AOBL Air operated Diaphrangm Pump

AOBL pneumatic baiphragm pump has been widely used in the following areas

Water treatment: lime siurry,sewage,chemicals,wastewater,etc

Petrochemical industry:crude oil heavy oil grease,mud,sludge,etc

Paint industry:resin,soivents,colorants,cieaning agents,paint,etc

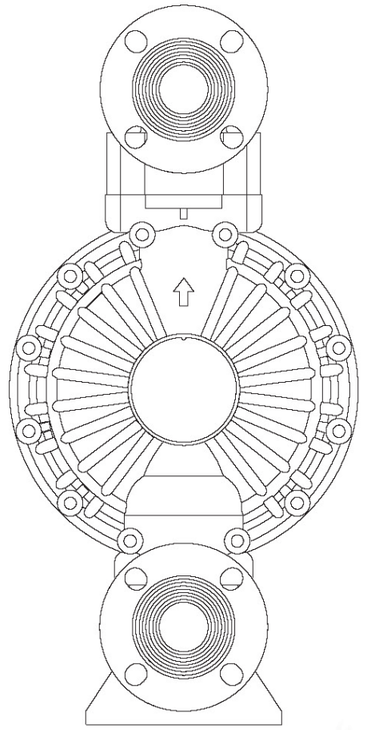
Chemical industry:acid,alkali,solvent,suspension,dispersion,rtc.

Beverage industry:yeast,syrup,red wine,fruit juice,cornsyrup,etc.

Cedical industry:yeast,acid,alkali,plant extracts,plasma and other types of drugs such as liquid,etc.

Automotive industry:polishing emulsion,oil,coolant,automotive priner, varnish,varnish additives,etc.

Ceramic industry:mud,ceramic slurry,slurry,etc.



AOBL

Air-operated Diaphragm Pump

AOBL Air-operated Diaphragm Pump

AOBL pneumatic diaphragm pump has high quality and excellent performance, in a variety of applications it can be smooth, safe and reliable when delivery media. AOBL pneumatic diaphragm pump has a simple, but high reliable design of the air reversing valve, which could make the entire diaphragm pump products achieve its maximum reliability in a variety of applications. The valve body uses three-way pilot valve, the parts could replace without opening the fluid cavity. The valve do not need any lubrication even on the situation with very low compressed air. With the most reasonable price and highest solution it can choose different material pump body, valve ball and diaphragm according to customer's requirements and applications. AOBL pneumatic diaphragm pump can not only transport high wear resistance, high corrosive medium, but can also transport the medium with high viscosity or containing particles.

Material characteristics and selection of components for AOBL

Aluminum	Suitable for pneumatic motor and fluid cavity, strong impact resistance, wear resistance and heat resistance, medium resistance to chemical corrosion,high universality in addition to the HHCs fluid .
polyvinylidene fluoride(PVDF)	Suitable for fluid body cavity and valve seat, strong resistance to chemical resistance, corrosion resistance, suitable for high purity acids.
Polypropylene (PP)	Suitable for pneumatic motor, fluid chamber and valve seat, moderate corrosion resistance, good chemical resistance, good versatility, especially suitable for ordinary acid and alkali.
Addition	Applicable to the diaphragm, ball valve and valve seat, strong acid resistance, resistance to unleaded fuel.
Stainless Stee	Applicable to the diaphragm, ball valve and ball seat, excellent corrosion resistance, suitable for water-based coating, viscous fluid.
nodular cast iron(CI)	**Applicable to flow cavity, good corrosion resistance, suitable for conveying mud filter.**
Santoprene	Suitable for diaphragm, ball valve and valve seat, good corrosion resistance, chemical resistance and heat resistance, not suitable for solvent, can replace the EPDM/EPR material.
PTFE	Suitable for diaphragm, ball valve and valve seat, good resistance to chemical, solvent resistance,medium resistance to corrosion, strong commonality.

Contents

Contents

Product selection

Sealing ring and diaphragmProduct selection

Model significance:

KES	X	X	X	X	X
I	I	I	I	I	I
Diaphragm pump	Caliber	Pump body parts	valve seat	Ball valve	diaphragm

Example: KES50PPPPTFTF(Diaphragm pump, Caliber is 2', pump body is PP, valve seat is PP, Ball valve is PVDF, diaphragm is PVDF.)

Diaphragm pump	Caliber	Pump body material	valve seat material	Ball valve material	Diaphragm material
KES	06=1/4寸	PP=polypropylene	PP=polypropylene	SP=Santoprene	SP=Santoprene
	15=1/2寸	AL=Aluminum	TF=Teflon	TF=Teflon	TF=Teflon
	20=3/4寸	SS=304 Stainless Steel	SP=Santoprene	SS=304Stainless Stee	VT=Viton
	25=1寸	LL=316 Stainless Steel	SS=304Stainless Steel	LL=316Stainless Stee	PU=polyurethane
	40=1.5寸	CL=nodular cast iron	LL=316Stainless Steel	BN=Buna-N rubber	BN=Buna-N rubber
	50=2寸	KY=polyvinylidene fluoride	KY=Polyvinyl fluoride	VT=Fluorine rubber	
	80=3寸		BN=Buna-N rubber		

Material and applicable temperature

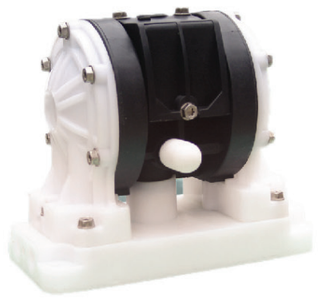
Sealing ring and diaphragm

Viton	.....	-40	F(-40 ℃)	350	F(176.6 ℃)
PTFE	.....	-40	F(4.4 ℃)	350	F(176.6 ℃)
Santoprene	.....	-40	F(-40 ℃)	300	F(148.8 ℃)
Buna-N	.....	-40	F(-40 ℃)	250	F(121 ℃)
polyurethane	.....	-40	F(-40 ℃)	200	F(93.3 ℃)

fluid chamber

PP	.....	40	F(4.4 ℃)	150	F(65.5 ℃)
PVDF	.....	40	F(4.4 ℃)	200	F(93.3 ℃)

AOBL KES06 Plastic pump



Technical parameter

Maximum working fluid pressure 7bar

Air pressure range at working ..... 1.8 to 7 bar

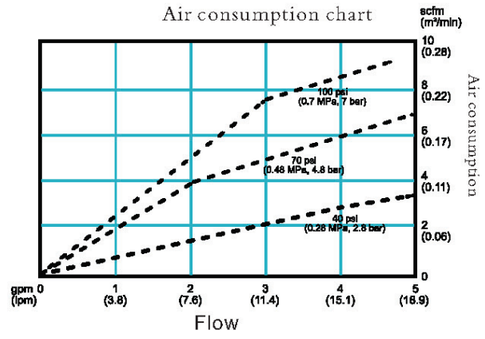
Maximum air consumption ..... 0.25 m 3 /min.

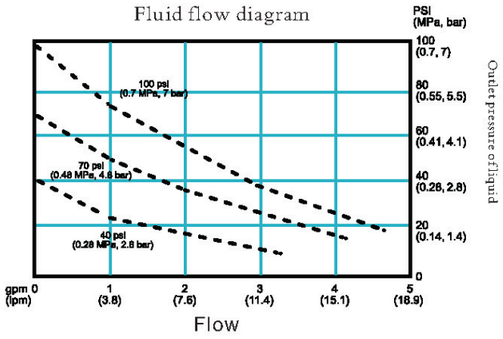
Maximum free flow 19l/min

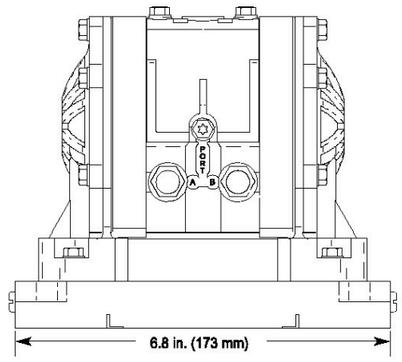
Maximum transport of solid particles. . ...1.5 mm

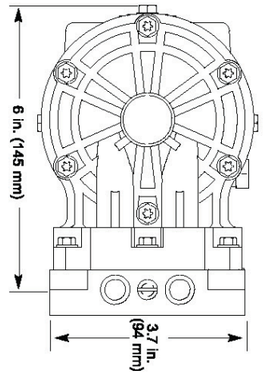
Air inlet size .....1/4 in

Air outlet size .....1/4 in





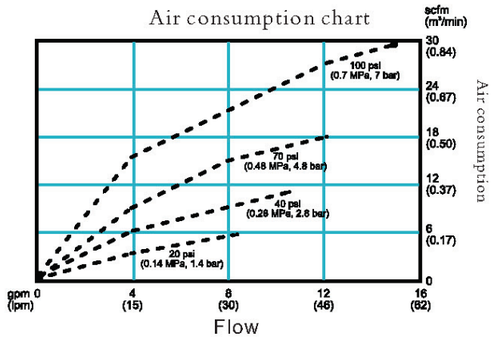


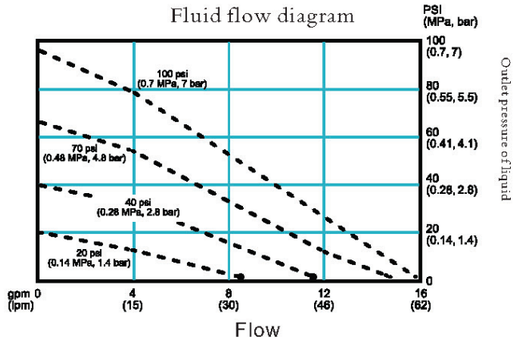


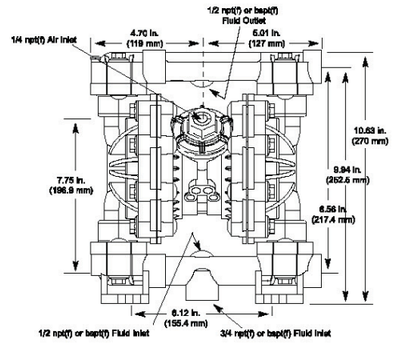
AOBL KES15/20 Plastic pump

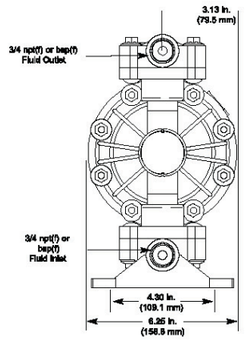
Technical parameter

Maximum working fluid pressure.....7bar
Air pressure range at working.....1.8-7bar
Maximum air consumption.....0.67m3/min
Maximum free flow.....57L/min
Maximum transport of solid particles.....2.5mm
Air inlet size.....1/4in
Air outlet size.....3/8in





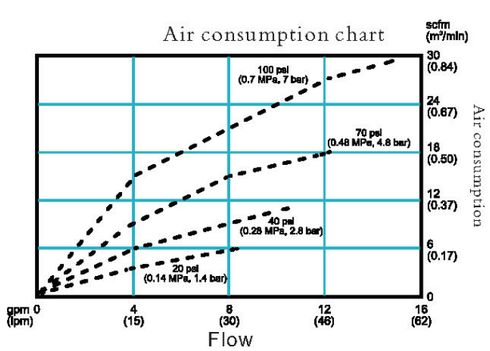


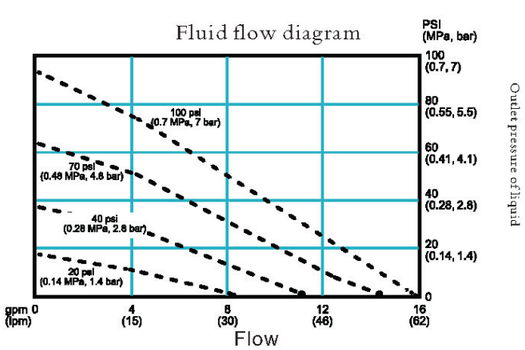


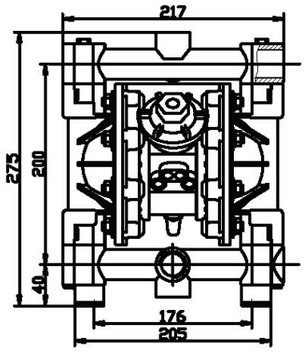
AOBL KES20 Metal pump

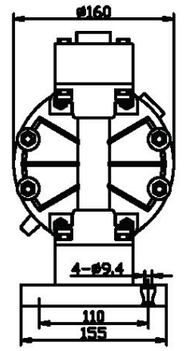
Technical parameter

Maximum working fluid pressure.....7bar
Air pressure range at working.....1.8-7bar
Maximum air consumption.....0.67m3/min
Maximum free flow.....57L/min
Maximum transport of solid particles.....2.5mm
Air inlet size.....1/4in
Air outlet size.....3/8in





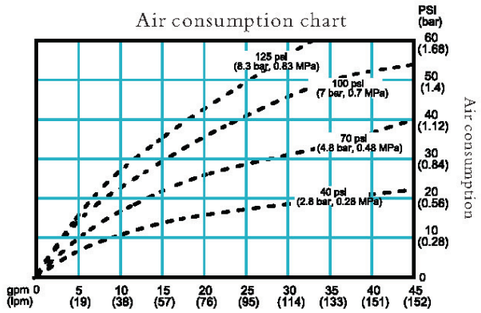


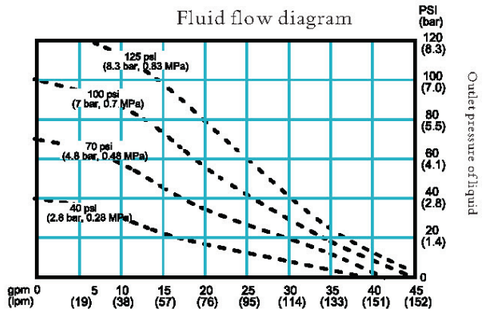


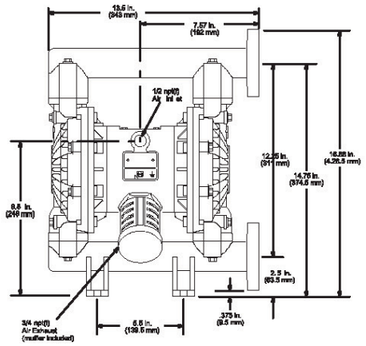
AOBL KES25 Plastic pump

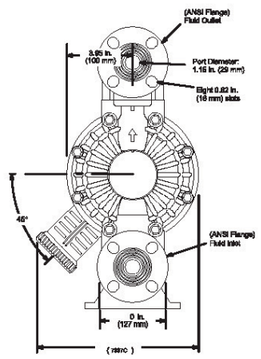
Technical parameter

Maximum working fluid pressure..... 8.4bar
Air pressure range at working..... 1.4-8.4 bar
Maximum air consumption..... 1.5m3/min
Maximum free flow..... 150L/min
Maximum transport of solid particles..... 3.2mm
Air inlet size..... 1/2in
Air outlet size..... 3/4in





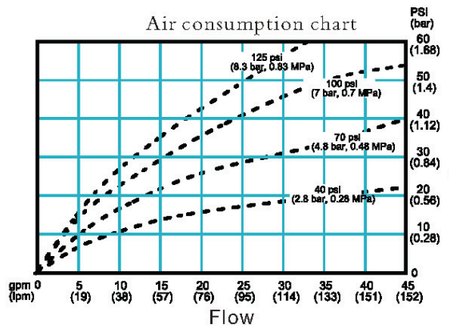


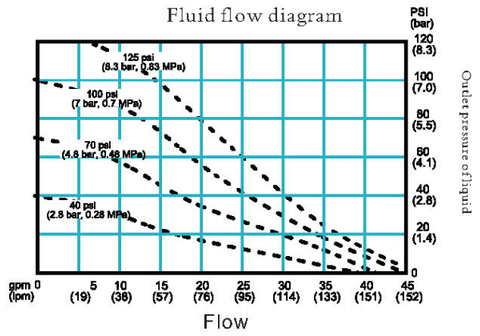


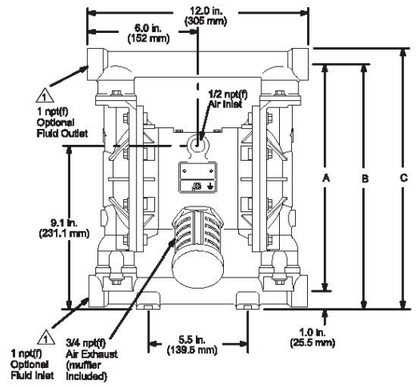
AOBL KES25 Metal pump

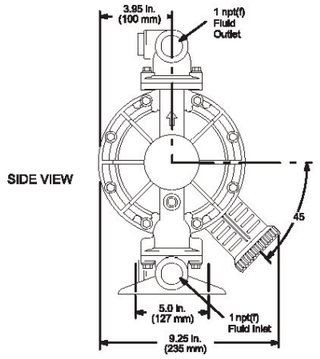
Technical parameter

Maximum working fluid pressure..... 8.4bar
Air pressure range at working..... 1.4-8.4 bar
Maximum air consumption..... 1.5m3/min
Maximum free flow..... 150L/min
Maximum transport of solid particles..... 3.2mm
Air inlet size..... 1/2in
Air outlet size..... 3/4in





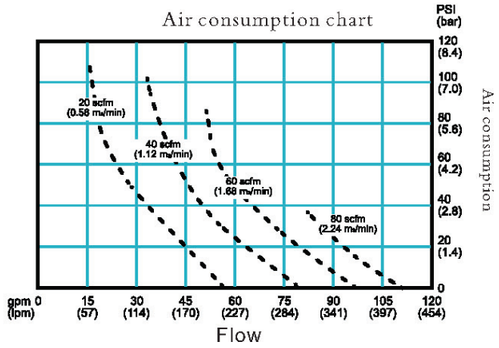


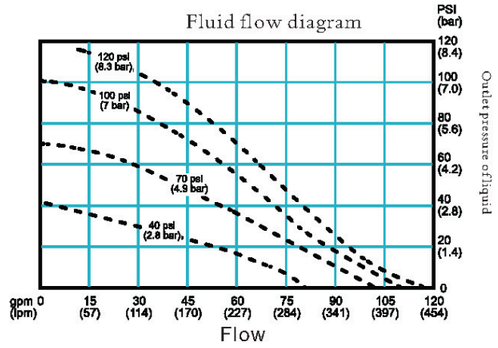


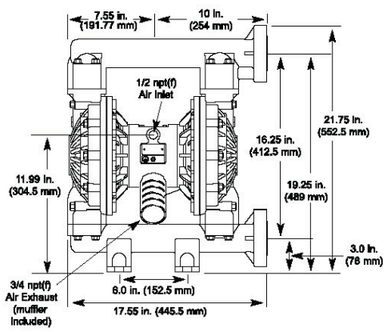
AOBL KES40 Plastic pump

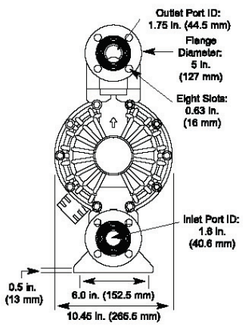
Technical parameter

Maximum working fluid pressure..... 8.4bar
Air pressure range at working..... 1.4-8.4 bar
Maximum air consumption..... 3m3/min
Maximum free flow..... 378L/min
Maximum transport of solid particles..... 4.8mm
Air inlet size..... 1/2in
Air outlet size..... 3/4in





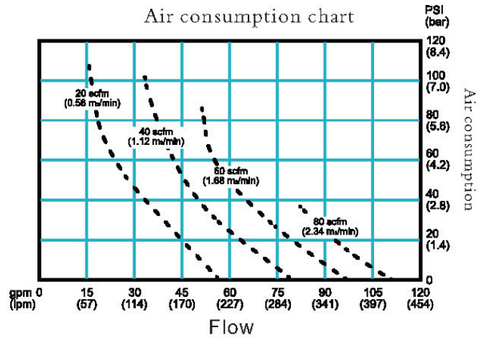


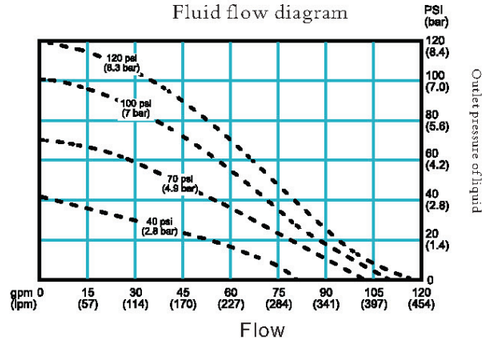


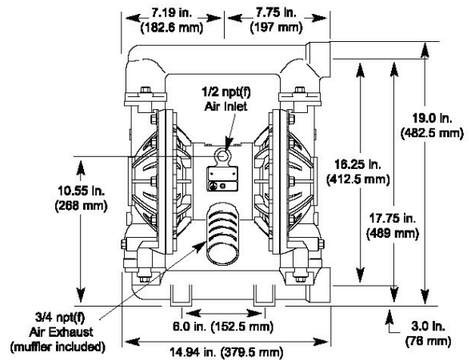
AOBL KES40 Metal pump

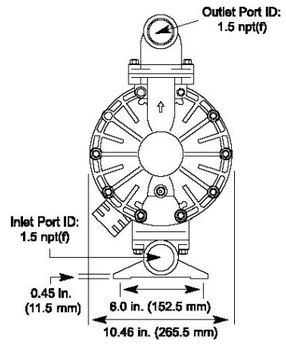
Technical parameter

Maximum working fluid pressure..... 8.4bar
Air pressure range at working..... 1.4-8.4 bar
Maximum air consumption..... 3m3/min
Maximum free flow..... 378L/min
Maximum transport of solid particles..... 4.8mm
Air inlet size..... 1/2in
Air outlet size..... 3/4in







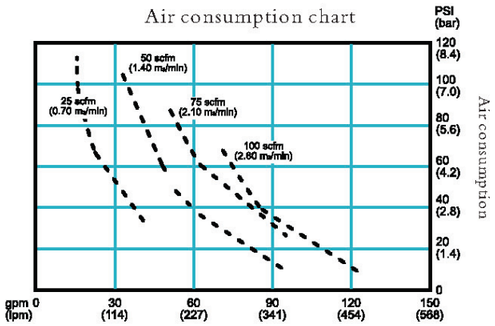


AOBL KES50 Plastic pump

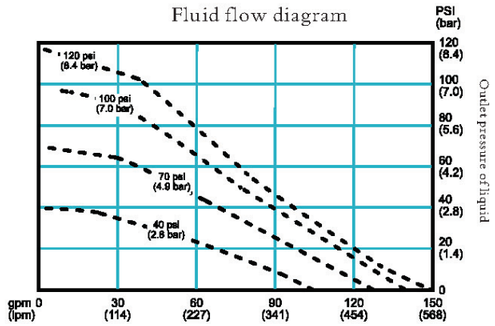
Technical parameter

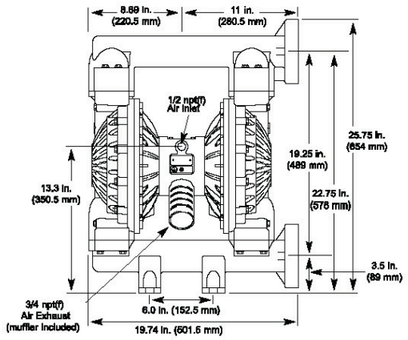
Maximum working fluid pressure..... 8.4bar
Air pressure range at working..... 1.4-8.4 bar
Maximum air consumption..... 4.2m3/min
Maximum free flow..... 568L/min
Maximum transport of solid particles..... 6.3mm
Air inlet size..... 1/2in
Air outlet size..... 3/4in

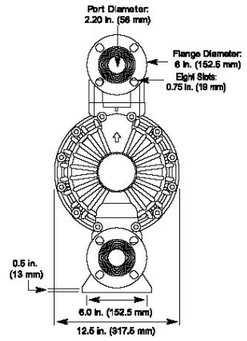
Air consumption chart



Fluid flow diagram





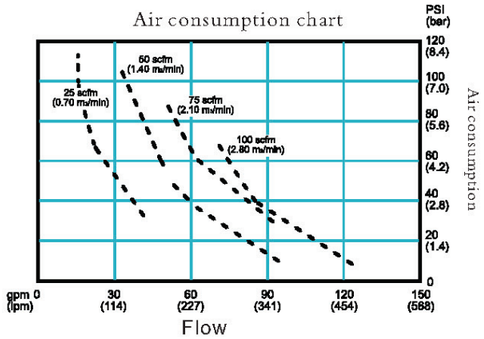


AOBL KES50 Metal pump

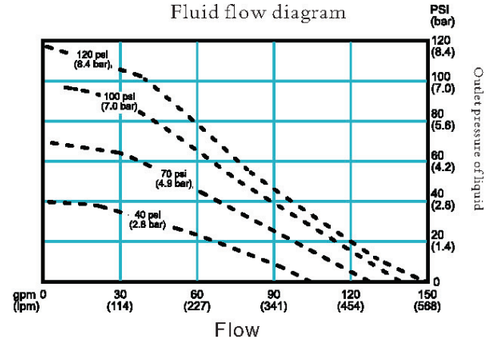
Technical parameter

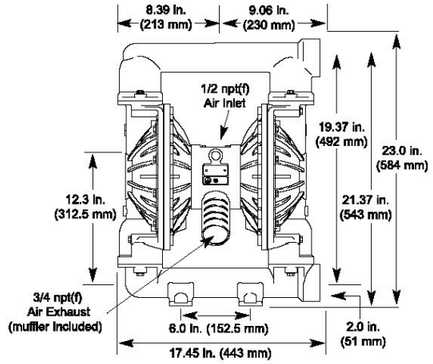
Maximum working fluid pressure..... 8.4bar
Air pressure range at working..... 1.4-8.4 bar
Maximum air consumption..... 4.2m3/min
Maximum free flow..... 568L/min
Maximum transport of solid particles..... 6.3mm
Air inlet size..... 1/2in
Air outlet size..... 3/4in

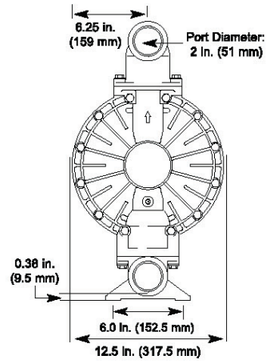
Air consumption chart



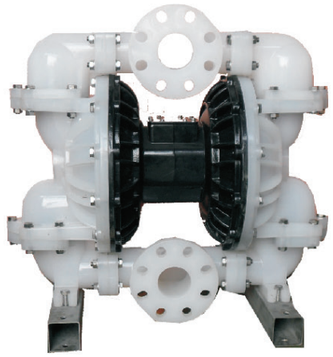
Fluid flow diagram





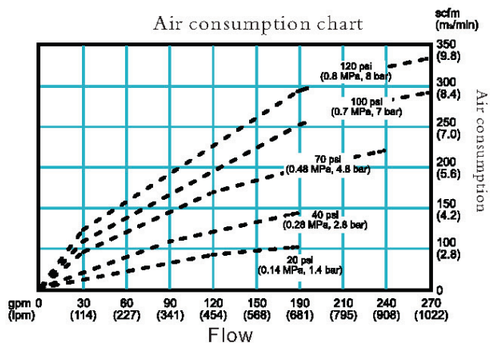


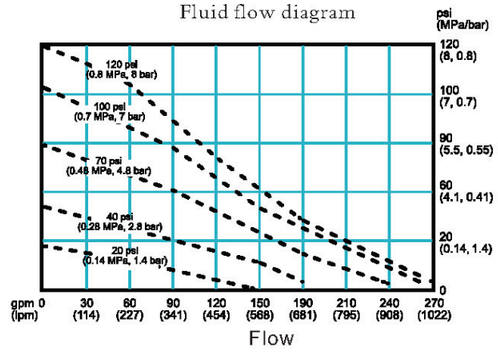
AOBL KES80 Plastic pump

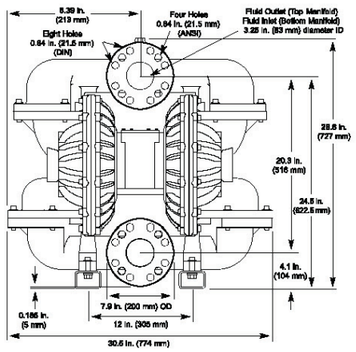


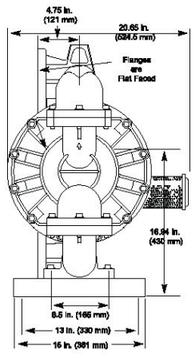
Technical parameter

Maximum working fluid pressure..... 8.4bar
Air pressure range at working..... 1.4-8.4 bar
Maximum air consumption..... 7.8m3/min
Maximum free flow..... 1000L/min
Maximum transport of solid particles..... 9.4mm
Air inlet size..... 3/4in
Air outlet size..... 1 in

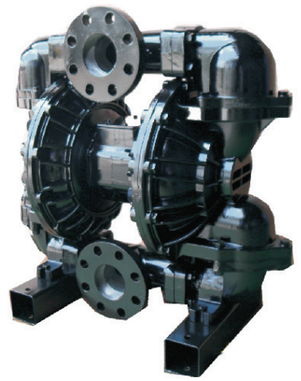






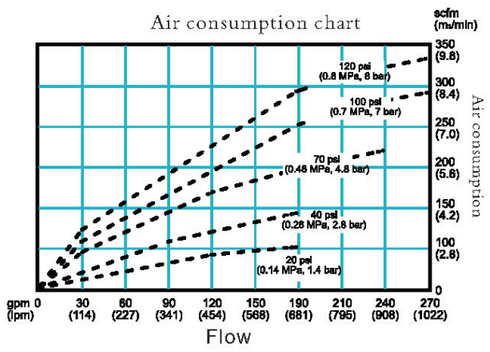


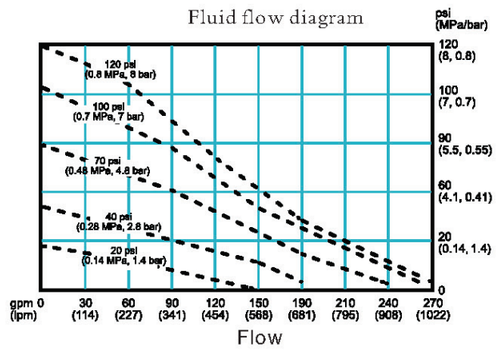
AOBL KES80 Metal pump

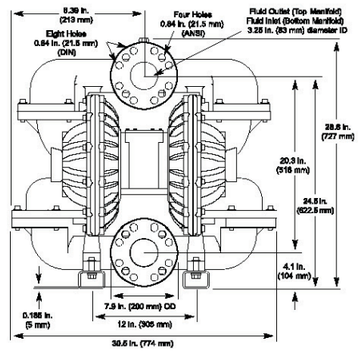


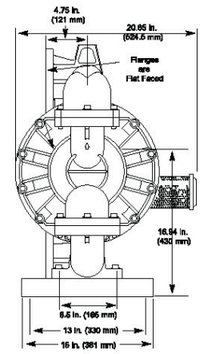
Technical parameter

Maximum working fluid pressure..... 8.4bar
Air pressure range at working..... 1.4-8.4 bar
Maximum air consumption..... 7.8m3/min
Maximum free flow..... 1000L/min
Maximum transport of solid particles..... 9.4mm
Air inlet size..... 3/4in
Air outlet size..... 1 in



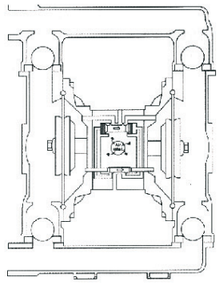






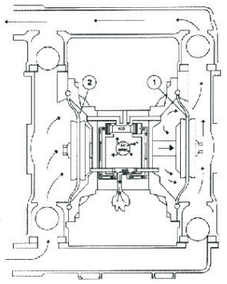
Operating Principle

1



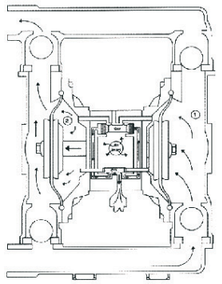
The air valve directs pressurized air to the back side of diaphragm A. The compressed air is applied directly to the liquid column separated by elastomeric diaphragm. The diaphragm acts as a separation membrane between the compressed air and liquid, balancing the load and removing mechanical stress from the diaphragm. The compressed air moves the diaphragm away from the center block of the pump. The opposite diaphragm is pulled in by the shaft connected to the pressurized diaphragm. Diaphragm B is on its suction stroke; air behind the diaphragm has been forced out to the atmosphere through the exhaust port of the pump. The movement of diaphragm B toward the center block of the pump creates a vacuum within chamber B. Atmospheric pressure forces fluid into the inlet manifold forcing the inlet valve ball off its seat. Liquid is free to move past the inlet valve ball and fill the liquid chamber.

2



When the pressurized diaphragm, diaphragm A, reached the limit of its discharge stroke, the air valve redirects pressurized air to the back side of diaphragm B. The pressurized air forces diaphragm B away from the center block while pulling diaphragm A to the center block. Diaphragm B is now on its discharge stroke. Diaphragm B forces the inlet valve ball onto its seat due to the hydraulic forces developed in the liquid chamber and manifold of the pump. These same hydraulic forces lift the discharge valve ball off its seat, while the opposite discharge valve ball is forced onto its seat, forcing fluid to flow through the pump discharge. The movement of diaphragm A toward the center block of the pump creates a vacuum within liquid chamber A. Atmospheric pressure forces fluid into the inlet manifold of the pump. The inlet valve ball is forced off its seat allowing the fluid being pumped to fill the liquid chamber.

3



At completion of the stroke, the air valve again redirects air to the black side of diaphragm A, while starts diaphragm B on its exhaust stroke. As the pump reached its original starting point, each diaphragm has gone through one exhaust and one discharge stroke. This constitutes one complete pumping cycle. The pump may take several cycles to completely prime depending on the conditions of the application.

Corrosive fluid parameter & Wetted parts of pump select

Corrosive fluid \ Wetted parts of pump	Aluminium	Stainless steel	Polypropylene	Aldehyde Resin	Buna N	EPDM	VITON	Teflon	TPEE	Polyethylene elastomer
asphalt	√	√	√					√		
Hydrogen	√	√					√	√		√
acetylene	√	√		√	√			√	√	
linseed oil		√				√		√		
acetone	√	√		√		√		√		√
ethanol	√	√	√		√		√	√	√	
methanol	√	√	√		√			√	√	
ammonia,	√	√	√	√		√		√		√
Sulfurous acid solvent		√					√	√	√	
Whiskey		√	√			√		√		
Ethyl ether	√	√						√		
Ethanol amine	√	√						√		
Ethanol	√	√	√	√	√		√	√	√	√
Glycol	√	√	√	√	√	√		√	√	√
Liquefied petroleum gas										
Zinc chloride		√	√			√		√		√
Chlorinated alkane(dry)		√			√	√		√		
Hydrogen chloride gas		√					√	√		
Cupric chloride			√	√	√	√		√	√	
Tetrafluoroethylene		√	√	√	√	√		√	√	
Nickel chloride			√		√	√	√	√		
Barium chloride			√	√	√	√	√	√		
Magnesium chloride		√	√	√	√	√	√	√		√
Methylene chloride		√						√		
Chlorine		√	√	√	√	√		√	√	√
Chlorine(dry)							√	√		
Octane	√	√					√	√		
Oleic acid				√				√		
Gasoline (refined)	√	√		√				√	√	
Gasoline (crude)	√	√		√				√	√	
Sodium chloride							√	√		
Fruit juice		√				√		√		
Sodium perborate		√	√	√		√	√	√		
xylol/Mixed xylol	√	√		√			√	√		
Formic acid			√					√		
Volatile oil (Baron oil)	√	√		√				√		
Citric acid		√				√	√	√	√	
Grease	√	√			√		√	√	√	
Tar	√	√	√		√	√	√	√	√	
Glycol	√	√	√	√	√		√	√		√
Creosote	√	√			√		√	√		
Cresylic acid		√					√	√		

Corrosive fluid \ Wetted parts of pump	Aluminium	Stainless steel	Polypropylene	Aldehyde Resin	Buna N	EPDM	VITON	Teflon	TPEE	Polyethylene elastomer
Chloroform(dry)		√		√			√	√		
Sodium silicate		√	√			√		√		
Corn oil	√	√	√			√		√	√	
Acetic acid	√	√				√		√		√
Isopropyl acetate	√	√						√		
Acetic acid isopropyl ester	√	√						√		
Ethyl acetate	√	√		√		√		√		
Calcium acetate				√		√		√		
Butyl acetate	√	√						√		
Cane sugar solution	√	√	√	√		√		√		
Beet	√	√	√			√		√		
Oxygen	√	√			√			√		
Potassium cyanide		√	√	√	√	√	√	√		√
Sodium cyanide (thin)		√	√	√	√	√	√	√	√	
Cyclohexane				√			√	√	√	
Oxalic acid		√	√		√	√		√		
Silicone oil	√	√		√	√		√	√	√	
Jet fuel	√	√		√			√	√	√	
Fatty acid	√	√					√	√		
Oilstone acid	√	√	√				√	√	√	
Nitric acid		√						√		
Aluminum nitrate		√	√	√	√	√	√	√		
Ammonium nitrate			√	√	√	√	√	√		√
Zinc nitrate		√	√			√	√	√		
Potassium Nitrate	√	√	√	√	√	√	√	√		√
Calcium nitrate		√	√	√	√	√	√	√		√
Ferric nitrate		√	√		√	√	√	√		
Sodium nitrate	√	√	√	√		√	√	√	√	√
Magnesium nitrate		√	√	√	√	√	√	√		
Hydrated lime			√		√	√	√	√		
Vegetable oil	√	√			√	√	√	√		
Calcium sulfite		√	√		√		√	√		
Inscription acid potassium	√	√	√		√	√	√	√		
Sodium bicarbonate	√	√	√	√	√	√	√	√		
Stearic acid		√	√				√	√		
Butyl stearate		√		√	√			√		
Vinegar		√	√			√	√	√		
Mercury		√	√	√	√	√	√	√	√	
Ammonium hydroxide	√	√						√		
Calcium hydroxide		√	√	√	√	√	√	√		
Sodium hydroxide		√	√	√		√		√		√
		√	√	√	√	√	√	√		√

Corrosive fluid parameter & Wetted parts of pump select

Corrosive fluid \ Wetted parts of pump	Aluminium	Stainless steel	Polypropylene	Aldehyde Resin	Buna N	EPDM	VITON	Teflon	TPES	Polyethylene elastomer
Magnesium hydroxide	√	√	√	√		√	√	√		
Hydrogen								√		
Gelatin	√	√	√	√	√	√		√		
Carbonic acid (phenol)		√					√	√		
Petroleum crude oil	√	√		√				√		
Refined oil	√	√		√				√		
Hydrofluoric acid										
Lime sulfuric acid		√	√			√	√	√		
soap-suds		√	√	√	√	√	√	√	√	√
Washing powder(synthetic)		√	√		√	√	√	√	√	
Baking soda		√			√			√		
Tar	√	√						√		
Soybean oil	√	√		√	√	√		√		
Carbonate	√	√	√	√			√	√		
Sodium carbonate		√			√	√		√		
Magnesium carbonate	√		√	√	√		√	√		
Tannic acid (thin)	√	√	√				√	√	√	√
Sodium thiosulfate	√	√	√		√	√	√	√		
Diesel oil	√	√		√	√			√		
Tetrafluoroethylene		√		√				√		
Natural gas		√								
Trichloroethylene		√		√			√	√		
Toluene	√	√		√				√		
Molasses	√	√	√	√				√	√	
kerosene	√	√		√	√		√	√	√	
Crude gasoline	√	√		√			√	√	√	
Naphthalene		√	√	√			√	√		
Naphthenic acid		√						√		
Gelatin	√	√	√		√		√	√	√	
Methylamine nitrate		√						√		
Vinyl chloride (dry)		√						√		
Carbon disulfide		√		√			√	√		
Lactic acid	√	√	√			√	√	√		√
Urea		√	√	√			√	√		√
Tetrachloroethylene		√		√			√	√		
Paraffin wax	√	√	√	√	√	√		√		
Palmitic acid		√	√					√		
White liquid paper(mill)		√						√		
Castor oil		√				√		√		
Picric acid	√	√					√	√		
Beer		√	√			√		√		
Freon		√		√		√	√	√		

Corrosive fluid \ Wetted parts of pump	Aluminium	Stainless steel	Polypropylene	Aldehyde Resin	Buna N	EPDM	VITON	Teflon	TPES	Polyethylene elastomer
Propane	√	√		√	√		√	√		
Propylene glycol	√	√	√	√	√	√	√	√		
Butane	√	√		√	√		√	√	√	
Butyl alcohol	√	√	√		√		√	√		
Butyl ethylene	√	√		√	√			√		
Glucose	√	√	√			√	√	√		
Fluoride aluminum (dry)	√		√	√	√		√	√		
Ethane	√	√		√	√		√	√	√	
Benzene		√		√				√		
Volatile oil		√		√	√		√	√		
Formalin	√	√	√	√		√	√	√		
Methanol	√	√	√	√		√	√	√		√
Boric acid	√	√	√	√	√	√	√	√		
Sodium borate		√		√	√		√	√		
Milk	√	√	√	√		√		√		√
Alum			√		√	√		√		
Anhydrous ammonia	√	√	√			√		√		
Acetic anhydride		√						√		
Phthalic anhydride		√						√		
Methanol		√	√	√	√	√		√	√	√
Methane	√	√		√	√		√	√		
Toluene	√	√						√		
Cottonseed oil		√	√			√		√	√	
Lard	√	√					√	√		
Paint		√		√				√		
Linolenic acid	√	√	√					√		
Ammonium phosphate			√		√	√	√	√		√
Sodium phosphate			√	√		√	√	√		√
Sodium sulfide	√	√	√	√	√	√	√	√	√	
Barium sulfide			√	√	√	√	√	√		
Aluminum sulfide		√	√	√	√	√	√	√		√
Ammonium sulphate		√	√	√	√	√	√	√		√
Potassium sulphate		√	√	√	√	√	√	√		
Sodium sulphate		√	√	√	√	√	√	√	√	√
Magnesium sulfate	√	√	√	√	√	√	√	√		√
Zinc sulfate			√		√	√		√		√
Ferrous sulfate			√		√	√	√	√		
Rosin	√	√	√	√	√	√		√		
Wine		√	√	√	√	√		√	√	
Varnish	√	√					√	√