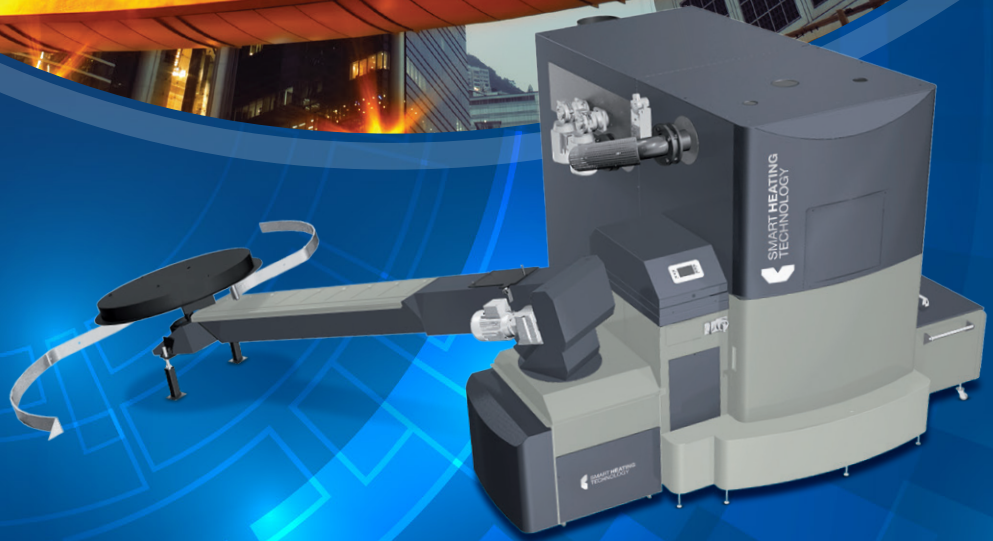




SMART HEATING TECHNOLOGY

Purity to Nature
Savings to Clients
Comfort to Users



AUTOMATIC BIOMASS BOILER

SMART 180 kW

- Fully automatic, ecologic boiler with excellent features
- Multiple fuel possibility
- Output modulation 30–100 %
- Vibrating Burner Plate Option
- Low Maintenance & Service requirements
- Cascade installation solutions
- Mobile container solutions
- Technical solution flexibility
- Economical and ecological operation
- Lambda sensor
- Mobile phone control
- Efficiency 96 %
- Ceramic Burner Option
- Heating circuits regulation
- Internet control
- Special boiler accessories

AUTOMATIC BIOMASS BOILER

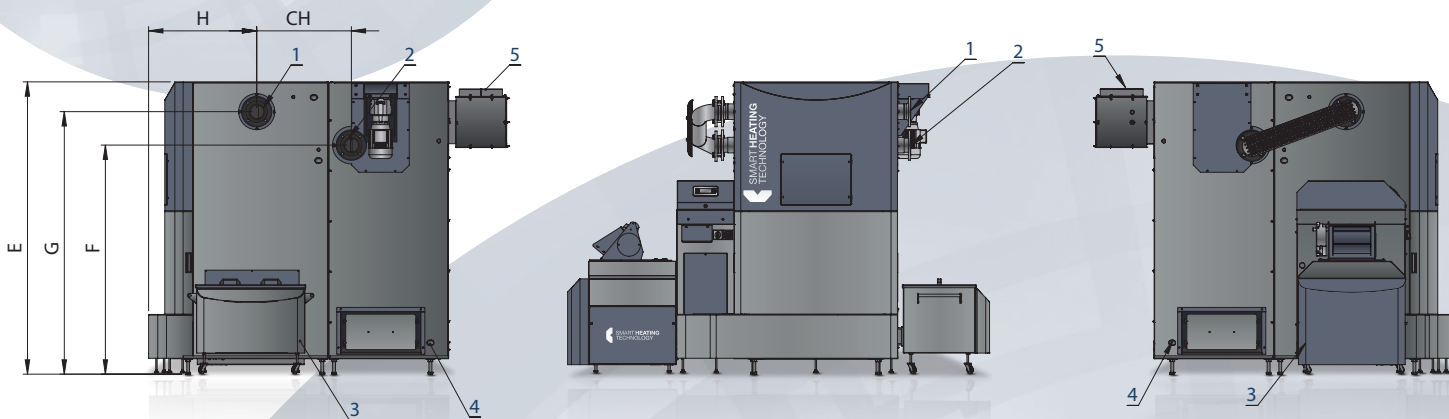
SMART 180 kW

DIMENSIONS AND WEIGHTS OF TECHNOLOGY 180 kW

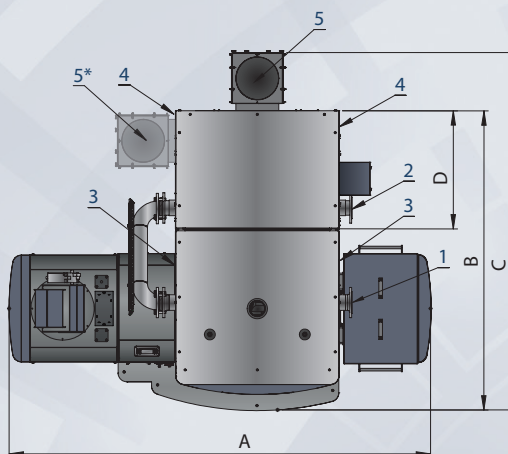


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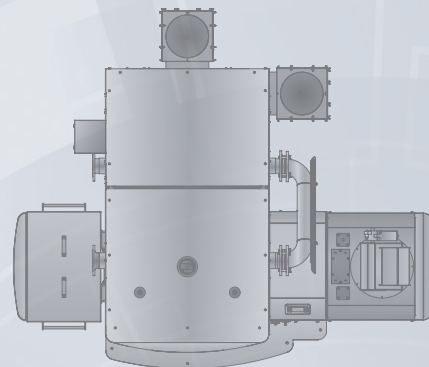
ISO 9001:2009



- 1 Water outlet DN80/PN6
- 2 Water inlet DN80/PN6
- 3 In/out water valve 3/4" of burning chamber
- 4 In/out water valve 3/4" of heat exchanger
- 5 Chimney outlet avg. 220 mm
- * Option for limited spaces



Left sided

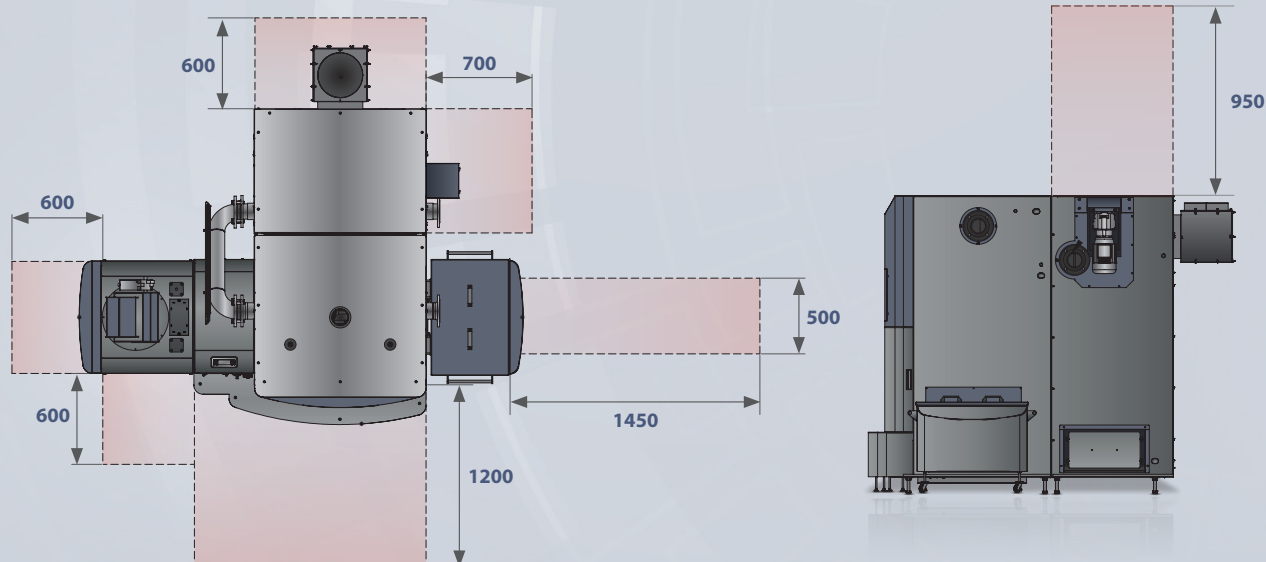


Right sided

A	B	C	D	E	F	G	H	CH
2825	1870	2280	700	1820	1345	1570	715	600

WEIGHTS		
Burning chamber 180 kW	1 210 kg	Total weight
Exchanger 180	1 150 kg	2 360 kg

SERVICE ZONES OF TECHNOLOGY 180 kW



AUTOMATIC BIOMASS BOILER

SMART 180 kW



ČSN-EN 303.5/2013

ISO 9001:2009

TECHNICAL SPECIFICATIONS 180 kW

AUTOMATIC BIOMASS BOILER SMART 180 kW		Wood pellets		Wood chips	
		Rated	Minimum	Rated	Minimum
Measured values					
Rated heat capacity	kW	180	180	180	180
Combustion product temperature	°C	111,4	70,8	97,2	63,1
Fuel consumption	kg/hour	42,50	11,10	44,80	11,30
Input water temperature	°C	59,5	65,7	60,0	61,4
Outlet water temperature	°C	79,1	83,3	78,0	78,4
Cooling water temperature	°C	9,6	11,1	9,6	11,0
Cooling water flow rate	m ³ /hod	8,433	2,401	9,034	2,304
Draught behind boiler	Pa	126,0	33,0	126,0	33,0
Ambient temperature	°C	24,0	25,3	25,0	23,0
Relative air humidity	%	45,0	44,5	40,0	39,0
Barometric pressure	kPa	99,00	99,25	99,00	99,22
Flue gas analysis					
Oxygen O ₂	%	7,92	12,39	7,89	11,46
Carbon dioxide CO ₂	%	11,43	7,65	11,73	8,65
Carbon monoxide CO	ppm	49	171	93	153
Higher hydrocarbons OGC	ppm	4	3	3	5
Nitrogen dioxides Nox	ppm	81	49	84	54
Dust	mg/m ³	29	44	47	41
O₂ = 10 %					
Carbon monoxide CO	mg/m ³	51	275	97	220
Higher hydrocarbons OGC	mg/m ³	2	2	1	3
Nitrogen dioxides Nox	mg/m ³	140	127	144	127
Dust	mg/m ³	25	25	39	47
Auxiliary combustion values (solid fuels)					
Mass flow rate gases	kg/sec	0,126	0,047	0,117	0,040
Stoichiometric oxygen value	m ³ /kg	0,957	0,957	0,832	0,832
Stoichiometric air value	m ³ /kg	4,559	4,556	3,963	3,958
Stoichiometric volume of dry combustion products	m ³ /kg	4,448	4,445	3,884	3,879
Stoichiometric air multiple		1,59	2,41	1,59	2,19
Volume of dry combustion products, actual	m ³ /kg	7,400	11,107	6,397	8,669
Volume of H ₂ O in the combustion air	m ³ /kg	0,100	0,164	0,081	0,114
Volume of H ₂ O in the combustion products	m ³ /kg	0,954	1,019	0,927	0,942
Maximum volume CO ₂	%	19,01	19,01	19,40	19,40
Calculated values - heat overview					
Loss of sensible heat of combustion products (chimney)	%	6,0	4,5	4,8	3,5
Loss of gas underburning	%	0,0	0,2	0,1	3,5
Loss of mechanical underburning	%	0,1	0,1	0,3	0,1
Loss of heat transfer into the environment	%	0,8	1,2	0,8	0,4
Total loss	%	6,9	6,0	5,9	5,9
Efficiency – indirect method	%	93,1	94,0	94,1	94,1
Heat input	kW	195,4	51,1	191,7	48,3
Heat capacity	kW	186,1	48,8	183,0	46,0
Uncertainty of determining heat capacity	%+/-	7,8	2,0	7,7	1,9
Efficiency – direct method	%	95,0	95,0	95,5	95,2
Capacity / rated output	%	103,4	27,1	101,5	25,6

*Boilers can be operated at 90 °C only when special conditions are met

CERTIFIED OPERATING VALUES 180 kW

SMART BOILER OPERATING DATA		
Technical data of the boiler		
Marking		180
Nominal power P _n	kW	180
Partial load (power) P _p	kW	45
Boiler efficiency at P _n	%	>95
Boiler class		5
Water		
Water volume	l	420
Diameter of water connection	"	3
Diameter of water connection	DN	80
Hydraulic-pressure drop of the boiler at the temperature fall 20°	mbar	73
Boiler temperature	°C	60-90*
Minimal temperature of returnable water	°C	55
Maximal operational pressure	bar	3,5
Test pressure	bar	6,5
Temperature of furnace	°C	900-1100
Pressure of furnace	mbar	-0,04
Required draught of the chimney	mbar	0,2
Requirement for the forced draught		Yes
Combustion temperature at P _n	°C	97,2
Combustion temperature at P _p	°C	63,1
Diameter of flue gas duct	mm	220
Diameter of chimney	mm	250
Fuel classification according to norm EN 14961		
Wood pellets - C1	Tested fuel	D6, M10, A1,5, DU90,0
Wood chips - B1		P45, M30, A3.0
Electrical installation		
Electrical connection		3+N+PE 50Hz 230/400V TN-C-S
Conveyor engine	W	550
Feeding auger engine	W	550
Exchanger cleaning engine (s)	W	550
Ash-removing engine	W	550
Fan of primary air	W	66
Fan of secondary air 1	W	66
Fan of secondary air 2	W	66
Chimney exhaust fan	W	300
Electrical ignition	W	1600
Separation flap valve	W	6,5
Total	W	4304,5

■ Measured ■ Interpolace is in compliance with EN303.5 coll. 5.3.1