TTM
Technologie Transfer Marburg e. V.

3 types of hospital waste incinerators:

HWI 5, UNIVERS Redline and UNIVERS Greenline

Hospital waste incinerators

Features:

- Complete combustion at temperatures > 1000 °C
- Secure destruction of all pathogens
- Incineration rate of 5 to 20 kg of waste per hour
- Low consumption of fuel
- Fire resistant lining for temperatures of up to 1250 °C
- Modular design for easy transport, on-site handling and assembly
- Transportable by air on standard EURO-pallet

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Waste incinerator: HWI 5

The incinerators of the HWI series were developed for small to medium sized health facilities. Continuously operated. The HWI 5 can incinerate 15-20 kg of waste per hour. From experience, approximately 0.3 to 0.5 kg of infectious waste is generated per bed, patient and day. The incinerator can thus easily cope with the waste generation of a hospital of 150 to 200 beds.

Due to the manufacturing of the incinerator in individual modules, transport and assembly becomes very easy and does not require any lifting gear. The incinerator consists of a primary combustion and secondary afterburning chamber. The advanced fire-resistant furnace lining can stand temperatures of up to 1250 °C and guarantees a long lifetime. An attached diesel burner is used to preheat the incinerator and assures almost complete combustion of the off-gas afterwards. In reaching a temperature of > 1000 °C in the after burning chamber, the off-gas quality is high. The incinerator has 2 doors (one to fill in waste and a second to remove the ash) and a sufficiently high chimney to maintain a good suction.

After preheating phase of 1 hour, the incinerator is ready for the 1st waste charge. Preferably 5-10 kg of waste is charged and ignited. When the initial charge is burning properly, more waste can be added. It is advisable to charge dry waste in the beginning. Later on, when the incinerator is hot, wet waste can also be charged to the incinerator. In this way portions of up to 5 kg of waste can be charged every 15 minutes. Due to the normally high caloric value of the waste the incinerator burns autonomously. The good insulation property of the fire lining keeps the heat in the incinerator, thus achieving a high temperature in the incineration chamber and a low temperature at the outside walls. There should always be enough waste accumulated to secure a continuous operation of at least 5 to 6 hours.

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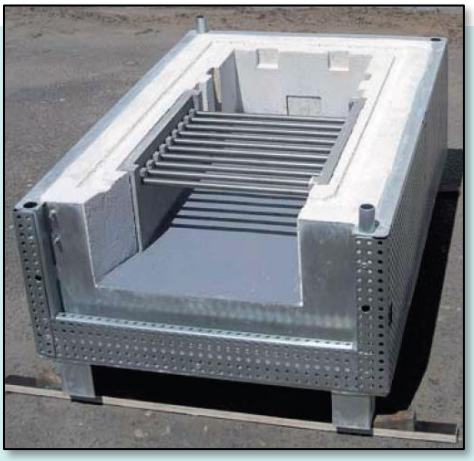

These are the main features of the HWI 5:

• Capacity:	15-20 kg of waste per hour
• Temperature (main chamber):	up to 800 °C
• Temperature (after burning):	up to 1100 °C
• Size (outside):	W x D x H = 800 x 1200 x 2200 mm
• Size (main chamber):	W x D x H = 575 x 400 x 1400 mm
• Chimney height:	approx. 6 m above incinerator
• Temperature resistance of lining:	1250 °C
• Diesel burner:	15-20 kW, 3-4 l/h
• Electricity:	230 V, 50 Hz

Right of technical modifications reserved.

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Waste incinerator: UNIVERS Redline

This incinerator is smaller and cheaper than the HWI 5. It shall serve in particularly small rural healthcare facilities with a low generation of waste. It should replace the many informal, locally manufactured or assembles incinerators which often have significant negative environmental impacts due to bad incineration properties, such as low incineration temperature and incomplete combustion. Many of these incinerators have a short lifetime since their building materials are inappropriate for the elevated temperatures.

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The incinerator achieves an incineration temperature of up to 800 °C in the main chamber and almost complete combustion of the entire waste. The attached diesel burner secures complete combustion of the off-gas by achieving a temperature of > 1000 °C in the afterburning chamber. The modern fire-resistant furnace lining guarantees a long lifetime of the incinerator, and due to a modular assembling method, parts of the lining can easily be replaced after being eventually worn out. The incinerator has 2 doors (one to fill in waste and a 2nd to remove the ash) and a sufficiently high chimney to maintain good suction.

After a preheating phase of 1 hour with the diesel burner, the incinerator is ready for the 1st waste charge. Preferable 2-3 kg of waste is charged and ignited. When the initial charge is burning properly, more waste can be added at a speed of 2-3 kg every 15 minutes. There should always be enough waste accumulated to secure a continuous operation of at least 5 to 6 hours.

These are the main features of the UNIVERS Redline:

• Capacity:	10-15 kg of waste per hour
• Temperature (main chamber):	up to 800 °C
• Temperature (after burning):	up to 1100 °C
• Size (outside):	W x D x H = 730 x 900 x 1300 mm
• Size (main chamber):	W x D x H = 435 x 330 x 700 mm
• Chimney height:	approx. 6 m above incinerator
• Temperature resistance of lining:	1250 °C
• Diesel burner:	10-20 kW, 2-3 l/h
• Electricity:	230 V, 50 Hz

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Waste incinerator: UNIVERS Greenline

This incinerator is of the same size and features as the UNIVERS Redline but works autonomously without a diesel burner. It serves for small rural healthcare facilities with a low generation of waste and no access to electricity and diesel fuel. In the absence of a diesel burner the incinerator needs to be preheated by incinerating a certain amount of wood, charcoal or mineral coal. After a preheating phase of 1 hour the incinerator is ready for the 1st waste charge and can further on be operated in the same manor as the UNIVERS Redline.

Equipment supplied with the incinerators

All required tools for assembling and operating the incinerators are part of the shipment, as well as the gear for personnel protection and small repairs. Depending on the wish of the customer, a spare part kit and temperature measuring equipment can also be included.

Appropriate place to install the incinerators

The incinerators do not have to be operated inside a building, but they need to be sheltered from rain. Therefore, it is recommended to place them on a concrete floor and provide them at least with some kind of roof. The best solution to house the incinerator is a small separate building.

Installing the incinerator inside a building has the added advantage of providing adequate intermediate storage for the incoming waste which then, more importantly, can be locked away to prevent unauthorized persons from getting into contact with the waste.

Some consideration should be given to investigating the main wind direction to make sure that the smoke will be carried away from dwelling areas.

The incinerators HWI 5 and UNIVERS Redline require electricity of 230 V / 50 Hz for operation and may either be connected to the mains, to a mobile generator or a solar system (deliverable on request)

TTM can also provide appropriate housing for the incinerators.

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