



Certificate No:
TAP00002M2

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Flexible hoses of metallic material with permanently fitted couplings

with type designation(s)
HSPF B, SPF B

Issued to

Platin Grup Makina Imalat Dis. Tic. Paz. San. Ltd. Sti.
Istanbul, Turkey

is found to comply with

DNV rules for classification – Ships Pt.4 Ch.6 Piping systems

DNV class programme DNV-CP-0184 – Type approval – Flexible hoses with permanently fitted couplings

DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021

Application :

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

Type:	Temperature range:	Max. working press.:	Sizes:
HSPF B	-40°C/+550°C	See page 2	DN6 to DN100 (see page 2)
SPF B	-40°C/+550°C	See page 2	DN6 to DN100 (see page 2)

Issued at **Høvik** on **2022-10-18**

This Certificate is valid until **2027-10-17**.

for **DNV**

DNV local station: **AC Europe PMA**

Approval Engineer: **Thomas Wilhelm Juell**

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Sinisa Sedlan
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

Metallic flexible hose assemblies with U-formed corrugations, reinforced with one layer of wire braid, and permanently fitted coupling with external threaded joint.

Hose materials:

- AISI 316L (1.4404 according to EN10028-7)

Wire materials:

- AISI 304 (1.4301 according to EN 10088-3)

Coupling materials:

- AISI 304/316/316L/316Ti (1.4301/1.4401/1.4404/1.4571 according to EN 10088-3)

Application/Limitation

This certificate is valid for the specific assembly of hose and coupling type as specified, assembled, and delivered by the holder (named as manufacturer) of this certificate.

Maximum allowable working pressures at 20°C:

DN	HSPF B			SPF B		
	ID [mm]	OD [mm]	MAWP [bar]	ID [mm]	OD [mm]	MAWP [bar]
6	6.1	11.7	200	6.1	10.7	150
8	8.2	13.9	200	8.4	13.6	140
10	10.1	16.1	200	10.1	15.6	105
12	12.3	18.6	100	12.5	18.3	70
16	16.3	28.8	150	16.3	23.8	65
20	20.3	28.4	65	20.3	28.6	43
25	25.2	33.8	50	25.4	34.3	49
32	33.7	45.3	45	34.3	43	35
40	40	50.1	40	40	52	38
50	50	62.9	35	50.5	62.4	26
65	65.34	83.5	25	65.4	83.5	25
80	80.2	100.4	16	80.2	100.2	16
100	100.2	122.7	10	100.2	122.5	10

The flexible hoses covered by this certificate are approved to be used in freshwater cooling systems, sprinkler systems (fresh water), lubrication oil, fuel oil, compressed air, steam (class III) and condensate applications.

Hose assemblies with end fittings having non-metallic sealings are not fire tested and shall not be used in applications where fire resistance is required.

At elevated temperatures, maximum allowable pressure is to be reduced according to ISO 10380 [Table A4], as below:

Temperature [°C]	20	50	100	150	200	250	300	350	400	450	500	550
1.4404	1	0.88	0.74	0.67	0.62	0.58	0.54	0.52	0.50	0.48	0.47	0.47
1.4301	1	0.88	0.73	0.66	0.60	0.56	0.52	0.50	0.48	0.47	0.46	0.42

Welding shall fulfil requirements in governing rules for the intended application, listed on the front page of this certificate.

The hoses are not to be used in systems where pressure pulsation occur.

The approval does not cover use of these hoses in LNG/LPG applications.

End connections shall fulfil the restrictions in DNV Pt.4 Ch.6 Sec.9 [5] as below:

- Threaded joints having pipe threads where pressure-tight joints are made on the threads:
 - 1) with parallel or tapered threads, shall comply with requirements of a recognized national or international standard.
 - 2) Shall not be used for piping systems conveying toxic or flammable media or services where fatigue, severe erosion or crevice corrosion is expected to occur.
- Mechanical joints other than standard bolted flanges are not covered by this certificate and shall be type approved separately in accordance with DNV-CP-0185.

Type Approval documentation

Production testing

Each hose assembly shall be hydrostatically tested at a pressure of 1.5 times the maximum working pressure and be delivered with the pressure test report with reference to this type approval certificate.

Tests carried out

Burst test, pliability (bending) test, and fatigue test.

Marking of product

For traceability to this Type Approval, the products are at least to be marked with:

- hose manufacturer's name or trademark
- date of manufacture (month/year)
- designation type reference
- nominal diameter
- pressure rating
- temperature rating.

Periodical assessment

For retention of the type approval, a DNV surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNV-CP-0338.