DNV·GL

Certificate No:
TAM000005D

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Toothed Coupling

with type designation(s)
ZAPEX ZW, ZN and ZI series,

Issued to
Siemens AG - Werk Bocholt
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. Restricted use for diesel driven main propulsion plants, to be confirmed by torsional vibration calculations.

Type	Nominal torque
ZAPEX ZW, ZN and ZI series	

This Certificate is valid until **2021-02-10**.

Issued at **Hamburg** on **2016-02-11**

for **DNV GL**

DNV GL local station: **Essen**

Approval Engineer: **Dimitris Sideris**

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.

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Job Id: **262.1-004435-6**
Certificate No: **TAM000005D**

Product description

Free floating gear couplings with crowned hub teeth. Type ZWS and ZWSE Combination with clutch

Application/Limitation

The approval is valid for propulsion and auxiliary duty according to Catalogue MD10.1. 2008 (for ZI) and MD10.1 2015 (ZW + ZN). For propulsion purposes in combination with a torsionally flexible coupling only.

Max. angular misalignment per coupling half:

ZW series : 1 degree
ZN series : 0.5 degree
ZI series : 0.5 degree

Coupling size to be choosen according to procedure given in the catalogues.

Service factor for marine application : 2.0 with electro motor as prime mover
2.5 with diesel engine as prime mover

ZAPEX ZW, ZN and ZI series

ZW series design types
ZWN (size 112-1540, TkN = 1,3-7200 kNm), ZZS (size 112-1540, TkN=1,3-7200 kNm), ZZW (size 112-1540, TkN = 1,3-7200 kNm), ZWH (size 112-780, TkN = 1,3-1000 kNm), ZWBT (size 112-465, TkN = 1,3-180 kNm), ZWBG (size 112-465, TkN = 1,3-180 kNm), ZWB (size 128-290, TkN = 2,5-39 kNm, ZWTR (size 198-730, TkN = 14,5-880 kNm), ZBR (size 112-730, TkN = 1,3-790 kNm), ZWS (size 128-545, TkN = 2,5-320 kNm), ZWNV (size 128-505, TkN = 2,5-250 kNm), ZWSE (size 128-505, TkN = 2,5-250 kNm)

ZN Series design types
ZNN (size 83-424, TkN = 1,02-162,5 kNm), ZNZS (size 83-424, TkN = 1,02-162,5 kNm), ZNW (size 83-424, TkN = 1,02-162,5 kNm), ZNBG (size 83-364, TkN = 1,02-117 kNm), ZNNA (size 83-424, TkN = 1,02-162,5 kNm), ZNZA (size 83-424, TkN = 1,02-162,5 kNm), ZNNV (size 83-424, TkN = 1,02-162,5 kNm), ZNNV axial (size 83-424, TkN = 1,02-162,5 kNm)

ZI series design types
ZIN (size 1-7, TkN = 0,85-125 kNm), ZIZS (size 1-7, TkN = 0,85-125 kNm), ZIW (size 1-7, TkN = 0,85-125 kNm), ZIBT (size 1-6, TkN = 0,85-90 kNm), ZIBG (size 1-6, TkN = 0,85-90000 kNm), ZINA (size 1-7, TkN = 0,85-125 kNm), ZIZA (size 1-7, TkN = 0,85-125 kNm), ZINV (size 1-7, TkN = 0,85-125 kNm), ZIN axial (size 1-7, TkN = 0,85-125 kNm)

Type Approval documentation
Tests carried out

No specific tests for this prolongation.

Marking of product

The product to be marked with the manufacturer’s name or trademark and type number identification.

Periodical assessment

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

Other conditions:

This Cerificate TAM000005D is replacing the following certificates:
DNV TA Certificate: M-11634
DNV TA Certificate: M-11822
GL Certificate 42631-02 HH

Spacers are to be manufactured from solid prematerial or welded with full penetration butt welds and NDT tested for internal defects with acceptance criteria for welding seams acc. To ISO 5817 level B. Welding seams to be machined.
The connection to driving and driven shaft is not included in the approval and has to be approved in each separate case.

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 conditon that the product is marked with its type number identification.

For diesel engine driven main propulsion plants application in combination with torsionally flexible couplings only and confirmed by torsional vibration calculations.

END OF CERTIFICATE