Supplementary instructions

Magnetic level gauge for continuous level measurement in bypass pipes

VEGAMAG 81

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Contents

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1 Product description

1.1 Configuration

The VEGAMAG 81 is a bypass pipe with magnetic level gauge (reference vessel).

Features and fittings of the bypass pipe

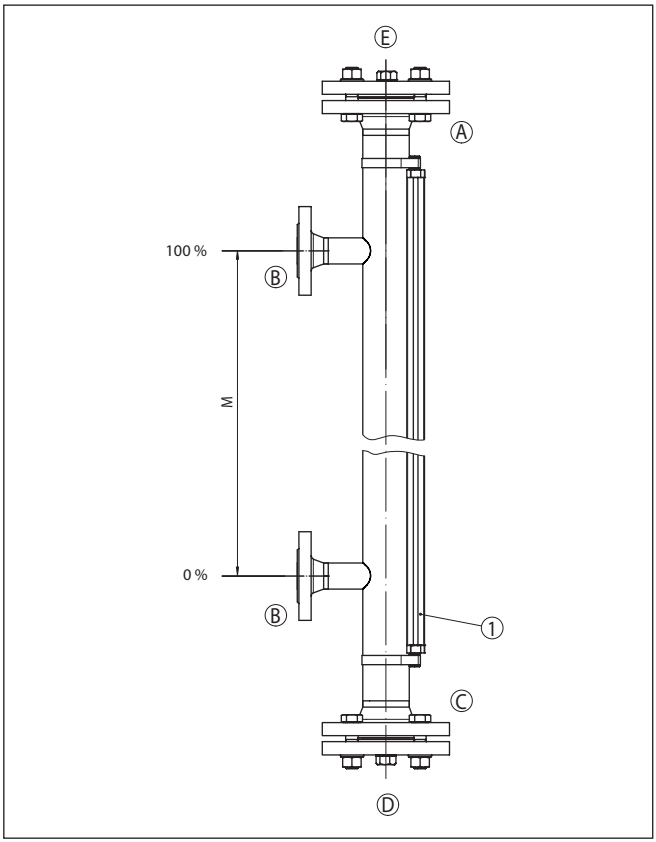

Fig. 1: Typical configuration of the VEGAMAG 81

1 Magnetic level gauge
A Chamber closing - top
B Vessel connection top/bottom
C Chamber closing - bottom
D Drain connection
E Vent connection (optional)
M Dimension: Pipe center to pipe center

Versions

The following versions are possible:

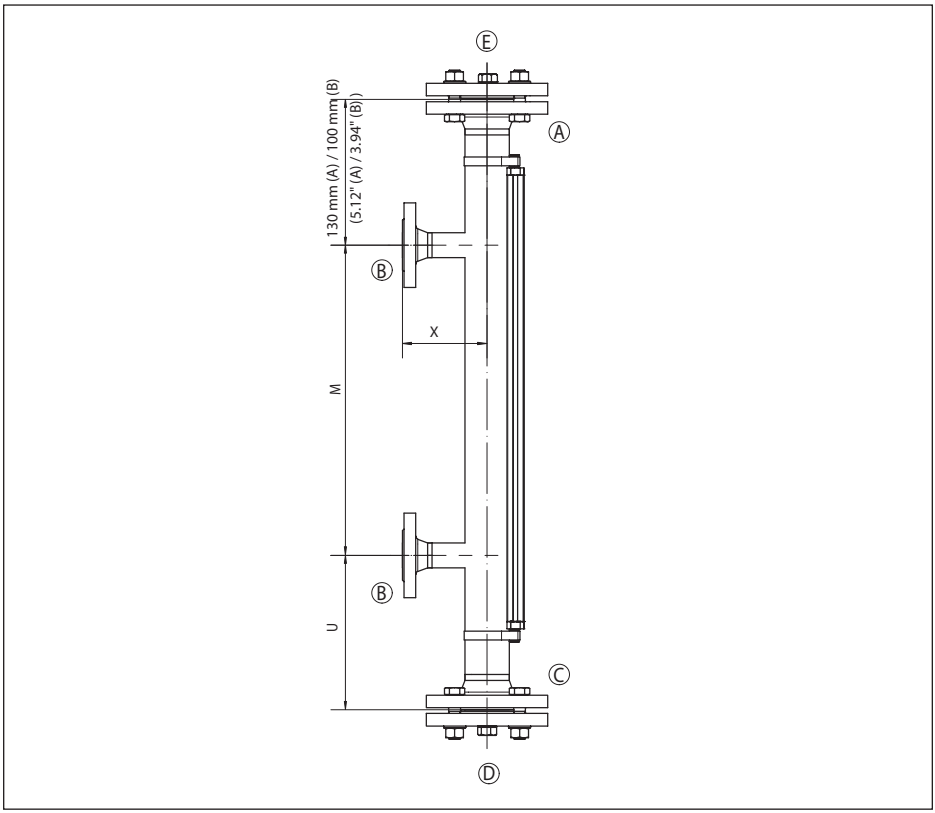

Fig. 2: Versions VEGAMAG 81

1 Version: Side - Side (two connections)
A Chamber closing - top
B Vessel connection top/bottom
C Chamber closing - bottom
D Drain connection
E Vent connection (optional)
M Dimensions: pipe center to pipe center, 300 … 4000 mm (11.8 … 157.5 in)
U Dimension: Pipe center to flange surface of the lower chamber closing (depending on the density of the medium)
X Dimensions: length from pipe center to connection flange, 150 … 400 mm (5.91 … 15.75 in)

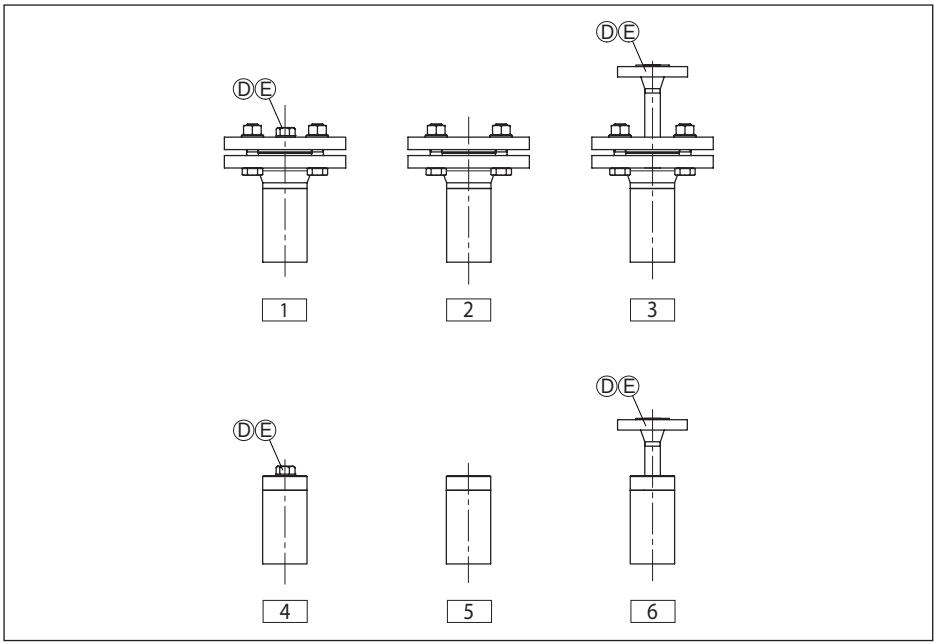

Fig. 3: Possible chamber closings (A, C) and vent connections (E) or drain connections (D)

1 *Vent connection - Flange with thread G½ or ½ NPT*
2 *Chamber closing - top (without vent connection)*
3 *Vent connection - Flange with flange connection*
4 *Vent connection - Pipe cap welded to thread G½ or ½ NPT*
5 *Pipe cap welded (without vent connection)*
6 *Vent connection - Pipe cap welded to flange connection*

Note:
Keep in mind for the planning that on top or bottom at least one flange connection is required so that the float can be inserted in the measuring pipe and also removed.

2 Mounting

2.1 Mounting instructions

Seals

The seals for the vessel connections (B) and the vent connection (E) must be provided by the customer.

The gaskets for the chamber closing on top (A), the chamber closing at the bottom (C) and the drain connection (F) are enclosed to the shipment. You can find the seal materials in chapter "*Technical data*".

Before use, check if the seal material is resistant against the medium, the process pressure and the process temperature.

Close openings

Close all drain connections before the setup of VEGAMAG 81. Check if all connections of VEGAMAG 81 are tight.

Vessel pressure test

A mounted bypass pipe must also withstand any pressure test that might be carried out on the vessel. Keep the pressure specification on the type label in mind.

Caution:
Remove the float from the pipe before you start the pressure test.

3 Supplement

3.1 Technical data

General data

Material 316L corresponds to 1.4404 or 1.4435	
Measurement requirement	Product density must be known and constant
Materials	
– Bypass pipe	316L
– Float	Titanium
– Magnet gauge - Housing	Aluminium or stainless steel
– Magnet gauge - Display elements	Plastic or stainless steel
Colour of the magnet gauge	yellow/black or red/white
Gasket - Chamber closings (top/bottom)	
– max. 250 °C/40 bar (482 °F/580 psig)	Klingersil C-4500
– max. 390 °C/40 bar (734 °F/580 psig)	Graphite
Pipe diameter (outer)	
– Version 2"	ø 60.3 mm (2.37 in)
Wall thickness	2 … 5.54 mm (0.08 … 0.22 in)
Process temperature	max. 390 °C (734 °F) - see process fitting, connection flange (B)
Process pressure	
– Standard version	see process fitting - connection flange (B)
– According to pressure device directive (PED)	max. 90 bar (1305 psig) - Cat. III, Fluid group I
– According to ASME	max. 100 bar (1450 psig)

Chamber closing - top (A)

Pipe cap

Flange from DN 50 or 2"

Process fitting - connection flange top/bottom (B)

Connections	Welded socket from ½", stub end from ½", thread from ½ NPT, flanges from DN 15 or ½"

Process pressure in bar (psig) depending on the process temperature

Pressure-Temperature-Assignment - DIN flanges

Material 316/316L (1.4401)							
Pressure range	**100 °C**	**150 °C**	**200 °C**	**250 °C**	**300 °C**	**350 °C**	**390 °C**
PN 40	40 bar	36.3 bar	33.7 bar	31.8 bar	29.7 bar	28.5 bar	27.4 bar
PN 63	63 bar	57.3 bar	53.1 bar	50.1 bar	46.8 bar	45.0 bar	43.2 bar
PN 100	100 bar	90.9 bar	84.2 bar	79.5 bar	74.2 bar	71.4 bar	68.5 bar

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Pressure-Temperature-Assignment - ASME flanges

Material 316							
Temperature range	**Class 150**	**Class 300**	**Class 400**	**Class 600**	**Class 900**	**Class 1500**	**Class 2500**
-29 … +38 °C	19 bar	49.6 bar	66.2 bar	99.3 bar	148.9 bar	248.2 bar	413.7 bar
50 °C	18.4 bar	48.1 bar	64.2 bar	96.2 bar	144.3 bar	240.6 bar	400.9 bar
100 °C	16.2 bar	42.2 bar	56.3 bar	84.4 bar	126.6 bar	211 bar	351.6 bar
150 °C	14.8 bar	38.5 bar	51.3 bar	77 bar	115.5 bar	192.5 bar	320.8 bar
200 °C	13.7 bar	35.7 bar	47.6 bar	71.3 bar	107 bar	178.3 bar	297.2 bar
250 °C	12.1 bar	33.4 bar	44.5 bar	66.8 bar	100.1 bar	166.9 bar	278.1 bar
300 °C	10.2 bar	31.6 bar	42.2 bar	63.2 bar	94.9 bar	158.1 bar	263.5 bar
325 °C	9.3 bar	30.9 bar	41.2 bar	61.8 bar	92.7 bar	154.4 bar	257.4 bar
350 °C	8.4 bar	30.3 bar	40.4 bar	60.7 bar	91.0 bar	151.6 bar	252.7 bar
375 °C	7.4 bar	29.9 bar	39.8 bar	59.8 bar	89.6 bar	149.4 bar	249 bar
390 °C	6.5 bar	29.4 bar	39.3 bar	58.9 bar	88.3 bar	147.2 bar	245.3 bar

Tab. 2: ASME B16.5-2013

Note: You will find a complete overview of the available process fittings in the "configurator" on our homepage at www.vega.com/configurator.

Chamber closing - bottom (C)

Pipe cap

Flange from DN 50 or 2"

Drain connection (D)

Thread G½ (DIN 3852-A), ½ NPT (ASME B1.20.1)

Thread G¾ (DIN 3852-A), ¾ NPT (ASME B1.20.1)

Flange DIN from DN 15

Flange ASME from ½"

Vent connection (E)

Thread G½ (DIN 3852-A), ½ NPT (ASME B1.20.1)

Thread G¾ (DIN 3852-A), ¾ NPT (ASME B1.20.1)

Flange DIN from DN 15

Flange ASME from ½"

3.2 Dimensions

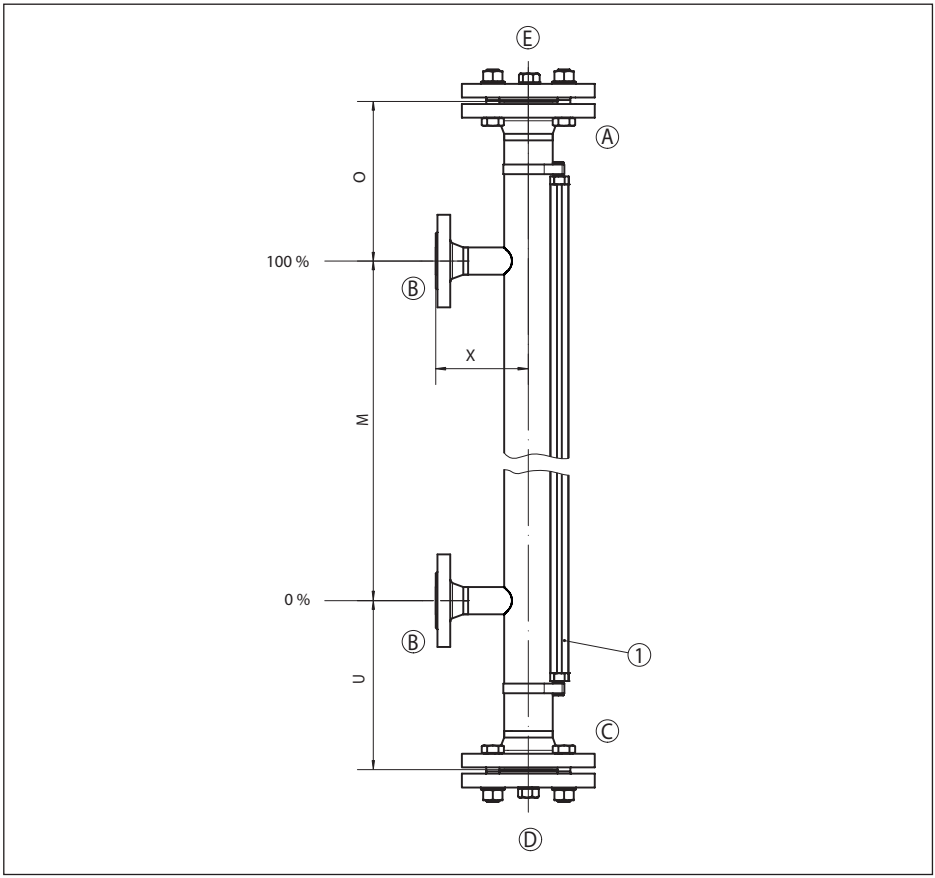

Fig. 4: Magnetic level gauge VEGAMAG 81

1 Magnetic level gauge
A Chamber closing - top
B Vessel connection top/bottom
C Chamber closing - bottom
D Drain connection
E Vent connection (optional)
M Dimensions: pipe center to pipe center, 300 … 4000 mm (11.8 … 157.5 in)
O Dimension: Pipe center to flange surface of the upper chamber closing, 152 mm (6 in)
U Dimension: Pipe center to flange surface of the lower chamber closing (depending on the density of the medium)
X Dimensions: length from pipe center to connection flange, 150 … 400 mm (5.91 … 15.75 in)

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