

# **Operation and maintenance manual**



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# 1. Introduction

The **pneumatic burner cleaner** is an accessory suitable for optimal **cleaning of the ATMOS A85 combustion chambers** when burning poorer quality wooden pellets which form cakes (ash clumps), i.e. wooden pellets with greater amounts of bark and dirt.



**WARNING** – This equipment does not deal with the burning of plant pellets, grains, other biological waste pressed into pellets or wooden pellets with greater content of the above mentioned substances.

The equipment ensures the automatic removal of clumps and ash from the burner combustion chamber at regular intervals, or always after the burner burns out. **The pneumatic burner cleaner is very fast, effective and reliable.**



**INFO** – Pneumatic cleaning is not a replacement for regular servicing or where necessary the cleaning of the burner and boiler which has to be undertaken at regular intervals according to pellet quality. The interval between checks and cleaning of the combustion chamber should be looked at taking account of the amount of foreign matter and dirt in the pellets, which can result in growth of apertures (holes) in the combustion chamber for intake of combustion air.

Combustion chamber cleaning is undertaken according to a preset program in the ATMOS A85 burner electronics. Its frequency must always correspond to the quality of pellets burnt. **The poorer the pellet quality, the more frequent clumps must be removed from the combustion chamber.**



**INFO - Clumps of ash prevent combustion air from reaching the pellets**, meaning they cannot burn properly in the required time in the combustion chamber. This subsequently results in the overfilling of the combustion chamber and blockage of the pellet inlet pipe between the burner and conveyor.

**These ash clumps are not formed** with high quality wooden pellets made of soft bark-free wood or other mixes of so-called white pellets, meaning pneumatic cleaning is unnecessary. However, if it is built into the burner it saves us time, facilitates work, ensures consistent combustion quality, and thus reliability.

**The equipment works by day and night to ensure everything runs reliably.** The customer may, however, wish to ensure cleaning does not take place at night where the boiler is located, e.g. near to a bedroom. In this case, a **special 8 A timer** can be used to control the compressor directly by time (Note – this cannot normally be bought in shops)



**WARNING** – You should, however, be aware that if the pellet quality is so poor as to require burner cleaning at intervals shorter than can be set by the timer, the burner will not work reliably and the pellet inlet pipe will block.

**The equipment is supplied as an accessory in sets according to boiler type**



*Basic set package with compressor*



*Opened set with modified compressor*

## CP85KS set for A85 burner with compressor

for pellet boilers with exhaust fan: D85P, P85

### Set contents:

- connecting air hose of length 1 m (diameter 28 mm / 3/4")
- connecting air hose of length 1,9 m (průměr 20 mm / 1/2")
- complete screw fitting (3/4") with T piece (3/4" / 1/2") and solenoid valve
- 1500 W (1420 W) compressor with 24 l air receiver volume amended for pneumatic cleaning
- connecting cable with 3-pin connector (female) between the compressor, burner and wall socket

code: S0767

kód: S1439

code: S1440

code: H0326

code: S0747



*Complete screw fitting (3/4") with T piece (3/4" / 1/2") and solenoid valve*



*Interconnecting air hose*



*Connecting cable for compressor with 3-pin connector (female) - connected into the boiler from serial production*



*Modified compressor for the purpose of pneumatic cleaning*



**INFO** - Installation of the basis set not using the supplied compressor should only be opted for, if you have a compressor of your own with a 12 to 24 l receiver and a pressure capacity of 4 – 5 bar (400 – 500 kPa). The compressor or receiver must be right next to the boiler and the basic pipe diameters with which the air is pumped into the chamber must be kept.



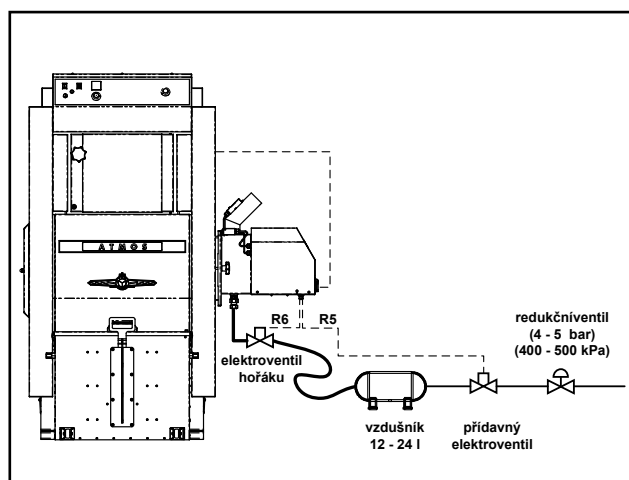
**WARNING** - If air is pumped in from a greater distance, we must add a small receiver of 12 to 24 l volume near the boiler which will allow its hassle-free filling with compressed air of 4 to 5 bar (400 - 500 kPa). Larger receivers cannot be used. This second solenoid fitted to the compressed air pipe is deliberately located on the compressed air inlet into the additional receiver so that when cleaning the burner with compressed air there is not additional flow (release) of compressed air into the additional receiver. We install a reduction valve in front of the additional solenoid for setting the optimum pressure for the pneumatic burner cleaner (4 bar/400 kPa).



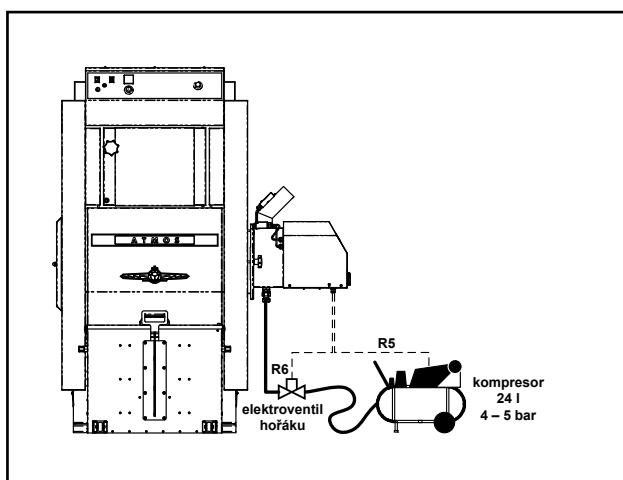
**WARNING** - Cleaning the burner using compressed air flowing directly from a central compressed air supply or from a receiver of greater than 24 l volume is strictly forbidden.

EN

### Installation diagram of pneumatic cleaning



*Installation using a second solenoid valve and an additional receiver*



*Standard installation using the supplied compressor*

## 2. Technical data

**Name:** Pneumatic burner cleaner - accessory

**Prescribed burner:** ATMOS A85 with AC07X regulation with additional module AC07X-C  
(Burnner profile has to be set at: A85 pneu C)

**Power supply:** 230 V / 50 Hz

**Maximum power when using supplied compressor:** 1500 W (1420 W)

**Maximum power when using other equipment:** according to equipment type

**Control of functions:** electronic regulation of burner AC07X with additional module AC07X-C, controlling both burner pneumatic cleaning and burner and boiler operations. Function using all reserve outlets R, R2, R5 and R6, which thus cannot be used for other purposes.

**Profile of the device:** A85 pneu C

Other necessary information is included in the burner manual and manual for your specific boiler.

**Pneumatic cleaner operating pressure:** 4 - 5 bar (400 - 500 kPa)

## 3. Assembly instructions



**WARNING** – pneumatic cleaner assembly may only be undertaken by a qualified person trained by the manufacturer in accordance with rules and regulations in force. Before running, you must familiarise yourself completely with the operation manual. You must also observe all general safety regulations for working with heating equipment and pressure vessels which are given by laws in force.

### Assembly of the pneumatic cleaner in pictures



*Connect the connecting cable to the valve head*



*Take complete screw fitting with solenoid control and connecting cable and screw it to the burner*



## Connecting the compressed air system



*Take the connecting tube (3/4"), screw it to the compressor and tighten fully*



*Take the other end of the connecting tube (3/4") with the seal and and tighten it properly to the T-piece screwed to the solenoid valve*



*Connecting to the T piece - branch for cleaning the tube heat exchanger on the boiler (1/2 ")*



*Connection of the connecting hose (1/2 ") in the rear part of the boiler*

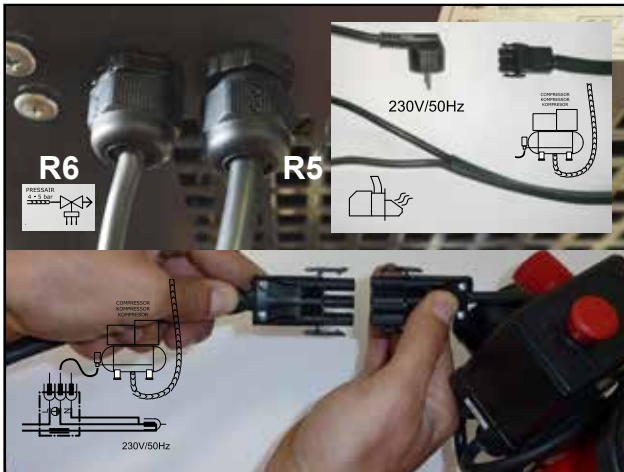


**INFO** – turn the solenoid with screw to a tight position so the tube isn't twisted and everything the set-up looks good, taking account of the position of the compressor in the boiler room.



**WARNING** – the compressor and tube should be located **sufficiently far from any heat sources** to ensure they are not damaged.

## Electric connection of the compressor



*Connect the connecting cable with 3-pin connector to the compressor*



**WARNING -** ATMOS A85 pellet burner has two mains lead, therefore disconnect (boiler, compressor) before uncover the burner hood.



**WARNING –** the compressor must never be powered directly from the boiler.



*Photo of suction filter screwed onto compressor*



*Compressor set up beside boiler*



**INFO –** the compressor is supplied assembled, but after final assembly you will need to **screw on the suction filter**.

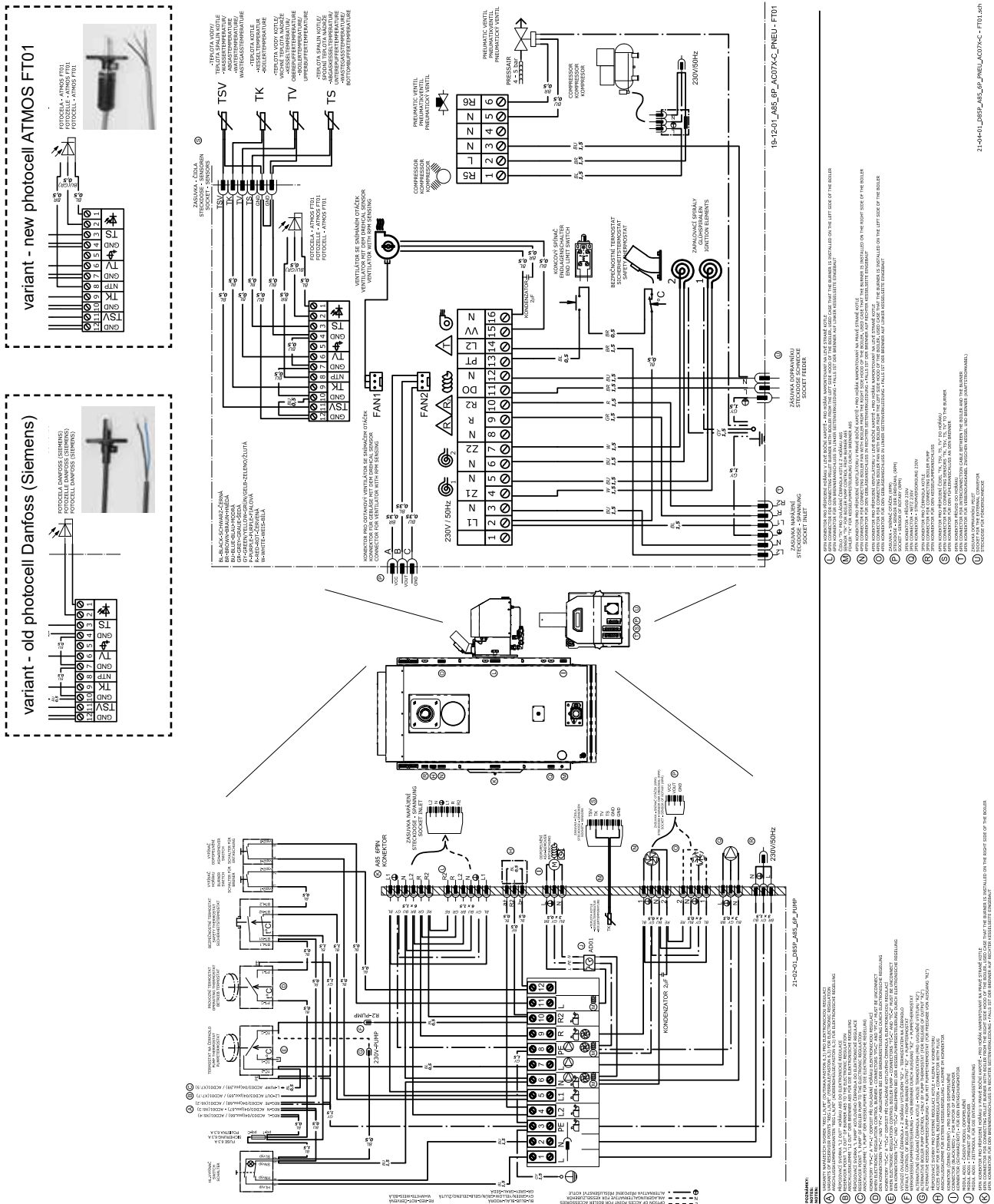
We clean the filter at least once a year (blow it out with compressed air).

## 4. Wiring instructions



**WARNING** - Wiring may only be undertaken by a **qualified person in accordance with all rules and regulations of your country** with careful attention paid to ensuring the safe earthing of the boiler and burner.

## Wiring system for boiler running on pellets only without exhaust fan



## 5. Requirements for chimneys, flues and other boiler parts during operation with pneumatic burner cleaner

### Chimneys

All requirements are identical to the requirements detailed in the boiler operation manual.

### Flue way

Principle requirements are identical to the requirements detailed in the boiler operation manual.

You should be aware, however, that during pneumatic cleaning of the burner, **expansion of compressed air takes place** in the burner and boiler combustion chamber. As such, you need to **secure the flue from falling out of the chimney** and falling from the boiler neck. The flue must be mechanically affixed to the boiler neck with a pin or screw. Similarly, other parts such as elbows or extensions should be **carefully secured** to each other at joints.

You should also ensure that **ash and dust is not blown out of flue joints between the boiler and chimney** during pneumatic cleaning. As such, all joints and flue outlets should be tightened with an aluminium strip, putty or other similar method.



*Securing the flue with a screw*



*Tightening the flue with an aluminium tape*



**WARNING** – When using draught limiter placed on the flue way between the boiler and the chimney is not permitted to use the type for the open double flap out of the flue way (explosive type) because of possible dusting into the boiler room. If required, install draught limiter into the cleaning hole at the foot of the chimney.

## Tubing between burner and conveyor, pellet inlet pipe with rim

All joints on the tube and pellet inlet pipe to the burner must be carefully tightened so that no dust can fall from the pellets into the boiler space.



**WARNING** – any other apertures on the boiler which are used for taking out ash or cleaning the boiler **must be securely closed** so that dirt cannot escape into the boiler space.



**INFO** - Pneumatic burner cleaning is completely safe, since it is performed once the fuel has fully burnt. Nevertheless, do your utmost to ensure the boiler remains relatively clean.

## Boiler exhaust fan

The boiler exhaust fan ensures suction pressure un the combustion chamber when operating a pellet burner.

## 6. Setting up the pneumatic burner cleaner

With A85 burners the profile is set to A85 pneu as the factory setting, which is why you don't need to perform any setting up.

Exact setting make according to the pellet type, see the table on page 16.



**WARNING - check and secure everything before operating** the pneumatic burner cleaner so that everything is properly connected and secured according to the operation manual.

### Setting parameters

• **parameter T5** – Rundown time of the fan after the STOP command - for optimal burning out of pellets in the combustion chamber... **(25 min)**

• **parameter S6** – determines function of first **reserve R** - added output  
The first reserve R is used most commonly for controlling the boiler exhaust fan.

**Set S6 = 3**

• **parameter S14** – determines function of second **reserve R2** - added output  
The second reserve R2 is used for controlling the pump in the boiler circuit.

**Set S14 = 12**

• **parameter S67** – determines function of **reserve R5** - added output with inbuilt additional module AC07X-C

The reserve R5 is used for controlling the air pump (compressor) for pellet burner pneumatic ash cleaning system.

**Set S67 = 15**

• **parameter S68** – determines function of **reserve R6** - added output with inbuilt additional module AC07X-C

The reserve R6 is used for controlling the electric valve for pellet burner pneumatic ash cleaning system.

**Set S68 = 16**



**INFO** - for standard setting when **parameter S1 is set to a value of 2**, you can connect an appliance of **maximum current 2.46 A (approx. 566 VA)** to R, R2, R5 and R6 2 reserve terminals together.

When setting where **parameter S1 is set to a value of 4**, which means that at the start both ignition coils are run, you can connect an appliance of **maximum current 0.29 A (approx. 67 VA)** to R, R2, R5 and R6 reserve terminals together.

**To activate the function you need to set the specific times and working number of cycles after which the burner is cleaned. Values in brackets are set by the manufacturer!**

• **parameter S41** – is the function for automatic burner cleaning with compressed air after a specific number of working cycles (burn-out). The function assumes use of reserve outputs R5 and R6 (S67 = 15, S68 = 16) – non-standard function... **(11)**

a) **S41 = 1 to 9**... function where burner cleaning will take place only once, and after the set number of cycles have run (1, 2, 3, 4, 5, 6, 7, 8, 9 – number of cycles)

b) **S41 = 11 to 19**... function where burner cleaning will take place always twice in a row after the set number of cycles have run (11 = 1, 12 = 2, 13 = 3, 14 = 4, 15 = 5, 16 = 6, 17 = 7, 18 = 8, 19 = 9 – number of cycles) (from 1.4.2013)

If parameter S41 = 0 or 10, the function is switched off.

• **parameter S42** – is the function for automatic burner cleaning with compressed air after a specific period of operation time has passed. Once the subsequent working cycle has ended (burn-out), the burner tubing is cleaned. The function assumes use of reserve outputs R5 and R6 (S67 = 15, S68 = 16)... **(4 hours)**

Once the S42 period is over, the fuel is burnt out and the burner is cleaned, with the display showing the message AUTO STOP.

The value set is the actual time in hours.

• **parameter S43** – is the function for automatic burner cleaning with compressed air after a specific period of operation time has passed. Once the set time has passed, the burner immediately burns out, it is cleaned and once again run. If required at all requirements for START are met. (regardless of S41 and S42 parameters). The function assumes use of reserve outputs R5 and R6 (S67 = 15, S68 = 16)... **(4 hours)**

The value set is the actual time in hours.

• **parameter S44** – is the function for the compressor for automatic burner cleaning with compressed air where this parameter sets the period the compressor is run for so that a sufficient amount of compressed air is ready (pressure, function S67 = 15)... **(3 min)**

The value set is the actual time in minutes.

• **parameter S45** – is the function for the solenoid for automatic burner cleaning with compressed air where this parameter sets the period the solenoid is open to ensure perfect cleaning of burner combustion chambers (function S68 = 16)... **(2 s)**

The value set is the actual time in seconds. Never set a lower value than 1 s.

• **parameter S58** – characterizes the amount of compressed air for the first pre-cleaning of the burner when installing pneumatic cleaning the burner. This is the time at which the partial filling compressor air tank for pre-cleaning of the burner ... **(10 s) - standardly do not change**



**INFO** - pellet burner A85 pre-cleans the burner's combustion chamber three times. The cleaning is characterized by parameters S58, S59, S60. Do not change these parameters by any means.



## Recommended parameter settings according to the quality of pellets

Pellet type and quality	T5	S6	S14	S41	S42	S43	S44	S45	S67	S68
Quality white pellets without bark which do not form ash clumps	25	3	12	11	24	32	3	2	15	16
Wooden pellets with small amount of bark which create ash clumps in about a week	25	3	12	11	12	24	3	2	15	16
Wooden pellets with large amount of bark, where ash clumps have to be removed once a day	25	3	12	11	6	8	3	2	15	16
Wooden pellets of worst quality where high ash clumps are created after two to three hours operation	25	3	12	11	2	2	3	2	15	16
Factory settings	25	3	12	11	4	4	3	2	15	16
Pneumatic cleaning setting when using weekly timer	25	3	12	11	4	4	3	2	15	16
When connection of the pneumatic cleaning of the burner with the original or other compressor (up to 24 l air tank) set S58 = 10 s. When connection to a central compressed air distribution with pressure reducing valve and air tank up to 15 l set S58 = 1 s.										



**INFO** - You should note the optimal pressure with which the burner should be cleaned. For the compressor which is supplied as part of the set, it is set to 4 – 5 bar (400 - 500 kPa). When connecting your own compressor or to a central compressed air system, **set initial pressure to 4 bar (400 kPa).**



**WARNING** – if you use the **special 8 A weekly timer** for directly control of the compressor according to time (note – cannot normally be bought in shops), parameter **S41 must always be set at 11 (S41 = 11)**. Set other parameters according to the final table row. On the timer, set which times it is allowed (forbidden) to use the pneumatic cleaner, e.g. at night. **You cannot forbid pneumatic cleaner operation in one go for periods greater than 12 hours.**



**WARNING** - The timer cannot be used if you want to burn pellets with a large amount of bark and dirt, as the combustion chamber has to be cleaned more often than once a day.



**WARNING** - to regulate and set the optimal amount of compressed air for pneumatic cleaning of the burner, **never use the solenoid opening time** which is directly set on the burner (**never parameter S45**).



## 7. Maintenance and cleaning of burner with combustion chamber pneumatic cleaner

Basic maintenance and cleaning of the pellet burner is described in the manual for the specific boiler and pellet burner. We want to draw attention to the most important points however!

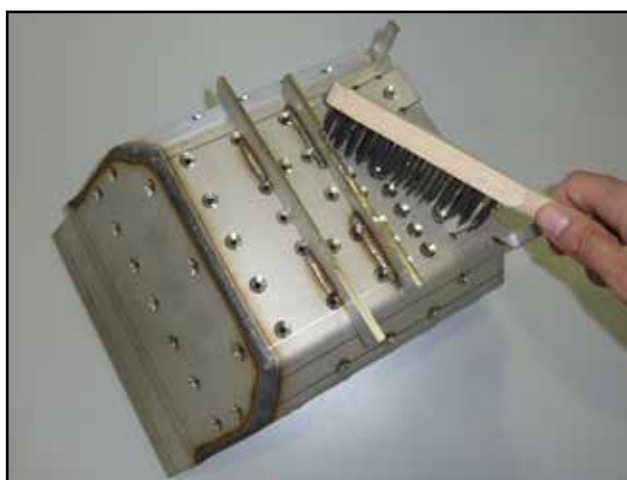


**INFO - Pneumatic cleaning of the burner significantly extends the period between combustion chamber cleanings and reduces boiler heat exchanger clogging (tube sheet).** Nevertheless, the burner should be regularly checked and cleaned when necessary.

**Cleaning the burner combustion chamber**, specifically cleaning the aperture for combustion air inflow is undertaken **in dependence on the pellet quality and amount of additions in the pellets such as starch, cornflour and various wood glues.** These substances make **apertures for combustion air inflow grow, especially from the bottom of the combustion chamber.** The interval between combustion chamber cleanings is generally between 7 days and 4 months.



*Slightly clogged apertures in combustion chamber after 4 months of use*



*Example of cleaning the combustion chamber*

**Cleaning of the channels for compressed air inflow** to the combustion chamber is undertaken in dependence on the quality of pellets from once a month to once every 4 months.



*Slight clogging after 4 months of use*



*Example of cleaning the front part of the compressed air inflow channel*

**Cleaning the burner interior space located under the pellet inlet tube** to the burner is undertaken in dependence on the amount of dust in the pellets, from once a month to once a season.



*Clogging after 3 months use with crushed pellets with large amount of dust*



*Example of cleaning the space under the pellet inlet tube*

As needed, but at least **once a season** blow out (vacuum up) space inside the burner.



**WARNING** - electronic unit AC07X with additional module AC07X-C never cleaned mechanically.



*Example of cleaning (blow out) space inside the burner. (without power!)*



*Example of cleaning (blow out) pressure fan impeller of the burner once a season*

**!POZOR - ATTENTION - ACHTUNG!**

Při provozu hořáku s pneumatickým čištěním je zakázáno otevírat jakákoliv dvířka nebo víčka bez vypnutí hlavního vypínače na kotli.

During burner operation with pneumatic cleaning is forbidden to open any doors or lids without turning off the main switch on the boiler.

Während Betrieb des Brenners mit pneumatischer Reinigung ist verboten die Tür oder Deckel zu öffnen - ohne Ausschalten des Hauptschalters am Kessel.

*Important warning stuck on boiler hood*

**Compressor maintenance**, specifically checking the amount of oil for oil compressors, is undertaken **once to twice a year** (red).

The oil-free version of the compressor does not require an oil level check (blue).

In addition, depending on dust level in the boiler room **the compressor filter is cleaned once to twice a year** (blow it out with compressed air).

If the compressor is located in a very dusty environment, according to need.

Also once a year, check all tubing and connections so as no compressed air can escape.



**WARNING - The air receiver (compressed air container) is a pressurized container and must be regularly checked with regular services carried out on it in accordance with the law in force in your country.**



*Checking oil levels in compressor*



*Cleaning compressor filter*

## WARRANTY PROVISIONS

### A85 pneumatic burner cleaner

1. If you observe the method of use, operation and maintenance of this product described in this manual, we guarantee that the product will keep the properties described by relevant technical standards and conditions over the whole warranty period, this being within 24 months from the day of receipt of the appliance, and a max. 32 months from the date of sale of the product by the sales representative.
2. If a fault occurs with the product during the warranty period which was not caused by the user, the product will be repaired under the warranty free of charge for the customer.
3. The warranty period is extended by the time over which the product is repaired under warranty.
4. Repairs undertaken during the warranty period are claimed by the customer using our service operations.
5. The product warranty is only recognised where the equipment is assembled by a qualified person in accordance with standards in force and the operation manual. A requirement for any warranty to be recognised is the details on the company which performed the assembly being legibly and fully completed. If the product is damaged through poor assembly, costs associated will be borne by the company which performed the assembly.
6. The purchaser has been demonstrably informed of the use and operation of the product.
7. Repairs undertaken after the warranty period ends are also claimed by the customer using our service operations. In this case, the customer pays the cost of repair himself.
8. The user is required to observe the instructions in the Operation and Maintenance Manual. If the customer does not follow the Operation and Maintenance Manual instructions, is careless, or handles the product incorrectly, the warranty is void and the customer is required to pay for any repairs resulting from damage

#### **Warranty and post-warranty repairs are performed by:**

- the company representing ATMOS in your country for your region
- the assembly company which installed the product
- Jaroslav Cankař a syn ATMOS,

**Velenského 487, 294 21 Bělá pod Bezdězem, Česká republika, Tel. +420 326 701 404**