

SITRANS F M MAGFLO® Electromagnetic flowmeter type MAG 1100 FOOD, DN 10 - DN 100

083R9057

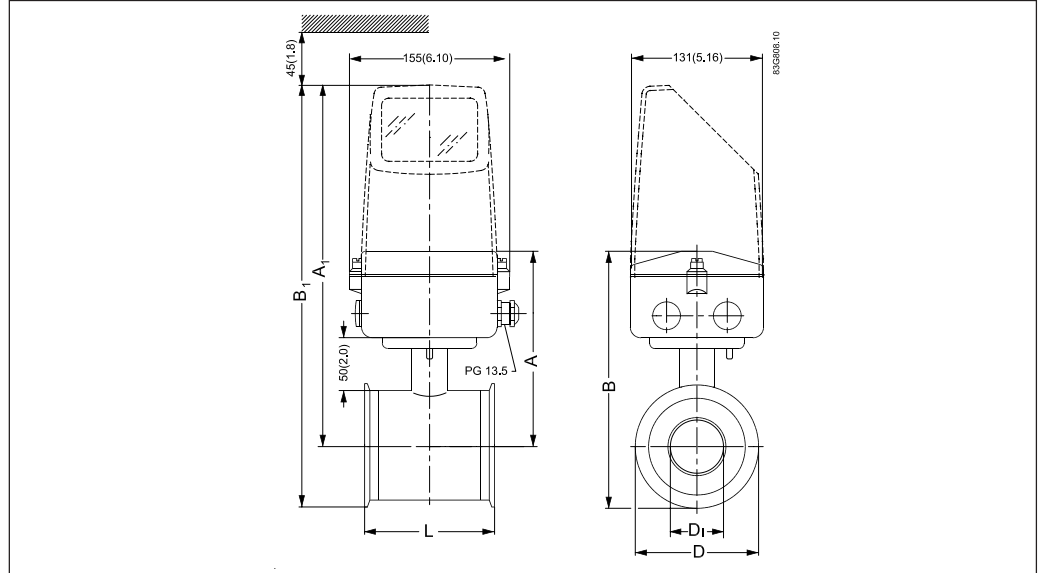
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Introduction

Siemens Flow Instruments SITRANS F M MAGFLO® electromagnetic flowmeters consist of a sensor and a signal converter. These instructions only describe the sensor installation. For further information on the signal converter installation, please refer to the SITRANS F M MAGFLO® handbook.

Sensor MAG 1100 FOOD

MAG 1100 FOOD/6000 and MAG 1100 FOOD/5000, compact and separate

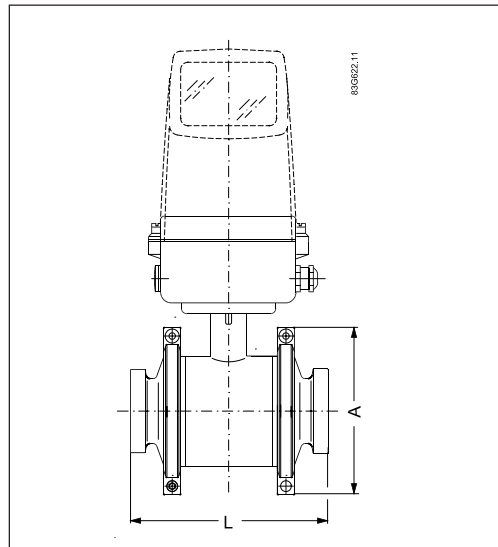


DN	L [mm]	A [mm]	A ₁ [mm]	B [mm]	B ₁ [mm]	D [mm]	D _i (Al ₂ O ₃) [mm]	D _i (PFA) [mm]	Weight ¹⁾ [kg]
10	64	156	309	181	334	64	10	10	2.2
15	64	156	309	181	334	64	15	16	2.2
25	79	164	317	196	349	77.5	25	26	2.7
40	94	176	329	218	371	91	40	38	3.4
50	104	184	337	235	388	119	50	50	4.2
65	131	194	347	254	407	130	65	66	5.5
80	156	200	353	266	419	155	80	81	7.0
100	186	213	366	292	445	183	100	100	10.0

¹⁾ With signal converter MAG 5000 or MAG 6000 installed weight is increased by approx. 0.8 kg.

The MAG 1100 FOOD sensor can also be used with the MAG 2500 or MAG 3000 signal converter.

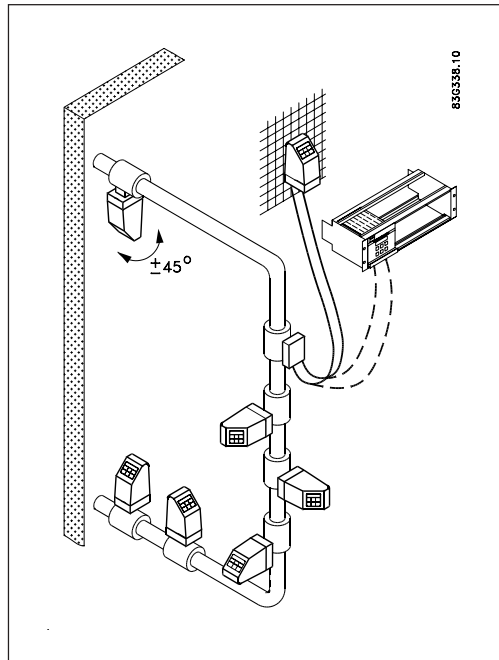
Built-in length



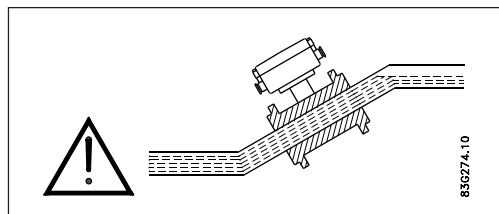
DN	A [mm]	L ¹⁾ [mm]
10	99	146
15	99	146
25	113	161
40	126	176
50	154	186
65	165	223
80	200	258
100	225	288

¹⁾ The total built-in length "L" is independent of the adapter type selected.

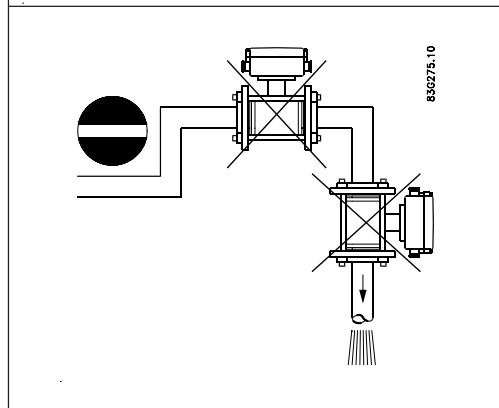
Installation, general



Reading and operating the flowmeter is possible under almost any installation conditions because the display can be oriented in relation to the sensor. To ensure optimum flow measurement attention should be paid to the following:

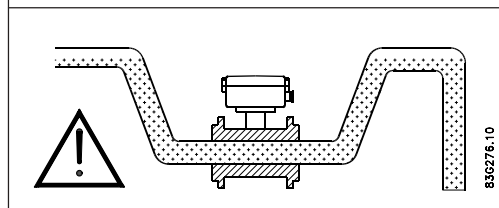


The sensor must always be completely full with liquid.

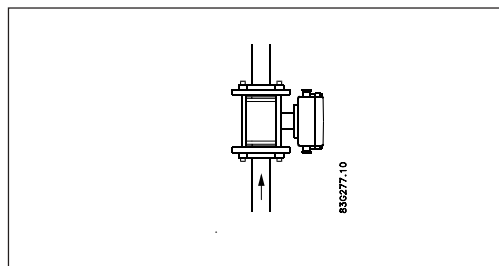


Therefore avoid:

- Installation at the highest point in the pipe system
- Installation in vertical pipes with free outlet



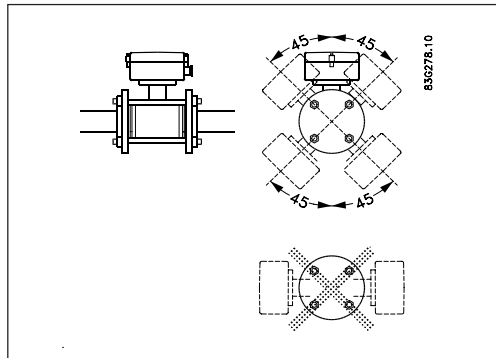
For partially filled pipes or pipes with downward flow and free outlet the flowmeter should be located in a U-tube.



Installation in vertical pipes

Recommended flow direction: upwards. This minimizes the effect on the measurement of any gas/air bubbles in the liquid.

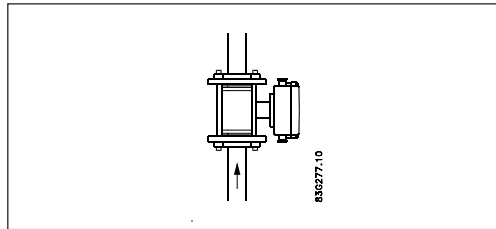
Installation, general
(continued)



Installation in horizontal pipes

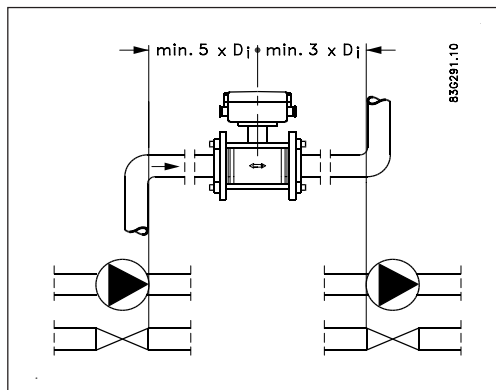
The sensor must be mounted as shown in the upper figure. Do not mount the sensor as shown in the lower figure. This will position the electrodes at the top where there is possibility for air bubbles and at the bottom where there is possibility for mud, sludge, sand etc.

If using empty pipe detection, the sensor can be tilted 45°, as shown in the upper figure.



Measuring abrasive liquids and liquids containing particles

Recommended installation is in a vertical/ inclined pipe to minimize the wear and deposits in the sensor.

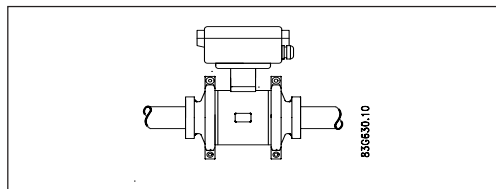


Inlet and outlet conditions

To achieve accurate flow measurement it is essential to have straight lengths of inlet and outlet pipes and a certain distance between pumps and valves.

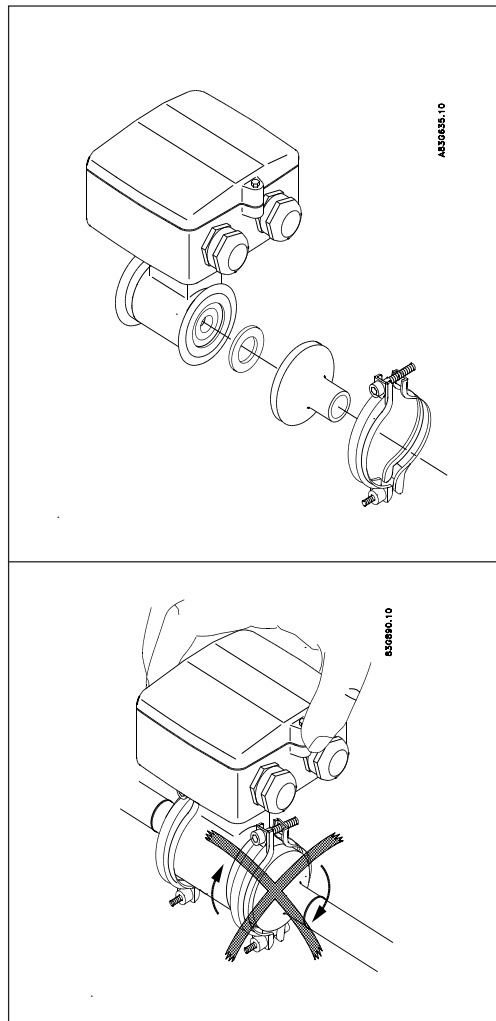
It is also important to centre the flowmeter in relation to pipe flanges and gaskets.

Potential equalization



The sensor must be installed between two adapters. Potential equalization with the liquid occurs automatically via these adapters and through the adjacent pipe.

Installation



The MAG 1100 FOOD sensor has an integrated clamp connection and is designed for installation between two adapters, which are supplied separately. The adapters are available for a variety of standards according to: ISO, DIN, SS, SMS, BS and DS, for direct welding into dairy pipes or with clamp- or threaded fittings.

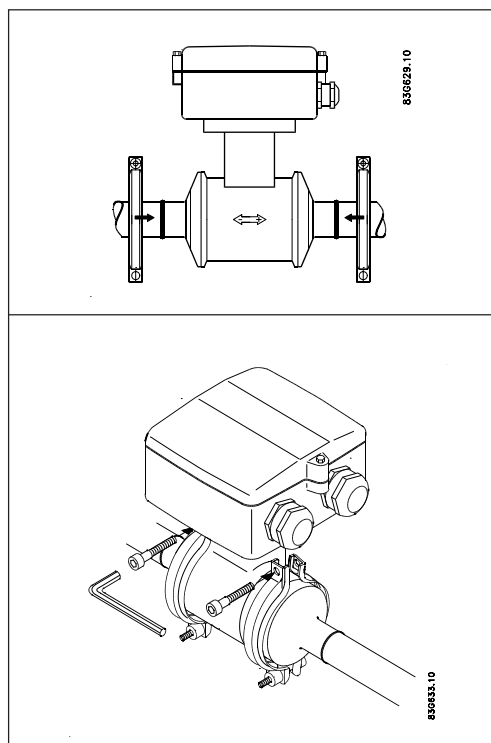
At assembly the gasket is placed in the adapter. The adapter is then fastened with a clamp ring. The clamp ring must be located, closed and tightened in order to ensure complete metallic contact between sensor and adapter facing.

To obtain optimum accuracy and hygienic conditions it is important that the sensor and the pipes are correctly aligned around their centerline, fittings must be perpendicular to the pipeline and upstream pipelines must be straight without curves.

Warning

Turning the sensor around the adapter centre line after the clamp rings have been fastened will damage the liner. The sensor may therefore only be turned when the clamp rings have either been removed or completely loosened.

Installation, welding type adapter



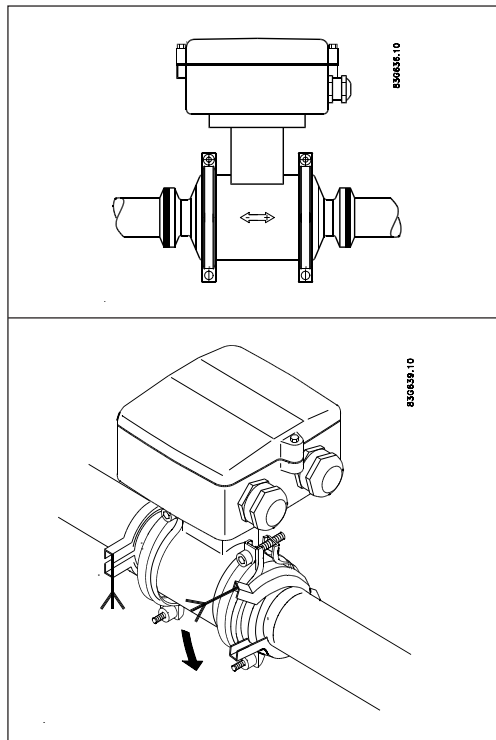
The two adapters are welded directly into the dairy pipes.

It is important to ensure a perpendicular welding to the pipeline in order to omit misalignment between sensor and adapter facing.

Installation to be as follows:

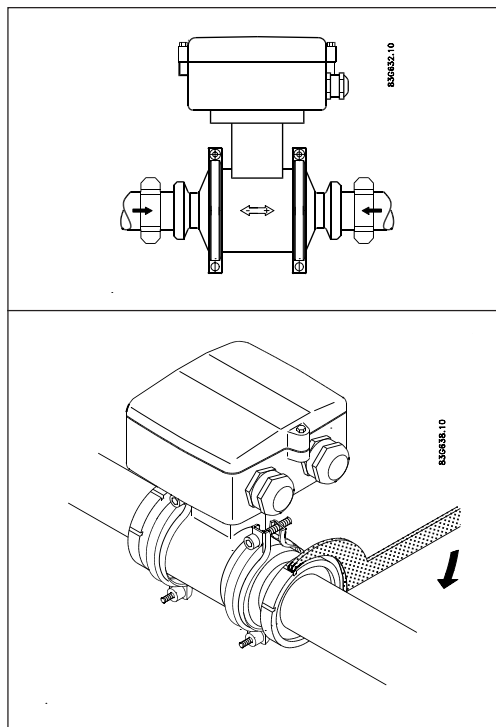
1. Cut a piece of the pipeline equal to the built-in length "L" stated for the actual sensor dimension.
2. Assemble the sensor and the adapters with the clamp rings - **leave the gaskets off.**
3. Mount the sensor and tag-weld the adapters to the pipe.
4. Remove clamp rings and dismount the sensor.
5. The adapters are firmly welded to the pipe.
6. Re-install the sensor with gaskets and clamp rings.

Installation, clamp type adapter



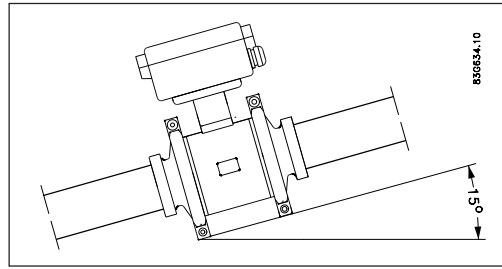
Sensor, gaskets and adapters are assembled to one unit and then installed in the pipeline prepared with a suitable fitting. Standard gaskets for the actual clamp connection must be used. The clamp rings must be located, closed and tightened.

Installation, thread type adapter



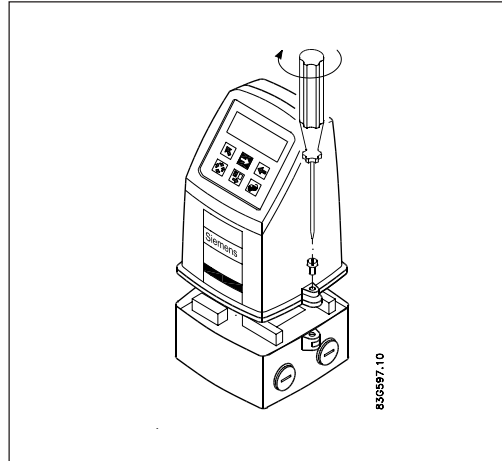
Sensor, gaskets and adapters are assembled to one unit and then installed in the pipeline prepared with a suitable fitting. Standard gaskets for the actual thread connection must be used. Tightening must be performed with a suitable union spanner.

Self-draining



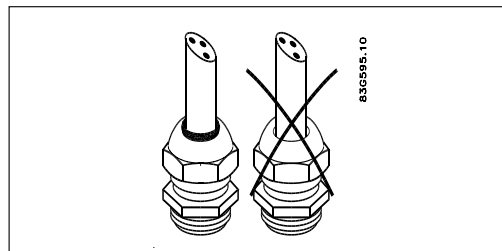
For applications where self-draining is required, the sensor must be mounted with a minimum incline of 15° to the horizontal plane.

Installation of the cover or signal converter on the terminal box



1. Mount the cover or the signal converter on the terminal box.
2. It is important that the screws are firmly tightened (4 Nm). Use a large screwdriver fitting into the screw slot.

Installation, cable



Tighten the cable glands and the cable entries to obtain optimum sealing. The cable entry gasket must obtain firm contact with the cable.