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# How to select a Drum Pump

**What is a drum pump?**

A drum pump is a portable pump that can be used to empty tanks, barrels, drums and IBCs. Many liquids used on manufacturing and processing plants are delivered in 100 or 200 litre drums and so are too heavy to tip to empty the liquids inside.

Many Drum Pumps consist of a vertical shaft inside a narrow tube which fits inside the drum opening. The pump motor is attached to the vertical shaft at the top of the tube outside and above the drum and the pumping element is located at the end of the shaft inside the drum. This configuration allows the drum to be emptied without tipping and so reduces the risk of spills and operator injury.

**Why use a Drum Pump?**

Drum pumps are designed to provide an easy and safe way to transfer virtually any chemical from drums and barrels. Many different models and tubes lengths are available to satisfy diverse customer requirements.

**Step 1:**

**Determine application requirements:**

It is important to determine how the pump is going to be used before you can select the appropriate pump series, tube construction, motor type and accessories.

- **Required head and flow -** Most drum pump applications are simple transfer but some require higher flow rates (to empty larger IBCs or tanks) or higher head (pressure) capabilities (transferring liquids to the top of a machine, to a second floor or to pump higher viscosity fluids).

- **Chemical name or type -** This is very important information and is required to ensure that the drum pump tube materials are compatible with the fluid being pumped. In addition, it is important to determine if the fluid is a flammable or combustible liquid.

- **Temperature of the fluid being pumped -** Drum pump tubes have upper temperature limits. The maximum temperature depends upon the tube series, tube construction and length.

- **Specific gravity and viscosity -** Different drum pumps have different capabilities when pumping fluids that have a specific gravity greater than 1.0 or a viscosity greater than 1 cP. The capabilities are based upon the pump design and the motor driving the pump.

- **Container size -** The drum pump tube lengths will change depending upon the container. For example, a standard 200litre/45-gallon drum uses a 100cm long pump tube. IBCs and tanks can require longer lengths. 15 and 30-gallon containers use smaller lengths.

- **Motor Preference -** Determine if the site has a particular motor style preference - electric, explosion proof electric or air. For electric motors, check what voltage is required.

  **Step 2:**

  **Select the correct FTI Pump Series and Tube Material**

  Once you have established the application requirements, you can select the correct FTI pump for the job.

- **Choose compatible pump tube materials -** Start with the outer tube material. Outer tubes are available in polypropylene, 316 stainless steel, PVDF, CPVC and pure polypropylene/PVDF.

- Use a chemical resistance guide to select an outer tube material that is resistant to the material being pumped. Chemical resistance guides are available on our useful info page.

- **Note:** Each pump tube contains other materials that will be in contact with the fluid being pumped in addition to the outer pump tube material.

- Information on the materials of construction can be found on the individual series tech flier. If you have any questions concerning compatibility, contact our sales office on 0800 3167891

- Select the best-fit drum pump series - Review the information on the individual series tech fliers to determine the one that is most appropriate.

- See the section at the end for a quick pump series review.

- For example, if a customer has a liquid with a viscosity of 25,000 cP, the most appropriate series is HVDP. Verify that the pump series and tube material selection is capable of pumping the fluid. This includes checking the fluid temperature, specific gravity and viscosity against the information found on the tech flier.

- Select the appropriate tube length for the container

**Step 3:**

**Select the Correct FTI Motor**

- **Select the appropriate motor** - Using the motor preference information choose a motor from the tech flier that best fits the requirements. Not all motors can be used on all pump series. Make sure you select a motor that is listed as appropriate for the series (this information is found both on the tech flier and price list).

- See the section at the end for a quick motor review

- Make sure if the product being pumped is flammable or combustible (or the area is a hazardous location), that you use an explosion proof electric or air drive motor on a tube manufactured from stainless steel with our static protection kit.

**Step 4:**

**Select Any Accessories**

We offer a comprehensive selection of accessories for drum pumps.

- **Hose** - Flexible PVC
- **Static Protection Kit** - For safe transfer of flammable or combustible liquids when used with stainless steel tube pumps and air or explosion proof electric motors.
- **Drum Adapters** - Ensure a tight fit of the tube in the drum, available in a variety of materials of construction.
- **Flow Meters** - Allows the accurate measurements of the liquid being pumped
- **Filter/lubricator Assembly** - Ensures a dry, lubricated air supply for air drive motors
- **Nozzles** - Allows control of liquid flow
- **Strainers** - Protects pump from damage by foreign objects

**Pump Series Review**

Following is a quick review of each of the pump series. Refer to the tech flier for more details.

- **PF Series** - PF Series pumps are our best selling and most versatile drum pump series. They are sealless and provide high performance with lots of options. Outer tubes are available in polypropylene, 316 stainless steel and PVDF. 15” to 72” tube lengths are available. More Info

- **EF Series** - EF Series pumps are designed to provide an economical alternative to manual hand pumps. They are lightweight, ergonomic and are designed for intermittent use (15-minute duty cycle). The polypropylene outer tube is available with either stainless steel or Alloy 625 inner shafts. More Info

- **TT Series** - TT Series are sealed pumps with 316 stainless steel, CPVC, or sanitary 316 stainless steel construction. Screw type lifting compressors make the TT Series a good choice for liquids containing small particulate. The TTS is ideal for flammable or combustible liquids. More Info

- **TBP Series** - The TBP Series is a high-speed sealed pump manufactured from pure materials for use with aggressive chemicals. Outer tube is pure polypropylene/pure PVDF constructions. Construction makes it ideal for bleach (sodium hypochlorite) applications. More Info

- **HVDP Series** - HVDP Series pumps are progressive cavity, positive displacement pumps capable of pumping extremely viscous fluids up to 100,000 cP. Cam-lock tube design makes clean up quick and easy. Speed reducer design allows the user of small, lighter motors. More Info

- **TM Series** - The TMS is a drum mixer manufactured from 316 stainless steel. Its non-aerating and non-vortexing circulation is ideal for drums with settled solids like paints and inks. More Info

**Motor Review**

Following is a quick review of each of the motor types. Refer to the tech flier for more details.

- **Splash-Proof** - These are high-speed motors that are protected from water splashes from all directions and are open drip-proof. They are available in 115 and 230-volt, single phase, 50/60 Hz versions.

- **Enclosed** - These motors include both high-speed brush type and slower speed induction motors. They are totally enclosed fan cooled motors and are sealed to protect against dust and corrosive fumes and are protected from water splashes from all directions. Use enclosed motors on fuming chemicals like bleach (sodium hypochlorite).

- **Explosion-Proof** - These motors include both high-speed and lower speed induction motors. They are suitable for use in hazardous areas, are sealed to protect against dust and corrosive fumes and are protected from water splashed from all directions.

- **Variable Speed** - These are high-speed motors that are totally enclosed fan cooled motors and are sealed to protect against dust and corrosive fumes and are protected from water splashes from all directions. They are suitable for use both indoors and outdoors. The most powerful high-speed motors manufactured by Finish Thompson. They have speed control that allows precise adjustment of fluid flow.

- **Air** - Air motors are lightweight, variable speed and non-electrical operation means the possibility of igniting flammable gasses is reduced (generally considered suitable for use in hazardous locations). Customer should install a filter lubricator assembly to ensure long motor life.