

## How To Pick Valve Seat for Valve Project and Location

Picking a valve seat and material is a very important phase in picking valves. Many elements can depend on this, pressure, material going through valves and pipes and often times, outside factors such as the environment, heat resistance and protecting the valve from Mother Nature. It's important for offshore applications. Both sea salt, heat from the sun and pressures from air can affect a seal and valve type you might want to include in your project. Often times, such as on offshore oil rigs, many valve vendors will recommend fire safe and safety shutoff valves in case of a fire.

By Josh Zehtabchi, Director of Marketing - Valtorc International

Control valves regulate the flow of fluids as the position of the valve plug or disk changes with the force from the actuator. For this the valve has to achieve different things:

- The fluid should be contained without external leakage
- The capacity for intended service should be adequate
- There should be proper end connections to combine with adjacent pipelines and actuator attachment means to permit transmission of actuator thrust to the valve plug stem or rotary shaft.

The development in technology has resulted in the creation of several styles of control valve bodies. Some of them can be used for different purposes as required. Let us look at some of them:

### Single port valve bodies

This is the most common style and is simple in its construction. Various forms of

this valve seat are available – angle, globe, forged, bar stock, and split constructions. The single port valves are used where the shut off requirements are stringent. In these valves metal to metal seating surface or soft seating with PTFE or other material is used to make the seat. Most service requirements can be handled with these types of valves. Due to the fact that the high pressure fluid is loaded in the complete area of the port, there is an unbalanced force created and this should be kept in mind while choosing actuators for them.

### Balanced plug cage style valve body

This is also a popular type of valve used for many purposes. In this only one seat ring is used and hence it can be considered to be single ported. This provides the advantage of a balanced valve plug which usually only double ported valves provide. With the cage style trim there is the benefit of valve plug guiding, seat ring retention, and flow characterization. Apart from the sliding piston ring



type seal separating the wall from the upper portion of the valve plug the cage cylinder completely ensures that there is no leakage of the upstream high pressure fluid into the downstream system which is lower pressure.

### High capacity cage guided valve bodies

These are mainly designed for noise applications like high pressure gas reducing stations where the velocity of the gases is quite high especially at the outlet of the conventional valve bodies. There are oversized end connections incorporated in the design with a streamlined flow path which makes the trim maintenance easy with cage style constructions

### Port guided single port valves

These are also very popular for different



applications. They usually contain a screwed seat ring which can be difficult to take out later. It is possible to choose a smaller actuator for this type of valve due to the reduced dynamic forces acting on the plug, even though it is a single ported one with similar capacity.

There are many other types of valve seat materials and bodies that can be chosen according to the requirement at hand. You can learn about the different types of valve bodies, seat materials and their proper usage by conducting some research on the internet. There are not only the websites of the suppliers of these items, there are also many articles and blogs providing information about the different types of valves, seat materials and their usage.



### About the Author

Josh Zehtabchi is the Director of Marketing and Head of SEO for Valtorc International since 2009. He has been dedicated in providing customer friendly how-to articles and digital break downs of valve and actuator parts.

