Pumps suited for your application

ALLWEILER Progressing Cavity Pumps range from small dosing pumps, sanitary pumps, close coupled/block, equal wall stator pumps, vertical (stator immersed) pumps, to open throat pumps. ALLWEILER offers a full range of pumps for a wide range of applications, which assures the most economical and reliable pumping solution for the individual pumping application.

For additional information or special applications consult your local distributor.
### Progressing Cavity Pumps – Open Throat Type

**SERIES AE-ZD**

Twin auger open throat pump with compression zone design; no need for a bridge breaker.

**SERIES AEN_RG**

Adjustable stator (Patent-No. DE 3641 855)

For adjusting the compression of the stator elastomer on the rotor. As the stator and rotor wear, the compression can be adjusted to an "as new" condition, extending pump life.

Can also be used for loosening the compression fit between rotor and stator to lessen the starting torque requirement.

---

**Performance Range**

<table>
<thead>
<tr>
<th>Series</th>
<th>Pump Design</th>
<th>Rate of Flow at ( \Delta p = 0 ) bar max.</th>
<th>Temperature of Fluid Pumped</th>
<th>Delivery Pressure max. ( \Delta p )</th>
<th>Discharge Pressure max. ( \Delta p )</th>
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<tbody>
<tr>
<td>AE E-ID</td>
<td>•</td>
<td>1980</td>
<td>450</td>
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<td>300</td>
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<tr>
<td>AE N-RG</td>
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<td>53</td>
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<td>210</td>
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<tr>
<td>AEB E-ID</td>
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<td>AEB E-IE</td>
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<td>186</td>
<td>3100</td>
<td>104</td>
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<tr>
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<td>45</td>
<td>750</td>
<td>300</td>
</tr>
<tr>
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<td>• •</td>
<td>198</td>
<td>45</td>
<td>750</td>
<td>210</td>
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<td>ANP</td>
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<td>11</td>
<td>2.5</td>
<td>42</td>
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<td>42</td>
<td>210</td>
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<tr>
<td>ASP</td>
<td>• •</td>
<td>11</td>
<td>2.5</td>
<td>42</td>
<td>300</td>
</tr>
<tr>
<td>ASBP</td>
<td>• •</td>
<td>11</td>
<td>2.5</td>
<td>42</td>
<td>210</td>
</tr>
<tr>
<td>ADP</td>
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<td>3</td>
<td>0.6</td>
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<td>300</td>
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<tr>
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<td>125</td>
<td>29</td>
<td>480</td>
<td>266</td>
</tr>
<tr>
<td>ACHBP</td>
<td>• • •</td>
<td>125</td>
<td>29</td>
<td>480</td>
<td>210</td>
</tr>
</tbody>
</table>

- Pump in block design
- \( \Delta p = 20 \) bar/290 PSI possible for sizes 380, 750, 1450, 2700
- \( \Delta p = 10 \) bar/145 PSI in case of stator with uniform wall thickness
- \( \Delta p = 25 \) bar/360 PSI possible for sizes 380, 750, 1450

The listed performance data is to be used as a reference only. Contact factory representative for exact limits of operation.

The following materials can be used depending on the type of pumpage and pump series used:

**Rotor**

- WB: Natural Rubber/Butadene
- P: Pertbutan/Buna N
- N: Neoprene
- V: Hypalon
- E: EPDM
- F: Fluoroe lastomer

**Stator Elastomers**

- B: Butyl Rubber
- HP: High Nitrile Pertbutan/Buna N
- SL: Silicone Rubber
- VU: Polyurethane
- PE: Polyethylene
- PTFE: Polytetrafluoroethylene

Contact factory representative for materials not shown.

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**Thermal dry-running protection**

Temperature measurement using a temperature sensor in the stator elastomer. Suitable for all liquids to be pumped.

---

**Adjustable stator**

For adjusting the compression of the stator elastomer on the rotor. As the stator and rotor wear, the compression can be adjusted to an "as new" condition, extending pump life.

Can also be used for loosening the compression fit between rotor and stator to lessen the starting torque requirement.
Pumping Principle

The ALLWEILER progressing cavity pump is a rotary self-priming positive displacement pump. The pumping elements are the rotating eccentric screw (rotor) and the fixed, abrasion resistant, elastomeric lined stator. In any cross-sectional plane, the stator elements are in contact with one another at three points (AE1L and Tecflow), or two points (AE and the other types). These points form three (2:3) or two (1:2) seal lines along the length of the stator elements. The material is contained in the sealed enclosed cavities, which are formed as the rotor rotates and is displaced axially and continuously from the suction to the discharge of the pump.

ALLWEILER supplies various pump types for horizontal, vertical and wet well installations. The pump design, bearing assembly, type of shaft seal, and the material selection can be adapted to optimally suit each particular application.

Pumps are supplied in either frame or close coupled/block design. Either design may be used with a speed reducer or various other types of drivers. Pump speeds may also be controlled by the use of a variable frequency drive.

Applications

For pumping a wide range of liquids including highly viscous, neutral or aggressive fluids with entrained air, or with fiber and solids content.

Some of the industries served are chemical, petro-chemical, pulp and paper, soaps and fats, paint and latex, food and beverage, plastics, ceramics, sugar, water and wastewater, agriculture, and shipbuilding.

Further Advantages

- High metering accuracy for dosing flocculants, precipitants, neutralizing agents or for sampling
- Continuous, extremely gentle, and non-pulsating pumping
- Low shear rates maintain liquid structure
- Excellent self-priming capability, including highly-contaminated and difficult to handle liquids.
- Available in various materials of construction.
- Suitable for products with dry solids content up to 45%.

Maximum Pressure

<table>
<thead>
<tr>
<th>Pressure</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 87 PSI</td>
<td>AE 1E, AE 1N</td>
</tr>
<tr>
<td>350 PSI</td>
<td>AE 2E, AE 2N</td>
</tr>
<tr>
<td>174 PSI, 232 PSI</td>
<td>AE 4N, AE 2x4H, AE 4H</td>
</tr>
<tr>
<td>700 PSI</td>
<td>AE 4+4V, AE 8V</td>
</tr>
</tbody>
</table>

* with equal elastomer wall thickness

SERIES AEB

(Close Coupled/Block Type)

Rugged pin-type universal joints with interchangeable hardened bushings. Elastomeric cover sleeves with corrosion resistant clamping bands encapsulate the pin joint and joint lubricant to provide gas and liquid tight sealing.

Suction casing with improved hydrodynamics, the suction casing can be rotated in 90° increments.

Wide open seal housing for excellent mechanical seal flushing.

Self-sealing, backlash-free, hollow-shaft connection to the gear motor using a clamp set.

The constant volume of the opposing cavities produces gentle, non-pulsation pumping action.

Inspection/cleanout ports provided on most models.
ALLWEILER close coupled/block progressing cavity pumps provide a space saving economical design for commercial, industrial, water and wastewater treatment industries.

The AEB pump is standard 1:2 rotor-stator geometry.

Tecflow and AEB1L pumps are 2:3 long rotor-stator geometry. The Tecflow and AEB1L offer 100% greater flow at similar speeds when compared to conventional pumps with similar size 1:2 geometry pumping elements.

Further advantages
- Stable performance
- High metering accuracy
- Short, space-saving design as a close coupled/block pump
- Improved overall efficiencies due to three enclosed pump cavities and more consistent elastomer wall thickness reduces slip

Advantages of pumps
- Quick pump delivery due to the use of standard, reliable components successfully used in thousands of field applications
- Easily removable split packing gland
- Smaller shaft seal diameter reduces face velocity and friction rate
- Easily accessible shaft seal area results from a smaller drive flange diameter and easily removable split packing gland
- Shaft with wear-resistant coating in the stuffing box area

Advantages of Equal Wall Stators
Depending on the liquid pumped, elastomeric stators are available either with Un-Equal Wall or Equal Wall thickness. Advantages of stators with Equal Wall thickness include:
- Lower starting and running torque
- Reduced power requirements, quiet operation, non-pulsating pumping
- More stable flow characteristic, better volumetric efficiency
- Higher pressure capability
- Lower replacement costs with expensive elastomers

Non-Equal Wall or Equal Wall Thickness

The motor power required to overcome the friction created by the interference fit of the rotor and stator on an Equal Wall stator is approximately 60% that of a Non-Equal Wall stator. This is a result of smaller surface contact.

Advantages of pumps
- Only 4 wearing parts
- Wearparts hardened to 64 HCR
- No axial seals
- Oil lubricated
- Inexpensive to replace
- Easy maintenance

Pin Type Universal Joint
- Rugged pin-type universal joints with interchangeable hardened bushings are encapsulated, gas and liquid tight, using an elastomeric cover sleeve with corrosion-resistant clamping bands

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Progressing Cavity Pumps

Rugged pin-type universal joints with interchangeable hardened bushings are encapsulated, gas and liquid tight, using an elastomeric cover sleeve with corrosion-resistant clamping bands.

Optional hollow rotors provide higher operating speeds, longer service life, and silent low-vibration operation.

AE and other series pumps use 1:2 lobe geometry pumping elements.

Pumping Slurries Containing Abrasive Solids

Pumping slurries containing abrasive solids requires adjusting the maximum differential pressure per stage to maximize pumping element life. The table below shows all maximum pressure per stage based on a slurry’s abrasive nature. Light abrasion would be water with some organic solids. Medium abrasion would be slurries with soft solids, such as clay slurries or gypsum slurries. Heavy abrasion would be slurries containing harder solids, such as emery dust, lapping compound, sand or grit slurries.

<table>
<thead>
<tr>
<th>Chart for Pumping Slurries Containing Abrasive Solids</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Pressure Per Stage in PSI</td>
</tr>
<tr>
<td>1:2 Geometry</td>
</tr>
<tr>
<td>2/3L Tecflow</td>
</tr>
<tr>
<td>1:2 Equal Wall</td>
</tr>
</tbody>
</table>

Contact Factory Representative for viscosities greater than 250,000 cPs.
Rugged pin-type universal joints with interchangeable hardened bushings are encapsulated, gas and liquid tight, using an elastomeric cover sleeve with corrosion-resistant clamping bands.

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<table>
<thead>
<tr>
<th>Max Pressure Per Stage in PSI</th>
<th>None</th>
<th>Light</th>
<th>Medium</th>
<th>Heavy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:2 Geometry</td>
<td>87</td>
<td>60</td>
<td>35</td>
<td>15</td>
</tr>
<tr>
<td>2/3L Tecflow</td>
<td>58</td>
<td>58</td>
<td>52.5</td>
<td>22.5</td>
</tr>
<tr>
<td>1:2 Equal Wall</td>
<td>174</td>
<td>120</td>
<td>70</td>
<td>30</td>
</tr>
</tbody>
</table>

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Treating close coupled/block progressing cavity pumps provide a space saving economical design for commercial, industrial, water and wastewater treatment industries.

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- Higher pressure capability
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### Non-Equal Wall or Equal Wall Thickness

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### Pin Type Universal Joint

- Only 4 wearing parts
- Wearparts hardened to 64 HCR
- No axial seals
- Oil lubricated
- Inexpensive to replace
- Easy maintenance
- Rugged pin-type universal joints with interchangeable hardened bushings are encapsulated, gas and liquid tight, using an elastomeric cover sleeve with corrosion-resistant clamping bands
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Maximum Pressure

<table>
<thead>
<tr>
<th>Series</th>
<th>up to 70 PSI</th>
<th>up to 145 PSI</th>
<th>up to 174 PSI</th>
<th>up to 232 PSI</th>
<th>up to 350 PSI</th>
<th>up to 382 PSI</th>
<th>up to 500 PSI</th>
<th>up to 700 PSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE 1E</td>
<td>AE 1N</td>
<td>AE 2E</td>
<td>AE 2N</td>
<td>AE 2H</td>
<td>AE 4N</td>
<td>AE 4+4H</td>
<td>AE 4H</td>
<td>AE 4+4V</td>
</tr>
</tbody>
</table>

Series AEB

(Choose Coupled/Block Type)
Progressing Cavity Pumps – Open Throat Type

Suction casing continuously tapered towards the pumping elements' inlet

Enclosed connecting rod reduces ragging

Auger design prevents the product from forming a bridge and assists flow to the pumping elements

Tapered suction casing creates compression zone; improved volumetric efficiency, and positive pressure to the pumping element

**SERIES AE-ZD**

Twin auger open throat pump with compression zone design; no need for a bridge breaker.

**Thermal dry-running protection**

Temperature measurement using a temperature sensor in the stator elastomer. Suitable for all liquids to be pumped.

**Adjustable stator** (Patent-No. DE 3641 855)

For adjusting the compression of the stator elastomer on the rotor. As the stator and rotor wear, the compression can be adjusted to an “as new” condition, extending pump life. Can also be used for loosening the compression fit between rotor and stator to lessen the starting torque requirement.

**SERIES AEN_RG**

**Performance Range**

<table>
<thead>
<tr>
<th>Series</th>
<th>Pump Design</th>
<th>Rate of Flow at Δp = 0 bar max.</th>
<th>Temperature of Fluid Pumped</th>
<th>Delivery Pressure max. Δp</th>
<th>Discharge Pressure max. Pd</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE E-I0</td>
<td>*</td>
<td>1980 450 7500 300 150 85 6 230 16</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>AE E-I0</td>
<td>*</td>
<td>765 174 2900 210 100 175 12 230 16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AE E-I0</td>
<td>*</td>
<td>1280 290 4850 300 150 175 12 230 16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AE E-I0</td>
<td>*</td>
<td>490 111 1650 210 100 175 12 230 16</td>
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</tr>
<tr>
<td>AE E-I0</td>
<td>*</td>
<td>765 174 2900 300 150 350 24 360 25</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>AE E-I0</td>
<td>*</td>
<td>53 12 200 210 100 350 24 360 25</td>
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<td></td>
<td></td>
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<tr>
<td>AE E-I0</td>
<td>*</td>
<td>132 30 500 300 150 230 16 230 16</td>
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<td></td>
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<tr>
<td>AE E-I0</td>
<td>*</td>
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<td>198 45 750 300 150 175 12 190 13</td>
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<td>AE E-I0</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>AE E-I0</td>
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<td>11 2.5 42 300 150 175 12 230 16</td>
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<tr>
<td>AE E-I0</td>
<td>*</td>
<td>11 2.5 42 300 150 175 12 230 16</td>
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<td>11 2.5 42 300 150 175 12 175 12</td>
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</tr>
<tr>
<td>AE E-I0</td>
<td>*</td>
<td>11 2.5 42 300 150 175 12 175 12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AE E-I0</td>
<td>*</td>
<td>125 29 480 266 130 175 12 175 12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AE E-I0</td>
<td>*</td>
<td>125 29 480 266 130 175 12 175 12</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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The following materials can be used depending on the type of pumpage and pump series used:

- **Rotor**
- **Stator Elastomers**

<table>
<thead>
<tr>
<th>Series</th>
<th>Pump Design</th>
<th>Rate of Flow at Δp = 0 bar max.</th>
<th>Temperature of Fluid Pumped</th>
<th>Delivery Pressure max. Δp</th>
<th>Discharge Pressure max. Pd</th>
</tr>
</thead>
<tbody>
<tr>
<td>XGON 18 30/4 (Stainless Steel)</td>
<td>WB Natural Rubber/Butyl</td>
<td>B Butyl Rubber</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XGON 12/12 (Stainless Steel)</td>
<td>P Pertobun/Butyl</td>
<td>HP High Nitrile Pertobun/Butyl</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XGON 17 2 316 t (Stainless Steel)</td>
<td>N Neoprene</td>
<td>SL Silicone Rubber</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XGON 17 2 316 t (Stainless Steel)</td>
<td>V Hypalon</td>
<td>VU Polyurethane</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XGON 17 2 316 t (Stainless Steel)</td>
<td>E EPDM</td>
<td>PE Polyethylene</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>XGON 17 2 316 t (Stainless Steel)</td>
<td>V Fluoroplastic</td>
<td>PTFE Polytetrafluoroethylene</td>
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<td></td>
</tr>
</tbody>
</table>

Contact factory representative for materials not shown.
Pumps suited for your application

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