

The orifice measurement section MBL500 is designed as a differential pressure sensor for flow rate measurement of aggressive and non-aggressive gases or steam, particularly in smaller pipelines up to DN 50 (2").

Technical Description

Construction

Meter runs and orifice plates with ring chamber taps are provided with calibrated in- and outlet pipes. The two-part carrier-ring according to DIN 19205 has an exchangeable orifice plates. It can be delivered as an orifice plate according to ISO 5167-2, as quarter circle nozzle or as a double coned orifice plate according to appropriate conditions of use. Under special circumstances you may also find venturi tubes. Carrier-ring and orifice plate are supplied with a flat seal. The meter runs are delivered fully assembled and ready for installation with either welded or flange ends.

Advantages:

Taking accurate measurements in small bore pipe runs are often difficult as the installation itself creates interference. Accurate measurements can be carried out though because this construction, with inlet- and outlet pipes forming one unit with the ring chambers, leads to the orifice without obstruction. The use of calibrated pipes allows an exact value for the inner tube diameter D and surface.

Materials:

Manufacturing is possible in different usual and other special materials. When selecting the material special consideration has to be taken for high given temperatures and aggressive materials.

Material Certificates:

Material certificates i.e. according to EN 10204 can be supplied for the used materials.

Differential-Pressure Measurement:

Normally taken through the flange blade or in the pipeline at distances a_1 and a_2 from the orifice. There is a differentiation between pressure taps as flange taps according to DIN 19214 (figure 1) and $D-D/2$ - pressure tapping within the pipe (figure 2) whereas a_1 is equivalent to the pipe diameter D and a_2 is identical with $D/2$. In special cases the pressure tapping may occur norm-like as corner tapping in the flange (figure 3).

Specifications

Nominal Pressure:

PN 6 up to PN 100

Nominal Diameter:

DN 10 up to DN 200 for sealing-type: smooth, DN 10 up to DN 400 for sealing-type: nose and tongue, lense

Bore Diameter d :

The calculation of the bore diameter will be done by us from the supplied data considering the relevant standards and regulations and is part of the scope of deliveries

Pressure Loss:

The remaining pressure loss depends on nozzle opening ratio d/D approx. 30-80% of differential pressure and is part of the data-sheet. If smaller pressure losses are necessary you have to use venturi tubes

Identification:

Number, PN, D , d , flow direction and + and - for pressure taps.

Straight In- and Outlet Section:

Minimum requirement $28xD$ in- and $7xD$ outlet section.

Installation:

Type MBL 500 F

Between flanges on horizontal, vertical or diagonal pipelines. Counter flanges, screws and seals are not part of scope of delivery but may be ordered separately.

Concerning the seals you have to consider the regulations regarding the media and conditions of use.

Sealing face type: smooth, tongue acc. to DIN 2513 or groove acc. to DIN 2512.

Type MBL 500 S

For welding on horizontal, vertical or diagonal pipelines; for dimensions: see MBL 500 F.

Installation length:

Please refer to table overleaf

Ordering Information

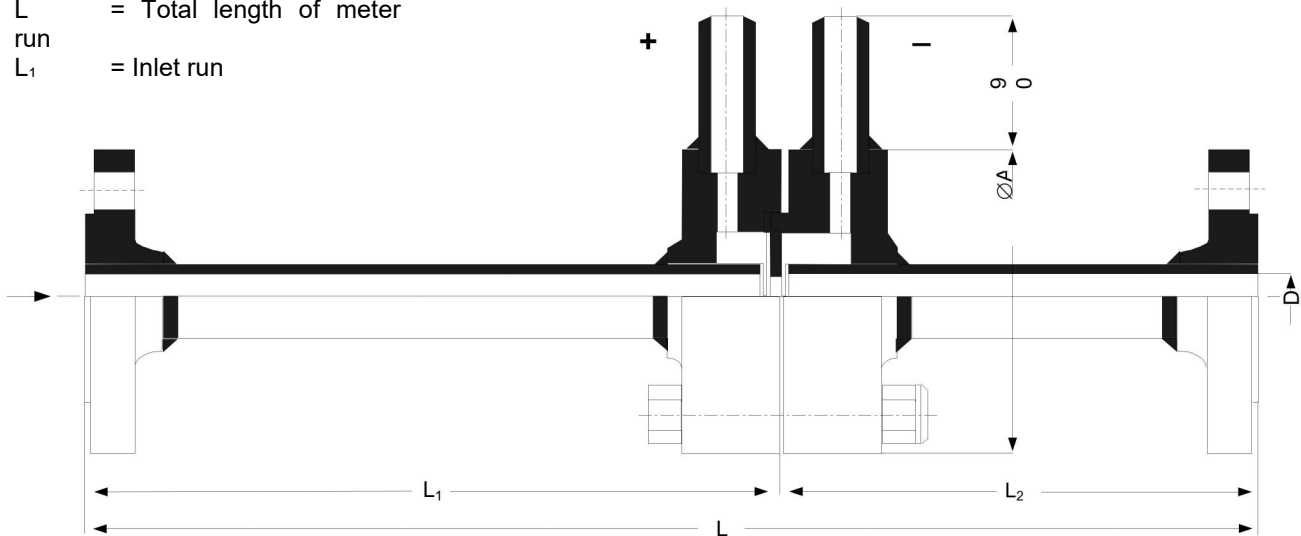
Please determine for quotation request

- Flow range(s)
- Gas type(s)
- Pipe nominal diameter
- Material
- Operation condition Pressure / Temperature
- Allowed pressure loss
- Accuracy
- Environment conditions

Stand: 19/05/2025

Dimensional Sketch MBL 500 F/S

L = Total length of meter run
 L₁ = Inlet run



DN	10	15	20	25	32	40	50	65	80	100	125	150	200
	0,25"	0,5"	0,75"	1"	1,25"	1,5"	2"	2,5"	3"	4"	5"	6"	8"
L	400	550	700	900	1100	1300	1500	1600	1800	2200	2700	3200	4000
L ₁	230	380	500	650	800	1000	1200	1250	1400	1700	2000	2400	3000
L ₂	170	170	200	250	300	300	300	350	400	500	700	800	1000

Quality assurance

Production and check go along with the relevant guidelines such as TRD, "AD-Merkblatt" and customer-specifications.

Material certificates according to EN 10204 3.1 A and B.

Table of customary materials (Given temperature-scopes are guiding data, only)

Carrier Rings				Orifice Plates			
Category	Abbreviation	W-No.	Application	Category	Abbreviation	W-No.	Application
Common mild steel acc. to EN 10025/ EN 10028T2	ST 37-2	1.0114	-10 ... +350 °C	Stainless steel acc. to EN 10222-5	X6CrNiTi1810	1.4541	-190 ... +300 °C
	H II	1.0425	-10 ... +390 °C		X6CrNiMoTi17122	1.4571	-60 ... +400 °C
Quality carbon steel	C 22.8	1.0460	-10 ... +490 °C	Heat resistant steel	X10CrAl7	1.4713	up to max. 900 °C
Heat resistant steel	15Mo3	1.5415	up to 530 °C	Corrosion resistant alloys	Hastelloy C	2.4602	up to max. 400 °C
	13CrMo44	1.7335	up to 560 °C		Titanium	3.7035	up to max. 300 °C
Stainless steel acc. to EN 10222-5	X6CrNiTi1810	1.4541	-190 ... +300 °C		Monel	2.4360	up to max. 400 °C
	X6CrNiMoTi17122	1.4571	-60 ... +400 °C		Tantal	Ta	-200 ... +1800 °C
Plastics	PVC PP PE PTFE PVDF		up to max. 70 °C up to max. 90 °C up to max. 80 °C up to max. 150 °C up to max. 130 °C	Pipes & Pressure Taps			
				Category	Abbreviation	W-No.	Application
				Seamless precision steel tube	St 35	1.0308	-10 ... +300 °C
				Seamless boiler tube acc. to DIN 17175	ST35.8 15Mo3 13CrMo44	1.0305 1.5415 1.7335	up to max. 500 °C up to 530 °C up to 560 °C
Stainless steel acc. to EN 10222-2	X6CrNiTi1810 X6CrNiMoTi17122	1.4541 1.4571	-190 ... +300 °C -60 ... +400 °C				

Optional Accessories

Counter flanges, screws and seals for installation.

Shut-off valves, condensate vessels and chambers, manifolds according to various type sheets.