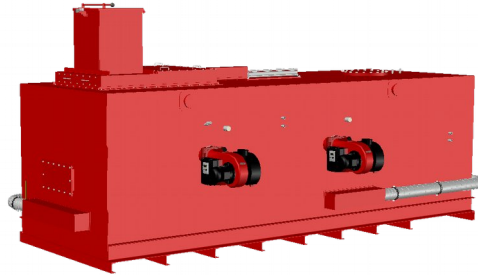




**Mid-sized stationary combustion furnace with patented ZANNI combustion grate**

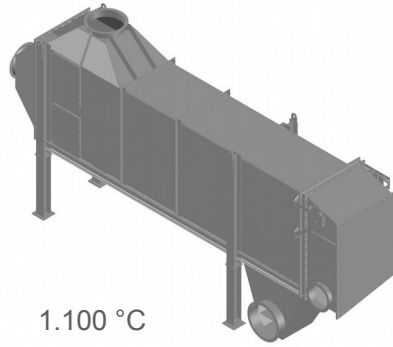


1 Combustion furnaces.pdf

RDF (Refuse Derived Fuel) *	Mix of clinical waste, paper and fabric residues, polymers, other solid and sludgy waste fractions, like sewage sludge.	* only for sample
Type of plant	Mid-sized (RDF 200 – 400 kg/h)	Other sizes on request!
Combustion support	Patented ZANNI combustion grate with highly efficient waste ventilation	 GRATE-SR10S 202020000952.pdf
RDF quantity	400 kg/h	 ZANNI-GRATE.pdf
Average calorific value of RDF	15000 kJ/kg	
Average ashes from RDF	10,8 kg/h	
Temperature main combustion chamber (MCC)	850 °C	800 – 900 °C
Temperature post combustion chamber (PCC)	1100 °C	950 – 1150 °C
Ambient temperature	25 °C	
Pressure MCC/PCC	-2 mbar	
Pressure combustion air	5 mbar	
Combustion / ventilation air	2687 Nm <sup>3</sup> /h **	** Grate ventilation
Flue gas wet	3019 Nm <sup>3</sup> /h ***	*** Nm <sup>3</sup> /h means cubic metres (m <sup>3</sup> ) @ atmospheric pressure (1013,25 hPa) and a standard temperature (0 °C) per per hour (h)
Flue gas outlet	15215 Bm <sup>3</sup> /h ****	**** Bm <sup>3</sup> /h means "actual" (B) cubic metres (m <sup>3</sup> ) per hour (h) @ operating pressure, temperature and humidity
Residence time flue gas	2,5 s min.	
Thermal Energy from RDF	1667 kWh	
<b>Average emissions from RDF *****</b>		***** Before cooler and filter system
CO <sub>2</sub>	276 Nm <sup>3</sup> /h ***	
SO <sub>2</sub>	0,82 Nm <sup>3</sup> /h ***	
N <sub>2</sub>	2139 Nm <sup>3</sup> /h ***	
H <sub>2</sub> O	371 Nm <sup>3</sup> /h ***	
<b>Dimension of incinerator *****</b>		***** Mounting parts and aggregates not considered
Length	6000 mm	
Width	2500 mm	
Height	2800 mm	

Sample data only.  
Subject to change.  
Changes to individual parameters can affect all values!

**Patented  
ZANNI Air/Air cooler**



3 Flue gas cooler.pdf

**Flue gas cooler**

Inlet temperature flue gas 1.100 °C  
 Pressure flue gas inlet -2,000 mbar

Volume flow flue gas Inlet 15.215 Bm<sup>3</sup>/h \*\*

\*\* Bm<sup>3</sup>/h means "actual" (B) cubic metres (m<sup>3</sup>) per hour (h) @ operating pressure, temperature and humidity

Exhaust gas outlet teperature 200 °C

Volume flow flue gas outlet 5.240 Bm<sup>3</sup>/h \*\*

**Cooling air media**

Outlet temperature cooling air 310 °C

Volume flow cooling air outlet 21.401 Bm<sup>3</sup>/h \*\*

Cooling air inlet temperature 40 °C

Pressure cooling air inlet 4,3 mbar

Mass flow rate cooling air inlet 13.000 kg/h

Flow rate cooling air inlet 11.485 Bm<sup>3</sup>/h \*\*

Transmitted thermal output Q 980,8 kW

**Materials**

Casing plates	Heat resistant steel
Rear flue gas chamber	Heat resistant stainless steel
Tube bundle (tubes)	Special heat resistant stainless steel
Head plate inlet insulation	Heat resistant concrete and fibre
Head plate outlet	Heat resistant stainless steel
Front flue gas chamber	Special heat resistant stainless steel
Head plate inlet	Special heat resistant stainless steel
Support plates	Heat resistant stainless steel
Frame, outer parts	Mild steel
Housing insulation	Depending on the local requirements

**Modular highly efficient filter system**



6 Filter systems and flue gas cleaning.pdf

**Flue gas filter**

Total flue gas wet to filter	3019 Nm <sup>3</sup> /h **	** Nm <sup>3</sup> /h means cubic metres (m <sup>3</sup> ) @ atmospheric pressure (1013,25 hPa) and a standard temperature (0 °C) per per hour (h)
Humid exhaust gas operating volume flow	5240 Bm <sup>3</sup> /h ***	**** Bm <sup>3</sup> /h means "actual" (B) cubic metres (m <sup>3</sup> ) per hour (h) @ operating pressure, temperature and humidity
Total filter area	131 m <sup>2</sup>	
Filter elements diameter (outside)	60 mm	
Filter elements circumference	0,188 m	
Filter cartridge length	1000 mm	1250, 1500, 1750 max.
Filter area per piece	0,188 m <sup>2</sup>	
Required number of filter elements	696	
Installed number of filter elements	784	196 per module

**Compressed air demand**

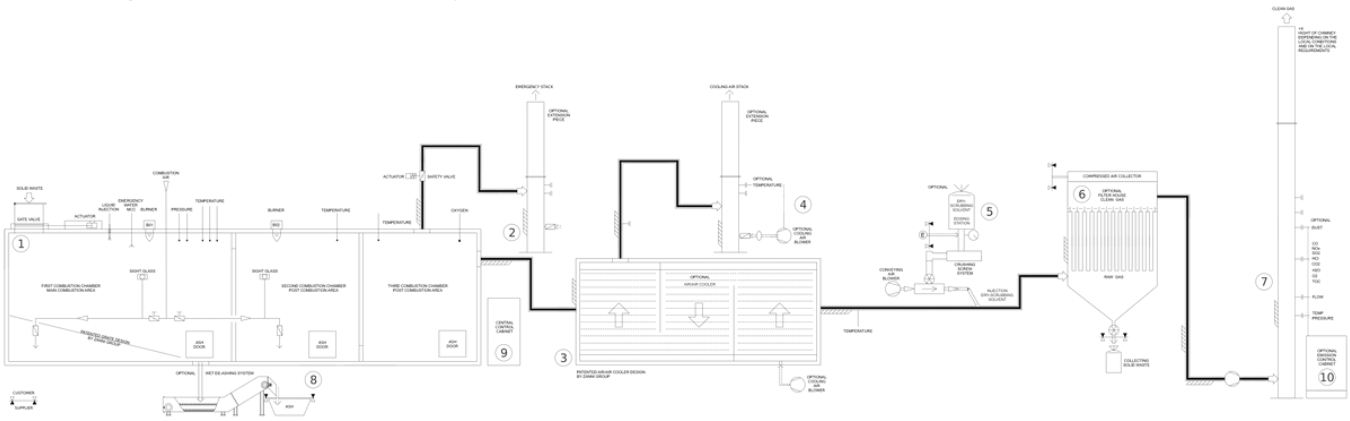
Specific compressed air requirement	0,048 Nm <sup>3</sup> ****	**** Nm <sup>3</sup> /h means cubic metres (m <sup>3</sup> ) @ atmospheric pressure (1013,25 hPa) and a standard temperature (0 °C) per
Compressed air requirement	6,288 Nm <sup>3</sup> /h **	

**Reference emissions**

Particulate	< 3 mg/Nm <sup>3</sup> ****
HCl	< 10 mg/Nm <sup>3</sup> ****
SO <sub>2</sub>	< 50 mg/Nm <sup>3</sup> ****
HF	< 1 mg/Nm <sup>3</sup> ****
NO <sub>x</sub>	< 200 mg/Nm <sup>3</sup> ****
Heavy Metals	< 0,5 mg/Nm <sup>3</sup> ****
Dioxins	< 0,5 ng/Nm <sup>3</sup> ****

Sample data only.  
Subject to change.  
Changes to individual parameters can affect all values!

This might also be of interest to you.



Numbered flow sheet of a modern stationary combustion plant as a usefull help to selecting all the important parts.

Other equipment of a modern plant not listed above in the tables but in the flow sheet:



2 Emergency chimneys.pdf



4 Cooling air chimneys.pdf



5 Dry-scrubbing-solvent systems.pdf



7 Flue gas (Clean gas) chimneys.pdf



8 De-Ashing systems.pdf



9 Control cabinets.pdf



10 Continuous emission monitoring systems (CEMS).pdf

Any questions?  
We look forward to your contact with us!

Thank you.



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