



Features:

- **Modular construction facilitates different size and end connections**
- **Top entry trim designs to suit specific target applications**
- **High Cv to size ratio**
- **Standard and low recovery trim options combine multi-stage pressure reduction with velocity control**
- **Wide range of material options**
- **ISO 9001 compliant Q.A. Manufacturing processes**

Introduction:

CV-HA, HG, Offset & Y-Style Series Control Valves are designed for high duty applications in most process control industries including gas/oil transportation, aerospace and defense, petrochemical refining & production and power generation.

Whether high pressure, severe service or a combination of both, CV-H Series control valves have been developed to serve the most demanding conditions. The overall construction is a modular, high performance concept, capable of extending many standard variations into specialized applications.

The process application defines the construction and style proposal.

Made in the USA to ISO Quality Standards.



Technical Specifications

Size / Style:

1/2 to 8 inch nominal bore through globe,
1/2 through 24 inch Angle and Offset Style.

Construction:

Four basic top entry assemblies are utilized these being through globe, offset globe, Y-Pattern and Angle styles.

Modular forged or fabricated construction enables an application concept allowing a wide range of end connections.

Pressure Temperature Ratings:

ASME 150 to 4500

API 3000 TO 10000

For other ratings consult factory.

Connections:

ANSI and API Flanges. Screwed Connections. Welding ends as specified – butt weld or socket. For other connections consult factory.

Bonnets:

Standard, high and low temperature bonnets are supplied to suit application requirements.

Valve Trims:

Full or reduced, ported cage, low recovery cage, in balanced single, multi-stage or high duty arrangements

Flow Characteristics:

Linear, Equal Percentage and Quick Open. Modified characteristics may be produced to suit application requirements.

Valve & Trim Materials include (but not limited to):

Carbon steel, chrome-moly steels, stainless steel, duplex alloys, hastelloy B & C, ferralium, monel, titanium, bronze, alloy 20 etc., including compliance to NACE MR-01-75 as required.

Hard facings such as stellite, carbide and proprietary material modifications may be accommodated.

Maximum Leak-rates:

Leakage rates are normally in accordance with the ANSI/FCI 70-2 Specification using the Class designation

Actuation:

Pneumatic piston, hydraulic, electro-hydraulic and electric, with many options of control and operational requirements.

Construction continued:

The standard cage retained seat or a suspended cage assembly is clamped between body and bonnet to give the best positive guiding characteristics. For temperatures up to 450 degs F. the trim may take the form of a cartridge containing seat and cage.

These assemblies come in two options, one with resilient seating for Class V and VI shut-off, and one with metal-to-metal seating for Class III, IV, and V.

For temperatures above 450 degs F and below -100 degs. F, the seat is seal welded or integral with the valve body, to give Class III, IV and V shut-offs.

Valve Trim:

Standard arrangements include a post guided or balanced ported design combining high capacities that handle greater pressure differentials while keeping actuator forces to a minimum. Flows may be bi-directional but preference is for flow over on liquids and flow under on gas/vapor service.

Low Recovery Trim:

The CV range of low recovery trims is used to reduce erosion, vibration, cavitation and noise levels. These may be in single stage (CV1) or multi stage (CV2, 3, 4 etc.) combinations, dependant on the severity of the application.

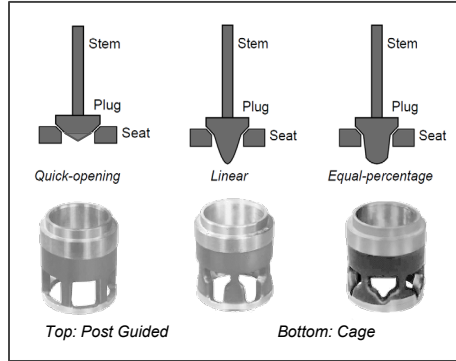
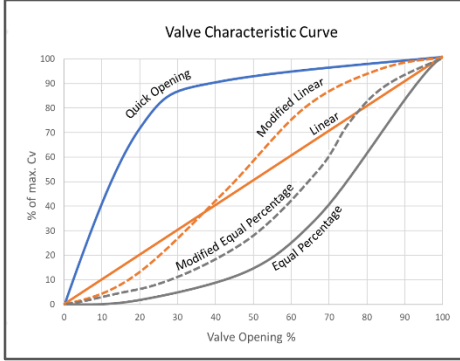
To further support the low recovery trim options, a variety of ancillary equipment is available in the form of diffusers, baffles and attenuators. These are normally engineered as "application specific".

Sizing and Selection:

Sizing is undertaken using an in-house engineering program, which undertakes calculations of all aspects relating to correct specification. Calculations include capacity, approach, exit and internal velocities, cavitation index, and noise prediction. A detailed copy is provided together with a complete specification of valve and materials.

Gland Packing Systems:

Several packing systems are available depending on the operating pressure and temperature. This also includes live loaded packing to avoid fugitive emissions in accordance with the Clean Air Act.



SINGLE AND MULTI-STAGE LOW RECOVERY TRIM STYLES



Standard high recovery control valve trims may be offered with Linear, Equal Percentage or Quick Open flow characteristics and come in post guided arrangement with contoured profile.

Control Characteristics maybe modified or customized to suit service requirements.

Single ported cage trims used to enable balancing the trim on high pressure applications.

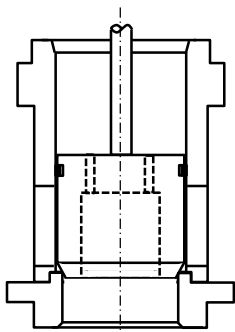


Figure 1. Ported Single Stage

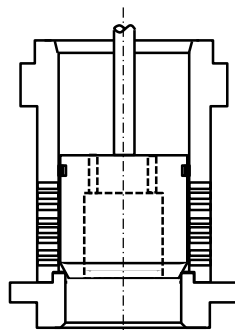


Figure 2. CV1 Single Stage

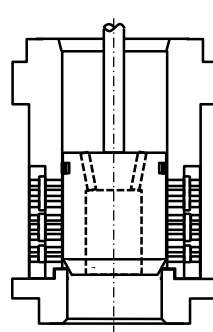


Figure 3. CV2 Two Stage

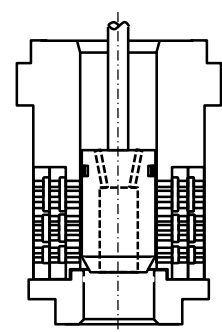
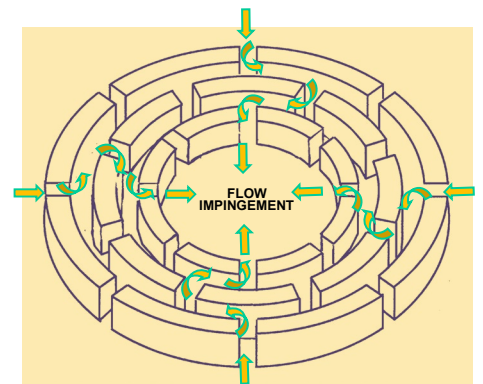


Figure 4. CV3 Three Stage

CPE-USA Multi-Stage Low Recovery Trims are contaminant tolerant and has a unique concept combining flow passages which allow a tortuous pressure/velocity reducing profile throughout the trim element.

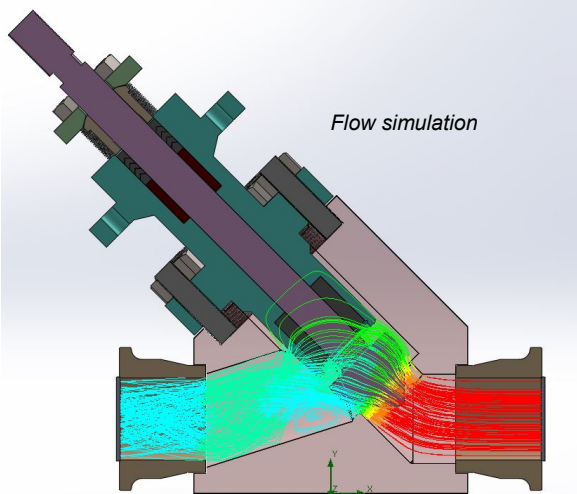
This concept is used to prevent the onset of cavitation and provide noise attenuation on severe service applications.

Preferred flow direction is outside to in on liquid service, and inside to out on vapor service. This takes advantage of flow impingement (liquids) and flow expansion (vapor).

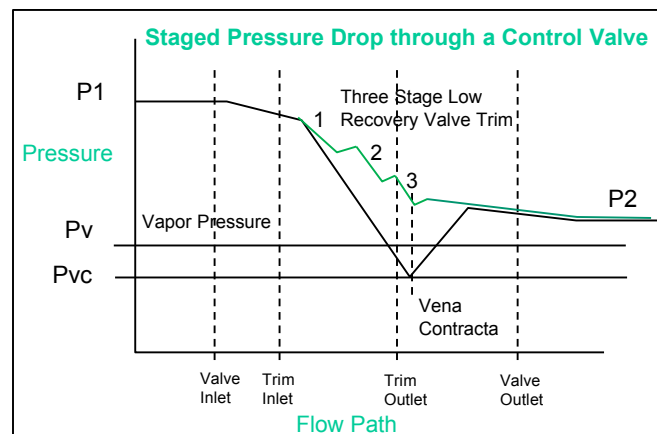


MULTI-STAGE PRESSURE REDUCTION

LIQUID SERVICE



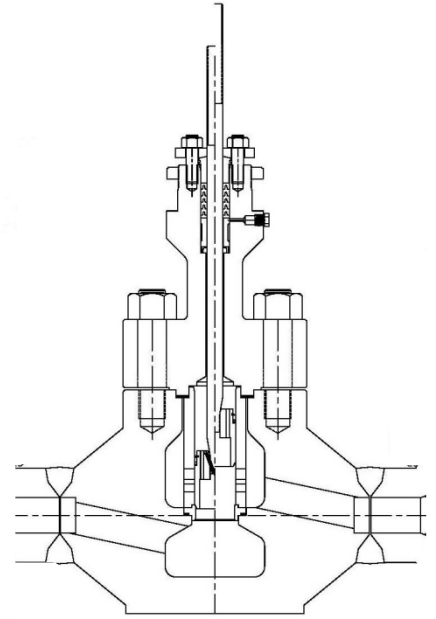
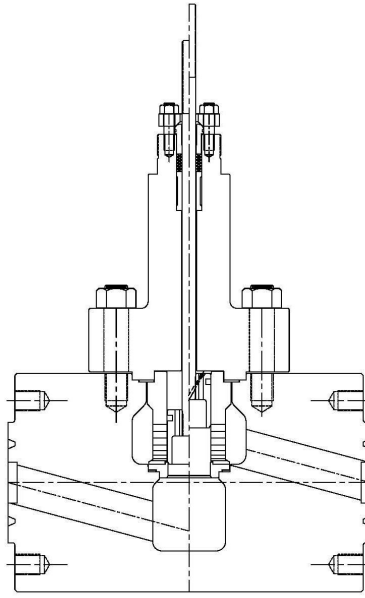
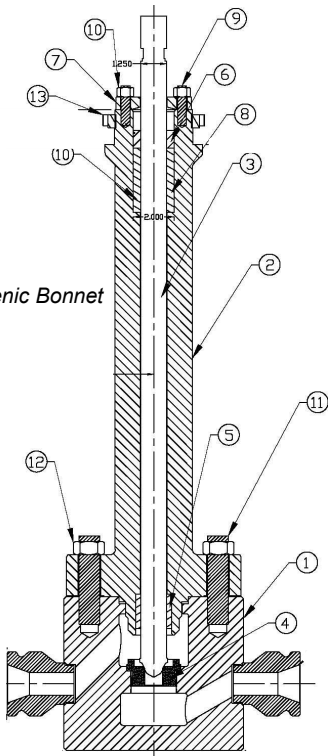
Flow simulation



CONTROL VALVE BODY STYLES

Figure 1.
CV-HG Globe Style Control Valves

Cryogenic Bonnet



CPE-USA Control Valves may be configured in many variations as illustrated below. The forged concept allows design flexibility to mix and match sizes, trims and end connections to suit the application requirements.

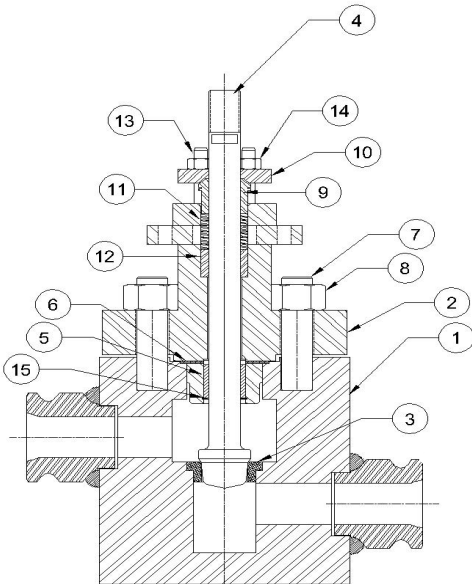


Figure 3.
CV-HGO Offset Globe Style Control Valve

Figure 2.
CV-HA Angle Style Control Valves

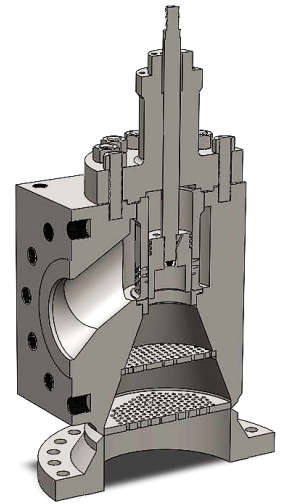
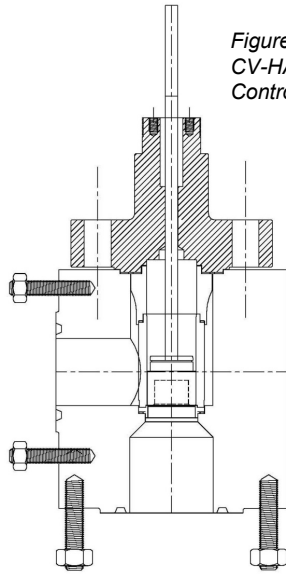
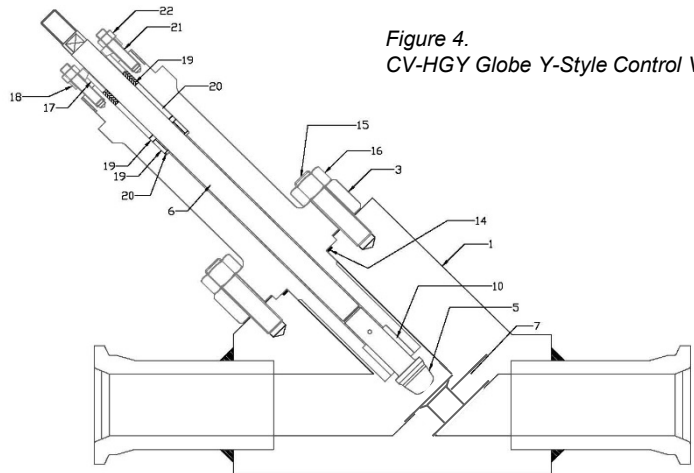
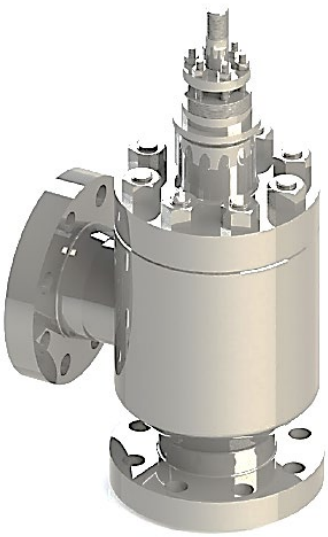
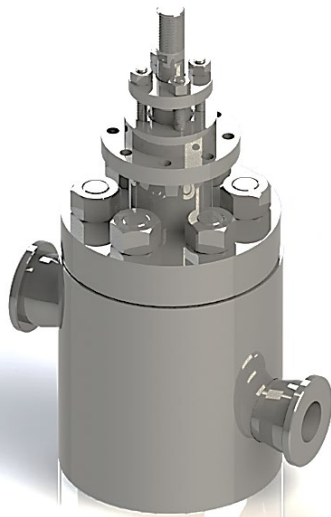


Figure 4.
CV-HGY Globe Y-Style Control Valve



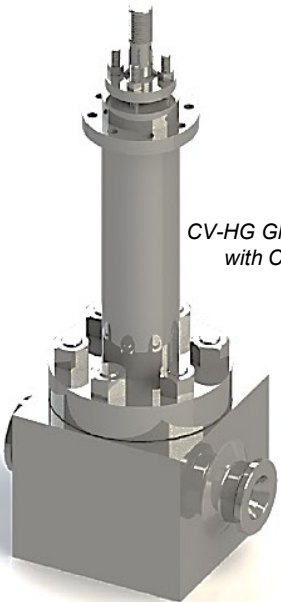
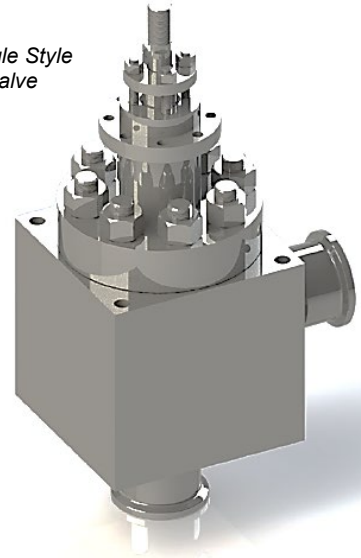


CV-HA Angle Style Control Valve



CV-HGO Offset Globe Style Control Valve

CV-HA Angle Style Control Valve

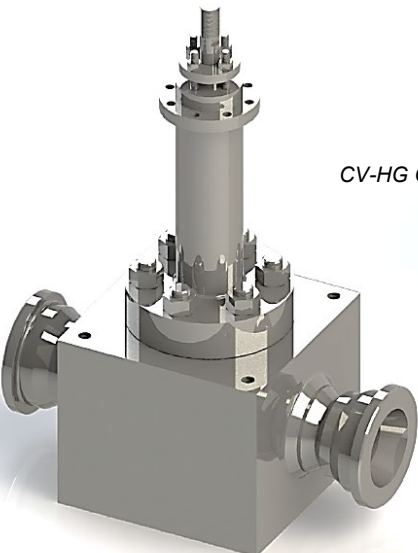


CV-HG Globe Control Valve with Cryos Bonnet



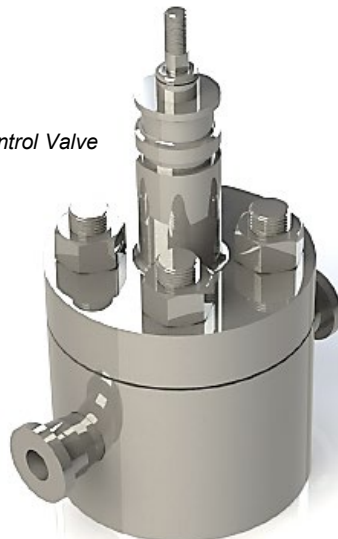
CV-HGY Globe Y-Style Control Valve

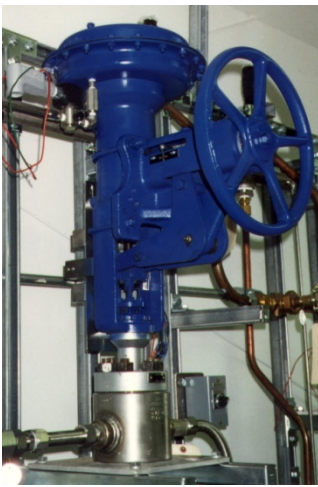
8" x 6" x 18" CV-HA Angle Control Valve with Low Noise Diffuser



CV-HG Globe Control Valve with Cryos Bonnet

CV-HG Globe Control Valve





SPACE PROGRAM

In addition to the 'traditional' oil / gas and power generation industries, **CPE-USA** has supplied valve designs for many diversified markets such as gas transfer and underground storage, pyrotechnic displays, the space program, urea applications and cryogenics, to name but a few.



CRYOGENICS



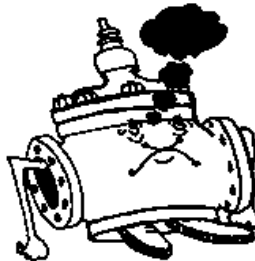
UREA SERVICE



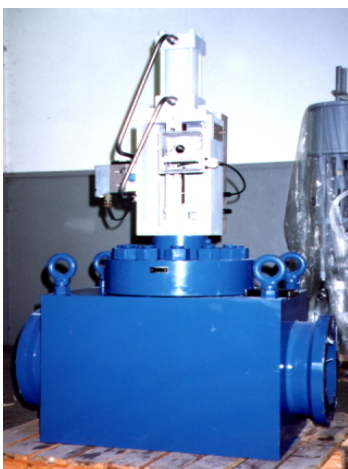
Offset Globes supplied for Aerospace test facility



POWER GENERATION



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SPECIAL CUSTOM VALVES FOR U.S.A.F. TEST FACILITY

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