

**TYPE APPROVAL CERTIFICATE****This is to certify:****That the Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings**

with type designation(s)

**Alfagomma: 1 SN Temp-tech / Dunlop Hiflex: Commander 1SN**

Issued to

**Alfagomma Hydraulic S.p.A.  
Castelnuovo Vomano TE TE, Italy**

is found to comply with

**DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems****DNVGL-OS-D101 – Marine and machinery systems and equipment, Edition July 2015****DNV GL class programme DNVGL-CP-0183 – Type approval – Flexible hoses****Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Temperature range: -40°C to 150°C (see cert.)****Max. working press.: 40 to 225 bar****Sizes: DN 6/10/12/16/19/25/31/38/51 (1/4" to 2")**Issued at **Høvik** on **2017-12-12**for **DNV GL**This Certificate is valid until **2018-03-31**.DNV GL local station: **Milan**Approval Engineer: **Adel Samiei****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.



## Product description

Designation: 1SN Temp-tech acc. to EN 853 1SN and SAE 100 R1AT  
 Tube: Oil resistant synthetic rubber compound  
 Cover: Syntetic rubber compound, weather-, oil- and abrasion, Ozone and hydrocarbon resistant  
 Couplings: Alfagomma and Dunlop Hiflex series of inserts and ferrules in carbon or stainless steel

Hose size			Carbon Steel 11SMnPb30 according UNI EN 10277 Stainless Steel AISI 304 - AISI 316				
			Skive fittings		No skive fittings		
Dash	DN	inch	AG Branding		DH Branding	AG Branding	DH Branding
- 04	6	¼	H1100204-04	H1100SK1-04	D330000-04	H1200AD1-04	D110000-04
- 06	10	3/8	H1100204-06	H1100SK1-06	D330000-06	H1200AD1-06	D110000-06
- 08	12	½	H1100204-08	H1100SK1-08	D330000-08	H1200AD1-08	D110000-08
- 10	16	5/8	H1100204-10	H1100SK1-10	D330000-10	H1200AD1-10	D110000-10
- 12	19	¾	H1100204-12	H1100SK1-12	D330000-12	H1200AD1-12	D110000-12
- 16	25	1	H1100204-16	H1100SK1-16	D330000-16	H1200AD1-16	D110000-16
- 20	31	1 ¼	H1100104-20	-	-	H1200AD1-20	D110000-20
- 24	38	1 ½	H1100104-24	-	-	H1200AD1-24	D110000-24
- 32	51	2	H1100104-32	-	-	H1200AD1-32	D110000-32

Couplings manufacturer:

- Alfagomma Hydraulic S.p.A., Zona Industriale Piano Lago, 87050 Mangone (CS)

Hoses manufacturer:

- Alfagomma Hydraulic S.p.A., Via Enrico Mattei no.6, 64020 – Castelnuovo, Vomano (TE)
- Alfagomma Hydraulic S.p.A., Area Industriale Piano Lago, 87050 Figline Vegliaturo (CS)

## 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			Maximum working pressure in bar
Dash	DN	inch	
- 04	6	¼	225
- 06	10	3/8	180
- 08	12	½	160
- 10	16	5/8	130
- 12	19	¾	105
- 16	25	1	88
- 20	31	1 ¼	63
- 24	38	1 ½	50
- 32	51	2	40

Hose assemblies covered by this certificate may be used in

- petroleum based (-40°C to +150°C)
- water based Hydraulic fluids and compressed air(-40°C to +110°C)
- fresh Water 0°C to +70°C

For compressed air or gases the cover should be pin pricked.

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.

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 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.

Hose assemblies covered by this certificate shall not be used in system subject to pressure below atmospheric or vacuum condition.

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.

### **Type Approval documentation**

- DNV test reports dated 2009-10-12.
- LAPI test reports Test report n. 1413/09, 1414/09 and 1415/09 dated 2009-11-09 and 2009-11-05.
- Impulse test reports dated 2008-07-30, 2009-05-25, 2009-03-30 and 2009-10-06.
- Test reports dated 2009-10-23.
- Crimping table 5/G/U/TA/060 dated 2008-07-25, DH.122T.11.B dated 2008-04-21 and DH.122T.33A dated 2008-04-21.
- List of ferrules.
- Alfagomma technical datasheet.
- Test report dated 2014-03-05 witnessed by DNV local station Milan (acc. to ISO 1402)
- Rubber test quality report dated 2017-10-20

### **Tests carried out**

Dimensional Check Test, Change in Length Test, Burst Test, Cold Flexibility Test, Ozone Resistance Test, Impulse Test, Oil Resistance Test and Fire 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
- Size

### **Periodical assessment**

For retention of the Type Approval, a DNV GL 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 DNVGL-CP-0338.

### **Renewal assessment**

For renewal of this certificate, during the renewal assessment (as described in DNVGL-CP-0338), burst pressure tests shall be witnessed on every 3rd sizes of each type.