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**BUREAU
VERITAS**

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Certificate N°:
09165/B0 BV

The attached Schedule forms part of the certificate

File Number : AP 3254
Product Code : 3891H

CERTIFICATE OF TYPE APPROVAL

This is to certify that the product identified below was found to be in compliance with the relevant hereunder stated Regulations & standards

PRESSURE TRANSMITTERS / TRANSDUCERS

Type: Series 8000 & 2000.

MANUFACTURED BY:

KLAY-INSTRUMENTS B.V.

Dwingeloo - NETHERLANDS

SPECIFIED REGULATIONS & STANDARDS :

BV Rules for the Classification of Steel Ships.

The Approval is valid until : 04-02-2010

BUREAU VERITAS ROTTERDAM



At Paris la Défense, on : 04-02-2005

J.BENOIT
For the Secretary

This Certificate remains valid until the date stated on, hereunder, unless cancelled or revoked, provided the conditions in the attached schedule are complied with and the equipment remains satisfactory into service.

This Certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested.

This Certificate is not valid without the stamp of the above mentioned BUREAU VERITAS Inspection Center.

The manufacturer should notify BUREAU VERITAS of any modification or changes to the equipment in order to obtain a valid Certificate.

The latest published Regulations or Standards referred to, above, and the Marine Division General Conditions are applicable.



THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

Pressure and Level Transmitters series 8000 and series 2000.

The pressure and level transmitters are all fitted with the same electronics but with various process connections like DIN/ANSI flanges and screw thread. Transmitters are made of stainless steel including SS electronic housings.

Specifications:

	Series 8000-SAN
- Measuring ranges:	0.08 to 50 bar
- Output signal:	4-20 mA, 2-wires
- Overall accuracy:	+/- 0.2% of span
- Power supply:	13 to 40 VDC (exi: 17-28 VDC)
- Process temperature:	-20 to +100°C
- Ambient temperature:	-20 to +70°C
- Intrinsic safety certified:	EEx ia IIC T4
	Series 8000
- Measuring ranges:	0.1 to 16 bar
- Output signal:	4-20 mA, 2-wires
- Adjustment:	Zero and Span internally
- Overall accuracy:	+/- 0.2% of adjusted span
- Power supply:	13 to 40 VDC (exi: 17-28 VDC)
- Process temperature:	-20 to + 80°C
- Ambient temperature:	-20 to +65°C
- Intrinsic safety certified:	EEx ia IIC T4
- Protection grade:	IP 65
	Series 2000
- Measuring ranges:	0-0.1bar to 0-30 bar
- Output signal:	4-20 mA, 2-wires
	HART protocol (option)
- Adjustment:	by 3 pushbuttons or H.H.T. (hand held terminal)
- Overall accuracy:	0.1%
- Power supply:	12 to 40 VDC
- Process temperature:	-20 to +80°C
- Intrinsic safety certified:	EEx ia IIC T4
- Protection grade:	IP 66

Series 2000-SAN

- Measuring ranges: 0-0.04 bar to 0-30 bar
- Output signal: 4-20 mA, 2-wires
HART protocol (option)
- Adjustment: by 3 pushbuttons or H.H.T. (hand held terminal)
- Overall accuracy: 0.1%
- Power supply: 12 to 40 VDC
- Process temperature: -20 to +100°C
- Intrinsic safety certified: EEx ia IIC T4
- Protection grade: IP 66

Series CER 2000

- Measuring ranges: 0-0.2 bar to 0-200 bar
- Output signal: 4-20 mA, 2-wires
HART protocol (option)
- Adjustment: by 3 pushbuttons or H.H.T. (hand held terminal)
- Overall accuracy: 0.1%
- Power supply: 12 to 40 VDC
- Process temperature: -20 to +100°C
- Intrinsic safety certified: EEx ia IIC T4
- Protection grade: IP 66

2. DESIGN DRAWINGS and/or SPECIFICATIONS

According to Manufacturer's documents filed in AP 3254.

3. TYPE TEST REPORTS / LABORATORY RECOGNITION STATUS

- Vibration test report issued by TNO on May 26th 1999 - DNV witnessing to test has been carried out.
- EMC Test report issued by NMI (Nederlands Meetinstituut) on 10 Jan. 1996.
- EMC test report issued by ELS on 2 May 1997.
- Intrinsic safety certificates according to CENELEC, EEx ia IIC T4 issued by KEMA.

4. MATERIALS and/or COMPONENTS REQUIRED TO BE TYPE APPROVED

Nil.

5. OTHER MATERIALS and/or COMPONENTS

Nil.

6. APPLICATION / LIMITATION OF USE

6.1 - All pressure and level applications, except on diesel engines.

6.2 - Approval also valid for ships to be granted with the notations: **AUT-UMS, AUT-CCS, AUT-PORT and AUT-IMS.**

7. PRODUCTION SURVEY REQUIREMENTS

7.1 - Arrangement shall be made for a Society's Surveyor to carry out, on a periodic basis, visits of the manufacturer's premises and product audits.

7.2 - Each equipment is to be supplied with manual(s) for installation, use and maintenance.

8. ON BOARD INSTALLATION & MAINTENANCE REQUIREMENTS

The equipment, once installed on board ship, is to be tested in accordance with the above referred Regulations under the supervision of a Society's Surveyor.

9. MARKING FOR IDENTIFICATION

- Maker's name or trade mark,
- Serial number of the units,
- Equipment type number or model identification under which it was type-tested.

10. OTHERS

10.1 - This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the pressure transmitters at any time and that **KLAY-INSTRUMENTS B.V., Dwingeloo - The Netherlands**, will accept full responsibility for informing shipbuilders, shipowners or their sub-contractors of the proper methods of use and general maintenance of the units and the conditions of this approval.

10.2 - This certificate supersedes the Type Approval Certificate n° 09165/A0 BV issued on 06/01/2000 by the Society.

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