

Type Approval Certificate



[Flexible Hoses]

Initial Approval 7th January, 2020
Manufacturer I.M.M. Hydraulics S.p.A
 Via Italia, 49-51, Atessa 66041, Italy
Product Description Flexible Hoses of Non-Metallic Material

- Type : HyGreen 4SH, HyGreen R13, HyGreen R15, Hypress 4SH, Hypress 4SP, Hypress R15, Hypress R17, Hypress 2SC, Hipac 1SC, Hipac 2SC, Longlife 1SC, Longlife 2SC, Marathon 2SC, KAIZEN 2SN
- Application : Oil fuel, Lubricating, Hydraulic oil systems, Compressed air systems, Water cooling systems

" See Appendix 1 "

Approval Condition " See Appendix 1 "

THIS IS TO CERTIFY that the above-mentioned product has been approved in accordance with the relevant requirement of this Society's Rules and / or of the recognized standards as follows.

Pt. 5 Ch. 6 Sec. 1 and Annex 5-9 of the Rules for Classification of Steel Ships.
 Ch. 3 Sec. 17 of Guidance for Approval of Manufacturing Process and Type Approval, Etc.

This Certificate is valid until 6th January, 2025

Reissued at Busan, Korea on 9th April, 2021



This certificate is signed electronically in accordance with IMO FAL.5/Circ.39/Rev.2. Validation and authentication of the certificate can be confirmed from "<http://e-cert.krs.co.kr>" by using the tracking No(ME21013363341) and certificate No.(MIL39925-HS001).



KOREAN REGISTER

**General Manager of
 Marine & Ocean Equipment Team**

- Note :**
1. This certificate will be valid subject to complying with the approval conditions described on the certificate and/or on the Rules of this Society.
 2. This certificate will be invalid from the expiry date aforementioned unless the extension or renewal has been granted to the applicant or the manufacturer.
 3. Any significant modifications or changes in design or construction to the above product without approval from this Society will render this certificate invalid.
 4. Should the specified rules, regulations or standards be amended during the validity of this certificate, the product is to be re-approved by this Society in accordance with the requirements as amended.

Product Description and/or Approval Condition

Date of Issue : 9th April, 2021

A. Product Description

1. Product Specification

- 1) HyGreen 4SH
- Design temperature : -40°C to 121°C

Nominal diameter	l	12	16	20	24	32
Max. Working Pressure	l	420	385	350	300	250

- 2) HyGreen R13
- Design temperature : -40°C to 121°C

Nominal diameter	l	12	16	20	24	32
Max. Working Pressure	l	350				

- 3) HyGreen R15
- Design temperature : -40°C to 121°C

Nominal diameter	l	10	12	16	20	24	32
Max. Working Pressure	l	420					

- 4) Hypress 4SH
- Design temperature : -40°C to 100°C

Nominal diameter	l	12	16	20	24	32
Max. Working Pressure	l	420	385	350	300	250

- 5) Hypress 4SP
- Design temperature : -40°C to 100°C

Nominal diameter	l	4	6	8	10	12
Max. Working Pressure	l	450	445	415	350	350
Nominal diameter	l	16	20	24	32	
Max. Working Pressure	l	280	210	185	165	

- 6) Hypress R15
- Design temperature : -40°C to 121°C

Nominal diameter	l	12	16	20	24	32
Max. Working Pressure	l	420				

- 7) Hypress R17
- Design temperature : -40°C to 100°C

Nominal diameter	l	4	5	6	8	10	12	16
Max. Working Pressure	l	210						

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- 8) Hypress 2SC
- Design temperature : -40°C to 120°C

Nominal diameter	l	4	5	6	8	10	12	16
Max. Working Pressure	l	400	350	330	275	250	215	165

- 9) Marathon 2SC
- Design temperature : -40°C to 120°C

Nominal diameter	l	4	5	6	8	10	12	16
Max. Working Pressure	l	450	420	385	350	350	280	250

- 10) KAIZEN 2SN
- Design temperature : -40°C to 120°C

Nominal diameter	l	3	4	5	6	8	10
Max. Working Pressure	l	420	420	360	350	290	250
Nominal diameter	l	12	16	20	24	32	
Max. Working Pressure	l	215	175	140	125	90	

- 11) HIPAC 1SC/Longlife 1SC
- Design temperature : -40°C to 120°C

Nominal diameter	l	4	5	6	8	10	12
Max. Working Pressure	l	250	250	250	200	150	150
Nominal diameter	l	16	20	24	32	40	48
Max. Working Pressure	l	110	100	90	75	50	40

- 12) HIPAC 2SC/LOGLIFE 2SC
- Design temperature : -40°C to 120°C

Nominal diameter	l	4	5	6	8	10	12
Max. Working Pressure	l	430	400	350	310	280	240
Nominal diameter	l	16	20	24	32	40	48
Max. Working Pressure	l	210	160	150	100	80	65

2. Approved Drawings and Documents

- 1) Manufacturer's brochures approved on 25th September, 2019.

3. Test Reports, etc.

- 1) HyGreen 4SH
- Test reports : 007DNV-18, 008DNV-18, 009DNV-18,
Q18-4SH19-1/2, Q18-4SH31-1/2, Q18-4SH51-1/2 signed by DNVGL.
- Fire resistance test reports : 2093.0IS0110/18, 2101.0IS0110/18, 2100.0IS0110/18,
2099.0IS0110/18, 2098.0IS0110/18, 2097.0IS0110/18,

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2096. OIS0110/18, 2095. OIS0110/18, 2094. OIS0110/18
- 2) HyGreen R13
 - Test reports : 010DNV-18, 011DNV-18, 012DNV-18, Q18-R1319-1/2, Q18-R1331-1/2, Q18-R1351-1/2 signed by DNVGL.
 - Fire resistance test reports : 2108. OIS0110/18, 2110. OIS0110/18, 2109. OIS0110/18, 2107. OIS0110/18, 2106. OIS0110/18, 2104. OIS0110/18, 2103. OIS0110/18
 - 3) HyGreen R15
 - Test reports : 015DNV-18, 016DNV-18, 017DNV-18, 012DNV-18, Q18-R1519-1/2, Q18-R1531-1/2, Q18-R1551-1/2 signed by DNVGL.
 - Fire resistance test reports : 2111. OIS0110/18, 2113. OIS0110/18, 2114. OIS0110/18, 2115. OIS0110/18, 2116. OIS0110/18, 2117. OIS0110/18, 2118. OIS0110/18, 2119. OIS0110/18
 - 4) Hypress 4SH
 - Test reports : 009DNV-17, 010DNV-17, TFD04SH-12/16/20/24/32 signed by DNV.
 - Fire resistance test reports : 1128/1129/1130. OIS0110/18, 409/410/411. OIS0110/15, 311/312/313. OIS0110/15
 - 5) Hypress 4SP
 - Test reports : 011DNV-17, 012DNV-17, 013DNV-17, Q12-4SP06-1, Q12-4SP16-1, Q12-4SP31-1, Q12-4SP5-1, TFD4SP-04/06/08/10/12/16/20/24/32 signed by DNV.
 - Fire resistance test reports : 3163. OIS0110/17, 3164. OIS0110/17, 3165. OIS0110/17, 3166. OIS0110/17, 3167. OIS0110/17, 3168. OIS0110/17
 - 6) Hypress R15
 - Test reports : Q15-R1525-1/2, Q15-R1538-1/2 signed by BV.
 - Fire resistance test reports : 1484. OIS0110/15, 1485. OIS0110/15, 1486. OIS0110/15, 1625. OIS0110/15, 1626. OIS0110/15, 1627. OIS0110/15, 1131. OIS0110/18, 1132. OIS0110/18, 1133. OIS0110/18
 - 7) Hypress R17
 - Test reports : 007ABS-18, 008ABS-18, 009ABS-18, Q18-2SC06-1/2, Q18-R1712-1/2, Q18-R1725-1/2, Q18-R1706-1/2 signed by DNVGL and ABS.
 - Fire resistance test reports : 1075. OIS0110/18, 1083. OIS0110/18, 1082. OIS0110/18, 1081. OIS0110/18, 1080. OIS0110/18, 1079. OIS0110/18, 1078. OIS0110/18, 1077. OIS0110/18, 1076. OIS0110/18
 - 8) Hypress 2SC
 - Test reports : 001ABS-18, 002ABS-18, 003ABS-18, Q18-R1706-1/2, Q18-R1712-1/2, Q18-R1725-1/2, Q18-R1706-1/2 signed by DNVGL and ABS.
 - Fire resistance test reports : 1110. OIS0110/18, 1118. OIS0110/18, 1117. OIS0110/18, 1116. OIS0110/18, 1115. OIS0110/18, 1114. OIS0110/18, 1113. OIS0110/18, 1112. OIS0110/18, 1111. OIS0110/18
 - 9) Marathon 2SC
 - Test reports : 010ABS-18, 011ABS-18, 012ABS-18, Q18-2MC06-1/2, Q18-2MC12-1/2, Q18-2MC19-1/2 signed by DNVGL and ABS.
 - Fire resistance test reports : 1134. OIS0110/18, 1142. OIS0110/18, 1141. OIS0110/18, 1140. OIS0110/18, 1139. OIS0110/18, 1138. OIS0110/18, 1137. OIS0110/18, 1136. OIS0110/18, 1135. OIS0110/18
 - 10) KAIZEN 2SN
 - Test reports : 005DNV-17, 006DNV-17, 007DNV-17, 008DNV-17, Q16-2HN06-1/2, Q16-2HN38-1 (DN 12, DN 25, DN 38) signed by DNVGL and RINA.
 - Fire resistance test reports : 1400. OIS0110/18, 1405. OIS0110/18, 1404. OIS0110/18, 1403. OIS0110/18, 1402. OIS0110/18, 1401. OIS0110/18
 - 11) Longlife 1SC, Hipac 1SC signed by BV.
 - Test reports : Q15-2HC76-1, Q15-1HC06-1, Q15-1HC12-1, Q15-1HC019-1, Q15-1HC76-1
 - Fire resistance test reports : 1478. OIS0110/15, 1656. OIS0110/15, 1621. OIS0110/15, 1620. OIS0110/15, 1619. OIS0110/15, 1548. OIS0110/15, 1480. OIS0110/15, 1479. OIS0110/15
 - 12) Longlife 2SC, Hipac 2SC
 - Test reports : 001DNV-17, 002DNV-17, 003DNV-17, 004DNV-17, Q17-2HC16-2, Q17-2HC08-1, Q18-2SC06-1, Q18-2SC12-1 signed by DNVGL and BV.
 - Fire resistance test reports : 1482. OIS0110/15, 1483. OIS0110/15, 1622. OIS0110/15, 1623. OIS0110/15, 1624. OIS0110/15, 1481. OIS0110/15

B. Approval Condition

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Date of Issue : 9th April, 2021

1. Application & Limitation

- 1) The flexible hoses are to be installed in clearly visible and readily accessible locations.
- 2) The number of flexible hoses is to be kept to minimum and to be limited for the purpose stated on the certificate.
- 3) The certificate is valid for the specific assembly of hose and coupling type as specified, assembled and delivered directly by the Manufacturer.
- 4) Flexible Hose assemblies are not to be installed where they may be subjected to torsional deformation (twisting) under normal operating conditions.
- 5) The flexible hoses in high pressure fuel oil injection systems are not to be accepted.
- 6) The installation and maintenance of the flexible hose assemblies are to be in accordance with the manufacturer's instructions and use limitations with particular attention to the following.
 - Orientation
 - End connection support (where necessary)
 - Avoidance of hose contact that could cause rubbing and abrasion
 - Minimum bend radius

2. Individual Product Cert. and Drawing Approval Requirement

- 1) Individual Product Certification is required.
- 2) Mechanical joints other than bolted flanges, welding joint between pipings are to be separated from this approval.

3. Marking

- 1) Hoses should be marked with the following items.
 - Hose manufacturer's name or trademark
 - Date of manufacture (month/year)
 - Designation type reference
 - Nominal diameter
 - Pressure rating
 - Temperature rating
- 2) Where a flexible hose assemblies are made up of items from different manufacturers, the components are to be clearly identified and traceable to evidence of prototype testing.

4. Others

Nil

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