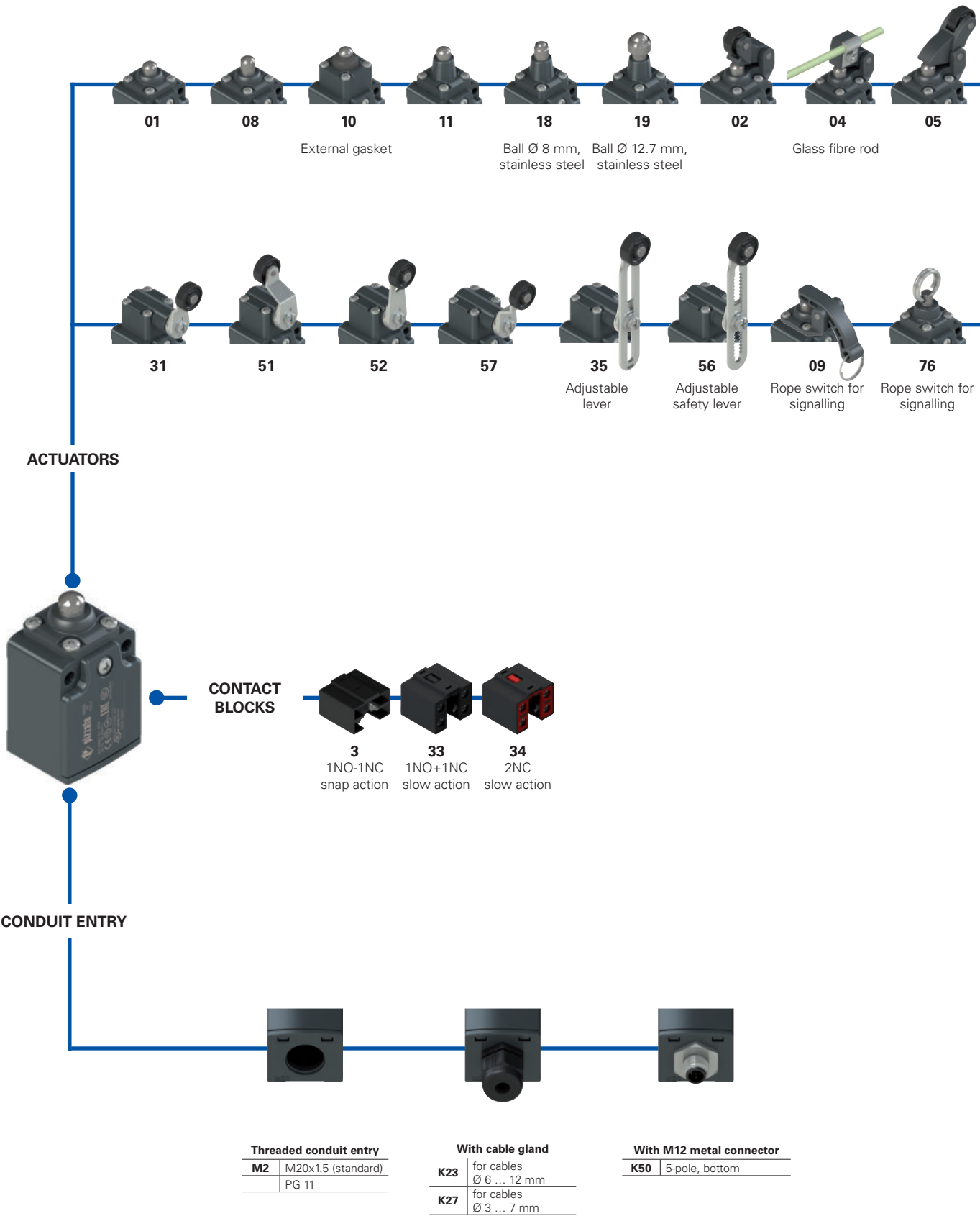
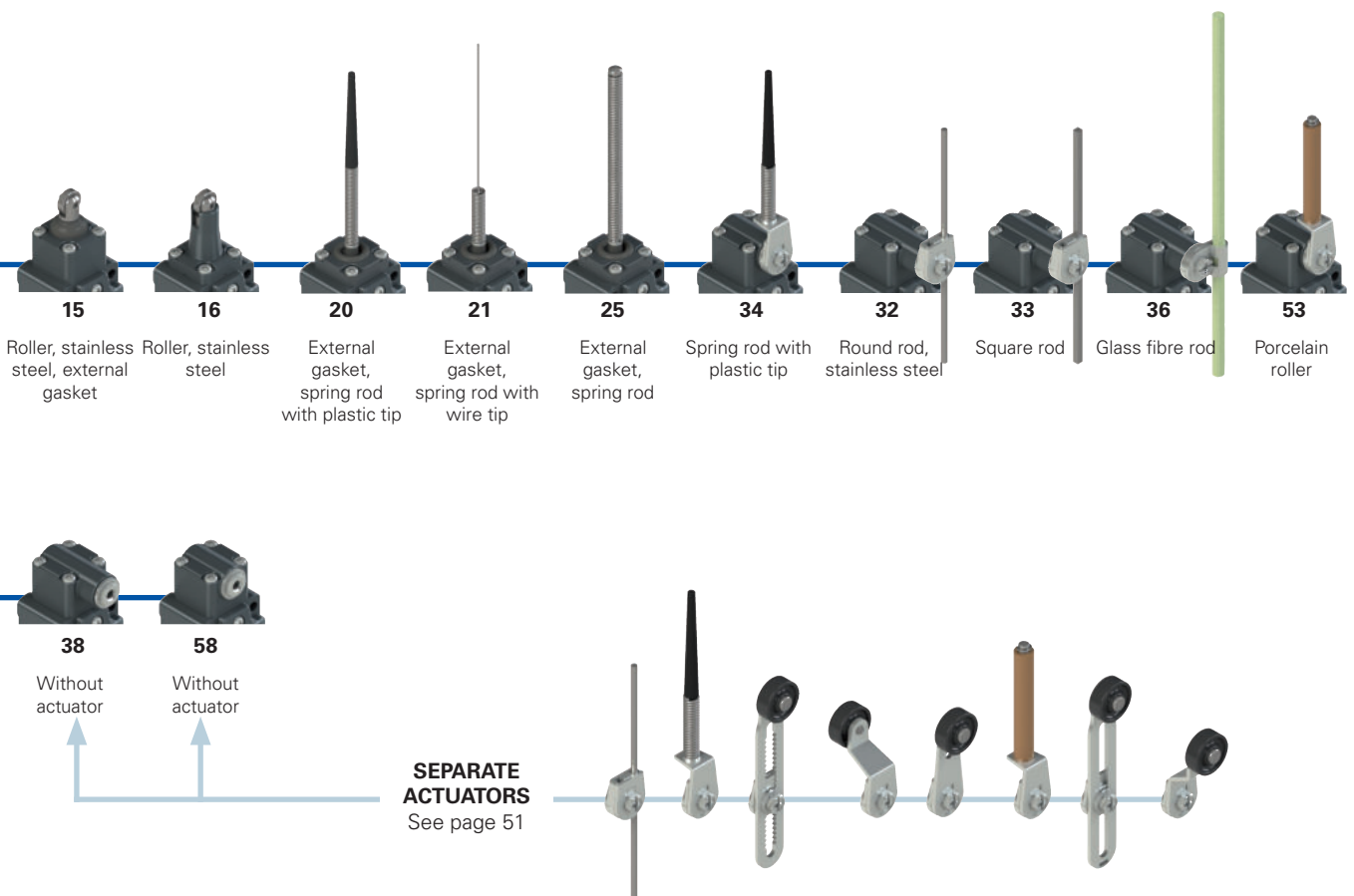


Selection diagram



● Product options
→ Sold separately as accessory

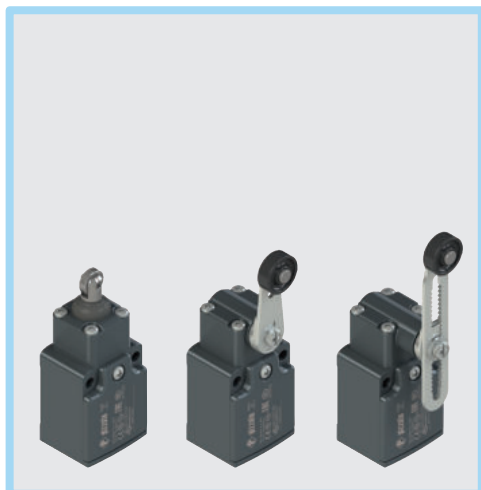


Code structure **Attention!** The feasibility of a code number does not mean the effective availability of a product. Please contact our sales office.

article
options
options

FC 302-GM2K50R24T6

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2">Housing</th></tr> <tr><td>FC</td><td>metal, one conduit entry</td></tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2">Contact block</th></tr> <tr><td>3</td><td>1NO+1NC, snap action</td></tr> <tr><td>33</td><td>1NO+1NC, slow action</td></tr> <tr><td>34</td><td>2NC, slow action</td></tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2">Actuators</th></tr> <tr><td>01</td><td>short plunger</td></tr> <tr><td>02</td><td>roller lever</td></tr> <tr><td>05</td><td>angled lever with roller</td></tr> <tr><td>...</td><td>.....</td></tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2">Contact type</th></tr> <tr><td></td><td>silver contacts (standard)</td></tr> <tr><td>G</td><td>silver contacts, 1 µm gold coating</td></tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2">Threaded conduit entry</th></tr> <tr><td>M2</td><td>M20x1.5 (standard)</td></tr> <tr><td></td><td>PG11</td></tr> </table>	Housing		FC	metal, one conduit entry	Contact block		3	1NO+1NC, snap action	33	1NO+1NC, slow action	34	2NC, slow action	Actuators		01	short plunger	02	roller lever	05	angled lever with roller	Contact type			silver contacts (standard)	G	silver contacts, 1 µm gold coating	Threaded conduit entry		M2	M20x1.5 (standard)		PG11	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2">Ambient temperature</th></tr> <tr><td></td><td>-25°C ... +80°C (standard)</td></tr> <tr><td>T6</td><td>-40°C ... +80°C</td></tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2">Rollers</th></tr> <tr><td></td><td>standard roller</td></tr> <tr><td>R24</td><td>stainless steel Ø 20 mm (for actuators 02, 05, 31, 35, 51, 52, 56, 57)</td></tr> <tr><td>R25</td><td>technopolymer, Ø 35 mm (for actuators 31, 35, 51, 52, 56, 57)</td></tr> <tr><td>R5</td><td>rubber, Ø 40 mm (for actuators 31, 35, 51, 52, 56, 57)</td></tr> <tr><td>R26</td><td>rubber, Ø 50 mm (for actuators 31, 35, 51, 52, 56, 57)</td></tr> <tr><td>R27</td><td>rubber, protruding, Ø 50 mm (for actuators 35 and 56)</td></tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2">Pre-installed cable glands</th></tr> <tr><td></td><td>no cable gland (standard)</td></tr> <tr><td>K23</td><td>cable gland for cables Ø 6 ... 12 mm</td></tr> <tr><td>K27</td><td>cable gland for cables Ø 3 ... 7°mm</td></tr> <tr><td>K50</td><td>M12 metal connector, 5-pole</td></tr> </table>	Ambient temperature			-25°C ... +80°C (standard)	T6	-40°C ... +80°C	Rollers			standard roller	R24	stainless steel Ø 20 mm (for actuators 02, 05, 31, 35, 51, 52, 56, 57)	R25	technopolymer, Ø 35 mm (for actuators 31, 35, 51, 52, 56, 57)	R5	rubber, Ø 40 mm (for actuators 31, 35, 51, 52, 56, 57)	R26	rubber, Ø 50 mm (for actuators 31, 35, 51, 52, 56, 57)	R27	rubber, protruding, Ø 50 mm (for actuators 35 and 56)	Pre-installed cable glands			no cable gland (standard)	K23	cable gland for cables Ø 6 ... 12 mm	K27	cable gland for cables Ø 3 ... 7°mm	K50	M12 metal connector, 5-pole	<p>For the complete list of possible combinations please contact our technical department.</p>
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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 227
 Wire cross-sections and wire stripping lengths: see page 247

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 IEC 63000, UL 508, CSA 22.2 No.14.

Approvals:

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

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: 2020970305002282
 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 228. 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 225 to 240.

	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 Features approved by UL

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: Za, 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.

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

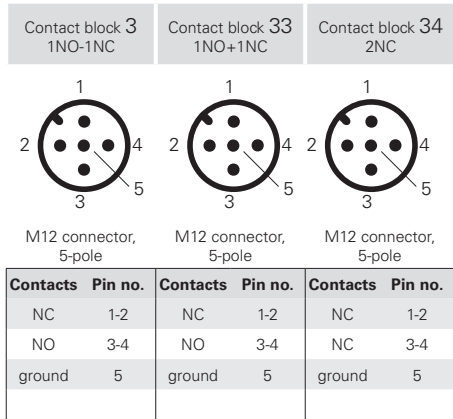
For all contact blocks except 2 and 3 use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 12, 14 AWG. Tightening torque for terminal screws of 7.1 lb in (0.8 Nm).

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.

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

Wiring diagram for M12 connectors



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	FC 304-M2	1NO-1NC
33	L	FC 3301-M2	1NO+1NC	FC 3302-M2	1NO+1NC	FC 3304-M2	1NO+1NC
34	L	FC 3401-M2	2NC	FC 3402-M2	2NC	FC 3404-M2	2NC
Max. speed		page 227 - type 4		page 227 - type 3		0.5 m/s	
Actuating force		6 N (25 N)		4 N (25 N)		0.17 Nm	
Travel diagrams		page 228 - group 1		page 228 - group 2		page 228 - group 1	

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	FC 311-M2	1NO-1NC
33	L	FC 3308-M2	1NO+1NC	FC 3310-M2	1NO+1NC	FC 3311-M2	1NO+1NC
34	L	FC 3408-M2	2NC	FC 3410-M2	2NC	FC 3411-M2	2NC
Max. speed		page 227 - type 4		page 227 - type 4		page 227 - type 4	
Actuating force		6 N (25 N)		7 N		7 N (25 N)	
Travel diagrams		page 228 - group 1		/		page 228 - group 1	

Contact type
R = snap action
L = slow action

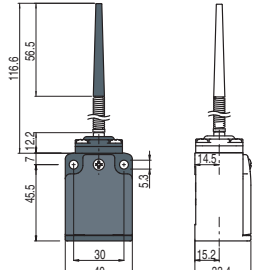
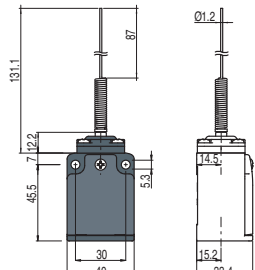
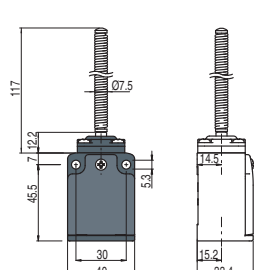
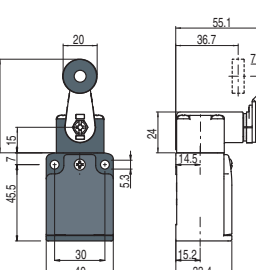
		External gasket		Ball, Ø 8 mm, stainless steel		Ball, Ø 12.7 mm, stainless steel	
Contact block							
3	R	FC 315-M2	1NO-1NC	FC 318-M2	1NO-1NC	FC 319-M2	1NO-1NC
33	L	FC 3315-M2	1NO+1NC	FC 3318-M2	1NO+1NC	FC 3319-M2	1NO+1NC
34	L	FC 3415-M2	2NC	FC 3418-M2	2NC	FC 3419-M2	2NC
Max. speed		page 227 - type 2		page 227 - type 4		page 227 - type 4	
Actuating force		7 N (25 N)		6 N (25 N)		6 N (25 N)	
Travel diagrams		page 228 - group 1		page 228 - group 1		page 228 - group 1	

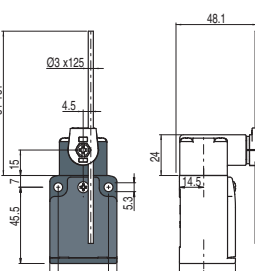
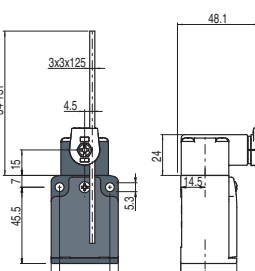
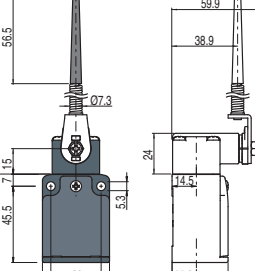
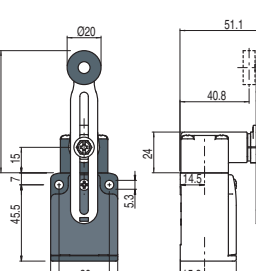
All values in the drawings are in mm

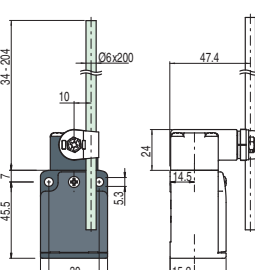
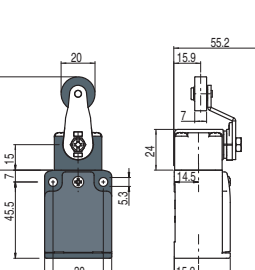
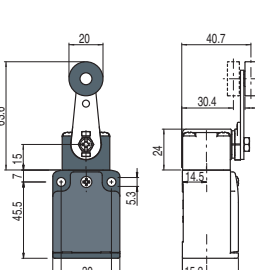
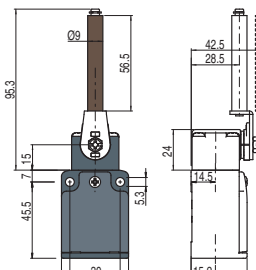
Accessories See page 207

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



Contact type		External gasket		External gasket		External gasket		Other rollers available. See page 52	
R = snap action L = slow action									
Contact block									
3	R	FC 320-M2	1NO-1NC	FC 321-M2	1NO-1NC	FC 325-M2	1NO-1NC	FC 331-M2	1NO-1NC
33	L	FC 3320-M2	1NO+1NC	FC 3321-M2	1NO+1NC	FC 3325-M2	1NO+1NC	FC 3331-M2	1NO+1NC (⊕)
34	L	FC 3420-M2	2NC	FC 3421-M2	2NC	FC 3425-M2	2NC	FC 3431-M2	2NC (⊕)
Max. speed		1 m/s		1 m/s		1 m/s		page 227 - type 1	
Actuating force		0.07 Nm		0.06 Nm		0.1 Nm		0.09 Nm (0.25 Nm ⊕)	
Travel diagrams		page 228 - group 3		page 228 - group 3		page 228 - group 3		page 228 - group 4	

Contact type		Round rod, Ø 3 mm, stainless steel		Square rod, 3x3 mm		Other rollers available. See page 52			
R = snap action L = slow action									
Contact block									
3	R	FC 332-M2	1NO-1NC	FC 333-M2	1NO-1NC	FC 334-M2	1NO-1NC	FC 335-M2	1NO-1NC
33	L	FC 3332-M2	1NO+1NC	FC 3333-M2	1NO+1NC	FC 3334-M2	1NO+1NC	FC 3335-M2	1NO+1NC (⊕) ⁽¹⁾
34	L	FC 3432-M2	2NC	FC 3433-M2	2NC	FC 3434-M2	2NC	FC 3435-M2	2NC (⊕) ⁽¹⁾
Max. speed		1.5 m/s		1.5 m/s		1 m/s		page 227 - type 1	
Actuating force		0.09 Nm		0.09 Nm		0.09 Nm		0.09 Nm (0.25 Nm ⊕)	
Travel diagrams		page 228 - group 4		page 228 - group 4		page 228 - group 4		page 228 - group 4	

Contact type		Glass fibre rod		Other rollers available. See page 52		Other rollers available. See page 52		Porcelain roller	
R = snap action L = slow action									
Contact block									
3	R	FC 336-M2	1NO-1NC	FC 351-M2	1NO-1NC	FC 352-M2	1NO-1NC	FC 353-E11M2	1NO-1NC
33	L	FC 3336-M2	1NO+1NC	FC 3351-M2	1NO+1NC (⊕)	FC 3352-M2	1NO+1NC (⊕)	FC 3353-E11M2V9	1NO+1NC (⊕)
34	L	FC 3436-M2	2NC	FC 3451-M2	2NC (⊕)	FC 3452-M2	2NC (⊕)	FC 3453-E11M2V9	2NC (⊕)
Max. speed		1.5 m/s		page 227 - type 1		page 227 - 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 228 - group 4		page 228 - group 4		page 228 - group 4		page 228 - 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 L	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 227 - type 1	page 227 - 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 228 - group 4	page 228 - group 4	page 228 - 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 L	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 228 - group 4	page 228 - 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 225.

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)

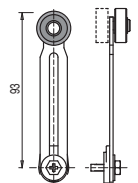
Rubber rollers, Ø 50 mm

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) Lever 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