



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. A-8678
This Certificate consists of 3 pages

This is to certify that the
Level Transmitter

with type designation
Level-Radar BM 70 M/MP
See page 2

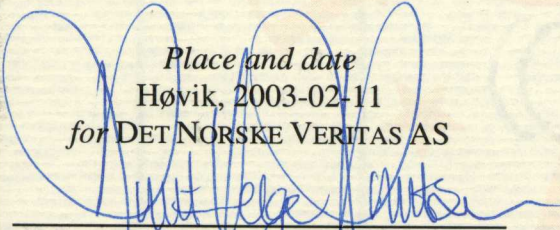
Manufactured by
Krohne Messtechnik GmbH & Co. KG
Duisburg, Germany

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and
Mobile Offshore Units

Application
Location classes :

Temperature	D
Humidity	B
Vibration	A
EMC	B
Enclosure	C

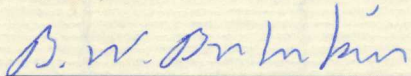
Place and date
Høvik, 2003-02-11
for DET NORSKE VERITAS AS


Knut-Helge Knutsen
Head of Section



Local Office
DNV Essen

This Certificate is valid until
2005-06-30


Birger W. Bulukin
Surveyor

Notice: 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.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Cert. No.: A-8678

File No.: 892.30

Product description

Radar Level Measuring Gauges BM 70 M/MP, consisting of one integrated unit.

Firmware no.: 3.17491.10 Version 4.07 Date: 10.2002

Approval conditions

The following documentation of the actual application is to be submitted for approval in each case:

- Reference to this Type Approval Certificate
- System block diagram for complete system
- Power supply arrangement (may be part of the System block diagram)

The Type Approval covers hardware and software/firmware listed under Product description.

The firmware number and version is listed and described in Installation and operating instructions for BM 70 M dated 08/2002 (No. 7.10027.21.00)

Product certificate.

As long as the units are covered by the Type Approval, a product certificate according to Pt.4 Ch.9 Sec.1 A 202 will not be required. Correct configuration and set up for each delivery to be tested during commissioning after installation.

Clause for application software control.

All changes in software/firmware are to be recorded as long as the system is in use on board. The records of all changes are to be forwarded to DNV for evaluation and approval. Major changes in the software are to be approved before being installed in the computer. An Approval Test of Application Software (ATOS) may be required for the particular vessel.

Type Approval documentation

Ring binders containing the following:

Specification/technical description 7.02492.21.00

Installation and operating instructions (preliminary) dated 08/2002

Drawings: MZ VG52000000, STR2103660000h, STR2109470000f, ZZ8146240100a

Test reports:

Krohne 11/02, 12/02, 13/02, 14/02, 15/02, 26/02, 27/02, 28/01,

Rose 11a

DMT 2112-VKB-2002-114, P02-00819e,

EMV L0490402-1/2,

EMC tests issued 02-06-20



Cert. No.: A-8678
File No.: 892.30

Test sheets EMC tests

PTB 02 ATEX 1078 Code: II/2G EEx de IIC T6...T1 resp. EEx de [ia] IIC T6...T1

EN 50014:1997 + A1 + A2 EN 50018:2000 EN 50014:2000
EN 50020:1994 EN 50284:1999

Certificate retention survey

The scope of the retention/renewal survey 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 survey 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.

Survey to be performed at renewal of this certificate.

END OF CERTIFICATE