

# EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.

## This is to certify:

**That the Materials other than steel for pipes conveying oil or fuel oil: flexible pipe assemblies**

with type designation(s)

**Alfatech 5000, Alfatech 6000 (Dunlop Hiflex 420G)**

Issued to

**ALFAGOMMA HYDRAULIC SPA  
CASTELNUOVO VOMANO TE, Italy**

is found to comply with the requirements in the following Regulations/Standards:

Regulation **(EU) 2015/559,**

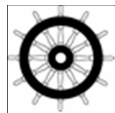
**Annex A.1, item No. A.1/3.15c and Annex B, Module B in the Directive; SOLAS 74 as amended,  
Regulation II-2/4.2.2.5.1, II-2/4.2.2.5.6 & X/3 and 2000 HSC Code 7.5.4.**

Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2021-10-30**.

Issued at **Høvik** on **2016-10-31**

DNV GL local station:  
**Milan**



for **DNV GL AS**

Approval Engineer:  
**Adel Samiei**

Notified Body  
No.: **0575**

.....  
**Vidar Dolonen**  
**Head of Notified Body**



The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.

This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV GL AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.

Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

## Product description

Type designation: ALFATECH 5000  
 Tube: Oil resistant synthetic chloroprene rubber.  
 Reinforcement: Two high tensile steel braids (DN6, 10 and 12 mm)  
 Four high tensile steel spirals (DN16, 20, 25, 32 and 38 mm).  
 Six high tensile steel spirals (DN32, 38,51 & 63 mm)  
 Cover: Abrasion, ozone and hydrocarbon resistant synthetic rubber.  
 Couplings: Carbon steel (9SMnPb28 acc. UNI 4838) or  
 Stainless Steel (XCrNi18 10 acc. UNI 6901)

Type designation: ALFATECH 6000 (Dunlop Hiflex 420G) according 100R15 in SAE J517  
 Tube: Oil resistant synthetic chloroprene rubber.  
 Reinforcement: Four (DN < 32) or six (DN ≥32) layers of high tensile spiral steel  
 wire wrapped in alternating directions.  
 Cover: Chloroprene rubber, weather-, oil- and abrasion resistant.  
 Couplings: Carbon steel (9SMnPb28 acc. UNI 4838) or  
 Stainless Steel (XCrNi18 10 acc. UNI 6901)

Hoses made by: Alfagomma Hydraulic S.p.A.  
 Couplings made by: Alfatechnology S.r.l.

Hose/fitting combinations: Alfatech 5000

| Size |    | FERRULE                                   |                 | INSERT       |                 |
|------|----|---|-----------------|--------------|-----------------|
| inch | DN | Carbon Steel                              | Stainless Steel | Carbon Steel | Stainless Steel |
| ¼    | 6  | H1100204-04<br>H1200102-04                | H3100204-04     | H12-04       | H32-04          |
| 3/8  | 10 | H1100204-06<br>H1200202-06<br>H1200212-06 | H3100204-06     | H12-06       | H32-06          |
| ½    | 12 | H1100204-08                               | H3100204-08     | H12-08       | H32-08          |
| 5/8  | 16 | H1400200-10<br>H1100404-10                | H3400200-10     | H14-10       | H34-10          |
| ¾    | 19 | H1400200-12<br>H1100404-12                | H3400200-12     | H14-12       | H34-12          |
| 1    | 25 | H1400200-16                               | H3400200-16     | H14-16       | H34-16          |
| 1 ¼  | 31 | H1400200-20                               | H3400200-20     | H14-20       | H34-20          |
| 1 ¼  | 31 | H1400301-20                               | H3400301-20     | H14-20       | H34-20          |
| 1 ½  | 38 | H1400200-24                               | H3400200-24     | H14-24       | H34-24          |
| 1 ½  | 38 | H1400301-24                               | H3400301-24     | H14-24       | H34-24          |
| 2    | 51 | H1400301-32                               | H3400301-32     | H14-32       | H34-32          |
| 2 ½  | 63 | H1T00600-40                               | H3T00600-40     | H14-40       | H34-40          |

Hose/fitting combinations: Alfatech 6000 - Dunlop Hiflex 420G

| Size |    | FERRULE      |             | INSERT |           |
|------|----|--------------|-------------|--------|-----------|
| inc  | DN | Carbon Steel | Stainless   | Carbon | Stainless |
| 3/8  | 10 | H1100404-06  | H3100204-06 | H12-06 | H32-06    |
| 1/2  | 12 | H1100404-08  | H3100204-08 | H12-08 | H32-08    |
| 5/8  | 16 | H1400200-12  | H3400200-12 | H14-12 | H34-12    |
| 3/4  | 19 | H1400200-12  | H3400200-12 | H14-12 | H34-12    |
| 1    | 25 | H1400200-16  | H3400200-16 | H14-16 | H34-16    |
| 1    | 31 | H1400301-20  | H3400301-20 | H14-20 | H34-20    |
| 1    | 38 | H1400301-24  | H3400301-24 | H14-24 | H34-24    |
| 2    | 51 | H1400301-32  | H3400301-32 | H14-32 | H34-32    |

## Application/Limitation

Hose assemblies covered by this certificate are tested according to:

- 1) NS-EN ISO 15540: Fire resistance of hose assemblies- Test methods
- 2) NS-EN ISO 15541: Fire resistance of hose assemblies - Requirements for the test bench

Hose assemblies are suitable for use with petroleum base hydraulic fluids and water base hydraulic fluids.

Maximum working pressure (MWP):

| Size  |    | MWP[bar]      |                                       |
|-------|----|---------------|---------------------------------------|
| inch  | DN | Alfatech 5000 | Alfatech 6000 /<br>Dunlop Hiflex 420G |
| 1/4   | 6  | 350           | -                                     |
| 5/16  | 8  | 350           | -                                     |
| 3/8   | 10 | 350           | 420                                   |
| 1/2   | 12 | 350           | 420                                   |
| 5/8   | 16 | 350           | 420                                   |
| 3/4   | 19 | 350           | 420                                   |
| 1     | 25 | 350           | 420                                   |
| 1 1/4 | 31 | 350           | 420                                   |
| 1 1/2 | 38 | 350           | 420                                   |
| 2     | 51 | 350           | 420                                   |
| 2 1/2 | 63 | 350           | -                                     |

## Type Examination documentation

- Fire test reports (done by LAPI) numbers: 278.0IS0110/05 (Alfatech6000 DN10), 225.0IS0110/05 (Alfatech6000 DN38), 385.0IS0110/12(Alfatech6000 DN51).
- Fire test reports (done by LAPI) numbers: 219.0IS0110/05 (Alfatech5000 DN6) 279.0IS0110/05 (Alfatech5000 DN25), 299.0IS0110/14 (Alfatech5000 DN63)

## Tests carried out

Fire tests carried out according to ISO 15540/15541

## Marking of product

As a minimum, the final products (hoses with couplings) are to be marked with:

- Manufacturer's name or trademark
- Manufacturer's address
- Specification or hose name
- Hose size (inside diameter in inches)
- Data code (quarterly and daily production code)