



# DET NORSKE VERITAS

## TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. P-13706

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

with type designation(s)  
**Gyrolok, twin ferrule design**

Manufactured by  
**Hoke Inc.**  
**Spartanburg SC, United States**

is found to comply with  
Det Norske Veritas' Rules for Classification of Ships  
Det Norske Veritas' Standards for Certification 2.9 No. 5-792.20

Application


May be used in systems listed in DNV rules for classification of ships Part 4 Chapter 6 Sec. 6 Table E3 and Table E4.

|                      |                                   |
|----------------------|-----------------------------------|
| Temperature range:   | See certificate.                  |
| Max. working press.: | 398 to 484 bar (See certificate.) |
| Sizes:               | DN10 through DN20                 |
| Tube wall thickness: | See table within                  |


Høvik, 2011-02-28  
for Det Norske Veritas AS



This Certificate is valid until  
**2015-06-30**

  
Marianne Spæren  
Head of Section

DNV local office:  
Norfolk

  
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.



Certificate No.: P-13706  
File No.: 792.21  
Job Id.: 262.1-011076-1

## Product description

Pipe couplings, cutting ring type with double ferrule.

Material: Tube is 6Mo. Couplings are both AISI 316SS and 6Mo

Tapered connecting threads type: NPT, ISO 7/1, BS 21, JIS B0203 and DIN 2999

Design of couplings are identical to P-13648 (expiration date 12-31-14)

### Types and design:

|                                |     |                                      |       |
|--------------------------------|-----|--------------------------------------|-------|
| <b>Standard Fittings</b>       |     | Pre-setting Tool                     | PST   |
| Male Conn.                     | CM  | <b>Fittings with O-ring Seals</b>    |       |
| Male Thermocouple Conn.        | CMT | O-ring Male Conn.                    | COM   |
| Female Conn.                   | CF  | O-ring Straight Conn.                | COS   |
| Union                          | U   | O-ring Male Adapter                  | AOM   |
| Red. Union                     | RU  | O-ring Straight Adapter              | AOS   |
| Reducer                        | R   | <b>Fittings with Weld Ends</b>       |       |
| Male Adapter                   | AM  | Socket Weld Conn.                    | CW    |
| Female Adapter                 | AF  | Butt Weld Conn.                      | CBW   |
| Port Conn. and Red. Port Conn. | PC  | Socket Weld Elbow                    | LW    |
| Bulkhead Adapter               | BA  | Butt Weld Elbow                      | LBW   |
| Male Bulkhead Conn.            | BCM | <b>Fittings with AN Ends</b>         |       |
| Female Bulkhead Conn.          | BCF | AN Union                             | UAN   |
| Bulkhead Union                 | BU  | Bulkhead AN Union                    | BUAN  |
| Male Elbow                     | LM  | O-ring AN Union                      | UANO  |
| Female Elbow                   | LF  | AN Adapter                           | AAN   |
| Union Elbow                    | LU  | <b>Fittings with BSP/ISO Threads</b> |       |
| Male Run Tee                   | TMT | Male Conn. with RP End               | CM/RP |
| Male Branch Tee                | TTM | Male Conn. with RS End               | CM/RS |
| Female Run Tee                 | TFT | Male Conn. with RT End               | CM/RT |
| Female Branch Tee              | TTF | Female Conn. with RG End             | CF/RG |
| Union Tee                      | TTT | Female Conn. with RT End             | CF/RT |
| Heat Exchanger Tee             | XT  | Male Adapter with RS End             | AM/RS |
| Union Cross                    | C   | Male Adapter with RT End             | AM/RT |
| Cap                            | CP  | Female Adapter with RG End           | AF/RG |
| Plug                           | P   | Female Adapter with RT End           | AF/RT |
| Lapped Flange Conn.            | CLF | Male Elbow with RT End               | LM/RT |

## Application/Limitation

Couplings with studded ends with threads where packing is performed on threads is not accepted. When a packing ring of artificial material is used, the couplings are not to be used in systems where fire resistance is required according to DNV rules Pt. 4 Ch. 6 Sec. 6 Table E3.

The approval is only valid when the couplings are assembled with tubing of correct temper and tolerances as recommended by the manufacturer.

These couplings are not to be used on tubes in cold fabricated (hard temper) conditions.

Couplings are to be lubricated with FLUORLUBE T80 or equivalent according to manufacturer's instructions.

The wall thickness and material of the tubes to be in accordance with the current Rules of Det Norske Veritas.

| Coupling material | Tube material | Diameter | Wall thickness | MAWP     |
|-------------------|---------------|----------|----------------|----------|
| 316               | 6Mo           | 20mm     | 2.5mm          | 398 barg |
| 316               | 6Mo           | 20mm     | 2.0mm          | 312 barg |
| 316               | 6Mo           | 12mm     | 2.0mm          | 547 barg |
| 316               | 6Mo           | 10mm     | 1.5mm          | 484 barg |
| 6Mo               | 6Mo           | 20mm     | 2.0mm          | 398 barg |
| 6Mo               | 6Mo           | 12mm     | 2.0mm          | 547 barg |
| 6Mo               | 6Mo           | 10mm     | 1.5mm          | 484 barg |





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For couplings at elevated temperatures, the maximum working pressure has to be reduced with the following factors:

| Temp.            | 20°C | 50°C | 100°C | 150°C | 200°C | 250°C | 300°C | 350°C | 400°C | 426°C |
|------------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| Reduction factor | 1    | 0,95 | 0,85  | 0,77  | 0,71  | 0,67  | 0,63  | 0,6   | 0,58  | 0,57  |

### Type Approval documentation

Manufacturer's catalogues Hoke Gyroluk®.

DNV report 54102165 dated 2010-12-07.

HOKE document ER-744.

Qualification test report from American environments Company Inc. STR-55610-1 dated 2011-01-13.

Manufacturer's test reports dated 9-1-10, 9-2-10, 9/22/2010, 11/4/10, 10/21/10, 8/31/10, 9/21/10, 9/30/10, 11/11/10, 8-12-2010, 8-13-2010, 8/24/10, 8-30-10, 8-16-2010, 9/10/10, 8-6-2010, 8/27, 8-2-2010, 10/20/10.

### Tests carried out

Assembly, leakage, repeated assembly, burst, pull-out, vibration and pulsation test

### Marking of product

For traceability to this type approval, each coupling is at least to be marked with:

- Manufacturer's trade mark:
- Type designation
- Size
- Material

### 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 and to witness burst testing of samples of couplings selected at random from stock or from the running production.