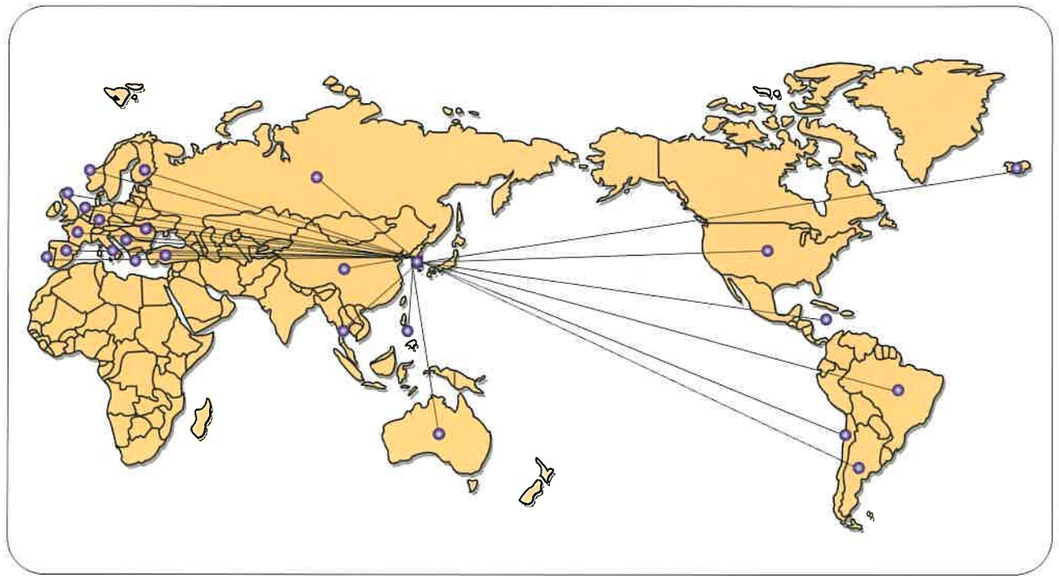
WORLD WIDE
SERVICE NET WORK



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HMMCO

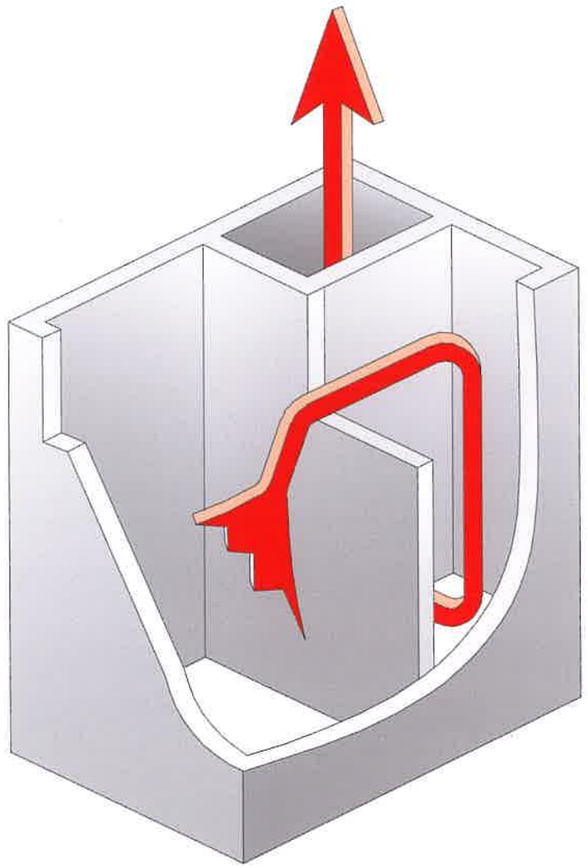
Hyundai-ATLAS
Waste Oil Incinerators

For simultaneous burning of oil sludge and solid waste

IMO Resolution MEPC 244(66)

Fulfilling the guideline for the implementation of MARPOL 73/78 Annex V and Annex VI

THREE Multi Chamber Design



Multiple Chamber Incinerators

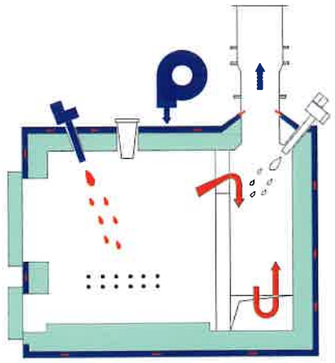
Three chamber design is one of many reasons that Hyundai-ATLAS incinerator meet the construction regulations and tough emission rules issued by IMO.

Extra combustion air is injected into the after burning chambers, igniting and there by ensuring destruction of all unburned particles. This extra flow proscess prevents not only unburned particles, but also flames from escaping the incinerator and entering the chimney.

All chambers are protected by high temperature castable lining backed up by fire insulation.

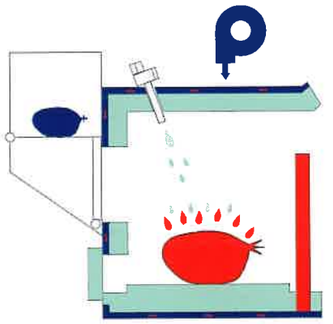
Exhaust Draft

Flue fans are typical trouble spots, and Hyundai-ATLAS Incinerator's unique air-flow system is one of many reasons that our incinerators require minimal maintenance and repair. The incinerator is a factory assembled unit equipped with air-cooled double casing and an induced draught air ejector for evacuating the flue gases.
This has two advantages-shock cooling of the hot flue gases thus eliminating the formation of harmful dioxins and - eliminating the need for a flue gas fan.



Simultaneous burning of oil sludge and solid waste

PLC or Relay are controlled for simultaneous burning of oil sludge and solid waste by automatically varying the displacement of the sluge dosing pump to match the calorific value of the sludge, without having to add expensive diesel oil.
Hot loading, continuous solid waste can be fed via a no-fireback sluice.
(Also available with manual feeding door)



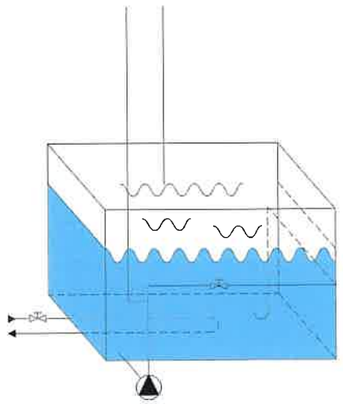
Solid Waste only

Hot loading, continuous solid waste can be fed via a no-fireback sluice.
(Also available with manual feeding door)

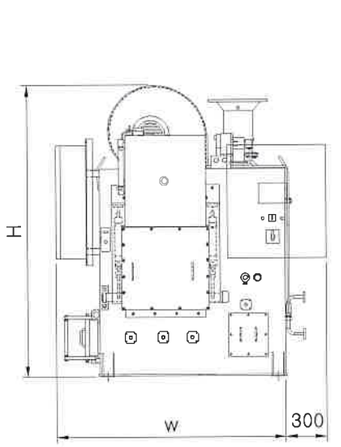
Sludge System

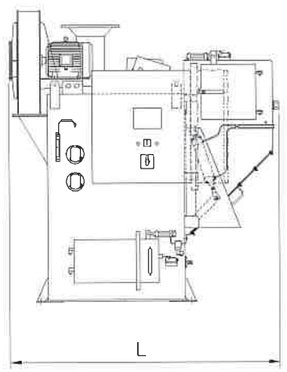
With Hyundai-ATLAS you will never need two sludge tanks. Our heated mixer tank are delivered with a transfer pump and a mill-pump for agitation and comminution of the contents of the tank making it possible to burn oil sludge with up to 50% water content, without additional diesel oil to the burners or having to drain the tank.
The sludge oil mixing tanks are available the with steam, electric or thermal oil heating.

Diesel Oil Tanks are also available.

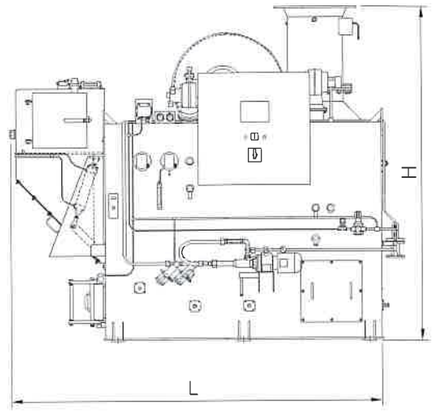


New Generation Incinerator Dimension and Capacity

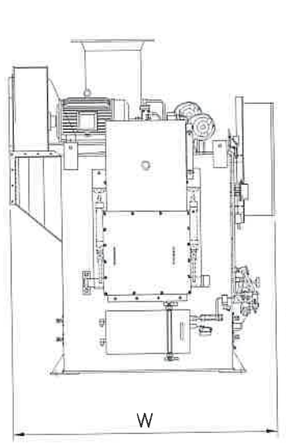


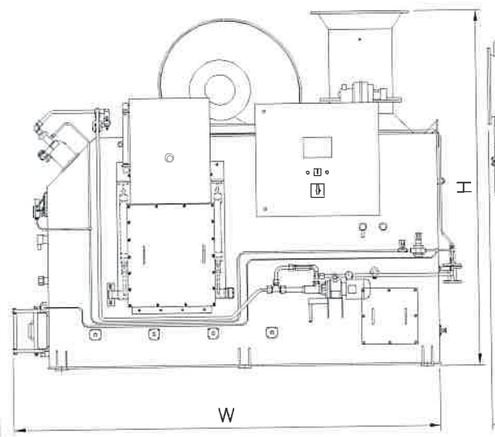


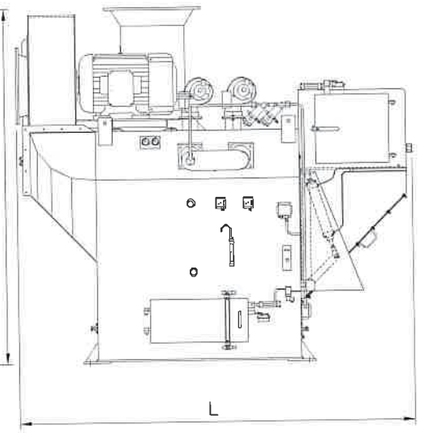
MAXI NG25



MAXI NG50~NG150 and T150







MAXI 1500

Incinerator Type	MAXI NG25	MAXI NG50	MAXI NG100	MAXI NG150	MAXI T150	MAXI 1200	MAXI 1500
Combustion Capacity (kW)	209	372	581	814	988	1,163	1,500
Combustion Capacity (kcal/h)	180,000	320,000	500,000	700,000	850,000	1,000,000	1,290,000
Combustion capacity Solid waste IMO spec. kg/h (Liter/charge) Caloric value : 2,400 kcal/kg	40	80	100	100	150	230	230
Combustion capacity Sludge Oil IMO spec. kg/h (Caloric value : 8,600 kcal/kg) (Liter/h at water content approx. 20~30%)	21(25)	38(43)	58(67)	82(95)	99(115)	116(135)	150(174)
Dimension W x H x L (mm) with Standard Waste sluice Charging door opening : W350xH350xL550)	1690x2320x1920	2035x2455x2340	2035x2555x2440	2035x2640x2830	1975x2740x3290	2035x2640x3200	3290x2640x2880
Dimension W x H x L (mm) with Big Waste sluice Charging door opening : W600xH550xL550)		2035x2455x2640	2035x2555x2740	2035x2640x3130	1975x2740x3590	2035x2640x3590	3290x2640x3000
Outlet from incinerator	D350	D400	D450	D550	D550	D600	D650
Weight approx.(Kg)	3,500	4,800	5,000	5,600	6,700	7,000	8,000

Incinerator combustion possibilites
S = Solid waste
L = Liquid
WS = Waste Sluice (Hot loading sluice)
T = Turbulator
All incinerator type is PLC control

How to order : Hyundai-Atlas Incinerators

MAXI XX XXXX XX XX

- XX → WS : Waste Sluice
- XX → L : Liquied (sludge oil) / S : Solid waste
- XXXX → Approx Capacity symbol
- XX → NG : New Generation / T : Tubulator

Hyundai - ATLAS Incinerator offers many unique advantages

Easy Installation

☐**Flue gas fan is not required.** A fan is both inconvenient and expensive since it requires extra installation and frequent maintenance. Hyundai-ATLAS Incinerators exhaust draft air ejector principle eliminates the need for a flue gas fan and is a simple and efficient solution that reduces operation shutdowns and maintenance costs.

☐**Only one sludge oil service tank** is required and a separate water setting tank is not necessary.

☐**Compact complete unit** comprising all parts such as pumps, fans and etc.

☐**Can be delivered skid-mounted or containerised** in order to ease installation of the equipment at shipyards or on board vessels. Our solutions include incinerators with tanks and all interconnection piping and cabling supplied on a common base frame or in a container.

Efficient Operation

☐**24-hour operation.**

☐**Burning oil with up to 50% water content.** The sludge treatment tank with its emulsification and comminution system makes it possible to burn sludge oil with a water content of up to 50% without pilot fuel and repeated flame failures.
Cutting knives ensure that any solid particles will be comminuted and burned with the sludge oil.

☐**Co-incineration of oil sludge and solid waste.** Hyundai-ATLAS Incinerators can co-incinerate solid waste and oil sludge. Prompt waste incineration is hygienic and eliminates the need for waste storage on board.

☐**Non-backfiring sluices are available in three sizes,** holding waste sacks of 30, 70 and 120 l, respectively.

☐**Draining the sludge oil tank is not required.**

☐**Sludge burner with no moving parts** reduces maintenance work.

☐**Self cleaning strainer** in the sludge line.

☐**No maintenance work required on flue gas fan.**

☐**Long lasting castable refractory lining.**

Special Design of Hyundai - ATLAS Incinerator

Sludge Burner with Turbulator

Hyundai-ATLAS's own designed compressed air atomizing type sludge burner.

DISTINGUISHED SLUDGE ATOMIZATION

The turbulator helps get the best sludge atomizing condition.
Even the sludge contained approx. 50% of water can be burnt without flame failure.
There is no moving or rotating part.
Therefore, the evaporating in sludge tank is not required.

NON-BLOCKING

Nozzle hole size is diameter 8mm, bigger than the strainer's hole size. There is no blocking of sludge burner.

Self-Cleaning Strainer for Sludge Oil

The pressurized sludge oil supplied from mill pump goes through diameter 6mm strainer for burning and oversized particles are returned to sludge tank for shattering by mill pump.
No maintenance and cleaning work is required since the strainer does not block.

Sluice

Continuous and safety solid waste feeding system while the incinerator is burning.
Pneumatic air cylinder is fitted and operated by a push button switch.

Mill Pump

Hyundai-ATLAS's own centrifugal pump is designed with cutting impeller.
It works for comminution of particles contained in sludge oil and effective agitation of sludge oil.

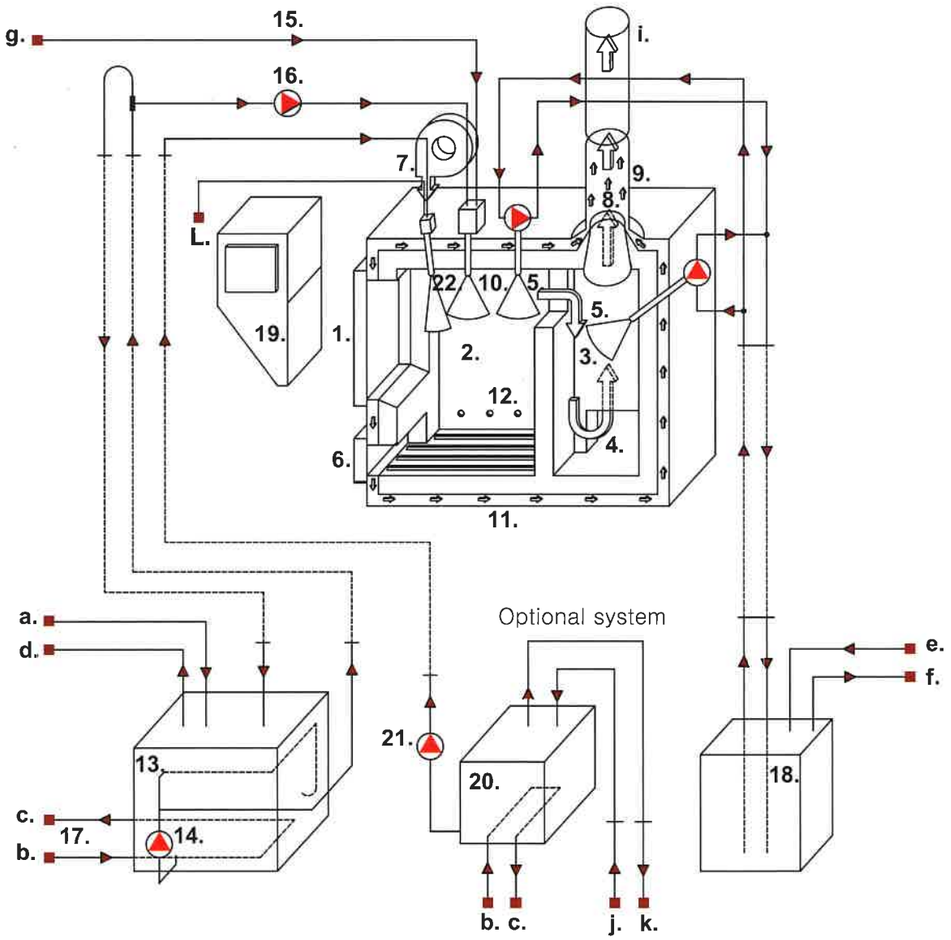
Self-Cleaning starainer in the sludge long

Mill pump ensuring comminution of any solid paticles

PLC display(panel view) facilitating the monitoring operation condition

Maintenance free sludge burner of own design without any moving parts

WORKING DIAGRAM



COMPONENTS

1. Charging Door
2. Combustion Chamber
3. Afterburning Chamber
4. Secondary After burning Chamber
5. Oil Burner With Built-in pump
6. Ash Cleaning Door
7. Air Blower
8. Induced Draught Air
9. Damper
10. Sludge Burner
11. Double Air-cooling Wall
12. Combustion Air Inlets
13. Oil Sludge Service Tank
14. Mill Pump
15. Compressed Air
16. Sludge Dosing Pump
17. Heating Element
18. Diesel Oil Tank
19. Sluice for Solid Waste
20. Bilge injection Tank
21. Bilge injection Pump
22. Bilge injection Nozzle

CONNECTIONS

a. Sludge Oil Inlet
b. Steam Inlet
c. Steam Outlet
d. Sludge Oil Overflow
e. Diesel Oil Inlet
f. Diesel Oil Overflow
g. Compressed Air Inlet
h. Electrical Power Supply
i. Flue Gas Outlet
j. Bilge inlet
k. Bilge Overflow
L. Compressed Air or Steam Inlet.

Option for Bilge Water Burning System.

- ☐ Developed burning system for ship's bilge water treatment.
- ☐ Unlike bilge separator, Hyundai-ATLAS incinerates not only waste oil but also bilge water without expensive filtering equipment.
- ☐ Fully IMO & MED certified.
- ☐ Injection media : Steam or Compressed air
- ☐ Fully automatic operating by incinerator's PLC

Purpose and benefit

Bilge water burning system is applied as the Separete the module to the existing incinerator, and designed for simultaneous buring with oil sludge. It can reduce the operation costs for monitoring equipment and filtering as well as the maintenance costs needed for bilge separator.

Technical data for Bilge water injection system

- ☐ Main Component
  - Bilge injection burner
  - Atomizing steam or Air Unit
  - Bilge Injection Pump unit
  - Bilge Injection Burner
  - Bilge Injection Junction Box
- ☐ Bilge Injection tank
  - Option : Steam / Electric / Thermal Oil heating with thermal Insulation
- ☐ Bilge Water treatment Capacity
  - Min.130L/H ~ MAX. 250 L/H

  (Bilge Water treatment Capacity can change depending on each incinerator's capacity.)

APPROVAL

IMO & MED type approval certificate for Marine Incinerators and other certificates from leading Classification Societies

Hyundai Incinerators have been examined and tested in accordance with IMO's Resolution MEPC. 76(40) and 93(45)(Tested according to standard specification for shipboard incinerators adapted on September 26, 1997), Guidelines for the Implementation of Annex V of MARPOL 73/78 and MARPOL 73/78 Annex VI.

With the assurance of the IMO type certificate and all other leading types certificates, our customers are assured of approved materials, components and design for operation anywhere in the world.

MED type certificate by BV

BUREAU VERITAS 1828
WORKS APPROVAL
DIRECTIVE 96/98 CE
SMS W.I.C.E D/3144

TYPE APPROVAL CERTIFICATES

Hyundai - ATLAS INCINERATOR

MAXI 1500SL WS
(1,290,000 Kcal/h)

MAXI NG150SL WS
(700,000 Kcal/h)

Save Space and Installation Costs

Hyundai - ATLAS Skid-Mounted Incinerators

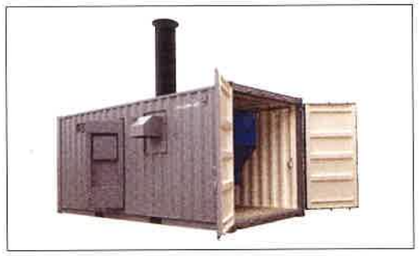
If a plant is to be installed below a deck, a skid–mounted solution from Hyundai–ATLAS Incinerators is an ideal easy–to–install choice. It saves installation time and ensures correct mounting and function. On delivery, the plant has been tested and is ready for use on site.

Standard Equipment on Skid-Mounted Solutions

- ☐ Incinerator
- ☐ Sludge oil service tank
- ☐ Diesel oil tank or Diesel oil trans pump unit

Supplied with all interconnecting piping, electric cabling and necessary components mounted on a common base frame.

Hyundai - ATLAS Containerised Incinerators



If a new ship has not been designed with an incineration plant, Hyundai Atlas Incinerators can supply a simple containerised solution.
The container is placed on deck and just needs connecting to the ship's installations.
On delivery the container is complete with all installations. It has been tested and is ready for operation and use on site.
Depending on the size of the plant, Incinerators will be delivered in a 10' or 20' ISO container, or in dimensions matching the space available.

Standard Equipment on Containerised Solutions

- ☐ Incinerator
- ☐ Sludge oil mixing tank
- ☐ Diesel oil tank
- ☐ Lighting system
- ☐ Co_2 or water mist fire fighting equipment
- ☐ Ventilation
- ☐ Chimney
- ☐ External emergency swich
- ☐ Manifolds for external piping connections and external hook up for electric power.