RID OF DUST

New solutions for reducing dust emissions from pulp mill chemical recovery.

TEXT Anne Riekkola

The amount of dust emitted from recovery boilers, lime kilns and power boilers can be reduced with Valmet's high-performance electrostatic precipitators (ESP). Based on the company's knowledge of processes and operations and integrated with its automation systems, Valmet's new range of ESPs offers more opportunities when selecting technology or upgrading in the pulp and paper industry. A comprehensive offering helps pulp and paper producers prepare for the coming emissions directives in the EU.

Well-performing electrostatic precipitators are a must when it comes to controlling dust emissions in pulp mill chemical recovery. At the same time, the increasing size of new recovery boilers sets new requirements for ESP technology, too. Valmet's ESP technology has been proven in all boiler sizes, including the biggest ones. Valmet automation systems have been integrated into the ESP range, offering a very user-friendly overview of the performance and operation of the ESPs. Chemical recovery is easily operated from a single control room.

Positive trend in environmental performance

Sulfur emissions into the air have been sharply reduced in recent years by substantial progress in process technology. Now a new step is approaching.

A new industry emissions directive from 2014, 2014/687/EU, also known as the "BAT (Best Available Technology) conclusion", applies to the pulp, paper and board industry. This directive describes emission levels for new and existing recovery boilers and lime kilns. The deadline for achieving the new levels is September 2018.

Many companies have already investigated and planned upgrades for processes and emissions that will help to meet or even remain below the limits of the directive. Valmet is offering support and technology solutions for this.

Pulp mills are getting bigger and bigger, with the result that the size and loads of recovery boilers have been steadily growing over the years. The history of Valmet RECOX deliveries is clear proof of this.

When it comes to operating mills according to emissions guarantees, it is essential that the equipment is reliable. Companies must succeed in operating in line with set values – with no exceptions. "We at Valmet are committed to giving our customers effective, reliable and competitive solutions and products so that pulp, paper and board makers can meet future challenges and improve their results. Our understanding of the main process – in this case boilers and lime kilns – was an excellent foundation for developing our comprehensive solutions to lower emissions," comments RTD Manager **Jaakko Rintanen**.

Reliability and high performance with ESP

Valmet has focused its ESP development efforts on reliability and high performance. "Since the start of ESP development, we have created an entirely new operational concept that provides concrete synergetic effects throughout the life cycle of the ESP," says **Juha Tolvanen**, Product Manager for ESP Technology.

Ordering the ESP and the boiler from a single supplier ensures that the overall project is well managed, including technology performance and site operations. Maintenance and upgrading services can be planned over the entire life cycle. ESP control and information gathering is fully integrated with Valmet's automation systems and becomes a natural part of the plant process. It can easily be managed in the same control room as an essential part of the process.

A solid track record

Valmet delivered the first ESP solutions for power boilers in 2010. The first Valmet recovery boiler with a Valmet ESP was taken into operation in 2015, and more recovery boiler ESPs will start up in 2016 and 2017. The latest deliveries include ESP solutions especially developed for large, heavily loaded recovery boilers. ■

CONTACT PERSON
Juha Tolvanen
Product Manager,
ESP Technology
juha.tolvanen@
valmet.com,
Tel. +358 10 676 3096

Sulfur emissions into the air have been sharply reduced in recent years by substantial progress in process technology.

ESP FOR RECOVERY AND POWER BOILERS:

Södra Cell AB, Värö, Sweden

The Värö mill is going to increase its pulping capacity by 64%, and Valmet is supplying equipment to all process areas. As the capacity of the recovery boiler grows, more ESP capacity will be needed as well. Valmet's solution is an additional ESP unit with four fields and dimensioned dust emissions of below 25 mg/Nm³. A control system from Valmet (Valmet DNA ESP) will be connected to the existing ABB DCS. The start-up will take place in 2016.

Metsä Fibre Oyj, Äänekoski Bioproduct Mill, Finland

Recovery boiler: Valmet RECOX with Valmet ESP, 7,200 tDS/d

Metsä Group is building a next-generation bioproduct mill in Äänekoski. Valmet is delivering the new RECOX recovery boiler with four ESP units with five fields. The dimensioned dust emissions are below 25 mg/Nm³. Valmet's DNA ESP control system will be connected to a Valmet DNA DCS system. The start-up will be in 2017.

Oulu Energia Oy, Toppila 2, Finland

ESP upgrading, two units

For the Oulu Energia power plant, Valmet supplied a power boiler ESP. The Oulu ESP has 2×3 fields and a Valmet DNA ESP control system. The measured dust emissions are below 3 mg/Nm³, and there is an emission guarantee of below 10 mg/Nm³. This ESP provides improved wet stage flue gas heat recovery performance and makes the plant ready for 'BAT (Best Available Technology) conclusion'.