DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **P-13798**

This is to certify that the
Pipe Couplings, Bite and Compression Type

with type designation(s)
SUPERLOK COMPRESSION TUBE FITTING

Manufactured by
BMT Co., Ltd.
Kyungnam, 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.**

Høvik, 2011-04-04
for **Det Norske Veritas AS**

Marianne Spæren
Head of Section

DET NORSKE VERITAS * 1864 *

DNV local office:
Pusan

This Certificate is valid until
2014-12-31

Øyvind Skåra
Surveyor

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.
If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

Product description

SUPERLOK, bite type compression tube fitting in inch and metric size.

Materials:
Stainless steel SUS316, ASTM A276 and JIS G4303

Application/Limitation

Maximum working pressure and sizes:

Tube O.D [inch]	Working pressure [psi]	Tube O.D [mm]	Working pressure [psi]
1/16	5600	3	10800
1/8	8500	4	7900
3/16	5400	6	5000
¼	4000	8	4700
5/16	4000	10	3700
3/8	3300	12	4400
½	2600	15	2180
5/8	4000	18	3800
¾	3300	20	4200
7/8	3600	22	4000
1	2400	25	4000

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.

Type Approval documentation

Manufacturer's product catalogue BMT CTF-3 (05.01.06)
Manufacturer's drawings:

Dwg No	Date	Dwg No	Date	Dwg No	Date	Dwg No	Date
SU-2	02-11-27	SU-16	03-01-13	FC 16-16N	02-07-12	SMC2-2N	02-11-27
MC16-16N	03-01-07	SFC2-2N	03-09-20	SUE-2	03-07-04	UE-16	02-02-06
UT-2	03-05-29	UT-16	02-04-19	UC-2	03-07-04	UC-16	05-05-06
R2-4	03-04-28	SR 16-16	05-03-10	PWC2-2P	05-08-11	SPWC16-16P	03-01-18
SN-2	02-03-02	SN-16	02-02-04	SFF-2, SBF-2	03-11-22	SFF-16	03-12-10

Manufacturer's test reports:
BTR-S060613-01/02/03/04/05/06 dated 2006-06-13.
BTR-S060327-01/03/ dated 2006-03-27.
DNV retention survey report dated 2011-03-23.
Product test report No.: BTR-110323-01 witnessed by DNV.

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

Certificate Retention Survey

For retention of the Type Approval, a DNV Surveyor shall perform a survey - every second year and before the expiry date of this certificate to verify that the conditions for the type approval are complied with. The Surveyor shall witness burst testing of samples (both metric and inch sizes) of couplings selected at random from stock or from the running production as a part of this survey.