

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Pipe Couplings, Bite and Compression Type**

with type designation(s)

BITE TYPE COMPRESSION TUBE FITTING

Issued to

BMT Co., Ltd.**Gyeongsangnam-do, Republic of Korea**

is found to comply with

Offshore Standard DNV-OS-D101, Marine and Machinery Systems and Equipment**Det Norske Veritas' Standards for Certification 2.9 No. 5-792.20****Det Norske Veritas' Rules for Classification of Ships****Application :****The couplings may be used in the following systems: Hydraulic, fuel oil (not high pressure fuel oil injection), lubrication oil, compressed air, steam and condensate, sanitary systems, fresh and sea water cooling.**

Temperature range:	-55 °C to + 400 °C (see cert.)
Max. working press.:	Depending on size, see certificate.
Sizes:	See certificate

This Certificate is valid until **2018-12-31**.Issued at **Høvik** on **2015-03-03**for **DNV GL**DNV GL local station: **Pusan**Approval Engineer: **Mohsen Mohebbi**

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Marianne Spæren Marveng
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.

Certificate No: **P-15188**
File No: **792.21**
Job Id: **262.1-011527-4**

Product description

Bite type tube fittings for DIN2353 LL, L and S series

Materials:

Stainless steel SUS316, ASTM A276 and JIS G4303

Application/Limitation

Maximum working pressure and sizes:

Series	Tube O.D [mm]	Working pressure [bar]
LL	4	100
	6	
	8	
	10	
	12	
L	6	250
	8	
	10	
	12	
	15	
	18	160
	22	
	28	100
	35	
	42	
S	6	630
	8	
	10	
	12	
	14	
	16	400
	20	
	25	
	30	315
38		

For couplings at elevated temperatures, the maximum working pressure has to be reduced with the following factors:

Temp.	-55 °C to 20 °C	50 °C	100 °C	150 °C	200 °C	250 °C	300 °C	350 °C	400 °C
Stainless Steel	1	0,95	0,85	0,77	0,71	0,67	0,63	0,6	0,58

The wall thickness and material of the tubes are to be in accordance with the current Rules of Det Norske Veritas.

The approval is only valid when the couplings are assembled on tubing with Rockwell Hardness HRB ≤ 80.

These couplings should not be used on tubes in cold fabricated (hard temper) conditions.

Material of couplings shall satisfy all requirements in DNV Rules Pt.2 Ch.2

Type Approval documentation

Manufacturer's product catalogue BMT Co., Ltd DIN2353

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Manufacturer's drawings:

Dwg No	Date	Dwg No	Date	Dwg No	Date	Dwg No	Date
DU-06L	05-05-22	DU-06S	05-05-23	DMC-06L-2N	05-08-03	DMC-06S-4N	05-08-08
DUT-06L	05-08-11	DUT-06S	05-08-11	DN-06L	05-07-02	DN-06S	05-05-23
DS-06L	05-05-23	DS-06S	05-05-23	DME-06S-4R	05-08-13	DME-06-2R	05-08-13
DUE-06L	05-08-09	DUE-06S	05-08-09				

Manufacturer's test reports:

BTR-D060613-01/02/03/04/05/06 dated 2006-06-14

BTR-D060327-03/06 dated 2006-03-27

BTR-D060912-01 dated 2006-09-12

Product test report No.: BTR-110323-02 witnessed by DNV

Product test report No.: PTR-141219-02 witnessed by DNV GL (Dated Dec.19,2014)

Tests carried out

Leakage test, repeated assembly test, burst pressure test, pull-out test, vibration test and pressure pulsation test.

Marking of product

For traceability to this type approval, each coupling is at least to be marked with:

- Manufacturer's name:
- Type designation
- Size

Periodical assessment

For renewal of TA certificate periodical assessment shall be done by DNV GL surveyor to verify that the conditions for the TA are not altered since the certificate was issued.

The main scope of the periodical assessment shall be:

- review of the TA documentation and verification that this documentation is still used as basis for the production
- review of possible changes in design, material and performance of the product
- verification of the company's production and quality systems w.r.t. ensuring continued consistent production of the type approved products to the required quality
- verification of that the product marking for identification and traceability to the TA Certificate is not altered.
- Witness testing of samples of couplings selected at random from stock or from the running production as described in the Type Approval Program No. 5-792.20.

END OF CERTIFICATE