

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.

Manufacturer	Ploeger Sensor GmbH
Address	Fesslerstr. 3, Hamburg, 22083, Germany
Place of Production	Ploeger Sensor GmbH Fesslerstr. 3, Hamburg, 22083, Germany
Type	Transmitters/Transducers
Description	Thermocouples for diesel exhaust gas Type 8: Diesel exh. gas thermocouple with adjustable clamping fitting Type 21: Diesel exh. gas thermocouple, designed for medium mechanical stress Type 21v: Diesel exh. gas thermocouple, designed for strong mechanical stress Type 26: Diesel exh. gas thermocouple, designed for medium mechanical stress Type 26v: Diesel exh. gas thermocouple, designed for strong mechanical stress Type 29: Thermocouple with protection tube, for low mechanical load For detailed description, pls. refer to appendix.
Trade Name	Type 8, Type 21, Type 21v, Type 26, Type 26v, Type 29
Application	Marine, offshore and industrial applications for use in environmental categories ENV1, ENV2, ENV3 and ENV4 as defined in LR's Type Approval System, Test Specification Number 1 – 1996.

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Specified Standard	Manufacturer's specification
Ratings	Thermocouples type J (Fe-CuNi) or type K (NiCr-Ni) with single element (J)/(K) or double element (2J)/(2K). Measuring tolerance: IEC60584 class 2 for type J IEC60584 class 1 for type K Compensation cable: silicon cable / metal braiding Maximum temperature range: up to 600 °C for sensors of type J up to 800 °C for sensors of type K Maximum temperature of connection part: 200 °C for all types Maximum insertion length: 200mm: Type 8, 21, 21v, 26, 26v 250mm: Type 29 Material of protection tube: Steel 1.4541 or 1.4571: for all types
Additional Tests	Dry heat test (80 °C / 16 h) Enclosure Test IPX7 Vibration test 40 – 2000 Hz, endurance test at resonance with acceleration of: 20 g for insertion length up to 150 mm 15 g for insertion length up to 200 mm (150 mm, Type 26) 10g for insertion length up to 200 mm (Type 26)
Other Conditions	Type Approval does not eliminate the need (as required by LR Rules) the requirements for further review or for the product to be further inspected and/

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or surveyed to be installed in ships classed or intended to be classed with LR.

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

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.

Previous Version: LR2010810TA

The Design Appraisal Document TSO/25-035562-01/SP/JB and its supplementary Type Approval Terms and Conditions form part of this Certificate.



Appendix

DESCRIPTION

Thermocouples for diesel exhaust gas

Type 8: Diesel exhaust gas thermocouple with adjustable clamping fitting
TS 8 protection tube
TG 8 straight through
TW 8 90° angled

Type 21: Diesel exhaust gas thermocouple, designed for medium mechanical stress
TS 21 protection tube
TG 21 measuring insert, straight through
TW 21 measuring insert, 90° angled

Type 21v: Diesel exhaust gas thermocouple, designed for strong mechanical stress
TS 21v protection tube
TG 21 measuring insert, straight through
TW 21 measuring insert, 90° angled

Type 26: Diesel exhaust gas thermocouple, designed for medium mechanical stress
TS 26 protection tube
TG 26 measuring insert, straight through
TW 26 measuring insert, 90° angled

Type 26v: Diesel exhaust gas thermocouple, designed for strong mechanical stress
TS 26v protection tube
TG 26 measuring insert, straight through
TW 26 measuring insert, 90° angled

Type 29: Thermocouple with protection tube, for low mechanical load
TS 29 protection tube
TG 29 measuring insert, straight through
TW 29 measuring insert, 90° angled