



Certificate No:
TAM00001BU

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Thruster Components

with type designation(s)
See page 2

Issued to

**Kawasaki Heavy Industries, Ltd., Harima Works
Kako-gun, Hyogo pref., Japan**

is found to comply with

DNV rules for classification – Ships Pt.4 Ch.5 Rotating machinery – driven units

Application :

Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2023-09-28**

This Certificate is valid until **2028-09-27**.

for **DNV**

DNV local unit: **Kobe**

Approval Engineer: **Hamid Amini**

Øystein Åsheim Alnes
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.

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.



Form code: TA 251

Revision: 2022-12

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Product description

Propeller blades for controllable pitch tunnel thrusters

The blades may be manufactured at the following companies:

Company Name	Address
Kawasaki Heavy Industries, Ltd.	8, Nijima, Harima-cho, Kako-gun, Hyogo 675-0180, Japan
Kamome Propeller Co., Ltd.	690 Kamiyabe-cho, Totsuka-ku, Yokohama 245-8542 Japan
Nakashima Propeller Co., Ltd.	688-1, Joto-Kitagata, Higashi-Ku, Okayama City, Okayama, Japan
Fukutatsu Alloy Mfg. Co., Ltd., Seishin Plant	3-1-15, Takatsukadai, Nishi-ku, Kobe city, Hyogo, Japan
Nakashima Vietnam Co., Ltd.	Land Plot CN2.2B Dinh Vu IZ, Hai An Dist, Hai Phong, Vietnam
Fundilusa-fundições Portuguesas Lda.	ZONA INDUSTRIAL DE CAMPOS-POLO 1, 4920-012 CANPOS VNC PORTUGAL
Yuanhang Propellers Manufacturing Co., Ltd.	No.10CaoGang Street, Qiaoshan Vilaage, Shiji Town, Panyu, Guangzhou, Guangdong, China
Dalian Chengda Metal Product Co., Ltd.	116225 Yuantai Town, Wafangdian, Dalian, China

Application/Limitation

Thruster type	Max. power [kW]	Propeller speed [rpm]	Propeller diameter [mm]
KT-300B5	3500	220	3100
KT-255B5	3000	245	2850
KT-219B5	2500	267	2600
KT-187B5	2150	295	2400
KT-157B5	1800	315	2200
KT-300B3	3200	220	3100
KT-255B3	2700	245	2850
KT-219B3	2170	267	2600
KT-187B3	1850	395	2400
KT-157B3	1600	315	2200
KT-130B3	1175	346	2000
KT-105B3	1070	379	1800
KT-88B3	920	416	1650
KT-72B3	700	475	1450
KT-55B3	550	529	1300
KT-43B1	330	517	1150
KT-32B3	320	683	1000
KT-219B2	1650	259	2400

Type Approval documentation

Tests carried out

Marking of product

Manufacturer's name/trademark, type designation and serial number

Periodical assessment

For retention of the Type Approval, a DNV surveyor shall perform an assessment after 2 years and after 3.5 years to verify that the conditions of the type approval are complied with. A renewal assessment will be performed at renewal of the certificate.

In cases where the Type Approved product is manufactured at other companies, the Periodical Assessment shall verify that the Type Approval applicant has a quality control system for consistent production at their licensees/subcontractors. Furthermore Periodical Assessment shall be carried out randomly at these companies.

END OF CERTIFICATE