

# ARO

## *5-Gallon Extrusion Packages and Rams*

for mastics, sealants, and adhesives

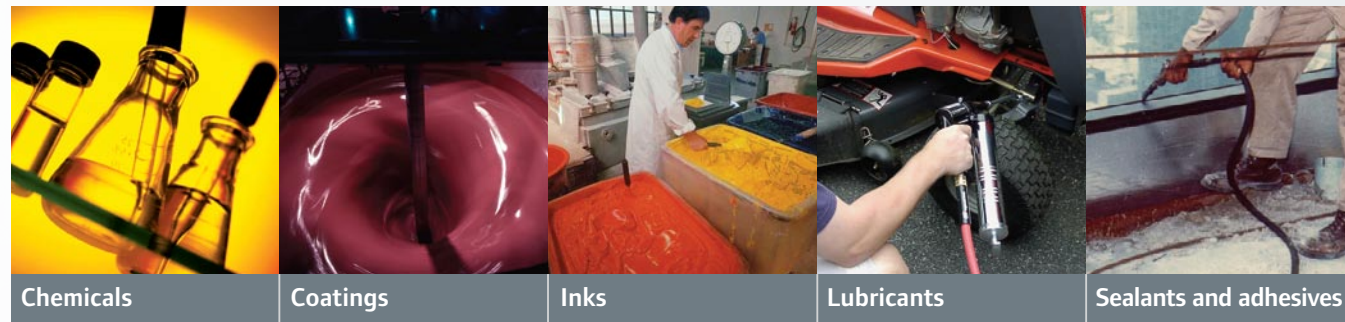




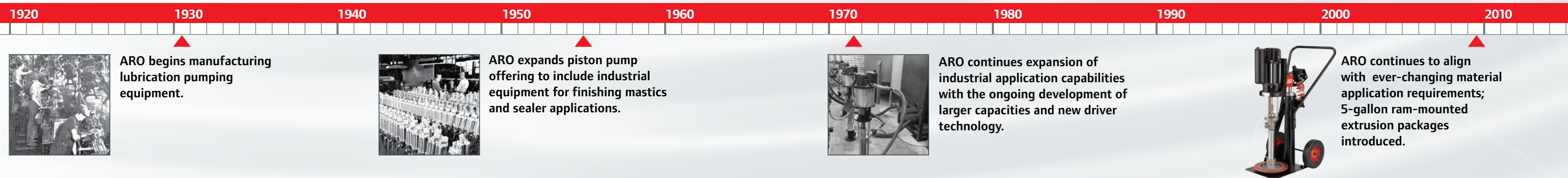
# Progress in motion

For more than 75 years, Ingersoll Rand ARO pumps and fluid products have helped drive innovation and create new standards for how the world gets work done. Over the years, we have applied our knowledge of our customers' industries and the demands placed on productivity and quality to consistently deliver products that increase productivity and minimize the costs associated with transferring, extruding, and applying a wide range of fluids from low- to high-viscosity.

When you purchase an ARO product, you can be confident that you are getting industry-proven dependability, versatility, and value. No matter what your product, process, or location, ARO offers the products, accessories, and a worldwide distribution and service network prepared to keep your process in motion. After all, we have been doing it for more than 75 years.



## Decades of innovative solutions for the transfer of heavy materials





# Pump selection guide

ARO offers a full line of extrusion pumps and packages that are perfectly designed to handle virtually any fluid-handling application. Our products are typically used to move medium- to high-viscosity fluids or materials.

Viscosity is the biggest challenge in any extrusion application. By knowing the viscosity of the material being extruded, the flow rate required, line size, and distance from the application, you're able to determine the pump ratio best suited to your needs.

Whether you're transferring, extruding, coating, or dispensing, it's important that you match the right pump with your particular application requirements.

The following chart and back pressure calculations will help make that task easier.

## Back pressure

Back pressure is the friction within a plumbing system that restricts fluid flow. Back pressure increases when fluids are more viscous or plumbing distance becomes greater. Other factors include fluid filters, plumbing elbows, and vertical piping rise.

▶ *Correctly determining back pressure is critical in pump selection. The equation is:*

$$\Delta P = \mu \times Q \times L \times .000245 \div (i.d.)^4$$

$\mu$  = fluid viscosity (centipoise)

$Q$  = delivery required (gpm)

$L$  = outlet plumbing length (ft)

.000245 = equation constant

$(i.d.)^4$  = plumbing internal diameter to the fourth power (in)

▶ *With back pressure calculated, you can then determine pump ratio:*

$$\text{Required ratio} = \Delta P \div \text{psi}$$

$\Delta P$  = pressure drop within plumbing system

psi = air pressure available at pump

▶ *Here is an example of calculating back pressure and pump ratio:*

$$\Delta P = \mu \times Q \times L \times .000245 \div (i.d.)^4$$

▶ *Plug in the components.*

$\mu$  = 25,000 cP

$Q$  = .25-gpm (1/4-gpm)

$L$  = 150' total

$i.d.$  = .75" ( $i.d.^4 = .3164$ )

$$\Delta P = 25,000 \times .25 \times 150 \times .000245 \div .3164$$

$$\Delta P = 725.9 \text{ psi}$$

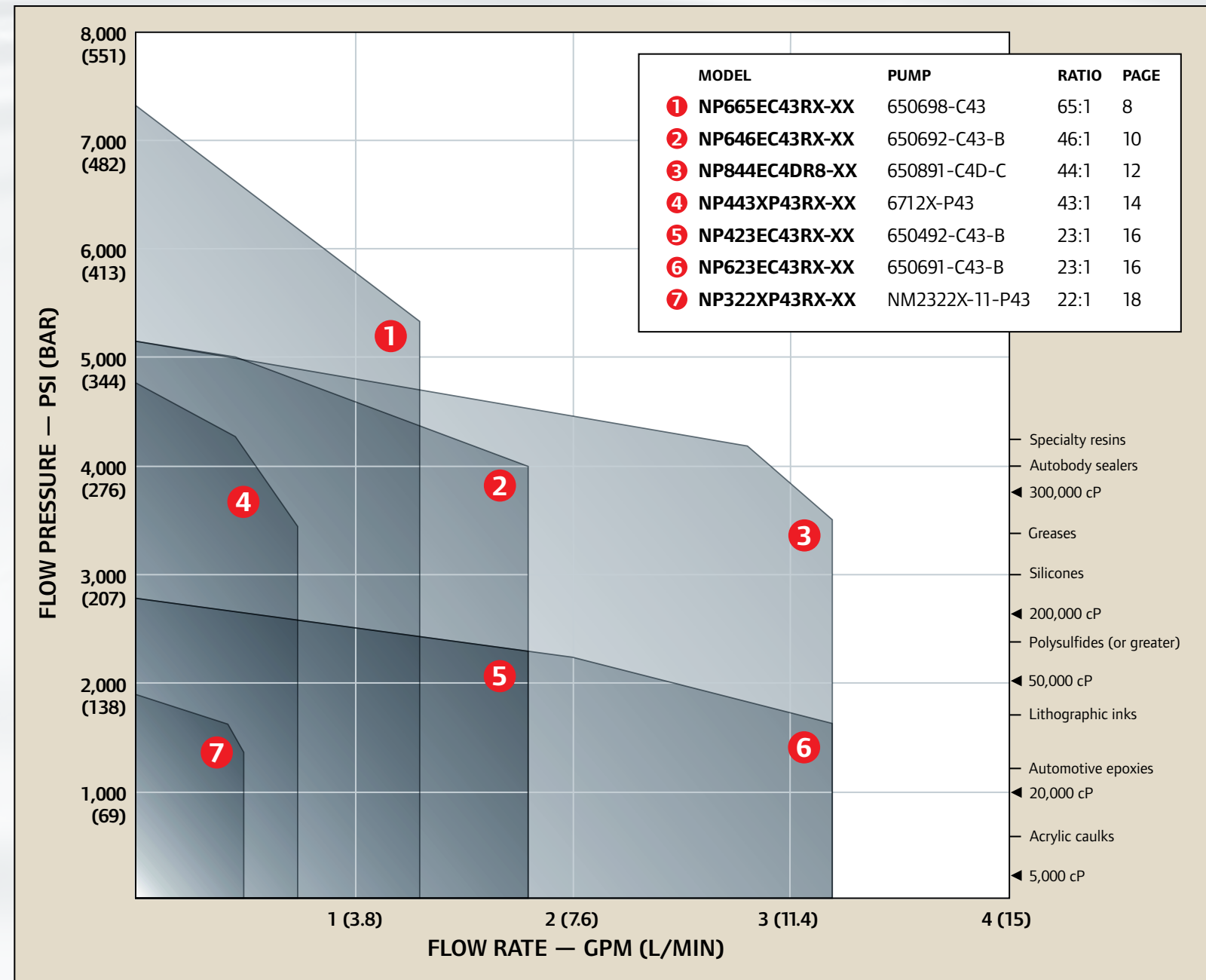
$$\text{Ratio} = \Delta P \div \text{psi}$$

$$\Delta P = 725.9$$

$$\text{psi} = 85 \text{ (at the pump)}$$

$$\text{Ratio} = 725.9 \div 85$$

$$\text{Ratio} = 8.54:1. \text{ Round up to } 9:1$$



## Need further assistance?

You have a lot riding on the performance of your fluid-handling system. So, it's critical that the pump and accessories you choose are not only suitable for your application, but also deliver peace-of-mind dependability and precision. Whether you're moving a small amount of low-viscosity fluid a few feet or a large amount of high-viscosity material a longer distance, ARO has a pump and accessories to meet your needs.

**If you need additional assistance in selecting the right products for your specific application, feel free to contact ARO directly. We'll get your questions answered and your product needs addressed quickly and efficiently.**

### Contact us

▶ (800) 495-0276

▶ [fluids.ingersollrand.com](http://fluids.ingersollrand.com)



## 5-gallon rams

### Single-post ram

*Ideal for medium-viscosity fluids — 20,000 to 250,000 cP*

- 1 Versatile** — accepts 3-inch, 4.25-inch, and 6-inch air motors
- 2 Ergonomic air controls** — uses pneumatics to raise and lower pump packages up to 17.5 inches for easy container changeouts
- 3 Powerful 3.25-inch ram cylinder** — provides industry-leading down force
- 4 Welded construction** — ensures maximum performance and durability
- 5 Compact design** — features refined footprint, improving adaptability to a variety of environments

**Portability kit (optional)** — increases pump versatility by enabling unit to be moved around the application site as needed (part no. 67425)



### Two-post ram

*Ideal for medium- to high-viscosity fluids — 20,000 to 1,000,000+ cP*

- 1 Versatile** — accepts 3-inch up to 10-inch air motors
- 2 Ergonomic air controls** — uses pneumatics to raise and lower pump packages up to 17.5 inches for easy container changeouts
- 3 Dual 3.25-inch ram cylinders** — delivers more power for demanding applications or when available air pressure is minimal
- 4 Welded construction** — combined with the two-post design provides increased strength and rigidity over the single-post ram
- 5 Robust design** — provides industry-leading performance and reduced overall height



# LARGER CYLINDERS

# provide best-in-class down force

SEALANTS • ADHESIVES • MASTICS • INKS • EPOXIES

• LUBRICANTS • URETHANES • CAULKS • SILICONES



# 65:1 piston pump



► **Reliability** — our pumps employ longer strokes that cycle less frequently, delivering the same quantity of fluid with less pulsation than other brands, and ultimately prolonging motor life

► **Modular design** — our tie rod construction permits quick tear-down and repair to minimize downtime

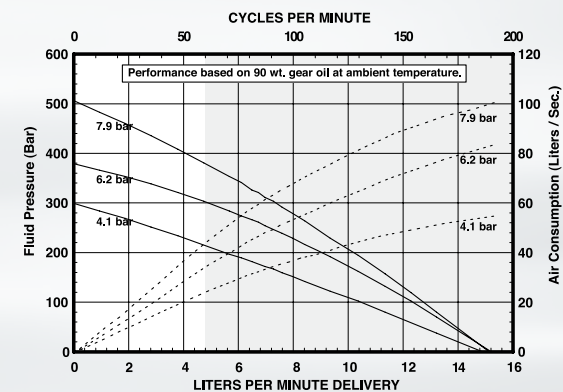
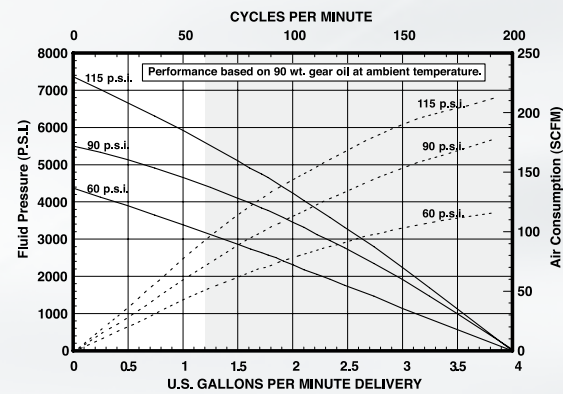
► **Maximized pump life** — ARO pumps feature a visible solvent cup, adjustable packings, and Wet Sol™ lubricant (part no. 66334-B) to minimize downtime and extend the life of the pump



Specifications	
<b>EXTRUSION PUMP</b>	650698-XXX
Lower pump material	carbon steel
Plunger material	17-4 stainless steel, chrome-plated
Air motor	65665-B
Air motor diameter — in (mm)	6" (152.4)
Air inlet (female)	1/2 - 14 NPTF-1
Exhaust port (female)	1-1/4 - 11-1/2 NPTF-1
Lower pump model	67348-XXX
Stroke — in (mm)	6" (152.4)
Material outlet (female)	3/4 - 14 NPTF-2
Weight — lb (kg)	67 (30.4)
Air inlet pressure range — psi (bar)	0 - 115 (0 - 7.9)
Fluid pressure range — psi (bar)	0 - 7,475 (0 - 515.5)
Maximum cycles / minute	60
Displacement per cycle — cu in (cm³)	5.16 (84.55)
Cycles per gallon	44.8
Flow @ 60 cycles / minute — gpm (L/min)	1.3 (5.1)
Noise level @ 60 psi — 40 cpm	83.0 db(A)

► **Superior seal wear** — extensive laboratory testing with some of the harshest materials enables ARO to bring you a packing design that consistently delivers superior seal wear characteristics

► **Optimized suction and priming** — our high-flow inlet valve design optimizes suction and ensures proper priming at start-up



Model	PUMP Model	Packing	RAM Model	Posts	FOLLOWER Model	Description	Material
<b>RAM PACKAGES</b>							
NP665EC43R7-10	650698-C43	UHMW-PE	RM051S-C	Single	67342-1	Polyethylene urethane single lip	Carbon steel
NP665EC43R7-21					66732-1	Polyethylene urethane double lip	
NP665EC43R7-30					67347-1	Neoprene single tube	Aluminum
NP665EC43R7-31					67347-2	EPR single tube	
NP665EC43R8-10	650698-C43	UHMW-PE	RM052S-C	Two	67342-1	Polyethylene urethane single lip	Carbon steel
NP665EC43R8-21					66732-1	Polyethylene urethane double lip	
NP665EC43R8-30					67347-1	Buna single tube	Aluminum

## Popular extrusion accessories

Part No.	Description
<b>EXTRUSION GUN NOZZLE KITS</b> ORIFICE DIAMETER 0.031" - 0.375" AVAILABLE	
66541-6	Orifice 0.063"
66541-9	Orifice 0.093"
66541-12	Orifice 0.125"
<b>MANUAL EXTRUSION GUNS</b>	
651500	For material over 200,000 cP 3/8" (F) inlet
651533	For low- to medium-viscosity fluids 1/4" NPS (M) inlet
<b>SWIVELS</b>	
636085	Straight, 3/8" (M) x 3/8" (F) / fabric with neoprene / 8,000 psi max. working pressure
636088	Z-360°, 3/8" (M) x 3/8" (F) / fabric with neoprene / 8,000 psi max. working pressure
75364	Straight, for use with 651533 gun / 1/4"-18 NPTF to 1/4"-18 NPSM / 10,000 psi max. working pressure
<b>MATERIAL HOSES</b>	
628081-25	25' - 3/8" x 3/8" RTV / MoistureLok™ hose
628084-25	25' - 1/2" x 1/2" RTV / MoistureLok™ hose
621409-20	20' - nylon hose with thermoplastic cover, 3/8" ID with 3/8" (M) NPT fittings, 5,000 psi max working pressure, -40 F to 212 F
621525-20	20' - nylon hose with thermoplastic cover, 1/2" ID with 1/2" (M) NPT fittings, 5,000 psi max working pressure, -40 F to 212 F
623511-20	20' - polyamide hose polyurethane cover, 1/2" ID with 1/2" (M) NPT fittings, 6,500 psi max working pressure, -40 F to 140 F
623412-20	20' - polyamide hose with polyurethane cover, 3/8" ID with 3/8" (M) NPT fittings, 6,450 psi max working pressure, -40 F to 140 F

Part No.	Description
<b>3/8" FLUID PRESSURE REGULATORS</b>	
651780-A3A-B	Regulated 400 - 1,250 psi / 3,000 psi max. inlet / stainless steel
651780-B1A-B	Regulated 400 - 1,250 psi / 3,000 psi max. inlet / carbon steel
651780-B1B-B	Regulated 400 - 1,250 psi / 5,000 psi max. inlet / carbon steel
651780-B3R-B	Regulated 400 - 1,250 psi / 5,000 psi max. inlet / stainless steel
<b>MATERIAL FILTERS</b>	
651420-70	1/2" F (2) inlet 1/2" F (1) outlet / 6,000 psi max. / 200 micron / CS
651422-70	1/2" F (2) inlet 1/2" F (1) outlet / 6,000 psi max. / 200 micron / SS
<b>RAMS</b>	
RM051S-B	Basic ram includes ram air controls only; single post
RM051S-C	Advanced ram includes ram and pump air controls; single post
RM052S-B	Basic ram includes ram air controls only; two post
RM052S-C	Advanced ram includes ram and pump air controls; two post
67425	Portability kit for a single post ram
<b>REDUCER BUSHINGS</b> CONNECTS PUMP TO 3/8- OR 1/2-INCH HOSES	
Y45-306-T	1/2" NPT to 3/8" NPT
Y45-312-T	1" NPT to 1/2" NPT
97141	3/4" NPT to 1/2" NPT

### Don't see what you're looking for?

ARO offers a complete line of follower plates, manual and automatic extrusion guns, filters, regulators, swivels, and hoses. Just let us know what you need.



# 46:1 piston pump



► **Reliability** — our pumps employ longer strokes that cycle less frequently, delivering the same quantity of fluid with less pulsation than other brands, and ultimately prolonging motor life

► **Quality** — abrasion ruins pumps, but ARO pumps use hard chrome or ultra-coated abrasion-resistant plungers and cylinders to ensure the integrity of these critical components

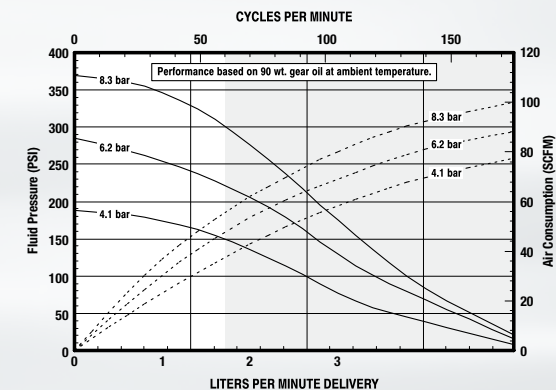
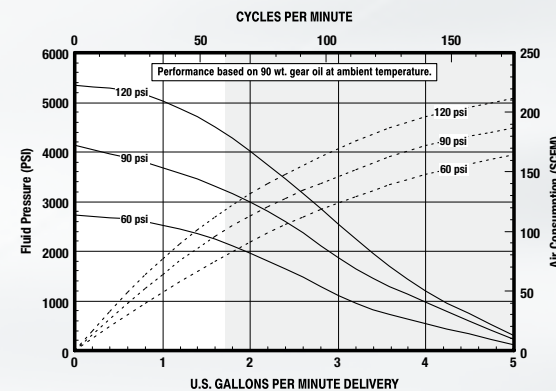
► **Maximized pump life** — ARO pumps feature a visible solvent cup, adjustable packings, and Wet Sol™ lubricant (part no. 66334-B) to minimize downtime and extend the life of the pump



► **Contaminant protection** — the design of our pump ensures that fluids will not contaminate the air motor

► **Superior seal wear** — extensive laboratory testing with some of the harshest materials enables ARO to bring you a packing design that consistently delivers superior seal wear characteristics

Specifications	
<b>EXTRUSION PUMP</b>	<b>650692-X43-B</b>
Lower pump material	Carbon steel
Plunger material	17-4 stainless steel, chrome-plated
Air motor	65665-B
Air motor diameter — in (mm)	6" (152.4)
Air inlet (female)	1/2 - 14 NPTF-1
Exhaust port (female)	1-1/4 - 11-1/2 NPTF-1
Lower pump model	66266-X43-B
Stroke — in (mm)	6" (152.4)
Material outlet (female)	1 - 11-1/2 NPTF-1
Weight — lb (kg)	67 (30.4)
Air inlet pressure range — psi (bar)	0 - 150 (0 - 10.3)
Fluid pressure range — psi (bar)	0 - 7,485 (0 - 516.2)
Maximum cycles / minute	60
Displacement per cycle — cu in (cm³)	6.97 (114.2)
Cycles per gallon	33.1
Flow @ 60 cycles / minute — gpm (L/min)	1.8 (6.9)
Noise level @ 60 psi — 40 cpm	83.0 db(A)



Model	PUMP Model	Packing	RAM Model	Posts	Model	FOLLOWER Description	Material
<b>RAM PACKAGES</b>							
<b>NP646EC43R7-10</b>	650692-C43-B	UHMW-PE	RM051S-C	Single	67342-1	Polyethylene urethane single lip	Carbon steel
<b>NP646EC43R8-10</b>	650692-C43-B	UHMW-PE	RM052S-C	Two	67342-1	Polyethylene urethane single lip	

## Popular extrusion accessories

Part No.	Description
<b>EXTRUSION GUN NOZZLE KITS</b>	
<b>ORIFICE DIAMETER 0.031" - 0.375" AVAILABLE</b>	
66541-6	Orifice 0.063"
66541-9	Orifice 0.093"
66541-12	Orifice 0.125"
<b>MANUAL EXTRUSION GUNS</b>	
651500	For material over 200,000 cP 3/8" (F) inlet
651533	For low- to medium-viscosity fluids 1/4" NPS (M) inlet
<b>SWIVELS</b>	
636085	Straight, 3/8" (M) x 3/8" (F) / fabric with neoprene / 8,000 psi max. working pressure
636088	Z-360°, 3/8" (M) x 3/8" (F) / fabric with neoprene / 8,000 psi max. working pressure
75364	Straight, for use with 651533 gun / 1/4"-18 NPTF to 1/4"-18 NPSM / 10,000 psi max. working pressure
<b>MATERIAL HOSES</b>	
628081-25	25' - 3/8" x 3/8" RTV / MoistureLok™ hose
628084-25	25' - 1/2" x 1/2" RTV / MoistureLok™ hose
621409-20	20' - nylon hose with thermoplastic cover, 3/8" ID with 3/8" (M) NPT fittings, 5,000 psi max working pressure, -40 F to 212 F
621525-20	20' - nylon hose with thermoplastic cover, 1/2" ID with 1/2" (M) NPT fittings, 5,000 psi max working pressure, -40 F to 212 F
623511-20	20' - polyamide hose polyurethane cover, 1/2" ID with 1/2" (M) NPT fittings, 6,500 psi max working pressure, -40 F to 140 F
623412-20	20' - polyamide hose with polyurethane cover, 3/8" ID with 3/8" (M) NPT fittings, 6,450 psi max working pressure, -40 F to 140 F

Part No.	Description
<b>3/8" FLUID PRESSURE REGULATORS</b>	
651780-A3A-B	Regulated 400 - 1,250 psi / 3,000 psi max. inlet / stainless steel
651780-B1A-B	Regulated 400 - 1,250 psi / 3,000 psi max. inlet / carbon steel
651780-B1B-B	Regulated 400 - 1,250 psi / 5,000 psi max. inlet / carbon steel
651780-B3R-B	Regulated 400 - 1,250 psi / 5,000 psi max. inlet / stainless steel
<b>MATERIAL FILTERS</b>	
651420-70	1/2" F (2) inlet 1/2" F (1) outlet / 6,000 psi max. / 200 micron / CS
651422-70	1/2" F (2) inlet 1/2" F (1) outlet / 6,000 psi max. / 200 micron / SS
<b>RAMS</b>	
RM051S-B	Basic ram includes ram air controls only; single post
RM051S-C	Advanced ram includes ram and pump air controls; single post
RM052S-B	Basic ram includes ram air controls only; two post
RM052S-C	Advanced ram includes ram and pump air controls; two post
67425	Portability kit for a single post ram
<b>REDUCER BUSHINGS</b>	
<b>CONNECTS PUMP TO 3/8- OR 1/2-INCH HOSES</b>	
Y45-306-T	1/2" NPT to 3/8" NPT
Y45-312-T	1" NPT to 1/2" NPT
97141	3/4" NPT to 1/2" NPT

### Don't see what you're looking for?

ARO offers a complete line of follower plates, manual and automatic extrusion guns, filters, regulators, swivels, and hoses. Just let us know what you need.



# 44:1 piston pump



► **Reliability** — our pumps' long 6" stroke cycles less frequently than other brands and delivers the same quantity of fluid and ultimately prolongs motor life

► **Modular design** — our tie rod construction permits quick tear-down and repair to minimize downtime

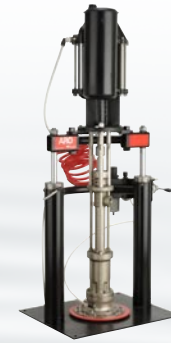
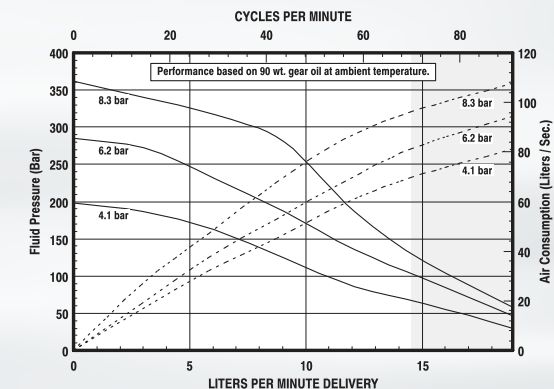
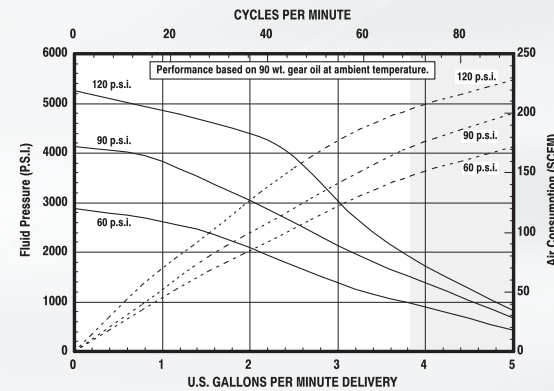
► **Maximized pump life** — ARO pumps feature a visible solvent cup, adjustable packings, and Wet Sol™ lubricant (part no. 66334-B) to minimize downtime and extend the life of the pump



► **Contaminant protection** — the design of our pump ensures that fluids will not contaminate the air motor

► **Superior seal wear** — extensive laboratory testing with some of the harshest materials enables ARO to bring you a packing design that consistently delivers superior seal wear characteristics

Specifications	
<b>EXTRUSION PUMP</b>	<b>650891-XXD-C</b>
Lower pump material	Carbon steel
Plunger material	17-4 stainless steel, chrome-plated
Air motor	66523-B
Air motor diameter — in (mm)	8" (203)
Air inlet (female)	3/4 - 14 NPTF-1
Exhaust port (female)	1-1/4 - 11-1/2 NPTF-1
Lower pump model	66243-XXD-B
Stroke — in (mm)	6" (152.4)
Material outlet (female)	1 - 11-1/2 NPTF-1
Weight — lb (kg)	89 (40.4)
Air inlet pressure range — psi (bar)	30 – 120 (2.1 – 8.3)
Fluid pressure range — psi (bar)	1,320 – 5,964 (91 – 411.3)
Maximum cycles / minute	70
Displacement per cycle — cu in (cm³)	12.5 (204.8)
Cycles per gallon	18.5
Flow @ 70 cycles / minute — gpm (L/min)	3.8 (14.3)
Noise level @ 60 psi — 40 cpm	89.8 db(A)



Model	PUMP Model	Packing	RAM Model	Posts	FOLLOWER Model	Description	Material
<b>RAM PACKAGES</b>							
<b>NP844EC4DR8-10</b>	650891-C4D-C	UHMW-PE	RM052S-C	Two	67342-1	Polyethylene urethane single lip	Carbon steel

## Popular extrusion accessories

### EXTRUSION GUN NOZZLE KITS ORIFICE DIAMETER 0.031" – 0.375" AVAILABLE

Part No.	Description
66541-6	Orifice 0.063"
66541-9	Orifice 0.093"
66541-12	Orifice 0.125"

### MANUAL EXTRUSION GUNS

651500	For material over 200,000 cP 3/8" (F) inlet
651533	For low- to medium-viscosity fluids 1/4" NPS (M) inlet

### SWIVELS

636085	Straight, 3/8" (M) x 3/8" (F) / fabric with neoprene / 8,000 psi max. working pressure
636088	Z-360°, 3/8" (M) x 3/8" (F) / fabric with neoprene / 8,000 psi max. working pressure
75364	Straight, for use with 651533 gun / 1/4"-18 NPTF to 1/4"-18 NPSM / 10,000 psi max. working pressure

### MATERIAL HOSES

628081-25	25' - 3/8" x 3/8" RTV / MoistureLok™ hose
628084-25	25' - 1/2" x 1/2" RTV / MoistureLok™ hose
621409-20	20' - nylon hose with thermoplastic cover, 3/8" ID with 3/8" (M) NPT fittings, 5,000 psi max working pressure, -40 F to 212 F
621525-20	20' - nylon hose with thermoplastic cover, 1/2" ID with 1/2" (M) NPT fittings, 5,000 psi max working pressure, -40 F to 212 F
623511-20	20' - polyamide hose polyurethane cover, 1/2" ID with 1/2" (M) NPT fittings, 6,500 psi max working pressure, -40 F to 140 F
623412-20	20' - polyamide hose with polyurethane cover, 3/8" ID with 3/8" (M) NPT fittings, 6,450 psi max working pressure, -40 F to 140 F

### 3/8" FLUID PRESSURE REGULATORS

651780-A3A-B	Regulated 400 – 1,250 psi / 3,000 psi max. inlet / stainless steel
651780-B1A-B	Regulated 400 – 1,250 psi / 3,000 psi max. inlet / carbon steel
651780-B1B-B	Regulated 400 – 1,250 psi / 5,000 psi max. inlet / carbon steel
651780-B3R-B	Regulated 400 – 1,250 psi / 5,000 psi max. inlet / stainless steel

### MATERIAL FILTERS

651420-70	1/2" F (2) inlet 1/2" F (1) outlet / 6,000 psi max. / 200 micron / CS
651422-70	1/2" F (2) inlet 1/2" F (1) outlet / 6,000 psi max. / 200 micron / SS

### RAMS

RM051S-B	Basic ram includes ram air controls only; single post
RM051S-C	Advanced ram includes ram and pump air controls; single post
RM052S-B	Basic ram includes ram air controls only; two post
RM052S-C	Advanced ram includes ram and pump air controls; two post
67425	Portability kit for a single post ram

### REDUCER BUSHINGS CONNECTS PUMP TO 3/8- OR 1/2-INCH HOSES

Y45-306-T	1/2" NPT to 3/8" NPT
Y45-312-T	1" NPT to 1/2" NPT
97141	3/4" NPT to 1/2" NPT

### Don't see what you're looking for?

ARO offers a complete line of follower plates, manual and automatic extrusion guns, filters, regulators, swivels, and hoses. Just let us know what you need.



# 43:1 piston pump



► **Reliability** — ARO has incorporated years of experience and knowledge into the development of our air motors; this model is historically one of our most versatile and popular pumps

► **Modular design** — our tie rod construction permits quick tear-down and repair to minimize downtime

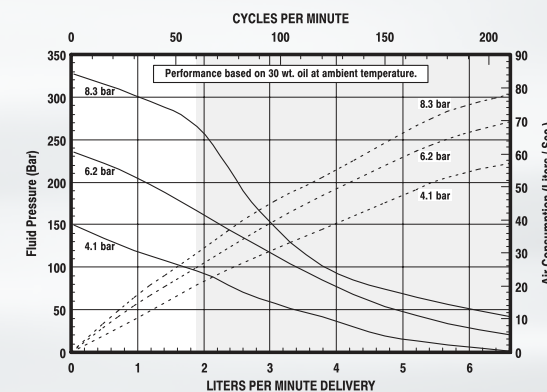
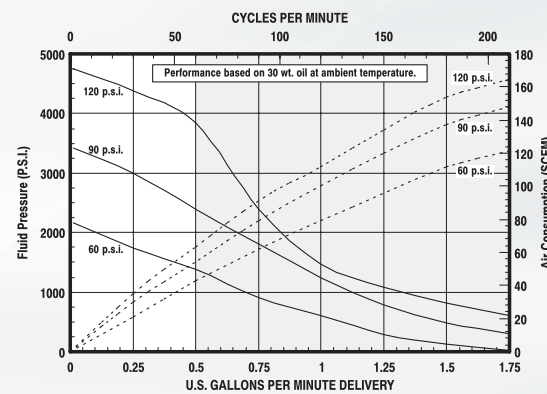
► **Maximized pump life** — ARO pumps feature a visible solvent cup, adjustable packings, and Wet Sol™ lubricant (part no. 66334-B) to minimize downtime and extend the life of the pump



► **Superior seal wear** — extensive laboratory testing with some of the harshest materials enables ARO to bring you a packing design that consistently delivers superior seal wear characteristics

► **Rugged materials** — ARO understands that a pump's external materials are as critical as the internal materials in terms of pump performance, and that's why we offer stainless steel and carbon steel options to meet your needs

Specifications	
<b>EXTRUSION PUMP</b>	<b>6712X-P4X</b>
Lower pump material	316 stainless steel OR carbon steel
Plunger material	17-4 stainless steel, chrome-plated
Air motor	65440
Air motor diameter — in (mm)	4.25" (107.9)
Air inlet (female)	1/2 - 14 NPTF-1
Exhaust port (female)	1-1/4 -11-1/2 NPTF-1
Lower pump model	6710X-P4X
Stroke — in (mm)	4" (101.6)
Material outlet (female)	1/2 - 14 NPTF-1
Weight — lb (kg)	44 (20.0) SS / 52.9 (24.0) CS
Air inlet pressure range — psi (bar)	0 - 150 (0 - 10.3)
Fluid pressure range — psi (bar)	0 - 6,549 (0 - 451.7)
Maximum cycles / minute	60
Displacement per cycle — cu in (cm³)	2.85 (46.7)
Cycles per gallon	81
Flow @ 60 cycles / minute — gpm (L/min)	0.74 (2.8)
Noise level @ 60 psi — 40 cpm	80.0 db(A)



Model	PUMP Model	Packing	RAM Model	Posts	Model	FOLLOWER Description	Material
<b>RAM PACKAGES</b>							
NP443EP43R7-10	67120-P43	UHMW-PE	RM051S-C	Single	651840-1	Polyethylene urethane single lip	Carbon steel
NP443FP43R7-13	67121-P43				651841-1		Stainless steel
NP443EP43R8-10	67120-P43	UHMW-PE	RM052S-C	Two	651840-1	Polyethylene urethane single lip	Carbon steel
NP443FP43R8-13	67121-P43				651841-1		Stainless steel

## Popular extrusion accessories

Part No.	Description
<b>EXTRUSION GUN NOZZLE KITS</b>	
<b>ORIFICE DIAMETER 0.031" - 0.375" AVAILABLE</b>	
66541-6	Orifice 0.063"
66541-9	Orifice 0.093"
66541-12	Orifice 0.125"
<b>MANUAL EXTRUSION GUNS</b>	
651500	For material over 200,000 cP 3/8" (F) inlet
651533	For low- to medium-viscosity fluids 1/4" NPS (M) inlet
<b>SWIVELS</b>	
636085	Straight, 3/8" (M) x 3/8" (F) / fabric with neoprene / 8,000 psi max. working pressure
636088	Z-360°, 3/8" (M) x 3/8" (F) / fabric with neoprene / 8,000 psi max. working pressure
75364	Straight, for use with 651533 gun / 1/4"-18 NPTF to 1/4"-18 NPSM / 10,000 psi max. working pressure
<b>MATERIAL HOSES</b>	
628081-25	25' - 3/8" x 3/8" RTV / MoistureLok™ hose
628084-25	25' - 1/2" x 1/2" RTV / MoistureLok™ hose
621409-20	20'- nylon hose with thermoplastic cover, 3/8" ID with 3/8" (M) NPT fittings, 5,000 psi max working pressure, -40 F to 212 F
621525-20	20'- nylon hose with thermoplastic cover, 1/2" ID with 1/2" (M) NPT fittings, 5,000 psi max working pressure, -40 F to 212 F
623511-20	20'- polyamide hose polyurethane cover, 1/2" ID with 1/2" (M) NPT fittings, 6,500 psi max working pressure, -40 F to 140 F
623412-20	20'- polyamide hose with polyurethane cover, 3/8" ID with 3/8" (M) NPT fittings, 6,450 psi max working pressure, -40 F to 140 F

Part No.	Description
<b>3/8" FLUID PRESSURE REGULATORS</b>	
651780-A3A-B	Regulated 400 - 1,250 psi / 3,000 psi max. inlet / stainless steel
651780-B1A-B	Regulated 400 - 1,250 psi / 3,000 psi max. inlet / carbon steel
651780-B1B-B	Regulated 400 - 1,250 psi / 5,000 psi max. inlet / carbon steel
651780-B3R-B	Regulated 400 - 1,250 psi / 5,000 psi max. inlet / stainless steel
<b>MATERIAL FILTERS</b>	
651420-70	1/2" F (2) inlet 1/2" F (1) outlet / 6,000 psi max. / 200 micron / CS
651422-70	1/2" F (2) inlet 1/2" F (1) outlet / 6,000 psi max. / 200 micron / SS
<b>RAMS</b>	
RM051S-B	Basic ram includes ram air controls only; single post
RM051S-C	Advanced ram includes ram and pump air controls; single post
RM052S-B	Basic ram includes ram air controls only; two post
RM052S-C	Advanced ram includes ram and pump air controls; two post
67425	Portability kit for a single post ram
<b>REDUCER BUSHINGS</b>	
<b>CONNECTS PUMP TO 3/8- OR 1/2-INCH HOSES</b>	
Y45-306-T	1/2" NPT to 3/8" NPT
Y45-312-T	1" NPT to 1/2" NPT
97141	3/4" NPT to 1/2" NPT

### Don't see what you're looking for?

ARO offers a complete line of follower plates, manual and automatic extrusion guns, filters, regulators, swivels, and hoses. Just let us know what you need.



# 23:1 piston pump



► **Reliability** — long strokes cycle less frequently than other brands and deliver the same quantity of fluid and ultimately prolong motor life

► **Modular design** — our tie rod construction permits quick tear-down and repair to minimize downtime

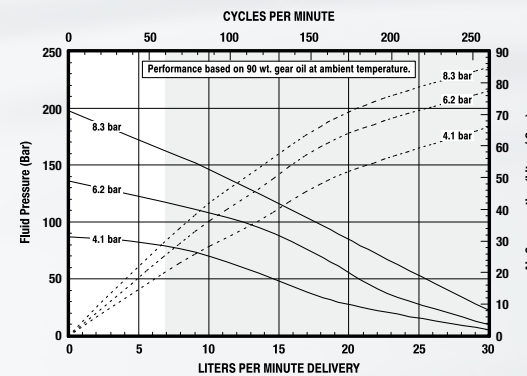
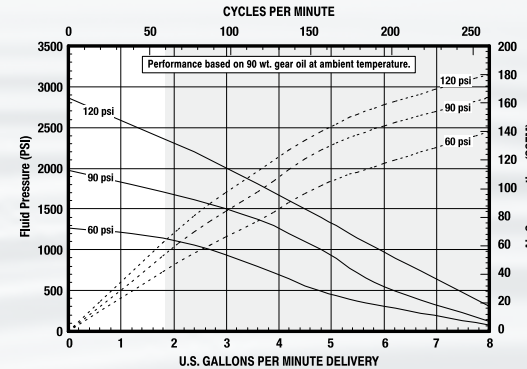
► **Maximized pump life** — ARO pumps feature a visible solvent cup, adjustable packings, and Wet Sol™ lubricant (part no. 66334-B) to minimize downtime and extend the life of the pump



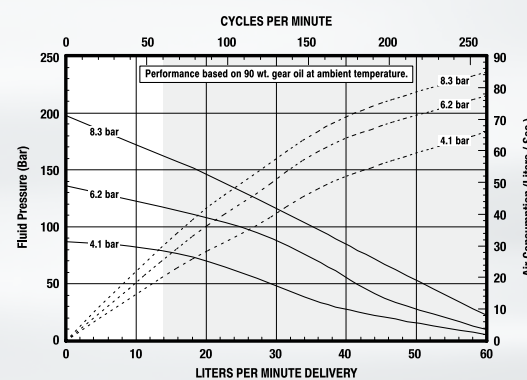
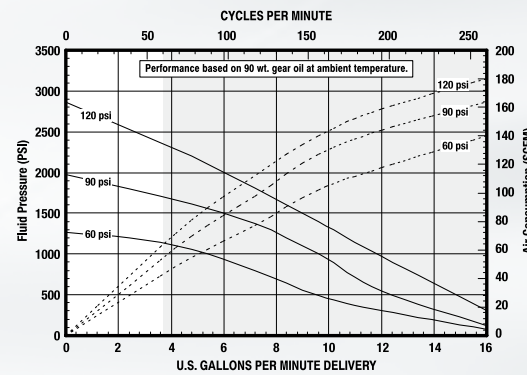
► **Superior seal wear** — extensive laboratory testing with some of the harshest materials enables ARO to bring you a packing design that consistently delivers superior seal wear characteristics

Specifications		
EXTRUSION PUMP	650492-X43-B	650691-XXX-B
Lower pump material	Carbon steel	Carbon steel
Plunger material	Stainless steel	Stainless steel
Air motor	65465-B	65665-B
Air motor diameter — in (mm)	4.25" (108)	6" (152)
Air inlet (female)	1/2 - 14 NPTF-1	1/2 - 14 NPTF-1
Exhaust port (female)	1-1/4 -11-1/2 NPTF-1	1-1/4 -11-1/2 NPTF-1
Lower pump model	66266-X43-B	66243-XX3-B
Stroke — in (mm)	6" (152)	6" (152)
Material outlet (female)	1 - 11-1/2 NPTF-1	1 - 11-1/2 NPTF-1
Weight — lb (kg)	63.7 (28.9)	67.3 (30.5)
Air inlet pressure range — psi (bar)	0 - 150 (0 - 10.3)	0 - 150 (0 - 10.3)
Fluid pressure range — psi (bar)	0 - 3,690 (0 - 254.5)	0 - 4,215 (0 - 290.7)
Maximum cycles / minute	60	60
Displacement per cycle — cu in (cm³)	6.97 (114.2)	12.5 (204.8)
Cycles per gallon	33.1	18.5
Flow @ 60 cycles / min — gpm (L/min)	1.8 (6.9)	3.2 (12.3)
Noise level @ 60 psi — 40 cpm	80.0 dbA	83.0 db(A)

650492-X43-B



650691-XXX-B



Model	PUMP Model	Packing	RAM Model	Posts	Model	FOLLOWER Description	Material
<b>RAM PACKAGES</b>							
NP423EC43R7-10	650492-C43-B	UHMW-PE	RM051S-C	Single	67342-1	Polyethylene urethane single lip	Carbon steel
NP623EC43R7-10	650691-C43-B						
NP423EC43R8-10	650492-C43-B	UHMW-PE	RM052S-C	Two	67342-1	Polyethylene urethane single lip	Carbon steel
NP623EC43R8-10	650691-C43-B						

## Popular extrusion accessories

Part No.	Description
<b>EXTRUSION GUN NOZZLE KITS</b>	
<b>ORIFICE DIAMETER 0.031" - 0.375" AVAILABLE</b>	
66541-6	Orifice 0.063"
66541-9	Orifice 0.093"
66541-12	Orifice 0.125"
<b>MANUAL EXTRUSION GUNS</b>	
651500	For material over 200,000 cP 3/8" (F) inlet
651533	For low- to medium-viscosity fluids 1/4" NPS (M) inlet
<b>SWIVELS</b>	
636085	Straight, 3/8" (M) x 3/8" (F) / fabric with neoprene / 8,000 psi max. working pressure
636088	Z-360°, 3/8" (M) x 3/8" (F) / fabric with neoprene / 8,000 psi max. working pressure
75364	Straight, for use with 651533 gun / 1/4"-18 NPTF to 1/4"-18 NPSM / 10,000 psi max. working pressure
<b>MATERIAL HOSES</b>	
628081-25	25' - 3/8" x 3/8" RTV / MoistureLok™ hose
628084-25	25' - 1/2" x 1/2" RTV / MoistureLok™ hose
621409-20	20' - nylon hose with thermoplastic cover, 3/8" ID with 3/8" (M) NPT fittings, 5,000 psi max working pressure, -40 F to 212 F
621525-20	20' - nylon hose with thermoplastic cover, 1/2" ID with 1/2" (M) NPT fittings, 5,000 psi max working pressure, -40 F to 212 F
623511-20	20' - polyamide hose polyurethane cover, 1/2" ID with 1/2" (M) NPT fittings, 6,500 psi max working pressure, -40 F to 140 F
623412-20	20' - polyamide hose with polyurethane cover, 3/8" ID with 3/8" (M) NPT fittings, 6,450 psi max working pressure, -40 F to 140 F

Part No.	Description
<b>3/8" FLUID PRESSURE REGULATORS</b>	
651780-A3A-B	Regulated 400 - 1,250 psi / 3,000 psi max. inlet / stainless steel
651780-B1A-B	Regulated 400 - 1,250 psi / 3,000 psi max. inlet / carbon steel
651780-B1B-B	Regulated 400 - 1,250 psi / 5,000 psi max. inlet / carbon steel
651780-B3R-B	Regulated 400 - 1,250 psi / 5,000 psi max. inlet / stainless steel
<b>MATERIAL FILTERS</b>	
651420-70	1/2" F (2) inlet 1/2" F (1) outlet / 6,000 psi max. / 200 micron / CS
651422-70	1/2" F (2) inlet 1/2" F (1) outlet / 6,000 psi max. / 200 micron / SS
<b>RAMS</b>	
RM051S-B	Basic ram includes ram air controls only; single post
RM051S-C	Advanced ram includes ram and pump air controls; single post
RM052S-B	Basic ram includes ram air controls only; two post
RM052S-C	Advanced ram includes ram and pump air controls; two post
67425	Portability kit for a single post ram
<b>REDUCER BUSHINGS</b>	
<b>CONNECTS PUMP TO 3/8- OR 1/2-INCH HOSES</b>	
Y45-306-T	1/2" NPT to 3/8" NPT
Y45-312-T	1" NPT to 1/2" NPT
97141	3/4" NPT to 1/2" NPT

### Don't see what you're looking for?

ARO offers a complete line of follower plates, manual and automatic extrusion guns, filters, regulators, swivels, and hoses. Just let us know what you need.



# 22:1 piston pump



► **Reliability** — ARO set out to build a pump to improve flow, reduce pulsations, and extend service; patented “Thunder Motor” pump exemplifies every quality a pump should possess

► **Serviceability** — quick, easy, and simple are three words that describe servicing this pump; ARO offers affordable repair kits for both air motor and pump lowers

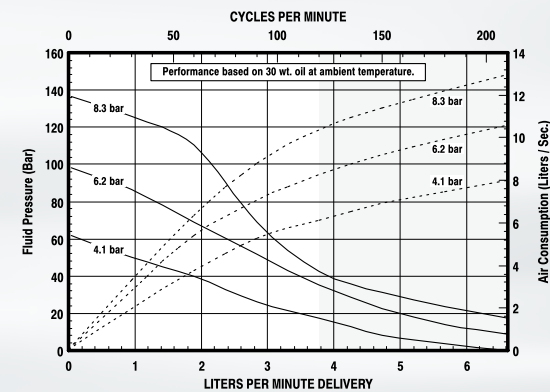
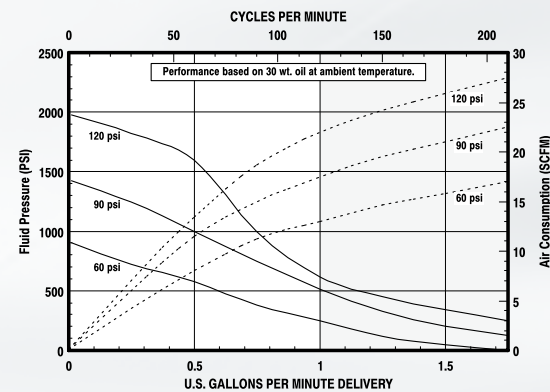
► **Maximized pump life** — ARO pumps feature a visible solvent cup, adjustable packings, and Wet Sol™ lubricant (part no. 66334-B) to minimize downtime and extend the life of the pump



► **Superior seal wear** — extensive laboratory testing with some of the harshest materials enables ARO to bring you a packing design that consistently delivers superior seal wear characteristics

► **Rugged materials** — ARO understands that a pump’s external materials are as critical as the internal materials in terms of pump performance, and that’s why we offer stainless steel and carbon steel options to meet your needs

Specifications	
<b>EXTRUSION PUMP</b>	<b>NM2322X-X1-P4X</b>
Lower pump material	Stainless steel OR carbon steel
Plunger material	17-4 stainless steel
Air motor	66915
Air motor diameter — in (mm)	3" (76.2)
Air inlet (female)	1/4" - 18 NPT
Lower pump model	6710X-P4X
Stroke — in (mm)	3" (76.2)
Material outlet (female)	1/2" - 14 NPT
Weight — lb (kg)	29 (13.2)
Air inlet pressure range — psi (bar)	0 – 150 (0 – 10.3)
Fluid pressure range — psi (bar)	0 – 3,300 (0 – 227.6)
Maximum cycles / minute	120
Displacement per cycle — cu in (cm³)	1.9 (31.1)
Cycles per gallon	121.6
Flow @ 60 cycles / minute — gpm (L/min)	0.5 (1.9)
Noise level @ 100 psi — 40 cpm	85.0 db(A)



Model	PUMP Model	Packing	RAM Model	Posts	Model	FOLLOWER Description	Material
<b>RAM PACKAGES</b>							
<b>NP322EP43R7-10</b>	NM2322F-11-P43	UHMW-PE	RM051S-C	Single	651840-1	Polyethylene urethane wiper	Carbon steel
<b>NP322FP43R7-13</b>					651841-1		Stainless steel
<b>NP322EP43R8-10</b>	NM2322E-11-P43	UHMW-PE	RM052S-C	Two	651840-1	Polyethylene urethane wiper	Carbon steel
<b>NP322FP43R8-13</b>					651841-1		Stainless steel

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651780-B1B-B	Regulated 400 – 1,250 psi / 5,000 psi max. inlet / carbon steel
651780-B3R-B	Regulated 400 – 1,250 psi / 5,000 psi max. inlet / stainless steel
<b>MATERIAL FILTERS</b>	
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