

AUTOMATIC COMBINED BURNERS AKH-ME



The company PBS POWER EQUIPMENT, s.r.o. manufactures, installs and services monoblock and power burners which are employed for burning a wide range of fuels, and which can be used in power and heat production as well as in different technological processes.

DESCRIPTION OF BURNERS AKH-ME:

Burner AKH-ME represents a modern type of an automatic combined burner designed to burn gaseous fuel (natural gas, propane-butane, biogas or degasifying gas) and extra light furnace oil ELFO (resp. heating oil). The burner comprises electronic coupling fuel-air and it is designed as monoblock, i.e. the fan and all the components are a part of the burner's main body. The operation is fully automatic, suitable for unattended control of boiler plants. Continuous control of the heat output, together with a low excess of air during the combustion, guaranty a high operation efficiency. Applied electronic components by renowned companies distinguish themselves by a high reliability and a long operating life.

The burners are equipped with the microprocessor control unit PBS6000 (electronic coupling fuel-air) controlling the starting cycle, the gas fittings leakage test, the regulation of the heat output, and all the other safety functions.

The regulation of the burner's heat output can be either automatic or manual using the control unit control panel, resp. via a communication line. The use of the interface RS485 enables monitoring of the operation status and controlling of the burner's basic functions.

Optionally the control system can be equipped with an oxygen (lambda) probe continually scanning and controlling the excess of air in the flue gases to increase the efficiency (lower the fuel consumption) of the entire combustion plant.

USE:

Combined burners AKH-ME serve as sources of heat for overpressure and underpressure appliances, particularly for steam, hot-water and warm-water boilers. They can, however, be also used for other appliances with a suitable space for combustion, where they will not be subjected to outer blazing heat (e.g. air heaters, dryers, steam generators, industrial and baking furnaces etc.) Their use for special technological purposes must be consulted with the manufacturer.

TECHNICAL SPECIFICATIONS:

- Output 230 ÷ 11 000 kW
- Gaseous and liquid fuels
- Burners comply with technical requirements of ČSN EN 676, ČSN EN 267 and other legislative regulations. The conformity with the product safety requirements was examined by a notified independent person (issued the type certificate).

FUEL:

- Natural gas
- Propane, propane - butane
- Low-heating gases (biogas, degasifying gas, ...)
- Extra light furnace oil (ELFO), resp. heating oil

ADVANTAGES:

- Possibility to change gaseous and liquid fuels
- Possibility to simultaneously burn gaseous and liquid fuel
- Highly efficient operation (low excess of air)
- High reliability and durability
- Safety (automatic checking of leakage of gas fittings and aerating of the appliance prior each start of the burner)
- Use of modern technologies
- Easy to operate
- Fully automatic operation suitable for unattended control of boiler plants
- Continuous output regulation
- Professional warranty and after-warranty service

STANDARD SCOPE OF SUPPLY:

- Burner body with the cooling fan
- Microprocessor controller
- Diffuser and mixing head
- Gaseous fuel regulation fittings
- Combustion air suction regulation with the noise damper
- Flame monitor
- Igniter
- Combustion air and fuel regulation servomotors
- Valve battery
 - gas filter
 - electromagnetic twin valve DUNGS
 - 3x gas pressure manostat (for the lower and upper limits and the leakage check)
 - deaerating valve(for burners 25, 45, 90 series)
- Oil accessories
 - high-pressure pump
 - oil filter
 - liquid fuel stop valves
 - 2x oil manostat
- Air pressure manostat
- Additional parts (controller base, burner sealing, connecting bolts, ...)
- Technical documentation

REGULATION:

The microprocessor controller in connection with a suitable appliance controller enables following kinds of heat output regulation:

- Continuous – a fluent change of heat output according to the instantaneous heat off-take
- Two-step (three position) MAX-MIN-OFF
- Manual operation – directly with buttons on the controller or by means of a remote control, resp. superior control system

ACCESSORIES TO ORDER:

- Low-emission head to reduce NO_x
- Flue gas recirculation to reduce NO_x
- Frequency convertor
- PBS600 burner controller touch screen
- Oxygen sensor + interface – regulation of excess oxygen in flue gases
- Distance piece between the burner and the appliance
- Intensified burner design (outputs increased to higher overpressures)

OVERVIEW OF PRODUCED TYPES:

Burner type	AKH-ME				
	10	16	25	45	90
PZ+N	▪	▪	▪	▪	▪
PZN+N	▪	▪	▪		
PP+N	▪	▪	▪	▪	▪
PPN+N	▪	▪	▪	▪	
PK+N	▪	▪	▪	▪	▪
PKN+N	▪	▪	▪	▪	
PZ / I+N				▪	▪

Marking:

- PZ - natural gas, medium-pressure
- PZN - natural gas, low-pressure
- PP - propane-butane, medium-pressure
- PPN - propane-butane, low-pressure
- PK - biogas, sewage gas, degasifying gas, medium-pressure
- PKN - biogas, sewage gas, degasifying gas, low-pressure
- I - Intensified design
- +N - extra light furnace oil (ELFO), resp. heating oil

CONTROL SYSTEM:

Upon request the control system can be supplied in version with the oxygen (lambda) probe continuously scanning and controlling the air excess in the flue gas to increase the efficiency (lower the fuel consumption) of the entire combustion plant. The excess of air is regulated by a combination of changes in speed of the fan motor by means of the frequency converter (el. energy saving) and the regulation of the air flap valve.



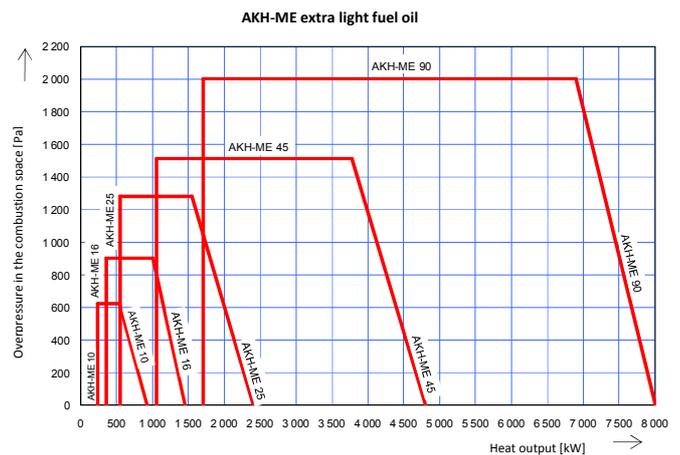
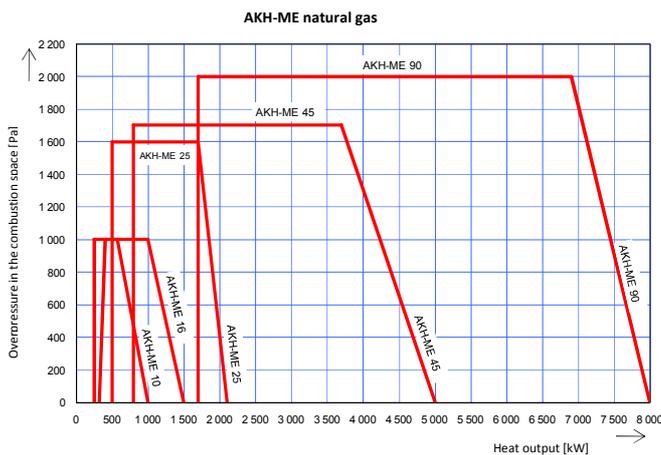
BASIC TECHNICAL PARAMETERS FOR GAS OPERATION:

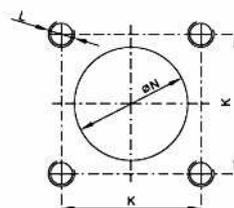
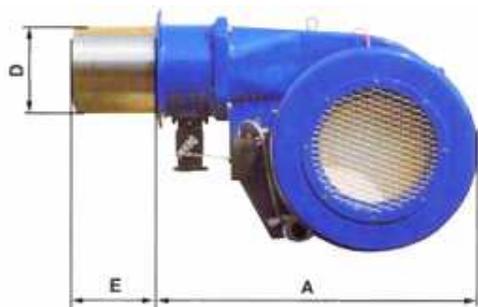
Burner type	Inlet over-pressure of fuel [kPa]	Heat output [kW]			Maximal over-pressure in combustion space [Pa]	Connection of supply gas piping	El. input [kW]	Voltage supply
		Maximal to zero over-pressure	Maximal to max. over-pressure	Minimal				
AKH-ME 10 PZ+N	20 ÷ 50	1000	570	250	1000	R 1 1/2" ÷ DN 50	0,9	3NPE ~ 50 Hz, 400 V / TN-S (L1, L2, L3, N, PE), possible grids TN-C, TT, IT Connect to a fused (characteristic „D“) 3ph supply
AKH-ME 10 PZN+N	2	900	530	230		DN 50		
AKH-ME 10 PPN+N	3			250				
AKH-ME 10 PKN+N	1,5 ÷ 5	800	500	230	800	DN 80	1,4	
AKH-ME 16 PZ+N	20 ÷ 50	1600	1000	320	1000	DN 50		
AKH-ME 16 PZN+N	2	1400		400	800	DN 80		
AKH-ME 16 PP+N	20	1500		900	900	DN 50		
AKH-ME 16 PPN+N	3	1400	950				2,6	
AKH-ME 25 PZ+N	20 ÷ 50	2600	1500	500	1600	DN 80		
AKH-ME 25 PZN+N	2	2100	1700	580	650	DN 100		
AKH-ME 25 PP+N	20	2500	1500	550	1500	DN 50	6	
AKH-ME 45 PZ+N	20 ÷ 50	4800	3900	800	1430	DN 80 ÷ DN 100		
AKH-ME 45 PZ/I+N	20 ÷ 50	5000	3700	1100	1700		8	
AKH-ME 45 PP+N	20	4800	3900	1000	1400	DN 50 ÷ DN 80	6	
AKH-ME 90 PZ+N	20 ÷ 50	11000	6900	1700	2000	DN 80 ÷ DN 150	11	
AKH-ME 90 PP+N	20					DN 80 ÷ DN 100		

BASIC TECHNICAL PARAMETERS FOR ELFO OPERATION:

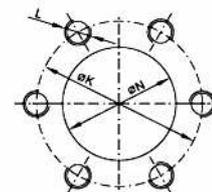
Burner type	Heat output [kW]			Maximal overpressure in combustion space [Pa]	Fuel consumption [kg·h ⁻¹]			Electric input [kW]	Maximal inlet overpressure of fuel [kPa]	Inlet viscosity of fuel [mm ² ·s ⁻¹]	Voltage supply
	Maximal to zero overpressure	Maximal to maximal overpressure	Minimal		At maximal heat output to zero overpressure	At maximal heat output to max. overpressure	Minimal				
AKH-ME 10	920	530	235	620	77,6	44,7	19,8	1,2	100	1,3 ÷ 20	3 NPE ~, 50 Hz, 400V / TN-S
AKH-ME 16	1475	1000	335	900	124,4	84,3	28,2	1,9			
AKH-ME 25	2400	1570	545	1280	202,4	132,4	45,9	2,6			
AKH-ME 45	4800	3775	1050	1510	404,7	318,3	88,5	10			
AKH-ME 90	11000	6900	1700	2000	678	584	144	13			

OUTPUT CHARACTERISTICS:

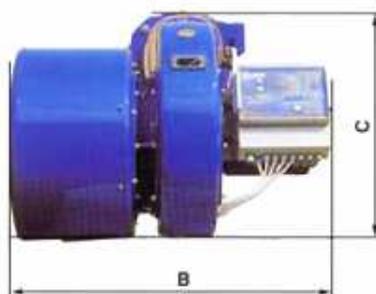
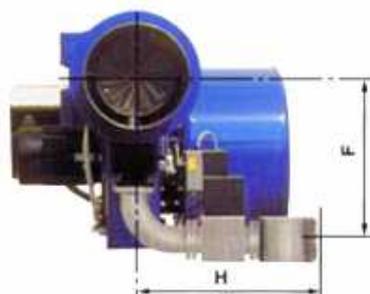


DIMENSIONS:

AKH-ME 10 ÷ 45



AKH-ME 90



Burner type	Dimension [mm]								
	A	B	C	D	E	F	H	K	L
AKH-ME 10	801	790	512	∅ 206	240	345 ÷ 406	600 ÷ 1039	180	4 x M12
AKH-ME 16	833	880	588	∅ 250	300	395 ÷ 431	600 ÷ 1039	216	4 x M12
AKH-ME 25	953	880	711	∅ 286	300	407 ÷ 443	600 ÷ 1039	254	4 x M16
AKH-ME 45	1103	1040	839	∅ 330	300	547	725 ÷ 1039	272	4 x M16
AKH-ME 90	1516	1282	1166	∅ 476	400	783	1039	∅ 540	6 x M20

**PBS POWER EQUIPMENT****PBS POWER EQUIPMENT, s.r.o.**

Průmyslová 162

674 86 Třebíč

ČESKÁ REPUBLIKA

Tel.: +00420 568 504 320**Fax:** +00420 568 504 642**E-mail:** kpleha@pbstre.cz**www.pbspe.cz**