



Kompaktni prekidači tip AKM, s podesivim TM okidačem **2**



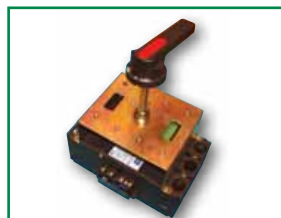
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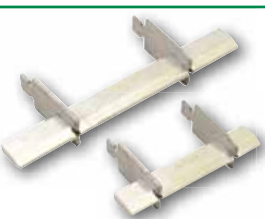
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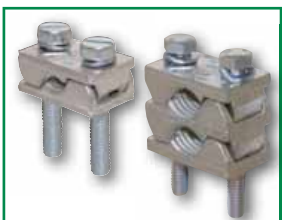
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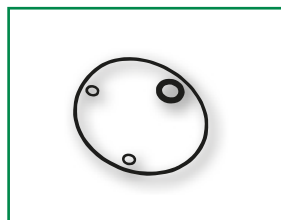
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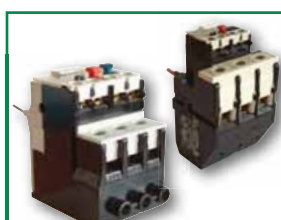
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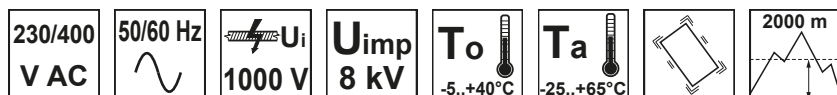
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|   |  |  |   |
|---|--|--|---|
| <b>U<sub>m</sub></b> Nazivni radni napon                    | <b>U<sub>e</sub></b> Nazivni pogonski napon      | <b>I<sub>th</sub></b> Nazivna termička struja (A)                | <b>U<sub>i</sub></b> Nazivni izolacijski napon                      |
| <b>I<sub>e</sub></b> Nazivna pogonska struja                | <b>I<sub>n</sub></b> Nazivna struja (A)          | <b>I<sub>cu</sub></b> Nazivna pogonska kratkospojna prekidna moć | <b>I<sub>s</sub></b> Struja utroška                                 |
| <b>I<sub>m</sub></b> Podešena struja termičkog okidanja (A) | <b>P<sub>e</sub></b> Priključena snaga           | <b>P<sub>m</sub></b> Vlastiti utrošak snage                      | <b>P<sub>s</sub></b> Pogonska snaga                                 |
| <b>P<sub>ON</sub></b> Snaga utroška za-privlačenje          | <b>P<sub>HOLD</sub></b> Snaga utroška za-držanje | <b>U<sub>d</sub></b> Udaljenost za gašenje luka (mm)             | <b>n</b> Broj transformatora  |
| <b>M</b> Mehanički vijek trajanja                           | <b>E<sub>t</sub></b> Električni vijek trajanja   | <b>NC</b> Kontakti   | <b>1 10 2</b><br><b>1 x x x</b><br><b>2 x x x</b><br><b>3 x x x</b> |
| <b>AUX</b> Pomoćni kontakti                                 | <b>K</b> Kabliranje odozdo-odozgo                | <b>NO</b> Kontakti   | <b>K</b> kabliranje odozgo  |
| <b>A mm<sup>2</sup></b> Presjek pogonske osovine            | <b>H</b> Razmak nosača                           | <b>b</b> Presjek nosača  | <b>X</b> Broj vijaka  |
| <b>IP</b> Preporučeni predosigurač                          | <b>C</b> Električni kapacitet                    | <b>Opt</b> Optička signalizacija                                 | <b>on</b> Područje regulacije vremena                               |
| <b>IP65</b> S kućištem IP65                                 | <b>L</b> Dimenzije (LxWxH)                       | <b>mm<sup>2</sup></b> Max. presjek vodiča                        | <b>NT</b> Napomena i dopuna   |
| <b>●</b> Puni, použeni, savitljivi vod                      | <b>m</b> Masa                                    | <b>NT</b> Dimenzija osigurača                                    |   |

## Piktogrami za tehničke parametre

|   |  |                                   |  |
|---|--|-----------------------------------|--|
| <b>U<sub>m</sub></b><br>230 V AC          | <b>U<sub>e</sub></b><br>660 V          | <b>U<sub>i</sub></b><br>690 V     | <b>U<sub>imp</sub></b><br>6 kV                 |
| <b>U<sub>test</sub></b><br>1min<br>1,8 kV | <b>I<sub>th</sub></b><br>1 A           | <b>I<sub>e</sub></b><br>2 A       | <b>I<sub>cu</sub></b><br>120 kA <sub>eff</sub> |
| <b>50/60 Hz</b>                           | <b>Class Ir</b><br>10A                 | <b>UVR</b>                        | <b>SHT</b>                                     |
| <b>P<sub>m</sub></b><br>5 VA              | <b>P<sub>ON</sub></b><br>30 VA         | <b>P<sub>HOLD</sub></b><br>4,5 VA | <b>10 A gG</b>                                 |
| <b>M</b>                                  | <b>M</b>                               | <b>AC 6b</b>                      | <b>OT</b>                                      |
| <b>AUX</b><br>2xCO                        | <b>IP10</b>                            | <b>IP20</b>                       | <b>IP 65</b>                                   |
| <b>⊕</b>                                  | <b>ON-OFF-ON...<br/>sc/h</b><br>x4.800 | <b>M</b>                          | <b>E<sub>t</sub></b><br>6x10 <sup>5</sup>      |
| <b>350 mm</b>                             | <b>[mm<sup>2</sup>]</b><br>2x1-2x6     | <b>35x7.5</b>                     | <b>max. ±30°</b>                               |
| <b>2000 m</b>                             | <b>To</b><br>-5..+40°C                 | <b>Ta</b><br>-25..+65°C           | <b>% rH</b><br>max. 90                         |

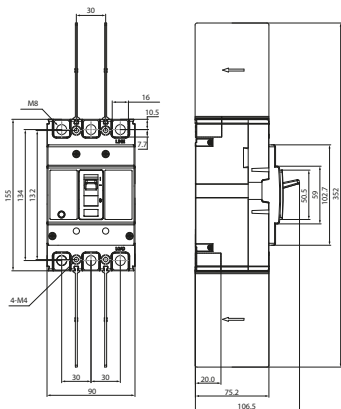
Kompaktni prekidač tip AKM, s podesivim TM okidačem



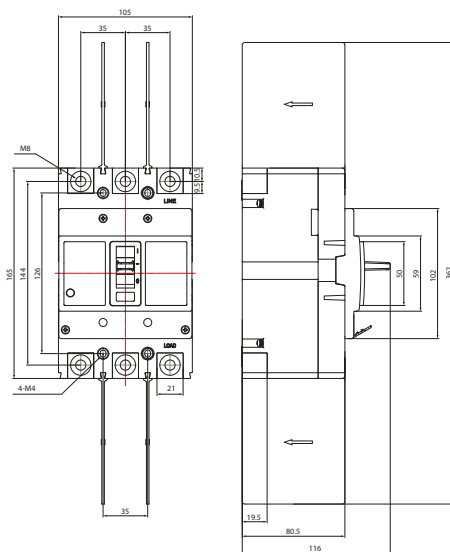
| $I_r$                                  | AKM1,-2,-3,-4 | 0,8-1 ( $\times I_n$ ) |
|--|---------------|------------------------|
| $I_i$                                  | AKM1,-2,-3,-4 | 5-10 ( $\times I_n$ )  |
| $I_{cu}$ (kA <sub>eff</sub> ) AC 400 V | AKM1, AKM2    | 36                     |
|  | AKM3, AKM4    | 50                     |
| $I_{cs}$ (kA <sub>eff</sub> ) AC 400 V | AKM1, AKM2    | 25                     |
|  | AKM3, AKM4    | 35                     |
| ON-OFF-ON...<br>sc/h $I_{max}$         | AKM1,-2       | 120                    |
|  | AKM3,-4       | 60                     |
|  | AKM1,-2       | 7000                   |
|  | AKM3,-4       | 4000                   |
|  | AKM1,-2       | 1000                   |
|  | AKM3,-4       | 1000                   |
|  | AKM1          | 1,50                   |
|  | AKM2          | 1,92                   |
|  | AKM3          | 5,00                   |
|  | AKM4          | 5,25                   |

| TRACON  | $I_e$ | $I_r$     | TRACON   | $I_e$ | $I_r$     | TRACON   | $I_e$ | $I_r$     | TRACON   | $I_e$ | $I_r$     |
|---------|-------|-----------|----------|-------|-----------|----------|-------|-----------|----------|-------|-----------|
| AKM1-20 | 20    | (16-20)   | AKM1-63  | 63    | (50,4-63) | AKM1-160 | 160   | (128-160) | AKM3-400 | 400   | (320-400) |
| AKM1-32 | 32    | (25,6-32) | AKM1-80  | 80    | (64-80)   | AKM2-180 | 180   | (144-180) | AKM4-630 | 630   | (504-630) |
| AKM1-40 | 40    | (32-40)   | AKM1-125 | 125   | (100-125) | AKM2-250 | 250   | (200-250) |          |       |           |

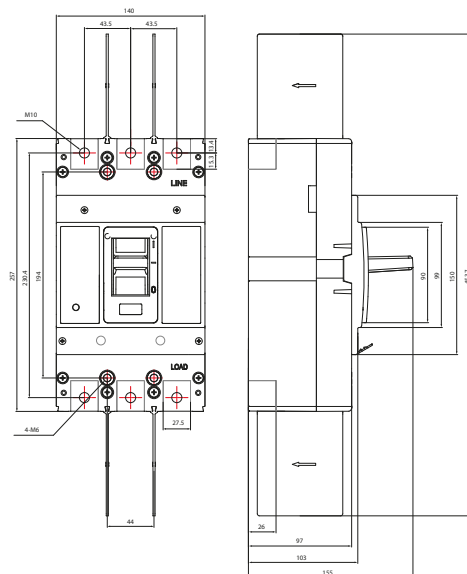
Skice dimenzija (AKM1)



Skice dimenzija (AKM2)



Skice dimenzija (AKM3,-4)



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 Katalog prikazuje stanje u travnju 2021. godine.  
 Za aktualne informacije posjetite našu web stranicu!

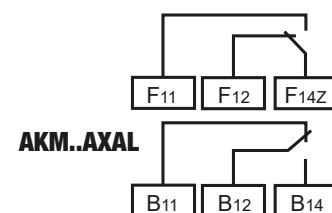
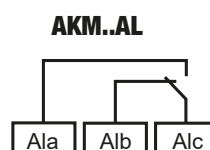
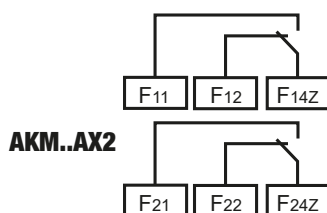
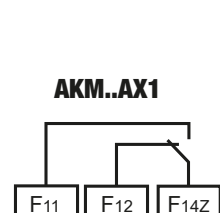


## Jedinice pomoćnih kontakata i za signalizaciju greške



| Tip  | Funkcija  |
|--|---|
| Jedinice pomoćnih kontakata:                           | Signalizacija stanja glavnih kontakata kompaktnog prekidača.                                    |
| Jedinice za signalizaciju greške:                      | Signalizacija isklopa kompaktnog prekidača uslijed kratkog spoja, preopterećenja ili rukovanja. |
| Jedinice za signalizaciju greške / pomoćnih kontakata: | Objedinjavanje dvaju jedinica omogućuje i izvršavanje kombiniranih upravljačkih funkcija.       |

|                 |          |                |        |
|-----------------|----------|----------------|--------|
| $I_{th}$<br>1 A | AC<br>15 | $I_e$<br>0,8 A | 350 mm |
|-----------------|----------|----------------|--------|

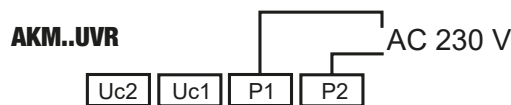
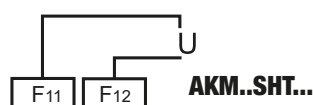
| TRACON           | Funkcija  |  |  |
|------------------|---|---|---|
| <b>AKM1AX1</b>   | Pomoćni kontakt                                   | <b>AKM1-..</b>  | 0,25 mm <sup>2</sup>  |
| <b>AKM1AX2</b>   | Pomoćni kontakt                                   | <b>AKM1-..</b>  | 0,35 mm <sup>2</sup>  |
| <b>AKM2AX1</b>   | Pomoćni kontakt                                   | <b>AKM2-..</b>  | 0,25 mm <sup>2</sup>  |
| <b>AKM2AX2</b>   | Pomoćni kontakt                                   | <b>AKM2-..</b>  | 0,35 mm <sup>2</sup>  |
| <b>AKM34AX1</b>  | Pomoćni kontakt                                   | <b>AKM3,-4-..</b>   | 0,25 mm <sup>2</sup>  |
| <b>AKM34AX2</b>  | Pomoćni kontakt                                   | <b>AKM3,-4-..</b>   | 0,35 mm <sup>2</sup>  |
| <b>AKM1AL</b>    | Kontakt za signalizaciju greške                   | <b>AKM1-..</b>  |   |
| <b>AKM2AL</b>    | Kontakt za signalizaciju greške                   | <b>AKM2-..</b>  |   |
| <b>AKM34AL</b>   | Kontakt za signalizaciju greške                   | <b>AKM3,-4-..</b>   |   |
| <b>AKM1AXAL</b>  | Kontakt za signalizaciju greške / pomoćni kontakt | <b>AKM1-..</b>  |   |
| <b>AKM2AXAL</b>  | Kontakt za signalizaciju greške / pomoćni kontakt | <b>AKM2-..</b>  |   |
| <b>AKM34AXAL</b> | Kontakt za signalizaciju greške / pomoćni kontakt | <b>AKM3,-4-..</b>   |   |



## Okidači (isklopni (shunt), podnaponski)

| TRACON              | Funkcija           |  |  |
|---------------------|--------------------|---|---|
| <b>AKM1SHT230</b>   | Okidač isklopni    | <b>AKM1-..</b>  | 0,25 mm <sup>2</sup>  |
| <b>AKM1SHT400</b>   | Okidač isklopni    | <b>AKM1-..</b>  | 0,25 mm <sup>2</sup>  |
| <b>AKM1SHT24DC</b>  | Okidač isklopni    | <b>AKM1-..</b>  | 0,25 mm <sup>2</sup>  |
| <b>AKM2SHT230</b>   | Okidač isklopni    | <b>AKM2-..</b>  | 0,35 mm <sup>2</sup>  |
| <b>AKM2SHT400</b>   | Okidač isklopni    | <b>AKM2-..</b>  | 0,35 mm <sup>2</sup>  |
| <b>AKM2SHT24DC</b>  | Okidač isklopni    | <b>AKM2-..</b>  | 0,35 mm <sup>2</sup>  |
| <b>AKM34SHT230</b>  | Okidač isklopni    | <b>AKM3,-4-..</b>   | 0,35 mm <sup>2</sup>  |
| <b>AKM34SHT400</b>  | Okidač isklopni    | <b>AKM3,-4-..</b>   | 0,35 mm <sup>2</sup>  |
| <b>AKM34SHT24DC</b> | Okidač isklopni    | <b>AKM3,-4-..</b>   | 0,35 mm <sup>2</sup>  |
| <b>AKM1UVR</b>      | Okidač podnaponski | <b>AKM1-..</b>  | 0,25 mm <sup>2</sup>  |
| <b>AKM2UVR</b>      | Okidač podnaponski | <b>AKM2-..</b>  | 0,35 mm <sup>2</sup>  |
| <b>AKM34UVR</b>     | Okidač podnaponski | <b>AKM3,-4-..</b>   | 0,35 mm <sup>2</sup>  |

|                   |        |
|-------------------|--------|
| $U_m$<br>230 V AC | 350 mm |
|-------------------|--------|




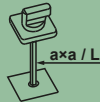
Okidač isklopni omogućuje daljinski isklon kompaktnog prekidača. Okidač isklapa prekidač već od 0,7x radnog napona. Trajanje radnog napona max. 1s.

Okidač podnaponski isklapa prekidač kada napon na njegovim stezaljkama padne na vrijednost između 35 i 70% nazivnog radnog napona. Okidač sprječava uklop prekidač kada napon na njegovim stezaljkama ne dostigne 35% nazivnog radnog napona.



Ručni radni mehanizmi (pogoni)



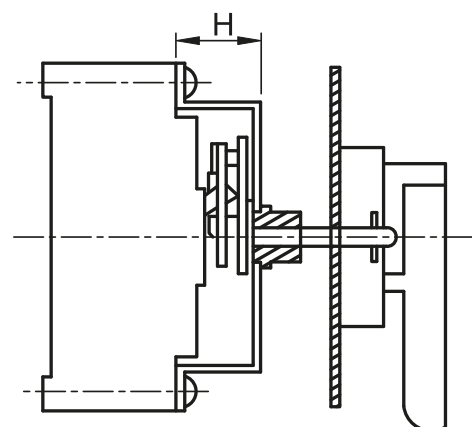
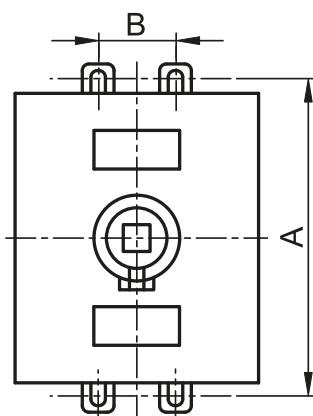
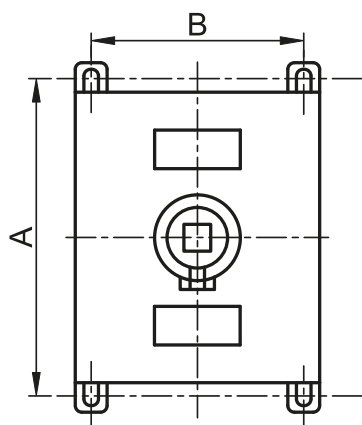
| TRACON |  | A<br>(mm) | B<br>(mm) | H<br>(mm) |  |
|--------|---|-----------|-----------|-----------|---|
|--------|---|-----------|-----------|-----------|---|

|                |           |     |     |    |                    |
|----------------|-----------|-----|-----|----|--------------------|
| <b>AKM1HD</b>  | AKM1      | 125 | 35  | 47 | 7,6 × 7,6 / 152 mm |
| <b>AKM2HD</b>  | AKM2      | 125 | 35  | 47 | 7,6 × 7,6 / 152 mm |
| <b>AKM34HD</b> | AKM3-AKM4 | 193 | 129 | 77 | 9,8 × 9,8 / 150 mm |

Ručni radni mehanizam omogućuje upravljanje prekidačem bez otvaranja vrata. Ručni pogon se sastoji od radnog dijela montiranog na prekidač, pogonske osovine i ručice montirane na vrata koja označava uklopljeni i isklopljeni položaj prekidača.

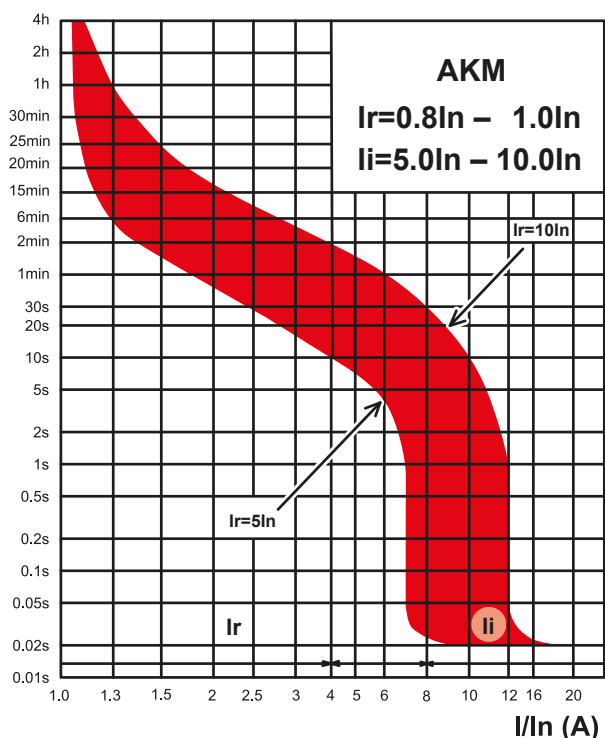
Upravljačka ručica može se lokotom zaključati u oba položaja. U uklopljenom položaju prekidača ručica izvan vrata mehanički je blokirana i vrata se ne mogu otvoriti.

Upravljačka ručica može se lokotom zaključati u uklopljenom i u isklopljenom položaju, također.

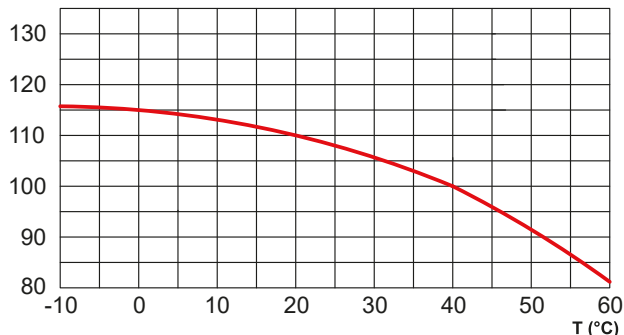


t (s)

Isklopne karakteristike



I/In (%)

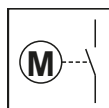


## Električni radni mehanizmi (pogoni)



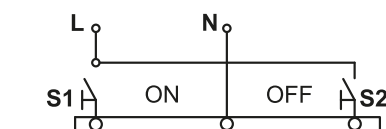
| TRACON     |            | $I_s$   | $P_s$ | A (mm) | B (mm) | H (mm) |
|------------|------------|---------|-------|--------|--------|--------|
| AKM1MD230  | AKM1-..    | < 0,5 A | 14 W  | 127,5  | 29     | 97     |
| AKM1MD400  | AKM1-..    | < 0,5 A | 14 W  | 127,5  | 29     | 97     |
| AKM2MD230  | AKM2-..    | < 0,5 A | 14 W  | 128    | 35     | 102    |
| AKM2MD400  | AKM2-..    | < 0,5 A | 14 W  | 128    | 35     | 102    |
| AKM34MD230 | AKM3,-4-.. | < 2 A   | 35 W  | 193    | 45     | 152    |
| AKM34MD400 | AKM3,-4-.. | < 2 A   | 35 W  | 193    | 45     | 152    |

Elektromotorni pogon AKM ..- MD ... omogućuje lokalno ili daljinsko električno upravljanje, upravljanje uklopom i isklopom s pomoću tipkala. Motorni pogon se sastoji od radnog dijela montiranog na prekidač koji je dopunjen ručicom za ručno upravljanje.

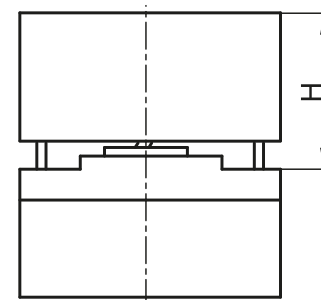
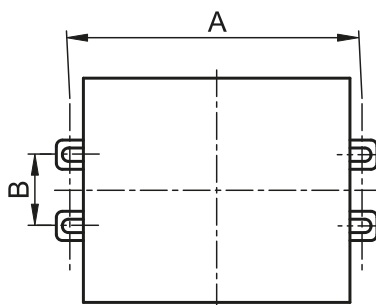
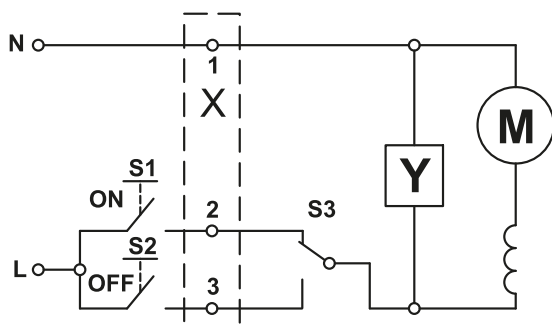


Motorni pogon

## Električna shema spajanja i skice dimenzija



AKM.MD...

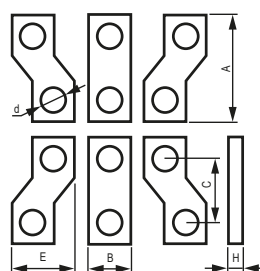


## Legenda

- M - motor  
 Y - električna kočnica  
 S3 - mikrosklopka  
 X - redna stezaljka  
 S1, S2 - tipkalo

## Bakreni priključni elementi

| TRACON |         | A (mm) | B (mm) | H (mm) | C (mm)    | E (mm) | d (mm) |
|--------|---------|--------|--------|--------|-----------|--------|--------|
| AKM1TM | AKM1-.. | 40     | 15     | 4      | 24 ± 0,15 | 23,5   | 8,5    |
| AKM2TM | AKM2-.. | 60     | 20     | 5      | 42 ± 0,15 | 27     | 9      |
| AKM3TM | AKM3-.. | 70     | 28     | 6      | 43 ± 0,15 | 41     | 14,3   |
| AKM4TM | AKM4-.. | 70     | 28     | 8      | 43 ± 0,15 | 41     | 14,3   |



Kompaktni prekidači, KM

230/400  
V AC

50/60 Hz

$U_i$   
690 V

$U_{imp}$   
6 kV



$T_o$   
-5..+40°C

$T_a$   
-5..+55°C



2000 m



Piktogrami

I/O



Podatci za termičko okidanje pri preopterećenju

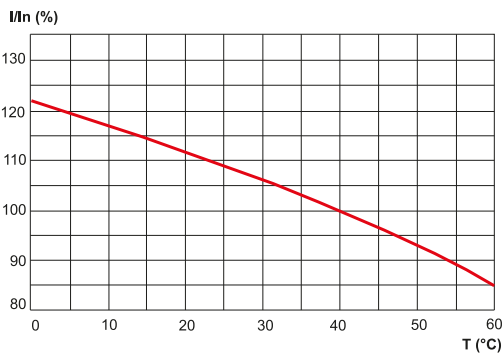
|            |  |      | $I_{th\ max.}$ |      | $I_e$                  |
|------------|--|------|----------------|------|------------------------|
| <b>KM1</b> |  | 1500 | 63 A           | 8500 | 32 A; 40 A; 50 A; 63 A |
| <b>KM2</b> |  | 1500 | 100 A          | 8500 | 63 A; 80 A; 100 A      |
| <b>KM3</b> |  | 1000 | 160 A          | 7000 | 125 A; 140 A; 160 A    |
| <b>KM4</b> |  | 1000 | 225 A          | 7000 | 180 A; 200 A; 225 A    |
| <b>KM5</b> |  | 1000 | 350 A          | 7000 | 250 A; 315 A; 350 A    |
| <b>KM6</b> |  | 1000 | 630 A          | 4000 | 400 A; 500 A; 630 A    |
| <b>KM7</b> |  | 1000 | 800 A          | 4000 | 630 A; 700 A; 800 A    |

Podatci za magnetsko okidanje pri kratkom spoju

|            |  | $I_{th\ max.}$ | $I_{cu}$ |            |
|------------|--|----------------|----------|------------|
| <b>KM1</b> |  | 63 A           | 50 kA    | 0 mm       |
| <b>KM2</b> |  | 100 A          | 50 kA    | 0 (<50) mm |
| <b>KM3</b> |  | 160 A          | 50 kA    | 0 (<50) mm |
| <b>KM4</b> |  | 225 A          | 50 kA    | <50 mm     |
| <b>KM5</b> |  | 350 A          | 50 kA    | <50 mm     |
| <b>KM6</b> |  | 630 A          | 50 kA    | 100 mm     |
| <b>KM7</b> |  | 800 A          | 65 kA    | 100 mm     |

Utjecaj temperature okoline na krivulju okidanja

Korekcijski faktor za određivanje granice trajnog opterećenja na cijelom temperaturnom području može se odrediti iz dijagrama. Ukoliko temperatura okruženja oko prekidača prelazi +40°C, za pojedine veličine dopušteno trajno opterećenje može se odrediti primjenom korekcijskog faktora iz sljedeće tablice:



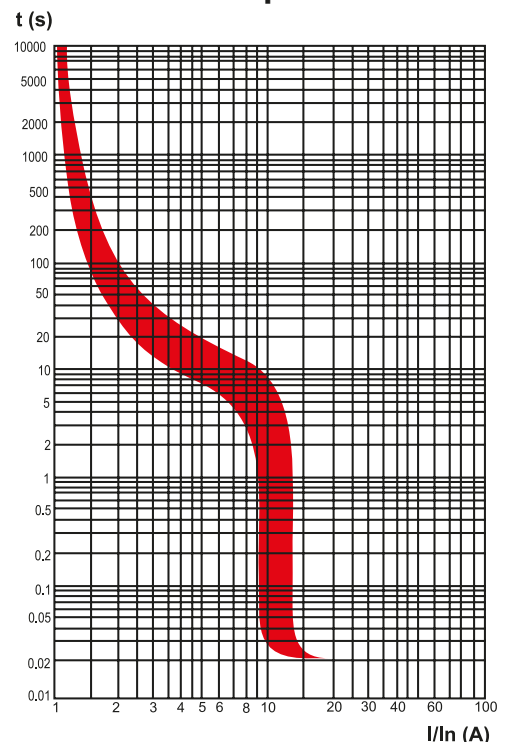
RELEVANT STANDARD  
**EN 60947-1**

RELEVANT STANDARD  
**EN 60947-2**

Korekcijski faktor

|            | $T_a$      |            |            |            |            |
|------------|------------|------------|------------|------------|------------|
|            | 40 – 45 °C | 45 – 50 °C | 50 – 55 °C | 55 – 60 °C | 60 – 65 °C |
| <b>KM1</b> | 1,0        | 0,94       | 0,88       | 0,80       | 0,72       |
| <b>KM2</b> | 1,0        | 0,95       | 0,89       | 0,84       | 0,76       |
| <b>KM3</b> | 1,0        | 0,97       | 0,93       | 0,90       | 0,86       |
| <b>KM4</b> | 1,0        | 0,96       | 0,91       | 0,87       | 0,82       |
| <b>KM5</b> | 1,0        | 0,94       | 0,87       | 0,81       | 0,73       |
| <b>KM6</b> | 1,0        | 0,93       | 0,88       | 0,83       | 0,76       |
| <b>KM7</b> | 1,0        | 0,88       | 0,83       | 0,79       | 0,76       |

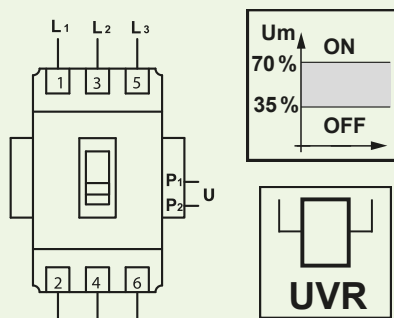
Isklopne karakteristike



## Ugrađene jedinice za pomoćne strujne krugove

## Okidač podnaponski

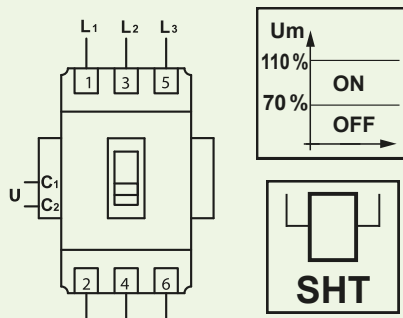
| $U_m$    | $P_m$        |
|----------|--------------|
| 230 V AC | 2,3 – 3,8 VA |



Okidač podnaponski isklapa prekidač kada napon na njegovim stezaljkama padne na vrijednost između 35 i 70% nazivnog radnog napona. Okidač sprječava uklop prekidača kada napon na njegovim stezaljkama ne dostigne 35% nazivnog radnog napona.

## Okidač isklopni (shunt)

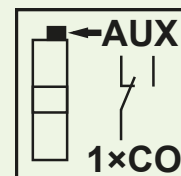
| $U_m$                         |
|-------------------------------|
| 230 V AC, 400 V AC, 220 V, DC |



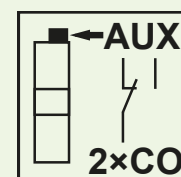
Okidač isklopni (shunt) omogućuje daljinski isklup kompaktnog prekidača jer isklapa prekidač kada na njegove stezaljke dovedemo napon koji je između 70 i 110 % nazivnog radnog napona.

## Pomoćni kontakti

| $U_e$    | $I_e$<br>AC-15 | $U_i$ | $I_{th}$    |
|----------|----------------|-------|-------------|
| 230 V AC | 1,2 A          | 690 V | 10 A gG 3 A |
| 400 V AC | 0,5 A          |       |             |



KM1-..  
KM2-..  
KM3-..  
KM4-..



KM5-..  
KM6-..  
KM7-..

## Kompaktni prekidači s 1 izmjeničnim pomoćnim kontaktom

| TRACON     | $I_e$ |     | $U_m$    |
|------------|-------|-----|----------|
| KM1-032/1C | 32 A  | SHT | 220 V DC |
| KM1-032/2  | 32 A  | UVR | 230 V AC |
| KM1-040/1A | 40 A  | SHT | 230 V AC |
| KM1-040/1B | 40 A  | SHT | 400 V AC |
| KM1-040/1C | 40 A  | SHT | 220 V DC |
| KM1-040/2  | 40 A  | UVR | 230 V AC |
| KM1-050/1B | 50 A  | SHT | 400 V AC |
| KM1-050/1C | 50 A  | SHT | 220 V DC |
| KM1-050/2  | 50 A  | UVR | 230 V AC |
| KM1-063/2  | 63 A  | UVR | 230 V AC |
| KM2-063/1A | 63 A  | SHT | 230 V AC |
| KM2-063/1B | 63 A  | SHT | 400 V AC |
| KM2-063/1C | 63 A  | SHT | 220 V DC |
| KM2-063/2  | 63 A  | UVR | 230 V AC |
| KM2-080/1A | 80 A  | SHT | 230 V AC |
| KM2-080/1C | 80 A  | SHT | 220 V DC |
| KM2-080/2  | 80 A  | UVR | 230 V AC |

| TRACON     | $I_e$ |     | $U_m$    |
|------------|-------|-----|----------|
| KM2-100/1C | 100 A | SHT | 220 V DC |
| KM2-100/2  | 100 A | UVR | 230 V AC |
| KM3-125/1C | 125 A | SHT | 220 V DC |
| KM3-125/2  | 125 A | UVR | 230 V AC |
| KM3-140/1B | 140 A | SHT | 400 V AC |
| KM3-140/1C | 140 A | SHT | 220 V DC |
| KM3-140/2  | 140 A | UVR | 230 V AC |
| KM3-160/1C | 160 A | SHT | 220 V DC |
| KM3-160/2  | 160 A | UVR | 230 V AC |
| KM4-180/1B | 180 A | SHT | 400 V AC |
| KM4-180/1C | 180 A | SHT | 220 V DC |
| KM4-180/2  | 180 A | UVR | 230 V AC |
| KM4-200/1B | 200 A | SHT | 400 V AC |
| KM4-200/1C | 200 A | SHT | 220 V DC |
| KM4-200/2  | 200 A | UVR | 230 V AC |
| KM4-225/1B | 225 A | SHT | 400 V AC |
| KM4-225/1C | 225 A | SHT | 220 V DC |
| KM4-225/2  | 225 A | UVR | 230 V AC |




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## Kompaktni prekidači s 2 izmjenična pomoćna kontakta

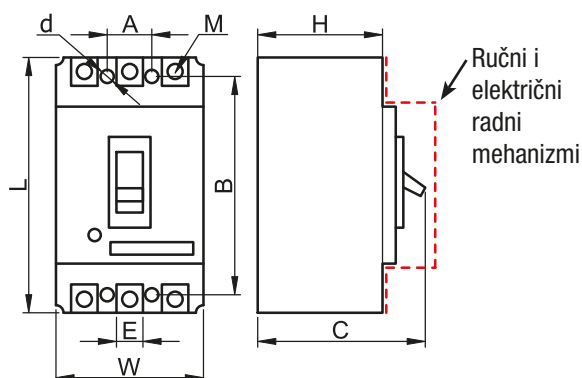
| TRACON            | $I_e$ |  | $U_m$    |
|-------------------|-------|---|----------|
| <b>KM5-250/1C</b> | 250 A | <b>SHT</b>  | 220 V DC |
| <b>KM5-250/2</b>  | 250 A | <b>UVR</b>  | 230 V AC |
| <b>KM5-315/2</b>  | 315 A | <b>UVR</b>  | 230 V AC |
| <b>KM5-350/1C</b> | 350 A | <b>SHT</b>  | 220 V DC |
| <b>KM5-350/2</b>  | 350 A | <b>UVR</b>  | 230 V AC |
| <b>KM6-400/1C</b> | 400 A | <b>SHT</b>  | 220 V DC |
| <b>KM6-500/1A</b> | 500 A | <b>SHT</b>  | 230 V AC |
| <b>KM6-500/1B</b> | 500 A | <b>SHT</b>  | 400 V AC |

| TRACON            | $I_e$ |  | $U_m$    |
|-------------------|-------|---|----------|
| <b>KM6-500/1C</b> | 500 A | <b>SHT</b>  | 220 V DC |
| <b>KM6-500/2</b>  | 500 A | <b>UVR</b>  | 230 V AC |
| <b>KM6-630/1C</b> | 630 A | <b>SHT</b>  | 220 V DC |
| <b>KM6-630/2</b>  | 630 A | <b>UVR</b>  | 230 V AC |
| <b>KM7-630/1A</b> | 630 A | <b>SHT</b>  | 230 V AC |
| <b>KM7-630/1B</b> | 630 A | <b>SHT</b>  | 400 V AC |
| <b>KM7-630/1C</b> | 630 A | <b>SHT</b>  | 220 V DC |
| <b>KM7-630/2</b>  | 630 A | <b>UVR</b>  | 230 V AC |
| <b>KM7-700/1A</b> | 700 A | <b>SHT</b>  | 230 V AC |
| <b>KM7-700/1B</b> | 700 A | <b>SHT</b>  | 400 V AC |
| <b>KM7-700/2</b>  | 700 A | <b>UVR</b>  | 230 V AC |
| <b>KM7-800/1B</b> | 800 A | <b>SHT</b>  | 400 V AC |
| <b>KM7-800/2</b>  | 800 A | <b>UVR</b>  | 230 V AC |


**SHT:** okidač isklonni (shunt)

**UVR:** okidač podnaponski

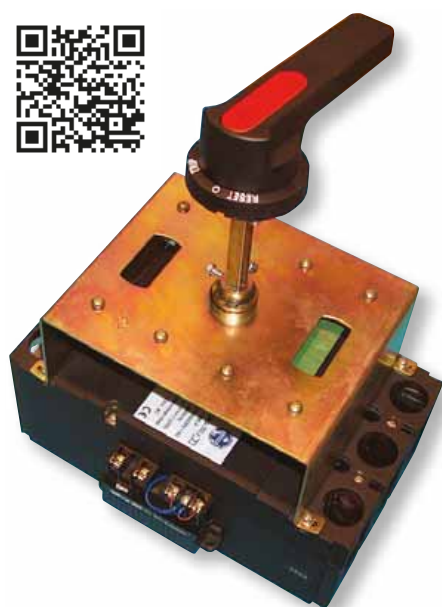
## Skica dimenzija i montažnih provrta





Ručni i električni radni mehanizmi

|  | W (mm) | L (mm) | H (mm) | C (mm) | A (mm) | B (mm) | E (mm) | M (mm) | d (mm) |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>KM1</b>  | 78     | 136    | 74     | 98     | 25     | 117    | 13.5   | M5     | 3.5    |
| <b>KM2</b>  | 92     | 150    | 80     | 104    | 30     | 129    | 18     | M8     | 4.5    |
| <b>KM3</b>  | 107    | 165    | 98     | 127    | 35     | 126    | 23     | M8     | 5      |
| <b>KM4</b>  | 107    | 165    | 98     | 127    | 35     | 126    | 23     | M8     | 5      |
| <b>KM5</b>  | 150    | 257    | 98     | 155    | 44     | 194    | 32     | M10    | 7      |
| <b>KM6</b>  | 182    | 270    | 105    | 160    | 58     | 200    | 43     | M12    | 7      |
| <b>KM7</b>  | 210    | 280    | 98     | 142    | 70     | 243    | 43     | M12    | 7      |

## Ručni radni mehanizmi



| TRACON        |  | A (mm) | B (mm) | H (mm) |  |
|---------------|---|--------|--------|--------|---|
| <b>KM1-HM</b> | KM1   | 102    | 25     | 50     | 8 × 8 / 150 mm  |
| <b>KM2-HM</b> | KM2   | 104    | 30     | 53     | 8 × 8 / 150 mm  |
| <b>KM4-HM</b> | KM3-KM4   | 142    | 35     | 56     | 8 × 8 / 150 mm  |

Ručni radni mehanizam omogućuje upravljanje prekidačem bez otvaranja vrata. Ručni pogon se sastoji od radnog dijela montiranog na prekidač, pogonske osovine i ručice montirane na vrata koja označava uklopljeni i isklonjeni položaj prekidača.

Upravljačka ručica može se lokotom zaključati u oba položaja. U uklopljenom položaju prekidača ručica izvan vrata mehanički je blokirana i vrata se ne mogu otvoriti.

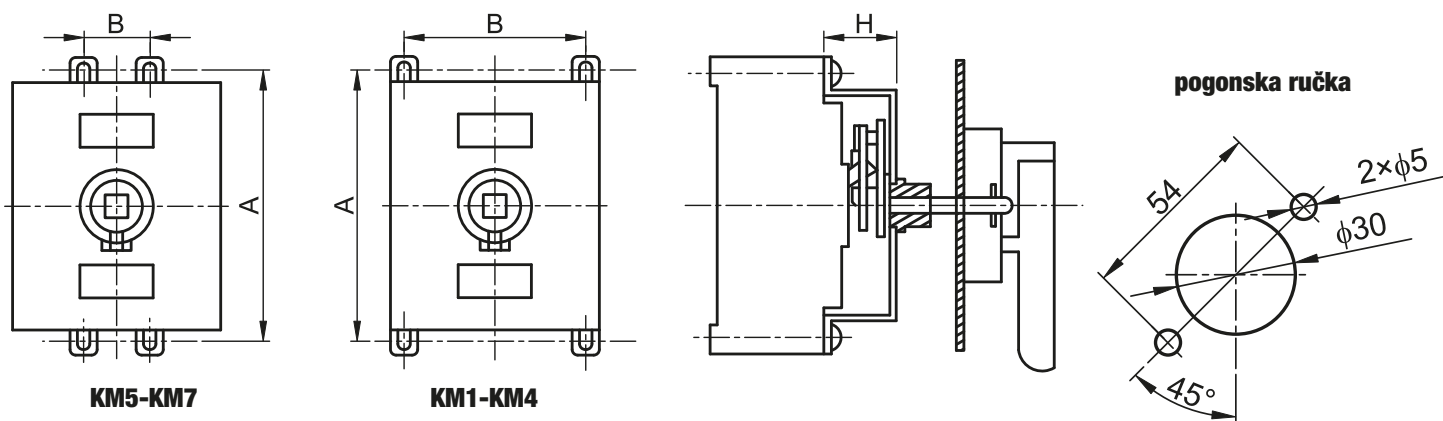


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## Provrti za pričvršćivanje

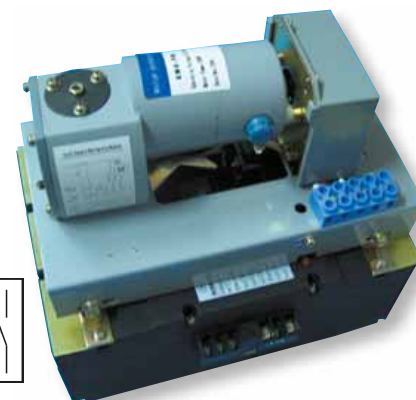


## Električni radni mehanizmi

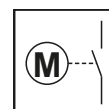


| TRACON |  | $I_s$ | $P_s$   | A (mm) | B (mm) | H (mm) |     |
|--------|--|-------|---------|--------|--------|--------|-----|
| KM7-PM |  | KM7   | < 7,5 A | 2000 W | 240    | 70     | 140 |

Električni radni mehanizam KM...PM omogućuje lokalno ili daljinsko električno upravljanje, upravljanje uklopom i isklopom s pomoću tipkala. Električni pogon se sastoji od radnog dijela montiranog na prekidač koji je dopunjen ručicom za ručno upravljanje. U slučaju kompaktnih prekidača tipa KM1...KM4 uklop i isklop su na magnetski pogon, a kod tipova KM5...KM7 primjenjuje se motorni pogon.

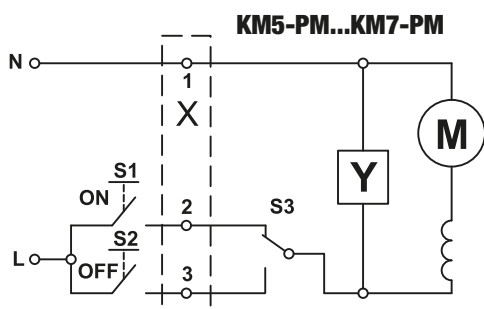
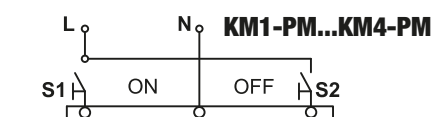


Magnetski pogon



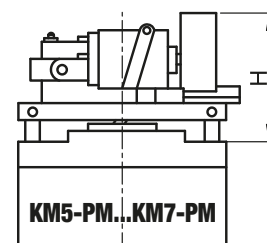
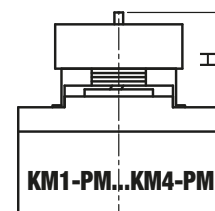
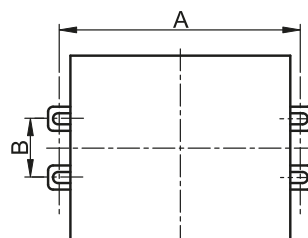
Motorni pogon

## Električna shema spajanja i skice dimenzija



**Legenda**

- M - motor
- Y - električna kočnica
- S3 - mikrosklopka
- X - redna stezaljka
- S1, S2 - tipkalo



Kompaktni prekidači, MKM

230/400  
V AC

50/60 Hz

$U_i$   
500 V

$U_{imp}$   
6 kV



$T_o$   
-5..+40°C

$T_a$   
-25..+65°C



2000 m

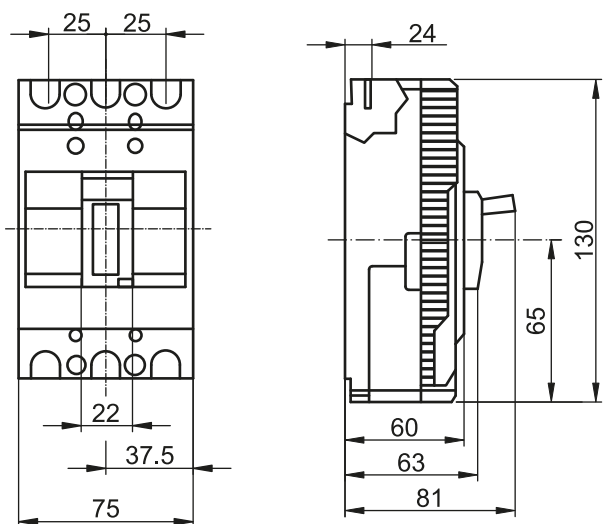
Piktogrami I/O



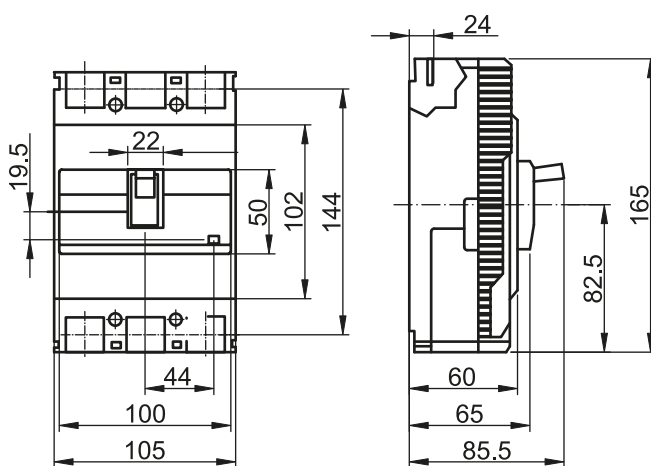
|                                  | MKM1                                    | MKM2               |
|----------------------------------|---|--------------------|
| $I_e$ (A)                        | 15, 20, 25, 30, 40, 50, 60, 75, 80, 100 | 125, 160, 225, 250 |
| $I_{cu}$ (kA <sub>eff</sub> ) AC | 220/240 V                               | 50                 |
|                                  | 380 V                                   | 30                 |
|                                  | 400 V                                   | 20                 |
| $I_{cs}/I_{cu}$ (%)              | 220/240 V                               | 25 %               |
|                                  | 380 V                                   | 25 %               |
|                                  | 400 V                                   | 25 %               |
| ON-OFF-ON...<br>sc/h             | × 10                                    | × 5                |
| (×10 <sup>5</sup> )              | 8.500                                   | 8.500              |
| (×10 <sup>5</sup> )              | 4.000                                   | 4.000              |
|                                  | 0,78 kg                                 | 1,3 kg             |

| TRACON  | $I_e$ | TRACON  | $I_e$ | TRACON   | $I_e$ | TRACON   | $I_e$ |
|---------|-------|---------|-------|----------|-------|----------|-------|
| MKM1-15 | 15 A  | MKM1-40 | 40 A  | MKM1-80  | 80 A  | MKM2-225 | 225 A |
| MKM1-20 | 20 A  | MKM1-50 | 50 A  | MKM1-100 | 100 A | MKM2-250 | 250 A |
| MKM1-25 | 25 A  | MKM1-60 | 60 A  | MKM2-125 | 125 A |          |       |
| MKM1-30 | 30 A  | MKM1-75 | 75 A  | MKM2-160 | 160 A |          |       |

Skice dimenzija (MKM1)



Skice dimenzija (MKM2)




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## Jedinice pomoćnih kontakata i za signalizaciju greške

| Tip  | Funkcija  |
|--|---|
| Jedinice pomoćnih kontakata:                           | Signalizacija stanja glavnih kontakata kompaktnog prekidača.                                    |
| Jedinice za signalizaciju greške:                      | Signalizacija isklopa kompaktnog prekidača uslijed kratkog spoja, preopterećenja ili rukovanja. |
| Jedinice za signalizaciju greške / pomoćnih kontakata: | Objedinjavanje dvaju jedinica omogućuje i izvršavanje kombiniranih upravljačkih funkcija.       |

|                              |                 |                               |   |
|------------------------------|-----------------|-------------------------------|---|
| <b>I<sub>th</sub></b><br>1 A | <b>AC</b><br>15 | <b>I<sub>e</sub></b><br>0,8 A | <br>350 mm |
|------------------------------|-----------------|-------------------------------|---|



MKM-AX

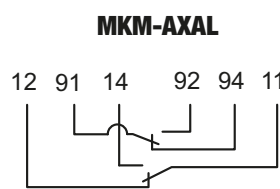
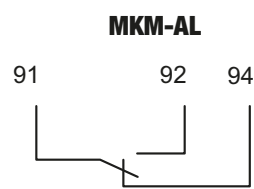
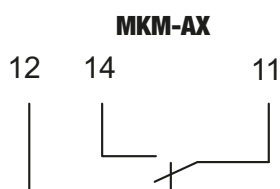
| TRACON             | Funkcija  |  |  |
|--------------------|---|---|---|
| <b>MKM-AX100</b>   | Pomoćni kontakt                                   | <b>MKM1-..</b>  | 0,25 mm <sup>2</sup>  |
| <b>MKM-AX250</b>   | Pomoćni kontakt                                   | <b>MKM2-..</b>  | 0,35 mm <sup>2</sup>  |
| <b>MKM-AL100</b>   | Kontakt za signalizaciju greške                   | <b>MKM1-..</b>  | 0,25 mm <sup>2</sup>  |
| <b>MKM-AL250</b>   | Kontakt za signalizaciju greške                   | <b>MKM2-..</b>  | 0,35 mm <sup>2</sup>  |
| <b>MKM-AXAL100</b> | Kontakt za signalizaciju greške / pomoćni kontakt | <b>MKM1-..</b>  | 0,25 mm <sup>2</sup>  |
| <b>MKM-AXAL250</b> | Kontakt za signalizaciju greške / pomoćni kontakt | <b>MKM2-..</b>  | 0,35 mm <sup>2</sup>  |






MKM-AL



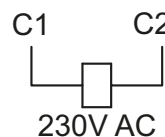
MKM-AXAL



## Okidači isklonpi

| TRACON              |  |  |  |
|---------------------|---|---|---|
| <b>MKM-SHT1-230</b> | <b>MKM1-..</b>  | <30 VA  | 0,25 mm <sup>2</sup>  |
| <b>MKM-SHT2-230</b> | <b>MKM2-..</b>  |   | 0,35 mm <sup>2</sup>  |

S pomoću okidača isklonpih kompaktni prekidači mogu se daljinski isklonpi. SHT1-230 može se ugraditi na lijevu i desnu stranu prekidača, dok se SHT2-230 ugrađuje na desnu stranu prekidača. Okidač isklonpi prekidač već od 0,7x radnog napona. Trajanje radnog napona max. 1s.

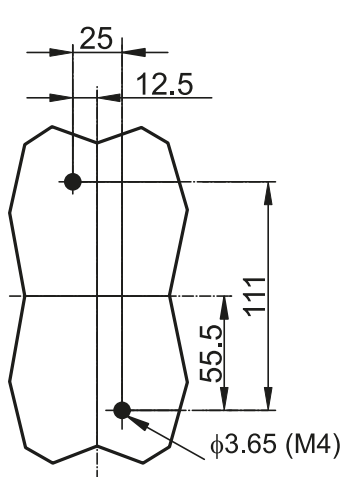


|                                  |
|----------------------------------|
| <b>U<sub>m</sub></b><br>230 V AC |
|----------------------------------|

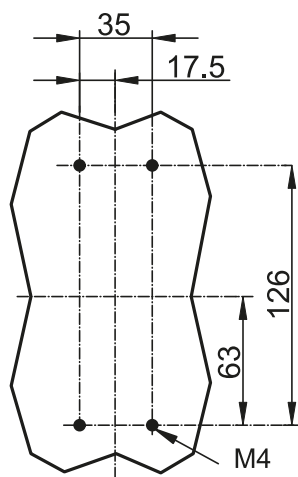
|   |
|---|
| <br>350 mm |
|---|



## Montažne rupe

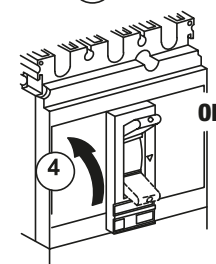
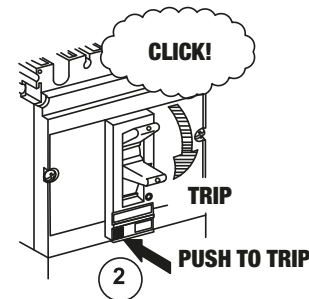
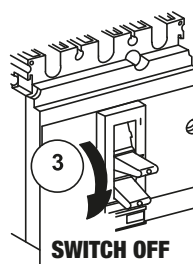
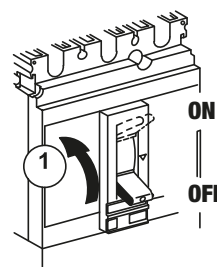


MKM1



MKM2

## Položaji ručice prekidača





Nožasti osigurači tipa NT

500 V AC     $I_{cu}$  120 kA<sub>eff</sub>    IP 00     $T_a$  -5...+55 °C    2000 m

Piktogrami I/O



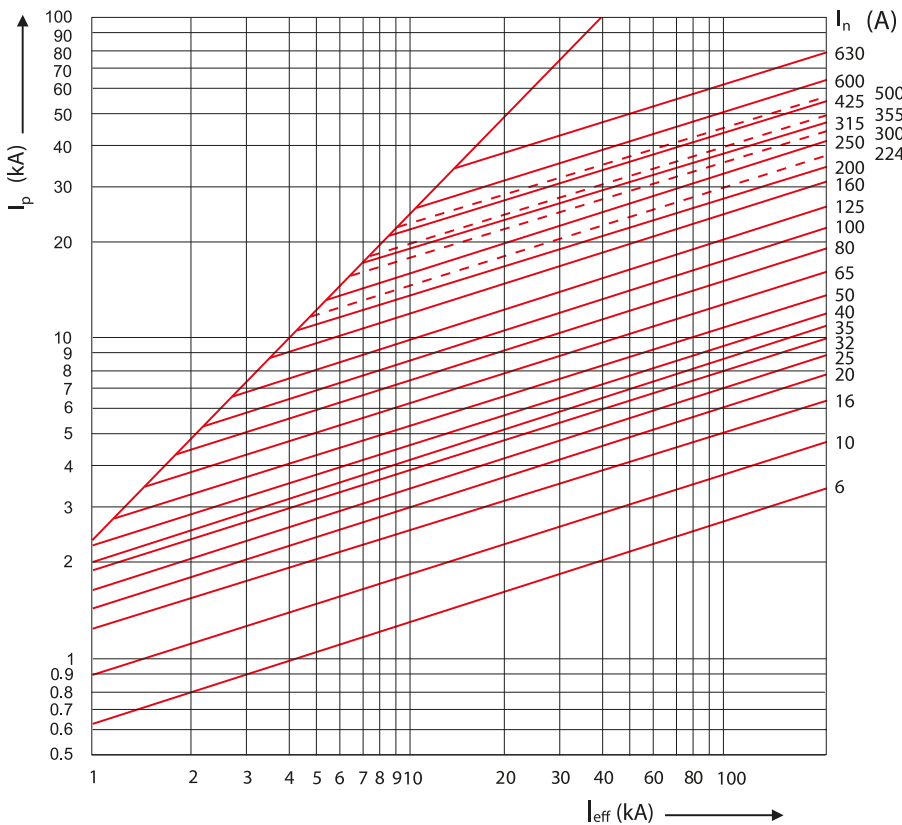
| NT  | $I_n$     | $P_v$ |
|-----|-----------|-------|
| 00C | 6-160 A   | 7,5 W |
| 00  | 2-160 A   | 12 W  |
| 0   | 6-160 A   | 16 W  |
| 1   | 32-250 A  | 23 W  |
| 2   | 50-400 A  | 34 W  |
| 3   | 160-630 A | 48 W  |

Materijal kućišta: steatit

Materijal topljive niti: bakar (presvučen sa srebrom)

Nožasti osigurači taljenjem uslijed nastale topline u slučaju preopterećenja ili kratkog spoja prekidaju strujni krug i na taj način štite vodove i uređaje iza njih. Njihovom ugradnjom i uporabom postiže se ušteda bez obzira što je nakon svakog prekida umetak potrebno zamijeniti. Prekidna moć im se promjenom umetka lako mijenja i ne zahtijevaju nikakvo održavanje.

NT.. umetci osigurača za opću uporabu, koji prekidnu moć imaju u cijelom području označeni su s „gG”. Ova oznaka po VDE standardu odgovara prijašnjoj oznaci „gL”. Umetci osigurača za zaštitu strujnih krugova motora, koji prekidnu moć imaju samo u dijelu područja, označavaju se s „aM”.



**RELEVANT STANDARD**  
**EN 60269-1**  
**HD 60269-2**

Gornji dijagram prikazuje zajamčene karakteristike rastalnih osigurača tipa NT... Na vodoravnoj osi koordinatnog sustava su efektivne vrijednosti neovisne struje kratkog spoja ( $I_{eff}$ ), a na okomitoj osi vršna vrijednost struje ( $I_p$ ). Npr.: u slučaju osigurača za 100 A, ako je vrijednosti neovisne struje kratkog spoja 20 kA, tada vršna vrijednost struje može biti maksimalno 11 kA.

## Izbor tipova

### Nožasti osigurači veličine «00C»

| TRACON    |    | I <sub>n</sub> |
|-----------|----|----------------|
| gG        | aM |                |
| NT00C-6   | -  | 6 A            |
| NT00C-10  | -  | 10 A           |
| NT00C-16  | -  | 16 A           |
| NT00C-20  | -  | 20 A           |
| NT00C-25  | -  | 25 A           |
| NT00C-32  | -  | 32 A           |
| NT00C-40  | -  | 40 A           |
| NT00C-50  | -  | 50 A           |
| NT00C-63  | -  | 63 A           |
| NT00C-80  | -  | 80 A           |
| NT00C-100 | -  | 100 A          |
| NT00C-125 | -  | 125 A          |
| NT00C-160 | -  | 160 A          |

### Nožasti osigurači veličine «00»

| TRACON   |           | I <sub>n</sub> |
|----------|-----------|----------------|
| gG       | aM        |                |
| -        | NTM00-2   | 2 A            |
| NT00-4   | NTM00-4   | 4 A            |
| NT00-6   | NTM00-6   | 6 A            |
| NT00-10  | NTM00-10  | 10 A           |
| NT00-16  | NTM00-16  | 16 A           |
| NT00-20  | NTM00-20  | 20 A           |
| NT00-25  | NTM00-25  | 25 A           |
| NT00-32  | NTM00-32  | 32 A           |
| NT00-40  | NTM00-40  | 40 A           |
| NT00-50  | NTM00-50  | 50 A           |
| NT00-63  | NTM00-63  | 63 A           |
| NT00-80  | NTM00-80  | 80 A           |
| NT00-100 | NTM00-100 | 100 A          |
| NT00-125 | NTM00-125 | 125 A          |
| NT00-160 | NTM00-160 | 160 A          |

### Nožasti osigurači veličine «0»

| TRACON  |          | I <sub>n</sub> |
|---------|----------|----------------|
| gG      | aM       |                |
| NT0-6   | NTM0-6   | 6 A            |
| NT0-10  | NTM0-10  | 10 A           |
| NT0-16  | NTM0-16  | 16 A           |
| NT0-20  | NTM0-20  | 20 A           |
| NT0-25  | NTM0-25  | 25 A           |
| NT0-32  | NTM0-32  | 32 A           |
| NT0-40  | NTM0-40  | 40 A           |
| NT0-50  | NTM0-50  | 50 A           |
| NT0-63  | NTM0-63  | 63 A           |
| NT0-80  | NTM0-80  | 80 A           |
| NT0-100 | NTM0-100 | 100 A          |
| NT0-125 | NTM0-125 | 125 A          |
| NT0-160 | NTM0-160 | 160 A          |

### Nožasti osigurači veličine «1»

| TRACON  |          | I <sub>n</sub> |
|---------|----------|----------------|
| gG      | aM       |                |
| NT1-32  | -        | 32 A           |
| NT1-40  | -        | 40 A           |
| NT1-50  | -        | 50 A           |
| NT1-63  | -        | 63 A           |
| NT1-80  | NTM1-80  | 80 A           |
| NT1-100 | NTM1-100 | 100 A          |
| NT1-125 | NTM1-125 | 125 A          |
| NT1-160 | NTM1-160 | 160 A          |
| NT1-200 | NTM1-200 | 200 A          |
| NT1-224 | -        | 224 A          |
| NT1-250 | NTM1-250 | 250 A          |

### Nožasti osigurači veličine «2»

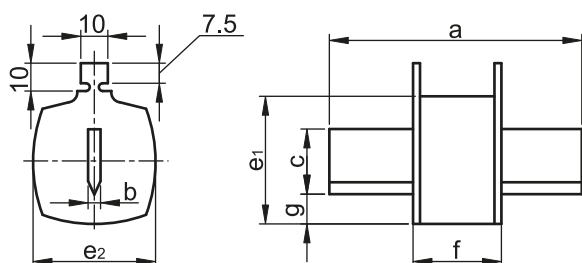
| TRACON  |          | I <sub>n</sub> |
|---------|----------|----------------|
| gG      | aM       |                |
| NT2-50  | -        | 50 A           |
| NT2-63  | -        | 63 A           |
| NT2-80  | -        | 80 A           |
| NT2-100 | -        | 100 A          |
| NT2-125 | NTM2-125 | 125 A          |
| NT2-160 | NTM2-160 | 160 A          |
| NT2-200 | NTM2-200 | 200 A          |
| NT2-224 | NTM2-224 | 224 A          |
| NT2-250 | NTM2-250 | 250 A          |
| -       | NTM2-300 | 300 A          |
| NT2-315 | NTM2-315 | 315 A          |
| NT2-355 | NTM2-355 | 355 A          |
| NT2-400 | NTM2-400 | 400 A          |

### Nožasti osigurači veličine «3»

| TRACON  |          | I <sub>n</sub> |
|---------|----------|----------------|
| gG      | aM       |                |
| NT3-160 | -        | 160 A          |
| NT3-200 | -        | 200 A          |
| NT3-315 | NTM3-315 | 315 A          |
| NT3-355 | NTM3-355 | 355 A          |
| NT3-400 | NTM3-400 | 400 A          |
| NT3-425 | NTM3-425 | 425 A          |
| NT3-500 | NTM3-500 | 500 A          |
| NT3-630 | NTM3-630 | 630 A          |




RELEVANT STANDARD  
EN 60269-1  
HD 60269-2

## Skice dimenzija



| NT  | a (mm)  | f (mm) | g (mm) | c (mm) | e <sub>1</sub> (mm) | e <sub>2</sub> (mm) | b (mm) |
|-----|---------|--------|--------|--------|---------------------|---------------------|--------|
| 00C | 78±1.5  | 54-6   | 11.5   | 15     | 45                  | 20                  | 6      |
| 00  | 78±1.5  | 54-6   | 11.5   | 15     | 45                  | 29                  | 6      |
| 0   | 125±2.5 | 68-8   | 11.5   | 15     | 45                  | 29                  | 6      |
| 1   | 135±2.5 | 75-10  | 12     | 21     | 48                  | 48                  | 6      |
| 2   | 150±2.5 | 75-10  | 13     | 27     | 58                  | 58                  | 6      |
| 3   | 150±2.5 | 75-10  | 14     | 33     | 67                  | 67                  | 6      |

Osnove za osigurače

| TRACON  |                   |  | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | H (mm) | K (mm) | M (mm) |
|---|-------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|  | <b>NTA-00C-00</b> | 00C, 00   | 120    | 100    | 25     | 8      | 30     | 25     | 60     | 56     | –      | 8      |
|   | <b>NTA-0</b>      | 0   | 170    | 150    | 25     | 8      | 35     | 30     | 64     | 74     | –      | 8      |
|   | <b>NTA-1</b>      | 1   | 200    | 175    | 25     | 12     | 49     | 32     | 85     | 80     | 30     | 10     |
|   | <b>NTA-2</b>      | 2   | 224    | 200    | 25     | 12     | 49     | 32     | 86     | 80     | 30     | 10     |
|   | <b>NTA-3</b>      | 3   | 235    | 210    | 25     | 12     | 49     | 32     | 88     | 80     | 30     | 12     |
|  | <b>NTA-00/3</b>   | 00C, 00   | 132    | 100    | –      | 8      | 100    | 24     | 58     | 56,5   | 70     | 8      |

TRACON



**NTA-00C-00 ... NTA-3:**  
**NTA-00/3:**

sastoje se od kontakata i stezaljki učvršćenih na osnovu od samogasivog plastičnog materijala, otpornog na visoku temperaturu



NTA-00C-00, NTA-0



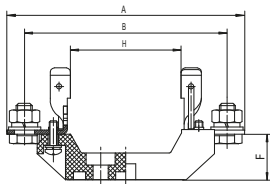
NTA-1, NTA-2



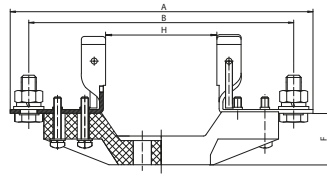
NTA-3



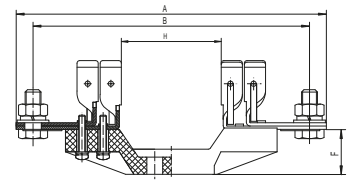
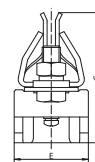
NTA-00/3



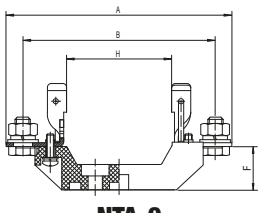
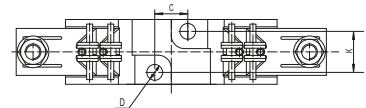
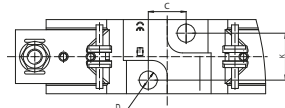
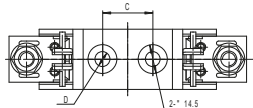
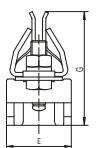
NTA-00C-00



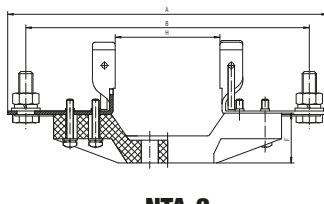
NTA-1



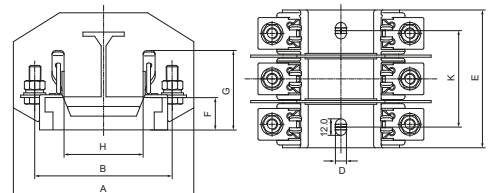
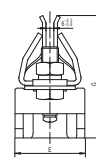
NTA-3



NTA-0




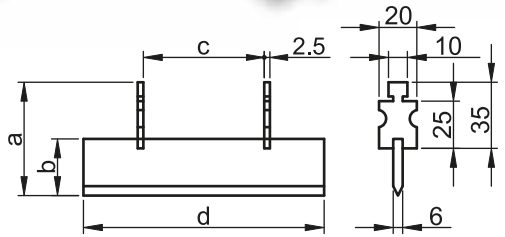
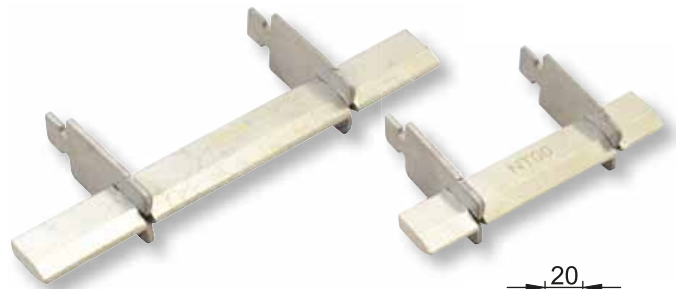
NTA-2



NTA-00/3



## Kratkospojni noževi

| TRACON |  | a<br>(mm) | b<br>(mm) | c<br>(mm) | d<br>(mm) |
|--------|---|-----------|-----------|-----------|-----------|
| NTR00  | 00C, 00   | 45        | 15        | 45±1.5    | 78±1.5    |
| NTR0   | 0   | 46        | 15        | 62±3      | 125±2.5   |
| NTR1   | 1   | 51        | 20        | 62±3      | 135±2.5   |
| NTR2   | 2   | 56        | 25        | 62±3      | 150±2.5   |
| NTR3   | 3   | 62        | 32        | 65±3      | 150±2.5   |

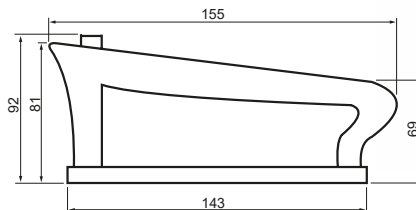
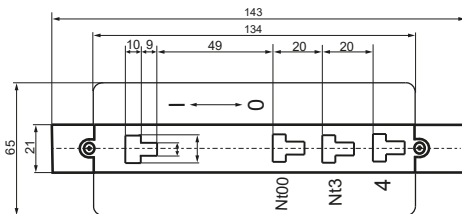


Primjenjuju se prvenstveno za rastavljanje nul-vodiča.

## Izolacijska ručica

| TRACON |  |  |
|--------|---|---|
| NTK    | 1000 V  | 00C...3   |

Uporabom izolacijske ručke mogu se umetci nožastih osigurača jednostavnije umetati i vaditi iz podnožja (dok su bez opterećenja). Mogu se uporabljati za rastavljanje strujnog kruga na odsjeke na potpuno siguran i dobro vidljiv način.



# EDSS RAZVODNI ORMARI





**Osigurač-rastavna sklopka za valjkaste osigurače**



|                 |                 |        |                  |             |            |          |        |
|-----------------|-----------------|--------|------------------|-------------|------------|----------|--------|
| 230/400<br>V AC | <b>IP</b><br>20 | 35×7.5 | Ta<br>-25..+55°C | Ui<br>690 V | V0<br>UL94 | 50/60 Hz | 2000 m |
|-----------------|-----------------|--------|------------------|-------------|------------|----------|--------|

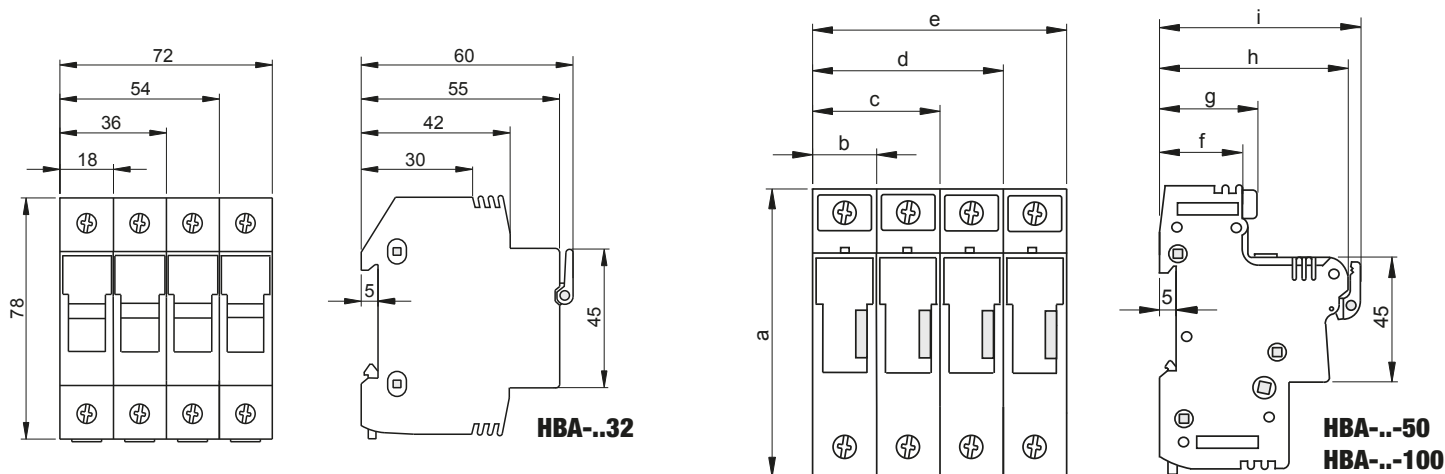
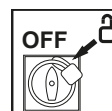


- Mogućnost dvostranog spajanja po izboru odozgo ili odozdo.
- Za valjkaste osigurače vrsta gG (opća uporaba) i aM (motori)
- Zakiveno kućište
- U višefaznoj izvedbi
- Nazivna kratkospojna prekidna moć AC 500 V; 100 kA  
AC 690 V; 50 kA
- Nezapaljivo plastično kućište
- EN 60269 serija
- Mogu se maskirati sve veličine

**RELEVANT STANDARD**  
**EN60269-1**

**RELEVANT STANDARD**  
**HD60269-2**

| TRACON     | xP | In (A) | mm <sup>2</sup> |            |  |
|------------|----|--------|-----------------|------------|--|
| HBA-1P-20  | 1P | 20 A   | 1,5-6           | 8 × 32 mm  |  |
| HBA-2P-20  | 2P | 20 A   | 1,5-6           | 8 × 32 mm  |  |
| HBA-3P-20  | 3P | 20 A   | 1,5-6           | 8 × 32 mm  |  |
| HBA-1P-32  | 1P | 32 A   | 1,5-6           | 10 × 38 mm |  |
| HBA-2P-32  | 2P | 32 A   | 1,5-6           | 10 × 38 mm |  |
| HBA-3P-32  | 3P | 32 A   | 1,5-6           | 10 × 38 mm |  |
| HBA-1P-50  | 1P | 50 A   | 1,5-25          | 14 × 51 mm |  |
| HBA-2P-50  | 2P | 50 A   | 1,5-25          | 14 × 51 mm |  |
| HBA-3P-50  | 3P | 50 A   | 1,5-25          | 14 × 51 mm |  |
| HBA-1P-100 | 1P | 100 A  | 1,5-25          | 22 × 58 mm |  |
| HBA-2P-100 | 2P | 100 A  | 1,5-25          | 22 × 58 mm |  |
| HBA-3P-100 | 3P | 100 A  | 1,5-25          | 22 × 58 mm |  |



|          | a (mm) | b (mm) | c (mm) | d (mm) | e (mm) | f (mm) | g (mm) | h (mm) | i (mm) |
|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| HBA--50  | 107    | 27     | 54     | 81     | 108    | 31     | 39     | 72.5   | 77.5   |
| HBA--100 | 113    | 35.5   | 71     | 106.5  | 142    | 31     | 39     | 72.5   | 77.5   |


## Valjkasti osigurač

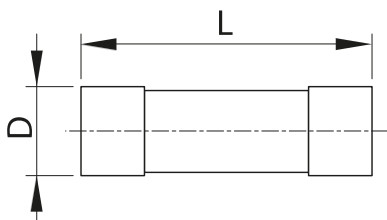
8x32 mm

| TRACON     |             | I <sub>n</sub> |
|------------|-------------|----------------|
| gG         | aM          |                |
| HB-8x32-2  | HBM-8x32-2  | 2 A            |
| HB-8x32-4  | HBM-8x32-4  | 4 A            |
| HB-8x32-6  | HBM-8x32-6  | 6 A            |
| HB-8x32-8  | HBM-8x32-8  | 8 A            |
| HB-8x32-10 | HBM-8x32-10 | 10 A           |
| HB-8x32-16 | HBM-8x32-16 | 16 A           |

14x51 mm

| TRACON      |              | I <sub>n</sub> |
|-------------|--------------|----------------|
| gG          | aM           |                |
| HB-14x51-2  | HBM-14x51-2  | 2 A            |
| HB-14x51-4  | HBM-14x51-4  | 4 A            |
| HB-14x51-6  | HBM-14x51-6  | 6 A            |
| HB-14x51-8  | HBM-14x51-8  | 8 A            |
| HB-14x51-10 | HBM-14x51-10 | 10 A           |
| HB-14x51-16 | HBM-14x51-16 | 16 A           |
| HB-14x51-20 | HBM-14x51-20 | 20 A           |
| HB-14x51-25 | HBM-14x51-25 | 25 A           |
| HB-14x51-32 | HBM-14x51-32 | 32 A           |
| HB-14x51-40 | HBM-14x51-40 | 40 A           |
| HB-14x51-50 | HBM-14x51-50 | 50 A           |

|  | D (mm) | L (mm) |
|---|--------|--------|
| 8x32  | 8,5    | 31,5   |
| 10x38   | 10,3   | 38     |
| 14x51   | 14,3   | 51     |
| 22x58   | 22,2   | 58     |



RELEVANT STANDARD  
EN 60269-1

RELEVANT STANDARD  
HD 60269-2

10x38 mm

| TRACON      |              | I <sub>n</sub> |
|-------------|--------------|----------------|
| gG          | aM           |                |
| HB-10x38-1  | HBM-10x38-1  | 1 A            |
| HB-10x38-2  | HBM-10x38-2  | 2 A            |
| HB-10x38-4  | HBM-10x38-4  | 4 A            |
| HB-10x38-6  | HBM-10x38-6  | 6 A            |
| HB-10x38-8  | HBM-10x38-8  | 8 A            |
| HB-10x38-10 | HBM-10x38-10 | 10 A           |
| HB-10x38-16 | HBM-10x38-16 | 16 A           |
| HB-10x38-20 | HBM-10x38-20 | 20 A           |
| HB-10x38-25 | HBM-10x38-25 | 25 A           |
| HB-10x38-32 | HBM-10x38-32 | 32 A           |

22x58 mm

| TRACON       |               | I <sub>n</sub> |
|--------------|---------------|----------------|
| gG           | aM            |                |
| HB-22x58-10  | HBM-22x58-10  | 10 A           |
| HB-22x58-16  | HBM-22x58-16  | 16 A           |
| HB-22x58-20  | HBM-22x58-20  | 20 A           |
| HB-22x58-25  | HBM-22x58-25  | 25 A           |
| HB-22x58-32  | HBM-22x58-32  | 32 A           |
| HB-22x58-40  | HBM-22x58-40  | 40 A           |
| HB-22x58-50  | HBM-22x58-50  | 50 A           |
| HB-22x58-63  | HBM-22x58-63  | 63 A           |
| HB-22x58-80  | HBM-22x58-80  | 80 A           |
| HB-22x58-100 | HBM-22x58-100 | 100 A          |

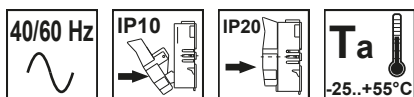


## UČITAJTE ŠIFRU!

- Pogledajte naše novosti
- Budite u tijeku

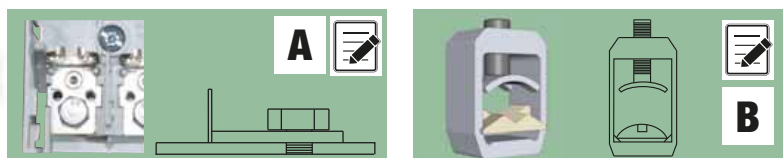
**Naša ponuda se brzo i kontinuirano razvija!**  
**Katalog prikazuje stanje u travnju 2021. godine.**  
**Za aktualne informacije posjetite našu**  
**web stranicu!**

## Vodoravni osigurači-rastavne sklopke za montažne ploče



Detaljne tehničke parametre i dimenzije KETO rastavnih sklopki s nožastim osiguračem od proizvođača Jean Müller i COSMO sustava sabirnica, te njihovog dopunskog pribora možete naći u katalogu ili web trgovini TRACON-a. Dimenzije i detaljne tehničke parametre rastavnih sklopki s nožastim osiguračem možete naći na web stranici [www.traconelectric.com](http://www.traconelectric.com)!

- priključivanje vijcima (A) ili stezaljkama (B)
- 1-, 2-, 3- i 4-polna izvedba
- 4 veličine za nožaste osigurače 00, 1, 2 i 3
- moguća je naknadna instalacija, univerzalni načini priključivanja



| TRACON               | In    |    |  | mm <sup>2</sup>    | L (mm) | W (mm) | H (mm) | U <sub>i</sub> | U <sub>e</sub>   |
|----------------------|-------|----|--|--------------------|--------|--------|--------|----------------|------------------|
| <b>KETO-00-1/F</b>   | 160   | 00 |  | max. 95, M10       | 204    | 50     | 84     | 800 VAC        | 690 VAC, 440 VDC |
| <b>KETO-00-1/R95</b> |       |    |  | 1,5-95             | 204    | 50     | 84     | 800 VAC        | 690 VAC, 440 VDC |
| <b>KETO-1-1/F</b>    | 250   | 1  |  | max. 150, M10      | 306    | 69     | 117    | 800 VAC        | 690 VAC, 440 VDC |
| <b>KETO-3-1/F</b>    |       |    |  | max. 300, M10      | 306    | 91     | 143    | 800 VAC        | 690 VAC, 440 VDC |
| <b>KETO-00-3/F</b>   | 160 A | 00 |  | max. 95, 1×M8/2×M5 | 204    | 106    | 84     | 800 VAC        | 690 VAC, 440 VDC |
| <b>KETO-00-3/R95</b> |       |    |  | 1,5-95             | 204    | 106    | 84     | 800 VAC        | 690 VAC, 440 VDC |
| <b>KETO-1-3/F</b>    | 250 A | 1  |  | max. 150, M10      | 306    | 184    | 117    | 800 VAC        | 690 VAC, 440 VDC |
| <b>KETO-1-3/R150</b> |       |    |  | 35-150             | 306    | 184    | 117    | 800 VAC        | 690 VAC, 440 VDC |
| <b>KETO-2-3/F</b>    | 400 A | 2  |  | max. 240, M10      | 306    | 210    | 117    | 800 VAC        | 690 VAC, 440 VDC |
| <b>KETO-2-3/R300</b> |       |    |  | 95-300             | 306    | 210    | 117    | 800 VAC        | 690 VAC, 440 VDC |
| <b>KETO-3-3/F</b>    | 630 A | 3  |  | max. 300, M10      | 306    | 250    | 117    | 800 VAC        | 690 VAC, 440 VDC |
| <b>KETO-3-3/R300</b> |       |    |  | 95-300             | 306    | 250    | 117    | 800 VAC        | 690 VAC, 440 VDC |

### NAŠ KETO KATALOG ZATRAŽITE OD SLUŽBE ZA STRANKE ILI PRODAVAČA!



#### SVEOBUHVAJNA PONUDA!

- priključne stezaljke
- nosači za redanje 00
- zaštite od dodira
- adapteri za montažne nosače, 00-1
- elementi za lokote, 00-3
- pokazivači stanja
- nadzori osigurača
- zaštita od krađe struje
- tehnički parametri
- nacrti dimenzija



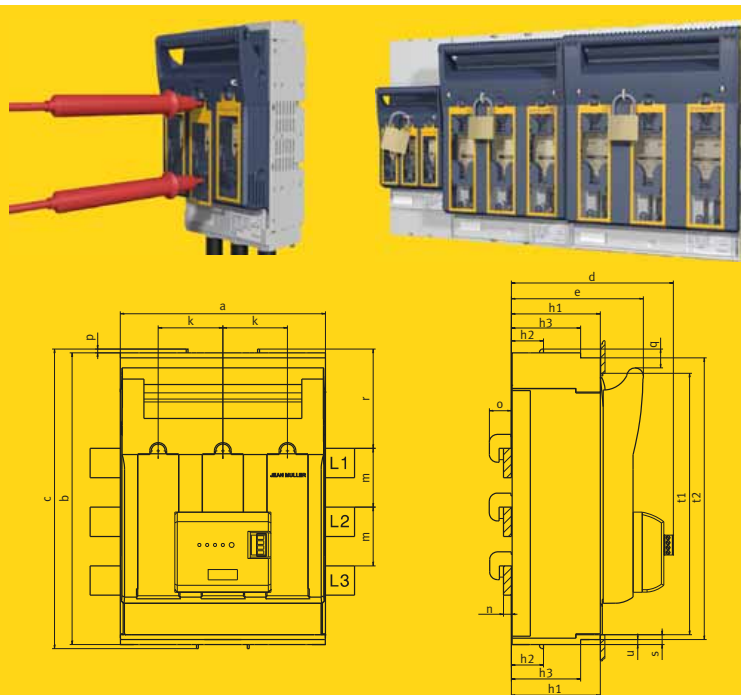
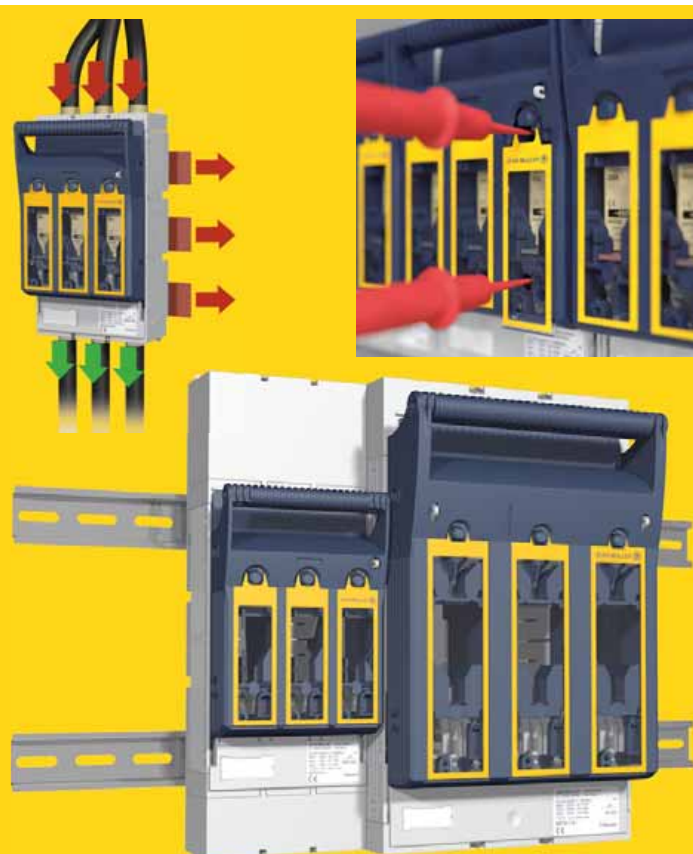
## Vodoravni osigurači-rastavne sklopke za montažu na sabirnice

Mogu se lagano instalirati i naknadno na već izvedene 3-polne sustave sabirnice s razmakom 60 i 100 mm. Elementi za pričvršćivanje smješteni iza nosača priključnu kontaktnu površinu pritišću na sabirnice i time osim pogonski sigurnog pridržavanja omogućuju ujedno i napajanje rastavne sklopke.

- 3-polno priključivanje na sabirnice/vijcima/stezaljkama
- razmak nosača 60 i 100 mm
- debljina nosača 5-10 mm
- za nožaste osigurače veličine 00C, 00, 1, 2 i 3



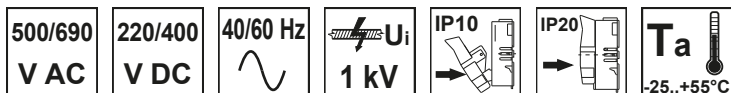
| TRACON                        |  | $I_n$  |       | $a \times b$ |              | mm <sup>2</sup>    | L (mm) | W (mm) | H (mm) |
|-------------------------------|--|--------|-------|--------------|--------------|--------------------|--------|--------|--------|
| <b>KETO-00-3/60/AOU/F</b>     |  | 60 mm  | 160 A | 00           | 20-30 × 5-10 | max. 95, 1×M8/2×M5 | 204    | 106    | 109    |
| <b>KETO-00-3/60/AOU/R95</b>   |  | 60 mm  | 160 A | 00           | 20-30 × 5-10 | 1,5-95             | 204    | 106    | 109    |
| <b>KETO-00-3/60/AOU/R95T*</b> |  | 60 mm  | 160 A | 00           | 20-30 × 5-10 | 1,5-95             | 204    | 106    | 109    |
| <b>KETO-1-3/60/AOU/F</b>      |  | 60 mm  | 250 A | 1            | 20-30 × 5-10 | max. 150, M10      | 306    | 184    | 117    |
| <b>KETO-1-3/60/AOU/R150</b>   |  | 60 mm  | 250 A | 1            | 20-30 × 5-10 | 35-150             | 306    | 184    | 117    |
| <b>KETO-2-3/60/AOU/F</b>      |  | 60 mm  | 400 A | 2            | 20-30 × 5-10 | max. 240, M10      | 306    | 210    | 135    |
| <b>KETO-2-3/60/AOU/R300</b>   |  | 60 mm  | 400 A | 2            | 20-30 × 5-10 | 95-300             | 306    | 210    | 135    |
| <b>KETO-3-3/60/AOU/F</b>      |  | 60 mm  | 630 A | 3            | 20-30 × 5-10 | max. 300, M10      | 306    | 250    | 143    |
| <b>KETO-3-3/60/AOU/R300</b>   |  | 60 mm  | 630 A | 3            | 20-30 × 5-10 | 95-300             | 306    | 250    | 143    |
| <b>KETO-1-3/100/AOU/F</b>     |  | 100 mm | 250 A | 1            | 20-50 × 5-10 | max. 150, M10      | 306    | 184    | 146    |
| <b>KETO-2-3/100/AOU/F</b>     |  | 100 mm | 400 A | 2            | 20-50 × 5-10 | max. 240, M10      | 306    | 210    | 144    |
| <b>KETO-3-3/100/AOU/F</b>     |  | 100 mm | 630 A | 3            | 20-50 × 5-10 | max. 300, M10      | 306    | 250    | 152    |



Tvrtnica Jean Müller na tržištu sklopkih aparata jake struje ima odlučujuću ulogu od 1897. godine. Njeni pouzdani i kvalitetni proizvodi priznati su na cijelom svijetu, sada se u tu kakvoću možete i Vi uvjeriti.



## Okomiti osigurači-rastavne sklopke za 185 mm-ski sustav sabirnica



Glavne značajke:

Spajanje kabela odozdo ili odozgo može se odabrati okretanjem aparata za 180 stupnjeva.  
Za mjerenje napona izvedeni su kontrolni provrti na poklopcu aparata.

### Izvedba za isklapanje po polovima

| TRACON           | $I_n$ |    | mm <sup>2</sup> | L (mm) | W (mm) | H (mm) |  |
|------------------|-------|----|-----------------|--------|--------|--------|--|
| SL00-3X/185/F    | 160 A | 00 | Max. 95         | 662    | 50     | 135,5  |  |
| SL00-3X/185/KU00 | 160 A | 00 | 10 – 95         | 662    | 50     | 135,5  |  |
| SL1-3X/3A        | 250 A | 1  | 25 – 150        | 762    | 99     | 194    |  |
| SL1-3X/9/KM2G-F  | 250 A | 1  | 25 – 240        | 762    | 99     | 194    |  |
| SL2-3X/3A        | 400 A | 2  | 25 – 240        | 762    | 99     | 194    |  |
| SL2-3X/9/KM2G-F  | 400 A | 2  | 25 – 240        | 762    | 99     | 194    |  |
| SL3-3X/3A        | 630 A | 3  | 25 – 300        | 762    | 99     | 194    |  |
| SL3-3X/9/KM2G-F  | 630 A | 3  | 25 – 240        | 762    | 99     | 194    |  |



### Izvedba za istodobno isklapanje 3 pola

| TRACON            | $I_n$ |    | mm <sup>2</sup> | L (mm) | W (mm) | H (mm) |  |
|-------------------|-------|----|-----------------|--------|--------|--------|--|
| SL00-3X3/185/F    | 160 A | 00 | Max. 95         | 662    | 50     | 150    |  |
| SL00-3X3/185/KU00 | 160 A | 00 | 10 – 95         | 662    | 50     | 150    |  |
| SL1-3X3/3A        | 250 A | 1  | 25 – 150        | 762    | 99     | 202    |  |
| SL1-3X3/9/KM2G-F  | 250 A | 1  | 25 – 240        | 762    | 99     | 202    |  |
| SL2-3X3/3A        | 400 A | 2  | 25 – 240        | 762    | 99     | 202    |  |
| SL2-3X3/9/KM2G-F  | 400 A | 2  | 25 – 240        | 762    | 99     | 202    |  |
| SL3-3X3/3A        | 630 A | 3  | 25 – 300        | 762    | 99     | 202    |  |
| SL3-3X3/9/KM2G-F  | 630 A | 3  | 25 – 240        | 762    | 99     | 202    |  |



Ručka za uklapanje

- Duga ručka za sigurno i brzo uklapanje
- Mogućnost zaključavanja bilo kojeg pola u ON i OFF položaju (pri izvedbi s isklapanjem po polovima također)

Mjerenje i kontrola

- Sigurno mjerenje napona na kontaktu osnove osigurača kroz kontrolne provrte

Montaža

- Sigurna montaža pod naponom također zahvaljujući zaštiti kontakata od slučajnog dodira
- Zamjenjive ušice za pričvršćivanje na sabirnice

## Dopunski pribor za izvedbu sustava sabirnica s razmakom 100 i 185 mm

### Držač sabirnice SH100/185 (za sustave s razmakom 100 i 185 mm)



Držači sabirnice pogodni su za pričvršćivanje sabirnica s razmakom 100 i 185 mm, pomoću njih može se formirati optimalni sustav sabirnica za okomite osigurače-rastavne sklopke, također. Dopunjeni s elementima za maskiranje može se izvesti sustav sabirnica koji je potpuno zaštićen od dodira.

#### Tehnički parametri:

- Broj polova: 3
- Vijci za pričvršćivanje: M12
- Širina sabirnice: 100 mm
- Razmak između nosača: 100 ili 185 mm
- Dimenzije: 38×442×25 mm  
(širina × visina × debljina)

### Vijčana maska za sabirnice H-SL123/662 (za sustave s razmakom 185 mm)



Pomoću okomite, prednje maske za sabirnice mogu se izolirati nosači s prednje strane radi zaštite od dodira u 3-faznim sustavima sabirnica s razmakom 185 mm.

#### Tehnički parametri:

- Broj polova: 3
- Vijci za pričvršćivanje: plastični, s ušicom
- Širina sabirnice: 100 mm
- Razmak između nosača: 185 mm
- Dimenzije: 100×662×2 mm  
(širina × visina × debljina)

### Bezvijčana maska za sabirnice H-RF (za sustave s razmakom 100 i 185 mm)



Ima istu funkciju kao vijčana maska za sabirnice, samo se način montaže razlikuje. Maska se na sabirnicu može postaviti laganim pritiskom. Uporaba alata nije potrebna.

#### Tehnički parametri:

- Broj polova: 3
- Vijci za pričvršćivanje: plastični, s ušicom
- Širina sabirnice: 100 mm
- Razmak između nosača: 100 ili 185 mm
- Dimenzije: 99×572×36 mm  
(širina × visina × debljina)

### Bočna zaštita za držače sabirnica HW-SH/185 (s razmakom 185 mm)



Pomoću nje može se izolirati držač sabirnice SH100/185 s bočne strane. Sustavi sabirnica širine 185 mm montirani na držače SH100/185 mogu se potpuno zaštititi s prednje strane ako se bočna zaštita dopuni prednjom vijčanom ili bezvijčanom maskom.

#### Tehnički parametri:

- Broj polova: 3
- Vijci za pričvršćivanje: plastični, s ušicom
- Razmak između nosača: 185 mm
- Dimenzije: 25×442×38 mm  
(širina × visina × debljina)

## Dopunski pribor za izvedbu sustava sabirnica s razmakom 185 mm



### Adapter AL-SL00/42 za izdizanje aparata veličine 00, 00C

Pomoću njega aparat veličine 00, 00C može se poravnati s aparatima veličine 1-2-3. Time razvodni ormar poprima estetičniji izgled, a rukovanje ugrađenim aparatima postaje jednostavnije.

#### Tehnički parametri:

- Broj polova: 3
- Veličina aparata: 00, 00C
- Vijci za pričvršćivanje: M12
- Širina sabirnice: 100 mm
- Razmak između nosača: 185 mm
- Dimenzije: 99×450×42 mm  
(širina × visina × debljina)



### SK-L/SL00/15

### Stezaljka sabirnice SK-L/SL00 za aparate veličine 00, 00C

Pomoću njih aparati tipa SL00 se brže postavljaju na sabirnicu.

#### Tehnički parametri:

- Materijal: pokositreni bakar
- Veličina aparata: 00, 00C
- Vijci za pričvršćivanje: M12
- Debljina nosača: 5-10 mm



## 60 mm-ski COSMO sustav sabirnica



Cjelovito rješenje za izgradnju sustava sabirnica s 60 mm-skim razmakom uporabom sljedećih elemenata.

**Glavne značajke:**

- Široka primjenjivost
- Kratko vrijeme instaliranja
- Manje ožičenja
- Lagana montaža
- Univerzalne dimenzije



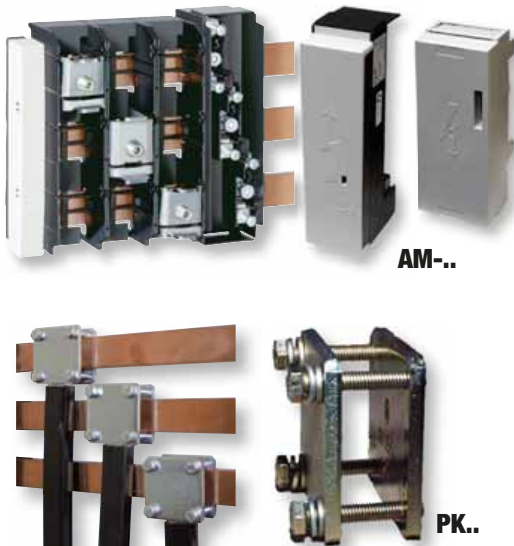
## Držači sabirnica i njihove zaštite (60 mm-ski razmak)



| TRACON            | Izvedba                              |
|-------------------|--------------------------------------|
| <b>SST-60/1</b>   | Držać sabirnice, 1-polni             |
| <b>SST-60/3</b>   | Držać sabirnice, 3-polni             |
| <b>SST-60/4</b>   | Držać sabirnice, 4-polni             |
| <b>A-SST-60/3</b> | Bočna zaštita za 3-polnu sabirnicu   |
| <b>A-SST-60/4</b> | Bočna zaštita za 4-polnu sabirnicu   |
| <b>SAD60/3</b>    | Prednja zaštita za 3-polnu sabirnicu |
| <b>SAD60/4</b>    | Prednja zaštita za 4-polnu sabirnicu |

Dvodjelni izolatori s ugrađenim držačem razmaka služe za ugradnju sabirnica debljine 5 i 10 mm, širine 20-30 mm. Zaštite pokrivaju sve tri faze, te se na nosače mogu postaviti laganim pritiskom. Mogu se pomicati međusobno ih prekrivajući, čime se postižu zaštite različitih širina bez rezanja.

## Odcjepni moduli (60 mm-ski razmak)



| TRACON                    | Izvedba i odcjep (širina x debljina)                                       |
|---------------------------|--|
| <b>AM-60/250/3</b>        | do 250A, 1,5mm <sup>2</sup> -70mm <sup>2</sup>                             |
| <b>AM-60/250/3/120-5</b>  | do 250A, 16mm <sup>2</sup> -120mm <sup>2</sup> , za nosač debljine 5 mm    |
| <b>AM-60/250/3/120-10</b> | do 250A, 16mm <sup>2</sup> -120mm <sup>2</sup> , za nosač debljine 10 mm   |
| <b>AM-60/630/3</b>        | do 630A, 70mm <sup>2</sup> -300mm <sup>2</sup> , za nosač debljine 5/10 mm |
| <b>PK30/34X10</b>         | za nosač širine 30 mm i pločasti nosač 34x10 mm                            |
| <b>PK40/34X10</b>         | za nosač širine 40 mm i pločasti nosač 34x10 mm                            |
| <b>PK50/34X10</b>         | za nosač širine 50 mm i pločasti nosač 34x10 mm                            |
| <b>PK50/54X10</b>         | za nosač širine 50 mm i pločasti nosač 54x10 mm                            |
| <b>PK60/34X10</b>         | za nosač širine 60 mm i pločasti nosač 34x10 mm                            |
| <b>PK60/54X10</b>         | za nosač širine 60 mm i pločasti nosač 54x10 mm                            |

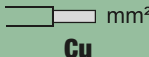



Pogodni su za napajanje sabirnica, kao i za odcjepljivanje kabela. AM... moduli sadržavaju zaštitu od dodira i namijenjeni su za odcjepljivanje kabela sa sabirnica. PK... moduli su izvedeni bez zaštite, njihovi stezni vijci sabirnice odcjepa pritišću na glavni nosač.

## Odcjepne stezaljke






| TRACON             |                     |                        |
|--------------------|---------------------|------------------------|
| 5 mm               | 10 mm               | mm <sup>2</sup>        |
| <b>LAK5/1,5-16</b> | <b>LAK10/1,5-16</b> | 1,5-16 mm <sup>2</sup> |
| <b>LAK5/1,5-35</b> | <b>LAK10/1,5-35</b> | 1,5-35 mm <sup>2</sup> |
| <b>LAK5/1,5-50</b> | <b>LAK10/1,5-50</b> | 1,5-50 mm <sup>2</sup> |
| <b>LAK5/16-70</b>  | <b>LAK10/16-70</b>  | 16-70 mm <sup>2</sup>  |
| <b>LAK5/16-120</b> | <b>LAK10/16-120</b> | 16-120 mm <sup>2</sup> |
| <b>LAK5/16-185</b> | <b>LAK10/16-185</b> | 16-185 mm <sup>2</sup> |

## Vijčana stezaljka

| TRACON |  mm <sup>2</sup><br>Cu |  a x b | X  |  |
|--------|---|---|---|---|
| S00    | 6-50  | 9x5 mm, Cu  | 2 x M5  | 00 KETO, SL..   |
| S1     | 25-150  | 18x10 mm, Cu  | 2 x M6  | 1 KETO  |
| S2     | 25-240  | 19x10 mm, Cu  | 2 x M8  | 2 KETO  |
| S3     | –   | 21x15 mm, Cu  | 2 x M8  | 3 KETO  |



## Prizmatična stezaljka

| TRACON |  mm <sup>2</sup><br>Cu/Al | X  |  |
|--------|--|---|---|
| P0070  | 1x10 - 70  | 2 x M5  | 00 KETO, SL..   |
| P0095  | 1x10 - 95  | 2 x M5  | 1 KETO, SL..  |
| P1     | 1x70 - 150   | 2 x M6  | 1 KETO  |
| P2     | 1x120 - 240  | 2 x M8  | 2 KETO  |
| P3     | 1x120 - 300  | 2 x M8  | 3 KETO  |
| P12    | 2x70 - 95  | 2 x M6  | 1 KETO  |
| P22    | 2x120 - 150  | 2 x M8  | 2 KETO  |
| P32    | 2x120 - 240  | 2 x M8  | 3 KETO  |






P..



P..2

## V-stezaljka




| TRACON        |  mm <sup>2</sup><br>Cu/Al |  a x b |  |
|---------------|--|---|---|
| KM2G-F        | 25-240 mm <sup>2</sup> Cu/Al   | –   | 1, 2, 3 L/SL..  |
| KM2G          | 25-300 mm <sup>2</sup> Cu/Al   | –   | 1, 2, 3 L/SL..  |
| KM2G-F/A30-40 | 25-240 mm <sup>2</sup> Cu/Al   | 30-40 mm  | 1, 2, 3 L/SL..  |
| KM2G/A30-40   | 25-300 mm <sup>2</sup> Cu/Al   | 30-40 mm  | 1, 2, 3 L/SL..  |



KM2G../A30-40

KM2G..

## U-stezaljka

| TRACON            |  mm <sup>2</sup><br>Cu/Al |  a x b |  |
|-------------------|--|---|---|
| KU00/1/2X/A30-40* | 2x10-95 mm <sup>2</sup> Cu/Al  | 30-40 mm  | 00 L/SL..   |
| KU00              | 10-95 mm <sup>2</sup> Cu/Al  | –   | 00 L/SL..   |
| KU00/2            | 1x95/2x50 mm <sup>2</sup> Cu/AL  | –   | 00 L/SL..   |

\* Izvedba s ušicom za priključivanje, montira se na nosač.



KU00/1/2x A30-40

KU00

Radi pouzdanog i pogonski sigurnog rada u elektroenergetskom sustavu sve su Jean Müllerove osigurač-rastavne sklopke opremljene posebno oblikovanim nožastim kontaktima. Zahvaljujući optimalnom lučnom opterećenju oblik vrha kontakata skraćuje vrijeme trajanja električnog luka i time smanjuje erodaciju kontaktne površine. Ravna površina sredine kontakata osigurava odgovarajuću kontaktnu površinu uz minimalne gubitke snage. Oblik donjeg dijela kontakata štiti aparate od zavarivanja kontakata tijekom sklapanja u kratkom spoju, pa tako nazivna prekidna moć rastavnih sklopki u kratkom spoju može dostići i 110 kA!





### Industrijske teretne sklopke



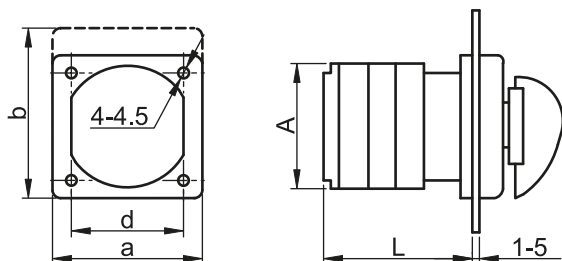
|                |          |                   |                     |
|----------------|----------|-------------------|---------------------|
| $U_i$<br>690 V | 50/60 Hz | $U_{imp}$<br>6 kV | $T_a$<br>-5..+55 °C |
|----------------|----------|-------------------|---------------------|



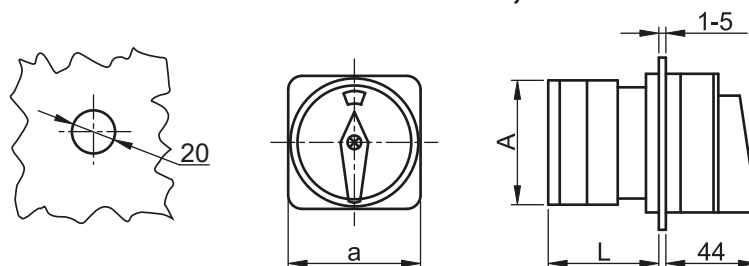
|                   |            | TK-20       | TK-25      | TK-32      | TK-63     | TK-125      | TK-160    |           |
|-------------------|------------|-------------|------------|------------|-----------|-------------|-----------|-----------|
| $I_{th}$ (A)      |            | 20          | 25         | 32         | 63        | 125         | 160       |           |
|                   | $P_e$ (kW) | 400 V~      | AC-23A     | 7,5        | 11        | 15          | 30        | 45        |
|                   |            | AC-2        | 7,5        | 11         | 15        | 30          | 45        | 55        |
|                   |            | <b>AC-3</b> | <b>5,5</b> | <b>7,5</b> | <b>11</b> | <b>18,5</b> | <b>30</b> | <b>37</b> |
|                   |            | AC-4        | 1,5        | 3          | 5,5       | 7,5         | 12        | 15        |
| $I_e$ (A)         | 400 V~     | AC-21A      | 20         | 25         | 32        | 63          | 100       | 150       |
|                   |            | AC-22A      | 20         | 25         | 32        | 63          | 100       | 150       |
|                   |            | AC-23A      | 15         | 22         | 30        | 37          | 90        | 135       |
|                   |            | AC-2        | 15         | 22         | 30        | 37          | 90        | 135       |
|                   |            | <b>AC-3</b> | <b>11</b>  | <b>15</b>  | <b>22</b> | <b>36</b>   | <b>75</b> | <b>95</b> |
|                   |            | AC-4        | 3,5        | 6,5        | 11        | 15          | 30        | 55        |
|                   |            | AC-15       | 4          | 5          | 6         | -           | -         | -         |
|                   | 240 V =    | DC-13       | 1          | 1,5        | 4         | -           | -         | -         |
| ( $\times 10^5$ ) |            | 5           | 5          | 3          | 1,5       | 1,5         | 1,5       |           |
| ( $\times 10^5$ ) |            | 3           | 3          | 1,2        | 1         | 1           | 1         |           |
|                   |            | 200         | 150        | 100        | 60        | 30          | 30        |           |
| mm <sup>2</sup>   |            | 1×2,5       | 1×4,0      | 1×6,0      | 1×25      | 1×50        | 1×70      |           |
|                   |            | 2×1,5       | 2×1,5      | 2×4,0      | 2×10      | 2×25        | 2×35      |           |
|                   |            | 1×2,5       | 1×4,0      | 1×4,0      | 1×16      | 1×35        | 1×50      |           |
|                   |            | 2×1,5       | 2×1,5      | 2×2,5      | 2×6       | 2×10        | 2×16      |           |
| $I_{cw}$ (1s, A)  |            | 200         | 250        | 400        | 600       | 600         | 800       |           |
| (A)               |            | 20          | 25         | 32         | 63        | 125         | 160       |           |

### Skice dimenzija i montažnih rupa

TK..., TKV..., TKB..., TKM..., TKU..., TKI-F



TKF..., TKFL...



Dimenzije vidi u tablici izbora! (I/22-I/27.)



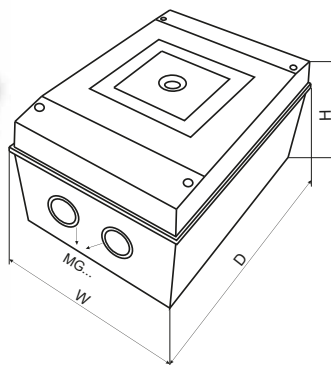
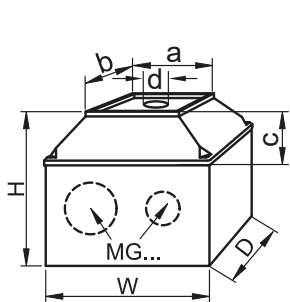
### UČITAJTE ŠIFRU!

- Pogledajte naše novosti
- Budite u tijeku

**Naša ponuda se brzo i kontinuirano razvija!**  
**Katalog prikazuje stanje u travnju 2021. godine.**  
**Za aktualne informacije posjetite našu web stranicu!**

## Kućišta

| TRACON     |  | D (mm) | W (mm) | H (mm) | a×b (mm)            | C (mm) | d (mm) |                        | IP..  |
|------------|--|--------|--------|--------|---------------------|--------|--------|------------------------|-------|
| TK/T1+F1/  |  | 68     | 68     | 64     | 48 × 48             | 25     | 9,5    | 2 × MG-20              | IP 44 |
| TK/T2+F1/  |  | 68     | 68     | 72     | 48 × 48             | 25     | 9,5    | 2 × MG-20              | IP 44 |
| TK/T2+F2/  |  | 68     | 68     | 80     | 48 × 48             | 32     | 22     | 2 × MG-20              | IP 44 |
| TK/T3+F3/  |  | 112    | 112    | 108    | 64 × 64             | 35     | 11,5   | 2 × MG-25<br>2 × MG-32 | IP 44 |
| TK/T3+F3S/ |  | 112    | 112    | 108    | 64 × 64             | 35     | 11,5   | 2 × MG-25<br>2 × MG-32 | IP 44 |
| TKTS-01    |  | 110    | 83     | 69     | 48 × 48/<br>64 × 64 | 22     | 9,5    | 2 × (2 × MG-20)        | IP 65 |
| TKTS-02    |  | 120    | 113    | 87     | 48 × 48/<br>64 × 64 | 25     | 9,5    | 2 × (2 × MG-25)        | IP 65 |
| TKTS-03    |  | 200    | 140    | 109    | 64 × 64/<br>88 × 88 | 30     | 11,5   | 2 × MG-25<br>2 × MG-32 | IP 65 |



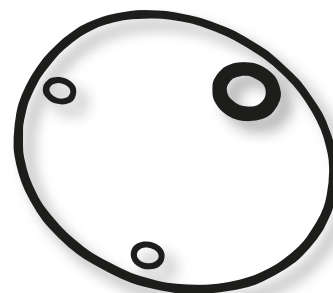
RELEVANT STANDARD  
EN 60947-3

## Kompleti za brtvljenje

| TRACON   |  |
|----------|--|
| TKT-65   | TK-20.., TK-25.., TKV-20.., TKV-25.., TKB-20.., TKB-25.., TKM-20.., TKM-25.., TKF-20.., TKF-25.. |
| TKT-65/2 | TK-32.., TK-63.., TKV-32.., TKV-63.., TKB-32.., TKB-63.., TKM-32.., TKM-63.., TKF-32.., TKF-63.. |
| TKT-65/3 | TKFL-..  |
| TKT-65/4 | TKFK-..  |



IP  
65



## Adapter

| TRACON |  |
|--------|--|
| TKA    | TK-20.., TK-25.., TKV-20.., TKV-25.., TKB-20.., TKB-25.., TKM-20.., TKM-25.., TKF-20.., TKF-25.. |



RELEVANT STANDARD  
EN 60947-3

TRACON

IP 42



+



IP44



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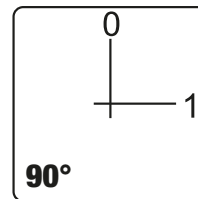
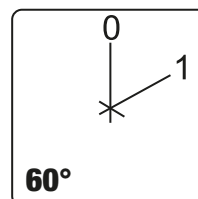
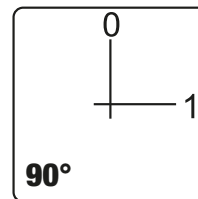
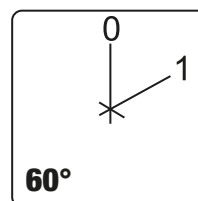
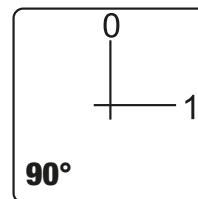
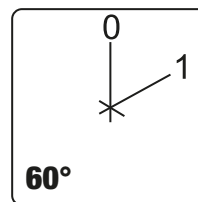


IP65



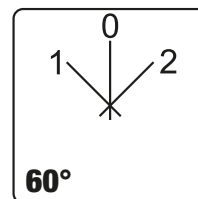
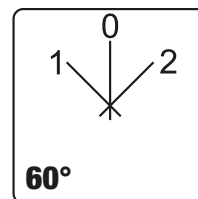
Teretne sklopke «UKL-ISK»

|          |           |             |            |           |
|----------|-----------|-------------|------------|-----------|
| TK-206/2 | TK-206/2T | TK-206/2T65 | 20 A / 2P  | TK/T1+F1/ |
| TK-256/2 | TK-256/2T | TK-256/2T65 | 25 A / 2P  | TK/T1+F1/ |
| TK-209/2 | TK-209/2T | TK-209/2T65 | 20 A / 2P  | TK/T1+F1/ |
| TK-259/2 | TK-259/2T | TK-259/2T65 | 25 A / 2P  | TK/T1+F1/ |
| TK-206/3 | TK-206/3T | TK-206/3T65 | 20 A / 3P  | TK/T1+F1/ |
| TK-256/3 | TK-256/3T | TK-256/3T65 | 25 A / 3P  | TK/T2+F1/ |
| TK-326/3 | TK-326/3T | TK-326/3T65 | 32 A / 3P  | TK/T3+F3/ |
| TK-636/3 | TK-636/3T | TK-636/3T65 | 63 A / 3P  | TK/T3+F3/ |
| TK-126/3 | -         | TK-126/3T65 | 125 A / 3P | TKTS-03   |
| TK-166/3 | -         | TK-166/3T65 | 160 A / 3P | TKTS-03   |
| TK-209/3 | TK-209/3T | TK-209/3T65 | 20 A / 3P  | TK/T1+F1/ |
| TK-259/3 | TK-259/3T | TK-259/3T65 | 25 A / 3P  | TK/T2+F1/ |
| TK-329/3 | TK-329/3T | TK-329/3T65 | 32 A / 3P  | TK/T3+F3/ |
| TK-639/3 | TK-639/3T | TK-639/3T65 | 63 A / 3P  | TK/T3+F3/ |
| TK-129/3 | -         | TK-129/3T65 | 125 A / 3P | TKTS-03   |
| TK-169/3 | -         | TK-169/3T65 | 160 A / 3P | TKTS-03   |
| TK-206/4 | TK-206/4T | TK-206/4T65 | 20 A / 4P  | TK/T1+F1/ |
| TK-256/4 | TK-256/4T | TK-256/4T65 | 25 A / 4P  | TK/T2+F1/ |
| TK-326/4 | TK-326/4T | TK-326/4T65 | 32 A / 4P  | TK/T3+F3/ |
| TK-636/4 | TK-636/4T | TK-636/4T65 | 63 A / 4P  | TK/T3+F3/ |
| TK-126/4 | -         | TK-126/4T65 | 125 A / 4P | TKTS-03   |
| TK-166/4 | -         | TK-166/4T65 | 160 A / 4P | TKTS-03   |
| TK-209/4 | TK-209/4T | TK-209/4T65 | 20 A / 4P  | TK/T1+F1/ |
| TK-259/4 | TK-259/4T | TK-259/4T65 | 25 A / 4P  | TK/T2+F1/ |
| TK-329/4 | TK-329/4T | TK-329/4T65 | 32 A / 4P  | TK/T3+F3/ |
| TK-639/4 | TK-639/4T | TK-639/4T65 | 63 A / 4P  | TK/T3+F3/ |
| TK-129/4 | -         | TK-129/4T65 | 125 A / 4P | TKTS-03   |
| TK-169/4 | -         | TK-169/4T65 | 160 A / 4P | TKTS-03   |



Izborne sklopke

|           |            |              |              |           |
|-----------|------------|--------------|--------------|-----------|
| TKV-206/3 | TKV-206/3T | TKV-206/3T65 | 20 A / 2x3P  | TK/T2+F1/ |
| TKV-256/3 | -          | TKV-256/3T65 | 25 A / 2x3P  | TKTS-02   |
| TKV-326/3 | TKV-326/3T | TKV-326/3T65 | 32 A / 2x3P  | TK/T3+F3/ |
| TKV-636/3 | -          | TKV-636/3T65 | 63 A / 2x3P  | TKTS-03   |
| TKV-126/3 | -          | -            | 125 A / 2x3P | -         |
| TKV-166/3 | -          | -            | 160 A / 2x3P | -         |
| TKV-206/4 | -          | TKV-206/4T65 | 20 A / 2x4P  | TKTS-01   |
| TKV-256/4 | -          | TKV-256/4T65 | 25 A / 2x4P  | TKTS-02   |
| TKV-326/4 | TKV-326/4T | TKV-326/4T65 | 32 A / 2x4P  | TK/T3+F3/ |
| TKV-636/4 | -          | -            | 63 A / 2x4P  | -         |
| TKV-126/4 | -          | -            | 125 A / 2x4P | -         |
| TKV-166/4 | -          | -            | 160 A / 2x4P | -         |



|             |   |   |       |      | L<br>(mm) | A<br>(mm) | a<br>(mm) | b<br>(mm) | d<br>(mm) |  |  |
|-------------|---|---|-------|------|-----------|-----------|-----------|-----------|-----------|--|--|
| 0° 60°      |   |   |       |      |           |           |           |           |           |  |  |
| 1-2         | × |   |       |      |           |           |           |           |           |  |  |
| 3-4         | × |   |       |      | 28        | 43,5      | 48        | 48        | 36        |  |  |
|             |   |   |       |      | 28        | 43,5      | 48        | 48        | 36        |  |  |
| 0° 90°      |   |   |       |      |           |           |           |           |           |  |  |
| 1-2         | × |   |       |      |           |           |           |           |           |  |  |
| 3-4         | × |   |       |      | 33        | 45,3      | 48        | 48        | 36        |  |  |
|             |   |   |       |      | 33        | 45,3      | 48        | 48        | 36        |  |  |
| 0° 60°      |   |   |       |      |           |           |           |           |           |  |  |
| 1-2         | × |   |       |      | 41,2      | 43        | 48        | 48        | 36        |  |  |
| 3-4         | × |   |       |      | 48,6      | 45,2      | 48        | 48        | 36        |  |  |
| 5-6         | × |   |       |      | 54,8      | 58        | 64        | 64        | 48        |  |  |
|             |   |   |       |      | 72,2      | 66        | 64        | 64        | 48        |  |  |
|             |   |   |       |      | 84        | 84        | 88        | 88        | 68        |  |  |
|             |   |   |       |      | 97        | 88        | 88        | 88        | 68        |  |  |
| 0° 90°      |   |   |       |      |           |           |           |           |           |  |  |
| 1-2         | × |   |       |      | 41,2      | 43        | 48        | 48        | 36        |  |  |
| 3-4         | × |   |       |      | 48,6      | 45,2      | 48        | 48        | 36        |  |  |
| 5-6         | × |   |       |      | 54,8      | 58        | 64        | 64        | 48        |  |  |
|             |   |   |       |      | 72,2      | 66        | 64        | 64        | 48        |  |  |
|             |   |   |       |      | 84        | 84        | 88        | 88        | 68        |  |  |
|             |   |   |       |      | 97        | 88        | 88        | 88        | 68        |  |  |
| 0° 60°      |   |   |       |      |           |           |           |           |           |  |  |
| 1-2         | × |   |       |      | 41,2      | 43        | 48        | 48        | 36        |  |  |
| 3-4         | × |   |       |      | 48,6      | 45,2      | 48        | 48        | 36        |  |  |
| 5-6         | × |   |       |      | 54,8      | 58        | 64        | 64        | 48        |  |  |
| 7-8         | × |   |       |      | 72,2      | 66        | 64        | 64        | 48        |  |  |
|             |   |   |       |      | 84        | 84        | 88        | 88        | 68        |  |  |
|             |   |   |       |      | 97        | 88        | 88        | 88        | 68        |  |  |
| 0° 90°      |   |   |       |      |           |           |           |           |           |  |  |
| 1-2         | × |   |       |      | 41,2      | 43        | 48        | 48        | 36        |  |  |
| 3-4         | × |   |       |      | 48,6      | 45,2      | 48        | 48        | 36        |  |  |
| 5-6         | × |   |       |      | 54,8      | 58        | 64        | 64        | 48        |  |  |
| 7-8         | × |   |       |      | 72,2      | 66        | 64        | 64        | 48        |  |  |
|             |   |   |       |      | 84        | 84        | 88        | 88        | 68        |  |  |
|             |   |   |       |      | 97        | 88        | 88        | 88        | 68        |  |  |
| -60° 0° 60° |   |   |       |      |           |           |           |           |           |  |  |
| 1-2         | × |   |       |      | 50,8      | 43        | 48        | 48        | 36        |  |  |
| 3-4         |   | × |       |      | 61,4      | 45,2      | 48        | 48        | 36        |  |  |
| 5-6         | × |   |       |      | 67,6      | 58        | 64        | 64        | 48        |  |  |
| 7-8         |   | × |       | 93,7 | 66        | 64        | 64        | 48        |           |  |  |
| 9-10        | × |   |       |      | 110       | 84        | 88        | 88        | 68        |  |  |
| 11-12       |   | × |       | 130  | 88        | 88        | 88        | 68        |           |  |  |
| -60° 0° 60° |   |   |       |      |           |           |           |           |           |  |  |
| 1-2         | × |   | 9-10  | ×    | 60,4      | 43        | 48        | 48        | 36        |  |  |
| 3-4         |   |   | 11-12 |      | 74,2      | 45,2      | 48        | 48        | 36        |  |  |
| 5-6         | × |   | 13-14 | ×    | 80,4      | 58        | 64        | 64        | 48        |  |  |
| 7-8         |   |   | 15-16 |      | 115,2     | 66        | 64        | 64        | 48        |  |  |
|             |   |   |       |      | 136       | 84        | 88        | 88        | 68        |  |  |
|             |   |   |       |      | 163       | 88        | 88        | 88        | 68        |  |  |



TRACON

IP 42



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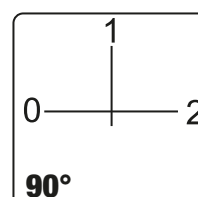
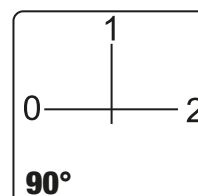
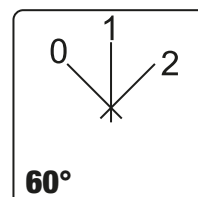
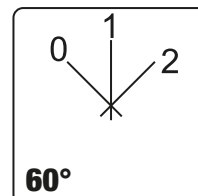
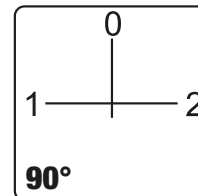
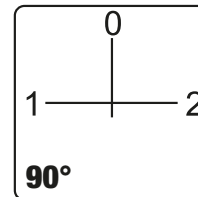


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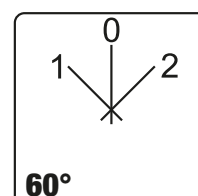
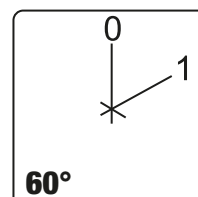
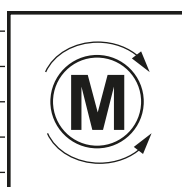
Izborne sklopke

|           |            |              |              |           |
|-----------|------------|--------------|--------------|-----------|
| TKV-209/3 | TKV-209/3T | TKV-209/3T65 | 20 A / 2×3P  | TK/T2+F1/ |
| TKV-259/3 | -          | TKV-259/3T65 | 25 A / 2×3P  | TKTS-02   |
| TKV-329/3 | TKV-329/3T | TKV-329/3T65 | 32 A / 2×3P  | TK/T3+F3/ |
| TKV-639/3 | -          | TKV-639/3T65 | 63 A / 2×3P  | TKTS-03   |
| TKV-129/3 | -          | -            | 125 A / 2×3P | -         |
| TKV-169/3 | -          | -            | 160 A / 2×3P | -         |
| TKV-209/4 | -          | TKV-209/4T65 | 20 A / 2×4P  | TKTS-01   |
| TKV-259/4 | -          | TKV-259/4T65 | 25 A / 2×4P  | TKTS-02   |
| TKV-329/4 | TKV-329/4T | TKV-329/4T65 | 32 A / 2×4P  | TK/T3+F3/ |
| TKV-639/4 | -          | -            | 63 A / 2×4P  | -         |
| TKV-129/4 | -          | -            | 125 A / 2×4P | -         |
| TKV-169/4 | -          | -            | 160 A / 2×4P | -         |
| TKB-206/3 | TKB-206/3T | TKB-206/3T65 | 20 A / 2×3P  | TK/T2+F1/ |
| TKB-256/3 | -          | TKB-256/3T65 | 25 A / 2×3P  | TKTS-02   |
| TKB-326/3 | TKB-326/3T | TKB-326/3T65 | 32 A / 2×3P  | TK/T3+F3/ |
| TKB-636/3 | -          | TKB-636/3T65 | 63 A / 2×3P  | TKTS-03   |
| TKB-126/3 | -          | -            | 125 A / 2×3P | -         |
| TKB-166/3 | -          | -            | 160 A / 2×3P | -         |
| TKB-206/4 | -          | TKB-206/4T65 | 20 A / 2×4P  | TKTS-01   |
| TKB-256/4 | -          | TKB-256/4T65 | 25 A / 2×4P  | TKTS-02   |
| TKB-326/4 | TKB-326/4T | TKB-326/4T65 | 32 A / 2×4P  | TK/T3+F3/ |
| TKB-636/4 | -          | -            | 63 A / 2×4P  | -         |
| TKB-126/4 | -          | -            | 125 A / 2×4P | -         |
| TKB-166/4 | -          | -            | 160 A / 2×4P | -         |
| TKB-209/3 | TKB-209/3T | TKB-209/3T65 | 20 A / 2×3P  | TK/T2+F1/ |
| TKB-259/3 | -          | TKB-259/3T65 | 25 A / 2×3P  | TKTS-02   |
| TKB-329/3 | TKB-329/3T | TKB-329/3T65 | 32 A / 2×3P  | TK/T3+F3/ |
| TKB-639/3 | -          | TKB-639/3T65 | 63 A / 2×3P  | TKTS-03   |
| TKB-129/3 | -          | -            | 125 A / 2×3P | -         |
| TKB-169/3 | -          | -            | 160 A / 2×3P | -         |
| TKB-209/4 | -          | TKB-209/4T65 | 20 A / 2×4P  | TKTS-01   |
| TKB-259/4 | -          | TKB-259/4T65 | 25 A / 2×4P  | TKTS-02   |
| TKB-329/4 | TKB-329/4T | TKB-329/4T65 | 32 A / 2×4P  | TK/T3+F3/ |
| TKB-639/4 | -          | -            | 63 A / 2×4P  | -         |
| TKB-129/4 | -          | -            | 125 A / 2×4P | -         |
| TKB-169/4 | -          | -            | 160 A / 2×4P | -         |








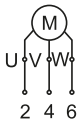


Motorske sklopke








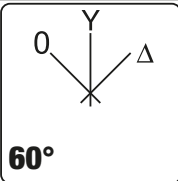
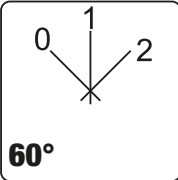
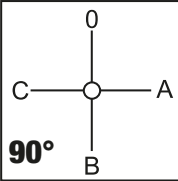
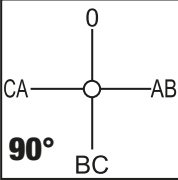
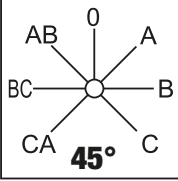
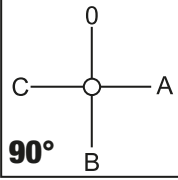
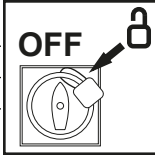
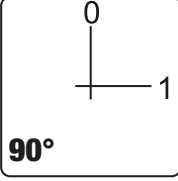
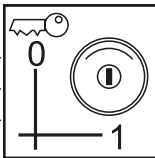
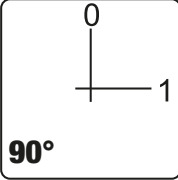
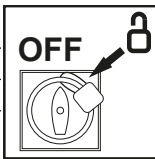
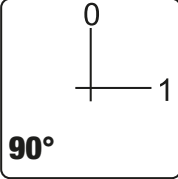
|          |           |             |         |           |
|----------|-----------|-------------|---------|-----------|
| TKM-20/Q | TKM-20/QT | TKM-20/QT65 | 5,5 kW  | TK/T1+F1/ |
| TKM-25/Q | TKM-25/QT | TKM-25/QT65 | 7,5 kW  | TK/T2+F1/ |
| TKM-32/Q | TKM-32/QT | TKM-32/QT65 | 11 kW   | TK/T3+F3/ |
| TKM-63/Q | TKM-63/QT | TKM-63/QT65 | 18,5 kW | TK/T3+F3/ |
| TKM-12/Q | -         | TKM-12/QT65 | 30 kW   | TKTS-03   |
| TKM-16/Q | -         | TKM-16/QT65 | 37 kW   | TKTS-03   |
| TKM-20/N | TKM-20/NT | TKM-20/NT65 | 5,5 kW  | TK/T2+F1/ |
| TKM-25/N | -         | TKM-25/NT65 | 7,5 kW  | TKTS-02   |
| TKM-32/N | TKM-32/NT | TKM-32/NT65 | 11 kW   | TK/T3+F3/ |
| TKM-63/N | -         | TKM-63/NT65 | 18,5 kW | TKTS-03   |
| TKM-12/N | -         | -           | 30 kW   | -         |
| TKM-16/N | -         | -           | 37 kW   | -         |





| <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>1</td><td>0</td><td>2</td></tr> <tr><td>x</td><td>x</td><td>x</td></tr> <tr><td>2</td><td>x</td><td>x</td></tr> <tr><td>3</td><td>x</td><td>x</td></tr> </table> |      |     | 1    | 0     | 2    | x    | x     | x    | 2  | x  | x  | 3  | x  | x   | L  | A | a  | b  | d  | <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>1</td><td>3</td><td>5</td><td>7</td></tr> <tr><td>2</td><td>4</td><td>6</td><td>8</td></tr> </table> |  |  | 1 | 3 | 5 | 7 | 2 | 4 | 6 | 8 |
|--|------|-----|------|-------|------|------|-------|------|----|----|----|----|----|---|----|---|----|----|----|--|--|--|---|---|---|---|---|---|---|---|
| 1  | 0    | 2   |      |       |      |      |       |      |    |    |    |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| x  | x    | x   |      |       |      |      |       |      |    |    |    |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 2  | x    | x   |      |       |      |      |       |      |    |    |    |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 3  | x    | x   |      |       |      |      |       |      |    |    |    |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 1  | 3    | 5   | 7    |       |      |      |       |      |    |    |    |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 2  | 4    | 6   | 8    |       |      |      |       |      |    |    |    |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| -90°   | 0°   | 90° | (mm) | (mm)  | (mm) | (mm) | (mm)  |      |    |    |    |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 1-2  | x    |     | 50,8 | 43    | 48   | 48   | 36    | 2    | 4  | 6  | 8  | 10 | 12 |    |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 3-4  |      | x   | 61,4 | 45,2  | 48   | 48   | 36    |      |    |    |    |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 5-6  | x    |     | 67,6 | 58    | 64   | 64   | 48    |      |    |    |    |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 7-8  |      | x   | 93,7 | 66    | 64   | 64   | 48    |      |    |    |    |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 9-10   | x    |     | 110  | 84    | 88   | 88   | 68    | 1    | 3  | 5  | 7  | 9  | 11 |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 11-12  |      | x   | 130  | 88    | 88   | 88   | 68    | L1   | L2 | L3 |    |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
|  | -90° | 0°  | 90°  |       | -90° | 0°   | 90°   |      |    |    |    |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 1-2  | x    |     |      | 9-10  | x    |      | 60,4  | 43   | 48 | 48 | 36 |    |    |    |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 3-4  |      | x   |      | 11-12 |      | x    | 74,2  | 45,2 | 48 | 48 | 36 | 2  | 4  |   | 6  | 8 | 10 | 12 | 14 | 16   |  |  |   |   |   |   |   |   |   |   |
| 5-6  | x    |     |      | 13-14 | x    |      | 80,4  | 58   | 64 | 64 | 48 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 7-8  |      | x   |      | 15-16 |      | x    | 115,2 | 66   | 64 | 64 | 48 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
|  |      |     |      |       |      |      | 136   | 84   | 88 | 88 | 68 | 1  | 3  |   | 5  | 7 | 9  | 11 | 13 | 15   |  |  |   |   |   |   |   |   |   |   |
|  |      |     |      |       |      |      | 163   | 88   | 88 | 88 | 68 | L1 | L2 | L3  | N  |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
|  | -60° | 0°  | 60°  |       |      |      |       |      |    |    |    |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 1-2  | x    |     |      | 9-10  | x    |      | 60,4  | 43   | 48 | 48 | 36 |    |    |    |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 3-4  |      | x   |      | 11-12 |      | x    | 74,2  | 45,2 | 48 | 48 | 36 | 2  | 4  |   | 6  | 8 | 10 | 12 |    |  |  |  |   |   |   |   |   |   |   |   |
| 5-6  | x    |     |      | 13-14 | x    |      | 80,4  | 58   | 64 | 64 | 48 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 7-8  |      | x   |      | 15-16 |      | x    | 115,2 | 66   | 64 | 64 | 48 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 9-10   | x    |     |      |       |      |      | 136   | 84   | 88 | 88 | 68 | 1  | 3  |   | 5  | 7 | 9  | 11 |    |  |  |  |   |   |   |   |   |   |   |   |
| 11-12  |      | x   |      |       |      |      | 163   | 88   | 88 | 88 | 68 | L1 | L2 | L3  |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
|  | -60° | 0°  | 60°  |       | -60° | 0°   | 60°   |      |    |    |    |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 1-2  | x    |     |      | 9-10  | x    |      | 60,4  | 43   | 48 | 48 | 36 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 3-4  |      | x   |      | 11-12 |      | x    | 74,2  | 45,2 | 48 | 48 | 36 | 2  | 4  |   | 6  | 8 | 10 | 12 | 14 | 16   |  |  |   |   |   |   |   |   |   |   |
| 5-6  | x    |     |      | 13-14 | x    |      | 80,4  | 58   | 64 | 64 | 48 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 7-8  |      | x   |      | 15-16 |      | x    | 115,2 | 66   | 64 | 64 | 48 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
|  |      |     |      |       |      |      | 136   | 84   | 88 | 88 | 68 | 1  | 3  |   | 5  | 7 | 9  | 11 | 13 | 15   |  |  |   |   |   |   |   |   |   |   |
|  |      |     |      |       |      |      | 163   | 88   | 88 | 88 | 68 | L1 | L2 | L3  | N  |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
|  | -90° | 0°  | 90°  |       |      |      |       |      |    |    |    |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 1-2  | x    |     |      | 9-10  | x    |      | 60,4  | 43   | 48 | 48 | 36 |    |    |  |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 3-4  |      | x   |      | 11-12 |      | x    | 74,2  | 45,2 | 48 | 48 | 36 | 2  | 4  |   | 6  | 8 | 10 | 12 |    |  |  |  |   |   |   |   |   |   |   |   |
| 5-6  | x    |     |      | 13-14 | x    |      | 80,4  | 58   | 64 | 64 | 48 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 7-8  |      | x   |      | 15-16 |      | x    | 115,2 | 66   | 64 | 64 | 48 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 9-10   | x    |     |      |       |      |      | 136   | 84   | 88 | 88 | 68 | 1  | 3  |   | 5  | 7 | 9  | 11 |    |  |  |  |   |   |   |   |   |   |   |   |
| 11-12  |      | x   |      |       |      |      | 163   | 88   | 88 | 88 | 68 | L1 | L2 | L3  |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
|  | -90° | 0°  | 90°  |       | -90° | 0°   | 90°   |      |    |    |    |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 1-2  | x    |     |      | 9-10  | x    |      | 60,4  | 43   | 48 | 48 | 36 |    |    |  |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 3-4  |      | x   |      | 11-12 |      | x    | 74,2  | 45,2 | 48 | 48 | 36 | 2  | 4  |   | 6  | 8 | 10 | 12 | 14 | 16   |  |  |   |   |   |   |   |   |   |   |
| 5-6  | x    |     |      | 13-14 | x    |      | 80,4  | 58   | 64 | 64 | 48 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 7-8  |      | x   |      | 15-16 |      | x    | 115,2 | 66   | 64 | 64 | 48 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
|  |      |     |      |       |      |      | 136   | 84   | 88 | 88 | 68 | 1  | 3  |   | 5  | 7 | 9  | 11 | 13 | 15   |  |  |   |   |   |   |   |   |   |   |
|  |      |     |      |       |      |      | 163   | 88   | 88 | 88 | 68 | L1 | L2 | L3  | N  |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
|  | 0    | 60° |      |       |      |      |       |      |    |    |    |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 1-2  | x    |     |      |       |      |      | 41,2  | 43   | 48 | 48 | 36 |    |    |  |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 3-4  | x    |     |      |       |      |      | 48,6  | 45,2 | 48 | 48 | 36 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 5-6  | x    |     |      |       |      |      | 54,8  | 58   | 64 | 64 | 48 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
|  |      |     |      |       |      |      | 72,2  | 66   | 64 | 64 | 48 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
|  |      |     |      |       |      |      | 84    | 84   | 88 | 88 | 68 | L1 | L2 |   | L3 | 1 | 3  | 5  |    |  |  |  |   |   |   |   |   |   |   |   |
|  |      |     |      |       |      |      | 97    | 88   | 88 | 88 | 68 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
|  | -60° | 0°  | 60°  |       |      |      |       |      |    |    |    |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 1-2  | x    |     | x    |       |      |      | 50,8  | 43   | 48 | 48 | 36 |    |    |  |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 3-4  | x    |     | x    |       |      |      | 61,4  | 45,2 | 48 | 48 | 36 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 5-6  | x    |     |      |       |      |      | 67,6  | 58   | 64 | 64 | 48 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 7-8  |      |     | x    |       |      |      | 93,7  | 66   | 64 | 64 | 48 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 9-10   |      |     | x    |       |      |      | 111   | 84   | 88 | 88 | 68 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |
| 11-12  | x    |     |      |       |      |      | 130   | 88   | 88 | 88 | 68 |    |    |   |    |   |    |    |    |  |  |  |   |   |   |   |   |   |   |   |

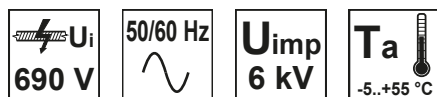


| TRACON  |   |           |  |   |   |   |   |   |
|---|---|-----------|--|---|---|---|---|---|
| IP 42   +   +  |   |           |  |  |   |   |   |   |
| <b>Motorske sklopke</b>   | TKM-20/C  | -         | TKM-20/CT65  | Y-Δ 5,5 kW  | TKTS-01   |    |   |   |
|   | TKM-25/C  | -         | TKM-25/CT65  | Y-Δ 7,5 kW  | TKTS-02   |   |   |   |
|   | TKM-32/C  | TKM-32/CT | TKM-32/CT65  | Y-Δ 11 kW   | TK/T3+F3/   |   |   |   |
|   | TKM-63/C  | -         | -  | Y-Δ 18,5 kW   | -   |   |   |   |
|   | TKM-12/C  | -         | -  | Y-Δ 30 kW   | -   |   |   |   |
|   | TKM-16/C  | -         | -  | Y-Δ 37 kW   | -   |   |   |   |
|   | TKM-20/D  | -         | TKM-20/DT65  | Dahlander 5,5 kW  | TKTS-01   |    |   |   |
|   | TKM-25/D  | -         | TKM-25/DT65  | Dahlander 7,5 kW  | TKTS-02   |   |   |   |
|   | TKM-32/D  | TKM-32/DT | TKM-32/DT65  | Dahlander 11 kW   | TK/T3+F3/   |   |   |   |
|   | TKM-63/D  | -         | -  | Dahlander 18,5 kW   | -   |   |   |   |
|   | TKM-12/D  | -         | -  | Dahlander 30 kW   | -   |   |   |   |
|   | TKM-16/D  | -         | -  | Dahlander 37 kW   | -   |   |   |   |
| <b>Preklopke za instrumente</b>   | TKU-F   | -         | -  | Voltmetarska preklopka za fazni napon   | -   |    |   |   |
|   | TKU-V   | -         | -  | Voltmetarska preklopka za linijski napon  | -   |   |   |   |
|   | TKU-K   | -         | -  | Voltmetarska preklopka za linijski i fazni napon                                    | -   |  |   |   |
|   | TKI-F   | -         | -  | Ampermetarska preklopka za faznu struju   | -   |  |   |   |
| <b>Glavne sklopke</b>   | TKF-20  | TKF-20T   | TKF-20T65  |  | 20 A / 4P   | TK/T3+F3/   |  |   |
|   | TKF-25  | TKF-25T   | TKF-25T65  |   | 25 A / 4P   | TK/T3+F3/   |   |   |
|   | TKF-32  | TKF-32T   | TKF-32T65  |   | 32 A / 4P   | TK/T3+F3/   |   |   |
|   | TKF-63  | TKF-63T   | TKF-63T65  |   | 63 A / 4P   | TK/T3+F3/   |   |   |
|   | TKFK-20   | TKFK-20T  | TKFK-20T65   |  | 20 A / 4P   | TK/T2+F2/   |  |   |
|   | TKFK-25   | -         | -  |   | 25 A / 4P   | -   |   |   |
|   | TKFK-32 *   | -         | -  |   | 32 A / 4P   | -   |   |   |
|   | TKFK-63 *   | -         | -  |   | 63 A / 4P   | -   |   |   |
|   | * Sklopka se sastoji od dva dijela: odozgo sklopka s ručicom + odozdo brava s ključem |           |  |   |   |   |   |   |
|   |   | TKFL-20   | TKFL-20TS  | TKFL-20T65S   |  | 20 A / 4P   | TK/T3+F3S/  |  |
|   |   | TKFL-25   | TKFL-25TS  | TKFL-25T65S   |   | 25 A / 4P   | TK/T3+F3S/  |   |
|   |   | TKFL-32   | TKFL-32TS  | TKFL-32T65S   |   | 32 A / 4P   | TK/T3+F3S/  |   |
|   | TKFL-63   | TKFL-63TS | TKFL-63T65S  | 63 A / 4P   |   | TK/T3+F3S/  |   |   |

| <table border="1"> <tr><td>1</td><td>0</td><td>2</td></tr> <tr><td>x</td><td>x</td><td>x</td></tr> <tr><td>2</td><td>x</td><td>x</td></tr> <tr><td>3</td><td>x</td><td>x</td></tr> </table> |    |     | 1     | 0  | 2   | x    | x      | x    | 2      | x     | x | 3 | x | x | L | A | a | b | d | <table border="1"> <tr><td>1</td><td>3</td><td>5</td><td>7</td></tr> <tr><td>2</td><td>4</td><td>6</td><td>8</td></tr> </table> |  | 1 | 3 | 5 | 7 | 2 | 4 | 6 | 8 |
|---|----|-----|-------|----|-----|------|--------|------|--------|-------|---|---|---|---|---|---|---|---|---|---|--|---|---|---|---|---|---|---|---|
| 1   | 0  | 2   |       |    |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| x   | x  | x   |       |    |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 2   | x  | x   |       |    |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 3   | x  | x   |       |    |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 1   | 3  | 5   | 7     |    |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 2   | 4  | 6   | 8     |    |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| -60°  | 0° | 60° | -60°  | 0° | 60° | (mm) | (mm)   | (mm) | (mm)   | (mm)  |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 1-2   | x  | x   | 9-10  | x  |     | 57   | 44     | 48   | 48     | 36    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 3-4   | x  | x   | 11-12 | x  |     | 70   | 46     | 48   | 48     | 36    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 5-6   |    | x   | 13-14 |    | x   | 78   | 58     | 64   | 64     | 48    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 7-8   | x  |     | 15-16 | x  | x   | 112  | 66     | 64   | 64     | 48    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
|   |    |     |       |    |     | 138  | 84     | 88   | 88     | 68    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
|   |    |     |       |    |     | 163  | 88     | 88   | 88     | 68    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
|   | 0  | A   | B     | C  |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 1-2   | x  |     |       |    |     | 50,8 | 43     | 48   | 48     | 36    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 3-4   |    |     |       | x  |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 5-6   |    |     | x     |    |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 9-10  | x  | x   | x     |    |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
|   | 0  | AB  | BC    | CA |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 1-2   | x  | x   |       |    |     | 50,8 | 43     | 48   | 48     | 36    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 5-6   |    |     |       | x  |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 7-8   | x  |     |       |    |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 11-12   |    |     | x     | x  |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
|   | 0  | A   | B     | C  |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 1-2   | x  | x   |       |    |     | 60,4 | 43     | 48   | 48     | 36    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 5-6   | x  |     | x     |    |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 7-8   | x  | x   | x     |    |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 9-10  |    |     |       | x  |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 13-14   |    | x   |       |    |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 15-16   |    |     |       | x  |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
|   | 0° | 90° |       |    |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 1-2   | x  |     |       |    |     | 41,2 | 43     | 64   | 64     | 48    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 3-4   |    | x   |       |    |     | 48,6 | 45,2   | 64   | 64     | 48    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 5-6   |    |     | x     |    |     | 54,8 | 58     | 64   | 64     | 48    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 7-8   |    |     |       | x  |     | 72,2 | 66     | 64   | 64     | 48    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
|   | 0° | 90° |       |    |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 1-2   | x  |     |       |    |     | 41,2 | 43     | 48   | 48     | 36    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 3-4   |    | x   |       |    |     | 48,6 | 45,2   | 48   | 48     | 36    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 5-6   |    |     | x     |    |     | 75   | 58/105 | 64   | 64/112 | 48/96 |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 7-8   |    |     |       | x  |     | 93   | 66/105 | 64   | 64/122 | 48/96 |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
|   | 0° | 90° |       |    |     |      |        |      |        |       |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 1-2   | x  |     |       |    |     | 44,2 | 43     | 64   | 64     | 48    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 3-4   |    | x   |       |    |     | 52,1 | 45,2   | 64   | 64     | 48    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 5-6   |    |     | x     |    |     | 54,8 | 58     | 64   | 64     | 48    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |
| 7-8   |    |     |       | x  |     | 72,2 | 66     | 64   | 64     | 48    |   |   |   |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |   |

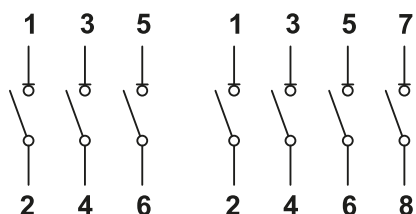


### Rastavne sklopke

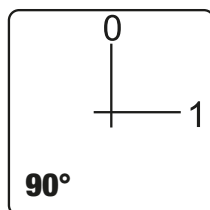


|                    |        | TS-20      | TS-32      | TS-40     | TS-63       | TS-80     | TS-100    |
|--------------------|--------|------------|------------|-----------|-------------|-----------|-----------|
| $I_{th}$ (A)       |        | 20         | 32         | 40        | 63          | 80        | 100       |
| $P_e$ (kW), 400 V~ | AC-23A | 7,5        | 11         | 15        | 22          | 30        | 37        |
|                    | AC-3   | <b>5,5</b> | <b>7,5</b> | <b>11</b> | <b>18,5</b> | <b>22</b> | <b>30</b> |
| ( $\times 10^5$ )  |        | 5          | 5          | 3         | 1,5         | 1,5       | 1,5       |
| ( $\times 10^5$ )  |        | 3          | 3          | 1,2       | 1           | 1         | 1         |
|                    |        | 200        | 150        | 100       | 60          | 30        | 30        |
| mm <sup>2</sup>    |        | 1×2,5      | 1×4,0      | 1×6,0     | 1×25        | 1×50      | 1×70      |
|                    |        | 2×1,5      | 2×1,5      | 2×4,0     | 2×10        | 2×25      | 2×35      |
|                    |        | 1×2,5      | 1×4,0      | 1×4,0     | 1×16        | 1×35      | 1×50      |
|                    |        | 2×1,5      | 2×1,5      | 2×2,5     | 2×6         | 2×10      | 2×16      |
| $I_{cw}$ (1s, A)   |        | 180        | 264        | 360       | 516         | 684       | 840       |
|                    |        | 20 A gG    | 35 A gG    | 50 A gG   | 63 A gG     | 80 A gG   | 100 A gG  |

#### Schema spajanja



#### Prednja ploča



#### Glavne značajke








- pogodne su za uklapanje i isklapanje pod teretom i za rastavljanje
- mogu se upotrijebiti kao motorske sklopke, glavne sklopke, rastavne sklopke i sigurnosne sklopke
- tijelo sklopke je izvedeno od samogasivog (UL94-V0), izolacijskog materijala velike mehaničke čvrstoće
- podnose velika električna i mehanička opterećenja
- imaju kontakte s dvostrukim prekidanjem
- brzo uklapanje i isklapanje bez obzira na ručni pogon
- dijelovi pod naponom zaštićeni su od slučajnog dodira

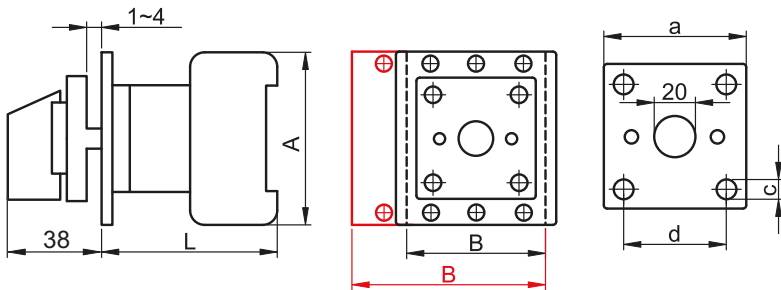


RELEVANT STANDARD  
EN 60947-3




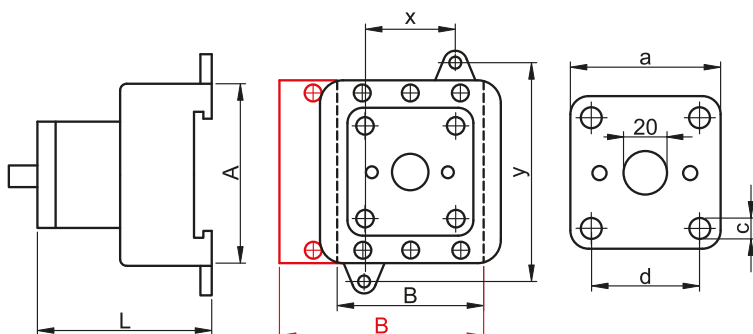
## Rastavna sklopka

| TRACON  |   |   |   |   |  | L    | A    | B    | a    | d    | c    |
|---------|---|---|---|---|--|------|------|------|------|------|------|
| IP 42   |  |  |  |  |  | (mm) | (mm) | (mm) | (mm) | (mm) | (mm) |
| TS-20/3 | TS-20/3T  | TS-20/3T65  | 20 A / 3P   | TK/T3+F3/   |  | 61   | 54   | 42   | 64   | 48   | 4.2  |
| TS-32/3 | TS-32/3T  | TS-32/3T65  | 32 A / 3P   |   |  | 61   | 54   | 42   | 64   | 48   | 4.2  |
| TS-40/3 | TS-40/3T  | TS-40/3T65  | 40 A / 3P   |   |  | 67   | 64   | 50   | 64   | 48   | 4.2  |
| TS-63/3 | TS-63/3T  | TS-63/3T65  | 63 A / 3P   |   |  | 67   | 64   | 50   | 64   | 48   | 4.2  |
| TS-80/3 | -   | TS-80/3T65  | 80 A / 3P   | TKTS-03   | -  | 82   | 80   | 70   | 64   | 48   | 4.2  |
| TS-10/3 | -   | TS-10/3T65  | 100 A / 3P  | TKTS-03   | -  | 82   | 80   | 70   | 88   | 68   | 5.2  |
| TS-20/4 | TS-20/4T  | TS-20/4T65  | 20 A / 4P   | TK/T3+F3/   |  | 61   | 54   | 55.5 | 64   | 48   | 4.2  |
| TS-32/4 | TS-32/4T  | TS-32/4T65  | 32 A / 4P   |   |  | 61   | 54   | 55.5 | 64   | 48   | 4.2  |
| TS-40/4 | TS-40/4T  | TS-40/4T65  | 40 A / 4P   |   |  | 67   | 64   | 66   | 64   | 48   | 4.2  |
| TS-63/4 | TS-63/4T  | TS-63/4T65  | 63 A / 4P   |   |  | 67   | 64   | 66   | 64   | 48   | 4.2  |
| TS-80/4 | -   | -   | 80 A / 4P   | -   | -  | 82   | 80   | 92.5 | 64   | 48   | 4.2  |
| TS-10/4 | -   | -   | 100 A / 4P  | -   | -  | 82   | 80   | 92.5 | 88   | 68   | 5.2  |



## Rastavna sklopka sa spojkom za vrata

| TRACON   |            |  | L    | A    | B    | a    | d    | c    | x    | y    |
|----------|------------|---|------|------|------|------|------|------|------|------|
|          |            |   | (mm) | (mm) | (mm) | (mm) | (mm) | (mm) | (mm) | (mm) |
| TS-20/3K | 20 A / 3P  | 50  | 54   | 42   | 64   | 48   | 4.2  | 22   | 62   |      |
| TS-32/3K | 32 A / 3P  | 50  | 54   | 42   | 64   | 48   | 4.2  | 22   | 62   |      |
| TS-40/3K | 40 A / 3P  | 61  | 64   | 50   | 64   | 48   | 4.2  | 25   | 70   |      |
| TS-63/3K | 63 A / 3P  | 61  | 64   | 50   | 64   | 48   | 4.2  | 25   | 70   |      |
| TS-80/3K | 80 A / 3P  | 68  | 80   | 70   | 64   | 48   | 4.2  | 25   | 90   |      |
| TS-10/3K | 100 A / 3P | 68  | 80   | 70   | 88   | 68   | 5.2  | 25   | 90   |      |
| TS-20/4K | 20 A / 4P  | 50  | 54   | 55.5 | 64   | 48   | 4.2  | 22   | 62   |      |
| TS-32/4K | 32 A / 4P  | 50  | 54   | 55.5 | 64   | 48   | 4.2  | 22   | 62   |      |
| TS-40/4K | 40 A / 4P  | 61  | 64   | 66   | 64   | 48   | 4.2  | 25   | 70   |      |
| TS-63/4K | 63 A / 4P  | 61  | 64   | 66   | 64   | 48   | 4.2  | 25   | 70   |      |
| TS-80/4K | 80 A / 4P  | 68  | 80   | 92.5 | 64   | 48   | 4.2  | 25   | 90   |      |
| TS-10/4K | 100 A / 4P | 68  | 80   | 92.5 | 88   | 68   | 5.2  | 25   | 90   |      |



Spojka omogućuje sigurnosno zatvaranje vrata razvodnog ormara. Vrata se mogu otvoriti samo ako je sklopka u položaju „0” ili „OFF”!

Duljina osovine spojke je 150 mm.

Po posebnoj narudžbi mogućnost pribavljanja osovine duljine 300 mm.

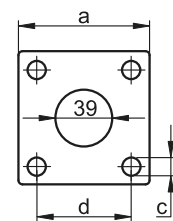
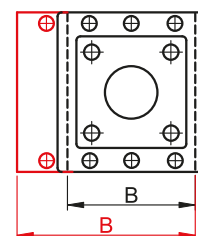
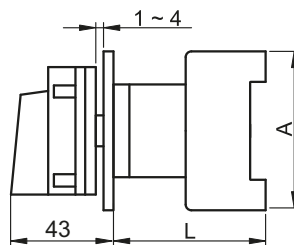
Pričvršćivanje odostraga pomoću 2 vijka ili na nosač 35/7,5 mm prema normi EN50022.



## Sigurnosna rastavna sklopka

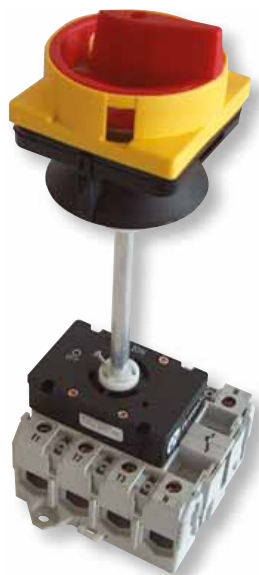
| TRACON   |           |              |            |            | L    | A    | B    | a    | d    | c    |
|----------|-----------|--------------|------------|------------|------|------|------|------|------|------|
| IP 42    | IP44      | IP65         |            |            | (mm) | (mm) | (mm) | (mm) | (mm) | (mm) |
| TSS-20/3 | TSS-20/3T | TSS-20/3T65S | 20 A / 3P  | TK/T3+F3/  | 61   | 54   | 42   | 64   | 48   | 4.2  |
| TSS-32/3 | TSS-32/3T | TSS-32/3T65S | 32 A / 3P  |            | 61   | 54   | 42   | 64   | 48   | 4.2  |
| TSS-40/3 | TSS-40/3T | TSS-40/3T65S | 40 A / 3P  | TK/T3+F3S/ | 67   | 64   | 50   | 64   | 48   | 4.2  |
| TSS-63/3 | TSS-63/3T | TSS-63/3T65S | 63 A / 3P  |            | 67   | 64   | 50   | 64   | 48   | 4.2  |
| TSS-80/3 | -         | TSS-80/3T65  | 80 A / 3P  | TKTS-03    | 82   | 80   | 70   | 64   | 48   | 4.2  |
| TSS-10/3 | -         | TSS-10/3T65  | 100 A / 3P | TKTS-03    | 82   | 80   | 70   | 88   | 68   | 5.2  |
| TSS-20/4 | TSS-20/4T | TSS-20/4T65S | 20 A / 4P  |            | 61   | 54   | 55.5 | 64   | 48   | 4.2  |
| TSS-32/4 | TSS-32/4T | TSS-32/4T65S | 32 A / 4P  | TK/T3+F3S/ | 61   | 54   | 55.5 | 64   | 48   | 4.2  |
| TSS-40/4 | TSS-40/4T | TSS-40/4T65S | 40 A / 4P  |            | 67   | 64   | 66   | 64   | 48   | 4.2  |
| TSS-63/4 | TSS-63/4T | TSS-63/4T65S | 63 A / 4P  | TK/T3+F3/  | 67   | 64   | 66   | 64   | 48   | 4.2  |
| TSS-80/4 | -         | -            | 80 A / 4P  | -          | 82   | 80   | 92.5 | 64   | 48   | 4.2  |
| TSS-10/4 | -         | -            | 100 A / 4P | -          | 82   | 80   | 92.5 | 88   | 68   | 5.2  |

Kučišta se mogu naručiti i sa žutim poklopcem.



Rastavna sklopka se može zaključati u položaju "OFF", mogućnost montaže na prednju ploču, ili se primjenjuje samostalno u kućištu.

## Sigurnosna rastavna sklopka s lokotom i spojkom za vrata

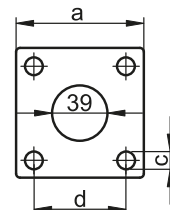
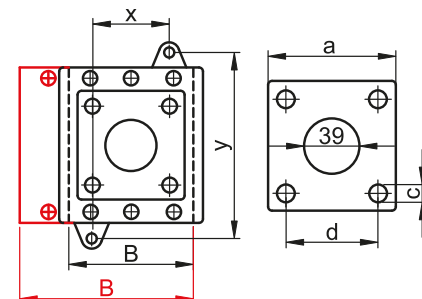
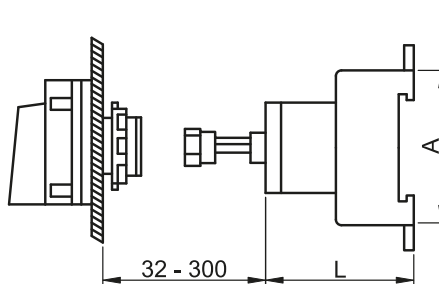


| TRACON    |            | L    | A    | B    | a    | d    | c    | x    | y    |
|-----------|------------|------|------|------|------|------|------|------|------|
|           |            | (mm) | (mm) | (mm) | (mm) | (mm) | (mm) | (mm) | (mm) |
| TSS-20/3K | 20 A / 3P  | 50   | 54   | 42   | 64   | 48   | 4.2  | 22   | 62   |
| TSS-32/3K | 32 A / 3P  | 50   | 54   | 42   | 64   | 48   | 4.2  | 22   | 62   |
| TSS-40/3K | 40 A / 3P  | 61   | 64   | 50   | 64   | 48   | 4.2  | 25   | 70   |
| TSS-63/3K | 63 A / 3P  | 61   | 64   | 50   | 64   | 48   | 4.2  | 25   | 70   |
| TSS-80/3K | 80 A / 3P  | 68   | 80   | 70   | 64   | 48   | 4.2  | 25   | 90   |
| TSS-10/3K | 100 A / 3P | 68   | 80   | 70   | 88   | 68   | 5.2  | 25   | 90   |
| TSS-20/4K | 20 A / 4P  | 50   | 54   | 55.5 | 64   | 48   | 4.2  | 22   | 62   |
| TSS-32/4K | 32 A / 4P  | 50   | 54   | 55.5 | 64   | 48   | 4.2  | 22   | 62   |
| TSS-40/4K | 40 A / 4P  | 61   | 64   | 66   | 64   | 48   | 4.2  | 25   | 70   |
| TSS-63/4K | 63 A / 4P  | 61   | 64   | 66   | 64   | 48   | 4.2  | 25   | 70   |
| TSS-80/4K | 80 A / 4P  | 68   | 80   | 92.5 | 64   | 48   | 4.2  | 25   | 90   |
| TSS-10/4K | 100 A / 4P | 68   | 80   | 92.5 | 88   | 68   | 5.2  | 25   | 90   |


Spojka omogućuje sigurnosno zatvaranje vrata razvodnog ormara. Vrata se mogu otvoriti samo ako je sklopka u položaju „0” ili „OFF”!

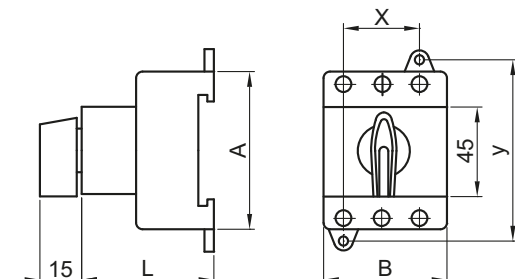
Duljina osovine spojke je 300 mm.

Pričvršćivanje odostraga pomoću 2 vijka ili na nosač 35/7,5 mm prema normi EN50022.



## Rastavna sklopka s lokotom, za redanje

| TRACON   |  | L<br>(mm) | A<br>(mm) | B<br>(mm) | x<br>(mm) | y<br>(mm) |
|----------|---|-----------|-----------|-----------|-----------|-----------|
| TSM-20/3 | 20 A / 3P   | 50        | 54        | 42        | 22        | 62        |
| TSM-32/3 | 32 A / 3P   | 50        | 54        | 42        | 22        | 62        |
| TSM-20/4 | 20 A / 4P   | 50        | 54        | 55.5      | 22        | 62        |
| TSM-32/4 | 32 A / 4P   | 50        | 54        | 55.5      | 22        | 62        |



RELEVANT STANDARD  
EN 60947-3

Mogućnost postavljanja na prednju ploču u standardni izrez 45 mm. Pričvršćivanje odostraga pomoću 2 vijka ili na nosač 35/7,5 mm prema normi EN50022. Ručica se može zaključati u položaju „OFF”!









## EVOMS Rastavna sklopka s lokotom, za redanje

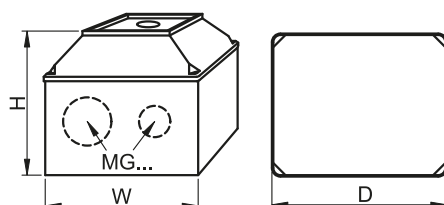
| TRACON     | Ith<br>(40 °C) |
|------------|----------------|
| EVOMS16/3  | 16 A/3P        |
| EVOMS20/3  | 20 A/3P        |
| EVOMS25/3  | 25 A/3P        |
| EVOMS40/3  | 40 A/3P        |
| EVOMS80/3  | 80 A/3P        |
| EVOMS100/3 | 100 A/3P       |
| EVOMS125/3 | 125 A/3P       |




F/25

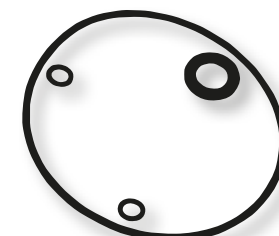
## Kućišta

| TRACON     |    | W<br>(mm) | H<br>(mm) | D<br>(mm) |  | IP..  |
|------------|---|-----------|-----------|-----------|---|-------|
| TK/T3+F3/  |  +  | 112       | 108       | 112       | 2 × MG-25<br>2 × MG-32  | IP 44 |
| TK/T3+F3S/ |  +  | 112       | 108       | 112       | 2 × MG-25<br>2 × MG-32  | IP 44 |
| TKTS-03    |  +  | 140       | 109       | 200       | 2 × MG-25<br>2 × MG-32  | IP 44 |



## Komplet za brtvljenje




| TRACON   |  |
|----------|---|
| TKT-65/2 | TS-20/3, TS-32/3, TS-40/3, TS-63/3, TS-20/4, TS-32/4,<br>TS-40/4, TS-63/4           |
| TKT-65/3 | TSS-20/3, TSS-32/3, TSS-40/3, TSS-63/3, TSS-20/4, TSS-32/4,<br>TSS-40/4, TSS-63/4   |



Sklopnici (kontaktori)

|                 |                               |              |         |         |         |          |          |
|-----------------|-------------------------------|--------------|---------|---------|---------|----------|----------|
| 230/400<br>V AC | T <sub>a</sub><br>-25...+55°C | max.<br>±30° | AC<br>1 | AC<br>3 | AC<br>4 | AC<br>15 | AC<br>6b |
|-----------------|-------------------------------|--------------|---------|---------|---------|----------|----------|

 Piktogrami I/O

| TRACON         |   |   |   |
|----------------|---|---|---|
|                | TR1K..  | TR1D..  | TR1E..  |
|                | AC-1, AC-3, AC-15   | AC-1, AC-3, AC-4  | AC-1, AC-3, AC-4  |
| U <sub>m</sub> | 24 V AC, 48 V AC, 110 V AC, 230 V AC, 400 V AC                                    | 24 V AC, 48 V AC, 110 V AC, 230 V AC, 400 V AC                                    | 24 V AC, 48 V AC, 230 V AC, 400 V AC  |
| I <sub>e</sub> | 6...12 A/AC-3   | 9...95 A/AC-3   | 115...620 A/AC-3  |
|                |  |  |  |

Sklopnici samostalno ili dopunjeni sa zaštitom (npr. termički relej) namijenjeni su za daljinsko upravljanje, uključivanje i isključivanje električnih motora i drugih niskonaponskih uređaja. Ovi aparati dopunjeni raznim elementima mogu se prilagoditi za brojne automatizirane radnje. Na prednju stranu mogu se montirati pomoćni kontakti i vremenska jedinica, a na bočnu pomoćni kontakti. Pomoću tako opremljenih aparata moguće je rješavati i zadaće pomoćnih strujnih krugova. Pogonski namoti sklopnika izvedeni su isključivo za izmjenični napon u 5 veličina. Kontaktore valja izabrati prema svrsi uporabe i kategoriji primjene (vidi: DODATAK).

Kontaktor smije biti priključen samo na sinusni izmjenični napon bez istosmjerne komponente. Za primjenu u elektroničkim upravljačkim krugovima ili ako pogonski napon sadrži više harmonike, o filtriranju treba povesti računa prije puštanja kontaktora u pogon.

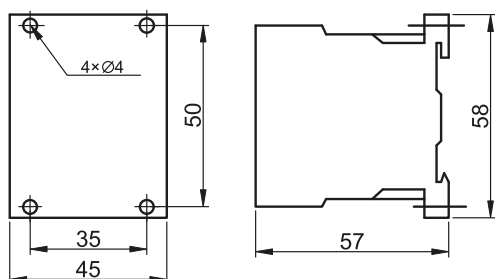


## Pomoćni sklopnici (6 A...12 A)

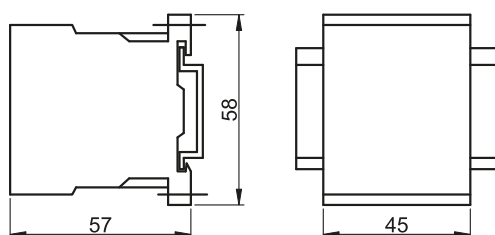
|                 |                |                |                  |                                |                 |               |                 |                   |                      |        |                      |               |                 |
|-----------------|----------------|----------------|------------------|--------------------------------|-----------------|---------------|-----------------|-------------------|----------------------|--------|----------------------|---------------|-----------------|
| 230/400<br>V AC | $U_i$<br>690 V | $U_e$<br>660 V | $I_{th}$<br>20 A | ON-OFF-ON...<br>sc/h<br>x4.800 | $3 \times 10^6$ | $\times 10^6$ | $[mm^2]$<br>1-4 | $P_{ON}$<br>30 VA | $P_{HOLD}$<br>4,5 VA | 35x7.5 | $T_a$<br>-25...+55°C | max. $\pm 30$ | <b>IP</b><br>20 |
|-----------------|----------------|----------------|------------------|--------------------------------|-----------------|---------------|-----------------|-------------------|----------------------|--------|----------------------|---------------|-----------------|

|                  | $U_m$       | TRACON           |             |            |          |            |
|------------------|-------------|------------------|-------------|------------|----------|------------|
|                  |             | 6A/AC-3          | 9A/AC-3     | 12A/AC-3   |          |            |
|                  | 24 V~       | -                | TR1K0904B7  | TR1K1204B7 |          |            |
|                  | 48 V~       | -                | TR1K0904E7  | TR1K1204E7 |          |            |
|                  | 110 V~      | -                | TR1K0904F7  | TR1K1204F7 |          |            |
|                  | 230 V~      | -                | TR1K0904    | TR1K1204   |          |            |
|                  | 400 V~      | -                | TR1K0904V7  | TR1K1204V7 |          |            |
|                  | 24 V~       | TR1K0610B7       | TR1K0910B7  | TR1K1210B7 |          |            |
|                  | 48 V~       | TR1K0610E7       | TR1K0910E7  | TR1K1210E7 |          |            |
|                  | 110 V~      | TR1K0610F7       | TR1K0910F7  | TR1K1210F7 |          |            |
|                  | 230 V~      | TR1K0610         | TR1K0910    | TR1K1210   |          |            |
|                  | 400 V~      | TR1K0610V7       | TR1K0910V7  | TR1K1210V7 |          |            |
|                  | 24 V~       | TR1K0601B7       | TR1K0901B7  | TR1K1201B7 |          |            |
|                  | 48 V~       | TR1K0601E7       | TR1K0901E7  | TR1K1201E7 |          |            |
|                  | 110 V~      | TR1K0601F7       | TR1K0901F7  | TR1K1201F7 |          |            |
|                  | 230 V~      | TR1K0601         | TR1K0901    | TR1K1201   |          |            |
|                  | 400 V~      | TR1K0601V7       | TR1K0901V7  | TR1K1201V7 |          |            |
|                  | 24 V~       | -                | TR1K0908B7  | -          |          |            |
|                  | 48 V~       | -                | TR1K0908E7  | -          |          |            |
|                  | 110 V~      | -                | TR1K0908F7  | -          |          |            |
|                  | 230 V~      | -                | TR1K0908    | -          |          |            |
|                  | 400 V~      | -                | TR1K0908V7  | -          |          |            |
| $I_e$ (A)        | AC-1        | 20               | 20          | 20         |          |            |
|                  | <b>AC-3</b> | <b>6</b>         | <b>9</b>    | <b>12</b>  |          |            |
|                  | AC15        | 2                | 3           | 4          |          |            |
|                  | $P_e$ (kW)  | 220/230 V        | AC-3        | 1,5        | 2,2      | 3          |
|                  |             | <b>380/400 V</b> | <b>AC-3</b> | <b>2,2</b> | <b>4</b> | <b>5,5</b> |
| 415 V            |             | AC-3             | 2,2         | 4          | 5,5      |            |
| 500 V, 660/690 V |             | AC-3             | 3           | 4          | 4        |            |
|                  |             | 10 A aM          | 10 A aM     | 16 A aM    |          |            |

## Dimenzije i montažna shema



Postavljanje na  
montažnu ploču



Postavljanje na  
nosač  
(35x7,5 mm)



RELEVANT STANDARD  
EN 60947-4-1

RELEVANT STANDARD  
EN 60947-1

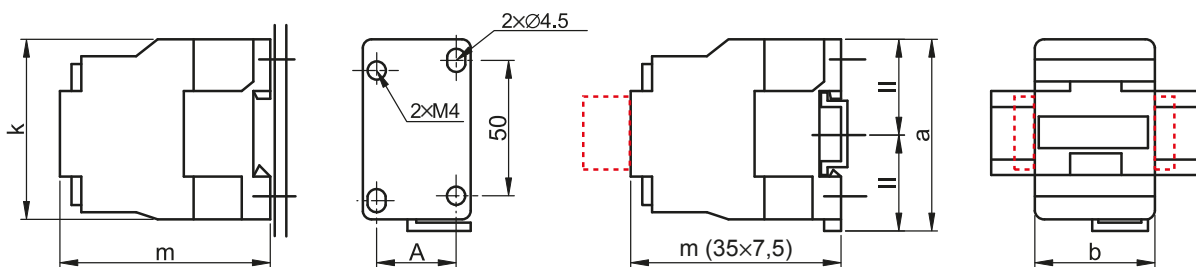


Sklopnici opće namjene tipa TR1D (9 A ... 32 A)

|                 |                               |                               |                                |                 |               |                               |                                     |           |                 |            |            |
|-----------------|-------------------------------|-------------------------------|--------------------------------|-----------------|---------------|-------------------------------|-------------------------------------|-----------|-----------------|------------|------------|
| 230/400<br>V AC | <b>U<sub>i</sub></b><br>660 V | <b>U<sub>e</sub></b><br>660 V | ON-OFF-ON...<br>sc/h<br>x3.600 | $3 \times 10^6$ | $\times 10^6$ | AUX (mm <sup>2</sup> )<br>1-4 | <b>T<sub>a</sub></b><br>-25...+55°C | max. ±30° | <b>IP</b><br>20 | Piktogrami | <b>I/O</b> |
|-----------------|-------------------------------|-------------------------------|--------------------------------|-----------------|---------------|-------------------------------|-------------------------------------|-----------|-----------------|------------|------------|

|                             |                           | TRACON           |             |            |            |            |            |           |
|-----------------------------|---------------------------|------------------|-------------|------------|------------|------------|------------|-----------|
|                             |                           | U <sub>m</sub>   | 9A/AC-3     | 12A/AC-3   | 18A/AC-3   | 25A/AC-3   | 32A/AC-3   |           |
|                             | 24 V~                     |                  | TR1D0910B7  | TR1D1210B7 | TR1D1810B7 | TR1D2510B7 | TR1D3210B7 |           |
|                             | 48 V~                     |                  | TR1D0910E7  | TR1D1210E7 | TR1D1810E7 | TR1D2510E7 | TR1D3210E7 |           |
|                             | 110 V~                    |                  | TR1D0910F7  | TR1D1210F7 | TR1D1810F7 | TR1D2510F7 | TR1D3210F7 |           |
|                             | 230 V~                    |                  | TR1D0910    | TR1D1210   | TR1D1810   | TR1D2510   | TR1D3210   |           |
|                             | 400 V~                    |                  | TR1D0910V7  | TR1D1210V7 | TR1D1810V7 | TR1D2510V7 | TR1D3210V7 |           |
|                             | 24 V~                     |                  | TR1D0901B7  | TR1D1201B7 | TR1D1801B7 | TR1D2501B7 | TR1D3201B7 |           |
|                             | 48 V~                     |                  | TR1D0901E7  | TR1D1201E7 | TR1D1801E7 | TR1D2501E7 | TR1D3201E7 |           |
|                             | 110 V~                    |                  | TR1D0901F7  | TR1D1201F7 | TR1D1801F7 | TR1D2501F7 | TR1D3201F7 |           |
|                             | 230 V~                    |                  | TR1D0901    | TR1D1201   | TR1D1801   | TR1D2501   | TR1D3201   |           |
|                             | 400 V~                    |                  | TR1D0901V7  | TR1D1201V7 | TR1D1801V7 | TR1D2501V7 | TR1D3201V7 |           |
| <b>I<sub>e</sub> (A)</b>    | AC-1                      |                  | 25          | 25         | 32         | 40         | 50         |           |
|                             | <b>AC-3</b>               |                  | <b>9</b>    | <b>12</b>  | <b>18</b>  | <b>25</b>  | <b>32</b>  |           |
|                             | AC-4                      |                  | 3,5         | 5          | 7,7        | 8,5        | 12         |           |
|                             | <b>P<sub>e</sub> (kW)</b> | 220/230 V        | AC-3        | 2,2        | 3          | 4          | 5,5        | 7,5       |
|                             |                           | <b>380/400 V</b> | <b>AC-3</b> | <b>4</b>   | <b>5,5</b> | <b>7,5</b> | <b>11</b>  | <b>15</b> |
| 380/400 V                   |                           | AC-4             | 4           | 2,5        | 3          | 3,7        | 4,5        |           |
| 415 V                       |                           | AC-3             | 4           | 5,5        | 9          | 11         | 15         |           |
| 500 V, 660/690 V            |                           | AC-3             | 5,5         | 7,5        | 10         | 15         | 18,5       |           |
| <b>I<sub>aux</sub> (A)</b>  |                           |                  | 5           | 5          | 5          | 5          | 5          |           |
|                             |                           |                  | 10 A aM     | 16 A aM    | 20 A aM    | 32 A aM    | 40 A aM    |           |
| mm <sup>2</sup>             |                           |                  | 4           | 4          | 6          | 10         | 10         |           |
| <b>P<sub>ON</sub></b><br>   |                           |                  | 60 VA       | 60 VA      | 60 VA      | 90 VA      | 90 VA      |           |
| <b>P<sub>HOLD</sub></b><br> |                           |                  | 7 VA        | 7 VA       | 7 VA       | 7,5 VA     | 7,5 VA     |           |

Dimenzije i montažna shema



Postavljanje na montažnu ploču

Postavljanje na nosač (35×7,5 mm)



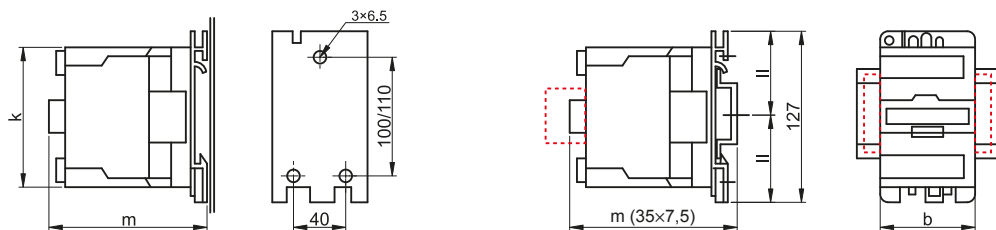
| TRACON            | TR1D09.. | TR1D12.. | TR1D18.. | TR1D25.. | TR1D32.. |
|-------------------|----------|----------|----------|----------|----------|
| <b>m (mm)</b>     | 80       | 80       | 85       | 93       | 98       |
| <b>A (mm)</b>     | 35       | 35       | 35       | 44       | 44       |
| <b>k (mm)</b>     | 71       | 71       | 71       | 80       | 80       |
| <b>a (mm)</b>     | 74       | 74       | 74       | 84       | 84       |
| <b>b (mm)</b>     | 46       | 46       | 47       | 57       | 57       |
| <b>m (35×7,5)</b> | 82       | 82       | 87       | 95       | 100      |

# Sklopnici opće namjene tipa TR1D (40 A ... 95 A)

|                 |                |                |                                |                 |               |                               |                   |                     |          |            |     |
|-----------------|----------------|----------------|--------------------------------|-----------------|---------------|-------------------------------|-------------------|---------------------|----------|------------|-----|
| 230/400<br>V AC | $U_i$<br>660 V | $U_e$<br>660 V | ON-OFF-ON...<br>sc/h<br>x3.600 | $3 \times 10^6$ | $\times 10^6$ | AUX (mm <sup>2</sup> )<br>1-4 | Ta<br>-25...+55°C | max. $\pm 30^\circ$ | IP<br>20 | Piktogrami | I/O |
|-----------------|----------------|----------------|--------------------------------|-----------------|---------------|-------------------------------|-------------------|---------------------|----------|------------|-----|

|                 |                  | TRACON      |             |            |            |            |            |
|-----------------|------------------|-------------|-------------|------------|------------|------------|------------|
|                 |                  | $U_m$       | 40A/AC-3    | 50A/AC-3   | 65A/AC-3   | 80A/AC-3   | 95A/AC-3   |
|                 |                  | 24 V~       | TR1D4011B7  | TR1D5011B7 | TR1D6511B7 | TR1D8011B7 | TR1D9511B7 |
|                 |                  | 48 V~       | TR1D4011E7  | TR1D5011E7 | TR1D6511E7 | TR1D8011E7 | TR1D9511E7 |
|                 |                  | 110 V~      | TR1D4011F7  | TR1D5011F7 | TR1D6511F7 | TR1D8011F7 | TR1D9511F7 |
|                 |                  | 230 V~      | TR1D4011    | TR1D5011   | TR1D6511   | TR1D8011   | TR1D9511   |
|                 |                  | 400 V~      | TR1D4011V7  | TR1D5011V7 | TR1D6511V7 | TR1D8011V7 | TR1D9511V7 |
|                 |                  | $I_e$ (A)   | AC-1        | 60         | 80         | 80         | 125        |
|                 | <b>AC-3</b>      | <b>40</b>   | <b>50</b>   | <b>65</b>  | <b>80</b>  | <b>95</b>  |            |
|                 | AC-4             | 18,5        | 24          | 28         | 37         | 44         |            |
| $P_e$ (kW)      | 220/230 V        | AC-3        | 11          | 15         | 18,5       | 22         | 25         |
|                 | <b>380/400 V</b> | <b>AC-3</b> | <b>18,5</b> | <b>22</b>  | <b>30</b>  | <b>37</b>  | <b>45</b>  |
|                 | 380/400 V        | AC-4        | 5,5         | 7,5        | 9          | 10         | 15         |
|                 | 415 V            | AC-3        | 22          | 25         | 37         | 45         | 45         |
|                 | 500 V            | AC-3        | 22          | 30         | 37         | 55         | 55         |
|                 | 660/690 V        | AC-3        | 30          | 33         | 37         | 45         | 45         |
|                 | 1000 V           | AC-3        | -           | 30         | 37         | 45         | 45         |
| $I_{aux}$ (A)   |                  | 5           | 5           | 5          | 5          | 5          |            |
|                 |                  | 50 A aM     | 50 A aM     | 63 A aM    | 80 A aM    | 100 A aM   |            |
| mm <sup>2</sup> |                  | 25          | 25          | 25         | 50         | 50         |            |
| $P_{ON}$<br>    |                  | 200 VA      | 200 VA      | 200 VA     | 200 VA     | 200 VA     |            |
| $P_{HOLD}$<br>  |                  | 20 VA       | 20 VA       | 20 VA      | 20 VA      | 20 VA      |            |

## Dimenzije i montažna shema



Postavljanje na montažnu ploču




Postavljanje na nosač (35×7,5 mm)



| TRACON            | TR1D40.. | TR1D50.. | TR1D65.. | TR1D80.. | TR1D95.. |
|-------------------|----------|----------|----------|----------|----------|
| <b>m (mm)</b>     | 114      | 114      | 114      | 125      | 125      |
| <b>k (mm)</b>     | 107      | 107      | 107      | 123      | 123      |
| <b>b (mm)</b>     | 75       | 75       | 75       | 85       | 85       |
| <b>m (35×7,5)</b> | 116      | 116      | 116      | 127      | 127      |



## Kombinacije motorske zaštitne sklopke u kućištu tipa TEMS

| TRACON    | $P_e$<br>(kW), AC-3* | $I_e$<br>(A), AC-3* | $U_m$  |  |  |  |
|-----------|----------------------|---------------------|--------|---|---|---|
| TEMS1-091 | 1,5                  | 3,5                 | 400 V~ | 9 A / AC-3  | 2,5 – 4 A   | 6 A aM  |
| TEMS1-092 | 2,2                  | 5                   | 400 V~ | 9 A / AC-3  | 4 – 6 A   | 10 A aM   |
| TEMS1-093 | 3                    | 6,3                 | 400 V~ | 9 A / AC-3  | 5,5 – 8 A   | 10 A aM   |
| TEMS1-094 | 4                    | 8,5                 | 400 V~ | 9 A / AC-3  | 7 – 10 A  | 16 A aM   |
| TEMS1-121 | 5                    | 11,5                | 400 V~ | 12 A / AC-3   | 9 – 13 A  | 16 A aM   |
| TEMS1-181 | 7,5                  | 15,5                | 400 V~ | 18 A / AC-3   | 12 – 18 A   | 20 A aM   |
| TEMS2-251 | 11                   | 22                  | 400 V~ | 25 A / AC-3   | 17 – 25 A   | 25 A aM   |
| TEMS2-321 | 15                   | 30                  | 400 V~ | 32 A / AC-3   | 23 – 32 A   | 40 A aM   |
| TEMS3-401 | 18,5                 | 37                  | 400 V~ | 40 A / AC-3   | 30 – 40 A   | 40 A aM   |
| TEMS3-501 | 22                   | 44                  | 400 V~ | 50 A / AC-3   | 37 – 50 A   | 63 A aM   |
| TEMS3-651 | 25                   | 57                  | 400 V~ | 65 A / AC-3   | 48 – 65 A   | 80 A aM   |
| TEMS3-801 | 37                   | 72,5                | 400 V~ | 80 A / AC-3   | 55 – 70 A   | 80 A aM   |
| TEMS3-802 | 37                   | 72,5                | 400 V~ | 80 A / AC-3   | 63 – 80 A   | 80 A aM   |
| TEMS3-951 | 45                   | 85                  | 400 V~ | 95 A / AC-3   | 80 – 93 A   | 100 A aM  |

\* Parametri se odnose na 3-fazne kavezne motore u spoju trokut.

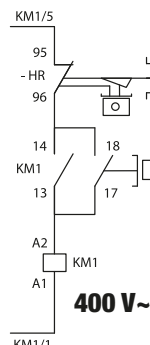
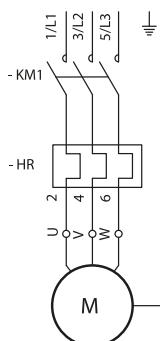
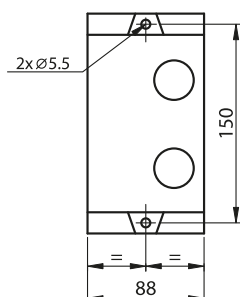
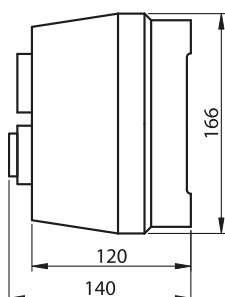
Aparat se sastoji od jednog upravljačkog sklopnika i jednog termičkog nadstrujnog releja, ima zeleno tipkalo ON i crveno OFF, te dvodjelno kućište od plastike ili čelične ploče. Tehnički parametri sklopnika i nadstrujnog zaštitnog releja određuju koliko snagu može kombinacija podnijeti pri pokretanju motora. S termičkim nadstrujnim relejom može se odrediti razina strujne zaštite koja odgovara tehničkim parametrima motora. S tipkalima ON i OFF može se motor uključiti ili isključiti. Kućište omogućuje mehaničku zaštitu naprave i zaštitu od strujnog udara. Kućište se može jednostavno montirati s pomoću otvora za pričvršćivanje na dnu. Uvođenje kabela je omogućeno kroz otvore na bočnoj ili stražnjoj strani kućišta. Upravljački krug je tvornički spojen, a sklopnik i termički relej su zajedno ugrađeni. Aparat je po priključivanju spojnih kabela spreman za pogon. Ove aparate treba opremiti vanjskom zaštitom od kratkog spoja!

## Tehnički parametri i izbor tipova TEMS1

|                 |   |   |   |   |              |
|-----------------|---|---|---|---|--------------|
| <b>400 V AC</b> |  $U_i$<br><b>660 V</b> |  $3 \times 10^5$ |  $\times 10^6$ | $T_a$ <br>0...+55 °C | <b>IP 55</b> |
|-----------------|---|---|---|---|--------------|



| TRACON           | TEMS1-091             | TEMS1-092  | TEMS1-093  | TEMS1-094  | TEMS1-121  | TEMS1-181                  |
|------------------|-----------------------|------------|------------|------------|------------|----------------------------|
| $I_e$ (A), AC-3  | <b>400 V</b><br>660 V | <b>3,5</b> | <b>5</b>   | <b>6,3</b> | <b>8,5</b> | <b>11,5</b><br><b>15,5</b> |
| $I_{th}$ (A)     | 400 V                 | 25         | 25         | 25         | 25         | 32                         |
| $P_e$ (kW), AC-3 | <b>400 V</b><br>660 V | <b>1,5</b> | <b>2,2</b> | <b>3</b>   | <b>4</b>   | <b>5,5</b><br><b>7,5</b>   |
| $I_{th}$ (A) AUX |                       | 6          | 6          | 6          | 6          | 6                          |
| $P_m$ (VA)       | AC-15                 | 300        | 300        | 300        | 300        | 300                        |
|                  | DC-13                 | 30         | 30         | 30         | 30         | 30                         |



Za uvođenje kabela napajanja na poklopcu donjeg dijela plastičnog kućišta se nalaze perforirani otvori koji odgovaraju brtvljenim uvodnicama: 2 kom. PG13,5; a na donjem dijelu 1 kom. PG16 i 1 kom. PG13,5.

## Tehnički parametri i izbor tipova TEMS2

|                 |              |  |  |                                |              |
|-----------------|--------------|--|--|--------------------------------|--------------|
| <b>400 V AC</b> | <b>660 V</b> |  |  | <b>T<sub>a</sub></b> 0..+55 °C | <b>IP 55</b> |
|-----------------|--------------|--|--|--------------------------------|--------------|



**Piktogrami** **I/O**

| TRACON                          | TEMS2-251                 | TEMS2-321 |           |
|---------------------------------|---------------------------|-----------|-----------|
| <b>I<sub>e</sub> (A), AC-3</b>  | <b>400 V</b>              | <b>22</b> | <b>30</b> |
|                                 | 660 V                     | 18        | 21,3      |
| <b>I<sub>th</sub> (A)</b>       | 400 V                     | 40        | 50        |
|                                 | 660 V                     | 15        | 18,5      |
| <b>P<sub>e</sub> (kW), AC-3</b> | <b>400 V</b>              | <b>11</b> | <b>15</b> |
|                                 | 660 V                     | 15        | 18,5      |
| <b>I<sub>th</sub> (A)</b>       | 6                         | 6         |           |
|                                 | <b>P<sub>m</sub> (VA)</b> |           |           |
|                                 | AC-15                     | 300       | 300       |
|                                 | DC-13                     | 30        | 30        |

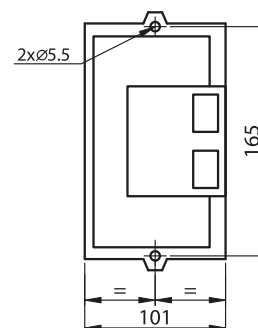
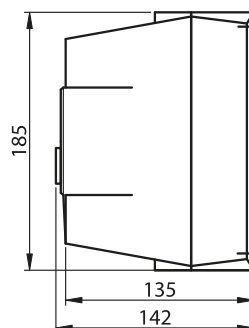
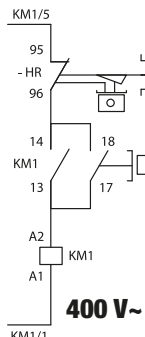
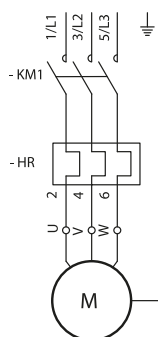
RELEVANT STANDARD  
**EN 60529**

RELEVANT STANDARD  
**EN 60695-2-1**

RELEVANT STANDARD  
**EN 60439**



Za uvođenje kabla napajanja na poklopcu donjeg dijela plastičnog kućišta se nalaze perforirani otvori koji odgovaraju brtvljenim uvodnicama: 2 kom. PG13,5; a na donjem dijelu 1 kom. PG16 i 1 kom. PG13,5.



## Tehnički parametri i izbor tipova TEMS3

|                 |              |  |  |                                |              |
|-----------------|--------------|--|--|--------------------------------|--------------|
| <b>400 V AC</b> | <b>660 V</b> |  |  | <b>T<sub>a</sub></b> 0..+55 °C | <b>IP 55</b> |
|-----------------|--------------|--|--|--------------------------------|--------------|

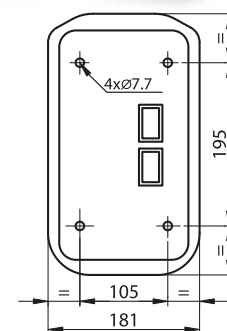
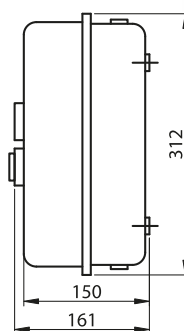
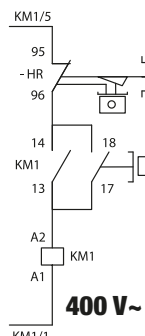
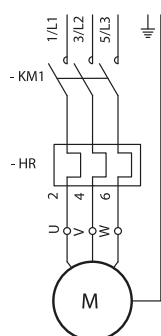
**Piktogrami** **I/O**



| TRACON                          | TEMS3-401                 | TEMS3-501   | TEMS3-651 | TEMS3-801 | TEMS3-802   | TEMS3-951 |
|---------------------------------|---------------------------|-------------|-----------|-----------|-------------|-----------|
| <b>I<sub>e</sub> (A), AC-3</b>  | <b>400 V</b>              | <b>37</b>   | <b>44</b> | <b>60</b> | <b>72,5</b> | <b>85</b> |
|                                 | 660 V                     | 34,6        | 39        | 42        | 49          | 49        |
| <b>I<sub>th</sub> (A)</b>       | 400 V                     | 60          | 80        | 80        | 125         | 125       |
|                                 | 660 V                     | 18,5        | 22        | 30        | 37          | 45        |
| <b>P<sub>e</sub> (kW), AC-3</b> | <b>400 V</b>              | <b>18,5</b> | <b>22</b> | <b>30</b> | <b>37</b>   | <b>45</b> |
|                                 | 660 V                     | 30          | 33        | 37        | 45          | 55        |
| <b>I<sub>th</sub> (A)</b>       | 6                         | 6           | 6         | 6         | 6           | 6         |
|                                 | <b>P<sub>m</sub> (VA)</b> |             |           |           |             |           |
|                                 | AC-15                     | 300         | 300       | 300       | 300         | 300       |
|                                 | DC-13                     | 30          | 30        | 30        | 30          | 30        |



Isklopni pomoćni kontakt koji se nalazi na sklopniku izvedenom u plastičnom kućištu mogu se primijeniti i za signaliziranje i upravljačke zadatke. Za uvođenje kabla napajanja na poklopcu donjeg dijela plastičnog kućišta se nalaze perforirani otvori koji odgovaraju brtvljenim uvodnicama: 1 kom. PG29 i 1 kom. PG13,5; a na donjem dijelu 2 kom. PG29 i 1 kom. PG13,5.





Sklopnici za velike struje (115A...620A)

|                 |              |                                      |                                    |                                     |           |                        |
|-----------------|--------------|--------------------------------------|------------------------------------|-------------------------------------|-----------|------------------------|
| <b>400 V AC</b> | <b>660 V</b> | <b>U<sub>e</sub></b><br><b>660 V</b> | <b>AUX (mm<sup>2</sup>)</b><br>1-4 | <b>T<sub>a</sub></b><br>-25...+55°C | max. ±30° | <b>IP</b><br><b>20</b> |
|-----------------|--------------|--------------------------------------|------------------------------------|-------------------------------------|-----------|------------------------|

**Piktogrami** **I/O**

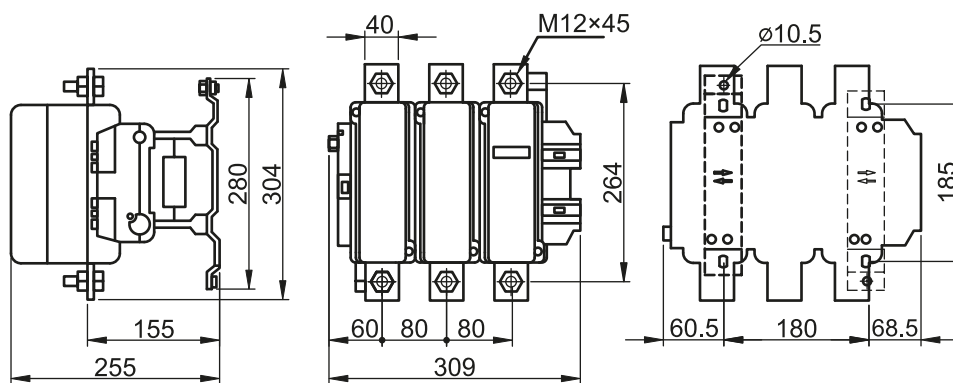
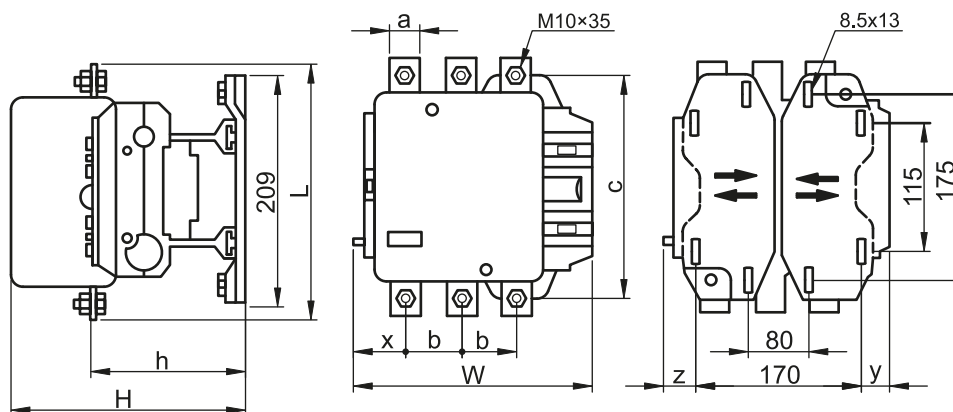
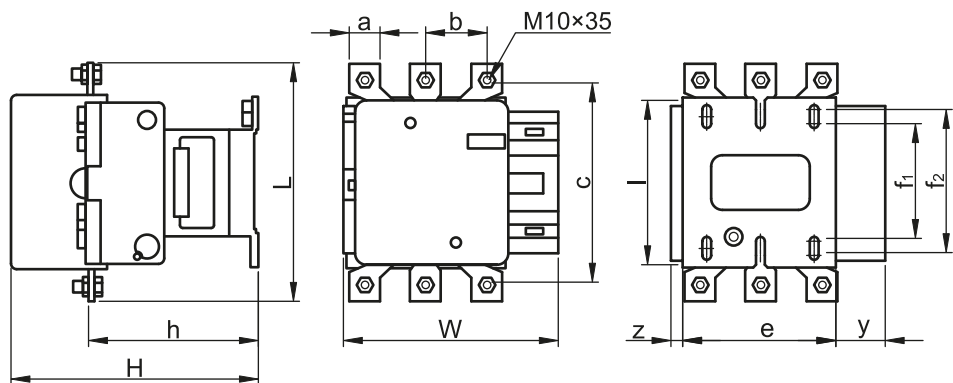
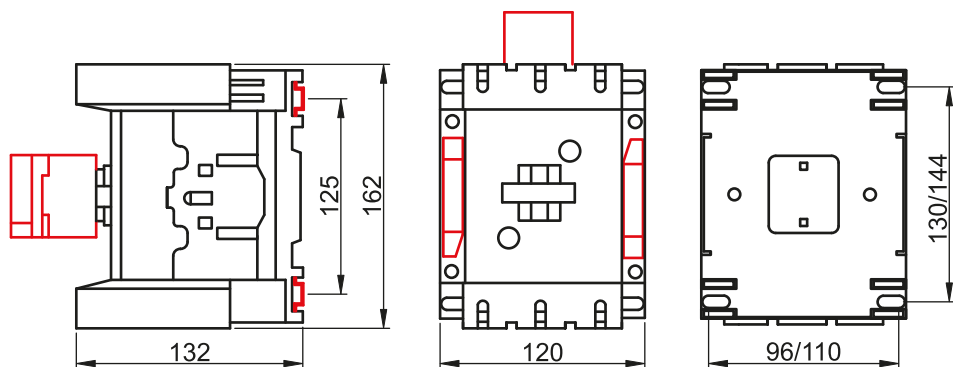
|                           |                  | TRACON         |            |            |           |
|---------------------------|------------------|----------------|------------|------------|-----------|
|                           |                  | U <sub>m</sub> | 115A/AC-3  | 150A/AC-3  | 170A/AC-3 |
|                           |                  | 24 V~          | TR1E115B7  | -          | TR1E170B7 |
|                           |                  | 48 V~          | TR1E115E7  | TR1E150E7  | TR1E170E7 |
|                           |                  | 230 V~         | TR1E115    | TR1E150    | TR1E170   |
|                           |                  | 400 V~         | TR1E115V7  | TR1E150V7  | TR1E170V7 |
| <b>I<sub>e</sub> (A)</b>  | AC-1             | 250            | 250        | 250        |           |
|                           | <b>AC-3</b>      | <b>115</b>     | <b>150</b> | <b>170</b> |           |
| <b>P<sub>e</sub> (kW)</b> | AC-4             | 40             | 50         | 60         |           |
|                           | 220/230 V        | 30             | 40         | 55         |           |
|                           | <b>380/400 V</b> | <b>55</b>      | <b>75</b>  | <b>90</b>  |           |
|                           | 415 V            | 59             | 80         | 100        |           |
|                           | 500 V            | 75             | 90         | 110        |           |
|                           | 660/690 V        | 80             | 100        | 110        |           |
|                           |                  | 1000 V         | 65         | 65         | 100       |
|                           |                  | 95             | 120        | 150        |           |
|                           |                  | × 1800         | × 1800     | × 1800     |           |
|                           |                  | 30 / 6         | 30 / 6     | 30 / 6     |           |
|                           |                  | 550 / 45       | 550 / 45   | 805 / 55   |           |



|                           |                  | TRACON         |            |            |            |            |            |           |
|---------------------------|------------------|----------------|------------|------------|------------|------------|------------|-----------|
|                           |                  | U <sub>m</sub> | 205A/AC-3  | 245A/AC-3  | 300A/AC-3  | 410A/AC-3  | 475A/AC-3  | 620A/AC-3 |
|                           |                  | 24 V~          | -          | TR1E245B7  | -          | TR1E410B7  | TR1E475B7  | TR1E620B7 |
|                           |                  | 48 V~          | TR1E205E7  | TR1E245E7  | TR1E300E7  | TR1E410E7  | TR1E475E7  | TR1E620E7 |
|                           |                  | 230 V~         | TR1E205    | TR1E245    | TR1E300    | TR1E410    | TR1E475    | TR1E620   |
|                           |                  | 400 V~         | TR1E205V7  | TR1E245V7  | TR1E300V7  | TR1E410V7  | TR1E475V7  | TR1E620V7 |
| <b>I<sub>e</sub> (A)</b>  | AC-1             | 275            | 315        | 400        | 500        | 700        | 1000       |           |
|                           | <b>AC-3</b>      | <b>205</b>     | <b>245</b> | <b>300</b> | <b>410</b> | <b>475</b> | <b>620</b> |           |
| <b>P<sub>e</sub> (kW)</b> | AC-4             | 70             | 80         | 100        | 140        | 160        | 210        |           |
|                           | 220/230 V        | 63             | 75         | 100        | 110        | 147        | 200        |           |
|                           | <b>380/400 V</b> | <b>110</b>     | <b>132</b> | <b>160</b> | <b>200</b> | <b>250</b> | <b>335</b> |           |
|                           | 415 V            | 110            | 132        | 180        | 220        | 280        | 375        |           |
|                           | 500 V            | 129            | 160        | 200        | 257        | 355        | 400        |           |
|                           | 660/690 V        | 129            | 160        | 220        | 280        | 335        | 450        |           |
|                           |                  | 1000 V         | 100        | 147        | 160        | 185        | 335        | 450       |
|                           |                  | 185            | 240        | 240        | 2×150      | 2×240      | 2×60×5 mm  |           |
|                           |                  | × 1800         | × 1800     | × 1800     | × 900      | × 900      | × 900      |           |
|                           |                  | 30 / 5         | 30 / 5     | 30 / 5     | 10 / 3     | 10 / 3     | 10 / 2     |           |
|                           |                  | 805 / 55       | 700 / 8    | 700 / 8    | 1150 / 12  | 1150 / 16  | 1730 / 20  |           |

Nadstrujna zaštita kontaktora tipa TR1E prikazana je na I/45. strani!

Skice dimenzija



TR1E115 ... TR1E170



TR1E205 ... TR1E300



TR1E410, TR1E475



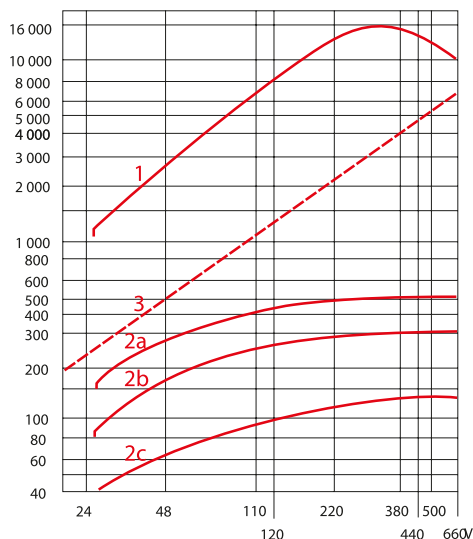
TR1E620



| TRACON  | W (mm) | H (mm) | L (mm) | a (mm) | b (mm) | c (mm) | l (mm) | e (mm) | x (mm) | f1 (mm) | f2 (mm) | h (mm) | y (mm) | z (mm) |
|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|--------|--------|--------|
| TR1E205 | 170    | 181    | 175    | 20     | 40     | 156    | 137    | 80     | -      | 106     | 120     | 114    | 44     | 15     |
| TR1E245 | 170    | 182    | 196    | 25     | 48     | 172    | 137    | 80     | -      | 106     | 120     | 113    | 44     | 15     |
| TR1E300 | 215    | 217    | 205    | 25     | 48     | 180    | 145    | 96     | -      | 110     | 122     | 145    | 38     | 20,5   |
| TR1E410 | 215    | 222    | 205    | 25     | 48     | 180    | -      | -      | 45     | -       | -       | 148    | 23,5   | 15     |
| TR1E475 | 235    | 225    | 235    | 30     | 55     | 210    | -      | -      | 43     | -       | -       | 140    | 44     | 15     |

## Jedinice pomoćnih kontakata

|                               |                               |                               |                             |               |  |              |                                 |         |                                     |              |
|-------------------------------|-------------------------------|-------------------------------|-----------------------------|---------------|--|--------------|---------------------------------|---------|-------------------------------------|--------------|
| <b>U<sub>i</sub></b><br>690 V | <b>U<sub>e</sub></b><br>660 V | <b>I<sub>th</sub></b><br>10 A | <b>I<sub>e</sub></b><br>2 A | $\times 10^7$ | ON-OFF-ON...<br>sc/h<br>$\times 3.600$ | <b>AC 15</b> | [mm <sup>2</sup> ]<br>1x1-2x2,5 | 10 A gG | <b>T<sub>a</sub></b><br>-25...+50°C | <b>IP 20</b> |
|-------------------------------|-------------------------------|-------------------------------|-----------------------------|---------------|--|--------------|---------------------------------|---------|-------------------------------------|--------------|



Električni vijek trajanja u ovisnosti od uklopne snage (AC15)

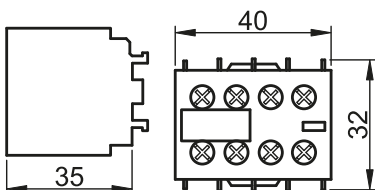
|                         | U <sub>e</sub> |        |                |                |                |        |        |
|-------------------------|----------------|--------|----------------|----------------|----------------|--------|--------|
|                         | 24 V           | 48 V   | 110 V<br>127 V | 220 V<br>230 V | 380 V<br>400 V | 440 V  | 600 V  |
| <b>10<sup>6</sup></b>   | 150 VA         | 300 VA | 400 VA         | 480 VA         | 500 VA         | 500 VA | 500 VA |
| <b>3×10<sup>6</sup></b> | 80 VA          | 170 VA | 250 VA         | 290 VA         | 320 VA         | 320 VA | 320 VA |
| <b>10<sup>7</sup></b>   | 30 VA          | 65 VA  | 90 VA          | 120 VA         | 130 VA         | 130 VA | 130 VA |

**Legenda**

- 1: granica prekidne moći
- 2a: 10<sup>6</sup> pogonskih ciklusa
- 2b: 3×10<sup>6</sup> pogonskih ciklusa
- 2c: 10<sup>7</sup> pogonskih ciklusa
- 3: granica ugrijavanja

## Jedinice prednjih pomoćnih kontakata

Za pomoćne sklopnike TR1K



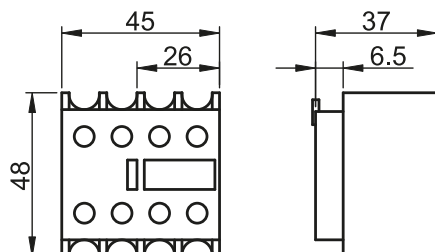
TRACON



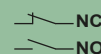
|                |                 |
|----------------|-----------------|
| <b>TR5KN02</b> | 2 × NC          |
| <b>TR5KN04</b> | 4 × NC          |
| <b>TR5KN11</b> | 1 × NO + 1 × NC |
| <b>TR5KN13</b> | 1 × NO + 3 × NC |
| <b>TR5KN20</b> | 2 × NO          |
| <b>TR5KN22</b> | 2 × NO + 2 × NC |
| <b>TR5KN31</b> | 3 × NO + 1 × NC |
| <b>TR5KN40</b> | 4 × NO          |



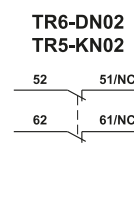
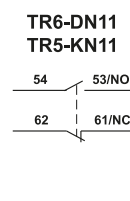
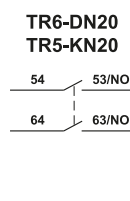
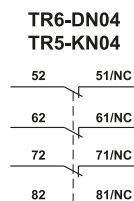
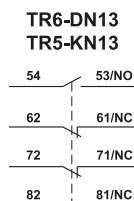
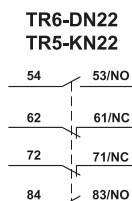
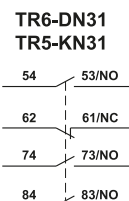
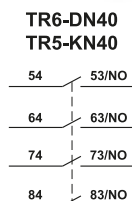
Za sklopnike TR1D i TR1E



TRACON




|                |                 |
|----------------|-----------------|
| <b>TR6DN02</b> | 2 × NC          |
| <b>TR6DN04</b> | 4 × NC          |
| <b>TR6DN11</b> | 1 × NO + 1 × NC |
| <b>TR6DN13</b> | 1 × NO + 3 × NC |
| <b>TR6DN20</b> | 2 × NO          |
| <b>TR6DN22</b> | 2 × NO + 2 × NC |
| <b>TR6DN31</b> | 3 × NO + 1 × NC |
| <b>TR6DN40</b> | 4 × NO          |

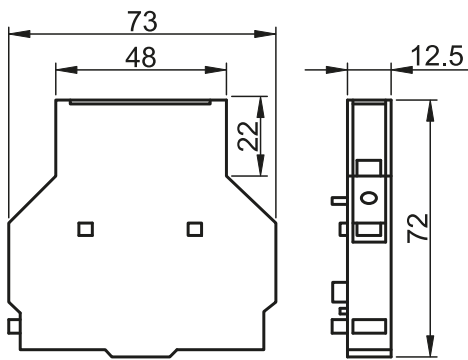



## Jedinice bočnih pomoćnih kontakata za sklopnike TR1D/F09 ... TR1D/F65, TR1E115..170

**TRACON**



|                 |                 |
|-----------------|-----------------|
| <b>TR8-DN20</b> | 2 × NO          |
| <b>TR8-DN11</b> | 1 × NC + 1 × NO |






|                 |                 |
|-----------------|-----------------|
| <b>TR8-DN20</b> | <b>TR8-DN11</b> |
| 54 — 53/NO      | 54 — 53/NO      |
| 64 — 63/NO      | 62 — 61/NC      |

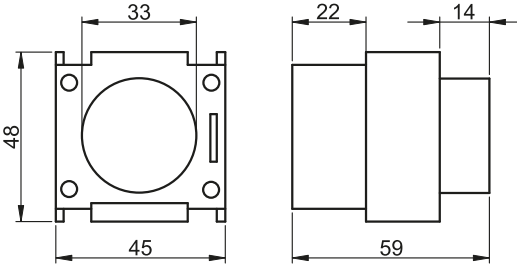



## Vremenske jedinice za sklopnike TR1D/E

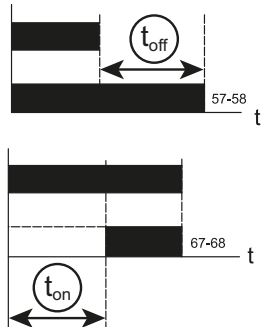
**TRACON**

|               |                 |          |
|---------------|-----------------|----------|
| <b>TR7DT2</b> | 1 × NC + 1 × NO | 0.1-30 s |
| <b>TR7DR2</b> | 1 × NC + 1 × NO | 0.1-30 s |





|               |               |
|---------------|---------------|
| <b>TR7DR2</b> | <b>TR7DT2</b> |
| 58 — 57/NO    | 56 — 55/NC    |
| 66 — 65/NC    | 68 — 67/NO    |





## Mehanički zasuni

**TRACON**

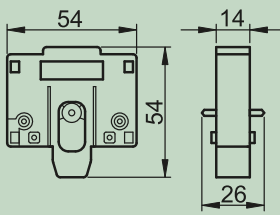


|                   |         |
|-------------------|---------|
| <b>TR9-D09978</b> | 9-32 A  |
| <b>TR9-D50978</b> | 40-95 A |


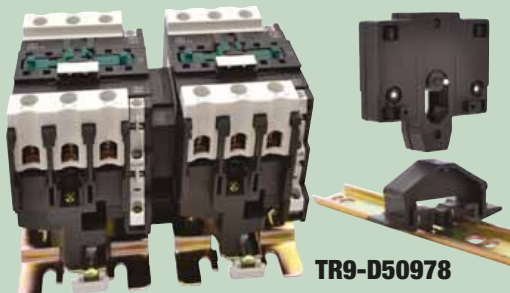
Ugrađuju se između dvije magnet-ske sklopke i sprječavaju njihovo istodobno privlačenje. Mogu se primijeniti u izmjenjivačima smjera bez električnog zasuna, pri sigurnosnom uklapanju s pomoćnom sklopkom i u spojevima zvijezda-trokut.



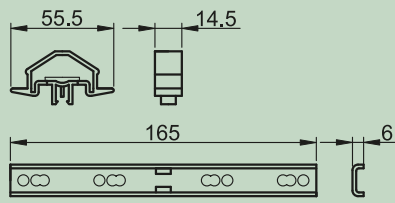
**TR9-D09978**



Od 9 - 32 A stabilnu vezu među dvjema magnetskim sklopkama možemo riješiti odstojnikom koji se postavlja na sklopnik s bočne strane.

**TR9-D50978**



Od 40 - 95 A pouzdanu vezu osigurava odstojnik na pomoćnom nosaču koji se vijcima pričvršćuje na montažnu ploču na dnu magnetske sklopke.

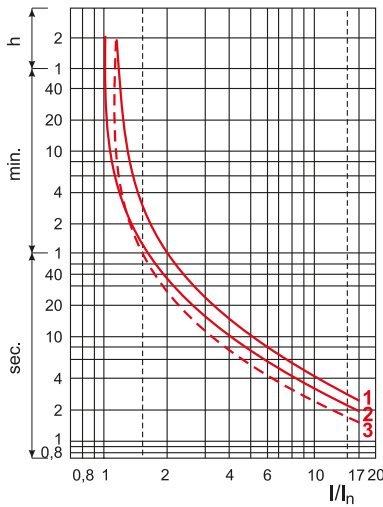


# Termički nadstrujni releji

## Električni parametri za kontakte releja

|                |                   |              |                 |              |          |                   |
|----------------|-------------------|--------------|-----------------|--------------|----------|-------------------|
| $U_i$<br>690 V | $U_{imp}$<br>6 kV | 50/60 Hz<br> | $I_{th}$<br>6 A | $I_e$<br>2 A | AC<br>15 | $[mm^2]$<br>1-2,5 |
|----------------|-------------------|--------------|-----------------|--------------|----------|-------------------|

**Piktogrami** **I/O**



|       | $U_e$  |        |        |        |        |
|-------|--------|--------|--------|--------|--------|
|       | 24 V   | 48 V   | 110 V  | 230 V  | 400 V  |
| $P_e$ | 100 VA | 200 VA | 400 VA | 600 VA | 600 VA |

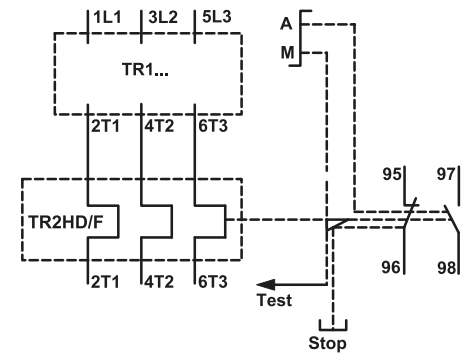
**Legenda**

- 1:** 3-fazno opterećenje, iz hladnog stanja
- 2:** 2-fazno opterećenje, iz hladnog stanja
- 3:** 3-fazno opterećenje, kroz duže vrijeme pri neprekidnom opterećenju (toplo stanje)

Termički releji za nadstrujnu zaštitu su suvremene naprave za zaštitu elektromotora od preopterećenja korištenih u različitim električnim postrojenjima. Djelovanje naprave je inverznog karaktera, tj. što je struja u strujnom krugu motora veća, prekidanje se događa za kraće vrijeme. Iglčasti konektori od bakra, koji služe za ulaze zaštitnih releja, treba spojiti na 2T1, 4T2 i 6T3 stezaljke sklopnika.

Podešavanje termičkog releja se postiže pomoću ručice ispod prozirnog poklopca, koji se po potrebi može plombirati. Na istom mjestu se nalazi i TEST dugme za provjeru ispravnosti strujnog kruga releja, te ručica za izbor vrste rada: ručni ili automatski rad. Crveno STOP dugme za isklapanje releja nalazi se izvan poklopca.

Termički relej za nadstrujnu zaštitu ima jedan NC kontakt i jedan električki neovisan NO kontakt, te indikator za označavanje isključenog stanja.

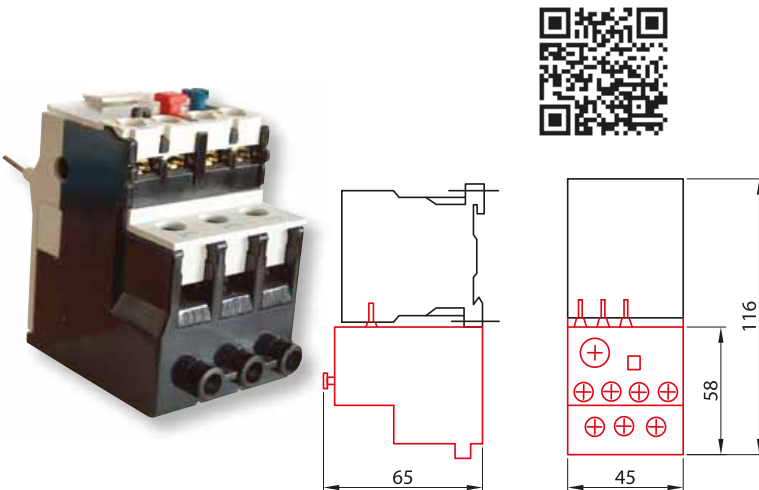


A: vraća se automatski  
M: ručno se podešava

## Za sklopnik tipa TR1K

|                |                   |              |                      |          |                 |
|----------------|-------------------|--------------|----------------------|----------|-----------------|
| $U_i$<br>690 V | $U_{imp}$<br>6 kV | 0-400 Hz<br> | $T_a$<br>-30...+55°C | IP<br>20 | Class Ir<br>10A |
|----------------|-------------------|--------------|----------------------|----------|-----------------|



**Piktogrami** **I/O**




| TRACON    | $I_{th}$      | $[mm^2]$ |  |
|-----------|---------------|----------|--|
| TR2HK0301 | 0.1 – 0.16 A  |          |  |
| TR2HK0302 | 0.16 – 0.25 A |          |  |
| TR2HK0303 | 0.25 – 0.4 A  |          |  |
| TR2HK0304 | 0.4 – 0.63 A  |          |  |
| TR2HK0305 | 0.63 – 1 A    |          |  |
| TR2HK0306 | 1 – 1.6 A     | 1.5 – 4  |  |
| TR2HK0307 | 1.6 – 2.5 A   |          |  |
| TR2HK0308 | 2.5 – 4 A     |          |  |
| TR2HK0310 | 4 – 6 A       |          |  |
| TR2HK0312 | 5.5 – 8 A     |          |  |
| TR2HK0314 | 7 – 10 A      |          |  |
| TR2HK0316 | 9 – 13 A      |          |  |



## Za sklopnik tipa TR1D

**TRACON**  $I_{th}$   

|           |              |          |
|-----------|--------------|----------|
| TR2HD1304 | 0,4 – 0,63 A | 2,5 – 10 |
| TR2HD1305 | 0,63 – 1 A   |          |
| TR2HD1306 | 1 – 1,6 A    |          |
| TR2HD1307 | 1,6 – 2,5 A  |          |
| TR2HD1308 | 2,5 – 4 A    |          |
| TR2HD1310 | 4 – 6 A      |          |
| TR2HD1312 | 5,5 – 8 A    |          |
| TR2HD1314 | 7 – 10 A     |          |
| TR2HD1316 | 9 – 13 A     |          |
| TR2HD1321 | 12 – 18 A    |          |
| TR2HD1322 | 17 – 25 A    | 4 – 35   |
| TR2HF2353 | 23 – 32 A    |          |
| TR2HF2355 | 28 – 36 A    |          |
| TR2HD3353 | 23 – 32 A    |          |
| TR2HD3355 | 30 – 40 A    |          |
| TR2HD3357 | 37 – 50 A    |          |
| TR2HD3359 | 48 – 65 A    |          |
| TR2HD3361 | 55 – 70 A    |          |
| TR2HD3363 | 63 – 80 A    |          |
| TR2HD3365 | 80 – 93 A    |          |



$U_i$   
690 V

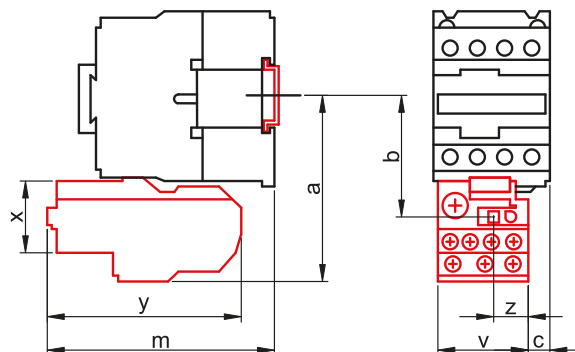
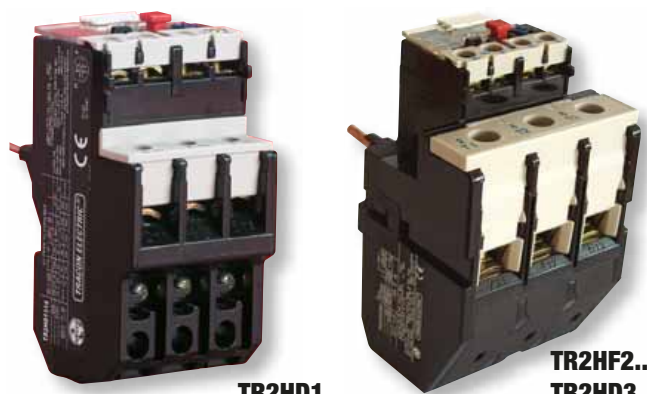
$U_{imp}$   
6 kV

0-400 Hz  


$T_a$   
-30...+55°C



IP  
20

Class Ir  
10A

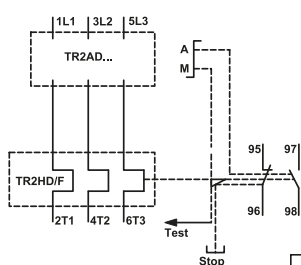


| TRACON       | a (mm) | b (mm) | c (mm) | m (mm) | x (mm) | y (mm) | v (mm) | z (mm) |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| TR1D09...D18 | 81     | 50     | 0      | 98     | 47     | 92     | 44     | 17     |
| TR1D25       | 86     | 55     | 10.7   | 108    | 47     | 92     | 44     | 17     |
| TR1D32       | 86     | 55     | 8.1    | 109    | 47     | 92     | 44     | 17     |
| TR1D40...D65 | 111    | 72.4   | 4.5    | 119    | 54     | 109    | 70     | 30     |
| TR1D80...D95 | 115.5  | 76.9   | 9.5    | 124    | 54     | 109    | 70     | 30     |

## Adapter za termičke releje

**TRACON**  

|        |                      |               |
|--------|----------------------|---------------|
| TR2AD1 | TR2HD13..            | 46×78×86 mm   |
| TR2AD3 | TR2HF23.., TR2HD33.. | 73×103×120 mm |



RELEVANT STANDARD  
EN 60947-1

RELEVANT STANDARD  
EN 60947-4-1

A: vraća se automatski  
M: ručno se podešava

  
35×7.5

## EVOHK instalacijski sklopnici






F/27




## Izbor sklopnika i termičkih releja

Sljedeće tablice mogu pružiti pomoć pri izboru sklopnika i termičkog releja za zaštitu motora na osnovu njegovih pogonskih parametara. Snage i struje prikazane u tablici odnose se na motor spojen u trokut.

### Primjeri za izbor pomoćnog sklopnika TR1K i termičkog releja

| Pe (kW) | Ie (A) |  |  | I <sub>th</sub> |  |         |
|---------|--------|---|---|-----------------|---|---------|
|         |        |   |   |                 | aM  | gG (gL) |
| –       | 0,1    | <b>TR1K06</b>   | <b>TR2HK0301</b>  | 0,1 – 0,16      | 1   | 2       |
| 0,06    | 0,16   | <b>TR1K06</b>   | <b>TR2HK0302</b>  | 0,16 – 0,25     | 1   | 2       |
| 0,08    | 0,25   | <b>TR1K06</b>   | <b>TR2HK0303</b>  | 0,25 – 0,4      | 1   | 2       |
| 0,1     | 0,4    | <b>TR1K06</b>   | <b>TR2HK0304</b>  | 0,4 – 0,63      | 2   | 4       |
| 0,3     | 1,0    | <b>TR1K06</b>   | <b>TR2HK0305</b>  | 0,63 – 1        | 2   | 4       |
| 0,4     | 1,0    | <b>TR1K06</b>   | <b>TR2HK0306</b>  | 1 – 1,6         | 2   | 4       |
| 0,8     | 2,0    | <b>TR1K06</b>   | <b>TR2HK0307</b>  | 1,6 – 2,5       | 4   | 6       |
| 1,1     | 2,6    | <b>TR1K06</b>   | <b>TR2HK0308</b>  | 2,5 – 4         | 6   | 10      |
| 1,5     | 3,5    | <b>TR1K06</b>   | <b>TR2HK0308</b>  | 2,5 – 4         | 6   | 10      |
| 2,2     | 5,0    | <b>TR1K06</b>   | <b>TR2HK0310</b>  | 4 – 6           | 10  | 16      |
| 3,0     | 6,3    | <b>TR1K06</b>   | <b>TR2HK0312</b>  | 5,5 – 8         | 10  | 16      |
| 4,0     | 8,5    | <b>TR1K09</b>   | <b>TR2HK0314</b>  | 7 – 10          | 10  | 20      |
| 5,0     | 11     | <b>TR1K12</b>   | <b>TR2HK0316</b>  | 9 – 13          | 16  | 25      |

### Primjeri za izbor sklopnika TR1D i termičkog releja

| Pe (kW) | Ie (A) |  |  | I <sub>th</sub> |  |         |
|---------|--------|---|---|-----------------|---|---------|
|         |        |   |   |                 | aM  | gG (gL) |
| 0,1     | 0,4    | <b>TR1D09</b>   | <b>TR2HD1304</b>  | 0,4-0,63        | 2   | 4       |
| 0,3     | 1,0    | <b>TR1D09</b>   | <b>TR2HD1305</b>  | 0,63-1          | 2   | 4       |
| 0,4     | 1,0    | <b>TR1D09</b>   | <b>TR2HD1306</b>  | 1-1,6           | 2   | 4       |
| 0,8     | 2,0    | <b>TR1D09</b>   | <b>TR2HD1307</b>  | 1,6-2,5         | 4   | 6       |
| 1,1     | 2,6    | <b>TR1D09</b>   | <b>TR2HD1308</b>  | 2,5-4,0         | 6   | 10      |
| 1,5     | 3,5    | <b>TR1D09</b>   | <b>TR2HD1308</b>  | 2,5-4,0         | 6   | 10      |
| 2,2     | 5,0    | <b>TR1D09</b>   | <b>TR2HD1310</b>  | 4,0-6,0         | 10  | 16      |
| 3,0     | 6,3    | <b>TR1D09</b>   | <b>TR2HD1312</b>  | 5,5-8           | 10  | 16      |
| 4,0     | 8,5    | <b>TR1D09</b>   | <b>TR2HD1314</b>  | 7,0-10,0        | 10  | 20      |
| 5,0     | 11,0   | <b>TR1D12</b>   | <b>TR2HD1316</b>  | 9-13,0          | 16  | 25      |
| 7,5     | 15,5   | <b>TR1D18</b>   | <b>TR2HD1321</b>  | 12,0-18,0       | 20  | 35      |
| 9,0     | 18,0   | <b>TR1D18</b>   | <b>TR2HD1321</b>  | 12,0-18,0       | 25  | 35      |
| 11,0    | 22,0   | <b>TR1D25</b>   | <b>TR2HD1322</b>  | 17,0-25,0       | 25  | 50      |
| 15,0    | 32,0   | <b>TR1D32</b>   | <b>TR2HF2353</b>  | 23,0-32,0       | 40  | 63      |
| 15,0    | 32,0   | <b>TR1D32</b>   | <b>TR2HF2355</b>  | 28,0-36         | 50  | 63      |
| 18,0    | 40,0   | <b>TR1D40</b>   | <b>TR2HD3353</b>  | 23,0-32,0       | 40  | 63      |
| 18,0    | 40,0   | <b>TR1D40</b>   | <b>TR2HD3355</b>  | 30-40,0         | 50  | 63      |
| 22,0    | 44,0   | <b>TR1D50</b>   | <b>TR2HD3357</b>  | 37,0-50,0       | 63  | 80      |
| 25,0    | 57,0   | <b>TR1D65</b>   | <b>TR2HD3359</b>  | 48-65,0         | 80  | 100     |
| 30,0    | 60,0   | <b>TR1D65</b>   | <b>TR2HD3361</b>  | 55,0-70,0       | 80  | 100     |
| 37,0    | 72,0   | <b>TR1D80</b>   | <b>TR2HD3363</b>  | 63,0-80,0       | 80  | 125     |
| 45,0    | 93,0   | <b>TR1D95</b>   | <b>TR2HD3365</b>  | 80-93,0         | 100   | 125     |

### Kombinacija za motorske pokretače

Uporabom sklopnika TR1D, pomoćnih kontakata, vremenske jedinice i termičkog releja mogu se izvesti razne kombinacije, npr. automatske motorske sklopke zvijezda-trokut, odn. pokretači motora. Motorski pokretač Y-Δ se sastoji od 3 sklopnika, 2 pomoćna kontakta, 1 vremenske jedinice i 1 termičkog releja.

U PRILOGU se pruža pomoć u projektiranju, izboru elemenata, izradi skica i shema spojeva.

## Nadstrujna zaštita električnih uređaja upravljenih sklopticima za velike struje

Pouzdana nadstrujna zaštita električnih uređaja u industriji, upravljenih sklopticima za velike struje može se riješiti s pomoću tzv. nadstrujne kombinacije, na indirektnan način. Senzorska naprava za rad nadstrujne kombinacije izvedena je zaštitnim relejima za rast struje 0-5 A po svim fazama. Na sekundar strujnog transformatora treba spojiti ulaz releja koji je osjetljiv na rast struje. Ukoliko se pomoćni kontakti zaštitnih releja svih faza redno spoje i struja u bilo kojoj fazi poraste iznad odabrane vrijednosti, te u toj fazi uklopi relej, prekida se upravljački strujni krug sklopnika za velike struje, štiteći time uređaj od nadstruja. Napominjemo, da ovo rješenje nije u skladu sa standardnom krivuljom motorske zaštite.

### Raspored konektora

|     |                       |
|-----|-----------------------|
| L,N | Napon napajanja       |
| k;l | Strujni transformator |
| 1   | NO isklonni kontakt   |
| 2   | CO zajednički kontakt |
| 3   | NC uklopni kontakt    |

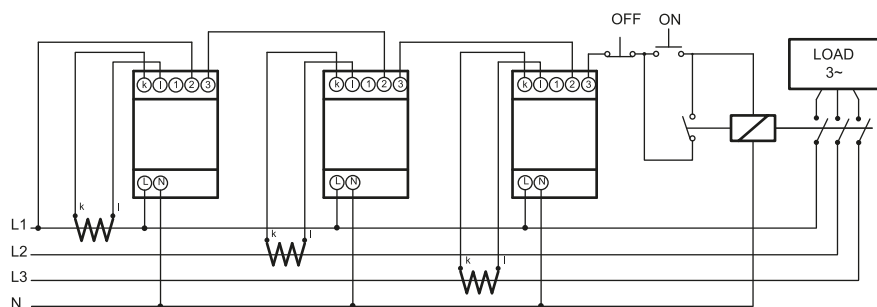


### Elementi nadstrujne zaštite

| TRACON                | Naziv   | Broj elemenata     | Strana |
|-----------------------|---|--------------------|--------|
| <b>TFKV-AKA05</b>     | Zaštitni relej za rast struje                         | 3 kom. (1 po fazi) | J/21   |
| <b>AVBS, AV...-SH</b> | Niskonaponski strujni transformator za 5A u sekundaru | 3 kom. (1 po fazi) | L/26   |

### Napomena

- Zaštitna naprava vršnu struju pokretanja koja nastaje pri uključivanju motora ne uzima u obzir unutar vremena podešenog između 0,5-8 s.
- Ako se mjerena vrijednost struje razlikuje od regulirane vrijednosti, izlaz releja će na kraju podešenog vremena kašnjenja promijeniti svoje stanje.
- Ako se vrijednost struje sekundara strujnog transformatora unutar vremena kašnjenja podešenog između 0,5-15 s vrati na podešenu razinu struje, stanje izlaza releja se neće promijeniti.
- Za trofazne mreže vrijeme kašnjenja zaštitnih releja pojedinih faza treba postaviti na istu vrijednost!

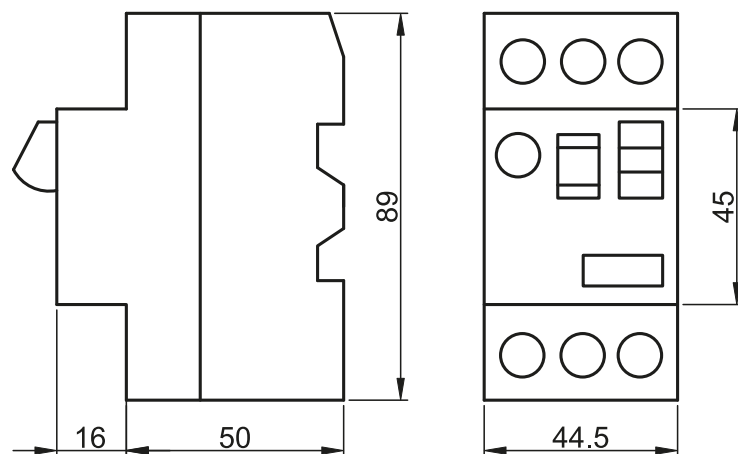


| n              | TRACON         | I <sub>th</sub><br>min | I <sub>th</sub><br>max | I <sub>th</sub> (A) |      |      |      |      |        |
|----------------|----------------|------------------------|------------------------|---------------------|------|------|------|------|--------|
|                |                |                        |                        | 0,5                 | 1    | 2    | 3    | 4    | 5      |
| -              | -              | 0,5 A                  | 5 A                    | 0,5 A               | 1 A  | 2 A  | 3 A  | 4 A  | 5 A    |
| <b>100/5A</b>  | <b>TR1E115</b> | 10 A                   | 100 A                  | 10 A                | 20   | 40   | 60   | 80   | 100 A  |
| <b>120/5A</b>  | <b>TR1E115</b> | 12 A                   | 120 A                  | 12 A                | 24   | 48   | 72   | 96   | 120 A  |
| <b>125/5A</b>  | <b>TR1E150</b> | 12,5 A                 | 125 A                  | 12,5 A              | 25   | 50   | 75   | 100  | 125 A  |
| <b>150/5A</b>  | <b>TR1E170</b> | 15 A                   | 150 A                  | 15 A                | 30   | 60   | 90   | 120  | 150 A  |
| <b>200/5A</b>  | <b>TR1E205</b> | 20 A                   | 200 A                  | 20 A                | 40   | 80   | 120  | 160  | 200 A  |
| <b>250/5A</b>  | <b>TR1E245</b> | 25 A                   | 250 A                  | 25 A                | 50   | 100  | 150  | 200  | 250 A  |
| <b>300/5A</b>  | <b>TR1E300</b> | 30 A                   | 300 A                  | 30 A                | 60   | 120  | 180  | 240  | 300 A  |
| <b>400/5A</b>  | <b>TR1E410</b> | 40 A                   | 400 A                  | 40 A                | 80   | 160  | 240  | 320  | 400 A  |
| <b>500/5A</b>  | <b>TR1E475</b> | 50 A                   | 500 A                  | 50 A                | 100  | 200  | 300  | 400  | 500 A  |
| <b>600/5A</b>  | <b>TR1E620</b> | 60 A                   | 600 A                  | 60 A                | 120  | 240  | 360  | 480  | 600 A  |
| <b>750/5A</b>  | -              | 75 A                   | 750 A                  | 75 A                | 150  | 300  | 450  | 600  | 750 A  |
| <b>800/5A</b>  | -              | 80 A                   | 800 A                  | 80 A                | 160  | 320  | 480  | 640  | 800 A  |
| <b>1000/5A</b> | -              | 100 A                  | 1000 A                 | 100 A               | 200  | 400  | 600  | 800  | 1000 A |
| <b>1500/5A</b> | -              | 150 A                  | 1500 A                 | 150 A               | 300  | 600  | 900  | 1200 | 1500 A |
| <b>2000/5A</b> | -              | 200 A                  | 2000 A                 | 200 A               | 400  | 800  | 1200 | 1600 | 2000 A |
| <b>2500/5A</b> | -              | 250 A                  | 2500 A                 | 250 A               | 500  | 1000 | 1500 | 2000 | 2500 A |
| <b>3000/5A</b> | -              | 300 A                  | 3000 A                 | 300 A               | 600  | 1200 | 1800 | 2400 | 3000 A |
| <b>4000/5A</b> | -              | 400 A                  | 4000 A                 | 400 A               | 800  | 1600 | 2400 | 3200 | 4000 A |
| <b>5000/5A</b> | -              | 500 A                  | 5000 A                 | 500 A               | 1000 | 2000 | 3000 | 4000 | 5000 A |

Motorske zaštitne sklopke na ručni pogon

|                 |                               |                                |          |               |               |                                     |             |  |              |                                    |                                    |                               |                                   |
|-----------------|-------------------------------|--------------------------------|----------|---------------|---------------|-------------------------------------|-------------|--|--------------|------------------------------------|------------------------------------|-------------------------------|-----------------------------------|
| <b>400 V AC</b> | <b>U<sub>i</sub></b><br>690 V | <b>U<sub>imp</sub></b><br>6 kV | 50/60 Hz | $\times 10^5$ | $\times 10^5$ | ON-OFF-ON...<br>sc/h<br>$\times 25$ | <b>AC 3</b> |  | <b>IP 20</b> | <b>T<sub>a</sub></b><br>-25..+55°C | <b>[mm<sup>2</sup>]</b><br>2x1-2x6 | <b>Class Ir</b><br><b>10A</b> | <b>P<sub>m</sub></b><br>2,5 VA AC |
|-----------------|-------------------------------|--------------------------------|----------|---------------|---------------|-------------------------------------|-------------|--|--------------|------------------------------------|------------------------------------|-------------------------------|-----------------------------------|

| TRACON  | I <sub>e</sub> | P <sub>e</sub> | I <sub>m</sub> |        |        |
|---------|----------------|----------------|----------------|--------|--------|
|         |                |                |                | aM (A) | gG (A) |
| TGV2-01 | 0,1 - 0,16 A   | –              | 1,5 A          | –      | 1      |
| TGV2-02 | 0,16 - 0,25 A  | 0,06 kW        | 2,4 A          | –      | 1      |
| TGV2-03 | 0,25 - 0,4 A   | 0,09 kW        | 5 A            | 1      | 2      |
| TGV2-04 | 0,4 - 0,63 A   | 0,18 kW        | 8 A            | 1      | 2      |
| TGV2-05 | 0,63 - 1 A     | 0,37 kW        | 13 A           | 1      | 2      |
| TGV2-06 | 1 - 1,6 A      | 0,55 kW        | 22,5 A         | 2      | 4      |
| TGV2-07 | 1,6 - 2,5 A    | 0,75 kW        | 33,5 A         | 4      | 6      |
| TGV2-08 | 2,5 - 4 A      | 1,5 kW         | 51 A           | 6      | 10     |
| TGV2-10 | 4 - 6,3 A      | 2,2 kW         | 78 A           | 10     | 16     |
| TGV2-14 | 6 - 10 A       | 4 kW           | 138 A          | 10     | 20     |
| TGV2-16 | 9 - 14 A       | 5,5 kW         | 170 A          | 16     | 25     |
| TGV2-20 | 13 - 18 A      | 7,5 kW         | 223 A          | 20     | 32     |
| TGV2-21 | 17 - 23 A      | 11 kW          | 327 A          | 25     | 50     |
| TGV2-22 | 20 - 25 A      | 11 kW          | 327 A          | 25     | 50     |
| TGV2-32 | 24 - 32 A      | 15 kW          | 416 A          | 40     | 63     |



RELEVANT STANDARD  
**EN 60947-4-1**

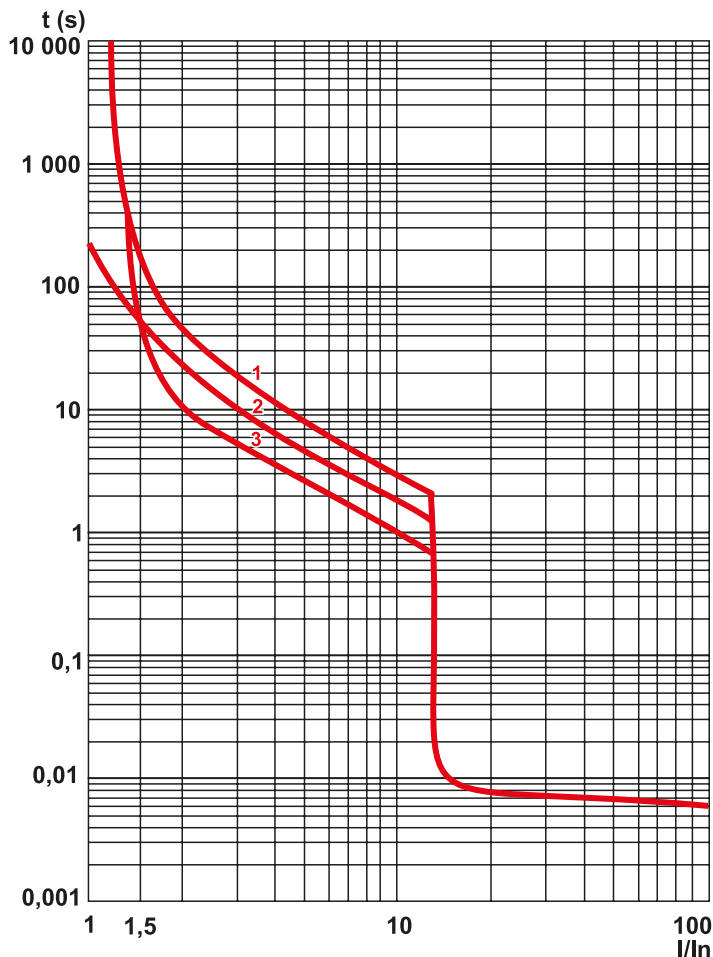
RELEVANT STANDARD  
**EN 60947-1**



Motorske zaštitne sklopke su namijenjene za trofazna opterećenja, prvenstveno za uklapanje i isklapanje elektromotora, odnosno za njihovu zaštitu od preopterećenja. Okidanje se može postići magnetskim okidačem za kratke spojeve ili termičkim okidačem za preopterećenja. Može se uklapati i isklapati običnom mehaničkom konstrukcijom na ručni pogon i zaključati u isklapljenom položaju. Nazivna pogonska struja štitećeg motora može se regulirati kontinuirano u zadanom području. Sklopke za zaštitu motora mogu se s dopunskom opremom (dojavljivačima pogrešaka, pomoćnim kontaktima, okidačima, kućištem, itd.) prilagoditi za daljinsko upravljanje i za primjenu u raznim upravljačkim uređajima.



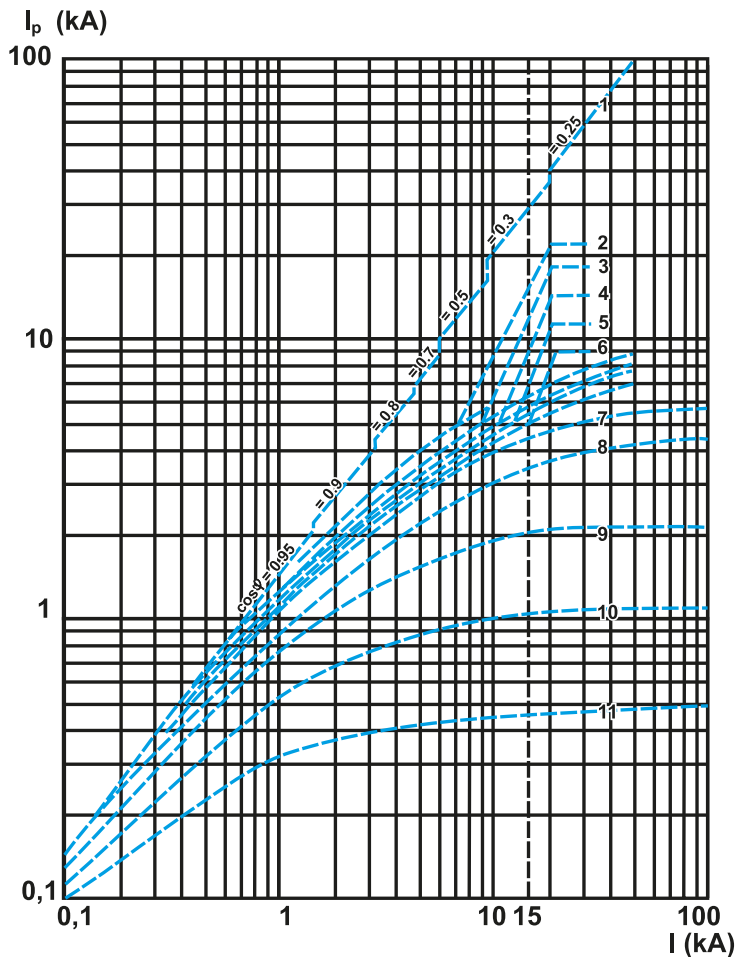
**Krivulja isklapanja**



**Legenda**

- 1:** 3-fazno opterećenje, iz hladnog stanja
- 2:** 2-fazno opterećenje, iz hladnog stanja
- 3:** 3-fazno opterećenje, neprekidno kroz duže vrijeme (toplo stanje)

**Krivulja strujnog ograničenja**

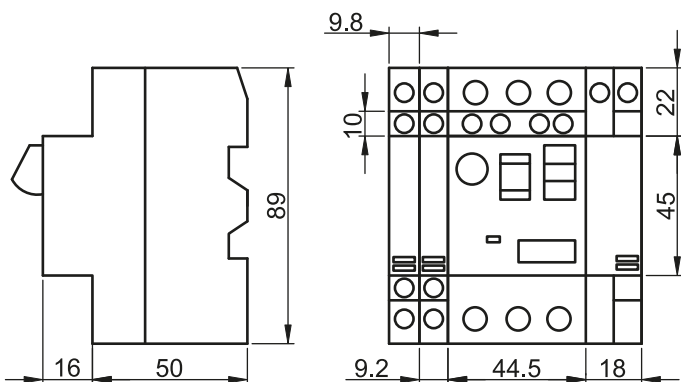


**Legenda**

- 1:**  $I_{pmax}$
- 2:** 24-32 A
- 3:** 20-25 A
- 4:** 17-23 A
- 5:** 13-18 A
- 6:** 9-14 A
- 7:** 6-10 A
- 8:** 4-6.3 A
- 9:** 2.5-4 A
- 10:** 1.6-2.5 A
- 11:** 1-1.6 A

**Dopunska oprema**

|                |         |          |               |               |                                |                  |
|----------------|---------|----------|---------------|---------------|--------------------------------|------------------|
| $U_i$<br>690 V | 10 A gG | 50/60 Hz | $\times 10^5$ | $P_m$<br>5 VA | [mm <sup>2</sup> ]<br>0,75-2,5 | $P_m$<br>5 VA AC |
|----------------|---------|----------|---------------|---------------|--------------------------------|------------------|





Motorske zaštitne sklopke se mogu s dopunskom opremom (dojavljivačima pogreške, pomoćnim kontaktima, okidačima, kućištem) prilagoditi za daljinsko upravljanje i za primjenu u raznim upravljačkim uređajima. Ugradnjom u kućište omogućuje se njihova samostalna uporaba, jer se time povećava stupanj zaštite na IP41 ili IP55.

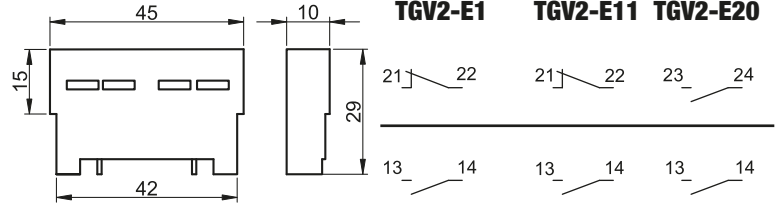


**Prednji pomoćni kontakti**

| $U_e$ (V)    |      | 24    | 48   | 60   | 230 |
|--------------|------|-------|------|------|-----|
| $I_e$ (A)    | AC15 | 2     | 1,25 | –    | 0,5 |
|              | DC13 | 1     | 0,3  | 0,15 | –   |
| $I_{th}$ (A) |      | 2,5 A |      |      |     |

| TRACON          |  NC<br> NO |
|-----------------|--|
| <b>TGV2-E1</b>  | 1×NC / NO*   |
| <b>TGV2-E11</b> | 1×NC + 1×NO  |
| <b>TGV2-E20</b> | 2×NO   |

\*ovisno o položaju kontakt može biti i isklonpi i uklopni.





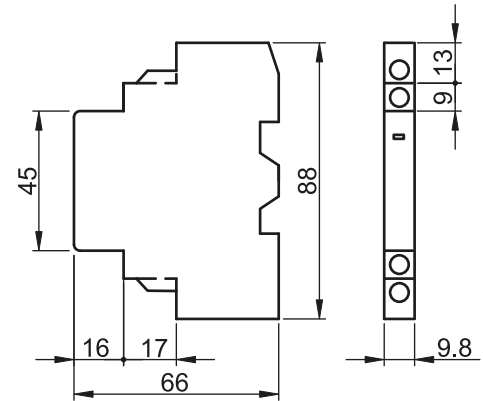
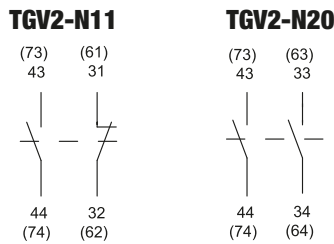
Pomoćni kontakti signaliziraju da li je sklopka uklopljena ili isklonpijena. Uz njihovu pomoć moguće je obavljati upravljačke i signalizirajuće funkcije. Pomoćni kontakt na prednju stranu se može namjestiti nakon skidanja prednje ploče.

**Bočni pomoćni kontakti**



| $U_e$ (V)    |      | 24  | 48 | 110 | 230 | 400 |
|--------------|------|-----|----|-----|-----|-----|
| $I_e$ (A)    | AC15 | –   | 6  | 4,5 | 3   | 2   |
|              | DC13 | 6   | 5  | 1,3 | 0,5 | –   |
| $I_{th}$ (A) |      | 6 A |    |     |     |     |

| TRACON          |  NC<br> NO |
|-----------------|--|
| <b>TGV2-N11</b> | 1×NC + 1×NO  |
| <b>TGV2-N20</b> | 2×NO   |



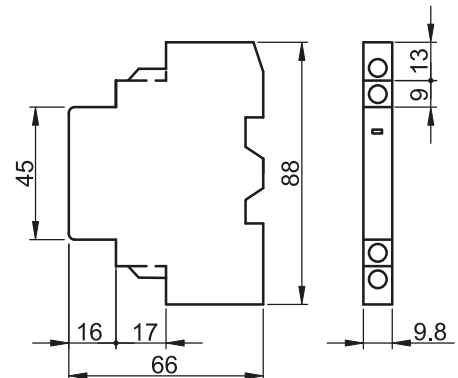
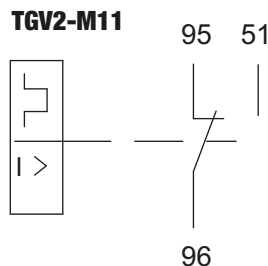
Pomoćni kontakti signaliziraju da li je sklopka uklopljena ili isklonpijena. Uz njihovu pomoć moguće je obavljati upravljačke i signalizirajuće funkcije.

**Indikator isklopa uslijed kratkog spoja**




| $U_e$ (V)    |      | 24    | 48  | 60   |
|--------------|------|-------|-----|------|
| $I_e$ (A)    | AC15 | 1,5   | 1   | –    |
|              | DC13 | 1     | 0,3 | 0,15 |
| $I_{th}$ (A) |      | 2,5 A |     |      |

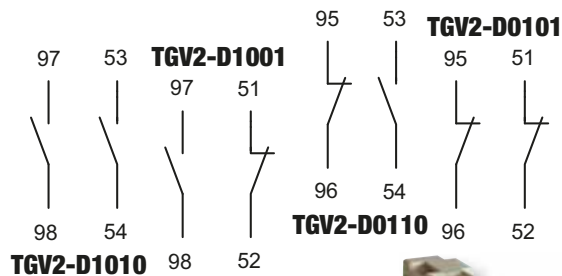
| TRACON          |  NC<br> NO<br> CO |
|-----------------|--|
| <b>TGV2-M11</b> | 1×CO   |




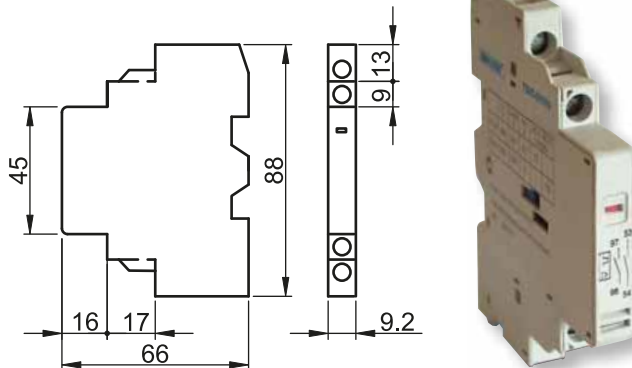
U slučaju kvara na šticeuom motoru signaliziraju vrstu pogreške (kratki spoj, nadstruja).

## Indikatori isklopa uslijed preopterećenja

| TRACON     | AUX  |  |
|------------|------|---|
| TGV2-D1010 | 1×NO | 1×NO  |
| TGV2-D1001 | 1×NC | 1×NO  |
| TGV2-D0110 | 1×NO | 1×NC  |
| TGV2-D0101 | 1×NC | 1×NC  |



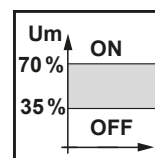
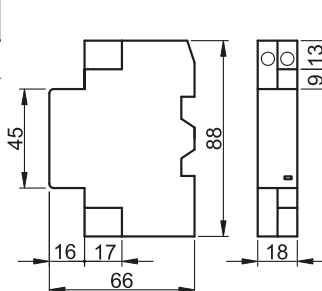
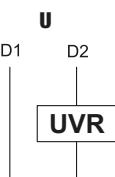
|              | AUX  |     |     |      |    |     |     |
|--------------|---|-----|-----|------|----|-----|-----|
| $U_e$ (V)    | 24  | 48  | 60  | 24   | 48 | 230 | 400 |
| $I_e$ (A)    | AC15  | 1.5 | 1   | –    | –  | 6   | 3   |
|              | DC13  | 1   | 0.3 | 0.15 | 6  | 5   | 0.5 |
| $I_{th}$ (A) | 2,5 A   |     |     | 6 A  |    |     |     |



## Okidač podnaponski

| TRACON    | $U_m$        | $P_m$     |
|-----------|--------------|-----------|
| TGV2-U225 | 220-240 V AC | max. 5 VA |
| TGV2-U385 | 400-415 V AC | max. 5 VA |

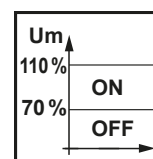
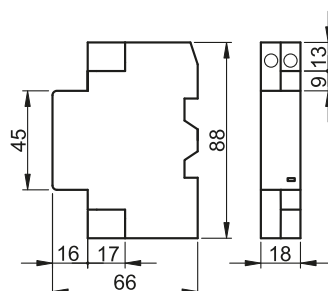
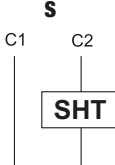
Okidač podnaponski isklopi zaštitnu sklopku i sprječava ponovni uklop ako se radni napon smanji između 35 i 70 % nazivne vrijednosti.



## Okidači isklopni

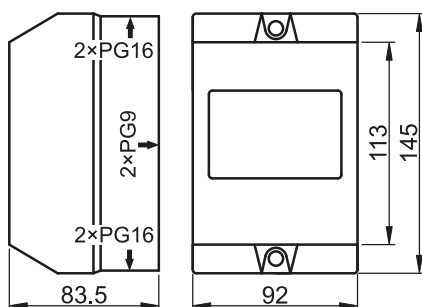
| TRACON    | $U_m$        | $P_m$     |
|-----------|--------------|-----------|
| TGV2-S225 | 220-240 V AC | max. 5 VA |
| TGV2-S385 | 400-415 V AC | max. 5 VA |

Okidač isklopni izaziva isklon zaštitne sklopke kada na njegov namot priključimo napon između 70 i 110 % nazivnog radnog napona. Na taj način obavlja funkciju daljinskog upravljanja.



## Kućišta

| TRACON  | IP..  |
|---------|-------|
| TGV2-T1 | IP 41 |
| TGV2-T2 | IP 55 |



TGV2-T1



TGV2-T2