

# 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)

**Flexor 4SH, Flexor 4SP, 790L, 790G, 730L, 730G and 730 "special"**

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,**

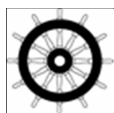
**Annex A.1, item No. A.1/3.15c and Annex B, Module B in the Directive; SOLAS 74 as amended, Regulation II-2/4.2.2.5.1, II-2/4.2.2.5.6 & X/3 and 2000 HSC Code 7.5.4.**

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

This Certificate is valid until **2021-10-23.**

Issued at **Høvik** on **2016-10-24**

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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.

Job Id: **344.1-000518-5**  
 Certificate No: **MEDB00001WF**

## Product description

Standard	EN856
Alfagomma designation	Flexor 4SH
Dunlop Hiflex designation	790L - 790G

Design: Flexible rubber hoses reinforced by four steel spiral wires.  
 Tube: Oil resistant synthetic chloroprene rubber.  
 Reinforcement: Four 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)

Standard	EN856
Alfagomma designation	Flexor 4SP
Dunlop Hiflex designation	730L - 730G 730 "Special"

Design: Flexible rubber hoses reinforced by four steel spiral wires.  
 Tube: Oil resistant synthetic chloroprene rubber.  
 Reinforcement: Four 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: 4SP, 730L, 730G; 730 "Special"

Size		FERRULE		INSERT		Interlock fittings
inch	DN	Carbon Steel	Stainl. Steel	Carbon Steel	Stainless Steel	Carbon Steel
1/4	6	H1100404-04	H3100200-04	H12-04	H32-04	-
3/8	10	H1100404-06	H3100200-06	H12-06	H32-06	H1400200-06
1/2	12	H1100404-08	H3100200-08	H12-08	H32-08	H1400200-08
5/8	16	H1100404-10	H3100200-10	H12-10	H32-10	H1400200-10
3/4	19	H1100204-12	H3100200-12	H12-12	H32-12	H1400200-12
1	25	H1100204-16	H3100200-16	H12-16	H32-16	H1400200-16

Hose/fitting combinations: 4SH, 790L, 790G

Size		FERRULE		INSERT	
inch	DN	Carbon Steel	Stainless Steel	Carbon Steel	Stainless Steel
3/4	19	H1400200-12	H3400200-12	H14-12	H34-12
1	25	H1400200-16	H3400200-16	H14-16	H34-16
1 1/4	31	H1400200-20	H3400200-20	H14-20	H34-20
1 1/2	38	H1400200-24	H3400200-24	H14-24	H34-24
2	51	H1400200-32	H3400200-32	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 (MAWP):

Size		MWP [bar]		
inch	DN	Flexor 4SH	Flexor 4SP	730L, 730G
1/4	6	-	450	450
3/8	10	-	445	445
1/2	12	-	415	415
5/8	16	-	350	350
3/4	19	420	380	320
1	25	380	320	320
1 1/4	31	350	-	-
1 1/2	38	290	-	-
2	51	250	-	-

## Type Examination documentation

- Fire test reports (done by LAPI) numbers: 274.0IS0110/05 (FLEXOR 4SH DN19) - 222.0IS0110/05 (FLEXOR 4SH DN31) - 159.0IS0110/05 (FLEXOR 4SH DN51)
- Fire test reports (done by LAPI) numbers: 272.0IS0110/05 (FLEXOR 4SP DN06) - 273.0IS0110/05 (FLEXOR 4SP DN25) 221.0IS0110/05 (FLEXOR 4SP DN12)

## 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)