McSYS®

Ceramic Valve

Energy saving, environmental protection, innovation, service

CE API 6D BV OHSAS 18000 ISO 14000 ISO9000 TS TS2710972-2010 TS2710976-2010 SINOPEC

※ Ceramic Performance Specification

Item	Unit	Alumina (AL_2O_3)			Zirconia(ZrO_2)	
		AL_2O_3≥95%	AL_2O_3≥99%	AL_2O_3≥99.5%	3Y-TZP	Ce-TZP
Density	g/cm³	3.7	3.9~3.95	3.95	6.0~6.05	6.0
Hardness	HRA≥	86	88	88	87	87
Flexural Strength	MPa≥	300	350	400	1300	800
Max. temperature	℃	1200	1200	1200	900	1100
Liner Expansion Coeflicient	10^{-6}/℃	7.5	8.2	8.2	9.8	9.6
Permittivity	∈r20℃,1MHz	9.0	9.2	9.2	9.3	9.3
Dielectric Loss	tan δ × 10^{4},1MHz	3	2	2	2	2
Volume Resistivities	Ω.cm20℃	10^{13}	10^{14}	10^{14}	10^{16}	10^{16}
Puncture Stength	KV/mm,DC≥	20	20	20	20	20
Compressive Strength	MPa≥	2500	2500	2500	4500	4500
Rupture Strength	MPa≤	200	350	350	1000	1000
Elastic Modulus	Gpa	300	350	350	----	----
Poisson Ratio	----	0.20	0.22	0.22	----	----
Thermal Conductivity	W/m•K(20℃)	20	25	25	----	----

Note: If thermal shock needed, please specify.

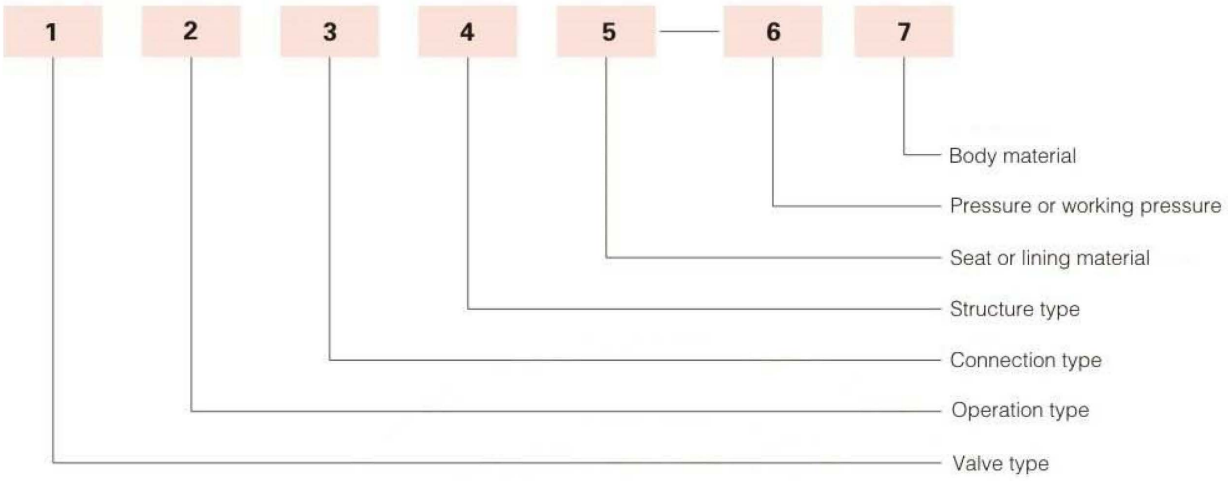
※ Corrosion Resistance Reference Table

Medium	HCL		H_2SO_4		H_3PO_4	
Mass Fraction	20%	20%	90%	90%	60%	60%
Temperature	60℃	95℃	60℃	95℃	60℃	95℃
99.0%AL_2O_3	a	a	a	a	a	a
99.5%AL_2O_3	a	a	a	a	a	a
ZrO_2	a	a	a	a	a	a
SS304	c	x	c	c	c	c
SS316	c	x	c	c	c	c

Medium	HF		HNO_3		NaOH	
Mass Fraction	10%	46%	60%	60%	30%	30%
Temperature	60℃	95℃	60℃	95℃	60℃	95℃
99.0%AL_2O_3	b	c	a	b	b	b
99.5%AL_2O_3	b	c	a	a	a	a
ZrO_2	a	c	a	a	a	b
SS304	c	x	a	b	a	a
SS316	c	x	a	a	a	b

a. Recommend to use because of no corrosion or corrosion can be ignored
b. Suitable to use because of light or less corrosion
c. Not recommend to use because of medium or high corrosion
x. forbid to use because of serious corrosion

McSYS® Numbering System



1. Valve type

Type	Butterfly Valve	Diaphragm valve	Check valve	Globe valve	Throttle valve	Discharge valve	Ball Valve	Plug Valve	Gate valve
Code	D	G	H	J	L	P	Q	X	Z

When the valve also has other functions or with other special structure, in the valve type before charging a Chinese phonetic alphabet, by the following table.

Function	Jacket type	Fire safe type	Sight glass ball type	Discharge type	V-port ball valve	(Stem sealing)Bellow type
Code	B	F	S	P	V	W

2. Operation type

Operation type	Worm gear	Spur gear	Bevel gear	Pneumatic	Electric	Handwheel
Code	3	4	5	6	9	N/M

For pneumatic:6k,7k stand for normally open, 6B,7B stand for normally close.

3. Connection type

Connection type	FNPT	MNPT	Flange	Welding	Wafer
Code	1	2	4	6	7

5. Lining material

Material	Fluorine	Ceramic	Alloy Steel	None
Code	F(Note .)	TC	Y	W

Note: FEP ,PTFE,PO, PFA code is F46,F4,PO,PFA

6. Nominal pressure

It marked with arabic number, which is 10 times of MPa.

7. Body material

Material	Carbon steel	Cr13 Stainless stee	Cr-Mo steel	18-8 Stainless steel	Ductile Iron	Mo2Ti Stainless steel	Plastic
Code	C	H	I	P	Q	R	S

4. Structure types

Valve structure code refer to the following table.

Gate Valve Structure Type

Structure type				Code
Rising stem	Wedge type	Flexible disc		0
		Solid wedge	Single disc	1
			Double disc	2
	Parallel type		Single disc	3
			Double disc	4
Non-rising stem wedge	Wedge type		Single disc	5
			Double disc	6
	Parallel type		Single disc	7
			Double disc	8

Diaphragm Valve Structure Type

Structure type	Code	Structure type	Code
Weir type	1	Straight type	6
Through type	5	Y type	8

Butterfly Valve Structure Type

Structure Type		Code
Seat	Single Eccentric	0
	Vertical disc	1
	Double Eccentric	2
	Tri-Eccentric	3
	One piece stem	4

Globe Valve, Throttle Valve, Plunger Valve Structure Type

Structure Type		Code
Non-balance disc	Straight way	1
	Z way	2
	Three way	3
	Angle way	4
	Through way	5

Check Valve Structure Type

Structure type		Code
Ball check valve		0
Lift disc	Horizontal through way	1
	Lift through way	2
	Y through way	3
Swing disc	Single disc	4
	Multi-disc	5
	Double disc	6
Wafer Check Valve		7

Drain Valve Structure Type

Structure type		Code
Liquid level connection discharge	Throttle through way	1
	Throttle angle way	2
The bottom of the liquid connection discharge	Throttle through way	5
	Throttle straight way	6
	Throttle angle type	7
	Floating gate through way	8

Ball Valve Structure Type

Structure Type		Code
Floating ball	Straight way	1
	Y three-way	2
	L three-way	4
	T three-way	5

Plug Valve Structure Type

Structure Type		Code
Packing	Straight way	1
	L three-way	4
	T three-way	5

ex:

1. **Q41TC-16P :**

   Q41TC-16P stands for manual flange type ceramic ball valve with 1.6 MPa nominal pressure, stainless steel body material and ceramic lining.

2. **Z73TC-16C :**

   Z73TC-16C stands for manual wafer type ceramic knife gate valve with 1.6 MPa nominal pressure, carbon steel body material and ceramic lining.

3. **PZ644TC-16C :**

   PZ644TC-16C stands for pneumatic flanged ceramic slug gate valve with 1.6 MPa nominal pressure, carbon steel body material and ceramic lining material.

※ (Cutway view)

※ Torque Table

Size	DN	DN15	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100	DN125	DN150
	NPS	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"
Torche (N.M)	0.6MPa	15	20	20	30	40	50	70	110	140	240	350
	1.6MPa	19	30	30	50	70	90	110	200	240	360	450

The data shown above was acquied under test conditions that may be some the actual site conditions. This is only for reference, and please contact us for more information.

※ Material Specification

No.	Name	Material	No.	Name	Material	No.	Name	Material
01	Tube	Structural ceramics	08	O-ring	Viton	15	Control pad	2Cr13/SS304
02	Bolt	A193-B7/B8	09	O-ring	Viton	16	Coupling shaft	2Cr13/SS304
03	Nut	A194-2H/B8	10	Bonnet	A105/ SS304	17	Bracket	WCB/CF8
04	Seat	Structural ceramics	11	O-ring	Viton	18	Bracket bolt	A193-B7/B8
05	Ball	Structural ceramics	12	Stem	2Cr13	19	Pneumatic actuator	Assembly
06	Middle body	A105/ SS304	13	Stuffing box	SS316			
07	Middle body	Structural ceramics	14	Gland bolt	A193-B7/B8			

Note: Material selection according to specific conditions may be vary, the above data is for reference only.

※ The Advantages of Ceramic Valve

The metal valves are widely used in industrial applications. However there are many restrictions of the metal material under the harsh condition of high abbrasion and corrosion, which will cause serious leakage, shorten life time and affect the stability of the plant operation. Here are the advantages of ceramic valve that can make up for metal valve:

1. The sealing parts and the wearing parts are made by new high-tech structural ceramic material, which improve the performance of abrasive resistance and corrosive protection, prolonging the service life of the valve.
2. It can greatly reduce the replacement, repair cost if the ceramic valve applied, which can further improve the stability of equipment operation, and save labor cost.
3. It can improve the sealing performance of the industrial piping system. At the same time, using ceramic valve has the positive affect on environment protection. Moreover, the raw material of ceramic valve is low cost, can save a lot of metal and rare mineral resources.

Q941TC Electric Ceramic Ball Valve

Q41TC Manual (lever) Ceramic Ball Valve

※Product Description

- Trim components of ceramic ball valve adopt Alumina or zirconia ceramic with high chemical stability and hardness (HRC88),only inferior to diamond. The ceramic lined valve has very good performance on abrasion erosion, and corrosion resistance, and excellent heat-shielding, electric insulation. Mainly used in electric power, petroleum, chemical, metallurgy, mining, sewage treatment and other industrials where the metal valve cannot be applicable.

- The ball is made by advanced grinding equipment and advanced process technology that can ensure high precision ball roundness,good surface. The self-lubricating capability of ceramic ensures the good sealing after polishing, which radically changed the defects that metal hard sealing valve has such as big torque, non-corrosion-resistant sealing surface.

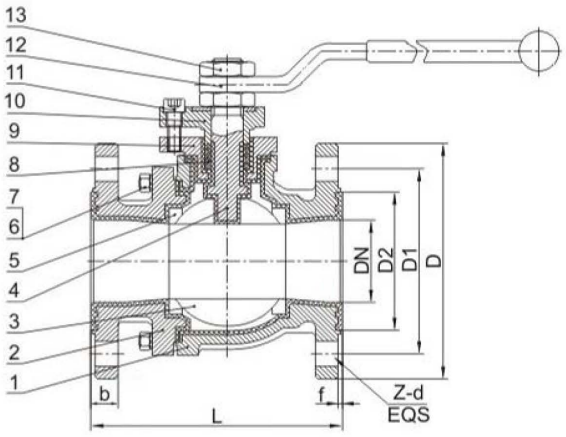
- Ceramic valve adopts new high-tech type structural ceramic material as sealing and wearing parts,which can improve abrasion and corrosion resistance, and sealing performance, prolonging lifespan, 2-4 times of lifespan than Titanium Alloy and Monel valve. Using ceramic valve can reduce repair or replacement costs and improve safety, stability of operating system.

- This valve fit in granule medium of high hardness, or medium with erosion soft granule. Nominal pressure PN10-PN40, applicable temperature ≤200℃. Manufacture and design accordance to GB,JIS,API standards.

Q641TC Penumatic Ceramic Ball Valve

※Product Description

- This type of ceramic ball valve is Mac's first developed high-tech product, featurers PFA lined body. It is compact and good surface and widely used in soft particals with corrosion medium, especially for high wear, strong corrosion and other harsh conditions. Current ceramice valve widely used in petrochemical, medicine and water treatment industries.
- The ball and seat adopts alumina or zirconia ceramic with high chemical stability and hardness (HRC88). The ceramic lined valve has a very high abrasion resistance, corrosion resistance, erosion resistance, good insulation. The wetted body is fully lined with PFA that also has good performance on corrosion resistant. Comparing to the fully lined ceramic valve, PFA lined one lower the whole weight and also more economic.
- Diameter size: DN15-DN300. Nominal pressure: PN10-PN25. Applicalbe temperature:≤200℃. Operation methods can be manual, pneumatic, electric. Manufacture and design as per GB, API, JIS standard.



No.	Name	Material
1	body	WCB/CF8+PFA
2	bonnet	WCB/CF8+PFA
3	ball	High strength structural ceramic
4	Stem	2Cr13/SS304
5	Seat	High strength structural ceramic
6	Bolt	A193-B7/B8
7	Nut	A194-2H/B8
8	Parking ring	PTFE
9	Stuffing box	WCB/CF8
10	Gland	WCB/CF8
11	Body bolt	A193-B7/B8
12	Lever	WCB
13	Nut	A194-2H/B8

※ Technical Specification

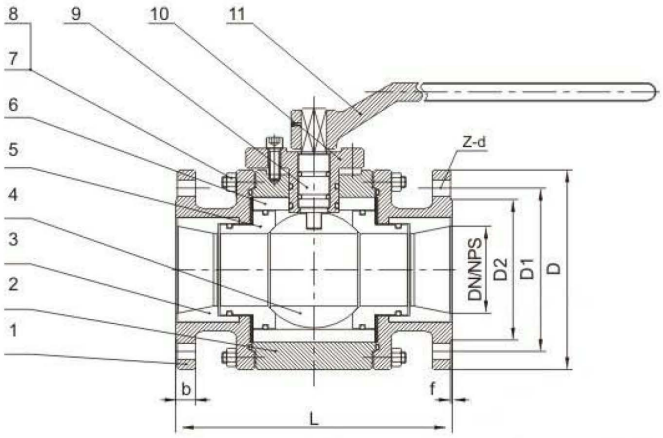
Design & Manufacture		API 6D / GB/T12237
Connection Size	Face-to-face	ASME B16.10 / GB/T12221
	Flange	ASME B16.5 / GB/T9113
Inspection & Test		API598 / GB/T13927
Material	Carbon steel	GB/T12229
	Stainless steel	GB/T12230
Mark		GB/T12220
Delivery		GB/T12252
Size		DN15-350
Pressure		1.0MPa 1.6MPa 150LB

※ Material Specification

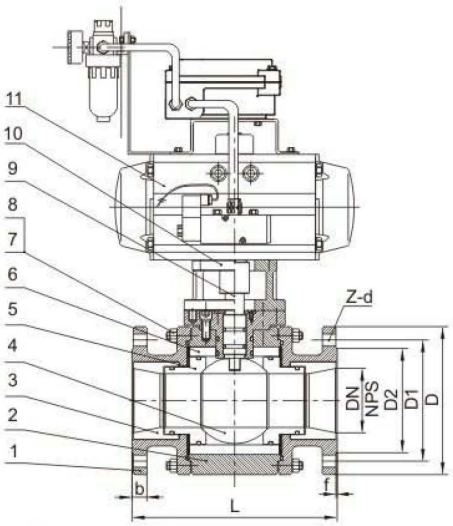
No.	Name	Material details		
1	Nut	A194 2H	A194 8	A194 8M
2	Wrench	A216 WCB	A351 CF8 A351 CF8M	A351 CF3 A351 CF3M
3	Locating piece	25# SS304		
4	Body bolt	A193 B7	A320 B8	A193 B8M
5	Gland	A216 WCB	A351 CF8 A351 CF8M	A351 CF3 A351 CF3M
6	Packing	PTFE		
7	Packing Gland	A216 WCB+ PFA	A351 CF8 CF8M+PFA	A351 CF3 CF3M+PFA
8	Body Bolt	A193 B7	A320 B8	A193 B8M
9	Body	A216 WCB +PFA	A351 CF8 CF8M+PFA	A351 CF3 CF3M+PFA
10	Seat	High strength structural ceramic		
11	Ball	High strength structural ceramic		
12	Stem	17-4PH+PFA		
13	Bonnet	A216 WCB+ PFA	A351 CF8 CF8M+PFA	A351 CF3 CF3M+PFA

Q41PFA/TC

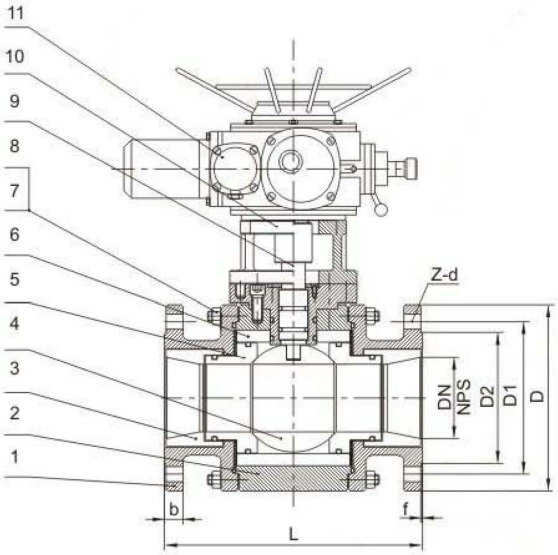
Lined ceramic ball valve



Q41TC Manual (lever) Ceramic Ball Valve



Q641TC Penumatic Ceramic Ball Valve



Q941TC Electric Ceramic Ball Valve

※ Technical Specification

Design and Manufacture		API 6D / GB/T12237
Connection End	Face-to-face Dimension	ASME B16.10 / GB/T12221
	Flange End	ASME B16.5 / GB/T9113
Inspeection & Test		API598 / GB/T13927
Material	Carbon steel	GB/T12229
	Stainless steel	GB/T12230
Mark		GB/T12220
Delivery		GB/T12252

※ Material Specification

No.	Name	Material	No.	Name	Material
1	Bonnet	A105/SS304	7	Stud	A193-B7/B8
2	Middle body	A105/SS304	8	Nut	A194-2H/B8
3	Coupling	High strength structural ceramic	9	Stem	SS316/SS316L
4	Ball	High strength structural ceramic	10	Yoke	Q235/SS304
5	Seat	High strength structural ceramic		Packing Gland	Q235/SS304
6	Middle sleeve	High strength structural ceramic	11	Driving actuator	Components

※ Main Dimension (GB/T 9113)

DN	L	PN10(1.0MPa)						PN16(1.6MPa)					
		D	D1	D2	b	f	Z-d	D	D1	D2	b	f	Z-d
15	130	95	65	45	16	2	4–Φ14	95	65	45	16	2	4–Φ14
20	130	105	75	58	18	2	4–Φ14	105	75	58	18	2	4–Φ14
25	140	115	85	68	18	2	4–Φ14	115	85	68	18	2	4–Φ14
32	165	140	100	78	18	2	4–Φ18	140	100	78	18	2	4–Φ18
40	165	150	110	88	18	3	4–Φ18	150	110	88	18	3	4–Φ18
50	203	165	125	102	18	3	4–Φ18	165	125	102	18	3	4–Φ18
65	220	185	145	122	18	3	4–Φ18	185	145	122	18	3	4–Φ18
80	241	200	160	138	20	3	8–Φ18	200	160	138	20	3	8–Φ18
100	305	220	180	158	20	3	8–Φ18	220	180	158	20	3	8–Φ18
125	356	250	210	188	22	3	8–Φ18	250	210	188	22	3	8–Φ18
150	394	285	240	212	22	3	8–Φ22	285	240	212	22	3	8–Φ22
200	457	340	295	268	24	3	8–Φ22	340	295	268	24	4	12–Φ22
250	533	395	350	320	26	3	12–Φ22	405	355	320	26	4	12–Φ26
300	610	445	400	375	26	4	12–Φ22	460	410	375	28	4	12–Φ26

※ASME B16.5

NPS	L	Class150					
		D	D1	D2	b	f	Z-d
1/2	110	89	60.5	35	2	12	4–16
3/4	117	98	70.0	43	2	12	4–16
1	127	108	79.5	51	2	12	4–16
1¼	140	117	89.0	64	2	13	4–16
1½	165	127	98.5	73	2	15	4–16
2	178	152	120.5	92	2	16	4–19
2½	190	178	139.5	105	2	18	4–19
3	203	190	152.5	127	2	19	4–19
4	229	229	190.5	157	2	24	8–19
5	254	254	216.0	186	3	24	8–22
6	267	279	241.5	216	3	26	8–22
8	292	343	298.5	270	3	29	8–22
10	330	406	362.0	324	4	31	12–25

Note: more size, please contact our engineer

※Product Description

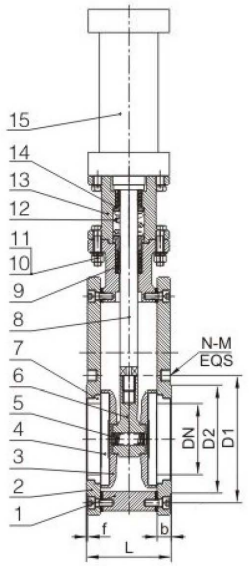
- Pneumatic ceramic discharge valve has merits of high wearproof, good abrasion resistance and good eroding resistance. Both sides of sealing performance are choiceness and according to different working conditions it can set the blowing mouth ,ash hopper, which is suitable for dry ash system by conveying slurry medium; It is excellent that less ash, no jam, easy maintenance and long life durability.

- Pneumatic actuator adopts a totally enclosed push rod type with straight-cylinder driving, which has reliable performance and large output torque, and can work in the harsh conditions, and also can be suitable for mining, papermaking, chemical industry and other kinds of wear dry dust, water, steam media,etc.

- This valve is designed for ash removal system, with reliable on-off action, and small starting load. Unique designed concept is that the valve action, when the valve plate to the valve seat sealing surface via mutual grinding and polishing, make it improve abrasion resistance and sealing performance in the harsh conditions.

- Nominal pressure: PN10~PN25. Applicable temperature:≤250℃. Actuator pressure: 0.6~0.8MPa. It can be designed according to customer's requirement.

Z674TC
Penumatic Ceramic Discharge Valve



Z674TC
Penumatic Ceramic Discharge Valve

※ Technical Specification

Design and Manufacture		GB/T12234
Connection End	Face-to-face Dimension	
	Flange End	GB/T9113 / ASME B16.5
Inspeection & Test		JB/T9092
Material	Carbon steel	GB/T12229
	Stainless steel	GB/T12230
Mark		GB/T12220
Delivery		GB/T12252

※ Material Specification

No.	Name	Material	No.	Name	Material
1	Body	WCB/CF8	9	Parking ring	PTFE
2	Bonnet	A105/SS304	10	Stud	A193-B7/B8
3	Plate seat	WCB/ CF8	11	Nut	A194-2H/B8
4	Plate	Structural ceramic	12	Spring	16Mn
5	Spring	16Mn	13	Cylinder bracket	WCB/CF8
6	Hook	WCB/CF8	14	Packing ring	45#
7	Seat	Structural ceramic	15	Pneumatic actuator	Components
8	Stem	2Cr13/SS304			

※ Main Dimension (GB/T 9113)

DN	L	PN10(1.0MPa)					
		D	D1	D2	b	N-M	Z-d
50	120	160	125	100	16	4-M16	4-Φ18
65	120	180	145	120	18	4-M16	4-Φ18
80	120	195	160	135	20	8-M16	8-Φ18
100	120	210	180	155	20	8-M16	8-Φ18
125	160	245	210	185	22	8-M16	8-Φ18
150	160	280	240	210	24	8-M20	8-Φ18
200	160	335	295	265	26	8-M20	8-Φ22
250	200	405	350	320	30	12-M22	12-Φ26
300	200	460	400	368	30	12-M22	12-Φ26

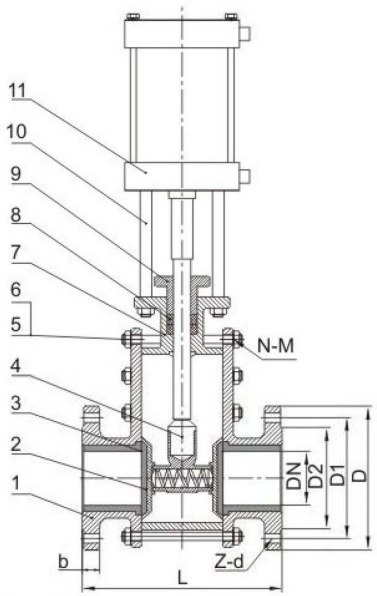
Note: more size, please contact our engineer

Pneumatic Ceramic Discharge Valve

※Product Description

- Pneumatic ceramic discharge valve has merits of heat stabilization good eroding resistion. Both sides of sealing performance are choiceness with ppen dual-plate gate seal structure. According to different conditions can set the blowing mouth, ash hopper, which suitable for dry ash system by conveying of slurry medium. It is excellent that less ash, no jam, simple maintenance and long life durability.
- Pneumatic actuator adopts a totally enclosed push rod type with straight-cylinder driving, which has reliable performance and large output torque. It can work in the harsh conditions, and also can be suitable for mining, papermaking, chemical industry and other kinds of wear dry dust, water, steam media,etc.
- This valve is designed for ash removal system, with reliable on-off action. Unique designed concept is the valve action that when the valve plate to the valve seat sealing surface via mutual grinding and polishing, make it improve abrasion resistance and sealing performance in the harsh conditions.
- Nominal pressure: PN10~PN25.
  Applicable temperature:≤250℃.
  Actuator pressure: 0.6~0.8MPa.
  It can be designed according to customer's requirement.

Pneumatic Ceramic Discharge Valve



Z644TC
Pneumatic Ceramic Discharge Valve

※ Technical Specification

Design and Manufacture		GB/T12234
Connection End	Face-to-face Dimension	
	Flange End	GB/T9113 / ASME B16.5
Inspeection & Test		JB/T9092
Material	Carbon steel	GB/T12229
	Stainless steel	GB/T12230
Mark		GB/T12220
Delivery		GB/T12252

※ Material Specification

No.	Name	Material	No.	Name	Material
1	Bonnet	WCB/CF8	7	Packing	PTFE/Flexible graphite
2	Plate	CF8/WCB+Structural ceramic	8	Packing Gland	WCB/CF8
3	Seat	Structural ceramic	9	Nut	A194-2H/B8
4	Hook	WCB/CF8	10	Stud	A193-B7/B8
5	Stem	2Cr13/SS304	11	Cylinder bracket	Q235/SS304
6	Middle body	WCB/CF8	12	Pneumatic actuator	Components

※ Main Dimension (GB/T 9113)

DN	L	PN10(1.0MPa)					
		D	D1	D2	b	N-M	Z-d
50	200	160	125	100	16	4-M16	4-Φ18
65	220	180	145	120	18	4-M16	4-Φ18
80	240	195	160	135	20	8-M16	8-Φ18
100	280	215	180	155	20	8-M16	8-Φ18
125	300	245	210	185	22	8-M16	8-Φ18
150	320	280	240	210	24	8-M20	8-Φ22
200	350	335	295	265	26	8-M20	8-Φ22
250	400	405	350	320	30	8-M20	8-Φ22
300	450	460	400	370	30	12-M20	12-Φ22

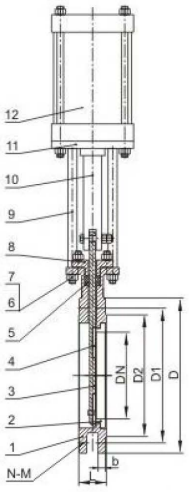
Note: more size, please contact our engineer

Ceramic Knife Gate Valve

※Product Description

- Ceramic knife gate Valve is suitable for corrosive medium with high hardness of particles (such as slag water), or soft particles in pipeline. The products are widely used in ash,sludge,coal slurry, pulp, sewage and other solid, especially for stone coal system for thermal power plant.
- Disc and seat sealing surface adpot an advanced ceramics materials technologies for abrasion resistance, corrosion resistance, high temperature resistance. Therefore, this valve has a very high abrasion resistance, corrosion resistance, and good insulation, low thermal expansion.
- This valve outlet is full circulation without blocking, good abrasion resistance and sealing performance. Opening-load is low, and there's less ash jam phenomenon.
- This valve has ductile structural ceramic sealing, high mechanical strength, good abrasion resistance, long life durability. The structure is compact and can be installed at any angle.
- Norminal pressure: PN10~PN25.
  Applicable temperature:≤250℃.
  Actuator Pressure: 0.6~0.8MPa.
  It can be designed according to customer's requirement.

Pneumatic Ceramic Knife Gate Valve



Z673TC
Pneumatic Ceramic Knife Gate Valve

※ Technical Specification

Design and Manufacture		GB/T12234
Connection End	Face-to-face Dimension	
	Flange End	GB/T9113 / ASME B16.5
Inspeection & Test		JB/T9092
Material	Carbon steel	GB/T12229
	Stainless steel	GB/T12230
Mark		GB/T12220
Delivery		GB/T12252

※ Material Specification

No.	Name	Material	No.	Name	Material
1	Body	WCB/CF8	7	Nut	A194-2H/B8
2	Seat	Structural ceramic	8	Packing Gland	WCB/CF8
3	Plate	301/304	9	Cylinder bracket	Q235/SS304
4	Ceramic seal seat	Structural ceramic	10	Stem	2Cr13/SS304
5	Packing	PTFE/Flexible graphite	11	cylinder connecting plate	Q235/SS304
6	Stud	A193 B7/B8	12	Pneumatic actuator	Components

※ Main Dimension (GB/T 9113)

DN	L	PN10(1.0MPa)			PN16(1.6MPa)		
		D	D1	N-M	D	D1	N-M
50	43	165	125	4-M16	165	125	4-M16
65	46	185	145	4-M16	185	145	8-M16
80	46	200	160	8-M16	200	160	8-M16
100	52	220	180	8-M16	220	180	8-M16
125	56	250	210	8-M16	250	210	8-M16
150	56	285	240	8-M20	285	240	8-M20
200	60	340	295	8-M20	340	295	12-M20
250	68	395	350	12-M20	405	355	12-M24
300	78	445	400	12-M20	460	410	12-M24
350	78	505	460	16-M20	520	470	16-M24
400	102	565	515	16-M24	580	525	16-M27
450	114	615	565	20-M24	640	585	20-M27
500	127	670	620	20-M24	715	650	20-M30
600	154	780	725	20-M27	840	770	24-M33

Note: more size, please contact our engineer

McSYS® Ceramic Slag Valve

※Product Description

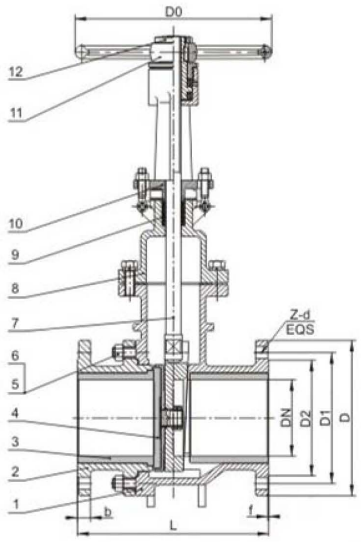
- Ceramic discharge valve is suitable for liquid, solid mixed media, special structural design, slag removal effect is very good, no slag accumulation in body, tight closing. Disc and seat sealing materials are composed of ceramic, improve abrasion resistance and corrosion resistance, extended life durability. The valve is widely used in electric power, petrochemical, metallurgy, mining, coal plant, cement plant, water treatment plants and other industries, especially suitable for serious wear of the mortar, ash pipeline transportation system.

- The valve mainly consists of a body, disc, yoke, wire rod, engineering ceramics. The handwheel adopts thrust bearing design, reducing on-off resistance power; Using the anti-abrasion compound material according to wear parts of the body. Exit streamlined design, and using process is no slag, Operated methods has electric, manual, etc...

- Abrasion resistance slag valve is professional valve suitable for ash removal system of coal-fired power plant, It can also be used in mine ore, washing pipeline, choosing coal system and wear pipeline in chemical systems. Ceramic valve has superior performance for the medium with high abrasion, strong corrosion, high temperature, high pressure and other harsh conditions.

- This valve has ductile structural ceramic sealing, high mechanical strength, good abrasion resistance, long life durability. The structure is compact and can be installed at any angle. Nominal Pressure:1.0, 1. 6, 2.5, 4.0MPa, Applicable temperature ≤200 ℃

Manual Ceramic Drain Valve



PZ41TC
Manual Ceramic Drain Valve

※ Technical Specification

Design and Manufacture		GB/T12234
Connection End	Face-to-face Dimension	GB/T12221
	Flange End	GB/T9113
Inspeection & Test		JB/T9092
Material	Carbon steel	GB/T12229
	Stainless steel	GB/T12230
Mark		GB/T12220
Delivery		GB/T12252

※ Material Specification

No.	Name	Material	No.	Name	Material
1	Main body	WCB/CF8	7	Stem	2Cr13/SS304
2	Left body	WCB/CF8	8	Bonnet	WCB/CF8
3	Seat		9	Packing	PTFE/Flexible graphite
4	Plate	WCB/CF8 +Structural ceramic	10	Packing Gland	WCB/CF8
5	Nut	A194-2H/B8	11	hand wheel	QT400/SS304
6	Stud	A193-B7/B8	12	Stem Nut	Bronze

※ Main Dimension (GB/T 9113)

DN	L	PN10(1.0MPa)					PN16(1.6MPa)				
		D	D1	b	f	Z-d	D	D1	b	f	Z-d
50	250	165	125	20	3	4-Φ18	165	125	20	3	4-Φ18
80	280	200	160	20	3	8-Φ18	200	160	20	3	8-Φ18
100	300	220	180	22	3	8-Φ18	220	180	22	3	8-Φ18
125	325	250	210	22	3	8-Φ18	250	210	22	3	8-Φ18
150	350	285	240	24	3	8-Φ22	285	240	24	3	8-Φ22
200	400	340	295	24	3	8-Φ22	340	295	24	3	12-Φ22
250	450	395	350	26	3	12-Φ22	395	350	26	3	12-Φ26
300	500	445	400	26	4	12-Φ22	460	410	28	4	12-Φ26
350	550	505	460	26	4	16-Φ22	520	470	30	4	16-Φ26
400	600	565	515	26	4	16-Φ26	580	525	32	4	16-Φ30

Note: more size, please contact our engineer

Applications and Mediums

Acetic Acid	Green Liquor	Sand/Tailings Slurry	Alumina Hydrate	Gypsum Slurry	Sodium Benzoate	Aluimina Poeder	Hydrochloric Acid
Sodium Carbonate	Alumina Chloride	Recycled Paper	Sodium Chlorate	Ammonia	Hydrogen Peroxide	Sodium Chloride	Ammonium Carbonate
Kaolin Slurry	Sodium Cyanide	Ammonium Chloride	Kerisene	Sodium Fluoride	Ammonium Fluoride	Lime/Limestone Slurry	Sodium Hydroxide
Ammonium Silicate	Magnesium Hydroxide	Sodium Hypochlorite	Anatase Slurry	Magnesium Oxide Slurry	Sodium Nitrate	Aniline	Magnesium Sulfate
Sodium Sulfate	Ash Slurry	Mandesium Slurry/Ore	Soot Slurry	Bauxite Slurry	Mercuric Chloride	Steam	Benzyl Chloride
Methanol	Sulfur Dioxide	Black Liquor	Methyl Acetone	Sulfuric Acid	Boric Acid	Methyl Chloride	Talcum Water
Brine	Methyl Ethyl Krtone	Tarnic Acid	Calcium Carbonate	Methylene Chloride	Tianium Dioxide	Calcium Chlorate	Milk of Lime
Tianium Tetrachloride	Calcium Chloride	Mother Liquor	Toluene	Calcium Hypochlorite	Napthalene	Trichloroethane	Calcium Sulfate
Natural Gas	Turpentine	Carbon Slurry	Nitric Acid	Waste Acids	Chlorine(Wet)	Oleum	Wool Fines
Chlorosilane Vapor	Papered Slurry	Xylene	Chromic Acid	Petroleum	Zinc Sulfate	Citric Acid	Phenol
Trichlorosilane	Clay Slurry	phosphoric Acid	Silicon Tetrachloride	Copper Chloride	Potassium Bromate	Copper Cyanide	Potassium Carbonate
Copper Sulfate	Potassium Chlorate	Cuprous Chloride	Potassium Chloride	Ethanol	Potassium Dichromate	Ethyl Amine	potassium Perchlorate
Ehtyl Ether	Potassium Permanganate	Ferric Chloride	Potassium Sulfate	Ferrous Sulfate	Precipitated Calcium	Flue Gas	Carbonate(PCC)
Fiyash(Wet and Dry)	Radioactive Slurry	Formic Acid	Silica Fume	Monocrystalline Silicon	Polycrystalline Silicon	Sea Water	Salt Mine
pulp	Oxidation Of Beauty	Coal Ash	Coke Powder	PCl	Dry Ash	Chlorosilane	Chlorsilane

McSYS ceramic valves are superior in most severe applications. Here we list some typical industries and applications above for your reference, in which McSYS ceramic valves have proven superior performances and long serving time.

1. Pulp and Paper Application

Pulp preparation
Pulp+sulphuric acid H_2SO_4 or sodium sulfite(Na_2s)+lime

Paper making:
Offer the high–quality product: Fill and absord material, i.e kaoline, magnesium peroxide , orthohydrous coal
Paper hold / brighteners: titanium dioxide, silicon, talc etc.

High density of flow control=corrosion resistance & erosion resistance

2. Fertilizer Application

Phosphoric acid(43% H_3PO_4) mix with solid calcium phosphate 80℃, 3–6Pa, Density achieved at 1.500 kg/m^3

Ammonium Carbonate(NH4NO3)+slurry, 140℃ ,with solid ammonium carbonate 4–8Pa, Density achieved at 1.300kg/m^3

Slurry with dolomite ($CaCO_3$ origin mineral), 60℃, 5Pa, Density bigger than 1.300kg/m^3

To replace metal and teflon/rubber lined valve which exchange frequently for prevent abrasion and erosion.

Economic feasibility
(Regular valve price*exchange time each year)+Production loss during exchange period +labor cost of exchange≥Ceramic valve cost

3. Power Plant Application

Coal factory

Desulphurization of exhaust gas FGD
Lime slurry and preparation (grind)
To control the lime before reach the cleaner and absorber
Recycle the sulphuric acid after desulfuration
Recycle the processed water(only little solid include)

Ash
Transfer ash and not burn by gas Dynamics after filter from electric–static force

4. Ironmaking And Steelmaking Plant Application

PCI,
Dry bulk pneumatic injection & control

EAF, electric arc furnace (coal powder injection)
Pneumatic injection and control (O_2 or N_2 - carbon)

The original iron desulfurization (injection into): material added to change the steel qualityCaC_2, MgO_2, SiO_2. Pneumatic injection & control
DRI, iron ore is "reduced" at high temp. 700℃

5. Waste Incinerator Application

MSW incinerator= Disperse sulphur into air
Flue gas cleaning is strictly required in some countries.

6. Titanium Dioxide TiO_2 Application

Desulfidation & bleach
Sulfuric TiO_2 extraction process fluids such as:
TiO_2 slurry 30% sand – solids with 20% H2SO4 app. 50℃, 3–5 bar, low pH, control valves.
Chlorine TiO_2 reaction process with fluids such as:
$TiCl_4$ slurry, coke particles (pneumatic injection), $FeCl_3$ (metal particles in suspension). in the $TiCl_4$ case, temp. can be up to 500℃ !!!
Bi–process:
sulfuric acid treatment. from diluted 20% H_2SO_4 back to 98% H_2SO_4

Energy saving,
environmental protection,
innovation,
service

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