



# DET NORSKE VERITAS

## TYPE APPROVAL CERTIFICATE

**CERTIFICATE NO. P-13097**  
This Certificate consists of 3 pages

*This is to certify that the*  
**Deck/Bulkhead Penetration**  
*with type designation(s)*  
**LINK-SEAL**

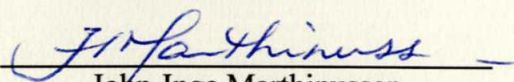
*Manufactured by*  
**Pipeline Seal and Insulator Inc.**  
Houston, United States

*is found to comply with*  
Det Norske Veritas' Rules for Classification of Ships

*Application*  
Pipe penetrations for use above freeboard deck. Not in fire divisions.

Temp. range:	See certificate
Max. work. press.:	See certificate
Sizes:	See certificate

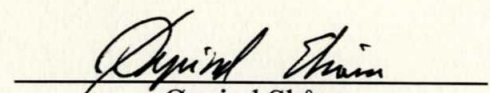
*Place and date*  
Høvik, 2009-03-26  
for DET NORSKE VERITAS AS

  
John-Inge Marthinussen  
Head of Section



Local Office  
DNV Houston

*This Certificate is valid until*  
2012-12-31

  
Øyvind Skåra  
Surveyor

**Notice: 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.



Cert. No.: P-13097  
File No.: 792.80  
Job No.: 262.1-007369-1

## Product description

### LINK SEAL TYPE DIMENSIONS

LINK SEAL TYPE	Pipe external diameter mm (from - to)
LS - 200	21-324
LS - 265	50-406
LS - 275	0-90
LS - 300	45-250
LS - 310	60-406
LS - 315	37-315
LS - 325	133-711
LS - 340	14-324
LS - 360	40-406
LS - 400	140-1220
LS - 410	60-324
LS - 425	144-1220
LS - 440	100-1220
LS - 475	60-1220
LS - 500	100-1220
LS - 525	133-1220
LS - 575	130-1220
LS - 600	406-3048
LS - 615	219-3000
LS - 625	133-2000
LS - 650	133-1220

Type O: Nitrile rubber link. Nylon pressure plates with carbon steel <sup>1</sup>hardware

Type C: EPDM rubber link. Nylon pressure plates with carbon steel <sup>1</sup>hardware

Type L: EPDM low durometer rubber link, nylon pressure plates with carbon steel <sup>1</sup>hardware

<sup>1</sup>316 Stainless steel bolts can be added to any of the types listed above.

## Application/Limitation

### Temperature:

Type O : - 40°C to + 99°C

Type C : - 40°C to + 120°C

Type L: - 40°C to + 120°C

### Nominal working pressure:

Type O: 4.135 bar

Type C: 4.135 bar

Type L: 4.135 bar

*Olyha*



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**Resistance of LINK SEAL materials:**

**Type O:**

Fresh- and sea water, oils, fuel and solvents (gasoline, motor oil, kerosene, methane, jet fuel and hydraulic fluid) and air/gas.

**Type C and L (with galv. carbon steel bolts):**

Fresh- and sea water and air/gases, direct ground burial and atmospheric conditions.  
Provides electrical isolation where cathodic protection is required.

The pipe penetrations to be fitted according to the manufacturer's instructions.

**Type Approval documentation**

The Manufactures' documentations, drawings, data sheets and Test Report from Technischer Überwachungs- Verein Südwestdeutschland e.V. Fachbereich Dampf-, und Druchtechnik, Certificate number TÜV - SW 007 - 94 dated Mannheim, 30.05.1994

Drawing: SE-265-XX dated 2005.22.02, LS-310-XX dated 2005.28.01, LS-440, LS-625, LS-650.

Manufacturer's catalogue 2006 edition.  
DNV retention survey report dated 2008.11.18

**Tests carried out**

TÜV test report dated 30.05.1994, pressure/leakage test.

**Marking of product**

Thunderline and/P.S.I.  
"LS size no."

**Certificate retention survey**

The manufacturer has to apply in writing for renewal of this certificate. For retention and renewal of the type approval, a DNV Surveyor shall perform a survey before the expiry date to verify that the conditions for the type approval are complied with.

END OF CERTIFICATE