

New heating system reduces CO₂ emission by 600 tonnes!

The old electrode warm-water boiler at the RWE Regional Centre, Münster, had seen better days. It was no longer technically up to date, and with its large buffer storage tanks, it took up too much space. An overhaul of the heating system was therefore the obvious course.

ELCO's solution: two cascaded RENDAMAX 3602 gas condenser boilers. The result is a reduction of the CO₂ emission by 600 tonnes a year! A further benefit: the new double-boiler system takes up only 80 m² of floor space, instead of 600 m².

An ideal solution was also found for the financing. The heating contractor, RWE Energiedienstleistungen GmbH (ED), finances and operates the system and undertakes the maintenance and repair. Bottom line: the customer RWE has no investment costs, does not have to take risks, and receives the latest technology plus reliable service.

Customer

RWE
Regional Centre
Münster

Executive specialist partner

RWE Energiedienstleistungen GmbH (ED)
Dortmund



BENEFITS

Efficiency

- Tapping of potential for energy-saving through heating-system contracting
- Reduction of the CO₂ emission by 600 tonnes
- Quick amortisation through energy savings and reduced operating costs

Convenience

- Compact construction, small space requirement

- Extremely low emission levels and quiet operation
- Flexible adjustment of power through wide modulation ranges

Reliability

- One hundred percent operational reliability through cascaded system
- Maintenance, repair and procurement of replacement parts by the contractor
- No investment risk

Energy efficiency project for the RWE Regional Centre, Münster

From the old boiler to the modern heating system

The starting point

The old system: inefficient and sluggish

The basis was an electrically operated heating boiler with 3 buffering tanks of 80,000 litres each. At night, the excess energy was used to heat the buffers. The system as a whole was inefficient and sluggish. The boiler not only used up too much energy; with its large buffering tanks it also took up a tremendous amount of space. In the course of an energy-efficiency investigation at many different locations, the management decided to renew the boiler system at the Weseler Straße address. Executing partners were RWE Energiedienstleistungen GmbH (ED) from Dortmund. As a contractor, this RWE subsidiary will in future deliver warmth for heating the rooms, the ventilation and air-conditioning, and the warm water for the canteen.

The new system

Two compact, efficient ELCO gas condenser boilers

RWE Energiedienstleistungen GmbH decided on a high-quality natural-gas double condenser-boiler system of the RENDAMAX 3602 series, with hydraulic two-way switch and 2 modulating, speed-controlled boiler-circuit pumps. One boiler covers the basic demand, the second being switched in when there is peak demand. Because of its design, with a low volume of water and compact heat exchangers, this configuration proved to be the optimal solution for efficient heat transfer.

The old boiler and the buffer tanks were removed. The new system has a footprint of only 80 m². The freed 320 m² can be used as additional storage space.

Equipment	Old system
Boilers	2 electrode heating boilers
Rated power	2,400 kW each
Total power	4,800 kW
Storage	3 buffer tanks, 80,000 l each
Total energy consumption	1,750 MWh per year

Equipment	New system
Boilers	2 gas condensing boilers, R 3602, cascaded
Rated power	747 kW each
Total power	1,494 kW
Standard efficiency factor	106 % / 109.8 %



The more economical solution: Separation of boiler and heating circuit

In the RENDAMAX 3602 - as in the Series R600 and RENDAMAX 3400 - ELCO relies on two independently regulated flow volumes. A hydraulic switch separates the boiler circuit from the heating circuit.

The volume of water can thus be reduced to a minimum. The benefits of this are:

- **Effective modulation**

Faster, more direct heat transmission through lower volume of water in the boilers. Very quick reaction to altered warmth demand, low stand-time losses.

- **Greater efficiency**

The boilers can be operated at a wider range of temperatures, thus transferring a lot of energy with very little water. Low return temperatures further ensure optimal utilisation of the condensation heat.

- **Low weight**

The low volume of water in the boilers is a clear advantage wherever low boiler weight is required, such as in the case of a roof heating centre.

- **Electricity-saving operation**

Because of the low volume of water in the boiler circuit, the power requirement for the pump is also low (Series R600, RENDAMAX 3600, RENDAMAX 3400).

RWE Regional Centre, Münster

The Company:

The RWE Regional Centre Münster is part of the RWE Rheinland Westfalen Netz AG.

The employees:

The Regional Centre Münster is one of 13 Regional Centres with a total of 170 locations and 8,500 employees.

The mission:

The RWE Rheinland Westfalen Netz AG is the leading distributor of electricity and gas in Germany in the areas of technology and efficiency.

The performance:

In 2009 alone, the RWE Rheinland Westfalen Netz AG invested € 740 million in the extension and maintenance of electricity, gas and water mains.



Energy efficiency project for the RWE Regional Centre, Münster

RENDAMAX 3600: Gas condensing boiler for greatest efficiency

The RENDAMAX 3600

Double condensation for high energy utilisation

The RENDAMAX 3600 low-temperature gas condensing boilers offer convincing figures at an attractive price in the upper performance range of 639 to 1,043 kW. Thanks to double condensation through a smooth-pipe and a ribbed-pipe heat exchanger, the standard efficiency factor of the RENDAMAX 3600 is 109.8 %. All parts that come into contact with condensation are made of stainless steel, and are therefore extremely resistant to corrosion. There is no return temperature limit. A three-stage boiler-circuit pump is installed ex works.

- Compact system unit comprising boiler and burner.
- Modulation ratio 1:4.
- High standard efficiency factor (109.8 %).
- Extremely low emissions.
- Particularly quiet operation.
- Timer and weather-influenced controls for up to 14 mixer circuits.
- Integration in existing control systems and factory master control systems possible (DDC 2-10 V).
- Low weight.
- Built-in premix burner.



Technical Data			R 3601	R 3602	R 3603	R 3604	R 3605
Power, full load	at 80/60°C	kW	639	747	846	945	1,043
Power, minimum load		kW	183	213	242	270	298
Standard efficiency factor	at 40/30°C	%	109.8	109.8	109.8	109.8	109.8
Width overall		mm	1,330	1,130	1,130	1,330	1,330
Height overall		mm	1,405	1,405	1,405	1,405	1,405
Length overall, including connections		mm	2,265	2,653	2,653	2,653	2,658
Weight		kg	890	1,040	1,150	1,280	1,410

ELCO GmbH
Dreieichstraße 10
D-64546 Mörfelden-Walldorf

Tel. +49 (0) 61 05/9 68-0
Fax +49 (0) 61 05/9 68-119
www.elco.net