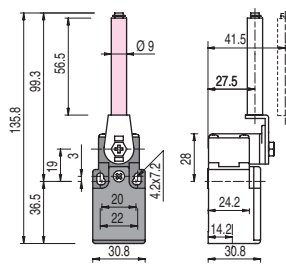
Other rollers available. See page 2/98



Other rollers available. See page 2/98



Porcelain roller



Contact blocks

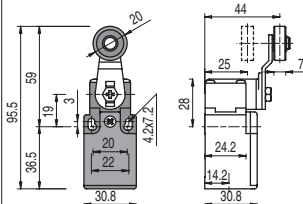
3	R	FK 350	1NO-1NC
33	L	FK 3350	1NO+1NC
34	L	FK 3450	2NC
Max speed		1,5 m/s	
Min. force		0,05 Nm	
Travel diagrams		page 6/6 - group 5	

FK 351	1NO-1NC
FK 3351	1NO+1NC (⊕)
FK 3451	2NC (⊕)
Max speed	page 6/5 - type 1
Min. force	0,05 Nm (0,25 Nm (⊕))
Travel diagrams	page 6/6 - group 5

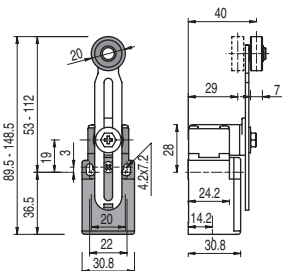
FK 352	1NO-1NC
FK 3352	1NO+1NC (⊕)
FK 3452	2NC (⊕)
Max speed	page 6/5 - type 1
Min. force	0,05 Nm (0,25 Nm (⊕))
Travel diagrams	page 6/6 - group 5

FK 353-E0	1NO-1NC
FK 3353-E0V9	1NO+1NC (⊕)
FK 3453-E0V9	2NC (⊕)
Max speed	0,5 m/s
Min. force	0,02 Nm (0,25 Nm (⊕))
Travel diagrams	page 6/6 - group 6

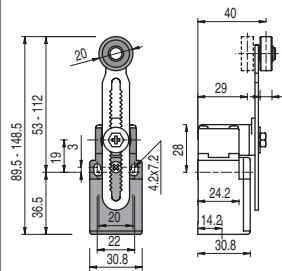
Other rollers available. See page 2/98



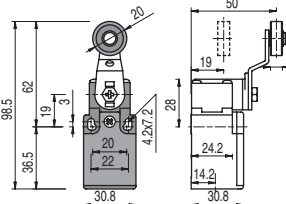
Other rollers available. See page 2/98



Other rollers available. See page 2/98



Other rollers available. See page 2/98



Contact blocks

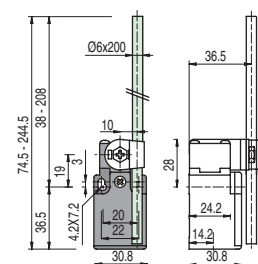
3	R	FK 354	1NO-1NC
33	L	FK 3354	1NO+1NC (⊕)
34	L	FK 3454	2NC (⊕)
Max speed		page 6/5 - type 1	
Min. force		0,05 Nm (0,25 Nm (⊕))	
Travel diagrams		page 6/6 - group 5	

FK 355	1NO-1NC
FK 3355	1NO+1NC (⊕) (1)
FK 3455	2NC (⊕) (1)
Max speed	page 6/5 - type 1
Min. force	0,05 Nm (0,25 Nm (⊕))
Travel diagrams	page 6/6 - group 5

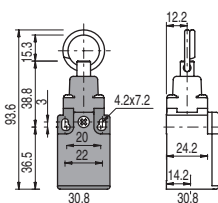
FK 356	1NO-1NC
FK 3356	1NO+1NC (⊕)
FK 3456	2NC (⊕)
Max speed	page 6/5 - type 1
Min. force	0,05 Nm (0,25 Nm (⊕))
Travel diagrams	page 6/6 - group 5

FK 357	1NO-1NC
FK 3357	1NO+1NC (⊕)
FK 3457	2NC (⊕)
Max speed	page 6/5 - type 1
Min. force	0,05 Nm (0,25 Nm (⊕))
Travel diagrams	page 6/6 - group 5

Fiber glass rod



Rope switches for signalling



Contact blocks

3	R	FK 369	1NO-1NC
33	L	FK 3369	1NO+1NC
34	L	FK 3469	2NC
Max speed		1,5 m/s	
Min. force		0,05 Nm	
Travel diagrams		page 6/6 - group 5	

FK 376	1NO-1NC
FK 3376	1NO+1NC
FK 3476	2NO
Max speed	0,5 m/s
Min. force	initial 20 N - final 40 N
Travel diagrams	page 6/6 - group 7

Accessories See page 5/1

(1) Positive opening only with lever adjusted on the max. See page 2/97



Pizzato Elettrica has developed an innovative reset device code W3 to make perfectly simultaneous the actuator and the contact block tripping. The new device is a block inserted between the switch body and the head, and could be rotated independently from this last one. This new device has following advantages:

- The reset device integrate in any standard actuation head
- Contact blocks with snap action are no more necessary because the tripping movement is made by the reset device itself
- Unlike some previous versions, the reset device can be rotated independently from the head for the maximum flexibility during the assembling.

Contacts type:	With stainless steel roller on request		With stainless steel roller on request	
L = slow action				
Contact blocks				
33 L	FK 3301-W3	1NO+1NC	FK 3302-W3	1NO+1NC
34 L	FK 3401-W3	2NC	FK 3402-W3	2NC
Max speed	page 6/5 - type 4		page 6/5 - type 3	
Min. force	5 N (25 N		4 N (25 N	
Travel diagrams	page 6/7 - group 1		page 6/7 - group 2	

	With stainless steel roller on request		With Ø 20 mm stainless steel roller on request		Other rollers available. See page 2/98		Other rollers available. See page 2/98	
Contact blocks								
33 L	FK 3315-W3	1NO+1NC	FK 3330-W3	1NO+1NC	FK 3331-W3	1NO+1NC	FK 3351-W3	1NO+1NC
34 L	FK 3415-W3	2NC	FK 3430-W3	2NC	FK 3431-W3	2NC	FK 3451-W3	2NC
Max speed	page 6/5 - type 2		page 6/5 - type 1		page 6/5 - type 1		page 6/5 - type 1	
Min. force	5 N (25 N		0,05 Nm (0,25 Nm		0,05 Nm (0,25 Nm		0,05 Nm (0,25 Nm	
Travel diagrams	page 6/7 - group 1		page 6/7 - group 4		page 6/7 - group 4		page 6/7 - group 4	

	Other rollers available. See page 2/98		Other rollers available. See page 2/98		Other rollers available. See page 2/98		Other rollers available. See page 2/98	
Contact blocks								
33 L	FK 3352-W3	1NO+1NC	FK 3354-W3	1NO+1NC	FK 3356-W3	1NO+1NC	FK 3357-W3	1NO+1NC
34 L	FK 3452-W3	2NC	FK 3454-W3	2NC	FK 3456-W3	2NC	FK 3457-W3	2NC
Max speed	page 6/5 - type 1		page 6/5 - type 1		page 6/5 - type 1		page 6/5 - type 1	
Min. force	0,05 Nm (0,25 Nm		0,05 Nm (0,25 Nm		0,05 Nm (0,25 Nm		0,05 Nm (0,25 Nm	
Travel diagrams	page 6/7 - group 4		page 6/7 - group 4		page 6/7 - group 4		page 6/7 - group 4	

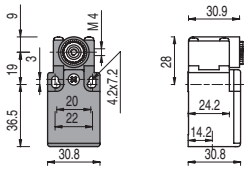
Items with code on the **green** background are available in stock

1
1A
1B
2
2A
2B
2C
2D
2E
3
3A
3B
3C
4
4A
4B
4C
4D
4E
4F
4G
4H
5
6

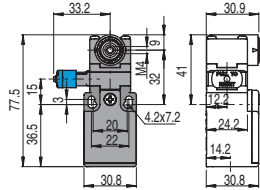
Position switches with revolving lever without actuator

Contacts type:

R = snap action
L = slow action



with manual reset knob



IMPORTANT

For safety applications: join only switches and actuators marked with symbol ⊕.

For more information about safety applications see page 6/1.

Contact blocks

3	R	FK 338	1NO-1NC	
33	L	FK 3338	⊕ 1NO+1NC	FK 3338-W3 ⊕ 1NO+1NC
34	L	FK 3438	⊕ 2Ö	FK 3438-W3 ⊕ 2Ö
Min. force		0,05 Nm (0,25 Nm ⊕)		0,05 Nm (0,25 Nm ⊕)
Travel diagrams		page 6/6 - group 5		page 6/7 - group 4

Loose actuators

10 pcs pack

IMPORTANT: These loose actuators can be used with items of series FR, FM, FX, FZ, FK only

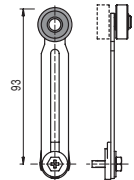
Ø 18 mm roller	Ø 18 mm roller	Adjustable square rod 3x3x125 mm	Flexible rod actuator	Adjustable round rod Ø 3x125 mm	Polymer roller Ø 20 mm	
VF LE30 ⊕	VF LE31 ⊕	VF LE33	VF LE34	VF LE50	VF LE51 ⊕	
Polymer roller Ø 20 mm	Porcelain roller	Polymer roller Ø 20 mm	Adjustable actuator with polymer roller	Adjustable safety actuator with polymer roller	Polymer roller Ø 20 mm	Adjustable fiber glass rod
VF LE52 ⊕	VF LE53 ⊕ (2)	VF LE54 ⊕	VF LE55 ⊕ (1)	VF LE56 ⊕	VF LE57 ⊕	VF LE69

- Only orders for multiple quantities of the packs are accepted.

(1) Actuator VF LE55 suits to safety applications only if adjusted to its max length, as you can see in figure beside. If you need an adjustable lever for safety applications, use the adjustable safety lever VF LE56.

(2) The position switch obtained by assembling the switch FK •38 (e.g. FK 338, FK 3338) with the actuator VF LE53 will not present the same travel diagrams and actuating forces as the position switch FK •53-E0V9 (e.g. FK 353-E0, FK 3353-E0V9...).

(4) The actuator cannot be oriented to inside direction because it will mechanically interfere with the switch head.



Accessories See page 5/1



Special loose actuators

10 pcs pack

IMPORTANT: These loose actuators can be used with items of series FR, FM, FX, FZ, FK only

Ø 20 mm stainless steel rollers

VF LE31-1 (1)	VF LE51-1 (1)	VF LE52-1 (1)	VF LE54-1 (1)	VF LE55-1 (1) (1)	VF LE56-1 (1)	VF LE57-1 (1)

Ø 35 mm polymer rollers

VF LE31-2 (4)	VF LE51-2 (4)	VF LE52-2 (4)	VF LE54-2 (4)	VF LE55-2 (1)	VF LE56-2 (1)	VF LE57-2 (4)

Ø 40 mm rubber rollers

VF LE31-R5 (4)	VF LE51-R5 (4)	VF LE52-R5 (4)	VF LE54-R5 (4)	VF LE55-R5 (1)	VF LE56-R5 (1)	VF LE57-R5 (4)

Ø 50 mm rubber rollers

VF LE51-3 (4)	VF LE52-3 (4)	VF LE54-3 (4)	VF LE55-3 (1)	VF LE56-3 (1)	VF LE57-3 (4)

Ø 50 mm overhanging rubber rollers

VF LE55-4 (1)	VF LE56-4 (1)

Items with code on the green background are available in stock