



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. P-14024

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

with type designation(s)
EN 856 4SP, EN 856 4SH, EN 856 R13, SAE 100 R15
Fitted couplings type: **Volz Couplings**

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

is found to comply with
Det Norske Veritas' Rules for Classification of Ships
Det Norske Veritas' Standards for Certification 2.9 No. 5-791.70
Offshore Standard DNV-OS-D101, Marine and Machinery Systems and Equipment

Application

The hoses may be used for: **Petroleum base hydraulic fluids, water glycol and water emulsion hydraulic fluids, fuel oil, lubrication oil, compressed air, water and sanitary**

Temperature range: **-40°C to +121°C (type dep. see cert.)**
Max. working press.: **165 bar to 450 bar (size dep. see cert.)**
Sizes: **DN6 to 51**

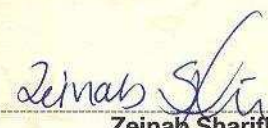
Høvik, 2012-02-02
for Det Norske Veritas AS



This Certificate is valid until
2016-06-30


Marianne Spæren
Head of Section

DNV local office:
Istanbul


Zeinab Sharifi
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.



Certificate No.: P-14024
 File No.: 791.70
 Job Id.: 262.1-012718-1

Product description

EN 856 -4SP type : Synthetic rubber inner tube reinforced by 4 steel wire braids, synthetic rubber cover
 The hose designation defines the manufacturer of the hose. Contact Polimer Kaucuk San. Ve Paz. A.S for further information.
 Coupling manufacturer: Volz Gruppe GmbH, Germany.
 Couplings designation/type: N-PF 5 (DN 06 TO DN 50)

EN856- 4SH type: Synthetic rubber tube reinforced by 4 steel wire spirals, synthetic rubber cover.
 The hose designation defines the manufacturer of the hose. Contact Polimer Kaucuk San. Ve Paz. A.S for further information.
 Coupling manufacturer: Volz Gruppe GmbH, Germany.
 Couplings designation/type: PFI-4SH/R13/R15-DN20 , PFI-4SH/R13/R15-DN25, PFI-4SH (DN 32, DN 40, DN 50)

EN 856- R13 type: Synthetic rubber inner tube reinforced by 4 (sizes 12 and 16) or 6 (all other sizes) steel wire spirals, synthetic rubber cover. The hose designation defines the manufacturer of the hose. Contact Polimer Kaucuk San. Ve Paz. A.S for further information.
 Coupling manufacturer: Volz Gruppe GmbH, Germany.
 Couplings designation/type: PFI-4SH/R13/R15-DN20 , PFI-4SH/R13/R15-DN25, PFI-R13/R15-DN 32, PFI-R13/R15-DN 40, PFI-R13-DN 50

SAE 100-R15 type: Synthetic rubber inner tube reinforced by 4 (sizes 12 and 16) or 6 (all other sizes) steel wire spirals, synthetic rubber cover. The hose designation defines the manufacturer of the hose. Contact Polimer Kaucuk San. Ve Paz. A.S for further information.
 Coupling manufacturer: Volz Gruppe GmbH, Germany.
 Couplings designation/type: PFI-4SH/R13/R15-DN20 , PFI-4SH/R13/R15-DN25 , PFI-R13/R15-DN 32, PFI-R13/R15-DN 40

Application/Limitation

Maximum working pressure:

Dimension		Max working pressure, bar			
[mm]	[inch]	4SP	4SH	R13	R15
DN06	¼"	450	-	-	-
DN08	5/16"	-	-	-	-
DN10	3/8	445	-	-	-
DN12	1/2	415	-	-	-
DN16	5/8	350	-	-	-
DN19	3/4	350	420	345	420
DN25	1	280	380	345	420
DN31	1 ¼	210	350	345	420
DN38	1 ½	185	290	345	420
DN51	2	185	250	345	420

Temperature range:
 For hydraulics: -40°C to + 100°C, occasionally to +125°C, for Polyglycolbase oils, Water-oil emulsions and fresh water, max +85°C.

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 on boiler fronts.

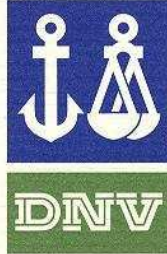
The hoses are to be mounted in accordance with the manufacturer's instructions.

The Rules Pt.4 Ch.1 Sec.6D and the respective Government Authorities Regulations to be complied with.

This approval does not cover hydraulic and/or pneumatic power and control systems for steering gears.

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

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Each hose is to be hydraulic pressure tested to 1.5 times the working pressure.

No product certificate will be required.

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

The type approval is based on the following documentation:

- Application for type approval certificate from DNV Istanbul, dated 2011.08.17.
- Type approval survey report from DNV Istanbul, dated 2011.12.12
- DNV witnessed burst test reports from DNV Istanbul.
- Other required technical drawings and test reports.

Tests carried out

Dimensional check, Change in length, Burst test, Impulse test, Oil Resistance, Ozone Resistance, Vacuum resistance, Cold Flexibility,

Marking of product

For traceability to this Type Approval, the products are at least to be marked with:

- Manufacturer's name or trade mark
- Type designation
- All technical data necessary for the application.

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
- Vacuum resistance
- Cold Flexibility
- Oil resistance
- Ozone resistance

The tests shall be performed in accordance with procedures given in Det Norske Veritas' Standard for Certification no. 2.9, Program 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

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