Water Circulation
Pumps & Circulators

KV / SKV Vertical Inline Pumps

Taco KV Series Vertical Inline Pumps meet the latest standards for hydraulic performance and dimensional characteristics. Now available with SelfSensing Series with ProBalance®.

NOW AVAILABLE WITH:

SelfSensing Series WITH ProBalance®

Taco Comfort Solutions®
A Taco Family Company

Supersedes: 08/20/15

Effective Date: 05/24/17
Printed in USA

Features & Benefits

Quiet, dependable power. Proven performance. Taco's extensive line of vertical inline pumps are designed for optimum performance and ease of installation. Doing your job once means doing it right...with pumps made by the world leader in hydronic technology for heating and cooling. Each pump we sell is backed by Taco's reputation for quality and dependability, and engineered for years of trouble-free service.

Space Saving Design Taco vertical inline pumps require no isolation pads. Their simplified in-the-line design saves you time and money.

Back Pull-Out Design Should a service call or maintenance ever be required, our pumps pull out from the back. There's no need to disconnect the pump from the piping system to work on it.

Close Coupled Design Each vertical inline pump features Taco's close coupled design for improved alignment and increased seal life. The bottom line? Fewer service calls.

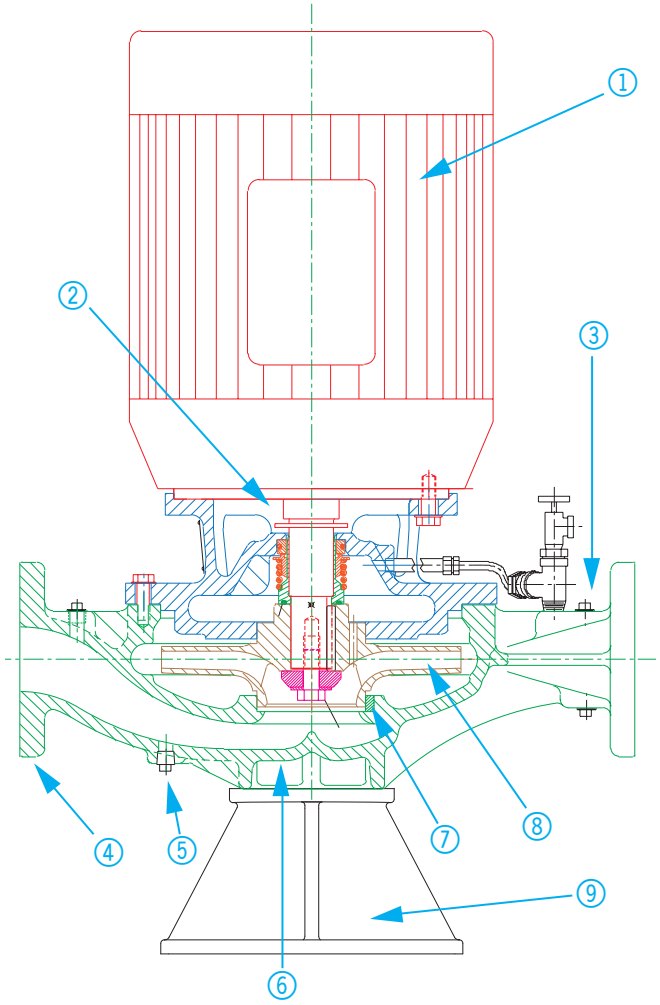
Lower Installed Cost Because of the way we've engineered our pumps, they require less time to install, and require no special tools or hardware.

Replaceable casing wear ring, pump support bracket are all value added options.

We've got you covered With flows ranging up to 2500 GPM and heads up to 300'TDH, Taco can do the job.

Support Stand These optional support stands, made of rugged ductile iron, can be added to all KV pump models. The already small footprint of KV pumps in tight mechanical rooms is further enhanced with the support stand's easy access bolt holes. Now installation and maintenance is that much easier.

① Standard NEMA JM Motor.
② Standard seal design allows for flexibility of seal options.
③ Pressure tapping on suction and discharge for easy verification of pump performance.



④ 250# flanges available
⑤ Casing drain
⑥ Machined mounting surface with tapped holes
⑦ Low cost replaceable optional wear ring available
⑧ High efficiency impellers standard on all models
⑨ Support Stand

Commercial Hydronic Application Information

Part I – Fundamentals

A centrifugal pump operated at constant speed delivers any capacity from zero to maximum depending on the head, design and suction conditions. Pump performance is most commonly shown by means of plotted curves which are graphical representations of a pump's performance characteristics. Pump curves present the average results obtained from testing several pumps of the same design under standardized test conditions. For a single family residential application, considerations other than flow and head are of relatively little economic or functional importance, since the total load is small and the equipment used is relatively standardized. For many smaller circulators, only the flow and pressure produced are represented on the performance curve (Fig. 1-1).

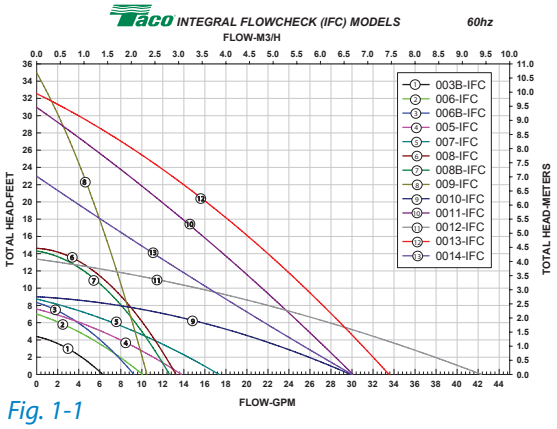


Fig. 1-1

For larger and more complex buildings and systems, economic and functional considerations are more critical, and performance curves must relate the hydraulic efficiency, the power required, the shaft speed, and the net positive suction head required in addition to the flow and pressure produced (Fig. 1-2).

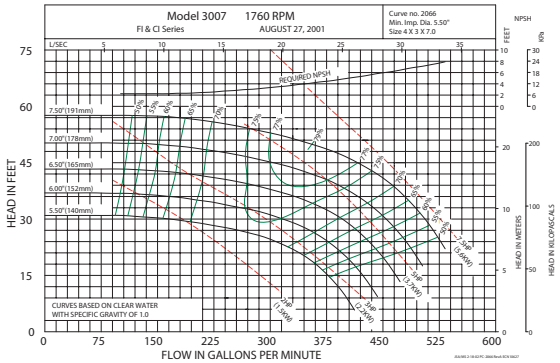


Fig. 1-2

Pump performance curves show this interrelation of pump head, flow and efficiency for a specific impeller diameter and casing size. Since impellers of more than one diameter can usually be fitted in a given pump casing, pump curves show the performance of a given pump with impellers of various diameters. Often, a complete line of pumps of one design is available and a plot called a composite or quick selection curve can be used, to give a complete picture of the available head and flow for a given pump line (Fig. 1-3).

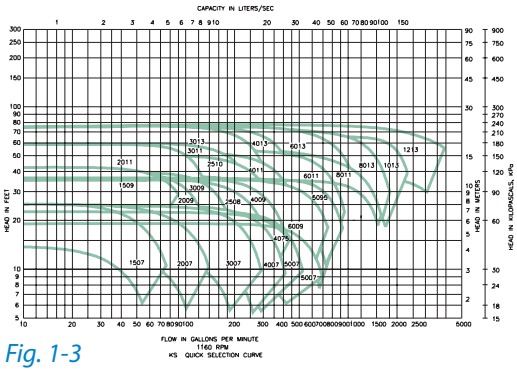


Fig. 1-3

Such charts normally give flow, head and pump size only, and the specific performance curve must then be referred to for impeller diameter, efficiency, and other details. For most applications in our industry, pump curves are based on clear water with a specific gravity of 1.0.

Part II – The System Curve

Understanding a system curve, sometimes called a system head curve, is important because conditions in larger, more complex piping systems vary as a result of either controllable or uncontrollable changes. A pump can operate at any point of rating on its performance curve, depending on the actual total head of a particular system. Partially closing a valve in the pump discharge or changing the size or length of pipes are changes in system conditions that will alter the shape of a system curve and, in turn, affect pump flow. Each pump model has a definite capacity curve for a given impeller diameter and speed. Developing a system curve provides the means to determine at what point on that curve a pump will operate when used in a particular piping system.

Commercial Hydronic Application Information

Pipes, valves and fittings create resistance to flow or friction head. Developing the data to plot a system curve for a closed hydronic system under pressure requires calculation of the total of these friction head losses. Friction tables are readily available that provide friction loss data for pipe, valves and fittings. These tables usually express the losses in terms of the equivalent length of straight pipe of the same size as the valve or fitting. Once the total system friction is determined, a plot can be made because this friction varies roughly as the square of the liquid flow in the system. This plot represents the SYSTEM CURVE. By laying the system curve over the pump performance curve, the pump flow can be determined (Fig. 2-1).

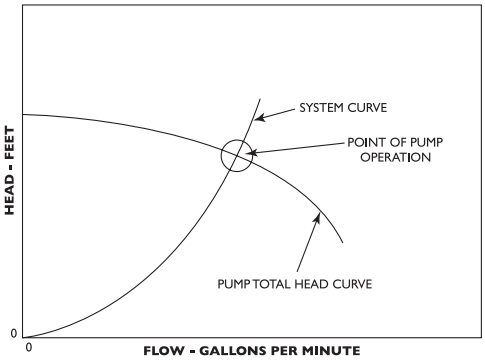


Fig. 2-1

Care must be taken that both pump head and friction are expressed in feet and that both are plotted on the same graph. The system curve will intersect the pump performance curve at the flow rate of the pump because this is the point at which the pump head is equal to the required system head for the same flow.

Fig. 2-2 illustrates the use of a discharge valve to change the system head to vary pump flow. Partially closing the valve shifts the operating point to a higher head or lower flow capacity. Opening the valve has the opposite effect. Working the system curve against the pump performance curve for different total resistance possibilities provides the system designer important information with which to make pump and motor selection decisions for each system. A system curve is also an effective tool in analyzing system performance problems and choosing appropriate corrective action.

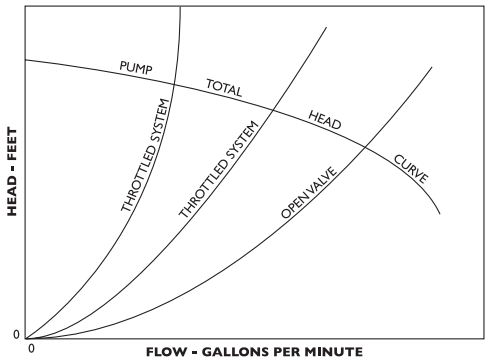


Fig. 2-2

In an open hydronic system, it may be necessary to add head to raise the liquid from a lower level to a higher level. Called static or elevation head, this amount is added to the friction head to determine the total system head curve. Fig. 2-3 illustrates a system curve developed by adding static head to the friction head resistance.

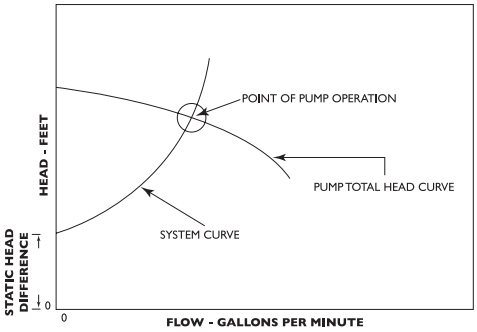


Fig. 2-3

Part III – Stable Curves, Unstable Curves And Parallel Pumping

One of the ways in which the multitude of possible performance curve shapes of centrifugal pumps can be subdivided is as stable and unstable. The head of a stable curve is highest at zero flow (shutoff) and decreases as the flow increases. This is illustrated by the curve of Pump 2 in Fig. 3-1.

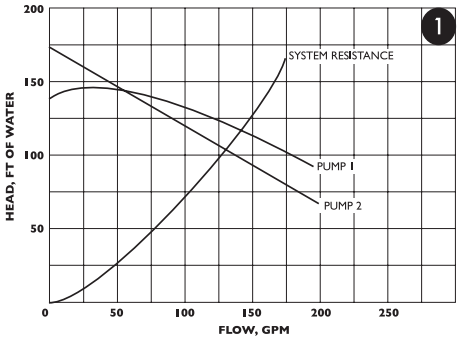


Fig. 3-1