



Confirmation of Product Type Approval

Company Name: EMERSON PROCESS MANAGEMENT FLOW TECHNOLOGIES CO., LTD

Address: 11, XING MIN SOUTH ROAD,JIANGNING DISTRICT,NANJING,JIANGSU China

Product: Meter, Flowmeter

Model(s): 8700M Magnetic Flowmeter Flow Sensors: 8705M and 8711M/L Transmitters: 8732EM and 8712EM

Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	20-1970503-PDA-DUP	21-AUG-2020	20-AUG-2025
Manufacturing Assessment (MA)	20-4360145	17-JUL-2020	06-AUG-2025
Product Quality Assurance (PQA)	NA	NA	NA

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3 - Type Approved, unit certification not required

Intended Service

Marine and Offshore Applications - Flow Measurement for Conductive Liquids and Slurries.

Description

Rosemount 8700M Magnetic Flowmeter is comprised of sensor and transmitter that together measure the flow rate of conductive liquids and slurries.

8705M Sensor - flanged magnetic flow sensor with liner, fabricated from stainless and carbon steel

8711M/L Sensor - wafer magnetic flow sensor with liner, fully welded and provided with alignment spacers

8732EM Transmitter - integral and remote mount to magnetic flow sensor, backlit display

8712EM Transmitter - remote mount to magnetic flow sensor, wall mount design, backlit display,

15-Button tactile key pad

Ratings

8705M Sensor and 8711M/L Sensor

Maximum Process Pressure: Refer to "Table 1 - Process Pressure Limits (Cert: 20-1970503-PDA)" attached

Process Temperature: Refer to "Table 2 - Process Temperature Limits (Cert: 20-1970503-PDA)" attached

Maximum Flow Rate (Velocity): 12 m/s (39.37 ft/s)

Line Size: 8705M - 15 mm to 900 mm (0.5 in. to 36 in.)

8711M/L - 40 mm to 200 mm (1.5 in. to 8 in.)

Ambient Temperature: 8705M -29 to 60 °C (-20 to 140 °F) standard design

-50 to 60 °C (-58 to 140 °F) with "SH" all stainless design

8711M/L -29 to 60 °C (-20 to 140 °F)

Degree of Ingress Protection: Type 4X, IP66, IP68 (submergence to a depth of 10m (33 ft) for a period of 48 hours)

8732EM Transmitter and 8712EM Transmitter

Power Supply: 250VAC, 0.45A, 40VA, 50/60Hz

42VDC, 1.2A, 15W

30VDC, 0.25A, 3W

Signal Output: 4-20mA

Ambient Temperature (Operating): -40 to 60 °C (-40 to 140 °F) without LOI/Display

-20 to 60 °C (-4 to 140 °F) with LOI/Display

Humidity:0-95% RH to 60 °C (140 °F)

Degree of Ingress Protection: Type 4X, IP66

Service Restrictions

- Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

- Process liquid for flowmeters must have a conductivity of 5 microSiemens/cm (5 micromhos/cm) or greater.

- For installation in hazardous areas, the products shall be certified by a competent, independent testing laboratory for complying with IEC Publication 60079 series or equivalent standard, and rated according to its enclosure and the types of flammable atmosphere in which it is safe to install.

- Not to be used where an intrinsically safe type device only is required (i.e. pump room on tanker, etc.) unless electrical installations associated with hazardous area fully comply with IEC 60092-502 (1999).

- The products certified under the ATEX scheme only are not to be installed on US Flagged Vessel or offshore units on the US Outer Continental Shelf (OCS).

- The flow sensor liner and electrode materials are to be selected per EMERSON - ROSEMOUNT Technical Data Sheet - Magnetic Flowmeter Material Selection Guide 00816-0100-3033, Rev CB.

Comments

- The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

- Installation in hazardous area is to be in accordance with Marine Vessel Rules 4-8-3/13, 4-8- 4/1.5, 4-8-4/27 and Mobile Offshore Units Rules 4-3-1/3.9, 4-3-3/9, 4-3-6.

- Application of the flow sensors with slip-on flange is subject to the limitations of use for slip-on flanges (Type B & C) as indicated in Tables 6 & 7 of Marine Vessel Rules 4-6-2/5.5.4.
- The materials of flow sensors used for process temperature below -18°C (0°F) shall meet the requirements of Marine Vessel Rules 4-6-2/3.1.7 and Rules for Materials and Welding (Part 2) 2-3-13.

Notes, Drawings and Documentation

Drawing No.00813-0100-4444, Product Data Sheet - Rosemount 8700M Magnetic Flowmeter Platform, Rev. AI

Drawing No.00816-0100-3033, Technical Data Sheet - Magnetic Flowmeter Material Selection Guide, Rev. CB

Drawing No.08705-0014, 8705/8707/MS Pipe Pressure Calculations, Rev. AN

Drawing No.08711-1014, 8711 Pipe Pressure Calculations, Rev. AC

Drawing No.08711-1015, 8711 Casting Pressure Calculations, Revision: AD

Drawing No.00825-0100-4444, Quick Start Guide - Rosemount 8732EM Transmitter with HART Protocol, Rev. AI

Drawing No.00825-0100-4445, Quick Start Guide - Rosemount 8712EM Transmitter with HART Protocol, Rev. AB

Drawing No.00825-0100-4727, Quick Install Guide - Rosemount 8700 Magnetic Flowmeter Sensor, Rev. DD

Drawing No.00825-0400-4444, Quick Start Guide - Rosemount 8732EM Transmitter with Modbus Protocol, Rev. AC

Drawing No.00825-0400-4445, Quick Start Guide - Rosemount 8712EM Transmitter with Modbus Protocol, Rev. AB

Drawing No.00825-0500-4444, Quick Start Guide - Rosemount 8732EM Transmitter with Foundation Fieldbus - Includes support for 8750W, Rev. AA

Drawing No.00825-0500-4445, Quick Start Guide - Rosemount 8712EM Transmitter with Foundation Fieldbus - Includes support for 8750W, Rev. AA

Drawing No.00825-MA00-0001, Rosemount 8700M IECEx and ATEX Approval Document, Rev. AC

Drawing No.00825-MA00-0002, Rosemount 8700M Class Division Approval Document, Rev. AB

Drawing No.00825-MA00-0003, Rosemount 8700M North America Zone Approval Document, Rev. AB

Drawing No.08712-2023, Approvals drawings 8712EM ATEX/IECEx Type Ex e, Ex nA,, Ex i, Rev. AC

Drawing No.08732-2020, 8732EM ATEX/IECEx Flameproof, Increased Safety Terminals with Intrinsically Safety - Electrode Circuit, 4-20mA, & Pulse Outlets, Rev. AF

Drawing No.08705-2020, 8705-M, 8711-M/L ATEX, IECEx, Increased Safety with Intrinsically Safe Electrode - (Ex e ia OR Ex e ib), Rev. AA

Term of Validity

This Product Design Assessment (PDA) Certificate remains valid until 20/Aug/2025 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

ABS Rules

2020 Rules for Conditions of Classification, Part 1, 1-1-4/7.7, 1-1-A3, 1-1-A4, which covers the following:

2020 Marine Vessel Rules 4-6-2/3.1.7, 4-6-2/5.5.4, 4-8-3/13, 4-8-4/1.5, 4-8-4/27

2020 Rules for Materials and Welding (Part 2) 2-3-13.

2020 Rules for Conditions of Classification, Part 1, Offshore Units and Structures 1-1-4/9.7, 1-1-A2, 1-1-A3, which covers the following:

2020 Mobile Offshore Units Rules 4-2-2/15, 4-2-2/Table 1, 4-3-1/3.9, 4-3-3/9, 4-3-6

International Standards

NA

EU-MED Standards

NA

National Standards

NA

Government Standards

NA

Other Standards

NA



Corporate ABS Programs
American Bureau of Shipping
Print Date and Time: 05-Apr-2022 10:40

ABS has used due diligence in the preparation of this certificate, and it represents the information on the product in the ABS Records as of the date and time the certificate is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or prior to the effective date of the ABS Rules and standards applied at the time of PDA issuance. ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and

quality control arrangements. The manufacturer is responsible to maintain compliance with all specifications applicable to the product design assessment. Unless specifically indicated in the description of the product, certification under type approval does not waive requirements for witnessed inspection or additional survey for product use on a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.

Table 1 - Process Pressure Limits (Cert: 20-1970503-PDA)

EMERSON - ROSEMOUNT, MICRO MOTION, INC.

Issuance Date: 20 August 2020

Expiration Date: 19 August 2025

(Model: Flow Sensors 8705M and 8711M/L)

Sensor Model	Flange Type and Material*	Flange Rating**	Line Size***	Maximum Working Pressure
8711	All (sensor mating pipe flange)	All (sensor mating pipe flange)	005-080	740 PSIG / 5.10 MPa
8705	S, P, T, R, G, H, K, L	1	005-240	275 PSIG / 1.90 MPa
8705	C, D, F, J	1	005-240	285 PSIG / 1.96 MPa
8705	C, S, P, F, G, H	1	300-360	150 PSIG / 1.03 MPa
8705	S, P, T, R, G, H, K, L	2	300-360	275 PSIG / 1.90 MPa
8705	C, D, F, J	2	300-360	285 PSIG / 1.96 MPa
8705	S,P,T,R,G,H,K,L	3	All	720 PSIG / 4.96 MPa
8705	C, D, F, J	3	All	740 PSIG / 5.10 MPa
8705	All	6	005-240	1000 PSIG / 6.89 MPa
8705	S,P,T,R,G,H,K,L	7	005-240	1440 PSIG / 9.93 MPa
8705	C, D, F, J	7	005-240	1480 PSIG / 10.20 MPa
8705	S,P,T,R,G,H,K,L	9	010-200	2160 PSIG / 14.89 MPa
8705	C, D, F, J	9	010-200	2220 PSIG / 15.31 MPa
8705	T,R, K, L	M	010-120	3600 PSIG / 24.82 MPa
8705	D, J	M	010-120	3705 PSIG / 25.55 MPa
8705	T,R, K, L	N	015-100	6000 PSIG / 41.37 MPa
8705	D, J	N	015-100	6170 PSIG / 42.54 MPa
8705	S,P,T,R,G,H,K,L	D	080-360	132 PSIG / 0.91 MPa
8705	C, D, F, J	D	080-360	145 PSIG / 1.00 MPa
8705	S,P,T,R,G,H,K,L	E	020-360	213 PSIG / 1.47 MPa
8705	C, D, F, J	E	020-360	232 PSIG / 1.60 MPa
8705	S,P,T,R,G,H,K,L	F	060-360	334 PSIG / 2.3 MPa
8705	C, D, F, J	F	060-360	363 PSIG / 2.50 MPa
8705	S,P,T,R,G,H,K,L	H	005-240	534 PSIG / 3.68 MPa
8705	C, D, F, J	H	060-240	580 PSIG / 4.00 MPa
8705	C, F	K	All	101 PSIG / 0.70 MPa
8705	C, F	L	All	203 PSIG / 1.40 MPa
8705	C, S, P, F, G, H	P	005-240	203 PSIG / 1.40 MPa
8705	C, S, P, F, G, H	R	005-240	493 PSIG / 3.40 MPa
8705	C, S, P, F, G, H	T	005-160	986 PSIG / 6.80 MPa
8705	C, S, P, F, G, H	U	020-360	232 PSIG / 1.60 MPa
8705	C, S, P, F, G, H	W	020-360	304 PSIG / 2.10 MPa
8705	C, S, P, F, G, H	Y	020-360	507 PSIG / 3.50 MPa

Note:

1) Only maximum process pressures @ 100°F (38°C) are listed above. Refer to "Tables - Temperature vs. Pressure Limits" in EMERSON - ROSEMOUNT Product Data Sheet - Rosemount 8700M Magnetic Flowmeter Platform 00813-0100-4444, Rev AI and recognized standards for pressure deratings at elevated temperature.

2) See next page for Flange Type and Material*, Flange Rating** and Line Size***.

Table 1 - Process Pressure Limits (Cert: 20-1970503-PDA)

Flange Type and Material*	
C	Slip-On, Raised-Face, Carbon Steel
S	Slip-On, Raised-Face, 304/304L SST
P	Slip-On, Raised-Face, 316/316L SST
F	Slip-On, Flat-Face, Carbon Steel
G	Slip-On, Flat-Face, 304/304L SST
H	Slip-On, Flat-Face, 316/316L SST
D	Weld-Neck, Raised-Face, Carbon Steel
T	Weld-Neck, Raised-Face, 304/304L SST
R	Weld-Neck, Raised-Face, 316/316L SST
J	Weld-Neck, RTJ, Carbon Steel
K	Weld-Neck, RTJ, 304/304L SST
L	Weld-Neck, RTJ, 316/316L SST

8705M Sensor Flange Rating**	
1	ASME B16.5, Class 150 (1/2" thru 24"); AWWA Class D (30" & 36")
2	ASME B16.47, Class 150 Series A (30" and 36" only) (Slip-on modified MSS SP44)
3	ASME B16.5, Class 300 (½ thru 24-in.); (ASME B16.47 Class 300 for 30 and 36-in. Weld-Neck Flange only)
6	ASME B16.5, Class 600 (Derated 1000 PSI Max)
7	ASME B16.5, Class 600
9	ASME B16.5, Class 900
M	ASME B16.5, Class 1500
N	ASME B16.5, Class 2500
D	EN1092-1, PN10
E	EN1092-1, PN16
F	EN1092-1, PN25
H	EN1092-1, PN40
K	AS2129, Table D
L	AS2129, Table E
P	JIS B2220, 10K
R	JIS B2220, 20K
T	JIS B2220, 40K
U	AS4087, PN16
W	AS4087, PN21
Y	AS4087, PN35

8711M/L Wafer Sensor mating pipe flange pressure rating**	
1	ASME B16.5, Class 150
3	ASME B16.5, Class 300
D	EN1092-1, PN10
E	EN1092-1, PN16
F	EN1092-1, PN25
H	EN1092-1, PN40
P	JIS B2220, 10K
R	JIS B2220, 20K
U	AS4087, PN16
W	AS4087, PN21
Y	AS4087, PN35

Line Size***	
005	0.5" (15 mm)
010	1.0" (25 mm)
015	1.5" (40 mm)
020	2.0" (50 mm)
025	2.5" (65mm)
030	3.0" (80 mm)
040	4.0" (100 mm)
050	5.0" (125mm)
060	6.0" (150 mm)
080	8.0" (200 mm)
100	10.0" (250 mm)
120	12.0" (300 mm)
140	14.0" (350 mm)
160	16.0" (400 mm)
180	18.0" (450 mm)
200	20.0" (500 mm)
240	24.0" (600 mm)
300	30.0" (750 mm)
360	36.0" (900 mm)

Table 2 - Process Temperature Limits (Cert: 20-1970503-PDA)

EMERSON - ROSEMOUNT, MICRO MOTION, INC.

Issuance Date: 20 August 2020

Expiration Date: 19 August 2025

(Model: Flow Sensors 8705M and 8711M/L)

	8705M Flanged Sensor		8711M/L Wafer Sensor
	Carbon Steel	Stainless Steel	
ETFE lining	-20 to +300 °F (-29 to +149 °C)	-58 to +300 °F (-50 to +149 °C)	-20 to +300 °F (-29 to +149 °C)
PTFE lining	-20 to +350 °F (-29 to +177 °C)	-58 to +350 °F (-50 to +177 °C)	-20 to +350 °F (-29 to +177 °C)
PFA and PFA+ lining	-20 to +350 °F (-29 to +177 °C)	-58 to +350 °F (-50 to +177 °C)	N/A
Polyurethane lining	0 to +140 °F (-18 to +60 °C)		
Neoprene lining	0 to +176 °F (-18 to +80 °C)		
Linatex lining	0 to +158 °F (-18 to +70 °C)		
Adiprene lining	0 to +200 °F (-18 to +93 °C)		