

ARO

*Ink Pumps and Accessories
for the Printing Industry*



Ingersoll Rand Industrial Technologies provides products, services and solutions that enhance our customers' energy efficiency, productivity and operations. Our diverse and innovative products range from complete compressed air systems, tools and pumps to material and fluid handling systems. We also enhance productivity through solutions created by Club Car®, the global leader in golf and utility vehicles for businesses and individuals.

www.ingersollrandproducts.com

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IRITS-1210-089



ARO® Ink Pumps:

Proven Efficiency, Longer Packing Life-and That's Only the Beginning...

A Pump for Every Ink and Application....

ARO ink supply pumps are built with today's cost and quality-conscious printer's three critical demands in mind:

- ❑ Faster Production
- ❑ Less Material Waste
- ❑ Reduced Pump Downtime due to Packing Failure.

From low-viscosity flexo inks up to the high-viscosity paste inks, there is an ARO pump that will meet and exceed those demands.

The Proof Is In the Packing....

Used in tandem with a special composite spring and adjustable packing nut arrangement, ARO Ink Pumps feature some of the best, most abrasion-resistant packings known to industry including UHMW-PE as well as special Thiokol Leather / UHMW-PE combos that provide optimum leak resistance.

A Cleaner House...

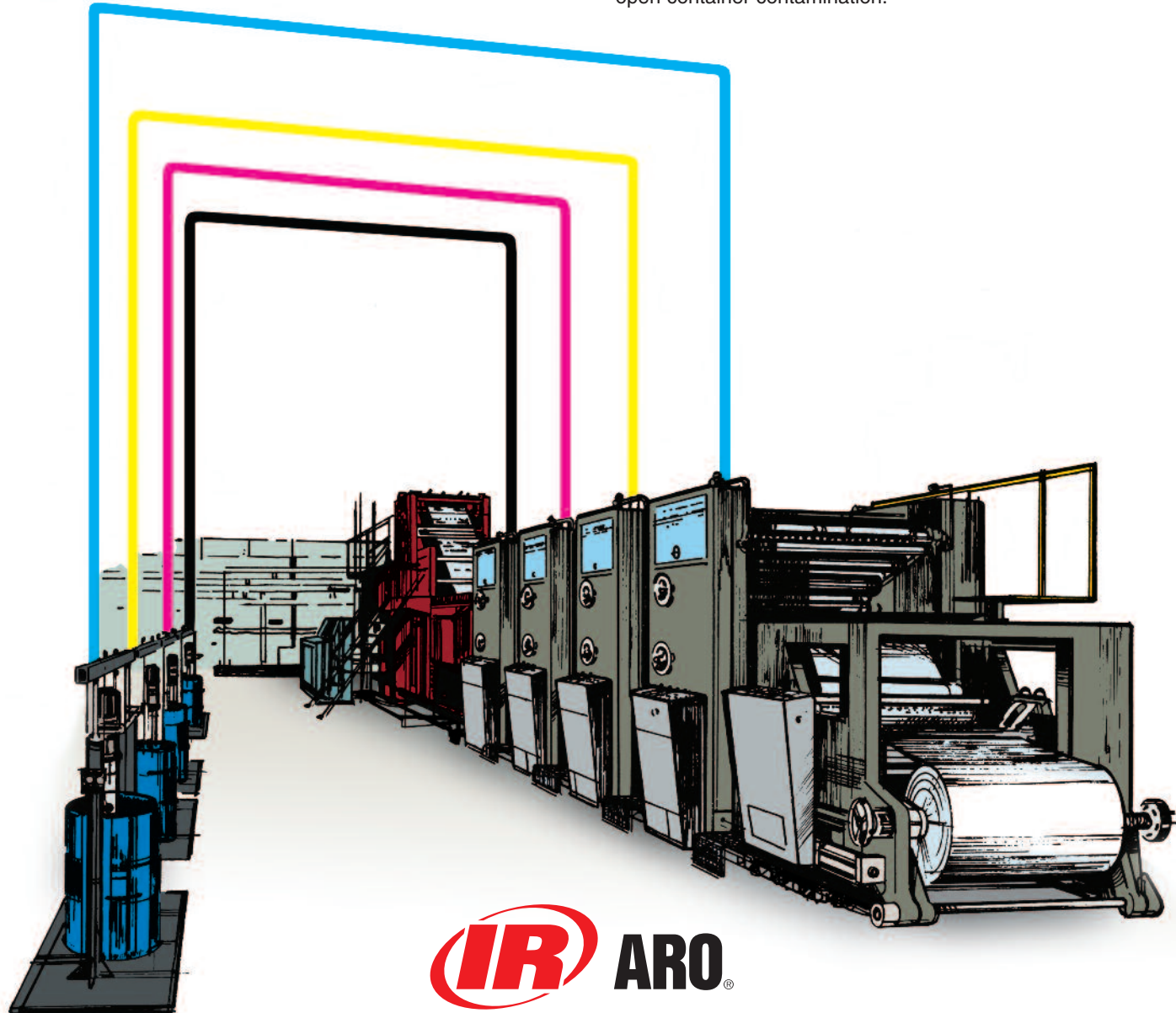
Puddles, piles or streams of ink, whether the result of leaking pumps or messy "dip and dump" fountain fill methods, can be eliminated with ARO Ink Pumps. Not only will the production floor look better, but it will also be a safer place for press floor personnel.

Fast Container Changeover...

Anything that saves time and keeps the flow of ink to the press smooth and with minimal interruption is what you want and what you get with ARO. ARO air-powered pump lifts and ram packages, both portable and stationary, are available to accommodate a variety of container sizes and supply volume demands.

Save That Ink!....

Like everything else these days, ink costs continue to climb and conservation of ink (bulk or otherwise) is becoming increasingly critical. ARO closed ink supply systems provide a barrier between follower plate and material that prevents premature drying, skim over, and the possibility of open container contamination.



ARO Ink Pumps for High Viscosity Paste Ink Applications

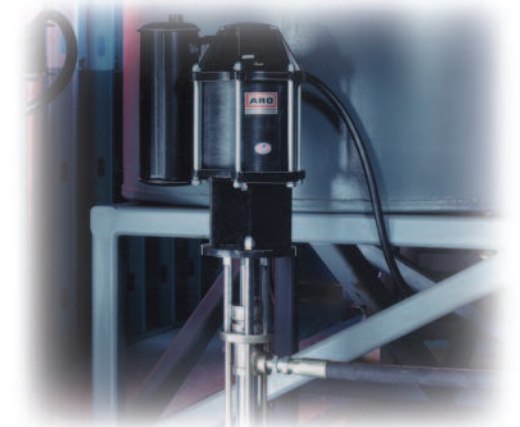
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Who Is Using ARO®?

- ❑ Daily and Weekly Newspapers (Offset/Letterpress)
- ❑ Commercial Printers (Web/Sheetfed Presses)
- ❑ Book and Periodical Publishers
- ❑ Business Form Printers
- ❑ Metal Lithographers
- ❑ Ink Manufacturer Blending Systems

ARO Ink Supply / Application Types

- ❑ 5-Gallon Portable Pump Systems
- ❑ 55 - Gallon, 2-Post Ram Press Supply
- ❑ Tote Tank Press Supply
- ❑ Multi-Color Blending System Supply



ARO® Paste Ink Pump Design Features

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1 ARO AIR MOTOR RELIABILITY

Aro's Paste Ink Pumps start with the best air motor technology in fluid handling. Featuring a longer 6" working stroke (as compared to traditional 4-1/2" strokes), the ARO air motor cycles less and ultimately works longer. Its heavy-duty casing and tie-rod construction insure long-lasting protection against all types of harsh, invasive environments.



The Real Difference Is Down Below:

2 ARO PLUNGER PACKING FOR IMPROVED ENDURANCE

While the external materials of pump construction are important, a pump is only as effective and durable as the internal seals and packings that serve it. In laboratory testing with some of the nastiest, most abrasive materials available (including printing inks), the ARO packing arrangement has demonstrated superior sealing and wear characteristics.

3 ABRASION-RESISTANT HARD CHROME-PLATED PLUNGER

The ARO paste ink pump answers the issue of abrasion with hard-chrome plungers. Hard-chrome plating insures the overall integrity of this critical component by resisting the scoring and leakage problems that hobble low-cost, non-plated plungers.

4 PUMP LOWER TIE-ROD DESIGN DELIVERS FASTER ACCESS

No pump, including Aro's, is service-exempt. So why make it any more labor intensive than necessary? Aro's tie-rod construction permits quick tear-down and access with the simple removal of a few nuts.

5 UHMW-PE PACKINGS; THE ULTIMATE IN COMPATIBILITY

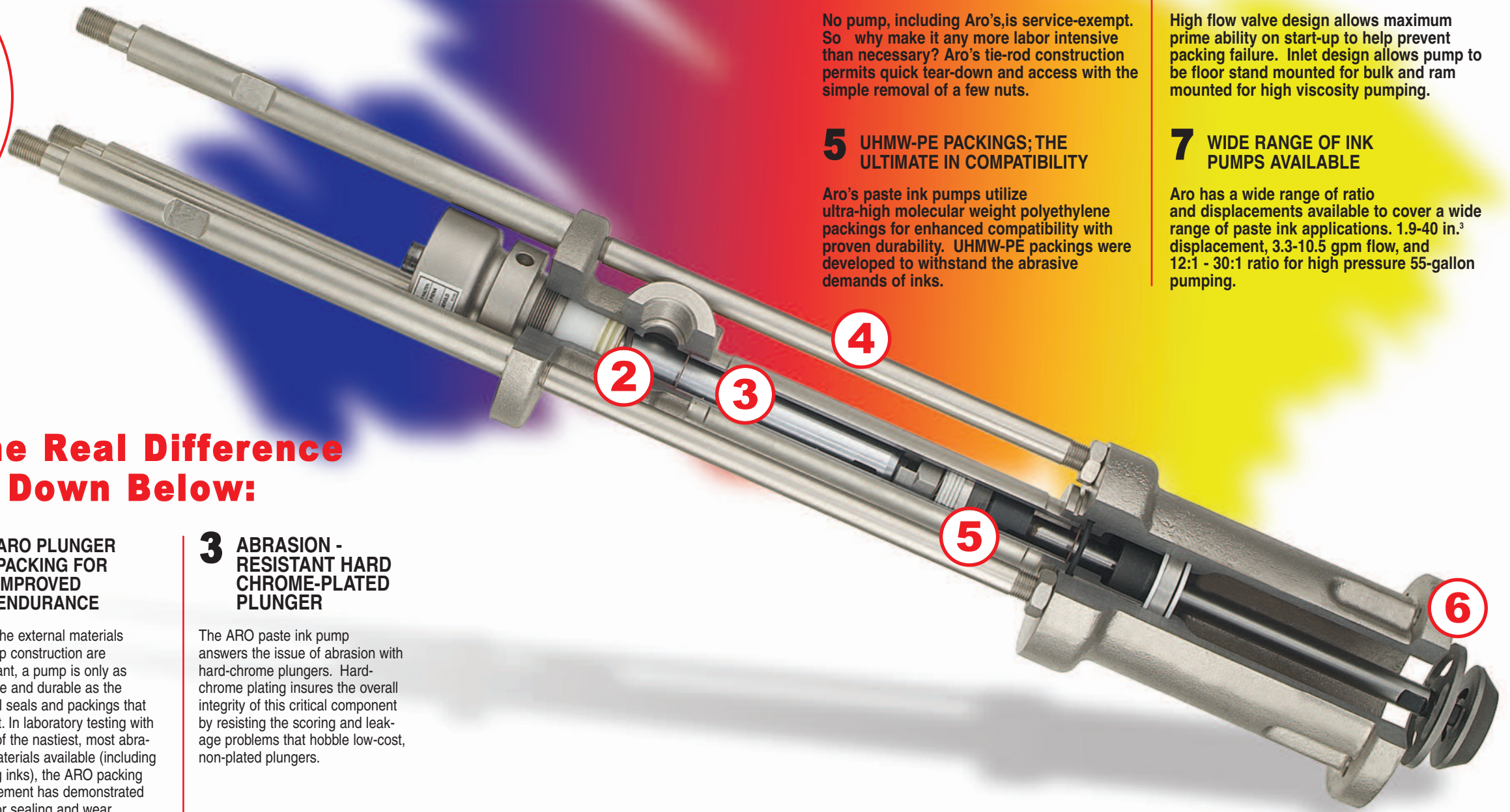
Aro's paste ink pumps utilize ultra-high molecular weight polyethylene packings for enhanced compatibility with proven durability. UHMW-PE packings were developed to withstand the abrasive demands of inks.

6 HIGH FLOW INLET SHOVEL PRIMER VALVE

High flow valve design allows maximum prime ability on start-up to help prevent packing failure. Inlet design allows pump to be floor stand mounted for bulk and ram mounted for high viscosity pumping.

7 WIDE RANGE OF INK PUMPS AVAILABLE

Aro has a wide range of ratio and displacements available to cover a wide range of paste ink applications. 1.9-40 in.³ displacement, 3.3-10.5 gpm flow, and 12:1 - 30:1 ratio for high pressure 55-gallon pumping.



5-Year Warranty

Portable 5-Gallon Ink Supply Package

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NP322L01-1 22:1 Ratio, Carbon Steel 5-Gallon Extrusion Package with Lift*

Package Contents

NM2322E-11-P43	Carbon Steel Pump
129121-400	Air Filter/Regulator
651840-1	Carbon Steel Follower Plate
67075	Portable Lift

Basic Pump Performance

Air Inlet Pressure Range	30 - 150 PSI (2 - 10.2 bar)
Fluid Pressure Range	660 - 3300 PSI (44.8 - 244.4 bar)
Maximum Working Flow	1.0 GPM (3.8 lpm)
Displacement Per Cycle	1.9 in ³ (31.1 cm ³)
Lower Pump Material	Carbon Steel
Plunger Material	17 - 4 Stainless Steel
Air Motor	66915
Air Motor Repair Kit	637316
Lower Pump End Series	67100-P43
Lower Pump Repair Kit	637290-P43

* 22:1 also available in: Stainless Steel with lift, NP322L02-1
Carbon Steel with ram, NP322R01-1
Stainless Steel with ram, NP322R02-1



NP322L0X-1
Portable Lift Only - Not a Ram

650540-1 43:1 Ratio, Carbon Steel 5-Gallon Extrusion Package with Lift*

Package Contents

67120-P43	Carbon Steel Pump
651840-1	Carbon Steel Follower Plate
67075	Portable Lift

Basic Pump Performance

Air Inlet Pressure Range	30 - 150 PSI (2 - 10.2 bar)
Fluid Pressure Range	1,290 - 6,450 PSI (87.7 - 438.7 bar)
Flow @ 75 Cycles/Minute	.9 GPM (3.4 lpm)
Displacement Per Cycle	2.8 in ³ (45.8 cm ³)
Lower Pump Material	Carbon Steel
Plunger Material	17 - 4 Stainless Steel (Chrome Plated)
Air Motor	65440
Air Motor Repair Kit	61268
Lower Pump End Series	67100-P43
Lower Pump Repair Kit	637290-P43

* 43:1 also available in: Stainless Steel with lift, 650541-1
Carbon Steel with ram, 650542-1
Stainless Steel with ram, 650543-1



650540-1
Air Powered Lift Only - Not a Ram

5-Year Warranty

Paste Ink, 55-Gallon / Tote Tank Supply

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4 1/4", 12:1 Carbon Steel Chop Check Basic Pump Performance

Air Inlet Pressure Range	30 - 120 PSI (2 - 8.3 bar)
Fluid Pressure Range	360 - 1800 PSI (24.4 - 122.4 bar)
Max. Rec'd Cycles Per Minute	60
Displacement Per Cycle	12.6 in ³ (206.4 cm ³)
Cycles Per Gallon (Liter)	18.3 (4.8)
Flow @ 60 Cycles / Minute	3.3 GPM (12.4 lpm)
Noise Level @ 60 Psi	.80 db(A) w/muffler

Basic Pump Specifications

Lower Pump Material	Carbon Steel
Plunger Material	17-4 Stainless Steel (Hard Chrome)
Cylinder Material	Carbon Steel
Air Motor	65465-B
Motor Repair Kit	61268
Motor Diameter	4-1/4"
Stroke	.6"
Air Inlet	1/2" NPT(F)
Exhaust Port	1-1/4" NPT(F)
Lower Pump Model	66243-X43-B
Lower Pump Repair Kit	637071-X43-B
Material Inlet	Flange Mount
Material Outlet	1" NPT(F)
Weight	.64 lbs. (29 kgs.)

Ordering

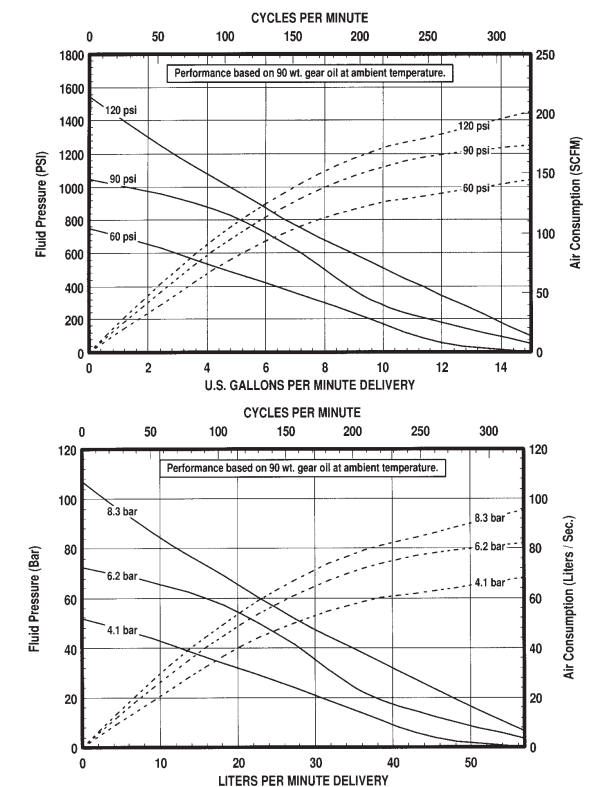
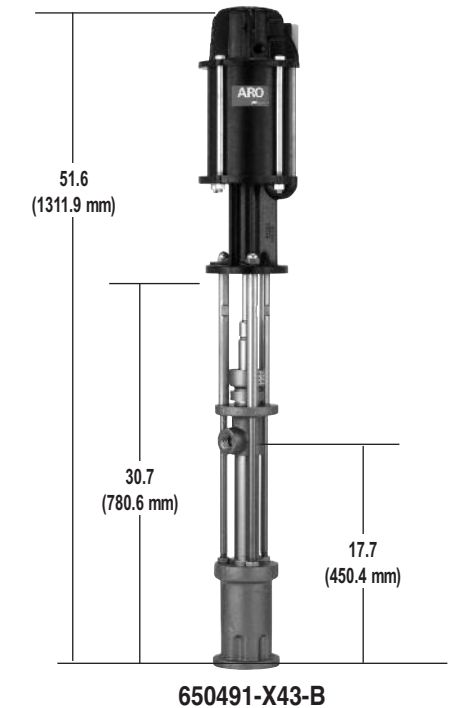
6 5 0 4 9 1 - X 4 3 - B

Packings

- 3 : Glass-Filled Teflon (Upper & Lower)
- C : UHMW-PE (Upper & Lower)
- G : UHMW-PE/Leather Staggered (Upper & Lower)
- P : UHMW-PE/Teflon Staggered (Upper), UHMW-(Lower)
- R : Teflon/UHMW-PE Staggered (Upper), Teflon (Lower)

Accessories

Air F/R/L:	C28241-810 (recommended for pump)
Airline Oil:	62274
Air Motor Muffler:	91790
Wet Sol:	66333-B
Floor Mount:	65138
2-Post Rams w/Nitrile:	651616-1
Ram F/R/L Kit:	65940



5-Year Warranty

Paste Ink, 55-Gallon / Tote Tank Supply

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8", 13:1 Carbon Steel Chop Check Pump Performance

Air Inlet Pressure Range30 - 120 PSI (2 - 8.3 bar)
 Fluid Pressure Range390 - 1560 PSI (26.5 - 106.1 bar)
 Max. Rec'd Cycles Per Minute60
 Displacement Per Cycle40.4 in3 (662 cm3)
 Cycles Per Gallon (Liter)5.7 (1.5)
 Flow @ 60 Cycles / Minute10.5 GPM (39.6 lpm)
 Noise Level @ 60 Psi80 db(A) w/muffler

Pump Specifications

Lower Pump MaterialCarbon Steel
 Plunger MaterialCarbon Steel (Hard Chrome)
 Cylinder MaterialCarbon Steel
 Air Motor66523-B
 Motor Repair Kit66614
 Motor Diameter8"
 Stroke6"
 Air Inlet3/4" NPT(F)
 Exhaust Port1-1/4" NPT(F)
 Lower Pump Model66236-XXE-B
 Lower Pump Repair Kit637128-XX4-B
 Material InletFlange Mount
 Material Outlet1-1/2" NPT(F)
 Weight125.5 lbs. (57 kgs.)

Ordering

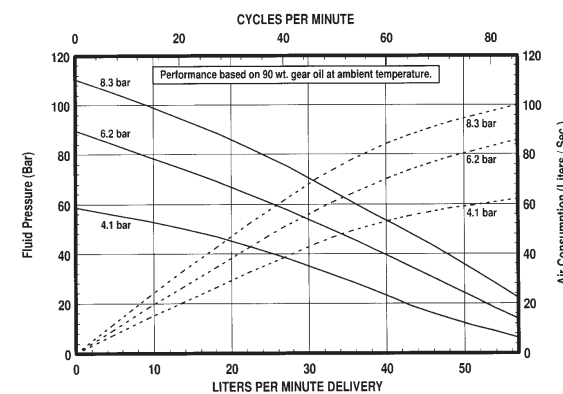
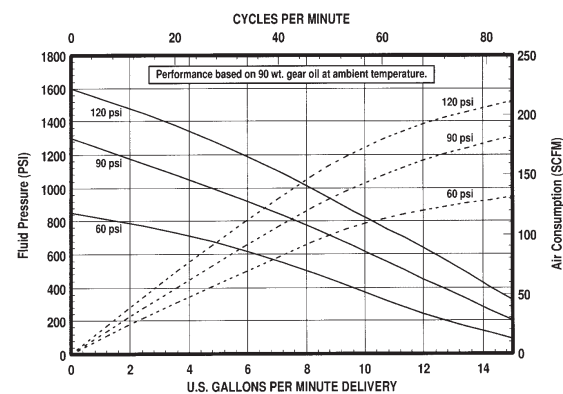
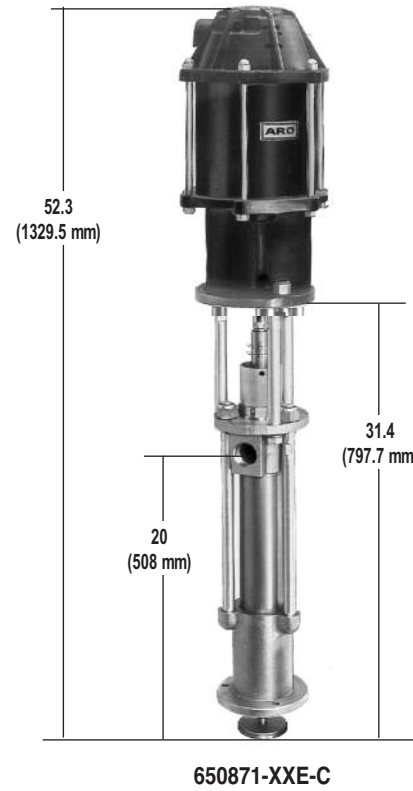
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Packings / Springs

34 : Glass-Filled Teflon (Upper & Lower), Multiple Wave Spring
 C4 : UHMW-PE (Upper & Lower), Multiple Wave Spring
 F4 : UHMW-PE/Leather Staggered (Upper), UHMW-PE (Lower), Multiple Wave Spring
 J3 : Polyurethane (Upper), UHMW-PE (Lower), No Spring
 J8 : Polyurethane (Upper), UHMW-PE (Lower), Multiple Wave Spring
 P4 : UHMW-PE/Teflon Staggered (Upper), UHMW-PE (Lower), Multiple Wave Spring
 R4 : Teflon/UHMW-PE Staggered (Upper), Teflon (Lower) Multiple Wave Spring

Accessories

Air F/R/L: 28353
 Airline Oil: 62274
 Air Motor Muffler: 92460
 Wet Sol: 66333-B
 Floor Mount: 65139
 2-Post Ram w/Nitrile: 651616-4
 Ram F/R/L Kit: 651730



5-Year Warranty

Paste Ink, 55-Gallon / Tote Tank Supply

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10", 20:1 Carbon Steel Chop Check Pump Performance

Air Inlet Pressure Range30 - 90 PSI (2 - 6.1 bar)
 Fluid Pressure Range1,800 PSI (122.4 bar)
 Max. Rec'd Cycles Per Minute60
 Displacement Per Cycle40.4 in3 (662 cm3)
 Cycles Per Gallon (Liter)5.7 (1.5)
 Flow @ 60 Cycles / Minute10.5 GPM (39.6 lpm)
 Noise Level @ 60 Psi82 db(A) w/muffler

Pump Specifications

Lower Pump MaterialCarbon Steel
 Plunger MaterialCarbon Steel (Hard Chrome)
 Cylinder MaterialCarbon Steel
 Air Motor66651-B
 Motor Repair Kit637110
 Motor Diameter10"
 Stroke6"
 Air Inlet3/4" NPT(F)
 Exhaust Port1-1/4" NPT(F)
 Lower Pump Model66236-XXE-B
 Lower Pump Repair Kit637128-XX4-B
 Material InletBolted Flange
 Material Outlet1-1/2" NPT(F)
 Weight144 lbs. (65.4 kgs.)

Ordering

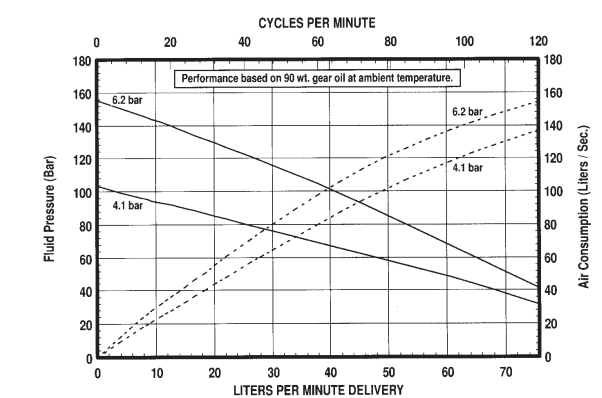
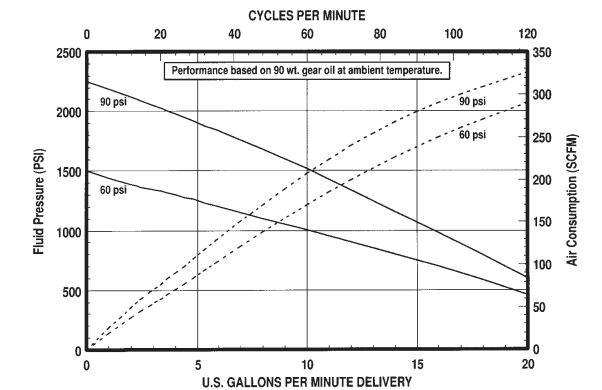
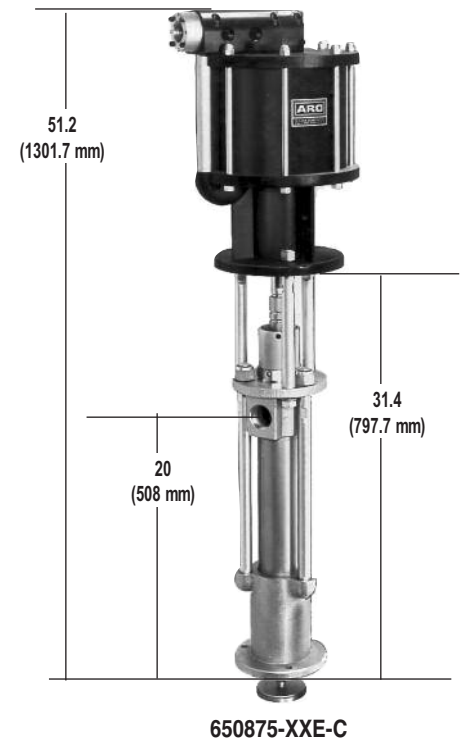
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Packings / Springs

C4 : UHMW-PE (Upper & Lower), Multiple Wave Spring
 F4 : UHMW-PE/Leather Staggered (Upper), UHMW-PE (Lower), Multiple Wave Spring
 J3 : Polyurethane (Upper), UHMW-PE (Lower), No Spring
 P4 : UHMW-PE/Teflon Staggered (Upper), UHMW-PE (Lower), Multiple Wave Spring
 R4 : Teflon/UHMW-PE Staggered (Upper), Teflon (Lower) Multiple Wave Spring

Accessories

Air F/R/L: 28353
 Airline Oil: 62274
 Air Motor Muffler: 66718
 Wet Sol: 66333-B
 Floor Mount: 65139
 2-Post Ram w/Nitrile: 651616-4
 Ram F/R/L Kit: 651729



5-Year Warranty

Paste Ink, 55-Gallon / Tote Tank Supply

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6", 23:1 Carbon Steel Chop Check

Pump Performance

Air Inlet Pressure Range30 - 120 PSI (2 - 8.3 bar)
 Fluid Pressure Range690 - 3450 PSI (46.9 - 234.6 bar)
 Max. Rec'd Cycles Per Minute60
 Displacement Per Cycle12.6 in³ (206.4 cm³)
 Cycles Per Gallon (Liter)18.3 (4.8)
 Flow @ 60 Cycles / Minute3.3 GPM (12.4 lpm)
 Noise Level @ 60 Psi83 db(A) w/muffler

Pump Specifications

Lower Pump MaterialCarbon Steel
 Plunger Material17-4 Stainless Steel (Hard Chrome)
 Cylinder MaterialCarbon Steel
 Air Motor65665-B
 Motor Repair Kit61355
 Motor Diameter6"
 Stroke6"
 Air Inlet1/2" NPT(F)
 Exhaust Port1-1/4" NPT(F)
 Lower Pump Model66243-X43-B
 Lower Pump Repair Kit637071-X43-B
 Material InletBolted Flange
 Material Outlet1" NPT(F)
 Weight67 lbs. (30.4 kgs.)

Ordering

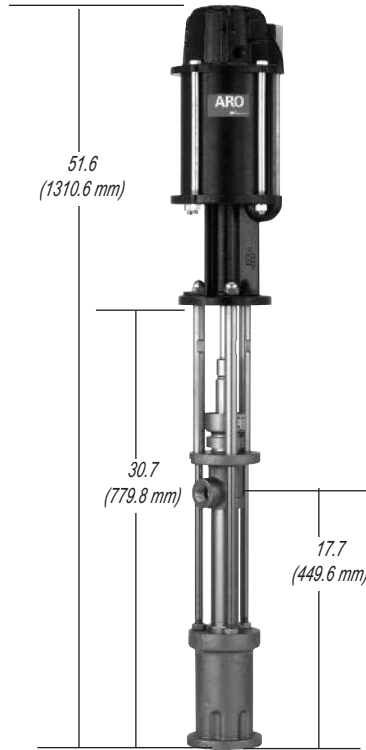
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Packings

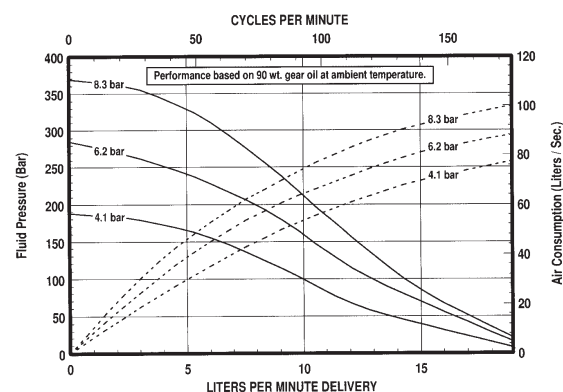
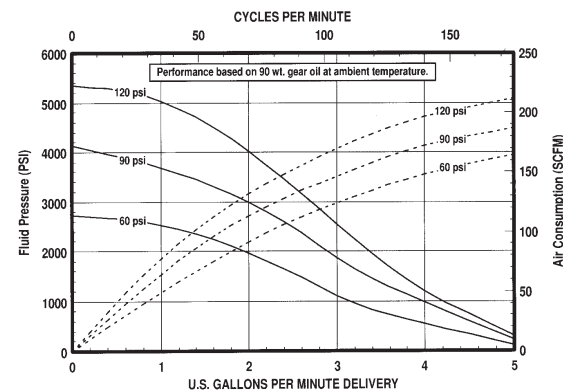
3 : Glass-Filled Teflon (Upper & Lower)
 C : UHMW-PE (Upper & Lower)
 G : UHMW-PE/Leather Staggered (Upper & Lower)
 P : UHMW-PE/Teflon Staggered (Upper), UHMW-PE (Lower)
 R : Teflon/UHMW-PE Staggered (Upper), Teflon (Lower)

Accessories

Air F/R/L: C28241-810
 Airline Oil: 62274
 Air Motor Muffler: 91790
 Wet Sol: 66333-B
 Floor Mount: 65138
 2-Post Ram w/Nitrile: 651616-1
 Ram F/R/L Kit: 65940



650691-X43-B



5-Year Warranty

Paste Ink, 55-Gallon / Tote Tank Supply

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8", 28:1 Carbon Steel Chop Check

Pump Performance

Air Inlet Pressure Range30 - 120 PSI (2 - 8.3 bar)
 Fluid Pressure Range840 - 3360 PSI (57.1 - 228.5 bar)
 Max. Rec'd Cycles Per Minute70
 Displacement Per Cycle20.0 in³ (328 cm³)
 Cycles Per Gallon (Liter)11.55 (3.03)
 Flow @ 70 Cycles / Minute6.06 GPM (22.94 lpm)
 Noise Level @ 60 Psi89.8 db(A)

Pump Specifications

Lower Pump MaterialCarbon Steel
 Plunger MaterialHard Chrome Plated Stainless Steel
 Cylinder MaterialCarbon Steel
 Air Motor66523-8
 Motor Repair Kit66614
 Motor Diameter8"
 Stroke6"
 Air Inlet3/4" NPT(F)
 Exhaust Port1-1/4" NPT(F)
 Lower Pump Model67300-XXD
 Lower Pump Repair Kit637348-XXD
 Material InletBolted Flange
 Material Outlet1-1/2" NPT(F)
 Weight140 lbs. (63.5 kgs.)

Ordering

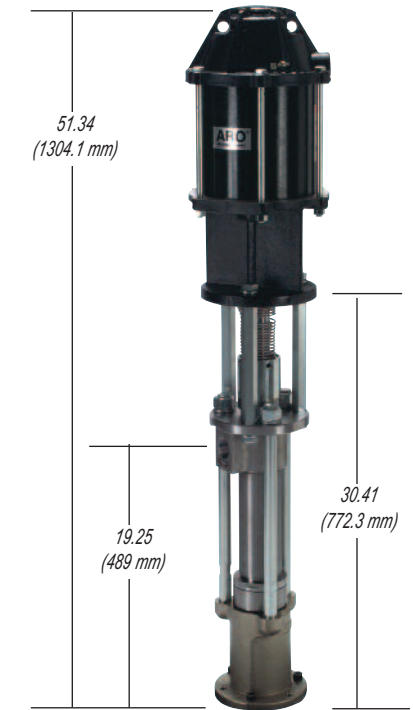
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Packing/Spring

C4 : UHMW-PE (Upper & Lower) / Multiple Wave Spring
 J3 : Polyurethane (Upper) UHMW-PE (Lower) / No Spring

Accessories

Air F/R/L: 28353
 Airline Oil: 62274
 Air Motor Muffler: 92460
 Wet Sol: 66333-B
 Floor Mount: 65139
 2-Post Rams w/Nitrile: 651616-4
 Ram F/R/L Kit: 651730



650888-XXD

- Proven ARO[®] Air Motor Reliability
- Poly-Pak[®] Seals for Improved Endurance
- Abrasion-Resistant Hard Chrome Plated Plunger
- Tie-Rod Design for Fast Access
- UHMW-PE Packings for Maximum Compatibility
- Delivers 20 Cubic Inches per Cycle

5-Year Warranty

Paste Ink, 55-Gallon / Tote Tank Supply

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12", 30:1 Carbon Steel Chop Check

Pump Performance

Air Inlet Pressure Range30 - 90 PSI (2 - 6.1 bar).
 Fluid Pressure Range2700 PSI (183.6 bar) Max.
 Max. Rec'd Cycles Per Minute60
 Displacement Per Cycle40.4 in³ (662 cm³)
 Cycles Per Gallon (Liter)5.7 (1.5)
 Flow @ 60 Cycles / Minute10.5 GPM (39.6 lpm)
 Noise Level @ 60 Psi88 db(A) w/muffler

Pump Specifications

Lower Pump MaterialCarbon Steel
 Plunger MaterialCarbon Steel
 Cylinder MaterialCarbon Steel (Hard Chrome)
 Air Motor66506-B
 Motor Repair Kit637112
 Motor Diameter12"
 Stroke6"
 Air Inlet3/4" NPT(F)
 Exhaust Port1-1/4" NPT(F)
 Lower Pump Model66236-XXE-B
 Lower Pump Repair Kit637128-XX4-B
 Material InletBolted Flange
 Material Outlet1-1/2" NPT(F)
 Weight147 lbs. (66.8 kgs.)

Ordering

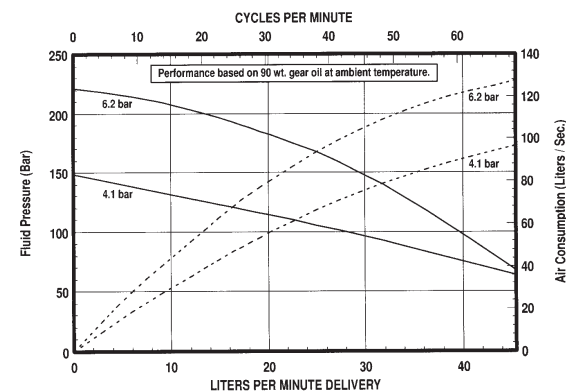
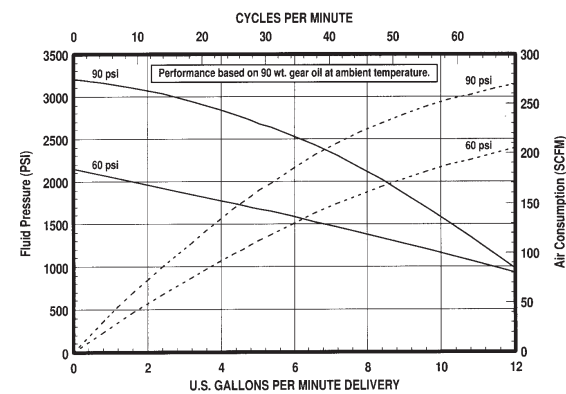
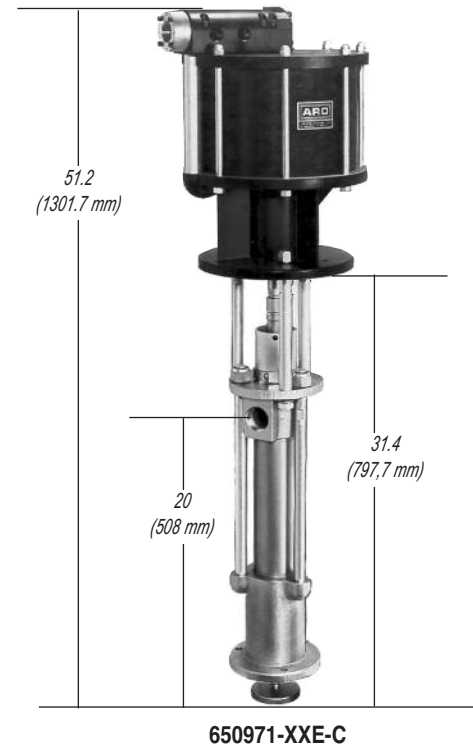
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Packings / Springs

34 : Glass-Filled Teflon (Upper & Lower), Multiple Wave Spring
 C4 : UHMW-PE (Upper & Lower), Multiple Wave Spring
 F4 : UHMW-PE/Leather Staggered (Upper), UHMW-PE (Lower), Multiple Wave Spring
 J3 : Polyurethane (Upper), UHMW-PE (Lower), No Spring
 P4 : UHMW-PE/Teflon Staggered (Upper), UHMW-PE (Lower), Multiple Wave Spring
 R4 : Teflon/UHMW-PE Staggered (Upper), Teflon (Lower) Multiple Wave Spring

Accessories

Air F/R/L: 28353
 Airline Oil: 62274
 Air Motor Muffler: 66718
 Wet Sol: 66333-B
 Floor Mount: 65139
 2-Post Rams w/Nitrile: 651616-4
 Ram F/R/L Kit: 651729



Air Treatment

Ink Pump Accessories

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Filter/Regulator/Lubricator Assemblies

Model Number	Description	Pumps Used With	Port Size NPT	Reg. Press. Range PSI (bar)	Max. Flow Pressure
651729	Kit Assembly Heavy-Duty FRL w/ hose & mounting bracket for installation to Two Post Ram.	10" & 12" air motor pumps	3/4 (M)	5-125 (.3-8.6)	75 SCFM (35 dm ³ /s)
651730	Kit Assembly Heavy-Duty FRL w/ hose & mounting bracket for installation to Two Post Ram.	8" air motor pumps	3/4 (M)	5-125 (.3-8.6)	75 SCFM (35 dm ³ /s)
65940	Kit Assembly Heavy-Duty FRL w/ hose & mounting bracket for installation to Two Post Ram.	4 1/4" & 6" air motor pump	1/2 (M)	5-200 (.3-13.8)	65 SCFM (31 dm ³ /s)



Low Level Cut Off Kit

67327 Kit Assembly used with 651729, 651616(-), 10" and 12" pumps



Over-Run Controls

Model Number	Description	Pumps Used With	Port Size NPT	Reg. Press. Range PSI (bar)	Max. Flow Pressure
635040	ARO-STOP® Valve Shuts off air to the pump when material container is empty or line is broken. Quick set and reset feature.	"N" Series, air motor pumps only	1/4 (F)	1/4 (M)	20-175 (1.4-12)
23644-400	ARO-STOP® Valve Shuts off air to the pump when material container is empty or line is broken. Quick set and reset feature.	4 1/4" & 6" air motor pumps	1/2 (F)	1/2 (M)	20-175 (1.4-12)
635043	ARO-STOP® Valve Shuts off air to the pump when material container is empty or line is broken. Quick set and reset feature.	8', 10" & 12" air motor pumps only	3/4 (F)	3/4 (M)	20-175 (1.4-12)



635040

Ink Pump Accessories

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Extra Heavy-Duty Ram 55-Gallon Containers

Two Post Ram - Features 5-1/2" diameter post construction capable of delivering 0-11 psi* follower down force. This extra measure of down force makes the 651612 Ram the best choice for the hard-duty supply of heavy inks.

*WARNING: Before using maximum follower down force, check container or consult container manufacturer for maximum pressure rating.

Base - 39.5" (1003 mm) x 24" (610 mm)

Raised height - 99.8125" (2.53 m)

Lowered position height - 61.75" (1.56 m)

Heavy-Duty Ram 55-Gallon Containers

Two Post Ram - For use with materials over 200,000 CPS viscosity. Consists of two 3-1/2" diameter air cylinders joined by cross-over tubes and welded to a steel base. Cast aluminum follower plate has double edge Buna N wiper to clean drum and seal material from atmosphere.

Base - 39" (991 mm) x 24" (610 mm)

Raised height - 101" (2.56 m)

Lowered position height - 63" (1.6 m)

Light-Duty Ram 5-Gallon Containers

651615-D Single Post Ram - For use with materials up to 1,000,000 CPS viscosity and 5-gallon containers. Hold-down clamps secure pail and 66713 Portability Kit available for mobile applications.

66713 Portability Kit - Mounts directly to 651615-D Single Post Ram to allow ease of portability. Has 12" (305 mm) tires.

Single Post Rams

Single Post Ram / Lift - Provides responsive pump lifting and pump lowering – with sufficient downforce to permit pump extrusion of materials up to 500,000 c.p.s. It's ability to revolve 360-degrees allows the ongoing placement and rotation of three, 55-Gallon containers – a critical feature in applications that demand continuous material supply.

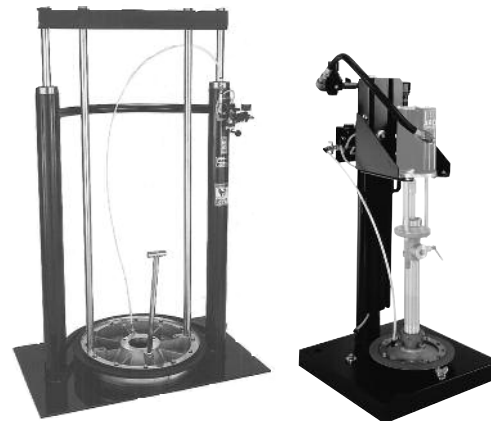
651614-1 For 4-1/4" and 6" Air motor pumps

651614-2 For 8", 10" and 12" Air motor pumps

65116 Follower Plate Air Assist Kit



651612-X



651616-X

651615-D



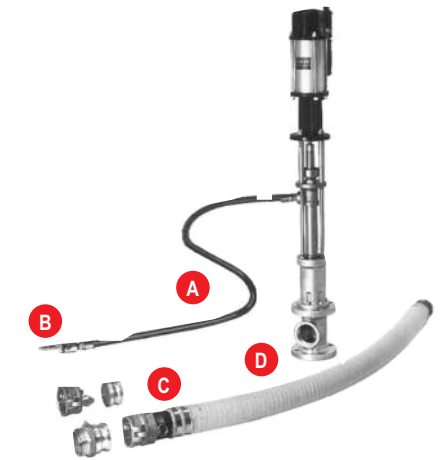
651614-X

Ink Pump Accessories

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Bulk/Tote tank Supply Components

Model Number	Description
A 628088-7	Material Supply Hose - Heavy duty (1" diameter) hose features neoprene construction with a 5,000 psi max. working pressure capacity. Both ends 1" NPT(M). Length: 7 ft.
B 67073	Ball Valve - For use with 628088-7 material supply hose. 4,500 psi max. working pressure rated.
C 628089-X	Material Hose With Fittings - 3" diameter hose has cross-linked polyethylene (internal) and neoprene (external) construction. Hose comes with female cam-lever locking coupler, male adapter, cam-lever locking dust cap and dust plug. Length: 2 ft. (628089-2), 4 ft. (628089-4) & 6 ft. (628089-6). Maximum working pressure: 125 psi
D 65138, 65139	Pump Floor Mount - Depending on pump size.



Pump/Drum Stabilizing Brackets

Model Number	Description	Used With
66353-1	Pump Stabilizing Brackets - Attaches easily to 651616 Ram. Kit includes hardware.	8", 10", 12" Air Motor Pumps
66354-1	Pump Stabilizing Brackets - Same as 66353-1 except fits smaller pumps.	4 1/4" & 6" Air Motor Pumps
67133	Drum Hold-Down Brackets - Kit includes 2 brackets, clamp screws, nuts.	651616-()



66354-1



67133

Ink Pump Accessories

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Manual Extrusion Guns

Used to extrude material over 200,000 CPS.

Model Number	Description	Max Fluid Pressure PSI (bar)	Fluid Inlet In. (mm)	Fluid Outlet I.D. & Thread In. (mm)
*651500 (M)	Flow Gun - Aluminum body with tungsten carbide seats.	7500 (517)	3/8 (F)	.250 (6) & 11/16-16

Order 66541-XX Extrusion Nozzle Kit separately.

651533 (M)	Flow Gun - Wetted parts of 316 series stainless steel with tungsten carbide seats.	5000 (345)	1/4 NPS(M)	.093 (2.3) & 11/16-16
------------	--	------------	------------	-----------------------

tungsten carbide seats.

Order 66541-XX Extrusion Nozzle Kit separately.

641523-1 (M)	Flow Gun - Wetted parts of 300 Series stainless steel with Teflon packings.	3000 (207)	3/8 (F)	.250 (6) & 1/4 NPT(F)
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Order 76751 Adapter & 66541-XX Extrusion Nozzle Kit separately.

***Warning:** Do not use with halogenated hydrocarbons. This model contains aluminum parts that come in contact with the material being dispensed. Aluminum is not compatible with halogenated hydrocarbon solvents.

Extrusion Gun Nozzle Kits

Model Number	Orifice Diameter	Model Number	Orifice Diameter	Model Number	Orifice Diameter
76751	Adapter - 1/4NPT(M) to 11/16-16(M) adapts 66541-XX Extrusion Nozzle Kit to fluid outlet for 641523-1 Flow Gun.				
66541-XX	Extrusion Nozzle Kit - Used on manual or automatic extrusion guns. Hardened steel assembly includes nozzle and cap. 11/16-16 UN(F).				
66541-3	.031	66541-9	.093	66541-17	.172
66541-4	.046	66541-12	.125	66541-18	.187
66541-6	.063	66541-15	.156	66541-25	.250
				66541-37	.375



651500



651533



641523-1
(Shown with 66541-XX)



66541-XX

ARO Ink Pumps for Low Viscosity, Flexographic Ink Applications

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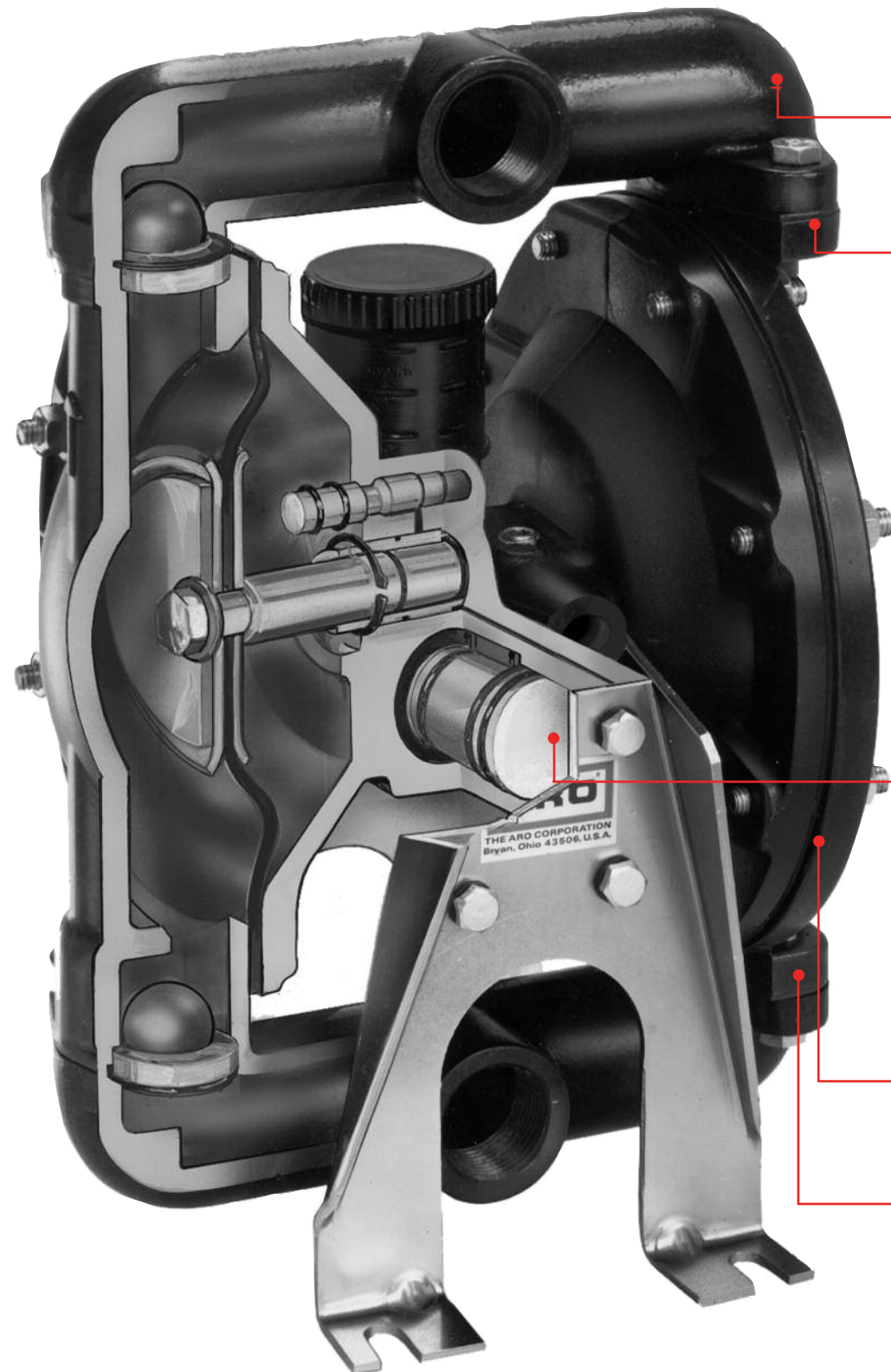
Who Is Using ARO®?

- Daily, Weekly, Quarterly Newspaper/Newsletter Publishers
- Commercial Flexographic Printing Houses
- Book, Magazine Publishers
- Business Form Printers

ARO® Ink Supply / Application Types

- Flexo Ink Transfer
- Color Management (Dispense)
- Ink Recirculation
- Dual Inlet / Dual Outlet for Flexo Supply and Return
- Waste Water Treatment / Solvent Cleaning Systems





Ideal For Abrasion And Solids Handling

Because it does not use rotating, sliding seals, like rotary/centrifugal pumps, more process engineers look to Aro diaphragm pumps for handling tough abrasion applications.

From Top to Bottom, Aro's "Flap" Valve Pump is Your Best High Solids - Handling Choice

The ARO 2" Flap Valve Pump uses a top-suction porting design. Top suction porting is ideal for pumping abrasives and large particles because it uses gravity to assist in draining solids from the pump. Conventional high-solids pump designs use bottom suction; forcing the pump to fight (and lose against) gravity, allowing sediment and solids to accumulate, ultimately "packing out" the pump. See page 19.

Bolted Construction For Safe Reliability and Ease of Assembly:

All Aro diaphragm pumps use bolted construction that process professionals demand. And, Aro Non Metallic Diaphragm Pumps utilize fasteners that are constructed of 300 series stainless steel for maximum chemical resistance.

Bolted is Safer - bolted construction reduces the risk of spills, environmental contamination and the attendant, mandatory reports to regulatory agencies that spills can create.

Bolted is Reliable - Bolted construction withstands the heavy loading that diaphragm pumps are subjected to, without concerns of breakage or loosening.

Bolted is Easier to Assemble - Aro's bolted design allows for easy positioning and alignment of parts during reassembly. This is a significant advantage over band-clamp style pump fasteners, which are difficult to align and hold together during reassembly.

Bolted is Less Expensive - Aro's design uses standard bolts which cost significantly less to replace. Non standard fastening devices (such as band clamps) are considered "wear parts" and are more expensive to replace.

Aro's Patented "Unbalanced" Air Valve

Aro's "Unbalanced" air valve design makes this, and all of Aro's Diaphragm Pumps "Unstallable". Because the unbalanced valve cannot settle in a neutral position when the pump is shut down, it can't become stuck, requiring the operator to hammer on the pump in order to start pumping again.

- Eliminates Shifting/Freezing Problems
- Does Not Require Lubrication
- Uses Significantly Less Power Than Competition
- Forgiving In Dirty Air

"Unstallable" Air Motor Design Expanded: Introducing Simul-Shift™

ARO Diaphragm Pumps are known throughout industry as "The Unstallables", thanks in large part to their patented "unbalanced" air valve design, which eliminates air valve stalling, sticking and centering. With the new 2" and 3" pumps, Quick Dump and Simul-Shift™ valve technology. Simul-Shift's unique design applies constant air pressure to both the pilot and major shift valves to further enhance pump performance and significantly reduce pulsation.

"Quick-Dump™" Anti-Freeze Valve Design

Aro's "Quick-Dump" exhaust valve, eliminates air motor icing, the second most prevalent problem with conventional air motor designs by diverting cold wet exhaust air away from the critical air valve passages. Incorporated in the new 2" and 3" pumps, Quick Dump and Simul Shift have removed the Diaphragm Pump's stall-out stumbling block, it is, by far, the most energy efficient air valve on the market. Quick Dump will help reduce your energy costs. Note: Quick-Dump is incorporated in 2" and 3" models.

Broad Material Selection

Aro offers a wide selection of materials, allowing your choice of the best possible wetted and non-wetted materials suited to your application.

Positive Priming Provides Instant Start-Ups

Check valves are located close to the diaphragm chambers, ensuring a positive prime first time every time.

ARO® Diaphragm Pumps for Low-Viscosity Inks and Support Applications

www.ingersollrandproducts.com



1/2" Ports
Non-Metallic



1/2" Ports
Metallic



1" Ports
Non-Metallic

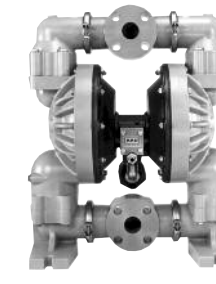


1" Ports
Metallic

MODEL	1/2" (Non-Met.)	1/2" (Met.)	1" (Non-Met.)	1" (Met.)
Maximum Flow GPM (LPM)	13 (49)	13 (49)	47 (178)	35 (133)
Maximum Discharge Pressure PSI (BAR)	100 (6.8)	100 (6.8)	120 (8.3)	120 (8.3)
Fluid Ports Inlet/Outlet (BSP Available)	1/2" (F) - In/Out (No BSP)	1/2" (F) - In/Out (No BSP)	1" ANSI Flange	1" (F) - In/Out
Materials of Construction	Polypropylene Groundable Acetal Kynar® (PVDF)	Stainless Steel Aluminum	Polypropylene (Natural) Kynar® (Natural)	Aluminum Stainless Steel Cast Iron
Pump * Weight Lbs. (Kg.)	8.8 (4.0) Acetal 7.2 (3.3) Poly 9.5 (4.3) Kynar® (PVDF)	14.6(6.6)SST 8.4(3.8)Alum	*20.3 (9.2) Poly *28.5 (12.9) Kynar® (PVDF)	*19 (8.6) Alum *36 (16.3) S. S. *31 (14.1) Cast Iron
Maximum Solids Inches (mm)	3/32 (2.4)	3/32 (2.4)	1/8 (3.2)	1/8 (3.2)
Best Selling Models (BSP Available)	66605J-388 66605J-322 66605J-344 66605J-0D2	PD05P-AAS-STT PD05P-AAS-PGG	6661A3-322-C 6661A3-344-C 6661AP-322-C (Pigmented)	666100-322-C 666100-344-C
Recommended Filter/ Regulator	P29122-600 (Filter/Regulator)	P29122-600 (Filter/Regulator)	P29221-610 (Filter/Regulator)	P29221-610 (Filter/Regulator)
Air Line Kit	66073-1	66073-1	66073-2	66073-2

* Weights listed are for aluminum air motor models

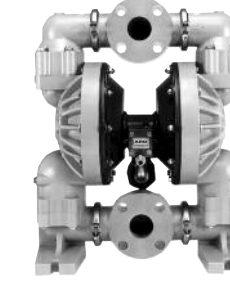
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1-1/2" Ports
Non-Metallic



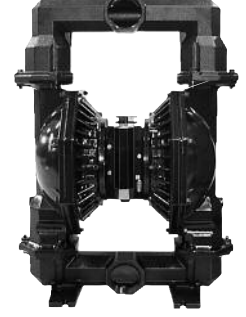
1-1/2" Ports
Metallic



2" Ports
Non-Metallic



2" Ports Ball
Valve



3" Ports
Metallic

MODEL	1-1/2" (Non-Met.)	1-1/2" (Met.)	2" (Non-Met.)	2" Ball (Met.)	3" (Met.)
Max. Flow GPM (Liters)	90 (340)	90 (340)	145 (548)	170 (644)	275 (1,041)
Maximum Operating Pressure PSI (BAR)	120 (8.3)	120 (8.3)	120 (8.3)	120 (8.3)	120 (8.3)
Fluid Ports BSP Available	1-1/2" Flange Ansi	1-1/2" (F)	2" ANSI Flange	2" (F) (2" SST Model ANSI Flange with 2" pipe tap)	3" (F)
Materials of Construction	Polypropylene Kynar® (PVDF)	Aluminum Stainless Steel Cast Iron	Polypropylene Kynar® (PVDF)	Aluminum Stainless Steel Cast Iron	Alum., SST Cast Iron Hastelloy
Pump Weight* Lbs. (Kg.)	*62 (28) Poly® *92 (42) Kynar® (PVDF)	*51 (23.1) Alum *79 (35.8) Cast Iron 84(38.1) S. S.	*62 (28) Poly® *92 (42) Kynar® (PVDF)	*64 (29) Alum *154 (70) S. S. *133 (60) Cast Iron	*110 (50) Alum *195 (88) S. S. *190 (86) Cast Iron *195 (88) Hastelloy
Maximum Solids Inches (mm)	1/4 (6.4)	1/4 (6.4)	1/4 (6.4)	1/4 (6.4)	3/8 (9.5)
Best Selling Models	6661T3-322-C 6661T3-344-C	666150-344-C 666150-322-C	6662A3-322-C 6662A3-344-C	PD20A-AAP-GGG PD20A-AAP-KTT	PD30A-AAP-GGG-B PD30A-AAP-KTT-B
Recommended Filter/ Regulator	P29241-610 (Filter/Regulator)	P29241-610 (Filter/Regulator)	P29241-610 (Filter/Regulator)	P29241-610 (Filter/Regulator)	F25451-110 (Filter) 27354-600 (Reg.)
Air Line Kit	66084-1	66084-1	66084-1	66312	66109

* weights listed are for aluminum air motor models

ARO Specialty Pumps for Plant Support Fluid Transfer and Supply Applications

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1:1 Ratio Piston 2:1 Ratio Piston 4:1 Ratio 1:1 Ratio

MODEL	1:1 Ratio Piston	2:1 Ratio Piston	4:1 Ratio Piston	1:1 Ratio Diaphragm
Maximum Flow	18 GPM (68.1 lpm)	2.15 GPM (8.14 lpm)	4.1 GPM (15.8 lpm)	11 GPM (41.6 LPM)
Maximum Operating Pressure PSI (BAR)	150 (10.2)	150 (10.2)	150 (10.2)	100 (6.8)
Materials of Construction	Carbon Steel	Carbon Steel Stainless Steel	Carbon Steel Stainless Steel	Polypropylene Stainless Steel Aluminum
Pump Weight Lbs. (Kg.)	12 (5.4)	19.6 (8.9) C.S. Drum 22.5 (10.2) S.S. Drum	32 (14.5) Stub 46 (20.9) Drum	
Maximum Solids Inches (mm)	Clean Fluids	Clean Fluids	Clean Fluids	3/32 (2.4)
Best Selling Models	612041-1 612041-3	NM2202A-41-C31 NM2202B-41-C31	NM2304A-11-311 NM2304A-41-311 NM2304B-11-311 NM2304B-41-311	DA005-PPAA-2-A DA005-PPTT-2-A DA005-SSTT-2-A DA005-APNN-2-A
Recommended Filter/Regulator	C28123-600	C28123-600	C28123-600	P29122-600
Air Line Kit		66073-1		66073-1

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Warranty and Emissions

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General Piston Style Pump

IR/ARO warrants to the original use purchaser of the ARO manufactured products depicted in this catalog that ARO will repair or replace free of charges, including return shipping costs within the Continental United State of America, any such product which under normal use and service proves defective in material or workmanship, as determined by Aro Inspection, within five (5) years from date of purchase provided the claimed defective product, or thereof is promptly returned to the ARO factory or ARO Customer Service Center with transportation charges prepaid.

If ARO inspection discloses no defect in material or workmanship, repair or replacement and return will be made at customary charges.

The foregoing warranty supersedes, voids and is in lieu of all or any other warranties, express or implied, and no warranty of merchantability or fitness for particular purpose is intended or made. ARO's sole obligation and the original use purchaser's sole remedy is as stated above and in no event shall ARO be liable for any special, direct, indirect, incidental, consequential or other damages or expenses of any nature including, without limitation, loss of profits or production time incurred by the original use purchaser or any other party.

Air Systems Components

IR/ARO warrants to the original use purchaser of the Air Systems Components depicted in this catalog that ARO will repair or replace, free of charges, including return shipping costs within the Continental United State of America, any such product which under normal use and service proves defective in material or workmanship, as determined by Aro Inspection, within twelve (12) months from date of purchase provided the claimed defective product, or thereof is promptly returned to the ARO Customer Service Repair Center or a factory-authorized service repair center, with transportation charges prepaid. Full warranty information available upon request.

Diaphragm Pumps

IR/ARO warrants to the original use purchaser of IR/ARO manufactured pumps that IR/ARO will repair or replace, free of charges, including return shipping costs within the Continental United States of America, any such product which under normal use and service proves defective in material or workmanship, as determined by IR/ARO Inspection, within FIVE YEARS from date of shipment from IR/ARO, provided the claimed defective product, or part thereof, is promptly returned to the IR/ARO factory or IR/ARO authorized warranty repair center with transportation prepaid.

This warranty does not cover failure of parts or components due to normal wear or damage, which in the judgment of IR/ARO, arises from misuse, abrasion, corrosion, negligence, accident, substitution of non-IR/ARO parts, faulty installation or tampering.

If IR/ARO inspection discloses no defect in material or workmanship, repair or replacement and return will be made at custom any charges.

This warranty covers IR/ARO manufactured pumps shipped on or after July 4, 1988.

Equipment not covered by IR/ARO warranty: accessories or components of equipment sold by IR/ARO that are not manufactured by IR/ARO (such as switches, hoses, gasoline engines, etc.) are subject to the warranty, if any, of their manufacturer. IR/ARO will provide the purchaser with reasonable assistance in making such claims.

The foregoing warranty supersedes, voids and is in lieu of all or any other warranties, express or implied, and no warranty or merchantability or fitness for particular purpose is intended or made. IR/ARO's sole obligation and the original use purchaser's sole remedy is as stated above and in no event shall IR/ARO be liable for any special, direct, indirect, incidental, consequential or other damages, or expenses of any nature including, without limitation, loss of profits or production time incurred by the original use purchaser or any other party.

Noise Emissions

The pump sound pressure levels published below have been updated to an Equivalent Continuous Sound Level (L_{Aeq}) to meet the intent of ANSI S1.13-1971. CAGI-PNEUROP S5.1 using four microphone locations.

Piston Pumps

PUMP MOTOR SIZE/STROKE (IN.)	MUFFLER	AIR OP. PRESS. (PSI)	CYCLES /MIN	SOUND PRESS. (L _{Aeq})
2/4	NONE	60	40	74.8
2/6	NONE	60	40	77.8
2/6	NONE	60	40	82.8
2/2-5/8	NONE	60	40	81.8
3/2-5/8	NONE	60	40	83.8
4-1/4/6	91790	60	40	81.8
6/6	91790	60	40	84.8
8/6	92460	60	40	89.8
10/6	66718	60	40	84.8
12/6	66718	60	40	89.8

ISO 9001 Registration

The pumps and pumping equipment featured in this catalog are manufactured at Aro's Bryan, Ohio (USA) facility, which is registered by Underwrites Laboratories, Inc. to the International Organization for Standardization (ISO 9001) series standard for quality.

Pump Airborne Noise Emissions

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Performance Technical Data

The pump sound pressure levels published below have been updated to an Equivalent Continuous Sound Level (L_{Aeq}) to meet the intent of ANSI S1.13-1971. CAGI-PNEUROP S5.1 using four microphone locations.

PUMP PORT SIZE (INCHES)	AIR OPERATING PRESSURE (PSI)	CYCLES/ MIN	SOUND PRESSURE (LAeq)
Diaphragm Pumps			
1/4	70	60	59.8 db(A)
1/2	70	60	71.1 db(A)
1	70	60	64.5 db(A)
1-1/2	70	60	77.7 db(A)
2	70	60	*85.0 db(A)
3	70	50	*83.0 db(A)
Piston Pumps			
1:1	60	40	78 db(A)
2:1	60	40	76 db(A)
4:1	100	N/A	85 db(A)

Viscosity Conversion Chart

Centi Poise	Poise	Saybolt Universal (SSU)	Saybolt Furoil	Ford No. 3	Ford No. 4	Zahn No. 1	Zahn No. 2	Zahn No. 3	Centi Poise	Poise	Saybolt Universal (SSU)	Saybolt Furoil	Ford No. 3	Ford No. 4	Zahn No. 1	Zahn No. 2	Zahn No. 3
1	.01	31							1300	13	6100	610	520	350			
2	.02	34							1400	14	6480	648	550	372			
4	.04	38							1500	15	7000	700	595	400			
7	.07	47							1600	16	7500	750	635	430			
10	.10	60							1700	17	8000	800	680	460			
15	.15	80	13	10	8	34	17		1800	18	8500	850	720	490			
20	.20	100	15	12	10	37	18		1900	19	9000	900	760	520			
25	.24	130	17	15	12	41	19		2000	20	9400	940	800	540			
30	.30	160	19	19	14	44	20		2100	21	9850	985	835	565			
40	.40	210	24	25	18	52	22		2200	22	10300	1030	875	592			
50	.50	260	29	29	22	60	24		2300	23	10750	1075	910	617			
60	.60	320	34	33	25	68	27		2400	24	11200	1120	950	645			
70	.70	370	39	36	28	72	30		2500	25	11600	1160	985	676			
80	.80	430	42	41	31	81	34		3000	30	14500	1450	1230	833			
90	.90	480	49	45	32	88	37	10	3500	35	16500	1650	1400	950			
100	1.0	530	54	50	34		41	12	4000	40	18500	1850	1570	1060			
120	1.2	580	59	58	41		49	14	4500	45	21000	2100	1780	1175			
140	1.4	690	70	66	45		58	16	5000	50	23500	2350		1350			
160	1.6	790	79	72	50		66	18	5500	55	26000	2600		1495			
180	1.8	900	91	81	54		74	20	6000	60	28000	2800		1605			
200	2.0	1000	100	90	58		82	23	6500	65	30000	3000		1720			
220	2.2	1100	110	98	62		88	25	7000	70	32500	3250		1870			
240	2.4	1200	120	106	65			27	7500	75	35000	3500		2010			
260	2.6	1280	128	115	68			30	8000	80	37000	3700		2120			
280	2.8	1380	138	122	70			32	8500	85	39500	3950		2270			
300	3.0	1475	148	130	74			34	9000	90	41000	4100		2360			
320	3.2	1530	153	136	89			36	9500	95	43000	4350		2470			
340	3.4	1630	163	142	95			39	10000	100	46500	4650		2670			
360	3.6	1730	173	150	100			41	15000	150	69400	6940					
380	3.8	1850	185	160	106			43	20000	200	92500	9250					
400	4.0	1950	195	170	112			46	30000	300	138600	13860					
420	4.2	2050	205	180	118			48	40000	400	185000	18500					
440	4.4	2160	216	188	124			50	50000	500	231000	23100					
460	4.6	2270	227	200	130			52	60000	600	277500	27750					
480	4.8	2380	238	210	137			54	70000	700	323500	32350					
500	5.0	2480	248	218	143			58	80000	800	370000	37000					
550	5.5	2660	266	230	153			64	90000	900	415500	41550					
600	6.0	2900	290	250	170			68	100000	1000	462000	46200					
700	7.0	3380	338	295	194			76	125000	1250	578000	57800					
800	8.0	3880	388	340	223				150000	1500	694000	69400					
900	9.0	4300	430	365	247				175000	1750	810000	81000					
1000	10.0	4600	460	390	264				200000	2000	925000	92500					
1100	11	5200	520	445	299												
1200	12	5620	562	480	323												

Diaphragm Pumps

Material Service Guidelines / Warranty Information

www.ingersollrandproducts.com

Performance Technical Data

ARO Diaphragm Pumps

	Temp Limit F (C)	Scale 1 - 5 Chemical	(5 is best) Abrasion	Flex Life*
Acetal	180 (91)	3	3	-
Aluminum	-	1	3	-
Buna N (Nitrile)	180 (82)	2	2	3
Cast Iron	-	3	4	-
EDPM	280 (138)	3	2	3
Geolast (Nitrile Based)	180 (82)	2	2	3
Hytrel	150 (66)	2	4	4
Kynar (PVDF)	200 (107)	5	2	-
Neoprene	200 (93)	2	2	3
Polypropylene	150 (79)	4	2	-
Polyurethane	150 (66)	1	4	4
Santoprene	225 (107)	4	4	5
Stainless Steel (300 Series)	-	4	4	-
Stainless Steel (400 Series)	-	3	5	-
Teflon	225 (107)	5	2	4
Viton	350 (176)	4	2	1

* Applies to diaphragms only.

Note: These are guidelines only. Consult the manufacturer of pumped fluid for exact compatibility and temperature requirements.