

Control Valve Trim Type

by

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As per ISA S-7505 trim is defined as the internal parts of a valve which are in flowing contact with the controlled fluid. Usually it contains a plug, seat, & stem. The body & bonnet of a valve isn't considered as part of the trim. Valve trim could be in the several types. The classification by valve manufacturer can be as per seat material used, trim function, and guided used.

As per seat material used:

1. Soft seated trim valve.

Soft seated valve is a Globe valve trim with an elastomeric, plastic or other readily deformable material used either in the valve plug or seat ring to provide tight shutoff with minimal actuator forces. (ISA S-7505)

Soft seated trim use non metallic material such as PTFE, Graphite etc. We can use soft seated trim if the valve will not service a flashing, cavitating, or other slurry services.

2. Metal seated trim material.

Metal seated trim valve is a valve which uses a metal as a seat material such as 316 SS, Monel, etc. Best used for the severe service, flashing, cavitating, and slurry services.

As per trim function:

1. Standard trim.

Globe valve trim that designed for general service fluid without flashing, cavitating, or other slurry services. Usually comes in form of contoured plug.

2. Anti cavitation trim.

Globe valve trim that designed for fluid that have cavitation behavior. This special designed trim usually comes in form of cage guided or multistage plug.

3. Anti noise trim.

Globe valve trim that designed for fluid that have high noise radiated because of high power of fluid flow. Usually this trim design comes in form of multistage, cage guided or labyrinth type.

As per guide type:

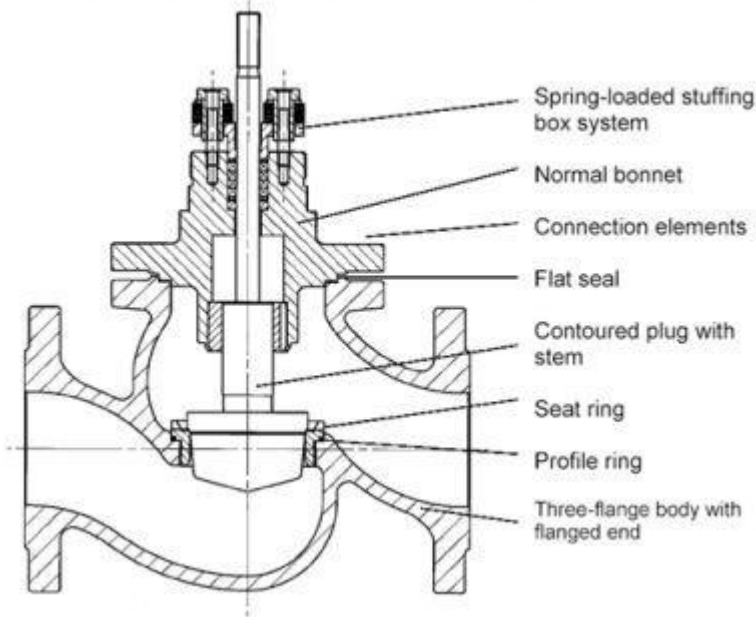
Post guided

In the post guided trim type, the plug is guided by a bushing in the stem or part of the plug. This post guided valve usually used in the general service fluid that doesn't exhibit cavitation, flashing, or high noise behavior.

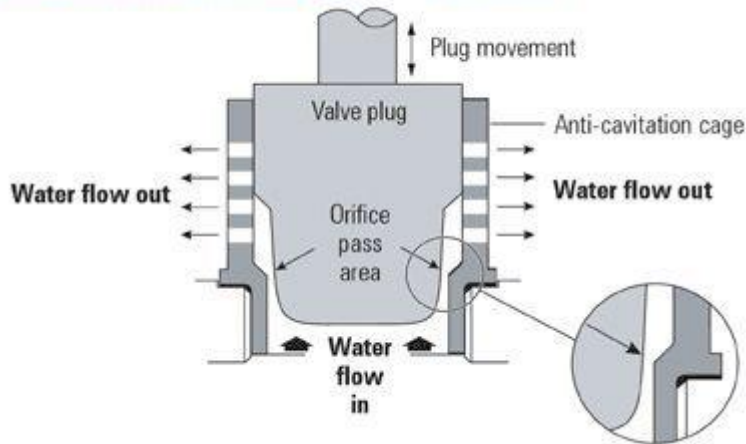
Cage guided

In the cage guided trim type, the plug is guided by a cage surrounding the plug. This cage guided valve usually used in the fluid service that have cavitation, high noise or flashing effect. Generally, the trim material of a valve shall refer to any specific project piping class or control valve specification required by client. In the data sheet, we could specify the trim type as metal seated-standard trim-post guided, metal seated-anti cavitation-cage guided trim etc.

Example of standard trim (contoured plug) from Flowserve.



Example of anti cavitation trim from Spiraxsarco.



Example of low noise trim from Fisher.

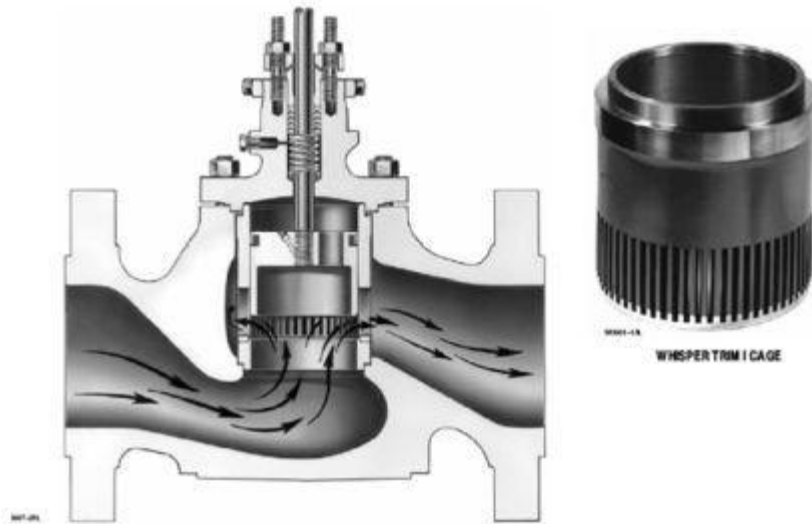
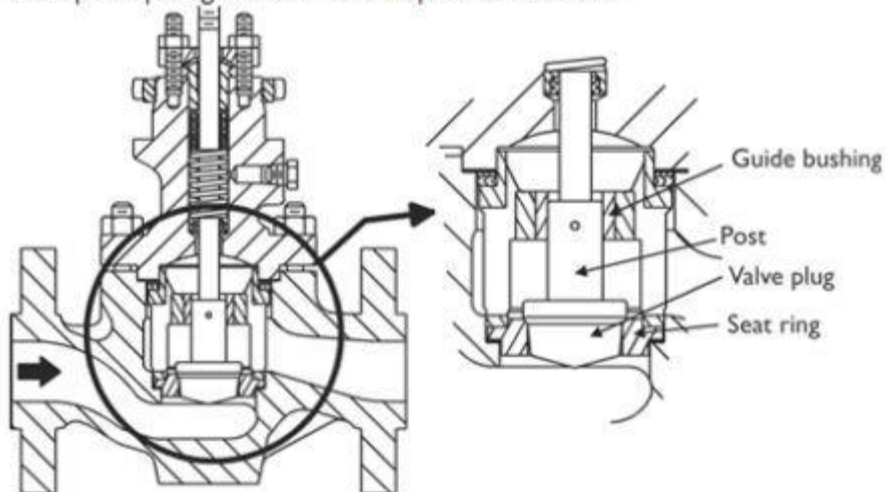
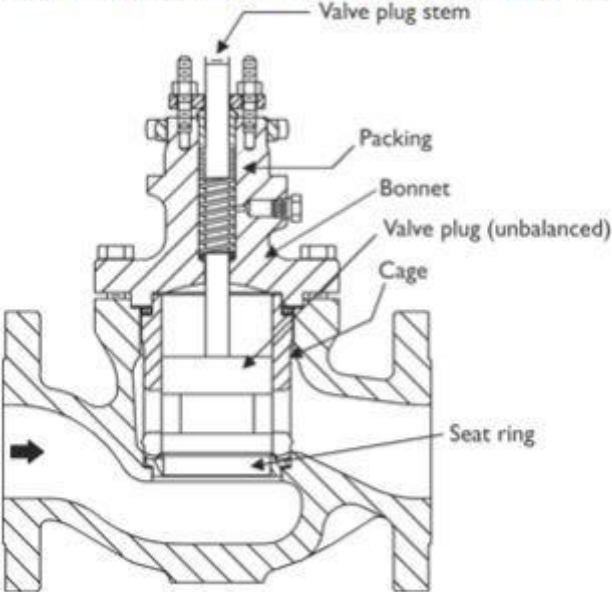


Figure 1. Design EWT Metal-Seat Valve with Whisper Trim® I Cage

Example of post guided valve from plantservice.com



Example of cage guided valve from plantservices.com



Source: <http://www.instreng.com/content/147-control-valve-trim-type.html>