

Veolia

INNOSPEC, ELLESMERE PORT

Quotation No. 21-24080 Rev. 3

Subject: Combi Boiler – 12 t/h fired – + 1xwaste heat 13.409 kg/h/ Liverpool

Item 1 1 off DANSTOKER high pressure steam boiler, type OPTI -Composite OPTI No.
: 1400 Combination

1xEngine :

Waste heat wet flue gas volume : 1x13409 kg/h
Exhaust gas temperature : 423°C

Steam generation from waste heat

with eco : 1458 kg/h

Furnace diameter : 1350/1500 mm

Furnace length : 5400 mm

Furnace heat release rate : 1,05 MW/m³

Steam release rate : 0,032 m/sec

Efficiency gas-fired with eco : >94% net

Overall L x W x H transport : 9400x3750x4200 mm

Steam generation fired side : 12.000 kg/h F&A 85

Design pressure : 23 barg

Working pressure : 20 barg

Based on feed water temperature : 85 °C

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- The boiler (without boiler mountings) is **CE marked (or UKCA marked if required)** according to PED 2014/68/EU (the EU directive concerning pressure equipment), as it is designed, manufactured and approved acc. to PED 2014/68/EU.

The OPTI boiler is a recently developed and optimized high-performance, 3-pass flue and fire-tube steel boiler with 2 fluegas-tube passes for generation of high pressure steam (gas and oil-firing).

Scope of supply :

- Cylindrical boiler body
 - Combustion chamber with water-cooled reversing chamber
- 2 fire-tube passes without turbulators
- **waste heat section**
- Front reversing chamber with cleaning door
- Well-dimensioned steam chest
- 2 boiler feet/saddles (steel)
- Branch sockets
- Inspection and cleaning doors
- **Insulation in mineral wool : 150 mm**
- Cased in plastic-coated steel plates – colour BLUE
- Burner plate with refractory for burner chosen (rotary cup burners on request)
- Counter flanges
- Service platform
- Extra insulated cover-door

Option: Seamless flue gas tubes instead of welded tubes. We are offering welded tubes as this is the normal standard for our boilers. We have not experienced any issues using welded tubes and expect the lifetime to be the same for both types. Also because of the current steel situation we may experience extraordinary long lead time on seamless tubes.

Item 2 1 set of boiler mountings with feed water pumps, each set consisting of:

	COMPONENT	Typ	DN
1	Main steam valve SDNR	ARI 35007 R	200
1	Feed water valve	ARI Stobu 35006	65
1	Non-return valve	GESTRA RK 86	65
1	Air valve	ARI Stobu 35006	20

1	Safety valve 23,0 bar-g	ARI Safe 25902	50
1	Tubes for watergauge	DANSTOKER	20mm



1	2xSafety Water gauge and - fittings	Klinger T100	20 - VI
	Closing valve mano - / press-states	ARI Stobu 35006	20
	Tubes for mano - / press-states	DANSTOKER	20mm
	Manometer cock with test flange	JØRN PEDERSEN Type 7390	12mm
	Manometer	JØRN PEDERSEN - Type 411	160mm
1	Excess pressure device, man. Reset	DANFOSS RT 19B	1/2"
1	Pressure transmitter	Burner manuf.	1/2"
1	Feed water isolation valve	Spirax BBV 43 PN/M	
	Solenoid 3-way	Spirax WAV1 230 V	
	Blow down		
	Automatic blow down		
1	Closing valve for blow down	ARI Stobu 35006	50
1	Pneumatic blow down	Spirax BBV 43 PN/M	50
1	Timer control	Spirax BTS 1050	
1	Solenoid 3-way	Spirax WAV1 230V	
	Safety and regul. Equipment		
	72h modulating control		
2	Low Low electrode	Spirax LP 40	
2	Low control module	Spirax LCS 3050	
1	Electrod mod. feed water	Spirax LP 21/PA 420	
1	Contr. modul. feed water 4-20mA	Spirax LCR 2250	
1	High-High Electrode	Spirax LP 41	

1	High-High control module	Spirax LCS 3051	
	Auto. TDS sys. for 72h		
1	T-bend	DANSTOKER 50/20	
1	Conductivity electrode	Spirax CP 40/500 3/8"	
1	Closing valve	ARI Stobu 35006	20
1	Surface TDS valve with el. actuator	Spirax BCV 43	20
1	Contr. TDS	Spirax BCR 3150	
	Sample cooler		
1	Stainless sample cooler	Spirax SCS 20	
	Feed Pump group VSD		
2	Feed pump		
2	VSD inverters		
2	Closing valve	EGO 512-1-HIT-16	80
2	Non-return valve	GESTRA RK 86	65
2	Closing valve	ARI Stobu 35006	65
1	Rack mounting		
	Feedwater regulator		
1	Feed water valve / cone	Ari Stevi Parabolic kvs Log	
1	Actuator & 2 endstop, 1kOhm	Ari Premio / 230V 50hz	

Item 3 For Combination boilers, each:

1 off Economiser for feed water waste heat section and 1 for fired

sections:

Flue gas coolers consisting of 1 element built into a cabinet with opening for cleaning.

Connections/reductions – 1 pcs.

Mating flanges - 1 set (2 pcs.)

Insulation

Efficiency fired side : >94%

Including of piping without insulation between eco and boiler as well as bypass valves, safety valve. 4 off PT 100 for feed water and flue gas temperature. Spill back connection.

Item 4 1 off Dunphy gas burner system (hydrogen ready), comprising.

Burner Dunphy TG 6/1200 ME SC (P VP) with:

Wheel over shroud silencer 75 dB(A) 1m at M.C.R.

Flame Surveillance

Multi nozzle head for gas firing

Burner mounted terminal strip panel

Gas mountings- n-gas/hydrogen ready

Modulating Control

System 5000 control panel (Veolia compliant)

Flying leads

Variable speed kit

FGR connections (ductwork and pipework excluded)

See description enclosed.

Options:

- **1 off Oxygen and monitoring trim system :**
 - **1 off PLC bypass damper control:**
- **1 off FGR Fan and motor (for future Hydrogen):**

Item 5 1 off installation of the burners in our factory incl. internal wiring of burner to boiler control panel. Max 5 meter overlength. For transport reasons final connection to control panel on Site by others. Excl. of wiring to feed water pumps.

Item 6 1 set of ladder and railings for the boiler operation.

Item 7 1 off fluegasbypass damper Diameter 600 mm, with electric actuator and 4-20 mA signal.

Item 8 Transport to Site of 1 boiler without offloading

Commissioning

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The spec. described in this offer, as well as the pricing, reflect the knowledge, understandings and information held and received by Danstoker at this stage of offering. Danstoker reserve the right to re-negotiate this offer, once further information is brought to our knowledge, or if the specifications or requirements are altered.

Exclusions:

Any items not mentioned above.

Painting of boilers is based on Danstoker standard paint.

The price is only based on components listed in "DANSTOKER SCOPE OF SUPPLY", any kind of site work is not included.

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Above price is based on current steel prices. The basis is Hot Rolled Plate, Western Europe (MEPS or SteelBenchmarker). If the steel prices are changed more than 5% at the day of ordering, the Sales Price will be adjusted accordingly in our order confirmation.

All prices are exclusive of VAT

