




# User manual C.h. boiler FU-WI



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**PRZEDSIĘBIORSTWO  
PRODUKCYJNO - HANDLOWO - USŁUGOWE** 

**EC DECLARATION OF CONFORMITY**  
Procedure consistent with article 8 paragraph 2 letter a) of the Directive 98/37/EC

*Product:*  
PRZEDSIĘBIORSTWO PRODUKCYJNO - HANDLOWO - USŁUGOWE „FU-WI” EXPORT - IMPORT  
SPÓŁKA Z OGRANICZONĄ ODPOWIEDZIALNOŚCIĄ, POLAND, 82-300 ELBLĄG, ULICA GROCHOWSKA 5B.

*declares with full responsibility that the machines:*

**CENTRAL HEATING BOILER OF "FUWI PELLETS" TYPE WITH THE RATED POWERS  
OF 15 kW - 30 kW**

**WITH AN AUTOMATIC CHARGE OF SOLID FUEL (GRANULATED WOOD - PELLETS)**

**MEETS THE ESSENTIAL REQUIREMENTS OF THE ABOVE DIRECTIVE**

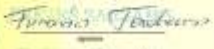
*within the scope of conformity, the following was taken into account:*

Directive 98/37/EC of the European Parliament and Council (22 June 1998),  
REGULATION OF THE MINISTER OF ECONOMY, LABOUR AND SOCIAL POLICY of 10  
April 2003 concerning the essential requirements for machines and safety elements,  
Journal of Laws No 91 item 858 of 23 May 2003,  
EN 303-5: 1999,  
PN - EN 303-5: 2002

*Responsible for making this declaration is:*

*Prezes zarządu*  Authorized representative in the territory  
of the European Union

*Tadeusz Furmanczyk - Chairman of the Board*

  
Dziękuję, data 09 May 2008

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## INTRODUCTION

Ladies and Gentlemen, we welcome You in team of Our Customers with pleasure. We thank You for purchase of our equipment.

The exact introduction with service instructions were made for safe, correct and long-term exploitation of boilers of the c.o. type FUWI on Pellets. Every user before start of installation and exploitation of boiler should carefully learn the service instructions, this is necessary for correct and safe use. The non following by user of recommendations presented in instruction slows down the manufacturer of Heating Boiler from every obligations and warrantee .

The heating boilers, type **FUWI on Pellets**, are low temperature steel water boilers. In result of research of **heating Boilers production line FUWI on Biomass**, conducted by **The Institute of Heating and Sanitary Techniques in Radom, and Certification Laboratory of Boilers and Heating Device in Łódź (Accreditation Certificate Nr AB 087)** confirms, that the described type of boiler **answers requirements of standard PN-EN 303-5:20 02, as well it got according to this standard the highest III class of thermal efficiency and release CO**, at the same time the given examination of the automatics by PN-EN 60730-2-1:2002. boilers **FUWI on Pellets** are not subject to the registration by the Region Bureau of Technical Supervision.

**Technical contained data in present instruction can be changed in result of development continuous of product, without information.**

The following signs are used in the instruction:



This sign warns that device should be cared appropriately according principles of safety. It used in text of instruction to mark important information for your attention that you should follow during service and boiler operation.



The marked with this sign places can warm up to high temperatures, what can cause burn.



The marked with this sign places can cause fire and heat, your attention should be attracted to it in order the place not to turn into fire.



The marked with this sign places endanger by work of metal units (worm gear, mode). Placing your hand close by these units endangers damage of hand.



The sign prohibits some actions in certain conditions and situations.

**The Heating Boiler the FUWI on Pellets** is the heating possessing device with the newest automatic system of feeding and burning of granulate solid type fuel - Pellets.

**It is the integral unit of present instruction the instruction of manufacturer of automatics from which one should necessarily to acquaint before starting the Heating Boiler the FUWI on Pellets.**

## RAPORT OF FIRST STARTING THE BOILER

### MADE OPERATIONS:

- Checking of completeness of boiler
- Introducing the conditions of warranty
- First start-up of the boiler
- Checking correct work of boiler during start-up
- acquaint the owner of the boiler with the service of boiler
- acquaint the owner of the boiler with the exploitation of boiler

I DECLARE, THAT ABOVE OPERATIONS WERE MADE:

\_\_\_\_\_  
DATE AND SIGNATURE OF SERVICEMAN

\_\_\_\_\_  
DATE AND SIGNATURE OF OWNER THE BOILER

# REPORT OF FIRST STARTING THE BOILER

REPORT OF 1 <sup>ST</sup> STARTING THE BOILER			
REPRESENTATIVE:		FULL NAME OF BOILER'S OWNER	
REPRESENTATIVE BUSINESS STAMP		ADDRESS	
DATE OF START-UP		CONTACT NUMBER	
201_r.	TYPE OF BOILER (kW):	FACTORY NO OF BOILER:	
<b>BOILER'S SETTINGS:</b>			
<b>C.H. BOILER:</b>			
Mode of operation:	Boilers' temp. set-up:	Boiler's hysteresis:	
<b>HEATING CIRCUIT:</b>			
Lowering C.H.:	Curve C.H.:	Shift C.H.:	
<b>SERVICE WATER:</b>			
Preset temperature:	Priority H.W.P.:	Hysteresis hot water boiler:	
<b>BURNER:</b>			
Power of burner:	Blower correction:	Fuel:	
Blowing firing up:	Preset oxygen:	Min. temp. of pump:	
Pause of fire grade(min):	Operation of fire grade [min]:	Prelin. Charge[s]:	
<b>SERVICE MODE:</b>			
Igniter(min):	Boiler alarm temp.:	Boiler min. temp.:	
Feeder alarm temp.:	Operation CH/H.w.p.:	Pump rundown:	
Standstill CH/H.W.P.:	Mixing max temp. C.H.:	Lambda:	
Return min. temp.:	Feeding [s] 1:	Blower 1:	
Photodiode level:	Blower 2:		
Feeding [s] 2:			
Warranty Certificate No: ____/____			

# BOILER APPLICATION

The low temperature steel water Heating Boiler FUWI on Pellets with automatic arrangement of burning of solid fuel - Pellets, designed to work as installation device of central heating and to prepare warm usable water in different housing building (little houses, economic rooms, trade pavilions, multifamily houses and different buildings).

The Heating Boilers FUWI on Pellets are characterized as the newest automatic technology of burning of granulate solid fuel - Pellets:

**Wood Granulate - Pellets** (ø 6mm - ø 8mm),

**Agro Granulate - Pellets** (ø 6mm - ø 8mm)

The operation regulator of boiler controls not only boiler but also central heating system of mode as well as the warm usable water. Also there is the possibility of connecting the current pumps and their steering as well as possibility of connecting the exchanger of warm water.

The device possesses the function of priority of warm usable water, it means that during heating boiler receives signal from temperature detector of usable water tank about lowering the temperature of water. After achievement of necessary temperature of water in tank, automatics releases warm water pump for working cycle of central heating. There is also the possibility of heating of only warm usable water in summer period, without working cycle of central heating.



The highest temperature in Boiler cannot be higher than 94° C.



Boilers can be applied in installations of open system central heating with gravitational circulation of water and working thrust 3 Bar. Safe has to be according requirements PN-91 / B -02413 – it is connected with protection of open system water heating. It is also possible to work with closed arrangements PN -99 / B -02414, under condition of additional equipment for device or by using the excess of warm distributing circulations through exchanger. Installation of boiler is incompatible / not flowing these principles causes the loss of warrantee .



With regard on high efficiency of boiler that should have low temperature of exhaust gas, in order to protect funnel with chimney input or the ceramic input, the diameter should be not smaller then diameter of exhaust chimney pipe presented in table page 6.

## BOILER CONSTRUCTION

Introducing on the market mentioned heating device called **Heating Boiler FUWI on Pellets**, we offer you the newest technology with feeding of solid fuel, burning it and exchanges warmth between exhaust gas and water in boiler. Applied in this device burner and technical solution is subject to the patent protection of **RP of No. P375326**.



**Qualified staff should install present device, accordingly to technical standards as well as valid state and local standards. Moreover it should be done according to the present instructions for safety use, installation and storage.**

The Heating Boiler FUWI on Pellets is a device in shape of a steel cube, equipped with burner, tank with solid fuel of the type – Pellets, that automatically come from feeder to the burner in such quantity of solid fuel (pellets) that is necessary to obtain the temperature programmed by user on temperature control panel. The controller based on microprocessor made by the Polish manufacturer's, gives possibility of full automatic steering option of boiler.



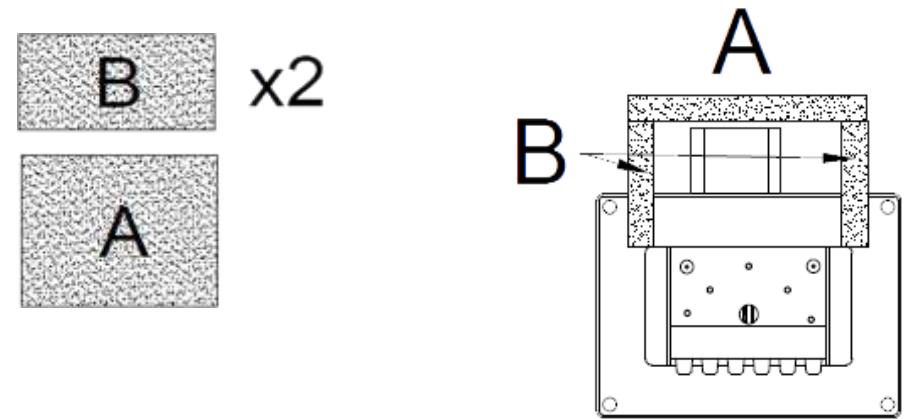
**The control unit of boiler with instruction is the integral part of boiler that you should learn.**

**Water block** is made of steel sheet (with thickness about 4mm and 6mm) as well as seamless pipes. Isolation of boiler is made of mineral wool, from outside it is covered with metal sheet. The smoke pipes in upper unit of water block are the exchangers of warmth, and the chamber in bottom unit of water block in which burner is burning is made of heat-proof steel and of nickel chrome where there are openings to air. The cast-iron fire grate on bottom of burner is placed according to efficient and effective ash cleaning of chamber. The process of burning of pellets as well as state of hearth is controlled by photodiode (probe of clearness). Airing as well as exploder of the burner are equipped with regulated electric blower and automatic lighting of the pellets that operate simultaneously. Below burning chamber there is chamber of ash-pan to which pellets go after burning as ash.

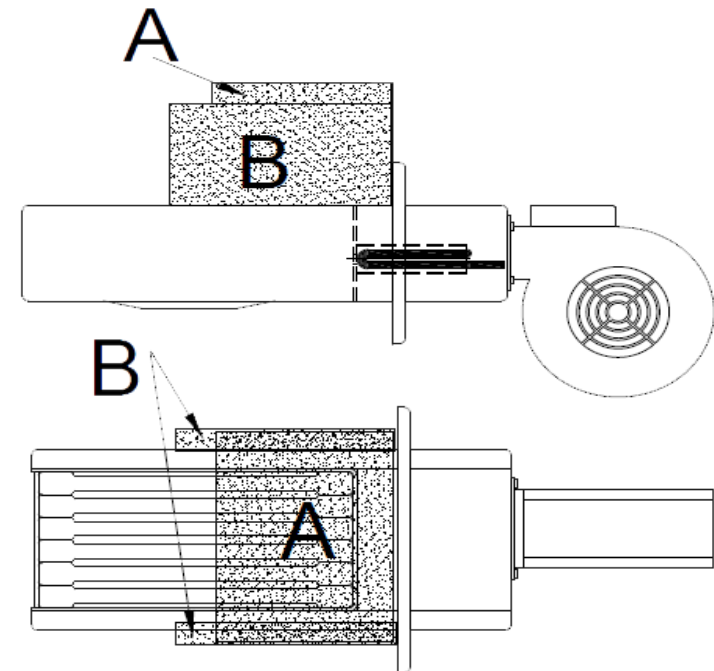
Safety of exploitation of **Boiler FU-WI on Pellets** is assured by multi-stage protection system, based on protection of flame withdrawal to fuel container (temperature sensor of feeder), protection before overheating of boiler (thermal switch), regulator of temperature of boiler (the sensor of temperature), regulator of temperature of usable water (sensor of temperature), external regulator of temperature of boiler (weather sensor), regulator of temperature in rooms (optional).

## SCHEME WITH LOCATION OF VERMICULITE PLATES ON THE BURNER

Top view – boiler room: values given in millimeter



Front and side view – boiler room:





**Warranty Report NO. ....**  
**HEATING BOILER FUWI ON PELLETS**

**THE PATTERN OF BOILER FUWI ON PELLETS**

Factory no. ....

Date of production .....

The following defects were found:

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User:

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Address:

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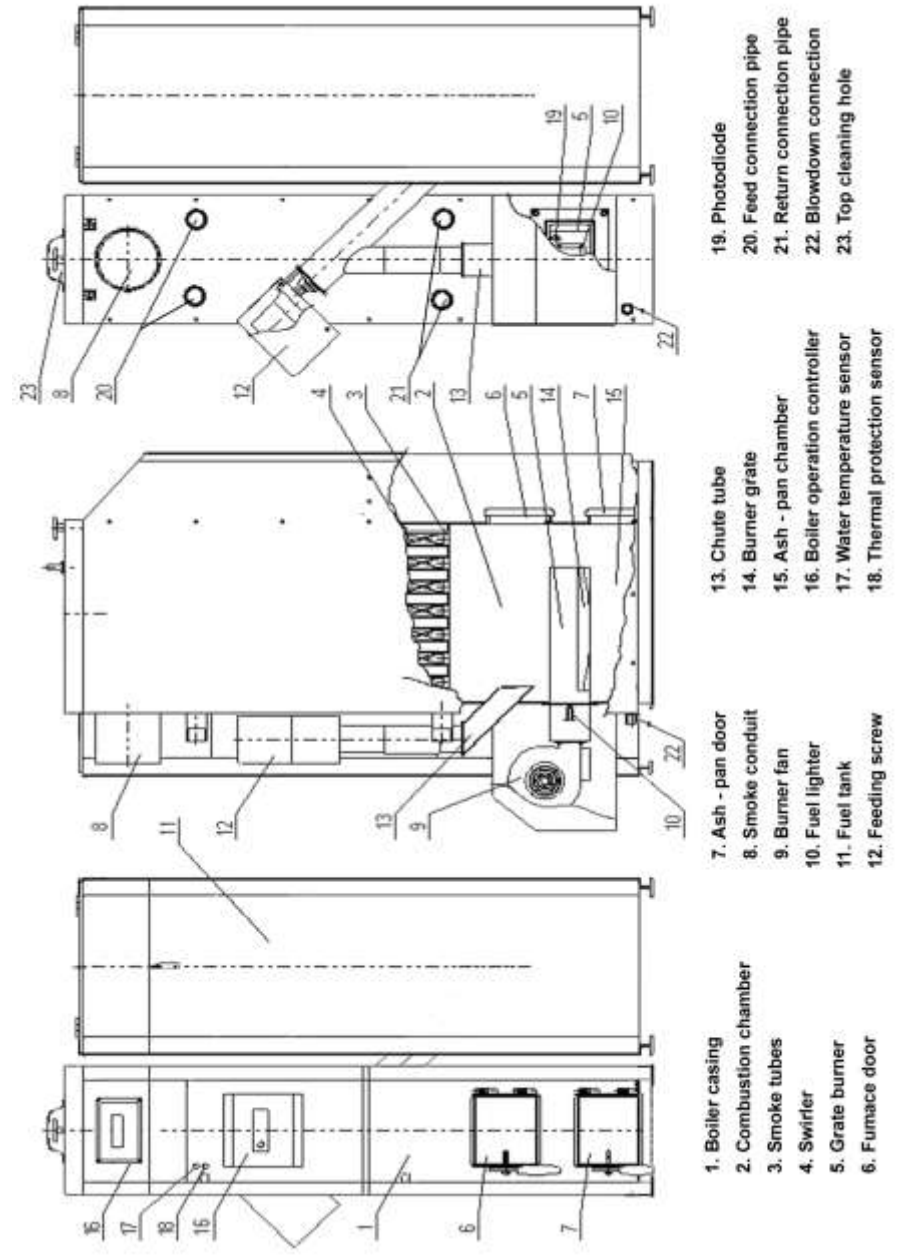
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Phone number:

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.....  
 user's signature

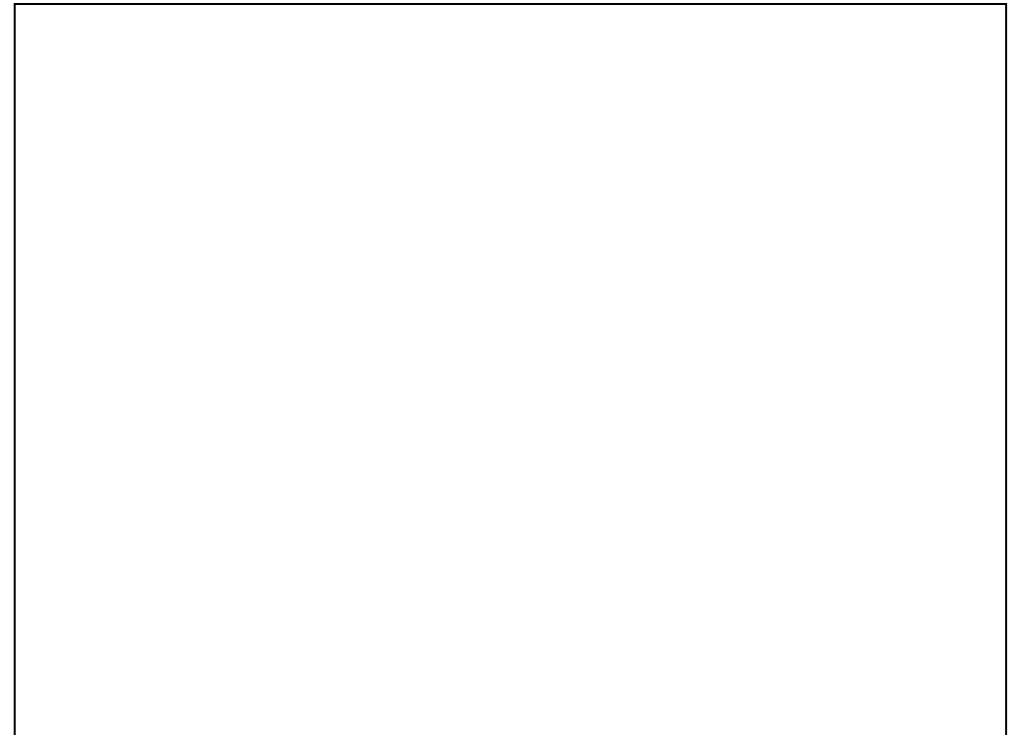


# TECHNICAL DATA OF BOILER

DATA	UNIT	BOILER TYPE									
THERMAL POWER NOMINAL	kW	9	15	22	30	44	55	80	100		
THERMAL POWER MINIMAL	kW	2,6	4,5	6,4	8,3	12,9	16,2	23,6	28,4		
MAX. WATER TEMPERATURE	°C	94									
BOILER MASS	KG	110	160	200	240	340	370	460	490		
BOILER WATER CAPACITY	L	30	50	60	70	90	110	140	160		
MASS OF TANK WITH FEEDER	KG	40	80								
BOILER DIMENSIONS (WIDTH/DEPTH/HEIGHT)	CM	30/76/105	31/85/141	35/85/141	40/135/141	48/110/155	52/110/155	56/110/155	60/110/155		
TANK DIMENSIONS (WIDTH/DEPTH/HEIGHT)	CM	30/64/100	41/74/138								
TANK CAPACITY	KG	80	150								
SMOKE CONDUIT DIAMETER	CM	12	14	14	16	18	22	18 x 30	18 x 30		
HEIGHT FROM BASE TO CENTER OF SMOKE CONDUIT	CM	94	125								
DIAMETER OF CONNECTIONS	CAL	1	1 1/4	1 1/4	1 1/2	1 1/2	2				
MAX. WORKING PRESSURE	BAR	3									
BOILER EFFICIENCY (NOMINAL POWER)	%	90-92									
CLASS (THERMAL) OF BOILER EN 303-5	---	3									
RECOMMENDED SERIES OF CHIMNEY	MBAR	0,15-0,25									
FUEL - PELLETS CONSUMPTION (APPROX)	KG/H	2	3	4,5	6	9	12	16	20		
FLOOR AREA OF ROOM BEING HEATED	M <sup>2</sup>	50 ÷ 100	100 ÷ 150	151 ÷ 210	201 ÷ 300	301 ÷ 440	441 ÷ 500	501 ÷ 800	801 ÷ 1 000		
FEEDER	W	25									
FAN	W	70									
LIGHTER (HEATER)	W	300									

Warranty Confirmation No. .... / 20 .....

# HEATING BOILER FUWI ON PELLETS





## WARRANTEE CONDITIONS

**Period of warrantee is 60 and 12 months, it starts from the date of sale.**

The warrantee is on:

water block of boiler - **60 months**;

durable and efficient working mechanical devices, electric and electronic fireplace - **12 months**.

Seller confirms warrantee for boiler by stamp, date of sale as well as signature, and also by report of first boiler start of operation that should be correctly filled, signed and sent to Producer.

The manufacturer is obliged to fulfil warrantee repair in 14 days deadline from date of notification by Buyer that boiler needs to be repaired.

Buyer can claim warrantee rights in court in case when Producer will not fulfil their warrantee obligations.

The warrantee authorization in order to fulfil warrantee repair is a free document. Warrantee is not valid without stamp, person's signature and selling dates as well as without stamp, Producer's signature and date. In case of loss of warrantee document, the duplicates will be given – **are to be paid for**.

Warrantee stops to be valid in case of not proper installation of the boiler and application of safety means non-complying with local and state law regulations and standards described in PN -91 / B - 02413, PN -99 / B -02414.

Regarding complaints Producer is to be notified by sending a full reclamation report to Producer's address, stamped by sales department, responsible for service. If complaint will turn out to be groundless, all costs connected with arrival of manufacturer's representative should be covered by person that placed claim.



**Please remember, before cleaning smoke tubes, remove upper plate of burner (building of burner).**



**Cast iron grate which is the balton of the burner isn't subject of the guarantee.**



**Any alterations, and change of constructional modifications of Boiler cause immediate loss of the manufacturer's warrantee.**



**Alteration and starting of Boiler should be fulfilled with suitable authorizations in this range.**



**Chamolte brick and heat resisting plate located on the burner aren't subject of the guarantee**

## EXPLOITATION OF BOILER IN AUTOMATIC MODE

**Central heating boiler FUWI on Pellets is ready for independent work after loading of tank by granulate fuel - Pellets and after temperature of boiler is displayed on control panel. While granulate fuel-pellets from tank dose to burner, it lights automatically, and then according to demand ( the achievement or maintenance of set temperature) it doses for burner the next portion of solid fuel from tank.**

You should periodically load reservoir with pellets and clean up from dust gathered during work. There is possibility of placing additional container of granulate fuel but in considerable distance from boiler also, which requires modernization in the way of installation of additional device for pellets passing.

Automatic burning process of pellets as well as state of hearth are controlled by photodiode (probe of clearness), airs as well as burner spark are equipped buy regulated electric blower for automatic lighting of pellets simultaneously.

The exploitation of Boiler, standard version:

During exploitation of boiler you should remember about cleaning the burner and chamber of burning from chamber of ash-pan, that are in bottom unit of boiler, at least once a week, and fill up boiler tank with fuel. Cleaning should be made while removal of covering as well as cleaning around. Using arm placed on the boiler exhaust vanes are cleaned. By multiple, energetically pulling the arm down , is followed the movement of the steering wheel, thereby pollutants are discharged into the furnace chamber. You should remember about cleaning of smoking pipes that are in upper unit of boiler at least once a month. Cleaning is made by removal dust covering with help of steel brush (rifle cleaning-brush). Below burning chamber there is chamber of ash-pan to which after burning solid fuel goes as accompanied ash. Chamber of ash-pan should be periodically emptied from dust and ash with help of furnace rake.



**Making any work in range of cleaning as following: burner, ash-pan as well as smoke pipes, remember to make sure that there is no access to open fire.**



**Minimal temperature of heating factor return: 50°C.**

## ASSEMBLY OF PLEX (PCV PIPE) CONNECTOR TO FUEL FEEDING SYSTEM

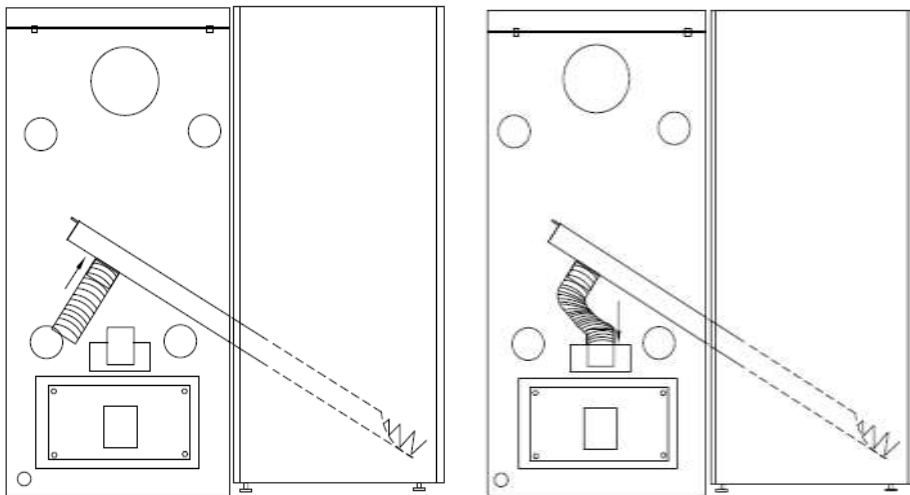
PCV pipe – diameter 60mm, length 300mm



Assembly of PCV pipe in FUWI Pellets Boiler (back of the boiler – feeder)

A)

B)



## SAFETY AT WORK CONDITIONS

1. Boiler has to be placed according to fire-safety standards, relating to solid fuels heating sources assembled in closed rooms PN -87 / B -02411.
2. It is prohibited to **use burning materials other than** inflammable materials **that provided in service instruction.**
3. It is prohibited to assemble any valves on return pipes of central heating system.
4. Controller socket to which the feeding connection is made, should be earthed.
5. Installation of central heating is safe as open system installation PN - 91 / B -02413. Boiler can **also be installed in closed system arrangements, but under condition of using of additional equipment for device or by use the excess of warmth distributing circulations through exchanger PN -99 / B -02414.**
6. Switching boiler off after heating season is made by pressing switch off button and boiler as well as steered devices will be disengaged. It should be made for cleaning of boiler.
7. Full shutdown of boiler is made by extraction of boiler connector from feeding socket.



**It is prohibited and illegal to refill water during work of boiler, especially when boiler is strongly hot, because in this way it is possible to cause damage or shake water block.**



**Please remember, before cleaning smoke tubes, remove upper plate of burner (building of burner).**


## ROOM FOR BOILER INSTALLATION


The room in which the device **FUWI on Pellets** is installed has to serve exclusively to this aim, it should always be in conformity with the technical standards valid for this range of equipment, as well as there should be appropriate ventilating openings and air blowing.

 **The built-in on solid fuel boiler rooms should fulfil the requirement of standard PN-87/B-02411 the "built-in on solid fuel Boilers".**

Boiler room according to above mentioned standard should follow the following requirements:

1. boiler should be placed in separate room, possibly centrally in relation of heated rooms,
2. boiler room should have artificial lighting, or natural lighting is recommended also,
3. distance of boiler from walls of room should be enough to have free access to boiler when cleaning and preservation.
4. height of boiler room should be at least 2,2 m, in existing buildings the height of boiler room allows minimum 1,9 m only with correct ventilation (supply-exhaust ventilation),
5. supply-exhaust ventilation should be with opening that can be closed, it goes for section of minimum 200cm<sup>2</sup>, outlet should be 1,0 m over floor level.
6. ventilation exhaust channel should be made of non-flammable material with minimum diameter 14cm x 14cm of inlet opening under ceiling of boiler room. Exhaust channel should led out over roof and be placed in vicinity of chimney.
7. in vicinity of heating room should be fuel store likely in separate room. The fuel store should be such big that it would be possible to accumulate fuel for whole heating season,

 **Distance of back of boiler from wall should not be smaller than 0,7 m, the side of boiler from wall not smaller than 1,0 m, however the front of boiler from opposite wall not smaller than 2,0 m**

 **Smoking channels and funnels of unsuitable type or dimensions (see: Table page 6) can cause condensation problems, and influence negatively on burning parameters.**

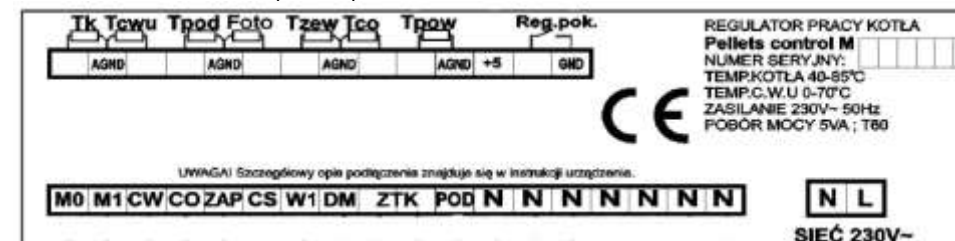
## BASIC FUNCTIONS OF CONTROLLER (THE OPERATOR PANEL)

**Controller of boiler is two-module device (in standard), consisting from following units:**

1. **Operator Panel**, installed in front unit of boiler and for user is visible part of device together with keyboard and alphanumeric display.



2. **Operating Unit**, is installed on DIN rail in front of boiler and built-up with electrical distribution box, where all sensors and operator panel are connected to.



Operation Unit has to be connected with all sensors needed for proper functioning of boiler as well as all executive unit – standard or optional (see page 10):

- Tzew** - external temperature sensor,
- Tco** - temperature sensor of heating medium after mixing valve,
- Tk** - temperature sensor of heating medium on exit from boiler,
- Tcw** - temperature sensor of warm usable water,
- Tpow** - temperature sensor of heating medium return to boiler,
- Tpod** - temperature sensor of fuel feeder,
- Foto** - photocell (clearness probe).

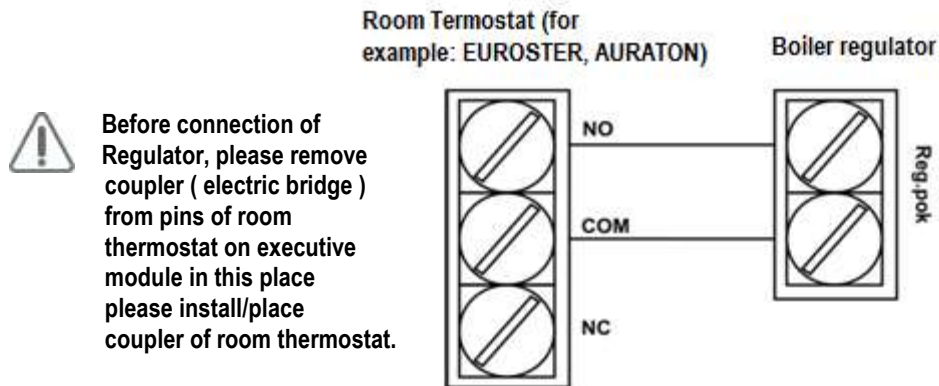
## BASIC FUNCTIONS OF CONTROLLER (THE OPERATOR PANEL)

- M0** - mixer servo-motor – **M0** - closing,
- M1** - mixer servo-motor – **M1** - opening,
- CW** - hot service water pump,
- CO** - central heating pump,
- ZAP** - igniter,
- W1** - output supplying the Lambda probe module 230 ~V,
- DM** - blower,
- ZTK** - boiler thermal protection,
- POD** - feeder motor.

### 3. Controls of mixing 4-ways or 3-ways valve (Option),

Controller manage mixing 4-ways valve, adjustment is made by maintaining set temperature of heating medium in heating system. Controller has also a task of protection of boiler from too low temperature of heating medium coming back from heating system.

**4. ROOM THERMOSTAT**, Automatic of boiler can cooperate with any room thermostat with terminals shorted.



Regulator should be mounted in a location representative of temperature in the flat at a height of about 1.5 - 2 meters.

Do not install the regulator near heat sources, direct sunlight or areas exposed to drafts because it can negatively influence the operation of the system.

## BEFORE CALLING SERVICE

We remind, that in case of groundless call to service, customer covers costs of arrival and work of service mechanic.

Before you will make a phone call to ask for help of service, make sure about the following: the most often problem of work of fireplace, is bad quality of **Pellets**.

The symptoms of failure of boiler work	Methods of their elimination
Blocking of feeder	<ul style="list-style-type: none"> <li>✓ Check electric connection between boiler and feeder.</li> <li>✓ If feeder was blocked - hit throughout the length of pipe of feeder with hammer several times,</li> <li>✓ Check if fuel is not stuck in chute – in case of fuel stacking clean it up</li> </ul>
<b>PANEL DISPLAY BLINKS WITH YELLOW:</b>	
„shortage of fire or fuel”	It is necessary to check, if there is fuel in the tank, since it could block feeder. In this case instructions regarding “Block of feeder” should be followed.
„overheating of feeder”, it means that boiler has to be cleaned up	It is necessary to open upper cover of boiler, take out guide rings of combustion gases and with help of round metal brush clean inside part of smoke pipes. Clean also bottom of chimney and burner. It is necessary to check pipe of chimney.

## SERVICE MODE PASSWORD FOR BOILER

Service mode is accessible if on the controller of boiler is in mode "OFF" and as well as of service password is known. After inserting of password, access to additional adjustments is granted. Service mode password is the sum of set temperature of boiler in manual mode and number 77.

**Password: Boiler temperature set + 77**

Example:

**Boiler temperature set = 60° C**  
**Password: 60 + 77 = 137**

Description of function.

**Minimum temperature of pump work**

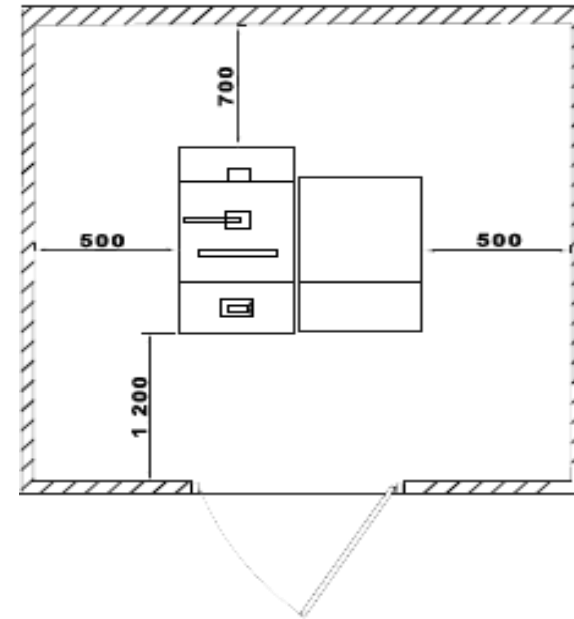
<b>Minimal temperature of pumps functioning is 450C</b>	Mentioned parameter defines about minimum temperature of boiler in which pumps can be started
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**Functioning of burner of Boiler FUWI on Biomass**

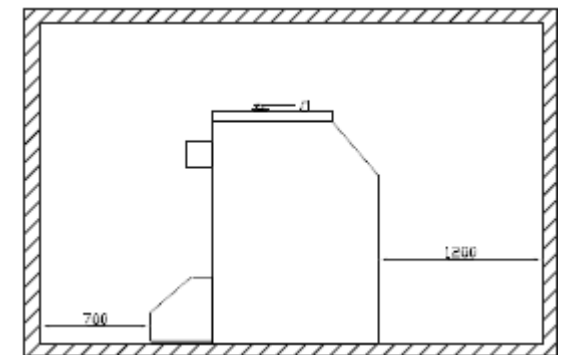
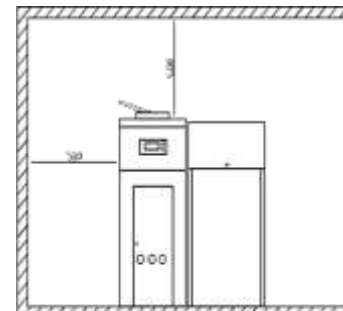
Functioning of burner lighter [min]	2	Time of preliminary heating of burner lighter
Max. time for lighting [min]	3	Max. time for lighting, functioning of fan together with lighter. Control of flame.
Preliminary pellets loading [s]	60	Defines time of pellets loading needed for start-up burning
Limit of photocell activation	2	If light of flame exceeds set value - controller treats it as existence of flame.

## SCHEME WITH BOILER LOCATION IN BOILER ROOM

**Top view – boiler room: values given in millimeter**



**Front and side view – boiler room:**



## MODES OF BOILER FUNCTIONING

Heating Boiler FUWI on Pellets can work in one of three modes:

1. Manual                      2. Weather mode                      3. Summer

### 1. Manual mode of work:

User with help of Operational Panel in **submenu of Boiler** set temperature for work of boiler manually (purpose of buttons Increasing or Decreasing - see page 11)

BOILER	
>mode of operation:	manual
preset temp.	70°C
hysteresis	00°C



**Manual mode means only and exclusively manual settings by user of Boiler temperature.**

### 2. Weather mode of work:

Present mode requires installation of external temperature sensor as well as central heating temperature sensor. Temperature of work is set by linear programmable heating curve, thanks to that there is not necessity to adjust boiler temperature by hand in case of outside temperature changes. In principally at night is always colder than during day time. It is temperature of boiler work in external temperature function. Setting of boiler temperature is counted on basis of this curve and is about 20°C higher.

**SEE!!! Integral part of present manual is boiler automatics manual.**

### 3. Summer mode of work:

Controller in this mode is used in summer to heat of warm usable water. In this mode (apart from alarms) heating water pump does not start. Temperature of boiler is set manually using parameter "set boiler temperature. ".



**If boiler temperature for warm water purposes is lower from temperature set in manually mode or weather mode, then temperature set of boiler work will be this higher temperature.**

## SETTING THE BOILER BURNER

Very important items connected with proper functioning of **Heating Boiler FUWI on Pellets** are proper settings in boiler controller (Operator Panel) in submenu: **Burner**, namely:

### 1. Feeding:

Fuel feeding is the very important process for boiler functioning. For more efficient setting of standstill time for fuel feeding there is a preset the same parameter for all powers of boiler and which is 10 seconds. It has to be set only time of fuel feeding. It has to be made in according to Table Nr 1 (see below, page 15), but in individual cases it can be changed in range not more 1 or 2 second. It depends from caloricity and shape of used pellets fuel as well as from energetic demand of heated object.

### 2. Blower:

It is the second very important factor of correct boiler functioning. Maximum use of fuel energy depends on it, as well as correct ecological burning.

Settings of blower power in **Heating Boiler FUWI on Pellets** are individual and depend on many external factors, influencing mainly on chimney draught. This adjustment should be made for every boiler starting from ventilator settings (enlarging or reducing). This action has to be execute in temperature of boiler minimum 600 - 700, than it is correct.

In situation of using Lambda Sensor adjusting the power of blower would be executed automatically by enlarging or reducing air flow.

Table No. 1

BOILER POWER [KW]	9	15	22	30	44	55	80	100
BURNER POWER NO 2 (100%) FEEDING [S]	5	7	10	16	22	12	20	24
BURNER POWER NO 1 FEEDING [S]	<b>From 30% up to 100% of feeding time of burner power No 2</b>							

### 3. Function of modulation of burner power:

The boiler is equipped with the function of modulation of burner power.

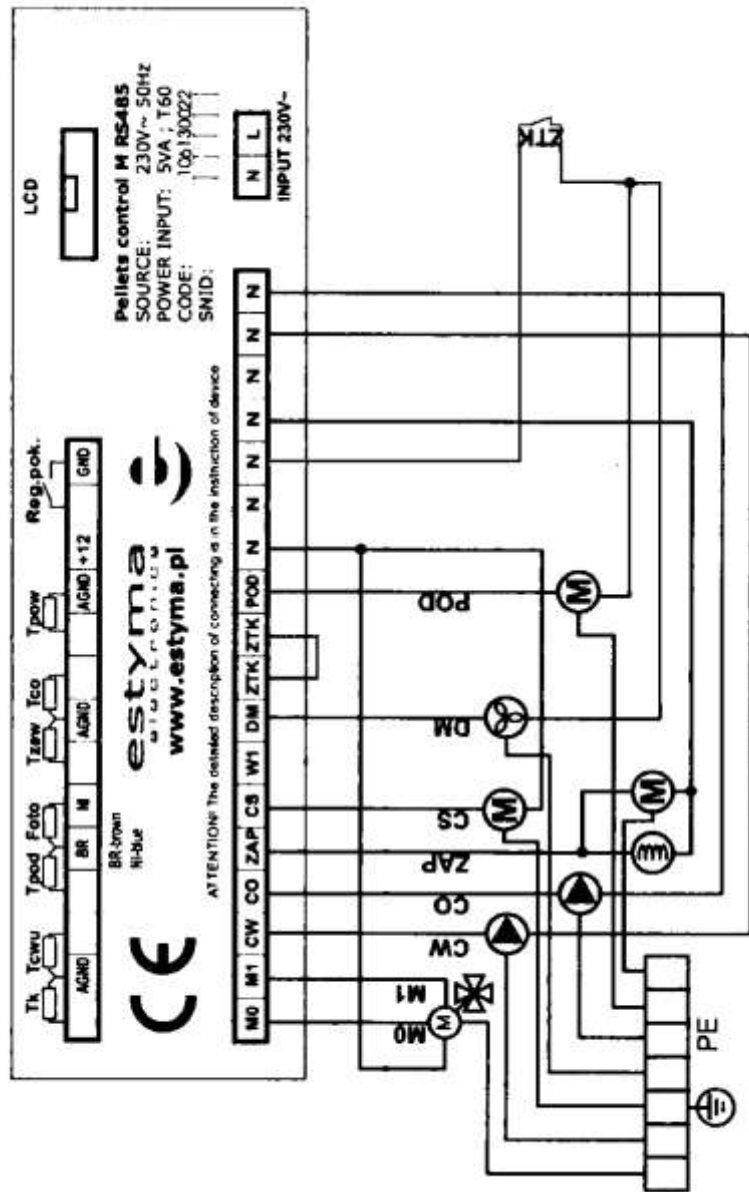
The above-mentioned function starts operating in the moment of achievement by the boiler temperature set by user (eg. 60°) and starts reducing the power of the burner (by modulating simultaneously the parameters of van and fuel feeding). The function of modulation will reduce the burner power till the moment of achievement by boiler temperature about 5° higher and after achievement of this temperature the boiler stops fuel feeding and burns fuel left on the burner and afterwards switches off automatically or burner power will be enlarging in case of temperature fall.

In relation with necessity of burning fuel to end and cleaning combustion chamber the boiler should periodically be switched off.

In the boiler controller is applied the function of return to "factory presets", permitting on restoration of Manufacturer presets previously altered by user or servicemen.

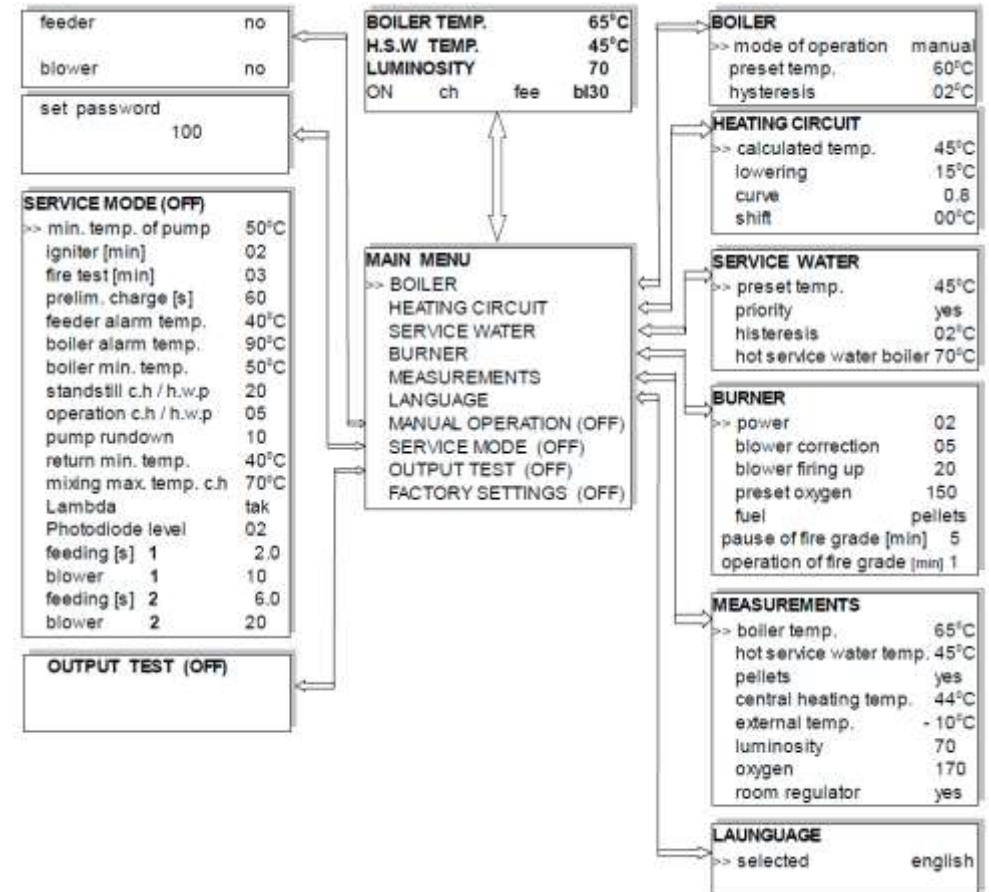


# SCHMAT OF AUTOMATIC CONNECTION (MODULE) WITH BOILER ELEMENTS



# PATTERN OF FULL MENU OPTIONS IN OPERATOR PANEL

Full accessible Menu on Operator Panel



In the above mentioned pattern of Operator Panel Menu we represent the standard (suggested) parameters of Heating Boiler FUWI on Pellets.




Settings for some power of c..h boiler FUWI for pellets - table no 1 on page 17th




## SERVICE OF OPERATOR PANEL

Settings of boiler temperature are made individually in dependence of heating space, where it's used and user demand of warmth as well .

Automatics is the integral part of Heating Boiler FUWI on Pellets, before starting device, service instruction of Controller of Boiler Work "Control M RS 420 " has to be learned carefully.

 In order to **start** or **switch off** automatics of Boiler (Operator Panel), you should press present button for 3 seconds (HE / OFF / ESC):

To enter the main menu you should press button **ENTER**: 

Main menu is displayed on screen of Operator Panel.


```
MAIN MENU
>> BOILER
  HEATING CIRCUIT
  SERVICE WATER
  BURNER
  MEASUREMENTS
  LANGUAGE
  MANUAL OPERATION (OFF)
  SERVICE MODE (OFF)
  OUTPUT TEST (OFF)
  FACTORY SETTINGS (OFF)
```

Main menu is described with **large letters** where you can move up or down with following buttons:




To enter **Submenu** from main menu you should press button **ENTER**:

```
BOILER
>>mode of operation: manual
  preset temp.      70°C
  hysteresis       00°C
```

In order to come back to higher level you should press button **ESC** 

Individual **Submenu** serves to adjust current parameter (value) to change value of given parameter


you should press button **ENTER**: 

then buttons: **increase**  or **decrease**  value of parameter.

## SERVICE OF OPERATOR PANEL

Button of change acceptance of value or status of given parameter is made with the help of **ENTER**:



Pressing button **ESC**:  escape cancels changes of value or status of given parameter.

Drawing of full accessible Menu on Operator Panel is shown on page 13

On main screen of Operator Panel in period in the circuit exploitation of Heating Boiler the FUWI on Pellets, displayed it is:

Current state of procedures

```
BOILER TEMP.      65°C
H.S.W TEMP.       45°C
LUMINOSITY        70
ON   ch   fee   bl30
```

"OFF" - switched off (active service of alarm states as well as manual work of blower and feeder),



OFF - Boiler is in vigil state and is under voltage, in case of alarm state appear all suitable preventive processes still will be undertaken.

„ON" - switched on (active service of all procedures and modules of automatics)



ON - if controller is not be used for long period of time or in case of carrying out any service activities on controller, the device should be indispensably switched off by plugging it out from electricity.

Operator panel displays on Main Screen the following symbols:

**chp** - work of central heating pump;  
**fee** - work of fuel feeder – Pellets;  
**fn30** - work of blower, current power;  
**wwp** - work of warm usable water pump;  
**zap** - work of electric lighter;