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МАССОВЫЕ РАСХОДОМЕРЫ

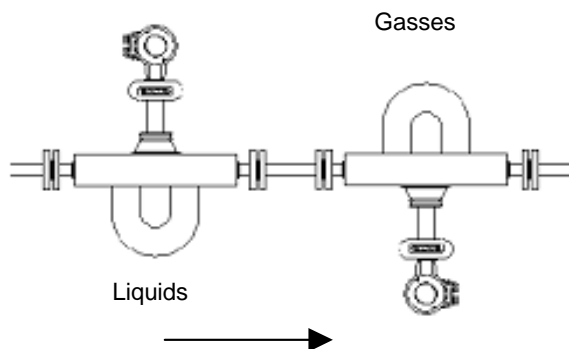
OPTIMASS 8000

1.4 OPTIMASS 8000 Meter with Twin U Measuring Tubes 1.4.1

Specific Installation Guidelines

- Tighten flange bolts evenly.
- Do not stress the sensor mechanically. Clamp and support the connecting pipework accordingly.
- It is permissible to support the weight of the meter on the square body.
- Cavitation and Mechanical vibration should be avoided.
- Use of standard pipework reducers at the flange is allowed. Avoid extreme changes in pipe size (step changes).
- The use of flexible hoses directly at the meter is not permitted.
- Installation below 0°C - mount vertically, or horizontally with converter up to prevent freezing or condensation in housing.

Horizontal Mounting:



For liquids, measuring tube downwards so that no gas collects in tube if no-flow.

For gasses, measuring tube upwards, so no liquids can collect if no-flow.

1.4.2 Ambient / Process temperatures

The specified and approved ambient and process temperatures must be observed.

		8000		9000	
		°C		°F	
Process	Safe Area	-180 .. +230	-292 .. +446	0 .. +350	0 .. 662
	ATEX/FM/CSA - Compact	-40 .. +190	-40 .. +374		
	ATEX/FM/CSA - Remote	-40 .. +230	-40 .. +446		
Ambient	Compact	-40 .. +55	-40 .. +130	-	-
	Remote	-40 .. +60	-40 .. +140	-40 .. +60	-40 .. +140

Note:

Where meters are mounted in direct sunlight, it is recommended to install a sunshade. This is particularly important in countries with high ambient temperatures.

The maximum differential temperature between the process and ambient temperature without insulation is 80°C or 176°F.

1.4.3 Pressure Equipment Directive (PED) requirements.

To comply with the requirements of the PED in Europe, the following information is provided to assist the plant engineer in installing the meter.

Measuring tube: Stainless SS 316L
Hastelloy C22

Sealing Faces: Stainless SS 316L
Hastelloy C22

Flanges: SS316L

Casing: Stainless Steel 316
Typical burst pressure of case is in excess of 50 bar @ 20°C Not PED approved

Insulation is strongly recommended above 100°C

For insulated meters without heating jackets, repeated heating or cooling at rates > 30°C per hour should be avoided to increase operational lifespan of meter.

1.4.4 Secondary Pressure containment

The OPTIMASS 8000/9000 series sensors do not have certified secondary containment.

If the user suspects that the primary tube has failed, the unit must be depressurised and removed from service as soon as possible.

1.4.5 Pressure de-rating

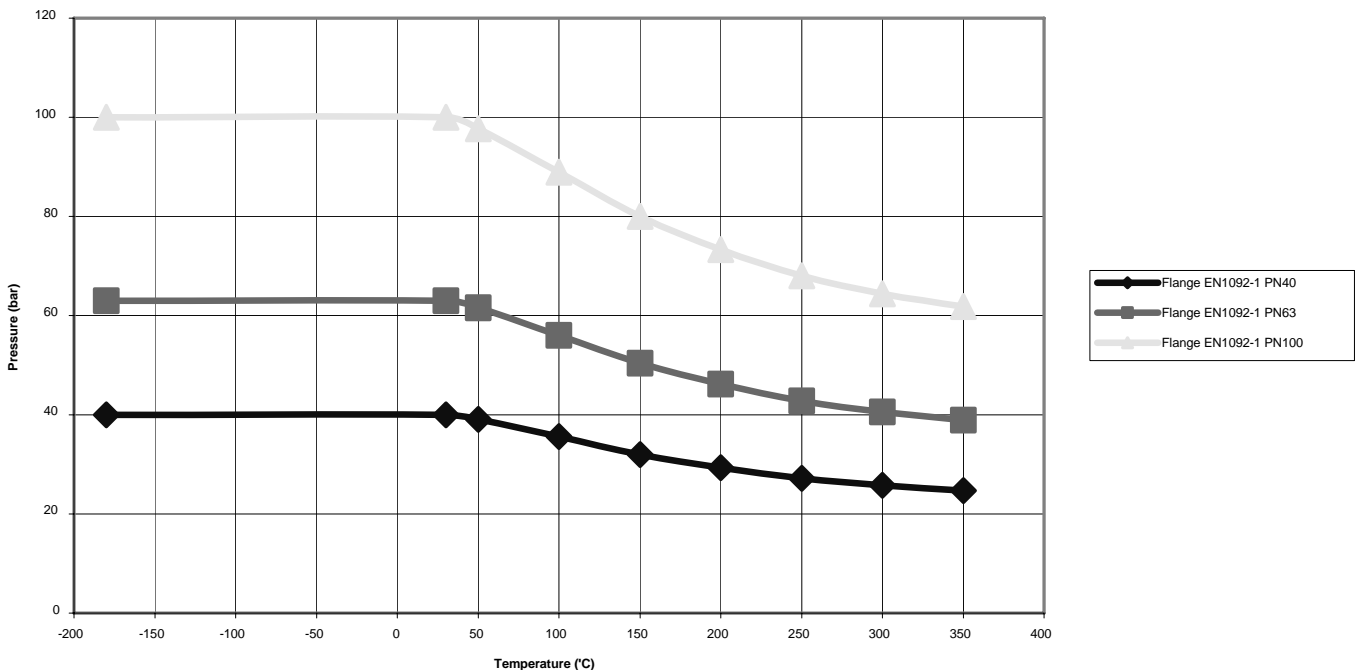
Meter data plates are stamped with maximum pressure rating (at max. operating temperature) of connection, primary tube or secondary pressure containment (whichever is the lower). Higher pressures may be possible at lower temperatures.

Measuring Tubes:

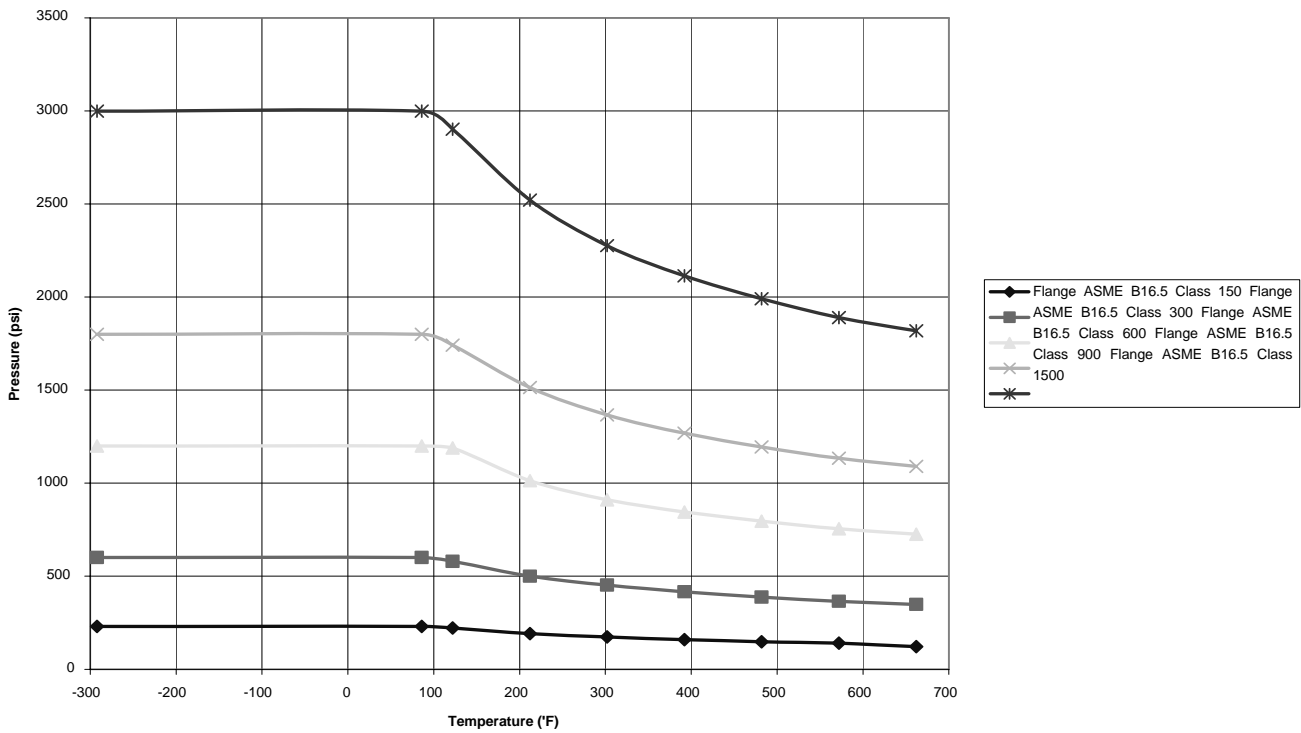
	Process Temperature	Process Temperature	Temperature
	Maximum 150 °C / 300 °F	Maximum 230 °C / 440 °F	Maximum 350 °C / 660 °F (9000 series only)
Meter size	barg psig	barg psig	barg psig
15	210 3045	185 2680	160 2320
25	165 2390	145 2100	125 1810
40	140 2030	120 1740	105 1520
80	125 1810	110 1595	95 1375
100	85 1230	75 1085	65 940

Flanges:

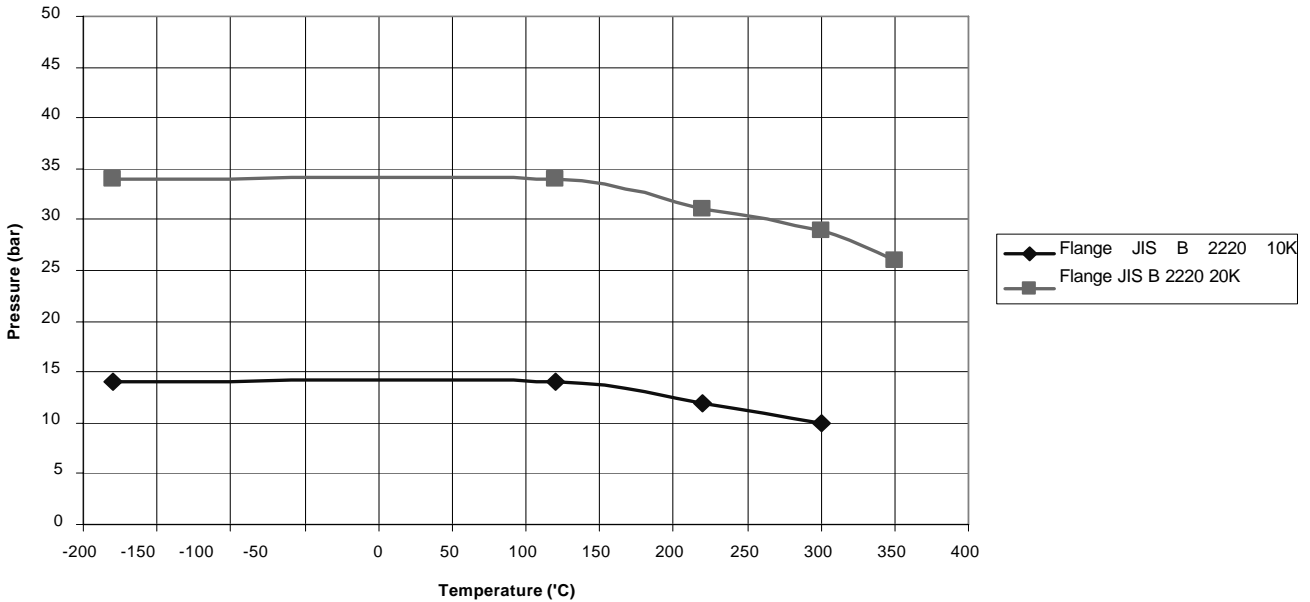
DIN flanges to EN1092-1. Note also pressure / temperature limits for measuring tubes above.



ANSI flanges to ASME B16.5. Note also pressure / temperature limits for measuring tubes above.



JIS flanges to 2220 B. Note also pressure / temperature limits for measuring tubes above.



Hygienic and sanitary connections (all sizes)

Maximum pressure: 10 barg at 150°C or 145 psig at 302°F

Maximum pipe work forces

Forces exerted on the meter from the process pipe are not permitted. Mechanical installation should be designed to prevent such forces.

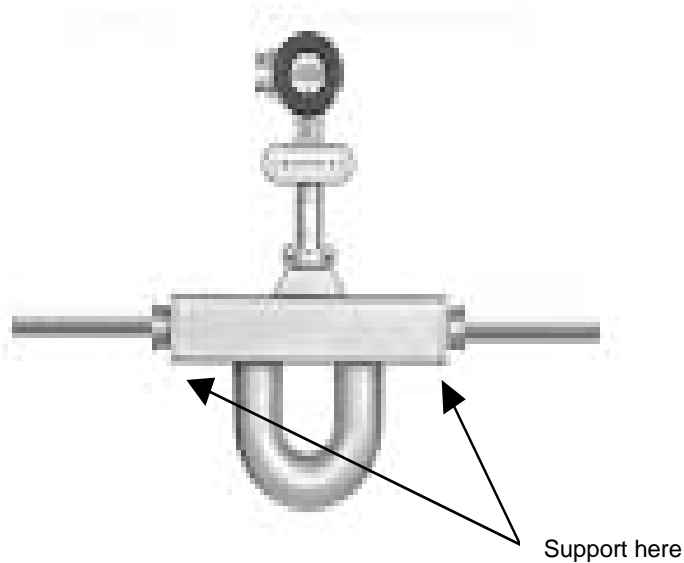
1.4.6 Hygienic Applications

The OPTIMASS 8000/9000 series is available with a variety of hygienic process connectors.

When using / installing meters with hygienic process connectors, care should be taken to ensure the meter is well supported / clamped, as the meters are heavy and could injure when disconnected from the adjacent pipe work.

The recommended method of installation is to mount the meter against a support / wall with the body of the meter supported / clamped. The process pipe work can then be supported off the meter.

The meter is too heavy to be supported from the thin walled piping usually associated with the hygienic industry.



Meter supported from its body

Installation lengths

For installation lengths, please see section 1.4.10

Please check with if you are unsure of the installation length. Many meters are built to customer requirements / specifications especially where special hygienic process connectors have been adapted to the meter. As these are normally non-standard, the installation length will not be given in the technical data.

It is also recommended that the seals be replaced regularly to maintain the hygienic integrity of the connection.

Hygienic Connection Materials

Material: SS 316L

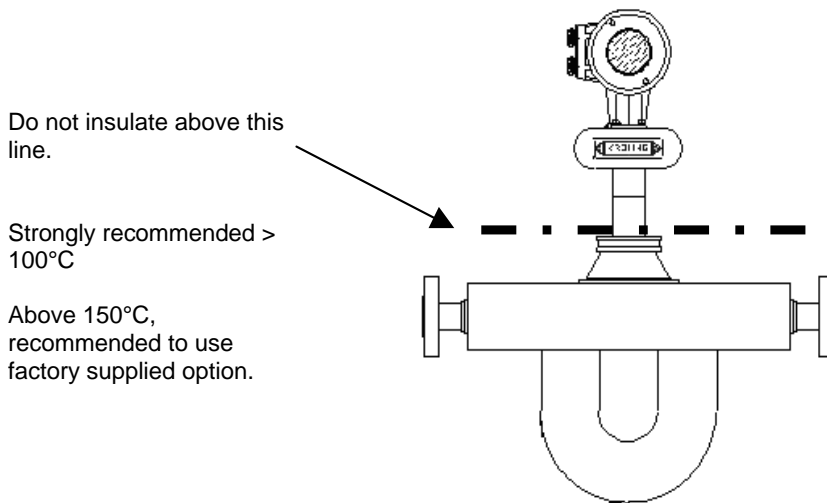
Unless specifically requested, internal surfaces are not polished and no warranty is made as to the surface finish. If option of EHEDG, ASME Bio-Processing or 3A approvals was selected at time of order, all product contact surfaces are polished 0.8 micrometer Ra (Ra 32) finish or better. Only available for hygienic connections.

1.4.7 Heating and insulation

Insulation

OPTIMASS 8000

Where insulation is required a variety of materials may be used to insulate the meter. Care must be taken not to insulate the meter above the halfway mark of the electronics support post as shown in the sketch.



For insulated meters without heating jackets, repeated heating or cooling at rates > 30°C per hour should be avoided to increase operational lifespan of meter

OPTIMASS 9000 - The OPTIMASS 9000 will always be supplied with factory fitted insulation or heating option

Electrical Heating

Electrical tape heating may be used. Do not heat above line as shown above.

Max heating temperature is 230°C or 446°F for OPTIMASS 8000 and 350°C or 662°F for OPTIMASS 9000.

Observe Ex limits.

Liquid / Steam heating jacket

The meter can be supplied with a heating jacket.

This jacket is designed to minimise the differential stress across the meter where differences in temperature between outer cylinder and measuring tube exist.

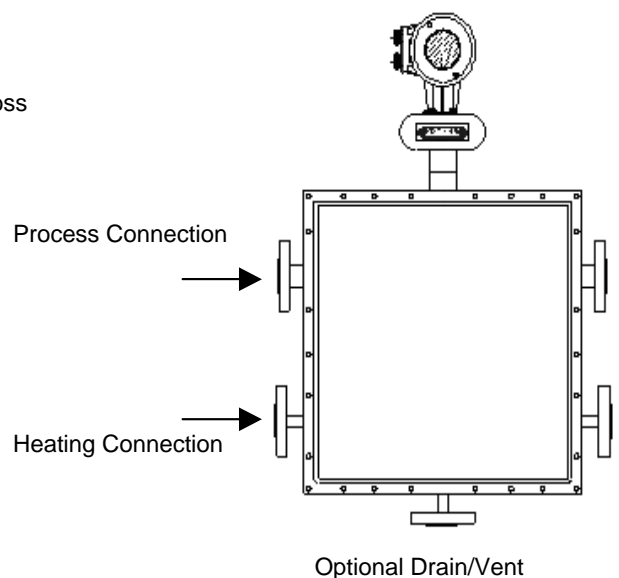
The connections to the heating jacket are DN15 PN40, ANSI ½" 150lbs or JIS 10K 15A

Protection is IP54. Install protective roof if necessary.

Important:

Always heat jacket to working temperature before flowing product in measuring tube.

Repeated heating or cooling at rates > 30°C per hour should be avoided to increase operational lifespan of meter.



Note :

Max heating medium temperature is 230°C or 446°F for OPTIMASS 8000 and 350°C or 662°F for OPTIMASS 9000. Observe Ex limits also. Maximum heating medium pressure limited by jacket connections. Refer to de-rating curves as per section 1.4.5.



1.4.8 Purge Port Meters and Burst Disk Meters

Purge Port Options

If the purge port option was selected at time of order, then your meter will be fitted with 1/4" NPT female connections – these will be clearly identified. These connections are sealed with NPT plugs and PTFE tape.

Important:

Do not remove these plugs.

The meter is factory sealed with a dry nitrogen gas fill and any ingress of moisture will damage the meter. The plugs should only be removed to purge the inside of the meter case of any product if it is suspected that the primary measuring tube has failed. This must only be done after the meter has been depressurised and removed from service. This should be done as soon as possible after failure is suspected (less than 3 days)

Burst Disk meters

OPTIMASS 8000/9000 meters that have been ordered with a bursting (rupture) disk will be so fitted. This is fitted when the operating pressure of the measuring tube exceeds the design pressure of the secondary containment. The disk failure pressure is 20bar @ 20°C.

Important:

The burst disk is suitable for the designed application according to the process conditions and flow rates as per original order. If conditions alter, consult for further advice regarding suitability of disk fitted.

If the product is in any way hazardous, it is strongly recommended that an exhaust tube is connected to the 3/4" NPT male thread of the burst disk so that the discharge can be piped to a safe area. This tube should be large enough that pressure cannot build up in the meter case.

Ensure arrow on burst disk is pointing away from meter.

1.4.9 Technical Data

Nominal Flow Rates

	15	25	40	80	100
Kg/h	2,700		32,000	85,000	250, 00
Lbs/min	100	300	1,200		

Maximum flow rate

Typically 130 % of the nominal flow rate for the sensor size depending on application.

Minimum flow rate

Depending on measuring error required.

Materials of construction

Measuring Tubes	SS 316L or HC-22
Flanges	SS 316L or SS316L backing with HC-22 raised face SS
Outer Casing	304
Converter Mount & Front End electronics	SS 316L

1.4.10 Weights & Dimensions

Weights

Weight of OPTIMASS 8000/9000 sensor fitted with a typical standard flange in kg (lbs)

Model / Size	15		25		40		80		100	
	kg	lb	kg	lb	kg	lb	kg	lbs	kg	lbs
8000 Sensor	10.9	2		32	23.4	5	61.4	1		197
9000 Sensor with insulation housing	14.9	3	20.4	4	30.9		79	174	125	275

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