

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

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 GL 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

with type designation(s)

Flexible rubber hoses, types: HWB313, HWB323, 4SP391, 4SH392, HWB325, HWB315, R13/397, PS-R12/393, PS-R12/393P3, PS-R15/398, HWB R17/31/32C

Issued to

Polimer Kaucuk San.ve Paz. A.S.
ISTANBUL, Turkey

is found to comply with the requirements in the following Regulations/Standards:

Regulation **(EU) 2017/306,**

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

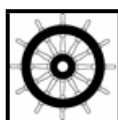
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2023-06-11.**

Issued at **Høvik** on **2018-06-12**

DNV GL local station:
Istanbul

Approval Engineer:
Adel Samiei



Notified Body
No.: **0575**

for **DNV GL AS**

Roald Vårheim
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 GL 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.



Product description

13 different types of non-metallic hose assemblies with permanently fitted 'Tieffe' couplings:-

1. HWB313 (FORCESTREAM 1AT)
Hoses designed & constructed according to SAE 100R1 AT from SAE J517/ EN 853 1SN:
Tube : oil resistant synthetic rubber;
Reinforcement : 1 layer of high tensile steel wire braid;
Cover : oil, abrasion and weather resistant synthetic rubber.
2. HWB323 (FORCESTREAM 2AT)
Hoses designed & constructed according to SAE 100R2 AT from SAE J517/ EN 853 2SN:
Tube : oil & glycol resistant synthetic rubber;
Reinforcement : 2 layers of high tensile steel wire braid;
Cover : oil, abrasion and weather resistant synthetic rubber.
3. HWB315 (FORCESTREAM 1SC)
Hoses designed & constructed according to EN 857 1SC:
Tube : oil & glycol resistant synthetic rubber;
Reinforcement : 1 layer of high tensile steel wire braid;
Cover : oil, abrasion and weather resistant synthetic rubber.
4. HWB325 (FORCESTREAM 2SC)
Hoses designed & constructed according to EN 857 2SC:
Tube : oil & glycol resistant synthetic rubber;
Reinforcement : 2 layers of high tensile steel wire braid;
Cover : oil, abrasion and weather resistant synthetic rubber.
5. PS-4SP391 (POWERSTREAM 4SP)
Hoses designed & constructed according to EN 856 4SP:
Tube : Oil & glycol resistant synthetic rubber;
Reinforcement : 4 layers of spiral plies of steel wire wrapped in alternating directions. Each spiral wire ply shall be separated by an insulating layer of synthetic rubber;
Cover : oil, abrasion and weather resistant synthetic rubber.
6. PS-4SH392 (POWERSTREAM 4SH)
Hoses constructed according to EN 856 4SH:
Tube : oil & glycol resistant synthetic rubber;
Reinforcement : 4 layers of spiral plies of steel wire wrapped in alternating directions. Each spiral wire ply shall be separated by an insulating layer of synthetic rubber;
Cover : oil, abrasion and weather resistant synthetic rubber.
7. PS-R12+/393P3 (POWERSTREAM R12+)
Hoses designed & constructed according to EN 856 R12:
Tube : oil & glycol fluid resistant synthetic rubber;
Reinforcement : 4 layers of spiral plies of steel wire wrapped in alternating directions. Each spiral wire ply shall be separated by an insulating layer of synthetic rubber;
Cover : oil, abrasion and weather resistant synthetic rubber.
8. PS-R12/393 (POWERSTREAM R12)
Hoses designed & constructed according to EN 856 R12:
Tube : oil & glycol fluid resistant synthetic rubber;
Reinforcement : 4 layers of spiral plies of steel wire wrapped in alternating directions. Each spiral wire ply shall be separated by an insulating layer of synthetic rubber;
Cover : oil, abrasion and weather resistant synthetic rubber.
9. HWBR17/31C-32C (FORCESTREAM R17)
Hoses designed & constructed according to SAE 100R17 from SAE J517:
Tube : oil & glycol fluid resistant synthetic rubber;

Reinforcement : 1 or 2 layers of spiral plies of steel wire;
Cover : oil, abrasion and weather resistant synthetic rubber.

10. HWBR16/32F (SELPLUS 2S)

Hoses designed & constructed according to SAE 100R16 from SAE J517:

Tube : oil & glycol fluid resistant synthetic rubber;
Reinforcement : 2 layers of spiral plies of steel wire;
Cover : oil, abrasion and weather resistant synthetic rubber.

11. W3-HWB300 (WOOD 3 wire)

Tube : oil & glycol fluid resistant synthetic rubber;
Reinforcement : 3 layers of high tensile steel wire braid;
Cover : oil, abrasion and weather resistant synthetic rubber.

12. HWB2N-K32S (SUPERSTREAM 2K)

Tube : oil & glycol fluid resistant synthetic rubber;
Reinforcement : 2 layers of high tensile steel wire braid;
Cover : oil, abrasion and weather resistant synthetic rubber.

13. HWB2N-K32U (ULTRASTREAM 2K)

Tube : oil & glycol fluid resistant synthetic rubber;
Reinforcement : 2 layers of high tensile steel wire braid;
Cover : oil, abrasion and weather resistant synthetic rubber.

14. HWB1N-K31S (SUPERSTREAM 1K)

Tube : oil & glycol fluid resistant synthetic rubber;
Reinforcement : 1 layer of high tensile steel wire braid;
Cover : oil, abrasion and weather resistant synthetic rubber.

15. PS-R15/398

Hoses designed & constructed according to SAEJ517 100R15
Tube : oil & glycol resistant synthetic rubber;
Reinforcement : 4 or 6 layers of high tensile steel wire braid;
Cover : oil, abrasion and weather resistant synthetic rubber.

16. PS-R13/397

Hoses designed & constructed according to SAEJ517 100R13
Tube : oil & glycol resistant synthetic rubber;
Reinforcement : 4 or 6 layers of high tensile steel wire braid;
Cover : oil, abrasion and weather resistant synthetic rubber.

Hose Manufacturer: Polimer Kaucuk San.ve Paz. A.S., Istanbul, Turkey
Coupling Manufacturer : Tieffe S.p.a., Via Dell'industria 7, 27010 Cura Carpignano (PV), Italy
Material of construction : Grade 11 SMnPb 37 from EN 10277-3

Application/Limitation

Hose assemblies covered by this certificate are tested according to:

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

Hose assemblies are suitable for use with petroleum base hydraulic fluids and water base hydraulic fluids.

Nominal size, ID			HWB313 (FORCESTREAM 1AT)			HWB323 (FORCESTREAM 2AT)		
			Max. working pressure (bar)	Coupling type		Coupling type		Insert part #
SAE	inch	DN		Ferrule part #	Insert part #	Max. working pressure (bar)	Ferrule part #	
-3	3/16"	5	250	BXT103	CX03	415	BXT203	CX03

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-4	¼"	6	225	BXT104/ BNK104	CX04	400	BXT204	CX04
-5	5/16"	8	215	BXT105/ BNK105	CX05	350	BXT205	CX05
-6	3/8"	10	180	BXT106/ BNK106	CX06	330	BXT206	CX06
-8	½"	12	160	BXT108/ BNK108	CX08	275	BXT208	CX08
-10	5/8"	16	130	BXT110/ BNK110	CX10	250	BXT210	CX10
-12	¾"	19	105	BXT112/ BNK112	CX12	215	BXT212	CX12
-16	1"	25	88	BXT116/ BNK116	CX16	165	BXT216	CX16
-20	1 ¼"	31	63	BXT120	CX20	125	BXT220	CX20
-24	1 ½"	38	50	BXT124	CX24	90	BXT224	CX24
-32	2"	51	40	BXT132	CX32	80	BXT232	CX32

Nominal size, ID			HWB315 (FORCESTREAM 1SC)			HWB325 (FORCESTREAM 2SC)		
			Max. working pressure (bar)	Coupling type		Max. working pressure (bar)	Coupling type	
SAE	inch	DN		Ferrule part	Insert part		Ferrule part	Insert part
-4	¼"	6	225	BXC04/ BNK104	CX04	400	BXT104/BNK104	CX04
-5	5/16"	8	215	BXC05/ BNK105	CX05	350	BXT105/BNK105	CX05
-6	3/8"	10	180	BXC06/ BNK106	CX06	330	BXT106/BNK106	CX06
-8	½"	12	160	BXC08/ BNK108	CX08	275	BXT108/BNK108	CX08
-10	5/8"	16	130	BXC10/ BNK110	CX10	250	BXT110/BNK110	CX10
-12	¾"	19	105	BXC12/BNK112	CX12	215	BXT112/BNK112	CX12
-16	1"	25	88	BXC16/ BNK116	CX16	165	BXT116/BNK116	CX16

Nominal size, ID			PS-4SP391 (POWERSTREAM 4SP)			PS-4SH392 (POWERSTREAM 4SH)		
			Max. working pressure (bar)	Coupling type		Max. working pressure (bar)	Coupling type	
SAE	inch	DN		Ferrule part #	Insert part #		Ferrule part #	Insert part #
-4	¼"	6	450	BXS04	CX04	-	-	-
-6	3/8"	10	445	BXS06	CX06	-	-	-
-8	½"	12	415	BXS08	CX08	-	-	-
-10	5/8"	16	350	BXS10	CX10	-	-	-
-12	¾"	19	350	BXS12	CX12	420	BXS12	CX12
-16	1"	25	280	BXS16	CX16	380	BXS16	CX16
-20	1 ¼"	31	210	BXS20	CX20	350	BXSH20	CX20
-24	1 ½"	38	185	BXS24	CX24	290	BXSH24	CX24
-32	2"	51	165	BXS32	CX32	250	BXSH32	CX32

Nominal size, ID			PS-R12/393P3 (POWERSTREAM R12+)			HWBR17 (FORCESTREAM R17) (*)		
			Max. working pressure (bar)	Coupling type		Max. working pressure (bar)	Coupling type	
SAE	inch	DN		Ferrule part	Insert part		Ferrule part	Insert part
-4	¼"	6	-	-	-	210	BNK104	CX04
-5	5/16"	8	-	-	-	210	BNK105	CX05
-6	3/8"	10	280	BXT406	CX06	-	-	-
-8	½"	12	280	BXT408	CX08	210	BNK108	CX08
-10	5/8"	16	280	BXT410	CX10	210	BNK110	CX10
-12	¾"	19	280	BXT412A	CX12	210	BNK112	CX12
-16	1"	25	280	BXT416A	CX16	210	BNK116	CX16
-20	1 ¼"	31	210	BXS20	CX20	-	-	-
-24	1 ½"	38	175	BXS24	CX24	-	-	-
-32	2"	51	175	BXS32	CX32	-	-	-

(*) -4, -5 & -8: H31C-ONE WIRE / -8, -10, -12 & -16: H32C-TWO WIRES

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Nominal size, ID			HWBR16/32F (SELPLUS 2S)			HWB2N-K32S (SUPERSTREAM 2K)		
			Max. working pressure (bar)	Coupling type		Max. working pressure (bar)	Coupling type	
SAE	inch	DN		Ferrule part	Insert part		Ferrule part	Insert part
-4	¼"	6	400	BNK104	CX04	450	BXT104/ BNK104	CX04
-5	5/16"	8	350	BNK105	CX05	420	BXT105/ BNK105	CX05
-6	3/8"	10	330	BNK106	CX06	385	BXT106/ BNK106	CX06
-8	½"	12	275	BNK108	CX08	345	BXT108/ BNK108	CX08
-10	5/8"	16	250	BNK110	CX10	290	BXT110/ BNK110	CX10
-12	¾"	19	215	BNK112	CX12	280	BXT112/ BNK112	CX12
-16	1"	25	165	BNK116	CX16	200	BXT116/ BNK116	CX16

Nominal size, ID			W3-HWB300 (WOOD)			HWB1N-K31S (SUPERSTREAM 1K)		
			Max. working pressure (bar)	Coupling type		Max. working pressure (bar)	Coupling type	
SAE	inch	DN		Ferrule part	Insert part		Ferrule part	Insert part
-4	¼"	6	-	-	-	290	BXC04/ BNK104	CX04
-5	5/16"	8	-	-	-	250	BXC05/ BNK105	CX05
-6	3/8"	10	500	BXS06	CX06	230	BXC06/ BNK106	CX06
-8	½"	12	470	BXS08	CX08	200	BXC08/ BNK108	CX08
-10	5/8"	16	410	BXS10	CX10	150	BXC10/ BNK110	CX10
-12	¾"	19	375	BXS12	CX12	150	BXC12/ BNK112	CX12
-16	1"	25	327	BXS16	CX16	110	BXC16/ BNK116	CX16

Nominal size, ID			PS-R12/393			PS-R15/398		
			Max. working pressure (bar)	Coupling type		Max. working pressure (bar)	Coupling type	
SAE	inch	DN		Ferrule part	Insert part		Ferrule part	Insert part
-12	¾"	19	280	BSS412/BSN412A	CS12	420	BSS612/BSS412A	CS12
-16	1"	25	280	BSS416/BSN416A	CS16	420	BSS616/BSN416A	CS16
-20	1 ¼"	31	210	BSS420/BSN420A	CS20	420	-	-
-24	1 ½"	38	175	BSS424/BSN424A	CS24	420	BSS624	CS24
-32	2"	51	175	BSS432/BSN432A	CS32	420	-	-

Nominal size, ID			PS-R13/397			PS-4SP391		
			Max. working pressure (bar)	Coupling type		Max. working pressure (bar)	Coupling type	
SAE	inch	DN		Ferrule part	Insert part		Ferrule part	Insert part
-12	¾"	19	345	BSS612/BSN412A	CS12	350	BSS612/BSS412/ BSN412A	CS12
-16	1"	25	345	BSS616/BSN416A	CS16	280	BSS616/BSS416/ BSN416A	CS16
-20	1 ¼"	31	345	BSS620	CS20	210	BSS620/BSS420	CS20
-24	1 ½"	38	345	BSS624	CS24	185	BSS624/BSS424	CS24
-32	2"	51	345	BSS632	CS32	165	BSS632/BSS432	CS32

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Nominal size, ID			PS-4SH392		
			Max. working pressure (bar)	Coupling type	
SAE	inch	DN		Ferrule part	Insert part
-12	3/4"	19	420	BSS412/BSN412A	CS12
-16	1"	25	380	BSS416/BSN416A	CS16
-20	1 1/4"	31	325	BSS420/BSN420A	CS20
-24	1 1/2"	38	290	BSS424/BSN424A	CS24
-32	2"	51	250	BSS432/BSN432A	CS32

Nominal size, ID			HWB2N-K32U (ULTRASTREAM 2K)		
			Max. working pressure (bar)	Coupling type	
SAE	inch	DN		Ferrule part	Insert part
-4	1/4"	6	450	BXT104/ BNK104	CX04
-5	5/16"	8	420	BXT105/ BNK105	CX05
-6	3/8"	10	385	BXT106/ BNK106	CX06
-8	1/2"	12	345	BXT108/ BNK108	CX08
-10	5/8"	16	320	BXT110/ BNK110	CX10
-12	3/4"	19	300	BXT112/ BNK112	CX12
-16	1"	25	225	BXT116/ BNK116	CX16

Type Examination documentation

Tests carried out

Fire tests carried out according to ISO 15540/15541

Marking of product

As a minimum, the final products (hoses with couplings) are to be marked with:

- Manufacturers name or trademark
- Manufacturer's address
- Specification or hose name
- Hose size
- Date code (quarterly and daily production code)