

COMS

Determination of probe lengths and installation positions from FAFNIR sludge and tank probes in oil separators

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Table of contents

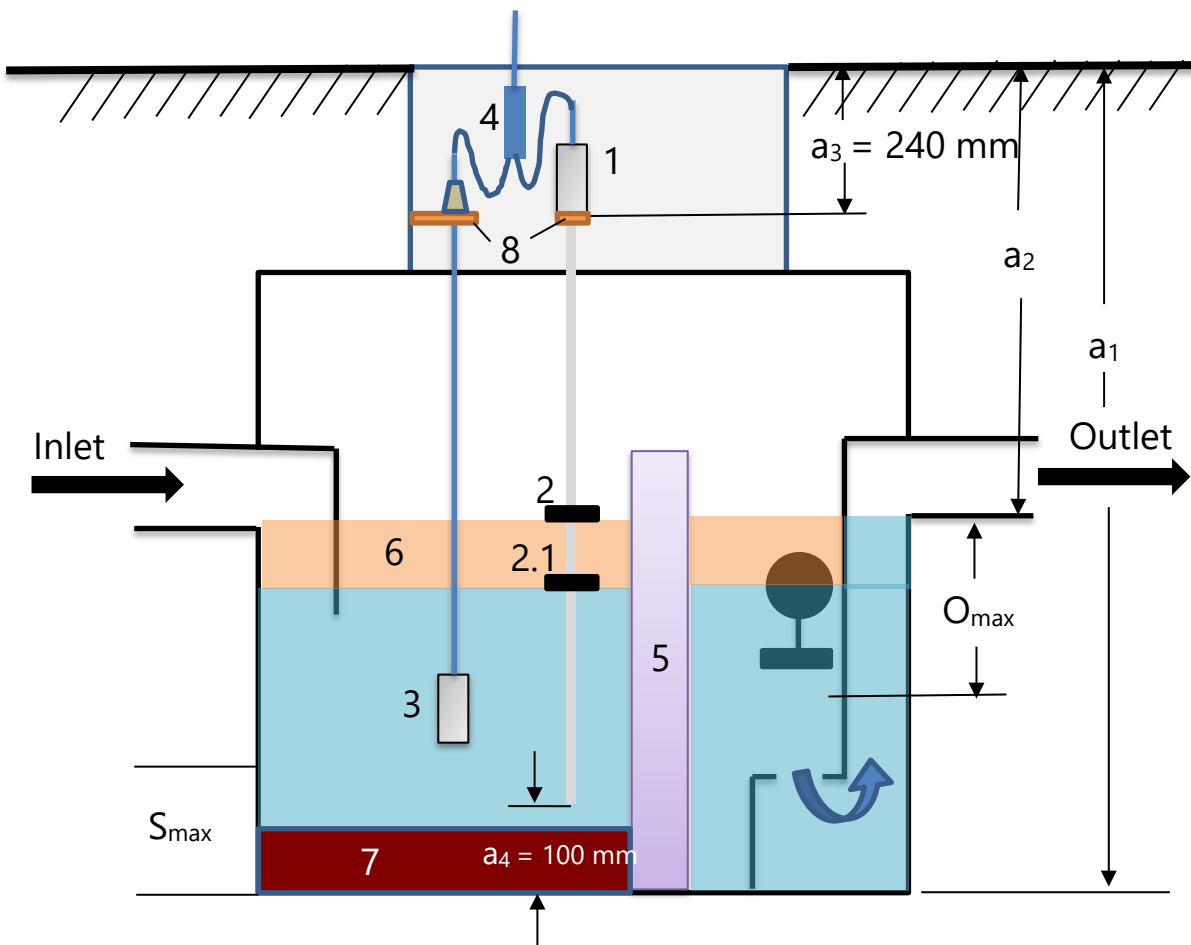
1	Oil separator in side view	1
2	Oil separator in top view	2
3	Calculation of probe length for VISY-Stick Oil Separators	2
4	Positioning of the VISY-Sludge sensor	3
5	Calculation of the maximum oil volume	3
6	Example type plate for light liquid separator	4

1 Oil separator in side view

Based on a schematic representation of an oil separator (single-chamber system), the installation of the probes **VISY-Stick Oil Separator** and **VISY-Sludge** and the calculation of the required probe length is shown. In a two-chamber system, the **VISY-Sludge** probe is installed in the sludge trap and the **VISY-Stick Oil Separator** probe in the coalescence separator in front of the coalescence filter.



The oil separator is Ex zone. Observe safety regulations!



O_{max} = maximum oil layer thickness

a_1 = separator depth

a_3 = safety distance = **240 mm!**

1 = VISY-Stick Oil Separator

2.1 = Interface float

4 = cable connector (2-1)

6 = oil layer

8 = mounting bracket

S_{max} = maximum mud layer thickness

a_2 = distance: Road - Overflow

a_4 = safety distance to the ground = **100 mm!**

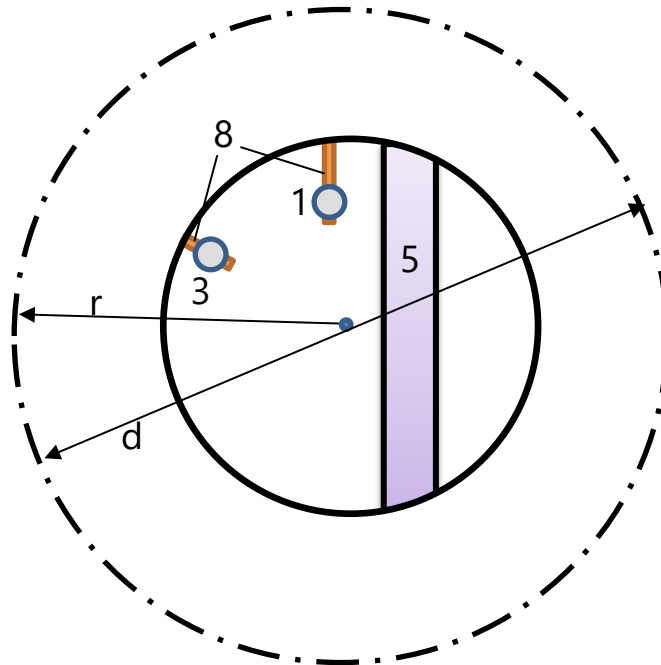
2 = Product float

3 = VISY-Sludge

5 = coalescence filter

7 = mud layer

2 Oil separator in top view



- 1 = VISY-Stick Oil Separator
- 3 = VISY-Sludge
- 5 = Coalescence filter
- 8 = Mounting bracket
- r = Radius
- d = Diameter

3 Calculation of probe length for VISY-Stick Oil Separators

Note: There is also an Excel spreadsheet for determining the probe length "**Formula-COMS-probe-length**"

Maximum length

$$L_{\max} = a_1 - a_3 - a_4$$

$$L_{\max} = a_1 - 240 \text{ mm} - 100 \text{ mm}$$

$$L_{\max} = a_1 - 340 \text{ mm}$$

Minimum length

$$L_{\min} = a_2 + O_{\max} + k - a_3 \quad k = 50 \text{ mm}$$

$$L_{\min} = a_2 + O_{\max} + 50 \text{ mm} - 240 \text{ mm}$$

$$L_{\min} = a_2 + O_{\max} - 190 \text{ mm}$$

Choice of probe length:

Please check if one of our standard lengths can be used for the calculated range between L_{\min} and L_{\max} . Standard lengths for the probes are: 1500 mm; 1900 mm; 2300 mm; 2800 mm; 3200 mm. If the standard lengths do not fit between L_{\min} and L_{\max} , other lengths can be ordered for a surcharge.

4 Positioning of the VISY-Sludge sensor

The membrane of the VISY-Sludge sensor must be below the maximum permissible oil layer thickness O_{max} and at least 100 mm above the maximum permissible mud layer thickness S_{max} .

The distance of the **VISY-Sludge membrane** to the **oil separator bottom** must not exceed 1400 mm.

5 Calculation of the maximum oil volume

Since almost all current oil separators are standing, round cylinders, the maximum oil volume VO_{max} can be calculated as follows, for this there is also the Excel calculation form "COMS-oil-layer-table":

$$VO_{max} = r^2 \times \pi \times O_{max} \quad \text{or} \quad VO_{max} = \frac{d^2}{4} \times \pi \times O_{max} \quad | \quad \pi = 3,14$$



O_{max} is usually stated on the type plate or in the corresponding documentation of the oil separator.


If only the maximum oil volume VO_{max} is specified, O_{max} is calculated according to the formula:


$$O_{max} = \frac{VO_{max}}{r^2 \pi} \quad \text{or} \quad O_{max} = \frac{VO_{max} \times 4}{d^2 \pi} \quad | \quad \pi = 3,14$$

6 Example type plate for light liquid separator

ABSCHIEDERANLAGE FÜR LEICHTFLÜSSIGKEITEN
nach DIN EN 858 und DIN 1999-100

Abscheider Klasse I und Schlammfang
(Kompaktanlage: Koaleszenzabscheider mit integriertem Schlammfang)





Typ:	3A-SK seglam®
Nenngröße:	NS 15
Nenninhalt Schlammfang:	5.000 Liter
max. Ölspeichermenge:	575 Liter
max. zul. Ölschichtdicke:	40,0 cm
max. Schlammhöhe:	76,0 cm
Behältervolumen (ohne S):	2.230 Liter
Tragfähigkeit:	SLW 60
Baujahr:	2006

3A Wassertechnik GmbH & Co. KG, Augsburg

3A WASSERTECHNIK



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