

GXL[®]

+

CHRONOS

**GLOBE CONTROL
VALVE**



VALTEK[™]
SULAMERICANA

INTRODUCTION

The GxL-Chronos offers a complete integrated set of globe-type control valve and digital positioner with advanced technical features.

It is available in nominal sizes from ½ to 4" (DN 15 to 100) for operating temperatures up to 450°F (232°C) and pressure classes 150-300 (ANSI B16.34) or PN10 to PN40 (EN 1092-1).

The GxL-Chronos set, operated by spring-cylinder actuator, is the best market alternative when you need a simple, compact, economical and longlasting globe-type control valve

Reliability

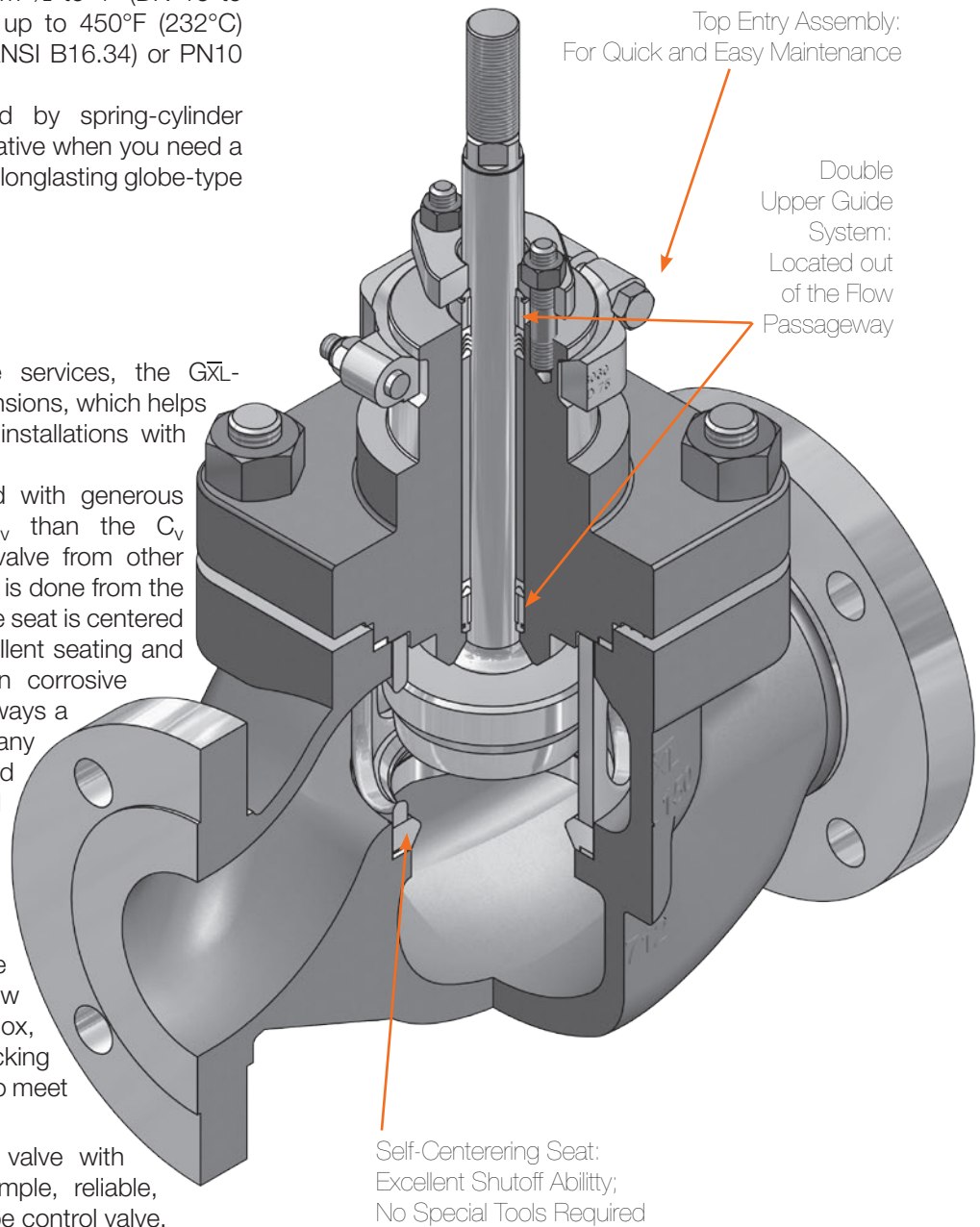
Using many features of severe services, the GxL-Chronos valve has compact dimensions, which helps its application in equipments or installations with limited space.

The GxL-Chronos trim, designed with generous dimensions, provides higher C_v than the C_v commonly found in globe-type valve from other manufacturers. The trim assembly is done from the body upper side (top entry) and the seat is centered by the plug, that assures an excellent seating and high levels of tightness. Even in corrosive processes, the seat removal is always a simple task and does not require any special tools. The plug is machined as a single piece and it is guided by an advanced double upper guide system, which eliminates typical problems of valves with plug guided by the seat retainer.

The GxL-Chronos valve has a wide variety of trim to serve various flow ranges. The extra deep packing box, allows the utilization of several packing options, including those required to meet the EPA* requirements.

All these features, unique in a valve with compact dimensions, form a simple, reliable, economical and durable globe-type control valve.

BODY SUB-ASSEMBLY (FIGURE 1)

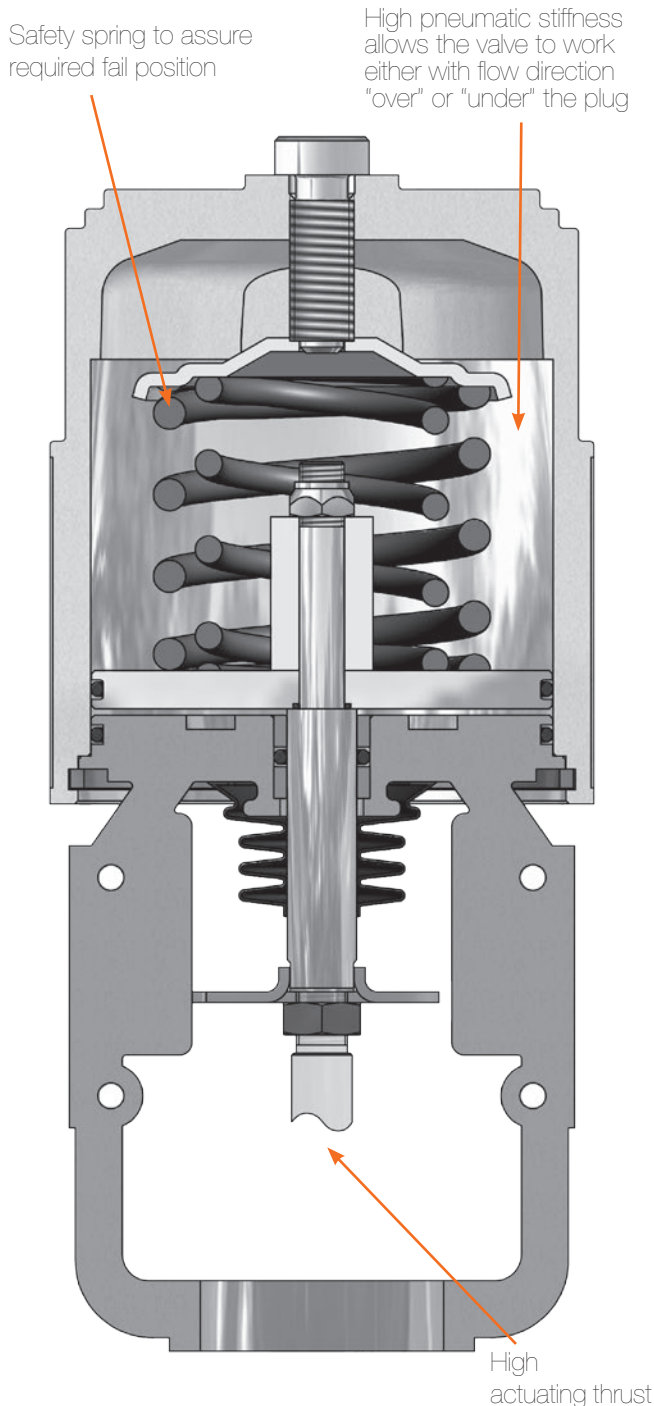


Rangeability 30:1 (Typical)

ANSI Class IV Shutoff – Metal Seat *
ANSI Class VI Shutoff – Soft Seat *

* Standard for valves with unbalanced trim.

LINEAR ACTUADOR SERIES LA-XL (FIGURE 2)



**High part interchangeability -
Reduces the need for spare parts**

**Lightweight and compact design - Helps
handling and occupies limited space**

The LA-XL Series is a complete line of linear spring-cylinder actuators recognized by their high performance, actuating thrust and high control sensitivity. Designed to operate with air supply pressure up to 150 psi (10.3 bar), they are provided with internal springs to actuate in case of air supply failure and are field-reversible, either to air-to open or air-to-close configuration, without the need of additional parts.

Benefits

- High response frequency.
- Dynamic positioning sensitivity due to the air present on both piston sides.
- High actuating thrust resulting from the use of air supply pressure up to 150 psi (10.3 bar).
- Compact, lightweight, easy maintenance and long-lasting.
- It does not have diaphragms subject to stress failure and rupture.

ACTUATOR SPECIFICATIONS (TABLE I)

Type	▀ Double acting cylinder with positive spring for failsafe action ▀ CFiled reversible
Sizes	15, 25 and 50
Action	▀ Air-to-Open ▀ Air-to-Close ▀ Fail-in-place
Air Supply Pressure	Up to 150 psi maximum (10.3 bar maximum)
Operating Temperature	-40° a 350°F (-40° a 175°C)

MATERIALS OF CONSTRUCTION (TABLE II)

Yoke	Ductile Iron
Actuator Stem	UNS S 41600 Stainless Steel
Piston and Cylinder	Anodized Aluminum
O-Rings*	Buna N (Standard)
Actuator Spring	Steel (corrosion proof)
Cylinder Retaining Ring	Zinc Plated steel
Spring Button	Carbon Steel
Yoke Clamp	UNS J92900 Stainless Steel
Adjusting Screw	Zinc Plated steel

* Room temperature higher than 180 °F (82 °C) requires Viton o-rings.
Temperature below -40 °F (-40 °C) requires Fluorsilicone o-rings.

CHRONOS POSITIONER



Features

- Backlit Graphic LCD with large dimensions
- High brightness warning LEDs
- Quick setup wizard
- RFI & EMI immune
- Explosion proof housing Exd IIC T5/T6 (IECEX/ATEX/INMETRO), IP66
- Local interface with protected setup buttons
- Autocalibration and autotune
- Automatic or manual gain adjustment
- Two-stage relay with advanced technology
- Modular design with electronic and pneumatic parts separated
- Can be mounted on single or double acting actuators

Benefits / Advantages

- Multilingual texts, messages in plain language
- Accurate control
- Allows reading in dimly lit places
- High response level
- Easy to assemble in a wide range of linear and rotary actuators
- Configuration and calibration processes are extremely fast
- Firmware upgradeable
- Cost-effective
- In most cases, PC and handhelds are not required to configure (setup).
- When necessary, the maintenance tasks are simple
- Assembly in double acting actuators does not require additional manifolds
- Cut-off function



CHRONOS POSITIONER

The Chronos IDP7600 positioners are digital-to-pneumatic instruments with microprocessed technology that use the HART® protocol to allow remote communication. The two-wire power supply, made by the control loop, contributes significantly to the reduction of wiring costs.

The advanced technology of the two-stage relay and microprocessor allows the positioner provides high response level and accurate control. The Chronos IDP7600 provides a local PID loop with ultrafast loop execution time: lower process variability means higher quality of final product and increased productivity.

The reability, intuitive use and quick setup/calibration make the Chronos IDP7600 the more practical and advanced HART® positioner of the market.

Local Interface

The interface of Chronos IDP7600 positioner consists of LCD display with large size, which has illuminated background to allows easy viewing of massages even in dimly lit areas of the plant.

A trio of bright LED in green, yellow and red complements the information on the display and allows the functioning alerts are seen even at a distance.

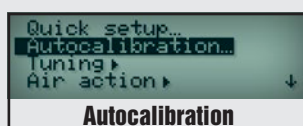
The information can seen locally at a glance and are presented in plain language, which does require decoding.

Virtually all menu items can de accessed through the four buttons of of the interface, with the main cover of the positioner closed, and without the need for a portable calibrator or personal computer.

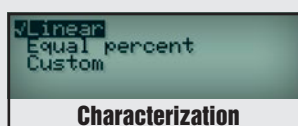
LCD Interface



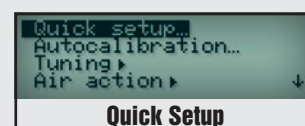
Language



Autocalibration



Characterization



Quick Setup

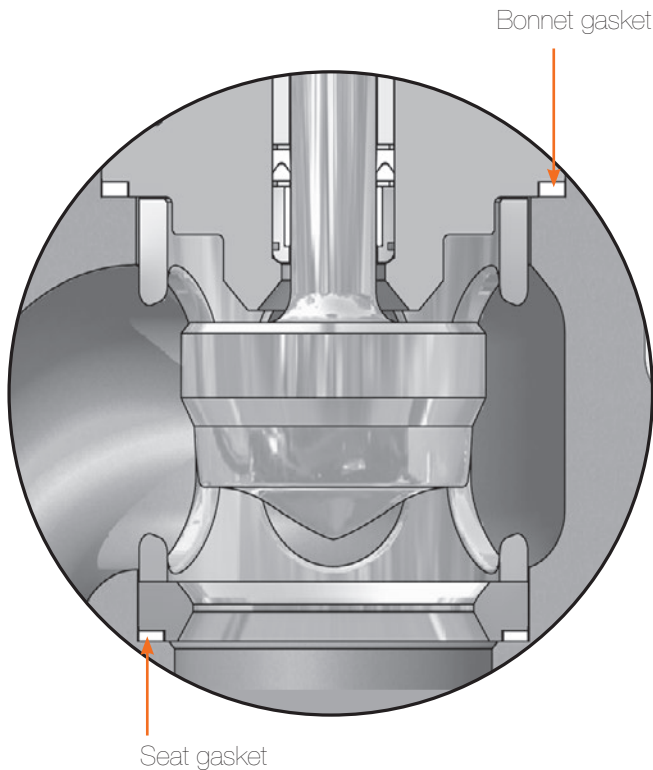
TECHNICAL SPECIFICATIONS

Communication Protocol	HART®, version 7
Power Supply	Two-wire, loop powered, 4-20 mA, protected against reverse polarity
Signal Range	4-20 mA (3.8 mA min.)
Compliance Voltage	10.4 Vcc @ 20 mA (typical)
Effective Resistance	520 Ω @ 20 mA (typical)
Characterization	Linear, equal percent or customized, with characterizable curve from 21 points freely configurable via configurator
Mounting Types	Linear actuators
	Rotary actuators
Strokes	Linear: 0.4 to 12 inches (10.2 to 304 mm)
	Rotary: 0 to 90°
Pneumatic Supply Medium	Instrument air according to ANSI/ISA 7.0.01 ⁽¹⁾ / Nitrogen
Supply Pressure	30 to 120 psig (2.1 to 8.3 bar)
Operating Temperature	-4 to 185°F (-20 to 85°C)
Operating Humidity	0 to 95% U.R., noncondensing

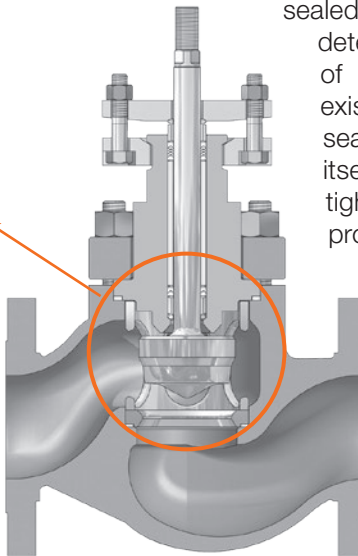
Housing / Enclosure	Anodized aluminum, low-copper, polyester painting (standard)
	300 series stainless steel (optional)
Internal Parts	Aluminum and 300 series stainless steel
Soft Goods	Buna-N, Silicone
Hazardous Area Certifications	Explosion proof, flameproof and non-incendive - IECEx / ATEX / INMETRO
Enclosing Rating	IP66
Electrical Connections	1/2"-14 NPT (standard)
	M20 x 1.5 (optional)
Pneumatic Connections	1/4" - 18 NPT
	1/8" - 27 NPT (pressure gauges)
Weights	Aluminum version: 9.6 lbs. (4.4 kg)
	Stainless steel version: 20.6 lbs (9.4 kg)
Dimensions	8.4 x 5.7 x 6.5 in. (22 x 15 x 17 cm)

(1) Dew point should be at least 18°F (10°C) below the ambient temperature, the amount of oil should not exceed one part per million (1 ppm) and particle size should be less than 5 microns (less than 1 micron is recommended).

SEAT AND BONNET GASKETS (FIGURE 3)



The GxL-Chronos control valve for general purpose services was designed with bonnet and seat gaskets totally enclosed. The GxL-Chronos 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 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 SPECIFICATIONS (TABLE III)

Style	Globe - Single Seat
Nominal sizes	0.5; 0.75; 1; 1.5; 2; 3; 4 (inches) DN 15; 20; 25; 40; 50; 80; 100
Ratings	ANSI Class 150-300 PN10 to PN40
End connections	Integral Flanges Socketweld* NPT*
Flange surface finish	Standard: 125-250 Ra Optional: 250-500 Ra
Face-to-Face dimension	ANSI/ISA-75.08.01
Bonnet	Standard
Shutoff	ANSI Class IV with Metal Seat ANSI Classe VI with Soft Seat
Flow characteristics	Linear Equal percentage Quick open

*Sizes de 0.5 to 2 inches.

TEMPERATURE LIMITS FOR SEAT AND BONNET GASKET (TABLE IV)

GASKET TYPE	MATERIAL	TEMPERATURE LIMITS	
		°F	°C
Flat	PTFE	350	176
Spiral	316 SS/Graphite	450	232

TEMPERATURE LIMITS FOR PLUG GUIDE/INSERTS (TABLE V)

GUIDE/INSERT MATERIALS	MAX. TEMPERATURE		TEMPERATURE LIMITS
	°F	°C	
Stainless Steel/PTFEG	300	150	100 psi @ 300°F*
Stainless Steel/Graphite	450	232	Body Rating
Bronze	450	232	Body Rating

* Observe the pressure-temperature graphic of the sizing and selection manual

**STANDARD MATERIALS OF CONSTRUCTION
CARBON STEEL SUB-ASSEMBLY (TABLE VI)**

ITEM	MATERIAL CLASSIFICATION	SPECIFICATIONS		
		ASTM CODE (AMS No.)	UNS CODE	HARDNESS R _C
Body	Carbon Steel (Casting)	A 216 WCC	J 02503	
Bonnet	Carbon Steel (Casting)	A 216 WCC	J 02503	
Plug	316 (Bar)	A 479 Gr 316	S 31600	8
	420 (Bar)	A 276 Gr 420	S 42000	38-45
	316 / Alloy #6*	A479 Gr 316 / AMS 5387	S 31600 / R 30006	40-42
Metal Seat	316 (Bar)	A 479 Gr 316	S 31600	8
	420 (Bar)	A 276 Gr 420	S 42000	38-45
	316 / Alloy #6*	A 479 Gr 316 / AMS 5387	S 31600 / R 30006	40-42
Soft Seat	316 (Bar) / PTFE	A 479 Gr 316	S 31600	
Seat Retainer	316 (Casting)	A 351 Gr CF8M	J 92900	
Gland Flange	316 (Casting)	A 351 Gr CF8M	J 92900	
Packing Follower	316 (Bar)	A 479 Gr 316	S 31600	
Packing spacer	316 (Bar)	A 479 Gr 316	S 31600	

**STANDARD MATERIALS OF CONSTRUCTION
STAINLESS STEEL SUB-ASSEMBLY (TABLE VII)**

ITEM	MATERIAL CLASSIFICATION	SPECIFICATIONS		
		ASTM CODE (AMS No.)	UNS CODE	HARDNESS R _C
Body	316 (Casting)	A 351 CF8M	J 92900	
Bonnet	316 (Casting)	A 351 CF8M	J 92900	
Plug	316 (Bar)	A 479 Gr 316	S 31600	8
	17-4PH (Bar)	A 276 Gr 630	S 17400	35
	316 / Alloy #6*	A479 Gr 316 / AMS 5387	S 31600 / R 30006	40-42
Metal Seat	316 (Bar)	A 479 Gr 316	S 31600	8
	17-4PH (Bar)	A 564 Gr 630	S 17400	35
	316 / Alloy #6*	A 479 Gr 316 / AMS 5387	S 31600 / R 30006	40-42
Soft Seat	316 (Bar) / PTFE	A 479 Gr 316	S 31600	
Seat Retainer	316 (Casting)	A 351 Gr CF8M	J 92900	
Gland Flange	316 (Casting)	A 351 Gr CF8M	J 92900	
Packing Follower	316 (Bar)	A 479 Gr 316	S 31600	
Packing spacer	316 (Bar)	A 479 Gr 316	S 31600	

* Valves with nominal sizes 0.5 to 2 inches: seat ring and plug head in solid Alloy #6.
Valves with nominal sizes 3 and 4 inches: solid alloy #6 on seat ring and alloy #6 overlay on plug head.

PRESSURE AND TEMPERATURE LIMITS FOR VALVE BODIES – ANSI B 16.34 (TABLE VIII)

MATERIAL	CLASS	PRESSURE		TEMPERATURE	
		PSI	BAR	°F	°C
Carbon Steel ASTM A 216 Gr. WCB	ANSI 150	290	20.0	-20 a 100	-29 a 38
		260	17.9	200	93
		230	15.9	300	149
		200	13.8	400	204
		185	12.8	450	232
	ANSI 300	750	51.7	-20 a 100	-29 a 38
		750	51.7	200	93
		730	50.3	300	149
		705	48.6	400	204
		685	47.2	450	232
Stainless Steel ASTM A 351 Gr. CF8M	ANSI 150	275	19.0	-20 a 100	-29 a 38
		235	16.2	200	93
		215	14.8	300	149
		195	13.4	400	204
		185	12.8	450	232
	ANSI 300	720	49.7	-20 a 100	-29 a 38
		620	42.8	200	93
		560	39.4	300	149
		515	35.5	400	204
		495	34.1	450	232

MAXIMUM ALLOWABLE PRESSURE DROP – ACTUATOR⁽¹⁾⁽²⁾⁽³⁾ (TABLE IX)

VALVE SIZE		ACTUATOR SIZE					
		15		25		50	
INCHES	DN	PSI	BAR	PSI	BAR	PSI	BAR
0.5	15	670	46.2				
0.75	20	595	41.0				
1	25	470	32.4				
1.5	40	120	8.2	740	51.0		
2	50	120*	8.2*	590	40.6		
3	80					740	51.0
4	100					740	51.0

(1) Maximum allowable pressure drop based on full area trim, PTFE packing, air-to-open, flow over and air supply pressure of 60 PSI (4.1 bar).

(2) For throttling applications, the actuator stiffness shall be considered.

(3) Do not exceed the body rating.

* With 1.38" trim.

PACKINGS

The G $\bar{X}$ L-Chronos packing box has an enormous depth which provides high spacing between the lower packing set and the main upper packing set. The upper packing set, being located at a distance greater than the plug stroke, is kept out of the contact with the operating fluid.

The standard packing set of G $\bar{X}$ L-Cronos valve is comprised by PTFE “V” rings, although options with square rings and special packing sets – to meet the requirements of standards concerning the control of fugitive emissions in modern industrial processes – are also available.

STANDARD PACKING (FIGURE 9)

The standard packing of the G $\bar{X}$ L-Chronos valve is comprised by PTFE “V” rings, which represent the most widely used packing system for years and which has excellent sealing results.

The PTFE “V” rings have low friction coefficient, good mechanical strength, excellent corrosion resistance and, in the G $\bar{X}$ L-Chronos valve, are used with operating temperatures of -28 to 232°C (-20 to 450°F).

PACKING SETS WITH SQUARE RINGS (FIGURE 9)

The packing set with square rings of G $\bar{X}$ L valve is an alternative for those cases in which the operating temperature does not exceed 450°F (232°C) but the working pressure exceeds the limits of PTFE “V” rings (packing materials are usually selected based on a pressure vs. temperature curve). The material used in the packing set with square rings of G $\bar{X}$ L valve is braided PTFE.

SPECIAL PACKING SETS (FIGURE 10)

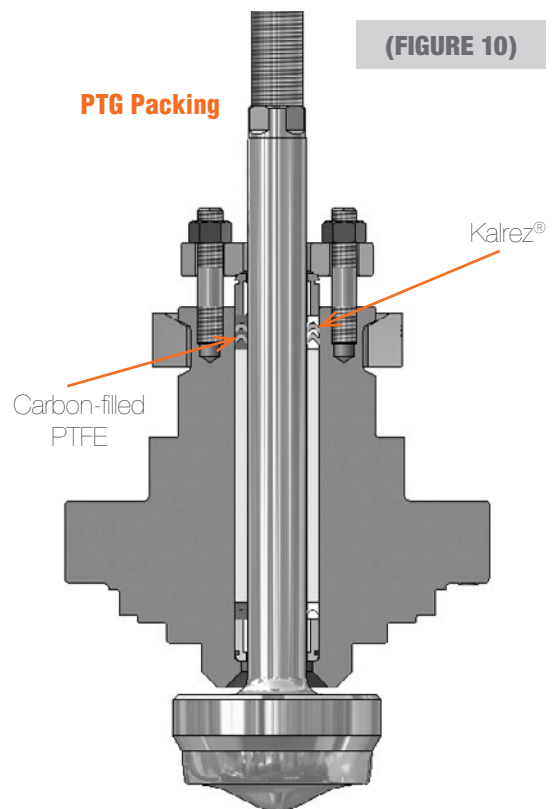
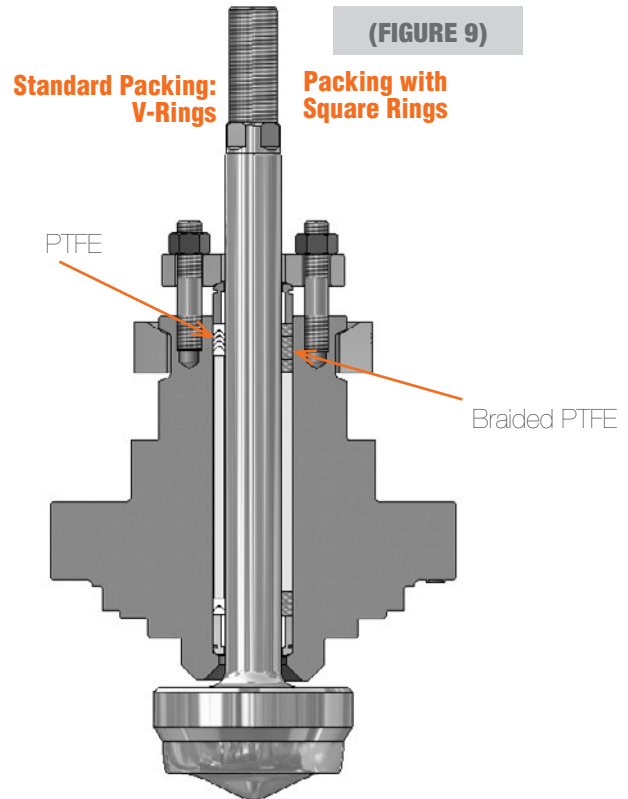
The PTG packing set meets the EPA* requirements for leaks through packings and was designed with a combination of carbon-filled PTFE “V” rings and Kalrez® “V” rings, an advanced material that provides superior performance to valve packing.

The PTG packing set achieves excellent levels of sealing – with leakage well below 500 ppm (typically 10 ppm) – required by EPA.

* EPA = U.S. Environmental Protection Agency

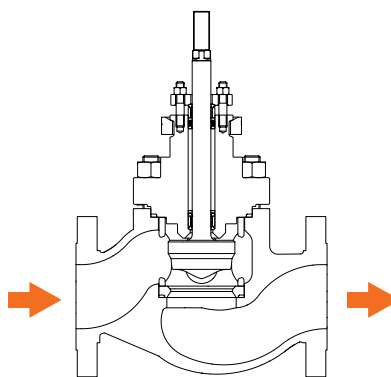
PACKING TEMPERATURE LIMITS (TABLE X)

BONNET TYPE	PACKING MATERIAL	TEMPERATURE	
		°F	°C
Standard	PTFE “V” Rings	-20 to 450	-28 to 232
	Braided PTFE	-20 to 450	-28 to 232
	PTG	-20 to 450	-28 to 232



FLOW COEFFICIENTS

FLOW DIRECTION - OVER THE PLUG



FLOW COEFFICIENTS (C_v) - EQUAL PERCENTAGE (TABLE XI)

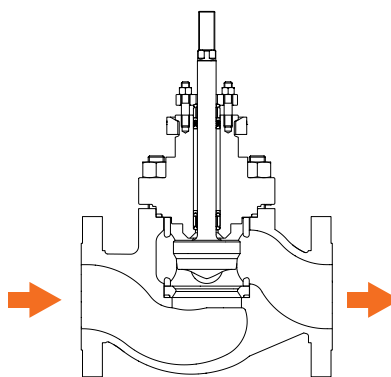
VALVE SIZE (inches)	TRIM SIZE (TN)	STROKE		C_v AT PERCENT OPEN									
		Inch	mm	100	90	80	70	60	50	40	30	20	10
1/2⁽¹⁾	21 (0.83)	0.75	19.05	14.7	13.4	10.6	7.6	4.6	3.1	2.7	1.99	1.52	1.00
	18 (0.71)	0.75	19.05	11.4	10.0	7.6	5.2	3.3	2.6	1.96	1.40	0.95	0.60
	16 (0.63)	0.75	19.05	9.1	8.4	6.6	4.6	3.0	2.3	1.58	0.95	0.59	0.32
	13 (0.51)	0.75	19.05	6.7	6.1	4.8	3.2	2.0	1.60	1.02	0.65	0.39	0.25
	10 (0.38)	0.75	19.05	4.1	3.6	2.8	1.70	1.34	0.85	0.45	0.28	0.160	0.103
	8 (0.30)	0.75	19.05	2.3	2.0	1.26	0.94	0.68	0.45	0.24	0.155	0.116	0.071
	6.5-16 (0.25-16)	0.75	19.05	1.89	1.75	1.16	0.87	0.55	0.33	0.198	0.133	0.083	0.057
	6.5-14 (0.25-14)	0.75	19.05	1.19	1.17	0.89	0.59	0.35	0.22	0.122	0.081	0.048	0.022
	6.5-12 (0.25-12)	0.75	19.05	0.65	0.65	0.51	0.33	0.21	0.122	0.078	0.050	0.025	0.008
	6.5-10 (0.25-10)	0.75	19.05	0.31	0.28	0.22	0.155	0.101	0.077	0.053	0.032	0.020	0.007
1.5	35 (1.38)	0.75	19.05	36	33	28	20	13.3	8.7	6.5	4.6	3.0	2.0
	27 (1.07)	0.75	19.05	19.9	18.0	15.1	11.3	7.4	4.7	3.4	2.5	1.63	1.10
	21 (0.83)	0.75	19.05	11.8	10.5	8.2	5.8	3.7	2.4	1.62	0.97	0.63	0.30
	18 (0.71)	0.75	19.05	9.9	8.7	6.8	4.8	3.1	2.0	1.35	0.81	0.53	0.25
	16 (0.63)	0.75	19.05	8.3	7.2	5.6	3.9	2.7	1.79	1.22	0.68	0.42	0.23
	13 (0.51)	0.75	19.05	6.0	5.2	4.0	2.9	1.95	1.30	0.88	0.49	0.31	0.169
	10 (0.38)	0.75	19.05	3.6	2.8	1.89	1.39	1.21	0.85	0.57	0.30	0.178	0.107
	8 (0.30)	0.75	19.05	1.99	1.55	1.06	0.78	0.68	0.48	0.32	0.166	0.100	0.060
2	46 (1.80)	0.75	19.05	48	43	35	26	16.9	11.8	9.4	6.2	4.0	2.7
	35 (1.38)	0.75	19.05	35	31	25	18.0	11.6	7.5	5.9	4.1	2.6	1.76
	27 (1.07)	0.75	19.05	21	18.6	15.4	11.3	7.5	4.7	3.3	2.5	1.59	1.07
	21 (0.83)	0.75	19.05	13.1	11.8	9.4	6.7	4.2	2.7	2.1	1.40	0.90	0.62
	18 (0.71)	0.75	19.05	9.4	8.4	6.5	4.5	2.8	2.1	1.50	0.93	0.55	0.33
3	72 (2.83)	1.50	38.10	117	106	95	85	67	43	25	18.1	11.4	6.5
	56 (2.20)	1.50	38.10	84	78	71	59	43	26	14.3	9.4	6.8	4.0
	46 (1.80)	1.50	38.10	62	54	43	28	18.7	12.4	9.9	6.7	4.3	3.0
4	94 (3.70)	1.50	38.10	185	174	159	134	99	59	36	27	20	13.3
	72 (2.83)	1.50	38.10	142	132	119	95	67	42	26	17.5	12.2	7.9
	56 (2.20)	1.50	38.10	101	93	80	61	39	23	14.5	11.3	7.2	4.5

(1) For size 0.5 in., the largest trim size available is 0.51" (T.N.13).

(2) For size 0.75 in., the largest trim size available is 0.71" (T.N.18).

FLOW COEFFICIENTS

FLOW DIRECTION - UNDER THE PLUG



FLOW COEFFICIENTS (C_v) - EQUAL PERCENTAGE (TABLE XII)

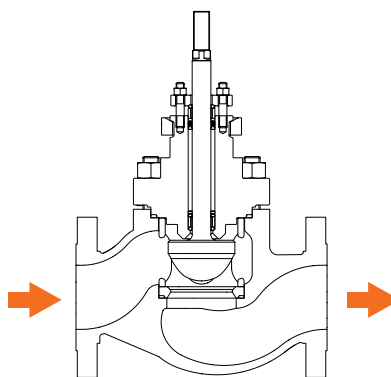
VALVE SIZE (inches)	TRIM SIZE (TN)	STROKE		C_v AT PERCENT OPEN									
		Inch	mm	100	90	80	70	60	50	40	30	20	10
1/2⁽¹⁾	21 (0.83)	0.75	19.05	12.7	11.8	8.3	5.8	3.6	2.4	1.60	1.07	0.72	0.48
	18 (0.71)	0.75	19.05	10.4	9.6	6.8	4.8	3.0	1.96	1.31	0.88	0.59	0.39
	16 (0.63)	0.75	19.05	8.6	8.5	6.4	4.4	2.8	1.80	1.24	0.76	0.46	0.27
	13 (0.51)	0.75	19.05	6.3	6.0	4.9	3.0	1.94	1.25	0.80	0.49	0.32	0.190
	10 (0.38)	0.75	19.05	3.6	3.4	2.6	1.68	1.08	0.68	0.41	0.26	0.157	0.094
	8 (0.30)	0.75	19.05	2.1	1.82	1.24	0.83	0.52	0.34	0.197	0.137	0.095	0.061
	6.5-16 (0.25-16)	0.75	19.05	1.80	1.72	1.21	0.80	0.45	0.29	0.185	0.118	0.076	0.049
	6.5-14 (0.25-14)	0.75	19.05	1.16	1.15	0.75	0.49	0.31	0.181	0.110	0.063	0.034	0.013
	6.5-12 (0.25-12)	0.75	19.05	0.64	0.64	0.63	0.38	0.22	0.128	0.079	0.047	0.021	0.006
	6.5-10 (0.25-10)	0.75	19.05	0.30	0.30	0.29	0.176	0.104	0.060	0.037	0.022	0.010	0.003
1.5	35 (1.38)	0.75	19.05	32	30	26	17.0	11.4	7.3	4.7	3.1	1.99	1.35
	27 (1.07)	0.75	19.05	23	23	17.7	11.3	6.9	4.7	3.1	1.98	1.37	0.941
	21 (0.83)	0.75	19.05	14.6	12.7	8.6	5.6	4.1	2.4	1.46	0.85	0.54	0.30
	18 (0.71)	0.75	19.05	10.7	9.3	6.3	4.1	3.0	1.75	1.07	0.63	0.40	0.22
	16 (0.63)	0.75	19.05	9.0	7.4	5.6	4.7	2.9	1.72	0.98	0.70	0.39	0.24
	13 (0.51)	0.75	19.05	6.6	5.4	4.1	3.4	2.1	1.25	0.71	0.51	0.28	0.175
	10 (0.38)	0.75	19.05	3.6	3.2	1.92	1.29	0.87	0.59	0.36	0.23	0.140	0.087
	8 (0.30)	0.75	19.05	2.0	1.77	1.08	0.73	0.49	0.33	0.199	0.127	0.079	0.049
2	46 (1.80)	0.75	19.05	49	47	43	31	17.0	10.9	7.3	4.8	3.2	2.3
	35 (1.38)	0.75	19.05	34	33	27	17.6	11.3	7.3	4.9	3.2	2.1	1.41
	27 (1.07)	0.75	19.05	24	23	18.7	12.1	7.1	4.9	3.1	1.99	1.35	0.93
	21 (0.83)	0.75	19.05	14.7	14.4	10.6	6.6	4.3	2.8	1.78	1.14	0.78	0.51
	18 (0.71)	0.75	19.05	10.6	10.4	7.6	4.8	3.1	1.99	1.29	0.82	0.56	0.37
3	72 (2.83)	1.50	38.10	121	113	103	99	80	40	24	14.3	8.7	5.0
	56 (2.20)	1.50	38.10	88	83	76	68	46	27	14.6	9.3	5.6	3.5
	46 (1.80)	1.50	38.10	58	56	50	33	21	13.5	8.8	5.7	3.8	2.6
4	94 (3.70)	1.50	38.10	201	189	173	161	118	59	37	25	15.8	10.9
	72 (2.83)	1.50	38.10	142	131	119	107	72	45	29	18.6	11.1	7.3
	56 (2.20)	1.50	38.10	95	87	79	65	40	25	16	10.1	6.1	4.1

(1) For size 0.5 in., the largest trim size available is 0,51" (T.N.13).

(2) For size 0.75 in., the largest trim size available is 0,71" (T.N.18).

FLOW COEFFICIENTS

FLOW DIRECTION - OVER THE PLUG

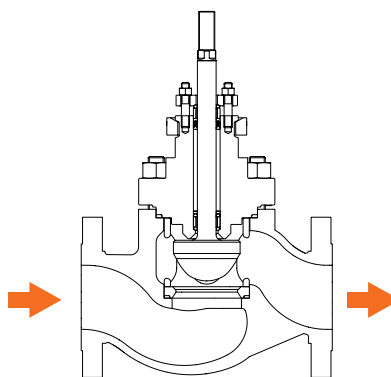


FLOW COEFFICIENTS (C_v) - EQUAL PERCENTAGE (TABLE XI)

VALVE SIZE (inches)	TRIM SIZE (TN)	STROKE		C_v AT PERCENT OPEN									
		Inch	mm	100	90	80	70	60	50	40	30	20	10
1/2⁽¹⁾	21 (0.83)	0.75	19.05	17.4	16.8	16.1	15.1	13.5	10.8	8.3	6.1	3.6	1.87
	18 (0.71)	0.75	19.05	13.4	13.0	12.2	10.8	9.0	7.3	5.7	4.3	2.7	1.22
	16 (0.63)	0.75	19.05	9.4	9.2	8.8	8.5	7.9	6.4	5.1	3.9	2.5	1.34
	13 (0.51)	0.75	19.05	7.6	7.3	6.7	6.1	5.3	4.4	3.6	2.6	1.85	0.82
	10 (0.38)	0.75	19.05	4.6	4.5	4.3	3.7	3.3	2.9	2.2	1.74	1.13	0.52
	8 (0.30)	0.75	19.05	2.4	2.3	2.1	1.89	1.73	1.46	1.13	0.87	0.57	0.29
3/4⁽²⁾	6.5-58 (0.25-58)	0.75	19.05	1.87	1.84	1.79	1.60	1.38	1.17	0.92	0.66	0.42	0.176
	6.5-56 (0.25-56)	0.75	19.05	1.45	1.36	1.22	1.11	0.95	0.82	0.68	0.50	0.35	0.189
	6.5-46 (0.25-46)	0.75	19.05	0.49	0.47	0.43	0.38	0.31	0.26	0.21	0.149	0.092	0.050
	6.5-42 (0.25-42)	0.75	19.05	0.30	0.27	0.25	0.22	0.191	0.164	0.134	0.101	0.068	0.035
	6.5-34 (0.25-34)	0.75	19.05	0.150	0.140	0.120	0.110	0.098	0.085	0.072	0.059	0.046	0.032
	6.5-26 (0.25-26)	0.75	19.05	0.053	0.045	0.038	0.031	0.025	0.019	0.013	0.008	0.004	0.001
1	6.5-12 (0.25-12)	0.75	19.05	0.014	0.012	0.010	0.008	0.006	0.005	0.003	0.002	0.001	0.000
	35 (1.38)	0.75	19.05	32	31	29	26	24	20	16.5	12.6	8.2	3.8
	27 (1.07)	0.75	19.05	23	23	21	19.7	17.6	15.1	12.3	9.3	6.0	2.8
	21 (0.83)	0.75	19.05	16.1	15.7	15.0	13.9	12.3	10.4	8.3	6.2	4.0	2.1
	18 (0.71)	0.75	19.05	12.1	11.6	10.7	9.1	7.7	6.2	4.9	3.8	2.4	1.31
	16 (0.63)	0.75	19.05	10.9	10.5	9.6	8.2	7.0	5.6	4.5	3.5	2.2	1.18
	13 (0.51)	0.75	19.05	7.5	7.4	6.5	5.6	5.0	4.4	3.6	2.8	1.92	0.96
	10 (0.38)	0.75	19.05	4.6	4.5	4.0	3.5	3.0	2.7	2.2	1.70	1.17	0.59
	8 (0.30)	0.75	19.05	2.4	2.3	2.1	1.90	1.75	1.48	1.22	0.93	0.61	0.28
1.5	46 (1.80)	0.75	19.05	54	52	49	46	41	35	28	21	13.4	6.2
	35 (1.38)	0.75	19.05	36	34	32	30	26	23	17.9	13.4	8.6	4.2
	27 (1.07)	0.75	19.05	25	24	23	21	18.8	15.9	12.7	9.4	6.0	2.8
	21 (0.83)	0.75	19.05	16.7	16.1	15.3	14.0	12.4	10.4	8.3	6.2	4.0	2.1
	18 (0.71)	0.75	19.05	11.9	11.4	10.5	8.9	7.6	6.2	4.9	3.8	2.4	1.29
	16 (0.63)	0.75	19.05	10.9	10.5	9.6	8.2	7.0	5.6	4.5	3.5	2.2	1.18
2	72 (2.83)	1.50	38.10	126	123	120	114	106	90	77	61	41	19.0
	56 (2.20)	1.50	38.10	84	82	77	73	66	57	47	35	23	13.5
	46 (1.80)	1.50	38.10	64	61	57	52	46	38	30	23	15.3	7.2
	35 (1.38)	1.50	38.10	46	44	41	38	34	29	24	19	13	6.2
3	94 (3.70)	1.50	38.10	203	193	185	173	161	139	107	70	32	16.8
	72 (2.83)	1.50	38.10	146	142	134	123	110	93	74	53	35	17.0
	56 (2.20)	1.50	38.10	115	106	97	87	76	65	53	40	27	13.7

(1) Para el diámetro de 0.5 pulgada, el mayor interno disponible es el T.N. 13 (0,51").
 (2) Para el diámetro de 0.75 pulgada, el mayor interno disponible es el T.N. 18 (0,71").

FLOW DIRECTION - UNDER THE PLUG



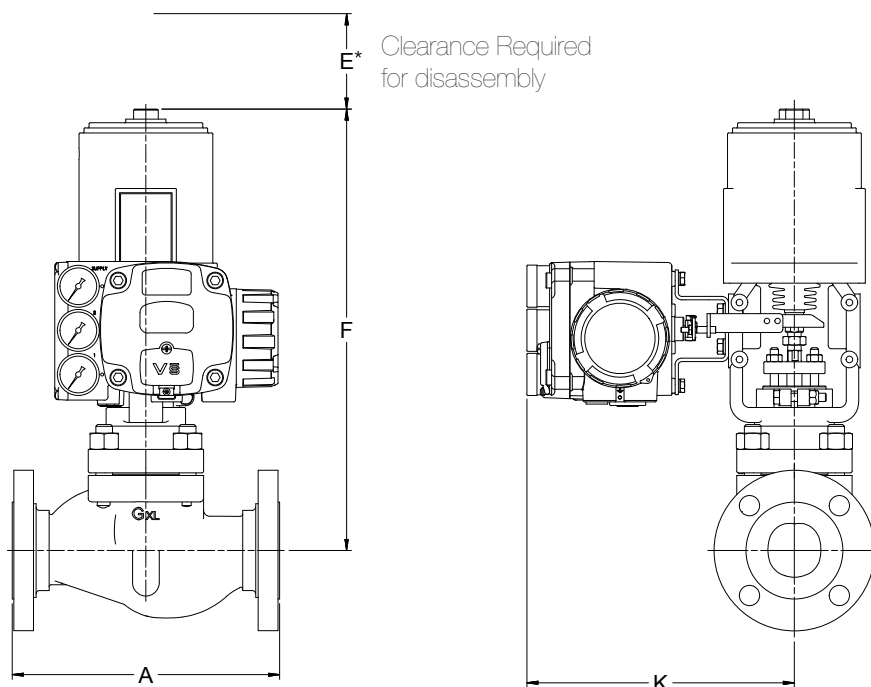
FLOW COEFFICIENTS (C_v) - EQUAL PERCENTAGE (TABELA XIV)

VALVE SIZE (inches)	TRIM SIZE (TN)	STROKE		C_v AT PERCENT OPEN									
		Inch	mm	100	90	80	70	60	50	40	30	20	10
1/2⁽¹⁾	21 (0.83)	0.75	19.05	14.8	14.8	14.3	13.0	11.6	9.6	7.8	5.9	3.7	2.1
	18 (0.71)	0.75	19.05	11.1	10.8	10.2	9.0	7.8	6.5	5.0	3.8	2.2	0.84
	16 (0.63)	0.75	19.05	9.3	9.1	8.8	8.4	7.3	6.3	4.9	3.7	2.4	1.24
	13 (0.51)	0.75	19.05	6.8	6.6	6.2	5.6	5.0	4.2	3.4	2.5	1.74	0.68
	10 (0.38)	0.75	19.05	4.2	4.1	3.6	3.3	2.9	2.5	1.94	1.44	0.98	0.38
	8 (0.30)	0.75	19.05	2.2	2.1	1.96	1.73	1.45	1.23	0.97	0.72	0.44	0.181
3/4⁽²⁾	6.5-58 (0.25-58)	0.75	19.05	1.80	1.78	1.64	1.46	1.25	1.04	0.82	0.57	0.36	0.157
	6.5-56 (0.25-56)	0.75	19.05	1.10	1.07	0.95	0.88	0.79	0.67	0.54	0.42	0.27	0.157
	6.5-46 (0.25-46)	0.75	19.05	0.48	0.46	0.43	0.37	0.31	0.26	0.21	0.146	0.085	0.035
	6.5-42 (0.25-42)	0.75	19.05	0.30	0.27	0.25	0.22	0.191	0.164	0.130	0.098	0.067	0.042
	6.5-34 (0.25-34)	0.75	19.05	0.140	0.130	0.120	0.110	0.095	0.083	0.071	0.058	0.045	0.025
	6.5-26 (0.25-26)	0.75	19.05	0.052	0.044	0.037	0.030	0.024	0.018	0.013	0.006	0.004	0.001
1	6.5-12 (0.25-12)	0.75	19.05	0.014	0.012	0.010	0.008	0.006	0.005	0.003	0.002	0.001	0.000
	35 (1.38)	0.75	19.05	33	31	30	29	27	24	19.7	15.5	10.9	5.6
	27 (1.07)	0.75	19.05	23	23	22	21	19.2	16.6	13.8	10.8	7.3	3.2
	21 (0.83)	0.75	19.05	14.8	14.5	14.0	13.5	12.4	10.9	8.8	5.9	3.5	1.73
	18 (0.71)	0.75	19.05	11.1	10.9	10.5	10.1	9.3	8.2	6.6	4.5	2.6	1.30
	16 (0.63)	0.75	19.05	10.0	8.8	7.8	6.9	6.0	5.0	4.0	3.1	2.1	1.00
	13 (0.51)	0.75	19.05	6.9	6.1	5.4	4.8	4.2	3.5	2.8	2.1	1.45	0.69
	10 (0.38)	0.75	19.05	4.3	3.7	3.3	2.9	2.5	2.1	1.66	1.24	0.85	0.43
	8 (0.30)	0.75	19.05	2.2	1.93	1.72	1.50	1.29	1.07	0.86	0.64	0.44	0.22
1.5	46 (1.80)	0.75	19.05	49	48	48	47	42	36	29	22	14.5	6.4
	35 (1.38)	0.75	19.05	36	35	32	30	27	23	18.3	14.0	9.4	3.8
	27 (1.07)	0.75	19.05	24	24	23	21	19.1	16.1	13.1	10.0	6.1	2.9
	21 (0.83)	0.75	19.05	15.5	15.2	14.8	14.3	12.9	10.9	8.8	6.0	3.5	1.69
	18 (0.71)	0.75	19.05	11.1	9.8	8.7	7.7	6.7	5.6	4.4	3.4	2.3	1.01
	16 (0.63)	0.75	19.05	10.0	8.8	7.8	6.9	6.0	5.0	4.0	3.1	2.1	1.00
2	72 (2.83)	1.50	38.10	124	122	119	114	108	96	79	60	40	19.1
	56 (2.20)	1.50	38.10	87	82	77	70	63	55	46	36	25	14.6
	46 (1.80)	1.50	38.10	58	56	51	47	41	37	32	25	17.0	7.3
	35 (1.38)	0.75	19.05	36	35	32	30	27	23	18.3	14.0	9.4	3.8
	27 (1.07)	0.75	19.05	24	24	23	21	19.1	16.1	13.1	10.0	6.1	2.9
3	21 (0.83)	0.75	19.05	15.5	15.2	14.8	14.3	12.9	10.9	8.8	6.0	3.5	1.69
	18 (0.71)	0.75	19.05	11.1	9.8	8.7	7.7	6.7	5.6	4.4	3.4	2.3	1.01
	16 (0.63)	0.75	19.05	10.0	8.8	7.8	6.9	6.0	5.0	4.0	3.1	2.1	1.00
4	94 (3.70)	1.50	38.10	205	197	186	173	159	141	119	94	65	34
	72 (2.83)	1.50	38.10	143	137	126	113	98	85	69	57	37	17.1
	56 (2.20)	1.50	38.10	100	94	87	80	72	62	51	39	26	13.7

(1) For size 0.5 in., the largest trim size available is 0,51" (T.N.13).

(2) For size 0.75 in., the largest trim size available is 0,71" (T.N.18).

DIMENSIONS - VALVE WITH ACTUATOR AND CHRONOS POSITIONER



DIMENSIONS (TABLE XV)

Valve Size (inches)	A				F						K						E*	
	ANSI Class				Actuator size						Actuator size						Clearance Required for disassembly	
	150		300		15		25		50		15		25		50			
	inch	mm	inch	mm	inch	mm	inch	mm	pul	mm	inch	mm	inch	mm	inch	mm	inch	mm
0.5	7.3	184	7.5	191	16.1	410					10.2	260					3.8	97
0.75	7.3	184	7.6	194	16.1	410					10.2	260					3.8	97
1	7.3	184	7.8	197	16.1	410					10.2	260					3.8	97
1.5	8.8	222	9.3	235	16.5	420	17.5	445			10.2	260	11.0	280			6.0	152
2	10.0	254	16.5	267	16.5	420	17.5	445			10.2	260	11.0	280			6.0	152
3	11.8	298	12.5	318			20.4	518	23.5	597			11.0	280	11.1	282	8.0	203
4	13.9	353	14.5	368					24.7	628					11.1	282	8.0	203

*Free space required to disassembly the standard actuator.

The information and specification contained in this bulletin are considered accurate. However, they are provided only for information purposes and should not be considered as certified. Valtek Sulamericana products are continuously improved and upgraded and the specification, dimensions and information contained herein are subject to change without notice. For further information or to confirm

these presented here, contact your Valtek Sulamericana representative. The specific instructions for installation, operation and maintenance of the G_XL-Chronos control valve are provided in Maintenance Bulletin #2. For Chronos positioner see the Maintenance Bulletin #42.

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