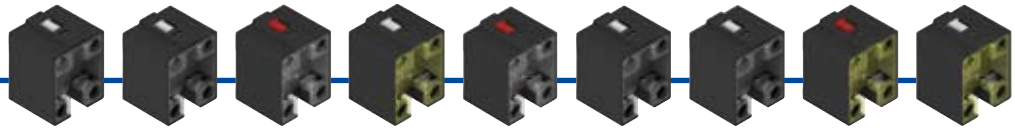
Selection diagram

01 | **08** | **10** external rubber gasket | **11** | **18** Ø 8 mm stainless steel sphere | **19** Ø 12,7 mm stainless steel sphere | **02** | **04** fiber glass rod | **05**

31 | **51** | **52** | **57** | **35** adjustable lever | **56** safety adjustable lever | **41** bistable | **42** bistable

ACTUATORS

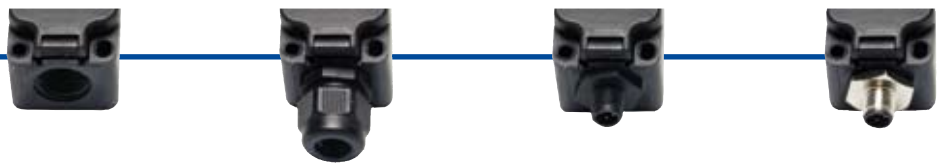
CONTACT BLOCKS



5 1NO+1NC snap action | **6** 1NO+1NC slow action | **7** 1NO+1NC slow action overlapped | **9** 2NC slow action | **10** 2NO slow action | **11** 2NC snap action | **12** 2NO snap action | **13** 2NC slow action shifted and spaced | **14** 2NC slow action shifted

15 2NO slow action shifted | **16** 2NC slow action independent | **18** 1NO+1NC slow action closer | **20** 1NO+2NC slow action | **21** 3NC slow action | **22** 2NO+1NC slow action | **2** 2x(1NO-1NC) snap action | **E1** 1NO-1NC electronic PNP

CONDUIT ENTRY



Threaded conduit entry

	PG 13,5 (standard)
M2	M20x1,5

With assembled cable gland

K21	for Ø 6 to Ø 12 mm cables range
K25	for Ø 3 to Ø 7 mm cables range

With M12 plastic connector assembled and wired

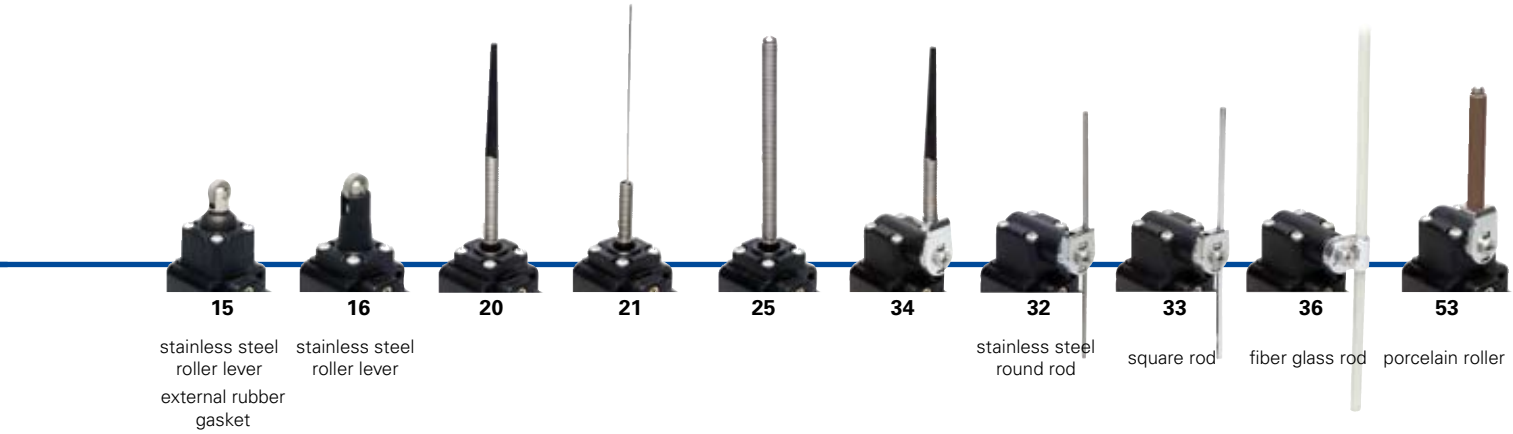
K70	4 poles from bottom
K45	8 poles from bottom

With M12 metal connector assembled and wired

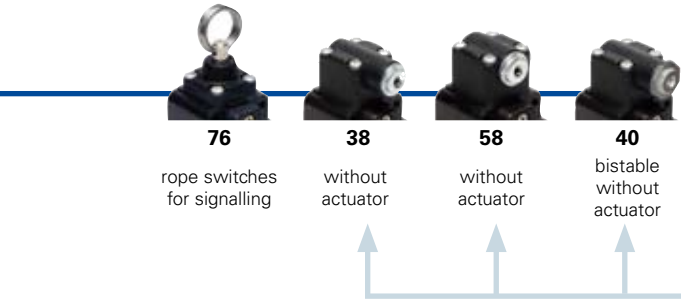
K40	8 poles from bottom
K60	4 poles from bottom

product option

accessory sold separately



15 stainless steel roller lever external rubber gasket
16 stainless steel roller lever
20
21
25
34
32 stainless steel round rod
33 square rod
36 fiber glass rod
53 porcelain roller



76 rope switches for signalling
38 without actuator
58 without actuator
40 bistable without actuator

LOOSE ACTUATORS
See page 2/21

Code structure

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

article: **FP 502** options: **-1GM2K70**

Housing	
FP	polymer housing, one conduit entry

Contact blocks	
5	1NO+1NC, snap action
6	1NO+1NC, slow action
7	1NO+1NC, slow action overlapped
...	.....

Actuators	
01	short plunger
02	roller lever
05	offset roller lever
...	.....

Preinstalled cable gland or connectors	
	no cable gland or connector (standard)
K21	assembled cable gland (see conduit entry page 2/13)
...	.....
K70	4 poles M12 assembled plastic connector (see conduit entry page 2/13)
...	.....

For the complete list of all combinations, please contact our technical office.

Threaded conduit entry	
	PG 13,5 (standard)
M2	M20x1,5

Suffix	
	no suffix (standard)
1	with Ø 20 mm stainless steel roller for actuators 02, 05, 31, 35, 51, 52, 56, 57
2	with Ø 35 mm polymer roller (see special loose actuators on page 2/22)
3	with Ø 50 mm rubber roller (see special loose actuators on page 2/22)
4	with Ø 50 mm overhanging rubber roller (see special loose actuators on page 2/22)

Contacts type	
	silver contacts (standard)
G	silver contacts gold plated 1 µm (contact block 2 excluded)

Position switches **FP** series

Main data

- Polymer housing, one conduit entry
- Protection degree IP67
- 17 contact blocks available
- 28 actuators available
- M12 assembled connector versions
- Silver contacts gold plated versions

Technical data

Housing

Made of glass-reinforced polymer, self-extinguishing, shock-proof thermoplastic resin and with double insulation ⧈
One threaded conduit entry

Protection degree:	IP67 according to EN 60529 with cable gland having equal or higher protection degree

General data

Ambient temperature:	from -25°C to +80°C

Version for operation in ambient temperature from -40°C to +80° C on request

Max actuation frequency:	3600 operations cycles[1]/hour
Mechanical endurance:	20 million operations cycles[1]
Assembling position:	any
Driving torque for installation:	see pages 7/1-7/12

(1) One operation cycle means two movements, one to close and one to open contacts, as foreseen by EN 60947-5-1 standard.

Cross section of the conductors (flexible copper wire)

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 conformity with standards:
IEC 60947-5-1, EN 60947-5-1, EN 60947-1, EN 50041, IEC 60204-1, EN 60204-1, EN 1088, EN ISO 12100-1, EN ISO 12100-2, IEC 60529, EN 60529, NFC 63-140, VDE 0660-200, VDE 0113.
Approvals:
IEC 60947-5-1, UL 508, GB14048.5-2001.

Markings and quality marks:

Approval IMQ:	EG606
Approval UL:	E131787
Approval CCC:	2007010305230014
Approval EZU:	1010151
Approval GOST:	POCC IT.AB24.B04512

In conformity with requirements requested by:
Low Voltage Directive 2006/95/EC, Machinery Directive 2006/42/EC and Electromagnetic Compatibility 2004/108/EC.
Positive contact opening in conformity with standards:
IEC 60947-5-1, EN 60947-5-1, VDE 0660-206.

Installation for safety applications:
Use only switches marked with the symbol ⊖. The safety circuit must always be connected with the **NC contacts** (normally closed contacts: 11-12, 21-22 or 31-32) as stated in the **standard EN 60947-5-1, encl. K, par. 2**. The switch must be actuated with **at least up to the positive opening travel** shown in the travels diagrams on page 7/4. The switch must be actuated **at least with the positive opening force**, shown in brackets, underneath each article, near the value of the min. force.

⚠ If not expressly indicated in this chapter, for the right installation and the correct utilization of all articles see requirements indicated from page 7/1 to page 7/12.

Electrical data

without connector

Thermal current (Ith):	10 A
Rated insulation voltage (Ui):	500 Vac 600 Vdc
	400Vac500Vdc (contact blocks 2, 11, 12, 20, 21, 22, 33, 34)
Rated impulse withstand voltage (U_{imp}):	6 kV
	4 kV (contact blocks 20, 21, 22, 33, 34)
Conditional shot circuit current:	1000 A according to EN 60947-5-1
Protection against short circuits:	fuse 10 A 500 V type aM
Pollution degree:	3

Utilization categories

Alternate 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)	6	1,1	0,4

with 4 poles M12 connector

Thermal current (Ith):	4 A
Rated insulation voltage (Ui):	250 Vac 300 Vdc
Protection against short circuits:	fuse 4 A 500 V type gG
Pollution degree:	3

Alternate current: AC15 (50...60 Hz)

Ue (V)	24	120	250
Ie (A)	4	4	4

Direct current: DC13

Ue (V)	24	125	250
Ie (A)	4	1,1	0,4

with 8 poles M12 connector

Thermal current (Ith):	2 A
Rated insulation voltage (Ui):	30 Vac 36 Vdc
Protection against short circuits:	fuse 2 A 500 V type gG
Pollution degree:	3

Alternate current: AC15 (50...60 Hz)

Ue (V)	24
Ie (A)	2

Direct current: DC13

Ue (V)	24
Ie (A)	2

Data type approved by IMQ, CCC and EZU

Rated insulation voltage (Ui): 500 Vac
400 Vac (for contact blocks 2, 11, 12, 20, 21, 22, 33, 34)
Thermal current (Ith): 10 A
Protection against short circuits: fuse 10 A 500 V type aM
Rated impulse withstand voltage (U_{imp}): 6 kV
4 kV (for contact blocks 20, 21, 22, 33, 34)
Protection degree: IP67
MV terminals (screw clamps)
Pollution degree 3
Utilization category: AC15
Operation voltage (Ue): 400 Vac (50 Hz)
Operation current (Ie): 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 block 5, 6, 7, 9, 11, 13, 14, 16, 18, 20, 21, 22, 33, 34

In conformity with standards: EN 60947-1, EN 60947-5-1+ A1:2009, fundamental requirements of the Low Voltage Directive 2006/95/CE.

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

Data type approved by UL

Utilization categories Q300 (69 VA, 125-250 Vdc)
A600 (720 VA, 120-600 Vac)
Data of the housing type 1, 4X "indoor use only", 12, 13
For all contact blocks except 2 and 3 use 60 or 75 °C copper (Cu) conductor and wire size No. 12-14 AWG. Terminal tightening torque of 7,1 lb in (0.8 Nm).
For contact blocks 2 and 3 use 60 or 75 °C copper (Cu) conductor and wire size No. 14 AWG. Terminal tightening torque of 12 lb in (1.4 Nm).

In conformity with standard: UL 508

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

Adjustable levers

In switches with revolving lever it is possible to adjust the lever with 10° steps for the whole 360° range. The positive movement transmission is always guaranteed thanks to the particular geometrical coupling between the lever and the revolving shaft as prescribed for safety applications by the German standard BG-GS-ET-15.

Overturning levers

It's possible to fasten the lever on switches on straight or reverse side, maintaining the positive coupling.
In this way it is possible to obtain two different work plans of the lever.

Rotating heads

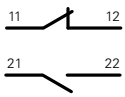
In all switches, it is possible to rotate the head in 90° steps.

Working operation of contact block 16 with independent contacts

The contact block 16 has two NC contacts**, both with positive opening** activated independently according to the lever turning direction.

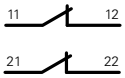
Lever turned to left

Contacts diagram



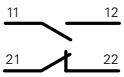
Lever not turned

Contacts diagram



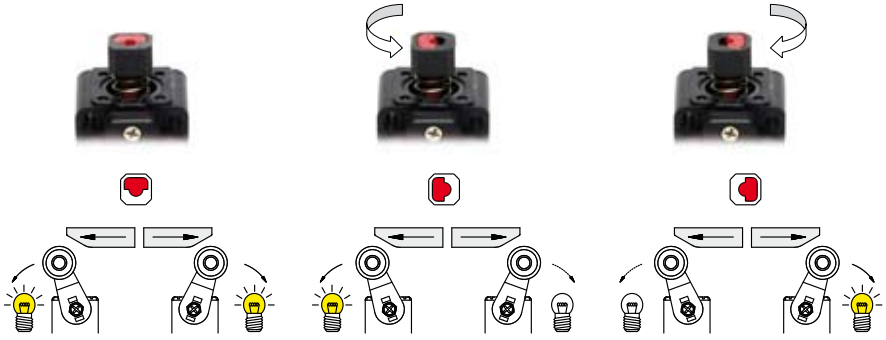
Lever turned to right

Contacts diagram



Unidirectional heads

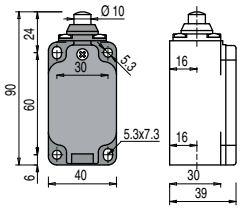
In the switches with revolving lever, it is possible to select the directional operation by removing the four screws of the head and revolving the internal piston (contact block 16 excluded).



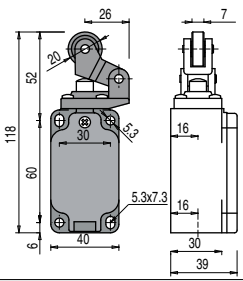
Position switches **FP** series

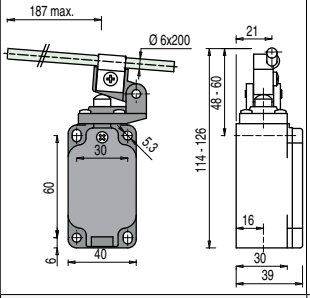
Contacts type:

- R = snap action
- L = slow action
- LO = slow action overlapped
- LS = slow action shifted
- LV = slow action shifted and spaced
- LI = slow action independent
- LA = slow action closer
- = electronic PNP

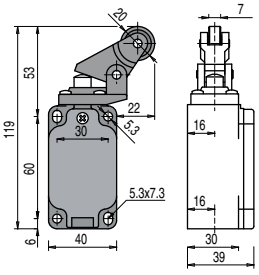


With stainless steel roller on request

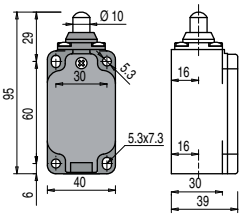




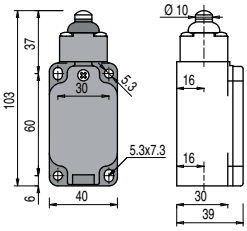
With stainless steel roller on request

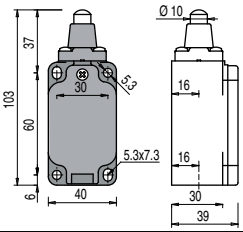


Contact blocks								
5	R	FP 501	1NO+1NC	FP 502	1NO+1NC	FP 504	1NO+1NC	FP 505	1NO+1NC
6	L	FP 601	1NO+1NC	FP 602	1NO+1NC	FP 604	1NO+1NC	FP 605	1NO+1NC
7	LO	FP 701	1NO+1NC	FP 702	1NO+1NC	FP 704	1NO+1NC	FP 705	1NO+1NC
9	L	FP 901	2NC	FP 902	2NC	FP 904	2NC	FP 905	2NC
10	L	FP 1001	2NO	FP 1002	2NO	FP 1004	2NO	FP 1005	2NO
11	R	FP 1101	2NC	FP 1102	2NC	FP 1104	2NC	FP 1105	2NC
12	R	FP 1201	2NO	FP 1202	2NO	FP 1204	2NO	FP 1205	2NO
13	LV	FP 1301	2NC	FP 1302	2NC	FP 1304	2NC	FP 1305	2NC
14	LS	FP 1401	2NC	FP 1402	2NC	FP 1404	2NC	FP 1405	2NC
15	LS	FP 1501	2NO	FP 1502	2NO	FP 1504	2NO	FP 1505	2NO
18	LA	FP 1801	1NO+1NC	FP 1802	1NO+1NC	FP 1804	1NO+1NC	FP 1805	1NO+1NC
20	L	FP 2001	1NO+2NC	FP 2002	1NO+2NC	FP 2004	1NO+2NC	FP 2005	1NO+2NC
21	L	FP 2101	3NC	FP 2102	3NC	FP 2104	3NC	FP 2105	3NC
22	L	FP 2201	2NO+1NC	FP 2202	2NO+1NC	FP 2204	2NO+1NC	FP 2205	2NO+1NC
2	R	FP 201	2x(1NO-1NC)	FP 202	2x(1NO-1NC)	FP 204	2x(1NO-1NC)	FP 205	2x(1NO-1NC)
E1		FP E101	1NO-1NC	FP E102	1NO-1NC	FP E104	1NO-1NC	FP E105	1NO-1NC
Max speed		page 7/3 - type 4		page 7/3 - type 3		0,5 m/s		page 7/3 - type 3	
Min. force		8 N (25 N ⊖)		6 N (25 N ⊖)		0,17 Nm		6 N (25 N ⊖)	
Travel diagrams		page 7/4 - group 1		page 7/4 - group 2		page 7/4 - group 1		page 7/4 - group 2	

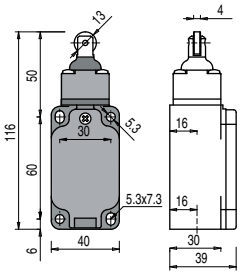


With external rubber gasket





With external rubber gasket



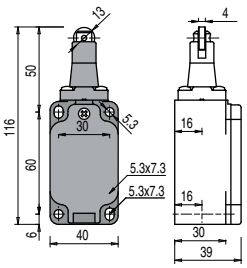
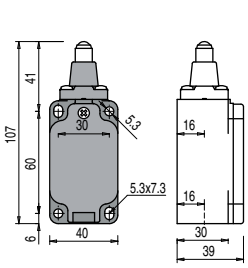
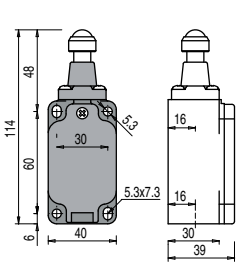
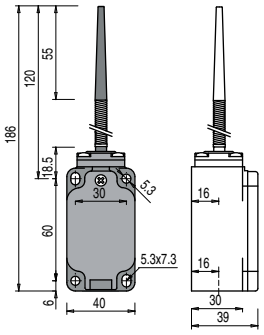
Contact blocks								
5	R	FP 508	1NO+1NC	FP 510	1NO+1NC	FP 511	1NO+1NC	FP 515	1NO+1NC
6	L	FP 608	1NO+1NC	FP 610	1NO+1NC	FP 611	1NO+1NC	FP 615	1NO+1NC
7	LO	FP 708	1NO+1NC	FP 710	1NO+1NC	FP 711	1NO+1NC	FP 715	1NO+1NC
9	L	FP 908	2NC	FP 910	2NC	FP 911	2NC	FP 915	2NC
10	L	FP 1008	2NO	FP 1010	2NO	FP 1011	2NO	FP 1015	2NO
11	R	FP 1108	2NC	FP 1110	2NC	FP 1111	2NC	FP 1115	2NC
12	R	FP 1208	2NO	FP 1210	2NO	FP 1211	2NO	FP 1215	2NO
13	LV	FP 1308	2NC	FP 1310	2NC	FP 1311	2NC	FP 1315	2NC
14	LS	FP 1408	2NC	FP 1410	2NC	FP 1411	2NC	FP 1415	2NC
15	LS	FP 1508	2NO	FP 1510	2NO	FP 1511	2NO	FP 1515	2NO
18	LA	FP 1808	1NO+1NC	FP 1810	1NO+1NC	FP 1811	1NO+1NC	FP 1815	1NO+1NC
20	L	FP 2008	1NO+2NC	FP 2010	1NO+2NC	FP 2011	1NO+2NC	FP 2015	1NO+2NC
21	L	FP 2108	3NC	FP 2110	3NC	FP 2111	3NC	FP 2115	3NC
22	L	FP 2208	2NO+1NC	FP 2210	2NO+1NC	FP 2211	2NO+1NC	FP 2215	2NO+1NC
2	R	FP 208	2x(1NO-1NC)	FP 210	2x(1NO-1NC)	FP 211	2x(1NO-1NC)	FP 215	2x(1NO-1NC)
E1		FP E108	1NO-1NC	FP E110	1NO-1NC	FP E111	1NO-1NC	FP E115	1NO-1NC
Max speed		page 7/3 - type 4		page 7/3 - type 4		page 7/3 - type 4		page 7/3 - type 2	
Min. force		8 N (25 N ⊖)		11 N (25 N ⊖)		8 N (25 N ⊖)		11 N (25 N ⊖)	
Travel diagrams		page 7/4 - group 1		page 7/4 - group 1		page 7/4 - group 1		page 7/4 - group 1	

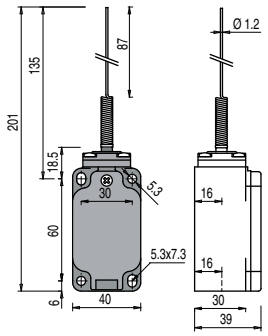
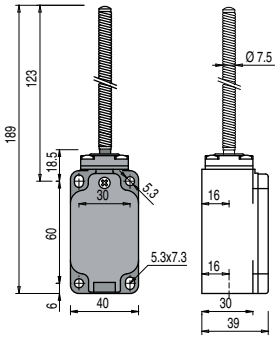
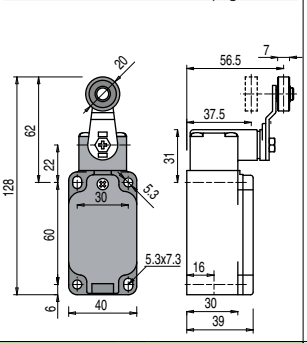
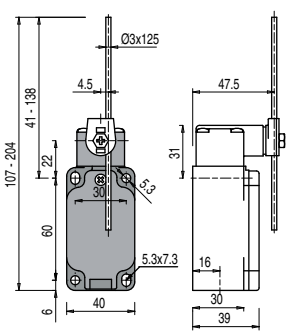
Accessories See page 6/1

All measures in the drawings are in mm

Contacts type:

R = snap action
L = slow action
LO = slow action overlapped
LS = slow action shifted
LV = slow action shifted and spaced
LI = slow action independent
LA = slow action closer
= electronic PNP

Contact blocks												
				 Ø 8 mm stainless steel sphere		 Ø 12,7 mm stainless steel sphere		 With external rubber gasket	
5	R	FP 516	1NO+1NC	FP 518	1NO+1NC	FP 519	1NO+1NC	FP 520	1NO+1NC
6	L	FP 616	1NO+1NC	FP 618	1NO+1NC	FP 619	1NO+1NC		
7	LO	FP 716	1NO+1NC	FP 718	1NO+1NC	FP 719	1NO+1NC		
9	L	FP 916	2NC	FP 918	2NC	FP 919	2NC		
10	L	FP 1016	2NO	FP 1018	2NO	FP 1019	2NO	FP 1020	2NO
11	R	FP 1116	2NC	FP 1118	2NC	FP 1119	2NC		
12	R	FP 1216	2NO	FP 1218	2NO	FP 1219	2NO		
13	LV	FP 1316	2NC	FP 1318	2NC	FP 1319	2NC		
14	LS	FP 1416	2NC	FP 1418	2NC	FP 1419	2NC		
15	LS	FP 1516	2NO	FP 1518	2NO	FP 1519	2NO		
18	LA	FP 1816	1NO+1NC	FP 1818	1NO+1NC	FP 1819	1NO+1NC	FP 1820	1NO+1NC
20	L	FP 2016	1NO+2NC	FP 2018	1NO+2NC	FP 2019	1NO+2NC	FP 2020	1NO+2NC
21	L	FP 2116	3NC	FP 2118	3NC	FP 2119	3NC	FP 2120	3NC
22	L	FP 2216	2NO+1NC	FP 2218	2NO+1NC	FP 2219	2NO+1NC	FP 2220	2NO+1NC
2	R	FP 216	2x(1NO-1NC)	FP 218	2x(1NO-1NC)	FP 219	2x(1NO-1NC)	FP 220	2x(1NO-1NC)
E1		FP E116	1NO-1NC	FP E118	1NO-1NC	FP E119	1NO-1NC	FP E120	1NO-1NC
Max speed		page 7/3 - type 2		page 7/3 - type 4		page 7/3 - type 4		1 m/s	
Min. force		8 N (25 N)		8 N (25 N)		8 N (25 N)		0,09 Nm	
Travel diagrams		page 7/4 - group 1		page 7/4 - group 1		page 7/4 - group 1		page 7/4 - group 3	

Contact blocks												
		 With external rubber gasket		 With external rubber gasket		 Other rollers available. See page 2/22		 Ø 3 mm stainless steel round rod	
5	R	FP 521	1NO+1NC	FP 525	1NO+1NC	FP 531	1NO+1NC	FP 532	1NO+1NC
6	L					FP 631	1NO+1NC	FP 632	1NO+1NC
7	LO					FP 731	1NO+1NC	FP 732	1NO+1NC
9	L					FP 931	2NC	FP 932	2NC
10	L	FP 1021	2NO	FP 1025	2NO	FP 1031	2NO	FP 1032	2NO
11	R					FP 1131	2NC	FP 1132	2NC
12	R					FP 1231	2NO	FP 1232	2NO
13	LV					FP 1331	2NC	FP 1332	2NC
14	LS					FP 1431	2NC	FP 1432	2NC
15	LS					FP 1531	2NO	FP 1532	2NO
16	LI					FP 1631	2NC	FP 1632	2NC
18	LA	FP 1821	1NO+1NC	FP 1825	1NO+1NC	FP 1831	1NO+1NC	FP 1832	1NO+1NC
20	L	FP 2021	1NO+2NC	FP 2025	1NO+2NC	FP 2031	1NO+2NC	FP 2032	1NO+2NC
21	L	FP 2121	3NC	FP 2125	3NC	FP 2131	3NC	FP 2132	3NC
22	L	FP 2221	2NO+1NC	FP 2225	2NO+1NC	FP 2231	2NO+1NC	FP 2232	2NO+1NC
2	R	FP 221	2x(1NO-1NC)	FP 225	2x(1NO-1NC)	FP 231	2x(1NO-1NC)	FP 232	2x(1NO-1NC)
E1		FP E121	1NO-1NC	FP E125	1NO-1NC	FP E131	1NO-1NC	FP E132	1NO-1NC
Max speed		1 m/s		1 m/s		page 7/3 - type 1		1,5 m/s	
Min. force		0,08 Nm		0,14 Nm		0,1 Nm (0,25 Nm)		0,1 Nm	
Travel diagrams		page 7/4 - group 3		page 7/4 - group 3		page 7/4 - group 4		page 7/4 - group 4	

Items with code on the **green** background are available in stock

Position switches **FP** series

Contacts type:

- R = snap action
- L = slow action
- LO = slow action overlapped
- LS = slow action shifted
- LV = slow action shifted and spaced
- LI = slow action independent
- LA = slow action closer
- = electronic PNP

Contact blocks		3x3 mm square rod		Other rollers available. See page 2/22		Fiber glass rod	
5	R	FP 533	1NO+1NC	FP 534	1NO+1NC	FP 535 (1)	1NO+1NC	FP 536	1NO+1NC
6	L	FP 633	1NO+1NC	FP 634	1NO+1NC	FP 635 (1)	1NO+1NC	FP 636	1NO+1NC
7	LO	FP 733	1NO+1NC	FP 734	1NO+1NC	FP 735 (1)	1NO+1NC	FP 736	1NO+1NC
9	L	FP 933	2NC	FP 934	2NC	FP 935 (1)	2NC	FP 936	2NC
10	L	FP 1033	2NO	FP 1034	2NO	FP 1035	2NO	FP 1036	2NO
11	R	FP 1133	2NC	FP 1134	2NC	FP 1135 (1)	2NC	FP 1136	2NC
12	R	FP 1233	2NO	FP 1234	2NO	FP 1235	2NO	FP 1236	2NO
13	LV	FP 1333	2NC	FP 1334	2NC	FP 1335 (1)	2NC	FP 1336	2NC
14	LS	FP 1433	2NC	FP 1434	2NC	FP 1435 (1)	2NC	FP 1436	2NC
15	LS	FP 1533	2NO	FP 1534	2NO	FP 1535	2NO	FP 1536	2NO
16	LI	FP 1633	2NC	FP 1634	2NC	FP 1635 (1)	2NC	FP 1636	2NC
18	LA	FP 1833	1NO+1NC	FP 1834	1NO+1NC	FP 1835 (1)	1NO+1NC	FP 1836	1NO+1NC
20	L	FP 2033	1NO+2NC	FP 2034	1NO+2NC	FP 2035 (1)	1NO+2NC	FP 2036	1NO+2NC
21	L	FP 2133	3NC	FP 2134	3NC	FP 2135 (1)	3NC	FP 2136	3NC
22	L	FP 2233	2NO+1NC	FP 2234	2NO+1NC	FP 2235 (1)	2NO+1NC	FP 2236	2NO+1NC
2	R	FP 233	2x(1NO-1NC)	FP 234	2x(1NO-1NC)	FP 235	2x(1NO-1NC)	FP 236	2x(1NO-1NC)
E1		FP E133	1NO-1NC	FP E134	1NO-1NC	FP E135	1NO-1NC	FP E136	1NO-1NC
Max speed		1,5 m/s		1 m/s		page 7/3 - type 1		1,5 m/s	
Min. force		0,1 Nm		0,1 Nm		0,1 Nm (0,25 Nm)		0,1 Nm	
Travel diagrams		page 7/4 - group 4		page 7/4 - group 4		page 7/4 - group 4		page 7/4 - group 4	

Contact blocks		Other rollers available. See page 2/22		Other rollers available. See page 2/22		Porcelain roller		Other rollers available. See page 2/22	
5	R	FP 551	1NO+1NC	FP 552	1NO+1NC	FP 553-E11V9	1NO+1NC	FP 556	1NO+1NC
6	L	FP 651	1NO+1NC	FP 652	1NO+1NC	FP 653-E11V9	1NO+1NC	FP 656	1NO+1NC
7	LO	FP 751	1NO+1NC	FP 752	1NO+1NC	FP 753-E11V9	1NO+1NC	FP 756	1NO+1NC
9	L	FP 951	2NC	FP 952	2NC	FP 953-E11V9	2NC	FP 956	2NC
10	L	FP 1051	2NO	FP 1052	2NO	FP 1053-E11V9	2NO	FP 1056	2NO
11	R	FP 1151	2NC	FP 1152	2NC			FP 1156	2NC
12	R	FP 1251	2NO	FP 1252	2NO	FP 1253-E11V9	2NO	FP 1256	2NO
13	LV	FP 1351	2NC	FP 1352	2NC	FP 1353-E11V9	2NC	FP 1356	2NC
14	LS	FP 1451	2NC	FP 1452	2NC	FP 1453-E11V9	2NC	FP 1456	2NC
15	LS	FP 1551	2NO	FP 1552	2NO	FP 1553-E11V9	2NO	FP 1556	2NO
16	LI							FP 1656	2NC
18	LA	FP 1851	1NO+1NC	FP 1852	1NO+1NC	FP 1853-E11V9	1NO+1NC	FP 1856	1NO+1NC
20	L	FP 2051	1NO+2NC	FP 2052	1NO+2NC	FP 2053-E11V9	1NO+2NC	FP 2056	1NO+2NC
21	L	FP 2151	3NC	FP 2152	3NC	FP 2153-E11V9	3NC	FP 2156	3NC
22	L	FP 2251	2NO+1NC	FP 2252	2NO+1NC	FP 2253-E11V9	2NO+1NC	FP 2256	2NO+1NC
2	R	FP 251	2x(1NO-1NC)	FP 252	2x(1NO-1NC)	FP 253-E11	2x(1NO-1NC)	FP 256	2x(1NO-1NC)
E1		FP E151	1NO-1NC	FP E152	1NO-1NC	FP E153-E11V9	1NO-1NC	FP E156	1NO-1NC
Max speed		page 7/3 - type 1		page 7/3 - type 1		0,5 m/s		page 7/3 - type 1	
Min. force		0,06 Nm (0,25 Nm)		0,06 Nm (0,25 Nm)		0,0. Nm (0,25 Nm)		0,1 Nm (0,25 Nm)	
Travel diagrams		page 7/4 - group 4		page 7/4 - group 4		page 7/4 - group 5		page 7/4 - group 4	

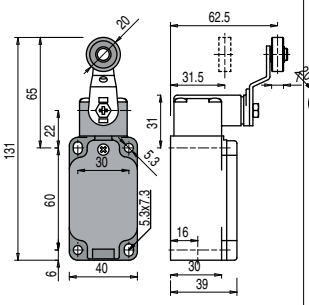
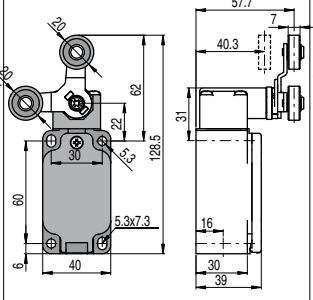
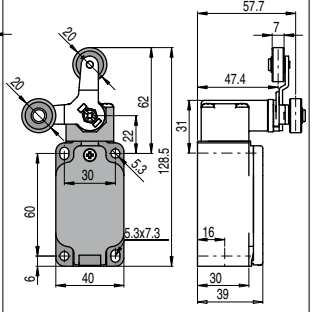
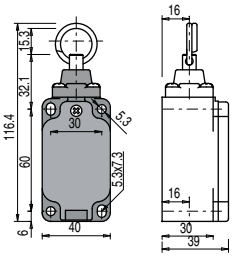
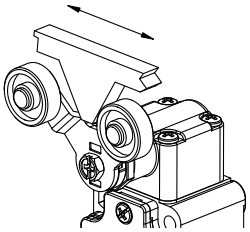
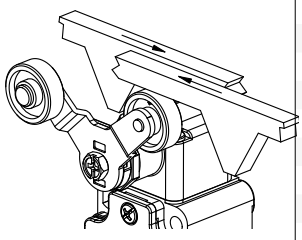
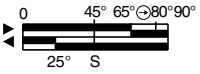
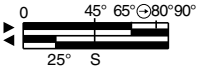
Accessories See page 6/1

(1) Positive opening only with lever adjusted on the max. See page 2/21.

Contacts type:

R = snap action
L = slow action
LO = slow action overlapped
LS = slow action shifted
LV = slow action shifted and spaced
LI = slow action independent
LA = slow action closer
= electronic PNP

Contact blocks

		Other rollers available. See page 2/22		With stainless steel rollers on request		With stainless steel rollers on request		Rope switches for signalling	
									
5	R	FP 557	1NO+1NC	FP 541	1NO+1NC	FP 542	1NO+1NC	FP 576	1NO+1NC
6	L	FP 657	1NO+1NC					FP 676	1NO+1NC
7	LO	FP 757	1NO+1NC					FP 776	1NO+1NC
9	L	FP 957	2NC					FP 976	2NO
10	L	FP 1057	2NO					FP 1076	2NC
11	R	FP 1157	2NC					FP 1176	2NO
12	R	FP 1257	2NO					FP 1276	2NC
13	LV	FP 1357	2NC					FP 1376	2NO
14	LS	FP 1457	2NC					FP 1476	2NO
15	LS	FP 1557	2NO					FP 1576	2NC
16	LI	FP 1657	2NC						
18	LA	FP 1857	1NO+1NC					FP 1876	1NO+1NC
20	L	FP 2057	1NO+2NC					FP 2076	2NO+1NC
21	L	FP 2157	3NC					FP 2176	3NO
22	L	FP 2257	2NO+1NC					FP 2276	1NO+2NC
2	R	FP 257	2x(1NO-1NC)					FP 276	2x(1NO-1NC)
E1		FP E157	1NO-1NC						
				Bistable switch with single track lyra lever		Bistable switch with double track lyra lever			
									
									
				S = mechanical snap point positive opening with 21-22 contact only		S = mechanical snap point positive opening with 21-22 contact only			
Max speed		page 7/3 - type 1		0,5 m/s with 30° cam		0,5 m/s with 30° cam		0,5 m/s	
Min. force		0,1 Nm (0,25 Nm ⊕)		0,21 Nm (0,36 Nm ⊕)		0,21 Nm (0,36 Nm ⊕)		initial 20 N - final 40 N	
Travel diagrams		page 7/4 - group 4						page 7/4 - group 6	

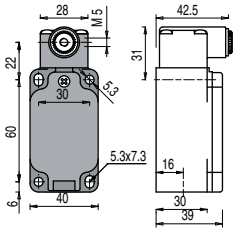
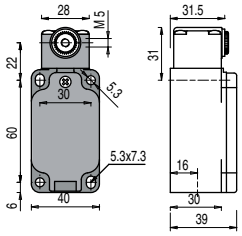
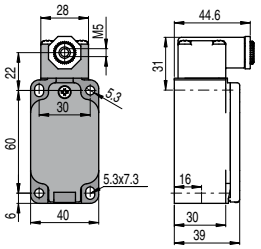
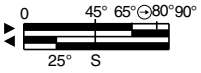
Items with code on the **green** background are available in stock

Position switches **FP** series

Position switches with revolving lever without actuator

Contacts type:

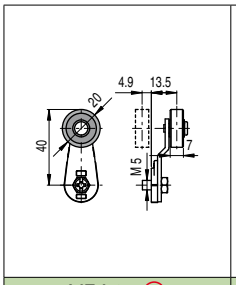
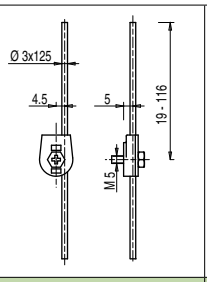
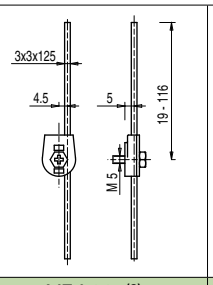
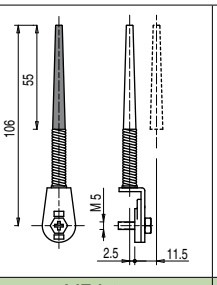
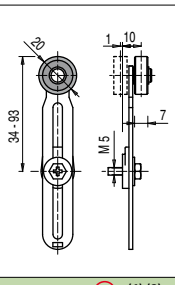
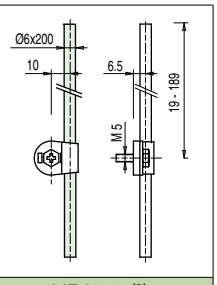
- R = snap action
- L = slow action
- LO = slow action overlapped
- LS = slow action shifted
- LV = slow action shifted and spaced
- LI = slow action independent
- LA = slow action closer
- = electronic PNP

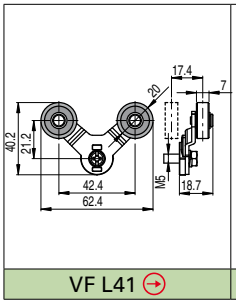
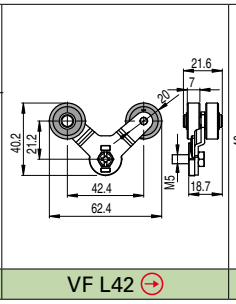
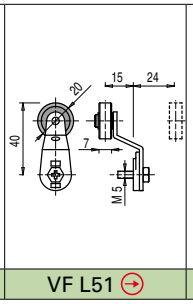
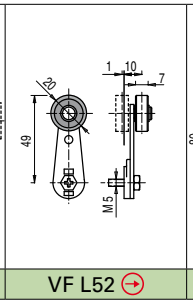
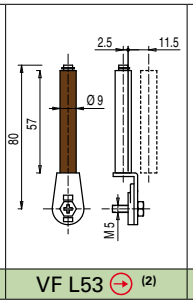
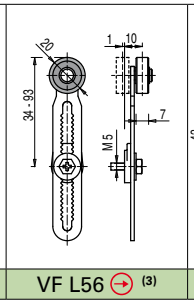
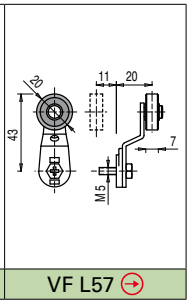
Contact blocks		Regular head	Compact head	
				
5	R	FP 538 ⊕ 1NO+1NC	FP 558 ⊕ 1NO+1NC	FP 540 ⊕ 1NO+1NC
6	L	FP 638 ⊕ 1NO+1NC	FP 658 ⊕ 1NO+1NC	Bistable switch
7	LO	FP 738 ⊕ 1NO+1NC	FP 758 ⊕ 1NO+1NC	
9	L	FP 938 ⊕ 2NC	FP 958 ⊕ 2NC	S = mechanical snap point positive opening with 21-22 contact only
10	L	FP 1038 2NO	FP 1058 2NO	
11	R	FP 1138 ⊕ 2NC	FP 1158 ⊕ 2NC	
12	R	FP 1238 2NO	FP 1258 2NO	
13	LV	FP 1338 ⊕ 2NC	FP 1358 ⊕ 2NC	
14	LS	FP 1438 ⊕ 2NC	FP 1458 ⊕ 2NC	
15	LS	FP 1538 2NO	FP 1558 2NO	
16	LI	FP 1638 ⊕ 2NC		
18	LA	FP 1838 ⊕ 1NO+1NC	FP 1858 ⊕ 1NO+1NC	
20	L	FP 2038 ⊕ 1NO+2NC	FP 2058 ⊕ 1NO+2NC	
21	L	FP 2138 ⊕ 3NC	FP 2158 ⊕ 3NC	
22	L	FP 2238 ⊕ 2NO+1NC	FP 2258 ⊕ 2NO+1NC	
2	R	FP 238 2x(1NO-1NC)	FP 258 2x(1NO-1NC)	
E1		FP E138 1NO+1NC	FP E158 1NO+1NC	
Min. force		0,1 Nm (0,25 Nm ⊕)	0,06 Nm (0,25 Nm ⊕)	0,5 m/s with 30° cam
Travel diagrams		page 7/4 - group 4	page 7/4 - group 4	0,21 Nm (0,36 Nm ⊕)

IMPORTANT
For safety applications: join only switches and actuators marked with symbol ⊕.
For more information about safety applications see page 7/1.

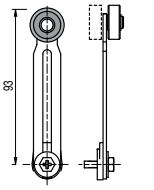
Loose actuators

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

Polymer roller Ø 20 mm	Adjustable round rod Ø 3x125 mm	Adjustable square rod 3x3x125 mm	Flexible rod actuator	Adjustable actuator with polymer roller	Adjustable fiber glass rod
					
VF L31 ⊕	VF L32 (3)	VF L33 (3)	VF L34	VF L35 ⊕ (1) (3)	VF L36 (3)

Single track lyra actuator	Double tracks lyra actuator	Polymer roller Ø 20 mm	Polymer roller Ø 20 mm	Porcelain roller	Adjustable safety actuator with polymer roller	Polymer roller Ø 20 mm
						
VF L41 ⊕	VF L42 ⊕	VF L51 ⊕	VF L52 ⊕	VF L53 ⊕ (2)	VF L56 ⊕ (3)	VF L57 ⊕

- Only orders for multiple quantities of the packs are accepted.
- (1) Actuator VF L35 suits to safety applications only if adjusted to its max length, as you can see in figure beside. If you need an adjustable lever for safety applications, use the adjustable safety lever VF L56.
- (2) The position switch obtained by assembling the switch FP •58 (e.g. FP 558, FP 658) with the actuator VF L53 will not present the same travel diagrams and actuating forces as the position switch FP •53-E11V9 (e.g. FP 553-E11V9, FP 653-E11V9...).
- (3) If it is installed with switch FP •58 (e.g. FP 558, FP 658..), the actuator can mechanically interfere with the housing of the switch. The interference could happen or not according to the actuator and the head fixing position.
- (4) The actuator cannot be oriented to inside direction because it will mechanically interfere with the switch head.



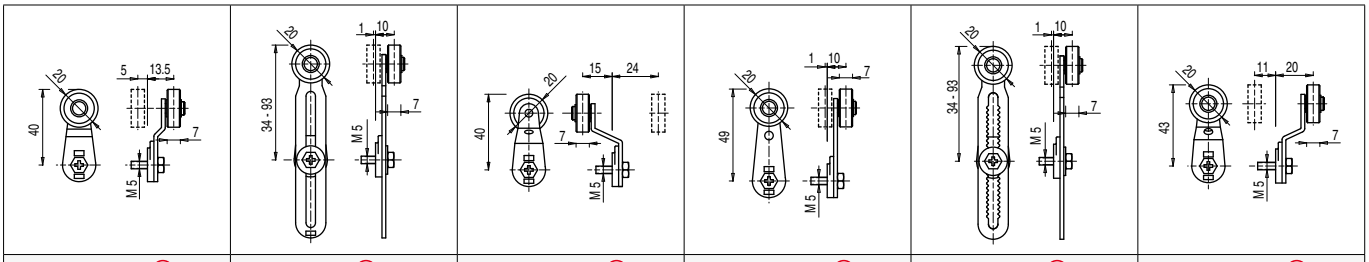
Accessories See page 6/1

Items with code on the **green** background are available in stock

Special loose actuators

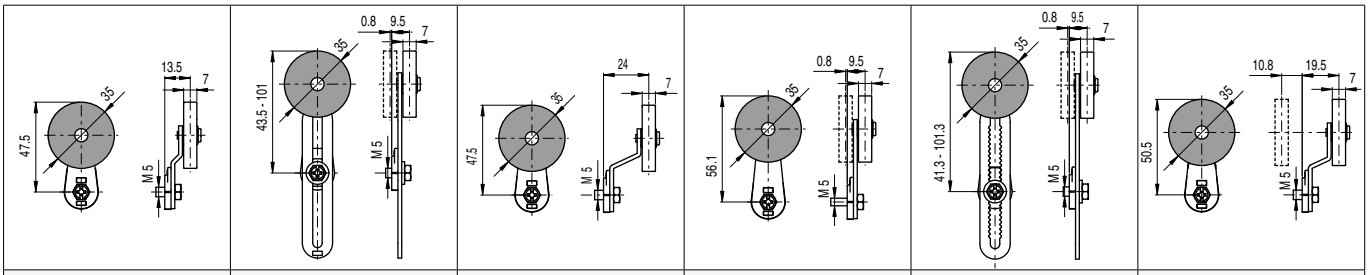
IMPORTANT: These loose actuators can be used with items of series FD, FP, FL, FC only.

Ø 20 mm stainless steel rollers



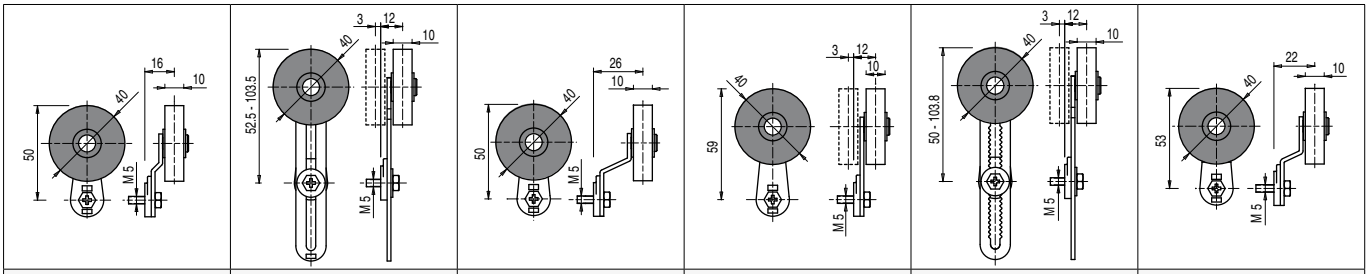
VF L31-1 → | VF L35-1 → (1) (3) | VF L51-1 → | VF L52-1 → | VF L56-1 → (3) | VF L57-1 →

Ø 35 mm polymer rollers



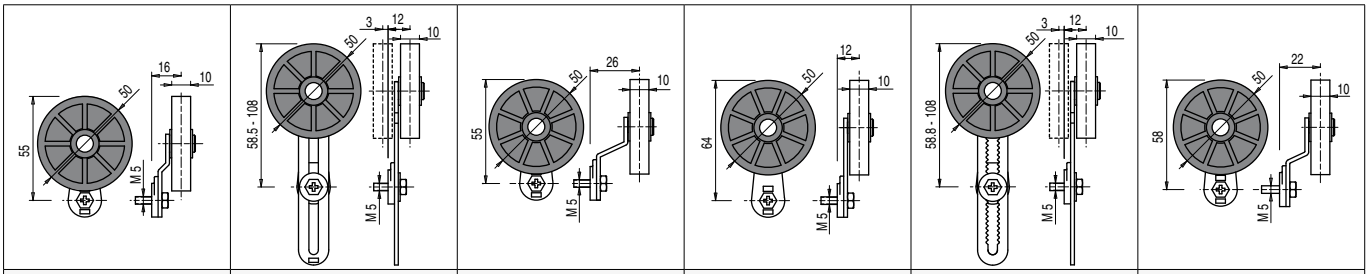
VF L31-2 → (4) | VF L35-2 → (1) (3) | VF L51-2 → (4) | VF L52-2 → | VF L56-2 → (3) | VF L57-2 →

Ø 40 mm rubber rollers



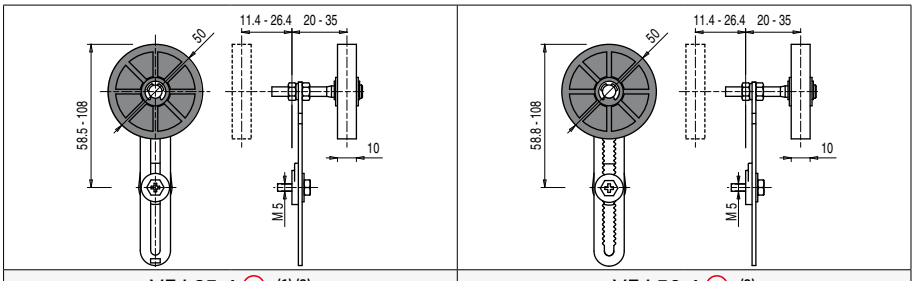
VF L31-R5 → (4) | VF L35-R5 → (1) (3) | VF L51-R5 → (4) | VF L52-R5 → | VF L56-R5 → (3) | VF L57-R5 → (4)

Ø 50 mm rubber rollers



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

Ø 50 mm overhanging rubber rollers



VF L35-4 → (1) (3) | VF L56-4 → (3)