



CERTIFICATE NUMBER

DATE

01-BK218882/4-PDA

19 May 2011

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  
**DK TECH CORPORATION - GIMHAE CITY**

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: **Dk-Lok Tube Fittings, Bite-Type Tube Fittings**

This Product Design Assessment (PDA) Certificate 01-BK218882/4-PDA, dated 19/May/2011 remains valid until 18/May/2016 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.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

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

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**MA Certificate No.: 11-BK1978395-X**

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**PRODUCT:**

**Tube Fittings**

**MODEL:**

**Dk-Lok Tube Fittings, Bite-Type Tube Fittings**

**Intended Service:**

Dk-Lok Tube Fittings: Hydraulic Oil, Fuel Oil (not high-pressure fuel oil injection) and Lube Oil, Compressed Air, Steam and Condensate, Fresh and Sea Water, Sanitary Systems

Bite-Type Tube Fittings: Hydraulic Oil, Compressed Air, Steam and Condensate, Fresh and Sea Water, Sanitary Systems

**Description:**

Dk-Lok Tube Fitting Models:DU(Union), DL(Union Elbow), DUR(Reducing Union), DT(Union Tee), DUB(Bulkhead Union), DMC-N(Male Connector), DMCT(Thermocouple Connector), DMC-R(Male Connector), DMC-G(Male Connector for Bonded Seal), DOM(Male Connector for Metal Seal), DMCB(Bulkhead Male Connector), DLBM(45° Male Elbow), DLM(Male Elbow), DTRM(Male Run Tee), DTBM(Male Branch Tee), DCF(Female Connector), DCG(Gauge Connector), DCBF(Bulkhead Female Connector), DLF(Female Elbow), DTRF(Female Run Tee), DTBF(Female Branch Tee), DR(Reducer), DAB(Bulkhead Adapter), DAM(Male Adapter), DAF(Female Adapter), DCP(Port Adapter), DCRP(Reducing Port Connector), DUA(AN Union), DUBA(AN Bulkhead Union), DAA( AN Adapter), DMCS(SAE Male Connector), DLS(Positionable SAE Male Elbow), DLBS(Positionable 45° SAE Male Elbow), DTRS(Positionable SAE Male Run Tee), DTBS(Positionable SAE Male Branch Tee), DCOS(O-Seal Straight Thread Connector), DCOP(O-Seal Pipe Thread Connector), DCW(Male Pipe Weld Connector), DLW(Male Pipe Weld Elbow), DCSW(Tube Socket Weld Connector), DLSW(Tube Socket Weld Elbow), DP(Plug), DC(Cap), DI(Tube Insert), DN(Nut), DFF(Front Ferrule), DFB(Back Ferrule), DFS(Ferrule Set)

Bite-Type Tube Fitting Models:BU(Straight Union), BL(Union Elbow), BT(Union Tee), BBU(Straight Bulkhead Union), BBL(Bulkhead Elbow), BLMC(Long Male Connector), BMC-R(Male Connector), BMC-G(Male Connector), BOM(Male Connector For O-ring), BLM(Male Elbow), BLLM(Long Male Elbow), BOLM(O-Seal Male Elbow), BSLM(Banjo Elbow), BBTM(Male Branch Tee), BRTM(Male Run Tee), BBFC(Bulkhead Female Connector), BFC(Female Connector), BGC(Gauge Connector), BLF(Female Elbow), BBTF(Female Branch Tee), BRTF(Female Run Tee), BJ(Jig), BC(Cap), BP(Plug), BN(Nut), BS(Sleeve), BHUM(Hose Male Union), BHUF(Hose Female Union), BHBM(Hose Bulkhead Male Union), BHBF(Hose Bulkhead Female Union), BHLM(Hose Male Elbow), BHLF(Hose Female Elbow), BHBLM(Hose Bulkhead Male Elbow), BHBLF(Hose Bulkhead Female Elbow), BCW(Welding Connector), BBUW(Welding Bulkhead Union), BA-R(Adapter), BA-G(Adapter For Copper Gasket), BR(Reducer), BLA(Positionable Elbow), BBTA(Positionable Branch Tee), BRTA(Positionable Run Tee), BAP-1(Air Purge Valve-Tube End), BAP-2(Air Purge Valve-Thread End)

**Ratings:**

## DK TECH CORPORATION

### Dk-Lok Tube Fittings:

For Material JIS H3250 C3604, Temperature Range: -20°C to 200°C, Outside Diameter (Design Pressure: Psi) - 1/8"(3400), 3/16"(3400), 1/4"(3500), 5/16"(2700), 3/8"(2200), 1/2"(2200), 5/8"(1900), 3/4"(1800), 7/8"(1500), 1"(1500), 3mm(4900), 4mm(4610), 6mm(4060), 8mm(2990), 10mm(2320), 12mm(2500), 16mm(2190), 18mm(2160), 20mm(1920), 22mm(1730), 25mm(1670).

For Material JIS G4303 SUS316, Temperature Range: -20°C to 300°C, Outside Diameter (Design Pressure: Psi) - 1/8"(10900), 3/16"(10200), 1/4"(10200), 5/16"(8000), 3/8"(6500), 1/2"(6200), 5/8"(6000), 3/4"(5800), 7/8"(4700), 1"(4700), 1-1/4"(4900), 1-1/2"(4900), 2"(3600), 3mm(15300), 4mm(14400), 6mm(12700), 8mm(9300), 10mm(7300), 12mm(11100), 16mm(6800), 18mm(6700), 20mm(6000), 22mm(5400), 25mm(5200).

### Bite-Type Tube Fitting Models:

For Material JIS H3250 C3604, Temperature Range: -20°C to 200°C, Outside Diameter (Design Pressure: Kgf/cm<sup>2</sup>) - 1/8"(250), 1/4"(250), 3/8"(210), 1/2"(210), 3/4"(170), 1"(150), 1-1/4"(120), 1-1/2"(120), 6mm(250), 8mm(250), 10mm(250), 12mm(250), 16mm(210), 18mm(210), 20mm(210), 22mm(210), 25mm(170), 28mm(170), 30mm(150), 32mm(150), 35mm(150), 38mm(150), 40mm(120), 42mm(120).

For Material JIS G4051 S45C, Temperature Range: -10°C to 300°C, Outside Diameter (Design Pressure: kgf/cm<sup>2</sup>) - 1/8"(500), 1/4"(500), 3/8"(400), 1/2"(400), 3/4"(350), 1"(250), 1-1/4"(210), 1-1/2"(210), 6mm(500), 8mm(500), 10mm(500), 12mm(500), 15mm(500), 16mm(400), 18mm(400), 20mm(400), 22mm(400), 25mm(350), 28mm(350), 30mm(250), 32mm(250), 35mm(250), 38mm(250), 40mm(210), 42mm(210).

For Material JIS G4303 SUS316, Temperature Range: -20°C to 300°C, Outside Diameter (Design Pressure: kgf/cm<sup>2</sup>) - 1/8"(500), 1/4"(500), 3/8"(400), 1/2"(400), 3/4"(350), 1"(250), 1-1/4"(210), 1-1/2"(210), 6mm(500), 8mm(500), 10mm(500), 12mm(500), 15mm(500), 16mm(400), 18mm(400), 20mm(400), 22mm(400), 25mm(350), 28mm(350), 30mm(250), 32mm(250), 35mm(250), 38mm(250), 40mm(210), 42mm(210).

### Service Restriction:

Unit Certification is not required for this product.

#### Dk-Lok Tube Fittings:

1. When Elastomer seal is used in the fitting, care must be taken for allowable working temperature. See working temperature below.

Elastomer seal material/Working Temperature

NBR (e.g. Perbunan)/-40 deg.C to 110 deg.C

FPM (e.g. Viton)/-20 deg.C to 200 deg.C

PTFE (e.g. Teflon)/-60 deg.C to 240 deg.C

2. Acceptable compression fittings may be used for flammable fluids when the tube is steel, copper-nickel or nickel-copper alloy only.

#### Bite-Type Tube Fittings:

1. When the bite type tube fittings are used for hydraulic systems, the following conditions are to be complied with in accordance with JIS B2351.

¼ Max. Allowable Temperature: 120 deg.C

¼ Max. Allowable Working Pressure: 250kgf/cm<sup>2</sup>.

¼ Applicable Tube Outside Diameter: 4mm, 6mm, 8mm, 10mm, 12mm, 16mm, 20mm, 25mm, 30mm, 32mm, 38mm.

¼ Use of Specified Material in item 4 of JIS B2351

2. When seal is used in the fitting, compare allowable working temperature between seal and fitting material and apply the lowest temperature. See working temperature below.

Elastomer seal material/Working Temperature

NBR (e.g. Perbunan)/-35 deg.C to 100 deg.C

FPM (e.g. Viton)/-25 deg.C to 200 deg.C

PTFE (e.g. Teflon)/-60 deg.C to 240 deg.C

3. Acceptable bite type fittings may be used for flammable fluids when the tube is steel, copper-nickel or nickel-copper alloy only.

### Comments:

## **DK TECH CORPORATION**

Not Applicable

### **Notes / Drawings / Documentation:**

This Product Design Assessment (PDA) is valid only for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

### **Term of Validity:**

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## **STANDARDS**

### **ABS Rules:**

2011 Steel Vessel Rules 1-1-4/7.7, 4-6-2/5.9, 4-6-2/5.15, 4-6-2/5.17 & 4-6-7/3.5.1

### **National:**

JIS B2351

### **International:**

IACS UR P2. 11.5.1 and P2.11.5.5

### **Government Authority:**

NA

### **EUMED:**

NA

### **Others:**

NA