

*AGRO DRYING*

*INDUSTRIAL DRYING*

*OBJECT HEATING*

# **HOT AIR GENERATION FOR AGRICULTURE AND INDUSTRY**

# HOT AIR GENERATION FROM BIOMASS

## The ICS HotAir TECHNOLOGY

The ICS HotAir technology developed by us for the drying industry allows the production of warm and hot air for a wide range of applications based on renewable energy sources and residual products from agriculture and forestry. The fuels are transported by heavy transport systems to highly efficient and very flexible grate firing plants. The flue gases from the combustion process are led controlled into a hot air generator (flue gas / air heat exchanger) in which the energy is transferred to the incoming fresh air. The spatial separation of the flue gases and the fresh air in the heat exchanger allows an indirect heating process in order to produce pollution-free warm or hot air. A highly stable and efficient operation of the ICS HotAir systems is guaranteed by a series of continuous measuring devices and a reliable combustion control.



Biomass hot air generator ICS HotAir



Drying plant for maize and grain

## ICS HotAir TECHNICAL DATA

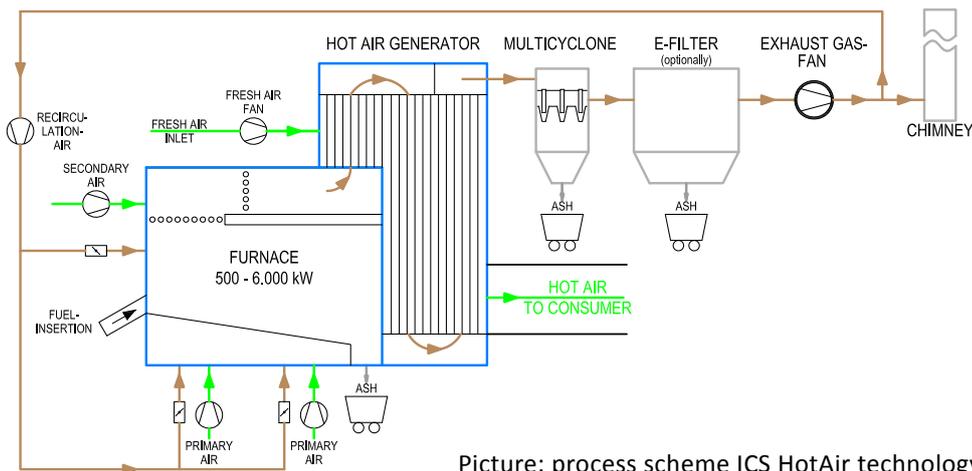
BIOMASS HOT AIR GENERATORS											
		ICS HotAir Compact					ICS HotAir				
Type name		HC 500	HC 750	HC 1000	HC 1250	HC 1500	HF 2000	HF 3000	HF 4000	HF 5000	HF 6000
Nominal power [kW]		350-500	500-750	750-1000	1000-1250	1250-1500	1500-2000	2500-3000	3500-4000	4500-5000	5500-6000
Fuels		wood chips / bark / pellets / wood residues / waste wood / corn cobs / agricultural by-products									
Heat medium		fresh air									
Hot air temperature max. [°C]		150, higher temperatures on demand									
Hot air volume at 150°C max. [m³/h]		15 400	23 100	30 800	38 500	46 200	61 700	92 500	123 400	154 300	185 100
Hot air volume at 100°C max. [m³/h]		21 200	31 800	42 400	53 200	63 600	84 900	127 400	169 800	212 300	254 800
Fuel demand wood chips W30% [to/h]		0,17	0,25	0,34	0,42	0,51	0,68	1,02	1,36	1,70	2,04
Space requirement appr. [m²]		42	42	42	42	42	300	350	400	450	500
Volume fuel storage [m³]		20 - 68					80 - 160	80 - 160	80 - 160	160 - 240	160 - 240
Exhaust gas cleaning		multicyclone, dust filters optionally									
Hot air supply of drying systems											
Type name		HC 500	HC 750	HC 1000	HC 1250	HC 1500	HF 2000	HF 3000	HF 4000	HF 5000	HF 6000
Drying product	Drying value water (W)	Drying power approximation (dry product output) [to/h] *									
Maize	28 % to 14 %	2,70	4,04	5,39	6,74	8,09	10,78	16,17	21,56	26,95	32,34
Corn, grain, wheat	20 % to 14 %	7,79	11,69	15,58	19,48	23,37	31,16	46,74	62,32	77,90	93,48
Sawdust	55 % to 10 %	0,44	0,66	0,88	1,10	1,32	1,76	2,64	3,52	4,40	5,28
Sewage sludge	75 % to 15 %	0,10	0,16	0,20	0,25	0,30	0,40	0,60	0,80	1,00	1,20
RDF / SSW / waste	35 % to 10 %	1,90	2,80	3,80	4,75	5,70	7,60	11,40	15,20	19,00	22,80
Water evaporation approximation [to/h] *		0,4	0,6	0,8	1,0	1,2	1,6	2,4	3,2	4,0	4,8

\* The values are based on estimates and are subject to the drying technology used, ambient temperature and other factors of influence.

# EXPERIENCE AND COMPETENCE

## PROVEN PLANT TECHNOLOGY

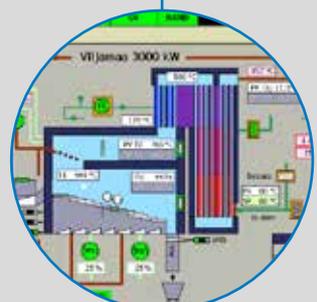
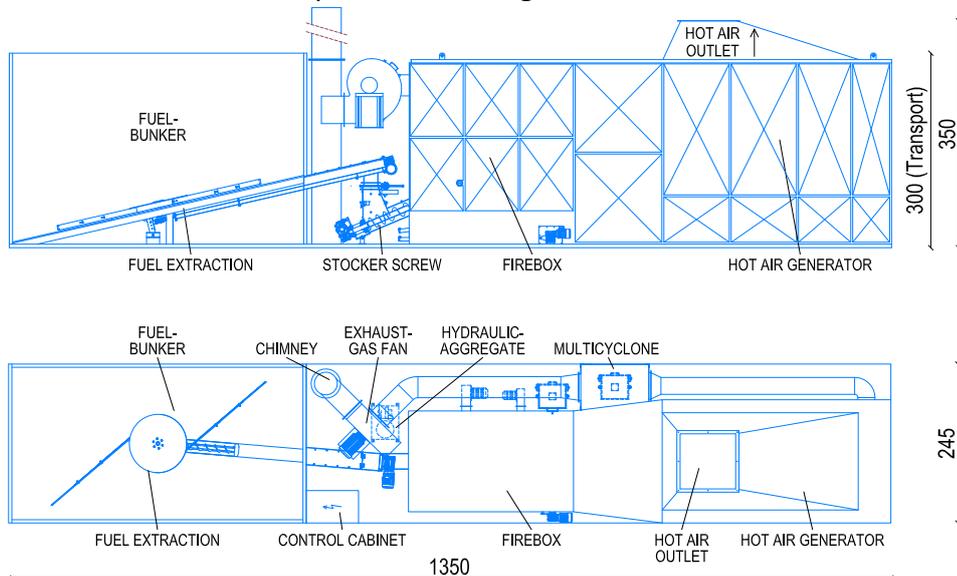
The hot air generators and power supply systems installed by us successfully provide energy for many years and confirm the quality of our services. The ICS HotAir technology combines proven combustion systems with modern and sophisticated hot air technology to ensure the best possible flexibility and reliability for our customers.



Picture: process scheme ICS HotAir technology

## ICS HotAir Compact – READY TO USE

ICS HotAir Compact is a turnkey and compact hot air generation plant in the power range from 350 up to 1500 kW. The plants are completely assembled and tested at the factory before delivery to our customers. This saves valuable installation and commissioning time on site. The compact system design is saving space and can be put into operation within a few hours without expensive building constructions.





# OUR COMPANY

## ICS ENERGIETECHNIK

ICS ENERGIETECHNIK GmbH, which is placed in Kumberg/Austria, operates for over 25 years with the development, planning and execution of power supply plants, which mainly use renewable energy sources such as wood residues, landscape materials and by-products from agriculture and forestry.

If required also biogas plants and wind turbines as well as oil and gas can be integrated in the energy concepts created by ICS. Our overall solutions enable an economically sensible use of all available resources. Through an optimal combination of all site-related opportunities, we ensure the consumer an optimum energy efficiency, which provides with highest reliability and best efficiency heat, process steam, hot air and electricity.

## PROJECT DEVELOPMENT & ENGINEERING

We are qualified to handle all phases of the project when required. Our range of services extends from the creation of preliminary projects, energy concepts, feasibility studies and plant planning to execution engineering of complete plants. Of course, the location-based technology is individually adapted and developed by us. Our core competencies are the fabrication, organization and operation of the energy-supply plants.

## ALL FROM ONE PARTNER

Due to the diversity of our portfolio, it is possible to offer always an optimal energy supply. In addition to project development and planning, we are a plant manufacturer and supplier of turnkey objects that are built, assembled and commissioned by us, renowned manufacturers and well trained staff. Due to our wide range of services, our business partners have the advantage of a single responsible contact for their overall projects.

