



Danfoss is the only manufacturer of industrial flowmeters that tests and calibrates all its meters in flow laboratories accredited to the European standard Norm EN 45001. This means that you can be absolutely certain that every flowmeter we make will provide the levels of accuracy and repeatability we claim for it and that this claim is traceable back to international standards.



EN 45001 means that you can trust the calibration performed on Danfoss meters as the equipment used is constantly calibrated against authorised references and in addition to the equipment also our methods of testing are continuously monitored and reviewed by impartial institutes.

DANFOSS INSTRUMENTATION WORLDWIDE

ALL METERS FROM ACCREDITED LABS



MAGFLO[®]
ELECTROMAGNETIC FLOWMETERS

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The change to the 21st century is not just a millennial change, it also brings us to a new era. The industrial era is superseded by the information era, the biggest challenge for the manufacturing industry since electricity was introduced at the beginning of this century.

Danfoss has taken up the challenge. In our Research and Development Department the focus has therefore been on communication. Not communication between Danfoss and our customers, but communication between man and machinery.

The latest result of this focus is the new MAGFLO® electromagnetic flowmeters. They are not just meant to measure flow but also built to communicate in individual languages as well as to machinery by means of different application dependent protocols.

MEETING INDUSTRIES TOUGHEST CHALLENGE

MAGFLO® ELECTROMAGNETIC FLOWMETERS

Individual modules with different communication protocols can be mounted without the use of tools. It has never been more simple to measure flow.



The product range for the water treatment industry is a perfect illustration of our philosophy. The MAG 3100 W, is easy to install and commission, but still able to meet the heavy demands of the industry for reliability, dynamic range and environment requirements.

Special demands for flowmeters in the water industry can only be met through dedicated products. Reliability is a keyword in installations meant to last for decades and often left without daily surveillance. A large dynamic range is an absolute must when measuring night consumption and high protection against corrosion of exposed or buried sensors is of vital importance to secure long-term stability in harsh surroundings.



WATER TREATMENT

MAGFLO® FLOWMETERS FOR WATER TREATMENT PLANTS



Withstands temporary flooding before - during - after installation - as special gaskets and cables protect sensor and coils.

Withstands constant flooding - simple upgrade to IP 68 is possible on site.

Forget all about pit-corrosion common for aluminium enclosed meters - the sensor body is made of fully welded steel.

No more earthing flanges - the meter has built-in earthing electrodes.

No need to rebuild the pipe connection - sensor has same length as mechanical meters.

Water - basis for life on planet Earth. Supply, consumption and recycling must be monitored thoroughly. Simplicity guarantees reliability. Environment is on our mind



Food – large scale manufacturing of food and beverage increasingly demands strictly clean facilities. Technology combined with experience. Hygiene is on our mind.



FOOD INDUSTRY

MAGFLO® FLOWMETERS FOR THE FOOD INDUSTRY

More hygienic than a polished pipe*
For many years Danfoss has supplied flowmeters and components to the food industry.

A close co-operation with our customers has established the specific needs for food industry applications.

The results from this co-operation have been that Danfoss was the first main supplier of flowmeters to deliver stainless steel enclosed meters as well as the first in 1993 to pass the EHEDG hygiene test.

MAG 1100 Food is our dedicated flow meters for the food industry.

* Result of the EHEDG test.



No glass – there is direct access to covered keypad and display.

Delivered with your standard connection

Cleanability as good as a polished stainless steel pipe

Easily cleaned – enclosure is AISI 316 stainless steel and rated at least IP 67.

Hygienic seal construction – all EHEDG guidelines are observed.



Set and forget
Even in industries with high demands to Ex, EMC and chemical resistance it is possible to make flowmetering simple, safe and reliable.

Co-operation with major chemical companies has created a new generation of flowmeters which specifically covers the demands of the industry.

We have named the flow meters MAG 3100 and MAG 1100 with Ex-d electronics.

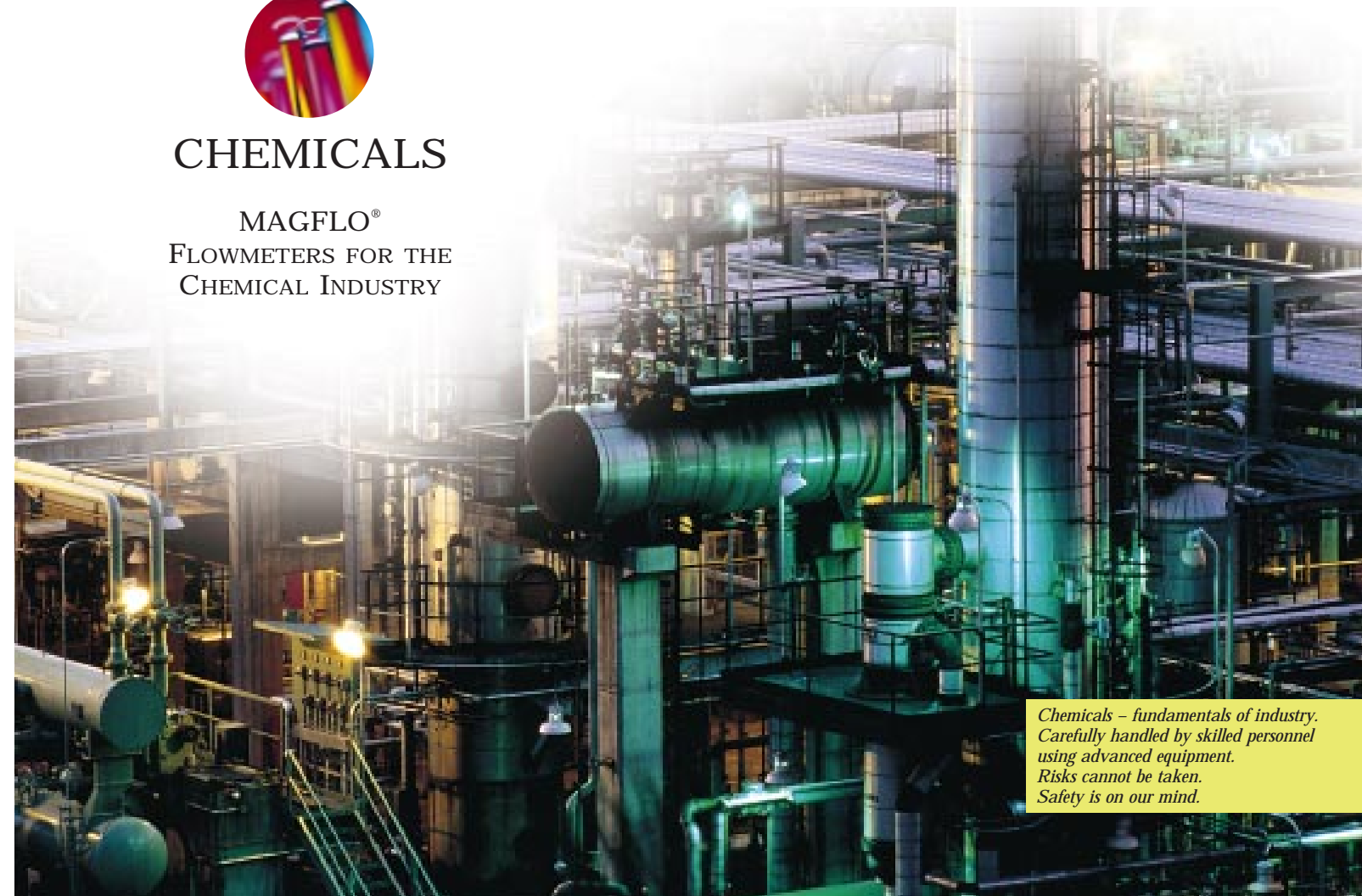


Display is always readable as it can be rotated



CHEMICALS

MAGFLO® FLOWMETERS FOR THE CHEMICAL INDUSTRY



Chemicals – fundamentals of industry. Carefully handled by skilled personnel using advanced equipment. Risks cannot be taken. Safety is on our mind.

Converter replacement in less than 5 minutes without consulting the manual.



Maintenance free material – no risk of corrosion as with painted steel or aluminium which results in violation of the hazardous area certification.

Built-in SENSORPROM™ technology.

Full protection with functionality as current, frequency/pulse and relay output are EEx ia.

as keypad and display are EEx ib. as electronic is EEx d.



SPECIFICATIONS



SENSOR	MAG 1100	MAG 1100 FOOD	MAG 3100	MAG 3100 W
Size [mm]	DN 6-100	DN 10-100	DN 15-2000	DN 25-1200
Connection	Flangeless (Sandwich design)	Weld-in adaptor, clamp adaptor, thread adaptor	Flange	Flange
Pressure [bar]	Max. 40	Max. 40	Max. 100	Max. 40
Temperature [°C]	-20 to 200	-30 to 150	-40 to 180	-10 to 95
Liner	Ceramics (Al ₂ O ₃)	Ceramics (Al ₂ O ₃) PFA	Neoprene, EPDM, Teflon (PTFE) Polyurethane, Ebonite, Linatex®	Neoprene and EPDM
Electrodes	Platinum	Platinum Hastelloy	AISI 316 Ti, Hastelloy C, Platinum/Iridium Monel, Titanium, Tantalum	AISI 316 Ti with earthing electrode
Enclosure	IP 67	IP 67	IP 67/68	IP 67/68
Ex-version	EEx [ia/ib] IIB T4-T6		EEx [ia/ib] IIB T4-T6 EEx [ia/e] IIC T3-T6	



SIGNAL CONVERTER	MAG 5000	MAG 6000	MAG 3000 Ex-d
Outputs	1 current output 1 digital output 1 relay output	1 current output 1 digital output 1 relay output	1 current output 1 frequency/pulse output 1 relay output
Flow direction	Uni/bidirectional	Uni/bidirectional	Uni/bidirectional
Communication	3 lines 20 characters (optional without display)	3 lines 20 characters (optional without display)	2 lines 16 characters
Display			
Meter uncertainty	± 0.5% o.r.	± 0.25% o.r.	± 0.25% o.r.
Enclosure	IP 67, IP 20	IP 67, IP 20	IP 65, IP 67
Custody transfer approval		PTB OIML R75 OIML R117	
Ex-version (safety barrier)	[EEx ia/ib] IIB [EEx ia] IIC	[EEx ia/ib] IIB [EEx ia] IIC	EEx de [ia/ib] IIB T6
Power supply	12-24 V a.c./d.c. 115-230 V a.c.	12-24 V a.c./d.c. 115-230 V a.c.	24 V a.c./d.c.

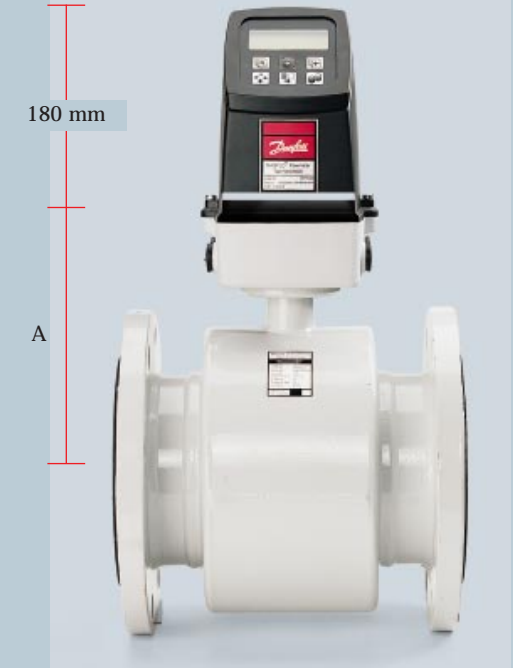
SIZING

Signal converters



Sensors

DN	Q Max	MAG 3100 & 3100 W			MAG 1100		MAG 1100 Food	
		PN w. flange DIN 2501 (bar)	L w. flange DIN 2501 (mm)	A (mm)	L incl. EPDM gaskets (mm)	A (mm)	L Weld in length (mm)	A (mm)
6	1.0				64	156		
10	2.8				64	156	146	156
15	6.4	40	200	187	65	156	146	156
25	17	40	200	187	80	164	161	164
40	45	40	200	197	95	176	176	176
50	70	40	200	205	105	184	186	184
65	120	16	200	212	130	194	223	194
80	180	16	200	222	155	200	258	200
100	280	16	250	242	185	213	288	213
125	440	16	275	255				
150	630	16	300	276				
200	1100	10/16	350	304				
250	1700	10/16	450	332				
300	2500	10/16	500	357				
350	3400	10/16	500	362				
400	4500	10/16	500	387				
450	5700	10/16	560	418				
500	7000	10/16	625	443				
600	10000	10/16	750	494				
700	13000	10	875	544				
800	18000	10	1000	606				
900	22000	10	1125	653				
1000	28000	10	1250	704				
1200	40000	6	1500	810				
1400	55000	6	1750	925				
1600	70000	6	2000	1025				
1800	91000	6	2250	1123				
2000	110000	6	2500	1223				



Length is without earthing flanges and gaskets. Other dimensions on request.

MEASURING ACCURACY

- MAG 5000**
v ≥ 0.5 m/s. E: ± 0.5% of actual flow
v < 0.5 m/s. E: ± $\frac{0.25}{v[m/s]}$ [%] of actual flow
- MAG 6000**
v ≥ 0.5 m/s. E: ± 0.25% of actual flow
v < 0.5 m/s. E: ± $\frac{0.125}{v[m/s]}$ [%] of actual flow

