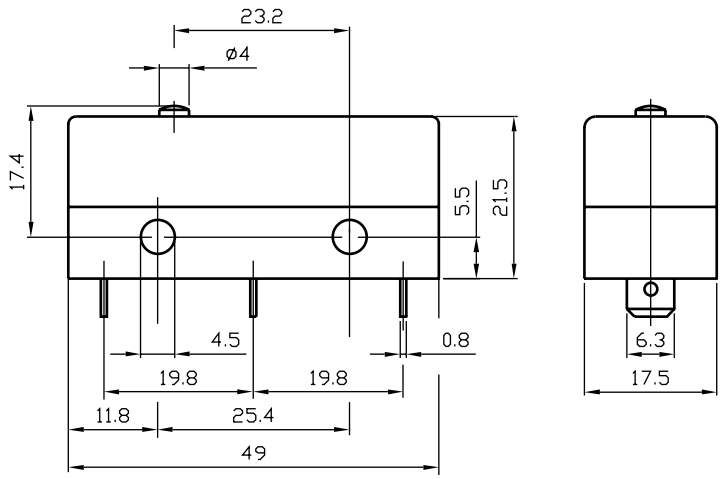
MP110

MICROSWITCHES

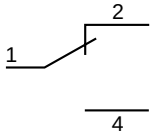
MP110 microswitches
are snap-action
changeovers,
simple switching action.
Connections:
- Push-on clips
  6.35 x 0.8mm
- Plug-in system of
  connection MP100-..
- Protective terminal
  covers MP110-Z..



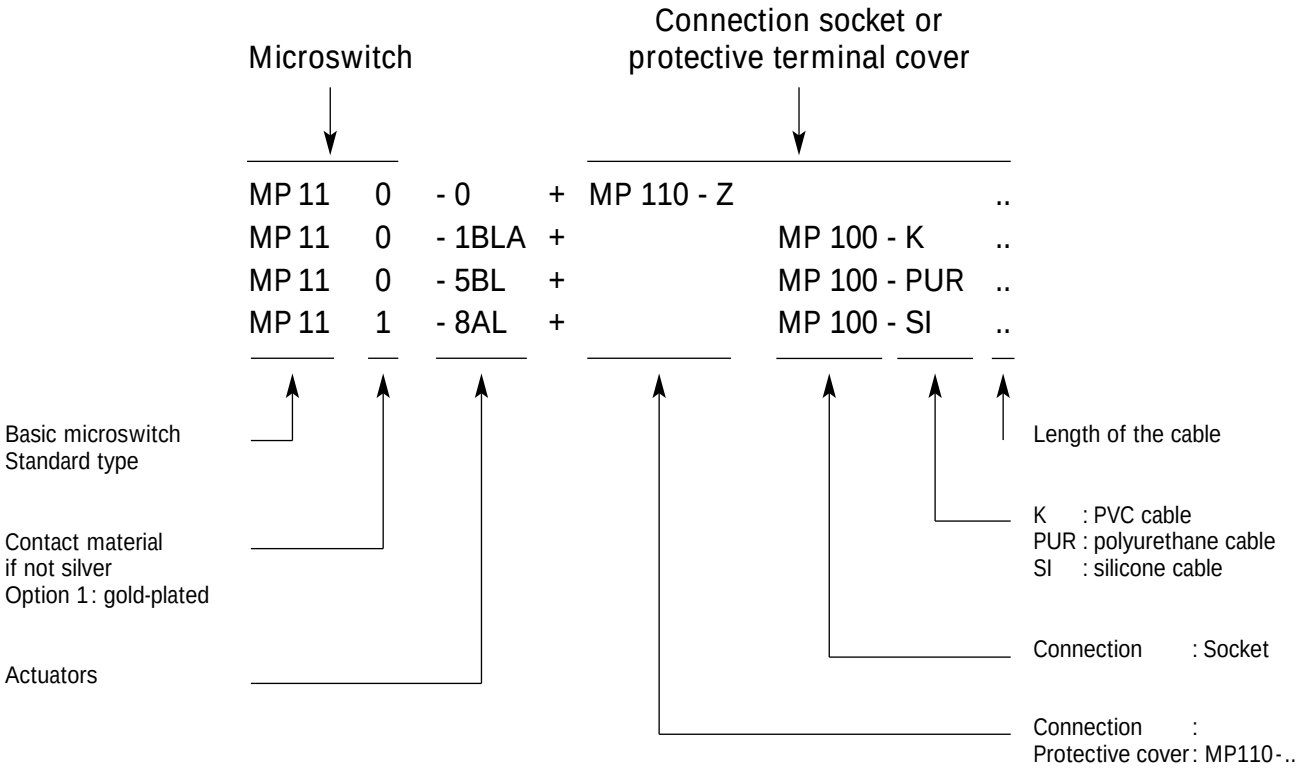
GENERAL CHARACTERISTICS, MODELS MP110

Approval	:	SEV
Switching rating	:	10A 400VAC
Degree of protection		
MP110-0	:	Housing IP67
		Terminals IP00
MP110-0 + MP100-..	:	IP67
MP110-0 + MP110-Z..	:	IP64
Class of protection	:	II
Micro-switching	:	µ
Distance between contacts	:	0,5 mm
Up to standard	:	EN61058-1:92 + A1:93
Frequent functioning	:	50 E3
Mechanical life	:	50 x 10^6 operations
Snap-action mechanism	:	Beryllium coppers leaf spring with self-cleaning contacts
Actuators	:	Overall dimensions in stainless steel
Dimensions	:	DIN 41 635, EF-form

SWITCHING DIAGRAM



REFERENCE CODES OF THE ARTICLE



Housing:	PA6T/X reinforced with glass fibre	
	Auto-extinguishing according to UL94V-O	
	Certified temperature	- 40°C to +130°C
Membrane:	Fluorsilicone rubber MFQ	- 40°C to +175°C
Cable:	See page 15	

MP110 DEGREE OF PROTECTION

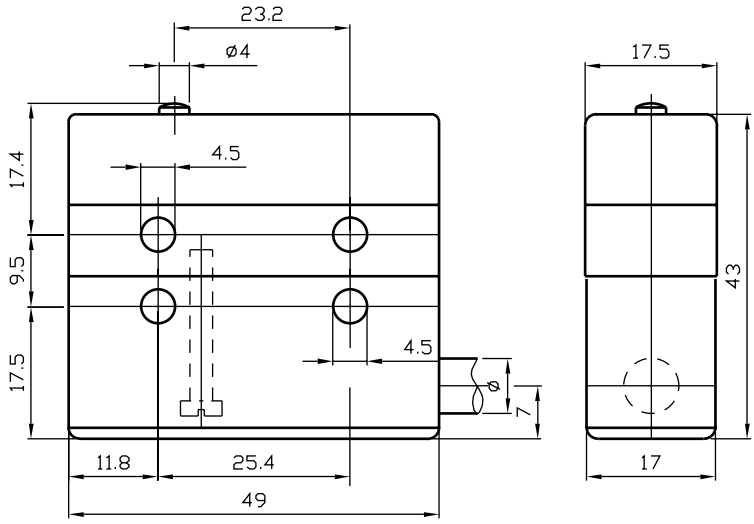
This type is completely sealed: the switching mechanism is completely protected by the housing, which is itself assembled by ultrasonic welding. However, as it has protruding connection terminals, it has to be provided with an accessory system of connection, which can be:

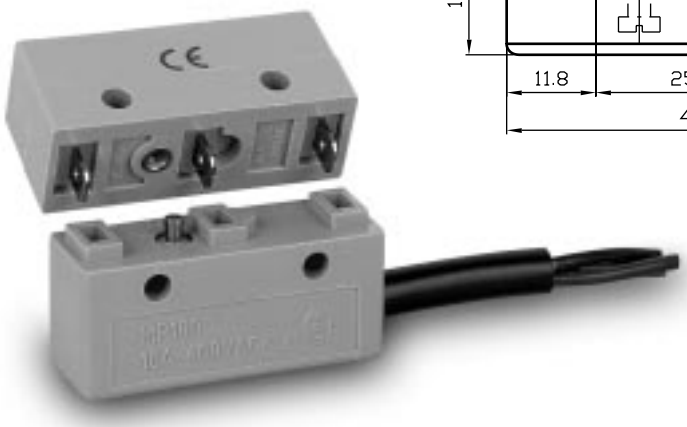
- Plug-in system of connection MP100-.. IP67
- Protective terminal covers MP110-Z.. IP64

MP100

PLUG-ON CONNECTION SOCKET

The plug-on connection sockets MP100 and derivatives can be fixed on our MP110 and derivatives microswitches.

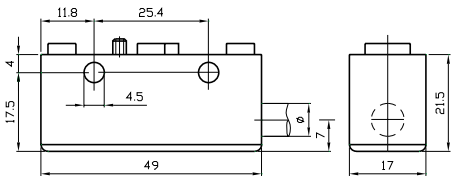


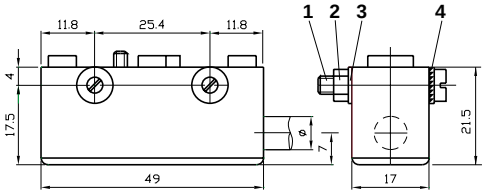


TECHNICAL CHARACTERISTICS, TYPES MP100

The plug-on connection socket MP100-.. guarantees full protection, in accordance with degree-of-protection standard IP67, by means of a system of 3 sealing rings fitted into the microswitch. The assembly is held together and secured by means of an M3 screw housed in the socket unit. This unit is sealed.

Approval	: SEV
Degree of protection	: IP67
Connection	: Overmoulded cable





MP100 or MP101 type fitting

The MP110+MP100-.. assembly can be mounted by the socket, which means that the socket can be fitted firstly and the switch inserted subsequently.
A spacing washer will have to be inserted to take up the difference in thickness between the switch (17.5mm) and the socket (17.0mm).
MP101-.. comprises the following fixing element:

1 - Fixing screw M4x25 – A2 stainless steel
2 - Nut M4
3 - Spacing washer s=0.8mm ∅4.3 mm
4 - Serrated locking washer ∅4.3mm

Moulding torque for = 1.2Nm

REFERENCE CODES OF THE ARTICLE

MP	10	0	-	K	..
MP	10	0	-	PUR	..
MP	10	1	-	SI	..

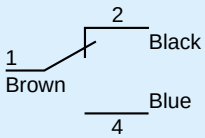
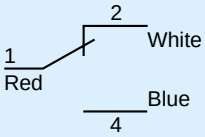
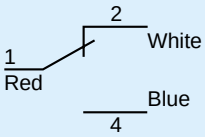
Socket
Standard type

Socket +
fixation elements

Length of the cable in m.

Solely for MP100,
cable 3x1mm²

K : PVC
PUR : polyurethane
SI : silicone

Designation	Switching diagram	Housing and connecting cable for MP100-.. socket
Housing:		PA6T/X reinforced with glass fibre Auto-extinguishing according to UL94V-O Certified operating temperatures: - 40°C to + 130°C
MP100-K..		PVC, 3x1.0 mm², black coating External diameter: 7.3 mm Operating temperatures: - 20°C to + 70°C Thermoplastic synthetic material, standard for general use Good mechanical and electrical properties.
MP100-PUR..		PUR, 3x1.0 mm², grey coating External diameter: 7.3 mm Operating temperatures: - 40°C to + 90°C High tear, crushes and puncture resistance. Good resistance to mineral oils Good flexibility even at low temperatures
MP100-SI..		SI, 3x1.0 mm², white coating External diameter: 7.3 mm Operating temperatures: Mobile - 25°C to + 150°C Fixed - 40°C to + 150°C Max. in water + 100°C Synthetic silicone rubber. Excellent resistance to low and high temperatures. Ages well.
MP100- ?		We overmould with other types of cables as long as their characteristics are in accordance with the standards we apply to our products.

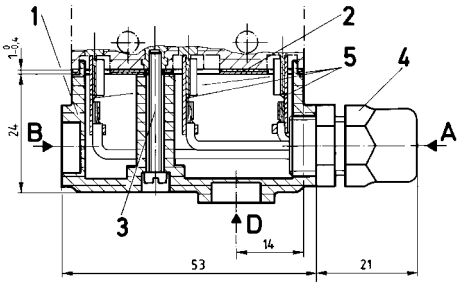
According to the availability of the market we reserve ourselves the right to modify the colors of identification of wire connection.

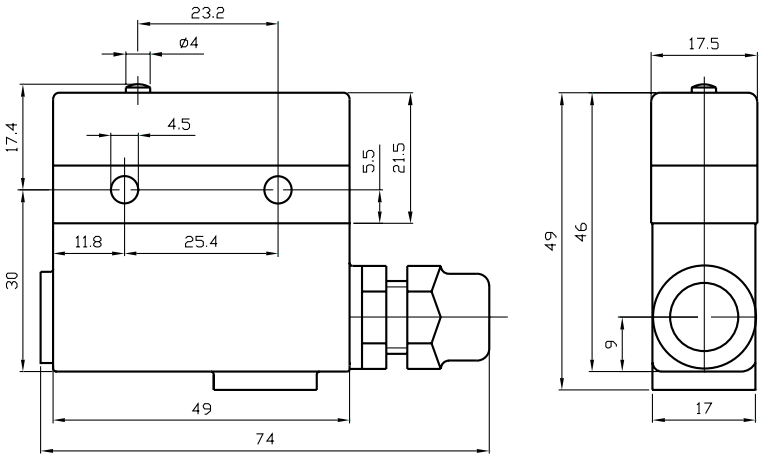
SERIES MP110-Z.. & DERIVATIVES

MP110-Z..

PROTECTIVE TERMINAL COVER

The protective terminal covers and derivatives are fixed on our MP110 microswitches and derivatives.
They have 3 possible outlets, A, B or C as shown on the drawing below.





TECHNICAL CHARACTERISTICS, TYPES MP110-Z..

The protective terminal covers MP110-Z.. (pos.1) can be used with any type of connecting cable. Fixed on a MP110, it guarantees a degree of protection in accordance with standard IP64. A sealing gasket, which is compressed between the switch MP110 and the terminal cover MP110-Z by tightening the fixing screw (pos.2), guarantees the tightness of the whole.

Approval	: SEV
Degree of protection	: IP64
Connection	: 3 – 6.35x0.8 mm push-on tags (pos.5) to rivet on the wires.

DESIGNATION AND DESCRIPTION OF VARIANTS OF THE MP110-Z

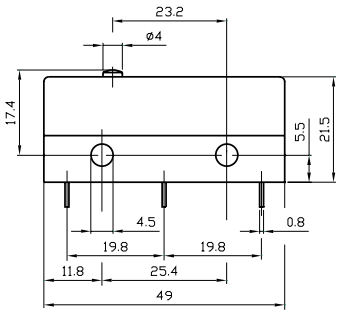
Designation	Description
MP110-ZA or MP110-ZB or MP110-ZD	Only one outlet is tapped to take the PG7. The other two remain blocked.
MP110-ZA3 or MP110-ZB3 or MP110-ZD3	All three outlets are tapped to take the PG7. The MP110-Z is supplied with two sealing plugs for the unused outlets. The A, B or D indicates which outlet is open.
MP110-ZAPG7 or MP110-ZBPG7 or MP110-ZDPG7	According to the designation, only one outlet is fitted with a PG7. The others remain blocked.
MP110-ZA3PG7 or MP110-ZB3PG7 or MP110-ZD3PG7	All three outlets are tapped to take the PG7. According to the designation, one is fitted with a PG7, the other two with sealing plugs.

GENERAL CHARACTERISTICS

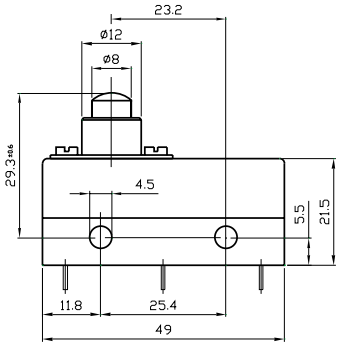
Housing:	PA6T/X reinforced with glass fibre Auto-extinguishing according to UL94V-O Certified temperature	 - 40°C to + 130°C
Sealing gasket:	Silicone (SI)	- 40°C to + 150°C
PG7 stuffing box: (cable gland)	Polyamide with glass fibre	- 20°C to + 100°C

SWITCHING CHARACTERISTICS OF THE MP110 AND DERIVATIVES

ACTUATING FORCE **Fa** max. (N)	RELEASE FORCE **Fr** min (N)	FREE POSITION **Pr** (mm)	OPERATING POSITION **Pa** (mm)	OVER-TRAVEL **sr** min. (mm)	DIFFERENTIAL MOVEMENT **sd** max. (mm)	DESIGNATION
6,0	3,0	17,4 ± 0,5	16,6 ± 0,3	0,25	0,06	**MP110-0**
6,0	3,0	17,4 ± 0,5	16,8 ± 0,3	0,25	0,02	***MP120-1-0**
6,0	2,5	17,4 ± 0,5	16,7 ± 0,3	0,25	0,10	****MP120-10-0**

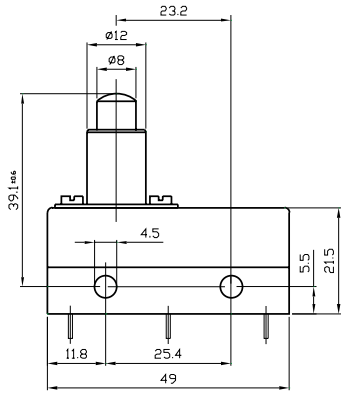
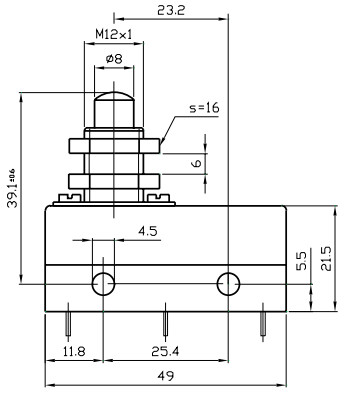
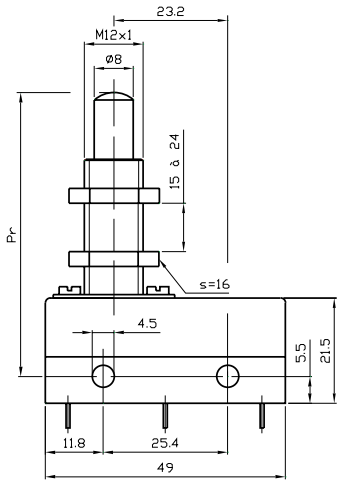


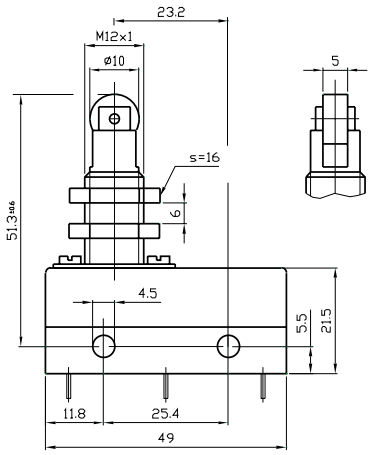
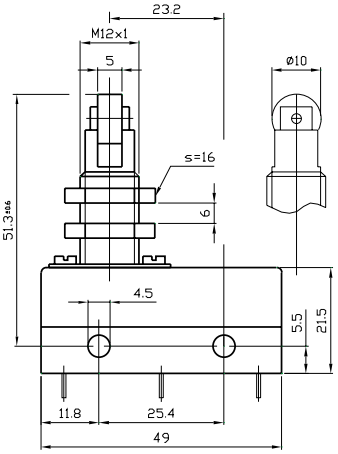
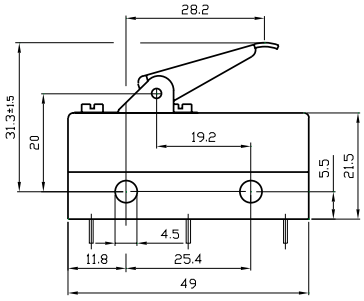
6,0	3,0	29,3 ± 0,6	28,5 ± 0,3	2,0	0,08	**MP110-1S29**

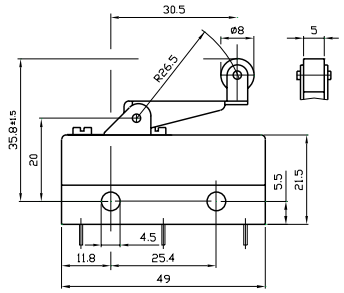
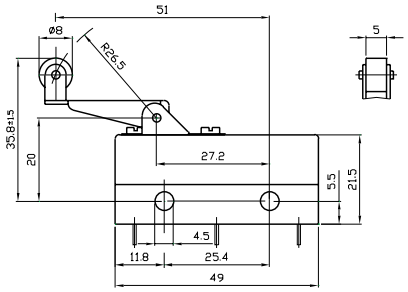
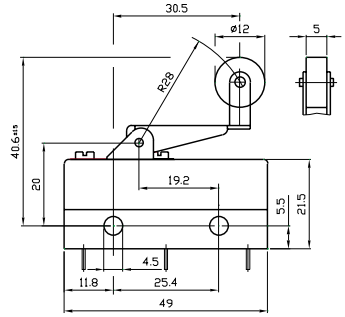


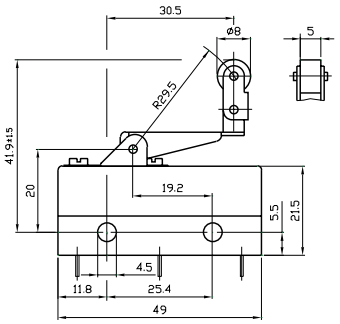
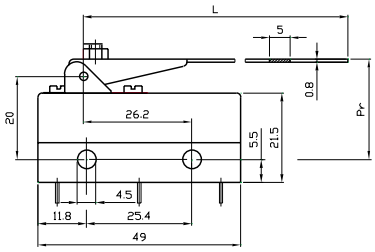
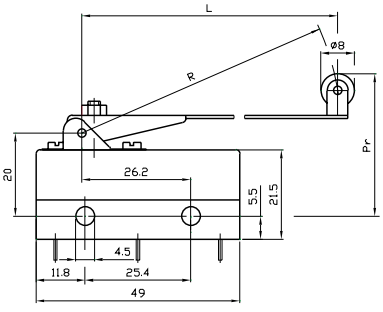
* **Reduced contact gap** – 0.20 to 0.25mm.
Designation «1» after series reference number.
Example: MP120, MP120-1-0.
Differential movement is between 0.01 and 0.02 mm (low hysteresis).
High repetitive switching precision.
Reduced switching rating: 110VAC - 15VA max.
48 VDC - 5W max.

** **Increased contact gap**
Designation «-10» after series reference number.
Examples: MP120-10-0.
Differential travel is augmented (large hysteresis).

	DESIGNATION	ACTUATING FORCE **Fa** max. (N)	RELEASE FORCE **Fr** min (N)	FREE POSITION **Pr** (mm)	OPERATING POSITION **Pa** (mm)	OVER-TRAVEL **sr** min. (mm)	DIFFERENTIAL MOVEMENT **sd** max. (mm)
	**MP110-1**	6,0	3,0	39,1 ± 0,6	38,4 ± 0,3	5,0	0,08
	**MP110-1A**	6,0	3,0	39,1 ± 0,6	38,4 ± 0,3	5,0	0,08
	**MP110-1A58**	6,0	2,5	58,0 ± 1,0	57,3 ± 0,3	10,0	0,10
	MP110-1A83	6,0	2,5	82,6 ± 1,0	82,1 ± 0,3	20,0	0,10
	MP110-1C	6,0	2,5	64,0 ± 0,6	63,3 ± 0,3	5,0	0,10

ACTUATING FORCE **Fa** max. (N)	RELEASE FORCE **Fr** min (N)	FREE POSITION **Pr** (mm)	OPERATING POSITION **Pa** (mm)	OVER-TRAVEL **sr** min. (mm)	DIFFERENTIAL MOVEMENT **sd** max. (mm)	DESIGNATION	
6,0	3,0	51,3 ± 0,6	50,6 ± 0,3	5,0	0,08	**MP110-1BL**	
6,0	3,0	51,3 ± 0,6	50,6 ± 0,3	5,0	0,08	**MP110-1BLA**	
6,0	3,0	51,3 ± 0,6	50,6 ± 0,3	5,0	0,08	**MP110-1BT**	
6,0	3,0	51,3 ± 0,6	50,6 ± 0,3	5,0	0,08	**MP110-1BTA**	
4,5	1,2	31,3 ± 1,5	29,3 ± 1,5	3,5	0,50	**MP110-3A**	

	DESIGNATION	ACTUATING FORCE **Fa** max. (N)	RELEASE FORCE **Fr** min (N)	FREE POSITION **Pr** (mm)	OPERATING POSITION **Pa** (mm)	OVER-TRAVEL **sr** min. (mm)	DIFFERENTIAL MOVEMENT **sd** max. (mm)
	**MP110-5AL**	4,5	1,2	35,8 ± 1,5	33,0 ± 1,5	3,5	0,60
	**MP110-5BL**	4,5	1,2	35,8 ± 1,5	33,0 ± 1,5	3,5	0,60
	**MP110-5CAL12**	4,5	1,2	40,6 ± 1,5	37,8 ± 1,5	3,5	0,60

ACTUATING FORCE **Fa** max. (N)	RELEASE FORCE **Fr** min (N)	FREE POSITION **Pr** (mm)	OPERATING POSITION **Pa** (mm)	OVER-TRAVEL **sr** min. (mm)	DIFFERENTIAL MOVEMENT **sd** max. (mm)	DESIGNATION	
4,5	1,2	41,9 ± 1,5	39,0 ± 1,5	3,5	0,60	**MP110-6AL**	
0.2	0,05	-	-	-	3,00	**MP110-7A120**	
0.4	0,1	-	-	-	1,50	**MP110-7A63,5**	
0.6	0,2	-	-	-	0,80	**MP110-7A40**	
0.2	0,05	-	-	-	3,00	**MP110-8AL120**	
0.4	0,1	-	-	-	1,50	**MP110-8AL63,5**	
0.6	0,2	-	-	-	0,80	**MP110-8AL40**	