

Documentation

about
limit switch boxes 4 - 6 switches
 with
mechanical 4 - 250 V AC/DC switches
 for
pneumatic rotary actuators



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1. Objectives and practical use

The positions of industrial valves represent an important piece of information for the course of action of a production. These valves are actuated with pneumatic rotary actuators which the end position of the valve like **OPEN** and **CLOSED** or for example **45°** is reported back to a control system. This is done via mounted a limit switch box which is placed at the actuator, see images 1-7.

With this special limit switch boxes you can save for example Position "OPEN" Multiple.



Image 1+2: left: 6x mechanical 4 - 250 V AC/DC Crouzet switches for any positions **S1-S6**, right: 4x mechanical 4 - 250 V AC/DC Crouzet switches for any positions **S1-S4**

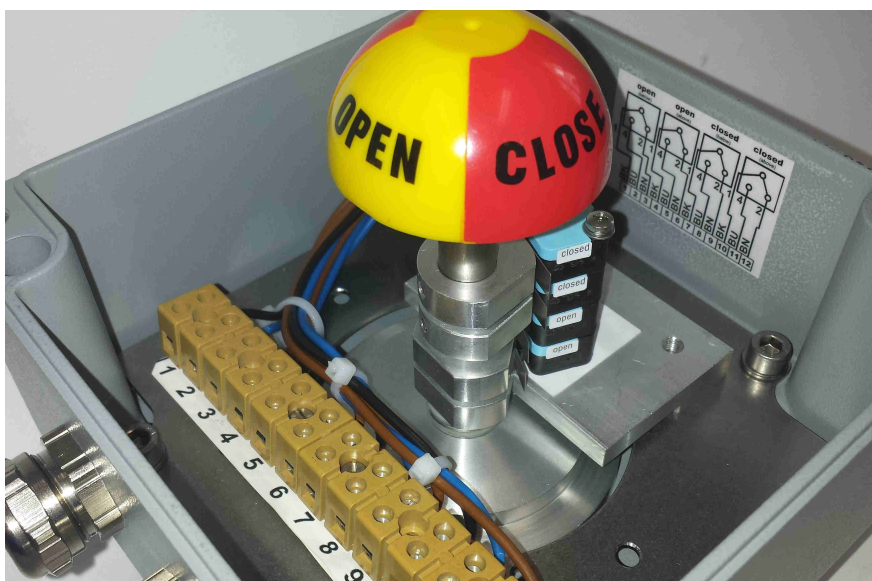


Image 3: 4x mechanical 4 - 250 V AC/DC Crouzet switches for 2x position **OPEN** and 2x position **CLOSE**



Image 4: 3D-aluminium limit switch box, 160x160x90mm for pneumatic actuators acc. to VDI/VDE 3845



Image 5+6: Aluminium and polyester limit switch box, 220x120x90mm for pneumatic actuators acc. to VDI/VDE



Image 7: Aluminium limit switch box, 260x160x90mm for pneumatic actuators acc. to VDI/VDE

2. Technical specification

- aluminium housing grey, size.: 160x160x90mm, 220x120x90mm or 260x160x90mm, polyester housing black. size.: 160x160x90mm or 220x120x90mm, closed top or top with 3D indicator
- 3 - 6x mechanical Crouzet switches with silver plated contacts, Typ.: 83161.338, changer, $U = 4 - 250 \text{ V}$, $I_{\text{max}} = 16 \text{ A}$ (250 V AC), $I_{\text{max}} = 5 \text{ A}$ (24 V DC), more details check 6., page 6
- option: 3 - 6x mechanical Crouzet switches with gold plated contacts, Typ.: 83161.806, changer, $U_{\text{max}} = 30 \text{ V AC}$, $I_{\text{max}} = 5 \text{ A AC}$, $U_{\text{max}} = 4 \text{ V DC}$, $I_{\text{min}} = 1 \text{ mA DC}$, more details check 6., page 6
- 9 - 18 pole clamp, wiring diagram
- 1 - 4x cable gland M20x1,5mm: plastic grey or black, $\varnothing 12-6,5\text{mm}$, metal MS-coated, $\varnothing 13-9\text{mm}$,
- 3 - 6x adjustable switching contacts for position $0^\circ - 360^\circ$
- stainless steel shaft with O-ring, $\varnothing 12\text{mm}$, 1.4301-ground plate with aluminium plate for switches
- protection class: IP 65
- stainless steel brackets for pneumatic actuators acc. to VDI/VDE 3845
- temperature range limit switch boxes: $- 20^\circ\text{C}$ up to $+70^\circ\text{C}$

3. Mounting on the actuator

3.1 Mechanical mounting: The limit switch boxes with the mounted bracket are placed on the actuator and screwed together.

3.2 Electrical mounting: The limit switch boxes are electrically mounted to the 9-18 pole connection clamp within the housing through the bush and cable entry points tightening torque as follow.

Plastic cable glands: M20x1,5mm = 5 Nm tightening torque.

Metal cable glands: M20x1,5mm = 10 Nm tightening torque.

Metal parts have to be grounded or the metal housing has to be connected to the equipotential bonding.

4. Connection the limit switches and adjusting the switching contacts

During the cable gland, limit switches will be connected. Acc. Images 8-11 limit switches will be connected. The wiring diagram is always fixed in the housing.

The aluminium switching contacts are adjustable. With the hexagon socket screw M4, SW 2mm in the switching contacts tighten.

5. Wiring diagrams

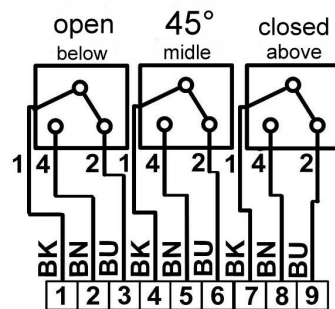


Image 8: Wiring diagram for 3x switches

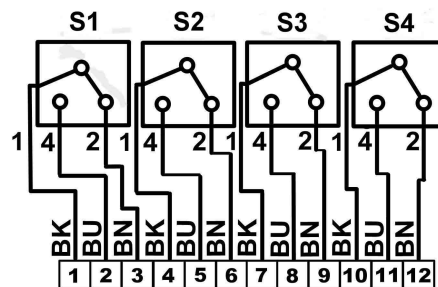


Image 9: Wiring diagram acc. to image 2

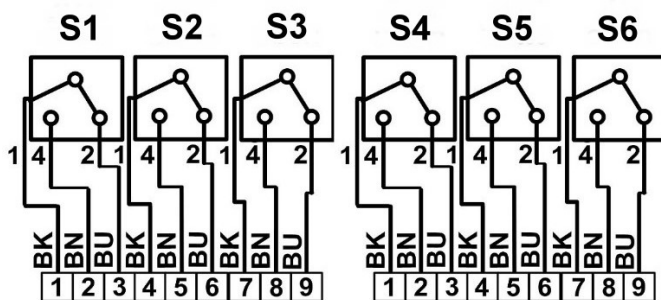


Image 10: Wiring diagram acc. to image 1

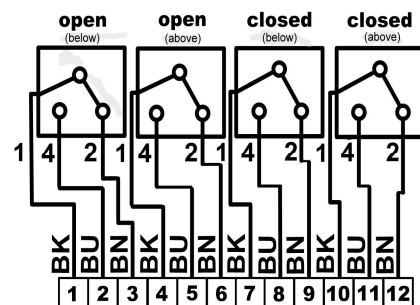
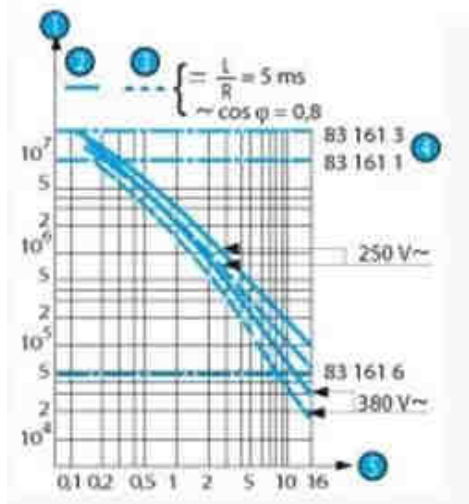


Image 11: Wiring diagram acc. to image 3+4

6. Operating curves limit switches

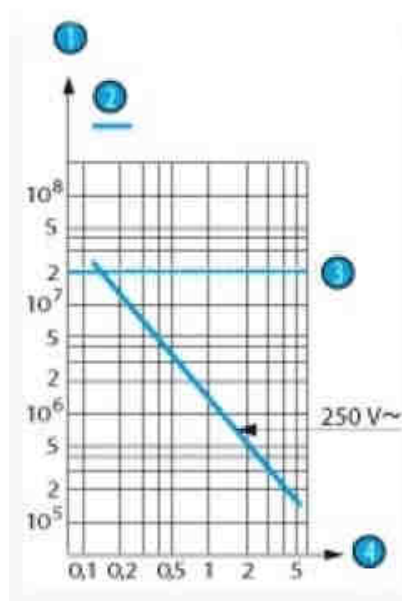
Operating curve switch type 83161.338



Legend:

- 1 = Number of cycles
- 2 = Resistive circuit
- 3 = Inductive circuit
- 4 = Mechanical life limit
- 5 = Current in Amps

Operating curve switch type 83161.806

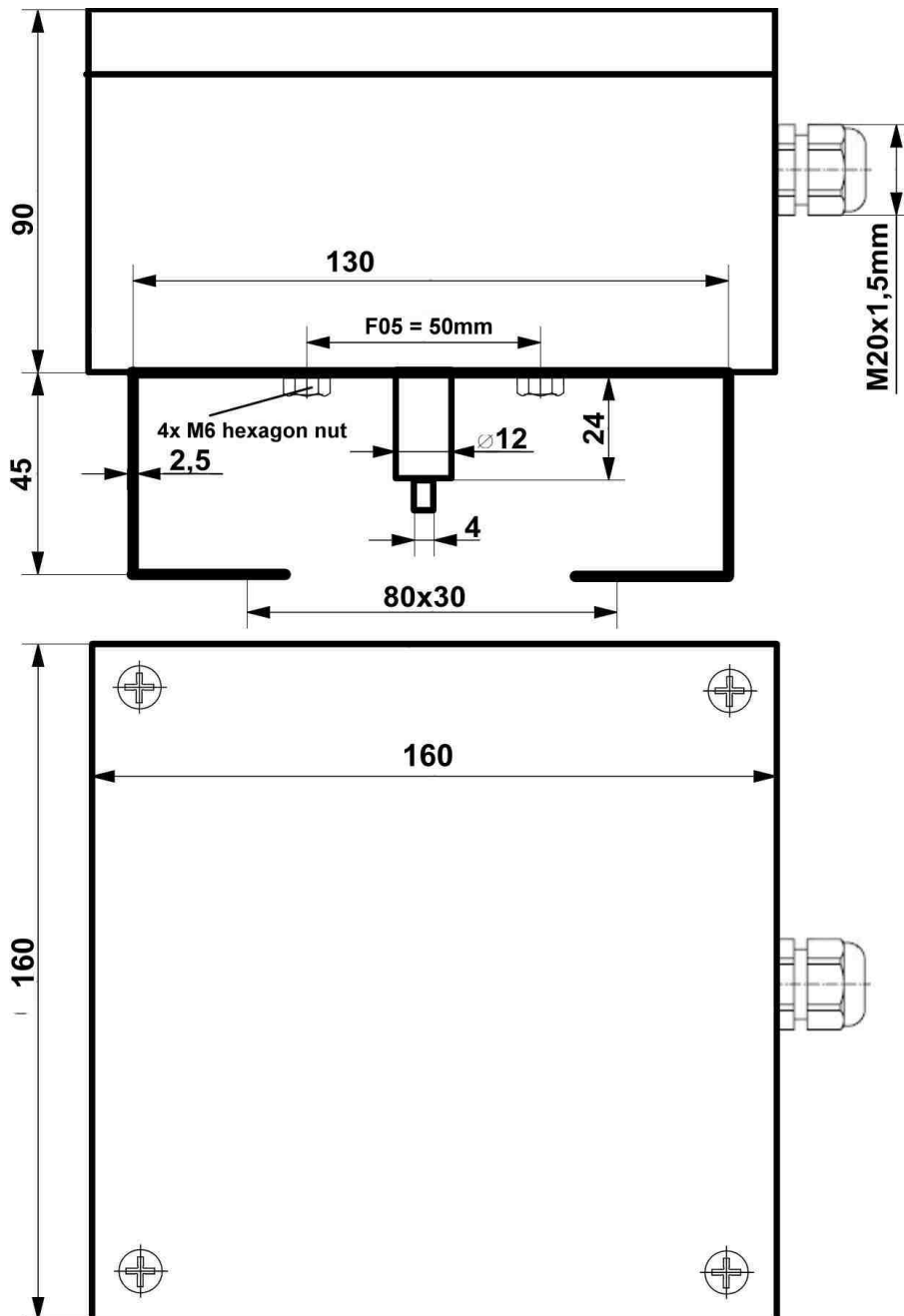


Legend:

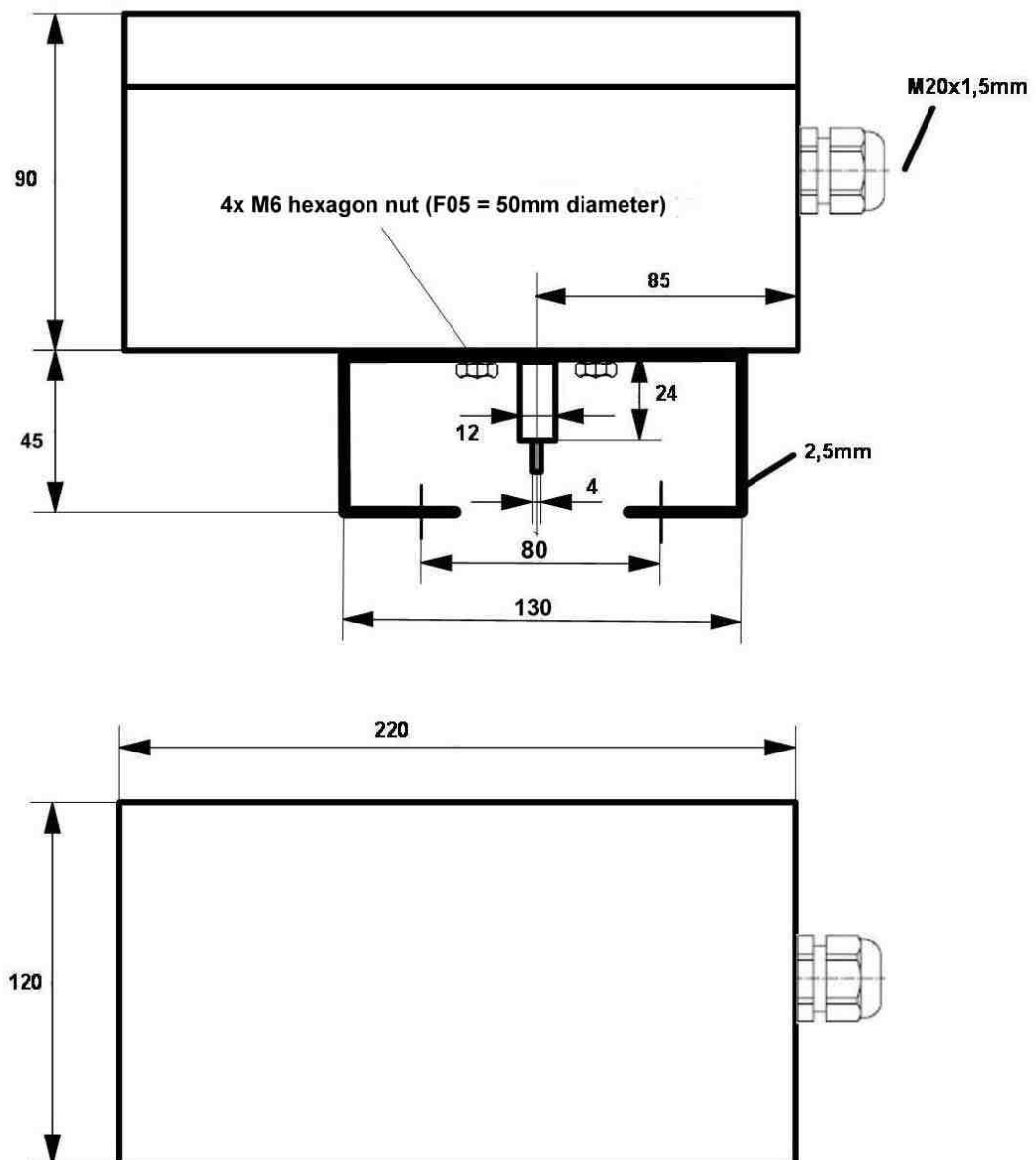
- 1 = Number of cycles
- 2 = Resistive circuit
- 3 = Mechanical life limit
- 4 = Current in Amps

7. Drawings limit switch boxes

Drawing from polyester- and aluminium limit switch boxes for pneumatic rotary actuators



Drawing from polyester- and aluminium limit switch boxes for pneumatic rotary actuators



8. Brackets limit switch boxes

stainless steel brackets size 1 - 4 for limit switch boxes, rotary actuators

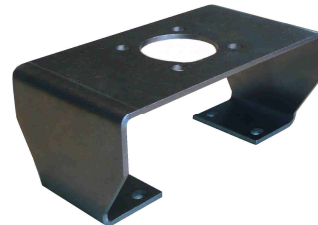
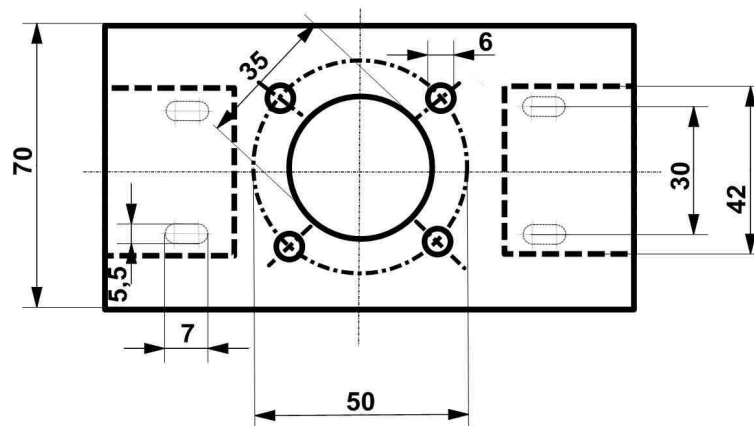
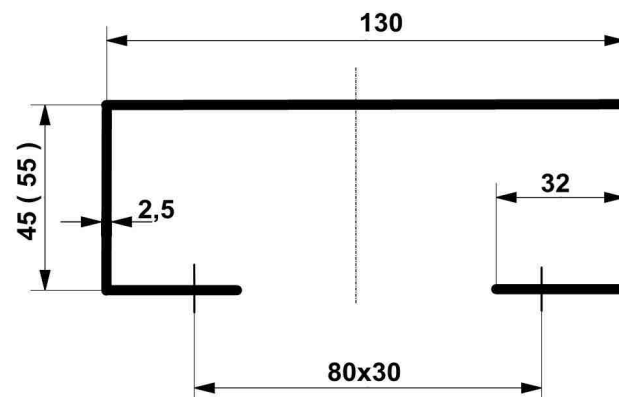


image.: brackets size 1 - 2 for actuators acc. to VDI/VDE 3845, steam height 20mm and 30mm, hole spacing 80x30mm

dimensions: without () = bracket size 1 () = bracket size 2

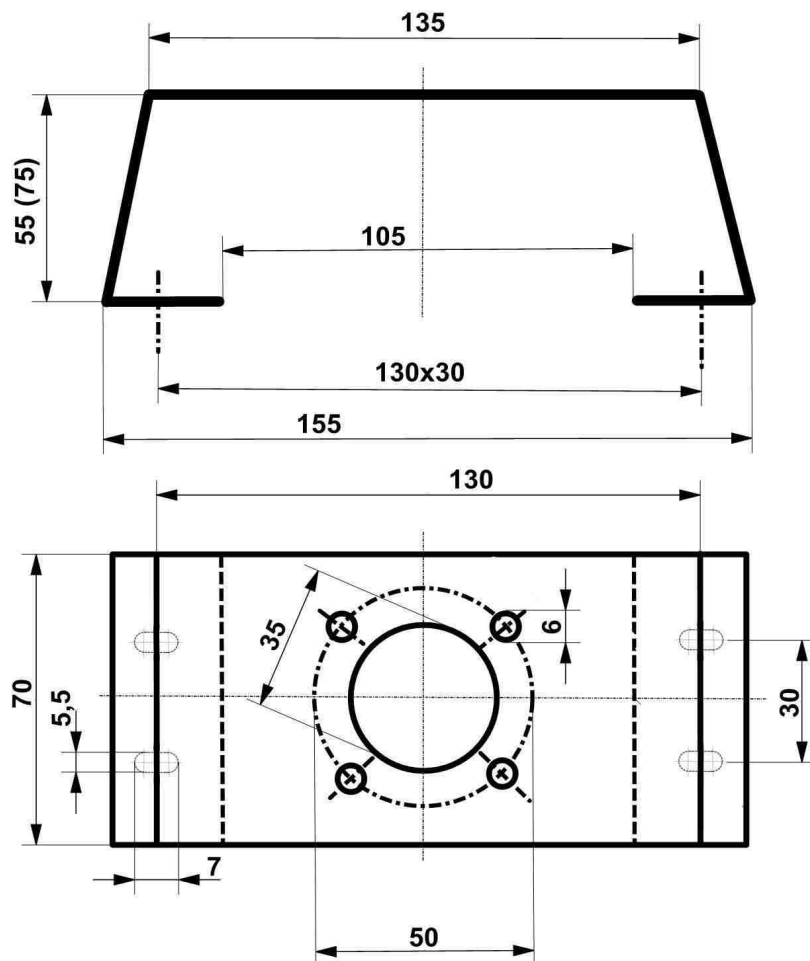


material = Aisi 304



image.: brackets size 3 - 4 for actuators acc. to VDI/VDE 3845, steam high 30mm and 50mm, hole spacing 130x30mm

dimensions: without () = bracket size 3 () = bracket size 4



material = Aisi 304