

## Type Approval Certificate Extension

This is to certify that Certificate No. 01/10047(E1) for the undernoted products is extended and renumbered as shown.

This certificate is issued to:

**PRODUCER** DK Tech Corporation

**PLACE OF PRODUCTION** 826, Naesam-ri, Juchon-myeon, Gimhae-city, Gyeongsangnam-do, 621-841 Korea

**DESCRIPTION** Stainless steel double ferrule compression type tube fittings, inch and metric sizes

**TYPE** DK-LOK Tube Fitting

**APPLICATION** High pressure tube connections for use in marine, offshore and industrial piping systems with hydraulic system fluids, fuel oil, lubricating oil, fresh water, salt water, sanitary, gas, steam and condensate.

**DESIGN CODE** Lloyd's Register's Rules and Regulations for the Classification of Ships, Part 5, Chapter 12 - July 2010  
JIS B 2351 - 1990: 25 MPa bite type tube fittings for hydraulic use

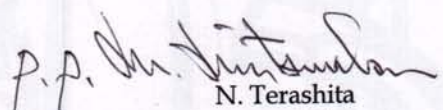
<b>RATINGS</b>	<b>Imperial Tubing:-</b>	
	<u>Tube O.D. (inch)</u>	<u>Nominal pressure ratings (psi)</u>
	1/8"	8,500 to 10,900
	3/16"	5,400 to 10,200
	1/4"	4,000 to 10,200
	5/16"	4,000 to 8,000
	3/8"	3,300 to 6,500
	1/2"	2,400 to 6,200
	5/8"	2,900 to 6,000
	3/4"	2,400 to 5,800

**Certificate No.** 01/10047(E2)

**Issue Date** 28 June 2011

**Expiry Date** 27 June 2016

**Sheet** 1 of 3

  
 N. Terashita  
 Yokohama Design Support Office  
 Lloyd's Register

Lloyd's Register, registered office:  
71 Fenchurch Street, London EC3M 4BS

**RATING**  
(Continued)

7/8"	2,000 to 4,700
1"	2,400 to 4,700
1-1/4"	2,400 to 4,900
1-1/2"	2,400 to 4,900
2"	2,000 to 3,600

**Metric Tubing:-**

<u>Tube O.D.(mm)</u>	<u>Nominal pressure ratings (psi)</u>
3	10,800 to 15,300
4	7,900 to 14,400
6	5,000 to 12,700
8	4,700 to 9,300
10	3,700 to 7,300
12	3,000 to 7,300
16	2,500 to 6,800
18	2,800 to 6,700
20	2,500 to 6,000
22	2,300 to 5,400
25	2,000 to 5,200
28	2,600 to 4,800
32	2,300 to 4,800
38	2,000 to 4,500

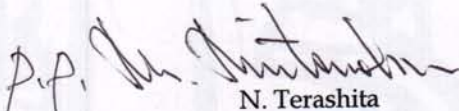
Pressure-temperature ratings : see the producer's catalogue

**OTHER  
CONDITIONS**

- 1) The fittings are to be installed in accordance with the manufacturer's instructions.
- 2) Attention is drawn to Section 3.6 of IMO MSC/Circular.851 – Guidelines on Engine-Room Oil Fuel Systems which describes that compression couplings require careful attention to tightening procedures and torques to avoid leaks or damage to the pipe when subjected to overtightening and they should not be used in the fuel supply line of the (oil engine) injection pumps and spill system.
- 3) The fittings are to be used for permanent pipe connection only.

*"This Certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register of any modification or changes to the equipment in order to obtain a valid certificate."*

Certificate No. 01/10047(E2)  
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Sheet 2 of 3

  
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Yokohama Design Support Office  
Lloyd's Register

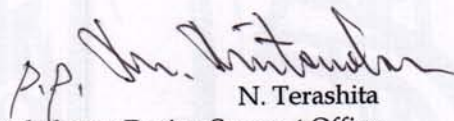
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*The attached Design Appraisal Document No. 01/10047(E2) and its supplementary Type Approval Terms and Conditions form part of this Certificate.*

All other details remain as the previous Certificate No. 01/10047(E1) to which this extension should be attached.

Certificate No.	01/10047(E2)
Issue Date	28 June 2011
Expiry Date	27 June 2016
Sheet	3 of 3

  
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# Marine Design Appraisal Document

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Date  
28 June 2011

Quote this reference on all future communications  
YDS/T/NTE/114725A (M01-20)

**LR TYPE APPROVAL SYSTEM, 2002**  
Issued to: DK TECH CORPORATION  
for: COMPRESSION TYPE TUBE FITTINGS : DK-LOK TUBE FITTING  
TYPE APPROVAL CERTIFICATE No. 01/10047(E2)

The undernoted documents have been reviewed for compliance with the requirements of the LR Type Approval System, 2002 and this Design Appraisal Document forms part of the Certificate.

### APPROVAL DOCUMENTATION

Request for Marine Services Form 2502 & Request for Quotation Form 6606 dated 22 June 2011

### TEST REPORTS

Busan Port Inspection and Surveillance of Production Facilities report dated 22 June 2011

### Supplementary Type Approval Terms and Conditions

*Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.*

*Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.*

*Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.*

*Lloyd's Register reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the LR Type Approval System Procedure.*

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FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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**Part 1A**  
**Subject: Pipe Fittings**  
**Product: Compression Fittings (Part 1A)**

Producer/Licence No.	Type	Description of Product	Application	Cert. No.
DK Tech Corporation 826, Naesam-ri, Juchon-myeon, Gimhae-city, Gyeongsangnam-do, 621-841 Korea	DK-LOK tube fitting	<p>Stainless steel double ferrule compression type tube fittings, inch and metric sizes</p> <p>Imperial tubing:-  <u>Tube O.D. (inch)</u>            1/8"            3/16"            1/4"            5/16"            3/8"            1/2"            5/8"            3/4"            7/8"            1"            1-1/4"            1-1/2"            2"</p> <p>Metric tubing:-  <u>Tube O.D. (inch)</u>            3            4            6            8            10            12            16            18            20            22            25            28            32            38</p> <p>Nominal Pressure Ratings (psi)            8,500 to 10,900            5,400 to 10,200            4,000 to 10,200            4,000 to 8,000            3,300 to 6,500            2,400 to 6,200            2,900 to 6,000            2,400 to 5,800            2,000 to 4,700            2,400 to 4,700            2,400 to 4,900            2,400 to 4,900            2,000 to 3,600</p> <p>Nominal Pressure Ratings (psi)            10,800 to 15,300            7,900 to 14,400            5,000 to 12,700            4,700 to 9,300            3,700 to 7,300            3,000 to 7,300            2,500 to 6,800            2,800 to 6,700            2,500 to 6,000            2,300 to 5,400            2,000 to 5,200            2,600 to 4,800            2,300 to 4,800            2,000 to 4,500</p> <p>Pressure-temperature ratings : see the producer's catalogue</p>	High pressure tube connections for use in marine, offshore and industrial piping systems with hydraulic system fluids, fuel oil, lubricating oil, fresh water, salt water, sanitary, gas, steam and condensate.	Expires: 27 June 2016. See certificate for other conditions.
		