

### 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

- <8 hours/day: the pump can be run out of the gray shaded areas on the pump specification curves (minimum of 1 hour stop after 2 hours use).
- 8-12 hours/day: do not operate out of the gray shaded areas on the pump specification curves.
- >12 hours/day: 25-32 rpm is the maximum recommended speed.

#### 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.
- For suction vacuum over 4.5" Hg, always use fiber braided hoses (extruded hoses may collapse)
- In general, fiber-braided hoses will last longer and withstand greater discharge pressures than extruded hoses.
- Maximum recommended motor speeds with extruded hoses 40 rpm.

Note: Maximum viscosity for Nitrile hose is 3000 cps.  
(The inner white hose will separate from the outer black hose.)

### 5. Connector Type and Material Selection

### 6. Drive Selection

### Construction

#### Extruded:

- 700-1000 hours Typical Life at 30 rpm  
Preferred when:
- Pumping foods and pharmaceuticals
  - Clean fluids
  - Lower pressures required (max. 30 psig)

#### 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

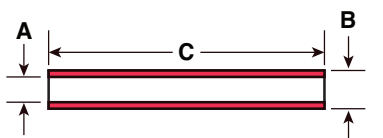
**Intermittent:** (One hour stop after 2 hours in use)

Higher pressures and higher pump speed

**Continuous:**

Low pressures and lower speed

### Dimensions



(mm)	A	B	C
2002	9	16	330
2003	13	22	390
2004	17	31	590
2005	25	43	860
2006	30	55	1150
2007	45	75	1455
2008	53	88	1850
2009	75	120	2400
2010	100	144	3250
3005	25	44	850

### Hose Identification

#### Extruded

	Code	
Hypalon	HE	Black color, shiny smooth surface
Neoprene	PE	Flat black color, rough surface, rubber smell
Varprene	VE	Cream, smooth surface
Silicone	SE	Rust color, smooth surface
Pharmed®	FE	Cream color, Pharmed® name on hose

#### Fiber Braided

	Code	
Hypalon	HF	Black color, yellow or blue stripe, double braided
EPDM	EF	Black color, white stripe, double braided
Natural Rubber	NF	Black color, green stripe, double braided (standard duty)
Natural Rubber	MF	Black color, no stripes, thick double braids (heavy duty)
Nitrile Rubber	BF	Black color with white inner hose.
Nitrile Rubber, Oil-rated	OF	Black color with HBRF-HY-K stamped on hose.

Material	Operating Temperatures	Industry Approvals
EPDM	32° to 185° F (0° to 85°C)	
Hypalon	32° to 180° F (0° to 82.2°C)	
Neoprene	50° to 130° F (10° to 54.4°C)	
Silicone	14° to 185° F (-10° to 85°C)	
Varprene	14° to 185° F (-10° to 85°C)	Meets FDA Criteria
Natural Rubber <sup>1</sup>	14° to 185° F (-10° to 85°C)	Meets FDA Criteria <sup>1</sup>
Nitrile Rubber, Oil-rated	23° to 160° F (-5° to 71.1°C)	
Pharmed®	32° to 180° F (0° to 82.2°C)	Meets USP Class VI, FDA, and NSF Criteria

<sup>1</sup> Natural rubber heavy duty hose meets FDA criteria.

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### 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.*