

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	Leaffield Marine Limited
Address	9 Atworth Business Park, Bath Road, Atworth, Wiltshire, SN12 8SB, United Kingdom
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	ISO 15738:2019 ISO 9650:2022

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

Fire & Safety - Senior Surveyor to Lloyd's Register EMEA
A member of the Lloyd's Register group

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DESIGN APPRAISAL DOCUMENT

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Certificate No: LR2535376SS
Issue Date: 29/04/2025
Expiry Date: 28/04/2030
Reference: UKITSO/LSA/TA/LT/MB/TSO-25-030289/PRJ11100472531

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR2535376SS

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.

This Certificate is a Renewal and an Amendment of Certificate Number SAS S150044-M4-06

APPROVAL DOCUMENTATION

General User Manual for Gas Inflation System (Torsional), Document No: M-07-UM-GIST, Revision 14a, March 2022.

Cylinder Valve 03020 CVT Series:

<u>Plan/Doc No.</u>	<u>Rev</u>	<u>Plan Date</u>	<u>Title or Description</u>
03020 CVT Series	04d	24-06-24	GIST Cylinder Valve Assembly with Syphon Tube (Twin Saginaw Outlet)
03020 BSS205	01e	29-09-10	Break Stem Seal Assembly 205bar
03020 BSS210	01e	29-09-10	Break Stem Seal Assembly 210bar
03020 BSS230	02e	29-09-10	Break Stem Seal Assembly 230bar
03020 BSS245	01	02-02-15	Break Stem Seal Assembly 245bar
03020 BSS250	03e	29-09-10	Break Stem Seal Assembly 250bar
03020 BSS275	01e	29-09-10	Break Stem Seal Assembly 275bar
03020 BSS300	02e	29-09-10	Break Stem Seal Assembly 300bar
03020TDA	03b	07-09-05	Torque Drive Assembly
03020STA	01e	14-01-14	Syphon Tube Assembly (Plated Steel Insert)
2406005	01	25-06-24	Syphon Tube Assembly-Snapping Retained Weight

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	01a	16-10-13	Actuator Cable Assembly (Over Moulded) (Increased gear box travel)
1106003	02	08-09-17	Operating Head Assembly Torsional (Increased gear box travel) with small loop cable
1104003	01a	26-11-13	Actuator Cable Assembly Small Loop (Over Moulded) (Increased gear box travel)
1407003	03	11-09-17	Operating Head Assembly Torsional- Twin Ball Cable Series (for Vacuum Bag Applications)
0709001	03	10-01-18	Operating Head -Torsional (Vacuum Bag Interface)
19128	03a	13-02-18	Actuator Cable Assembly Twin Ball Series
18885	02d	05-06-18	Cap- Operating Head (Increased gearbox travel)

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ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR2535376SS**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	04l	11-02-20	Inlet Valve Torsional- Plated Selection Chart (Increased ball clearance)
03260IVT	02k	11-02-20	Inlet Valve Torsional - Unplated 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	01c	04-06-13	M16 Quick Fit Connector Assembly (Stainless Steel)
0907003	01a	04-06-13	M16 Quick Fit Connector Assembly (Plated Steel) with 'O' ring seal
32400010	01b	31-03-09	M16 Quick Fit Connector Assembly (Plated Steel)

Hose Assembly:

PD11526	01b	15-04-13	Vendor Control Drawing GIST Hose Assemblies (Stainless Steel Fittings)
PD11524	01c	18-05-10	Vendor Control Drawing Hose GIST Assemblies (Stainless Steel Fittings)
PD11401	02h	14-06-10	Vendor Control Drawing GIST Hose Assemblies
PD11514	03e	26-09-12	Vendor Control Drawing GIST Hose Assemblies (3/8" BSPF Flat Face to Quick Connect)
PD11523	01f	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**Report Title or Report Author****Report No.****Date**

Test Procedure for Statutory Approval of Leaffield Marine Ltd Hose Assembly (#PD 11401 and #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 Southampton

M-07-TR-2GIST, Issue 1

Mar-05

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

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Further Statutory Approval testing of Leaffield Marine Ltd Hose Assemblies #PD 11401 and 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
Test Report of Statutory Approval of Leaffield Marine Ltd Operating Head Assembly #03010OHT (Test Procedure #M-07-TP-13GIST rev.01 refers)	M-07-TR-13GIST REV.01	April-11
Test Report for Statutory Approval of Leaffield Marine Ltd Inlet valve assemblies #03250 IVT and #03260 IVT (Test Procedure #M-07-TP-12GIST rev 01 refers)	M-07-TR-12GIST Rev-01	Mar-11
Report on 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, Rev 01	May-13
Report on Statutory Approval Testing of the Leaffield Marine Ltd Steel Weighted Siphon Tube (Part No. 17803-Rev03)	M-07-TR-13GIS, Rev 01	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, # 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-1GIVT Rev 02	Feb -16
Salt spray testing, for the acceptance of bright nickel plated components in cylinder valve bodies	15511	20-Apr-16
Report for the statutory Approval Testing of the Leaffield Marine Ltd GIST Operating Head Assemblies Part No: 03010 OHT-Rev04, 1106003-Rev02, 1407003-Rev 03, 0709001-rev03	M-07-TR-24GIST, Rev 01	02-July-18
Test Procedure for Statutory Approval of Leaffield Marine Ltd Gas Inflation System Cylinder Valves Assesmbly and Operating Head Assembly	M-07-TP-1GIS4, REV 02	19-03-24
Report for the Statutory Approval testing of Leaffield Marine Ltd Gas Inflation System Cylinder Valves Assesmbly and Operating Head Assembly witnessed by LR Southampton	M-07-TR-1GIS4, REV 01	04-04-24



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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.
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. 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. 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)