DNV·GL

EUROPEAN UNION RECOGNISED ORGANISATION (EU RO) MUTUAL RECOGNITION TYPE APPROVAL CERTIFICATE

Certificate No:
MRA000002B

In accordance with Article 10.1 of EU Regulation 391/2009

This Certificate is issued to

Trafag AG

Bubikon, ZH, Switzerland

for
Pressure Gauges/Transmitters

with type designation(s)
ECTN 8477

The product is found to comply with
EU RO Mutual Recognition Technical Requirements for Pressure Gauges – Transmitters

Intended service
Pressure transmitters for use in control, alarm, monitoring and instrumentation systems subject to classification.

Applicable for a ship as defined in Mutual Recognition Provisions Article 10 Regulation on Common Rules and Standards For Ship Inspection and Survey Organizations.

See product description on page 2 for further details.

Temperature [°C]:	**-25°C and +125°C**
Vibration:	**±1.6 mm / 4.0 g**
EMC:	**All locations including bridge and deck zone**
IP Code:	**IP65**

This is to certify:

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.

This Certificate is valid until **2024-03-28**.

Issued at **Høvik** on **2019-03-29**

DNV GL local station: **Augsburg**

Approval Engineer: **Ståle Sneen**

for **DNV GL**
Digitally Signed By: Trond Sjåvåg
Location: DNV GL Høvik, Norway

Trond Sjåvåg
Head of Section

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.
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.

Job Id: **262.4-000156-1**
Certificate No: **MRA000002B**

Product description

ECTN 8477 series pressure transmitters for absolute- or relative pressure measurement.

Ordering information / type code: 8477.aa bb cc dd ee ff

aa – Measuring range:	Different ranges in bar, from 0…0.1 to 0…250 Different ranges in psi, from 0…1.5 to 0…3000
bb – Sensor:	Different sensors, with- or without temperature compensation, absolute- or relative pressure, material pressure connection and housing: - 1.4404/1.4435 (AISI316L), or - 1.4462 (AISI318LN), or - titanium grade 5
cc – Pressure connection:	10 = G1/4" female 17 = G1/4" male 21 = G1/2" male DIN3852-A 41 = G1/2" male DIN3852-E 30 = 1/4" NPT male 42 = 7/16" -20UNF male SAE4 19 = R1/4" male, DIN3858 52 = G3/4" frontal membrane
dd – Electrical connection:	05 = male electrical plug EN175301-803A, Mat. PA -25°C…+90°C 35 = Male electrical plug M12x1, 5-pole, Mat. PBT 08 = Cable Raychem, cable gland PA 6-3, -20°C…+100°C (Cable is covered by DNV GL type approval certificate TAE000011C)
ee – Output signal:	19 = 4…20 mA / 2 wire loop powered / 9…30 VDC
ff – Accessories	Miscellaneous

Main technical specifications

Power supply	24 VDC, allowed voltage 9…30 VDC
Signal output	4-20 mA / 2 wire loop powered
Sensor material:	Ceramic, Al_2O_3 (96%)
Accuracy @25°C (typ.):	±0.3% FS (±0.5% FS, ±1% FS), depending on sensor

Manufactured by

Trafag AG,
Industriestrasse 11,
CH-8608 Bubikon,
Switzerland

Application/Limitation

Applicable for a ship as defined in Mutual Recognition Provisions Article 10 Regulation on Common Rules and standards For Ship Inspection and Survey Organizations.

Type Approval documentation

Name	Number	Rev. / Date
8477 marine pressure transmitter – data sheet	H72322	h
8477 pressure transmitter – instruction sheet	H73324	r
PCB TX2 current D21.6 – drawing	B55000	e
Ceramic cell selection for transmitter – drawing	B55026	b
ECT 8477 – drawing	B55029	h
EMC test report for pressure transmitter ECTN 8477.xx	EMCKP2641.1A	2015-03-13
IP65 test report for marine pressure transmitter EPN 8288	20181012.A02.02	2019-03-28
Trafag test report for pressure transmitter 8477.xx	V-15014	2015-03-19
Trafag test report for pressure transmitter 8477.xx	V-18041	1 / 2019-03-21

Name	Number	Rev. / Date
EU RO MR TA PQA Scheme periodical assessment checklist	-	2019-01-16

Marking of product

The products to be marked with:
- manufacturer name
- model name
- serial number
- power supply ratings

Other conditions

The pressure transmitters have been verified for compliance with EU Mutual Recognition Technical Requirements for Pressure gauges – transmitters version 0.0, dated 2016-07-01.

Environmental test parameters		DNV GL location classes
Temperature:	-25°C ~ +125°C	D
Vibration:	±1.6 mm / 4.0 g	B
Humidity:	95%RH @ 55°C, damp heat cyclic	B
EMC:	All location including bridge and open deck zone	B
Enclosure:	IP65 (IP-ratings according to IEC 60529)	B

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 will be performed annually and at renewal of the certificate.

END OF CERTIFICATE