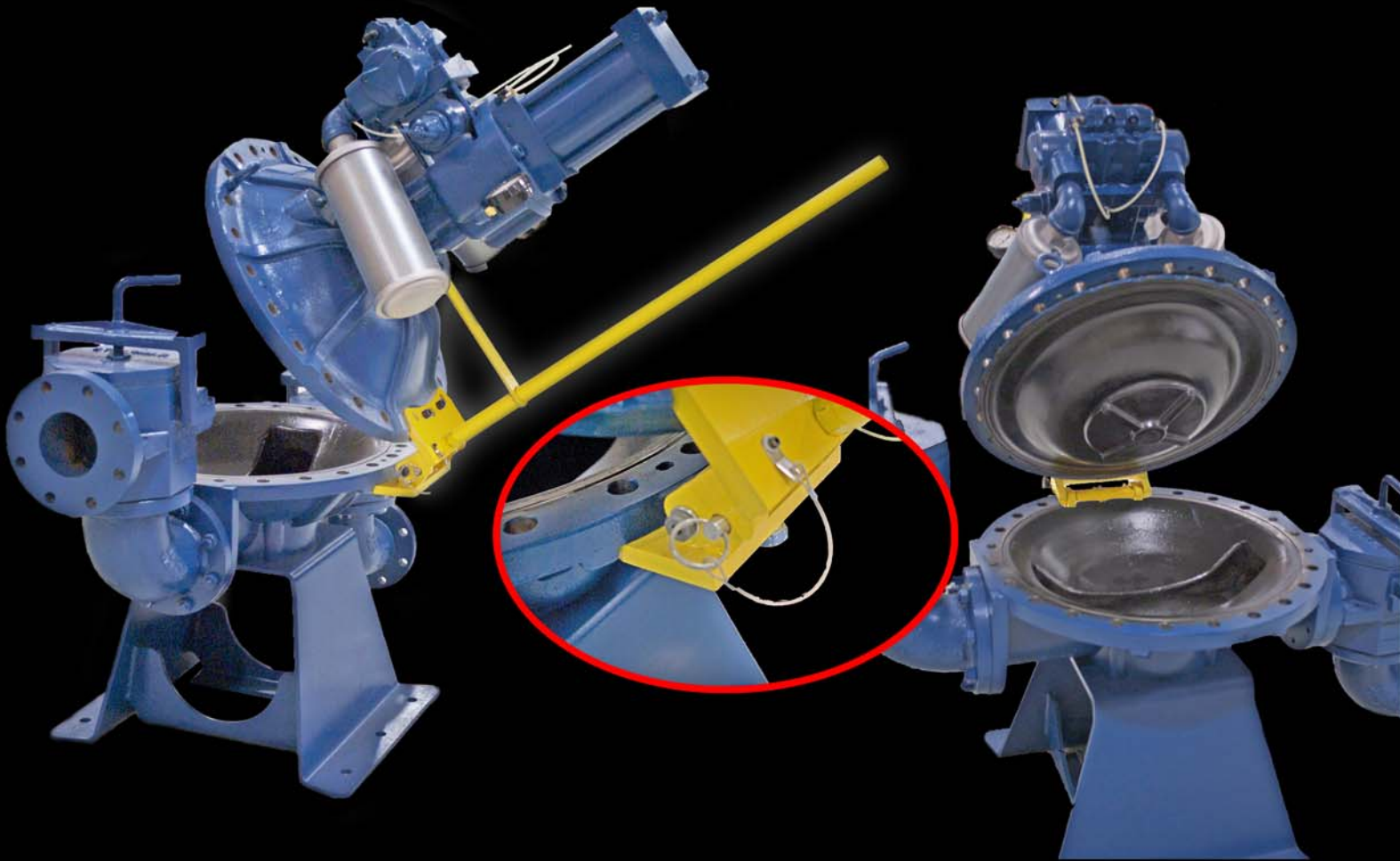


RamParts® Pumps

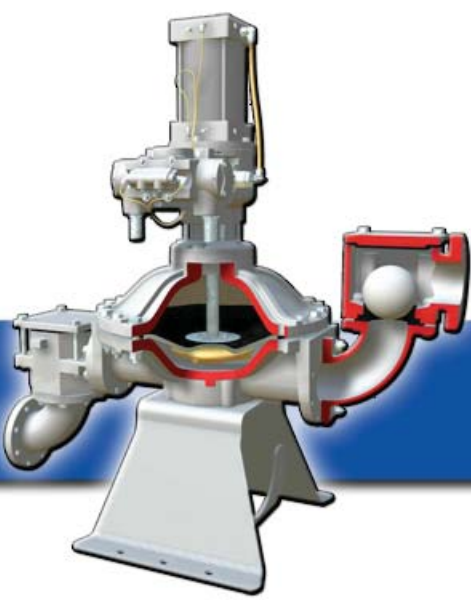
Sidekick™ *Safety Inspection Hinge*



RamParts® Sidekick™ was developed to make pump inspection quick and easy. SideKick™ enables the pump top works to safely hinge from the bottom bowl assembly providing unobstructed full view and access to pump interior. SideKick™ will assist in fast diaphragm replacement to get you back up and running in minutes not hours.

Learn more about SideKick at

www.rampartspumps.com
an ANDRONACO INDUSTRIES company



RamParts® Pumps

4855 Broadmoor Ave. - Kentwood, MI. 49512
Ph. 616.656-2250 Fax 616.656-2255

Jan. 20, 2012

Pump Linings

We are very pleased to offer the worlds first fully ETFE lined diaphragm pump! ETFE has outstanding chemical resistance up to 300°F.

We are equally pleased to offer the worlds first borosilicate glass lined diaphragm pump! Glass offers similar chemical resistance as ETFE but with better abrasion resistance.

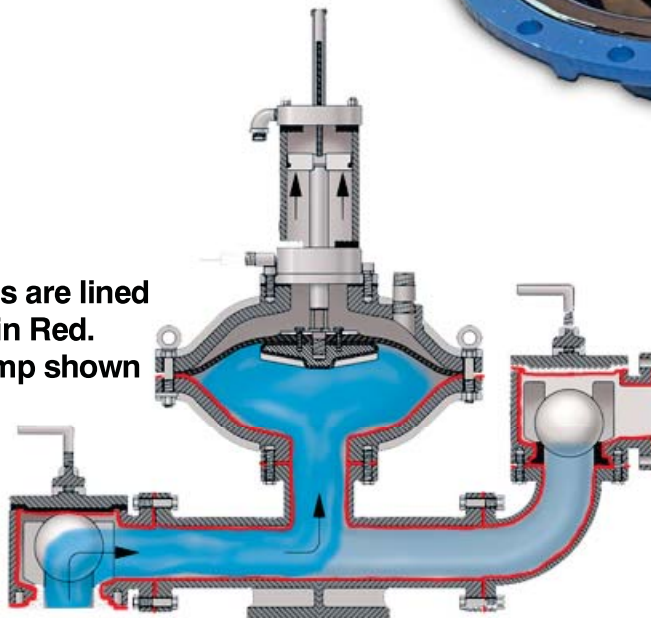
These linings will allow RamParts "iPC" & "P" series pumps to enter new applications where hard to handle corrosive fluids are used. Please visit our website for chemical compatibility chart.



ETFE Lining

Borosilicate Glass lining

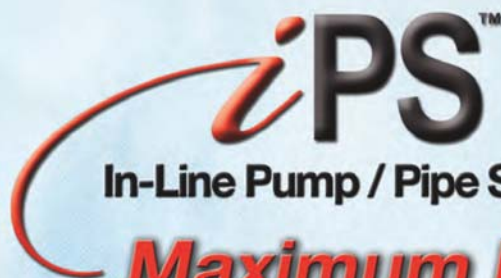
All wetted parts are lined
as shown in Red.
"P" Series pump shown



Visit our website

www.rampartspumps.com

an ANDRONACO INDUSTRIES company



In-Line Pump / Pipe Strainer

Maximum Flow

RamParts iPS™ high performance in-line Pump / Piping basket strainers deliver maximum flow and chemical resistance while protecting your pumps and downstream equipment from the catastrophic damage of in-line debris. The strainer housing is ductile iron and is available unlined or lined with ETFE for outstanding chemical resistance or lined for great abrasion resistance. The removable basket is available in 316 s.s. or solid PTFE. RamParts iPS™ Strainers are rated to 150 psi, available in sizes 2" to 8" and can operate continuously at temperatures from (-)20°F to (+)400°F.



***In-line Insurance
for catching debris***

***Pump
&
Down Stream Equipment Protection***

***Because you just never know
when a foreign object
will enter your piping system***



2" Flange Drain

RamParts®
Pumps

HEAVY DUTY HARD CORE PUMPING

PTM
S E R I E S
Diaphragm Pumps



RamParts[®]
Pumps

an ANDRONACO INDUSTRIES company



RamParts pumps is a strategic business unit of ANDRONACO INDUSTRIES located in Kentwood, Michigan. Pictured above is our state of the art 200,000 sq. foot manufacturing facility.

ANDRONACO INDUSTRIES is a group of global manufacturing companies specializing in innovative engineered products, speciality systems, and value added services for the pharmaceutical, chemical, steel, waste water, mining and energy markets. We support autonomous operating companies focused on meeting the demands of their customers requirements in ultrapure and industrial fluid management. Our companies pride themselves on exhibiting the highest ethical, moral and legal stands in the conduct of its business.



RamParts® Pumps

Hard Core Pumping

A super heavy duty, sealless Diaphragm pump designed for continuous operation of the most demanding fluids. Whether it be sludge, abrasives, corrosives, or any combination of the three, RamParts pumps are built to take the punishment.

- Size range from 1-1/2" to 6"
- Flows to 380 GPM
- Pressures to 125 psig
- Temperatures to 300 °F
- Materials of construction
 - Unlined ductile iron
 - Elastomer lined
 - ETFE Lined

RamParts pumps will transfer anything that can flow in a pipeline such as:

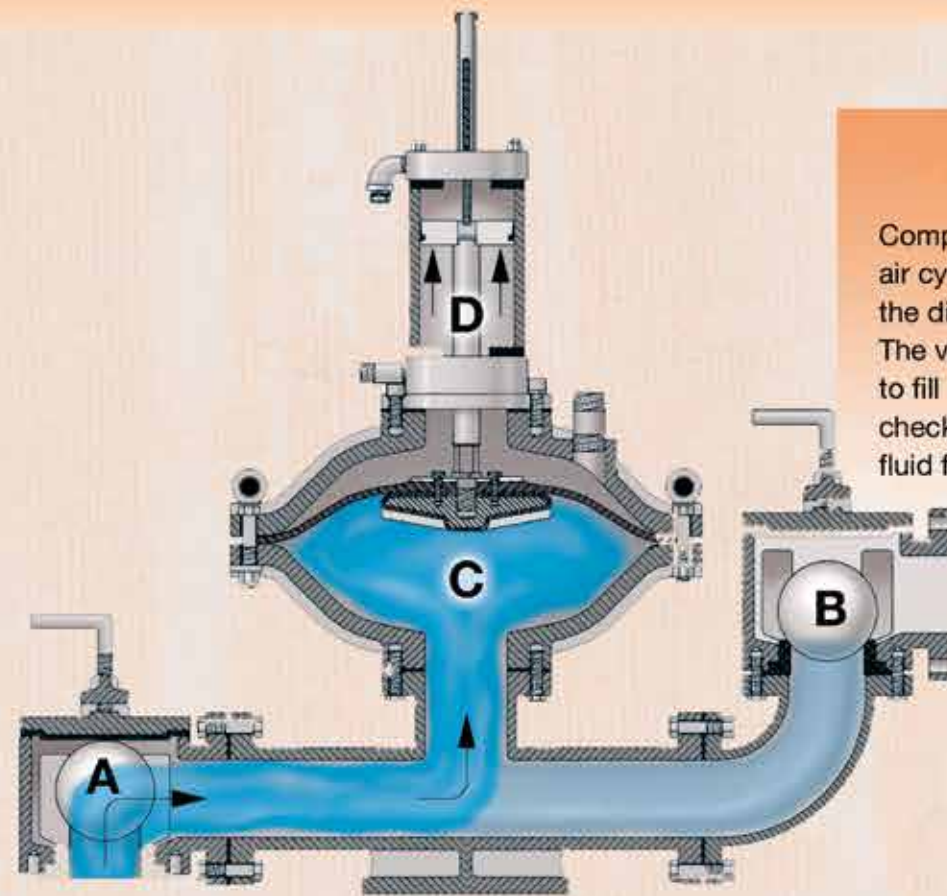
- Viscous slurries / sludge
- Abrasive slurries
- Corrosive slurries
- Shear sensitive slurries
- Delicate crystal slurries
- Slurries with 75% solids



Features

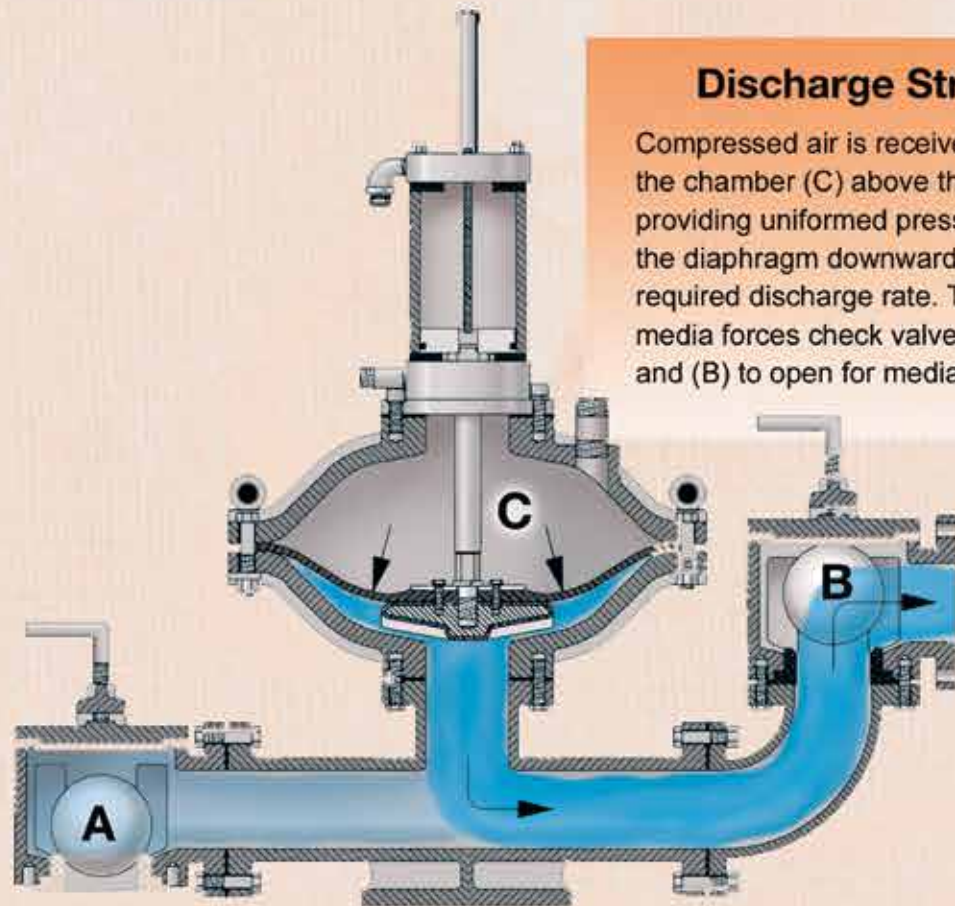
- Both suction and discharge pressures are adjustable
- Sealless design
- Solids handling up to 5" Diameter
- Run dry indefinitely
- Self-priming to 20 feet
- Deadhead without damage
- Minimizes particle degradation
- In-line reparability
- Flow-through design

How It Works *Only 3 wetted moving parts*



Suction / Fill Stroke

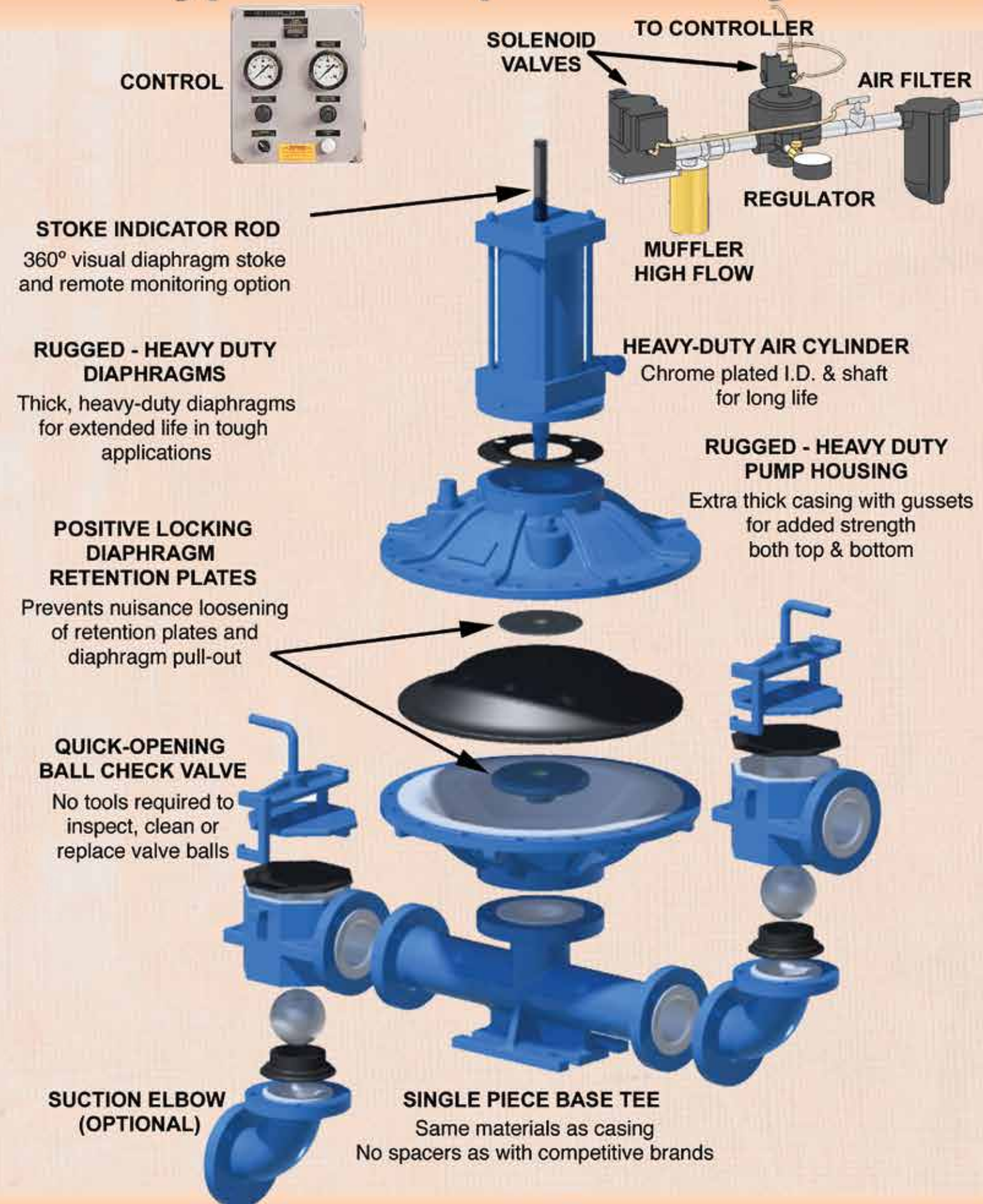
Compressed air energizes the bottom of air cylinder Piston (D) mechanically lifting the diaphragm by the air cylinder shaft. The vacuum created opens check valve (A) to fill chamber (C) and simultaneously closes check valve (B) preventing down stream fluid from returning to pump.



Discharge Stroke

Compressed air is received into the chamber (C) above the diaphragm providing uniform pressure to push the diaphragm downward at the required discharge rate. The displaced media forces check valve (A) to close and (B) to open for media discharge.

Typical Pump Assembly



Lined and Unlined

Wetted Surfaces Pump Casing, Base Tee, Check Valves



Unlined
Super thick ductile iron wetted surfaces are unlined. Good for mild services such as waste water and fluids with low abrasion characteristics. Stainless available for 2" size.



Lined - Elastomer
Super thick ductile iron castings lined with either Nordel, Neoprene Nitrile or Viton. Better for abrasion resistance and mild corrosive services.



Lined - ETFE Fluoropolymer
Super thick ductile iron casting lined with ETFE fluoropolymer (aka - Tefzel®). Best for chemical resistance and acid slurries.

Material	Temperature Limits	Suitable Applications
ETFE / PTFE	(-) 40 °F TO (+) 300 °F	Outstanding chemical resistance, best for corrosive slurries
DURA - S	(-) 20 °F TO (+) 220 °F	Excellent abrasion resistance, FDA Material, for general purpose
DURA - XL	(-) 40 °F TO (+) 225 °F	Excellent chemical & abrasion resistance
NEOPRENE	(-) 10 °F TO (+) 200 °F	Moderate chemical resistance, good for fats, grease and solvents
NITRILE	(-) 10 °F TO (+) 190 °F	General purpose for oils, water and hydraulic fluids
NORDEL	(-) 40 °F TO (+) 280 °F	Excellent low temperature for dilute acids
VITON	(-) 40 °F TO (+) 300 °F	Excellent chemical resistance, not known for its mechanical flex strength

Diaphragms

The Heart Of the P-Series Pump

At RamParts, we recognize that increase diaphragm life will reduce downtime and reduce maintenance cost. We fine-tune diaphragm design through destructive testing, and critical analysis to provide the longest running pumping action in demanding services.

RamParts diaphragms are available in Nordel, Nitrile, Neoprene Viton, Dura XL (Santoprene) Dura-S (Hytrel) and PTFE.



Check Valve Choices



Quick Opening Ball Check
A quick open yoke style 90 degree configuration ball check valve is designed for easy clean out and inspection without disconnecting any piping. Available lined and unlined in same materials as pump.



(4) Bolt High Pressure Ball Check
(4) bolt top entry style 90 degree check valve is designed for higher pressure applications where better check valve lid sealing is desired. Can be cleaned or inspected without disconnecting any piping. Available lined or unlined in same material as pump.



In-line Ball Check
A vertically mounted, highly efficient ball check valve that provides positive seating quickly. Designed for those applications where large solids are not present and maintenance is infrequent. Available lined only in same materials as pump.



Swing Check
Designed for larger solids without clogging. Removable lid for inspection and cleaning without disconnecting any piping. Available in lined with elastomers and unlined ductile iron.

State of the Art Controllers

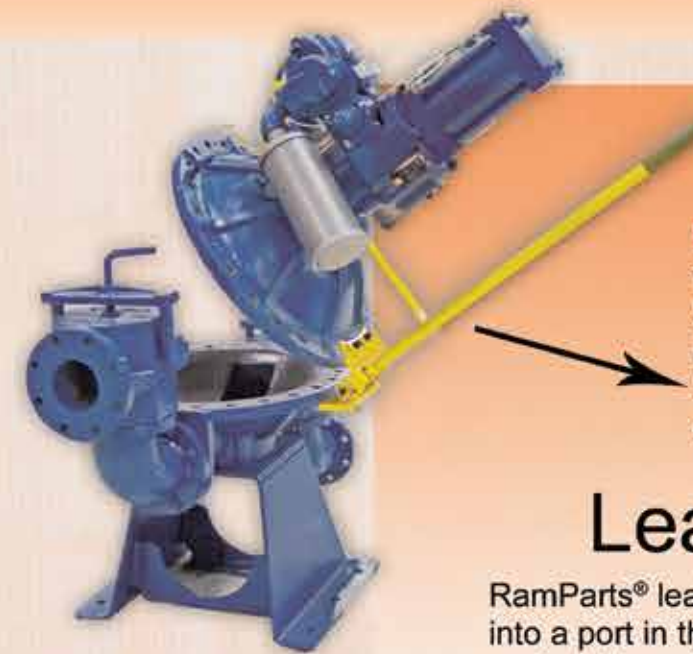


The Ramparts pump controllers energize the P-series pump's solenoid valves and set the appropriate air pressures applied to the top of the diaphragm (discharge pressure) and to the bottom of the air cylinder (suction pressure). The controller manages the stroke rate, discharge time as set by the user. Ramparts offers several controller options to suit every application, from our base DRC model to our advanced PLC driven models.



FEATURES	DRC	The 500 Series SMART Controller	The 600 Series SMART Controller
Nema 4X Enclosure	X	X	X
Stroke Counter	X	DIGITAL	DIGITAL
Liquid Filled Suction and Discharge Panel Mounted Pressure Gauges	X	X	DIGITAL
Suction and Discharge Pressure Regulators	X	X	DIGITAL
Power On-Off with Power Indicator Light	X	X	X
Operate Multiple Pumps	1 TO 2	1 TO 2	1 TO 4
HMI Touch Display		X	X
Ultrasonic Probe for Diaphragm Position Measurement		X	X
Warnings Displayed when the System Requires a Change in Pumping Conditions		WARNING & MANUAL ADJUSTMENTS TO PRESSURE	WARNING FOLLOWED WITH AUTOMATIC PRESSURE ADJUSTMENTS
Pressure adjustments based on System Requirements for Changing Viscosity and Density	MANUAL	MANUAL	AUTOMATIC PRESSURE ADJUSTMENTS
Ethernet Port for Control System Integration			X
Remote HMI Access for Remote Control			X
Displays Functions Locally or Transmits to Centralized Control Room			X
Remote Start/Stop	OPTIONAL	STANDARD	STANDARD
ADDITIONAL CONTROLLER OPTIONS			
Diaphragm Failure Alarm/Shutdown	OPTIONAL	OPTIONAL	OPTIONAL
Stainless Steel Enclosures (304 or 316)		OPTIONAL	OPTIONAL
Filter Press Application Special Features	STEP-UP AND RAMP-UP MODELS AVAILABLE	BUILT IN FILTER PRESS MODE	AUTOMATIC PRESSURE ADJUSTMENTS

Optional Add-Ons



SideKick™

RamParts® SideKick™ was developed to make pump inspection quick and easy. It enables the pump top works to safely hinge from the bottom bowl assembly providing unobstructed full view and access to pump interior. SideKick™ will assist in fast diaphragm replacement to get you back up and running in minutes not hours.

Leak Detector

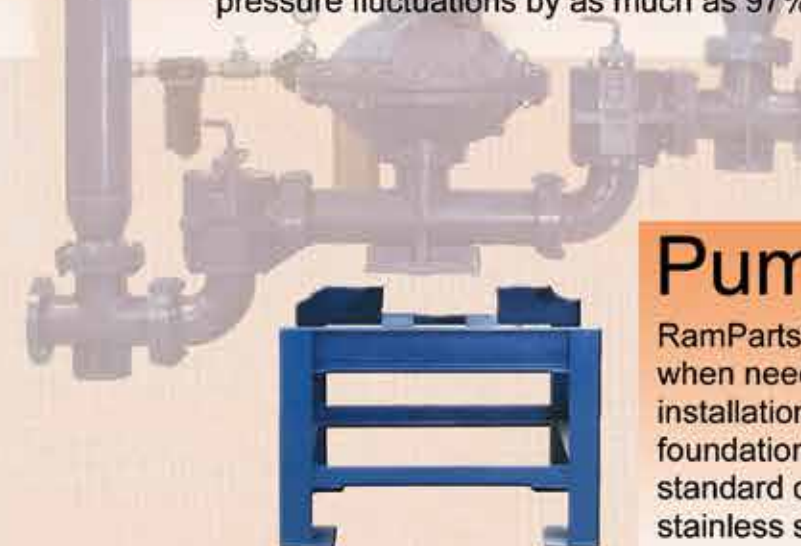
RamParts® leak detector is designed to simple screw into a port in the upper chamber of the pump and works in conjunction with the pump controller to shut the pump down electrically in case of diaphragm rupture.



Pulsation Dampeners

RamParts® air chamber type Pulsation dampener is a economical means of reducing and absorbing pressure variations on the discharge of pump by as much as 50%.

RamParts® bladder type Pulsation Stabilizers incorporate a nitrogen charged bladder within itself. The Stabilizer minimizes unwanted pressure fluctuations by as much as 97%.



Pump Stands

RamParts® also offers custom pump stands when needed. The stands make pump installation quicker and cost less than cement foundation systems. The Pump stands are standard carbon steel construction or optional stainless steel.



Composite
Ball & Butterfly Valves



Ceramic Lined Valves



Diaphragm Valves
Lined & Unlined



Polyethylene Ball Valves



PTFE Hoses & Fittings



ETFE & PFA Fluoropolymer Lining Services & Lined Pump Repair



Ball Check &
Swing Check Valves



PTFE Expansion Joints



Strainers - Lined & Unlined



Sight Gauges
Lined & Unlined



RamParts® Pumps

an ANDRONACO INDUSTRIES company

4855 Broadmoor Ave.

Kentwood, MI. 49512

Ph. 616.656-2250 - Fax. 616.656-2255

www.RamPartsPumps.com

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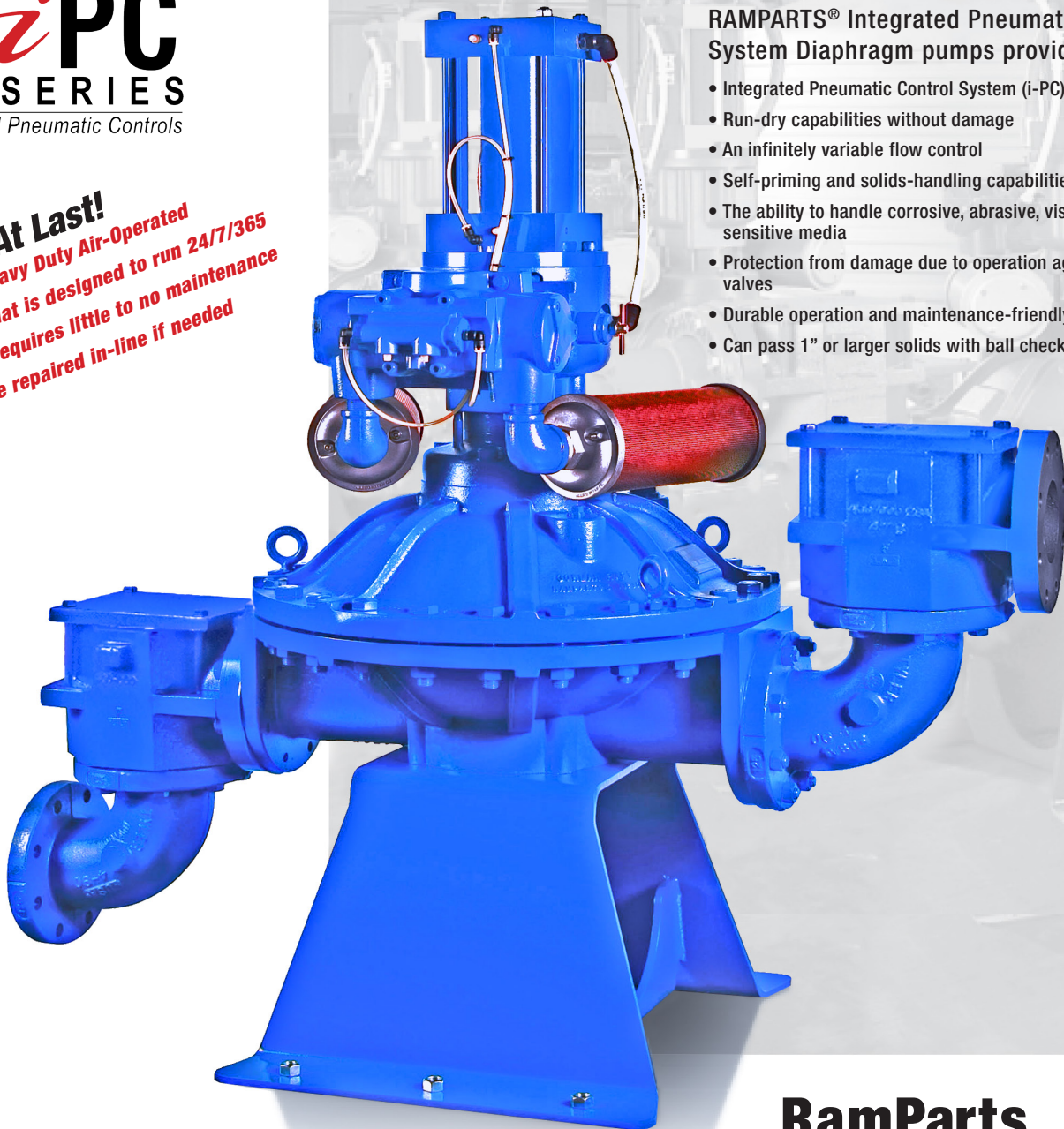
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RamParts®
Pumps

iPC™
SERIES
Integrated Pneumatic Controls

At Last!

**A Rugged, Heavy Duty Air-Operated
Diaphragm Pump that is designed to run 24/7/365
days a year, that requires little to no maintenance
and can be repaired in-line if needed**



HEAVY DUTY Air Driven Diaphragm Pump

RAMPARTS® Integrated Pneumatic Control (i-PC)
System Diaphragm pumps provide

- Integrated Pneumatic Control System (i-PC)
- Run-dry capabilities without damage
- An infinitely variable flow control
- Self-priming and solids-handling capabilities
- The ability to handle corrosive, abrasive, viscous and shear sensitive media
- Protection from damage due to operation against closed valves
- Durable operation and maintenance-friendly components
- Can pass 1" or larger solids with ball check valves

RamParts®

Better Service | Better Quality | Better Prices

RAMPARTS® "PLUG & PLAY" i-PC™ SERIES

The air control system of an air driven diaphragm pump is an essential factor in pump performance. The Integrated Pneumatic Control System is constructed with durable, time-proven RamParts components for use in real-world applications. With its modular construction, it is both operator and maintenance friendly, allowing in-place service and/or field retrofit of either RamParts or competitors' pumps.

The RamParts i-PC system is designed for trouble-free operation at intermittent or continuous duties, as well as variations in temperature, air pressure or pump speed. The i-PC System design ensures a full displacement stroke every time, with no guesswork or special operator skills required. It also offers independent control of the suction and discharge strokes, allowing the pump to be 'tuned' to the application. These features make RamParts i-PC Air Driven Diaphragm pumps easier to apply and install, and more efficient to operate and maintain than conventional diaphragm pumps.



1. Diaphragm-Assist Air Cylinder

The horizontally mounted diaphragm is connected to the air cylinder to “pull” and “push” the pump through its reciprocating pumping action. This design prevents premature diaphragm failure by limiting the point-loading fatigue experienced by other designs.

2. Air Inlet Port

A large diameter free flowing port is provided with this model for the most efficient use of the compressed air supply. No other power source is required to run the pump.

3. RamParts ‘No-Stall’ Shifter Design

The proprietary RamParts ‘no-stall’ shifting mechanism is an essential component of the RAMPARTS ‘i-PC’ design, and allows for extended service life and consistent operation of the unit.

4. Dual Air Exhaust

Dual exhaust means less resistance exhausting the air from the pump, producing less differential pressure.

5. Suction Port (Liquid Inlet)

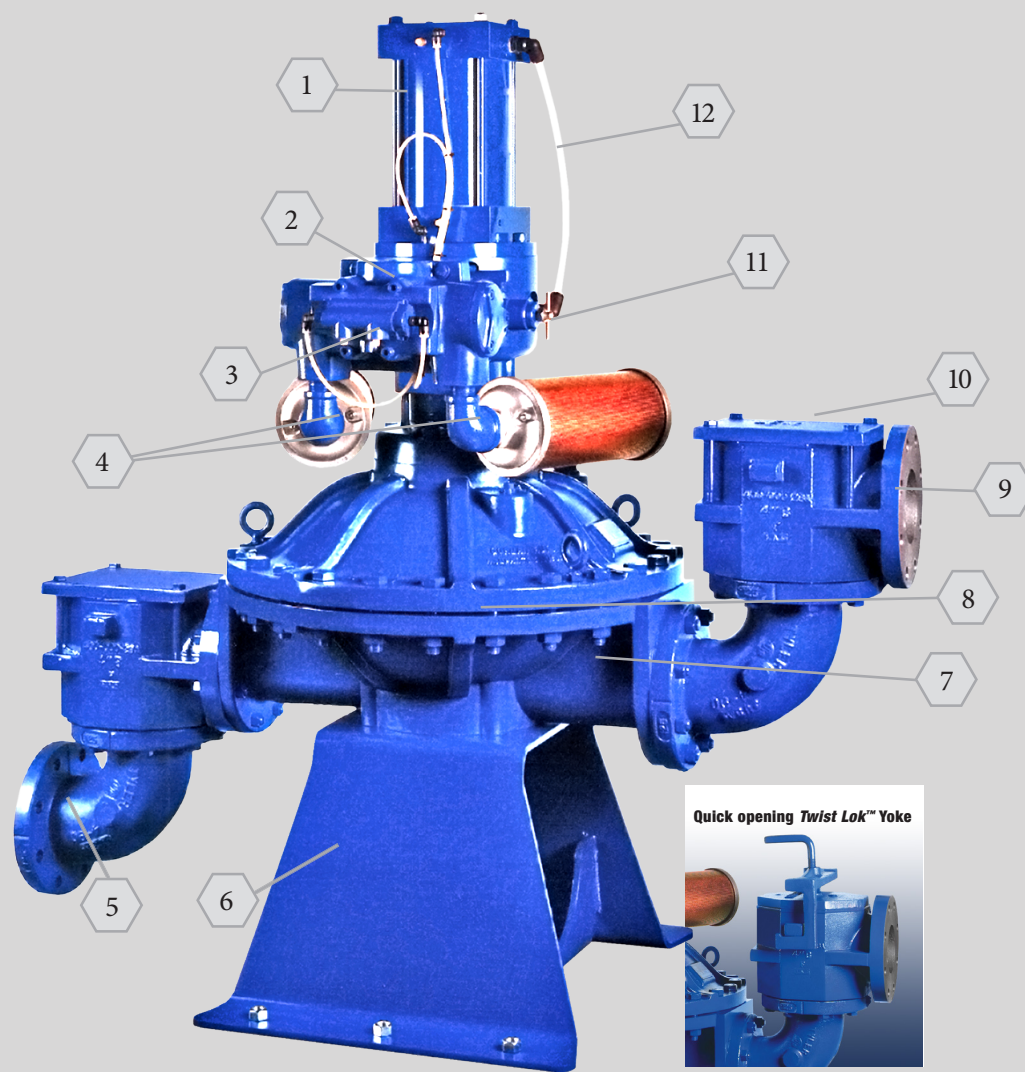
ANSI 125-lb flanged elbow for ease of installation of a Ramparts i-PC pump into most piping systems.

6. Free-standing Base

The Ramparts i-PC pump is supplied with a Free-Standing base which provides for solid anchoring and stable operation.

7. One-Piece Lower Pump Body

The Ramparts i-PC design includes a one-piece pump body that provides an unobstructed flow path of liquid through the pump.



8. Bolted Design

All gasketed or sealed joints on a Ramparts i-PC pump include a bolted configuration that provides a self-alignment and leak-proof assembly.

9. Discharge Port (Liquid Outlet)

ANSI 125-lb flanged elbow for ease of installation of a Ramparts i-PC pump into most piping systems.

10. Check Valve Assemblies

The Ramparts i-PC is designed with 90° ball check valves. Each check valve includes an access cover for external inspection or service of the valve using simple hand tools. Quick opening assemblies are also available.

11. Integrated Speed Control

Ramparts i-PC design features an integrated speed control which provides for manual speed control of both the suction and discharge strokes. This manual control is achieved by increasing or decreasing the compressed air pressure delivered to the pump. This control allows the user to only use the compressed air required for efficient pump operation.

12. Air Equalizer Tube

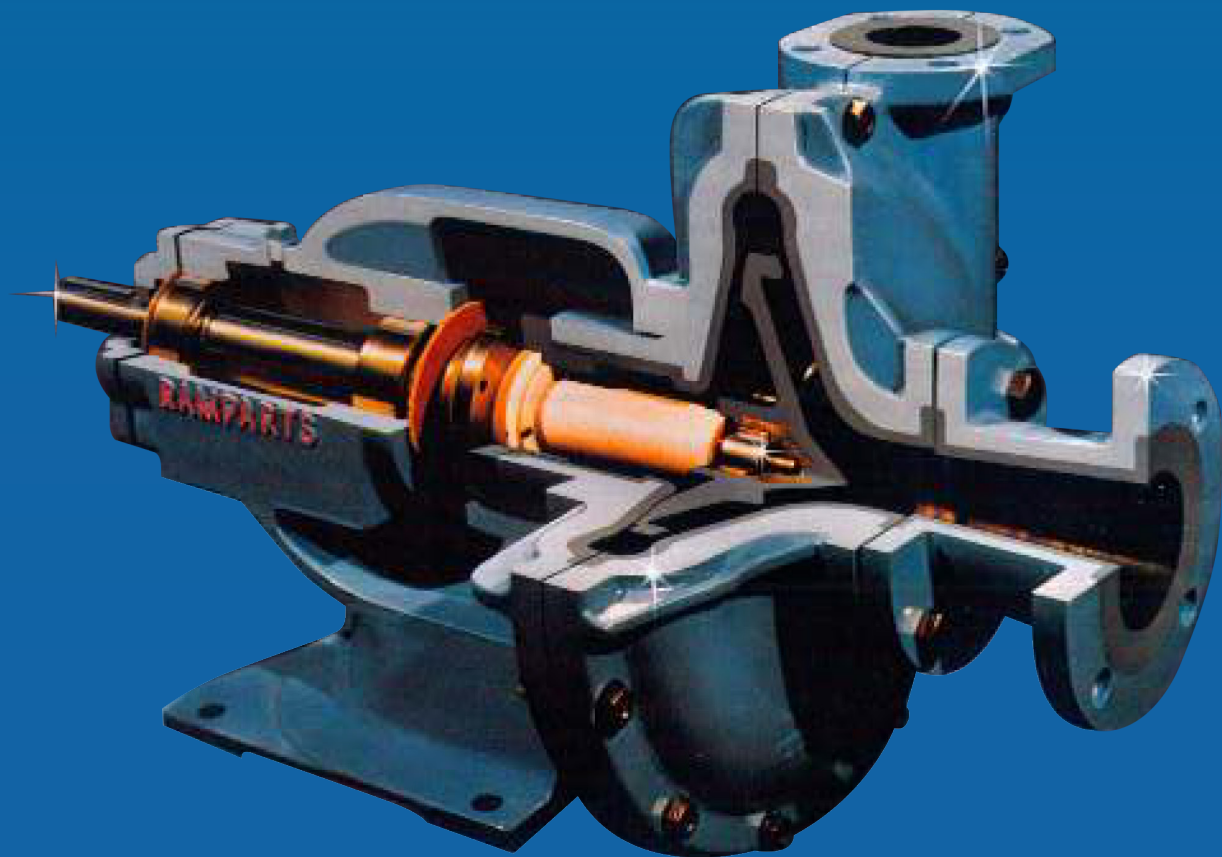
The Air Equalizer Tube feature provides the most energy possible to the diaphragm while utilizing the least amount of compressed air. This feature also prevents environmental contaminants from entering the air cylinder.

RamParts® Pumps

4855 Broadmoor Ave. - Kentwood, MI. 49512 - Ph. 616.656-2250 Fax 616.656-2255

Chemical Pumps

**For Highly Corrosive and
Mildly Abrasive Service**



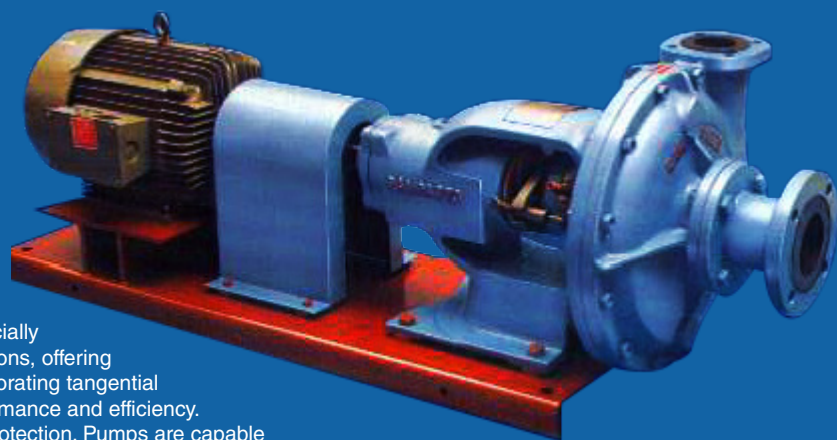
RamParts®
Pumps

an ANDRONACO INDUSTRIES company

PRO-FLO ELASTOMER-LINED END-SUCTION CENTRIFUGAL PUMPS

FOR ABRASIVE / CORROSIVE APPLICATIONS

Centrifugal Ramparts Pumps Pro-Flo Elastomer-lined (vertically split) End Suction Centrifugal pumps are specially designed for Chemical process and mild slurry applications, offering outstanding resistance to a wide range of design incorporating tangential discharge which guarantees continuous pumping performance and efficiency. Pump, base, and guard are epoxy coated for external protection. Pumps are capable of handling up to 1" spherical solids, depending on pump size. Pumps are available in four sizes 2 x 1/2-81/2, 3 x 2 10 1/4, 4 x3 - 111/2, and 6 x 4 -12.



RamParts®
Pumps
an ANDRONACO INDUSTRIES company

PERMANENTLY BONDED LININGS ELIMINATE FLUTTER, CREEP, AND COLD FLOW.

Ramparts linings are permanently bonded to strong, rigid casing and covers eliminating lining flutter, creep, and cold flow found in other pumps. Lining and impellers are available in Natural Rubber (Hard), Neoprene, Nordel (EPDM), Buna N, Butyl, and Viton. Impellers are also molded in Kynar and Diall.

TYPICAL FLUIDS HANDLED

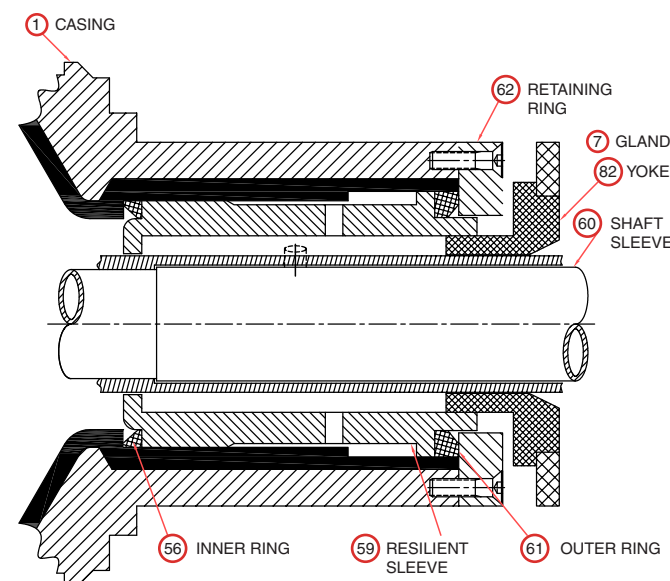
Sulfuric Acid • Sodium Hypochlorite • Hydrochloric Acid • Ammonium Hydroxide • Nitric Acid • Potassium Hydroxide • Phosphoric Acid • Calcium Hypochlorite • Chlorine Water • Ferric Trichloride • Zinc Chloride.

SHAFT SLEEVE

Materials offered: Kynar, Ceramic, 316 Stainless, Alloy 20, Hastelloy "B" or "C", and Titanium. The ceramic sleeve eliminates liquid to metal exposure when using standard packing, single external or double internal mechanical seals.

LINED STUFFING BOX

Internal protection continues into the stuffing area with the same lining material as the pump housing. All pump sizes can accommodate standard inside, outside, single or double mechanical seals without special adaptation. Flush lines are provided when required, to allow product or clean water flushing.



RamParts®
Pumps
an ANDRONACO INDUSTRIES company

PRO-FLO End Suction Centrifugal Model - 2 x 1.5

PUMP SPECIFICATIONS

Size: 2" x 1.5" (20mm x 38mm) Flanged. Will pass up to 5/16" (7.9 mm) diameter spherical solid.

Pump Castings: Gray Iron No. 30 Vertically Split; Lined.

Linings: Neoprene; Nordel; Fluorocarbon (Viton); Nitrile (Buna-N). Consult Factory for additional lining materials.

Impeller: Available In The Same Materials As Shown Above For Pump Casing Linings.

Shaft: Stress proof Steel

Shaft Sleeve: Kynar, Ceramic, Alloy 20, 316 SST, Hastelloy B or C, Titanium.

Bearings: Open Double Row with oil bath lubrication.

Gaskets/O-rings: Neoprene; Nordel; Fluorocarbon (Viton); Nitrile (Buna-N).

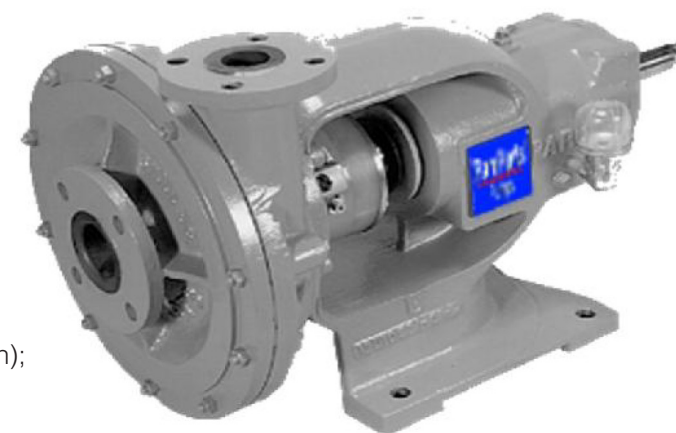
Standard Equipment: Constant Level Oiler, Standard RamParts blue paint other paints available.

Sealing Options:

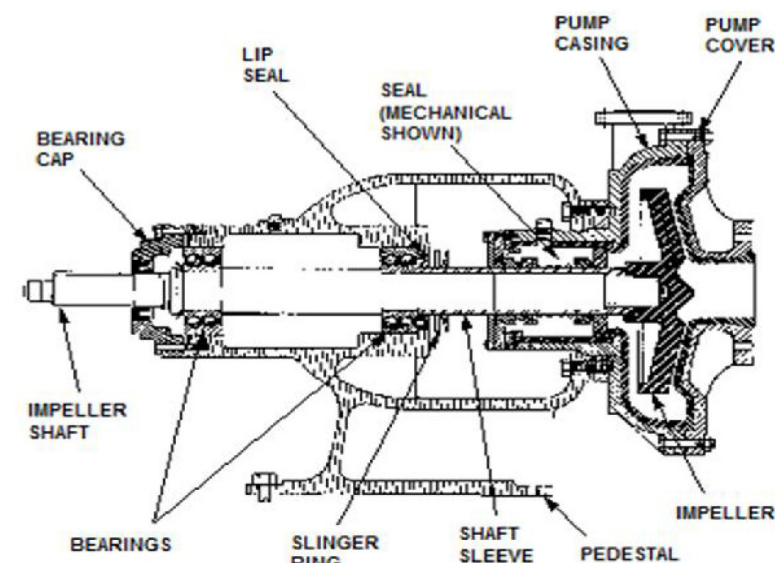
Packing: PTFE or Grapholil with PTFE Lantern Ring.

Seals: Most major manufactures including Flowserve and John Crane.

Maximum Temperature: 285°F (140° C) Dependent on lining.



Spec - 2 x 1.5 11/7/13

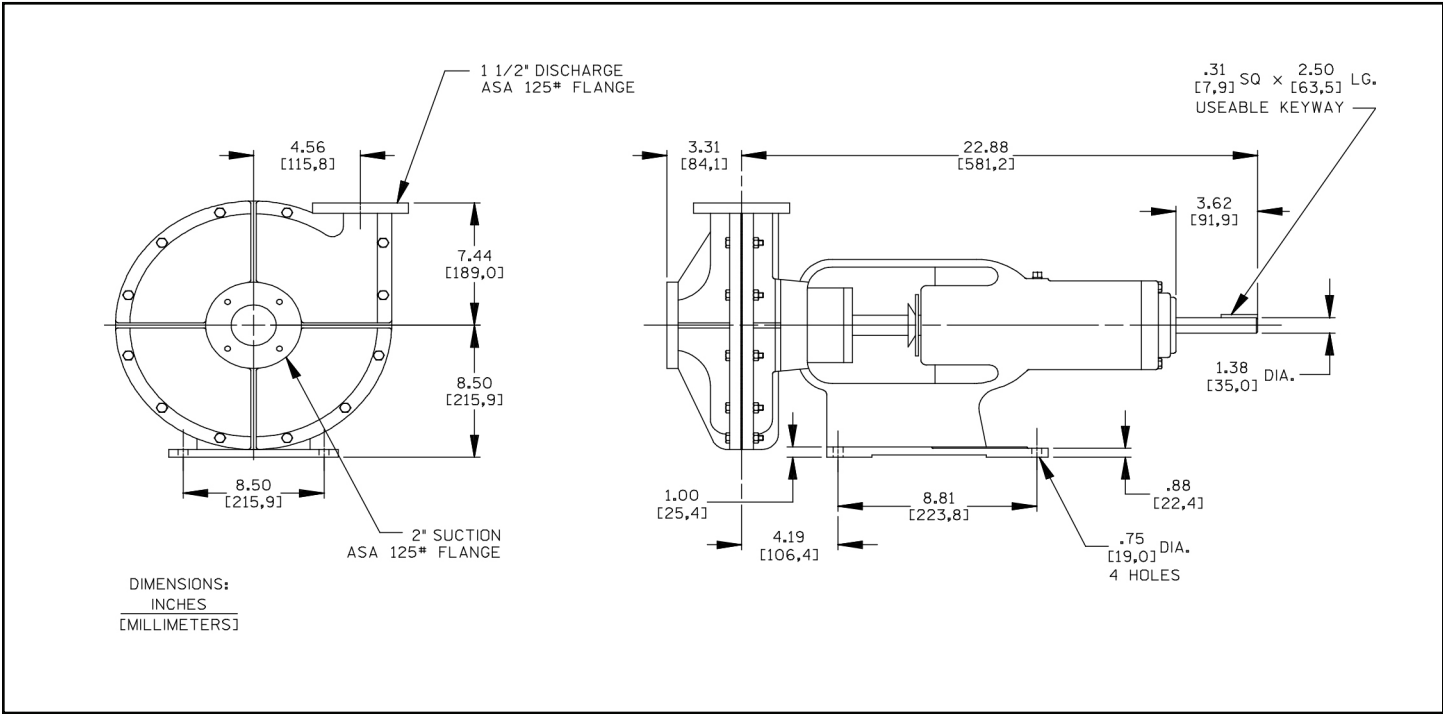


Specification Data

2 x 1.5

APPROXIMATE
DIMENSIONS
& WEIGHTS

NET WEIGHT: 175 LBS. (80 KG.)
SHIPPING WEIGHT: 205 LBS. (90 KG.)
EXPORT CRATE: 3.0 CU. FT. (0.09 CU.M.)



PUMP SPECIFICATIONS

Size: 3" x 2" (76mm x 50mm) Flanged. Will pass up to 1/2" (12.7 mm) diameter spherical solid.

Pump Castings: Gray Iron No. 30 Vertically Split; Lined.

Linings: Neoprene; Nordel; Fluorocarbon (Viton); Nitrile (Buna-N). Consult Factory for additional lining materials.

Impeller: Available In The Same Materials As Shown Above For Pump Casing Linings.

Shaft: Stress proof Steel

Shaft Sleeve: Kynar, Ceramic, Alloy 20, 316 SST, Hastelloy B or C, Titanium.

Bearings: Open Double Row with oil bath lubrication.

Gaskets/O-rings: Neoprene; Nordel; Fluorocarbon (Viton); Nitrile (Buna-N).

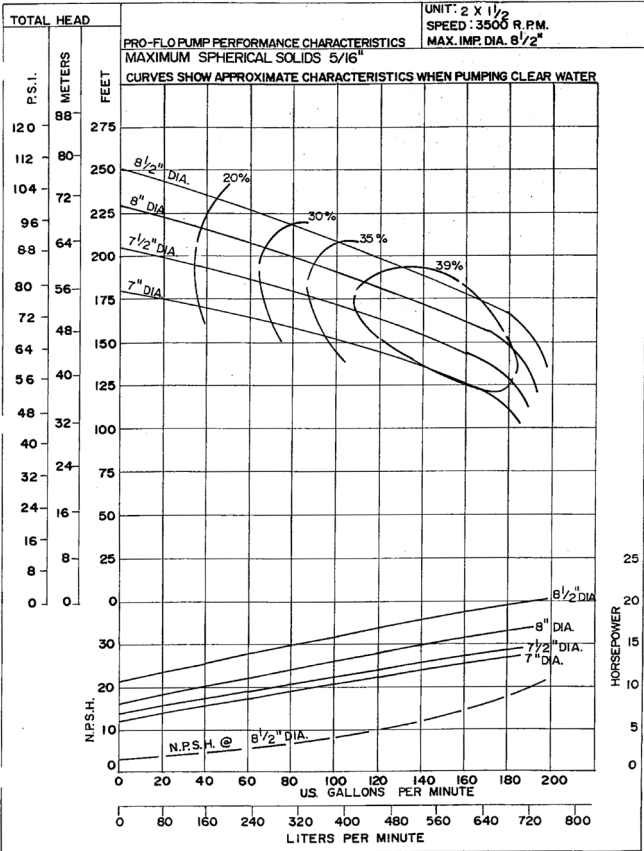
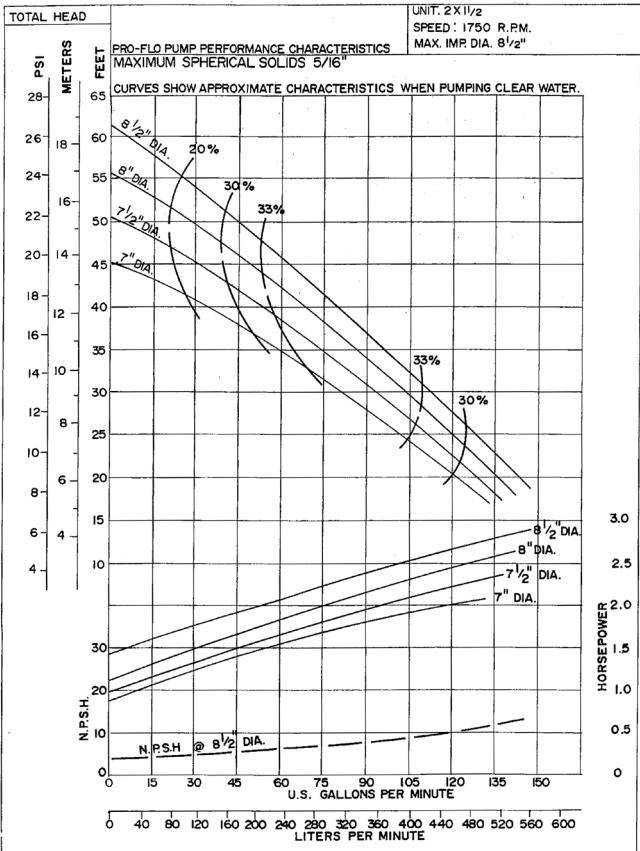
Standard Equipment: Constant Level Oiler, Standard RamParts blue paint other paints available.

Sealing Options:

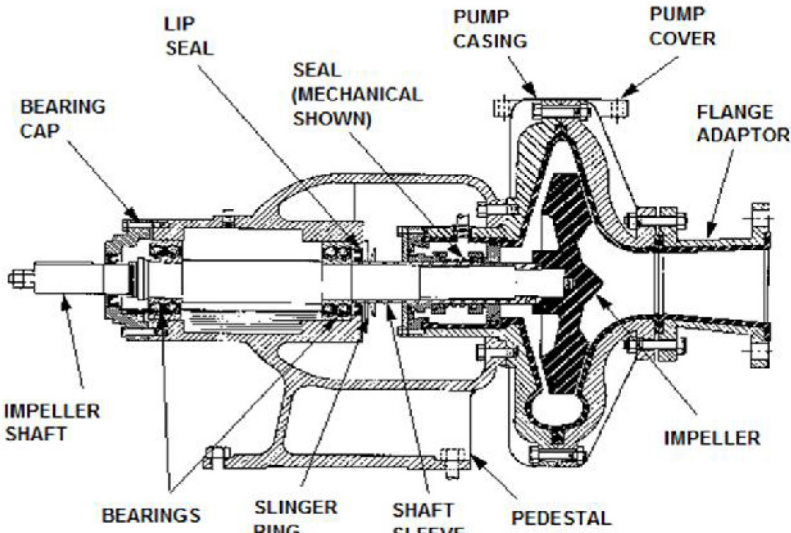
Packing: PTFE or Grapholil with PTFE Lantern Ring.

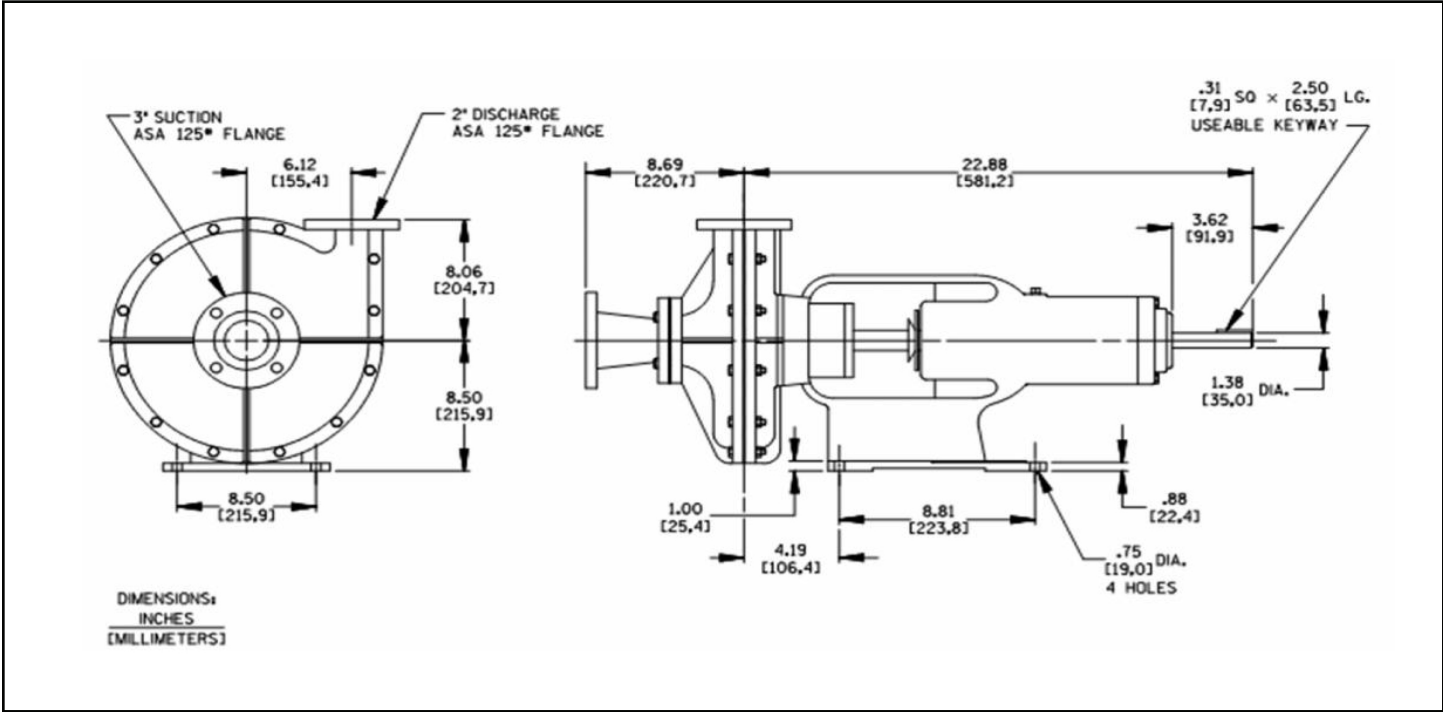
Seals: Most major manufactures including Flowserve and John Crane.

Maximum Temperature: 285°F (140° C) Dependent on lining.



SPEC - 3 x 2
11/7/13





PUMP SPECIFICATIONS

Size: 4" x 3" (102mm x 76mm) Flanged. Will pass up to 3/4" (19.0 mm) diameter spherical solid.

Pump Castings: Gray Iron No. 30 Vertically Split; Lined.

Linings: Neoprene; Nordel; Fluorocarbon (Viton); Nitrile (Buna-N). Consult Factory for additional lining materials.

Impeller: Available In The Same Materials As Shown Above For Pump Casing Linings.

Shaft: Stress proof Steel

Shaft Sleeve: Kynar, Ceramic, Alloy 20, 316 SST, Hastelloy B or C, Titanium.

Bearings: Open Double Row with oil bath lubrication.

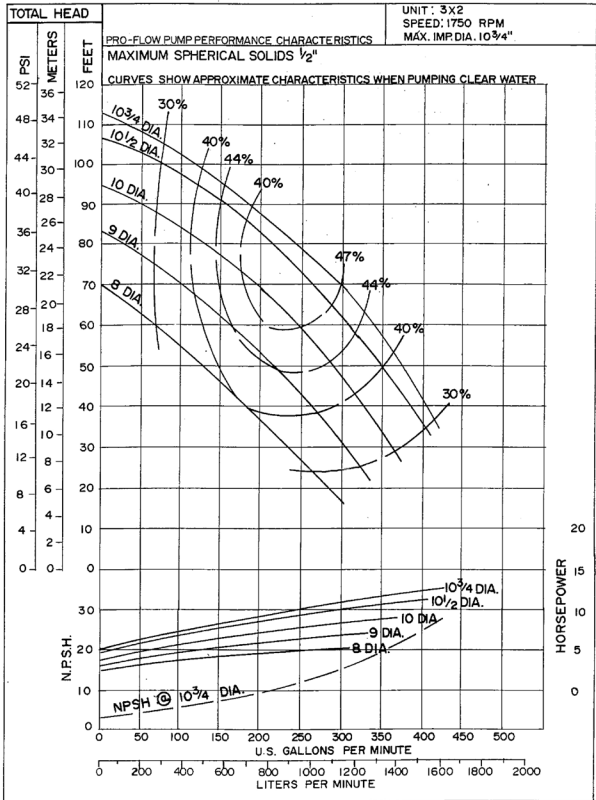
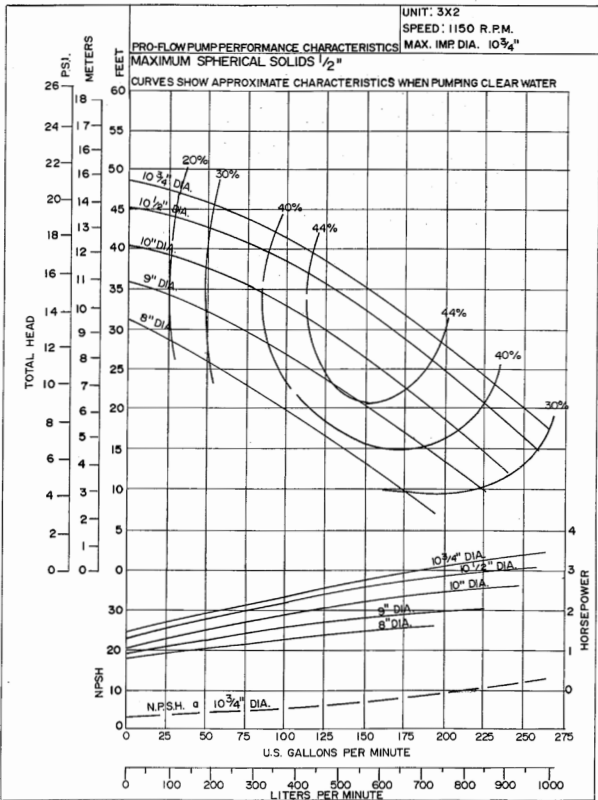
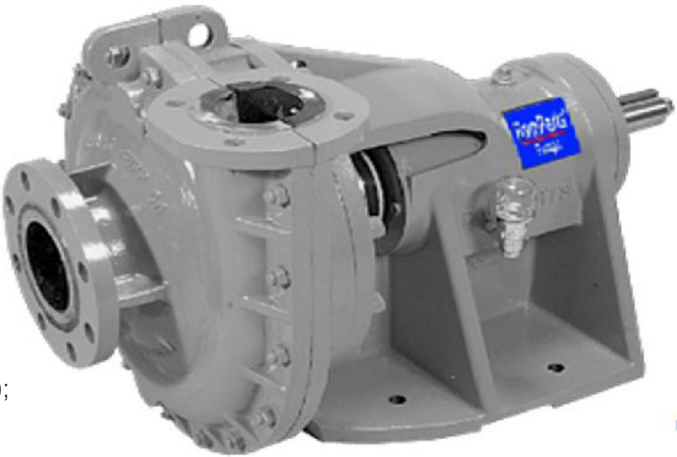
Gaskets/O-rings: Neoprene; Nordel; Fluorocarbon (Viton); Nitrile (Buna-N).

Standard Equipment: Constant Level Oiler, Standard RamParts blue paint other paints available.

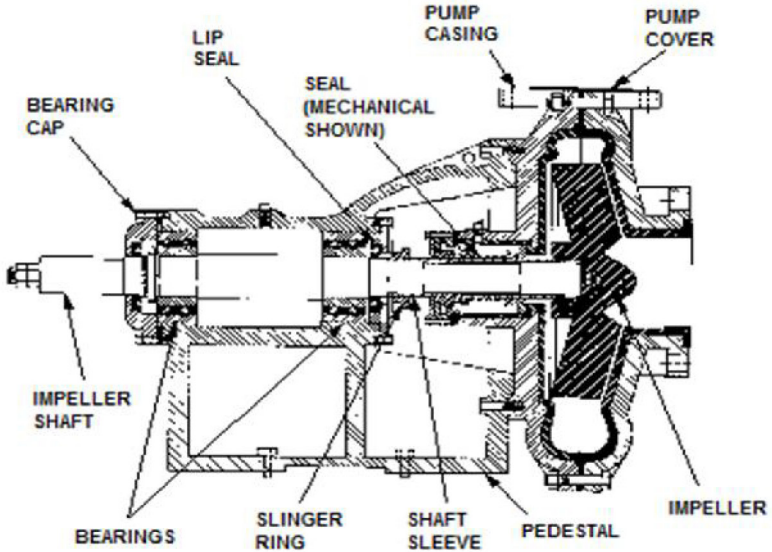
Sealing Options:

- Packing:* PTFE or Grapholil with PTFE Lantern Ring.
- Seals:* Most major manufactures including Flowserve and John Crane.

Maximum Temperature: 285°F (140° C) Dependent on lining.



Spec - 4 x 3
11/7/13



Specification Data

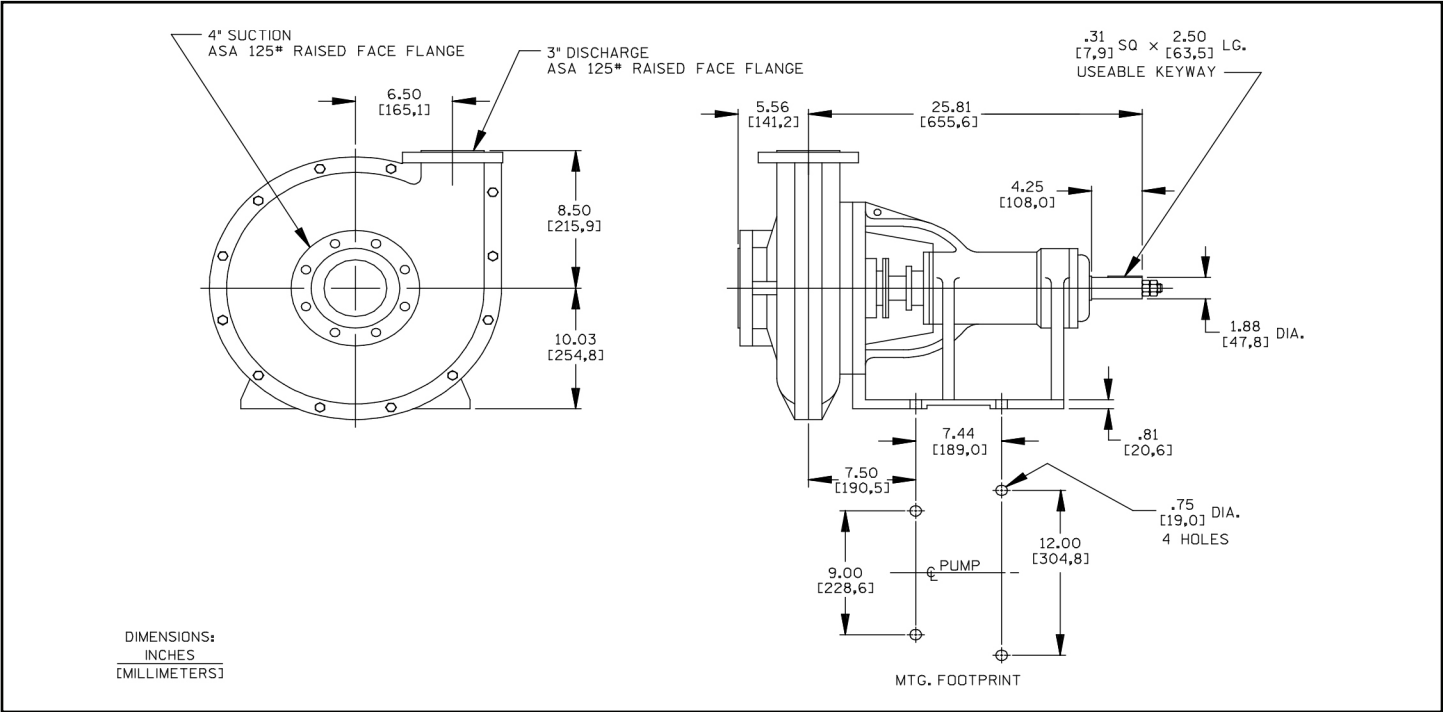
4x3

APPROXIMATE
DIMENSIONS
& WEIGHTS

NET WEIGHT: 470 LBS. (213.2 KG.)
SHIPPING WEIGHT: 525 LBS. (238 KG.)
EXPORT CRATE: 3.3 CU. FT. (0.09 CU.M.)

RamParts®
Pumps
an ANDRONACO INDUSTRIES company

PRO-FLO End Suction Centrifugal
Model - 6 x 4



PUMP SPECIFICATIONS

Size: 6" x 4" (152mm x 102mm) Flanged. Will pass up to 1" (25.4 mm) diameter spherical solid.

Pump Castings: Gray Iron No. 30 Vertically Split; Lined.

Linings: Neoprene; Nordel; Fluorocarbon (Viton); Nitrile (Buna-N). Consult Factory for additional lining materials.

Impeller: Available In The Same Materials As Shown

Above For Pump Casing Linings.

Shaft: Stress proof Steel

Shaft Sleeve: Kynar, Ceramic, Alloy 20, 316 SST, Hastelloy B or C, Titanium.

Bearings: Open Double Row with oil bath lubrication.

Gaskets/O-rings: Neoprene; Nordel; Fluorocarbon (Viton); Nitrile (Buna-N).

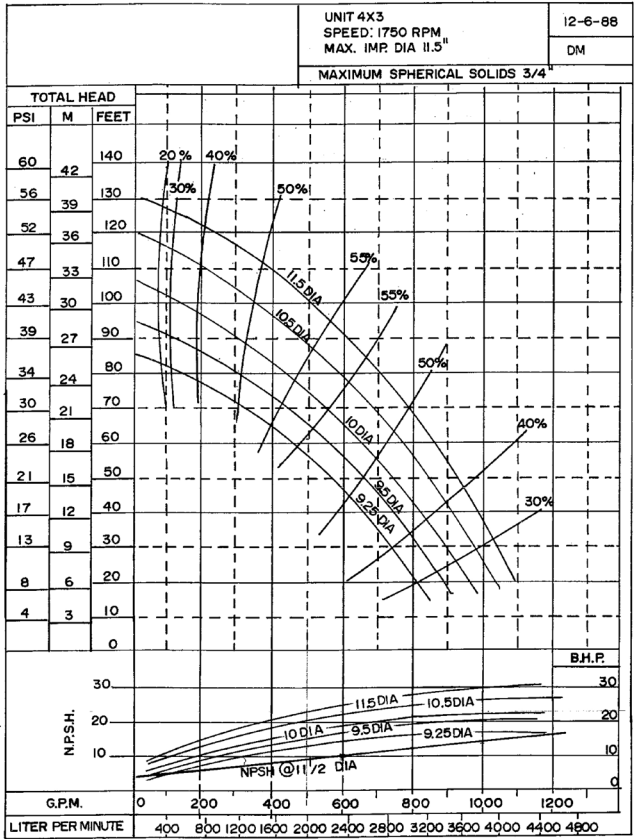
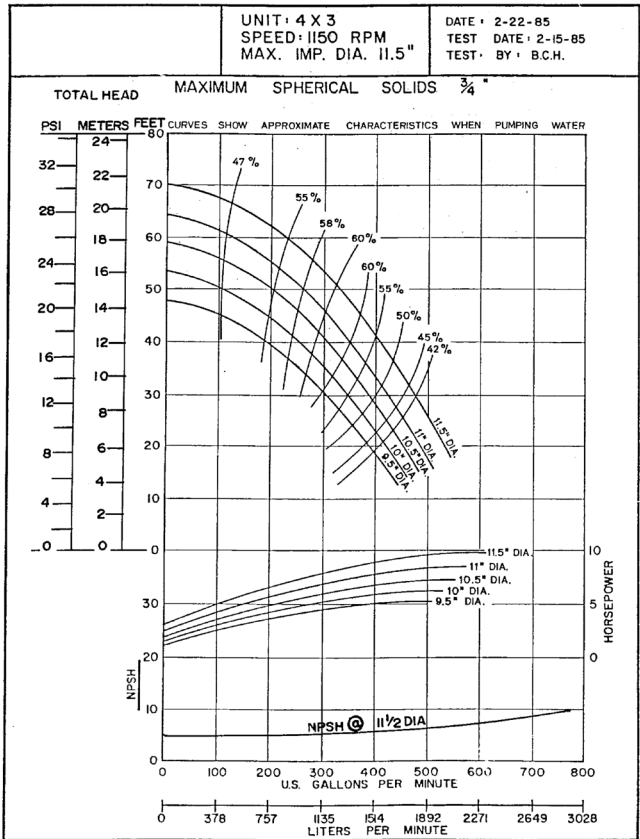
Standard Equipment: Constant Level Oiler, Standard RamParts blue paint other paints available.

Sealing Options:

Packing: PTFE or Grapholil with PTFE Lantern Ring.

Seals: Most major manufactures including Flowserve and John Crane.

Maximum Temperature: 285°F (140° C) Dependent on lining.



Spec - 6 x 4
11/7/13

