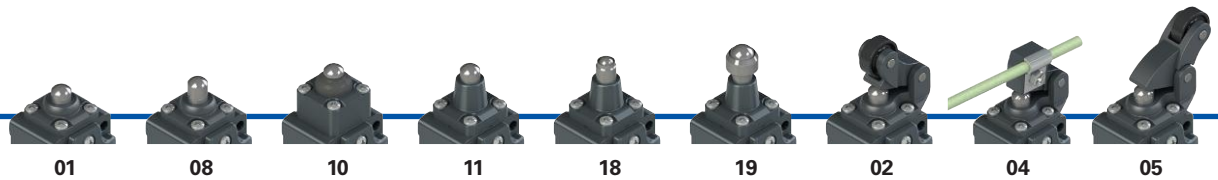
Selection diagram



01

08

10
External gasket

11
Ball
Ø 8 mm
stainless steel

18

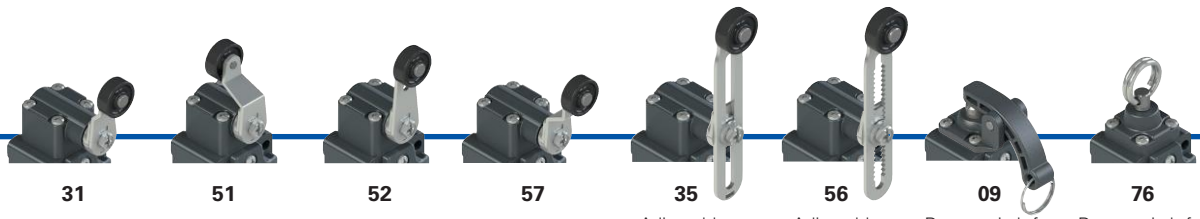
19
Ball Ø 12.7 mm,
stainless steel

02

04
Glass fibre rod

05

15
Steel roller
with self-
lubrication and
external gasket



31

51

52

57

35
Adjustable
lever

56
Adjustable
safety lever

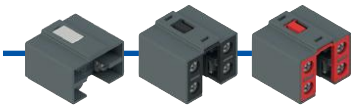
09
Rope switch for
signalling

76
Rope switch for
signalling

ACTUATORS



CONTACT BLOCKS



3
1NO-1NC
snap action

33
1NO+1NC
slow action

34
2NC
slow action

CONDUIT ENTRY



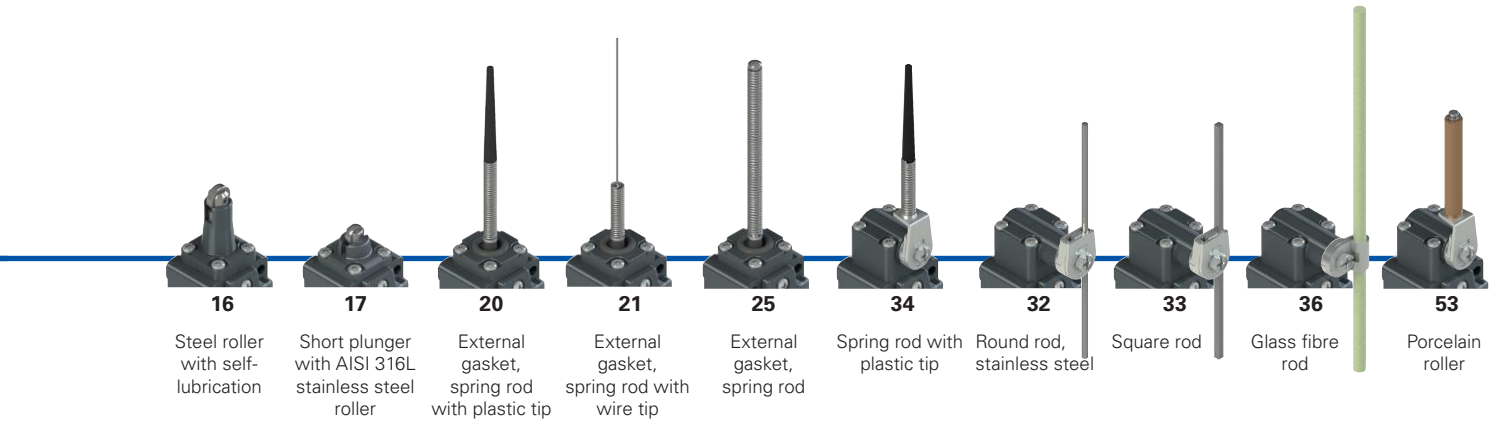
Threaded conduit entry	
M2	M20x1.5 (standard)
	PG 11

With cable gland	
K23	for cables Ø 6 … 12 mm
K27	for cables Ø 3 … 7 mm

With M12 metal connector	
K50	5-pole, bottom

Product options

Sold separately as accessory



16 Steel roller with self-lubrication

17 Short plunger with AISI 316L stainless steel roller

20 External gasket, spring rod with plastic tip

21 External gasket, spring rod with wire tip

25 External gasket, spring rod

34 Spring rod with plastic tip

32 Round rod, stainless steel

33 Square rod

36 Glass fibre rod

53 Porcelain roller



38 Without actuator

58 Without actuator

SEPARATE ACTUATORS
See page 51



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

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

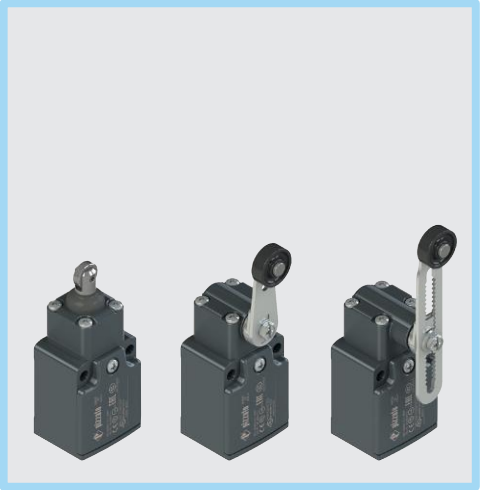
Threaded conduit entry	
M2	M20x1.5 (standard)
	PG11

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

Rollers	
	standard roller
R24	steel, with self-lubrication, Ø 20 mm (for actuators 02, 05, 31, 35, 51, 52, 56, 57)
R41	316L 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

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



Main features

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

Technical data

Housing
Metal housing, powder-coated

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

General data

Ambient temperature:	-25°C … +80°C (standard) -40°C … +80°C (T6 option)
Max. actuation frequency:	3600 operating cycles/hour
Mechanical endurance:	20 million operating cycles
Mounting position:	any
Safety parameter B_{10D}:	40,000,000 for NC contacts
Mechanical interlock, not coded:	type 1 acc. to EN ISO 14119
Tightening torques for installation:	see page 219
Wire cross-sections and wire stripping lengths:	see page 239

In compliance with standards:
IEC 60947-5-1, EN 60947-5-1, IEC 60947-1, 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:	2024010305654835
EAC approval:	RU Д-IT.PA07.B.37848/24

Installation for safety applications:
Use only switches marked with the ⊖ 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 220. 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 chapter Utilization requirements from page 217 to page 232.**

	Electrical data		Utilization category			
without connector	Thermal current (I_{th}):	10 A	Alternating current: AC15 (50÷60 Hz)			
	Rated insulation voltage (U_i):	500 Vac 600 Vdc 400 Vac 500 Vdc (contact blocks 33, 34)	Ue (V)	250	400	500
	Rated impulse withstand voltage (U_{imp}):	6 kV 4 kV (contact blocks 33, 34)	Ie (A)	6	4	1
	Conditional short circuit current:	1000 A acc. to EN 60947-5-1	Direct current: DC13			
	Protection against short circuits:	type aM fuse 10 A 500 V	Ue (V)	24	125	250
	Pollution degree:	3	Ie (A)	3	0.55	0.3
with M12 connector, 5-pole	Thermal current (I_{th}):	4 A	Alternating current: AC15 (50÷60 Hz)			
	Rated insulation voltage (U_i):	250 Vac 300 Vdc	Ue (V)	24	120	250
	Protection against short circuits:	type gG fuse 4 A 500 V	Ie (A)	4	4	4
	Pollution degree:	3	Direct current: DC13			
			Ue (V)	24	125	250
			Ie (A)	3	0.55	0.3

Features approved by IMQ

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

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

Features approved by UL

Electrical Ratings:	Q300 pilot duty (69 VA, 125-250 Vdc) A600 pilot duty (720 VA, 120 … 600 V ac)
Environmental Ratings:	Types 1, 4X, 12, 13

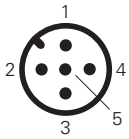
For all contact blocks except 2 and 3 use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 12, 14 AWG. Tightening torque for terminal screws of 7.1 lb in (0.8 Nm).

For contact blocks 2 and 3 use 60 or 75°C copper (Cu) conductors, rigid or flexible, wire size 14 AWG. Tightening torque for terminal screws of 12 lb in (1.4 Nm).

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

Wiring diagram for M12 connectors

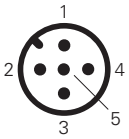
Contact block 3
1NO-1NC



M12 connector, 5-pole

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

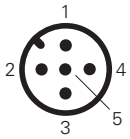
Contact block 33
1NO+1NC



M12 connector, 5-pole

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

Contact block 34
2NC



M12 connector, 5-pole

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

FC series position switches

Contact type
R = snap action
L = slow action

Contact block							
			With steel roller with self-lubrication or 316L stainless steel on request			With steel roller with self-lubrication or 316L stainless steel on request	
3	R	FC 301-M2	1NO-1NC	FC 302-M2	1NO-1NC	FC 304-M2	1NO-1NC	FC 305-M2	1NO-1NC
33	L	FC 3301-M2	1NO+1NC	FC 3302-M2	1NO+1NC	FC 3304-M2	1NO+1NC	FC 3305-M2	1NO+1NC
34	L	FC 3401-M2	2NC	FC 3402-M2	2NC	FC 3404-M2	2NC	FC 3405-M2	2NC
Max. speed		page 219 - type 4		page 219 - type 3		0.5 m/s		page 219 - type 3	
Actuating force		6 N (25 N →)		4 N (25 N →)		0.17 Nm		4 N (25 N →)	
Travel diagrams		page 220 - group 1		page 220 - group 2		page 220 - group 1		page 220 - group 2	

Contact type
R = snap action
L = slow action

Contact block									
				Rope switch for signalling		External gasket			
3	R	FC 308-M2	1NO-1NC	FC 309-M2	1NO-1NC	FC 310-M2	1NO-1NC	FC 311-M2	1NO-1NC
33	L	FC 3308-M2	1NO+1NC	FC 3309-M2	1NO+1NC	FC 3310-M2	1NO+1NC	FC 3311-M2	1NO+1NC
34	L	FC 3408-M2	2NC	FC 3409-M2	2NC	FC 3410-M2	2NC	FC 3411-M2	2NC
Max. speed		page 219 - type 4		0.5 m/s		page 219 - type 4		page 219 - type 4	
Actuating force		6 N (25 N →)		7 Nm		7 N (25 N →)		6 N (25 N →)	
Travel diagrams		page 220 - group 1		/		page 220 - group 1		page 220 - group 1	

Contact type
R = snap action
L = slow action

Contact block									
		External gasket				Ball, Ø 8 mm, stainless steel		Ball, Ø 12.7 mm, stainless steel	
3	R	FC 315-M2	1NO-1NC	FC 316-M2	1NO-1NC	FC 318-M2	1NO-1NC	FC 319-M2	1NO-1NC
33	L	FC 3315-M2	1NO+1NC	FC 3316-M2	1NO+1NC	FC 3318-M2	1NO+1NC	FC 3319-M2	1NO+1NC
34	L	FC 3415-M2	2NC	FC 3416-M2	2NC	FC 3418-M2	2NC	FC 3419-M2	2NC
Max. speed		page 219 - type 2		page 219 - type 2		page 219 - type 4		page 219 - type 4	
Actuating force		7 N (25 N →)		6 N (25 N →)		6 N (25 N →)		6 N (25 N →)	
Travel diagrams		page 220 - group 1		page 220 - group 1		page 220 - group 1		page 220 - group 1	

All values in the drawings are in mm

Accessories See page 195

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

Contact type
R = snap action
L = slow action

Contact block		External gasket		External gasket		External gasket		Other rollers available. See page 52	
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 219 - type 1	
Actuating force		0.07 Nm		0.06 Nm		0.1 Nm		0.09 Nm (0.25 Nm →)	
Travel diagrams		page 220 - group 3		page 220 - group 3		page 220 - group 3		page 220 - group 4	

Contact type
R = snap action
L = slow action

Contact block		Round rod, Ø 3 mm, stainless steel		Square rod, 3x3 mm				Other rollers available. See page 52	
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 →(1)	1NO+1NC
34	L	FC 3432-M2	2NC	FC 3433-M2	2NC	FC 3434-M2	2NC	FC 3435-M2 →(1)	2NC
Max. speed		1.5 m/s		1.5 m/s		1 m/s		page 219 - type 1	
Actuating force		0.09 Nm		0.09 Nm		0.09 Nm		0.09 Nm (0.25 Nm →)	
Travel diagrams		page 220 - group 4		page 220 - group 4		page 220 - group 4		page 220 - group 4	

Contact type
R = snap action
L = slow action

Contact block		Glass fibre rod		Other rollers available. See page 52		Other rollers available. See page 52		Porcelain roller	
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 219 - type 1		page 219 - 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 220 - group 4		page 220 - group 4		page 220 - group 4		page 220 - 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 195

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

FC series position switches

Contact type
R = snap action
L = slow action

Contact block		Other rollers available. See page 52		Other rollers available. See page 52		Rope switch for signalling	
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 219 - type 1		page 219 - type 1		0.5 m/s	
Actuating force		0.09 N (0.25 Nm ⊕)		0.09 N (0.25 Nm ⊕)		initial 20 N - final 40 N	
Travel diagrams		page 220 - group 4		page 220 - group 4		page 220 - group 6	

Position switches with swivelling lever without actuator

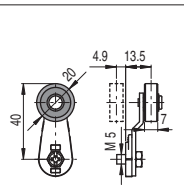
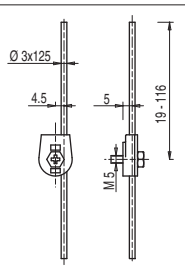
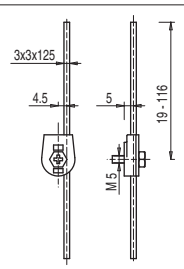
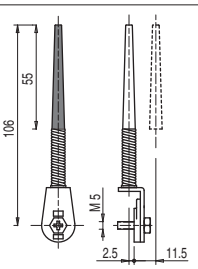
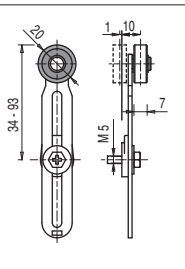
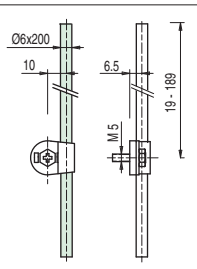
Contact type
R = snap action
L = slow action

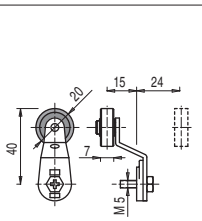
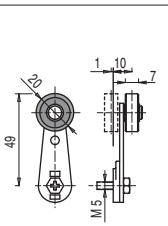
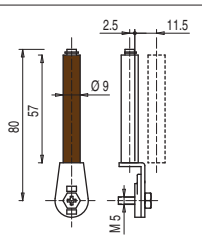
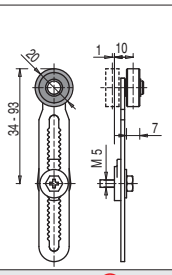
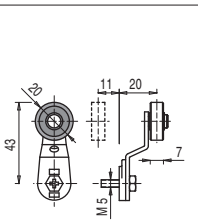
Contact block		Regular head		Compact head	
3	R	FC 338-M2	1NO-1NC	FC 358-M2	1NO-1NC
33	L	FC 3338-M2 ⊕	1NO+1NC	FC 3358-M2 ⊕	1NO+1NC
34	L	FC 3438-M2 ⊕	2NC	FC 3458-M2 ⊕	2NC
Actuating force		0.09 Nm (0.25 Nm ⊕)		0.05 Nm (0.25 Nm ⊕)	
Travel diagrams		page 220 - group 4		page 220 - group 4	

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 217.

Separate actuators

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

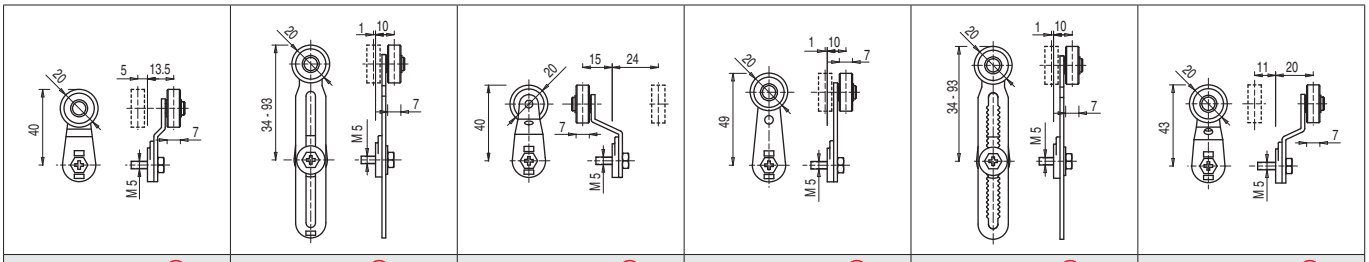
Accessories See page 195

→ 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, and FC series.

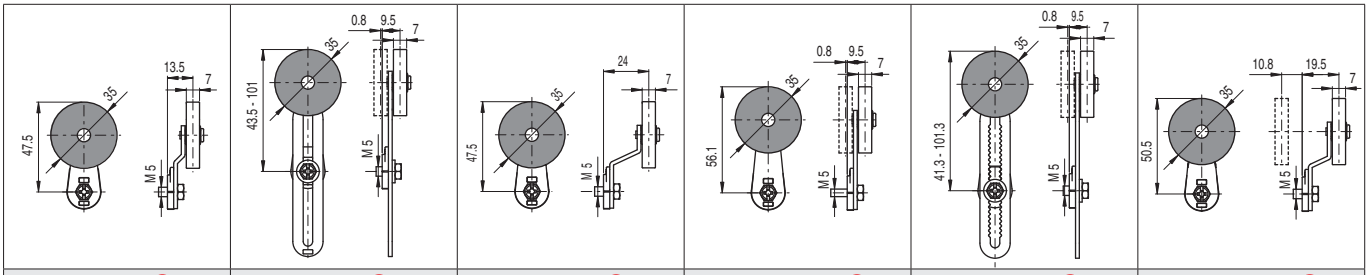
Steel rollers, Ø 20 mm, with self-lubrication



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

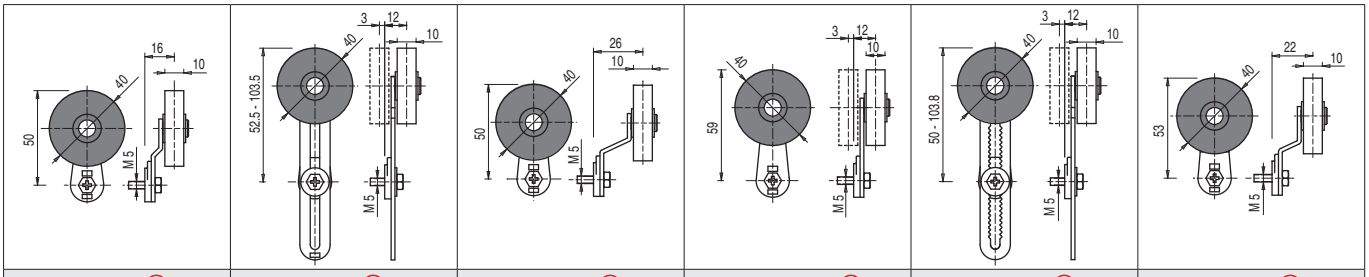
Note: To order with 316L stainless steel roller: replace R24 with R41 in the order numbers.

Technopolymer rollers, Ø 35 mm



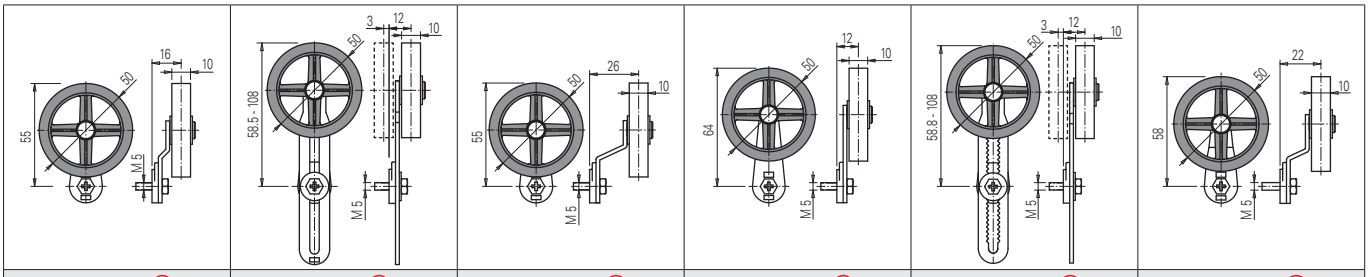
VF L31-R25 (4) | VF L35-R25 (1) (3) | VF L51-R25 (4) | VF L52-R25 | VF L56-R25 (3) | VF L57-R25

Rubber rollers, Ø 40 mm



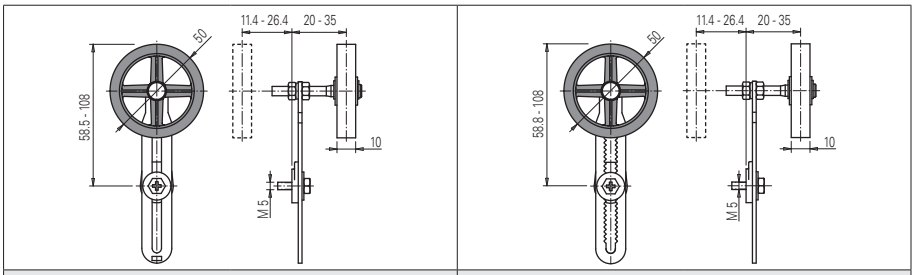
VF L31-R5 (4) | VF L35-R5 (1) (3) | VF L51-R5 (4) | VF L52-R5 | VF L56-R5 (3) | VF L57-R5 (4)

Rubber rollers, Ø 50 mm



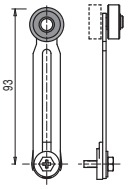
VF L31-R26 (4) | VF L35-R26 (1) (3) | VF L51-R26 (4) | VF L52-R26 (4) | VF L56-R26 (3) | VF L57-R26 (4)

Protruding rubber rollers, Ø 50 mm



VF L35-R27 (1) (3) | VF L56-R27 (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 195

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