



TYPE APPROVAL CERTIFICATE

Certificate No:
TAM00000J2
Revision No:
1

This is to certify:

That the Elastic Couplings

with type designation(s)
BoWex-Elastic, HE, HEW, Monolastic, HEW Compact, HEG

Issued to
KTR Systems GmbH
Rheine, Germany

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

Application :

Products approved by this certificate are accepted for installation on all vessels classed by DNV. The couplings are approved for auxiliary duty.

Issued at **Høvik** on **2023-04-20**

for **DNV**

This Certificate is valid until **2028-04-19**.

DNV local unit: **Essen**

Approval Engineer: **Wolfgang Schütz**

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.

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

Highly flexible couplings.

Application/Limitation

The couplings are approved for auxiliary duty, for the nominal torques and maximum RPM's and with other characteristics according to the data given in KTR catalogue "Drive Technology" 2023/24 chapter "BoWex-Elastic type HEW Compact" (page 218 and 219) and chapter "BoWex-Elastic highly flexible flange couplings" (page 236 to 247) with the following limitations:

T_{Kmax} is limited to $1.3 \times T_{KN}$ for couplings with shore hardness 40
 T_{Kmax} is limited to $1.4 \times T_{KN}$ for couplings with shore hardness 45
 T_{Kmax} is limited to $1.5 \times T_{KN}$ for couplings with shore hardness 50, 65 and 70

Coupling selection based on operating factors. For loading generated by rated torque operating factor for the ambient temperature to be considered.

$T_{KN} \geq T_N \cdot S_B \cdot S_t$ (T_N = rated torque of machine, S_B = operating factor, S_t = temperature factor)

Rated T_{KN} : Rated torque of coupling. Torque that can be continuously transmitted over the entire permissible speed range.

Operating factors for auxiliary applications acc. to KTR catalogue "Drive Technology" 2023/24, page 15.

Type	Approved sizes	Elastomer hardness [Shore A]
BoWex-Elastic HE1 – HE4	42 HE, 48 HE, 65 HE, G65 HE, GG65 HE, 80 HE, G80 HE, GG80 HE, 100 HE, G100 HE	T40, T50, T65
BoWex-Elastic HE3, HE4, HE-D	125 HE, G125 HE, 150 HE, 150 HE-D, G150 HE, G150 HE-D, 200 HE, 200 HE-D, G200 HE, G200 HE-D, 240 HE, 275 HE	T40 (only 125 HE, G125 GE), T50, T70
BoWex -Elastic HEW	42, 48, 65, 80, G80, 100, 125, G125, 150, G150, 200, G200	Sizes 42 to 100: T40, T50, 65 Size 125: T40, T50, 65 Size 150 to 200: T50, T70
BoWex HEW Compact	42, 65, 80, 100, 125	T50, T65, T70
BoWex -Elastic HEG	48, G65, 80, G80, 100, 125	Sizes 48 to 100: T40, T50, 65 Size 125: T40, T50, 65
MONOLASTIC	22, 28, 30, 32, 50, G50, 50-140, 50-165, 50-170, 60-165, 65, 70	Size 22: T65 Size 28, 30, 32, 50, 65, 70: T65, T70 Other: T70

Type Approval documentation

Tests carried out

Test no.	Date	Title
98517070	14.12.17	Type test MONOLASTIC G50-70 ShA
98117058	09.11.17	Type test BoWex-ELASTIC 125 HE T50 ShA
98117056	20.09.17	Type test BoWex-ELASTIC G200 HE T70 ShA
98117048	13.06.17	Type test BoWex-ELASTIC G200 HE T50 ShA
98118025	05.03.18	Type test BoWex-ELASTIC 48 HE T50 ShA
98118026	06.03.18	Type test BoWex-ELASTIC 48 HE T65 ShA
		KTR catalogue "Drive Technology" 2023/24

Marking of product

The product to be marked with manufacturer's name or trademark and type number identification.

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.



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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.

Other conditions

DNV product certificate is not required for auxiliary machinery installation with power ratings up to 500 kW and rated torque less than 5 kNm.

The type approval does not cover connection to external shaft. Couplings used between diesel engines and generator to be inspected for wear each 1000 hours.

END OF CERTIFICATE