



**Marine & Offshore
Division**

Certificate number: 40222/A0 BV

File number: ACM 135/2751/01

Product code: 2104I

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

I.M.M. HYDRAULICS S.p.A.

ATESSA-CH - ITALY

for the type of product

NON-METALLIC HOSES (FLEXIBLE PIPES) ASSEMBLIES

HIPAC 1SC, LongLife 1SC, HIPAC 2SC, LongLife 2SC, KAIZEN 2SN, Hypress 4SH, Hypress 4SP & Hypress R15

Requirements:

- BUREAU VERITAS Rules for the Classification of Steel Ships
- BUREAU VERITAS Rules for the Classification of Naval Ships
- BUREAU VERITAS Rules for the Classification of Yachts

This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 10 Mar 2021

For BUREAU VERITAS,

At BV GENOA, on 10 Mar 2016,

Carlo Bozzetti



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine & Offshore Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION

Flexible Hoses Type HIPAC 1SC, LongLife 1SC, HIPAC 2SC, LongLife 2SC, KAIZEN 2SN, Hypress 4SH, Hypress 4SP & Hypress R15

1.1 Ratings

Hose type HIPAC 1SC

Diameter (mm)	6.4	8.0	9.5	12.7	16.0	19.0	25.4	31.8	38.1	50.8	63.5	76.2
Maximum working pressure (bar)	250	250	250	200	150	150	110	100	90	75	50	40

Temperature range -40°C to +100°C

The maximum working pressure is not to exceed one quarter of the burst pressure at the service temperature

Hose type LongLife 1SC

Diameter (mm)	6.4	8.0	9.5	12.7	16.0	19.0	25.4
Maximum working pressure (bar)	250	250	250	200	150	150	110

Temperature range -40°C to +100°C

The maximum working pressure is not to exceed one quarter of the burst pressure at the service temperature

Hose type HIPAC 2SC

Diameter (mm)	6.4	8.0	9.5	12.7	16.0	19.0	25.4	31.8	38.1	50.8	63.5	76.2
Maximum working pressure (bar)	430	400	350	310	280	240	210	160	150	100	80	65

Temperature range -40°C to +100°C

The maximum working pressure is not to exceed one quarter of the burst pressure at the service temperature

Hose type LongLife 2SC

Diameter (mm)	6.4	8.0	9.5	12.7	16.0	19.0	25.4
Maximum working pressure (bar)	430	400	350	310	280	240	185

Temperature range -40°C to +100°C

The maximum working pressure is not to exceed one quarter of the burst pressure at the service temperature

Hose type KAIZEN 2SN

Diameter (mm)	6.4	8.0	9.5	12.7	16.0	19.0	25.4	31.8	38.1	50.8
Maximum working pressure (bar)	420	360	350	290	250	215	175	140	125	90

Temperature range -40°C to +100°C

The maximum working pressure is not to exceed one quarter of the burst pressure at the service temperature

Hose type Hypress 4SH

Diameter (mm)	19	25.4	31.8	38.1	50.8
Maximum working pressure (bar)	420	385	350	300	250

Temperature range -40°C to +100°C

The maximum working pressure is not to exceed one quarter of the burst pressure at the service temperature

Hose type Hypress 4SP

Diameter (mm)	6.4	9.5	12.7	16.0	19.0	25.4	31.8	38.1	50.8
Maximum working pressure (bar)	450	445	415	350	350	280	210	185	165

Temperature range -40°C to +100°C

The maximum working pressure is not to exceed one quarter of the burst pressure at the service temperature

Hose type Hypress R15

Diameter (mm)	19	25.4	31.8	38.1	50.8
Maximum working pressure (bar)	420	420	420	420	420

Temperature range -40°C to +120°C

The maximum working pressure is not to exceed one quarter of the burst pressure at the service temperature

1.2 Material specification

Internal hose	Synthetic rubber
Reinforcement	One/two/four/six high tensile steel braids/spirals
Cover	Oil resistant synthetic rubber
Fittings	As per manufacturer's catalogues

2. DOCUMENTS AND DRAWINGS

- IMM catalogue ref: CAT-IMM-H-Rev02

No departure from the above documents shall be made without the prior consent of the Society. The manufacturer must inform the Society of any modification or changes to these documents and drawings.

3. TEST REPORTS

3.1 Fire resistance tests according to ISO 15540: 1999 and ISO 15541: 1999 were carried out at LAPI Laboratory (Italy) and found in order per the following test reports N° 0987/MED-B/616, N° 0987/MED-B/612, N° 0987/MED-B/613, N° 0987/MED-B/614, N° 892.0IS0110/13, N° 893.0IS0110/13, N° 894.0IS0110/13, N° 889.0IS0110/13, N° 890.0IS0110/13, N° 891.0IS0110/13, N° 1775.0IS0110/09, N° 210.0IS0110/10, N° 211.0IS0110/10, N° 892.0IS0110/13, N° 1112.0IS0110/12, N° 1115.0IS0110/12, N° 1113.0IS0110/12, N° 1116.0IS0110/12, N° 1114.0IS0110/12, N° 1117.0IS0110/12.

3.2 Burst test reports witnessed by a BV surveyor performed on representative sizes of type HIPAC 1SC, LongLife 1SC, HIPAC 2SC, LongLife 2SC, KAIZEN 2SN, 4SH, 4SP & Hypress R15 dated 16/02/2016, 06/05/2015 & 17/12/2015.

3.3 Tests carried out: dimensional check, proof pressure test, change in length, burst test, ozone resistance test, impulse test, cold flexible test. Manufacturer's test reports dated 14/12/2009 for 4SH, dated 09/06/2009 & 26-27/07/2012 for 4SP.

3.4 Cold bend test reports witnessed by an IACS member surveyor performed on representative sizes of type LongLife 1SC, HIPAC 2SC & KAIZEN 2SN dated 18/05/2011 & 06/05/2015.

3.5 Hydraulic pressure impulse test with flexing and vibration test not performed.

4. APPLICATION / LIMITATION

4.1 May be used for the following services on board: Fuel oil (not high pressure fuel oil injection), lubricating oil, hydraulic oil, fresh water and sea water.

4.2 The hose assemblies are to be installed according to manufacturer's instructions and Bureau Veritas Rules requirements. The hoses are not to be used on low temperature services (except types LongLife-HIPAC 1SC, LongLife-HIPAC 2SC, KAIZEN 2SN, 4SP & 4SH) and when vibration test is required in the Society's Rules.

4.3 The hoses are to be limited to a length necessary to provide for relative movement between fixed and flexibly mounted items of machine/equipment or systems and are only to be used in lengths up to 2 m. The hoses are to be installed in clearly visible and readily accessible locations at all times.

4.4 Taper threaded end connections are not to be used for oil circuits in engine rooms nor any place containing an ignition source unless otherwise suitably screened at the Society's Surveyor satisfaction.

4.5 End fittings as per manufacturer's catalogue. The hoses are to be entirely assembled in the manufacturer's workshop.

5. PRODUCTION SURVEY REQUIREMENTS

5.1 The products are to be supplied by **I.M.M. HYDRAULICS S.p.A.** in compliance with the type and the requirements described in this certificate. This type of product is within the category IBV of Bureau Veritas Rule Note NR320.

5.2 The hose bulks are manufactured by I.M.M. HYDRAULICS S.p.A. at the following production sites:

- Via L'Aquila 8-10 66041 Atessa (CH)
- Contrada Giarnera Grande 71022 Ascoli Satriano (FG)
- I.M.M Hydro Est Loc. Catcau 353, 407180 Dej Cluj-Napoca (RO)

5.3 The end fittings are manufactured by I.M.M. HYDRAULICS S.p.A. at the following production sites:

- Via Italia 49-51 66041 Atessa (CH)
- Contrada Giarnera Grande 71022 Ascoli Satriano (FG)

5.4 BV product certificate is required.

5.5 Each hose with end fittings is to be hydraulically pressure tested to twice the maximum working pressure and provided with the manufacturer's pressure test report and conformity of production.

Place of assembly**I.M.M. HYDRAULICS S.p.A.****Via Italia 49-51****66041 ATESSA (CH)****ITALY****6. MARKING OF PRODUCT**

Each hose assembly shall be clearly and indelibly marked with at least:

- Manufacturer name or logo
- Type designation
- Date of manufacture
- Society's brand as relevant

7. OTHERS

This approval is given on the understanding that the manufacturer will accept full responsibility for informing shipbuilders or their sub-contractors of the proper method of fitting and general maintenance of the products and of the conditions of this approval.

***** END OF CERTIFICATE *****