



# DET NORSKE VERITAS

## TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. P-14023

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

with type designation(s)  
**EN853 1SN, EN 853 2SN, EN 857 1SC, EN 857 2SC, 2SN-K**  
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 +100°C**  
Max. working press.: **40 bar to 450 bar (size dep. see cert.)**  
Sizes: **DN5 to 51 (type dep. see cert.)**

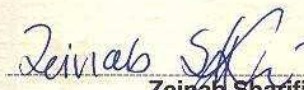
Høvik, 2012-02-02  
for Det Norske Veritas AS



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-14023  
 File No.: 791.70  
 Job Id.: 262.1-012718-1

### Product description

EN 853 1SN type. Synthetic rubber inner tube reinforced by 1 steel wire braid, flame retardant 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 3 (DN6 TO DN 50)

EN 853 2SN type. Synthetic rubber inner tube reinforced by 2 steel wire braids, flame retardant 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 3 (DN 6 TO DN 25) , N-PF 11 (DN 32, DN 40 , DN 50)

EN857 1SC type. Synthetic rubber tube reinforced by 1 steel wire braid, 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 3 (DN6 TO DN 25)

EN 857 2SC type. Synthetic rubber inner tube reinforced by 2 steel wire braids, flame retardant 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 3 (DN6 TO DN 25)

2 SN-K type: Synthetic rubber hose with two internal steel wire braids. 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 3 (DN6 TO DN 25)

### Application/Limitation

Maximum working pressure:

Dimension		Max working pressure [bar]				
[mm]	[inch]	1SN	2SN	1SC	2SC	2 SN-K
DN05	1/5"	250	415	-	-	-
DN06	1/4"	225	400	225	400	450
DN08	5/16"	215	350	215	350	420
DN10	3/8"	180	330	180	330	380
DN12	1/2"	160	275	160	275	325
DN16	5/8"	130	250	130	250	290
DN19	3/4"	105	215	105	215	250
DN25	1"	88	165	88	165	190
DN31	1 1/4"	63	125	-	-	-
DN38	1 1/2"	50	90	-	-	-
DN51	2"	40	80	-	-	-

Temperature range: -40°C to + 100°C

The hoses may not be used in vacuum systems.

For compressed air and/or gases above 16 bar the cover is to be pin prickled.

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.



Certificate No.: P-14023  
File No.: 791.70  
Job Id.: 262.1-012718-1

- 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 a year.

Flexible hoses are only to be used 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 hoses must only be fitted in places where they are always accessible.

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 working pressure, and to be delivered with the 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**

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, Vacuum Resistance,, Ozone 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

*TOBU ZEINT*