

Proportional Pressure-Reducing Valve for Hydraulics

13

Product group

VR 030

Function

- 3/2 NC
- Proportional relationship between magnetic current and control pressure
- Constant operating pressure across the flow range
- Tank pressure (armature chamber): 30 bar
- Low hysteresis due to precise armature mounting
- Quick response times

Construction

- Compact design
- Fastening via flange fastening
- Electrical connection and protection rating:
 - AMP-Junior-Timer
 - DIN EN 60529/VDE 0470-1 IP65
 - Deutsch DT04-2P
 - DIN EN 60529/VDE 0470-1: IP6K6
 - ISO 20653: IPX9K

Application examples

- In particular proportional actuator in hydraulic control chains and control loops

Options and accessories on request

- Filter at pump connection
- Further max. control pressures
- Models with reduced leakage and reduced hysteresis
- Falling control curve
- Other flow rates
- Further electrical connections
- Manual emergency stop



Fig. 1: Type VR 030 AA 035 V20/V22



Fig. 2: Type VR 030 AA 080 V01

Technical data


| VR 030 AA 035 | V20 | V21 | V22 | V23 |
|--|---|------------------------|---------------------|------------------------|
| Hydraulic data | | | | |
| Control pressure (bar) | 28,5 | | 22,5 | |
| Input pressure (bar) | max. 50 | | | |
| Tank pressure static (armature chamber) (bar) | max. 30 | | | |
| Tolerance band for pressure control characteristic curve as delivered from the factory (applies for horizontal installation position and for lower characteristic curve) | | | | |
| $I_1 = 0,6 \text{ A (12 V)}$; $I_1 = 0,3 \text{ A (24 V)}$ (bar) | $p = 5,75 \pm 1,75$ | | $p = 4,75 \pm 1,75$ | |
| $I_2 = 1,5 \text{ A (12 V)}$; $I_2 = 0,75 \text{ A (24 V)}$ (bar) | $p = 28,5 \pm 2,5$ | | $p = 22,5 \pm 2,5$ | |
| Flow P → A ($\Delta p=10 \text{ bar}$) (l/min) | ≥ 4 | | $\geq 4,5$ | |
| Flow A → T ($\Delta p=10 \text{ bar}$) (l/min) | ≥ 4 | | ≥ 5 | |
| Leakage P → T de-energised / energised (l/min) | $\leq 0,1$ (50° oil temperature) (reduced leakage on request) | | | |
| Hysteresis (PWM 100 Hz, new condition) | < 0,85 bar | $\leq 0,6 \text{ bar}$ | < 0,85 bar | $\leq 0,6 \text{ bar}$ |
| | reduced hysteresis available on request | | | |
| Medium | Hydraulic oil according to DIN 51524, ATF oil | | | |
| Oil temperature (°C) | -20 to +80 | | | |
| Oil pollution degree | 20 / 18 / 15 according to ISO 4406:1999 | | | |
| Elektrical data | | | | |
| Resistance (Ω) | 4,6 $\pm 6\%$ (12 V) / 19,5 $\pm 6\%$ (24 V) | | | |
| Limit current (A) | 1,5 (12 V) / 0,75 (24 V) | | | |
| Operating mode | S1 (100 %) | | | |
| Operating frequency PWM (Hz) | 100 | | | |
| Plug connector | AMP-Junior Timer | Deutsch DT04-2P | AMP-Junior Timer | Deutsch DT04-2P |
| Ambient temperature (°C) | -30 bis +80 | | | |

| VR 030 AA 080 | | V01 |
|--|--|---|
| Hydraulic data | | |
| Control pressure (bar) | | 32 |
| Input pressure (bar) | | max. 50 |
| Tank pressure static (armature chamber) (bar) | | max. 30 |
| Tolerance band for pressure control characteristic curve as delivered from the factory (applies for horizontal installation position and for lower characteristic curve) | | |
| $I_1 = 0,35 \text{ A (24 V)}$ (bar) | | $p = 6,25 \pm 2,75$ |
| $I_2 = 0,75 \text{ A (24 V)}$ (bar) | | $p = 32 \pm 3$ |
| Flow P → A ($\Delta p = 5 \text{ bar}$) (l/min) | | $\geq 9,5$ |
| Flow A → T ($\Delta p = 5 \text{ bar}$) (l/min) | | ≥ 10 |
| Leakage P → T de-energised / energised (l/min) | | $\leq 0,05$ de-energised / $\leq 0,3$ energised (50° oil temperature) |
| Hysteresis (PWM 150 Hz, new condition) | | $\leq 1 \text{ bar}$ |
| Medium | | Hydraulic oil according to DIN 51524, ATF oil |
| Oil temperature (°C) | | -20 to +80 |
| Oil pollution degree | | 20 / 18 / 15 according to ISO 4406:1999 |
| Mesh width filter (μm) | | 160 |
| Filter surface (mm^2) | | ≤ 160 |
| Elektrical data | | |
| Resistance (Ω) | | $19,5 \pm 6\%$ (24 V) |
| Limit current (A) | | 0,75 (24 V) |
| Operating mode | | S1 (100 %) |
| Operating frequency PWM (Hz) | | 150 |
| Plug connector | | Deutsch DT04-2P |
| Ambient temperature (°C) | | -30 bis +80 |

Rated voltage

The devices correspond to protection class III. Electrical equipment of protection class III may be only connected to low voltage systems (PELV, SELV)(IEC 60364-4-41).

Information and remarks concerning European directives can be taken from the correspondent information sheet which is available online Produktinfo.Magnet-Schultz.com.

Please make sure that the described devices are suitable for your application. Our offers for these devices are based on the assumption of maximal 8 in an FMEA severity table, i. e. in case of malfunction of the device model as offered, there is, amongst others, no jeopardy to life or limb. Supplementary information concerning its proper installation can be taken also from the  -Technical Explanation, the effective DIN VDE0580 as well as the relevant specifications.

This part list is a document for technically qualified personnel.

This publication is for information purposes only and is not to be regarded as a binding representation of the products, unless this is expressly confirmed by us.

Dimensional drawing

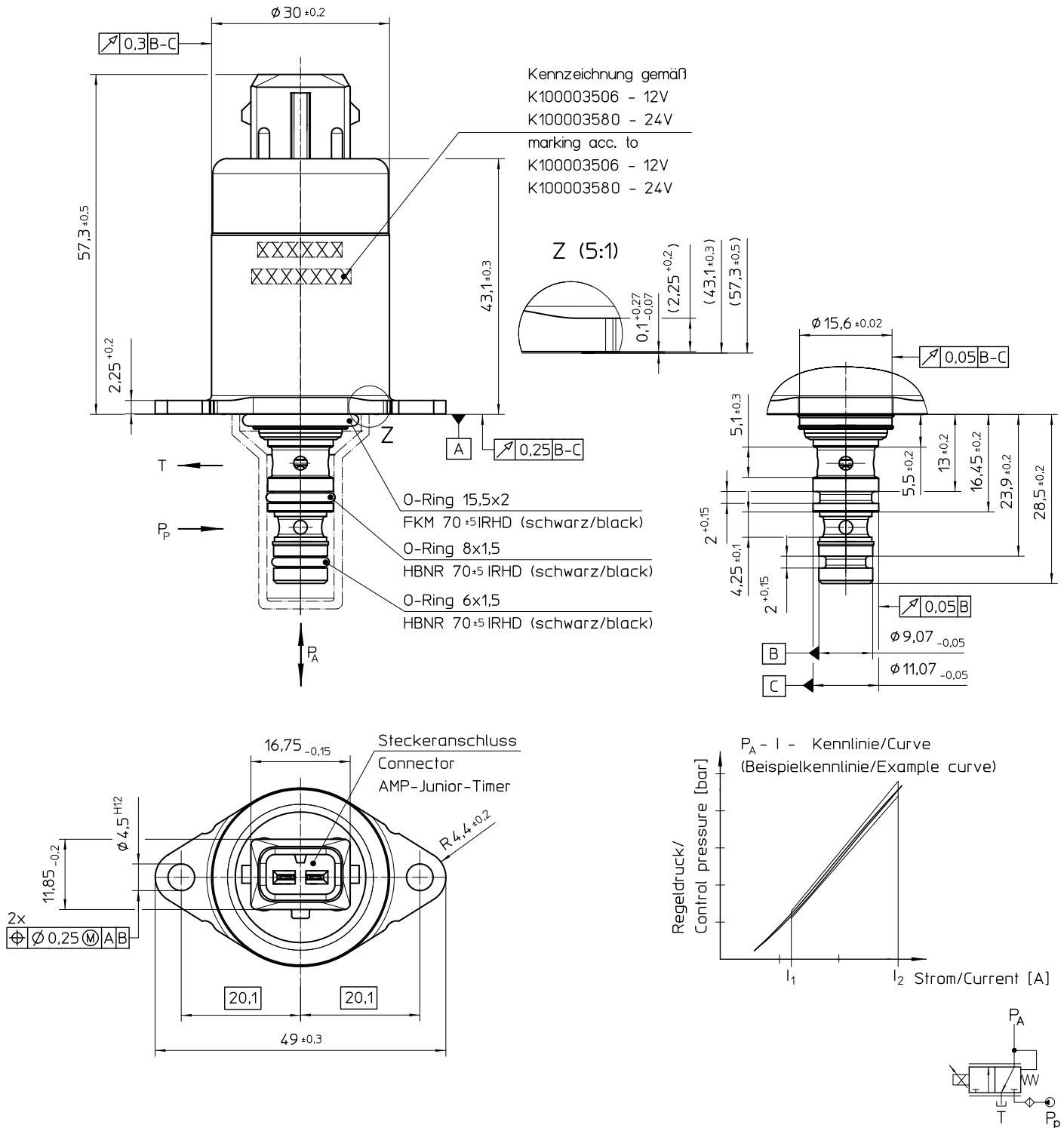


Fig. 3: Type VR 030 AA 035 V20 / V22

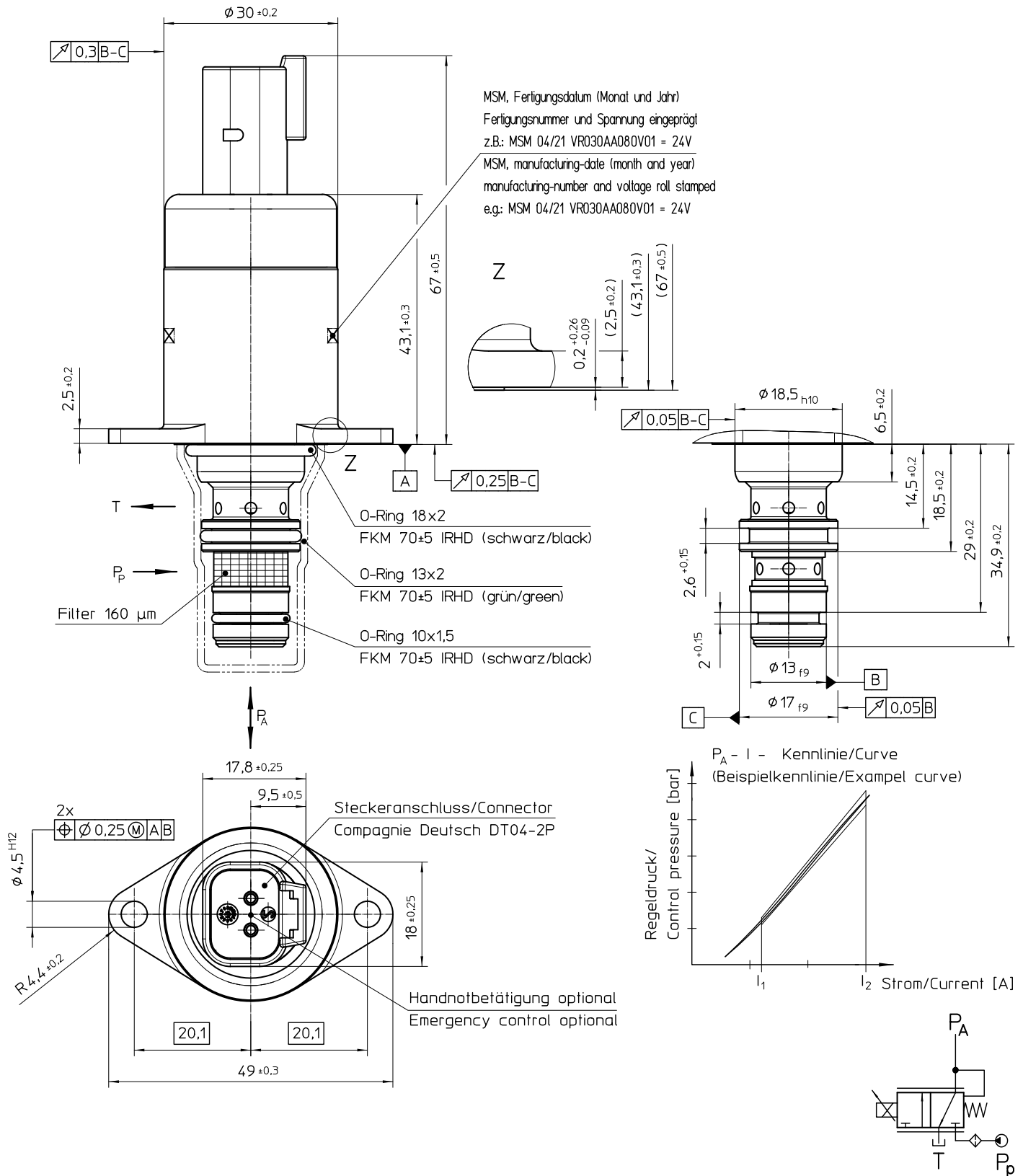


Fig. 5: Type VR 030 AA 080 V01

Recommended cavity

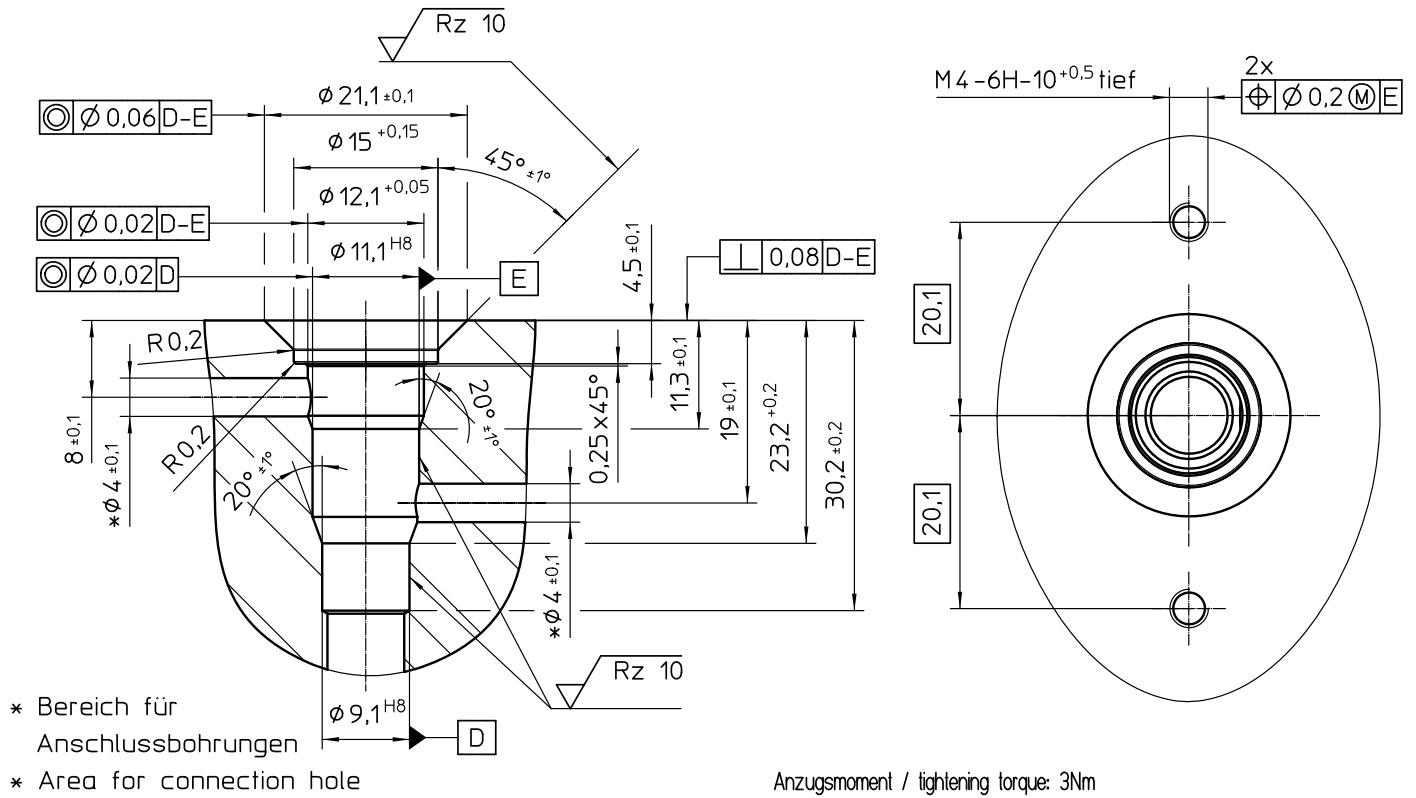


Fig. 6: Recommended cavity Type VR 030 AA 035 V20
Type VR 030 AA 035 V21
Type VR 030 AA 035 V22
Type VR 030 AA 035 V23

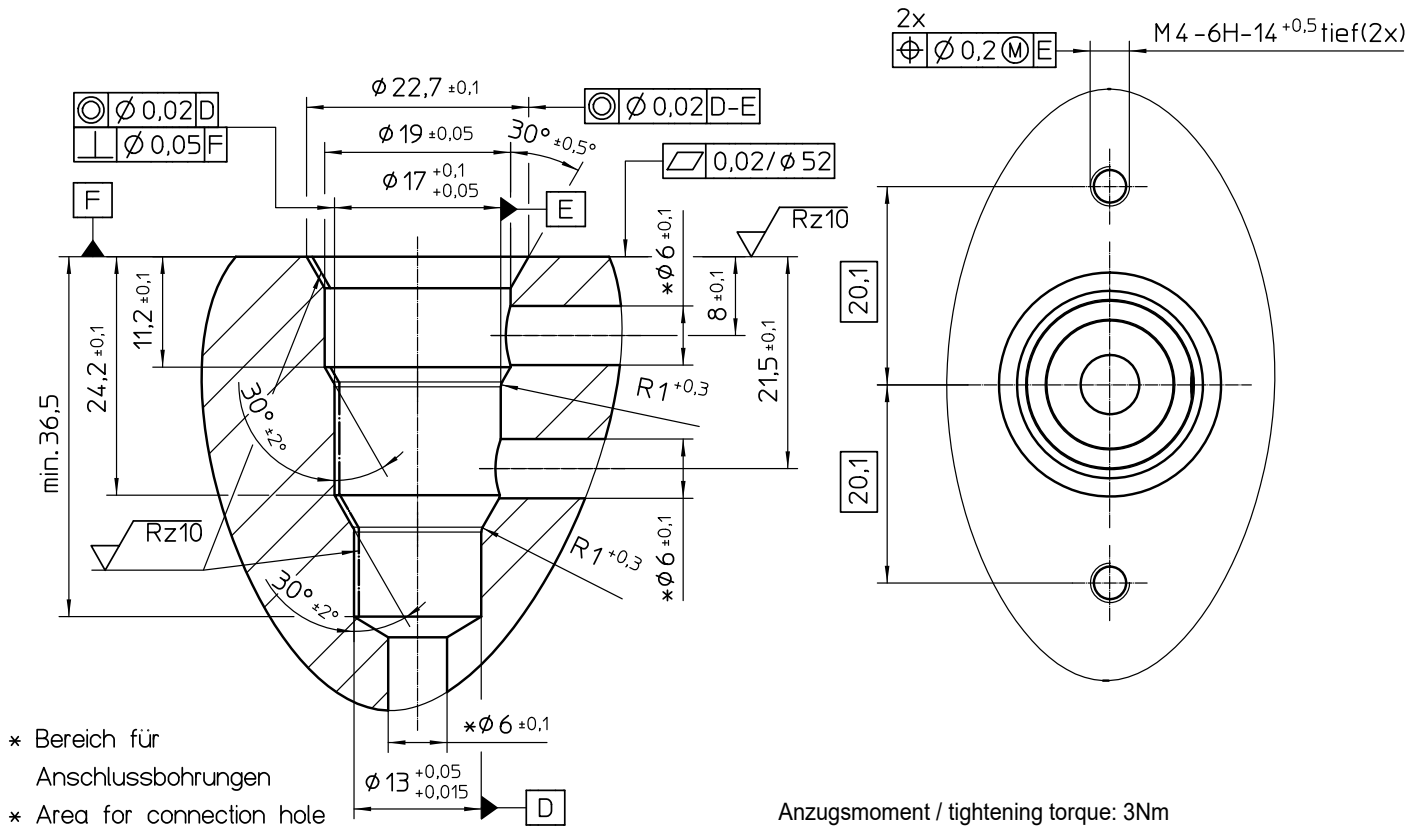


Fig. 7: Recommended cavity Type VR 030 AA 080 V01

Variants of electrical connection/Manual override

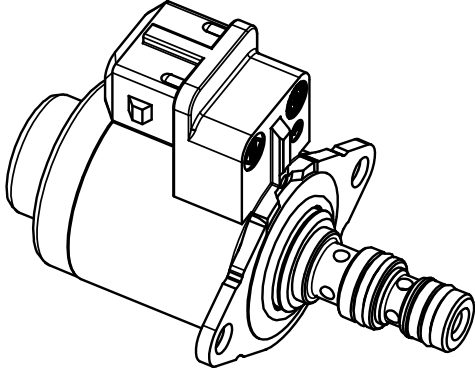


Fig. 8: axis-parallel plug

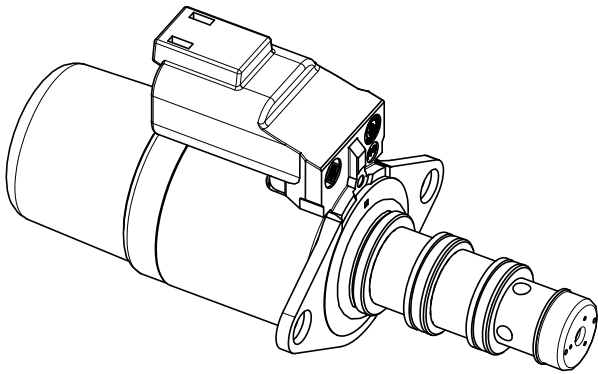


Fig. 9: Manual emergency stop