



European Union Recognised Organisation (EU RO) Mutual Recognition Type Approval Certificate in accordance with Article 10.1 of EU Regulation 391/2009.

This is to certify to the Manufacturer named below, that the Product referred to herein has been inspected for the Manufacturer, pursuant to the relevant requirements of the European Union Recognised Organisation Mutual Recognition procedure, required by Article 10.1 of EU Regulation 391/2009, and has been found in accordance with those requirements. The most demanding and rigorous standard from all EU ROs has been taken as a reference for the development of the Technical Requirement on which present certificate is based.

This certificate is issued to:

Manufacturer	Kistler Instrumente AG
Address	Eulachstrasse 22, Winterthur, 8408, Switzerland
Product Type	Sensor Unit
Description	Gas Probe Sensor
Trade Name	6637ABE2Q01
Application	Applicable for ships as defined in Mutual Recognition provisions Article 10 Regulation on Common Rules and Standards for Ship Inspection and Survey Organisations. Not applicable for mobile offshore drilling unit (MODU). Not applicable for fishing vessel.
Specified Standard	IACS UR E10 Rev.8 used for the conformity assessment process resulting in the issuance of this certificate.

Thomas Milow

Senior Specialist Electrotechnical Systems to
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A member of the Lloyd's Register group

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

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European Union Recognised Organisation (EU RO) Mutual Recognition Type Approval Certificate in accordance with Article 10.1 of EU Regulation 391/2009.

Ratings	Power supply: 18 ... 32 VDC
	Ex II 1G Ex ia IIC T5 Ga for Sensor
	Ex II (1)G [Ex ia Ga] IIC for Charge amplifier

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document No. LR2004064MR-01 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

All other details remain as the previous Certificate No. LR2004064MR to which this extension should be attached.

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European Union Recognised Organisation (EU RO) Mutual Recognition Type Approval Certificate in accordance with Article 10.1 of EU Regulation 391/2009.

When a product is presented with this EU RO MR Type Approval Certificate for given application, its acceptability with regards to the limitations stated in the certificate conditions defined in 1b, 1c and 1d of the applied Technical Requirement will be evaluated by the EU RO in charge of classing the ship or being in charge of the unit/system certification.

In accordance with Article 10 of Regulation (EC) No 391/2009 of the European Parliament and of the Council of 23 April 2009 "on common rules and standards for ship inspection and survey organizations", the following organizations, recognized by the EU on this date, have agreed on the technical and procedural conditions under which they will mutually recognize this certificate:

- *American Bureau of Shipping (ABS);*
- *Bureau Veritas (BV);*
- *China Classification Society (CCS);*
- *Croatian Register of Shipping (CRS);*
- *DNV GL;*
- *Indian Register of Shipping (IRS);*
- *Korean Register (KR);*
- *Lloyd's Register Group Ltd. (LR);*
- *Nippon Kaiji Kyokai General Incorporated Foundation (ClassNK);*
- *Polish Register of Shipping (PRS);*
- *RINA Services S.p.A. (RINA);*
- *Russian Maritime Register of Shipping (RS).*

The scheme for the mutual recognition of class certificates for materials, equipment and components laid down by Article 10(1) of Regulation (EC) No 391/2009 is only enforceable within the Union in respect of ships flying the flag of a Member State. As far as foreign vessels are concerned, the acceptance of relevant certificates remains at the discretion of relevant non-EU flag States in the exercise of their exclusive jurisdiction, notably under the United Nations Convention on the Law of the Sea (UNCLOS). (In accordance with COMMISSION IMPLEMENTING REGULATION (EU) No 1355/2014 amending Regulation (EC) No 391/2009 - recital (25)).

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This certificate is issued to:

Manufacturer	Kistler Instrumente AG
Address	Eulachstrasse 22, Winterthur, 8408, Switzerland
Product Type	Sensors
Description	Piezoelectric pressure sensor, inseparably linked to a charge amplifier providing a galvanic isolated 4 ... 20 mA output signal, for continuous dynamic cylinder pressure measurement for medium and low speed combustion engines.
Trade Name	6635xQyy, 7635xQyy, 6636xQyy, 7636xQyy
Application	Applicable for ships as defined in Mutual Recognition provisions Article 10 Regulation on Common Rules and Standards for Ship Inspection and Survey Organisations. Not applicable for mobile offshore drilling unit (MODU). Not applicable for fishing vessel.
Specified Standard	IACS UR E10 Rev.8 used for the conformity assessment process resulting in the

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European Union Recognised Organisation (EU RO) Mutual Recognition Type Approval Certificate in accordance with Article 10.1 of EU Regulation 391/2009.

issuance of this certificate.

Ratings

Power supply: 18 ... 32 VDC

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document No. LR23119332MR-01 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

All other details remain as the previous Certificate No. 18/00013MR, LR23119332MR to which this extension should be attached.

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- *American Bureau of Shipping (ABS);*
- *Bureau Veritas (BV);*
- *China Classification Society (CCS);*
- *Croatian Register of Shipping (CRS);*
- *DNV GL;*
- *Indian Register of Shipping (IRS);*
- *Korean Register (KR);*
- *Lloyd's Register Group Ltd. (LR);*
- *Nippon Kaiji Kyokai General Incorporated Foundation (ClassNK);*
- *Polish Register of Shipping (PRS);*
- *RINA Services S.p.A. (RINA).*

The scheme for the mutual recognition of class certificates for materials, equipment and components laid down by Article 10(1) of Regulation (EC) No 391/2009 is only enforceable within the Union in respect of ships flying the flag of a Member State. As far as foreign vessels are concerned, the acceptance of relevant certificates remains at the discretion of relevant non-EU flag States in the exercise of their exclusive jurisdiction, notably under the United Nations Convention on the Law of the Sea (UNCLOS). (In accordance with COMMISSION IMPLEMENTING REGULATION (EU) No 1355/2014 amending Regulation (EC) No 391/2009 - recital (25)).

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR23119332MR-01

Appendix

Issued to: Kistler Instrumente AG
For: Piezoelectric pressure sensor Type 6635x, 6636x, 7635x and 7636x
MUTUAL RECOGNITION TYPE APPROVAL CERTIFICATE No. LR23119332MR-01

DESCRIPTION

6636 x Q yy – Combustion Control Slow Speed Engine
7636 x Q yy - Combustion Control Slow Speed Engine

6635 x Q yy (process connection M10x1)
7635 x Q yy (process connection M14x1,25)

x = A1: pressure range up to 350 bar, time constant 10 ... 30s
x = A2: pressure range up to 350 bar, time constant 50 200s

Q yy : defines a customized version of any cable length from 0,5 to 5 meters (standard 1m) equipped with either an M12-connector (8 poles, standard) or a connector according to MIL standard





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This certificate is issued to:

Manufacturer	Kistler Instrumente AG
Address	Eulachstrasse 22, Winterthur, 8408, Switzerland
Product Type	Sensors
Description	Piezoelectric pressure sensor, inseparably linked to a charge amplifier providing a galvanic isolated 4 ... 20 mA output signal, for continuous dynamic cylinder pressure measurement for medium and low speed combustion engines.
Trade Name	6613CG1, 6613CG2, 6613CG1Qxx, 6613CG2Qxx 7614CG1, 7614CG1Q05, 7614CG1Q06, 7614CG1Qxx, 7614CG2Qxx
Application	Applicable for ships as defined in Mutual Recognition provisions Article 10 Regulation on Common Rules and Standards for Ship Inspection and Survey Organisations. Not applicable for mobile offshore drilling unit (MODU). Not applicable for fishing vessel.

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Specified Standard IACS UR E10 Rev.8 used for the conformity assessment process resulting in the issuance of this certificate.

Ratings Power supply: 18 ... 32 VDC

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The Design Appraisal Document No. LR23121468MR and its supplementary Type Approval Terms and Conditions form part of this Certificate.

All other details remain as the previous Certificate No. 18/00061 to which this extension should be attached.

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- *Croatian Register of Shipping (CRS);*
- *DNV GL;*
- *Indian Register of Shipping (IRS);*
- *Korean Register (KR);*
- *Lloyd's Register Group Ltd. (LR);*
- *Nippon Kaiji Kyokai General Incorporated Foundation (ClassNK);*
- *Polish Register of Shipping (PRS);*
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Appendix

Issued to: Kistler Instrumente AG
For: Piezoelectric pressure sensor Types 6613CG1, 6613CG2, 6613CG1Qxx, 6613CG2Qxx
7614CG1, 7614CG1Q05, 7614CG1Q06, 7614CG1Qxx, 7614CG2Qxx
MUTUAL RECOGNITION TYPE APPROVAL CERTIFICATE No. LR23121468MR

DESCRIPTION

6613: process connection M10x1
7614: process connection M14x1.25
CG1: time constant 10..30 s
CG2: time constant 100..150 s
Qxx: defines a customized version of any cable length between sensor and charge amplifier from 0.1 to 5 meters (standard 1 m) equipped with either an M12-connector (8 poles, standard) or a connector according to MIL-DTL-26482 (6 poles), e.g.:

7614CG1Q05 = 7614CG1 sensor, cable length 1.7 m, MIL-connector
7614CG1Q06 = 7614CG1 sensor, cable length 0.5 m, MIL-connector