

Certificate of Type Approval

This is to certify that the product detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations and with the International Convention for the Safety of Life at Sea, (SOLAS), 1974, as amended, for use on ships and offshore installations classed with Lloyd's Register, and for use on ships and offshore installations when authorised by contracting governments to issue the relevant certificates, licences, permits etc.

Manufacturer	Leafield Marine Limited
Address	9 Atworth Business Park, Bath Road, Atworth, Wiltshire, SN12 8SB, UK
Type	Gas Inflation System
Description	Liferaft Gas Inflation System Type GIST comprising: a) Gas Cylinder Valve Assembly Types 03020 CVT 1,2 & 3, 03021 CVT 1,2 & 3, 03020 CVT series b) Operating Head Types: 03010 OHT REV04, 1106003 REV02, 1407003 REV03, 0709001 REV03 c) Hose Assemblies: PD 11401, PD 11514, PD 11523, PD 11524, PD 11526 d) Inlet Valve Assemblies: 03250 IVT 1.0-2.8 series, 03260 IVT 1.0-2.8
Trade Name	GIST
Specified Standard	IMO Resolution MSC.81 (70), Part 1 as amended BS ISO 15738:2019 BS ISO 9650:2005

This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid Certificate.

The attached Design Appraisal Document forms part of this certificate.

This certificate remains valid unless cancelled or revoked, provided the conditions in the attached Design Appraisal Document are complied with and the equipment remains satisfactory in service.

71 Fenchurch Street, London, EC3M 4BS,
United Kingdom

Lijo Thomas

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A member of the Lloyd's Register group

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ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. SAS S150044-M4-06

The undernoted documents have been appraised for compliance with the relevant requirements of International Conventions, and this Design Appraisal Document forms part of the Certificate.

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This is renewal of certificate No : SAS S150044/M4.

EXAMINED DOCUMENTATION

General User Manual for Gas Inflation System (Torsional), Document No: M-07-UM-GIST, Revision 13, Dated 24/08/2015.

Cylinder Valve 03020 CVT Series:

<u>Plan/Doc No.</u>	<u>Rev</u>	<u>Plan Date</u>	<u>Title or Description</u>
03020CVT Series	04	04-02-15	Cylinder Valve Assembly
03020 BSS205	01	29-09-10	Break Stem Seal Assembly 205bar
03020 BSS210	01	29-09-10	Break Stem Seal Assembly 210bar
03020 BSS230	02	29-09-10	Break Stem Seal Assembly 230bar
03020 BSS245	01	02-02-15	Break Stem Seal Assembly 245bar
03020 BSS250	03	29-09-10	Break Stem Seal Assembly 250bar
03020 BSS275	01	29-09-10	Break Stem Seal Assembly 275bar
03020 BSS300	02	29-09-10	Break Stem Seal Assembly 300bar
03020TDA	03	07-09-05	Torque Drive Assembly
03020STA	01	14-01-14	Syphon Tube Assembly

Operating Head:

<u>Plan/Doc No.</u>	<u>Rev</u>	<u>Plan Date</u>	<u>Title or Description</u>
03010 OHT	04	08-09-17	Operating Head Torsional(Increased gear box travel)
1103004	01	16-10-13	Actuator Cable Assembly
1106003	02	08-09-17	Operating Head Assembly Torsional, with small loop cable
1104003	01	26-11-13	Actuator Cable Assembly Small Loop
1407003	03	11-09-17	Operating Head Torsional- Twin Ball Cable for Vacuum Bag Applications

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<u>Plan/Doc No.</u>	<u>Rev</u>	<u>Plan Date</u>	<u>Title or Description</u>
0709001	03	10-01-18	Operating Head Torsional- Vacuum Bag Interface
19128	03	13-02-18	Actuator Cable Assembly Twin Ball Series
18885	02	05-06-18	Cap- Operating Head (Increased gear box travel)

Inlet Valve Types 03250 IVT 1.0 – 2.8 series and 03260 IVT 1.0 – 2.8 series:

<u>Plan/Doc No.</u>	<u>Rev</u>	<u>Plan Date</u>	<u>Title or Description</u>
03250IVT	04	04-01-16	Inlet Valve Torsional Plated Selection Chart (Increased ball clearance)
03260IVT	02	04-01-16	Inlet Valve (Torsional) Un-Plated Selection Chart (Increased ball clearance)

M16 Quick Fit Connector:

<u>Plan/Doc No.</u>	<u>Rev</u>	<u>Plan Date</u>	<u>Title or Description</u>
0806001	01	04-06-13	M16 Quick Fit Connector Assembly (Stainless Steel)
0907003	01	04-06-13	M16 Quick Fit Connector Assembly (Plated Steel) with 'O' ring seal
32400010	01	31-03-09	M16 Quick Fit Connector Assembly (Plated Steel)

Hose Assembly

PD11526	01	15-03-13	Vendor Control Drawing (GIST Hose Assemblies-316 stainless Steel)
PD11524	01	18-05-10	Vendor Control Drawing (Hose GIST Assemblies-316 stainless Steel)
PD11401	02	14-06-10	Vendor Control Drawing (GIST Hose Assemblies)
PD11514	03	26-09-12	Vendor Control Drawing (GIST Hose Assemblies)
PD11523	01	01-02-12	Vendor Control Drawing (GIST Hose Assemblies)

Production test specification for operating head actuation force, Pull load and break limit test instruction, Documents No: M-03-TP-4GIST, Rev 01

TEST REPORTS

<u>Report Title or Report Author</u>	<u>Report No.</u>	<u>Date</u>
Test Procedure for Statutory Approval of Leaffield Marine Ltd Hose Assembly PD 11401, PD 11402	M-07-TP-3GIST, Rev.02	Aug-05
Results of Testing for Statutory Approval & TPED Assessment of Leaffield Marine Ltd Gas Cylinder Valves (#03020CVT1, 03020CVT2, 03020CVT3, 03021CVT1, 03021CVT2 & 03021CVT3); Operating Head (#03010OHT); Inlet Valves (#03250IVT1.0-2.8 series and 03251IVT1.0-2.8 series), endorsed by LR	M-07-TR-2GIST, Issue 1	Mar-05

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Southampton

Test Procedure for Statutory Approval & TPED Assessment of Leaffield Marine Gas Cylinder Valves (#0302000, 0302100, 0302200, 0302300, 0302400 & 0302500); Operating Head (#0301000); Inlet Valves (#0325000 and 0326990)	M-07-1GIST, Issue 2	Oct-04
Result of Testing for Statutory Approval of Leaffield Marine Ltd hose Assemblies PD 11401	M-07-TR-4GIST REV 01	Mar-06
Test Procedure for Statutory Approval of Leaffield Marine Limited Hose Assemblies PD 11401 Rev 02 and PD 11514 Rev 02	M-07-TP-6GIST REV.01	Sept-07
Further Statutory Approval testing of Leaffield Marine Ltd Hose Assemblies PD 11401 & PD 11514 Manufactured using HIFLEX Fluidtechnik Hoses Type W-181-E and ARCTIC-04	M-07-TR-8GIST Rev 01	Jan-08
Test Report for Statutory Approval Testing of Break Stem Seal (#17615) to LML #M-07-TP-11 GIST Rev. 01	M-07-TR-11GIST Rev.01	Sept-10
Report of the statutory approval testing to M-07-TP-13GIST Rev.01 of Leaffield Marine Limited operating head assembly 03010OHT	M-07-TR-13GIST REV.01	April-11
Report of the statutory approval testing of LML Inlet valve assembly #03250 IVT and #03260 IVT	M-07-TR-12GIST Rev-01	Mar-11
Report On Statutory Approval Testing of the Leaffield Marine Ltd. M16 Quick Fit Connector Body with revised Groove Geometry (Part Nos. 18680-Rev01d & 18540-02c)	M-07-TR-17GIS	May-13
Report on the Statutory Approval Testing of the Steel Weighted Siphon Tube	M-07-TR-13GIS	May-13
Test Procedure for Statutory Approval of Leaffield Marine Ltd Hose Assemblies PD 11524 rev 01 and PD11526 rev 01	M-07-TP-9GIST Rev 01	June -09
Report of the statutory approval testing to M-07-TP-9GIST Rev.01 of Leaffield Marine Limited hose assemblies PD 11524 Rev.01 and PD 11526 Rev.01	M-07-TR-9GIST REV.01	July-09
Test report on the validation of GIVT Ball Seat Moulding (Castellated) LML part #18271-02	M-07-TR-I GIVT	Feb -16
Salt spray testing, for the acceptance of bright nickel plated components in cylinder valve bodies	15511	20-Apr-16
GIST Operating Head Assemblies Part No: 03010 OHT-Rev04,1106003-Rev02, 1407003-Rev 03, 0709001-rev03	M-07-TR-24GIST	02-July-18

CONDITIONS OF CERTIFICATION

1. Maximum Working Pressure: 260 bar
2. Maximum Developed Pressure: 300 bar
3. The approval of hose assemblies PD 11401, PD 11524, PD 11514, PD 11523 and PD 11526 is limited to its use with CO2/N2 gas systems and compressed air/nitrogen gas systems only and does not constitute general approval of the hoses for use with other mediums or other systems

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4. The final determination of suitability of a system shall be made on the basis of testing the end product in which the system is to be used in accordance with IMO Resolution MSC.81 (70). The suitability of any component covered by this certificate is generally dependent upon its relationship to the size, number and arrangement of the other components of the system in the end product
5. If the specified standards be amended during the validity of this certificate, this product is to be re-approved prior to it being supplied to vessels to which the amended standards apply
6. Production items are to be manufactured in accordance with a quality control system which shall be maintained to ensure compliance with SOLAS Regulation III/5
7. Production items are to be manufactured in accordance with a quality control procedure and records kept as required by MSC.81 (70) Part 2, Paragraph 1.2. This does not preclude any further testing to additional requirements of the Marine Administration of the country where the ship is registered (i.e. the flag state) or those acting on behalf of that administration
8. Should a change of Place of Production from that stated below be required i.e. where the stages of manufacture/assembly/testing of this product take place, the new Place of Production is to be advised to us prior to the change taking place. This Certificate will require to be updated for Approval to be maintained

PLACE OF PRODUCTION

Leaffield Marine Limited
9, Atworth Business Park, Bath Road
Atworth
Wiltshire, SN12 8SB
United Kingdom (UK)



Lijo Thomas
Senior Specialist
Fire & Safety, Statutory Discipline Team
UK&I Technical Support Office, Marine & Offshore
Lloyd's Register EMEA

Supplementary Type Approval Terms and Conditions

This certificate and Design Appraisal Document relates to type approval, it certifies that the prototype(s) of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein, it does not mean or imply approval for any other use, nor approval of any products designed or manufactured otherwise than in strict conformity with the said prototype(s).