WE SUPPLY • Steam Ejectors • Liquid Ring Vacuum Pumps • Dry Vacuum Pumps • Mechanical Boosters

AND PROVIDE • Vacuum Pump Repairs • Testing and Training Services

Our vacuum solutions and technologies are unique, and we are able to tailor the right solution to your needs.

Representing the world’s best vacuum equipment manufacturers • Mtus • Edwards UK • ERTP Hibon • LVI • Garuda • enabling us to provide reliable solutions and support.
Process Vacuum specialises in vacuum systems for various industries and applications.

Bareshaft pumps are imported. Each system is tailored to customer requirements using Autocad/Inventor software.

Packages are built at our Meyerton factory and shipped to site.

COMPETITIVE ADVANTAGE
We have the edge with regard to understanding and supplying vacuum systems, and having access to the best liquid ring vacuum equipment manufacturers in the world allows us to provide reliable solutions and support.

DISTRIBUTION CHANNELS
Packages (new installations) are built in South Africa with bareshaft pumps being imported and all auxiliary equipment sourced locally. Pumps are performance tested to ensure customer requirements are met, and shipped on completion of package assembly and inspection.

VIABILITY OF THE PRODUCTS AND SERVICES
Process Vacuum ensures a comprehensive service which is based on in-depth knowledge of your industry and applications. The expertise is held in our highly focused applications team, a central applications group and a regional network of applications specialists.

RELIABILITY
Process Vacuum has been awarded the TÜV Rheinland certificate of approval.

www.processvacuum.co.za
**Process Vacuum** represents the world’s best vacuum equipment manufacturers, enabling us to provide reliable solutions and support.

<table>
<thead>
<tr>
<th>Company</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AIRTEC</strong></td>
<td>Cost-effective solutions for vacuum pumping applications&lt;br&gt;Recently added to our stable, the <strong>AIRTEC</strong> range provides: • Lab Vacuum Pumps • Two-Stage Vacuum Pumps • Wet Rotary Vane Pumps • Rotary Vane Pumps • Mechanical Boosters • Vacuum Gauges • Parts for Busch, Rietschle and Becker Pumps</td>
</tr>
<tr>
<td><strong>LVI SYSTEMS</strong></td>
<td>Industrial vacuum at your project sites&lt;br&gt;Set up in 1969 and originally specialised in steam jet ejectors, <strong>LE VIDE INDUSTRIEL (LVI)</strong> acquired the RAMM company in 1973 in order to extend its field of expertise and cover the entire range of industrial vacuum applications. Its products are acknowledged throughout the market for their robust construction and quality. <strong>LVI</strong> is ISO 9000 compliant.</td>
</tr>
<tr>
<td><strong>MTUS Technology</strong></td>
<td>Accepted worldwide for quality &amp; maximum profits&lt;br&gt;<strong>MTUS Technology</strong> is an experienced turnkey supplier of complete vacuum steel degassing systems utilising hybrid pumping technologies as well as automatic ladle gas coupling systems. <strong>MTUS Technology</strong> is capable of designing and delivering an extensive range of installations starting from a 5 t liquid steel ladle capacity up to 250 t.</td>
</tr>
<tr>
<td><strong>ARUGA</strong></td>
<td>An ISO 9001:2008 certified company manufacturing conical port liquid ring vacuum pumps&lt;br&gt;Other products include: • Water Separation Systems/Pumps for Twin–Tri Disc Refiners • Refiner Plates/Discs • Oil Seal High Vacuum Pumps • Twin Lobe Roots Blowers</td>
</tr>
<tr>
<td><strong>ERT P Hibon</strong></td>
<td>Specialist in liquid ring pumps, with more than 30 years’ experience&lt;br&gt;<strong>ERT Hibon</strong> provides solutions in the following industries: • <strong>Chemicals</strong>: plastic/polymer, pharmaceuticals, flavours/fragrances, basic chemicals, laboratory/research • <strong>Oil &amp; Petroleum</strong>: offshore exploration, tanker loading, refinery • <strong>Power</strong>: power stations • <strong>Industrial</strong>: transport, building materials, plastics, electronics, paper conversion, glass industry • <strong>Food</strong>: sugar, edible oils, packaging, processing • <strong>Utilities</strong>: effluent, water</td>
</tr>
<tr>
<td><strong>EDWARDS</strong></td>
<td>Edwards creates pure manufacturing environments that deliver real-world product solutions&lt;br&gt;<strong>Edwards</strong> is a leading developer and manufacturer of sophisticated vacuum products, abatement systems and related valued-added services. Process vacuum, steel degassing, chemical process industry and power are only a few markets we serve. By working with engineers in those markets, <strong>Edwards</strong> is able to push the limits of vacuum systems design, creating solutions to meet the demands of increasingly challenging applications.</td>
</tr>
</tbody>
</table>

*For additional information and expert advice please contact us or view our website*

[www.processvacuum.co.za](http://www.processvacuum.co.za)
LIQUID RING VACUUM PUMPS AND COMPRESSORS

**PROPERTIES**
- Suction capacities from 20 to 54 000 m³/h
- Operating pressure down to 33 mbar
- Wet and dry gases
- Multiple stages
- High tolerance to liquid carry-over
- Low water usage
- Low noise levels

**APPLICATIONS**
- Condenser evacuation
- Pulp and paper
- Filtration
- Chemical and petrochemical applications
- Power
- Vacuum forming
- Pharmaceutical
- Mining
- Steel degassing
- Biofuels

CHEMICAL DRY PUMPS

**PROPERTIES**
- Dry pump capacities 80 to 400 m³/h without boosters
- Operating pressure below 1 mbar
- Mechanical booster capacities 250 to 3 000 m³/hr
- Boosters most efficient in the range 1 to 100⁻² mbar
- Patented three-stage claw design
- Shortest possible gas path
- No interstage coolers
- Robust vertical design
- Hydrokinetic drive on mechanical boosters means continuous operation without problems
- CDX 1000 – the dry pump designed for the real world. A unique screw design.

EJECTOR SYSTEMS

**PROPERTIES**
- Rough to medium vacuum (1 013 to 10⁻¹ mbar)
- Compression from momentum transfer
- Optimally efficient at a single point
- Multiple stages
- Single-stage compression ratio (CP) of typically 6:1
- Maximum practical CP of 12 for steam (and 5 for air)
- CP of 100 000:1 with 6 stages

**APPLICATIONS**
- Multi-stage ejectors are used to evacuate and maintain the vacuum in many industrial processes:
  - Degassing
  - Desalination
  - Deodourising
  - Distillation columns
  - Evaporation
  - Fractionating
  - Freeze drying
  - Turbine condensing
  - Vacuum cooling etc.
  - Applications are not limited to steam; LVI also offers water, gas and air-operated ejectors for a wide variety of applications throughout the process industries.

ENGINEERED SYSTEMS

**PROPERTIES**
- Combinations of liquid ring vacuum pumps, ejectors, chemical dry pumps and mechanical boosters

**APPLICATIONS**
- Biofuels
- Petrochemical
- Steel degassing
- Process
- Power
- Chemical
- Pharmaceutical
APPLICATIONS

- **Used in the following areas of steel mills**: ladle treatment and deslagging station; ladle transfer cars and ladle turrets. **Vacuum tanks – systems are: ‘mill-worthy’**: eliminates operator fatigue; enhances consistency and repeatability; reliable in harmful environments; efficient gas use. **Safety**: provides safety for operators as they are not in the danger area. No risk of burn injuries due to slag or hot metal. **Performance**: improved performance for steel-making customers. **Time**: provides rapid connection to minimise gas purging interruption. **Self-protection**: predetermined breaking point protects machinery. Quick exchange of ‘break-away’ part. **Self-positioning**: large coupling tolerance. **Protected position**: system is protected from harmful environment. **Repetition**: repeatable process. **Mechanical steel degassing**

**MECHANICAL BOOSTERS**

**EH MECHANICAL BOOSTER PUMPS** The Edwards EH mechanical booster pumps feature a unique hydrokinetic drive that provides efficient power transmission with benefits in economy, performance and compactness. These booster pumps are suitable for use with high differential pressures, which allow the booster pump to be started at the same time as the backing pump, reducing total pump downtimes.

**STOKES 6” MECHANICAL BOOSTER PUMPS** The Stokes 6” Series mechanical booster pumps provide high throughput pumps for industrial and arduous chemical applications. Utilizing reliable, rugged designs, these pumps offer a low cost, space saving pumping system.

**HV MECHANICAL BOOSTER PUMPS** The HV mechanical booster pumps combine Edwards’ expertise in manufacturing and distribution of complete industrial vacuum systems with Dresser’s world-renowned Roots pump technology. When backed by a Drystar or EH mechanical booster, HV pumps provide totally oil-free high-capacity pumping and operate reliably for long periods without maintenance.

**MECHANICAL STEEL DEGASSING**

Secondary steel processes involving vacuum degassing have been in use since the mid 1920s. First with mechanical systems on a small scale and then using steam ejectors.

**Manufacturing drivers where mechanical systems offer a benefit over steam ejectors:**

- **Reduced power consumption**: more than a 90% saving. **Increase in productivity of the steel plant**: on-demand vacuum. **Savings on primary fuel energy and utilities**: zero gas/oil; significantly reduced water consumption. **Consistent steel quality from heat to heat**: same vacuum level every time. **Production of ultra-clean steel**: better final vacuum level than steam. **Development of new steel qualities**: lower H₂. **Low maintenance cost**: designed to need annual service only. **Improved coordination of all units involved in the production sequence**: on-demand vacuum always available. **Better working conditions for the operating personnel**: no ejector cleaning required.
LUBRICATED ROTARY VANE PUMPS

**AIRTEC VACUUM PUMPS** are robust, single-stage industrial vacuum pumps suitable for all applications requiring consistently good ultimate vacuum. They incorporate the best features of the German-made Busch vacuum pumps. Component parts are interchangeable with Busch pumps at much reduced prices.

The single-stage rotary vane vacuum pumps are air cooled, direct driven, and fitted with an inlet anti-suckback valve and exhaust oil mist filtration.

**MODELS**
- L10 & L20
- L30 & L45
- L65 & L100
- L160 & L215
- L300
  - L400 & L600

**APPLICATIONS**
- Transformer processing
- Hospital central vacuum systems
- Vacuum pressure impregnation
- Oil purification
- Vacuum forming
- Machining hold-down operations
- Resin-infusion moulding

Airtec vacuum pumps are air cooled, resulting in huge savings on water bills. Direct drive has eliminated unreliable drive belts. This improves reliability, reduces maintenance and results in quiet, unobtrusive operation.

All lubricated vacuum pumps produce large volumes of oil mist from the exhaust. Airtec has overcome this problem by fitting an efficient oil recovery system in the pump, which recovers 99.8% of the oil normally discharged by the exhaust. This oil is returned to the vacuum pump to be reused, thereby eliminating the need for frequent maintenance. The need for exhaust piping is also eliminated resulting in a simpler installation.

**BENEFITS**
- Reliable and durable operation
- Simple installation without the need for water cooling
- High ultimate vacuum of 0.5 millibars
- Anti-suckback valve in the pump inlet
- Low maintenance requirements
- No pollution in the working environment

**FEATURES**
- Long-life composite vanes
- Anti-suckback valve
- Exhaust oil mist filter
- Inlet wire mesh screen
- Spin on filter
- Fan-assisted air cooling
- Direct drive, no belts
- Vibration isolators
- Large oil level
- Sight glass
- Exhaust pressure gauge

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**THE AIRTEC RANGE**

<table>
<thead>
<tr>
<th>Model</th>
<th>m³ph</th>
<th>KW</th>
<th>RPM</th>
<th>Final vacuum</th>
<th>Weight</th>
<th>Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>L10</td>
<td>10</td>
<td>0.4</td>
<td>1400</td>
<td>0.5 mbar</td>
<td>21 Kg</td>
<td>0.5 L</td>
</tr>
<tr>
<td>L20</td>
<td>20</td>
<td>0.75</td>
<td>1400</td>
<td>0.5 mbar</td>
<td>22 Kg</td>
<td>0.5 L</td>
</tr>
<tr>
<td>L30</td>
<td>30</td>
<td>1.5</td>
<td>1400</td>
<td>0.5 mbar</td>
<td>47 Kg</td>
<td>1 L</td>
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<tr>
<td>L45</td>
<td>45</td>
<td>2.0</td>
<td>1400</td>
<td>0.5 mbar</td>
<td>53 Kg</td>
<td>1 L</td>
</tr>
<tr>
<td>L65</td>
<td>65</td>
<td>2.0</td>
<td>1400</td>
<td>0.5 mbar</td>
<td>72 Kg</td>
<td>2 L</td>
</tr>
<tr>
<td>L100</td>
<td>100</td>
<td>3.0</td>
<td>1400</td>
<td>0.5 mbar</td>
<td>75 Kg</td>
<td>2 L</td>
</tr>
<tr>
<td>L160</td>
<td>160</td>
<td>3.7</td>
<td>1400</td>
<td>0.5 mbar</td>
<td>124 Kg</td>
<td>5 L</td>
</tr>
<tr>
<td>L215</td>
<td>215</td>
<td>5.5</td>
<td>1400</td>
<td>0.5 mbar</td>
<td>145 Kg</td>
<td>5 L</td>
</tr>
<tr>
<td>L300</td>
<td>300</td>
<td>7.5</td>
<td>1400</td>
<td>0.5 mbar</td>
<td>188 Kg</td>
<td>7 L</td>
</tr>
<tr>
<td>L400</td>
<td>400</td>
<td>15.0</td>
<td>940</td>
<td>0.5 mbar</td>
<td>504 Kg</td>
<td>19 L</td>
</tr>
<tr>
<td>L600</td>
<td>600</td>
<td>18.5</td>
<td>940</td>
<td>0.5 mbar</td>
<td>705 Kg</td>
<td>19 L</td>
</tr>
</tbody>
</table>
APPLICATIONS

MINING
FILTERS
• Belt, drum and disc
Dewatering and filtration

CHEMICAL
Distillation • Vapour recovery
• Evaporation • Solvent recovery
• Soap production • Oil treatment
plants • Flammable & corrosive
• Biofuels

PULP & PAPER
• Dewatering

POWER
• Condenser air extraction • Flue
gas desulphurisation • Fly ash
handling • Waterbox priming

SUGAR
• Evaporators • Vacuum pans

FOOD & BEVERAGE
LIQUID RING VACUUM
PUMPS & AIRTEC
• Food processing • Bottling
• Packaging

LABS & LIFE SCIENCE
AIRTEC • Oven drying
• Distillation • Filtration
• Vacuum concentrators

OIL & GAS
• Liquid ring vacuum pumps
• Ejectors • Chemical dry
• pumps

GENERAL INDUSTRIAL
• Glass • Automotive
• Coatings • Heat treatment

STEEL DEGASSING

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APLICATIONS

**DRY ROTARY VANE PUMPS**

Dry rotary vane pumps provide clean, dry, maintenance-free vacuum. Speedivac dry pumps are supplied complete with an inlet filter, vacuum regulator, vacuum gauge and exhaust silencer. Dry pumps are an alternative to lubricated rotary vane pumps in applications such as resin-infusion moulding, central vacuum, vacuum packaging or where clean, dry vacuum is required with a minimum of maintenance.

Dry rotary vane pumps are widely used in the printing industry where both vacuum and pressure are required in one unit. One pump provides vacuum, the other provides pressure.

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**VACUUM GAUGES**

**BOURDON VACUUM GAUGES** are inexpensive and are used to measure pressure reduction from atmosphere. Readings on bourdon gauges are not able to reflect changes in barometric pressure due to altitude changes and allowance must be made if an absolute reading is required.

**CAPSULE GAUGES** are designed to measure absolute pressure in millibars. They give true vacuum readings independent of atmospheric pressure. Variation of pressure causes deformation of a hermetically sealed capsule. This movement is transferred mechanically to a pointer that indicates the pressure. Capsule gauges are used where true, accurate vacuum readings are required.

The inexpensive **GDH 200 HANDHELD VACUUM GAUGE** is a portable, battery-operated vacuum gauge offering convenient means of measuring vacuum from 1 000 mbar to 1 mbar with an accuracy of 1 mbar. The GDH 200 electronic vacuum gauge is a general-purpose vacuum gauge widely used where accuracy and ease of operation are required at a budget price, such as in laboratories, vacuum forming, vacuum packaging and wherever mains electricity is not available.

**THYRACONT-TYPE VD PORTABLE VACUUM GAUGES** offer both mains and battery operation. A wide pressure range of 1 600 mbar to 5 X 10^-4 mbar can be measured with great accuracy. Readings are via a large, easy-to-read digital display that can be activated to read continuously. VD gauges are available with either an internal or external sensor. This option allows for a cable-free installation. The gauge may even be placed within the vacuum chamber if a viewing port is available. VD gauges may be supplied with an infrared interface and can be used as a data logger for recording and plotting pump down graphs using Windows software.

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**RESIN & SILICONE DEGASSING CHAMBERS**

To produce quality resin castings and defect-free silicone moulds, the air that is trapped in the resin or silicone must be removed. Bubbles that are trapped in the material will produce unsightly defects and affect the strength of the casting. A bubble on the surface of a silicone mould will reproduce on the casting as a cavity or as a raised defect that is difficult and time-consuming to repair.

Exposing the resin or silicone to high vacuum in our Speedivac degassing chamber will enable the trapped gases to expand and release from the resin. A clear acrylic lid allows the process to be monitored. Watch as the resin bubbles and boils as the trapped gases are released. Degassing in the Speedivac chamber virtually eliminates defects and rejects in castings and moulds, saving you time and money. Electrical components may be encapsulated in resin under vacuum. The product will have better electrical properties and encapsulation will permanently safeguard your circuit secrets in a clear, bubble-free resin. The Speedivac degassing chamber may be used as a moisture-free vacuum storage unit. Sensitive materials such as medical supplies or sutures will maintain their pristine condition and last longer if stored under vacuum.

**FEATURES**

- Highly efficient bubble removal
- Superior 99 % final vacuum for best results
- Eliminates mould defects in silicone
- Eliminates casting defects
- Simple to operate
- Fast two-minute cycle for greater productivity
- Clear acrylic lid enables the process to be monitored
- May be used as a vacuum pumping station
- May be used for moisture-free vacuum storage

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**THE AIRTEC RANGE**

**Model**

<table>
<thead>
<tr>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>WVS 3</td>
</tr>
<tr>
<td>WVS 5</td>
</tr>
<tr>
<td>WVS 6</td>
</tr>
<tr>
<td>WVS 8</td>
</tr>
<tr>
<td>WVS 9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>m³/h</th>
<th>KW</th>
<th>RPM</th>
<th>Final vacuum (mbar)</th>
<th>Weight (kg)</th>
<th>Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>0.4</td>
<td>1 400</td>
<td>200</td>
<td>21</td>
<td>No oil</td>
</tr>
<tr>
<td>24</td>
<td>0.75</td>
<td>1 400</td>
<td>200</td>
<td>33</td>
<td>No oil</td>
</tr>
<tr>
<td>34</td>
<td>1.5</td>
<td>1 400</td>
<td>200</td>
<td>44</td>
<td>No oil</td>
</tr>
<tr>
<td>56</td>
<td>1.56 pl</td>
<td>945</td>
<td>200</td>
<td>73</td>
<td>No oil</td>
</tr>
<tr>
<td>65</td>
<td>2.26 pl</td>
<td>945</td>
<td>200</td>
<td>97</td>
<td>No oil</td>
</tr>
</tbody>
</table>

www.processvacuum.co.za
**Applications**

**Applications**

**Small Vacuum Pumps**

**Speedivac 10 Vacuum Pumps** are an economical solution for vacuum applications requiring good-quality vacuum in small volumes.

They are widely used for resin and silicone degassing, general laboratory work, manufacturing orthopaedic components and resin infusion moulding. They are light in weight and popular for evacuating refrigeration systems. Speedivac vacuum pumps are popular in universities due to their low cost and their ability to provide consistently good vacuum with low operating noise levels.

Speedivac vacuum pumps are supplied with exhaust oil mist filters as standard to maintain a clean working environment.

These little workhorses perform the work of vacuum pumps costing three times their price. They will provide years of service with a minimum of maintenance.

**Model Features**

- Compact, lightweight design
- Low initial cost
- Superior ultimate vacuum
- Near-silent operation
- Low maintenance costs

**Claw Vacuum Pumps**

**VCX Series 60, 100, 150, 250, 300, 400 & 505** The VCX Series pumps are dry contactless vacuum pumps with modular constructions consisting of compartments: pumping and gear chambers are separated by using labyrinth seals. As two claws rotate in opposite direction the air will be sucked into the pumping chamber, compressed and discharged under pressure. In the gear chamber, two gears for synchronising claw rotation will be done with appropriate oil lubrication. A built-in anti-suck-back valve installed in the inlet flange will prevent air from flowing back into the vacuum chamber when the pump is shut down. The pumps are directly driven by a flanged motor via a coupling.

**Applications**

- Packaging
- CNC routing
- Wood works
- Pneumatic conveying, holding & lifting, pick and place
- Medical & lab
- Plastics industries
- Central vacuum systems

**Safety**

- CE certified

<table>
<thead>
<tr>
<th>Model</th>
<th>Displacement m³/hour</th>
<th>Motor Kw</th>
</tr>
</thead>
<tbody>
<tr>
<td>VCX 60</td>
<td>60 Hz 72</td>
<td>1.5</td>
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<tr>
<td></td>
<td>50 Hz 60</td>
<td>1.1</td>
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<tr>
<td>VCX 100</td>
<td>60 Hz 120</td>
<td>2.6</td>
</tr>
<tr>
<td></td>
<td>50 Hz 100</td>
<td>2.2</td>
</tr>
<tr>
<td>VCX 150</td>
<td>60 Hz 180</td>
<td>3.6</td>
</tr>
<tr>
<td></td>
<td>50 Hz 150</td>
<td>3</td>
</tr>
<tr>
<td>VCX 250</td>
<td>60 Hz 282</td>
<td>4.8</td>
</tr>
<tr>
<td></td>
<td>50 Hz 234</td>
<td>4</td>
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<tr>
<td>VCX 300</td>
<td>60 Hz 360</td>
<td>6.6</td>
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<td></td>
<td>50 Hz 300</td>
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<td>VCX 400</td>
<td>60 Hz 462</td>
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<td></td>
<td>50 Hz 385</td>
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<td>VCX 505</td>
<td>60 Hz 600</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>50 Hz 500</td>
<td>9</td>
</tr>
</tbody>
</table>

**MB Series Mechanical Boosters**

**Airtec’s MB Mechanical Vacuum Boosters** are Roots-type positive displacement blowers intended for use with a backing vacuum pump. MB mechanical boosters provide high pumping speed and superior final vacuum from a compact pump set.

MB Boosters have a pressure bypass valve which enables the booster to be started at atmospheric pressure. The bypass valve reduces the need for pressure switches and provides faster pump down cycles. A magnetic drive between the motor and pump ensures progressive power transmission and eliminates the need for shaft seals and oil leaks associated with shaft seals.

**Model Features**

- Pump down cycles reduced by 50%
- Magnetic drive eliminates oil seals – no oil leaks
- Operates over the full pressure range
- No pressure sensors required
- Reduced capital and operating costs
- Direct drive; no belts
- Backing port vertical or horizontal
- Large oil level sight glass

<table>
<thead>
<tr>
<th>Model</th>
<th>Pumping speed m³/hour</th>
<th>Backing pump L</th>
<th>Motor Kw</th>
<th>Rotational speed RPM @ 50 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB500</td>
<td>500</td>
<td>100 / 160</td>
<td>2.2</td>
<td>2800</td>
</tr>
<tr>
<td>MB1200</td>
<td>1200</td>
<td>160 / 240</td>
<td>4.0</td>
<td>2800</td>
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<tr>
<td>MB2600</td>
<td>2600</td>
<td>400 / 600</td>
<td>9.0</td>
<td>2800</td>
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</table>