

MAG 3100 P**Overview**

The SITRANS F M MAG 3100 P is designed to meet the most common specifications within chemical and process industries.

Benefits

- DN 15 to DN 300 (½" to 12")
- Included in Quick Ship Program (delivery time see PIA LCP)
- Most used flowmeter in the chemical and process industries with PTFE/PFA liner and Hastelloy electrodes
- Excellent chemical resistance
- Full scope of global approvals for hazardous areas:
 - ATEX, FM, CSA, IECEx
 - 24 V and 115/230 V Ex compact and remote
 - intrinsically safe ia analog output
- Comprehensive self-diagnostic for error indication and error logging
- Fully welded construction provides a ruggedness that suits the toughest applications and environments.
- Easy commissioning, the SENSORPROM unit automatically updates settings.
- MAG 6000 I full NAMUR compliance
 - compliant with NE 21, NE 32, NE 43, NE 53 and NE70

Application

The main applications of the SITRANS F M electromagnetic flow sensors can be found in the following fields:

- Chemical industry
- Process industry
- Pulp and paper
- Industrial waste water

Design

- Compact or remote mounting possible
- Easy "plug & play" field changeability of transmitter
- High temperature sensor for applications with temperatures up to 150 °C (302 °F)
- Meets EEC directives: PED, 97/23/EC pressure directive for EN 1092-1 flanges, and CRN
- Build-in length according to ISO 13359
- Onsite or factory upgrade to IP68/NEMA 6P of a standard sensor.

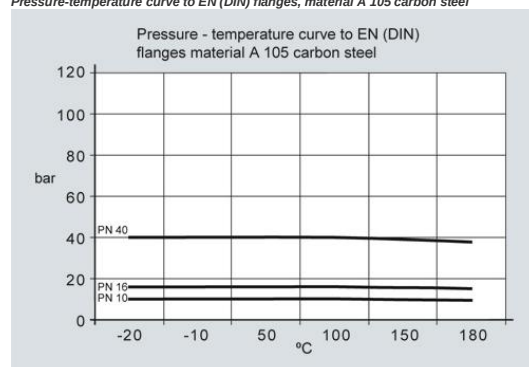
Mode of operation

The flow measuring principle is based on Faraday's law of electromagnetic induction according to which the sensor converts the flow into an electrical voltage proportional to the velocity of the flow.

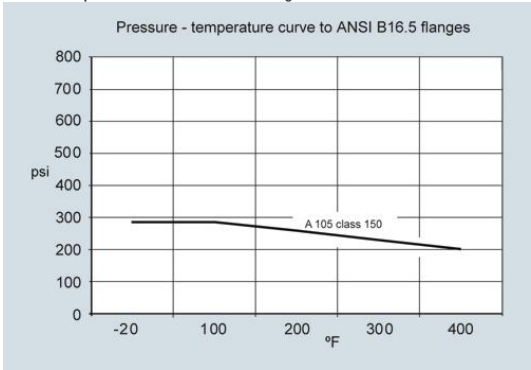
Integration

The complete flowmeter consists of a flow sensor and an associated transmitter MAG 5000, 6000 and 6000 I.

The flexible communication concept USM II simplifies integration and update to a variety of fieldbus systems such as HART, FOUNDATION Fieldbus H1, DeviceNet, PROFIBUS DP and PA, Modbus RTU/RS 485.

Pressure-temperature curve to EN (DIN) flanges, material A 105 carbon steel

Pressure-temperature curve to ANSI B16.5 flanges



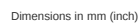
Note: The pressure-temperature curves only assist in the selection of a system. No responsibility is taken for the correctness of the information. For exact data please refer to the PED requirements.
For further information on the PED standard and requirements, see page 9/xx.

Technical specifications

Version	MAG 3100 P
Product characteristic	Chemical and process industry-oriented (Included in Quick Ship Program (delivery time see PIA LCP))
Nominal size	- PTFE: DN 15 ... 300 (½" ... 12") - PFA: DN 15 ... 150 (½" ... 6")
Measuring principle	Electromagnetic induction
Excitation frequency (Mains supply: 50 Hz/60 Hz)	- DN 15 ... 65 (½" ... 2½"): 12.5 Hz/15 Hz - DN 80 ... 150 (3" ... 6"): 6.25 Hz/7.5 Hz - DN 200 ... 300 (8" ... 12"): 3.125 Hz/3.75 Hz
Process connection	
Flanges	EN 1092-1, raised face ¹⁾ (EN 1092-1, DIN 2501 & BS 4504 have the same mating dimensions) - DN 15 ... 50 (½" ... 2"): PN 40 (580 psi) - DN 65 ... 300 (2½" ... 12"): PN 16 (232 psi) - DN 200 ... 300 (8" ... 12"): PN 10 (145 psi) ANSI B16.5 (~BS 1560), raised face ½" ... 12": Class 150 (20 bar (290 psi))
Rated operation conditions	
Ambient temperature (conditions also dependent on liner characteristics)	
- Standard Sensor - Ex sensor - With compact transmitter - MAG 5000/6000²⁾ - MAG 6000 I - MAG 6000 I Ex	-40 ... +100 °C (-40 ... +212 °F) -20 ... +60 °C (-4 ... +140 °F) -20 ... +60 °C (-4 ... +140 °F) -20 ... +60 °C (-4 ... +140 °F)
Operating pressure [abs. bar] (maximum operating pressure decreases with increasing operating temperature and with stainless steel flanges)	- PTFE Teflon - DN 15 ... 300 (½" ... 12"): 0.3 ... 40 bar (4 ... 580 psi) - PFA - DN 15 ... 150 (½" ... 6"): Vacuum 0.02 ... 50 bar (0.29 ... 725 psi)
Enclosure rating	IP67 to EN 60529/NEMA 4X/6, 1 mH ₂ O for 30 min Option: IP68 to EN 60529/NEMA 6P, 10 mH ₂ O cont. (not for Ex)
Pressure drop at 3 m/s	As straight pipe
Test pressure	1.5 x PN (where applicable)
Mechanical load (Vibration)	18 ... 1000 Hz random in x, y, z, directions for 2 hours according to EN 60068-2-36 - Sensor: 3.17 g RMS - Sensor with compact MAG 5000/6000 mounted transmitter: 3.17 g RMS - Sensor with compact MAG 6000 I/6000 I Ex mounted transmitter: 1.14 g RMS
Temperature of medium	- PTFE -20 ... +130 °C (-4 ... +266 °F) - PFA -20 ... +150 °C (-4 ... +302 °F)
EMC	2004/108/EC
Design	
Weight	See dimensional drawings

¹ DN ≤ 600 type 01 (SORF); DN > 600 type 11 (WNRF)

MAG 3100 P sensor with compact or remote transmitter



Metric

DN	A ¹⁾	A ₁	A ₂	B	D1	EN 1092-1-201				T _E ³⁾	T _F ³⁾	Weight ⁴⁾
						ANSI 16.5						
						PN 10	PN 16	PN 40	Class 150			
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
15	187	341	338	59	104	-	-	200	200	6	2	4
25	187	341	338	59	104	-	-	200	200	6	2	5
40	197	351	348	82	124	-	-	200	200	6	2	8
50	205	359	356	72	139	-	-	200	200	6	2	9

65	212	369	366	72	154	-	200/-	-	200	6	2	11
80	222	376	373	72	174	-	200/-	-	272 ²⁾	6	2	12
100	242	396	393	85	214	-	250/-	-	250	6	2	16
125	255	409	406	85	239	-	250/-	-	250	6	2	19
150	276	430	427	85	282	-	300/-	-	300	6	2	27
200	304	458	455	137	338	350	350/-	-	350	8	2	40
250	332	486	483	157	393	450	450/-	-	450	8	2	60
300	357	511	508	157	444	500	500/-	-	500	8	2	80

¹⁾ 14.5 mm shorter with AISI terminal box (Ex and high temperature version)

²⁾ When earthing flanges are used, the thickness of the earthing flange must be added to the built-in length.

³⁾ T_E = Type E grounding ring, T_F = Flat type grounding rings

⁴⁾ Weights are approx. (for PN 16) without transmitter

⁵⁾ Not according to ISO 13359

- not available

D = Outside diameter of flange, see flange tables

MAG 3100 P sensor with compact or remote transmitter

Imperial

DN	A ¹⁾	A ₁	A ₂	B	D1	L ²⁾			T _C ³⁾			T _E ³⁾	T _F ³⁾	Weight ⁴⁾
						EN 1092-1-201			ANSI 16.5					
						PN 10	PN 16	PN 40	Class 150					
[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[lbs]
½	7.36	13.4	13.34	2.32	4.09	-	-	7.87	7.87	-	0.24	0.08	0.08	9
1	7.36	13.4	13.34	2.32	4.09	-	-	7.87	7.87	0.05	0.24	0.08	0.08	11
1½	7.76	13.8	13.74	3.23	4.88	-	-	7.87	7.87	0.05	0.24	0.08	0.08	17
2	8.07	14.1	14.04	2.83	5.47	-	-	7.87	7.87	0.05	0.24	0.08	0.08	20
2½	8.35	14.4	14.34	2.83	6.06	-	7.87/-	-	7.87	0.05	0.24	0.08	0.08	24
3	8.74	14.8	14.74	2.83	6.85	-	7.87/-	-	10.71 ⁵⁾	0.05	0.24	0.08	0.08	26
4	9.53	15.6	15.54	3.35	8.43	-	9.84/-	-	9.84	0.05	0.24	0.08	0.08	35
5	10.04	16.1	16.04	3.35	9.41	-	9.84/-	-	9.84	0.05	0.24	0.08	0.08	42
6	10.87	16.9	16.84	3.35	11.10	-	11.81/-	-	11.81	0.05	0.24	0.08	0.08	60
8	11.97	18.0	17.94	5.39	13.31	13.78	13.78/-	-	13.78	0.05	0.31	0.08	0.08	88
10	13.07	19.1	19.04	6.18	15.47	17.72	17.72/-	-	17.72	0.05	0.31	0.08	0.08	132
12	14.05	20.1	20.04	6.18	17.48	19.69	19.69/-	-	19.69	0.06	0.31	0.08	0.08	176

¹⁾ 0.571 inch shorter with AISI terminal box (Ex and high temperature version)

²⁾ When earthing flanges are used, the thickness of the earthing flange must be added to the built-in length.

³⁾ T_C = Type C grounding ring, T_E = Type E grounding ring, T_F = Flat type grounding rings

⁴⁾ Weights are for ANSI 150 without transmitter.

⁵⁾ Not according to ISO 13359

- not available

D = Outside diameter of flange, see flange tables