

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00001J8

Application of: Council Directive 96/98/EC of 20 December 1996 on Marine Equipment as amended by directive (EU) 2015/559, 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)

MAXI T50SL WS, T100SL WS, T150SL WS

Issued to

Hyundai Marine Machinery Co., Ltd.

Seo-gu Incheon,

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

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 **2021-07-08**.

Issued at **Høvik** on **2016-07-09**

DNV GL local station:

Seoul

Approval Engineer:

Pål Evang Nundal

Notified Body

No.: **0575**

for **DNV GL AS**

Vidar Dolonen

Head of Notified Body

Product description

Waste Oil Incinerators MAXI T50SL WS, T100SL WS and T150SL WS are multi chamber incinerators consisting of a primary combustion chamber for burning oil and solid waste and a secondary combustion chamber and an after-burning chamber for burning out uncombusted exhaust gases. The combustion chambers are equipped with diesel oil burners. The sluice is automatically operated.

The equipment is intended for installation onboard ships.

Application/Limitation

Model	T50SL WS	T100SL WS	T150SL WS
Calorific capacity kW(kcal/h)	465 (400,000)	768 (660,000)	989 (850,000)
Solid waste (kg/h)	100	100	150
Liquid waste (kg/h)	47	77	99
Bilge injection (kg/h)	60 (bilge water 159 l/h)	100 (bilge water 200 l/h)	128 (bilge water 225 l/h)

When the approved software is revised (affecting all future deliveries) DNV GL is to be informed by forwarding updated software version documentation. If the changes are judged to affect functionality for which rule requirements apply a new functional type test may be required and the certificate may have to be renewed to identify the new software version.

Combustion Chamber and Flue Gas Records

Parameters	Solid waste and sludge
O ₂ average in combustion chamber/zone	6-12 %
CO average in flue gas	200 mg/MJ
Soot number average	Ringelman 1/Bacharach 3
Combustion chamber flue gas outlet temperature average	850-1200 °C
Amount of unburned components in ashes	Max. 10 % by weight

Hardware and Software

Hardware: PLC: Allen-Bradley or Siemens
HMI: Allen-Bradley or Proface
Software: PLC: RS Logix 500 V8.XX or TIA portal V13.XX
HMI: FT View Studio V7.XX or GP-proEX V4.XX

Type Examination documentation

DWG. No.:	Rev.	Date	Name	Model
VHS-T050SL WS-1 ~ 3	R0	2016.04.12	Main specification	MAXI T50SL WS
VHS-T100SL WS-1 ~ 3	R0	2016.04.12	Main specification	MAXI T100SL WS
VHS-T150SL WS-1 ~ 3	R0	2016.04.12	Main specification	MAXI T150SL WS
HIE-WT052004	R2	2016.03.24	Piping diagram	MAXI T50SL WS
HID-VMT052002	R2	2016.03.24	Outline dimension drawing	MAXI T50SL WS
HID-BOD05203	R7	2013.04.30	Assembly drawing of Basis part	MAXI T50SL WS
HMW-WT052001 ~ 5	R1	2013.04.30	Assembly drawing of Refractory Lining	MAXI T50SL WS
HIE-WT102004	R2	2016.03.24	Piping diagram	MAXI T100SL WS
HID-VMT102005	R2	2016.03.24	Outline dimension drawing	MAXI T100SL WS
HID-BOD100203	R7	2013.04.30	Assembly drawing of Basis part	MAXI T100SL WS
HMW-WT102001 ~ 5	R1	2013.04.30	Assembly drawing of Refractory Lining	MAXI T100SL WS
HIE-WT152004	R2	2016.03.24	Piping diagram	MAXI T150SL WS
HID-VMT152005	R2	2016.03.24	Outline dimension drawing	MAXI T150SL WS
HID-BOD15203	R5	2013.04.30	Assembly drawing of Basis part	MAXI T150SL WS
HMW-WT152001 ~ 5	R1	2013.04.30	Assembly drawing of Refractory Lining	MAXI T150SL WS
AT-ABBT0500	R1	2008.01.01	Outline of primary blower	MAXI T50SL WS
AT-ABBT1500	R1	2008.01.01	Outline of primary blower	MAXI T100SL WS

AT-ABBT1500	R1	2008.01.01	Outline of primary blower	MAXI T150SL WS
VHS-LOCSA-STD-1	R0	2016.04.12.	List of control /Safety / Automation	All Model
VHS-PROCEDIA-STD-1	R0	2016.04.12.	Process diagram incinerator	All Model
HID-VM1502210	R0	2013.04.30.	Detail drawing of Cleaning cover	All Model
HID-S12002010	R1	2013.04.30.	Assembly drawing of Waste sluice	All Model
HIF-NGTSTD002 ~ 4	R2	2016.03.24.	ELECTRIC PANEL-LAYOUT/FRONT	All Model
HIF-NGTSTD005 ~ 7	R2	2016.03.24.	ELECTRIC PANEL-LAYOUT/FRONT	All Model
HIF-NGTSTD008	R2	2016.03.24.	ELECTRIC PANEL-CONTROL SOURCE	All Model
HIF-NGTSTD015 ~ 24	R2	2016.03.24.	ELECTRIC PANEL-CIRCUIT DIAGRAM	All Model
HIF-NGTSTD025	R2	2016.03.24.	ELECTRIC PANEL-CIRCUIT OPTION	All Model
HIF-NGTSTD030	R2	2016.03.24.	ELECTRIC PANEL-EXTERNAL SIGNAL	All Model
HIF-NGTSTD040 ~ 43	R2	2016.03.24.	ELECTRIC PANEL-PART LIST	All Model
HIF-NGTSTD501 ~ 3	R2	2016.03.24.	ELECTRIC PANEL-TERMINAL STRIP	All Model
HNP-MAXINC-EPA7	R7	2011.11.26.	MAIN NAME PLATE	All Model
NP-SIMENS-OPAPLC-NGT	R7	2014.09.11.	OPERATION INSTRUCTION PLATE	All Model
NP-WNPLC	R9	2014.09.11.	WARNING PLATE	All Model
HINC-PGM-MAXIJAL	R0	2015.09.11.	PLC LADDER SYSTEM SOFTWARE QUALITY PLAN	All Model
V13-TDO(PLC_SIMENS)	R13	2015.06.03.	INSTRUCTION MANUAL (MAXI T50 ~ T150)	All Model
HINC-PGM-MAXIJAL-R0	R0	2015-09-11	PLC Ladder System Software Quality Plan	All Model

Tests carried out

Test Report HTTR-1314 dated 26 May 2000;
Test Report HTTR-1259 dated 25 April 2000;
Test Report HTTR-S3617 dated 28 May 2008
from Hyundai Marine Machinery Co., Ltd, Rep. of Korea.

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 or software modules installed per hardware unit, necessary to identify the equipment, permanently marked somewhere on the final product.