

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

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 Directorate. 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)

Version TG5.1: OG120C, OG120CW, OG200C, OG200CS, OG200CIS, OG200CW, OG200CSW, OG400C, OG400CS, OG400CI, OG400CIS, OG400CW, OG400CSW

Issued to

TeamTec AS

Tvedestrand, Norway

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)

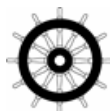
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2021-05-12**.

Issued at **Høvik** on **2016-05-13**

DNV GL local station:
Kristiansand S

Approval Engineer:
Jens Rogge



Notified Body
No.: **0575**

for **DNV GL AS**

Vidar Dolonen
Head of Notified Body

Job Id:
Certificate No: **MEDB00000S8**

Product description

The incinerator can be used for solid waste only or also in combination with sludge. The feeding is batch loaded or continuous feeded. Optional a type is equipped with a bilge water injection.
The capacity is from 220 kW up to 596 kW

Application/Limitation

		Sludge	Solid Waste	Water	Principle of feeding	Max. Temp. in comb. Chamber
OG120C	220 kW	29 l/h	200 l/load	-/-	Batch loaded	1200° C
OG120CW	220 kW	-/-	200 l/load	-/-	Batch loaded	1200° C
OG200C	465 kW	53 l/h or	400 l/load	-/-	Batch loaded	1200° C
OG200CS	465 kW	53 l/h or	400 l/load	-/-	Batch loaded	1200° C
OG200CI	630 kW	70 l/h	400 l/load	127 l/h	Batch loaded	1200° C
OG200CIS	630 kW	70 l/h	400 l/load	127 l/h	Batch loaded	1200° C
OG200CW	465 kW	-/-	400 l/load	-/-	Batch loaded	1200° C
OG200CSW	465 kW	-/-	400 l/load	-/-	Batch loaded	1200° C
OG400C	596 kW	74 l/h or	400 l/load	-/-	Batch loaded	1200° C
OG400CS	596 kW	74 l/h or	400 l/load	-/-	Batch loaded	1200° C
OG400CI	727 kW	81 l/h	400 l/load	140 l/h	Batch loaded	1200° C
OG400CIS	727 kW	81 l/h	400 l/load	140 l/h	Batch loaded	1200° C
OG400CW	596 kW	-/-	400 l/load	-/-	Batch loaded	1200° C
OG400CSW	596 kW	-/-	400 l/load	-/-	Batch loaded	1200° C

Type Examination documentation



Job Id:
Certificate No: **MEDB00000S8**



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Type	Name	Drawing	Rev.
OG120C, OG120CW, OG200C, OG200CW, OG200CS, OG200CSW, OG200CI,OG200CIS, OG400C, OG400CW, OG400CS, OG400CSW, OG400CI, OG400CIS,	Nameplate <manufacturer>	3006273	I
OG120C, OG200C, OG200CS, OG200CSW, OG200CI,OG200CIS, OG400C, OG400CS, OG400CI, OG400CIS,	Sluge capacity plate	3008818	B
OG120C, OG120CW, OG200C, OG200CW, OG200CS, OG200CSW, OG200CI,OG200CIS, OG400C, OG400CW, OG400CS, OG400CSW, OG400CI, OG400CIS,	Instruction plate "NOTE SLAGGING"	4005713	D
OG120C, OG120CW, OG200C, OG200CW, OG200CS, OG200CSW, OG200CI,OG200CIS, OG400C, OG400CW, OG400CS, OG400CSW, OG400CI, OG400CIS,	Instruction plate "DO NOT OPEN WHILE BURNING"	4006109	C
OG120C, OG120CW, OG200C, OG200CW, OG200CS, OG200CSW, OG200CI,OG200CIS, OG400C, OG400CW, OG400CS, OG400CSW, OG400CI, OG400CIS,	Instruction Plate "Atomizing Regulator"	4006114	G
OG120C, OG120CW, OG200C, OG200CW, OG200CS, OG200CSW, OG200CI,OG200CIS, OG400C, OG400CW, OG400CS, OG400CSW, OG400CI, OG400CIS,	Instruction Plate Garbage Door	4006121	G
OG120C, OG120CW, OG200C, OG200CW, OG200CS, OG200CSW, OG200CI,OG200CIS, OG400C, OG400CW, OG400CS, OG400CSW, OG400CI, OG400CIS,	Instruction Plate D O Heater	4007144	A
OG120C, OG120CW, OG200C, OG200CW, OG200CS, OG200CSW, OG200CI,OG200CIS, OG400C, OG400CW, OG400CS, OG400CSW, OG400CI, OG400CIS,	Instruction Plate "WARNING DO NOT ADJUST"	4007764	B

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Tests carried out



Job Id:
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Marking of product

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

- Manufacturers name or trade mark
- Type designation or model identification
- Capacity (net design heat release)
- Serial No.
- 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

This certificate replaces previous EC Type-Examination Certificates No. MED-B-6767, MED-B-6768 and MED-B-6784.

Job Id:
Certificate No: **MEDB00000S8**

APPENDIX REV.0

Capacity and emission test data

This is to certify that the shipboard incinerators listed below have been examined and tested in accordance with the requirements of the standard for shipboard incinerators MEPC.244(66) for disposing of ship-generated waste appended to the Guidelines for the Implementation of Annex V of MARPOL 73/78.

Incinerator manufactured by: **TeamTec AS
Tvedestrand, Norway**

Incinerator type and model: **OG120C**

Place and date of test: **Test area of TeamTec in Tvedestrand
1994-04-12 and 2000-12-20**

Max. capacity:

Solid waste:	220	kW
	200	l/load
Sludge Oil:	220	kW
	29	l/h

COMBUSTION CHAMBER AND FLUE GAS RECORDS

Type of waste / Parameters	Solid waste	Sludge Oil
O ₂ average in combustion chamber/zone	11 %	9 %
CO average in flue gas	23 mg/MJ	17 mg/MJ
Soot number average	Bacharach 1.5	Bacharach 0.4
Combustion chamber flue gas outlet temperature average	910 °C	1064 °C
Amount of unburned components in ashes	0.5 %	0 %

Place and date: Høvik, 2016-05-13

APPENDIX REV.0

Capacity and emission test data

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Incinerator manufactured by: **TeamTec AS
Tvedestrand, Norway**

Incinerator type and model: **OG120CW**

Place and date of test: **Test area of TeamTec in Tvedestrand
1994-04-12 and 2000-12-20**

Max. capacity:

Solid waste:	220	kW
	200	l/load
Sludge Oil:	n/a	

COMBUSTION CHAMBER AND FLUE GAS RECORDS

Type of waste / Parameters	Solid waste	Sludge Oil
O ₂ average in combustion chamber/zone	11 %	n/a
CO average in flue gas	23 mg/MJ	n/a
Soot number average	Bacharach 1.5	n/a
Combustion chamber flue gas outlet temperature average	910 °C	n/a
Amount of unburned components in ashes	0.5 %	n/a

Place and date: Høvik, 2016-05-13

APPENDIX REV.0

Capacity and emission test data

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Incinerator manufactured by: **TeamTec AS
Tvedestrand, Norway**

Incinerator type and model: **OG200C, OG200CS**

Place and date of test: **Test area of TeamTec in Tvedestrand
1994-04-12 and 2000-12-20**

Max. capacity:

Solid waste:	465	kW
	400	l/load
Sludge Oil:	465	kW
	53	l/h

COMBUSTION CHAMBER AND FLUE GAS RECORDS

Type of waste / Parameters	Solid waste	Sludge Oil
O ₂ average in combustion chamber/zone	10 %	8 %
CO average in flue gas	4 mg/MJ	5 mg/MJ
Soot number average	Bacharach 0	Bacharach 0
Combustion chamber flue gas outlet temperature average	1008 °C	1050 °C
Amount of unburned components in ashes	1.2 %	0 %

Place and date: Høvik, 2016-05-13

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Incinerator manufactured by: **TeamTec AS
Tvedestrand, Norway**

Incinerator type and model: **OG200CW, OG200CSW**

Place and date of test: **Test area of TeamTec in Tvedestrand
1994-04-12 and 2000-12-20**

Max. capacity:

Solid waste:	465	kW
	400	l/load
Sludge Oil:	n/a	
	n/a	

COMBUSTION CHAMBER AND FLUE GAS RECORDS

Type of waste / Parameters	Solid waste	Sludge Oil
O ₂ average in combustion chamber/zone	10 %	n/a
CO average in flue gas	4 mg/MJ	n/a
Soot number average	Bacharach 0	n/a
Combustion chamber flue gas outlet temperature average	1008 °C	n/a
Amount of unburned components in ashes	1.2 %	n/a

Place and date: Høvik, 2016-05-13

APPENDIX REV.0

Capacity and emission test data

This is to certify that the shipboard incinerators listed below have been examined and tested in accordance with the requirements of the standard for shipboard incinerators MEPC.244(66) for disposing of ship-generated waste appended to the Guidelines for the Implementation of Annex V of MARPOL 73/78.

Incinerator manufactured by: **TeamTec AS
Tvedestrand, Norway**

Incinerator type and model: **OG200CI, OG200CIS**

Place and date of test: **Test area of TeamTec in Tvedestrand
1994-04-12 and 2000-12-20**

Max. capacity:

Solid waste:	465	kW
	400	l/load
Sludge Oil:	465	kW
	53	l/h (without bilge water injection)
Sludge Oil with bilge water:	630	kW
Water	127	l/h
Sludge Oil:	70	l/h (together with bilge water injection)

COMBUSTION CHAMBER AND FLUE GAS RECORDS

Type of waste / Parameters	Solid waste	Sludge Oil	Sludge Oil w/water
O ₂ average in combustion chamber/zone	10 %	8 %	8.5 %
CO average in flue gas	4 mg/MJ	5 mg/MJ	2 mg/MJ
Soot number average	Bacharach 0	Bacharach 0	Bacharach 0.6
Combustion chamber flue gas outlet temperature average	1008 °C	1050 °C	1098 °C
Amount of unburned components in ashes	1.2 %	0 %	0 %

Place and date: Høvik, 2016-05-13

APPENDIX REV.0

Capacity and emission test data

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Incinerator manufactured by: **TeamTec AS
Tvedestrand, Norway**

Incinerator type and model: **OG400C, OG400CS**

Place and date of test: **Test area of TeamTec in Tvedestrand
1994-04-12 and 2000-12-20**

Max. capacity:

Solid waste:	596	kW
	400	l/load
Sludge Oil:	596	kW
	74	l/h

COMBUSTION CHAMBER AND FLUE GAS RECORDS

Type of waste / Parameters	Solid waste	Sludge Oil
O ₂ average in combustion chamber/zone	6 %	9 %
CO average in flue gas	4 mg/MJ	1 mg/MJ
Soot number average	Bacharach 0	Bacharach 0
Combustion chamber flue gas outlet temperature average	1035 °C	1110 °C
Amount of unburned components in ashes	0.2 %	0 %

Place and date: Høvik, 2016-05-13

Job Id:
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APPENDIX REV.0

Capacity and emission test data

This is to certify that the shipboard incinerators listed below have been examined and tested in accordance with the requirements of the standard for shipboard incinerators MEPC.244(66) for disposing of ship-generated waste appended to the Guidelines for the Implementation of Annex V of MARPOL 73/78.

Incinerator manufactured by: **TeamTec AS
Tvedestrand, Norway**

Incinerator type and model: **OG400CW, OG400CSW**

Place and date of test: **Test area of TeamTec in Tvedestrand
1994-04-12 and 2000-12-20**

Max. capacity:

Solid waste:	596	kW
	400	l/load
Sludge Oil:	n/a	
	n/a	

COMBUSTION CHAMBER AND FLUE GAS RECORDS

Type of waste / Parameters	Solid waste	Sludge Oil
O ₂ average in combustion chamber/zone	6 %	n/a
CO average in flue gas	4 mg/MJ	n/a
Soot number average	Bacharach 0	n/a
Combustion chamber flue gas outlet temperature average	1035 °C	n/a
Amount of unburned components in ashes	0.2 %	n/a

Place and date: Høvik, 2016-05-13

APPENDIX REV.0

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Incinerator manufactured by: **TeamTec AS
Tvedestrand, Norway**

Incinerator type and model: **OG400CI, OG400CIS**

Place and date of test: **Test area of TeamTec in Tvedestrand
1994-04-12 and 2000-12-20**

Max. capacity:

Solid waste:	596	kW
	400	l/load
Sludge Oil:	596	kW
	74	l/h (without bilge water injection)
Sludge Oil with bilge water:	727	kW
Water	140	l/h
Sludge Oil:	81	l/h (together with bilge water injection)

COMBUSTION CHAMBER AND FLUE GAS RECORDS

Type of waste / Parameters	Solid waste	Sludge Oil	Sludge Oil w/water
O ₂ average in combustion chamber/zone	6 %	9 %	8.5 %
CO average in flue gas	4 mg/MJ	1 mg/MJ	6 mg/MJ
Soot number average	Bacharach 0	Bacharach 0	Bacharach 1.1
Combustion chamber flue gas outlet temperature average	1035 °C	1110 °C	1091 °C
Amount of unburned components in ashes	0.2 %	0 %	0 %

Place and date: Høvik, 2016-05-13