STEAM SUPERHEATER

Acceptance at the workshop:
according to the European Pressure Equipment Directive PED (2014/68/EU)

CE-Marking on the Pressure Vessel:
according to the European Pressure Equipment Directive PED (2014/68/EU)

Design code: EN 12953

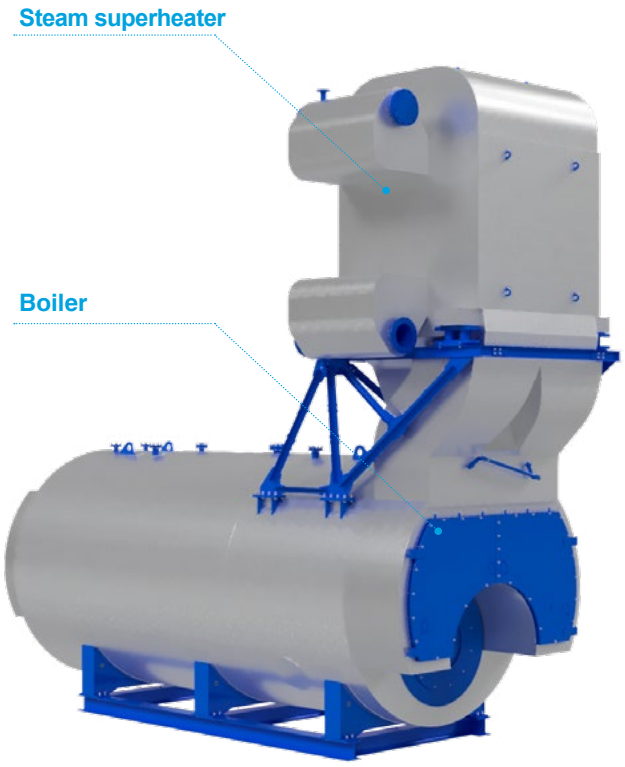
Designation of the steam superheater

The steam superheater allows to superheat steam produced by the boiler to temperatures above the saturation point at design pressure.

The superheater is basically a heat exchanger made of bent coils combined on one panel. It is installed onto the rotary chamber of the boiler. The superheater is connected on the heating side to the gas path of the boiler after the second flue. Gases having given up their energy in the superheater return to the third flue of the boiler.

On the heated side the superheater is connected to the source of saturated steam produced by the boiler. Steam circulates inside coils, gets overheated, and is supplied to the user.

Superheating temperature can be adjusted to maintain it at a specified level at operation in the specified load range. Regulation can be performed either by controlling the gas flow at the superheater inlet or by admixing saturated steam to superheated steam using a three-way valve.

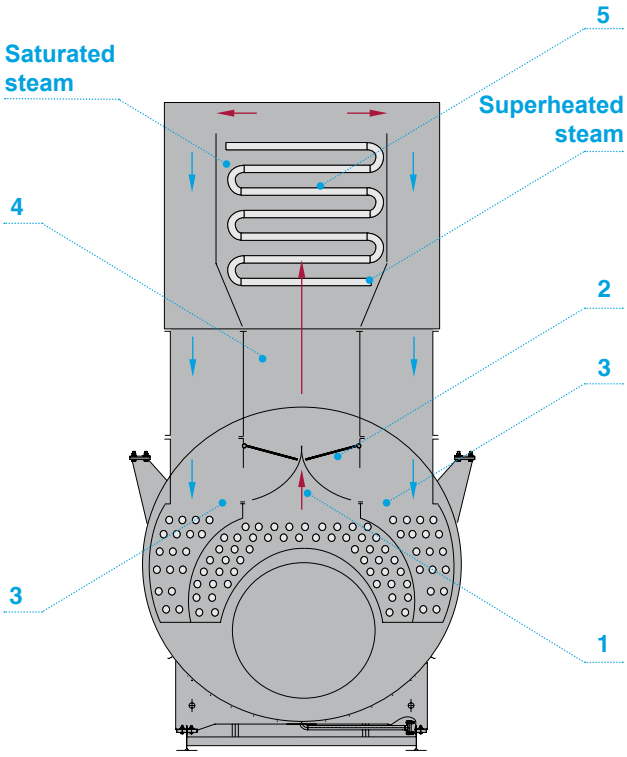


Steam boiler with capacity of 25 tons of steam per hour complete with superheater

Superheater operation

High-temperature gases from second flue (1) enter damper chamber (2). Depending on the damper position gases are directed either back to the third flue of boiler (3), or to the gas outlet of superheater (4). Coils (5), are provided in the superheater and saturated steam coming from the boile passes through these coils. When travelling through coils, steam is heated to the required temperature by gases of the second flue.

Superheaters can also be manufactured without a damper chamber.



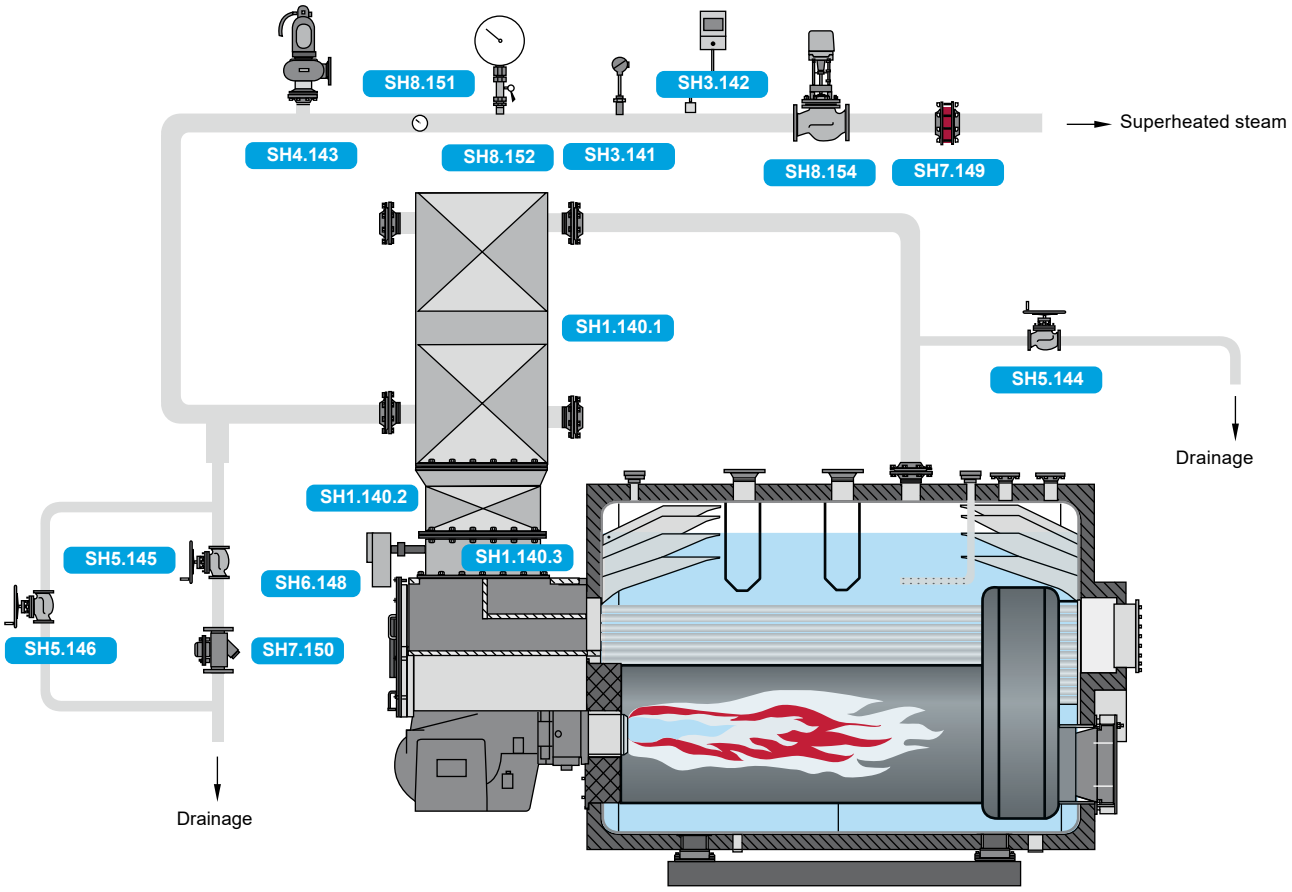
1. Second flue gasses
2. Damper chamber
3. Third boiler flue
4. Gasses outlet
5. Coil

Overall and mounting dimensions

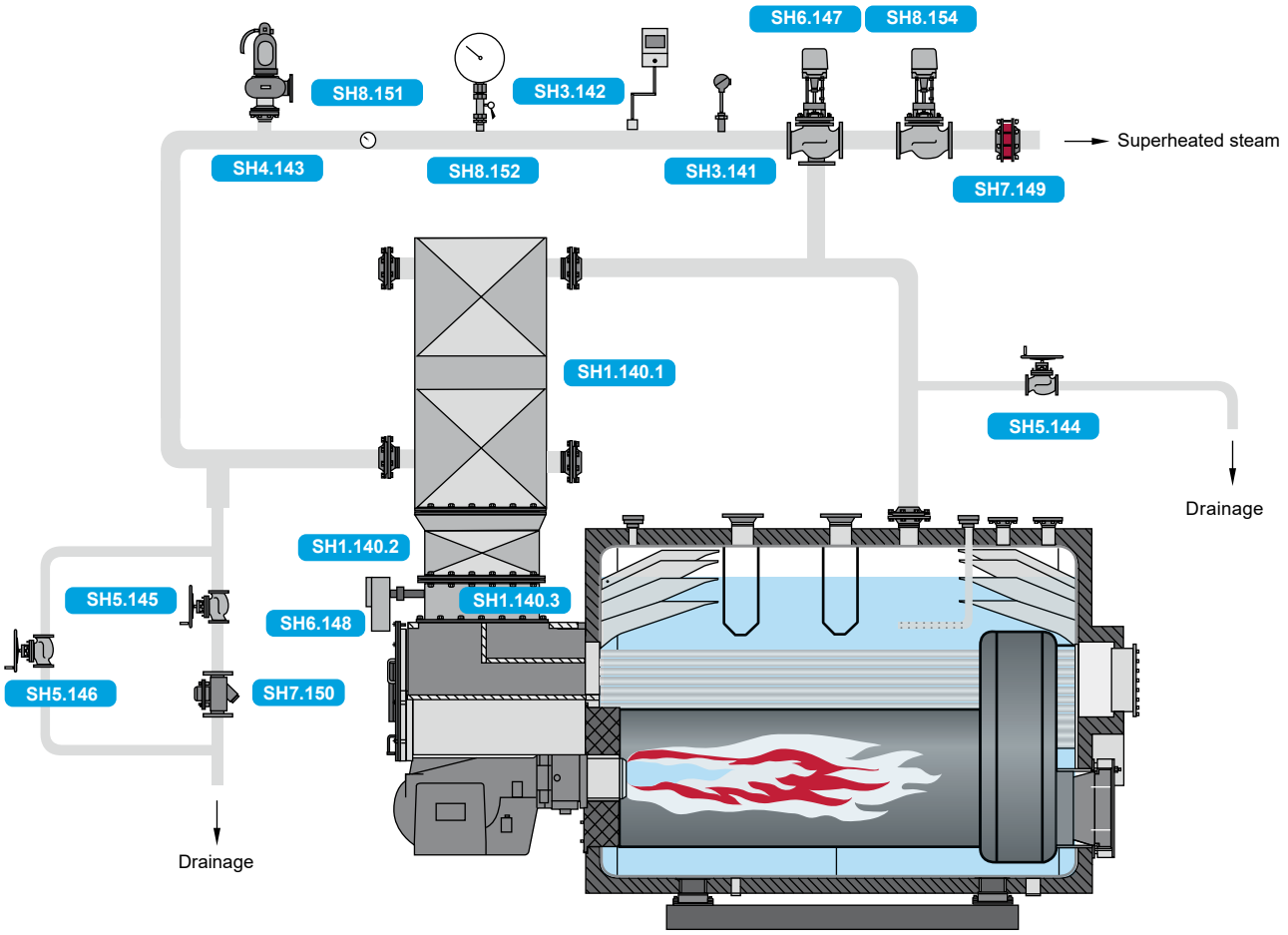
Technical data of the superheater shall be recorded in the check list at order finalization. The superheater is an integral structural part of a steam boiler. Drawings and technical specifications of the superheater are presented in the boiler data sheet.

Connection piping diagram

Schematic drawings presented in this section serve to explain functional processes and do not claim to be complete in relation to structural details.



SH1.140.1 Steam superheater
SH1.140.2 Gas flue
SH1.140.3 Damper chamber
SH3.141 Boiler temperature transducer
SH3.142 Limiting thermostat
SH4.143 Safety relief valve
SH5.144 Boiler drainage valve
SH5.145 Check valve
SH5.146 Superheater drainage valve
SH6.147 Steam control valve
SH6.148 Damper motor
SH7.149 Check valve
SH7.150 Condensate pot
SH8.151 Submerged thermometer
SH8.152 Pressure gauge
SH8.154 Steam cutoff valve



Transportation

The superheater shall be loaded onto vehicles by cranes with sufficient lifting capacity, equipped with cross-beams and lifting devices.

The superheater shall be fixed on vehicles as per cargo loading and securing specifications for the relevant type of transport.

Transportation can be performed by any type of transport in conformity with cargo transportation rules in force for this type of transport.

Where possible, vibrations shall be avoided during transportation.