DNV·GL

Certificate No:
TAM00000A0

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Bending Compliant Couplings

with type designation(s)
Model 66, 67,74,99 and 100

Issued to
EagleBurgmann Japan Co., Ltd.
Niigata, Japan

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

Application :

The approval is valid for propulsion and auxiliary duty with application and limitations as stated in the certificate.

Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.

This Certificate is valid until **2021-06-29**.

Issued at **Høvik** on **2016-06-30**

for **DNV GL**

DNV GL local station: **Yokohama**

Approval Engineer: **Terje Ingvar Arvidsen**

Oddvar Deinboll
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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Product description

Metallic Diaphragm Coupling consisting of a pair of metallic flexible elements (angular and axial) with center tube.

Application/Limitation

The approval is valid for propulsion and auxiliary duty where the torsional vibratory stresses are low (i.e. application factor for torsional alternating torque, $K_A \leq 1{,}10$ ref. Pt.4 Ch.4 Sec.1 A) for the following types and sizes:

Model 66	Model 67 & 74	Model 99/100
66L-304-xxx	67/74*E*-305/405/505/605-xxx	99/100E-305/405/505/605-xxx
66L/I/H-205/305/405/505-xxx	67/74*E* -306/406/506/606-xxx	99/100E-306/406/506/606-xxx
66L/I/H -206/306/406/506-xxx	67/74*E* -308/408/508/608-xxx	99/100E-308/408/508/608-xxx
66L/I/H -208/308/408/508-xxx	67/74*E* -310/410/510/610-xxx	99/100E-310/410/510/610-xxx
66L/I/H -210/310/410/510-xxx	67/74*E* -312/412/512/612-xxx	99/100E-312/412/512/612-xxx
66L/I/H -212/312/412/512-xxx	67/74*E* -314/414/514/614-xxx	99/100E-314/414/514/614/-xxx
66L/I/H -214/314/414/514-xxx	67/74*E* -316/416/516/616-xxx	99/100E-316/416/516/616-xxx
66L/I/H -216/316/416/516-xxx	67/74*E* -318/418/518/618-xxx	99/100E-318/418/518/618-xxx
66I/H-318/418/518-xxx	67/74*E* -322/422/522/622-xxx	99/100E-322/422/522/622-xxx
66I/H-322/422/522-xxx	67/74*E* -329/429/529-xxx	

Where:

66 : Model No. L*(*)*: Low speed design I *(*)* : Middle speed design H*(*)*: High speed design 205-522 : Diaphragm series and diameter *First digit (2, 3, 4, 5): Diaphragm series* *Last 2 digits (04-22) : Diameter* xxx : Flexible unit length (= length over diaphragms)	*67 : Model No.* *74 : Model No.* *99 : Model No.* *100 : Model No.* *E(*) : Model 67 & 74, 99 & 100 Standard design* *305-622 : Diaphragm series and diameter* *First digit (3, 4, 5, 6): Diaphragm series* *Last 2 digits (05-29) : Diameter* xxx : Flexible unit length (= length over diaphragms)

Note (*) : In addition to the standard design as denoted with L, I and H for Model 66 and E for Model 67,74,99 and 100 as above, optional features (S, F, M, P, R, T, B) of couplings as listed below are available.

S: Special diaphragm design
F: Integral flange
M: Multi diaphragm design
P: With shear pin
R: Electrically insulated design
T: With torque monitoring system
B: With back-up gear

Allowable loads and speeds:

Diaphragm	Max. Nominal Torque [Nm]	Max rotational speed [RPM]
66L-304	345	4000
66L-205/305/405/505	667/1000/1330/1670	3000
66I-205/305/405/505		7200
66H-205/305/405/505		18200/22300/24900/27400
66L-206/306/406/506	1320/1970/2630/3290	2400
66I-206/306/406/506		5900
66H-206/306/406/506		15600/19100/21400/23500
66L-208/308/408/508	2930/4400/5870/7330	1800
66I-208/308/408/508		4400
66H-208/308/408/508		13300/15900/17800/19600
66L-210/310/410/510	5500/8250/11000/13700	1500
66I-210/310/410/510		3600
66H-210/310/410/510		11300/13800/15400/17000
66L-212/312/412/512	10000/15000/20000/25100	1250
66I-212/312/412/512		3100
66H-212/312/412/512		9860/12000/13500/14800
66L-214/314/414/514	14900/22400/29800/37300	1100
66I-214/314/414/514		2700
66H-214/314/414/514		9010/11000/12300/13500
66L-216/316/416/516	23900/35800/47700/59600	970
66I-216/316/416/516		2400
66H-216/316/416/516		8100/9920/11100/12200
66I-318/418/518	48100/64100/80100	2100
66H-318/418/518		9280/10300/11400
66I-322/422/522	91900/123000/153000	2000
66H-322/422/522		8010/8970/9870

Diaphragm	Max. Nominal Torque [Nm]	Max rotational speed [RPM]
67-305/405/505/605 74-305/405/505/605	1500/2000/2500/3000	34000/39000/44000/48000
67-306/406/506/606 74-306/406/506/606	2960/3950/4930/5920	29000/33000/37000/41000
67-308/408/508/608 74-308/408/508/608	6600/8800/11000/13200	24000/28000/31000/34000
67-310/410/510/610 74-310/410/510/610	12400/16500/20600/24700	21000/24000/27000/30000
67-312/412/512/612 74-312/412/512/612	22500/30100/37600/45100	18000/21000/23000/26000
67-314/414/514/614 74-314/414/514/614	33600/44800/55900/67100	16000/19000/21000/24000
67-316/416/516/616 74-316/416/516/616	53700/71600/89500/107000	15000/17000/19000/21000
67-318/418/518/618 74-318/418/518/618	72100/96200/120000/144000	14000/16000/18000/20000
67-322/422/522/622 74-322/422/522/622	138000/184000/230000/276000	12000/14000/15000/17000
67-329/429/529 74-329/429/529	357000/468000/585000	8040/9150/10100

Diaphragm	Max. Nominal Torque	Max rotational speed

	[Nm]	[RPM]
99/100E-305/405/505/605	3280/4290/5420/6550	35000/40000/45000/50000
99/100E-306/406/506/606	6430/8580/10700/12800	28000/33000/38000/43000
99/100E-308/408/508/608	14300/19100/23900/27700	23000/28000/33000/35000
99/100E-310/410/510/610	26900/35800/44800/53900	20000/25000/28000/30000
99/100E-312/412/512/612	49100/65500/81900/98100	19000/22000/25000/27000
99/100E-314/414/514/614	73000/97300/122000/146000	17000/20000/23000/25000
99/100E-316/416/516/616	116000/155000/194000/232000	15000/17000/20000/22000
99/100E-318/418/518/618	157000/210000/262000/314000	14000/16000/19000/21000
99/100E-322/422/522/622	299000/399000/499000/599000	12000/14000/16000/19000

Spring rates and allowable misalignment according to relevant type approved coupling catalogue pages and data sheet BXS-O-1851rev02 and BXS-O-2292rev00.

Type Approval documentation

Tests carried out

Axial spring test and torsional stiffness test.

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 a survey every second year 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.

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

The interfaces with the driving and driven components are not included in the approval and have to be approved in each separate case.

END OF CERTIFICATE