

Ordering Information

HOW TO USE THIS SECTION

The following information identifies the major factors to be considered in specifying a pump. If you are familiar with pump applications, you will need to refer only to the Motor Selection information in this section. Flow charts for each model appear throughout the pump section.



TO SELECT THE RIGHT PUMP

The more of the following data you can identify, the more quickly and precisely an appropriate pump can be specified.

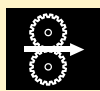
1. Maximum flow required (GPM).
2. Maximum pressure required (See TDH).
3. Description of the proposed piping installation. (Pipe diameter, height to which liquid will be pumped, number of fittings, total piping length).
4. Type of liquid being pumped (Water, acid, slurry, etc.).
5. Mounting/installation requirements.
6. Voltage, hertz and phase.

PUMP TYPES AVAILABLE



Superflo® Centrifugal Pumps

Centrifugal pumps operate at relatively low pressure. They will pass abrasives and bits of solid material without binding or appreciable wear, and require minimal maintenance. Pump discharge can be restricted without damage to pump or motor. Viscosity range up to 500 SSU.



Gear Pumps

Ideal for applications where consistently high pressure is required to feed lubricants, drawing compounds, heavy viscosity oils and other fluids which are free of abrasives and scale. Viscosity range up to 5,000 SSU.



Diaphragm Pumps

Air powered, they deliver variable flow rates up to 30 GPM. Can be used for pumping a wide variety of fluids up to 10,000 SSU.

TOTAL DEVELOPED HEAD (TDH)

TDH is the total resistance against which the pump is working. This resistance is comprised of three general factors: Dynamic Head, Static Head, and Velocity Head.

1. **Dynamic Head** is the flow resistance created by friction in piping, valves, fittings and by liquid viscosity.* To derive maximum flow from a pump, use the largest piping possible and minimize any restrictive components such as "ells" or valves.
2. **Static Head** is the height to which the liquid must be raised. Note: When using the Flow Charts in the pump section, both Dynamic Head and Static Head must be included in estimating the TDH against which the pump will operate.
3. **Velocity Head** is the pressure required to accelerate the liquid to its flow velocity. This is usually a negligible factor of TDH and can be disregarded unless piping is smaller than the pump discharge and/or flow velocities are greater than 15 feet per second.

HEAD FEET/PSI CONVERSIONS

Pump curves throughout the pump section are based on (TDH) feet of water pressure. Here are the formulas to convert head feet and pounds per square inch (PSI).

$$\text{Head feet} = \text{PSI} \times 2.31 \div \text{Specific Gravity}$$

$$\text{PSI} = \text{Head feet} \times \text{Specific Gravity} \div 2.31^*$$

(Specific gravity of water = 1)

MOTOR SELECTION FOR PUMPS—HOW TO ORDER

Pumps and Pumping Units are available with motors of all standard electrical characteristics. The most commonly used types are listed below with their Graymills Suffix. Other types of motors will be quoted upon request.

1. After selecting the pump desired, select the type of motor with your required electrical characteristics. All Graymills pump motors are rated for 60 Hz operation and will operate continuously within plus or minus 5% of the rated voltage. Air motors are available for many models.
2. Add the suffix letter to the base model number and also state voltage, hertz and phase when ordering.

VOLTAGE SUFFIX CHART

Suffix	A	B	E	F	Z	GAM	GAMC
Voltage	115	230	115/230	230/460	575	Air Motor	56C Face Air Motor
Hertz	60	60	60	60	60		
Phase	1	1	1	3	3		

PUMP PERFORMANCE—50 HERTZ

Performance of standard pumps at 60 Hz will be reduced when running at 50 Hz.

SPECIAL POWER REQUIREMENTS

For overseas applications Graymills supplies pumps worldwide and can supply motors meeting the electrical requirements of most areas. We regularly supply the following voltages; 220 volts, 50 Hz, 1 Ph; 380 or 415 volts, 50 Hz, 3 Ph. Please consult factory for more information.

AIR MOTORS

Most Graymills pumps can be equipped with rotary air motors, which include needle valve and muffler. We recommend the use of an air pressure filter-regulator-lubricator.

SPECIAL PUMP TANK COMBINATIONS

Graymills supplies special systems to thousands of customers. We welcome your inquiry on special combinations of pumps, tanks and filters.

*The higher the viscosity of a liquid, the more resistance it has to flow. Pump viscosities throughout the catalog are stated in SSU's (Saybolt Second Universal). 70°F water = 31 SSU. Light hydraulic oil = 350 SSU. #10 oil = 500 SSU. When using Flow Chart curves, be sure to note the designated fluid viscosity.