

ECONOMIZER

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

Economizer designation

The economizer of a steam boiler is designed for feedwater heating using the energy of exhaust flue gases. Flue gases leaving the boiler flue box enter the economizer cavity and flow through the working gas circuit into the heat exchange chamber. Bundles of bare pipe coils are provided in the heat-exchange chamber, and the heat energy of gasses is transferred to walls of coils and to the coolant flowing inside coils (feedwater). The bypass channel for flue gases is provided in the economizer design which channel is designed to direct the flow of gases bypassing the heat exchange chamber. Switching between the channels is performed with the aid of the damper.

Coolant moves in the direction of flue gases from the inlet manifold to the outlet. Coolant flow rate is equal to the flow of feedwater required for a particular steam boiler.

To provide normal operating conditions, the economizer shall be equipped with fittings, safety devices and control/measuring devices installed at the inlet and outlet of the economizer. If a feedwater cutoff scheme is used, it would be necessary to provide safety relief valves upflow of stop valves on the economizer side.

General view of economizers for steam boilers is presented in the figure, main overall and mounting dimensions are specified in the table. This type



Extension economizer

of economizer can operate with any type of fuels approved for use in steam boilers.

As to the design, economizers can be classified into extension type (installed behind the boiler on its axis) and into superstructure type (installed on the flue box). Heat exchange surfaces can be either smooth tube coils panels or ribbed tube panels.

Overall and mounting dimensions

Nominal boiler steam-generation capacity (t/h)	1	2	3	4	5–7	8–11	12–15	16–18	20–23	25	28–30
Water temperature at economizer inlet, °C, not less than	104										
Operating water pressure, MPa	1.6										
Economizer tube bundle width, mm	150	225	225	300	375	450	600	750	900	1125	1350
Economizer tube bundle depth, mm	712	712	1012	1012	1512	1512	1512	1512	1512	1512	1512
Economizer tube bundle height, mm	900	900	1200	1200	1200	1200	1200	1200	1200	1200	1200
Economizer mass, kg	on request	on request	on request	on request	on request	on request	on request	on request	on request	on request	on request

Supply package

The economizer is a ready-to-use product and is supplied assembled into a single transportable module (complete device).

The economizer is delivered on a pallet packed in a protective film ensuring safekeeping and protection of the device at proper transportation and storage.

All openings shall be protected from moisture and dirt ingress by plugs.

Supply package shall include:

- economizer assembly;
- Operation Manual;
- data sheet (in the scope of the boiler data sheet).

Transportation

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

The economizer 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.