

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Test and Calibration Equipment**

with type designation(s)

Crystal Products Pressure and Temperature Calibrator Kits

Issued to

Crystal Engineering Corporation
SAN LUIS OBISPO, CA, 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.**

This Certificate is valid until **2019-06-30**.

Issued at **Høvik** on **2015-07-07**

DNV GL local station: **Houston**

Approval Engineer: **Nils Jarem**

for **DNV GL**

Odd Magne Nesvåg
Head of Section

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: **262.1-004538-3**
Certificate No: **A-14365**

Product description

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

Model	Description	Model Range	Datasheet
CPF Fittings	MPH-/MPM-/MPF-series	-	4895G
30-series	Pressure gauges	16 to 5000 PSI	4534J
XP2i-series	Pressure gauges	15 to 15000 PSI	5179A, 4533M,4864I
nVision	Calibrator		
	Pressure – PM Module	30 to 15000 PSI	4791I
	Current/Voltage – MA20 Module	0 to 25mA / 0 to 28VDC	
	Temperature – RTD 100 Module	0 to 400 Ohms	
	Barometric – BARO Module	10.153 to 15.954 PSI	
M1-series	Pressure gauges	15 to 10000 PSI	4725G
APM	Pressure module	30 to 15000 PSI	5275B
HPC 40	Calibrator	30 to 15000 PSI	5487B

Place of manufacture

Crystal Engineering Corporation
708 Fiero Lane Suite 9
San Luis Obispo, CA USA 93401

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.

Type Approval documentation

Product data sheets:

4533 rev. M, 4534 rev. J, 4725 rev. G, 4791 rev. I, 4864 rev. I,
4895 rev. G, 5179 rev. A, 5275 rev. B, 5487 rev. B

The type approval testing is documented by test reports and certificates of calibration:

Examples Crystal Engineering:

214319 dated 2015-02-25	Certificate of Calibration (MA20)
216322 dated 2015-03-25	Certificate of Calibration (APM700BAR)
216703 dated 2015-03-30	Certificate of Calibration (IS33-16/3000PSI)
216815 dated 2015-03-31	Certificate of Calibration (HPC40)
216832 dated 2015-03-31	Certificate of Calibration (M1-700BAR)
216854 dated 2015-03-31	Certificate of Calibration (BARO)
216861 dated 2015-03-31	Certificate of Calibration (HPC40 3KPSI)
216887 dated 2015-03-31	Certificate of Calibration (RTD100)
216889 dated 2015-03-31	Certificate of Calibration (15KPSI)
216946 dated 2015-04-01	Certificate of Calibration (10KPSIXP2I)
218888 dated 2015-05-05	Certificate of Calibration (15KPSI) APM by similarity
218889 dated 2015-05-04	Certificate of Calibration (15KPSIXP2I) HPC40 by Similarity

Test reports:

EMC_CRY_001-12501-IS33_CE_rev 1 00 series EMC report	
95068-4 dated 07.02.2014	APM EMC Report
GMCO0792 rev. 0	HPC 40 series EMC Report
090627E rev. B	MultiCal, M1, M30 EMC Report
090441E rev. D	nVision EMC Report
100129E rev. A	nVision EMC-MA20
1208-048E rev. B	XP2i+ EMC Report

CSA LR 110579-1 Pressure test report

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CSA 6122672 Pressure test report
XP2i IP67 Test Certificate no. CTC 8930A dated 2009-02-09
nVision IP67 Test Certificate no. Sira 52A19587Alab dated 2009-04-14

DNV GL Long Beach type approval assessment report for A-12120 dated 2015-05-04

Tests carried out

Each gauge and temperature calibrator has been calibrated at factory and is delivered with a valid calibration certificate.

Marking of product

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

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

END OF CERTIFICATE