



DET NORSKE VERITAS TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. A-10667

This Certificate consists of 4 pages

This is to certify that the

Test and Calibration Equipment

890.90

with type designations

Crystal Products Pressure and Temperature Calibrator Kits

Manufactured by

Crystal Engineering Corporation

SAN LUIS OBISPO, CA 93401 7945, United States

is found to comply with

Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and
Det Norske Veritas' Offshore Standards

Application

The instruments are only approved for use as portable test instruments.
Traceable calibration certificates are available from the manufacturer.

Place and date
Høvik, 2008-03-28
for Det Norske Veritas AS

This Certificate is valid until
2010-06-30

Odd Magne Nesvåg
Head of Section

Local Office
DNV Houston

Ståle Sneen
Surveyor

Product description

Crystal Engineering Corp. pressure and temperature calibrator kits as listed below:

Model	Description	Range	Datasheet
2821, 2832	Universal fitting kit (hoses, adapters)	-	3222
30-series	Pressure gauges	16 to 5000 PSI	3020
XP2i-series	Pressure gauges	15 to 10000 PSI	3104
M1-series	Pressure gauges	15 to 10000 PSI	3501
MultiCal	Pressure module	up to 500 PSI	3344
2907 Combo Pump	Pressure source	300 PSI	2909
2908 Combo Pump	Pressure source	500 PSI	2909
GaugeCalXP	Pressure source	10000 PSI	3173
Tempcal 140F	Temperature calibrator	140°C	Haven Crystal
Tempcal 425F	Temperature calibrator	425°C	Instruments LTD.
Tempcal 650F	Temperature calibrator	650°C	

Each kit consists of a Crystal pressure product, a Crystal pressure source and a Haven Crystal temperature calibrator and hoses and adapters. 30 Series, XP2i and Pressure sources are available in equivalent BAR or kPa; M1 is available in equivalent BAR, Kg/cm² or Pa; MultiCal is available in H₂O/PSI, Hg/PSI, HgA/mmHgA or mmHgA/PSIA.

Place of manufacture

Crystal Engineering Corporation

708 Fiero Lane Suite 9

San Luis Obispo, CA USA 93401

Haven Crystal Instruments LTD Tempcal products manufactured by

Haven Automation Ltd.

Swansea, UK

Application/Limitation



The Type Approval covers hardware listed under product description.

The instruments are only approved for use as portable test instruments.

The Type Approval of gauges and calibrators are only valid for units with a valid calibration

certificate.

Ex-certification is not covered by this certificate and the following paragraph, which is for information only, is based on information received from the manufacturer, but not verified by DNV.

Information on Ex-Certification received from manufacturer - Not verified by DNV		
Equipment	Certified	Certificate No.
30-series	 II 2 G EEx ia IIC T4 Ta = 50°C	FTZÚ 06 ATEX 0010X
XP2i, XP2i-DD	 II 1 G EEx ia IIC T4 Ta = 40°C	KEMA 04ATEX1053

Type Approval documentation

Tests carried out

Each gauge and temperature calibrator has been calibrated at factory and is delivered with a valid calibration certificate. 2907, 2908 and GaugeCalXP pressure sources have been pressure- and leakage tested of up to 100% of design pressure. 150% pressure test (or higher) has been performed for all gauge designs.

Marking of product

Each model is marked with manufacturer name, model name and serial number.

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

Retention survey is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE

Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.

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.

DET NORSKE VERITAS AS · VERITASVEIEN 1, 1322 HØVIK, NORWAY · TEL: (+47) 67 57 99 00 · FAX: (+47) 67 57 99 11