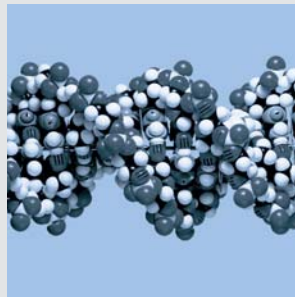


LEWA hygienic

Diaphragm metering pumps
for hygienic applications



- **Pharmaceutical**
- **Biotechnology**
- **Personal Care**

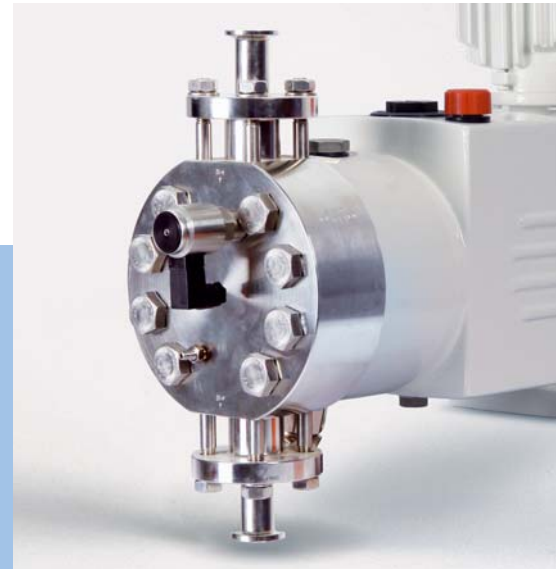
For the highest demands concerning the cleanliness: LEWA hygienic



Specifically for the pharmaceutical market:
Polypropylene pump heads



Hygienic design guarantees process integrity: LEWA ecodos made of stainless steel



For medium to high pressures:
LEWA ecoflow M900

LEWA ecodos polypropylene: Cost-effective plastic pumps for low pressures.

Economical but still meeting all hygienic requirements, a series of plastics with high chemical resistance:

- Reliable and efficient series for low operating pressures
- Excellent chemical resistance
- Polypropylene pump heads with excellent surface quality
- Up to 60°C (140°F), designed to be CIP
- EPDM* or FFPM* seals
- According to standard regulations (EHEDG, QHD)
- All wetted materials tested for FDA conformity and meeting USP class 6 requirements
- Valves seats made of low wear PEEK*

LEWA ecodos stainless steel: The field-proven stainless steel pumps for standard applications.

This high-quality metal series is corrosion proof and enables easy surface cleaning.

- Material 1.4435 (316L)
- Wetted parts
Ra < 0.5µm, electro-polished
- Designed to be CIP
- Designed to be SIP up to 150°C (300°F)

LEWA ecoflow M900: Extremely safe pump heads for high pressures and all types of fluids.

Universal and high-performance series with hydraulically actuated diaphragm and Diaphragm Protection System (DPS).

- Version for medium and high operating pressures
- Material 1.4435 (316L)
- Wetted parts
Ra < 0.5µm, electro-polished
- Designed to be CIP
- Designed to be SIP up to 150°C (300 °F)
- Large modular system system, adaptable to any application

*EPDM (Ethylene Propylene Diene Monomer): Highly elastic elastomer with excellent temperature resistance
 FFPM (Perfluoroelastomer): Elastomer highly resistant to chemicals with excellent temperature resistance
 PEEK (Polyether Ether Ketone): High-strength plastic with high alternating bending strength and excellent temperature resistance

For numerous applications: From engineering to documentation



The pharmaceutical industry:
LEWA diaphragm pumps in hygienic design meet the high demands of the pharmaceutical industry for extruding tablets.



The biopharmaceutical industry:
LEWA Diaphragm pumps and metering systems in up and downstream areas, for continuous sterile filling processes.



The cosmetics industry:
LEWA diaphragm pumps with a hygienic design guarantee excellent cleaning for the production of personal care products.

LEWA hygienic for sterile processes

LEWA hygienic metering pumps meet all aseptic and sterile demands reliably and efficiently. They are hermetically tight and offer zero leakage with absolutely no shaft connection to the product area, thus ensuring contamination-free metering – over long periods of time. This applies to the pharmaceutical & life science as well as the cosmetics & personal care sector. Hygienic pumps can also be used as multiplex pumps, e.g. for recipe metering, i.e. various pumps can be assembled side by side on a single drive shaft.

- Precise metering
- Hermetically sealed
- High operational safety
- Minimum dead spaces
- Optimised operating chamber
- Gentle, low shear handling of fluids
- Reliable, economical, low maintenance
- Designed to be CIP/SIP

We not only provide the perfect pump, but also the right documentation:

- Performance tests and pressure tests
- 3.1 certificates for all wetted materials, also for plastic parts and gaskets
- Surface roughness certificates

The hygienic series covers numerous application areas:

- Continuous, proportional blending of sensitive, expensive fluids
- Exact addition of fluids in the chromatography process
- Metering of sensitive liquids, such as enzymes, vitamins or flavours
- Aseptic transfer of proteins and cells, e.g. micro-organisms or blood
- Addition of additives, such as colourants, toxic chemicals, etc.
- Injection of fluids for extrusion or spray mechanisms for the production of active ingredients and tablets
- Filtration and ultra filtration

These LEWA pumps comply with standard regulations for hygienic installations:

- Materials with FDA conformity
- Materials tested to meet USP class 6 requirements
- Design with 3A conformity
- EHEDG tested
- ASME-BPE conformity

For complete safety: LEWA technology

Optimised hygiene valves: For perfect cleaning

The minimum dead space sealing provided by the gaskets of the valves ensures optimum cleaning. The gaskets are fully chambered and cannot migrate to the product area. In short: The design of all valve components is optimized to offer minimum flow resistance and to remain sterile.

Aseptic pipe line connections: For quick changeovers

Common pharmaceutical process connections guarantee simple disassembly for inspections, ease of maintenance and simple installation.

Patented 4-layer safety diaphragm: Hermetically tight

It consists of 2 working diaphragms, 1 monitoring diaphragm and 1 pressure-resistant safety diaphragm. With its dry running capabilities, the diaphragm prevents fluid from escaping, i.e. contamination of fluids with drive unit oil is not possible.

Longer diaphragm service life; more than 16,000 operating hours

LEWA ecodos safety diaphragms have a service life of more than 16,000 operating hours, i.e. two years of continuous operation. Therefore, the warranty period for diaphragms is two years.

Smooth surfaces: For simple cleaning

The pump head has a chrome-nickel steel 1.4435 (316L) construction with a delta ferrite content of < 1%. The wetted surfaces are mechanically polished and electropolished to achieve a surface roughness of less than 0.5 µm. The plastic version is injection moulded and also achieves roughness values of less than Ra 0.5 µm due to the highly polished tools used.

Diaphragm monitoring system: For reliable status display

The standard diaphragm monitoring system immediately and reliably indicates a damaged diaphragm. Nevertheless, the pump can still be operated to ensure production is completed without risks. Signalling occurs via a pressure switch, pressure gauge and contact pressure gauge.

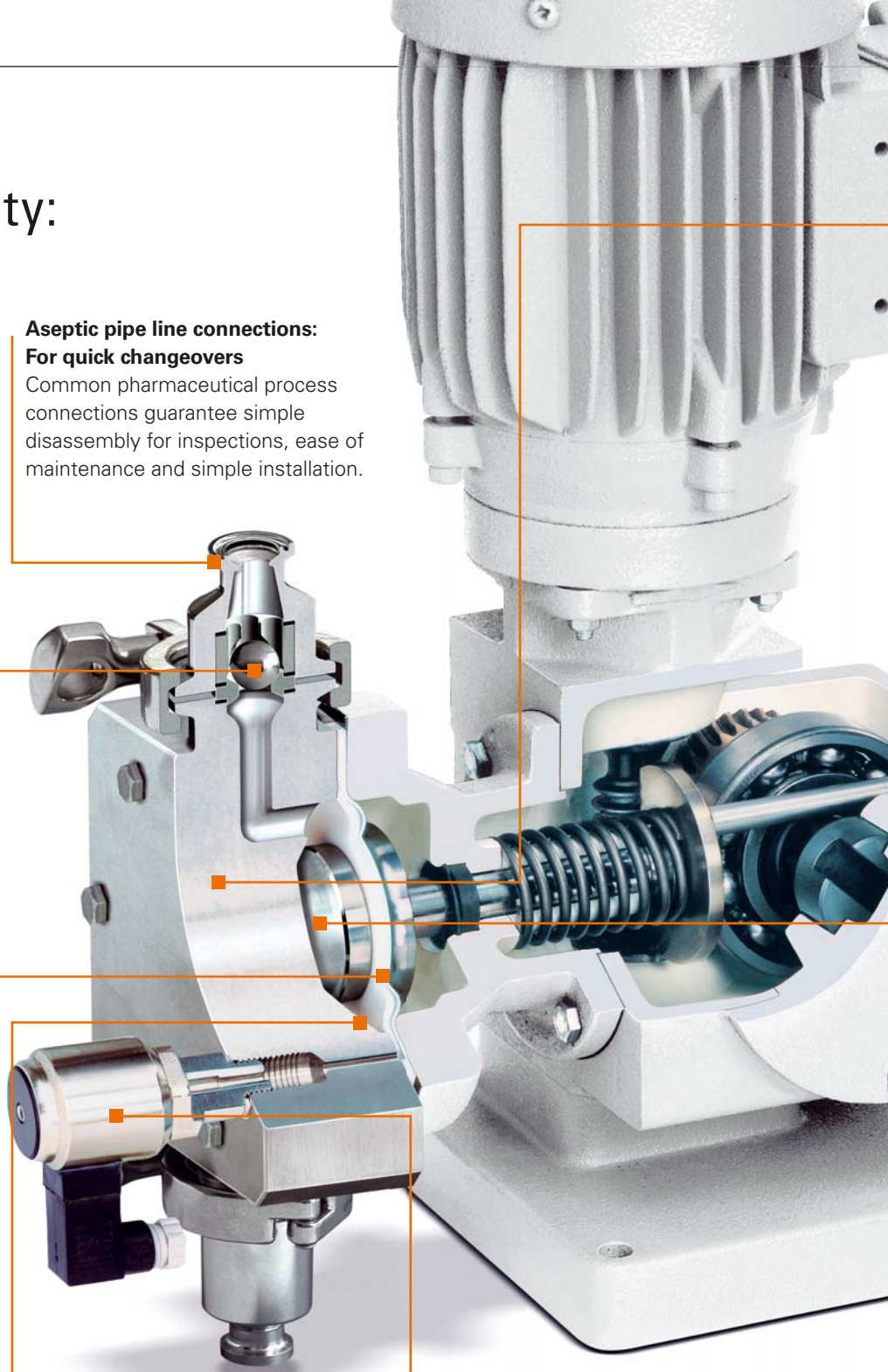


Photo: LEWA ecodos hygienic



**Minimum dead spaces:
shorter dwell period**

The optimised construction of the pump head ensures that the amount of process fluid in the operating chamber is kept to a minimum. The design of the fluid passages results in perfect flushing, draining and drying procedures.

**High metering accuracy,
gentle conveying**

The metering pumps provide high metering accuracy and gentle conveying. Precise adjustment of the stroke (manually or electrically) and adjustment of the stroke frequency via a frequency inverter are possible. Reproducibility of the settings is better than $\pm 1\%$.

Materials for your complete safety

Only physiologically safe materials are used for wetted parts. All the plastics and elastomers satisfy FDA and USP class 6 requirements.



We also offer complete solutions – please contact us for more details.

LEWA ecodos hygienic – Technical data

Model		2	4	6	12	25	50	90	180	350	550	750	1100	1500	
Output eff. (Qmax at P max)	gph	0.65	1.3	2	3.6	8.0	15	30	51	100	173	242	296	360	
	lph	2.5	5	7.9	14.2	32	57	114	195	379	656	916	1119	1362	
Stroke frequency at 60 Hz	spm	32	64	101	182	101	182	101	173	173	173	138	173	207	
Motor (simplex pump) 1725rpm	HP	.33	.33 *3	.33	.33	.33	.33	.50	.75	.75	1.0	1.0	2.0	2.0	
Approx. weight (simplex incl. motor)	lbs	33	33	33	33	33	33	51	51	66	132	168	168	168	
	kg	15	15	15	15	15	15	23	23	30	60	76	76	76	
Stainless steel 1.4435 (316L) pump head															
Operating pressure	psig/bar	280/20				145/10			108/7.5		73/5 [108/7.5 bar] *1				
Permissible operating temperature	°C & °F	-10/+80 °C & 14/176 °F *2													
Valve type		Ball valve												Plates	
Standard connections	Triclamp	1/2"			1/2"			3/4"		1"					
Optional connections		Sterile connections, e.g. acc. to DIN 11864													
Polypropylene (PP) pump head															
Operating pressure	psig/bar					87/6	87/6	87/6	87/6	87/6					
Permissible operating temperature	°C & °F	-10/+60 °C & 14/140 °F													
Valve type		Ball valve													
Standard connections	Triclamp					1/2"			3/4"						
PTFE sandwich diaphragm															
Stainless steel version: Ball valves with 316L ball, PTFE seal rings															
PP version: Ball valves with oxide ceramic ball, EPDM seal rings, optional FFPM															
*1 = For drive elements without stroke adjustment															
*2 = for operating temperature >40 °C /104 °F consult LEWA															
*3 = 3450 rpm motor															