

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Bending Compliant Couplings**with type designation(s)
BOWEX G200 + RADEX-N136

Issued to

Opra Turbines B.V.
Hengelo Ov, Overijssel, Netherlands

is found to comply with

DNV GL rules for classification – Ships**DNV GL rules for classification – High speed and light craft****DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition January 2018****Application :****Auxilliary power supply for on, offshore and ships.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Høvik** on **2019-01-30**This Certificate is valid until **2024-01-29**.for **DNV GL**DNV GL local station: **Rotterdam, Offshore & Newbuilding**Approval Engineer: **Terje Ingvar Arvidsen****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.



Job Id: **262.1-030250-1**
Certificate No: **TAM000011U**

Product description

The coupling is a combination of a BoWex G200 rubber element and a Radex N136 disk element from coupling supplier KTR Systems GmbH.

Application/Limitation

The approval is valid for auxiliary duty. The combination of coupling elements are designed to be used between OPRA OP16 engines and generators.

Rating: $T_{KN} = 15 \text{ kNm}$
 $T_{Kmax} = 45 \text{ kNm}$

Type Approval documentation

Marking of product

The product to be marked with manufacturer's name or trademark and type number identification. OPRA Turbines specification: 6100375 xxxxKTR (ref OPRA spec OPS0287)

Periodical assessment

For retention of the type approval, a DNV GL 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.

Other conditions

DNV GL 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.

The type approval is based on the following DNV GL type approval certificates:

- DNV GL Certificate no. TAM00000J1, BOWEX type M/I, AS, Spec.-I, SG, SSR, SD, M...C, FLE-PA, FLE-PAC
- DNV GL Certificate no. TAM00000HZ, RIGIFLEX-N size 35 – 408, RADEX-N size 20 to 338

END OF CERTIFICATE