



TYPE APPROVAL CERTIFICATE

Certificate no.:
TAA0000291
Revision No:
1

This is to certify:
that the Test and Calibration Equipment

with type designation(s)
Temperature calibrators ETC 600 Series,350H/650H Series,MTC 350/650 Series ,Pressure calibrators MPCE Series, MPC series,PPC Series

issued to
Nagman Instruments and Electronics Private Limited
Chennai, Tamil Nadu, India

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application:

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

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Temperature
Humidity
Vibration
EMC
Enclosure

Issued at **Hamburg** on **2024-07-05**

for **DNV**

This Certificate is valid until **2029-03-11**.

DNV local unit: **Chennai**

Approval Engineer: **Holger Jansen**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

The ETC600 is an Economy Medium Temperature Dry Block Calibrator with an accuracy of $\pm 0.15\%$ FS.
 The MTC350/650 is a Microprocessor based Low Temperature Calibrator with accuracy $\pm 0.4^\circ\text{C}/\pm 0.6^\circ\text{C}$ with serial interface and software included.
 The 350H/650H is a Low/Medium Temperature Dry Block Calibrator with an accuracy of $\pm 1^\circ\text{C}/\pm 1.5^\circ\text{C}$.

The MPC-E Series are Pneumatic / Hydraulic Pressure Calibrators Microprocessor with an accuracy of $\pm 0.1\%$ FS.
 The MPC Series are Microprocessor based High Accuracy ($\pm 0.05\%$ FS) & Very High Accuracy ($\pm 0.025\%$ FS) Pressure Calibrators

The PPC Series are Pneumatic/Hydraulic Portable Pressure Calibrators with In-built / Integrated Pump & Vernier assembly with an accuracy of $\pm 0.05\%$ FS (PPC Series) & $\pm 0.025\%$ FS (PPC+ Series).

Model	Range	Power Supply
Temperature calibrators		
ETC600	50°C to 600°C	230 VAC / 50 Hz / 1200 W
MTC350/650	50°C to 350°C and 650°C	220 VAC / 50 Hz / 1200 W
350H 650H	10°C above ambient to 350°C 20°C above ambient to 650°C	230 VAC /50 Hz & 115 VAC /60 Hz 230 VAC /50 Hz & 115 VAC /60 Hz
Pressure calibrators		
MPC-E Series	Ultra Low Pressure: +/- 2000/5000/8000 mmWC Pneumatic: -0.85 to 2/10/20/35/40 Bar Hydraulic: 0 to 70/100/200/350/600/700 Bar	9 VDC Battery
MPC Series	Pneumatic: -0.85 to to 2/10/25/40 Bar Hydraulic: 0 to 70/100/200/350/700 Bar	Rechargeable Battery and Charger
PPC Series	PPC-P: -0.85 to to 2/10/20 Bar (Pneumatic) PPC-H: 0 to 200/400 Bar (Hydraulic) PPC-D: -0.85 to to 20 Bar (Pneumatic) 0 to 400 Bar (Hydraulic)	Rechargeable Battery and Charger

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 temperature and pressure calibrators are only valid for units with a valid calibration certificate.

Type Approval documentation

- [I-1] ETC600 Datasheet no.: NIE/TS/ETC600/7.3, 01/00
- [I-2] ETC600 El. Drawing no.: NIE/ELECT/ETC600/001, rev.0
- [I-3] ETC600 Mechanical drawing no.: NIE/MECH/ETC600/001, rev.0
- [I-4] ETC600 Instruction Manual no.: NIE/MAN/ETC600/8.2.4
- [I-5] ETC600 Reports for Environmental testing
- [I-6] 350H Datasheet no.: NIE/TS/350H/H2/7.3, 01/00
- [I-7] 650H Datasheet no.: NIE/TS/650H/H2/7.3, 01/00
- [I-8] 350H/650H El. drawing no.: NIE/MECH/350H/650H/013B, rev.0
- [I-9] 650H - General Assembly Mech. Drawing no.: NIE/MECH/650H/001A, rev.0
- [I-10] 350H/H2-650H/H2 Instruction Manual no.: NIE/MAN/350H/650H/8.2.4
- [I-11] 650H Reports for Environmental testing
- [I-12] MTC350-650 Data sheet no.: NIE/TS/MTC650/350/7.3, 01/00
- [I-13] MTC350-650 El. drawing no.: NIE/ELECT/MTC350/650/020, rev.0
- [I-14] MTC350-650 Mech. drawing no.: NIE/MECH/MTC350/650/001, rev.0
- [I-15] MTC 650/350 Instruction Manual no.: NIE/MAN/MTC350/650/8.2.4
- [I-16] MTC 650/350 Reports for Environmental testing
- [I-17] MPC-E Datasheet no.: NIE/TS/MPC-E/7.3, 01/00
- [I-18] MPC-E Wiring diagram no.: NIE/ELECT/MPCE/001, rev.00
- [I-19] MPCE General assembly no.: NIE/MECH/MPCE/001, rev.00
- [I-20] MPC-E Instruction Manual no.: NIE/MAN1/MPC-E/8.2.4, 01/00
- [I-21] MPCE Reports for Environmental testing
- [I-22] MPC Datasheet no.: NIE/TS/MPC/7.3, 01/00
- [I-23] PPC/MPC Wiring diagram no.: NIE/ELECT/PPC/MPC/001, rev.0
- [I-24] MPC Series Mech. drawing no.: NIE/MECH/MPC/001, rev.0
- [I-25] MPC Series Instruction Manual no.: NIE/MAN/MPC/8.2.4
- [I-26] MPC Series Reports for Environmental testing
- [I-27] PPC Series datasheet no.: NIE/TS/PPC/7.3, rev.01/00
- [I-28] PPC/MPC Schematic Wiring diagram no.: NIE/ELECT/PPC/MPC/001, rev.0
- [I-29] PPC General assembly no.: NIE/MECH/PPC-P/001, rev.0

[I-30] PPC Series Instruction Manual no.: NIE/MAN/PPC/8.2.4
[I-31] PPC Reports for Environmental testing
[I-32] 24h Temperature Endurance Test at maximum temperature (temperature calibrators) dated 2010-11-09
[I-33] Pressure test at 150% of design pressure (pressure gauges/pumps/hoses) dated 2010-11-09
[I-39] EMC Report No. S-CEM/EMCD/TR/2024-2025/81
[I-40] EMC Report No. S-CEM/EMCD/TR/2024-2025/82
[I-41] EMC Report No. S-CEM/EMCD/TR/2024-2025/83
[I-42] EMC Report No. S-CEM/EMCD/TR/2024-2025/84
[I-43] EMC Report No. S-CEM/EMCD/TR/2024-2025/85
[I-44] EMC Report No. S-CEM/EMCD/TR/2024-2025/86
Type Approval Assessment Report dated 2024-03-28

Tests carried out

Applicable tests according to class guideline DNV-CG-0339, August 2021
24h Temperature Endurance Test at maximum temperature for Temperature Calibrators.
Pressure test at 150% of design pressure (pressure gauges/pumps/hoses).

Marking of product

The products to be marked with:

- manufacturer name
- model name
- serial number
- power supply ratings

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 after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE