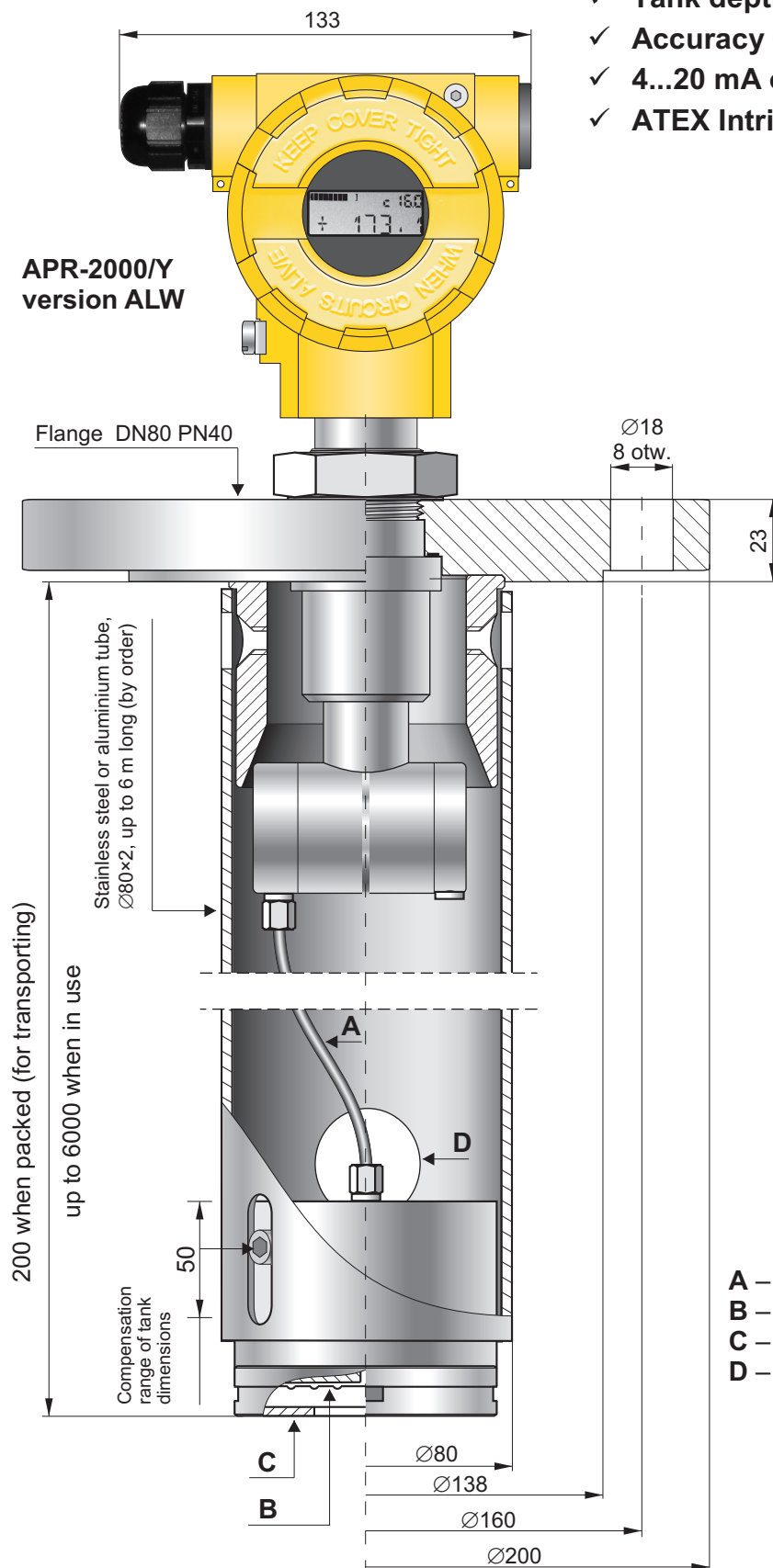


Smart level probe for pressure tanks APR-2000/Y

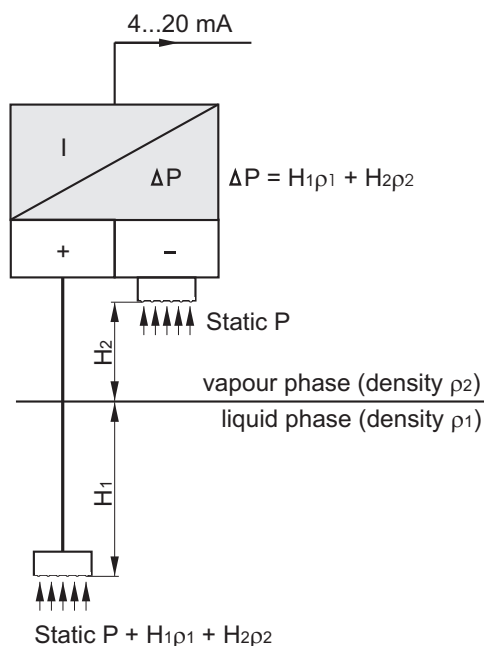


- ✓ Tank depth up to 6 m
- ✓ Accuracy 0.16%
- ✓ 4...20 mA output signal + Hart
- ✓ ATEX Intrinsic safety  II 1/2G Ex ia IIC T4/T5/T6
I M1 EEx ia I

**APR-2000/Y
version ALW**



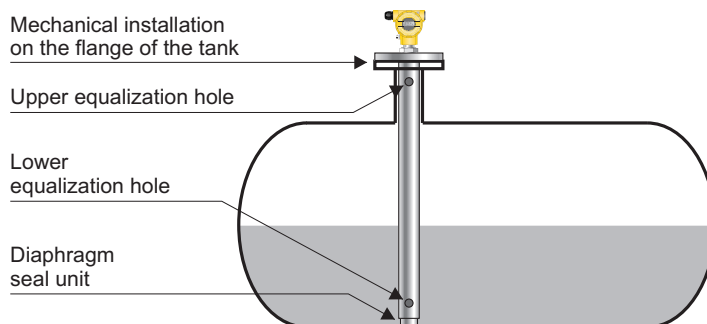
- A – Stainless steel capillary $\varnothing 3 \times 1$
- B – Separating diaphragm
- C – Safety ring
- D – Equalization hole in screening tube



Principles of operation

Measurement is carried out using an APRE-2000 differential pressure transmitter, enabling compensation for static pressure in the tank. The value processed is just the hydrostatic pressure of the medium measured at the level of the diaphragm of the lower seal. This pressure is the sum of the hydrostatic pressures of the liquid and vapour phases of the medium. In most practical measurement situations the density of the vapour phase is negligibly small, and therefore the measured hydrostatic pressure relates only to the height of the liquid phase column and can be taken as representing the level of the surface of the liquid phase. For media where the density of the vapour phase is significant (e.g. propane) the level found by the method described can be treated as the theoretical level of the liquid level obtained by adding the actual liquid phase to the condensed vapour phase.

Example of installation on a tank



Configuration example

To convert a rise in the level of liquid with density 0.87 from 0 to 3200 mm to a current change from 4 to 20 mA.

1. Install the transmitter in working position, place the seal at the appropriate height (tank empty).
2. Calculate the width of the measurement range in mm H₂O (4°C): $3200 \text{ mm} \times 0.87 \text{ g/cm}^3 = 2784 \text{ mm H}_2\text{O}$.
3. Using the communicator, set the transmitter to use the units **mm H₂O at 4°C**.
4. To determine the start of the measurement range, read off via the communicator the hydrostatic pressure produced by the manometric fluid in the capillary (e.g. **-4250 mm H₂O**).
5. To determine the end-point of the measurement range, add the value **-4250 mm H₂O** and the width of the measurement range **-4250 mm H₂O + 2784 mm H₂O = -1466 mm H₂O**.
6. Using the communicator enter the calculated start (**-4250 mm H₂O**) and end-point (**-1466 mm H₂O**) of the measurement range and send as a block to the transmitter. After receiving these parameters the transmitter will perform measurements as required.

Technical data

No.	Nominal measuring range (FSO)	Accuracy for nominal measuring range	Minimum set range	Accuracy for minimum range
1	0...-6000 mm H ₂ O	±0.16%	600 mm H ₂ O	±0.5%
2	0...-1600 mm H ₂ O	±0.2%	160 mm H ₂ O	±0.6%

Range of medium densities up to 1.1 g/cm³ (standard version)

over 1.1 g/cm³: special version by arrangement with APLISENS

Error due to ambient temperature changes < ±0.4% of basic range for temperatures of -25...+80°C

Error due to supply voltage changes < ±0.002% of basic range / V

Zero shift error for static pressure

0.08% / 10 bar for range 1

0.1% / 10 bar for range 2

This error can be eliminated by zeroing the transmitter in conditions of static pressure

For other technical data see the sheet for the APRE-2000

Ordering procedure

APR-2000/Y / ___ / ___ / tube, L = mm

Special versions: **EEx**

Length of tube

Nominal measuring range

Material of tube: **KO** (stainless steel) or **AL** (aluminium)

Example: APR-2000/Y level probe, EEx version, nominal measuring range 0...-1600 mm H₂O, stainless steel tube with length 1250

APR-2000/Y / EEx / 0...-1600 mm H₂O / tube KO, L = 1250 mm