LEWA ecosmart®
The smart and efficient choice for diaphragm metering pumps
The LEWA ecosmart diaphragm metering pump offers the best value/performance ratio in its class, and meters often costly fluids with high precision. As a positive displacement pump, it operates extremely efficiently.

The LEWA ecosmart’s low investment and operating costs as well as its long service life and its robustness make it a winning choice. What’s more, no other metering pump in this class offers the same compact dimensions – after all, every inch of space saved in the design and construction of a system leads to a reduction in costs.

LEWA ecosmart: the innovative, compact, and multiplex-capable diaphragm metering pump, featuring proven quality.
LEWA ecosmart — Advantages

The advantages at a glance

1. Metering accuracy
   Careful, precise conveying with outstanding reproducibility. An accuracy level of at least \(+/- 1\%\) is achieved at constant basic conditions.

2. Operational safety and reliability
   The pump can be started up with complete reliability from any operating state. We use a PTFE sandwich diaphragm with status monitoring as standard. An integrated hydraulic pressure relief valve prevents the pump from entering potential overload situations.

3. Hermetically tight
   LEWA diaphragm pumps work without dynamic seals, due to their design. This permits a hermetically tight working area. There are no emissions to the outside.

4. State-of-the-art technology
   The LEWA ecosmart has been developed with state-of-the-art LEWA technology, such as the DPS diaphragm protection system, which automatically positions the diaphragm correctly. The pump also features unrivaled suction capacity.

5. Cost-effectiveness
   LEWA ecosmart pumps are very competitively priced. Their low lifecycle costs are based on extremely low failure-related costs as well as low energy costs. Long service intervals guarantee high cost effectiveness.

6. Worldwide service
   LEWA is globally organized. Spare parts and service are quickly available worldwide.
LEWA ecosmart — Advantages

- Simple installation and commissioning
- Maximum operational reliability
- Standard drives according to IEC and NEMA
- Sandwich diaphragm design with diaphragm monitoring
- LEWA ecosmart pumps are suitable for ATEX zone 1 and zone 2.
- Maximum metering accuracy
- Compact design
- Meets API 675
- Suction pressure up to 1.5 psig abs.
Areas of application

LEWA ecosmart pumps meet even the most stringent requirements in a whole range of application areas. Their conveying and metering features are safe, efficient, precise, and reliable regardless of the tasks and industries.

Chemical metering in industrial and municipal water treatment systems
Water and fuel conditioning in power plants

pH value correction in industrial and drinking water
Dosing of colorings and flavorings in the food industry

Injection of chemicals in the oil and gas industry
LEWA ecosmart — Areas of application

Metering solvents in the chemical industry

Metering additives in the plastics processing industry
For a wide variety of requirements.
The LEWA ecosmart pump heads.

M900 pump head series for fluids of any kind.
Innovative, state-of-the-art diaphragm pump head series for maximum operational reliability and safety. The patented
LEWA Diaphragm Protection System (DPS) technology also enables a suction capacity that is unrivaled by any other solution
worldwide in the field of hydraulically actuated diaphragm pumps.

M910 in stainless steel design with
PTFE sandwich diaphragm.

M930 in PVC design with
PTFE sandwich diaphragm.
The M900 pump head is an innovative, state-of-the-art diaphragm pump head with a PTFE sandwich diaphragm for maximum operational reliability. It features large safety reserves, especially during the startup. The patented LEWA DPS technology also enables a suction capacity that is globally unique in the field of hydraulically actuated diaphragm pumps.

### Outstanding advantages

- Globally unique suction lift capability
- Suitable for vacuum extraction
- Simple, reliable start-up, even under extreme conditions
- Patented DPS diaphragm protection system
- Very low maintenance costs and long service intervals
- Suitable for slurry applications
- Dry run safe
- Integrated hydraulic pressure relief valve

### Technical data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharge pressure</td>
<td>up to 1,160 psig</td>
</tr>
<tr>
<td>Flow rate</td>
<td>up to 79.25 gph per pump head</td>
</tr>
<tr>
<td>Temperature</td>
<td>from +5.0 to +248.0°F</td>
</tr>
<tr>
<td>Viscosity</td>
<td>up to 100,000 mPa·s</td>
</tr>
<tr>
<td>Design</td>
<td>Stainless steel and PVC</td>
</tr>
</tbody>
</table>

For fluids of any kind.
The diaphragm pump head with cutting-edge technology.
Robust technology and proven quality

Reliable components are one of the keys to safe processes.
LEWA ecosmart pumps are based on the robust technology that LEWA is renowned for. As a result, they are also easily able to fulfill the strict safety requirements of API 675 (American Petroleum Institute). The pumps use key components from LEWA’s proven range – like the PTFE sandwich diaphragm with diaphragm monitoring, the patented DPS diaphragm protection system and flow efficient check valves.

DPS diaphragm protection system

Diaphragm pumps are used when leak tightness and operational reliability are in demand. Especially for hazardous, abrasive, environmentally harmful, or sensitive fluids. The diaphragm is hydraulically actuated to ensure a balanced load. In combination with the DPS (Diaphragm Protection System) a long diaphragm service life, maximum operational reliability and an unrivaled suction capacity are ensured.

Diaphragm monitoring

Any diaphragm damage is displayed reliably by the diaphragm monitoring feature. The safety sandwich construction allows the pump to keep running without any problems until the next planned shutdown. Diaphragms can be replaced very easily when required.
Variable eccentric principle for flow adjustment

For the liquid flow adjustment, LEWA uses its proven variable eccentric principle; this also enables easy operation. The stroke length is adjusted directly on the eccentric shaft. The handwheel can be used to make a linear stroke adjustment in 0.0020 inch increments, either during standstill or operation. The pistons move in harmony even in the partial stroke range, preventing additional, disruptive pulsations in this range. The solid dimensioning and high-quality materials, oil bath lubrication, and protection against weather and splash water ensure a long service life. Maintenance work is extremely easy to perform. The equipment is driven using motors. In multiplex versions, a range of drive unit stroke frequencies enables adjustment in line with different fluids and other basic conditions.

Flow efficient check valves

Operational reliability and failure risk are critically dependent on check valve quality. The valve design is therefore adapted to the specific application.

Stroke adjustment

The drive units are equipped with manual stroke length adjustment as standard. As an option, it is also possible to equip the LEWA ecosmart with an electrical actuator for stroke length adjustment.
Individual configurations are available on request, such as painting for seawater applications, material test certificates, and acceptance in accordance with API (American Petroleum Institute) criteria.

**Customized valves**

**Diverse connection geometries**

**PVC wetted parts**

Integration into process control systems via analog and digital signals, using a frequency inverter or electrical stroke adjustment.

Features and advantages of electrical stroke adjustment:

- Power supply with large voltage range of 90 to 264 VAC (single-phase)
- Servomotor technology for high precision
- Manual operation (handwheel does not move during automatic operation)
- Analog input signals 0-10 V; 0/4-20 mA or fieldbus
- Integrated active feedback signal 0-10 V; 0/4-20 mA

**Explosion protection**

**Multiplex capability**

- As single drive unit with space-saving vertically installed motor
- Multiple drive units that can be combined with identical or different output, for higher output, pulsation reduction or recipe metering, for example
At a glance.
Technical data.

Performance overview to determine stroke frequency and pump head size

<table>
<thead>
<tr>
<th>Type</th>
<th>Piston ø [inch]</th>
<th>Q_{max} [gph] for each pump head, at full stroke length and stroke frequency</th>
<th>n \ [\text{min}^{-1}]</th>
<th>P_{\text{max discharge}} \ [\text{psig}] 316L</th>
<th>P_{\text{max discharge}} \ [\text{psig}] PVC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.24</td>
<td>0.7, 0.9, 1.2, 1.4, 1.9</td>
<td>102, 138, 173, 208, 277</td>
<td>1,160, 1,160, 1,160, 1,160, 1,160</td>
<td>174, 174, 174, 174, 174</td>
</tr>
<tr>
<td></td>
<td>0.31</td>
<td>1.2, 1.7, 2.1, 2.5, 3.3</td>
<td></td>
<td>1,160, 1,160, 1,160, 1,160, 1,160</td>
<td>174, 174, 174, 174, 174</td>
</tr>
<tr>
<td></td>
<td>0.43</td>
<td>2.3, 3.1, 3.9, 4.7, 6.3</td>
<td></td>
<td>1,160, 1,160, 1,160, 1,160, 1,160</td>
<td>174, 174, 174, 174, 174</td>
</tr>
<tr>
<td>4</td>
<td>1.38</td>
<td>23.4, 31.6, 39.6, 47.6, 63.5</td>
<td></td>
<td>1,160, 1,160, 1,160, 1,160, 1,160</td>
<td>174, 174, 174, 174, 174</td>
</tr>
<tr>
<td></td>
<td>1.65</td>
<td>33.6, 45.5, 57.1, 68.6, 91.4</td>
<td></td>
<td>1,160, 1,160, 1,160, 1,160, 1,160</td>
<td>174, 174, 174, 174, 174</td>
</tr>
</tbody>
</table>

Pump heads

<table>
<thead>
<tr>
<th>Type</th>
<th>Discharge pressure</th>
<th>Flow rate</th>
<th>Temperature</th>
<th>Viscosity *</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>M910</td>
<td>1,160 psig</td>
<td>79.25 gph</td>
<td>+5.0/+248.0°F</td>
<td>100,000 mPa·s</td>
<td>316L</td>
</tr>
<tr>
<td>M930</td>
<td>174 psig</td>
<td>79.25 gph</td>
<td>+5.0/+140.0°F</td>
<td>100,000 mPa·s</td>
<td>PVC</td>
</tr>
</tbody>
</table>

* Requires sufficient suction pressure
Assembly dimensions, single pump

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.24 - 0.43</td>
<td>8.66</td>
<td>11.22</td>
<td>17.17</td>
<td>17.95</td>
<td>20.75</td>
</tr>
<tr>
<td>2</td>
<td>0.55 - 0.67</td>
<td>9.06</td>
<td>11.81</td>
<td>17.17</td>
<td>17.95</td>
<td>20.75</td>
</tr>
<tr>
<td>3</td>
<td>0.87 - 1.10</td>
<td>10.63</td>
<td>12.01</td>
<td>17.17</td>
<td>17.95</td>
<td>20.75</td>
</tr>
<tr>
<td>4</td>
<td>1.38 - 1.65</td>
<td>11.22</td>
<td>13.39</td>
<td>17.17</td>
<td>17.95</td>
<td>20.75</td>
</tr>
</tbody>
</table>

The H values relate to the standard motors used by LEWA.

Multiplex pump assembly dimensions [inch]

10.43 10.43 23.62

15.94 12.68
Creating Fluid Solutions.
For more value created.

Technical consulting
Fluid and process engineering tests
Lifecycle concepts and energy optimization

Process automation
Pulsation studies and pipeline calculations
System layout and integration

Creative development and refinements
Commissioning and maintenance service
Spare part and service concepts
Creating Fluid Solutions.
Driven by our commitment, our trendsetting products and innovative technologies have set benchmarks for diaphragm pumps and metering systems for over 60 years. We solve complex tasks from a single source that ranges from custom pump design, basic and system engineering, global project management, and pretesting to commissioning and maintenance on site. Our consistent drive is to always develop the best solutions for the customer, provide a competitive advantage and visible added value.