

CERTIFICATE OF CONFORMITY



1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** FM19US0048X
3. **Equipment:** Model H250 / M40 Variable Area Flowmeter
(Type Reference and Name)
4. **Name of Listing Company:** Krohne Messtechnik GmbH
5. **Address of Listing Company:** Ludwig Krohne Strasse 5
D-47058 Duisburg,
Germany
6. The examination and test results are recorded in confidential report number:

3045602 dated 20th December 2012
7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3600:2018, FM Class 3615:2018, FM Class 3616:2011,
FM Class 3810:2018 – ANSI/ISA 61010-1:2004,
ANSI/ISA 60079-0:2009, ANSI/ISA 60079-1:2009, ANSI/ISA 60079-31:2009, ANSI/NEMA 250:2003,
8. If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
9. This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

Certificate issued by:

J.E. Marquedant
VP, Manager - Electrical Systems

30 July 2019

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC, 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmapprovals.com www.fmapprovals.com

SCHEDULE

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10. Equipment Ratings:

Explosionproof for Class I, Division 1, Groups A, B, C and D, T6; Dust-ignitionproof for Class II, Division 1, Groups E, F and G, T6; Class III, Division 1, T6; Flameproof for Class I, Zone 1, AEx db IIC T6; Protection by Enclosure for Zone 21, AEx tb IIIC T85°C hazardous (classified) locations, indoors and outdoors (Type 4X, 6) with an ambient temperature rating of -40°C to +65°C.

11. The marking of the equipment shall include:

Class I Division 1, Groups A, B, C, D; T6 Ta = -40°C to +65°C; Type 4X, 6

Class II, Division 1, Groups E, F, G, Class III, Division 1; T6 Ta = -40°C to +65°C; Type 4X, 6

Class I, Zone 1, AEx db IIC T6 Ta = -40°C to +65°C; Type 4X, 6

Zone 21, AEx tb IIIC T85°C

12. Description of Equipment:

The Variable Area Flowmeter Type H250/.../M40 is designed to measure volume flow of flammable and nonflammable gases and liquids in vertical or horizontal process pipes. The device consists of the H250 flowtube with a guided float and the converter unit M40 with the built in electronics. Each position of the guided float is representative for a certain volume flow. All floats contain one or more magnets. The field of these magnets is detected by two Hall sensors in the converter housing. The float position is mechanically linked to the mechanical indicator scale by a magnetic field caused by a magnet in the M40 converter. Actual flow rate is display on local indication.

The flowtube exists of a conical tube with or without liner or a straight tube with inserted liner and ceramic cone. The float is guided by a bar, the operating height of the float is limited by two arresters. The converter part is fixed to the Flowtube by two threaded bolts, which are welded to the Flowtube. Two plastic distance parts enable a thermal decoupling between Flowtube and converter unit. For high temperature applications, the distance between Flowtube and converter unit can be increased.

The converter part (M40) is protected by a flameproof aluminum or stainless steel housing. The housing consists of a base enclosure and threaded cover, which is fitted with a glued-in glass disk. The cover is screwed on the base plate and tightened by a rubber gasket. The cover is also equipped with an external cover lock, which is accessible via a 3 mm hex-wrench. The inserted electronics is partly molded with silicon rubber in order to reduce the free internal volume and to protect the circuit from moisture. The LCD display generates a current of 4-20 mA in two-wire technology that is proportional to the instantaneous flow rate.

Power – The H250/M40 Variable Area Flowmeter is suitable for supply voltage of 9 – 32 Vdc. The equipment is classified as Pollution degree 2 and Overvoltage Category II. The unit operates at an ambient temperature range of -40°C to +65°C.

H250a/b/c/M40d/e/f/g/h/i. Variable Area Flowmeter.

a = Type of measuring part: H, U or blank.

b = Material of the process accessed parts / versions: RR, C, HC or F.

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c = heating jacket, without heating jacket: B or blank.
d = Version measuring unit: M40, M40S, M40R or M40T.
e = High temperature version: HT or blank.
f = electronic signal output: ESK or blank.
g = limit switches: K1, K2, R1, R2 or blank.
h = version: Ex.
i = SIL- version: SE, SK or blank.

13. Specific Conditions of Use:

1. Consult the manufacturer if dimensional information on the flameproof joints is necessary.
2. The painted surface of the equipment may store electrostatic charge and become a source of ignition in applications with a low relative humidity <~30% relative humidity where the painted surface is relatively free of surface contamination such as dirt, dust, or oil. Cleaning of the painted surface should only be done with a damp cloth.

14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals US Certification Requirements.

15. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
20 th December 2012	Original Issue.
7 th May 2019	<u>Supplement 3:</u> Report Reference: – PR452759 dated 7 th May 2019. Description of the Change: Addition of new glass window option for the MH 040 housing manufactured by Changzhon Tianxiang Special Glass CO., Ltd.
30 th July 2019	<u>Supplement 4:</u> Report Reference: – RR218872 dated 30 th July 2019. Description of the Change: Changed tolerance for the paint thickness of the enclosure assembly, specific conditions of use added.

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