



■ Rolling blind



■ Electrical distribution



■ PCB applications



# Microswitches

subminiature

## V4D

# Microswitches subminiature V4D

## Crouzet Presentation

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**Crouzet** has been a recognised supplier of quality position sensors, micro-switches and limit switches for more than 30 years. Today, **Crouzet** offers you a new range of micro-switches designed to fulfill the toughest of OEMs' requirements.

To suit your design requirements, Crouzet continues to develop its capabilities as a specialist in customisation, offering you solutions specifically adapted to all your applications. Because our top most priority is nothing be left to chance, our quality and environmental management systems are certified to ISO 9001 and ISO 14001.

### About Custom Sensors & Technologies



Headquartered in Moorpark, CA - Custom Sensors & Technologies (CST) is comprised of industry-leading brands including Crouzet, Kavlico, Crydom, and former divisions of BEI Technologies – Newall and Systron Donner. CST provides sensors, controls, and actuation products for the Transportation, Industrial and Aerospace & Defense markets.



# Crouzet

## Adaptation

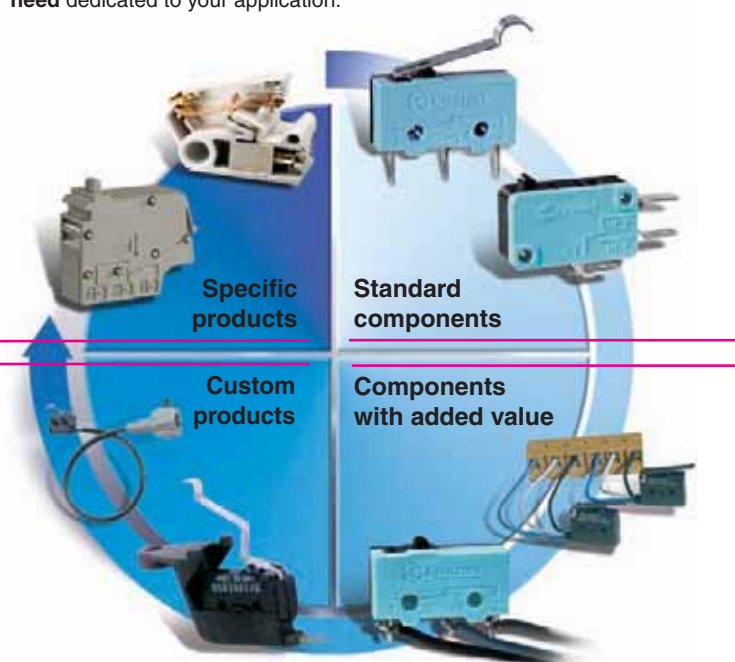
To meet the growing demand for customisation, Crouzet's expertise in terms of adapting products and their corresponding accessories is available to all customers.

Crouzet can customise its products for use in any type of environment or application to ensure perfect integration into any equipment.

Because quality is at the heart of our approach, our quality control and our environmental management system are certified to ISO 9001 and ISO 14001 respectively.

■ All our expertise in sensing design and industrialisation placed at your service, to respond to a **specific need** dedicated to your application.

■ A complete range of **standard microswitches** available immediately to create your sensing application.



■ Defined in coordination with our technical sales teams, these custom products have the corresponding performance and functionality.

■ Standard products complemented by factory-mounted auxiliaries or accessories (levers, cables, connectors, etc) in order to assist integration in your equipment, simplify your logistics and maximise the reliability of your installation.

# Crouzet

## Process



■ Customer needs



■ R&D department



■ Production



■ Quality



# Microswitches subminiature V4D

## Crouzet

### Customisation is our business

#### □ Control devices

##### Even more adaptation for easier actuating

Special button shapes which compensate for any faults or positioning drift of the control actuator.



#### □ Connections

##### A complete electrical function

Special connectors, customised wiring, customer bundles, dedicated terminals...



#### □ Seals

##### Even more solutions for demanding environments

Numerous components available to provide effective protection for your contacts, including caps, boot seals, membranes, sealing resin, wiper seals.



#### □ Special levers

##### Obtain the control data

Angled, curved, extended or retractable... these special lever types can be used to extend the control device for easier adjustment, increase the operating force, resist high actuation torque or provide totally safe electrical isolation.



#### □ Special contacts

##### The right contact for every environment

High or low current, AC or DC, type of load (inductive or resistive), industrial or corrosive atmosphere, occasional or intensive use. The best metals, silver, silver nickel, silver palladium, gold-plated silver, solid gold.



#### □ Special fixings

##### No effort is spared to make mounting easier

Snap-on fixing, screw-fixing, crimping or pins are just a few examples of the numerous solutions available to meet all your requirements.



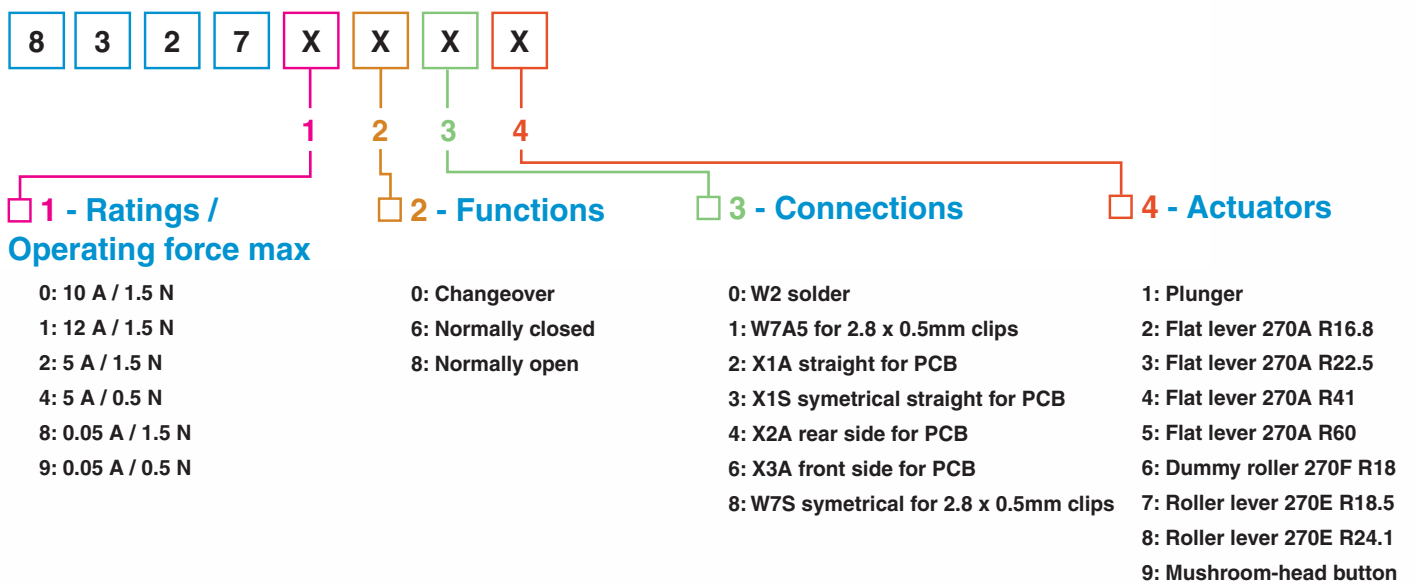
## V4D Advantages

- Wide range of switching ratings from 0.1 A to 12 A
- V4 standard size
- Approved to ENEC (EN 61058-1) and UL/CSA
- Compliant to RoHS
- Glow wire test withstanding to EN 60335-1: GWFI 850°C and GWIT 775°C
- Various applications areas: Industry, Consumer equipment, Home appliances, HVAC, ...
- A high capacity to adapt levers, connections, fixing elements, upon request



## Ordering Information

### Model Number Legend



## Basic technical principles

- See our Position Sensors Catalogue

# Microswitches subminiature V4D

- Nominal ratings from 0.1 A to 12 A
- Operating temperature up to + 150°C
- Approved to ENEC and UL/CSA
- Large choice of actuators



## Main specifications

|                                         |                                                 | 83270                         | 83271                             | 83272                               | 83274                               |
|-----------------------------------------|-------------------------------------------------|-------------------------------|-----------------------------------|-------------------------------------|-------------------------------------|
| Function                                | Connections                                     |                               |                                   |                                     |                                     |
| I (changeover)                          | W2 - W7A5 - W7S - X1A<br>X1S- X2A - X3A         | ●                             | ●                                 | ●                                   | ●                                   |
| R (normally closed)                     | W2 - W7A5                                       | ●                             | ●                                 | ●                                   | ●                                   |
| C (normally open)                       | W2 - W7A5                                       | ●                             | ●                                 | ●                                   | ●                                   |
| Electrical characteristics              |                                                 |                               |                                   |                                     |                                     |
| Rating nominal / 250 V AC (A)           |                                                 | 10                            | 12                                | 5                                   | 5                                   |
| Rating thermal / 250 V AC (A)           |                                                 | 12                            | 15                                | 6                                   | 6                                   |
| Rating nominal / 5 → 24 V AC/DC (A)     |                                                 | -                             | -                                 | -                                   | -                                   |
| Mechanical characteristics              |                                                 |                               |                                   |                                     |                                     |
| Maximum operating force (N)             |                                                 | 1.5                           | 1.5                               | 1.5                                 | 0.5                                 |
| Min. Release force (N)                  |                                                 | 0.3                           | 0.3                               | 0.3                                 | 0.1                                 |
| Maximum total travel force (N)          |                                                 | 2                             | 2                                 | 2                                   | 1                                   |
| Max. permitted overtravel force (N)     |                                                 | 10                            | 10                                | 10                                  | 10                                  |
| Maximum rest position (mm)              |                                                 | 9.2*                          | 9.2*                              | 9.2*                                | 9.2*                                |
| Tripping point (mm)                     |                                                 | 8.4±0.3 **                    | 8.4±0.3 **                        | 8.4±0.3 **                          | 8.4±0.3 **                          |
| Maximum differential travel (mm)        |                                                 | 0.15                          | 0.15                              | 0.15                                | 0.15                                |
| Min. overtravel (mm)                    |                                                 | 0.5                           | 0.5                               | 0.5                                 | 0.5                                 |
| Ambient operating temperature (°C)      |                                                 | -20 → +85                     | -20 → +85                         | -20 → +125                          | -20 → +125                          |
| Mechanical life for 2/3 OT (operations) |                                                 | 500 000                       | 500 000                           | 500 000                             | 1 000 000                           |
| Contact gap (mm)                        |                                                 | 0.4                           | 0.4                               | 0.4                                 | 0.4                                 |
| Weight (g)                              |                                                 | 2                             | 2                                 | 2                                   | 2                                   |
| Approvals                               |                                                 |                               |                                   |                                     |                                     |
| EN 61058-1                              | Rating for T 85° C<br># T 125° C<br>## T 150° C | 10 (2) A<br>250 V AC          | 12 (6) A<br>250 V AC              | # 5 (1) A<br>250 V AC               | # 5 (1) A<br>250 V AC               |
|                                         | Number of cycles                                | 10 000                        | 10 000                            | 50 000                              | 50 000                              |
| UL 1054                                 | Rating                                          | 10.1 A 1/4 HP<br>125.250 V AC | 12 A 125.250 V AC<br>(contact us) | 5 A 125.250 V AC<br>1/4 HP 250 V AC | 5 A 125.250 V AC<br>1/4 HP 250 V AC |
|                                         | Number of cycles                                | 6 000                         | 6 000                             | 6 000                               | 6 000                               |
| Comments                                |                                                 |                               |                                   |                                     |                                     |

\* 10.8 for mushroom head button

\*\* 9.9 ± 0.3 for mushroom head button

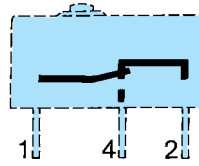
## Additional specifications

### Component Materials

- Housing/cover/button: polyester UL 94V0-GWIT 775°C / GWFI 850°C
- Contacts: silver alloy or gold plated
- Terminals : silver-plated brass
- Actuators: stainless steel, glass filled polyamide roller

## Principle

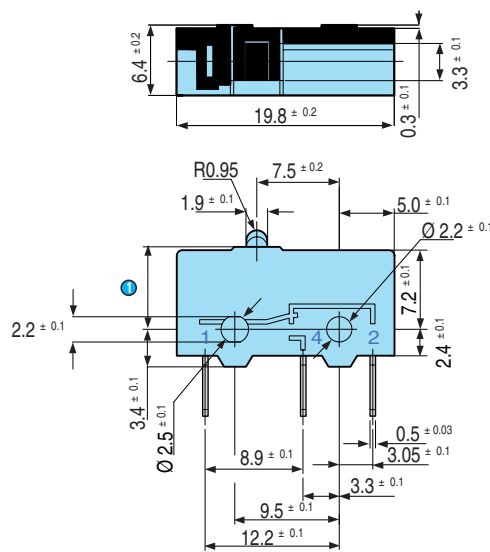
### Single break changeover switch



## Dimensions (mm)

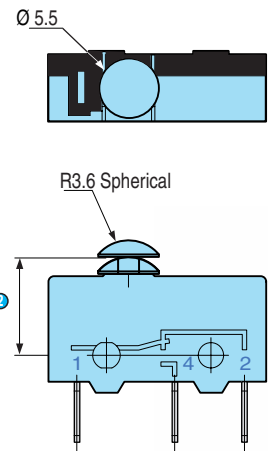
| 83278                       | 83279                       |
|-----------------------------|-----------------------------|
|                             |                             |
| -                           | -                           |
| 0.001 → 0.05                | 0.001 → 0.05                |
| 1.5                         | 0.5                         |
| 0.3                         | 0.1                         |
| 2                           | 1                           |
| 10                          | 10                          |
| 9.2**                       | 9.2**                       |
| 8.4±0.3 ***                 | 8.4±0.3 ***                 |
| 0.15                        | 0.15                        |
| 0.5                         | 0.5                         |
| -20 → +150                  | -20 → +150                  |
| 500 000                     | 1 000 000                   |
| 0.4                         | 0.4                         |
| 2                           | 2                           |
| ## 0.1 (0.04) A<br>250 V AC | ## 0.1 (0.04) A<br>250 V AC |
| 50 000                      | 50 000                      |
| 0.1 A 125 V AC              | 0.1 A 125 V AC              |
| 6 000                       | 6 000                       |

### Asymetrical version



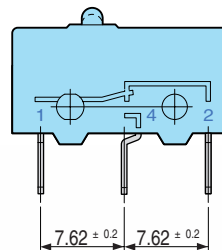
① Total Travel Position = 7.6 Max.

### Mushroom-head button



② Total Travel Position = 9.1 Max.

### Symetrical version



## Product adaptations

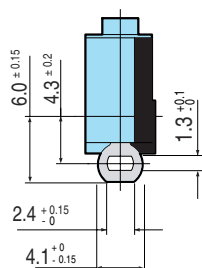


- Special levers
- Special connections
- Specific fixing
- High operating temperature
- 2.35 mm diameter fixing holes

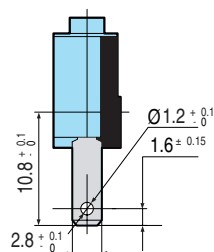
# Microswitches subminiature V4D

## Connections

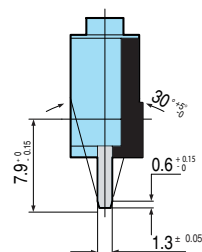
W2



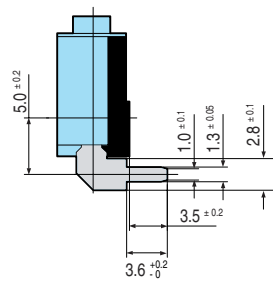
W7A5 / W7S



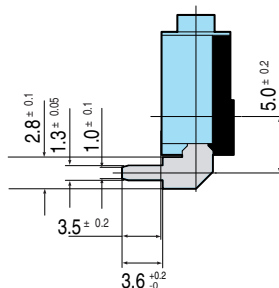
X1A / X1S



X2A / X2S



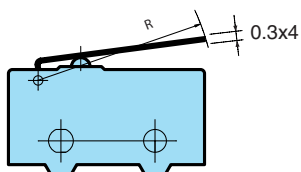
X3A / X3S



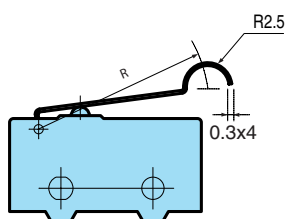
## Actuators

### → Levers

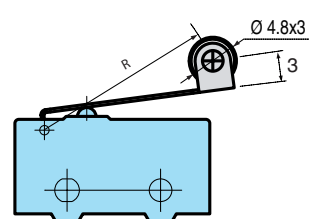
270 A



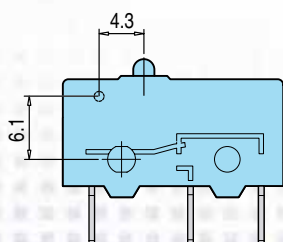
270 F



270 E

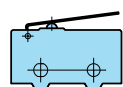


## Actuator mounting position



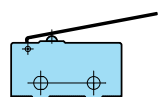


## Mechanical characteristics with actuators



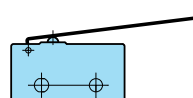
Lever 270A  
R16.8

|  |       | Length of actuator (mm) | Maximum operating force (N) | Minimum release force (N) | Tripping point (mm) | Minimum overtravel (mm) | Maximum differential travel (mm) | Maximum total travel (mm) |
|--|-------|-------------------------|-----------------------------|---------------------------|---------------------|-------------------------|----------------------------------|---------------------------|
|  | 83270 | 16.8                    | 0.5                         | 0.09                      | $9.7 \pm 1.4$       | 0.8                     | 0.6                              | 5.5                       |
|  | 83271 | 16.8                    | 0.5                         | 0.09                      | $9.7 \pm 1.4$       | 0.8                     | 0.6                              | 5.5                       |
|  | 83272 | 16.8                    | 0.5                         | 0.09                      | $9.7 \pm 1.4$       | 0.8                     | 0.6                              | 5.5                       |
|  | 83274 | 16.8                    | 0.16                        | 0.03                      | $10 \pm 1.4$        | 1.1                     | 0.5                              | 5.5                       |
|  | 83278 | 16.8                    | 0.5                         | 0.09                      | $9.7 \pm 1.4$       | 0.8                     | 0.6                              | 5.5                       |
|  | 83279 | 16.8                    | 0.16                        | 0.03                      | $10 \pm 1.4$        | 1.1                     | 0.5                              | 5.5                       |



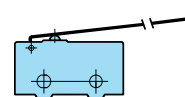
Lever 270A  
R22.5

|  |       |      |      |      |                |     |     |   |
|--|-------|------|------|------|----------------|-----|-----|---|
|  | 83270 | 22.5 | 0.35 | 0.06 | $10.1 \pm 1.7$ | 1.2 | 1.1 | 7 |
|  | 83271 | 22.5 | 0.35 | 0.06 | $10.1 \pm 1.7$ | 1.2 | 1.1 | 7 |
|  | 83272 | 22.5 | 0.35 | 0.06 | $10.1 \pm 1.7$ | 1.2 | 1.1 | 7 |
|  | 83274 | 22.5 | 0.12 | 0.02 | $10.6 \pm 1.7$ | 1.7 | 0.7 | 7 |
|  | 83278 | 22.5 | 0.35 | 0.06 | $10.1 \pm 1.7$ | 1.2 | 1.1 | 7 |
|  | 83279 | 22.5 | 0.12 | 0.02 | $10.6 \pm 1.7$ | 1.7 | 0.7 | 7 |



Lever 270A  
R41

|  |       |    |      |      |              |     |     |    |
|--|-------|----|------|------|--------------|-----|-----|----|
|  | 83270 | 41 | 0.20 | 0.03 | $11.1 \pm 3$ | 3.1 | 2.1 | 15 |
|  | 83271 | 41 | 0.20 | 0.03 | $11.1 \pm 3$ | 3.1 | 2.1 | 15 |
|  | 83272 | 41 | 0.20 | 0.03 | $11.1 \pm 3$ | 3.1 | 2.1 | 15 |
|  | 83274 | 41 | 0.07 | 0.01 | $12.4 \pm 3$ | 4.4 | 1.4 | 15 |
|  | 83278 | 41 | 0.20 | 0.03 | $11.1 \pm 3$ | 3.1 | 2.1 | 15 |
|  | 83279 | 41 | 0.07 | 0.01 | $12.4 \pm 3$ | 4.4 | 1.4 | 15 |

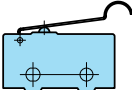
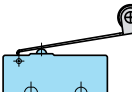


Lever 270A  
R60

|  |       |    |      |      |              |     |     |    |
|--|-------|----|------|------|--------------|-----|-----|----|
|  | 83270 | 60 | 0.13 | 0.02 | $11.6 \pm 5$ | 3.6 | 3.5 | 23 |
|  | 83271 | 60 | 0.13 | 0.02 | $11.6 \pm 5$ | 3.6 | 3.5 | 23 |
|  | 83272 | 60 | 0.13 | 0.02 | $11.6 \pm 5$ | 3.6 | 3.5 | 23 |
|  | 83274 | 60 | 0.05 | 0.01 | $14 \pm 5$   | 6   | 2.3 | 23 |
|  | 83278 | 60 | 0.13 | 0.02 | $11.6 \pm 5$ | 3.6 | 3.5 | 23 |
|  | 83279 | 60 | 0.05 | 0.01 | $14 \pm 5$   | 6   | 2.3 | 23 |

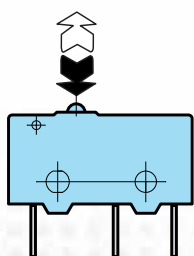
# Microswitches subminiature V4D

## Mechanical characteristics with actuators

|                                                                                                            |       | Length of actuator (mm) | Maximum operating force (N) | Minimum release force (N) | Tripping point (mm) | Minimum overtravel (mm) | Maximum differential travel (mm) | Maximum total travel (mm) |
|------------------------------------------------------------------------------------------------------------|-------|-------------------------|-----------------------------|---------------------------|---------------------|-------------------------|----------------------------------|---------------------------|
| <br>Lever 270F<br>R18     | 83270 | 18                      | 0.45                        | 0.08                      | 12.6 $\pm$ 1.5      | 0.8                     | 0.7                              | 6                         |
|                                                                                                            | 83271 | 18                      | 0.45                        | 0.08                      | 12.6 $\pm$ 1.5      | 0.8                     | 0.7                              | 6                         |
|                                                                                                            | 83272 | 18                      | 0.45                        | 0.08                      | 12.6 $\pm$ 1.5      | 0.8                     | 0.7                              | 6                         |
|                                                                                                            | 83274 | 18                      | 0.15                        | 0.03                      | 12.9 $\pm$ 1.5      | 1.1                     | 0.6                              | 6                         |
|                                                                                                            | 83278 | 18                      | 0.45                        | 0.08                      | 12.6 $\pm$ 1.5      | 0.8                     | 0.7                              | 6                         |
|                                                                                                            | 83279 | 18                      | 0.15                        | 0.03                      | 12.9 $\pm$ 1.5      | 1.1                     | 0.6                              | 6                         |
| <br>Lever 270E<br>R18.5   | 83270 | 18.5                    | 0.45                        | 0.08                      | 15.2 $\pm$ 1.4      | 0.9                     | 0.7                              | 6                         |
|                                                                                                            | 83271 | 18.5                    | 0.45                        | 0.08                      | 15.2 $\pm$ 1.4      | 0.9                     | 0.7                              | 6                         |
|                                                                                                            | 83272 | 18.5                    | 0.45                        | 0.08                      | 15.2 $\pm$ 1.4      | 0.9                     | 0.7                              | 6                         |
|                                                                                                            | 83274 | 18.5                    | 0.15                        | 0.03                      | 15.5 $\pm$ 1.4      | 1.2                     | 0.6                              | 6                         |
|                                                                                                            | 83278 | 18.5                    | 0.45                        | 0.08                      | 15.2 $\pm$ 1.4      | 0.9                     | 0.7                              | 6                         |
|                                                                                                            | 83279 | 18.5                    | 0.15                        | 0.03                      | 15.5 $\pm$ 1.4      | 1.2                     | 0.6                              | 6                         |
| <br>Lever 270E<br>R24.1 | 83270 | 24.1                    | 0.35                        | 0.06                      | 15.7 $\pm$ 1.8      | 1.3                     | 1.2                              | 8                         |
|                                                                                                            | 83271 | 24.1                    | 0.35                        | 0.06                      | 15.7 $\pm$ 1.8      | 1.3                     | 1.2                              | 8                         |
|                                                                                                            | 83272 | 24.1                    | 0.35                        | 0.06                      | 15.7 $\pm$ 1.8      | 1.3                     | 1.2                              | 8                         |
|                                                                                                            | 83274 | 24.1                    | 0.12                        | 0.02                      | 16.2 $\pm$ 1.8      | 1.8                     | 0.8                              | 8                         |
|                                                                                                            | 83278 | 24.1                    | 0.35                        | 0.06                      | 15.7 $\pm$ 1.8      | 1.3                     | 1.2                              | 8                         |
|                                                                                                            | 83279 | 24.1                    | 0.12                        | 0.02                      | 16.2 $\pm$ 1.8      | 1.8                     | 0.8                              | 8                         |

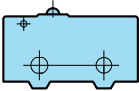
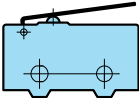
## Mounting - Operation

To conform to the leakage paths and air gaps required in the standard EN/IEC 61058-1 - EN/IEC 60947-5-1:



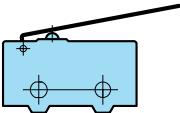
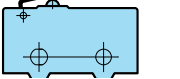
- An insulation pad must be inserted between the microswitch and the fixing surface if the fixing surface is metal.
  - Manual operation of a metal actuator must only be carried out with the help of a secondary actuator made of insulating material.
- The installer must ensure adequate protection against direct contact with the output terminals.

## Selection guide

|                                                                                                            | Rating / Force |            | 10 A / 1.5 N | 12 A / 1.5 N | 5 A / 1.5 N | 5 A / 0.5 N | 0.05 A / 1.5 N | 0.05 A / 0.5 N |
|------------------------------------------------------------------------------------------------------------|----------------|------------|--------------|--------------|-------------|-------------|----------------|----------------|
|                                                                                                            | Type           |            | 83270        | 83271        | 83272       | 83274       | 83278          | 83279          |
| Actuators                                                                                                  | Function       | Connection |              |              |             |             |                |                |
| <br>Plunger               | I              | W2         | 83270001     | 83271001     | 83272001    | 83274001    | 83278001       | 83279001       |
|                                                                                                            | I              | W7A5       | 83270011     | 83271011     | 83272011    | 83274011    | 83278011       | 83279011       |
|                                                                                                            | I              | X1A        | 83270021     | 83271021     | 83272021    | 83274021    | 83278021       | 83279021       |
|                                                                                                            | I              | X1S        | 83270031     | 83271031     | 83272031    | 83274031    | 83278031       | 83279031       |
|                                                                                                            | I              | X2A        | 83270041     | 83271041     | 83272041    | 83274041    | 83278041       | 83279041       |
|                                                                                                            | I              | X3A        | 83270061     | 83271061     | 83272061    | 83274061    | 83278061       | 83279061       |
|                                                                                                            | I              | W7S        | 83270081     | 83271081     | 83272081    | 83274081    | 83278081       | 83279081       |
|                                                                                                            | R              | W2         | 83270601     | 83271601     | 83272601    | 83274601    | 83278601       | 83279601       |
|                                                                                                            | R              | W7A5       | 83270611     | 83271611     | 83272611    | 83274611    | 83278611       | 83279611       |
|                                                                                                            | C              | W2         | 83270801     | 83271801     | 83272801    | 83274801    | 83278801       | 83279801       |
|                                                                                                            | C              | W7A5       | 83270811     | 83271811     | 83272811    | 83274811    | 83278811       | 83279811       |
| <br>Lever 270A<br>R16.8 | I              | W2         | 83270002     | 83271002     | 83272002    | 83274002    | 83278002       | 83279002       |
|                                                                                                            | I              | W7A5       | 83270012     | 83271012     | 83272012    | 83274012    | 83278012       | 83279012       |
|                                                                                                            | I              | X1A        | 83270022     | 83271022     | 83272022    | 83274022    | 83278022       | 83279022       |
|                                                                                                            | I              | X1S        | 83270032     | 83271032     | 83272032    | 83274032    | 83278032       | 83279032       |
|                                                                                                            | I              | X2A        | 83270042     | 83271042     | 83272042    | 83274042    | 83278042       | 83279042       |
|                                                                                                            | I              | X3A        | 83270062     | 83271062     | 83272062    | 83274062    | 83278062       | 83279062       |
|                                                                                                            | I              | W7S        | 83270082     | 83271082     | 83272082    | 83274082    | 83278082       | 83279082       |
|                                                                                                            | R              | W2         | 83270602     | 83271602     | 83272602    | 83274602    | 83278602       | 83279602       |
|                                                                                                            | R              | W7A5       | 83270612     | 83271612     | 83272612    | 83274612    | 83278612       | 83279612       |
|                                                                                                            | C              | W2         | 83270802     | 83271802     | 83272802    | 83274802    | 83278802       | 83279802       |
|                                                                                                            | C              | W7A5       | 83270812     | 83271812     | 83272812    | 83274812    | 83278812       | 83279812       |

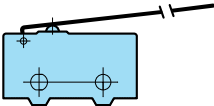
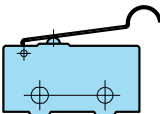
| Function |                 | Connection |                                    |
|----------|-----------------|------------|------------------------------------|
| I        | Changeover      | W2         | solder                             |
| R        | Normally closed | W7A5       | for 2.8 mm clips                   |
| C        | Normally open   | W7S        | symmetrical for 2.8 x 0.5 mm clips |
|          |                 | X1A        | straight for PCB                   |
|          |                 | X1S        | symmetrical straight for PCB       |
|          |                 | X2A        | rear side for PCB                  |
|          |                 | X3A        | front side for PCB                 |

# Microswitches subminiature V4D

|                                                                                                          | Rating / Force |            | 10 A / 1.5 N | 12 A / 1.5 N | 5 A / 1.5 N | 5 A / 0.5 N | 0.05 A / 1.5 N | 0.05 A / 0.5 N |
|----------------------------------------------------------------------------------------------------------|----------------|------------|--------------|--------------|-------------|-------------|----------------|----------------|
|                                                                                                          | Type           |            | 83270        | 83271        | 83272       | 83274       | 83278          | 83279          |
| Actuators                                                                                                | Function       | Connection |              |              |             |             |                |                |
| <br>Lever 270A<br>R22.5 | I              | W2         | 83270003     | 83271003     | 83272003    | 83274003    | 83278003       | 83279003       |
|                                                                                                          | I              | W7A5       | 83270013     | 83271013     | 83272013    | 83274013    | 83278013       | 83279013       |
|                                                                                                          | I              | X1A        | 83270023     | 83271023     | 83272023    | 83274023    | 83278023       | 83279023       |
|                                                                                                          | I              | X1S        | 83270033     | 83271033     | 83272033    | 83274033    | 83278033       | 83279033       |
|                                                                                                          | I              | X2A        | 83270043     | 83271043     | 83272043    | 83274043    | 83278043       | 83279043       |
|                                                                                                          | I              | X3A        | 83270063     | 83271063     | 83272063    | 83274063    | 83278063       | 83279063       |
|                                                                                                          | I              | W7S        | 83270083     | 83271083     | 83272083    | 83274083    | 83278083       | 83279083       |
|                                                                                                          | R              | W2         | 83270603     | 83271603     | 83272603    | 83274603    | 83278603       | 83279603       |
|                                                                                                          | R              | W7A5       | 83270613     | 83271613     | 83272613    | 83274613    | 83278613       | 83279613       |
|                                                                                                          | C              | W2         | 83270803     | 83271803     | 83272803    | 83274803    | 83278803       | 83279803       |
|                                                                                                          | C              | W7A5       | 83270813     | 83271813     | 83272813    | 83274813    | 83278813       | 83279813       |
| <br>Lever 270A<br>R41 | I              | W2         | 83270004     | 83271004     | 83272004    | 83274004    | 83278004       | 83279004       |
|                                                                                                          | I              | W7A5       | 83270014     | 83271014     | 83272014    | 83274014    | 83278014       | 83279014       |
|                                                                                                          | I              | X1A        | 83270024     | 83271024     | 83272024    | 83274024    | 83278024       | 83279024       |
|                                                                                                          | I              | X1S        | 83270034     | 83271034     | 83272034    | 83274034    | 83278034       | 83279034       |
|                                                                                                          | I              | X2A        | 83270044     | 83271044     | 83272044    | 83274044    | 83278044       | 83279044       |
|                                                                                                          | I              | X3A        | 83270064     | 83271064     | 83272064    | 83274064    | 83278064       | 83279064       |
|                                                                                                          | I              | W7S        | 83270084     | 83271084     | 83272084    | 83274084    | 83278084       | 83279084       |
|                                                                                                          | R              | W2         | 83270604     | 83271604     | 83272604    | 83274604    | 83278604       | 83279604       |
|                                                                                                          | R              | W7A5       | 83270614     | 83271614     | 83272614    | 83274614    | 83278614       | 83279614       |
|                                                                                                          | C              | W2         | 83270804     | 83271804     | 83272804    | 83274804    | 83278804       | 83279804       |
|                                                                                                          | C              | W7A5       | 83270814     | 83271814     | 83272814    | 83274814    | 83278814       | 83279814       |

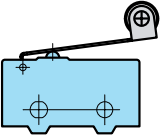
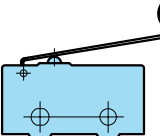
| Function |                 | Connection |                                    |
|----------|-----------------|------------|------------------------------------|
| I        | Changeover      | W2         | solder                             |
| R        | Normally closed | W7A5       | for 2.8 mm clips                   |
| C        | Normally open   | W7S        | symmetrical for 2.8 x 0.5 mm clips |
|          |                 | X1A        | straight for PCB                   |
|          |                 | X1S        | symmetrical straight for PCB       |
|          |                 | X2A        | rear side for PCB                  |
|          |                 | X3A        | front side for PCB                 |



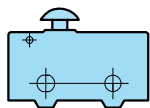
|                                                                                                          | Rating / Force |            | 10 A / 1.5 N | 12 A / 1.5 N | 5 A / 1.5 N | 5 A / 0.5 N | 0.05 A / 1.5 N | 0.05 A / 0.5 N |
|----------------------------------------------------------------------------------------------------------|----------------|------------|--------------|--------------|-------------|-------------|----------------|----------------|
|                                                                                                          | Type           |            | 83270        | 83271        | 83272       | 83274       | 83278          | 83279          |
| Actuators                                                                                                | Function       | Connection |              |              |             |             |                |                |
| <br>Lever 270A<br>R60   | I              | W2         | 83270005     | 83271005     | 83272005    | 83274005    | 83278005       | 83279005       |
|                                                                                                          | I              | W7A5       | 83270015     | 83271015     | 83272015    | 83274015    | 83278015       | 83279015       |
|                                                                                                          | I              | X1A        | 83270025     | 83271025     | 83272025    | 83274025    | 83278025       | 83279025       |
|                                                                                                          | I              | X1S        | 83270035     | 83271035     | 83272035    | 83274035    | 83278035       | 83279035       |
|                                                                                                          | I              | X2A        | 83270045     | 83271045     | 83272045    | 83274045    | 83278045       | 83279045       |
|                                                                                                          | I              | X3A        | 83270065     | 83271065     | 83272065    | 83274065    | 83278065       | 83279065       |
|                                                                                                          | I              | W7S        | 83270085     | 83271085     | 83272085    | 83274085    | 83278085       | 83279085       |
|                                                                                                          | R              | W2         | 83270605     | 83271605     | 83272605    | 83274605    | 83278605       | 83279605       |
|                                                                                                          | R              | W7A5       | 83270615     | 83271615     | 83272615    | 83274615    | 83278615       | 83279615       |
|                                                                                                          | C              | W2         | 83270805     | 83271805     | 83272805    | 83274805    | 83278805       | 83279805       |
|                                                                                                          | C              | W7A5       | 83270815     | 83271815     | 83272815    | 83274815    | 83278815       | 83279815       |
| <br>Lever 270F<br>R18 | I              | W2         | 83270006     | 83271006     | 83272006    | 83274006    | 83278006       | 83279006       |
|                                                                                                          | I              | W7A5       | 83270016     | 83271016     | 83272016    | 83274016    | 83278016       | 83279016       |
|                                                                                                          | I              | X1A        | 83270026     | 83271026     | 83272026    | 83274026    | 83278026       | 83279026       |
|                                                                                                          | I              | X1S        | 83270036     | 83271036     | 83272036    | 83274036    | 83278036       | 83279036       |
|                                                                                                          | I              | X2A        | 83270046     | 83271046     | 83272046    | 83274046    | 83278046       | 83279046       |
|                                                                                                          | I              | X3A        | 83270066     | 83271066     | 83272066    | 83274066    | 83278066       | 83279066       |
|                                                                                                          | I              | W7S        | 83270086     | 83271086     | 83272086    | 83274086    | 83278086       | 83279086       |
|                                                                                                          | R              | W2         | 83270606     | 83271606     | 83272606    | 83274606    | 83278606       | 83279606       |
|                                                                                                          | R              | W7A5       | 83270616     | 83271616     | 83272616    | 83274616    | 83278616       | 83279616       |
|                                                                                                          | C              | W2         | 83270806     | 83271806     | 83272806    | 83274806    | 83278806       | 83279806       |
|                                                                                                          | C              | W7A5       | 83270816     | 83271816     | 83272816    | 83274816    | 83278816       | 83279816       |

| Function |                 | Connection |                                    |
|----------|-----------------|------------|------------------------------------|
| I        | Changeover      | W2         | solder                             |
| R        | Normally closed | W7A5       | for 2.8 mm clips                   |
| C        | Normally open   | W7S        | symmetrical for 2.8 x 0.5 mm clips |
|          |                 | X1A        | straight for PCB                   |
|          |                 | X1S        | symmetrical straight for PCB       |
|          |                 | X2A        | rear side for PCB                  |
|          |                 | X3A        | front side for PCB                 |

# Microswitches subminiature V4D

|                                                                                                                 | Rating / Force |            | 10 A / 1.5 N | 12 A / 1.5 N | 5 A / 1.5 N | 5 A / 0.5 N | 0.05 A / 1.5 N | 0.05 A / 0.5 N |
|-----------------------------------------------------------------------------------------------------------------|----------------|------------|--------------|--------------|-------------|-------------|----------------|----------------|
|                                                                                                                 | Type           |            | 83270        | 83271        | 83272       | 83274       | 83278          | 83279          |
| Actuators                                                                                                       | Function       | Connection |              |              |             |             |                |                |
|  <p>Lever 270E<br/>R18.5</p>   | I              | W2         | 83270007     | 83271007     | 83272007    | 83274007    | 83278007       | 83279007       |
|                                                                                                                 | I              | W7A5       | 83270017     | 83271017     | 83272017    | 83274017    | 83278017       | 83279017       |
|                                                                                                                 | I              | X1A        | 83270027     | 83271027     | 83272027    | 83274027    | 83278027       | 83279027       |
|                                                                                                                 | I              | X1S        | 83270037     | 83271037     | 83272037    | 83274037    | 83278037       | 83279037       |
|                                                                                                                 | I              | X2A        | 83270047     | 83271047     | 83272047    | 83274047    | 83278047       | 83279047       |
|                                                                                                                 | I              | X3A        | 83270067     | 83271067     | 83272067    | 83274067    | 83278067       | 83279067       |
|                                                                                                                 | I              | W7S        | 83270087     | 83271087     | 83272087    | 83274087    | 83278087       | 83279087       |
|                                                                                                                 | R              | W2         | 83270607     | 83271607     | 83272607    | 83274607    | 83278607       | 83279607       |
|                                                                                                                 | R              | W7A5       | 83270617     | 83271617     | 83272617    | 83274617    | 83278617       | 83279617       |
|                                                                                                                 | C              | W2         | 83270807     | 83271807     | 83272807    | 83274807    | 83278807       | 83279807       |
|                                                                                                                 | C              | W7A5       | 83270817     | 83271817     | 83272817    | 83274817    | 83278817       | 83279817       |
|  <p>Lever 270E<br/>R24.1</p> | I              | W2         | 83270008     | 83271008     | 83272008    | 83274008    | 83278008       | 83279008       |
|                                                                                                                 | I              | W7A5       | 83270018     | 83271018     | 83272018    | 83274018    | 83278018       | 83279018       |
|                                                                                                                 | I              | X1A        | 83270028     | 83271028     | 83272028    | 83274028    | 83278028       | 83279028       |
|                                                                                                                 | I              | X1S        | 83270038     | 83271038     | 83272038    | 83274038    | 83278038       | 83279038       |
|                                                                                                                 | I              | X2A        | 83270048     | 83271048     | 83272048    | 83274048    | 83278048       | 83279048       |
|                                                                                                                 | I              | X3A        | 83270068     | 83271068     | 83272068    | 83274068    | 83278068       | 83279068       |
|                                                                                                                 | I              | W7S        | 83270088     | 83271088     | 83272088    | 83274088    | 83278088       | 83279088       |
|                                                                                                                 | R              | W2         | 83270608     | 83271608     | 83272608    | 83274608    | 83278608       | 83279608       |
|                                                                                                                 | R              | W7A5       | 83270618     | 83271618     | 83272618    | 83274618    | 83278618       | 83279618       |
|                                                                                                                 | C              | W2         | 83270808     | 83271808     | 83272808    | 83274808    | 83278808       | 83279808       |
|                                                                                                                 | C              | W7A5       | 83270818     | 83271818     | 83272818    | 83274818    | 83278818       | 83279818       |

| Function |                 | Connection |                                    |
|----------|-----------------|------------|------------------------------------|
| I        | Changeover      | W2         | solder                             |
| R        | Normally closed | W7A5       | for 2.8 mm clips                   |
| C        | Normally open   | W7S        | symmetrical for 2.8 x 0.5 mm clips |
|          |                 | X1A        | straight for PCB                   |
|          |                 | X1S        | symmetrical straight for PCB       |
|          |                 | X2A        | rear side for PCB                  |
|          |                 | X3A        | front side for PCB                 |



Mushroom head button

|           |          |            | Rating / Force | 10 A / 1.5 N | 12 A / 1.5 N | 5 A / 1.5 N | 5 A / 0.5 N | 0.05 A / 1.5 N | 0.05 A / 0.5 N |
|-----------|----------|------------|----------------|--------------|--------------|-------------|-------------|----------------|----------------|
|           |          |            | Type           | 83270        | 83271        | 83272       | 83274       | 83278          | 83279          |
| Actuators | Function | Connection |                |              |              |             |             |                |                |
|           | I        | W2         |                | 83270009     | 83271009     | 83272009    | 83274009    | 83278009       | 83279009       |
|           | I        | W7A5       |                | 83270019     | 83271019     | 83272019    | 83274019    | 83278019       | 83279019       |
|           | I        | X1A        |                | 83270029     | 83271029     | 83272029    | 83274029    | 83278029       | 83279029       |
|           | I        | X1S        |                | 83270039     | 83271039     | 83272039    | 83274039    | 83278039       | 83279039       |
|           | I        | X2A        |                | 83270049     | 83271049     | 83272049    | 83274049    | 83278049       | 83279049       |
|           | I        | X3A        |                | 83270069     | 83271069     | 83272069    | 83274069    | 83278069       | 83279069       |
|           | I        | W7S        |                | 83270089     | 83271089     | 83272089    | 83274089    | 83278089       | 83279089       |
|           | R        | W2         |                | 83270609     | 83271609     | 83272609    | 83274609    | 83278609       | 83279609       |
|           | R        | W7A5       |                | 83270619     | 83271619     | 83272619    | 83274619    | 83278619       | 83279619       |
|           | C        | W2         |                | 83270809     | 83271809     | 83272809    | 83274809    | 83278809       | 83279809       |
|           | C        | W7A5       |                | 83270819     | 83271819     | 83272819    | 83274819    | 83278819       | 83279819       |

| Function |                 | Connection |                                    |
|----------|-----------------|------------|------------------------------------|
| I        | Changeover      | W2         | solder                             |
| R        | Normally closed | W7A5       | for 2.8 mm clips                   |
| C        | Normally open   | W7S        | symmetrical for 2.8 x 0.5 mm clips |
|          |                 | X1A        | straight for PCB                   |
|          |                 | X1S        | symmetrical straight for PCB       |
|          |                 | X2A        | rear side for PCB                  |
|          |                 | X3A        | front side for PCB                 |



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