

Instalatie de epurare ape din cuvele transformatoarelor MODEL: PFFAS 38/100

Specificatie tehnica

Instalatia este produsa de firma SC SUSZI SRL si are urmatoarea componenta:

- pompa submersibila tip DAD12M (Caprari) cu debitul de 3,6 m³/h
- furtun de refulare de 1" cu lungime de 10 metri;
- robinet;
- manometru ;
- baterie de filtre :
 - grosiere cu autocurative cu finetea de filtrare de 90 microni:
 - elimina din apa particule solide de nisip, noroi, particule de material plastic;
 - sunt confectionate din materiale de inalta calitate, conform ultimelor standarde;
 - filtrele se spala periodic, nu se consuma;
 - filtrele sunt prevazute la partea inferioara cu furtun de drenaj;
 - filtrare medie : filtru fin cu finete de filtrare de 20 microni, capacitate de retinere particule de 500 g/ element filtrant;
 - filtrul este fabricat din polipropilena (100%)
- filtru absorbant de ulei (Oil Absorb Filter), produs de firma CC Jensen din Danemarca ;
 - debit apa refulata-maxim 2.5 m³/h;
 - continut maxim de produs petrolier in apa deversata: 5 mg/l;
 - apa refulata poate fi deversata in canalizare;
 - cartuse filtrante care retin uleiul din apa, tip DMA 38/25
 - manometru care indica gradul de colmatare al cartuselor filtrante;
- carucior care asigura deplasarea instalatiei;
- echipamentul este dotat cu sistem de monitorizare a uleiului din apa refulata;

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	Skelstedt 5 2950 Vedbaek Denmark
Type	OIL FILTERING EQUIPMENT (POLLUTION PREVENTION)
Description	Absorb All Oil Filter (Bilge Water Polishing Filter)
Specified Standard	DMA Sorption, Document No. FS 001, 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 10 October 2003

Expiry date 9 October 2008

Certificate No. SAS P030092

Signed



Sheet No 1 of 4

Name

S. James

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.

Project: -

Client: DMA Sorption ApS

Office: Copenhagen

Clients Order Number: -

Date: 19 September 2003

Order Status: Complete

Inspection Dates

First: 29 August 2003

Final: 01 September 2003

This certificate is issued to DMA Sorption ApS

to certify that the undersigned Surveyors attended their works at Skelstedet 5, DK-2950 Vedbæk on 29 August and 1 September 2003 for the purpose of witnessing testing of a bilge water polishing filter, type: All Oil Filter.

The test rig was built in accordance with submitted plans.

The filter was fed with an oily water solution and test samples withdrawn before and after the filter in accordance with submitted test procedure.

Three (3) tests with different grades of oil, Shell Fuel Oil 45, Shell Fuel Oil 77 and Shell Marine Gas Oil W, were witnessed.

The oil was mechanically mixed with water and fed via a hose pump and flow meter through a centrifugal pump into the filter.

Sample points, before and after the filter, were provided.

The feed of oily water and sampling was carried out in accordance with submitted procedures.

Sampling and analysis of test samples was carried out by Miljølaboratoriet, Storkøbenhavn I/S, a laboratory accredited by the Danish Authorities, DANAK, for this type of testing.

The analysis was carried out to agreed procedures, GC-FID.

The test analysis reports nos. 12545/03 - 12558/03, 12603/03 - 12612/03, 12614/03, 12615/03 & 12674/03 - 12682/03 have been sighted.

The test analysis reports shows in general that influent of approx. 100 ppm oil in water leaves the filter as effluent with less than or equal to 5 ppm oil in water.

The filter casing is a cylindrical shell with dished ends made from stainless steel. Outside diameter 500 mm and wall thickness 4 mm, height approx. 900 mm. The inside of the filter consists of removable paper cartridges. The filter is provided with a pressure relief valve.

Remarks:

The filter is not considered to be a pressure vessel in terms of LR, Rules for Ships, Part 5, Chapter 11.



S. Hanberg for O. Kajander and self
Surveyors to Lloyd's Register of Shipping

A member of the Lloyd's Register Group

DESIGN APPRAISAL DOCUMENT

Date 10 October 2003	Quote this reference on all future communications MSG/STAT/TGS/SJ
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ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. SAS P030092

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 All Oil Filter (Bilge Water Polishing Filter)
Equipment manufactured by:	DMA Sorption ApS
to assembly drawing No's:	FV1000700A/FCS 001/FI 003/FI 002
Filter Cartridge manufactured by:	DMA Sorption ApS
to specification/assembly drawing No:	FM 001
Maximum throughput of system:	≤ 1.2 m ³ /hr
Maximum Pressure:	≤ 3 bar

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 m³ purified.
For influents of oil content up to 15 ppm, the filter to be replaced for every 650-1000 m³ 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 ≤ 1.2 m³/hr to be connected to the filter.
4. A copy of this certificate should be carried onboard a ship fitted with this equipment.

TEST RESULTS AND DATA

Test Location:	DMA Sorption ApS, Skelstedet 5, DK-2950 Vedbaek, Denmark.
Method of sample analysis:	ML-G1370
Sample analysed by:	Miljølaboratoriet Storkøbenhavn, Ørnebjergvej 1, 2600 Glostrup, Denmark.

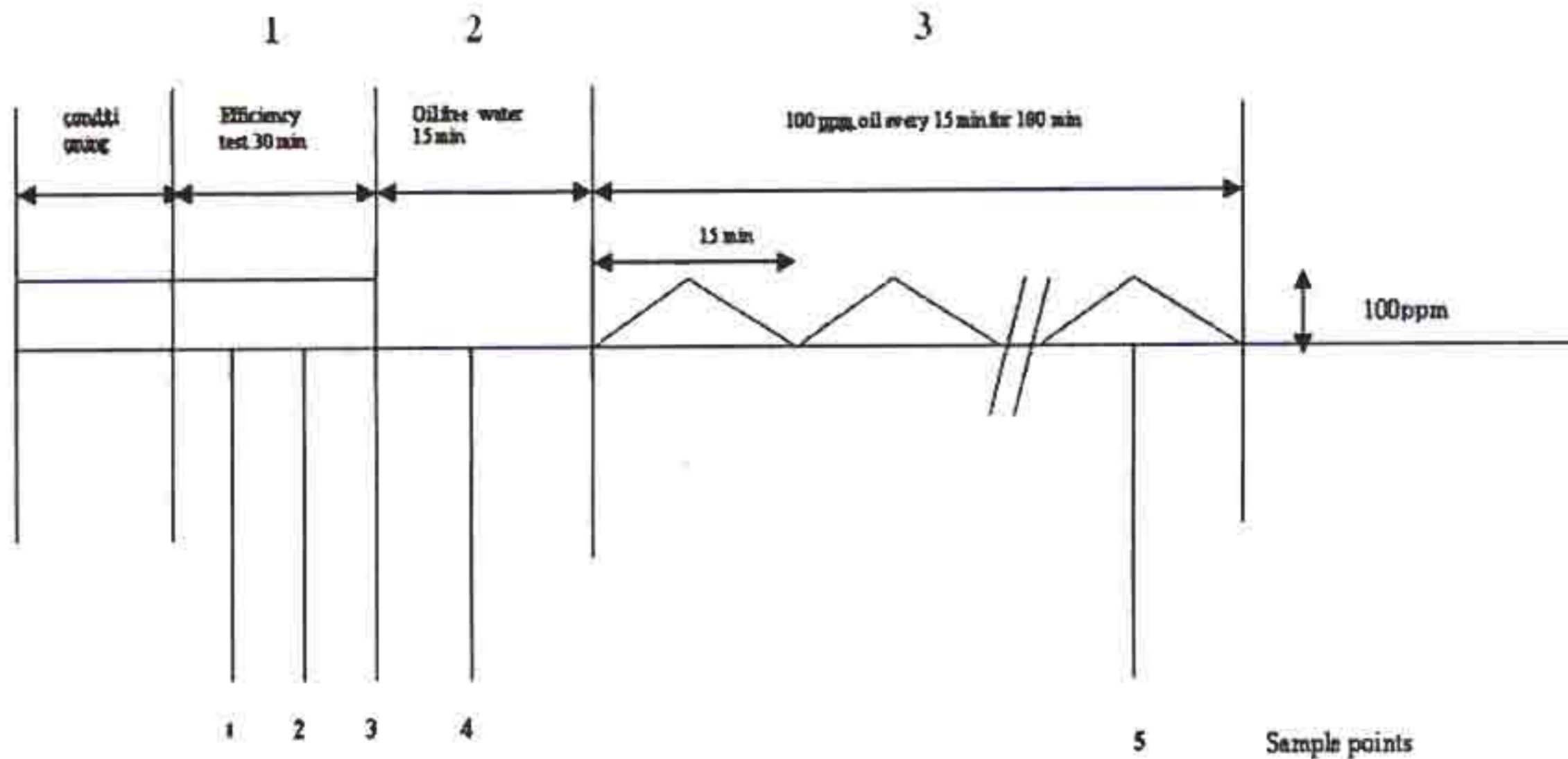
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Test oil (A)
 Relative density 0.980 at 15°C
 Viscosity (min) 35 centistokes at 80°C
 Viscosity (max) 45 centistokes at 80°C
 Flashpoint 80 °C
 Ash content 0.10 %
 Water content at start of test 0.5 %

Test oil (B)
 Relative density 0.840 at 15°C
 Viscosity (min) 1.9 centistokes at 80°C
 Viscosity (max) 3.7 centistokes at 80°C
 Flashpoint 61 °C
 Ash content 0.01 %
 Water content at start of test 0.015 %

Test oil (C)
 Relative density 0.980 at 15°C
 Viscosity (min) 65 centistokes at 80°C
 Viscosity (max) 77 centistokes at 80°C
 Flashpoint 80 °C
 Ash content 0.10 %
 Water content at start of test 0.5 %



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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



San James
 Principal Surveyor
 Tanker & Gas Section
 Statutory Services
 Marine Support Group.

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).