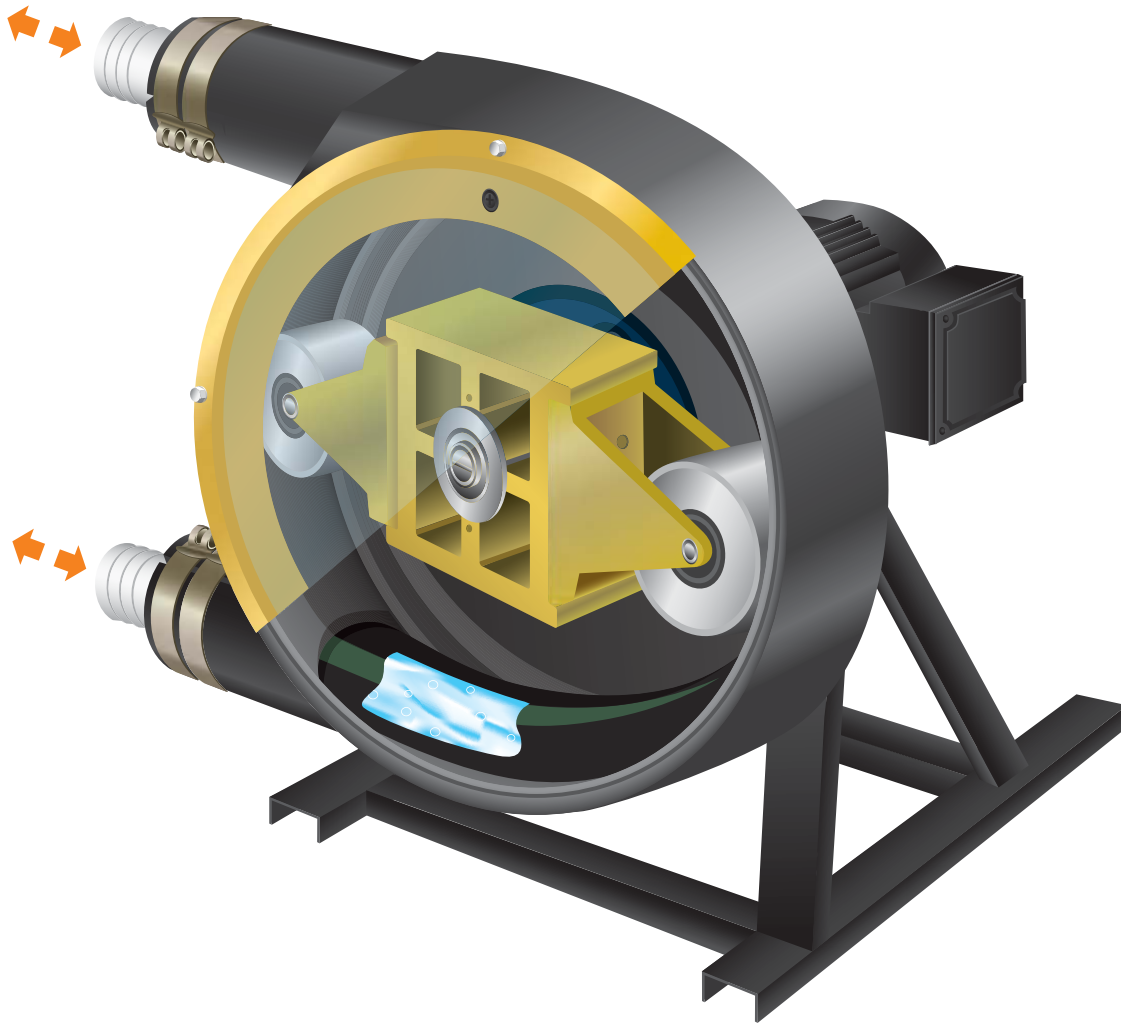


Vector Peristaltic Pump Operating Principle



Peristaltic pumps work by compressing and relaxing a hose positioned between a rotating device and a circular pump housing. Vector 2000 Series pumps use rotating rollers that provide the same “push” with far less hose wear.

The peristaltic method employed in Vector pumps can create 100% compression at all times. As a result, there is virtually no slipping. Metering is highly accurate. Up to 29-1/2 feet of suction lift is produced.

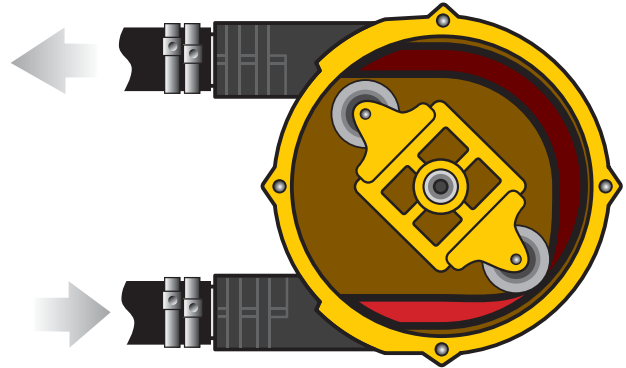
Despite this powerful pumping action, Vector pumps will not cause frothing or delicate emulsions to break up. Since fluids travel through a single hose, they never come into contact with moving valves, springs, or seals. This makes Vector pumps ideal for handling abrasive, shear-sensitive, or corrosive fluids. Dyes, thick fluids, and solids up to 3-1/2 inches (90 mm) are also readily pumped.

Superior Roller Design

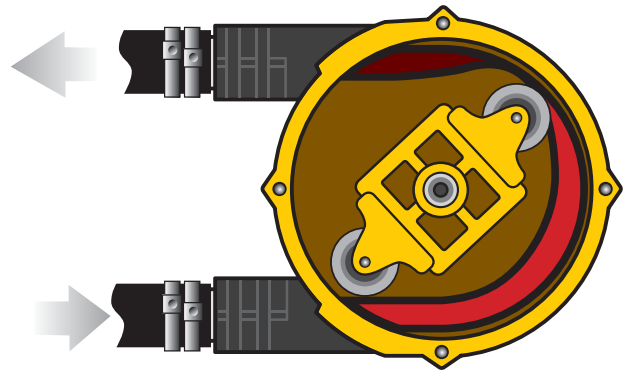


Vector uses an evolutionary roller mechanism instead of a rigid shoe to push fluids through its hose. This ensures longer working life with less downtime for maintenance.

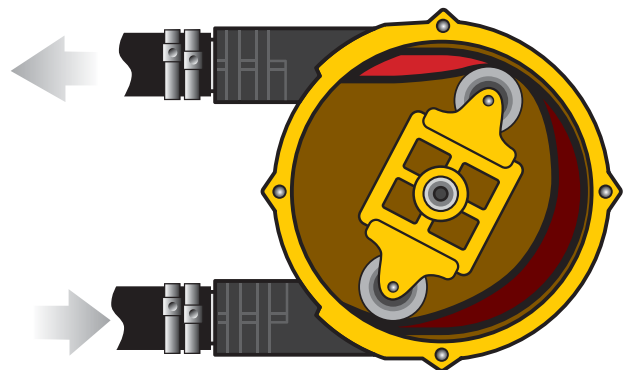
The rollers generate less friction than shoes, extending hose life and reducing downtime.



Fluid positioned ahead of the rollers gets pushed forward as the rollers rotate inside of the case.



Meanwhile, the portion of the hose just behind the rollers rebounds to create a vacuum.



The vacuum draws fluid into the pumping hose, which is then pushed forward by the rollers.

Vector Pumps Hose Data (4000 Series)

Construction

Fiber Braided:

1500-2000 hours Typical Life at 30 rpm

Preferred when:

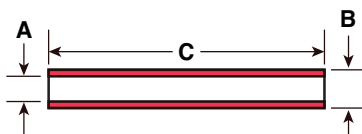
- Pumping fluids with abrasives
- The pump is required to create a strong vacuum
- High pressures are required

Operating Duty

Intermittent: Higher pressures and higher pump speed

Continuous: Low pressures and lower speed

Dimensions



(mm)	A	B	C
4003	10	32	570
4004	15	37	830
4006	25	54	1090
4007	32	63	1300
4009	40	67	1500
4010	51	81	1820
4014	80	123	2910

Hose Identification

Fiber Braided (Polyamide) 2 to 6 Layers

Natural Rubber

NBR, Oil-rated

Nitrile Rubber Food Grade (NBR-F)

EPDM

Hypalon

Code

MF White stripe

BF Yellow stripe

YF White & yellow stripe

EF Red stripe

HF Blue stripe

Material	Operating Temperatures	Industry Approvals
Natural Rubber	68°F to 176°F (20°C to 80°C)	
NBR	50°F to 176°F (10°C to 80°C)	
NBR Food Grade	50°F to 176°F (10°C to 80°C)	Meets FDA Criteria
EPDM	68°F to 176°F (20°C to 80°C)	
Hypalon	68°F to 176°F (20°C to 80°C)	

ATTENTION!

When operating within 15°F (9.4°C) of maximum hose temperature, do not exceed 20 rpm pump speed. In addition, metal inspection plate is required vs. clear plastic material.

Vector Pumps Selection Guidelines (4000 Series)

1. Collect application information

Fluid: _____

Discharge Press: _____ psig

Suction Condition:

Lift: _____ feet

or Vacuum: _____ inches of Hg

or Flooded: _____ feet of fluid above pump

or Pressurized: _____ psig

Flow or Flow Range: _____ gpm

Temperature (°F): Min: _____ Max: _____ Normal: _____

Solids?, describe: _____

Solid Size: _____

Solid Length: _____

Solids %: _____

Viscosity at Temp: _____

Vapor Pressure at Temp: _____

Specific Gravity: _____

Duty Cycle (hrs/day): _____

Motor Enclosure: _____

Hertz: 50 _____ 60 _____

Volts: _____

Phase: 1 _____ 3 _____

Motor eff: Std _____ High _____ Inverter Duty _____

Variable Frequency Drive: Yes _____ No _____

If yes, what environment will controller be mounted:

Inside another panel _____ Dry, fairly dust free _____

Dusty area _____ Wet area _____

Wash down area _____

Hazardous area _____ If yes, class and group _____

If Yes, input voltage: 120 _____ 230 _____ 460 _____

2. Determine the maximum roller speed

Duty Cycle (hours/day) of operation _____

- See pump performance graphs

Viscosity of the fluid _____

- < 200 cps: no speed correction needed
- 200-1000 cps: max. speed 40 rpm
- 1,000-5000 cps: max. speed 30 rpm; use flooded/pressurized suction
- 5,000-10,000 cps: max. speed 20 rpm; use flooded/pressurized suction
- 10,000-15,000 cps: max. speed 10 rpm; use flooded/pressurized suction

Note: With viscosities over 200 cps it is very important to oversize the suction line 1-1/2 to 2 times the pump connector size and to keep suction lines as short as possible.

Temperature of the fluid: If the fluid temperature pumped is within 15° F (9.4°C) of the maximum temperature rating of the hose, contact factory and select a pump with a maximum speed of 20 rpm.

3. Pump Selection

- Select pump that can deliver the required flow based on the maximum roller speed and discharge pressure required by the application.

Note: It may be required to select a larger pump if solids are larger than the maximum size the pump can handle.

4. Hose Selection

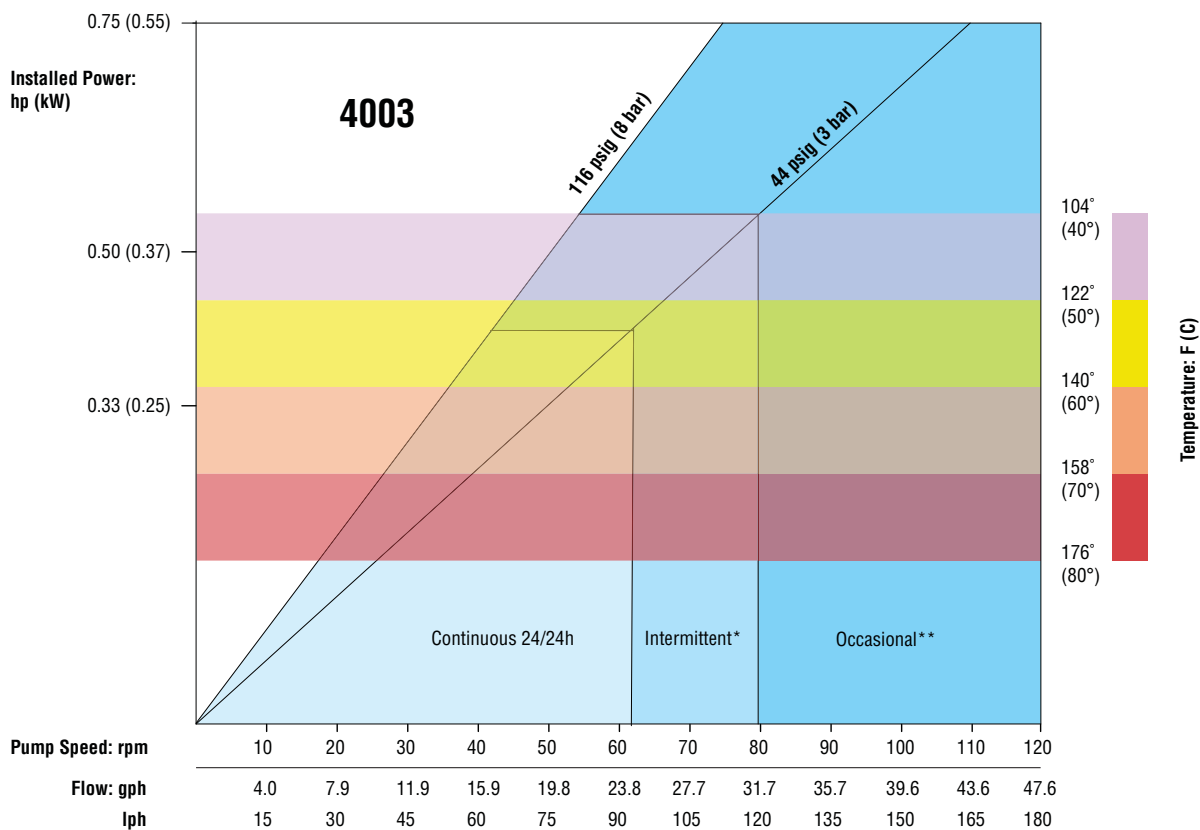
- Hose selection based on chemical compatibility and temperature.

5. Connector Type and Material Selection

6. Drive Selection

MODEL 4003 PUMP DATA

Performance



* Intermittent use: Minimum of 1 hour stop after 2 hours use ** Occasional use: Maximum 1 hour per day

Fluid Characteristics

Viscosity:	100,000 cps max.
Liquid Temperature:	180°F (82°C) max.
Solid Size:	(see page 4)
Fiber Length:	2-3/8 inch (60 mm) max.

Materials of Construction

Casing:	Ductile Iron
Rotor:	Ductile Iron
Wheel:	Ductile Iron
Frame:	Steel
Cover:	Lexan
Casing O-ring Seal:	Nitrile
Hose Materials:	NR/NBR/EPDM/Hypalon

Specifications

Discharge Pressure:	110 psig (7.6 bar) max.
Suction Lift (sea level):	29.5 ft (9 m) max.
Suction Pressure:	21.8 psig (1.5 bar) max.
NPSHr:	4 ft
Horsepower:*	0.75 max
Hose Size:	10 x 32 x 570 mm
Displacement:	0.0066 gal/rev
Lubrication Fluid:	.37 qts (.35 L) max.
Lubricant:	Glycerine / Glycol
Weight (pump only):	22 lbs. (10 kg)
Weight (with drive):	55 lbs. (25 kg)

* Pumps are shaft driven and require a gearbox and motor.
See Ordering Information on following page for details.

Click Here For Your Free Quote



Model 4003 Ordering Information

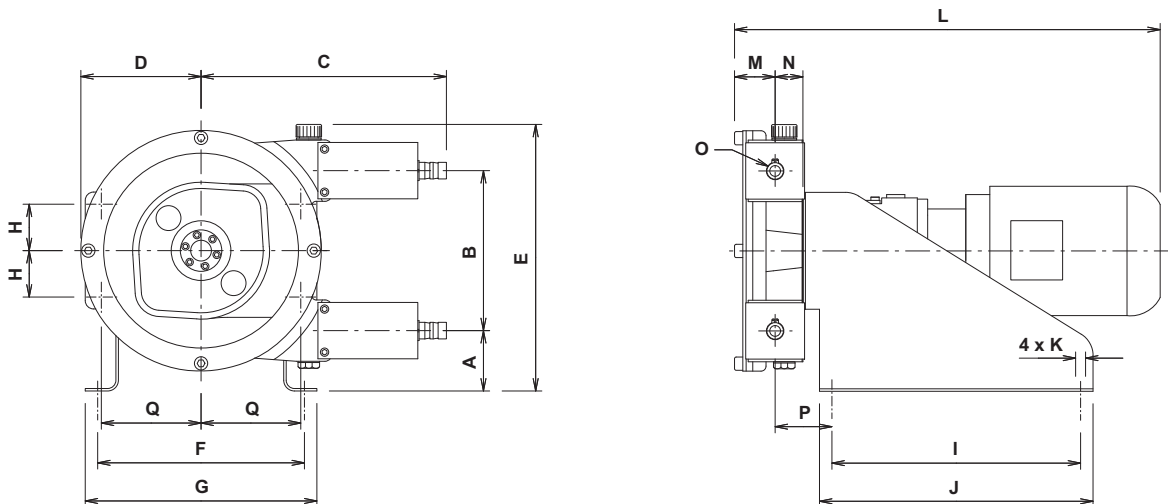
A complete Vector pump order number uses a 10-character order code to identify the desired hose, fittings and drive. Select the appropriate items from the chart below and use the order code from each group to complete the pump assembly order number.

1	2	3	4	5	6	7	8	9	10
4	0	0	3	-		-		-	

Order Digit	Order Code	Description
1-4	4003	Pump Designation Model 4003 Shaft Drive Pump
5-6		Hose Material (fiber-braided)
	MF	Natural Rubber
	BF	NBR, Oil-rated
	EF	EPDM
	HF	Hypalon
7-8		Connector Material/Style
	SS	316 SST 3/4" hose barb
	PP	Polypropylene 3/4" Hose Barb
	MM	PVDF 3/4" Hose Barb
9-10		Drive
		Flow
		GPH
		Gear Ratio
		Pump RPM
		Max Psig
		BHP
		3Ø, TEFC, 230/460 VAC, 60 Hz
		4:1 Inverter Duty Turndown
	B2	7.1 74:1 18 116 3/4
	D2	15.4 35:1 39 116 3/4
	F2	22.2 24:1 56 60 3/4
	H2	27.7 19:1 70 45 3/4
	J2	39.6 13:1 100 45 3/4

Dimensional Drawings

See Ordering Information for motor and gearbox sizes.



	A	B	C	D	E	F	G	H	I	J	K	M	N	O	P	Q
Inches	4.1	4.5	8.9	3.7	10.7	8.7	9.5	1.3	10.24	11.02		1.71	1.36		3.20	3.2
mm	103.5	115	225.5	95	271	220	240	33.5	260	280	4xø9	43.5	34.5	ø16	81.25	81.25