

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 (UK)
Type	Gas Inflation System
Description	Liferaft Gas Inflation System Type GIS comprising of; D91-210 series operating head or 1205002 operating head D91-220 series cylinder valve or PD11538 cylinder valve B91-160 series inlet valve or 1103001 series inlet valve PD11538 – Gauged valve (Max 450 BAR) including Pressure Transducer Variant Multi-port Inflation Valve (1701004 series up to 4 ports) 1607001 & 2308006 Pyro/Manual Operating Head
Trade Name	GIS
Specified Standard	ISO 15738:2019

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.



DESIGN APPRAISAL DOCUMENT

Page 2 of 6
Certificate No: LR2557067SS
Issue Date: 07/07/2025
Expiry Date: 06/07/2030
Reference: UKITSO/LSA/TA/LT/MB/TSO-25-033043/PRJ11100477208

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR2557067SS

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 Design Appraisal Document forms part of the Certificate.

This Certificate Supersedes and is a Renewal of Certificate Number LR2021494SS-02

APPROVAL DOCUMENTATION

<u>Doc No.</u>	<u>Rev</u>	<u>Date</u>	<u>Title or Description</u>
Type D91-210 – Series Operating Head			
D912101	04B	03/06/2024	Bill of Materials Operating Head Assembly GIS, Packed with External O Ring
D912102	03B	03/06/2024	Bill of Materials Operating Head Assembly c/w 240mm Cable, Packed with External O Ring
D912103	01	03/06/2024	Bill of Materials Operating Head Assembly c/w Brass Clamp and 30mm Cable
D912104	01	03/06/2024	Bill of Materials Operating Head Assembly c/w Brass Clamp and 240mm Cable
D912105	01A	03/06/2024	Bill of Materials Operating Head Assembly c/w 20mm Cable, Packed with External O Ring
Type D91-220 – Series Cylinder Valve			
D912201	08	03/06/2024	Bill of Materials Cylinder Valve Assy GIS CV1, PED Approved - Use in accordance with User Manual
D912202	08	03/06/2024	Bill of Materials Cylinder Valve Assembly, GIS CV2, 250 Bar c/w Penetrator Assy & Diaphragm Assy, PED Approved - Use in accordance with User Manual
D912203	08	03/06/2024	Bill of Materials Cylinder Valve Assy GIS CV3, PED Approved - Use in accordance with User Manual
D912204	08	03/06/2024	Bill of Materials Cylinder Valve Assy GIS CV4, PED Approved - Use in accordance with User Manual
D912205	08	03/06/2024	Bill of Materials Cylinder Valve Assembly, GIS CV5, 250 Bar c/w Penetrator Assy & Diaphragm Assy, PED Approved - Use in accordance with User Manual
D912206	08	03/06/2024	Bill of Materials Cylinder Valve Assembly GIS CV6, PED approved-use in accordance with User Manual

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

**DESIGN APPRAISAL DOCUMENT**

Page 3 of 6
Certificate No: LR2557067SS
Issue Date: 07/07/2025
Expiry Date: 06/07/2030
Reference: UKITSO/LSA/TA/LT/MB/TSO-25-033043/PRJ11100477208

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR2557067SS**Type C91-230 – Series
Valve Body**

C912231	07B	03/06/2024	Bill of Material Valve Body/Syphon Tube Assembly GIS CV1, PED Approved - Use in accordance with User Manual
C912232	07B	03/06/2024	Bill of Material Valve Body/Syphon Tube Assembly GIS CV2, for 250 Bar Diaphragm, Assembly, PED Approved - Use in accordance with User Manual
C912233	07B	03/06/2024	Bill of Material Valve Body/Syphon Tube Assembly GIS CV3, PED Approved - Use in accordance with User Manual
C912234	07B	03/06/2024	Bill of Material Valve Body/Syphon Tube Assembly GIS CV4, PED Approved - Use in accordance with User Manual
C912235	07B	03/06/2024	Bill of Material Valve Body/Syphon Tube Assembly GIS CV5 Plated, for 250 Bar Diaphragm, Assembly, PED Approved - Use in accordance with User Manual
C912236	07B	03/06/2024	Bill of Material Valve Body/Syphon Tube Assembly GIS CV6

**Type B91-160 – Series
Inlet Valve**

B9116021.0	03C	03/06/2024	Bill of Materials Inlet Valve Low Profile for Banjo Bolt 1.0mm
B9116021.2	02C	03/06/2024	Bill of Materials Inlet Valve Low Profile for Banjo Bolt 1.2mm
B9116021.8	03C	03/06/2024	Bill of Materials Inlet Valve Low Profile for Banjo Bolt 1.8mm
B9116022.0	03C	03/06/2024	Bill of Materials Inlet Valve Low Profile for Banjo Bolt 2.0mm
B9116022.2	03C	03/06/2024	Bill of Materials Inlet Valve Low Profile for Banjo Bolt 2.2mm
B9116022.3	03C	03/06/2024	Bill of Materials Inlet Valve Low Profile for Banjo Bolt 2.3mm
B9116022.4	02C	03/06/2024	Bill of Materials Inlet Valve Low Profile for Banjo Bolt 2.4mm
B9116022.5	03C	03/06/2024	Bill of Materials Inlet Valve Low Profile for Banjo Bolt 2.5mm
B9116022.6	02C	03/06/2024	Bill of Materials Inlet Valve Low Profile for Banjo Bolt 2.6mm
B9116022.8	03C	03/06/2024	Bill of Materials Inlet Valve Low Profile for Banjo Bolt 2.8mm
B9116041.0	03B	03/06/2024	Bill of Materials Inlet Valve Assembly G3/8" Male - Ø1.0mm Jets
B9116041.8	03B	03/06/2024	Bill of Materials Inlet Valve Assembly G3/8" Male - Ø1.8mm Jets
B9116042.0	03B	03/06/2024	Bill of Materials Inlet Valve Assembly G3/8" Male - Ø2.0mm Jets
B9116042.2	03B	03/06/2024	Bill of Materials Inlet Valve Assembly G3/8" Male - Ø2.2mm Jets
B9116042.3	03B	03/06/2024	Bill of Materials Inlet Valve Assembly G3/8" Male - Ø2.3mm Jets
B9116042.4	02B	03/06/2024	Bill of Materials Inlet Valve Assembly G3/8" Male - Ø2.4mm Jets
B9116042.5	03B	03/06/2024	Bill of Materials Inlet Valve Assembly G3/8" Male - Ø2.5mm Jets
B9116042.6	02B	03/06/2024	Bill of Materials Inlet Valve Assembly G3/8" Male - Ø2.6mm Jets
B9116042.8	03B	03/06/2024	Bill of Materials Inlet Valve Assembly G3/8" Male - Ø2.5mm Jets
EXA7018	0BA	03/06/2024	Bill of Materials Banjo Assembly G3/8 Male Ni Plated
LEL-20018	7b	08/03/2022	General User Manual for Gas Inflation System Cutter Type

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

**DESIGN APPRAISAL DOCUMENT**

Page 4 of 6
Certificate No: LR2557067SS
Issue Date: 07/07/2025
Expiry Date: 06/07/2030
Reference: UKITSO/LSA/TA/LT/MB/TSO-25-033043/PRJ11100477208

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR2557067SS**Syphon Tube**

17803	03a	16/04/2013	Syphon Tube Insert
2406005	01	25/06/2024	SYPHON TUBE ASSEMBLY SNAP RING RETAINED WEIGHT

Actuator Cable

B91-211-Series	01h	01/10/2019	Actuator Cable Assembly
----------------	-----	------------	-------------------------

Gauged Valve**Assembly**

PD11538	02g	03/10/2023	GIS Gauged or Transduced Valve Assembly including variants listed
M-07-UM-GISPG	05c	05/01/2023	USER MANUAL GAS INFLATION SYSTEM with PRESSURE GAUGE or PRESSURE TRANSDUCER
M-07-TP-2GISPG-01	01	01/05/2024	Test Procedure for the Approval Testing of Gauged Cylinder Valve with Pressure Transducer for use in Gas Inflation Systems

Multi-Port Valves

1701004	01b	30/04/2021	GIS Multi-Port Saginaw Valve Assembly Matrix
---------	-----	------------	--

Operating Head

1607001	02	06/03/2023	Pyro/Manual Operating Head Assembly with 1.5m Cable
2308006	01a	25/09/2023	Pyro/Manual Operating Head Assembly with Robust Cable

TEST REPORTS**Report Title or Report Author****Report No.****Date**

Test Procedure & Test Report Summary for the Approval of LEL Type D91-220 Series Gas Cylinder Valve and LEL Type D91-210 Series Operating Head.	LEL-16-TS-02111, Issue 3	07/07/1992
Test Report on Statutory Approval Testing of Steel Weighted Syphon Tube (Part No. 17803-Rev.03)	M-07-TR-13GIS, Rev 01	29/05/2013
Test Report on Statutory Approval Testing of GIS Operating Head Assembly for 300 bar and above (Part No. 1205002)	M-07-TR-15GIS, Rev 01	30/30/2013
Trails Report for the Type Approval Testing of the Gauged Cylinder Valve for the use in Gas Inflation Systems Assembly (400 bar) for use in GIS (Part No PD11538)	M-07-TR-19GIS, Rev 01	22/12/2014
Salt Spray Testing, for the acceptance of bright nickel plated components in cylinder valve bodies.	15511	20/04/2016
Test Report for the Statutory Approval Testing of Multi-port GIS Cylinder Valve for use in Gas Inflation Systems	M-07-TP-26GIS, Rev 1	21/10/2017
Test Report of the approval testing of Pyro/Manual Operating Head Assembly (Part No.1607001)	M-07-TR-3PMOH, Rev 01	10/05/2017

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.

**ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR2557067SS**

Report of the approval testing of Pyro/Manual Operating Head Assembly (Part Nos.1607001 and 2308008)	M-07-TR-4PMOH, Rev 01	29/05/2024 & 11/06/2024
Test Report for the Type Approval Testing of Gauged Cylinder Valve with Pressure Transducer for use in Gas Inflation Systems (Drawing No. PD11538)	M-07-TR-2GISPG-01, Rev 01	29/05/2024
Salt Spray Laboratory Report part of M-07-TR-2GISPG-01, Rev 01, Gauged Cylinder Valve with Pressure Transducer for use in Gas Inflation Systems (Drawing No. PD11538)	20867	04/12/2023

CONDITIONS OF CERTIFICATION

1. Maximum working pressure: 450 bar.
2. Maximum number of ports: 4
3. The operating head are only to be used and maintained in accordance with the relevant user manual. The manual shall be supplied to each customer and shall clearly state limitations.
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 are 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 tests are to be conducted to ensure compliance with SOLAS Chapter III Regulation 5. 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 the 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.



DESIGN APPRAISAL DOCUMENT

Page 6 of 6
Certificate No: LR2557067SS
Issue Date: 07/07/2025
Expiry Date: 06/07/2030
Reference: UKITSO/LSA/TA/LT/MB/TSO-25-033043/PRJ11100477208

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR2557067SS

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)

Lloyd's Register Group Limited, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'Lloyd's Register'. Lloyd's Register assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant Lloyd's Register entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract.