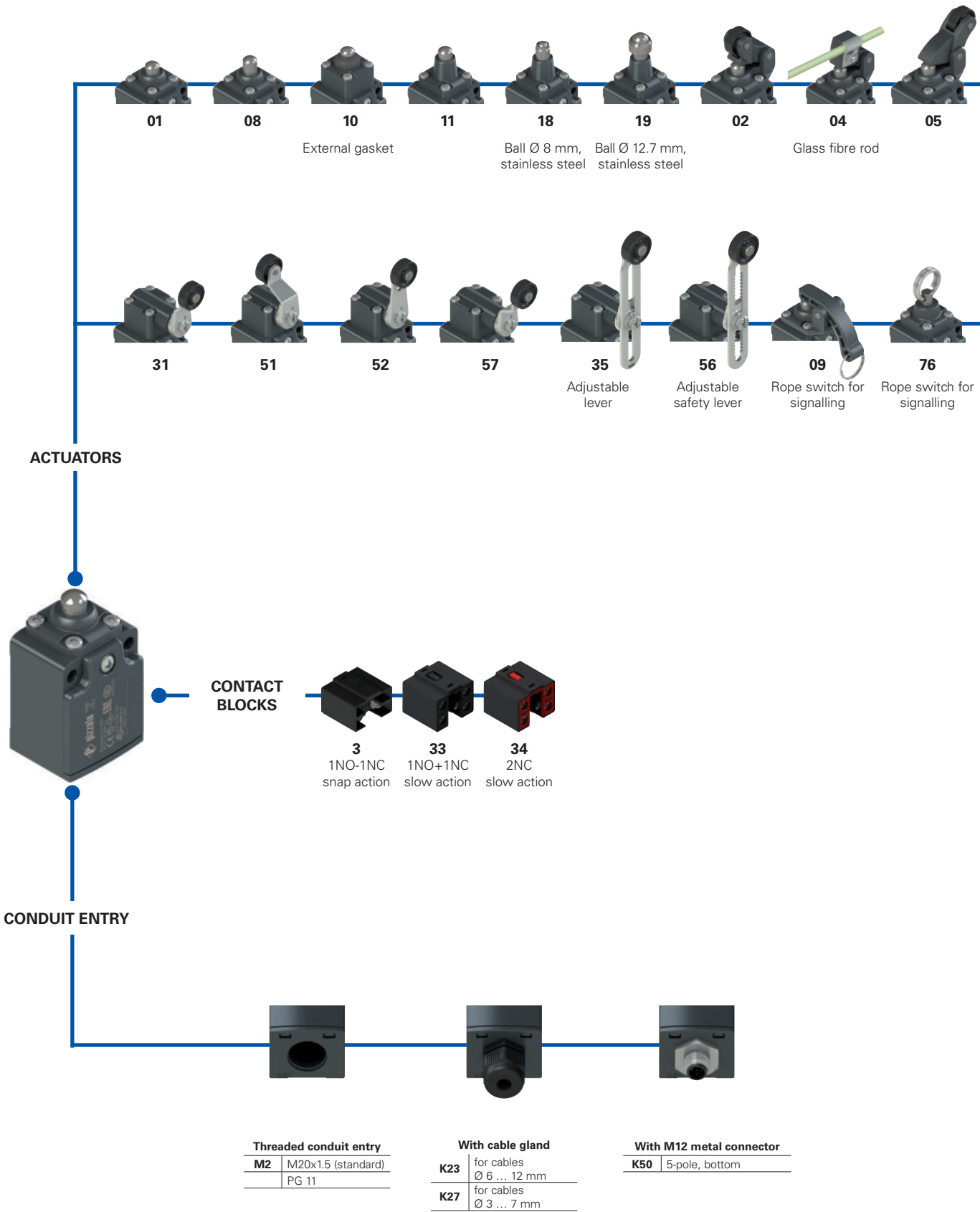
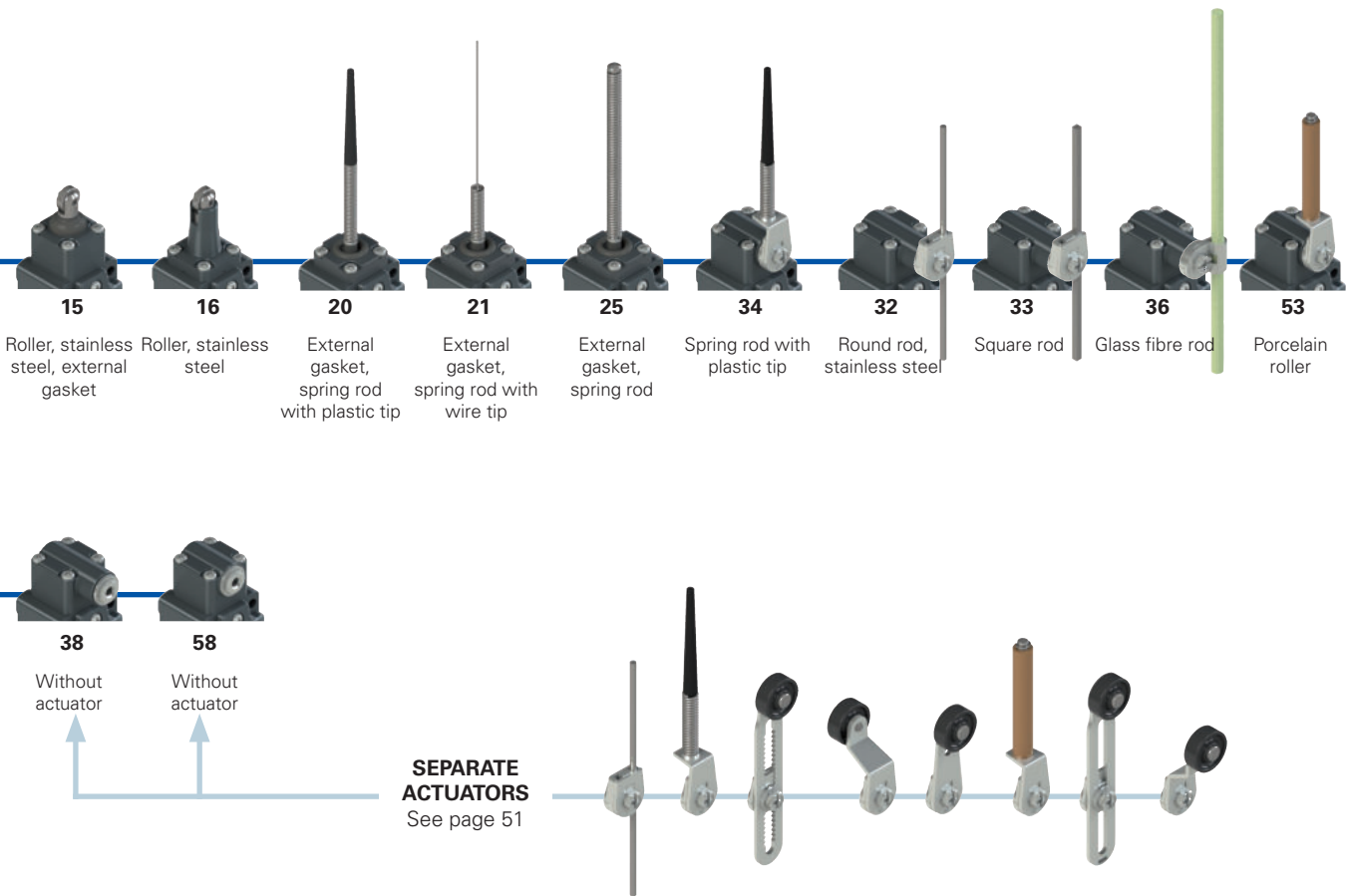


Selection diagram



● Product options
→ Sold separately as accessory



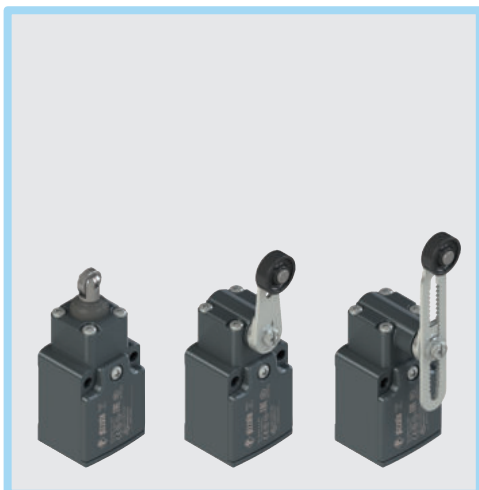
Code structure **Attention!** The feasibility of a code number does not mean the effective availability of a product. Please contact our sales office.

article
options
options

FC 302-GM2K50R24T6

<p>Housing</p> <p>FC metal, one conduit entry</p>	<p>Contact block</p> <p>3 1NO+1NC, snap action</p> <p>33 1NO+1NC, slow action</p> <p>34 2NC, slow action</p>	<p>Ambient temperature</p> <p>-25°C ... +80°C (standard)</p> <p>T6 -40°C ... +80°C</p>
<p>Actuators</p> <p>01 short plunger</p> <p>02 roller lever</p> <p>05 angled lever with roller</p> <p>...</p>	<p>Rollers</p> <p>standard roller</p> <p>R24 stainless steel Ø 20 mm (for actuators 02, 05, 31, 35, 51, 52, 56, 57)</p> <p>R25 technopolymer, Ø 35 mm (for actuators 31, 35, 51, 52, 56, 57)</p> <p>R5 rubber, Ø 40 mm (for actuators 31, 35, 51, 52, 56, 57)</p> <p>R26 rubber, Ø 50 mm (for actuators 31, 35, 51, 52, 56, 57)</p> <p>R27 rubber, protruding, Ø 50 mm (for actuators 35 and 56)</p>	<p>Pre-installed cable glands</p> <p>no cable gland (standard)</p> <p>K23 cable gland for cables Ø 6 ... 12 mm</p> <p>K27 cable gland for cables Ø 3 ... 7°mm</p> <p>K50 M12 metal connector, 5-pole</p>
<p>Contact type</p> <p>silver contacts (standard)</p> <p>G silver contacts, 1 µm gold coating</p>	<p>Threaded conduit entry</p> <p>M2 M20x1.5 (standard)</p> <p>PG11</p>	

For the complete list of possible combinations please contact our technical department.



Main features

- Metal housing, one conduit entry
- Protection degree IP67
- 3 contact blocks available
- 27 actuators available
- Versions with M12 connector
- Versions with gold-plated silver contacts

Technical data

Housing

Metal housing, powder-coated
 One threaded conduit entry: M20x1.5 (standard)
 Protection degree acc. to EN 60529: IP67 with cable gland of equal or higher protection degree

General data

Ambient temperature: -25°C ... +80°C (standard)
 -40°C ... +80°C (T6 option)
 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 225
 Wire cross-sections and wire stripping lengths: see page 243

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, EN 50581, UL 508, CSA 22.2 No.14.

Approvals:

IEC 60947-5-1, UL 508, CSA 22.2 No.14, GB/T14048.5-2017.

Compliance with the requirements of:

Low Voltage Directive 2014/35/EU, EMC Directive 2014/30/EU, RoHS Directive 2011/65/EU.

Positive contact opening in conformity with standards:

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

Quality marks:



IMQ approval: EG605
 UL approval: E131787
 CCC approval: 2007010305230000
 EAC approval: RU C-IT.YT03.B.00035/19

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-tried 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 226. 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 223 to 236.

	Electrical data	Utilization category
without connector	Thermal current (I_{th}):	10 A
	Rated insulation voltage (U_i):	500 Vac 600 Vdc 400 Vac 500 Vdc (contact blocks 33, 34)
	Rated impulse withstand voltage (U_{imp}):	6 kV 4 kV (contact block 33, 34)
	Conditional short circuit current: Protection against short circuits: Pollution degree:	1000 A acc. to EN 60947-5-1 type aM fuse 10 A 500 V 3
		Alternating 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) 3 0.55 0.3
with M12 connector, 5-pole	Thermal current (I_{th}):	4 A
	Rated insulation voltage (U_i):	250 Vac 300 Vdc
	Protection against short circuits: Pollution degree:	type gG fuse 4 A 500 V 3
		Alternating 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) 3 0.55 0.3

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: IP67
 MV terminals (screw terminals)
 Pollution degree: 3
 Utilization category: AC15
 Operating voltage (U_e): 400 Vac (50 Hz)
 Operating current (I_e): 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, fundamental requirements of the Low Voltage Directive 2014/35/EU.

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

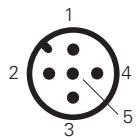
Features approved by UL

Electrical Ratings: Q300 pilot duty (69 VA, 125-250 V dc)
 A600 pilot duty (720 VA, 120-600 V ac)
 Environmental Ratings: Types 1, 4X, 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).

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

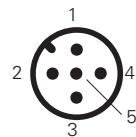
Wiring diagram for M12 connectors

Contact block 3
1NO-1NC



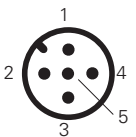
M12 connector, 5-pole

Contact block 33
1NO+1NC



M12 connector, 5-pole

Contact block 34
2NC

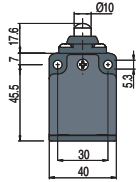
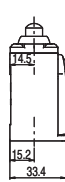
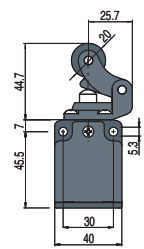
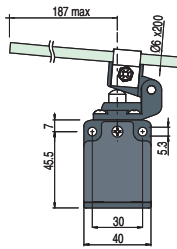
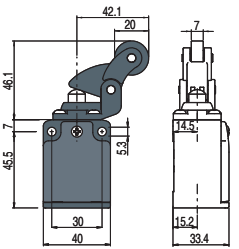


M12 connector, 5-pole

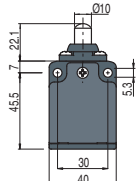

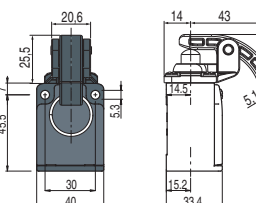
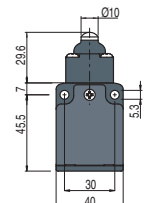
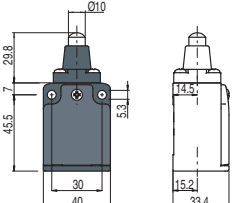
Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.
NC	1-2	NC	1-2	NC	1-2
NO	3-4	NO	3-4	NC	3-4
ground	5	ground	5	ground	5

2 FC series position switches

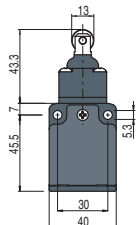
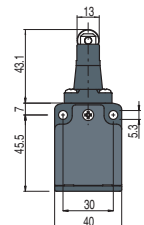
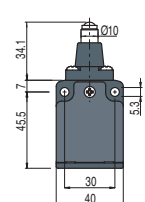
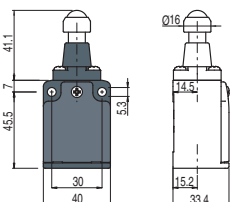
Contact type
R = snap action
L = slow action

			With stainless steel roller on request		With stainless steel roller on request
					
Contact block					
3	R	FC 301-M2	1NO-1NC	FC 302-M2	1NO-1NC
33	R	FC 3301-M2	1NO+1NC	FC 3302-M2	1NO+1NC
34	L	FC 3401-M2	2NC	FC 3402-M2	2NC
Max. speed		page 225 - type 4		page 225 - type 3	
Actuating force		6 N (25 N ⊕)		4 N (25 N ⊕)	
Travel diagrams		page 226 - group 1		page 226 - group 2	

Contact type
R = snap action
L = slow action

			Rope switch for signalling		External gasket
					
Contact block					
3	R	FC 308-M2	1NO-1NC	FC 310-M2	1NO-1NC
33	R	FC 3308-M2	1NO+1NC	FC 3310-M2	1NO+1NC
34	L	FC 3408-M2	2NC	FC 3410-M2	2NC
Max. speed		page 225 - type 4		page 225 - type 4	
Actuating force		6 N (25 N ⊕)		7 N (25 N ⊕)	
Travel diagrams		page 226 - group 1		page 226 - group 1	

Contact type
R = snap action
L = slow action

			External gasket		Ball, Ø 8 mm, stainless steel		Ball, Ø 12.7 mm, stainless steel
							
Contact block							
3	R	FC 315-M2	1NO-1NC	FC 318-M2	1NO-1NC	FC 319-M2	1NO-1NC
33	R	FC 3315-M2	1NO+1NC	FC 3318-M2	1NO+1NC	FC 3319-M2	1NO+1NC
34	L	FC 3415-M2	2NC	FC 3418-M2	2NC	FC 3419-M2	2NC
Max. speed		page 225 - type 2		page 225 - type 4		page 225 - type 4	
Actuating force		7 N (25 N ⊕)		6 N (25 N ⊕)		6 N (25 N ⊕)	
Travel diagrams		page 226 - group 1		page 226 - group 1		page 226 - group 1	

All values in the drawings are in mm

Accessories See page 207

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



Contact type
R = snap action
L = slow action

	External gasket	External gasket	External gasket	Other rollers available. See page 52
Contact block				
3	R FC 320-M2	1NO-1NC	FC 321-M2	1NO-1NC
33	R FC 3320-M2	1NO+1NC	FC 3321-M2	1NO+1NC
34	L FC 3420-M2	2NC	FC 3421-M2	2NC
Max. speed	1 m/s	1 m/s	1 m/s	page 225 - type 1
Actuating force	0.07 Nm	0.06 Nm	0.1 Nm	0.09 Nm (0.25 Nm ⊕)
Travel diagrams	page 226 - group 3	page 226 - group 3	page 226 - group 3	page 226 - group 4

Contact type
R = snap action
L = slow action

	Round rod, Ø 3 mm, stainless steel	Square rod, 3x3 mm	Other rollers available. See page 52	Other rollers available. See page 52
Contact block				
3	R FC 332-M2	1NO-1NC	FC 334-M2	1NO-1NC
33	R FC 3332-M2	1NO+1NC	FC 3333-M2	1NO+1NC
34	L FC 3432-M2	2NC	FC 3433-M2	2NC
Max. speed	1.5 m/s	1.5 m/s	1 m/s	page 225 - type 1
Actuating force	0.09 Nm	0.09 Nm	0.09 Nm	0.09 Nm (0.25 Nm ⊕)
Travel diagrams	page 226 - group 4	page 226 - group 4	page 226 - group 4	page 226 - group 4

Contact type
R = snap action
L = slow action

	Glass fibre rod	Other rollers available. See page 52	Other rollers available. See page 52	Porcelain roller
Contact block				
3	R FC 336-M2	1NO-1NC	FC 352-M2	1NO-1NC
33	R FC 3336-M2	1NO+1NC	FC 3351-M2 ⊕	1NO+1NC
34	L FC 3436-M2	2NC	FC 3451-M2 ⊕	2NC
Max. speed	1.5 m/s	page 225 - type 1	page 225 - type 1	0.5 m/s
Actuating force	0.09 Nm	0.05 Nm (0.25 Nm ⊕)	0.05 Nm (0.25 Nm ⊕)	0.02 Nm (0.25 Nm ⊕)
Travel diagrams	page 226 - group 4	page 226 - group 4	page 226 - group 4	page 226 - group 5

(1) Positive opening only with actuator set to max. See page 52.

All values in the drawings are in mm

Accessories See page 207

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

Contact type
R = snap action
L = slow action

	Other rollers available. See page 52	Other rollers available. See page 52	Rope switch for signalling
Contact block			
3 R	FC 356-M2 1NO-1NC	FC 357-M2 1NO-1NC	FC 376-M2 1NO-1NC
33 R	FC 3356-M2 ⊕ 1NO+1NC	FC 3357-M2 ⊕ 1NO+1NC	FC 3376-M2 1NO+1NC
34 L	FC 3456-M2 ⊕ 2NC	FC 3457-M2 ⊕ 2NC	FC 3476-M2 2NO
Max. speed	page 225 - type 1	page 225 - type 1	0.5 m/s
Actuating force	0.09 Nm (0.25 Nm ⊕)	0.09 Nm (0.25 Nm ⊕)	initial 20 N - final 40 N
Travel diagrams	page 226 - group 4	page 226 - group 4	page 226 - group 6

Position switches with swivelling lever without actuator

Contact type
R = snap action
L = slow action

	Regular head	Compact head
Contact block		
3 R	FC 338-M2 1NO-1NC	FC 358-M2 1NO-1NC
33 R	FC 3338-M2 ⊕ 1NO+1NC	FC 3358-M2 ⊕ 1NO+1NC
34 L	FC 3438-M2 ⊕ 2NC	FC 3458-M2 ⊕ 2NC
Actuating force	0.09 Nm (0.25 Nm ⊕)	0.05 Nm (0.25 Nm ⊕)
Travel diagrams	page 226 - group 4	page 226 - group 4

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 223.

Separate actuators

IMPORTANT: These separate actuators can be used only with items of the FD, FP, FL, FC series.

Technopolymer roller Ø 20 mm	Adjustable round rod Ø 3x125 mm	Adjustable square rod, 3x3x125 mm	Spring rod with plastic tip	Adjustable actuator with technopolymer roller	Adjustable glass fibre rod
VF L31 ⊕	VF L32 (3)	VF L33 (3)	VF L34	VF L35 ⊕ (1) (3)	VF L36 (3)
Technopolymer roller Ø 20 mm	Technopolymer roller Ø 20 mm	Porcelain roller	Adjustable safety actuator with technopolymer roller	Technopolymer roller Ø 20 mm	
VF L51 ⊕	VF L52 ⊕	VF L53 ⊕ (2)	VF L56 ⊕ (3)	VF L57 ⊕	

All values in the drawings are in mm

Accessories See page 207

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



Special separate actuators

IMPORTANT: These separate actuators can be used only with items of the FD, FP, FL, FC series.

Stainless steel rollers, Ø 20 mm

VF L31-R24 (2)	VF L35-R24 (2) (1) (3)	VF L51-R24 (2)	VF L52-R24 (2)	VF L56-R24 (2) (3)	VF L57-R24 (2)

Technopolymer rollers, Ø 35 mm

VF L31-R25 (2) (4)	VF L35-R25 (2) (1) (3)	VF L51-R25 (2) (4)	VF L52-R25 (2)	VF L56-R25 (2) (3)	VF L57-R25 (2)

Rubber rollers, Ø 40 mm

VF L31-R5 (2) (4)	VF L35-R5 (2) (1) (3)	VF L51-R5 (2) (4)	VF L52-R5 (2)	VF L56-R5 (2) (3)	VF L57-R5 (2) (4)

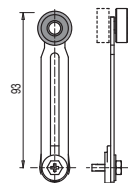
Rubber rollers, Ø 50 mm

VF L31-R26 (2) (4)	VF L35-R26 (2) (1) (3)	VF L51-R26 (2) (4)	VF L52-R26 (2) (4)	VF L56-R26 (2) (3)	VF L57-R26 (2) (4)

Protruding rubber rollers, Ø 50 mm

VF L35-R27 (2) (1) (3)	VF L56-R27 (2) (3)

- (1) Actuator VF L35 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 L56 adjustable safety lever.
- (2) The position switch obtained by assembling switch FC •58-M2 (e.g. FC 358-M2, FC 3358-M2, ...) with actuator VF L53 will not present the same travel diagrams and actuating forces as switch FC •53-E11M2 (e.g. FC 353-E11M2, FC 3353-E11M2V9, ...)
- (3) If installed with switch FC •58-M2 (e.g. FC 358-M2, FC 3358-M2, ...) the actuator may hit the housing of the switch upon actuation. This possible interference depends on the fixing position of actuator and switch head.
- (4) The actuator cannot be rotated to the inside because it will hit the switch head upon actuation.



All values in the drawings are in mm

Accessories See page 207

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