

TYPE APPROVAL CERTIFICATE

Certificate No:
TAP00000VT
Revision No:
1

This is to certify:

That the Pipe Couplings

with type designation(s)
METAL-GRIP

Issued to

Straub Werke AG
Wangs, SG, Switzerland

is found to comply with

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

Application :

Fire resistant type in combination with protection cover Fire Fence (FF). Fire tested at "wet" conditions.
Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.

Temperature range: -30°C up to +100°C
Max. working press.: up to 16 bar
Sizes: Pipes O.D. 30.0 mm up to 406.4 mm

Issued at **Hamburg** on **2022-06-22**

for **DNV**

This Certificate is valid until **2027-06-21**.

DNV local station: **Augsburg**

Approval Engineer: **Hagen Markus**

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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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

Slip-on joint grip type coupling with NBR/ EPDM sealing sleeves.

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

Reference: "STRAUB Manual".

Materials – Pipe coupling

Component	Material combination		
	W1	W2	W5
Casing	AISI A738, hot-dip galvanised	AISI 316L	AISI 316L
Bolts	AISI 4135	AISI 4135	
Round bars	AISI 12L14, galvanised	AISI 12L14, galvanised	
Anchoring rings	AISI 301	AISI 301	AISI 301
Strip insert (optional)	AISI 316L / PVDF	AISI 316L / PVDF	
Sealing sleeve	NBR, EPDM, FKM, FPM		

Materials - Fire protection cover - Fire Fence

Type	According to specification
Fire Fence (FF)	7.1.2008

Temperature range¹

Sealing sleeve material	Service temperature	Size range
NBR	-20°C up to +80°C	All sizes
FPM, FKM	-20°C up to +180°C	O.D. refer to "STRAUB Manual"
EPDM	-30°C up to +100°C	O.D. 30.0mm up to 219.1mm
	-20°C up to +100°C	O.D. 244.5mm up to 406.4mm

Notes

¹ Refer to manufacturer product catalogue

Overview sizes and nominal pressure PN

Pipe O.D. ²	PN ¹	Material combination
30.0, 33.7, 38, 42.4, 44.5, 48.3, 54, 57, 60.3	16	W2, W5
63.5, 76.1, 84, 88.9, 104, 108, 114.3, 129, 133, 139.7		
154, 159, 168.3, 219.1		
244.5	14	W1
267, 273	12	
323.9	10	
355.6, 406.4	8	

Notes

¹ PN 20 for Offshore application and size range 30.0mm up to 219.1mm

² Clamping range of coupling refer to "STRAUB Manual"

Application/Limitation

The slip-on joint grip type coupling of type METAL-GRIP is type approved for pipe class II and III piping systems as listed in the table below.

Not approved in piping systems with impulse pressure load other than water hammer, e.g. pressure lines of hydraulic piping systems.

Table - Approved applications

Piping systems		Notes
Flammable fluids (flash point ≤ 60 °C)		
1	Cargo oil lines	4)
2	Crude oil washing lines	4)
3	Vent lines	3)
Inert gas		
4	Water seal effluent lines	5)
5	Scrubber effluent lines	5)
6	Main lines	2), 4)
7	Distribution lines	4)
Flammable fluids (flash point > 60 °C)		
8	Cargo oil lines	4)
9	Fuel oil lines	2), 3)
10	Lubricating oil lines	2), 3)
11	Hydraulic oil lines	2), 3)
12	Thermal oil lines	2), 3)
Sea water		
13	Bilge lines	1)
14	Water filled fire extinguishing systems (e.g. sprinkler)	3)
15	Non-water filled fire extinguishing systems (e.g. foam, drencher systems)	3)
16	Fire main (not permanently filled)	3)
17	Ballast systems	1)
18	Cooling water systems	1)
19	Tank cleaning services	5)
20	Non-essential systems	5)
Fresh water		
21	Cooling water systems	1)
22	Condensate return systems	1)
23	Non-essential piping systems	5)
Sanitary/drains/scuppers		
24	Deck drains (internal)	6)
25	Sanitary drains	5)
Sounding/vent		
27	Water tanks/dry spaces	5)
28	Oil tanks (flash point > 60 °C)	2), 3)
Miscellaneous		
30	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). Fire resistance tests carried out at "wet" condition.

- 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.

Limitations

Pipe couplings (Slip-on joints) are in general not approved for the following installation locations and applications::

- pipe lines inside cargo holds, tanks and other spaces which are not easily accessible
- scuppers and discharge (overboard)
- starting, control air and CO2 systems
- systems containing oxygen (more than 25% by volume)

Reference DNV Pt.4 Ch.6 Section 9 – 5.2 Pipe couplings other than flanges, CP-0185.

Slip-on joints inside tanks are permitted only if the pipes and tanks contain a medium of the same nature.

The selection of the pipe couplings for the corresponding application and the right installation are to be in accordance with the instructions in the "STRAUB Manual".

Type Approval documentation

TAP00000VT, Rev.1

Test reports

Burst pressure test report dated 18.05.2022-Test scope METAL-GRIP size 60,3, 114,3, 168,3

Miscellaneous

- DNV Assessment report of production at Straub Werke Wangs, 2022-06-03
- STRAUB Manual, Version 18 °04

Previous certificates

TAP00000VT

- Test Report Z1 080611e, Z960918-e, Z2 030520-e, Z1 080429-e
- Fire endurance test reports 81114/35-08, 65-08, 64-08, 41-08 issued by WTD71 Kiel, 2008
- Data sheets: D/115511A02/03 AT, D/115100F01/01AT
- ISO 9001:2008 Certificate
- Documents filed in connection with legacy GL TAC 78 716-79HH and DNV P-14278

Tests carried out

DNV CP-0185

Tightness test, Repeated assembly test, Burst pressure test, Pull-out test, Vibration (endurance) test, Vacuum test, Fire resistance test (wet condition).

Marking of product

Pipe coupling and Fire sleeve

Each pipe coupling and fire sleeve 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	straub
Type	METAL-GRIP
Size in mm / inch	114,3 / 4
PN	16
Gasket material	NBR
Casing material	W5

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment to verify that the conditions for the Type Approval are complied with. Refer to the Class Programme DNV-CP-0338, Sec.4.

To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>

End of certificate