Certificate no.:
TAP000033T

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Sludge and Waste Incinerator

with type designation(s)
Version TG5.2: GS500C, GS500CS, GS500CICS, GS500CI, GS500CIS, GS500CSW, GS500CGSW, GS500CFGSW, GS500CW MKIII, GS900CX, GS900CRSX, GS1000CX, GS1000CRSX

issued to
TeamTec AS
Tvedestrand, **Norway**

is found to comply with

IMO Resolution MEPC.244(66) – 2014 Standard Specification for Shipboard Incinerators

Application:

Product(s) approved by this certificate is accepted for installation on all vessels, unless otherwise instructed by relevant Maritime Administration.

This certificate is issued on behalf of Transport Canada Marine Safety and Security.

For vessels with EU Flag, EU Marine Equipment Directive (MED) certificates are required instead of this Type Approval certificate.

Issued at **Høvik** on **2025-11-11**
This Certificate is valid until **2026-05-12**.
DNV local unit: **West Norway CMC**

for **DNV**

Approval Engineer: **Anna Piotrowska**

Product description

The GS series Version TG5.2 incinerators are intended for installation on board ships and other marine installations for the incineration of oil residue (sludge) and solid waste. There is also an option of burning solid waste in combination with oil residue (sludge), or oil residue (sludge) in combination with oily bilge water injection. The incinerator models covered by this certificate are classified as batch loaded and the capacity is from 791 kW up to 1500 kW. In addition to the incinerator unit, a complete incinerator system includes a flue gas fan, flue gas damper and exhaust pipe expansion units. An incinerator system may also include a spark resistor, an oil residue (sludge) service tank, diesel oil service tank, and an oily bilge water service tank. The oil residue (sludge) service tank may be delivered with an option of forced evaporation to reduce water mixture for improved combustibility.

The incinerator type designation is given in the following format:

Series	Configuration identifier
GS500	C CS CICS CI CIS CSW CGSW CFGSW CW MKIII
GS900	CX CRSX
GS1000	CX CRSX

Configuration identifier	Description
C	Computer controlled by a PLC (applicable to all systems and always listed first)
S	Fitted with a sluice for solid waste feeding in batches
W	Prepared for incineration of solid waste only
I	Prepared for bilge water injection, including a separate oily bilge water service tank
IC	Increased capacity
G	Stirrer and pusher
F	Feeding in batches using a stoker unit
R	Fitted with a roof mounted sluice for solid waste feeding in batches
X	Fitted with an extra-large service door
MKIII	Optional configuration

E.g., a GS500CSW would mean a GS500 series incinerator with computer control, capable of burning solid waste only fitted with a sluice for solid waste feeding.

Application/Limitation

Applicable models covered in this certificate are listed below:

Type designation	Capacity	Maximum feed rate			Principle of feeding
		Oil residue (sludge) (*)	Solid waste (*)	Oil residue (sludge) and bilge water	
GS500C	850 kW	100 l/h	62 kg/h	–	Batch loaded
GS500CS	850 kW	100 l/h	62 kg/h	–	Batch loaded
GS500CICS	930 kW	105 l/h	135 kg/h	–	Batch loaded
GS500CI	901 kW	120 l/h	500 l/batch	120 l/h oil residue (sludge) 153 l/h bilge water	Batch loaded
GS500CIS	901 kW	120 l/h	62 kg/h	120 l/h oil residue (sludge) 153 l/h bilge water	Batch loaded
GS500CSW	642 kW	–	62 kg/h	–	Batch loaded
GS500CGSW	791 kW	–	87 kg/h	–	Batch loaded
GS500CFGSW	808 kW	–	97 kg/h	–	Batch loaded
GS500CW MKIII	808 kW	–	97 kg/h	–	Batch loaded
GS900CX	1369 kW	162 l/h	600 l/batch	–	Batch loaded
GS900CRSX	1369 kW	162 l/h	600 l/batch	–	Batch loaded
GS1000CX	1500 kW	171 l/h	600 l/batch	171 l/h oil residue (sludge) 237 l/h bilge water	Batch loaded
GS1000CRSX	1500 kW	171 l/h	600 l/batch	171 l/h oil residue (sludge) 237 l/h bilge water	Batch loaded

Note *The public copy of this certificate, visible in DNV Approval Finder on the DNV website, does not include information considered as proprietary details. All information is contained in the signed original certificate, owned by the manufacturer.*

Basis of acceptance

Electrical and control components

Electrical and electronic components

The units are controlled through automation systems of a type tested and accepted by a nationally recognized testing agency, according to international standards. Critical electrical and electronic components are listed in the table below. Changes to these components shall be approved by DNV in advance. Documentation confirming the approval shall be kept together with the certificate, or the certificate shall be updated.

Component type	Component name and model	Maker

Software version

The incinerator system is type approved with the system control software and firmware version as listed in the table below. Any changes to the software are to be recorded as long as the incinerator system is in use on board. The records of all changes are to be forwarded to DNV for evaluation. Major changes in the software, which can alter the performance of the system, require approval. Testing of the application functions of the revised software may be required.

Component	Software/firmware edition (**)	Revision

Type Approval documentation

Assembly drawing showing main dimensions and equipment arrangement

Type	Title	Drawing no.	Rev.

Piping diagrams with material list

Type	Title	Drawing no.	Rev.

Mechanical drawings with material lists

Type	Title	Drawing no.	Rev.

Type	Title	Drawing no.	Rev.

Type	Title	Drawing no.	Rev.

Electrical system and instrumentation layout and diagrams and list of components

Type	Title	Drawing no.	Rev.

Type	Title	Drawing no.	Rev.

Drawings of warning plates and instruction plates for incinerator

Type	Title	Drawing no.	Rev.

Operation, installation and maintenance manual with drawings, electric diagrams, spare-part lists etc. and including routine maintenance

Type	Title	Drawing no.	Revision

Declarations

Type	Title	Drawing no.	Revision

Tests carried out

Capacity and emissions tests:

Title	Document no.	Revision

Alarm and safety function tests (prototype tests according to IMO Res. MEPC.244(66) Section 7.1):

Title	Document no.	Revision

Confirmatory tests:

Title	Document no.	Revision

Other reports:

Title	Document no.	Revision

Marking of product

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

- Manufacturers name or trademark
- Type designation
- Capacity (net design heat release)
- Serial no.
- Revision information, as applicable, for all firmware or software modules

Periodical assessment

Retention survey to be performed according to DNV type approval scheme DNV-CP-0338.
A type approval certificate may be renewed for a further period of validity, at the TeamTec AS request.
An application for assessment for renewal of the certificate shall be submitted to the DNV local office.

Revision history

Revision	Date of issuance	Description
	2025-11-11	Initial DNV type approval certificate based on MEDB00000S7 and MEDD00000G9. The validity is harmonized with MEDB00000S7 with the expiry date 2026-05-12.

A copy of this certificate should be carried on board a vessel fitted with this equipment at all times.

APPENDIX 1: Tests of GS500C and GS500CSW

Form of IMO Type Approval certificate for shipboard incinerators with capacities of up to 4,000 kW

This is to certify that the shipboard incinerator listed has been examined and tested in accordance with the standard for shipboard incinerators for disposing of ship-generated waste, as amended by IMO Resolution MEPC.244(66), and as required by regulation 16.6.1 of MARPOL Annex VI.

Test data:

Incinerator manufactured by	
Incinerator type and model	
Place and date of tests	
Max. capacity	
Oil residue (sludge)	
Solid waste	
Pilot fuel consumption Oil residue (sludge)	
Pilot fuel consumption Solid waste	

Combustion chamber and flue gas records:

Parameter / type of waste	**Solid waste**	**Oil residue (sludge)**
O_2 average in combustion chamber/zone		
CO average in flue gas		
Soot number average		
Combustion chamber flue gas outlet temperature average		
Amount of unburned components in ashes		

Pre-heating for batch loaded incinerators:

Parameter	**Time**
Time for temperature in the actual combustion space where solid waste is combusted to reach 600°C after start-up	

Shock-cooling of flue gas:

Temperature of the flue gas should be shock-cooled to a maximum 350°C within 2.5 m from the combustion chamber flue gas outlet:

Parameter	**Solid waste**	**Oil residue (sludge)**
Temperature		
Distance		

Other configuration identifiers covered by this certificate:

GS500CS	Oil residue (sludge)
GS500CS	Solid waste
GS500CI	Solid waste (without sluice, equivalent to 500l/batch)
GS500CIS	Solid waste

APPENDIX 2: Tests of GS500CIC and GS500CICS

Form of IMO Type Approval certificate for shipboard incinerators with capacities of up to 4,000 kW

This is to certify that the shipboard incinerator listed has been examined and tested in accordance with the standard for shipboard incinerators for disposing of ship-generated waste, as amended by IMO Resolution MEPC.244(66), and as required by regulation 16.6.1 of MARPOL Annex VI.

Test data:

Incinerator manufactured by	
Incinerator type and model	
Place and date of tests	
Max. capacity	
Oil residue (sludge)	
Solid waste	
Pilot fuel consumption Oil residue (sludge)	
Pilot fuel consumption Solid waste	

Combustion chamber and flue gas records:

Parameter / Type of waste	**Solid waste**	**Oil residue (sludge)**
O_2 average in combustion chamber/zone		
CO average in flue gas		
Soot number average		
Combustion chamber flue gas outlet temperature average		
Amount of unburned components in ashes		

Pre-heating for batch loaded incinerators:

Parameter	**Time**
Time for temperature in the actual combustion space where solid waste is combusted to reach 600°C after start-up	

Shock-cooling of flue gas:

Temperature of the flue gas should be shock-cooled to a maximum 350°C within 2.5 m from the combustion chamber flue gas outlet:

Parameter	Solid waste	Oil residue (sludge)
Temperature	310°C	296°C
Distance	2.5 m	2.5 m

APPENDIX 3: Tests of GS500CI

Form of IMO Type Approval certificate for shipboard incinerators with capacities of up to 4,000 kW

This is to certify that the shipboard incinerator listed has been examined and tested in accordance with the standard for shipboard incinerators for disposing of ship-generated waste, as amended by IMO Resolution MEPC.244(66), and as required by regulation 16.6.1 of MARPOL Annex VI.

Test data:

Incinerator manufactured by	
Incinerator type and model	
Place and date of tests	
Max. capacity	
Oil residue (sludge)	
Pilot fuel consumption Oil residue (sludge) and bilge water	
Bilge water	

Combustion chamber and flue gas records:

Parameter / Type of waste	**Oil residue (sludge) with bilge water**
O_2 average in combustion chamber/zone	
CO average in flue gas	
Soot number average	
Combustion chamber flue gas outlet temperature average	
Amount of unburned components in ashes	

Shock-cooling of flue gas:

Temperature of the flue gas should be shock-cooled to a maximum 350°C within 2.5 m from the combustion chamber flue gas outlet:

Parameter	**Oil residue (sludge) with bilge water**
Temperature	
Distance	

Other configuration identifiers covered by this certificate:

GS500CI	Oil residue (sludge)

APPENDIX 4: Tests of GS500CGSW

Form of IMO Type Approval certificate for shipboard incinerators with capacities of up to 4,000 kW

This is to certify that the shipboard incinerator listed has been examined and tested in accordance with the standard for shipboard incinerators for disposing of ship-generated waste, as amended by IMO Resolution MEPC.244(66), and as required by regulation 16.6.1 of MARPOL Annex VI.

Test data:

Incinerator manufactured by	
Incinerator type and model	
Place and date of tests	
Max. capacity	
Solid waste	
Pilot fuel consumption Solid waste	

Combustion chamber and flue gas records:

Parameter / Type of waste	**Solid waste**
O_2 average in combustion chamber/zone	
CO average in flue gas	
Soot number average	
Combustion chamber flue gas outlet temperature average	
Amount of unburned components in ashes	

Pre-heating for batch loaded incinerators:

Parameter	**Time**
Time for temperature in the actual combustion space where solid waste is combusted to reach 600°C after start-up	

Shock-cooling of flue gas:

Temperature of the flue gas should be shock-cooled to a maximum 350°C within 2.5 m from the combustion chamber flue gas outlet:

Parameter	Solid Waste
Temperature	241°C
Distance	2.5 m

APPENDIX 5: Tests of GS500CFGSW

Form of IMO Type Approval certificate for shipboard incinerators with capacities of up to 4,000 kW

This is to certify that the shipboard incinerator listed has been examined and tested in accordance with the standard for shipboard incinerators for disposing of ship-generated waste, as amended by IMO Resolution MEPC.244(66), and as required by regulation 16.6.1 of MARPOL Annex VI.

Test data:

Incinerator manufactured by	
Incinerator type and model	
Place and date of tests	
Max. capacity	
Solid waste	
Pilot fuel consumption Solid waste	

Combustion chamber and flue gas records:

Parameter / Type of waste	**Solid waste**
O_2 average in combustion chamber/zone	
CO average in flue gas	
Soot number average	
Combustion chamber flue gas outlet temperature average	
Amount of unburned components in ashes	

Pre-heating for batch loaded incinerators:

Parameter	**Time**
Time for temperature in the actual combustion space where solid waste is combusted to reach 600°C after start-up	

Shock-cooling of flue gas:

Temperature of the flue gas should be shock-cooled to a maximum 350°C within 2.5 m from the combustion chamber flue gas outlet:

Parameter	**Solid waste**
Temperature	
Distance	

Other configuration identifiers covered by this certificate:

GS500CW MKIII	Solid waste

APPENDIX 6: Confirmatory tests on GS500

The GS500 series was tested for a shorter duration following the requirements given in the standard for shipboard incinerators for disposing of ship-generated waste, as amended by IMO Resolution MEPC.244(66). This test had a duration of 2.5 hours for oil residue (sludge) and 5 hours for solid waste (less than the required duration of 6-8 hours). Therefore, it is considered as a confirmatory test and used only to verify the maximum rated capacity of 850 kW.

Test data:

Incinerator manufactured by	
Incinerator type and model	
Place and date of tests	
Max. capacity	
Oil residue (sludge)	
Solid waste	
Pilot fuel consumption Oil residue (sludge)	
Pilot fuel consumption Solid waste	

Combustion chamber and flue gas records:

Parameter / Type of waste	**Solid waste**	**Oil residue (sludge)**
O_2 average in combustion chamber/zone		
CO average in flue gas		
Soot number average		
Combustion chamber flue gas outlet temperature average		
Amount of unburned components in ashes		

Pre-heating for batch loaded incinerators:

Parameter	**Time**
Time for temperature in the actual combustion space where solid waste is combusted to reach 600°C after start-up	

Shock-cooling of flue gas:

Temperature of the flue gas should be shock-cooled to a maximum 350°C within 2.5 m from the combustion chamber flue gas outlet:

Parameter	**Solid waste**	**Oil residue (sludge)**
Temperature		
Distance		

Other configuration identifiers covered by this certificate:

GS500CS	Oil residue (sludge)

APPENDIX 7: Tests of GS900C

Form of IMO Type Approval certificate for shipboard incinerators with capacities of up to 4,000 kW

This is to certify that the shipboard incinerator listed has been examined and tested in accordance with the standard for shipboard incinerators for disposing of ship-generated waste, as amended by IMO Resolution MEPC.244(66), and as required by regulation 16.6.1 of MARPOL Annex VI.

Test data:

Incinerator manufactured by	
Incinerator type and model	
Place and date of tests	
Max. capacity	
Solid waste	
Pilot fuel consumption Solid waste	

Combustion chamber and flue gas records:

Parameter / Type of waste	**Solid waste (*)**
O_2 average in combustion chamber/zone	
CO average in flue gas	
Soot number average	
Combustion chamber flue gas outlet temperature average	
Amount of unburned components in ashes	

Pre-heating for batch loaded incinerators:

Parameter	**Time**
Time for temperature in the actual combustion space where solid waste is combusted to reach 600°C after start-up	

Shock-cooling of flue gas:

Temperature of the flue gas should be shock-cooled to a maximum 350°C within 2.5 m from the combustion chamber flue gas outlet:

Parameter	**Solid waste**
Temperature	
Distance	

Other configuration identifiers covered by this certificate:

GS900CX	Solid waste
GS900CRSX	Solid waste

APPENDIX 8: Tests of GS900CX

Form of IMO Type Approval certificate for shipboard incinerators with capacities of up to 4,000 kW

This is to certify that the shipboard incinerator listed has been examined and tested in accordance with the standard for shipboard incinerators for disposing of ship-generated waste, as amended by IMO Resolution MEPC.244(66), and as required by regulation 16.6.1 of MARPOL Annex VI.

Test data:

Incinerator manufactured by	
Incinerator type and model	
Place and date of tests	
Max. capacity	
Oil residue (sludge)	
Pilot fuel consumption Oil residue (sludge)	

Combustion chamber and flue gas records:

Parameter / Type of waste	**Oil residue (sludge)**
O_2 average in combustion chamber/zone	
CO average in flue gas	
Soot number average	
Combustion chamber flue gas outlet temperature average	
Amount of unburned components in ashes	

Shock-cooling of flue gas:

Temperature of the flue gas should be shock-cooled to a maximum 350°C within 2.5 m from the combustion chamber flue gas outlet:

Parameter	**Oil residue (sludge)**
Temperature	
Distance	

Other configuration identifiers covered by this certificate:

GS900CX	Oil residue (sludge)
GS900CRSX	Oil residue (sludge)

APPENDIX 9: Tests of GS1000

Form of IMO Type Approval certificate for shipboard incinerators with capacities of up to 4,000 kW

This is to certify that the shipboard incinerator listed has been examined and tested in accordance with the standard for shipboard incinerators for disposing of ship-generated waste, as amended by IMO Resolution MEPC.244(66), and as required by regulation 16.6.1 of MARPOL Annex VI.

Test data:

Incinerator manufactured by	
Incinerator type and model	
Place and date of tests	
Max. capacity	
Oil residue (sludge)	
Solid waste	
Pilot fuel consumption Solid waste	

Combustion chamber and flue gas records:

Parameter / Type of waste	**Solid waste (*)**
O_2 average in combustion chamber/zone	
CO average in flue gas	
Soot number average	
Combustion chamber flue gas outlet temperature average	
Amount of unburned components in ashes	

Pre-heating for batch loaded incinerators:

Parameter	**Time**
Time for temperature in the actual combustion space where solid waste is combusted to reach 600°C after start-up	

Shock-cooling of flue gas:

Temperature of the flue gas should be shock-cooled to a maximum 350°C within 2.5 m from the combustion chamber flue gas outlet:

Parameter	**Solid waste**
Temperature	
Distance	

Other configuration identifiers covered by this certificate:

GS1000CX	Solid waste
GS1000CRSX	Solid waste

APPENDIX 10: Tests of GS1000CX

Form of IMO Type Approval certificate for shipboard incinerators with capacities of up to 4,000 kW

This is to certify that the shipboard incinerator listed has been examined and tested in accordance with the standard for shipboard incinerators for disposing of ship-generated waste, as amended by IMO Resolution MEPC.244(66), and as required by regulation 16.6.1 of MARPOL Annex VI.

Test data:

Incinerator manufactured by	
Incinerator type and model	
Place and date of tests	
Max. capacity	
Oil residue (sludge)	
Pilot fuel consumption Oil residue (sludge) and bilge water	
Bilge water	

Combustion chamber and flue gas records:

Parameter / Type of waste	**Oil residue (sludge) with bilge water**
O_2 average in combustion chamber/zone	
CO average in flue gas	
Soot number average	
Combustion chamber flue gas outlet temperature average	
Amount of unburned components in ashes	

Shock-cooling of flue gas:

Temperature of the flue gas should be shock-cooled to a maximum 350°C within 2.5 m from the combustion chamber flue gas outlet:

Parameter	**Oil residue (sludge) with bilge water**
Temperature	
Distance	

Other configuration identifiers covered by this certificate:

GS1000CX	Oil residue (sludge)
GS1000CRSX	Oil residue (sludge)
GS1000CRSX	Oil residue (sludge) and bilge water