DNV·GL

Certificate No:
TAM00000US

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Elastic Couplings

with type designation(s)
Steelflex Coupling K-1090/1100/1110/1120/1130/1140/1150/1160 T-10

Issued to
Kawasaki Heavy Industries, Ltd., Harima Works
Kako-gun Hyogo-Pref, Japan

is found to comply with
DNV GL rules for classification – Ships
DNV GL rules for classification – High speed and light craft

Application :

Kawasaki side thrusters KT-B1/B2/B3/B5

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

Issued at **Høvik** on **2018-04-06**
This Certificate is valid until **2023-04-05**.
DNV GL local station: **Kobe**

Approval Engineer: **Tore Rønning**

for **DNV GL**

Oddvar Deinboll
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.

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Product description
Torsional, angular and axial flexible shaft couplings

Place of production
Sumitomo Heavy Industries Gearbox Co., Ltd.
16-1, Wakihama 4-chome, Kaizuka City, Japan.

Application/Limitation
Thruster drive: Electric or Hydraulic motor. If diesel engine driven thruster, the coupling must be case by case approved.

Driving and driven shaft is not included in the approval.

Size	Nominal Thruster Torque [Nm]	Application factor for continuous operation K_A	Application factor for peak/shock loads K_{AP}
K-1090T-10	2456	1.10	3.00
K-1100T-10	4611	1.10	2.70
K-1110T-10	5599	1.10	3.30
K-1120T-10	8893	1.10	3.00
K-1130T-10	14822	1.10	2.70
K-1140T-10	18995	1.10	3.00
K-1150T-10	27136	1.10	2.90
K-1160T-10	37991	1.10	2.90

Type Approval documentation

Marking of product
The product is to be marked with manufacturer’s name or trademark and type identification.

Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform an assessment after 2 years and after 3.5 years, both referring to the issue date of the Type Approval Certificate 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.