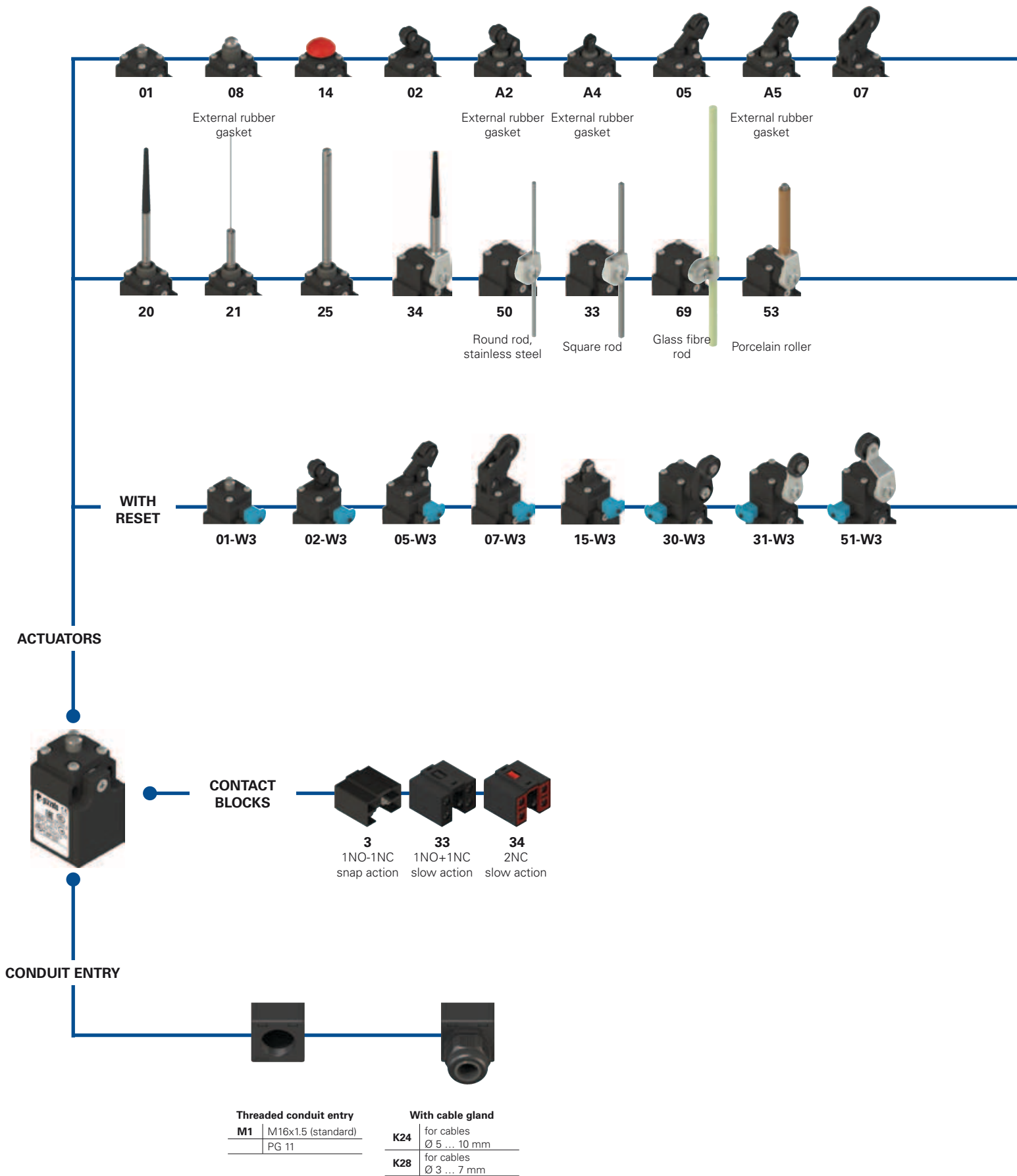
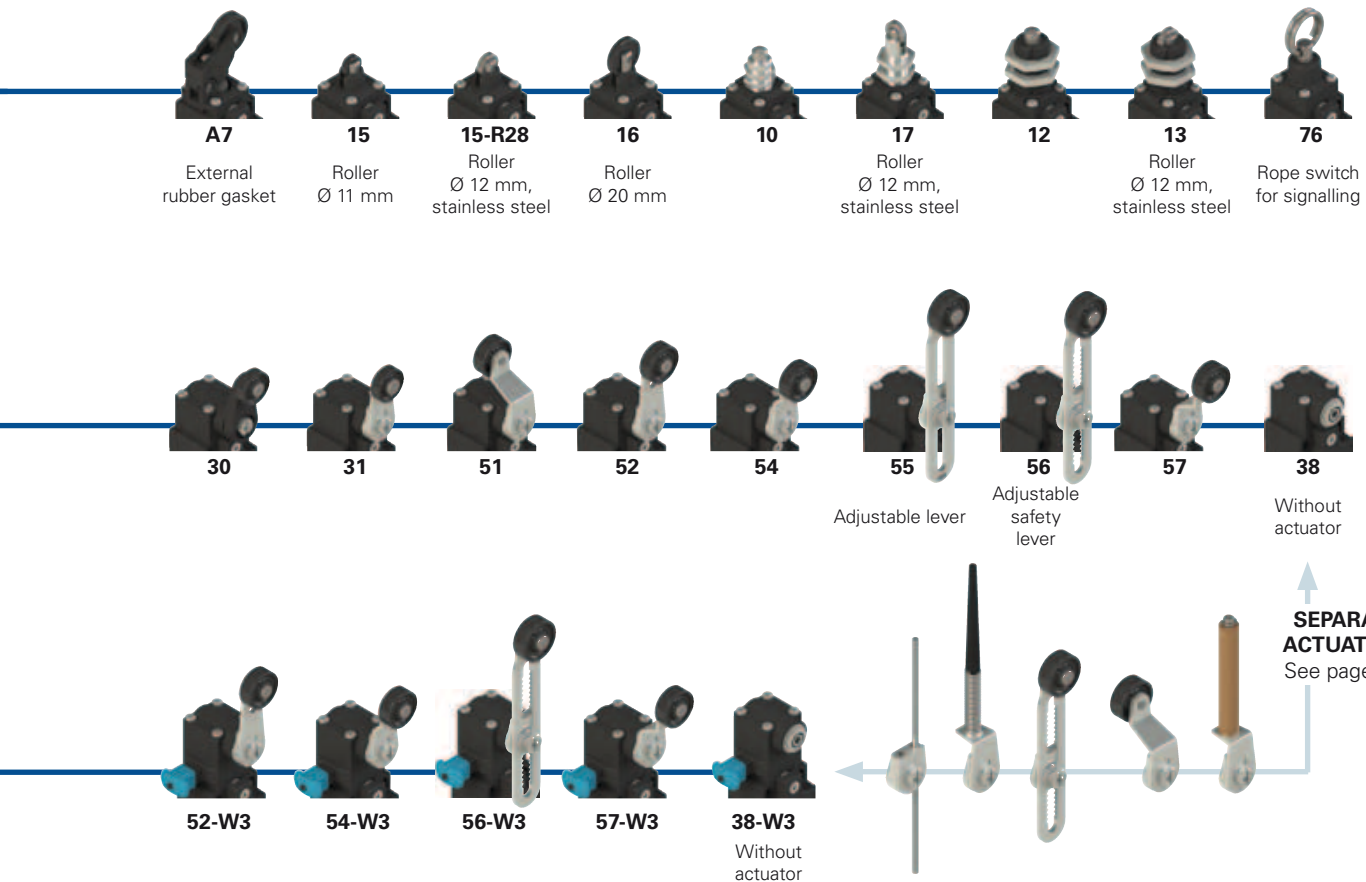


Selection diagram



● product options
→ Sold separately as accessory


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 options
FK 302-W3XGM1K24R23T6

Housing FK technopolymer, one conduit entry		Ambient temperature -25°C ... +80°C (standard) T6 -40°C ... +80°C	
Contact block 3 1NO+1NC, snap action 33 1NO+1NC, slow action 34 2NC, slow action		Pre-installed cable glands no cable gland (standard) K24 cable gland for cables Ø 5 ... 10°mm K28 cable gland for cables Ø 3 ... 7°mm For the complete list of possible combinations please contact our technical department.	
Actuators 01 short plunger 02 roller lever 05 angled lever with roller ...		Threaded conduit entry M1 M16x1.5 (standard) PG 11	Rollers standard roller R28 stainless steel Ø 12 mm (for actuators A4, 15) R23 stainless steel Ø 14 mm (for actuators A2, 02, A5, 05, 30, 31, 51, 52, 54, 55, 56, 57) R24 stainless steel Ø 20 mm (for actuators 30, 31, 51, 52, 54, 55, 56, 57) R25 technopolymer, Ø 35 mm (for actuators 30, 31, 51, 52, 54, 55, 56, 57) R5 rubber, Ø 40 mm (for actuators 30, 31, 51, 52, 54, 55, 56, 57) R26 rubber, Ø 50 mm (for actuators 51, 52, 54, 55, 56, 57) R27 rubber, protruding, Ø 50 mm (for actuators 55, 56)
Reset without reset (standard) W3 simultaneous reset W4 simultaneous reset, increased force		Contact type silver contacts (standard) G silver contacts, 1 µm gold coating (not for contact block 3)	
External metallic parts zinc-plated steel (standard) X stainless steel			



Main features

- Technopolymer housing, one conduit entry
- Protection degree IP67
- 3 contact blocks available
- 46 actuators available
- Versions with external parts in stainless steel
- Versions with gold-plated silver contacts

Quality marks:



IMQ approval:	EG610
UL approval:	E131787
CCC approval:	2007010305230013
EAC approval:	RU C-IT.AQ35.B.00454

Installation for safety applications:

Use only switches marked with the symbol \ominus next to the product code. Always connect the safety circuit to the **NC contacts** (normally closed contacts: 11-12, 21-22 or 31-32) as required by **EN ISO 14119, paragraph 5.4** for specific interlock applications and **EN ISO 13849-2 tables D3** (well-tryed components) and **D.8** (fault exclusions) for safety applications in general. Actuate the switch **at least up to the positive opening travel** shown in the travel diagrams on page 216. Actuate the switch **at least with the positive opening force**, reported in brackets below each article, next to the actuating force value.

⚠ If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on pages 211 to 222.

Technical data

Housing

Housing made of glass fibre reinforced technopolymer, self-extinguishing, shock-proof and with double insulation: \square
 One threaded conduit entry: M16x1.5 (standard)
 Protection degree: IP67 acc. to EN 60529 with cable gland presenting same or higher protection degree

General data

Ambient temperature: -25°C ... +80°C
 Max. actuation frequency: 3600 operating cycles/hour
 Mechanical endurance: 20 million operating cycles
 Mounting position: any
 Safety parameter B_{10D} : 40,000,000 for NC contacts
 Mechanical interlock, not coded: type 1 acc. to EN ISO 14119
 Tightening torques for installation: see page 211-222

Cable cross section (flexible copper strands)

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 block 3:	min.	1 x 0.5 mm ²	(1 x AWG 20)
	max.	2 x 1.5 mm ²	(2 x AWG 16)

In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, IEC 60204-1, EN 60204-1, EN ISO 14119, EN ISO 12100, IEC 60529, EN 60529, UL 508, CSA 22.2 No.14.

Approvals:

IEC 60947-5-1, UL 508, CSA 22.2 No.14, GB14048.5-2001.

Compliance with the requirements of:

Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU.

Positive contact opening in conformity with standards:

IEC 60947-5-1, EN 60947-5-1.

Electrical data

Utilization category

without connector	Thermal current (I_{th}):	10 A	Alternating current: AC15 (50-60 Hz)			
	Rated insulation voltage (U):	500 Vac 600 Vdc	Ue (V)	250	400	500
		400 Vac 500 Vdc (contact blocks 33, 34)	Ie (A)	6	4	1
	Rated impulse withstand voltage (U_{imp}):	6 kV	Direct current: DC13			
		4 kV (contact block 33, 34)	Ue (V)	24	125	250
	Conditional short circuit current:	1000 A acc. to EN 60947-5-1	Ie (A)	6	1.1	0.4
Protection against short circuits:	type aM fuse 10 A 500 V					
Pollution degree:	3					



Features approved by IMQ

Rated insulation voltage (U_i):	500 Vac 400 Vac (for contact blocks 33, 34)
Conventional free air thermal current (I_{th}):	10 A
Protection against short circuits:	type aM fuse 10 A 500 V
Rated impulse withstand voltage (U_{imp}):	6 kV 4 kV (for contact blocks 33, 34)
Protection degree of the housing: MV terminals (screw terminals)	IP67
Pollution degree:	3
Utilization category:	AC15
Operating voltage (U_o):	400 Vac (50 Hz)
Operating current (I_o):	3 A
Forms of the contact element:	Zb, Y+Y
Positive opening of contacts on contact blocks 33, 34	

In compliance with standards: EN 60947-1, EN 60947-5-1 + A1:2009, fundamental requirements of the Low Voltage Directive 2014/35/EU.

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

Features approved by UL

Utilization category Q300 (69 VA, 125-250 Vdc)
A600 (720 VA, 120-600 Vac)
Housing features type 1, 4X "indoor use only", 12, 13
For all contact blocks except 2 and 3 use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 12, 14 AWG. Tightening torque for terminal screws of 7.1 lb in (0.8 Nm).
For contact blocks 2 and 3 use 60 or 75 °C copper (Cu) conductors, rigid or flexible, wire size 14 AWG. Tightening torque for terminal screws of 12 lb in (1.4 Nm).

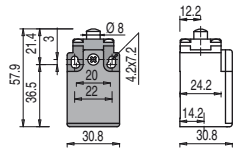
In compliance with standard: UL 508, CSA 22.2 No.14

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

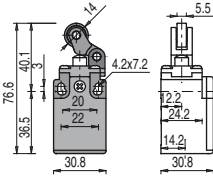
Contact type:

R = snap action
L = slow action

Contact block

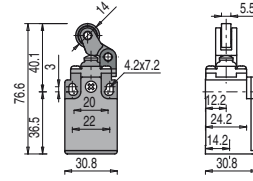


With stainless steel roller on request



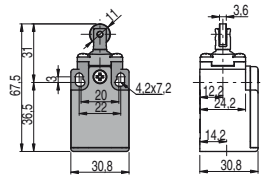
With external rubber gasket

With stainless steel roller on request



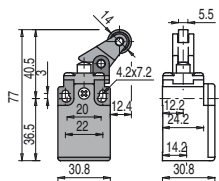
With external rubber gasket

With Ø 12 mm stainless steel roller on request



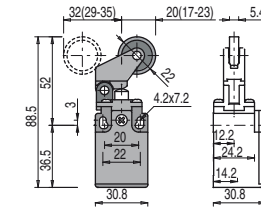
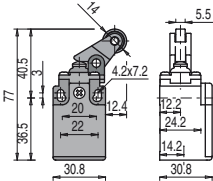
3	R	FK 301-M1	1NO-1NC	FK 302-M1	1NO-1NC	FK 3A2-M1	1NO-1NC	FK 3A4-M1	1NO-1NC
33	L	FK 3301-M1	⊕ 1NO+1NC	FK 3302-M1	⊕ 1NO+1NC	FK 33A2-M1	⊕ 1NO+1NC	FK 33A4-M1	⊕ 1NO+1NC
34	L	FK 3401-M1	⊕ 2NC	FK 3402-M1	⊕ 2NC	FK 34A2-M1	⊕ 2NC	FK 34A4-M1	⊕ 2NC
Max. speed		page 215 - type 4		page 215 - type 3		page 215 - type 3		page 215 - type 5	
Actuating force		5 N (25 N ⊕)		4 N (25 N ⊕)		4.3 N (25 N ⊕)		4.3 N (25 N ⊕)	
Travel diagrams		page 216 - group 1		page 216 - group 2		page 216 - group 2		page 216 - group 1	

With stainless steel roller on request

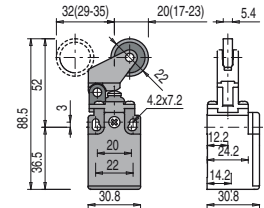


With external rubber gasket

With stainless steel roller on request



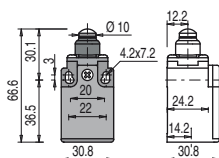
With external rubber gasket



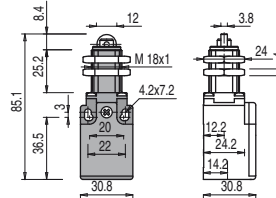
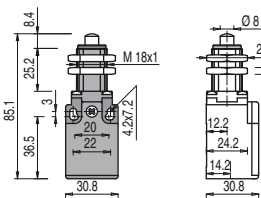
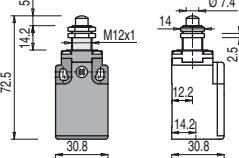
Contact block

3	R	FK 305-M1	1NO-1NC	FK 3A5-M1	1NO-1NC	FK 307-M1	1NO-1NC	FK 3A7-M1	1NO-1NC
33	L	FK 3305-M1	⊕ 1NO+1NC	FK 33A5-M1	⊕ 1NO+1NC	FK 3307-M1	⊕ 1NO+1NC	FK 33A7-M1	⊕ 1NO+1NC
34	L	FK 3405-M1	⊕ 2NC	FK 34A5-M1	⊕ 2NC	FK 3407-M1	⊕ 2NC	FK 34A7-M1	⊕ 2NC
Max. speed		page 215 - type 3		page 215 - type 3		page 215 - type 3		page 215 - type 3	
Actuating force		4 N (25 N ⊕)		4.3 N (25 N ⊕)		4 N (25 N ⊕)		3 N (25 N ⊕)	
Travel diagrams		page 216 - group 2		page 216 - group 2		page 216 - group 3		page 216 - group 3	

With external rubber gasket



Secured only by means of threaded head in vertical position



Contact block

3	R	FK 308-M1	1NO-1NC	FK 310-M1	1NO-1NC	FK 312-M1	1NO-1NC	FK 313-M1	1NO-1NC
33	L	FK 3308-M1	⊕ 1NO+1NC	FK 3310-M1	⊕ 1NO+1NC	FK 3312-M1	⊕ 1NO+1NC	FK 3313-M1	⊕ 1NO+1NC
34	L	FK 3408-M1	⊕ 2NC	FK 3410-M1	⊕ 2NC	FK 3412-M1	⊕ 2NC	FK 3413-M1	⊕ 2NC
Max. speed		page 215 - type 4		page 215 - type 4		page 215 - type 4		page 215 - type 2	
Actuating force		5 N (25 N ⊕)		5 N (25 N ⊕)		5 N (25 N ⊕)		5 N (25 N ⊕)	
Travel diagrams		page 216 - group 1		page 216 - group 1		page 216 - group 1		page 216 - group 1	

All values in the drawings are in mm

Accessories See page 197

→ The 2D and 3D files are available at www.pizzato.com

Contact type: R = snap action L = slow action		Roller, Ø 11 mm, technopolymer	Roller, Ø 12 mm, stainless steel					
Contact block								
3 R	FK 314-M1	1NO-1NC	FK 315-M1	1NO-1NC	FK 315-M1R28	1NO-1NC	FK 316-M1	1NO-1NC
33 L	FK 3314-M1	1NO+1NC	FK 3315-M1	1NO+1NC	FK 3315-M1R28	1NO+1NC	FK 3316-M1	1NO+1NC
34 L	FK 3414-M1	2NC	FK 3415-M1	2NC	FK 3415-M1R28	2NC	FK 3416-M1	2NC
Max. speed	page 215 - type 4		page 215 - type 2		page 215 - type 2		page 215 - type 2	
Actuating force	6 N (25 N \ominus)		5 N (25 N \ominus)		5 N (25 N \ominus)		5 N (25 N \ominus)	
Travel diagrams	page 216 - group 1		page 216 - group 1		page 216 - group 1		page 216 - group 1	

	Secured only by means of threaded head in vertical position	With external rubber gasket	With external rubber gasket	With external rubber gasket				
Contact block								
3 R	FK 317-M1	1NO-1NC	FK 320-M1	1NO-1NC	FK 321-M1	1NO-1NC	FK 325-M1	1NO-1NC
33 L	FK 3317-M1	1NO+1NC	FK 3320-M1	1NO+1NC	FK 3321-M1	1NO+1NC	FK 3325-M1	1NO+1NC
34 L	FK 3417-M1	2NC	FK 3420-M1	2NC	FK 3421-M1	2NC	FK 3425-M1	2NC
Max. speed	page 215 - type 2		1 m/s		1 m/s		1 m/s	
Actuating force	5 N (25 N \ominus)		0.05 Nm		0.05 Nm		0.1 Nm	
Travel diagrams	page 216 - group 1		page 216 - group 4		page 216 - group 4		page 216 - group 4	

	With Ø 20 mm stainless steel roller on request	Other rollers available. See on page 112	Square rod, 3x3 mm					
Contact block								
3 R	FK 330-M1	1NO-1NC	FK 331-M1	1NO-1NC	FK 333-M1	1NO-1NC	FK 334-M1	1NO-1NC
33 L	FK 3330-M1	1NO+1NC	FK 3331-M1	1NO+1NC	FK 3333-M1	1NO+1NC	FK 3334-M1	1NO+1NC
34 L	FK 3430-M1	2NC	FK 3431-M1	2NC	FK 3433-M1	2NC	FK 3434-M1	2NC
Max. speed	page 215 - type 1		page 215 - type 1		1.5 m/s		1.5 m/s	
Actuating force	0.05 Nm (0.25 Nm \ominus)		0.05 Nm (0.25 Nm \ominus)		0.05 Nm		0.05 Nm	
Travel diagrams	page 216 - group 5		page 216 - group 5		page 216 - group 5		page 216 - group 5	

All values in the drawings are in mm

Accessories See page 197

→ The 2D and 3D files are available at www.pizzato.com

Contact type:

R = snap action
L = slow action

	Round rod, Ø 3 mm, stainless steel	Other rollers available. See on page 112	Other rollers available. See on page 112	Porcelain roller
Contact block				
3 R	FK 350-M1 1NO-1NC	FK 351-M1 1NO-1NC	FK 352-M1 1NO-1NC	FK 353-E0M1 1NO-1NC
33 L	FK 3350-M1 1NO+1NC	FK 3351-M1 \rightarrow 1NO+1NC	FK 3352-M1 \rightarrow 1NO+1NC	FK 3353-E0M1V9 \rightarrow 1NO+1NC
34 L	FK 3450-M1 2NC	FK 3451-M1 \rightarrow 2NC	FK 3452-M1 \rightarrow 2NC	FK 3453-E0M1V9 \rightarrow 2NC
Max. speed	1.5 m/s	page 215 - type 1	page 215 - type 1	0.5 m/s
Actuating force	0.05 Nm	0.05 Nm (0.25 Nm \rightarrow)	0.05 Nm (0.25 Nm \rightarrow)	0.02 Nm (0.25 Nm \rightarrow)
Travel diagrams	page 216 - group 5	page 216 - group 5	page 216 - group 5	page 216 - group 6

	Other rollers available. See on page 112	Other rollers available. See on page 112	Other rollers available. See on page 112	Other rollers available. See on page 112
Contact block				
3 R	FK 354-M1 1NO-1NC	FK 355-M1 1NO-1NC	FK 356-M1 1NO-1NC	FK 357-M1 1NO-1NC
33 L	FK 3354-M1 \rightarrow 1NO+1NC	FK 3355-M1 \rightarrow (1) 1NO+1NC	FK 3356-M1 \rightarrow 1NO+1NC	FK 3357-M1 \rightarrow 1NO+1NC
34 L	FK 3454-M1 \rightarrow 2NC	FK 3455-M1 \rightarrow (1) 2NC	FK 3456-M1 \rightarrow 2NC	FK 3457-M1 \rightarrow 2NC
Max. speed	page 215 - type 1	page 215 - type 1	page 215 - type 1	page 215 - type 1
Actuating force	0.05 Nm (0.25 Nm \rightarrow)	0.05 Nm (0.25 Nm \rightarrow)	0.05 Nm (0.25 Nm \rightarrow)	0.05 Nm (0.25 Nm \rightarrow)
Travel diagrams	page 216 - group 5	page 216 - group 5	page 216 - group 5	page 216 - group 5

	Glass fibre rod	Rope switch for signalling		
Contact block				
3 R	FK 369-M1 1NO-1NC	FK 376-M1 1NO-1NC		
33 L	FK 3369-M1 1NO+1NC	FK 3376-M1 1NO+1NC		
34 L	FK 3469-M1 2NC	FK 3476-M1 2NO		
Max. speed	1.5 m/s	0.5 m/s		
Actuating force	0.05 Nm	initial 20 N - final 40 N		
Travel diagrams	page 216 - group 5	page 216 - group 7		

(1) Positive opening only with actuator set to max. See page 111.

All values in the drawings are in mm

Accessories See page 197

\rightarrow The 2D and 3D files are available at www.pizzato.com



Pizzato Elettrica has developed a reset device code W3 to make perfectly simultaneous the actuator and the contact block tripping. This new device consists in a block to be mounted between the body and the head of the switch that can be rotated independently from the head. This new device offers the following advantages:

- The reset device can be integrated into almost all standard actuator heads
- Contact blocks with snap action are no more necessary because the tripping movement is executed by the reset device itself
- The reset device can be rotated independently from the head ensuring maximum flexibility during installation
- Two actuating forces: standard and increased for vibration applications
- Mechanical endurance: 1 million operating cycles.

Contact type: L = slow action		With stainless steel roller on request 	With stainless steel roller on request 	
Contact block	FK 3301-W3M1 (1NO+1NC)	FK 3302-W3M1 (1NO+1NC)	FK 3305-W3M1 (1NO+1NC)	FK 3307-W3M1 (1NO+1NC)
33 L	FK 3401-W3M1 (2NC)	FK 3402-W3M1 (2NC)	FK 3405-W3M1 (2NC)	FK 3407-W3M1 (2NC)
Max. speed	page 215 - type 4	page 215 - type 3	page 215 - type 3	page 215 - type 3
Actuating force	4.5 N (25 N)	4 N (25 N)	4 N (25 N)	2.5 N (25 N)
Travel diagrams	page 217 - group 1	page 217 - group 2	page 217 - group 2	page 217 - group 3

With Ø 12 mm stainless steel roller on request 	With Ø 20 mm stainless steel roller on request 	Other rollers available. See on page 112 	Other rollers available. See on page 112 	
Contact block	FK 3315-W3M1 (1NO+1NC)	FK 3330-W3M1 (1NO+1NC)	FK 3331-W3M1 (1NO+1NC)	FK 3351-W3M1 (1NO+1NC)
33 L	FK 3415-W3M1 (2NC)	FK 3430-W3M1 (2NC)	FK 3431-W3M1 (2NC)	FK 3451-W3M1 (2NC)
Max. speed	page 215 - type 2	page 215 - type 1	page 215 - type 1	page 215 - type 1
Actuating force	4.5 N (25 N)	0.07 Nm (0.25 Nm)	0.07 Nm (0.25 Nm)	0.07 Nm (0.25 Nm)
Travel diagrams	page 217 - group 1	page 217 - group 4	page 217 - group 4	page 217 - group 4

Other rollers available. See on page 112 	Other rollers available. See on page 112 	Other rollers available. See on page 112 	Other rollers available. See on page 112 	
Contact block	FK 3352-W3M1 (1NO+1NC)	FK 3354-W3M1 (1NO+1NC)	FK 3356-W3M1 (1NO+1NC)	FK 3357-W3M1 (1NO+1NC)
33 L	FK 3452-W3M1 (2NC)	FK 3454-W3M1 (2NC)	FK 3456-W3M1 (2NC)	FK 3457-W3M1 (2NC)
Max. speed	page 215 - type 1	page 215 - type 1	page 215 - type 1	page 215 - type 1
Actuating force	0.07 Nm (0.25 Nm)	0.07 Nm (0.25 Nm)	0.07 Nm (0.25 Nm)	0.07 Nm (0.25 Nm)
Travel diagrams	page 217 - group 4	page 217 - group 4	page 217 - group 4	page 217 - group 4

All values in the drawings are in mm

Accessories See page 197

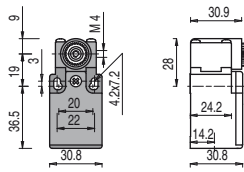
→ The 2D and 3D files are available at www.pizzato.com

Position switches with swivelling lever without actuator

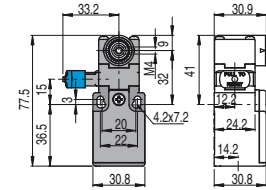
All values in the drawings are in mm

Contact type:

R = snap action
L = slow action



With manual reset knob



IMPORTANT

For safety applications: join only switches and actuators marked with symbol ⊕ next to the product code. For more information about safety applications see details on page 211.

Increased actuating force



The switch can be delivered with increased actuating force (option W4). Ideal for vibration applications.

Actuators	Actuating force
01, 14, 15, 16	7 N
02, 05	6 N
07	3.5 N
30 ... 57	0.08 Nm

To order the switch with reset and increased actuating force, replace the -W3 option with -W4 in the order code.

Example: FK 3301-W3M1 → FK 3301-W4M1

Contact block	FK 338-M1	1NO-1NC	FK 3338-W3M1 ⊕	1NO+1NC
3	R		R	
33	L		L	
34	L		L	
Actuating force	0.05 Nm (0.25 Nm ⊕)		0.07 Nm (0.25 Nm ⊕)	
Travel diagrams	page 216 - group 5		page 217 - group 4	

Separate actuators

All values in the drawings are in mm

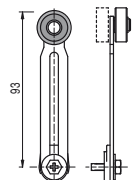
IMPORTANT: These separate actuators can be used only with items of the FR, FM, FX, FZ and FK series.

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

⁽¹⁾ Actuator VF LE55 can only be used in safety applications if adjusted to its max. length, as shown in the figure to the right. If an adjustable lever is required for safety applications, use the VF LE56 adjustable safety lever.

⁽²⁾ The position switch obtained by assembling switch FK •38-M1 (e.g. FK 338-M1, FK 3338-M1...) with actuator VF LE53 will not present the same travel diagrams and actuating forces as switch FK •53-E0M1V9 (e.g. FK 353-E0M1, FK 3353-E0M1V9...).

⁽⁴⁾ The actuator cannot be rotated to the inside because it will hit the switch head upon actuation.



Items with code on **green** background are stock items

Accessories See page 197

→ The 2D and 3D files are available at www.pizzato.com



Special separate actuators

All values in the drawings are in mm

IMPORTANT: These separate actuators can be used only with items of the FR, FM, FX, FZ and FK series.

Stainless steel rollers, Ø 20 mm

VF LE31-R24 (4)	VF LE51-R24 (4)	VF LE52-R24 (4)	VF LE54-R24 (4)	VF LE55-R24 (1)	VF LE56-R24 (4)	VF LE57-R24 (4)

Technopolymer rollers, Ø 35 mm

VF LE31-R25 (4)	VF LE51-R25 (4)	VF LE52-R25 (4)	VF LE54-R25 (4)	VF LE55-R25 (1)	VF LE56-R25 (4)	VF LE57-R25 (4)

Rubber rollers, Ø 40 mm

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

Rubber rollers, Ø 50 mm

VF LE51-R26 (4)	VF LE52-R26 (4)	VF LE54-R26 (4)	VF LE55-R26 (1)	VF LE56-R26 (4)	VF LE57-R26 (4)

Protruding rubber rollers, Ø 50 mm

VF LE55-R27 (1)	VF LE56-R27 (4)

Items with code on **green** background are stock items

Accessories See page 197

→ The 2D and 3D files are available at www.pizzato.com