DNV·GL

Certificate No:
TAP00000MD

TYPE APPROVAL CERTIFICATE

This is to certify:

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

with type designation(s)
Trale/Triagle hoses with DICSA stainless/carbon steel permanently fitted couplings
(see second page of this certificate for product description)

Issued to
DISTRIBUIDORA INTERNACIONAL CARMEN, S.A -DICSA-
Zaragoza Zaragoza, Spain

is found to comply with
DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition July 2015

Application :

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

Temperature range:	**Dependent on the application (see page 2)**
Max. working press.:	**Dependent on the size (see page 2)**
Sizes:	**DN 6/8/10/12/16/19/25/31/38/51 (see page 2)**

This Certificate is valid until **2019-06-30**.

Issued at **Høvik** on **2016-11-28**
DNV GL local station: **Barcelona** for **DNV GL**

Approval Engineer: **Zeinab Sharifi**

Marianne Spæren Marveng
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.

© DNV GL 2014. DNV GL and the Horizon Graphic are trademarks of DNV GL AS.

Job Id:
Certificate No: **TAP00000MD**

Product description

Six types of flexible hoses of non-metallic material with permanently fitted couplings.

Hoses (Semperit hoses) Branded TrΔle® /Triagle and Semperit:

TrΔle® / Triagle SAE 100 R1AT	EN853 1SN	DN 6/8/10/12/16/19/25/31/38/51
TrΔle® / Triagle SAE 100 R2AT	EN853 2SN	DN 6/8/10/12/16/19/25/31/38/51
TrΔle® / Triagle SAE 100 R9R (4SP)	EN856 4SP	DN 10/12/16/19/25/31/38/51
TrΔle® / Triagle	EN856 4SH	DN 19/25/31/38/51
TrΔle®	EN857 1SC	DN 6/8/10/12/16/19/25
TrΔle®	EN857 2SC	DN 6/8/10/12/16/19/25

DISCA Couplings made of stainless steel (AISI 316L / 1.4404) and carbon steel (EN 10277-3, 1.0737).

Application/Limitation

Hose assemblies are suitable for use with:

- hydraulic fluids in accordance with ISO 6743-4 with the exception of HFD R, HFD S and HFD T at temperatures ranging from -40 °C + 100°C;
- water based fluids at temperatures ranging from -40 °C to +70°C;
- water at temperatures ranging from 0 °C to +70°C.

Maximum working pressure as below:

Size	EN853 1SN (bar)	EN853 2SN (bar)	EN 856 4SP (bar)	EN 856 4SH (bar)	EN857 1SC (bar)	EN857 2SC (bar)
DN6	225	400	-	-	225	400
DN8	215	350	-	-	215	350
DN10	180	330	445	-	180	330
DN12	160	275	415	-	160	275
DN16	130	250	350	-	130	250
DN19	105	215	350	420	105	215
DN25	88	165	280	380	88	165
DN31	63	125	210	325	-	-
DN38	50	90	185	290	-	-
DN51	40	80	165	250	-	-

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.

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

All hose assemblies delivered under the DNV GL 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 the type approval certificate.

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

Hoses shall not be subjected to pressures below atmospheric pressure.

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

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

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

Job Id:
Certificate No: **TAP00000MD**

Type Approval documentation

Tests carried out

On the hoses: Dimensional check test, Change in length test, Cold flexibility test, Oil Resistance test, Cover adhesion test, Ozone resistance test

On the hose assembly: Burst test, Fire test, Impulse test

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
- Maximum working pressure

Periodical assessment

For retention of the Type Approval, DNV GL Surveyor shall perform a periodical assessment 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 are to be performed with the type of couplings fitted that are Type Approved with the hoses.