

Coke Dry Quenching Systems



Proven technology

IHI Corporation and Paul Wurth have a proven track record in the supply of CDQ plants in Japan, South Korea and Brazil since the late 70's. With the establishment of Paul Wurth IHI Co., Ltd. our CDQ technology has evolved to meet the strictest environmental standards and customers' requirements for energy recovery and product quality.

High reliability

High reliability of the process is proven through over 30 years of smooth operation in 19 units.

Energy Recovery

High-efficient heat recovery from red hot coke dry quenching, through the production of power generating steam with high-quality thermal parameters, enables our customers to improve the energy efficiency of their facilities and to reduce CO₂ emission.

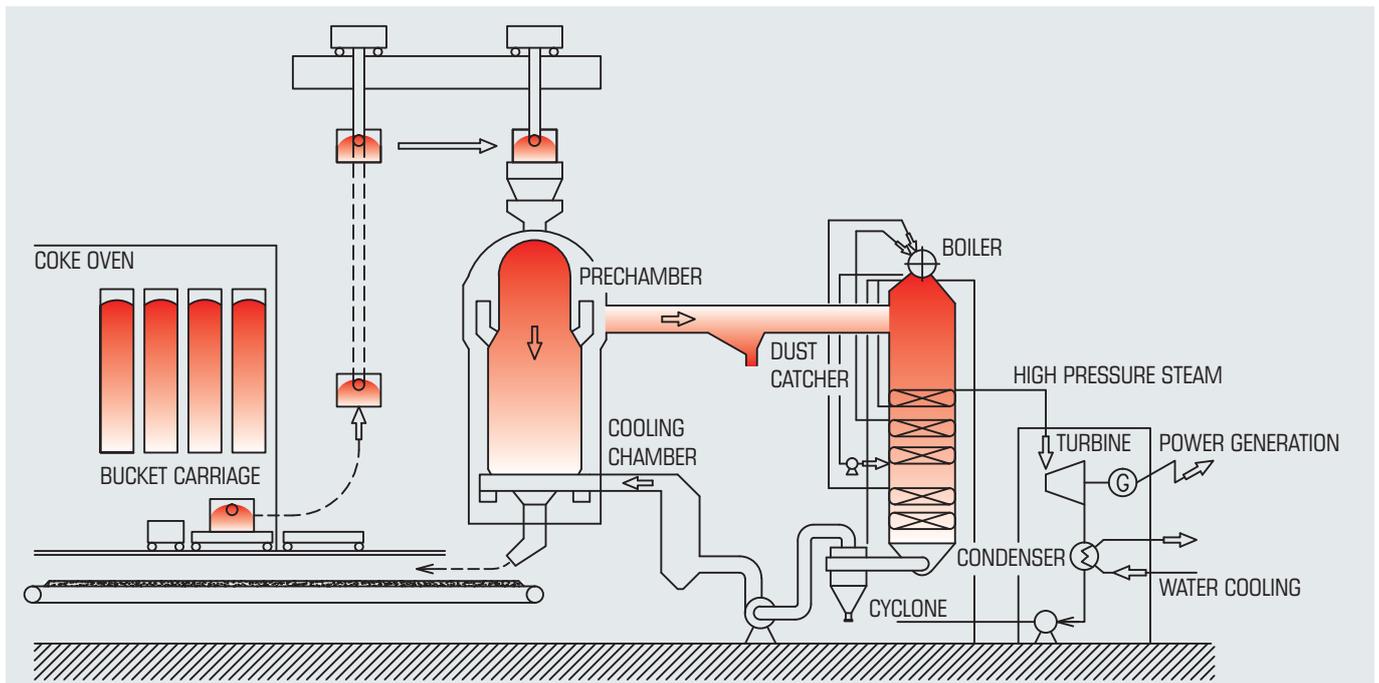
Process features

The coke dry quenching (CDQ) process utilizes an inert gas to cool the red hot coke and recover sensible heat. The hot coke is transferred from the oven to the cooling chamber where it is charged from the top and the cooling gas is blown from the bottom. After a cleaning section where the dust content is reduced, the heated gas is circulated through a waste heat recovery boiler to produce steam and then re-injected into the cooling chamber by a blower. The quenched coke is then discharged from the bottom of the cooling chamber.

The CDQ process provides environmental benefits

by eliminating the emission of dust laden steam into the atmosphere, as well as by producing steam that can be converted into electricity or process heat as necessary, thus avoiding consumption of fossil fuels. Water consumption for cooling purposes is drastically reduced as well as production of polluted waste flow.

Moreover dry quenching improves the quality of produced coke with respect to the wet system by reducing moisture content and increasing mechanical strength due to the fact that the coke is not rapidly quenched and thus heat shocked cracks are avoided.



Coke Dry Quenching concept flowsheet

Environmental friendly state-of-the-art technology

Long-lasting stable operation at reduced costs, highly efficient energy recovery and environmental protection are achieved through the combination of the following main technical features:

- Optimized cooling gas specific volume allowing to downsize the CDQ plant and to reduce operating costs
- Bell-less hot coke charging to maintain stable cooling gas flow distribution to the sloping flues
- Reliable sloping flue design enabling to minimize pressure loss of circulating gas and avoid coke plugging
- Dilution air injection from bottom of annular flue to achieve even gas temperature distribution at boiler inlet
- Optimized dust catcher design to control dust distribution at boiler inlet and increase lifetime of pipe bundles
- Special shaped blast head to obtain uniform coke descent at the bottom of the cooling chamber and consequently stable temperature of discharged quenched coke
- Highly efficient seal-type valves achieving gas leakage free operation and minimum nitrogen consumption
- Dust emission free operation through totally enclosed dedusting system covering cooling chamber and bucket crane