INFORMATION SHEET

T 8210 EN

CERA1000 · Ball Valves with Ceramic Lining

CE

Application

The Series CERA1000 Ceramic-lined Ball Valves are used for on/off or throttling service to meet high requirements concerning resistance to wear, corrosion and high temperatures.

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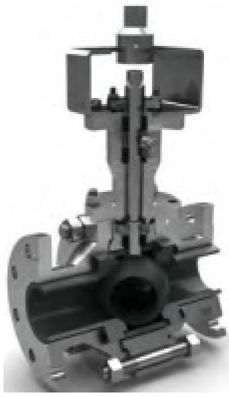
Overview of types

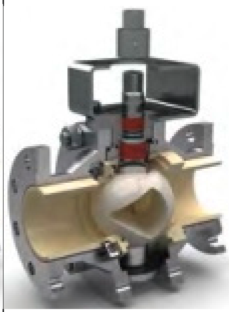
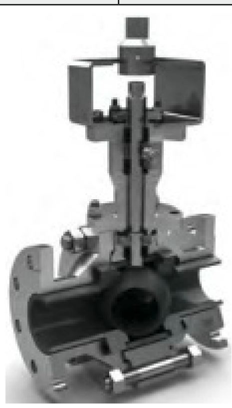
• Standard version; ○ Special version/option

Customized ball valve versions are also possible to meet special requirements.

Type			KSV	KST	KAT	KAV
						
Markets	Chemicals and petrochemicals		•	•	•	
	Industrial gases				•	
	Power and energy		•	•	•	
	Oil and gas					
	Food and beverages					
	Pharmaceuticals and biotechnology					
	Metallurgy and mining		•	•	•	•
	Pulp and paper		•	•	•	
	District energy and building automation					
	Marine equipment					
	Water and wastewater		•	•	•	•
	General industry		•	•	•	•
	Other markets		•	•	• [7]	• [7]
Application	On/off		•	•	•	•
	Throttling		•	•	•	•
Suitability	Fibrous media					
	Media containing suspended matter					
	Corrosive media		•	•	•	•
	Highly viscous media					
	Abrasive media		•	•	•	•
	Seawater					
	Oxygen					
Version	DIN		•	•	•	•
	ANSI		•	•	•	•
Connecting flange	DIN EN 1092-1		•	•	•	•
	ASME B16.5		•	•	•	•
Nominal size	Flange	DN	15 to 300	15 to 300	15 to 300	15 to 300
		NPS	½ to 12	½ to 12	½ to 12	½ to 12
	Middle body	DN	15 to 150	15 to 150	15 to 150	15 to 150
		NPS	½ to 6	½ to 6	½ to 6	½ to 6
Pressure rating	PN		10 to 40 [1]	10 to 40 [1]	10 to 40 [1]	10 to 40 [1]
	Class		150 and 300 [1]	150 and 300 [1]	150 and 300 [1]	150 and 300 [1]
Temperature range [8] in °C	Standard		–10 to +160	–10 to +180	–10 to +180	–10 to +160
	Deviation	With FFKM	–	Up to +260	Kalrez® 6375: up to +260 Kalrez® 4079: up to +310	–
		With Fluoraz®	–	–	–	–
Face-to-face dimensions	Acc. to EN 558-1 Series 1, 27		• [2]	• [2]	• [2]	• [2]
	Acc. to ASME/ANSI B16.10/ EN 558-2 Series 37,38, 3		• [2]	• [2]	• [2]	• [2]

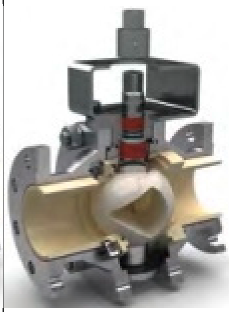
KZT	KGT	KST-HT	KST-XHT	Type	
					
		•	•	Chemicals and petrochemicals	Markets
•		•	•	Industrial gases	
	•			Energy	
				Oil and gas	
				Food and beverages	
				Pharmaceuticals and biotechnology	
•	•			Metallurgy and mining	
	•			Pulp and paper	
				District energy and building automation	
				Marine equipment	
				Water and wastewater	
•	•	•	•	General industry	
•	•	•	•	Other markets	
•	•	•	•	On/off	Application
•	•	•	•	Throttling	
				Fibrous media	Suitability
				Media containing suspended matter	
•	•	•	•	Corrosive media	
				Highly viscous media	
•	•	•	•	Abrasive media	
				Seawater	
				Oxygen	
•	•	•	•	DIN	Version
•	•	•	•	ANSI	
•	•	•	•	DIN EN 1092-1	Connecting flange
•	•	•	•	ASME B16.5	
65 to 300	65 to 300	15 to 300	15 to 300	Flange DN	Nominal size
2½ to 12	2½ to 12	½ to 12	½ to 12	Flange NPS	
65 to 150	65 to 150	15 to 150	15 to 150	Middle body DN	
2½ to 6	2½ to 6	½ to 6	½ to 6	Middle body NPS	
10 to 40 [1]	10 to 40 [1]	10 to 40 [1]	10 to 40 [1]	PN	Pressure rating
150 and 300 [1]	150 and 300 [1]	150 and 300 [1]	150 and 300 [1]	Class	
–10 to +180	–10 to +180	–10 to +450	–10 to +950	Standard	Temperature range [8] in °C
–	–	–	–	Deviation: With FFKM	
Up to +260	Up to +260	–	–	Deviation: With Fluoraz®	
• [2]	• [2]	• [2]	• [2]	Acc. to EN 558-1 Series 1, 27	Face-to-face dimensions
• [2]	• [2]	• [2]	• [2]	Acc. to ASME/ANSI B16.10/ EN 558-2 Series 37,38, 3	

Type		KSV	KST	KAT	KAV
					
Materials	Body	• 1.4301/1.4408 o P250GH Halar® (DN 125 and larger)	• 1.4301/1.4408 o 1.4462, o 1.4571, o 1.4539, o P250GH, o 3.7035, o PVDF [9)], o PP [9)]	• 1.4301/1.4408 o 1.4462, o 1.4571, o 1.4539, o P250GH, o 3.7035	• 1.4301/1.4408 o P250GH Halar® [6)]
	Seat ring	• Al_2O_3 o SSiC	• Al_2O_3 o SSiC	• Al_2O_3 o SSiC	• Al_2O_3 o SSiC
	Ball socket	• Al_2O_3 o SSiC	• Al_2O_3 o SSiC	• Al_2O_3 o SSiC	• Al_2O_3 o SSiC
	Ball	• ZrO_2 o Si_3N_4	• ZrO_2 o Si_3N_4, o 1.4112 (58HRC)	• ZrO_2 o Si_3N_4, o 1.4112 (58HRC)	• ZrO_2 o Si_3N_4
	Retaining ring	–	–	• Al_2O_3 o 1.4301/1.4408	• Al_2O_3
	Thrust ring (spring)	–	–	• 1.4301/1.4408 o 1.4462	• 1.4301/1.4408 Halar®
	Thrust ring (seat)	–	–	• 1.4301/1.4408 o 1.4462	• 1.4301/1.4408
	Stuffing box	–	–	–	–
	Packing gland	–	–	–	–
	Shaft	• 2.4605 o 3.7035, o Tantalum 2.5 % tungsten, o 1.4539	• 1.4462 o 2.4605, o 3.7035, o Tantalum, o 1.4539	• 1.4462 o 2.4605, o 3.7035, o Tantalum, o 1.4539	• 2.4605 o 3.7035, o Tantalum 2.5 % tungsten, o 1.4539
	Connecting flange	• P250GH Halar®	• 1.4301/1.4408 o 1.4462, o 1.4571, o 1.4539, o P250GH, o 3.7035	• 1.4301/1.4408 o 1.4462, o 1.4571, o 1.4539, o P250GH, o 3.7035	• P250GH Halar®
	Liner	• Al_2O_3 o SSiC	• Al_2O_3 o SSiC	• Al_2O_3 o SSiC	• Al_2O_3 o SSiC
	Compression spring	–	–	• 1.4310	• 1.4301/1.4408
	Trunnion bearing	–	–	–	–
	Bonnet flange	• 1.4301/1.4408	• 1.4301/1.4408 o 1.4462, o 1.4571, o 1.4539, o P250GH, o 3.7035	• 1.4301/1.4408 o 1.4462, o 1.4571, o 1.4539, o P250GH, o 3.7035	• 1.4301/1.4408 o 1.4462, o 1.4571, o 1.4539, o P250GH, o 3.7035
	Seal/packing sets	• Type 6 o Type 7, 8, 9	• Type 1 o Type 2, 3, 4, 5	• Type 1 o Type 2, 3, 4, 5	• Type 6 o Type 7, 8, 9
	Packing	–	–	–	–
	Bearing bushing	• PTFE	• PTFE	• PTFE	• PTFE
	Nuts and bolts	• A2-/A4-70	• A2-/A4-70	• A2-/A4-70	• A2-/A4-70

KZT	KGT	KST-HT	KST-XHT	Type	
					
• 1.4301/1.4408 o 1.4462, o 1.4571, o 1.4539, o P250GH, o 3.7035	• 1.4301/1.4408 o 1.4462, o 1.4571, o 1.4539, o P250GH, o 3.7035	• 1.4301/1.4408 o 1.4571, o P250GH	• 1.4876(H)	Body	Materials
• Al_2O_3 o SSiC	• Al_2O_3 o SSiC	• SSiC o Si_3N_4	• SSiC o Si_3N_4	Seat ring	
• Al_2O_3 o SSiC	• Al_2O_3 o SSiC	• SSiC o Si_3N_4	• SSiC o Si_3N_4	Ball socket	
• ZrO_2 o Si_3N_4, o 1.4112 (58HRC)	• ZrO_2 o Si_3N_4, o 1.4112 (58HRC)	• Si_3N_4 o ZrO_2, o 1.4112 (58HRC)	• Si_3N_4	Ball	
• Al_2O_3 o 1.4301/1.4408	• Al_2O_3 o 1.4301/1.4408	–	–	Retaining ring	
• 1.4301/1.4408 o 1.4462	• 1.4301/1.4408 o 1.4462	–	–	Thrust ring (spring)	
• 1.4301/1.4408 o 1.4462	• 1.4301/1.4408 o 1.4462	–	–	Thrust ring (seat)	
• 1.4301/1.4408 o 1.4462, o 1.4571, o 1.4539, o P250GH, o 3.7035	• 1.4301/1.4408 o 1.4462, o 1.4571, o 1.4539, o P250GH, o 3.7035	• 1.4301/1.4408 o 1.4571, o P250GH	• 1.4876(H)	Stuffing box	
–	–	• 1.4301/1.4408 o 1.4571, o P250GH	• 1.4571	Packing gland	
• 1.4462 o 1.4542 (hardened), o 17PH4, o 1.4539	• 1.4462 o 1.4542 (hardened), o 17PH4, o 1.4539	• 1.4542 o 17PH4	• 1.4876(H)	Shaft	
• 1.4301/1.4408 o 1.4462, o 1.4571, o 1.4539, o P250GH, o 3.7035	• 1.4301/1.4408 o 1.4462, o 1.4571, o 1.4539, o P250GH, o 3.7035	• 1.4301/1.4408 o 1.4571, o P250GH	• 1.4876(H)	Connecting flange	
• Al_2O_3 o SSiC	• Al_2O_3 o SSiC	• SSiC o Si_3N_4	• SSiC o Si_3N_4	Liner	
• 1.4310	• 1.4310	–	–	Compression spring	
• 1.4301/1.4408 o 1.4462, o 1.4571, o 1.4539, o P250GH, o 3.7035	• 1.4301/1.4408 o 1.4462, o 1.4571, o 1.4539, o P250GH, o 3.7035	–	–	Trunnion bearing	
–	–	–	–	Bonnet flange	
• Type 10 o Type 11, 12, 13	• Type 10 o Type 11, 12, 13	• Graphite	• Graphite	Seal/packing sets	
–	–	• Graphite o Packing	• Graphite o Packing	Packing	
• PTFE	• PTFE	• Stellite™/graphite	• Stellite™/graphite	Bearing bushing	
• A2-/A4-70	• A2-/A4-70	• A2-/A4-70 o 21CrMoV57/24CrMo5	• 1.4876(H)	Nuts and bolts	

Type			KSV	KST	KAT	KAV
						
Mounting and seal of closure member	Floating design		•	•	•	–
	Trunnion design		–	–	–	–
	Spring-loaded seat ring	Upstream	–	–	•	•
		Downstream	–	–	–	–
Characterized ball	Equal-percentage characteristic	Round	•	•	•	•
		V-shaped	•	•	•	•
Cross-sectional area of flow	Full bore [3]		•	•	•	•
	Reduced bore [4]		•	•	•	•
Leakage class	IEC 60534-4		○ [10]	○ [10]	○ [10]	○ [10]
Accessories and special versions	TA Luft [5]		–	○	○	○
Connection to mount actuator	DIN EN ISO 5211		•	•	•	•
Recommended actuator			Type 31 (SAMSON PFEIFFER)	Type 31 (SAMSON PFEIFFER)	Type 31 (SAMSON PFEIFFER)	Type 31 (SAMSON PFEIFFER)
Suitability/special features			– Alternative to PTFE/PFA-lined valves	– Can be manufactured in all commonly available body materials – To meet special requirements concerning temperature or fugitive emissions	– Can be manufactured in all commonly available body materials – To meet special requirements concerning temperature or fugitive emissions – At low pressure drops and/or slow pressure build-up	– Alternative to PTFE/PFA-lined valves – At low pressure drops and/or slow pressure build-up
Conformity			CE	CE	CE	CE

1) Other pressure ratings on request
2) Series 1 and 3 are only to be used in exceptional circumstances and only after consulting SAMSON CERA SYSTEM.
3) The cross-section is **not** restricted when the valve is fully open.
4) The cross-section is restricted when the valve is fully open.
5) Approved up to max. 400 °C
6) DN 125 and larger
7) For example, dyes and pigments, fertilizer, polysilicon, waste incineration, lithium, salt solutions, desulphurization
8) Observe thermal shock resistance (see Fig. 5)
9) Only after consulting SAMSON CERA SYSTEM
10) Leakage class I, IV or V depending on requirements

	KZT	KGT	KST-HT	KST-XHT	Type	
						
	–	–	•	•	Floating design	**Mounting and seal of closure member**
	•	•	–	–	Trunnion design	
	•	•	–	–	Upstream – Spring-loaded seat ring	
	•	–	–	–	Downstream – Spring-loaded seat ring	
	•	•	•	•	Round – Equal-percentage characteristic	**Characterized ball**
	•	•	•	•	V-shaped – Equal-percentage characteristic	
	•	•	•	•	Full bore [3]	**Cross-sectional area of flow**
	•	•	•	•	Reduced bore [4]	
	o [10]	o [10]	o [10]	o [10]	IEC 60534-4	**Leakage class**
	o	o	o	o	TA Luft [5]	**Accessories and special versions**
	•	•	•	•	DIN EN ISO 5211	**Connection to mount actuator**
	Type 31 (SAMSON PFEIFFER)	Type 31 (SAMSON PFEIFFER)	Type 31 (SAMSON PFEIFFER)	Type 31 (SAMSON PFEIFFER)		**Recommended actuator**
	– Can be manufactured in all commonly available body materials – To meet special requirements concerning temperature or fugitive emissions – At high pressure drops – Pressure can be applied to both sides	– Can be manufactured in all commonly available body materials – To meet special requirements concerning temperature or fugitive emissions – At high pressure drops – Only seals on one side to avoid dead spaces – With pneumatic conveying system	– Service temperatures up to 450 °C are possible through the use of special body and ceramic materials.	– Service temperatures up to 950 °C are possible through the use of special body and ceramic materials.		**Suitability/special features**
	CE	CE	CE	CE		**Conformity**

Why ceramic valves?

Ceramic-lined valves are preferably used for corrosive media (possibly containing solid matter) or (very) abrasive media. Ceramic linings are particularly suitable to meet high temperature, pressure, abrasion or corrosion requirements where other linings, e.g. made of PTFE or PFA, reach their limits.

Ceramic materials

The following ceramic materials are used for valve linings:

- Alumina (Al_2O_3)
- Zirconium dioxide (ZrO_2)
- Silicon carbide (SSiC)
- Silicon nitride (Si_3N_4)

The benefits and special features of ceramics include:

1. **Corrosion resistance**

The corrosion resistance of ceramics is significantly superior to other materials. Ceramics are fully resistant to most solvents. In most cases, alkaline solutions do not pose any difficulties. The ceramics used exhibit good resistance properties to most acids up to relatively high temperatures. However, there are various factors that need to be taken into account. For example, all oxide ceramics are not resistant to fluorides. Some ceramics, e.g. Yttria-partially-stabilized zirconia (Y-PSZ), react sensitively to steam, i.e. are hydrothermally unstable. It is essential to be aware that mixtures of reagents usually react differently than when handled separately.

2. **Compression and flexural strength**

In contrast to metal, the flexural, tensile and compression strength properties of ceramics vary significantly. While the compression strength of almost all dense ceramics is superior to that of metals, more attention must be paid especially to the tensile and flexural strength.

The extremely high compression strength of Al_2O_3 is particularly suitable for the seat of the ball valve.

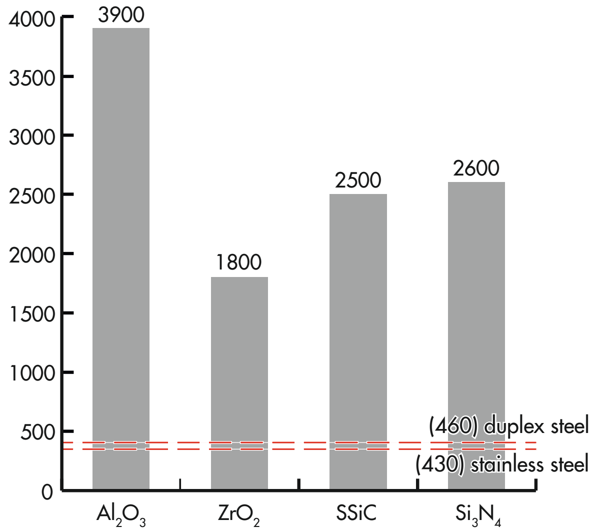


Fig. 1: *Compression strength in MPa*

The diagrams illustrate the difference between metals and ceramics even though comparing their strength properties is not clear-cut.

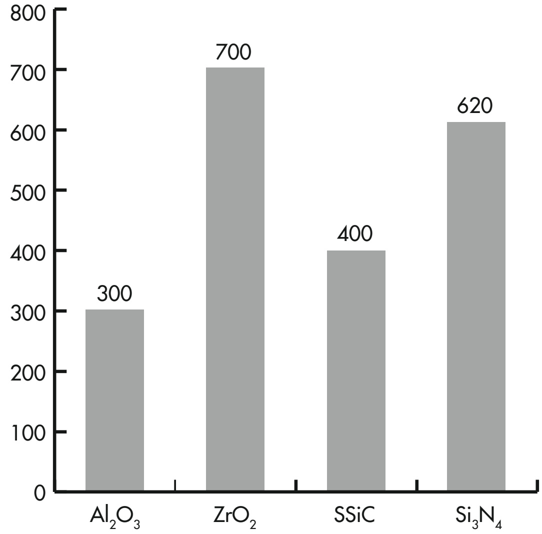


Fig. 2: *Flexural strength in MPa*

Due to the high torque load, the ball must be made of a material with a high flexural strength. As a result, balls are either made of ZrO_2 or Si_3N_4.

3. **Density**

Generallly, ceramic valves are lighter than valves made of other materials. For example, ceramics are up to 78 % less dense than carbide metal and up to 60 % less dense than stainless steel.

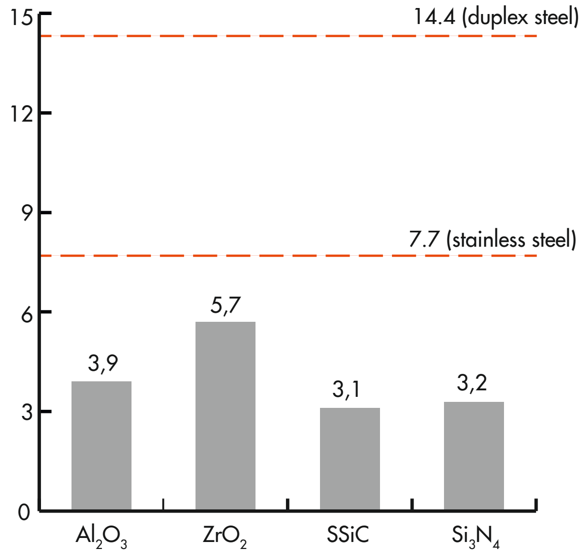


Fig. 3: *Density in g/cm³*

4. **Hardness and wear resistance**

The wear resistance of components considerably depends on the type of stress they are exposed to. Ceramics are much harder and have better wear-resistance properties than metals. Frequently, a combination of different kinds of wear, such as abrasion, high velocity erosion, impact wear and cavitation, arise which ceramic components usually endure much better in comparison to metal components. Direct impact loads must be dealt with on a case-by-case basis.

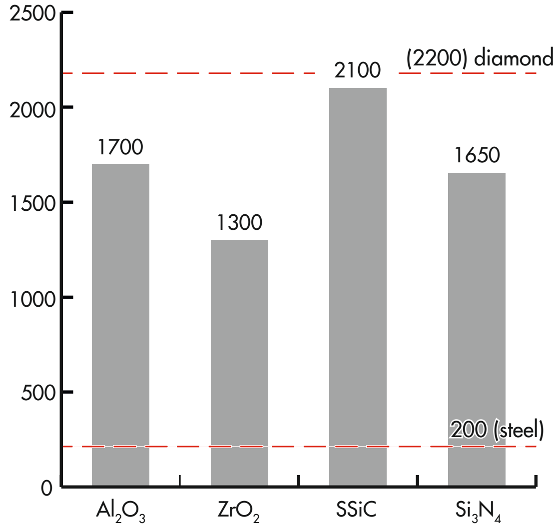


Fig. 4: *Vickers hardness 1 in GPa*

5. **Thermal shock resistance**

The thermal shock resistance is more relevant than the maximum service temperature. Ceramic components maintain their shape, material strength and physical properties even at very high temperatures. The thermal shock resistance significantly depends on the shape of the component and not just the material. Simple shapes, such as pipes, are more rugged than parts with greatly varying wall thicknesses.

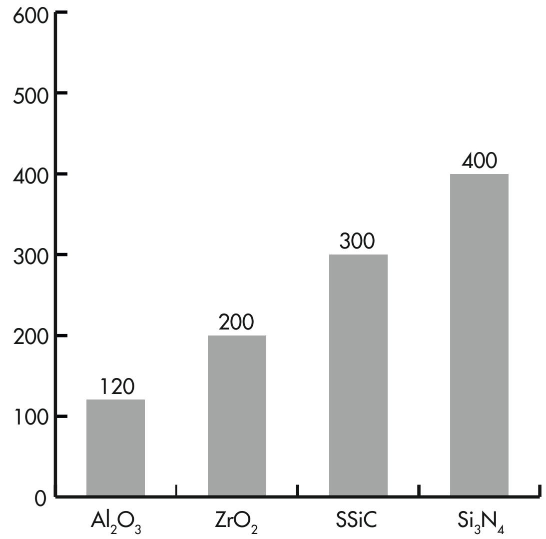


Fig. 5: *Thermal shock resistance ΔT in °C*

TA Luft packing

The current TA Luft regulations impose stringent fugitive emission limits for valve stem sealing. The TA Luft packing sets cover almost all applications and are suitable for use in new valves or for retrofitting existing valves.

The packing sets guarantee the leakage rates specified in the VDI directives over the entire temperature range. In precise terms, the sealing system must demonstrate a leakage rate of $10^{-4} \frac{mbar \times l}{s \times m}$ at a temperature of 250 °C or a leakage rate of $10^{-2} \frac{mbar \times l}{s \times m}$ above this temperature. The packing is live loaded in these applications to ensure continuous compression of the packing. The live loading system is designed and adjusted based on the operating temperature and operating pressure.

Available packing sets to meet TA Luft requirements:

BuraTAL® T1 9650/T1	
Temperature range	−10 to +250 °C
Pressure	40 bar
Chemical resistance	pH value: 1 to 13

BuraTAL® HT 9650/HT	
Temperature range	−200 to +400 °C
Pressure	80 bar
Chemical resistance	pH value: 1 to 13

Table 1: *K_{VS} and C_V coefficients and associated nominal sizes*

Nominal size (flange)			Nominal size (middle body)															
			DN 15 NPS ½		DN 25 NPS 1		DN 40 NPS 1½		DN 65 NPS 2½		DN 80 NPS 3		DN 100 NPS 4		DN 125 NPS 5		DN 150 NPS 6	
DN	NPS	Ball bore	K_{VS}	C_V	K_{VS}	C_V	K_{VS}	C_V	K_{VS}	C_V	K_{VS}	C_V	K_{VS}	C_V	K_{VS}	C_V	K_{VS}	C_V
15	½	V-shaped	12.2	14.2														
		Round	14.6	17.0														
20	¾	V-shaped	14.1	16.5														
		Round	19.1	22.3														
25	1	V-shaped	13.1	15.3	37.3	43.5												
		Round	19.2	22.4	45.9	53.6												
32	1¼	V-shaped	11.5	13.4	41.7	48.7												
		Round	17.3	20.2	62.1	72.5												
40	1½	V-shaped	9.4	11.0	36.5	42.6	89.1	104										
		Round	15.5	18.1	62.4	72.8	127	148										
50	2	V-shaped	9.4	11.0	28.8	33.6	89.4	104										
		Round	14.1	16.5	54.0	63.0	166	193										
65	2½	V-shaped			27.2	31.7	75.5	88.1	202	236								
		Round			46.5	54.3	169	197	342	398								
80	3	V-shaped			26.4	30.8	64.5	75.3	178	207	311	363						
		Round			39.8	46.4	140	163	433	505	529	617						
100	4	V-shaped					61.6	71.9	148	173	248	290	414	483				
		Round					108	125	385	450	670	782	825	962				
125	5	V-shaped					60.0	70.0	138	160	232	271	335	391				
		Round					101	118	285	333	573	668	922	1076	1392	1623		
150	6	V-shaped							132	154	215	250	297	346				
		Round							258	301	482	563	778	907	1711	1996	2031	2369
200	8	V-shaped											273	319				
		Round											529	617	1458	1700	1917	3091
250	10	V-shaped																
		Round													1147	1338	1917	2237
300	12	V-shaped																
		Round															1532	1788
350	14	V-shaped																
		Round															1380	1610

Table 2: *Torques*

Values in table measured on the test bench (with air and water). These values may vary depending on the operating conditions (process medium, temperature).

Table 2.1: *Floating ball*

	Shaft		Ball	Nom. size (middle body)		Recommended torque in Nm at Δp up to … bar									Max. perm. torque	Max. differential pressure
Type	Material	Max. temperature in °C	Material	DN	NPS	1	2	3	4	6	10	16	25	40	Nm	bar
KS_	1.4462 or 2.4605 or 1.4539 or 1.4876 or 1.4542	180 or 450 [1]	ZrO_2 or Si_3N_4	15	½								27	34	40	80
				25	1								70	85	100	50
				40	1½							110	135		160	35
				65	2½					130	155				180	15
				80	3				135	165					190	10
				100	4				170	210					230	8
				125	5			240	290						340	6
				150	6		350	425							500	4
			1.4112	15	½								35	43	50	160
				25	1								95	110	130	100
				40	1½							140	170		200	35
				65	2½						175	215			250	20
				80	3					240	290				340	12
				100	4				370	450					520	10
				125	5				1260	1530					1800	10
				150	6				2100	2550					3000	10
KA_	1.4462 or 2.4605 or 1.4539 or 1.4876 or 1.4542	180 or 450 [1]	ZrO_2 or Si_3N_4	15	½							28	34		40	40
				25	1						70	85			100	25
				40	1½					115	135				160	13
				65	2½				130	155					180	7
				80	3			135	165						190	5
				100	4		200								230	3
				125	5		300								350	2
				150	6		425								500	2
			1.4112	15	½							35	43		50	40
				25	1							95	110		130	30
				40	1½					140	170				200	13
				65	2½				175	215					250	10
				80	3			240	290						340	6
				100	4			370	445						520	5
				125	5			1530							1800	4
				150	6			2550							3000	4

1) Depending on model selected

Table 2.2: *Trunnion-mounted ball*

	Shaft		Ball	Nom. size (middle body)		Recommended torque in Nm at Δp up to … bar						Max. perm. torque	Max. differential pressure
Type	Material	Max. temperature in °C	Material	DN	NPS	4	6	10	16	25	40	Nm	bar
KZ_	1.4462 or 1.4542 or 1.4539	180 or 260 [1]	ZrO_2 or Si_3N_4	65	2½				220	240		280	25
				80	3			300	380			430	20
				100	4		390	470				560	16
				125	5		670	810				950	16
				150	6	1260	1500					1800	10
KG_	1.4462 or 1.4542 or 1.4539	180 or 260 [1]	ZrO_2 or Si_3N_4	65	2½					220	260	280	28
				80	3				300	380		430	25
				100	4			390	470			560	20
				125	5			710	880			950	18
				150	6		1260	1530				1800	16

1) Depending on model selected

Table 3: *Dimensions and weights*

Table 3.1: *Installation height (see DIN EN ISO 5211)*

Nom. size (middle body) DN-G		Installation height acc. to flanged version in mm											
		F05-VK14		F07-VK17		F10-VK22		F12-VK27		F14-VK36		F16-VK46	
DN	NPS	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2	H1	H2
15	½	124.0	224.0	124.0	224.0	144.0	244.0	–	–	–	–	–	–
25	1	142.5	242.5	142.5	242.5	162.5	262.5	162.5	262.5	162.5	272.5	–	–
40	1½	158.0	258.0	158.0	258.0	178.0	278.0	178.0	278.0	178.0	288.0	–	–
65	2½	201.5	321.5	201.5	321.5	201.5	321.5	201.5	321.5	201.5	331.5	241.5	361.5
80	3	216.0	336.0	216.0	336.0	216.0	336.0	216.0	336.0	216.0	346.0	256.0	376.0
100	4	232.5	382.5	232.5	382.5	232.5	382.5	232.5	382.5	232.5	392.5	272.5	402.5
125	5	–	–	–	–	253.5	403.5	253.5	403.5	253.5	403.5	273.5	423.5
150	6	–	–	–	–	282.5	–	282.5	–	282.5	472.0	328.5	472.0

Table 3.2: *Face-to-face dimensions (see DIN EN 558)*

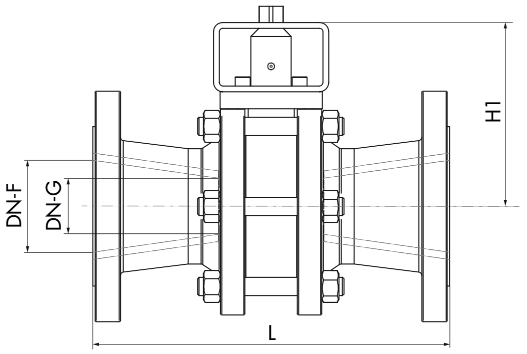
Nominal size (flange) DN-F		Face-to-face dimension L									
		Series 1 1)	Series 27	Series 37		Series 38		Series 3 1)		Series 12	
DN	NPS	mm	mm	mm	inch	mm	inch	mm	inch	mm	inch
15	½	130	115	–	–	–	–	–	–	–	–
20	¾	150	120	–	–	–	–	–	–	–	–
25	1	160	125	184	7.25	197	7.75	127	5	–	–
32	1¼	180	130	–	–	–	–	–	–	–	–
40	1½	200	140	222	8.75	235	9.25	165	6½	–	–
50	2	230	150	254	10.0	267	10.5	178	7	–	–
65	2½	290	170	290	11.4	–	–	190	7½	–	–
80	3	310	180	298	11.75	317	12.5	203	8	–	–
100	4	350	190	352	13.88	368	14.5	229	9	–	–
125	5	400	325	–	–	–	–	–	–	356	9
150	6	480	350	451	17.75	473	18.62	–	–	394	14½
200	8	600	400	543	21.38	568	22.38	–	–	457	18
250	10	730	450	673	26.5	708	27.87	–	–	–	–
300	12	850	500	737	29.02	775	30.51	–	–	–	–

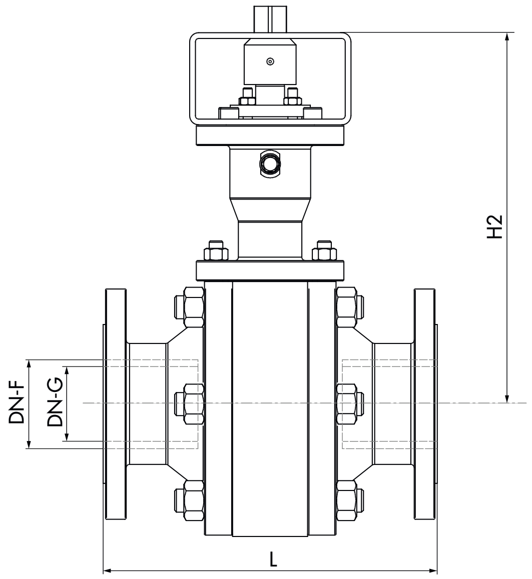
1) Series 1 and 3 are only to be used in exceptional circumstances and only after consulting SAMSON CERA SYSTEM.

Table 3.3: *Weights in kg*

Nominal size (flange)		Nominal size (middle body)							
		DN 15 / NPS ½	DN 25 / NPS 1	DN 40 / NPS 1½	DN 65 / NPS 2½	DN 80 / NPS 3	DN 100 / NPS 4	DN 125 / NPS 5	DN 150 / NPS 6
DN	NPS								
15	½	6.3	–	–	–	–	–	–	–
20	¾	6.3	–	–	–	–	–	–	–
25	1	6.3	10	–	–	–	–	–	–
32	1¼	6.9	11	–	–	–	–	–	–
40	1½	7.3	12	18	–	–	–	–	–
50	2	7.9	15	18	–	–	–	–	–
65	2½	–	18	21	38	–	–	–	–
80	3	–	22	24	39	48	–	–	–
100	4	–	–	28	40	50	66	–	–
125	5	–	–	–	44	54	77	99	–
150	6	–	–	–	51	58	81	110	165
200	8	–	–	–	–	–	105	140	177
250	10	–	–	–	–	–	–	165	188
300	12	–	–	–	–	–	–	–	233
350	14	–	–	–	–	–	–	–	289

Dimensional drawings





Selection and ordering

Code system

Type	K	x	x –	x	x	x –	x	x
Ball valve	K							
Floating ball		S						
Spring-loaded seat		A						
Trunnion-mounted ball, bidirectional sealing		C						
Version for granulate, upstream seat sealing		G						
Full wear protection			V					
Partial wear protection			T					
Very high temperature (up to 950 °C)				X	H	T		
High temperature (up to 450 °C)					H	T		
TA Luft							T	A

Ordering text

Criteria	Value
Nominal size (flange)	DN/NPS …
Nominal size (middle body)	DN/NPS …
Pressure rating	PN …
Face-to-face dimension	Series …
Flanges	
Temperature range	
Materials	See Overview of types on page 2.
Characterized ball	Round/V-shaped
Process medium	
Max. flow rate	in kg/h or m^3/h
Pressure	$p1$ and $p2$ in bar
Required leakage class	
Industrial sector	