

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings**with type designation(s)
FlexIT SHP, FlexIT H4, FlexIT 5000, FlexIT 6000Issued to
INTERTRACO ITALIA SPA
Suzzara MN, Italyis 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:
FlexIT SHP	-40°C to + 100°C	320 to 450 bar	DN10,12,16,19,25
FlexIT H4	-40°C to + 100°C	250 to 450 bar	DN16,19,25,31,38,51
FlexIT 5000	-40°C to + 120°C	350 bar	DN19,25,31,38,51,63,76
FlexIT 6000	-40°C to + 120°C	420 bar	DN19,25,31,38,51

Issued at **Høvik** on **2019-01-25**This Certificate is valid until **2023-06-30**.
DNV GL local station: **Milan**Approval Engineer: **Adel Samiei**for **DNV GL**Digitally Signed By: **Marveng, Marianne Spæren**Location: **DNV GL Høvik, Norway****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.



Form code: TA 251

Revision: 2016-12

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Product description

Four types of hose assemblies with synthetic rubber inner tube, reinforced by steel wires spirals and synthetic rubber cover.

FlexIT SHP constructed according to EN856 4SP
 FlexIT H4 constructed according to EN856 4SH
 FlexIT 5000 constructed according to EN856 R13
 FlexIT 6000 constructed according to EN856 R15

Coupling designations:

Hose size			FlexIT SHP		FlexIT H4		FlexIT 5000		FlexIT 6000		
inch	DN	Dash	One piece	Two pieces	One piece	Two pieces	One piece	Two pieces	One piece	Two pieces	
3/8	10	-6	J series	B+S312T & B+S0420T	-	-	-	-	-	-	
1/2	12	-8			-	-	-	-	-	-	-
5/8	16	-10			-	B+S0420	-	-	-	-	-
3/4	19	-12			-	-	-	-	-	-	-
1	25	-16	-	-	J & X series	B+S0420 & I+S004I	J series	I+S004I	J & X series	I+S004I	
1 1/4	31	-20	-	-			H & X series	I+S006I	H & X series	I+S006I	
1 1/2	38	-24	-	-			H & X series & HLZ		X series & HLZ		
2	51	-32	-	-	-	-	-	-	-	-	
2 1/2	63	-40	-	-	-	-	-	-	-	-	
3	76	-48	-	-	-	-	-	I+S008I	-	-	

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

Hose size			FlexIT SHP	FlexIT H4	FlexIT 5000	FlexIT 6000
inch	DN	Dash				
3/8	10	-6	450	-	-	-
1/2	12	-8	420	-	-	-
5/8	16	-10	350	450	-	-
3/4	19	-12	350	420	350	420
1	25	-16	320	380	350	420
1 1/4	31	-20	-	350	350	420
1 1/2	38	-24	-	300	350	420
2	51	-32	-	250	350	420
2 1/2	63	-40	-	-	350	-
3	76	-48	-	-	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	FlexIT SHP, H4	FlexIT 5000 & 6000
petroleum based hydraulic fluid	-40°C to +100°C	-40°C to +120°C
water based Hydraulic fluids and air	-40°C to +70°C	-40°C to +70°C
water	0°C to +70°C	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.

Hose assemblies covered by this certificate shall not be used in system subject to pressure below atmospheric or vacuum condition.

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, 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.