intertraco

Approvals



Approvals

GSIAPR260

Approvals Catalogue

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ISO 9001

Quality system certification

intertraco

CISQ is a member of

IQNET
The International Certification Network
www.iqnet-certification.com

ICIM

CERTIFICATO N. **ICIM-9001-001718-08**
CERTIFICATE No.

SI CERTIFICA CHE IL SISTEMA DI GESTIONE PER LA QUALITÀ DI
WE HEREBY CERTIFY THAT THE QUALITY MANAGEMENT SYSTEM OPERATED BY

INTERTRACO (ITALIA) SPA

SEDE CENTRALE / *HEADQUARTER*

VIA AMALDI, 1/A-B 46029 SUZZARA MN IT - Italia

PER LE UNITÀ OPERATIVE VEDERE L'ALLEGATO
FOR OPERATIVE UNITS SEE ATTACHMENT

È CONFORME ALLA NORMA / *IS IN COMPLIANCE WITH THE STANDARD*

UNI EN ISO 9001:2015

Sistema di Gestione per la Qualità / *Quality Management System*

PER LE SEGUENTI ATTIVITÀ / *FOR THE FOLLOWING ACTIVITIES*

IAF: 17 - 29 - 31

Progettazione e produzione di: tubi flessibili assemblati, raccordi per tubi flessibili, innesti rapidi, giunti girevoli e adattatori. Commercializzazione di tubi flessibili. Procedure per lo svolgimento delle attività di pesatura per la determinazione della "Massa Lorda Verificata del contenitore" (VGM) secondo il Metodo 2 previsto dagli emendamenti al Capitolo VI Regola 2 dalla Convezione SOLAS 74 come emendata.

Design and manufacture of: flexible hoses, hose fittings, quick couplings, swivel couplings and adapters. Trading of hoses. Procedures for carrying out weighing activities to determine the "Verified Gross Mass of Container" (VGM) in accordance with Method 2 of the amendments to Chapter VI Regulation 2 of SOLAS Convention 74 as amended.

Riferirsi alla documentazione del Sistema di Gestione per la Qualità aziendale per l'applicabilità dei requisiti della norma di riferimento.
Refer to the documentation of the Quality Management System for details of application to reference standard requirements.

Il presente certificato è soggetto al rispetto del documento ICIM "Regolamento per la certificazione dei sistemi di gestione" e al relativo Schema specifico.
The use and the validity of this certificate shall satisfy the requirements of the ICIM document "Rules for the certification of company management systems" and specific Scheme.

Per informazioni puntuali e aggiornate circa eventuali variazioni intervenute nello stato della certificazione di cui al presente certificato, si prega di contattare il n° telefonico +39 02 725341 o indirizzo e-mail info@icim.it.
For timely and updated information about any changes in the certification status referred to in this certificate, please contact the number +39 02 725341 or email address info@icim.it.

DATA EMISSIONE	EMISSIONE CORRENTE	DATA DI SCADENZA
FIRST ISSUE	*CURRENT ISSUE*	*EXPIRING DATE*
19/10/2000	15/09/2024	14/09/2027

Vincenzo Delacqua
Rappresentante Direzione / *Management Representative*
ICIM S.p.A.
Piazza Don Enrico Mapelli, 75 – 20099 Sesto San Giovanni (MI)
www.icim.it

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO
MS N° 0004

CISQ
www.cisq.com
CISQ è la Federazione Italiana di Organismi di Certificazione dei sistemi di gestione aziendale. CISQ is the Italian Federation of management system Certification Bodies.

0449CM_06_IT

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The International Certification Network
www.iqnet-certification.com

ICIM

Allegato al CERTIFICATO N. **ICIM-9001-001718-08**
Attachment to CERTIFICATE No.

SI CERTIFICA CHE IL SISTEMA DI GESTIONE PER LA QUALITÀ DI
WE HEREBY CERTIFY THAT THE QUALITY MANAGEMENT SYSTEM OPERATED BY

INTERTRACO (ITALIA) SPA

Comprende oltre la Sede Centrale citata sul Certificato, anche le seguenti Unità Operative:
In addition to the Headquarter mentioned on the Certificate, it also includes the following Operative Units:

VIA AMALDI, 1/A-B 46029 SUZZARA MN IT - Italia	Sede legale e operativa: Direzione e uffici amministrativi, Progettazione, Produzione (curvatura e assemblaggio raccordi), Magazzino.
VIA PINFARI, 8/A 46029 SUZZARA MN IT - Italia	Sede operativa: Produzione assemblaggio di tubi flessibili.
VIA FRATELLI CERVI, 3/A FRAZ. PALIDANO 46023 GONZAGA MN IT - Italia	Sede operativa: Magazzino tubi.
VIA VALLE SALICETO, 4/ABC 46029 SUZZARA MN IT - Italia	Sede operativa: Uffici Qualità CQ Controlli accettazione magazzino semilavorato.

0449CM_06_IT

ACCREDIA
L'ENTE ITALIANO DI ACCREDITAMENTO
MS N° 0004

CISQ
www.cisq.com
CISQ è la Federazione Italiana di Organismi di Certificazione dei sistemi di gestione aziendale. CISQ is the Italian Federation of management system Certification Bodies.

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IQNET

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Certificate

CISQ/ICIM S.P.A. has issued an IQNET recognized certificate that the organization:

INTERTRACO (ITALIA) SPA

VIA AMALDI, 1/A-B 46029 SUZZARA MN IT - Italia

For Operative Units see Annex/Annexes

has implemented and maintains a/an

Quality Management System

for the following scope:

Design and manufacture of: flexible hoses, hose fittings, quick couplings, swivel couplings and adapters. Trading of hoses. Procedures for carrying out weighing activities to determine the "Verified Gross Mass of Container" (VGM) in accordance with Method 2 of the amendments to Chapter VI Regulation 2 of SOLAS Convention 74 as amended.

which fulfils the requirements of the following standard:

ISO 9001:2015

Issued on:	**2024-09-15**
First issued on:	**2000-10-19**
Expires on:	**2027-09-14**

Registration Number:

IT-11884 ICIM-9001-001718-08

Alex Stoichitoiu
President of IQNET

Mario Romersi
President of CISQ

CISQ

This attestation is directly linked to the IQNET Member's original certificate and shall not be used as a stand-alone document.

IQNET Members*:
AENOR Spain **AFNOR Certification** France **APCER** Portugal **CCC** Cyprus **CISQ** Italy **CQC** China **CQM** China **CQS** Czech Republic **Cro Cert** Croatia **DQS Holding GmbH** Germany **EAGLE Certification Group** USA **FCAV** Brazil **FONDONORMA** Venezuela **ICONTEC** Colombia **ICS** Bosnia and Herzegovina **INTECO** Costa Rica **IRAM** Argentina **JQA** Japan **KFQ** Korea **LSQA** Uruguay **MIRTEC** Greece **MSZT** Hungary **Nemko AS** Norway **NSAI** Ireland **NYCE-SIGE** México **PCBC** Poland **Quality Austria** Austria **SII** Israel **SIQ** Slovenia **SIRIM QAS International** Malaysia **SQS** Switzerland **SRAC** Romania **TSE** Turkey **YUQS** Serbia

* The list of IQNET Members is valid at the time of issue of this certificate. Updated information is available under www.iqnet-certification.com

0774CM_05_EN

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Annex 1 to IQNET Certificate Number:

IT-11884 ICIM-9001-001718-08

INTERTRACO (ITALIA) SPA

VIA AMALDI, 1/A-B 46029 SUZZARA MN IT - Italia

List of additional locations:

VIA PINFARI, 8/A 46029 SUZZARA MN IT - Italia
VIA FRATELLI CERVI, 3/A FRAZ. PALIDANO 46023 GONZAGA MN IT - Italia
VIA VALLE SALICETO, 4/ABC 46029 SUZZARA MN IT - Italia

This annex is only valid in connection with the original certificate number mentioned above.

IQNET Members*:
AENOR Spain **AFNOR Certification** France **APCER** Portugal **CCC** Cyprus **CISQ** Italy **CQC** China **CQM** China **CQS** Czech Republic **Cro Cert** Croatia **DQS Holding GmbH** Germany **EAGLE Certification Group** USA **FCAV** Brazil **FONDONORMA** Venezuela **ICONTEC** Colombia **ICS** Bosnia and Herzegovina **INTECO** Costa Rica **IRAM** Argentina **JQA** Japan **KFQ** Korea **LSQA** Uruguay **MIRTEC** Greece **MSZT** Hungary **Nemko AS** Norway **NSAI** Ireland **NYCE-SIGE** México **PCBC** Poland **Quality Austria** Austria **SII** Israel **SIQ** Slovenia **SIRIM QAS International** Malaysia **SQS** Switzerland **SRAC** Romania **TSE** Türkiye **YUQS** Serbia

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0774CM_05_EN

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MED B

Quality system certification
Fire testing according to
ISO 15540 / ISO 15541

intertraco

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate no.:
MEDB00005AW
Revision No:
1

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as “Forskrift om Skipsutstyr” by the Norwegian Maritime Authority. This Certificate is issued by DNV AS under the authority of the Government of Norway.

This is to certify:

that the Materials other than steel for pipes conveying oil or fuel oil: flexible pipe assemblies and compensators

with type designation(s)
FlexIT 1T, FlexIT 2T, FlexIT SK117, FlexIT SC117, FlexIT SK216, FlexIT SC216, FlexIT SHP, FlexIT H4, FlexIT 5000, FlexIT 6000

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

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2024/1975,**
item No. MED/3.15c. SOLAS 74 as amended, Regulation II-2/4 & X/3 and 2000 HSC Code 7 & 10 and IMO MSC/Circ.1120

Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2029-10-27**.

Issued at **Høvik** on **2024-10-28**

DNV local unit:
Italy/Malta CMC

Approval Engineer:
Per Ola Nymoen

Notified Body
No.: **0575**

for **DNV AS**

Mydlak-Röder, Christine
Head of Notified Body

The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer’s Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.
This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.
Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

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.

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Product description

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

Coupling designations:

Hose size			1T		2T		SK117		SC117	
inch	DN	Dash	One Piece	Two Pieces	One Piece	Two Pieces	One Piece	Two Pieces	One Piece	Two Pieces
¼	6	-4	K	B+SN03T B+SCX0T	K	B+SN03T B+S0420	K	B+SCX0T	K	B+SCX0T
5/16	8	-5								
3/8	10	-6	K&J		K&J					
½	12	-8								
5/8	16	-10								
¾	19	-12								
1	25	-16								
1 ¼	31	-20	J	B+SN03T	J		-	B+SN03T		B+SN03T
1 ½	38	-24					-	-		
2	51	-32					-	-	-	-

Hose size			SK216		SC216	
inch	DN	Dash	One Piece	Two Pieces	One Piece	Two Pieces
¼	6	-4	K	B+SN03T B+SCX0T	K	B+SN03T B+SCX0T
5/16	8	-5				
3/8	10	-6	K&J		K&J	
½	12	-8				
5/8	16	-10				
¾	19	-12				
1	25	-16				
1 ¼	31	-20	J	B+SN03T	-	-
1 ½	38	-24	-	-	-	-
2	51	-32	-	-	-	-
2 ½	63	-40	-	-	J	B+SN03T
3	76	-48	-	-		

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

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Hose assemblies covered by this certificate are tested according to:

1) EN ISO 15540:2016 - Fire resistance of hose assemblies- Test methods
2) EN ISO 15541:2016 - Fire resistance of hose assemblies - Requirements for the test bench

The hose assemblies covered by this certificate are approved to be used in oil or fuel oil systems.

Maximum working pressure

Hose size			1T	2T	SK117	SC117	SK216	SC216	FlexIT SHP	FlexIT H4	FlexIT 5000	FlexIT 6000
inch	DN	Dash										
¼	6	-4	225	400	290	225	450	400	-	-	-	-
5/16	8	-5	215	350	250	215	420	350	-	-	-	-
3/8	10	-6	180	330	230	210	385	350	450	-	-	-
½	12	-8	160	275	210	210	350	280	420	-	-	-
5/8	16	-10	130	250	140	140	290	250	350	450	-	-
¾	19	-12	105	215	105	105	280	250	350	420	380	420
1	25	-16	88	165	88	88	230	165	320	380	350	420
1 ¼	31	-20	63	125	100	70	175	-	-	350	350	420
1 ½	38	-24	50	90	-	52	-	-	-	300	350	420
2	51	-32	40	80	-	-	-	-	-	250	350	420
2 ½	63	-40	-	-	-	-	-	70	-	-	350	-
3	76	-48	-	-	-	-	-	70	-	-	350	-

Type Examination documentation

Tests carried out

Fire testing according to ISO 15540 and ISO 15541

Marking of product

As a minimum, the final product shall be marked with the following particulars:

- Manufacturer's name or trademark
- Specification or hose name
- Hose size and type designation
- Date of manufacture
- Mark of conformity according to Article 10 of the Council Directive 2014/90/EU

Mark of Conformity may only be affixed to the product when the corresponding certification related to production-control phase module (D, E, or F) is valid.

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EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate no.:
MEDB00005AX
Revision No:
1

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as “Forskrift om Skipsutstyr” by the Norwegian Maritime Authority. This Certificate is issued by DNV AS under the authority of the Government of Norway.

This is to certify:

that the Materials other than steel for pipes conveying oil or fuel oil: flexible pipe assemblies and compensators

with type designation(s)
R1K, R2K, 4ST, 4ST+, 6ST, HST

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

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2024/1975,**
item No. MED/3.15c. SOLAS 74 as amended, Regulation II-2/4 & X/3 and 2000 HSC Code 7 & 10 and IMO MSC/Circ.1120

Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2029-10-27**.

Issued at **Høvik** on **2024-10-28**

DNV local unit:
Italy/Malta CMC

Approval Engineer:
Per Ola Nymoen

Notified Body
No.: **0575**

for **DNV AS**

Mydlak-Röder, Christine
Head of Notified Body

The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer’s Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.
This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.
Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

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.

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Product description

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

Coupling designations:

Hose size			R1K		R2K		4ST+	
inch	DN	Dash	One piece	Two pieces	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	J Series	B+S312T B+S0420
½	12	-08	K series	B+SCX0T	K & J series	B+SN03T	J Series	
5/8	16	-10	K series	B+SCX0T	K & J series	B+SN03T	J Series	
¾	19	-12	K series	B+SCX0T	K & J series	B+SN03T	J Series	B+S312T B+S0420/ I+S004I
1	25	-16	K series	B+SCX0T	K & J series	B+SN03T	J Series	
1 ¼	31	-20	-	-	-	-	J Series	B+S0420/ I+S004I

Hose size			4ST		6ST		HST
inch	DN	Dash	One Piece	Two Pieces	One Piece	Two Pieces	Two Pieces
5/8	16	-10	J Series	B+S3212T B+S0420	-	-	-
¾	19	-12	J Series		-	-	S+S004I
1	25	-16	J Series	B+S3212T B+S0420 I+S004I	-	-	S+S004I
1 ¼	31	-20	J Series		H Series	I+S006I	S+S006I
1 ½	38	-24	J Series		H Series	I+S006I	-
2	51	-32	J Series		H & HLZ Series	I+S006I	-
2 ½	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

Hose assemblies covered by this certificate are tested according to:

1) EN ISO 15540:2016 - Fire resistance of hose assemblies- Test methods
2) EN ISO 15541:2016 - Fire resistance of hose assemblies - Requirements for the test bench

The hose assemblies covered by this certificate are approved to be used in oil or fuel oil systems.

Maximum working pressure (in bar):

Hose size			R1K	R2K	4ST	4ST+	6ST	HST
inch	DN	Dash						
¼	6	-04	250	420				
5/16	8	-05	-	380				
3/8	10	-6	210	350	-	450	-	-
½	12	-8	180	350	-	420	-	-
5/8	16	-10	150	250	350	420	-	-
¾	19	-12	140	250	350	420	-	500
1	25	-16	120	210	350	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	-

Type Examination documentation

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Tests carried out

Fire testing according to ISO 15540 and ISO 15541

Marking of product

As a minimum, the final product shall be marked with the following particulars:

- Manufacturer's name or trademark
- Specification or hose name
- Hose size and type designation
- Date of manufacture
- Mark of conformity according to Article 10 of the Council Directive 2014/90/EU

Mark of Conformity may only be affixed to the product when the corresponding certification related to production-control phase module (D, E, or F) is valid.

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MED D

Quality system certification

intertraco

QS - CERTIFICATE OF ASSESSMENT - EC (MODULE D)

Certificate no.:
MEDD00000JN
Revision No:
3

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as “Forskrift om Skipsutstyr” by the Norwegian Maritime Authority. This Certificate is issued by DNV AS under the authority of the Government of Norway.

This is to certify:

that the Quality System for the products

with type designation(s) as specified in the Appendix to this Certificate

issued to

Intertraco (Italia) S.p.A.

Suzzara MN, **Italy**

is found to comply with the applicable requirements.
The quality system has been assessed with respect to the procedure of conformity assessment described in Annex II, Module D in the directive 2014/90/EU and regulation (EU) 2024/1975.

This Certificate is valid until **2026-08-22**.

Issued at **Høvik** on **2024-10-28**

DNV local unit:
Italy/Malta CMC

Approval Engineer:
Per Ola Nymoen

Notified Body
No.: **0575**

for **DNV AS**

Mydlak-Röder, Christine
Head of Notified Body

From August 2026 MEDD00000JN is DNV renewed

0575/yyyy

0575: Notified Body number undertaking quality surveillance
yyyy: The year in which the mark is affixed

NORWEGIAN ACCREDITATION PROD 019

The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.
This certificate authorizes the manufacturer in conjunction with the valid EC Type Examination (Module B) Certificate(s) of the equipment listed before to affix the Mark of Conformity (wheelmark) to the product described herein.
This certificate loses its validity if the manufacturer makes any changes to the approved quality system which have not been notified to and agreed with the notified body named on this certificate. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.
The Manufacturer has to apply for periodical audits to verify the maintenance and application of the quality system every 12 months.

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.

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APPENDIX

Item no. MED/3.15c Materials other than steel for pipes conveying oil or fuel oil: flexible pipe assemblies and compensators

Type designation	EC Type-Examination Certificate No.	Expiry date	Notified Body No.	USCG approval number
FlexIT 1T, FlexIT 2T, FlexIT SK117, FlexIT SC117, FlexIT SK216, FlexIT SC216, FlexIT SHP, FlexIT H4, FlexIT 5000, FlexIT 6000[1]	MEDB00005AW Rev.1	2029-10-27	0575	N/A
R1K, R2K, 4ST, 4ST+, 6ST, HST[1]	MEDB00005AX Rev.1	2029-10-27	0575	N/A

Places of production

1.Intertraco (Italia) S.p.A., Via Edoardo Amaldi 1/A, Suzzara MN, Italy

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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.

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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.

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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**.

for **DNV**

DNV local unit: **Italy/Malta CMC**

Approval Engineer: **Sarah Miller**

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.

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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:

Hose size			1T		2T		SK117	
inch	DN	Dash	One Piece	Two Pieces	One Piece	Two Pieces	One Piece	Two Pieces
¼	6	-4	K	B+SN03T B+SCX0T	K	B+SN03T B+S0420	K	B+SCX0T
5/16	8	-5						
3/8	10	-6	K&J		K&J			
½	12	-8						
5/8	16	-10						
¾	19	-12						
1	25	-16						
1 ¼	31	-20	J	B+SN03T	J		-	B+SN03T
1 ½	38	-24					-	-
2	51	-32					-	-

Hose size			SK216		SK244		SC216		SC117	
inch	DN	Dash	One Piece	Two Pieces	One piece	Two pieces	One Piece	Two Pieces	One Piece	Two Pieces
¼	6	-4	K	B+SN03T B+SCX0T	-	-	K	B+SN03T B+SCX0T	K	B + SCX0T
5/16	8	-5			-	-			K	B + SCX0T
3/8	10	-6	K&J		K	B+SN03T	K&J		K	B + SCX0T
½	12	-8			-	-			K	B + SCX0T
5/8	16	-10			-	-			K	B + SCX0T

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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;

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- 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) .

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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.
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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

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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.

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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	-

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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.

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ABS

Products type approvals

intertraco

Confirmation of Product Type Approval

Company Name: INTERTRACO (ITALIA) S.P.A.

Address: VIA E. AMALDI, 1/A-B SUZZARA, MANTOVA 46029 Italy

Product: Flexible Hose

Model(s): FlexIT 1T, FlexIT 2T, FlexIT SC117, FlexIT SK117, FlexIT SC216, FlexIT SK216, FlexIT SK244, FlexIT H4, FlexIT SHP, FlexIT 5000, FlexIT 6000

Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	25-0264758-PDA	28-JUL-2025	27-JUL-2030
Manufacturing Assessment (MA)	21-4889778	06-AUG-2021	17-AUG-2026
Product Quality Assurance (PQA)	NA	NA	NA

Tier
3 - Type Approved, unit certification not required

Intended Service
Hydraulic Systems (mineral and vegetable oils, polyglycol base oils, water/oil emulsions and water)

Description
Oil resistant synthetic rubber hoses reinforced with one, two or four high tensile steel wire braids or spirals, covered with a synthetic rubber. For details see Manufacturer's data sheets.

Ratings
Pressure ratings, sizes and temperatures and approved end fittings for each family are listed in the attachement to this PDA Certificate.

Service Restrictions
1) Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

2) Hoses are to be completed with factory assembled end fittings or factory supplied end fittings installed in accordance with manufacturer's specifications.

3) End connections are to comply with applicable requirements and limitation in accordance with 4-6-2/5.7.3 (b), 4-6-4/Table 2, 4-6-5/Table 3, 4-6-5/Table 5, 4-6-7/5.3.2 & 4-6-7/Table 2 of the Marine Vessels Rules.

4) As per 4-6-2/5.7.4 of ABS Marine Vessel Rules Flexible hoses are to be limited to a length necessary to provide for relative movement between fixed and flexibly mounted items of machinery, equipment, or systems. Flexible hose assemblies are not to be installed where they may be subjected to torsion

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deformation (twisting) under normal operating conditions.

5) Not to be installed in applications where large amount of repeated flexing is expected in combination with pressure pulses.

6) As per 4-6-2/5.7.6 of ABS Marine Vessel Rules, flexible hoses are to be permanently marked by the manufacturer with the following details: Hose manufacturer's name or trademark, Date of manufacture (month/year), Designation type reference, Nominal diameter, Pressure rating, Temperature rating.

Comments
The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

Manufacturer recommended fittings: see attached Table

Notes, Drawings and Documentation
Drawing No. APPLICATION LIST FOR ABS - 15.06.2020, APPLICATION LIST FOR ABS - 15.06.2020,Revision:0, Pages: 1

Drawing No. BURST TEST REPORT - WITNESSED 1T, BURST TEST REPORT - WITNESSED 1T at Intertraco Plant dated 31 Jul 2019, Revision: 0, Pages: 1

Drawing No. FlexIT 2T - BURST TEST REPORT - WITNESSED, FlexIT 2T - BURST TEST REPORT - WITNESSED at Intertraco Plant dated 31 Jul 2019, Revision: 0, Pages: 1

Drawing No. FlexIT 2T - HOSE REPORT, FlexIT 2T - HOSE REPORT at Intertraco Plant dated 31 Jul 2019,Revision: 0, Pages: 1

Drawing No. FlexIT 5000 BURST TEST REPORT - WITNESSED, FlexIT 5000 BURST TEST REPORT - WITNESSED at Intertraco Plant dated 31 Jul 2019, Revision: 0, Pages: 1

Drawing No. FlexIT 5000 HOSE REPORT, FlexIT 5000 HOSE REPORTat Intertraco Plant dated 31 Jul 2019,Revision: 0, Pages: 1

Drawing No. FlexIT 5000 BURST TEST REPORT - WITNESSED, FlexIT 5000 BURST TEST REPORT - WITNESSED at Intertraco Plant dated 31 Jul 2019, Revision: 0, Pages: 1

Drawing No. FlexIT 5000 HOSE REPORT, FlexIT 5000 HOSE REPORTat Intertraco Plant dated 31 Jul 2019,Revision: 0, Pages: 1

Drawing No. FlexIT 5000 IMPULSE TEST, FlexIT 5000 IMPULSE TEST at Intertraco Plant dated 24 Oct2017,Revision: 0, Pages: 1

Drawing No. FlexIT 5000 IMPULSE TEST F500040 - S006I, FlexIT 5000 IMPULSE TEST F500040 - S006I at Intertraco Plant dated 11 July 2019, Revision: 0, Pages: 1

Drawing No. FlexIT 5000 IMPULSE TEST F500048 - S008I, FlexIT 5000 IMPULSE TEST F500048 - S008I at Intertraco Plant dated 04 Jan 2018, Revision: 0, Pages: 1

Drawing No. FlexIT 5000-40 HOSE REPORT, FlexIT 5000-40 HOSE REPORT at Intertraco Plant dated 08 Jan 2019, Revision: 0, Pages: 1

Drawing No. FlexIT 6000 BURST TEST REPORT - WITNESSED, FlexIT 6000 BURST TEST REPORT - WITNESSED at Intertraco Plant dated 31 Jul 2019 , Revision: 0, Pages: 1

Drawing No. FlexIT 6000 HOSE REPORT, FlexIT 6000 HOSE REPORT at Intertraco Plant dated 31 Jul 2019, Revision: 0, Pages: 1

Drawing No. FlexIT 6000 IMPULSE TEST, FlexIT 6000 IMPULSE TEST at Intertraco Plant dated 12 Jul 2016, Revision: 0, Pages: 1

Drawing No. FlexIT H4 BURST TEST REPORT - WITNESSED, FlexIT H4 BURST TEST REPORT - WITNESSED at Intertraco Plant dated 31 Jul 2019 , Revision: 0, Pages: 1

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Drawing No. FlexIT H4 HOSE REPORT, FlexIT H4 HOSE REPORT at Intertraco Plant dated 31 Jul 2019, Revision: 0, Pages: 1

Drawing No. FlexIT H4 IMPULSE TEST, FlexIT H4 IMPULSE TEST at Intertraco Plant dated 21 Aug 2018, Revision: 0, Pages: 1

Drawing No. FlexIT SC216 BURST TEST REPORT - WITNESSED, FlexIT SC216 BURST TEST REPORT - WITNESSED at Intertraco Plant dated 31 Jul 2019, Revision: 0, Pages: 1

Drawing No. FlexIT SC216 HOSE REPORT, FlexIT SC216 HOSE REPORT at Intertraco Plant dated 31 Jul 2019, Revision: 0, Pages: 1

Drawing No. FlexIT SC216 HOSE REPORT SC216-40, FlexIT SC216 HOSE REPORT SC216-40 at Intertraco Plant dated 31 Jul 2019, Revision: 0, Pages: 1

Drawing No. FlexIT SC216 IMPULSE TEST, FlexIT SC216 IMPULSE TEST at Intertraco Plant dated 28 Jun 2016, Revision: 0, Pages: 1

Drawing No. FlexIT SHP BURST TEST REPORT - WITNESSED, FlexIT SHP BURST TEST REPORT - WITNESSED at Intertraco Plant dated 31 Jul 2019, Revision: 0, Pages: 1

Drawing No. FlexIT SHP HOSE REPORT, FlexIT SHP HOSE REPORT at Intertraco Plant dated 31 Jul 2019, Revision: 0, Pages: 1

Drawing No. FlexIT SHP IMPULSE TEST, FlexIT SHP IMPULSE TESTat Intertraco Plant dated 07 Apr 2016, Revision: 0, Pages: 1

Drawing No. FlexIT SK117 BURST TEST REPORT - WITNESSED, FlexIT SK117 BURST TEST REPORT - WITNESSED at Intertraco Plant dated 31 Jul 2019, Revision: 0, Pages: 1

Drawing No. FlexIT SK117 HOSE REPORT, FlexIT SK117 HOSE REPORT at Intertraco Plant dated 31 Jul 2019, Revision: 0, Pages: 1

Drawing No. FlexIT SK216 BURST TEST REPORT - WITNESSED, FlexIT SK216 BURST TEST REPORT - WITNESSED at Intertraco Plant dated 31 Jul 2019, Revision: 0, Pages: 1

Drawing No. FlexIT SK216 HOSE REPORT, FlexIT SK216 HOSE REPORT at Intertraco Plant dated 31 Jul 2019, Revision: 0, Pages: 1

Drawing No. FlexIT SK216 IMPULSE TEST, FlexIT SK216 IMPULSE TEST at Intertraco Plant dated 10 Nov 2016, Revision: 0, Pages: 1

Drawing No. HOSE REPORT - FlexIT 1T, HOSE REPORT - FlexIT 1T at Intertraco Plant dated 31 Jul 2019,Revision: 0, Pages: 1

Drawing No. Hydraulic Hoses FlexIT 018_1T, Hose data sheet, Revision: 0, Pages: 1

Drawing No. Hydraulic Hoses FlexIT 018_2T, Hose data sheet, Revision: 0, Pages: 1

Drawing No. Hydraulic Hoses FlexIT 018_5000, Hose data sheet, Revision: 0, Pages: 1

Drawing No. Hydraulic Hoses FlexIT 018_6000, Hose data sheet, Revision: 0, Pages: 1

Drawing No. Hydraulic Hoses FlexIT 018_H4, Hose data sheet, Revision: 0, Pages: 1

Drawing No. Hydraulic Hoses FlexIT 018_SC216, Hose data sheet, Revision: 0, Pages: 1

Drawing No. Hydraulic Hoses FlexIT 018_SHP, Hose data sheet, Revision: 0, Pages: 1

Drawing No. Hydraulic Hoses FlexIT 018_SK117, Hose data sheet, Revision: 0, Pages: 1

Drawing No. Hydraulic Hoses FlexIT 018_SK216, Hose data sheet, Revision: 0, Pages: 1

Drawing No. Hydraulic Hoses FlexIT F500048 DRAFT, Hose data sheet, Revision: 0, Pages: 1

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Drawing No. IMPULSE TEST - FlexIT 1T, IMPULSE TEST - FlexIT 1T at Intertraco Plant dated 31 Jul 2019, Revision: 0, Pages: 1

Drawing No. Datasheet Hydraulic Hoses FlexIT SC117, Revision 0, Pages 1

Report No. D24-057, SC117 Impulse test booklet at Intertraco Plant dated 08 Feb 2021, Revision 0 pages 18

Report No. -, Hose report SC117 booklet at Intertraco Plant dated 27 Aug 2024, Revision 0 pages 9

Report No. 1338.0IS0110/24, Fire test on SC117 at LAPI dated 25 Jul 2024, Revision 0 pages: 31,

Report No.-, Static test booklet for SC117 at Intertraco Plant dated 27 Aug 2024, Revision 0 pages 4

Drawing No. Datasheet Hydraulic Hoses FlexIT F5000, Revision 0, Pages 1

Report No. D20-051, Flexit5000 Impulse test booklet at Intertraco Plant dated 28 Apr 2020, Revision 0 pages 2

Report No. -, Hose report Flexit5000-12 at Intertraco Plant dated 07 Jun 2023, Revision 0 pages 1

Report No.-, Static test Flexit5000-12 at Intertraco Plant dated 09 Jun 2023, Revision 0 pages 1

Drawing No. Datasheet Hydraulic Hoses FlexIT SK117, Revision 0, Pages 1

Report No. D19-185, SK117-10 Impulse test booklet at Intertraco Plant dated 12 Nov 2019, Revision 0 pages 2

Report No. -, SK117-10 Hose reportat Intertraco Plant dated 07 Jun 2023, Revision 0 pages 1

Report No.-, Static test SK117-10 at Intertraco Plant dated 09 Jun 2023, Revision 0 pages 1

Drawing No. Datasheet Hydraulic Hoses FlexIT SK216, Revision 0, Pages 1

Report No. D21-125, Flexit SK216-8 Impulse test booklet at Intertraco Plant dated 22 Dec 2021, Revision 0 pages 4

Report No. -, SK216-8 Hose reportat Intertraco Plant dated 09 Jun 2023, Revision 0 pages 3

Drawing No. Datasheet Hydraulic Hoses FlexIT SK244-06, Revision 0, Pages 1

Report No. D20-094, SK244-06Impulse test booklet at Intertraco Plant dated 11 May 2020, Revision 0 pages 2

Report No. -, SK244-06 Hose reportat Intertraco Plant dated 31 Jan 2020, Revision 0 pages 1

Report No.-, Static test SK244-06 at Intertraco Plant dated 31 Jan 2020, Revision 0 pages 2

Term of Validity
This Product Design Assessment (PDA) Certificate remains valid until 27/Jul/2030 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

ABS Rules
Rules for Condition of Classification (2025): 1-1-4/7.7, 1-1-A3 and A4, which covers the following:

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- Rules for Building and Classing Marine Vessels (2025): 4-6-2/5.7

Rules for Conditions of Classifications – Offshore Units and Structures (2025): 1.1.4/9.7, 1-1-A2 and A3, which covers the following:

- Rules for Building and Classing Mobile Offshore Drilling Units (2025): 4-2-1/11.29
- Rules for Building and Classing Mobile Offshore Units - (2025): 4-2-1/11.29

International Standards
NA

EU-MED Standards
NA

National Standards
NA

Government Standards
NA

Other Standards
NA





Corporate ABS Programs
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ABS has used due diligence in the preparation of this certificate, and it represents the information on the product in the ABS Records as of the date and time the certificate is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

Acceptance of product is limited to the “Intended Service” details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or prior to the effective date of the ABS Rules and standards applied at the time of PDA issuance. ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. The manufacturer is responsible to maintain compliance with all specifications applicable to the product design assessment. Unless specifically indicated in the description of the product, certification under type approval does not waive requirements for witnessed inspection or additional survey for product use on a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.

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Confirmation of Product Type Approval

Company Name: INTERTRACO (ITALIA) S.P.A.

Address: VIA E. AMALDI, 1/A-B 46029 Italy

Product: Flexible Hose

Model(s): R1K, R2K & R2K+, 4ST, 4ST+ & 6ST, HST

Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	21-2176600-PDA	19-NOV-2021	18-NOV-2026
Manufacturing Assessment (MA)	21-4889778	06-AUG-2021	17-AUG-2026
Product Quality Assurance (PQA)	NA	NA	NA

Tier
3 - Type Approved, unit certification not required

Intended Service
Hydraulic Oils, both Mineral and Biological, Polyglycol Base Oils, Water-Oil Emulsion and Water

Description
R1K: Synthetic rubber tube with one high tensile steel wire braid covered with synthetic rubber cover abrasion resistant type, MSHA flame retardant approved.

R2K & R2K+: Synthetic rubber tube with two high tensile steel wire braids covered with synthetic rubber cover abrasion resistant type, MSHA flame retardant approved.

4ST: Synthetic rubber tube with four high tensile steel wire spirals covered with synthetic rubber cover abrasion resistant type, MSHA flame retardant approved.

4ST+ &6ST: Synthetic rubber tube with four/six high tensile steel wire spirals covered with synthetic rubber cover abrasion resistant type, MSHA flame retardant approved.

HST: Synthetic rubber tube with four/six high tensile steel wire spirals covered with synthetic rubber cover abrasion resistant type, MSHA flame retardant approved.

Ratings
R1K: from DN 06 to DN 25, pressure from 250 bar to 120 bar.

R2K & R2K+: from DN 06 to DN 25, pressure from 420 bar to 210 bar.

4ST: from DN 16 to DN 63, pressure from 350 bar to 140 bar.

4ST+ & 6ST: from DN10 to DN 63, pressure from 450 bar to 350 bar.

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HST: from DN 19 to DN 31, pressure 500 bar.

For additional details see attached table.

Service Restrictions
Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

1) Hoses are to be completed with factory assembled end fittings or factory supplied end fittings installed in accordance with manufacturer's specifications.

2) End connections are to comply with applicable requirements and limitation of Rules (4-6-2/5.5.4, 4-6-2/5.5.5, 4-6-7/3.5.1, 4-6-7/5.3.2).

3) Hose assemblies are to be installed only where flexibility is required, in clearly visible and readily accessible locations, and are not to be subject to torsional deflection under normal conditions; hose length is to be limited to that required by flexibility only.

4) Not to be used in high pressure fuel oil injection systems, steam systems or oil supply lines to boilers.

5) Not to be used for installations where repeated and/or frequent flexing is expected.

6) Flexible Hoses are to be permanently marked by the manufacturer with the following details: Hose manufacturer's name or trademark, date of manufacturer (month/year), designation type reference, nominal diameter, pressure and temperature rating in accordance with Marine Vessel Rules 4-6-2/5.7.6.

7) The scope of Type Approval is to comply with MSC.1/Circ.1221 dated 11 December 2006.

Comments
The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

Notes, Drawings and Documentation
Test report No. 4ST - BURST TEST REPORT - WITNESSED (Mantova, Italy, 11-dec-2018)

Test report No. 4ST - HOSE REPORT (Mantova, Italy, 11-dec-2018)

Drawing No. 4ST - Hose data sheet - Hydraulic Hoses Europe 018

Test report No. 4ST - IMPULSE TEST (Mantova, Italy, 17-mar-2017)

Test report No. 4ST+ & 6ST - BURST TEST REPORT - WITNESSED (Mantova, Italy, 11-dec-2018)

Test report No. 4ST+ & 6ST - HOSE REPORT (Mantova, Italy, 11-dec-2018)

Test report No. 4ST+ & 6ST - IMPULSE TEST REPORT (MANTOVA, ITALY, 17-MAR-2017)

Drawing No. 4ST+ - HOSE DATA SHEET - Hydraulic Hoses Europe 018

Drawing No. 6ST - HOSE DATA SHEET - Hydraulic Hoses Europe 019

Drawing No. APPLICATION LIST FOR TYPE APPROVAL RENEW 2021

Drawing No. BRIDGESTONE RECAP ABS 2021

Drawing No. MEDB00005AX-Bridgestone

Test report No. HST - BURST TEST REPORT - WITNESSED (Mantova, Italy, 11-dec-2018)

Test report No. HST - HOSE DATA SHEET - Hydraulic Hoses Europe 019

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Test report No. HST - HOSE REPORT (MANTOVA, ITALY, 11-DEC-2018)

Test report No. HST - IMPULSE TEST REPORT (MANTOVA, ITALY, 17-MAR-2017)

Drawing No. HST COMPLETE RANGE

Test report No. R1K - BURST TEST REPORT - WITNESSED (Mantova, Italy, 11-dec-2018)

Drawing No. R1K - HOSE DATA SHEET - Hydraulic Hoses Europe 018

Test report No. R1K - HOSE REPORT (MANTOVA, ITALY, 11-DEC-2018)

Test report No. R1K - IMPULSE TEST REPORT (MANTOVA, ITALY, 17-MAR-2017)

Test report No. R2K - BURST TEST REPORT - WITNESSED (Mantova, Italy, 11-dec-2018)

Drawing No. R2K - HOSE DATA SHEET - Hydraulic Hoses Europe 018

Test report No. R2K - HOSE REPORT (MANTOVA, ITALY, 11-DEC-2018)

Test report No. R2K - IMPULSE TEST REPORT (MANTOVA, ITALY, 17-MAR-2017)

Term of Validity
This Product Design Assessment (PDA) Certificate remains valid until 18/Nov/2026 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

ABS Rules
2021 Rules for Conditions of Classification, 1-1-4/7.7 & 1-1 Appendix 3 and 4, which covers the following:

2021 Rules for Building and Classing Marine Vessels Rules: 4-6-2/5.7

2021 Guide for Building and Classing Yachts: 4-1-1/3.3, 4-4-1/9.19

2021 Rules for Conditions of Classification - Mobile Offshore Units, 1-1-4/9.7 & 1-1 Appendix 2 and 3, which covers the following:

2021 Guide for Classification of Drilling Systems: 4-2-1/11.29

2021 Rules for Conditions of Classification - High-Speed Crafts 2021 1-1-4/11.9, 1-1-Appendix 2 & 3, which covers the following:

2021 Rules for Conditions of Classification - High-Speed Crafts: 4-4-1/9.19

International Standards
NA

EU-MED Standards
NA

National Standards
NA

Government Standards

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NA

Other Standards
NA

Corporate ABS Programs
American Bureau of Shipping
Print Date and Time: 26-Nov-2021 7:20

ABS has used due diligence in the preparation of this certificate, and it represents the information on the product in the ABS Records as of the date and time the certificate is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

Acceptance of product is limited to the “Intended Service” details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or prior to the effective date of the ABS Rules and standards applied at the time of PDA issuance. ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. The manufacturer is responsible to maintain compliance with all specifications applicable to the product design assessment. Unless specifically indicated in the description of the product, certification under type approval does not waive requirements for witnessed inspection or additional survey for product use on a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.

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LLOYD

Products type approvals

intertraco

Certificate No: LR2554266TA
Issue Date: 01/05/2025
Expiry Date: 30/04/2030

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

Manufacturer	**Intertraco Italia S.p.A.**
Address	Via E. Amaldi 1/A-B, Suzzara (MN), 46029, Italy
Type	Flexible Hoses
Description	Oil resistant synthetic rubber hoses reinforced with one, two, tensile steel wire braids or four or six high tensile spirals, covered with a synthetic rubber. For details see Manufacturer's data sheets Couplings one piece H, J, K, X and HLZ Couplings Two pieces B+SCX0T, B+SN03T, B+S312T, B+0420, I+S004I, I+S006I & I+S008I, S+S004I, S+S006I
Trade Name	FlexIT 1T, FlexIT 2T, FlexIT SC117, FlexITSK117, FlexIT SC216, FlexITSK216, Flex IT SK244, FlexIT H4, FlexIT SHP, FlexIT 5000, FlexIT 6000, 4ST,4ST+, 6ST, HST, R1K &R2K
Application	Hydraulic Systems (hydraulic oils, both mineral and biological; polyglycol base oils, water/oil emulsions, water.)
Specified Standard	Lloyd's Register Rules and Regulations for Classification of Ships 2024 Lloyd's Register Rules and Regulations for Classification of Offshore Units 2024 Lloyd's Register Rules and Regulations for Classification of Naval Ships 2024

Gopal Nair

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Type Approval Certificate

Ratings	See Appendix
Additional Tests	Fire tests in accordance with ISO 15440-2016 see DAD LR2554266TA for details. Burst tests see DAD LR2554266TA for details of burst tests. Impulse tests see DAD LR2554266TA for details of burst tests.
Other Conditions	1) Hoses are to be completed with factory assembled end fittings or factory supplied end fittings installed in accordance with manufacturer's specifications. 2) Hose assemblies are to be installed only where flexibility is required and are not to be subject to torsional deflection under normal conditions; hose length is to be limited to that required by flexibility only. 3) Not to be installed in machinery spaces where large amount of repeated flexing is expected in combination with pressure pulses, as defined in Part Chapter 12 of Rules and Regulations for Classification of Ships. 4) Flexible connections are to be short. 5) The hoses are not to be installed on drilling blow out control application as per API 16D and choke and kill hoses as per API 16C. 6) Hoses should not be used where heavy vibration is expected.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register North America, Inc. of any modification or changes to the equipment in order to obtain a valid Certificate.

Previous Version: New

The Design Appraisal Document TSO/24-026383/ PRJ11100468926/001/GN and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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Products type approvals

intertraco

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Table 12 - Intertraco (Italia) S.p.A. listing

Hose Number	Application Code	Hose ID	MAWP (psi)	Fittings	Fire Sleeve	Listing Date
C25-16	HF Type B	1	3625	J	—	11NOV15
C35-08	HF Type B	1/2	5076	K	—	11NOV15
C35-32	HF Type B	2	5076	H	—	11NOV15
F6000-12	HF Type B	3/4	6000	J	—	23AUG22
F6000-16	HF Type B	1	6000	J	—	23AUG22
F6000-20	HF Type B	1-1/4	6000	H	—	23AUG22
F6000-24	HF Type B	1-1/2	6000	H	—	23AUG22
F6000-32	HF Type B	2	6000	HLZ	—	23AUG22
H4-12	HF Type B	3/4	6000	J	—	23AUG22
H4-16	HF Type B	1	5500	J	—	23AUG22
H4-20	HF Type B	1-1/4	5000	J	—	23AUG22
H4-24	HF Type B	1-1/2	4300	J	—	23AUG22
H4-32	HF Type B	2	3600	J	—	23AUG22
MFH-04	HF Type B	1/4	500	K	—	24SEP25
MFH-05	HF Type B	5/16	500	K	—	24SEP25
MFH-06	HF Type B	3/8	500	K	—	24SEP25
MFH-08	HF Type B	1/2	500	K	—	24SEP25
MFH-10	HF Type B	5/8	500	K	—	24SEP25
MFH-12	HF Type B	3/4	500	K	—	24SEP25
MFH-16	HF Type B	1	500	K	—	24SEP25
PC25-10	HF Type B	5/8	3625	K	—	11NOV15
PC25-12	HF Type B	3/4	3625	J	—	11NOV15
PC25-20	HF Type B	1-1/4	3625	J	—	11NOV15
PC25-24	HF Type B	1-1/2	3625	J	—	11NOV15
PC35-06	HF Type B	3/8	5076	K	—	11NOV15
PC35-08	HF Type B	1/2	5076	K	—	11NOV15
PC35-10	HF Type B	5/8	5076	K	—	11NOV15
PC35-12	HF Type B	3/4	5076	J	—	11NOV15
PC35-16	HF Type B	1	5076	J	—	11NOV15
PC35-20	HF Type B	1-1/4	5076	H	—	11NOV15
PC35-24	HF Type B	1-1/2	5076	H	—	11NOV15
PC42-04	HF Type B	1/4	6091	K	—	11NOV15
R1AT-04	HF Type B	1/4	3263	K	—	11NOV15
R1K-04	HF Type B	1/4	3600	K	—	23AUG22
R1K-06	HF Type B	3/8	3000	K	—	23AUG22
R1K-08	HF Type B	1/2	2600	K	—	23AUG22
R1K-10	HF Type B	5/8	2200	K	—	23AUG22
R1K-12	HF Type B	3/4	2000	K	—	23AUG22
R1K-16	HF Type B	1	1750	K	—	23AUG22
R2AT-04	HF Type B	1/4	5801	K	—	11NOV15
R2AT-06	HF Type B	3/8	4786	K	—	11NOV15
R2AT-08	HF Type B	1/2	3988	K	—	11NOV15
R2AT-10	HF Type B	5/8	3625	K	—	11NOV15
R2AT-12	HF Type B	3/4	3118	J	—	11NOV15
R2AT-16	HF Type B	1	2393	J	—	11NOV15
R2AT-20	HF Type B	1-1/4	1812	J	—	11NOV15
R2AT-24	HF Type B	1-1/2	1305	J	—	11NOV15
R2AT-32	HF Type B	2	1160	J	—	11NOV15

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Table 12 - Intertraco (Italia) S.p.A. listing (continued)

Hose Number	Application Code	Hose ID	MAWP (psi)	Fittings	Fire Sleeve	Listing Date
R2K-04	HF Type B	1/4	6000	K	—	12JUL16
R2K-06	HF Type B	3/8	5000	K	—	12JUL16
R2K-08	HF Type B	1/2	5000	K	—	12JUL16
R2K-10	HF Type B	5/8	3600	K	—	12JUL16
R2K-12	HF Type B	3/4	3600	K	—	12JUL16
R2K-16	HF Type B	1	3000	K	—	12JUL16
SK117-04	HF Type B	1/4	4200	K	—	12JUL16
SK117-05	HF Type B	5/16	3600	K	—	12JUL16
SK117-06	HF Type B	3/8	3300	K	—	12JUL16
SK117-08	HF Type B	1/2	3000	K	—	12JUL16
SC216-04	HF Type B	1/4	5800	K	—	12JUL16
SC216-05	HF Type B	5/16	5000	K	—	12JUL16
SC216-06	HF Type B	3/8	5000	K	—	23AUG22
SC216-08	HF Type B	1/2	4000	K	—	12JUL16
SC216-10	HF Type B	5/8	3600	K	—	12JUL16
SC216-16	HF Type B	1	2400	K	—	12JUL16
SC216-06	HF Type B	3/8	5000	J	—	23AUG22
SC216-08	HF Type B	1/2	4000	J	—	12JUL16
SC216-10	HF Type B	5/8	3600	J	—	12JUL16
SC216-12	HF Type B	3/4	3600	J	—	23AUG22
SC216-12	HF Type B	3/4	3600	K	—	23AUG22
SC216-16	HF Type B	1	2400	J	—	12JUL16
SC216-40	HF Type B	2-1/2	1000	J	—	12JUL16
SC216-48	HF Type B	3	1000	J	—	12JUL16
SHP-06	HF Type B	3/8	6500	J	—	23AUG22
SHP-06	HF Type B	1/2	6000	J	—	23AUG22
SHP-06	HF Type B	5/8	5000	J	—	23AUG22
SHP-06	HF Type B	3/4	5000	J	—	23AUG22
SHP-06	HF Type B	1	4600	J	—	23AUG22
SK216-04	HF Type B	1/4	6500	K	—	12JUL16
SK216-05	HF Type B	5/16	6000	K	—	12JUL16
SK216-06	HF Type B	3/8	5500	K	—	12JUL16
SK216-08	HF Type B	1/2	5000	K	—	12JUL16
SK216-10	HF Type B	5/8	4200	K	—	12JUL16
SK216-12	HF Type B	3/4	4000	K	—	12JUL16
SK216-16	HF Type B	1	3300	K	—	12JUL16
SK216-06	HF Type B	3/8	5500	J	—	12JUL16
SK216-08	HF Type B	1/2	5000	J	—	12JUL16
SK216-10	HF Type B	5/8	4200	J	—	12JUL16
SK216-12	HF Type B	3/4	4000	J	—	12JUL16
SK216-16	HF Type B	1	3300	J	—	12JUL16
1T-04	HF Type B	1/4	3250	K	—	12JUL16
1T-05	HF Type B	5/16	3100	K	—	12JUL16
1T-06	HF Type B	3/8	2600	K	—	12JUL16
1T-06	HF Type B	3/8	2600	J		23AUG22
1T-08	HF Type B	1/2	2300	K	—	12JUL16
1T-08	HF Type B	1/2	2300	J		23AUG22
1T-10	HF Type B	5/8	1900	K	—	12JUL16
1T-10	HF Type B	5/8	1900	J		23AUG22
1T-12	HF Type B	3/4	1500	K	—	12JUL16
1T-16	HF Type B	1	1250	K	—	12JUL16
1T-12	HF Type B	3/4	1500	J	—	12JUL16
1T-16	HF Type B	1	1250	J	—	12JUL16
1T-20	HF Type B	1-1/4	920	J	—	12JUL16
1T-24	HF Type B	1-1/2	725	J	—	12JUL16
1T-32	HF Type B	2	580	J	—	12JUL16

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Table 12 - Intertraco (Italia) S.p.A. listing (continued)

Hose Number	Application Code	Hose ID	MAWP (psi)	Fittings	Fire Sleeve	Listing Date
2T-04	HF Type B	1/4	5800	K	—	12JUL16
2T-05	HF Type B	5/16	5000	K	—	12JUL16
2T-06	HF Type B	3/8	4800	K	—	12JUL16
2T-06	HF Type B	3/8	4800	J		23AUG22
2T-08	HF Type B	1/2	4000	K	—	12JUL16
2T-08	HF Type B	1/2	4000	J		23AUG22
2T-10	HF Type B	5/8	3600	K	—	12JUL16
2T-10	HF Type B	5/8	3600	J		23AUG22
2T-12	HF Type B	3/4	3100	K	—	12JUL16
2T-16	HF Type B	1	2400	K	—	12JUL16
2T-12	HF Type B	3/4	3100	J	—	12JUL16
2T-16	HF Type B	1	2400	J	—	12JUL16
2T-20	HF Type B	1-1/4	1800	J	—	12JUL16
2T-24	HF Type B	1-1/2	1300	J	—	12JUL16
2T-32	HF Type B	2	1150	J	—	12JUL16
4SH-12	HF Type B	3/4	6000	X	—	12JUL16
4SH-16	HF Type B	1	6000	J	—	12JUL16
4ST 10	HF Type B	5/8	5000	J	—	12JUL16
4ST 12	HF Type B	3/4	5000	J	—	12JUL16
4ST 16	HF Type B	1	5000	J	—	12JUL16
4ST 20	HF Type B	1-1/4	5000	J	—	12JUL16
4ST 24	HF Type B	1-1/2	4350	J	—	12JUL16
4ST 32	HF Type B	2	3600	J	—	12JUL16
4ST+ 06	HF Type B	3/8	6500	J	—	12JUL16
4ST+ 08	HF Type B	1/2	6000	J	—	12JUL16
4ST+ 10	HF Type B	5/8	6000	J	—	12JUL16
4ST+ 12	HF Type B	3/4	6000	J	—	12JUL16
4ST+ 16	HF Type B	1	6000	J	—	12JUL16
4ST+ 20	HF Type B	1-1/4	6000	J	—	12JUL16
6ST 20	HF Type B	1-1/4	6500	H	—	12JUL16
6ST 24	HF Type B	1-1/2	6000	H	—	12JUL16
6ST 32	HF Type B	2	6000	H	—	12JUL16
6ST 32	HF Type B	2	6000	HLZ	—	12JUL16

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