



# A measured step forward™

AIRTRAN™

Air Operated Double Diaphragm Pumps



Total Fluid Management | Metering Transfer Chem Feed

# AODD Pumps

## Products you can rely on

Lutz AIRTRAN™ - Air Operated Diaphragm Transfer - pumps are a natural complement to the Lutz range of pumps.

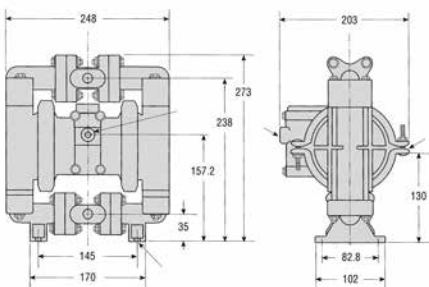
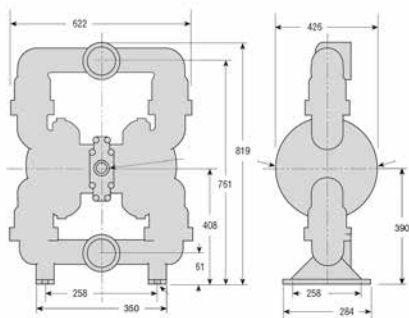
Similarities to our existing range of pumps include their simplicity, versatility, and both ease of handling and maintenance.

Lutz AIRTRAN™ pumps are available in many different sizes and materials of construction to suit all of your application needs. Both clamped and bolted versions are available.

The pump range comprises a 1/4" size, all the way to a 3" size.

Lutz AIRTRAN™ pump housings are available in Polypropylene, PVDF, Nylon, Conductive Nylon, Aluminum and Stainless Steel, the membranes, ball valves and o-rings are available in Teflon®, FKM (Viton®), Geolast® (Buna-N) and Santoprene®.

Pump capacities go up to 255 GPM with maximum air pressures up to 120 PSI.



### Advantages of Lutz Diaphragm Pumps

- |  |   |
|--|---|
| Absolutely lube free valve               | No generated heat due to the absence of an electric motor |
| Corrosion free materials of construction | Minimal product shear                                     |
| Non-stalling function at low pressures   | Self-priming, dry or wet                                  |
| Conductive materials available           | No dynamic seals  |
| No close fitted or rotating parts        | Portable  |
| Can safely run dry                       | Continuous running  |
| Variable pressure and speed              | Can handle abrasive solids                                |

### Benefits for the Customer

- |  |  |
|--|--|
| High compatibility of parts                        | Low wear of parts  |
| Reduced stock of spare parts                       | Easy assembly and disassembly  |
| Service-friendly construction                      | No leakage and contamination in the compressed air system due to an improved air valve |
| High dependability through modern valve technology | Reduced operating costs  |
| Hermetically sealed system                         | Gentle pumping of liquids and pastes   |

# AODD Pumps

For a variety of applications

## LJ 1/4"

For the laboratory sector, small plants, requirements with small delivery volume at relatively high pressure.

Delivery rate: up to 4.3 GPM  
 Delivery head: up to 100 PSI  
 Materials: PP, PVDF, Nylon

## LJ 3/8"

Ideal for inks, paints, adhesives, waste oil, coolant recycling, and other specialized applications.

Delivery rate: up to 9 GPM  
 Delivery head: up to 120 PSI  
 Materials: PP, PVDF, Nylon

## LJ 1/2"

55 gal. drum pumping, ink recirculation and feed, chemicals, solvents, acids, soap dispensing.

Delivery rate: up to 14 GPM  
 Delivery head: up to 120 PSI  
 Materials: PP, PVDF, Nylon, Aluminum, Stainless Steel

## LJ 1"

Drum and small tank transfer, pickling solutions, chemical feed.

Delivery rate: up to 48 GPM - metallic  
 up to 41 GPM - plastic  
 Delivery head: up to 120 PSI  
 Materials: PP, PVDF, Nylon, Aluminum, Stainless Steel

## LJ 1 1/2"

Filter press, tank cleaning systems, pigments and resins.

Delivery rate: up to 115 GPM - metallic  
 up to 130 GPM - plastic  
 Delivery head: up to 120 PSI  
 Materials: PP, PVDF, Aluminum, Stainless Steel

## LJ 2"

Paint, latex, ceramic slip, slurries, polymers, tank car fill and empty, foods.

Delivery rate: up to 190 GPM - metallic  
 up to 180 GPM - plastic  
 Delivery head: up to 120 PSI  
 Materials: PP, PVDF, Aluminum, Stainless Steel

## LJ 3"

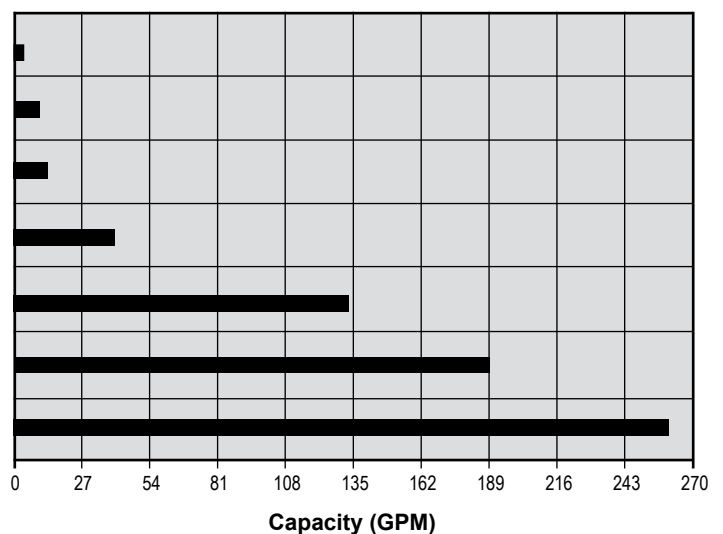
Paint, latex, ceramic slip, slurries, polymers, tank car fill and empty.

Delivery rate: up to 255 GPM  
 Delivery head: up to 120 PSI  
 Materials: Aluminum



Size

LJ 1/4"  
 LJ 3/8"  
 LJ 1/2"  
 LJ 1"  
 LJ 1 1/2"  
 LJ 2"  
 LJ 3"



# Lutz AOD Pumps

Serving many industry sectors



## Common Examples of Industry Sectors

- Glass and Fiberglass
- Marine/Shipbuilding
- Metal and Steel
- Mine and Construction
- Paint
- Wood
- Aviation
- Electroplating/Surface Treatment
- Food and Beverage
- Automotive
- Chemical and Petroleum
- Clay and Ceramics

## Common Examples of Pump Applications

- 1/4" Decanting in the laboratory sector, small plants, applications with small flow rates at relatively high pressure.
- 3/8" Ideal for low – flow applications like inks, paints, adhesives, waste oil, and coolant recycling.
- 1/2" 55 gal. drum pumping, ink, recirculation and feed, chemicals - solvents, acids, soap dispensing.
- 1" Drum and small tank transfer, pickling solutions, chemical feed.
- 1 1/2" Filter press, tank cleaning systems, pigments and resins.
- 2" Paint, latex, ceramic slip, slurries, polymers, tank car fill and empty, foods.
- 3" Paint, latex, ceramic slip, slurries, polymers, tank car fill and empty.

# Lutz AOD Pumps

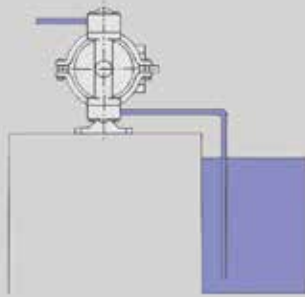
For a variety of applications

Lutz Double Diaphragm Pumps are designed for a variety of industrial applications.

## Stationary or Mobile Installation

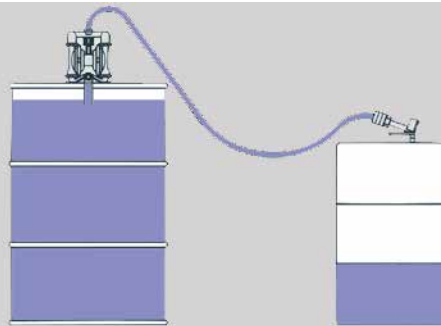
Lutz double diaphragm pumps can be installed either permanently or in a way that they can be transported from one point of application to another, as required. Liquids can be pumped from portable or fixed drums and tanks to other containers, or to specific application locations.

### Self-priming



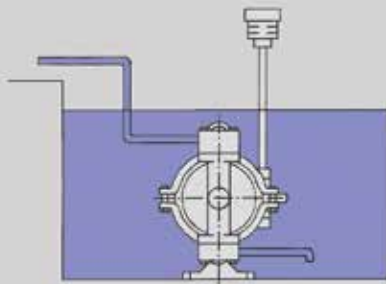
When the suction of the pump is above the level of the liquid, the pump has to prime the medium. In dry conditions, the Lutz double diaphragm pumps have a lift capacity of up to 14.8 ft.

### Self-priming with portable containers



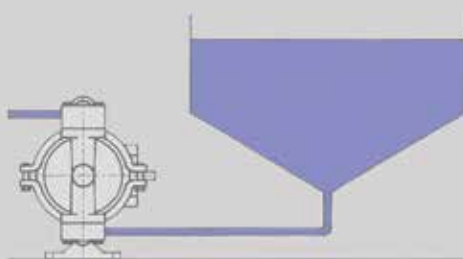
Lutz double diaphragm pumps are also ideally suited when pumping abrasive, dense and/or highly viscous liquids from drums and containers. To facilitate these applications, the 1/2" and 1" sizes can be supplied with suction pipe and adapter.

### Submerged operation



Lutz double diaphragm pumps can also be operated when submerged. Care should be taken with respect to the materials in contact with the liquid. Also, the air outlet needs to be above the liquid level.

### Flooded suction



When the liquid level is above the suction of the pump, the pump suction is considered positive or flooded. Under this condition the intake can be regulated by a suitably sized valve.

# Lutz AOD Pumps

## How it works

In design, the Lutz Double Diaphragm Pumps reflect the state of the art. The pumps can be easily disassembled, repaired and reassembled in a short time.

By supplying compressed air to the air valve, air is ported through the air valve piston (either in an upward or downward position) into the center block where two directional ports direct the air either to the left or the right side of the pump (depending on the air valve piston position). When in the air chamber, the air pressure is applied on the back side of one diaphragm, forcing the pumped liquid out of the liquid chamber into the discharge manifold.

As the two diaphragms are connected by a diaphragm connecting-shaft, the other diaphragm is pulled towards the center of the pump, causing a suction stroke on the opposite side.

Ball valves hereby open and close alternately to fill and empty the chambers, and to block any backflow.

At the end of the shaft stroke, the air mechanism (air valve piston) automatically shifts the air

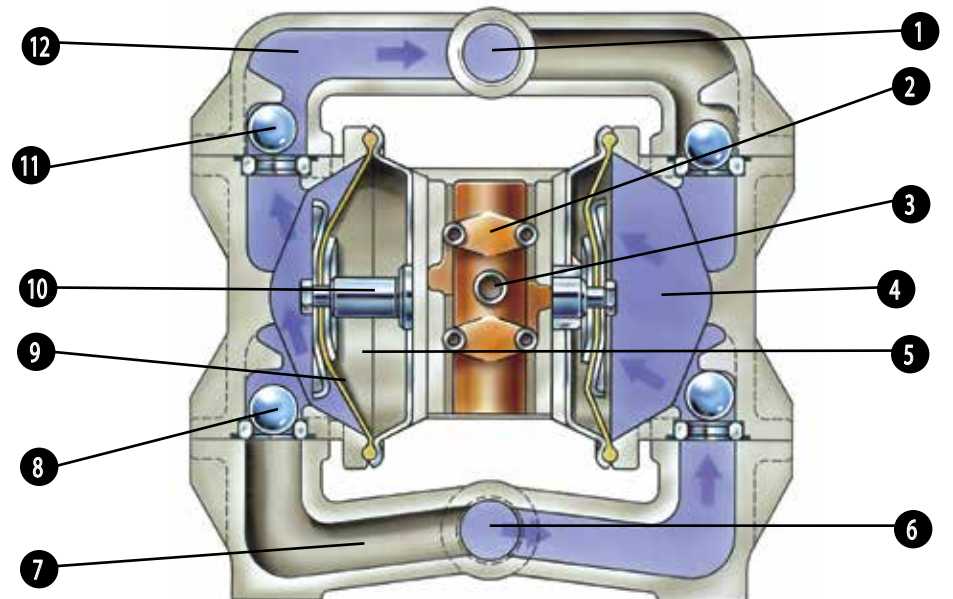
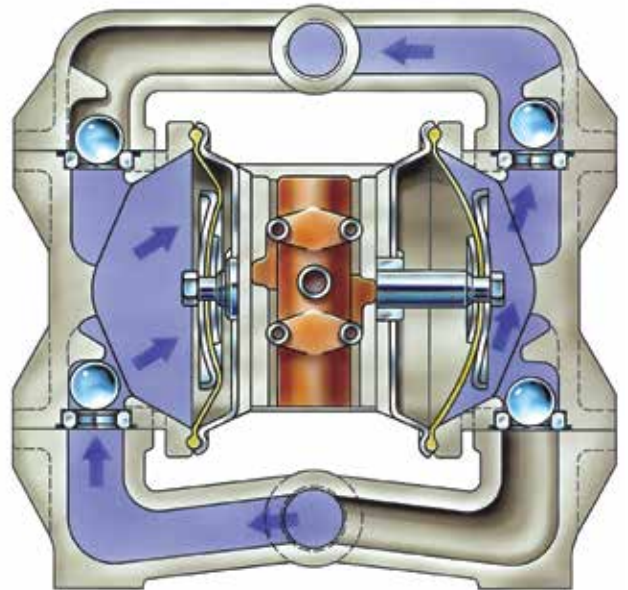
pressure to reverse the action of the pump, simply put - a 1:1 ratio reciprocating pump.

The air pressure supplied to the pump is hereby directly related to the output of the liquid pressure (i.e. 6.8 bar air inlet equals 6.8 bar discharge).

The pump has two liquid chambers, two air chambers, and two diaphragms. In each pair of chambers, the liquid and air chambers are separated by a flexible diaphragm.

Each diaphragm is sandwiched between two supporting plates, and bolted to a common shaft. This diaphragm-shaft assembly moves back and forth as

compressed air, directed by the air valve, enters or exits either the right or left air chamber. Each liquid chamber is equipped with two ball check valves which automatically control the flow of fluid through the chambers and manifolds of the pump.



- 1 Discharge
- 2 Air valve
- 3 Air inlet
- 4 Liquid chamber
- 5 Air chamber
- 6 Suction
- 7 Inlet manifold
- 8 Inlet ball check valve
- 9 Diaphragm
- 10 Diaphragm connecting-shaft
- 11 Outlet ball check valve
- 12 Outlet manifold

# Lutz AOD Pumps

## The heart of the Lutz Double Diaphragm Pump



### The Air Valve System

For the entire air system of the Lutz Double Diaphragm Pumps, i.e. for the centre block as well as for the anti-stop valve, engineered plastics are used.

### Advantages of the Air Valve System

#### Absolutely lube-free

- No contaminating of the environment or of the product itself by oil vapor
- No lubrication required
- No risk of pump failure due to poor lubrication

#### Non-stalling operation

- Pump works at low pressure and low stroke frequency without stalling
- Continuous operation is possible
- Immediate start-up after stopping

#### Corrosion-free

- No corrosion in aggressive environment
- Possible leakage arising at connections or in case of diaphragm rupture does not harm the air system

#### Weight reduction

- Facilitates handling, especially with portable applications and installations

### Construction of the Air Valve System

The valve spool is constructed of Delrin (Acetal), a material which is often and successfully used for pump bearings. The surface of the spool has a very low roughness value. This guarantees a minimal friction between spool, air valve bore, and lip seals.

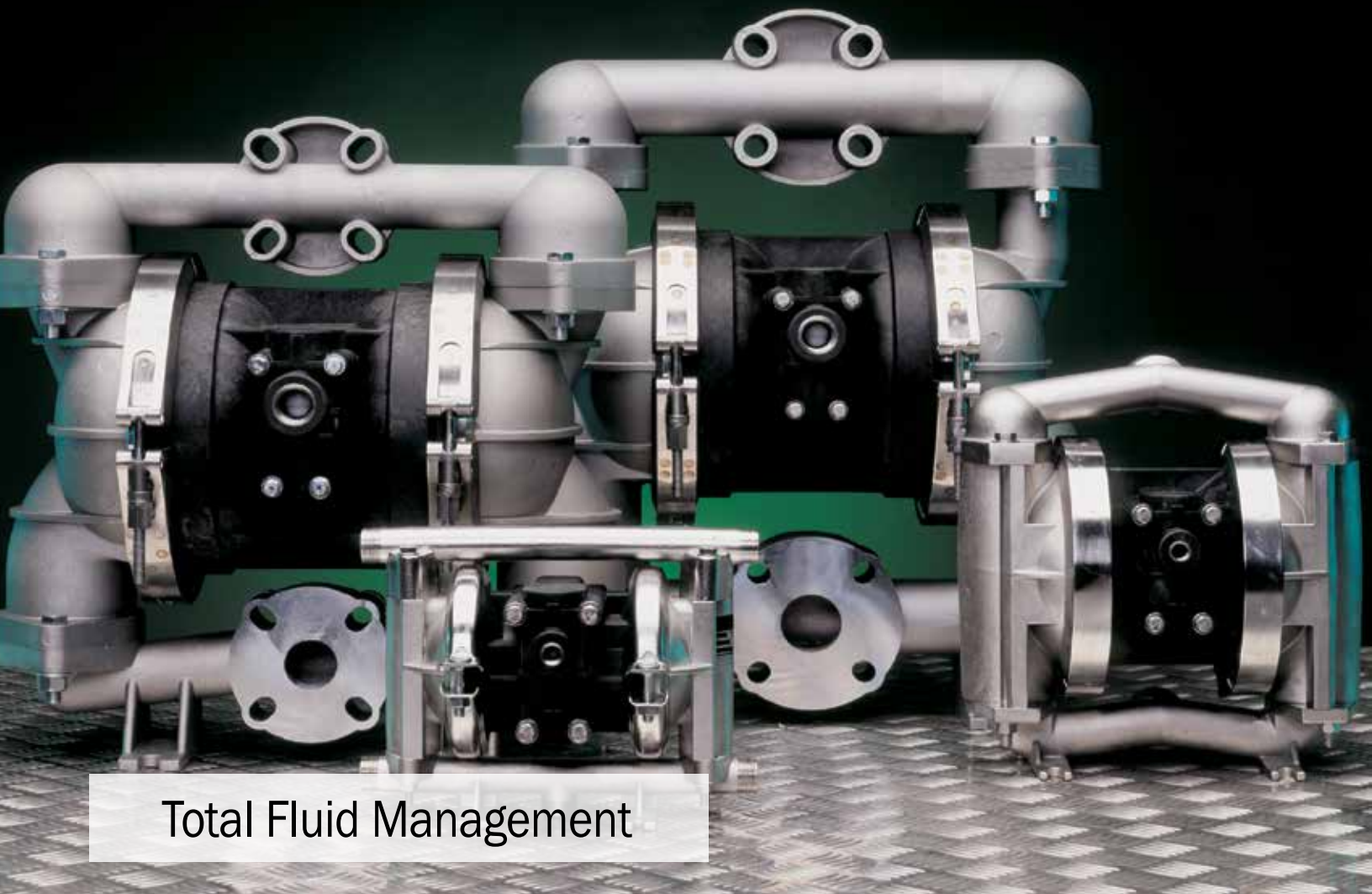
The shuttle valve is made of a self-lubricating polyamide compound. The valve plate is of hard-chrome plated steel, whereas the surfaces of both components are lapped. The minimization of surface contact differences result in the least possible friction.

### Function of the Air Valve System

The valve spool is shifted by the supply air, which flows through the air valve and the centre block.

The supply air in the centre block is hereby controlled by the diaphragm shaft, which simultaneously also serves as pilot shaft. From the compressed air in the centre block, a constant partial current affects the valve spool. This prevents the stalling of the spool and the diaphragm shaft. The combination of materials, the shape of the shuttle valve and the valve plate collectively reduce any friction-caused heating.

The use of Acetal for the pilot sleeve of the diaphragm shaft and of Polyurethane for the o-rings result in an extraordinary lubrication-free and wear-proof air valve. The combination of self-lubricating material for the shuttle valve, the lapped and wear-proof surfaces of shuttle valve and valve plate, and the correct material for the valve spool guarantee a lubrication-free operation over the entire life time of the pump.



## Total Fluid Management

Lutz is the leader in high-tech drum pump technology worldwide and the no. 1 in North America, where we have been providing solutions for more than 45 years. With over four decades of experience and continuous innovation, Lutz has achieved an unparalleled expertise in the industry.

Please contact us for more information!



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