

Renewal of an EAF primary off-gas system

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Heat recovery system for the EAF meltshop

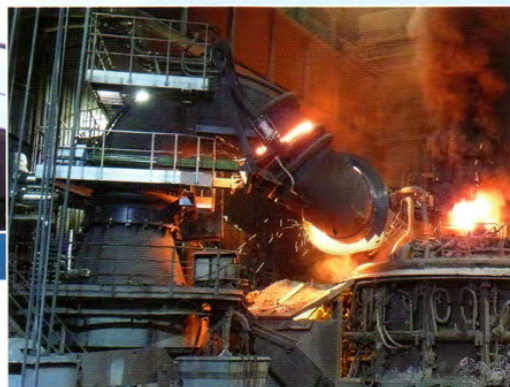




Figure 1. Coil production in the Ebor Edelstahl works

Dedusting system for dry grinding plant used in stainless steel strip production

The increasingly exacting demands on surface quality and the ever more stringent environmental regulations are important drivers for developments in filter technology. One example of continuous sophistication of dedusting equipment is the successful collaboration between the plant engineering company Schuh Anlagentechnik and stainless steel service centre Ebor Edelstahl in Sachsenheim, Germany.

The German stainless steel service centre Ebor Edelstahl GmbH specializes in the surface treatment of rust, acid and heat resisting special sheet steel products. With the production of components with demanding surfaces, the company has become a major supplier to household, container and equipment manufacturers, the gastronomy sector as well as further demanding, high quality customer segments. Founded in 1982, the mid-sized corporation has achieved an excellent reputation in the field of handling and manufacture of sheet steel products. The innovative service centre is located in southern Germany - with a turnover of EUR 60 million and a production capacity of approximately 30,000 t/year.

The quality management system of Ebor guarantees product quality, flexibility and service for all aspects of high quality steel components. With some 100 employees, the company offers a comprehensive product range comprising plate in fixed and standard forms as well as wide and narrow strip with ground or brushed as well as untreated surfaces.

In order to increase capacity, Ebor Edelstahl GmbH invested in a new pro-

duction facility with a coil grinding and brushing device, a cut-to-length line, two bench shears as well as associated logistics (figure 1). Within this context, Schuh Anlagentechnik was contracted to design, supply and install the dust removal system for the coil grinding and brushing plant.

Founded in 2001, the German plant manufacturer Schuh Anlagentechnik GmbH has established itself as a reliable problem solver for ventilation, separation and filtration technologies for processes in a growing niche market. The offered range of air handling systems covers, among others, smoke extraction and suction systems for emulsion and oil mist removal, rupture, cutting and strip conveying systems, wet vacuum systems and dust removal systems.

Integrated solution for a continuous grinding line

Thanks to the use of state-of-the-art technology, Ebor is able to manufacture coils from high quality sheet steel in a continuous, efficient and economic dry grinding and polishing process. During the grinding and polishing

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Figure 2. View of the suction device on the production unit



Figure 3. Spark separator and pulse-jet filter

process metallic dust is generated. This dust has to be collected and removed within the machine in order to prevent it from depositing on and impairing the surface of the product during the handling process.

Under consideration of the main safety and environmental protection processes as well as the material surface characteristics, it was possible to develop an optimized plant concept. In the first instance the dust is collected in adjustable suction devices integrated within the process machines (figure 2). Suction lines facilitate the removal of the air-dust mixture and transport it to the spark separator, located before the pulse jet filter, in order to prevent damage to the filter.

The metal dust is removed from the air in the filter (figure 3), which is based on a compressed air impulse de-

vice. The collected dust is deposited at atmospheric pressure, via the rotary valve, into the collector. The cleaned air is then ducted via the induced draft ventilator either to atmosphere or, through an additional fine filter, back into the machine room, where it is used as heating medium. The use of the warm air for heating purposes represents a significant energy saving potential. The radial ventilator, which generates the required volume flow and pressure, is silenced by means of a hood.

A multi-leaf damper is used to control the air flow, and all four production units are ventilated at the same time. In the event that less than four production units are in operation, units not in operation are isolated by means of a shut-off valve. In this event, the total air quantity necessary for transporting

the dust, is made up with air aspirated from outside.

In the course of the project execution it was necessary to develop an air handling system which also fulfilled stringent requirements with respect to operational reliability and maintenance. Thanks to the experience and comprehensive know-how of Schuh Anlagentechnik in the collection, transportation and filtration of pollutants in air flows, the company was able to design and produce the dust removal system in a period of only twelve weeks. The result is a system which uses no moving parts, is largely wear-free and operator and maintenance friendly. In addition to the short and efficient manufacturing time, the very short installation and commissioning time also contributed to the successful completion of the overall project. ■



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