DEFRO®

heating technology

COMPETITION WINNER

TERAZ POLSKA

CLASSY BOILERS

5th CLASS BOILERS AND ECODESIGN

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SIGMA E | 12-48 kW

5 CLASS acc. to the standard EN 303-5:2012

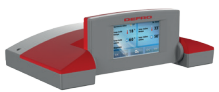
ECO design

Ecodesign requirements fulfilled for all powers.

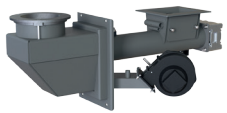
The boiler meets the requirements of the class 5 acc. to the PN-EN 303-5:2012 for all powers.

Fuel: eco-pea coal 5-25 mm.

- WARRANTY 5 YEARS — 5 years warranty for heat exchanger tightness, 2 years for the remaining components and efficient operation of boiler;
- STEEL — Heat exchanger made of certified high-grade steel;
- 90% — High thermal efficiency reaching 90% due to increased heat recovery from flue gases;
- K1Pv4 — Controller K1P v4 with colour touch panel servicing four pumps /central heating, domestic hot water, circulation, floor pump/. Servicing of mixing valve. Possibility to control using GSM or INTERNET - extra paid option; adjustable position angle of the control panel;
- NZ version - adapted for installation in closed system, reinforced design, built-in cooling coil - extra paid option;
- Combustion chamber with highly effective new-generation retort burner (solution submitted to the Patent Office of the Republic of Poland);
- CERAMIC — Ceramic catalysts stabilising combustion process;
- Sensor indicating opened cover of the fuel tank;
- Feeder screw made of one element;
- Changing the direction of door opening (does not apply to the inner door);
- ADAPTIVE CONTROL — ADAPTIVE CONTROL control - adjustment of boiler operation based on air flow through the heat exchanger;
- ABM — Energy-saving high-efficiency motoreducer with an autoreverse in the case of a fuel feeder lock;
- Mechanical heat exchanger cleaning system;
- BAR — Pressure equalisation system in fuel container;



K1PV4 CONTROLLER



RETORT BURNER

of next-generation submitted to patent protection

ABM MOTOREDUCER

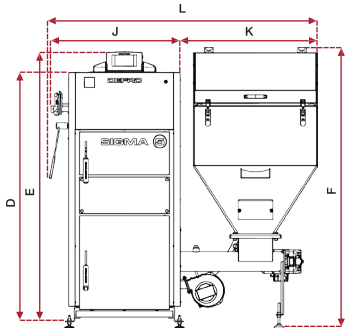
SIGMA E NZ

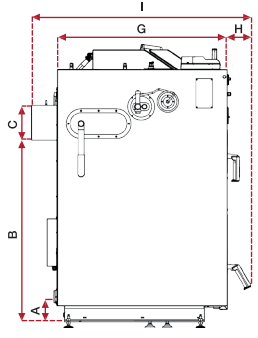
- boiler adapted for operation in closed system (extra payable according to the price list of boiler equipment)

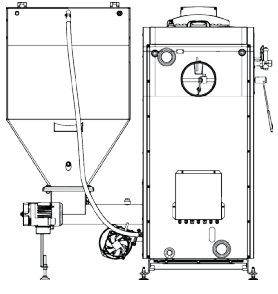
SIGMA E

BOILER DIMENSIONS IN MM						
Dimension	12 kW	16 kW	20 kW	24 kW	36 kW	48 kW
A	130	130	130	130	130	130
B	775	940	920	1070	1115	1330
C	Ø 159	Ø 159	Ø 178	Ø 178	Ø 178	Ø 194
D	1115	1280	1280	1430	1490	1710
E	1225	1385	1385	1535	1595	1815
F	1405	1405	1405	1405	1485	1685
G	825	825	865	865	965	965
H	115	115	115	115	115	115
I	1065	1065	1110	1110	1210	1210
J	605	605	605	574	705	705
K	640	640	640	640	640	640
L	1360	1360	1360	1360	1460	1460

BOILER EQUIPMENT / PRODUCT TYPE C	
Name	standard equipment
controller K1Pv4	yes
ADAPTIVE CONTROL control system	yes
PID function	yes
GSM module	no
INTERNET module	no
WIFI INTERNET module	no
levelling legs	yes
“Fire Fighter” fire suppression system	no
NZ version for closed system	no
DK LOGIC 100 regulator	no
room controller DEFRO SPK Lux	no
ST-292 v3 room controller	no
ST-292 v2 room controller	no
DEFRO MZ module	no
SPK Lux wireless regulator	no
set for wireless communication RS	no
system for mechanical cleaning of heat exchanger	yes







TECHNICAL DATA OF THE BOILER / PRODUCT GROUP A							
Specification / boiler type	unit	12	16	20	24	36	48
Fuel		eco-pea coal 5-25 mm					
5 class according to PN-EN 303:5-2012	-	✓	✓	✓	✓	✓	✓
Ecodesign	-	✓	✓	✓	✓	✓	✓
Power range	kW	3,6-12	4,8-16	6-20	7,2-24	10,8-36	14,4-48
Heating area	m^2	1,9	2,3	2,7	3,1	4,3	5,2
Area of heated rooms [1]	m^2	to 220	to 260	to 290	to 350	to 450	to 600
Capacity of fuel container [2]	kg	~165	~165	~165	~165	~191	~266
Optimum thermal efficiency	%	~90,1-90,7					
Energy efficiency class	-	C	B	B	B	B	B
Max. permissible work pressure	bar	1,5 - opened system, 2,5 - closed system					
Required flue gas draught	mbar	0,22	0,24	0,26	0,28	0,31	0,34
Water temperature on supply max.	°C	65/80					
Boiler weight [3]	kg	400	449	515	523	657	728
Boiler water tank capacity	l	88	104	110	124	170	200
Chimney section	cmxcm	14x14	14x14	16x16	16x16	18x18	22x22
Chimney section	Ø mm	160	160	180	180	200	250
Minimum chimney height	m	5	6	7	7,5	9	10
Supply and return socket diameter	mm	G1 ½”					
Diameter of the exhaust gas socket	mm	159	159	178	178	178	194
Supply	V/Hz	~230/50					

[1] Maximum area of heated rooms estimated for unit heat demand q=80 W/m^2.
[2] Fuel tank capacity for bulk density of eco-pea coal equal to 0,8 kg/dm^3.
[3] Boiler weight depends on its additional equipment.

Height of boiler can be additionally adjusted by means of provided levelling legs.
The regulation of legs varies from 38 to 50 mm.

ATTENTION! When ordering the SIGMA E boiler the customer should specify on which side the container should be located (right or left).

Additional equipment components shall be added during ordering of the boiler because there is no possibility of installation in the future.

SIGMA EKOPELL | 12-20 kW

5 CLASS acc. to the standard EN 303-5:2012

ECO design

EcoDesign requirements fulfilled for all powers.

The boiler meets the requirements of the class 5 acc. to the PN-EN 303-5:2012 for all powers.

Fuel: Wood pellet with diameter 6 mm.

WARRANTY 5 YEARS — 5 years warranty for heat exchanger tightness, 2 years for the remaining components and efficient operation of boiler;

STEEL — Heat exchanger made of certified high-grade steel;

93% — High thermal efficiency reaching 93% due to increased heat recovery from flue gases;

APC 3 — APC 3 ADAPTIVE CONTROL 3 servicing six pumps /central heating, domestic hot water, circulating, floor/. Control of two mixing valves; preview and change of parameters of the main controller ONLINE through built-in internet module with RJ-45 connector;

NZ version - adapted for installation in closed system, reinforced design, built-in cooling coil - extra paid option;

Pellet burner with automatic cleaning function in standard;

Fuel reserve sensor in container stops boiler operation at minimum fuel level. After fuel recharging it is not necessary to repeat firing procedure and the boiler switches to automatic operation;

Mechanical heat exchanger cleaning system;

ADAPTIVE CONTROL — ADAPTIVE CONTROL control - adjustment of boiler operation based on air flow through the heat exchanger;

CERAMIC — Ceramic catalysts stabilising combustion process;

auto — Fuel self-ignition system;

Exhaust fan eliminating problem with chimney draught and stabilising operation of the boiler;

TSS — Twin Spark System- pellet burner equipped with two igniters as a standard - option available for all powers;

APC 3 CONTROLLER

PELLET BURNER

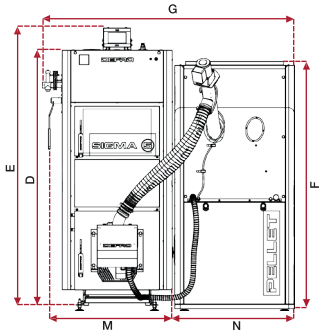
ADAPTIVE CONTROL

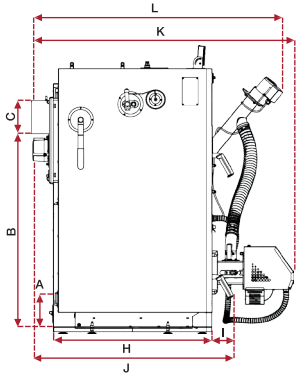
SIGMA EKOPELL

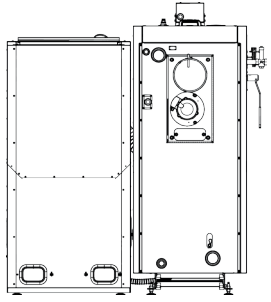
SIGMA EKOPELL

BOILER DIMENSIONS IN MM			
Dimension	12 kW	16 kW	20 kW
A	163	163	163
B	740	901	1042
C	Ø 159	Ø 159	Ø 178
D	1080	1240	1390
E	1200	1362	1510
F	1360	1360	1360
G	1330	1330	1330
H	825	825	825
I	115	115	115
J	1080	1080	1080
K	1400	1400	1400
L	1355	1355	1355
M	675	675	675

BOILER EQUIPMENT / PRODUCT TYPE C	
Name	standard equipment
APC 3 ADAPITVE CONTROL controller	yes
ADAPTIVE CONTROL control system	yes
PID function	yes
GSM module	no
INTERNET module	yes
WIFI INTERNET module	no
levelling legs	yes
NZ version for closed system	no
igniter	yes
DK LOGIC 100 regulator	no
room controller DEFRO SPK Lux	no
ST-292 v3 room controller	no
ST-292 v2 room controller	no
DEFRO MZ module	no
SPK Lux wireless regulator	no
set for wireless communication RS	no
exhaust fan	yes
system for mechanical cleaning of heat exchanger	yes
pellet burner with automatic cleaning function	yes







TECHNICAL DATA OF THE BOILER / PRODUCT GROUP A				
Specification / boiler type	unit	12	16	20
Fuel	-	wood pellet with diameter 6 mm		
5 class according to PN-EN 303:5-2012	-	✓	✓	✓
Ecodesign	-	✓	✓	✓
Power range	kW	3,6-12	4,8-16	6,0-20
Heating area	m^2	1,7	2,1	2,5
Area of heated rooms [1]	m^2	to 180	to 250	to 270
Capacity of fuel container [2]	kg	~200	~200	~200
Optimum thermal efficiency	%	~89,1 - 93,8		
Energy efficiency class	-	A+	A+	A+
Max. permissible work pressure	bar	1,5 - opened system, 2,5 - closed system		
Required flue gas draught	mbar	0,22	0,24	0,26
Water temperature on supply max.	°C	65/80		
Boiler weight [3]	kg	339	425	453
Boiler water tank capacity	l	92	100	120
Chimney section	cmxcm	14x14	14x14	16x16
Chimney section	Ø mm	160	160	180
Minimum chimney height	m	5	6	7,5
Supply and return socket diameter	mm	G1 ½"		
Diameter of the exhaust gas socket	mm	159	159	178
Supply	V/Hz	~230/50		

[1] Maximum area of heated rooms estimated for unit heat demand q=70 W/m^2.
[2] Fuel tank capacity for pellet bulk density 0,6 kg/dm^3.
[3] Boiler weight depends on its additional equipment.

Height of boiler can be additionally adjusted by means of provided levelling legs.
The regulation of legs varies from 38 to 50 mm.

ATTENTION! When ordering the SIGMA EKOPELL boiler the customer should specify on which side the container should be located (right or left).

Additional equipment components shall be added during ordering of the boiler because there is no possibility of installation in the future.

DEFRO KOMPAKT EKOPELL | 16-50 kW

5 CLASS acc. to the standard EN 303-5:2012

ECO design

EcoDesign requirements fulfilled for power 16, 30 and 50kW.
The boiler meets the requirements of the class 5 acc. to the PN-EN 303-5:2012 for all powers.
Fuel: Wood pellet with diameter 6 mm.

WARRANTY 5 YEARS — 5 years warranty for heat exchanger tightness, 2 years for the remaining components and efficient operation of boiler;

STEEL — Heat exchanger made of certified high-grade steel;

93% — High thermal efficiency reaching 93% due to increased heat recovery from flue gases;

APC 3 — APC 3 ADAPTIVE CONTROL 3 servicing six pumps /central heating, domestic hot water, circulating, floor/. Control of two mixing valves; preview and change of parameters of the main controller ONLINE through built-in internet module with RJ-45 connector;

Boiler adapted for installation in the closed system provided that protections were installed in accordance with the operation and maintenance manual of the boiler;

Pellet burner with automatic cleaning function in standard;

Fuel reserve sensor in container stops boiler operation at minimum fuel level. After fuel recharging it is not necessary to repeat firing procedure and the boiler switches to automatic operation;

F Version -version with automatic cleaning and ash removal (extra payable according to the price list of boiler equipment)

ADAPTIVE CONTROL — ADAPTIVE CONTROL control - adjustment of boiler operation based on air flow through the heat exchanger;

CERAMIC — Ceramic catalysts stabilising combustion process;

auto — Fuel self-ignition system;

Exhaust fan eliminating problem with chimney draught and stabilising operation of the boiler;

TSS — Twin Spark System- pellet burner equipped with two igniters as a standard - option available for all powers;

APC 3 CONTROLLER

PELLET BURNER

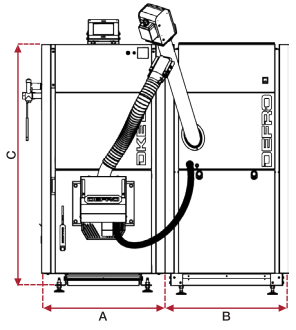
ADAPTIVE CONTROL

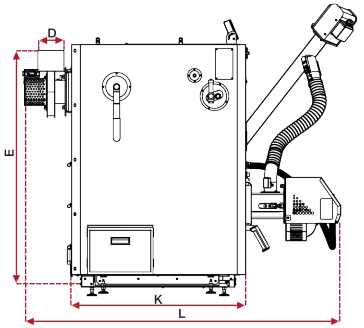
DEFRO KOMPAKT EKOPELL F
version with automatic cleaning and ash removal (extra payable according to the price list of boiler equipment)

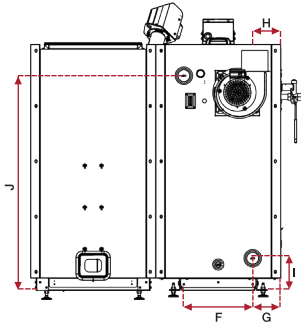
DEFRO KOMPAKT EKOPELL

BOILER DIMENSIONS IN MM					
Dimension	16 kW	22 kW	30 kW	40 kW	50 kW
A	600	600	650	700	750
B	600	600	650	700	750
C	1031	1180	1281	1501	1556
D	Ø 127	Ø 127	Ø 127	Ø 127	Ø 127
E	1002	1152	1292	1502	1566
F	330	330	380	430	480
G	135	135	135	135	135
H	125	125	125	125	128
I	155	155	155	155	155
J	881	1031	1050	1351	1401
K	822	872	931	982	1021
L	1465	1545	1630	1670	1684

BOILER EQUIPMENT / PRODUCT TYPE C	
Name	standard equipment
sterownik APC 3 ADAPTIVE CONTROL	yes
ADAPTIVE CONTROL control system	yes
PID function	yes
GSM module	no
INTERNET module	yes
WIFI INTERNET module	no
levelling legs	yes
NZ version for closed system	yes
igniter	yes
DK LOGIC 100 regulator	no
room controller DEFRO SPK Lux	no
ST-292 v3 room controller	no
ST-292 v2 room controller	no
DEFRO MZ module	no
SPK Lux wireless regulator	no
set for wireless communication RS	no
automatic cleaning and ash removal system	no
exhaust fan	yes
system for mechanical cleaning of heat exchanger	yes
pellet burner with automatic cleaning function	yes







TECHNICAL DATA OF THE BOILER / PRODUCT GROUP A						
Specification / boiler type	unit	16	22	30	40	50
Fuel	-	wood pellet with diameter 6 mm				
5 class according to PN-EN 303:5-2012	-	✓	✓	✓	✓	✓
Ecodesign	-	✓	-	✓	-	✓
Power range	kW	4,8-16	6,6-22	9,0-30	12,0-40	15,0-50
Heating area	m^2	2,0	2,4	3,2	4,2	5,0
Area of heated rooms [1]	m^2	to 210	to 290	to 400	to 530	to 660
Capacity of fuel container [2]	kg	~105	~145	~192	~289	~320
Optimum thermal efficiency	%	~90,6-93,2				
Energy efficiency class	-	A+	A+	A+	A+	A+
Max. permissible work pressure	bar	1,5				
Required flue gas draught	mbar	0,15	0,15	0,20	0,25	0,30
Water temperature on supply max.	°C	65/85				
Boiler weight [3]	kg	418	474	565	703	798
Boiler water tank capacity	l	77	98	127	180	192
Chimney section	cmxcm	14x14	15x15	16x16	19x19	20x20
Chimney section	Ø mm	160	170	180	210	230
Minimum chimney height	m	5	5,5	6	6,5	7
Supply and return socket diameter	mm	G1 ½"				
Diameter of the exhaust gas socket	mm	127	127	127	127	127
Supply	V/Hz	~230/50				

[1] Maximum area of heated rooms estimated for unit heat demand q=75 W/m^2.
[2] Fuel tank capacity for pellet bulk density 0,6 kg/dm^3.
[3] Boiler weight depends on its additional equipment.

Height of boiler can be additionally adjusted by means of provided levelling legs.
The regulation of legs varies from 38 to 50 mm.

Additional equipment components shall be added during ordering of the boiler because there is no possibility of installation in the future.

SMART EKOPELL | 12-38 kW

5 CLASS acc. to the standard EN 303-5:2012

ECO design

EcoDesign requirements fulfilled for all powers.

The boiler meets the requirements of the class 5 acc. to the PN-EN 303-5:2012 for all powers.

Fuel: Wood pellet with diameter 6 mm.

WARRANTY 5 YEARS — 5 years warranty for heat exchanger tightness, 2 years for the remaining components and efficient operation of boiler;

STEEL — Heat exchanger made of certified high-grade steel;

90% — High thermal efficiency reaching 90% due to increased heat recovery from flue gases;

APC 3 — APC 3 ADAPTIVE CONTROL 3 servicing six pumps /central heating, domestic hot water, circulating, floor/. Control of two mixing valves; preview and change of parameters of the main controller ONLINE through built-in internet module with RJ-45 connector;

Boiler adapted for installation in the closed system provided that protections were installed in accordance with the operation and maintenance manual of the boiler;

Pellet burner with automatic cleaning function in standard;

ADAPTIVE CONTROL — ADAPTIVE CONTROL control - adjustment of boiler operation based on air flow through the heat exchanger;

CERAMIC — Ceramic catalysts stabilising combustion process;

auto — Fuel self-ignition system;

Exhaust fan eliminating problem with chimney draught and stabilising operation of the boiler;

TSS — Twin Spark System- pellet burner equipped with two igniters as a standard - option available for all powers;

Fuel reserve sensor in container stops boiler operation at minimum fuel level. After fuel recharging it is not necessary to repeat firing procedure and the boiler switches to automatic operation;

SMART EKOPELL

APC 3 CONTROLLER

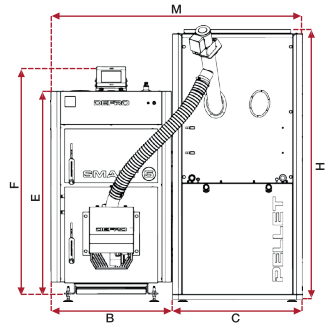
PELLET BURNER

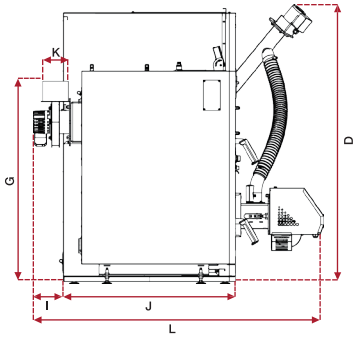
ADAPTIVE CONTROL

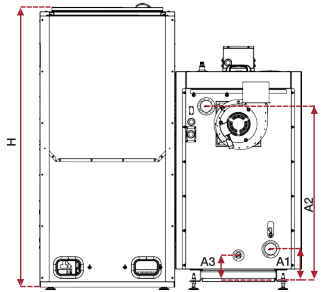
SMART EKOPELL

BOILER DIMENSIONS IN MM						
Dimension	12 kW	16 kW	20 kW	24 kW	28 kW	38 kW
A1 A2 A3	156 844 126	156 844 126	156 844 126	156 844 126	156 953 126	156 1063 126
B	552	602	602	602	602	602
C	650	650	650	650	650	650
D	1421	1421	1421	1421	1421	1421
E	1012	1012	1012	1012	1121	1231
F	1135	1135	1135	1135	1244	1354
G	961	961	961	961	1090	1240
H	1361	1361	1361	1361	1361	1361
I	238	238	238	238	284	284
J	701	701	761	831	831	831
K	Ø 127	Ø 127	Ø 127	Ø 127	Ø 127	Ø 127
L	1352	1372	1435	1535	1568	1621
M	1210	1260	1260	1260	1260	1260

BOILER EQUIPMENT / PRODUCT TYPE C	
Name	standard equipment
APC 3 ADAPTIVE CONTROL controller	yes
ADAPTIVE CONTROL control system	yes
PID function	yes
GSM module	no
INTERNET module	yes
WIFI INTERNET module	no
levelling legs	yes
NZ version for closed system	yes
igniter	yes
DK LOGIC 100 regulator	no
room controller DEFRO SPK Lux	no
ST-292 v3 room controller	no
ST-292 v2 room controller	no
DEFRO MZ module	no
SPK Lux wireless regulator	no
set for wireless communication RS	no
exhaust fan	yes
pellet burner with automatic cleaning function	yes







TECHNICAL DATA OF THE BOILER / PRODUCT GROUP A							
Specification / boiler type	unit	12	16	20	24	28	38
Fuel	-	wood pellet with diameter 6 mm					
5 class according to PN-EN 303:5-2012	-	✓	✓	✓	✓	✓	✓
Ecodesign	-	✓	✓	✓	✓	✓	✓
Power range	kW	3,6-12	4,8-16	6,0-20	7,2-24	8,4-28	11,4-38
Heating area	m^2	1,6	1,8	2,2	2,6	3,2	3,6
Area of heated rooms [1]	m^2	to 150	to 200	to 250	to 300	to 350	to 475
Capacity of fuel container [2]	kg	~195	~195	~195	~195	~195	~195
Optimum thermal efficiency	%	~88,3-90,1					
Energy efficiency class	-	A+	A+	A+	A+	A+	A+
Max. permissible work pressure	bar	2,5					
Required flue gas draught	mbar	0,20	0,22	0,24	0,26	0,28	0,29
Water temperature on supply max.	°C	65/80					
Boiler weight [3]	kg	374	396	424	451	493	528
Boiler water tank capacity	l	51	57	64	73	86	98
Chimney section	cmxcm	14x14	14x14	14x14	15x15	16x16	18x18
Chimney section	Ø mm	160	160	160	170	180	200
Minimum chimney height	m	6	6,5	7	7,5	8	9
Supply and return socket diameter	mm	G1 ½"					
Diameter of the exhaust gas socket	mm	127	127	127	127	127	127
Supply	V/Hz	~230/50					

[1] Maximum area of heated rooms estimated for unit heat demand q=80 W/m^2.
[2] Fuel tank capacity for pellet bulk density 0,6 kg/dm^3.
[3] Boiler weight depends on its additional equipment.

Height of boiler can be additionally adjusted by means of provided levelling legs.
The regulation of legs varies from 38 to 50 mm.

Additional equipment components shall be added during ordering of the boiler because there is no possibility of installation in the future.

DELTA EKOPELL |10-25 kW

5 CLASS acc. to the standard EN 303-5:2012

ECO design

EcoDesign requirements fulfilled for all powers.

The boiler meets the requirements of the class 5 acc. to the PN-EN 303-5:2012 for all powers.

Fuel: Wood pellet with diameter 6 mm.

DELTA EKOPELL

WARRANTY 5 YEARS — 5 years warranty for heat exchanger tightness, 2 years for the remaining components and efficient operation of boiler;

STEEL — Heat exchanger made of certified high-grade steel;

95% — High thermal efficiency reaching 95% due to increased heat recovery from flue gases;

APC 3 SLIM — APC K SLIM ADAPTIVE CONTROL servicing three pumps /central heating, domestic hot water, floor/. Control of one mixing valve; preview and change of parameters of the main ONLINE controller - extra payable option;

Boiler adapted for installation in the closed system provided that protections were installed in accordance with the operation and maintenance manual of the boiler;

ADAPTIVE CONTROL — ADAPTIVE CONTROL control - adjustment of boiler operation based on air flow through the heat exchanger;

CERAMIC — Ceramic catalysts stabilising combustion process;

auto — Fuel self-ignition system;

Pellet burner with automatic cleaning function in standard;

mm — Compact dimensions;

APC 3 SLIM CONTROLLER

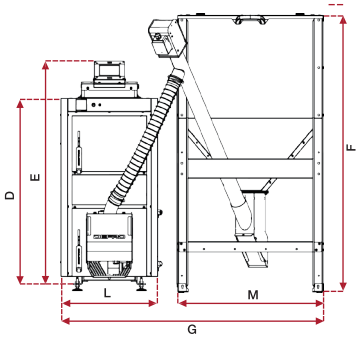
PELLET BURNER

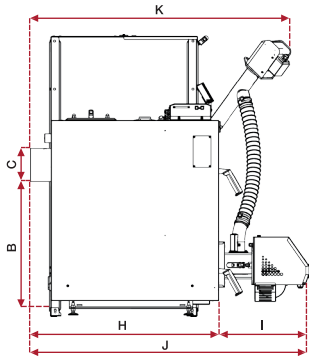
ADAPTIVE CONTROL

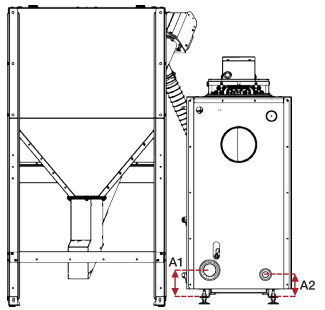
DELTA EKOPELL

BOILER DIMENSIONS IN MM				
Dimension	10 kW	15 kW	20 kW	25 kW
A1/A2	124/104	124/104	124/104	124/104
B	609	609	691	691
C	Ø 159	Ø 159	Ø 159	Ø 159
D	903	903	985	985
E	1083	1083	1165	1165
F	1314	1314	1314	1314
G	1275	1275	1275	1325
H	730	804	844	844
I	434	434	434	464
J	1262	1331	1373	1406
K	1248	1248	1248	1248
L	470	470	470	520
M	714	714	714	714

BOILER EQUIPMENT / PRODUCT TYPE C	
Name	standard equipment
sterownik APC K Slim	yes
ADAPTIVE CONTROL control system	yes
PID function	yes
GSM module	no
INTERNET module	no
WIFI INTERNET module	no
levelling legs	yes
igniter	yes
DK LOGIC 100 regulator	no
room controller DEFRO SPK Lux	no
ST-292 v3 room controller	no
ST-292 v2 room controller	no
DEFRO MZ module	no
SPK Lux wireless regulator	no
set for wireless communication RS	no
pellet burner with automatic cleaning function	yes







TECHNICAL DATA OF THE BOILER / PRODUCT GROUP D					
Specification / boiler type	unit	10	15	20	25
Fuel	-	wood pellet with diameter 6 mm			
5 class according to PN-EN 303:5-2012	-	✓	✓	✓	✓
Ecodesign	-	✓	✓	✓	✓
Power range	kW	3,0-10	4,5-15	6,0-20	7,5-25
Heating area	m^2	1,8	1,9	2,2	2,5
Area of heated rooms [1]	m^2	to 130	to 180	to 210	to 250
Capacity of fuel container [2]	kg	~195	~195	~195	~195
Optimum thermal efficiency	%	~90,7-95,3			
Energy efficiency class	-	A+	A+	A+	A+
Max. permissible work pressure	bar	1,5			
Required flue gas draught	Pa	20	24	26	28
Water temperature on supply max.	°C	65/80			
Boiler weight [3]	kg	321	327	353	360
Boiler water tank capacity	l	54	60	70	75
Chimney section	cmxcm	14x14	14x14	14x14	15x15
Chimney section	Ø mm	160	160	160	170
Minimum chimney height	m	5,5	6,5	7	7,5
Supply and return socket diameter	mm	G1 ½"			
Diameter of the exhaust gas socket	mm	159	159	159	159
Supply	V/Hz	~230/50			

[1] Maximum area of heated rooms estimated for unit heat demand q=100 W/m^2.
[2] Fuel tank capacity for pellet bulk density 0,6 kg/dm^3.
[3] Boiler weight depends on its additional equipment.

Height of boiler can be additionally adjusted by means of provided levelling legs.
The regulation of legs varies from 38 to 50 mm.

Additional equipment components shall be added during ordering of the boiler because there is no possibility of installation in the future.

HG 25 | 23 kW

5 CLASS acc. to the standard EN 303-5:2012

ECO design

EcoDesign requirements fulfilled for power 23 kW.
The boiler meets the requirements of the class 5 acc. to the PN-EN 303-5:2012 for 23 kW power.
Fuel: Chunks of wood with 12 cm diameter and maximum moisture 20%.

HG

WARRANTY 3 YEARS

3 years warranty for heat exchanger tightness, 2 years for the remaining components and efficient operation of boiler;

STEEL

Heat exchanger made of certified high-grade steel;

90%

High thermal efficiency reaching 90% due to increased heat recovery from flue gases;

PID

HG 2 PID controller servicing buffer, 3 pumps, mixing valve and exhaust fan;

Boiler adapted for installation in closed system;

Two-stage combustion process - fuel gasification and pyrolysis;

CERAMIC

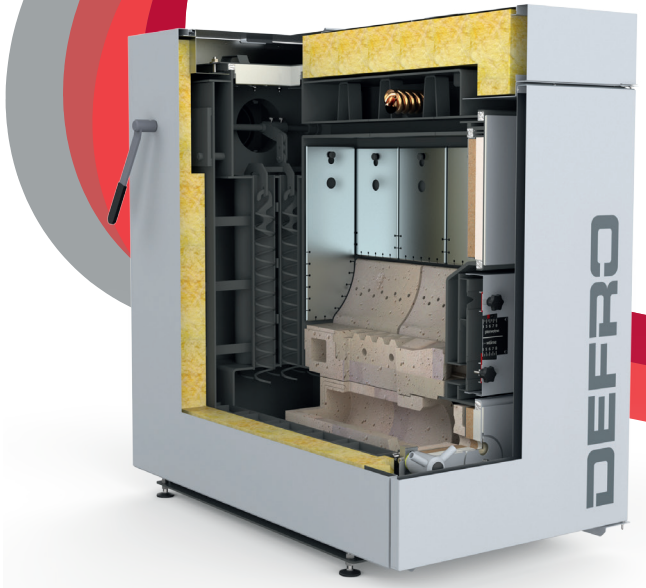
Ceramic catalysts stabilising combustion process;

Exhaust fan eliminating problem with chimney draught and stabilising operation of the boiler;

System for mechanical cleaning of heat exchanger;

HG 2 PID CONTROLLER

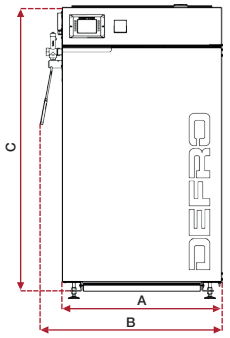
EXHAUST FAN

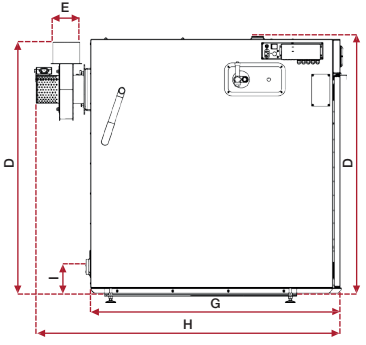


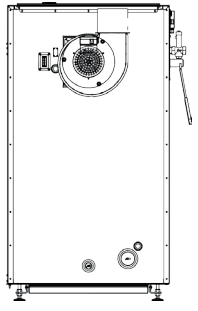
HG 25

BOILER DIMENSIONS IN MM	
Dimension	23 kW
A	680
B	775
C	1210
D	1220
E	1159
F	127
G	1175
H	1440
I	145

BOILER EQUIPMENT / PRODUCT TYPE C	
Name	standard equipment
HG 2PID controller	yes
GSM module	no
PID function	yes
levelling legs	yes
sterownik DK LOGIC 100	no
ST-292 v3 room controller	no
ST-292 v2 room controller	no
NZ version for closed system	yes
exhaust fan	yes
system for mechanical cleaning of heat exchanger	yes







TECHNICAL DATA OF THE BOILER / PRODUCT GROUP A		
Specification / boiler type	unit	HG 25 (23 kW)
Fuel	-	chunks of wood with 12 cm diameter and maximum moisture 20%.
5 class according to PN-EN 303:5-2012	-	✓
Ecodesign	-	✓
Heating area	m^2	2,6
Area of heated rooms [1]	m^2	to 230
Capacity of fuel container	kg	~93
Optimum thermal efficiency	%	~90
Energy efficiency class	-	A+
Max. permissible work pressure	bar	2,0 - opened system, 2,5 - closed system
Required flue gas draught	mbar	0,20
Water temperature on supply max.	°C	65/85
Boiler weight [2]	kg	542
Boiler water tank capacity	l	172
Chimney section	cmxcm	16x16
Chimney section	Ø mm	180
Minimum chimney height	m	6
Supply and return socket diameter	mm	G1 ½"
Diameter of the exhaust gas socket	mm	127
Supply	V/Hz	~230/50
Dimensions of charging chamber and fuel charging hole	width depth height width x height	330 568 498 330x284

[1] Maximum area of heated rooms estimated for unit heat demand q=100 W/m^2.
[2] Boiler weight depends on its additional equipment.

Height of boiler can be additionally adjusted by means of provided levelling legs.
The regulation of legs varies from 38 to 50 mm.

Cooperation with storage container is required.

Additional equipment components shall be added during ordering of the boiler because there is no possibility of installation in the future.

EKO SLIM | 10-30 kW

EcoDesign requirements fulfilled for all powers.
The boiler meets the requirements of the class 5 acc. to the PN-EN 303-5:2012 for all powers.
Fuel: Wood pellet with diameter 6 mm.

EKO SLIM

WARRANTY 5 YEARS — 5 years warranty for heat exchanger tightness, 2 years for the remaining components and efficient operation of boiler;

STEEL — Heat exchanger made of certified high-grade steel;

93% — High thermal efficiency reaching 93% due to increased heat recovery from flue gases;

APC 3 SLIM — APC 3 SLIM ADAPTIVE CONTROL servicing three pumps /central heating, domestic hot water, floor/. Control of one mixing valve; preview and change of parameters of the main ONLINE controller - extra payable option;

Boiler adapted for installation in the closed system provided that protections were installed in accordance with the operation and maintenance manual of the boiler;

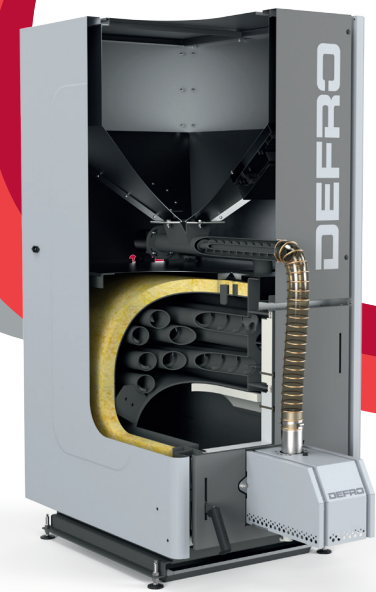
ADAPTIVE CONTROL — ADAPTIVE CONTROL control - adjustment of boiler operation based on air flow through the heat exchanger;

CERAMIC — Ceramic catalysts stabilising combustion process;

auto — Fuel self-ignition system;

Pellet burner with automatic cleaning function in standard;

mm — Compact dimensions;



APC 3 SLIM CONTROLLER

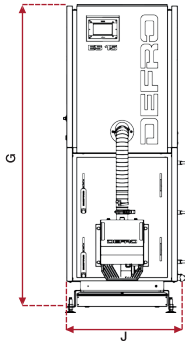
PELLET BURNER

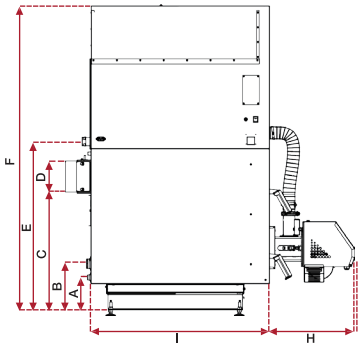
ADAPTIVE CONTROL

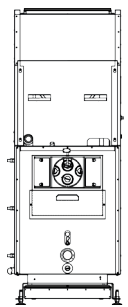
EKO SLIM

BOILER DIMENSIONS IN MM					
Dimension	10 kW	15 kW	20 kW	25 kW	30 kW
A	120	120	120	120	120
B	190	190	190	190	190
C	583	567	612	618	590
D	Ø 127	Ø 159	Ø 159	Ø 159	Ø 159
E	840	840	925	925	925
F	1615	1615	1650	1650	1650
G	1615	1615	1650	1650	1650
H	325	325	325	365	365
I	705	915	915	855	855
J	600	600	700	700	800

BOILER EQUIPMENT / PRODUCT TYPE C	
Name	standard equipment
APC 3 Slim controller	yes
ADAPTIVE CONTROL control system	yes
PID function	yes
GSM module	no
INTERNET module	no
WIFI INTERNET module	no
levelling legs	yes
igniter	yes
DK LOGIC 100 room controller	no
room controller DEFRO SPK Lux	no
ST-292 v3 room controller	no
ST-292 v2 room controller	no
DEFRO MZ module	no
SPK Lux wireless regulator	no
set for wireless communication RS	no
pellet burner with automatic cleaning function	yes
platform	no







TECHNICAL DATA OF THE BOILER / PRODUCT GROUP D						
Specification / boiler type	unit	10	15	20	25	30
Fuel	-	wood pellet with diameter 6 mm				
5 class according to PN-EN 303:5-2012	-	✓	✓	✓	✓	✓
Ecodesign	-	✓	✓	✓	✓	✓
Power range	kW	3,0-10	4,5-15	6,0-20	7,5-25	9-30
Heating area	m^2	1,5	2,1	2,5	2,7	3,3
Area of heated rooms [1]	m^2	to 160	to 220	to 270	to 355	to 425
Capacity of fuel container [2]	kg	~110	~131	~137	~137	~159
Optimum thermal efficiency	%	~90,2-93,9				
Energy efficiency class	-	A+	A+	A+	A+	A+
Max. permissible work pressure	bar	1,5 - opened system, 2,5 - closed system				
Required flue gas draught	mbar	0,20	0,24	0,26	0,28	0,30
Water temperature on supply max.	°C	65/80				
Boiler weight [3]	kg	288	336	380	368	402
Boiler water tank capacity	l	48	69	130	97	110
Chimney section	cmxcm	14x14	14x14	14x14	16x16	18x18
Chimney section	Ø mm	160	160	160	180	200
Minimum chimney height	m	5	6	7	7	7
Supply and return socket diameter	cal	GZ 1 ¼" / GW 1 ¼"				
Diameter of the exhaust gas socket	mm	127	159	159	159	159
Supply	V/Hz	~230/50				

[1] Maximum area of heated rooms estimated for unit heat demand q=70 W/m^2.
[2] Fuel tank capacity for pellet bulk density 0,6 kg/dm^3.
[3] Boiler weight depends on its additional equipment.

Height of boiler can be additionally adjusted by means of provided levelling legs.
The regulation of legs varies from 38 to 50 mm.

Additional equipment components shall be added during ordering of the boiler because there is no possibility of installation in the future.

BIO SLIM | 10-30 kW

EcoDesign requirements fulfilled for all powers.
The boiler meets the requirements of the class 5 acc. to the PN-EN 303-5:2012 for all powers.
Fuel: Wood pellet with diameter 6 mm.

WARRANTY 5 YEARS — 5 years warranty for heat exchanger tightness, 2 years for the remaining components and efficient operation of boiler;

STEEL — Heat exchanger made of certified high-grade steel;

93% — High thermal efficiency reaching 93% due to increased heat recovery from flue gases;

APC 3 — APC 3 ADAPTIVE CONTROL 3 servicing six pumps /central heating, domestic hot water, circulating, floor/. Control of two mixing valves; preview and change of parameters of the main controller ONLINE through built-in internet module with RJ-45 connector;

Boiler adapted for installation in the closed system provided that protections were installed in accordance with the operation and maintenance manual of the boiler;

Pellet burner with automatic cleaning function in standard;

ADAPTIVE CONTROL — ADAPTIVE CONTROL control - adjustment of boiler operation based on air flow through the heat exchanger;

CERAMIC — Ceramic catalysts stabilising combustion process;

auto — Fuel self-ignition system;

Exhaust fan eliminating problem with chimney draught and stabilising operation of the boiler;

TSS — Twin Spark System- pellet burner equipped with two igniters as a standard - option available for all powers;

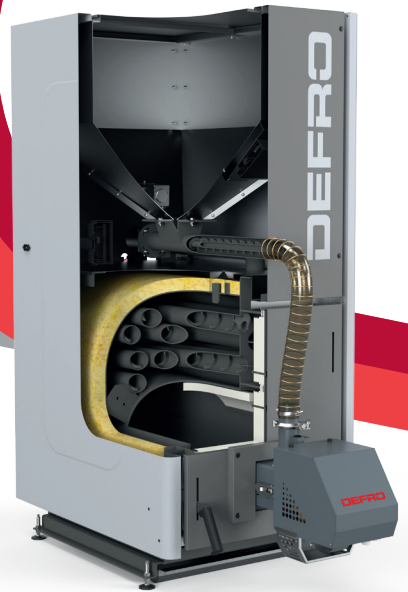
Fuel reserve sensor in container stops boiler operation at minimum fuel level. After fuel recharging it is not necessary to repeat firing procedure and the boiler switches to automatic operation;

APC 3 CONTROLLER

PELLET BURNER

ADAPTIVE CONTROL

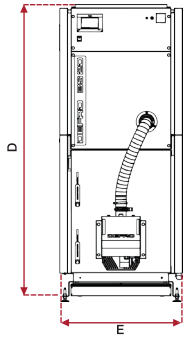
BIO SLIM

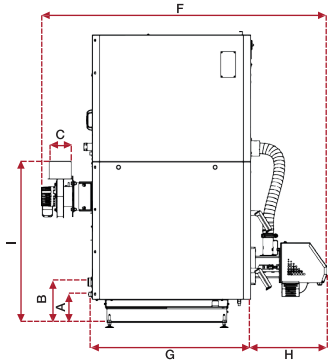


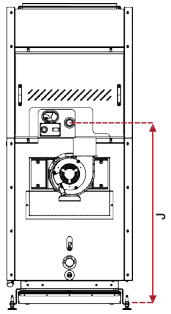
BIO SLIM

BOILER DIMENSIONS IN MM					
Dimension	10 kW	15 kW	20 kW	25 kW	30 kW
A	120	120	120	120	120
B	190	190	190	190	190
C	583	567	612	618	590
D	Ø 127	Ø 159	Ø 159	Ø 159	Ø 159
E	840	840	925	925	925
F	1615	1615	1650	1650	1650
G	1615	1615	1650	1650	1650
H	325	325	325	365	365
I	705	915	915	855	855
J	600	600	700	700	800

BOILER EQUIPMENT / PRODUCT TYPE C	
Name	standard equipment
APC 3 ADAPTIVE CONTROL controller	yes
ADAPTIVE CONTROL control system	yes
PID function	yes
GSM module	no
INTERNET module	yes
WIFI INTERNET module	no
levelling legs	yes
igniter	yes
DK LOGIC 100 regulator	no
room controller DEFRO SPK Lux	no
ST-292 v3 room controller	no
ST-292 v2 room controller	no
DEFRO MZ module	no
SPK Lux wireless regulator	no
set for wireless communication RS	no
exhaust fan	yes
pellet burner with automatic cleaning function	yes
platform	no







TECHNICAL DATA OF THE BOILER / PRODUCT GROUP D						
Specification / boiler type	J.m.	10	15	20	25	30
Fuel	-	wood pellet with diameter 6 mm				
5 class according to PN-EN 303:5-2012	-	✓	✓	✓	✓	✓
Ecodesign	-	✓	✓	✓	✓	✓
Power range	kW	3,0-10	4,5-15	6,0-20	7,5-25	9-30
Heating area	m^2	1,5	2,1	2,5	2,7	3,3
Area of heated rooms [1]	m^2	to 160	to 220	to 270	to 355	to 425
Capacity of fuel container [2]	kg	~110	~131	~137	~137	~159
Optimum thermal efficiency	%	~90,2-93,9				
Energy efficiency class	-	A+	A+	A+	A+	A+
Max. permissible work pressure	bar	1,5 - opened system, 2,5 - closed system				
Required flue gas draught	mbar	0,20	0,24	0,26	0,28	0,30
Water temperature on supply max.	°C	65/80				
Boiler weight [3]	kg	288	336	380	368	402
Boiler water tank capacity	l	48	69	130	97	110
Chimney section	cmxcm	14x14	14x14	14x14	16x16	18x18
Chimney section	Ø mm	160	160	160	180	200
Minimum chimney height	m	5	6	7	7	7
Supply and return socket diameter	cal	GZ 1 ¼" / GW 1 ¼"				
Diameter of the exhaust gas socket	mm	127	159	159	159	159
Supply	V/Hz	~230/50				

[1] Maximum area of heated rooms estimated for unit heat demand q=70 W/m^2.
[2] Fuel tank capacity for pellet bulk density 0,6 kg/dm^3.
[3] Boiler weight depends on its additional equipment.

Height of boiler can be additionally adjusted by means of provided levelling legs.
The regulation of legs varies from 38 to 50 mm.

Additional equipment components shall be added during ordering of the boiler because there is no possibility of installation in the future.

KOMFORT EKO | 9-40 kW

5 CLASS acc. to the standard EN 303-5:2012

ECO design

EcoDesign requirements fulfilled for all powers.

The boiler meets the requirements of the class 5 acc. to the PN-EN 303-5:2012 for all powers.

Fuel: eco-pea coal 5-25 mm.

KOMFORT EKO

WARRANTY 5 YEARS

5 years warranty for heat exchanger tightness, 2 years for the remaining components and efficient operation of boiler;

STEEL

Heat exchanger made of certified high-grade steel;

92%

High thermal efficiency reaching 92% due to increased heat recovery from flue gases;

MASTER 300 RS

Controller servicing two pumps /central heating, domestic hot water/. Cooperates with 1 room controller. Option to configure and develop the controller with additional modules;

Boiler adapted for installation in the closed system provided that protections were installed in accordance with the operation and maintenance manual of the boiler;

Optional horizontal or vertical outlet of flue gas - CG option;

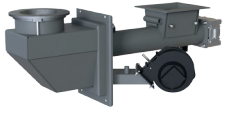
CERAMIC

Ceramic catalysts stabilising combustion process;

Combustion chamber with highly effective retort burner;

Changing the direction of door opening (does not apply to the inner door);

MASTER 300 RS CONTROLLER

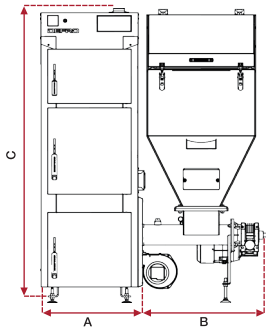


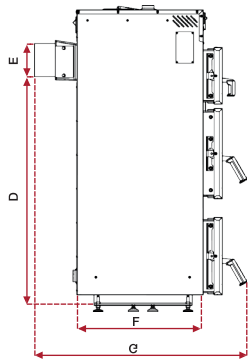
RETORT BURNER

KOMFORT EKO

BOILER DIMENSIONS IN MM						
Dimension	9 kW	12 kW	15 kW	20 kW	25 kW	30 kW
A	482	482	482	532	532	582
B	540	540	540	640	640	640
C	1368	1368	1433	1483	1528	1528
D	1029	1029	1093	1148	1159	1160
E	Ø 159	Ø 159	Ø 159	Ø 178	Ø 178	Ø 178
F	535	535	605	645	715	735
G	891	891	962	1001	1072	1092

BOILER EQUIPMENT / PRODUCT TYPE C	
Name	standard equipment
Master 300 RS controller	yes
levelling legs	yes
NZ version for closed system	yes
DK LOGIC 100 regulator	no
DK MATIC valve module	no
DKMZ module	no





TECHNICAL DATA OF THE BOILER / PRODUCT GROUP A								
Specification / boiler type	J.m.	9	12	15	20	25	30	40
Power range	kW	2,7-9	3,6-12	4,5-15	6,0-20	7,5-25	9,0-30	12,0
5 class according to PN-EN 303:5-2012	-	✓	✓	✓	✓	✓	✓	✓
Ecodesign	-	✓	✓	✓	✓	✓	✓	✓
Heating area	m^2	1,5	1,6	2,0	2,4	2,8	3,2	4,0
Area of heated rooms [1]	m^2	to 115	to 150	to 190	to 250	to 315	to 375	to 500
Capacity of fuel container [2]	kg	~132	~132	~132	~191	~191	~191	~258
Optimum thermal efficiency	%	~89,9-92,5						
Energy efficiency class	-	C	B	B	B	B	B	B
Max. permissible work pressure	bar	1,5						
Required flue gas draught	mbar	0,19	0,22	0,24	0,26	0,28	0,23	0,32
Water temperature on supply max.	°C	65/80						
Boiler weight [3]	kg	394	394	445	514	553	611	754
Boiler water tank capacity	l	64	68	82	97	112	123	153
Chimney section	cmxcm	14x14	14x14	14x14	16x16	16x16	17x17	19x19
Chimney section	Ø mm	160	160	160	180	180	190	220
Minimum chimney height	m	5	5,5	6	6,5	7	7,5	8
Width	mm	1116	1116	1111	1228	1228	1278	1310
Depth (CT)	mm	891	891	962	1001	1072	1092	1192
Depth (CG)	mm	707	707	768	817	888	908	1008
Height (CG)	mm	1448	1448	1517	1563	1608	1608	1618
Supply and return socket diameter	cal	1 ½ ”						
Release socket diameter	cal	½ ”						
Diameter of the exhaust gas socket	mm	159	159	159	178	178	178	194

[1] Maximum area of heated rooms estimated for unit heat demand q=70 W/m^2.
[2] Fuel tank capacity for bulk density of eco-pea coal equal to 0,8 kg/dm^3.
[3] Boiler weight depends on its additional equipment.

Height of boiler can be additionally adjusted by means of provided levelling legs.
The regulation of legs varies from 38 to 50 mm.

ATTENTION! When ordering KOMFORT EKO boiler the customer should specify on which side the container should be located (right or left). It is also necessary to specify location of the flue during ordering - from top or in the rear wall of the boiler.

Additional equipment components shall be added during ordering of the boiler because there is no possibility of installation in the future.

KOMFORT EKO LUX | 9-40 kW

5 CLASS acc. to the standard EN 303-5:2012

ECO design

EcoDesign requirements fulfilled for all powers.

The boiler meets the requirements of the class 5 acc. to the PN-EN 303-5:2012 for all powers.

Fuel: eco-pea coal 5-25 mm.

WARRANTY 5 YEARS — 5 years warranty for heat exchanger tightness, 2 years for the remaining components and efficient operation of boiler;

STEEL — Heat exchanger made of certified high-grade steel;

92% — High thermal efficiency reaching 92% due to increased heat recovery from flue gases;

K1Pv4 — Controller K1P v4 with colour touch panel servicing four pumps /central heating, domestic hot water, circulation, floor pump/. Servicing of mixing valve. Possibility to control using GSM or INTERNET - extra paid option; adjustable position angle of the control panel;

Boiler adapted for installation in the closed system provided that protections were installed in accordance with the operation and maintenance manual of the boiler;

BAR — Pressure equalisation system in fuel container;

ADAPTIVE CONTROL — ADAPTIVE CONTROL control - adjustment of boiler operation based on air flow through the heat exchanger;

Optional horizontal or vertical outlet of flue gas - CG option;

CERAMIC — Ceramic catalysts stabilising combustion process;

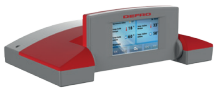
Combustion chamber with highly effective retort burner;

Changing the direction of door opening (does not apply to the inner door);

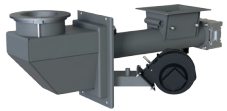
Sensor indicating opened cover of the fuel tank;

Feeder screw made of one element;

ABM — Energy-saving high-efficiency motoreducer with an autoreverse in the case of a fuel feeder lock;



K1PV4 CONTROLLER



RETORT BURNER

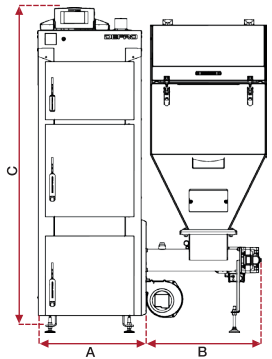
ABM MOTOREDUCER

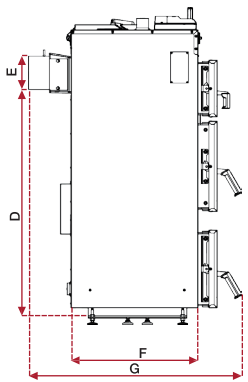
KOMFORT EKO LUX

KOMFORT EKO LUX

BOILER DIMENSIONS IN MM						
Dimension	9 kW	12 kW	15 kW	20 kW	25 kW	30 kW
A	482	482	482	532	532	582
B	540	540	540	640	640	640
C	1368	1368	1443	1483	1528	1528
D	1029	1029	1093	1148	1159	1160
E	Ø 159	Ø 159	Ø 159	Ø 178	Ø 178	Ø 178
F	535	535	605	645	715	735
G	891	891	962	1001	1072	1092

BOILER EQUIPMENT / PRODUCT TYPE C	
Name	standard equipment
controller K1Pv4	yes
ADAPTIVE CONTROL control system	yes
PID function	yes
GSM module	no
INTERNET module	no
WIFI INTERNET module	no
levelling legs	yes
NZ version for closed system	yes
room controller DEFRO SPK Lux	no
ST-292 v3 room controller	no
ST-292 v2 room controller	no
DEFRO MZ module	no
SPK Lux wireless regulator	no
set for wireless communication RS	no





TECHNICAL DATA OF THE BOILER / PRODUCT GROUP A								
Specification / boiler type	J.m.	9	12	15	20	25	30	40
Power range	kW	2,7-9	3,6-12	4,5-15	6,0-20	7,5-25	9,0-30	12,0-40
5 class according to PN-EN 303:5-2012	-	✓	✓	✓	✓	✓	✓	✓
Ecodesign	--	✓	✓	✓	✓	✓	✓	✓
Heating area	m^2	1,5	1,7	2,0	2,4	2,8	3,2	4,0
Area of heated rooms [1]	m^2	to 115	to 150	to 190	to 250	to 315	to 375	to 500
Capacity of fuel container [2]	kg	~132	~132	~132	~191	~191	~191	~258
Optimum thermal efficiency	%	90,5-90,7						
Energy efficiency class		C	B	B	B	B	B	B
Max. permissible work pressure	bar	1,5						
Required flue gas draught	mbar	0,19	0,22	0,24	0,26	0,28	0,23	0,32
Water temperature on supply max.	°C	65/80						
Boiler weight [3]	kg	407	407	456	529	568	626	769
Pojemność wodna kotła	l	64	68	82	97	112	123	153
Chimney section	cmxcm	14x14	14x14	14x14	16x16	16x16	17x17	19x19
Chimney section	Ø mm	160	160	160	180	180	190	220
Minimum chimney height	m	5	5,5	6	6,5	7	7,5	8
Width	mm	1068	1068	1063	1228	1228	1278	1310
Depth (CT)	mm	891	891	962	1001	1062	1092	1192
Depth (CG)	mm	739	739	810	849	920	940	1040
Height (CG)	mm	1426	1426	1477	1528	1573	1573	1583
Supply and return socket diameter	cal	1 ½ "						
Release socket diameter	cal	½ "						
Diameter of the exhaust gas socket	mm	159	159	159	178	178	178	194

[1] Maximum area of heated rooms estimated for unit heat demand q=70 W/m^2.
[2] Fuel tank capacity for bulk density of eco-pea coal equal to 0,8 kg/dm^3.
[3] Boiler weight depends on its additional equipment.

Height of boiler can be additionally adjusted by means of provided levelling legs.
The regulation of legs varies from 38 to 50 mm.

ATTENTION! When ordering KOMFORT EKO LUX boiler the customer should specify on which side the container should be located (right or left). It is also necessary to specify location of the flue during ordering - from top or in the rear wall of the boiler.

Additional equipment components shall be added during ordering of the boiler because there is no possibility of installation in the future.

SPECTRA |10-25 kW

EcoDesign requirements fulfilled for all powers.
The boiler meets the requirements of the class 5 acc. to the PN-EN 303-5:2012 for all powers.
Fuel: Wood pellet with diameter 6 mm.

SPECTRA

WARRANTY 5 YEARS — 5 years warranty for heat exchanger tightness, 2 years for the remaining components and efficient operation of boiler;

STEEL — Heat exchanger made of certified high-grade steel;

94% — High thermal efficiency reaching 94% due to increased heat recovery from flue gases;

APC K SLIM — APC K SLIM ADAPTIVE CONTROL servicing three pumps /central heating, domestic hot water, floor/. Control of one mixing valve; preview and change of parameters of the main ONLINE controller - extra payable option;

Boiler adapted for installation in the closed system provided that protections were installed in accordance with the operation and maintenance manual of the boiler;

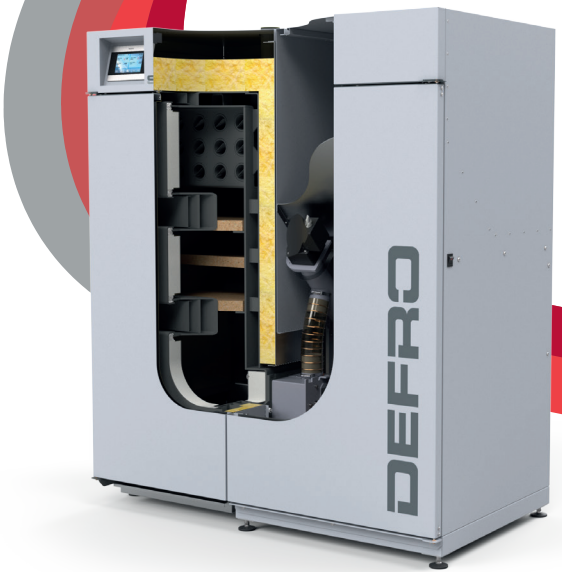
ADAPTIVE CONTROL — ADAPTIVE CONTROL control - adjustment of boiler operation based on air flow through the heat exchanger;

CERAMIC — Ceramic catalysts stabilising combustion process;

auto — Fuel self-ignition system;

Pellet burner with automatic cleaning function in standard;

mm — Compact dimensions;



APC K SLIM CONTROLLER

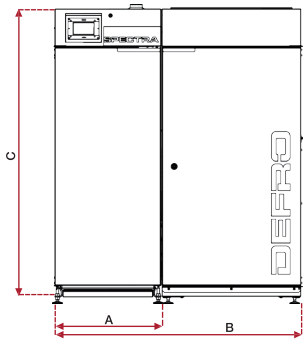
PELLET BURNER

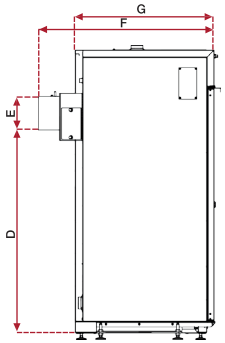
ADAPTIVE CONTROL

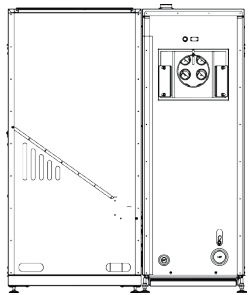
SPECTRA

BOILER DIMENSIONS IN MM				
Dimension	10 kW	14 kW	20 kW	25 kW
A	496	496	546	546
B	1151	1151	1201	1201
C	1376	1376	1426	1476
D	995	995	1045	1100
E	Ø 159	Ø 159	Ø 159	Ø 159
F	835	835	815	960
G	630	630	630	770

BOILER EQUIPMENT / PRODUCT TYPE C	
Name	standard equipment
APC K Slim controller	yes
ADAPTIVE CONTROL control system	yes
PID function	yes
GSM module	no
INTERNET module	no
WIFI INTERNET module	no
levelling legs	yes
igniter	yes
room controller DEFRO SPK Lux	no
ST-292 v3 room controller	no
ST-292 v2 room controller	no
DEFRO MZ module	no
SPK Lux wireless regulator	no
set for wireless communication RS	no
pellet burner with automatic cleaning function	yes







TECHNICAL DATA OF THE BOILER / PRODUCT GROUP A					
Specification / boiler type	unit	10	14	20	25
Fuel		wood pellet with diameter 6 mm			
Power range	kW	3,0-10	4,2-14	6,0-20	7,5-25
Heating area	m^2	1,5	1,8	2,3	3,0
5 class according to PN-EN 303:5-2012	-	✓	✓	✓	✓
Ecodesign	-	✓	✓	✓	✓
Energy efficiency class		A+	A+	A+	A+
Area of heated rooms [1]	m^2	to 125	to 175	to 240	to 300
Capacity of fuel container [2]	kg	~141	~141	~152	~199
Optimum thermal efficiency	%	~92,9-94,7			
Max. permissible work pressure	bar	1,5			
Required flue gas draught	mbar	0,20	0,23	0,26	0,28
Water temperature on supply max.	°C	65/80			
Boiler weight [3]	kg	340	350	372	467
Boiler water tank capacity	l	65	63	71	103
Chimney section	cmxcm	14x14	14x14	14x14	15x15
Chimney section	Ømm	160	160	160	170
Minimum chimney height	m	6	6,5	7	7,5
Width	mm	1151	1151	1201	1201
Depth	mm	835	835	815	960
Height	mm	1396	1396	1446	1496
Supply and return socket diameter		GW 1 ½"			
Release socket diameter		½"	½"	½"	½"
Diameter of the exhaust gas socket	mm	159	159	159	159

[1] Maximum area of heated rooms estimated for unit heat demand q=70 W/m^2.
[2] Fuel tank capacity for pellet bulk density 0,6 kg/dm^3.
[3] Boiler weight depends on its additional equipment.

Height of boiler can be additionally adjusted by means of provided levelling legs.
The regulation of legs varies from 38 to 50 mm.

Additional equipment components shall be added during ordering of the boiler because there is no possibility of installation in the future.

ALFA | 12-30 kW

EcoDesign requirements fulfilled for all powers.
The boiler meets the requirements of the class 5 acc. to the PN-EN 303-5:2012 for all powers.
Fuel: Wood pellet with diameter 6 mm.

WARRANTY 5 YEARS — 5 years warranty for heat exchanger tightness, 2 years for the remaining components and efficient operation of boiler;

STEEL — Heat exchanger made of certified high-grade steel;

95% — High thermal efficiency reaching 95% due to increased heat recovery from flue gases;

APC CENTER — APC CENTER 3 servicing six pumps /central heating, domestic hot water, circulating, floor/. Control of two mixing valves; preview and change of parameters of the main controller ONLINE through built-in internet module with RJ-45 connector;

Boiler adapted for installation in closed system if the protections are assembled in accordance with the operation and maintenance manual of the boiler;

Exhaust fan eliminating problem with chimney draught and stabilising operation of the boiler;

Vacuum sensor protecting against incorrect combustion process;

Fuel reserve sensor in container stops boiler operation at minimum fuel level. After fuel recharging it is not necessary to repeat firing procedure and the boiler switches to automatic operation;

CERAMIC — Ceramic catalysts stabilising combustion process;

auto — Fuel self-ignition system;

Central pellet burner with automatic cleaning function as a standard;

mm — Compact dimensions;

Automatic heat exhanger cleaning and ash removal system;

Hydraulic set with circulating pump and thermostatic valve as boiler protection against low return temperature;

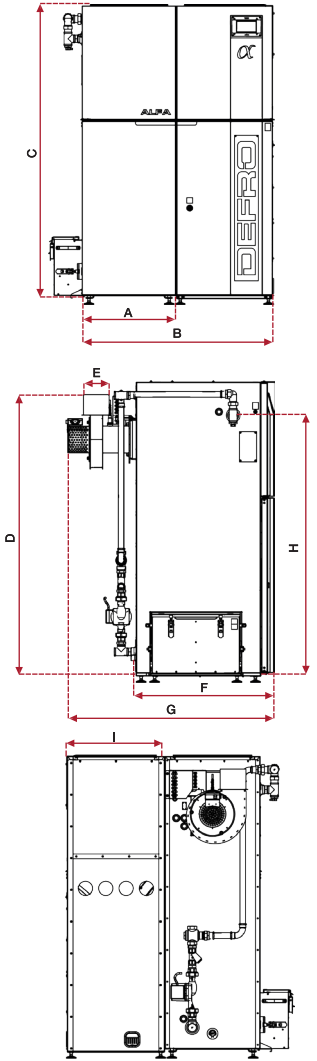
APC CENTER CONTROLLER

ALFA

ALFA

BOILER DIMENSIONS IN MM				
Dimension	12 kW	17 kW	22 kW	30 kW
A	470	490	490	610
B	1103	1123	1123	1325
C	1340	1340	1495	1495
D	1251	1271	1426	1426
E	Ø 127	Ø 127	Ø 127	Ø 127
F	731	731	731	771
G	1014	1029	1029	1069
H	1169	1169	1324	1324

BOILER EQUIPMENT / PRODUCT TYPE C	
Name	standard equipment
APC CENTER controller	yes
PID function	yes
GSM module	no
INTERNET module	no
WIFI INTERNET module	no
levelling legs	yes
igniter	yes
room controller DEFRO SPK Lux	no
DEFRO MZ module	no
SPK Lux wireless regulator	no
ST-292 v3 room controller	no
ST-292 v2 room controller	no
set for wireless communication RS	no
central pellet burner with automatic cleaning function	yes
extra charge for PLUS version - enlarged container	no
hydraulic kit with thermostatic valve and circulation pump	yes



TECHNICAL DATA OF THE BOILER / PRODUCT GROUP D					
Specification / boiler type	unit	12	17	22	30
Fuel		wood pellet with diameter 6 mm			
Power range	kW	3,6-12	5,1-17	6,6-22	9-30
Heating area	m^2	1,3	1,7	1,9	2,7
5 class according to PN-EN 303:5-2012		✓	✓	✓	✓
Ecodesign		✓	✓	✓	✓
Area of heated rooms [1]	m^2	to 150	to 215	to 275	to 375
Capacity of fuel container (STD/PLUS) [2]	kg	~82/~156	~82/~156	~116/ ~210	~147/ ~229
Optimum thermal efficiency	%	~91,0-95,1			
Energy efficiency class	-	A+	A+	A+	A+
Max. permissible work pressure	bar	1,5			
Required flue gas draught	mbar	0,22	0,27	0,27	0,30
Water temperature on supply max.	°C	65/85			
Boiler weight [3]	kg	370	380	415	510
Boiler water tank capacity	l	60	60	70	90
Chimney section	cmxcm	14x14	14x14	16x16	18x18
Chimney section	Ø mm	160	160	180	200
Minimum chimney height	m	5,5	6	6,5	7,5
Width	mm	1103	1123	1123	1352
Depth	mm	1014	1029	1029	1069
Height	mm	1340	1340	1495	1495
Supply and return socket diameter		GW 1”			
Release socket diameter		GW ½”			
Diameter of the exhaust gas socket	mm	127	127	127	127

[1] Maximum area of heated rooms estimated for unit heat demand q=80 W/m^2.
[2] Fuel tank capacity for pellet bulk density 0,6 kg/dm^3.
[3] Boiler weight depends on its additional equipment.

Height of boiler can be additionally adjusted by means of provided levelling legs.
The regulation of legs varies from 38 to 50 mm.

Additional equipment components shall be added during ordering of the boiler because there is no possibility of installation in the future.

OPTIMA DS | 10-30 kW

5 CLASS acc. to the standard EN 303-5:2012

ECO design

Ecodesign requirements fulfilled for all powers.

The boiler meets the requirements of the class 5 acc. to the PN-EN 303-5:2012 for all powers.

Fuel: hard coal assortment of pea type.

Bottom-fired boiler was submitted to patent protection in the Patent Office of Republic of Poland.

OPTIMA DS

WARRANTY 3 YEARS

3 years warranty for heat exchanger tightness, 2 years for the remaining components and efficient operation of boiler;

STEEL

Heat exchanger made of certified high-grade steel;

90%

High thermal efficiency reaching 90% due to increased heat recovery from flue gases;

Mechanical adjustment of combustion process using a knob in ash-pan doors and draught regulator;

Mechanical movable grate for removal of ash from grate bars;

Boiler is factory equipped with thermostatic draught regulator;

CERAMIC

Nozzle reducing flue gas emission (The Patent Office of Republic of Poland protection);

Large furnace chamber;

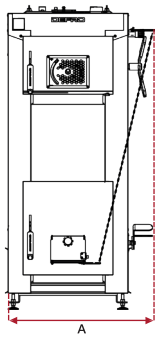
Adjustment of secondary air inflow;

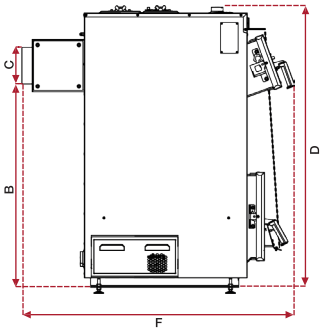
NZ version - adapted for installation in closed system, reinforced design, cooling coil pipe installed - extra paid option;

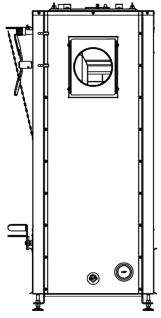
OPTIMA DS

BOILER DIMENSIONS IN MM					
Dimension	10 kW	14 kW	19 kW	24 kW	30 kW
A	635	685	685	735	735
B	791	791	991	991	991
C	Ø 178	Ø 178	Ø 178	Ø 178	Ø 178
D	1165	1165	1365	1365	1365
E	304	304	304	304	304
F	1325	1325	1325	1325	1405

BOILER EQUIPMENT / PRODUCT TYPE C	
Name	standard equipment
draught regulator	yes
mobile grate	yes
levelling legs	no
NZ version for closed system	no







TECHNICAL DATA OF THE BOILER / PRODUCT GROUP A						
Specification / boiler type	unit	10	14	19	24	30
Min. safe capacity of the storage container	l	1000	1400	2000	2400	2400
Energy efficiency class	-	B	B	B	B	B
5 class according to PN-EN 303:5-2012	-	✓	✓	✓	✓	✓
Ecodesign	-	✓	✓	✓	✓	✓
Heating area	m^2	2,4	2,6	3,3	3,6	4,3
Area of heated rooms [1]	m^2	to 125	to 175	to 240	to 300	to 375
Single fuel charging	kg	14	18	28	33	33
Optimum thermal efficiency	%	90				
Max. permissible work pressure	bar	1,5 - opened system, 2,5 - closed system				
Required flue gas draught	mbar	0,20	0,23	0,26	0,28	0,30
Water temperature on supply max.	°C	65/90				
Boiler water tank capacity	l	72	78	98	105	117
Boiler weight [2]	kg	379	413	470	511	558
Chimney section	cmxcm	16x16	16x16	16x16	16x16	18x18
Chimney section	Ø mm	180	180	180	180	200
Minimum chimney height	m	5	5	5	6	6
Width	mm	635	685	685	735	735
Depth	mm	1325	1325	1325	1325	1405
Height	mm	1165	1165	1365	1365	1365
Supply and return socket diameter		GW 1 ½ “				
Release socket diameter		½ ”				
Diameter of the exhaust gas socket	mm	178	178	178	178	178

[1] Maximum area of heated rooms estimated for unit heat demand q=80 W/m^2.
[2] Boiler weight depends on its additional equipment.

Height of boiler can be additionally adjusted by means of provided levelling legs.
The regulation of legs varies from 38 to 50 mm.

Additional equipment components shall be added during ordering of the boiler because there is no possibility of installation in the future.

Cooperation with storage container is required.

KOMFORT EKO PZ | 12-30 kW

5 CLASS acc. to the standard EN 303-5:2012

ECO design

EcoDesign requirements fulfilled for all powers.
The boiler meets the requirements of the class 5 acc. to the PN-EN 303-5:2012 for all powers.
Fuel: eco-pea coal 5-25 mm.

WARRANTY 5 YEARS

5 years warranty for heat exchanger tightness, 2 years for the remaining components and efficient operation of boiler;

STEEL

Heat exchanger made of certified high-grade steel;

94%

High thermal efficiency reaching 94% due to increased heat recovery from flue gases;

ST 483K

Controller K1P v4 with panel servicing four pumps /central heating, domestic hot water, circulation, floor pump/. Servicing of mixing valve. Possibility to control using GSM or INTERNET - extra paid option; adjustable position angle of the control panel;

Boiler adapted for installation in the closed system provided that protections were installed in accordance with the operation and maintenance manual of the boiler;

Vertical or horizontal configuration of the flue after the installation of the torsion bend (the torsional bend does not constitute the boiler's equipment);

CERAMIC

Ceramic catalysts stabilising combustion process;

Combustion chamber with cast-iron burner EKO-ENERGIA;

Changing the direction of door opening (does not apply to the inner door);

Feeder screw made of one element;

BAR

Pressure equalisation system in fuel container;

Possibility of moving the fuel tank;

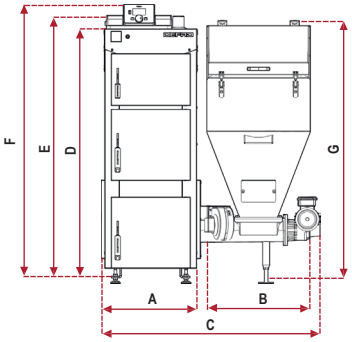
KOMFORT EKO PZ

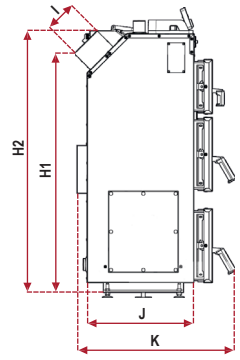
Burner made by:
ekoenergia

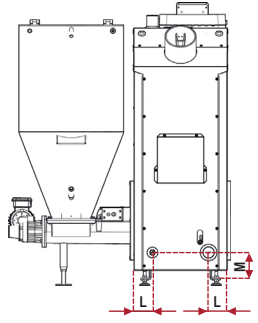
KOMFORT EKO PZ

BOILER DIMENSIONS IN MM					
Dimension	12	15	20	25	30
A	480	480	530	530	580
B	530	530	530	530	530
C	1145	1160	1195	1195	1205
D	1303	1368	1418	1463	1463
E	1368	1433	1483	1528	1528
F	1433	1498	1548	1593	1593
G	1345	1445	1445	1445	1545
H1	1204	1269	1319	1350	1350
H2	1315	1380	1430	1475	1475
I	159	159	159	178	178
J	535	605	645	715	735
K	804	874	904	974	994
L	95	95	95	95	95
M	140	140	140	140	140

BOILER EQUIPMENT / PRODUCT TYPE C	
Name	standard equipment
ST 483K controller	yes
GSM module	no
INTERNET module	no
WIFI INTERNET module	no
levelling legs	yes
ST-292 v3 room controller	no
ST-292 v2 room controller	no
DEFRO MZ module	no
SPK Lux wireless regulator	no
room controller DEFRO SPK Lux	no
set for wireless communication RS	no







TECHNICAL DATA OF THE BOILER / PRODUCT GROUP A						
Specification / boiler type	unit	12	15	20	25	30
5 class according to PN-EN 303:5-2012	-	✓	✓	✓	✓	✓
Ecodesign	-	✓	✓	✓	✓	✓
Energy efficiency class	-	B	B	B	B	B
Power range	kW	3,6-12	4,5-15	6,0-20	7,8-26	9,0-30
Heating area	m^2	1,6	1,9	2,3	2,7	3,1
Area of heated rooms [1]	m^2	to 150	to 190	to 250	to 325	to 375
Capacity of fuel container [2]	kg	~118	~150	~150	~171	~198
Optimum thermal efficiency	%	~90,7-94,7				
Max. permissible work pressure	bar	1,5				
Required flue gas draught	mbar	0,22	0,24	0,26	0,28	0,30
Water temperature on supply max.	°C	65/80				
Boiler weight [3]	kg	412	485	545	595	650
Boiler water tank capacity	l	64	75	91	105	117
Chimney section	cmxcm	14x14	14x14	16x16	16x16	18x18
Chimney section	Ø mm	160	160	180	180	200
Minimum chimney height	m	5,5	6	6,5	7	7
Supply and return socket diameter	cal	GW 1½"				
Diameter of the exhaust gas socket	mm	159	159	159	178	178

[1] Maximum area of heated rooms estimated for unit heat demand q=80 W/m^2.
[2] Fuel tank capacity for bulk density of eco-pea coal equal to 0,8 kg/dm^3.
[3] Boiler weight depends on its additional equipment.

Height of boiler can be additionally adjusted by means of provided levelling legs.
The regulation of legs varies from 38 to 50 mm.

Additional equipment components shall be added during ordering of the boiler because there is no possibility of installation in the future.

KOMFORT EKO EKOPELL | 14-35 kW

5 CLASS acc. to the standard EN 303-5:2012

ECO design

EcoDesign requirements fulfilled for all powers.
The boiler meets the requirements of the class 5 acc. to the PN-EN 303-5:2012 for all powers.
Fuel: Wood pellet with diameter 6 mm.

KOMFORT EKO EKOPELL

WARRANTY 5 YEARS — 5 years warranty for heat exchanger tightness, 2 years for the remaining components and efficient operation of boiler;

STEEL — Heat exchanger made of certified high-grade steel;

94% — High thermal efficiency reaching 94% due to increased heat recovery from flue gases;

APC K SLIM — APC K SLIM ADAPTIVE CONTROL servicing three pumps /central heating, domestic hot water, floor/. Control of one mixing valve; preview and change of parameters of the main ONLINE controller - extra payable option;

Boiler adapted for installation in the closed system provided that protections were installed in accordance with the operation and maintenance manual of the boiler;

ADAPTIVE CONTROL — ADAPTIVE CONTROL control - adjustment of boiler operation based on air flow through the heat exchanger;

CERAMIC — Ceramic catalysts stabilising combustion process;

auto — Fuel self-ignition system;

Pellet burner with automatic cleaning function in standard;

Vertical or horizontal configuration of the flue after the installation of the torsion bend (the torsional bend does not constitute the boiler's equipment);

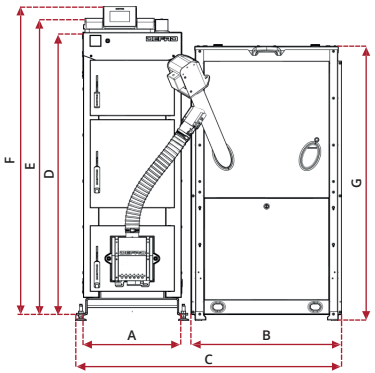
APC K SLIM CONTROLLER

PELLET BURNER

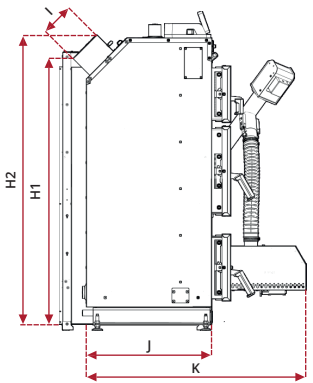
ADAPTIVE CONTROL

KOMFORT EKO EKOPELL

BOILER DIMENSIONS IN MM					
Dimension	14 kW	20 kW	25 kW	30 kW	35 kW
A	480	480	480	530	530
B	700	700	700	700	700
C	1302	1302	1302	1352	1352
D	1318	1318	1383	1433	1478
E	1383	1383	1448	1498	1543
F	1448	1448	1513	1563	1608
G	1348	1348	1348	1348	1348
H1	1218	1218	1284	1334	1365
H2	1330	1330	1395	1445	1490
I	159	159	159	159	178
J	535	535	605	645	715
K	804	804	874	914	984



BOILER EQUIPMENT / PRODUCT TYPE C	
Name	standard equipment
APC K Slim controller	yes
ADAPTIVE CONTROL	yes
PID function	yes
GSM module	no
INTERNET module	no
WIFI INTERNET module	no
levelling legs	yes
igniter	yes
ST-292 v3 room controller	no
ST-292 v2 room controller	no
DEFRO MZ module	no
room controller DEFRO SPK Lux	no
SPK Lux wireless regulator	no
set for wireless communication RS	no
central pellet burner with automatic cleaning function	yes



TECHNICAL DATA OF THE BOILER / PRODUCT GROUP A						
Specification / boiler type	unit	14	20	25	30	35
Power range	kW	4,2-14	6,0-20	7,5-25	9,0-30	10,5-35
5 class according to PN-EN 303:5-2012	-	✓	✓	✓	✓	✓
Ecodesign	--	✓	✓	✓	✓	✓
Heating area	m^2	2,1	2,3	2,6	3,2	3,6
Area of heated rooms [1]	m^2	to 175	to 250	to 310	to 375	to 435
Capacity of fuel container [2]	kg	~146	~146	~146	~146	~146
Optimum thermal efficiency	%	~90,5-94,9				
Energy efficiency class		A+	A+	A+	A+	A+
Max. permissible work pressure	bar	1,5				
Required flue gas draught	mbar	0,23	0,26	0,28	0,30	0,31
Water temperature on supply max.	°C	65/80				
Boiler weight [3]	kg	356	367	410	466	509
Boiler water tank capacity	l	74	77	91	109	125
Chimney section	cmxcm	14x14	16x16	16x16	18x18	18x18
Chimney section	Ø mm	160	180	180	200	200
Minimum chimney height	m	5	5	6	6	7
Width	mm	1302	1302	1302	1352	1352
Depth	mm	1153	1153	1193	1193	1267
Height	mm	1448	1448	1513	1563	1608
Supply and return socket diameter	cal	1 ½ "				
Release socket diameter	cal	½ "				
Diameter of the exhaust gas socket	mm	159	159	159	159	178

[1] Maximum area of heated rooms estimated for unit heat demand q=70 W/m^2.
[2] Fuel tank capacity for pellet bulk density 0,6 kg/dm^3.
[3] Boiler weight depends on its additional equipment.

Height of boiler can be additionally adjusted by means of provided levelling legs.
The regulation of legs varies from 38 to 50 mm.

ATTENTION! When ordering KOMFORT EKO EKOPELL boiler the customer should specify on which side the container should be located (right or left)

GAMMA |10-25 kW

EcoDesign requirements fulfilled for all powers.
The boiler meets the requirements of the class 5 acc. to the PN-EN 303-5:2012 for all powers.
Fuel: Wood pellet with diameter 6 mm.

5 years warranty for heat exchanger tightness, 2 years for the remaining components and efficient operation of boiler;

Heat exchanger made of certified high-grade steel;

High thermal efficiency reaching 94% due to increased heat recovery from flue gases;

APC K SLIM ADAPTIVE CONTROL servicing three pumps /central heating, domestic hot water, floor/. Control of one mixing valve; preview and change of parameters of the main ONLINE controller - extra payable option;

Boiler adapted for installation in the closed system provided that protections were installed in accordance with the operation and maintenance manual of the boiler;

Mechanical heat exchanger cleaning system;

ADAPTIVE CONTROL control - adjustment of boiler operation based on air flow through the heat exchanger;

Ceramic catalysts stabilising combustion process;

Fuel self-ignition system;

Pellet burner with automatic cleaning function in standard;

Weather control as standard;

Possibility of moving the fuel tank;

APC K SLIM CONTROLLER

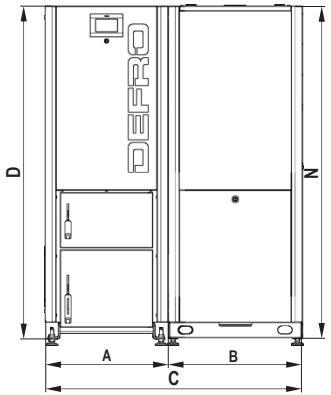
PELLET BURNER

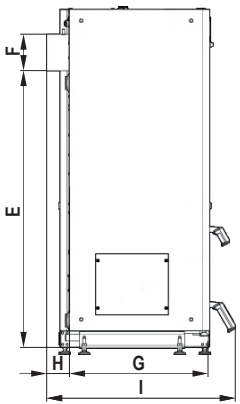
ADAPTIVE CONTROL

GAMMA | 10-25 kW

BOILER DIMENSIONS IN MM				
Dimension	10 kW	15 kW	20 kW	25 kW
A	557	557	607	657
B	605	605	605	605
C	1162	1162	1212	1260
D	1345	1495	1495	1495
E	1075	1225	1206	1206
F	159	159	178	178
G	617	617	617	617
H	100	100	100	100

BOILER EQUIPMENT / PRODUCT TYPE C	
Name	standard equipment
APC K Slim controller	yes
ADAPTIVE CONTROL	yes
PID function	yes
system for automatical cleaning of heat exchanger	yes
GSM module	no
INTERNET module	no
WIFI INTERNET module	no
levelling legs	yes
igniter	yes
ST-292 v3 room controller	no
ST-292 v2 room controller	no
DEFRO MZ module	no
room controller DEFRO SPK Lux	no
SPK Lux wireless regulator	no
set for wireless communication RS	no
central pellet burner with automatic cleaning function	yes





TECHNICAL DATA OF THE BOILER / PRODUCT GROUP D					
Specification / boiler type	unit	10	15	20	25
Power range	kW	3,0-10	4,5-15	6,0-20	7,5-25
5 class according to PN-EN 303:5-2012	-	✓	✓	✓	✓
Ecodesign	-	✓	✓	✓	✓
Heating area	m^2	1,3	1,5	1,9	2,3
Area of heated rooms [1]	m^2	to 125	to 185	to 250	to 310
Capacity of fuel container [2]	kg	~146	~146	~146	~146
Optimum thermal efficiency	%	~91,7-94,2			
Energy efficiency class		A+	A+	A+	A+
Max. permissible work pressure	bar	1,5			
Required flue gas draught	mbar	0,20	0,24	0,26	0,28
Water temperature on supply max.	°C	65/80			
Boiler weight [3]	kg	~355	~375	~411	~448
Boiler water tank capacity	l	77	96	103	111
Chimney section	cmxcm	14x14	14x14	16x16	16x16
Chimney section	Ø mm	160	160	180	180
Minimum chimney height	m	5	5	6	6
Supply and return socket diameter	cal	1 ½ "			
Release socket diameter	cal	½ "			
Diameter of the exhaust gas socket	mm	159	159	159	159

[1] Maximum area of heated rooms estimated for unit heat demand q=70 W/m^2.
[2] Fuel tank capacity for pellet bulk density 0,6 kg/dm^3.
[3] Boiler weight depends on its additional equipment.

Height of boiler can be additionally adjusted by means of provided levelling legs.
The regulation of legs varies from 38 to 50 mm.

ECOFLOW PUMP

HIGHLY EFFICIENT CIRCULATING PUMPS FOR HEATING SYSTEMS

Pumps supporting ECM technology and equipped with a rotor with permanent magnets, intended for use in central heating systems, floor heating systems, boiler systems and solar systems.

LOW RUNNING COSTS

Running costs are at the minimum level due to the highly-efficient motor with permanent magnet and electronic commutator (ECM technology) and the energy efficiency index (EEI) exceeds the level indicated in the ErP 2015 directive.

HOW TO IMPROVE EFFICIENCY?

The impressively simple design of the motor with patented Anti-Block technology (spherical-shaped shaftless motor). This solution requires only one bearing, which is self-levelling and does not require any shaft. It contributes to a considerable decrease in the number of expensive and complicated parts.

SPHERICAL ROTOR

Spherical rotor with permanent magnets is the only mobile part. The spherical motor of the pump does not have a shaft what ensures quiet operation throughout the entire service life. Separation of the magnetic compartment from liquid stream prevents jamming and damages of the pump.

EASY AND QUICK ELECTRICAL CONNECTION

Innovative plug, which is compatible with plugs of the pumps previously installed in the facility. Rotation of body motor with a ring allows setting plug in each position what ensures easy assembly.

THERMAL PROTECTION

The pumps are equipped with an internal temperature sensor as a standard. Operation of the pump between 105°C and 115°C results in a continuous decrease of speed of the pump. Pump stops automatically if the temperature reaches 125°C and restarts after cooling down to 115°C. Moreover, limitation of starting current to 6.5A protects also older and external components controlling the heating.

OPERATING MODES:

WHITE:
Stepless control of fixed rotational speed in particular for the supply of the boilers, conventional heating systems and systems with hydraulic separators;

BLUE:
Automatic control of proportional pressure Δp-v, in particular for thermostatic regulating valves on the radiators;

GREEN:
Automatic control of constant pressure Δp-c, used for floor heating.
Furthermore, blinking of LED informs about potential messages.

AUTOMATIC AIR BLEEDING:

Just turn the knob to air bleeding symbol for more than 5 seconds to start the automatic air bleeding function for the pump regardless which control option has been previously selected. This function allows the efficient removal of the air from the pump's interior. When this service operation is completed the pump automatically returns to all previously selected settings.

EASY TO USE

One knob controls all functions, from stepless control to automatic air bleeding. Multi-colour LED inside the transparent knob automatically shows currently selected control option.

NEW AND INNOVATIVE DESIGN

Deposits present in the pumped liquid may accumulate on fixed magnetic parts of the pump and be a cause of jamming and damage or decrease in efficiency. Ecoflow Pump is equipped with Anti-Block, separating the completely primary stream of pumped liquid from fixed magnetic parts.
Such innovative design of the Defro Ecoflow pump ensures correct and trouble-free operation even in the old heating systems.

TECHNICAL DATA		
Type	4	6
Range of temperature the medium [1]	0°C to +110°C	
Capacity	3,2 m³	
Delivery head	4 m	6 m
Maximum operating pressure	10 bar (Pn 10)	
Power supply	200-240 V, 50/60 Hz	
Electrical connection	plug	
IP rating of the housing	IP 44	
Insulation class	Class 155 (F)	
Operation	stepless control of constant rotational speed automatic control of proportional pressure automatic control of constant pressure	
Material	grey cast iron (EN-GJL-200) cataphoretic painting	
Speed range	pump automatically adapts the revolutions to demands of the system, automatic air bleeding, dry-run protection, Anti-Block	
Energy Efficiency Index EEI [2]	<0,21	<0,23
Standard connectors size	G 1½" - Rp1"	
Assembly length	180 mm	180 mm
Appliance class	I	
Allowable pumped media [3]	heating water acc. to VDI 2035, water-glycol mixture	
Weight	3 kg	3 kg

[1] They must not freeze. To avoid condensation temperature of the medium should be always higher than ambient temperature.
[2] Point of reference for the most effective circulating pumps is EEI <0.20
[3] The efficiency of the pump would change considerably when water-glycol mixtures with EEI higher than 20% are pumped.

PELLET BURNER

DESIGN AND INTENDED USE OF THE BURNER

The burner is a structure welded of heat-resistant steel H20N12S2. The burner is equipped with mobile grate connected with linear cylinder as a standard. This cylinder cleans furnace from the residues of ashes and sinters after each shutdown and set time. Body of the burner consists of intermediate screw-conveyor feeder, precisely dosing a dose of pellet in amounts ensuring optimum combustion conditions. Dose of air necessary for combustion is supplied by forced-draught fan to set of air nozzles designed and arranged in the furnace chamber of the burner. This solution ensures optimum oxygenation of combusted fuel and the other gases formed during combustion process. Shape of the grate was designed to achieve the best possible emission while maintaining high effectiveness of the combustion process. Automatic firing function is implemented by the ceramic heater. Burner is available in the power range from 15 to 75 kW.

FUEL QUALITY PARAMETERS

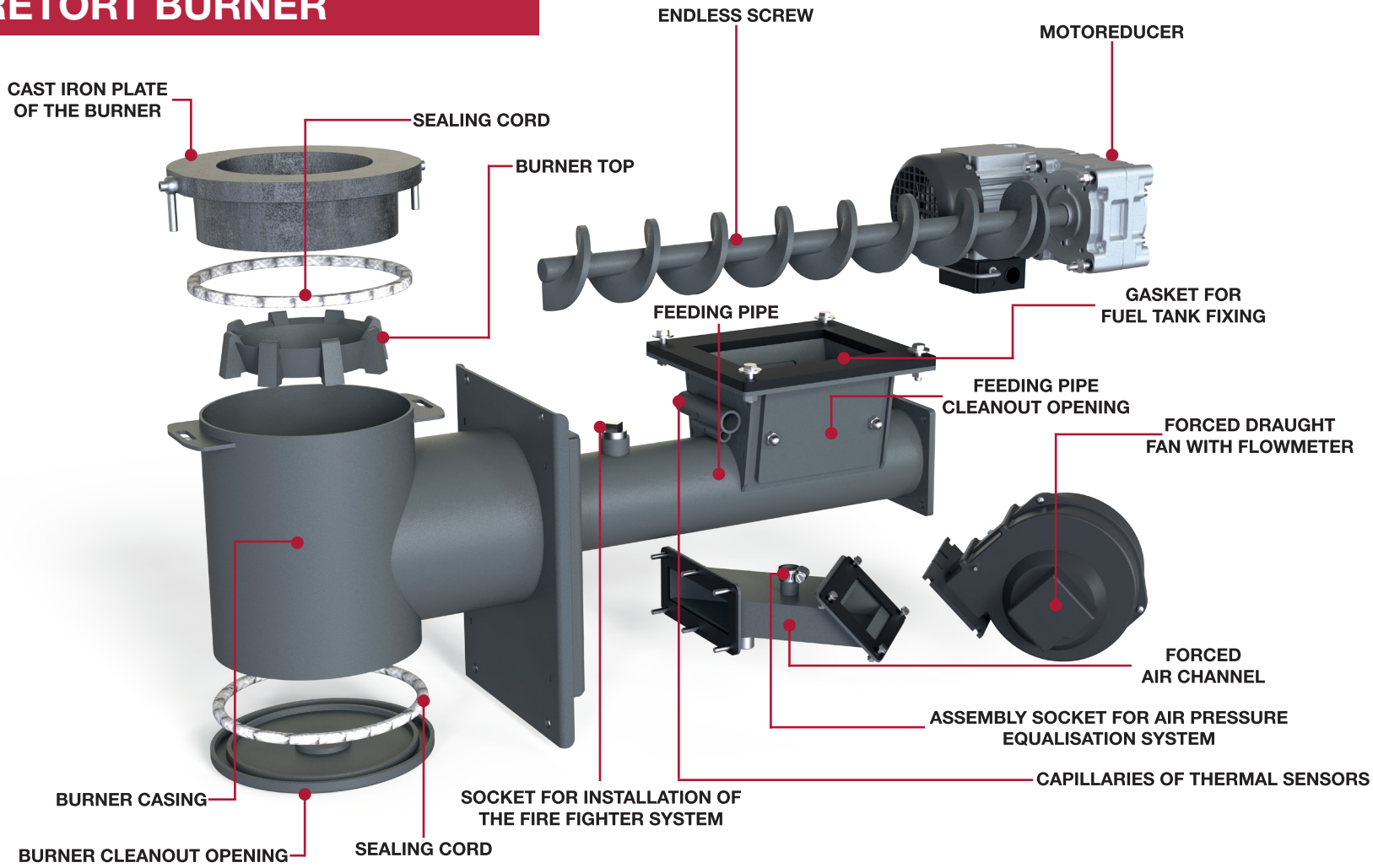
The burner is intended for combustion of wood granules with 6-8 mm diameter.
Fuel - pellet made acc. to PN-EN 14961-2:2011, class C1 with the following parameters:
- granulated product diameter: 6-8 mm
- length of granulated product: 3.15-40 mm
- calorific value: >17.0 MJ/kg
- sulphur content: max. 0.03%
- moisture content: ≤12%
- ash content : ≤0.5%
- bulk density: >600 kg/m3

COMFORT AND SAFETY

Burner operates in automatic cyclic mode and is characterized with maintenance-free firing up and automatic dampening depending on parameters set. Boiler servicing is maximally limited due to use of the intuitive electronic controller for operation of boiler/burner and well thought-out design solutions. Setting of boiler operation parameters and then ongoing adding the fuel to the tank and removal of ashes formed during combustion belong to the primary operations. Particular attention should be paid to furnace self-cleaning function by mobile grate from sinters and carbon deposits formed during combustion. Furnace self-cleaning function is implemented automatically after each damping damping of the boiler or in cycles, every 6 hours (setting can be changed). Thanks to this solution, the customer can enjoy comfortable use of the boiler.
Electronic controller is responsible for automatic operation of the burner and it cooperates with, among others:
- fuel feeder
- fan
- ceramic igniter (auto ignition function)
- flame detection sensor (photoelectric cell)
- burner's thermal overload relay
- limiter of safety temperature STB.
- moreover, it is also adapted for cooperation with heating system equipment e.g. mixers, pumps, buffer, weather and room control (detailed information in controller manual)

Electronic controller and furnace are equipped with series of protections to ensure maximally safe and trouble-free operation. In case of irregularities, the alarm is activated in the form of an acoustic signal and the display shows a relevant message informing about the reason for the alarm, e.g. lack of fuel (the function performed by the fuel level sensor). Several protections are used to protest boiler/burner against damage:
- temperature alarm
- STB safety temperature limiter
- automatic control of sensors
- protection against water boiling in the boiler
- feeding pipe overheating sensor

RETORT BURNER



DEFRO CONTROLLERS

APC 3 ADAPTIVE CONTROL

CONTROLLER FUNCTIONS:

- innovative control system ADAPTIVE Control using turbine flow meter ensuring optimum selection of fan and feeder operation parameters
- fan control (testing of air flow necessary for correct combustion process) and feeder
- control of central heating and domestic hot water pump as well as valves
- control of auxiliary equipment
- control of two mixing valves with assigned circulation pumps
- control of two additional devices e.g. circulating pump, additional central heating pump
- automatic firing up and damping a boiler
- weekly programs
- control through the internet (remote firing up and damping) via www.emodul.pl
- possibility to connect room controller with RS or conventional communication e.g. SPK LUX
- option to connect the ST-65 GSM module
- firing up using a heater
- fuel consumption measurement using volumetric sensor installed in fuel tank as a standard
- possibility to control additional mixing valve using DEFRO MZ module
- large colour graphical display
- controller panel located in the control desk with adjustable inclination angle
- temperature sensor for central heating, domestic hot water, valves, external of return and flue gas
- photoresistor (flame sensor)
- equipped with temperature protection (thermal overload relay)
- equipped with temperature protection for burner

K1PV4

CONTROLLER FUNCTIONS:

- innovative ADAPTIVE CONTROL control system using turbine flow meter ensuring optimum selection of fan and feeder operation parameters
- archive of last twenty alarm conditions of the boiler
- possibility to export temperatures history to external memory (USB)
- possibility to operate with exhaust fan module.
- control of fan and auger conveyor
- control of actuator of mixing valve as a standard
- weekly programs
- control of central heating and domestic hot water pump
- control of two additional pumps
- possibility to connect room controller with RS or conventional communication e.g. SPK LUX
- possibility to connect DEFRO GSM module
- possibility to connect new version of DEFRO Internet module allowing remote change of boiler operation parameters (access to user and service menu) via www.emodul.pl
- possibility to control two additional valves using DEFRO MZ modules
- servicing of motoreducer with reverse operation (not applicable to PZ version)
- large colour graphical display
- touch panel
- adjustable angle of the screen, from 45° to 105°
- temperature sensor for central heating, domestic hot water, valve, additional, flue gas and external temperature
- temperature protection (thermal overload relay)
- temperature sensor for endless screw (protection)
- high quality casing

APC 3 SLIM

CONTROLLER FUNCTIONS:

- innovative control system ADAPTIVE Control using turbine flow meter ensuring optimum selection of fan and feeder operation parameters
- fan control (testing of air flow necessary for correct combustion process) and feeder
- control of central heating and domestic hot water pump and valve
- control of auxiliary equipment
- control of one mixing valve
- automatic firing up and damping a boiler
- weekly programs
- control through the internet (remote firing up and damping) - option
- possibility to connect room controller with RS or conventional communication
- option to connect the ST-65 GSM module
- firing up using a heater
- possibility to control additional mixing valve using DEFRO MZ module
- large colour graphical display
- controller panel located in the control desk with adjustable inclination angle
- temperature sensor for central heating, domestic hot water, valve, flue gas
- photoresistor (flame sensor)
- equipped with temperature protection for burner

MASTER 300 RS

CONTROLLER FUNCTIONS:

- maintenance of set boiler temperature by control of blowing and operation of the feeder
- option to add using RS modules extending regulator capacities:
- boiler weather compensation control and additional control of mixing valve
- modules (max. 3) controlling the mixing valve cooperating with separate thermostat
- set fan power
- programmable boiler blowing
- adjusted extinguishing time and automatic shutdown of control when no fuel is available
- control of operation central heating circulating pump
- possibility to switch on or switch off priority of domestic hot water
- control of pump loading the domestic hot water heater depending on to the required temperature
- boiler and domestic hot water pump operation acc. to the one of weekly programs, installed in the regulator
- COMFORT SYSTEM function, protecting pump against deposition of scale
- protection system - thermal fuse
- function protecting the system against frosting and overheating of the boiler
- signalling of temperature sensors damage
- adjustable brightness of the display - increased when settings are changed
- possibility to connect local thermostat DK Logic 100

HG PID

CONTROLLER FUNCTIONS:

- possibility to operate with exhaust fan module.
- control of fan and auger conveyor
- control of actuator of mixing valve as a standard
- weekly programs
- control of central heating and domestic hot water pump
- control of additional pump
- possibility to connect room controller with RS or conventional communication
- possibility to connect DEFRO GSM module
- possibility to connect new version of DEFRO Internet module allowing remote change of boiler operation parameters
(access to user and service menu)

ROOM REGULATORS AND ADDITIONAL MODULES

DK MATIC

REGULATOR FUNCTIONS:

- control of heating circuit equipped with mixing valve with actuator
- boiler temperature control if it is adapted for such purpose or option to develop with 2 DKMZ modules for servicing of mixing valve with actuator
- adjustment of temperature of two circuits based on external temperature according to the selected heating curve
- possibility to select independent heating curve for the each circuit
- function of upward or downward displacement of curve for better adjustment to the thermal characteristic of the building
- function protecting the system against frosting and overheating of the boiler
- signalling of temperature sensors damage
- co-operation with a room thermostat

DKMZ

REGULATOR FUNCTIONS:

- control of second heating circuit equipped with 3/4 valve with actuator
- adjustment of temperature of two circuits based on external temperature according to the selected heating curve (after connecting to controller with external temperature sensor)
- possibility to select independent heating curve for the boiler and circuit with mixing valve
- function of upward or downward displacement of curve for better adjustment
- function protecting the system against frosting and overheating of the boiler
- signalling of temperature sensors damage
- co-operation with a room thermostat

LOGIC 100

REGULATOR FUNCTIONS:

- option to set various programmes for each day of the week
- two factory programmes
- option to set own programme
- two temperatures for selection - day and night
- six heating periods during the day
- easy and intuitive programming method
- option of short-time changes of heating temperatures
- adjustable hysteresis from 0.1 °C to 2 °C
- temperature indication correction from -5 °C to +5 °C by 0.1°C
- easy installation
- protection against frosting
- temperature adjustment by 0.1 °C
- multifunctional display

DEFRO MZ

MODULE FUNCTIONS:

- smooth control of actuator of three-way and four-way mixing valve
- control of pump operation
- protection of return temperature
- weather compensated control
- co-operation with a room controller
- cooperation with boiler controller through RS communication
- LCD display
- valve temperature sensor
- return temperature sensor
- outside sensor
- housing made of high quality materials resistant to high and low temperatures

ST-292 v3

REGULATOR FUNCTIONS:

- room temperature control
- weekly heating plan
- day/night program
- manual program
- OptimumStart function - selection of optimum time for boiler start-up to achieve thermal comfort to heat the room up to the set temperature for a previously set time
- heating/cooling function
- temporary display illumination
- built-in room sensor
- front panel made of glass 3mm
- capacitive buttons

ST-292 v2

REGULATOR FUNCTIONS:

- wireless communication
- room temperature control
- weekly heating plan
- day/night program
- manual program
- OptimumStart function - selection of optimum time for boiler start-up to achieve thermal comfort to heat the room up to the set temperature for a previously set time
- heating/cooling function
- temporary display illumination
- built-in room sensor
- wireless external sensor (additional option)
- floor temperature sensor (additional option)

WIFI PK MODULE

MODULE FUNCTIONS:

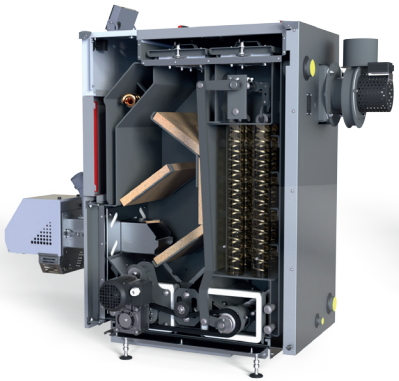
- NO/NC relay output
- built-in temperature sensor
- on wired external sensor C-7 p
- option to select sensor for module operation
- supervision using web application www.emodul.pl

DEFRO SPK LUX

REGULATOR FUNCTIONS:

- central heating boiler temperature control
- domestic hot water temperature control
- control of temperature of mixing valve
- room temperature control
- preview of the outside temperature
- weekly heating plan
- alarm clock
- parental lock
- displaying current boiler and room temperature waveforms
- display of alarms in the main controller of the boiler
- large, easy-to-read, colour, touch screen
- built-in room temperature sensor
- RS communication cable for the boiler controller

HEAT EXCHANGER CLEANING SYSTEM



AUTOMATICAL CLEANING SYSTEM

MECHANICAL CLEANING SYSTEM

An improvement in form of heat exchanger cleaning was introduced to increase the comfort of boiler operation. Depending on boiler model it can be started manually - using a lever or automatically using electric drive. The system uses economizers in form of springs, located in boiler chimney draughts, which allow comfortable cleaning of heat exchanger walls. Furthermore, economizers cause flue gas swirling, what increases heat recovery from flue gas and limits emission of dusts to the atmosphere.
It is possible to program times and period of cleaning in case of the automatically started system.

The mechanical cleaning system is available as standard equipment in boilers:

- Sigma Ekopell
- Sigma E
- Defro Kompakt Ekopell
- HG

Automatic exchanger cleaning and ash removal system available as standard equipment in boilers:

- Alfa
- Defro Kompakt Ekopell F

ADAPTIVE CONTROL SYSTEM

The innovative self-adapting control system adjusts boiler operation based on the amount of air flowing through the heat exchanger allowing precise feeding of air for combustion in relation to the fuel dose. The most important components of the system:

- turbine flowmeter with Hall sensor transferring signal to the controller related to the amount of air supplied for the combustion process,
- flue gases temperature sensor providing information about its current value.

Based on collected data boiler correspondingly adjusts the amount of air and fuel necessary for the combustion process to achieve temperature set by the user in an effective way. ADAPTIVE CONTROL system considerably improves the efficiency of the combustion process, what translates into a decrease of emission of pollution to the atmosphere. It considerably improves also increase of boiler servicing comfort by the elimination of necessity to adapt the operation parameters by the user depending on changing operating conditions.

FEEDER OVERLOAD PROTECTION SYSTEM

The driving system is equipped with motoreducer with installed Hall sensor, transmitting the information to the electronic controller about the current operation of the fuel, that is its revolutions and direction. If the endless screw is jammed the controller automatically switches the direction of revolutions (worm is withdrawn) for several seconds and then it attempts to overcome the obstacle. If the process is not successful then another two attempts will be undertaken. But, for each attempt, the motoreducer withdraws the worm two times longer. The solution eliminates the problem of troublesome replacement of security pin if the feeder is blocked.

TWIN SPARK SYSTEM (TSS)

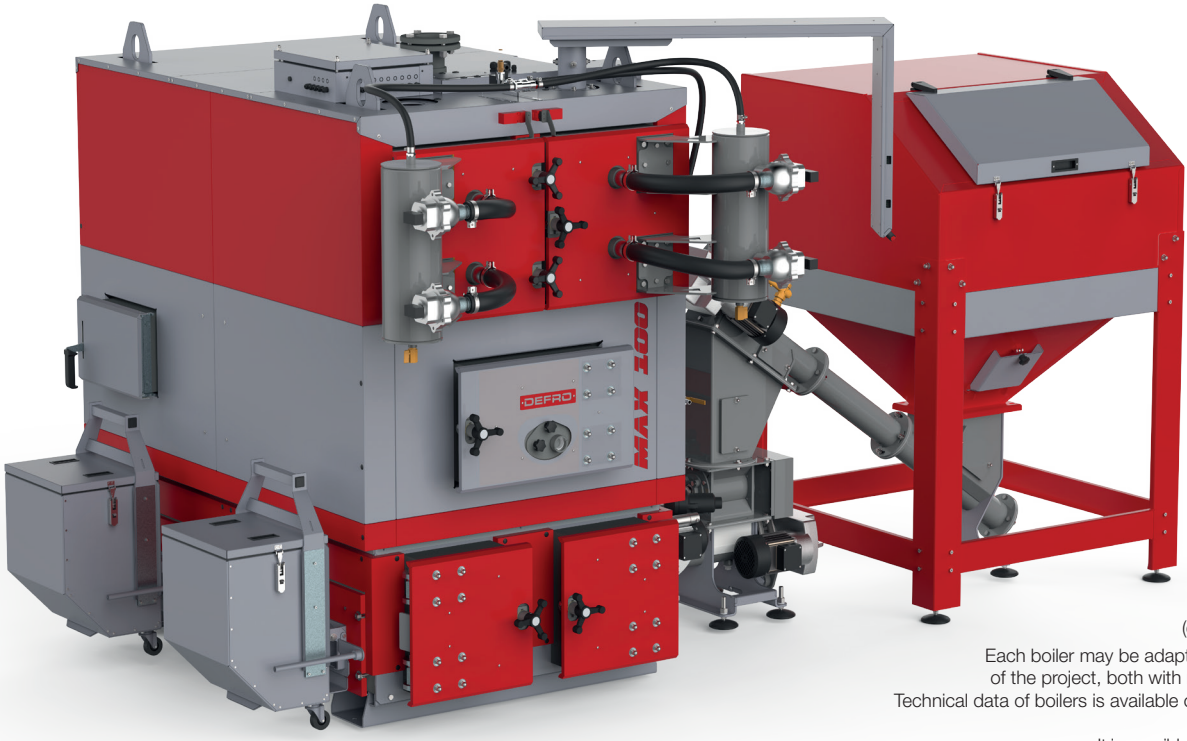
TSS- TWIN SPARK SYSTEM

Innovative solution based on the use of two ceramic heaters in selected DEFRO boilers fired with a pellet. Correctly configured controller algorithm adjusts operation ensuring that they operate alternately. It means that only one heater is used for each firing up the process and it is used every second cycle. Use of the TSS system lengthens the time of service of the firing system two times. Furthermore, if one of the heaters is damaged then the second takes its function, what allows trouble-free start-up of the boiler. At the same time, the user is informed about the immediate replacement of the damaged component.

FUEL LEVEL CONTROL SYSTEM

Revolutionary fuel level control system cooperating with a capacitive sensor. If the minimum, factory-specified fuel level in the container is detected, the sensor stops boiler operation, and the user gets information about the necessity to add the fuel. An unquestionable advantage of the system it possibility of automatic start-up of the boiler after recharging the fuel.

MAX SERIES BOILERS 50 - 900 kW



EkoPell Max F 300-800 kW
- version with automatic cleaning and ash removal
(extra payable according to the price list of boiler equipment)

Each boiler may be adapted by our construction department to the requirements of the project, both with respect to technical issues, equipment and automation. Technical data of boilers is available on the request, after determination of execution version.

It is possible to adapt the boiler for the individual needs of the customer.

EKOPELL MAX Fuel: wood pellet with diameter 6-8 mm			
POWER	PRODUCT TYPE	5th CLASS	ECODESIGN
75 kW	B	✓	✓
100 kW	B	✓	-
150 kW	B	✓	✓
200 kW	B	✓	-
250 kW	B	✓	-
300 kW	B	✓	✓

EKO MAX Fuel: eco-pea coal 5-25 mm			
POWER	PRODUCT TYPE	5th CLASS	ECODESIGN
75 kW	B	✓	✓
100 kW	B	✓	-
150 kW	B	✓	✓
200 kW	B	✓	-
250 kW	B	✓	-
300 kW	B	✓	✓

The biggest manufacturer of central heating boilers in Poland

Nr 1

fired with solid fuels

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registered office: 00-403 Warszawa, ul. Solec 24/253,
National Court Register: 0000620901, TIN: 9591968493, REGON: 363378898

Address for correspondence/production plant: 26-067 Strawczyn, Ruda Strawczyńska 103A
tel. 41 303 80 85, fax: 41 303 91 31, e-mail: biuro@defro.pl

Current prices of the products are available from the DEFRO authorized distributors or in authorized points of sales. List of authorized points of sales is available at www.defro.pl. The catalogue includes suggested retail prices.

Validity period: 01.03.2019-31.03.2019

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