SANDPIPER® Signature Design Platform

ESADS®+Plus® (Externally Serviceable Air Distribution System)
ON-OFF-ON... Reliability - GUARANTEED!

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

GUARANTEED Not to Yield Under:
- Tension
- Compression
- Bending
- Pump Operation
- Pressure
- Exhaust
- Stroke
- Stroke
- Pilot/Boost Pressure

Cross-Drilled Pressure Port

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FEATURES:
The cross-drilled pressure ports in the main directional air valve spool provide a pneumatic bias of the spool at either end of travel.

BENEFITS:
- Eliminates spool from drifting due to vibration and/or unbalanced pressure or system conditions.
- Completely IN-LINE serviceable
- Process Reliability
- Consistent Restarts
- Lube Free

Non-Stalling Air Valve
Performance Guarantee

If a Warren Rupp ESADS® (Externally Serviceable Air Distribution System) EVER* fails to operate or restart after shutdown due to “centering” of the main air valve or pilot valve, Warren Rupp will replace the air drive system free of charge. Having supplied this UPGRADED, FIELD PROVEN, RETROFITABLE, air drive system since 1996, the absence of any field failures related to design, gives Warren Rupp the CONFIDENCE to offer the ONLY WRITTEN AIR VALVE PERFORMANCE GUARANTEE IN THE AODD INDUSTRY!

~ See complete guarantee at www.sandpiperpump.com/About/guaranteesandwarranties.html ~

EXCLUSIVE Bottom Discharge Porting
for Line-Size Solids Handling

Advantages over competition:
- NO Broken Diaphragm Plates
- NO Premature Diaphragm Failure
- NO Bent Rods
- NO Solids Settle to Bottom Chamber
- NO Restrictions of Suction Check Ball Valves

Ceramic Duty Pumps

Over 45 Years
Ceramic Industry Experience!
**FEATURES - BENEFITS**

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

Pump requirements (flow & head) for most applications can be met by multiple sizes of pumps. Talk to SANDPIPER’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 ensurses desirable returns on the initial cost of ownership budget. An appropriately sized-up pump will lower the consoliated initial investment, repair, labor and energy costs.**

**EXAMPLE:** 80 gpm @ 30 PSI

The consolidation of ownership returns is also delivered to the facility in a form, SANDPIPER pumps are used to unload tank trucks and railway cars.

**APPROPRIATELY SIZED UP**

Heavy Duty Ball - HDB   Heavy Duty Flap - HDF   Standard Duty - SD   Special Duty High Pressure - SDHP

- **Tank & Rail Cars**  
  The consolidation of ownership returns in a form to delivered to the facility in a form, SANDPIPER pumps are used to unload tank trucks and railway cars.
  - Choose a pump with high flow rates so that the time to unload the tank is minimized.

- **Mixing Tanks**  
  Fluids are mixed in large mixing tanks in preparation for final casting. Sometimes mixed fluids are pumped to follow before casting using SANDPIPER pumps.
  - Use a bottom ported Heavy Duty Ball Valve Pump to minimize settling while reducing suction lift.

- **Mixing Tanks (Bottom Ground)**  
  Fluids are mixed in large mixing tanks in preparation for final casting. Sometimes mixed fluids are pumped to follow before casting using SANDPIPER pumps.
  - Use a bottom ported Heavy Duty Ball Valve Pump to minimize settling while reducing suction lift.

- **Cast Shop (Gravity Molds)**  
  Fluids are poured from underground holding tanks and distributed to various casting stations to fill the molds. Use a pump with high flow rates so that the time to pour the mold is minimized. Use a bottom ported pump when possible for a smooth suction lift.
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- **Cast Shop (Casting Machine)**  
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- **Cast Shop (High Pressure Casting Machine)**  
  High pressure casting machines use large, 500 psi, to mix or separate the wax. SANDPIPER manufactures a high pressure pump for this application.
  - The Heavy Duty Ball Valve Pump design will not wear the standard high pressure ball valve pump designs.

- **Cast Shop (Nominal Water)**  
  Deionized water is used to clean molds intermittently. Deionized water is pure and will not leave trace contamination. A SANDPIPER non-metallic pump is preferred.
  - Use non-metallic materials to assure no contamination is introduced during the cleaning process.

- **Glass Spray**  
  Glass is a volcanic type of silicate liquid. Use a pump for glass spraying or metallic sprays, to give the glass color and texture. SANDPIPER pumps are used for this application.
  - Choose a reap material that will handle the high velocities and abrasive characteristics of glass spraying applications.

- **Water Treatment**  
  Basic fluid handling applications from a drum. SANDPIPER pumps are favored for settling, cleaning and filter press applications. SANDPIPER pumps are used for sedimentation, filtration and clarification.
  - Industrial scale wastewater treatment are excellent applications for SANDPIPER Pumps and accessories.

- **Slurry Pumping**  
  SANDPIPER pumps are used for high solids slurry applications. SANDPIPER pumps are used for slurry applications with more solids.
  - Use non-metallic materials to assure no contamination is introduced during the cleaning process.

SANDPIPER Signature Pump Configurations for Abrasive Ceramic Industry Applications

- **Standard Duty**  
  Pumps and accessories.

- **Special Duty High Pressure - SDHP**  
  SANDPIPER pumps are used for high solids slurry applications. SANDPIPER pumps are used for slurry applications with more solids.

- **Heavy Duty Ball - HDB**  
  USED FOR BASIC FLUID HANDLING APPLICATIONS. SANDPIPER pumps are used for sedimentation, filtration and clarification.

- **Heavy Duty Flap - HDF**  
  Used for basic fluid handling applications from a drum.

- **Standard Duty - SD**  
  Used for basic fluid handling applications from a drum.

- **Special Duty High Pressure - SDHP**  
  Used for basic fluid handling applications from a drum.

- **Process Map for Ceramic Manufacturing**  
  Ideal Pump Types for Your Ceramic Process

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Rely on the field-proven experience of SANDPIPER ®

...to deliver the superior quality and performance needed for ceramic manufacturing