

Quotation: 8720018882 from Jun 17, 2021
 Customer: 0870000227
 Project: Telsiai Litesko Termolink, 87144 Telšiai
 Project No.: P0001026192

2. Quotation basis

2.1. Plant data

Country of installation	Lithuania	
Maximum installation height above mean sea level	50	m
Minimum ambient temperature	10	°C
Maximum ambient temperature	40	°C
Supply voltage	400	V
Power frequency	50	Hz

2.2. Technical data Hot water boiler

Medium	Wasser	
Safety temperature (TS)	110	°C
Flow temperature	95	°C
Return temperature	65	°C
Fuel gas	Natural gas E	
Lower calorific value	35.00	MJ/Nm ³
	9.72	kWh/Nm ³
O ₂ content in dry flue gas	3.00	%
NO _x requirement **	95	mg/Nm ³
Fuel oil	Fuel oil (light oil EL)	
Lower calorific value	42.80	MJ/kg
O ₂ content in dry flue gas	3.00	%
NO _x requirement **	200	mg/Nm ³
Combustion air temperature	25	°C
Type of control	SPS	

* Assumption

** Deviation from the required value possible

Hot water boiler 1

Amount	1.00	pcs
Nominal heat output	2,300	kW

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Max. allowable operating pressure (PS)	10.0	bar
Minimum return temperature boiler	65	°C
Minimum return temperature ECO	65	°C
Temperature spread boiler	30	K
Fuels	Gas	
Main fuel	Gas	
Achieved efficiency (main fuel)	92.20	%

3. Delivery description

3.1. Hot water boiler

Item.	Material description	Total Price
1	Hot water boiler plant	
1.1	Shell boiler	
1.1.1	<p>For the combustion of gas to DVGW Code of Practice G260/ I and II and fuel oil to DIN 51603-1,3 in accordance with the equipment selected and the operating conditions required.</p> <p>Shell boiler in a horizontal design, optimised to withstand stress, implemented as a three-pass boiler.</p> <p>Smoke tubes are arranged above and to the side of the combustion chamber.</p> <p>The design of the smoke tube array offers high reliability in operation due to:</p> <ul style="list-style-type: none"> • Clearances that reduce stress • Support of harmonic convection • Welding in positions that exclude constrained conditions <p>Internal, water-cooled, rear reversing chamber with no wearing parts such as refractory lining.</p> <p>Cleaning aperture at the back of the flame chamber</p> <ul style="list-style-type: none"> • Cleaning aperture at the back of the flame chamber • Good accessibility in turning chamber and flame pipe • To facilitate commissioning, maintenance, inspection and testing. • With sight tube and female connection gate • Hinges facilitate opening without lifting tackle <p>Burner entry point with refractory lining, suitable for the use of pressure atomising burners.</p> <p>For rotary atomizer burners, the details must be agreed between the customer and Viessmann when an order is placed.</p> <p>Maximum availability with low downtimes can be ensured through high quality standards for material, manufacturing and production processes.</p> <p>Water deflectors aid the even distribution of the return water. No minimum flow rate required.</p> <p>Two female connections in the boiler flow connector for safety and control equipment.</p> <p>Reversing chamber with pivoting boiler doors.</p> <p>In each door there is special light insulation, which is protected on the flue gas side by a plate.</p>	

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	<p>Boiler doors can be opened without removing the burner and/or fuel supply.</p> <p>Boiler support to be installed on even and level foundations</p> <ul style="list-style-type: none"> • With 4 holes for lifting tackle for secure transport and handling • With connection for earth lug • With primer coating applied <p>Thermally insulated flue gas collector, with condensate drain nipple and inspection port.</p> <p>Full thermal insulation of the boiler body with insulation material. The casing is made from metal. The selected design prevents thermal bridges.</p> <p>Certified according to European regulation on equipment for the combustion of gaseous fuels. (GAR) Appliances Directive).</p> <p>Boiler packaging with foil as transport/installation protection. As packaging materials are film or other suitable materials are used.</p> <p>Specification, based on:</p> <ul style="list-style-type: none"> - Boiler sizing details in accordance with point 2 of this quotation - Determined with reference to EN 12953 <p>Accuracy of values as part of mathematical boiler calculation models.</p> <p>Heating output 100 % load</p> <ul style="list-style-type: none"> - Gas 2,000 kW - Fuel oil EL 2,000 kW <p>Combustion heating output 100 % load</p> <ul style="list-style-type: none"> - Gas 2,169 kW - Fuel oil EL 2,150 kW <p>Standard efficiency according to DIN 4702-8, flow / return temperature 75/60 ° C, sliding driving style</p> <ul style="list-style-type: none"> - Gas 94.50 % - Fuel oil EL 94.90 <p>Boiler efficiency 100 % load</p> <ul style="list-style-type: none"> - Gas 92.20 % - Fuel oil EL 93.00 % <p>Boiler efficiency 80 % load</p>	

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Item.	Material description		Total Price
	- Gas	93.00	%
	- Fuel oil EL	93.50	%
	Boiler efficiency 60 % load		
	- Gas	93.70	%
	- Fuel oil EL	94.00	%
	Boiler efficiency 40 % load		
	- Gas	94.40	%
	- Fuel oil EL	94.50	%
	Flue gas loss 100 % load		
	- Gas	7.26	%
	- Fuel oil EL	6.45	%
	Radiation loss 100 % load		
	- Gas	0.50	%
	- Fuel oil EL	0.51	%
	Flue gas temperature 100 % load		
	- Gas	184	°C
	- Fuel oil EL	169	°C
	Flue gas temperature 80 % load		
	- Gas	165	°C
	- Fuel oil EL	155	°C
	Flue gas temperature 60 % load		
	- Gas	144	°C
	- Fuel oil EL	139	°C
	Flue gas temperature 40 % load		
	- Gas	120	°C
	- Fuel oil EL	120	°C
	Fuel throughput 100 % Last		
	- Gas	223.00	m ³ /h
	- Fuel oil EL	181	kg/h
	Flue gas volumetric flow rate dry 100 % load		
	- Gas	2,286	Nm ³ /h

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	- Fuel oil EL	2,017	Nm ³ /h
	Flue gas volumetric flow rate moist 100 % load		
	- Gas	4,665.24	m ³ /h
	- Fuel oil EL	3,411.00	m ³ /h
	Flue gas mass flow rate 100 % load		
	- Gas	3,434	kg/h
	- Fuel oil EL	2,801	kg/h
	Max. flue gas pressure drop 100 % load		
	- Gas	6.0	mbar
	- Fuel oil EL	5.4	mbar
	Combustion chamber loading		
	- Gas	1.56	MW/m ³
	- Fuel oil EL	1.55	MW/m ³
	Flue gas pressure at boiler flue gas connection	+/- 0	mbar
	Boiler heating surface, flue gas side	59,8	m ²
	Flue gas volume	2,92	m ³
	Max, permissible operating pressure	10	bar
	Boiler water capacity	5.32	m ³
	Connectors		
	- Boiler flow	150.00	16.00
	- Boiler return	DNnull	16.00
	- Safety valve	DN40	PN40
	- Number of safety valve connector	1.00	
	Dimensions		
	- Total length of boiler incl. thermal insulation	3,930	mm
	- Total width of boiler incl. thermal insulation	2,020	mm
	- Total height of boiler incl. thermal insulation	2,370	mm
	Shipping dimensions incl. packaging		
	- Shipping length	3,950	mm

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	- Shipping width	2,070 mm
	- Shipping height	2,400 mm
	Note	
	All dimensions without equipment and, if offered, without taking into account the customer-specific orientation of the flue outlet.	
	Shipping weight ± 10 %	6.00 t
	Flue gas connection	
	- Inside dimensions	785x400
	- Orientation	rear
	Connection condensate drain nipple	1 1/2"
	Thermal insulation material	lamella mat\
	Thermal insulation thickness boiler coat	100 mm
	Casing material	Sheet steel, galvanised, coated
	Casing colour	Vitosilver
	1.00 PC	
1.2	Economiser	
1.2.1	<p>Economiser for hot water boiler systems</p> <ul style="list-style-type: none"> • Designed as a non-condensing appliance • Primary fuel: Gas • Secondary fuel: HEL (DIN 51603-1) • Heat exchanger unit made of round tubes with high spiral fins • Flange to the flue gas connection on the boiler side and chimney side • Drain connector • Air vent connector <p>Thermal insulation over entire casing, with insulating material and metal jacket.</p> <p>Specifications Economiser, based on</p> <ul style="list-style-type: none"> - Design data for the Economiser according to data sheet - Averaged values for 100 % load 	

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Item.	Material description	Total Price
	Data Economiser	
	Economiser size	1
	Permissible operating pressure boiler	10 bar
	Max. safety temperature boiler	110 °C
	Water flow rate	59.42 m³/h
	Max. pressure drop on water side	220.0 mbar
	Min. water inlet temperature	
	- Gas	65 °C
	- EL fuel oil	65 °C
	Boiler efficiency, economiser at 100 % load	
	- Gas	96.00 %
	- EL fuel oil	96.40 %
	Economiser heating output	
	- Gas	82 kW
	- EL fuel oil	73 kW
	Flue gas temperature, economiser outlet at 100 % load	
	- Gas	101 °C
	- EL fuel oil	93 °C
	Flue gas side pressure drop at 100 % load	
	- Gas	2.5 mbar
	Connections	
	- Flue gas on chimney side inside diameter	785 x 400
	- Flue gas connection alignment	rear
	- Inlet on the water side	DN150 PN40
	- Outlet on water side	DN150 PN40
	1 PC	
1.2.2	Flue gas hood/transition piece, thermally insulated. Matches the boiler side flue gas connection. Flue gas hood, thermally insulated. Matches the ECO flue gas connection.	

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Item.	Material description	Total Price
	<p data-bbox="263 376 662 407">Flue gas connection chimney side</p> <p data-bbox="263 430 1300 461">- Outside diameter 354 mm</p> <p data-bbox="263 483 1300 515">- Orientation horizontal</p> <p data-bbox="263 609 327 640">1 PC</p>	
1.3	Services	
1.3.1	<p data-bbox="263 721 1157 752">Preparation of the burner connection plate according to the selected burner</p> <p data-bbox="263 752 1109 815">A current burner drawing is to be submitted with order placement, if the burner is supplied by the customer.</p> <p data-bbox="263 945 327 976">1 PC</p>	