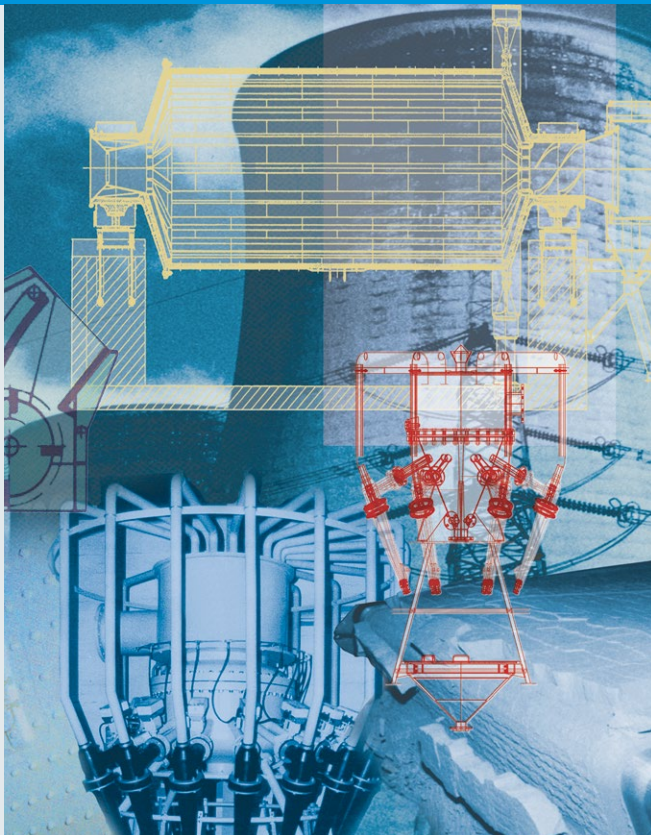




Systems around WFGD power plants

thyssenkrupp



Modern solutions

Proven machines – more than 25 years experience – over 250 references

With **wet grinding and dewatering system equipment**, thyssenkrupp Industrial Solutions is a known system supplier in the coal fired power plant sector for limestone and gypsum handling. The thyssenkrupp key systems are the limestone wet grinding process with horizontal **wet ball mills** & the gypsum dewatering process with **vacuum belt filters**.

Process description of WFGD system

In a WFGD (Wet Flue Gas Desulphurization) system, flue gas is cleaned from acid gases by means of an intimate contact with the limestone slurry product, continuously recycled inside an absorbing tower.

Process description of wet grinding & dewatering

Gross limestone from a day silo is fed to the ball mill at a controlled rate by a weigh feeder. WFGD reclaim water or process water from the WFGD system is used to produce the limestone slurry. The discharge from the mill is collected in a classifier feed tank that is equipped with an agitator to keep the solids in suspension. A classified feed pump pumps the slurry from the classifier feed tank to the hydro cyclone classifier. The overflow slurry from the classifier, which consists of fine limestone solids flows by gravity to the reagent slurry storage tanks. The underflow slurry consists of coarse solids and is returned to the ball mill where it is reground.

The ground limestone (powder or slurry) is fed into the absorber, where it reacts with the sulfur dioxide and other acid gases. Gypsum is then produced inside the reaction tank (absorber), where a forced oxidation system is installed and the gypsum slurry is strongly agitated to improve both air dispersing and chemical reactions kinetics. Dewatering of gypsum slurry is pre-dewatered and classified in a multi-hydro-cyclone cluster. The cyclone underflow is fed to the vacuum belt filter.

The cyclone overflow shall be directed to the filtrate return tank for return to the absorber. The dewatering and the washing of the gypsum slurry on the vacuum belt filter shall reduce the free water content and the chloride content in the gypsum cake to a level as required by the client.



Systems around WFGD power plants

Main applications in WFGD

Limestone wet grinding & classifying

Gypsum slurry classifying & dewatering

Main features (wet ball mills in WFGD)

Continuous operation at high throughputs

End fineness at classifier overflow of 95% < 44 µm

Executed as overflow and grate discharge mill

Executed with gear rim/pinion drive or direct driven.

Highest process performance

Highest availability ≥ 99% and low maintenance costs

Main features (vacuum belt filters in WFGD)

Continuous dewatering at high throughputs

Maximum levels of efficiency in filter cake washing

High filtration speed and high specific throughputs

Different belt carrier (rubber) belt supporting systems

Optimum filter cake thickness by low residual moisture

Highest availability ≥ 99% and low maintenance costs

Design parameters (wet ball mills in WFGD plants)

Mill tube Ø from 1.8 to 4.0 m can be realized

Throughputs from 8.0 to 92.0 tons of dry limestone per hour

Feed PSD be max. 100% < 20 mm

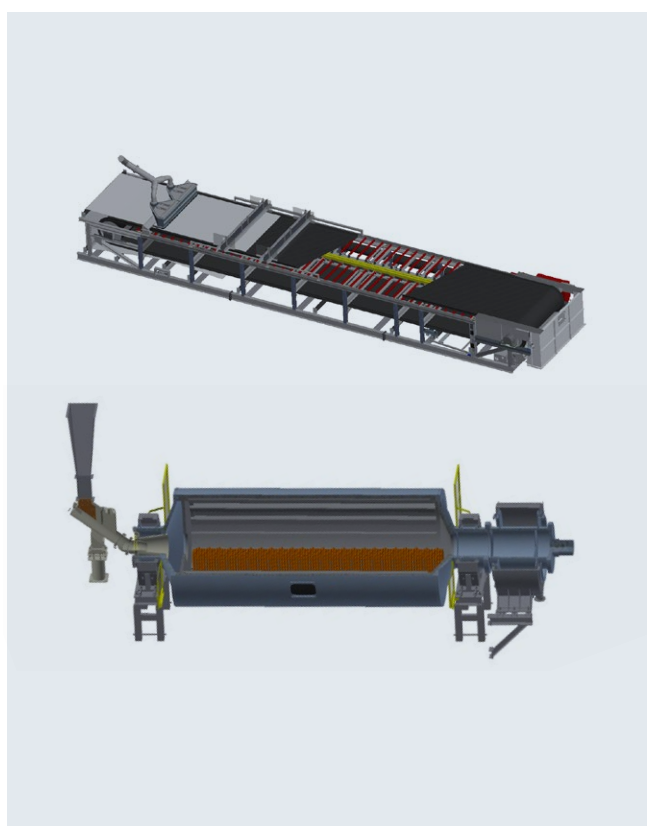
Design parameters (vacuum belt filters in WFGD plants)

Filtration areas from 0.5 to 110 m² can be realized

Throughputs from 0.4 to 100 tons of dry gypsum per hour

Residual moisture < 8% with steam treatment system

Feed slurry concentration around 50% solids



Contact

thyssenkrupp Industrial Solutions AG

Graf-Galen-Straße 17

59269 Beckum, Germany

Phone: +49 2525 99-0

E-mail: pyro.tkis@thyssenkrupp.com

www.thyssenkrupp-industrial-solutions.com/pyroprocessing

Sales Agent

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