

For more information and prices contact: sales@pumping.com.au

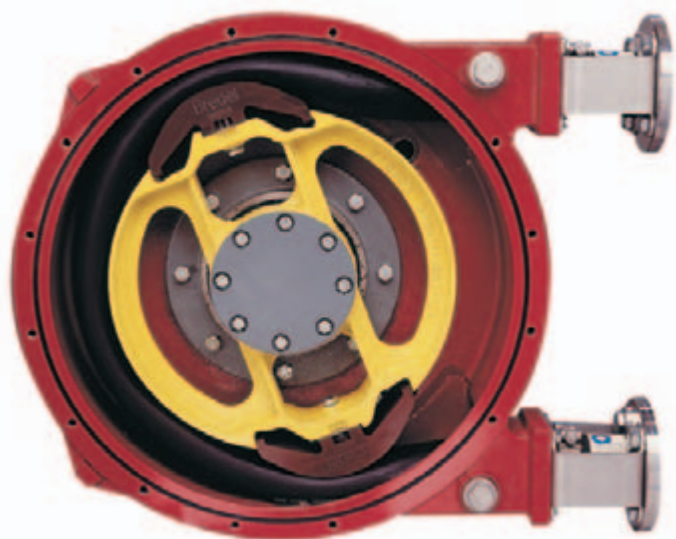
SPX HOSE PUMPS

Improve your process performance



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Good News . . . a pump with no seals or valves



The perfect pump for:

- Corrosives
- Abrasives
- Shear sensitive fluids
- High viscosity fluids
- High density fluids
- Large solids
- Metering ($\pm 1\%$ accuracy)

Features:

- Self-priming
- Dry-running
- Reversible
- No metal to metal product contact
- Fluid contained within the hose
- Easy maintenance, low cost, short down time

The positive displacement pump of choice

Watson-Marlow Bredel is the world's largest manufacturer of hose pumps with the widest range of pumps and hose element materials. Today over 85,000 Watson-Marlow Bredel positive displacement hose pumps are working non-stop all around the globe. With operating pressures to 16 bar and flow rates to 80 cubic metres/hour Watson-Marlow Bredel pumps save time and money by successfully handling the toughest applications, in a broad range of industries including:

- Chemical - corrosive acids, and bases
- Water and wastewater treatment - lime, kalic, sodium hypochlorite, ferric chloride and sludges
- Paint and pigments - dispersion mill feed, pigment and latex transfer
- Pulp and paper - dyes, sizing agents, retention aids and titanium dioxide
- Mining and mineral separation - tailing slurries, sludges and reagents
- Ceramics and glass - fine china
- Construction - cement, coatings, spray concrete, brick and roof tiles, colourants and aggregate
- Breweries - yeast, diatomaceous earth, flocculants, stabilisers, filter press feed
- Printing and packaging - varnishes, inks, coatings and adhesives
- Food and beverage - CIP applications, wine, brewery, dairy, bakery, flavourings and additives
- Textiles - fibres, dyes and acids
- OEM - versions available for system suppliers

Engineered simplicity

The pumping action results from alternately compressing and relaxing a machined hose element between the pump housing and the compressing shoes. The fluid ahead of the shoe is pushed towards the discharge while the rebounding hose behind the shoe draws more fluid in. With 100% compression at all times, the pump does not slip, providing unbeatable metering accuracy and pressure performance. With no pump seals, seats or valves, abrasive slurries are no problem. With the fluid contacting only the inner wall of the hose, the pump is perfect for aggressive products.



to wear, clog, or leak.

The fastest growing pump type

High maintenance diaphragm, rotary lobe, or progressive cavity pumps can't match the rugged, reliable 24/7 dependability of the SPX which:

- Doesn't require expensive ancillary equipment. No check valves, sealing water flush systems, or run dry protection. It's simple to own and operate
- Pumps abrasive slurries, corrosive acids, gaseous liquids, as easily as water - no vapour locking
- Is ideal for high viscosity or shear sensitive product
- Can run dry indefinitely without damage
- Has one wetted component - the hose element. No seals, ball-checks, diaphragms, glands, immersed rotors, stators or pistons to leak, clog, corrode and replace
- Is fully reversible to blow out clogged suction and drain lines safely
- Has a suction lift capability up to 9.5 metres and is self-priming
- Does not slip, giving true positive displacement for accurate and repeatable metering

Downtime is money

Save both with the SPX by reducing your maintenance. To completely rebuild an SPX all you need is a spanner, a hose, and a few minutes. Drain the lubricant, unbolt the flanges, replace the old hose and you're back up and running. No complex parts lists, no special tools, and no need to bring the pump to a maintenance shop.

SPX - The apex of pump evolution

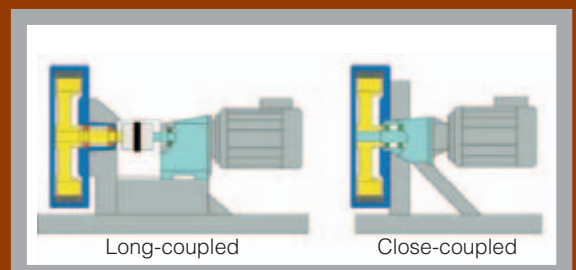
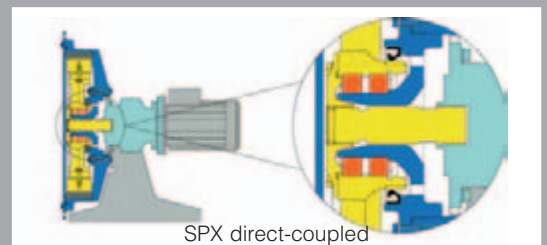
With over 50 years experience, Watson-Marlow Bredel leads the way in hose pump technology, engineering the new standard for hose pumping with its unique SPX direct-coupled design. The SPX combines the small footprint of close-coupled pumps with the reliability and ease of maintenance of long-coupled designs.

While close-coupled pumps are extremely compact, this out-of-date technology still used by other hose pump manufacturers relies on the gearbox to seal the pump housing and support the heavy overhung load of the pump rotor. While close-coupled pump competitors offer optional long-coupled pumps to improve gearbox and bearing life, this comes at the cost of substantially increased footprint and the added complexity of coupling alignment and maintenance.

The SPX direct-coupled design contains heavy duty rotor bearings within the pump rotor, eliminating any overhung load. Ultra compact SPX high-torque gear drives then align directly to the pump housing and is fully protected by an innovative buffer zone. No other pump achieves the reliability, simplicity, and compactness of the SPX hose pump.

Compare the advantages of SPX

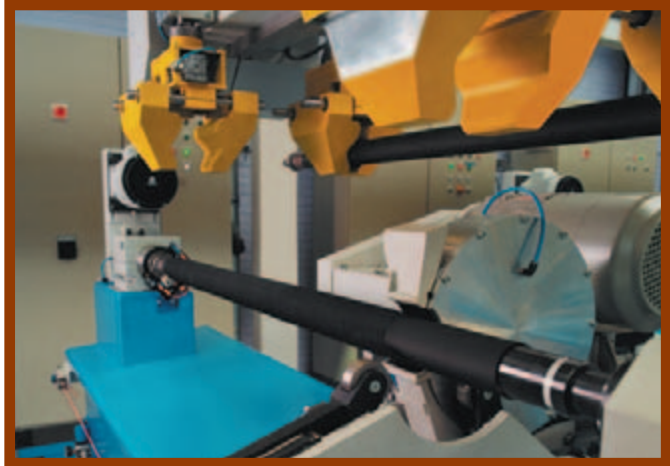
Comparative advantages	Long-coupled	Close-coupled	SPX direct-coupled
Ease of maintenance	•		•
Protected gearbox - lubricant seal in pumphead	•		•
Reliability - bearings in pumphead	•		•
Compact footprint		•	•
Faster installation - no drive alignment		•	•
Total	3	2	5



The hose is the key

The machined hose element is the single most vital component for the performance, durability, and efficiency of the hose pump. To ensure perfect compression and consistent, reliable performance, Watson-Marlow Bredel manufactures hose elements from high quality compounded rubbers, reinforced with four individual layers of braided nylon and finished by high precision machining. Perfect compression eliminates slip which, in other pumps, can destroy shear sensitive product, reduce metering accuracy, or allow abrasive slurries to wreak havoc on wetted parts. Watson-Marlow Bredel engineers hose elements to meet the flow, pressure and temperature characteristics of your toughest applications.

We are the only hose pump manufacturer to machine our own hose elements. No other competitors take this degree of care.



Because even a 1mm variation in wall thickness can impact hose life by 25%, every hose element is precision machined to ensure repeatable performance.



Hose construction

The essential component of high-performance hose pumps is a hose that is constructed of layers of rubber reinforced by winding several layers of nylon cord. The inner layers are extruded. The inner layer is available in a range of rubber compounds. After the hose is constructed, it is then machined. Machining is the final step in hose manufacture and is critical to ensure that exact tolerances are held.

- 1 Inner layer in various types of rubber**
- 2 Reinforced with layers of nylon**
- 3 Outer layer precision-machined**
- 4 Rough outer surface before machining**

Designed to perfection

Watson-Marlow Bredel is on the cutting edge of technology to engineer, manufacture and test our pumps.

Innovation: As the global leader in hose pumps, we pride ourselves on new ideas and innovative products that bring the benefits of hose pumps to our customers in an ever expanding range of applications. For example, retractable pressing shoes bring ultimate clean-in-place capability. And new hose materials have now made our pumps impervious to tough hydrocarbons - once off limits to hose pumps.

Design: Using tools like finite element analysis (FEA), we design our hose elements to perfection - right down to the position of the reinforcing layers, angles and thickness of the cord reinforcement, and the thickness of the rubber. Everything from the geometry of the pressing shoe to the pump housing is engineered to optimise the performance of the hose element.

Production: Unique in the world, Watson-Marlow Bredel's state-of-the-art automated hose grinding facility machines every hose within fine tolerances - guaranteeing proper compression for efficiency and longevity. At our ISO9001.2000 factory, each pump and hose element is constructed to the most rigorous quality controls standards.

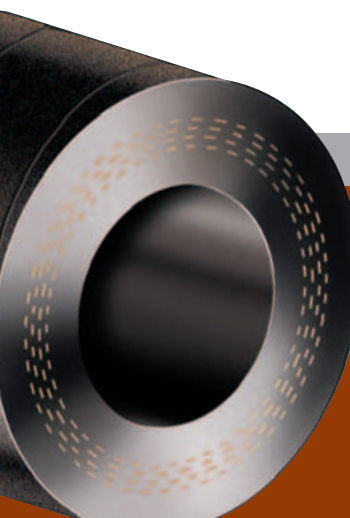


At our research and design facility, pumps are running non-stop every day to enhance the performance of the best hose pumps on the market today, and develop new innovations for the future.

Precision hose elements ensure

- Tight tolerances for low stress on bearings
- Perfect compression for long life
- Excellent suction performance - 9.5m suction lift
- High pressure capability - 16 bar
- Repeatable volumetric accuracy to +/- 1%
- Consistent capacity independent of varying suction and discharge conditions
- Exceptional performance when handling high viscosity products

Hose options



NATURAL RUBBER (NR)

Outstanding abrasion resistance. Generally resistant to diluted acids and alcohols.

Max. fluid temp 80C
Min. fluid temp -20C



NITRILE-BUNA N (NBR)

Meets FDA and 3A. Resistant to oils, greases, alkalis and detergents.

Max. fluid temp 80C
Min. fluid temp -10C



EPDM

Excellent chemical resistance, especially to ketones, alcohols and concentrated acids.

Max. fluid temp 90C
Min. fluid temp -10C



HYPALON® (CSM)

Outstanding chemical resistance to highly concentrated acids and bases

Max. fluid temp 80C
Min. fluid temp -10C

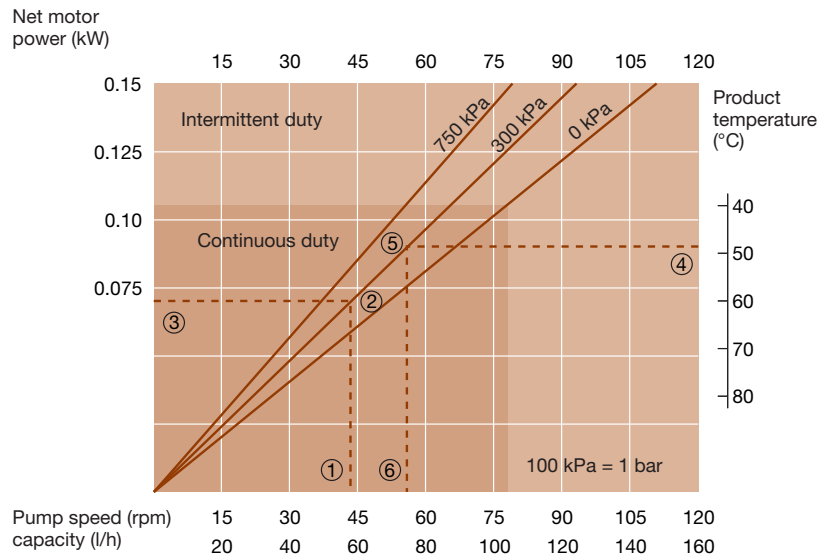
Performance

How to use the curves:

- 1 Flow required indicates pump speed
- 2 Calculated discharge pressure
- 3 Net motor power required
- 4 Product temperature
- 5 Calculated discharge pressure
- 6 Maximum recommended pump speed

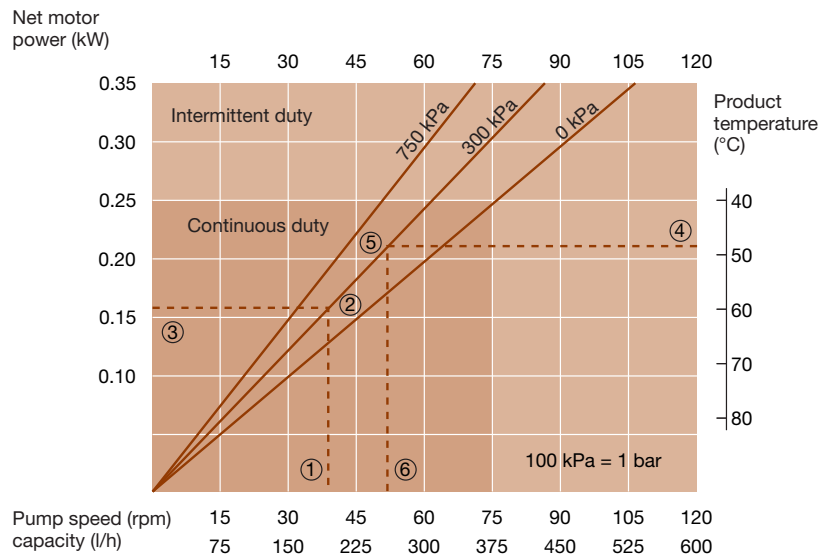
SPX10

- Max flow: 140 L/hr
- Capacity: 0.022 L/rev
- Max discharge pressure: 7.5 bar
- Max temperature: 80C
- Hose diameter: 10mm
- Port size: 16mm hose tail, optional flange or threaded nipple
- Hose lube required: 0.25 litres
- Minimum starting torque: 47 Nm



SPX15/SPX20

- Max flow: 520 L/hr - 15mm bore
957 L/hr - 20mm bore
- Capacity: 0.083 L/rev - SPX15
0.152 L/rev - SPX20
- Max discharge pressure: 7.5 bar
- Max temperature: 80C
- Hose diameter: 15mm - SPX15; 20mm - SPX20
- Port size: 20mm hose tail, optional flange or threaded nipple
- Hose lube required: 0.5 litres
- Minimum starting torque: 60 Nm - SPX15
85 Nm - SPX20



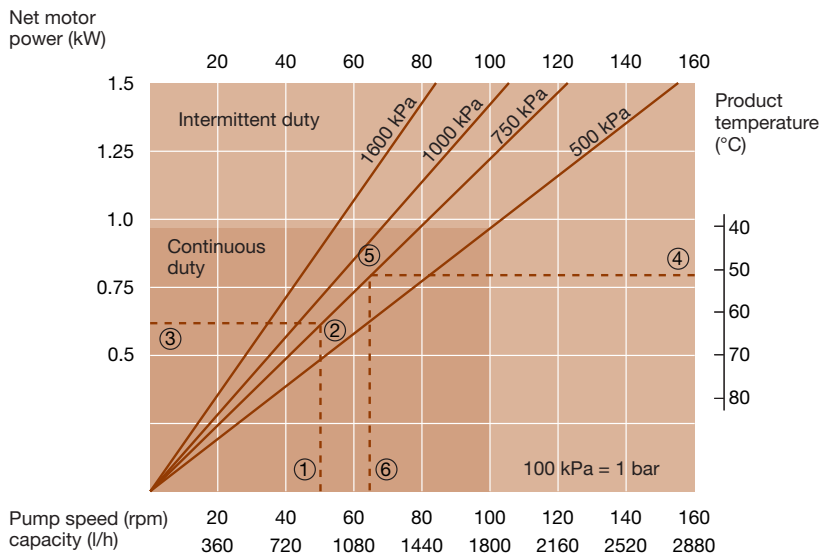
Solids handling

Low cost sludge pumping at Greenfield STW

A Watson-Marlow Bredel SPX80 hose pump installed at Greenfield Sewage Treatment Works handles 19,000 litres/day in a primary tank desludging operation.

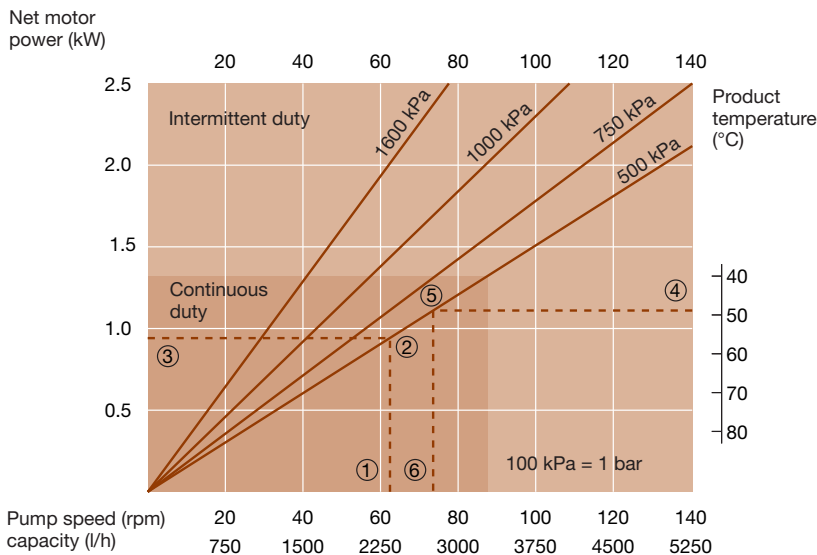
The SPX80 is fitted with a 3kW fixed speed drive and is pumping 5% sewage sludge from the tanks. Suction is through five metres of 100mm diameter pipe and a further fifteen metres of 150mm diameter pipe with a slight lift. Discharge is to a thickener through 100 metres of 100mm diameter pipe with a 5 metre vertical rise.

With the sludge contained within the hose throughout pumping, and no glands, valves, rotors or pistons to wear or leak, this provides an optimum combination of abrasive resistance, mechanical strength and resilience. All this adds up to long hose life and minimal pump maintenance, therefore low whole life cost.



SPX25

- Max flow: 2,500 L/hr
- Capacity: 0.300 L/rev
- Max discharge pressure: 16 bar
- Max temperature: 80C
- Hose diameter: 25mm
- Port size: DIN 25mm flange
- Hose lube required: 2 litres
- Minimum starting torque: 115 Nm



SPX32

- Max flow: 4,500 L/hr
- Capacity: 0.625 L/rev
- Max discharge pressure: 16 bar
- Max temperature: 80C
- Hose diameter: 32mm
- Port size: DIN 32mm flange
- Hose lube required: 3.5 litres
- Minimum starting torque: 210 Nm

Acids, alkalis and plastic sacks, no problem to an SPX50

Where a variety of other pump types had been tried and had failed, an SPX50 hose pump triumphed in a difficult effluent pumping duty at a bulk chemical supply company.

The effluent can be acidic or alkaline with up to 10% solid content, often consisting of sodium bisulphate, caustic potash, hydrochloric and sulphuric acids in varying concentrations. These aggressive chemicals, together with abrasives such as calcium deposits, grit and sludge, as well as wire, plastics sacks, tie wraps, labels and bottle tops, create a seemingly impossible mixture for a pump to handle.

Effluent and surface run-off from the entire site drains into a centrally located, six metre deep collection sump. Operating automatically under the control of high and low level float switches, the SPX50 pumps from the sump against a head of approximately three metres, to the treatment plant.



Chemical metering

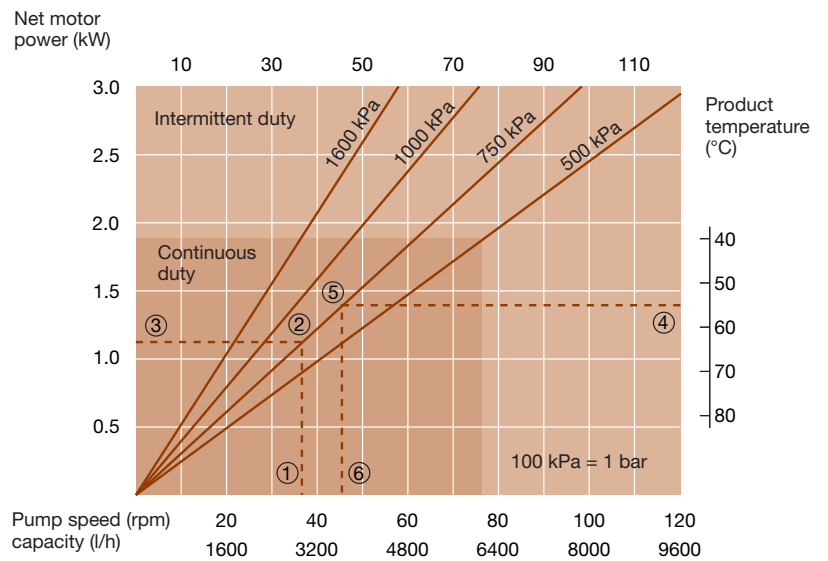
Performance

How to use the curves:

- 1 Flow required indicates pump speed
- 2 Calculated discharge pressure
- 3 Net motor power required
- 4 Product temperature
- 5 Calculated discharge pressure
- 6 Maximum recommended pump speed

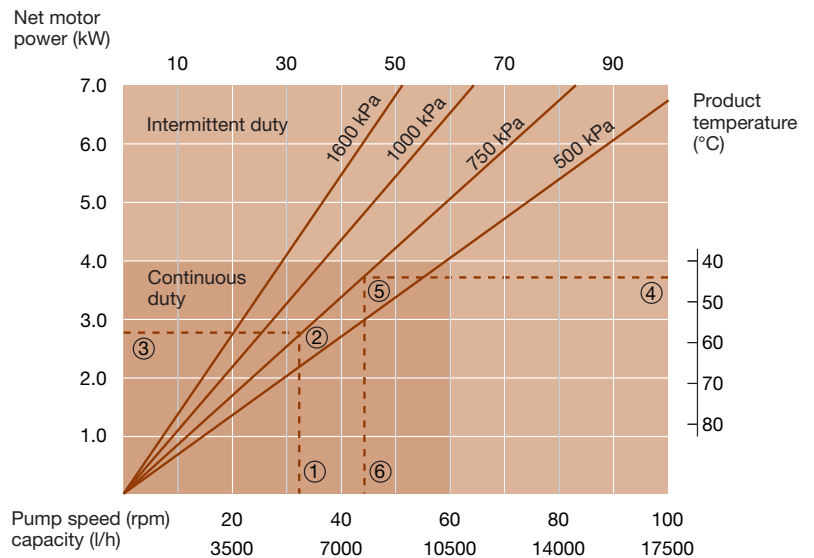
SPX40

- Max flow: 8,500 L/hr
- Capacity: 1.333 L/rev
- Max discharge pressure: 16 bar
- Max temperature: 80C
- Hose diameter: 40mm
- Port size: DIN 40mm flange
- Hose lube required: 5 litres
- Minimum starting torque: 320 Nm
- CIP version available for easy clean-in-place



SPX50

- Max flow: 15,500 L/hr
- Capacity: 2.916 L/rev
- Max discharge pressure: 16 bar
- Max temperature: 80C
- Hose diameter: 50mm
- Port size: DIN 50mm flange
- Hose lube required: 10 litres
- Minimum starting torque: 620 Nm
- CIP version available for easy clean-in-place



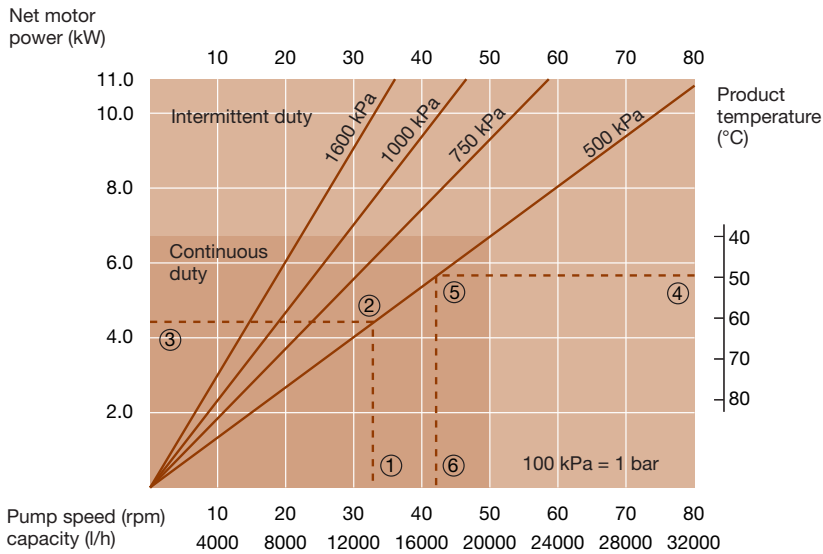
Abrasive slurries

Putting quarry waste to good use with an SPX100

Bardon Aggregates Industries Plc has over 70 aggregate operations located across the UK for crushing rock, sand and gravel. One of these sites was having to cope with a large build-up of dust fractions; the result of years of rock processing. They had to seriously consider how they could take the leftover and worthless dust and transform it into concrete sand.

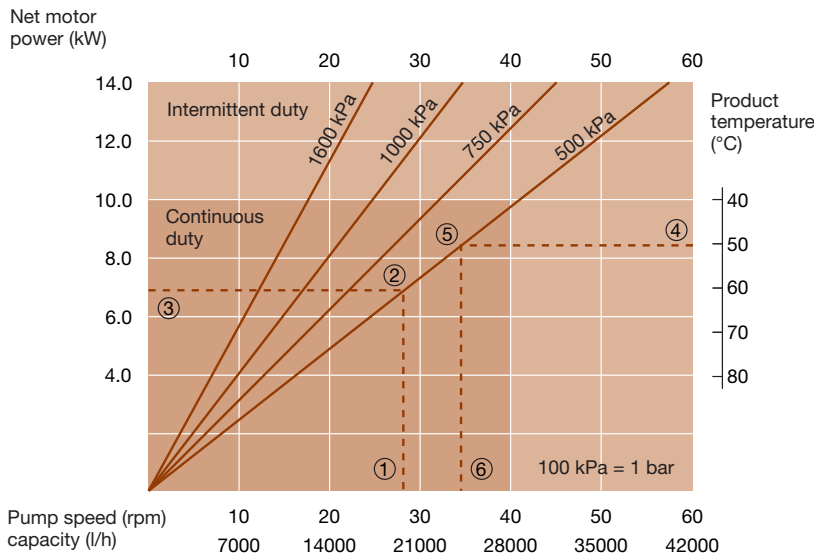
The redundant fractions are mixed with water and placed in a settlement tank to create a thick dense sludge for disposal. Such an abrasive material needed a pump that would be rugged enough to withstand the quarrying environment.

The SPX100 chosen for the application pumps the dense sludge from the settlement tank, 70 metres into the ground and vertically up a 15 metre cliff to a lagoon. Waste levels at the plant are now under control and the company is benefiting from the waste left over.



SPX65

- Max flow: 28,000 L/hr
- Capacity: 6.667 L/rev
- Max discharge pressure: 16 bar
- Max temperature: 80C
- Hose diameter: 65mm
- Port size: DIN 65mm flange
- Hose lube required: 20 litres
- Minimum starting torque: 1150 Nm
- Duplex version also available



SPX80

- Max flow: 35,000 L/hr
- Capacity: 11.667 L/rev
- Max discharge pressure: 16 bar
- Max temperature: 80C
- Hose diameter: 80mm
- Port size: DIN 80mm flange
- Hose lube required: 40 litres
- Minimum starting torque: 2000 Nm
- Duplex version also available

Fifty different recipes for SPX50 success

In the manufacture of high quality salad dressings and mayonnaise, an SPX50 pumps' ability to handle a wide variety of viscosities up to 30,000 cP, particulates including mustard seeds, whole "mini" capers, kibbled onion, chopped olives, rosemary, chopped horseradish and diced bell peppers, in varying concentrations, won the order over air operated diaphragms pumps.

As well as the pump's ability to cope with both high and low viscosity products without fall off in performance, of equal importance are easy cleaning and a smooth, low-shear, low turbulence pumping action, which obviates risk of the product thinning or damage to particulate ingredients in the dressings.



Shear sensitive

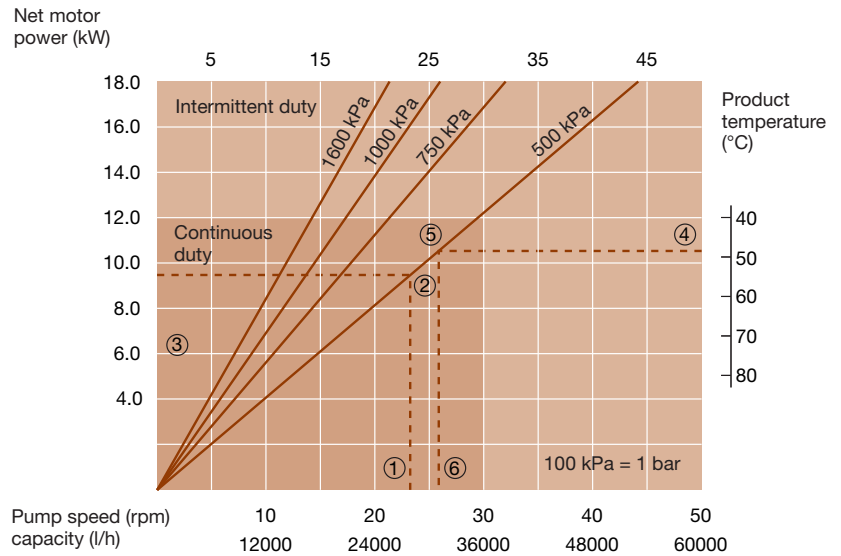
Performance

How to use the curves:

- | | |
|--------------------------------------|----------------------------------|
| 1 Flow required indicates pump speed | 5 Calculated discharge pressure |
| 2 Calculated discharge pressure | 6 Maximum recommended pump speed |
| 3 Net motor power required | |
| 4 Product temperature | |

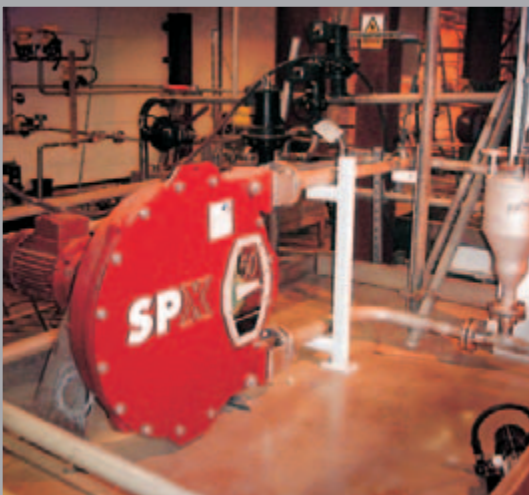
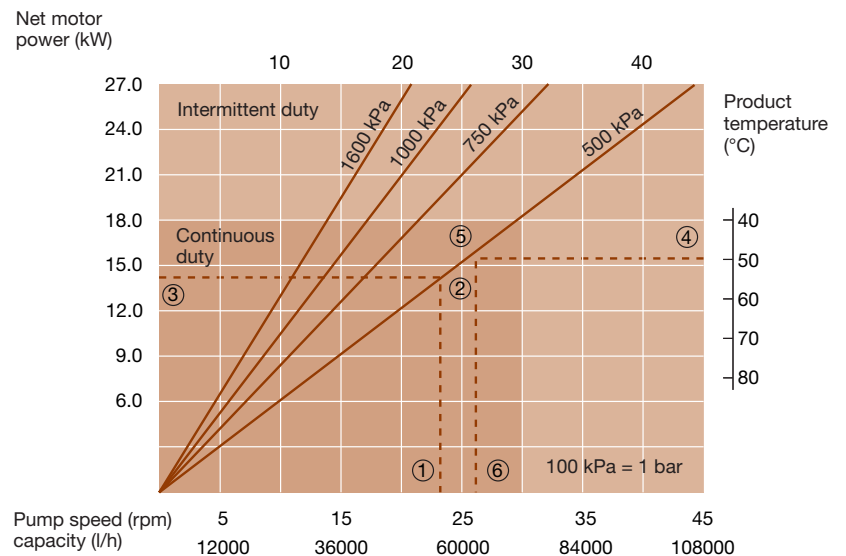
SPX100

- Max flow: 48,000 L/hr
- Capacity: 20.00 L/rev
- Max discharge pressure: 16 bar
- Max temperature: 80C
- Hose diameter: 100mm
- Port size: DIN 100mm flange
- Hose lube required: 60 litres
- Minimum starting torque: 3100 Nm



Duplex SPX100

- Max flow: 80,000 L/hr
- Capacity: 40 L/rev
- Max discharge pressure: 16 bar
- Max temperature: 80C
- Hose diameter: 100mm
- Port size: DIN 150mm flanged manifold
- Hose lube required: 120 litres
- Minimum starting torque: 4650 Nm



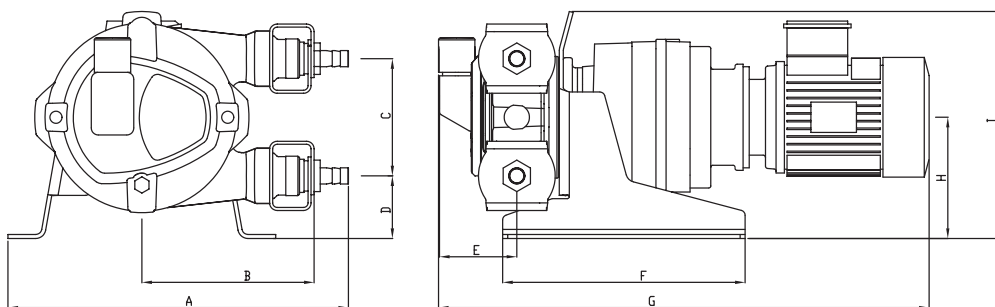
Safe containment

Safe nuclear sludge re-processing

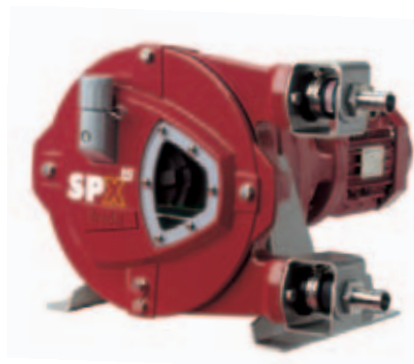
A key part of treatment of intermediate level radioactive waste (ILW) is by cement encapsulation. This involves retrieving homogenised sludge from existing tanks, pumping sludge through a cross flow filter system to dewater it, and then discharging batches of conditioned sludge to the drums. By mixing the sludge with cement and packing it in drums, it can be physically encapsulated for storage and transportation. The heart of this bottling process is dependent on SPX hose pumps, including two SPX65 models and another two SPX80 models.

Having a high suction lift was an important criteria for the pump selected for this application but an even greater consideration was their non-contacting pumping process.

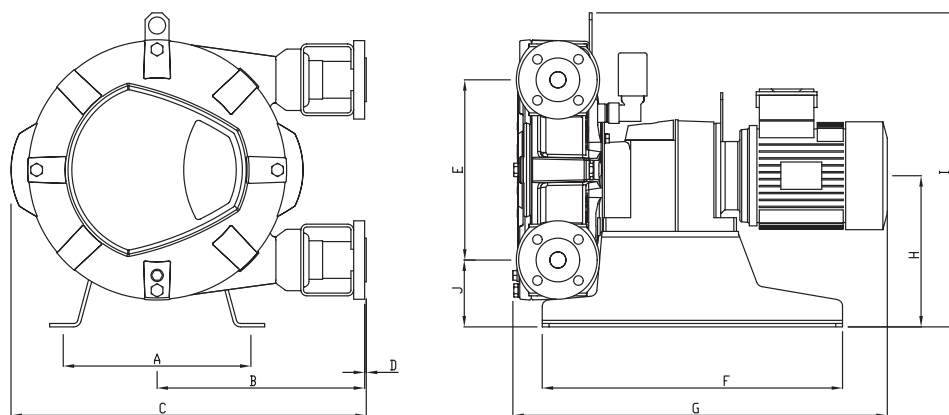
Dimensions



Model	A	B	C	D	E	F	G*	H	I	Approx. Wt. (kg)
SPX10	343	171	116	62	78	240	*	120	225	32
SPX15	434	230	195	63	82	250	*	160	304	45



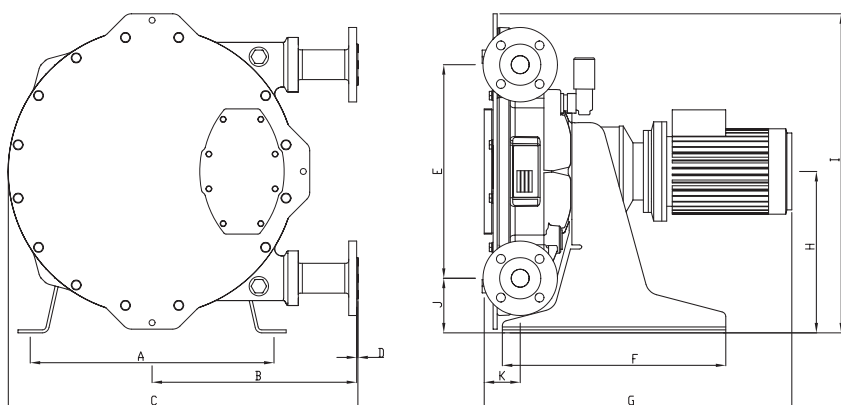
SPX10 – SPX15



Model	A	B	C	D	E	F	G*	H	I	J	Approx. Wt. (kg)
SPX25	285	306	520	2.5	264	440	*	230	423	98	89
SPX32	330	375	631	2.5	330	510	*	270	467	105	129



SPX25 – SPX32



Model	A	B	C	D	E	F	G*	H	I	J	K	Approx. Wt. (kg)
SPX40	490	412	202	2.5	430	450	*	325	630	110	73	180
SPX50	620	475	835	3	554	575	*	420	808	143	82	325
SPX65	680	580	1055	3	746	650	*	525	1030	152	103	558
SPX80	900	700	1253	4	876	850	*	620	1211	182	123	930
SPX100	1050	815	1468	4	1042	900	*	720	1402	199	150	1300



SPX40 – SPX100

*This dimension will vary depending on drive selection. Contact Watson-Marlow Bredel for details.

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