

ECOS[®]

INNOVATIVE HYBRID TECHNOLOGY

THE NEW ERA OF BIOMASS HEATING

70 - 120 kW



A+++
(Condensing value pellets)

NEW
With voice control!

OPTIONALLY EXPANDABLE :

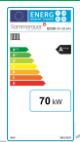
- + Fully integrated e-filter
- + Weather Data Forecast Heating Technology **ECO+**
- + Condensing technology (up to **105% Efficiency!**) (Pellets 70 kW nominal load)
- + Voice control of the heating system (e.g. Alexa)
- + Air supply independent of room air
- + Fully integrated return flow increase
- + Extendable from 2 to 4 spring leaves

EFFICIENCY WORLD RECORD!

Boiler technology with over 96,5% efficiency!
(Pellets 70 kW nominal load)



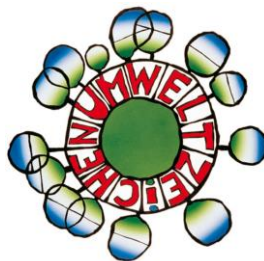
Certified with market research
report boiler test (TÜV SÜD)



Special award for
the ECOS



7 seals of quality world-
wide for the first time!



Award Winner
Eco-Label 2020



YOUR SPECIALIST FOR BIOMASS HEATING SYSTEMS
WWW.SOMMERAUER-ENERGIE.COM



Thilo Sommerauer
Managing Director/CEO
and Development Manager
State-Certified Engineer



Our customers are of primary importance to our family-operated business. Our goal is to simplify your everyday life through innovative and intelligent product solutions. We are constantly working on developing new technological improvements and bringing them to you. High quality, good service, customer satisfaction and individual special solutions have distinguished the Sommerauer company for over a quarter of a century.

With the latest CFD simulations and calculations, intensive development work and long-term tests, we are setting a clear exclamation mark on the biomass heating system market with the new ECOS in the areas of **PERFORMANCE, ENERGY EFFICIENCY, INNOVATIONS, FLEXIBILITY, RELIABILITY, HIGH CONVENIENCE** and **LONG-TERM LIFE**. Benefit from the efficiency world champion ECOS with state-of-the-art biomass hybrid technology, which realizes today already.



SOMMERAUER - A FAMILY BUSINESS WITH 30 YEARS OF TRADITION

The biomass heating systems specialist for pellet, wood chips, hybrid heating and individual discharge systems

Foundation - The path from special machine construction to today's innovative biomass heating systems

The family business Sommerauer was founded under the company name "SL-Technik GmbH". The family business quickly established itself in its first business area, the custom-made construction of special machines. Due to many years of experience in the field of combustion and plant technology on the one hand and the high level of competence of the employees on the other hand, the logical step was to enter the biomass heating market. From the very beginning, the company placed great emphasis on the development and integration of environmentally friendly technologies. In the meantime, tens of thousands of satisfied existing customers worldwide trust in Sommerauer's product solutions, quality, innovations and service.

International awards and a world record! - Quality "Made in Austria" all over the world

After the change in generations in 2016, the company opted for a new name, new design and further developed control technology. Since then, the family-owned company has been operating under the trademark "Sommerauer" and has won important international awards, including the "Austrian Eco-Label 2020, 2019, 2018, 2017, 2016", as well as the "Plus X Award 2020 for the ECOS (worldwide first with 7 seals of quality), 2018, 2017, 2016" and the special award for the ECOS as "Most Innovative Biomass Heating System of the Year 2020". The Plus X Award is the world's greatest innovation prize for technology, honoring brands for the innovative content of their products. The Austrian Environmental badge stands for ecological service in manufacturing of products with up to date test results. Thus the strictest requirements can be met in Austria and the rest of the world. With an efficiency of over 96,5% (Pellets 70 kW nominal load and TÜV SÜD tested), the ECOS set a new efficiency world record! This makes it currently the most energy-efficient hybrid biomass heating system in the world!

SOMMERAUER-ENERGY WORLD

Visit the new biomass experience world of Sommerauer! Please schedule visits with our office



Showrooms of the Sommerauer-Energy World

In our new showroom covering more than 500 m², in St. Pantaleon (Sommerauer headquarters), customers can consult no obligation with your Sommerauer dealer and get a non binding quote tailored to your individual needs. Having specialized in individualized solutions for over a quarter of a century, we are confident working together we can find the right biomass system for your specified scenario. We look forward to your visit!

INTERNATIONAL TRAINING AND COMPETENCY CENTRE

International trainings and comprehensive education reinforce our employees and cooperation partners



International Training Room

Our employees, international cooperation partners and sales partners are trained and qualified to become certified experts for Sommerauer product solutions in our modern training and competency center!

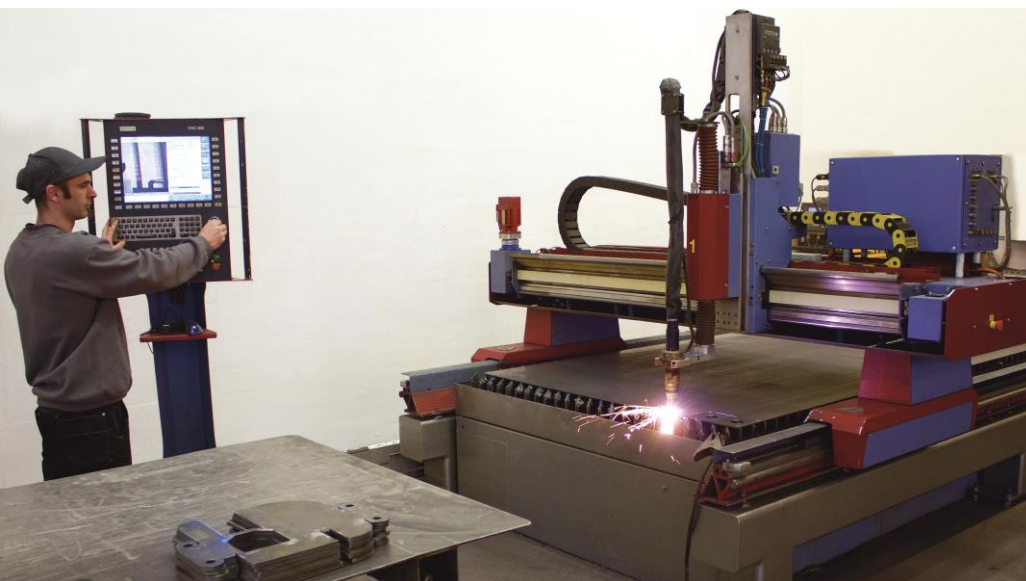
„We constantly qualify our global cooperation partner. This will ensure fast and effective service calls, save our customers unnecessary costs and provide a perfect experience.“

ASSEMBLY AND PRODUCTION AREA FOR BIOMASS HEATING SYSTEMS

Visit our modern assembly hall covering over 1400 m² and see for yourself of the skilled assembly of our prize winning biomass heating systems. Please schedule visits with our office.



Our highly qualified assembly staff pay attention to every detail during the assembly of the products in order to ensure consistent quality



Production specialist operating a plasma cutting machine



Fully automatic CNC machining centre

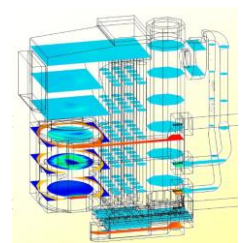
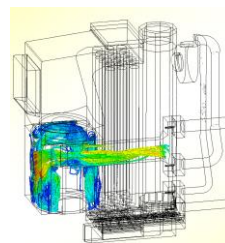
Highly specialized production workers and different kind of production machinery in our manufacturing area ensure an expert quality, which includes the daily implementation of specialized design. Production steps such as welding, edging, grinding, filing, screwing, glueing, bending, cutting, drilling, plasma cutting, flexing and turning are all carried out daily at the various work stations. Numerous production articles are skillfully painted in our house paint shop. A modern multi-axis CNC machining center is used together with other machinery, for production of individual parts and prototypes.

MODERN RESEARCH AND DEVELOPMENT CENTRE

This is where our biomass heating system portfolio is refined, new products are researched and built on 300 m²



We develop and build our biomass product solutions in our modern research and development center covering more than 300 m². Research and testing is also carried out on prototypes and modified Sommerauer test systems in order to offer the optimum product solutions for our customers. A modern TÜV-certified test stand for boiler testing has been integrated into the building.



We always keep up the date through optimum teamwork, highly qualified builders and design engineers who develop solutions for the future. Equipped with state-of-the-art technology, complex components and product solutions are built using the most modern engineering which are then tested with simulation programs to ensure an optimum development.

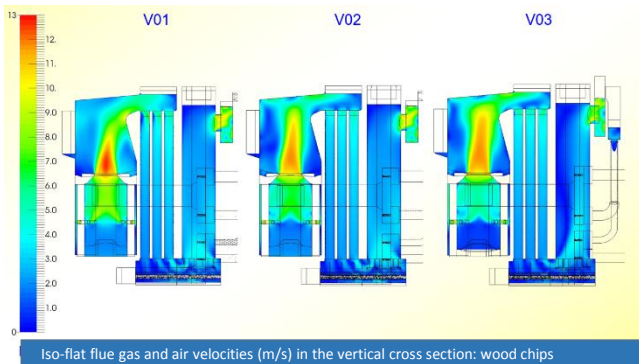
In the development of the ECOS, the latest CFD simulations and extensive practical tests enabled the highest possible efficiencies and minimum emissions as well as the greatest possible flexibility and process reliability. The hybrid heating system was tested in our own research and development center together with our partner, TÜV-Süd.

MAXIMUM EFFICIENCY AND PROCESS RELIABILITY FROM THE START

Using the latest CFD simulation, we have succeeded in implementing the ECOS very efficiently, reliably and powerfully

We have set a new technological milestone in the development of the new ECOS. We wanted to achieve maximum efficiency, performance and process reliability for the ECOS. One of the goals was to implement the maximum of possibilities even before the prototype phase.

With the most modern CFD simulations that are also used in the aerospace industry, we have succeeded in this from the very beginning. On the basis of the latest calculation models, we were able to simulate the most diverse scenarios in order to achieve the required top results. Subsequently, the ECOS was made ready for series production through comprehensive practical tests and tested together with our long-standing partner, TÜV-SÜD.

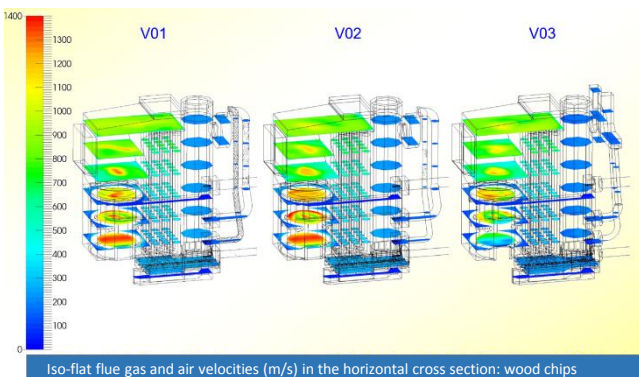
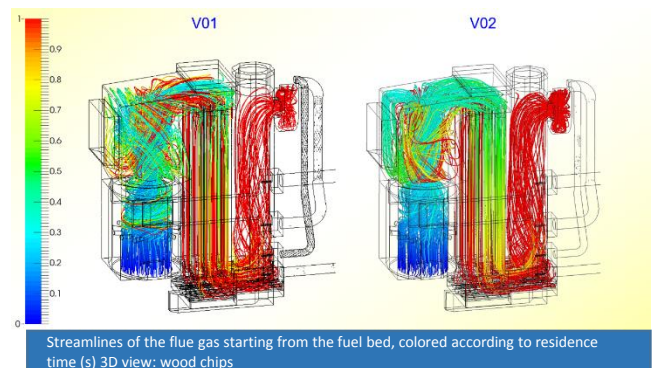


In this ECOS simulation example, the isosurfaces of the flue gas and air velocities (m/s) are calculated and evaluated in the vertical mean.

The better the flue gas and air can be mixed, the more efficient the entire biomass combustion process becomes.

In the simulation shown on the right, the streamlines of the flue gas were calculated starting from the fuel bed.

In addition to the mixing, the dwell time of the flue gas in the individual zones of the furnace plays an important role in achieving complete combustion and minimum emissions of CO, NO_x and dust.



The third important factor influencing combustion is temperature. Its distribution in the combustion chamber is shown in the graphic on the left. High temperatures in the combustion chamber, good temperature control and the best possible use of the energy contained in the flue gas are decisive criteria to be observed.

CFD simulations allow important design adjustments to be made at an early stage of development, meaning that time can be saved in the prototype and test phase as well as development runs specifically and safely.

ADVANTAGES AND PERFORMANCE DATA OF THE ECOS

The biomass heating system hybrid ECOS shows its unique advantages on the biomass market in its overall package

HIGH PERFORMANCE

- Efficiency over 96,5%! (Calorific value) (Pellets 70 kW nominal load)
- Efficiency up to 105%! (Condensing value) (Pellets 70 kW nominal load)
- TÜV-SÜD efficiency world record for the worldwide highest efficiency at nominal load with over 96,5%!
- (Pellets 70 kW nominal load)

DURABILITY

- Drive mechanism in the lower area
- Stoker helix thickness of 6mm
- CFD-simulated and optimized purging geometry
- CFD-simulated and optimized heat exchanger geometry with regard to volume flows

ENERGY EFFICIENCY

- EC induced draught fan (ECO mode)
- Energy saving igniter
- Combi-drive technology (entire lower mechanism)
- Combination ash discharge screw conveyor
- ECO screw channel
- CFD calculated isolation geometry
- Over 96,5% efficiency (Calorific value) (Pellets 70 kW nominal load)
- Up to 105% efficiency (Condensing value) (Pellets 70 kW nominal load)

FLEXIBILITY

- Can heat pellets and wood chips
- E-filter fully integrated retrofittable (Dust content up to 5 mg/Nm³) (Condensing value, at nominal load 70 kW with O₂ 13 % Vol. (pellets))
- Flue gas condenser retrofittable (Condensing boiler technology up to 105%) (Pellets, at 70 kW nominal load)
- Room air independent air supply retrofittable
- Fully integrated return rise retrofittable
- Modular screw conveyor system (pluggable extensions)
- Stoker unit flangeable on both sides
- Sommerauer-App
- WLAN room control unit

INNOVATIONS

- Ergonomic rotating grate system
- Ergonomic modular combustion chamber bricks
- Fully automatic flue gas-recirculation (primary)
- Multifunctional air mixing module
- Innovative combustion chamber geometry
- Innovative mounting brackets for spring turbulators
- Innovative transition screw
- Module integration (drawer system)
- Double chamber rotary valve
- Software-Assistant (Wizard) for very easy commissioning
- ECO-Smarttronic (Control system)
- BIONIC user interface (3D icons with real-time data, operation within 3D objects)
- Weather data forecasting technology ECO+

RELIABILITY

- Compact and simple design of the ECOS, despite numerous innovations
- Safety agitator with very robust agitator gear
- Fully automatic heat exchanger cleaning of all moves
- Lambda sensor control
- Innovative 3-phase AC current monitoring
- TÜV SÜD tested

MAXIMUM USER COMFORT

- Voice control of the ECOS by e.g. Amazon Alexa
- BIONIC user interface (3D icons with real-time data, operation within 3D objects)
- Weather data forecasting technology ECO+
- Software-Assistant (Wizard) for very easy commissioning
- Video instructions for the most important basic functions of the user interface
- Digital operating manual with hyperlink function of the table of contents to find pages by topic
- ECO-Smarttronic (Control system)

INTELLIGENT CONTROL **ECO-SMARTTRONIC**

Despite different fuels the perfect combustion state is fully automatically and permanently achieved

NEW



- ✓ Connection possibility for up to 30 heating circuits, 5 hot water tanks (boiler), 5 buffer tanks and 5 combination buffer tanks, 7 solar systems
- ✓ SmartHome connections (e.g. Loxone) are possible. Solar system can be ideally integrated
- ✓ Remote control of the system via room control unit, PC (living room) or via app (on the road) with mobile phone, tablet or laptop

PRECISE COMBUSTION CONTROL

With the sophisticated **ECO-Smarttronic** control, the ECOS can be controlled individually and very intuitively.

- ✓ Innovative control of heat distribution and combustion
- ✓ Very easy and intuitive BIONIC operation via a 7" real glass multifunctional touch display
- ✓ Parameters are individually configurable via active icons
- ✓ Enter the heat distribution according to automatic instructions (Wizard), that's it! Combustion parameters are automatically programmed.
- ✓ Precise real-time combustion control through lambda sensor
- ✓ New weather-controlled ECO heating technology (save wear, fuel, operating hours)

SMART HOME - FLEXIBLE SOLUTION FOR THE FUTURE

Experience safe, comfortable and intelligent living with individual Sommerauer Smart-Home possibilities



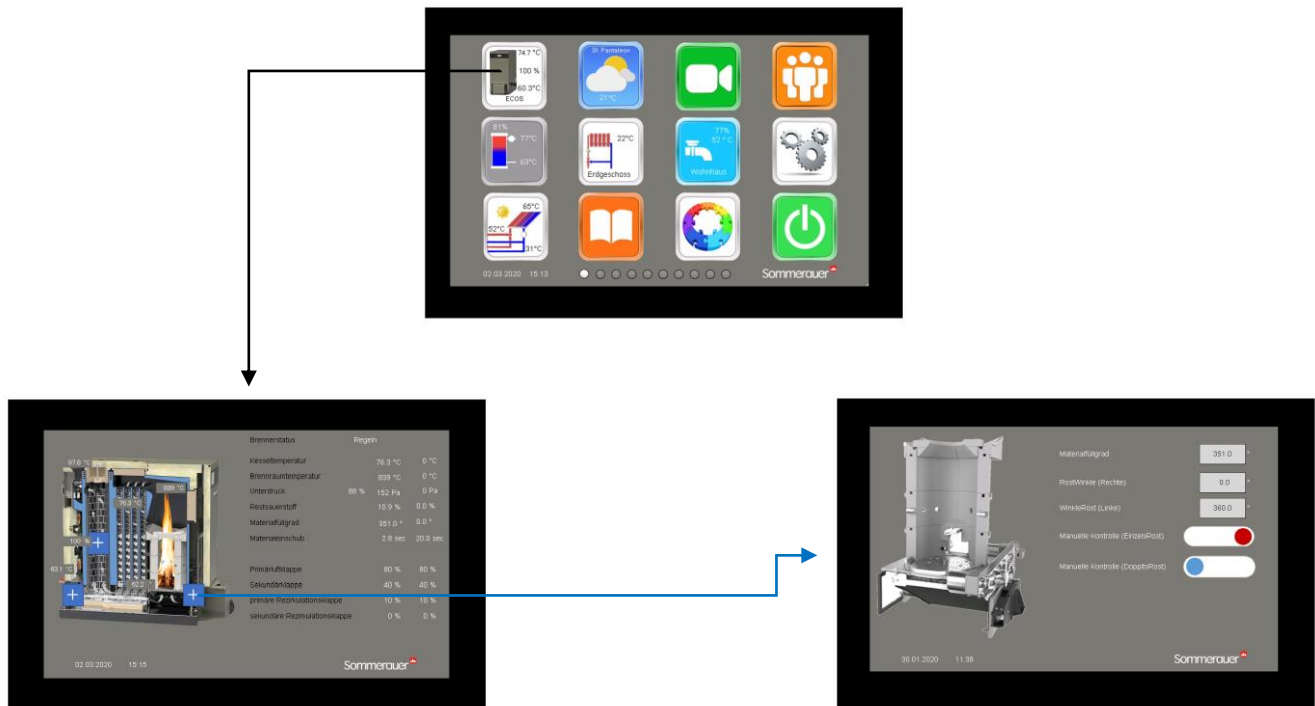
7 INCH TOUCH DISPLAY - USER INTERFACE BIONIC

Real glass touch display with the simplest and most intuitive operating concept

NEW

HIGHEST INTUITIVE CONTROL WITH BIONIC (3D-ICONS WITH REAL TIME DATA)

The latest smartphone technology is used on the new 7-inch projective-capacitive real glass color touch display of the ECOS. Experience intuitively familiar icon visualization, which offers you real-time data for preview. If someone is more interested he enters the icon and can view more extensive data in 3D views. No more unclear scrolling: Operate different functions directly in the 3D views and enjoy the highest level of comfort!



✓ Intuitive operation via 3D icons and 3D graphics. No more laborious scrolling, but directly adjustable in the 3D graphics, with wipe function

✓ Intuitive user interface with the convenience of familiar smartphone technology

✓ Pressureless actuation of the applications on the 7 inch real glass touch screen by projective-capacitive technology of the display

✓ The combustion parameters are controlled fully automatically in the background, for different fuels and plant situations

✓ The function icons are self-explanatory and can be positioned completely individually

✓ The icons have real-time data that provide the user with the most important information in advance

COMMON SYSTEMS ON THE MARKET

✗ Standard resistive touchscreens react exclusively to pressure and are therefore difficult to operate. You often have to press firmly on the plastic surface for the touch to respond.

✗ Common user interfaces are flooded with sectional views with countless integrated data and many submenus, where you have to scroll through a confusing array of pages. This makes laborious operation of the system.

VOICE CONTROL OF THE ECOS VIA AMAZON ALEXA

You control your ECOS very conveniently via voice input and thus enjoy maximum comfort

NEW

„Alexa, please increase
temperature of living
room by 5 degrees”



FAST, EFFICIENT AND VERY CONVENIENT

The ECOS has an interface technology that allows you to implement various functions very easily, e.g. via Amazon Alexa by voice command.

- ✓ The room temperature can be changed at will very easily and the ECOS will automatically adjust to it
- ✓ Ask for the current values of outdoor temperature, air pressure, humidity, wind data, sunshine and cloudiness, as well as the minimum and maximum daily temperature for the next few days. ECOS provides all data for Alexa
- ✓ You can ask for the current fuel quantity of wood chips or pellets in the storage room or pellet tank



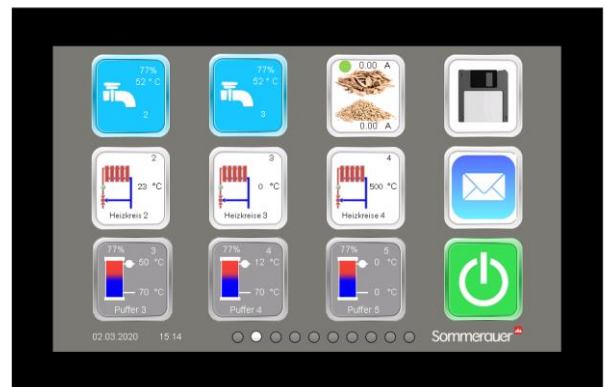
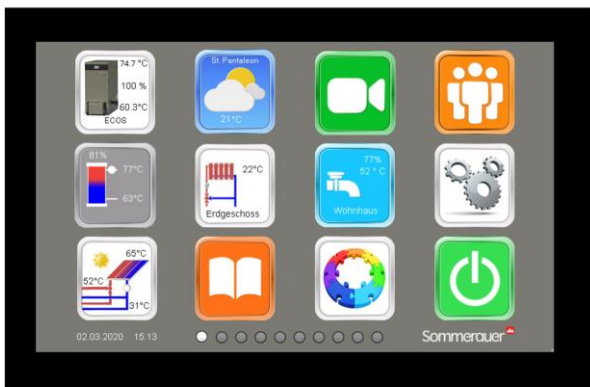
VERY EASY COMMISSIONING WITH SOFTWARE ASSISTANT

The automatic assistant (Wizard) guides you quickly and reliably through the installation

NEW

INTELLIGENT SIMPLIFICATION OF COMMISSIONING WITH A SOFTWARE ASSISTANT

The ECOS software assistant guides the technician quickly, logically and reliably through the commissioning process with an automated dialog. As with the initial commissioning of a mobile phone, the wizard automatically asks, for example, how many heating circuits, buffers, boilers and modules are required. After the technician's input, the corresponding icons are automatically created in the correct number. Within seconds the software-technical commissioning is thus carried out without errors. This automatically marries the software with the hardware and links them together! This technology saves time and therefore money, prevents errors and guides you through the installation process with ease.



✓ Automatic software assistant that guides you quickly, logically and reliably through commissioning. This saves time, money and prevents errors

✓ Software assistant, as already known from smartphone technology

✓ The innovative software dialogue with the commissioning assistant makes commissioning and setting the heat distribution very easy

✓ Intuitive and self-explanatory in an automated process that marries software and hardware!

COMMON SYSTEMS ON THE MARKET

✗ In the case of commercially available commissioning, the menu navigation is not automated and you have to scroll through the menu in a complicated way, which can lead to incorrect settings in the heat distribution and on the boiler. A laborious user interface and corrections during commissioning creates additional costs and time losses. Likewise, software and hardware are not automatically linked during commissioning.

COMFORTABLE MOBILITY WITH SOMMERAUER-APP

Easy online remote control with 1:1 full access to your ECOS hybrid biomass heating system from Sommerauer

NEW



- ✓ Individual naming of the different heating circuits
- ✓ Mailing to several mail addresses possible
- ✓ Safe Internet connection with full access to the system

THE COMFORTABLE SOMMERAUER-APP

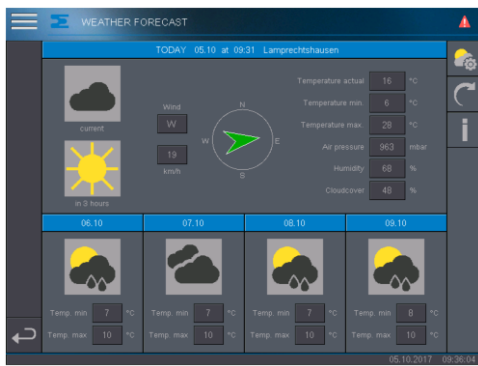
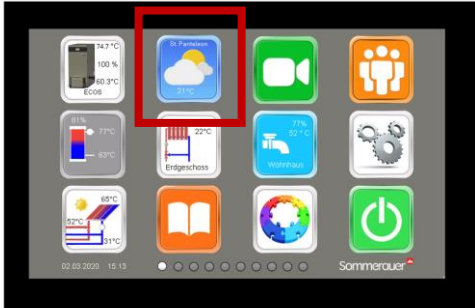
With the innovative and clearly arranged Sommerauer-APP you can individually check your heating system from anywhere in the world easily and quickly, make changes and maintain it remotely (full access!)

- ✓ New Sommerauer-APP: Everything controllable via smartphone, tablet or PC
- ✓ Status messages are automatically transmitted to the user (e.g. by e-mail or SMS)
- ✓ Heating system status values (e.g. heating times and temperatures) can be changed or called up very quickly. Push messages on Apple-Watch possible
- ✓ No additional hardware necessary!
- ✓ Intuitive and simple remote control of your Sommerauer biomass heating system (e.g. switch heating circuits on or off)

INTELLIGENT WEATHER DATA ENERGY SAVING FUNCTION **ECO+**

Latest digital control technology allows the new ECOS to heat even more efficiently and with foresight

NEW



Heating 12 hours foresightedly!

HEAT EVEN MORE EFFICIENTLY AND SAVE MONEY WITH NEW WEATHER FORECASTING TECHNOLOGY **ECO+**!

With the further developed energy saving function **ECO+**, weather forecast data is evaluated in the control unit, the ECOS reacts intelligently 12 hours in advance. This allows it to see into the future via weather data from the Internet and use this in an energy-saving manner. This saves you effective costs and heats energy efficiently!

- ✓ In the case of predicted rise in temperature according to the weather forecast, a lowering of the buffer charge is initiated (energy saved) and the efficient solar system is activated
- ✓ With this intelligent heat management, many unnecessary operating hours, enormous amounts of fuel and unnecessary wear on mechanical and electrical parts can be saved!
- ✓ The current values of temperature, air pressure, humidity, wind data and cloudiness as well as the minimum and maximum daily temperature for the next few days are evaluated and processed effectively and energy efficiently by the **ECO+** function



VIDEO INSTRUCTIONS ON THE REAL GLASS TOUCH DISPLAY

The user interface with its innovated Smartphone technology is explained very clearly via short videos

NEW



SMART VISUAL SOLUTION VIA VIDEO INSTRUCTIONS

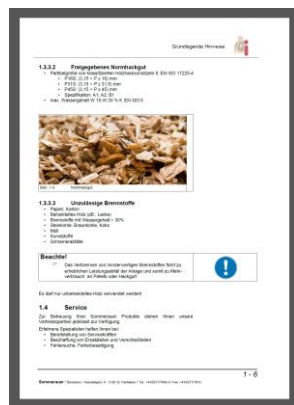
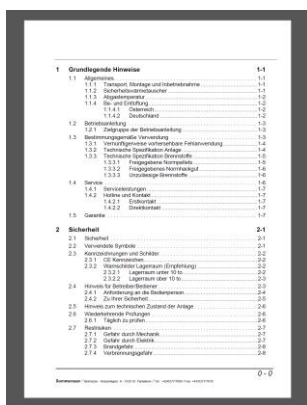
The smart short videos on the ECOS-Touch display show you very efficiently which new functions the ECOS offers and how they are implemented in the application.

- ✓ Setting options are directly shown by an individual video
- ✓ The videos are filmed from the user's point of view, so that the functions can be retyped
- ✓ Intuitive learning of the touch display controls with a clear video

DIGITAL OPERATING MANUAL

The innovative digital operating manual eliminates the troublesome search for the desired topics in the manual

NEW



INNOVATIVE DIGITAL MANUAL

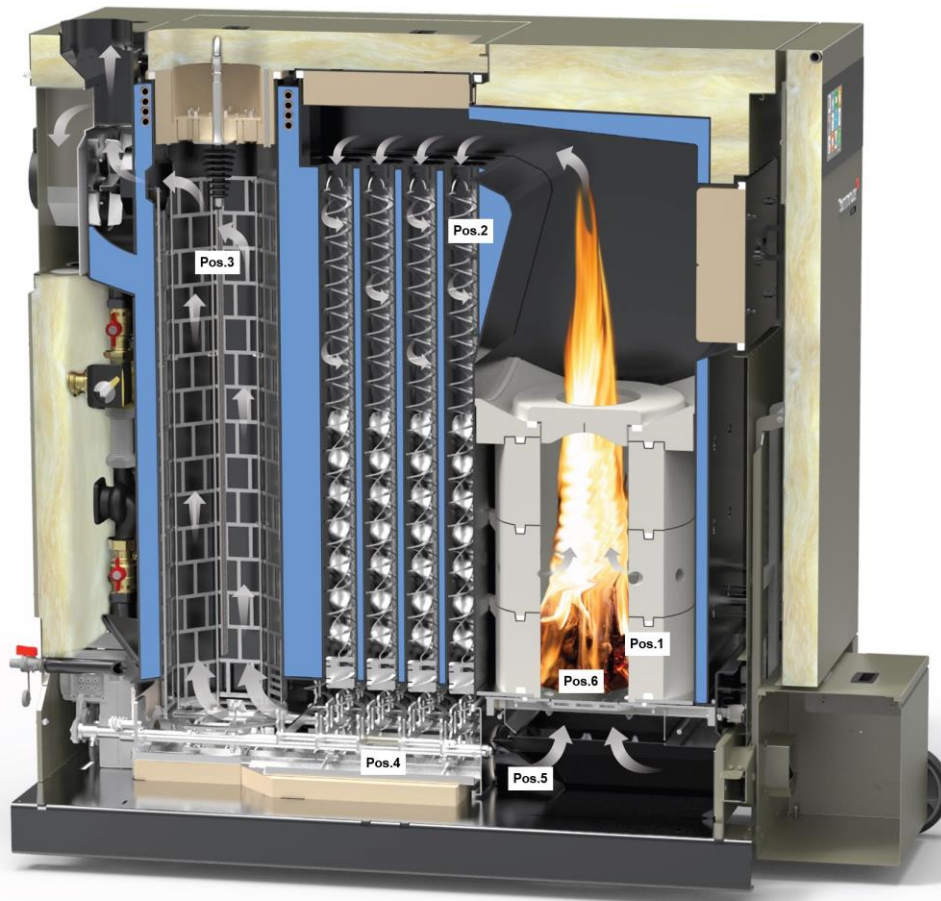
With Sommerauer's digital operating instructions you will find the required information immediately and process-safe directly on your touch display. This saves you time and is efficient in implementation.

- ✓ Direct digital access to the operating instructions on the multi-colour touch display of the ECOS
- ✓ The table of contents is provided with hyperlinks that take you immediately to the individual page and the desired topic. This saves a lot of time, is very easy to navigate and provides highest ease of use!
- ✓ With the innovative wipe function, arrow keys are no longer required. This ensures very comfortable scrolling

SECTIONAL VIEW OF THE ECOS

ECOS offers maximum energy efficiency, performance and operating comfort in extremely compact design

NEW



Pos.1
Ergonomic modular
combustion chamber bricks

Pos.2
Ergonomic combustion
chamber wall

Pos.3
Fully integrated e-filter

Pos.4
Lower drive mechanism

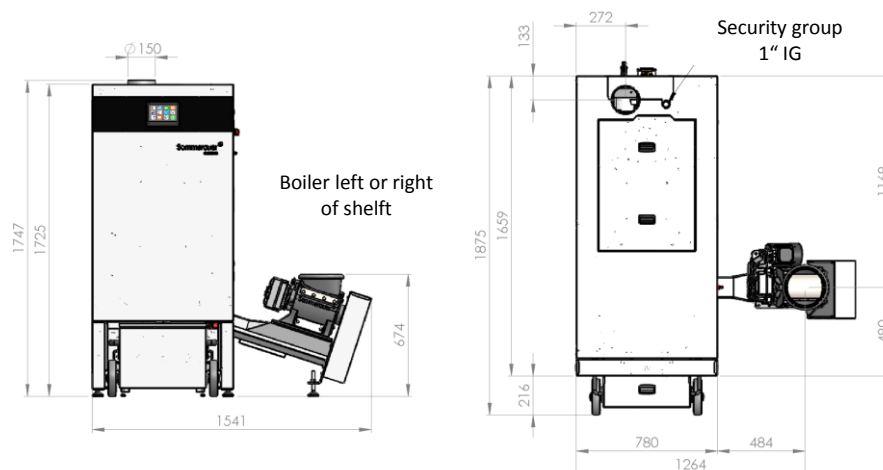
Pos.5
Transition screw

Pos.6
Ergonomic 170 degrees
revolving grate system

TECHNICAL SPECIFICATIONS

The ECOS is currently offered in power classes between 70 kW and 120 kW

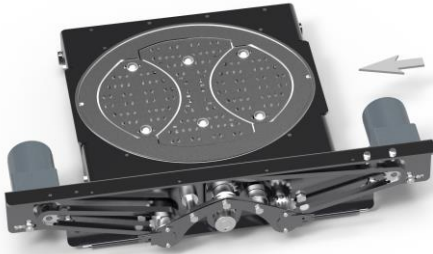
technical data	ECOS 70 - 120 kW			
		ECOS 70	ECOS 100	ECOS 120
nominal heat output	kW	70	100	120
heat output range	kW	21-70	21-100	21-120
flue pipe diameter	mm	150		
water content	liter	274		
supply and return fuel lines	inch	6/4" IG		
weight	kg	1152		
size of boiler (h x w x l)	mm	1275 x 780 x 1659		



ERGONOMIC ROTATING GRATE SYSTEM (3-FOLD ROTATING GRATES)

In this way, the perfect state of combustion, best possible cleaning, including glow preservation, is permanently achieved

NEW



- Rotary grate positions in regular operation
- All rotating grates closed



- Cleaning in regular operation with embers maintenance
- 3. revolving grate open, revolving grate on push-in side and middle revolving grate closed for embers



- Universal cleaning at stoppage
- All rotating grates open

INTELLIGENT AND EFFICIENT

Ergonomic 170 degrees revolving grate technology for optimum primary air flow and thus the ideal combustion state.

With a 3-fold rotary grate system a perfect ash cleaning can be achieved (partial cleaning in embers preservation mode or universal cleaning). A simple mechanical construction makes the modular rotary grate unit very robust, reliable and durable.



Ergonomic design "WITHOUT DEADCORNER", so that the entire fuel is perfectly flown through with primary air and an ideal combustion state is achieved (including heating efficiency)



A 3-fold rotary grate cleaning effect of the ashes, with glow preservation and centrifugal force function



Ash cleaning possible while the heating system is running



Due to glow retention via 2 rotary grates no external ignition necessary (saves up to 90% of ignition energy!). This reduces wear and tear on the ignition rod and significantly saves electricity.



After ash cleaning during operation in embers, extremely fast return to full capacity



4-fold crusher function for perfect universal cleaning of ash constituents / slags and other impurities



Due to grate lips the gaps between the rotating grates are absolutely tight (no air strands)



Developed with state-of-the-art CFD simulation technology and years of intensive testing to ensure optimum process reliability

COMMON SYSTEMS ON THE MARKET

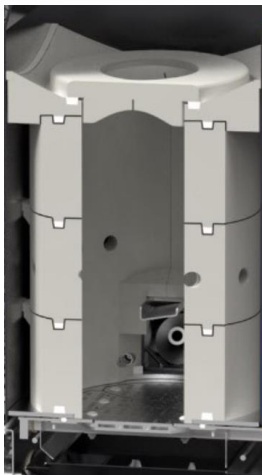


Commercially available rotating grate systems are still not ergonomic and have disadvantageous corners due to their rectangular geometry. The primary air cannot flow through the fuel optimally. At these corners ("dead corners") slag formation occurs. This results in poorer combustion (efficiency).

ERGONOMIC MODULE COMBUSTION CHAMBER STONES

Innovated ergonomic system ensures perfect combustion conditions in the ECOS combustion chamber

NEW



PERFORMANCE THROUGH ERGONOMICS

The ergonomic high-temperature silicon carbide combustion chamber stones were developed using the latest CFD simulation technology, are extremely wear-resistant and make the air flow in the combustion chamber completely tight.

- ✓ Highly efficient, CFD-calculated secondary air nozzles in the combustion chamber stones for the generation of ideal secondary air turbulence that produces the lowest emissions
- ✓ Due to modular design (shaped blocks can be removed individually) very easy to maintain
- ✓ Long service life of the high temperature bricks due to highest temperature resistance
- ✓ Due to ergonomics ideal adaptation to changing fuels (wood chips or pellets)
- ✓ The ergonomic design ensures increased ease of maintenance and best performance
- ✓ Lowest emission values and optimum burnout due to optimal conditions in the combustion chamber. No "dead spots", therefore perfect air supply to all areas of the rotary grate surface. No unburned in the corners.
- ✓ Sealing through innovative ash deposition at the gaps between the combustion chamber bricks and the base plate of the rotary grate system
- ✓ Integrated slope for sweeping off possible fly ash on the rotary grate area

COMMON SYSTEMS ON THE MARKET

- ✗ Commercially available corners in the burner are not optimally flown through by the primary air. The fuel there is not ideally burned.
- ✗ This produces a poor combustion state with lower efficiency. These corners are called "dead spots".
- ✗ Through the gap between the combustion chamber bricks and the base plate of a rotary grate system, light air strands can escape which have a negative influence on the combustion

ERGONOMIC COMBUSTION CHAMBER DESIGN INCREASES EFFICIENCY

The intelligent new design of the combustion chamber will increase the efficiency of the ECOS

NEW



INNOVATED DESIGN INCREASES EFFICIENCY

The new innovative and CFD-calculated combustion chamber geometry of the ECOS, with the inclined combustion chamber wall (Pos.1), ensures an effective higher efficiency.



Higher efficiency is achieved by a new ergonomic combustion chamber geometry (CFD calculated and tested over many years)



The gaseous volume flow is directed through the ergonomically inclined combustion chamber wall at a constant speed to the heat exchanger tubes. This leads to an even heat distribution on the relevant heat exchanger surfaces. The exhaust gas temperature is thus reduced and the efficiency increased

COMMON SYSTEMS ON THE MARKET



The combustion chamber wall is straight, meaning that the volume flow generated during combustion moves with more uneven speed in the direction of the heat exchanger tubes. As a result, the optimum exhaust gas temperature and efficiency is not achieved.

ENERGY-SAVING AND FAST ECO-IGNITION

The reliable, silent, fast and energy-saving ECO ceramic igniter is highly efficient and saves costs

NEW



Reduction of the power consumption from approx. 1500 to 250 watts ensures savings of over 1200 watts!

EFFICIENT AND ECONOMICAL ECO-IGNITION PROCESS

The noiseless energy-saving ceramic igniter ensures reliable and economical ignition of the fuel, eliminating a complicated and expensive hot air blower



Maximum energy savings through extremely fast ignition (<3min!) and lower power consumption (no hot air blower necessary)



Silent and safe operation with integrated ignition monitoring



Energy savings of over 90%

COMMON SYSTEMS ON THE MARKET

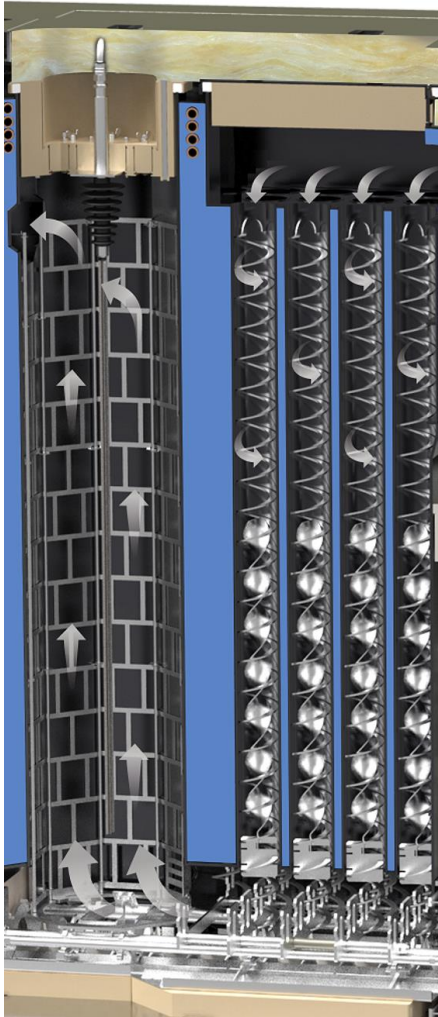


Usually hot air blowers are used consuming more energy, are more expensive and are noisier in their operation.

FULLY AUTOMATIC HEAT EXCHANGER CLEANING OF ALL CHANNELS

Heat-resistant double turbulators clean from the 1st pull and ensure ideal cleaning

NEW



HIGHEST BOILER EFFICIENCY WITH MAXIMUM FUEL SAVINGS THROUGH EFFICIENT CLEANING FROM THE 1ST PULL! ECO-WHISPERING MODE AVAILABLE!

Without any maintenance effort, all heat exchanger tubes are cleaned fully automatically. Fuel savings with higher efficiency. Thermal loads are minimized because the entire heat exchanger cleaning mechanism is installed in the lower or cold zone.

- ✓ A higher efficiency is achieved due to clean heat exchanger heating surfaces
- ✓ Fuel savings due to the fully automatic cleaning of the heat exchanger tubes from the 1st flue onwards
- ✓ With special spring and spiral turbulators, the flue gas temperature is kept low and thus a high efficiency is achieved
- ✓ Drive mechanism is installed in the lower or cooler area. This results in lower thermal loads on the drive mechanism and thus longer service life
- ✓ Fly ash residues fall through the cleaning springs into the ash screw conveyor and are transported to the ash box
- ✓ Only one ash discharge screw conveyor transports both fly and grate ash into fully integrated ash box

COMMON SYSTEMS ON THE MARKET

- ✗ Common systems in the market, the first pull may not be cleaned automatically. This results in lower efficiency and higher fuel consumption.
- ✗ Cleaning mechanisms installed in the upper or hotter area are exposed to a higher thermal load and therefore having shorter service life.
- ✗ Conventionally, normal cleaning springs are used, which do not clean the heat exchanger tubes optimally, resulting in poorer efficiency and higher wear.

MECHANICAL DRIVE IN COLD RANGE IN ECO WHISPER MODE

The drive mechanism is extremely quiet and intelligently located in the cooler, lower area of the ECOS

NEW



WEAR REDUCTION WITH INTELLIGENT POSITION

The mechanics of the heating system is installed in the lower or cooler area of the system e.g. heat exchanger cleaning mechanism, drive mechanism for sliding floor, mechanism for E-filter cleaning basket and drive shafts. It runs in **ECO** whisper mode!



Drive mechanism is not exposed to high temperatures (thermal load extremely low)



Wear on mechanical parts is reduced multiple!



Due to the mounting brackets (**Pos. 1**) in the lower, cooler area, the spiral automatically rotates into the mounting bars under its own weight when the respective spring turbulator incl. the spiral turbulator (double turbulator) is mounted and is thus fixed and secured. This means that there is no need for a lateral opening of the water-rinsed outer wall, which would reduce the heat exchanger surface and thus the output.

COMMON SYSTEMS ON THE MARKET



As is customary in the market, the drive mechanism (e.g. heat exchanger cleaning) is installed in the upper area of the heating system. This leads to higher wear and tear as high temperatures and thermal loads prevail here.

SEALING & INNOVATIVE TRANSITION SCREW

The self-developed transition screw has an integrated counter-flow which seals the screw

NEW



INNOVATIVE TRANSITION SCREW

With the transition screw, the ash from the heat exchanger is brought together with the ash from the combustion chamber, but reliably seals the two areas from each other.



Transition screw with integrated counter rotation, which seals 100%

COMMON SYSTEMS ON THE MARKET



As is customary on the market, a transition piece equipped with a slide bearing is used between the two ash screws, which have different diameters. This results in considerable wear due to foreign bodies in the fuel, slag in the ash and high temperature (embers) during cleaning. Additional costs for the defective transition piece pop up.

HIGHLY EFFICIENT FLUE GAS RECIRCULATION

World's first series-produced and highly efficiently controlled flue gas recirculation (RGR) for primary air

NEW



EFFICIENT AND INNOVATIVE

Highly efficiently controlled flue gas recirculation for the primary air supply. Part of the flue gas is premixed with fresh air and fed via innovative air ducts to the combustion area under the grate.



Intensive performance and combustion optimization with different fuels (wood chips or pellets)



The fresh air control valve (Pos. C) including air actuator controls the primary fresh air flow range fully automatically. The hot rezi flue gas as well as the fresh air is supplied ideally mixed under the grate in an air duct (Pos. A). In the secondary area, a fresh air control damper (pos. D) ensures a fully automatic fresh air supply through of a fresh air servomotor and doses fresh air that is supplied via an air duct (pos. B) above the grate



This creates a perfect air supply for optimum combustion with maximum efficiency and minimum emissions



Generation of lowest emission and dust values, in connection with the standard lambda control (ideal combustion conditions)



Reduced thermal stress on components due to lower combustion temperatures



Innovative prevention of slag formation by falling below the ash melting point



Significant reduction of NOx emissions



Intelligent and innovative control of perfect air volumes for optimum combustion

COMMON SYSTEMS ON THE MARKET

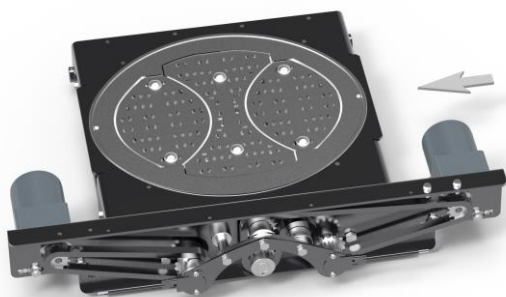


There is currently no standard flue gas recirculation system on the market that regulates the primary and secondary air fully automatically via the control system. This is why these systems cannot generate optimum combustion values for different material qualities and cannot guarantee ideal protection against slag formation.

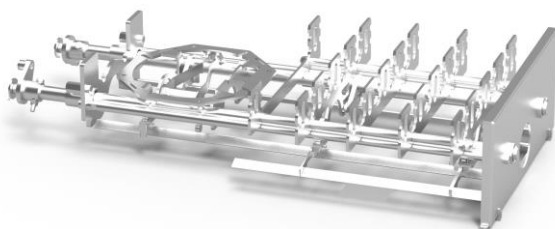
MODULE INTEGRATION IN THE ECOS HEATING SYSTEM

Reduced service and maintenance work with modular drawer principle!

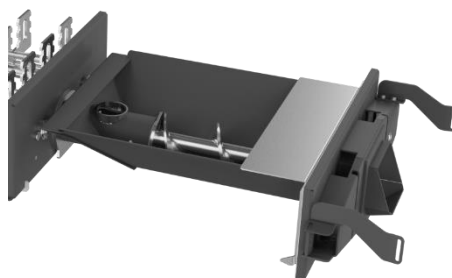
NEW



Rotary grate module incl. rotary grates



All lower mechanics



Ash pan and ash discharge screw conveyor

MODULAR DESIGN MASSIVELY REDUCES SERVICE COSTS

The complete drive mechanism in the lower boiler area (including rotary grate mechanism incl. rotary grates, heat exchanger cleaning mechanism, drive mechanism for sliding floor, mechanism for E-filter cleaning basket, drive shafts, ash pan and ash discharge screw) can be removed and reinstalled quickly and efficiently using the "drawer principle".



Very easily accessible module areas, which can be mounted or dismantled using quick release fasteners



This enables extremely fast maintenance and service work, which saves time and money



Simple construction of the mechanism, which is less susceptible and has less wear in the service life

COMMON SYSTEMS ON THE MARKET



The mechanics are complicated and difficult to access. Maintenance and service work is usually very time and cost intensive as well.

LAMBDA SENSOR CONTROL

The lambda sensor is used to adjust and control the optimum fuel-oxygen mixture



FUEL-OXYGEN MIXTURE OPTIMIZED

The control unit recognizes the respective heating value by means of the lambda sensor. It ensures the ideal mixing ratio between the fuels and the oxygen supply. In spite of different fuels (wood chips or pellets), the greatest efficiency and the highest degree of effectiveness is achieved.



The lambda sensor immediately detects a successful ignition, thus saving ignition time and power

FULLY INTEGRATED E-FILTER WITH INNOVATIVE CLEANING

With a separation efficiency of over 90%, the E-filter ensures the lowest dust emissions, despite different fuels

NEW



ENERGY- AND COST-EFFICIENT

Optional integrated electrostatic particle separator (E-filter) with the latest ionization technology!

No backpack system, but fully integrated with use of the optimally flushed heat exchanger surface!

- ✓ Highest fine dust separation efficiency of over 90%
- ✓ With the particle separator a dust value of 5 mg/m³ (calorific value) can be achieved at a nominal load of 70 kW with O₂ 13% vol.
- ✓ Fully automatic cleaning is carried out during ash removal into the common ash box at the front of the heating system
- ✓ Water flushed heat exchanger wall of the particle separator tube with which the additional heat exchanger surface can be used and a higher efficiency can be achieved!
- ✓ The spring steel electrode is cleaned without wear and tear and with low noise. The electrode is intelligently cleaned by slight bending and springing back (physical property of the spring steel is used)
- ✓ Retrofitting is easy to integrate at any time (lower costs and no additional space required!)

COMMON SYSTEMS ON THE MARKET

- ✗ Commercially available electrostatic particle separators (as a backpack system) do not use heat exchanger surfaces, usually only separate nanoparticles and cannot be integrated. This costs more space, is less effective and more cost-intensive.
- ✗ Commercially available electrodes can be cleaned at increased volume (flywheel with spring balancer) or not at all. The fine dust remains and must be removed manually.
- ✗ Previous integrated electrostatic precipitators use a backpack system in which the walls are not flushed with water. Thus the heat exchanger surface is not used and the efficiency is lower.

SPEED CONTROLLED EC-VACUUM FAN IN ECO-MODE

Lowest emissions and highest efficiency with the highly efficient EC induced draft blower from Sommerauer

NEW



HIGHEST SAFETY WITH NEGATIVE PRESSURE IN ENERGY-SAVING ECO-MODE

Extremely quiet and equipped with electronic speed control, the EC induced vacuum fan has up to 45% less power consumption in ECO mode than conventional AC induced draft blowers.



Energy-saving EC induced draught fans in ECO mode with electrical speed control keep operating costs extremely low



Achieve up to 45% less power consumption than conventional AC induced vacuum fan



Provides the exact amount of air required (primary and secondary air volumes) and stabilises it during combustion (permanent optimisation of combustion)



A significantly higher efficiency is achieved than with conventional induced draught fan



Air volumes are fully automatically adjusted to different material qualities and individual output ranges by exact speed and lambda control in ECO mode, thus ensuring ideal combustion conditions



Permanent monitoring and optimization of combustion for maximum operational safety



Maximum operating comfort through speed control and negative pressure control

COMMON SYSTEMS ON THE MARKET



Usually, induced draught fans with AC motors are used, which have a lower efficiency, higher power consumption, consuming more electricity and no electrical speed control.

INNOVATIVE & EFFICIENT GLOW BED HEIGHT MONITORING

Sophisticated embers bed height monitoring by means of fuel level flap and non-contact angle sensor

NEW



INNOVATIVE TECHNOLOGY FOR EFFICIENT COMBUSTION

An ergonomically adapted fuel level flap, which responds to a non-contact angle sensor, determines the exact embers bed height and the most efficient combustion state is achieved.



Despite different fuels, the exact embers bed height is determined through a contactless angle sensor



The ergonomically inclined shape adapts ideally to the fuel introduced at an angle by the stoker screw and ensures exact values

FULLY INTEGRATED RETURN RISE (OPTIONAL)

Maximum cost and space savings with the efficient integrated return flow increase from Sommerauer

NEW



MONEY SAVING AND MINIMAL RADIATION LOSSES THROUGH FULLY INTEGRATED RETURN FLOW INCREASE

The optionally integrable return rise stands for maximum cost savings, since no external return rise with installation time has to be installed. In addition, it operates with maximum efficiency, as radiation losses are minimised. An enormous saving of space is also achieved.

- ✓ Already integrated, the integrated return rise saves installation time and therefore money
- ✓ Compact and cost-effective: space saving in the boiler room and low costs as no external installation of a return rise is required
- ✓ Avoids unnecessary radiation losses and thus ensures maximum efficiency
- ✓ All components are tested and completely wired ex works. A water pressure sensor is already installed.
- ✓ With the integrated return rise, pump, mixer and ball valve are integrated
- ✓ Quick and easy retrofitting of the integrated return rise is possible

COMMON SYSTEMS ON THE MARKET

- ✗ As is customary in the market, an external return rise must be installed with greater effort and expense, which takes up quite a bit of space in the boiler room.

OPERATION INDEPENDENT OF ROOM AIR (OPTIONAL)

The ECOS meets the latest requirements for operation independent of ambient air

NEW

ECOS can optionally be supplied with fresh air independent of room air

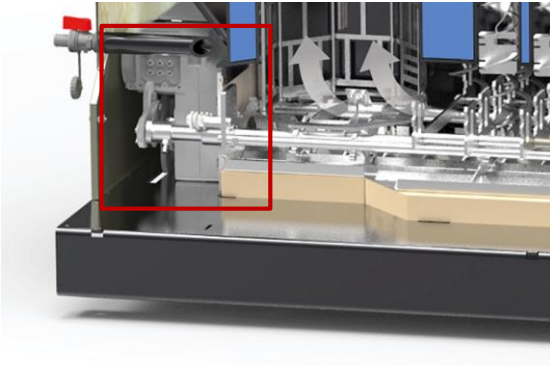
Thus, state-of-the-art requirements can be met by the new biomass heating plant technology.

- ✓ Highest energy efficiency is guaranteed
- ✓ With a special adapter module, the connection can be converted to an operating mode independent of room air

POWER-SAVING SOLID COMBI-DRIVE TECHNOLOGY

With the ECOS, an **ECO** drive motor provides for the drive of the entire cleaning equipment

NEW



ECO drive motor drives the entire cleaning mechanism of the ECOS very efficiently and economically

The newly developed, innovative and CFD-calculated water-flushed combustion chamber geometry, with the inclined combustion chamber wall, ensures an effective higher efficiency of the ECOS.



The fully automatic cleaning devices (heat exchanger cleaning, E-Filter cleaning basket, E-Filter electrode cleaning, the ash push floor, ash discharge screw conveyor) are only driven by an **ECO** drive motor



This design is particularly energy-saving, due to a direct drive

COMMON SYSTEMS ON THE MARKET

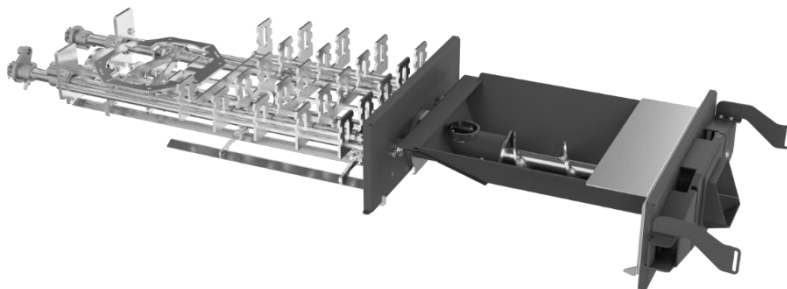


Several drive motors are commonly used to drive the various cleaning devices. This results in higher energy costs, higher wear and tear and a higher cost factor.

COMBI-ASH DISCHARGE SCREW CONVEYOR IN USE

Sommerauer focuses on highest efficiency with only one ash discharge screw

NEW



Only one ash discharge screw transports both fly ash and grate ash into the fully integrated ash box

COMMON SYSTEMS ON THE MARKET



It may also be customary on the market for several ash discharge screws to transport the fly and grate ash. This results in higher purchase costs and a higher mechanical load on the ash removal motor.

LARGE-VOLUME TWO-CHAMBER ROTARY VALVE

The system offers maximum operational safety and innovative efficiency without burn-back risk

NEW

Pos.1



MAXIMUM SAFETY WITH INNOVATIONS

In contrast to single-chamber rotary valves, this sophisticated large-volume two-chamber system ensures the important continuous material transport into the combustion zone. With this optimal dosage of the fuel, perfect combustion values are achieved.



Innovated rotary valve with large-volume dual-chamber technology for 100% burn-back safety (Pos.1)



Triple torque supports (three-point bearing) with integrated noise absorbing attachments (Item 2). Torsion of the rotary valve motor and noise generation are avoided



Continuous and trouble-free material transport guaranteed by double chamber technology (Pos.3)



With the exchangeable and hardened cutting edges (Pos.4) it is very power-saving and efficient

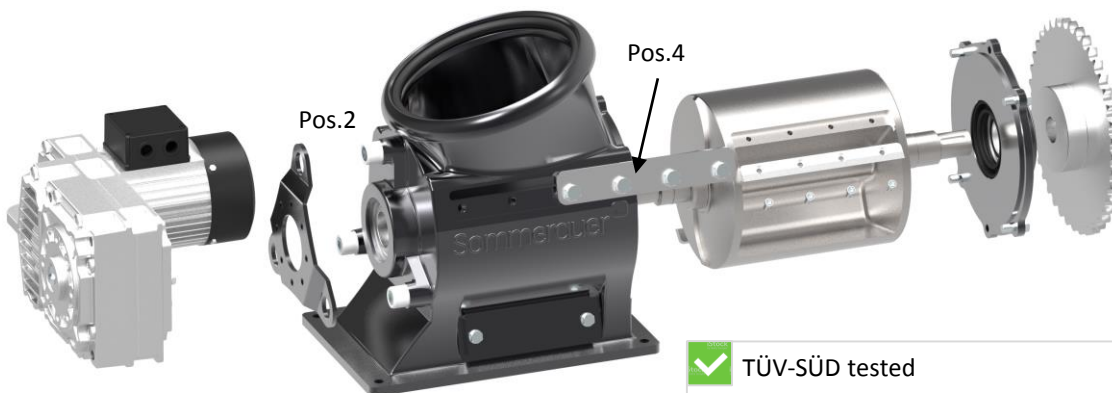


Low wear and energy consumption, especially for coarse chips (up to P31S, formerly G50)



Pos.3

Pos.4



TÜV-SÜD tested



With large sealing surfaces highest burn-back safety



With 200 mm one of the largest rotor diameters on the market



Modular cleaning paths, for removal of fuel dust at the rotor



Large filling volume (4 litres) of the transport chambers



Low effort (low energy consumption) and quiet operation, as the motor of the stoker worm also drives the cellular wheel sluice

COMMON SYSTEMS ON THE MARKET



Commercially available rotary valves with e.g. single chamber system do not have a continuous material transport. This means that no optimum dosage of the fuel into the combustion zone is achieved, and therefore no optimum combustion values. Likewise, two-chamber systems use pocket-shaped chambers, where coarse pieces of wood can wedge and reduce the filling volume of the chambers, which can lead to smaller chambers and poorer material transport.

ECO-SCREW CHANNEL - EFFICIENCY AND SAFETY

Sophisticated new asymmetrical shape of the screw channel increases overall operational safety

NEW



GEOMETRY INCREASES EFFICIENCY AND REDUCES COSTS

The ECOS has a highly efficient safety ECO screw channel with maximum operational safety.



Because of a special side drive technology, the asymmetrical ECO screw channel doesn't lead up to 60% of the fuel directly into the screw but alongside into the channel extension. Therefore larger pieces of wood and foreign bodies can be easily transported



Particularly smooth and quiet operation with maximum delivery



Minimal wear of the screw and screw channel



Extremely low power consumption and therefore very energy-saving

COMMON SYSTEMS



Standard screw channels are equipped without an asymmetrical shape. Meaning no additional fuel or foreign matter can be guided next the screw. This leads to heavy wear and high costs.

MODULAR DISCHARGE CHANNEL AND CONVEYOR SCREW

The discharge channel and the discharge screw can be extended by standard extension modules



Extremely flexible installation options



Quick and easy installation



Modular asymmetrical screw channel for the storage room with flexible expansion options



In case of structural changes in length, neither cutting nor welding required

COMMON SYSTEMS



Discharge channels and screw conveyors which are not modular are still used in the market. In case of replacements due to damage inflexibility creates higher costs (flex and welding work).

MODULAR CONVEYOR SCREW SYSTEM - HIGHLY EFFICIENT

Highest cost efficiency thanks to the plug-in screw extension system with standard extension pieces

NEW



FLEXIBLE AND COST-EFFICIENT

With the standard screw extensions of the ECOS, flexible and more cost-effective planning.

- ✓ Pluggable screw extensions from 100 mm to 2000 mm possible
- ✓ Easy insertion and assembly of extensions
- ✓ Flexible positioning of the heating system possible
- ✓ Individual screw conveyor parts can be exchanged quickly and easily on modular base (time and cost savings)
- ✓ Maintenance can be implemented quickly and inexpensively
- ✓ No welding and cutting required on site

COMMON SYSTEMS

- ✗ Standard screw conveyor systems on the market are not pluggable and therefore less flexible. Any changes in screw length, maintenance and repairs require huge effort, which is more expensive (welding and cutting on the construction site necessary).

SAFETY AGITATOR WITH ROBUST GEARBOX

ECOS agitator offers maintenance-free and robust system due to constant further technical development

NEW

- ✓ Extremely durable and maintenance-free
- ✓ High efficiency and long reliability

MAINTENANCE-FREE, ROBUST AND EASILY

The safety agitator, which has been developed over 25 years, has a maintenance-free and very robust agitator gear. In contrast to helical gearboxes, which are susceptible in the long term, it can withstand long against heavy loads with low power consumption in general.

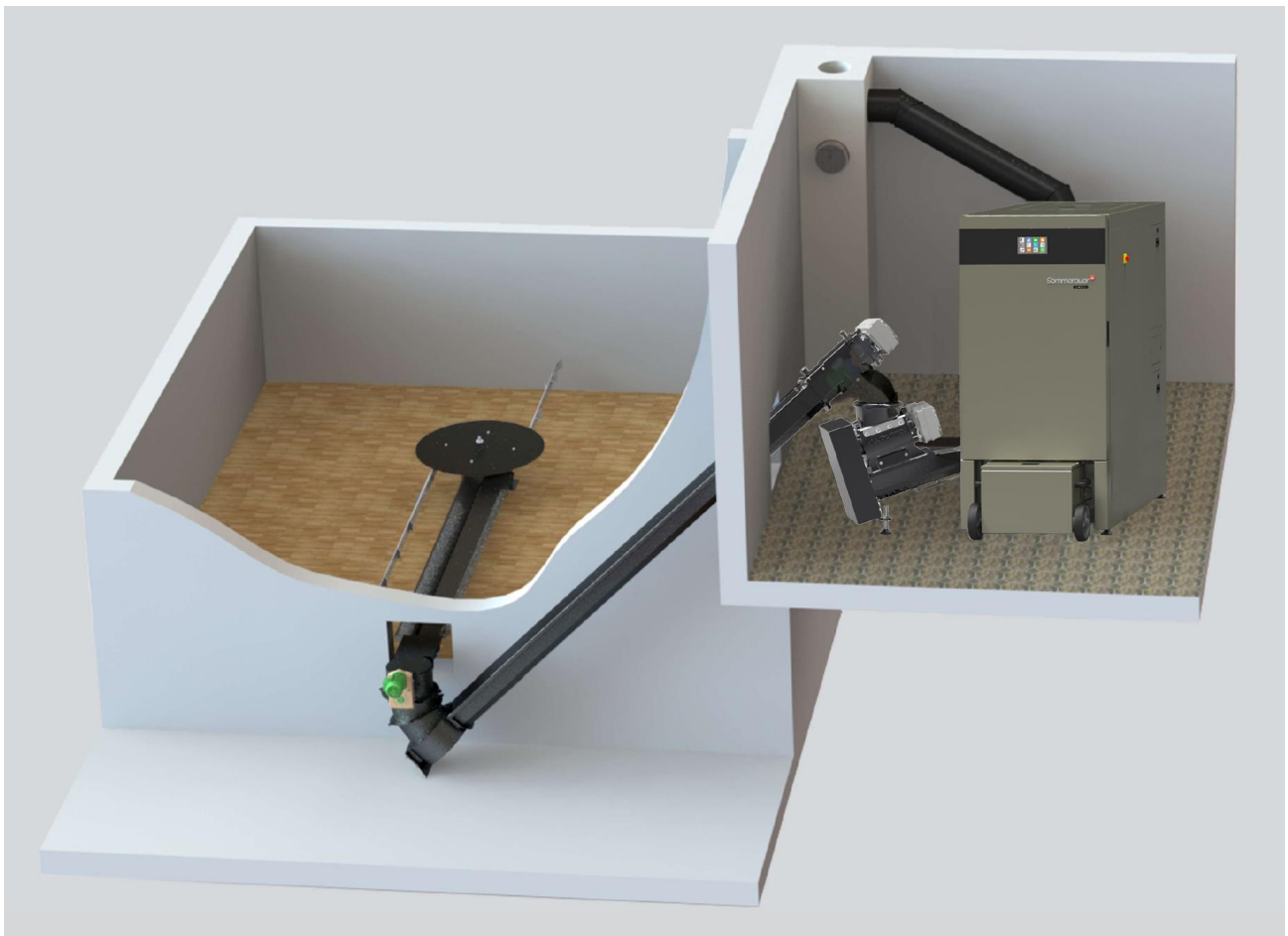


INDIVIDUAL EXTRACTION SYSTEM/SPECIAL DESIGN

ECOS offers individual solutions for individual requirements

Your Sommerauer industrial rotary joint fuel store extractor is manufactured for individually, down to a fraction of an inch, according to your specific requirements. In this way your system is tailored to your own specific circumstances and the optimum implementation of your project is assured.

Industrial rotary-joint fuel store extractor



ADVANTAGES

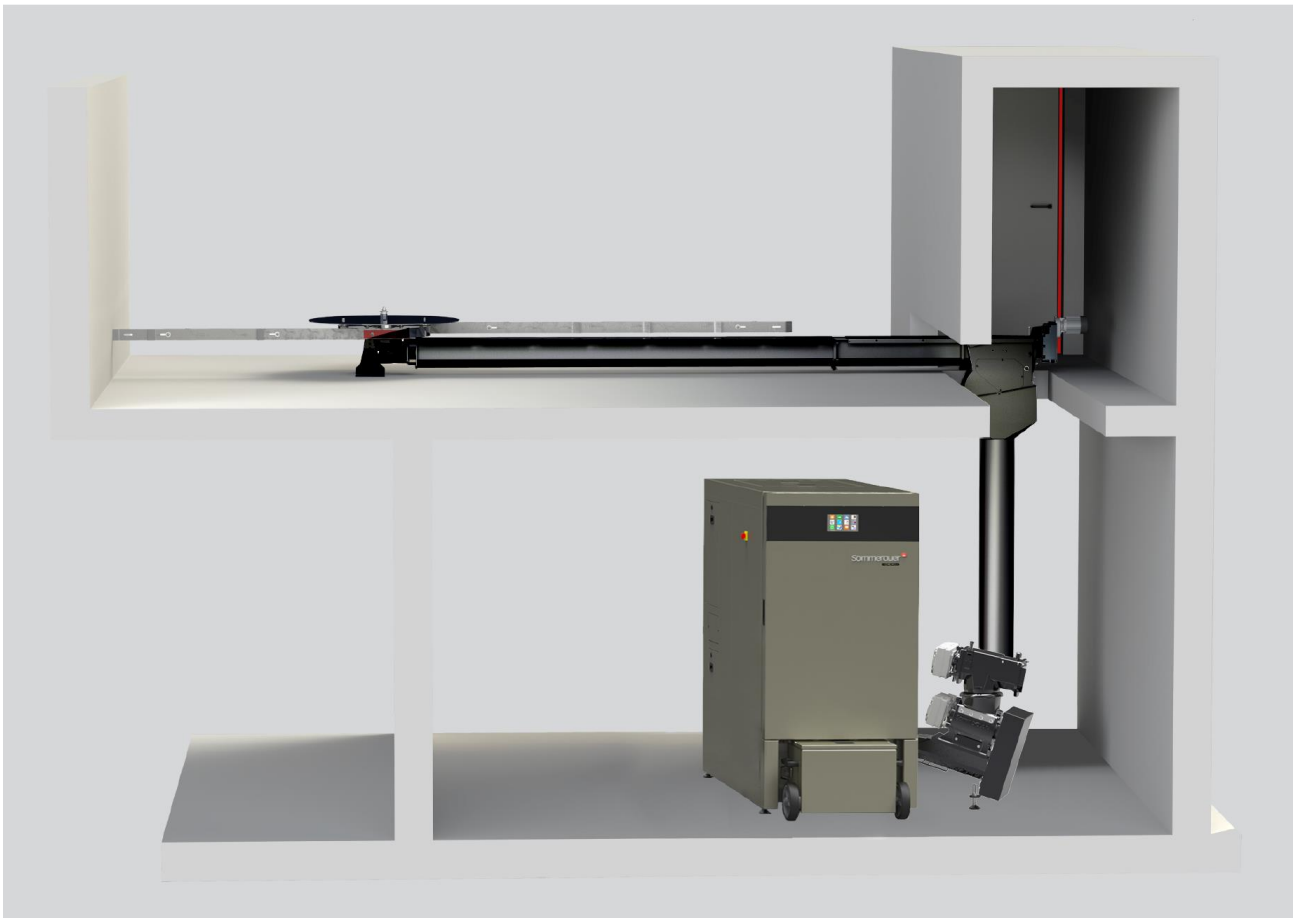
- Bridging of different levels is possible
- Auger with additional drive unit
- This ensures the full utilization of the pellet fuel store
- Energy saving direct drive system
- Heavy duty angular gear
- Ejector head with IBS-certified backfire valve rotary air lock
- Spring blades with a width of 60 mm and max. length of 3000 mm
- Cover plate stays in place even under load and ensures lower power consumption
- Spring blades or telescoping extractor up to 6000 mm

INDIVIDUAL EXTRACTION SYSTEM/SPECIAL DESIGN

ECOS offers individual solutions for individual requirements

Your Sommerauer industrial rotary joint fuel store extractor is manufactured for individually, down to a fraction of an inch, according to your specific requirements. In this way your system is tailored to your own specific circumstances and the optimum implementation of your project is assured.

Industrial fuel store extractor with drop tube



ADVANTAGES

- Bridging of different levels is possible
- Energy saving direct drive system
- Heavy duty angular gear
- Ejector head with IBS-certified backfire valve rotary air lock
- Spring blades with a width of 60 mm and max. length of 3000 mm
- Cover plate with slide bearing, stays in place even under load and ensures lower power consumption
- Spring blades or telescoping extractor up to 6000 mm

INDIVIDUAL EXTRACTION SYSTEM/SPECIAL DESIGN

ECOS offers individual solutions for individual requirements

Industrial auger fuel store extractor



ADVANTAGES

- Auger with additional drive unit
- This ensures the full utilization of the pellet fuel store
- Energy-saving direct drive system
- Heavy duty angular gear
- Ejector head with IBS-certified backfire valve or rotary air lock
- Spring blades with a width of 60 mm and max. length of 3000 mm
- Cover plate with slide bearing, stays in place even under load and ensures a lower power consumption
- Spring blades or telescoping extractor up to 6 m

FRONT VIEW OF ECOS

The ECOS is very compact and has a discharge plug system (discharge channels and screw)



HIGHLY EFFICIENT FLUE GAS CONDENSER

The world's most efficient and compact flue gas condenser with a max. efficiency up to 105%!
(Pellets 70 kW nominal load)

NEW

HIGHLY EFFICIENT, INNOVATIVE AND EXTREMELY COMPACT

With the optionally retrofittable flue gas condenser of the ECOS (70-120 kW), energy efficiency can be implemented up to the feasible technological limit! Implemented through intensive development work, CFD simulations and calculations.



✓ Innovative cleaning technology in-house implemented completes the efficiency of the ECOS flue gas condenser

✓ The flue gas condenser is CFD simulated and calculated, therefore extremely compact in its dimensions. Finally very space-saving!

✓ Highly energy efficient with an efficiency of up to 105%! (Pellets 70 kW nominal load) It can be used for the ECOS as a hybrid both pellets and wood chips!

Very compact design of ECOS flue gas condenser

REFERENCES FROM THROUGHOUT EUROPE

Thousands of customers around the world trust Sommerauer for quality, service, innovation and sustainability.

Our valued customers themselves provide the best argument for purchasing your own Sommerauer heating system. Our biomass heating systems are valued and recommended for over a quarter of a century by farmers, home owners, public agencies, commercial operators, castle owners, manufactures, hotel and restaurant operators. You can see for yourself by reviewing some examples of projects completed over the last 29 years.

Quality, Longevity and Innovation

Quality, service, innovations and longevity are the cornerstones for satisfaction of our loyal customers

Our customers have trusted in Sommerauer products exclusively for decades.

Examples of Sommerauer customer reviews

Our loyal and satisfied customers come from throughout Europe!

Single family houses	Residences	Hospitaly	Agriculture
Multi family housing	Industry	Butcher shops	Hotels
Heat containers	Public buildings	Castles	Manufacturers
	Former Federal Environment Minister		

Dont be reluctant to bring us your special requirements. Our original expertise is the design of specialized machinery. We use this know-how to develop the optimum solution for you in every situation. Our references in 13 categories, with extensive photo galleries and video examples are found on our homepage:

WWW.SOMMERAUER-ENERGIE.COM



Tarsdorf, Austria

For 11 years Sommerauer company and their heating system has been a valued and reliable partner on our side!

Bernhard and Rosemarie Schachinger
Entenwirt Hotel



St. Margarethen im Lungau, Austria

Operation of Sommerauer heating system is really easy due to sophisticated display!

Graggaber family
Hotel Grizzly



Minister of Environment

Sommerauer company is an exemplary and valued operation in environmental engineering. One of the most innovative companies of all that keeps innovation and tradition together.

Andr  Rupprechter
Former Federal Minister of Environment

ROOM CONTROL UNIT FOR HIGHEST COMFORT

Enjoy highest comfort with your ECOS via the modern room control unit

NEW



UNIQUE OPERATING COMFORT

With the 3.5 inch room control unit for the ECOS, Sommerauer realizes maximum ease of use with the latest technology. ECOS operation runs very easily and completely intuitively.

- ✓ Intuitive operation with new smartphone technology (icons and detailed views in 3D)
- ✓ Very functional size of the room control unit (3.5 inch TFT color display). Installation in a flush-mounted box possible
- ✓ Integrated temperature sensor (0.. +50 °C / 12 bit)
- ✓ High level of energy saving due to automatically deactivation in the idle state. After surface touching, device immediately becomes active again



CONTACT SOMMERAUER

We will be happy to give you a personal consultation!

Contact us so that we can provide you with a tailor-made solution.

We can refer you to your local Sommerauer consultant.

SOMMERAUER

(SL-TECHNIK GMBH)

SOMMERAUERSTRASSE 1

A-5120 ST. PANTALEON, OÖ

EMAIL: OFFICE@SOMMERAUER-ENERGIE.COM

TEL: +43 6277 7804

FAX: +43 6277 7818

WEB: WWW.SOMMERAUER-ENERGIE.COM

FACEBOOK: WWW.FACEBOOK.COM/SOMMERAUER-ENERGIE

YOUTUBE-KANAL: SOMMERAUER ENERGIE



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AT HOME IN AUSTRIA, AT HOME IN THE WORLD

Internationally successful for over a quarter century with thousands of satisfied customers



YOUR SOMMERAUER SALESMAN:

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