To Repair or Replace ... An Expensive Question!!

The valve is a powerful gatekeeper. It has the important task of controlling the flow of liquid, air, gases or particles for a larger system. Yet even the most reliable of valves can fatigue or become inoperable, thus shutting down or affecting a system's performance. As with any mechanical apparatus, proactive maintenance of a valve can extend life and ensure consistent operation.

Often, a valve's issue may be simple enough to identify and fix on your own. The nemesis could be the valve's environment, the media or even the application. Valves that have to work harder often have a shorter lifespan about 1-3 years. Through regular maintenance, users can extend the valve's lifespan and keep operations on track.

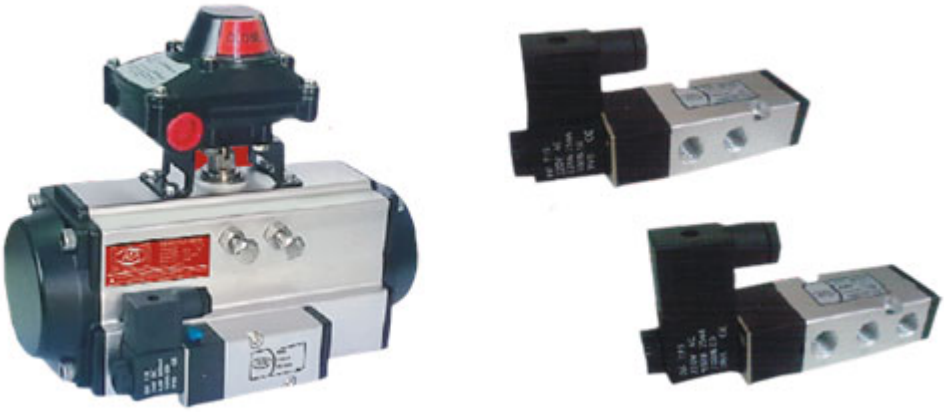
Valve maintenance first focuses on identifying areas of wear and tear, and then replacing the affected components. In addition, the valve's components are checked to ensure they are clean and free of material buildup that can affect the energizing and de-energizing of the valve system as a whole.

Some users wonder how maintenance of such a small component can be worthwhile, or what difference upkeep can make to the system. There are also questions regarding the appropriate time to repair versus replace a valve. This article will shed light on these topics, as well as the maintenance and troubleshooting processes for valves.

When to Maintain a Solenoid Valve

One of the most common questions we receive at KHIMJI Flow Equipments Pvt. Ltd. is:

When is the best time to service a valve? To help guide users in this regard, the following is a checklist of exploratory questions to consider:



- If the valve fails at an inopportune time, what is the opportunity cost?
  Is there a risk for safety hazards when a valve fails?
- What is the financial cost of a total valve failure? Figure into the equation the costs for lost productivity and any work that requires replacement.
- What is the cost for servicing a valve? Include time and resources.

As a rule of thumb, when machinery is being taken apart for servicing, this is the best time to complete a valve maintenance procedure. A proactive approach can extend product life and create the best possible performance of both the valve and overall system.

How often a valve should be serviced depends upon its design and application.

Certain applications are particularly damaging to the valve's internal and external components and therefore require more attention. For example, without lubrication, components can wear quickly and may need to be replaced at 100,000 cycles or less. However, if the media flowing through the valve is lubricated or provides lubrication, it can provide component life up to millions of cycles.

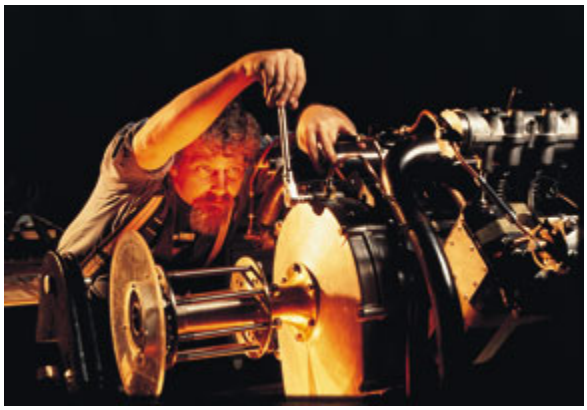
In another example, a valve's design may have small clearances between moving parts and/or small orifices through which media must travel. If the valve controls unfiltered, corrosive or viscous media, the liquid substance may have difficulty traveling through the valve, substantially increasing the likelihood of premature failure.

For standard valves, it can also be a challenge to control media as common as air and water. Applications that involve dry air and rapid cycling can be among some of the most damaging to the valve's operation. The lack of lubrication combined with the constant pounding of the internal parts can cause component deterioration and warping. Alternatively, valves that control water may have the lubrication to operate but can experience mineral

buildup, which can worsen when the water sits idle in the valve for extended periods of time.

In these situations, building a maintenance regimen can extend the valve's life as well as keep the application's functionality running smoothly. It is best to create a maintenance schedule and consider the cost as necessary to avoid expensive repairs or replacements in the future.

Repair or Replace?



To make the repair-versus-replace decision, consider the valve itself along with the overall application. Different valves have varying levels of durability. Simply designed and constructed valves enjoy a low replacement cost, making replacement the most simple and cost-effective choice. Valves with high-end designs, however, rely on the interaction of components and field maintenance may not replicate the valve's original function. On top of that, replacements usually cost more than simple maintenance, especially custom-designed valves. Although a complicated choice, replacing a high-end design, though costly, is the best recommendation.

Of course, maintenance usually implies the replacement of the rubber parts and springs. However, any remaining parts showing wear or damage should also be replaced. Another issue to consider is the valve's connection. If the connection has sweat fittings or its location makes removal of the valve difficult or dangerous, it may be best to leave the valve body in place and rebuild its components regularly. Extra caution should be made to verify the valve seat has not been nicked or worn, as this can result in seat leakage, even in valves with new seals.

Where cost is the primary criteria, replacement is most often the best choice. Generally, valves are inexpensive in comparison to the cost of service labor. The time and manpower it takes to disassemble the valve, replace the parts, reassemble, install and check for proper performance often outweighs the cost of labor to simply install a new valve.

Now, with the information provided in this article, you should be able to determine whether to adopt a maintenance or replacement regimen for your solenoid valves, as well as how to maintain one. For problems and questions beyond those covered in this article, always contact your nearest KHIMJI Flow Equipments Pvt. Ltd. office. KFEL is your best source of information on its particular valve and can help you address any special needs you might have based on the specific application.