



## MICROSWITCH SERIE MP300

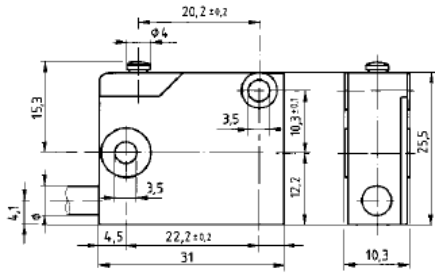


A miniature IP67/68 microswitch with a service range up to 170°C and stainless steel levers, for a wide range of applications, including those in the most hostile industrial environments. The MP300 Series features unparalleled flexibility in terms of levers and standard telescopic plungers. Together with the option of manufacturing customized actuators, the applications are virtually unlimited.

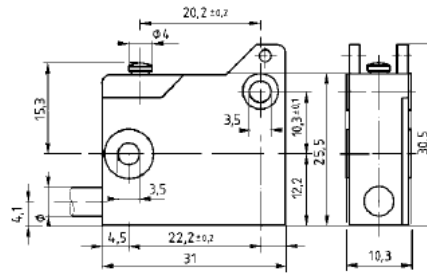
### Descriptions

Approvals	EN 61058 Ed 3.1 Upon request: UL 1054, CSA C22.2, ATEX II3d/Ex t IIIB 84°C Dc
Housing	Glass fiber reinforced
Plunger	PPS
Membrane	Fluorsilicone elastomer, other material upon request
Mechanism Contacts	Change-over, Snap-action with blade in Beryllium Copper
Contact material	Fine Silver, Gold contact upon request
Termination	Cable and Leads: Standard 0.75 mm <sup>2</sup> / 18AWG PVC / PVCU -20°C to 70°C PUR -40°C to 90°C SI -40°C to 130°C PTFE -40° to 170°C Other material upon request
Cable outlet	Standard side of button Other side upon request
Actuator	Overall dimensions in stainless steel
Degree of protection	IP67 Upon request IP68
Class of protection	II
Micro-switch	μ
Contact-gap	0.80 mm
Dimensions	DIN 41 635, form A 31 x 24 x 10.3 mm
Power rating	250VAC / 6A
Operating range force	1.3 to 4.0 N, depending actuator
Operating temperature range	-40°C to 170°C depending cable
Mechanical life	50 x 10 <sup>6</sup>
Standards	EN61058 50'000 cycles UL1054 10'000 cycles

MP310

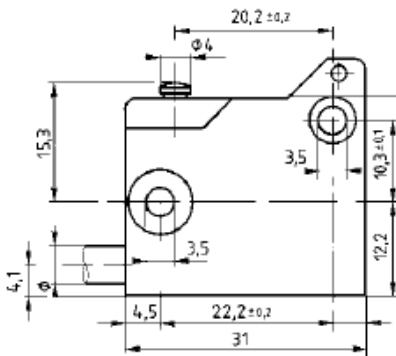


MP320



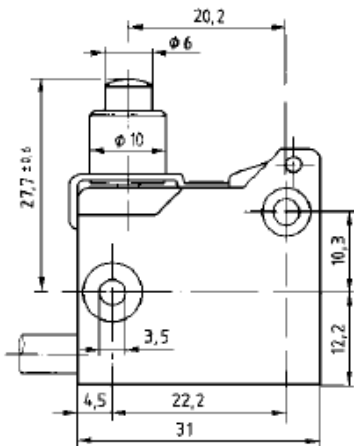
## Actuator

Type 0 : Basic switch



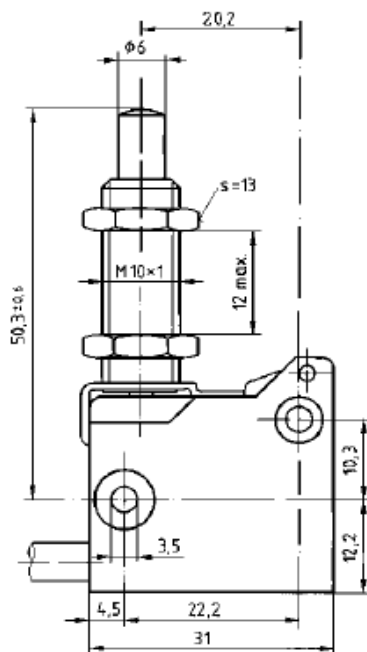
Actuating Force Fa max. (N)	3.5
Release Force Fr min (N)	1.0
Free Position Pr (mm)	15.3 ± 0.3
Operating Position Pa (mm)	14.7 ± 0.2
Over-travel sr min. (mm)	0.20
Differential movement sd max. (mm)	0.05

Type 1MS27 : Telescopic plunger



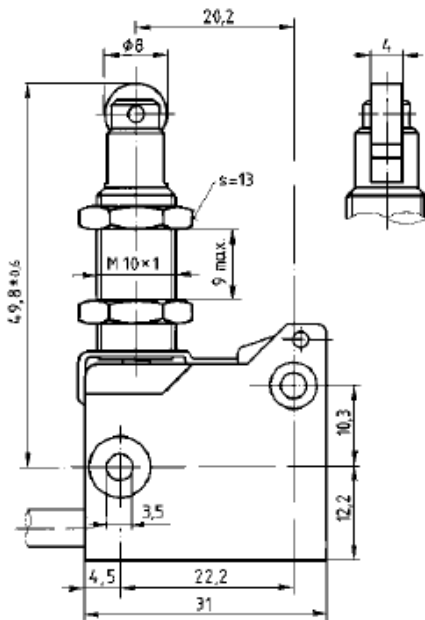
Actuating Force Fa max. (N)	3.5
Release Force Fr min (N)	1.0
Free Position Pr (mm)	27.7 ± 0.6
Operating Position Pa (mm)	27.2 ± 0.3
Over-travel sr min. (mm)	2.0
Differential movement sd max. (mm)	0.1

Type 1M : Telescopique plunger, thread



Actuating Force Fa max. (N)	3.5
Release Force Fr min (N)	1.0
Free Position Pr (mm)	50.3 ± 0.6
Operating Position Pa (mm)	49.7 ± 0.3
Over-travel sr min. (mm)	5.0
Differential movement sd max. (mm)	0.1

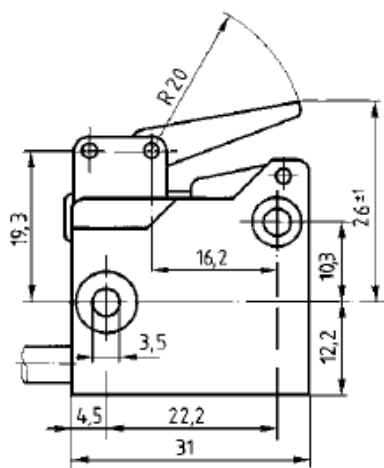
Type 1ML : Telescopic with roller, thread - upon request transversal roller



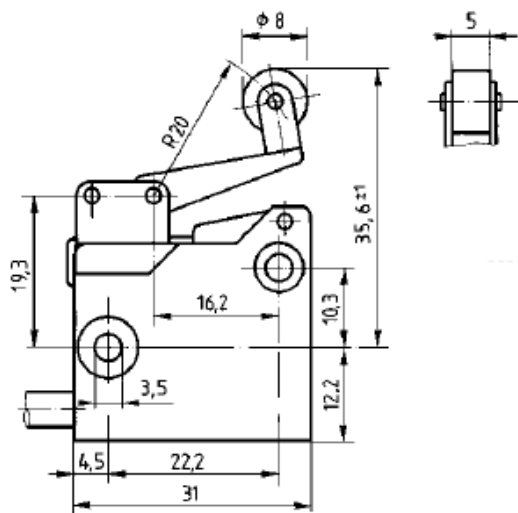
Actuating Force Fa max. (N)	3.5
Release Force Fr min (N)	1.0
Free Position Pr (mm)	49.8 ± 0.6
Operating Position Pa (mm)	48.3 ± 0.3
Over-travel sr min. (mm)	5.0
Differential movement sd max. (mm)	0.1

Type 3MA : Stiff lever - reverse action - Upon request lever outside of switch

Actuating Force Fa max. (N)	2.5
Release Force Fr min (N)	1.0
Free Position Pr (mm)	26.0 ± 1.0
Operating Position Pa (mm)	24.2 ± 0.6
Over-travel sr min. (mm)	2.5
Differential movement sd max. (mm)	0.8

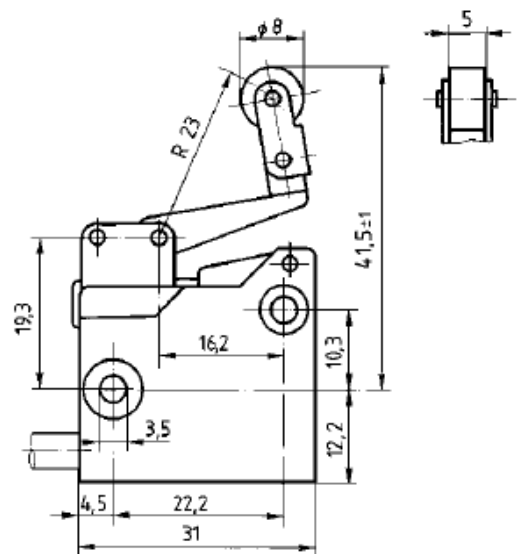


Type 5MAL : Stiff roller-lever - reverse action - Upon request lever outside of switch, Stainless steel roller



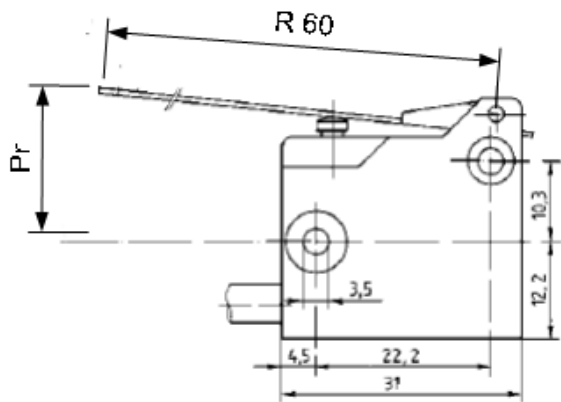
Actuating Force Fa max. (N)	3.0
Release Force Fr min (N)	1.0
Free Position Pr (mm)	35.6 ± 1.0
Operating Position Pa (mm)	34.0 ± 0.6
Over-travel sr min. (mm)	2.5
Differential movement sd max. (mm)	0.8

Type 6MAL : Stiff tip-action roller - reverse action - Upon request lever outside of switch, Stainless steel roller



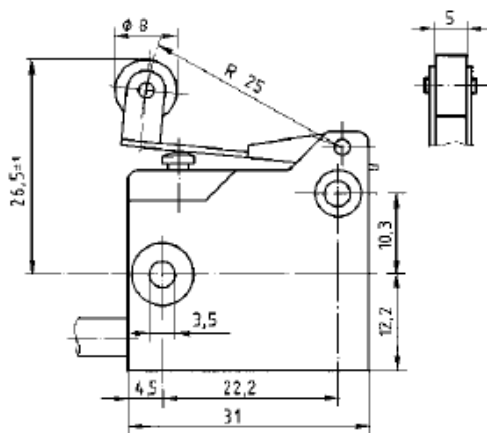
Actuating Force Fa max. (N)	3.0
Release Force Fr min (N)	1.0
Free Position Pr (mm)	41.5 ± 1.0
Operating Position Pa (mm)	39.8 ± 0.6
Over-travel sr min. (mm)	2.5
Differential movement sd max. (mm)	0.8

Type 7M : Stiff lever - direct action



Actuating Force Fa max. (N)	1.3
Release Force Fr min (N)	0.3
Free Position Pr (mm)	19.0 ± 1.0
Operating Position Pa (mm)	16.5 ± 0.8
Over-travel sr min. (mm)	0.5
Differential movement sd max. (mm)	0.8

Type 8ML25 : Stiff roller - lever - direct action - Upon request Stainless steel roller



Actuating Force Fa max. (N)	3.5
Release Force Fr min (N)	1.0
Free Position Pr (mm)	26.5 ± 1.0
Operating Position Pa (mm)	25.7 ± 0.3
Over-travel sr min. (mm)	0.2
Differential movement sd max. (mm)	0.1

Standard wiring diagram

	Code Actuator	Diagram	Color
Direct action	0		1 : Brown 2 : Black 4 : Blue
	1MS27		
	1M		
	1ML		
	7M		
8ML25			
Reverse action	3M		1 : Brown 2 : Black 4 : Blue
	5MAL		
	6MAL		

Ordering information

Housing	MP3	2	0	=	8ML25	L	375	L	100	PVC
1: without lever										

2: with lever

Contact material

0: Silver contact

1: Gold contact

Actuator

0: Basic switch - pin plunger

1MS27 : Plunger

1M : Plunger, thread short

1ML : Roller plunger, thread

3MA : Lever - reverse action

5MAL : Roller lever - reverse action

6MAL : Stiff roller lever - reverse action

7M : Direct action lever

8ML25 : Direct action roller lever

375 : 3 Wires section 0.75 mm<sup>2</sup>

318 : For UL Certification 3 wires 18 AWG

Length of cable in cm

Material of cable

PVC: Polyvinyl Chloride

PVCU : Switch with UL certification

PUR: Polyurethane

SI: Silicone

Microprecision Electronics SA - Wilbrecht Ledco Inc.

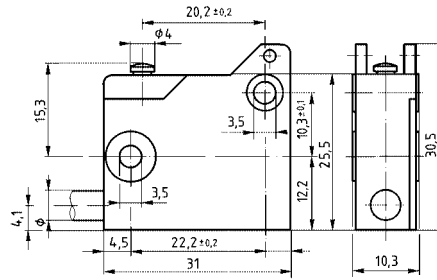
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# SERIES MP320 & DERIVATIVES


## MP320

### SEALED MINIATURE MICROSWITCH IP67

The MP320 miniature microswitch is a snap-action changeover simple break with the connection cable directly over-moulded into the housing.




#### GENERAL CHARACTERISTICS, TYPE MP320

Approvals	: 
depending on the version	: CSA
Degree of protection	: IP67
Class of protection	: II
Micro-switch	: $\mu$
Contact-gap	: 0.8 mm
Standards	: EN61058-1:92 + A1:93
Frequent functioning	: 50 E3
Mechanical life	: 50 x 10 <sup>6</sup> operations
Snap-action mechanism	: Beryllium coppers leaf spring with self-cleaning contact.
Actuators	: Overall dimensions in stainless steel.
Dimensions	: DIN 41 635, form A

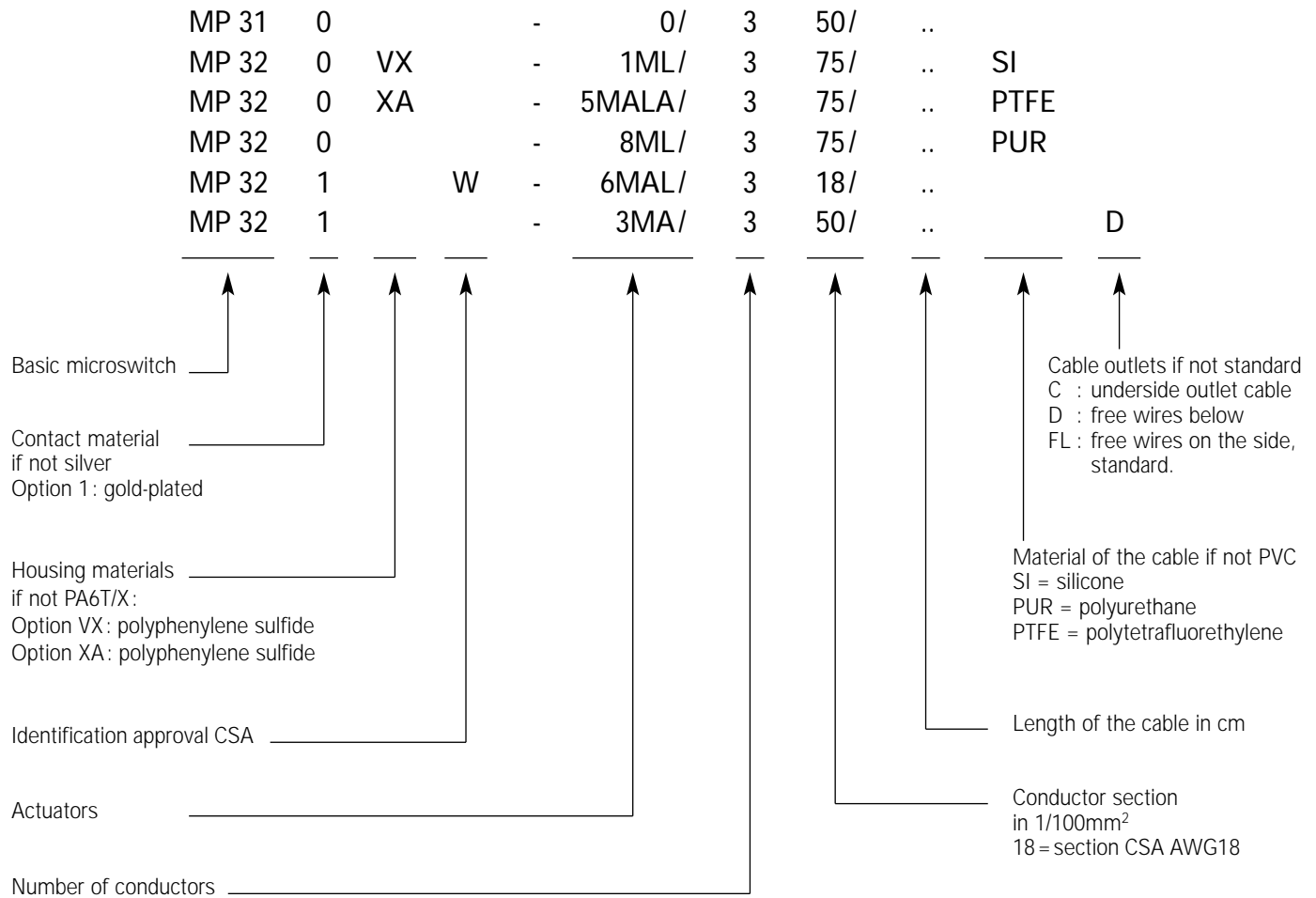
#### SWITCHING CAPACITY

Depending on the material of the electrical contacts and the cross-section of conductors.

Approvals			CSA
Cross-section of conductors	0.75 mm <sup>2</sup>	0.50 mm <sup>2</sup>	AWG 18
Ag contacts	6A 250VAC	2A 250VAC	6A 250VAC
Gold-plated contacts	0,1A 24VAC/DC		

# REFERENCE CODE OF THE ARTICLE

# SERIES MP320 & DERIVATIVES



Housing:	PA6T/X reinforced with glass fibre	- 40°C to + 130°C
	Auto-extinguishing according to UL94V-O	- 40°C to + 130°C
	VX PPS reinforced with glass fibre	- 40°C to + 150°C
	Auto-extinguishing according to UL94V-O	- 40°C to + 150°C
Membrane:	XA PPS reinforced with glass fibre	- 40°C to + 200°C
	Auto-extinguishing according to UL94V-O	- 40°C to + 200°C
	Certified temperature	
Cable:	Fluorsilicone rubber MFQ	- 40°C to + 175°C
	Variant XA (Membrane SI)	- 40°C to + 200°C
	PVC	- 20°C to + 70°C
	SI Silicone rubber	- 40°C to + 150°C
Free wires:	PUR polyurethane rubber	- 40°C to + 90°C
	PTFE polytetrafluorethylene	- 40°C to + 200°C
	PVC-CSA TR64 AWG18	- 40°C to + 105°C
	RXL155, outlets D or FL (without identification)	- 55°C to + 155°C



**CONNECTION**

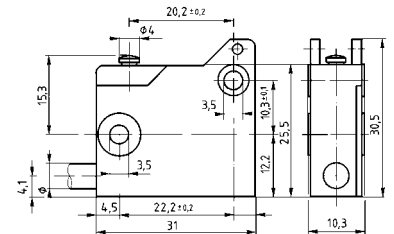
By cables or supple wires

**Cable with standard outlet**



Examples :

- MP320-0/375/100SI
- MP320-0/375/200
- MP320-5MAL/375/100PUR
- MP321-6MAL/375/80
- MP320VX-5MALA/375/500SI
- MP320XA-1ML/375/100PTFE

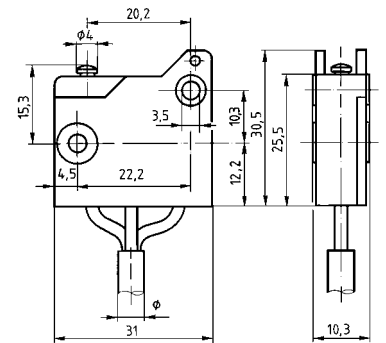


**Underside cable outlet «C»**



Examples :

- MP320-1MS27/375/50PURC
- MP320-3MB/375/200C

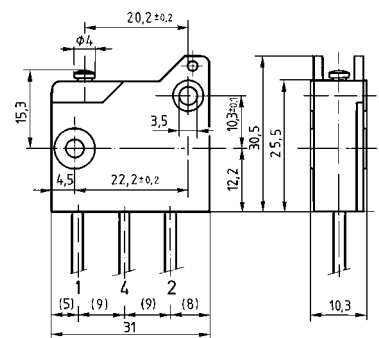


**Independent wire connection,  
underside outlet «D»  
Independent wire connection,  
approval CSA**



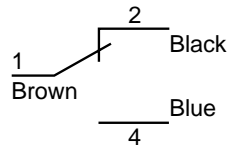
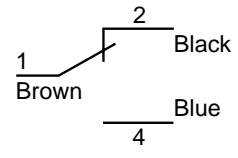
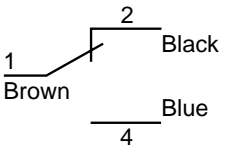
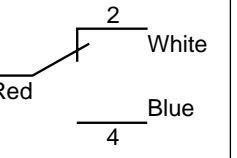
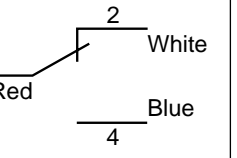
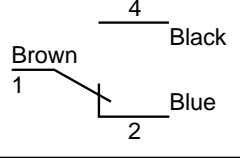
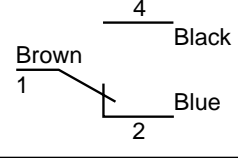
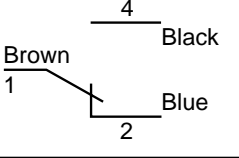
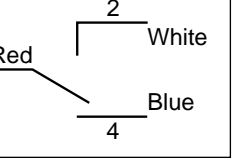
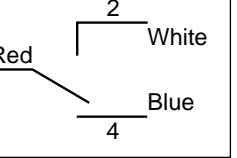
Examples :

- MP320-0/375/50D
- MP320-1MPSI/375/100D
- MP320W-5MAL/318/50D

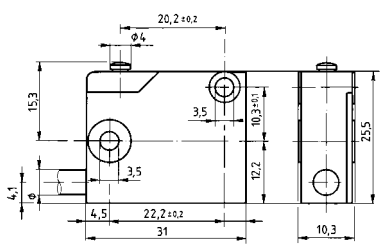
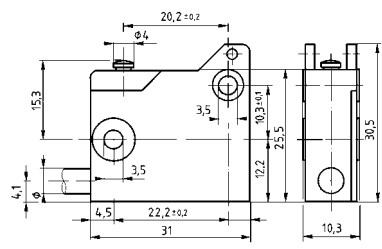


**WIRING DIAGRAM**

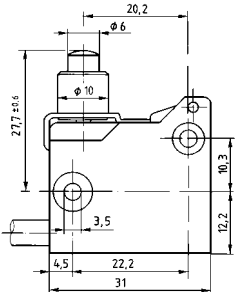
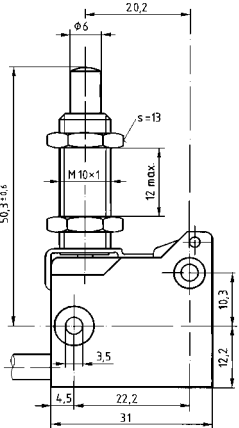
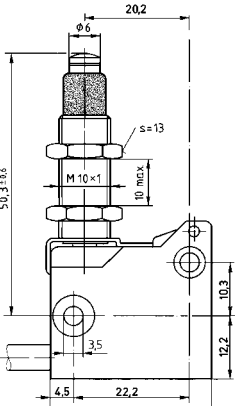
In relation with the type of the cable, the independent wires and the actuators

Isolating materials	PVC & RXL155	PTFE	Polyurethane	Silicone	CSA-PVC
Code in the reference of the article		<b>PTFE</b>	<b>PUR</b>	<b>SI</b>	<b>../318/..</b>
Without actuator «0» or type 1M..., 7M..., 8M...					
Reverse levers, types 3M..., 5M..., 6M...					

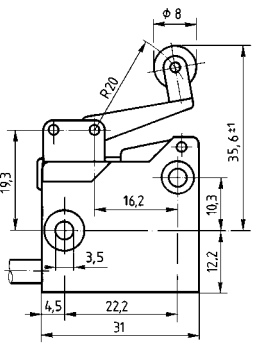
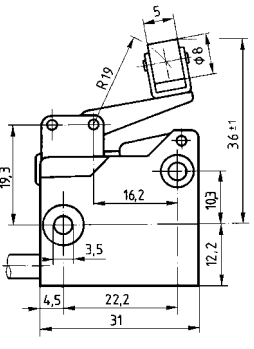
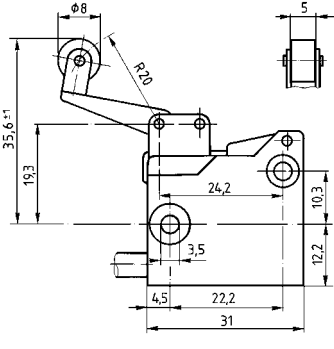
According to the availability of the market we reserve ourselves the right to modify the colors of identification of wire connection.

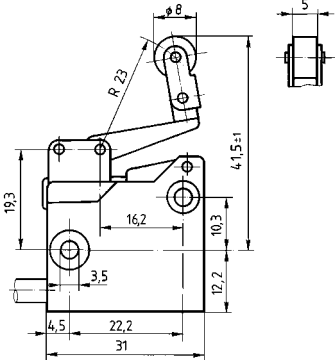
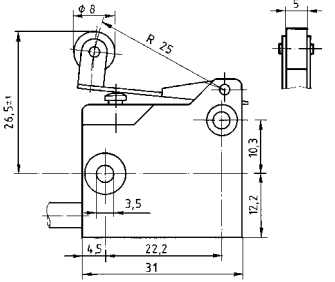
ACTUATING FORCE Fa max. (N)	RELEASE FORCE Fr min (N)	FREE POSITION Pr (mm)	OPERATING POSITION Pa (mm)	OVER-TRAVEL sr min. (mm)	DIFFERENTIAL MOVEMENT sd max. (mm)	DESIGNATION
3,5	1,0	15,3 ± 0,3	14,7 ± 0,2	0,2	0,07	MP310-0/..
						
3,5	1,0	15,3 ± 0,3	14,7 ± 0,2	0,2	0,07	MP320-0/..
						

\* **1MPN**: Chloroprene protective sleeve  
 \*\* **1MPSI**: Silicone protective sleeve

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)
 <p><b>MP320-1MS27/..</b></p>	3,5	1,0	27,7 ± 0,6	27,2 ± 0,3	2,0	0,10
 <p><b>MP320-1M/..</b></p>	3,5	1,0	50,3 ± 0,6	49,7 ± 0,3	5,0	0,10
 <p>* <b>MP320-1MPN/..</b>                  ** <b>MP320-1MPSI/..</b></p>	4,0	1,0	50,3 ± 0,6	49,7 ± 0,3	3,0	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
3,5	1,0	49,8 ± 0,6	49,3 ± 0,3	5,0	0,10	MP320-1ML/..
3,5	1,0	49,8 ± 0,6	49,3 ± 0,3	5,0	0,10	MP320-1MT/..
2,5	1,0	26,0 ± 1,0	24,2 ± 0,6	2,5	0,80	MP320-3MA/..
2,5	1,0	26,0 ± 1,0	24,2 ± 0,6	2,5	0,80	MP320-3MB/..

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)
 <p><b>MP320-5MAL/..</b></p>	3,0	1,0	35,6 ± 1,0	34,0 ± 0,6	2,5	0,80
 <p><b>MP320-5MAT/..</b></p>	3,0	1,0	36,0 ± 1,0	34,4 ± 0,6	2,5	0,80
 <p><b>MP320-5MBL/..</b></p>	3,0	1,0	35,6 ± 1,0	34,0 ± 0,6	2,5	0,80

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
3,0	1,0	41,5 ± 1,0	39,8 ± 0,6	2,5	0,80	MP320-6MAL/.. 
3,5	1,0	26,5 ± 1,0	25,7 ± 0,3	0,2	0,10	MP320-8ML25/.. 
1,3	0,3	28,5 ± 1,0	26,2 ± 0,8	0,5	0,80	MP320-8ML/.. 