

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Bending Compliant Couplings

with type designation(s)

CD-C1G, CD-C2G, CD-C3G, CD-C4G, CD-C0, CD-C1, CD-C2, CD-C3, CD-C4, CD-C5

Issued to

CENTA Antriebe Kirschey GmbH
Haan 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.

This Certificate is valid until **2021-07-04**.

Issued at **Hamburg** on **2016-07-05**

DNV GL local station: **Essen**

Approval Engineer: **Axel Albrecht**

for **DNV GL**

.....
Frank Lutz
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

Bending complinat coupling consisting of two sets of composite membranes and a composite intermediate shaft.

Application/Limitation

Type	Nominal torque TKN [kNm]	Maximum misalignment			
		Angular [deg]		Axial [mm]	
		Transient	Continuous	Transient	Continuous
CD-C1G	3	2	1	4	2,6
CD-C2G	6	2	1	5	3,3
CD-C3G	12	2	1	6	3,9
CD-C4G	20	2	1	7	4,6
Permissible continuous vibratory torque amplitude 0,25 x TKN					
Permissible peak vibratory torque amplitude 1,4 x TKN					

Type	Torsional stiffness	
	Ct Membrane [kNm/rad]	Ct tube /meter [kNm/rad]
CD-C1G	140	100
CD-C2G	490	250
CD-C3G	900	600
CD-C4G	1500	1000

Type	Nominal torque TKN [kNm]	Maximum misalignment			
		Angular [deg]		Axial [mm]	
		Transient	Continuous	Transient	Continuous
CD-C0	2,1	3,3	2,2	4	2
CD-C1	4	3	2	6	3
CD-C2	8	2,4	1,6	6	3
CD-C3	14	2,25	1,5	6	3
CD-C4	25	1,65	1,1	6	3
CD-C5	45	1,2	0,8	6	3
Permissible continuous vibratory torque amplitude 0,25 x TKN					
Permissible peak vibratory torque amplitude 1,4 x TKN					

Type	Torsional stiffness	
	Ct Membrane [kNm/rad]	Ct tube /meter [kNm/rad]
CD-C0	90	36
CD-C1	110	100
CD-C2	420	250
CD-C3	780	600
CD-C4	1350	1000
CD-C5	2700	4300

[illegible]

Life cycle test for angular misalignment, torsional vibration and static test.

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



Job Id:
Certificate No: **TAM00000A1**

Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform survey every 2.5 years and before expiry date of this certificate to verify that the conditions of the type approval are complied with.

Other conditions

The connection to driving and driven component is not included in this approval.

DNV GL product certificate is not required for couplings according DNV and the common DNV GL Rules for auxiliary duty with rating up to 500 kW and rated torque less than 5 kNm, where torsional vibration calculations are not required.

The Type Approval Certificate No. TAM00000A1 is replacing the following DNV Certificate:

- DNV Certificate No. M-12074

END OF CERTIFICATE