

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Elastic Couplings**

with type designation(s)
Geislinger Coupling, Flexlink and SAE

Issued to

Geislinger GmbH
Hallwang Salzburg, Austria

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

Application :

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

Issued at **Hamburg** on **2018-04-04**

This Certificate is valid until **2023-04-03**.

DNV GL local station: **Augsburg**

Approval Engineer: **Stanislav Avanesov**

for **DNV GL**

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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

Torsional elastic steel spring couplings:

Example of coupling designation: *BC 90/15/75 N*

- *BC*: type of connection flanges (connections to adjacent shafts are not included in this Type approval, see under Other conditions)
- *90*: outer diameter of centre part in [cm]
- *15*: width of spring pack in [cm]
- *75*: stiffness series and approximate twist in [mrad] at nominal torque
- *N*: blade design:
 - Type N, NC, NCS, NC3: non-reversible version with unsymmetric spring arrangement
 - Type H, HC, HCS, HC3: semi-reversible version (can transmit 0,5 x nominal torque in reverse direction)
 - Type U, UC, UCS, UC3: reversible version with symmetric spring arrangement

Where C in the above designations means that *conical* blade design is used.

Flexlink is a torsional rigid and bending compliant steel coupling (to compensate for axial-, angular- and, in dual version, radial shaft misalignment) consisting of tangentially arranged links.

Example of coupling designation: *GFL S 63 F 8A*

- *GFL*: Geislinger FlexLink
- *S*: series
- *63*: size
- *F*: type
- *8*: number of links
- *A*: axial support

Geislinger SAE-Couplings are torsional elastic oil filled steel spring couplings.

Example of coupling designation *SE 41/2.2/120NC3/20/S14/L*

- *SE*: SAE-type of engine flywheel. Inner connection of the coupling is a standardized spline connection. Different adaptors fitting to the spline connection are available on request.
- 41*: Outer diameter of centre part in cm
- 2.2*: Spring pack width in cm
- 120*: Stiffness series and the approximate twist in mrad at nominal torque. Standard series are 30, 60, 90 and 120. Torsional stiffness and nominal torque can be varied by different number of spring packs.
- NC3, UC3*: Directionality code for coupling type with 3-spring design
- NC3* non-reversible
- UC3* reversible
- 20*: Number of spring packs per coupling (8, 10, 12, 14, 15, 16, 18 or 20)
- S14*: Connection fitting for SAE-flywheel
- S14* : fitting for SAE-flywheel size 14 (flange drillings for SAE- inch bolts)
- M14* : fitting for SAE-flywheel size 14 (without flange drillings)
- L*: Left hand coupling rotation when looking to the side plate, if torque input from coupling outer part.
- R*: Right hand coupling rotation when looking to the side plate, if torque input from inner star.
- 1/L*: Left hand coupling rotation when looking to the side plate, if torque input from inner star.
- 1/R*: Right hand coupling rotation when looking to the side plate, if torque input from coupling outer part.

SB: SAE-type of engine flywheel. The SB-Coupling with its innerstar fixation is always combined with the Gesilco® BF-Coupling connecting to a customized flange hub.

Application/Limitation

The type approval is valid for all couplings listed in the catalogues "Geislinger Coupling Version 17.8 - June 2016", "Geislinger Flexlink Version 10.5 - August 2016" as well as tailor-made versions and combinations of both and for "Geislinger SAE couplings according to catalogue Version 2.0 - June 2016.

Places of production

Geislinger Corporation, Battle Creek, Michigan, USA

Geislinger Ltd., Busan, Republic of Korea

Geislinger (Suzhou) Co., Ltd., Suzhou, P.R. China

Type Approval documentation

Marking of product

Manufacturer's name or trademark. Type number designation.

Periodical assessment

For retention of the Type Approval, a DNV surveyor shall perform a survey after 2 and 3,5 years and before the expiry date of this certificate to verify that the conditions of the type approval are complied with.

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.

Other conditions

For couplings that differ from the standard versions listed in the said catalogues, DNV shall be provided as early as possible with a Data sheet containing the following data:

- Mass moment of inertia (kgm^2) of inner part
- Mass moment of inertia (kgm^2) of outer part
- Coupling nominal torque T_{KN} (kNm)
- Elastic torque (kNm) when reaching buffers
- Reverse buffer torque (kNm)
- Permissible elastic vibratory torque (kNm) for continuous operation
- Static torsional stiffness (kNm/rad)
- Characteristic frequency of the coupling ω_0 (rad/s)
- Damping torque (kNm/bar) per bar absolute
- Permissible power loss (kW)



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- Permissible radial misalignment (mm)
- Radial stiffness (kN/mm)
- permissible axial misalignment (mm)
- Axial reaction force (kN)
- Angular (tilt) stiffness kNm/rad)

Connections to adjacent shafts, e.g. bolts or shrink fit, are not covered by this type approval and must be submitted for approval by the responsible party on a case-by-case basis.

END OF CERTIFICATE