

TYPE APPROVAL CERTIFICATE

This is to certify:

That the UPS

with type designation(s)

TSI BRAVO 220VDC / 230VAC / 10kVA TROPICALISED Inverter Shelf (Populated with maximum 4 TSI Bravo EPC 220VDC / 230VAC / 2.5KVA TROPICALISED Inverter modules)

Issued to

**CET Power Solutions India Pvt. Ltd.
Chennai, Tamil Nadu, India**

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

MODULAR INVERTER SYSTEM

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

Issued at **Hamburg** on **2018-07-20**

This Certificate is valid until **2023-07-19**.

DNV GL local station: **Mumbai NB & CMC**

for **DNV GL**

Approval Engineer: **Harald Amberger**

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Arne Schaarmann
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: **262.1-028355-1**
Certificate No: **TAE00002Z1**

Product description

AC Backup Power Supply Inverter for computer and general load.

Type	Input Voltage	Input Current	Output Current	Output Power	Enclosure
TSI BRAVO	1 ph. AC 185 – 265V 50/60Hz ±10%	36,8A [AC230V]	AC 43,6A	10kVA	IP20
	DC 170 – 300V	4x10,1A [DC220V]			

System consist of 4x2500 VA / 4x2000 W Inverter modules with a total output of 10 kVA / 8 kW to form a Modular Inverter System

Capable to handle battery strings made with 110 to120 battery cells of 2V each

Application/Limitation

Location Classes:

Temperature: A, Humidity: A, Vibration: A, EMC: A

End user responsible for correct enclosure protection (IP) wrt. to location. Only to be used in areas where special precautions are taken to avoid condensation.

Operating instruction of the manufacturer to be observed

Type Approval documentation

Tests carried out

IEC / EN 62040-3, Dry heat & Low temperature, Vibration, Humidity, EMC tests

Marking of product

TSI BRAVO INVERTER EPC - DC Input 220V DC – AC Input and output 230 V AC (Tropicalized)

Name and Place of Manufacturer

CET Power Solutions India Pvt. Ltd
Chennai Tamil Nadu
India

CET S.A.
Rue du Charbonnage 12
BE- 4020 Wandre
Belgium

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Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and 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