



# VACUUM DEHYDRATION SYSTEM FOR LONG ROLLING MILLS

## THE DIFFERENCE IS EXPERIENCE

Lubrication systems in industrial plants are especially susceptible to water contamination. In Steel and Non-Ferrous Mills there is an extremely high potential of water ingress into the oil for all the roll units and bearings. Water contamination in lubrication fluids can cause devastating problems in the mechanical equipment including a reduction in bearing and overall equipment life. These problems lead to an increase in unscheduled downtime.

Water can enter lubrication system in either vapor or liquid state and in many ways including; failed seals, failed heat exchangers, and condensation in the tank. The Primetals Technologies Oil Vacuum Dehydrator system is designed to remove water present in the oil in any of its forms.

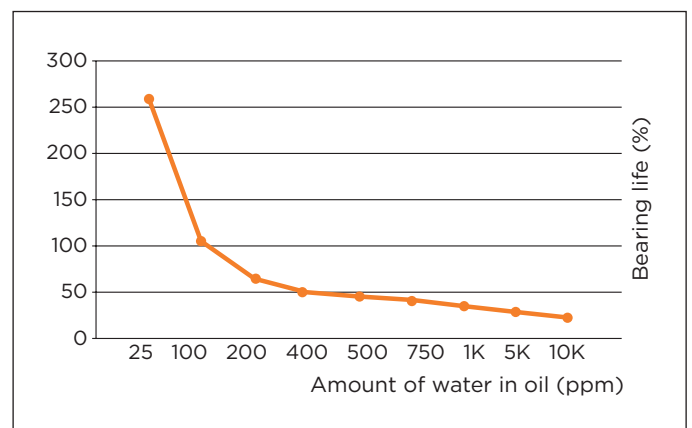
Primetals Technologies considers a maximum acceptable level of 0.2% of water content in the oil for the High-Speed Equipment, such as Morgan Pre-Finishing Mills, No-Twist® Mills and Reducing/Sizing Mills. Water should be completely removed before re-circulation of the oil in the system and especially before entering the mechanical equipment. <sup>1</sup>The Primetals Technologies Oil Vacuum Dehydrator system is specially designed to maintain a water content  $\leq 0.2\%$ .

## FIELD OF APPLICATION

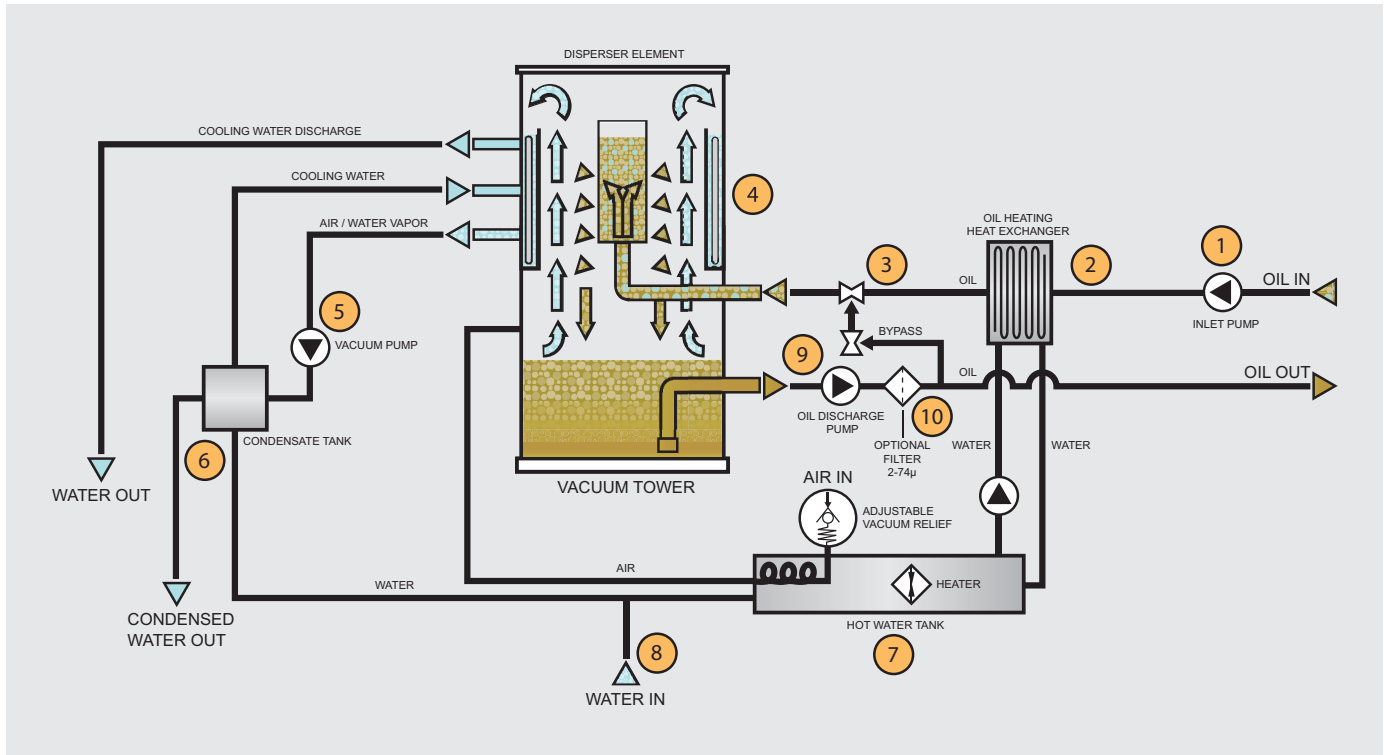
Ferrous and non-ferrous long rolling mills

## MAIN BENEFITS

- Minimize downtime
- Increased equipment life
- Reduced operating costs
- Increased fluid life
- Removes free water, emulsion and dissolved water, simultaneously
- Does not carbonize the oil in the heating process
- Does not interfere with the lubrication system temperature control



Effect of water on bearing life



A simplified schematic shows the operation of the Primetals Technologies vacuum dehydrator system

- |                                 |                                          |
|---------------------------------|------------------------------------------|
| (1) The oil inlet pump          | (6) Condensate collection tank           |
| (2) Recuperative heat exchanger | (7) Hot water circuit                    |
| (3) Oil heating heat exchanger  | (8) Cooling water circuit                |
| (4) Vacuum tower                | (9) Discharge pump                       |
| (5) Vacuum pump                 | (10) Optional filter as fine as 1 micron |

## PRODUCT FEATURES

- Can operate up to ISO VG-460
- Protects the oil using a very low power density heating system and two heating steps
- Integral PID temperature control maintains the oil operating temperature uniform during the whole process
- Vacuum pressure adjustable for different type of oils
- Stainless steel piping
- Custom configurations available to meet specific size requirements
- Small units can be customized to be portable

## OTHER RELATED PRODUCTS

- Morgan Vee No-Twist® Mill

## VACUUM DEHYDRATOR VS CENTRIFUGE

- Does not require periodic cleaning of complex bowls
- No high speed rotating parts
- Will not damage oil during heating
- Low maintenance
- No loss of oil through the water discharge
- Designed for unattended operation

## VACUUM DEHYDRATOR VS OTHER DEHYDRATORS

- Does not require filtration of fluid
- High flows and water removal
- Will not damage the oil during heating
- The Inlet pump allows for more flexibility in the placement of the vacuum dehydrator unit in relation to the tanks being processed
- Specifically designed to handle oil viscosities from 32-460 cSt
- Highly efficient

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