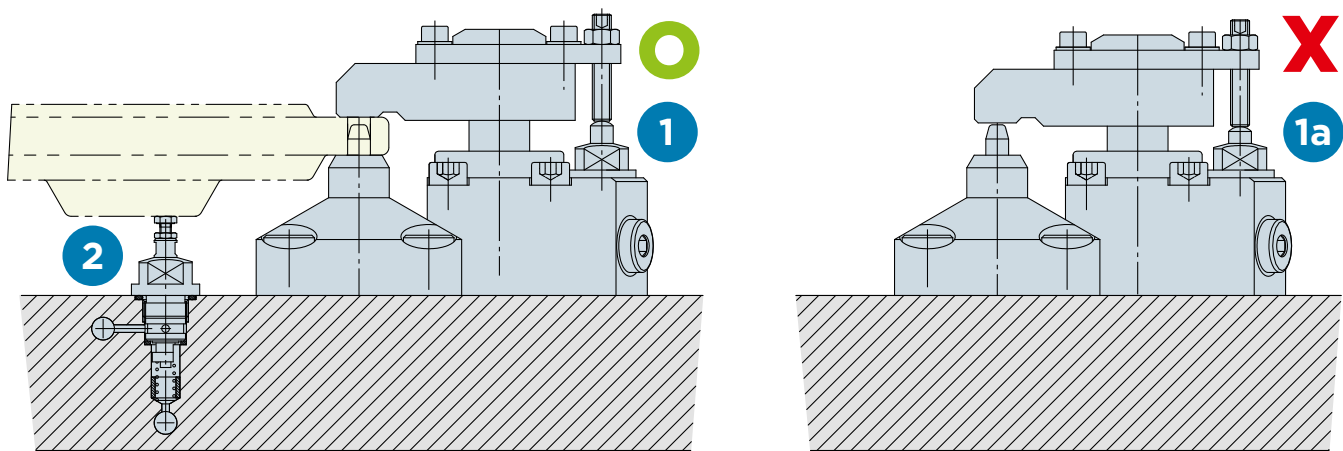
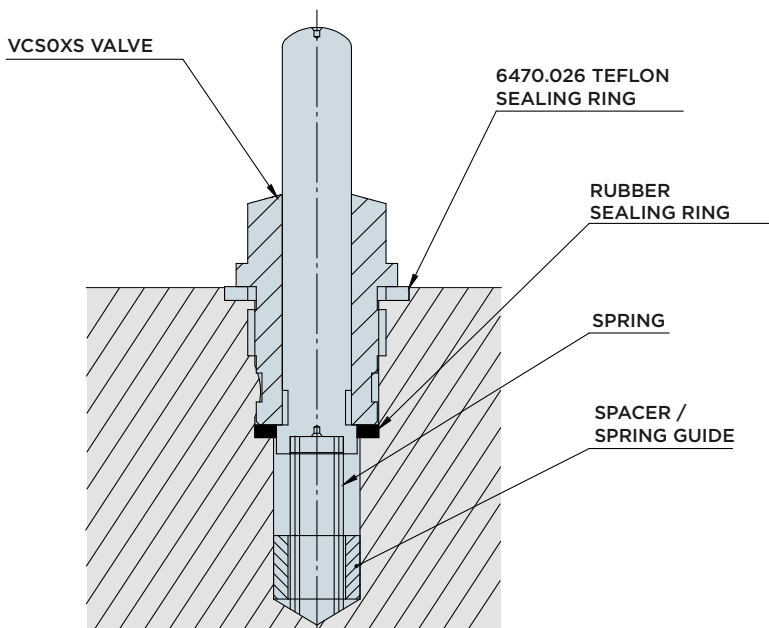


VCS VALVES

VCS valves can be used to control the clamp arm position (POSITION 1) or to detect the workpiece in machining position (VCS02, see item 2). When using the VCS03, VCS13 or VCS23 valve types for clamp arm position control, the workpiece can simultaneously be monitored. Valves of this design exhibit not only two positions (open/closed), but three positions (open/closed/open). Provided the valves are correctly adjusted, the **NOK** for machining of the pressure switch can also be maintained with the cylinders being closed and pressurized. If no workpiece is detected when the clamped cylinders reach the limit stops, the valves are opened again for the air flow, the pressurization of the line (**NOK** of the pressure switch) is prevented and the machining of the workpiece is not enabled (VCS03, see item 1a). This valve model comprises three signals: "Cylinder open", "Cylinder closed on workpiece" and "No workpiece in machining position".



REPLACEMENT OF THE VCS VALVE BY A VCSOXS VALVE



The VCS valve type was replaced by the VCSOXS type, where X refers to the valve model (see catalogue).

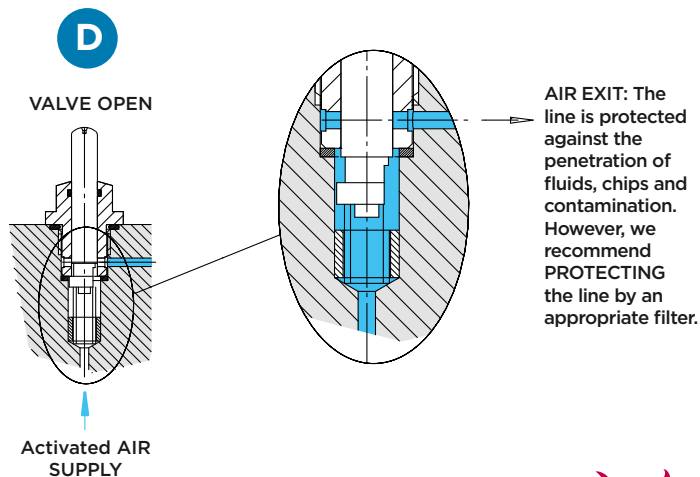
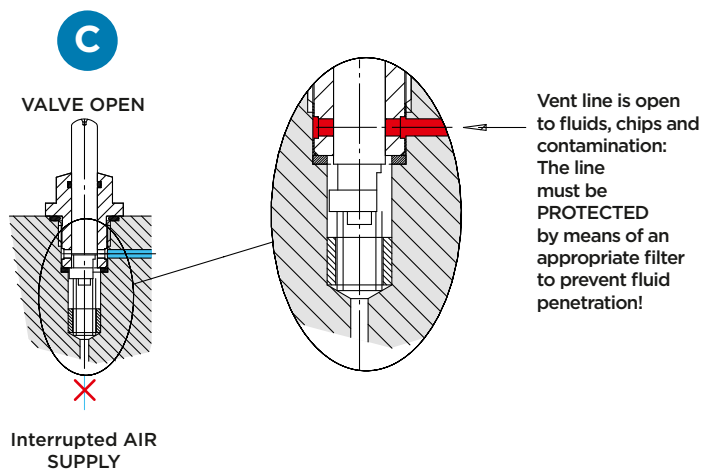
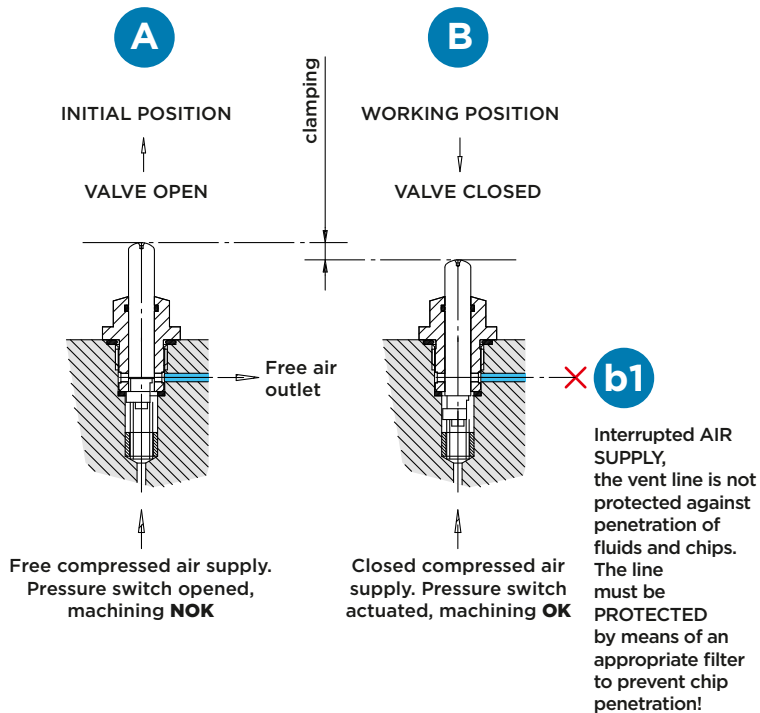
The VCSOXS valve has the same properties as the VSCO valve, but is designed with a smaller footprint.

THE NEW VALVE CAN BE INSTALLED IN THE OLD SEAT, ONLY THE 13X1.5 O-RING MUST BE REPLACED BY THE TEFLON SEALING RING 6470.026.



OPERATING PRINCIPLE OF VCS VALVES

VCS PNEUMATIC VALVES



The pneumatic valves of the VSC series of HYDROBLOCK are made from high-quality stainless steel and designed and built for operation under critical operating conditions.

All pneumatic valves of this series are equipped with an extension spring to prevent the bolt from sticking in the housing. The VCS valve bolt has a diameter of 6 mm, i.e. an area of 0.28 cm² is pressurized by compressed air and it generates a thrust force of approx. 8.5 kN with a monitoring line set to 3 bar. When using the VCS02 valve for workpiece detection, these forces must be taken into consideration: if the machined workpieces are extremely light, we recommend monitoring the workpiece in working position directly at the cylinder using the VCS03, VSC13 or VCS26 valve types.

During machining, the properly set valves in actuated and pressurized condition (closed) are protected against the penetration of chips and fluids. However, we still recommend maintaining the compressed air supply during the entire machining cycle (B).

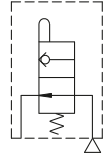
Note: The vent line of pneumatic valves **MUST** be protected against the penetration of chips. If any contamination of the working environment can get into the vent line, damage to the valves cannot be excluded (note b1). For the time the valve is open (open cylinders or no workpiece in machining position), the compressed air supply should be maintained in order to prevent fluids from penetrating into the valve chamber (D). Special attention is required with applications involving the use of cutting fluids as these fluids dry and tend to crystalize and to form a sticky film on the surface in the event of operation interruptions of the fixture. If the valves are not cleaned and lubricating fluids are not removed at the end of the machining process, the valve function is affected or the valves are completely blocked.



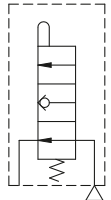
VCSS

CLAMP ARM/WORKPIECE POSITION CONTROL VALVE

VCS02S
VCS04S

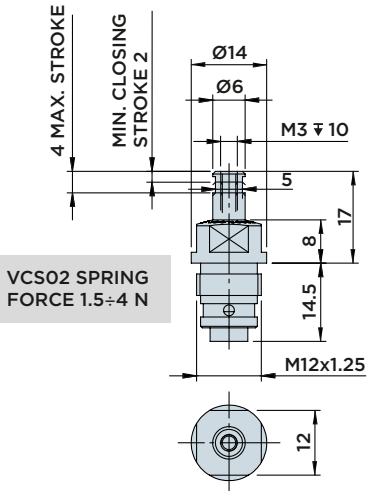


VCS03S



VCS02S

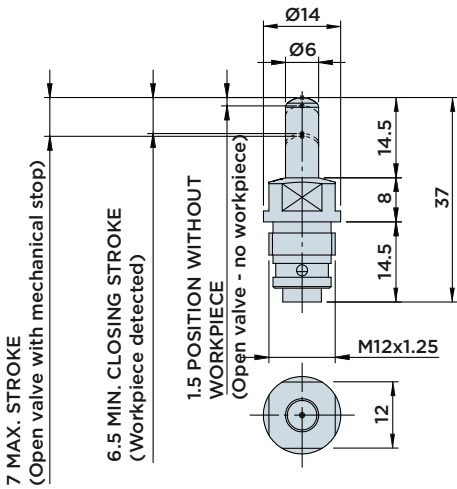
VALVE CLOSED FROM -1.5 TO -4



VCS02 SPRING FORCE 1.5 ÷ 4 N

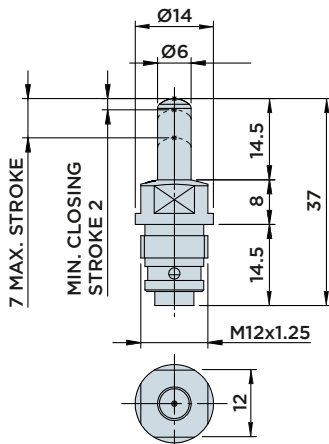
VCS03S

VALVE CLOSED FROM -1.5 TO -5



VCS04S

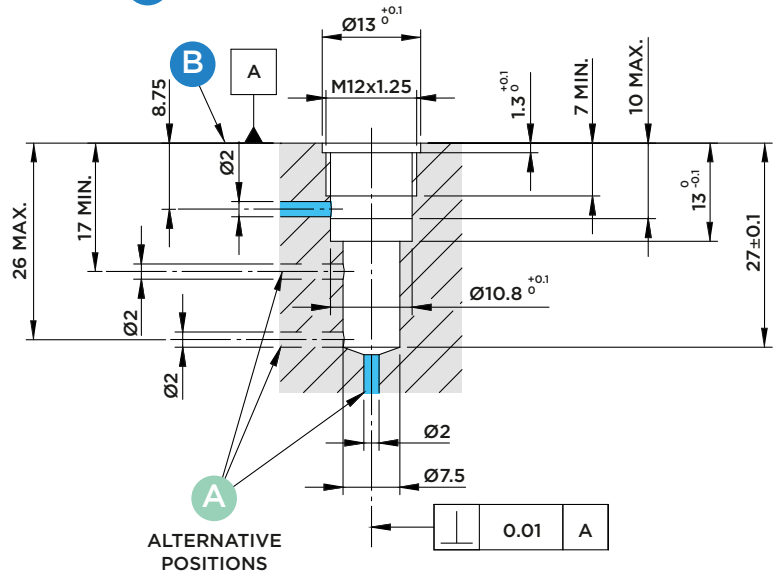
VALVE CLOSED FROM -1.5 TO -5



INSTALLATION DIMENSIONS

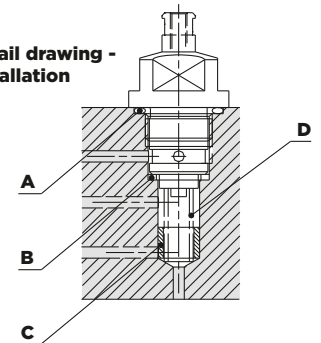
A : Air inlet

B : Air outlet



ALTERNATIVE POSITIONS

Detail drawing - installation



Included in the scope of supply:

- O-ring Ø 13x1.5, item "A"
- Washer, item "B"
- Spacer/spring guide, item "C"
- Spring, item "D"

Material:

- Rod: Stainless steel, tempered and lapped
- Valve body: Stainless steel, tempered and lapped

Order numbers - VCS

- 02: Valve for clamp arm position control with thread M3.
- 03: Valve for workpiece position control with workpiece not loaded/loaded alarm.
- 04: Valve for position control for clamp arms made of tempered steel.

Note:

- For installation and adjustment see from page 43 to page 46.
- To prevent damage to the equipment, the specified maximum valve stroke must not be exceeded.
- We recommend using the CPV01 valve protection cartridge.

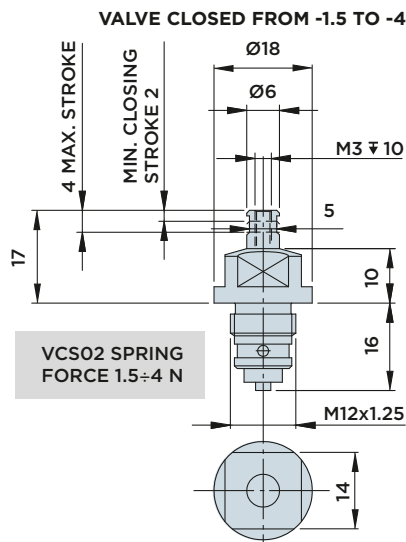


HYDROBLOCK

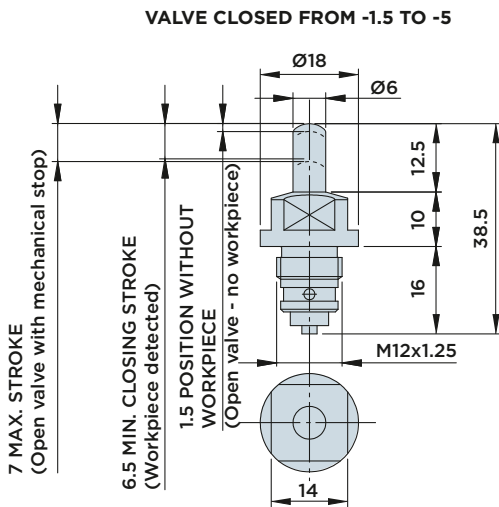
VCS0

CLAMP ARM/WORKPIECE POSITION CONTROL VALVE

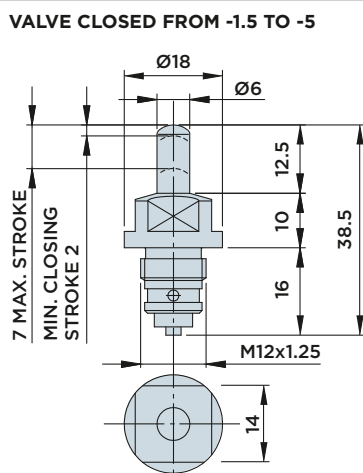
VCS02



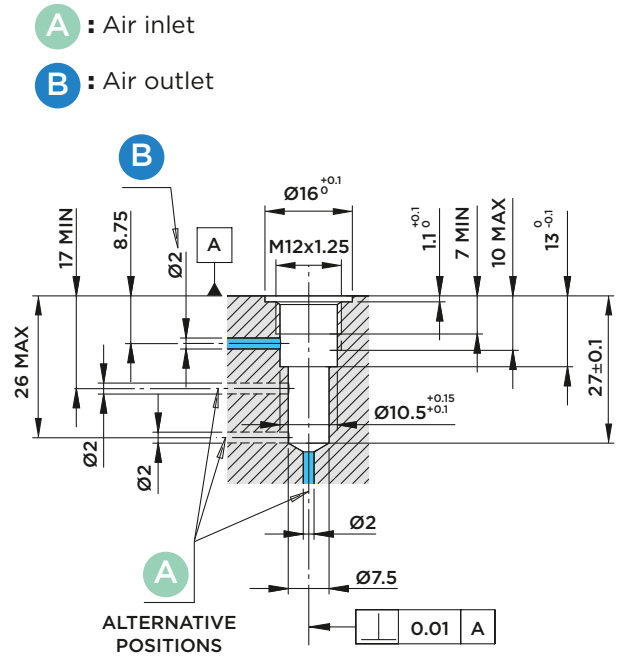
VCS03



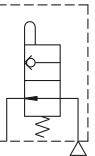
VCS04 (EX COD. VCS01)



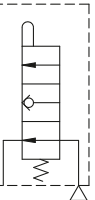
INSTALLATION DIMENSIONS



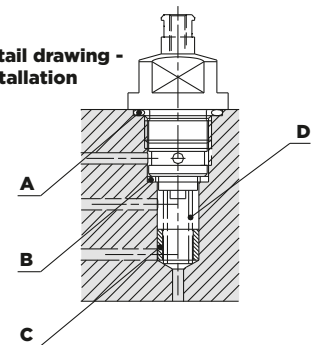
VCS02 VCS04



VCS03



Detail drawing - installation



Included in the scope of supply:

- O-ring Ø 13x1.5, item "A"
- Washer, item "B"
- Spacer/spring guide, item "C"
- Spring, item "D"

Material:

- Rod: Stainless steel, tempered and lapped
- Valve body: Stainless steel, tempered and lapped

Order numbers - VCS

- 02: Valve for clamp arm position control with thread M3.
- 03: Valve for workpiece position control with workpiece not loaded/loaded alarm.
- 04: Valve for position control for clamp arms made of tempered steel.

Note:

- For installation and adjustment see from page 43 to page 46.
- To prevent damage to the equipment, the specified maximum valve stroke must not be exceeded.
- We recommend using the CPV01 valve protection cartridge.

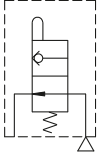


HYDROBLOCK

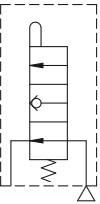
VCS1 - VCS2

CLAMP ARM/WORKPIECE POSITION CONTROL VALVE

VCS10

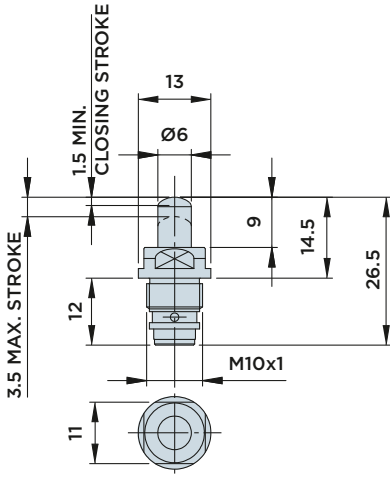


VCS13 VCS23



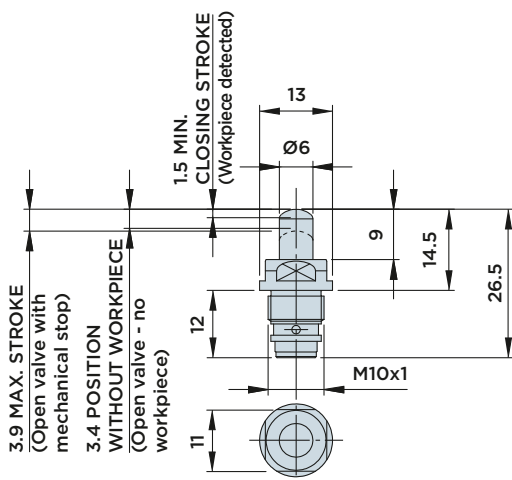
VCS10

VALVE CLOSED FROM -1.5 TO -2.5



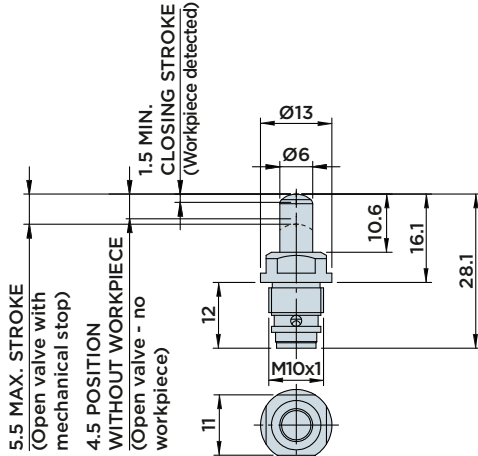
VCS13

VALVE CLOSED FROM -1.5 TO -2.5



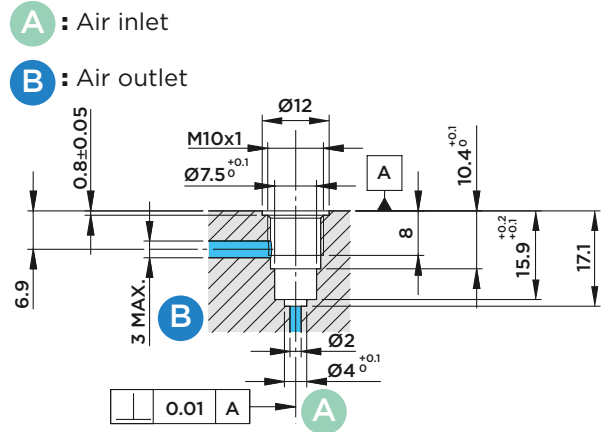
VCS23

VALVE CLOSED FROM -1.5 TO -4



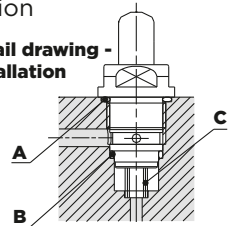
INSTALLATION DIMENSIONS

VCS10 - VCS13



The simple and compact VCS cartridge valve is especially designed to be incorporated into HYDROBLOCK cylinders. Combined with SR swing clamp cylinders it checks the position of the clamp arm. In addition, it is used for workpiece position monitoring in automated production processes.

Detail drawing - installation



Included in the scope of supply:

- O-ring $\varnothing 9 \times 1$, item "A"
- O-ring $\varnothing 7 \times 1$, item "B"
- Spring, item "C"

Material:

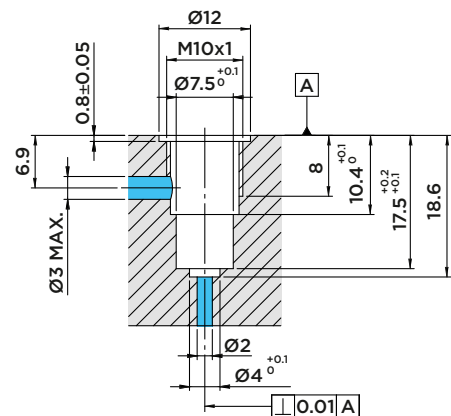
- Rod: Stainless steel, tempered and lapped.
- Valve body: Stainless steel, tempered and lapped.

Note:

- For installation and adjustment see from page 43 to page 46.
- To prevent damage to the equipment, the specified maximum valve stroke must not be exceeded.
- We recommend using the CPV01 valve protection cartridge.

INSTALLATION DIMENSIONS

VCS23



HYDROBLOCK