



Primary Descaling unit installed in the mill production line

PRIMARY DESCALING TECHNOLOGICAL PACKAGE FOR BETTER PLATE SURFACE

An essential piece of equipment to promote quality surface is the provision of an effective and efficient descaling system.

During slab reheating the slab surfaces develop an oxide layer inside the furnace (scale) which, if not removed, will be rolled into the plate surface leading to surface defects and reduced product quality. The rolling in of the scale also increases roll wear with reduced roll life. Therefore the slabs must have this oxide layer removed before rolling in the mill stand.

This scale removal is undertaken in the Primary Descaling Unit which is located immediately downstream from the reheat furnace and before the rolling mill stand.

YOUR CHALLENGE

Modern Plate Mills are required to produce wider, thinner and higher strength products. Quality in terms of both surface finish and dimensions are also increasingly important criteria. As a plant operator you need to:

- Ensure good surface quality through all stages of production and to meet the required DIN standards
- To have scale free plates with uniform mechanical properties
- To have equipment with less downtime, and easy maintenance
- To have longer work roll campaigns
- Increase energy efficiency

OUR SOLUTION

Primetals Technologies is able to supply an fully integrated descaling system which ensures efficient and constant descaling performance over the width and length of the product.

We utilise state of the art quality equipment throughout and consider ease of access and maintenance.

Our integrated 'mechatronic' package encompasses the mechanical, fluids, electrics, automation, and process modelling required for producing quality products.



Typical centrifugal pump by Ebara



Typical piston pump by KAMAT

TYPICAL SPECIFICATION FOR A PRIMARY DESCALER UNIT

- System pressure = 200 bar
- Header pressure = 180 bar
- Descaling speed = 1m/sec
- Top header height adjustment range of 350mm enabling nozzle height to remain constant for a given slab / ingot thickness
- High impact force across full width of plate
- Side spray for Ingot Descaling

The disposition of the stainless steel nozzles across the width and spray angle are selected to achieve an impact pressure of 0.98 N/mm².

PUMP SELECTION

The two most common types are:

Multistage centrifugal pumps and Piston Pumps

Wide plate mills with high mill throughputs favour the use of centrifugal pump systems because flow demands can be very high and the gap time between spray events is small, leading to small accumulator re-charge time. Motors can be supplied fixed or variable speed to conserve energy. Narrow mills with large gaps between spray events, allow the use of smaller delivery pumps and accumulator systems and are ideally suited for piston pump use.

ADVANTAGES OF A NEW DESCALING SYSTEM:

- Excellent plate surface quality
- Longer mill roll life
- Easy access for header maintenance
- Quality components for low maintenance
- Variable nozzle stand off distance
- Reduced quantity with better water quality
- Potential energy savings
- Improved cooling uniformity at ACC and DQ

OTHER PUMP SET EQUIPMENT

- Backwash filters
- Heat Protection valve
- Unloading valve
- Accumulators
- Accumulator shut off valve
- High pressure air compressor
- Descaling spray valves

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