

CERTIFICATE OF TYPE APPROVAL



This is to certify that

Lloyd's Register did undertake the relevant type approval procedures of the equipment detailed below which was found to be in compliance with the essential Pollution Prevention requirements 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	DMA Sorption ApS
Address	Skelstedet 5 2950 Vedbaek Denmark
Type	OIL FILTERING EQUIPMENT (POLLUTION PREVENTION)
Description	Oil Absorption Filter - Type: "4 AA 52/15-6"
Specified Standard	DMA Sorption, Document No. FS001, Version 001/200803

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	13 September 2007	Expiry date	12 September 2012
Certificate No.	SAS P070027	Signed	 
Sheet No	1 of 4	Name	J. D. Morley 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

Date 13 September 2007	Quote this reference on all future communications LDSS/MARPOL/SM
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ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. SAS P070027

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.

APPROVAL DOCUMENTATION

Equipment type:	Absorb Oil Filter (Bilge Water Polishing Filter)
Equipment manufactured by:	DMA Sorption ApS
to assembly drawing No's:	260-173r2/FCS 4AA 52/15-6/FI 003/FI 002
Filter Cartridge manufactured by:	DMA Sorption ApS
to specification/assembly drawing No:	FM 001
Maximum throughput of system:	$\leq 2.5 \text{ m}^3/\text{hr}$
Maximum Pressure:	$\leq 6 \text{ bar}$

This approval is based on the examination of drawings and on satisfactory tests carried out under the supervision of a Lloyd's Register on a similar piece of equipment having a maximum throughput of $2.5 \text{ m}^3/\text{hr}$.

MANUFACTURERS RECOMMENDATIONS AND OTHER INFORMATION

The system is designed such that the effluent contains not more than 5 ppm oil content irrespective of the oil content (from 0 ppm to 100 ppm) of the influent.

The filter must be inspected regularly for any damage which may influence its performance.

For influents of oil content up to 100 ppm, the filter to be replaced for every 100-150 m^3 purified.

For influents of oil content up to 15 ppm, the filter to be replaced for every 650-1000 m^3 purified.

Used filters to be disposed of in accordance with MARPOL 73/78 Annex V.

Pressure increase of 1.0 bar over a period may indicate that replacement of the filter cartridges is needed.

CONDITIONS OF CERTIFICATION

1. The equipment is not to be installed in dangerous zones and spaces.
2. Installation is to be in accordance with manufacturer's installation procedures, Doc No. FI 001/ FI002 or FI 003.
3. Limiting Conditions: The filter to be permanently mounted in the horizontal position and pumps of capacity $\leq 2.5 \text{ m}^3/\text{hr}$ to be connected to the filter.
4. A copy of this certificate should be carried onboard a ship fitted with this equipment.
5. Production items are to be manufactured in accordance with a quality control system which shall be maintained to ensure that items are of the same standard as the approved prototype.

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Sample	Test oil (A)		Test oil (B)		Test oil (C)	
	Influent	Effluent	Influent	Effluent	Influent	Effluent
1	107 ppm	1.25 ppm	89 ppm	5.3 ppm	105 ppm	2.7 ppm
2	127 ppm	1.52 ppm	71 ppm	4.1 ppm	112 ppm	2.2 ppm
3	86 ppm	0.88 ppm	105 ppm	4.1 ppm	128 ppm	1.6 ppm
4	0.47 ppm	1.35 ppm	0.53 ppm	1.2 ppm	0.076 ppm	1.5 ppm
5	127 ppm	0.51 ppm	105 ppm	1.1 ppm	210 ppm	0.72 ppm


 J. D. Morley
 Lead Specialist
 MARPOL Section
 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).