Steel:
Cold Rolling Optimization with QH FLUID INTELLIGENCE™ Solution

QH FLUIDCONTROL™ MIDAS

The Challenge

A global steel manufacturer with a 4-stand coupled mill with direct application of lubrication on stands 1 and 3 was looking to:

- Reduce consumption
- Increase production flexibility, including when rolling hard strip steel

The Solution

Quaker Houghton suggested the manufacturer introduce our QH FLUIDCONTROL™ MIDAS (Mobile Industrial Dispersion Application System) – a portable lubrication application system – in order to:

- Increase flexibility in lubrication levels for various hardness types and thickness of steel
- improving productivity by enabling optimization of process, based on current steel rolled and concentration in use.

Quaker Houghton installed its QH FLUIDCONTROL™ MIDAS onto stands 1 and 3 and working with the customer developed matrices focused on optimizing rolling oil concentration versus table speed and steel type (thickness, hardness).

Equipment Selection and Implementation

QH FLUID INTELLIGENCE™ team and the customer worked together and tested several setups to achieve the optimum results and reduce the total cost of ownership. QH FLUIDCONTROL™ MIDAS is an extremely accurate, positive displacement pump system that can stand alone or be tied into level two control systems. QH FLUIDCONTROL™ MIDAS is designed for finishing and roughing mills, edger rolls, tube and pipe stretcher mills, and double cold reduced (DCR) mills. Quaker Houghton supplies QH FLUIDCONTROL™ MIDAS to over 25 mills worldwide and has served several universities with the lubrication system.

The Benefits

Optimal Lubricant Consumption: 20% reduction in oil consumption.
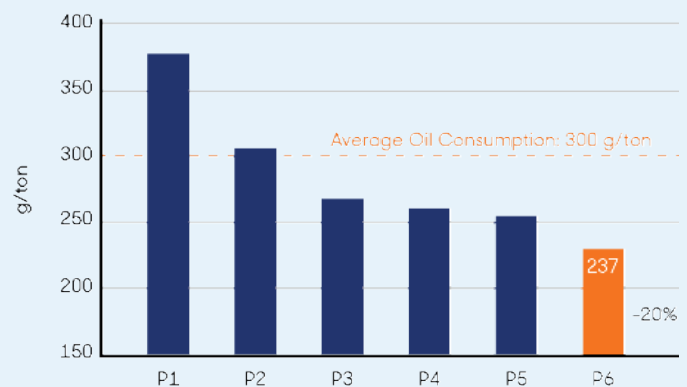
Setup Options: A series of different setups (P1 through P6) were necessary to best optimize the parameters of the QH FLUIDCONTROL™ MIDAS (oil concentration vs. speed and steel types, flow, pressure, etc.) and finally reach a 20% reduction in oil consumption.
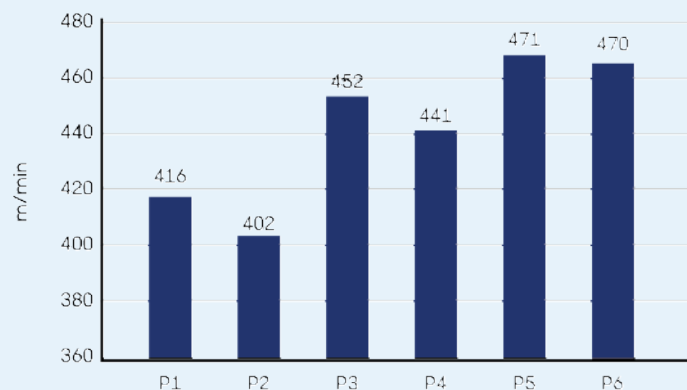
Increased Production Levels: reaching to 470 meters of rolling steel per minute.

*As seen in the graph, P6 enables +17% faster processing vs P2 reference process, so that on top of fluid consumption reduction (-20%) the QH FLUID INTELLIGENCE™ equipment coupled with optimization algorithm offers +17% faster rolling and adaptive processes for greater productivity.

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Process and Equipment

PRODUCT TITLE	PRODUCT INFORMATION
Nozzles and numbers	12 on top and 12 on bottom
Nozzle flow rate	0.83 L/min
Pressure	3 bar

QH FLUID INTELLIGENCE™
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Digitally optimizing fluids and processes.
A fully digital and automated solution, QH FLUID INTELLIGENCE™ provides real-time monitoring and control of fluid performance and cost, giving you quick, accurate, and actionable insights. Customizable, scalable, and easily integrated into your manufacturing, it enhances production and sustainability by driving down waste, risk, and total cost of ownership. This is the intelligent future of fluids.