DNV

Products type approvals

intertraco

TYPE APPROVAL CERTIFICATE

Certificate No:
TAP00001MH
Revision No:
1

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 6000

Issued to
Intertraco (Italia) S.p.A.
Suzzara MN, **Italy**

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021
DNV class programme DNV-CP-0183 – Type approval – Flexible non-metallic hoses

Application :

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

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 to 380 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 **2023-10-19**
This Certificate is valid until **2028-06-29**.
DNV local unit: **Italy/Malta CMC**

Approval Engineer: **Sarah Miller**

for **DNV**

Zeinab Sharifi
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

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	-	-	-	-	-	-
½	12	-8			-	-	-	-	-	-
5/8	16	-10			-	B+S0420	-	-	-	-
¾	19	-12			J & X series	B+S0420 & I+S004I	J series	I+S004I	J & X series	I+S004I
1	25	-16								
1 ¼	31	-20	-	-			J & X Series	I+S004I	H & X series	I+S006I
1 ½	38	-24	-	-						
2	51	-32	-	-			H & X series & HLZ	I+S006I	X series & HLZ	
2 ½	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	-	-	-
½	12	-8	420	-	-	-
5/8	16	-10	350	450	-	-
¾	19	-12	350	420	380	420
1	25	-16	320	380	350	420
1 ¼	31	-20	-	350	350	420
1 ½	38	-24	-	300	350	420
2	51	-32	-	250	350	420
2 ½	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.

Intertraco (Italia) S.p.A. - All rights reserved

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 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 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.

Intertraco (Italia) S.p.A. - All rights are reserved

TYPE APPROVAL CERTIFICATE

Certificate no.:
TAP00001NB
Revision No:
3

This is to certify:

that the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

with type designation(s)
FlexIT 1T, FlexIT 2T, FlexIT SK117, FlexIT SK216, FlexIT SK244, FlexIT SC216, FlexIT SC117

issued to
Intertraco (Italia) S.p.A.
Suzzara MN, Italy

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021
DNV class programme DNV-CP-0183 – Type approval – Flexible non-metallic hoses

Application:

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

Type:	Temperature range:	Max. working press.:	Sizes:
FlexIT 1T	-40°C to +100°C	40 to 225 bar	DN6 to DN51
FlexIT 2T	-40°C to +100°C	80 to 400 bar	DN6 to DN51
FlexIT SK117	-40°C to +100°C	88 to 290 bar	DN6 to DN31
FlexIT SK216	-40°C to +100°C	175 to 450 bar	DN6 to DN31
FlexIT SK244	-40°C to +100°C	420 bar	DN10
FlexIT SC216	-40°C to +100°C	70 to 400 bar	DN6 to DN76
FlexIT SC117	-40°C to +100°C	52 to 225 bar	DN6 to DN38

Issued at **Høvik** on **2024-10-24**
This Certificate is valid until **2028-12-31**.
DNV local unit: **Italy/Malta CMC**

Approval Engineer: **Sarah Miller**

for **DNV**

.....

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 USD 300 000.

Intertraco (Italia) S.p.A. - All rights are reserved

Product description

Six types of hose assemblies:

- FlexIT 1T
  Designed according to EN 853 1SN – SAE 100 R1AT
  Inner tube: Synthetic rubber
  Reinforcement: One high tensile steel wire braid
  Cover: Synthetic rubber – MSHA flame retardant
- FlexIT 2T
  Designed according to EN 853 2SN – SAE 100 R2AT
  Inner tube: Synthetic rubber
  Reinforcement: Two high tensile steel wire braids
  Cover: Synthetic rubber – MSHA flame retardant
- FlexIT SK117
  Constructed according to EN 857 1SC (all sizes) – SAE 100 R17 (Size -04, -05, -06, and -08)
  Inner tube: Synthetic rubber
  Reinforcement: One high tensile steel wire braid
  Cover: Synthetic rubber – MSHA flame retardant
- FlexIT SK216 / SK244
  Constructed according to EN 857 2SC (all sizes) – SAE 100 R17 (sizes -10, -12, and -16)
  Inner tube: Synthetic rubber
  Reinforcement: Two high tensile steel wire braids
  Cover: Synthetic rubber – MSHA flame retardant
- FlexIT SC216
  Designed according to EN 857 2SC – SAE 100 R16
  Inner tube: Synthetic rubber
  Reinforcement: Two high tensile steel wire braids
  Cover: Synthetic rubber – MSHA flame retardant
- FlexIT SC117
  Constructed according to EN 857 1SC (all sizes) SAE 100 R17 (sizes -04 to -08)
  Inner tube: Synthetic rubber
  Reinforcement: One high tensile steel wire braid
  Cover: Synthetic rubber cover, MSHA flame retardant approved

Coupling designations:

<table>
<tr><th colspan="3">Hose size</th><th colspan="2">1T</th><th colspan="2">2T</th><th colspan="2">SK117</th></tr>
<tr><th>inch</th><th>DN</th><th>Dash</th><th>One Piece</th><th>Two Pieces</th><th>One Piece</th><th>Two Pieces</th><th>One Piece</th><th>Two Pieces</th></tr>
<tr><td>¼</td><td>6</td><td>-4</td><td rowspan="2">K</td><td rowspan="7">B+SN03T
B+SCX0T</td><td>K</td><td rowspan="8">B+SN03T
B+S0420</td><td rowspan="7">K</td><td rowspan="7">B+SCX0T</td></tr>
<tr><td>5/16</td><td>8</td><td>-5</td><td rowspan="6">K&J</td><td rowspan="6">K&J</td></tr>
<tr><td>3/8</td><td>10</td><td>-6</td></tr>
<tr><td>½</td><td>12</td><td>-8</td></tr>
<tr><td>5/8</td><td>16</td><td>-10</td></tr>
<tr><td>¾</td><td>19</td><td>-12</td></tr>
<tr><td>1</td><td>25</td><td>-16</td></tr>
<tr><td>1 ¼</td><td>31</td><td>-20</td><td rowspan="3">J</td><td rowspan="3">B+SN03T</td><td rowspan="3">J</td><td>-</td><td>B+SN03T</td></tr>
<tr><td>1 ½</td><td>38</td><td>-24</td><td>-</td><td>-</td></tr>
<tr><td>2</td><td>51</td><td>-32</td><td>-</td><td>-</td></tr>
</table>

<table>
<tr><th colspan="3">Hose size</th><th colspan="2">SK216</th><th colspan="2">SK244</th><th colspan="2">SC216</th><th colspan="2">SC117</th></tr>
<tr><th>inch</th><th>DN</th><th>Dash</th><th>One Piece</th><th>Two Pieces</th><th>One piece</th><th>Two pieces</th><th>One Piece</th><th>Two Pieces</th><th>One Piece</th><th>Two Pieces</th></tr>
<tr><td>¼</td><td>6</td><td>-4</td><td rowspan="2">K</td><td rowspan="4">B+SN03T
B+SCX0T</td><td>-</td><td>-</td><td rowspan="2">K</td><td rowspan="4">B+SN03T
B+SCX0T</td><td>K</td><td>B + SCX0T</td></tr>
<tr><td>5/16</td><td>8</td><td>-5</td><td>-</td><td>-</td><td>K</td><td>B + SCX0T</td></tr>
<tr><td>3/8</td><td>10</td><td>-6</td><td rowspan="3">K&J</td><td>K</td><td>B+SN03T</td><td rowspan="3">K&J</td><td>K</td><td>B + SCX0T</td></tr>
<tr><td>½</td><td>12</td><td>-8</td><td>-</td><td>-</td><td>K</td><td>B + SCX0T</td></tr>
<tr><td>5/8</td><td>16</td><td>-10</td><td>-</td><td>-</td><td>K</td><td>B + SCX0T</td></tr>
</table>

Intertraco (Italia) S.p.A. - All rights reserved

¾	19	-12			-	-			K	B + SCX0T
1	25	-16			-	-			K	B + SCX0T
1 ¼	31	-20	J	B+SN03T	-	-	-	-	K	B + SN03T
1 ½	38	-24	-	-	-	-	-	-	K	B + SN03T
2	51	-32	-	-	-	-	-	-	-	-
2 ½	63	-40	-	-	-	-	J	B+SN03T	-	-
3	76	-48	-	-	-	-			-	-

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)

Coupling manufacturing location:
- 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			1T	2T	SK117	SK216	SK244	SC216	SC117
inch	DN	Dash							
¼	6	-4	225	400	290	450	-	400	225
5/16	8	-5	215	350	250	420	-	350	215
3/8	10	-6	180	330	230	385	420	350	210
½	12	-8	160	275	210	350	-	280	210
5/8	16	-10	130	250	140	290	-	250	140
¾	19	-12	105	215	105	280	-	250	105
1	25	-16	88	165	88	230	-	165	88
1 ¼	31	-20	63	125	100	175	-	-	70
1 ½	38	-24	50	90	-	-	-	-	52
2	51	-32	40	80	-	-	-	-	-
2 ½	63	-40	-	-	-	-	-	70	-
3	76	-48	-	-	-	-	-	70	-

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.

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

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 hoses are to be mounted in accordance with the manufacturer's instructions.

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

The outer end of the pipe coupling (performing the connection to the fixed piping) is not covered by this certificate and shall follow the below requirements:
- Flanged ends shall be according to recognized standard;

 Intertraco (Italia) S.p.A. - All rights reserved

- Slip-on threaded joints having pipe threads where pressure-tight joints are made on the threads with parallel or tapered threads, shall comply with requirements of a recognized standard. Limitations stated in DNV-RU-SHIP Pt.4 Ch.6 Sec.9 [5.2.6] to be followed;
- If these outer ends are going to be part of a mechanical joint as covered by DNV-RU-SHIP Pt.4 Ch.6 Sec.9 [Table 10], then they shall be separately type approved.

Production testing

All hose assemblies delivered under the DNV 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 this 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, fluid 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.

Periodical assessment

This certificate is only valid if required periodical assessments are carried out with satisfactory results.

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.

To check the validity of this certificate, please look it up in Search | Approval finder (dnv.com) .

Intertraco (Italia) S.p.A. - All rights are reserved

TYPE APPROVAL CERTIFICATE

Certificate No:
TAP00001RC
Revision No:
1

This is to certify:

That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

with type designation(s)
R1K, R2K

Issued to
Intertraco (Italia) S.p.A.
Suzzara MN, Italy

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021
DNV class programme DNV-CP-0183 – Type approval – Flexible non-metallic hoses

Application :

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

Type:	Temperature range:	Max. working press.:	Sizes:
R1K	-40°C to +100°C	120 to 250 bar	DN6,10,12,16,19,25
R2K	-40°C to +100°C	210 to 420 bar	DN6,8,10,12,16,19,25

Issued at **Høvik** on **2023-09-07**

This Certificate is valid until **2028-12-30**.
DNV local unit: **Italy/Malta CMC**

Approval Engineer: **Tobias Berntsen**

for **DNV**

Digitally Signed By: Zeinab, Sharifi
Location: DNV Høvik, Norway

Zeinab Sharifi
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.

Intertraco (Italia) S.p.A. - All rights are reserved

Product description

Two types of hose assemblies with synthetic rubber inner tube, reinforced by steel wires braids (one for R1K and two for R2K) and synthetic rubber cover
Hose manufacturer: Bridgestone Corporation

Coupling designations:

Hose size			R1K		R2K	
inch	DN	Dash	One piece	Two pieces	One piece	Two pieces
¼	6	-04	K series	B+SCX0T	K series	B+SN03T
5/16	8	-05	-	-	K series	B+SN03T
3/8	10	-06	K series	B+SCX0T	K & J series	B+SN03T
½	12	-08	K series	B+SCX0T	K & J series	B+SN03T
5/8	16	-10	K series	B+SCX0T	K & J series	B+SN03T
¾	19	-12	K series	B+SCX0T	K & J series	B+SN03T
1	25	-16	K series	B+SCX0T	K & J series	B+SN03T

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			R1K	R2K
inch	DN	Dash		
¼	6	-04	250	420
5/16	8	-05	-	380
3/8	10	-06	210	350
½	12	-08	180	350
5/8	16	-10	150	250
¾	19	-12	140	250
1	25	-16	120	210

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	R1K & R2K
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 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

Manufacturer's datasheet for R1K and R2K
Burst pressure test reports witnessed by DNV dated 2018-12-11
Impulse test report numbers: D15-099, D15-100, D16-112, D16-111, D15-201, D15-152, D15-151, D16-068, D17-070, D15-207, D17-072, D15-208, D17-074, D17-004, D17-003, D17-008, D17-007, D17-012, D17-011

Intertraco (Italia) S.p.A. - All rights reserved

Hose test reports dated 2018-12-06
LAPI fire test reports: 2642,2643,2644,2645,2646,2674.0IS0110/18
Renewal Burst test report. Dated 2023-06-09

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.

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.

Intertraco (Italia) S.p.A. - All rights reserved

TYPE APPROVAL CERTIFICATE

Certificate no.:
TAP00001RD
Revision No:
3

This is to certify:

that the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

with type designation(s)
4ST, 4ST+, 4SF+, 6ST, HST

issued to
Intertraco (Italia) S.p.A.
Suzzara MN, Italy

is found to comply with
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021
DNV class programme DNV-CP-0183 – Type approval – Flexible non-metallic hoses

Application:

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

Type:	Temperature range:	Max. working press.:	Sizes:
4ST	See page 3	140 to 350 bar	DN16,19,25,31,38,51,63
4ST+	See page 3	420 to 450 bar	DN10,12,16,19,25,31
4SF+	See page 3	420 bar	DN10,12,16,19,25
6ST	See page 3	350 to 450 bar	DN31,38,51,63
HST	See page 3	500 bar	DN19,25,31

Issued at **Høvik** on

This Certificate is valid until **2028-12-30**.
DNV local unit: **Italy/Malta CMC**

Approval Engineer: **Marc Avice**

for **DNV**

Digitally Signed By:
Bosman van der Merwe
Location: DNV Høvik, Norway

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 USD 300 000.

Product description

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

Coupling designations:

Hose size			4ST		4ST+		4SF+	
inch	DN	Dash	One Piece	Two Pieces	One Piece	Two Pieces	One Piece	Two Pieces
3/8	10	-6	-	-	J Series	B+S312T B+S0420	J Series	B+S312T B+S0420
½	12	-8	-	-	J Series		J Series	
5/8	16	-10	J Series	B+S3212T B+S0420	J Series		J Series	
¾	19	-12	J Series		J Series	B+S312T B+S0420 I+S004I	J Series	B+S312T B+S0420 I+S004I
1	25	-16	J Series	B+S3212T B+S0420 I+S004I	J Series		J Series	
1 ¼	31	-20	J Series		J Series	B+S0420 I+S004I	-	-
1 ½	38	-24	J Series		-	-	-	-
2	51	-32	J Series		-	-	-	-
2 ½	63	-40	J Series	-	-	-	-	-

Hose size			6ST		HST
inch	DN	Dash	One Piece	Two Pieces	Two Pieces
3/8	10	-6	-	-	-
½	12	-8	-	-	-
5/8	16	-10	-	-	-
¾	19	-12	-	-	S+S004I
1	25	-16	-	-	S+S004I
1 ¼	31	-20	H Series	I+S006I	S+S006I
1 ½	38	-24	H Series	I+S006I	-
2	51	-32	H & HLZ Series	I+S006I	-
2 ½	63	-40	-	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+	4SF+	6ST	HST
inch	DN	Dash					
3/8	10	-6	-	450	420	-	-
½	12	-8	-	420	420	-	-
5/8	16	-10	350	420	420	-	-
¾	19	-12	350	420	420	-	500
1	25	-16	350	420	420	-	500
1 ¼	31	-20	350	420	-	450	500
1 ½	38	-24	300	-	-	420	-
2	51	-32	250	-	-	420	-
2 ½	63	-40	140	-	-	350	-

Intertraco (Italia) S.p.A. - All rights reserved

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+, 4SF+, 6ST, HST
petroleum based hydraulic fluid	-40°C to +120°C for 4SF+, 4ST+, 4ST, 6ST -40°C to +100°C for HST, 4ST DN63, 6ST DN63
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 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

Manufacturer catalogue for couplings
Manufacturer datasheets for hoses
Hose test reports dated 2018-12-06 & 2018-12-11
Burst pressure test reports witnessed by DNV dated 2018-12-11
Impulse test report numbers D16-251, D16-252, D16-253, D17-034, D15-175, D16-006, D15-184, D16-223, D15-142, D17-022, D14-190
Fire test reports: 2627,2628,2629,2630,2631,2632,2634,2635,2637,2638,2639,2640,2641.0IS0110/18 and 356,357,358.0IS0110/19
Renewal burst pressure test reports witnessed by DNV dated 2023-06-09
Burst pressure test reports for 4SF+ witnessed by DNV dated 2025-09-16
Impulse test reports for 4SF+ no D22-053, D23-173, D23-174, D23-181, D23-182, D23-183, D24-045, D24-233, D24-234, D24-235, D24-303, D24-304, D24-313, D24-315, D24-317, D24-318, D24-319
Fire test reports for 4SF+ no 1974.0IS0110/24, 1975.0IS0110/24, 1976.0IS0110/24, 1977.0IS0110/24, 070.0IS0110/25
Hose test reports for 4SF+ (DN10 to DN25) dated 2025-06-03

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

This certificate is only valid if required periodical assessments are carried out with satisfactory results.

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.

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

Intertraco (Italia) S.p.A. - All rights reserved

Intertraco (Italia) S.p.A. - All rights are reserved