Guide to Selecting The Right Hydraulic Motor

How To Pick the Right Hydraulic Motor for Your Application

Selecting the right hydraulic motor for your application may not be as straightforward as you wish it were, but getting it right is critical to the overall performance of your machine. While it is likely that more than one design will work, which is the best design for your application? With so many types of motors to choose from…axial piston, bent-axis piston, radial piston, gerotor style, geroller style, gear… it can be confusing.

While rules of thumb are always useful, if you want the best and most efficient motor for your application, start with the basics and gather the answers to the following questions:

- How much torque will the motor need to generate and will this be continuous or intermittent in nature?
- If applying the motor in an existing system, what is the operating pressure?
- If applying the motor in a new design, what will be the design pressure of the system?
- What flow is available to operate the motor?
- In the typical application of the motor, will it be starting under a load or when unloaded?
- What is the typical operating speed range of the motor?
- Does the motor experience “shock loads” during operation? (an example would be operation of a cutter blade on a bank mower)
- Is it important that the motor operate efficiently and smoothly at very low speeds? (less than 100 RPM)
- What level of contamination control is in the existing system or will be designed into the new system?
- What is the lifecycle expectation for the motor?
- How important is efficiency in your application? (For example, if a battery operated system then efficiency is paramount for battery life)
- What type of fluid will be used in the application?
- What is the design operating temperature for the system?

- Will there be excessive back pressure on the motor return port? (Greater than 40 PSI)
- Will the motor shaft seal be exposed to extreme environments that could impact the integrity of the shaft seal?
- Is axial length or diameter an issue?
- Will a side load be imposed on the motor shaft and if so, what is the amount of the load and how far will the load be centered from the face of the motor?

As you can see, there are quite a few things to consider when applying a hydraulic motor. Cross Company's technical experts have many years of experience in applying the right components for maximum effectiveness and overall lower total cost of ownership, take a look at our hydraulic motor options and let us help you design a better machine.