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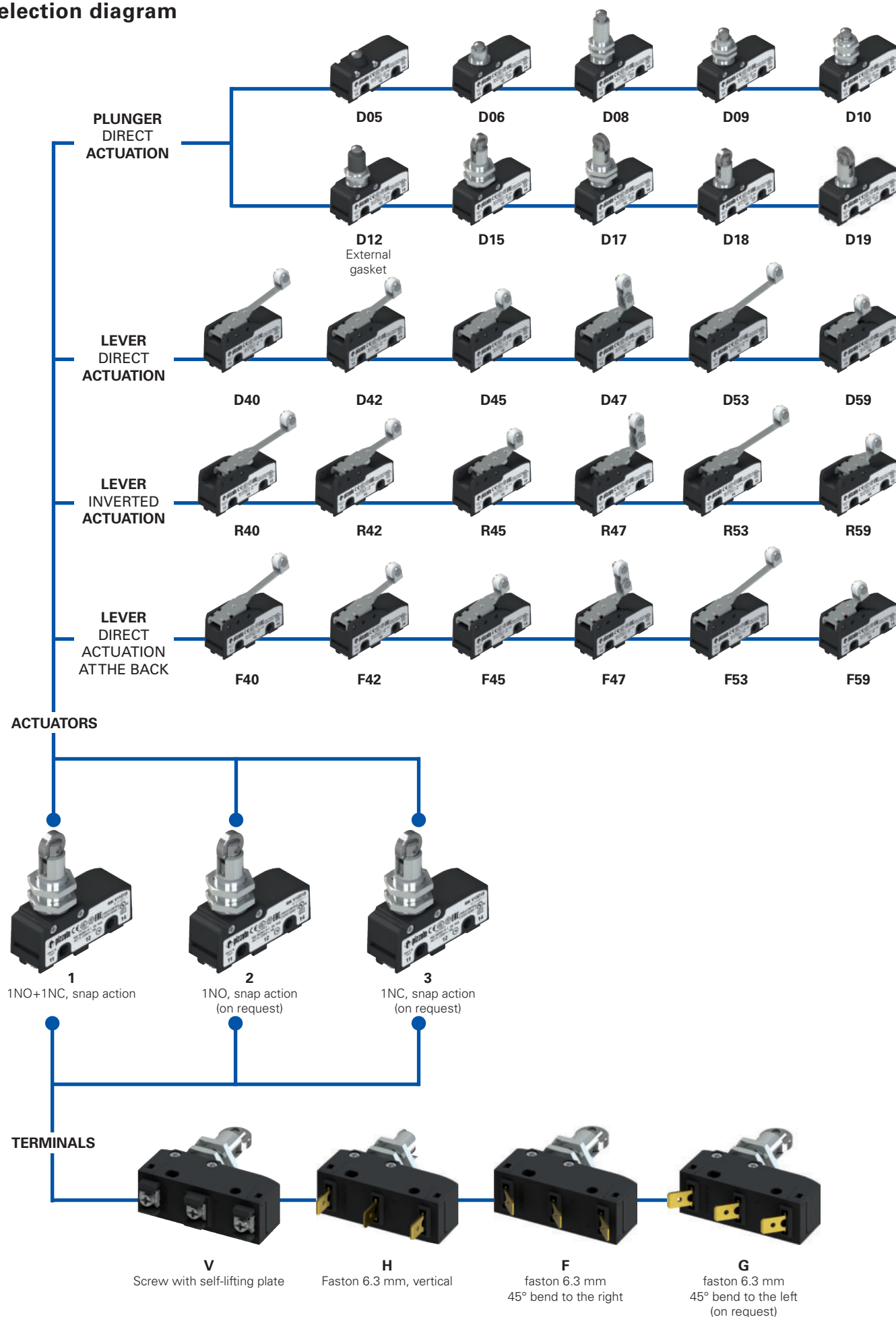
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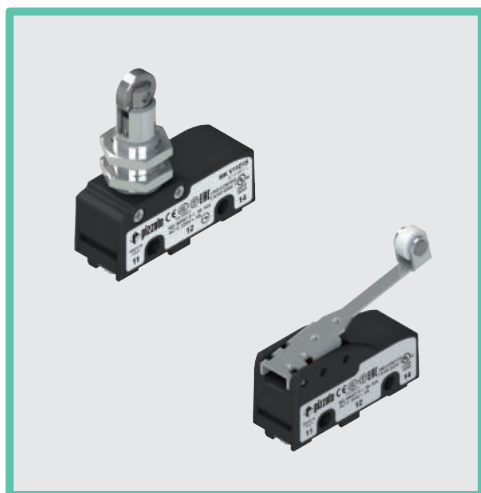
эл.почта: poz@nt-rt.ru || сайт: <https://pizzato.nt-rt.ru/>

Selection diagram



**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	
MK		V12D40-GR16T6	
Terminal type		Ambient temperature	
V	screw with self-lifting plate		-25°C ... +85°C (standard)
H	vertical faston	T6	-40°C ... +85°C
F	Faston, 45° bend to the right	Rollers	
G	Faston, 45° bend to the left (on request)		standard roller
Contact block		R16	metal roller Ø 9.5x4 mm (for actuators 40, 42, 45, 47, 53, 59 only)
1	1NO+1NC, snap action	R10	large plastic roller Ø 9.8x8.4 mm (for actuators 40, 42, 45, 53 only)
2	1NO, snap action (on request)	Contact type	
3	1NC, snap action (on request)		silver contacts (standard)
Maximum protection degree		G	silver contacts with 1 µm gold coating
1	IP40 (with terminal cover)	Actuator	
2	IP65 (with terminal cover)	01	pin
Type of actuation		02	pin
D	direct actuation	03	narrow plunger
R	inverted actuation	...	...
F	direct actuation at the back		



Main features

- Technopolymer housing
- Protection degree IP20, IP40 or IP65
- 4 terminal types available
- Versions with positive opening ☹
- Versions with gold-plated silver contacts
- Terminal covers with strain relief cable gland

Quality marks:



IMQ approval:	CA02.05772
UL approval:	E131787
CCC approval:	2021000305000105
EAC approval:	RUC-IT.YT03.B.00035/19

Installation for safety applications:

Use only microswitches marked with the ☹ symbol beside the product code. Always connect the safety circuit to the **NC contacts** (normally closed contacts) as stated in **standard EN 81-20 par. 5.11.2.2.1**. Actuate the switch **at least up to the positive opening travel (CAP)** reported next to the article code. Actuate the switch **at least with the positive opening force (FAP)** reported next to the article code.

⚠ If not expressly indicated in this chapter, for correct installation and utilization of all articles see the instructions given on pages 153 to 162.

Technical data

Housing

Housing made of glass fibre reinforced technopolymer, self-extinguishing and shock-proof.

Protection degree acc. to EN 60529:	IP00 without terminal cover
	IP20 (with terminal covers VF C01, VF C03)
	IP40 (with terminal covers VF MKC•1•, VF C02)
	IP65 (with terminal covers VF MKC•22 + MK V•2••• or VF MKC•23 + MK H•2•••)

General data

Ambient temperature:	-25°C ... +85°C (standard)
	-40°C ... +85°C (T6 option)
Max. actuation frequency:	3600 operating cycles/hour
Mechanical endurance:	10 million operating cycles
Safety parameter B _{10D} :	20,000,000 for NC contacts
Tightening torques for installation:	see page 158

Conductor cross section (flexible copper strands)

MK series:	min. 1 x 0.34 mm ² (1 x AWG 22)
	max. 2 x 1.5 mm ² (2 x AWG 16)

Wire stripping length (x):

MK V••••• articles (screw connection): 7 mm



In compliance with standards:

IEC 60947-5-1, EN 60947-5-1, IEC 60529, EN 60529, EN 60947-1, IEC 60947-1, EN IEC 63000.

Approvals:

UL 508, CSA 22.2 No.14, EN 60947-1, EN 60947-5-1.

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.

Electrical data

Thermal current (I _{th}):	16 A
Rated insulation voltage (U _i):	250 Vac 300 Vdc
Rated impulse withstand voltage (U _{imp}):	4 kV
Conditional short circuit current:	1000 A acc. to EN 60947-5-1
Protection against short circuits:	type gG fuse 16 A 250 V
Pollution degree:	3
Dielectric strength	2000 Vac/min.

Utilization category

Alternating current: AC15 (50 ... 60 Hz)			
U _e (V)	120	250	
I _e (A)	3	5	
Direct current: DC13			
U _e (V)	24	125	250
I _e (A)	4	0.6	0.3

Features approved by IMQ

Rated insulation voltage (U _i):	250 Vac
Conventional free air thermal current (I _{th}):	16 A
Protection against short circuits:	type gG fuse 16 A 250 V
Rated impulse withstand voltage (U _{imp}):	4 kV
Conditional short circuit current:	1000 A
Protection degree of the housing:	IP00
Terminals: screw terminals / faston	
Pollution degree:	3
Utilization category:	AC15
Operating voltage (U _e):	250 Vac (50 Hz)
Operating current (I _e):	5 A
Forms of the contact element: A, B, C	
Positive opening of contacts on contact blocks 1, 3	
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.

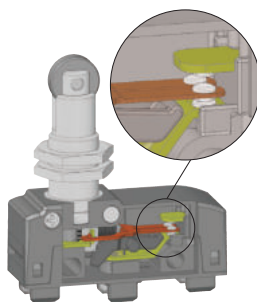
Features approved by UL

Electrical Ratings:	Q300 pilot duty (69 VA, 125-250 V dc)
	A300 pilot duty (720 VA, 120-300 V ac)

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

Contact reliability

Thanks to the double and redundant execution, the electrical contact of the microswitch has been designed with a technology providing increased reliability. For high-volume part orders, the microswitch can be also supplied with the NO or NC contact only, in order to reduce the costs.



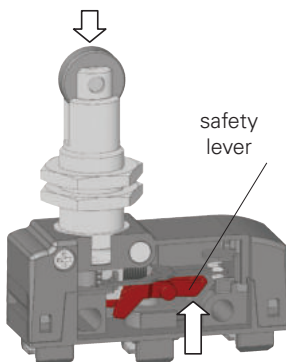
Versions with protection degree IP65

IP65

Inside the housing of the microswitch it is possible to insert gaskets to protect the mechanism against fine dusts or liquids up to the protection degree IP65.

To achieve a protection degree of IP65, please order the IP65-compatible version of the microswitch, with the IP65 terminal cover version.

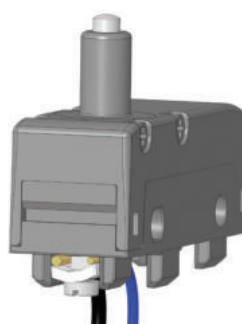
Microswitches for safety applications



All microswitches showing the symbol $\ominus$ besides the product code are with positive opening and therefore suitable for safety applications. These microswitches are provided with a rigid connection between the plunger and the NC contacts, which are forcibly actuated by an internal sturdy safety lever.

The positive opening has been designed in compliance with the standard EN 60947-5-1, Annex K. Therefore, these microswitches are suitable for safety applications.

Clamping screw plates for cables of different diameters (MK V $\bullet$)



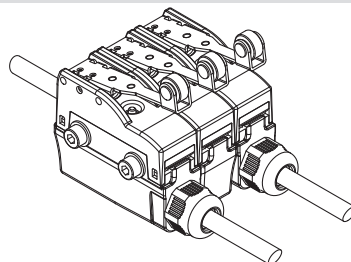
The clamping screw plates are provided with a particular "roofing tile" structure and are loosely coupled to the clamping screw. The design causes connection wires of different diameter to be pulled towards the screw when tightening the screw (see figure), preventing the wires from escaping towards the outside.

Compliant with EN 81-20 and EN 81-50



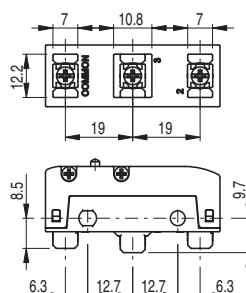
- Safety contacts in compliance with EN 60947-5-1, annex K.
- Protection degree higher than IP4x.
- Mechanical service life > 10⁶ cycles.

Stackable terminal covers with cable gland

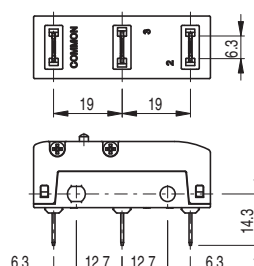


The terminal covers are provided with strain relief cable gland and protection degree up to IP65. These are snap-on terminal covers and have reduced dimensions contained in the profile of the microswitch so that these can be installed on microswitches fixed side by side as well. See page 70.

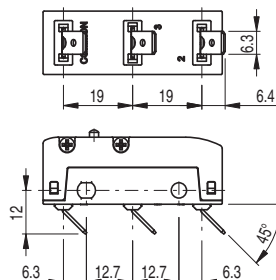
Terminal dimensions



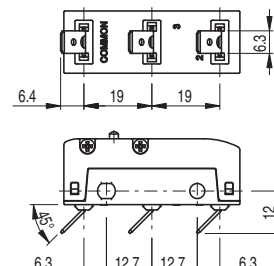
Screw terminals **V** with plate



Faston terminals **H**, vertical



Faston terminals **F**, right angle

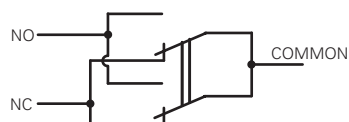


Faston terminals **G**, left angle (on request)

Note: The vertical faston terminals H can be bent according to specific installation requirements.

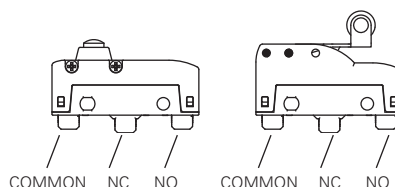
We recommend to bend the faston with an angle not higher than 45° and to carry out this operation no more than 5 times.

Circuit diagram

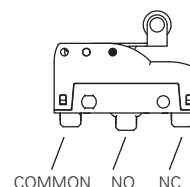


Mobile contact with single interruption and double contacts

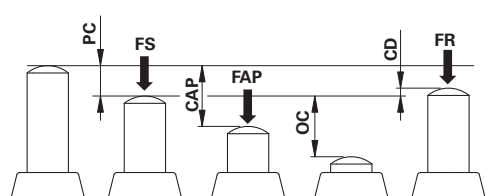
With direct actuation and direct actuation at the back (F, D)



With inverted actuation (R)

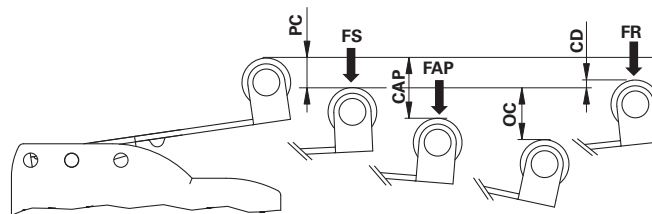


Legend



CD differential travel
PC pre-travel

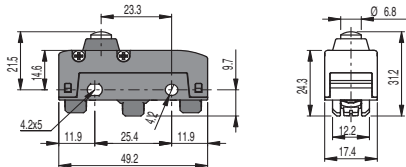
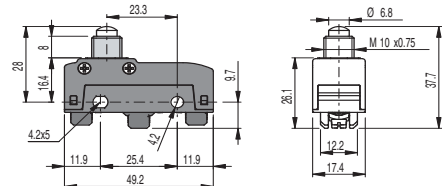
OC over-travel
CAP positive opening travel

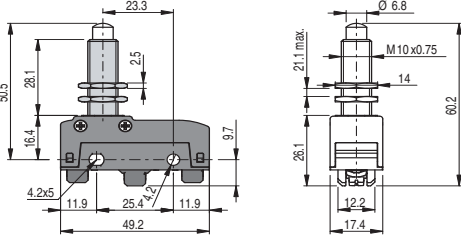
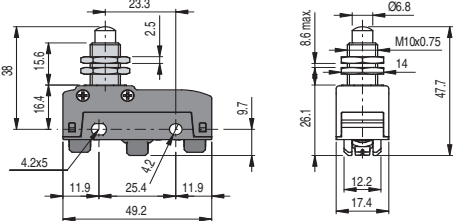


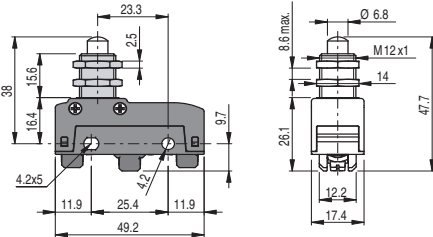
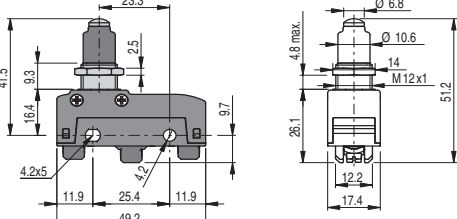
FS Trigger force
FR release force

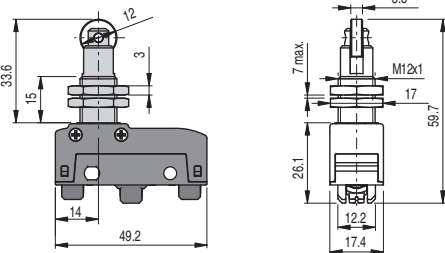
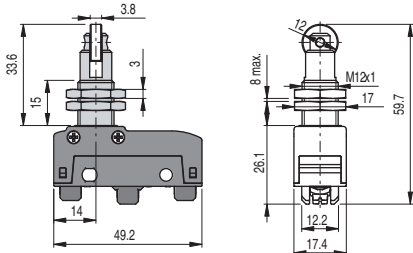
FAP positive opening force

Microswitches with direct actuation

	
MK V11D05 ➔ 1NO+1NC	MK V11D06 ➔ 1NO+1NC
PC 0,5 mm OC 2 mm CD 0,05 mm CAP 2,2 mm	PC 0,5 mm OC 3 mm CD 0,05 mm CAP 2,2 mm
FS 4 N FR 3 N FAP 20 N	FS 4 N FR 3 N FAP 20 N
Maximum and minimum speed see page 158 - type 1	Maximum and minimum speed see page 158 - type 1

	
MK V11D08 ➔ 1NO+1NC	MK V11D09 ➔ 1NO+1NC
PC 0,5 mm OC 5,5 mm CD 0,05 mm CAP 2,2 mm	PC 0,5 mm OC 5,5 mm CD 0,05 mm CAP 2,2 mm
FS 4 N FR 3 N FAP 20 N	FS 4 N FR 3 N FAP 20 N
Maximum and minimum speed see page 158 - type 1	Maximum and minimum speed see page 158 - type 1

	
MK V11D10 ➔ 1NO+1NC	MK V11D12 ➔ 1NO+1NC
PC 0,5 mm OC 5,5 mm CD 0,05 mm CAP 2,2 mm	PC 0,5 mm OC 5,5 mm CD 0,05 mm CAP 2,2 mm
FS 4 N FR 3 N FAP 20 N	FS 4.5 N FR 3 N FAP 20 N
Maximum and minimum speed see page 158 - type 1	Maximum and minimum speed see page 158 - type 1

Mounting only through threaded fitting	
	
MK V11D15 ➔ 1NO+1NC	MK V11D17 ➔ 1NO+1NC
PC 0,5 mm OC 5,5 mm CD 0,05 mm CAP 2,2 mm	PC 0,5 mm OC 5,5 mm CD 0,05 mm CAP 2,2 mm
FS 4 N FR 3 N FAP 20 N	FS 4 N FR 3 N FAP 20 N
Maximum and minimum speed see page 158 - type 2	Maximum and minimum speed see page 158 - type 2

All values in the drawings are in mm

Accessories See page 149



		MK V11D18 1NO+1NC	PC 0,5 mm OC 5,5 mm CD 0,05 mm CAP 2,2 mm	FS 4 N FR 3 N FAP 20 N
		MK V11D19 1NO+1NC	PC 0,5 mm OC 5,5 mm CD 0,05 mm CAP 2,2 mm	FS 4 N FR 3 N FAP 20 N
Maximum and minimum speed see page 158 - type 2		Maximum and minimum speed see page 158 - type 2		

		MK V11D40 1NO+1NC	PC 8,2 mm OC 6,1 mm CD 0,8 mm	FS 0,86 N FR 0,66 N
		MK V11D42 1NO+1NC	PC 6,5 mm OC 4,8 mm CD 0,6 mm	FS 1,09 N FR 0,84 N
Maximum and minimum speed see page 158 - type 6		Maximum and minimum speed see page 158 - type 6		

		MK V11D45 1NO+1NC	PC 4,5 mm OC 3,2 mm CD 0,4 mm	FS 1,66 N FR 1,28 N
		MK V11D47 1NO+1NC	PC 4,2 mm OC 2,8 mm CD 0,4 mm	FS 1,66 N FR 1,28 N
Maximum and minimum speed see page 158 - type 6		Maximum and minimum speed see page 158 - type 6		

		MK V11D53 1NO+1NC	PC 7,7 mm OC 7,8 mm CD 0,9 mm	FS 0,76 N FR 0,58 N
		MK V11D59 1NO+1NC	PC 2,3 mm OC 4,5 mm CD 0,2 mm	FS 2,3 N FR 1,77 N
Maximum and minimum speed see page 158 - type 6		Maximum and minimum speed see page 158 - type 6		

Microswitches with inverted actuation

		MK V11R40 1NO+1NC	PC 2,8 mm OC 10,9 mm CD 0,45 mm	FS 0,8 N FR 0,5 N
		MK V11R42 1NO+1NC	PC 2,7 mm OC 8,4 mm CD 0,5 mm	FS 1,2 N FR 1,7 N
Maximum and minimum speed see page 158 - type 7		Maximum and minimum speed see page 158 - type 7		

All values in the drawings are in mm

Accessories See page 149

MK series switches for door operators

MK V11R45	1NO+1NC	PC 1,5 mm OC 5,5 mm CD 0,3 mm	FS 1,7 N FR 1 N
Maximum and minimum speed see page 158 - type 7		Maximum and minimum speed see page 158 - type 7	

MK V11R53	1NO+1NC	PC 3,6 mm OC 11,2 mm CD 0,5 mm	FS 0,8 N FR 0,4 N
MK V11R59	1NO+1NC	PC 1,5 mm OC 3,9 mm CD 0,2 mm	FS 2,4 N FR 1,3 N
Maximum and minimum speed see page 158 - type 7		Maximum and minimum speed see page 158 - type 7	

Microswitches with direct actuation at the back

MK V11F40	1NO+1NC	PC 2,1 mm OC 8,3 mm CD 0,25 mm	FS 0,85 N FR 0,65 N
MK V11F42	1NO+1NC	PC 1,8 mm OC 6,7 mm CD 0,2 mm CAP 8 mm	FS 1 N FR 0,7 N FAP 4,9 N
Maximum and minimum speed see page 158 - type 8		Maximum and minimum speed see page 158 - type 8	

MK V11F45	1NO+1NC	PC 1,1 mm OC 4,9 mm CD 0,1 mm CAP 5,8 mm	FS 1,5 N FR 0,9 N FAP 6,9 N
MK V11F47	1NO+1NC	PC 1,3 mm OC 4,7 mm CD 0,1 mm CAP 5,8 mm	FS 1,6 N FR 0,9 N FAP 6,9 N
Maximum and minimum speed see page 158 - type 8		Maximum and minimum speed see page 158 - type 8	

MK V11F53	1NO+1NC	PC 2,5 mm OC 9,3 mm CD 0,3 mm	FS 0,7 N FR 0,6 N
MK V11F59	1NO+1NC	PC 0,8 mm OC 4,5 mm CD 0,08 mm CAP 4,9 mm	FS 1,9 N FR 1,3 N FAP 8,9 N
Maximum and minimum speed see page 158 - type 8		Maximum and minimum speed see page 158 - type 8	

All values in the drawings are in mm

Accessories See page 149

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