

No.	Topic	Description	Remarks
1	Engineering	Dutch Incinerators BV, The Netherlands	EU Best Available Techniques reference documents (BREFs). No compromises to technical and operational reliability.
2	Manufacturer	Dutch Incinerators Thailand Co., Ltd.	EPC contractor (Engineering, Procurement, Construction). Turn-key package, State-of-the-art components.
3	Technology	Counter-current rotary kiln incinerator.	Most versatile in waste acceptance with widest variation of physical, chemical and thermal properties.
4	Layout version	Mobile unit. Movable with a truck.	The complete rotary kiln incinerator set-up is skid-mounted on 2 ISO standard 40ft flat rack containers.
5	Model	DI-1.5 M	
6	Thermal input capacity	1.5 MW	1,500 kWh @ Higher Calorific Value basis. Nominal tolerance on thermal input: +/- 30%.
7	Performance	Intermittent operation. Full continuous operation (24/7), at variable rotational speed.	Fully automated plant operation, PLC controlled. Remote access via internet, from anywhere on the planet.
8	Throughput capacity	250 kg/hr @ HCV 21,600 kJ/kg (6 ton/day) 312 kg/hr @ HCV 17,280 kJ/kg (7.5 ton/day) 375 kg/hr @ HCV 14,400 kJ/kg (9 ton/day) 450 kg/hr @ HCV 12,000 kJ/kg (10.8 ton/day)	Wider range of throughput to be evaluated, on client request.
9	Combustion	Primary (rotary) combustion chamber, refractory lined. Secondary (post) combustion chamber, refractory lined.	Maximum combustion efficiency, no waste solidification at the bottom. Post combustion to complete gas phase combustion reactions.
10	Temperature/residence time	Primary combustion: > 1,000°C. Post combustion: > 850°C to 1,100°C.	Primary combustion: 30 to 90 minutes residence time. Post combustion: > 2 seconds residence time (upon local requirements).
11	Application	Thermal treatment of heterogeneous combustible wastes. Wide operational window on thermal input.	Emergency response site remediation, testing of specific waste streams, application in remote areas, etc.
12	Industry	Hazardous, chemical, toxic, (bio)medical and infectious wastes. Non-hazardous and non-recyclable wastes.	Refinery, petrochemical, pharmaceutical, hospital, veterinary, etc. RDF, SRF, MSW, C&D, E-waste, fines, scrap tyre, car frag, etc.
13	Burner fuel	Burner fuel for plant start-up, limited to +/- 5 hours only. Fuel consumption estimated at 150 litres per hour (130kg/hr).	Thermal chain reaction and self-supporting combustion, without the need for additional fossil fuels after plant start-up phase. Burner fuel can be diesel, LPG or natural gas.
14	Reliability	Minimum annual plant uptime = 90%. Typical annual plant uptime = 95%-98%.	Minimum annual uptime is > 330 days per year (= 90%). Typical annual uptime is > 345-355 days/year (= 95%-98%).
15	Maintenance	1 or 2 pre-scheduled general maintenance shutdowns per year.	General annual maintenance completed in 10-15 consecutive days.
16	Safety	Automated safety interlocks and plant shutdown. Special attention to fire and explosion safety.	Preventive hygienic measures and safety precautions to personnel, surrounding, inhabitants and the environment.
17	Noise	In full compliance with the European noise emission regulation or any other applicable legislation.	Directive 2003/10/EC.
18	Quench tower	Automated bottom & fly ash discharge. WFGT: Integrated wastewater treatment system.	Non-clogging design. No slag agglomeration. Zero wastewater discharge.
19	Flue gas treatment system	WFGT: Wet Flue Gas Treatment (wet scrubbing system).	DFGT: Dry Flue Gas Treatment (dry scrubbing) is not possible.
20	Smokestack	WFGT: Visible white vapour plume.	Wet scrubber: < 50 mg/Nm3
21	Emissions	Request for standard on emission concentrations and operational conditions for WFGT.	Waste Incineration Directive 2000/76/EC; U.S. EPA; WHO.
22	CEMS	CEMS: Continuous Emission Monitoring System. Continued observation on emissions released into atmosphere.	Installation obligation in EU.
23	Destruction limits	DRE: Destruction Removal Efficiency. Overall waste DRE > 99.9999%.	Destruction limits and maximum emission values according to regulations and local standards.
24	Air Quality Control	Certification. Emission air quality analysis reports.	SGS or other 3rd party certification.
25	Waste feeding system	Fully automated feeding system. No shutdown for waste supply.	Feeding system upon waste type, waste size and client preferences.
26	Ash discharge collection	Fully automated discharge system. No shutdown for ash removal.	Ash collection via replaceable sealed ash bins.
27	Total electrical power	Total installed motor power: 63 kW. Nominal power consumption: 40 kW.	Alternating current (AC); 50 Hz. 60 Hz frequency available on request.
28	Water consumption	Nominal: 2.6 m3/hour. Maximum: 4 m3/hour.	Water quality: industrial.
29	Wastewater discharge	Nominal: 1.0 m3/hour.	
30	Manpower	Minimum 1 manpower, but for safety precautions we advice 2. 2 operators per 8-hours or 12-hours shift.	1 supervisor. 1 operator for waste supply and ash discharge handling.
31	Consumables	WFGT: Caustic soda (solution: 30 - 50 m%).	Consumption rates depend upon contaminant concentrations in the waste (typically Cl, S, F, etc.).
32	Daily operating cost	Depends on local costs for utilities, consumables, manpower, transport and waste gate fees.	Project feasibility computed upon client request.
33	Plant dimensions (LxWxH)	18m x 6.5m = 117 m2 (minimum).	1 ISO flat rack unit = 12,2m x 2,44m x 2,60m
34	Total weight	56.2 MT (= 56,200 kg).	Flat rack 1: Primary (rotary) combustion: 25,100kg Flat rack 2: Secondary (post) combustion: 31,100kg
35	Total area size required	20m x 7.5m = 150 m2 (nominal).	
36	Energy recovery medium	Hot air, hot water, chilled water, thermal oil.	Energy recovery provided as option, upon client request and feasibility.
37	Energy recovery output	Maximum thermal energy recovery efficiency: 70%.	Maximum thermal energy output: 1,050 kWh.
38	Waste handling systems	Waste reception facilities, tank farms, waste handling and transportation, waste pre-treatment infrastructures, etc.	Supplied upon client request.

Doc.: Datasheets product range.xlsx

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COUNTER-CURRENT ROTARY KILN INCINERATORS

STANDARD PRODUCT RANGE

THROUGHPUT CAPACITIES IN KG PER HOUR

Dutch Incinerators Model No.	Thermal Input HCV	Throughput at calorific value ---->	Higher Calorific Value HCV		Throughput at calorific value ---->	Higher Calorific Value HCV		Throughput at calorific value ---->	Higher Calorific Value HCV	
			kJ/kg	kcal/kg		kg/hr	kJ/kg		kcal/kg	kg/hr
DI	kW	kg/hr	kJ/kg	kcal/kg	kg/hr	kJ/kg	kcal/kg	kg/hr	kJ/kg	kcal/kg
DI-15 Mobile	1,500	250	21,600	5,160	312.5	17,280	4,128	375	14,400	3,583
DI-15 Static	1,500	250	21,600	5,160	312.5	17,280	4,128	375	14,400	3,583
DI-3	3,000	500	21,600	5,160	625	17,280	4,128	750	14,400	3,583
DI-6	6,000	1000	21,600	5,160	1250	17,280	4,128	1500	14,400	3,583
DI-6 XL	7,500	1250	21,600	5,160	1563	17,280	4,128	1875	14,400	3,583
DI-12	12,000	2000	21,600	5,160	2500	17,280	4,128	3000	14,400	3,583
DI-20	20,000	3333	21,600	5,160	4167	17,280	4,128	5000	14,400	3,583

THROUGHPUT CAPACITIES IN TON PER DAY

Dutch Incinerators Model No.	Thermal Input HCV	Throughput at calorific value ---->	Higher Calorific Value HCV		Throughput at calorific value ---->	Higher Calorific Value HCV		Throughput at calorific value ---->	Higher Calorific Value HCV	
			kJ/kg	kcal/kg		ton/day	kJ/kg		kcal/kg	ton/day
DI	MW	ton/day	kJ/kg	kcal/kg	ton/day	kJ/kg	kcal/kg	ton/day	kJ/kg	kcal/kg
DI-15 Mobile	1.5	6	21,600	5,160	7.5	17,280	4,128	9	14,400	3,583
DI-15 Static	1.5	6	21,600	5,160	7.5	17,280	4,128	9	14,400	3,583
DI-3	3	12	21,600	5,160	15	17,280	4,128	18	14,400	3,583
DI-6	6	24	21,600	5,160	30	17,280	4,128	36	14,400	3,583
DI-6 XL	7.5	30	21,600	5,160	37.5	17,280	4,128	45	14,400	3,583
DI-12	12	48	21,600	5,160	60	17,280	4,128	72	14,400	3,583
DI-20	20	80	21,600	5,160	100	17,280	4,128	120	14,400	3,583