



Warren Rupp, Inc., a unit of IDEX Corporation, pioneered the design and manufacture of air-operated, double diaphragm pumps. Founded in 1965, the company is one of the largest producers of diaphragm pumps and accessories. Warren Rupp products are marketed worldwide, in every major trading area. Contact your local Factory-Authorized Distributor for pricing and availability. To locate your local Distributor, or receive additional information, contact the Factory.

www.warrenrupp.com
e-mail: info@warrenrupp.com

**WARREN
RUPP®**

IDEX
IDEX CORPORATION

WARREN RUPP, INC.
A Unit of IDEX Corporation
800 North Main Street
PO Box 1568
Mansfield, Ohio 44901-1568 USA

Telephone 419-524-8388
Fax 419-522-7867

WARREN RUPP EUROPE LTD.
PO Box 91
Washington NE37 1YH
United Kingdom

Telephone 44 191 419 0999
Fax 44 191 418 3500

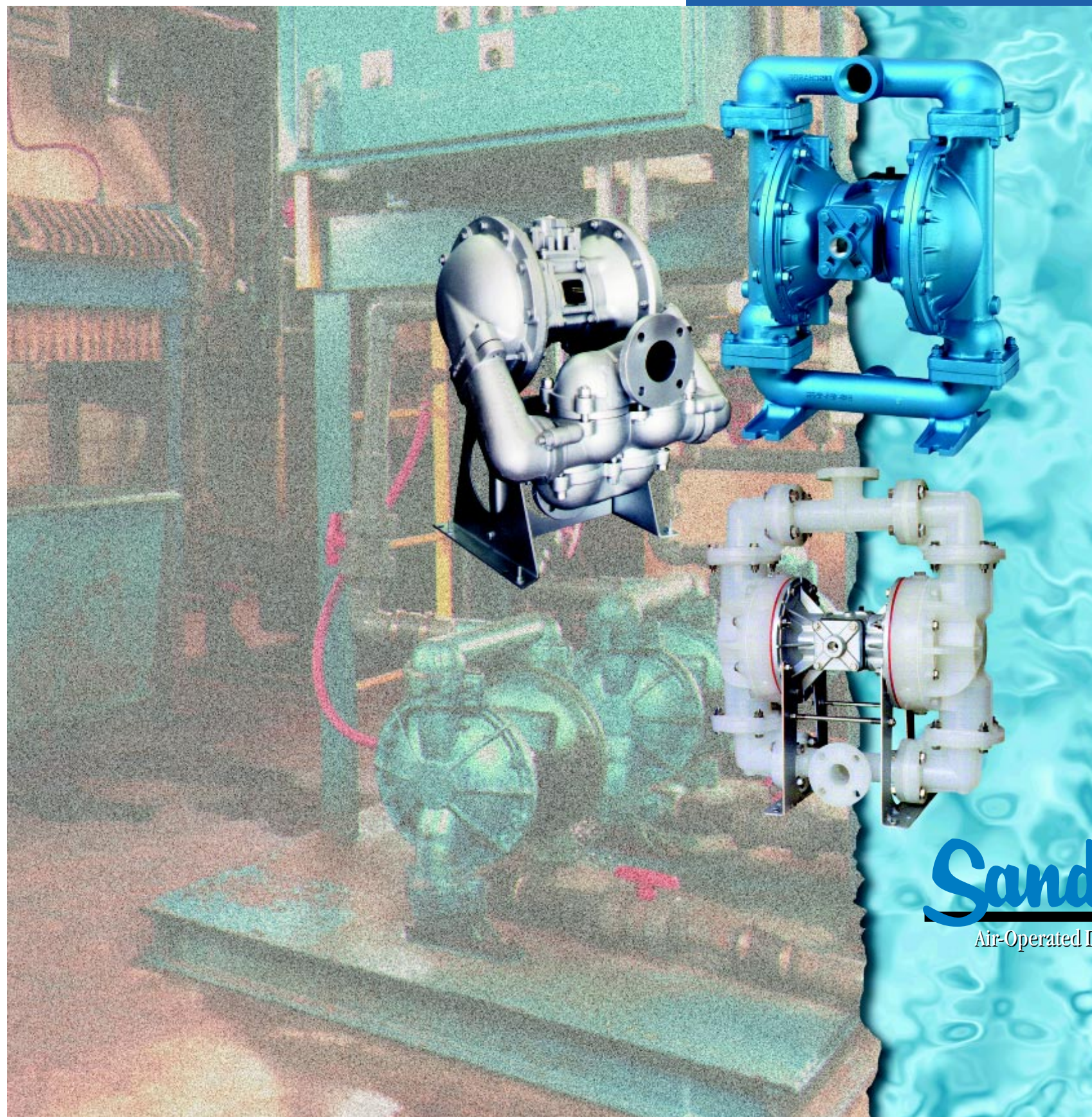
Quality System ISO9001 Certified
Environmental Management
System ISO14001 Certified

**WARREN
RUPP®**

IDEX
IDEX CORPORATION

Quality System
ISO9001 Certified

Environmental
Management System
ISO14001 Certified



SandPIPER®

Air-Operated Double Diaphragm Pumps

Pump Capabilities

SandPIPER® Pumps are fast becoming the first choice for the toughest applications. Contact your local Factory-Authorized Distributor about our Trial Pump Program.

To locate your local distributor, check your telephone business directory under "Warren Rupp® SandPIPER® Pumps", or contact the factory for a referral.

WARREN RUPP, INC.
A Unit of IDEX Corporation
P.O. Box 1568
Mansfield, OH 44901-1568 USA

800 North Main Street
Mansfield, OH 44902 USA
Telephone 419 524 8388
24-Hour Fax 419 522 7867

Warren Rupp Europe Ltd.
PO Box 91
Washington NE37 1YH
United Kingdom
Telephone 44 191 419 0999
FAX 44 191 418 3500

www.warrenrupp.com
e-mail: info@warrenrupp.com

SandPIPER® Pumps are air-driven, double-diaphragm pumps. The simple design and operation offer many advantages over other types of pumps.

Pumps abrasive and shear-sensitive materials

Low internal velocities move abrasives easily, with no damage to the pump. The gentle pumping action does not shear fragile materials.

Pumps viscous materials

Even heavy or solids-laden materials can be pumped. SandPIPER Pumps move everything from water to peanut butter.

Sealless, with no motors

These air-driven pumps, with no motors, seals or packing to leak, are environmentally friendly.

Self-priming

The pumps are able to dry prime under most suction lift and flooded suction conditions.

Variable flow

Simply regulate the inlet air supply to adjust the pump flow from zero to maximum capacity.

Optional porting

Many discharge porting options are available, including top, bottom, side and dual.

- Select top porting for thin liquids, or if entrained air could be a problem.
- Select bottom porting for thick or solids-laden materials.
- Select side or dual porting for specialized applications.

Runs dry without damage

SandPIPER Pumps can run dry without damage, unlike other types of pumps.

Deadheads against closed discharge

Excessive back pressure stops pump without damage. No need for expensive bypass systems or pressure relief valves. Pump simply stops operation until discharge opens.

Explosion-proof

Air-operation eliminates sparking concerns associated with other electrical or rotating pumps.

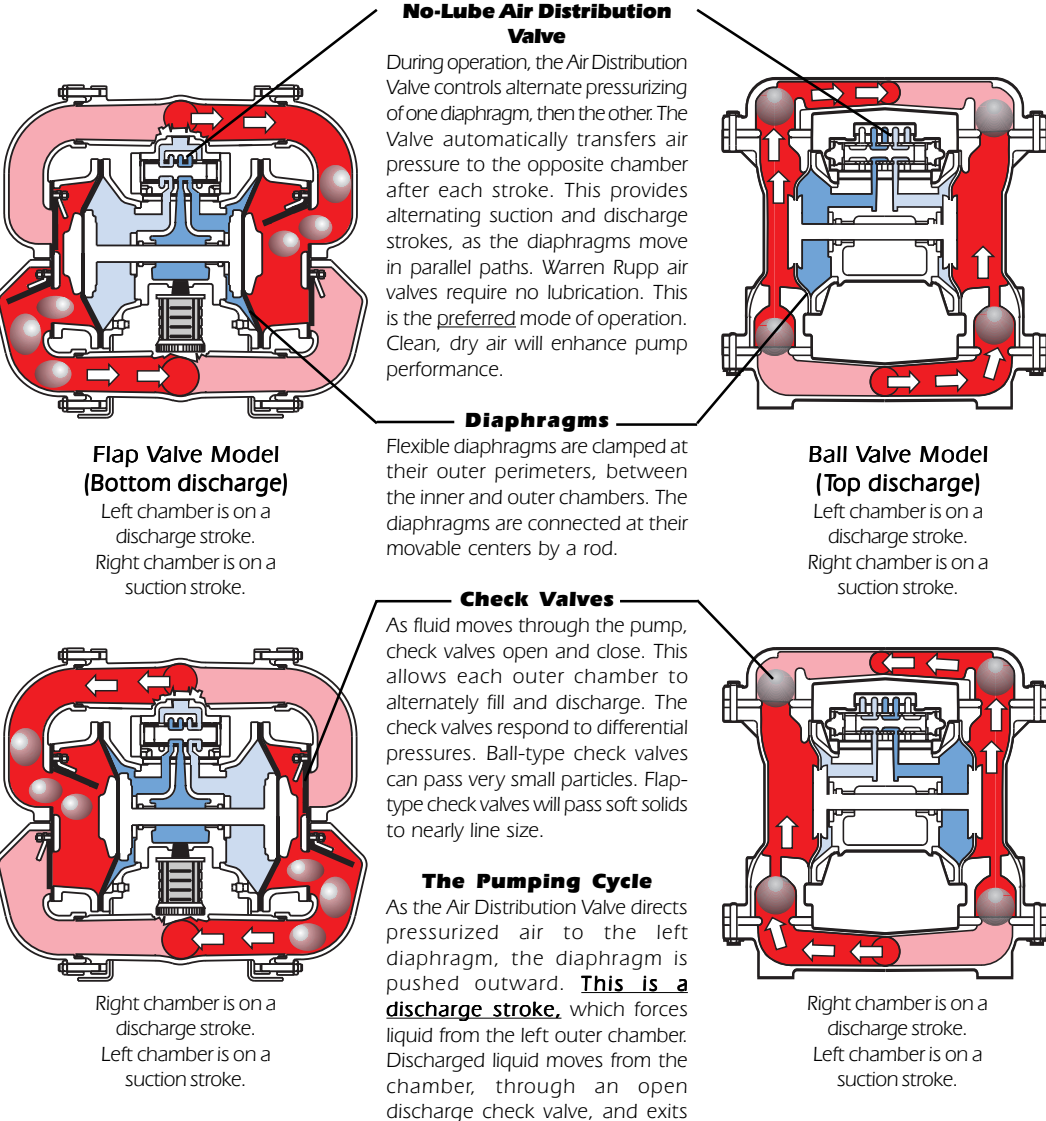
Warren Rupp® builds air-operated SandPIPER® Pumps for applications in nearly every industry:

- Chemical handling, including caustic, toxic and corrosive materials.
- Process industries.
- Automotive.
- Sludge and slurries.
- Paint, coatings and surface finishing.
- Ceramic glaze and slip.
- Industrial and municipal waste.
- Food and pharmaceutical processing.
- Marine.
- Construction and utilities.
- Mining.
- . . . And more!

Principle of Operation

Basic Design Features

Most Warren Rupp® diaphragm pumps are driven by compressed air. The directional air distribution valve and pilot valve, referred to as the "air end", are located in the center section of the pump. Liquid moves through two manifolds and outer chambers of the pump, referred to as the "wet end". Generally, check valves (ball-type or flap-type) are located at the top and bottom of each outer chamber or on a common manifold. The two outer chambers are connected by suction and discharge manifolds. The pumps are self-priming.



Guaranteed No-Stall, Or Your Money Back!

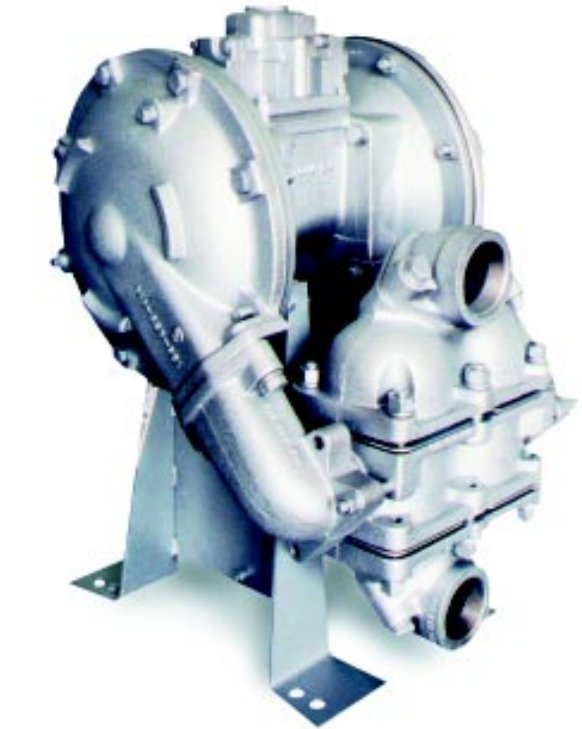
Warren Rupp's exclusive Externally Serviceable Air Distribution System (ESADS+Plus) has shown superior durability in severe operations around the world. This tough air valve design is standard equipment on most Warren Rupp pumps. Lube-free and in-line serviceable, **ESADS+Plus** is **GUARANTEED to perform**, or we'll replace it free of charge.

ESADS+PLUS®



Table of Contents

Page 2	Pump Capabilities
Page 3	Principle of Operation
Pages 4, 5	SB Series Pumps
Pages 6, 7	SA Series Pumps
Page 8	Wastewater Pumps
Page 9	Phoenix High Pressure Pumps
Page 9	Filter Press Customized Pumps
Pages 10, 11	NEW S Series SandPIPERII® Plastic Pumps
Pages 12, 13	Product Line Overview
Pages 14, 15	EB Series Pumps
Page 16	NEW S Series SandPIPERII® Metallic Pumps
Page 17	Submersible Pumps
Pages 18, 19, 20	RuppGUARD™ Pumps
Page 21	Accessories & Pump Controls
Page 22	Materials of Construction
Page 22	Installation Guide
Page 23	Specification Guide



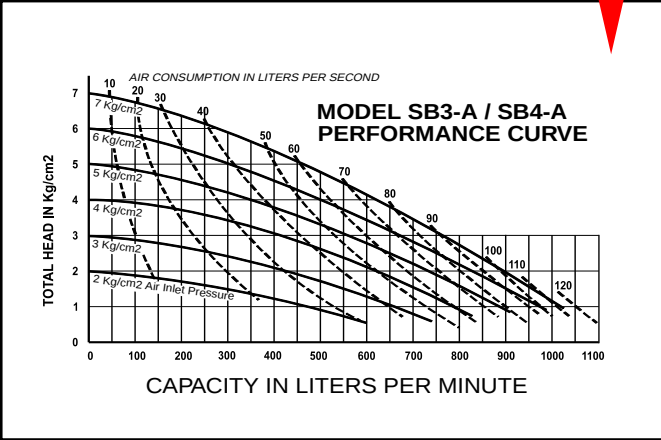
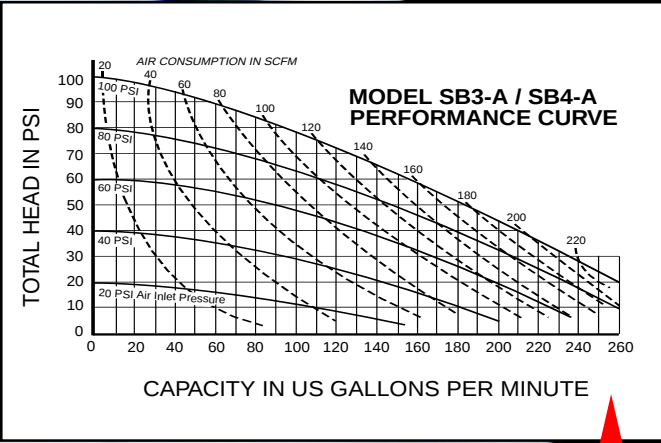
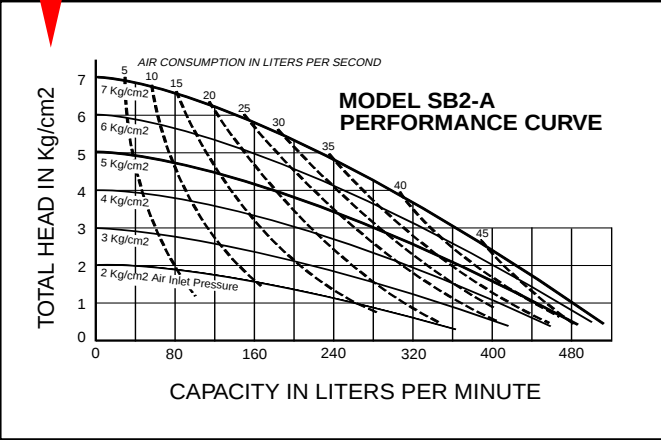
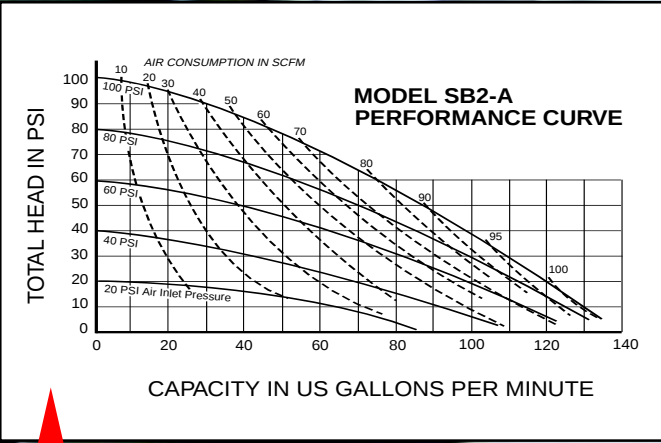
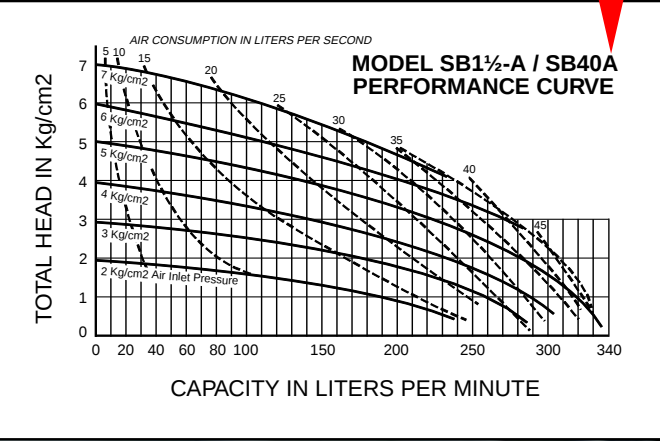
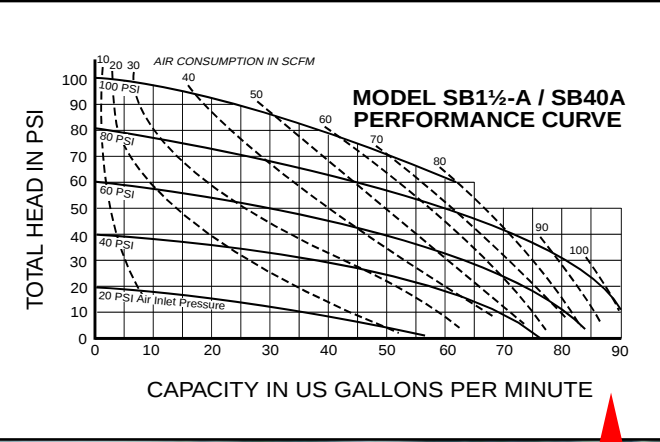
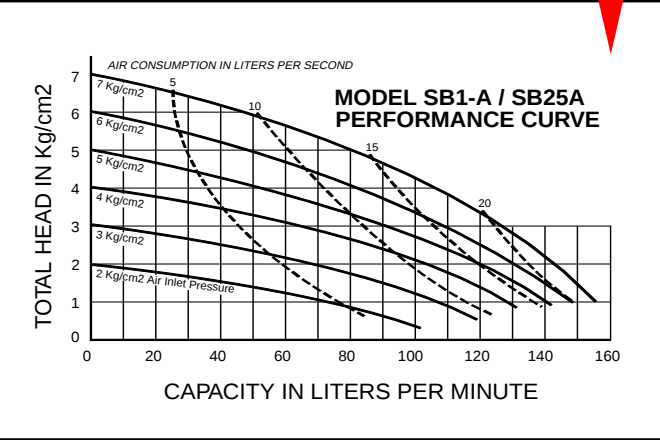
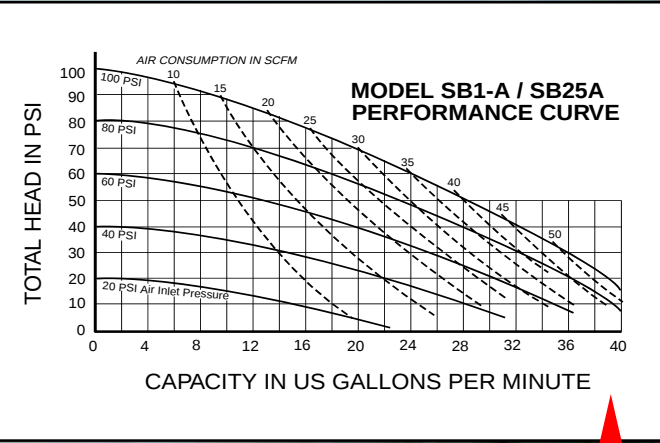
SBmetallic
SERIES
BALL VALVE

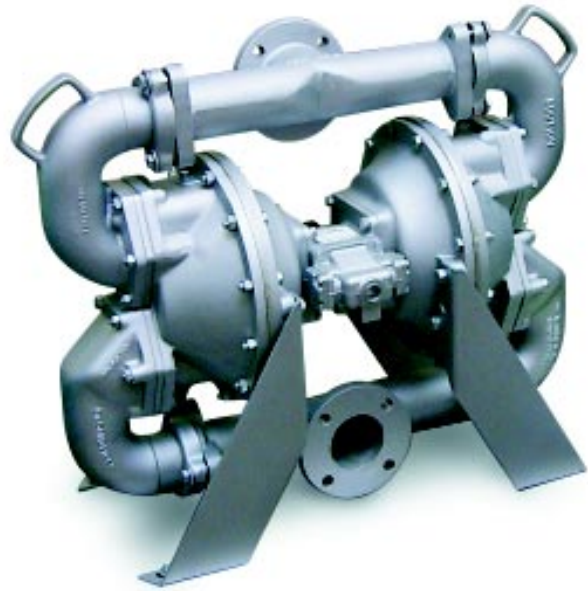
Ball valves, available in various elastomers and Virgin PTFE provide superior suction lift capability. SB Series metallic pumps are ideal for all liquids, thin to viscous, even small solids. Variable discharge porting options and materials available.

Model	Pipe Size		Displacement per stroke		Max. Flow per min.		Max. Solids Handling		Max. Discharge Pressure	
	inches	mm	gal	liters	gal	liters	inches	mm	psi	bar
SB1-A	1	25	.09	.34	42	159	.25	6	125	8.6
SB25A	1	25	.09	.34	42	159	.25	6	125	8.6
SB1 ½-A	1.5	40	.34	1.29	90	340	.25	6	125	8.6
SB40A	1.5	40	.34	1.29	90	340	.25	6	125	8.6
SB2-A	2	50	.43	1.63	135	511	.38	9	125	8.6
SB3-A	3	80	1.8	6.84	260	988	.87	22	125	8.6
SB4-A	4	100	1.8	6.84	260	988	.87	22	125	8.6

Model	Height		Width		Length	
	inches	mm	inches	mm	inches	mm
SB1-A	14 ⁷ / ₁₆	(367)	11 ³ / ₄	(298)	13 ³ / ₃₂	(337)
SB25A	14 ⁷ / ₁₆	(367)	11 ³ / ₄	(298)	13 ³ / ₃₂	(337)
SB1 ½-A	13 ¹³ / ₁₆	(351)	15 ¹ / ₂	(394)	14 ¹ / ₈	(359)
SB40A	13 ¹³ / ₁₆	(351)	15 ¹ / ₂	(394)	14 ¹ / ₈	(359)
SB2-A (Bottom Porting)	23 ¹ / ₄	(590)	15 ¹ / ₂	(394)	16 ¹³ / ₁₆	(427)
SB2-A (Top Porting)	22 ³ / ₁₆	(564)	15 ¹ / ₂	(394)	16 ¹³ / ₁₆	(427)
SB3-A (Bottom Porting)	31 ¹ / ₄	(793)	26	(660)	24 ³ / ₈	(625)
SB3-A (Top Porting)	37 ¹ / ₈	(943)	26	(660)	20 ³ / ₄	(527)
SB4-A (Bottom Porting)	31 ¹ / ₄	(793)	26	(660)	27 ¹ / ₂	(699)
SB4-A (Top Porting)	37 ⁷ / ₈	(962)	26	(660)	23 ³ / ₄	(603)

See pages 12 and 13 for porting and material options.





SA^{metallic} SERIES FLAP VALVE

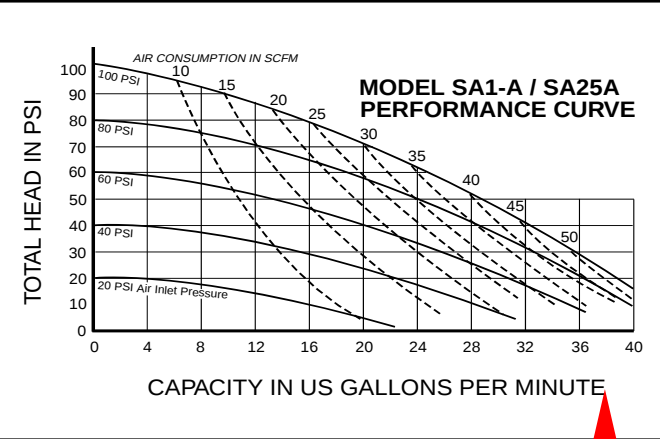
Flap valve SA Series SandPIPER® pumps are especially recommended for slurries and liquids with suspended solids. Flap-valves allow passage of suspended line-size solids without damage. Variable discharge porting options available on the 1" pump model.

Model	Pipe Size		Displacement per stroke		Max. Flow per min.		Max. Solids Handling		Max. Discharge Pressure	
	inches	mm	gal	liters	gal	liters	inches	mm	psi	bar
SA1-A	1	25	.09	.34	42	159	1	25	125	8.6
SA2-A	2	50	.43	1.60	140	530	2	50	125	8.6
MSA2	2	50	.43	1.60	140	530	2	50	125	8.6
SA3-A	3	80	1.62	6.15	260	988	3	76	125	8.6
SA3-M	3	80	1.23	4.66	260	988	3	76	125	8.6
SA4-M	4	100	1.23	4.66	260	988	3	76	125	8.6

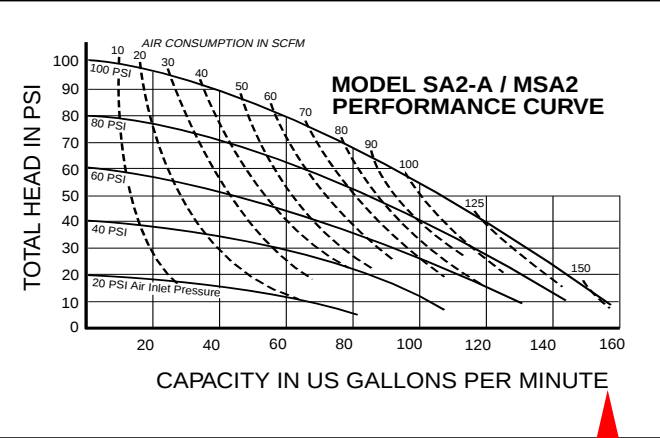
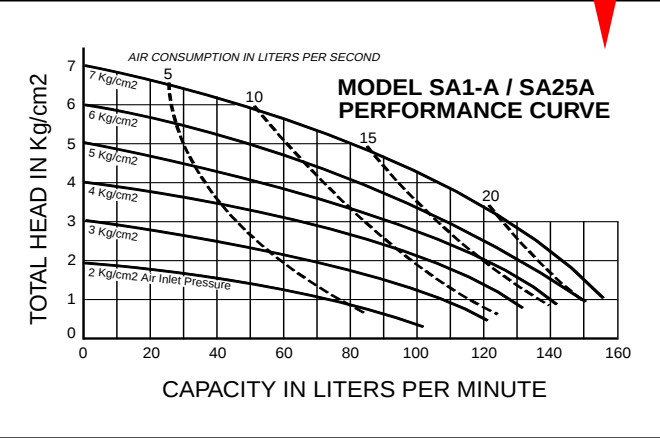
Model	Height		Width		Length	
	inches	mm	inches	mm	inches	mm
SA1-A (Bottom Porting)	14 ⁷ / ₁₆	(367)	11 ³ / ₄	(298)	10 ¹³ / ₁₆	(275)
SA1-A (Top Porting)	13 ¹ / ₁₆	(332)	11 ³ / ₄	(298)	10 ¹³ / ₁₆	(275)
SA2-A	20 ⁵ / ₁₆	(516)	21 ³ / ₄	(552)	13	(343)
MSA2-A	20 ⁵ / ₁₆	(516)	21 ³ / ₄	(552)	13	(343)
MSA2-B (Safety Frame)	24 ¹ / ₂	(622)	26	(660)	26 ⁷ / ₈	(683)
SA3-A	28 ⁷ / ₈	(733)	36 ⁹ / ₁₆	(929)	16 ¹ / ₄	(413)
SA3-M	30 ¹ / ₄	(768)	32 ⁵ / ₁₆	(821)	16 ³ / ₁₆	(411)
SA4-M	37 ¹ / ₈	(943)	32 ⁵ / ₁₆	(821)	16 ³ / ₁₆	(411)

(Model MSA2 specially-fitted for mining use.)

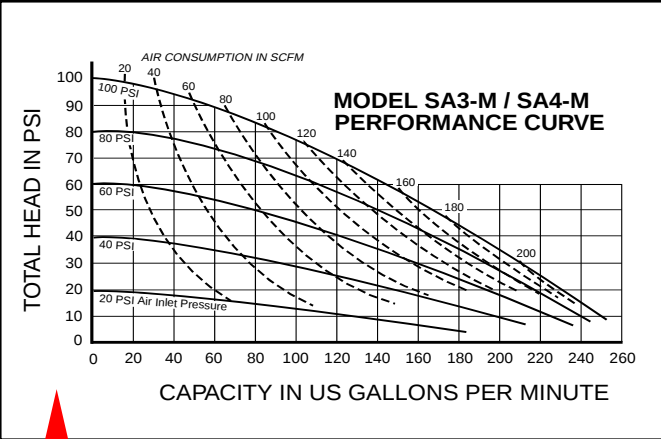
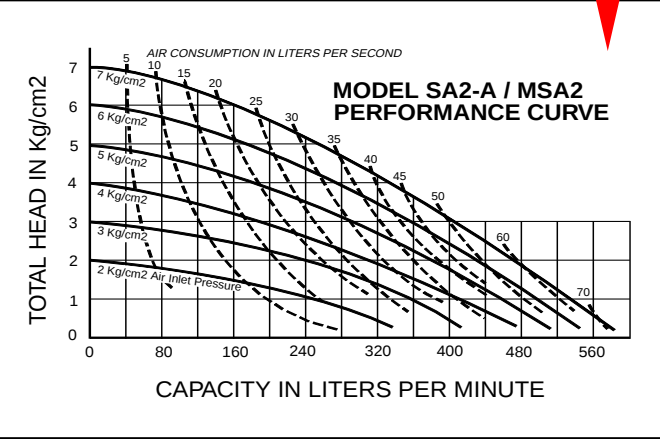
See pages 12 and 13 for porting and material options.



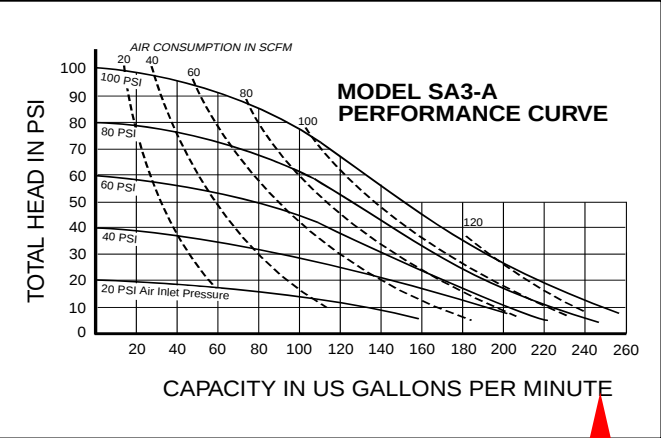
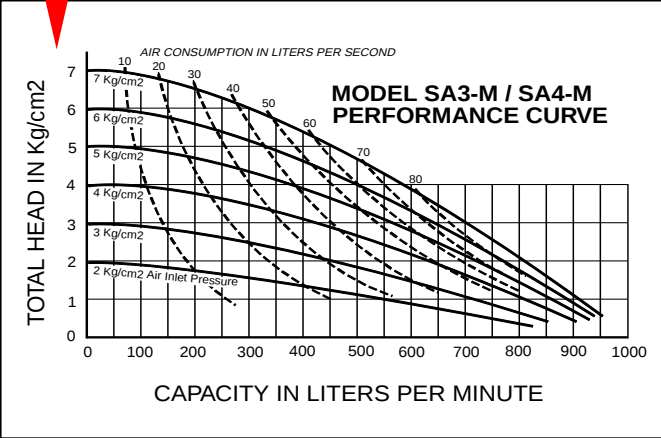
SA1-A / SA25A



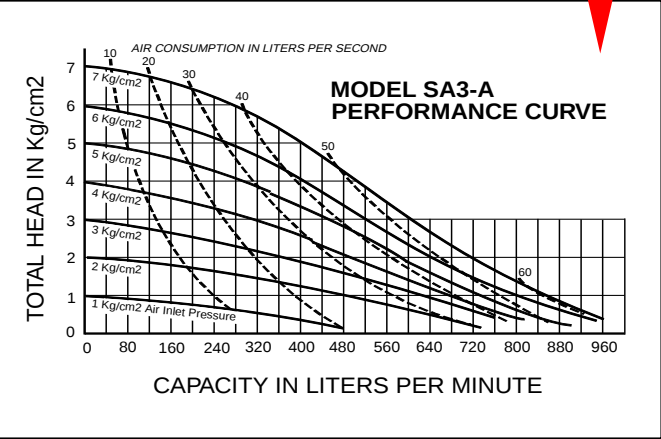
SA2-A / MSA2

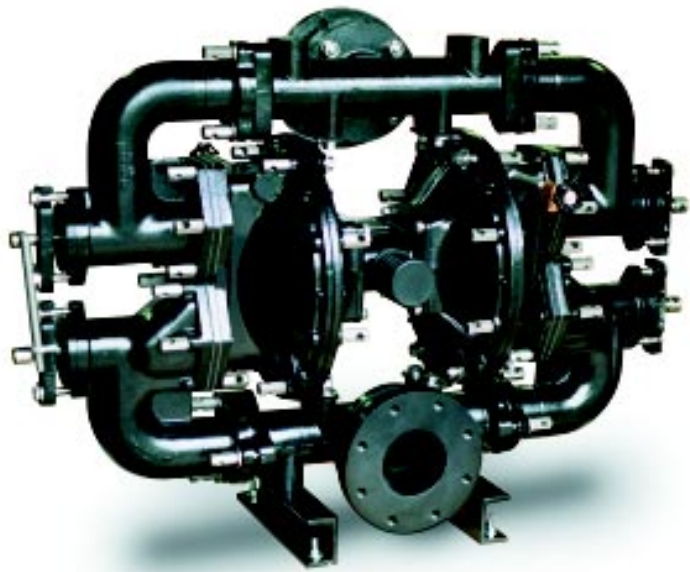


SA3-M / SA4-M



SA3-A





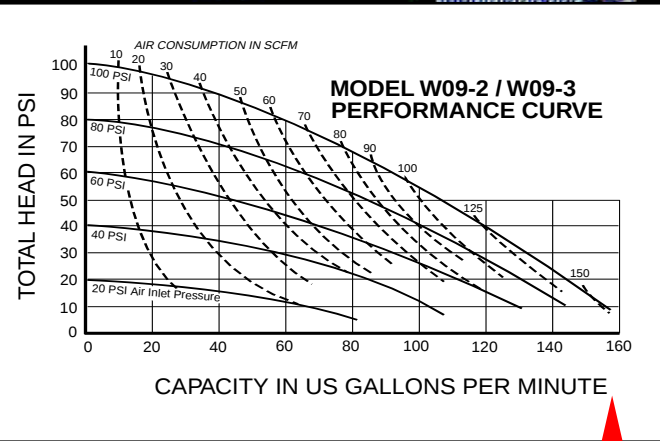
W metallic SERIES FLAP VALVE

SandPIPER® Waste Treatment W Series metallic pumps are specially-fitted with swing check valves and easy access clean-outs. The pumps are designed specifically for slurry and solids-laden materials. Flap-valves allow passage of suspended, pipe-sized solids and stringy material. Visual stroke indicator is standard.

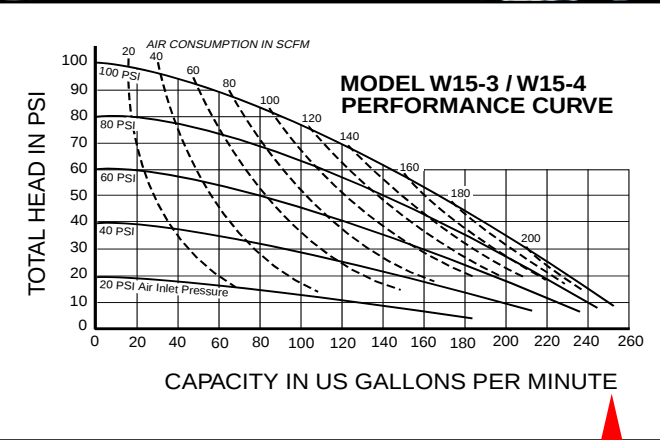
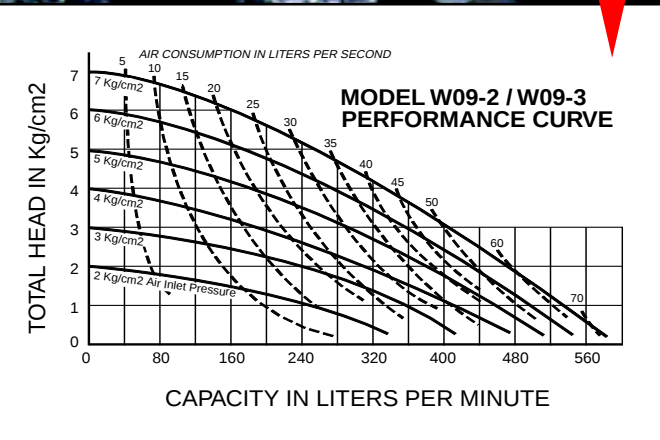
Model	Pipe Size		Displacement per stroke		Max. Flow per min.		Max. Solids Handling		Max. Discharge Pressure	
	inches	mm	gal	liters	gal	liters	inches	mm	psi	bar
W09-2	2	50	.43	1.60	140	530	2	50	125	8.6
W09-3	3	80	.43	1.60	140	530	2	50	125	8.6
W15-3	3	80	1.23	4.66	260	988	3	76	125	8.6
W15-4	4	100	1.23	4.66	260	988	3	76	125	8.6

Model	Height		Width		Length	
	inches	mm	inches	mm	inches	mm
W09-2	23¾	(608)	28¼	(724)	19¾	(506)
W09-3	24½	(627)	28¼	(724)	19¾	(506)
W15-3	31½	(800)	44½	(1130)	21½	(546)
W15-4	32¼	(819)	44½	(1130)	21½	(546)

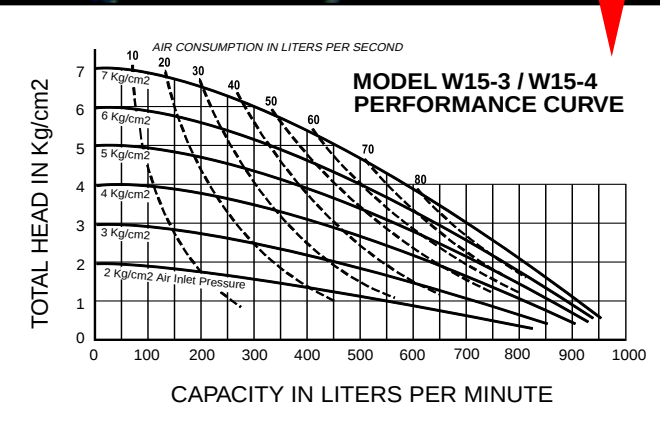
See pages 12 and 13 for porting and material options.



W09-2 / W09-3



W15-3 / W15-4



metallic Phoenix HIGH PRESSURE

These air-powered, single diaphragm metallic pumps deliver discharge pressure twice the inlet pressure, up to 250 psi (17 bar). Designed for filter press feed or similar applications requiring higher discharge pressures.

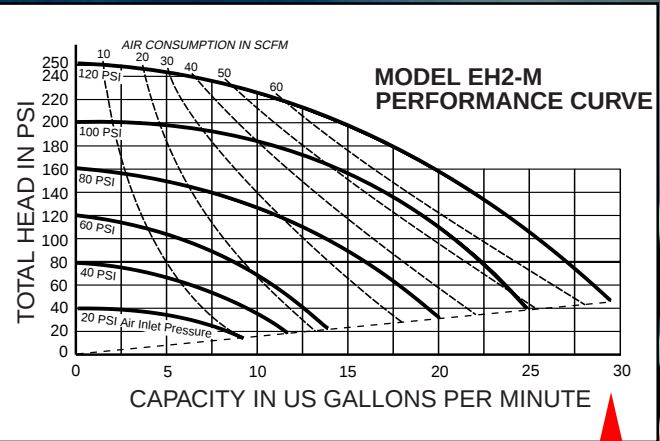
Model	Pipe Size		Displacement per stroke		Flow per min.		Solids Handling		Discharge Pressure	
	inches	mm	gal	liters	gal	liters	inches	mm	psi	bar
EH2-M	2	50	.22	.83	25	95	.25	6	250	17.2
SH2-M	2	50	.22	.83	25	95	2	50	250	17.2

Model	Height		Width		Length	
	inches	mm	inches	mm	inches	mm
EH2-M (Ball valve)	25	(635)	25 ¹³ / ₁₆	(656)	11¾	(298)
SH2-M (Flap valve)	18 ⁹ / ₁₆	(471)	26 ⁷ / ₈	(683)	11 ³ / ₈	(289)

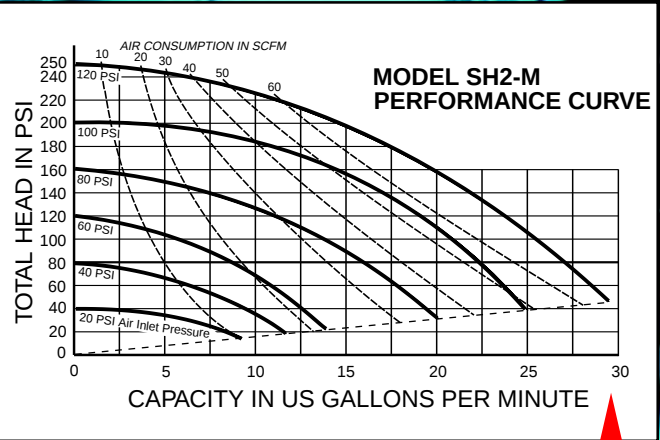
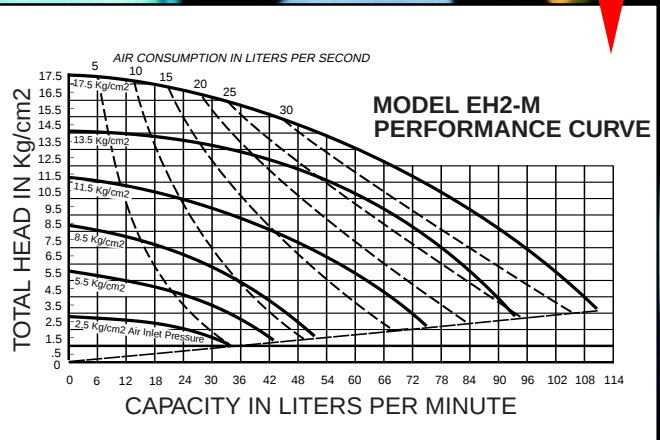


metallic Filter Press CUSTOMIZED

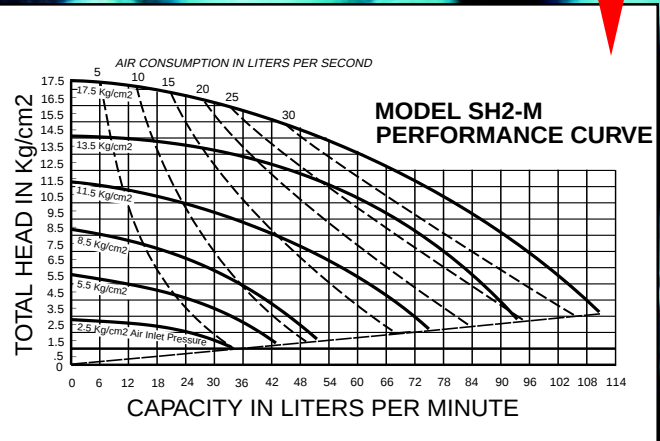
Built-to-order, multi-pump systems combine a high volume fill pump with a high pressure feed pump. Frequently used for filter press feed applications, the systems produce consistent operating pressures to 250psi (17 bar). This results in quicker press cycles, drier cake and less costly disposal.



EH2-M



SH2-M



NEW!

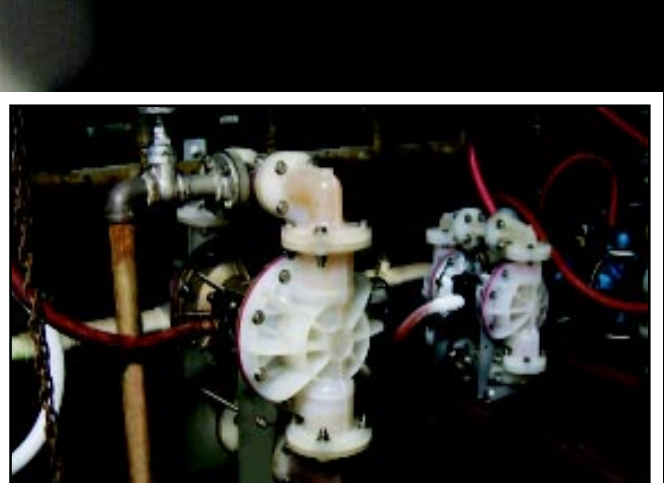
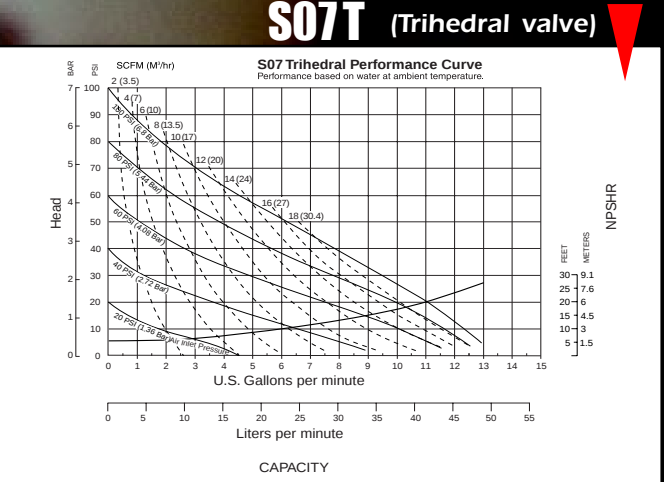
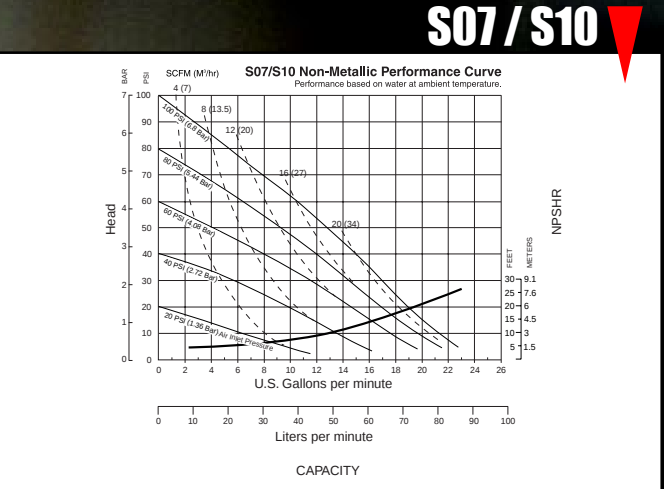
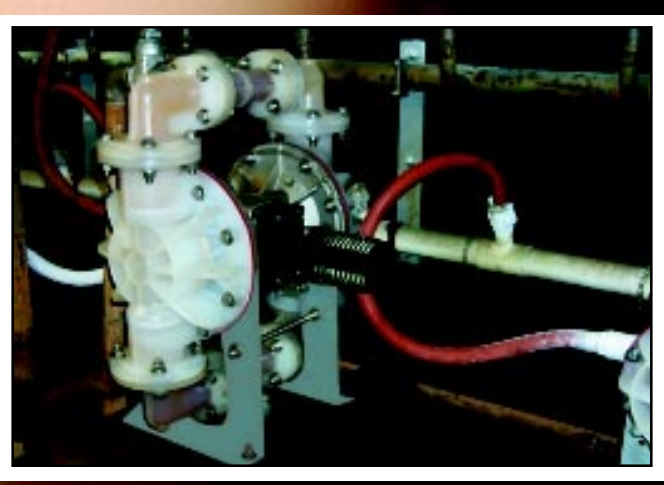
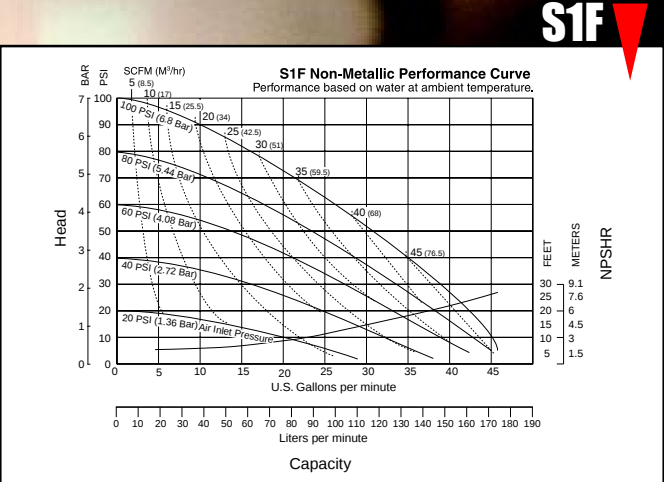
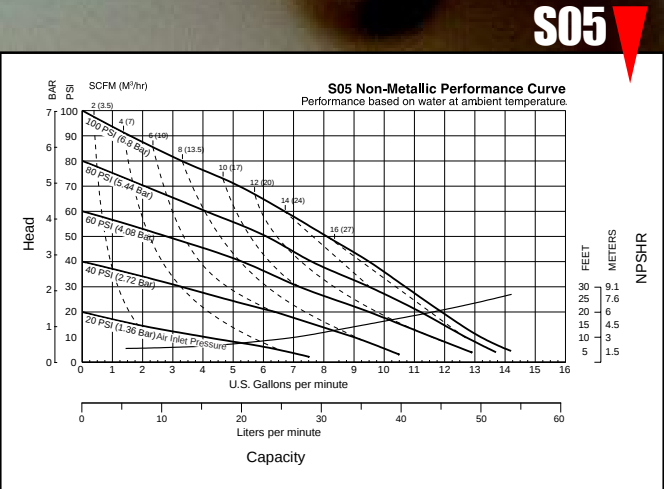
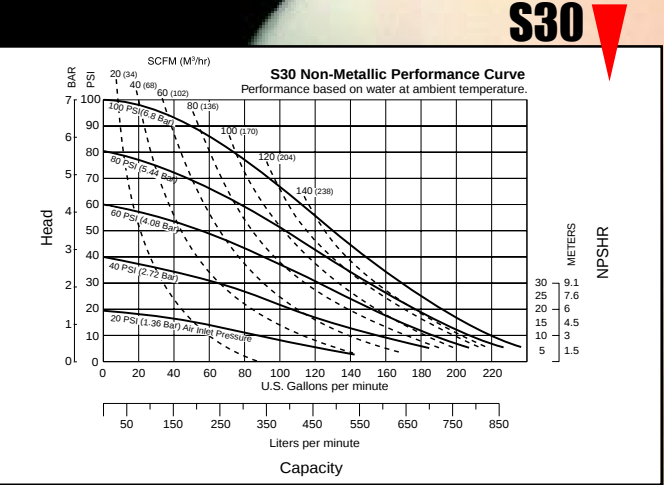
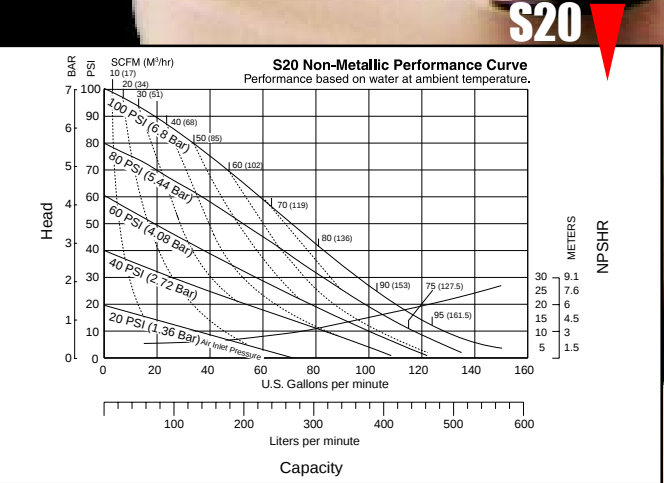
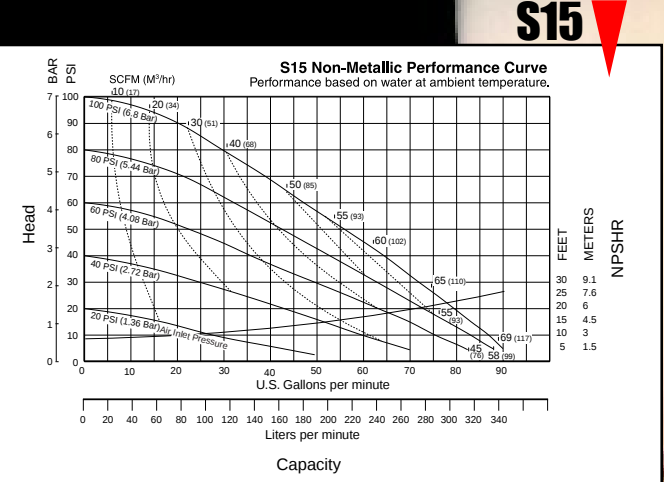
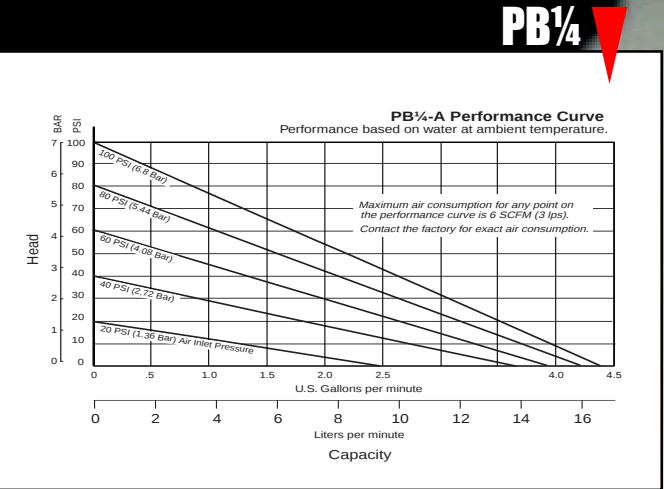


SandPIPER II[®]
S plastic
SERIES
BALL VALVE

Introducing the NEW SandPIPER II[®] Plastic Series. For a pump that can pass the acid test, consider the new SandPIPER II Plastic Pump Series. Rugged, all bolted construction. No Clamps. Models in PVDF, Nylon, Conductive Acetal and Polypropylene. Specially-coated, chemically-resistant hardware. Optional spill containment and leak detection.

Model	Pipe Size		Displacement per stroke		Max. Flow per min.		Max. Solids Handling		Max. Discharge Pressure	
	inches	mm	gal	liters	gal	liters	inches	mm	psi	bar
PB¼	.25	6	.01	.04	4	15	.03	1	100	6.9
S05	.5	15	.026	.098	14	52	.125	3	100	6.9
S07	.75	20	.026	.098	23	87	.15	4	100	6.9
S07T	.75	20	.016	.059	13	48	.38	9	100	6.9
S10	1	25	.026	.098	23	87	.15	4	100	6.9
S1F	1	25	.17	.64	45	170	.25	6	100	6.9
S15	1.5	40	.36	1.36	90	340	.47	12	100	6.9
S20	2	50	.36	1.36	150	568	.66	17	100	6.9
S30	3	80	.9	3.41	238	901	.71	18	100	6.9

Model	Height		Width		Length	
	inches	mm	inches	mm	inches	mm
PB¼	7 ¹ / ₁₆	(179)	7	(178)	5 ¹ / ₂	(140)
S05	11 ⁵ / ₁₆	(287)	10 ¹ / ₈	(258)	9 ¹⁵ / ₁₆	(252)
S07	13 ¹¹ / ₃₂	(339)	11 ¹³ / ₁₆	(300)	9 ¹⁵ / ₁₆	(252)
S07T	13 ¹¹ / ₃₂	(339)	11 ¹³ / ₁₆	(300)	9 ¹⁵ / ₁₆	(252)
S10	13 ¹³ / ₁₆	(386)	11 ¹³ / ₁₆	(300)	10 ³ / ₈	(267)
S1F	20 ⁷ / ₈	(530)	17 ⁹ / ₁₆	(448)	13 ⁷ / ₁₆	(341)
S15	28 ¹¹ / ₁₆	(729)	23 ⁷ / ₈	(608)	18 ¹¹ / ₁₆	(475)
S20	32 ¹ / ₁₆	(814)	24 ⁵ / ₈	(627)	18 ¹¹ / ₁₆	(475)
S30	40 ⁵ / ₈	(1032)	33 ³ / ₈	(846)	22 ⁷ / ₈	(581)



pump specification overview

[illegible]



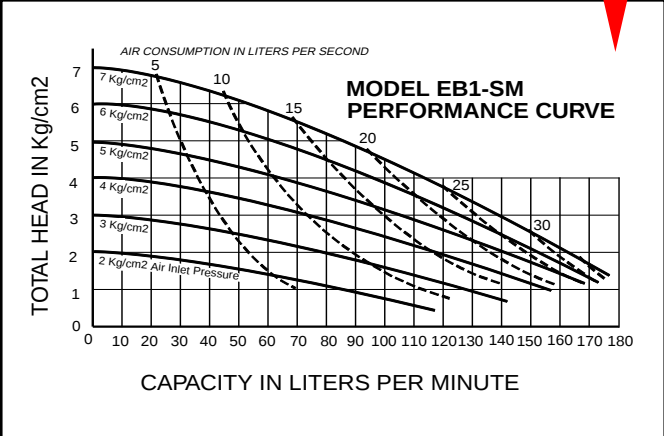
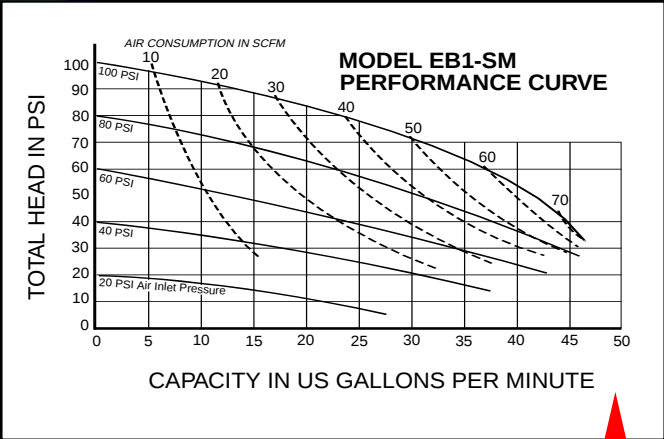
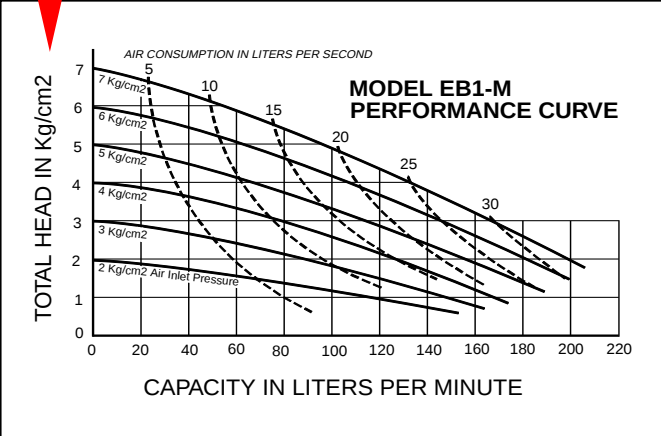
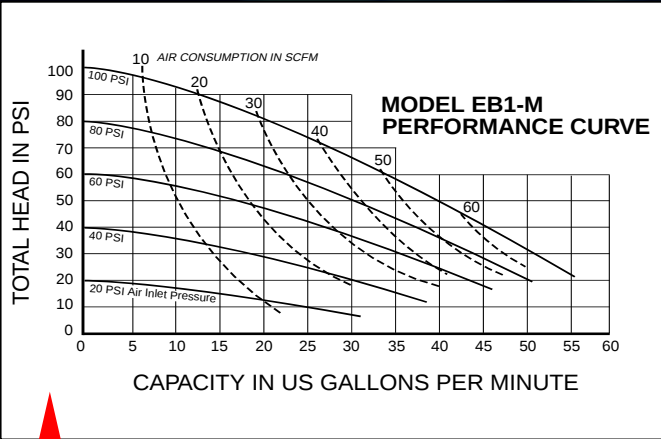
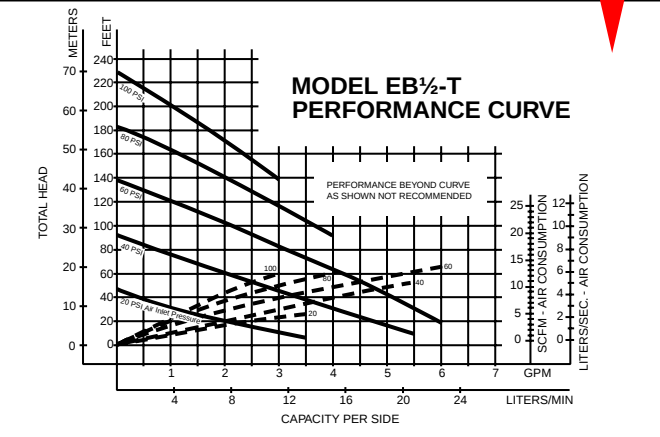
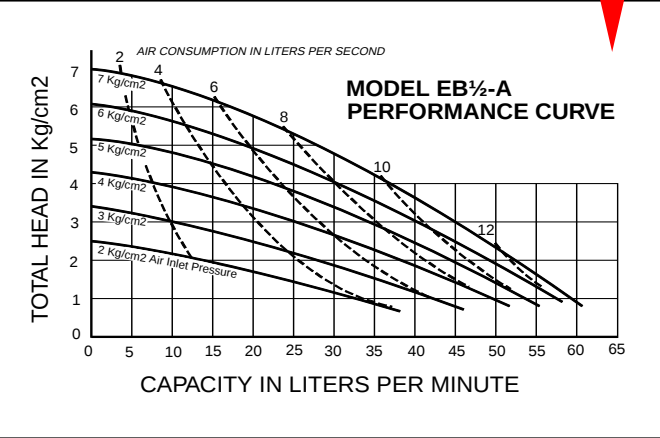
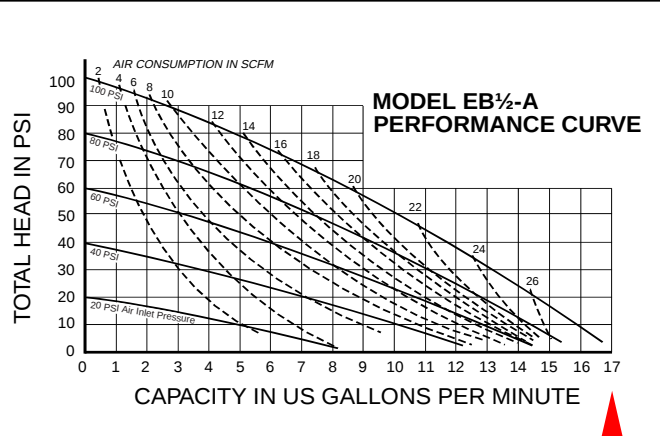
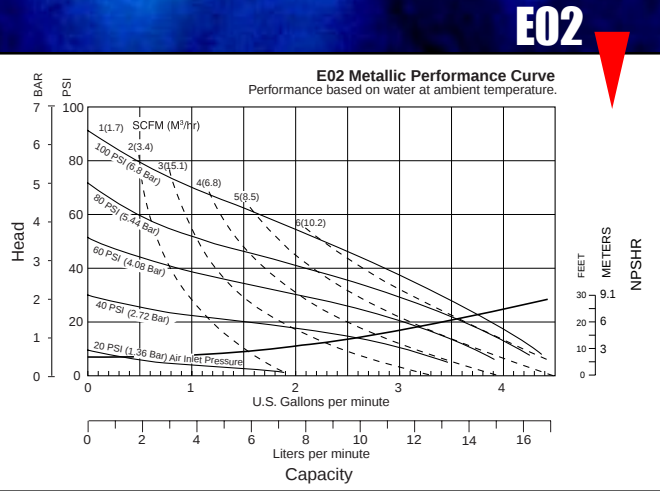
EB^{metallic} SERIES BALL VALVE

These basic, metal SandPIPER® pumps have an intermediate section and inner chambers made of aluminum or cast ron. They provide exceptional suction lift capacity for solids-free materials from low to high viscosity.

Model	Pipe Size		Displacement per stroke		Max. Flow per min.		Max. Solids Handling		Max. Discharge Pressure	
	inches	mm	gal	liters	gal	liters	inches	mm	psi	bar
E02	.25	6	.003	.01	4.4	16.6	.079	2	125	8.6
EB½-A	.5	15	.03	.11	16	61	.06	1	100	6.9
EB1-SM	1	25	.10	.37	42	159	.25	6	125	8.6
EB1-M	1	25	.09	.34	54	204	.25	6	125	8.6
EB½-T	.5	15	.03	.11	6	23	.38	9	100	6.9

Model	Height		Width		Length	
	inches	mm	inches	mm	inches	mm
E02	6½	(165)	7½	(189)	4½	(126)
B½-A	10½	(267)	9½	(252)	6¾	(171)
EB1-SM	13½	(338)	14½	(357)	9½	(243)
EB1-M	15⅞	(403)	15⅞	(392)	9½	(243)
EB½-T (Trihedral valve)	14½	(359)	9½	(252)	6¾	(171)

See pages 12 and 13 for porting and material options.



NEW!

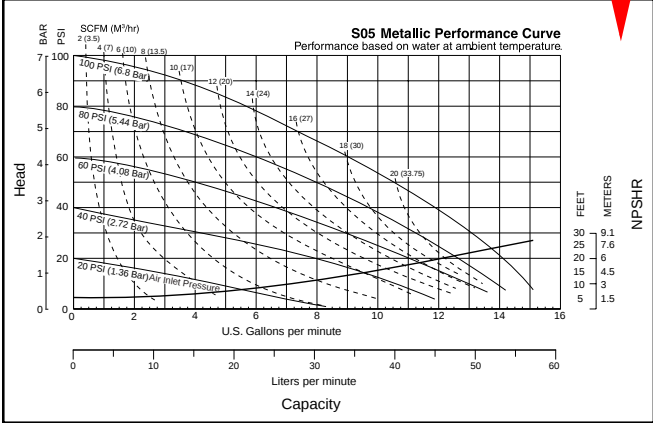
SandPIPER II[®] S metallic SERIES BALL VALVE

These metal SandPIPER II[®] pumps have wetted components in Aluminum, Cast Iron, Stainless Steel, and Hastelloy-C. They provide exceptional suction lift capacity for solids-free materials from low to high viscosity.

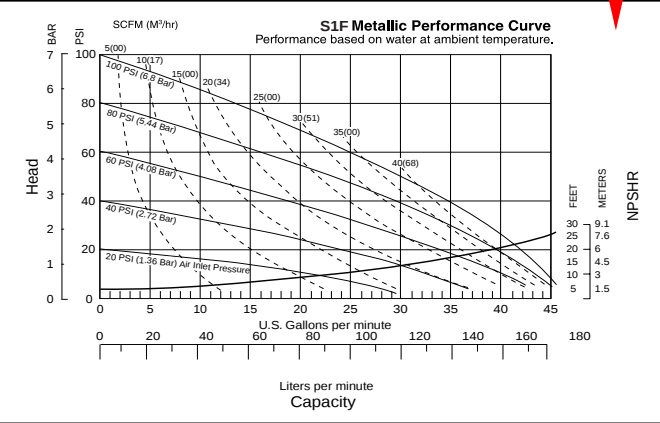
Model	Pipe Size		Displacement per stroke		Max. Flow per min.		Max. Solids Handling		Max. Discharge Pressure	
	inches	mm	gal	liters	gal	liters	inches	mm	psi	bar
S05 Metallic	.5	12	.026	.098	15	57	.125	3	125	8.6
S1F Metallic	1	25	.11	.42	45	170	.25	6	125	8.6
S15 Metallic	1.5	40	.41	1.55	106	401	.25	6	125	8.6
S20 Metallic	2	50	.42	1.59	150	567	.25	6	125	8.6
S30 Metallic	3	80	.94	3.56	235	889	.38	9.5	125	8.6

Model	Height		Width		Length	
	inches	mm	inches	mm	inches	mm
S05 Metallic	11 1/2	(292)	10 1/4	(260)	7	(178)
S1F Metallic	12 23/32	(323)	10 1/4	(260)	10 3/8	(264)
S15 Metallic	21 19/32	(548)	18 7/8	(467)	16 21/32	(423)
S20 Metallic	26 3/16	(665)	18 7/8	(428)	12 19/32	(320)
S30 Metallic	32 1/16	(815)	19 21/32	(499)	15 3/4	(400)

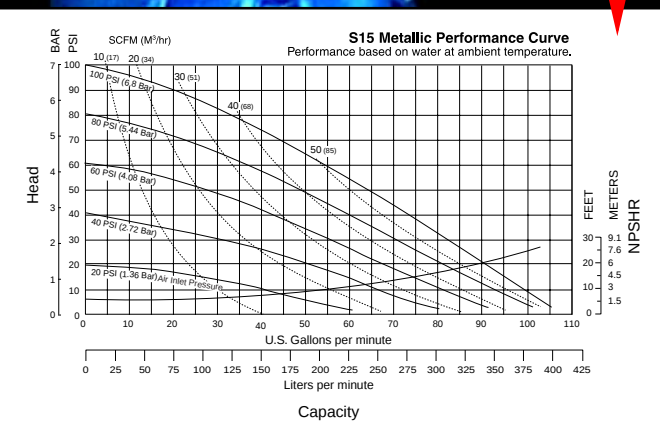
S05 Metallic



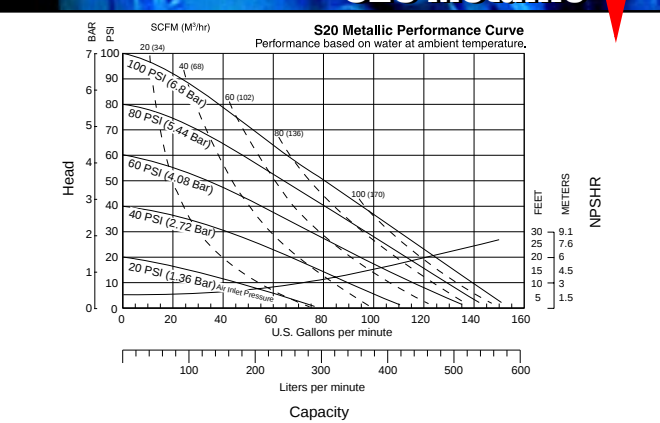
S1F Metallic



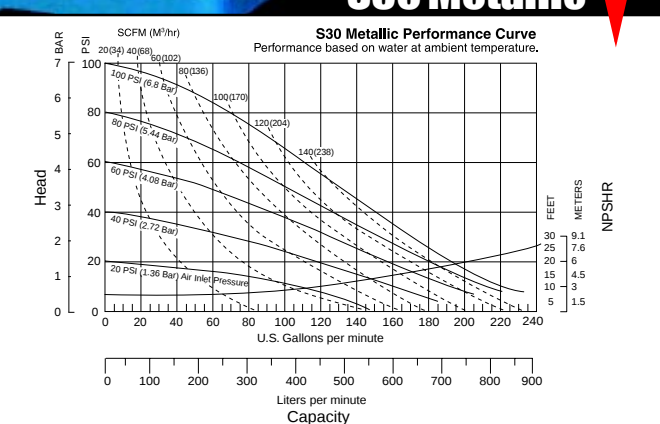
S15 Metallic



S20 Metallic



S30 Metallic

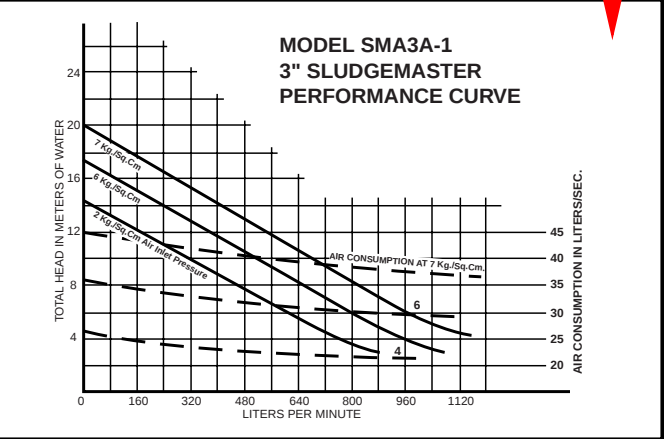
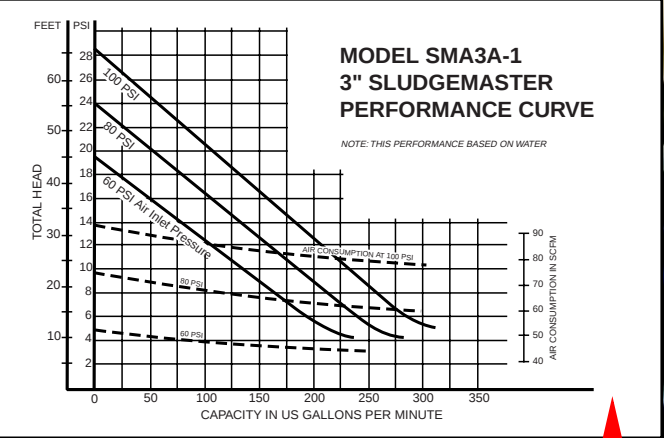


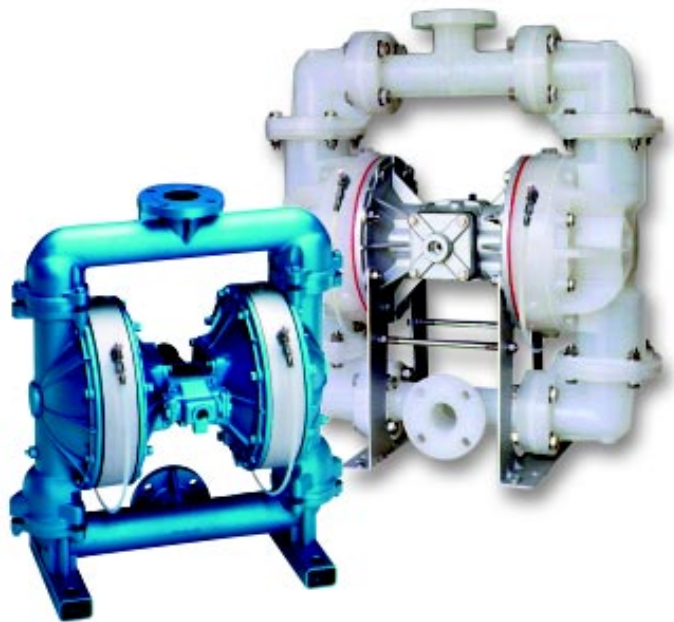
metallic Submersible CENTRIFUGAL

The **PortaPump[®]** submersible, battery-powered pump operates using any 12-volt car or truck battery. It comes equipped with cables and battery clips. Extremely portable, the pump weighs only 33 pounds (15kg) and can fit through openings as small as 10" (25cm). Electrically safe and whisper quiet.

The **Sludgemaster[®]** submersible, air-powered trash pump handles mud, leaves, twigs, sand, sludge, trashladen water and soft solids to 1 1/2" (3.8cm). High capacity - low head. It weighs only 59 pounds (26kg), and can fit through an opening as small as 14" (35cm). Sturdy construction for rough handling and long life. Optional rock screen available.

Model	Pipe Size		Max. Flow per min.		Max. Solids Handling		Max. Discharge Height	
	inches	mm	gal	liters	inches	mm	ft.	meters
SPA1 1/2-E	1.5	40	43	163	1/16	1	25	7.6
SMA3-A	3	80	300	1140	1.5	38	65	19.8





plastic & metallic

RuppGUARD™ SERIES

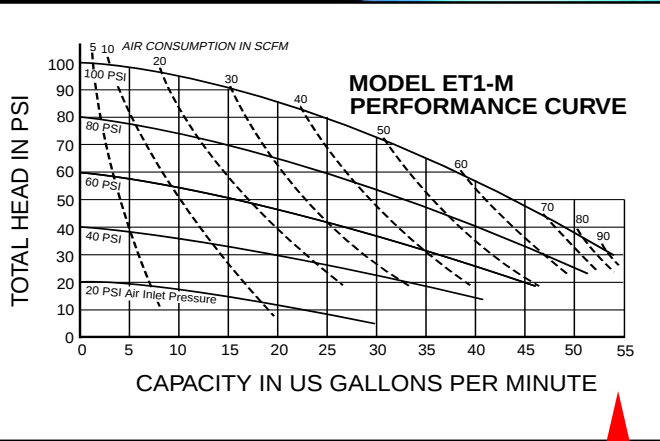
BALL VALVE

Monitored RuppGUARD™ Series pumps provide safer handling of aggressive or hazardous liquids. RuppGUARD chambers filled with neutral or compatible fluid prevent leakage into the environment in case of diaphragm breach. No pumped fluid enters the air valvae or exhaust and pressurized air cannot enter the fluid pumped. Mechanical, visual & electronic leak detection available for local or remote alert.

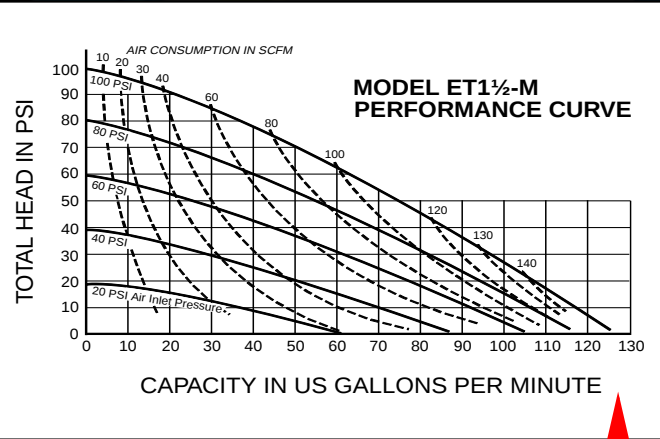
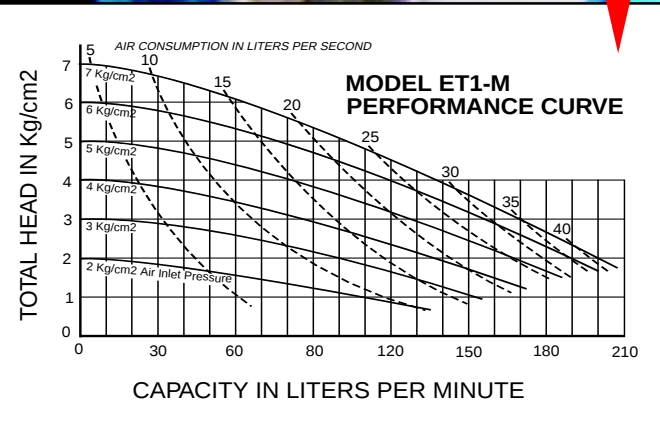
Model	Pipe Size		Displacement per stroke		Max. Flow per min.		Max. Solids Handling		Max. Discharge Pressure	
	inches	mm	gal	liters	gal	liters	inches	mm	psi	bar
ET1-M	1	25	.10	.37	54	204	.25	6	125	8.6
ET1 ½-M	1.5	40	.37	1.40	123	465	.25	6	125	8.6
ET1 ½-SM	1.5	40	.09	.34	65	246	.25	6	125	8.6
ST1-A	1	25	.09	.34	42	159	.25	6	125	8.6
ST25A	1	25	.09	.34	42	159	.25	6	125	8.6
ST1 ½-A	1.5	40	.30	1.14	90	340	.25	6	125	8.6
ST40A	1.5	40	.30	1.14	90	340	.25	6	125	8.6
S15	1.5	40	.36	1.36	80	340	.47	12	100	6.9
S20	2	50	.36	1.36	150	568	.66	17	100	6.9
S30	3	80	.9	3.41	238	901	.71	18	100	6.9

Model	Height		Width		Length	
	inches	mm	inches	mm	inches	mm
ET1-M	17 1/8	(435)	19 1/4	(288)	10 11/16	(271)
ET1 ½-M	22 5/8	(252)	24 1/8	(813)	12 13/16	(325)
ET1 ½-SM	18 11/16	(475)	19 3/16	(487)	9 3/8	(238)
ST1-A	14 7/16	(367)	14 1/2	(368)	14 9/32	(363)
ST25A	14 7/16	(367)	14 1/2	(368)	14 9/32	(363)
ST1 ½-A	17 1/2	(445)	16 1/2	(419)	18 5/8	(473)
ST40A	17 1/2	(445)	16 1/2	(419)	18 5/8	(473)
S15	28 11/16	(729)	28 5/8	(728)	15 1/4	(387)
S20	32 1/16	(814)	29 3/8	(746)	15 1/4	(387)
S30	40 11/16	(1032)	37 15/16	(964)	19 5/8	(498)

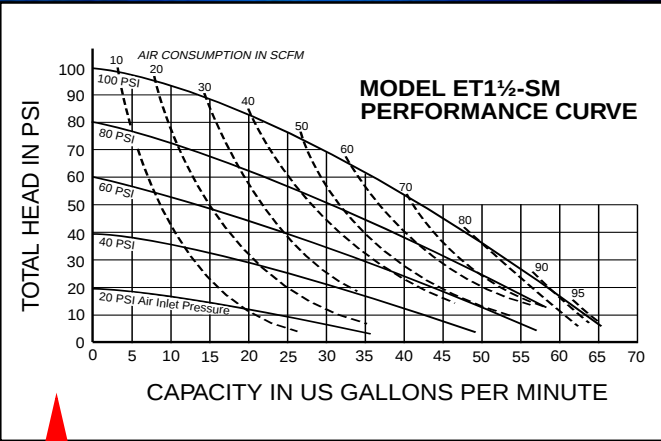
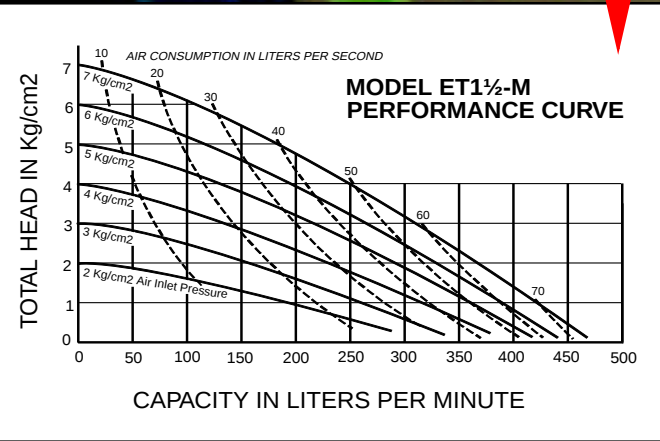
See pages 12 and 13 for porting and material options.



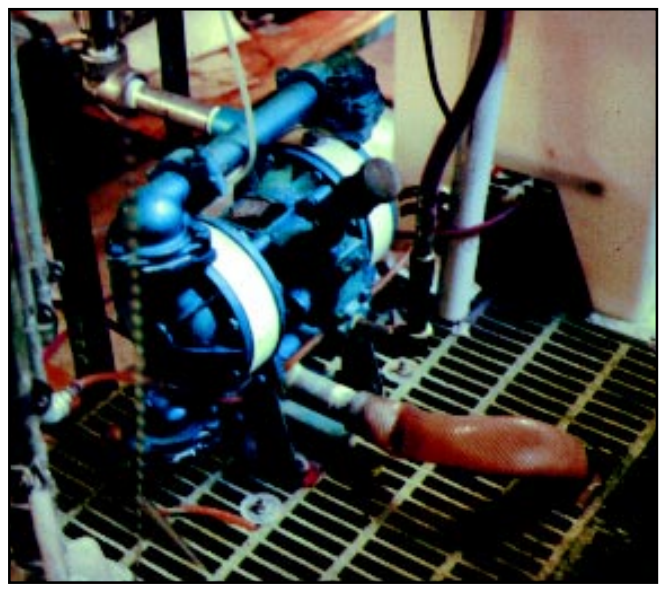
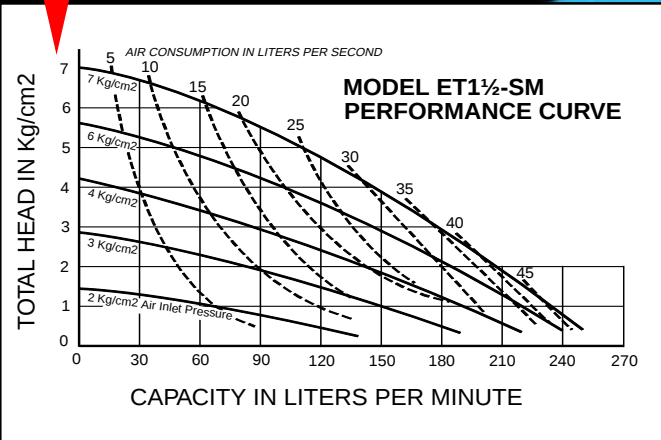
ET1-M



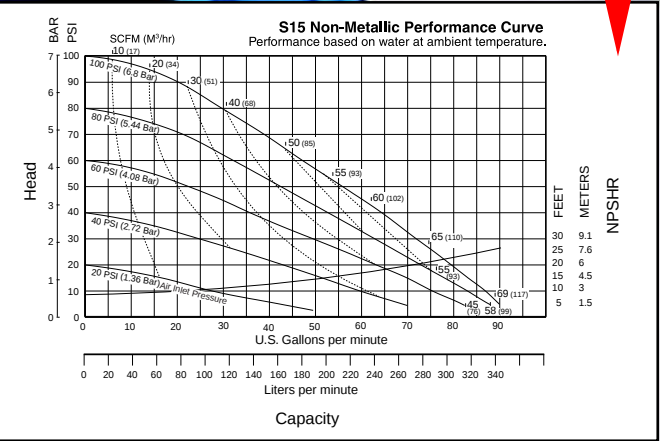
ET1 1/2-M



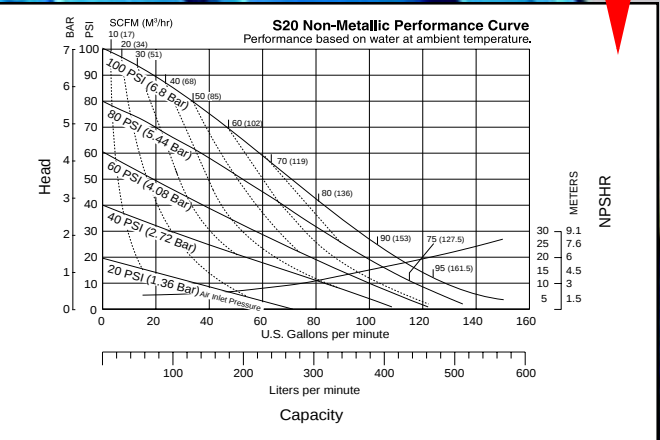
ET1 1/2-SM



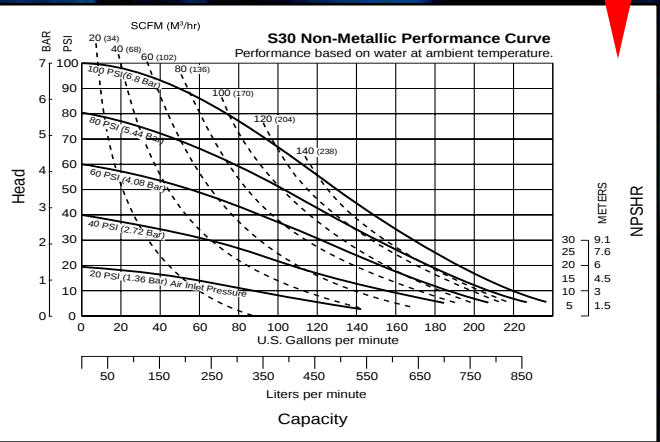
S15 Non-Metallic

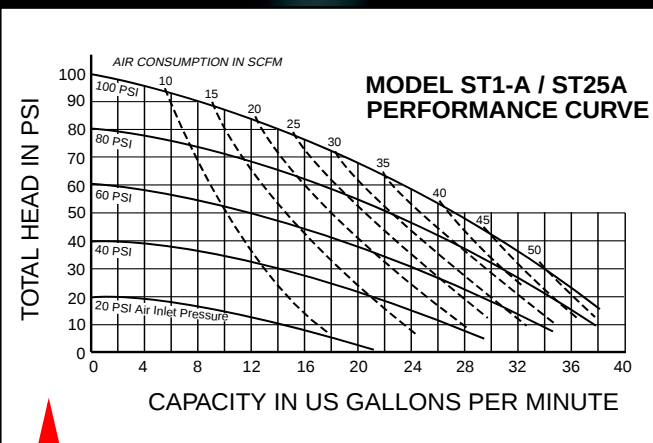


S20 Non-Metallic

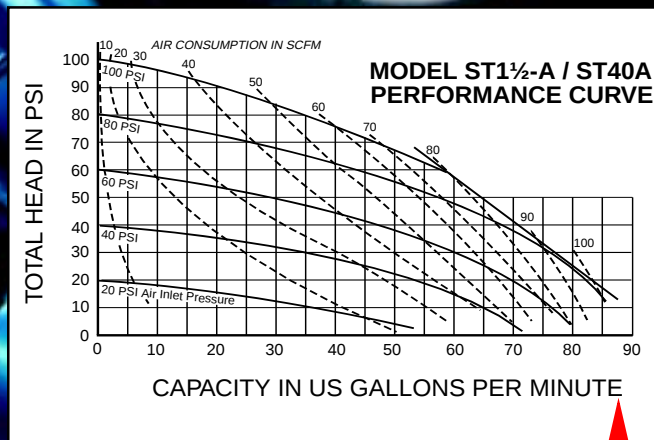
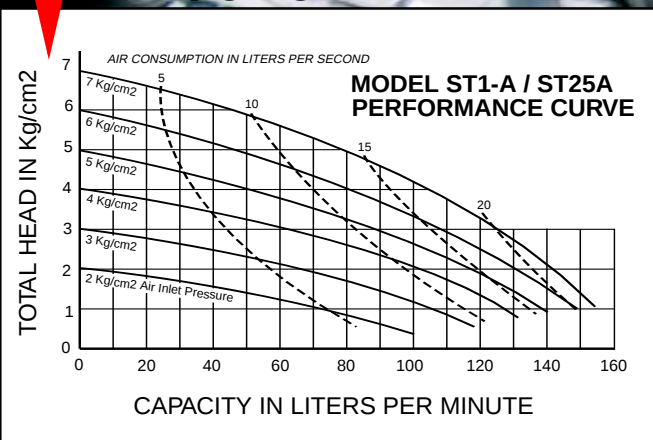


S30 Non-Metallic

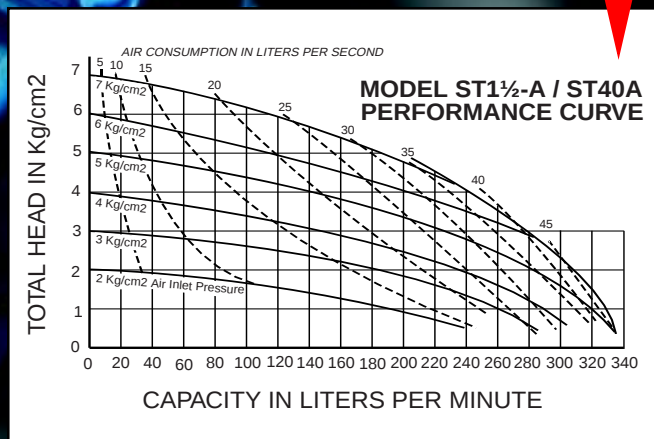




ST1-A / ST25A



ST1 1/2-A / ST40A



Accessories AND PUMP CONTROLS

Stroke Counter/Batch Control

Interfaceable electronic control to program repetitive diaphragm pump operations. This industrial-grade control offers performance and repeatability. The control unit functions as a batch control, a stroke counter, or both.

Pulse Output Kits

Offered in a wide variety of sizes and voltage requirements. These controls interface with the Warren Rupp® Batch Controller, or you own process controls (PLC's).

Solenoid Kits

Providing automatic on/off operation of air-driven equipment. 110/120VAC and 220/240VAC kits operate with the Warren Rupp or customer's control units. 12VDC and 24VDC kits operate with customer-supplied controls only.

Air Preparation

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

Liquid Level Control

Warren Rupp's float-actuated air valve and liquid level control provide all-pneumatic operation. Explosion-proof construction makes it ideal for use in hazardous areas.

3M™ Sound Dampening Mufflers

Effective sound suppression for SandPIPER® pumps. The 3M Pneumatic Muffler is a rugged polymer housing with a replaceable acoustic composite insert.

Electronic Leak Detector

If the primary pumping diaphragm fails, this modular, watertight unit senses conductive changes if liquid enters the isolation chamber of the pump. The unit can be wired for audible alarm or pump shutdown. Available for SandPIPER Spill Containment models.

Mechanical Leak Detector

Available for SandPIPER® Spill Containment pumps, this leak detector can be set to trigger an ON/OFF switch or audible signal.

Electronic Speed Control

Accurate control of variable flow rates, from zero flow to maximum. Operates on 110 or 220VAC. Speed Control System can be integrated with existing process control systems.

Pail & Drum Adaptor Kits

Convert 1/4", 1/2" and 3/4" plastic pumps to drum or pail applications. The adaptor kits are constructed of chemically-resistant materials to handle the job. Plastic pipe assembly comes complete with all the hardware needed.

Tranquilizer® Surge Suppressors

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

Surge Dampener

Designed for use with 1/2" and 3/4" pumps, these non-metallic dampeners are manually charge with air. The dampener consumes no air after initial charging.

For detailed information on all of these products, ask for a free Accessories Group Brochure.



3M™ tradename used by permission.

Materials Profile

Always refer to the Warren Rupp Chemical Resistance Chart when specifying SandPIPER pumps.

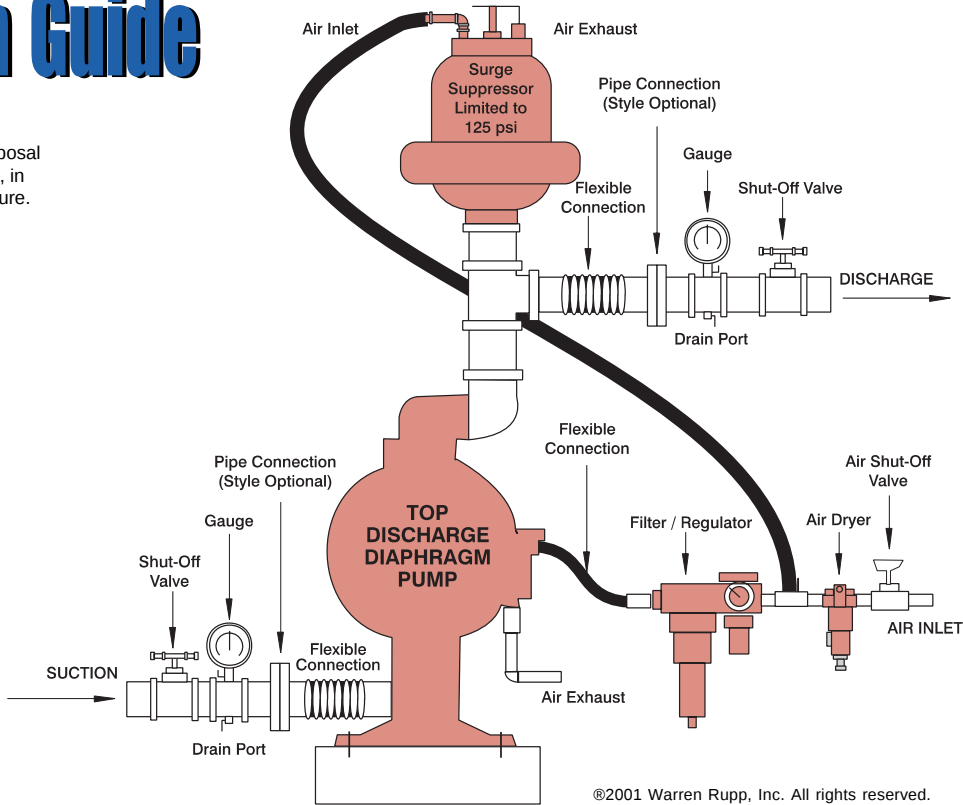
Materials Profile	Operating Temperatures		
	Max	Min	Optimum
Buna-N General purpose, oil-resistant. Shows good solvent, oil, water and hydraulic fluid resistance. Should not be used with highly polar solvents like acetone and MEK, ozone, chlorinated hydrocarbons and nitro hydrocarbons.	190°F 88°C	-10°F -23°C	50°F to 140°F 10°C to 60°C
Conductive Acetal Tough, impact resistant, ductile. Good abrasion resistance and low friction surface. Generally inert, with good chemical resistance except for strong acids and oxidizing agents.	Governed by diaphragm material of pump.		
EPDM Shows very good water and chemical resistance. Has poor resistance to oils and solvents, but is fair in ketones and alcohols.	212°F 100°C	-10°F -23°C	50°F to 212°F 10°C to 100°C
Hytrel® Good on acids, bases, amines and glycols at room temperatures only.	190°F 88°C	-10°F -23°C	50°F to 140°F 10°C to 60°C
Neoprene All purpose. Resistant to vegetable oils. Generally not affected by moderate chemicals, fats, greases and many oils and solvents. Generally attacked by strong oxidizing acids, ketones, esters, nitro hydrocarbons and chlorinated aromatic hydrocarbons.	170°F 77°C	-35°F -37°C	50°F to 130°F 10°C to 54°C
Nylon 6/6 High strength and toughness over a wide temperature range. Moderate to good resistance to fuels, oils and chemicals.	120°F 49°C	32°F 0°C	32°F to 120°F 0°C to 49°C
Polypropylene A thermoplastic polymer. High tensile and flex strength. Resists strong acids and alkalis. Attacked by chlorine, fuming nitric acid and other strong oxidizing agents.	150°F 66°C	40°F 5°C	40°F to 150°F 5°C to 66°C

Materials Profile	Operating Temperatures		
	Max	Min	Optimum
Polyvinylidene Fluoride (PVDF; Kynar®) A durable fluoroplastic with excellent chemical resistance. Excellent for UV applications. High tensile strength and impact resistance.	200°F 93°C	10°F -13°C	10°F to 200°F -13°C to 93°C
Rupplon® (Urethane) Shows good resistance to abrasives. Has poor resistance to most solvents and oils.	150°F 66°C	32°F 0°C	50°F to 110°F 10°C to 43°C
Santoprene® Injection molded thermoplastic elastomer with no fabric layer. Long mechanical flex life. Excellent abrasion resistance.	212°F 100°C	-10°F -23°C	50°F to 212°F 10°C to 100°C
Virgin PTFE (PFA/TFE) Chemically inert, virtually impervious. Very few chemicals are known to chemically react with PTFE: molten alkali metals, turbulent liquid or gaseous fluorine and a few fluoro-chemicals such as chlorine trifluoride or oxygen difluoride which readily liberate free fluorine at elevated temperatures.	212°F 100°C	-35°F -37°C	50°F to 212°F 10°C to 100°C
Viton® Shows good resistance to a wide range of oils and solvents; especially all aliphatic, aromatic and halogenated hydrocarbons, acids, animal and vegetable oils. Hot water or hot aqueous solutions (over 70° F) will attack Viton.	212°F 100°C	-35°F -37°C	50°F to 212°F 10°C to 100°C
WR-C Warren Rupp Alloy "C" equal to ASTM494 CW-12M-1 specification for nickel and nickel alloy castings commonly referred to as Hastelloy "C" alloy in the pump industry. Hastelloy "C" is a registered trademark of the Cabot Corporation.			
WR-S Warren Rupp Alloy Type 316 Stainless Steel equal to or exceeding ASTM specification A743 CF-8M for corrosion resistant iron chromium, iron chromium nickel, and nickel based alloy castings for general applications. Commonly referred to as 316 Stainless Steel in the pump industry.			

Installation Guide

The pump exhaust should be piped to an area for safe disposal of the product being pumped, in the event of a diaphragm failure.

Available from Warren Rupp



©2001 Warren Rupp, Inc. All rights reserved.

Specification Guide

Please note: This guide should always be used in conjunction with the individual data sheet for each model pump.

The pump shall be a SandPIPER® air-powered double-diaphragm pump equipped with diaphragms of _____ (Neoprene, Buna-N, EPDM, Viton®, Hytrel®, Santoprene®, Food Grade Nitrile, Virgin PTFE Polyurethane and PTFE overlay) as manufactured by Warren Rupp, Inc., A Unit of IDEX Corporation, P.O. Box 1568, Mansfield, Ohio 44901-1568. The diaphragms shall be connected by means of a solid 416 stainless steel shaft.

The pump shall have _____ [NPT; DIN; ANSI; BSP] suction and discharge, with flow passages capable of handling suspended solids up to _____ [inches, mm] (see below). The pump shall be capable of delivering _____ [gallons; liters] per minute at _____ [feet, meters] of total dynamic head. The pump shall be capable of pumping a viscosity of _____ [centipoise; SSU], requiring _____ [SCFM; Kg/cm²] air consumption at an inlet pressure of _____ [psi; bar].

The pump shall be self-priming and capable of running dry without damage. The pumps shall have check valve manifolding to permit the free flow of small solids up to _____ [inches; mm] in diameter. The check valve seats and ball retainers shall be of _____ and easily replaced.

Check valves shall be heavy duty [ball; flap] type valves of _____ material.

The main air valve assembly shall have a ¾" or ½" NPT inlet port. The main air valve assembly and pilot valve assembly will be externally serviceable without disturbing pump installation or wetted side of the pump. The main air valve shall be a spool-type design with replaceable sleeve and spool assembly incorporated in a valve body. The pump shall have a free-flowing air exhaust muffler in a _____ inch NPT air exhaust port. The pump shall have provisions for bolting to a permanent foundation. The pump will feature a (top, bottom or side) discharge porting arrangement, to best suit the characteristics of the substance being pumped.

SOLIDS HANDLING

SandPIPER® PUMPS

Ball Valve

½" and ¾" Pumps handle 1/16" (1.5mm) soft solids.
1" and 1½" Pumps handle ¼" (6mm) soft solids.
2" Pumps handle ⅜" (9.5mm) soft solids.
3" and 4" Pumps handle 7/8" (22mm) soft solids.

Flap Valve

1" Pumps handle 1" (25mm) soft solids.
2" Pumps handle 2" (50mm) soft solids.
3" and 4" Pumps handle 3" (76mm) soft solids.

SandPIPER II® PUMPS

Non-Metallic

S05 Pumps handle .125 (3mm) soft solids.
S07 Pumps handle .150 (4mm) soft solids.
S07T Pumps handle .38 (9.5mm) soft solids.
S10 Pumps handle .150 (4mm) soft solids.
S1F Pumps handle .25 (6mm) soft solids.
S15 Pumps handle .47 (12mm) soft solids.
S20 Pumps handle .66 (17mm) soft solids.
S30 Pumps handle .71 (18mm) soft solids.

Metallic

S05 Pumps handle .125 (3mm) soft solids.
S1F Pumps handle .25 (6mm) soft solids.
S15 Pumps handle .25 (6mm) soft solids.
S20 Pumps handle .25 (6mm) soft solids.
S30 Pumps handle .38 (9.5mm) soft solids.

©Hytrel, Viton are registered tradenames of E. I. DuPont
©Santoprene is a registered tradename of Monsanto Corporation
©Rupplon is a registered tradename of Warren Rupp, Inc.
©Kynar is a registered tradename of Pennwalt Corporation
©SandPIPER and SandPIPER II are registered tradenames of Warren Rupp, Inc.
©Copyright 2001 Warren Rupp, Inc. All rights reserved.