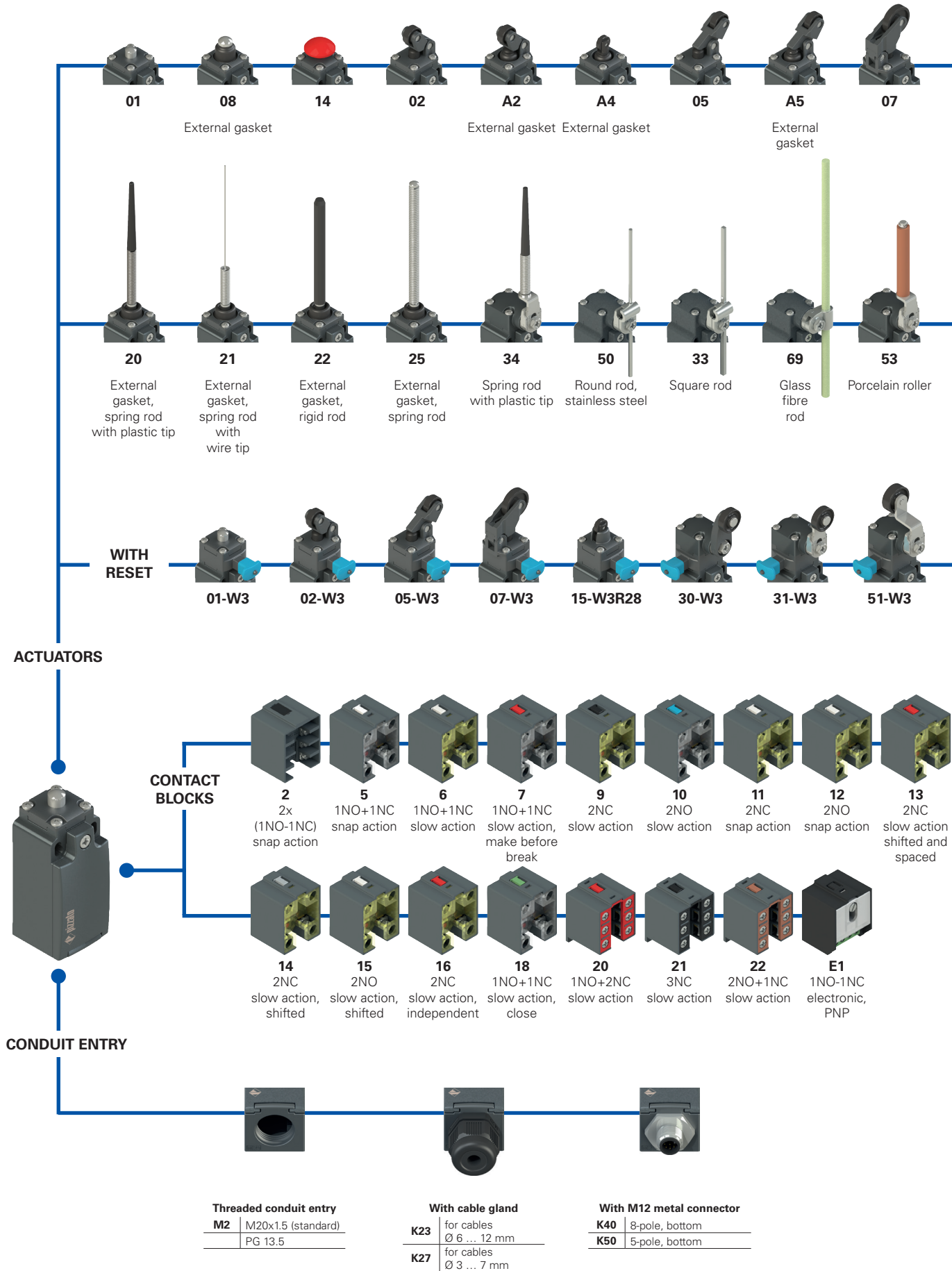
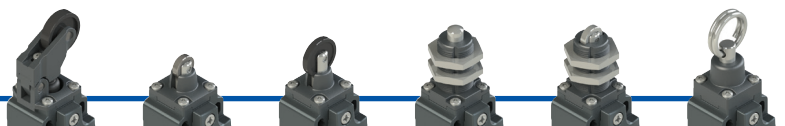


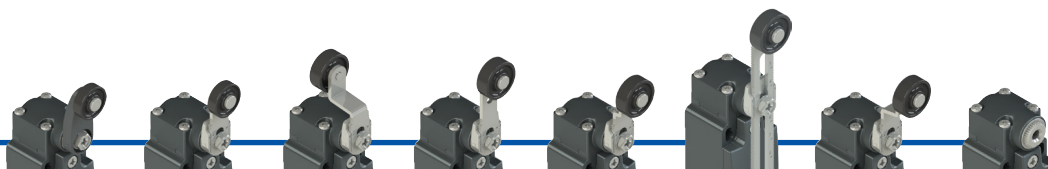
Selection diagram



● Product options
→ Sold separately as accessory

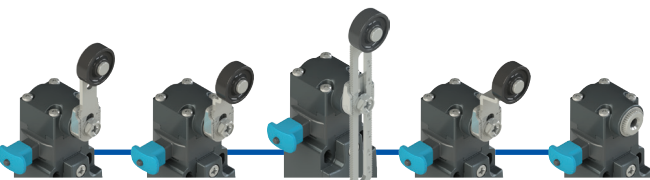


A7 External gasket
15-R28 Steel roller, Ø 12 mm, with self-lubrication
16 Roller Ø 20 mm
12
13 Steel roller, Ø 12 mm, with self-lubrication
76 Rope switch for signalling



30
31
51
52
54
56 Adjustable safety lever
57
38 Without actuator

SEPARATE ACTUATORS
See page 77



52-W3
54-W3
56-W3
57-W3
38-W3 Without actuator

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		Ambient temperature	
FM		502		-W3GM2		K50R23T6	
Housing		Contact block		Pre-installed cable glands or connectors		-25°C ... +80°C (standard)	
FM metal, one conduit entry		5 1NO+1NC, snap action		no cable gland or connector (standard)		T6 -40°C ... +80°C	
Contact block		6 1NO+1NC, slow action		K23 cable gland for cables Ø 6 ... 12 mm			
5 1NO+1NC, snap action		7 1NO+1NC, slow action, make before break		K50 M12 metal connector, 5-pole			
Actuators		Reset		Threaded conduit entry		Rollers	
01 short plunger		without reset (standard)		M2 M20x1.5 (standard)		R28 Steel, with self-lubrication, Ø 12 mm (for actuators A4, 15)	
02 roller lever		W3 simultaneous reset		PG 13.5		R44 316L stainless steel, Ø 12 mm (for actuators A4, 13, 15)	
05 angled lever with roller		W4 simultaneous reset, increased force				R23 Steel, with self-lubrication, Ø 14 mm (for actuators A2, 02, A5, 05, 30, 31, 51, 52, 54, 55, 56, 57)	
Contact type						R43 316L stainless steel, Ø 14 mm (for actuators A2, 02, A5, 05, 30, 31, 51, 52, 54, 55, 56, 57)	
silver contacts (standard)						R24 Steel, with self-lubrication, Ø 20 mm (for actuators 30, 31, 51, 52, 54, 55, 56, 57)	
G silver contacts, 1 µm gold coating						R41 316L stainless steel, Ø 20 mm (for actuators 30, 31, 51, 52, 54, 55, 56, 57)	
G1 silver contacts, 2.5 µm gold coating (except contact blocks 2, 20, 21, 22)						R36 Steel, with self-lubrication, Ø 16 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)	

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



Main features

- Metal housing, one conduit entry
- Hinged cover, fixed with single captive screw
- Protection degree IP67 and up to IP69K for actuators without external gasket
- 17 contact blocks available
- 43 actuators available
- Versions with M12 connector
- Versions with gold-plated silver contacts

Quality marks:



IMQ approval:	EG610
UL approval:	E131787
CCC approval:	2021000305000101
EAC approval:	RU C-IT.YT03.B.00035/19

Technical data

Housing

Metal housing, powder-coated	
One threaded conduit entry:	M20x1.5 (standard)
Protection degree:	IP67 acc. to EN 60529 (with cable gland of equal or higher protection degree)
Protection degree with actuators 01, 02, 05, 07, 10, 12, 13, 14, 15, 15-R28, 16, 17, 30, 31, 33, 34, 38, 50, 51, 52, 53, 54, 56, 57, 69, 76:	IP69K acc. to ISO 20653 (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 231
Wire cross-sections and wire stripping lengths:	see page 249

In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, EN 60947-1, EN 50047, IEC 60204-1, EN 60204-1, EN ISO 14119, EN ISO 12100, IEC 60529, EN 60529, EN IEC 63000, UL 508, CSA C22.2 No. 14.

Approvals:

IEC 60947-5-1, UL 508, CSA C22.2 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.

Installation for safety applications:

Use only switches marked with the \ominus symbol beside 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 232. 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 227 to 242.

	Electrical data	Utilization category
without connector	Thermal current (I_{th}):	10 A
	Rated insulation voltage (U):	500 Vac 600 Vdc 400 Vac 500 Vdc (contact blocks 2, 11, 12, 20, 21, 22)
	Rated impulse withstand voltage (U_{imp}):	6 kV 4 kV (contact blocks 20, 21, 22)
	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
with M12 connector, 5-pole	Thermal current (I_{th}):	4 A
	Rated insulation voltage (U):	250 Vac 300 Vdc
	Protection against short circuits: Pollution degree:	type gG fuse 4 A 500 V 3
	Utilization category	Alternating current: AC15 (50÷60 Hz) Ue (V) 250 400 500 Ie (A) 6 4 1 Direct current: DC13 Ue (V) 24 125 250 Ie (A) 3 0.55 0.3
with M12 connector, 8-pole	Thermal current (I_{th}):	2 A
	Rated insulation voltage (U):	30 Vac 36 Vdc
	Protection against short circuits: Pollution degree:	type gG fuse 2 A 500 V 3
	Utilization category	Alternating current: AC15 (50÷60 Hz) Ue (V) 24 Ie (A) 2 Direct current: DC13 Ue (V) 24 Ie (A) 2



Features approved by IMQ

Rated insulation voltage (U_i): 500 Vac
400 Vac (for contact blocks 2, 11, 12, 20, 21, 22, 28, 29, 30, 37, 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 20, 21, 22, 28, 29, 30, 33, 34)

IP67

Protection degree of the housing: 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, Za+Za, X+X, Zb, Y+Y, Y+Y+X, Y+Y+Y, Y+X+X, Y, X.

Positive opening of contacts on contact blocks 5, 6, 7, 8, 9, 11, 13, 14, 16, 17, 18, 19, 20, 21, 22, 28, 29, 30, 33, 34, 37, 38, 39, 66.

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 2 2x(1NO-1NC)	Contact block 5 1NO+1NC	Contact block 6 1NO+1NC	Contact block 7 1NO+1NC	Contact block 9 2NC	Contact block 10 2NO	Contact block 11 2NC	Contact block 12 2NO	Contact block 13 2NC	
M12 connector, 8-pole	M12 connector, 5-pole	M12 connector, 5-pole	M12 connector, 5-pole	M12 connector, 5-pole	M12 connector, 5-pole	M12 connector, 5-pole	M12 connector, 5-pole	M12 connector, 5-pole	
Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.
NO	3-4	NC	1-2	NC	1-2	NC	1-2	NO	1-2
NC	5-6	NO	3-4	NO	3-4	NO	3-4	NC	3-4
NC	7-8	ground	5	ground	5	ground	5	ground	5
NO	1-2							NC (1°)	1-2
								NO	3-4
								ground	5

Contact block 14 2NC	Contact block 15 2NO	Contact block 16 2NC	Contact block 18 1NO+1NC	Contact block 20 1NO+2NC	Contact block 21 3NC	Contact block 22 2NO+1NC	Contact block 33 1NO+1NC	Contact block 34 2NC	
M12 connector, 5-pole	M12 connector, 5-pole	M12 connector, 5-pole	M12 connector, 5-pole	M12 connector, 8-pole	M12 connector, 8-pole	M12 connector, 8-pole	M12 connector, 5-pole	M12 connector, 5-pole	
Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.	Contacts	Pin no.
NC (1°)	1-2	NO (1°)	1-2	NC, lever to the right	1-2	NC	3-4	NC	1-2
NC (2°)	3-4	NO (2°)	3-4	NC, lever to the left	3-4	NO	5-6	NO	3-4
ground	5	ground	5	ground	5	NO	7-8	ground	5
				ground	1	NC	7-8	ground	5
				ground	1	NO	7-8	ground	5

Contact block E1
PNP

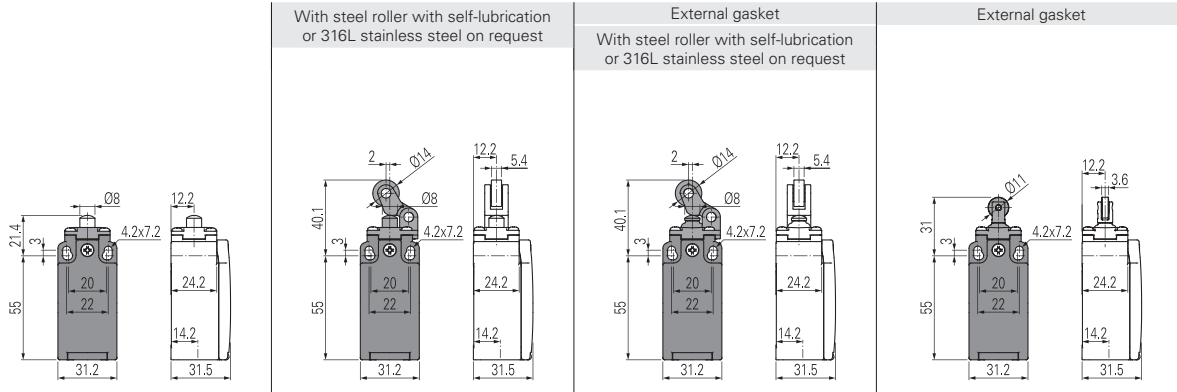
M12 connector, 5-pole

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

FM series position switches

- R** = snap action
L = slow action
LO = slow action, make before break
LS = slow action, shifted
LV = slow action, shifted and spaced
LI = slow action, independent
LA = slow action, close
⏏ = electronic, PNP

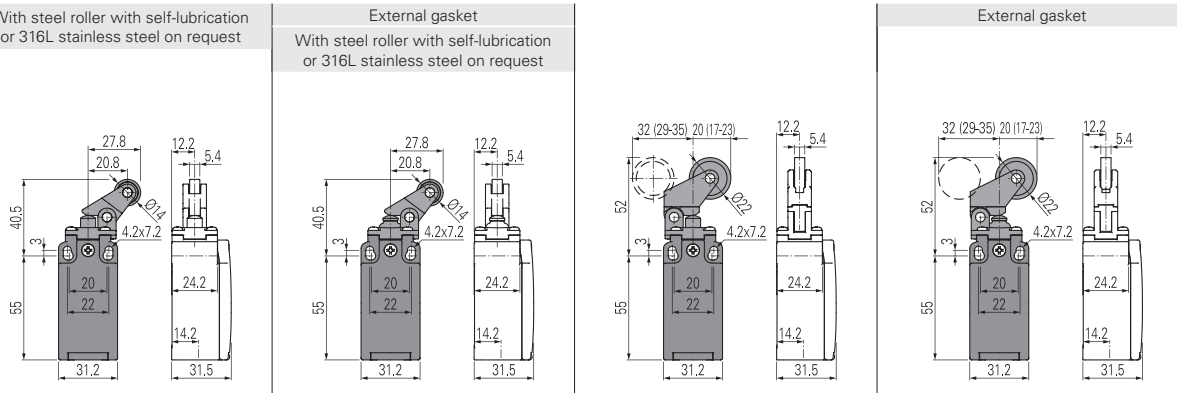
Contact block



	With steel roller with self-lubrication or 316L stainless steel on request	External gasket	External gasket
2 R	FM 201-M2 2x(1NO-1NC)	FM 202-M2 2x(1NO-1NC)	FM 2A2-M2 2x(1NO-1NC)
5 R	FM 501-M2 ⊕ 1NO+1NC	FM 502-M2 ⊕ 1NO+1NC	FM 5A2-M2 ⊕ 1NO+1NC
6 L	FM 601-M2 ⊕ 1NO+1NC	FM 602-M2 ⊕ 1NO+1NC	FM 6A2-M2 ⊕ 1NO+1NC
7 LO	FM 701-M2 ⊕ 1NO+1NC	FM 702-M2 ⊕ 1NO+1NC	FM 7A2-M2 ⊕ 1NO+1NC
9 L	FM 901-M2 ⊕ 2NC	FM 902-M2 ⊕ 2NC	FM 9A2-M2 ⊕ 2NC
10 L	FM 1001-M2 2NO	FM 1002-M2 2NO	FM 10A2-M2 2NO
11 R	FM 1101-M2 ⊕ 2NC	FM 1102-M2 ⊕ 2NC	FM 11A2-M2 ⊕ 2NC
12 R	FM 1201-M2 2NO	FM 1202-M2 2NO	FM 12A2-M2 2NO
13 LV	FM 1301-M2 ⊕ 2NC	FM 1302-M2 ⊕ 2NC	FM 13A2-M2 ⊕ 2NC
14 LS	FM 1401-M2 ⊕ 2NC	FM 1402-M2 ⊕ 2NC	FM 14A2-M2 ⊕ 2NC
15 LS	FM 1501-M2 2NO	FM 1502-M2 2NO	FM 15A2-M2 2NO
18 LA	FM 1801-M2 ⊕ 1NO+1NC	FM 1802-M2 ⊕ 1NO+1NC	FM 18A2-M2 ⊕ 1NO+1NC
20 L	FM 2001-M2 ⊕ 1NO+2NC	FM 2002-M2 ⊕ 1NO+2NC	FM 20A2-M2 ⊕ 1NO+2NC
21 L	FM 2101-M2 ⊕ 3NC	FM 2102-M2 ⊕ 3NC	FM 21A2-M2 ⊕ 3NC
22 L	FM 2201-M2 ⊕ 2NO+1NC	FM 2202-M2 ⊕ 2NO+1NC	FM 22A2-M2 ⊕ 2NO+1NC
E1 ⏏	FM E101-M2 1NO-1NC	FM E102-M2 1NO-1NC	FM E1A2-M2 1NO-1NC
Max. speed	page 231 - type 4	page 231 - type 3	page 231 - type 3
Actuating force	8 N (25 N ⊕)	6 N (25 N ⊕)	4.3 N (25 N ⊕)
Travel diagrams	page 232 - group 1	page 232 - group 2	page 232 - group 2

- R** = snap action
L = slow action
LO = slow action, make before break
LS = slow action, shifted
LV = slow action, shifted and spaced
LI = slow action, independent
LA = slow action, close
⏏ = electronic, PNP

Contact block



	With steel roller with self-lubrication or 316L stainless steel on request	External gasket	External gasket
2 R	FM 205-M2 2x(1NO-1NC)	FM 2A5-M2 2x(1NO-1NC)	FM 207-M2 2x(1NO-1NC)
5 R	FM 505-M2 ⊕ 1NO+1NC	FM 5A5-M2 ⊕ 1NO+1NC	FM 507-M2 ⊕ 1NO+1NC
6 L	FM 605-M2 ⊕ 1NO+1NC	FM 6A5-M2 ⊕ 1NO+1NC	FM 607-M2 ⊕ 1NO+1NC
7 LO	FM 705-M2 ⊕ 1NO+1NC	FM 7A5-M2 ⊕ 1NO+1NC	FM 707-M2 ⊕ 1NO+1NC
9 L	FM 905-M2 ⊕ 2NC	FM 9A5-M2 ⊕ 2NC	FM 907-M2 ⊕ 2NC
10 L	FM 1005-M2 2NO	FM 10A5-M2 2NO	FM 1007-M2 2NO
11 R	FM 1105-M2 ⊕ 2NC	FM 11A5-M2 ⊕ 2NC	FM 1107-M2 ⊕ 2NC
12 R	FM 1205-M2 2NO	FM 12A5-M2 2NO	FM 1207-M2 2NO
13 LV	FM 1305-M2 ⊕ 2NC	FM 13A5-M2 ⊕ 2NC	FM 1307-M2 ⊕ 2NC
14 LS	FM 1405-M2 ⊕ 2NC	FM 14A5-M2 ⊕ 2NC	FM 1407-M2 ⊕ 2NC
15 LS	FM 1505-M2 2NO	FM 15A5-M2 2NO	FM 1507-M2 2NO
18 LA	FM 1805-M2 ⊕ 1NO+1NC	FM 18A5-M2 ⊕ 1NO+1NC	FM 1807-M2 ⊕ 1NO+1NC
20 L	FM 2005-M2 ⊕ 1NO+2NC	FM 20A5-M2 ⊕ 1NO+2NC	FM 2007-M2 ⊕ 1NO+2NC
21 L	FM 2105-M2 ⊕ 3NC	FM 21A5-M2 ⊕ 3NC	FM 2107-M2 ⊕ 3NC
22 L	FM 2205-M2 ⊕ 2NO+1NC	FM 22A5-M2 ⊕ 2NO+1NC	FM 2207-M2 ⊕ 2NO+1NC
E1 ⏏	FM E105-M2 1NO-1NC	FM E1A5-M2 1NO-1NC	FM E107-M2 1NO-1NC
Max. speed	page 231 - type 3	page 231 - type 3	page 231 - type 3
Actuating force	6 N (25 N ⊕)	4.3 N (25 N ⊕)	4 N (25 N ⊕)
Travel diagrams	page 232 - group 2	page 232 - group 2	page 232 - group 3

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			
R = snap action L = slow action LO = slow action, make before break LS = slow action, shifted LV = slow action, shifted and spaced LI = slow action, independent LA = slow action, close ⌘ = electronic, PNP				
Max. speed	page 231 - type 4	page 231 - type 4	page 231 - type 2	page 231 - type 4
Actuating force	8 N (25 N \ominus)	8 N (25 N \ominus)	8 N (25 N \ominus)	8 N (25 N \ominus)
Travel diagrams	page 232 - group 1	page 232 - group 1	page 232 - group 1	page 232 - group 1


Contact type	External gasket		External gasket	
R = snap action L = slow action LO = slow action, make before break LS = slow action, shifted LV = slow action, shifted and spaced LI = slow action, independent LA = slow action, close ⌘ = electronic, PNP				
Max. speed	page 231 - type 2	page 231 - type 2	1 m/s	1 m/s
Actuating force	8 N (25 N \ominus)	8 N (25 N \ominus)	0.07 Nm	0.07 Nm
Travel diagrams	page 232 - group 1	page 232 - group 1	page 232 - group 4	page 232 - group 4

All values in the drawings are in mm

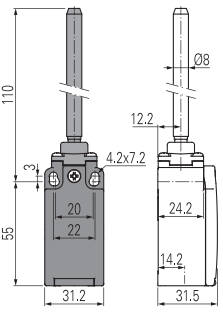
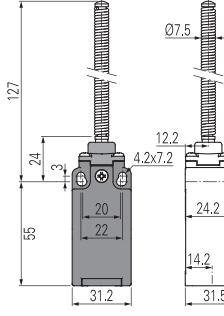
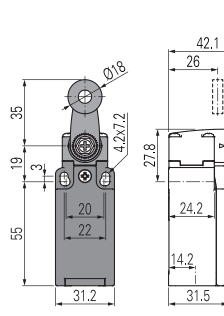
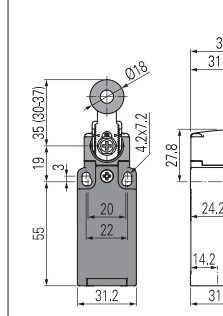
































Accessories See page 207


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

FM series position switches

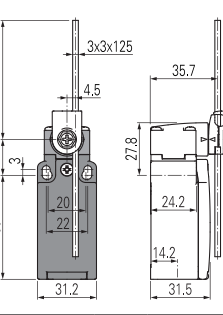
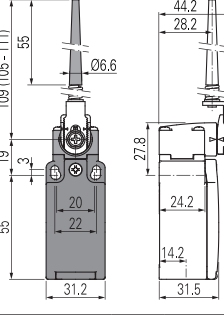
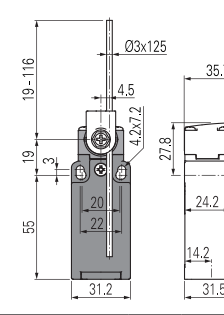
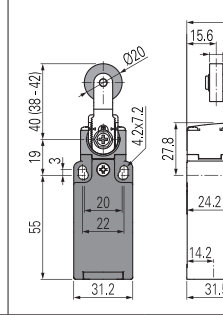














- R** = snap action
L = slow action
LO = slow action, make before break
LS = slow action, shifted
LV = slow action, shifted and spaced
LI = slow action, independent
LA = slow action, close
 = electronic, PNP

Contact block

	External gasket Rigid rod		External gasket Spring rod		With Ø 20 mm steel roller with self-lubrication or 316L stainless steel on request	Other rollers available. See page 78		
								
2	R	FM 222-M2 2x(1NO-1NC)	FM 225-M2 2x(1NO-1NC)	FM 230-M2 2x(1NO-1NC)	FM 231-M2 2x(1NO-1NC)			
5	R	/	FM 525-M2 1NO+1NC	FM 530-M2  1NO+1NC	FM 531-M2  1NO+1NC			
6	L	/	/	FM 630-M2  1NO+1NC	FM 631-M2  1NO+1NC			
7	LO	/	/	FM 730-M2  1NO+1NC	FM 731-M2  1NO+1NC			
9	L	/	/	FM 930-M2  2NC	FM 931-M2  2NC			
10	L	FM 1022-M2 2NO	FM 1025-M2 2NO	FM 1030-M2 2NO	FM 1031-M2 2NO			
11	R	/	/	FM 1130-M2  2NC	FM 1131-M2  2NC			
12	R	FM 1222-M2 2NO	FM 1225-M2 2NO	FM 1230-M2 2NO	FM 1231-M2 2NO			
13	LV	/	/	FM 1330-M2  2NC	FM 1331-M2  2NC			
14	LS	/	/	FM 1430-M2  2NC	FM 1431-M2  2NC			
15	LS	/	/	FM 1530-M2 2NO	FM 1531-M2 2NO			
16	LI	/	/	FM 1630-M2  2NC	FM 1631-M2  2NC			
18	LA	FM 1822-M2  1NO+1NC	FM 1825-M2 1NO+1NC	FM 1830-M2  1NO+1NC	FM 1831-M2  1NO+1NC			
20	L	FM 2022-M2  1NO+2NC	FM 2025-M2 1NO+2NC	FM 2030-M2  1NO+2NC	FM 2031-M2  1NO+2NC			
21	L	FM 2122-M2  3NC	FM 2125-M2 3NC	FM 2130-M2  3NC	FM 2131-M2  3NC			
22	L	FM 2222-M2  2NO+1NC	FM 2225-M2 2NO+1NC	FM 2230-M2  2NO+1NC	FM 2231-M2  2NO+1NC			
E1		FM E122-M2 1NO-1NC	FM E125-M2 1NO-1NC	FM E130-M2 1NO-1NC	FM E131-M2 1NO-1NC			
Max. speed	1 m/s		1 m/s		page 231 - type 1		page 231 - type 1	
Actuating force	0.12 Nm (0.25 Nm )		0.12 Nm		0.06 Nm (0.25 Nm )		0.06 Nm (0.25 Nm )	
Travel diagrams	page 232 - group 4		page 232 - group 4		page 232 - group 5		page 232 - group 5	

- R** = snap action
L = slow action
LO = slow action, make before break
LS = slow action, shifted
LV = slow action, shifted and spaced
LI = slow action, independent
LA = slow action, close
 = electronic, PNP

Contact block

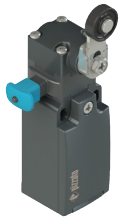
	Square rod, 3x3 mm		Spring rod		Round rod, Ø 3 mm, stainless steel	Other rollers available. See page 78		
								
2	R	FM 233-M2 2x(1NO-1NC)	FM 234-M2 2x(1NO-1NC)	FM 250-M2 2x(1NO-1NC)	FM 251-M2 2x(1NO-1NC)			
5	R	FM 533-M2 1NO+1NC	FM 534-M2 1NO+1NC	FM 550-M2 1NO+1NC	FM 551-M2  1NO+1NC			
6	L	FM 633-M2 1NO+1NC	FM 634-M2 1NO+1NC	FM 650-M2 1NO+1NC	FM 651-M2  1NO+1NC			
7	LO	FM 733-M2 1NO+1NC	FM 734-M2 1NO+1NC	FM 750-M2 1NO+1NC	FM 751-M2  1NO+1NC			
9	L	FM 933-M2 2NC	FM 934-M2 2NC	FM 950-M2 2NC	FM 951-M2  2NC			
10	L	FM 1033-M2 2NO	FM 1034-M2 2NO	FM 1050-M2 2NO	FM 1051-M2 2NO			
11	R	FM 1133-M2 2NC	FM 1134-M2 2NC	FM 1150-M2 2NC	FM 1151-M2  2NC			
12	R	FM 1233-M2 2NO	FM 1234-M2 2NO	FM 1250-M2 2NO	FM 1251-M2 2NO			
13	LV	FM 1333-M2 2NC	FM 1343-M2 2NC	FM 1350-M2 2NC	FM 1351-M2  2NC			
14	LS	FM 1433-M2 2NC	FM 1434-M2 2NC	FM 1450-M2 2NC	FM 1451-M2  2NC			
15	LS	FM 1533-M2 2NO	FM 1534-M2 2NO	FM 1550-M2 2NO	FM 1551-M2 2NO			
16	LI	FM 1633-M2 2NC	FM 1634-M2 2NC	FM 1650-M2 2NC	FM 1651-M2  2NC			
18	LA	FM 1833-M2 1NO+1NC	FM 1834-M2 1NO+1NC	FM 1850-M2 1NO+1NC	FM 1851-M2  1NO+1NC			
20	L	FM 2033-M2 1NO+2NC	FM 2034-M2 1NO+2NC	FM 2050-M2 1NO+2NC	FM 2051-M2  1NO+2NC			
21	L	FM 2133-M2 3NC	FM 2134-M2 3NC	FM 2150-M2 3NC	FM 2151-M2  3NC			
22	L	FM 2233-M2 2NO+1NC	FM 2234-M2 2NO+1NC	FM 2250-M2 2NO+1NC	FM 2251-M2  2NO+1NC			
E1		FM E133-M2 1NO-1NC	FM E134-M2 1NO-1NC	FM E150-M2 1NO-1NC	FM E151-M2 1NO-1NC			
Max. speed	1.5 m/s		1.5 m/s		1.5 m/s		page 231 - type 1	
Actuating force	0.06 Nm		0.06 Nm		0.06 Nm		0.06 Nm (0.25 Nm )	
Travel diagrams	page 232 - group 5		page 232 - group 5		page 232 - group 5		page 232 - group 5	

All values in the drawings are in mm

Accessories See page 207

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

FM series position switches with reset



The majority of switches can be equipped with a reset device (option W3) which enables the simultaneous actuation of actuator and contact block. The device is a module that is mounted between the body and the head of the switch that can be rotated independently from the head. The reset device has the following advantages:

- can be integrated into the majority of standard actuator heads;
- contact blocks with snap action are no more necessary because the tripping movement is executed by the reset device itself;
- can be rotated independently from the head ensuring maximum flexibility during installation;
- can be delivered with two different actuating forces: standard and increased for vibration applications;
- mechanical endurance: 1 million operating cycles.

Contact type		With steel roller with self-lubrication or 316L stainless steel on request		With steel roller with self-lubrication or 316L stainless steel on request		With steel roller with self-lubrication or 316L stainless steel on request				
R	= snap action									
L	= slow action									
Contact block		2	R FM 201-W3M2	2x(1NO-1NC)	FM 202-W3M2	2x(1NO-1NC)	FM 205-W3M2	2x(1NO-1NC)	FM 207-W3M2	2x(1NO-1NC)
6	L	FM 601-W3M2	⊕	1NO+1NC	FM 602-W3M2	⊕	1NO+1NC	FM 605-W3M2	⊕	1NO+1NC
9	L	FM 901-W3M2	⊕	2NC	FM 902-W3M2	⊕	2NC	FM 905-W3M2	⊕	2NC
10	L	FM 1001-W3M2	⊕	2NO	FM 1002-W3M2	⊕	2NO	FM 1005-W3M2	⊕	2NO
20	L	FM 2001-W3M2	⊕	1NO+2NC	FM 2002-W3M2	⊕	1NO+2NC	FM 2005-W3M2	⊕	1NO+2NC
21	L	FM 2101-W3M2	⊕	3NC	FM 2102-W3M2	⊕	3NC	FM 2105-W3M2	⊕	3NC
22	L	FM 2201-W3M2	⊕	2NO+1NC	FM 2202-W3M2	⊕	2NO+1NC	FM 2205-W3M2	⊕	2NO+1NC
Max. speed		page 231 - type 4		page 231 - type 3		page 231 - type 3		page 231 - 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 231 - group 1		page 231 - group 2		page 231 - group 2		page 231 - group 3		

Contact type		With Ø 20 mm steel roller with self-lubrication or 316L stainless steel on request		Other rollers available. See page 78		Other rollers available. See page 78				
R	= snap action									
L	= slow action									
Contact block		2	R FM 215-W3M2R28	2x(1NO-1NC)	FM 230-W3M2	2x(1NO-1NC)	FM 231-W3M2	2x(1NO-1NC)	FM 251-W3M2	2x(1NO-1NC)
6	L	FM 615-W3M2R28	⊕	1NO+1NC	FM 630-W3M2	⊕	1NO+1NC	FM 631-W3M2	⊕	1NO+1NC
9	L	FM 915-W3M2R28	⊕	2NC	FM 930-W3M2	⊕	2NC	FM 931-W3M2	⊕	2NC
10	L	FM 1015-W3M2R28	⊕	2NO	FM 1030-W3M2	⊕	2NO	FM 1031-W3M2	⊕	2NO
20	L	FM 2015-W3M2R28	⊕	1NO+2NC	FM 2030-W3M2	⊕	1NO+2NC	FM 2031-W3M2	⊕	1NO+2NC
21	L	FM 2115-W3M2R28	⊕	3NC	FM 2130-W3M2	⊕	3NC	FM 2131-W3M2	⊕	3NC
22	L	FM 2215-W3M2R28	⊕	2NO+1NC	FM 2230-W3M2	⊕	2NO+1NC	FM 2231-W3M2	⊕	2NO+1NC
Max. speed		page 231 - type 2		page 231 - type 1		page 231 - type 1		page 231 - 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 231 - group 1		page 231 - group 4		page 231 - group 4		page 231 - group 4		

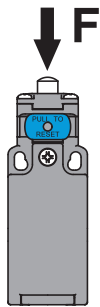
All values in the drawings are in mm

Accessories See page 207

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

		Other rollers available. See page 78		Other rollers available. See page 78		Other rollers available. See page 78		Other rollers available. See page 78	
Contact type		R = snap action L = slow action							
Contact block									
2	R	FM 252-W3M2	2x(1NO-1NC)	FM 254-W3M2	2x(1NO-1NC)	FM 256-W3M2	2x(1NO-1NC)	FM 257-W3M2	2x(1NO-1NC)
6	L	FM 652-W3M2	1NO+1NC	FM 654-W3M2	1NO+1NC	FM 656-W3M2	1NO+1NC	FM 657-W3M2	1NO+1NC
9	L	FM 952-W3M2	2NC	FM 954-W3M2	2NC	FM 956-W3M2	2NC	FM 957-W3M2	2NC
10	L	FM 1052-W3M2	2NO	FM 1054-W3M2	2NO	FM 1056-W3M2	2NO	FM 1057-W3M2	2NO
20	L	FM 2052-W3M2	1NO+2NC	FM 2054-W3M2	1NO+2NC	FM 2056-W3M2	1NO+2NC	FM 2057-W3M2	1NO+2NC
21	L	FM 2152-W3M2	3NC	FM 2154-W3M2	3NC	FM 2156-W3M2	3NC	FM 2157-W3M2	3NC
22	L	FM 2252-W3M2	2NO+1NC	FM 2254-W3M2	2NO+1NC	FM 2256-W3M2	2NO+1NC	FM 2257-W3M2	2NO+1NC
Max. speed		page 231 - type 1		page 231 - type 1		page 231 - type 1		page 231 - type 1	
Actuating force		0.07 Nm (0.25 Nm \rightarrow)		0.07 Nm (0.25 Nm \rightarrow)		0.07 Nm (0.25 Nm \rightarrow)		0.07 Nm (0.25 Nm \rightarrow)	
Travel diagrams		page 231 - group 4		page 231 - group 4		page 231 - group 4		page 231 - group 4	

Increased actuating force



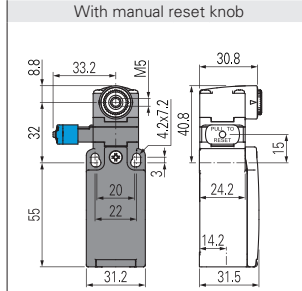
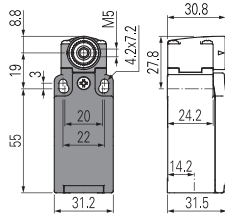
The switch can be delivered with increased actuating force (option W4). Ideal for vibration applications.

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: FM 601-**W3**M2 \rightarrow FM 601-**W4**M2

Position switches with swivelling lever without actuator

- Contact type
- R** = snap action
 - L** = slow action
 - LO** = slow action, make before break
 - LS** = slow action, shifted
 - LV** = slow action, shifted and spaced
 - LI** = slow action, independent
 - LA** = slow action, close
 - LA** = electronic, PNP
- Contact block



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.

2	R	FM 238-M2	2x(1NO-1NC)	FM 238-W3M2	2x(1NO-1NC)
5	R	FM 538-M2	1NO+1NC	/	/
6	L	FM 638-M2	1NO+1NC	FM 638-W3M2	1NO+1NC
7	LO	FM 738-M2	1NO+1NC	/	/
9	L	FM 938-M2	2NC	FM 938-W3M2	2NC
10	L	FM 1038-M2	2NO	FM 1038-W3M2	2NO
11	R	FM 1138-M2	2NC	/	/
12	R	FM 1238-M2	2NO	/	/
13	LV	FM 1338-M2	2NC	/	/
14	LS	FM 1438-M2	2NC	/	/
15	LS	FM 1538-M2	2NO	/	/
16	LI	FM 1638-M2	2NC	/	/
18	LA	FM 1838-M2	1NO+1NC	/	/
20	L	FM 2038-M2	1NO+2NC	FM 2038-W3M2	1NO+2NC
21	L	FM 2138-M2	3NC	FM 2138-W3M2	3NC
22	L	FM 2238-M2	2NO+1NC	FM 2238-W3M2	2NO+1NC
E1	LA	FM E138-M2	1NO-1NC	/	/
Actuating force		0.06 Nm (0.25 Nm)		0.07 Nm (0.25 Nm)	
Travel diagrams		page 232 - group 5		page 231 - group 4	

Separate actuators

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	Technopolymer roller Ø 14 mm	Technopolymer roller Ø 14 mm	Technopolymer roller Ø 20 mm	Technopolymer roller Ø 20 mm
VN A00KA	VN A00KB	VN A00KC	VN A00KD	VN A00KE	VN A00KF
Technopolymer roller Ø 20 mm	Technopolymer roller Ø 20 mm	Adjustable safety actuator with technopolymer roller	Adjustable square rod, 3x3x125 mm	Adjustable round rod Ø 3x125 mm	Adjustable glass fibre rod
VN A00KG	VN A00KH	VN A00KP	VN A00LB	VN A00LE	VN A00LH
Spring rod with plastic tip	Porcelain roller	Technopolymer roller Ø 14 mm	Technopolymer roller Ø 14 mm	Technopolymer roller Ø 20 mm	Adjustable safety lever with technopolymer roller Ø 20 mm
		With metallic parts in stainless steel			
VN A00LL	VN A00LP	VN A00KB-V38	VN A00KE-V38	VN A00KG-V38	VN A00KP-V38

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 FR, FM, FX, FZ and FK series.

Steel rollers, Ø 20 mm, with self-lubrication					
VN A00KB-R24 (1)	VN A00KE-R24 (1)	VN A00KF-R24 (1)	VN A00KG-R24 (1)	VN A00KH-R24 (1)	VN A00KP-R24 (1)

Note: To order with 316L stainless steel roller: replace R24 with R41 in the order numbers.

Technopolymer rollers, Ø 35 mm					
VN A00KB-R25 (1)	VN A00KE-R25 (1)	VN A00KF-R25 (1)	VN A00KG-R25 (1)	VN A00KH-R25 (1)	VN A00KP-R25 (1)

Rubber rollers, Ø 40 mm					
VN A00KB-R5 (1)	VN A00KE-R5 (1)	VN A00KF-R5 (1)	VN A00KG-R5 (1)	VN A00KH-R5 (1)	VN A00KP-R5 (1)

Rubber rollers, Ø 50 mm				
VN A00KE-R26 (1)	VN A00KF-R26 (1)	VN A00KG-R26 (1)	VN A00KH-R26 (1)	VN A00KP-R26 (1)

Protruding rubber rollers, Ø 50 mm
VN A00KP-R27 (1)

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

(2) The position switch obtained by assembling switch FM •38-M2 (e.g. FM 538-M2, FM 638-M2, ...) with actuator VN A00LP will not present the same travel diagrams and actuating forces as switch FM •53-E0M2V9 (e.g. FM 553-E0M2V9, FM 653-E0M2V9, ...).

Note: To check the correspondence with previous lever codes, please consult the table "Changed article codes" on page 289. Example: VF LE30 -> VN A00KA.