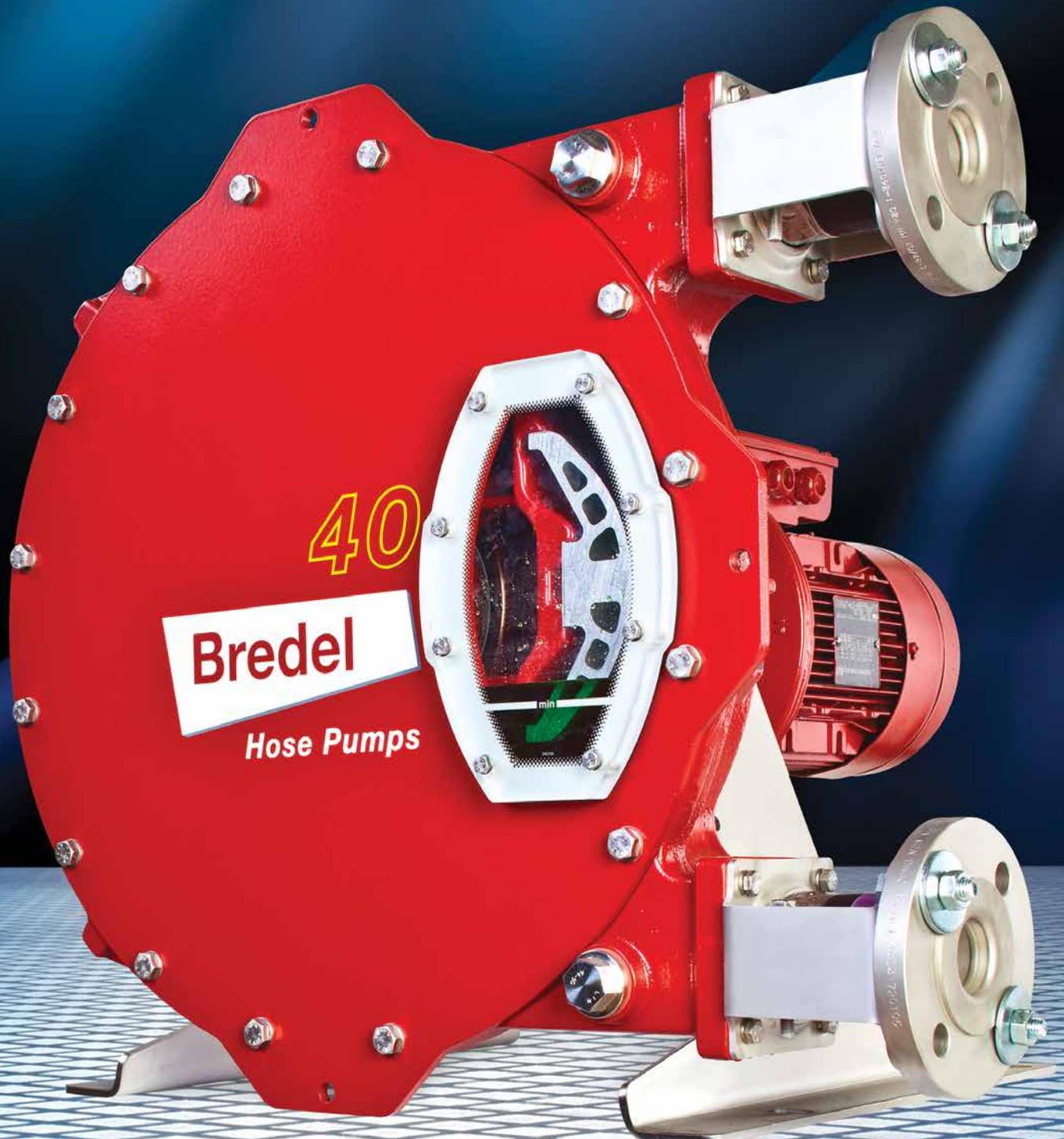


Bredel

Hose Pumps

BREDEL HEAVY DUTY HOSE PUMPS



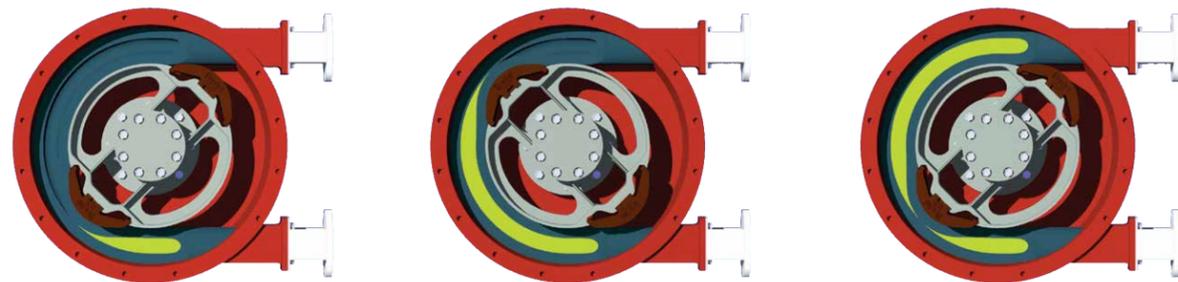
Good News... a pump with no seals or valves to wear, clog, or leak

Bredel is the world's leading manufacturer of peristaltic pumps with the largest range of pumps and pump element materials.

Today Bredel has more than 100,000 peristaltic pumps working non-stop around the globe. With operating pressures up to 232 psi and flow rates up to approximately 475 GPM, Bredel hose pumps save time and money by successfully handling the toughest applications in a broad range of industries.

Engineered Simplicity

The pumping action results from alternately compressing and relaxing a machined hose 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 chemicals.



The pumping action provides unbeatable metering accuracy and pressure performance.

Save time and money

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

- No ancillary equipment, check valves or sealing water flush systems
- Pumps abrasive slurries, corrosive acids, large solids and gaseous liquids with ease
- Ideal for high viscosity or shear sensitive product
- Run-dry indefinitely without damage
- Minimal maintenance - just change the hose
- Suction lift capability up to 30 feet and self-priming
- ±1% metering accuracy

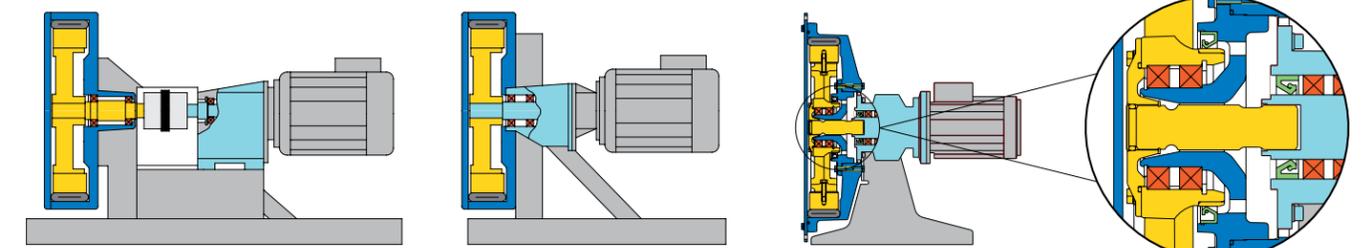
Advantages

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



Fully protected drive

Using direct coupled technology, Bredel combines the reliability of long-coupled pumps with the compact footprint of close-coupled pumps. Heavy duty rotor bearings within the pump rotor and an innovative buffer zone protect gearing from overhung loads and contamination.



Long-coupled

Close-coupled

Bredel direct-coupled

Chemical

Corrosive acids and bases

Water and Waste 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

tailing slurries, sludges and reagents

Ceramics and glass

fine china, brick and tiles

Construction

cement, coatings, spray concrete, colorants and aggregate

Printing and packaging

varnishes, inks, coatings and adhesives

Food and beverage

CIP applications, wine, brewery, dairy, bakery, flavorings and additives

Textiles

fibers, dyes and acids

OEM

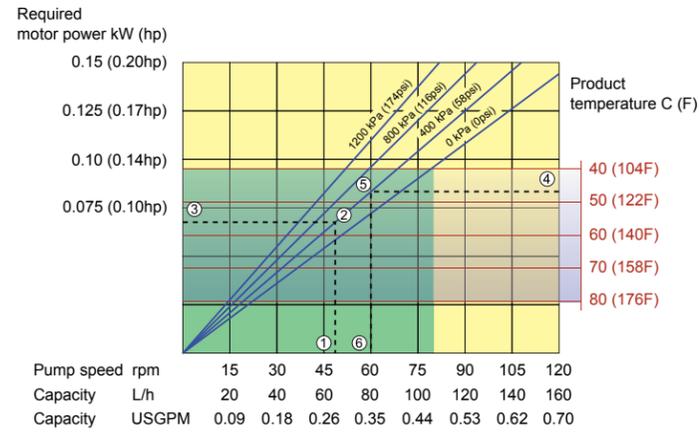
versions available for system suppliers

Bredel 10, Bredel 15, Bredel 20

Performance

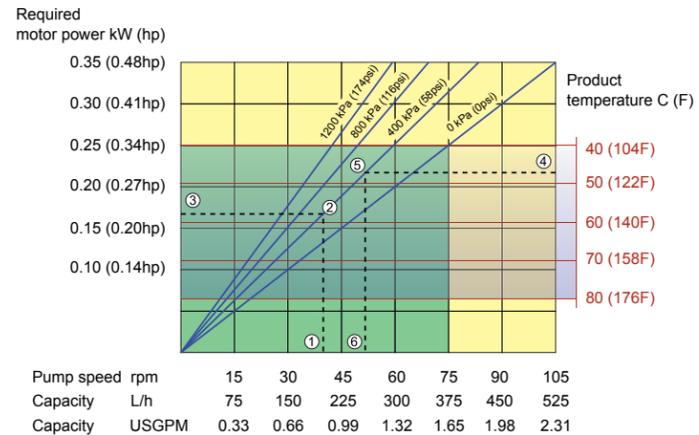
Bredel 10

Max flow: 0.63 GPM
 Capacity: 0.006 G/rev
 Max discharge pressure: 174 psi
 Max temperature: 176F
 Inner diameter pump element: 10mm
 Lubricant required: 0.07 G
 Starting torque: 416 inch-lbs



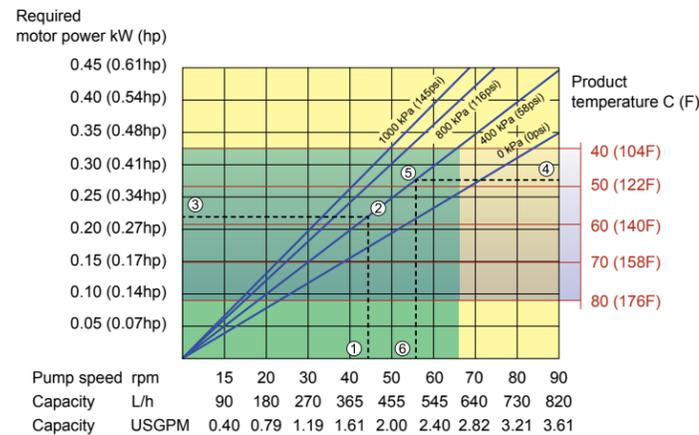
Bredel 15

Max flow: 2.31 GPM
 Capacity: 0.022 G/rev
 Max discharge pressure: 174 psi
 Max temperature: 176F
 Inner diameter pump element: 15mm
 Lubricant required: 0.1 G
 Starting torque: 531 inch-lbs



Bredel 20

Max flow: 3.61 GPM
 Capacity: 0.040 G/rev
 Max discharge pressure: 145 psi
 Max temperature: 176F
 Inner diameter pump element: 20mm
 Lubricant required: 0.1 G
 Starting torque: 752 inch-lbs

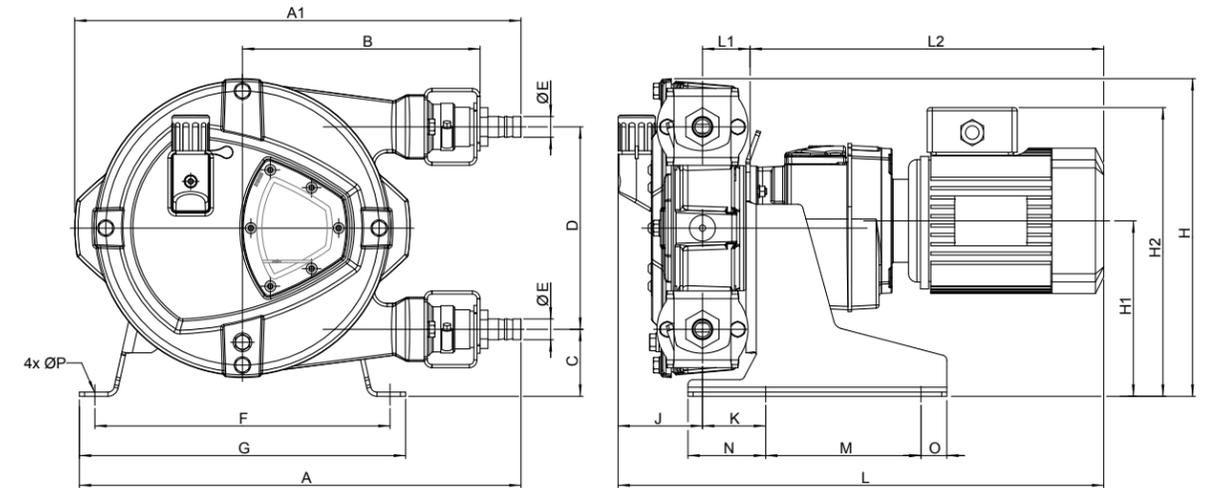


*Location is "E" noted on dimensional drawing on next page

■ Continuous Duty
■ Intermittent Duty (maximum 2 hours of operation followed by a minimum 1 hour stop)

Dimensions

Note: measurements in inches



Type	A	A1	B	C	D	ØE	F	G	H1	H2 max	J	K	L max	L1	L2 max	M	N	O	ØP
Bredel 10	13.27	12.24	6.73	2.44	4.57	16mm	9.25	10.43	5	10	3.07	2	19.72	1.81	13.94	5.9	2.56	0.98	12mm
Bredel 15	16.81	16.97	9.05	2.48	7.68	20mm	11.22	11.97	6.57	11.57	3.23	2.4	19.88	1.81	15.67	5.9	2.95	0.98	12mm
Bredel 20	16.81	16.97	9.05	2.48	7.68	20mm	11.22	11.97	6.57	11.57	3.23	2.4	19.88	1.81	15.67	5.9	2.95	0.98	12mm

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

Note: The area of continuous operation diminishes with increased product temperatures. For product temperatures >104F, the area of continuous operation reduces to the corresponding red temperature line.

Chemical metering

At a water treatment plant, influent is received through several very long pipelines. After preliminary processing, the influent goes through a scrub-down to reduce hydrogen sulfide content from as much as 250 ppm to less than 0.1 ppm. Diaphragm and PC pumps were replaced after experiencing long downtimes, high maintenance costs and poor performance. Bredel hose pumps are used in this process to transfer and meter sodium hypochlorite, sodium hydroxide, and sodium bisulfate.

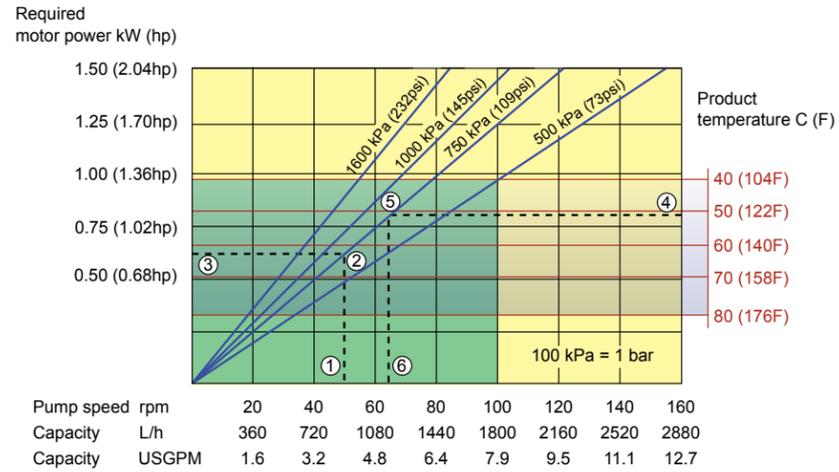


Bredel 25, Bredel 32

Performance

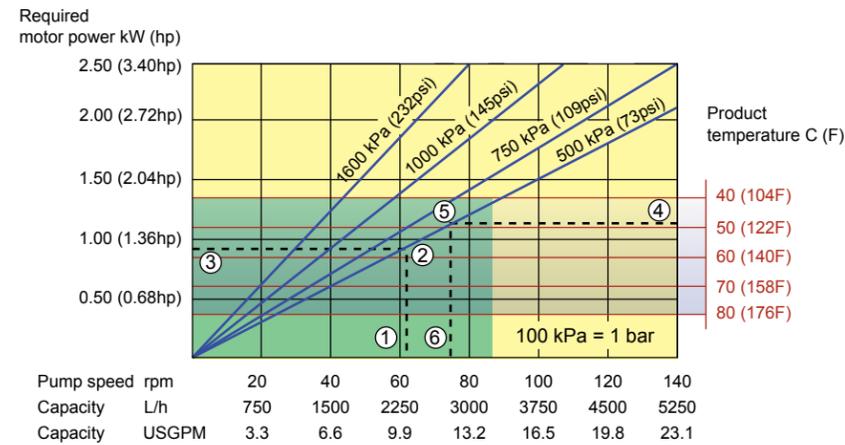
Bredel 25

Max flow: 12.7 GPM
 Capacity: 0.079 G/rev
 Max discharge pressure: 232 psi
 Max temperature: 176F
 Inner diameter pump element: 25mm
 Lubricant required: 0.53 G
 Starting torque: 1,018 inch-lbs

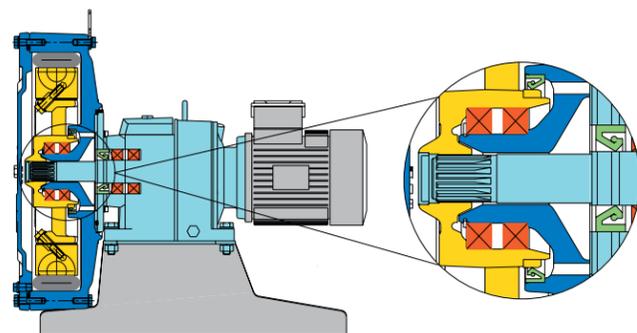
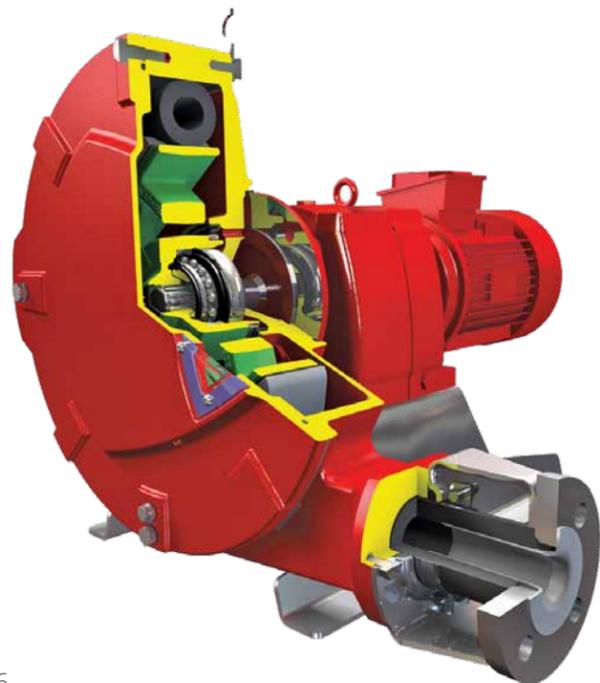


Bredel 32

Max flow: 23.1 GPM
 Capacity: 0.165 G/rev
 Max discharge pressure: 232 psi
 Max temperature: 176F
 Inner diameter pump element: 32mm
 Lubricant required: 0.92 G
 Starting torque: 1,859 inch-lbs

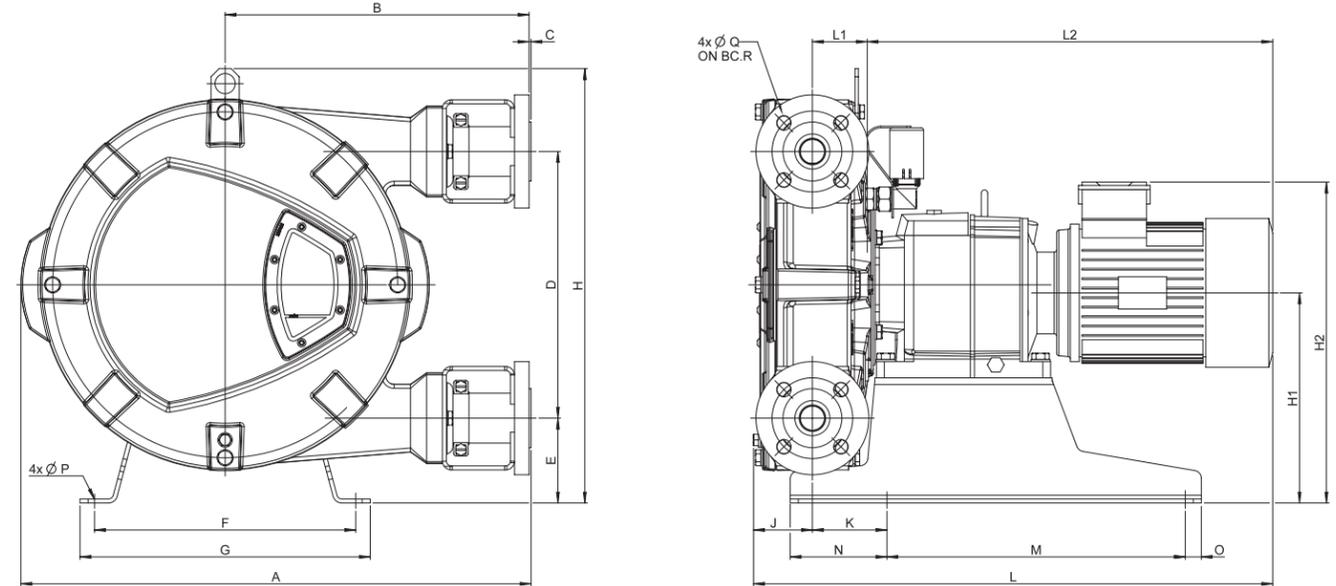


Continuous Duty
 Intermittent Duty (maximum 2 hours of operation followed by a minimum 1 hour stop)



Dimensions

Note: measurements in inches



Type	A	B	C	D	E	F	G	H	H1	H2 max	J	K	L max	L1	L2 max	M	N	O	P	Q
Bredel 25	20.51	11.97	0.10	10.39	3.86	10.98	12.4	18.11	8.74	14.13	2.6	3.82	23.31	2.28	18.27	11.97	4.72	0.59	Ø0.47	Ø0.55
Bredel 32	24.84	14.76	0.10	13.0	4.13	12.76	14.17	21.18	10.24	15.83	2.83	3.66	26.93	6.7	21.42	14.57	4.72	0.79	Ø0.47	Ø0.71

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

Note: The area of continuous operation diminishes with increased product temperatures. For product temperatures >104F, the area of continuous operation reduces to the corresponding red temperature line.

Abrasive slurries in brewing

A leading brewer had been using diaphragm pumps to meter highly abrasive diatomaceous earth slurry but was experiencing high downtime due to abrasive wear. The brewer replaced these pumps with Bredel hose pumps, dramatically reducing maintenance and all but eliminated downtime. Based on this success, the brewer installed 6 hose pumps to transfer abrasive slurry of spent yeast. The pumps replaced rotary lobe pumps which required excessive maintenance to replace mechanical seals and lobes.

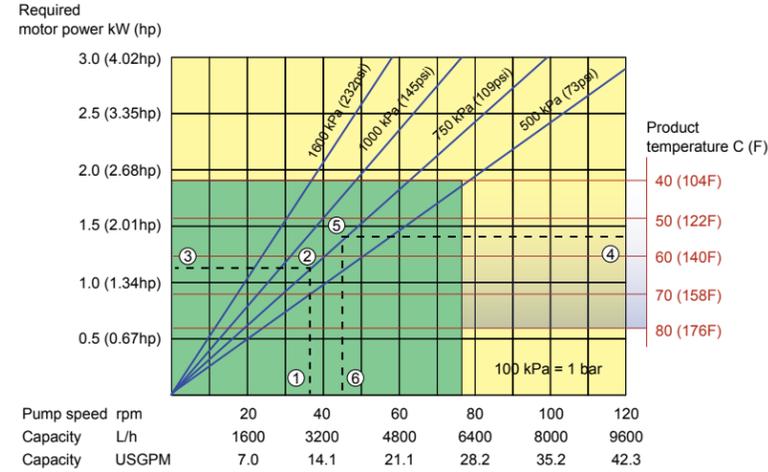


Bredel 40, Bredel 50

Performance

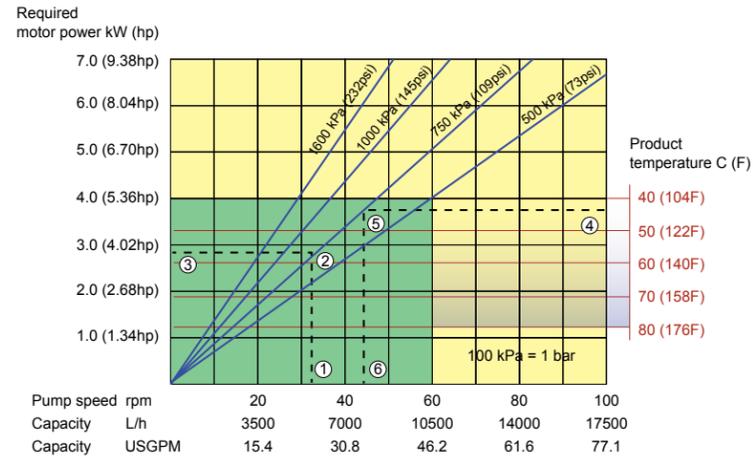
Bredel 40

Max flow: 42.27 GPM
 Capacity: 0.35 G/rev
 Max discharge pressure: 232 psi
 Max temperature: 176F
 Inner diameter pump element: 40mm
 Lubricant required: 1.32 G
 Starting torque: 2,832 inch-lbs



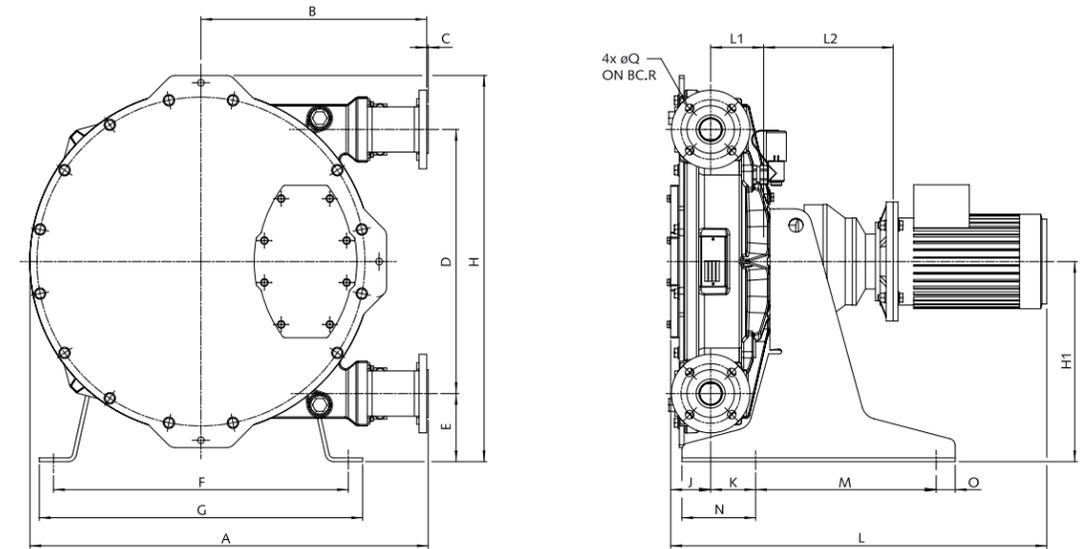
Bredel 50

Max flow: 77.05 GPM
 Capacity: 0.77 G/rev
 Max discharge pressure: 232 psi
 Max temperature: 176F
 Inner diameter pump element: 50mm
 Lubricant required: 2.64 G
 Starting torque: 5,487 inch-lbs



Dimensions

Note: measurements in inches

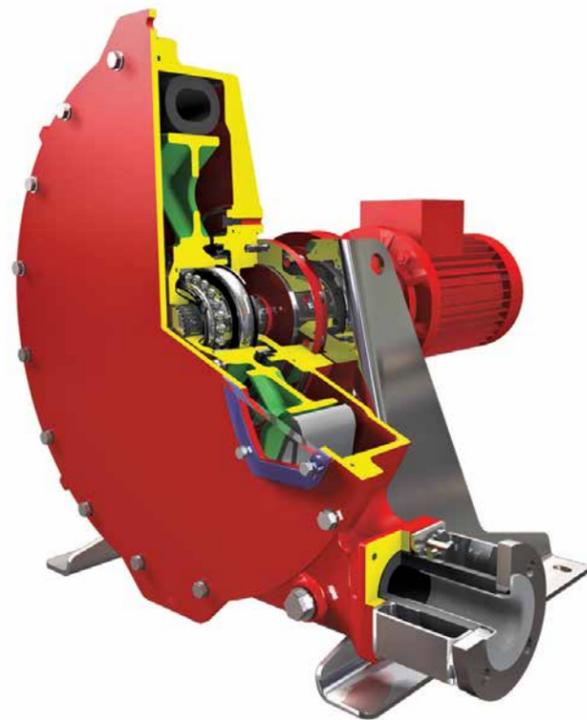


Type	A	B	C	D	E	F	G	H	H1	J	K	L max	L1	L2 max	M	N	O	P	Q	R
Bredel 40	27.76	16.22	0.10	16.93	4.33	19.29	21.26	25.31	12.79	2.87	3.31	35.67	3.58	11.85	11.81	4.72	1.18	Ø0.71	Ø0.71	4.33
Bredel 50	33.0	18.7	0.12	21.81	5.63	24.41	27.77	31.93	16.53	3.27	3.74	38.39	4.41	13.35	14.96	6.10	1.57	Ø0.71	Ø0.71	4.92

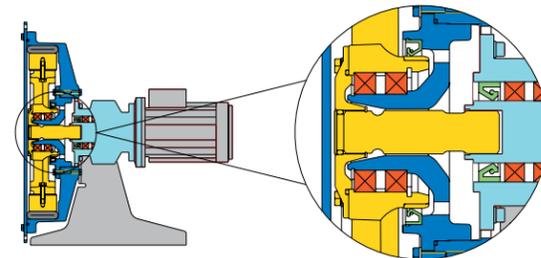
How to use the curves

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

Note: The area of continuous operation diminishes with increased product temperatures. For product temperatures >104F, the area of continuous operation reduces to the corresponding red temperature line.



■ Continuous Duty
■ Intermittent Duty (maximum 2 hours of operation followed by a minimum 1 hour stop)



No aeration

A plant that produces fine quality bone china was using a two-stroke reciprocating type piston pump to transfer slip from the slip house to the casting shop. Due to entrained air in the slip, pinholes were forming in the surface of the cast body, which was impairing the quality of the finished product. The slip is thixotropic and highly abrasive. Changing over to a peristaltic pump eliminated this problem. Its glandless construction prevented the ingress of air.

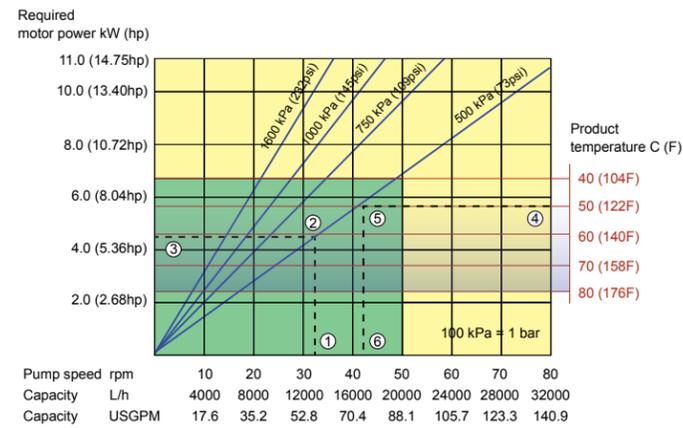


Bredel 65, Bredel 80, Bredel 100

Performance

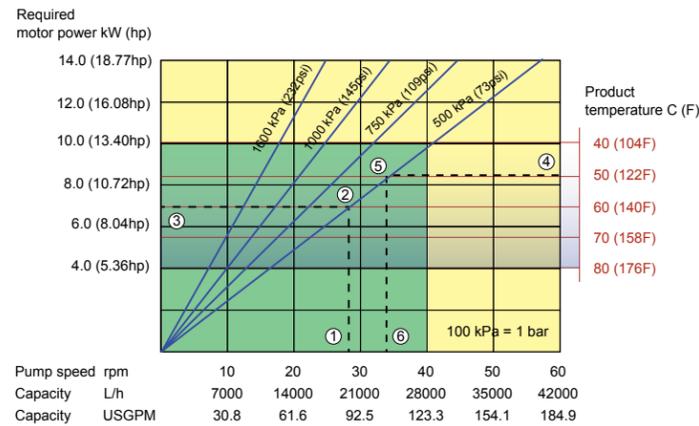
Bredel 65

Max flow: 140.9 GPM
 Capacity: 1.77 G/rev
 Max discharge pressure: 232 psi
 Max temperature: 176F
 Inner diameter pump element: 65mm
 Lubricant required: 5.28 G
 Starting torque: 10,178 inch-lbs



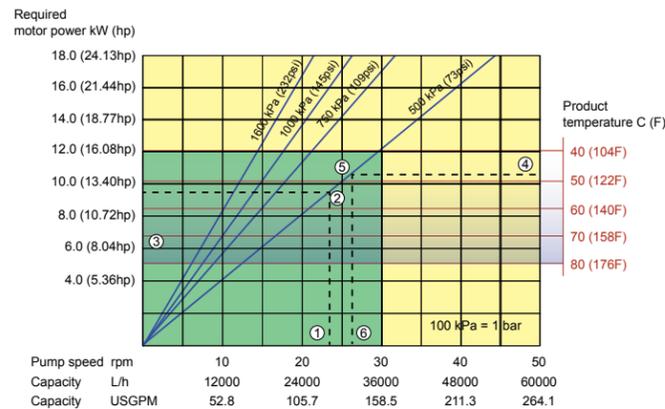
Bredel 80

Max flow: 176.1 GPM
 Capacity: 3.09 G/rev
 Max discharge pressure: 232 psi
 Max temperature: 176F
 Inner diameter pump element: 80mm
 Lubricant required: 10.57 G
 Starting torque: 17,701 inch-lbs



Bredel 100

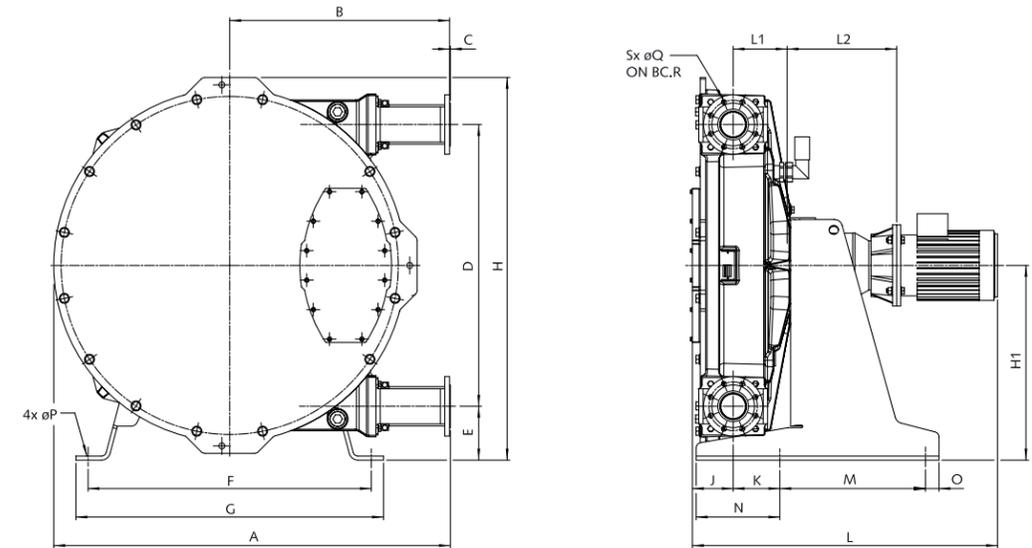
Max flow: 233.4 GPM
 Capacity: 5.28 G/rev
 Max discharge pressure: 232 psi
 Max temperature: 176F
 Inner diameter pump element: 100mm
 Lubricant required: 15.85 G
 Starting torque: 27,437 inch-lbs



Continuous Duty
 Intermittent Duty (maximum 2 hours of operation followed by a minimum 1 hour stop)

Dimensions

Note: measurements in inches



Type	A	B	C	D	E	F	G	H	H1	J	K	L max	L1	L2 max	M	N	O	P	Q	R	S
Bredel 65	41.65	22.83	0.12	29.37	5.98	26.77	29.13	40.79	20.67	4.09	5.39	46.14	5.55	19.13	16.34	8.66	1.97	Ø0.71	Ø0.71	5.71	0.16
Bredel 80	49.48	27.56	0.16	34.49	7.16	35.43	39.0	47.95	24.41	4.88	6.02	53.19	6.54	22.91	20.67	10.83	1.97	Ø0.87	Ø0.71	6.3	0.32
Bredel 100	57.79	32	0.12	41.02	7.83	41.34	44.88	55.71	27.95	5.94	6.81	54.8	7.87	19.25	21.26	12.2	1.97	Ø0.87	Ø0.71	7.09	0.32

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

Note: The area of continuous operation diminishes with increased product temperatures. For product temperatures >104F, the area of continuous operation reduces to the corresponding red temperature line.

Solids - no problem

When wood chips are cooked in a digestion liquid, a treated residue known as black liquor soap is derived from the digestion process. Paper mills usually use a large gear pump or other rotary type pump to handle this soap, often with considerable difficulty. Suction problems, dry running, and small wood particles only make things worse. The Bredel hose pump provides the optimum solution: It is abrasive resistant, very capable of handling solids, and because there are no shaft seals, it is allowed to run dry.

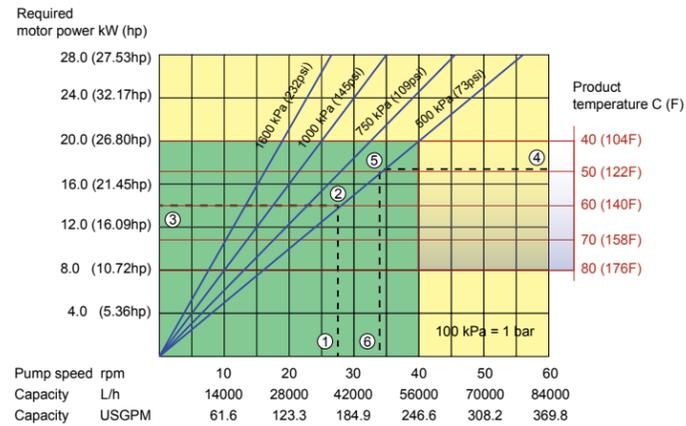


Bredel 280, Bredel 2100

Performance

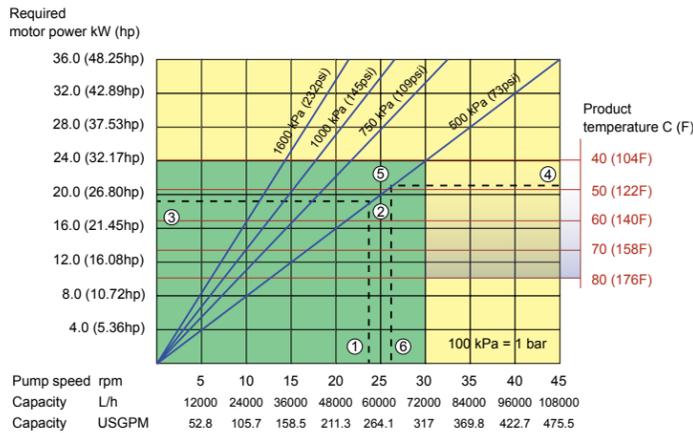
Bredel 280

Max flow: 343.4 GPM
 Capacity: 6.18 G/rev
 Max discharge pressure: 232 psi
 Max temperature: 176F
 Inner diameter pump element: 80mm
 Lubricant required: 21.13 g
 Starting torque: 30,092 inch-lbs



Bredel 2100

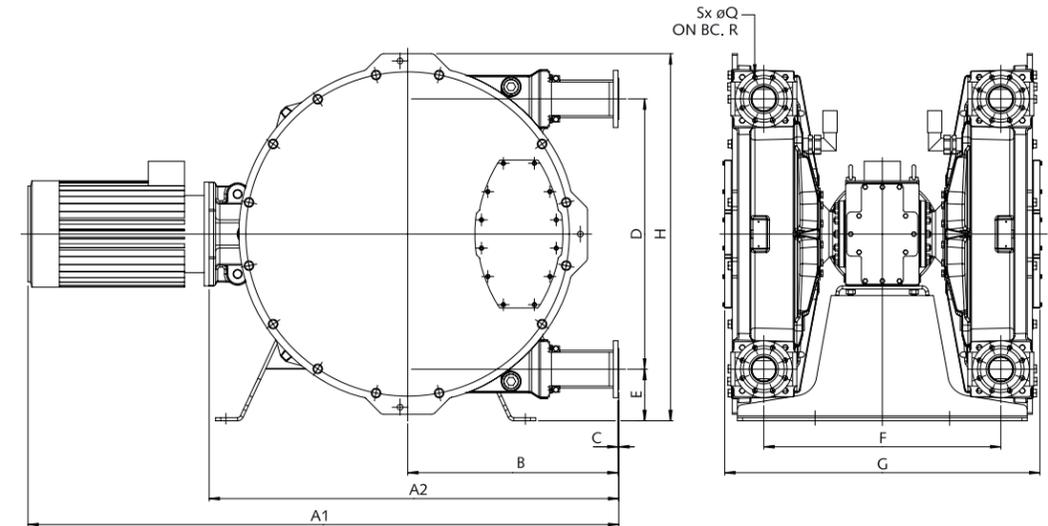
Max flow: 475.5 GPM
 Capacity: 10.56 G/rev
 Max discharge pressure: 232 psi
 Max temperature: 176F
 Inner diameter pump element: 100mm
 Lubricant required: 31.70 G
 Starting torque: 46,908 inch-lbs



■ Continuous Duty
■ Intermittent Duty (maximum 2 hours of operation followed by a minimum 1 hour stop)

Dimensions

Note: measurements in inches



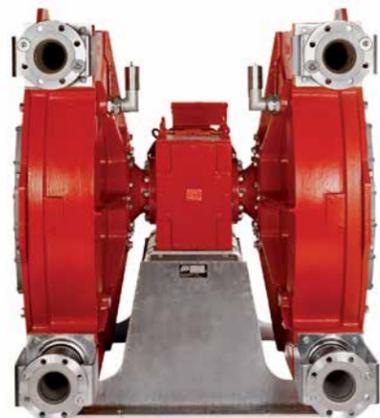
Type	A1	A2	B	C	D	E	F	G	H	Q	R	S
Bredel 280	*	55.28	27.56	0.16	34.49	7.17	31.5	41.22	47.95	Ø 0.71	6.3	0.32
Bredel 2100	*	59.68	32.01	0.12	41.02	7.83	36.06	47.95	55.71	Ø 0.71	7.09	0.32

* This dimension will vary depending on drive selection.

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

Note: The area of continuous operation diminishes with increased product temperatures. For product temperatures >104F, the area of continuous operation reduces to the corresponding red temperature line.



* For more information, please consult your Bredel representative. Duplex executions are also available for the Bredel 10 up to Bredel 65 series pumps.

Very limited floor space required.

High flow

A large mining company needed several pumps to transfer sludge with flow rates up to 299 GPM. The unique duplex hose pump was the solution for this application. This unit has two pump heads mounted on a single drive. With the pump shoes positioned at 90 degree intervals, the pump is capable of producing higher flow rates than a single pump, but with much smaller power and space requirements than two pumps.



DuCoNite® - the answer for aggressive liquids

The **DuCoNite** pump is used for the most challenging applications. A high-tech surface-protection method has rendered the pump ultra-resistant to aggressive liquids.

The DuCoNite hose pumps are available in five pump sizes – with capacities up to 23 GPM and pressures up to 232 psi.

The DuCoNite hose pump reliably handles a variety of harsh materials, such as sodium hypochlorite, titanium dioxide, sodium hydroxide, catalytic agents, sulfuric acid, lime slurry, acidic liquids, solvents and resins.



DuCoNite Advantage

Bredel hose pumps require minimal maintenance; to completely rebuild a Bredel pump simply change the hose. When protecting the pump is still a concern, the DuCoNite pump gives you the added advantage:

“Beyond the hose” protection against common water and waste water treatment chemicals

Paint-free pump housing perfect for wash-down in the food industry

Available in DuCoNite 10, DuCoNite 15, DuCoNite 20, DuCoNite 25, and DuCoNite 32 pumps for metering and transfer.



DuCoNite 10

Maximum flow: 0.70 GPM
Maximum discharge pressure: 108 psi

DuCoNite 15

Maximum flow: 2.32 GPM
Maximum discharge pressure: 108 psi

DuCoNite 20

Maximum flow: 3.62 GPM
Maximum discharge pressure: 108 psi

DuCoNite 25

Maximum flow: 12.70 GPM
Maximum discharge pressure: 232 psi

DuCoNite 32

Maximum flow: 23.10 GPM
Maximum discharge pressure: 232 psi

DuCoNite® Chemical Duty Protection

Developed and tested by Bredel in conjunction with expert metallurgists, DuCoNite is a three step metallic surface treatment process with proven excellent chemical resistance to a myriad of chemicals, including many of the common aggressive fluids pumped by hose pumps around the globe:

Chemical	Concentration	Fluid Temp	Resistance
Sodium Hypochlorite	up to 18%	70-122F	A
Sodium Bisulfite	38%	70-122F	A
Ferric Chloride	up to 50%	70-122F	A
Ferrous Chloride	35%	70-122F	A
Alum	50%	70-122F	A
Hydrofluosilicic Acid	18-24%	70-122F	B
Sodium Hydroxide	20-50%	70-122F	A
Potassium Permanganate	50%	70-122F	A
Aqueous Ammonia	20%	70-122F	B
Sulfuric Acid	93-97%	70-122F	A
Citric Acid	50%	70-122F	A
Zincorthophosphate	25%	70-122F	A
Phosphoric Acid	50%	70-122F	A
Nitric Acid	25%	70-122F	A

Chemical compatibility
A = Good B = Limited

For dimensional drawings, please see pages 8-11.

Solids Handling

A producer of polycarbonate resin pellets, was experiencing problems pumping effluent. The strips had become trapped in the double-diaphragm pump the company was using to transport the effluent to a filter press.

Constantly blocked, the diaphragm pump was, in effect, acting as a filter. The Bredel hose pump now transfers the effluent easily, virtually eliminating downtime. It has also improved the effectiveness of the filter press by as much as 35 times.



Clean-In-Place: Bredel CIP 40, Bredel CIP 50

Performance

Bredel CIP 40

Maximum flow: 21.13 GPM

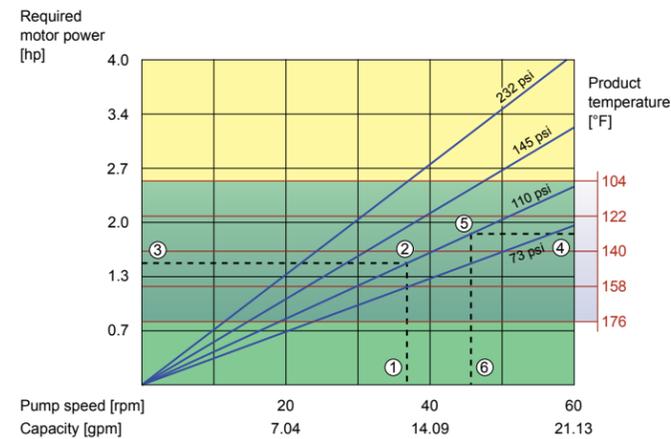
Capacity: 0.35 G/rev

Maximum discharge pressure: 232 psi

Inner diameter pump element: 40mm

Lubricant required: 2.64 G

Minimum starting torque: 2,832 inch-lbs



Bredel CIP 50

Maximum flow: 37.42 GPM

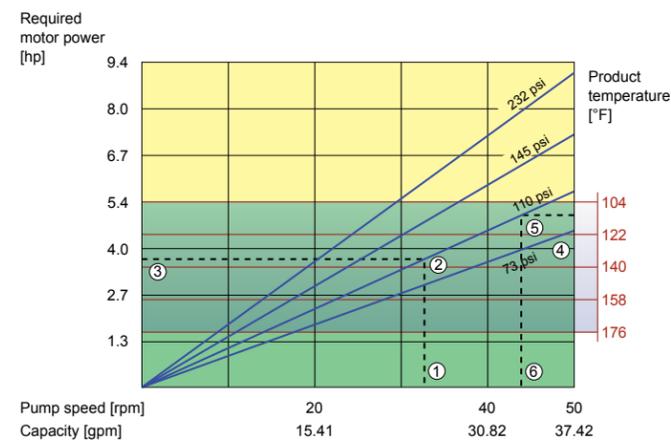
Capacity: 0.77 G/rev

Maximum discharge pressure: 232 psi

Inner diameter pump element: 50mm

Lubricant required: 5.28 G

Minimum starting torque: 5,487 inch-lbs



Features of CIP Pumps

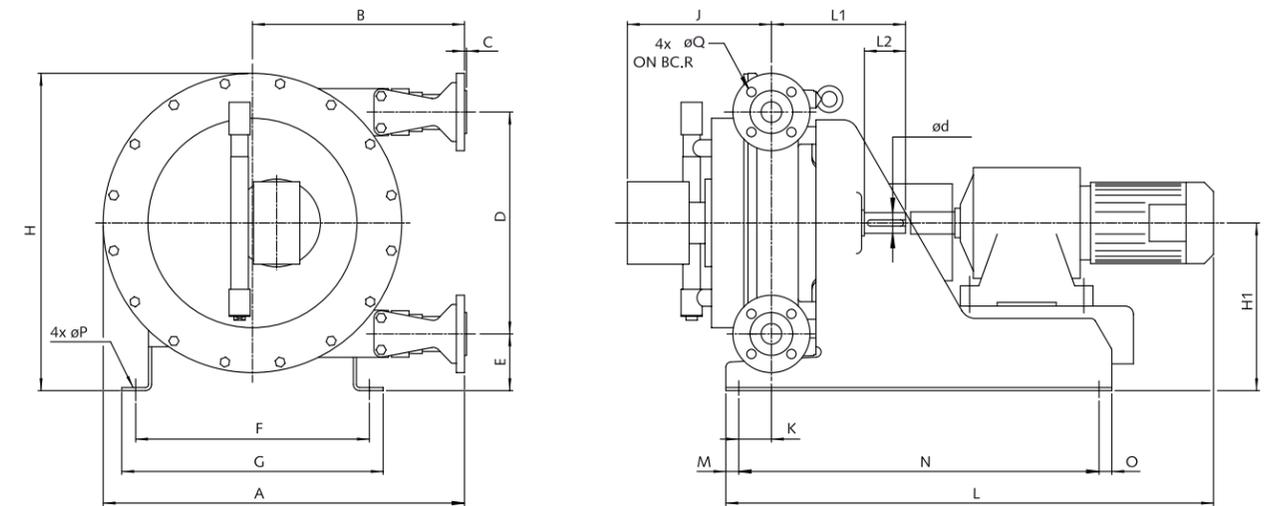
Recommended for sanitary processes, or other applications requiring regular cleaning of the process lines.

- Maximum sterilization temperature 248F
- Food approved pump element available
- NSF® registered food grade lubricant
- Stainless steel sanitary connectors available
- Process pressures up to 232 psi
- Shoes on the rotor retract automatically for cleaning of pump element inside
- Cam actuated electrically, pneumatically or manually

- Continuous Duty
- Intermittent Duty (maximum 2 hours of operation followed by a minimum 1 hour stop)

Dimensions

Note: measurements in inches



Type	ANSI 316		PVC/PP/PVDF		D	Ød _{xl}	E	F	G	H	H1	J _{max}	K	L	L1	L2 _{max}	M	N	O	P
	A	B	C	C																
Bredel CIP 40	27.64	16.22	0.10	0.39	16.93	40k6x80	4.33	17.87	20	24.21	12.8	16.3	2.52	*	10.24	26.54	27.56	0.98	0.98	0.71
Bredel CIP 50	32.87	18.7	0.12	0.39	21.81	50k6x100	4.84	17.48	19.53	29.92	15.75	17.05	3.08	*	12.8	29.84	34.25	0.98	0.98	0.71

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

Note: The area of continuous operation diminishes with increased product temperatures. For product temperatures >104F, the area of continuous operation reduces to the corresponding red temperature line.

The Bredel CIP 40 and 50 are supplied with the retracting shoes option for non-intrusive cleaning, for CIP-applications.

Shear sensitive

A canning operation uses a Bredel hose pump to transfer peaches from holding tanks to its canning line. The company had been using centrifugal pumps, but was experiencing a high percentage of damaged peaches. The soft pumping action of the peristaltic pump eliminates shear and has dramatically reduced the amount of damaged or unacceptable production.

The company also likes the dependability, low maintenance and ability of the pump to run 24/7 throughout the entire canning season.



The hose is the key

The hose is the single most vital component for the performance, durability, and efficiency of the hose pump. To ensure perfect compression and consistent, reliable performance, Bredel manufactures hoses from high quality compounded rubbers, reinforced with individual layers of braided nylon. Perfect compression eliminates slip which can destroy shear sensitive product, reduce metering accuracy, or allow abrasive slurries to wreak havoc on wetted parts.

The hose is the pump - single component change and reduced inventory

Multiple layers of nylon reinforcement provide excellent suction and pressure performance



The consistent wall thickness minimizes stress on mechanical components of the pump

100% hose compression eliminates backflow, a common cause of hose damage

Bredel hoses meet the flow, pressure and temperature characteristics of your toughest applications. The inner layer is available in a range of rubber compounds to provide maximum chemical compatibility and outstanding resistance to abrasives for a wide a range of applications.

The right hose for your application



NR METERING/ NR TRANSFER

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

Max. 176F
Min. -4F



BUNA N (NBR)

Resistant to oils, greases, alkalis and detergents.

Max. 176F
Min. 14F



EPDM

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

Max. 194F
Min. 14F



CSM

Outstanding chemical resistance to highly concentrated acids and bases.

Max. 194F
Min. 14F



NBR for food

Suitable for a wide range of food products. Resistant to various cleaning chemicals. Meets EC 1935/2004.

Max. 194F
Min. 14F



F-NBR

Suitable for all food products including oils and greases. Meets FDA, EC, and 3A standards.

Max. 194F
(Max. CIP 140F)
Min. 14F

Accessories

1. Discharge Pulsation Dampener

Fitting a pulsation dampener in the discharge line eliminates up to 90% of discharge pulsations, protecting the pump, pipeline and instrumentation and reducing vibration, hammer and noise.

2. Inlet Pulse Accumulator (IPA)

When installed on the suction side, an IPA reduces positive and negative spikes when inlet conditions vary. This results in quieter operation and maximized hose life

3. High Level Sensor

When connected to a motor controller, the high level sensor can trigger a pump shutdown in the event of a hose element failure.

4. Variable Frequency Drive (VFD)

An integrated frequency inverter, with variable speed control, for use where pump capacity must be flexible or the process needs to be set.

5. Cover Lifting Device

The Cover Lifting Device provides a safe working environment during maintenance. It is simple to mount on the pump and enables safe and easy cover removal and assembly for Bredel 50 to Bredel 100 pumps.

6. Pump trolley

The pump trolley provides safe and easy transport of Bredel 25 to Bredel 50 pumps in the production area. The stainless-steel frame is hygienic and easy to clean and is equipped with an earth point, cable hooks and simple brake mechanism.

7. Revolution counter

The revolution counter enables planned hose maintenance according to hose occlusions. It enables precise monitoring of the pump speed and can be connected into a process control system.





Watson-Marlow Fluid Technology Solutions

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