

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

with type designation(s)
SEL Tornado+6

Issued to

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

is found to comply with

DNV class programme DNV-CP-0183 – Type approval – Flexible non-metallic hoses
DNV rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV-OS-D101 – Marine and machinery systems and equipment, Edition July 2021

Application :

Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV.

Temperature range: -40 °C to +120 °C
Max. working press.: See second page
Sizes: 3/4", 1", 1 1/4", 1 1/2", 2", 2 1/2", 3"

Issued at **Høvik** on **2022-03-16**

This Certificate is valid until **2027-03-15**.

for **DNV**

DNV local station: **Istanbul**

Approval Engineer: **Jane Lozanov**

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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

Non-metallic synthetic rubber type hoses with permanently fitted couplings with 6 wire reinforcement and synthetic rubber cover, designed according to ISO 18752.
ISO 18752 type: CC

Manufacturing location:

Hoses : Polimer Kaucuk San.Paz. A.S.,
Istanbul, Turkey

Couplings

Dietzel : Dietzel GmbH, Herdekamp 8, 46509 Xanten, Germany
Intertraco : Intertraco italia Spa, Via Amaldi Edoardo, 1A, 46029 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.

Hose size (I.D.mm)	Max. working pressure (bar)	Couplings type
¾" (19 mm)	560	Dietzel 860-12 / 8.881-12-12 : 36.0 ± 0.15mm
1" (25.4 mm)	560	Dietzel 860-16 / 8.881-16-16 : 46.5 ± 0.15mm
1 ¼" (31.8 mm)	525 *	Dietzel 860-20 / 8.821-20-20 : 53.0 ± 0.15mm
1 ½" (38.1 mm)	475 *	Intertraco S006I24 / AY10I2424: 60.5 ± 0.15mm
2" (50.8 mm)	420	Intertraco S006I-32 / AY10I3232: 74.5 ± 0.15mm
2 ½" (63.5 mm)	350	Intertraco S006I-40 / AY10I4032: 87 ± 0.15mm
3" (76.2 mm)	210	Intertraco S006I-48 / AY10I4832: 105 ± 0.25mm

* These hoses exceed pressure classes (class 420 and 490 respectively) stated in ISO 18752. However, the technical requirements in above stated standard are met.

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.

Suitable for use in hydraulic systems with peak pressure and arduous operating conditions, with petroleum and water-glycol base fluids, for lubricating oils and water.

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 a recognized standard;
- 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 8], 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

Burst test, fire resistance test, elongation/contraction test, vacuum test, impulse test, adhesion test, fluid compatibility test, abrasion, ozone resistance, cold flexibility test.

Marking of product

Hoses meeting the requirements of ISO 18752 standard shall be marked at least once every 760 mm with at least following information:

- hose manufacturer's name or trademark;



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Certificate No: **TAP00002FJ**

- 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.