



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. P-13478

This is to certify that the
Flexible Hoses of Non-Metallic Material with Permanently Fitted Couplings

with type designation(s)
HYPRESS 4SH - product code TFDM4SH

Manufactured by
I.M.M. HYDRAULICS SPA
ATESSA CH, Italy

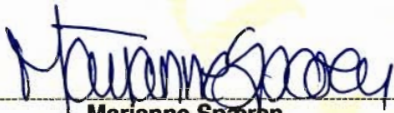
is found to comply with
Det Norske Veritas' Rules for Classification of Ships
Det Norske Veritas' Standards for Certification 2.9 No. 5-791.70
IACS UR P2

Application

The hoses may be used in the following systems: **Hydraulic-, fuel- and lubricating oil systems, fresh water, sea water, gases (less than 20% oxygen)**

Temperature range:	-40 °C to +100 °C (+120 °C intermittent)
Max. working press.:	250 bar to 420 bar
Sizes:	3/4" to 2"


Høvik, 2010-06-29
for Det Norske Veritas AS


Marianne Spæren
Head of Section



DNV local office:
Milan

This Certificate is valid until
2014-06-30


Øyvind Skåra
Surveyor

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. If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Certificate No.: P-13478
File No.: 791.70
Job Id.: 262.1-009787-1

Product description

Design: Flexible hose exceed ISO 3862/EN 856 4SH manufactured by IMM Hydraulics SpA
Inner tube: CR, synthetic rubber.
External cover: CR Based, Anti abrasive synthetic rubber, oil and ozone resistant.
Reinforcement: 4 steel wire spiral.

Couplings: Swaged couplings of carbon steel or inox fittings of stainless steel
Materials: 11SMnPb37 or AISI 316L
Design according to manufacturer's submitted datasheets
Manufactured by : IMM Hydraulics SpA

Application/Limitation

Size	MAWP	MAWP
	[bar]	[psi]
3/4"	420	6090
1"	385	5583
1 1/4"	350	5275
1 1/2"	300	4350
2"	250	3625

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.

Hose assemblies delivered from the certificate holder shall be delivered with the following documentation:

- Pressure test report with reference to the type approval certificate

The hose assemblies covered by this type approval may be assembled and delivered by other than the certificate holder under the conditions described in Type Approval Programme 5-791.70.

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 are to be mounted in accordance with the manufacturer's instructions.

The Rules Pt.4 Ch.6 Sec.6D and the respective Government Authorities Regulations to be complied with..

Each hose is to be hydraulic pressure tested to 1.5 times the working pressure.

Type Approval documentation

Manufacturer's datasheets.
Test reports dated 2009-12-16.
LAPI fire test reports 211.0IS0110/10, 210.0IS0110/10, 1775.0IS0110/09.



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Tests carried out

Dimensional check, Change in length, Burst, Adhesion, Ozone resistance, impulse test, abrasion resistance, cold flexibility, oil resistance and fire.

Marking of product

For traceability to this type approval, the final products (hoses with couplings) are at least to be marked with:

- Manufacturer's name or trade mark
- Type designation

Certificate Retention Survey

For retention of the type approval, a DNV Surveyor shall perform a survey 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 test
- Change in length test
- Burst test
- Leakage test

The tests shall be performed in accordance with the procedures described in Det Norske Veritas Certification Note 2.9 "Type Approval of Flexible Hoses of Non-Metallic Material", or another recognised standard.

The tests are to be performed with the type of couplings that are Type Approved with the hoses.