

**BREDEL:
MARKET LEADER IN
HEAVY DUTY HOSE PUMPS**

Bredel Hose Pumps adapted the hose pump principle for industrial use more than 30 years ago. Today over 65,000 Bredel heavy duty hose pumps, with operating pressures to 16 bar and flow rates to 80 m³/hour, work non-stop all around the globe, usually in applications where other pumps simply cannot do the job.

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



INNER DIAMETER (mm)	WALL THICKNESS (mm)	TOLERANCE OF WALL THICKNESS (\pm mm)	MAXIMUM WORKING PRESSURE (bar)	FLOW VARIATION DURING LIFE
10	10.5	0.40	7.5	\pm 1%
15	10.5	0.40	7.5	\pm 1%
20	8.5	0.20	7.5	\pm 1%
25	14.1	0.20	16	\pm 1%
32	14.5	0.20	16	\pm 1%
40	13.2	0.20	16	\pm 1%
50	15.0	0.20	16	\pm 1%
65	17.1	0.20	16	\pm 1%
80	21.0	0.25	16	\pm 1%
100	22.0	0.25	16	\pm 1%



Industries which handle viscous slurries, shear-sensitive and abrasive fluids, such as pulp & paper, have discovered the benefits of Bredel pumps.



THE HOSE IS THE KEY

The essential component of high-pressure hose pumps is a hose that is constructed of layers of rubber reinforced by winding several layers of dyed nylon cords. The inner and outer layers are extruded. The inner layer is available in a range of rubber compounds.

Bredel combines the skills and knowledge of rubber experts and cord specialists to create the high performance of the hoses.

Complex factors include:

- the vulcanisation properties of the various types of rubber compounds
- the properties and the application of the nylon cord layers
- the numerous criteria the inner layer must satisfy with respect to the outer layer
- the mechanical and fatigue properties of the rubber compounds
- mechanical processing by means of machining the hose
- optimising the lubricant and its cooling properties

Bredel hoses have high-pressure characteristics and precise dimensions and give excellent suction. The result: constant flow under varying suction and discharge conditions, and extraordinary ability to handle viscous liquids.

BREDEL PUTS A LOT OF TIME AND EFFORT INTO ITS HOSES

The life of a pump, the hose and the pump drive are important cost factors to industry. All are affected by the hose's qualities: its assembly, construction and, especially, its precision machining. Bredel has developed equipment that automatically machines the hose surface within fine tolerances,



guaranteeing compression, capacity, efficiency and low frictional resistance. As a result, the load on the pump and its drive is minimised.



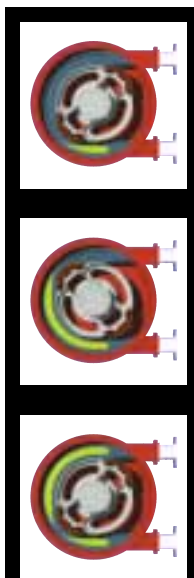
*Industries which handle corrosive and toxic media with high specific gravities, such as **mining**, use Bredel pumps in the toughest pumping applications.*



ONLY AT BREDEL

Even slight under-occlusion allows damaging backflow, cutting hose life and pumping efficiency. The rotor's pressing shoes must fully close the hose during compression. This is achieved by fitting shims under the shoes after considering rotation speed, discharge pressure and fluid temperature.

When the shimming is correct for an application, no further adjustment is needed even when a hose is replaced, because Bredel hoses are consistent. They have constant wall thickness and a uniform, precisely specified surface.





NATURAL RUBBER (NR)

Cis-Poly isoprene rubber. Always your first choice. A highly resilient material with outstanding abrasion resistance. Generally resistant to diluted acids and alcohols.

Max. fluid temperature 80 °C*
Min. temperature -20 °C



BUNA N (NBR)

Acrylonitrile butadiene rubber. Approved to FDA and 3A standards, this durable material is resistant to oils, greases, alkalis and detergents. It is suitable for a wide range of applications in the food industry.

Max. fluid temperature 80 °C*
Min. temperature -10 °C



EPDM

Ethylene propylene diene rubber. A product with excellent chemical resistance, especially to ketones, alcohols and concentrated acids.

Max. fluid temperature 90 °C*
Min. temperature -10 °C



HYPALON® (CSM)

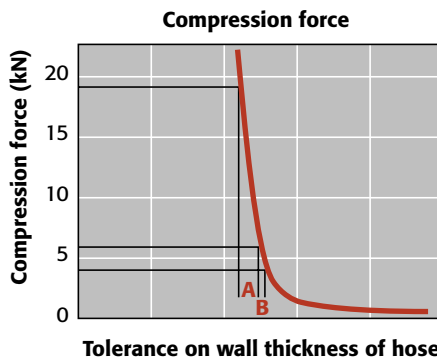
Chlorosulphonyl polyethylene rubber. This type of rubber has outstanding chemical resistance to highly concentrated acids, bases, ozone, and other oxidising materials.

Max. fluid temperature 80 °C*
Min. temperature -10 °C

* Your Bredel representative will be pleased to give you more details about the use of these hoses for temperatures up to 90 °C and specific information about the chemical resistance of our hoses.

MACHINING AT BREDEL

Uniform occlusion of a hose with irregular wall thickness is impossible. To prevent backflow, a hose that has not been machined must be shimmed on the basis of the minimum thickness of the hose wall - far more than is necessary to achieve occlusion in regions with thicker walls. If the wall thickness of the hose varies only 1 mm, the life of the hose is reduced by at least 25%. Excessive shimming could result in forces that are almost three times as high as necessary. And this is always at the expense of the hose, the pump, and the pump drive.



A + B Non-Bredel hose tolerance
B Bredel hose tolerance

Max. force non-Bredel hose	18500N
Min. force non-Bredel hose	4000N
Max. force Bredel hose	5500N
Min. force Bredel hose	4000N



Industries which transfer, sample and meter under arduous conditions, such as water and waste treatment, rely on Bredel pumps.

WHY A BREDEL HIGH-PRESSURE HOSE PUMP?

Because with the Bredel patented technology, we achieved the impossible: a durable product of unbeatable simplicity and reliability. Tens of thousands of pump users know there's no better hose pump than a Bredel hose pump.

Characteristics of our pumps

Easy to install and use; no shaft seals, valves, diaphragms, pistons, stators, or in-fluid rotating elements; removing the risk of leaks, blockages, corrosion and wear.

Trouble-free pumping of abrasive slurries, corrosive acids, gaseous, shear-sensitive and viscous fluids or fluids with a high specific gravity.

The pump is reversible: the system can easily be pumped out and any blockages in the suction line can be removed.

The yield is directly proportional to the pump's revolutions per minute and independent of the inlet pressure and discharge pressure and the fluid viscosity. This results in excellent metering qualities.

Safe dry running. Bredel pumps do not need fluid in the hose for cooling or lubrication and will suck air intermittently or continuously without risk of damage.

Self-priming, even with an under-pressure of 0.95 bar (5 kPa.a; 0,05 bar.a).

Bredel pumps are hygienic, easy to clean, and virtually maintenance-free.

No possible contamination of the fluid to be pumped because it only comes in contact with the hose. No other type of positive-displacement pump has this unique quality.





*Industries dealing with abrasive and easily damaged media, such as **brewing**, have switched to Bredel pumps on a wide scale.*

BREDEL TAKES THE GUESSWORK OUT OF PUMPING

Hoses are the single most vital component for the efficiency of a hose pump. Traditionally, development of new rubber-related products is done by 'trial-and-error' methods. This can often be a time-

consuming process. To shorten development time, and therefore save material and money, Bredel Hose Pumps developed a finite element analysis (FEA) simulation model.



We can model the optimum dimensions of the hose, the positions of the reinforcing layers, the angles of the cord layers and the thickness of the cord and the intermediate layers. In addition, the model helps define the optimal shape of the pressing shoe and the pump housing. Thirty pumps are on non-stop laboratory test. If the pumps and hoses meet the requirements under the test conditions, they are also extensively tested in real-life situations.

*Industries handling viscous and abrasive fluids, such as **ceramics**, value the abrasion resistance, low levels of shear damage and the absence of metallic components of Bredel pumps.*



SPECIAL BREDEL LUBRICANT

No high-pressure hose pump can function without lubricant. Bredel developed a lubricant for its hoses and pumps that minimises the friction between pressing shoe and hose, and transfers frictional heat to the pump housing. An additional advantage is that this lubricant is safe to use in the food industry.

BREDEL LISTENS TO ITS CUSTOMERS

Bredel is the global market leader in hose pumps. Our Research & Development Department works extensively to improve our pumps, hoses and accessories. The basis for this is the continuous exchange of knowledge with the users. An unprecedented level of service, via a worldwide dealer network completes Bredel's delivery capabilities.



