

CLIENT :	JOB No : KR- 07 2019
PROJECT NAME : 50kg/hr Medical Waste Incinerators	DOC No : KR 07- 2019
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PROPOSAL
of
INCINERATOR(50KG/HR) FOR
MEDICAL HUMAN ANATONICAL WASTE

July. 2014

REV.	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D

KOREA INCINERATOR CO.,LTD

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1. GENERAL

1.1 OUTLINE

This facility is based on incinerator which incinerate medical wastes and prevention facilities

which treat fly ash from incinerator and other service facilities.

1.2 SITE

Appointed location in Your site

1.3 Scope of estimate

- Offered Scopes Included

- 1) Supply Of Incinerator & Accessories

- Offered Scopes Excluded

- 1) 1st Electricity Supply Works
- 2) Basic Site Preparation Works
- 3) 1st Water Supply Works
- 4) Water, Electricity, Fuel for installation and trial test running.

1.4 Delivery Period

2 months after contract

1.5 50kg/hr Incinerator of medical human anatomical waste

1.6 Completion And Guarantee

- 1) Completion : Completion date is delivery time completion date.
- 2) The term of guarantee : We guarantee performance and extra defects for 1 year after delivery time completion.
- 3) Defect-Management : If defects occurred in the term of guarantee, we do fixing or changing to new product under our burden.

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1.7 Design Standard

1) Target waste composition ratio

Division Name of waste	Amount of waste (kg/hr)	Ratio (%)	Remark
Human Anatomical Waste	40		
General hospital waste	10		
Total	50		

2) Permitted emission standards and exhaust gas design standards

(Facility standards: Less than 200kg/hr of incineration capacity)

Pollutants	Permitted emission standards	Design standards (CYCLONE TYPE / No Smoke &No Odor)
	KOREA	
CO	Less than 200(12)ppm	Less than 100(12) ppm
NOx	Less than 100(12)ppm	Less than 100(12) ppm
Dust	Less than 70(12)mg/Sm ³	Less than 70(12) mg/Sm ³
Exhaust fumes	Less than 2 degree Ringelmann Smoke Chart	Less than 1 degree Ringelmann Smoke Chart
Ignition loss	10%	5%

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1. Cremator Facility

1-1 Main Combustion Chamber in Cremator

(1) General Information

- ① Quantity : 1 set
- ② Type : Bogie
- ③ Specification (external): 1,050W × 1,400 H × 1,520 L
(Internal): 800W × 1,214H × 1,300 L
- ④ Refractory used: - Refractory Castable CT-160
- Cerak wool

(2) Design and Structure

The size and structure of the main combustion furnace make combustion and refractory work efficiently. Internal furnace is made of the castable + insulator, etc. and external furnace is designed to be robust by using the SS steel and shaped steel.

1-2. Insulated Door

(1) General Information

- ① Quantity: 1 set
- ② Type: automatic (up/down) retractable
- ③ Specification: 850W × 814H × 120T
- ④ Material: SS400 + Refractory castable CT-160 + Ceramic Fiber

(2) Design and Structure

The insulated door blocking the inside and outside cinerator may receive the flame of the burner directly, so it is designed and constructed in the robust structure to resist flame and thermal deformation.

1-3 Insulated Door Hoist

(1) General Information

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① Quantity: 1 set

② Size: 0.5TON, 2-point type

③ Type: Chain hoist (KD-1)

④ Power supply: 220V, 3 phase

(2) Design and Structure

It is automatic open and close system by push-button of the burner and interlock in the main combustion furnace, which is structured to receive electrical signal from the up and down limit switch to be operated or stopped by the chain hoist.

If the insulation door is not closed as safety measures, it is designed to interlock so that the burner of main combustion furnace cannot be operated and anti-fall device is attached.

1-4 Re-combustion Chamber for Regenerative Combustion (second combustion chamber)

Formed on the upper part of combustion furnace, exhaust gas generated in the main combustion chamber are mixed with the air for secondary combustion heated from the secondary combustion burner and outside of the re-combustion chamber to pyrolyze at high temperatures odors, etc. of incomplete combustion gas generated from the cremator.

① TYPE: Cylindrical horizontal

② Quantity: 1 set

③ Combustion system: Regenerative thermal decomposition combustion

④ Combustion chamber: Refractory regenerative structure

⑤ Specification: Ø820 × 1424L

⑥ Material: SS400 4.5T + Refractory castable CT-160

1-5 Main Combustion Burner

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(1) General Information

- ① Quantity: 1 set
- ② Type: Gun Type
- ③ Capacity: 249,000 kcal / hr (0.37kw)
- ④ Fuel: Kerosene
- ⑤ Ignition Method: Automatic Electric
- ⑥ Operation Method: HIGH-LOW
- ⑦ Supply Range
 - Burner unit: 1 set
 - High-voltage ignition device: 1 set
 - Fire detection device: 1 set
 - Coffins and accessories: 1 set

(2) Design and Structure

At a start-up of cremator, the burner complying with the structure and format of combustion chamber was installed for increasing temperature inside of the furnace and complete combustion.

1-6 RE-COMBUSTION BURNER

(1) General Information

- ① Quantity: 1
- ② Type: Gun Type
- ③ capacity: 153,000 kcal / hr (0.15kw)
- ④ fuel: Kerosene
- ⑤ Ignition Method: Automatic Electric Ignition
- ⑥ Operation Method: HIGH-LOW
- ⑦ The scope of supply: - Burner Unit: 1
 - High-voltage ignition device: 1
 - Fire detection devices: 1
 - Piping and accessories: 1 set

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(2) Design and Structure

The waste inserted in the main combustion chamber should make thermal decomposition at high temperatures for incomplete combustion gas produced by combustion and should be harmless. During operation of the cremator, in order to maintain the high-temperature inside of the furnace, the burner complying with the structure and format was installed.

2. Combustion Gas Processing Facility (Centrifugal Dust Collector)

(1) General Information

- ① Quantity: 1
- ② Type: Tangential inflow collector
- ③ Material: SS400 + Refractory castable CT-160
- ④ Specification: Ø864 × 2720H
- ⑤ Component: Re-processing box 1

(2) Design and Structure

Combustion gases passing through the secondary combustion chamber make the entrance of the device inflow in the tangential direction and by causing cyclone in the combustion gases, a large proportion of particulate material in the combustion gas comes into collision with the inner wall of the device by centrifugal force to fall and be collected.

3. VENTILATION EQUIPMENT

(1) General Information

- ① Type: Turbo Type
- ② Size: 100A
- ③ Material: SPP 4T
- ④ Encillary equipment: FAN (TURBO TYPE) 1 set
 - The amount of wind $Q = 20\text{m}^3/\text{min}$ (at 20 °C)
 - Wind pressure $P = 250 \text{ mmAq}$
 - Electromotive forces $Bm = 3.4\text{KW} \times 2P \times 220\text{V} \times 50\text{HZ}$

(2) STACK

- ① TYPE: Cylindrical

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② Size: $\phi 352 \times 2000H$

③ Material: SS400 + Refractory castable CT-160 Refractory castable

4. Electrical Instrumentation Equipment

(1) CONTROL PANEL

① Type: CABINET Type (Indoor)

② Size: 500W * 660H * 270D

③ Quantity: 1 set

④ Embedded devices

A) Various indicators – temperature of internal furnace and re-combustion temperature

B) LAMP display – exhaust gas temperature of each combustion furnace

⑤ Special note

It consists of facilities for complete combustion in optimal combustion conditions by automatically controlling the operation of incinerator, and if necessary, manually controlling the operation.

⑥ EQUIPMENT : PUSH BUTTON

EACH COLOR LAMP

N.F.B

M/G, S/W etc.

⑦ INTERLOCK

- F.D FAN Power Cut-off
- Automatic cut-off of 1st and 2nd burner

⑧ CABLE

- Power equipment: CV CABLE
- Instrumentation equipment: CVV CABLE
- PANEL Internal Connector: IV CABLE

⑨ WIRING WORK SCOPE

- CONTROL PANEL ↔ Each unit and motor

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⑩ THERMO-COUPLE

- Name: Ceramic thermocouple ($\Phi 20 \times 300L$)
- Size: 0 ~ 1,200 °C
- Quantity: 2 EA

⑪ FUNCTION:

- Power Supply ON - OFF
- 1st F.D FAN ON - OFF
- 1st BURNER LOW-HIGH-LOW
- 2nd BURNER LOW-HIGH-LOW
- Temperature indicator, Automatic temperature recorder

(2) Connecting pipes and wiring work

Each drive motor → Switchgear

First and second burners → Refueling tanks