



MagFlux®

ELECTROMAGNETIC FLOW METER

3.05

General

MagFlux® Electromagnetic Flow Meters deliver very stable and highly accurate flow measurements in conductive liquids.

MagFlux® Flow Meters have no moving parts to create hydraulic influence on the flow, use a well-proven technology, and communicate using a standard protocol.

MagFlux® Flow Sensors are available in sizes ranging from DN 15 to DN 2000, with standard construction lengths and connections.

MagFlux® Flow Meters can be installed either with the converter mounted on the flow sensor, on a wall or mounted in a panel.

Features

- One graphic Display can operate up to 4 MagFlux® Flowmeters
- Intuitive menu structure with easy navigation
- Built-in datalogger with the display
- Large dynamic measuring range with an accuracy of up to $\pm 0,25\%$
- Two dynamic batch counters and password protection
- Counters and pulse output with or without reset
- Modbus® communication is utilized between the display and flow converter and to other external devices
- 4-20 mA output for flow in one or both directions
- Detection of empty pipe
- Automatic electrode cleaning
- Full bore bi-directional sensor

Application

MagFlux® Flow Meters are used for measuring and totalizing flow of conductive liquids in pressurized closed pipe systems.

MagFlux® Flow Meters measure flow in both directions of potable water, waste water and process fluids.



DATASHEET

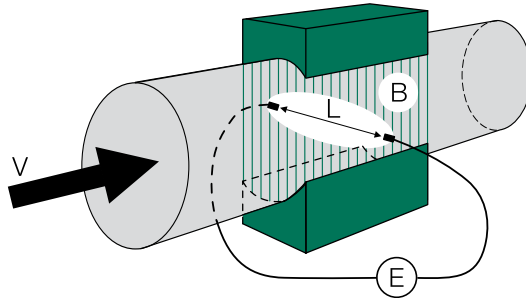
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MagFlux™ Electromagnetic Flow Meter

Function



The MagFlux® operation is based on Faraday's law of induction. When a conductive fluid passes through a magnetic field in the sensor, an electromagnetic voltage is induced between the two electrodes in the flow sensor tube. This voltage (E) is directly proportional to the fluid velocity.

When the internal diameter of the Flow Sensor is known, the actual volume is calculated by the Converter.

The electromagnetic voltage induced between the electrodes equates to:

$$E = L \times B \times V \text{ where:}$$

E: Induced electromagnetic voltage

L: Flow sensor diameter

B: The strength of the magnetic field

V: The velocity of the liquid

The voltage E is measured and consequently converted to a volumetric flow.

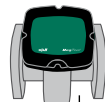
Flexible Installation

MJK's modular design is versatile. The Display Unit can be mounted up to 1000 m from the Flow Converter with ordinary twisted wires. It also provides options for mounting the Converter where it is most convenient to make the electrical connections.

One Display Unit can control up to 4 Converters and Flow Sensors for greater economy, space savings and an improved overview of the multiple measurement values



The MagFlux® Converter and Display Unit mounted directly on the Flow Sensor.



The MagFlux® Converter mounted directly on the flow sensor with a remote mounted Display Unit.



The MagFlux® Converter and Display Unit remote mounted. For example when the sensor is being buried or submerged.



The MagFlux® Converter is mounted remote from the Flow Sensor, and the Display Unit is mounted separately from the Converter. E.g when the Sensor is being buried

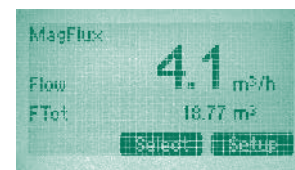


The MagFlux® Converters are mounted directly on the Flow Sensors, while the remote mounted Display Unit communicates with two MagFlux® Converters and Flow Sensors.

MagFlux™ Electromagnetic Flow Meter

Simple to Operate

The MagFlux® Display Unit has many unique and intelligent functions. It has a simple menu structure and can display text in several selectable languages in metric or English units.



Registering the Flow Sensor

The MagFlux® System registers the Flow Sensor to the Converter using a unique coded sensor. It sets calibration data, the nominal diameter and the sensor configuration - making the MagFlux® System ready to measure immediately. This avoids complicated and sensitive field calibration and delicate electronics in the sensor, and allows unlimited interchanging of MagFlux® Converters and Flow Sensors.



Counters for Flow in Both Directions

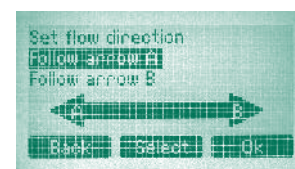
The MagFlux® Converter has resettable and non-resettable counters for flow in both directions.

MagFlux® has two batch counters with smart-batch counting.



Forward and Backwards Flow Measurement and Totalizing

The MagFlux® System measures flow in both directions and can totalize the net flow for both. A simple menu selection determines the primary flow direction.

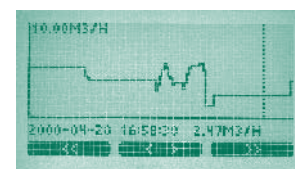


Data Logger

The MagFlux® built-in 32 MB data logger can log up to 345.000 entries with time and date. Data is displayed graphically, but can also be exported to a PC via the USB port on the Display Unit.

Field Link Easy-to-use software

The MagFlux® PC connection allows exporting logged data to a PC, and importing new software updates. All through intuitive steps using a common USB port.



Flexible In- and Outputs

The MagFlux® Converter has one 4-20 mA active analogue output, two digital outputs and one digital input. The digital input can stop and zero counter settings or control the batch counters manually. Each alarm can be displayed as a pop-up alarm until they are reset.

Automatic Electrode Cleaning

The MagFlux® built-in electronic electrode cleaning system is always active.

User Definable Text

The MagFlux® display can be configured by the user for up to five lines of text. The graphic display is automatically adjusted to show the largest characters possible.



Modbus® Communication

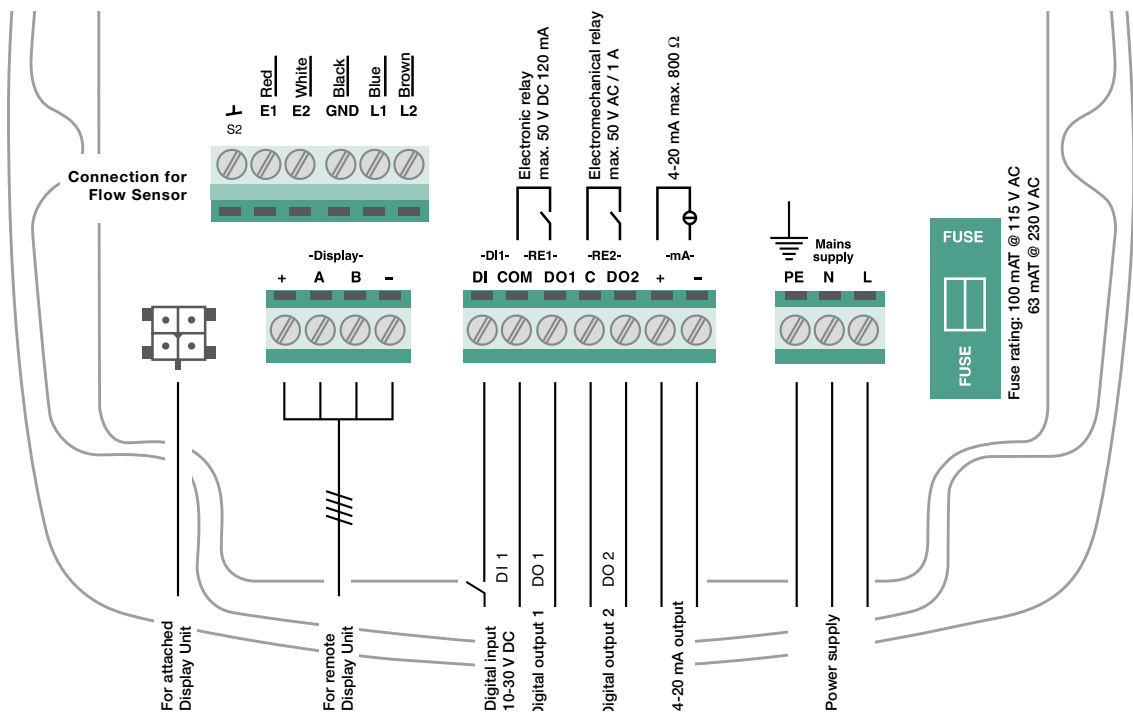
The display and converter uses Modbus® communication protocol for internal and external communication.



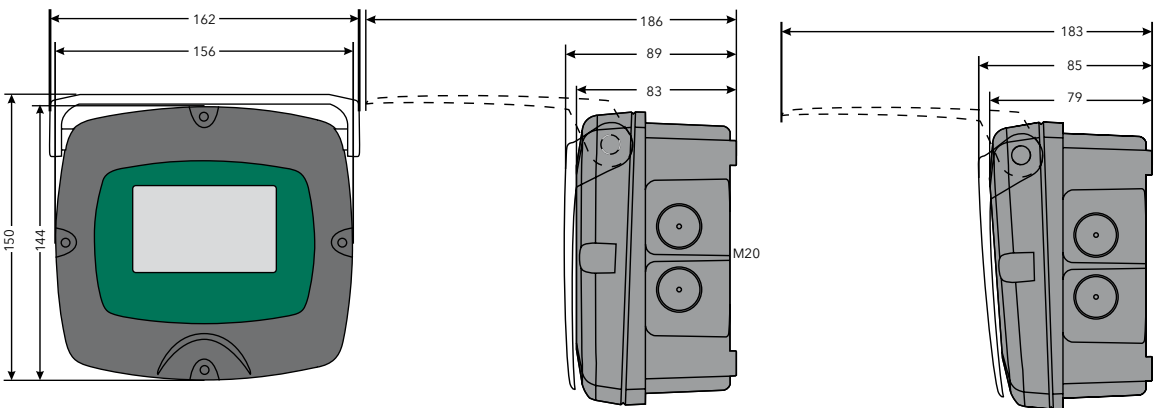
MagFlux™ Electromagnetic Flow Meter



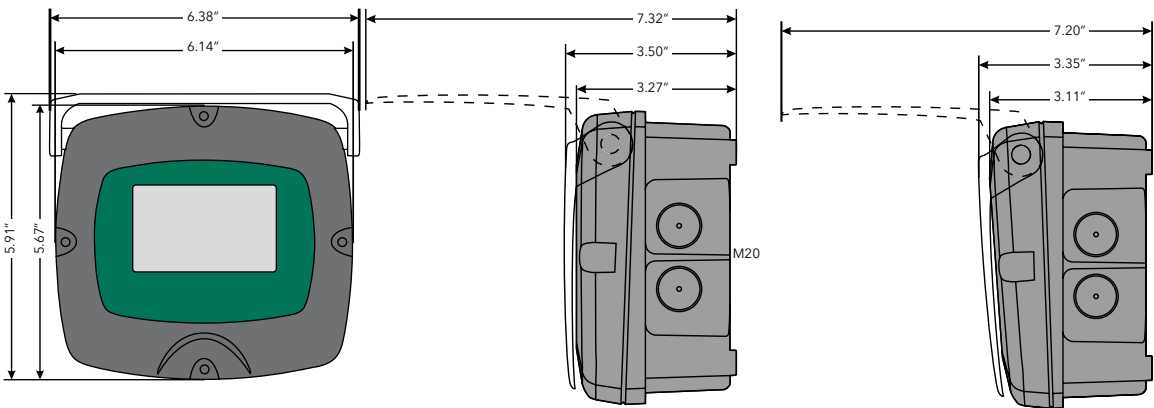
Electrical Connection



Dimensions millimeter



Dimensions inch



MagFlux™ Electromagnetic Flow Meter

Accessories

579035
MagFlux®
Gel potting kit
f/ sensor IP68

MagFlux is supplied as standard with protection class IP67. However, if you use our gel potting kit, you can increase the protection class to IP68 (which means that MagFlux sensor can withstand constant submersion in water (max. 10 m water column pressure).



207932
Steel Cover for Field
cabinet (small)

Stainless steel protective cap and fittings set. Protects MagFlux, Oxix and SuSix from falling objects, branches, etc. Stainless steel (SS316)



200242
Mounting plate,
Field Cabinet (small)

Makes it possible to fit converter to an uneven surface. Mounting plate is compatible with universal bracket. Can also be used to mount converter on pipe or stand.



207935 Panel
Mounting Bracket for
MagFlux®, SuSix® &
Oxix®

Bracket specially designed for narrow or wide converter cabinet. For fitting cabinet in panel front



500220/500221
Cover for Field Cabinet
(small) Transparent/
Opaque

Protects MagFlux display from strong sunlight/rain/ contact.



205546
Modbus & RS 485
communications
module

To communicate with an external Modbus® network. For mounting in the MagFlux display. The MJK Modbus® communication module separates the internal network from the external network, e.g. to a PLC. The module can transmit data from 4 interconnected MJK transmitters.



205547
Profibus
communications
module

To communicate with an external PROFIBUS® network, we supply a Profibus DP module suitable for mounting in the MagFlux® display. The MJK PROFIBUS® communication module can transmit data from 4 interconnected MJK transmitters.

205910 mA-Bus
Converter

The MJK mA-Bus converter is used to convert mA signals to Modbus®. measured value can be displayed on e.g. a MagFlux Display.

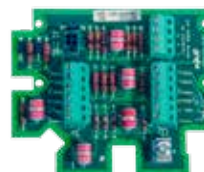


207980
MagFlux® Verificator

MagFlux Converter Verificator, simulates the coil and electrode functions of the MagFlux sensor for testing of the readings at zero and high flow rates on the converter.

207937
Surge Arresters for
MagFlux®

Surge arresters to protect converters and displays from lightning transmitted in pipes.



691080
Cable for
MagFlux® sensor

(2x2+1) x 1.0mm² (AWG 18/19)
Colours: red, white, blue, brown, black PUR

691095
USB Cable

PC Mini USB/USB Cable



MagFlux™ Electromagnetic Flow Meter

Specifications Converter and display unit

Display	
Display	Graphic background-lit LCD-display (64 x 128 pixels) with soft keys
Display Indication	Indication of flow , flow direction, volume, totalizers, configuration and graph
Power Supply	From MagFlux Converter
Clock	Real-time clock with built-in lithium battery (lifetime 10 years@20°C)
Communication	MODBUS® RTU-mode, 9600 baud, 2-wire RS 485, master-mode
Interface	1 pcs. RS-485 Modbus® RTU-mode 1 pcs. USB 1,1 type mini B, female 1 pcs. for Communication module
Memory Storage	32 Mb Flash memory, 345.000 loggings incl. date, time and value (curve display)
Enclosure Rating	IP 67, NEMA 6
Material	Housing: Glass-reinforced Polycarbonate Protection Lid: Transparent Polycarbonate
Temperature Range	- 20 ... 60 °C / -5 ... 150°F
Operating relative Humidity	Max. 85% Noncondensing
Weight	0,5 kg / 1.1lb

Converter	
Accuracy	+/- 0,1% of reading
Repeatability	+/- 0,1%
Min. Liquid Conductivity	≥ 5 µS
Power Supply	24 V AC, 50 / 60 Hz ± 10 % or 230 (115) V AC, 50 / 60 Hz ± 10 % or 10-30 VDC
Power Consumption	Max. 10 W
Internal Communication	MODBUS® RTU-mode
External Communication	MODBUS® RTU-mode, 9600 baud, 2-wire RS 485, slave-mode
Interface	1 pcs. RS 485 for connection to Display Unit or PLC
Analog Output	1 pcs. Active 4 - 20 mA, galvanically isolated, 12 bit resolution, (max. load 800 Ω) Min. range = 0 - 0,2 m/s (0-0.6ft/s), Max. range = 0 - 10 m/s (0-30ft/s)
Digital Outputs	1 pcs. Voltage-free electromechanical relay (max. 50 V DC / 1 A) 1 pcs. Optically isolated MOSFET relay (max. 50 VAC / V DC / 120 mA) Programmable for: Totalizer counter, batch counter, high/low flow , system error, empty pipe and flow direction.
Digital Inputs	One, max. 30 V DC, < 5 V DC = 0 (low) , > 10 V DC = 1 (high), pulse length > 100 ms
Enclosure Rating	IP 67, NEMA 6
Material	Glass-reinforced Polycarbonate
Temperature Range	- 20 ... 60 °C / -5 ... 150°F
Weight	1,0 kg / 2.2lb
Approvals	cUL CE approvals EN 61000-6-4:2007-02-14, EN 61000-6-2:2005-09-08

Connection Box	
Enclosure Rating	IP 68, NEMA 6X (using gel potting kit part no. 579035). The flow meter can withstand unlimited immersion of up to 10 m of water.
Material	Glass-reinforced Polycarbonate
Temperature Range	- 20 ... 100 °C / -5 ... 212°F

MagFlux™ Electromagnetic Flow Meter

Order numbers

MagFlux® Converter	
Sensor mounted converter with display	
207920	MagFlux® Converter w/display unit for sensor mounting 230VAC
297920	MagFlux® Converter w/ display unit sensor mounting 115VAC
207921	MagFlux® Converter w/display unit for sensor mounting, 24VAC
207922	MagFlux® Converter w/display unit for sensor mounting, 10-30VDC
Sensor mounted converter without display	
207910	MagFlux® Converter w/o display sensor mounting, 230VAC
297910	MagFlux® Converter w/o Display unit Sensor mounting 115VAC
207911	MagFlux® Converter w/o display sensor mounting, 24VAC
207912	MagFlux® Converter w/o display sensor mounting, 10-30VDC
Sensor wall mounted converter with display	
207925	MagFlux® Converter w/display unit for wall mounting, 230VAC
297925	MagFlux® Converter w/display unit for wall mounting, 115VAC
207926	MagFlux® Converter w/display unit for wall mounting, 24VAC
207927	MagFlux® Converter w/display unit for wall mounting, 10-30VDC
Sensor wall mounted converter without display	
207928	MagFlux® Converter w/o display unit for wall mounting, 230VAC
297928	MagFlux® Converter w/o display unit for wall mounting, 115VAC
207929	MagFlux® Converter w/o display unit for wall mounting, 10-30VDC

Accessories	
106010	Cable mounting and potting of MagFlux® Sensor, ex. cable
200062	Complete MagFlux® cabinet with blind lid, sensor mounted
200242	Mounting plate, Field Cabinet (small)
205546	Modbus and RS 485 communications module
205547	Profibus DP communication module
207930	Wall mounting kit for MagFlux®, SuSix® and Oxix®
207932	Steel Cover for Field cabinet (small)
207935	Panel Mounting Bracket for MagFlux®, SuSix® and Oxix®
207936	Panel Mounting Bracket for wide Field Cabinet
207937	Surge Arrester for MagFlux® for wall mounting
207938	Surge Arrester for MagFlux® for sensor mounting
207940	Display Unit for MagFlux®, SuSix®, Oxix®
207980	MagFlux® Converter Verificator
500220	Cover for Field Cabinet (small) transparent
500221	Cover for Field Cabinet (small) Opaque
579035	MagFlux® Gel potting kit f/ sensor IP68
691075	Communication cable 2X2X0,5mm2 (AWG24) Shielded twisted pair
691080	Cable for MagFlux® sensor
691095	PC Mini USB/USB Cable
691098	USB mini/USB mini, plug for cabinet 0,2m cable
807020	Connection PCB for MagFlux
840110	MJK Field-Link

MagFlux™ Electromagnetic Flow Meter

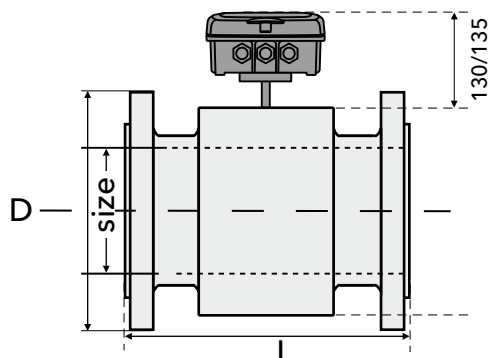
Flow sensor
Ordering
information



Type of flange (Fit for Wafer): 20: EN-1092-1 24: KSD4308 25: KSD3578 26: JIS B2220/KS B1503 / KS D4308 28: AS 4087-2004 & AS 2129-2000 29: ANSI B16.5 1/2"-24"/AWWA C207-01 28"-54"	20	72	31	—	016	—	00	
Series information: 71: 7100 Flanged PTFE/PFA 72: 7200 Flanged Hard rubber 73: 7300 Wafer PTFE/PFA								Material - Electrodes: x0: Stainless steel 316Ti (default) x1: Hastelloy C electrode x2: Titanium electrode x3: Platinum irridium alloy electrode
Size: ID for identifying the size. (2071XX) See Order numbers table								Material - Housing and flanges: 0x: Housing and Flanges, painted Carbon steel (default) 1x: Housing and flanges, polished stainless steel 316 2x: Housing and flanges, polished stainless steel 304, 3x: Housing polished stainless steel 304, flanges painted carbon steel 9x: Housing polished stainless steel 316 flanges painted carbon steel
								Pressure class: if EN use PN (e.g. 016 for PN16) if KS use PN (e.g. 016 for PN16) if AS use PN (e.g. 016 for PN16) if ANSI use psi (e.g. 150 for psi150) if AWWA use psi (e.g. Class D for psi150)

MagFlux™ Electromagnetic Flow Meter

Dimensions
Magflux®
7100/7200
Sensor
EN 1092-1



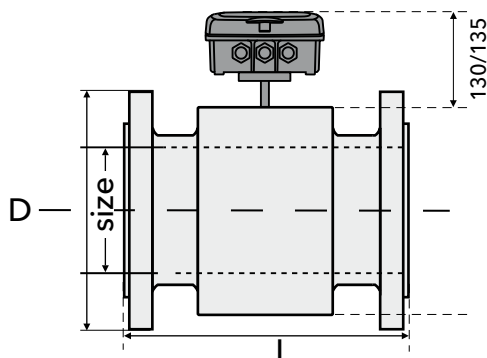
Dimensions

Magflux® 7100/7200 Sensor Sizes and Dimensions Information					
Size		Pressure	D	L	Weight
DN		PN	[mm]	[mm]	[kg]
EN 1092-1 Flanges					
15	½"	40	95	200	3,5
20	¾"	40	105	200	3,5
25	1"	40	115	200	3,5
32	1¼"	40	140	200	6
40	1½"	40	150	200	7
50	2"	16	165	200	8
65	2½"	16	185	200	10
80	3"	16	200	200	12
100	4"	16	220	250	16
125	5"	16	250	250	21
150	6"	16	285	300	28
200	8"	16	340	350	35
250	10"	10	395	450	43
300	12"	10	445	500	55
350	14"	10	505	550	66
400	16"	10	565	600	94
450	18"	10	615	600	105
500	20"	10	670	600	122
600	24"	10	780	600	158
700	28"	10	895	700	230
800	32"	6	975	800	325
900	36"	6	1075	900	420
1000	40"	6	1175	1000	510
1200	48"	6	1405	1200	680
1400		6	1630	1400	

Consult MJK for information on additional pressure classes

MagFlux™ Electromagnetic Flow Meter

Dimensions
Magflux®
7100/7200
Sensor
AS 2129 & 4087



Magflux® 7100/7200 Sensor
Sizes and Dimensions Information

Size	Pressure	D	L	Weight
DN	PN	[mm]	[mm]	[kg]

AS 2129 Flanges

15	½"	PN16	95	200	3,5
20	¾"	PN16	100	200	3,5
25	1"	PN16	115	200	3,5
32	1¼"	PN16	120	200	6
40	1½"	PN16	135	200	7

Consult MJK for information on additional pressure classes

Magflux® 7100/7200 Sensor
Sizes and Dimensions Information

Size	Pressure	D	L	Weight
DN	PN	[mm]	[mm]	[kg]

AS 4087 Flanges

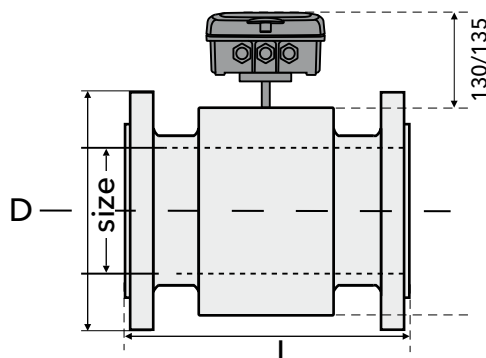
50	2"	14	150	200	8
65	2½"	14	165	200	10
80	3"	16	185	200	12
100	4"	16	215	250	16
125	5"	16	255	250	21
150	6"	16	280	300	28
200	8"	16	335	350	35
225		16	370	450	38
250	10"	16	405	450	43
300	12"	16	455	500	55
350	14"	16	525	550	66
375		16	550	600	70
400	16"	16	580	600	94
450	18"	16	640	600	105
500	20"	16	705	600	122
600	24"	16	825	600	158
700	28"	16	910	700	230
750	30"	16	995	750	275
750*	30"	16	937	750	275
800	32"	16	1060	800	325
900	36"	16	1175	900	420
1000	40"	16	1255	1000	510
1200	48"	16	1490	1200	680

Consult MJK for information on additional pressure classes

*) Built-in length, L=937mm

MagFlux™ Electromagnetic Flow Meter

Dimensions
Magflux®
7100/7200
Sensor
ANSI & AWWA



Magflux® 7100/7200 Sensor Flanges
Sizes, Pressure and Dimensions Information

Size	Pressure	D	L	Weight
Inch	[PSI]	[in]	[in]	[lb]
ANSI B 16.5				
½"	150	3.50	7.9	8
¾"	150	3.88	7.9	8
1"	150	4.25	7.9	8
1¼"	150	4.62	7.9	13
1½"	150	5.00	7.9	15
2"	150	6.00	7.9	18
2½"	150	7.00	7.9	22
3"	150	7.50	7.9	26
4"	150	9.00	9.8	35
5"	150	10.00	9.8	46
6"	150	11.00	11.8	62
8"	150	13.50	13.8	77
10"	150	16.00	17.7	95
12"	150	19.00	19.7	121
14"	150	21.00	21.7	146
16"	150	23.50	23.6	207
18"	150	25.00	23.6	231
20"	150	27.50	23.6	269
24"	150	32.00	23.6	348

AWWA C207-01

Size	Pressure	D	L	Weight
Inch	[PSI]	[in]	[in]	[lb]
28"	Class D	36.50	23.6	507
32"	Class D	41.75	31.5	717
36"	Class D	46.00	31.5	926
40"	Class D	50.75	31.5	1124
48"	Class D	59.50	39.4	1499

Consult MJK for information on additional pressure classes

Magflux® 7100/7200 Sensor Flanges
Sizes, Pressure and Dimensions Information

Size	Pressure	D	L	Weight
Inch	[PSI]	[in]	[in]	[lb]
ANSI B 16.5				
½"	300	3.75	7.9	8
¾"	300	4.62	7.9	8
1"	300	4.88	7.9	8
1¼"	300	5.25	7.9	13
1½"	300	6.12	7.9	15
2"	300	6.50	7.9	18
2½"	300	7.50	7.9	22
3"	300	8.25	7.9	26
4"	300	10.00	9.8	35
5"	300	11.00	9.8	46
6"	300	12.50	11.8	62
8"	300	15.00	13.8	77
10"	300	17.50	17.7	95
12"	300	20.50	19.7	121
14"	300	23.00	21.7	146
16"	300	25.50	23.6	207
18"	300	28.00	23.6	231
20"	300	30.50	23.6	269
24"	300	36.00	23.6	348

AWWA C207-01

Size	Pressure	D	L	Weight
Inch	[PSI]	[in]	[in]	[lb]
28"	Class E	36.50	23.6	507
32"	Class E	41.75	31.5	717
36"	Class E	46.00	31.5	926
40"	Class E	50.75	31.5	1124
48"	Class E	59.50	39.4	1499

Consult MJK for information on additional pressure classes

MagFlux™ Electromagnetic Flow Meter

Magflux® 7100 Sensor



The liner of MagFlux® 7100 is PTFE which makes it extremely low degree of friction and at the same time very resistant to chemicals and general abrasion.

Applications

- MagFlux 7100 with Teflon® lining is commonly used for water applications with chemicals

Specifications MagFlux® 7100 Sensor

MagFlux® 7100 Sensor Specifications	
Mounting Flanges ⑥	EN-1092-1 / ANSI B 16.5 / AWWA C207-01 / AS 4087 / AS2129
Built-in length	Standard length according to ISO 13359
Accuracy ④	Better than $\pm 0,25\%$
Ratio	1:100
Measuring Frequency	1,25-2,5 Hz
Materials	
Housing ⑥	Carbon steel
Flanges ⑥	Carbon steel
Measuring Pipe	Steel 1.4301 / AISI 304
Lining	PTFE (Teflon®)/PFA
Electrodes ③⑤	Steel 1,4571 / AISI 316 TI
Coating	3 layers Polyurethane paint, Thickness $\geq 310\ \mu\text{m}$
Temperature range	
Medium temperature	-20...150 °C / -4...300 °F
Ambient temperature: Compact Converter Remote Converter	-10.....60 °C / 15..140 °F -20...100 °C / -4...212 °F
Enclosure	IP 67, NEMA 4, Standard IP 68, NEMA 6P (10mWc, using the Gel potting kit 579035)
③Options: Hastelloy C4, platinum, and titanium. See, Flow sensor Ordering information.	
④Of measured value.	
⑤Incl. built in ground electrode.	
⑥Also available in Steel 304/316 SS. See, Flow sensor Ordering information.	

MagFlux™ Electromagnetic Flow Meter



Sizes, Pressure and
Order numbers
7100 Sensor
EN 1092-1

Magflux® 7100 Sensor - Sizes, Pressure and Order Number					
EN 1092-1 Flanges					
Size \ PN	PN6	PN10	PN16	PN25	PN40
DN 15			207107-016-00		207107-040-00
DN 20			207110-016-00		207110-040-00
DN 25			207113-016-00		207113-040-00
DN 32			207116-016-00		207116-040-00
DN 40			207119-016-00		207119-040-00
DN 50			207122-016-00		207122-040-00
DN 65			207125-016-00		207125-040-00
DN 80			207128-016-00		207128-040-00
DN 100			207131-016-00		207131-040-00
DN 125			207134-016-00		207134-040-00
DN 150			207137-016-00	207137-025-00	207137-040-00
DN 200		207140-010-00	207140-016-00	207140-025-00	207140-040-00
DN 250		207143-010-00	207143-016-00	207143-025-00	207143-040-00
DN 300		207146-010-00	207146-016-00	207146-025-00	207146-040-00
DN 350		207149-010-00	207149-016-00	207149-025-00	207149-040-00
DN 400		207152-010-00	207152-016-00	207152-025-00	207152-040-00
DN 450		207155-010-00	207155-016-00		
DN 500		207158-010-00	207158-016-00		
DN 600		207161-010-00	207161-016-00		
DN 700	207164-006-00	207164-010-00	207164-016-00		
DN 800	207167-006-00	207167-010-00	207167-016-00		
DN 900	207170-006-00	207170-010-00			
DN 1000	207172-006-00	207172-010-00			

Sizes, Pressure and
Order numbers
7100 Sensor
ANSI & AWWA

Magflux® 7100 Sensor Sizes, Pressure and Order Number			
ANSI B 16.5 Flange			
Size \ PSI	150 [PSI]	300 [PSI]	
½"	297107-150-00	297107-300-00	
¾"	297110-150-00	297110-300-00	
1"	297113-150-00	297113-300-00	
1¼"	297116-150-00	297116-300-00	
1½"	297119-150-00	297119-300-00	
2"	297122-150-00	297122-300-00	
2½"	297125-150-00	297125-300-00	
3"	297128-150-00	297128-300-00	
4"	297131-150-00	297131-300-00	
5"	297134-150-00	297134-300-00	
6"	297137-150-00	297137-300-00	
8"	297140-150-00	297140-300-00	

Magflux® 7100 Sensor Sizes, Pressure and Order Number			
ANSI B 16.5 Flange			
Size \ PSI	150 [PSI]	300 [PSI]	
10"	297143-150-00	297143-300-00	
12"	297146-150-00	297146-300-00	
14"	297149-150-00	297149-300-00	
16"	297152-150-00	297152-300-00	
18"	297155-150-00	297155-300-00	
20"	297158-150-00	297158-300-00	
24"	297161-150-00	297161-300-00	
AWWA C207-01	Class D	Class E	
28"	297164-150-00	297164-300-00	
32"	297167-150-00	297167-300-00	
36"	297170-150-00	297170-300-00	
40"	297173-150-00		

MagFlux™ Electromagnetic Flow Meter

Magflux® 7200
Sensor



The liner of MagFlux® 7200 is Hard Rubber for general water purpose usage.

Applications



MagFlux® 7200 with Hard Rubber lining is used typical for water and waste water applications.

Specifications MagFlux® 7200 Sensor

MagFlux® 7200 Sensor Specifications	
Mounting Flanges ⑥	EN-1092-1 / ANSI B 16.5 / AWWA C207-01 / AS 4087 / AS 2129
Built-in length	Standard length according to ISO 13359
Accuracy ④	Better than $\pm 0,25 \%$
Ratio	1:100
Measuring Frequency	1,25-2,5 Hz
Materials	
Housing ⑥	Carbon steel
Flanges ⑥	Carbon steel
Measuring pipe	Steel 1.4301 / AISI 304
Lining	Hard Rubber
Electrodes ③⑤	Steel 1,4571 / AISI 316 TI
Coating	3 layers Polyurethane paint, Thickness $\geq 310 \mu\text{m}$
Temperature Range	
Medium Temperature	-10...80 °C / 15...175 °F
Ambient temperature:	
Compact converter	-10...60 °C / 15...140 °F
Remote converter	-10...80 °C / 15...175 °F
Enclosure	IP 67, NEMA 4, Standard IP 68, NEMA 6P (10m Wc, using the Gel potting kit 579035)
Approvals	MID and MCERTS EN 1092-1 DN 25 to 400 , WRAS
③ Options: Hastelloy C4, platinum, and titanium. See, flow sensor ordering information. ④ Of measured value. ⑤ Incl. built in ground electrode. ⑥ Also available in Steel 304/316 SS. See, Flow sensor Ordering information.	



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MagFlux™ Electromagnetic Flow Meter



Sizes, Pressure and
Order numbers
7200 Sensor
EN 1092-1

EN 1092-1 Flanges						
Size PN	\	PN6	PN10	PN16	PN25	PN40
20	¾"					207210-040-00
25	1"					207213-040-00
32	1¼"					207216-040-00
40	1½"					207219-040-00
50	2"			207222-016-00		207222-040-00
65	2½"			207225-016-00		207225-040-00
80	3"			207228-016-00		207228-040-00
100	4"			207231-016-00		207231-040-00
125	5"			207234-016-00		207234-040-00
150	6"			207237-016-00	207237-025-00	207237-040-00
200	8"		207240-010-00	207240-016-00	207240-025-00	207240-040-00
250	10"		207243-010-00	207243-016-00	207243-025-00	207243-040-00
300	12"		207246-010-00	207246-016-00	207246-025-00	207246-040-00
350	14"		207249-010-00	207249-016-00	207249-025-00	207249-040-00
400	16"		207252-010-00	207252-016-00	207252-025-00	207252-040-00
450	18"		207255-010-00	207255-016-00		
500	20"		207258-010-00	207258-016-00		
600	24"		207261-010-00	207261-016-00		
700	28"	207264-006-00	207264-010-00	207264-016-00		
800	32"	207267-006-00	207267-010-00	207267-016-00		
900	36"	207270-006-00	207270-010-00	207270-016-00		
1000	40"	207272-006-00	207272-010-00			
1200	48"	207276-006-00	207276-010-00			
1400		287278-006-00				

Sizes, Pressure and
Order numbers
7200 Sensor
ANSI & AWWA

Magflux® 7200 Sensor Sizes, Pressure and Order Number			
ANSI B 16.5 Flange			
Size \ PSI	150 [PSI]	300 [PSI]	
½"	297107-150-00	297107-300-00	
¾"	297210-150-00	297110-300-00	
1"	297213-150-00	297113-300-00	
1¼"	297216-150-00	297116-300-00	
1½"	297219-150-00	297119-300-00	
2"	297222-150-00	297222-300-00	
2½"	297225-150-00	297225-300-00	
3"	297228-150-00	297228-300-00	
4"	297231-150-00	297231-300-00	
5"	297234-150-00	297234-300-00	
6"	297237-150-00	297237-300-00	
8"	297240-150-00	297240-300-00	

Magflux® 7200 Sensor Sizes, Pressure and Order Number			
ANSI B 16.5 Flange			
Size \ PSI	150 [PSI]	300 [PSI]	
10"	297243-150-00	297243-300-00	
12"	297246-150-00	297246-300-00	
14"	297249-150-00	297249-300-00	
16"	297252-150-00	297252-300-00	
18"	297255-150-00	297255-300-00	
20"	297258-150-00	297258-300-00	
24"	297261-150-00	297261-300-00	
AWWA C207-01	Class D	Class E	
28"	297264-150-00	297264-300-00	
32"	297267-150-00	297267-300-00	
36"	297270-150-00	297270-300-00	
40"	297273-150-00	297273-300-00	

MagFlux™ Electromagnetic Flow Meter

Sizes, Pressure and
Order numbers
7200 Sensor
AS 2129 & AS 4087

AS 2129 Flanges			
Size	PN16	PN21	PN35
15	287207-016-00		
20	287210-016-00	287210-021-00	
25	287213-016-00	287213-021-00	
32	287216-016-00	287216-021-00	
40	287219-016-00		
AS 4087 Flanges			
50	287222-016-00	287222-021-00	287222-035-00
65	287225-016-00	287225-021-00	287225-035-00
80	287228-016-00	287228-021-00	287228-035-00
100	287231-016-00	287231-021-00	287231-035-00
125	287234-016-00	287234-021-00	287234-035-00
150	287237-016-00	287237-021-00	287237-035-00
200	287240-016-00	287240-021-00	287240-035-00
225	287241-016-00		
250	287243-016-00	287243-021-00	287243-035-00
300	287246-016-00	287246-021-00	287246-035-00
350	287249-016-00	287249-021-00	287249-035-00
375	287250-016-00		
400	287252-016-00	287252-021-00	287252-035-00
450	287255-016-00	287255-021-00	287255-035-00
500	287258-016-00	287258-021-00	287258-035-00
600	287261-016-00	287261-021-00	287261-035-00
700	287264-016-00	287264-021-00	
750	287265-016-00	287265-021-00	
750*	287266-016-00		
800	287267-016-00		
900	287270-016-00		
1000	287273-016-00		
1200	287276-016-00		

*) build in length, L=937mm

MagFlux™ Electromagnetic Flow Meter

General
Magflux® 7300
Sensor



The liner of MagFlux® 7300 is PTFE which makes it extremely low degree of friction and at the same time very resistant to chemicals and general abrasion.

Applications

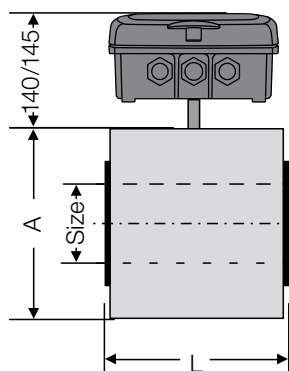
MagFlux® 7300 with Teflon® lining is used typical for chemicals applications.

Specifications
MagFlux® 7300
Sensor

MagFlux® 7300 Sensor Specifications	
Mounting	Wafer
Built-in length	Standard length according to ISO 13359
Accuracy ④	Better than $\pm 0,25\%$
Ratio	1:100
Measuring Frequency	2,5 Hz
Materials	
Housing ⑥	Carbon steel
Measuring pipe	Steel 1.4301 / AISI 304
Lining	PTFE (Teflon®) / PFA
Electrodes ③⑤	Steel 1,4571 / AISI 316 Ti
Coating	5 layers Polyurethane paint, Thickness $\geq 310\ \mu\text{m}$
Temperature range	
Medium temperature	-20...150 °C / -4...300 °F
Ambient temperature: Compact Converter Remote Converter	-10.....60 °C / 15..140 °F -20...100 °C / -4...212 °F
Enclosure	IP 67, NEMA 4, Standard IP 68, NEMA 6P (10mWc, using the Gel potting kit 579035)
③ Options: Hastelloy C4, platinum, and titanium. See, flow sensor ordering information.	
④ Of measured value.	
⑤ Incl. built in ground electrode.	
⑥ Also available in Steel 304/316 SS. See, Flow sensor Ordering information.	

MagFlux™ Electromagnetic Flow Meter

Dimensions
Magflux® 7300
Sensor



Dimensions

Magflux® 7300 Sensor - Sizes and dimensions information

Size		Pressure	A	L	Weight
DN	[inch]	PN	[mm]	[mm]	[kg]
15	1/2"	40	62	74	1,1
20	3/4"	40	62	74	1,1
25	1"	40	72	104	1,5
32	1 1/4"	40	82	104	1,8
40	1 1/2"	40	92	104	2,2
50	2"	16	107	104	2,8
65	2 1/2"	16	127	104	3,2
80	3"	16	142	104	3,5
100	4"	16	162	104	4
125	5"	16	192	134	6
150	6"	16	218	134	8
200	8"	16	274	219	10

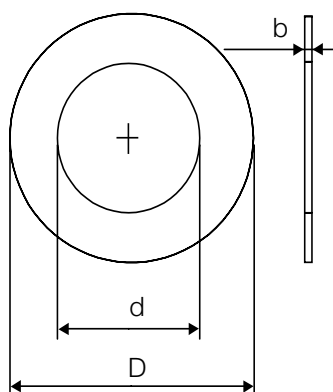
Sizes, Pressure and
Order numbers
7300 Sensor

Magflux® 7300 Sensor - Sizes, Pressure and Order Number

	PN10	PN16	PN40
DN 15		207307-016-00	207307-040-00
DN 20		207310-016-00	
DN 25		207313-016-00	
DN 32		207316-016-00	
DN 40		207319-016-00	
DN 50		207322-016-00	
DN 65		207325-016-00	
DN 80		207328-016-00	
DN 100		207331-016-00	
DN 125		207334-016-00	
DN 150		207337-016-00	
DN 200	207340-010-00	207340-016-00	

MagFlux™ Electromagnetic Flow Meter

Grounding rings



Grounding Ring Example



Sizes and Ordering Information

Grounding Rings Sizes and Ordering Information

Size			D ^①	d	b	Weight
DN	[inch]	Order no.	[mm]			[kg]
15	½"	207807	50	22	6	0,08
20	¾"	207810	58	28	6	0,08
25	1"	207813	68	35	6	0,12
32	1¼"	207816	79	43	6	0,16
40	1½"	207819	91	49	6	0,20
50	2"	207822	106	61	6	0,26
65	2½"	207825	126	77	6	0,40
80	3"	207828	141	90	6	0,44
100	4"	207831	170	115	6	0,56
125	5"	207834	191	141	6	0,60
150	6"	207837	237	170	6	0,90
200	8"	807840	272	220	6	0,96
250	10"	207843	333	274	6	1,30
300	12"	807846	405	325	6	2,00
350	14"	207849	443	360	6	2,48
400	16"	207852	521	411	6	3,60
450	18"	207855	546	463	6	3,20
500	20"	207858	602	514	6	3,64
600	24"	207861	713	615	6	4,70
700	28"	207864				
750	30"	207863				
800	32"	207867				

① maximum measurement

Specifications

Grounding Rings Specifications

Material	AISI 316 SS
Wire	2,5 mm ² / AWG 13

MagFlux™ Electromagnetic Flow Meter



Flow Sensor Sizing

Min. / Max. Flow and Default mA Settings				
Size		Qmin = 0,2 m/s	Qmin = 0,2 m/s	20 mA
DN	[inch]	[l/h]		
15	½"	127	6362	5000
20	¾"	226	11304	10000
25	1"	353	17676	20000
32	1 ¼"	578	28944	30000
40	1 ½"	905	45360	50000
50	2"	1414	70560	75000
-	-	[m³/h]	[m³/h]	[m³/h]
65	2 ½"	2,39	119	100
80	3"	3,62	181	200
100	4"	5,65	283	300
125	5"	8,84	442	400
150	6"	12,7	636	600
200	8"	22,6	1131	1000
250	10"	35,3	1767	2000
300	12"	50,9	2545	2500
350	14"	69,3	3464	3000
400	16"	90,5	4524	4500
450	18"	115	5726	6000
500	20"	141	7069	7000
600	24"	204	10179	10000
700	28"	277	13854	15000
800	32"	362	18095	20000
900	36"	458	22902	25000
1000	40"	565	28274	30000
1200	48"	814	40715	40000

Min and max flow Imperial		
Size	Qmin 0.6 ft./s	Qmax 30 ft./s
[inch]	[GPM]	
½"	0.559	28.0
¾"	0.995	49.76
1"	1.550	77.82
1 ¼"	2.549	127.4
1 ½"	3.984	199.7
2"	6.226	310.7
2 ½"	10.52	523.9
3"	15.93	796.9
4"	24.87	1246
5"	38.92	1946
6"	55.91	2800
8"	99.50	4,979
10"	155.4	7,780
12"	224.1	11,205
14"	305.1	15,258
16"	398.5	19,919
18"	506.3	25,210
20"	620.8	31,120
24"	999.1	44,910
28"	1220	74,920
32"	1594	79,620
36"	2017	100,800
40"	2497	124,500
48"	3584	179,300

20mA output is factory preset to Qmax

To calculate the correct size of the Flow Sensor the recommended flow velocity should be between 1 and 3 m/s (3 and 10 ft/s) to achieve high accuracy at low velocities (down to 0,2 m/s equal to 0.66 ft/s), to ensure safe operation of the tube system and to minimize pressure losses.

The flow curves and graphs on the following page illustrate how the size of the Flow Sensor is calculated to get the required measuring accuracy.

Example:

A volume of 50 m³/h (220 GPM) is running through a DN100 pipe that measures 4" in internal diameter. To select the correct MagFlux® Flow Sensor, the liquid velocity should be in the range 1 - 3 m/s for 50 m³/hr (3 ft/s - 10 ft/s for 220 GPM.)

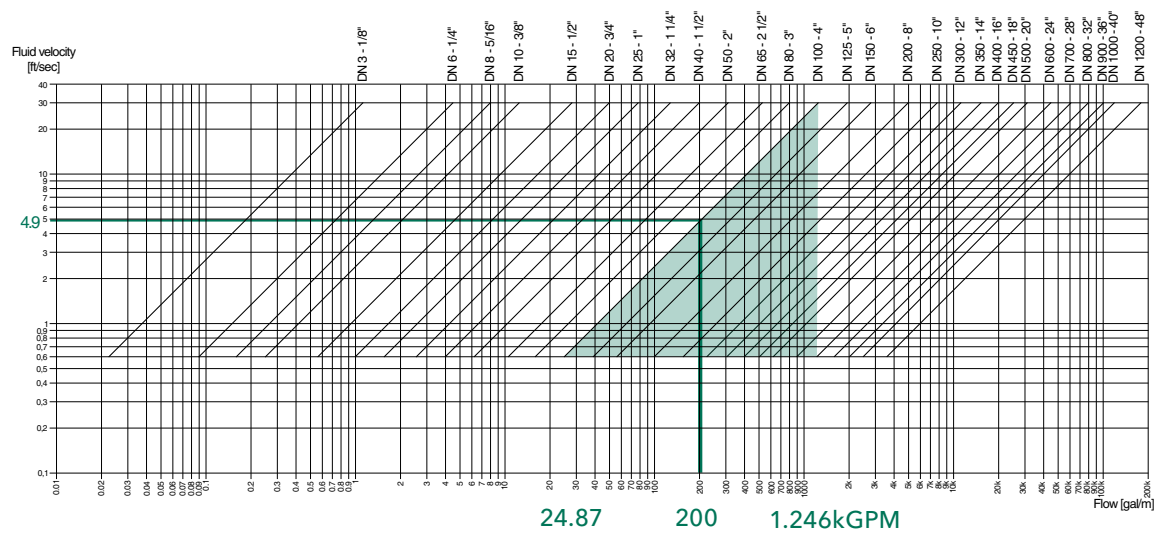
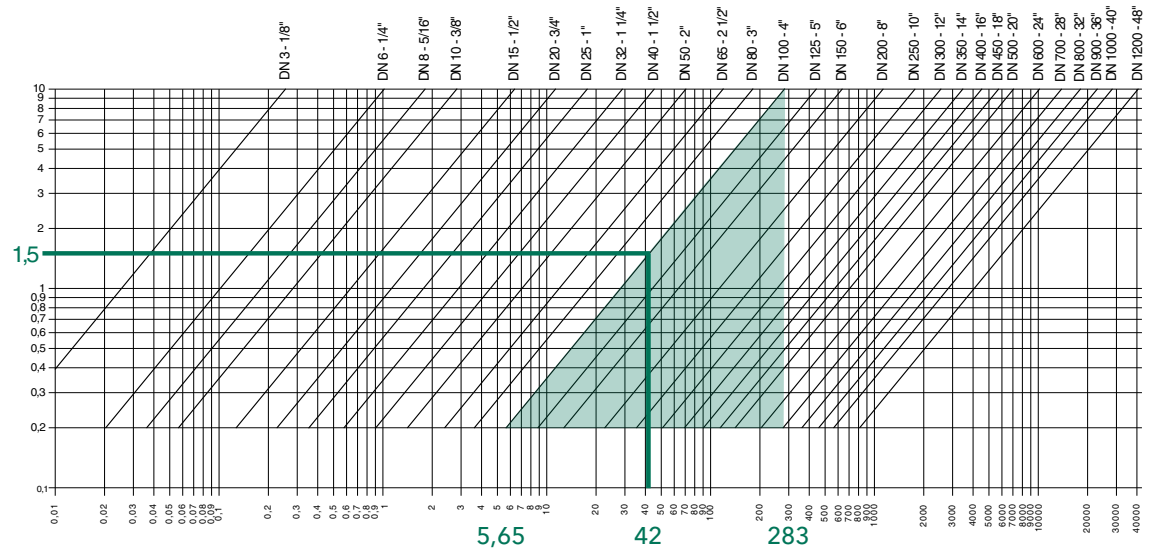
If a MagFlux® Flow Sensor with the same inner diameter as the DN100 pipe is selected (4"), the flow velocity will be 1.5 m/s (4.9 ft/s) at a flow rate of 42 m³/h (200 GPM). The diagram and the table below also shows that a flow between 5.65 m³/h and 283 m³/h (24.87 and 1.246 kGPM) can be measured.

MagFlux™ Electromagnetic Flow Meter

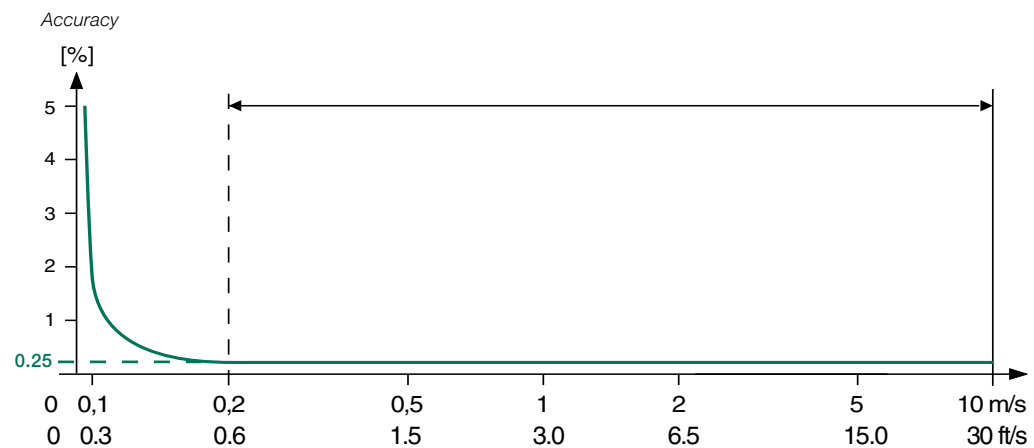


Flow / Velocity Graph (metric)

Nominal diameter of MagFlux® flow sensor



Measurement Accuracy

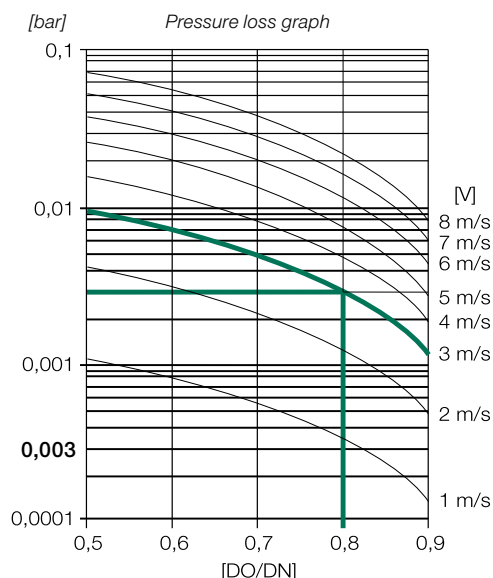


Example:

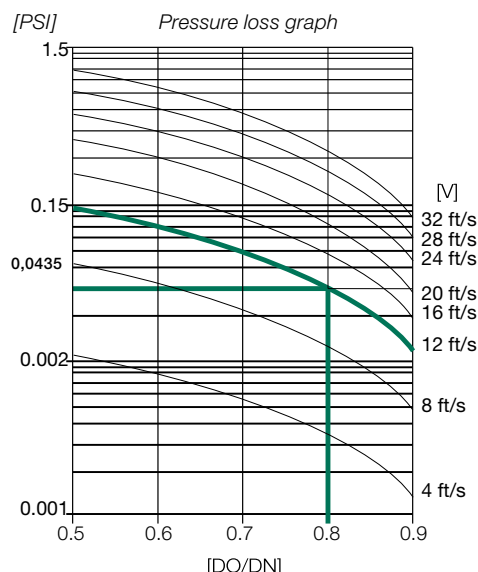
If a 100 mm MagFlux Flow Sensor is selected, the diagram shows the available measuring accuracy between 0.2 - 10 m/s or 0.6 - 30 ft/s (here: 0.25%).

MagFlux™ Electromagnetic Flow Meter

Reducing the Flow Meter Size

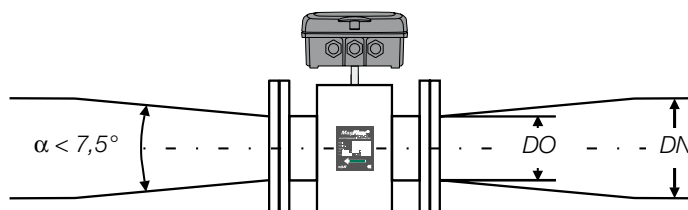


When the size of the Flow Meter is reduced to cause the flow to reach a sufficient velocity, the pipe size has to be reduced. This will cause a pressure loss which can be calculated using the pressure loss chart at the right.



When the MagFlux® Sensor is smaller than nominal pipe diameter, the pressure loss can be checked, using the pressure loss chart.

Reducing the Flow Meter Size



A MagFlux® Flow Sensor with an internal diameter of 80 mm is selected and the pipe size is 100 mm. Consequently the fluid velocity for a flow of approximately 50m³/h will increase to approximately 3 m/s.

Using a DN80 mm MagFlux® flow sensor also leads to a smaller measurement range (3.62 m³/h - 181 m³/h).

The diagram on the right shows that reducing the pipe size from 100 to 80 mm will cause a pressure loss of 3 mbar (0.003 bar).

A MagFlux Flow Sensor with an internal diameter of 3 in. is selected and the pipe size is 4 in., the fluid velocity for a flow of approximately 220 GPM will increase to about 10 ft/s.

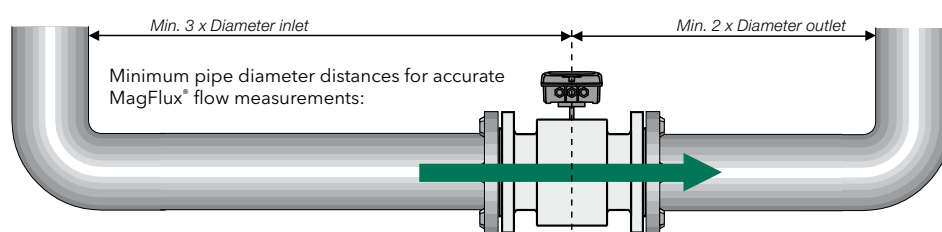
Using a 3 in. MagFlux flow sensor, a smaller measurement range (from 15.93 GPM to 796.9 GPM) will be available.

The diagram shows that reducing the pipe size 4 in. to 3 in. will cause a pressure loss of 0.0435psi.

Mounting Data

Accurate flow measurement requires a minimum of three (3) pipe diameters of straight pipe upstream and two (2) pipe diameters of straight

pipe downstream from the center of the Flow Sensor.



MagFlux™ Electromagnetic Flow Meter



Online Information

Find the latest updated product information, video tutorials and a lot more on the website.

Use the QR code to find the website, if you use the digital version of the datasheet, just click to go straight to the electromagnetic flow measurement area.



MJK Automation
Byageren 7
DK-2850 Nærum
Denmark

Tel +45 45 56 06 56
Fax +45 45 56 06 46
www.mjk.com

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