



New high-efficiency oil direct drive system for an existing 6000t water accumulator-driven press

# SUCCESS STORY

Wepuko PAHNKE

## Overview

Ring Mill S.P.A. is a leader in producing forged and rolled products for steel and other alloys for the oil & gas, chemical, petrochemical, and Power Generation industries.

Known for high-quality standards and timely delivery, this drive system upgrade is raising Ring Mill's performance standards even higher and provides the opportunity for significant product range expansion.



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## Challenge

Ring Mill has competed successfully in the market due to technical expertise and proven processes. As a manufacturer of unique products according to customer specifications, the shape, material, and size change quickly during the forging operation. Therefore, a flexible, precise, robust, and reliable machine is required. The initially installed water accumulator-drive system could no longer meet these requirements, thus endangering Ring Mill's market position. In addition, the rapidly increasing energy cost posed a challenge to competitiveness.

## Solution

Fluid type, pressure, and control are the main factors that define the system performance of a hydraulic press drive. A complete exchange of the drive system changed these three core factors to overcome the struggles and secure future competitiveness. As a self-lubricating fluid, oil allows higher motion dynamics and cycle times. Oil flow directly controlled by variable flow pumps is the motion control concept of the Wepuko PAHNKE direct drive system. Special Wepuko PAHNKE-made drive pumps can also reverse the oil flow, meaning they feed the press cylinder with pressurized fluid and release pressure in the same way. Integrity of the newly installed drive is digitally controlled by a state of the art, decentralized electronic control system. Customized operating modes are maximizing the overall equipment effectiveness. The digitalization and the progressive automation of industrial plants offer new opportunities, making the open-die forming process more transparent.

## Benefits/ Results

The new oil hydraulic direct drive system reduces the energy consumption per tonnage by 26% compared to the previous water accumulator drive system.

The higher press forces, motion dynamics with twice the performance, and best-in-class accuracy enable Ring Mill to perform quicker forging cycles. This leads to the advantage of fewer and shorter heating cycles and, in addition, new product additions to Ring Mill's portfolio on a larger scale and with higher quality requirements.

Lastly, Ring Mill could cut their maintenance costs by 60%.



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