



**Positive
Displacement
Rotary Piston
Pumps**



www.trirotor.com
800-782-4477



First in Building Pumps that Last



Model 20DV, CW, w/MFC,
PRC and IVMS

Tri-Rotor has been manufacturing *long life* pumps and parts to exacting standards ever since the "shuttle block" rotary piston pump was invented in the early 1900s. Tri-Rotor has made many improvements to our pumps along the way, but we have always designed them to be completely interchangeable with our original pumps. As a result, we have the ability to replace or retrofit even the oldest pumps from in-stock parts or with minor modifications. (Pump records are on file as far back as the 1930s.)

Although Tri-Rotor has a long history, we are always looking toward the future. As today's source for the most durable and efficient rotary piston pumps, we can assure you that we will continue to be available in the future to meet your industrial pumping needs.

Our Long Life Pumps

Tri-Rotor pumps have an exceptionally long service life. They are designed with:

- only 3 moving parts, for simplicity
- an extra-long bronze shaft bearing
- an oversize packing gland

The benefits of Tri-Rotor pumps include:

- practically noiseless operation
- minimum maintenance requirements
- will not chew, aerate or foam the material pumped
- exceptional volumetric efficiency on highly viscous liquids
- handling of thin, volatile materials with little loss in slippage
- continuous discharge pressure and steady flow rate



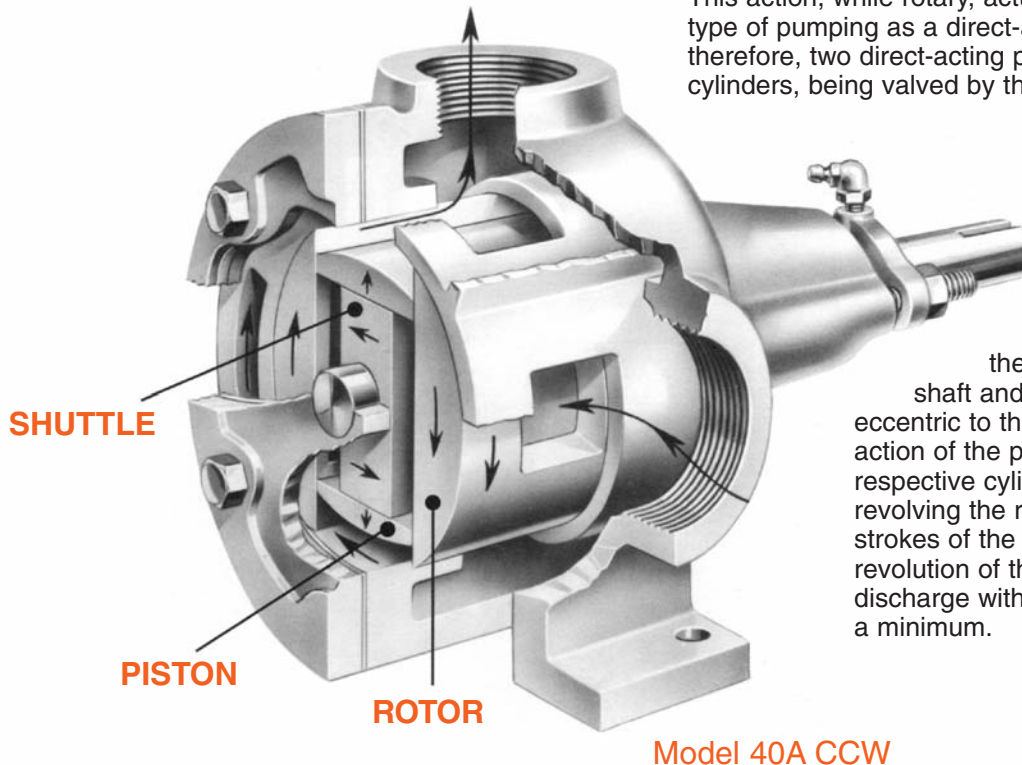
Model 120A Top Suction,
CCW Fully Jacketed

Tri-Rotor's Unique Pumping Principle



The mechanical principle of Tri-Rotor pumps incorporates the pump casing, rotor, piston and shuttle. The rotor is liquid-tight in its fit within the casing, with the piston and shuttle being equally liquid-tight in their fit to each other and to the rotor. In operation, the piston slides back and forth in the rotor slot while the shuttle slides back and forth within the piston slot (see illustration). Liquid is drawn through one rotor port and discharged through the other. The rotor, which functions as a rotating valve, channels the liquid from the intake port around through the casing and out the discharge port.

This action, while rotary, actually accomplishes the same type of pumping as a direct-acting piston pump. There are, therefore, two direct-acting pistons pumping through two cylinders, being valved by the rotary action of the rotor.



The reciprocating piston action is accomplished by the center bearing of the shuttle which rotates on the shuttle pin eccentric to the rotor shaft. Since the rotor is concentric with the shaft and the shuttle bearing is eccentric to the shaft, a reciprocating action of the piston and shuttle within their respective cylinder slots is created by revolving the rotor. Four overlapping strokes of the piston and shuttle for each revolution of the rotor create a smooth discharge with pulsation reduced to a minimum.

Model 40A CCW

Versatile Pumping Capabilities

Tri-Rotor pumps excel in pumping both common materials and difficult-to-handle products in industrial applications. The following is a partial list of materials successfully handled by our pumps:

- | | | | |
|--------------------|--------------------|--------------|-----------------|
| • gasoline | • tallow | • alcohol | • glycol |
| • lacquer | • glucose | • edible oil | • asphalts |
| • paint | • liquid soap | • jam | • wax |
| • varnish | • sugar syrup | • coolants | • fuel |
| • caustics | • molasses | • fish oil | • petrolatum |
| • oils | • corn syrup | • grease | • JP4, JP5, JP8 |
| • solvents | • starch | • shortening | • bitumen |
| • viscose | • ink | • chocolate | • PEPJ compound |
| • silicate of soda | • calcium chloride | • adhesives | • AC 20 cement |



Your Source for Reliable Rotary Piston Pumps

A Pump Series for Every Application

Series 20 (Foot-mounted)

- flow from 4 to 30 GPM (20 GPM at 1140 RPM, 30 GPM at 1800 RPM)
- transfer, relief valve and **variable volume** head types
- for liquids with viscosity from 40/4 to 100,000/21,625
- 1-1/4" and 1-1/2" NPT tapped ports
- speeds from 24 to 1800 RPM



20DV with MFC, CCW

Series 20CP (Close-coupled)

- flow from 12 to 30 GPM (20 GPM at 1140 RPM)
- **transfer**, relief valve and variable volume head types
- for liquids with viscosity from 40/4 to 40,000/8610 (ssu/cps)
- 1-1/4" and 1-1/2" NPT tapped ports
- speeds of 900, 1200 and 1800 RPM



20CP with 68VMS, CCW

Series 40

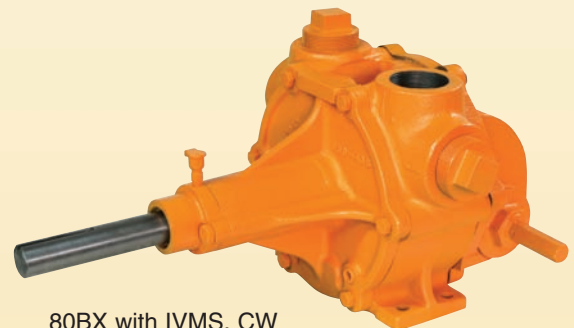
- flow from 4 to 40 GPM (40 GPM at 540 RPM)
- transfer and **relief valve** head types
- for liquids with viscosity from 40/4 to 100,000/21,625 (ssu/cps)
- 1-1/2" and 2" NPT tapped ports
- speeds from 150 to 600 RPM



40AX with IVMS, CW

Series 80

- flow from 15 to 88 GPM (80 GPM at 540 RPM)
- transfer, **relief valve** and variable volume head types
- for liquids with viscosity from 40/4 to 100,000/21,625 (ssu/cps)
- four 2" x 11-1/2" Thd. NPT ports
- speeds from 100 to 600 RPM



80BX with IVMS, CW



Your Source for Reliable Rotary Piston Pumps

Series 100

- flow from 19 to 102 GPM (100 GPM at 675 RPM)
- transfer, **relief valve** and variable volume head types
- for liquids with viscosity from 40/4 to 100,000/21,625 (ssu/cps)
- 3" flanged ports
- speeds from 125 to 690 RPM



100CX Fully Jacketed, CCW

Series 120

- nicknamed "the grease pump"
- transfer, relief valve and **variable volume** head types
- for high viscosity liquids to +3,000,000 ssu/650,000 cps
- 4" flanged top suction and 3" flanged side discharge ports
- speeds matched to viscosity



120AV with MFC, CW

Series 200

- flow from 58 to 240 GPM (200 GPM at 430 RPM)
- transfer, **relief valve** and variable volume head types
- for liquids with viscosity from 40/4 to 100,000/21,625
- 4" flanged ports
- speeds from 125 to 520 RPM



200AX Fully Jacketed, CCW

Series 220

- transfer, relief valve and **variable volume** head types
- for for high viscosity liquids to +5,000,000 ssu/1,000,000 cps
- 4" flanged top suction and 4" flanged side ports
- speeds matched to viscosity



220TX with VFC, CW



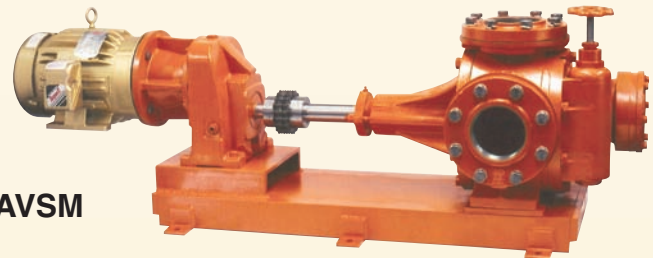
Base Mountings and Drive Assemblies

Complete pumping installations are furnished in configurations designed to meet the requirements of each customer's specifications. Heavy duty drives of all types match the rugged construction of Tri-Rotor pumps.

Style M and SM – Direct Connected Unit

PUMP SERIES	MAX. MOTOR SIZE	STANDARD AVAILABLE PUMP SPEED			
	HP	MAXIMUM		MINIMUM	
		RPM	GPM	RPM	GPM
20	3	1725	30	100	2
40	5	520	36	100	7
80	7½	600	88	100	15
100	10	640	95	100	15
120	10	640	95	100	15
200 220	25	520	240	100	46

200AVSM



- most compact configuration
- pump shaft is connected to either an integral gearhead motor ("M") or footed C-face reducer ("SM")
- direct connection through a flexible chain coupling
- furnished with a coupling guard

Style CFM – Close Coupled Unit

Rating	30 GPM @ 1725 RPM 20 GPM @ 1140 RPM			20CPV VARIABLE VOLUME HEAD		20CPX BYPASS HEAD 20CP SOLID HEAD	
Displacement Factor	1.76 Gals./100 Revs.						
PORT SIZE	1-1/4" & 1-1/2" NPT						
Visc. SSU / CPS	RPM	GPM	Suct.	1725 RPM	1140 RPM	1725 RPM	1140 RPM
40 / 4	1800	30.0	1¼	100% VFC		FULL STROKE	
100 / 20	1200	21.0	1¼	70% VFC		¾ STROKE	
400 / 78	1180	20.6	1¼				
600 /125	1160	20.4	1¼				
800 / 165	1130	19.9	1¼				
1,000 / 200	1120	19.7	1¼				
1,600 / 335	1080	19.0	1¼				
2,000 / 410	1060	18.6	1½	60% VFC 90% VFC			
3,000 / 620	1010	17.7	1½				
5,000 / 1,060	950	16.7	2				
8,000 / 1,700	880	15.5	2	50% VFC 75% VFC		½ STROKE	¾ STROKE
9,000 / 1,900	860	15.1	2				
10,000 / 2,150	1000	17.6	2				
15,000 / 3,100	960	16.9	2½	50% VFC 75% VFC		½ STROKE ¾ STROKE	
20,000 / 4,250	880	15.5	2½				
30,000 / 6,500	800	14.1	3				
40,000 / 8,610	680	12.0	3	40% VFC 60% VFC			
50,000 / 10,800	560	9.9	3				
75,000 / 16,210	400	7.0	3				
100,000 / 21,625	240	4.2	3	15% VFC	20% VFC		¼ STROKE



20CPVCFM

- lightweight and portable, with short "OAL", allowing it to fit anywhere
- requires only the motor feet to be bolted in place
- is self-aligning and eliminates shimming
- all sleeve bearings are lubricated for life – no pump maintenance required
- all moving parts are completely shrouded when guard caps are in place

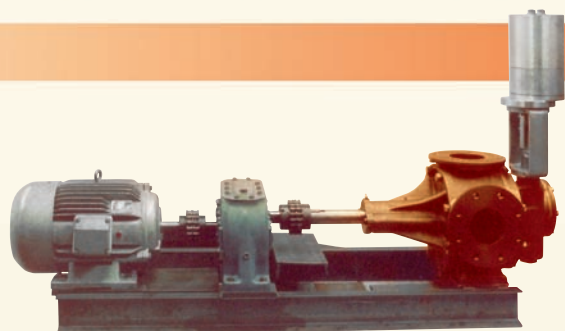


Base Mountings and Drive Assemblies

Style GR – Enclosed Gear Reducer Unit

PUMP SERIES	1725 RPM Motor	STANDARD AVAILABLE PUMP SPEED			
		MAXIMUM		MINIMUM	
	MAX. HP	RPM	GPM	RPM	GPM
40	3	605	42	90	6
80	7 ¹ / ₂	605	90	90	13
100	7 ¹ / ₂	680	100	90	13
120	7 ¹ / ₂	680	100	90	13
200 220	15	506	235	86	40

200AVGRRRA

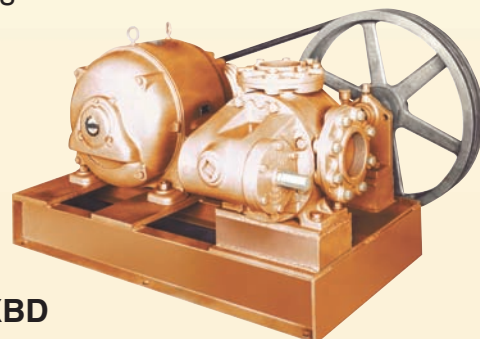


- base-mounted helical gear reducer
- utilizes standard 1725 RPM motor to achieve very low pump speeds (for extremely viscous pumpages)
- enclosed oil bath for long service life and quiet operation
- Jordan Rotary Actuator which can be controlled by a keypad or have a 4 to 20 milli-amp signal sent to your computer
- configuration with an inline input/output shaft reducer is available
- flexible couplings join pump to reducer and reducer to motor
- furnished with coupling guards

Style BD – V-Belt Drive Unit

PUMP SERIES	1725 RPM Motor	STANDARD AVAILABLE PUMP SPEED				1140 RPM Motor	STANDARD AVAILABLE PUMP SPEED			
		MAXIMUM		MINIMUM			MAXIMUM		MINIMUM	
	MAX. HP	RPM	GPM	RPM	GPM	MAX. HP	RPM	GPM	RPM	GPM
20	2	1500	26	438	8	2	975	17	290	5
40	3	600	42	292	20	3	391	27	193	13
80	5	600	90	270	40	5	449	66	176	26
100	5	690	100	270	40	5	449	66	176	26
120	5	690	100	270	40	5	449	66	176	26
200 220	15	520	242	280	130	15	344	160	184	86

200AXBD



- for a wide choice of pump speeds
- pump shaft supported by large lubricated outboard bearing
- static conducting belts for hazardous locations
- adjustable motor pad and belt guard

Also Available

Tri-Rotor also offers portable units, multiple pump configurations, dual proportioning assemblies, silent chain drives, remote control metering, batch metering and infinitely variable control of constituent flows.

Replacement Parts, Modifications and Subassemblies

Body parts (iron, bronze & steel), steam jacketed parts, rotor group parts, variable control head parts, bypass head parts, solid head parts and miscellaneous parts are available as applicable for each Tri-Rotor Pump Series.

COMPOSITION OF TRI-ROTOR PUMPS ACCORDING TO FIT

AB Acetic Acid	AI Fatty Acid	AI Olive Oil
IF Acetone	IF Fish Oil	IF Paint
AB Alcohol	IF Freon	AI Palm Oil
AI Aqueous Ammonia	AB Fruit Juice	IF Petrolatum
AI Asphalt - Hot	IF Fuel Oil	IF Printing ink
AB Beer	Furfural	BF Rosin
AB Blood	BF Gasoline	AB Shellac
AB Boric Acid	BF Glue - Hot	AI Soap Liquor
AI Brine - NaCl	IF Grease	BF Starch
AI Carbon Bisulfide	AI Hydrogen Peroxide	BF Sugar Syrup
AI Carbon Tetrachloride	IF Kerosene	AI Sulfuric Acid - Conc.
AB Catsup	IF Lacquer	AI Sulfuric Acid - Fuming
AI Caustic Potash	AI Lard - Hot	AB Sulfurous Acid
AI Caustic Soda	AI Linseed Oil	AI Tar
BF Chocolate	IF Lubricating Oil	BF Toluene
AB Cider	AB Mash	Turpentine
AB Citric Acid	AB Mayonnaise	BF Varnish
IF Corn Syrup	AI Milk of Magnesia	AB Vegetable Juice
AI Creosote	BF Molasses	Vinegar
IF Crude Oil	AB Mustard	AB Water
IF Enamel	BF Naphtha	IF Wax
IF Ethylene Glycol	AI Naphthenic Acid	AB Wine

Fit Designation	SYM-BOL	Rotor Group			Head Body, & Shaft Housing	Shaft Housing Bushing	Shaft	Shuttle Pin	Control Head*		Bypass Head	
		Rotor	Piston	Shuttle					Plunger	Lever Assm.	Valve	Cage
Iron Fitted	IF	Iron	Iron	Iron	Iron	Bronze	Steel	Steel	Bronze	Steel	Bronze	Iron
Bronze Fitted	BF	Bronze	Iron	Bronze	Iron	Bronze	Steel	Steel	Bronze	Steel	Bronze	Iron
All Iron	AI	Iron	Iron	Iron	Iron	Iron	Steel	Steel	Iron	Steel	Iron	Iron
All Bronze	AB	Bronze	Bronze	Bronze	Bronze	Bronze	Stainless Steel	Monel	Bronze	** Steel	Bronze	Bronze

* Springs, Plates, Caps are Plated Parts in All Bronze Pumps

** Plated

If you are not sure which of our rotary piston pumps is right for your application please contact Tri-Rotor for expert advice concerning the type and viscosity of the liquid to be pumped, as well as the pump head type and flow rate required. A prompt quote will be provided.



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