

# Микропереключатели для работы при высоких температурах МК

## Технические характеристики

По вопросам продаж и поддержки обращайтесь:

Алматы (727)345-47-04  
Ангарск (3955)60-70-56  
Архангельск (8182)63-90-72  
Астрахань (8512)99-46-04  
Барнаул (3852)73-04-60  
Белгород (4722)40-23-64  
Благовещенск (4162)22-76-07  
Брянск (4832)59-03-52  
Владивосток (423)249-28-31  
Владикавказ (8672)28-90-48  
Владимир (4922)49-43-18  
Волгоград (844)278-03-48  
Вологда (8172)26-41-59  
Воронеж (473)204-51-73  
Екатеринбург (343)384-55-89

Иваново (4932)77-34-06  
Ижевск (3412)26-03-58  
Иркутск (395)279-98-46  
Казань (843)206-01-48  
Калининград (4012)72-03-81  
Калуга (4842)92-23-67  
Кемерово (3842)65-04-62  
Киров (8332)68-02-04  
Коломна (4966)23-41-49  
Кострома (4942)77-07-48  
Краснодар (861)203-40-90  
Красноярск (391)204-63-61  
Курск (4712)77-13-04  
Курган (3522)50-90-47  
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13  
Москва (495)268-04-70  
Мурманск (8152)59-64-93  
Набережные Челны (8552)20-53-41  
Нижний Новгород (831)429-08-12  
Новокузнецк (3843)20-46-81  
Ноябрьск (3496)41-32-12  
Новосибирск (383)227-86-73  
Омск (3812)21-46-40  
Орел (4862)44-53-42  
Оренбург (3532)37-68-04  
Пенза (8412)22-31-16  
Петрозаводск (8142)55-98-37  
Псков (8112)59-10-37  
Пермь (342)205-81-47

Ростов-на-Дону (863)308-18-15  
Рязань (4912)46-61-64  
Самара (846)206-03-16  
Санкт-Петербург (812)309-46-40  
Саратов (845)249-38-78  
Севастополь (8692)22-31-93  
Саранск (8342)22-96-24  
Симферополь (3652)67-13-56  
Смоленск (4812)29-41-54  
Сочи (862)225-72-31  
Ставрополь (8652)20-65-13  
Сургут (3462)77-98-35  
Сыктывкар (8212)25-95-17  
Тамбов (4752)50-40-97  
Тверь (4822)63-31-35

Тольятти (8482)63-91-07  
Томск (3822)98-41-53  
Тула (4872)33-79-87  
Тюмень (3452)66-21-18  
Ульяновск (8422)24-23-59  
Улан-Удэ (3012)59-97-51  
Уфа (347)229-48-12  
Хабаровск (4212)92-98-04  
Чебоксары (8352)28-53-07  
Челябинск (351)202-03-61  
Череповец (8202)49-02-64  
Чита (3022)38-34-83  
Якутск (4112)23-90-97  
Ярославль (4852)69-52-93

Россия +7(495)268-04-70

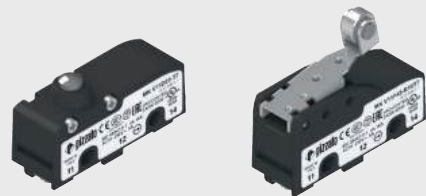
Казахстан +(727)345-47-04

Беларусь +(375)257-127-884

Узбекистан +998(71)205-18-59

Киргизия +996(312)96-26-47

эл.почта: [poz@nt-rt.ru](mailto:poz@nt-rt.ru) || сайт: <https://pizzato.nt-rt.ru/>



### Main features

- Operating temperature up to +120°C
- Technopolymer housing
- High reliability contacts
- 4 terminal types available
- 15 actuators available
- Versions with positive opening  $\ominus$
- Versions with gold-plated silver contacts

### Quality marks:



IMQ approval: CA02.05772  
 UL approval: E131787  
 EAC approval: RU C-IT.YT03.B.00035/19

### Technical data

#### Housing

Housing made of glass fibre reinforced technopolymer, self-extinguishing and shock-proof.  
 Protection degree acc. to EN 60529: IP00 (terminals)  
 IP40 (electrical contacts)

#### General data

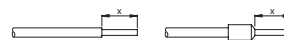
Ambient temperature: -25°C ... +120°C  
 Max. actuation frequency: 3600 operating cycles/hour  
 Mechanical endurance: 500,000 operating cycles  
 Safety parameter  $B_{10D}$ : 1,000,000 for NC contacts  
 Tightening torques for installation: see page 190

#### Cable cross section (flexible copper strands)

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

#### Cable 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, EN IEC 63000, IEC 60947-1.

#### 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.

#### Installation for safety applications:

Use only microswitches marked with the  $\ominus$  symbol beside the product code. Always connect the safety circuit to the **NC contacts** (normally closed contacts) as required by **EN ISO 14119, paragraph 5.4** for specific interlock applications and **EN ISO 13849-2 tables D3** (well-trying components) and **D.8** (fault exclusions) for safety applications in general. 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 227 to 242.**

### Electrical data

### Utilization category

|                            |                                                |                                  |                                          |     |     |     |
|----------------------------|------------------------------------------------|----------------------------------|------------------------------------------|-----|-----|-----|
| Ambient temperature +20 °C | Thermal current ( $I_{th}$ ):                  | 16 A                             | Alternating current: AC15 (50 ... 60 Hz) |     |     |     |
|                            | Rated insulation voltage ( $U_i$ ):            | 250 Vac 300 Vdc                  |                                          |     |     |     |
|                            | Rated impulse withstand voltage ( $U_{imp}$ ): | 4 kV                             | Ue (V)                                   | 120 | 250 |     |
|                            | Conditional short circuit current:             | 1000 A acc. to EN 60947-5-1      | Ie (A)                                   | 3   | 5   |     |
|                            | Protection against short circuits:             | type gG fuse 16 A 250 V          | Direct current: DC13                     |     |     |     |
|                            | Pollution degree:                              | 3                                | Ue (V)                                   | 24  | 125 | 250 |
|                            | Dielectric strength                            | 2000 Vac/min.                    | Ie (A)                                   | 4   | 0.6 | 0.3 |
| Ambient temperature +120°C | Thermal current ( $I_{th}$ ):                  | 3 A                              | Alternating current: AC15 (50 ... 60 Hz) |     |     |     |
|                            | Rated insulation voltage ( $U_i$ ):            | 250 Vac 300 Vdc                  |                                          |     |     |     |
|                            | Rated impulse withstand voltage ( $U_{imp}$ ): | 4 kV                             | Ue (V)                                   | 120 | 250 |     |
|                            | Conditional short circuit current:             | 1000 A acc. to EN 60947-5-1      | Ie (A)                                   | 3   | 2   |     |
|                            | Protection against short circuits:             | Fuse - 3 A or less 250 V type gG | Direct current: DC13                     |     |     |     |
|                            | Pollution degree:                              | 3                                | Ue (V)                                   | 24  | 125 |     |
|                            | Dielectric strength                            | 2000 Vac/min.                    | Ie (A)                                   | 2   | 0.5 |     |

### Features approved by IMQ

Rated insulation voltage ( $U_i$ ): 250 Vac  
 Conventional free air thermal current ( $I_{th}$ ): 3 A  
 Protection against short circuits: type gG fuse 3 A 250 V  
 Rated impulse withstand voltage ( $U_{imp}$ ): 4 kV  
 Conditional short circuit current: 1000 A  
 MF, MS terminals  
 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: C

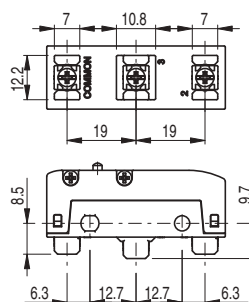
In compliance with standards: EN 60947-1, EN 60947-5-1, fundamental requirements of the Low Voltage Directive 2014/35/EU.

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

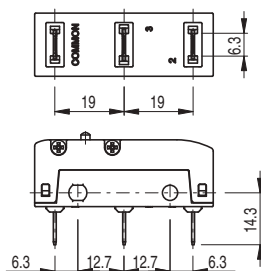


## Terminal dimensions

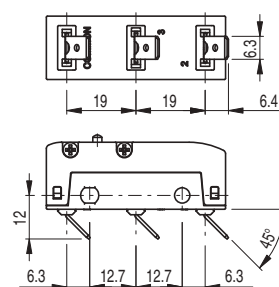
All values in the drawings are in mm



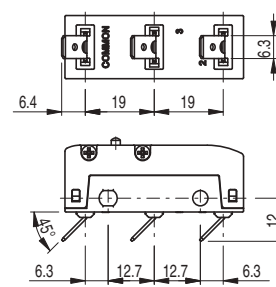
Screw terminals **V** with plate



Faston terminals **H**, vertical



Faston terminals **F**, right angle

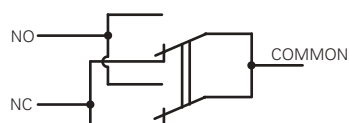


Faston terminals **G**, left angle  
(upon request)

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

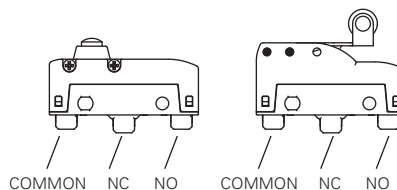
We recommend to bend the faston with an angle not higher than 45° and to carry out this operation no more than 5 times.

## Circuit diagram

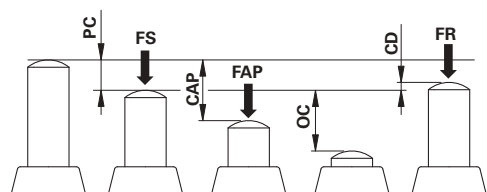


Mobile contact with single interruption  
and double contacts

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



## Actuation forces and travels

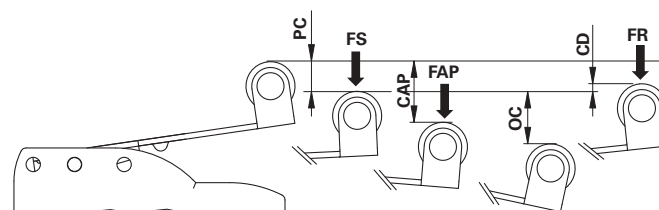


**PC** pre-travel

**CAP** positive opening travel

**OC** over-travel

**CD** differential travel



**FS** Trigger force

**FR** release force

**FAP** positive opening force

## 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 V11F45-GR16T7**

### Terminal type

|          |                                              |
|----------|----------------------------------------------|
| <b>V</b> | screw with self-lifting plate                |
| <b>H</b> | vertical faston                              |
| <b>F</b> | Faston, 45° bend to the right                |
| <b>G</b> | Faston, 45° bend to the left<br>(on request) |

### Contact block

|          |                                      |
|----------|--------------------------------------|
| <b>1</b> | 1NO+1NC,<br>snap action, change-over |
|----------|--------------------------------------|

### Type of actuation

|          |                              |
|----------|------------------------------|
| <b>D</b> | direct actuation             |
| <b>F</b> | direct actuation at the back |

### Ambient temperature

|           |                  |
|-----------|------------------|
| <b>T7</b> | -25°C ... +120°C |
|-----------|------------------|

### Rollers

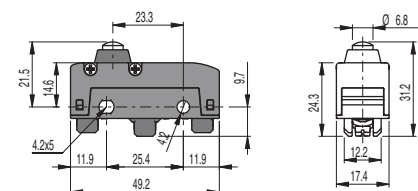
|            |                                                             |
|------------|-------------------------------------------------------------|
| <b>R16</b> | metal roller Ø 9.5x4 mm (for actuators 40, 42, 45, 59 only) |
|------------|-------------------------------------------------------------|

### Contact type

|          |                                    |
|----------|------------------------------------|
|          | silver contacts (standard)         |
| <b>G</b> | silver contacts, 1 µm gold coating |

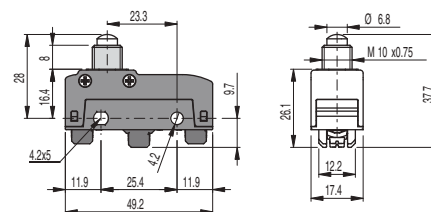
### Actuator

|           |                  |
|-----------|------------------|
| <b>05</b> | low plunger      |
| <b>06</b> | threaded plunger |
| <b>08</b> | threaded plunger |
| ...       | ...              |



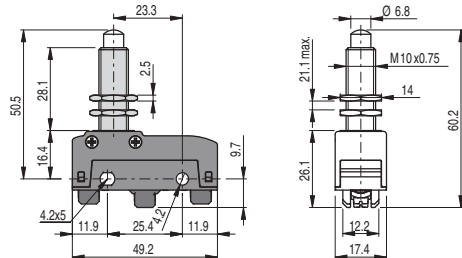
|                     |  |     |         |     |      |
|---------------------|--|-----|---------|-----|------|
| <b>MK V11D05-T7</b> |  | PC  | 0.5 mm  | FS  | 4 N  |
|                     |  | OC  | 2 mm    | FR  | 3 N  |
|                     |  | CD  | 0.05 mm | FAP | 20 N |
|                     |  | CAP | 2.2 mm  |     |      |
|                     |  |     |         |     |      |

Maximum and minimum speed see page 239 - type 1



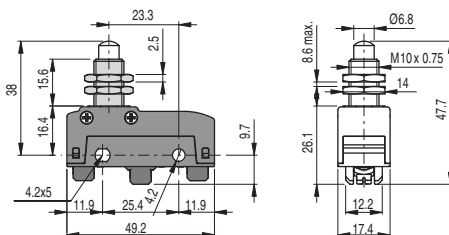
|                     |  |     |         |     |      |
|---------------------|--|-----|---------|-----|------|
| <b>MK V11D06-T7</b> |  | PC  | 0.5 mm  | FS  | 4 N  |
|                     |  | OC  | 3 mm    | FR  | 3 N  |
|                     |  | CD  | 0.05 mm | FAP | 20 N |
|                     |  | CAP | 2.2 mm  |     |      |
|                     |  |     |         |     |      |

Maximum and minimum speed see page 239 - type 1



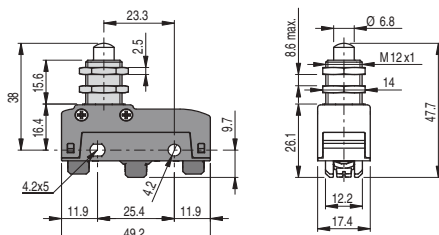
|                     |  |     |         |     |      |
|---------------------|--|-----|---------|-----|------|
| <b>MK V11D08-T7</b> |  | PC  | 0.5 mm  | FS  | 4 N  |
|                     |  | OC  | 5.5 mm  | FR  | 3 N  |
|                     |  | CD  | 0.05 mm | FAP | 20 N |
|                     |  | CAP | 2.2 mm  |     |      |
|                     |  |     |         |     |      |

Maximum and minimum speed see page 239 - type 1



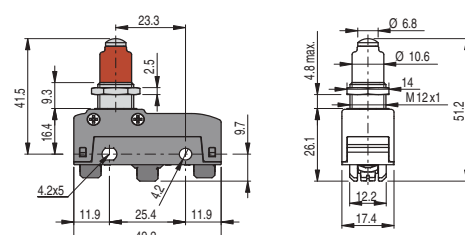
|                     |  |     |         |     |      |
|---------------------|--|-----|---------|-----|------|
| <b>MK V11D09-T7</b> |  | PC  | 0.5 mm  | FS  | 4 N  |
|                     |  | OC  | 5.5 mm  | FR  | 3 N  |
|                     |  | CD  | 0.05 mm | FAP | 20 N |
|                     |  | CAP | 2.2 mm  |     |      |
|                     |  |     |         |     |      |

Maximum and minimum speed see page 239 - type 1



|                     |  |     |         |     |      |
|---------------------|--|-----|---------|-----|------|
| <b>MK V11D10-T7</b> |  | PC  | 0.5 mm  | FS  | 4 N  |
|                     |  | OC  | 5.5 mm  | FR  | 3 N  |
|                     |  | CD  | 0.05 mm | FAP | 20 N |
|                     |  | CAP | 2.2 mm  |     |      |
|                     |  |     |         |     |      |

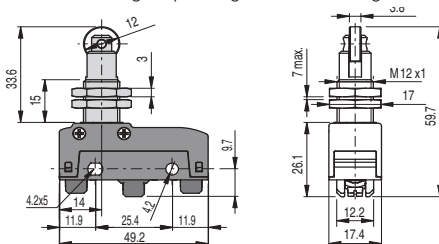
Maximum and minimum speed see page 239 - type 1



|                     |  |     |         |     |      |
|---------------------|--|-----|---------|-----|------|
| <b>MK V11D12-T7</b> |  | PC  | 0.5 mm  | FS  | 4 N  |
|                     |  | OC  | 5.5 mm  | FR  | 3 N  |
|                     |  | CD  | 0.05 mm | FAP | 20 N |
|                     |  | CAP | 2.2 mm  |     |      |
|                     |  |     |         |     |      |

Maximum and minimum speed see page 239 - type 1

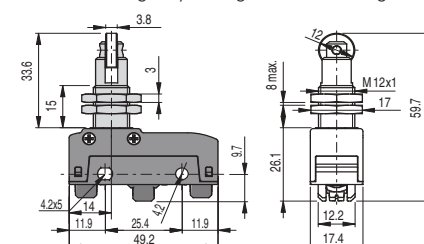
Mounting only through threaded fitting



|                     |  |     |         |     |      |
|---------------------|--|-----|---------|-----|------|
| <b>MK V11D15-T7</b> |  | PC  | 0.5 mm  | FS  | 4 N  |
|                     |  | OC  | 5.5 mm  | FR  | 3 N  |
|                     |  | CD  | 0.05 mm | FAP | 20 N |
|                     |  | CAP | 2.2 mm  |     |      |
|                     |  |     |         |     |      |

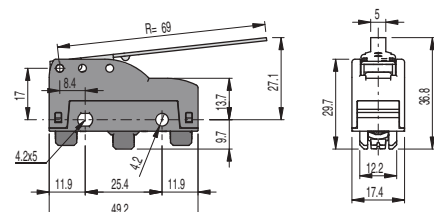
Maximum and minimum speed see page 239 - type 2

Mounting only through threaded fitting



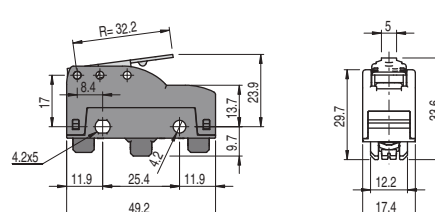
|                     |  |     |         |     |      |
|---------------------|--|-----|---------|-----|------|
| <b>MK V11D17-T7</b> |  | PC  | 0.5 mm  | FS  | 4 N  |
|                     |  | OC  | 5.5 mm  | FR  | 3 N  |
|                     |  | CD  | 0.05 mm | FAP | 20 N |
|                     |  | CAP | 2.2 mm  |     |      |
|                     |  |     |         |     |      |

Maximum and minimum speed see page 239 - type 2



|                     |  |    |         |    |       |
|---------------------|--|----|---------|----|-------|
| <b>MK V11F30-T7</b> |  | PC | 3.2 mm  | FS | 0.6 N |
|                     |  | OC | 11.2 mm | FR | 0.5 N |
|                     |  | CD | 0.35 mm |    |       |
|                     |  |    |         |    |       |
|                     |  |    |         |    |       |

Maximum and minimum speed see page 239 - type 5



|                     |  |     |         |     |        |
|---------------------|--|-----|---------|-----|--------|
| <b>MK V11F31-T7</b> |  | PC  | 1.45 mm | FS  | 1.5 N  |
|                     |  | OC  | 5 mm    | FR  | 0.92 N |
|                     |  | CD  | 0.17 mm | FAP | 5.78 N |
|                     |  | CAP | 5.72 mm |     |        |
|                     |  |     |         |     |        |

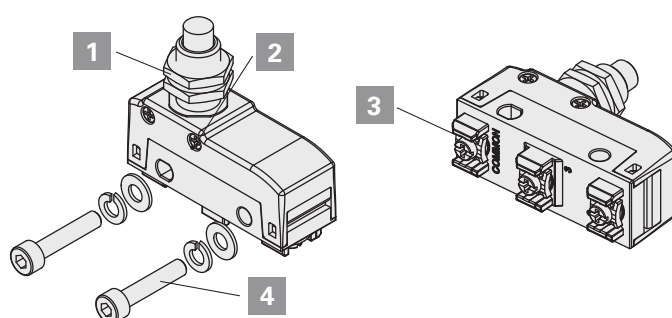
Maximum and minimum speed see page 239 - type 5



|                                                                                                                    |                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
|                                                                                                                    |                                                                                                                   |
| <b>MK V11F32-T7</b> 1NO+1NC<br>PC 2.7 mm FS 0.7 N<br>OC 9.3 mm FR 0.6 N<br>CD 0.4 mm                               | <b>MK V11F40-R16T7</b> → 1NO+1NC<br>PC 2.1 mm FS 0.85 N<br>OC 8.3 mm FR 0.65 N<br>CD 0.25 mm                      |
| Maximum and minimum speed see page 239 - type 5                                                                    | Maximum and minimum speed see page 239 - type 8                                                                   |
|                                                                                                                    |                                                                                                                   |
| <b>MK V11F42-R16T7</b> → 1NO+1NC<br>PC 1.8 mm FS 1 N<br>OC 6.7 mm FR 0.7 N<br>CD 0.2 mm FAP 4.9 N<br>CAP 9 mm      | <b>MK V11F45-R16T7</b> → 1NO+1NC<br>PC 1.1 mm FS 1.3 N<br>OC 4.9 mm FR 0.9 N<br>CD 0.1 mm FAP 6.9 N<br>CAP 6.3 mm |
| Maximum and minimum speed see page 239 - type 8                                                                    | Maximum and minimum speed see page 239 - type 8                                                                   |
|                                                                                                                    |                                                                                                                   |
| <b>MK V11F59-R16T7</b> → 1NO+1NC<br>PC 0.8 mm FS 1.7 N<br>OC 4.5 mm FR 1.3 N<br>CD 0.08 mm FAP 8.9 N<br>CAP 4.9 mm |                                                                                                                   |
| Maximum and minimum speed see page 239 - type 8                                                                    |                                                                                                                   |

All values in the drawings are in mm

## Tightening torques



- |                                                                |                |
|----------------------------------------------------------------|----------------|
| 1 Head nuts                                                    | 2 ... 3 Nm     |
| 2 Head screws                                                  | 0.3 ... 0.4 Nm |
| 3 Terminal screws                                              | 0.6 ... 0.8 Nm |
| 4 M4 fixing screws, body (insert a washer and a spring washer) | 0.8 ... 1.2 Nm |
- Attention:** a tightening torque higher than 1.2 Nm can cause the breaking of the microswitch.

## Accessories

Packs of 10 pcs.

|                                                                                                                    |                                                                                                                    |                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
|                                                                                                                    |                                                                                                                    |                                                                                                                       |
| <b>Article</b><br>VF AC83<br><b>Description</b><br>Hex threaded nut for microswitches with actuators D06, D08, D09 | <b>Article</b><br>VF AC72<br><b>Description</b><br>Hex threaded nut for microswitches with actuators D10, D12, D13 | <b>Article</b><br>AC 35<br><b>Description</b><br>Hex threaded nut, notched, for microswitches with actuators D15, D16 |

## По вопросам продаж и поддержки обращайтесь:

Алматы (727)345-47-04  
Ангарск (3955)60-70-56  
Архангельск (8182)63-90-72  
Астрахань (8512)99-46-04  
Барнаул (3852)73-04-60  
Белгород (4722)40-23-64  
Благовещенск (4162)22-76-07  
Брянск (4832)59-03-52  
Владивосток (423)249-28-31  
Владикавказ (8672)28-90-48  
Владимир (4922)49-43-18  
Волгоград (844)278-03-48  
Вологда (8172)26-41-59  
Воронеж (473)204-51-73  
Екатеринбург (343)384-55-89

Иваново (4932)77-34-06  
Ижевск (3412)26-03-58  
Иркутск (395)279-98-46  
Казань (843)206-01-48  
Калининград (4012)72-03-81  
Калуга (4842)92-23-67  
Кемерово (3842)65-04-62  
Киров (8332)68-02-04  
Коломна (4966)23-41-49  
Кострома (4942)77-07-48  
Краснодар (861)203-40-90  
Красноярск (391)204-63-61  
Курск (4712)77-13-04  
Курган (3522)50-90-47  
Липецк (4742)52-20-81

Магнитогорск (3519)55-03-13  
Москва (495)268-04-70  
Мурманск (8152)59-64-93  
Набережные Челны (8552)20-53-41  
Нижний Новгород (831)429-08-12  
Новокузнецк (3843)20-46-81  
Ноябрьск (3496)41-32-12  
Новосибирск (383)227-86-73  
Омск (3812)21-46-40  
Орел (4862)44-53-42  
Оренбург (3532)37-68-04  
Пенза (8412)22-31-16  
Петрозаводск (8142)55-98-37  
Псков (8112)59-10-37  
Пермь (342)205-81-47

Ростов-на-Дону (863)308-18-15  
Рязань (4912)46-61-64  
Самара (846)206-03-16  
Санкт-Петербург (812)309-46-40  
Саратов (845)249-38-78  
Севастополь (8692)22-31-93  
Саранск (8342)22-96-24  
Симферополь (3652)67-13-56  
Смоленск (4812)29-41-54  
Сочи (862)225-72-31  
Ставрополь (8652)20-65-13  
Сургут (3462)77-98-35  
Сыктывкар (8212)25-95-17  
Тамбов (4752)50-40-97  
Тверь (4822)63-31-35

Тольятти (8482)63-91-07  
Томск (3822)98-41-53  
Тула (4872)33-79-87  
Тюмень (3452)66-21-18  
Ульяновск (8422)24-23-59  
Улан-Удэ (3012)59-97-51  
Уфа (347)229-48-12  
Хабаровск (4212)92-98-04  
Чебоксары (8352)28-53-07  
Челябинск (351)202-03-61  
Череповец (8202)49-02-64  
Чита (3022)38-34-83  
Якутск (4112)23-90-97  
Ярославль (4852)69-52-93

**Россия** +7(495)268-04-70

**Казахстан** +(727)345-47-04

**Беларусь** +(375)257-127-884

**Узбекистан** +998(71)205-18-59

**Киргизия** +996(312)96-26-47

эл.почта: [poz@nt-rt.ru](mailto:poz@nt-rt.ru) || сайт: <https://pizzato.nt-rt.ru/>