

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV GL AS under the authority of the Government of the Kingdom of Norway.

This is to certify:

That the Shipboard incinerators

with type designation(s)

Incinerator Types SE 600-2200 kW

Issued to

Scanship AS

Tonsberg, Norway

is found to comply with the requirements in the following Regulations/Standards:

Regulation **(EU) 2015/559,**

Annex A.1, item No. A.1/2.7 and Annex B, Module B in the Directive. Marpol 73/78 as amended, Annex VI Regulation 16, IMO Res. MEPC.244(66)

Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2022-02-09**.

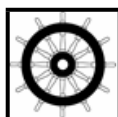
Issued at **Høvik** on **2017-02-10**

DNV GL local station:

Sandefjord

Approval Engineer:

Pål Evang Nundal



Notified Body
No.: **0575**

for **DNV GL AS**

Vidar Dolonen
Head of Notified Body



Product description

The equipment is intended for installation on board ships and other marine vessels or installations, for incineration of waste oil and solid wastes.

The incinerator is designed with multi-chamber, semi-pyrolysis with flue gas emissions. The feeding (continuously) technology is developed to secure a homogenous combustion and low dust emission. The solution is also optimal for burning sludge from food waste and wastewater. It can also be equipped with a fully integrated Sludge Oil Burning System.

The combustion in the primary chamber is pyrolysis, based on, burning with a limited supply of oxygen. The chamber has two zones for degassing and one ash-annealing zone. The primary chambers have an automatic continuous ash removal system. The ash is removed through a chute below the incinerator into a container or transported with screw to bagging equipment.

The complete breakdown of gases and residual components takes place in the secondary combustion chamber performed by two-stage purging combustion process. The chamber is constructed with inside walls to maximize the retention time of the flue gas before cooling and discharge to funnel. The secondary chamber forms the "purification zone" making the emissions much lower than conventional incinerators.

Application/Limitation

Type/Thermal capacity (kW):	600	800	1150	1400	1600	2000	2200
Sludge oil capacity (kg/h):	65	88	125	173	222	280	308
Solid waste capacity (kg/h):	126	169	243	290	339	420	460

Type Examination documentation

Drawing No.:	Date:	Rev.:	Title:
<i>Generic drawings for all sizes</i>			
1595-01e	30.04.99	Rev E	General arrangement example drawing
400632	13.12.12	Rev 0	P&I diagram. Waste disposal equipment
400633	13.12.12	Rev 0	P&I diagram. Sludge oil system
400634	13.01.15	Rev 0	P&I diagram. Diesel oil system
400635	13.01.15	Rev 0	Incinerator masonry. Brick 10v/h
500047	04.02.12	Rev B	Incinerator control cabinet. Dimension drawing
500411	27.01.15	Rev C	Hydraulic power pack including 5 valves. Product drw.
500478	12.11.13	Rev A	Hydraulic diagram, incinerator. (Power pack Egil Eng)
202892	27.08.14	Rev A	Sludge oil dosing panel. Manufacturing drawing
Doc.	07.11.14	-	Alarm list incinerator SE-1150
EE6463 533-03	12.09.14	Rev C	FC6236 Cable block inc 150122
Prosj 1098	29.10.13	Rev 6	FC6236 Wiring diagram inc 131029
Doc.	10.10.14	-	IO-1102 Incinerator operation manual
Doc.	10.10.14	-	Lubrication chart SE-1150
Doc.	Jan.15	-	Technical description 2015 Incinerator SE1150

Drawings for 600-800 kW

500542	07.10.15	Rev D	Main assembly incineraor 600/800 kW
500286	25.06.12	Rev A	Flue gas cooling air mixing battery. Dimension drawing
202951	23.03.16	Rev B	Air piping. Incinerator 600-800 kW. Manufacturing drw.
500642	19.05.15	Rev B	Flue gas monitoring unit, DN500. Product drw.
203882	17.03.16	Rev A	Masonry assembly drawing, 600-800 kW
Doc.	14.06.16	-	Part list Incinerator 600-800 kW
Doc.	25.11.15	-	Declaration of no design changes 2015

Drawings for 1150 kW

202738	12.08.14	Rev A	Main assembly incinerator 1150 kW
201916	13.08.13	Rev B	Flue gas cooling and mixing battery. Main assembly
202872	08.08.14	Rev A	Air piping. Incinerator 1150 kW. Manufacturing drawing
500287	14.06.13	Rev A	Flue gas monitoring. Product drawing
202901	15.09.14	Rev A	Masonry for 1150 kW incinerator. Assembly drawing
Doc.	26.08.13	-	Part list Incinerator Viking 131029

Drawings for 1400 kW

1400-100	25.06.97	Rev O	Main assembly incinerator 1400 kW
1400-36	25.06.97	Rev O	Flue gas cooling air mixing battery. Dimension drawing
200004	15.03.01	Rev E	Air piping arrangement. Incinerator 1400-1600 kW
1400-101	09.09.97	Rev O	Air piping. Incinerator 1400 kW. Manufacturing drw.
200298	26.03.12	Rev F	Masonry assembly drawing, 1400 kW
Doc.	27.08.03	-	Drawing list 1400 kW incinerator

Drawings for 1600 kW

200186	06.08.04	Rev O	Main assembly incinerator 1600 kW
100101	28.12.00	Rev O	Flue gas cooling and mixing battery. Main assembly
200013	01.05.07	Rev B	Combustion air valve. Main assembly
200004	15.03.01	Rev E	Air piping arrangement. Incinerator 1400-1600 kW
200272	05.06.09	Rev D	Masonry for 1600 kW incinerator. Assembly drawing
Doc.	19.12.07	-	Drawing list 1600 kW incinerator

Drawings for 2000-2200 kW

203118	14.07.15	Rev B	Main assembly incinerator 2000 kW
203545	20.07.15	Rev C	Flue gas cooling air mixing battery. Dimension drawing
203196	26.06.15	Rev B	Air piping. Incinerator 2000 kW. Manufacturing drw.
203548	04.03.15	Rev A	Flue gas monitoring unit. Product drw.
P1135 E34	03.06.15	Rev A	Masonry assembly drawing, 2000 kW
Doc.	04.07.16	-	Part list Incinerator 2000 kW

Control system

600-1150 kW

PLC Type	Operator panel	Software PLC	Software Operator panel
Omron CJ2M	Proface GP4000	xxxx_INC_xxxx_V1.0.0.CXP	xxx_INC_xxxx_V1.0.0.PRX

Job Id: **344.1-004703-2**
Certificate No: **MEDB0000215**

1600-2200 kW

PLC Type	Operator panel	Software PLC	Software Operator panel
Omron CJ2M	Proface GP4000	xxxx_INC_xxxx_V1.0.0.CXP	xxxx_INC_xxxx_V1.0.0.CXP

The software refers to project number and ship's name. (e.g. project name "1098" and ship name "Viking_Star" gives PLC software name: 1098_INC_Viking_Star_V1.0.0.CXP)

Tests carried out

1150 kW

- Kjelforeningen – Norsk Energi, Test Report No. 23456-RT-0003, Rev.F01 dated 09.02.2001, Incinerator Type SE-1150 tested onboard the cruise ship MS "Star Pisces", witnessed by DNV.
- Testing of control and shut-down functions performed onboard cruise ship "Norwegian Jewel", Meyer Werft, Hull S-0667, Item 623, Scanship Test Records, dated 2005-06-27.
- Visual and Safety control test, 20150329, witnessed by DNVGL

600-800 kW

- Incinerator Type SE-800 tested onboard the cruise ship MS "Amsterdam".
- Kjelforeningen – Norsk Energi, Test Report No. 23456-RT-0003, Rev.F01, dated 09.02.2001.
- All required prototype tests carried out onboard in presence of a DNV surveyor.
- Testing of control and shut-down functions performed onboard cruise ship "VIKING STAR", which uses the same concept like the SE600/SE800 kW incinerators, Scanship Test Records, dated 2015-03-29 and 2015-04-30.

1600-2200 kW

- Incinerator Type SE 1600 - 2200kW is tested onshore at Tenvik, Nøtterøy, Norway, 2006.
- DNV, Technical Report No. 2007-3013, Rev.01, IMO-test, Sludge, dated 2007-01-15.
- Incinerator SE 1600 – 2200kW – Test Document – Critical Alarms and Shut Down Tests (ref. Chantier A33), dated 2006-12-08.
- Incinerator Type SE-1600 tested onboard cruise ship MS "Carnival Victory" (ref. solid wastes). Kjelforeningen – Norsk Energy, Test Report No. 23456-RT-0003, Rev. F01, dated 09.02.2001.
- Prototype tests carried out in presence of DNV surveyor.

Marking of product

For traceability to this type approval, each incinerator is to be marked with;

- Manufacturer's name or trade mark
- Type designation
- Serial No.
- Capacity (net design heat release)
- Revision information, as applicable, for all firmware and software modules installed per hardware unit

This certificate replaces previous EC Type-Examination Certificate No. MED-B-9730, MED-B-4278 & MEDB00000DT