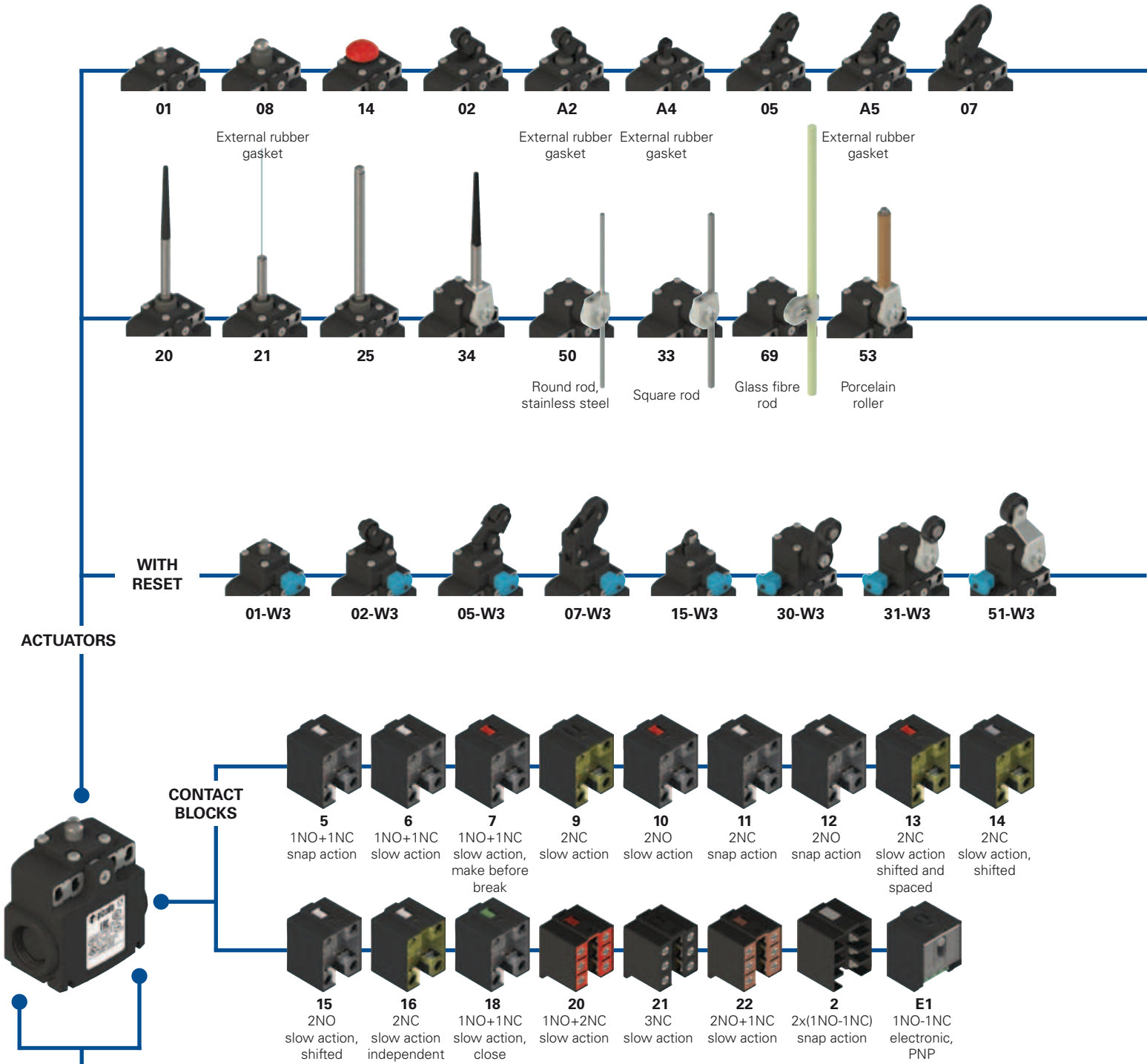
Selection diagram



Threaded conduit entry	
M2	M20x1.5 (standard)
M1	M16x1.5
	PG 13.5
A	PG 11

With cable gland	
K123	for cables Ø 6 … 12 mm on the right
K223	for cables Ø 6 … 12 mm on the left
K127	for cables Ø 3 … 7 mm on the right
K227	for cables Ø 3 … 7 mm on the left

With M12 plastic connector	
K71	4-pole, right
K72	4-pole, left
K46	8-pole, right
K47	8-pole, left

With M12 metal connector	
K41	8-pole, right
K42	8-pole, left
K61	4-pole, right
K62	4-pole, left

product options

Sold separately as accessory

A7 External rubber gasket

15 Roller Ø 11 mm

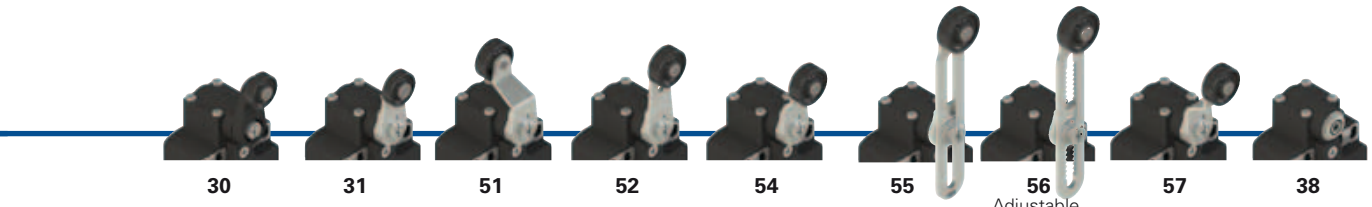
15-R28 Roller Ø 12 mm, stainless steel

16 Roller Ø 20 mm

12

13 Roller Ø 12 mm, stainless steel

76 Rope switch for signalling



30

31

51

52

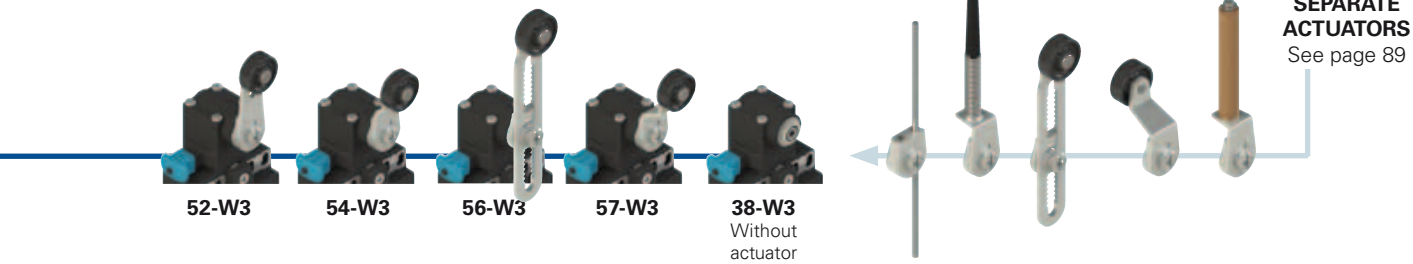
54

55 Adjustable lever

56 Adjustable safety lever

57

38 Without actuator



52-W3

54-W3

56-W3

57-W3

38-W3 Without actuator

SEPARATE ACTUATORS See page 89

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

FX 502-W3XGM2K71R23T6

Housing

FX	technopolymer, two conduit entries

Contact block

5	1NO+1NC, snap action
6	1NO+1NC, slow action
7	1NO+1NC, slow action, make before break
...	.....

Actuators

01	short plunger
02	roller lever
05	angled lever with roller
...	.....

Reset

	without reset (standard)
W3	simultaneous reset
W4	simultaneous reset, increased force

External metallic parts

	zinc-plated steel (standard)
X	stainless steel

Contact type

	silver contacts (standard)
G	silver contacts, 1 µm gold coating (not for contact block 2)
G1	silver contacts, 2.5 µm gold coating (not for contact block 2, 20, 21, 22)

Threaded conduit entry

M2	M20x1.5 (standard)
M1	M16x1.5
	PG 13.5
A	PG11

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)

Ambient temperature

	-25°C … +80°C (standard)
T6	-40°C … +80°C

Pre-installed cable glands or connectors

	no cable gland or connector (standard)
K123	cable gland for cables Ø 6 … 12 mm on the right
K71	M12 plastic connector, 4-pole, right

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

Main features

- Technopolymer housing, two conduit entries
- Protection degree IP67
- 17 contact blocks available
- 43 actuators available
- Versions with external parts in stainless steel
- Versions with M12 connector
- Versions with gold-plated silver contacts

Technical data

Housing

Housing made of glass fibre reinforced technopolymer, self-extinguishing, shock-proof and with double insulation: ⧈

Two knock-out threaded conduit entries.	M20x1.5 (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 20, 21, 22, 33, 34:	min.	1 x 0.34 mm²	(1 x AWG 22)
	max.	2 x 1.5 mm²	(2 x AWG 16)
Contact blocks 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 18:	min.	1 x 0.5 mm²	(1 x AWG 20)
	max.	2 x 2.5 mm²	(2 x AWG 14)
Contact block 2:	min.	1 x 0.5 mm²	(1 x AWG 20)
	max.	2 x 1.5 mm²	(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.

Quality marks:

IMQ approval:	EG610
UL approval:	E131787
CCC approval:	2007010305230013
EAC approval:	RU C-IT.АД35.В.00454

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.

Installation for safety applications:
Use only switches marked with the symbol ⊖ 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 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.**

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 2, 11, 12, 20, 21, 22, 33, 34)	Alternating current: AC15 (50÷60 Hz) Ue (V) 250 400 500 Ie (A) 6 4 1
	Rated impulse withstand voltage (U_{imp}):	6 kV 4 kV (contact blocks 20, 21, 22, 33, 34)	Direct current: DC13 Ue (V) 24 125 250 Ie (A) 6 1.1 0.4
	Conditional short circuit current:	1000 A acc. to EN 60947-5-1	
	Protection against short circuits:	type aM fuse 10 A 500 V	
	Pollution degree:	3	
with M12 connector 4-pole	Thermal current (I_{th}):	4 A	Alternating current: AC15 (50÷60 Hz) Ue (V) 24 120 250 Ie (A) 4 4 4
	Rated insulation voltage (U_i):	250 Vac 300 Vdc	Direct current: DC13 Ue (V) 24 125 250 Ie (A) 4 1.1 0.4
	Protection against short circuits:	type gG fuse 4 A 500 V	
	Pollution degree:	3	
with M12 connector 8-pole	Thermal current (I_{th}):	2 A	Alternating current: AC15 (50÷60 Hz) Ue (V) 24 Ie (A) 2
	Rated insulation voltage (U_i):	30 Vac 36 Vdc	Direct current: DC13 Ue (V) 24 Ie (A) 2
	Protection against short circuits:	type gG fuse 2 A 500 V	
	Pollution degree:	3	

Features approved by IMQ

Rated insulation voltage (U_i):	500 Vac 400 Vac (for contact blocks 2, 11, 12, 20, 21,22, 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, 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, Za+Za, Y+Y, X+X, Y+Y+X, Y+Y+Y, Y+X+X
Positive opening of contacts on contact blocks 5, 6, 7, 9, 11, 13, 14, 16, 18, 20, 21, 22, 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

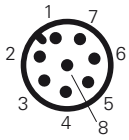
Utilization category Q300 (69 VA, 125-250 Vdc)
A600 (720 VA, 120-600 Vac)
Housing features type 1, 4X "indoor use only", 12, 13
For all contact blocks except 2 and 3 use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 12, 14 AWG. Tightening torque for terminal screws of 7.1 lb in (0.8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

Wiring diagram for M12 connectors

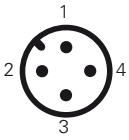
Contact block 2 — 1NO-1NC+1NO-1NC



M12 connector, 8-pole

Contacts	Pin no.
NO	3-4
NC	5-6
NC	7-8
NO	1-2

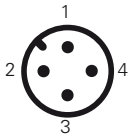
Contact block 5 — 1NO+1NC



M12 connector, 4-pole

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

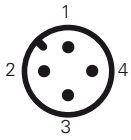
Contact block 6 — 1NO+1NC



M12 connector, 4-pole

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

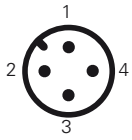
Contact block 7 — 1NO+1NC



M12 connector, 4-pole

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

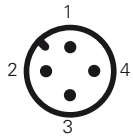
Contact block 9 — 2NC



M12 connector, 4-pole

Contacts	Pin no.
NC	1-2
NC	3-4

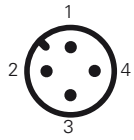
Contact block 10 — 2NO



M12 connector, 4-pole

Contacts	Pin no.
NO	1-2
NO	3-4

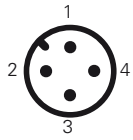
Contact block 11 — 2NC



M12 connector, 4-pole

Contacts	Pin no.
NC	1-2
NC	3-4

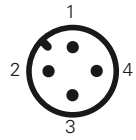
Contact block 12 — 2NO



M12 connector, 4-pole

Contacts	Pin no.
NO	1-2
NO	3-4

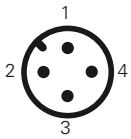
Contact block 13 — 2NC



M12 connector, 4-pole

Contacts	Pin no.
NC (1°)	1-2
NC (2°)	3-4

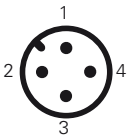
Contact block 14 — 2NC



M12 connector, 4-pole

Contacts	Pin no.
NC (1°)	1-2
NC (2°)	3-4

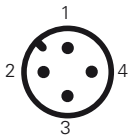
Contact block 15 — 2NO



M12 connector, 4-pole

Contacts	Pin no.
NO (1°)	1-2
NO (2°)	3-4

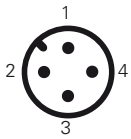
Contact block 16 — 2NC



M12 connector, 4-pole

Contacts	Pin no.
NC, lever to the right	1-2
NC, lever to the left	3-4

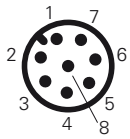
Contact block 18 — 1NO+1NC



M12 connector, 4-pole

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

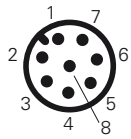
Contact block 20 — 2NC+1NO



M12 connector, 8-pole

Contacts	Pin no.
NC	3-4
NC	5-6
NO	7-8

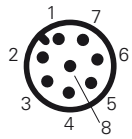
Contact block 21 — 3NC



M12 connector, 8-pole

Contacts	Pin no.
NC	3-4
NC	5-6
NC	7-8

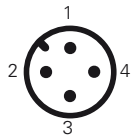
Contact block 22 — 1NC+2NO



M12 connector, 8-pole

Contacts	Pin no.
NC	3-4
NO	5-6
NO	7-8

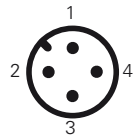
Contact block 33 — 1NC+1NO



M12 connector, 4-pole

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

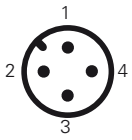
Contact block 34 — 2NC



M12 connector, 4-pole

Contacts	Pin no.
NC	1-2
NC	3-4

Contact block E1 — PNP



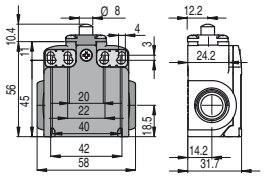
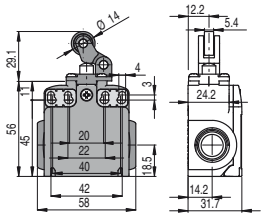
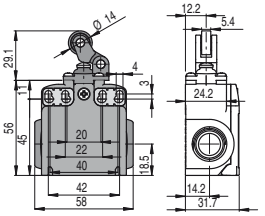
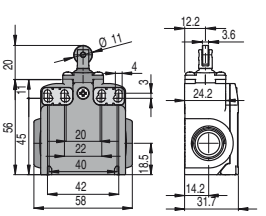
M12 connector, 4-pole

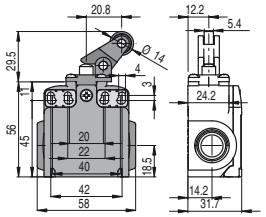
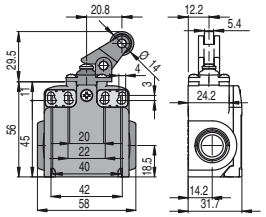
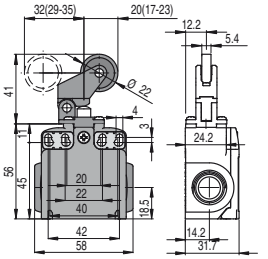
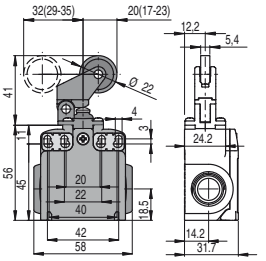
Contacts	Pin no.
+	1
-	3
NC	2
NO	4

FX series position switches

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
= electronic PNP

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
					
5	R	FX 501-M2 → 1NO+1NC	FX 502-M2 → 1NO+1NC	FX 5A2-M2 → 1NO+1NC	FX 5A4-M2 → 1NO+1NC
6	L	FX 601-M2 → 1NO+1NC	FX 602-M2 → 1NO+1NC	FX 6A2-M2 → 1NO+1NC	FX 6A4-M2 → 1NO+1NC
7	LO	FX 701-M2 → 1NO+1NC	FX 702-M2 → 1NO+1NC	FX 7A2-M2 → 1NO+1NC	FX 7A4-M2 → 1NO+1NC
9	L	FX 901-M2 → 2NC	FX 902-M2 → 2NC	FX 9A2-M2 → 2NC	FX 9A4-M2 → 2NC
10	L	FX 1001-M2 2NO	FX 1002-M2 2NO	FX 10A2-M2 2NO	FX 10A4-M2 2NO
11	R	FX 1101-M2 → 2NC	FX 1102-M2 → 2NC	FX 11A2-M2 → 2NC	FX 11A4-M2 → 2NC
12	R	FX 1201-M2 2NO	FX 1202-M2 2NO	FX 12A2-M2 2NO	FX 12A4-M2 2NO
13	LV	FX 1301-M2 → 2NC	FX 1302-M2 → 2NC	FX 13A2-M2 → 2NC	FX 13A4-M2 → 2NC
14	LS	FX 1401-M2 → 2NC	FX 1402-M2 → 2NC	FX 14A2-M2 → 2NC	FX 14A4-M2 → 2NC
15	LS	FX 1501-M2 2NO	FX 1502-M2 2NO	FX 15A2-M2 2NO	FX 15A4-M2 2NO
18	LA	FX 1801-M2 → 1NO+1NC	FX 1802-M2 → 1NO+1NC	FX 18A2-M2 → 1NO+1NC	FX 18A4-M2 → 1NO+1NC
20	L	FX 2001-M2 → 1NO+2NC	FX 2002-M2 → 1NO+2NC	FX 20A2-M2 → 1NO+2NC	FX 20A4-M2 → 1NO+2NC
21	L	FX 2101-M2 → 3NC	FX 2102-M2 → 3NC	FX 21A2-M2 → 3NC	FX 21A4-M2 → 3NC
22	L	FX 2201-M2 → 2NO+1NC	FX 2202-M2 → 2NO+1NC	FX 22A2-M2 → 2NO+1NC	FX 22A4-M2 → 2NO+1NC
2	R	FX 201-M2 2x(1NO-1NC)	FX 202-M2 2x(1NO-1NC)	FX 2A2-M2 2x(1NO-1NC)	FX 2A4-M2 2x(1NO-1NC)
E1		FX E101-M2 1NO-1NC	FX E102-M2 1NO-1NC	FX E1A2-M2 1NO-1NC	FX E1A4-M2 1NO-1NC
Max. speed		page 215 - type 4	page 215 - type 3	page 215 - type 3	page 215 - type 5
Actuating force		8 N (25 N →)	6 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

Contact block			With stainless steel roller on request	With external rubber gasket With stainless steel roller on request		With external rubber gasket
						
5	R	FX 505-M2 → 1NO+1NC	FX 5A5-M2 → 1NO+1NC	FX 507-M2 → 1NO+1NC		FX 5A7-M2 → 1NO+1NC
6	L	FX 605-M2 → 1NO+1NC	FX 6A5-M2 → 1NO+1NC	FX 607-M2 → 1NO+1NC		FX 6A7-M2 → 1NO+1NC
7	LO	FX 705-M2 → 1NO+1NC	FX 7A5-M2 → 1NO+1NC	FX 707-M2 → 1NO+1NC		FX 7A7-M2 → 1NO+1NC
9	L	FX 905-M2 → 2NC	FX 9A5-M2 → 2NC	FX 907-M2 → 2NC		FX 9A7-M2 → 2NC
10	L	FX 1005-M2 2NO	FX 10A5-M2 2NO	FX 1007-M2 2NO		FX 10A7-M2 2NO
11	R	FX 1105-M2 → 2NC	FX 11A5-M2 → 2NC	FX 1107-M2 → 2NC		FX 11A7-M2 → 2NC
12	R	FX 1205-M2 2NO	FX 12A5-M2 2NO	FX 1207-M2 2NO		FX 12A7-M2 2NO
13	LV	FX 1305-M2 → 2NC	FX 13A5-M2 → 2NC	FX 1307-M2 → 2NC		FX 13A7-M2 → 2NC
14	LS	FX 1405-M2 → 2NC	FX 14A5-M2 → 2NC	FX 1407-M2 → 2NC		FX 14A7-M2 → 2NC
15	LS	FX 1505-M2 2NO	FX 15A5-M2 2NO	FX 1507-M2 2NO		FX 15A7-M2 2NO
18	LA	FX 1805-M2 → 1NO+1NC	FX 18A5-M2 → 1NO+1NC	FX 1807-M2 → 1NO+1NC		FX 18A7-M2 → 1NO+1NC
20	L	FX 2005-M2 → 1NO+2NC	FX 20A5-M2 → 1NO+2NC	FX 2007-M2 → 1NO+2NC		FX 20A7-M2 → 1NO+2NC
21	L	FX 2105-M2 → 3NC	FX 21A5-M2 → 3NC	FX 2107-M2 → 3NC		FX 21A7-M2 → 3NC
22	L	FX 2205-M2 → 2NO+1NC	FX 22A5-M2 → 2NO+1NC	FX 2207-M2 → 2NO+1NC		FX 22A7-M2 → 2NO+1NC
2	R	FX 205-M2 2x(1NO-1NC)	FX 2A5-M2 2x(1NO-1NC)	FX 207-M2 2x(1NO-1NC)		FX 2A7-M2 2x(1NO-1NC)
E1		FX E105-M2 1NO-1NC	FX E1A5-M2 1NO-1NC	FX E107-M2 1NO-1NC		FX E1A7-M2 1NO-1NC
Max. speed		page 215 - type 3	page 215 - type 3	page 215 - type 3		page 215 - type 3
Actuating force		6 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

All values in the drawings are in mm

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

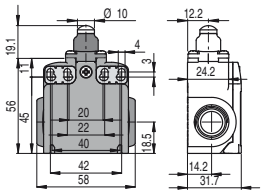
Accessories See page 197

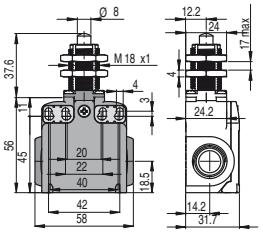
→ The 2D and 3D files are available at **www.pizzato.com**

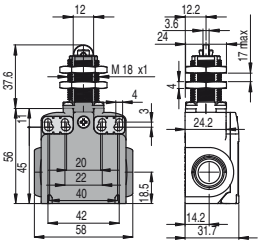
Contact type:

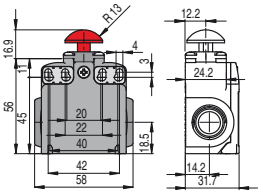
R = snap action
L = slow action
LO = slow action make before break
LS = slow action shifted
LV = slow action shifted and spaced
LI = slow action independent
LA = slow action close
= electronic PNP

With external rubber gasket



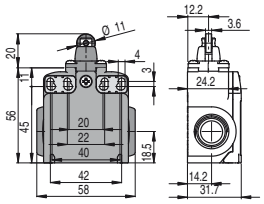




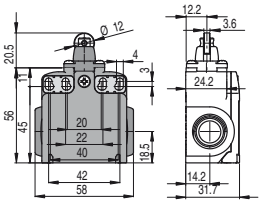


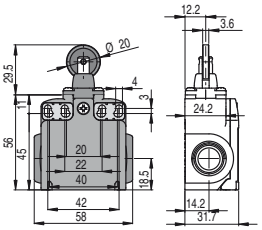
Contact block					
5	R	FX 508-M2 → 1NO+1NC	FX 512-M2 → 1NO+1NC	FX 513-M2 → 1NO+1NC	FX 514-M2 → 1NO+1NC
6	L	FX 608-M2 → 1NO+1NC	FX 612-M2 → 1NO+1NC	FX 613-M2 → 1NO+1NC	FX 614-M2 → 1NO+1NC
7	LO	FX 708-M2 → 1NO+1NC	FX 712-M2 → 1NO+1NC	FX 713-M2 → 1NO+1NC	FX 714-M2 → 1NO+1NC
9	L	FX 908-M2 → 2NC	FX 912-M2 → 2NC	FX 913-M2 → 2NC	FX 914-M2 → 2NC
10	L	FX 1008-M2 2NO	FX 1012-M2 2NO	FX 1013-M2 2NO	FX 1014-M2 2NO
11	R	FX 1108-M2 → 2NC	FX 1112-M2 → 2NC	FX 1113-M2 → 2NC	FX 1114-M2 → 2NC
12	R	FX 1208-M2 2NO	FX 1212-M2 2NO	FX 1213-M2 2NO	FX 1214-M2 2NO
13	LV	FX 1308-M2 → 2NC	FX 1312-M2 → 2NC	FX 1313-M2 → 2NC	FX 1314-M2 → 2NC
14	LS	FX 1408-M2 → 2NC	FX 1412-M2 → 2NC	FX 1413-M2 → 2NC	FX 1414-M2 → 2NC
15	LS	FX 1508-M2 2NO	FX 1512-M2 2NO	FX 1513-M2 2NO	FX 1514-M2 2NO
18	LA	FX 1808-M2 → 1NO+1NC	FX 1812-M2 → 1NO+1NC	FX 1813-M2 → 1NO+1NC	FX 1814-M2 → 1NO+1NC
20	L	FX 2008-M2 → 1NO+2NC	FX 2012-M2 → 1NO+2NC	FX 2013-M2 → 1NO+2NC	FX 2014-M2 → 1NO+2NC
21	L	FX 2108-M2 → 3NC	FX 2112-M2 → 3NC	FX 2113-M2 → 3NC	FX 2114-M2 → 3NC
22	L	FX 2208-M2 → 2NO+1NC	FX 2212-M2 → 2NO+1NC	FX 2213-M2 → 2NO+1NC	FX 2214-M2 → 2NO+1NC
2	R	FX 208-M2 2x(1NO-1NC)	FX 212-M2 2x(1NO-1NC)	FX 213-M2 2x(1NO-1NC)	FX 214-M2 2x(1NO-1NC)
E1		FX E108-M2 1NO-1NC	FX E112-M2 1NO-1NC	FX E113-M2 1NO-1NC	FX E114-M2 1NO-1NC
Max. speed		page 215 - type 4	page 215 - type 4	page 215 - type 2	page 215 - type 4
Actuating force		8 N (25 N →)	8 N (25 N →)	8 N (25 N →)	8 N (25 N →)
Travel diagrams		page 216 - group 1	page 216 - group 1	page 216 - group 1	page 216 - group 1

Roller, Ø 11 mm, technopolymer

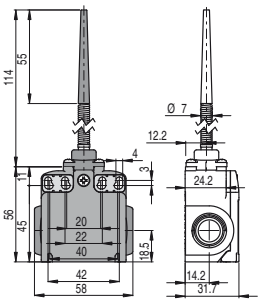


Roller, Ø 12 mm, stainless steel





With external rubber gasket



Contact block					
5	R	FX 515-M2 → 1NO+1NC	FX 515-M2R28 → 1NO+1NC	FX 516-M2 → 1NO+1NC	FX 520-M2 1NO+1NC
6	L	FX 615-M2 → 1NO+1NC	FX 615-M2R28 → 1NO+1NC	FX 616-M2 → 1NO+1NC	
7	LO	FX 715-M2 → 1NO+1NC	FX 715-M2R28 → 1NO+1NC	FX 716-M2 → 1NO+1NC	
9	L	FX 915-M2 → 2NC	FX 915-M2R28 → 2NC	FX 916-M2 → 2NC	
10	L	FX 1015-M2 2NO	FX 1015-M2R28 2NO	FX 1016-M2 2NO	FX 1020-M2 2NO
11	R	FX 1115-M2 → 2NC	FX 1115-M2R28 → 2NC	FX 1116-M2 → 2NC	
12	R	FX 1215-M2 2NO	FX 1215-M2R28 2NO	FX 1216-M2 2NO	FX 1220-M2 2NO
13	LV	FX 1315-M2 → 2NC	FX 1315-M2R28 → 2NC	FX 1316-M2 → 2NC	
14	LS	FX 1415-M2 → 2NC	FX 1415-M2R28 → 2NC	FX 1416-M2 → 2NC	
15	LS	FX 1515-M2 2NO	FX 1515-M2R28 2NO	FX 1516-M2 2NO	
18	LA	FX 1815-M2 → 1NO+1NC	FX 1815-M2R28 → 1NO+1NC	FX 1816-M2 → 1NO+1NC	FX 1820-M2 1NO+1NC
20	L	FX 2015-M2 → 1NO+2NC	FX 2015-M2R28 → 1NO+2NC	FX 2016-M2 → 1NO+2NC	FX 2020-M2 1NO+2NC
21	L	FX 2115-M2 → 3NC	FX 2115-M2R28 → 3NC	FX 2116-M2 → 3NC	FX 2120-M2 3NC
22	L	FX 2215-M2 → 2NO+1NC	FX 2215-M2R28 → 2NO+1NC	FX 2216-M2 → 2NO+1NC	FX 2220-M2 2NO+1NC
2	R	FX 215-M2 2x(1NO-1NC)	FX 215-M2R28 2x(1NO-1NC)	FX 216-M2 2x(1NO-1NC)	FX 220-M2 2x(1NO-1NC)
E1		FX E115-M2 1NO-1NC	FX E115-M2R28 1NO-1NC	FX E116-M2 1NO-1NC	FX E120-M2 1NO-1NC
Max. speed		page 215 - type 2	page 215 - type 2	page 215 - type 2	1 m/s
Actuating force		8 N (25 N →)	8 N (25 N →)	8 N (25 N →)	0.07 Nm
Travel diagrams		page 216 - group 1	page 216 - group 1	page 216 - group 1	page 216 - group 4

All values in the drawings are in mm

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

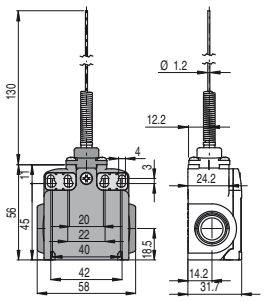
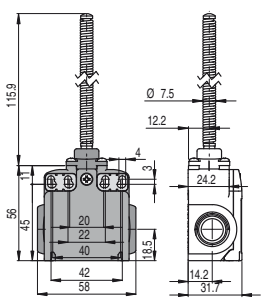
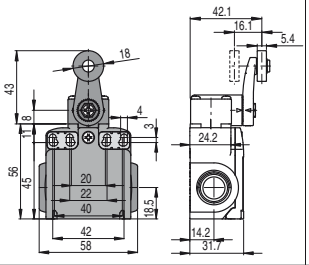
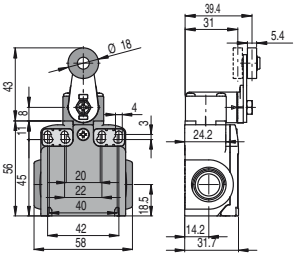
Accessories See page 197

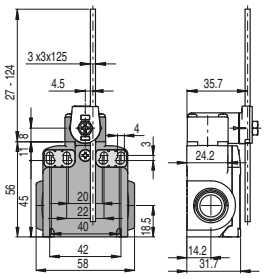
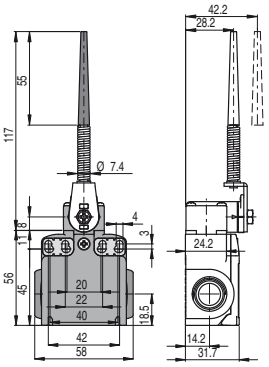
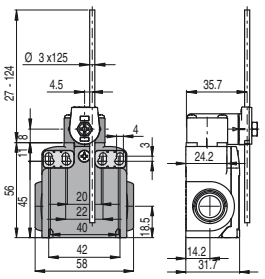
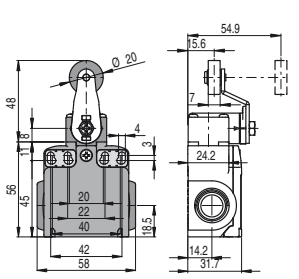
→ The 2D and 3D files are available at **www.pizzato.com**

FX series position switches

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
= electronic PNP

Contact block		With external rubber gasket		With external rubber gasket		With Ø 20 mm stainless steel roller on request		Other rollers available. See on page 90	
									
5	R	FX 521-M2	1NO+1NC	FX 525-M2	1NO+1NC	FX 530-M2 →	1NO+1NC	FX 531-M2 →	1NO+1NC
6	L					FX 630-M2 →	1NO+1NC	FX 631-M2 →	1NO+1NC
7	LO					FX 730-M2 →	1NO+1NC	FX 731-M2 →	1NO+1NC
9	L					FX 930-M2 →	2NC	FX 931-M2 →	2NC
10	L	FX 1021-M2	2NO	FX 1025-M2	2NO	FX 1030-M2	2NO	FX 1031-M2	2NO
11	R					FX 1130-M2 →	2NC	FX 1131-M2 →	2NC
12	R	FX 1221-M2	2NO	FX 1225-M2	2NO	FX 1230-M2	2NO	FX 1231-M2	2NO
13	LV					FX 1330-M2 →	2NC	FX 1331-M2 →	2NC
14	LS					FX 1430-M2 →	2NC	FX 1431-M2 →	2NC
15	LS					FX 1530-M2	2NO	FX 1531-M2	2NO
16	LI					FX 1630-M2 →	2NC	FX 1631-M2 →	2NC
18	LA	FX 1821-M2	1NO+1NC	FX 1825-M2	1NO+1NC	FX 1830-M2 →	1NO+1NC	FX 1831-M2 →	1NO+1NC
20	L	FX 2021-M2	1NO+2NC	FX 2025-M2	1NO+2NC	FX 2030-M2 →	1NO+2NC	FX 2031-M2 →	1NO+2NC
21	L	FX 2121-M2	3NC	FX 2125-M2	3NC	FX 2130-M2 →	3NC	FX 2131-M2 →	3NC
22	L	FX 2221-M2	2NO+1NC	FX 2225-M2	2NO+1NC	FX 2230-M2 →	2NO+1NC	FX 2231-M2 →	2NO+1NC
2	R	FX 221-M2	2x(1NO-1NC)	FX 225-M2	2x(1NO-1NC)	FX 230-M2	2x(1NO-1NC)	FX 231-M2	2x(1NO-1NC)
E1		FX E121-M2	1NO-1NC	FX E125-M2	1NO-1NC	FX E130-M2	1NO-1NC	FX E131-M2	1NO-1NC
Max. speed		1 m/s		1 m/s		page 215 - type 1		page 215 - type 1	
Actuating force		0.07 Nm		0.12 Nm		0.06 Nm (0.25 Nm →)		0.06 Nm (0.25 Nm →)	
Travel diagrams		page 216 - group 4		page 216 - group 4		page 216 - group 5		page 216 - group 5	

Contact block		Square rod, 3x3 mm			Round rod, Ø 3 mm, stainless steel		Other rollers available. See on page 90	
								
5	R	FX 533-M2	FX 534-M2	1NO+1NC	FX 550-M2	1NO+1NC	FX 551-M2 →	1NO+1NC
6	L	FX 633-M2	FX 634-M2	1NO+1NC	FX 650-M2	1NO+1NC	FX 651-M2 →	1NO+1NC
7	LO	FX 733-M2	FX 734-M2	1NO+1NC	FX 750-M2	1NO+1NC	FX 751-M2 →	1NO+1NC
9	L	FX 933-M2	FX 934-M2	2NC	FX 950-M2	2NC	FX 951-M2 →	2NC
10	L	FX 1033-M2	FX 1034-M2	2NO	FX 1050-M2	2NO	FX 1051-M2	2NO
11	R	FX 1133-M2	FX 1134-M2	2NC	FX 1150-M2	2NC	FX 1151-M2 →	2NC
12	R	FX 1233-M2	FX 1234-M2	2NO	FX 1250-M2	2NO	FX 1251-M2	2NO
13	LV	FX 1333-M2	FX 1334-M2	2NC	FX 1350-M2	2NC	FX 1351-M2 →	2NC
14	LS	FX 1433-M2	FX 1434-M2	2NC	FX 1450-M2	2NC	FX 1451-M2 →	2NC
15	LS	FX 1533-M2	FX 1534-M2	2NO	FX 1550-M2	2NO	FX 1551-M2	2NO
16	LI	FX 1633-M2	FX 1634-M2	2NC	FX 1650-M2	2NC	FX 1651-M2 →	2NC
18	LA	FX 1833-M2	FX 1834-M2	1NO+1NC	FX 1850-M2	1NO+1NC	FX 1851-M2 →	1NO+1NC
20	L	FX 2033-M2	FX 2034-M2	1NO+2NC	FX 2050-M2	1NO+2NC	FX 2051-M2 →	1NO+2NC
21	L	FX 2133-M2	FX 2134-M2	3NC	FX 2150-M2	3NC	FX 2151-M2 →	3NC
22	L	FX 2233-M2	FX 2234-M2	2NO+1NC	FX 2250-M2	2NO+1NC	FX 2251-M2 →	2NO+1NC
2	R	FX 233-M2	FX 234-M2	2x(1NO-1NC)	FX 250-M2	2x(1NO-1NC)	FX 251-M2	2x(1NO-1NC)
E1		FX E133-M2	FX E134-M2	1NO-1NC	FX E150-M2	1NO-1NC	FX E151-M2	1NO-1NC
Max. speed		1.5 m/s	1.5 m/s		1.5 m/s		page 215 - type 1	
Actuating force		0.06 Nm	0.06 Nm		0.06 Nm		0.06 Nm (0.25 Nm →)	
Travel diagrams		page 216 - group 5	page 216 - group 5		page 216 - group 5		page 216 - group 5	

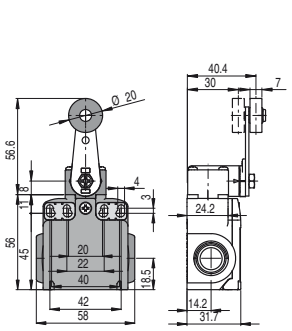
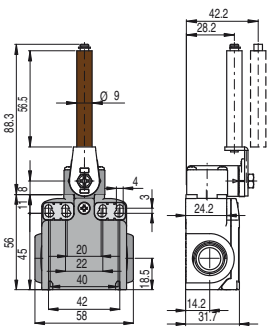
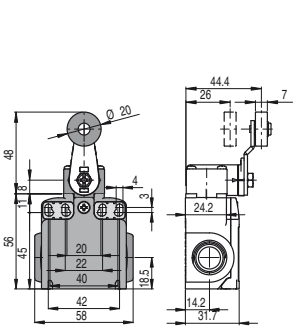
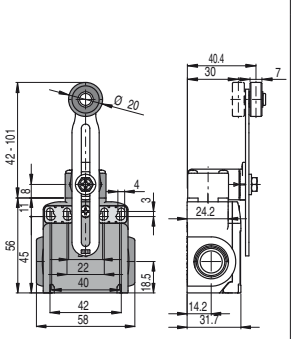
All values in the drawings are in mm

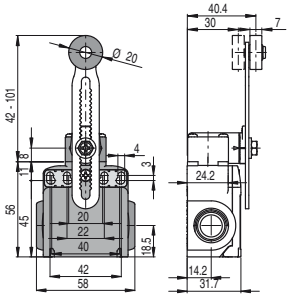
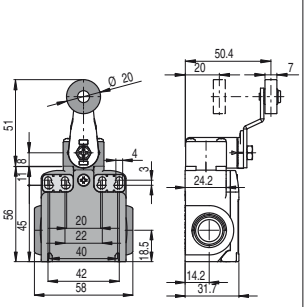
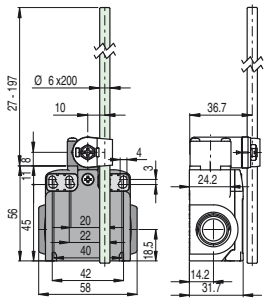
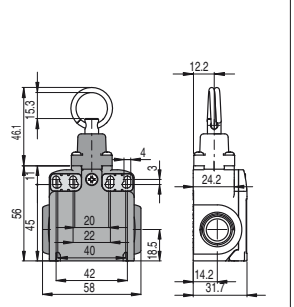
Accessories See page 197

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

Contact type:

R = snap action
L = slow action
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		Other rollers available. See on page 90	Porcelain roller	Other rollers available. See on page 90	Other rollers available. See on page 90
					
5	R	FX 552-M2 → 1NO+1NC	FX 553-E0M2V9 → 1NO+1NC	FX 554-M2 → 1NO+1NC	FX 555-M2 → (1) 1NO+1NC
6	L	FX 652-M2 → 1NO+1NC	FX 653-E0M2V9 → 1NO+1NC	FX 654-M2 → 1NO+1NC	FX 655-M2 → (1) 1NO+1NC
7	LO	FX 752-M2 → 1NO+1NC	FX 753-E0M2V9 → 1NO+1NC	FX 754-M2 → 1NO+1NC	FX 755-M2 → (1) 1NO+1NC
9	L	FX 952-M2 → 2NC	FX 953-E0M2V9 → 2NC	FX 954-M2 → 2NC	FX 955-M2 → (1) 2NC
10	L	FX 1052-M2 2NO	FX 1053-E0M2V9 2NO	FX 1054-M2 2NO	FX 1055-M2 2NO
11	R	FX 1152-M2 → 2NC		FX 1154-M2 → 2NC	FX 1155-M2 → (1) 2NC
12	R	FX 1252-M2 2NO	FX 1253-E0M2V9 2NO	FX 1254-M2 2NO	FX 1255-M2 2NO
13	LV	FX 1352-M2 → 2NC	FX 1353-E0M2V9 → 2NC	FX 1354-M2 → 2NC	FX 1355-M2 → (1) 2NC
14	LS	FX 1452-M2 → 2NC	FX 1453-E0M2V9 → 2NC	FX 1454-M2 → 2NC	FX 1455-M2 → (1) 2NC
15	LS	FX 1552-M2 2NO	FX 1553-E0M2V9 2NO	FX 1554-M2 2NO	FX 1555-M2 2NO
16	LI	FX 1652-M2 → 2NC		FX 1654-M2 → 2NC	FX 1655-M2 → (1) 2NC
18	LA	FX 1852-M2 → 1NO+1NC	FX 1853-E0M2V9 → 1NO+1NC	FX 1854-M2 → 1NO+1NC	FX 1855-M2 → (1) 1NO+1NC
20	L	FX 2052-M2 → 1NO+2NC	FX 2053-E0M2V9 → 1NO+2NC	FX 2054-M2 → 1NO+2NC	FX 2055-M2 → (1) 1NO+2NC
21	L	FX 2152-M2 → 3NC	FX 2153-E0M2V9 → 3NC	FX 2154-M2 → 3NC	FX 2155-M2 → (1) 3NC
22	L	FX 2252-M2 → 2NO+1NC	FX 2253-E0M2V9 → 2NO+1NC	FX 2254-M2 → 2NO+1NC	FX 2255-M2 → (1) 2NO+1NC
2	R	FX 252-M2 2x(1NO-1NC)	FX 253-E0M2 2x(1NO-1NC)	FX 254-M2 2x(1NO-1NC)	FX 255-M2 2x(1NO-1NC)
E1		FX E152-M2 1NO-1NC	FX E153-E0M2V9 1NO-1NC	FX E154-M2 1NO-1NC	FX E155-M2 1NO-1NC
Max. speed		page 215 - type 1	0.5 m/s	page 215 - type 1	page 215 - type 1
Actuating force		0.06 Nm (0.25 Nm →)	0.03 Nm (0.25 Nm →)	0.06 Nm (0.25 Nm →)	0.06 Nm (0.25 Nm →)
Travel diagrams		page 216 - group 5	page 216 - group 6	page 216 - group 5	page 216 - group 5

Contact block		Other rollers available. See on page 90	Other rollers available. See on page 90	Glass fibre rod	Rope switch for signalling
					
5	R	FX 556-M2 → 1NO+1NC	FX 557-M2 → 1NO+1NC	FX 569-M2 1NO+1NC	FX 576-M2 1NO+1NC
6	L	FX 656-M2 → 1NO+1NC	FX 657-M2 → 1NO+1NC	FX 669-M2 1NO+1NC	FX 676-M2 1NO+1NC
7	LO	FX 756-M2 → 1NO+1NC	FX 757-M2 → 1NO+1NC	FX 769-M2 1NO+1NC	FX 776-M2 1NO+1NC
9	L	FX 956-M2 → 2NC	FX 957-M2 → 2NC	FX 969-M2 2NC	FX 976-M2 2NO
10	L	FX 1056-M2 2NO	FX 1057-M2 2NO	FX 1069-M2 2NO	FX 1076-M2 2NC
11	R	FX 1156-M2 → 2NC	FX 1157-M2 → 2NC	FX 1169-M2 2NC	FX 1176-M2 2NO
12	R	FX 1256-M2 2NO	FX 1257-M2 2NO	FX 1269-M2 2NO	FX 1276-M2 2NC
13	LV	FX 1356-M2 → 2NC	FX 1357-M2 → 2NC	FX 1369-M2 2NC	FX 1376-M2 2NO
14	LS	FX 1456-M2 → 2NC	FX 1457-M2 → 2NC	FX 1469-M2 2NC	FX 1476-M2 2NO
15	LS	FX 1556-M2 2NO	FX 1557-M2 2NO	FX 1569-M2 2NO	FX 1576-M2 2NC
16	LI	FX 1656-M2 → 2NC	FX 1657-M2 → 2NC	FX 1669-M2 2NC	
18	LA	FX 1856-M2 → 1NO+1NC	FX 1857-M2 → 1NC+1NO	FX 1869-M2 1NC+1NO	FX 1876-M2 1NO+1NC
20	L	FX 2056-M2 → 1NO+2NC	FX 2057-M2 → 1NO+2NC	FX 2069-M2 1NO+2NC	FX 2076-M2 2NO+1NC
21	L	FX 2156-M2 → 3NC	FX 2157-M2 → 3NC	FX 2169-M2 3NC	FX 2176-M2 3NO
22	L	FX 2256-M2 → 2NO+1NC	FX 2257-M2 → 2NO+1NC	FX 2269-M2 2NO+1NC	FX 2276-M2 1NO+2NC
2	R	FX 256-M2 2x(1NO-1NC)	FX 257-M2 2x(1NO-1NC)	FX 269-M2 2x(1NO-1NC)	FX 276-M2 2x(1NO-1NC)
E1		FX E156-M2 1NO-1NC	FX E157-M2 1NO-1NC	FX E169-M2 1NO-1NC	
Max. speed		page 215 - type 1	page 215 - type 1	1.5 m/s	0.5 m/s
Actuating force		0.06 Nm (0.25 Nm →)	0.06 Nm (0.25 Nm →)	0.06 Nm	initial 20 N - final 40 N
Travel diagrams		page 216 - group 5	page 216 - group 5	page 216 - group 5	page 216 - group 7

(1) Positive opening only with actuator set to max. See page 89.

All values in the drawings are in mm

Accessories See page 197

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

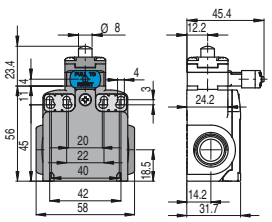
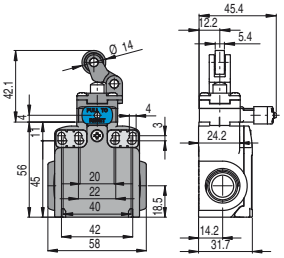
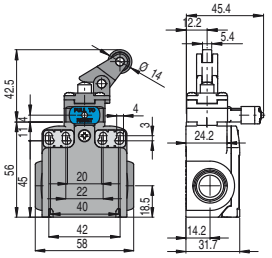
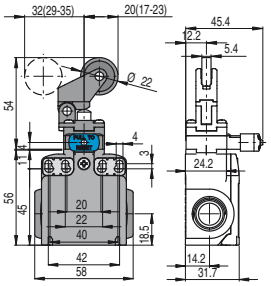
FX series position switches with reset

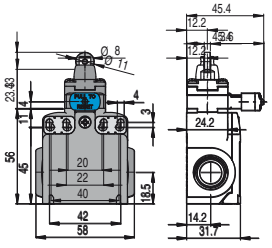
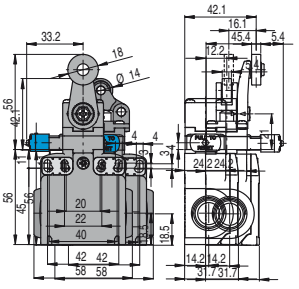
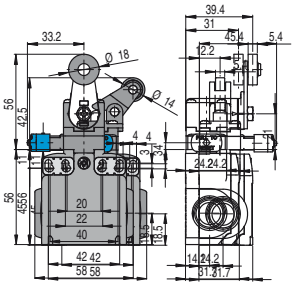
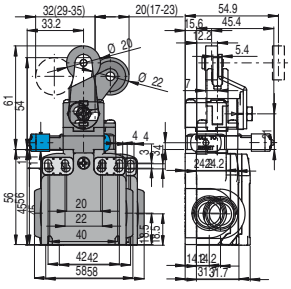
Pizzato Elettrica has developed a reset device code W3 to make perfectly simultaneous the actuator and the contact block tripping. This new device consists in a block to be mounted between the body and the head of the switch that can be rotated independently from the head. This new device offers the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

R = snap action
L = slow action

Contact block					
			With stainless steel roller on request 	With stainless steel roller on request 	
6	L	FX 601-W3M2 → 1NO+1NC	FX 602-W3M2 → 1NO+1NC	FX 605-W3M2 → 1NO+1NC	FX 607-W3M2 → 1NO+1NC
9	L	FX 901-W3M2 → 2NC	FX 902-W3M2 → 2NC	FX 905-W3M2 → 2NC	FX 907-W3M2 → 2NC
10	L	FX 1001-W3M2 2NO	FX 1002-W3M2 2NO	FX 1005-W3M2 2NO	FX 1007-W3M2 2NO
20	L	FX 2001-W3M2 → 1NO+2NC	FX 2002-W3M2 → 1NO+2NC	FX 2005-W3M2 → 1NO+2NC	FX 2007-W3M2 → 1NO+2NC
21	L	FX 2101-W3M2 → 3NC	FX 2102-W3M2 → 3NC	FX 2105-W3M2 → 3NC	FX 2107-W3M2 → 3NC
22	L	FX 2201-W3M2 → 2NO+1NC	FX 2202-W3M2 → 2NO+1NC	FX 2205-W3M2 → 2NO+1NC	FX 2207-W3M2 → 2NO+1NC
2	R	FX 201-W3M2 2NO+2NC	FX 202-W3M2 2NO+2NC	FX 205-W3M2 2NO+2NC	FX 207-W3M2 2NO+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

Contact block					
		With Ø 12 mm stainless steel roller on request 	With Ø 20 mm stainless steel roller on request 	Other rollers available. See on page 90 	Other rollers available. See on page 90 
6	L	FX 615-W3M2 → 1NO+1NC	FX 630-W3M2 → 1NO+1NC	FX 631-W3M2 → 1NO+1NC	FX 651-W3M2 → 1NO+1NC
9	L	FX 915-W3M2 → 2NC	FX 930-W3M2 → 2NC	FX 931-W3M2 → 2NC	FX 951-W3M2 → 2NC
10	L	FX 1015-W3M2 2NO	FX 1030-W3M2 2NO	FX 1031-W3M2 2NO	FX 1051-W3M2 2NO
20	L	FX 2015-W3M2 → 1NO+2NC	FX 2030-W3M2 → 1NO+2NC	FX 2031-W3M2 → 1NO+2NC	FX 2051-W3M2 → 1NO+2NC
21	L	FX 2115-W3M2 → 3NC	FX 2130-W3M2 → 3NC	FX 2131-W3M2 → 3NC	FX 2151-W3M2 → 3NC
22	L	FX 2215-W3M2 → 2NO+1NC	FX 2230-W3M2 → 2NO+1NC	FX 2231-W3M2 → 2NO+1NC	FX 2251-W3M2 → 2NO+1NC
2	R	FX 215-W3M2 2NO+2NC	FX 230-W3M2 2NO+2NC	FX 231-W3M2 2NO+2NC	FX 251-W3M2 2NO+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

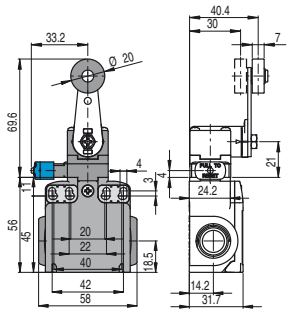
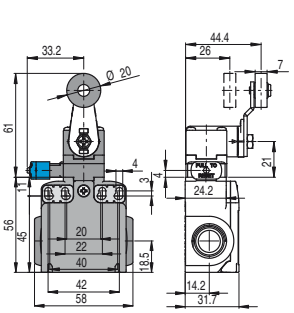
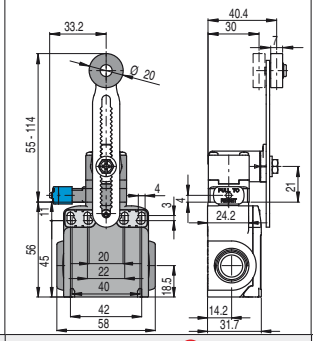
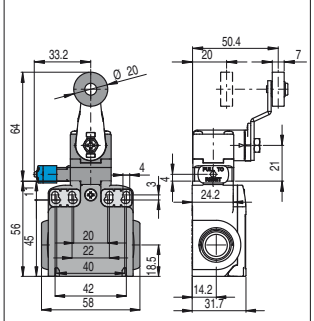
All values in the drawings are in mm

Accessories See page 197

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

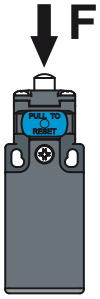
Contact type:

R = snap action
L = slow action

Contact block		Other rollers available. See on page 90	Other rollers available. See on page 90	Other rollers available. See on page 90	Other rollers available. See on page 90
					
6	L	FX 652-W3M2 → 1NO+1NC	FX 654-W3M2 → 1NO+1NC	FX 656-W3M2 → 1NO+1NC	FX 657-W3M2 → 1NO+1NC
9	L	FX 952-W3M2 → 2NC	FX 954-W3M2 → 2NC	FX 956-W3M2 → 2NC	FX 957-W3M2 → 2NC
10	L	FX 1052-W3M2 2NO	FX 1054-W3M2 2NO	FX 1056-W3M2 2NO	FX 1057-W3M2 2NO
20	L	FX 2052-W3M2 → 1NO+2NC	FX 2054-W3M2 → 1NO+2NC	FX 2056-W3M2 → 1NO+2NC	FX 2057-W3M2 → 1NO+2NC
21	L	FX 2152-W3M2 → 3NC	FX 2154-W3M2 → 3NC	FX 2156-W3M2 → 3NC	FX 2157-W3M2 → 3NC
22	L	FX 2252-W3M2 → 2NO+1NC	FX 2254-W3M2 → 2NO+1NC	FX 2256-W3M2 → 2NO+1NC	FX 2257-W3M2 → 2NO+1NC
2	R	FX 252-W3M2 2NO+2NC	FX 254-W3M2 2NO+2NC	FX 256-W3M2 2NO+2NC	FX 257-W3M2 2NO+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

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: FX 601-**W3**M2 → FX 601-**W4**M2

Accessories See page 197

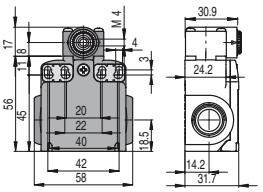
→ The 2D and 3D files are available at **www.pizzato.com**

Position switches with swivelling lever without actuator

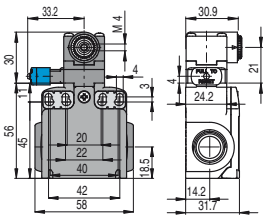
All values in the drawings are in mm

Contact type:

- R = snap action
- L = slow action
- 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



With manual reset knob



Contact block			
5	R	FX 538-M2 → 1NO+1NC	
6	L	FX 638-M2 → 1NO+1NC	FX 638-W3M2 → 1NO+1NC
7	LO	FX 738-M2 → 1NO+1NC	
9	L	FX 938-M2 → 2NC	FX 938-W3M2 → 2NC
10	L	FX 1038-M2 2NO	FX 1038-W3M2 2NO
11	R	FX 1138-M2 → 2NC	
12	R	FX 1238-M2 2NO	
13	LV	FX 1338-M2 → 2NC	
14	LS	FX 1438-M2 → 2NC	
15	LS	FX 1538-M2 2NO	
16	LI	FX 1638-M2 → 2NC	
18	LA	FX 1838-M2 → 1NO+1NC	
20	L	FX 2038-M2 → 1NO+2NC	FX 2038-W3M2 → 1NO+2NC
21	L	FX 2138-M2 → 3NC	FX 2138-W3M2 → 3NC
22	L	FX 2238-M2 → 2NO+1NC	FX 2238-W3M2 → 2NO+1NC
2	R	FX 238-M2 2x(1NO-1NC)	FX 238-W3M2 2NO+2NC
E1		FX E138-M2 1NO-1NC	
Actuating force		0.06 Nm (0.25 Nm →)	0.07 Nm (0.25 Nm →)
Travel diagrams		page 216 - group 5	page 217 - group 4

IMPORTANT

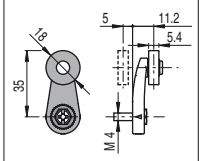
For safety applications: join only switches and actuators marked with symbol → next to the product code.
For more information about safety applications see details on page 211.

Separate actuators

All values in the drawings are in mm

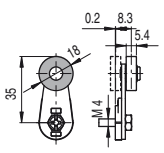
IMPORTANT: These separate actuators can be used only with items of the FR, FM, FX, FZ and FK series.

Technopolymer roller Ø 18 mm



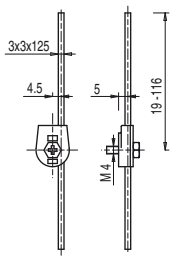
VF LE30 →

Technopolymer roller Ø 18 mm



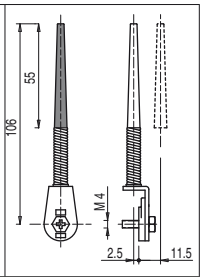
VF LE31 →

Adjustable square rod, 3x3x125 mm



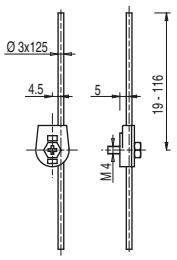
VF LE33

Flexible rod with pointed end



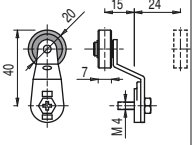
VF LE34

Adjustable round rod Ø 3x125 mm



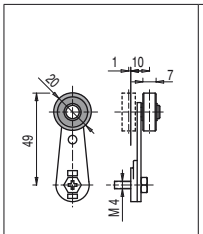
VF LE50

Technopolymer roller Ø 20 mm



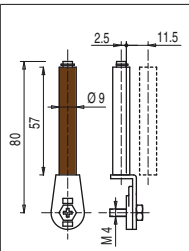
VF LE51 →

Technopolymer roller Ø 20 mm



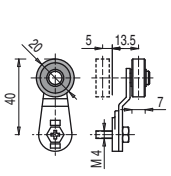
VF LE52 →

Porcelain roller



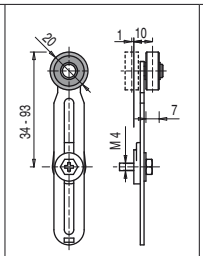
VF LE53 → (2)

Technopolymer roller Ø 20 mm



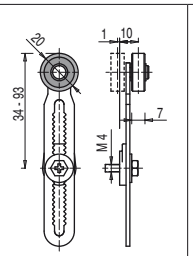
VF LE54 →

Adjustable actuator with technopolymer roller



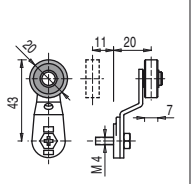
VF LE55 → (1)

Adjustable safety actuator with technopolymer roller



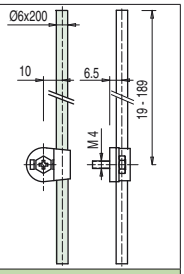
VF LE56 →

Technopolymer roller Ø 20 mm



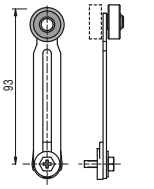
VF LE57 →

Adjustable glass fibre rod



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 FX •38-M2 (e.g. FX 538-M2, FX 638-M2...) with actuator VF L53 will not present the same travel diagrams and actuating forces as switch FX •53-E0M2V9 (e.g. FX 553-E0M2V9, FX 653-E0M2V9...).
- (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

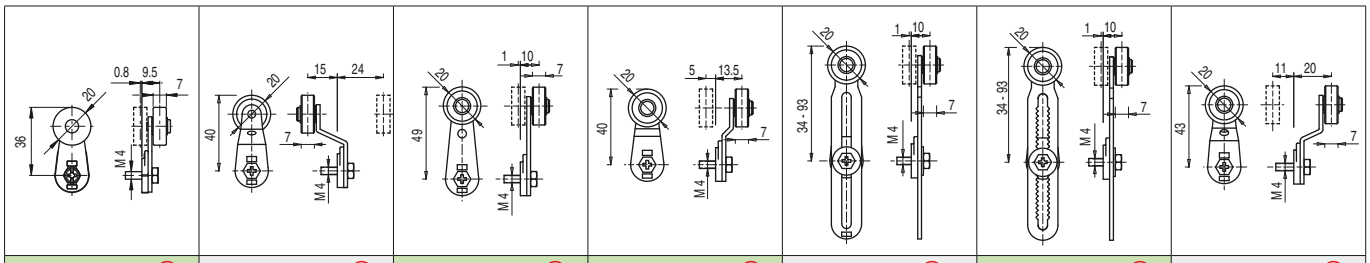
→ The 2D and 3D files are available at **www.pizzato.com**

Special separate actuators

All values in the drawings are in mm

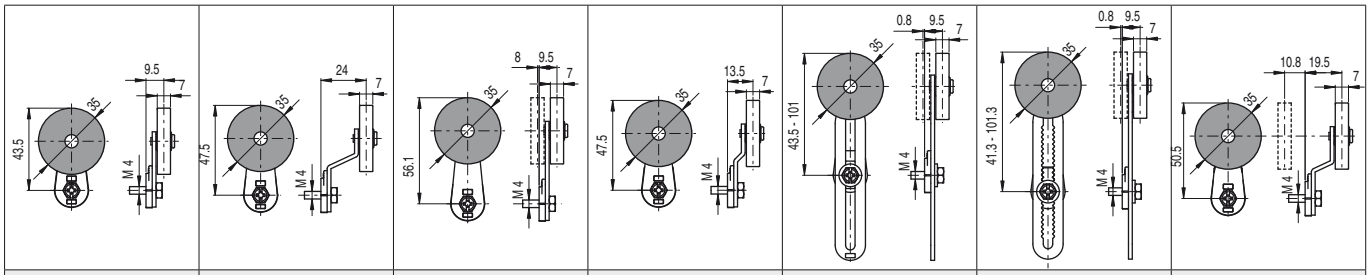
IMPORTANT: These separate actuators can be used only with items of the FR, FM, FX, FZ and FK series.

Stainless steel rollers, Ø 20 mm



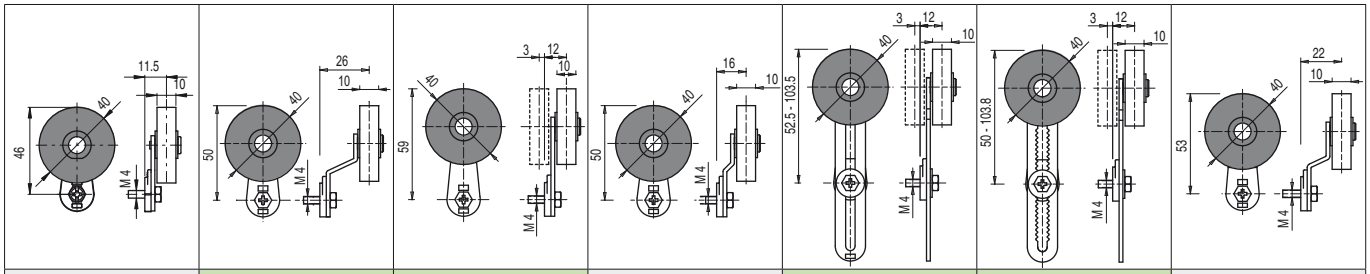
VF LE31-R24 | VF LE51-R24 | VF LE52-R24 | VF LE54-R24 | VF LE55-R24 (1) | VF LE56-R24 | VF LE57-R24

Technopolymer rollers, Ø 35 mm



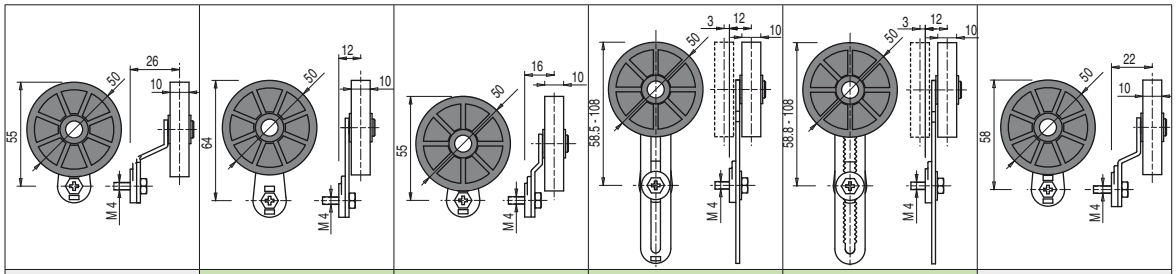
VF LE31-R25 (4) | VF LE51-R25 (4) | VF LE52-R25 | VF LE54-R25 (4) | VF LE55-R25 (1) | VF LE56-R25 | VF LE57-R25

Rubber rollers, Ø 40 mm



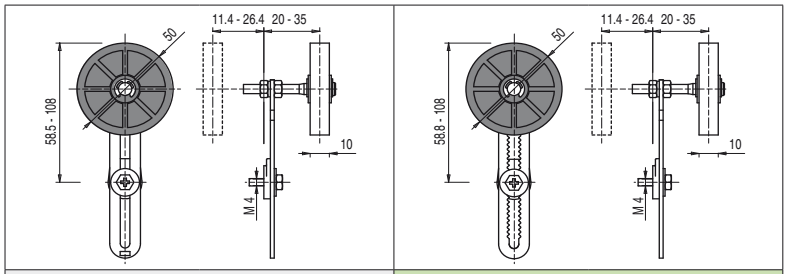
VF LE31-R5 (4) | VF LE51-R5 (4) | VF LE52-R5 | VF LE54-R5 (4) | VF LE55-R5 (1) | VF LE56-R5 | VF LE57-R5 (4)

Rubber rollers, Ø 50 mm



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

Protruding rubber rollers, Ø 50 mm



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

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

Accessories See page 197

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