



CERTIFICATE NUMBER

13-BK978542-PDA

DATE

28 February 2013

ABS TECHNICAL OFFICE

Busan Engineering Services

# CERTIFICATE OF DESIGN ASSESSMENT

This is to Certify that a representative of this Bureau did, at the request of  
**BMT CO., LTD. - YANGSAN-SI, GYEONGSANGNAM-DO**

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

PRODUCT: **Tube Fittings**

MODEL: **BU, BUE, BUT, BMC-R, BME-R, BFC, BFE, BC, BWC, BA-R, BAE**

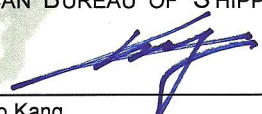
This Product Design Assessment (PDA) Certificate 13-BK978542-PDA, dated 28/Feb/2013 remains valid until 27/Feb/2018 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

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Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

AMERICAN BUREAU OF SHIPPING

  
Young Ho Kang

Engineer

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned manufacturing process without approval from ABS will result in this certificate becoming null and void. This certificate is governed by the terms and conditions as contained in ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010).

**BMT CO., LTD.**

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**Product:** Tube Fittings

**Model:** BU, BUE, BUT, BMC-R, BME-R, BFC, BFE, BC, BWC, BA-R, BAE

**Intended Service:**

Hydraulic & Pneumatic Fluids & instrument Control System

**Description:**

1. Union : BU Series (Part No.: BU-06/16/30)

- 1) Material : SS316 (Body/Nut/Sleeve)
- 2) Tube O.D (mm) : 6, 16, 30
- 3) Length (mm) : 51.0, 61.0, 72.0

2. Union Elbow : BUE Series (Part No.: BUE-06/16/30)

- 1) Material : SS316 (Body/Nut/Sleeve)
- 2) Tube O.D (mm) : 6, 16, 30
- 3) Length (mm) : 30.5, 44.5, 55.5

3. Union Tee : BUE Series (Part No.: BUT-06/16/30)

- 1) Material : SS316 (Body/Nut/Sleeve)
- 2) Tube O.D (mm) : 6, 16, 30
- 3) Length (mm) : 30.5, 44.5, 55.5

4. Male Connector : BMC-R Series (Part No.: BMC-06-02R/16-04R/30-08R)

- 1) Material : SS316 (Body/Nut/Sleeve)
- 2) Tube O.D (mm) : 6, 16, 30
- 3) Length (mm) : 43.5, 53.7, 65.4

5. Male Elbow : BME-R Series (Part No.: BME-06-02R/16-04R/30-08R)

- 1) Material : SS316 (Body/Nut/Sleeve)
- 2) Tube O.D (mm) : 6, 16, 30
- 3) Length (mm) : 33.5, 44.5, 55.5

6. Female Connector : BFC Series (Part No.: BFC-06-01R/16-04R/30-08R)

- 1) Material : SS316 (Body/Nut/Sleeve)
- 2) Tube O.D (mm) : 6, 16, 30
- 3) Length (mm) : 35.5, 51.5, 61.5

7. Female Elbow : BFE Series (Part No.: BFE-06-02R/16-04R/30-10R)

- 1) Material : SS316 (Body/Nut/Sleeve)
- 2) Tube O.D (mm) : 6, 16, 30
- 3) Length (mm) : 34.5, 45.5, 69.5

8. Cap : BC Series (Part No.: BC-06/16/30)

- 1) Material : SS316 (Body/Nut/Sleeve)
- 2) Tube O.D (mm) : 6, 16, 30
- 3) Length (mm) : 28.5, 36.5, 42.5



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**9. Welding Connector : BC Series (Part No.: BWC-06/16/30)**

- 1) Material : SS316 (Body/Nut/Sleeve)
- 2) Tube O.D (mm) : 6, 16, 30
- 3) Length (mm) : 39.5, 56.5, 69.5

**10. Adapter : BA-R Series (Part No.: BA-06-01R/16-04R/30-08R)**

- 1) Material : SS316 (Body)
- 2) Tube O.D (mm) : 6, 16, 30
- 3) Length (mm) : 32.0, 51.2, 63.9

**11. Adjustable Elbow : BAE Series (Part No.: BAE-06/16/30)**

- 1) Material : SS316 (Body/Nut/Sleeve)
- 2) Tube O.D (mm) : 6, 16, 30
- 3) Length (mm) : 31.5, 44.5, 55.5

**Ratings:**

Design Pressure (kgf/cm<sup>2</sup>)

- 1) O.D 4 - 15 (mm) : 500
- 2) O.D 16 - 22 (mm) : 400
- 3) O.D 25 - 28 (mm) : 350
- 4) O.D 30 - 38 (mm) : 250
- 5) O.D 40 - 50 (mm) : 210

**Service Restrictions:**

Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

**Comments:**

1. The tapered pipe threads are not to be used for toxic and corrosive fluid services and for all services of temperatures exceeding 495 Degree C (923 Degree F). They may be used for Classes I and II piping subject to limitations as follows;

- 1) Less than 20mm : Max Pressure Permitted 103bar
- 2) 20mm thru 25mm : Max Pressure Permitted 82.8bar
- 3) 25mm thru 50mm : Max Pressure Permitted 41.4bar
- 4) 50mm thru 80mm : Max Pressure Permitted 27.6bar
- 5) Above 80mm : Not permitted for Class I & II

2. The taper-thread joints up to 80 mm (3 in.) nominal diameter may be used for hydraulic oil system without pressure limitation for connection to equipment only, such as pumps, valves, cylinders, accumulators, gauges and hoses. When such fittings are used solely to join sections of pipe, they are to be in accordance with above item No. 1. However, hydraulic systems for the following services are to comply with above item No. 1 in all respects:

- 1) Steering gear hydraulic systems
- 2) Controllable pitch propeller hydraulic systems
- 3) Hydraulic systems associated with propulsion or propulsion control

**Notes / Drawings / Documentation:**

Tightness, Vibration, Pressure Pulsation, Burst Pressure, Pull-out, Repeated Assembly tests have been carried out by

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NK class society as indicated in following documents.

1. Test Report No. BTR-071116-01/02 dated 16 November 2007
2. Test Report No. BTR-071203-01/02/03 dated 03 December 2007
3. NK Type Approval Certificate TA12682M issued 10 December 2012

**Term of Validity:**

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**STANDARDS****ABS Rules:**

2013 Steel Vessel Rules 1-1-4/7.7, 4-6-2/5.9

**National:**

NA

**International:**

NA

**Government Authority:**

NA

**EUMED:**

NA

**Others:**

NA