

501T
511T

KOSO

**TOP GUIDED
CONTROL VALVE**



Standard Specifications

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KOSO is a leading industrial customized control valve manufacturer with strong in-house R&D capabilities. Committed to delivering high-quality, ISO-9001 certified valve systems, KOSO offers a wide range of products designed to meet evolving industry needs.

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Installed Worldwide



2

Wholly
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► Overview

The series 501T (Globe) / 511T (Angle) is our advanced top guided control valve configured with both unbalanced and balanced designs. This series can offer small and large flow capacities, suitable to various control applications. For severe duty applications that cannot be covered by this series, Multi-hole cage guided 550G / 560G series and KOSO Vector™ Series are available for selection.

► Key Features & Benefits

High Trim Capacity & Flow Capacity	High range of trim Cv per valve size can be achieved by this top guided valve. This results into high flow capacity per size of the valve.
Solids Application	Suitable for services with solid particles.
Tight Shutoff	Tight shut off shall be achieved easily.
Fine Flow Control	Excellent flow control rangeability can be achieved with contoured plug design.
Easy Maintenance	All internal components are removable from the top.

► Product specifications

Design Standard & Material Standard	<ul style="list-style-type: none"> Valve design - ASME B16.34 Flange design - ASME B16.5 & ASME B16.47 Butt weld end connection - ASME B16.25 Socket weld end connection - ASME B16.11 Material compliance to ASME, ASTM, EN or Custom standards
Industry Served	<ul style="list-style-type: none"> Power, Oil & Gas, FPSO, Onshore, Offshore, LNG, Fertilizer, Steel, Refinery, Petrochemical
Quality Standard Compliance	<ul style="list-style-type: none"> Quality management system as per ISO 9001 Quality management system as per API Spec Q1 PED/CE as per 2014/68/EU & ATEX 2014/34/EU
Type of Actuation	<ul style="list-style-type: none"> Pneumatic actuator, Hydraulic actuator, Electrical actuator
Key Applications	<ul style="list-style-type: none"> On-off isolation valve, Drain valve, Cryogenic valve, High temperature valve
Certification	<ul style="list-style-type: none"> IBR, SIL, PED/CE Marking, ATEX, CRN, TRCU

► Standard Specification

► 501T / 511T Top Guided Control Valve Body & Trims

Series	501T - Globe / 511T - Angle
Body Size	Unbalanced plug type 0.5" ~ 8" (DN 15-DN 200) (ASME Class 150, 300, 600) Balanced plug type 5" ~ 8" (DN 125-DN 200) (ASME Class 150, 300, 600) Unbalanced plug type 1" ~ 4" (DN 25-DN 100) (ASME Class 900,1500, 2500) (For higher sizes, consult with factory)
Plug Form	P-port single seated, Q-Port single seated
Characteristics	Linear, EQ%, On-Off
Trim Material & Treatment	300 Series, 400 Series, 17-4 PH, Alloy steels, Duplex SS, Alloy 625, Alloy 825, Monel, Hastelloy C, Special Hardening treatment - Stellite overlay, (Stellite Seat - SS / Stellite Face - SF).
Body Rating	ASME Class 150, 300, 600, 900, 1500 & 2500 (For EN Class or PN Class, consult with factory).
Body Connections	Flanged (RF, FF, RTJ), Weld ends (Socket weld end : 2 and below, Butt weld end : 3 and above)
Face to Face Dimension	ISA / KOSO Standard / Special (Consult with factory)
Body & Bonnet Material	WCB, WCC, WC6, WC9, C5, C12A, LCC, LCB, CF8, CF8M, CF3M, CF8C, Duplex SS, Alloy 625, Alloy 825, Monel, Hastelloy C and Copper alloy Steels. Cladding on body internal is available upon request.
NACE (as applicable)	NACE MR0175, NACE MR0103
Bonnet Types	Standard type: -17 °C ~ +230 °C, Fin-Extension type: -45 °C ~ -17 °C, or above +230 °C, Long-Extension type: -196 °C ~ -45 °C, Option: Bellow-seal bonnet. (Note : The above temperature limits are based on operating conditions).
Gland Packing	TFE V-ring, TFE carbon fiber, Grafoil and more
Gasket	Grooved metal gaskets (soft steel, stainless steel or other alloy steels)
Leakage Class	ANSI / FCI 70-2 Class IV , V or VI and MSS-SP-61
Special Testing Requirements (Optional upon request)	FE Prototype test as per ISO 15848-1, Class A, B, C, FE Production test as per ISO 15848-2, Class A, B, C, CV Test, Helium leak Test, High pressure Test, Low temperature test, Cryogenic test, Vacuum test.
Marking	As per KOSO standard practices / MSS-SP-25
Options	Forging Body/Bonnet, Steam jacketing, Silencer.

► Body & Trim Sectional View

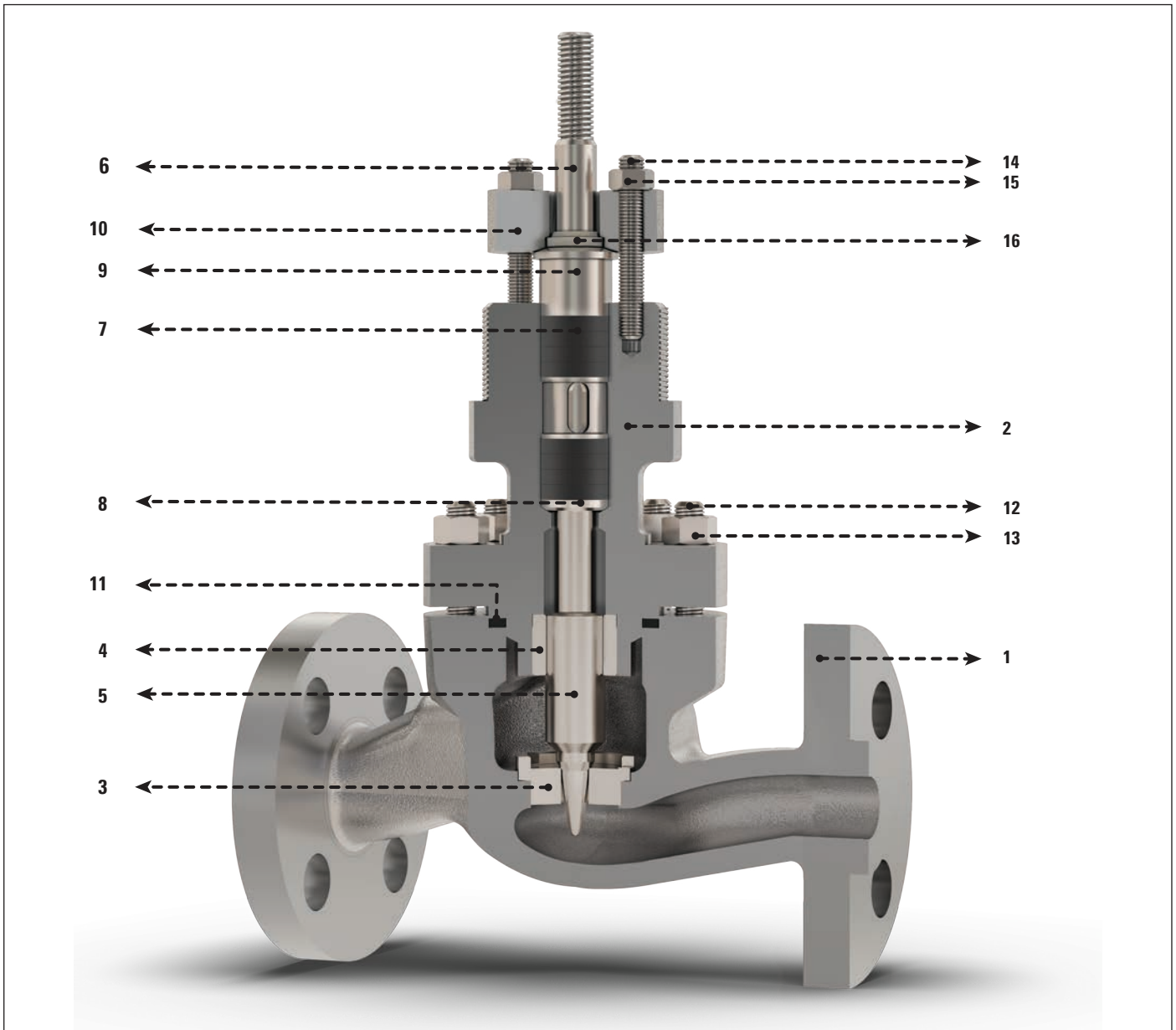


Figure 1: 501T - Globe Valve Body Trim Sectional View

SR.NO.	LABEL
1	BODY
2	BONNET
3	SEAT RING
4	GUIDE
5	PLUG
6	STEM
7	GLAND PACKING
8	PACKING SEAT

SR.NO.	LABEL
9	GLAND RING
10	GLAND FLANGE
11	GASKET
12	BODY STUD BOLT
13	NUT
14	GLAND STUD BOLT
15	NUT
16	WIPER

► **Table 1 : Cv Value - 501T Globe Valve - Pressure Class 150#, 300#, 600#**

Nominal Valve size Inch (mm)	Nominal Trim size mm	Travel, mm	Plug Type	Linear	EQ%	Quick Open
½ (15)	6	12	Unbalanced	0.28	0.28	
	7		Unbalanced	0.52	0.52	
	8		Unbalanced	0.96	0.96	
	9	20	Unbalanced	1.6	1.6	
	10		Unbalanced	2.5	2.5	
	15		Unbalanced	4	4	
	15	16	Unbalanced			
¾ (20)	6	12	Unbalanced	0.28	0.28	
	7		Unbalanced	0.52	0.52	
	8		Unbalanced	0.96	0.96	
	9	20	Unbalanced	1.6	1.6	
	10		Unbalanced	2.5	2.5	
	15		Unbalanced	4	4	
	20		Unbalanced	8	8	
	20	16	Unbalanced			
1 (25)	6	12	Unbalanced	0.28	0.28	
	7		Unbalanced	0.52	0.52	
	8		Unbalanced	0.96	0.96	
	9	20	Unbalanced	1.6	1.6	
	10		Unbalanced	2.5	2.5	
	15		Unbalanced	4	4	
	20		Unbalanced	8	8	
	25	16	Unbalanced	13	13	
	25		Unbalanced			
1 1/2 (40)	10	20	Unbalanced	2.5	2.5	
	15		Unbalanced	4	4	
	20		Unbalanced	8	8	
	25		Unbalanced	13	13	
	32		Unbalanced	20	20	
	40		Unbalanced	25	25	
	40	16	Unbalanced			
2 (50)	20	20	Unbalanced	8	8	
	25		Unbalanced	13	13	
	32		Unbalanced	20	20	
	40		Unbalanced	25	25	
	50		Unbalanced	45	45	
	50	16	Unbalanced			
2 1/2 (65)	25	30	Unbalanced	13	13	
	32		Unbalanced	20	20	
	40		Unbalanced	25	25	
	50		Unbalanced	45	45	
	65		Unbalanced	72	72	
	65	20	Unbalanced			

► **Table 1 : Cv Value - 501T Globe Valve - Pressure Class 150#, 300#, 600# (Continued)**

Nominal Valve size Inch (mm)	Nominal Trim size mm	Travel, mm	Plug Type	Linear	EQ%	Quick Open
3 (80)	32	20	Unbalanced	20	20	
	40		Unbalanced	25	25	
	50		Unbalanced	45	45	
	65		Unbalanced	72	72	
	80		Unbalanced	100	100	
	80	16	Unbalanced			135
4 (100)	50	40	Unbalanced	45	45	
	65		Unbalanced	72	72	
	80		Unbalanced	100	100	
	100		Unbalanced	175	175	
	100	30	Unbalanced			220
5 (125)	65	50	Unbalanced	75	75	
	80		Unbalanced	100	100	
			Balanced			
	100		Unbalanced	175	175	
			Balanced			
	125		Unbalanced	280	280	
		Balanced				
	40	Unbalanced			330	
Balanced						
6 (150)	80	50	Unbalanced	100	100	
			Balanced			
	100		Unbalanced	175	175	
			Balanced			
	125		Unbalanced	280	280	
			Balanced			
	150	Unbalanced	365	365		
		Balanced				
	40	Unbalanced			460	
		Balanced				
8 (200)	100	70	Unbalanced	175	175	
			Balanced			
	125		Unbalanced	280	280	
			Balanced			
	150		Unbalanced	365	365	
			Balanced			
	200	Unbalanced	640	640		
		Balanced				
	60	Unbalanced			720	
		Balanced				



Note: The given Cv are for standard valve and trim combinations. KOSO has done extensive developments and tests for extended Cv ranges. Please contact us for custom Cv ranges.

► **Table 2: Cv Value - 501T Globe Valve - Pressure Class 900#, 1500#**

Nominal Valve size Inch (mm)	Nominal Trim size mm	Travel, mm	Plug Type	Linear	EQ%
¾ (20)	10	20	Unbalanced	2.5	2.5
	15		Unbalanced	4	4
1 (25)	6	12	Unbalanced	0.28	0.28
	7		Unbalanced	0.52	0.52
	8		Unbalanced	0.96	0.96
	9	20	Unbalanced	1.6	1.6
	10		Unbalanced	2.5	2.5
	15		Unbalanced	4	4
	20		Unbalanced	8	8
	25		Unbalanced	13	13
1 1/2(40)	15	20	Unbalanced	4	4
	20		Unbalanced	8	8
	25		Unbalanced	13	13
	32		Unbalanced	20	20
	40		Unbalanced	25	25
2 (50)	20	20	Unbalanced	8	8
	25		Unbalanced	13	13
	32		Unbalanced	20	20
	40		Unbalanced	25	25
	50		Unbalanced	45	45
3 (80)	40	30	Unbalanced	25	25
	50		Unbalanced	45	45
	65		Unbalanced	72	72
	80		Unbalanced	100	100
4 (100)	50	30	Unbalanced	45	45
	65	40	Unbalanced	72	72
	80		Unbalanced	100	100
	100		Unbalanced	175	175



Note: The given Cv are for standard valve and trim combinations. KOSO has done extensive developments and tests for extended Cv ranges. Please contact us for custom Cv ranges.

► **Table 3: Cv Value - 501T Globe Valve - Pressure Class 2500#**

Nominal Valve size Inch (mm)	Nominal Trim size mm	Travel, mm	Plug Type	Linear	EQ%
1 (25)	6	12	Unbalanced	0.28	0.28
	7		Unbalanced	0.52	0.52
	8		Unbalanced	0.96	0.96
	9	20	Unbalanced	1.6	1.6
	10		Unbalanced	2.5	2.5
	15		Unbalanced	4	4
	20		Unbalanced	8	8
1 ½ (40)	15	20	Unbalanced	4	4
	20		Unbalanced	8	8
	25		Unbalanced	13	13
	32		Unbalanced	20	20
2 (50)	20	20	Unbalanced	8	8
	25		Unbalanced	13	13
	32		Unbalanced	20	20
	40		Unbalanced	25	25
3 (80)	40	30	Unbalanced	25	25
	50		Unbalanced	45	45
	65		Unbalanced	72	72
4 (100)	50	30	Unbalanced	45	45
	65	40	Unbalanced	72	72
	80		Unbalanced	100	100



Note: The given Cv are for standard valve and trim combinations. KOSO has done extensive developments and tests for extended Cv ranges. Please contact us for custom Cv ranges.

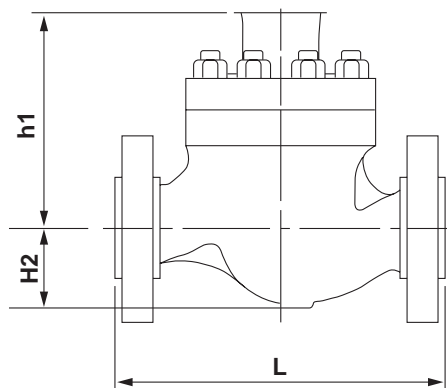
► **Table 4 : Dimension details - 501T Globe Valve - Pressure Class 150#, 300#, 600#**

Body Size	Face to Face: L							H2			Standard Bonnet	Fin Extension
	ASME 150# RF	ASME 300# RF	ASME 600# RF	ASME 300# BW/SW	ASME 300# RTJ	ASME 600# BW	ASME 600# RTJ	ASME 150#	ASME 300#	ASME 600#	h1	h1
1/2	184	194	206	206	206	206	206	32	32	32	129	229
3/4	184	194	206	206	206	206	206	32	32	32	129	229
1	184	197	210	210	210	210	210	36	36	36	129	229
1 1/2	222	235	251	251	248	251	251	58	58	58	175	325
2	254	267	286	286	283	286	289	62	62	62	175	325
2 1/2	276	292	311	311	308	311	314	75	75	75	200	350
3	298	317	337	317	333	337	340	85	85	85	200	350
4	352	368	394	368	384	394	397	105	105	105	245	395
5	403	425	460	425	441	460	463	130	140	170	285	435
6	451	473	508	473	489	508	511	145	165	180	290	440
8	543	568	610	568	584	610	613	180	195	215	355	505

► **Table 5 : Dimension details - 501T Globe Valve - Pressure Class 900#, 1500#, 2500#**

Body Size	Face to Face: L						H2			Standard Bonnet	Fin Extension
	ASME 900# BW/RF	ASME 900# RTJ	ASME 1500# BW/RF	ASME 1500# RTJ	ASME 2500# BW/RF	ASME 2500# RTJ	ASME 150#	ASME 300#	ASME 600#	h1	h1
1	292	292	292	292	450	450	52	52	90	235	335
1 1/2	333	333	333	333	450	450	72	72	90	275	425
2	375	378	375	378	437	440	93	93	130	280	430
3	440	443	460	463	498	505	125	125	140	350	500
4	510	513	530	533	566	575	132	132	250	420	570

All dimensions are in mm



Note: Above dimensions are approximate and subjected to change during the detailed engineering.

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