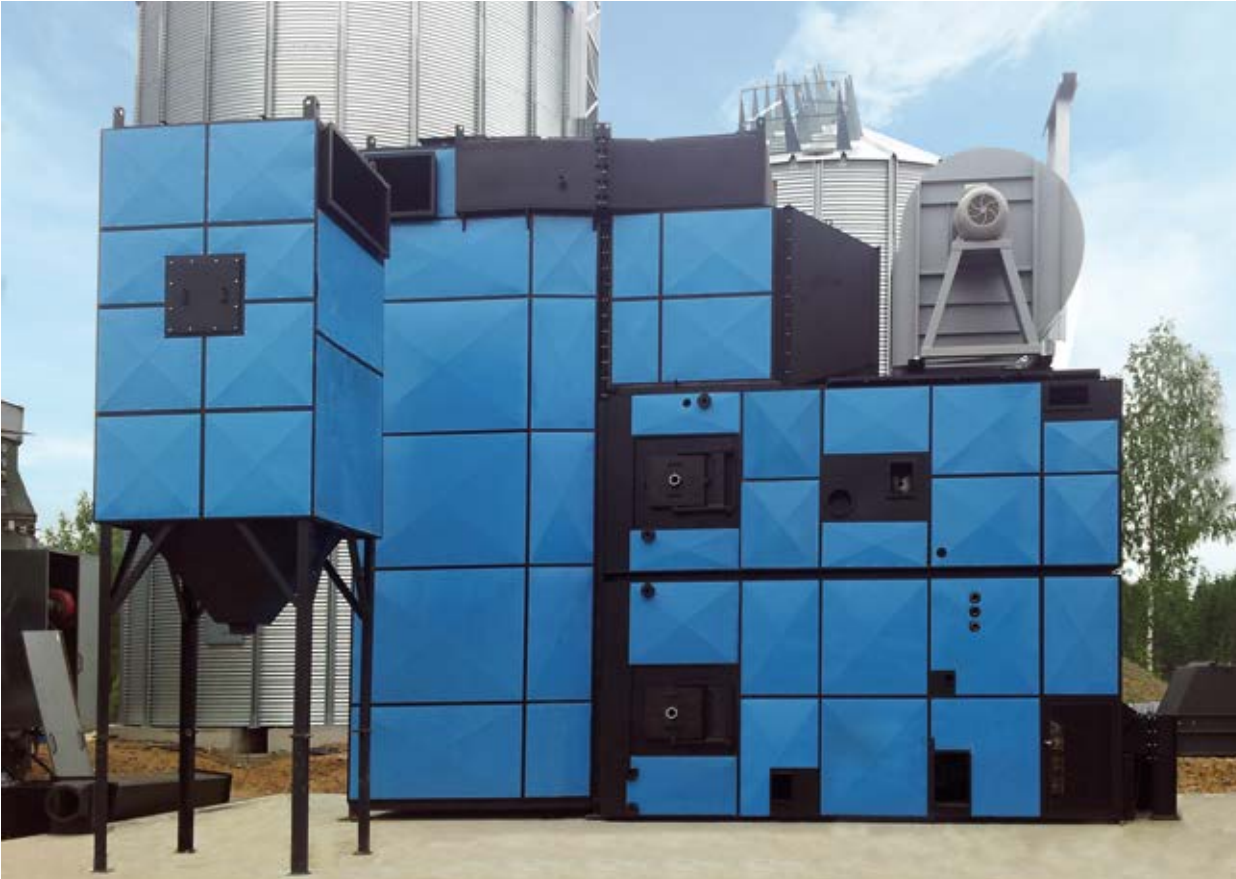




POWER AND HEAT FROM WOOD AND BIOMASS

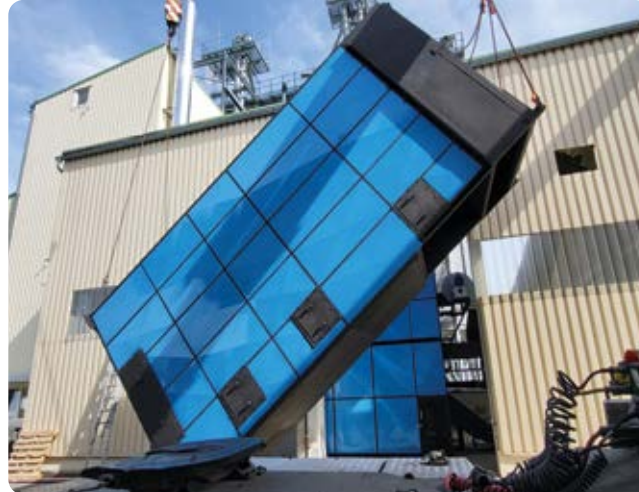
35 years experience in biomass energy

OUR SERVICES



ENGINEERING

- Plant concepts
- Business planning
- Preliminary projects
- Basic engineering
- Detailed engineering
- Supervision



CONSTRUCTION

- Production of equipment
- Assembly and installation
- Cold test
- Warm test
- Start-up
- Regulation



OPERATION

- Optimalization
- Training
- Handover
- Service
- Fuel management
- Plant management



HotAir Generation Plants

- Agricultural dryers
- Industrial dryers
- Object heating



Process Energy Plants

- District heating
- Industrial production plants
- Object heating



BIOMASS Power Plants

- Wood industry
- Industrial production plants
- Heating applications

PLANT PARAMETERS



FURNACES

POWER UP TO 15 MW_{TH}

WOOD CHIPS, BARK, BIOMASS

OIL OR GAS FOR PEAK LOAD

EXCHANGERS

HOT WATER UP TO 220 °C

STEAM UP TO 35 BAR / 500 °C

HOT AIR UP TO 750 °C

GENERATORS

POWER UP TO 5 MW_{EL}

ASYNCHRON & SYNCHRON

HEATING OUTPUT UP TO 150 °C

BIOMASS FUELS



Biomass fuel specification

Calorific value: 1,9 - 5,2 kWh/kg

Water content: 15 - 55 %

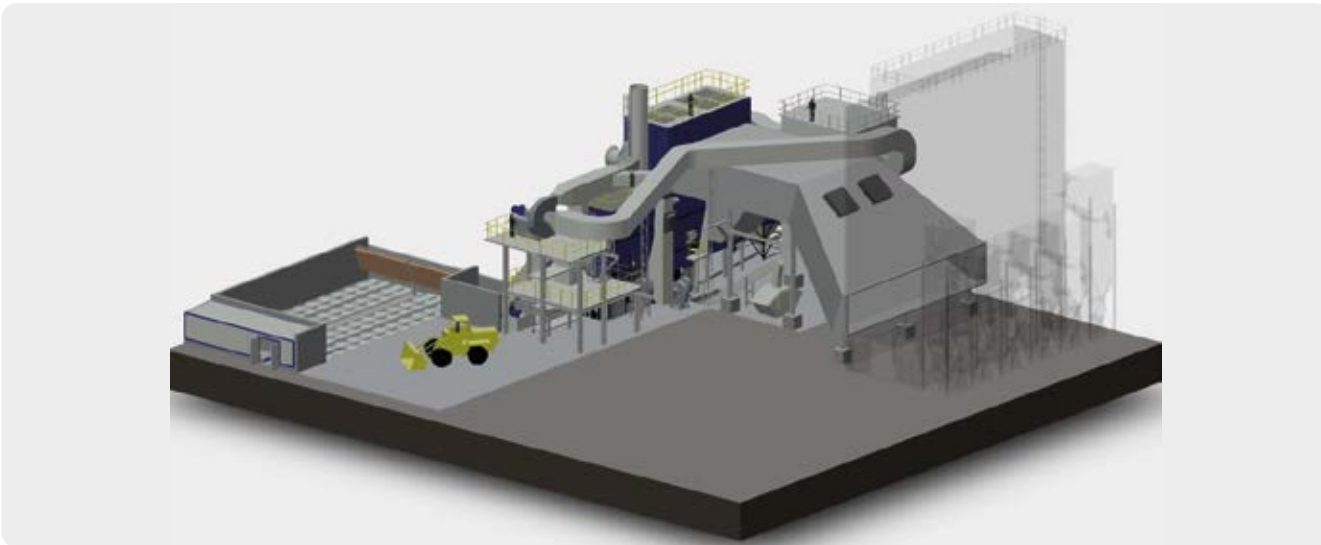
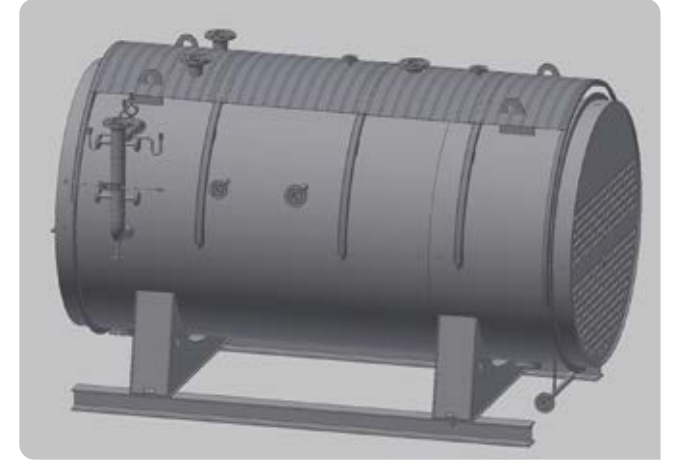
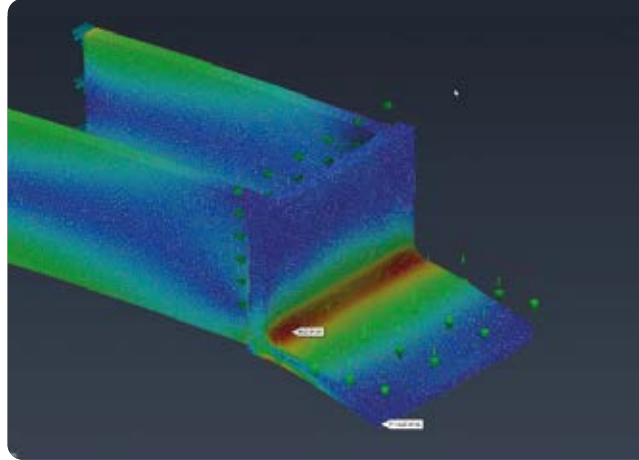
Particle size: 1 - 250 mm

Ash melting point: > 950°C

Further important indicators:

Nitrogen-, Chlorid-, Sulfur content





- ✓ Project specific plant design
- ✓ Permanent product optimization
- ✓ Modern construction software
- ✓ 3D component engineering
- ✓ External design reviews

EQUIPMENT PRODUCTION



- ✓ Modern production facilities
- ✓ Quality control systems
- ✓ 2014/68/EU and EN12953 certified
- ✓ TÜV approvals
- ✓ Certified welding technologies



INDUSTRIAL QUALITY



- ✓ Generous dimensioning
- ✓ Heavy steel constructions
- ✓ High quality production
- ✓ Long-term stability
- ✓ High developed automation



BIOMASS FURNACES



12.000 kW furnace / Germany



4.000 kW furnace / Austria



2 x 9.000 kW furnace / Poland

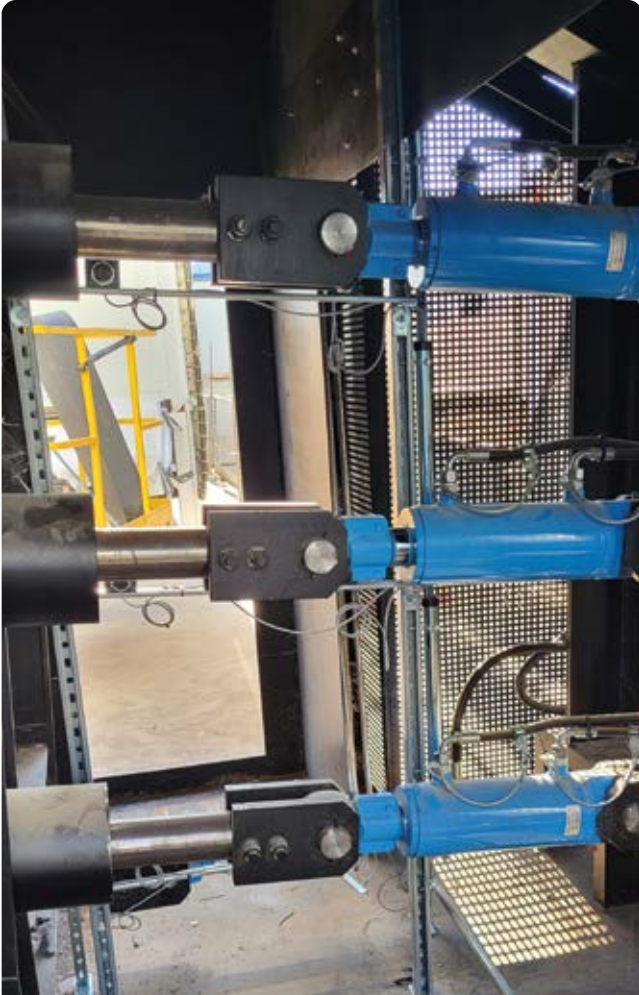


6.200 kW furnace / Austria



14.500 kW furnace / Spain

COMBUSTION GRATE



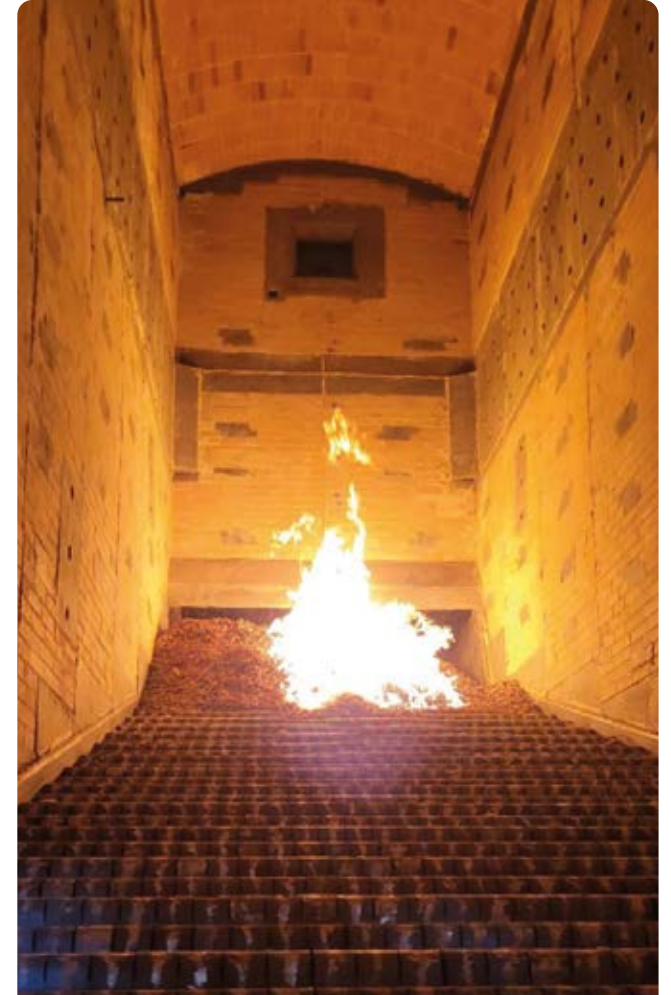
Hydraulic grate drive



High quality grate elements



Combined retort/step grate 5.000 kW



Step grate furnace 14.500 kW

HEAT EXCHANGERS



Hot air exchanger 14.500 kW / 90°C



Hot air exchanger 4.000 kW / 150°C



Hot air exchanger 4.000 kW / 130°C

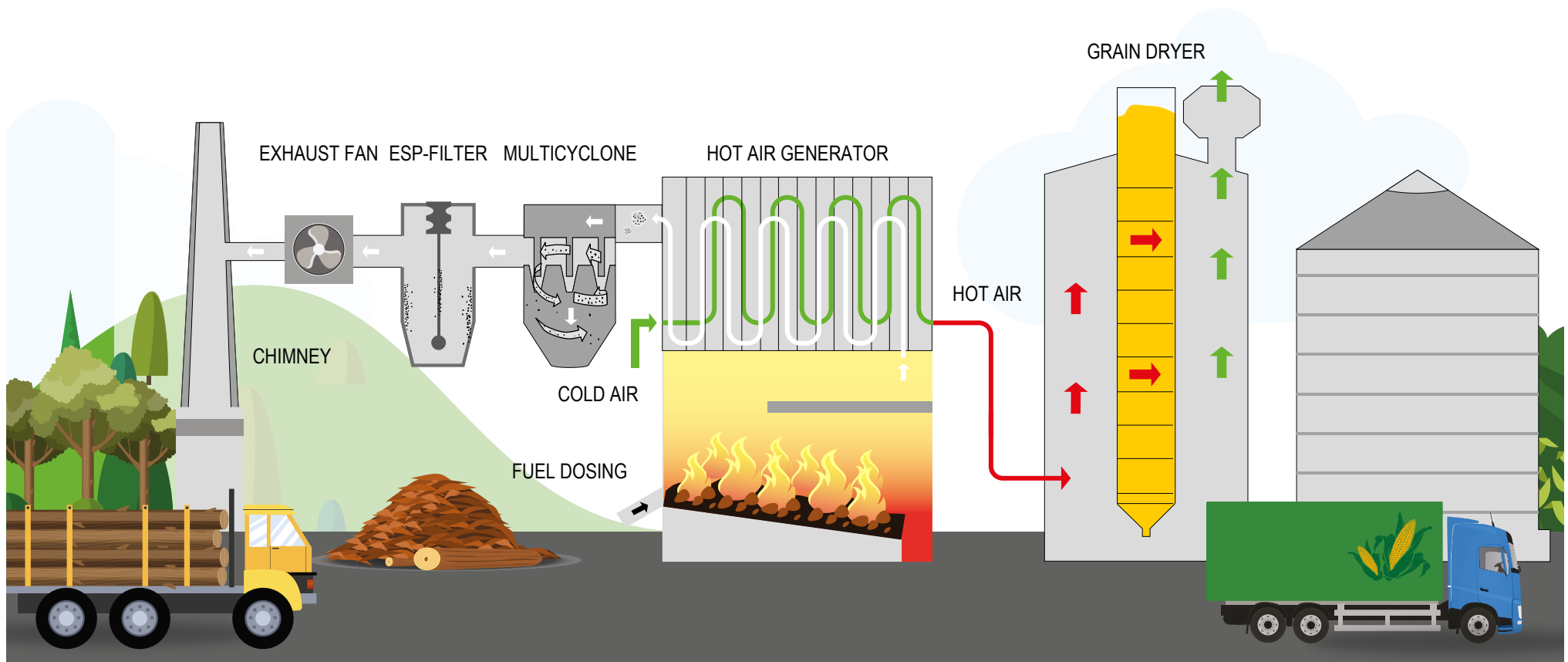


Hot water boiler 1.500 kW / 180°C

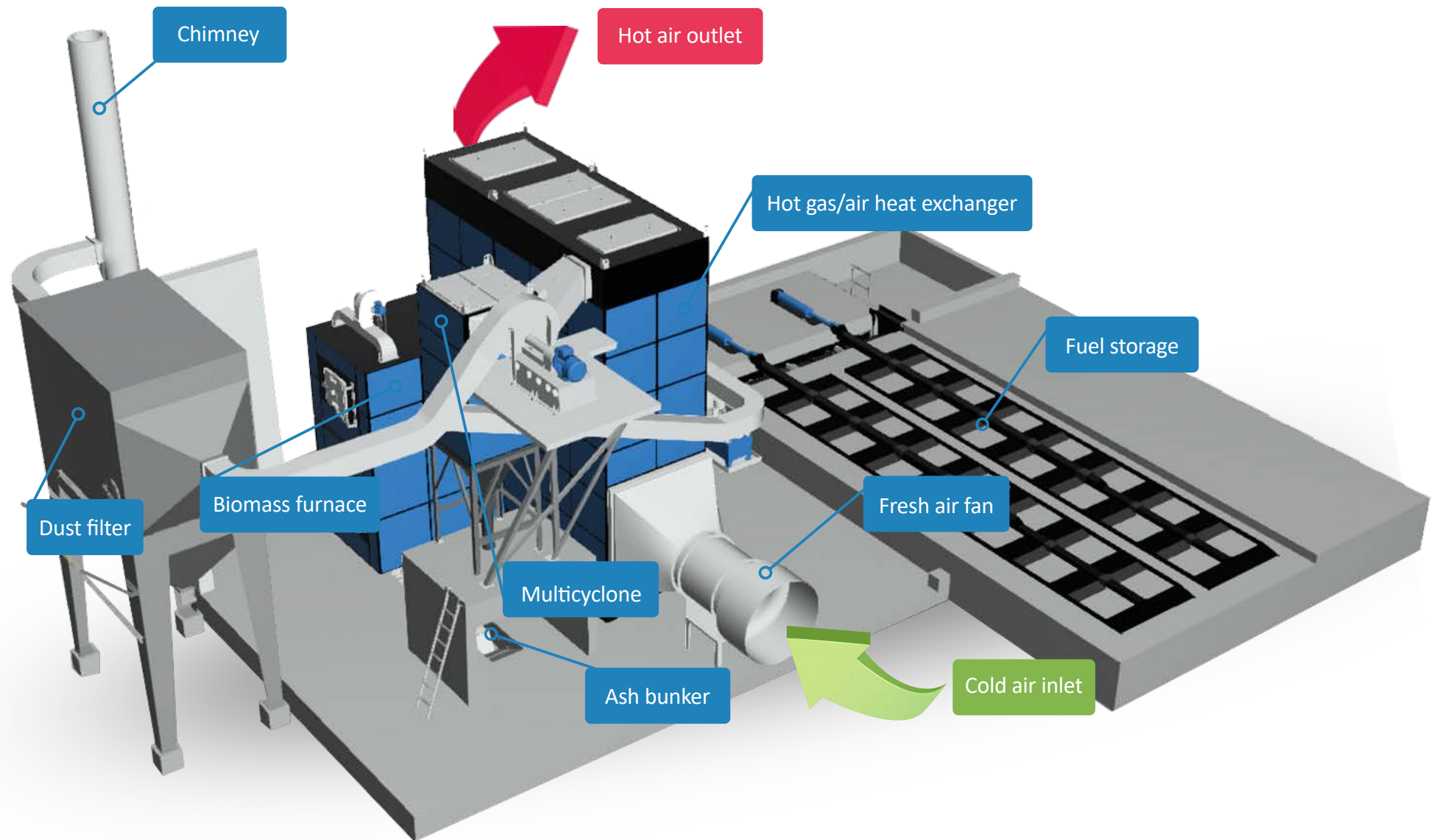


Steam boiler 16 bar / 5 tph

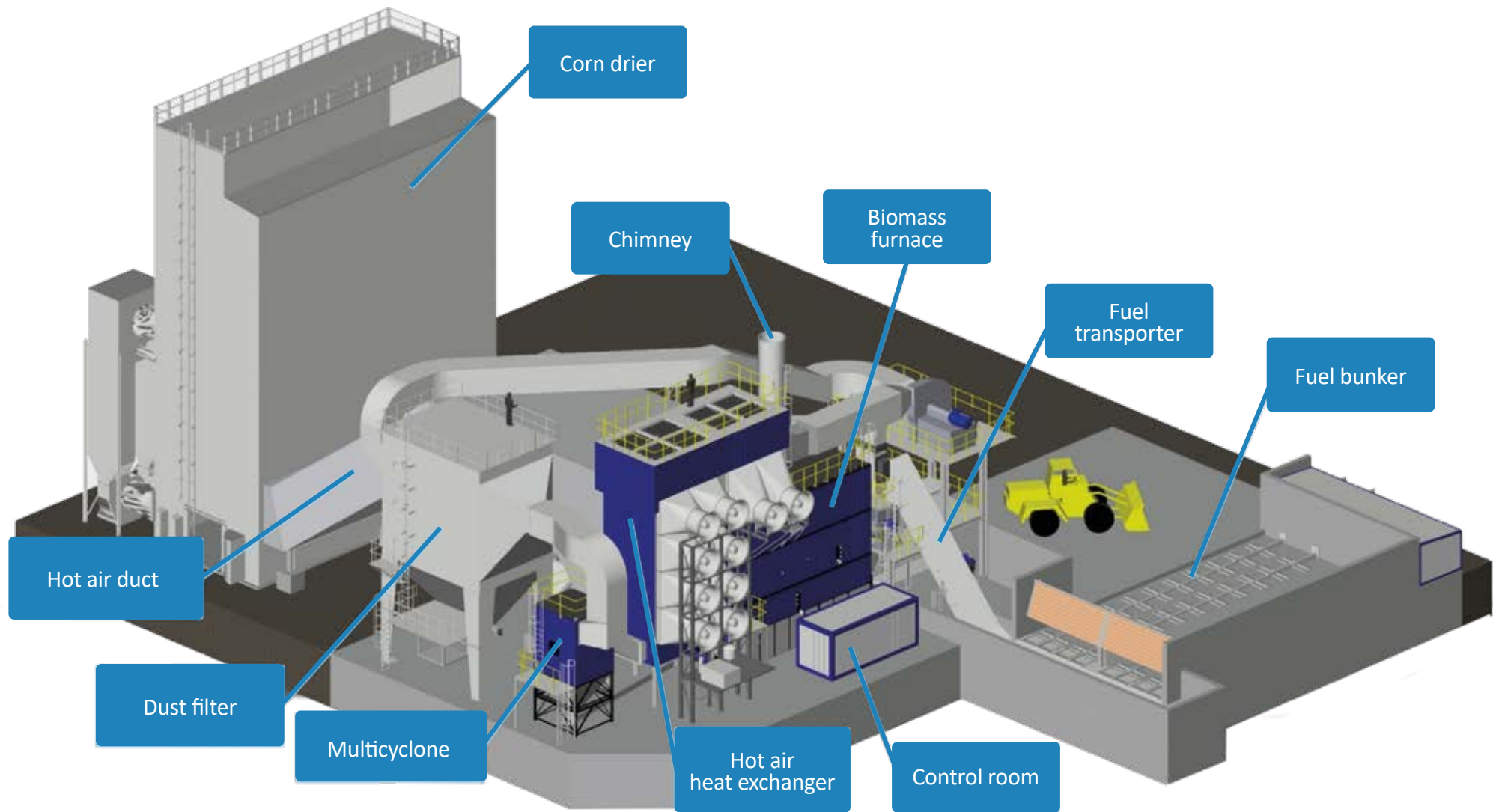
ICS HOTAIR TECHNOLOGY



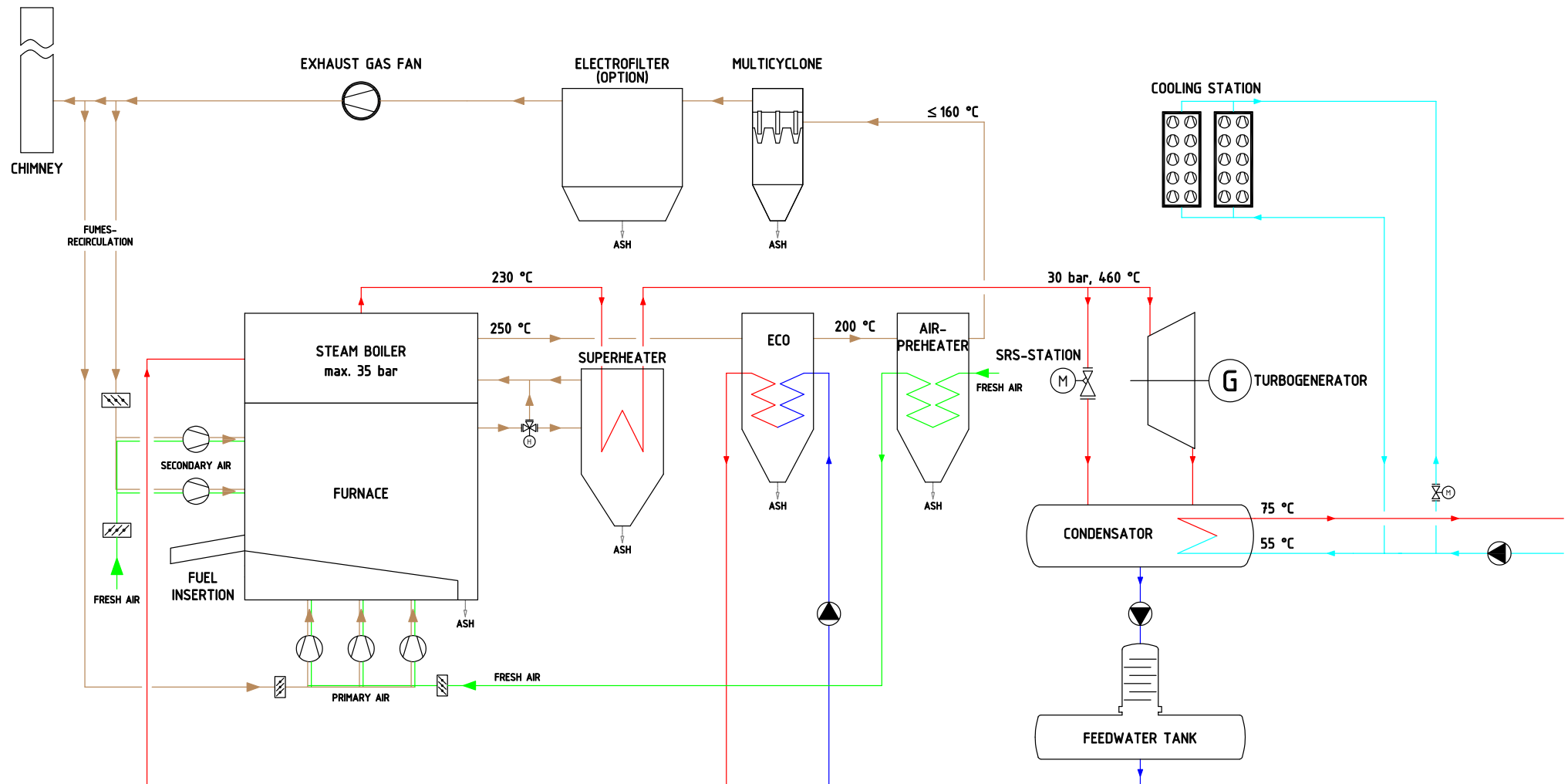
ICS HOTAIR HLE 3000.150



HI-PERFORMANCE TYPE HLE 15000.90

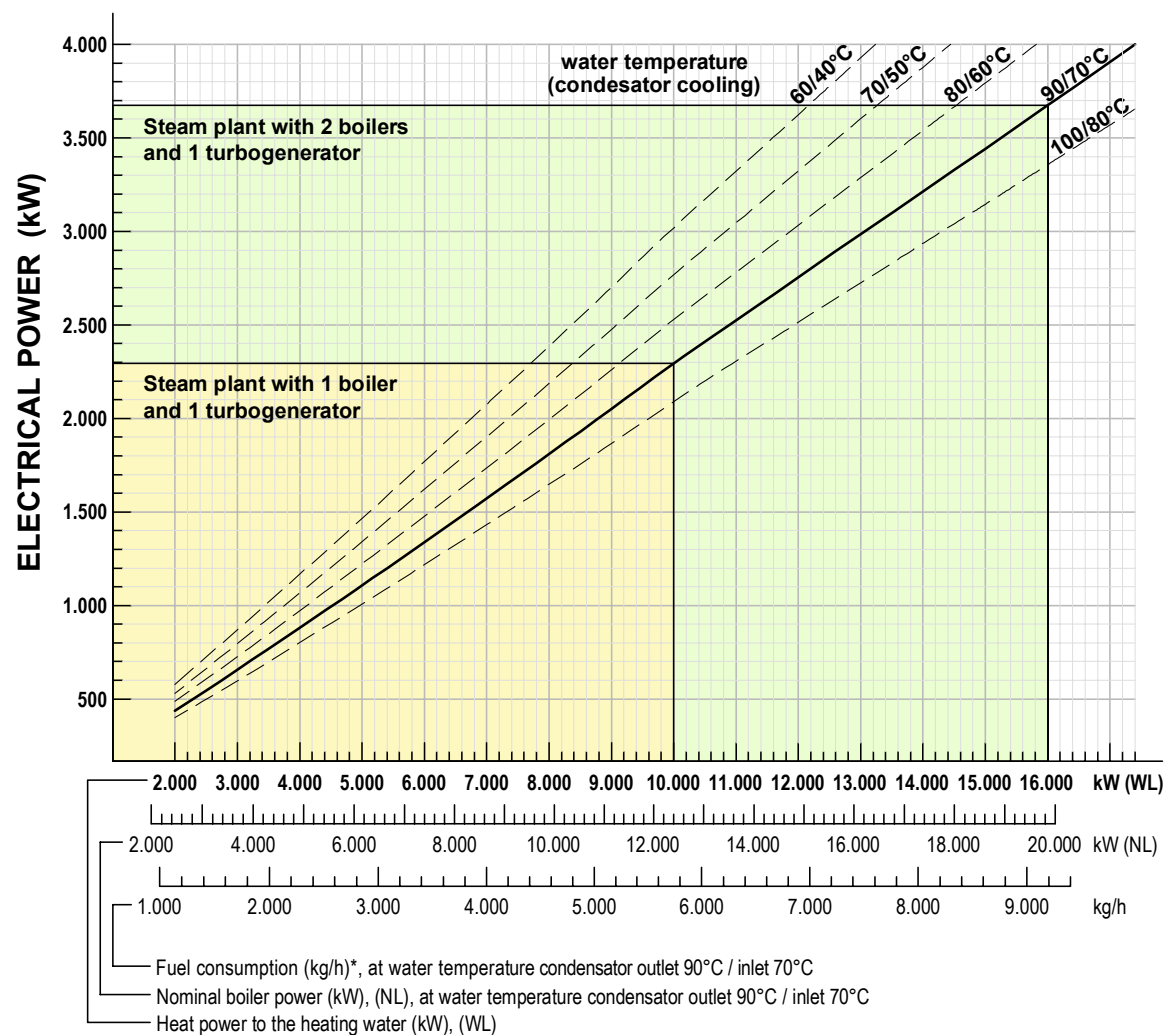


ICS CHP TECHNOLOGY



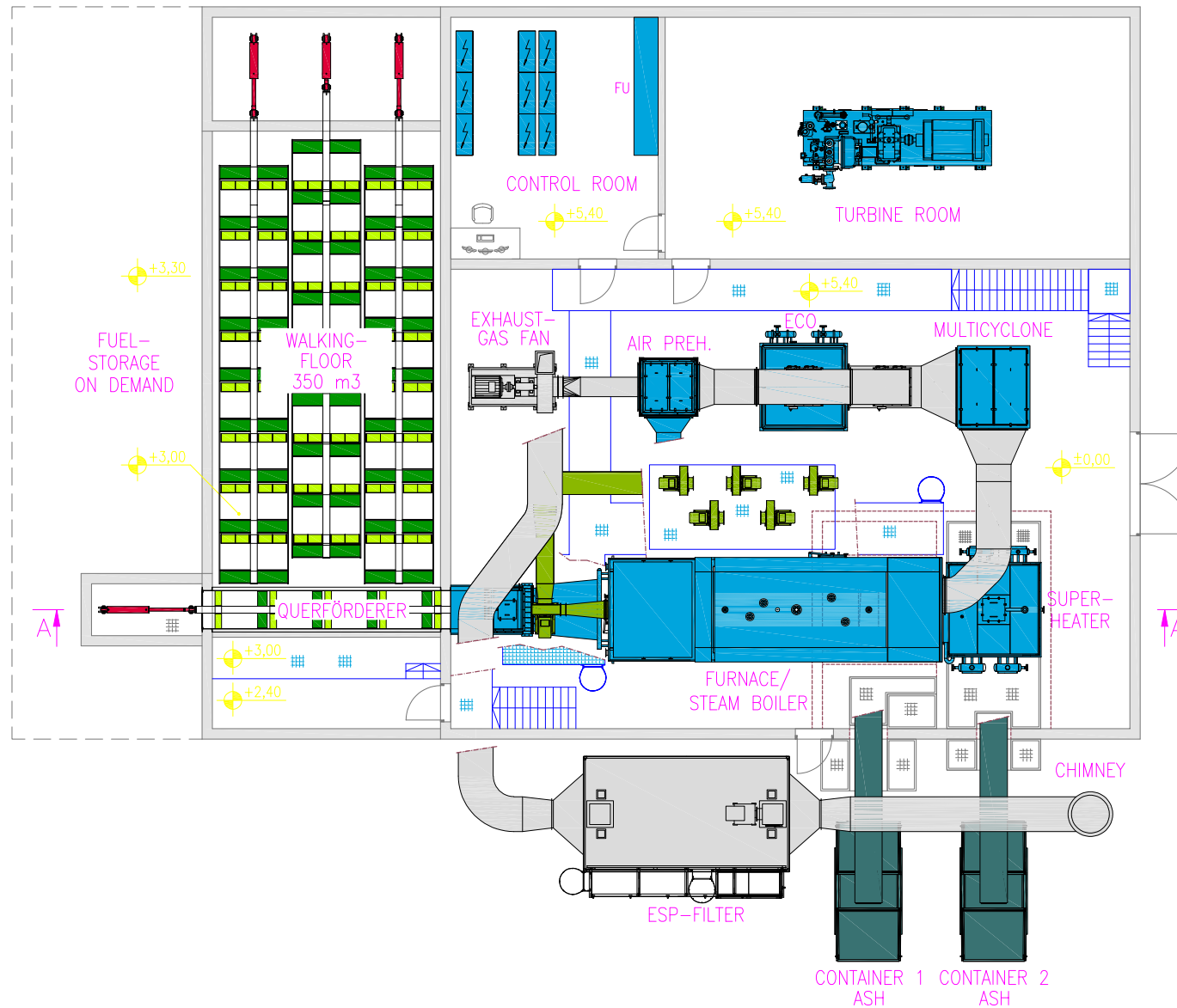


APPROXIMATION FOR TURBOGENERATOR DESIGN



*Calorific value = 2,7 kWh/kg, water content = 40% / Ash content = 3%, Fuel mix hard and soft wood = 50/50, boiler efficiency = 80%

ICS CHP TECHNOLOGY



ICS CHP PLANT 2 MWel



REFERENCE PLANTS



MITTERER GMBH

Austria

Hot air supply for drying systems

Dryer power: 2 x 6 t/h + 1 t/h

Drying product: corn, soy

Dryer producer: Strahl

Heating power: 2.000 kWth

Fuel: Bark



REFERENCE PLANTS



TSCHIGGERL AGRAR

Austria

Hot air supply for drying systems

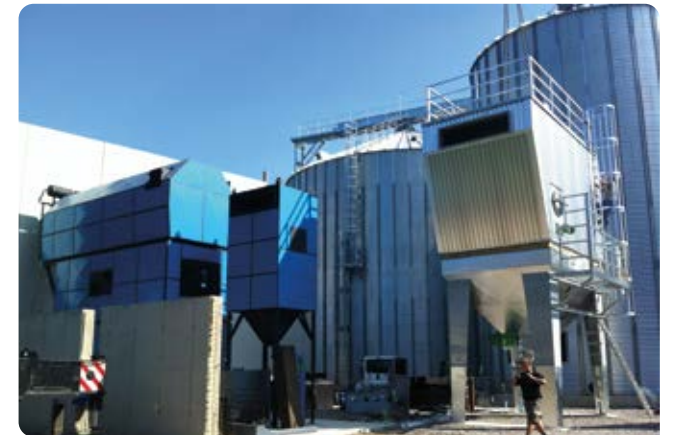
Dryer power: 16 t/h + 2 t/h + 1 t/h

Drying product: corn, pumpkin seeds, beans

Dryer producer: Strahl, KWA

Heating power: 3.000 kWth

Fuel: corn cobs, straw



REFERENCE PLANTS



VILJAMAA OÜ

Estonia

Hot air supply for grain driers

Dryer power: 40 t/h

Drying product: rape seed, grain

Dryer producer: Alvan Blanch

Heating power: 4.000 kWth

Fuel: Wood chips, grain residues



REFERENCE PLANTS



ZIPO D.O.O.

Slovenia

Hot air supply for corn and alfalfa drier

Dryer power: 16 t/h

Drying product: corn, soy

Dryer producer: Zanin, Alvan Blanch

Heating power: 3.000 kWth

Fuel: corn cobs, wood chips



REFERENCE PLANTS



TAMME KUIVATID

Estonia

Hot air supply for grain drying systems

Dryer power: 2 x 20 t/h

Drying product: rape seed, grain

Dryer producer: Stela

Heating power: 3.000 kWth

Fuel: Wood chips



REFERENCE PLANTS



AGRARSERVICE GRAFENEGG

Austria

Hot air supply for corn drying system

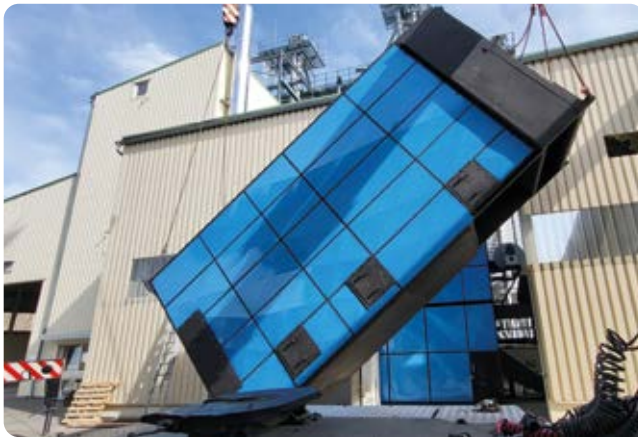
Dryer power: 20 t/h

Drying product: Corn

Dryer producer: Alvan Blanch

Heating power: 4.000 kWth

Fuel: wood chips



REFERENCE PLANTS



SIEDER KG

Austria

Hot air supply for corn and alfalfa drier

Dryer power: 20 t/h

Drying product: Corn and Alfalfa

Dryer producer: Alvan Blanch

Heating power: 4.000 kWth

Fuel: wood chips



REFERENCE PLANTS



QUALITY CORN

Spain

Hot air supply for corn drying systems

Dryer power: 10 + 10 + 30 t/h

Drying product: corn

Dryer producer: Bühler AG

Heating power: 14.500 kWth

Fuel: Wood chips, corn straw



REFERENCE PLANTS



SARL FEROS

France

Hot air supply for corn drying system

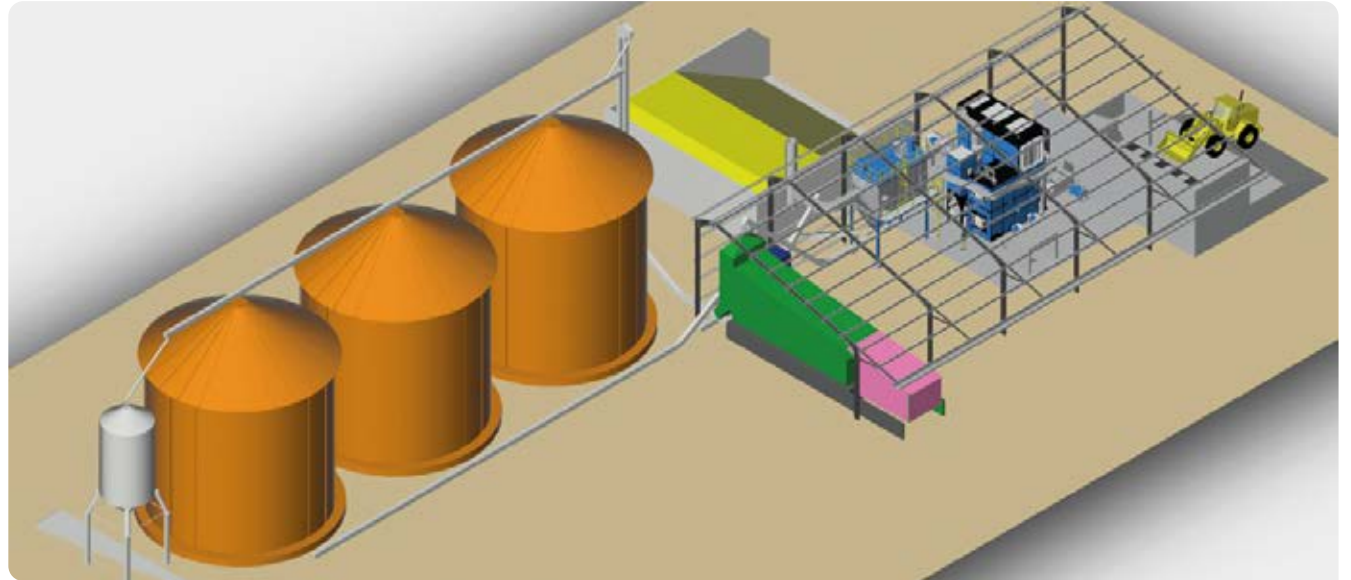
Dryer power: 20 t/h

Drying product: corn

Dryer producer: Alvan Blanch

Heating power: 3.000 kWth

Fuel: wood chips



REFERENCE PLANTS



AGRARSERVICE GRAFENEGG

Austria

Hot air supply for corn drying system

Dryer power: 10 t/h

Drying product: corn

Dryer producer: Alvan Blanch

Heating power: 1.500 kWth

Fuel: wood chips



REFERENCE PLANTS



BLACK RED WHITE

Poland

Biomass CHP for furniture production

Turbine power: 2.600 kWel

Boiler power: 2 x 6.000 kWth

Steam parameters: 460°C and 35 bar

Fuel: MDF- and furniture waste



REFERENCE PLANTS



FERNWÄRME MURAU

Austria

Biomass CHP and heat supply of city and private objects

Turbine power: 680 kWel

Boiler power: 5.000 kWth

Steam parameters: 520°C / 35 bar

Fuel: Wood chips and bark



REFERENCE PLANTS



BIOENERGIE STAINACH

Austria

Biomass CHP and steam supply for dairy production

Turbine power: 1.500 kWel

Boiler power: 2 x 6.200 kWth

Steam parameters: 420°C / 30 bar

Fuel: wood chips, bark



REFERENCE PLANTS



ENERGIEPARK WIESMOOR

Germany

Biomass CHP for heat and power supply
for green houses

Turbine power: 2.400 kWel

Boiler power: 12.500 kWth

Steam parameters: 500°C / 35 bar

Fuel: waste wood



REFERENCE PLANTS



MEBEL-SERVICE

Ukraine

Biomass CHP for furniture production

Turbine power: 2.200 kWel

Boiler power: 10.300 kWth

Steam parameters: 500°C / 35 bar

Fuel: wood chips, waste wood





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