



High-Pressure Reciprocating systems for the Steel Industry



BROCHURE

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RMI high-pressure systems have been supplied to heavy industry for many decades.



Designed to perform in challenging, and often hazardous manufacturing environments, we aim to increase productivity and profitability for our client's, while reducing energy consumption.

We provide customer-focused solutions for water hydraulic de-scaling, for both long and flat product, along with purpose designed systems for cooling and cleaning.

We also provide solutions for roll balance, walking beam, tundish control, forging, and extrusion press applications, using High Water Based Fluids. As well as, purpose designed systems for high viscous hydrostatic mineral oil applications to OEMs and end-users alike.

Using the latest software tools, our engineers adapt our modular products to meet the specific needs and requirements of each client. Varying permutations of pump cylinder diameters, gearing and motor sizes offer performance capabilities to meet varying specifications. Optional cylinder arrangements and higher speeds, including variable speed driven selections, are given full technical appraisal, to ensure we deliver the most suitable solution, from stand-alone pumps to fully-integrated systems.

The Power of Water Hydraulics

Water is an important and indispensable hydraulic medium, which has many benefits over agents, such as oil when channelled effectively through a powerful hydraulic system.

High Efficiency Descaling

RMI recognise the importance of the quality de-scale system in the production of high-quality steel and the challenge this represents in relation to energy efficiency.

Our Trimax and Quinmax pumps complement the de-scale system solutions offering high performance and more than 30% energy efficiency savings when compared to traditional centrifugal pumps. Once the de-scale cycle has been completed, the pumps unload and energy use significantly reduces; resulting in higher energy efficiency, saving cost and significantly lower operating costs.

Traditionally pressure load cycles are achieved using an unloading valve. RMI can offer more efficient alternatives with Integral Valve Lifters which offer increased energy efficiency savings; are more sympathetic to the pump operation and minimise fluid usage and cut down fluid movement and also eliminates return line pipework.

De-Scale header nozzle wear uncertainties can be compensated with the inclusion of a variable speed operation. The system operates against a preset pressure set point to maintain a consistent system performance and maximise the aim to achieve a high quality de-scale cycle.

High Quality Forging

The S range pumps offer superior performance for high quality forging and energy efficiency in both direct pumping or stored energy systems. The Trimax and Quinmax pumps are designed with full filtration and re-circulating pumps to ensure a clean system and reduce risk of contaminants in the forging process. Full health monitoring is included as standard.



COST-EFFECTIVE SOLUTION

Large System Volumes

- Cost-effective solution
- Readily available in large volumes



FIRE RETARDANT

Fire Risk

- Fire Retardant



LOW COST WASTE MANAGEMENT

Low Cost Waste Management

- Helps reduce clean-up time and costs
- Helps minimise insurance costs
- Helps maximise business continuity and productivity

S-Range: Trimax 3 Plunger and Quinmax 5 Plunger Pumps

Whether driven by social, environmental or financial issues, forward thinking organisations must embrace energy saving technologies and practices.

The 'S Range' of plunger pumps are synonymous with high efficiency and quality, making them perfect solution for Industrial Steel applications.

Demand-based Control

The high efficiency S-range pumps reduce costs by using variable frequency drives using demand-based operation, which means they only consume the energy required based on the current system demand. This results in reduced energy costs and reduced CO2 emissions without compromising performance.

Variable speed operation allows for controlled ramp up and down, resulting in a smoother system operation and controlled top up of accumulators; reducing pressure spikes and wear on key components; increasing system reliability and longevity.

Our system packages include variable frequency drives and plc controllers that can be tailored to specific site requirements as standard. This coupled with our integral valve lifter technology yields huge potential energy savings particularly when unloading from system demand. Active Performance Management solutions are also available.

High Energy Efficiency

- Variable speed controls using demand-based operation

High Performance

- Power ratings up to 500kW.
- Proven volumetric efficiencies up to 98%.
- Fluid end components designed with Computational Fluid Dynamics to maximise efficiency

Maximum Reliability

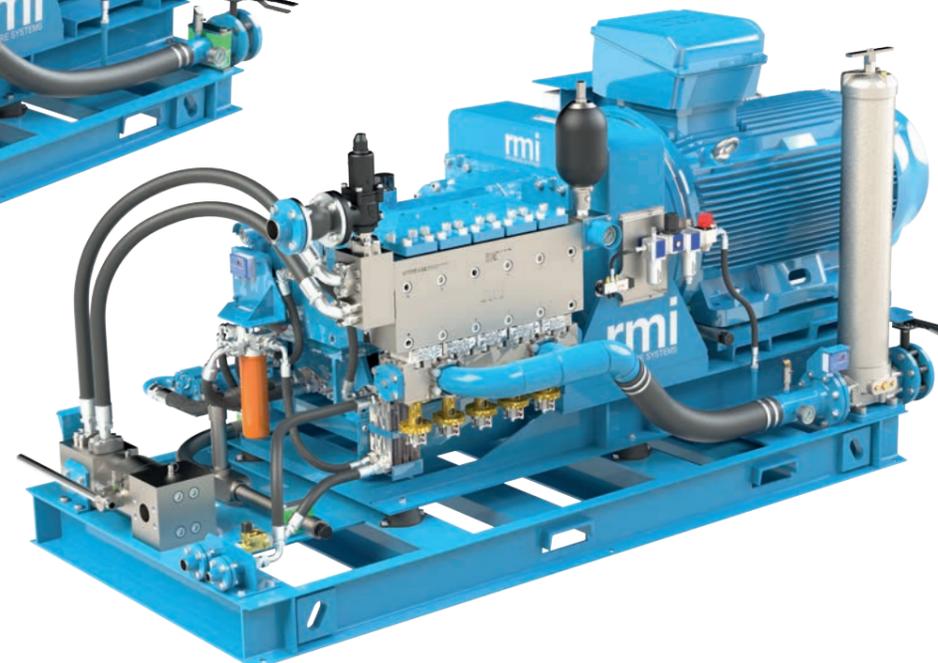
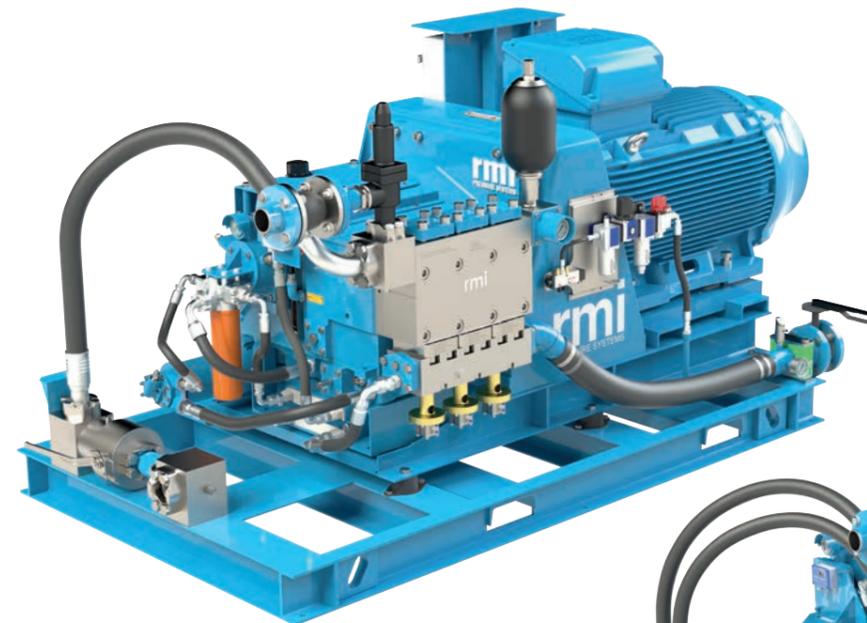
- Designed for continuous duty, 24/7

Extended Operational Life

- A smooth pressure profile, reduces wear and tear on system components (hoses, seals, valves) caused by destructive pressure surges

Compact Footprint

- Compact horizontal 3 or 5 plunger design



S Series Pumps

The "S" range of plunger pumps are synonymous with quality in the industry and consists of the Trimax range 3 plunger pumps and the Quinmax range 5 plunger pumps.

- Solid ceramic or tungsten carbide coated plungers are combined with kevlar fibre seals to provide durable, high-pressure sealing.
- Pumps undergo rigorous in-house testing, including oil temperature and pressure checks, in conjunction with standard pump performance criteria.

Quinmax S500

The Quinmax S500 pump, is a 5 plunger design pump. As well as enhanced flow rated (up to 878 l/min) benefits of a 5 cylinder design include:

- Reduced crankshaft and Bearing loads leading to longer life and time in between service intervals.
- A 40% reduction in the fluid velocity per plunger resulting lower hydraulic noise.
- Slower crank speeds reducing mechanical wear and noise.
- Longer Stoke length leading to fewer reversals.
- Smoother pressure profile reducing the impact of surges on other critical items of equipment within the system.

All attributing to greater reliability and available uptime not only of the pumps but also other components within the system.

System Upgrades and Servicing



HIGHEST
AVAILABILITY & UPTIME



HIGHEST
OPERATING
PERFORMANCE



LOWEST
OPERATING COST



REDUCED
OPERATING RISK

RMI modules and kits are specifically designed to help you to keep your pump running at optimum performance for longer and to maximise available uptime.

One Stop Maintenance for Maximised Uptime

Our range of core component modules and kits have been designed to ensure our pump mechanisms can quickly and easily be replaced, upgrading all key components at the same time, reducing the need for repeat maintenance strip downs and maximising valuable uptime.

Better Than New Overhauls

As a market leading innovative engineering company, at RMI we constantly strive to improve the quality, reliability and performance of our products by utilising state-of-the-art design, materials and technology available in the market.

All of our modules and kits are assembled with the very latest components of the highest specification to give you complete peace of mind that when you overhaul your pump, you'll be doing much more than replacing like for like. Effectively, you will be upgrading your pump, increasing reliability and performance to today's high performance standards for many more years to come.

Reduced Spares Stock Holding

The added convenience of combined modules and kits means the right set of components are always on hand at the same time, reducing potential delays waiting for deliveries and significantly reducing your spare part inventory holding.

Service Solutions

RMI also offer a comprehensive package of service support solutions, to suit your specific site needs including:

- Set-up and commissioning
- Site training
- Routine health checks and monitoring
- Annual service contracts
- Scheduled upgrades and repairs
- Emergency on-site repairs
- Full equipment upgrade advice

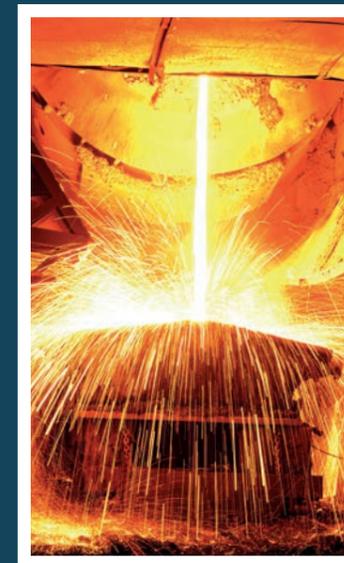


Service Benefits

- Tailored service solutions to suit individual site needs and budget
- Original manufacturer service and support
- Highly skilled, expert technical service engineers
- Scheduled predictive maintenance to maximise system reliability and uptime
- Detailed reports, quotations and schedules of work
- Genuine, latest generation RMI spare parts

Case Study

RMI has developed a sustainable partnership with Sheffield Forgemaster's Steel Ltd, a major producer of steel ingot for the forging and ring-rolling industries. The ultimate market for Sheffield Forgemasters' steel is at the leading edge of technology, in fields as demanding as aerospace, offshore oil exploration, power generation, shipbuilding, seamless tube, railways, bearings, defence, metals re-rolling, paper, dies and chemical engineering.



Background

Sheffield Forgemasters is one of the world's most successful steel/forging manufacturers, with a history that can be traced back to the 1850's. Much has changed over the years, but the importance of reliability has remained constant.

The relationship with RMI began over 20 years ago, when new pumps were required for one of the forges massive 2,500 tonne hydraulic presses. Four Trimax S-250 pumps were used for the application.

Despite high workloads, the pumps performed reliably and efficiently. When a veteran pump, which had been manning the hydraulic station since the 1960s reached the end of its serviceable life, Sheffield Forgemasters was keen to specify another pump from RMI.

Solution

5-plunger Quinmax S500 were supplied, providing a robust and reliable solution, with greater efficiency, to increase production.

The S-500 is a crankshaft driven positive displacement pump, capable of producing pressures up to 420 bar and flow rates up to 828 lpm.

Benefits

The Quinmax S500 pump, uses a 5-plunger design, which has several advantages over the Trimax 3-plunger design.

- Reduced crankshaft and bearing loads for extended operational life and extended routine maintenance/serviceable intervals.
- A 40% reduction in the fluid velocity per plunger, resulting in a reduction of hydraulic noise for a safer working environment.
- Slower crank speeds, reducing mechanical wear and tear and decibel levels, for increased uptime.
- Longer stroke length, leading to fewer reversals
- Smoother pressure profile, reducing impact of pressure surges on critical system components, such as hoses, seals and valves.

Ever since the Quinmax S500 pump was first installed it has operated reliably and has helped Sheffield Forgemasters meet its deadlines, despite having the biggest order book in its history.

“ This installation has been very successful and continues to operate with no significant issues. We look forward to working with RMI for any future installations we require ”

Ian Bickerton,
Engineering Manager And Chief Engineer

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