

# TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Pipe Couplings**

with type designation(s)  
**STRAUB-GRIP, STRAUB-GRIP FF (FIRE FENCE)**

Issued to

**Straub Werke AG Rohrverbindungen**  
**Wangs, SG, Switzerland**

is found to comply with

**DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems**  
**DNV GL class programme DNVGL-CP-0185 – Type approval – Mechanical joints**

**Application :**

**Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**

**Temperature range:** Refer to certificate.

**Max. working press.:** 16bar

**Sizes:** Pipe O.D. 26.9 mm up to 168.3 mm

Issued at **Hamburg** on **2018-10-15**

This Certificate is valid until **2023-10-14**.

DNV GL local station: **Augsburg**

for **DNV GL**

Approval Engineer: **Hagen Markus**

.....  
**Olaf Drews**  
**Head of Section**

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.



## Product description

Slip-on joint grip type pipe coupling with NBR, EPDM, FKM/FPM gaskets.

Fire resistant type by application of additional fire sleeve of type FIRE FENCE (FF).

## Overview

| Component                               | Materials <sup>1</sup><br>W5 - GRIP L | Sizes<br>O.D. pipes <sup>3</sup>                                     | PN <sup>2</sup> |
|-----------------------------------------|---------------------------------------|----------------------------------------------------------------------|-----------------|
| Casing                                  | AISI 316Ti / AISI 316L                | 26.9, 30,33.7,38,42.4,                                               | 16              |
| Bolts                                   | AISI 316L                             | 44.5,48.3, 54, 57, 60.3,                                             |                 |
| U - Bars                                | AISI 316Ti                            | 66.6, 70, 73, 76.1, 79.5,                                            |                 |
| Anchoring rings                         | AISI 301                              | 84, 88.9, 100.6,                                                     |                 |
| Strip insert (optional)                 | AISI 316L / HDPE / PVDF               | 101.6,104, 104.8,                                                    |                 |
| Sealing sleeve                          | NBR, EPDM, FKM/FPM                    | 108,114.3, 127, 129,<br>130.2, 133, 139.7, 141.3,<br>154, 159, 168.3 |                 |
| Fire protection cover – FIRE FENCE (FF) |                                       |                                                                      |                 |
| Intumescent fire protection seal        | PROMASEAL®-PL                         | SAFETY INFORMATION, 2014-01-30                                       |                 |
| Metallic casing                         | Stainless steel                       | STRAUB-GRIP-FIRE FENCE data sheets, 2018                             |                 |

### Notes

<sup>1</sup> Material combination according to "STRAUB Manual 05/2018"

<sup>2</sup> PN 20 for Offshore applications

<sup>3</sup> Clamping range of coupling refer to "STRAUB Manual 05/18"

## Temperature range<sup>1</sup>

| Material | Temperature range  |
|----------|--------------------|
| NBR      | -20°C up to +80°C  |
| FPM, FKM | -20°C up to +180°C |
| EPDM     | -20°C up to +100°C |

### Notes

<sup>1</sup> According to "STRAUB Manual 05/2018"

## Marking of product

### Pipe coupling / Fire sleeve

Each pipe coupling shall bear legible and durable marking on the body or on a plate fixed securely to the body. Scope of marking shall be at least as follows:

| Scope               | Example                      |
|---------------------|------------------------------|
| Manufacturer's mark | " <i>straub</i> "            |
| Coupling type       | "GRIP"<br>"GRIP FF"          |
| Pipe O.D.           | 88.9mm / 3.5inch             |
| PN                  | 16, 232psi                   |
| Gasket material     | NBR                          |
| Materials           | W5                           |
| Art. No.            | G20650<br>pull-out-resistant |
| Ser.-No.            | 155517111018                 |
| Torque of screws    | 20Nm                         |
| Gap between pipes   | 5 – 10mm                     |

## Application/Limitation

The STRAUB-GRIP pipe couplings are type approved for pipe class II and III piping systems. The pipe couplings are not approved in piping systems with impulse pressure load other than water hammer, e.g. pressure lines of hydraulic piping systems.

For selection of the pipe couplings the table below and "Limitations" stated on page 4 are to be observed.

**Table - Approved applications**

| <b>Piping systems</b>                                                     | <b>Notes</b> |
|---------------------------------------------------------------------------|--------------|
| <b><i>Flammable fluids (flash point ≤ 60 °C)</i></b>                      |              |
| Cargo oil lines                                                           | 4)           |
| Crude oil washing lines                                                   | 4)           |
| Vent lines                                                                | 3)           |
| <b><i>Inert gas</i></b>                                                   |              |
| Water seal effluent lines                                                 | 5)           |
| Scrubber effluent lines                                                   | 5)           |
| Main lines                                                                | 2), 4)       |
| Distribution lines                                                        | 4)           |
| <b><i>Flammable fluids (flash point &gt; 60 °C)</i></b>                   |              |
| Cargo oil lines                                                           | 4)           |
| Fuel oil lines                                                            | 2), 3)       |
| Lubricating oil lines                                                     | 2), 3)       |
| Hydraulic oil lines                                                       | 2), 3)       |
| Thermal oil lines                                                         | 2), 3)       |
| <b><i>Sea water</i></b>                                                   |              |
| Bilge lines                                                               | 1)           |
| Water filled fire extinguishing systems (e.g. sprinkler)                  | 3)           |
| Non-water filled fire extinguishing systems (e.g. foam, drencher systems) | 3)           |
| Fire main (not permanently filled)                                        | 3)           |
| Ballast systems                                                           | 1)           |
| Cooling water systems                                                     | 1)           |
| Tank cleaning services                                                    | 5)           |
| Non-essential systems                                                     | 5)           |
| <b><i>Fresh water</i></b>                                                 |              |
| Cooling water systems                                                     | 1)           |
| Condensate return systems                                                 | 1)           |
| Non-essential piping systems                                              | 5)           |
| <b><i>Sanitary/drains/scuppers</i></b>                                    |              |
| Deck drains (internal)                                                    | 6)           |
| Sanitary drains                                                           | 5)           |
| <b><i>Sounding/vent</i></b>                                               |              |
| Water tanks/dry spaces                                                    | 5)           |
| Oil tanks (flash point > 60 °C)                                           | 2), 3)       |
| <b><i>Miscellaneous</i></b>                                               |              |
| Service air piping systems (non-essential)                                | 5)           |

## Notes - Fire resistance

For applications where "fire resistance types" are required, the pipe coupling casing is to be provided with additional fire sleeve of type Fire Fence (FF).

- 1) Inside machinery spaces of category A - only approved fire resistant types.
- 2) Not inside machinery spaces of category A or accommodation spaces. May be accepted in other machinery spaces provided the joints are located in easily visible and accessible positions.
- 3) Approved fire resistant types except in cases where such mechanical joints are installed on exposed open decks, as defined in SOLAS II-2/Reg. 9.2.3.3.2.2(10) and not used for fuel oil lines.
- 4) Only in pump rooms and open decks - only approved fire resistant types.
- 5) Non-fire resistance types are approved.

## Notes - General

- 6) Only above bulkhead deck of passenger ships and freeboard deck of cargo ships.

Job Id: **262.1-028386-1**  
Certificate No: **TAP00001JE**

### **Limitations**

Slip-on joints are in general not approved for the following applications:

- bilge lines inside ballast and fuel tanks.
- seawater and ballast lines including air and overflow pipes inside cargo holds and fuel tanks.
- fuel and oil lines including overflow pipes inside cargo holds and ballast tanks.
- scuppers and discharge (overboard)
- starting, control air and CO2 systems.
- piping sections directly connected to sea openings or tanks containing flammable liquids which in the event of damage could cause fire or flooding.
- systems containing oxygen (more than 25% by volume).

Installation of pipe couplings inside tanks is permitted in case the pipes and tanks contain a medium of the same nature.

### **Installation**

For correct mounting and installation of the couplings the "STRAUB Manual", Section Installation Instructions is to be observed.

### **Type Approval documentation**

### **Tests carried out**

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### **Periodical assessment**

For retention of the type approval certificate periodical assessments shall be carried out at production places by DNVGL surveyor.  
The objective of the periodical assessment is to verify that the design and production conditions for the type approval have not been altered.

Main scope of the assessment:

- verification of the production and quality control system
- review of quality control documentation of recent deliveries
- review of drawings in production to verify any design changes which may have an impact on data specified in the type approval certificate, performance and range of application
- verification of the product marking

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

### **End of certificate**