



Lloyd's  
Register

## Type Approval Certificate

*This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.*

This certificate supersedes certificate number 17/20075 (E1) issued on 06.02.2018 which is hereby cancelled.

This certificate is issued to:

**PRODUCER**

KROHNE Norway AS  
Dept. KROHNE Marine  
Strømtangveien 21  
3950 Brevik  
Norway

**DESCRIPTION**

Mass flow meters

**TYPE**

KROHNE designation	Tokyo Keiso designation	Comments
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Sensor for mass flow with MFC 010:

MFS 1000	N/A	/x15, /x25, /x40, /x50
MFS 7000	N/A	/x06, /x10, /x15, /x25, /x40, /x50, /x80 (x may be S: Stainless, H: Hastalloy, or T: Titanium)

Sensor for mass flow with

MFC 400F:	MMC 400F:	
MFS 1000	MMS 1000	/x15, /x25, /x40, /x50
MFS 2000	MMS 2000	/x100, /x150, /x250, /x400
MFS 6000	MMS 6000	/x08, /x10, /x15, /x25, /x50, /x80, /x100, /x150, /x200, /x250, /x300
MFS 7000	MMS 7000	/x06, /x10, /x15, /x25, /x40, /x50, /x80 (x may be S: Stainless, H: Hastalloy, or T: Titanium)

**Certificate No.**

17/20075 (E2)

**Issue Date**

06 March 2018

**Expiry Date**

12 July 2022

**Sheet**

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LR031.1.2013.12

Thorsten Wolff  
Hamburg Technical Support Office  
Lloyd's Register EMEA


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71 Fenchurch Street, London EC3M 4BS

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TYPE (continues)	Option:		short stem or extended stem, ref. drawing 2911922089 A-001, 3912192089 C-001, 3912992089 A-001, 2911912089 A-001, 3912192089 C-001, 3912982089 A-001
	MFS 6000	MMS6000	
	Flow Converter: MFC 400F	MMC 400F	Mounted separately, connected by signal cable.
	Flow Converter: MFC 010	N/A	Mounted on sensor.
APPLICATION	Marine, offshore and industrial applications for use in environmental categories ENV1, ENV2, ENV3 and ENV5 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1 – July 2015.		
STANDARD	Manufacture specification		
RATINGS	Power supply:	MFC 010 = 12VDC MFC 400F = 24V AC/DC or 220VAC MMC 400F = 24V AC/DC or 220VAC	
	Communication interfaces:	Foundation Fieldbus <sup>(1)</sup> Profibus PA and DP <sup>(2)</sup> Modbus, HART® <sup>(3)</sup> (1), (2), (3) + Current output, Pulse output	
	Size:	DN 6 to 400	
OTHER CONDITIONS	Ratings for application in hazardous areas are to be obtained from the applicable Ex Certificates.		
PLACE OF PRODUCTION	KROHNE Ltd 34-38 Rutherford drive Wellingborough United Kingdom		
Certificate No.	17/20075 (E2)	 Thorsten Wolff Hamburg Technical Support Office Lloyd's Register EMEA <small>LR031.1.2013.12</small>	
Issue Date	06 March 2018		
Expiry Date	12 July 2022		
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71 Fenchurch Street, London EC3M 4BS

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Hamburg Technical Support Office  
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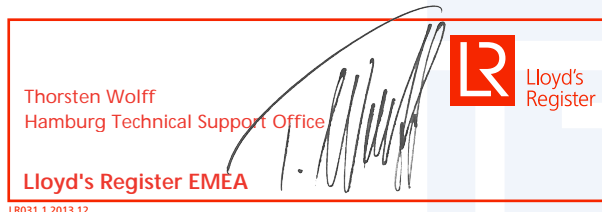
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*The Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.*

*If the specified standards are amended during the validity of this certificate, the product is to be re-approved prior to it being supplied to vessels to which the amended standards apply.*

*The Design Appraisal Document No. HTS/ETS 36633-18 and its supplementary Type Approval Terms and Conditions form part of this Certificate.*

**Certificate No.** 17/20075 (E2)  
**Issue Date** 06 March 2018  
**Expiry Date** 12 July 2022  
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