DUTCH INCINERATORS
Engineered for a cleaner tomorrow

DI-6

DATASHEET

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	Stationary embedded unit.	
5	Model	DI-6	
6	Thermal input capacity	6 MW	6,000 kW_{th} @ Higher Calorific Value basis. Nominal tolerance on thermal input: +/- 30%.
7	Performance	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	1,000 kg/hr @ HCV 21,600 kJ/kg (24 ton/day) 1,250 kg/hr @ HCV 17,280 kJ/kg (30 ton/day) 1,500 kg/hr @ HCV 14,400 kJ/kg (36 ton/day) 1,800 kg/hr @ HCV 12,000 kJ/kg (43.2 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.	Solids, liquids, semi-liquids, emulsions, pastes, sludges, slurries, etc. HCV, LCV, big, small, wet, dry, lumpy, uniform, 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 230 litres per hour (200kg/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 pre-scheduled general maintenance shutdown 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	DFGT: Dry Flue Gas Treatment (dry scrubbing system). WFGT: Wet Flue Gas Treatment (wet scrubbing system).	Both (DFGT + WFGT) can be combined.
20	Bag filter	DFGT: Dry treatment of emitted flue gases. PTFE catalytic fabric filter bags.	To decompose and remove multiple gaseous compounds. Trapping dust and >99% removal of total dioxin and furans.
21	Smokestack	DFGT: Non visible smoke plume. WFGT: Visible white vapour plume.	Dry scrubber: < 10 mg/Nm3. Wet scrubber: < 50 mg/Nm3.
22	Emissions	Emission concentrations and operational conditions in full compliance with any regulation or legislation.	IED compliant (Industrial Emission Directive). Waste Incineration Directive 2000/76/EC; U.S. EPA; WHO.
23	CEMS	CEMS: Continuous Emission Monitoring System. Continued observation on emissions released into atmosphere.	Installation obligation in EU.
24	Destruction limits	DRE: Destruction Removal Efficiency. Overall waste DRE > 99.9999%.	Destruction limits and maximum emission values according to regulations and local standards.
25	Air Quality Control	Certification. Emission air quality analysis reports.	SGS or other 3rd party certification.
26	Waste feeding system	Fully automated feeding system. No shutdown for waste supply.	Feeding system upon waste type, waste size and client preferences.
27	Ash discharge collection	Fully automated discharge system. No shutdown for ash removal.	Ash collection via replaceable sealed ash bins.
28	Total electrical power	Total installed motor power: 206 kW. Nominal power consumption: 117 kW (DFGT version).	Alternating current (AC): 50 Hz. 60 Hz frequency available on request.
29	Water consumption	Nominal: 2.4 m3/hour (DFGT version). Maximum: 6.0 m3/hour.	Water quality: industrial.
30	Wastewater discharge	DFGT: None. WFGT: None.	Integrated wastewater treatment system for the WFGT version. Zero wastewater discharge.
31	Manpower	2 operators per 8-hours or 12-hours shift.	1 supervisor. 1 operator for waste supply and ash discharge handling.
32	Consumables	DFGT: Sodium bicarbonate (dry, big bags). DFGT: Activated carbon (dry, big bags). WFGT: Caustic soda (solution: 30 - 50 m%).	Consumption rates depend upon contaminant concentrations in the waste (typically Cl, S, F, etc.).
33	Daily operating cost	Depends on local costs for utilities, consumables, manpower, transport and waste gate fees.	Consumables expenses for DFGT are lower than for WFGT. Project feasibility computed upon client request.
34	Plant dimensions (LxWxH)	DFGT version: 41m x 23m x 22m = 943 m2	Layout adapted upon client request, to suit local requirements.
35	Total weight	DFGT version: 235 MT (= 235,000 kg).	
36	Total area size required	DFGT version: 48m x 28m = 1,344 m2 (nominal).	Layout adapted upon client request, to suit local requirements.
37	Energy recovery medium	Hot air, hot water, chilled water, thermal oil, steam, electricity.	Energy recovery provided as option, upon client request and feasibility.
38	Power conversion	Combined Heat and Power (CHP) generation. Organic Rankine Cycle (ORC) technology. Saturated steam boiler + steam turbine generator.	Enables local scale, decentralized power and heat production. Multiple ORCs can be operated in parallel. Hedge against energy (electricity) cost increases.
39	Energy recovery output	Maximum thermal energy recovery efficiency: 70%. Maximum power efficiency recovery: 15%.	Maximum thermal energy output: 4,200 kW_{th}. Maximum electric gross power output: 630 kW_{e}.
40	Waste handling systems	Waste reception facilities, tank farms, waste handling and transportation, waste pre-treatment infrastructures, etc.	Supplied upon client request.

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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	Higher Calorific Value HCV	Throughput at calorific value --->	Higher Calorific Value HCV	Higher Calorific Value HCV	Throughput at calorific value --->	Higher Calorific Value HCV	Higher Calorific Value HCV	Throughput at calorific value --->	Higher Calorific Value HCV	Higher Calorific Value HCV	Throughput at calorific value --->	Higher Calorific Value HCV	Higher Calorific Value HCV
DI	kW	kg/hr	kJ/kg	kcal/kg	kg/hr	kJ/kg	kcal/kg	kg/hr	kJ/kg	kcal/kg	kg/hr	kJ/kg	kcal/kg	kg/hr	kJ/kg	kcal/kg
DI-1.5 Mobile	1,500	250	21,600	5,160	312.5	17,280	4,128	375	14,400	3,583	450	12,000	2,867	500	10,800	2,580
DI-1.5 Static	1,500	250	21,600	5,160	312.5	17,280	4,128	375	14,400	3,583	450	12,000	2,867	500	10,800	2,580
DI-3	3,000	500	21,600	5,160	625	17,280	4,128	750	14,400	3,583	900	12,000	2,867	1000	10,800	2,580
DI-6	6,000	1000	21,600	5,160	1250	17,280	4,128	1500	14,400	3,583	1800	12,000	2,867	2000	10,800	2,580
DI-6 XL	7,500	1250	21,600	5,160	1563	17,280	4,128	1875	14,400	3,583	2250	12,000	2,867	2500	10,800	2,580
DI-12	12,000	2000	21,600	5,160	2500	17,280	4,128	3000	14,400	3,583	3600	12,000	2,867	4000	10,800	2,580
DI-20	20,000	3333	21,600	5,160	4167	17,280	4,128	5000	14,400	3,583	6000	12,000	2,867	6667	10,800	2,580

THROUGHPUT CAPACITIES IN TON PER DAY

Dutch Incinerators Model No.	Thermal Input HCV	Throughput at calorific value --->	Higher Calorific Value HCV	Higher Calorific Value HCV	Throughput at calorific value --->	Higher Calorific Value HCV	Higher Calorific Value HCV	Throughput at calorific value --->	Higher Calorific Value HCV	Higher Calorific Value HCV	Throughput at calorific value --->	Higher Calorific Value HCV	Higher Calorific Value HCV	Throughput at calorific value --->	Higher Calorific Value HCV	Higher Calorific Value HCV
DI	MW	ton/day	kJ/kg	kcal/kg	ton/day	kJ/kg	kcal/kg	ton/day	kJ/kg	kcal/kg	ton/day	kJ/kg	kcal/kg	ton/day	kJ/kg	kcal/kg
DI-1.5 Mobile	1.5	6	21,600	5,160	7.5	17,280	4,128	9	14,400	3,583	10.8	12,000	2,867	12	10,800	2,580
DI-1.5 Static	1.5	6	21,600	5,160	7.5	17,280	4,128	9	14,400	3,583	10.8	12,000	2,867	12	10,800	2,580
DI-3	3	12	21,600	5,160	15	17,280	4,128	18	14,400	3,583	21.6	12,000	2,867	24	10,800	2,580
DI-6	6	24	21,600	5,160	30	17,280	4,128	36	14,400	3,583	43.2	12,000	2,867	48	10,800	2,580
DI-6 XL	7.5	30	21,600	5,160	37.5	17,280	4,128	45	14,400	3,583	54	12,000	2,867	60	10,800	2,580
DI-12	12	48	21,600	5,160	60	17,280	4,128	72	14,400	3,583	86.4	12,000	2,867	96	10,800	2,580
DI-20	20	80	21,600	5,160	100	17,280	4,128	120	14,400	3,583	144	12,000	2,867	160	10,800	2,580