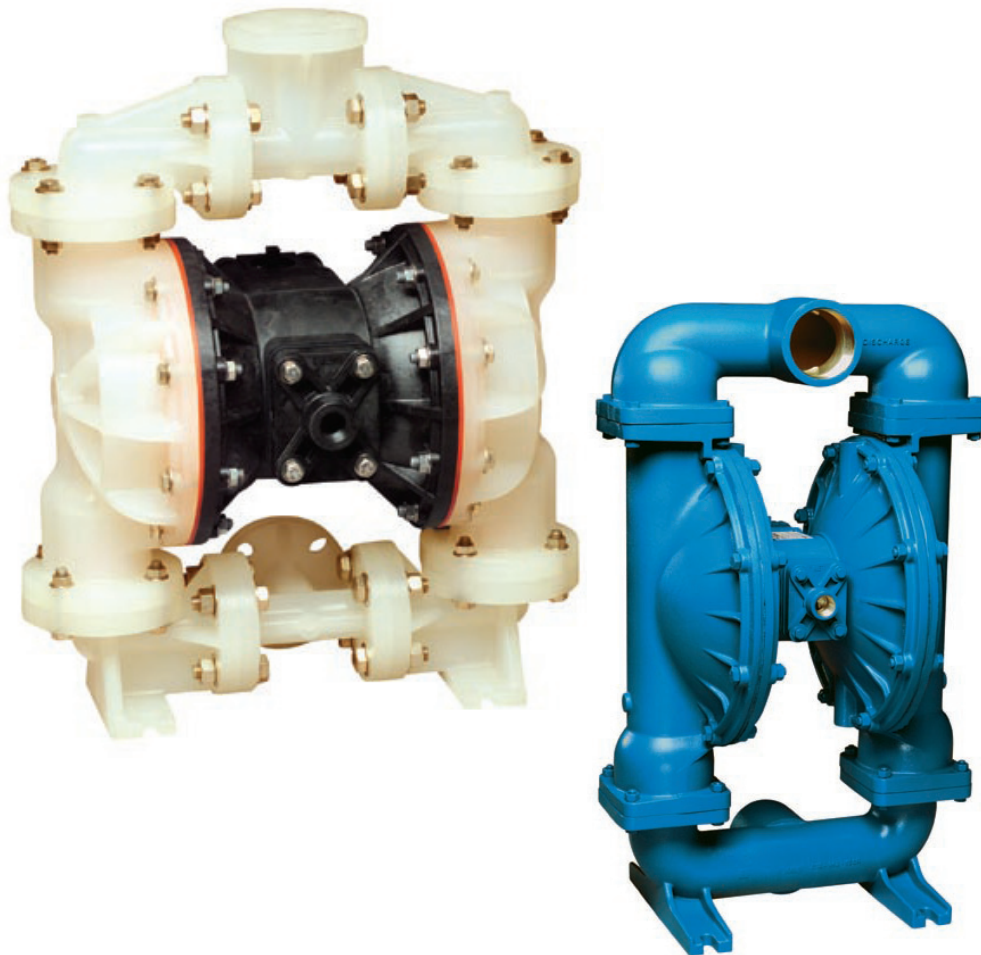


# GILKES

AIR OPERATED DOUBLE DIAPHRAGM PUMPS



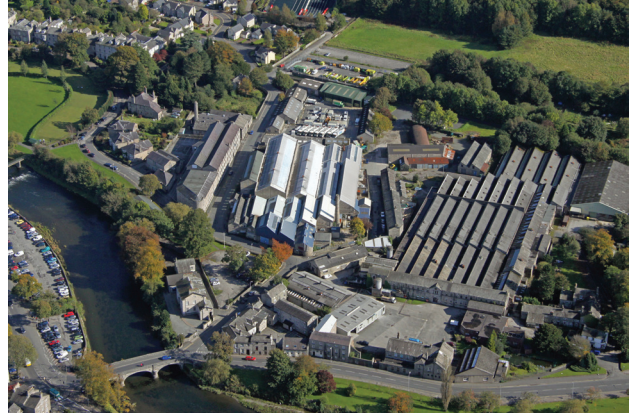
# GILKES

## AIR OPERATED DOUBLE DIAPHRAGM PUMPS

### THE COMPANY

160 years of fluid handling experience has made Gilkes a world leader in engineering solutions within the pump industry. World wide technical support, spares and refurbishment facilities, together with a comprehensive range of both designed and factored equipment, enables Gilkes to offer the right pumping solution.

Our extensive Industrial Pump range offers solutions for the movement of fluids from clean water to effluent, sludges, waste, drainage, abrasive liquids, and acids for virtually any application. Our quality standards, ISO 9001/2008 and ISO/TS16949 (for Engine Cooling Pumps) and our policy of continuous improvement, technical support, stocks, experience and customer focus allow us to offer the highest standards of service at the lowest cost.



### THE RANGE

#### A SOLUTION PROVIDING ADVANTAGES

**Informed customers select Air Operated Diaphragm Pumps vs other pump types when challenged with difficult pumping situations including:**

- Suspended Solids • Non-Suspended Solids • Line-Size Solids • Abrasive Sludge & Slurries • High Viscosity Fluids • Dry Running • High Suction Lift • Floor Space Restrictions • Corrosive Fluids • Added Costs for Variable Flow Rates • Added Costs for Installation Bypass Lines • Added Costs for Pressure Relief • High Costs Associated with Packing Glands and Mechanical Seals • Loss of Suction (Prime Damage) • Heat Generation • Catastrophic Mechanical Seal Failures • Leakage from Packed Stuffing Boxes • Insufficient NPSH (a) Cavitation • Coupling Misalignment • Bearing Lubrication Contamination • Shaft Deflections • Slip • Decreased Volumetric Efficiency • Bearing/Shaft (load) problems associated with operating below minimum flow • Deadheading

AODD pumps are air (or natural gas) operated displacement type pumps which uniquely differ from all other positive displacement pumps. As a result of air pressure acting on the entire surface of the diaphragm, the diaphragm is in a balanced condition while pumping. This measurably extends diaphragm life over that of mechanically operated diaphragm pumps. Because compressed air is limited, the maximum pressure developed by the pump is also safely limited. Thus AODD pumps are appropriately selected for on-demand intermittent requirements.

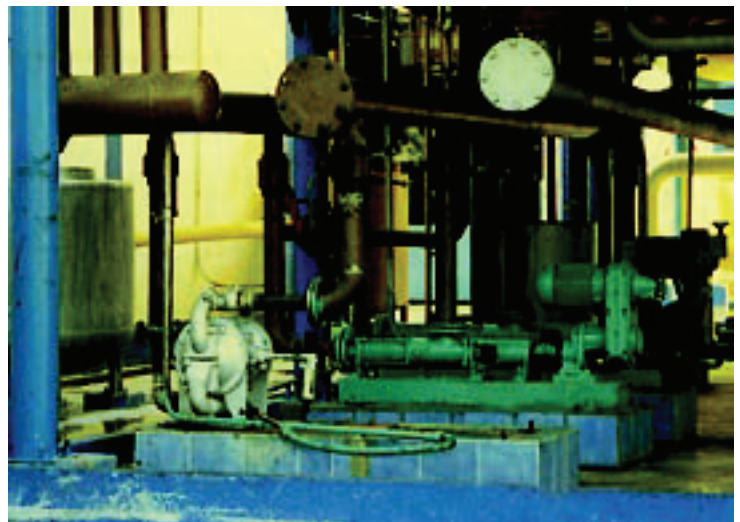
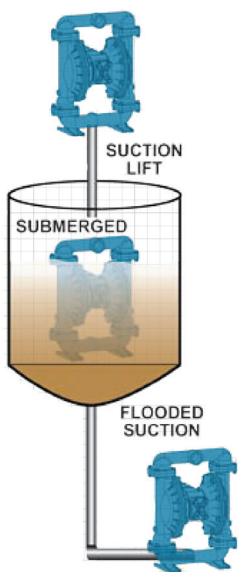


## AIR OPERATED DIAPHRAGM PUMPS

Air-operated double diaphragm pumps safely operate on deadheaded/standby demand without added costs associated with the need to relieve pressure. More importantly, at all deadheaded condition points the AODD pump consumes zero energy (SCFM).

Variable flow and head conditions are achievable with the use of inexpensive off-the-shelf air line pressure regulators. Other commonly used flow control methods include restricting discharge and/or suction shutoff valves. Today, AODD pumps are appropriately selected for “process control” installations as automated control devices have become commercially available.

While AODD pumps are self-priming from a dry start, these pumps are frequently installed in flooded suction installations as well as on suction lift installations. With caution given to the non-wetted materials of construction, AODD pumps can be submerged, for maximum installation versatility.



Solution providing AODD pump installation selected to reduce total costs of ownership and minimize floor space allocation.

## SOLUTION PROVIDING CAPABILITIES

**Pumps abrasive and shear-sensitive materials** - Low internal velocities handle abrasive slurries with no damage to the pump or loss of volumetric efficiencies. The gentle pumping action does not shear fragile materials.

**Pumps high viscosity fluids** - Heavy and pourable fluids efficiently handled.

**Pumps solids up to 3” line size**

**Sealless** - No mechanical seals or packing to leak.

**Self-priming** - Maximum dry prime capabilities up to 24 ft. of water.

**Variable flow & pressure** - Simply regulate the inlet air supply to adjust the pump flow from zero to maximum rated capacity.

**Optional discharge porting** - Select bottom porting for high concentration of heavy solids. Select top porting for thin liquids, or if entrained air could be a problem.

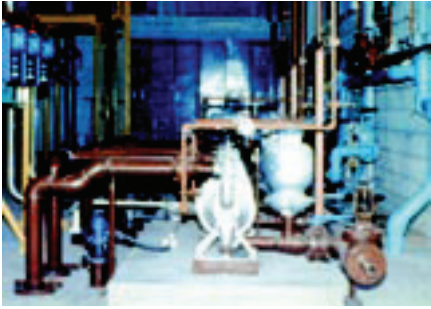
**Runs dry without damage or heat build-up** - No internal damage.

**Deadheads against closed discharge** - Discharge pressures equal to or greater than inlet air pressure stops the pump without damage. Expensive bypass systems & pressure relief valves not required. The pump stops operation until the discharge is opened.

**Fully groundable**

**Portable & submersible  
Certifications**





Heavy Duty Flap Valve Pumps



Containment Duty Metallic Pumps



Heavy Duty Ball Valve Pumps



Standard Duty Metallic Pumps



Standard Duty Non metallic Pumps

## PRIMARY MARKETS SERVED

- Automotive / Plating & Finishing
- Ceramic Slip / Glaze
- Chemical / Petrochemical
- Construction / Utilities
- Food Processing / Biotech / Pharmaceutical
- Industrial / Municipal Wastewater Treatment
- Mining
- Oil & Gas
- Paint / Ink / Coatings
- Ceramic Slip / Glaze
- Pulp / Paper Converters

## WARREN RUPP SIGNATURE

### FEATURES / BENEFITS

ESADS+Plus® - Performance Guaranteed - In-line Serviceable Air Valve System

Bolted Construction - Safe - Reliable - Easy Maintenance

Durable, Single-Purpose, Corrosion Resistant, Diaphragm Connecting Rod - Guaranteed

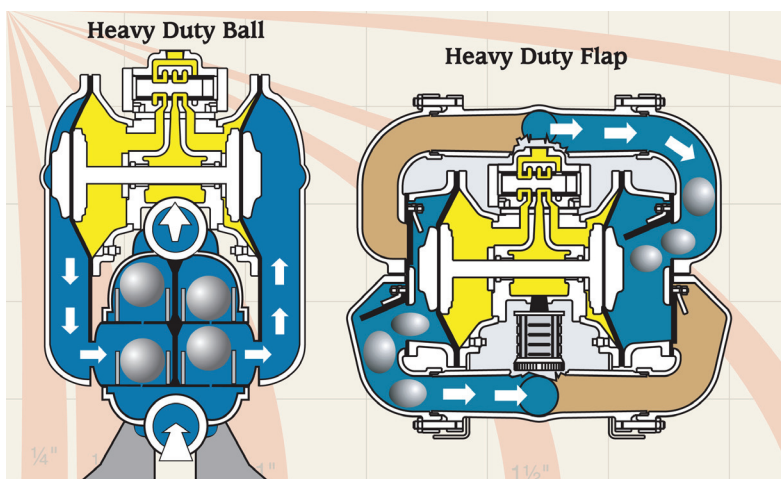
Bottom Discharge Porting - Eliminates Settling Solids

Thick Wall Construction

Horizontal and Vertical Manifold Connections

Free Standing Base - Reduces Downtime - Easy Re-Build

Heavy Duty Wear Package - Extends "MTBF"



### Weighted Ball Check Valves

Solids Range

+1/4" (6mm) to 7/8" (22mm)

Dry Primes up to 20

Feet of Water

### Hinged Flap Check Valves

Solids Range

+1" (25mm) to 3" (76mm)

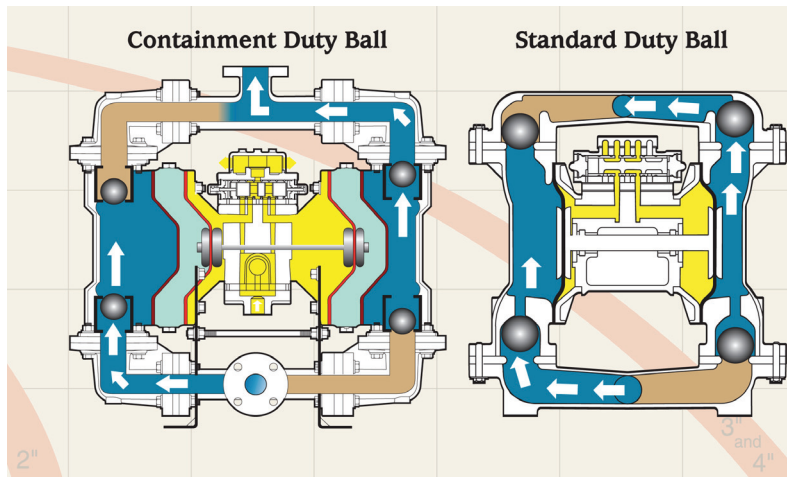
Dry Primes up to 24

Feet of Water

## CONFIGURATIONS

### FEATURES / BENEFITS

ESADS+Plus® - Performance Guaranteed - In-line Serviceable Air Valve System  
 Bolted Construction - Safe - Reliable - Easy Maintenance  
 Durable, Single-Purpose, Corrosion Resistant, Diaphragm Connecting Rod  
 Guaranteed - Top Discharge Porting - Eliminates Entrained Air  
 Metallic and Non-Metallic Materials of Construction  
 Ball Check Valves • Light Weight - Portable  
 900 - 1800 Manifold Connection Rotation



Containment Chamber with  
 Leak Detection  
 Hydraulically Balanced /  
 Coupled Pumping  
 and Driver Diaphragm  
 Assemblies  
 Solids Range+1/4" (6mm) to  
 3/4" (18mm) Dry Primes up to  
 18 Feet of Water  
 Free Standing Support Base

Solids Range+1/8" (3mm) to  
 1/2" (12.7mm)  
 Dry Primes up to 20  
 Feet of Water

## PUMPER PARTS®

Quality after market service parts for standard duty pump brands.

- Competitive Pricing
- Prompt Shipment
- All Parts Warranted



### Products

Pumper parts has individual parts and repair kits that fit Wilden®, ARO® and Yamada® air-operated double diaphragm pumps. Materials include synthetic rubbers, injection-molded thermoplastics and Teflon®.

### Quality

Pumper Parts manufactures to meet or exceed the highest quality standards in the industry. All parts are engineered to perform equal to or better than the original equipment manufacturer's specifications.



Replacement Parts Fitting  
**ARO® PUMPS**



Replacement Parts Fitting  
**WILDEN® PUMPS**



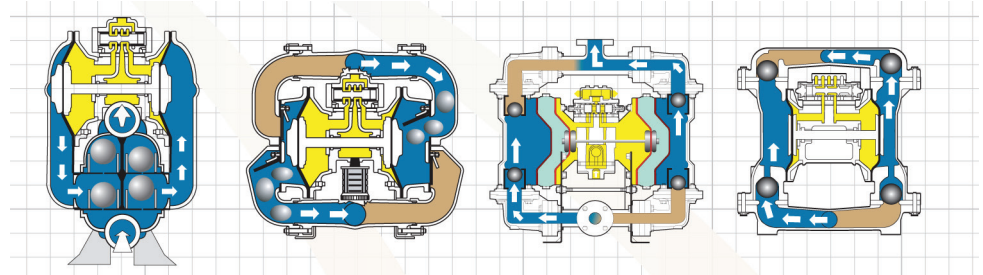
Replacement Parts Fitting  
**YAMADA® PUMPS**

Wilden® is a registered tradename of Wilden Pump & Engineering Company a Dover Resources Company. ARO® is a registered tradename of Ingersoll-Rand Company. Yamada® is a registered tradename of Yamada Corporation. Teflon® is a registered tradename of E.I. DuPont Company. Pumper Parts® is a registered tradename of IDEX Corporation.

# BEST PRACTICES - AODD PUMP SELECTION

## A. SELECT A PUMP DESIGN

A fundamental review of fluid characteristics, intended installation, and duty requirements are recommended for “best fit” design selections. This design selection best practice ensures longest life whether measuring MTBF (mean time between failures), MTBR (mean time between repairs), MTBC (mean time between changes) or MTBM (mean time between maintenance).



		Heavy Duty Ball Bottom Discharge	Heavy Duty Flap Bottom Discharge	Containment Duty Top Discharge		Standard Duty Top Discharge		
				Metallic	Non-Metallic	Metallic	Non-Metallic	
<b>Fluid Characteristics</b>	Water (base reference)	A	A	A	A	A	A	
	Suspended Solids	A (top discharge porting)	B	A	B	A	B	
	Non-Suspended Solids	A (bottom discharge porting)	A (bottom discharge porting)	X	X	C	X	
	Line Size Solids	X	A	X	X	X	X	
	Sludge / Slurry	A (bottom discharge porting)	A (bottom discharge porting)	B	C	B	C	
	High Viscosity (Flowable Fluids)	A (weighted check valves)	B	B	B	B	B	
	Erosion / Abrasive Fluids	High	A	A	B	C	B	C
		Moderate	A	A	B	C	B	C
Low		A	A	A	B	A	B	
Corrosion		B	B	B	A	B	A	
<b>Installation</b>	Permanent	A	A	B	B	B	B	
	Portable	B	A	A	A	A	A	
	Containment / Prevention	C	C	A	A	C	C	
	Flooded Suction	A (weighted check valves)	B	B	B	B	B	
	Suction Lift	B	A	B	B	B	B	
	Submerged	B	B	B	C	B	C	
<b>Duty</b>	Intermittent / On-Demand	A	A	A	A	A	A	
	Continuous	A	B	B	B	B	B	
A = Best Type		B = Suitable		C = Caution (Limitations)		X = Unsuitable		

## ACCESSORIES - PROCESS CONTROL LOOP

### 1. LEAK DETECTION

#### Electronic

At the point the primary pumping diaphragm fails, this modular, watertight unit senses conductivity changes between the driver fluid and the pumped fluid. Warning lights indicate which side of the pump is tainted. The unit can also be wired for audible alarm or pump shutdown. Low voltage. Simple installation.

Part #  
032.XXX.000.



#### Visual

A sight tube style leak detector is installed on each driver chamber. If a pumping diaphragm break occurs, liquid in the sight tube changes. This type of leak detection is standard construction on S Non-Metallic Spill Containment pumps.

Standard.



#### Mechanical

When a leak chemically attacks an internal o-ring on this detector, it actuates a plunger. This opens an air valve, which in turn activates a customer supplied solenoid (or similar device) to trigger a signal. For use with the CONTAINMENT DUTY Spill Containment SANDPIPER® pumps ONLY.

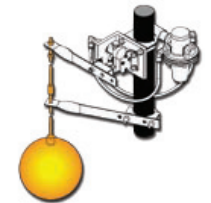
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### 2. LIQUID LEVEL CONTROL

Warren Rupp's float actuated liquid level control provides all-pneumatic operation. Especially useful in sump and liquid transfer situations, the float actuated switch opens and closes air supply to the pump for positive ON-OFF response. High capacity air valve accommodates air flow requirements up to 125 cfm, with a pressure drop less than 10 PSI.

Part #  
032.036.000.



### 3. TRANQUILIZER®

#### Metallic Surge Suppressors

For use with any reciprocating pump, Tranquilizer surge suppressors maintain a constant air cushion volume in a pumping application for the most effective surge suppression. All Tranquilizer models are automatically self-charging and self-venting. Flexible diaphragm separates air cushion from pumped product.

Part # TA-1, TD-1½, TA-2, TA-3



#### Non Metallic Surge Suppressors

Non-Metallic Surge Dampeners Designed for use with ½", ¾" and 1" pumps, these dampeners are manually charged with air. PTFE diaphragms are standard, with wetted parts available in Polypropylene, PVDF, and Nylon. The DA05 is also available in Aluminum and Stainless Steel. Flow and pressure fluctuations are minimized, the dampener consumes no air after initial charging. Hardware is 302/304 Stainless Steel.

Part # DA05,  
DA07 & DA10



#### 4. MUFFLER OPTIONS

Effective sound dampening for Warren Rupp pumps. Mufflers are a rugged Polymer or metallic housing. Sound dampening and encapsulated mufflers have replaceable acoustic composite inserts. All Warren Rupp pumps are supplied with a basic muffler. Meets OSHA dBA requirements.

Part #  
530.XXX.000.



#### 5. PULSE OUTPUT KITS

Offered in a wide variety of sizes and voltages. These controls interface with the Warren Rupp Batch Controller, or your own process controls (PLC's). Available in kits, for field installation, or factory built into a new pump.

Part # 475.XXX.  
XXX.



#### 6. STROKE COUNTER/ BATCH CONTROL

Transforms your diaphragm pump into an accurate, controllable pump system. Uses interfaceable, userfriendly components in your process control systems and existing or new pumps. It eliminates troublesome and expensive flow-sensing devices. The Stroke Counter/Batch Control is an interfaceable electronic control to program repetitive diaphragm pump operations. This industrial-grade control offers performance and repeatability. Compatible with all Warren Rupp air-operated diaphragm pumps. The control unit functions as a batch control, a stroke counter, or both. The complete system requires the Stroke Counter/Batch Controller, the Pulse Output Kit & the Air line Solenoid.

Part #  
249.006.000.



#### 7. AIR LINE SOLENOID

Provides automatic on/off operation of air-driven equipment. 110/120VAC and 220/240VAC (50/60 hertz) kits operate with the Warren Rupp or customer's control units. 12VDC and 24VDC kits operate with customersupplied controls only.

Part #  
894.XXX.000.



#### 8. ELECTRONIC SPEED CONTROL

Easy installation and operation. Fits most air-operated diaphragm pumps with operating pressures to 125 PSI. Accurate control of variable flow rates, from zero flow to maximum. Operates on 110 or 220VAC. Manual operation with on-board, single turn potentiometer or automatic mode for remote control using the optional 4-20 mA input terminal. Speed Control System can be integrated with existing process control systems

Part #  
032.XXX.000.



#### 9. FILTER/REGULATOR

Clean, dry air is the key to trouble-free pump operation. The Warren Rupp Filter/Regulator line offers modular convenience for easy installation and service.

Part # 020.XXX.  
XXX.



#### 10. AIR DRYER

This point-of-use air dryer is designed to remove 99% of the water, rust and other contaminants commonly present in compressed air lines. Clean, dry air enhances the life and performance of pneumatically-driven equipment.

Part # 020.XXX.  
XXX.

