

Pellet boiler PK30/31, PK50/51, PK100 and PK160

Installation and user manual

DK8903A7





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Manufacturer of pellet boilers PK: Pelltech OÜ Manufacturers address: Sära tee 3, Peetri, Rae vald, 75312 Harjumaa ESTONIA Name of product: Pellet boiler PK Ph.+3726775277 www.pelltech.eu info@pelltech.ee

1 General

This manual is intended for all users and contains general information and handling with PK30, PK boiler. We recommend you pay great attention to the safety regulations. The owner / user shall read and understand this manual before installation and operation of the burner.

1.1 Application

Pellet boiler PK is a highly efficient 2-pass boiler for combustion of wood pellets. It can be used for heating a single or semi-detached houses or smaller public buildings. PK30 and PK50 boiler is specially designed to work with PV-series B-version burners. Such combination and integration ensures efficient, perfect and care free combustion of pellets and helps to save heating costs.

The end-user is obliged to maintain the device according to the following manual in order to avoid any problems. The need for boiler's maintenance depends on the quality of the fuel (pellets) and the output power (fuel consumption) and it varies throughout the year.

2 Safety

Read and follow these directions carefully. Read the safety instructions carefully before installation. Always follow the safety instructions during installation and during maintenance. Follow the safety instructions on the warning and notice signs!

Installation, operation, service, and other work must be carried out by qualified personnel in accordance with local codes and regulations.

Always follow the instructions for operations and service.

2.1 Safety instructions for installation, use and service

The owner / user shall read and understand this manual before installation and operation of the burner. For proper function and to avoid accidents and damage, these instructions must be followed. Wrong handling and incorrect settings can result in injury and damage and / or malfunction of the equipment.

- The room where the boiler is installed must fulfill all rules and recommendations in accordance with local codes and regulations.
- All plumbing and chimney sweeping shall be done by certified and qualified personnel in accordance with local codes and regulations.
- Boiler and all accessories operate using 230VAC electrical current. Improper installation or repair can pose the danger of life-threatening electrical shock.



- All electrical installation and service work shall be done by certified and qualified personnel in accordance with local rules and regulations. Do not perform electrical work unless you have the required qualifications. Perform a complete boiler shutdown and disconnect the power supply prior to performing any work on the device. Observe all guidelines with respect to installation, service, or cleaning.
- Keep children away and do not touch the equipment during operation.
- There is a risk of fire. Make sure that no flammable or liquid materials are stored in the boiler room or vicinity of the boiler. Do not use chemicals or fluids to start the burner fire. Do not burn garbage, gasoline, naphtha, engine oil, or other materials.
- There is danger to life from flue gas poisoning. Make sure there is adequate combustion air under all circumstances in the boiler room.
- It is recommended to wear a respirator while handling pellets.
- Use only approved pellets as described in the section **Error! Reference source not found.**. Burning any other type of fuel voids the warranty.
- Follow the manual carefully. Follow the recommended cleaning and maintenance.

Proper installation of the boiler is necessary for safe and efficient operation. Contact your local building inspector to obtain any necessary permits or inspection guidelines before installing the product. Contact local building or fire officials about restrictions and installation inspection requirements in your area. Contact your local authority (such as municipal building department, fire department, fire prevention bureau, etc.) to determine the need for a permit. A working smoke detector is required and must be installed in the same room as the burner. This installation must conform to local codes and regulations.

2.2 Warnings

- Changing the construction of the boiler without written permission from the manufacturer is forbidden.
- For personal and operational safety, use only spare parts provided or approved by Pelltech OÜ in order to avoid any damage to the burner and dangers resulting from it. Use of spare parts not provided or approved by Pelltech OÜ will void the warranty.
- Manufacturer of burners has the right to make changes in construction of burner and its firmware.

2.3 Safety devices

The boiler is equipped with following safety devices:

- Safety valve (overpressure relief valve): will apply when pressure in boiler exceeds 2,5 bar. There are several possibilities to mount the overpressure valve. Some examples are depicted in Annex 1.
- **Door switch:** does not allow to start the burner when the door of boiler is open. When the boiler door is opened during work process the burner will automatically shut down and go to end burn state. By then closing the door burner continues normal burning.
- Safety thermostat: interrupts boilers work when its temperature rises over 95°C. Safety thermostat has to be reset manually.



3 Fuel

Only wood pellets only shall be used with PK-series boilers. Not only premium but also the industrial pellets can be used. Burning wood pellets according to recommendations and the specifications set forth will assure longer burner life and lessen potential maintenance issues. Pellets must be stored in a dry and ventilated room. PK boiler is foreseen to burn ENPlusA1, A2 ja EN-B wood pellets. Some key data for pellets is given in Table 1.

3.1 Pellet quality

Not all wood pellets make good fuel. It is always a good idea to review the pellet's analysis and try some before committing to several tons. Higher pellet quality allows for more efficient operation. Many variables contribute to the quality of a wood pellet. Many of these have been identified and are regularly tested for by most pellet manufactures and distributors.

Pellet material: Pellets should be made of softwood or hardwood or some combination of the two. Pellets should smell like wood. If not, then other materials may have been used in their manufacturing process. Examples are cardboard and paper that produce excessive ash and require chemical binders to hold the pellets together. All wood pellets (100% wood) don't require binders and rely on the lignin in the wood to hold the pellets together. A few all wood pellets dropped in a glass of water should swell up quickly. If they don't swell up, this may be an indication that the pellets are not entirely made of wood.

The following table represents the pellet properies that are recommended by Pelltech.

Raw material	Sawdust, cutter shavings, stem wood, logging residues, bark, chemically untreated byproducts and residues
Calorific value	4600-5200 kWh/tonne
Bulk density	> 600 kg/m ³
Volume of 1 ton	1.5-1.6 m ³
Diameter	6-8 mm
Length	540 mm
Fines content (<3,2 mm)	< 1 %
Moisture content	< 10 %
Ash content	< 2%
Ash fusion temperature	> 1100 °C

Table 1 Wood pellets



4 Technical data

Table 2 Technical data

Model	Unit	PK30/31*	PK50/51*	PK100	PK160	
Heat output range	kW	11-24	18-42	26-90	40-140	
Rated thermal load	kW	30	50	100	160	
Boiler class according to EN 303-5	-			5		
Minimum return water temp.	°C			55		
Recommended heating water	°C			75		
temp.						
Permiss. working tempetature	°C			90		
Safety thermostat's triggering	°C			95		
temp.						
Permiss. operating pressure	bar	2,5				
Test pressure	bar	4				
Dimensions WxLxH	mm	600x600x1510	600x800x1510	785x995x1524	785x1175x1592	
Combustion chamber's dimensions	mm	330x400x700	330x600x700	430x840x710	430x969x710	
WxLxH						
In-take width (w.o side panels)	mm	500	500	685	685	
Boiler's water volume	- 1	125	150	275	300	
Ash box volume	I	38	54	97	115	
Boiler's weight	kg	196	313	495	620	
Mains supply		230V, 50Hz				
Electrical consumption at ignition	W	400 300				
Electrical consumption at stand by	W	:	3		7	
Electrical consumption average	W	5	0	70	110	
Electrical heating element*	kW	6	9		-	
(option)	2					
Combustion air inlet hatch	cm ²	>200	>300	>600	>900	
Number of turbulators	pcs	4	7	14	22	
Chimney's diameter	mm	>100	>120	>150	>180	
Flue gas outlet	Ømm	112		150		
Burner's fixing flange	mm	90		130		
Boiler top connections	pcs	2xG1"		2xG1,5"	2xG2"	
Distance between top connections	mm	125		560	758	
Boiler back connections	pcs	2xRp1"		2xRp1,5"	2xRp2''	
Required safety valve connection	pcs	1xD	N20	1xDN25	1xDN32	
Flue gas temp. at full load/min load	°C	120 / 70	130/80	148/79	174/99	
Flue gas mass flow at full load/min load	g/sec	10/5	20/10	40/15	70/30	
Efficiency at full load/min load	%	93 / 93	92 / 92	92/94	90/92	
CO (13% O2)	mg/m ³	95 / 59	232 / 148	157 / 119	185 / 49	
Dust (13% O2)	mg/m ³	15 / 18	18/16	16,1 / 23,7	19,8 / 20,9	

4.1 Measurements and main parts

PK30 boiler's main parts are similar to PK50.



1. Boiler main switch	12. Connection G1" outflow		
2. Boiler thermostat	13. Connection G1" inflow		
3. Temp. and pressure gauge	14. Pocket for thermostats Rp 1/2"		
4. Safety thermostat	15. Heat exchangers tubes cleaning motor		
5. Handle of furnace door	16. DIN rail for electrical connections		
6. Furnace door	17. Heat exchangers tubes cleaning mechanism		
7. Handle of ash box door	18. Connection Rp1" outflow		
8. Ash box door	19. Flue gas outlet tube		
9. Burner mount flange	20. Connection Rp1" inflow		
10.Burners cable lead-out	21. Pocket for pressure cauge Rp¾"		
11. Flue gas outlet tube			



PK100 boiler's main parts are similar to PK160.





Figure 1 Boilers' main parts and measures



1. Boiler main switch	13. Flue gas fan
2. Safety thermostat	14. Connection fitting Rp1 ¹ / ₂ " or Rp2" outflow
3. Safety thermostats signak lamp	15. Connection fittting for over pressure cauge G1"
4. Boiler thermostat	16. Connection fitting Rp1½" or Rp2" inflow
5. Temp. And pressure gauge	17. Flue gas fan
6. Boilers controller	18. Connection fitting G1½" or G2" outflow
7. Burner's cable lead- out	19. DIN rail for electrical connections
8. Furnace door	20. Heat exchangers tubes cleaning motor
9. Handle of furnace door	21. Heat exchangers tubes cleaning mechanism
10.Handle of ash box door	22. Connection fitting G1½" or G2" inflow
11. Ash box door	23. Pocket for pressure cauge Rp¾"
12.Burners mounting flange	24. Pocket for thermostats Rp ½"

4.2 Control and monitoring devices

Boiler PK30, PK50



Boiler PK0031 and PK0051



Boiler PK30+, PK50+, PK100 and PK160





Main switch of boiler enables to turn boiler and burner on-off.

Boiler thermostat controls burners work by switching it on-off according to pre-set temperature.

Integrated temperature and pressure gauge shows actual temperature and pressure in boiler

Safety thermostat switches boiler and burner off when bolilers temperature exceeds 95°C. You can reset it manually.

Electrical heating element's thermostat switches heating element on when boiler's temperature drops down temperature set on heating element thermostat and off when temperature exceeds pre-set level.

Orange signal lamp of electrical heating element is lit up when heating element is switched on.

Red signal lamp is lit when safety thermostat is applied.

4.3 Flue gas circulation in boiler



- 1. Flue gas fan
- 2. Heat exchanger's tube
- 3. Stone wool
- 4. Connection
- 5. Ash box
- 6. Furnace
- 7. Water jacket
- 8. Connection
- 9. Connection
- 10. Connection

Figure 3 Flue gas circulation

4.4 Permitted usage

Present device is a solid fuel boiler that produces low pressure warm water. Usage of boiler for other purposes is not allowed.



5 Set of components

The boiler is shipped with following components included:

- 1. Boiler PK
- 2. Safety valve (for PK30/31, PK50/51)
- 3. Screw fastened foot, 4 pcs

6 Delivery

The boiler is delivered as a complete unit. Boiler is wrapped in card board sheets and packing-film and fixed with two metallic angle to wooden pallet. Angles must be removed before boiler's installation. In order to remove the angles the side panels must be removed by lifting them up and pulling them to side.

The boiler can be lifted and carried to the installation site by using a pallet truck. There is a welded hook on the top of boiler that enables to lift the boiler when needed. The taking-in weights and widths are given in Table 2.





Figure 4 Front, side and back views of boiler



7 Boiler installation

Only persons holding necessary licences, knowledge, skills and equipment can be trusted with assembly of the boiler.

7.1 Boiler room requirements

Any room with normal air humidity and temperature is suitable for boiler's installation. Room has to be provided with a chimney connection, sufficient draft and fresh air supply. It is not allowed to install boiler to room that is very dusty or humid. The boiler room should not be too small otherwise boiler's heat radiation could overheat it. Boiler room has to satisfy all local statutory regulations and directives.

Boiler, burner, external auger and pellet container form common system. The size and location of the pellet container depends on needs and construction of boiler room or boiler house. It is recommended to install the container to the left from boiler. In this case there is no need to remove augers hose while opening the boiler door.

While choosing the pellet container keep in mind that:

- if the pellet container is in the same room with the boiler then the size of the pellet container must not exceed 500 liters (appr. 350kg).
- the container must be made of fireproof materials
- the container must be positioned in a way that the raising angle of the feeding auger does not exceed 45°.



Figure 5 Installation of pellet container, external auger and hose

7.2 Boiler room clearances

Position of the boiler has to be as close as possible to the chimney in order to avoid having a long flue connecting pipe. Boiler should be set on a non-flammable heat insulating pad or concrete floor. In order to enable safety installation and later maintenance, follow recommended clearance dimensions. Minimal clearance dimensions in centimeters are in brackets. See Figure 6.

The boiler door opens to the left (PK30/50) or to both sides (PK100/160).

In Figure 7, 8, 9 and 10 are depicted dimensions of burners farther edge in millimeters from boiler's left side panel when boiler's door is opened.





A Container

B Boiler

C Burner

Figure 6 Boiler room clearences



Figure 7 Distance of PV20/30 burners



Figure 8 Distances of PV50b burners







Figure 9 Distance of PV100d burner

Figure 10 Distance of PV180c burner

7.3 Combustion air

An adequate supply of combustion air is nessecary for normal burning process. Air delivery shall take place through the non-closed hole.

7.4 Mains supply

The boiler is designed for supply voltage 230V/50Hz. TN-S earthing system is used. The boiler and burner are pre-wired in factory. Boiler has to be connected to mains supply with 3-core cable. It is recommended to protect burner and boiler against short circuit with 6A fuse or 6A C type MCB or RCD. It is recommended that boiler and boiler room lighting system have a different mains supply circuits.

For electrical supply of electrical heating element, the heating elements have to be connected with 5-wire $5x2,5 \text{ mm}^2$ cable. To protect heating elements 3x10A (boiler PK0031) or 3x16A (boiler PK0051) B-type MCB is used.

Notice: Installation of electrical components may only be performed by a qualified technician. The regulations and specifications of local ordinances must be followed. In areas with increased power surge risk (e.g., lightning strikes in regions prone to storms) installation of an appropriate surge protector is reccommended.

Electrial diagramms are depicted on Annex 2.



7.5 Heating systems water or liquid

It is allowed to use in heating system:

- ordinary drinking water (only minimal refilling!)
- softened water
- glycol dilution up to 50%

7.6 Flue gas tube and chimney connection

PK30 and PK50 boilers have 110 mm flue tube outlet for chimney connection. PK100 and PK160 have 150mm flue tube outlet. Flue tube is connected with boilers flue tube flange, which measures are depicted on Figure 3 . Connecting boiler with flue tube and connecting flue tube to chimney has to be made strictly according to local regulations.

PK boilers have high efficiency, therefore outcoming flue gases have low temperature. If fluegas temperature in the top of chimney is below 80°C then pitch and water condensate will appear. With cold weathers they will damage chimney within few years. To protect chimney of the condensate a metal stainless tube has to be mounted into chimney.

8 Installation instructions

To avoid scratching side panels it is recommended to remove side panels and upper thin of boiler before installation. In order to remove side panels lift them up and pull outwards.

To boiler's set belong 4 screw fastened feet that enable to adjust installation level. In order to mount the feet boiler has to slope slightly firstly to one side and screw feet to its nests. Then slope boiler slightly to other side and screw feet to its nest. By screwing feet up or down adjust suitable level of boiler.

Boiler is lifted to planned place and connected to chimney and plumbing according to project by using specified materials. The volumes of PK boilers expansion tanks are given in Table 2. Some of boiler connections are depicted on Annex 1.

After completing installation place side panels and upper panel back to place.

9 Installation of the PV-series burner

Installation of the PV-series burners in particular is described in their user's manuals.

10 Initial start-up and operating instructions

10.1 Preconditions

The following preconditions must be met before initial start-up:

- boiler is installed correctly and connected to waterworks and heating system
- central heating system is rinsed, filled and vented, heat consumption is provided
- domestic hot water boiler is connected and filled
- boiler is connected to chimney
- no dampers in a fluegas duct
- system is electrically wired up, burner and external auger sockets are connected firmly
- sufficient quantity of pellets available in container



- external auger is connected to burner and auger is installed according to requirements
- boiler's doors and hatches are closed and all combustion air comes from the burner
- boiler's thermostat is set to lowest temperature
- burner is installed correctly, the neck of burning chamber sits correctly in burner's housing.
- burners body and burning chamber are firmly fixed

The initial start-up cannot be carried out if any of these points above is neglected.

10.2 Filling the fuel container

The fuel container must be filled before initial start up. Fuel can be added at any time during the operation. If the container runs empty, the burner stops working safely and turns itself off. In initial loading and in loadings after run out external auger must fill itself. It can take up to 20 minutes.

10.3 Initial start up of boiler

Before initial start up make sure that requirements by 13.1 are fulfilled. If so:

- connect boiler to mains supply
- turn boiler on from main switch
- turn boilers thermostat to desired temperature. Usually it is +75°C

If PV20b, PV30b, PV100b or PV180b burners are used, then

- be sure that in main menu's submenu PARAMETERS, PAR30 is set to "1" or "0" and PAR50 to "6".
 Now motors of flue gas fan and self-cleaning mechanism are switched on.
- turn burner on from BURNER menu by selecting ON or keep OK button down over 3 seconds.
- burner displays WAITING, then TESTING and then LOADING. First loading may take about 20 minutes.
- if there is enough pellets in the burner, the green LED will lit up
- now follows IGNITING state where hot air coming from igniter ignites pellets in burning chamber
- next state PRE-BURN assures existence of permanent flame, the yellow LED will lit on
- BURNING is routine state of pellets combustion and heat production
- if boiler has reached pre-set temperature the process will be completed by END-BURN and END-BLOW actions
- after that burner goes back to WAITING state

Read more about PV20b and PV30b burner's actions from user manuals. All subsequent statuses are similar with above described ones.

11 Cleaning the boiler and burner

Although the boiler has automatic self-cleaning system which is controlled by burner, maintenance and emptying the ash box need to be done manually. Boiler self-cleaning system rotates turbulators inside heat exchangers after time pre-set in PAR56 and PAR57 in order to remove ash from heat exchanger tubes. The ash is collected to ash box. It recommended to empty the ash box when it is filled up to 2/3.

Depending on intensity of heating and quality of pellets the frequency of cleaning cycles may vary.

It is recommended to clean boilers inner walls from deposited ash and non-burned residues at least once a month and every time after the end of heating season.



Before cleaning the boiler turn burner off from main menu. Let burner to finish burning procedure and wait at least one hour to cool boiler down before attempting any maintenance or cleaning works. Turn boilers main switch off. Only then you can open safely the boiler doors and start cleaning.

Periodic cleaning helps to prolong life time of devices and improves burning quality significally.

12 Boiler's everyday operation

Boiler and burner work in fully automated mode and don't need daily inspection. Boilers everyday work is controlled by boiler's thermostat and burner's controller.

Thermostat switches burner on or off according pre- set temperature. Controller:

- regulates fuel supply and quality of burning process
- selects optimal power levels
- cleans heat exchangers tubes
- speed of flue gas fan according to underpressure sensor or pre-set power levels
- ensures safety of whole system

In danger situations or mains supply loss the burner will stop work of boiler and makes safety shut down.

13 Warranty and manufacturers liability

The warranty protects user within 2 years from manufacturer's defects under conditions that boiler is operated as assumed in present manual. Warranty starts from date in sales invoice unless not been agreed otherwise.

Warranty is not valid when faults are caused by:

- transportation and/or handling organized by user
- incorrect installation by installer
- misuse of device
- unauthorized changes in construction of device
- ignoring cleaning and maintenance instructions or leaving unattended
- errors and interruptions caused by ambience



14 Troubleshooting

Problem	Reason and solution				
Boiler doesn't switch on	Boilers main switch is turned off				
	Turn boilers main switch on				
	Boiler is overheated and safety thermostat has applied				
	• Discover reason for overheating and eliminate it. Reset safety				
	thermostat by removing its protective cover by turning it counter				
	clockwise and pushing thermostates white button.				
	Boilers thermostat is broken and doesn't control burner				
	Check condition of thermostat. Replace thermostat when needed.				
	Burners door is not closed and door switch is open.				
	Close the door properly.				
Boiler emits smoke or	Flue gas fan doesn't work				
burns back	• Turn fan on by selecting PAR30 and "1" (or "0" when using				
	underpressure sensor)				
	Flue gas fan doesn't rotate sufficiently				
	Add rotations PAR38>100%(PV20b/PV30b burners)				
	Flue gas fan rotates hardly or makes uncommon voice				
	Keplace fan				
	Poor air supply of boller room				
	 Improve air supply. Make sure your boller room has critical air supply by Table 2 				
	by Table 2. Boiler's ash box is full. Chimney or flue tube is full of soot				
	Empty ash box				
	 Call gualified chimney cleaner 				
Turbulators don't rotate in	Call qualified chimiley cleaner Turbulator turning motor is not turned on				
self-cleaning process	 Turn motor on by selecting PAP50 and 6" 				
Sen cleaning process	• Turn motor on by selecting PARSo and "o				
Self-cleaning process of	Usually it means no risk. In self-cleaning process metallic turbulators in				
heat exchangers sounds	heat-exchangers metal tubes are rotated slowly. Metal touches with				
quite noisy	metal and may make uncommon noise. This is not danger.				
	Lubrication of cleaning mechanism helps to reduce the noise				



Annex 1 Connection diagram samples for connecting the boiler



Figure 11 Heating systems with accumulator tank



Figure 12 Heating systems with 3-way valve mixer

Figure13 Heating systems with 4-way valve mixer

Attention! When using connection diagrams above assure that minimal temperature of boiler's returning water would be 55°C.



Annex 2 Wiring diagrams

Boiler PK30 and PK50



Figure 14 Wiring diagram for PK30/50 boilers



Boiler PK31 and PK51



Figure 15 Wiring diagram for PK31/51 boilers





Figure 16 Wiring diagram for PK30/50 boilers controller







15 Installation protocol

Burner serial number:					
Internet module	Serial number, mark and modification				
			Cable or Wi-Fi, serial number		
Boiler mark:					
Fluegas fan:	YES	NO			
External auger:			Producer, mark, serial number		
			Mark, length power, rising angle		
Pellet silo:			Mark dimensions distance from bailor		
Boiler room:					
China and	Dimensions, material				
Chimney:					
Air inlet hatch:		Mate	erial, flue diameter, height, draught in Pa with cold chimney		
			Dimensions, location(outer wall, inner wall, door)		
Heating system					
Accumulation Tank:	YES	NO			
Radiator:	YES	NO			
Floor heating:	YES	NO			
Warm water:	YES	NO			
Remarks:					
			Boiler installation specialities and remarks		

Client: Name/ Aaddress / Phone/ e-mail

Installation date:

Installer: Name / Company name / Phone/ e-mail/ Signature



Declaration of confirmity



We, Pelltech OÜ Sära tee 3, 75312 Peetri, Rae vald, Estonia www.pelltech.eu

Declare under sole responsibility that the machinery described as

Pellet boiler, Types: PK30, PK50

to which this certificate applies, is in conformity with the standards or other applicable rules and regulations as mentioned below.

2006/42/EC	Machinery directive
2014/30/EU	EMC Directive
2014/35/EU	Low Voltage Directive
2009/125/EC	Ecodesign Directive
2015/1187	EU Regulation "Energy Efficiency Requirements"
2015/1189	EU Regulation "Energy Efficiency Label"

Applied standards:

EN 303-5:2012 EN 60335-1:2012 EN 60335-2-102:2016 EN IEC 61000-6-1:2019 EN 61000-6-3:2007

Tallinn 15.05.2020

Juralste

Aavo Isak, CEO, member of board





We, Pelltech OÜ Sära tee 3, 75312 Peetri, Rae vald, Estonia www.pelltech.eu

Declare under sole responsibility that the machinery described as

Pellet boiler, Type PK30+, PK50+, PK100, PK160

to which this certificate applies, is in conformity with the standards or other applicable rules and regulations as mentioned below.

2006/42/EC	Machinery directive
2014/30/EU	EMC Directive
2014/35/EU	Low Voltage Directive
2009/125/EC	Ecodesign Directive
2015/1187	EU Regulation "Energy Efficiency Requirements"
2015/1189	EU Regulation "Energy Efficiency Label"

Applied standards:

EN 303-5:2012 EN 60335-1:2012 EN 60335-2-102:2016 EN 60730-1:2016 EN IEC 61000-6-1:2019 EN 61000-6-3:2007

Tallinn 15.05.2020

Perolette

Aavo Isak, CEO, member of board



15.1 Energy label



