

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.

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|----------------------------|---|
| Manufacturer | Leaffield Marine Ltd |
| Address | Unit 2 Atworth Business Park Bath Road Atworth Wiltshire, SN12 8SB United Kingdom (UK) |
| Product Type | A10 PRESSURE RELIEF VALVE |
| Product Description | Pressure Relief Valve covering the pressure relief range 1 to 4 psi – Type: "A10 PG XXX XXX and A10 ST XXX XXX" |
| Specified Standards | IMO Resolution MSC.48(66), LSA Code, Regulations IV/4.1 and 4.2 MSN 1676(M) Schedule 4 as required by Part 1, Regulations 2 of the Merchant Shipping (Life Saving Appliances for Ships other than Ships of Classes III to VII(A) Regulations 1999.) MSN 1676(M) Schedule 4 as required by Part 1, Regulations 2 of the Merchant Shipping (Life Saving Appliances for Ships of Classes III to VII(A) Regulations 1999.) Volume 2, Survey of Life Saving Appliances (Revised 1999), Part 1, Section 1, paragraph 18 and Part VI, Chapter 4 IMO Resolution MSC.81 (70), Part 1 as amended to date. ISO 15738: 2002 and ISO 9650: 2005 |

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.

Date of issue 27 July 2009

Expiry date 26 July 2014

Certificate No. .SAS S090136

Signed



Sheet No 1 of 3

Name

P. Galbraith
Surveyor to Lloyd's Register EMEA
A Member of the Lloyd's Register Group

Note:

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 of any modification or changes to the equipment in order to obtain a valid certificate.

"Lloyd's Register, its affiliates and subsidiaries and their respective officers, employees or agents are, individually and collectively, referred to in this clause as the 'Lloyd's Register Group'. The Lloyd's Register Group 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 Group 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

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| Date 27 July 2009 | Quote this reference on all future communications LDSS/TA/LSA/PG |
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ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. SAS S090136

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.

EXAMINED DOCUMENTATION

| <u>Plan No.</u> | <u>Rev</u> | <u>Plan Date</u> | <u>Plan Title</u> |
|-----------------|------------|------------------|---|
| D94-291 | OG | 01-Oct-08 | A10 Valve "Standard" Type Selection Chart |
| D94-294 | OG | 01-Oct-08 | A10 Valve "Plug" Type Selection Chart |
| D14734 | OFd | 14-Jul-09 | Body |
| C14778 | OGc | 14-Oct-08 | Stem |
| B14779 | OEd | 14-Jul-09 | Washer |
| B14780 | ODc | 13-Oct-08 | Split Bush |
| B14781 | Da | 09-Feb-04 | Spring Retaining Collar |
| B14891 | Db | 09-Feb-04 | Diaphragm |
| D15040/Series | ODd | 14-Jul-09 | Housing (Moulding) |
| B15210 | Ba | 09-Feb-04 | Diaphragm |
| B15482/Series | 0Cc | 29-Aug-06 | Plug (A10) |
| B15629 | Ca | 09-Feb-04 | Sealing Washer |
| C15676 | Ca | 09-Feb-04 | Housing (Machined) |
| B15962/Series | Bb | 09-May-09 | Housing (Machined) |
| 17952 | O1b | 19-Jan-09 | Diaphragm |
| A14899 | Da | 09-Feb-04 | A10 Valve Spring (1.1 PSI, Grey) |
| A14900 | Da | 09-Feb-04 | A10 Valve Spring (2.0 PSI, Blue) |
| A14901 | Da | 09-Feb-04 | A10 Valve Spring (2.75 PSI, White) |
| A14902 | Da | 09-Feb-04 | A10 Valve Spring (3.25 PSI, Orange) |
| A14903 | Da | 09-Feb-04 | A10 Valve Spring (4 PSI, Red) |
| A15104 | Da | 09-Feb-04 | A10 Valve Spring (2.5 PSI, Brown) |
| A15958 | Aa | 09-Feb-04 | Gasket |
| A16930 | Aa | 09-Feb-04 | A10 Valve Spring (4.25 PSI, Black) |

TEST REPORTS

| <u>Report Title</u> | <u>Report No.</u> | <u>Date</u> |
|--|-----------------------------|-------------|
| LR Southampton Certificate for Witness of Testing on A10 Pressure Relief Valve | SOU0300613/1 | 10-Nov-03 |
| A10 Pressure Relief Valve – Approval Testing of Low Temperature Polychloroprene Rubber Diaphragms | LML-20652, Issue 1 | Jun-03 |
| A10 Pressure Relief Valve – Results of Approval Testing of Low Temperature Polychloroprene Rubber Diaphragms to Test Specification LML-20652 Issue 1 | LML-20764, Issue 1 | Nov-03 |
| Test Schedule for DOT Approval Testing of the A10 Pressure Relief Valve | LEL-50-TS-02028, Issue 1. | Aug-91 |
| Summary of Suitability Test of A10 Pressure Relief Valve Compound #CR 01350 | - | Dec 06 |
| Testing of PES valve components at different temperatures | SMS 1502 | Oct 2008 |
| Acetal Co-Polymer Temperature Cycling/Torque Test | M-07-TR-1MAT Revision 01 | June 2009 |

DESIGN APPRAISAL DOCUMENT

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CONDITIONS OF CERTIFICATION

1. If the specified standards are amended during the validity of this certificate, this product type is to be re-approved prior to it being supplied to vessels to which the amended standards apply.
2. 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.
3. Production tests are to be conducted in accordance with the applicable requirements of IMO Resolution MSC.81(70), Part 2.1.2. 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.
4. 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 Ltd
Unit 2, Atworth Business Park
Bath Road
Atworth
Wiltshire
SN12 8SB
United Kingdom (UK)



P. Galbraith
Lead Specialist
Product Approval Services
London Design Support Services
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).