



TYPE APPROVAL CERTIFICATE

Certificate No:
TAA00001N2
Revision No:
4

This is to certify:

That the Pressure Transmitter

with type designation(s)
Deltapilot M FMB50, Deltapilot M FMB52, Deltapilot M FMB53

Issued to

Endress+Hauser SE+Co. KG
Maulburg, Germany

is found to comply with

DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Location classes:

Temperature	D
Humidity	B
Vibration	B
EMC	B
Enclosure	B

Issued at **Hamburg** on **2023-01-25**

for **DNV**

This Certificate is valid until **2028-01-24**.

DNV local station: **Augsburg**

Approval Engineer: **Dariusz Lesniewski**

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Joannis Papanuskas
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: TA 251

Revision: 2021-03

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Product description

Hydrostatic Pressure Transmitter **Deltapilot M**

Pressure measurement for gas or liquids

Sensor: metal diaphragm

Pressure ranges: -1 up to +10bar

Output signal: 4...20mA HART, 2-wire

Housing: Aluminium or 316L

Electrical connection: cable entry (gland or thread), connector

Process connection: flange, thread

Software version: V01.00.xx

Version Ex-protected: refer to Ex-proof certificates

Key / Variants

FMB50- 10 20 30 40 50 70 80 90 110 170 180 190 500 550 570 580 590 600 610 620 850 895

10 = Approval: AA, BA, BB, BD, BE, BG, B1, CA, CC, CD, FA, FC, FD, GA, IA, ID, IE, I1, MA, NA, TA, 8C, 99

20 = Output: 2

30 = Display, Operation: 1, 2

40 = Housing: I, J, Q, R

50 = Electrical Connection: A, C, D, I, M, P, S, V, Y

70 = Sensor Range: 1C, 1F, 1H, 1M, 1P, 99

80 = Reference Accuracy: D, G, Y

90 = Calibration; Unit: A, B, C, D, E, F, J, K, Y

110 = Process Connection: Any triple letter and/or number combination; except for connections made of synthetic materials

170 = Membrane Material: B, L, Y

180 = Fill Fluid: 2, 3, 9

190 = Seal: U

500 = Additional Operation Language: AA, AB, AC, AD, AE, AF, AK, AL

550 = Calibration: F1, F2,

570 = Service: HA, HB, HC, HK, IA, IB, I9,

580 = Test, Certificate: JA, JB, JE, JF, KB, KD, KE, KF, KG, K9

590 = Additional Approval: LA, LC, LE, LF, LG, LH, LI, LQ, LR, LS, LW

600 = Separate Housing: none

610 = Accessory Mounted: none

620 = Accessory Enclosed: QJ, QK, QL, QP, QR, QS, QT, QU, Q1, Q2, Q3, Q5, Q6, Q7

850 = Firmware Version: 78

895 = Marking: Z1, Z2

Key / Variants

FMB52- 10 20 30 40 50 70 80 90 100 110 170 180 190 500 550 570 580 590 600 610 620 850 895

10 = Approval: AA, BA, BD, BE, BG, CA, CD, FE, GA, IA, IC, IE, MA, NA, TA, 8C, 99

20 = Output: 2

30 = Display, Operation: 1, 2

40 = Housing: I, J, Q, R

50 = Electrical Connection: A, C, D, I, M, P, V, Y

70 = Sensor Range: 1C, 1F, 1H, 1M, 1P, 99

80 = Reference Accuracy: D, G, Y

90 = Calibration; Unit: A, B, C, D, E, F, J, K, Y

100 = Probe Connection: 15, 25, 35, 45, 99

110 = Process Connection: Any triple letter and/or number combination; except for connections made of synthetic materials

170 = Membrane Material: B, L, N, Y

180 = Fill Fluid: 2, 3, 9

190 = Seal: A, J, L, U

500 = Additional Operation Language: AA, AB, AC, AD, AE, AF, AK, AL

550 = Calibration: F1

570 = Service: HA, HC, IA, IB, I9

580 = Test, Certificate: JA, JB, JE, KD, KG, K9

590 = Additional Approval: LA, LC, LE, LF, LG, LH, LI, LQ, LR, LS

600 = Separate Housing: none

610 = Accessory Mounted: none

620 = Accessory Enclosed: QJ, QK, QL

850 = Firmware Version: 78

895 = Marking: Z1, Z2

Key / Variants

FMB53- 10 20 30 40 50 70 80 90 100 170 180 190 500 550 570 580 590 610 620 850 895

10 = Approval: AA, BD, BE, BG, CA, CD, FE, GA, IC, IE, MA, NA, TA, 8C, 99

20 = Output: 2

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550 = Calibration: F1

570 = Service: HA, HC, IA, IB, I9

580 = Test, Certificate: JA, JB, JE, KD, KG, K9

590 = Additional Approval: LA, LE, LF, LG, LH, LI, LQ, LR, LS

610 = Accessory Mounted: O9

620 = Accessory Enclosed: none

850 = Firmware Version: 78

895 = Marking: Z1, Z2

The complete order code with optional additional ordering information can be found in the documents no. 960015744, no. 960015745, no. 960015746 (release date 06.11.2012).

Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV rules for classification of ships Pt.4 Ch.9 Control and monitoring systems.

Application/Limitation

Ex-certification is not covered by this certificate. Application in hazardous area to be approved in each case according to DNV Rules and Ex-Certification / Special Condition for Safe Use listed in valid Ex-certificate issued by a notified/recognized Certification Body.

Type Approval documentation

Test Report Phoenix Testlab no. U100729E5 (17.11.10)

Test Report Phoenix Testlab no. U10029E1 (12.11.10)

Test Report Phoenix Testlab no. E100729E5 (24.11.10)

Test Report Phoenix Testlab no. E100729E1 (24.11.10)

Test Report Phoenix Testlab no. U100729E7 (13.12.10)

Test Report Phoenix Testlab no. U113828 2nd version (06.02.12)

Test Report paconsult: no. 17-9262C (17.08.02)

Test Report E+H No. 970008313_AK (2021-09-13)

Test Report E+H No. 970008314_AK (2021-09-13)

Pressure test 970001639 (10.11.09)

970002749 (19.10.11) IP X6-, IP X7/8- and Dust Exclusion Tests

T100437P/00/EN/17.12, Construction Drawings

Drawing no. 960017688 (29.04.2015)

Documents: SV01287P/00/A2/01.13 and SV01460P/00/A2/01.15

Type approval assessment report issued at Augsburg on 2023-01-10

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021.

Marking of product

The products to be marked with:

- manufacturer name
- model name

- serial number
- power supply ratings

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE