



Marine & Offshore

Certificate number: 54473/A0 BV

File number: MAT 74896-2018

Product code: 8160I

*This certificate is not valid when presented without the full attached schedule composed of 7 sections*

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## APPROVAL CERTIFICATE for MATERIALS

*This certificate is issued to*

**PTC INDUSTRIES LIMITED**  
LUCKNOW - INDIA

*for the type of product*

**SPECIAL ALLOY CASTINGS**

Titanium and titanium alloy castings with maximum weight 50Kg.

**Requirements:**

Bureau Veritas Rules for the Classification of Steel Ships

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.*

**This certificate will expire on: 15 Jan 2024**

**For Bureau Veritas Marine & Offshore,**

At BV MUMBAI (BOMBAY), on 15 Jan 2019,

Rajan VARDHAN



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site [www.veristar.com](http://www.veristar.com). Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

## **THE SCHEDULE OF APPROVAL**

### **1. PRODUCT DESCRIPTION :**

Titanium and titanium alloy castings with maximum weight 50Kg.  
Typical applications are valves and pump parts.

Melting by Induction furnace, sand casting. Heat treatment is applicable.

### **2. DOCUMENTS AND DRAWINGS :**

As per documents issued by PTC Industries Limited:

- "Preliminary Information - Doc No. PTC-AMTC-BV-CERT-01 and No. PTC-AMTC-BV-CERT-02" dated 24 August 2018.

- NDT procedures: Doc No. PTC-AMTC-UT-NDT-02 Rev.00; No. PTC-AMTC-MT-NDT-03 Rev.00; No.

PTC-AMTC-PT-NDT-04 Rev.00 and No. PTC-AMTC-RT-NDT-05 Rev.00 dated 02 April 2018.

### **3. TEST REPORTS :**

3.1 - Typical tested grade: C2 as per ASTM B367.

3.2 - As per documents issued by PTC Industries Limited:

- PTC Titanium Process - Doc No. PTC-AMTC-BV-CERT-03 Rev.01 and No. PTC-AMTC-BV-CERT-03 A Rev.01 dated 10 October 2018.

### **4. APPLICATION / LIMITATION :**

As per Bureau Veritas Rules for Classification.

Chemical composition, Tensile properties and Charpy V-notch test requirements are to be as per Bureau Veritas Materials Rules and/or alternative specification mentioned on reviewed documents and drawings, as applicable.

### **5. PRODUCTION SURVEY REQUIREMENTS :**

5.1 - The titanium castings are to be supplied by PTC Industries Limited in compliance with the type and the requirements described in this certificate.

5.2 - This type of product is within the category IBV of Bureau Veritas Rule Note NR320.

5.3 - BV product certificate is required.

### **6. MARKING OF PRODUCT :**

As per Bureau Veritas Rules for Classification.

### **7. OTHERS :**

Nil.

**\*\*\* END OF CERTIFICATE \*\*\***