

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Shaft Coupling**

with type designation(s)

ARPEX Series: ARS-6, ARS-6 NEN 210-6, ARF-6, ARC-8/-10, ARH-8

Issued to

Flender GmbH**Bocholt, Nordrhein-Westfalen, Germany**

is found to comply with

DNV GL rules for classification – Ships**DNV GL rules for classification – High speed and light craft****Application :****Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.**Issued at **Hamburg** on **2018-10-25**This Certificate is valid until **2023-10-24**.for **DNV GL**DNV GL local station: **Essen**Approval Engineer: **Wolfgang Schütz**

Burkhard Lilienthal
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.



Product description

All steel couplings with angular, radial and axial flexibility.

Application/Limitation

As coupling for main propulsion and auxiliary drive systems where reliable power transmission is required even with slight misalignment for marine use.

Permissible speed and shaft misalignment according to catalogue M10.1.2017 and K431 DE/EN 2001-05 (for ARH-8).

Max. nominal driving torque: $T_0 = T_{KN}/f_1$

where:

T_{KN} - Coupling torque from catalogue
 f_1 - Service factor, to be taken as:

Electric motors, turbines, hydraulic motors:	1.4
Piston engines 4 – 6 cylinders, cyclic variation 1 : 100 to 1 : 200:	1.7
Piston engines 1 – 3 cylinders, cyclic variation up to 1 : 100:	2.0

Type Approval documentation / Tests carried out

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 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.

The objective of the Periodical Assessment is to verify that the conditions for the Type Approval are not altered since the Type Approval Certificate was issued. The main scope of the Periodical Assessment will normally include:

- Verification of the Type Approval applicant's production and quality system w.r.t. ensuring continued consistent production of the Type Approved products at the Type Approval applicant's own premises and at other companies that are given the responsibility for manufacturing of the products
- Review of the Type Approval documentation and that this is still used as basis for the production
- Review of possible changes to the design, the material and the performance of the product
- Verification of the product marking

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.

When a Type Approved product is manufactured at other companies, the Type Approval applicant takes the sole responsibility for the conformity of the product to the applicable requirements.

Other conditions

- Spacers are to be manufactured from solid pre-material or welded with full penetration butt welds.
- The welds are to be machined.

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- The welds are to be NDT tested for internal defects. The acceptance criteria for welding seams to be acc. ISO 5817 level B.
- Hubs of welded design is not covered by this approval and have to be approved in each case.
- Ice class notations are to be considered in each case.

Information about balancing are given in the catalogue Siemens MD10.1 2017, page 2/3f.

The product certification may, for auxiliary duty, be waived for power ratings up to 500 kW and rated torque less than 5 kNm, under the condition that the product is marked with its type number identification.

The Type Approval does not cover:

- the connection to the external shafts

This certificate replaces DNV certificate no. M-12486 and GL certificate no. 15 343 – 00 HH

END OF CERTIFICATE