CERTUSS

EFFICIENT PRODUCTION WITH STEAM

CERTUSS STEAM GENERATORS
MADE IN GERMANY

THE BEST **STEAM**

The best steam is produced as consistently quietly, easily, and reliably as possible with low energy and water consumption. Those who need industrial steam for their production processes benefit from these characteristics. And these are the performance features that have made CERTUSS steam generators a market leader in this industry.

CERTUSS reliability

The result of rigorous quality inspections of all components and production processes.

In more than 80 sectors, such as healthcare, the chemical, pharmaceutical and automotive industries, the hotel business, and the food and beverage sector, CERTUSS steam generators are an established name worldwide. With consistent research and advanced development along with the highest quality standards, for more than 60 years we have been developing gas-fired, oil-fired, and electric steam generators. The output classes for modules heated by fossil fuels range up to 2,000 kg/h and up to 320 kg/h per steam boiler for electric steam generators.

CERTUSS systems are known for a high degree of modularity. They can be combined into an intelligent multiple system in order to provide significantly larger outputs (up to 16 t/h).

One principle with many advantages:

the CERTUSS water tube boiler principle

Reinventing steam

How can you produce steam of the highest quality that is directly available with maximum reliability and without lengthy preheating times? The CERTUSS water tube boiler principle and an intelligent control system make it possible. Our team developed this technology consistently over decades. In connection with the typical CERTUSS design, we can supply compact, space-saving solutions that function quite economically. This means that in most countries, the installation conditions for these systems are more permissive.

Our systems only produce exactly the amount of steam that is needed right then in the production area. This makes them economical and environmentally sound. All CERTUSS steam generators meet the current ecological standards. We provide country-specific certifications and other acceptance protocols by request.

All CERTUSS heating coils are developed, manufactured,
and inspected in the factory in Krefeld.

Common paths

building a strong global presence

With expertise and continuity

The acquisition of CERTUSS by the Japanese company Miura Co. Ltd. has created a strong, internationally positioned company. As part of the Miura family, the world's leading manufacturer of boiler room solutions, we secure our position in the international steam boiler market with expertise, innovative technologies and a strategic vision.

The strong CERTUSS brand will remain in place globally. The merger with Miura Co. Ltd. will give Certuss an even more global presence. Together, we operate internationally and are therefore closer to our customers. With our technologies, we help to save energy and thus make a sustainable contribution to protecting our environment. Security of supply and high customer satisfaction are our goals.

CERTUSS is part of the MIURA Group

Durable, efficient, low-maintenance steam generators

to increase sustainability

The ideal type

For many years, our designers, engineers, and technicians have been working with an innovative spirit, technical expertise, and attention to detail to achieve the ideal type. We check all components to ensure the highest quality and use only the best. That's why CERTUSS steam generators are easy to operate, require little maintenance, and function reliably for decades. The CERTUSS production area is certified according to quality standard DIN EN ISO 9001:2015, but in many cases our quality requirements are even higher.

System advantages

EASY TO OPERATE
_All configurations and settings are easy to manage with the self-explanatory touchscreen.

DURABLE
_Preheating the feed water to 90° to 95°C separates the oxygen from the water and provides corrosion protection.

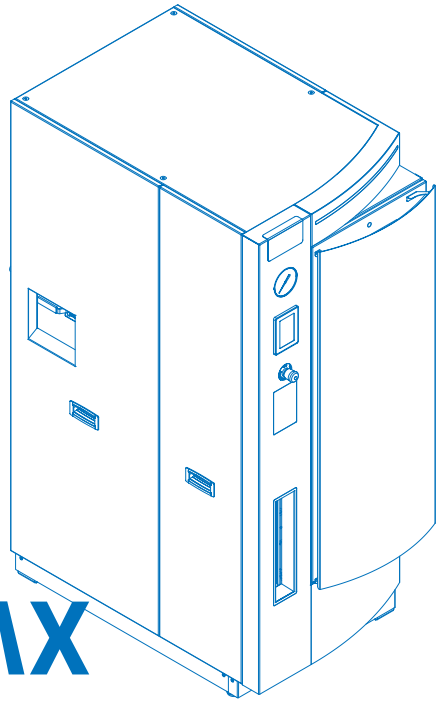
NO WAITING TIME
_The CERTUSS heating coil is the core component of the water tube boiler principle. Three minutes after the system is started, the high-speed steam generator is supplying saturated steam.

PRECISE
_The burner, which can be controlled exactly, supplies precisely regulated steam pressure in increments of 1/10 bar.

SAFE
_Based on the water tube boiler principle, much less water is heated than in conventional boilers. That reduces risk to a minimum.

PROTECTED
_The automatic safety valve prevents overpressure.

EFFICIENT
_No heat loss due to the unique 3-fold air insulation and heat recycling. Not only is the combustion air preheated, but the outer covering is cooled as well, which minimizes loss and saves energy. The CERTUSS economizer allows the energy potential of the discharged flue gas to be used as well.



EMX
E10MX – E320MX

Electric, efficient, compact, modular, and powerful

The CERTUSS EMX series – a new performance class in terms of efficiency, load adjustment, and footprint. Electric steam generators are heated by stainless steel heating rods with a large heating surface. The output of the heating elements is regulated continuously via semiconductor contactors. One energy-efficient advantage is the immediate modulating output adjustment to the actual steam demand during the operating cycle.


CERTUSS

ELECTRIC WITH A LOW SPACE REQUIREMENT AND THE OPTION TO INCREASE OUTPUT

The EMX steam generators are ready for use 3–5 minutes after starting up the system and the equipment design guarantees continuous regulation of the steam output from 10 to 320 kg/h. Each module can be expanded up to an output of 160 kg/h. The EMX comes in eleven sizes with regard to output.

The compact design decreases the space requirement by up to 25%. Equipment dimensions match the standard door size (80 cm) for efficient assembly and the modular design provides great flexibility because modules can be arranged as desired.

EASY ACCESS [MAINTENANCE ADVANTAGE]

_FLEXIBLE ACCESS POINTS make maintenance quick and easy.

LOW WEAR [LONG LIFE]

_The LONG LIFE DESIGN guarantees high durability, reliability, and long service life.

INSTALLATION [EFFICIENT]

_The optional integrated WATER MODULE MX-CPA simplifies installation and lowers costs.

_The fully automatic 72-HOUR OPERATION increases efficiency.

CONTROL [PLUS]

_The proven THERMOTIMAT-PLUS CONTROL is optional. It provides corrosion protection; constant boiler pressure and consistent steam quality increase process reliability.

OPERATING PRESSURE [UP TO 16 BAR]

_Safe operating pressure up to 16 BAR guarantees a wide range of applications.

STEAM [QUALITY]

_Steam can be produced for INDUSTRIAL or CULINARY NEEDS based on the application.

HMI [EASY CONTROL]

_The HUMAN-MACHINE INTERFACE guarantees easy, intuitive control in 15 languages.

_When steam demand varies, the technology enables intelligent pressure adjustment and reduces consumption.

_It also allows for CONDITION MONITORING and REMOTE SERVICES and meets all of the requirements for Industry 4.0.

ONE VIEW CONTROL [REMOTE CONTROL]

_The LED STATUS DISPLAY and the WATER LEVEL DISPLAY at the front of the equipment provide continuous assurance regarding equipment condition at a glance.

COOLING [INTEGRATED]

_The optional SWITCHING CABINET COOLING FUNCTION ensures operation even at high temperatures.

TECHNICAL DATA
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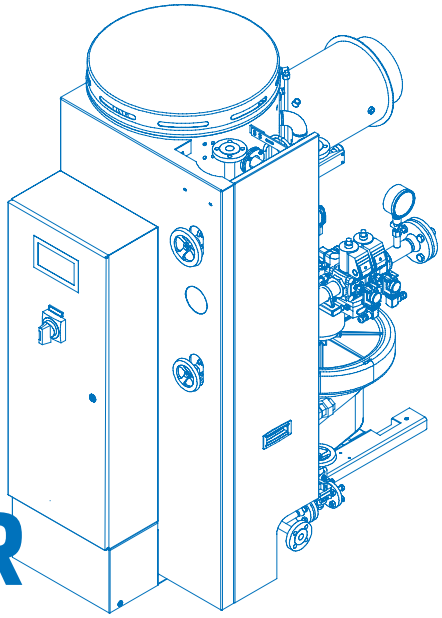

JUNIOR
TC 80 – 400

The fully automatic, safe solution – in the smallest spaces

This series provides a practical solution for any application areas with low steam demand – such as small breweries or pharmaceutical or food production operations. The electronic control system makes the JUNIOR extremely easy to operate. It is especially adept in working situations in which steam is not continually required and it comes with all of the respective safety equipment ready for operation. The combustion management of the newest generation can be programmed for any fuel type. Its compact, vertical, space-saving design makes it perfect for areas with limited space.


CERTUSS

EFFICIENT LOAD ADJUSTMENT, EASY TO OPERATE, AND PROVEN IN PRACTICE

System operation can be fully automatic when the optional Thermotimat automatic control is installed. Operators are not required. Manual operation is self-explanatory and easy. The operating display provides graphics which make the instructions for start-up and shutdown easy to understand. It also indicates operating status, programming, errors, and messages in any desired language. Remote control and programming can be set up by request.

USER-FRIENDLY

_Self-explanatory TOUCHSCREEN MENU NAVIGATION makes operation significantly simpler.

REMOTE CONTROL AND SERVICE

_Remote programming, control, and access to data via Ethernet, CAN bus, PROFIBUS or GSM/UMTS modem*.

_Well-known for excellent service, customer service available 24 hours a day, 365 days a year.

ADVANTAGES OF OUR TECHNOLOGY

_Robust all-steel design with double-shell air cooling with no insulation materials.

_Noise and vibration damping, elastic assembly attachments.

_Vertical, stress-free, central mounting of the heating system with low-point blow down.

*Additional equipment.

EFFICIENT AND COST-EFFECTIVE

_Extremely high degree of efficiency (up to 98% with exhaust gas heat exchanger) due to 3-FOLD AIR INSULATION together with the simultaneous preheating of combustion air with very low emission losses.

_Short heating time. Full steam output is achieved within 3–5 minutes.

_ELECTRONIC COMBUSTION MANAGEMENT and the PILOT FLAME SYSTEM (gas burner) save energy and costs with immediate load adjustment starting at the respective stream demand.

OPERATION AND INSTALLATION

_Fully automatic operation

_Secure installation without a platform

_Small space requirement

_Can be installed in work areas, no boiler house required.

_Depending on country-specific regulations no permit required for installation and operation.

_Compatible with all CERTUSS steam generators of the same or different designs.

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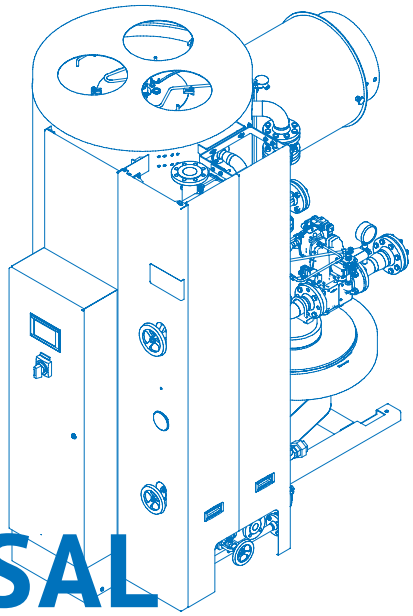

UNIVERSAL
TC 500 – 2000

Economical, highly efficient steam generation – with greater output by request

The UNIVERSAL steam generators are the perfect solution for production operations with higher steam demand. The output is flexible and can be adjusted to meet the amount of steam needed. All UNIVERSAL steam generators consist of modules that are completely equipped and ready for operation. They can be combined with each other in a cascade connection and come with an extensive safety package. In comparison with conventional solutions, CERTUSS steam generators require just one-third of the footprint space.


CERTUSS

THE SECRET TO CERTUSS QUALITY: INNOVATIVE TECHNOLOGY, THE BEST COMPONENTS, AND METICULOUS CARE

Just as all CERTUSS steam generators, the large series also meets the highest requirements with regard to safety, efficiency, and operational advantages. The intuitive, easily understood control system offers both manual and fully automatic operation without any large personnel or time-related costs. Remote control, programming, and diagnostics are available via various connections.

In case the steam demand increases, the systems are compatible with every CERTUSS series and can be expanded to meet the exact needs.

Greater efficiency with the CERTUSS steam generator housing with 3-fold insulation

EFFICIENT AND COST-EFFECTIVE

_Extremely high degree of efficiency (up to 98.5% with Economiser) due to 3-FOLD AIR INSULATION together with the simultaneous preheating of combustion air with very low emission losses.

_Short heating time. Full steam output is achieved within 3–5 minutes.

_ELECTRONIC COMBUSTION MANAGEMENT and the PILOT FLAME SYSTEM (gas burner) save energy and costs with immediate load adjustment starting at the respective stream demand.

_Modulating output control from 50% to 100% steam output with GAS BURNER EQUIPMENT (two output increments with oil operation: 50% and 100%).

_Low-maintenance FEED WATER PUMP with infinitely variable speed regulation.

_Low-emission burner for each size developed especially to meet the most recent European standards.

OPERATIONAL ADVANTAGES

_Self-explanatory TOUCHSCREEN MENU NAVIGATION makes operation significantly simpler.

_THERMOTIMAT AUTOMATIC CONTROL for fully automatic operation*.

_Remote control and control via Ethernet and mobile networks*.

_Optional: “CPA” supply unit: a complete boiler house installation including a boiler feed pump, feed water tank, steam separator, water treatment, and wastewater mixing heat exchanger.

*Additional equipment.

INSTALLATION ADVANTAGES

_Secure installation without a platform

_Small space requirement

_Can be installed in work areas, no boiler house required.

_Depending on country-specific regulations no permit required for installation and operation.

_Standard versions come with equipment for up to 72 hours of operation without manual invention (water monitoring optional).

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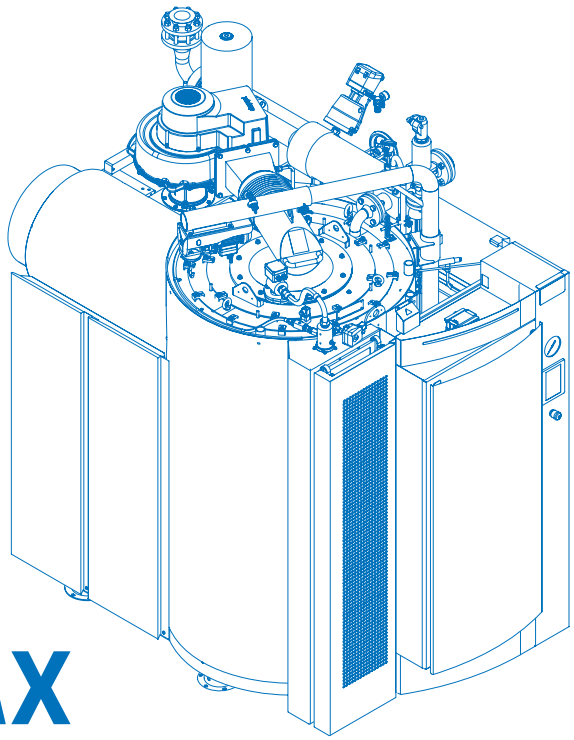


UMX
U1500MX – U2000MX

The new standard with UMX: reduce costs and conserve resources

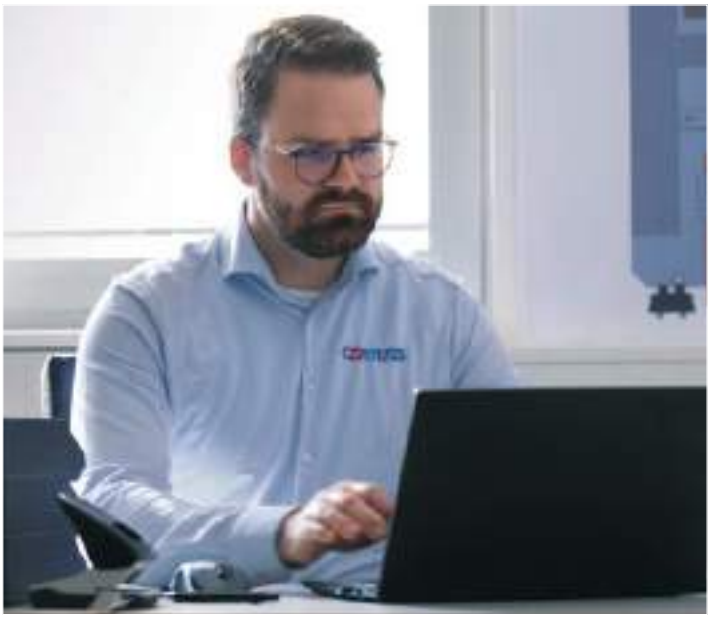
The UMX on-demand steam generator is completely newly developed and is designed for use with NG or LPG or both (dual gas). The system is ready for operation just 3 to 5 minutes after start-up and allows for continuous modulation between 20% and 100% output. NOx emissions remain well below the required regulations. With its high efficiency, environmental compatibility, and user-friendly operation, the UMX sets new standards in its class.


CERTUSS

EFFICIENCY REDEFINED – THE NEXT GENERATION OF STEAM GENERATORS

In the new UMX model series, features that were previously optional are now included as standard. Components such as the water pump, sliding gate valve, hot water filter, gas filter and steam separator are fully integrated and pre-installed – making the CERTUSS UMX ready for immediate use.

An integrated maintenance chain block hoist, a practical access ladder, and improved service access ensure greater safety and efficiency during maintenance work. The 7-inch display enables convenient operation control – also via connection to a central building management system. Thanks to the innovative One View Control, the device status remains visible at all times – even remotely.



REMOTE CONTROL

_Thanks to ONE VIEW CONTROL, the device status is always in view – and can also be programmed, read or controlled remotely.

INSTALLATION ADVANTAGES

_Everything you need for immediate use is integrated and pre-installed:: WATER PUMP, SLIDING GATE VALVE, HOT WATER FILTER, GAS FILTER and STEAM SEPARATOR.

_The proven THERMOTIMAT-PLUS CONTROL is now standard equipment.

USER-FRIENDLY

_An optimised SERVICE ACCESS, a pre-assembled CHAIN BLOCK HOIST and an integrated ACCESS LADDER make maintenance work easier, safer and more efficient.

EFFICIENT AND COST-EFFECTIVE

_Short heating time. Full steam output is achieved within 3–5 minutes.

_Fully modulating 5:1 turndown burner offers continuous modulation between 20% and 100% output.

_Designed for use with NG or LPG or dual gas (NG/LPG).

_NOx emissions are well below the required standards.

OPERATION AND INSTALLATION

_Fully automatic operation

_Secure installation without a platform

_Small space requirement

_Can be installed in work areas, no boiler house required.

_Depending on country-specific regulations no permit required for installation and operation.

_Compatible with all CERTUSS steam generators of the same or different designs.

_Hybrid solution possible with electric steam generator EMX.

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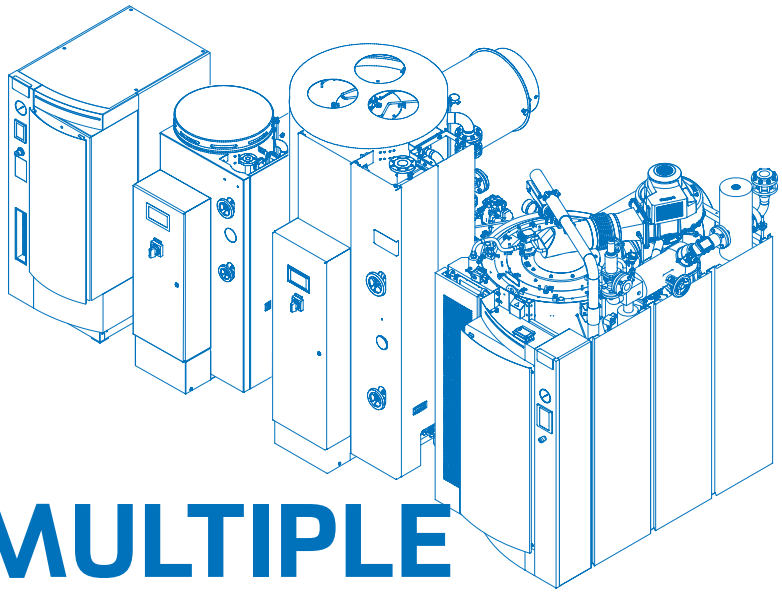
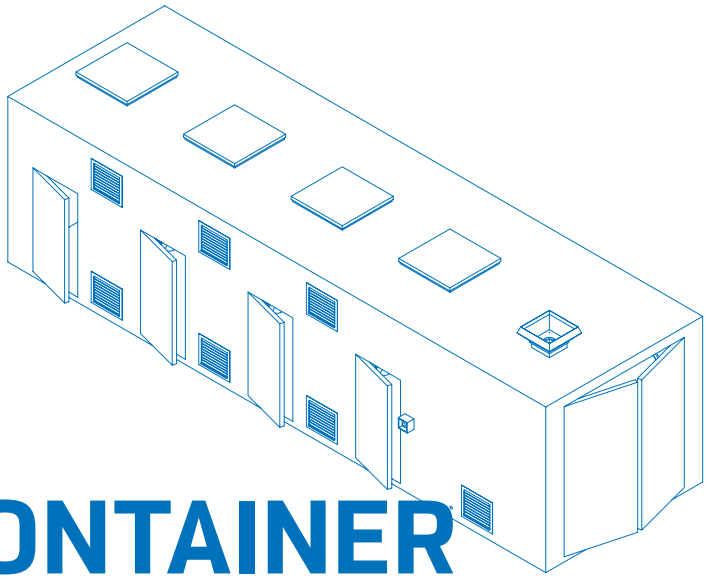


MULTIPLE SYSTEMS

Efficiency means “nothing more than what is needed”

Multiple systems by CERTUSS enable a highly flexible steam supply while saving energy. With the integrated diagnostic system, steam production is ideally distributed between the base-load boiler and the peak-load boiler. This allows needs-oriented operation with a long service life, which is, in turn, sustainable.

Based on technical production conditions, various types of combustion and heating such as gas, oil, or electrical and various output classes can be combined to achieve the ideal solution. As a particularly efficient hybrid solution, the EMX with electric heating and the UMX with fossil fuel combustion can be operated in multiple systems thanks to identical control devices.



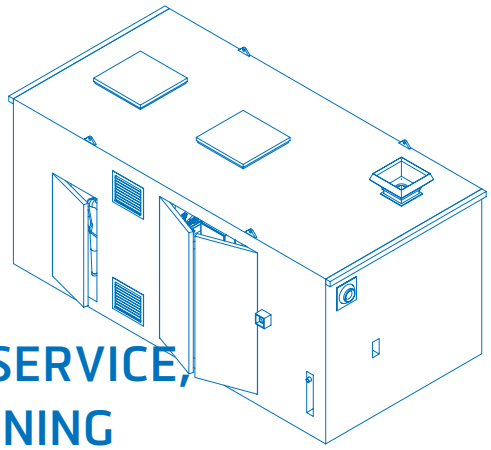
CONTAINER STEAM SYSTEMS

A custom built boiler house ready for operation

When steam production needs to be located outside of buildings or when mobile systems are required, we create the right enclosure solution.

The enclosures includes all of the components for generating steam. Your container design can include flexible adaptations to meet the requirements for your space and production and it will function just as economically as a stationary CERTUSS system. This solution also achieves full steam output within 5 minutes after system start-up.


CERTUSS



STRONG IN SERVICE, FROM PLANNING TO MAINTENANCE

Your specifications are crucial

Our container steam generators are tailor-made for 80 industries. We can also implement special developments for specific requirements. The systems are easy to operate and can be efficiently adjusted to the required output, while the setup is extra space-saving.

Further advantages of containerized multiple systems include high process and peak load reliability, as well as N+1 redundancy. Maintenance is possible during operation. We supply turnkey, complete systems worldwide.

We would be happy to support you with the commissioning of your steam boiler installation and the instruction of your operators. We also adapt our maintenance and service models to meet your requirements exactly.

CONTAINER ADVANTAGES

_Tailored to meet customer requests and specifications
_Compact and space-saving
_Mechanical and electrical components are all completely preinstalled
_High-quality, insulated stainless steel walls to protect the equipment
_External paint according to your specifications
_Insulated pipe installation inside
_Steel or UPVC door as desired
_Complete internal lighting
_Individual selection of installation location provides the greatest flexibility
_No separate boiler house required
_Lower costs for on-site installation
_Optional air-conditioning for the container

OPTIONAL EQUIPMENT

_CERTUSS steam generator(s)
_CPA supply unit
_Water treatment system
_Steam distributor
_Pressure reducing station
_Steam separator
_Condensate lifting system
_Air-conditioning
_Oil tank
_and more

CPA | CERTUSS
PACKAGED ACCESSORIES

The best conditions for durability and steam quality

Consistent water quality is critical for the durability of the steam generator and for the resulting steam quality. The factory-installed CERTUSS CPA ensures the proper supply. It is adapted precisely to meet the respective system and installation situation and can be equipped to handle future increases in required output.

The CPA includes and regulates all of the connections for water, steam, electricity, and energy. The high-quality components for water treatment and supply are compact and are installed such that they are easily accessible and save space.

CERTUSS Flexibility

Every CERTUSS supply unit is configured precisely for current or future demand situations.

Customized prefabrication reduces installation time and costs to a minimum

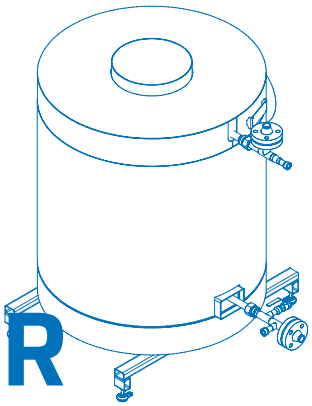
The entire pipe installation between the steam generator and the supply unit is properly adapted and prefabricated to meet on-site conditions. The same applies for the electrical wiring and the connecting cables for the system. Planning in advance with CAD ensures precision and reliability. These preparations reduce on-site installation time and costs to a minimum.

OPTIONAL EQUIPMENT

_Water treatment system, including automatic dosing
_Desalination heat exchanger
_Feed water tank
_Steam separator
_Blow down tank
_Pre-pressure pump
_Testomat (testing device)
_Conductivity monitor
_Switching cabinet

CPA ADVANTAGES

_All supply and water treatment components for CERTUSS steam generators are provided as a complete unit
_Low space requirement due to compact design
_Proper installation by professional guarantees safe operation
_Base frame is powder-coated for corrosion protection
_Complete with electrical sub-panel
_Easy accessibility and maintenance
_Inexpensive series production with elements that are perfectly adapted to each other
_Made with approved, high-quality materials
_Significant reduction in assembly time saves costs
_Factory installation of all connections for water, steam, electricity, and energy ensures safety



ECONOMISER
CERTECON 80 – 2000

Efficiency that pays off and reduces CO_2

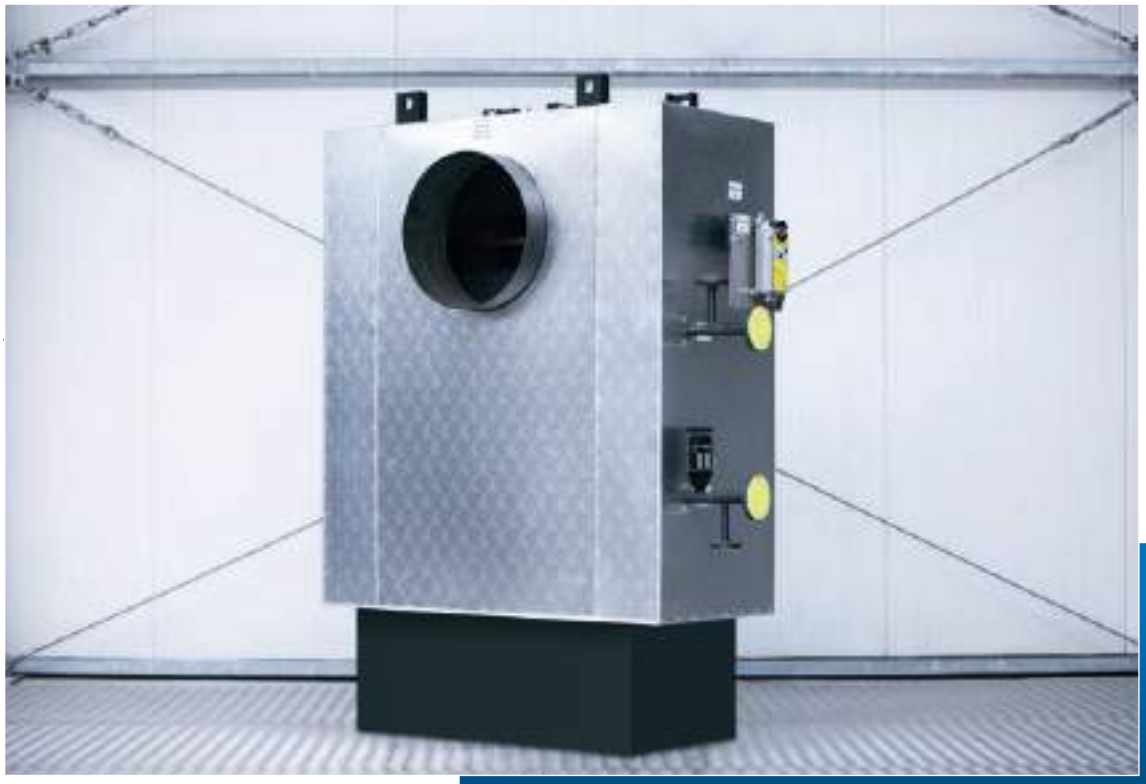
Flue gas heat exchangers increase the efficiency and reduce the CO_2 emissions of CERTUSS steam generators heated by oil or gas. CERTECON flue gas heat exchangers use the heat from exhaust gas to increase the temperature of the feed water. This achieves heat recycling of up to 43 kW, which increases efficiency and reduces fuel consumption.

ECONOMISER
SPI 500–2000

Lower energy consumption – higher efficiency

Depending on the gas-heated or oil-heated CERTUSS steam generator in use and the installation situation, this flue gas heat exchanger helps to reduce fuel consumption significantly while increasing efficiency. Heat recycling of up to 83 kW is possible.

Our team would be happy to discuss the details with you.



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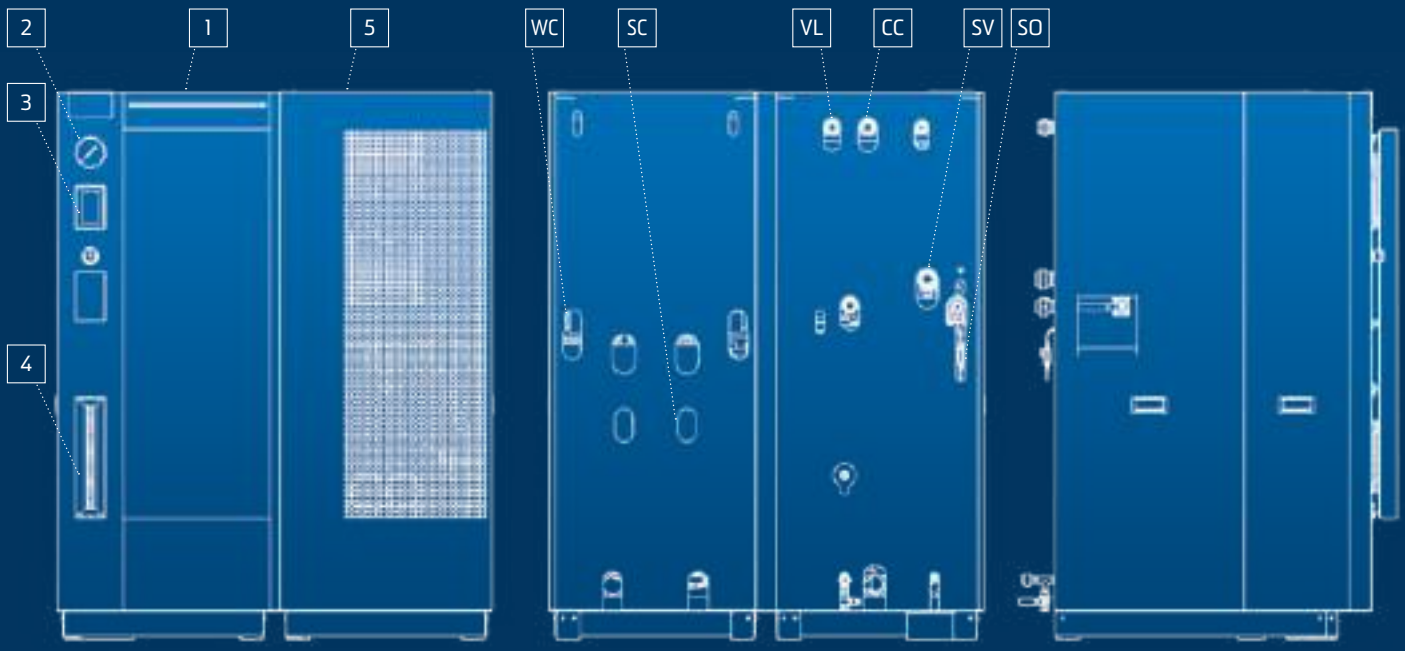


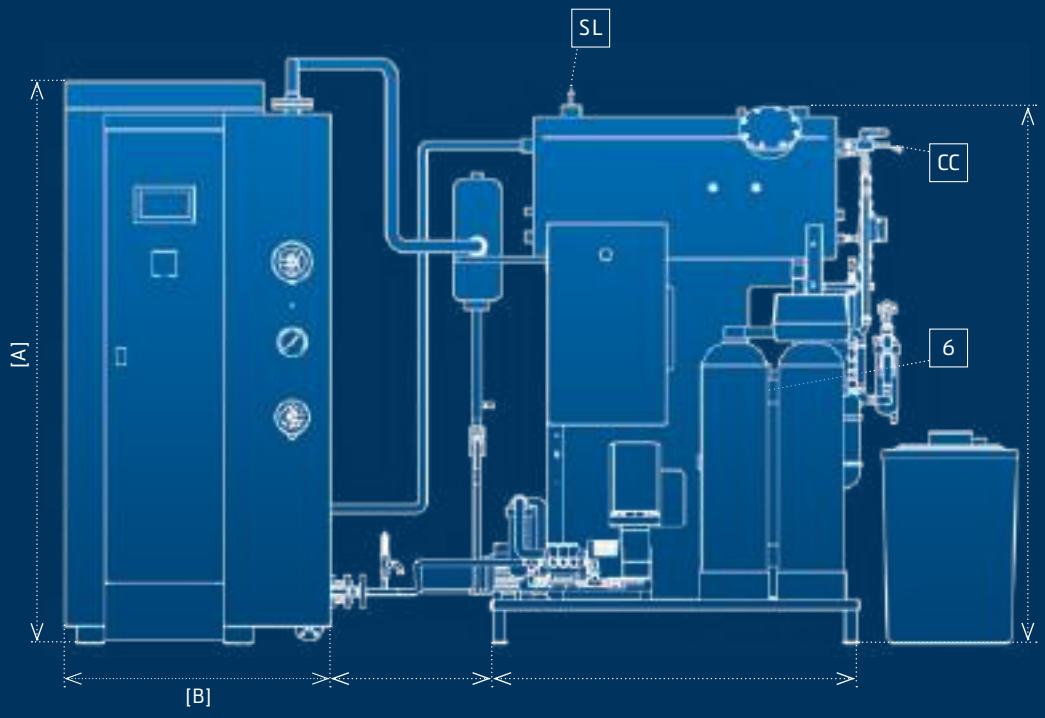
1 Model Electrical E16OMX
2 Pressure gauge
3 Touchscreen
4 Level indicator
5 Supply unit MX-CPA

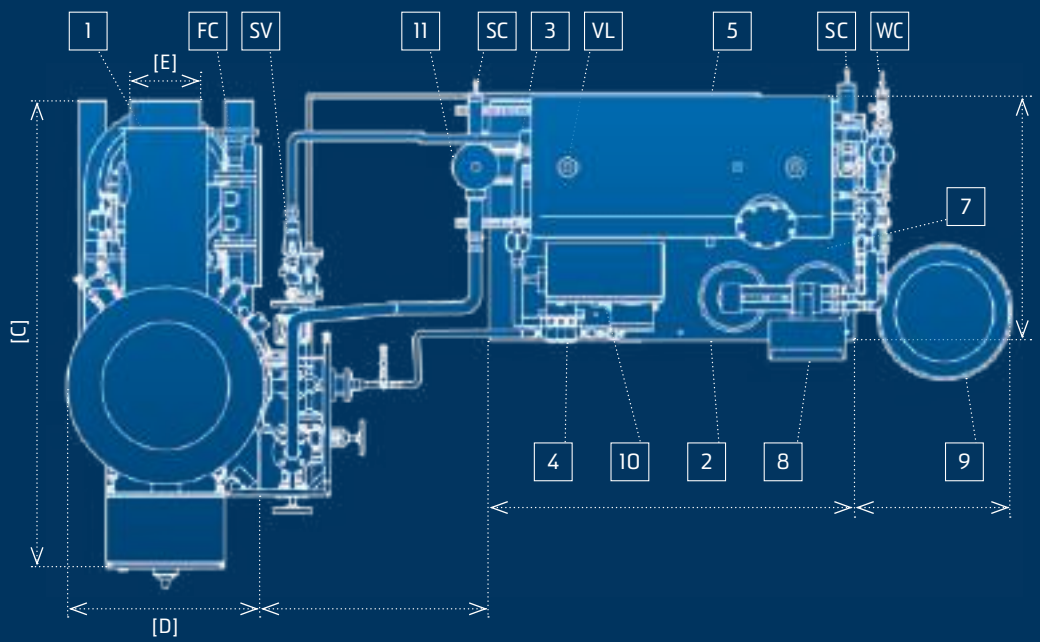
SO Steam outlet
SV Safety valve to the outside
VL Vapor vent line to the outside
WC Water connection
CC Condensate connection
SC Sewer connection

EMX
E10MX – E320MX

Model E-MX		10	20	40	60	80	100	130	160	200	260	320
Capacities												
Steam output	kg/h	10	20	40	60	80	100	130	160	200	260	320
Heat output	kW	8	16	32	48	67	80	107	120	160	200	240
Electrical output	kW	8,7	16,7	32,7	48,7	67,7	80,7	107,7	120,7	160,7	200,7	240,7
Water content	l	37 (NV = 18,5)				45 (NV = 28,9)				89 (NV = 56,7)		
Operating voltage		380 – 480 V · 50/60 Hz										
Pressures												
Operating pressure min./max.	MPa (bar)	0,3 / 0,35 (3,0 / 3,5) · 0,35 / 0,55 (3,5 / 5,5) · 0,35 / 0,9 (3,5 / 9,0) · 0,35 / 1,1 (3,5 / 11,0) · 0,35 / 1,18 (3,5 / 11,8) · 0,35 / 1,45 (3,5 / 14,5)										
Max. permissible overpressure	MPa (bar)	0,4 (4) · 0,6 (6) · 1,0 (10) · 1,2 (12) · 1,3 (13) · 1,6 (16)										
Materials												
Pressure vessel		P235GH / Stainless steel (AISI 316 Ti)										
Feed water tank		Stainless steel (AISI 316 Ti)										
Armatures		Brass / Stainless steel (AISI 316L/AISI 316 Ti)										
Housing		S235JR / Stainless steel (AISI 304)										
Measures and weight												
Dimensions (H x W x D)	mm	1900 x 774 x 1150								1900 x 1580 x 1150		
Operating weight	kg	520				630				960		
The following services are incurred depending on the design												
Electrical power control voltage 230 VAC (option MX-CPA)	kW	0,25										
Electrical power cooling unit	kW	0,95								1,45		
Electrial power feed water heating	kW	9 / 18								9 / 18 / 27 / 36		
Connections												
Steam outlet		1/2"								1"		
Soft water connection		1/2"										
Safety valve	4 – 6 bar	1"								1 1/4"		
	10 – 13 bar	1"								1"		
	16 bar	1"								1 1/4"		
Blow down/desalination line	DN	1/2"										
Overflow/drainage feed water tank	DN	1"										
Condensate return	DN	1"										
Vapor vent line	DN	1"										
Volume												
Feed water tank	V	45,5 ltr.										
Categorization EPEG 2014/68/EU												
EPEG category	4 bar	II								III		
	6 – 16 bar	III								III		

Dimensions and weights have been rounded up or down. MPa and bar are overpressure values.
Performance values referenced to 10 °C feed-water temperature and 0,6 MPa (6 bar) steam overpressure.





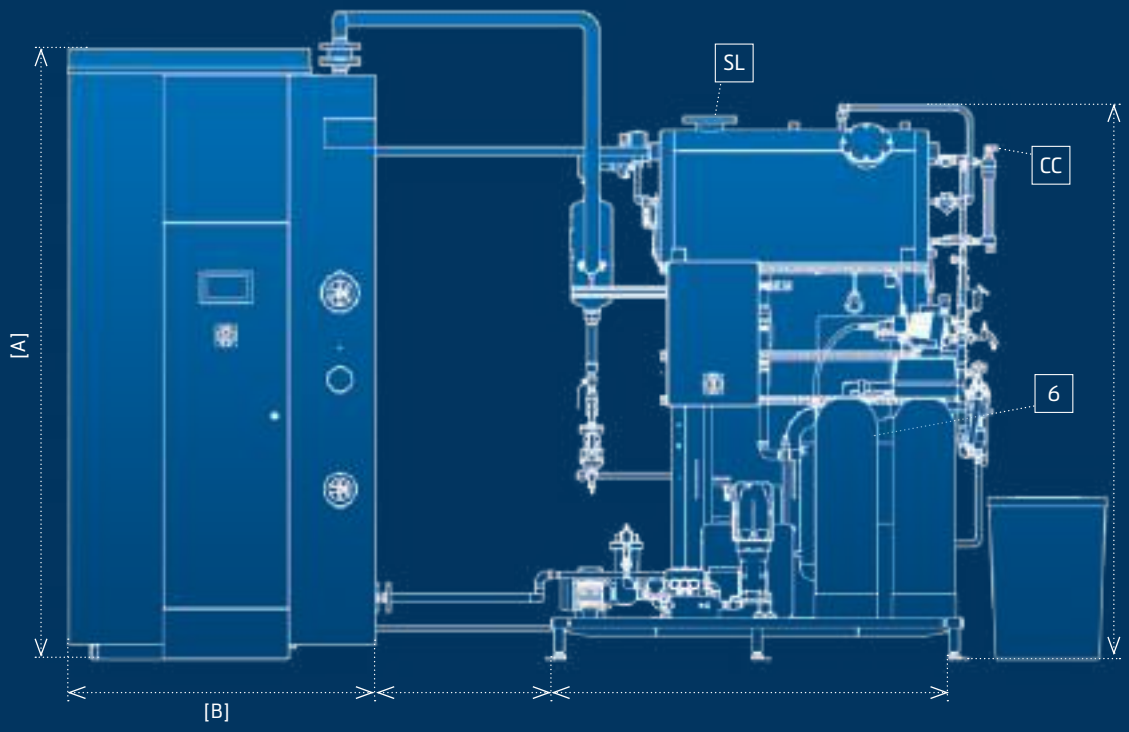
1 Model JUNIOR TC
2 CVE supply unit
3 Pre-pressure pump
4 Feed water pump
5 Feed water tank
6 Mixing heat exchanger
7 Dosing device
8 Water softening system
9 Brine tank
10 Switching cabinet
11 Steam separator

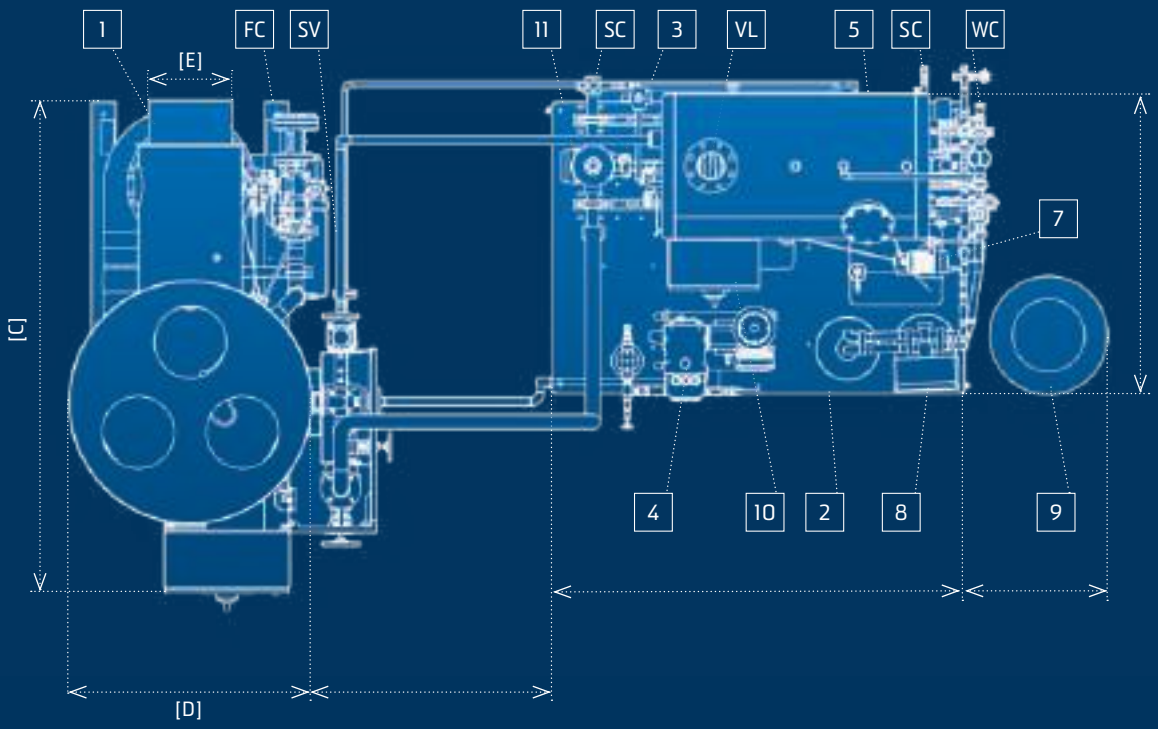
SC Steam connection
WC Water connection
VL Vapor vent line
to the outside
SV Safety valve
to the outside
SC Sewer connection
CC Condensate connection
FC Fuel connection

JUNIOR
TC 80 – 400

Model JUNIOR		80	120	150	200	250	300	350	400
Size		1		2		3			
Capacities									
Steam output	kg/h	80	120	150	200	250	300	350	400
Heating capacity	kW	52	79	98	131	164	197	230	262
Nominal load	kW	58	87	109	145	182	218	254	291
Levels		1		1		1			
Pressures									
Min. / max. operating pressure	MPa (bar)	0,6 (6) / 0,8 – 2,9 (8 – 29)		0,6 (6) / 0,8 – 2,9 (8 – 29)		0,6 (6) / 0,8 – 2,9 (8 – 29)			
Max. permissible overpressure	MPa (bar)	1,0 – 3,2 (10 – 32)		1,0 – 3,2 (10 – 32)		1,0 – 3,2 (10 – 32)			
Consumption									
Natural gas	m^3/h	5,8	8,7	10,9	14,5	18,2	21,8	25,4	29,1
Liquid gas	m^3/h	2,3	3,4	4,2	5,6	7,0	8,5	9,9	11,3
Heating oil (EL)	kg/h	4,9	7,4	9,2	12,3	15,3	18,4	21,5	24,5
Dimensions									
Height A	mm	1515		1600		1850			
Width B	mm	730		770		875			
Depth C	mm	1295		1475		1580			
Boiler ø D	mm	500		560		640			
Flue gas pipe ø E	mm	180		200		250			
Flue gas center F	mm	1050		1120		1360			
Weight	**kg**	320		420		520			
Connections									
Electrical connection load	kVA	3,33		3,37		3,92			
Oil connection	DN	3/8"		3/8"		3/8"			
Natural gas	DN	20		32		40			
Liquid gas	DN	20		20		20			
Feed water	DN	1 1/4"		1 1/4"		1 1/4"			
Steam connection	DN	15		20		25			
Safety valve	DN	1"		40		40			
Start-up line	DN	3/4"		3/4"		1"			
Categorization EPEG 2014/68/EU									
EPEG category		up to 16 bar II / 25 – 32 bar III		III					

Reference values: natural gas 10 kWh/Nm^3, liquid gas 25,8 kWh/Nm^3, heating oil (EL) 11,86 kWh/kg. Dimensions and weights have been rounded up or down.
*MPa and bar are overpressure values. Performance values referenced to 100 °C feed-water temperature and 1 MPa (10 bar) steam overpressure.





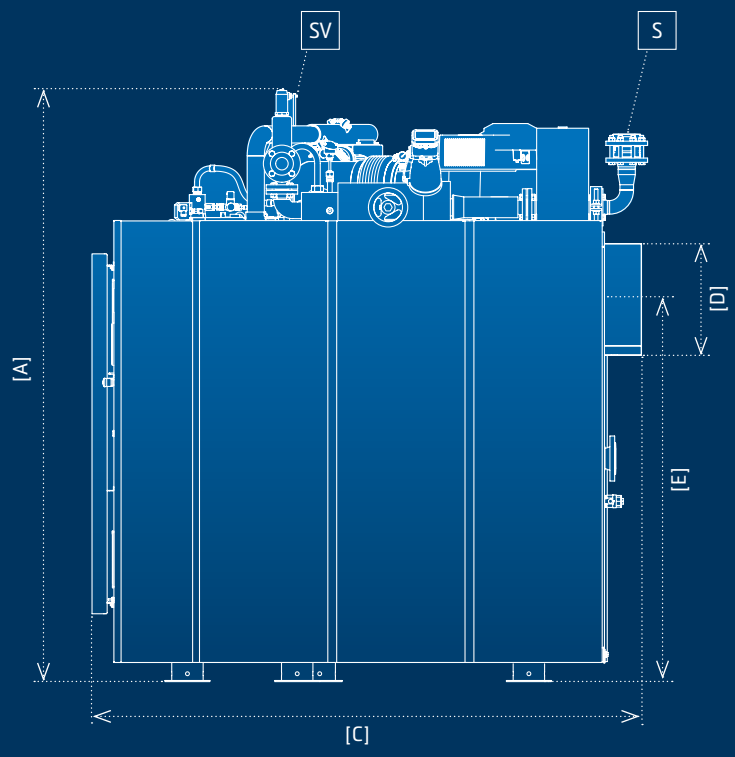
1 Model UNIVERSAL TC
2 CVE supply unit
3 Pre-pressure pump
4 Feed water pump
5 Feed water tank
6 Mixing heat exchanger
7 Dosing device
8 Water softening system
9 Brine tank
10 Switching cabinet
11 Steam separator

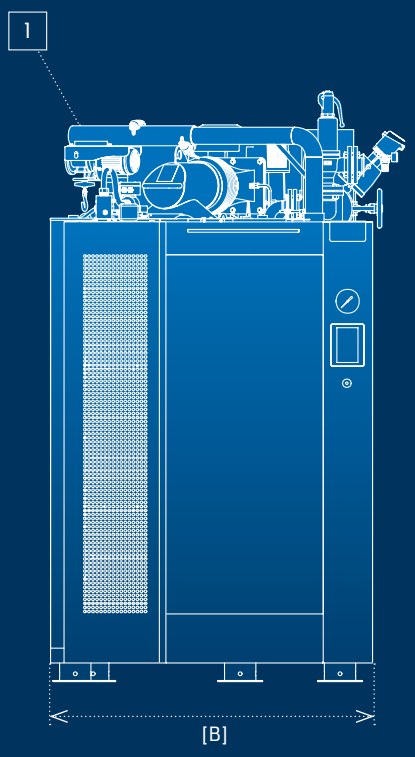
SC Steam connection
WC Water connection
VL Vapor vent line
to the outside
SV Safety valve
to the outside
SC Sewer connection
CC Condensate connection
FC Fuel connection

UNIVERSAL
TC 500 – 2000

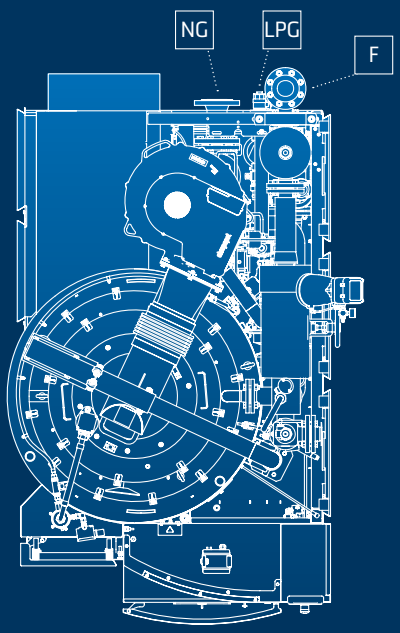
Model UNIVERSAL		500	600	700	850	1000	1300	1500	1800	2000
Size		4		5		6		7		
Capacities										
Steam output	kg/h	500	600	700	850	1000	1300	1500	1800	2000
Heating capacity	kW	328	394	459	558	656	853	984	1181	1312
Nominal load	kW	364	436	509	618	727	945	1091	1309	1454
Stages		2		2		2		2		
Pressures										
Min. / max. operating pressure	MPa (bar)	0,6 (6) / 0,8 – 3,0 (8 – 30)		0,6 (6) / 0,8 – 2,9 (8 – 29)		0,6 (6) / 0,8 – 2,9 (8 – 29)		0,6 (6) / 0,8 – 2,9 (8 – 29)		
Max. permissible overpressure	MPa (bar)	1,0 – 3,2 (10 – 32)		1,0 – 3,2 (10 – 32)		1,0 – 3,2 (10 – 32)		1,0 – 3,2 (10 – 32)		
Consumption										
Natural gas	m^3/h	36,4	43,6	50,9	61,8	72,7	94,5	109,1	130,9	145,4
Liquid gas	m^3/h	14,1	16,9	19,7	24,0	28,2	36,6	42,3	50,7	56,4
Heating oil (EL)	kg/h	30,6	36,8	42,9	52,1	61,3	79,7	91,9	110,3	122,6
Dimensions										
Height A	mm	1985		2290		2535		2675		
Width B	mm	955		1160		1275		1420		
Depth C	mm	1725		1930		2125		2415		
Boiler ø D	mm	700		870		1000		1100		
Flue gas pipe ø E	mm	250		300		350		500		
Flue gas center F	mm	1460		1750		1940		2025		
Weight	**kg**	**950**		**1100**		**1500**		**2300**		
Connections										
Electr. connection gas	kVA	5,66		6,71		12,53		17,86		
Electr. connection oil/comb.	kVA	6,63		7,68		13,50		18,83		
Oil connection	DN	3/8"		3/8"		3/8"		1/2"		
Natural gas	DN	50		65		65		80		
Liquid gas	DN	25		40		40		50		
Feed water	DN	1 1/4"		1 1/4"		1 1/4"		1 1/4"		
Steam connection	DN	32		40		50		65		
Safety valve	DN	40		40		40		50		
Start-up line	DN	3/4"		1"		1 1/2"		1 1/2"		
Categorization EPEG 2014/68/EU										
EPEG category		III		up to 25 bar III / 32 bar IV		up to 16 bar III / 25 – 32 bar IV		up to 16 bar III / 25 – 32 bar IV		

Reference values: natural gas 10 kWh/Nm^3, liquid gas 25,8 kWh/Nm^3, heating oil (EL) 11,86 kWh/kg. Dimensions and weights have been rounded up or down.
*MPa and bar are overpressure values. Performance values referenced to 100 °C feed-water temperature and 1 MPa (10 bar) steam overpressure.





1	Model UMX
A	Height
B	Width
C	Depth
D	Flue Gas Pipe Ø
E	Flue Gas Center
S	Steam
F	Feedwater
SV	Safety Valve
NG	Natural Gas Train
LPG	LP Gas Train



UMX
U1500MX–U2000MX

Model UMX		1500	1800	2000
Capacities				
Steam output	kg/h	1500	1800	2000
Heat output[1]	kW	984	1181	1312
Firing rate	kW	218 – 1091 (20 – 100 %)	262 – 1309 (20 – 100 %)	291 – 1454 (20 – 100 %)
Modulation			20 – 100 % (1:5)	
Water content	l		225,0	
Heating surface	m^2		30,7	
Pressures				
Operating pressure min./max.	MPa (bar)		0,6 (6) / 0,8 – 2,9 (8 – 29)	
Max. permissible overpressure	MPa (bar)		1,0 – 3,2 (10 – 32)	
Combustion NG				
Fuel volume flow	Nm^3/h	21,8 – 109,1 (20 – 100 %)	26,2 – 130,9 (20 – 100 %)	29,1 – 145,4 (20 – 100 %)
NOx-emission[2]	ppm		25 (4,5 %) · 13 (5,5 %) · 6 (6,5 %) · 2 (7,5 %)	
Combustion LPG (Propane)				
Fuel volume flow	Nm^3/h	8,5 – 42,3 (20 – 100 %)	10,1 – 50,7 (20 – 100 %)	11,3 – 56,4 (20 – 100 %)
NOx-emission[2]	ppm		40 (5,5 %) · 13 (6,5 %) · 8 (7,5 %)	
Measures				
Height A	mm		2632	
Width B	mm		1435	
Depth C	mm		2442	
Flue gas pipe ø D	mm		500	
Flue gas center E	mm		1702	
Weight	**kg**		**2625**	
Connections				
Compressed air inlet	DN		1/4"	
Natural gas train inlet	DN		80	
LP gas train inlet	DN		50	
Feedwater inlet	DN		1 1/4"	
Start up	DN		1"	
Steam outlet	DN		65	
Safety valve	DN		32 x 50 (Eingang x Ausgang)	
Condensate line	DN		1/2"	
Blowdown	DN		25	
Drip line	DN		1/2"	
Categories				
Max. permissible overpressure	MPa (bar)		1,0 – 3,2 (10 – 32)	
Category accord. to BetrSichV			IV	
Category according to PED			up to 13 bar III / 16 – 32 bar IV	
Volume steam pressure system	ltr		225	
Pressure-liter product	ltr. bar		2250,0 – 7200,0	

1) according to 100 °C feed water temperature and 1,0 Mpa (10 bar) steam pressure
2) based on 4.5 % O2

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ECONOMISER

CERTECON 80 – 650

CERTECON		80 – 120		150 – 200		250 – 650					
CERTUSS Steam generator – Type		JUNIOR								UNIVERSAL	
		80	120	150	200	250	300	350	400	500	600
Dimensions											
Flue gas inlet ø internal	mm	180		200		250					
Flue gas outlet ø external	mm	178		198		248					
Centre-to-centre distance connecting pieces	mm	220		270		350					
Outer diameter	mm	250		280		370					
Installation length	mm	590		640		740					
Connections[1]											
Water inlet / outlet PN 100	DN	15								20	
Nominal width condensate connection	DN					1/2"					
Capacities[1]											
Heat output at full load up to	kW	0,9	1,5	1,5	4,0	4,0	4,5	5,0	5,5	6,0	7,0
Connected burner output max.	kW	58	87	109	145	182	218	255	291	364	436
Heating flue gas temperature max.	°C	350									
Other data[1]											
Weight without water filling	kg	24		33		66					
Pressure equipment volume V	l	1,49		3,16		5,66					
Operating overpressure PS	bar	10 – 40		10 – 13	16 – 32	40	10 – 32			40	
Product PS x V	max.	59,6		41,08	101,12	126,4	181,12			226,4	
PED [DGRL] 2014/68/EU, Annex II, diagram 5, category		GIP		I	II	IV	II			IV	

CERTECON 700 – 2000

CERTECON		700 – 960		1000 – 1300		1500 – 2000	
CERTUSS Steam generator – Type		UNIVERSAL					
		700 – 850		1000 – 1300		1500 – 2000	
Dimensions							
Flue gas inlet ø internal	mm	300		350		500	
Flue gas outlet ø external	mm	295		345		495	
Connecting piece distance	mm	850		900		940	
Distance floor / connecting piece	mm	355					
Height	mm	1325		1385		1450	
Diameter	mm	900		1020		1100	
Connections[1]							
Water inlet / outlet PN 100	DN	25				32	
Desliming	DN	15				25	
Dewatering flue gas condensate		3/4"					
Capacities[1]							
Heat output at full load up to	kW (ca.)	15		25		43	
Connected burner output max.	kW	730		1100		1480	
Heating flue gas temperature max.	°C	350					
Other data[1]							
Weight without water filling	kg	320		387		442	
Pressure equipment volume V	l	43,1		51,6		71,6	
Operating overpressure PS	bar	10 – 32	40	10 – 32	40	10 – 32	40
Product PS x V	max.	1379,2	1724	1651,2	2064	2291,2	2864
PED [DGRL] 2014/68/EU, Annex II, diagram 5, category		III	IV	III	IV	III	IV

ECONOMISER SPI 500–2000

Size | Model UNIVERSAL		500	600	700	850	1000	1300	1500	1800	2000
Artikel-Nr.		33.0018.1		33.0018.2		33.0018.4		33.0018.6		
Dimensions										
Equipment height	mm	1830		2145		2360		2520		
Equipment width with insulation	mm	1360		1360		1460		1660		
Equipm. depth across flue gas connections	mm	860		860		880		900		
Internal Ø, flue gas inlet	mm	255		305		355		505		
External Ø, flue gas outlet	mm	245		295		345		495		
Floor to center of flue gas inlet/outlet	mm	1460		1750		1940		2025		
Floor to center of water inlet	mm	875		990		1160		1165		
Clear width (internal housing dimensions)	mm	600				700		900		
Spacing, feed water connections	mm	375					525			
NV, feed water connections PN40 (Mat.16Mo3)	mm			25				32		
Height, substructure	mm	312		427		597		592		
Weight	kg	550		650		720		860		
Capacities[1]										
Heat output at full load up to	kW	21	25	32	38	45	55	66	76	83
Heating surface	m^2	15		20		24		31		
Pressure loss, flue gas side max.	mbar	0,2	0,3	0,5	0,7	0,7	1,1		0,9	
Flue gas volume, flue gas side	m^3	0,28		0,33		0,42			0,63	
Flow rate, water side	m^3/h	0,5	0,6	0,7	0,85	1,0	1,3	1,5	1,8	2,0
Pressure loss, water side	bar	0,01			0,02	0,03	0,05	0,07	0,10	0,12

[1] Values can deviate depending on the burner output, operating overpressure, and capacity utilization of the steam generator.

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