

# SPXFLOW

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## R Series

ROTARY POSITIVE DISPLACEMENT PUMPS



>APV®

# R Series Positive Displacement Rotary Pumps

## PRODUCT FEATURES AND BENEFITS

SPX FLOW R Series Rotary Pumps are known all over the world for their rugged, long lasting design and efficient performance. Backed by a worldwide sales, engineering and service organization, R Series Rotary Pumps are designed and built in a modern manufacturing facility using the latest programmable automated machine tools. Each component must meet rigid quality control standards.

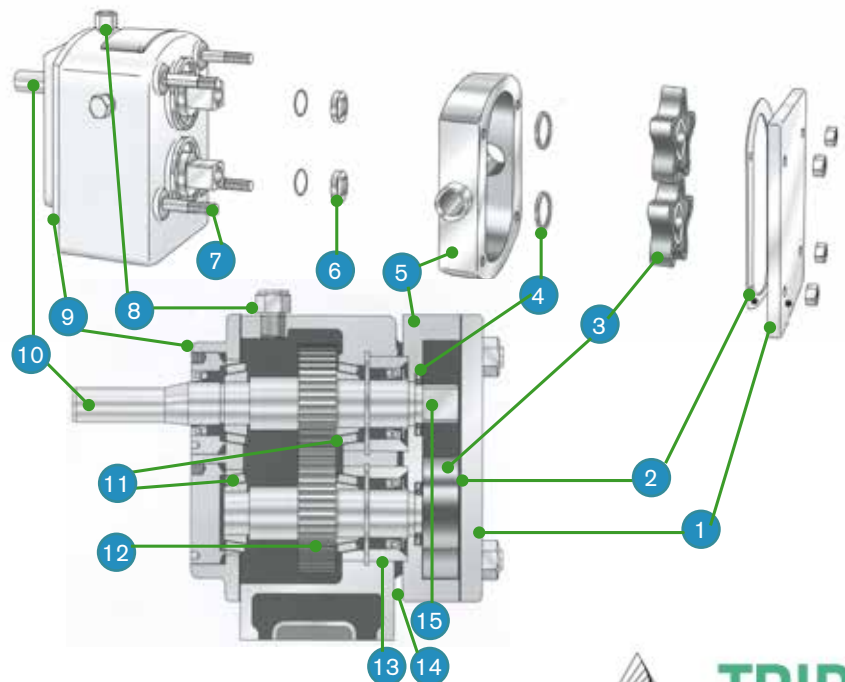
SPX FLOW offers an exceptional range of capacities, rotor types, mounting configurations and options. The exclusive resilient rotors form a continuous flexible seal between suction and discharge. Product flow is positive, continuous, non-agitating and completely controlled at all times.

SPX FLOW, Inc. (NYSE:FLOW) is a leading manufacturer of innovative flow technologies, many of which help define the industry standard in the market segments they serve. From its headquarters in Charlotte, North Carolina, it operates a sales and support network, centers of manufacturing excellence, and advanced engineering facilities, throughout the world. Its cutting-edge flow components and process equipment portfolio includes a wide range of pumps, valves, heat exchangers, mixers, homogenizers, separators, filters, UHT, and drying technology that meet many application needs. Its expert engineering capability also makes it a premium supplier of customized solutions and complete, turn-key packages to meet the most exacting of installation demands.

Incorporating many leading brands, SPX FLOW has a long history of serving the food and beverage, power and energy, and industrial market sectors. Its designs and engineered solutions help customers drive efficiency and productivity, increase quality and reliability, and meet the latest regulatory demands. In-depth understanding of applications and processes, state-of-the-art Innovation Centers, and advanced pilot/testing technology further assist in optimizing processes and reducing timescales to reliably meet production targets.

To learn more about SPX FLOW capabilities, its latest technology innovations and complete service offerings, please visit [www.spxflow.com](http://www.spxflow.com).

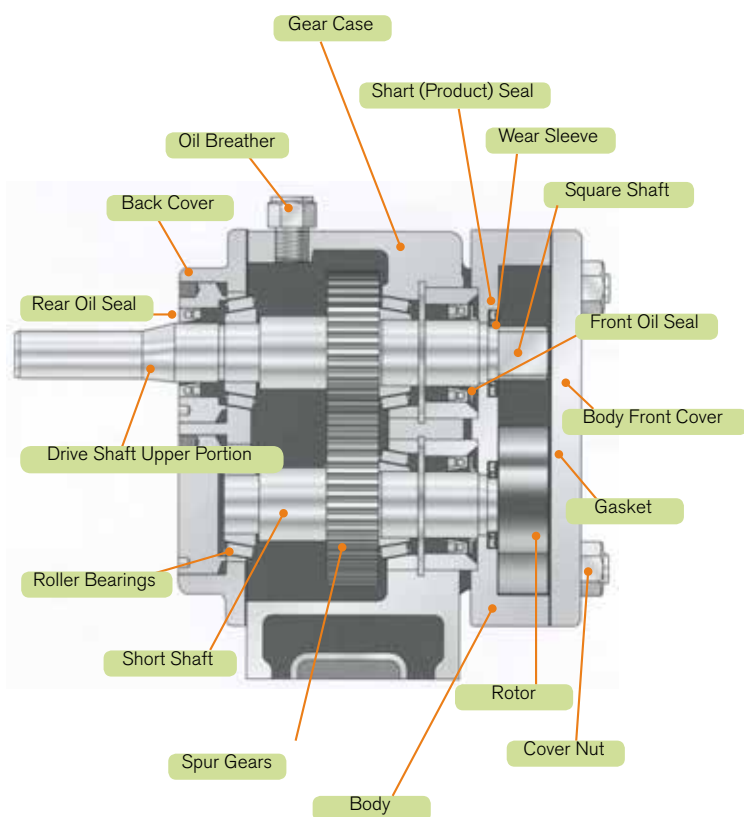
- Simple design – few parts
  - Ideal for manually cleaned applications – Clean out of Place
  - Can be disassembled in few minutes
  - Strong structure
  - Floating rotors – no shimming required
1. Front cover is constructed of precision ground stainless steel for tight sealing with the pump body.
  2. Gasket is made up of a specially formulated paper assuring dimensional accuracy.
  3. Precision molded rubber rotors available with either plastic or stainless steel hubs.
  4. Shaft lip seals are molded in a variety of compounds for both pressure and vacuum applications.
  5. One piece stainless steel pump body is machined and polished for easy cleanup.
  6. Seal bearing slips over o-ring and rotor shaft to provide easily replaceable seal surface.
  7. Stainless steel studs, assures quick and proper assembly.
  8. Heavy duty cast iron gear case housing provides oil reservoir for timing gears and shaft bearings; exterior is finished with a high quality heat and chemical resistant epoxy paint.
  9. Rear cover contains oil seals and shaft bearing adjustment nuts.
  10. The drive shaft is provided with a standard key way and can be supplied in either top or bottom location. (Either left or right location for top feed configurations.)
  11. Heavy duty tapered roller type shaft bearings are standard.
  12. Precision machined spur timing gears are hardened for long, quiet operation and are welded to the rotor shaft to assure accurate timing.
  13. Locating plugs are pressed into the gear case providing accurate positioning of the pump body.
  14. A leak detection atmosphere is present between the pump body and gear case ensuring high protection of product zone.
  15. A special locating corner found on the stainless steel shaft ensures proper rotor installation.



## Typical product applications

### THEORY OF OPERATION:

R Series Rotary Pumps incorporate a long life, sanitary, stainless steel body with versatile, resilient, molded rotors and a heavy duty cast iron gear case – all of which are designed to give dependable, economical service over a wide range of products and applications. All product contact parts are 316 stainless steel with food grade seal and rotor materials which will not impart odors or affect flavors. All parts are interchangeable and replaceable in the field.



### Beverage

Fruit Juice  
Cider and Wine  
Yeast  
Liquid Sugar and Glucose



### Food

Fruit Preserves  
Soups and Sauces  
Baby Food  
Chocolate



### Pharmaceutical and Toiletries

Antibiotics  
Toothpaste  
Cough Medicine  
Shampoo



### Dairy

Cream  
Butter  
Cheese Curd & Whey  
Yogurt  
Ice cream



### Chemical

Paint  
Oil Additives  
Resins  
Photographic Film Coatings



**PRODUCT SPECIFICATIONS**

MODEL SIZES								
		0	1	2	3 AND 3 HD	4 AND 4 HD	6 AND 6 HD	700 HD
Maximum Capacity*	gpm	2.5	6	9	55	145	240	200
	m <sup>3</sup> /hr.	0.57	1.36	2.0	8.2	20.4	34.1	45.4
Displacement per 100 revolutions	Gal/100 rev.	0.46	1.0	1.5	6.4	17.5	29.0	58.0
	liter/100 rev.	1.75	3.88	5.8	24.3	66.2	111	220
Maximum RPM		600	600	600	900	900	900	400
Connection Sizes (Standard)	in	1.5	1.5	1.5	2	2 or 3	3	4
	mm	38	38	38	51	51 or 76	76	102
Rectangular Inlet (Optional)	in	N/A	N/A	.875 x 2.5	1.5 x 4.5	1.75 x 9.25	3 x 9.25	6.625 x 9.25
	mm	N/A	N/A	22 x 63	38 x 114	44 x 235	76 x 235	168 x 235
Maximum Power Requirement**	BHP	0.5	0.9	1.5	7.5	20	30	20
	Kw	0.37	0.67	1.12	5.6	14.9	22.4	15
Rotors	Number of Lobes	2	5	5	5	5	5 and SGL	5 and SGL
	Material	R	R	R	R, SE, and M	R, SE, and M	R, SE, and M	R, SE, and M

\* Based on 70°F (21°C) water at 0 psi.

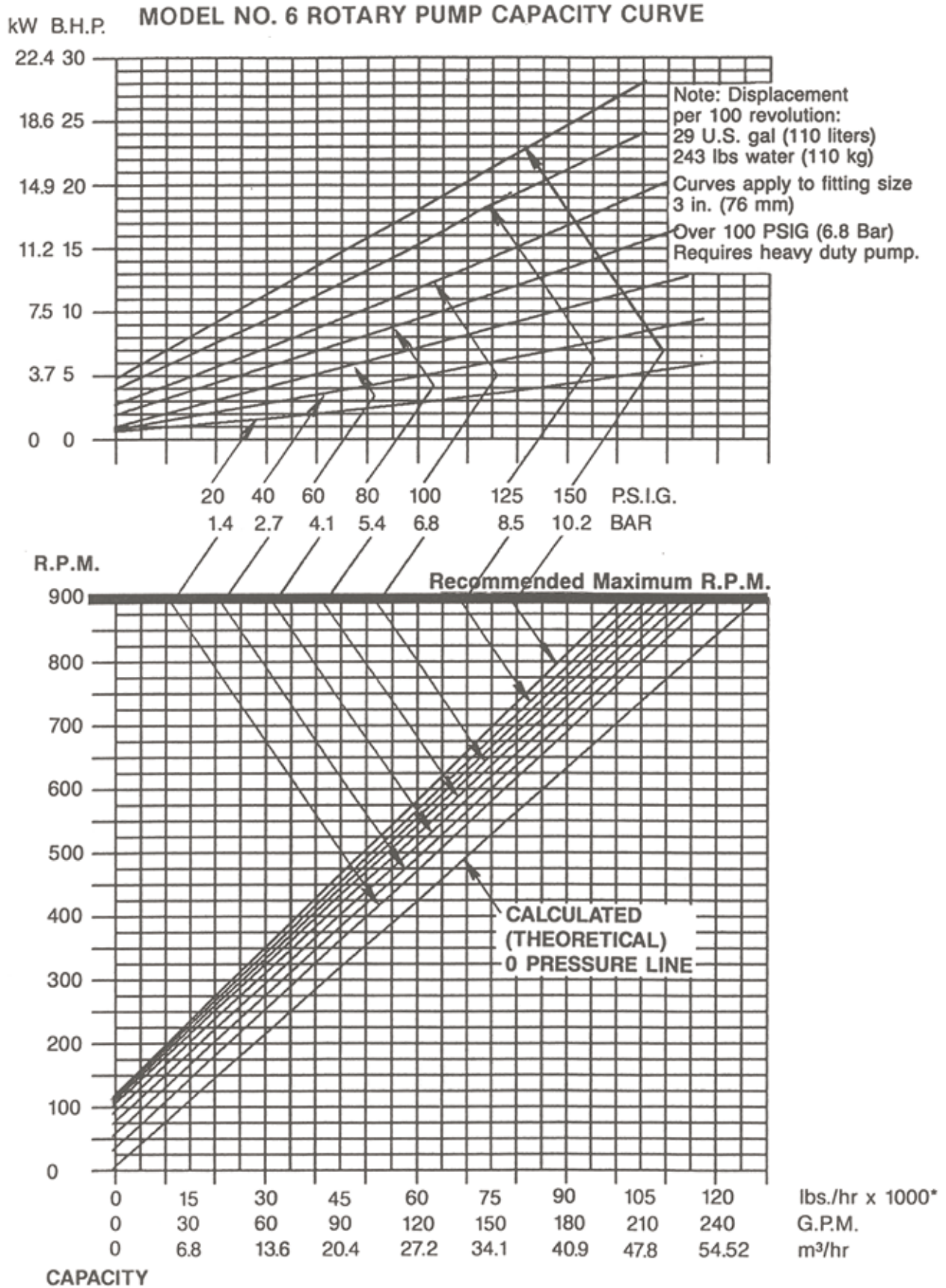
\*\*Maximum power requirement increases with product viscosity.

R = Rubber SE = Sealed Epoxy M = Metal SGL = Single



**ADDITIONAL TECHNICAL DATA**

Performance curves are available for all R Series Pumps. The following is an example of an R Series Curve.





## OPTIONS AND ACCESSORIES

### Body and Mounting Configurations

**Side Inlet/Outlet** is the basic standard design for all size SPX FLOW Rotary Pumps used for pumping light to medium viscosity products.



#### Feed Inlets:

**The top feed and top feed-rectangular inlets are used** when product is flowing down through outlet tanks or hoppers. The top feed-rectangular configuration is similar to the top feed design but with a large rectangular inlet replacing the standard round connection. The larger inlet accommodates heavy viscous products, or products with large particulates or chunks. Both include a removable pedestal support. The top feed inlet is available in all sizes while the top feed-rectangular inlet is available in pump sizes 2 RI through 700 RI.

**The side feed-rectangular inlet** is designed to adopt to the discharge of an auger feed hopper, grinder, blender or specialty hopper and is available in pump sizes 4 RI through 700 RI.

#### Front Covers

**Standard** flat cover for applications up to 100 psi (6.8 bar) discharge pressure.



**Heavy Duty** cover contains outboard bearing support to accommodate extended pump shafts for applications with discharge pressures higher than 100 psi (6.8 bar).

**Vented cover** is available with manual or pneumatic control and is used to limit maximum discharge pressure at a predetermined setting. Not available on size 0 or heavy duty pumps.

**Degassing/Deaerating** cover incorporates relief grooves and manifold to relieve trapped gas/air in viscous products.

**Front Outlet** cover replaces bottom outlet normally provided on RI pumps. Allows pump to be used under low height hopper and reduces discharge piping components.

#### Rotor Exchange Program:

SPX FLOW offers a generous exchange program for all SPX FLOW style stainless steel hub rotors, regardless of original manufacturer. In the exchange program, new rubber is molded around a used hub, offering users of SPX FLOW R Series pumps a fast, reliable, cost-effective method of replacing stainless steel hub rotors. By reusing otherwise discarded materials, users also help the environment.

#### Exchange Program Benefits Include:

- Genuine replacement rotors protect your pump warranty
- Fast turnaround direct from stock inventory
- Savings up to 30% on each reusable rotor
- Savings of 10% on a new rotor if the returned rotor is unusable
- 100% factory inspection of all returned rotors

## Configurations

Precision molded and machined rotors have been the heart of the SPX FLOW R Series Rotary Pump for more than 50 years. They are performance proven and are available in a variety of designs to meet specific application requirements. All SPX FLOW rotors meet all FDA requirements.

**Standard 5-Lobe** with recessed faces is provided on all pump sizes 1, 2, 3, 4, 6 and 700. These exclusive SPX FLOW formulated resilient covered rotors are recommended for most applications. Normal size up to 150°F (65°C), under size up to 300°F (149°C).



**Flush Face** is the same specification as standard 5-lobe except the faces are smooth (flush), not recessed. Available for pump sizes 2, 3, 4, 6 and 700. Used with abrasive or clinging products that might clog recessed face. Also used in degassing/deaerating pumps with front outlet covers. Normal size up to 150°F (65°C), under size up to 300°F (149°C).



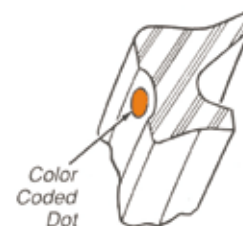
**Single Lobe** with recessed faces are available for pump sizes 6 and 700, same displacement as 5-lobe. Used with delicate or fragile products and large particulates or chunks. Normal size up to 150°F (65°C), under size up to 300°F (149°C). Recommended operating limitations; 200 rpm maximum, 100 psi (6.8 bar) maximum.



## Seal-Materials

SPX FLOW offers four different seal options for the R Series pump. All seals have color coded dots for easy recognition:

- Nitrile (Red)
- EPDM (Orange)
- FKM (Blue)
- Neoprene (Green)
- All Seals are lip style seals





## Global locations

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Based in Charlotte, North Carolina, SPX FLOW, Inc. (NYSE: FLOW) is a multi-industry manufacturing leader. For more information, please visit [www.spxflow.com](http://www.spxflow.com)

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