

Overview



The SITRANS F M MAGFLO MAG 3100 is an electromagnetic flow sensor in a large variety that meets almost every flow application.

Benefits

- Wide range of sizes: DN 15 ... DN 2000 (½" ... 78")
- Wide pressure range: PN 6 ... PN 100 ANSI Class 150 / 300, AS 2119. On request up to 690 bar (10000 psi)
- Wide range of electrode and liner material to fit even the most extreme process media
- Fully welded construction provides a ruggedness that suits the toughest applications and environments
- Easy commissioning, the SENSORPROM unit automatically updates settings.
- Designed to allow patented MAGFLO in-situ verification using the SENSORPROM fingerprints.

Application

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

- Process industry
- Chemical industry
- Steel industry
- Mining
- Utility
- Power generation & distribution
- Oil & gas / HPI
- Water & waste water

Design

The sensor is built up of a stainless steel pipe, 2 coils, 2 electrodes, an isolated liner, a housing and one of different flange connections.

- Ex ATEX version for hazardous areas (MAG 3100 Ex only)
- High temperature sensor for applications with temperatures up to 180 °C (356 °F)
- Approvals for PTB, OIML R75 and OIML R117
- Meets EEC directives: PED, 97/23/EC pressure directive for EN1092-1 flanges
- Build-in length according to ISO 13359
- Individually calibrated on UKAS EN 45001 accredited calibration facility with a ± 0.1% uncertainty.
- Simple on-site upgrade to IP68/NEMA 6P of a standard sensor.

Mode of operation

The flow measuring principle is based on Faradays law of electromagnetic induction where 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 SITRANS F M MAGFLO 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, PROFIBUS DP & PA, DeviceNet, CANopen, MODBUS RTU/RS485.

Technical specifications

Measuring principle	Electromagnetic induction
Excitation frequency	
• MAGFLO MAG 3100	<ul style="list-style-type: none"> • DN 15 ... 65 (½" ... 2½"): 12.5 Hz • DN 80 ... 150 (3" ... 6"): 6.25 Hz • DN 200 ... 1200 (8" ... 48"): 3.125 Hz • DN 1400 ... 2000 (54" ... 78"): 1.57 Hz
• MAGFLO MAG 3100 Ex	<ul style="list-style-type: none"> • DN 15 ... 65 (½" ... 2½"): 6.25 Hz • DN 80 ... 100 (3" ... 4"): 3.125 Hz • DN 125 ... 300 (5" ... 12"): 1.063 Hz • DN 350 ... 1200 (14" ... 48"): 3.125 Hz • DN 1400 ... 2000 (54" ... 78"): 1.57 Hz
Input	
Nominal size	DN 15 ... DN 2000 (½" ... 78")
Flanges	
• Standard EN 1092-1, Raised face (EN 1092-1, DIN 2501 & BS 4504 have the same mating dimensions)	<ul style="list-style-type: none"> • DN 15 ... 50 (½" ... 2"): PN 40 (580 psi) • DN 65 ... 150 (2½" ... 6"): PN 16 (232 psi) • DN 200 ... 1000 (8" ... 40"): PN 10 (145 psi) • DN 1100 ... 2000 (8" ... 78"): PN 6 (87 psi)

SITRANS F flowmeters

SITRANS F M

MAGFLO MAG 3100/ MAG 3100 Ex

Technical specifications (continued)

• Option	<ul style="list-style-type: none"> • DN 25 ... 350 (1" ... 14"): PN 100 (1450 psi) • DN 50 ... 400 (2" ... 16"): PN 63 (913 psi) • DN 65 ... 1000 (2½" ... 40"): PN 6 (87 psi) • DN 65 ... 150 (2½" ... 6"): PN 16 (232 psi) • DN 65 ... 600 (2½" ... 25"): PN 40 (580 psi) • DN 200 ... 600 (8" ... 24"): PN 25 (362 psi) • DN 200 ... 2000 (8" ... 78"): PN 16 (232 psi) • DN 1200 ... 2000 (48" ... 78"): PN 10 (145 psi)
• ANSI B16.5 (~BS 1560)	<ul style="list-style-type: none"> ¾" ... 24": Class 150 (20 bar (290 psi)) ¾" ... 24": Class 300 (50 bar (725 psi)) Higher ratings on request 28" ... 78": Class D (10 bar) ¾" ... 48": Table D/E • Class 14 (DN 50 ... 1200, 14 bar (203 psi)) • Class 21 (DN 50 ... 600, 21 bar (304 psi)) • Class 35 (DN 50 ... 600, 35 bar (508 psi))
• AWWA C-207	
• AS 2129	
• AS 4087	

Rated operating conditions

Ambient conditions

Ambient temperature

• Remote transmitter	-40 ... +100 °C (-40 ... +212 °F)
• Compact transmitter	
- MAG 5000/MAG 6000	-20 ... +50 °C (-4 ... +122 °F)
- MAG 6000 I	-20 ... +60 °C (-4 ... +140 °F)

Operating pressure [abs. bar]

(maximum operating pressure decreases with increasing operating temperature and with stainless steel flanges)

Liner

• Neoprene	0.01 ... 100 bar (0.15 ... 1450 psi)
• EPDM	0.01 ... 40 bar (0.15 ... 580 psi)
• Linatex®	0.01 ... 40 bar (0.15 ... 580 psi)
• Ebonite	0.01 ... 100 bar (0.15 ... 1450 psi)
• PTFE Teflon MAGFLO MAG 3100	
- DN 15 ... 600 (½" ... 24")	Max. 100 °C (212 °F); 0.3 ... 50 bar (4 ... 725 psi)
- DN 15 ... 300 (½" ... 12")	Max. 180 °C (356 °F); 0.6 ... 50 bar (9 ... 725 psi)
• PTFE Teflon MAGFLO MAG 3100 Ex	
- DN 15 ... 600 (½" ... 24")	0.3 ... 40 bar (4...580 psi)

Mechanical load

	18 ... 1000 Hz random, 3.17 G rms in all directions to EN 60068-2-36
	For compact installation with the MAG 6000 I, transmitter to be supported to avoid tension on sensor part.

Enclosure rating

• Standard	IP67/NEMA 4X/6 to EN 60529, 1 mH ₂ O for 30 min
• Option	IP68/NEMA 6P to EN 60529, 10 mH ₂ O cont.

Test pressure 1.5 x PN (nominal pressure)

Medium conditions

Temperature of medium

MAGFLO MAG 3100

• Liner

- Neoprene	0 ... 70 °C (32 ... 158 °F)
- EPDM (with WRc (Water Research Council, UK) approval)	-10 ... +95 °C (14 ... 203 °F)
- Linatex® (rubber) (for temperatures below -10°C (15°F) AISI 304 or 316 flanges must be used)	-40 ... +70 °C (-40 ... +158 °F)
- Ebonite	0 ... 95 °C (32 ... 203 °F)
- PTFE	-20 ... +100 °C (-4 ... +212 °F)
- PTFE high temperature	-20 ... +180 °C (-4 ... +356 °F)

MAGFLO MAG 3100 Ex

• Liner

- Neoprene	(Tx = Temperature classification) T3, T4, T5, T6: 0 ... 70 °C (32 ... 158 °F)
- EPDM (with WRc (Water Research Council, UK)) approval	• T3 and T4: -10 ... +95 °C (14 ... 203 °F)
	• T5: -10 ... +90 °C (14 ... 194 °F)
	• T6: -10 ... +75 °C (-14 ... +167 °F)
- Linatex® (rubber) (for temperatures below -10°C (15°F) AISI 304 or 316 flanges must be used)	T3, T4, T5, T6: -20 ... +70 °C (-4 ... +158 °F)
- Ebonite	• T3 and T4: 0 ... 95 °C (32 ... 203 °F)
	• T5: 0 ... 90 °C (32 ... 194 °F)
	• T6: 0 ... 75 °C (32 ... 167 °F)
- PTFE	• T3 and T4: -20 ... +100 °C (-4 ... +212 °F)
	• T5: -20 ... +90 °C (-4 ... +194 °F)
	• T6: -20 ... +75 °C (-4 ... +167 °C)

EMC

89/336 EEC

Design

Weight See Dimensional drawings

Material

• Flange and housing

- Standard	Carbon steel, corrosion resistant two component coating (min. 150 µm)
- Option	• AISI 304 (1.4301) flanges and carbon steel housing, coating as standard
	• AISI 316 L (1.4404) flanges and housing
• Measuring pipe	AISI 304 (1.4301)
• Electrodes	
- Standard	AISI 316 Ti (1.4571)
- Option	Hastelloy C-276, Platinum/Iridium, Titanium, AISI 316 Ti ceramic coated, Tantalum

• Grounding electrodes

Material as measuring electrodes except units with PTFE liner

Cable entries

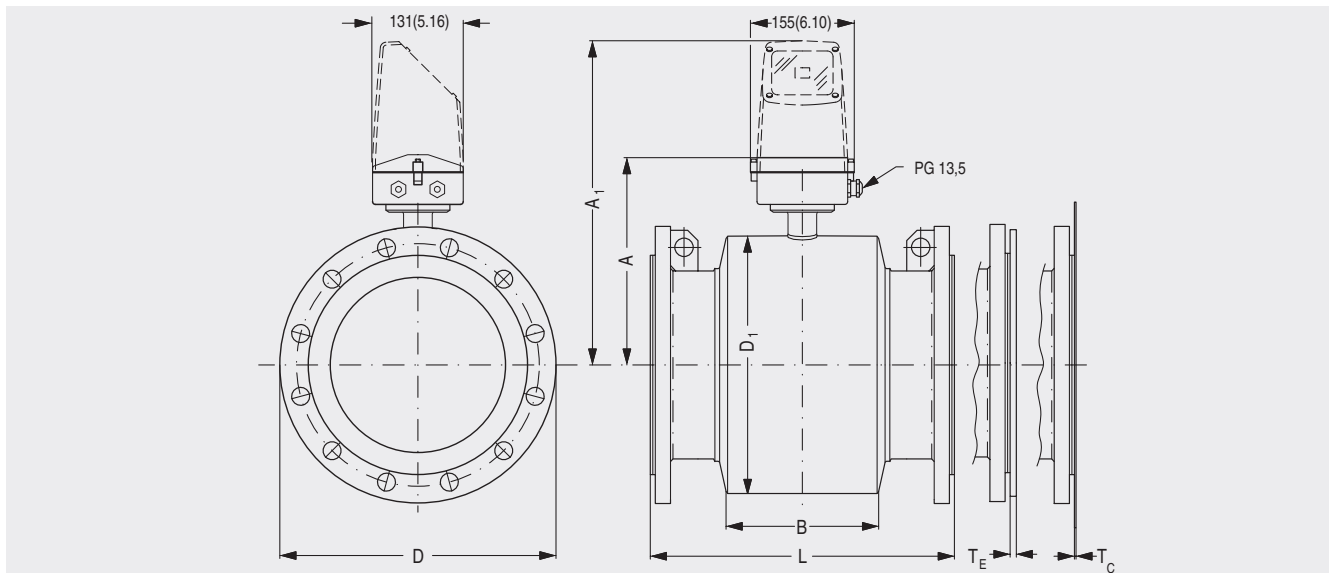
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Certificates and approvals

Ex-approval sensor	DN 15 ... 300: EEx d [ia] [ib] IIB T4 - T6 DN 350 ... 2000: EEx e [ia] IIC T3 - T6
Conforms to	PED - 97/23 EC FM Class 1 Div 2

Dimensional drawings

Sensor MAG 3100 compact/remote, MAG 3100 Ex remote



DN	A ¹⁾	A ₁	B	D ₁	L ²⁾								T _C ³⁾	T _E ³⁾	Weight ⁴⁾	
					EN 1092-1-201					BS 1560/ ANSI 16.5		AS 2129 E AS 4087 Class 14-21- 35				AWWA C-207 Class D
					PN 6, 10, 16	PN 25	PN 40	PN 64	PN 100	Class 150	Class 300					
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]	
15	187	338	59	104	200	200	200	-	-	200	200	200	-	-	6	4
25	187	338	59	104	200	200	200	-	260	200	200	200	-	1.2	6	5
40	197	348	82	124	200	200	200	-	280	200	200	200	-	1.2	6	8
50	205	356	72	139	200	200	200	276	300	200	200	200	-	1.2	6	9
65	212	363	72	154	200	200	200	320	350	200	272	200	-	1.2	6	11
80	222	373	72	174	200	272	272	323	340	272	272	200	-	1.2	6	12
100	242	393	85	214	250	250	250	380	400	250	310	250	-	1.2	6	16
125	255	406	85	239	250	250	250	420	450	250	335	250	-	1.2	6	19
150	276	427	85	282	300	300	300	415	450	300	300	300	-	1.2	6	27
200	304	455	137	338	350	350	350	480	530	350	350	350	-	1.2	8	40
250	332	483	137	393	450	450	450	550	620	450	450	450	-	1.2	8	60
300	357	508	137	444	500	500	500	600	680	500	500	500	-	1.6	8	80
350	362	513	270	451	550	550	550	700	800	550	550	550	-	1.6	8	110
400	387	538	270	502	600	600	600	750	-	600	600	600	-	1.6	10	125
450	418	569	310	563	600	600	600	-	-	600	640	600	-	1.6	10	175
500	443	594	350	614	625	625	680	-	-	680	730	625	-	1.6	10	200
600	494	645	430	715	750	750	750	-	-	820	860	750	-	1.6	10	300
700	544	695	500	816	875	-	-	-	-	-	-	875	875	2.0	-	350
750	571	722	556	869	-	-	-	-	-	-	-	937	937	2.0	-	380
800	606	757	560	927	1000	-	-	-	-	-	-	1000	1000	2.0	-	475
900	653	804	630	1032	1125	-	-	-	-	-	-	1125	1125	2.0	-	560
1000	704	906	670	1136	1250	-	-	-	-	-	-	1250	1250	2.0	-	700
1100	755	906	770	1238	1375	-	-	-	-	-	-	-	-	2.0	-	1200
1200	810	961	792	1348	1500	-	-	-	-	-	-	1500	1500	2.0	-	1250
1400	925	1076	1000	1675	1750	-	-	-	-	-	-	-	-	2.0	-	1753
1500	972	1123	1020	1672	-	-	-	-	-	-	-	1875	1875	3.0	-	2600
1600	1025	1176	1130	1915	2000	-	-	-	-	-	-	-	-	3.0	-	2341
1800	1123	1274	1250	1974	2250	-	-	-	-	-	-	-	-	3.0	-	3253
2000	1223	1374	1375	2174	2500	-	-	-	-	-	-	-	-	3.0	-	4060

1) 13 mm shorter with AISI terminal box (Ex and high temperature)
 2) When earthing flanges are used, the thickness of the earthing flange must be added to the build-in length
 3) T_C = Type C grounding ring, T_E = Type E grounding ring
 4) Weights are approx. and for PN 16 without transmitter
 - Means not available
 D = Outside diameter of flange, see flange tables

SITRANS F flowmeters

SITRANS F M

MAGFLO MAG 3100/ MAG 3100 Ex

Sensor MAG 3100 compact/remote, MAG 3100 Ex remote

Size	A ¹⁾	A ₁	B	D ₁	L ²⁾								T _C ³⁾	T _E ³⁾	Weight ⁴⁾	
					EN 1092-1-201					ANSI 16.5		AWWA C-207 Class D			MAG 3100	MAG 3100 Ex
					PN 6, 10, 16	PN 25	PN 40	PN 64	PN 100	Class 150	Class 300					
[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[lb]	[lb]
½	7.36	13.31	2.32	4.09	7.87	7.87	7.87	-	-	7.87	7.87	-	-	0.24	11	24
1	7.36	13.31	2.32	4.09	7.87	7.87	7.87	-	10.24	7.87	7.87	-	0.05	0.24	13	28
1½	7.76	13.70	3.23	4.88	7.87	7.87	7.87	-	11.02	7.87	7.87	-	0.05	0.24	17	37
2	8.07	14.01	2.83	5.47	7.87	7.87	7.87	10.87	11.81	7.87	7.87	-	0.05	0.24	28	62
2½	8.35	14.29	2.83	6.06	7.87	7.87	7.87	12.60	13.78	7.87	10.71	-	0.05	0.24	30	66
3	8.74	14.69	2.83	6.85	7.87	10.71	10.71	12.72	13.39	10.71	10.71	-	0.05	0.24	33	73
4	9.53	15.47	3.35	8.43	9.84	9.84	9.84	14.96	15.75	9.84	12.20	-	0.05	0.24	44	97
5	10.04	15.98	3.35	9.41	9.84	9.84	9.84	16.54	17.72	9.84	13.10	-	0.05	0.24	55	121
6	10.87	16.81	5.39	11.10	11.81	11.81	11.81	16.34	17.72	11.81	11.81	-	0.05	0.24	66	145
8	11.97	17.91	5.39	13.31	13.78	13.78	13.78	18.90	20.87	13.78	13.78	-	0.05	0.31	110	242
10	13.07	19.02	5.39	15.47	17.72	17.72	17.72	21.65	24.41	17.72	17.72	-	0.05	0.31	155	342
12	14.05	20.00	5.39	17.48	19.69	19.69	19.69	23.62	26.77	19.69	19.69	-	0.06	0.31	176	388
14	14.25	20.20	10.63	17.76	21.65	21.65	21.65	27.56	31.50	21.65	21.65	-	0.06	0.31	242	533
16	15.24	21.18	10.63	19.76	23.62	23.62	23.62	29.53	-	23.62	23.62	-	0.06	0.39	275	606
18	16.45	22.40	12.20	22.16	23.62	23.62	23.62	-	-	23.62	25.20	-	0.06	0.39	385	849
20	17.44	23.39	13.78	24.17	24.61	24.61	26.77	-	-	26.77	28.70	-	0.06	0.39	440	970
24	19.45	25.39	16.93	28.15	29.53	29.53	29.53	-	-	32.28	33.80	-	0.06	0.39	660	1455
28	21.42	27.36	19.69	32.13	34.45	-	-	-	-	-	-	34.5	0.08	-	770	1698
30	22.48	28.43	21.89	34.21	-	-	-	-	-	-	-	36.9	0.08	-	880	1940
32	23.86	29.80	22.05	36.50	39.37	-	-	-	-	-	-	39.4	0.08	-	1045	2304
36	25.71	31.65	24.80	40.63	44.29	-	-	-	-	-	-	44.3	0.08	-	1233	2718
40	27.72	35.67	26.38	44.72	49.21	-	-	-	-	-	-	49.2	0.08	-	1541	3397
42	27.72	35.67	26.38	44.72	49.21	-	-	-	-	-	-	49.2	0.08	-	1541	3397
44	29.72	35.67	30.31	48.74	-	-	-	-	-	-	-	59.1	0.08	-		
48	31.89	37.83	31.18	53.07	59.06	-	-	-	-	-	-	59.1	0.08	-	2751	6065
54	36.42	42.36	39.37	65.94	68.90	-	-	-	-	-	-	68.9	0.12	-	3211	7079
60	38.27	44.21	40.15	65.83	-	-	-	-	-	-	-	73.8	0.12	-	3731	8225
66	40.35	46.30	44.49	75.39	78.74	-	-	-	-	-	-	78.7	0.12	-	4257	9385
72	44.21	50.16	49.21	77.72	88.58	-	-	-	-	-	-	88.5	0.12	-	5291	11665
78	48.15	54.09	54.13	85.59	98.43	-	-	-	-	-	-	98.4	0.12	-	7492	16517

1) 0.512 inch shorter with AISI terminal box (Ex and high temperature)

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

3) T_C = Type C grounding ring, T_E = Type E grounding ring

4) Weights are for ANSI 150 without transmitter

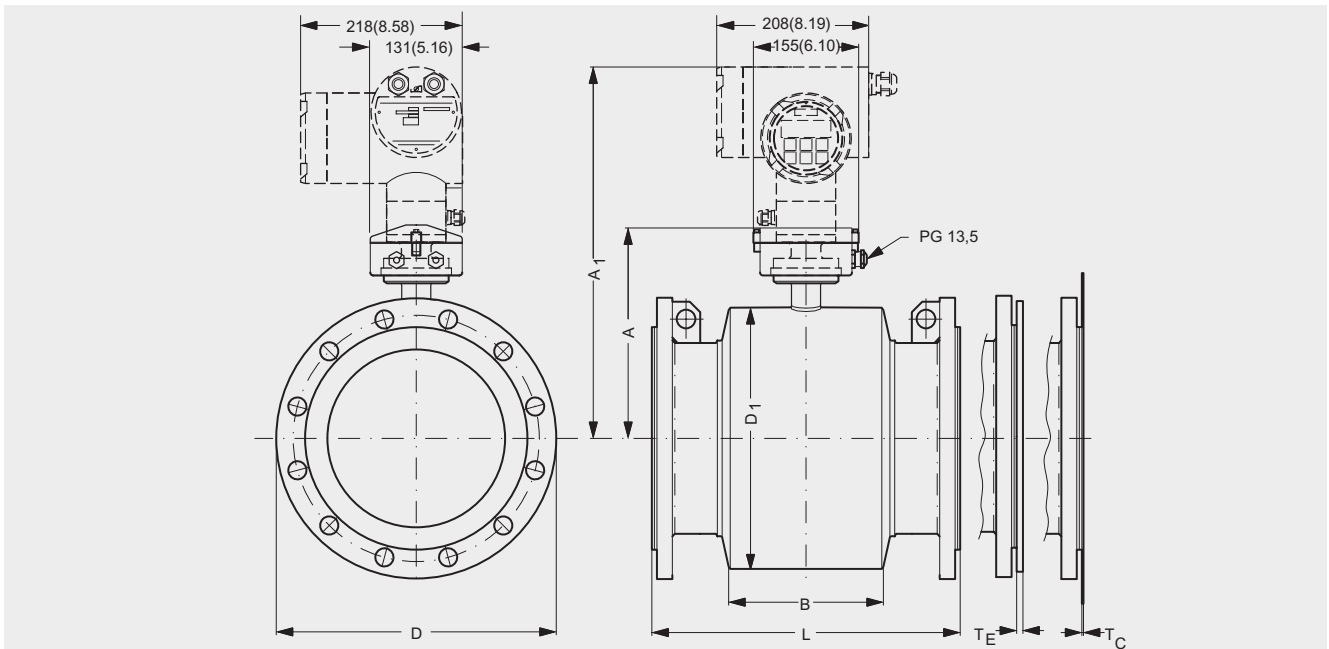
- Means not available

D = Outside diameter of flange, see flange tables

SITRANS F flowmeters

SITRANS F M

MAGFLO MAG 3100/ MAG 3100 Ex



4

DN	A ¹⁾	A ₁ ⁵⁾	B	D ₁	L ²⁾									T _C ³⁾	T _E ³⁾	Weight ⁴⁾
					EN 1092-1-201					BS 1560/ ANSI 16.5		AS 2129 E AS 4087 Class 14-21-35	AWWA C-207 Class D			
					PN 6, 10, 16	PN 25	PN 40	PN 64	PN 100	Class 150	Class 300					
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
15	187	336.4	59	104	200	200	200	-	-	200	200	200	-	-	6	4
25	187	336.4	59	104	200	200	200	-	260	200	200	200	-	1.2	6	5
40	197	346.4	82	124	200	200	200	-	280	200	200	200	-	1.2	6	8
50	205	354.4	72	139	200	200	200	276	300	200	200	200	-	1.2	6	9
65	212	361.4	72	154	200	200	200	320	350	200	272	200	-	1.2	6	11
80	222	371.4	72	174	200	272	272	323	340	272	272	200	-	1.2	6	12
100	242	391.4	85	214	250	250	250	380	400	250	310	250	-	1.2	6	16
125	255	404.4	85	239	250	250	250	420	450	250	335	250	-	1.2	6	19
150	276	425.4	85	282	300	300	300	415	450	300	300	300	-	1.2	6	27
200	304	453.5	137	338	350	350	350	480	530	350	350	350	-	1.2	8	40
250	332	481.4	137	393	450	450	450	550	620	450	450	450	-	1.2	8	60
300	357	506.4	137	444	500	500	500	600	680	500	500	500	-	1.6	8	80
350	362	511.1	270	451	550	550	550	700	800	550	550	550	-	1.6	8	110
400	387	536.4	270	502	600	600	600	750	-	600	600	600	-	1.6	10	125
450	418	567.4	310	563	600	600	600	-	-	600	640	600	-	1.6	10	175
500	443	592.4	350	614	625	625	680	-	-	680	730	625	-	1.6	10	200
600	494	643.4	430	715	750	750	750	-	-	820	860	750	-	1.6	10	300
700	544	693.4	500	816	875	-	-	-	-	-	-	875	875	2.0	-	350
750	571	720.4	556	869	-	-	-	-	-	-	-	937	937	2.0	-	380
800	606	755.4	560	927	1000	-	-	-	-	-	-	1000	1000	2.0	-	475
900	653	802.4	630	1032	1125	-	-	-	-	-	-	1125	1125	2.0	-	560
1000	704	853.4	670	1136	1250	-	-	-	-	-	-	1250	1250	2.0	-	700
1100	755	904.4	770	1238	1375	-	-	-	-	-	-	-	-	2.0	-	1200
1200	810	959.4	792	1348	1500	-	-	-	-	-	-	1500	1500	2.0	-	1250
1400	925	1074.4	1000	1675	1750	-	-	-	-	-	-	-	-	2.0	-	1753
1500	972	1121.4	1020	1672	-	-	-	-	-	-	-	1875	1875	3.0	-	2600
1600	1025	1174.4	1130	1915	2000	-	-	-	-	-	-	-	-	3.0	-	2341
1800	1123	1272.4	1250	1974	2250	-	-	-	-	-	-	-	-	3.0	-	3253
2000	1223	1372.4	1375	2174	2500	-	-	-	-	-	-	-	-	3.0	-	4060

1) 13 mm shorter with AISI terminal box (Ex and high temperature)

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

3) T_C = Type C grounding ring, T_E = Type E grounding ring

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

5) Ex version 8 mm higher

- Means not available

D = Outside diameter of flange, see flange tables

SITRANS F flowmeters

SITRANS F M

MAGFLO MAG 3100/ MAG 3100 Ex

Sensor MAG 3100/ MAG 3100 Ex, integral or remote mount and separate

Size	A ¹⁾	A ₁ ⁵⁾	B	D ₁	L ²⁾								T _C ³⁾	T _E ³⁾	Weight ⁴⁾	
					EN 1092-1-201					ANSI 16.5		AWWA C-207 Class D			MAG 3100	MAG 3100 Ex
					PN 6, 10, 16	PN 25	PN 40	PN 64	PN 100	Class 150	Class 300					
[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[lb]	[lb]
½	7.36	13.31	2.32	4.09	7.87	7.87	7.87	-	-	7.87	7.87	-	-	0.24	11	24
1	7.36	13.31	2.32	4.09	7.87	7.87	7.87	-	10.24	7.87	7.87	-	0.05	0.24	13	28
1½	7.76	13.70	3.23	4.88	7.87	7.87	7.87	-	11.02	7.87	7.87	-	0.05	0.24	17	37
2	8.07	14.01	2.83	5.47	7.87	7.87	7.87	10.87	11.81	7.87	7.87	-	0.05	0.24	28	62
2½	8.35	14.29	2.83	6.06	7.87	7.87	7.87	12.60	13.78	7.87	10.71	-	0.05	0.24	30	66
3	8.74	14.69	2.83	6.85	7.87	10.71	10.71	12.72	13.39	10.71	10.71	-	0.05	0.24	33	73
4	9.53	15.47	3.35	8.43	9.84	9.84	9.84	14.96	15.75	9.84	12.20	-	0.05	0.24	44	97
5	10.04	15.98	3.35	9.41	9.84	9.84	9.84	16.54	17.72	9.84	13.10	-	0.05	0.24	55	121
6	10.87	16.81	5.39	11.10	11.81	11.81	11.81	16.34	17.72	11.81	11.81	-	0.05	0.24	66	145
8	11.97	17.91	5.39	13.31	13.78	13.78	13.78	18.90	20.87	13.78	13.78	-	0.05	0.31	110	242
10	13.07	19.02	5.39	15.47	17.72	17.72	17.72	21.65	24.41	17.72	17.72	-	0.05	0.31	155	342
12	14.05	20.00	5.39	17.48	19.69	19.69	19.69	23.62	26.77	19.69	19.69	-	0.06	0.31	176	388
14	14.25	20.20	10.63	17.76	21.65	21.65	21.65	27.56	31.50	21.65	21.65	-	0.06	0.31	242	533
16	15.24	21.18	10.63	19.76	23.62	23.62	23.62	29.53	-	23.62	23.62	-	0.06	0.39	275	606
18	16.45	22.40	12.20	22.16	23.62	23.62	23.62	-	-	23.62	25.20	-	0.06	0.39	385	849
20	17.44	23.39	13.78	24.17	24.61	24.61	26.77	-	-	26.77	28.70	-	0.06	0.39	440	970
24	19.45	25.39	16.93	28.15	29.53	29.53	29.53	-	-	32.28	33.80	-	0.06	0.39	660	1455
28	21.42	27.36	19.69	32.13	34.45	-	-	-	-	-	-	34.5	0.08	-	770	1698
30	22.48	28.43	21.89	34.21	-	-	-	-	-	-	-	36.9	0.08	-	880	1940
32	23.86	29.80	22.05	36.50	39.37	-	-	-	-	-	-	39.4	0.08	-	1045	2304
36	25.71	31.65	24.80	40.63	44.29	-	-	-	-	-	-	44.3	0.08	-	1233	2718
40	27.72	35.67	26.38	44.72	49.21	-	-	-	-	-	-	49.2	0.08	-	1541	3397
42	27.72	35.67	26.38	44.72	49.21	-	-	-	-	-	-	49.2	0.08	-	1541	3397
44	29.72	35.67	30.31	48.74	-	-	-	-	-	-	-	59.1	0.08	-		
48	31.89	37.83	31.18	53.07	59.06	-	-	-	-	-	-	59.1	0.08	-	2751	6065
54	36.42	42.36	39.37	65.94	68.90	-	-	-	-	-	-	68.9	0.12	-	3211	7079
60	38.27	44.21	40.15	65.83	-	-	-	-	-	-	-	73.8	0.12	-	3731	8225
66	40.35	46.30	44.49	75.39	78.74	-	-	-	-	-	-	78.7	0.12	-	4257	9385
72	44.21	50.16	49.21	77.72	88.58	-	-	-	-	-	-	88.5	0.12	-	5291	11665
78	48.15	54.09	54.13	85.59	98.43	-	-	-	-	-	-	98.4	0.12	-	7492	16517

- 1) 0.512 inch shorter with AISI terminal box (Ex and high temperature)
- 2) When earthing flanges are used, the thickness of the earthing flange must be added to the build-in length
- 3) T_C = Type C grounding ring, T_E = Type E grounding ring
- 4) Weights are for ANSI 150 without transmitter
- Means not available
- D = Outside diameter of flange, see flange tables

SITRANS F flowmeters

SITRANS F M

MAGFLO MAG 3100/ MAG 3100 Ex

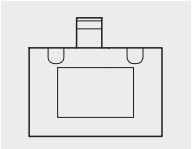
4

Selection and Ordering data	Order No.
Flowsensor SITRANS F M	
MAGFLO MAG 3100	7 ME 6 3 1 0 -
	■ ■ ■ ■ ■ - ■ ■ A 0 ■ ■ ■ ■
Diameter	
DN 15 (1/2")	▶ 1 V
DN 25 (1")	▶ 2 D
DN 40 (1 1/2")	▶ 2 R
DN 50 (2")	▶ 2 Y
DN 65 (2 1/2")	▶ 3 F
DN 80 (3")	▶ 3 M
DN 100 (4")	▶ 3 T
DN 125 (5")	▶ 4 B
DN 150 (6")	▶ 4 H
DN 200 (8")	▶ 4 P
DN 250 (10")	▶ 4 V
DN 300 (12")	5 D
DN 350 (14")	5 K
DN 400 (16")	5 R
DN 450 (18")	5 Y
DN 500 (20")	6 F
DN 600 (24")	6 P
DN 700 (28")	6 Y
DN 750 (30")	7 D
DN 800 (32")	7 H
DN 900 (36")	7 M
DN 1000 (40")	7 R
DN 1050 (42")	7 U
DN 1100 (44")	7 V
DN 1200 (48")	8 B
DN 1400 (54")	8 F
DN 1500 (60")	8 K
DN 1600 (66")	8 P
DN 1800 (72")	8 T
DN 2000 (78")	8 Y
Flange norm and pressure rating	
to EN 1092-1	
PN 6 (DN 65 ... 2000 (2 1/2" ... 78"))	▶ A
PN 10 (DN 200 ... 2000 (8" ... 78"))	▶ B
PN 16 (DN 65 ... 2000 (2 1/2" ... 78"))	▶ C
PN 16, non PED (DN 700 ... 2000 (28" ... 78"))	D
PN 25 (DN 200 ... 600 (8" ... 24"))	E
PN 40 (DN 15 ... 600 (1/2" ... 24"))	F
PN 63 (DN 50 ... 400 (2" ... 16")), not PTFE	G
PN 100 (DN 25 ... 350 (1" ... 12")), not PTFE	H
to ANSI B16.5	
class 150 (1/2" ... 24")	J
class 300 (1/2" ... 24")	K
to AWWA C207	
class D (28" ... 78")	L
to AS	
2129	M
4087, class 14 (DN 50 ... 1200 (2" ... 48"))	N
4087, class 21 (DN 50 ... 600 (2" ... 24"))	P
4087, class 35 (DN 50 ... 600 (2" ... 24"))	Q

Selection and Ordering data	Order No.
Flowsensor SITRANS F M	
MAGFLO MAG 3100	7 ME 6 3 1 0 -
	■ ■ ■ ■ ■ - ■ ■ A 0 ■ ■ ■ ■
Flange material	
Carbon steel flanges	▶ 1
Stainless steel flanges, AISI 304	2
Stainless steel flanges and sensor body, AISI 316L, polished	3
Liner material	
Neoprene	1
EPDM	2
PTFE (DN ≤ 300, PN ≤ 50 bar / ≤ 12", PN ≤ 725 psi)	▶ 3
PTFE (350 ≤ DN ≤ 600, PN ≤ 40 bar / 14" ≤ DN ≤ 24", PN ≤ 580 psi)	
Ebonite	4
Linatex (PN ≤ 40 bar(580 psi))	5
Electrode material (grounding electrodes not for PTFE lined)	
AISI 316 TI	1
Hastelloy C276	▶ 2
Platinum (no PE electrodes)	3
Titanium	4
Tantalum (no PE electrodes)	5
Transmitter	
No transmitter	▶ A
MAG 6000 industry, 18 ... 220 V, standard	C
▶ Available ex stock.	

Additional information	Order code
Please add "-Z" to Order No. and specify Order code(s) and plain text.	
Customer specific converter setup	Y20
Tag name made, stainless steel fixed with SS wire (add plain text)	Y17
Tag name plate, plastic (self adhesive)	Y18
Factory certificate according to EN 10204-2.1	C15
Factory certificate according to EN 10204-2.2	C14
Power cable wired, specify cable order no.	Y40
Junction box IP68 NEMA 4X/6P with wired cable	Y41
Customer specific test	Y90
Special version with order no/date (add desired text)	Y99

Description	Order No.	Symbol
HART (for MAG 6000 I/Ex)	FDK:085U0321	
MODBUS RTU/RS485	FDK:085U0234	
PROFIBUS PA	FDK:085U0232	
PROFIBUS DP	FDK:085U0230	
CANopen	FDK:085U0228	
DeviceNet	FDK:085U0229	



SITRANS F flowmeters

SITRANS F M

MAGFLO MAG 3100/ MAG 3100 Ex

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Ordering Data	Order No.	Additional information	Order code
Flowsensor SITRANS F M		Please add "-Z" to Order No. and specify Order code(s) and plain text.	
MAGFLO MAG 3100 High Temperature PTFE lined	7 ME 6 3 2 0 - - AA 0	Tag name made, stainless steel fixed with SS wire (add plain text)	Y17
Diameter		Tag name plate, plastic (self adhesive)	Y18
DN 15 (½")	1 V	Factory certificate according to EN 10204-2.1	C15
DN 25 (1")	2 D	Factory certificate according to EN 10204-2.2	C14
DN 40 (1½")	2 R	Power cable wired, specify cable order no.	Y40
DN 50 (2")	2 Y	Junction box IP68 NEMA 4X/6P with wired cable	Y41
DN 65 (2½")	3 F	Customer specific test	Y90
DN 80 (3")	3 M	Special version with order no/date (add desired text)	Y99
DN 100 (4")	3 T		
DN 125 (5")	4 B		
DN 150 (6")	4 H		
DN 200 (8")	4 P		
DN 250 (10")	4 V		
DN 300 (12")	5 D		
Flange norm and pressure rating			
to EN 1092-1			
PN 10 (DN 200 ... 300 (8" ... 12"))	B		
PN 16 (DN 65 ... 300 (2½" ... 12"))	C		
PN 25 (DN 200 ... 300 (8" ... 12"))	E		
PN 40 (DN 15 ... 300 (½" ... 12"))	F		
to ANSI B16.5			
class 150 (½" ... 12")	J		
class 300 (½" ... 12")	K		
to AS			
2129	M		
4087, class 14 (DN 50 ... 300 (2" ... 12"))	N		
4087, class 21 (DN 50 ... 300 (2" ... 12"))	P		
4087, class 35 (DN 50 ... 300 (2" ... 12"))	Q		
Flange material			
Carbon steel flanges	1		
Stainless steel flanges, AISI 304	2		
Stainless steel flanges and sensor body, AISI 316L, polished	3		
Liner material			
PTFE (DN ≤ 300 (12"), PN ≤ 50 bar(725 psi))	3		
Electrode material			
Grounding electrodes not for PTFE lined			
AISI 316 TI	1		
Hastelloy C276	2		
Platinum (No PE electrodes)	3		
Titanium	4		
Tantalum (No PE electrodes)	5		

SITRANS F flowmeters

SITRANS F M

MAGFLO MAG 3100/ MAG 3100 Ex

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Selection and Ordering data	Order No.
Flowsensor SITRANS F M	
MAGFLO MAG 3100 Ex, ATEX	7 ME 6 3 3 0 -
	■ ■ ■ ■ ■ - ■ ■ ■ ■ ■ 0 ■ ■ ■ ■ ■
Diameter	
DN 15 (½")	1 V
DN 25 (1")	2 D
DN 40 (1½")	2 R
DN 50 (2")	2 Y
DN 65 (2½")	3 F
DN 80 (3")	3 M
DN 100 (4")	3 T
DN 125 (5")	4 B
DN 150 (6")	4 H
DN 200 (8")	4 P
DN 250 (10")	4 V
DN 300 (12")	5 D
DN 350 (14")	5 K
DN 400 (16")	5 R
DN 450 (18")	5 Y
DN 500 (20")	6 F
DN 600 (24")	6 P
DN 700 (28")	6 Y
DN 750 (30")	7 D
DN 800 (32")	7 H
DN 900 (36")	7 M
DN 1000 (40")	7 R
DN 1050 (42")	7 U
DN 1100 (44")	7 V
DN 1200 (48")	8 B
DN 1400 (54")	8 F
DN 1500 (60")	8 K
DN 1600 (66")	8 P
DN 1800 (72")	8 T
DN 2000 (78")	8 Y
Flange norm and pressure rating	
<u>to EN 1092-1</u>	
PN 6 (DN 65 ... 2000 (2½" ... 78"))	A
PN 10 (DN 200 ... 2000 (8" ... 78"))	B
PN 16 (DN 65 ... 2000 (2½" ... 78"))	C
PN 16, non PED (DN 700 ... 2000 (28" ... 78"))	D
PN 25 (DN 200 ... 600 (8" ... 24"))	E
PN 40 (DN 15 ... 600 (½" ... 24"))	F
PN 63 (DN 50 ... 400 (2" ... 16")), not PTFE	G
PN 100 (DN 25 ... 350 (1" ... 12")), not PTFE	H
<u>to ANSI B16.5</u>	
class 150 (½" ... 24")	J
class 300 (½" ... 24")	K
<u>to AWWA C207</u>	
class D (28" ... 78")	L
<u>to AS</u>	
2129	M
4087, class 14 (DN 50 ... 1200 (2" ... 48"))	N
4087, class 21 (DN 50 ... 600 (2" ... 24"))	P
4087, class 35 (DN 50 ... 600 (2" ... 24"))	Q

Selection and Ordering data	Order No.
Flowsensor SITRANS F M	
MAGFLO MAG 3100 Ex, ATEX	7 ME 6 3 3 0 -
	■ ■ ■ ■ ■ - ■ ■ ■ ■ ■ 0 ■ ■ ■ ■ ■
Flange material	
Carbon steel flanges	1
Stainless steel flanges, AISI 304	2
Stainless steel flanges and sensor body, AISI 316L, polished	3
Liner material	
Neoprene	1
EPDM	2
PTFE (DN ≤ 300, PN ≤ 50 bar / ≤ 12", PN ≤ 725 psi)	3
PTFE (350 ≤ DN ≤ 600, PN ≤ 40 bar / 14" ≤ DN ≤ 24", PN ≤ 580 psi)	
Ebonite	4
Linatex (PN ≤ 40 bar(580 psi))	5
Electrode material (grounding electrodes not for PTFE lined)	
AISI 316 TI	1
Hastelloy C276	2
Platinum (no PE electrodes)	3
Titanium	4
Tantalum (no PE electrodes)	5
Transmitter	
No transmitter	A
MAG 6000 industry, 18 V ... 30 V DC, ATEX	D
MAG 6000 industry, 115 V ... 230 V, ATEX (pending)	(E)
Communication	
No communication	A
HART	B
PROFIBUS PA	C
Additional information	Order code
Please add "-Z" to Order No. and specify Order code(s) and plain text.	
Customer specific converter setup	Y20
Tag name made, stainless steel fixed with SS wire (add plain text)	Y17
Tag name plate, plastic (self adhesive)	Y18
Factory certificate according to EN 10204-2.1	C15
Factory certificate according to EN 10204-2.2	C14
Power cable wired, specify cable order no.	Y40
Junction box IP68 with wired cable	Y41
Customer specific test	Y90
Special version with order no/date (add desired text)	Y99

SITRANS F flowmeters

SITRANS F M

MAGFLO MAG 3100/ MAG 3100 Ex

Selection and Ordering data

Options and accessories for Sensors MAGFLO MAG 3100

AISI 304 Earthing and protection flanges type C for all liners except PTFE

EN 1092-1 (DIN 2501)

DN	PN 06 Order No.	PN 10 Order No.	PN 16 Order No.	PN 25 Order No.	PN 40 Order No.
DN 25					FDK:083N8361
DN 40					FDK:083N8362
DN 50					FDK:083N8344
DN 65	FDK:083N8345		FDK:083N8345		FDK:083N8345
DN 80	FDK:083N8347		FDK:083N8347		FDK:083N8347
DN 100	FDK:083N8070		FDK:083N8025		FDK:083N8025
DN 125	FDK:083N8071		FDK:083N8071		FDK:083N8071
DN 150	FDK:083N8072		FDK:083N8008		FDK:083N8008
DN 200	FDK:083N8074	FDK:083N8011	FDK:083N8011	FDK:083N8011	FDK:083N8075
DN 250	FDK:083N8078	FDK:083N8013	FDK:083N8013	FDK:083N8013	FDK:083N8079
DN 300	FDK:083N8080	FDK:083N8012	FDK:083N8012	FDK:083N8081	FDK:083N8082
DN 350	FDK:083N8083	FDK:083N8039	FDK:083N8039	FDK:083N8084	FDK:083N8085
DN 400	FDK:083N8099	FDK:083N8100	FDK:083N8100	FDK:083N8101	FDK:083N8102
DN 450	FDK:083N8103	FDK:083N8103	FDK:083N8104	FDK:083N8104	FDK:083N8105
DN 500	FDK:083N8107	FDK:083N8107	FDK:083N8108	FDK:083N8108	FDK:083N8109
DN 600	FDK:083N8111	FDK:083N8111	FDK:083N8112	FDK:083N8112	
DN 700	FDK:083N8300	FDK:083N8294	FDK:083N8294		
DN 800	FDK:083N8303	FDK:083N8304	FDK:083N8304		
DN 900	FDK:083N8306	FDK:083N8307	FDK:083N8307		
DN 1000	FDK:083N8309	FDK:083N8310	FDK:083N8310		
DN 1100	-	FDK:083N8367	FDK:083N8367		
DN 1200	FDK:083N8312	FDK:083N8313	FDK:083N8313		

Selection and Ordering data

Option and accessories for Sensors MAGFLO MAG 3100

AISI 304 Earthing and protection flanges type C for all liners except PTFE

Size	ANSI	
	Class 150 Order No.	Class 300 Order No.
1"	FDK:083N8361	FDK:083N8361
1½"	FDK:083N8362	FDK:083N8362
2"	FDK:083N8344	FDK:083N8344
2½"	FDK:083N8345	FDK:083N8345
3"	FDK:083N8347	FDK:083N8347
4"	FDK:083N8025	FDK:083N8025
5"	FDK:083N8071	FDK:083N8071
6"	FDK:083N8008	FDK:083N8073
8"	FDK:083N8011	FDK:083N8076
10"	FDK:083N8013	FDK:083N8079
12"	FDK:083N8012	FDK:083N8082
14"	FDK:083N8039	FDK:083N8085
16"	FDK:083N8100	FDK:083N8102
18"	FDK:083N8104	FDK:083N8106
20"	FDK:083N8107	FDK:083N8110
24"	FDK:083N8113	FDK:083N8114

Selection and Ordering data

Option and accessories for Sensors MAGFLO MAG 3100

AISI 304 Earthing and protection flanges type C for all liners except PTFE

AS2129, Table E	Order No.
DN 25	FDK:083N8361
DN 40	FDK:083N8362
DN 50	FDK:083N8344
DN 65	FDK:083N8346
DN 80	FDK:083N8347
DN 100	FDK:083N8025
DN 125	FDK:083N8071
DN 150	FDK:083N8008
DN 200	FDK:083N8011
DN 250	FDK:083N8013
DN 300	FDK:083N8012
DN 350	FDK:083N8039
DN 400	FDK:083N8100
DN 450	FDK:083N8104
DN 500	FDK:083N8108
DN 600	FDK:083N8113
DN 750	FDK:083N8366
DN 1100	FDK:083N8367

Selection and Ordering data

Option and accessories for Sensors MAGFLO MAG 3100

ANSI 316 Earthing and protection flanges type E for all PTFE liners
EN 1092-1 (DIN 2501)

DN	PN 06 Order No.	PN 10 Order No.	PN 16 Order No.	PN 25 Order No.	PN 40 Order No.
DN 15					FDK:083N8365
DN 25					FDK:083N8271
DN 40					FDK:083N8278
DN 50					FDK:083N8282
DN 65	FDK:083N8284		FDK:083N8285		FDK:083N8286
DN 80	FDK:083N8288		FDK:083N8289		FDK:083N8290
DN 100	FDK:083N8116		FDK:083N8117		FDK:083N8118
DN 125	FDK:083N8120		FDK:083N8121		FDK:083N8122
DN 150	FDK:083N8124		FDK:083N8125		FDK:083N8126
DN 200	FDK:083N8129	FDK:083N8130	FDK:083N8130	FDK:083N8131	FDK:083N8132
DN 250	FDK:083N8135	FDK:083N8136	FDK:083N8137	FDK:083N8138	FDK:083N8139
DN 300	FDK:083N8144	FDK:083N8144	FDK:083N8145	FDK:083N8146	FDK:083N8147
DN 350	FDK:083N8152	FDK:083N8153	FDK:083N8154	FDK:083N8155	FDK:083N8156
DN 400	FDK:083N8160	FDK:083N8161	FDK:083N8162	FDK:083N8163	FDK:083N8164
DN 450	FDK:083N8168	FDK:083N8169	FDK:083N8170	FDK:083N8171	FDK:083N8172
DN 500	FDK:083N8177	FDK:083N8178	FDK:083N8179	FDK:083N8180	FDK:083N8181
DN 600	FDK:083N8186	FDK:083N8187	FDK:083N8188	FDK:083N8189	

Protection of PTFE liner use 2 pcs.
Earthing of PTFE lined flowmeter use 1 pcs.

Selection and Ordering data

Option and accessories for Sensors MAGFLO MAG 3100

ANSI 316 Earthing and protection flanges type E for PTFE liners

Size	ANSI	
	Class 150 Order No.	Class 300 Order No.
½"	FDK:083N8365	FDK:083N8365
1"	FDK:083N8272	FDK:083N8272
1½"	FDK:083N8279	FDK:083N8279
2"	FDK:083N8283	FDK:083N8283
2½"	FDK:083N8287	FDK:083N8287
3"	FDK:083N8291	FDK:083N8292
4"	FDK:083N8118	FDK:083N8119
5"	FDK:083N8122	FDK:083N8123
6"	FDK:083N8126	FDK:083N8127
8"	FDK:083N8370	FDK:083N8133
10"	FDK:083N8140	FDK:083N8141
12"	FDK:083N8148	FDK:083N8149
14"	FDK:083N8157	FDK:083N8158
16"	FDK:083N8165	FDK:083N8166
18"	FDK:083N8173	FDK:083N8174
20"	FDK:083N8182	FDK:083N8183
24"	FDK:083N8190	FDK:083N8191

Protection of PTFE liner use 2 pcs.
Earthing of PTFE lined flowmeter use 1 pcs.

Selection and Ordering data

Order No.

Option and accessories for Sensors MAGFLO MAG 3100

ANSI 316 Earthing and protection flanges type E for PTFE liners

AS2129, Table E

DN	Order No.
DN 15	FDK:083N8365
DN 25	FDK:083N8272
DN 40	FDK:083N8280
DN 50	FDK:083N8281
DN 65	FDK:083N8284
DN 80	FDK:083N8293
DN 100	FDK:083N8117
DN 125	FDK:083N8121
DN 150	FDK:083N8128
DN 200	FDK:083N8134
DN 250	FDK:083N8143
DN 300	FDK:083N8151
DN 350	FDK:083N8153
DN 400	FDK:083N8161
DN 450	FDK:083N8176
DN 500	FDK:083N8185
DN 600	FDK:083N8193

Protection of PTFE liner use 2 pcs.
Earthing of PTFE lined flowmeter use 1 pcs.

SITRANS F flowmeters

SITRANS F M

MAGFLO MAG 3100/ MAG 3100 Ex

Further Designs	Order No.
SITRANS FM MAGFLO	
Calibrations and Recalibrations	
Recalibration	
Std. prod. cal. matched pair	
• 3 ... 65 (3 ... 2½ inch)	FDK:085F7302
• 80 ... 150 (3 ... 6 inch)	FDK:085F7303
• 200 ... 500 (8 ... 20 inch)	FDK:085F7304
• 600 ... 1200 (24 ... 48 inch)	FDK:085F7305
Customer specified, matched pair	
• 3 ... 65 (3 ... 2½ inch)	FDK:085F7377
• 80 ... 150 (3 ... 6 inch)	FDK:085F7378
• 200 ... 500 (8 ... 20 inch)	FDK:085F7379
• 600 ... 1200 (24 ... 48 inch)	FDK:085F7380
Accredited Siemens, EN 45 001 ¹⁾ , matched pairs	
• 3 ... 65 (3 ... 2½ inch)	FDK:085F7387
• 80 ... 150 (3 ... 6 inch)	FDK:085F7388
• 200 ... 500 (8 ... 20 inch)	FDK:085F7389
• 600 ... 1200 (24 ... 48 inch)	FDK:085F7390
Accredited Delft, EN 45 001 ¹⁾ , matched pairs	
• 80 ... 150 (3 ... 6 inch)	FDK:085F7393
• 200 ... 500 (8 ... 20 inch)	FDK:085F7394
• 600 ... 1200 (24 ... 48 inch)	FDK:085F7395
Add on	
Witness	
• 3 ... 65 (3 ... 2½ inch)	FDK:085F7361
• 80 ... 150 (3 ... 6 inch)	FDK:085F7361
• 200 ... 500 (8 ... 20 inch)	FDK:085F7361
• 600 ... 1200 (24 ... 48 inch)	FDK:085F7361

¹⁾ EN 45001 Accreditation is used as norm for NKO (Netherlands), UKAS (Great Britain) and DANAK (Denmark)

For recalibration return document must be attached.

Other flowmeter marks and principles on enquiry (Typically + 30 %).

For calibration of more meters with the same dimension discount can be granted.