



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **P-14031**

This is to certify that the
Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

with type designation(s)
R1S - R1AT, R2S - R2AT

Manufactured by
INTERTRACO ITALIA SPA
Suzzara MN, Italy

is found to comply with
Det Norske Veritas' Rules for Classification of Ships
Det Norske Veritas' Offshore Standards
Det Norske Veritas' Standards for Certification 2.9 No. 5-791.70

Application

May be used for hydraulic, fuel oil, lube oil, cargo oil, compressed air, fresh water, sea water

Type:	Temperature range:	Max. working press.:	Sizes:
R1S - R1AT	-40 °C to + 100 °C	40 - 225 bar size and type dependent.	See certificate
R2S - R2AT	-40 °C to + 100 °C	80 - 400 bar	see certificate

Høvik, 2012-03-19
for **Det Norske Veritas AS**

This Certificate is valid until
2016-06-30

Marianne Spæren
Head of Section

DNV local office:
Milan

Tom Berg-Nielsen
Surveyor

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.
If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

Product description

Type EN 853 1SN/SAE J517 100R1S Synthetic rubber hose with one internal steel wire braid. Cover of synthetic rubber
Coupling types: K, J and B+SN03T

Type EN 853 2SN/SAE J517 100R2S: Synthetic rubber hose with two internal steel wire braids. Cover of synthetic rubber
Coupling types: K, J, B+SN03T and B+S0420

Coupling material: Carbon steel and stainless steel.

Hose manufacturer: Bridgestone, Tokyo, Japan.

Coupling manufacturer: Intertraco Italy SpA, Suzzara MN, Italy

Application/Limitation

The hoses can be used in the systems mentioned on the front page for the following working pressures:

R1S – R1AT

Sizes			Max working pressure
DN	inch	Size	bar
6	1/4"	04	225
10	3/8"	06	180
12	1/2"	08	160
16	5/8"	10	130
19	3/4"	12	105
25	1"	16	88
31	1 1/4"	20	63
38	1 1/2"	24	50
51	2"	32	40

R2S – R2AT

Sizes			Max working pressure
DN	inch	Size	bar
6	1/4"	04	400
10	3/8"	06	330
12	1/2"	08	275
16	5/8"	10	250
19	3/4"	12	215
25	1"	16	165
31	1 1/4"	20	125
38	1 1/2"	24	90
51	2"	32	80

Temperature range: -40°C to +100°C

All hose assemblies delivered under this type approval certificate shall be in compliance with an assembly procedure issued by the certificate holder.

Each hose assembly is before delivery to be hydraulic pressure tested to 1.5 times the maximum working pressure.

Hose assemblies delivered from the certificate holder shall be delivered with the following documentation:

- Pressure test report with reference to the type approval certificate.

The hose assemblies covered by this type approval may be assembled and delivered by other than the certificate holder under the following conditions:

- The assembler is authorised by a written authorization from the certificate holder. The certificate holder shall keep record of all assembler authorisations.

- Hose assemblies are in accordance with an assembly procedure issued by the certificate holder and the assembler has proved their qualifications by burst testing of a selection of hose/coupling combinations. One sample of each hose type is to be burst tested and the testing is to be witnessed by DNV. This testing is to be performed at least once every 4 years.

Hoses used for continuous operation at temperatures higher than 100°C will have their lifetime reduced. In such cases more frequent inspections and planned exchange should be a part of the maintenance program.

For compressed air or gases above 16 bar the cover is to be pin pricked.

The hoses shall not replace/be used where permanent piping is possible/required.

The hoses must only be fitted in places where they are always accessible.

Flexible hoses of these types are not to be used in boiler fronts.

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

It must be possible to shut off from the system all flexible hoses used in systems for compressed air, lube oil, fuel oil and petroleum base hydraulic oil.

Each hose is to be hydraulic pressure tested to 1.5 times the maximum working pressure and to be delivered with manufacturer's pressure test certificate.

Hose assemblies with couplings made of carbon steel are not to be used at temperatures below -10°C unless the material is normalized.

Type Approval documentation

Tests carried out

Impulse test, burst test, fire test, oil resistance of inner tube test, ozone resistance of outer cover test, cold flex test, cover adhesion test, change in length test, dimensional check test

Marking of product

For traceability to this type approval the hoses are to be marked with:

BRIDGESTONE: R1S, R2S

PIRTEK: R1AT, R2AT

Certificate Retention Survey

For retention of the Type Approval, DNV Surveyor shall perform a survey every second year, to verify that the conditions for the type approval are complied with and to witness the following tests on a selection of sizes:

- Dimensional check.
- Change in length
- Leakage test
- Burst test

The tests shall be performed in accordance with procedures given in Det Norske Veritas' Certification Notes

Certificate No.: P-14031
File No.: 791.70
Job Id.: 262.1-012525-1

no. 2.9 -5-791.70 "Type Approval of Flexible Hoses of Non-Metallic Material" or another recognised standard.

The tests are to be performed with the type of couplings fitted that are Type Approved with the hoses.

END OF CERTIFICATE