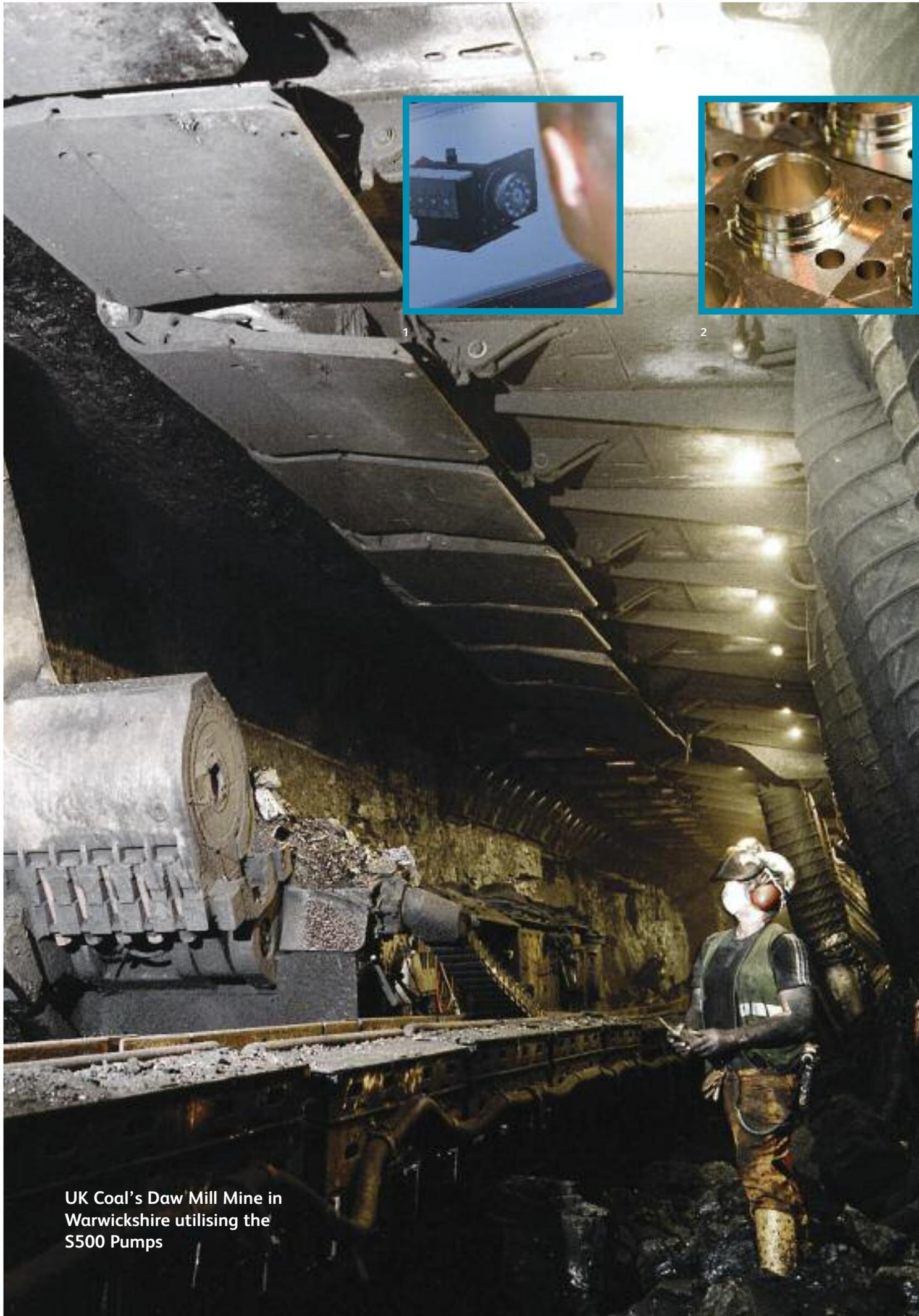


## Mining Products and Services





UK Coal's Daw Mill Mine in Warwickshire utilising the S500 Pumps



3

- 1. Product Designs.**  
Remodelling of the S300 pump with new valve chest design.
- 2. Attention to detail**  
Valve components ready for final inspection.
- 3. Quality Assurance**  
Final inspection of crank and gear assembly.

# Product Benefits

## Reliability

RMI has established an enviable reputation for supplying the mining industry with some of the most reliable high-pressure reciprocating pumps available. Utilising the very latest technologies, coupled with the vast experience of its engineering team, RMI can deliver a system that will operate in the most extreme environments.

Our engineers work continuously to improve performance, but we understand that superb performance must go hand in hand with reliability and availability. With this in mind, we use only the highest-quality components and materials, designed and manufactured to exacting tolerances.

Attention to detail means that even the smallest component is rigorously specified and made from high-performance materials. Nickel plating is used to give longer life and better performance than stainless steel. Advanced ceramics improve surface hardness and reduce maintenance.

## Energy Savings

RMI's continuous development of energy efficient products has led to the introduction of the ODIN (On Demand Intelligence) control system.

ODIN is a UK-patented control logic system, which interrogates the individual components in longwall systems. Taking pressure signals at the valve banks, and digital information for cutting speeds and linear travel from the shearer electronics, ODIN calculates the required roof support movements and the subsequent demand for hydraulic fluid from the pump station.

Calculating the changes in demand before they occur allows the variable speed pumps to modulate in speed and change the flow and pressure, enabling the roof supports to operate in a more responsive manner.

This is the first system that links all the major components to maximise coal production, enabling RMI to not only to reduce the pump running cost, but also to allow the mine operators to increase coal production.

## Quality Controls

All RMI equipment is designed, manufactured and supplied in accordance with European ISO 9001 Quality Assurance accreditation certified by Lloyd's and governed by Quality Management Systems to provide and maintain client and user service. Our systems are regularly audited and updated to ensure full compliance.



# Mining Products

## Longwall Mining

RMI is proud to manufacture and supply high-pressure systems to major global organisations, including Shen Hua Group China, Consol Energy USA, Xstrata Australia and UK Coal.

Understanding the diverse nature of these markets and anticipating their requirements has been a key factor in RMI's continued success. Our modular design enables us to design and manufacture systems to customers' exacting specifications. Systems are supplied in many configurations including track, rail or skid mounted.

## Trimax S200-375

The 'S' range of plunger pumps forms the core of RMI pumping systems. To meet the most demanding operating conditions, the pumps are under a continuous development programme, with higher efficiency and reduced lifetime cost key considerations in our design review process.

All pumps are fitted with a robust fully supported crankshaft with conrods assembled with lead bronze big and small end bearings. Extremely high wear-resistant solid ceramic plungers, combined with Kevlar fibre seals provide long-lasting high-pressure sealing. All pumps undergo a rigorous testing programme prior to dispatch which includes oil temperature and pressure checks plus vibration monitoring, as well as the normal pump performance criteria.

### Pump Duties range from

188 - 517L/min @ 168 - 600Bar  
(50Hz speed)

60 – 152USgpm @ 2030 – 7805psi  
(60Hz speed)

## Quinmax S500

The S500 is the latest addition to the very successful 'S' range. The key element of the S500 pump is its five-plunger design, which has several advantages over the more traditional three-plunger format, including lower forces on the crankshaft and associated bearings and a 40% reduction in the fluid velocity per plunger. Reduced hydraulic noise and pressure pulses minimise the impact of surges on other critical items of equipment, increasing their life expectancy. The unique valve chest incorporates a replaceable cartridge-style design for the valve and seal housings leading to user-friendly maintenance, resulting in fewer downtime periods.

### Pump Duties range from

340 - 1080L/min @ 195 - 500Bar  
(50Hz speed)

105 – 310USgpm @ 2850 - 7250psi  
(60Hz speed)

### 1. Longwall Mining System

Our modular system incorporating S500 pumps for China.

### 2. Quinmax S500

A unique replaceable cartridge valve chest and 5 plunger design.

### 3. Valve Chest

Fully serviceable in situ, making for rapid and economical maintenance tasks.

### 4. Supply Tanks and Filtration

with duplex return filters, and automatic control of mixture and volume.



### Protection Devices

All mining system pumps are fitted with the unrivalled RMI Electronic Unloading Valve. Complete with its serviceable cartridge, the electronic solenoid valve instantly reduces the system pressure when demand from the system changes. The pumps are fitted as standard with oil temperature, pressure and level sensors and alarms to easily enable preventative maintenance.

### Controls

There are a number of options available regarding the main electrical controls for the system. The minimum specification would be: full programmable control of system parameters; full health monitoring with a diagnostic fault log; and auto start and rotation of lead pump. Full-colour LCD graphical display in multi languages can be supplied.

### Supply Tanks and Filtration

A complete range of supply tanks is available including an auto-mixing tank with combined storage of automatically mixed emulsion and pre-mixed raw oil. Depending on the type and size of the installation, RMI can offer a fully controlled and monitored boosted delivery of fluid from the tank to the main high-pressure pumps. Additional surge tanks can be supplied to provide extra storage capacity for installations with high 'tidal' return flows - normally required for mines with limited entry size and performing uni-directional shearer cutting.

All RMI fluid storage tanks always include a high-flow capacity duplex 'in-tank' return filter. Either filter element can be replaced without interrupting the pumped fluid supply.

### Pump Valve Chest

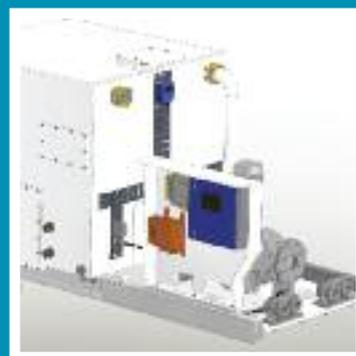
As part of our drive to innovate and improve the overall lifetime operating costs of our products, the engineering team has developed a unique valve chest. This new product is not only fully serviceable in situ, but, as it's a continuation of our modular design, it can be retro-fitted to existing S200 – S500 pumps. Utilising a cartridge valve design, an individual valve can be replaced without the removal of the valve chest, thus speeding up repairs.



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The RMI Customer service commitment is supported by a global presence with wholly owned operations in the UK, China, India, the USA and Australia.

# Ongoing Support

## LinkOne

To enhance our customers' experience of RMI products, we have invested heavily in the *LinkOne* graphical catalogue for parts ordering and operating manuals. Each system is supplied as standard with a CD showing very detailed sectional views of all major components, making parts ordering simple and accurate. A full set of detailed operating and installation manuals is also supplied to ensure successful installation and safe operation.



## Spares Modules

Anticipating the inevitability of pump repairs, and the impact of that on production, we have developed a full range of spare pump modules and kits. Reducing maintenance downtime is critical and, by utilising our module approach, repairs can be carried out in record time. The need to hold or order large stocks of small intricate parts is removed, resulting in many associated savings in time and space. The pre-assembled kits come with a full manufacturer's warranty and fitting instructions, providing additional reassurance.

## Safety Standards

RMI equipment is often installed in very hazardous and challenging environments that are tough on equipment and workers alike. We believe that nothing is more important than the well-being of people working in these conditions. We exceed the requirements of all international safety standards and to ensure that we never sacrifice safety for performance we have specialist engineers who focus entirely on operational safety. RMI products and systems are checked for compliance with international standards and those of the local market.

### 1. Repair and Maintenance

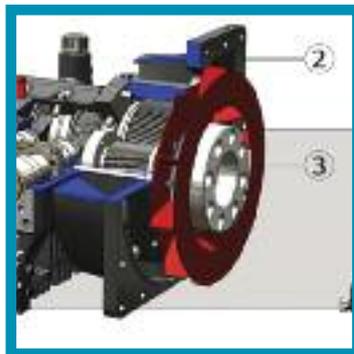
LinkOne electronic repair manual for a pump.

### 2. Spares Modules

A full range of spares modules are held at our Global service centres, ensuring rapid supply.

### 3. Safety Standards

4-Pump Emulsion system undergoing final inspection and sign off, following complete system functionality and performance test.

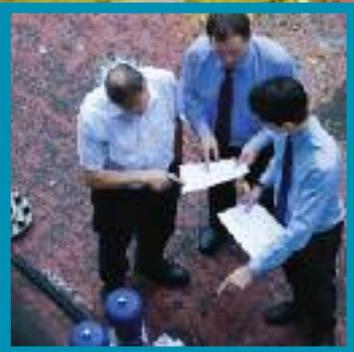


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S500 pump being assembled prior to transfer to the system build department.





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