

PROCESS PUMPS FOR MINING

Watson-Marlow Bredel ... Value for life



Chemical Pumps

Increase accuracy and dependability

Watson-Marlow Bredel is the pump of choice in mines throughout the world to pump shear sensitive polymers for flocculation, abrasive lime slurries for pH control, or corrosive chemicals like cyanide for gold recovery. Our pumps provide a flow variation over their working life within $\pm 1\%$ for either high or low pressure with flow ranges from microliters to thousands of gallons per hour. With a wide variety of drive configurations available, Watson-Marlow Bredel offers the flexibility to meet the requirement of any mining application. Backed by an industry leading **5-year warranty** Watson-Marlow Bredel's **520, 620, and 720** series tube pumps offer extraordinary accuracy and speed control.



- Copper sulfate, xanthate, SIBX/MIBX, GUAR, cyanide, sulfuric acid, lime, flocculants, zinc sulfate, aerophine, sodium silicate, BIOX, surfactants, sulfides

Everything you need for chemical metering

High accuracy metering

Using microprocessor controlled brushless DC drive technology, Watson-Marlow Bredel tubing pumps will properly maintain the flotation rates of ore extracts.

- Ensure economical use of expensive chemicals and create significant process efficiencies
- 3,600:1 control range with a single pump
- Meter with ± 0.1 revolution/min precision
- Flows up to 16 GPM and pressures to 100 psi

Easy system integration

Watson-Marlow Bredel pumps integrate seamlessly into your new or existing control system.

- Built in operator-friendly manual, analog, and digital control
- No need for separate VFDs or complex control devices
- Free standing NEMA 4X corrosion resistant enclosure for arduous mining environments

Lowest life cycle cost

Leakage, clogging or blockage of pumps can be a regular and expensive occurrence with other pump types. Watson-Marlow Bredel's low maintenance pumps contain the fluid in a long life tube element that takes only moments to replace.

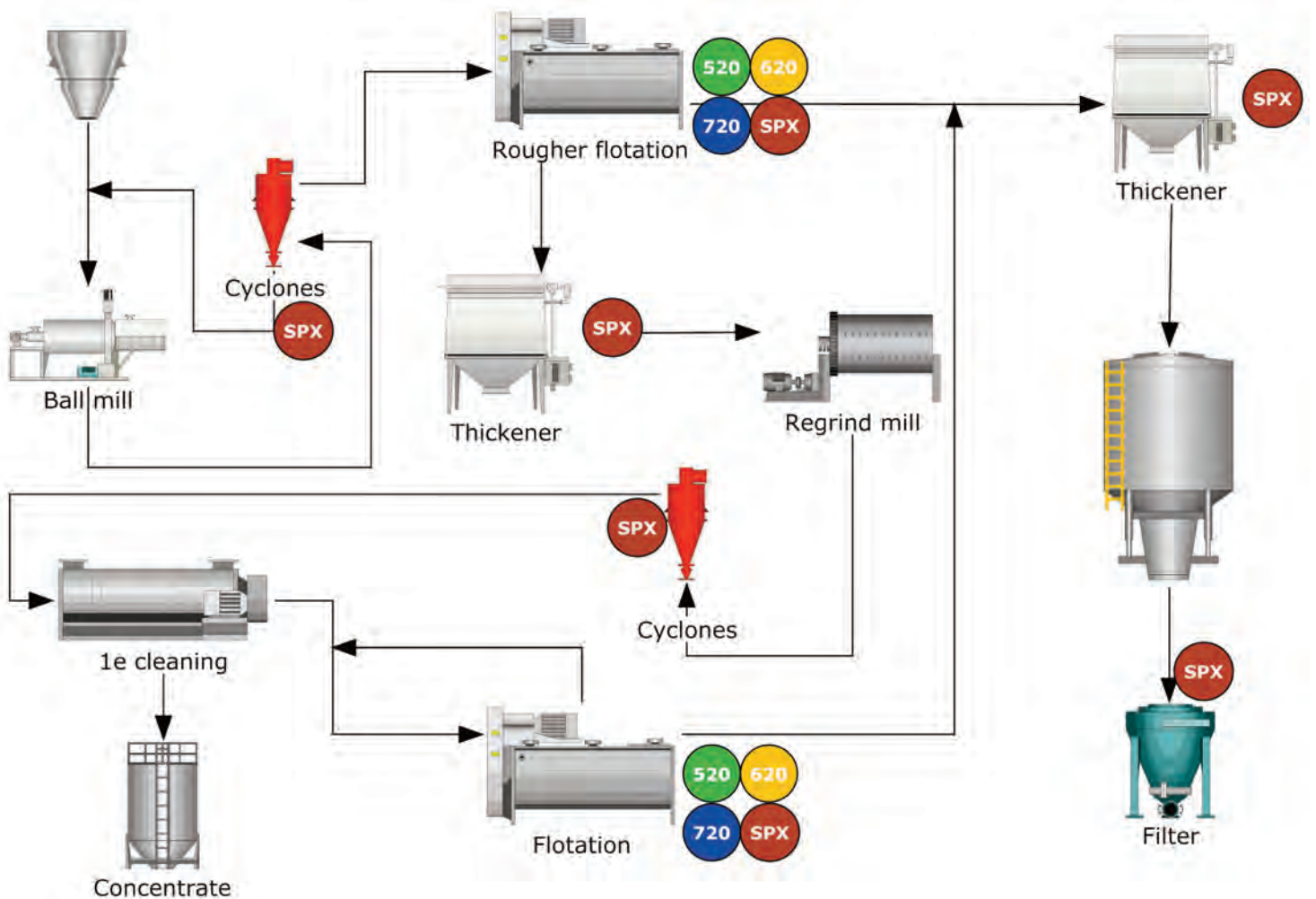
- No seals, valves, lobes, rotors, pistons, or vanes
- No strainers, dampeners, or other ancillary equipment needed
- Runs dry indefinitely without damage and self-priming to 30 feet



Minera Fresnillo S.A., a subsidiary of Peñoles Group located in north-west Mexico, has multiple Watson-Marlow Bredel 520 and 620 pumps dosing aerophine, xanthate, sodium cyanide and copper sulfate into flotation tanks. These peristaltic pumps replaced diaphragm pumps which have been a long-lasting headache for the mine's maintenance technicians due to constant obstruction of the valves, damaged diaphragms, leaks and frequent reduction of productivity. Our pumps have no valves to get blocked, and virtually eliminate hazardous chemical leaks to the environment.

The Mining Process

Reduce your maintenance and operation costs by replacing your failing centrifugal slurry pump and positive displacement pumps with Watson-Marlow Bredel pumps.



In today's mines, downtime is money down the drain, which is why a **large mine in New Brunswick, Canada** replaced centrifugal slurry pumps with Watson-Marlow Bredel SPX hose pumps. The 65% solids of the zinc and lead thickener underflow slurries was too high to allow the centrifugal pumps to deliver the desired flow rate and abrasive wear was causing an unacceptable frequency of costly repair. Because the abrasives in the slurry do not affect Watson-Marlow Bredel pump life the mine is now able to minimize downtime and achieve dependability at the desired flow rate.

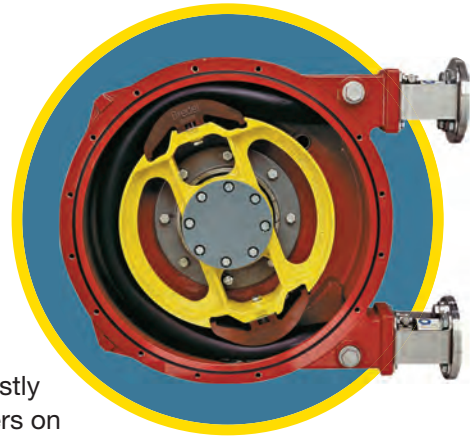


Slurry Pumps

Mining operations challenge most conventional pumps

Handling abrasive and corrosive fluids typically used in mining operations presents a challenge to any pump manufacturer. High solids content and strong acidity create problems for diaphragm, centrifugal or other types of pumps where the product comes in contact with the working parts of the pump.

To overcome these problems, mine operators have had to purchase special pumps constructed from acid-resistant materials or put up with frequent, costly pump maintenance or replacement. In several applications, rotors or impellers on slurry pumps last only weeks and diaphragm pumps clog, leak or fail after only a few months.



- Slurries including pyrite, copper, zinc, uranium, nickel, cobalt, silver, platinum, lime, gold concentrate

Let hose pump simplicity keep your process running

Longer life and greater reliability

Because Watson-Marlow Bredel pumps contain the fluid within the hose, they are naturally resistant to abrasive wear.

- Pump operation is predictable
- Clear flow path means no mechanical seals, packing, or check valves to clog, wear, or replace

Quick and easy maintenance

Dismantling and assembly of progressive cavity and centrifugal slurry pumps can be time consuming, difficult, and expensive.

- Hose pumps require only one part - the hose
- Hose replacement takes only minutes with no special tools

Elimination of ancillary equipment

Ancillary equipment required for progressive cavity and centrifugal slurry pumps is not needed, cutting capital and maintenance costs.

- No in-line check valves
- No seal water flush systems
- No run-dry protection devices

The hose is the pump

The hose is the core of our pump and never fails due to abrasion. Its unique four-ply structure ensures excellent suction and pressure performance, and extends service life beyond other pump designs. The rapid wear of progressive cavity and centrifugal slurry pumps means a quick drop in performance on abrasive mining slurries.

- No flow drop over the life of the hose
- Repeatable volumetric accuracy to $\pm 1\%$
- No expensive metallurgy like hastelloy or stainless steel to replace



A large copper and gold mining company in Arizona needed to replace hard chrome iron centrifugal pumps on a difficult tailings slurry application. The centrifugal pump impellers were wearing out every two weeks, causing significant downtime and costly repairs. The mine considered several different pump technologies, selecting Watson-Marlow Bredel SPX100 hose pumps. The hose pumps transfer the tailings slurry 2,200 feet away to a separate plant. With no seals to flush and the ability to pump tailings with a high solids concentration (80%) the mine uses much less water with the SPX pumps, saving the plant considerable amount in both maintenance and water usage.



Watson-Marlow Bredel ... Value for life

Watson-Marlow Bredel SPX hose pumps easily pump abrasive fluids like tailings, metal slurries and thickener underflow. Due to the high solids content of these slurries other types of pumps fail because the product comes in contact with the rotors, stators, impellers and seals of the pump. In a Watson-Marlow Bredel hose pump, the hose **never fails due to abrasion!**

In the mining industry, **water is money** and the less you use the better! Flushing pump seals and diluting thickened slurries is incredibly costly to a mine because the water added has to be removed or treated. Watson-Marlow Bredel hose pumps have **no seals** to flush and the ability to pump thickened slurries up to concentrates of 80% solids. The cost savings over centrifugal slurry pumps is staggering and it is just one of the benefits when a mine switches to Watson-Marlow Bredel pumps.



Benefits of Watson-Marlow Bredel Pumps include:

- Less water consumption
- Lower energy consumption
- Over 80% solids capability
- No flow reduction with back pressure increase
- Less maintenance and spares required
- Heavy duty construction for difficult fluids like acidic, caustic, abrasive, viscous, shear-sensitive, gaseous, and corrosive chemicals
- Flows from 0.00015 GPD to 400 GPM and up to 230 psi

Plant Manager

“Since Watson-Marlow Bredel pumps are sealless we saved 53 GPM on seal water alone after we purchased 164 of their pumps.”

Project Engineer

“We replaced our 6in x 4in centrifugal slurry pump with a SPX100 Duplex and cut our horse power by a factor of four without sacrificing flow rate.”

Technical Support Manager

“Very reliable, wear resistant, consistent and accurate. A very good industrial pump.”

Expert local service and support

With over one million pumps keeping processes running around the world, Watson-Marlow has been the leader in peristaltic innovation for over 50 years. To find out where our pumps can improve your process, a Watson-Marlow Bredel representative based close to you will carry out a complete evaluation to ensure we understand your precise needs, delivering a pumping solution with clear benefits and payback. That same representative will be there to support your installation and ensure you are completely satisfied.

Stillwater's Base Metals Refinery in Columbus, MT replaced their solenoid type diaphragm metering pumps with Watson-Marlow Bredel 521CC pumps for their GUAR application. The refinery found that the ball checks on the solenoid pumps would fail or stick, requiring frequent process interruption for pump rebuilds. With the Watson-Marlow Bredel 521CC pumps, a simple tube change and the pump is like new in minutes. Based on the success of the GUAR pumps, Stillwater converted to Watson-Marlow Bredel pumps for their flocculent, copper sulfate, and xanthate applications.



United States of America
Canada
Telephone 800 282 8823
Fax: 978 658 0041
Email support@wmbpumps.com
www.watson-marlow.com

Mexico
Telephone 52 81 8220 3614
Fax: 52 81 8365 1965
Email support@wmbpumps.com
www.watson-marlow.com.mx

Belgium
Telephone +32 (0) 9 225 94 57
Fax: +32 (0) 9 233 06 49
Email: info@watson-marlow.be

Brazil
Telephone +55 (11) 2155 4000
Fax: +55 (11) 2155 4001 or 4008
Email: info4brazil@watson-marlow.com
www.watson-marlow.com.br

China
Telephone +86 21 6485 4898
Fax: +86 21 6485 4899
Email: mingshao@cn.spiraxsarco.com
www.watson-marlow.cn

Denmark
Telephone +00 45 43 94 00 65
Fax: +00 45 43 94 00 85
Email: info@watson-marlow.dk
www.watson-marlow.dk

France
Telephone +33 (0) 1 34 87 12 12
Fax: +33 (0) 1 34 87 12 13
Email: info@watson-marlow.fr
www.watson-marlow.fr

Germany
Telephone +49 (0) 2183 42040
Fax: +49 (0) 2183 82592
Email: info@watson-marlow.de
www.watson-marlow.de

Italy
Telephone +39 03 06871184
Fax: +39 03 06871352
Email: info@watson-marlow.it
www.watson-marlow.it

Korea
Telephone +82 (0) 32 820 3973
Fax: +82 (0) 32 811 0321
Email: changwoojang@kr.spiraxsarco.com
www.watson-marlow.co.kr

Malaysia
Telephone +60 (3) 5635 3323
Fax: +60 (3) 5635 7717
Email: sales@my.spiraxsarco.com

Netherlands
Telephone +31 (0) 10 462 1688
Fax: +31 (0) 10 462 3486
Email info@watson-marlow.nl

South Africa
Telephone +27 11 796 2960
Fax: +27 11 794 1250
Email info@wmbpumps.co.za

Sweden
Telephone +46 8 556 556 00
Fax: +46 8 556 556 19
Email info@watson-marlow.se
www.watson-marlow.se

United Kingdom
Telephone +44 (0) 1326 370370
Fax: +44 (0) 1326 376009
Email support@watson-marlow.co.uk
www.watson-marlow.co.uk

Distributors in over 50 countries

The information contained in this document is believed to be correct, but Watson-Marlow Bredel accepts no liability for any errors it contains and reserves the right to alter specifications without notice.

WARNING These products are not designed for use in and should not be used for, patient connected applications.

Watson-Marlow, Pumpsil, LoadSure, LaserTraceability, Bioprene and Marprene are registered trademarks of Watson-Marlow Limited

Sta-Pure and Chem-Sure are trademarks of WL Gore & Associates Inc. Fluorel is a trademark of 3M.



www.watson-marlow.com
Members of the Spirax-Sarco Engineering Group

HB0255

To learn more about Watson-Marlow Bredel pumps, please ask for one of our process pump brochures:

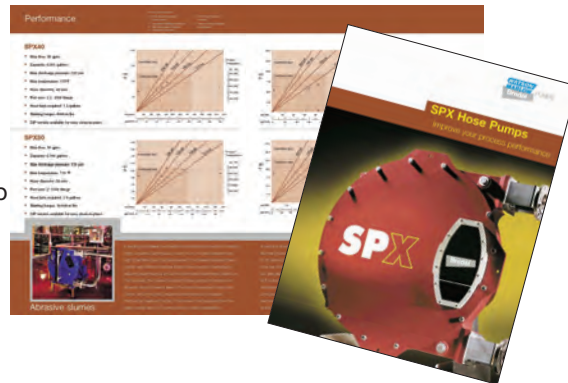
Heavy Duty Tubing Pumps

99% repeatable metering when pumping shear sensitive polymers for flocculation, abrasive lime slurries for pH control, or corrosive chemicals like cyanide for gold recovery.



Industrial SPX Hose Pumps

High flow, high pressure hose pumps ideal for aggressive, viscous, or abrasive slurries up to 400 GPM and up to 230 psi.



Water and Wastewater Applications

See where Watson-Marlow Bredel can improve processes in the wastewater side of your plant.



Call 1-800-282-8823 for further information on the industrial pumps and tubing range including technical data sheets or log on to our web site: www.watson-marlow.com to view details on our complete peristaltic pump range

Watson-Marlow Bredel Pumps
37 Upton Drive, Wilmington, MA 01887
Tel: 1-800-282-8823 Fax: 1-978-658-0041
support@wmbpumps.com