SCORE GT

套筒导向型三通调节阀 3-Way Cage Guided Control Valves

应用 Application

SCORE 的 GT 系列套筒导向型三通控制阀采用平衡型或者不平衡型阀芯、套筒导向，可用于各类流体的调节和开关控制，GT100/GT200 是不平衡阀芯、公用口在直路上，而 GT300/GT400 是平衡型阀芯、公用口在旁路上。GT100/GT300 用于分流控制而 GT200/GT400 用于三通合流控制。

三通分流阀是将一路流体分为两路流体，三通合流阀是将两路流体混合成一路流体。

SCORE GT serial is 3-way control valves have balanced or unbalanced valve plugs and cage guiding for throttling or on-off service, GT100/GT200 is unbalanced plug which the common port is in straight line and GT300/GT400 is balanced plug which the common port is bypass port (bottom), while GT100/GT300 is for diverting service and GT200/GT400 is for mixing service.

Diverting type that divides the flow into two directions and mixing type that converges two flows into one are available.

特点 Features

- 第三代的 S 型流畅的铸造阀体型腔，从第二代的等截面设计经过 CFD（计算流体动力学）分析改良为更合理高效的等平均流通能力流道，从而获得最大的流通能力来节约期初投资。
- 阀体和上阀盖通过双头螺柱压紧成为整体，设计规范符合 ASME Ⅷ。
- 坚固的套筒导向为阀芯上下运动提供高度的稳定性，降低了震动和机械噪音。
- 标准的快速更换阀内件更便于现场维护，即使阀门在管线上，也可以很容易地从阀体中取下所有的阀内件。
- GT100 和 GT200、GT300 和 GT400 只要改变流向，即可实现分流和合流的功能切换。
- 可选择符合 NACE0175-2003 抗硫化；
- 可选择高性能的填料加上动态补偿碟簧，大大降低了阀门填料函逸散泄漏的可能，符合 API-622 低逸散规范。
- S shape smooth profile cast body is third- generation design of equal average-flowrate with CFD (Computational fluid Dynamics) after second generation of equal-section design. So GT provide more flow capacity and low initial investment.

SCORE GT100 带 D100LA 执行机构
SCORE GT100 Valve with D100LA actuator

- High integrity body/bonnet bolting system design to ASME Ⅷ.
- Clamped cage guiding provides high valve plug stability, which reduces vibration and mechanical noise.
- Maintenance is more easy because of standard quick-change trim, the valve can stay in the pipeline during removal of trim parts.
- GT100 and GT200, GT300 and GT400 is easy to be changed to each other by changing the flow direction of body.
- Meeting NACE MR0175-2003 for sulfide cracking resistance is optional.
- High performance packing with live-loading spring to fit with low fugitive emissions API-622 is optional.

GT 阀门工程参数 Engineering Date of SCORE GT

公称通径	**End Connection Sizes**	1”~24” (DN25~DN600)	
公称压力	**Valve Body Ratings**	ANSI 150#, 300#, 600#, 900#, 1500#, 2500# JB/T79.1-94 & HG20592-2009 PN1.6Mpa ; JB/T79.2-94 & HG20592-2009 PN4.0, 6.3, 10, 16, 25MPa	
连接方式	**End Connection Styles**	法兰式（RF、RTJ、凹凸式）、焊接式（SW ：2”及 2”以下，BW） Flanged (RF, RTJ, MFM), weld ends (SW: 2” and under, BW)	
设计标准	**Design Standards**	ASME B16.34-2009, ASME Section Ⅷ-1,2 (for body/bonnet bolting) GB/T 4213-2008, JB/T79.1-94, JB/T79.2-94, HG20592-2009	
法兰距	**Body Face to Face Dimensions**	IEC60534-2006, ISA-75.03-1992, ISA-75.08.06-2002	
阀内件形式	**Trim Form**	GT100/200 压力不平衡型阀芯 GT300/400 压力平衡型阀芯	GT100/200 Pressure unbalanced plug type GT300/400 Pressure balanced plug type
流量特性	**Characteristics**	线性、等百分比、开关	Linear, Equal percentage or On-off
可调比 R	**Rangeability**	50:1	
阀座泄漏量	**Seat Leakage**	金属阀座标准为 ANSI/FCI 70.2. Class Ⅳ， 可选用 Class Ⅴ， 软阀座为 Class Ⅵ。	ANSI/FCI 70.2. Class Ⅳ as standard, Class V is option, Class Ⅵ with soft seat insert
上阀盖形式	**Bonnet Styles**	标准型 Standard Type：	-17~+230℃
		加长型 Extension Type：	-45~-17℃ & ≥+230℃
		低温型Ⅰ Cryogenic type Ⅰ：	-100~-45℃
		低温型Ⅱ Cryogenic type Ⅱ：	-196~-100℃
		波纹管密封型	Bellows Seal Type
		蒸汽夹套型	Steam Jacket Type
上阀盖填料	**Bonnet Packing**	强化聚四氟乙烯 V 型填料，聚四氟乙烯&柔性石墨编织型填料、柔性石墨填料。 Reinforced Teflon V-ring, Teflon & Graphite Fiber Braided Packing , Graphite Packing (EVSP9000)	
垫圈	**Gasket**	缠绕式垫圈（柔性石墨/A240-316L、聚四氟乙烯/A240-316L）。 Spiral wound metal with Graphite or Teflon.	
表面涂层色	**Paint**	艳蓝（聚氨酯）和其他环氧树脂处理均可，不锈钢阀体材质时不需油漆。 Gorgeous blue RAL5018 (polyurethanes group) and other expoxy finishes is available. NO painting is standard for stainless steel body.	

阀体材质的温度-压力使用范围
Working Pressure-Temperature Ratings for Body Material

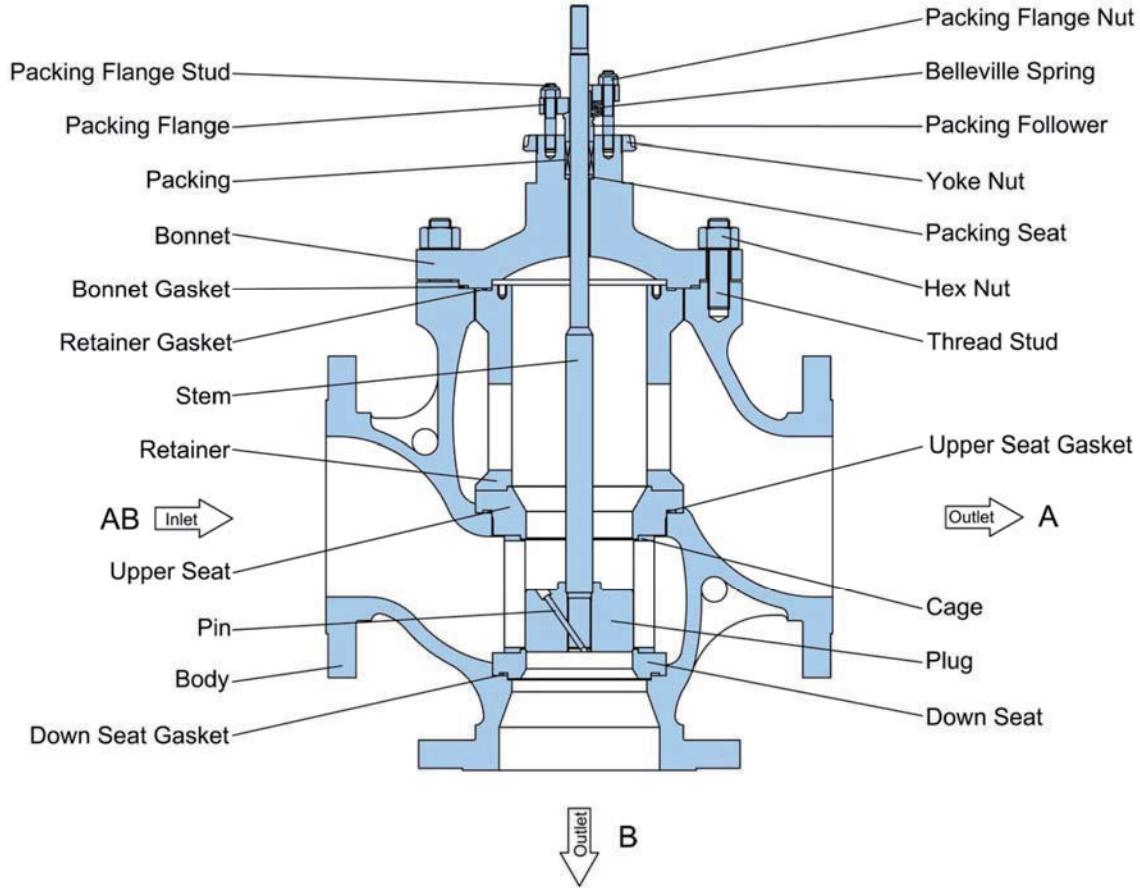
温度	ANSI Class 150							ANSI Class 300							ANSI Class 600						
Temp.	LCB	WCB	C5	WC6	WC9	CF8	CF8M	LCB	WCB	C5	WC6	WC9	CF8	CF8M	LCB	WCB	C5	WC6	WC9	CF8	CF8M
℃		A105	F5a	F11	F22	F304	F316		A105	F5a	F11	F22	F304	F316		A105	F5a	F11	F22	F304	F316
-196~-45	—	—	—	—	—	1.90	1.90	—	—	—	—	—	4.96	4.96	—	—	—	—	—	9.93	9.93
-45~-29	1.84	—	—	—	—	1.90	1.90	4.80	—	—	—	—	4.96	4.96	9.60	—	—	—	—	9.93	9.93
-29~38	1.84	1.96	2.00	1.98	1.98	1.90	1.90	4.80	5.11	5.17	5.17	5.17	4.96	4.96	9.60	10.21	10.34	10.34	10.34	9.93	9.93
50	1.82	1.92	1.95	1.95	1.95	1.83	1.84	4.75	5.01	5.17	5.17	5.17	4.78	4.81	94.9	10.02	10.34	10.34	10.34	9.56	9.62
100	1.74	1.77	1.77	1.77	1.77	1.57	1.62	4.53	4.66	5.15	5.15	5.15	4.09	4.22	9.07	9.32	10.30	10.30	10.30	8.17	8.44
150	1.58	1.58	1.58	1.58	1.58	1.42	1.48	4.39	4.51	5.03	4.97	5.03	3.70	3.85	8.79	9.02	10.03	9.95	10.03	7.40	7.70
200	1.38	1.38	1.38	1.38	1.38	1.32	1.37	4.25	4.38	4.86	4.80	4.86	3.45	3.57	8.51	8.76	9.72	9.59	9.72	6.90	7.13
250	1.21	1.21	1.21	1.21	1.21	1.21	1.21	4.08	4.19	4.63	4.63	4.63	3.25	3.34	8.16	8.39	9.27	9.27	9.27	6.50	6.68
300	1.02	1.02	1.02	1.02	1.02	1.02	1.02	3.87	3.98	4.29	4.29	4.29	3.09	3.16	7.74	7.96	8.57	8.57	8.57	6.18	6.32
325	0.93	0.93	0.93	0.93	0.93	0.93	0.93	3.76	3.87	4.14	4.14	4.14	3.02	3.09	7.52	7.74	8.26	8.26	8.26	6.04	6.18
350	0.84	0.84	0.84	0.84	0.84	0.84	0.84	3.64	3.76	4.03	4.03	4.03	2.96	3.03	7.28	7.51	8.04	8.04	8.04	5.93	6.07
375		0.74	0.74	0.74	0.74	0.74	0.74		3.64	3.89	3.89	3.89	2.90	2.99		7.27	7.76	7.76	7.76	5.81	5.98
400		0.65	0.65	0.65	0.65	0.65	0.65		3.47	3.65	3.65	3.65	2.84	2.94		6.94	7.33	7.33	7.33	5.69	5.89
425		0.55	0.55	0.55	0.55	0.55	0.55		2.88	3.52	3.52	3.52	2.80	2.91		5.75	7.00	7.00	7.00	5.60	5.83
450			0.46	0.46	0.46	0.46	0.46			3.37	3.37	3.37	2.74	2.88			6.77	6.77	6.77	5.48	5.77
475			0.37	0.37	0.37	0.37	0.37			2.79	3.17	3.17	2.69	2.87			5.57	6.34	6.34	5.39	5.73
500			0.28	0.28	0.28	0.28	0.28			2.14	2.57	2.82	2.65	2.82			4.28	5.15	5.65	5.30	5.65
538			0.14	0.14	0.14	0.14	0.14			1.37	1.49	1.84	2.44	2.52			2.74	2.98	3.69	4.89	5.00
550			0.14	0.14	0.14					1.20	1.27	1.56					2.41	2.54	3.13		
575			0.14	0.14	0.14					0.89	0.88	1.05					1.78	1.76	2.11		
600			0.14							0.62							1.25				
625			0.14							0.40							0.80				
650			0.09							0.24							0.47				

温度	ANSI Class 900							ANSI Class 1500							ANSI Class 2500						
Temp.	LCB	WCB	C5	WC6	WC9	CF8	CF8M	LCB	WCB	C5	WC6	WC9	CF8	CF8M	LCB	WCB	C5	WC6	WC9	CF8	CF8M
℃		A105	F5a	F11	F22	F304	F316		A105	F5a	F11	F22	F304	F316		A105	F5a	F11	F22	F304	F316
-196~-45	—	—	—	—	—	14.89	14.89	—	—	—	—	—	24.82	24.82	—	—	—	—	—	41.37	41.37
-45~-29	14.41	—	—	—	—	14.89	14.89	24.01	—	—	—	—	24.82	24.82	40.01	—	—	—	—	41.37	41.37
-29~38	14.41	15.32	15.51	15.51	15.51	14.89	14.89	24.01	25.53	25.86	25.86	25.86	24.82	24.82	39.56	42.55	43.09	43.09	43.09	41.37	41.37
50	14.24	15.04	15.51	15.51	15.51	14.35	14.43	23.73	25.06	25.86	25.86	25.86	23.91	24.06	37.78	41.77	43.09	43.09	43.09	39.85	40.09
100	13.60	13.98	15.46	15.44	15.46	12.26	12.66	22.67	23.30	25.76	25.74	25.76	20.43	21.10	36.61	38.83	42.94	42.90	42.94	34.04	35.16
150	13.18	13.52	15.06	14.92	15.06	11.10	11.55	21.97	22.54	25.08	24.87	25.08	18.50	19.25	35.44	37.56	41.82	41.45	41.82	30.84	32.08
200	12.76	13.14	14.58	14.39	14.58	10.34	10.70	21.27	21.90	24.34	23.98	24.34	17.24	17.83	33.98	36.50	40.54	39.96	40.54	28.73	29.72
250	12.23	12.58	13.90	13.90	13.90	9.75	10.01	20.39	20.97	23.18	23.18	23.18	16.24	16.69	32.24	34.95	38.62	38.62	38.62	27.07	27.81
300	11.61	11.95	12.86	12.86	12.86	9.27	9.49	19.34	19.91	21.44	21.44	21.44	15.46	15.81	31.31	33.18	35.71	35.71	35.71	25.76	26.35
325	11.27	11.61	12.40	12.40	12.40	9.07	9.27	18.79	19.36	20.66	20.66	20.66	15.11	15.44	30.33	32.26	34.43	34.43	34.43	25.19	25.74
350	10.92	11.27	12.07	12.07	12.07	8.89	9.10	18.20	18.78	20.11	20.11	20.11	14.81	15.16	29.14	31.30	33.53	33.53	33.53	24.69	25.27
375		10.91	11.65	11.65	11.65	8.71	8.96		18.18	19.41	19.41	19.41	14.52	14.94		30.31	32.32	32.32	32.32	24.19	24.90
400		10.42	10.98	10.98	10.98	8.53	8.83		17.36	18.31	18.31	18.31	14.22	14.72		28.93	30.49	30.49	30.49	23.70	24.53
425		8.63	10.51	10.51	10.51	8.40	8.74		14.38	17.51	17.51	17.51	14.00	14.57		23.97	29.16	29.16	29.16	23.33	24.29
450			10.14	10.14	10.14	8.22	8.65			16.90	16.90	16.90	13.70	14.42			28.18	28.18	28.18	22.84	24.04
475			8.36	9.51	9.51	8.08	8.60			13.93	15.82	15.82	13.47	14.34			23.21	26.39	26.39	22.45	23.89
500			6.41	7.72	8.47	7.95	8.47			10.69	12.86	14.09	13.24	14.09			17.82	21.44	23.50	22.07	23.50
538			4.11	4.47	5.53	7.33	7.52			6.86	7.45	9.22	12.21	12.55			11.43	12.41	15.37	20.36	20.89
550			3.61	3.81	4.69					6.02	6.35	7.82					10.04	10.59	13.03		
575			2.67	2.64	3.16					4.44	4.40	5.26					7.40	7.34	8.77		
600			1.87							3.12							5.19				
625			1.20							2.00							3.33				
650			0.71							1.18							1.97				

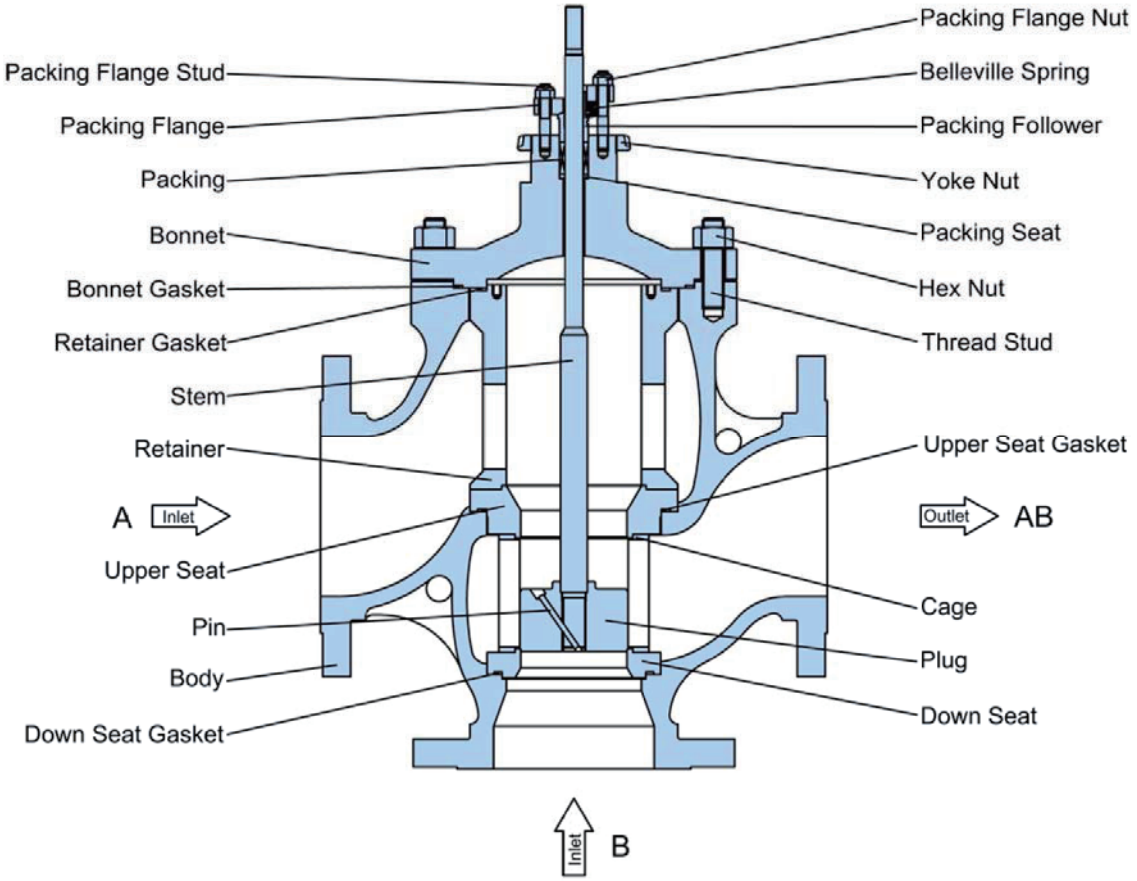
Note: 法兰连接端阀门使用温度极限 538℃ Flanged end valve ratings terminate at 538℃.

本体部结构 Body Assembly Construction

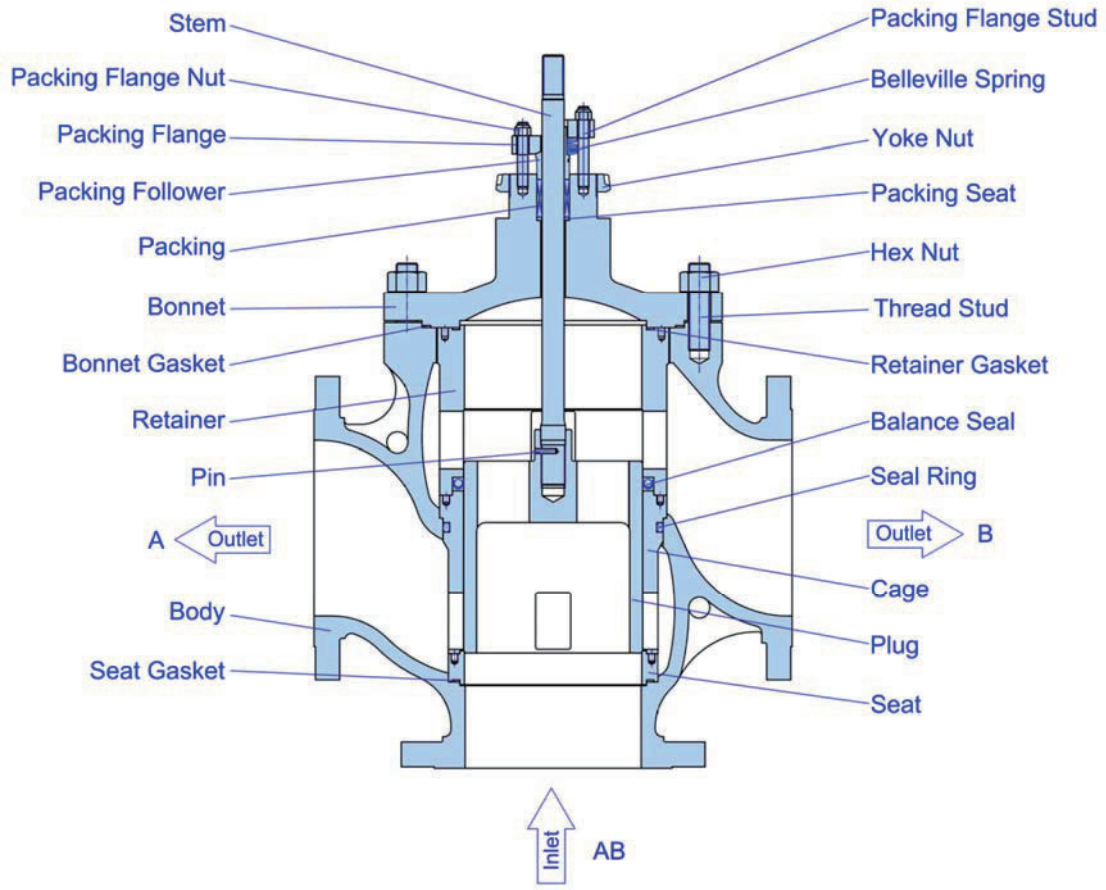
GT100 分流型/不平衡阀芯 Diverting Flow/Unbalanced Plug



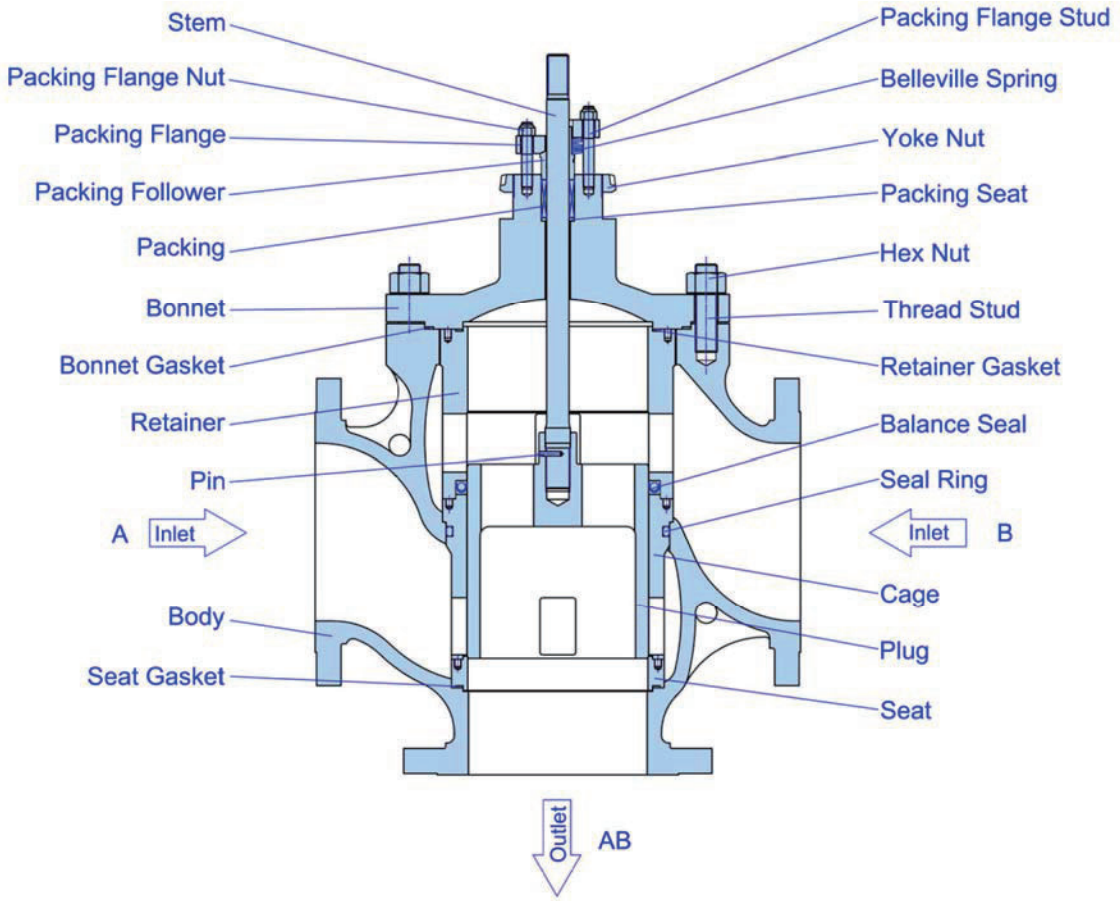
GT200 合流型/不平衡阀芯 Mixing Flow/Unbalanced Plug



GT300 分流型/平衡阀芯 Diverting Flow/Balanced Plug



GT400 合流型/平衡阀芯 Mixing Flow/Balanced Plug



GT100/GT200 材料组合 Material Combinations for GT100/GT200:

阀体/上阀盖材质 Body/Bonnet Material		A216-WCB, A217-WC6, A217-WC9, A217-C5, A352-LCB		
套筒 Cage		A182-F6a/HT		A182-F22/Nitrided
阀芯 Plug		A564-630/PH		A182-F11/SF
套筒压圈 Cage Retainer		A182-F6a		A182-F11
阀座 Seat Ring		F316+RTFE	A182-F6a/HT	A182-F11/SF
阀座允许泄漏量 Seat Leakage		Class Ⅵ	Class Ⅳ, Ⅴ	Class Ⅳ, Ⅴ
使用温度 Fluid temperature ℃	WCB Body WC6 Body C5 Body	-29~+200	-29~+427	-29~+593
	LCB Body	-45~+200	-45~+230	——

阀体/上阀盖材质 Body/Bonnet Material	A351-CF8, A351-CF8M		
套筒 Cage	A182-F316		
阀芯 Plug	A182-F316/HCR	A182-F316/HCR F316/SS, SF	A182-F316/HCR F316/SS, SF
套筒压圈 Cage Retainer	A182-F316	A182-F316	A182-F316
阀座 Seat Ring	F316+RTFE	A182-F316 F316/SS, SF	A182-F316 F316/SS, SF
阀座允许泄漏量 Seat Leakage	Class Ⅵ	Class Ⅳ, Ⅴ	Class Ⅳ, Ⅴ
使用温度 Fluid temperature ℃	-75~+200	-196~+230	-196~538

GT300/GT400 材料组合 Material Combinations for GT300/GT400:

阀体/上阀盖材质 Body/Bonnet Material		A216-WCB, A217-WC6, A217-WC9, A217-C5, A352-LCB			
套筒 Cage		A182-F6a/HT			A182-F22/Nitrided
阀芯 Plug		A564-630/PH			A182-F11/SF
套筒压圈 Cage Retainer		A182-F6a			A182-F11
阀座 Seat Ring		F316+RTFE	A182-F6a/HT		A182-F11/SF
平衡密封环 Balance Seal *		RTFE/17-7PH	RTFE/17-7PH	柔性石墨 Graphite	柔性石墨 Graphite
阀座允许泄漏量 Seat Leakage		Class Ⅵ	Class Ⅳ，Ⅴ	Class Ⅳ，Ⅴ	Class Ⅳ，Ⅴ
使用温度 Fluid temperature ℃	WCB Body WC6 Body C5 Body	-29~+200	-29~+230	-29~+427	-29~+593
	LCB Body	-45~+200	-45~+230	——	——

阀体/上阀盖材质 Body/Bonnet Material	A351-CF8, A351-CF8M			
套筒 Cage	A182-F316			
阀芯 Plug	A182-F316/HCR	A182-F316/HCR F316/SS, SF	A182-F316/HCR F316/SS, SF	A182-F316/HCR F316/SS, SF
套筒压圈 Cage Retainer	A182-F316	A182-F316	A182-F316	A182-F316
阀座 Seat Ring	F316+RTFE	A182-F316 F316/SS, SF	A182-F316 F316/SS, SF	A182-F316 F316/SS, SF
平衡密封环 Balance Seal *	RTFE/17-7PH	RTFE/17-7PH	Fluoroloy G/Elgiloy	柔性石墨 Graphite
阀座允许泄漏量 Seat Leakage	Class Ⅵ	Class Ⅳ，Ⅴ	Class Ⅳ，Ⅴ	Class Ⅳ，Ⅴ
使用温度 Fluid temperature ℃	-75~+200	-75~+230	-196~+230	-196~538

备注 Note：

- ●PH: 析出硬化热处理 Precipitation Hardening
- ●HT: 热处理 Heat Treatment
- ●RTFE: 强化聚四氟乙烯 Reinforced Teflon
- ●HCR: 镀硬铬 Hard Chrome plated
- ●SS: 密封面堆焊司太莱合金 Stellite seat
- ●SF: 表面全部堆焊司太莱合金 Stellite full surface

GT100 ANSI 150#~600#额定 Cv 值及行程，流量特性：线性

Rated Cv Values & Stroke for GT100 ANSI 150~600#, Flow Characteristic: Linear

公称通径 Valve Size		阀芯尺寸 Plug Size		行程 stroke	流向 Flwo Path	额定 Cv 值 Rated Cv	
						阀门开度(%) Valve Opening (%)	
NPS	mm	inchs	mm	mm		0 (Plug Down)	100 (Plug Up)
1	25	1	25	15	AB→A	12	0
					AB→B	0	16
1-1/2	40	1	25	15	AB→A	12	0
					AB→B	0	16
		1-1/2	40	20	AB→A	29	0
					AB→B	0	40
2	50	1-1/2	40	20	AB→A	29	0
					AB→B	0	40
		2	50	25	AB→A	69	0
					AB→B	0	90
3	80	2-1/2	65	30	AB→A	hold	0
					AB→B	0	hold
		3	80	30	AB→A	110	0
					AB→B	0	141
4	100	3	80	30	AB→A	110	0
					AB→B	0	141
		4	100	40	AB→A	177	0
					AB→B	0	229
6	150	5	125	50	AB→A	hold	0
					AB→B	0	hold
		6	150	60	AB→A	400	0
					AB→B	0	520
8	200	7	175	60	AB→A	hold	0
					AB→B	0	hold
		8	200	70	AB→A	675	0
					AB→B	0	850
10	250	8	200	70	AB→A	675	0
					AB→B	0	850
		10	250	90	AB→A	1,070	0
					AB→B	0	1,360
12	300	10	250	90	AB→A	1,070	0
					AB→B	0	1,360
		12	300	90	AB→A	1,400	0
					AB→B	0	1,730
14	350	12	300	90	AB→A	1,400	0
					AB→B	0	1,730
		14	350	130	AB→A	1,890	0
					AB→B	0	2,450
16	400	14	350	130	AB→A	1,890	0
					AB→B	0	2,450
		16	400	150	AB→A	2,260	0
					AB→B	0	2,950
18	450	16	400	150	AB→A	2,260	0
					AB→B	0	2,950
		18	450	160	AB→A	2,870	0
					AB→B	0	3,710
20	500	18	450	160	AB→A	2,870	0
					AB→B	0	3,710
		20	500	180	AB→A	hold	0
					AB→B	0	hold
24	600	20	500	180	AB→A	hold	0
					AB→B	0	hold
		24	600	230	AB→A	hold	0
					AB→B	0	hold

GT200 ANSI 150#~600#额定 Cv 值及行程，流量特性：线性

Rated Cv Values & Stroke for G200 ANSI 150~600#, Flow Characteristic: Linear

公称通径 Valve Size		阀芯尺寸 Plug Size		行程 stroke	流向 Flwo Path	额定 Cv 值 Rated Cv 阀门开度(%) Valve Opening (%)	
NPS	mm	inchs	mm	mm		0 (Plug Down)	100 (Plug Up)
1	25	1	25	15	A→AB	11	0
					B→AB	0	15
1-1/2	40	1	25	15	A→AB	11	0
					B→AB	0	15
		1-1/2	40	20	A→AB	27	0
					B→AB	0	37
2	50	1-1/2	40	20	A→AB	27	0
					B→AB	0	37
		2	50	25	A→AB	64	0
					B→AB	0	83
3	80	2-1/2	65	30	A→AB	hold	0
					B→AB	0	hold
		3	80	30	A→AB	101	0
					B→AB	0	130
4	100	3	80	30	A→AB	101	0
					B→AB	0	130
		4	100	40	A→AB	163	0
					B→AB	0	211
6	150	5	125	50	A→AB	hold	0
					B→AB	0	hold
		6	150	60	A→AB	370	0
					B→AB	0	475
8	200	7	175	60	A→AB	hold	0
					B→AB	0	hold
		8	200	70	A→AB	620	0
					B→AB	0	785
10	250	8	200	70	A→AB	620	0
					B→AB	0	785
		10	250	90	A→AB	980	0
					B→AB	0	1,250
12	300	10	250	90	A→AB	980	0
					B→AB	0	1,250
		12	300	90	A→AB	1,290	0
					B→AB	0	1,590
14	350	12	300	90	A→AB	1,290	0
					B→AB	0	1,590
		14	350	130	A→AB	1,740	0
					B→AB	0	2,250
16	400	14	350	130	A→AB	1,740	0
					B→AB	0	2,250
		16	400	150	A→AB	2,080	0
					B→AB	0	2,720
18	450	16	400	150	A→AB	2,080	0
					B→AB	0	2,720
		18	450	160	A→AB	2,640	0
					B→AB	0	3,410
20	500	18	450	160	A→AB	2,640	0
					B→AB	0	3,410
		20	500	180	A→AB	hold	0
					B→AB	0	hold
24	600	20	500	180	A→AB	hold	0
					B→AB	0	hold
		24	600	230	A→AB	hold	0
					B→AB	0	hold

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