



Technical Specification 7065 – 500 mm

V2.0



Classification	Open
Category	MP20
Area of responsibility	Administration
Document owner	Production Manager



Document history

Version	Date	Author	Changes
V1.0	26.10.2021	S. Lüttich	Initial Version Astyx MPS GmbH
V2.0	17.01.2025	S. Lüttich	New IZ drawings and glands on the FPH

Company history

The company Astyx GmbH has been sold February 2021 to GM Cruise. The microwave positioning sensor division has been carved out from Astyx GmbH and all products and services are now being provided by Astyx MPS GmbH in Germany and Verve Satcom Inc., our subsidiary in the United States.



Microwave sensor for 500 mm bore accumulators

ASTYX mark 7065

Continuous and absolute measurement system for use in cylinders filled with air or nitrogen. For use in hydraulic equipment.

Cylinder Bore	500 mm
Measuring range	up to 20 meters
Non-Linearity	typ. +/- 10 mm (calibrated at 6 bar, 20°C)
Non-Linearity	max. +/- 20 mm (calibrated at 6 bar, 20°C)
Measurement rate	> 125 Hz
Velocity	4 m/s max.
Operating voltage	20 ... 30 Vdc
Power	typical maximum 9 W absolute maximum 12 W
Customer interface	Profibus ID 10 and 11, pressure value has to be provided by AKER
Frequency band	530...585 MHz, < 5 mW, wave guided
Medium	air or nitrogen
Operating pressure	210 bar max.
Test pressure	≤ 315 bar
Vibration	10 Hz - 60 Hz with ± 0.35 mm, 1 oct/min, number of 5 cycles 60 Hz - 150 Hz with 5 g sine according IEC 68 part 2-6, 1 oct/min, number of 5 cycles
Shock	30 g, 11 ms half sine according IEC 68 part 2-27, number of 3 each direction 15 g, 6 ms half sine according IEC 68 part 2-29, number of 1000 each direction



Usage requires sensor to cylinder calibration by ASTYX MPS.

The Microwave Sensor may only be used with special designed cylinders released by ASTYX MPS.

Antenna module

The antenna module has to be installed properly to a cylinder according required mechanical interface description. To reduce the influence of liquid inside the measuring area, the piston requires a special designed cover plate. The antenna module is installed in a downward direction. For operation the Evaluation Box is needed.

Housing	Stainless steel AISI 316 / 1.4401
Antenna	Stainless steel AISI 316 / 1.4401
Dimensions	Ø130 x 183 mm
Weight	< 10 kg
IP class	IP67
Conformity	2014/34/EU (ATEX)

Explosion safety  0123  II 2G Ex ib IIB T4 Gb

Antenna Cable Huber & Suhner Enviroflex 142

Cable length to EV-Box 2,5m. Protect SMA cable against environmental impact for use under harsh conditions.

Recommended backside sealing (not delivered)

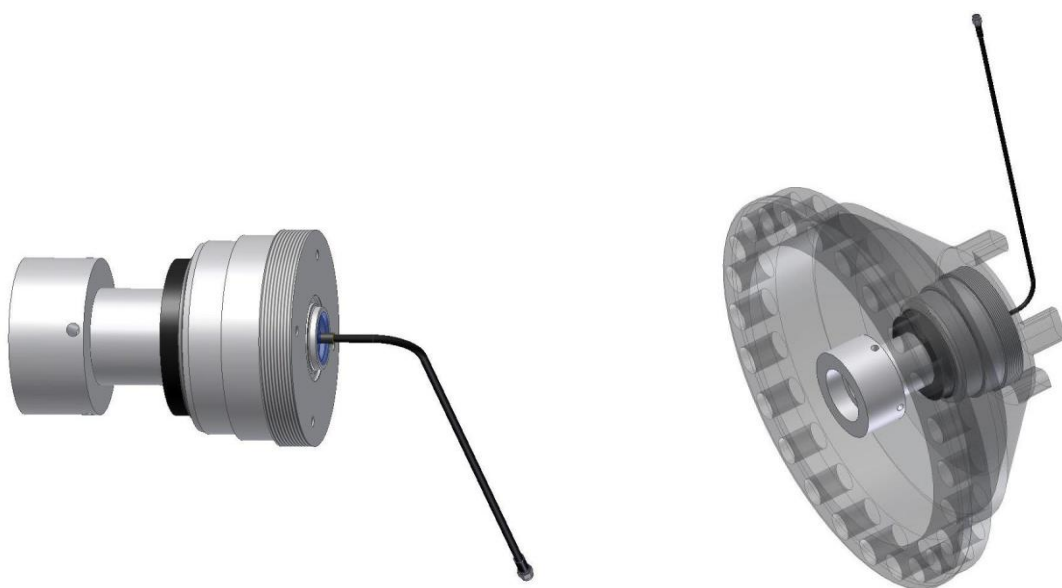
Axial: O-ring 42 mm x 3.53 mm, NBR 90 shore A lubricated, ISO 3601

Recommended mounting bolts (not delivered)

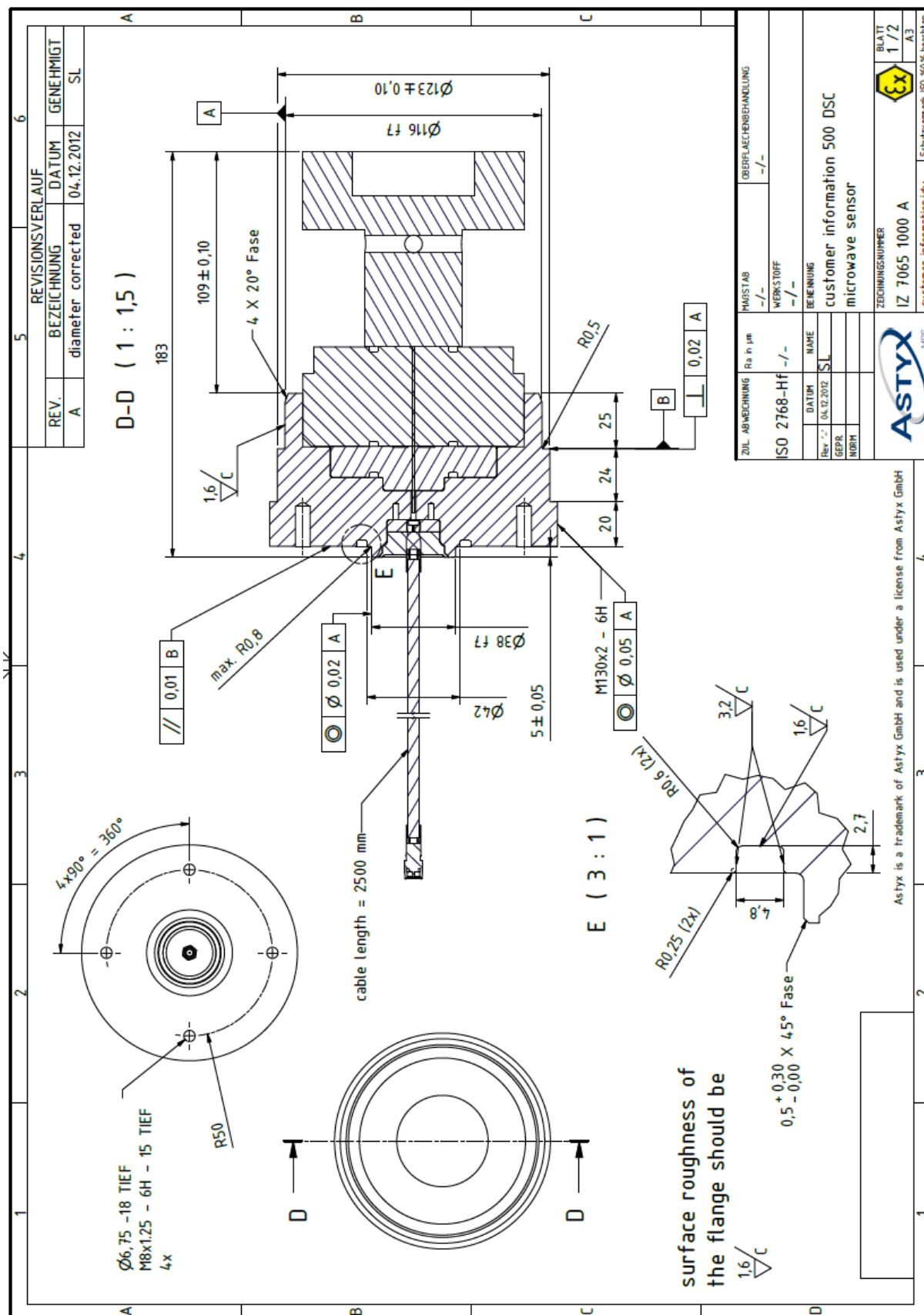
4xM8, DIN4762, A4-70 (stainless steel)

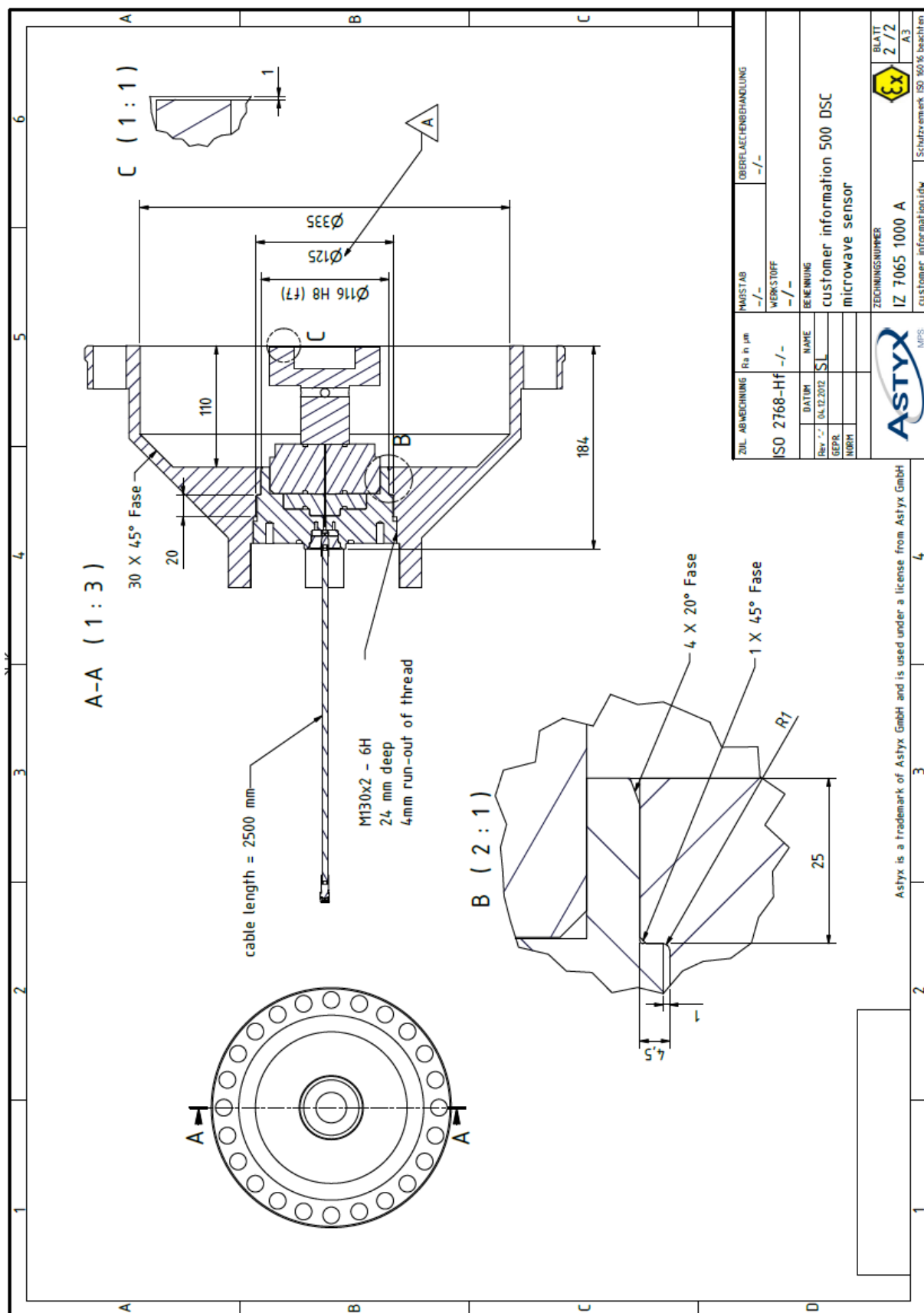
Electrical Interface see Manual

Regard to the manual for installation and operation “Operating manual MP03-MV Antenne 7065-500mm” for functional, safety and explosion safety reasons. Installation has to be in accordance to IEC/EN 60079-14.



Cylinder End Cap Requirements









Evaluation Box

The Evaluation Box operates together with an antenna module. It carries the software and device dependent calibration data. Device means a fix combination of antenna module, Evaluation Box and cylinder.

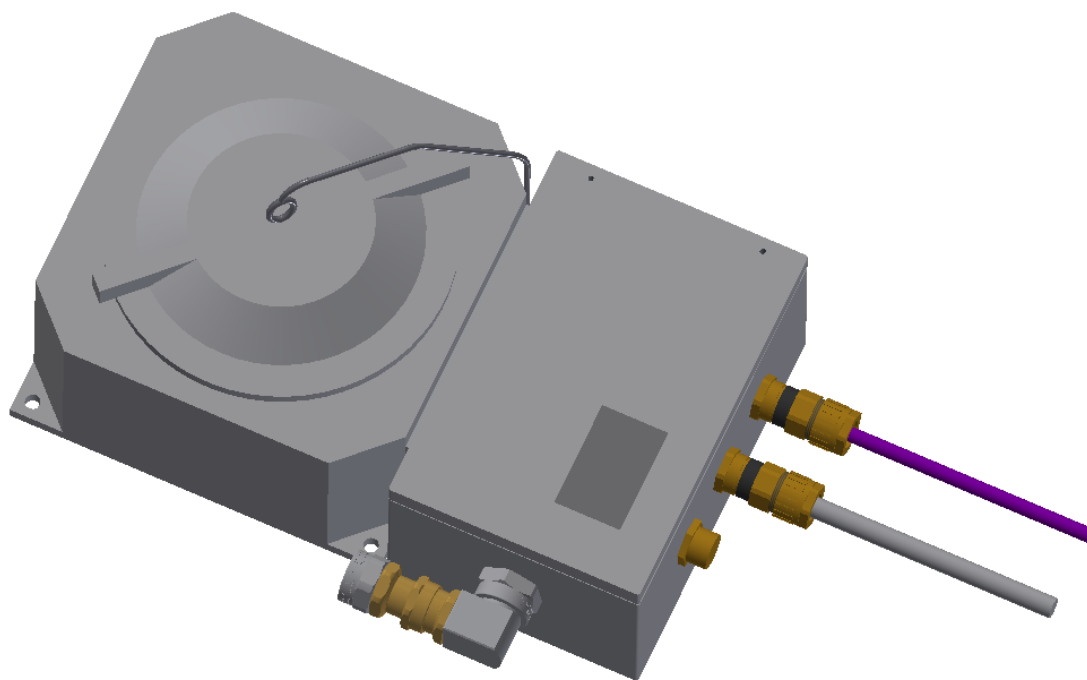
Housing	Stainless steel AISI 316L / 1.4404 Technor TNCD282815 Ex d enclosure Technor TNCN281915 Ex e connection enclosure
Power Gland	Hawke 501/453/Universal A M20
Recommended cable	DRA-1003 4pair 0.75 (not delivered)
Communication Gland	Hawke 501/453/Universal O M20
Recommended cable	LAP-1007 1pair (not delivered)
Drain Plug M20	
Antenna Cable Gland	Hawke SB474/B-M25-M25/S
Dimensions	280 mm x 470 mm x 150 mm
Weight	< 35 kg
IP class	IP66
EMC / EMI	Radiated Emission Electric Field, 30 MHz to 1 GHz, CISPR 11:2003/A2:2006
Build-in Electronic Box	Immunity to radiated electromagnetic fields, 80 MHz to 2,7 GHz 10 V/m, IEC 61000-4-3:2006 Immunity to electrostatic discharges, IEC 61000-4-2:1995 +A1:1998 +A2:2000 Immunity to electrical fast transients, IEC 61000-4-4:2004 Immunity to asymmetric RF, 150 kHz to 80 MHz
Conformity	2014/34/EU (ATEX)
Explosion safety	  II 2G Ex de IIC T6 Gb (Certificate: Dekra 01-45300571-7C0002_3)
Build-in temperature sensor	Yes
Electrical Interface	see manual



Included equipment:

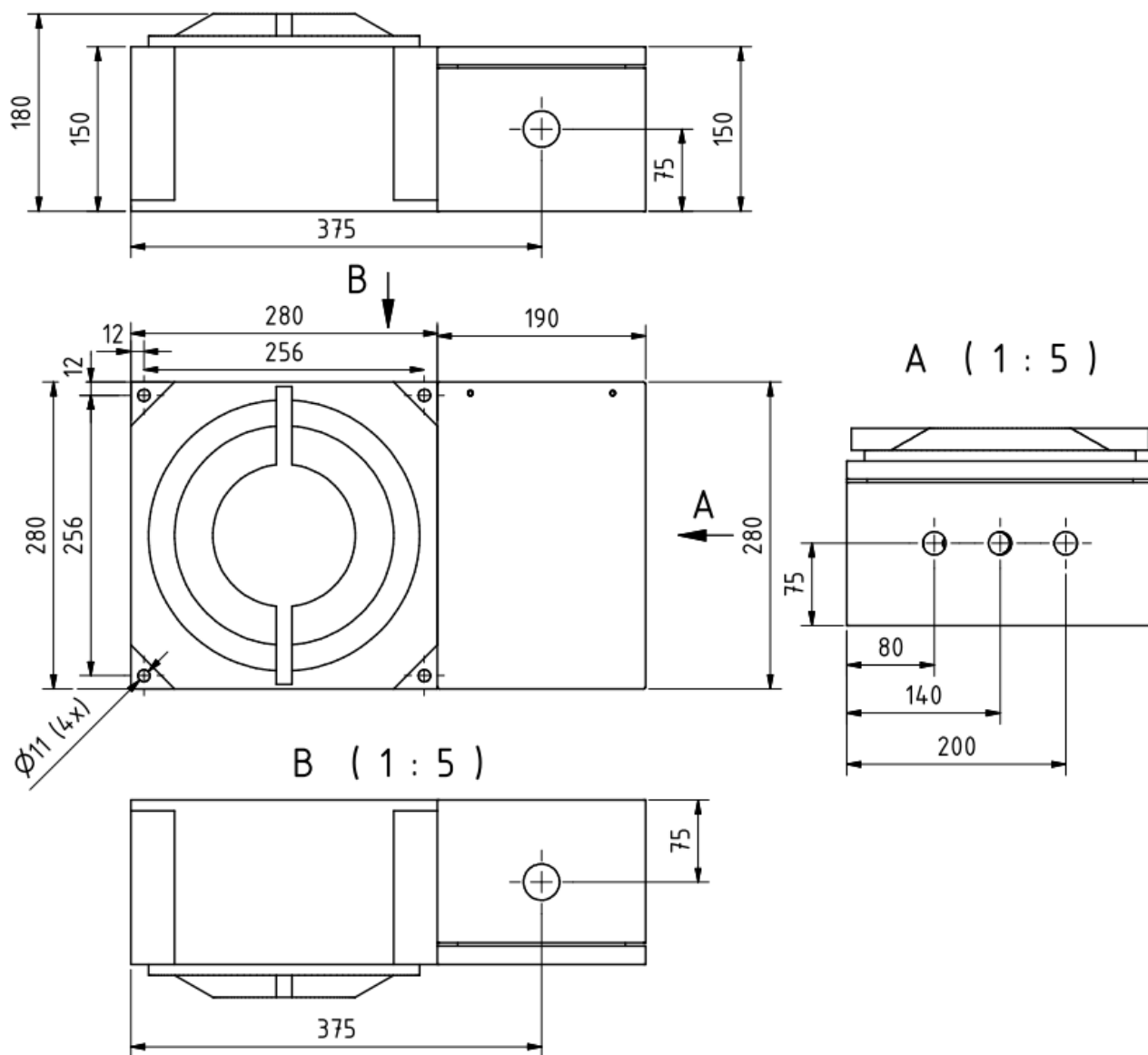
- A Security line of stainless steel with around 60 cm length for cover of Exd enclosure.
- A vapour space inhibitor is provided inside the Evaluation Box.

Regard to this manual for installation and operation for functional, safety and explosion safety reasons. Installation has to be in accordance to IEC/EN 60079-14.



(Illustration, details may be different)

Dimensions of the Evaluation Box





Warning!

- Voltages higher than 30 VDC applied to any of the electrical connection points might damage the sensor electronics.
- Mechanical contact between antenna and piston will damage the sensor.
- Calibration of the sensor in a cylinder with identical geometrical properties (bore, piston geometry) is required after mounting.
- Fluid on top of the piston or in the antenna will influence measurements and might cause unexpected offset changes in the output signal.
- Opening of enclosures or disassembly of the microwave sensor is allowed to authorized staff only.



Danger !

- To avoid electrical discharges, the shell and the piston rod of the hydraulic cylinder must be grounded properly whenever the microwave sensor is in operation.
- Never power up the sensor outside the grounded cylinder or without proper shielding against electromagnetic radiation (refer to local authorities for applicable regulations).
- A damaged sensor (Antenna or Evaluation Box) may not be powered or used