

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Pipe Couplings, Bite and Compression Type**with type designation(s)
DH Ferrule Fittings made of carbon and stainless steel

Issued to

Dalian Huahui Hydraulic Pipe Fittings Co., Ltd.
Dalian, 070, China

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:** up to 200°C
Max. working press.: up to 40MPa
Sizes: 6mm up to 42mmIssued at **Hamburg** on **2019-06-25**This Certificate is valid until **2024-06-24**.for **DNV GL**DNV GL local station: **Dalian**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.



Job Id: **262.1-031050-1**
Certificate No: **TAP00001UR**

Product description

24° Tube Fitting system with double edge cutting ring , series L and S.
Dimensions of the fittings according to ISO 84434-1 / DIN2353.

Overview

Component	Material designation	Material grade	Reference
Double edge cutting rings	Carbon Steel	20#, 35#, Q235B	20#, 35#: GB/T699-2008; Q235B: GB/T3274-2007
	Stainless steel	304, 304L, 316, 316L	GB/T 14976-2017
	Copper	QA19-2, HMn58-2, H62	QA19-2: GB/T 5231-2016 HMn58-2, H62: 4423-2007
Union nut	Carbon Steel	#20	20#: GB/T699-2008.
	Stainless steel	SUS304, SUS316	GB/T 1220-201
Tube	Carbon Steel	20#, 35#, Q235B	20#, 35#: GB/T699-2008; Q235B: GB/T3274-2007
	Stainless steel	304, 304L, 316, 316L	GB/T 14976-2017
	Copper	QA19-2, HMn58-2, H62	QA19-2: GB/T 5231-2016 HMn58-2, H62: 4423-2007

Notes

¹ Minimum tube wall thickness acc. to DNV GL Ship Rules Pt.4, Ch.6 - Section 9, 1.2 Minimum wall thickness.
Regarding material certificates Section 2, Table 3 Material certificates is to be observed.

Scope of type approval

This type approval certificate includes the following fittings with metallic sealing. Fittings with elastomeric seals are not included. Reference Dalian Huahui Hydraulic Pipe Fitting Co., LTD catalogue "Pipeline Connecting System Product Manual, 2019".

Type	Type designation	Type	Type designation
2T	ferrule bulkhead fitting (G)	2TR	ferrule straight female union (GAI)
W	ferrule elbow fittings (W)	2TH	ferrule weld straight-through joints (AS)
3T	ferrule union tee (T)	WH	ferrule weld union elbow (WAS)
2TB	ferrule reducer pipe adapter (T)	M	Nut (M)
3TB	ferrule union tee reducer (TR)	KT	Sleeve (DPR)
2TDZ	ferrule male elbow (GE-KEG)	DD	Plug (ROV)
2TG	ferrule straight-through baffle fittings (SV)	2TT	ferrule penetration fittings (ESV)
WG	ferrule elbow baffle fittings (WSV)	WDZ	ferrule male elbow WE-KEG
2TD	ferrule mal stud fittings (GE) ¹		

Notes

¹ Not included NPT thread UNF-O, Metric thread M-O

For the following coupling types limitations as specified in the Rules Pt.4, Ch.6 are to be observed:

Bulkhead pipe penetrations

Bulkhead fittings of types 2TG, WG (SV) are not approved through tank walls, watertight decks and bulkheads.

For application through fire divisions a separate type approval is required.

Straight Bulkhead weld fitting of type 2TT (ESV) is approved through tank walls, watertight decks and bulkheads.

Through fire divisions the coupling and connected pipe is to be provided with same insulation material as used for the divisions. Total insulation length of 450mm.

Pipe connectors where pressure -tight joints are made on the threads are limited in the application as follows:

- Pipe connectors with parallel thread are not approved for pipe class I and II.
- Tapered or parallel thread is not approved for toxic or flammable media or services where fatigue, severe erosion or crevice corrosion is expected to occur.

Refer to DNVGL Rules, Pt.4, Ch.6 – Section 9 – 5.2.6.

Overview of threaded pipe couplings with limitations

Type	Name
2TDZ	Ferrule male elbow (GE-KEG)
WDZ	Ferrule male elbow (WE-KEG)

All other fittings with thread connection not listed in the above table may be used without limitations

Application / Limitation

The Dalian Huahui Hydraulic Pipe Fittings compressing coupling system is type approved for application in pipe class I, II and III-piping systems, as specified in DNV GL Ship Rules Pt. 4, Ch. 6, Sec. 9 Table 11 and 12 - compression couplings – metallic sealing.

Pipe fittings with elastomeric seals are limited with respect to installation location.

Refer to DNV GL Rules Pt.4, Ch.6 -Section 9, Table 11.

The DH Ferrule Fittings series L and S are not approved for

- gases having an oxygen content exceeding 21%.
- application in high pressure fuel injection systems of combustion engines.

Selection of materials

The standard stainless steel materials specified in this certificate are not approved for application in sea water systems or unprotected installation on the open deck.

It shall be noted that the selection of the materials considers the applicable service condition with respect to type of media, flow velocity, media temperature etc. and installation area of the piping system. In particular, the resistance to corrosion, erosion, oxidation and other deterioration during projected service life are to be taken into account.

Reference is made to DNVGL Rules Pt.4, Ch.6 – Section 2 – Materials.

Sizes and pressure range¹

Fitting series	Tube O.D. (mm)	Nominal pressure PN MPa
L	6, 8, 10, 12, 15	25
	18, 22	16
	28, 35, 42	10
S	6, 8, 10, 12, 14, 16, 20, 25	40
	30, 38	25

Notes

¹ Max working pressure of the piping system depend on the selected pipe material and wall thickness.

Temperature range

Material	Lowest allowable Temperature	Maximum allowable Temperature
Carbon steel ²	- 20°C ¹	+ 120°C
Stainless steel	- 55°C	+ 200°C

Notes

¹ Lowest medium temperature -20°C and lowest environmental temperature -40°C. Refer to DIN 3859-1.

Elevated service temperatures - stainless steel

For elevated service temperatures the following the following pressure reduction factors specified are to be observed:

Temperature °C	Pressure reduction factor
- 55°C to +20	1
50	0.96
100	0.89
200	0.80

Assembling and Installation

For the assembling of pipe fittings, the instructions of the refer to Dalian Huahui Hydraulic Pipe Fittings Co., Ltd. catalogue "Pipeline Connecting System Product Manual" Edition 2019" are to be observed.

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Type Approval documentation

Tests carried out

Repeated assembly test, Leakage test, Burst pressure test, Vacuum test, Pull-Out test, Combined Vibration and Pressure Pulsation Test.

Marking of product

Component	Scope	Example
Cutting ring	Size, Material, Manufacturer sign	25, 20, DH
Nut	Size, Material, Manufacturer sign	25, 304, DH

PERIODICAL ASSESSMENT

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the Type Approval are complied with. Refer to DNVGL-CP-0338, Sec.4.

End of certificate