



**GLOBE  
CONTROL VALVE**

**GLH<sup>®</sup>**



## INTRODUCTION

The GL $\bar{H}$  globe control valves were designed for high-pressure applications on industrial processes. The GL $\bar{H}$  Series was developed as an extension to the design of the renowned GL $\bar{S}$  control valve made by Valtek Sulamericana, having similar advanced characteristics such as the self-centering seat, the double upper guide system, the top entry assembly and spring-cylinder actuators, among other features.

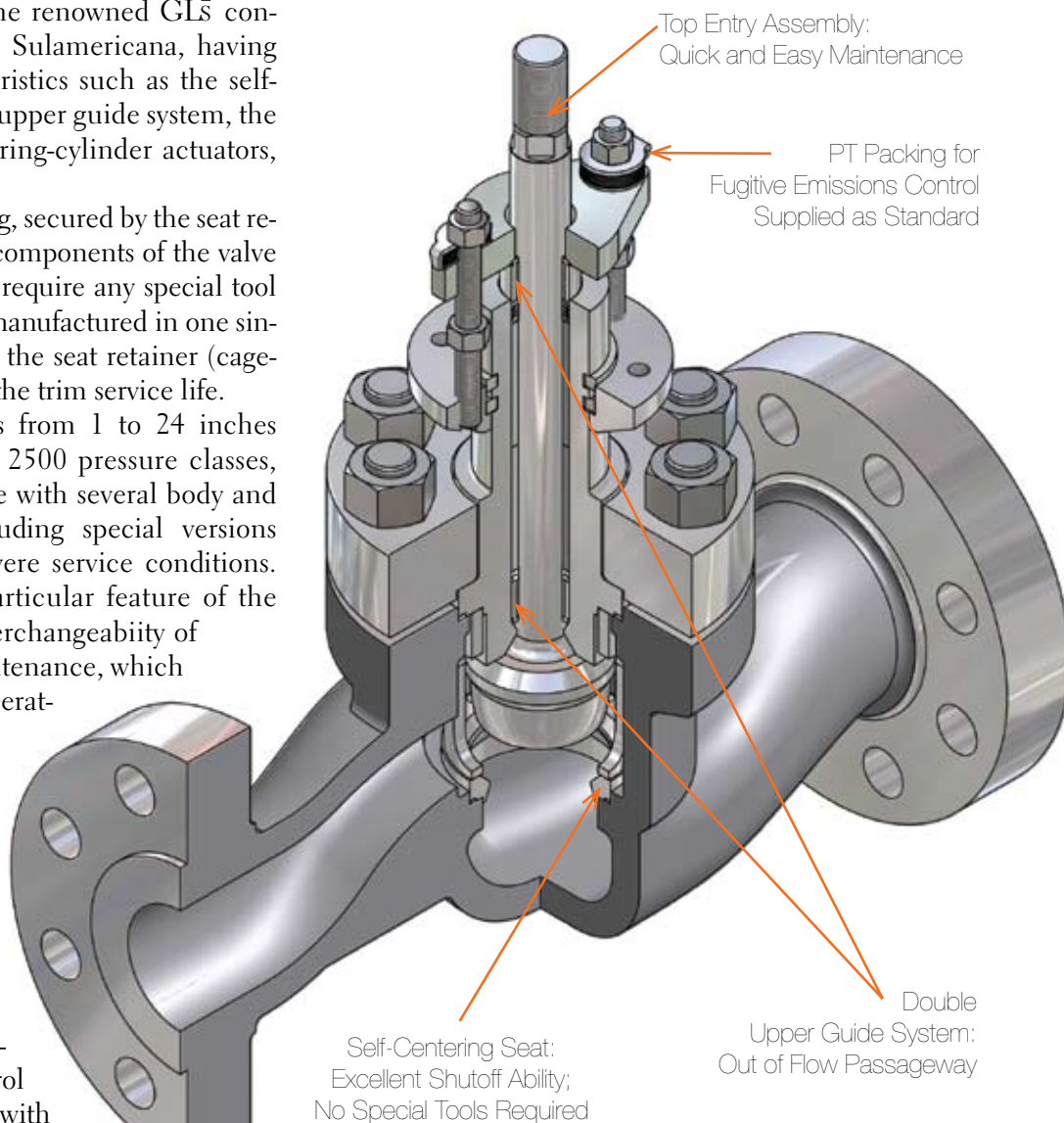
The clamped-in seat ring, secured by the seat retainer, as well as all other components of the valve and the actuator, does not require any special tool for its removal. The plug, manufactured in one single piece, is not guided by the seat retainer (cage-guided) and this increases the trim service life.

Manufactured on sizes from 1 to 24 inches and ANSI 900, 1500 and 2500 pressure classes, the GL $\bar{H}$  Series is available with several body and trim configurations, including special versions for applications under severe service conditions. Its rational design is a particular feature of the GL $\bar{H}$  Series, as well as interchangeability of the parts and the easy maintenance, which translates into reduced operating costs.

The GL $\bar{H}$  Series uses double-acting cylinder and piston type actuators, with positive spring to assure required failsafe position, providing high pneumatic stiffness, excellent positioning in throttling control, fast and reliable response to the control signal variation. Operating with air supply up to 150 psi (10.3 Bar), the actuators of the GL $\bar{H}$  Series provide also more than sufficient force to assure the desired tightness, even when the valve operates with very high differential pressures.

The positioner options, which include HPP1500 analog and HPP3000/HPP3500 digital models, complete the high performance technology package and make the GL $\bar{H}$  Series the most prestigious control valves for high pressure applications in the worldwide market.

### GL $\bar{H}$ SERIES – BODY SUB-ASSEMBLY (FIGURE 1)



**Rangeability 30:1 (Typical)**

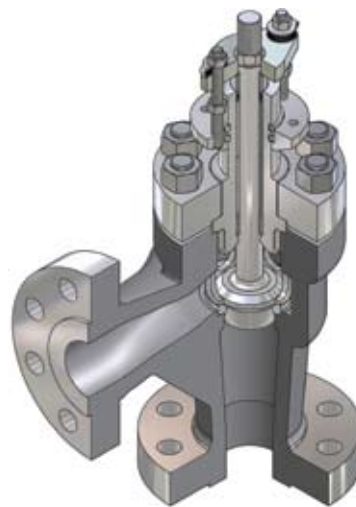
**ANSI Class Shutoff IV — Metal Seat\***  
**ANSI Class VI Shutoff — Soft Seat\***

\* Standard for valves with unbalanced trim.

## Conventional Globe-style Body

The GLH Series globe-style bodies (Fig.1) present a streamlined and smooth passageway. The internal passages of the body presents a nearly constant area with no pockets, allowing a high capacity with minimum turbulence.

These bodies are designed with more uniform wall thickness, resulting in lower weight and lower cost, specially when the body is manufactured in stainless steel or in more expensive alloys.

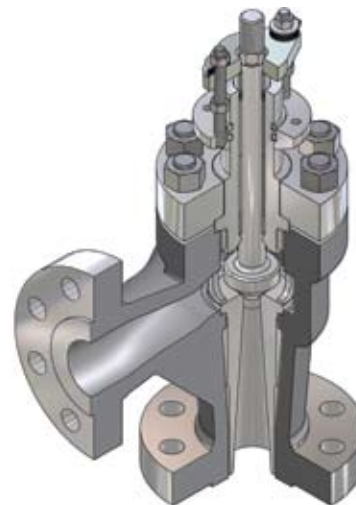


**ANGLE-STYLE BODY (FIGURE 2)**

## Angle-style Body

The GLH valve with angle body is fully interchangeable with the globe-style valve: except for the body, all other components are the same.

Depending on the application for which the valve is intended, the GLH valve with angle body may be supplied with an optional venturi-type seat ring, which extends itself up to the outlet flange of the body and provides an additional protection against the erosive action of the fluid.

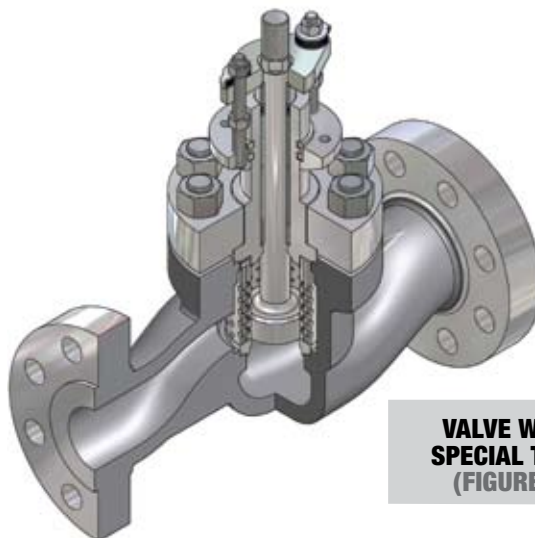


**ANGLE VALVE W/VENTURI SEAT (FIGURE 3)**

## Special Versions

In addition to the conventional or angle-style bodies, valves of the GLH Series may be supplied with special configurations, such as:

- Three-way body, for applications with converging flow (mixing action) or diverging flow (bypass action);
- Versions with special anti-cavitation trim, Alpha-type, for services with low or medium intensity cavitation;
- Versions with special low-noise trim, Beta-type, to attenuate the noise level generated when operating with gases;
- Versions with special anti-cavitation trim, Gamma-type, for services under severe cavitation conditions;
- Versions with special trim, Delta-type, for services under severe cavitation condition or, for services where attenuation of the noise level is necessary, either in liquid or gases applications.



**VALVE WITH SPECIAL TRIM (FIGURE 4)**

## **With the GL̄ Series, the intelligent concept of design translates into performance and operational benefits:**

### **Rugged**

The GL̄ valve construction makes it less prone to corrosion attacks from process fluids when compared to conventional globe valves.

The rugged plug stem, as well as other valve components, is designed for heavy-duty services and can withstand high differential pressures.

When necessary, optional low-noise and anti-cavitation trim are also available.

### **Seating**

Besides providing an accurate control, the concept of the GL̄ valve with a single and self-centering seat also provides an exceptional shutoff capacity, normally assisted by the fluid pressure. In normal conditions, with the air supply, the double acting spring-cylinder actuator assures a high seating force; in case of air supply loss, the actuator spring plus the resulting force from fluid pressure, move the plug to required failsafe position.

### **Easy, quick and low-cost maintenance**

Top entry assembly simplifies maintenance tasks. Once the bonnet flange nuts are removed, the bonnet and the plug may be removed from the valve, allowing the access to the other internal components.

The clamped-in seat ring, secured by the seat retainer, as well as all other components of the valve and the actuator, do not require the use of special tools for its disassembly and reassembly.

The compact size of the valve and its low weight helps its handling for maintenance and for installation in the process.

### **Guiding and Packing**

The GL̄ Series guiding system deserves a special comment. Besides eliminating the disadvantages of the guiding system at the seat retainer, the GL̄ guides, well spaced and with large bearing support surfaces, eliminate the problems related to vibration in control valves.

Due to the use of this advanced guiding system, the rugged plug stem of the GL̄ valve may be subjected to twice the thrust produced by available oversized actuators, without buckling risks.

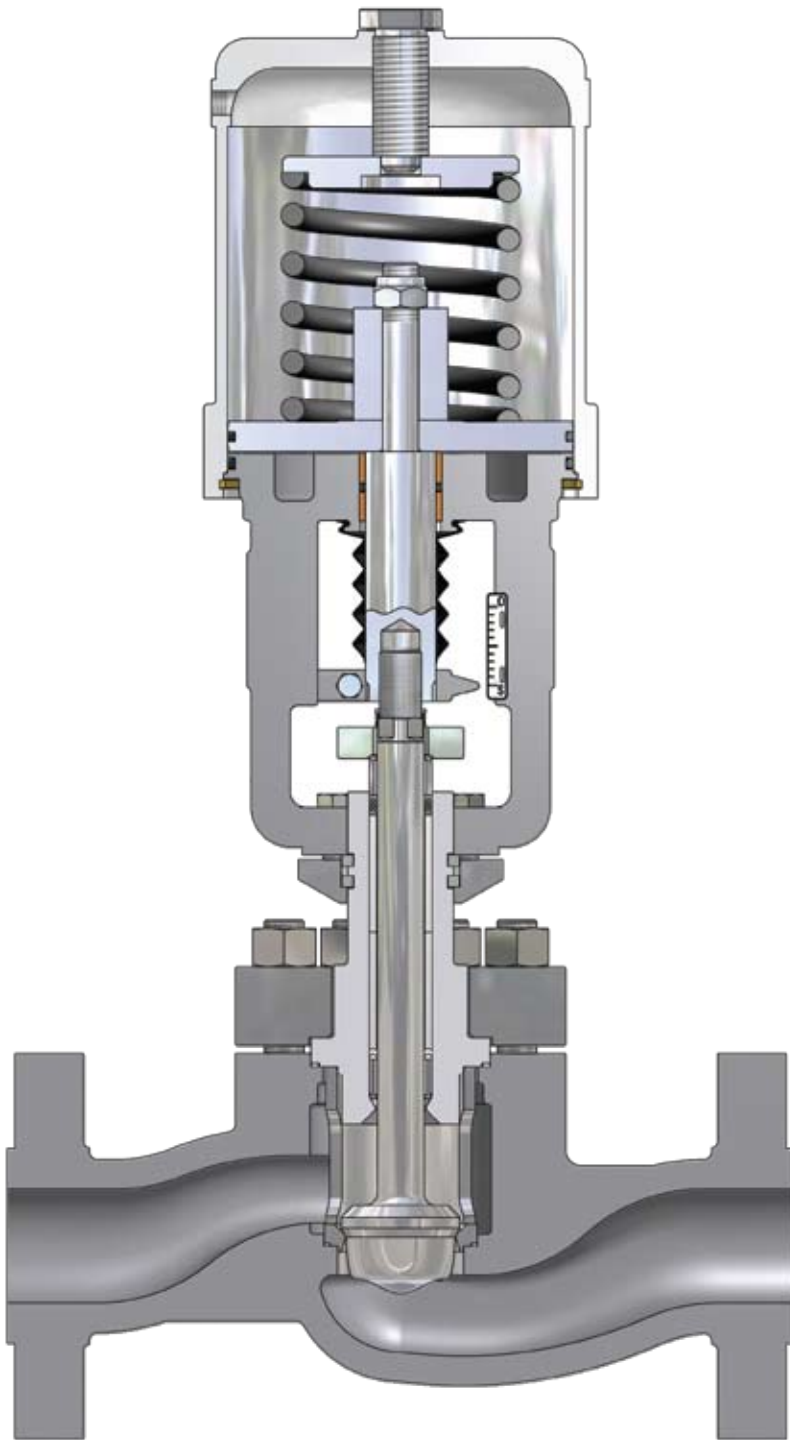
The large depth of the GL̄ Series packing box allows the use of all packing options offered by Valtek Sulamericana, and the excellent surface finish of the bonnet bore and the plug stem contributes for a long packing life, with no leakage.

### **Trim that do not jam**

The double upper guide system, located out of the flow path, assures a perfect alignment of the plug stem, while providing considerable clearance between the plug head and the seat retainer, eliminating friction problems related to the guiding system in the seat retainer (cage-guided).

### **Versatile**

In addition to the conventional globe-style bodies, angle-style bodies and special versions are available to comply with the needs of the continuous process industries. The modular concept of design assures an interchangeability degree between the different versions and sizes that, doing one of the highest among the valves available in the market, considerably reduces the need of spare parts.



**GLH CONTROL VALVE (FIGURE 5)**

### **Double acting spring-cylinder actuator – Advantages:**

- »» Presents high actuating thrust and pneumatic stiffness;
- »» Field reversible, without the need of additional parts;
- »» Provides reliable operation;
- »» More compact than spring-diaphragm actuators with equivalent thrust;
- »» Operates with a controlled movement and high speed stroke;
- »» Ensures an accurate positioning, with high response capacity;
- »» High repeatability;
- »» Allows the assembly of several types of positioners and accessories;
- »» Optionally can be supplied with different types of manual handwheels and stroke stops;
- »» Operates with air supply pressure up to 150 psi (10.3 Bar), with no need of a pressure regulator.

GL $\bar{H}$  valves are supplied with raised face integral flanges as standard. In order to have a better sealing to the adjacent piping flanges, the contact surface of valve flanges are machined with spiral grooves. Other optional flange facing are available such as: smooth finish, flat face, RTJ, large and small tongue and, large and small groove.

In addition to the flanged versions other types of end connections are available, such as: NPT threaded connection, socketweld (SW) and buttweld (BW).

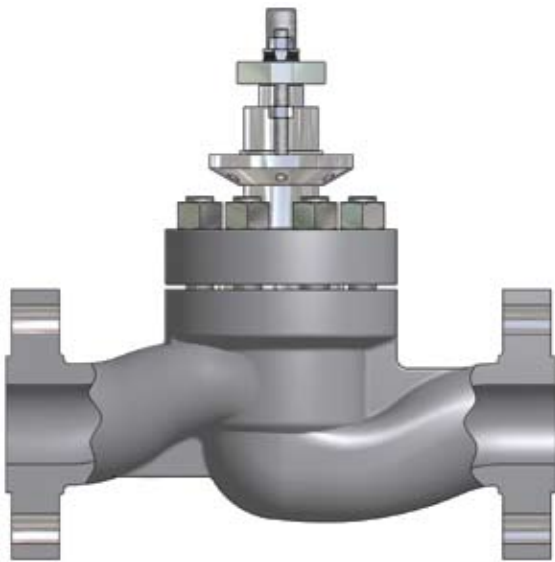
## Bonnet Flange

The bonnet flange design of the GL $\bar{H}$  Series uses a separable flange concept, not integral to the bonnet. Since the bonnet flange does not contact the operating fluid, it is normally manufactured in carbon steel; however it may be manufactured in stainless steel if this is required due to the operating temperature or aggressive environment.

## Bonnet Flange Bolting

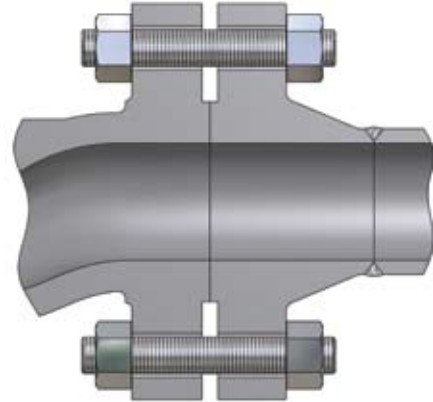
The GL $\bar{H}$  Series bonnet is attached to the valve body by means of studs and nuts. The standard material is ASTM A193 Gr. B7 for studs and ASTM A194 Gr. 2H for nuts, suitable for operating temperatures from  $-20$  to  $800^{\circ}\text{F}$  ( $-28$  to  $426^{\circ}\text{C}$ ).

Optionally, studs and nuts may be supplied also in stainless steel, complying with a temperature range from  $-425$  to  $1500^{\circ}\text{F}$  ( $-253$  to  $815^{\circ}\text{C}$ ). These temperature limits are valid for maximum operating pressure established by the last edition of ANSI B16.34.

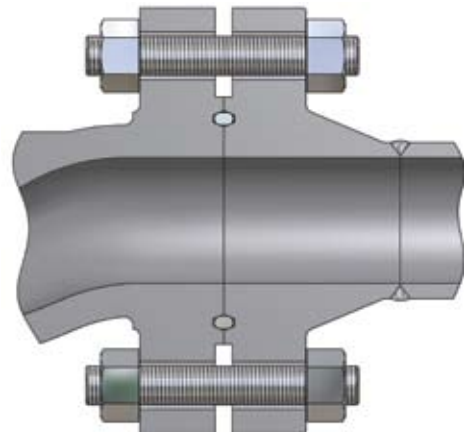


**BODY END & BONNET FLANGES (FIGURE 6)**

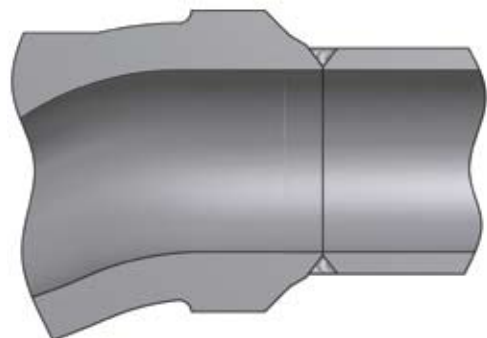
**INTEGRAL FLANGE (FIGURE 7)**



**RTJ FLANGE (FIGURE 8)**



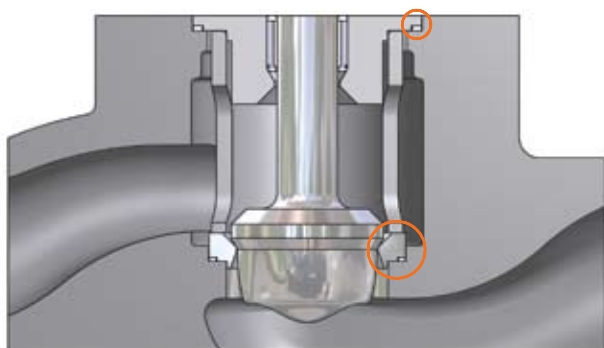
**BUTTWELD END CONNECTION (FIGURE 9)**



# GASKETS, CLAMPS

## Gaskets

The GLH Series is designed with the bonnet gasket totally enclosed. The GLH valve bonnet has a shoulder projection that actuates as a mechanical stop, which limits the gasket compression. Thus, the bonnet gasket remains completely sealed and its compression is determined by the depth of the shoulder projection existing in the bonnet. Body, seat retainer and the seat itself are machined within tight tolerances to assure the proper gasket compression. Differently from the bonnet, the seat does not touch directly the body (metal to metal), maintaining the proper clearance to compensate the mechanical tolerances and thermal expansion.

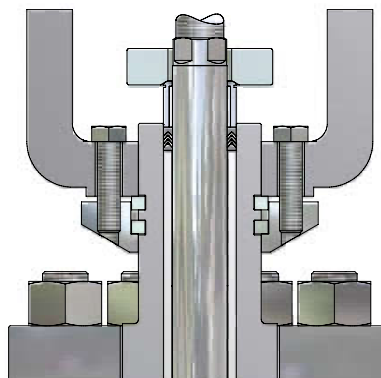


**BODY GASKETS (FIGURE 10)**

## Clamps

The actuator of the GLH Series is usually attached to the valve by means of bolting which secure the actuator yoke to the valve bonnet. For smaller sizes, the actuator yoke is connected to the valve bonnet by means of two yoke clamps manufactured in investment cast stainless steel. Each clamp has a flat-sloped surface so, when one clamp is bolted to the other, a force is generated, securing the actuator yoke firmly to the valve bonnet.

Differently of the conventional threaded clamps, the design of GLH clamps allows its easy removal, even under severe corrosion conditions.



**YOKE BOLTING (FIGURE 11)**

**TEMPERATURE AND PRESSURE LIMITS FOR VALVE GASKETS (TABLE I)**

|                         | TYPE          | GASKET MATERIAL           | TEMPERATURE LIMITS          |                            | PRESSURE LIMITS  |
|-------------------------|---------------|---------------------------|-----------------------------|----------------------------|--|
|                         |               |                           | °F                          | °C                         |  |
| <b>Standard Gaskets</b> | Flat          | PTFE                      | -200 to 350                 | -130 to 177                | 6000 psi @ -200°F (415 Bar @ -130°C) / 1000 psi @ 350°F (69 Bar @ 177°C) |
|                         | Spiral Wound  | 304 SS/Graphite           | -320 to 750                 | -196 to 400                | 6250 psi (431 Bar)   |
|                         | Spiral Wound  | 316 SS/Graphite           | -320 to 1000 <sup>(1)</sup> | -196 to 538 <sup>(1)</sup> | 6250 psi (431 Bar)   |
| <b>Optional Gaskets</b> | Flat          | AFG <sup>(2)</sup>        | -20 to 600                  | -28 to 315                 | CF <sup>(3)</sup>  |
|                         | Flat          | KEL-F                     | -320 <sup>(4)</sup> to 350  | -196 <sup>(4)</sup> to 177 | 6000 psi @ -320°F (415 Bar @ -196°C) / 1000 psi @ 350°F (69 Bar @ 177°C) |
|                         | Flat          | PTFEG                     | -200 to 450                 | -130 to 232                | 6000 psi @ -200°F (415 Bar @ -130°C) / 500 psi @ 450°F (35 Bar @ 232°C)  |
|                         | Spiral Wound  | 304 SS/AFG <sup>(2)</sup> | -20 to 750                  | -28 to 400                 | 6250 psi (431 Bar)   |
|                         | Spiral Wound  | 316 SS/AFG <sup>(2)</sup> | -20 to 1000                 | -28 to 538                 | 6250 psi (431 Bar)   |
|                         | Hollow O-Ring | Inconel X-750             | -20 to 1500                 | -28 to 815                 | 15000 psi (1034 Bar)   |

<sup>(1)</sup> Limited to 800°F (426°C) in oxidizing service. <sup>(2)</sup> Gasket material free of asbestos. <sup>(3)</sup> Contact factory for pressure limits of non-asbestos material specified. <sup>(4)</sup> Lower temperatures upon request.

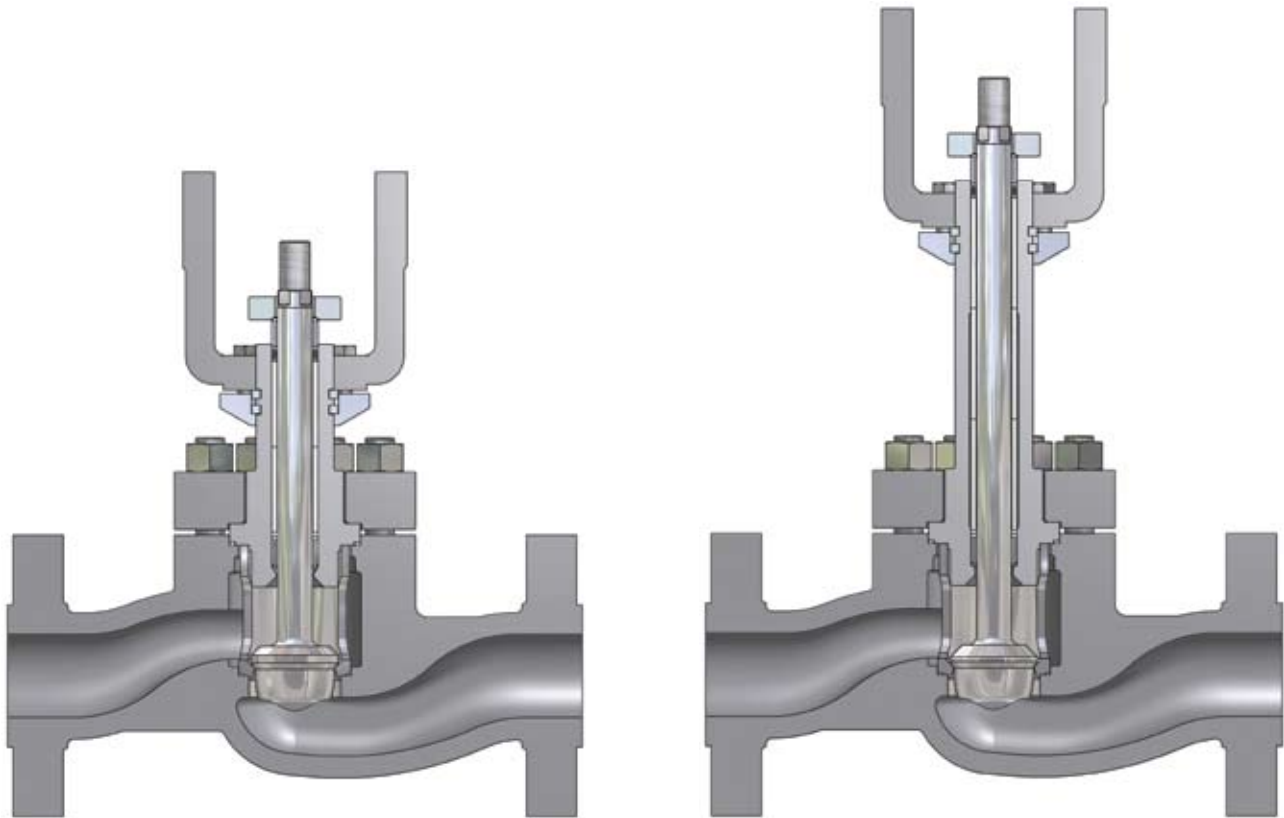
# BONNET TYPES

## Standard Bonnet

The GLH Series standard bonnet is usually manufactured with the same material as the valve body and withstands operating temperatures from -20 to 800°F (-28 to 426°C), depending on the packing material (see temperature limits for different packing materials on table IV).

## Extended Bonnet

The extended bonnet protects the packing against excessive heat or cold that could affect the performance of the valve. The extended bonnet manufactured with carbon steel can be used with operating temperatures from -20 to 800°F (-28 to 426°C), and the extended bonnet manufactured with 304 or 316 stainless steel can work with operating temperatures from -150 to 1500°F (-100 to 815°C)



**GLH CONTROL VALVE – BONNET TYPES (FIGURE 12)**

### BONNET FLANGE AND BOLTING SPECIFICATIONS (TABLE II)

| BONNET FLANGE (STANDARD) | BONNET FLANGE (OPTIONAL)                                | BONNET FLANGE STUDS & NUTS (STANDARD)              | BONNET FLANGE STUDS & NUTS (OPTIONAL)             |
|--------------------------|---|--|---|
| Carbon Steel             | Stainless Steel <sup>(1)</sup> or same material as body | ASTM A193 Gr. B7 / ASTM A194 Gr. 2H <sup>(2)</sup> | 304 or 316 Stainless Steel <sup>(1) (3) (4)</sup> |

<sup>(1)</sup> Optional materials of bonnet flange and bonnet flange bolting are always necessary when exceeded the temperature limits of standard carbon steel or B7/2H. <sup>(2)</sup> Operating temperature from -20 to 800°F (-28 to 426°C), provided that the body limits are respected. <sup>(3)</sup> Operating temperature from -425 to 1500°F (-253 to 815°C), provided that the body limits are respected. <sup>(4)</sup> Other materials upon request, depending on operating conditions and design criteria.

## Packing Box

The GLH valve packing box is deep and has excellent surface finish, allowing the use of all packing options offered by Valtek Sulamericana and bringing the following additional advantages:

1. PT packing for fugitive emissions control is standard for the GLH valves.

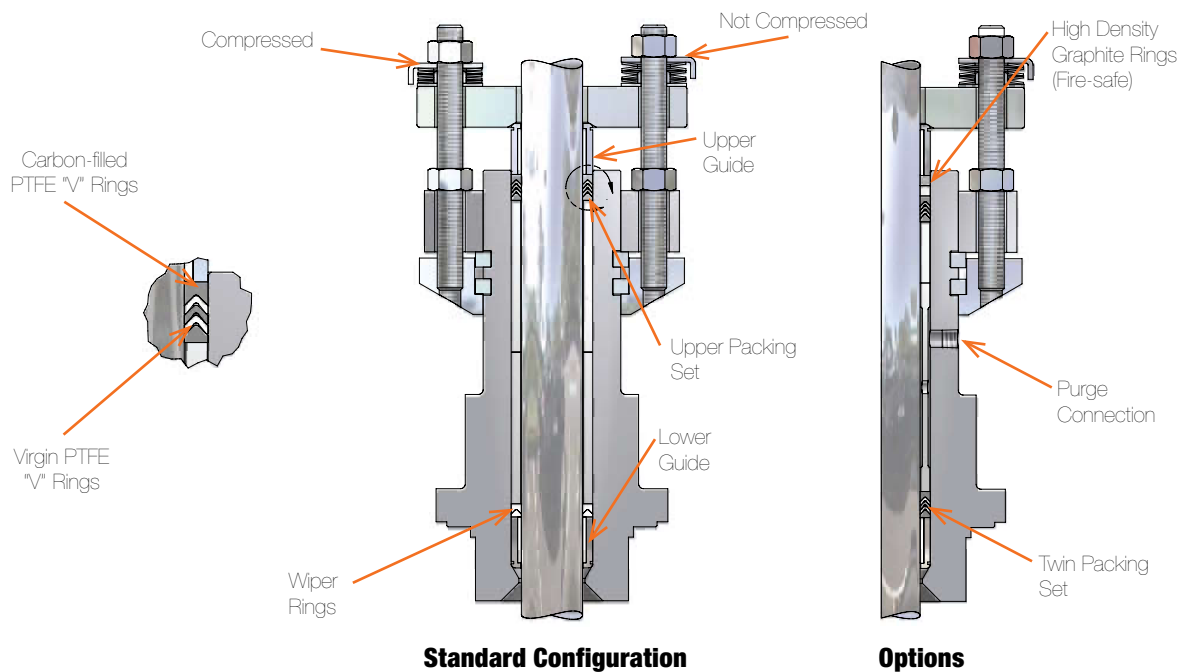
2. The spacing between the lower wiper packing set and the upper packing set, which is effectively responsible for stem sealing, is so that wetted portion of plug stem do not reach the upper packing set.

3. Eliminates problems caused by friction and wear, usually associated to the guide system in the seat retainer (cage-guided);

4. Two large and widely spaced guides, located out of the flow path and a plug stem with large diameter comprise the advanced guiding system of the GLH Series. The upper guide works also as a packing gland, while the lower guide, located next to the plug head, assures a sturdy alignment between the plug and the seat ring.

5. The guide options available cover all range of applications of GLH valves

**TYPICAL GUIDING AND STANDARD PT PACKING ARRANGEMENT (FIGURE 13)**



**TEMPERATURE AND PRESSURE LIMITS FOR PLUG GUIDES/INSERTS (TABLE III)**

| GUIDE/INSERT MATERIALS                                  | TEMPERATURE LIMITS          |                            | PRESSURE LIMITS   |
|---|-----------------------------|----------------------------|---|
|   | °F                          | °C                         |   |
| Stainless steel with graphite insert <sup>(1) (2)</sup> | -320 to 1500 <sup>(3)</sup> | -196 to 815 <sup>(3)</sup> | up to 1000 psi (69.0 Bar) for sizes up to 2 in.                         |
|   |                             |                            | up to 600 psi (41.4 Bar) for 3 and 4 in.                                |
|   |                             |                            | up to 500 psi (34.5 Bar) for sizes 6 in. and larger                     |
| Stainless steel with PTFEG insert                       | -20 to 300                  | -28 to 150                 | 850 psi @ 100°F (58.6 Bar @ 38°C);<br>100 psi @ 300°F (6.9 Bar @ 150°C) |
| Bronze (solid guide) <sup>(4)</sup>                     | -425 to 500 <sup>(5)</sup>  | -253 to 260 <sup>(5)</sup> | body rating   |
| Alloy #6 (solid guide) <sup>(6)</sup>                   | -425 to 1500                | -253 to 815                | body rating   |

<sup>(1)</sup> The ΔP through the valve must be observed for each valve size. Contact factory. <sup>(2)</sup> Do not use in oxygen enriched services. In applications under cavitation condition, the use of lower guide with graphite insert is not recommended. <sup>(3)</sup> For oxidizing services such as air, the maximum operating temperature is 800°F (426°C). <sup>(4)</sup> Bronze solid guides shall not be used in corrosive applications or where NACE certification is required. <sup>(5)</sup> For upper guide, the maximum temperature limit is 900°F (482°C). <sup>(6)</sup> Whenever the valve trim is a 300 series stainless steel and the lower guide made from Alloy #6 is specified, the plug stem must be hardened with Alloy #6 in the stem region in contact with the lower guide.

## PTG and PTG XT Packing

When the operating temperature exceeds the recommended limits of PT packing or even when a higher sealing capacity is expected, the PTG packing is the ideal choice.

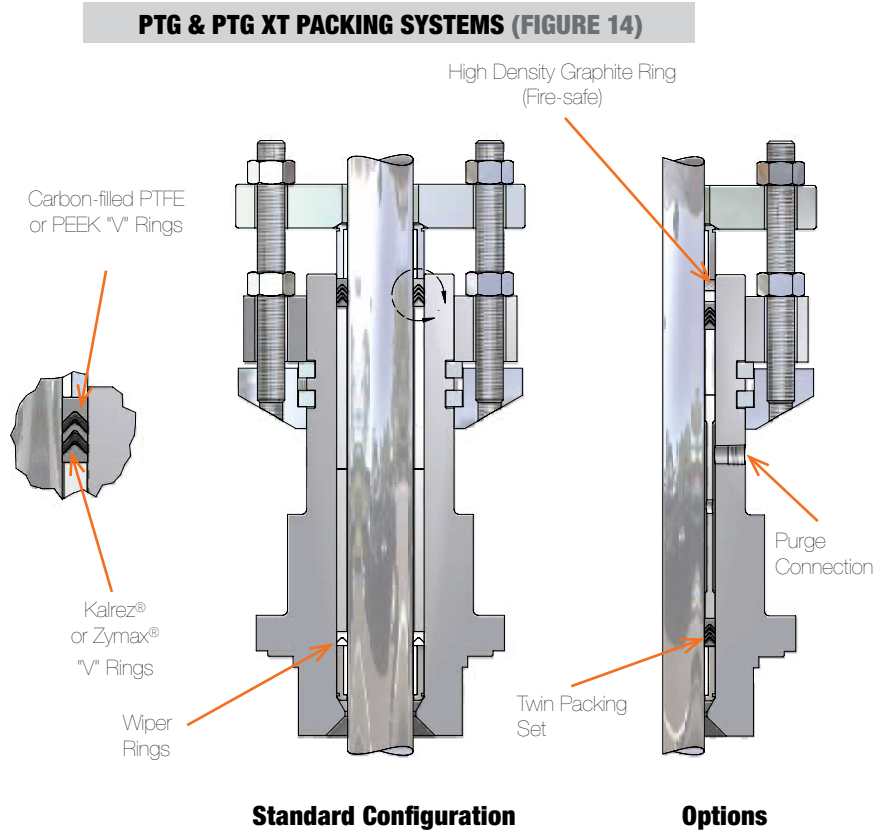
To comply with EPA\* regulations, PTG packing assures emission levels much lower than 500 ppm (usually 10 ppm), making it a highly reliable and economical option instead of using metal bellows seals.

The PTG packing set can be installed in all valves supplied by Valtek Sulamericana, offering long useful life with reduced need for retightening the packing set.

Optionally, the PTG packing set may be supplied in a fire-safe version, in accordance to the requirements of API 607.

For higher operating temperatures the PTG XT is indicated, and its application limits are indicated on table IV.

\* EPA = Environmental Protection Agency



**PACKING TEMPERATURE LIMITS (TABLE IV)**

| BONNET TYPE                    | PACKING MATERIAL                           | TEMPERATURE LIMITS <sup>(2)</sup> |                           |
|--------------------------------|--|-----------------------------------|---------------------------|
|                                |  | °F                                | °C                        |
| <b>Standard <sup>(1)</sup></b> | PTFE "V" Rings                             | -20 to 450                        | -28 to 232                |
|                                | PT and PTG                                 | -20 to 450                        | -28 to 232                |
|                                | Braided PTFE                               | -20 to 500                        | -28 to 260                |
|                                | Glass-filled PTFE (PTFEG)                  | -20 to 500                        | -28 to 260                |
|                                | PTG XT                                     | -20 a 550                         | -28 to 288                |
|                                | Graphite/AFP <sup>(3)</sup>                | -20 to 800                        | -28 to 426                |
|                                | Graphite/AFP <sup>(3)</sup> , Inconel Wire | -20 to 800 <sup>(4)</sup>         | -28 to 426 <sup>(4)</sup> |
|                                | Graphite <sup>(5)</sup>                    | -20 to 800 <sup>(4)</sup>         | -28 to 426 <sup>(4)</sup> |
| <b>Extended <sup>(1)</sup></b> | PTFE "V" Rings                             | -150 to 700                       | -100 to 371               |
|                                | PT and PTG                                 | -20 to 700                        | -28 to 371                |
|                                | Braided PTFE                               | -150 to 700                       | -100 to 371               |
|                                | Glass-filled PTFE (PTFEG)                  | -150 to 700                       | -100 to 371               |
|                                | PTG XT                                     | -20 to 800                        | -28 to 426                |
|                                | Graphite/AFP <sup>(3)</sup>                | -20 to 1200                       | -28 to 650                |
|                                | Graphite/AFP <sup>(3)</sup> , Inconel Wire | -20 to 1200                       | -28 to 650                |
|                                | Graphite <sup>(5)</sup>                    | -20 to 1500                       | -28 to 815                |

<sup>(1)</sup> ANSI B16.34 specifies acceptable pressure and temperature limits for pressure retaining materials. Contact manufacturer for additional information about the pressure vs. temperature limits of packings. <sup>(2)</sup> Temperature limits are valid provided that the pressure vs. temperature limits of body, bonnet and remaining parts are respected. <sup>(3)</sup> High temperature packing, free of asbestos. <sup>(4)</sup> For sizes from 3 to 12 inches, the maximum temperature limit is 850°F (454°C). <sup>(5)</sup> Do not use graphite packing in oxidizing services such as air or oxygen with operating temperatures higher than 750°F (400°C). Due to the increased friction, the use of graphite packing may require the use of extra-strong springs and/or oversized actuators.

# TRIM TYPES, SEATS

## Trim

The GLH Series Trim is developed to eliminate the issues normally associated to valves with threaded seats or with cage-guided plug design. Since the seat is not threaded, but it is fixed onto the body by means of the bonnet and the seat retainer, its removal is quite simple, even when the valve operates in corrosive conditions.

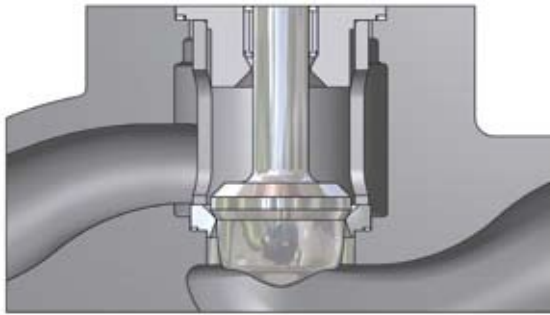
Different from trim with a guide in the seat retainer, which easily present wear and jamming, the GLH Series trim is guided by a double upper guide system that avoids the contact between the seat retainer and the plug. Since there is no direct contact with the plug, the retainer may be manufactured in stainless steel, instead of costly hardened materials.

The flow characteristic is determined by the plug shape, instead of by openings located in the retainer.

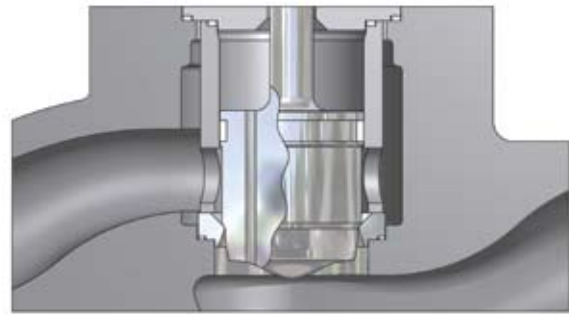
For services with very high differential pressures, pressure-balanced trim is used to reduce the thrust needed to stroke the plug through the reduction of trim off-balance areas.

The valves with pressure-balanced trim shall be used with clean fluids only, considering also that flow direction for the safety fail-closed position is under the plug and, for fail-open position is over the plug.

Optionally, the GLH Series may be supplied with special trim to attenuate the noise level and for applications under cavitation conditions.



**UNBALANCED TRIM (FIGURE 15)**



**PRESSURE-BALANCED TRIM (FIGURE 16)**

**SPECIFICATION GUIDE FOR PRESSURE-BALANCED PLUG SEALS (TABLE V)**

| MATERIAL OF PLUG SEALS <sup>(1)</sup>  | TEMPERATURE LIMITS <sup>(2)</sup> |            | SHUTOFF CLASS         |                      |
|--|-----------------------------------|------------|-----------------------|----------------------|
|  | °F                                | °C         | WITH METAL SEAT       | WITH SOFT SEAT       |
| <b>PTFE Seals</b>  | 0 to 350                          | -18 to 176 | up to 10% of Class IV | up to 1% of Class IV |
| <b>Reinforced PTFE Seals</b>   | 0 to 400                          | -18 to 204 | up to 10% of Class IV | up to 1% of Class IV |
| <b>Buna-N O-Ring</b>   | -40 to 200                        | -40 to 93  | Class IV or V         | Class VI             |
| <b>Viton-A O-Ring</b>  | -10 to 400                        | -23 to 204 | Class IV or V         | Class VI             |
| <b>VMG Metal Seals</b> <b>Sizes from 2 to 4 in.</b><br><b>Sizes 6 in. and larger</b> | 300 to 1600                       | 149 to 871 | Class III             | N/A                  |
|  | 300 to 1600                       | 149 to 871 | Class IV              | N/A                  |

<sup>(1)</sup> Whenever used metal seals such as VMG, the bore surface of pressure-balanced sleeve must be hardened. <sup>(2)</sup> The temperature limits above are for information purposes only. Contact Valtek Sulamericana to confirm the maximum allowable temperature regarding the operating pressure.

## Metal Seats

The GLH valve standard configuration, with unbalanced trim and metal seat comply with ANSI B16.104/FCI 70.2 class IV that specifies a maximum allowable leakage of 0.01% of nominal valve capacity.

The exceptional sealing capacity of the GLH Series is easily reached due to its self-centering seat design. A Superior sealing class is available as an option.

## Soft Seats

Soft seats are used in applications requiring extreme tightness, complying with ANSI B16.104/FCI 70.2 class VI. The GLH soft seat is comprised by a polymer assembled between two metal pieces, and it is interchangeable with the metal seat. The soft seat inserts are usually manufactured in PTFE and, therefore, the maximum operating temperature shall be lower than 300°F @ 290 psig (150°C @ 20 Barg).

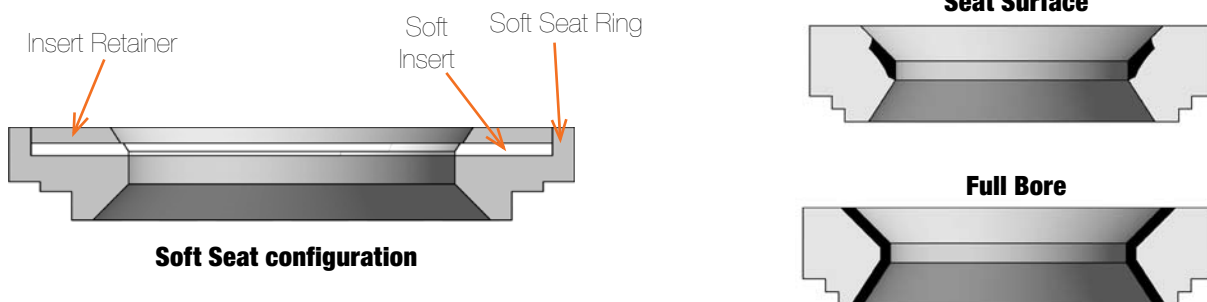
For temperatures below -85°F (-65°C), soft seats may be used in high-pressure applications.

# TRIM DATA, SEATS

The standard manufacturing material for the GL̄ plug, seat and seat retainer is 316 stainless steel, except in case of valves manufactured with special alloys, when the trim is usually manufactured with the same material as the body. A large quantity of fluids is compatible with 316 stainless steel trim. However, as a general rule, hardened trim shall be used for all conditions of critical flow or in services where the operating temperature exceeds 600°F (316°C). Valtek Sulamericana maintains a large stock of trim manufactured in Alloy #6. This material offers a good combination of hardness and corrosion resistance.

Special alloys such as Alloy 20, Monel, Hastelloy C, Hastelloy B and other materials may be supplied upon request.

## Seats



**GL̄ SERIES - SEAT OPTIONS (FIGURE 17)**

## Trim Data

**DIFFERENTIAL PRESSURE VALUES REQUIRING HARDENED TRIM (TABLE VI)**

| VALVE SIZE (Inches) | WATER      |      | STEAM (SATURATED) |      |            |     | STEAM (SUPER-HEATED) |      |            |      | PROCESS FLUIDS (GENERAL) |      |            |      | CLEAN GASES |      |            |      |        |      |
|---------------------|------------|------|-------------------|------|------------|-----|----------------------|------|------------|------|--------------------------|------|------------|------|-------------|------|------------|------|--------|------|
|                     | Throttling |      | On-Off            |      | Throttling |     | On-Off               |      | Throttling |      | On-Off                   |      | Throttling |      | On-Off      |      | Throttling |      | On-Off |      |
|                     | psi        | Bar  | psi               | Bar  | psi        | Bar | psi                  | Bar  | psi        | Bar  | psi                      | Bar  | psi        | Bar  | psi         | Bar  | psi        | Bar  | psi    | Bar  |
| 0.5 to 1.5          | 175        | 12.1 | 250               | 17.2 | 100        | 6.9 | 200                  | 13.8 | 300        | 20.7 | 600                      | 41.4 | 175        | 12.1 | 250         | 17.2 | 600        | 41.4 | 900    | 62.1 |
| 2 & 3               | 150        | 10.3 | 200               | 13.8 | 25         | 1.7 | 50                   | 3.4  | 200        | 13.8 | 300                      | 20.7 | 150        | 10.3 | 200         | 13.8 | 350        | 24.1 | 600    | 41.4 |
| 4 & 6               | 100        | 6.9  | 125               | 8.6  | All Apps.  |     | 25                   | 1.7  | 100        | 6.9  | 150                      | 10.3 | 75         | 5.2  | 125         | 8.6  | 200        | 13.8 | 300    | 20.7 |
| 8 to 12             | 50         | 3.4  | 100               | 6.9  | All Apps.  |     | All Apps.            |      | 50         | 3.4  | 100                      | 6.9  | 50         | 3.4  | 100         | 6.9  | 125        | 8.6  | 175    | 12.1 |

**STANDARD UNBALANCED TRIM AND ACTUATOR DATA (TABLE VII)**

| VALVE SIZE (Inches) | ANSI CLASS | FULL AREA TRIM SIZE |     | SEAT AREA        |                 | STEM DIAMETER |      | STEM AREA        |                 | STROKE |       | STANDARD ACTUATOR SIZE |
|---------------------|------------|---------------------|-----|------------------|-----------------|---------------|------|------------------|-----------------|--------|-------|------------------------|
|                     |            | in.                 | mm  | in. <sup>2</sup> | cm <sup>2</sup> | in.           | mm   | in. <sup>2</sup> | cm <sup>2</sup> | in.    | mm    |                        |
| 1                   | 900-1500   | 0.81                | 21  | 0.518            | 3.345           | 0.575         | 14.6 | 0.259            | 1.674           | 0.75   | 19.05 | 25                     |
|                     | 2500       | 0.71                | 18  | 0.405            | 2.613           | 0.575         | 14.6 | 0.259            | 1.674           | 0.75   | 19.05 | 25                     |
| 1.5                 | 900-1500   | 1.25                | 32  | 1.227            | 7.917           | 0.890         | 22.6 | 0.622            | 4.011           | 1.00   | 25.40 | 50                     |
|                     | 2500       | 1.00                | 25  | 0.785            | 5.067           | 0.890         | 22.6 | 0.622            | 4.011           | 0.75   | 19.05 | 50                     |
| 2                   | 900-1500   | 1.63                | 41  | 2.074            | 13.38           | 0.890         | 22.6 | 0.622            | 4.011           | 1.50   | 38.10 | 50                     |
|                     | 2500       | 1.25                | 32  | 1.227            | 7.917           | 0.890         | 22.6 | 0.622            | 4.011           | 1.00   | 25.40 | 50                     |
| 3                   | 900-1500   | 2.63                | 67  | 5.412            | 34.92           | 1.520         | 38.6 | 1.814            | 11.70           | 2.00   | 50.80 | 100                    |
|                     | 2500       | 2.00                | 51  | 3.142            | 20.27           | 1.138         | 28.9 | 1.017            | 6.560           | 1.50   | 38.10 | 100                    |
| 4                   | 900-1500   | 3.50                | 89  | 9.621            | 62.07           | 1.520         | 38.6 | 1.814            | 11.70           | 2.50   | 63.50 | 100                    |
|                     | 2500       | 2.63                | 67  | 5.412            | 34.92           | 1.520         | 38.6 | 1.814            | 11.70           | 2.00   | 50.80 | 100                    |
| 6                   | 900-1500   | 5.00                | 127 | 19.63            | 126.7           | 2.024         | 51.4 | 3.216            | 20.75           | 3.00   | 76.20 | 100                    |
|                     | 2500       | 4.00                | 102 | 12.57            | 81.07           | 2.024         | 51.4 | 3.216            | 20.75           | 3.00   | 76.20 | 100                    |
| 8                   | 900-1500   | 6.25                | 159 | 30.68            | 198.0           | 2.524         | 64.1 | 5.002            | 32.27           | 4.00   | 101.6 | 100                    |
|                     | 2500       | 5.00                | 127 | 19.63            | 126.7           | 2.524         | 64.1 | 5.002            | 32.27           | 3.00   | 76.20 | 100                    |
| 10                  | 900-1500   | 8.00                | 203 | 50.27            | 324.3           | 3.024         | 76.8 | 7.180            | 46.32           | 4.00   | 101.6 | 100                    |
|                     | 2500       | 6.25                | 159 | 30.68            | 198.0           | 3.024         | 76.8 | 7.180            | 46.32           | 4.00   | 101.6 | 100                    |
| 12                  | 900-1500   | 9.50                | 241 | 70.88            | 457.3           | 3.024         | 76.8 | 7.180            | 46.32           | 4.00   | 101.6 | 100                    |
|                     | 2500       | 8.00                | 203 | 50.27            | 324.3           | 3.024         | 76.8 | 7.180            | 46.32           | 4.00   | 101.6 | 100                    |

PLUG – HARD FACING VARIATIONS (FIGURE 18)



Seat Surface



Lower Guide Area



Full Contour



Full Contour & LGA

CHARACTERISTICS OF TRIM MATERIALS (TABLE VIII)

| TRIM MATERIALS       | HARDNESS (R <sub>c</sub> ) | MAX. RECOMMENDED TEMPERATURE |     | IMPACT STRENGTH | CORROSION RESISTANCE         | EROSION RESISTANCE | ABRASION RESISTANCE |
|----------------------|----------------------------|------------------------------|-----|-----------------|------------------------------|--------------------|---------------------|
|                      |                            | °F                           | °C  |                 |                              |                    |                     |
| 316 Stainless Steel  | 8                          | 600                          | 316 | Excellent       | Excellent                    | Fair               | Fair                |
| Alloy #6             | 44                         | 1500                         | 815 | Excellent       | Excellent                    | Good               | Good                |
| 416 Stainless Steel  | 40                         | 800                          | 426 | Good            | Fair                         | Good               | Good                |
| 17-4 PH (H900)       | 44                         | 800                          | 426 | Good            | Good to Excellent            | Good               | Good                |
| 440C Stainless Steel | 55-60                      | 800                          | 426 | Fair            | Fair                         | Excellent          | Excellent           |
| Monel K-500          | 32                         | 600                          | 316 | Good            | Good to Excellent            | Fair to Good       | Good                |
| Tungsten             | 72                         | 1200                         | 650 | Fair            | Good on Bases, Poor on Acids | Excellent          | Excellent           |
| Colmonoy #5          | 45-50                      | 1200                         | 650 | Good            | Fair                         | Good               | Good                |

PRESSURE-BALANCED TRIM AND ACTUATOR DATA (TABLE IX)

| VALVE SIZE (Inches) | ANSI CLASS | FULL AREA TRIM SIZE |     | SEAT SIZE        |                 | STEM DIAMETER |      | STEM AREA        |                 | SLEEVE AREA      |                 | OFF-BALANCE AREA              |                 |                             |                 | STROKE |       | STANDARD ACTUATOR SIZE |
|---------------------|------------|---------------------|-----|------------------|-----------------|---------------|------|------------------|-----------------|------------------|-----------------|-------------------------------|-----------------|-----------------------------|-----------------|--------|-------|------------------------|
|                     |            | in.                 | mm  | in. <sup>2</sup> | cm <sup>2</sup> | in.           | mm   | in. <sup>2</sup> | cm <sup>2</sup> | in. <sup>2</sup> | cm <sup>2</sup> | TENDING TO CLOSE (Flow Under) |                 | TENDING TO OPEN (Flow Over) |                 | in.    | mm    |                        |
|                     |            |                     |     |                  |                 |               |      |                  |                 |                  |                 | in. <sup>2</sup>              | cm <sup>2</sup> | in. <sup>2</sup>            | cm <sup>2</sup> |        |       |                        |
| 2                   | 900-1500   | 1.63                | 41  | 2.074            | 13.38           | 0.575         | 14.6 | 0.259            | 1.674           | 2.41             | 15.5            | 0.09                          | 0.58            | 0.35                        | 2.25            | 1.00   | 25.4  | 50                     |
|                     | 2500       | 1.25                | 32  | 1.227            | 7.92            | 0.575         | 14.6 | 0.259            | 1.674           | 1.55             | 10.0            | 0.07                          | 0.45            | 0.33                        | 2.12            | 1.00   | 25.4  | 50                     |
| 3                   | 900-1500   | 2.63                | 67  | 5.412            | 34.92           | 0.890         | 22.6 | 0.622            | 4.011           | 6.49             | 41.9            | 0.48                          | 3.10            | 1.10                        | 7.11            | 2.00   | 50.8  | 100                    |
|                     | 2500       | 2.00                | 51  | 3.142            | 20.27           | 0.890         | 22.6 | 0.622            | 4.011           | 3.86             | 24.9            | 0.12                          | 0.77            | 0.74                        | 4.78            | 1.50   | 38.1  | 100                    |
| 4                   | 900-1500   | 3.50                | 89  | 9.621            | 62.07           | 1.138         | 28.9 | 1.017            | 6.560           | 11.41            | 73.61           | 0.80                          | 5.16            | 1.82                        | 11.7            | 2.00   | 50.8  | 100                    |
|                     | 2500       | 2.63                | 67  | 5.412            | 34.92           | 1.138         | 28.9 | 1.017            | 6.560           | 6.77             | 43.7            | 0.37                          | 2.39            | 1.39                        | 8.95            | 2.00   | 50.8  | 100                    |
| 6                   | 900-1500   | 5.00                | 127 | 19.63            | 126.7           | 1.520         | 38.6 | 1.814            | 11.70           | 22.69            | 146.4           | 1.29                          | 8.32            | 3.10                        | 20.0            | 2.50   | 63.5  | 100                    |
|                     | 2500       | 4.00                | 102 | 12.57            | 81.07           | 1.520         | 38.6 | 1.814            | 11.70           | 15.03            | 97.0            | 0.69                          | 4.45            | 2.50                        | 16.2            | 2.50   | 63.5  | 100                    |
| 8                   | 900-1500   | 6.25                | 159 | 30.68            | 198.0           | 2.024         | 51.4 | 3.216            | 20.75           | 35.78            | 230.8           | 1.96                          | 12.6            | 5.18                        | 33.4            | 4.00   | 101.6 | 100                    |
|                     | 2500       | 5.00                | 127 | 19.63            | 126.7           | 2.024         | 51.4 | 3.216            | 20.75           | 23.76            | 153.3           | 0.99                          | 6.38            | 4.21                        | 27.1            | 3.00   | 76.2  | 100                    |
| 10                  | 900-1500   | 8.00                | 203 | 50.27            | 324.3           | 2.524         | 64.1 | 5.002            | 32.27           | 58.36            | 376.5           | 3.18                          | 20.5            | 8.18                        | 52.8            | 4.00   | 101.6 | 100                    |
|                     | 2500       | 6.25                | 159 | 30.68            | 198.0           | 2.524         | 64.1 | 5.002            | 32.27           | 37.12            | 239.5           | 1.53                          | 9.87            | 6.53                        | 42.1            | 4.00   | 101.6 | 100                    |
| 12                  | 900-1500   | 9.50                | 241 | 70.88            | 457.3           | 2.524         | 64.1 | 5.002            | 32.27           | 79.53            | 513.1           | 3.74                          | 24.1            | 8.74                        | 56.4            | 4.00   | 101.6 | 100                    |
|                     | 2500       | 8.00                | 203 | 50.27            | 324.3           | 2.524         | 64.1 | 5.002            | 32.27           | 56.75            | 366.1           | 1.57                          | 10.1            | 6.57                        | 42.4            | 4.00   | 101.6 | 100                    |

**GL̄ SERIES - SPECIFICATIONS & MATERIALS OF CONSTRUCTION (TABLE X)**

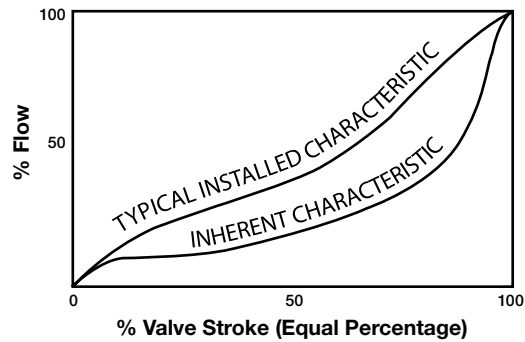
|                     |                                  |  |  |
|---------------------|----------------------------------|--|--|
| <b>BODY</b>         | <b>Sizes</b>                     |  | 1 to 24 inches   |
|                     | <b>ANSI Ratings</b>              |  | 900, 1500 and 2500   |
|                     | <b>Forms</b>                     |  | Globe, angle, 3-Way or special versions  |
|                     | <b>Materials of Construction</b> |  | Carbon steel, stainless steel, chrome-moly steel and other castable alloys upon request  |
|                     | <b>End Connections</b>           |  | Integral flanges (all sizes)<br>NPT threaded (0.5 to 2 inches)<br>Socketweld (0.5 to 4 inches)<br>Buttweld (all sizes)<br>Grayloc (all sizes)  |
|                     | <b>Gaskets</b>                   | <b>Flat</b>  | PTFE, PTFEG*, KEL-F  |
| <b>Spiral Wound</b> |                                  | 316 or 304 SS spiral wound with graphite, PTFE or other filler materials free of asbestos (AFG)                |  |
| <b>O-Rings</b>      |                                  | Inconel X-750 / silver plated hollow O-Ring  |  |
| <b>BONNET</b>       | <b>Types</b>                     |  | Standard or extended   |
|                     | <b>Materials</b>                 |  | Same as body   |
|                     | <b>Bonnet Flange</b>             |  | Separable, made from carbon steel or 316 stainless steel   |
|                     | <b>Guides</b>                    | <b>Type</b>  | Double upper guide on plug stem, out of flow path  |
|                     |                                  | <b>Materials</b>   | 316 SS with PTFEG* or graphite insert, bronze, Alloy #6 or other materials available upon request  |
|                     | <b>Packings</b>                  | <b>Types</b>   | Standard with "V" or square rings, twin seal, packing for vacuum applications  |
| <b>Materials</b>    |                                  | PTFE V-Rings, PTFEG* V-rings, braided PTFE, AFP** with Inconel wire, graphite and other materials upon request |  |
| <b>TRIM</b>         | <b>Types</b>                     |  | Unbalanced<br>Pressure-balanced, with elastomer, polymer or metal plug seals   |
|                     | <b>Flow Characteristics</b>      |  | Equal Percentage, Linear or Quick Open   |
|                     | <b>Materials</b>                 |  | 316 SS (standard), 304 SS, 347 SS, 416 SS, 420 SS, 440C SS, 17-4PH and other materials upon request  |
|                     | <b>Hard Facings</b>              | <b>Materials</b>   | Alloy #6, Colmonoy #5 or other materials upon request  |
|                     |                                  | <b>Types</b>   | Hardening of seating surfaces, hardening of plug full contour and seat full bore, hardening of plug stem region in contact with the lower guide  |
|                     | <b>Soft Seats</b>                | <b>Materials</b>   | PTFE, PTFEG*, FEP, KEL-F, polyurethane, PEEK   |
| <b>ACTUATOR</b>     | <b>Types</b>                     | <b>Pneumatic</b>   | Double-acting cylinder with positive spring for failsafe action. Field reversible and available on sizes 25, 50, 100, 200, 300, 400, 500 and 600<br>Options: manual handwheel, limit stops and others (see the technical bulletin of linear actuators) |
|                     |                                  | <b>Others</b>  | Manual, electro-mechanical or electro-hydraulic upon request   |
| <b>POSITIONER</b>   | <b>Types</b>                     |  | Pneumatic, analog electro-pneumatic or digital electro-pneumatic with multiple communication protocols   |

\* PTFEG: Glass-Filled PTFE.

\*\*AFP: Asbestos-free packing.

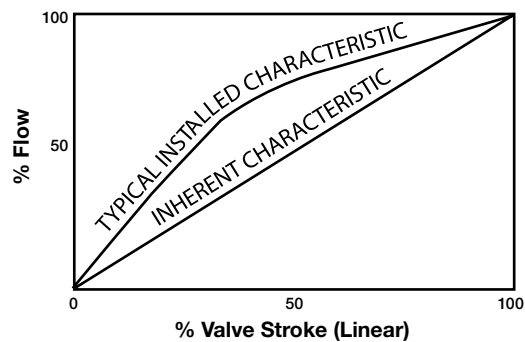
## Equal Percentage

The Equal Percentage is the most common characteristic used in processes control. The flow rate change by valve stroke unit is directly proportional to the flow rate passing through the valve at the moment immediately before the stroke movement. When installed, a valve with an Equal Percentage characteristic will present in most control loops, a characteristic close to the Linear characteristic, whenever the total differential pressure of the system is large compared to the differential pressure through the valve.



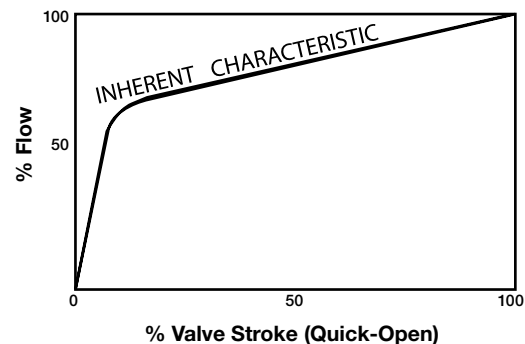
## Linear

The Linear characteristic creates equal changes in flow rate per unit of valve stroke, regardless of plug position. Linear plugs are frequently used in systems where the differential pressure through the valve corresponds to the major part of the total differential pressure of the system.



## Quick-open

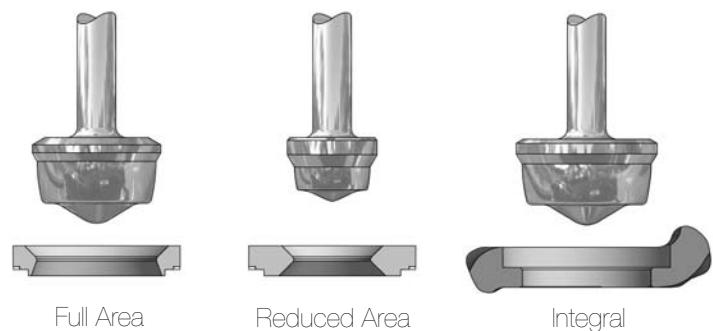
Quick-open plugs are used in on-off services and are designed to create large increments of flow rate, even from small opening percentages.



## Trim Sizes

Two sizes of trim are normally available: a standard one, with full-area and another one with reduced area, available in a great variety of dimensions, and necessary when the required Cv, due to the process conditions, is relatively too small for a specific body size intended to be used. In addition to these options, an integral trim may be supplied, which uses a special seat machined onto the valve body and an oversized plug to provide an even larger Cv than the Cv provided by the standard full-area trim.

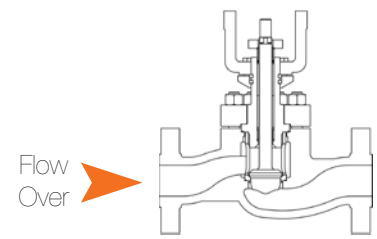
Since the GL̄ valve trim is completely interchangeable for a specific body size and pressure class, the change of trim size and valve nominal Cv is a very simple operation.



**TRIM SIZES (FIGURE 19)**

# FLOW COEFFICIENTS

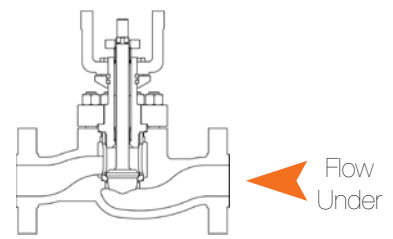
Class 900/1500



**FLOW COEFFICIENTS (C<sub>v</sub>) - EQUAL PERCENTAGE \* (TABLE XI)**

| VALVE SIZE (Inches) | TRIM SIZE T.N.   | STROKE |       | C <sub>v</sub> AT PERCENT OPEN |      |      |       |       |       |       |       |       |       |
|---------------------|------------------|--------|-------|--------------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|
|                     |                  | in.    | mm    | 100                            | 90   | 80   | 70    | 60    | 50    | 40    | 30    | 20    | 10    |
| 1                   | 0.81 (21)        | 0.75   | 19.05 | 9.8                            | 8.7  | 7.3  | 5.4   | 3.9   | 2.7   | 1.89  | 1.29  | 0.85  | 0.58  |
|                     | 0.71 (18)        | 0.75   | 19.05 | 9.2                            | 7.9  | 6.1  | 4.5   | 3.2   | 2.2   | 1.49  | 0.99  | 0.68  | 0.46  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 8.4                            | 6.6  | 4.9  | 3.5   | 2.4   | 1.71  | 1.11  | 0.76  | 0.51  | 0.35  |
|                     | 0.50 (13)        | 0.75   | 19.05 | 6.3                            | 4.5  | 3.3  | 2.3   | 1.58  | 1.09  | 0.71  | 0.48  | 0.33  | 0.22  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 4.1                            | 2.8  | 1.92 | 1.32  | 0.90  | 0.61  | 0.42  | 0.27  | 0.182 | 0.132 |
|                     | 0.31 (8)         | 0.75   | 19.05 | 2.8                            | 2.0  | 1.27 | 0.89  | 0.60  | 0.40  | 0.27  | 0.186 | 0.127 | 0.088 |
|                     | 0.25-06 (6.5-06) | 0.75   | 19.05 | 1.92                           | 1.31 | 0.87 | 0.59  | 0.39  | 0.27  | 0.192 | 0.121 | 0.083 | 0.057 |
|                     | 0.25-12 (6.5-12) | 0.75   | 19.05 | 1.10                           | 0.83 | 0.60 | 0.36  | 0.23  | 0.159 | 0.100 | 0.074 | 0.060 | 0.045 |
|                     | 0.12-00 (3.2-00) | 0.50   | 12.70 | 0.57                           | 0.36 | 0.22 | 0.150 | 0.110 | 0.072 | 0.054 | 0.038 | 0.027 | 0.019 |
| 1.5                 | 1.25 (32)        | 1.00   | 25.40 | 24                             | 22   | 18.4 | 13.3  | 9.6   | 6.6   | 4.6   | 3.1   | 2.1   | 1.43  |
|                     | 1.00 (25)        | 0.75   | 19.05 | 19.4                           | 18.4 | 14.3 | 9.3   | 6.3   | 4.3   | 3.0   | 1.94  | 1.33  | 0.91  |
|                     | 0.81 (21)        | 0.75   | 19.05 | 15.9                           | 12.9 | 8.7  | 6.0   | 4.1   | 2.8   | 1.89  | 1.29  | 0.85  | 0.59  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 11.2                           | 7.8  | 5.4  | 3.7   | 2.5   | 1.73  | 1.12  | 0.77  | 0.52  | 0.36  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 4.2                            | 2.9  | 1.88 | 1.28  | 0.87  | 0.59  | 0.41  | 0.27  | 0.178 | 0.128 |
| 2                   | 1.63 (41)        | 1.50   | 38.10 | 37                             | 35   | 29   | 22    | 15.7  | 10.8  | 7.4   | 5.0   | 3.4   | 2.3   |
|                     | 1.25 (32)        | 1.00   | 25.40 | 31                             | 28   | 21   | 14.2  | 9.9   | 6.7   | 4.6   | 3.1   | 2.1   | 1.42  |
|                     | 1.00 (25)        | 0.75   | 19.05 | 24                             | 19.8 | 14.9 | 9.3   | 6.2   | 4.3   | 2.9   | 1.88  | 1.29  | 0.88  |
|                     | 0.81 (21)        | 0.75   | 19.05 | 17.7                           | 13.8 | 8.9  | 6.0   | 4.0   | 2.8   | 1.87  | 1.28  | 0.85  | 0.57  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 11.1                           | 8.0  | 5.3  | 3.6   | 2.5   | 1.72  | 1.11  | 0.77  | 0.51  | 0.35  |
| 3                   | 0.38 (10)        | 0.75   | 19.05 | 4.3                            | 2.9  | 1.88 | 1.28  | 0.87  | 0.59  | 0.41  | 0.27  | 0.178 | 0.128 |
|                     | 2.63 (67)        | 2.00   | 50.80 | 98                             | 88   | 77   | 63    | 41    | 29    | 20    | 12.9  | 9.0   | 6.1   |
|                     | 2.00 (51)        | 1.50   | 38.10 | 75                             | 64   | 55   | 42    | 25    | 17.1  | 11.1  | 7.9   | 5.2   | 3.5   |
|                     | 1.63 (41)        | 1.50   | 38.10 | 60                             | 52   | 36   | 24    | 16.9  | 10.9  | 7.5   | 5.1   | 3.5   | 2.3   |
| 4                   | 1.25 (32)        | 1.00   | 25.40 | 38                             | 34   | 23   | 14.1  | 9.9   | 6.8   | 4.5   | 3.0   | 2.1   | 1.41  |
|                     | 3.50 (89)        | 2.50   | 63.50 | 176                            | 160  | 141  | 118   | 76    | 51    | 35    | 24    | 16.1  | 11.1  |
|                     | 2.63 (67)        | 2.00   | 50.80 | 131                            | 114  | 102  | 69    | 43    | 29    | 20    | 13.1  | 9.1   | 6.1   |
|                     | 2.25 (57)        | 2.00   | 50.80 | 105                            | 90   | 70   | 42    | 29    | 22    | 14.9  | 9.7   | 6.6   | 4.6   |
| 6                   | 1.63 (41)        | 1.50   | 38.10 | 71                             | 55   | 37   | 25    | 16.9  | 10.9  | 7.5   | 5.1   | 3.5   | 2.3   |
|                     | 5.00 (127)       | 3.00   | 76.20 | 366                            | 335  | 291  | 236   | 182   | 106   | 71    | 49    | 33    | 23    |
|                     | 3.50 (89)        | 2.50   | 63.50 | 254                            | 210  | 167  | 132   | 79    | 52    | 35    | 24    | 16.0  | 11.0  |
|                     | 3.00 (76)        | 2.00   | 50.80 | 193                            | 157  | 124  | 104   | 62    | 38    | 26    | 17.9  | 11.9  | 8.0   |
| 8                   | 2.63 (67)        | 2.00   | 50.80 | 155                            | 124  | 103  | 72    | 43    | 29    | 20    | 12.9  | 9.1   | 6.1   |
|                     | 6.25 (159)       | 4.00   | 101.6 | 570                            | 521  | 447  | 361   | 256   | 164   | 112   | 76    | 51    | 35    |
|                     | 5.00 (127)       | 3.00   | 76.20 | 468                            | 406  | 330  | 259   | 192   | 108   | 72    | 49    | 33    | 23    |
|                     | 3.50 (89)        | 2.50   | 63.50 | 276                            | 222  | 177  | 135   | 80    | 52    | 35    | 24    | 16.0  | 11.0  |
|                     | 2.63 (67)        | 2.00   | 50.80 | 157                            | 128  | 111  | 72    | 43    | 29    | 20    | 12.9  | 9.0   | 6.1   |

\* Data above refer to the valves with unbalanced trim. Consult Valtek Sulamericana to obtain information regarding the C<sub>v</sub> of pressure-balanced valves.



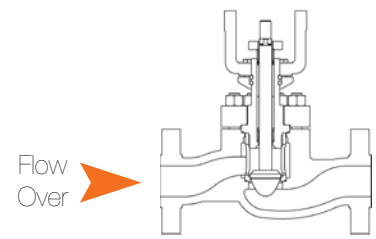
**FLOW COEFFICIENTS (C<sub>v</sub>) - EQUAL PERCENTAGE \* (TABLE XII)**

| VALVE SIZE (Inches) | TRIM SIZE T.N.   | STROKE |       | C <sub>v</sub> AT PERCENT OPEN |      |      |       |       |       |       |       |       |       |
|---------------------|------------------|--------|-------|--------------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|
|                     |                  | in.    | mm    | 100                            | 90   | 80   | 70    | 60    | 50    | 40    | 30    | 20    | 10    |
| 1                   | 0.81 (21)        | 0.75   | 19.05 | 9.3                            | 8.3  | 7.0  | 5.2   | 3.8   | 2.6   | 1.79  | 1.19  | 0.83  | 0.57  |
|                     | 0.71 (18)        | 0.75   | 19.05 | 8.9                            | 7.6  | 5.8  | 4.3   | 3.1   | 2.1   | 1.39  | 0.97  | 0.66  | 0.45  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 7.8                            | 6.4  | 4.7  | 3.4   | 2.3   | 1.59  | 1.09  | 0.73  | 0.50  | 0.34  |
|                     | 0.50 (13)        | 0.75   | 19.05 | 6.2                            | 4.5  | 3.2  | 2.2   | 1.51  | 1.01  | 0.71  | 0.47  | 0.32  | 0.22  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 3.8                            | 2.7  | 1.87 | 1.28  | 0.85  | 0.57  | 0.39  | 0.27  | 0.177 | 0.118 |
|                     | 0.31 (8)         | 0.75   | 19.05 | 2.9                            | 1.93 | 1.32 | 0.89  | 0.61  | 0.41  | 0.27  | 0.193 | 0.122 | 0.089 |
|                     | 0.25-06 (6.5-06) | 0.75   | 19.05 | 1.87                           | 1.18 | 0.83 | 0.56  | 0.37  | 0.26  | 0.177 | 0.118 | 0.079 | 0.053 |
|                     | 0.25-12 (6.5-12) | 0.75   | 19.05 | 1.11                           | 0.81 | 0.58 | 0.35  | 0.23  | 0.161 | 0.100 | 0.072 | 0.058 | 0.044 |
| 1.5                 | 0.12-00 (3.2-00) | 0.50   | 12.70 | 0.55                           | 0.35 | 0.21 | 0.150 | 0.100 | 0.070 | 0.053 | 0.037 | 0.026 | 0.019 |
|                     | 1.25 (32)        | 1.00   | 25.40 | 22                             | 21   | 17.2 | 12.2  | 9.1   | 6.4   | 4.4   | 2.9   | 2.0   | 1.42  |
|                     | 1.00 (25)        | 0.75   | 19.05 | 18.7                           | 16.7 | 12.8 | 8.6   | 5.9   | 4.0   | 2.8   | 1.87  | 1.28  | 0.85  |
|                     | 0.81 (21)        | 0.75   | 19.05 | 16.3                           | 12.2 | 8.7  | 5.9   | 4.1   | 2.8   | 1.83  | 1.22  | 0.86  | 0.59  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 10.8                           | 7.4  | 5.0  | 3.4   | 2.4   | 1.57  | 1.08  | 0.73  | 0.49  | 0.33  |
| 2                   | 0.38 (10)        | 0.75   | 19.05 | 4.1                            | 2.8  | 1.88 | 1.28  | 0.85  | 0.57  | 0.40  | 0.27  | 0.178 | 0.119 |
|                     | 1.63 (41)        | 1.50   | 38.10 | 36                             | 33   | 28   | 21    | 14.8  | 10.8  | 7.2   | 4.9   | 3.3   | 2.3   |
|                     | 1.25 (32)        | 1.00   | 25.40 | 29                             | 27   | 20   | 13.2  | 9.5   | 6.5   | 4.4   | 3.0   | 2.0   | 1.42  |
|                     | 1.00 (25)        | 0.75   | 19.05 | 24                             | 20   | 14.3 | 9.2   | 6.2   | 4.2   | 2.9   | 1.94  | 1.33  | 0.88  |
|                     | 0.81 (21)        | 0.75   | 19.05 | 17.7                           | 12.8 | 8.7  | 5.8   | 3.9   | 2.7   | 1.77  | 1.18  | 0.83  | 0.56  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 11.0                           | 7.7  | 5.2  | 3.5   | 2.4   | 1.60  | 1.10  | 0.74  | 0.50  | 0.34  |
| 3                   | 0.38 (10)        | 0.75   | 19.05 | 4.2                            | 2.8  | 1.88 | 1.28  | 0.85  | 0.57  | 0.40  | 0.27  | 0.178 | 0.119 |
|                     | 2.63 (67)        | 2.00   | 50.80 | 94                             | 85   | 74   | 60    | 40    | 28    | 19.1  | 13.0  | 8.8   | 6.0   |
|                     | 2.00 (51)        | 1.50   | 38.10 | 71                             | 61   | 53   | 41    | 25    | 15.9  | 10.9  | 7.5   | 5.1   | 3.5   |
|                     | 1.63 (41)        | 1.50   | 38.10 | 59                             | 50   | 35   | 23    | 16.1  | 11.1  | 7.5   | 5.0   | 3.4   | 2.3   |
| 4                   | 1.25 (32)        | 1.00   | 25.40 | 37                             | 32   | 22   | 14.2  | 9.7   | 6.6   | 4.4   | 3.0   | 2.0   | 1.42  |
|                     | 3.50 (89)        | 2.50   | 63.50 | 166                            | 151  | 134  | 112   | 72    | 49    | 34    | 23    | 15.9  | 11.0  |
|                     | 2.63 (67)        | 2.00   | 50.80 | 125                            | 108  | 97   | 67    | 41    | 28    | 19.1  | 13.0  | 8.8   | 6.0   |
|                     | 2.25 (57)        | 2.00   | 50.80 | 101                            | 87   | 68   | 41    | 28    | 21    | 13.9  | 9.5   | 6.4   | 4.5   |
| 6                   | 1.63 (41)        | 1.50   | 38.10 | 69                             | 54   | 36   | 24    | 16.0  | 11.0  | 7.4   | 5.0   | 3.4   | 2.3   |
|                     | 5.00 (127)       | 3.00   | 76.20 | 347                            | 319  | 277  | 224   | 174   | 102   | 69    | 47    | 32    | 22    |
|                     | 3.50 (89)        | 2.50   | 63.50 | 245                            | 203  | 161  | 127   | 76    | 50    | 34    | 23    | 16.0  | 11.0  |
|                     | 3.00 (76)        | 2.00   | 50.80 | 188                            | 153  | 122  | 103   | 60    | 37    | 25    | 17.1  | 11.1  | 7.8   |
| 8                   | 2.63 (67)        | 2.00   | 50.80 | 150                            | 120  | 100  | 69    | 42    | 28    | 18.9  | 12.9  | 8.8   | 6.0   |
|                     | 6.25 (159)       | 4.00   | 101.6 | 545                            | 498  | 428  | 346   | 246   | 157   | 108   | 74    | 50    | 34    |
|                     | 5.00 (127)       | 3.00   | 76.20 | 448                            | 389  | 317  | 249   | 185   | 104   | 69    | 47    | 32    | 22    |
|                     | 3.50 (89)        | 2.50   | 63.50 | 268                            | 215  | 171  | 131   | 77    | 51    | 34    | 23    | 16.0  | 11.0  |
|                     | 2.63 (67)        | 2.00   | 50.80 | 154                            | 126  | 109  | 70    | 42    | 28    | 19.1  | 13.1  | 8.8   | 6.0   |

\* Data above refer to the valves with unbalanced trim. Consult Valtek Sulamericana to obtain information regarding the C<sub>v</sub> of pressure-balanced valves.

# FLOW COEFFICIENTS

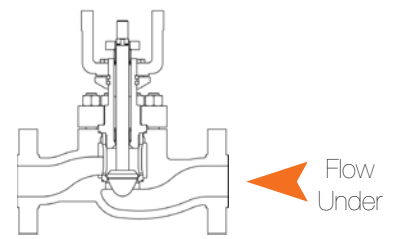
Class 900/1500



**FLOW COEFFICIENTS (C<sub>v</sub>) - LINEAR \* (TABLE XIII)**

| VALVE SIZE (Inches) | TRIM SIZE T.N.   | STROKE |       | C <sub>v</sub> AT PERCENT OPEN |       |       |       |       |       |       |       |       |       |
|---------------------|------------------|--------|-------|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                     |                  | in.    | mm    | 100                            | 90    | 80    | 70    | 60    | 50    | 40    | 30    | 20    | 10    |
| 1                   | 0.81 (21)        | 0.75   | 19.05 | 9.9                            | 9.7   | 9.3   | 8.8   | 8.3   | 7.5   | 6.5   | 5.3   | 3.7   | 1.89  |
|                     | 0.71 (18)        | 0.75   | 19.05 | 9.3                            | 8.8   | 8.4   | 7.9   | 7.3   | 6.5   | 5.5   | 4.3   | 3.0   | 1.49  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 8.5                            | 7.9   | 7.4   | 6.8   | 6.1   | 5.3   | 4.4   | 3.4   | 2.3   | 1.21  |
|                     | 0.50 (13)        | 0.75   | 19.05 | 6.4                            | 5.8   | 5.4   | 4.8   | 4.2   | 3.6   | 2.9   | 2.2   | 1.49  | 0.73  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 4.1                            | 3.6   | 3.3   | 2.9   | 2.5   | 2.1   | 1.68  | 1.29  | 0.83  | 0.42  |
|                     | 0.31 (8)         | 0.75   | 19.05 | 2.9                            | 2.6   | 2.3   | 2.0   | 1.67  | 1.47  | 1.18  | 0.86  | 0.57  | 0.29  |
|                     | 0.25-30 (6.5-30) | 0.75   | 19.05 | 1.87                           | 1.67  | 1.48  | 1.28  | 1.08  | 0.92  | 0.74  | 0.55  | 0.36  | 0.187 |
|                     | 0.25-36 (6.5-36) | 0.75   | 19.05 | 1.09                           | 0.99  | 0.93  | 0.83  | 0.72  | 0.61  | 0.51  | 0.39  | 0.26  | 0.129 |
|                     | 0.12-00 (3.2-00) | 0.50   | 12.70 | 0.49                           | 0.43  | 0.38  | 0.33  | 0.28  | 0.24  | 0.190 | 0.140 | 0.095 | 0.048 |
|                     | 0.12-06 (3.2-06) | 0.50   | 12.70 | 0.22                           | 0.20  | 0.180 | 0.160 | 0.140 | 0.120 | 0.098 | 0.074 | 0.050 | 0.026 |
|                     | 0.12-12 (3.2-12) | 0.50   | 12.70 | 0.150                          | 0.140 | 0.120 | 0.110 | 0.098 | 0.086 | 0.073 | 0.059 | 0.046 | 0.032 |
| 0.12-18 (3.2-18)    | 0.50             | 12.70  | 0.053 | 0.045                          | 0.038 | 0.031 | 0.025 | 0.019 | 0.013 | 0.008 | 0.004 | 0.001 |       |
| 0.12-24 (3.2-24)    | 0.50             | 12.70  | 0.014 | 0.012                          | 0.010 | 0.008 | 0.006 | 0.005 | 0.003 | 0.002 | 0.001 | 0.000 |       |
| 1.5                 | 1.25 (32)        | 1.00   | 25.40 | 24                             | 23    | 22    | 21    | 20    | 18.3  | 16.3  | 13.2  | 9.0   | 4.7   |
|                     | 1.00 (25)        | 0.75   | 19.05 | 21                             | 20    | 17.7  | 16.7  | 14.7  | 12.8  | 10.8  | 8.3   | 5.8   | 2.9   |
|                     | 0.81 (21)        | 0.75   | 19.05 | 16.2                           | 15.2  | 14.2  | 12.2  | 11.1  | 9.5   | 7.8   | 5.9   | 3.9   | 2.0   |
|                     | 0.71 (18)        | 0.75   | 19.05 | 14.0                           | 13.0  | 11.0  | 10.0  | 8.9   | 7.5   | 6.1   | 4.6   | 3.1   | 1.60  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 10.8                           | 9.8   | 8.8   | 7.8   | 6.8   | 5.7   | 4.5   | 3.4   | 2.3   | 1.18  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 4.3                            | 3.8   | 3.4   | 3.0   | 2.5   | 2.1   | 1.68  | 1.28  | 0.83  | 0.42  |
| 2                   | 1.63 (41)        | 1.50   | 38.10 | 41                             | 39    | 37    | 36    | 33    | 30    | 26    | 21    | 15.2  | 7.9   |
|                     | 1.25 (32)        | 1.00   | 25.40 | 33                             | 32    | 29    | 27    | 24    | 21    | 17.2  | 13.2  | 9.3   | 4.8   |
|                     | 1.00 (25)        | 0.75   | 19.05 | 26                             | 24    | 22    | 19.1  | 17.1  | 14.1  | 12.1  | 9.0   | 6.0   | 3.0   |
|                     | 0.81 (21)        | 0.75   | 19.05 | 18.7                           | 16.7  | 14.8  | 12.8  | 11.8  | 9.5   | 7.7   | 5.8   | 3.8   | 1.97  |
|                     | 0.71 (18)        | 0.75   | 19.05 | 14.8                           | 13.8  | 11.8  | 10.9  | 9.1   | 7.6   | 6.1   | 4.5   | 3.1   | 1.58  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 12.2                           | 11.2  | 9.5   | 8.3   | 7.1   | 6.0   | 4.8   | 3.6   | 2.3   | 1.22  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 4.3                            | 3.8   | 3.4   | 3.0   | 2.5   | 2.1   | 1.68  | 1.28  | 0.83  | 0.42  |
| 3                   | 2.63 (67)        | 2.00   | 50.80 | 104                            | 101   | 97    | 92    | 86    | 78    | 67    | 54    | 39    | 19.8  |
|                     | 2.00 (51)        | 1.50   | 38.10 | 88                             | 83    | 77    | 71    | 62    | 54    | 45    | 35    | 24    | 12.1  |
|                     | 1.63 (41)        | 1.50   | 38.10 | 68                             | 63    | 57    | 51    | 45    | 38    | 31    | 23    | 15.9  | 7.8   |
|                     | 1.25 (32)        | 1.00   | 25.40 | 45                             | 41    | 36    | 32    | 28    | 23    | 19.2  | 14.1  | 9.4   | 4.7   |
| 4                   | 3.50 (89)        | 2.50   | 63.50 | 186                            | 180   | 174   | 165   | 154   | 139   | 121   | 97    | 70    | 36    |
|                     | 2.63 (67))       | 2.00   | 50.80 | 153                            | 144   | 133   | 122   | 108   | 93    | 77    | 60    | 41    | 21    |
|                     | 2.25 (57)        | 2.00   | 50.80 | 128                            | 119   | 108   | 97    | 84    | 72    | 59    | 45    | 30    | 15.1  |
|                     | 1.63 (41)        | 1.50   | 38.10 | 77                             | 69    | 62    | 54    | 47    | 39    | 31    | 24    | 15.9  | 7.8   |
| 6                   | 5.00 (127)       | 3.00   | 76.20 | 381                            | 370   | 357   | 339   | 316   | 286   | 248   | 201   | 142   | 74    |
|                     | 3.50 (89)        | 2.50   | 63.50 | 289                            | 270   | 249   | 224   | 199   | 171   | 140   | 107   | 72    | 36    |
|                     | 3.00 (76)        | 2.00   | 50.80 | 236                            | 216   | 196   | 175   | 153   | 130   | 105   | 80    | 54    | 27    |
|                     | 2.63 (67)        | 2.00   | 50.80 | 193                            | 176   | 157   | 139   | 120   | 101   | 82    | 61    | 41    | 21    |
| 8                   | 6.25 (159)       | 4.00   | 101.6 | 596                            | 579   | 557   | 529   | 493   | 447   | 388   | 314   | 222   | 115   |
|                     | 5.00 (127)       | 3.00   | 76.20 | 515                            | 488   | 458   | 422   | 381   | 332   | 277   | 215   | 147   | 75    |
|                     | 3.50 (89)        | 2.50   | 63.50 | 334                            | 304   | 275   | 244   | 212   | 179   | 144   | 109   | 73    | 37    |
|                     | 2.63 (67)        | 2.00   | 50.80 | 206                            | 185   | 163   | 143   | 123   | 103   | 83    | 62    | 41    | 21    |

\* Data above refer to the valves with unbalanced trim. Consult Valtek Sulamericana to obtain information regarding the C<sub>v</sub> of pressure-balanced valves.



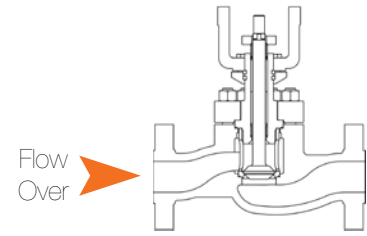
**FLOW COEFFICIENTS (C<sub>v</sub>) - LINEAR \* (TABLE XIV)**

| VALVE SIZE (Inches) | TRIM SIZE T.N.   | STROKE |       | C <sub>v</sub> AT PERCENT OPEN |       |       |       |       |       |       |       |       |       |
|---------------------|------------------|--------|-------|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                     |                  | in.    | mm    | 100                            | 90    | 80    | 70    | 60    | 50    | 40    | 30    | 20    | 10    |
| 1                   | 0.81 (21)        | 0.75   | 19.05 | 9.5                            | 9.2   | 8.9   | 8.4   | 8.0   | 7.2   | 6.3   | 5.1   | 3.6   | 1.89  |
|                     | 0.71 (18)        | 0.75   | 19.05 | 9.0                            | 8.6   | 8.2   | 7.7   | 7.0   | 6.3   | 5.3   | 4.2   | 2.9   | 1.49  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 8.1                            | 7.6   | 7.1   | 6.5   | 5.8   | 5.1   | 4.2   | 3.3   | 2.2   | 1.11  |
|                     | 0.50 (13)        | 0.75   | 19.05 | 6.2                            | 5.6   | 5.2   | 4.7   | 4.1   | 3.5   | 2.8   | 2.2   | 1.49  | 0.72  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 4.0                            | 3.5   | 3.2   | 2.8   | 2.4   | 2.0   | 1.62  | 1.21  | 0.83  | 0.41  |
|                     | 0.31 (8)         | 0.75   | 19.05 | 2.9                            | 2.5   | 2.2   | 2.0   | 1.72  | 1.41  | 1.11  | 0.87  | 0.58  | 0.28  |
|                     | 0.25-30 (6.5-30) | 0.75   | 19.05 | 1.87                           | 1.57  | 1.48  | 1.28  | 1.08  | 0.90  | 0.72  | 0.54  | 0.36  | 0.177 |
|                     | 0.25-36 (6.5-36) | 0.75   | 19.05 | 1.11                           | 1.01  | 0.92  | 0.82  | 0.72  | 0.62  | 0.50  | 0.38  | 0.26  | 0.131 |
|                     | 0.12-00 (3.2-00) | 0.50   | 12.70 | 0.47                           | 0.42  | 0.37  | 0.32  | 0.28  | 0.23  | 0.180 | 0.140 | 0.093 | 0.047 |
|                     | 0.12-06 (3.2-06) | 0.50   | 12.70 | 0.22                           | 0.20  | 0.180 | 0.160 | 0.140 | 0.120 | 0.096 | 0.073 | 0.049 | 0.031 |
|                     | 0.12-12 (3.2-12) | 0.50   | 12.70 | 0.140                          | 0.130 | 0.120 | 0.110 | 0.096 | 0.084 | 0.071 | 0.058 | 0.045 | 0.025 |
| 0.12-18 (3.2-18)    | 0.50             | 12.70  | 0.052 | 0.044                          | 0.037 | 0.030 | 0.024 | 0.018 | 0.013 | 0.008 | 0.004 | 0.001 |       |
| 0.12-24 (3.2-24)    | 0.50             | 12.70  | 0.014 | 0.012                          | 0.010 | 0.008 | 0.006 | 0.005 | 0.003 | 0.002 | 0.001 | 0.000 |       |
| 1.5                 | 1.25 (32)        | 1.00   | 25.40 | 23                             | 22    | 21    | 20    | 19.3  | 17.3  | 15.3  | 12.2  | 8.7   | 4.6   |
|                     | 1.00 (25)        | 0.75   | 19.05 | 20                             | 18.8  | 17.8  | 15.8  | 14.9  | 12.9  | 10.9  | 8.3   | 5.6   | 2.9   |
|                     | 0.81 (21)        | 0.75   | 19.05 | 16.2                           | 15.2  | 13.2  | 12.2  | 11.1  | 9.2   | 7.5   | 5.8   | 3.8   | 1.92  |
|                     | 0.71 (18)        | 0.75   | 19.05 | 12.8                           | 11.8  | 10.8  | 9.7   | 8.5   | 7.2   | 5.8   | 4.4   | 3.0   | 1.48  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 11.1                           | 9.8   | 8.8   | 7.8   | 6.8   | 5.7   | 4.5   | 3.4   | 2.3   | 1.11  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 4.2                            | 3.7   | 3.3   | 2.9   | 2.5   | 2.1   | 1.58  | 1.19  | 0.81  | 0.41  |
| 2                   | 1.63 (41)        | 1.50   | 38.10 | 38                             | 37    | 36    | 34    | 32    | 29    | 25    | 20    | 14.8  | 7.5   |
|                     | 1.25 (32)        | 1.00   | 25.40 | 33                             | 30    | 28    | 26    | 23    | 20    | 17.3  | 13.2  | 9.0   | 4.7   |
|                     | 1.00 (25)        | 0.75   | 19.05 | 25                             | 23    | 21    | 18.7  | 15.7  | 13.8  | 10.8  | 8.5   | 5.7   | 2.9   |
|                     | 0.81 (21)        | 0.75   | 19.05 | 17.7                           | 15.7  | 14.8  | 12.8  | 10.8  | 9.2   | 7.5   | 5.6   | 3.7   | 1.87  |
|                     | 0.71 (18)        | 0.75   | 19.05 | 14.9                           | 12.9  | 11.9  | 9.9   | 8.8   | 7.5   | 6.0   | 4.5   | 3.0   | 1.49  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 10.8                           | 9.8   | 8.8   | 7.8   | 6.7   | 5.5   | 4.5   | 3.3   | 2.3   | 1.08  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 4.2                            | 3.7   | 3.3   | 2.9   | 2.5   | 2.1   | 1.58  | 1.19  | 0.81  | 0.41  |
| 3                   | 2.63 (67)        | 2.00   | 50.80 | 99                             | 96    | 93    | 88    | 82    | 75    | 66    | 53    | 38    | 19.9  |
|                     | 2.00 (51)        | 1.50   | 38.10 | 84                             | 79    | 74    | 67    | 60    | 52    | 43    | 34    | 23    | 12.1  |
|                     | 1.63 (41)        | 1.50   | 38.10 | 66                             | 60    | 55    | 49    | 43    | 37    | 30    | 23    | 15.0  | 7.7   |
|                     | 1.25 (32)        | 1.00   | 25.40 | 43                             | 39    | 34    | 31    | 27    | 22    | 17.7  | 13.8  | 9.0   | 4.5   |
| 4                   | 3.50 (89)        | 2.50   | 63.50 | 178                            | 172   | 166   | 158   | 147   | 134   | 116   | 94    | 68    | 35    |
|                     | 2.63 (67)        | 2.00   | 50.80 | 147                            | 137   | 127   | 117   | 104   | 90    | 75    | 58    | 40    | 20    |
|                     | 2.25 (57)        | 2.00   | 50.80 | 124                            | 114   | 104   | 94    | 82    | 70    | 57    | 43    | 29    | 15.1  |
|                     | 1.63 (41)        | 1.50   | 38.10 | 74                             | 66    | 59    | 52    | 44    | 37    | 31    | 23    | 14.8  | 7.7   |
| 6                   | 5.00 (127)       | 3.00   | 76.20 | 363                            | 353   | 340   | 323   | 302   | 274   | 239   | 193   | 138   | 72    |
|                     | 3.50 (89)        | 2.50   | 63.50 | 279                            | 260   | 240   | 217   | 192   | 165   | 136   | 104   | 71    | 36    |
|                     | 3.00 (76)        | 2.00   | 50.80 | 228                            | 210   | 190   | 170   | 148   | 126   | 102   | 78    | 52    | 26    |
|                     | 2.63 (67)        | 2.00   | 50.80 | 185                            | 169   | 151   | 134   | 116   | 97    | 78    | 59    | 40    | 20    |
| 8                   | 6.25 (159)       | 4.00   | 101.6 | 567                            | 551   | 531   | 506   | 472   | 429   | 374   | 303   | 215   | 112   |
|                     | 5.00 (127)       | 3.00   | 76.20 | 495                            | 469   | 440   | 406   | 367   | 321   | 268   | 209   | 143   | 73    |
|                     | 3.50 (89)        | 2.50   | 63.50 | 323                            | 295   | 266   | 236   | 205   | 173   | 140   | 106   | 71    | 36    |
|                     | 2.63 (67)        | 2.00   | 50.80 | 198                            | 178   | 158   | 139   | 119   | 100   | 80    | 60    | 40    | 20    |

\* Data above refer to the valves with unbalanced trim. Consult Valtek Sulamericana to obtain information regarding the C<sub>v</sub> of pressure-balanced valves.

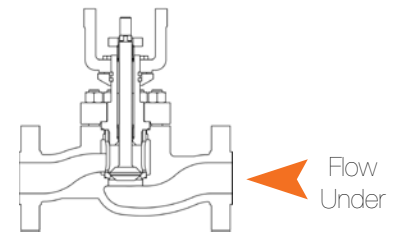
# FLOW COEFFICIENTS

## Class 900/1500



**FLOW COEFFICIENTS (C<sub>v</sub>) - QUICK-OPEN \* (TABLE XV)**

| VALVE SIZE (Inches) | TRIM SIZE T.N. | STROKE |       | C <sub>v</sub> AT PERCENT OPEN |     |     |     |     |     |      |      |      |      |
|---------------------|----------------|--------|-------|--------------------------------|-----|-----|-----|-----|-----|------|------|------|------|
|                     |                | in.    | mm    | 100                            | 90  | 80  | 70  | 60  | 50  | 40   | 30   | 20   | 10   |
| 1                   | 0.81 (21)      | 0.75   | 19.05 | 9.9                            | 9.9 | 9.8 | 9.6 | 9.4 | 9.3 | 8.0  | 5.9  | 3.6  | 1.88 |
| 1.5                 | 1.25 (32)      | 1.00   | 25.40 | 27                             | 27  | 26  | 26  | 26  | 23  | 18.8 | 13.8 | 8.7  | 4.8  |
| 2                   | 1.63 (41)      | 1.50   | 38.10 | 45                             | 45  | 44  | 44  | 43  | 43  | 37   | 28   | 15.0 | 8.2  |
| 3                   | 2.63 (67)      | 2.00   | 50.80 | 118                            | 118 | 116 | 115 | 114 | 102 | 86   | 64   | 39   | 22   |
| 4                   | 3.50 (89)      | 2.50   | 63.50 | 204                            | 204 | 201 | 198 | 195 | 174 | 146  | 107  | 69   | 37   |
| 6                   | 5.00 (127)     | 3.00   | 76.20 | 422                            | 422 | 421 | 420 | 386 | 339 | 283  | 215  | 142  | 76   |
| 8                   | 6.25 (159)     | 4.00   | 101.6 | 656                            | 648 | 641 | 631 | 621 | 551 | 455  | 349  | 218  | 116  |

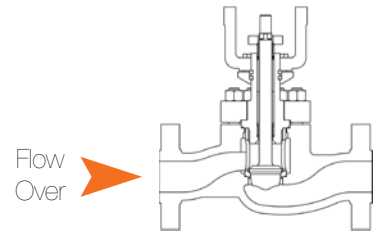


**FLOW COEFFICIENTS (C<sub>v</sub>) - QUICK-OPEN \* (TABLE XVI)**

| VALVE SIZE (Inches) | TRIM SIZE T.N. | STROKE |       | C <sub>v</sub> AT PERCENT OPEN |     |     |     |     |     |      |      |      |      |
|---------------------|----------------|--------|-------|--------------------------------|-----|-----|-----|-----|-----|------|------|------|------|
|                     |                | in.    | mm    | 100                            | 90  | 80  | 70  | 60  | 50  | 40   | 30   | 20   | 10   |
| 1                   | 0.81 (21)      | 0.75   | 19.05 | 9.5                            | 9.4 | 9.3 | 9.2 | 9.1 | 8.9 | 7.7  | 5.7  | 3.5  | 1.88 |
| 1.5                 | 1.25 (32)      | 1.00   | 25.40 | 27                             | 25  | 25  | 25  | 25  | 22  | 19.4 | 13.3 | 8.8  | 4.9  |
| 2                   | 1.63 (41)      | 1.50   | 38.10 | 43                             | 43  | 42  | 42  | 42  | 41  | 35   | 27   | 15.0 | 8.0  |
| 3                   | 2.63 (67)      | 2.00   | 50.80 | 111                            | 111 | 110 | 109 | 109 | 97  | 83   | 62   | 38   | 21   |
| 4                   | 3.50 (89)      | 2.50   | 63.50 | 195                            | 195 | 192 | 190 | 187 | 167 | 142  | 105  | 67   | 36   |
| 6                   | 5.00 (127)     | 3.00   | 76.20 | 406                            | 406 | 404 | 403 | 372 | 328 | 274  | 209  | 138  | 74   |
| 8                   | 6.25 (159)     | 4.00   | 101.6 | 628                            | 620 | 614 | 605 | 597 | 531 | 440  | 339  | 212  | 114  |

\* Data above refer to the valves with unbalanced trim. Pressure-balanced trim is not available with quick-open characteristic.

**Class 2500**



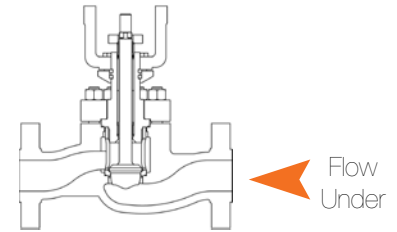
**FLOW COEFFICIENTS (C<sub>v</sub>) - EQUAL PERCENTAGE \* (TABLE XVII)**

| VALVE SIZE (Inches) | TRIM SIZE T.N.   | STROKE |       | C <sub>v</sub> AT PERCENT OPEN |      |      |       |       |       |       |       |       |       |
|---------------------|------------------|--------|-------|--------------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|
|                     |                  | in.    | mm    | 100                            | 90   | 80   | 70    | 60    | 50    | 40    | 30    | 20    | 10    |
| 1                   | 0.71 (18)        | 0.75   | 19.05 | 8.3                            | 7.3  | 5.8  | 4.4   | 3.1   | 2.2   | 1.5   | 0.99  | 0.68  | 0.46  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 7.6                            | 6.3  | 4.8  | 3.5   | 2.4   | 1.69  | 1.09  | 0.76  | 0.51  | 0.35  |
|                     | 0.50 (13)        | 0.75   | 19.05 | 6.0                            | 4.5  | 3.3  | 2.3   | 1.58  | 1.09  | 0.71  | 0.49  | 0.33  | 0.22  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 4.0                            | 2.8  | 1.92 | 1.31  | 0.90  | 0.61  | 0.41  | 0.27  | 0.182 | 0.131 |
|                     | 0.31 (8)         | 0.75   | 19.05 | 2.9                            | 1.98 | 1.29 | 0.90  | 0.60  | 0.41  | 0.28  | 0.188 | 0.129 | 0.089 |
|                     | 0.25-09 (6.5-09) | 0.75   | 19.05 | 1.92                           | 1.31 | 0.87 | 0.59  | 0.39  | 0.27  | 0.192 | 0.121 | 0.083 | 0.057 |
|                     | 0.25-15 (6.5-15) | 0.75   | 19.05 | 1.10                           | 0.83 | 0.60 | 0.36  | 0.23  | 0.159 | 0.100 | 0.074 | 0.060 | 0.045 |
|                     | 0.12-03 (3.2-03) | 0.50   | 12.70 | 0.57                           | 0.36 | 0.22 | 0.150 | 0.110 | 0.072 | 0.054 | 0.038 | 0.027 | 0.019 |
| 1.5                 | 1.00 (25)        | 0.75   | 19.05 | 15.8                           | 14.8 | 11.9 | 8.5   | 5.9   | 4.1   | 2.9   | 1.88  | 1.28  | 0.88  |
|                     | 0.81 (21)        | 0.75   | 19.05 | 14.2                           | 12.2 | 8.5  | 6.0   | 4.2   | 2.8   | 1.93  | 1.32  | 0.87  | 0.60  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 10.0                           | 7.4  | 5.2  | 3.6   | 2.5   | 1.69  | 1.09  | 0.76  | 0.51  | 0.35  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 4.3                            | 2.9  | 1.92 | 1.32  | 0.89  | 0.61  | 0.41  | 0.27  | 0.182 | 0.132 |
| 2                   | 1.25 (32)        | 1.00   | 25.40 | 23                             | 22   | 18.5 | 12.7  | 9.3   | 6.4   | 4.4   | 2.9   | 2.0   | 1.37  |
|                     | 1.00 (25)        | 0.75   | 19.05 | 20                             | 18.4 | 14.3 | 9.3   | 6.3   | 4.3   | 3.0   | 1.94  | 1.33  | 0.91  |
|                     | 0.81 (21)        | 0.75   | 19.05 | 16.8                           | 12.8 | 8.8  | 5.9   | 4.1   | 2.8   | 1.88  | 1.28  | 0.85  | 0.57  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 10.9                           | 7.7  | 5.3  | 3.6   | 2.5   | 1.68  | 1.09  | 0.75  | 0.51  | 0.35  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 4.2                            | 2.9  | 1.87 | 1.28  | 0.87  | 0.59  | 0.40  | 0.27  | 0.177 | 0.128 |
| 3                   | 2.00 (51)        | 1.50   | 38.10 | 59                             | 53   | 48   | 39    | 25    | 16.8  | 10.9  | 7.7   | 5.2   | 3.5   |
|                     | 1.63 (41)        | 1.50   | 38.10 | 53                             | 46   | 34   | 24    | 16.2  | 11.1  | 7.7   | 5.1   | 3.5   | 2.3   |
|                     | 1.25 (32)        | 1.00   | 25.40 | 35                             | 31   | 22   | 13.8  | 9.6   | 6.6   | 4.4   | 3.0   | 2.1   | 1.38  |
| 4                   | 2.63 (67)        | 2.00   | 50.80 | 104                            | 94   | 86   | 64    | 42    | 29    | 20    | 13.1  | 9.1   | 6.1   |
|                     | 2.25 (57)        | 2.00   | 50.80 | 88                             | 79   | 65   | 41    | 29    | 21    | 14.9  | 9.8   | 6.6   | 4.6   |
|                     | 1.63 (41)        | 1.50   | 38.10 | 65                             | 53   | 36   | 24    | 16.8  | 10.9  | 7.5   | 5.1   | 3.5   | 2.3   |
| 6                   | 4.00 (102)       | 2.50   | 63.50 | 261                            | 242  | 215  | 181   | 136   | 83    | 52    | 33    | 21    | 15.0  |
|                     | 3.50 (89)        | 2.50   | 63.50 | 218                            | 188  | 156  | 126   | 78    | 52    | 35    | 24    | 16.0  | 11.0  |
|                     | 3.00 (76)        | 2.00   | 50.80 | 176                            | 147  | 120  | 102   | 62    | 38    | 26    | 17.9  | 12.0  | 8.0   |
|                     | 2.63 (67)        | 2.00   | 50.80 | 147                            | 120  | 100  | 71    | 43    | 29    | 20    | 13.0  | 9.1   | 6.1   |

\* Data above refer to the valves with unbalanced trim. Consult Valtek Sulamericana to obtain information regarding the C<sub>v</sub> of pressure-balanced valves.

# FLOW COEFFICIENTS

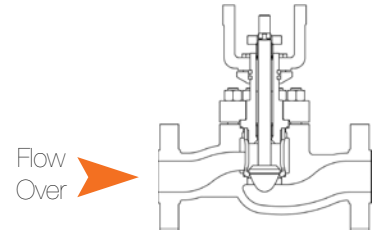
## Class 2500



**FLOW COEFFICIENTS (C<sub>v</sub>) - EQUAL PERCENTAGE \* (TABLE XVIII)**

| VALVE SIZE (Inches) | TRIM SIZE T.N.   | STROKE |       | C <sub>v</sub> AT PERCENT OPEN |      |      |       |       |       |       |       |       |       |
|---------------------|------------------|--------|-------|--------------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|
|                     |                  | in.    | mm    | 100                            | 90   | 80   | 70    | 60    | 50    | 40    | 30    | 20    | 10    |
| 1                   | 0.71 (18)        | 0.75   | 19.05 | 8.0                            | 7.0  | 5.6  | 4.2   | 3.0   | 2.1   | 1.39  | 0.97  | 0.66  | 0.45  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 7.3                            | 6.0  | 4.6  | 3.3   | 2.3   | 1.61  | 1.10  | 0.74  | 0.50  | 0.34  |
|                     | 0.50 (13)        | 0.75   | 19.05 | 5.7                            | 4.3  | 3.2  | 2.2   | 1.48  | 0.99  | 0.69  | 0.47  | 0.32  | 0.22  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 3.9                            | 2.7  | 1.93 | 1.32  | 0.87  | 0.59  | 0.40  | 0.27  | 0.182 | 0.122 |
|                     | 0.31 (8)         | 0.75   | 19.05 | 2.8                            | 1.91 | 1.31 | 0.89  | 0.60  | 0.40  | 0.27  | 0.191 | 0.121 | 0.089 |
|                     | 0.25-09 (6.5-09) | 0.75   | 19.05 | 1.79                           | 1.19 | 0.84 | 0.57  | 0.38  | 0.26  | 0.179 | 0.119 | 0.080 | 0.054 |
|                     | 0.25-15 (6.5-15) | 0.75   | 19.05 | 1.10                           | 0.81 | 0.58 | 0.35  | 0.23  | 0.159 | 0.100 | 0.072 | 0.058 | 0.044 |
|                     | 0.12-03 (3.2-03) | 0.50   | 12.70 | 0.55                           | 0.35 | 0.21 | 0.150 | 0.100 | 0.070 | 0.053 | 0.037 | 0.026 | 0.019 |
| 1.5                 | 1.00 (25)        | 0.75   | 19.05 | 15.2                           | 14.2 | 12.2 | 8.4   | 5.9   | 4.1   | 2.8   | 1.93  | 1.32  | 0.87  |
|                     | 0.81 (21)        | 0.75   | 19.05 | 12.8                           | 10.8 | 8.0  | 5.6   | 3.8   | 2.7   | 1.77  | 1.18  | 0.83  | 0.57  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 9.8                            | 7.2  | 5.0  | 3.5   | 2.4   | 1.61  | 1.11  | 0.74  | 0.50  | 0.34  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 4.1                            | 2.8  | 1.88 | 1.28  | 0.85  | 0.57  | 0.40  | 0.27  | 0.178 | 0.119 |
| 2                   | 1.25 (32)        | 1.00   | 25.40 | 23                             | 22   | 17.8 | 12.8  | 9.0   | 6.2   | 4.2   | 2.9   | 1.97  | 1.38  |
|                     | 1.00 (25)        | 0.75   | 19.05 | 19.2                           | 17.2 | 13.1 | 8.9   | 6.1   | 4.1   | 2.8   | 1.92  | 1.31  | 0.87  |
|                     | 0.81 (21)        | 0.75   | 19.05 | 16.1                           | 12.1 | 8.7  | 5.8   | 4.0   | 2.7   | 1.81  | 1.21  | 0.85  | 0.57  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 10.8                           | 7.4  | 5.0  | 3.4   | 2.4   | 1.57  | 1.08  | 0.73  | 0.49  | 0.33  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 4.1                            | 2.8  | 1.88 | 1.29  | 0.85  | 0.57  | 0.40  | 0.27  | 0.178 | 0.119 |
| 3                   | 2.00 (51)        | 1.50   | 38.10 | 58                             | 51   | 46   | 37    | 24    | 16.1  | 11.1  | 7.6   | 5.1   | 3.5   |
|                     | 1.63 (41)        | 1.50   | 38.10 | 48                             | 43   | 32   | 23    | 15.8  | 10.9  | 7.2   | 4.9   | 3.4   | 2.3   |
|                     | 1.25 (32)        | 1.00   | 25.40 | 34                             | 31   | 22   | 14.1  | 9.6   | 6.6   | 4.4   | 3.0   | 2.0   | 1.41  |
| 4                   | 2.63 (67)        | 2.00   | 50.80 | 97                             | 88   | 82   | 61    | 40    | 28    | 18.9  | 12.9  | 8.7   | 6.0   |
|                     | 2.25 (57)        | 2.00   | 50.80 | 86                             | 77   | 63   | 39    | 28    | 21    | 13.9  | 9.5   | 6.4   | 4.5   |
|                     | 1.63 (41)        | 1.50   | 38.10 | 63                             | 50   | 35   | 24    | 15.8  | 10.9  | 7.3   | 4.9   | 3.4   | 2.3   |
| 6                   | 4.00 (102)       | 2.50   | 63.50 | 248                            | 230  | 205  | 174   | 131   | 80    | 50    | 32    | 20    | 15.0  |
|                     | 3.50 (89)        | 2.50   | 63.50 | 211                            | 181  | 149  | 121   | 75    | 50    | 34    | 23    | 16.0  | 11.0  |
|                     | 3.00 (76)        | 2.00   | 50.80 | 171                            | 143  | 116  | 99    | 60    | 37    | 25    | 17.1  | 11.0  | 7.8   |
|                     | 2.63 (67)        | 2.00   | 50.80 | 140                            | 115  | 97   | 69    | 42    | 28    | 18.9  | 12.9  | 8.8   | 6.0   |

\* Data above refer to the valves with unbalanced trim. Consult Valtek Sulamericana to obtain information regarding the C<sub>v</sub> of pressure-balanced valves.



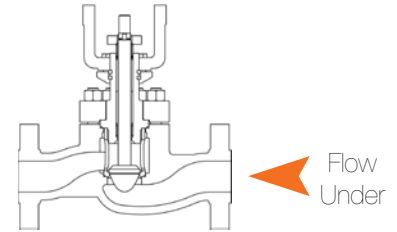
**FLOW COEFFICIENTS (C<sub>v</sub>) - LINEAR \* (TABLE XIX)**

| VALVE SIZE (Inches) | TRIM SIZE T.N.   | STROKE |       | C <sub>v</sub> AT PERCENT OPEN |       |       |       |       |       |       |       |       |       |
|---------------------|------------------|--------|-------|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                     |                  | in.    | mm    | 100                            | 90    | 80    | 70    | 60    | 50    | 40    | 30    | 20    | 10    |
| 1                   | 0.71 (18)        | 0.75   | 19.05 | 8.4                            | 8.0   | 7.8   | 7.3   | 6.9   | 6.2   | 5.3   | 4.2   | 3.0   | 1.49  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 7.6                            | 7.2   | 6.8   | 6.4   | 5.8   | 5.1   | 4.3   | 3.3   | 2.3   | 1.19  |
|                     | 0.50 (13)        | 0.75   | 19.05 | 6.3                            | 5.8   | 5.3   | 4.7   | 4.1   | 3.5   | 2.9   | 2.2   | 1.51  | 0.75  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 4.0                            | 3.6   | 3.2   | 2.9   | 2.5   | 2.1   | 1.72  | 1.31  | 0.85  | 0.42  |
|                     | 0.31 (8)         | 0.75   | 19.05 | 2.9                            | 2.6   | 2.3   | 2.0   | 1.68  | 1.48  | 1.19  | 0.87  | 0.57  | 0.29  |
|                     | 0.25-33 (6.5-33) | 0.75   | 19.05 | 1.88                           | 1.68  | 1.48  | 1.29  | 1.09  | 0.92  | 0.74  | 0.55  | 0.37  | 0.188 |
|                     | 0.25-39 (6.5-39) | 0.75   | 19.05 | 1.09                           | 0.99  | 0.93  | 0.83  | 0.72  | 0.61  | 0.51  | 0.39  | 0.26  | 0.129 |
|                     | 0.12-03 (3.2-03) | 0.50   | 12.70 | 0.49                           | 0.43  | 0.38  | 0.33  | 0.28  | 0.24  | 0.190 | 0.140 | 0.095 | 0.048 |
|                     | 0.12-09 (3.2-09) | 0.50   | 12.70 | 0.22                           | 0.20  | 0.180 | 0.160 | 0.140 | 0.120 | 0.098 | 0.074 | 0.050 | 0.026 |
|                     | 0.12-15 (3.2-15) | 0.50   | 12.70 | 0.150                          | 0.140 | 0.120 | 0.110 | 0.098 | 0.086 | 0.073 | 0.059 | 0.046 | 0.032 |
|                     | 0.12-21 (3.2-21) | 0.50   | 12.70 | 0.053                          | 0.045 | 0.038 | 0.031 | 0.025 | 0.019 | 0.013 | 0.008 | 0.004 | 0.001 |
| 0.12-27 (3.2-27)    | 0.50             | 12.70  | 0.014 | 0.012                          | 0.010 | 0.008 | 0.006 | 0.005 | 0.003 | 0.002 | 0.001 | 0.000 |       |
| 1.5                 | 1.00 (25)        | 0.75   | 19.05 | 16.1                           | 16.1  | 15.1  | 14.1  | 13.1  | 12.1  | 12.1  | 12.1  | 5.7   | 3.0   |
|                     | 0.81 (21)        | 0.75   | 19.05 | 13.8                           | 12.8  | 11.8  | 10.8  | 9.9   | 8.8   | 7.3   | 5.6   | 3.8   | 1.97  |
|                     | 0.71 (18)        | 0.75   | 19.05 | 12.1                           | 12.1  | 11.1  | 9.7   | 8.6   | 7.4   | 6.1   | 4.5   | 3.1   | 1.51  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 10.0                           | 9.4   | 8.6   | 7.6   | 6.7   | 5.7   | 4.6   | 3.5   | 2.3   | 1.20  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 4.3                            | 3.8   | 3.4   | 2.9   | 2.5   | 2.1   | 1.68  | 1.28  | 0.83  | 0.42  |
| 2                   | 1.25 (32)        | 1.00   | 25.40 | 26                             | 25    | 24    | 22    | 21    | 18.8  | 15.8  | 12.9  | 8.9   | 4.5   |
|                     | 1.00 (25)        | 0.75   | 19.05 | 22                             | 20    | 19.2  | 17.2  | 16.1  | 14.1  | 11.1  | 8.8   | 5.8   | 3.0   |
|                     | 0.81 (21)        | 0.75   | 19.05 | 16.9                           | 15.9  | 13.9  | 12.9  | 10.9  | 9.3   | 7.5   | 5.7   | 3.9   | 1.98  |
|                     | 0.71 (18)        | 0.75   | 19.05 | 14.1                           | 13.1  | 12.1  | 10.1  | 9.1   | 7.7   | 6.1   | 4.6   | 3.1   | 1.61  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 11.2                           | 10.2  | 9.3   | 8.1   | 7.0   | 5.9   | 4.8   | 3.6   | 2.3   | 1.22  |
| 3                   | 0.38 (10)        | 0.75   | 19.05 | 4.3                            | 3.8   | 3.4   | 3.0   | 2.5   | 2.1   | 1.69  | 1.29  | 0.83  | 0.42  |
|                     | 2.00 (51)        | 1.50   | 38.10 | 64                             | 62    | 59    | 56    | 53    | 47    | 41    | 33    | 23    | 11.9  |
|                     | 1.63 (41)        | 1.50   | 38.10 | 56                             | 53    | 49    | 45    | 41    | 35    | 29    | 23    | 16.1  | 8.0   |
| 4                   | 1.25 (32)        | 1.00   | 25.40 | 41                             | 38    | 34    | 31    | 27    | 23    | 17.8  | 13.9  | 9.2   | 4.7   |
|                     | 2.63 (67)        | 2.00   | 50.80 | 111                            | 107   | 103   | 97    | 91    | 81    | 70    | 56    | 39    | 19.9  |
|                     | 2.25 (57)        | 2.00   | 50.80 | 102                            | 96    | 90    | 83    | 75    | 66    | 55    | 43    | 30    | 15.1  |
| 6                   | 1.63 (41)        | 1.50   | 38.10 | 71                             | 64    | 58    | 52    | 45    | 38    | 31    | 23    | 16.1  | 8.0   |
|                     | 4.00 (102)       | 2.50   | 63.50 | 263                            | 257   | 248   | 232   | 209   | 187   | 159   | 126   | 86    | 41    |
|                     | 3.50 (89)        | 2.50   | 63.50 | 241                            | 229   | 216   | 200   | 181   | 159   | 133   | 104   | 71    | 36    |
|                     | 3.00 (76)        | 2.00   | 50.80 | 205                            | 193   | 178   | 162   | 144   | 123   | 101   | 78    | 53    | 27    |
|                     | 2.63 (67)        | 2.00   | 50.80 | 177                            | 164   | 149   | 133   | 116   | 99    | 80    | 61    | 41    | 21    |

\* Data above refer to the valves with unbalanced trim. Consult Valtek Sulamericana to obtain information regarding the C<sub>v</sub> of pressure-balanced valves.

# FLOW COEFFICIENTS

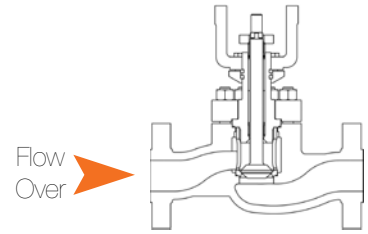
## Class 2500



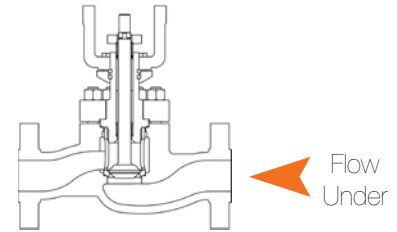
**FLOW COEFFICIENTS (C<sub>v</sub>) - LINEAR \* (TABLE XX)**

| VALVE SIZE (Inches) | TRIM SIZE T.N.   | STROKE |       | C <sub>v</sub> AT PERCENT OPEN |       |       |       |       |       |       |       |       |       |
|---------------------|------------------|--------|-------|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                     |                  | in.    | mm    | 100                            | 90    | 80    | 70    | 60    | 50    | 40    | 30    | 20    | 10    |
| 1                   | 0.71 (18)        | 0.75   | 19.05 | 8.0                            | 7.7   | 7.4   | 7.0   | 6.6   | 5.9   | 5.1   | 4.1   | 2.9   | 1.49  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 7.4                            | 7.0   | 6.6   | 6.1   | 5.6   | 4.9   | 4.1   | 3.2   | 2.2   | 1.09  |
|                     | 0.50 (13)        | 0.75   | 19.05 | 6.0                            | 5.5   | 5.0   | 4.5   | 4.0   | 3.4   | 2.8   | 2.1   | 1.41  | 0.74  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 3.9                            | 3.5   | 3.1   | 2.8   | 2.4   | 1.99  | 1.59  | 1.19  | 0.82  | 0.41  |
|                     | 0.31 (8)         | 0.75   | 19.05 | 2.8                            | 2.5   | 2.2   | 2.0   | 1.69  | 1.39  | 1.09  | 0.84  | 0.57  | 0.28  |
|                     | 0.25-33 (6.5-33) | 0.75   | 19.05 | 1.87                           | 1.57  | 1.48  | 1.28  | 1.08  | 0.90  | 0.72  | 0.54  | 0.36  | 0.177 |
|                     | 0.25-39 (6.5-39) | 0.75   | 19.05 | 1.10                           | 1.00  | 0.91  | 0.81  | 0.71  | 0.61  | 0.50  | 0.38  | 0.26  | 0.130 |
|                     | 0.12-03 (3.2-03) | 0.50   | 12.70 | 0.47                           | 0.42  | 0.37  | 0.32  | 0.28  | 0.23  | 0.180 | 0.140 | 0.093 | 0.047 |
|                     | 0.12-09 (3.2-09) | 0.50   | 12.70 | 0.22                           | 0.20  | 0.180 | 0.160 | 0.140 | 0.120 | 0.096 | 0.073 | 0.049 | 0.031 |
|                     | 0.12-15 (3.2-15) | 0.50   | 12.70 | 0.140                          | 0.130 | 0.120 | 0.110 | 0.096 | 0.084 | 0.071 | 0.058 | 0.045 | 0.025 |
|                     | 0.12-21 (3.2-21) | 0.50   | 12.70 | 0.052                          | 0.044 | 0.037 | 0.030 | 0.024 | 0.018 | 0.013 | 0.008 | 0.004 | 0.001 |
| 0.12-27 (3.2-27)    | 0.50             | 12.70  | 0.014 | 0.012                          | 0.010 | 0.008 | 0.006 | 0.005 | 0.003 | 0.002 | 0.001 | 0.000 |       |
| 1.5                 | 1.00 (25)        | 0.75   | 19.05 | 16.2                           | 15.2  | 14.2  | 14.2  | 13.2  | 11.1  | 11.1  | 11.1  | 5.7   | 2.9   |
|                     | 0.81 (21)        | 0.75   | 19.05 | 13.9                           | 12.9  | 11.9  | 10.9  | 9.7   | 8.5   | 7.0   | 5.5   | 3.8   | 1.89  |
|                     | 0.71 (18)        | 0.75   | 19.05 | 12.2                           | 11.2  | 10.2  | 9.4   | 8.3   | 7.1   | 5.9   | 4.5   | 3.1   | 1.53  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 9.9                            | 9.0   | 8.2   | 7.3   | 6.4   | 5.4   | 4.4   | 3.4   | 2.3   | 1.09  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 4.1                            | 3.7   | 3.3   | 2.9   | 2.5   | 1.98  | 1.58  | 1.19  | 0.81  | 0.41  |
| 2                   | 1.25 (32)        | 1.00   | 25.40 | 24                             | 24    | 23    | 21    | 19.8  | 18    | 14.8  | 11.9  | 8.6   | 4.4   |
|                     | 1.00 (25)        | 0.75   | 19.05 | 21                             | 20    | 18    | 17.3  | 15.3  | 13.2  | 11.2  | 8.6   | 5.8   | 3.0   |
|                     | 0.81 (21)        | 0.75   | 19.05 | 15.9                           | 14.9  | 13.9  | 11.9  | 10.9  | 9.0   | 7.4   | 5.7   | 3.8   | 1.89  |
|                     | 0.71 (18)        | 0.75   | 19.05 | 13.9                           | 12.9  | 10.9  | 9.9   | 8.6   | 7.3   | 5.9   | 4.5   | 3.0   | 1.49  |
|                     | 0.63 (16)        | 0.75   | 19.05 | 11.0                           | 9.8   | 8.8   | 7.8   | 6.7   | 5.6   | 4.5   | 3.4   | 2.3   | 1.10  |
|                     | 0.38 (10)        | 0.75   | 19.05 | 4.2                            | 3.7   | 3.3   | 2.9   | 2.5   | 2.1   | 1.58  | 1.19  | 0.81  | 0.41  |
| 3                   | 2.00 (51)        | 1.50   | 38.10 | 61                             | 59    | 57    | 54    | 51    | 46    | 39    | 32    | 22    | 11.9  |
|                     | 1.63 (41)        | 1.50   | 38.10 | 55                             | 51    | 47    | 44    | 39    | 34    | 28    | 22    | 15.1  | 7.8   |
|                     | 1.25 (32)        | 1.00   | 25.40 | 40                             | 36    | 33    | 30    | 26    | 22    | 18.1  | 13.1  | 9.2   | 4.6   |
| 4                   | 2.63 (67)        | 2.00   | 50.80 | 106                            | 103   | 98    | 93    | 87    | 78    | 68    | 54    | 38    | 19.9  |
|                     | 2.25 (57)        | 2.00   | 50.80 | 97                             | 92    | 87    | 80    | 73    | 64    | 54    | 42    | 29    | 15.1  |
|                     | 1.63 (41)        | 1.50   | 38.10 | 68                             | 62    | 56    | 50    | 44    | 37    | 30    | 23    | 15.1  | 7.8   |
| 6                   | 4.00 (102)       | 2.50   | 63.50 | 252                            | 245   | 237   | 222   | 200   | 180   | 154   | 122   | 84    | 40    |
|                     | 3.50 (89)        | 2.50   | 63.50 | 231                            | 219   | 207   | 191   | 174   | 153   | 129   | 101   | 70    | 35    |
|                     | 3.00 (76)        | 2.00   | 50.80 | 199                            | 187   | 172   | 157   | 139   | 120   | 99    | 76    | 52    | 26    |
|                     | 2.63 (67)        | 2.00   | 50.80 | 168                            | 156   | 141   | 127   | 111   | 94    | 77    | 58    | 40    | 19.8  |

\* Data above refer to the valves with unbalanced trim. Consult Valtek Sulamericana to obtain information regarding the C<sub>v</sub> of pressure-balanced valves.



| FLOW COEFFICIENTS (C <sub>v</sub> ) - QUICK-OPEN * (TABLE XXI) |                |        |       |                                |      |      |      |      |      |      |      |      |      |
|--|----------------|--------|-------|--------------------------------|------|------|------|------|------|------|------|------|------|
| VALVE SIZE (Inches)  | TRIM SIZE T.N. | STROKE |       | C <sub>v</sub> AT PERCENT OPEN |      |      |      |      |      |      |      |      |      |
|  |                | in.    | mm    | 100                            | 90   | 80   | 70   | 60   | 50   | 40   | 30   | 20   | 10   |
| 1  | 0.71 (18)      | 0.75   | 19.05 | 8.8                            | 8.8  | 8.7  | 8.6  | 8.4  | 7.8  | 6.8  | 5.2  | 3.3  | 1.79 |
| 1.5  | 1.00 (25)      | 0.75   | 19.05 | 17.9                           | 17.9 | 17.9 | 16.9 | 16.9 | 15.9 | 13.9 | 10.9 | 6.7  | 3.6  |
| 2  | 1.25 (32)      | 1.00   | 25.40 | 28                             | 28   | 28   | 27   | 27   | 25   | 22   | 17.2 | 11.2 | 5.7  |
| 3  | 2.00 (51)      | 1.50   | 38.10 | 70                             | 70   | 69   | 69   | 67   | 62   | 53   | 41   | 26   | 14.1 |
| 4  | 2.63 (67)      | 2.00   | 50.80 | 114                            | 114  | 113  | 111  | 109  | 99   | 88   | 68   | 43   | 23   |
| 6  | 4.00 (102)     | 2.50   | 63.50 | 269                            | 269  | 266  | 263  | 259  | 229  | 199  | 159  | 100  | 45   |



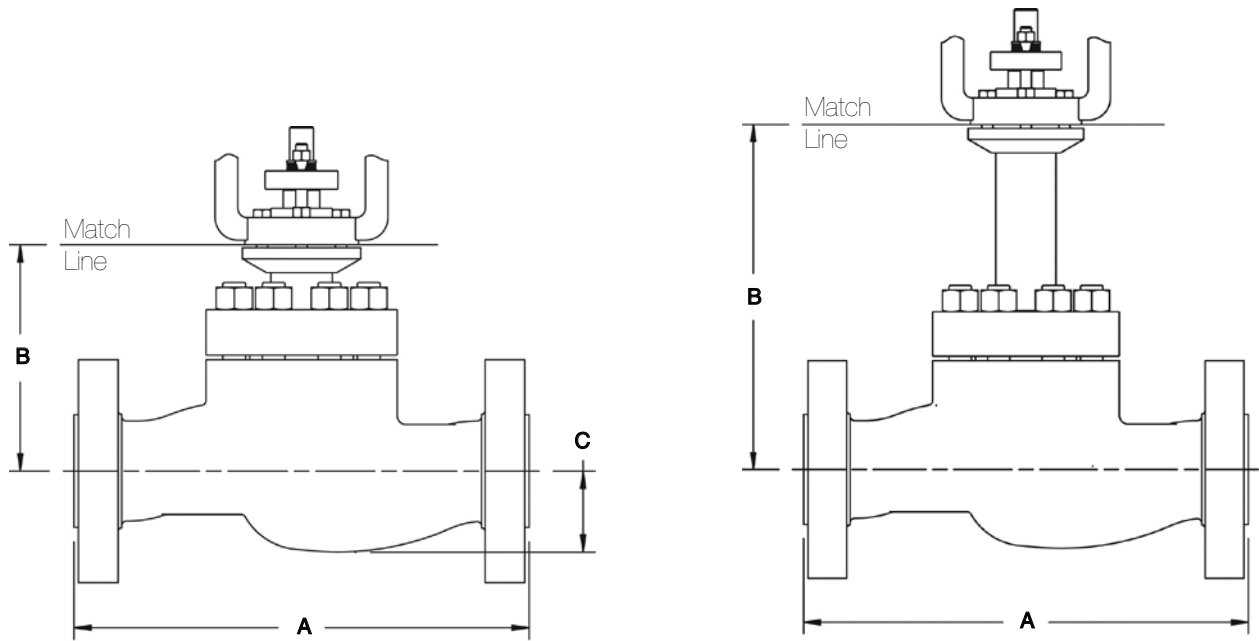
| FLOW COEFFICIENTS (C <sub>v</sub> ) - QUICK-OPEN * (TABLE XXII) |                |        |       |                                |      |      |      |      |      |      |      |      |      |
|---|----------------|--------|-------|--------------------------------|------|------|------|------|------|------|------|------|------|
| VALVE SIZE (Inches)   | TRIM SIZE T.N. | STROKE |       | C <sub>v</sub> AT PERCENT OPEN |      |      |      |      |      |      |      |      |      |
|   |                | in.    | mm    | 100                            | 90   | 80   | 70   | 60   | 50   | 40   | 30   | 20   | 10   |
| 1   | 0.71 (18)      | 0.75   | 19.05 | 8.3                            | 8.3  | 8.2  | 8.1  | 8.1  | 7.5  | 6.6  | 5.0  | 3.2  | 1.79 |
| 1.5   | 1.00 (25)      | 0.75   | 19.05 | 17.8                           | 17.8 | 17.8 | 16.8 | 16.8 | 15.8 | 13.8 | 10.9 | 6.9  | 3.8  |
| 2   | 1.25 (32)      | 1.00   | 25.40 | 27                             | 27   | 27   | 26   | 26   | 24   | 21   | 16.2 | 10.1 | 6.1  |
| 3   | 2.00 (51)      | 1.50   | 38.10 | 65                             | 65   | 64   | 64   | 63   | 58   | 50   | 40   | 25   | 12.9 |
| 4   | 2.63 (67)      | 2.00   | 50.80 | 109                            | 109  | 108  | 107  | 104  | 99   | 85   | 65   | 40   | 22   |
| 6   | 4.00 (102)     | 2.50   | 63.50 | 261                            | 261  | 257  | 255  | 250  | 235  | 205  | 155  | 100  | 55   |

\* Data above refer to the valves with unbalanced trim. Pressure-balanced trim is not available with quick-open characteristic.

## Valve Sizing

GL $\bar{H}$  valves are sized and selected according to rigorous criteria established by Valtek Sulamericana, based on internationally recognized standards and procedures. Consult Valtek Sulamericana to receive valuable technical support, which will help you regarding control valves sizing & application issues.

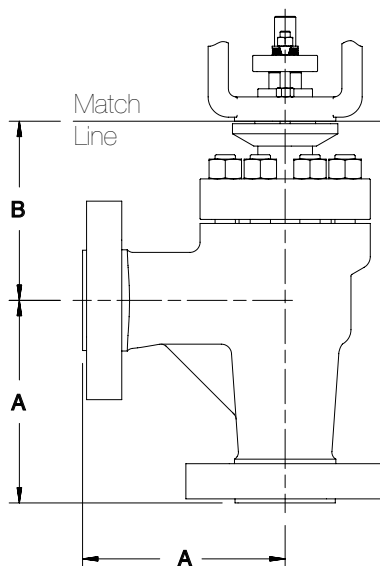
# DIMENSIONS, ESTIMATED SHIPPING WEIGHTS



**DIMENSIONS - GLOBE VALVE - ANSI CLASS 900, 1500 & 2500 (TABLE XXIII)**

| VALVE SIZE (Inches) | A                           |      |            |      |            |      | B               |     |            |                 |      |            | C    |                |      |            | Clearance Required Above Actuator for Disassembly |     |                |     |     |
|---------------------|-----------------------------|------|------------|------|------------|------|-----------------|-----|------------|-----------------|------|------------|------|----------------|------|------------|---|-----|----------------|-----|-----|
|                     | Face-to-Face <sup>(1)</sup> |      |            |      |            |      | Standard Bonnet |     |            | Extended Bonnet |      |            |      |                |      |            |   |     |                |     |     |
|                     | Class 900                   |      | Class 1500 |      | Class 2500 |      | Class 900-1500  |     | Class 2500 | Class 900-1500  |      | Class 2500 |      | Class 900-1500 |      | Class 2500 |   |     | Class 900-2500 |     |     |
|                     | in.                         | mm   | in.        | mm   | in.        | mm   | in.             | mm  | in.        | mm              | in.  | mm         | in.  | mm             | in.  | mm         |   |     | in.            | mm  | in. |
| <b>1</b>            | 11.5                        | 292  | 11.5       | 292  | 12.5       | 318  | 5.6             | 143 | 6.8        | 173             | 10.1 | 257        | 11.3 | 286            | 1.8  | 44         | 1.8   | 44  | 3.6            | 90  |     |
| <b>1.5</b>          | 13.1                        | 333  | 13.1       | 333  | 15.0       | 381  | 8.7             | 221 | 8.7        | 221             | 13.2 | 334        | 13.2 | 334            | 2.7  | 68         | 2.4   | 60  | 5.6            | 141 |     |
| <b>2</b>            | 14.8                        | 375  | 14.8       | 375  | 16.3       | 413  | 8.7             | 221 | 8.7        | 221             | 13.2 | 334        | 13.2 | 334            | 2.8  | 71         | 3.0   | 77  | 6.1            | 154 |     |
| <b>3</b>            | 17.4                        | 441  | 18.1       | 460  | 26.0       | 660  | 11.4            | 289 | 12.9       | 328             | 18.4 | 467        | 19.9 | 506            | 4.2  | 106        | 3.7   | 94  | 8.4            | 214 |     |
| <b>4</b>            | 20.1                        | 511  | 20.9       | 530  | 29.0       | 737  | 12.4            | 316 | 14.6       | 371             | 19.4 | 493        | 21.6 | 549            | 4.4  | 113        | 5.4   | 138 | 10.7           | 272 |     |
| <b>6</b>            | 28.1                        | 714  | 30.3       | 768  | 34.0       | 864  | 19.4            | 493 | 17.4       | 442             | 26.4 | 671        | 27.3 | 692            | 7.2  | 183        | 7.3   | 185 | 13.6           | 345 |     |
| <b>8</b>            | 36.0                        | 914  | 38.3       | 972  | 40.3       | 1022 | 18.6            | 473 | 24.3       | 616             | 24.2 | 613        | 31.3 | 794            | 9.4  | 240        | 10.3  | 262 | 17.8           | 451 |     |
| <b>10</b>           | 39.0                        | 991  | 42.0       | 1067 | 54.0       | 1372 | 21.9            | 556 | 26.0       | 660             | 28.9 | 734        | 33.0 | 838            | 11.2 | 284        | 10.0  | 254 | 19.5           | 495 |     |
| <b>12</b>           | 44.5                        | 1130 | 48.0       | 1219 | 62.0       | 1575 | 26.6            | 675 | 28.0       | 711             | 33.6 | 852        | 35.0 | 889            | 14.0 | 356        | 12.9  | 327 | 20.5           | 512 |     |

(1) Dimensions above are in accordance with the latest edition of ANSI/ISA-75.08.06 (long pattern) and are applicable only to flanged valves with raised face flanges. For RTJ flanges and other types of end connections, consult Valtek Sulamericana.



**DIMENSIONS - ANGLE VALVE - ANSI CLASS 900, 1500 & 2500 (TABLE XXIV)**

| VALVE SIZE (Inches) | ANSI Class | A <sup>(1)</sup> |     | B               |     |                 |     | Clearance Required Above Actuator for Disassembly |     |
|---------------------|------------|------------------|-----|-----------------|-----|-----------------|-----|---|-----|
|                     |            |                  |     | Standard Bonnet |     | Extended Bonnet |     |   |     |
|                     |            | in.              | mm  | in.             | mm  | in.             | mm  | in.   | mm  |
| 0.5 to 1            | 900-1500   | 5.5              | 140 | 4.7             | 119 | 9.2             | 234 | 3.6   | 90  |
|                     | 2500       | 6.0              | 152 | 5.8             | 147 | 10.3            | 262 | 3.6   | 90  |
| 1.5                 | 900-1500   | 6.5              | 165 | 6.5             | 165 | 11.0            | 279 | 5.6   | 142 |
|                     | 2500       | 7.5              | 191 | 7.0             | 178 | 11.5            | 292 | 5.6   | 142 |
| 2                   | 900-1500   | 7.3              | 185 | 7.1             | 180 | 11.6            | 295 | 6.1   | 155 |
|                     | 2500       | 8.9              | 226 | 7.9             | 201 | 12.4            | 315 | 6.1   | 155 |
| 3                   | 900-1500   | 9.3              | 236 | 9.8             | 249 | 16.8            | 427 | 8.4   | 213 |
|                     | 2500       | 13.0             | 330 | 11.2            | 284 | 18.2            | 462 | 8.3   | 211 |
| 4                   | 900-1500   | 12.5             | 318 | 11.1            | 282 | 18.1            | 460 | 9.7   | 246 |
|                     | 2500       | 14.5             | 368 | 12.6            | 320 | 19.6            | 498 | 10.7  | 272 |
| 6                   | 900-1500   | 13.9             | 353 | 13.3            | 338 | 20.3            | 516 | 12.2  | 310 |
|                     | 2500       | 17.0             | 432 | 16.1            | 409 | 23.1            | 587 | 13.6  | 345 |
| 8                   | 900-1500   | 16.4             | 417 | 14.5            | 368 | 21.5            | 547 | 16.7  | 424 |
|                     | 2500       | 20.1             | 511 | 20.8            | 528 | 27.8            | 706 | 17.8  | 452 |
| 10                  | 900-1500   | 19.5             | 495 | 15.6            | 396 | 22.6            | 574 | 18.3  | 465 |
|                     | 2500       | 25.0             | 635 | 21.1            | 536 | 28.1            | 714 | 19.7  | 500 |

<sup>(1)</sup> Dimension A in accordance with Valtek Sulamericana's standards.

**ESTIMATED SHIPPING WEIGHTS\* (TABLE XXV)**

| VALVE SIZE (Inches) | Class 900 |     | Class 1500 |     | Class 2500 |      | Add for Extended Bonnet |    |
|---------------------|-----------|-----|------------|-----|------------|------|-------------------------|----|
|                     | lbs.      | kg  | lbs.       | kg  | lbs.       | kg   | lbs.                    | kg |
| 1                   | 100       | 45  | 120        | 54  | 150        | 68   | 5                       | 2  |
| 1.5                 | 170       | 77  | 180        | 82  | 210        | 95   | 5                       | 2  |
| 2                   | 200       | 91  | 220        | 100 | 300        | 136  | 5                       | 2  |
| 3                   | 400       | 182 | 430        | 195 | 500        | 227  | 15                      | 7  |
| 4                   | 590       | 268 | 610        | 277 | 940        | 427  | 20                      | 9  |
| 6                   | 1000      | 454 | 1170       | 531 | 1400       | 636  | 40                      | 18 |
| 8                   | 1100      | 499 | 1320       | 599 | 1740       | 790  | 65                      | 30 |
| 10                  | 2050      | 931 | 2200       | 999 | 2600       | 1180 | 90                      | 41 |

**ADDITIONAL WEIGHT FOR OVERSIZED ACTUATORS (TABLE XXVI)**

| Standard Original Size | Oversized Actuator Required | Add  |    |
|------------------------|-----------------------------|------|----|
|                        |                             | lbs. | kg |
| 25                     | 50                          | 30   | 14 |
| 50                     | 100                         | 90   | 41 |
| 100                    | 200                         | 125  | 57 |

\* Globe-style valve equipped with standard size actuator and positioner.

### Quality Management System



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## ISO 9001-2000

Certificate No. 311001 QM

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