

## Description

Single pole high performance thermal circuit breaker with tease-free, trip-free, snap action mechanism and push/pull on/off manual actuation (M-type TO CBE to EN 60934). An indicator band on the push button shows clearly the tripped/off position. Threadneck panel mounted and available in tracked vehicle, aircraft and general purpose versions.

## Typical applications

Extra low voltage wiring systems on all types of vehicles for land, sea and air; defence equipment; battery powered machines.

## Ordering information

| Type No.            |                                                   |
|---------------------|---------------------------------------------------|
| 413                 | threadneck panel mounting                         |
| Terminal design     |                                                   |
| K14                 | screw terminals M6 (to aircraft specs.)           |
| K34                 | reinforced screw terminals M6 (to vehicle specs.) |
| K54                 | as K34, but housing sealed                        |
| Version             |                                                   |
| FN2                 | vehicle application, nickel-plated                |
| LN2                 | aircraft application, black finish                |
| N2                  | general application, nickel-plated                |
| Current ratings     |                                                   |
| 30...55 A (-FN2)    |                                                   |
| 30...90 A (-LN2/N2) |                                                   |

413 - K14 - LN2 - 40 A ordering example

Packaging quantity: 75 pcs.

## Standard current ratings and typical voltage drop values

| Current rating (A) | Voltage drop (mV) |       | Current rating (A) | Voltage drop (mV) |       |
|--------------------|-------------------|-------|--------------------|-------------------|-------|
|                    | -LN/N             | -FN   |                    | -LN/N             | -FN   |
| 30                 | ≤ 250             | ≤ 250 | 55                 | -                 | ≤ 200 |
| 35                 | ≤ 250             | ≤ 250 | 60                 | ≤ 200             | -     |
| 40                 | ≤ 200             | ≤ 200 | 70                 | ≤ 200             | -     |
| 45                 | ≤ 200             | ≤ 200 | 80                 | ≤ 200             | -     |
| 50                 | ≤ 200             | ≤ 200 | 90                 | ≤ 200             | -     |

## Approvals

| Test authority | Voltage ratings | Current ratings |
|----------------|-----------------|-----------------|
| UL             | DC 28 V         | 30...80 A       |
| LRoS, BV       | DC 28 V         | 30...70 A       |
| QPL Sweden     | DC 28 V         | 30...50 A       |



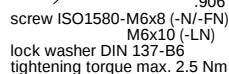
413-...

## Technical data

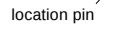
|                                                           |                                                                                                                     |                       |
|-----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-----------------------|
| Voltage rating                                            | AC 115 V (400 Hz); DC 28 V                                                                                          |                       |
| Current rating range                                      | 30...55 A (-FN2)<br>30...90 A (-LN2/-N2),                                                                           |                       |
| Typical life                                              | 2,000 operations at 1 x I <sub>N</sub>                                                                              |                       |
| Ambient temperature                                       | -55...+75 °C (-67...+167 °F)                                                                                        |                       |
| Insulation co-ordination (IEC 60664 and 60664A)           | Rated impulse withstand voltage<br>1.5 kV                                                                           | Pollution degree<br>3 |
| Dielectric strength (IEC 60664 and 60664A) operating area | Test voltage<br>AC 1,500 V                                                                                          |                       |
| Insulation resistance                                     | > 100 MΩ (DC 500 V)                                                                                                 |                       |
| Interrupting capacity I <sub>cn</sub>                     | AC 115 V (400 Hz): 1,000 A<br>DC 28 V: 6,000 A                                                                      |                       |
| Interrupting capacity (UL 1077)                           | DC 28 V: 6,000 A                                                                                                    |                       |
| Degree of protection (IEC 60529/DIN 40050)                | operating area IP 40<br>terminal area IP 00                                                                         |                       |
| Vibration                                                 | 10 g (56-500 Hz) ±0.76 mm (10-55 Hz)<br>to VG 95210, sheet 19/<br>MIL-STD-202, meth. 204/<br>IEC 60068-2-6, test Fc |                       |
| Shock                                                     | 50 g (11 ms)<br>to VG 95210, sheet 28/<br>MIL-STD-202, meth. 213/<br>IEC 60068-2-27, test Ea                        |                       |
| Corrosion                                                 | 96 hours at 5 % salt mist,<br>to VG 95210, sheet 2/<br>MIL-STD-202, meth. 101/<br>IEC 60068-2-11, Test Ka           |                       |
| Humidity                                                  | 240 hours at 95 % RH<br>to VG 95210, sheet 7/<br>MIL-STD-202, meth. 106/<br>IEC 60068-2-3, test Ca                  |                       |
| Mass                                                      | approx. 65 g                                                                                                        |                       |

### Internal connection diagram

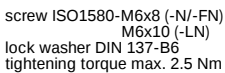
tightening torque max. 4 Nm



current rating in A \_\_\_\_\_



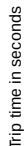
tightening torque max. 4 Nm



current rating in A



**413-...-FN2 30...55 A**

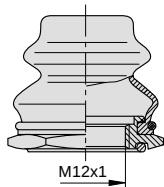


**Trip time in seconds**

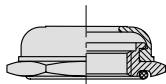
This is a metric design and millimeter dimensions take precedence ( $\frac{\text{mm}}{\text{inch}}$ )

## Accessories (approved to VG 95345, part 23)

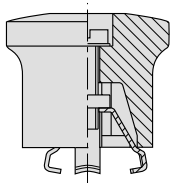
**Splash cover/hex nut assembly with O ring (IP 66)**  
**X 200 801 08** – nickel plated nut, transparent cover  
**X 200 801 03** – matt black finish nut, black cover



**Splash cover black/hex nut assembly with O ring (IP 54)**  
**X 200 802 01** – nickel plated nut  
**X 200 802 02** – matt black finish nut

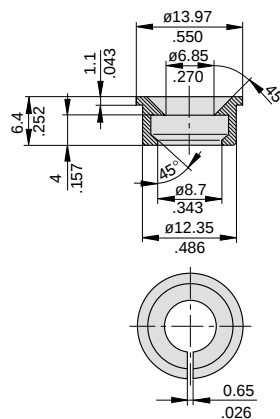


**Actuator extension (black)**  
**X 200 803 01**

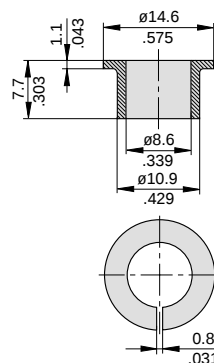


## Accessories

**Identification collar**  
**Y 307 004 01** black  
**Y 307 004 02** white  
**Y 307 004 03** red  
**Y 307 004 04** green  
**Y 307 004 05** blue



**Lock out ring**  
**Y 307 005 01** red



All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.