

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Elastic Couplings**with type designation(s)
CT47, CT58

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 :****Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.**Issued at **Hamburg** on **2017-09-06**This Certificate is valid until **2022-09-05**.DNV GL local station: **Augsburg**for **DNV GL**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

Torsionally elastic coupling.

The coupling combines a torsionally elastic silicone element with composite membranes capable of accommodate limited bending.

Application/Limitation

This approval covers bolted connection and blind assembly to the composite flange, composite flanges, bonding between composite and silicon elements and the silicon element.

		CT47/7	CT47/7	CT58/13	CT58/13	
Stiffness		150	250	150	250	
Shore		A70	A60	A70	A60	
Direction of rotation		"U" (reversible)	"U" (reversible)	"U" (reversible)	"U" (reversible)	
Ambient temperature						
Permanent		80	80	80	80	°C
Transient		100	100	100	100	°C
Maximum shaft speed		2500	2500	2450	2450	rpm
Nominal torque	[T _{KN}]	5	5	10	9	kNm
Permissible vibratory torque	[T _{KV}]	+/- 1.5	+/- 1.5	+/- 3.0	+/- 2.7	kNm
Permissible maximum torque (e.g. clutching in)	[T _{kmax1}]	7.5	7.5	14	13	kNm
Permissible maximum torque range	[ΔT _{max}]	6	6	6	6	kNm
Permissible Maximum Torque (occasional peaks)	[T _{kmax2}]	10	10	20	18	kNm
Permissible power loss at 30°C	[P _{KV}]	250	300	250	300	[W]
CT dyn [TV=20% of T _{KN} ; f=10 Hz]						
0,1 TKN		31	21	103	60	[kNm/rad]
0,25TKN		33	20	103	60	[kNm/rad]
0,5TKN		42	22	108	64	[kNm/rad]
0,75 TKN		57	34	119	72	[kNm/rad]
1,0 TKN		91	48	147	89	[kNm/rad]
Damping [TV=20% of T _{KN} ; f=10 Hz]	[Ψ]	1.1	1.1	1.1	1.1	
Tolerance for CT dyn		+/- 20	+/- 20	15 (new)	15 (new)	%
Tolerance for Ψ		+/- 30	+/- 30	15 (new)	15 (new)	%

		CT47	CT58	
Max. axial / radial misalignment continuous		+/- 3.5 @ 1600 rpm +/- 3.0 @ 2100 rpm +/- 2.5 @ 2300 rpm +/- 2.0 @ 2500 rpm	+/- 3.0 @ 1600 rpm +/- 2.5 @ 2100 rpm +/- 2.0 @ 2300 rpm +/- 1.5 @ 2500 rpm	mm mm mm mm
Max. axial / radial misalignment transient		+/- 4.0 @ 1600 rpm +/- 3.5 @ 2100 rpm +/- 3.0 @ 2300 rpm	+/- 4.0 @ 1600 rpm +/- 3.5 @ 2100 rpm +/- 3.0 @ 2300 rpm	mm mm mm

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		+/- 2.5 @ 2500 rpm	+/- 2.5 @ 2500 rpm		mm
Shore			A70	A60	
Max. angular deflection continuous		0.5	0.35	0.5	° (deg)
Max. angular deflection transient		0.9	0.7	0.9	° (deg)
Number of load cycles transient		100000	100000		
Service life		24000	24000		hours

Type Approval documentation

Tests carried out

Test reports in Design Documentation CT 47/7/150U Rev.1 dated 8/29/2012, and Design Documentation CT 47/7/250U Rev.1 dated 1/09/2013.

Test reports in Design Documentation CT 58/13/150U & UB Rev.1 dated 2016-07-04, and Design Documentation CT 58/13/250U & UB Rev.1 dated 2016-07-04.

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 survey after 2 and 3.5 years and before expiry date of this certificate to verify compliance with the conditions of this type approval.

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:

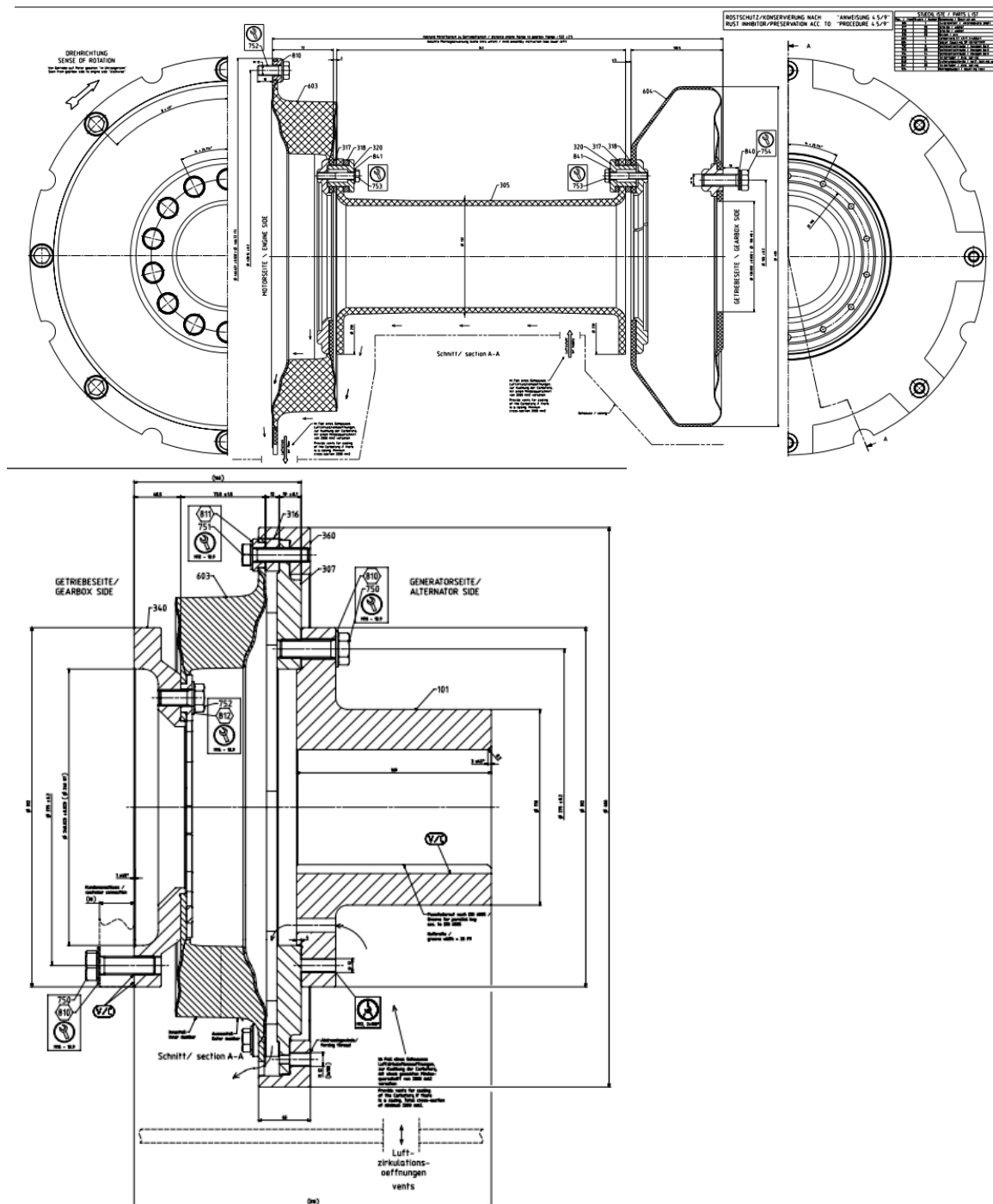
- Verification of the Type Approval applicant's production and quality system w.r.t. ensuring continued consistent production of the Type Approved products at the Type Approval applicant's own premises and at other companies that are given the responsibility for manufacturing of the products.
- Review 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.

A coupling selected at random from the production line shall be tested in order to verify that stiffness and damping are in the specified tolerance range. In case that no couplings are available at the time of the retention survey, the test may be replaced/complemented by a scrutiny of dynamic tests made after this certificate is issued, with the purpose of checking whether corrections to stiffness and damping data are necessary.

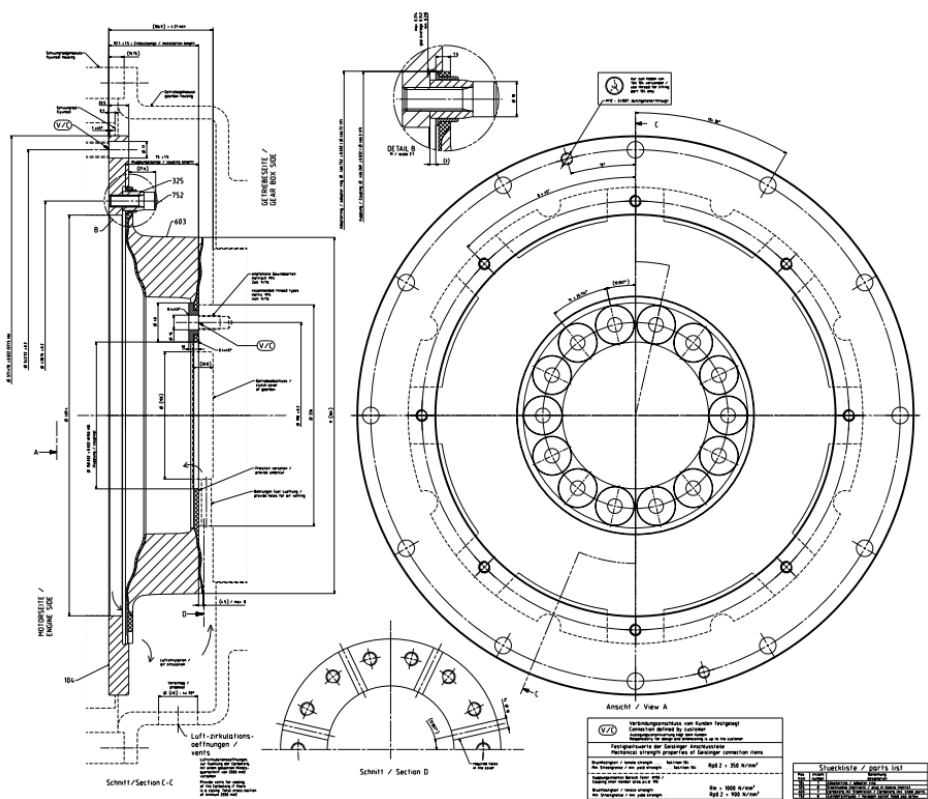
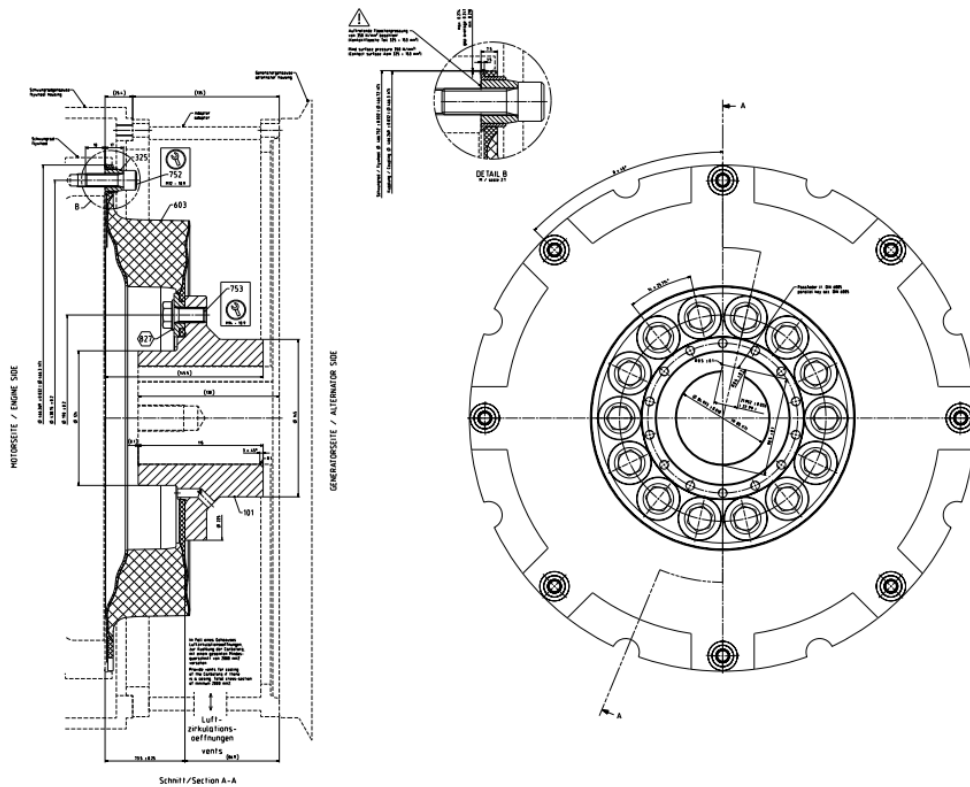
Examples of installation

Connection to driver and driven side do not need to be individually approved for each delivery as long as they are of the type displayed in any of the examples of this section.

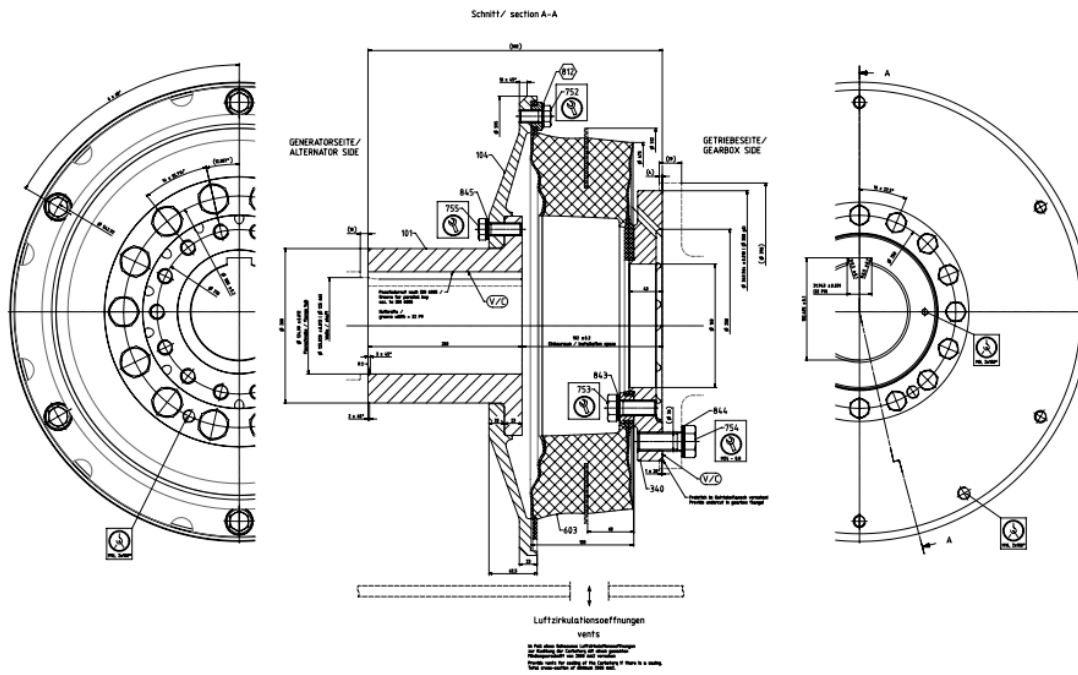
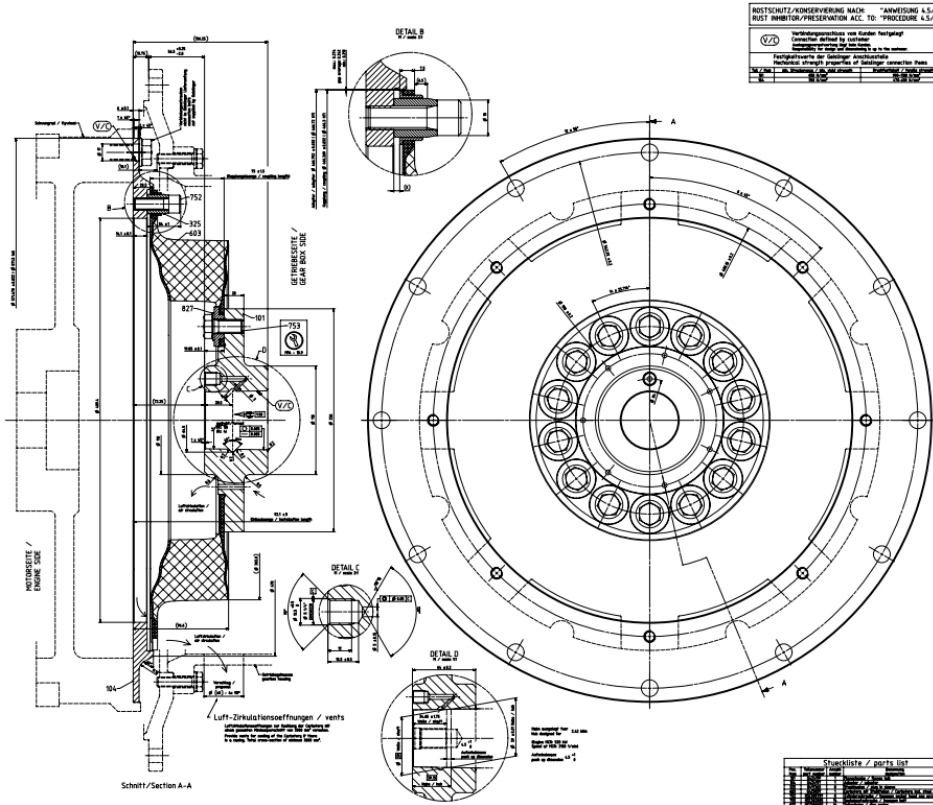
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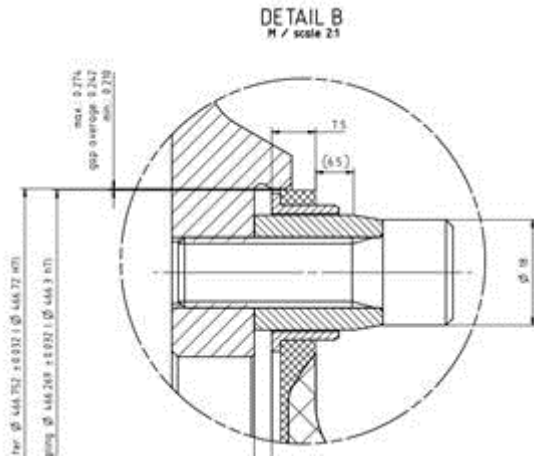
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Blind assembly means pluggable version. See the following picture:



When mounting the coupling to the flywheel, they have to be movable in axial direction.

The coupling will first be fixed to the gearbox. The gearbox is then moved axially towards the flywheel.

Other conditions

This certificate replaces DNV certificate M-12123.

END OF CERTIFICATE