



Marine &amp; Offshore

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Notified Body 2690 - MARINE EQUIPMENT DIRECTIVE 2014/90/EU

## EC TYPE EXAMINATION CERTIFICATE

as per Module B of Directive 2014/90/EU of the European Parliament and of the Council of 23 July 2014 as transposed in the French Regulations and Commission Implementing Regulation (EU) 2021/1158 of 22 June 2021

This certificate is issued to:

**SUNFLAME CO., LTD.**

Uji - JAPAN

for the type of product

**SHIPBOARD INCINERATORS (up to 4 000 kW)**

Types OSV2-190S, OSV-240SAI, OSV-360S(D)AI, OSV-600S(D)AI, OSV-900S(D)AI, OSV-1200S(D)AI,  
OSV-1500S(D)AI & OSV-2400SDAI

**Requirements:**

- MARPOL 73/78 as amended, Annex VI, Regulation 16
- IMO MEPC.1/Circ.793
- IMO Res. MEPC.244(66) superseding IMO MEPC.76(40)

This certificate is issued on behalf of the French Maritime Authorities to attest that Bureau Veritas Marine & Offshore did undertake the relevant type-examination procedures for the product identified above which was found to comply with the relevant requirements of the Directive 2014/90/EU of the European Parliament and of the Council of 23 July 2014 as transposed in the French Regulations.


**This certificate will expire on: 11 Apr 2027****For Bureau Veritas Marine & Offshore Notified Body 2690,**

At BV KOBE, on 11 Apr 2022,

Shinichi Takemoto

**This certificate was created electronically and is valid without signature**



**This certificate does not allow to issue the Declaration of Conformity and to affix the mark of conformity (wheelmark ) to the products corresponding to this type. To this end, the production-control phase module (D, E or F) of Annex II of the Directive is to be complied with and controlled by a written inspection agreement with a notified body.**

This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. Bureau Veritas Marine & Offshore is designated by the French Maritime Authority as a "notified body" under the terms of the French Regulations Division 140 Chapter 140-2. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION

**Shipboard Incinerators Types OSV2-190S, OSV-240SAI, OSV-360S(D)AI, OSV-600S(D)AI, OSV-900S(D)AI, OSV-1200S(D)AI, OSV-1500S(D)AI & OSV-2400SDAI**

#### 1.1 Performance Data

Type	OSV2-190S	OSV-240SAI	OSV-360S(D)AI	OSV-600S(D)AI
Capacity (kW)	190	240	360	600
Solid waste (kg/h)	5	20	30	50
Liquid waste (kg/h)	19	26	38	64

Type	OSV-900S(D)AI	1200S(D)AI	OSV-1500S(D)AI	2400SDAI
Capacity (kW)	900	1200	1500	2400
Solid waste (kg/h)	75	100	125	200
Liquid waste (kg/h)	97	129	161	258

#### 1.2 Incinerator shall operate within the following limits:

O2 average in combustion chamber (%)	6-12
CO average in flue gas (mg/MJ)	200
Soot number average	Bacharach 3 or Ringelman 1
Combustion chamber flue gas outlet temperature average (°C)	850-1200
Amount of unburned components in ashes (Max % by weight)	10

#### 1.3 Software version Rev. 0

### 2. DOCUMENTS AND DRAWINGS

#### 2.1 Drawings :

Description	OSV2-190S	
	Drawing N°	Date
Flow Sheet	EF-019S-001E	27/09/2007
Waste Oil Incinerator Unit	1AM-190-L001E	16/02/2009
Standard Control Panel (without touchpad)	1AE-019001-1 to 5	25/11/2010
Optional Control Panel (with touchpad)	WI07-E09-01E to 08E	18/01/2008
Main Burner	SGT-10020	07/04/2010
Ignition Burner Assembly	ICI-10002 1	16/02/2010
Waste Oil Pump Unit for single Strainer	MAp-2661-J2	26/11/2007
Electro-Pump	Mp-2001	31/08/1994
Primary Air Fan	MF2701-1	29/04/2008
Exhaust Fan	Mf-2700 A-J	17/01/2008
List of Spares and Tools	SL-019S-001-E	/
Time Chart	ET-019S-001	15/10/2007
Incinerator Flow Chart	1AC-10005	15/10/2008

Description	OSV-900SAI		OSV-1500SAI	
	Drawing N°	Date	Drawing N°	Date
Specification	SP-4511	/	SP-4664	/
Flow Sheet	EF-4511	29/09/1999	EF-4664	16/04/2000
Assembly of Incinerator	EI-4511	29/09/1999	EI-4664	15/05/2000
Incinerator Control Panel	EE-4511-1 to -5	30/09/1999	EE-4664-1 to -6	11/05/2000
Main Burner	GB-1052	12/10/1998	GB-1053	19/03/1999
Ignition Burner	G-1435	06/04/1999	G-1435	06/04/1999
Waste Oil Pump (Sludge Pump)	/	/	Mp-2194	19/03/1999
Primary Air Fan	/	/	Mf-2275	16/04/2000
Exhaust Fan	Mf-2209	17/05/1999	Mf-2266	16/02/2000
List of Spares and Tools	SL-4511	/	SL-4664	/
Standard of Electric Device & Wire	OSG-360SDA	/	OSG-600SDA	/
Time Chart	IAT-10000	13/09/1999	IAT-10001	11/05/2000
Incinerator Control Flow Chart	IAC-10000	30/09/1999	IAC-10002	11/05/2000

Description	OSV-360SAI		OSV-600SAI	
	Drawing N°	Date	Drawing N°	Date
Specification	SP-4259	/	SP-4397	/
Flow Sheet	EF-4259	11/01/1989	EF-4397	07/09/1998
Assembly of Incinerator	EI-4259	22/01/1998	EI-4397	24/09/1998
Incinerator Control Panel	EE-4259 (5)	14/10/1998	EE-4397 (5)	16/10/1998
Main Burner	GB-1051	26/11/1998	GB-1043	12/07/1995
Ignition Burner	G-1354	02/07/1982	G-1354	02/07/1982
Exhaust Fan	Mf-2148	06/02/1998	Mf-2164	10/06/1998
Thermo-couple for Exhaust Gas	G-1303-M	24/09/1986	G-1303-N	24/09/1986
List of Spares and Tools	SL-4259 (3)	-	SL-4397 (3)	-
Time Chart	IAT-10000	14/10/1998	IAT-10000	16/10/1998
Incinerator Control Flow Chart	IAC-10000	14/10/1998	IAC-10000	16/10/1998

Description	OSV-1200SAI		OSV-360SDAI	
	Drawing N°	Date	Drawing N°	Date
Specification	SP-4486	-	SP-1105	-
Flow Sheet	EF-4486	16/04/1999	EF-1105	18/08/2003
Assembly of Incinerator	EI-4486	16/04/1999	EI-1105	11/09/2003
Incinerator Control Panel	EE-4486	15/04/1999	EE-1105	12/08/2003
Main Burner	GB-1055	19/03/1999	GB-1051	02/12/1998
Ignition Burner	G-1436	19/03/1999	G-1435	06/04/1999
Waste Oil Pump (Sludge Pump)	Mp-2195	19/03/1999	-	-
Primary Air Fan	Mf-2192	16/04/1999	-	-
Exhaust Fan	Mf-2191	11/03/1999	Mf-2347S	14/06/2002
Thermo-couple for Exhaust Gas	G-1303-N	06/04/1999	-	-
List of Spares and Tools	SL-4486 (3)	-	SL-1105	-
Time Chart	IAT-10001	13/09/1999	IDT-10000	12/08/2003
Incinerator Control Flow Chart	IAC-10002	30/09/1999	IDC-10000	12/08/2003

Description	OSV-600SDAI		OSV-900SDAI	
	Drawing N°	Date	Drawing N°	Date
Specification	SP-14411	-	SP-4489	-
Flow Sheet	EF-14411	30/09/1999	EF-4489	24/08/1999
Assembly of Incinerator	EI-14411	30/09/1999	EI-4489	24/08/1999
Incinerator Control Panel	EE-14411	30/09/1999	EE-4489	25/08/1999
Main Burner	GB-1052	12/10/1998	GB-1052	12/10/1998
Ignition Burner	G-1435	06/04/1999	G-1435	06/04/1999
Exhaust Fan	Mf-2164	03/06/1999	Mf-2209	17/05/1999
List of Spares and Tools	SL-14411	-	SL-4489	-
Time Chart	IDT-10000	03/09/1999	IDT-10001	25/08/1999
Incinerator Control Flow Chart	IDC-10000	03/09/1999	IDC-10002	25/08/1999

Description	OSV-1200SDAI		OSV-240SAI	
	Drawing N°	Date	Drawing N°	Date
Specification	SP-4485	-	SP-4566	-
Flow Sheet	EF-4485	09/09/1999	EF-4566	08/12/1999
Assembly of Incinerator	EI-4485	13/09/1999	EI-4566	04/08/1999
Incinerator Control Panel	EE-4485	14/09/1999	EE-4566	08/12/1999
Main Burner	GB-1053	19/03/1999	GB-1051	02/12/1998
Ignition Burner	G-1435	13/09/1999	G-1435	06/04/1999
Waste Oil Pump (Sludge Pump)	Mp-2194	19/03/1999	-	-
Primary Air Fan	Mf-2191	10/03/1999	-	-
Exhaust Fan	Mf-2190	11/03/1999	Mf-2230	10/09/1999
List of Spares and Tools	SL-4485	-	SL-4566	-
Time Chart	IDT-10002	13/09/1999	IAT-10000	08/12/1999
Incinerator Control Flow Chart	IDC-10004	13/09/1999	IAC-10000	08/12/1999

Description	OSV-1500SDAI		OSV-2400SDAI	
	Drawing N°	Date	Drawing N°	Date
Specification	SP-5736	-	SP-5342	-
Flow Sheet	EF-150DA-001AF	16/11/2004	EF-240DA	03/06/2004
Assembly of Incinerator	EI-5736	27/12/2004	EI-5342	14/11/2003
Incinerator Control Panel	EE-150DA001A-1	27/09/2004	EE-240DA	03/06/2004
Main Burner	GB-1053	19/03/1999	GB-1054	06/12/2000
Ignition Burner	G-1435	22/01/2001	G-1445	12/01/2002
Waste Oil Pump (Sludge Pump)	Mp-2319A	20/01/2004	Mp-2319	20/01/2004
Primary Air Fan	Mf-2275	06/04/2000	Mf-2334	28/02/2001
Exhaust Fan	Mf-2481AF	16/12/2003	Mf-2490F	17/02/2004
List of Spares and Tools	SL-150DA-001	-	SL-5342	-
Time Chart	IDT-10002	27/09/2004	IAT-10003	03/06/2004
Incinerator Control Flow Chart	IDC-10004	27/09/2004	IAC-10006	03/06/2004

## 2.2 Instruction Manuals for each type

- No. 4566 for type OSV-240SAI, No. 4259 for type OSV-360SAI, No. 4397 for type OSV-600SAI, No. 4486 for type OSV-1200SAI, No. 1105 for type OSV-360SDAI, No. 14411 for type OSV-600SDAI, No. 4489 for type OSV-900SDAI, No. 4485 for type OSV-1200SDAI, No. 5736 for type OSV-1500SDAI and No. 5342 for type OSV-2400SDAI.

*No departure from the above documents and drawings shall be made without the prior consent of the Notified Body named on this certificate. The manufacturer must inform the Notified Body of any modification or changes to these documents and drawings.*

**3. TEST REPORTS**

- Test report N° MED-B-20141126.1 for Incinerator Type OSV2-190S dated 26/11/2014
- Test report N° MED-B-20141121.1 for Incinerator Type OSV-900SAI dated 21/11/2014
- Test report N° MED-B-20141125.1 for Incinerator Type OSV-1500SAI dated 25/11/2014
- MED-B-20141014.1 for Incinerator Type OSV-360SAI (Serial No. 17975)
- MED-B-20141015.1 for Incinerator Type OSV-600SAI (Serial No. 18010)
- MED-B-20141016.1 for Incinerator Type OSV-1200SAI (Serial No. 18095)
- MED-B-20141119.1 for Incinerator Type OSV-600SDAI (Serial No. 17998)
- MED-B-20141120.1 for Incinerator Type OSV-900SDAI (Serial No. 18052)
- MED-B-20150224.1 for Incinerator Type OSV-240SAI (Serial No. 18138)
- MED-B-20150225.1 for Incinerator Type OSV-1200SDAI (Serial No. 17742)
- MED-B-20150223.1 for Incinerator Type OSV-2400SDAI (Serial No. 17615)
- MED-B-20151118.1 for Incinerator Type OSV-1500SDAI (Serial No. 18418)
- MED-B-20160203 for Incinerator Type OSV-360SDAI
- Test record (measured value during burning sludge oil)

Type	OSV2-190S	OSV-900SAI	OSV-1500SAI	OSV-240SAI
O2 in combustion chamber, average	8.3 %	7.5 %	7.8 %	7.4 %
CO in flue gas, average	14 mg/MJ	20 mg/MJ	16 mg/MJ	29 mg/MJ
Soot number average, Bacharach	0	0	0	0
Temperature in combustion chamber flue gas	980 °C	1043 °C	1049 °C	1041 °C
Amount of unburned components in ashe residues (% by weight)	0.9	1.6	2.1	2.1

Type	OSV-360SAI	OSV-600SAI	OSV-1200SAI	OSV-360SDAI
O2 in combustion chamber, average	7.4 %	8.4 %	7.9 %	7.7 %
CO in flue gas, average	29 mg/MJ	29 mg/MJ	23 mg/MJ	21 mg/MJ
Soot number average, Bacharach	0	0	0	0
Temperature in combustion chamber flue gas	1042 °C	1039 °C	1027 °C	1051 °C
Amount of unburned components in ashe residues (% by weight)	1.7	2.3	1.9	2.3

Type	OSV-600SDAI	OSV-900SDAI	OSV-1200SDAI	OSV-1500SDAI
O2 in combustion chamber, average	7.9 %	7.6 %	8.0 %	7.6 %
CO in flue gas, average	21 mg/MJ	20 mg/MJ	23 mg/MJ	21 mg/MJ
Soot number average, Bacharach	0	0	0	0
Temperature in combustion chamber flue gas	1033 °C	1043 °C	1024 °C	1044 °C
Amount of unburned components in ashe residues (% by weight)	1.8	1.4	1.7	2.2

Type	OSV-2400SDAI
O2 in combustion chamber, average	7.8 %
CO in flue gas, average	16 mg/MJ
Soot number average, Bacharach	0
Temperature in combustion chamber flue gas	1036 °C
Amount of unburned components in ashe residues (% by weight)	1.3

#### **4. APPLICATION / LIMITATION**

4.1 Shipboard incinerators are designed to incinerate non-explosive solid waste or sludge generated during the ship's normal service, without being a nuisance for the surroundings.

4.2 Shipboard incinerators are not designed to systems on special incinerator ships, e.g. for burning industrial wastes such as chemicals, manufacturing residues, etc. They are also not designed to burn waste with Flash Point below than 60 °C.

4.3 The scope of the appraisal made by Bureau Veritas to issue this certificate is strictly restricted to the relevant requirements stated on the front page of this certificate. Other requirements like Ship's Flag Administration Regulations and/or Classification Societies Rules, typically for electrical equipment including control, safety devices and cables are excluded from the scope of this certificate.

4.4 An operating test after installation is to be conducted to ensure that all of the control components have been properly installed and that all parts of the incinerator, including controls and safety devices, are in satisfactory operating condition.

4.5 Only Hardware and software successfully tested together in compliance with the regulations as referred to in page one, according to the declaration of the manufacturer are covered by this certificate.

4.6 Any modification of the hardware, firmware or software having an impact on the product performance or functionality has to be validated with type testing.

4.7 The installation on board is to be carried out in compliance with manufacturer's instruction and relevant requirements stated on the front page of this certificate. After installation onboard the ship's staff in charge of incinerator has to be properly trained by manufacturer's specialist.

4.8 A copy of this EC type-examination certificate should be carried aboard a ship fitted with this equipment at all times.

4.9 Each incinerator is to be supplied with its manual for installation, use and maintenance in language accepted by the Ship's Flag Administration

#### **5. PRODUCTION SURVEY REQUIREMENTS**

5.1 This certificate alone does not allow the applicant to issue the Declaration of Conformity and to affix the mark of conformity (wheelmark) to the products corresponding to this type. To this end, the production-control phase module D "Production Quality Assurance" or E "Product Quality Assurance" or F "Product Verification" of Annex II of the Directive is to be complied with and controlled by a written inspection agreement with a Notified Body.

5.2 The manufacturer shall institute quality control procedure in order to ensure that the incinerator is produced to the same standard as the prototype approved one, and to keep records of any production tests carried out in accordance with Requirements stated on the front page of this certificate.

5.3 For each unit, if preassembled, an operating test is to be conducted to ensure that all control components have been properly installed and that all parts of the incinerator, including control and safety devices, are in satisfactory condition.

5.4 Each incinerator shall be delivered with a declaration of conformity to type issued by the manufacturer.

5.5 For information concerning the production phase modules, **SUNFLAME CO., LTD.** has declared the following manufacturing site:

**SUNFLAME CO., LTD.**  
**1-30, Nishinohata, Okubo-cho**  
**Uji**  
**JAPAN**

## **6. MARKING OF PRODUCT**

Each incinerator shall be permanently marked including:

- Manufacturer's name or logo
- Designation and type
- Capacity

Reference is made to MED 2014/90/EU chapter 2.

In particular Article 10.3 specifies that the wheelmark shall be followed by the identification number of the Notified Body involved in the production control phase (module D, E or F) and by the year in which the mark is affixed (4 digits or last 2 digits).

## **7. OTHERS**

It is **SUNFLAME CO., LTD.**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

*This certificate supersedes the EC Type Examination Certificate N° 26680/B1 MED.*

**\*\*\* END OF CERTIFICATE \*\*\***