

# **CERTUSS**

## *Steam Generators*



THE FUTURE OF  
**STEAM GENERATION**

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# CERTUSS Company History

## W H O W E A R E

CERTUSS was established in 1957 in Krefeld, Germany when Hans Joachim Schroder set himself the goal of manufacturing **reliable, low-noise, compact** Steam Generators. These Generators were designed to be easy to maintain and applicable for **continuous operation**. Today CERTUSS are satisfying customers all around the globe with the help of sustainable, long-term partnerships. Trained and exclusive service partners in 35 countries are ready to assist you **anytime from everywhere**. We are market leader with more than **60% market share** in Germany, offering high quality **"made in Germany"** products.

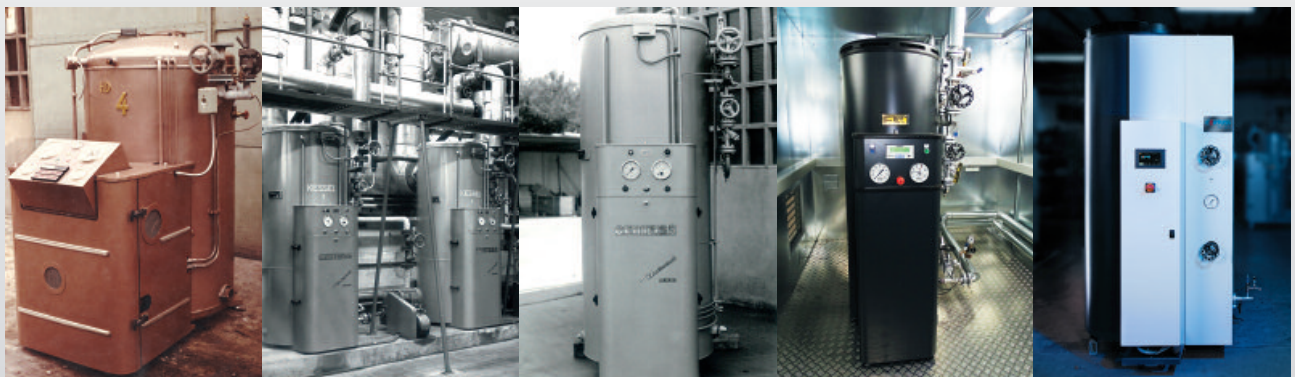
Our next project was to establish ourselves in the North American market. CERTUSS America LP was founded in 2014 with its headquarters located in **Philadelphia**. We chose this location for various historical and strategic reasons. Krefeld and Philadelphia's history is entwined by 13 German families, the Original 13, who travelled to Philadelphia by ship in 1683 and chose "Germantown" as their new home. Further, Philadelphia provides a strategically advantageous infrastructure with a focus on **"green economy"** which fits our energy efficient products and mentality.

Our companies focus lies on a **clearly defined product line**, **systematic R&D** and a team of **highly trained professionals** enabling equipment production of the **highest standards** complying with ASME and UL regulations, as well as ISO 9001-2008 and PED.

CERTUSS offers Generators requiring **little space** with capacities ranging from 5.1 BHP to 127.8 BHP and operating pressures of up to 421 psi. To complete the Generator system, we offer our **CVE, CERTUSS Verified Equipment**, Package Plant Module where all associated ancillary items are pre-piped, pre-wired and factory tested. All Generators are equipped with a **touchscreen** simplifying control and operation. The thermal efficiency of CERTUSS Steam Generators ranges from **83% to 85%\***. We offer various fuel types, including LPG, natural gas, #2 oil or a dual fuel burner for natural gas and #2 oil for units above 31.95 BHP. Full spare parts support is provided for each Generator for up to 20 years after commissioning and we hold electronic documentation of every Generator manufactured over the past 30 years.

Why you should chose CERTUSS? Check out all our advantages on page 14.

***"Our history is the cornerstone that supports our current success, continue growth and allows us to push innovation in the future" Mathias K. Brauner, CEO, CERTUSS Germany***



\* NG = 1004 BTU/F<sup>3</sup>, Feedwater = 68 °F, Steam = 212 °F. Subject to be changed.

### W H O W E W O R K W I T H

Thanks to our long company history we have had the privilege of working with many large and well-known companies and establishments from various industries.

CERTUSS Steam Generators have the advantage of being applicable in nearly **all industries**. We choose to keep our product line **clearly defined and scalable**.

We have gathered experience in **over 80 different sectors**, some of which are listed below, and have worked with diverse applications.

We have many customers in **service and hospitality** who use our Generators for chemical cleaning, disinfecting, laundering and other service purposes. For example we have installed Generators in many **Hyatt, Kempinski, Four Seasons** and **Holiday Inn Hotels**.

Another major sector we serve is the **healthcare sector**, including the chemical and pharmaceutical industry. CERTUSS Generators are applied in hospitals, cosmetics, plastics, mineral oil processing, pharmacies, and other chemical processes. Besides hospitals we have also worked with chemical and pharmaceutical companies, for example **B.Braun, Evonik, BASF, Merck, Procter & Gamble** or **Unilever**.

Additionally the **food and beverage** industry offers many applications for our Steam Generators. Examples are meat, milk, mineral water, soft drink, flavor, oils and sugar processes as well as alcoholic beverage, juice, coffee, tea productions or luxury food goods like candy, tobacco products or pralines. In this sector CERTUSS Generators are used by, for example, **Coca-Cola Companies, Dr. Oetker Frozen Foods** as well as **Nestle Group**.

Finally, diverse companies from the **automotive, construction and mechanical engineering** sector have purchased CERTUSS Generators for use in sanitation, ceramics and glass, cement production, heating, and woodworking. **Samsung Germany, Siemens, Philips Components** are customers we have served to this day.

With all the German **car manufacturers** located in our home country CERTUSS has had the possibility to work for **Volkswagen, Mercedes Benz** and **BMW**.

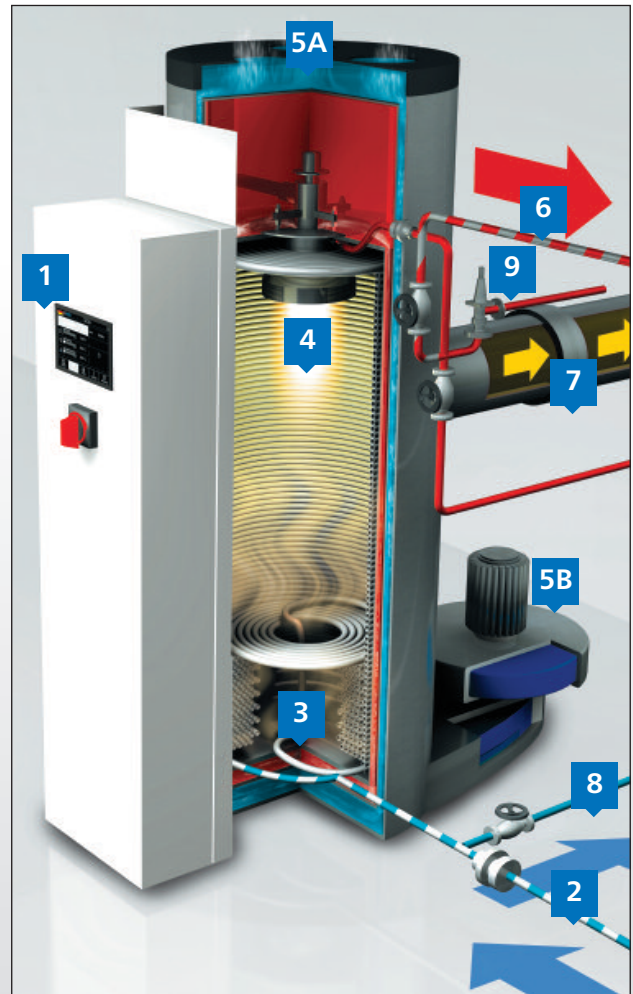
All that is left to say now is that if you like German cars, you'll **love** our Generators!



## FEATURES

By using the **water tube boiler** principle, the CERTUSS technology for generating steam offers **maximum safety, reliability and instant availability of high quality steam**.

- 1** The **touch screen control panel** simplifies operation and control of the generator. All configurations and settings of steam pressure are made here.
- 2** The **pre-heated feed water** is delivered to the Generator at approx. 194 to 203 °F. The heat frees the oxygen from water and reduces the risk of oxygen corrosion.
- 3** The **heat exchanger** coil is supplied with water through the feed water inlet. The change of phase from water to steam begins.
- 4** The modulating, **integral burner** with the fastest response time, provides precise steam pressure control down to ¼ psi.
- 5A** Insulation material is made obsolete by guiding the **combustion air** from the top of the Generator through an outer shell, and from there into an inner, secondary shell.
- 5B** The **combustion air intake & fan** draw in warm air through the triplex system to preheat the combustion air and keep the outer jacket cool.
- 6** When the steam has been produced, it leaves the generator through the **steam outlet** and is then ready for use.
- 7** The **flue gas outlet** connects to the chimney with or without an Economizer.
- 8** Sediment is flushed out through the **steam generator coil blowdown valve**.
- 9** The **safety relief valve** opens automatically to discharge excess steam when the pressure is too high.



# Junior TC 80 – 400

The Junior TC series includes the smaller sized Generators for customers who require low amounts of steam. All Junior TC Generators are equipped with an easy to use **touchscreen panel** that simplifies operation. They are our most space saving steam solutions. They can serve constant and fluctuating demands in steam, with steam available in **under 5 minutes**.

## F E A T U R E S

- Space saving
- Installation without foundation support
- Robust steel construction
- Triplex air insulation creates good air circulation within the generator and preheats the combustion air
- Integrated, 1st stage CERTUSS burner system (NG, LPG)
- Noise and vibration reduction, anti-vibration mountings
- Economical fast energy transfer reducing radiation losses
- Vertical expansion free centrally suspended heating coil with bottom blowdown
- Replaceable evaporation section
- Easy and quick cleaning of the heating system, without removal
- Fully automated operation
- Exemplary customer service and spare parts availability 24 / 7 / 365
- Thermal Efficiency from 83% to 85%\* (without Economizer)
- Full adjustable output of steam
- BMS compatibility with Profibus/CANbus, Modbus, BACnet etc.,
- 7" Touch Control (TC) screen

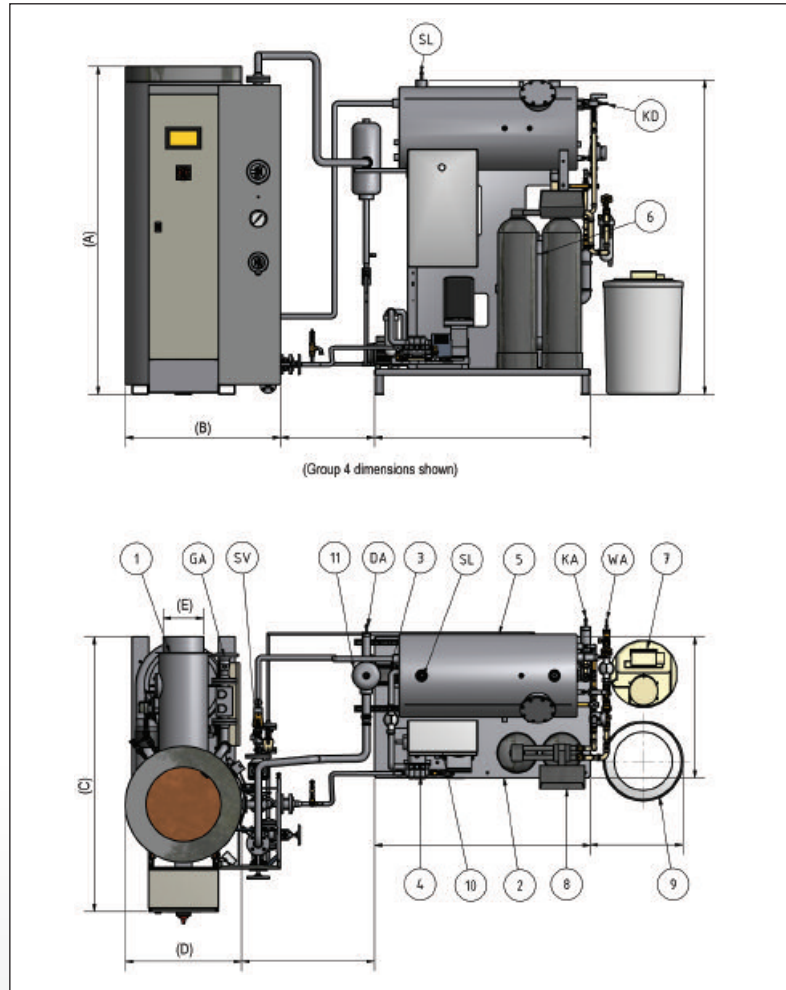


\* NG = 1004 BTU/F<sup>3</sup>, Feedwater = 68 °F, Steam = 212 °F. Subject to be changed.

# Specifications

1. Junior TC Steam Generator
2. CVE Utility Unit
3. Pre Pressure Pump
4. Feed Water Pump
5. Feed Water Tank
6. Blowdown Vessel
7. Chemical Dosing
8. Water Softening Plant
9. Brine Tank
10. Control Panel
11. Steam Separator
12. Water Filter

- DA. Steam Connection  
 WA. Water Connection  
 SL. Tank Vent (To Atmos)  
 SV. Safety Valve (To Atmos)  
 KA. Drain Connection  
 KD. Condensate Connection  
 BA. Fuel Connection



| Model Junior                    | Ratings                          |                            |                                           | Pressures                      |                                      | Consumption                  |                           |                          | Dimensions (~ inch) |            |            |               |                      |                        | Weight (~ lb) |
|---------------------------------|----------------------------------|----------------------------|-------------------------------------------|--------------------------------|--------------------------------------|------------------------------|---------------------------|--------------------------|---------------------|------------|------------|---------------|----------------------|------------------------|---------------|
|                                 | Steam Capacity<br>lbs/hr         | Heating Capacity<br>BHP    | Output Gross<br>MBtu/hr                   | Max. operating<br>pressure psi | Max. permissible<br>overpressure psi | # 2 oil<br>GPH               | Natural gas<br>CFH        | Liquidgas LPG<br>CFH     | Height<br>A         | Width<br>B | Depth<br>C | Boiler Ø<br>D | Flue gas pipe Ø<br>E | Flue gas (center)<br>F |               |
| 80<br>120                       | 176<br>265                       | 5<br>8                     | 0.171<br>0.257                            | 116 –<br>421                   | 150 –<br>464                         | 1.51<br>2.27                 | 205<br>307                | 78<br>120                | 59                  | 28         | 48         | 20            | 7                    | 41                     | 705           |
| 150<br>200                      | 331<br>441                       | 10<br>13                   | 0.321<br>0.428                            | 116 –<br>421                   | 150 –<br>464                         | 2.83<br>3.78                 | 385<br>512                | 148<br>198               | 69                  | 29         | 54         | 22            | 8                    | 44                     | 926           |
| 250<br>300<br>350<br>400<br>480 | 551<br>661<br>772<br>882<br>1058 | 16<br>19<br>22<br>26<br>31 | 0.535<br>0.642<br>0.749<br>0.856<br>1.027 | 116 –<br>421                   | 150 –<br>464                         | 4.70<br>5.65<br>6.60<br>7.53 | 643<br>770<br>901<br>1028 | 251<br>297<br>350<br>399 | 73                  | 33         | 59         | 25            | 10                   | 53                     | 1146          |

Specifications subject to change without notice

# Universal TC 500 – 2000

The Universal TC series is equipped to serve constant, as well as fluctuating, **high steam** demands making these Generators our most high performing solutions. Due to an extremely short heat up time, steam is available after **less than 5 minutes**. The touch screen control panel facilitates operation and gives a bundled overview of current pressures and configurations. Additionally the Generator can easily be operated remotely.

## F E A T U R E S

- Space Saving
- Installation without foundation support
- Robust steel construction
- Triplex air insulation creates good air circulation within the generator and preheats the combustion air
- Integrated, 1st stage CERTUSS burner system (NG, LPG)
- Noise and vibration reduction, anti-vibration mountings
- Economical fast energy transfer reducing radiation losses
- Vertical expansion free centrally suspended heating coil with bottom blowdown
- Replaceable evaporation section
- Easy and quick cleaning of the heating system, without removal
- Fully automatic operation
- Exemplary customer service and spare parts availability 24 / 7 / 365
- Thermal Efficiency from 83% to 85%\* (without Economizer)
- Full modulation from 50% to 100% (NG, LPG)
- BMS compatibility with Profibus/CANbus, Modbus, BACnet etc.,
- 7" Touch Control (TC) screen

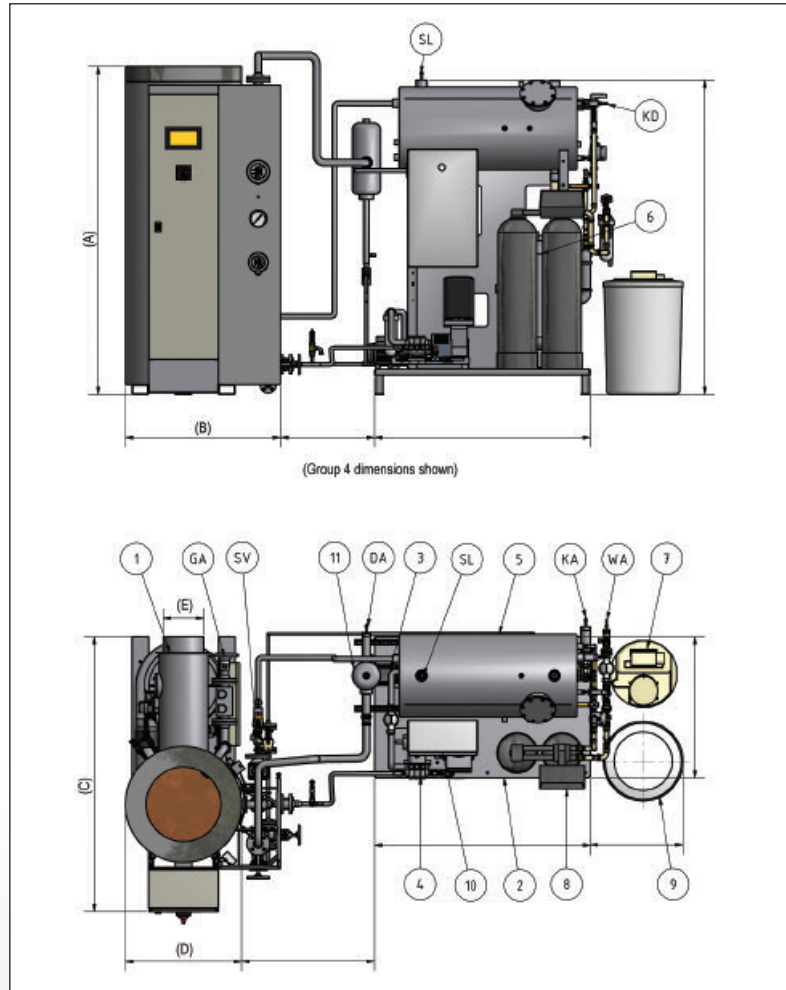


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# Specifications

1. Universal TC Steam Generator
2. CVE Utility Unit
3. Pre pressure pump
4. Feed Water Pump
5. Feed Water Tank
6. Blowdown Vessel
7. Chemical dosing
8. Water softening plant
9. Brine Tank
10. Control panel
11. Steam separator
12. Water filter

- GA. Fuel  
SV. Safety Valve  
DA. Steam  
SL. Tank Vent  
KA. Drain  
WA. Water  
KD. Condensate



| Model Universal | Ratings                  |                         |                         | Levels | Pressures                      |                                      | Consumption    |                    |                      | Dimensions (~ inch) |            |            |               |                      |                        | Weight (~ lb) |
|-----------------|--------------------------|-------------------------|-------------------------|--------|--------------------------------|--------------------------------------|----------------|--------------------|----------------------|---------------------|------------|------------|---------------|----------------------|------------------------|---------------|
|                 | Steam Capacity<br>lbs/hr | Heating Capacity<br>BHP | Output Gross<br>MBtu/hr |        | Max. operating<br>pressure psi | Max. permissible<br>overpressure psi | # 2 oil<br>GPH | Natural gas<br>CFH | Liquidgas LPG<br>CFH | Height<br>A         | Width<br>B | Depth<br>C | Boiler Ø<br>D | Flue gas pipe Ø<br>E | Flue gas (center)<br>F |               |
| 500             | 1102                     | 32                      | 1.070                   | 2      | 116 – 421                      | 150 – 464                            | 9.40           | 1285               | 498                  | 78                  | 37         | 63         | 28            | 10                   | 57                     | 2094          |
| 600             | 1323                     | 38                      | 1.283                   |        |                                |                                      | 11.30          | 1540               | 597                  |                     |            |            |               |                      |                        |               |
| 650             | 1433                     | 42                      | 1.390                   |        |                                |                                      |                |                    |                      |                     |            |            |               |                      |                        |               |
| 700             | 1543                     | 45                      | 1.497                   | 2      | 116 – 421                      | 150 – 464                            | 13.18          | 1797               | 696                  | 90                  | 46         | 73         | 34            | 12                   | 69                     | 2425          |
| 750             | 1653                     | 48                      | 1.604                   |        |                                |                                      | 16.00          | 2182               | 847                  |                     |            |            |               |                      |                        |               |
| 850             | 1874                     | 54                      | 1.818                   |        |                                |                                      |                |                    |                      |                     |            |            |               |                      |                        |               |
| 960             | 2116                     | 61                      | 2.054                   |        |                                |                                      |                |                    |                      |                     |            |            |               |                      |                        |               |
| 1000            | 2205                     | 64                      | 2.139                   | 2      | 116 – 421                      | 150 – 464                            | 18.83          | 2567               | 996                  | 100                 | 50         | 84         | 39            | 14                   | 76                     | 3307          |
| 1300            | 2866                     | 83                      | 2.781                   |        |                                |                                      | 24.51          | 3340               | 1296                 |                     |            |            |               |                      |                        |               |
| 1500            | 3307                     | 96                      | 3.209                   | 2      | 116 – 421                      | 150 – 464                            | 28.26          | 3852               | 1494                 | 105                 | 54         | 91         | 43            | 20                   | 80                     | 5070          |
| 1800            | 3968                     | 115                     | 3.850                   |        |                                |                                      | 33.91          | 4622               | 1794                 |                     |            |            |               |                      |                        |               |
| 2000            | 4409                     | 128                     | 4.278                   |        |                                |                                      | 37.78          | 5145               | 1995                 |                     |            |            |               |                      |                        |               |

Specifications subject to change without notice

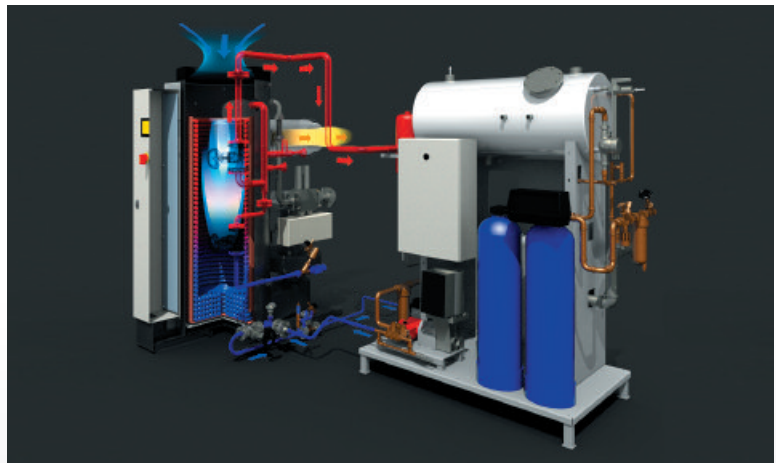
# Supply Unit **CVE**

## CERTUSS **V**erified **E**quipment for Junior & Universal TC

The **CVE** supply unit combines all components needed to supply the Steam Generator in one compact body. Instead of having to combine many single parts, our CVE offers all **necessary add-on's** for supply and water treatment in one. Thereby complex on-site installations are obsolete and factory-tested functional reliability is assured.

## F E A T U R E S

- Duplex water softening plant including Automatic dosing
- Brine tank
- Feed water tank with pre-heater
- Steam separator
- Blow-Down Vessel with automatic after cooler
- Control Panel
- Blowdown heat recovery system
- Pre -Pressure Pump
- Testomat; conductivity monitor



## A D V A N T A G E S

- All supply and water treatment components for CERTUSS Steam Generators are supplied as a single unit and are CERTUSS verified.
- Fast, economical commissioning, ready for operation
- Easy maintenance access
- Enhanced safety due to factory pre-installation of water, steam and electrical connections
- Less space required due to compact design
- Simple on site single point installation
- Complete with electrical sub distribution
- Durable galvanized base frame
- Use of approved, high quality materials
- 3D drawings available for easy design and layout



| Model          | For Steam Generators with steam output lb/h | Dimensions (inch) |       |       | Connections   |                 |                               |                                   |                |
|----------------|---------------------------------------------|-------------------|-------|-------|---------------|-----------------|-------------------------------|-----------------------------------|----------------|
|                |                                             | Height            | Width | Depth | Raw Water NPT | Waste Water NPT | Rinsing Water (softening) NPT | Ventilation (feed water tank) NPT | Condensate NPT |
| Junior         | 176 – 265                                   | 77                | 51    | 33    | 1"            | 2"              | 1/2"                          | 2"                                | 1 1/4"         |
|                | 331 – 400                                   |                   |       |       |               |                 |                               |                                   |                |
|                | 551 – 882                                   |                   |       |       |               |                 |                               |                                   |                |
| Universal      | 1102 – 1322                                 | 91                | 67    | 47    | 1"            | 2"              | 1/2"                          | 4"<br>(DN 100)                    | 1 1/2"         |
|                | 1543 – 1874                                 |                   |       |       |               |                 |                               |                                   |                |
|                | 2204 – 2866                                 |                   |       |       |               |                 |                               |                                   |                |
|                | 3307 – 4409                                 |                   |       |       |               |                 |                               |                                   |                |
| Multiple Units | 2 x 176 – 265                               | 91                | 87    | 47    | 1"            | 2"              | 1/2"                          | 2"                                | 1 1/4"         |
|                | 2 x 331 – 400                               |                   |       |       |               |                 |                               |                                   |                |
|                | 2 x 551 – 882                               |                   |       |       |               |                 |                               |                                   |                |
|                | 2 x 1102 – 1322                             |                   |       |       |               |                 |                               |                                   |                |

\*incl. connected load of steam generators

Specifications subject to change without notice

# Modular Steam Plant

If your steam capacity or load requirements exceed a single generator output; if you wish to comply to a strict local boiler code taking advantage of the **latest technology** in the field and the high safety standards it can secure; if the presence of a standby ready-to-use unit is prescribed or wished to avoid standstills at any cost: CERTUSS can cater for your requirements by offering a **CERTUSS Multiple Plant Solution**. CERTUSS can supply many options to serve your steam demand requirements, be it a simple duty-stand by facility or a **flexible cascade system** for the more complexed varying load requirements. With connection of the Generators to one CERTUSS Skid Mounted Package Plant Module (CVE), **steam capacities up to 512 BHP** (17,600 lb/h) are available.

Furthermore, the modular design of CERTUSS enables planning of **future expansions** without major modifications of the equipment, other than incrementally installing up to three additional steam units to the same CVE as soon as the steam requirements demand it.

## A D V A N T A G E S

- Runtime equalization for an entire steam plant
- Higher turndown
- Instantaneous steam output adjustment
- Back up availability
- Peak time coverage
- Single source accountability



Specifications subject to change without notice

# Modular Steam Plant

Example illustrating the space advantage of a CERTUSS Modular Steam Plant in comparison to a traditional fire tube boiler:

## Footprint of a traditional 100 BHP firetube boiler\*: 98 sq.ft.

(\*excl. interconnection piping and water supply and treatment equipment; space required for pulling the firetubes; clearances on the front, rear, sides, and top of the firetube boiler for operation, maintenance and inspection)



## Footprint of a CERTUSS modular steam plant, comprising of 2 x 100 BHP steam generators with a package plant unit CVE, featuring two steam separators, two pre-pressure pumps, a 26 gal blow-down vessel, feed water stainless-steel tank insulated, sample cooler, automatic dosing instrument, feed water softening plant and the complete interconnection piping: 102 sq.ft.



Specifications subject to change without notice

# Containerized Package Plant

The CERTUSS **fully equipped container unit** is our solution in case isolation from the rest of your plant is required. It contains all components necessary to operate an entire plant.

After connecting the main services and commissioning, steam is at your disposal in **less than 5 minutes**. The self contained unit is **flexible**, allowing permanent, as well as temporary positioning.

On inquiry we can take over full or partial installation of the steam system. If you choose to contract out to other companies, we can carry out consultation and supervision for your containerized unit.

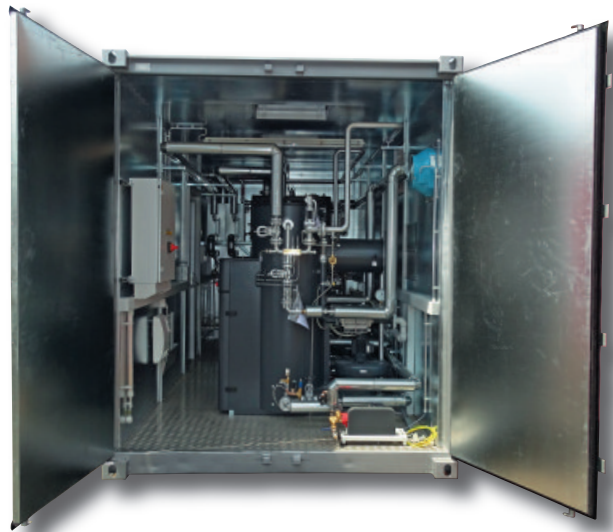
## F E A T U R E S

- Steam Generator(s)
- CVE supply unit
- Softening plant
- Pressure reducing station
- Steam distribution header
- Blowdown vessel with automatic after cooler
- Steam separator
- Condensate header
- Emergency stop switch
- ...and more



## A D V A N T A G E S

- Customizable
- Space saving
- Complete installation of both Mechanical and Electrical components, leaving only site service connections to be made
- Fully insulated walls for protection of equipment against adverse weather conditions
- High grade steel walls internally and externally
- European standard paint finish to customer specification
- Fully insulated pipe services internally of the container
- Optional steel door or UPVC door to suit customer specification
- Full internal lighting
- Full internal heating
- Flexible for temporary or permanent location positioning; Mobile unit
- Removes requirement for separate boiler-house
- Allows customer full usage of valuable process floor space
- Access space for maintenance work is fixed
- Reduced costs for site installation work



### A D V A N T A G E S

- Start-up time of **3-5 minutes** with steam available
- **Minimal floor requirement**
- Up to **85%** thermal efficiency\*
- Reduced corrosion due to **vertical** orientation
- Low water carrier equals **safe operations**
- **Fully automated, unmanned operation** available
- Silent operation, less than **75 dBA sound pressure**
- Reduction of piping costs due to **decentralized** plants
- **7" Touchscreen** display
- Remote access via **Ethernet, Wi-Fi or GSM (Cellular)**
- Remote maintenance and control possible with **iPad or iPhone**
- Predictive maintenance: informing of potential issues **before** they occur
- Redundancy with **multiple plant solution**
- Mildly warm operating generator due to **triplex air insulation vessel**
- Minimal and easy maintenance with spare parts available **up to 20 years**
- **24/7/365 aftersales support**
- **Less pollution** through low water drainage



\* NG = 1004 BTU/F<sup>3</sup>, Feedwater = 68 °F, Steam = 212 °F. Subject to be changed.

## C H E C K L I S T

- ☐ 1. Do you want **quick start-up times** and steam almost **instantaneously**?
- ☐ 2. Do you have a boiler constantly in hot **standby** mode?
- ☐ 3. Do you want to be more **environmentally friendly**?
- ☐ 4. Do you experience **fluctuations** in steam demand?
- ☐ 5. Do you have **limitations in space** or want to use your space more **efficiently**?
- ☐ 6. Do you want to operate your generator **remotely** without having an operator on site all the time?
- ☐ 7. Do you currently have an **aging** boiler?
- ☐ 8. Do you face difficulties obtaining **replacement** and **spare parts** for your boiler?
- ☐ 9. Do you experience efficiency losses due to long **distances** between the **production** and the **use** of steam?
- ☐ 10. Do you prefer a **point of use** steam source?
- ☐ 11. Do you have **maintenance** issues with your current boiler?
- ☐ 12. Do you have confidence in the **quality and reliability** of your existing boiler?

If you checked **4** or more of these questions you should consider buying a new, high efficiency steam generator by **CERTUSS!**



# Customer Installations



Food & Beverage



Laboratories



Healthcare



Mechanical Engineering



Service Industry



## **CERTUSS America L.P.**

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