#### **RECP Best Practice Catalogue**

#### Continuous automatic blowdown for the boiler Developed within the framework of MED TEST II







SECTOR:	Food & Beverage
SUBSECTOR:	Bakery and farinaceous products
PRODUCTS	Semolina, Flour, Couscous, Pasta
CATEGORY	Process control or modification
APPLICABILITY	Utilities
COMPANY SIZE	400 employees







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Description of the problem (Base scenario):	The blowdown purge of the steam boiler is carried out manually by an operator who also carries out the analyses for pH monitoring and conductivity of the boiler water. Excessive opening of the purge valve was noted, which results in a loss of osmosis water and a loss of energy since the purge is carried out at Temperature level higher than 85 °C. The purge rate has been estimated at 10%.
Description of the Solution	<ul> <li>Reducing the purge rate from 10% to 2% by setting up an automatic continuous purge and limiting manual purges.</li> <li>Purge automation consists of installing:</li> <li>A DN 60 purge solenoid valve;</li> <li>Conductivity and pH transmitters on the pump recirculation line, with values set to keep the concentration of dissolved salts close to the prescribed value (&lt;6,000 µS/cm according to the standard NF EN 12953-10). These transmitters control the opening of the purge solenoid valve.</li> </ul>







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Economic Benefits	An estimated energy gain of 2.5% compared to total energy consumption. Or, for an average natural gas consumption of 6,000 MWh/year, there is an energy gain of 160 MWh/year and a financial gain of 470 €/year. Savings of osmosis water for the boiler is 8% or 600 m <sup>3</sup> /year with a financial gain of 270 €/year. Which is a total savings of 740 €/year Improved monitoring and control of operator analysis and time savings compared to manual control of physicochemical parameters. This time savings is estimated at 10% of the working time of an operator in the utility service.
Environmental Benefits Health and safety impact	Energy gains of 160 MWh/year For an emission factor of 0.00021 tons of CO <sub>2</sub> /KWh for natural gas, there will be an environmental gain of 34 tons CO <sub>2</sub> /year Savings of osmosis water of 600 m <sup>3</sup> /year saves 705 m <sup>3</sup> /year of raw water (15% of RO effluent) Reduction of the volume of liquid effluents by 105 m <sup>3</sup> /year Not relevant







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Capital investments & financial indicators	Cost: 5,250 € Return on investment: 7.1 years
Suppliers	Local
Other aspects	No technical barriers, no negative impact on product quality
Implementation	







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