

Discover

SANDPIPER®

Rugged Mining Duty Pumps
for Above and Below Ground
from Warren Rupp



**...your single dedicated
resource for cost-effective
mine pumping solutions**

**Over 40 Years
Above & Below
Ground Mine
Pumping Experience!**

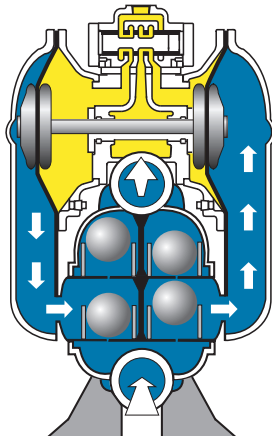


For Rugged Mining Duty

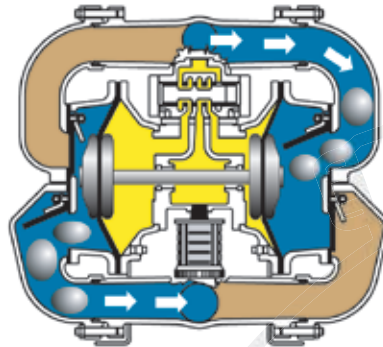
- ▶ Mine Face Dewatering
- ▶ Sump Transfer
- ▶ Drift Dewatering
- ▶ Dewater High/Low PH Levels Underground
- ▶ Fuel Transfer
- ▶ Muck/Slimes/Slurry
- ▶ Drillers Mud

Warren Rupp Signature Pump Configurations for Every Pumping Application

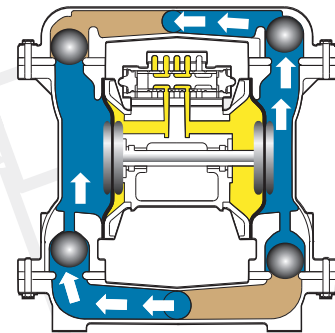
Heavy Duty Ball



Heavy Duty Flap



Standard Duty



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 Ft of Water

Hinged Flap Check Valves
 Solids Range
 + 1" (25mm) to 3" (76mm)
 Dry Primes up to 24 Ft of Water

FEATURES - BENEFITS

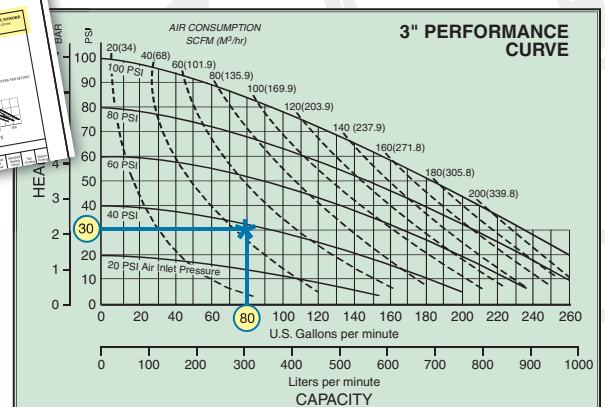
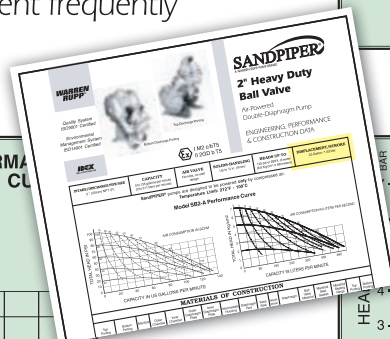
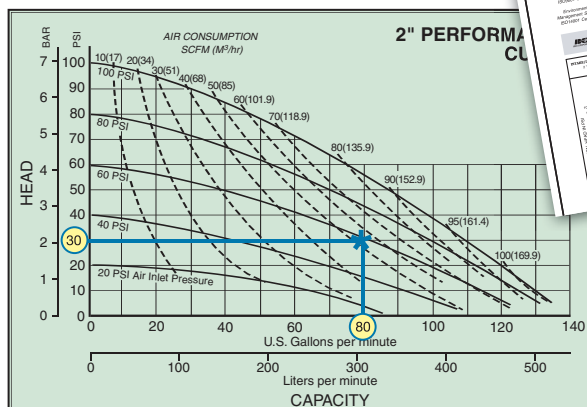
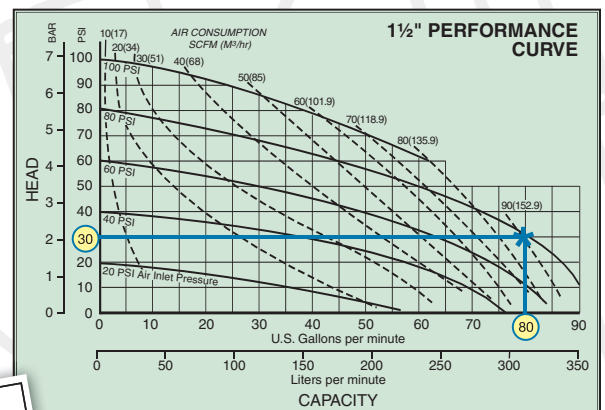
ESADS+Plus® - Performance Guaranteed - In-line Serviceable Air Valve System
 Bolted Construction - Safe - Reliable - Easy Maintenance
 Durable, Single-Purpose, Corrosion Resistant, Diaphragm Connecting Rod - Guaranteed
 Top Discharge Porting - Eliminates Entrained Air
 Metallic and Non-Metallic Materials of Construction
 Ball Check Valves • Light Weight - Portable
 90° - 180° Manifold Connection Rotation

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

SIZING to extend MTBF and... lower total cost of ownership

Pumping requirements (flow & head) for most applications can be met by multiple sizes of pumps. Talk to Warren Rupp's application engineers to assist you with a size selection which best fits your total cost of ownership budget. An appropriately sized-up pump will lower the consolidated initial investment, repair, labor and energy costs. This BEST PRACTICE ensures desirable returns on the initial investment frequently measurable in weeks.

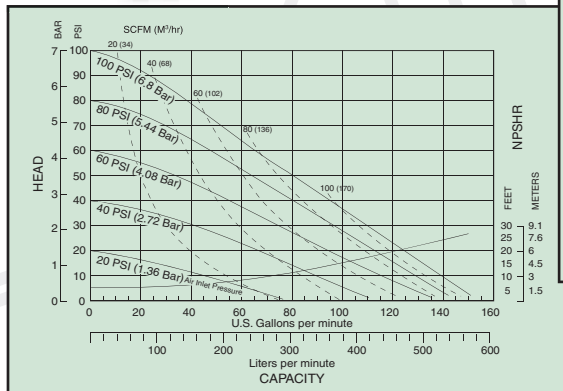
EXAMPLE: 80 GPM @ 30 PSI



Standard Duty Metallic Pumps Ideal for Mine Duty Applications



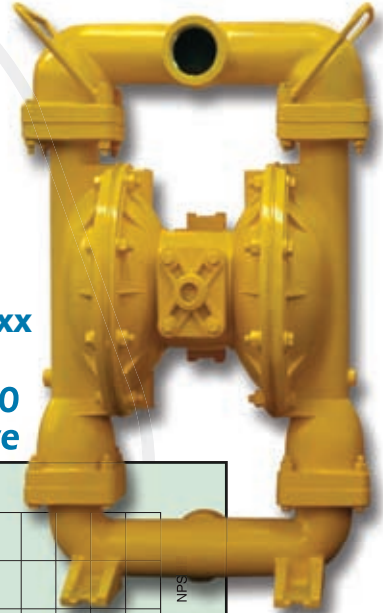
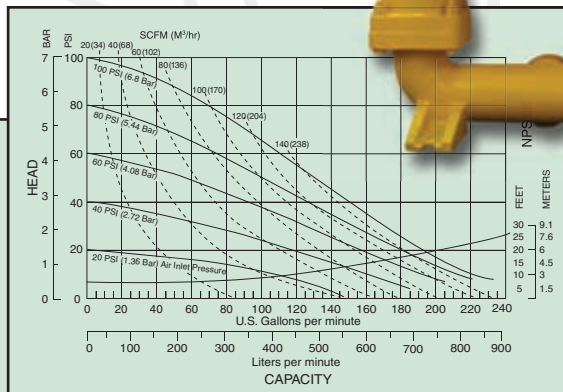
S20
Performance Curve



Standard Duty Metallic Pumps are ideally suited for on-demand, portable, moderately abrasive fluids, and suspended solids. Standard duty metallic pumps are constructed in Aluminum, Cast Iron, Stainless Steel and Alloy C with elastomer, TPE (thermal plastic elastomer) and PTFE diaphragm and check valve options.

S30XXXXXXXXHXXX

S30
Performance Curve



Pump Models	Height	Width	Depth	Bottom of Base to Center Line of:		Max Connection Style	Max Pipe Size	Max Displacement Per Stroke	Flow Per Minute	Solids Handling	Discharge Pressure
	inches (mm)	inches (mm)	inches (mm)	inches (mm)	inches (mm)		inch (mm)	gal (liter)	gal (liter)	inch (mm)	psi (bar)
S20	26 5/16 (669)	16 7/8 (428)	12 19/32 (320)	2 (51)	24 3/4 (629)	2" NPT	2 (50)	.42 (1.59)	150 (567)	.25 (6)	125 (8.6)
S30	32 9/32 (820)	19 21/32 (499)	15 3/4 (400)	2 9/32 (65)	30 3/16 (767)	3" NPT	3 (80)	.94 (3.56)	238 (901)	.38 (9.5)	125 (8.6)

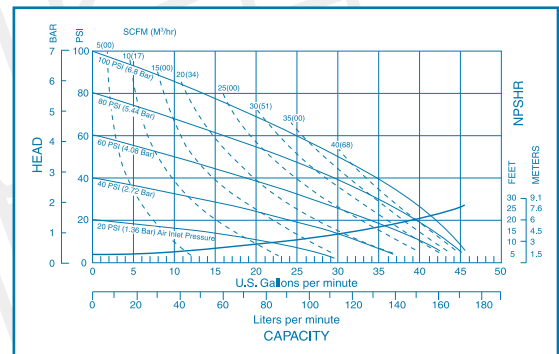
UL Listed for Flammable Liquid Pumping Requirements



SANDPIPER® UL Pumps are designed to meet UL79 (Underwriters Laboratory) standards for diaphragm pumps handling flammable liquids. The pump features all aluminum construction with approved Buna or Virgin PTFE elastomers and is fully groundable to prevent static discharge. In addition, SANDPIPER Pumps are ATEX100A Compliant together making SAFETY our utmost concern.

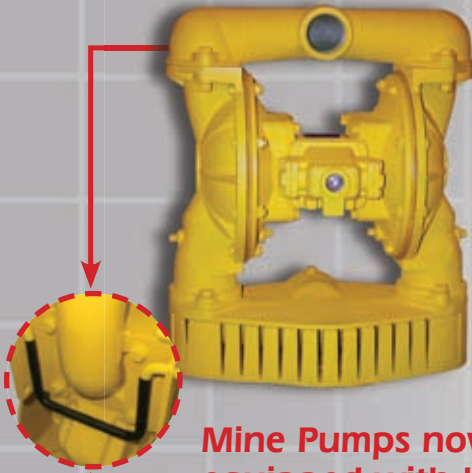


I M2 c/b T5
II 2GD b T5



Pump Models	Height	Width	Depth	Bottom of Base to Center Line of:		Max Connection Style	Max Pipe Size	Max Displacement Per Stroke	Flow Per Minute	Solids Handling	Discharge Pressure
	inches (mm)	inches (mm)	inches (mm)	inches (mm)	inches (mm)		inch (mm)	gal (liter)	gal (liter)	inch (mm)	psi (bar)
U1F	12 23/32 (323)	10 1/4 (260)	10 3/8 (264)	1 3/32 (28)	11 27/32 (301)	1" NPT	1 (25)	.11 (.42)	45 (170)	.25 (6)	125 (8.6)

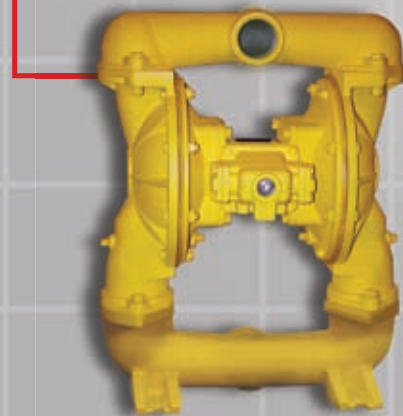
Common Air End Center Section Kit a 2" Mine Service Duty Ball Valve



Model MSB2-A
Common Air Center
Section Kit 475.246.XXX*
+ Fluid End Conversion
Kit 475.248.000
= Mine Service Duty Ball Valve
Pump with Strainer Base

COMMON
Air Center Section
from outer plate
to outer plate
Kit 475.246.XXX*

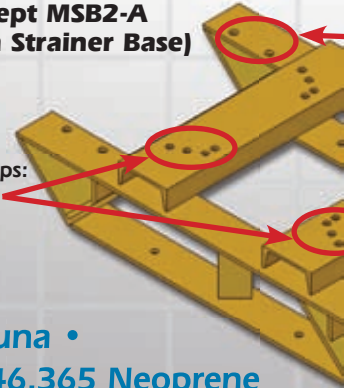
Mine Pumps now come standard
equipped with heavy duty handle



Model MSB2-B
Common Air Center
Section Kit 475.246.XXX*
+ Fluid End Conversion
Kit 475.249.000
= Mine Service Duty Ball Valve
Pump with Suction Manifold
Mounting Feet

COMMON
Skid Base 060.096.000
with mounting hole c
unique to specific min
(except MSB2-A
with Strainer Base)

Fit Pumps:
MSA2
MSB2
S20
S30



*AVAILABLE MATERIALS: Kit 475.246.354 Santoprene • Kit 475.246.360 Buna •
Kit 475.246.363 FKM (Fluorocarbon) • Kit 475.246.364 EPDM • *Kit 475.246.365 Neoprene

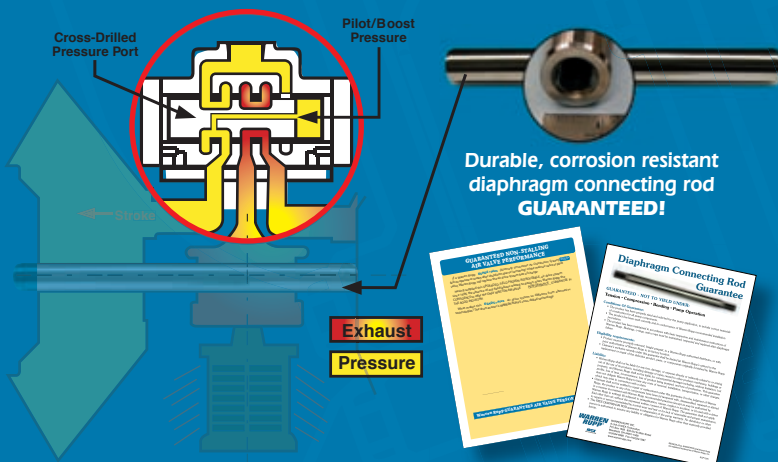
**Rely on the field-proven experience, above and below ground, of SANDPIPER®
...to deliver the rugged performance needed for all mine**

Exclusive SANDPIPER design features from Warren Rupp

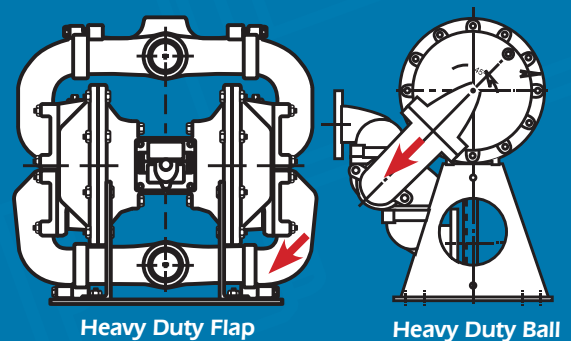
ESADS+Plus® (Externally Serviceable Air Distribution System)

ON-OFF-ON... Reliability - GUARANTEED!

Primary system components = main directional air valve
(with PATENTED cross-drilled pressure ports) & pilot valve



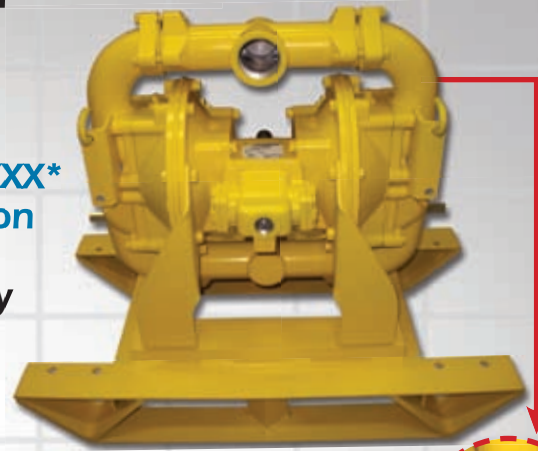
BOTTOM DISCHARGE PORTING
for difficult solids handling



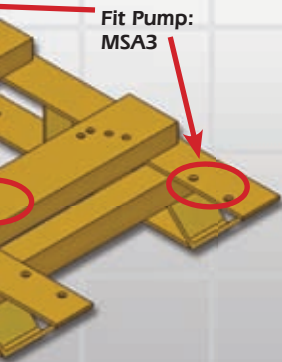
Easily Accommodates On-Site Change from to a 2" Mine Service Duty Flap Valve



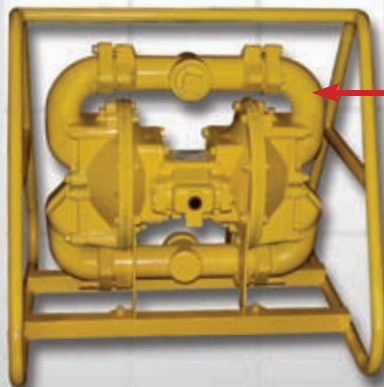
Model MSA2-A
Common Air Center
Section Kit 475.246.XXX*
+ Fluid End Conversion
Kit 475.247.000
= Mining Service Duty
Flap Valve Pump



0
configuration
ne pump



Fit Pump:
MSA3



Model MSA2-A with
Optional Roll Cage Base
Kit 060.045.000
= Model MSA2-B Pump

Mine Pumps now come standard
equipped with heavy duty handle



Model
MSA3-A
Optional
Suction Stub
& Strainer Kit
474.039.000



Pumping Solutions from the industry-leading pump manufacturer Warren Rupp
pumping applications at the lowest possible cost of ownership.

MATERIALS OF CONSTRUCTION

Type 5	Manifold Elbow	Outer Chamber	Inner Chamber	Outer Diaphragm Plate	Inner Diaphragm Plate	Intermediate Housing	Diaphragm Rod	Valve Seat	Hard-ware	Diaphragm	Flap Valve Material	Seat Gasket	Sealing Rings	Shipping Wt. (lbs)
MSA2-A														
DB-5-A	AL380DC	AL380DC	AL380DC	PS	PS	356T6AL	416SS	316SS	PS	B	B	N/A	B	86
DV-5-A	AL380DC	AL380DC	AL380DC	PS	PS	356T6AL	416SS	316SS	PS	V	V	N/A	V	86
DI-5-A	AL380DC	AL380DC	AL380DC	PS	PS	356T6AL	416SS	316SS	PS	I	I	N/A	I	86
DP-5-A	AL380DC	AL380DC	AL380DC	PS	PS	356T6AL	416SS	316SS/I	PS	S	S	N/A	I	86
DA-5-A	AL380DC	AL380DC	AL380DC	PS	PS	356T6AL	416SS	316SS	PS	N	R	N/A	N	95
DN-5-A	AL380DC	AL380DC	AL380DC	PS	PS	356T6AL	416SS	316SS	PS	N	N	N/A	N	95
MSB2-A														
TA-3-A	356T6AL	AL380DC	AL380DC	PS	PS	356T6AL	416SS	N	PS	H	N	N/A	356T6AL	86
TN-3-A	356T6AL	AL380DC	AL380DC	PS	PS	356T6AL	416SS	N	PS	N	N	N/A	356T6AL	86
TB-3-A	356T6AL	AL380DC	AL380DC	PS	PS	356T6AL	416SS	B	PS	B	B	N/A	356T6AL	86
TS-3-A	356T6AL	AL380DC	AL380DC	PS	PS	356T6AL	416SS	I	PS	S	I	N/A	356T6AL	86

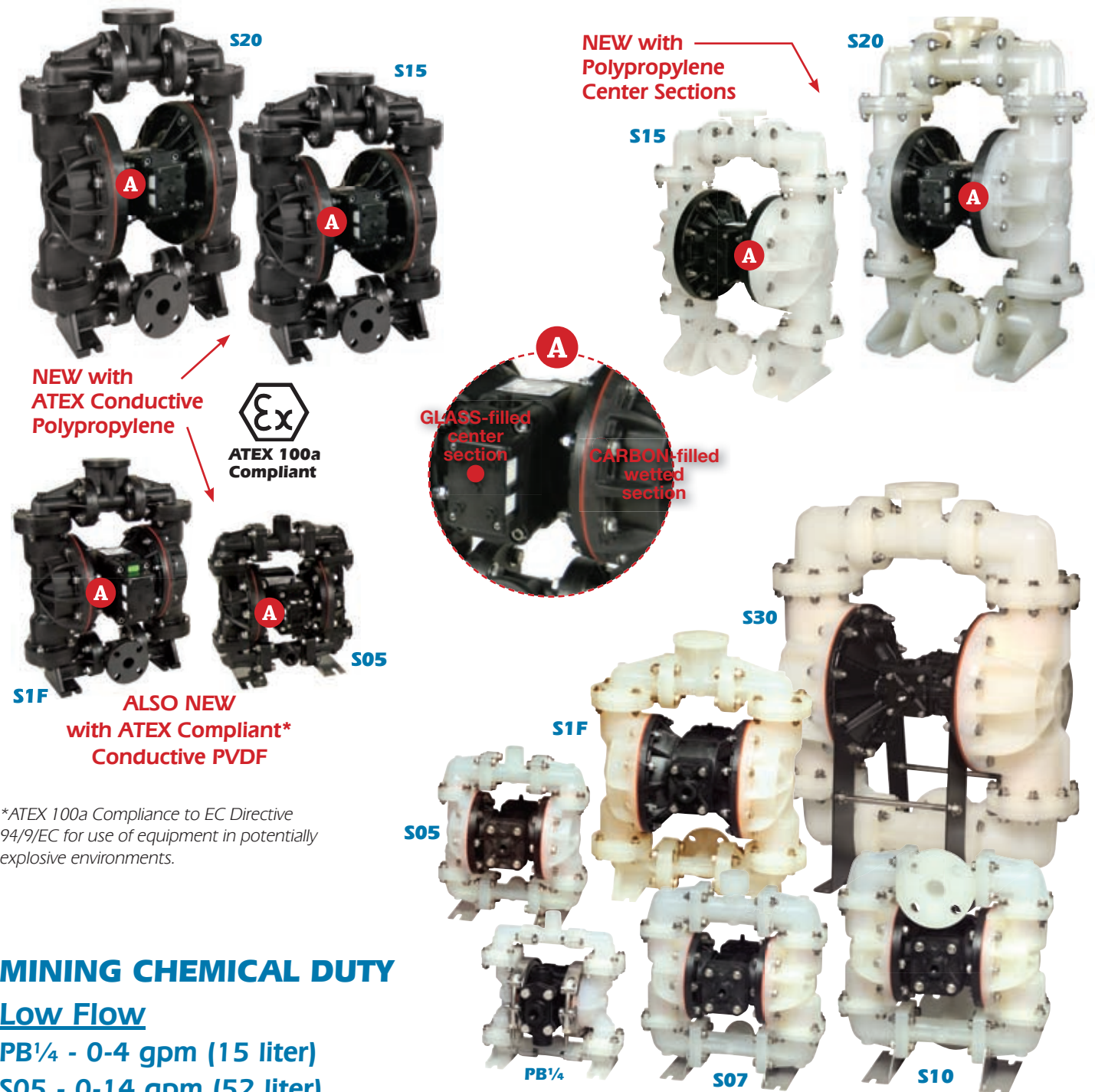
Meaning of
Abbreviations:

AL = Aluminum
B = Nitrile
N = Neoprene

I = EPDM
DC = Die Cast
R = Ruppion

S = Santoprene
PS = Plated Steel
SS = Stainless Steel
V = Viton

Non-Metallic Pumps Used For Handling Reagent Chemicals In The Milling Process



MINING CHEMICAL DUTY

Low Flow

PB^{1/4} - 0-4 gpm (15 liter)

S05 - 0-14 gpm (52 liter)

S07/S10 - 0-23 gpm (87 liter)

Higher Flow

S1F - 0-45 gpm (170 liter)

S15 - 0-90 gpm (340 liter)

S20 - 0-150 gpm (568 liter)

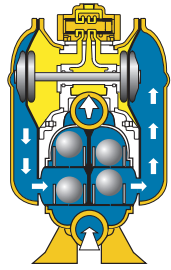
S30 - 0-238 gpm (9010 liter)

Standard Duty Non-Metallic Pumps are ideally suited for highly corrosive fluids, intermittent/on-demand, portable, low abrasive fluids, and suspended solids for mining chemical duty.

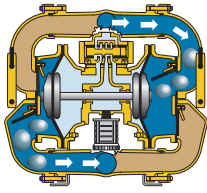
Standard duty non-metallic pumps are constructed in Polypropylene, PVDF, Conductive Acetal and Conductive Polypropylene with TPE (thermal plastic elastomers) and PTFE options in diaphragms and check valves.

ATEX Certified Mine Pump Options

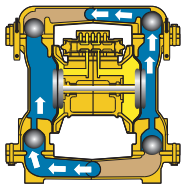
MATERIALS



Mine Duty Ball Valve



Mine Duty Flap Valve



Mine Duty Metallic & Non-Metallic

			Non-Metallic						Metallic			
SIZE	MODELS	MAX FLOW	CP	PP	K	NY	CA	CV	AL	CI ²	SS ²	HC ²
MINE DUTY BALL VALVE												
1"	SB1	42 gpm (159 l/min)							Ex		Ex	Ex
1½"	HDB1½	90 gpm (340 l/min)							Ex	Ex	Ex	Ex
2"	HDB2	135 gpm (511 l/min)							Ex	Ex	Ex	Ex
3"	HDB3	260 gpm (984 l/min)								Ex	Ex	
4"	HDB4	260 gpm (984 l/min)								Ex		
MINE DUTY FLAP VALVE												
1"	SA1	42 gpm (159 l/min)							Ex		Ex	
2"	HDF2	140 gpm (530 l/min)							Ex	Ex	Ex	
3"	HDF3	260 gpm (984 l/min)							Ex	Ex		
4"	HDF4	260 gpm (984 l/min)							Ex	Ex		
MINE STANDARD DUTY METALLIC												
¼"	X02	4.4 gpm (16.6 l/min)									Ex	
½"	S05	15 gpm (57 l/min)							Ex		Ex	Ex
1"	S1F	45 gpm (170 l/min)							Ex	Ex	Ex	Ex
1½"	S15	106 gpm (401 l/min)							Ex	Ex	Ex	Ex
2"	S20	150 gpm (568 l/min)							Ex	Ex	Ex	Ex
3"	S30	238 gpm (901 l/min)							Ex	Ex	Ex	Ex
STANDARD DUTY NON-METALLIC												
¼"	PB¼	4 gpm (15 l/min)					Ex					
½"	S05	14 gpm (53 l/min)	Ex				Ex	Ex				
¾"	S07	23 gpm (87 l/min)										
1"	S10	23 gpm (87 l/min)										
1"	S1F	45 gpm (170 l/min)	Ex					Ex				
1½"	S15	100 gpm (378 l/min)	Ex									
2"	S20	160 gpm (606 l/min)	Ex									
3"	S30	238 gpm (901 l/min)										
UL LISTED												
1"	U1F	45 gpm (170 l/min)							UL			

ATEX Compliant



I M2 c T5²
II 2GD T5

CP = Conductive Polypropylene
PP = Polypropylene

K = PVDF
NY = Nylon
CA = Conductive Acetal
CV = Conductive PVDF

AL = Aluminum
CI = Cast Iron
SS = Stainless Steel
HC = Alloy C

What is ATEX?

ATEX (Atmosphères Explosibles) is an acronym for the standard set by the European Parliament & Council of the European Union, recognized throughout the European Community as the safety standard for equipment used in potentially hazardous environments.

What are the assurances of full compliance?

Products marked with the EX hexagon symbol followed by the Group and Category of safety protection indicates that the products are compliant with Directive 94/9/EC.



II 2GD T5*

*Warren Rupp Non-Metallic Pumps fully comply with ATEX requirements!

Over 40 Years Mine Pumping Experience



Ask The Experts

Application Engineering:
apptech.warrenrupp@idexcorp.com

After Sales Support:
service.warrenrupp@idexcorp.com



Ask our
Global
Distributor
Experts about
Value Added
Accessories



Roll cage example
provided by Kelair Pumps
Australia, PTY, LTD.

Kelair Pumps

WARREN RUPP®

IDEX
FLUID & METERING

WARREN RUPP, INC.
800 North Main Street
Mansfield, OH 44902 USA
Phone 419.524.8388
Fax 419.522.7867
www.warrenrupp.com

Distributed by:

®SANDPIPER and ESADS+Plus are registered trademarks
of Warren Rupp, Inc. ©Copyright 2008. All rights reserved.
SPMINE-REV0808