

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings**with type designation(s)
4ST, 4ST+, 6ST, HST

Issued to

Intertraco (Italia) S.p.a.
Suzzara MN, Italy

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems**DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition January 2018****DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses****Application :****Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV GL.**

Type:	Temperature range:	Max. working press.:	Sizes:
4ST	-40°C to +100°C	140 to 350 bar	DN16,19,25,31,38,51,63
4ST+	-40°C to +100°C	420 to 450 bar	DN10,12,16,19,25,31
6ST	-40°C to +100°C	350 to 450 bar	DN31,38,51,63
HST	-40°C to +100°C	500 bar	DN19,25,31

Issued at **Høvik** on **2019-03-20**This Certificate is valid until **2023-12-31**.for **DNV GL**DNV GL local station: **Milan**Approval Engineer: **Adel Samiei**

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Marianne Spæren Marveng
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: **262.1-016592-3**
Certificate No: **TAP00001RD**

Product description

Four types of hose assemblies with synthetic rubber inner tube, reinforced by steel wires spirals (four or six) and synthetic rubber cover

Coupling designations:

Hose size			4ST		4ST+		6ST		HST
inch	DN	Dash	One Piece	Two Pieces	One Piece	Two Pieces	One Piece	Two Pieces	Two Pieces
3/8	10	-6	-	-	J Series	B+S312T B+S0420	-	-	-
1/2	12	-8	-	-	J Series		-	-	-
5/8	16	-10	J Series	B+S3212T B+S0420	J Series	B+S312T B+S0420 I+S004I	-	-	-
3/4	19	-12	J Series		J Series		-	-	S+S004I
1	25	-16	J Series	B+S3212T B+S0420 I+S004I	J Series	B+S0420 I+S004I	-	-	S+S004I
1 1/4	31	-20	J Series		J Series		H Series	I+S006I	S+S006I
1 1/2	38	-24	J Series		-		H Series	I+S006I	-
2	51	-32	J Series		-		H & HLZ Series	I+S006I	-
2 1/2	63	-40	J Series	-	-		-	I+S006I	-

Coupling Material: 11SMnPb30 EN 10277-3, 11SMnPb37 EN 10277-3, 36SMnPb14 EN 10277-3, C45 EN 10277-2, S355J2 EN 10277-2, X2CrNiMo 17-12-2 EN 10088-3 (AISI 316)
Couplings Manufacturer: INTERTRACO ITALIA SPA, Suzzara MN, Italy

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 working pressure (in bar):

Hose size			4ST	4ST+	6ST	HST
inch	DN	Dash				
3/8	10	-6	-	450	-	-
1/2	12	-8	-	420	-	-
5/8	16	-10	350	420	-	-
3/4	19	-12	350	420	-	500
1	25	-16	350	420	-	500
1 1/4	31	-20	350	420	450	500
1 1/2	38	-24	300	-	420	-
2	51	-32	250	-	420	-
2 1/2	63	-40	140	-	350	-

Hose assemblies covered by this certificate may be used in systems conveying petroleum based hydraulic fluid, water based Hydraulic fluids, water and air in below temperature range:

Medium	4ST, 4ST+, 6ST, HST
petroleum based hydraulic fluid	-40°C to +100°C
water based Hydraulic fluids and air	-40°C to +70°C
water	0°C to +70°C

Flexible hoses are only to be used in short lengths where it is necessary due to vibrations or flexible mounting of the machinery. The hoses shall not replace/be used where permanent piping is possible/required.

The hose assemblies must only be fitted in places where they are always accessible. Flexible hoses of these types are not to be used on boiler fronts.

The cover of hoses for gaseous applications shall be pin-pricked.

Production testing

All hose assemblies delivered under the DNV GL type approval scheme shall be subject to a pressure test at 1.5 times the maximum working pressure and shall be delivered with the pressure test report with reference to the type approval certificate.

Type Approval documentation

Tests carried out

Dimensional Check Test, Change in Length Test, Burst Test, Cold Flexibility Test, Ozone Resistance Test, Impulse Test, vacuum test, Oil Resistance Test and Fire 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.

Where a flexible hose assembly is made up of items from different manufacturers, the components are to be clearly identified and traceable to evidence of prototype testing.

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 approval are complied with. Reference is made to DNVGL-CP-0338.