Wear and corrosion resistant ball valves



Cera Valve

System solutions with ceramic components

SMART IN FLOW CONTROL.

Wear protection in the toughest operating conditions



Conventional materials in valves can reach their limits in many industrial applications. Entirely new results often arise when high-performance ceramic materials are used.
Ceramics can be used to an advantage everywhere wear and corrosion resistance and high temperature stability are needed.

Cera System has the most comprehensive range of tried and tested ceramic valve products available to our customers than does any other valve supplier worldwide. Many of our ceramic lined valves can be delivered in a relatively short lead time and are often the most cost effective valves for the most demanding applications.

As the technological market leader for ceramic lined industrial valves and pipeline components, we continually open up new areas of application together with our customers. Our range of services consists of the design engineering, testing, production and delivery of such systems. And, Cera System provides outstanding after sales customer service through factory trained application engineers and field service technicians. Our system solutions enable a great economic benefit in many applications.

Due to the fact that our products are used in almost all industrial sectors, our application engineers are aware of many different application problems and are usually already aware of a solution.

Our standard products are designed for use in extreme conditions. But we are also working closely with our customers to develop new solutions while relying on our vast knowledge and experience of applying engineered ceramics to critical service valves.
In the valve sector, this includes:

- Valves with multiple protective housings
- Valves with blocking media
- Valves with heating and cooling jackets
- Valves manufactured from exotic material
- Multi-ported valves
- Sampling systems

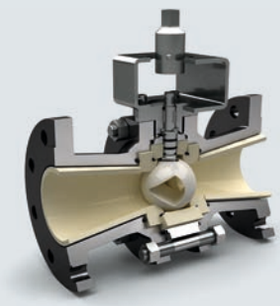
Cera System valves are used and trusted by well know companies from all over the world. Reference can be supplied as requested.

Typical applications

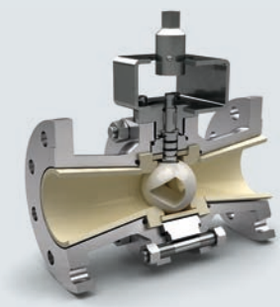


Coal fired power plants: Flue gas desulphurisation plants (FGD): Lime slurry and gypsum slurry process water with high chlorides and solids content
Steel works: Injection of coal powder (PCI); Injection of carbon powder in electric arc furnaces (EAF); Raw iron desulphurisation (supply of additives: CaC, MgO_2 …)
Polysilicon: Si_3Cl_4, TCS, raw silicon, splitting of silicon with acids, conveying of silicon powder …
Waste incineration plants: HCl-prewashers, limestone suspension for pH regeneration, corrosive washing water (HF loaded)
Paper & pulp/dye works: Kaolin, bentonite, fillers, dyes, bleachers, talcum …
Paper machine: Pulp residue, lime suspension, MgO_2, green liquor, wood particles in suspension …
Mining: Copper: Splitting of ore with H_2SO_4, copper residues in suspension, concentrated copper slurries ("floatation") to the filter, pneumatic conveying of copper powder to smelter, air bleed valve on the pneumatic conveying container …
There are similar applications for zinc and other noble metals.
Pneumatic conveying: All types of dry bulk material (quartz, silicon, lime, coal, glass, cement, PP pellets …)
Petrochemistry: FCC aluminium oxide powder as the catalyst, catalyst slurry …
Fertilizer: Ammonium nitrate slurry, phosphoric acid with solids (lime), dolomite, washing water with hydrofluoric acid content …
Chemistry: PIGMENTS: TiO_2 suspension, Ti_3Cl_4, H_2SO_4 + TiO_2, $FeCl_2$ …

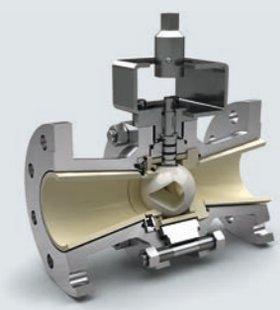
Ball valve • System overview



KSV The CeraValve type KSV is a ceramic lined ball valve for On / Off function as well as for Throttling Control applications for corrosive media with abrasive solids content. It is an alternative to PTFE/PFA lined valves in the event that their performance limits (pressure, temperature, wear) are exceeded.
The upstream and downstream seats are fixed and the ball has a defined clearance. The ball is seated against the downstream seat by the differential pressure of the fluid through the valve.

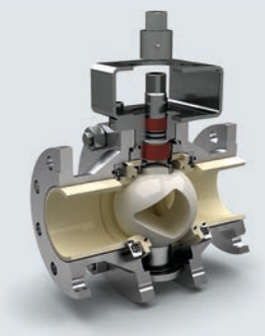


KST The CeraValve type KST is a ceramic lined ball valve for the On / Off and Throttling Applications for highly abrasive and corrosive media. Valve bodies can be produced from various materials (e.g. stainless steel, Hastelloy, titanium, PVDF). Special configurations for low/high temperatures, TA-Luft low emission, and similar concerns can be supplied. High strength zirconia ceramics is used for the valve ball which seals against wear resistant alumina ceramic seats. The floating valve ball seals against the downstream seat by means of differential pressure.

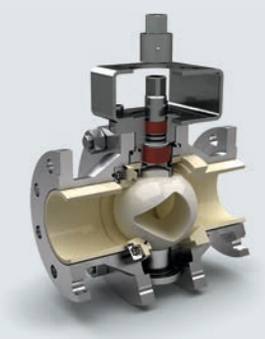


KAT The CeraValve type KAT is a ceramic lined ball valve for the Open / Close function and the control tasks for excessive abrasive and corrosive media. It can be produced in all customary housing materials (e.g. stainless steel, Hastelloy, titanium, Monel). Furthermore, special requirements (low / high working temperatures, TA-Luft [German Clean Air Act] and similar matters) can be taken into consideration. The upstream seat is resilient. As a result, the ball has no clearance and always seals. Applications with low differential pressure and / or slow pressure build-up can be solved in this manner.

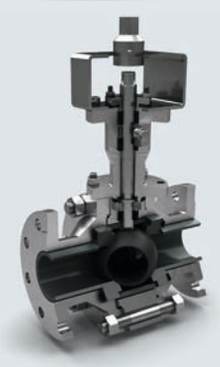
KZT The CeraValve type KZT is a ceramic lined ball valve for the Open / Close function and the control tasks for excessive abrasive and corrosive media. It can be produced in all customary housing materials (e.g. stainless steel, Hastelloy, titanium, Monel). Furthermore, special requirements (low / high working temperatures, TA-Luft [German Clean Air Act] and similar matters) can be taken into consideration. Higher pressure differentials are possible due to the trunnion mounted ball. The seats are cushioned. The valve can be pressurised from both sides.



KGT The CeraValve type KGT is a ceramic lined ball valve for the Open / Close function and the control tasks for excessive abrasive and corrosive media. It can be produced in all customary housing materials (e.g. stainless steel, Hastelloy, titanium, Monel). Furthermore, special requirements (low / high working temperatures, TA-Luft and similar matters) can be taken into consideration. Higher pressure differentials are possible due to the trunnion mounted ball. The valve only seals on one side. A "dead space" is avoided as a result. Therefore, the ball valve is particularly suitable for pneumatic transport.

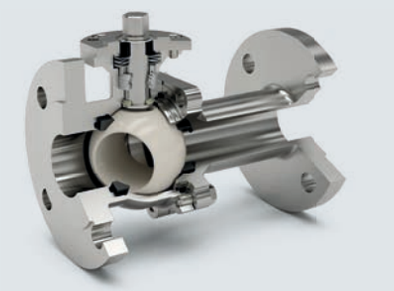


KST-HT The CeraValve type KST-HT is a ceramic lined ball valve for the Open / Close function and the control tasks for excessive abrasive and corrosive media in a temperature range of up to 550 °C / 1022 °F. It can be produced in all customary housing materials (e.g. stainless steel, Hastelloy, titanium).
Special housing and ceramic materials permit special solutions of up to 950 °C / 1740 °F. The seats are rigid (fixed), The ball has a defined clearance, it is pressed against the downstream seat by the differential pressure, sealing it.





KBR The CeraValve type KBR is a wear resistant ball valve for the Open / Close function for abrasive and excessive abrasive media, preferred for applications when pneumatically transporting bulk materials.
The sealing is carried out on a metallic basis. The seats can be optionally produced in ceramic.



BR 26 CERA The valve type BR 26 CERA is a stainless steel ball valve for on/off function with ceramic seats and ceramic ball for service in abrasive and corrosive applications. Especially for abrasive applications in chemical plants this valve can be beneficiary.
The basic principle is based on the "floating ball" design. The seats are pushed by o-rings against the ball. This valve can be delivered with a manual handle, with pneumatic- or electric-actuator.

Design:

Wear, corrosion and high-temperature resistant design
Three-part construction, therefore providing optimum adaptation to the operating conditions

Pressure range:

PN 10 up to PN 63, ANSI class 150, class 300 and class 600
Other nominal pressure ranges on request

Nominal size range:

Flange connections from DN 15 up to DN 300 (½" up to 12")
Center Housing from DN 15 up to DN 150 (½" up to 6")

Temperature:

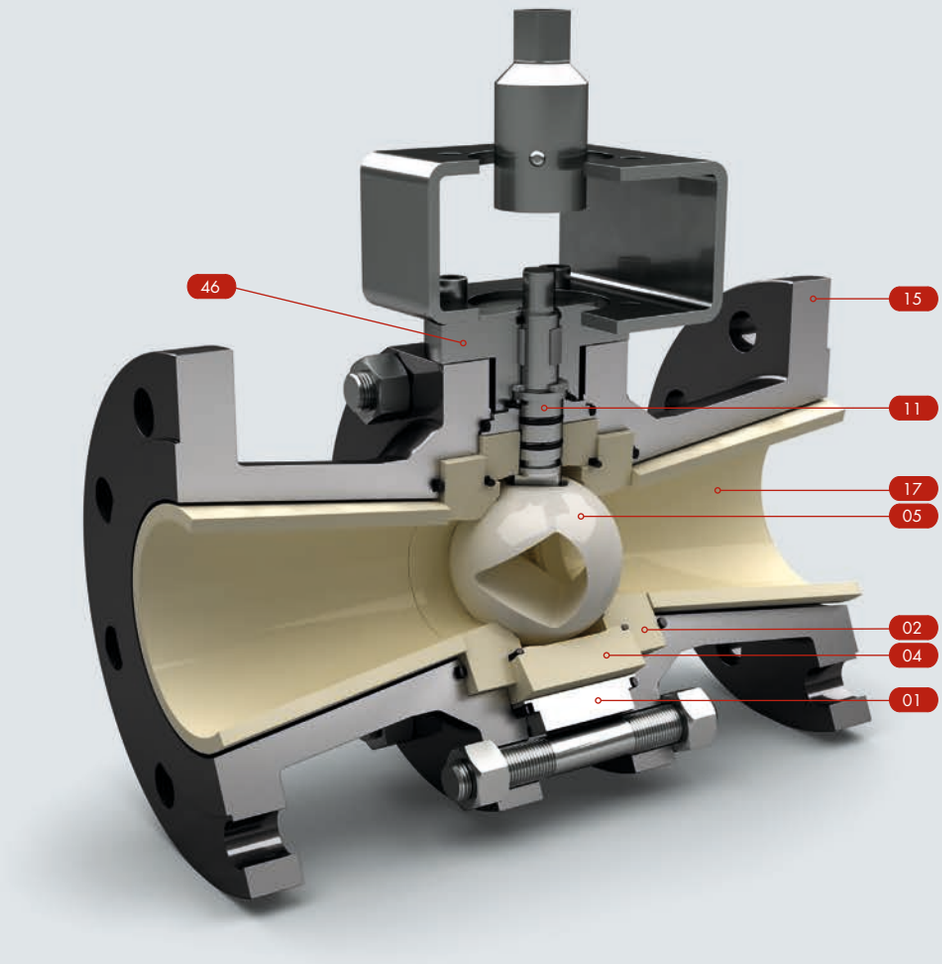
-25 to 950 °C / -13 to 1650 °F possible

Type coding

X	X	X	-	X	X	-	X	X	TYPE
K									Ball valve
	S								Floating ball
	A								Spring loaded seat
	Z								Trunnion mounted ball
	G								Granule version
		V							Full wear protection
		T							Partial wear protection
		L							Without wear protection (light)
		C							Chemistry design
				H	**T**				High temperature
							T	**A**	TA-Luft
K	**B**	**R**							Particularly robust design

Further versions with HT and TA-Luft modifications such as disarmed light modifications are possible in consultation with our sales engineers. We are happy to advise you.

Ball valve • KSV



Item	Part description	Materials	Material options
01	Housing		
02	Seat ring	Al_2O_3	Si_3N_4 - SSiC
04	Ball socket	Al_2O_3	Si_3N_4 - SSiC
05	Ball	ZrO_2	Si_3N_4 - WoC -2.4605
11	Shaft	2.4605	3.7035 - Tantal - ZrO_2
15	Flange	P250GH Halar	

Item	Part description	Materials	Material options
17	Wear protection sleeve	Al_2O_3	Si_3N_4 - SSiC
46	Bonnet flange		
	O-rings	FKM(Viton)	FFKM (Kalrez)
	Seals	FKM(Viton)	PTFE
	Bearing bushes		
	Screws / nuts	A2-/A4-70	

Function:

The CeraValve type KSV is a ceramic lined ball valve for the open / close function as well as for trottling control applications for use in excessively abrasive and corrosive applications. The basic principle of this valve is based on a floating ball sealing against the downstream seat, using differential pressure as sealing force. Both seats are fixed while the ball has a predetermined "float space". The ceramic components of the valve are held within the metal housing which absorbs the physical load and vibration of the pipe system. The ¼-turn movement of the ball (0-90°) yields a specific valve opening. The ball slot is available in in several different geometrical shapes depending on the desired flow characteristic for the application. The three piece design of the valve allows for direct connection to existing pipelines without the need for pipe reducers in front and behind the valve. For example, the valve can be configured with 3.0″ flanges with a 2.0″ center body. The end flanges accommodates the direct mount to the 3.0″ pipe while the reduced (2.0″) center body provides for optimum selection of installed valve trim and also reduces weight and costs of the valve and installation. Actuator connection is done by a yoke interface that meets the dimensional standards of ISO 5211. This provides for a direct center of most all ¼ turn actuation including, pneumatic, electric, and hydraulic actuators. 10 position locking manual hand levers and manual gear operators are also available. The yoke interface is removable and able to be easily modified to accommodate special applications.

Nominal size range:

Flange connections DN 15 (½″) up to DN 300 (12″)
Center housing: DN 15 (½″) to DN 150 (6″)

Pressure range:

PN 10 to PN 40
ANSI class 150 and class 300
Other nominal pressure ranges on request

Overall length:

according to EN 558-1 Series 1+27
according to ASME / ANSI B 16.10 / EN 558-2 Series 37+38

Options:

- TA-Luft low emission design
- Wafer-type
- optional ceramics, stem shafts and
- Sealing materials
- Chemistry design (KSC type)

Temperature Range:

-30 °C to +160 °C / -22 °F to to +320 °F

Typical application areas:

Coal fired power plants: FGD
- Limestone Slurry
- Hydrated Lime Slurry
- Gypsum Slurry
- High Chlorides Water
- Ash

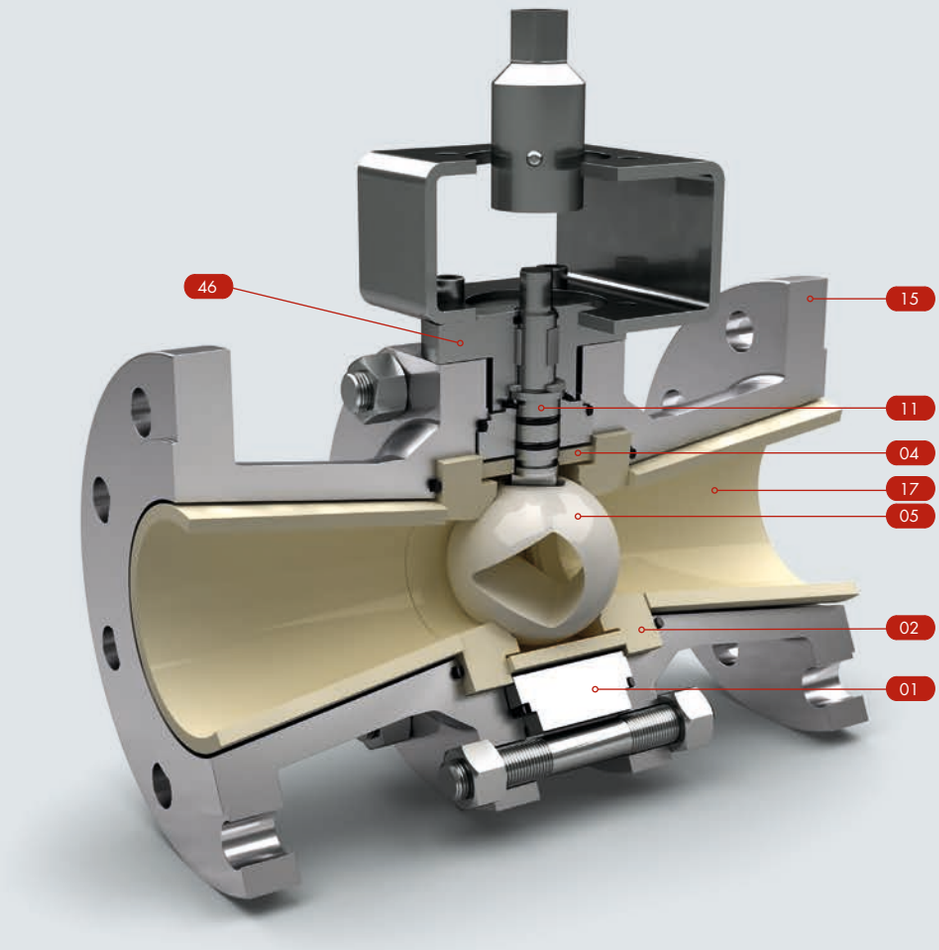
Waste incineration plants:
- Dosing of HCl washing water (prewasher)
- Dosing of the lime milk for the absorber (pH regulation, desulphurisation)

Dye production:
- Dosing of TiO2 suspension with sulphuric acid
- Diluted acid preparation

Mining:
- Dosing of copper suspension with acid content

Chemistry:
- Alternatives to PTFE / PFA lined valves when the media is abrasive
- Alternatives to valve manufactured from special materials (e.g. Hastelloy, titanium, etc.)

Ball valve • KST



Item	Part description	Materials	Material options
01	Housing	1.4301	1.4462 - 1.4571 - 1.4539 - P250GH - PVDF -PP - 3.7035
02	Seat ring	Al_2O_3	Si_3N_4 - SSiC
04	Ball socket	Al_2O_3	Si_3N_4 - SSiC
05	Ball	ZrO_2	Si_3N_4 - WoC - 2.4605 - 1.4112
11	Shaft	1.4462	3.7035 - Tantal - ZrO_2 - 2.4605
15	Flange	1.4301	1.4462 - 1.4571 - 1.4539 - P250GH - PVDF -PP - 3.7035

Item	Part description	Materials	Material options
17	Wear protection sleeve	Al_2O_3	Si_3N_4 - SSiC
46	Bonnet flange	1.4301	1.4462 - 1.4571 - 1.4539 - P250GH - 3.7035
	O-rings	FKM (Viton)	FFKM (Kalrez)
	Seals	FKM (Viton)	PTFE - Viton/FEP - Graphite
	Bearing bushes	PTFE	
	Screws / nuts	A2-/A4-70	

Function:

The CeraValve type KST is a ball valve with ceramic lining for open / close function and control tasks to be used in excessively abrasive and corrosive media. It is to be preferably used if special requirements are placed on the stem sealing, on the housing materials (PVDF, titanium) or if there are very high or very low operating temperatures and high pressures. The basic principle is based on the floating ball design. The seats are rigid (fixed), the ball has a defined clearance and is pressed against the downstream seat by the differential pressure, sealing it. The ¼-turn movement of the ball between 0 and 90° releases an accurately defined opening cross-section. The geometric shape of the ball defines the function and control characteristics. This ball valve has a "three part body" design. Consequently, it can be adapted to existing pipelines and the flow and control characteristics can be optimised. These valves are available with manual lever or gear box, as well as with pneumatic, electric and hydraulic actuators. The actuator is mounted by means of a yoke and adapter arrangement. All customary actuators can be used as part-turn valve actuators. Special connections are possible.

Nominal size range:

Flange connections DN 15 (½") up to DN 300 (12")
Center housing: DN 15 (½") to DN 150 (6")

Pressure range:

PN 10 to PN 63
ANSI class 150, class 300, and class 600
Other nominal pressure ranges on request

Overall length:

according to EN 558-1 Series 1+27
according to ASME / ANSI B16.10 / EN 558-2 Series 37+38

Options:

- all metallic materials for the housing
- Plastic housing (e.g. PP or PVDF)
- Fire-safe design
- TA-Luft design
- High temperature design (KST-HT type)
- Wafer-type
- Chemistry design (KSC type)

Temperature Range:

Up to 310 °C / 590 °F possible with Kalrez + graphite

Typical application areas:

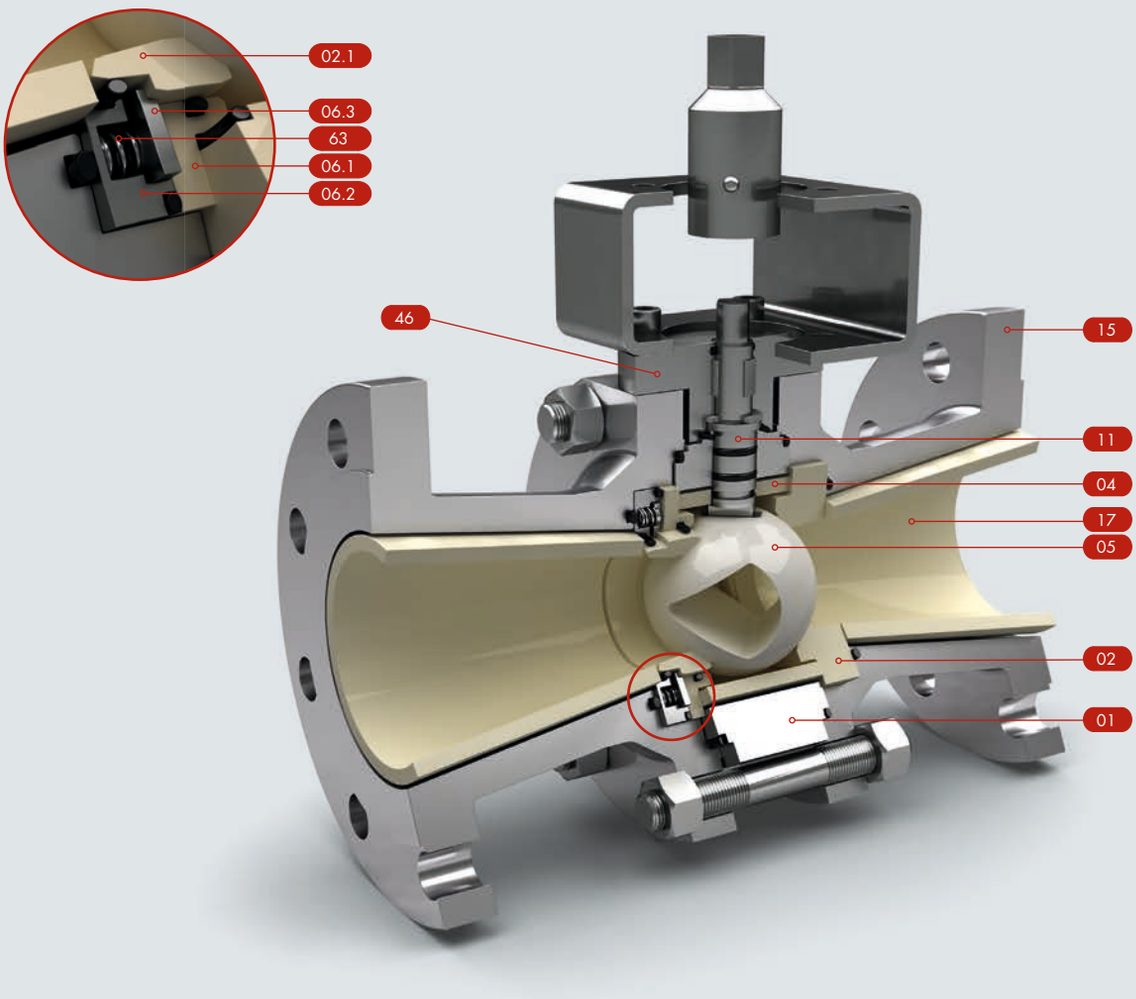
Steel works:
- Control valve for coal injection (PCI)
- Expansion valve for coal silo
- Dosing of additive in Electric arc furnace (EAF): e.g. carbon powder
- Raw iron desulphurisation with CaC, SiO2, MgO2 …
- Slag formation with quartz sand

Paper & pulp:
- Control valve for lime slurry
- Control valve for Kaolin, talcum, pulp with wood residue …

Chemistry: (with PVDF housing)
- Solid-containing media with a low pH value

Abbreviations:
PCI: Pulverised Coal Injection
EAF: Electric Arc Furnance

Ball valve • KAT



Item	Part description	Materials	Material options
01	Housing	1.4301	1.4462 - 1.4571 - 1.4539 -P250GH - PVDF -PP - 3.7035
02	Seat ring	Al_2O_3	Si_3N_4 - SSiC - ZrO_2
02.1	Spring loaded seat ring	Al_2O_3	Si_3N_4 - SSiC
04	Center sleave	Al_2O_3	Si_3N_4 - SSiC
05	Ball	ZrO_2	Si_3N_4 - WoC - 2.4605 - 1.4112
06.1	Holding ring	Al_2O_3	1.4301
06.2	Pressure ring spring	1.4301	1.4462
06.3	Pressure ring seat	1.4301	1.4462
11	Shaft	1.4462	3.7035 - Tantal - ZrO_2 - 2.4605

Item	Part description	Materials	Material options
15	Flange	1.4301	1.4462 - 1.4571 - 1.4539 -P250GH - PVDF -PP - 3.7035
17	Wear protection sleeve	Al_2O_3	Si_3N_4 - SSiC
46	Bonnet flange	1.4301	1.4462 - 1.4571 - 1.4539 -P250GH - 3.7035
63	Pressure spring	1.4310	
	O-rings	FKM (Viton)	FFKM (Kalrez)
	Seals	FKM (Viton)	PTFE - Viton/FEP - Graphite
	Bearing bushes	PTFE	
	Screws / nuts	A2-/A4-70	

Function:

The CeraValve type KAT is a ball valve with ceramic lining for open / close function and control tasks to be used in excessively abrasive media. It is to be preferably used if special requirements are placed on the shaft sealing, on the housing materials (PVDF, titanium) or if there are very high or very low operating temperatures and high pressures. The valve is based on the floating ball principle. The outlet seat ring is fixed. The inlet seat ring is spring loaded. As a result, the ball has no clearance and always seals. The ¼-turn movement of the ball between 0 and 90° releases an accurately defined opening cross-section. The geometric shape of the ball defines the function and control characteristics. This ball valve has a "three part body" design. Consequently, it can be adapted to existing pipelines and the flow and control characteristics can be optimised. These valves are available with manual lever or gear box, as well as with pneumatic, electric and hydraulic actuators. The actuator is mounted by means of a yoke and adapter arrangement. All customary actuators can be used as part-turn valve actuators. Special connections are possible.

Nominal size range:

Flange connections DN 15 (½") up to DN 300 (12")
Center housing: DN 15 (½") to DN 150 (6")

Pressure range:

PN 10 to PN 63
ANSI class 150, class 300, and class 600
Other nominal pressure ranges on request

Overall length:

according to EN 558-1 Series 1+27
according to ASME / ANSI B16.10 / EN 558-2 Series 37+38

Options:

- all metallic materials for the housing
- Fire-safe design
- TA-Luft design
- High temperature design (KAT-HT type)
- Wafer-type
- Chemistry design (KAC type)

Temperature Range:

Standard: -30 °C to +180 °C / -22 °F to +356 °F
Up to 310 °C / 590 °F possible with Kalrez + graphite

Typical application areas:

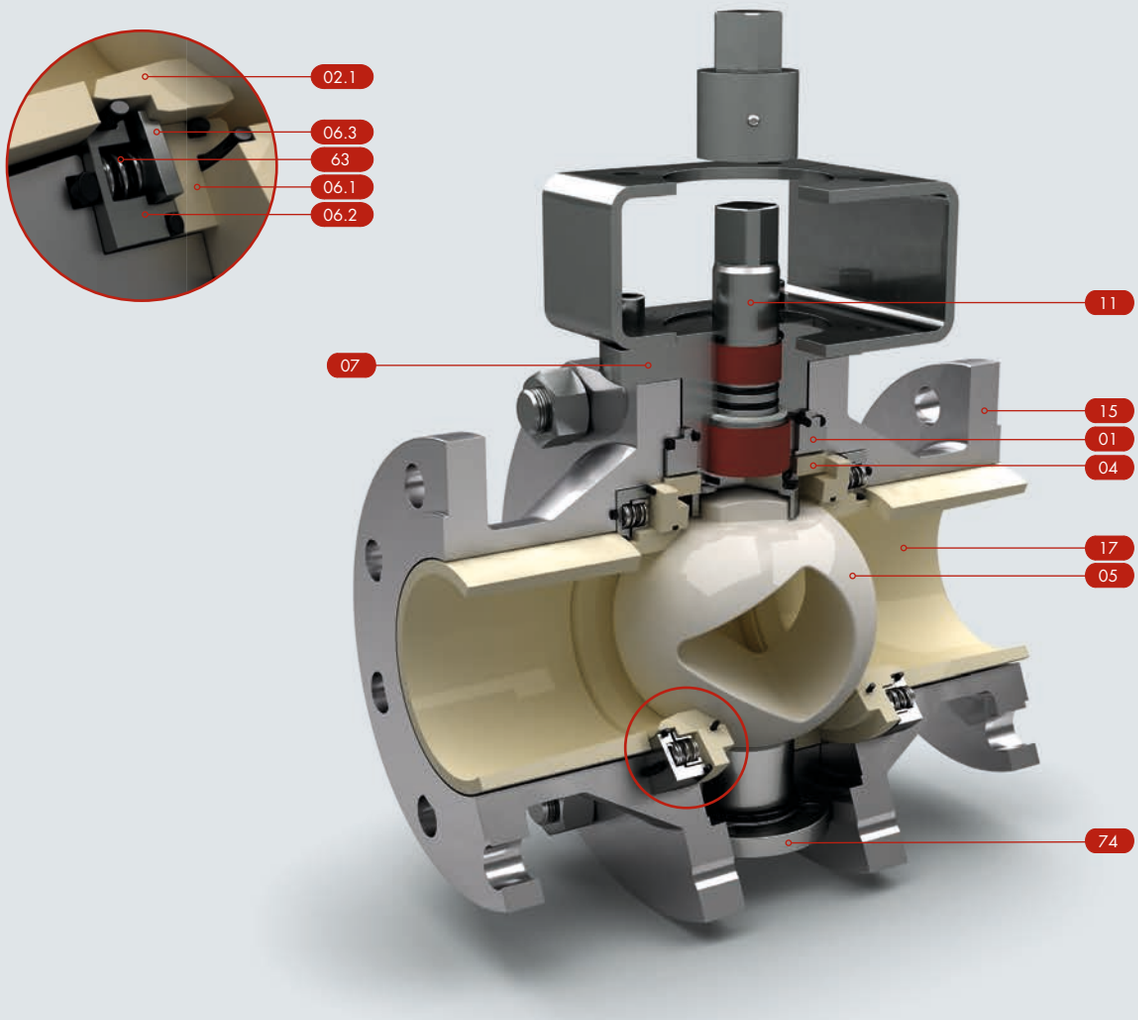
Steel works:
- Silo expansion valve with low seat leakage (ANSI class V)
- Pneumatic conveying of carbon powder, quartz, carbide …

Silicon:
- Conveying of silicon powder
- Silicon conveyor silo expansion valve

Petrochemistry:
- Dosing of FCC cat cracker (Al_2O_3 powder)

Mining:
- Dosing and conveying of copper concentrate
- Copper conveying silo expansion valve

Ball valve • KZT



Item	Part description	Materials	Material options
01	Housing	1.4301	1.4462 - 1.4571 - 1.4539 - P250GH - 3.7035
02.1	Spring loaded seat ring	Al_2O_3	Si_3N_4 - SSiC - ZrO_2
04	Center sleave	Al_2O_3	Si_3N_4 - SSiC - ZrO_2
05	Ball	Al_2O_3	Si_3N_4 - SSiC
06.1	Holding ring	ZrO_2	Si_3N_4 - WoC -2.4605 - 1.4112
06.2	Pressure ring spring	Al_2O_3	1.4301
06.3	Pressure ring seat	1.4301	1.4462
07	Packing housing	1.4301	1.4462
11	Shaft	1.4301	1.4462 - 1.4571 - 1.4539 - P250GH - 3.7035

Item	Part description	Materials	Material options
15	Flange	1.4462	3.7035 - Tantal
17	Wear protection sleeve	1.4301	1.4462 - 1.4571 - 1.4539 - P250GH - 3.7035
63	Pressure spring	Al_2O_3	Si_3N_4 - SSiC
74	Counter bearing trunnion	1.4310	
74	O-rings	1.4301	1.4462 - 1.4571 - 1.4539 - P250GH - 3.7035
	Seals	FKM (Viton)	FFKM (Kalrez) - Viton/FEP
	Bearing bushes	FKM (Viton)	PTFE - Graphite
	Screws / nuts	PTFE	Stellite

Function:

The CeraValve type KZT is a ball valve with ceramic lining for open / close function and control tasks to be used in excessively abrasive and corrosive media. It is to be preferably used if special requirements are placed on the stem sealing, on the housing materials (titanium) or if there are very high or very low operating temperatures and high pressures. The valve can be pressurised from both sides. The function is based on a trunnion mounted ball. The seats are spring-loaded. The upstream seat primarily seals. The ¼-turn movement of the ball between 0 and 90° releases an accurately defined opening cross-section. The geometric shape of the ball defines the function and control characteristics. This ball valve has a "three part body" design. Consequently, it can be adapted to existing pipelines and the flow and control characteristics can be optimised. These valves are available with manual lever or gear box, as well as with pneumatic, electric and hydraulic actuators. The actuator is mounted by means of a yoke and adapter arrangement. All customary actuators can be used as part-turn valve actuators. Special connections are possible.

Options:

- all metallic materials for the housing
- Fire-safe design
- TA-Luft design
- High / low temperature design
- Wafer-type

Temperature Range:

Standard: -30°C to +180°C / -22°F to +356°F
Up to 310°C / 590°F possible with Kalrez + graphite

Typical application areas:

Similar applications to KGT, with pressure load on both sides however.
Petrochemistry:
- Catalyst container valve

Pneumatic conveying:
- at higher operating pressures (trunnion mounted balls)
- suitable for: Silicon, lime, coal, cement, glass …

Mining:
- Ore conveying, ore dosing, copper concentrate …

Nominal size range:

Flange connections DN 65 (2 ½") up to DN 300 (12")
Center housing: DN 65 (2 ½") to DN 150 (6")

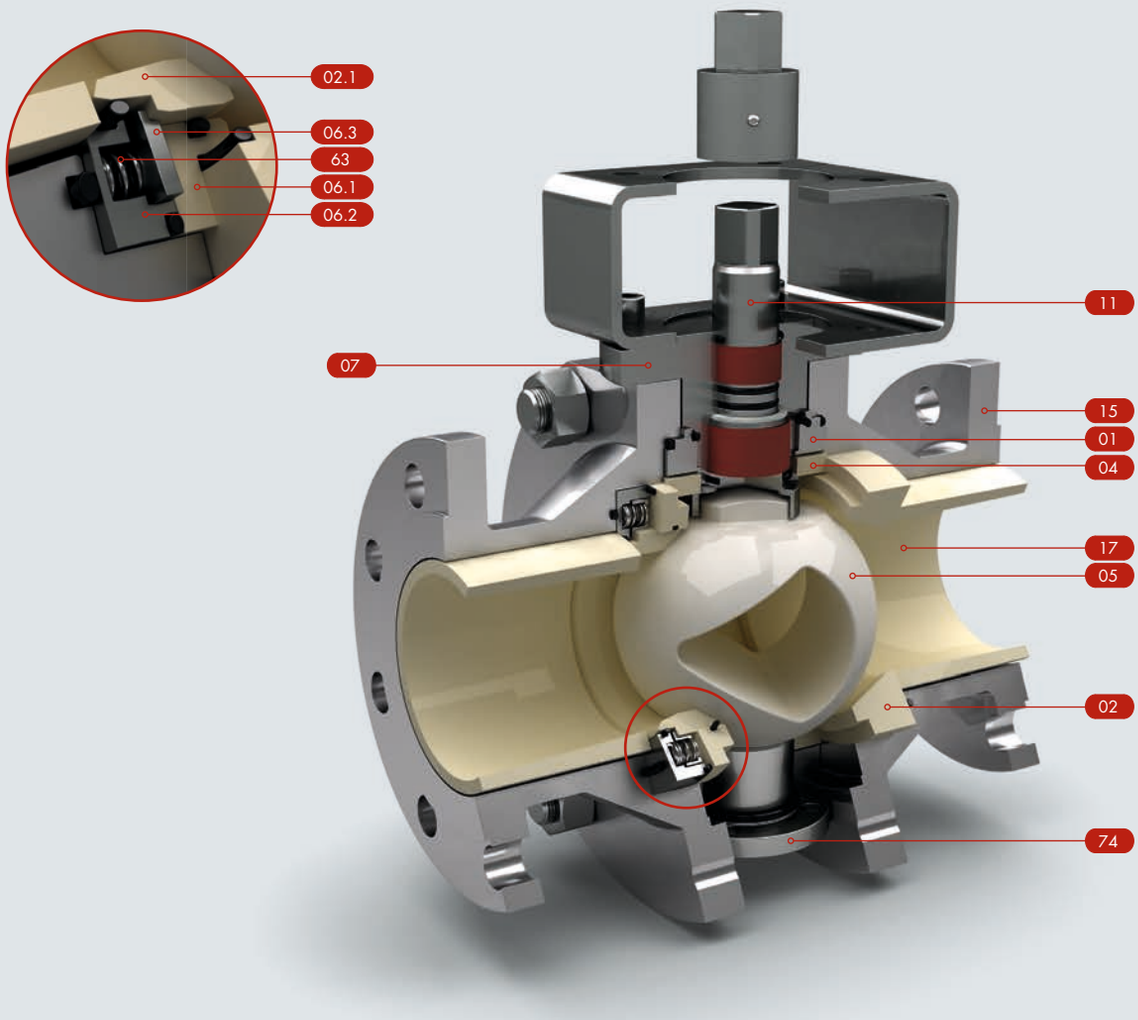
Pressure range:

PN 10 to PN 63
ANSI class 150, class 300, and class 600
Other nominal pressure ranges on request

Overall length:

according to EN 558-1 Series 1+27
according to ASME / ANSI B16.10 / EN 558-2 Series 37+38

Ball valve • KGT



Item	Part description	Materials	Material options
01	Housing	1.4301	1.4462 - 1.4571 - 1.4539 - P250GH - 3.7035
02	Cone sleeve	Al_2O_3	Si_3N_4 - SSiC - ZrO_2
02.1	Spring loaded seat ring	Al_2O_3	Si_3N_4 - SSiC - ZrO_2
04	Center sleave	Al_2O_3	Si_3N_4 - SSiC
05	Ball	ZrO_2	Si_3N_4 - WoC -2.4605 - 1.4112
06.1	Holding ring	Al_2O_3	1.4301
06.2	Pressure ring spring	1.4301	1.4462
06.3	Pressure ring seat	1.4301	1.4462
07	Packing housing	1.4301	1.4462 - 1.4571 - 1.4539 - P250GH - 3.7035

Item	Part description	Materials	Material options
11	Shaft	1.4462	3.7035 - Tantal
15	Flange	1.4301	1.4462 - 1.4571 - 1.4539 - P250GH - 3.7035
17	Wear protection sleeve	Al_2O_3	Si_3N_4 - SSiC
63	Pressure spring	1.4310	
74	Counter bearing trunnion	1.4301	1.4462 - 1.4571 - 1.4539 - P250GH - 3.7035
	O-rings	FKM (Viton)	FFKM (Kalrez) - Viton/FEP
	Seals	FKM (Viton)	PTFE - Graphite
	Bearing bushes	PTFE	Stellite
	Screws / nuts	A2-/A4-70	

Function:

The CeraValve type KGT is a ball valve with ceramic lining for open / close function and control tasks to be used in excessively abrasive media. It is to be preferably used for solid particles outfeed if special requirements are placed on the stem sealing, on the housing materials (titanium) or if there are very high or very low operating temperatures and high pressures. On the outlet side, the ball valve has a cone sleeve instead of a seat ring. The pressurisation should take place in the direction of flow-through. The function is based on a trunnion mounted ball. The seat ring is resilient. The round geometrical shape of the ball bore is standard. This ball valve has a "three part body" design. Consequently, it can be adapted to existing pipelines and the flow and control characteristics can be optimised. These valves are available with manual lever or gear box, as well as with pneumatic, electric and hydraulic actuators. The actuator is mounted by means of a yoke and adapter arrangement. All customary actuators can be used as part-turn valve actuators. Special connections are possible.

Nominal size range:

Flange connections DN 65 (2 ½") up to DN 300 (12")
Center housing: DN 65 (2 ½") to DN 150 (6")

Pressure range:

PN 10 to PN 63
ANSI class 150, class 300, and class 600
Other nominal pressure ranges on request

Overall length:

according to EN 558-1 Series 1+27
according to ASME / ANSI B16.10 / EN 558-2 Series 37+38

Options:

- all metallic materials for the housing
- Fire-safe design
- TA-Luft design
- High / low temperature design
- Wafer-type

Temperature Range:

Standard: -30 °C to +180 °C / -22 °F to +356 °F
Up to 310 °C / 590 °F possible with Kalrez + graphite

Typical application areas:

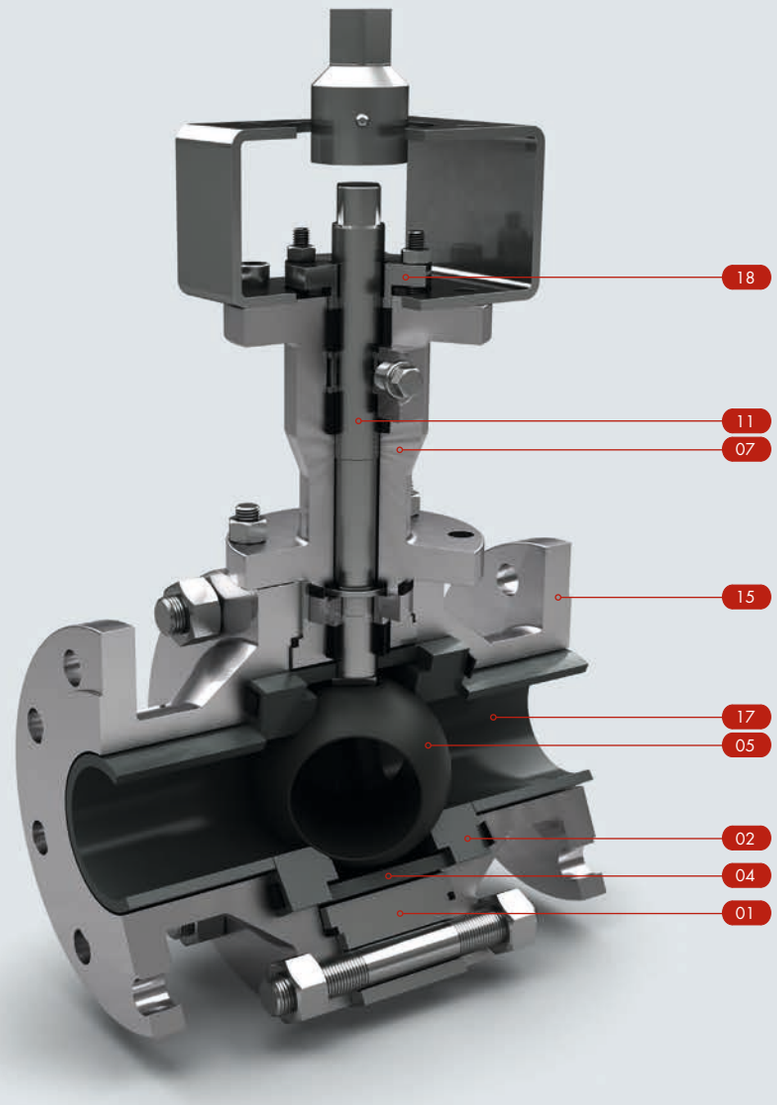
Steel works:
- Silo expansion valve with low seat leakage (ANSI class V)
- Pneumatic conveying of carbon powder, quartz, carbide …

Silicon:
- Conveying of silicon powder
- Silicon conveyor silo expansion valve

Petrochemistry:
- Dosing of FCC cat cracker (Al2O3 powder)

Mining:
- Dosing and conveying of copper concentrate
- Copper conveying silo expansion valve

Ball valve • KST-HT



Item	Part description	Materials	Material options
01	Housing	1.4301	1.4876(H) - 1.4462 - 1.4571 - 1.4539 - P250GH
02	Seat ring	SSiC	Si_3N_4
04	Center sleave	SSiC	Si_3N_4
05	Ball	Si_3N_4	ZrO_2 - 1.4112
07	Packing housing	1.4301	1.4876(H) - 1.4462 - 1.4571 - 1.4539 - P250GH
11	Shaft	1.4542	1.4876 - 1.4462
15	Flange	1.4301	1.4876(H) - 1.4462 - 1.4571 - 1.4539 - P250GH

Item	Part description	Materials	Material options
17	Wear protection sleeve	SSiC	Si_3N_4
18	Stuffing box gland	1.4301	1.4462 - 1.4571 - 1.4539 -P250GH
	Packages	Graphite	Stuffing box packaging
	Seals	Graphite	
	Bearing bushes	Stellite / Graphite	
	Screws / nuts	A2-/A4-70	21CrMoV57 / 24CrMo5 - 1.4876/1.4910

Function:

The CeraValve type KST-HT is a ceramic lined ball valve for the open / close function and the control tasks for use in excessive abrasive and corrosive media at temperatures above 300 °C / 570 °F. Special housing and ceramic materials permit solutions of up to 950 °C / 1740 °F. The basic principle is based on the floating ball design. The seats are rigid (fixed), The ball has a defined clearance and is pressed against the downstream seat by the differential pressure, sealing it. The ¼-turn movement of the ball between 0 and 90° releases an accurately defined opening cross-section. The geometric shape of the ball defines the function and control characteristics. This ball valve has a "three part body" design. Consequently, it can be adapted to existing pipelines and the flow and control characteristics can be optimised. These valves are available with manual lever or gear box, as well as with pneumatic, electric and hydraulic actuators. The actuator is mounted by means of a yoke and adapter arrangement. All customary actuators can be used as part-turn valve actuators. Special connections are possible.

Nominal size range:

Flange connections DN 15 (½") up to DN 300 (12")
Center housing: DN 15 (½") to DN 150 (6")

Pressure range:

PN 10 to PN 63
ANSI class 150, class 300, and class 600
Other nominal pressure ranges on request

Overall length:

according to EN 558-1 Series 1+27
according to ASME / ANSI B16.10 / EN 558-2 Series 37+38

Options:

- all metallic materials for the housing (e.g. 1.4876H)
- Special ceramics that are suitable for high temperatures and thermal shock
- Fire-safe design
- TA-Luft design
- Wafer-type

Temperature Range:

HT design: max. 450 °C / 842 °F
X-HT design: max. 950 °C / 1740 °F

Typical application areas:

Steel works:
- Ore direct reduction (DRI), ore-air mixture at 750 °C / 1380 °F

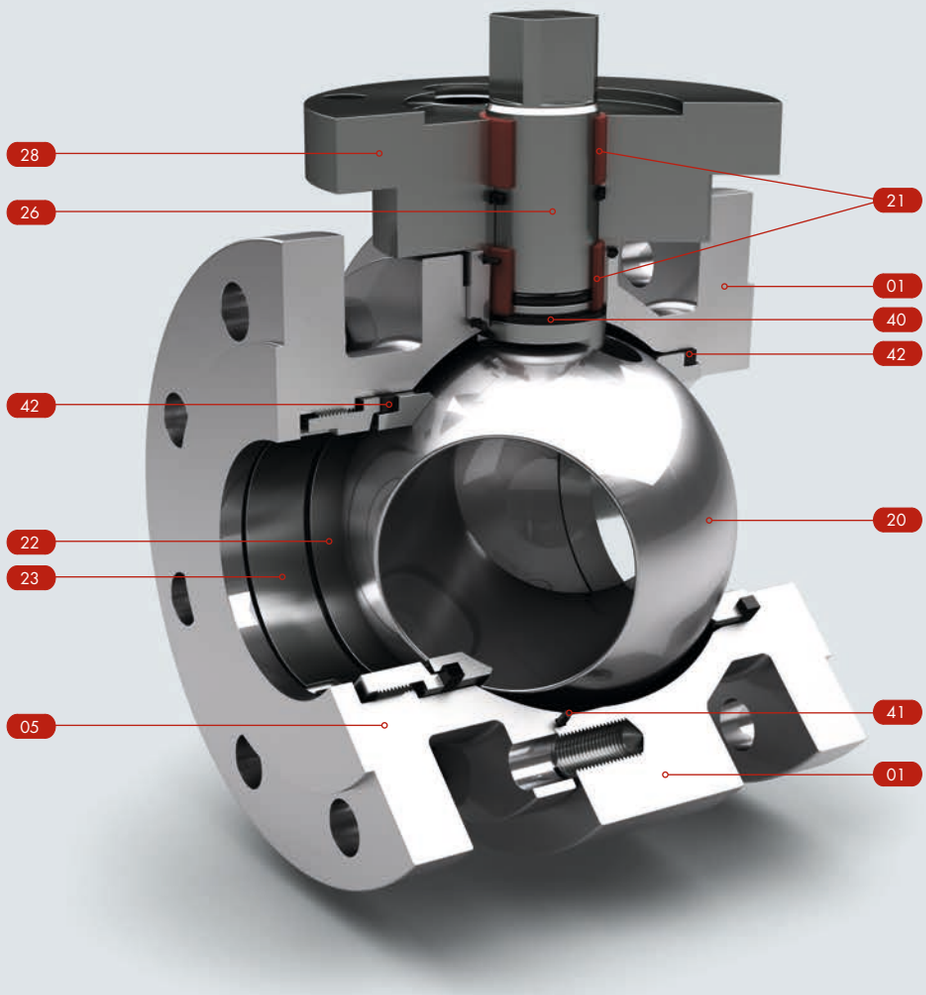
Dye production:
- Cl_2-Gas with Ti_3Cl_4 at 800 °C / 1470 °F with Ti slurry and coke

Polysilicon:
- Control of trichlorosilane (TCS) at 500 °C / 932 °F
- Conveying of Si_3Cl_4 at 400 °C / 752 °F

Petrochemistry:
- Catalyst "cracking" process 750 °C / 1380 °F
- Recycling of FCC catalyst 400-600 °C / 752-1110 °F

Energy:
- Biomass to combustible gas (pyrolysis)
- 600-800 °C / 1110-1470 °F

Ball valve • KBR



Item	Part description	Materials	Material options
01	Housing	1.4301	1.4571 - P250GH
05	Flange	1.4301	1.4571 - P250GH
20	Ball	30EH	
21	Bearing bushes	DU	
22	Seat ring	1.4462/KVT433	Al_2O_3
23	Screwed ring	1.4301	1.4571 - P250GH
26	Shaft	1.4301	1.4462
28	Bonnet flange	1.4301	1.4571 - P250GH

Item	Part description	Materials	Material options
40	Slide plate	Graphite	
41	Housing seal	Viton	Graphite
42	Spring element	Graphite	
43	Cover flange seal	Viton	Graphite
44	CW seal	Viton	FFKM(Kalrez)- Graphite
	Housing screws	A2-70	
	Cover flange screws	A2-70	

Function:

The CeraValve type KBR is a particularly robust, metallic ball valve for the open / close function for abrasive and excessive abrasive media, preferred for applications when pneumatically transporting bulk materials. Both the shaft as well as the shaft insert and the seats are designed in a particularly stable manner. The valve can be pressurised from both sides. The functional principle is based upon the floating ball (trunnion mounted ball as of DN 150 / 6″). The seat rings are pressed against the ball by means of spring elements. The round geometrical shape of the ball bore is standard. This ball valve has a "two part body" design. These valves are available with manual lever or gear box, as well as with pneumatic, electric and hydraulic actuators. All customary actuators can be used as ¼-turn valve actuators. Special connections are possible.

Nominal size range:

DN 25 (1″) to DN 300 (12″)

Pressure range:

PN 10 to PN 40
ANSI class 150 and class 300
Other nominal pressure ranges on request

Overall length:

DIN overall lengths according to EN 558-1 Series 27
ANSI class 150 overall lengths according to
EN 558-2 Series 3 (up to 4″) and Series 12 (from 5″)
ANSI class 300 overall lengths according to
EN 558-2 Series 4

Options:

- Diverse metallic materials
- Wear protection bushing in the outlet
- Seats manufactured from ceramic

Temperature Range:

Standard: -30 °C to +180 °C / -22 °F to +356 °F
Up to 310 °C / 590 °F possible with Kalrez and graphite

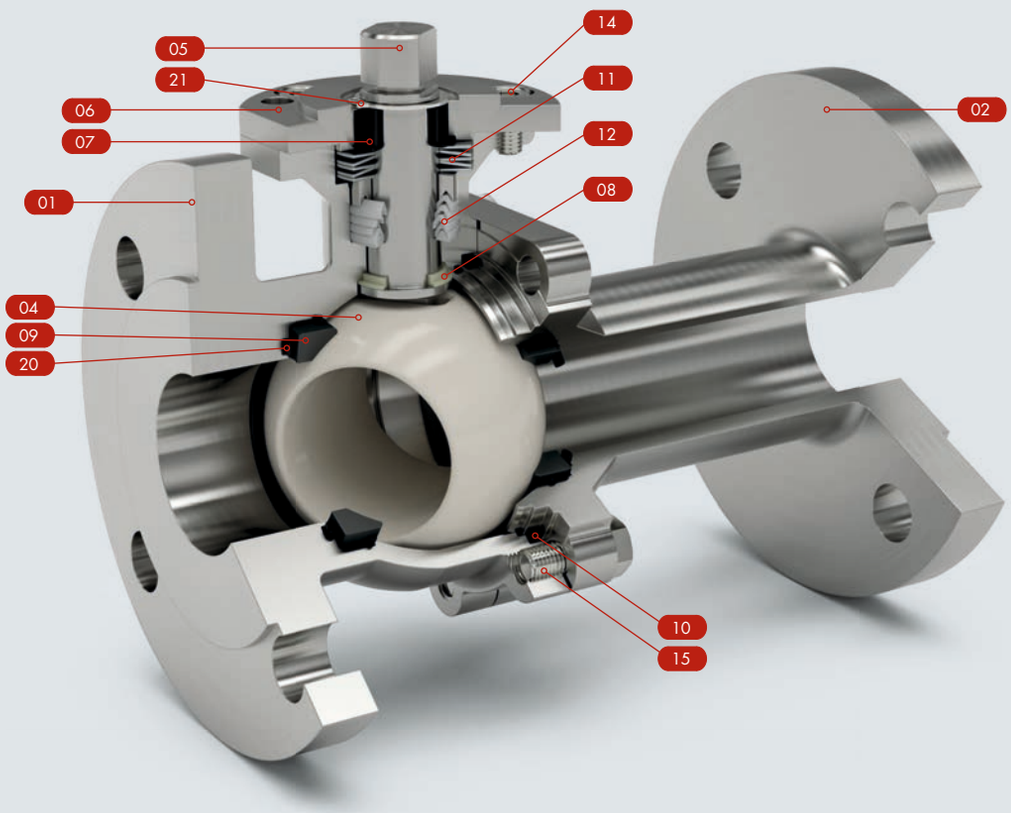
Typical application areas:

Pneumatic conveying:
- Bulk material silo, silo drain valve,
  Conveying valve for media such as: Fly ash, cement, glass, sand, plaster, ore …

Power plants:
- Fly ash, plaster, lime …

Steel works:
- Ore, coal, coke …

Ball valve • BR 26 Cera



Item	Part description	Materials	Material options
01	Main body	1.4408 / ASTM A351 CF8M	Flange Design
02	Side body	1.4408 / ASTM A351 CF8M	Flange Design
04	Ball	ZrO_2-ceramic	
05	Shaft	1.4462 / ASTM 2205	
06	Packing flange	1.4301 / AISI 304	
07	Bearing bushing	PTFE-carbon (25%)	
08	Bearing bushing	PTFE-glass (25%)	
09	Seat ring	SiSiC-ceramic	

Item	Part description	Materials	Material options
10	Body gasket	PTFE	
11	Set of spring washers	Stainless spring steel	
12	V-ring packing	PTFE	
14	Bonnet screw	AISI 31	
15	Body screw	AISI 316	
20	O-rings	FKM	
21	Stem safety ring	Stainless spring steel	

Function:

The valve type BR 26 CERA is a stainless steel ball valve for on/off function with ceramic seats and ceramic ball for service in abrasive and corrosive applications. Especially for abrasive applications in chemical plants this valve can be beneficiary.
The basic principle is based on the "floating ball" design. The seats are pushed by o-rings against the ball. This valve can be delivered with a manual handle, with pneumatic- or electric –actuator.

Typical application areas:

- Corrosive fluids with solids in suspension
- Steam with condensation
- Pneumatic transport of solids (bulk)
- Sulfuric Acids (>96%) with ore-residues or
- other particles
- Biomass preparation
- Pulp & paper

Nominal size range:

DIN DN15 – DN100
ANSI 1/2" – 4"

Ratings:

DIN PN 10 – PN 40
ANSI Class 150 (Class 300 upon demand)

Face-face dimensions:

DIN Length acc. to EN558-1, Row 1 and 27.
ANSI Length acc. to EN558-1, Row 3

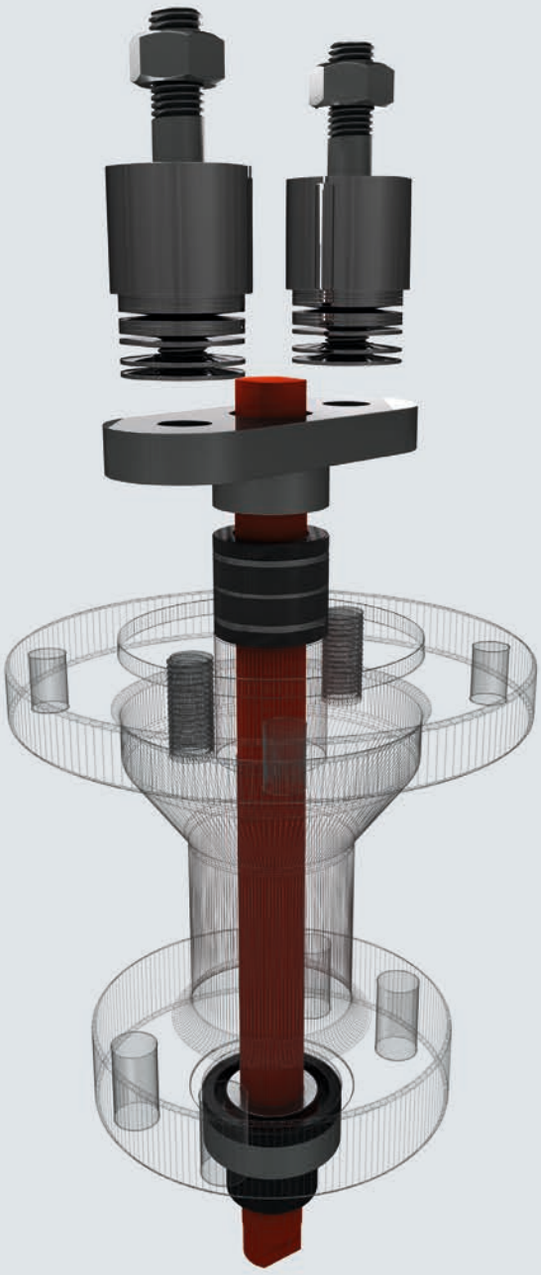
Design:

- Floating ball
- Shaft sealing acc. to "TA-Luft" (zero emission)
- Blow-out proof shaft
- Shaft with torsion-control

Temperature Range:

-10 °C – +200 °C / +14 – +392 °F

Ball valve • KST-HT



Function:

The strict regulations of the current TA-Luft place the highest of demands on the shaft seals of valves, especially with regard to fugitive emissions. The TA-Luft sealing kits cover the majority of applications, especially in the chemical and petrochemical sector and are suitable for use in new valves or to retrofit existing valves.

Available TA-Luft sealing kits:

BuraTAL® T3 9650/T3	
Application limits	
Temperature:	-10 °C to +250 °C / +14 °F to +482 °F
Pressure:	63 bar / 914 psi
Chemical resistance:	pH value 1-13

BuraTAL® T3 9650/T1	
Application limits	
Temperature:	-40 °C to +280 °C/ -40 °F to +536 °F
Pressure:	40 bar / 580 psi
Chemical resistance:	pH value 1-14

BuraTAL® HT 9650/HT	
Application limits	
Temperature:	-200 °C to +400 °C/ -328 °F to +752 °F
Pressure:	300 bar / 4350 psi
Chemical resistance:	pH value 1-13

Typical application areas:

These sealing kits cover the required leakage values according to the VDI directives across the whole temperature range.
This means that the leakage values of $10^{-4} \frac{mbar\ l}{s\ \ m}$ are not reached at temperatures below 250 °C / 482 °F and $10^{-2} \frac{mbar\ l}{s\ \ m}$ are not reached at temperatures above 250 °C / 482 °F on the seal. The checking of this is assumed by a spring application system designed especially for this application. This so-called live loading system ensures the constant surface pressure on the sealing kits that consists of a combination of diverse packing rings as a chamber, sealing rings and flat seal as intermediate layers. The live loading system is designed according to the operating temperature and operating pressure (spring package) and set according to the assembly directive (checking gap between the spring sleeve and the stuffing box gland).

Valve balls • Ball bore • flow versions

CERAVALVE		K_{VS} and C_V flow coefficients for control valves with standard lengths															
Flange size			Center Body														
			DN15		DN25		DN40		DN65		DN80		DN100		DN125		DN150	
DIN	ANSI	Ball	NPS ½		NPS 1		NPS 1 ½		NPS 2 ½		NPS 3		NPS 4		NPS 5		NPS 6	
DN	NPS	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	triangular	12,2	14,2														
		full bore	14,6	17,0														
20	¾	triangular	14,1	16,5														
		full bore	19,1	22,3														
25	1	triangular	13,1	15,3	37,3	43,5												
		full bore	19,2	22,4	45,9	53,6												
32	1 ¼	triangular	11,5	13,4	41,7	48,7												
		full bore	17,3	20,2	62,1	72,5												
40	1 ½	triangular	9,4	11,0	36,5	42,6	89,1	104										
		full bore	15,5	18,1	62,4	72,8	127	148										
50	2	triangular	9,4	11,0	28,8	33,6	89,4	104										
		full bore	14,1	16,5	54,0	63,0	166	193										
65	2 ½	triangular			27,2	31,7	75,5	88,1	202	236								
		full bore			46,5	54,3	169	197	342	398								
80	3	triangular			26,4	30,8	64,5	75,3	178	207	311	363						
		full bore			39,8	46,4	140	163	433	505	529	617						
100	4	triangular					61,6	71,9	148	173	248	290	414	483				
		full bore					108	125	385	450	670	782	825	962				
125	5	triangular					60,0	70,0	138	160	232	271	335	391				
		full bore					101	118	285	333	573	668	922	1076	1392	1623		
150	6	triangular							132	154	215	250	297	346				
		full bore							258	301	482	563	778	907	1711	1996	2031	2369
200	8	triangular											273	319				
		full bore											529	617	1458	1700	2649	3091
250	10	triangular																
		full bore													1147	1338	1917	2237
300	12	triangular																
		full bore															1532	1788
350	14	triangular																
		full bore															1380	1610

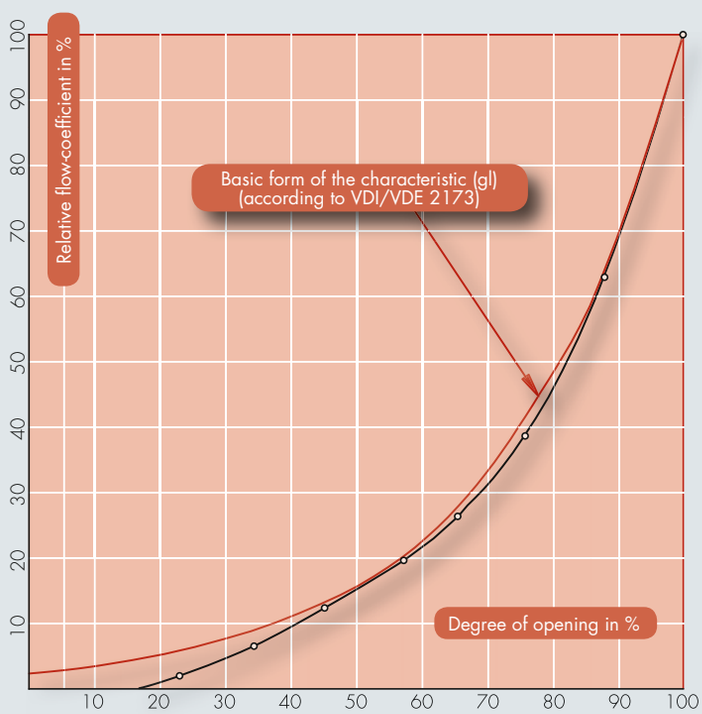
We reserve the right to make changes within the context of technical development. Date: May 2015

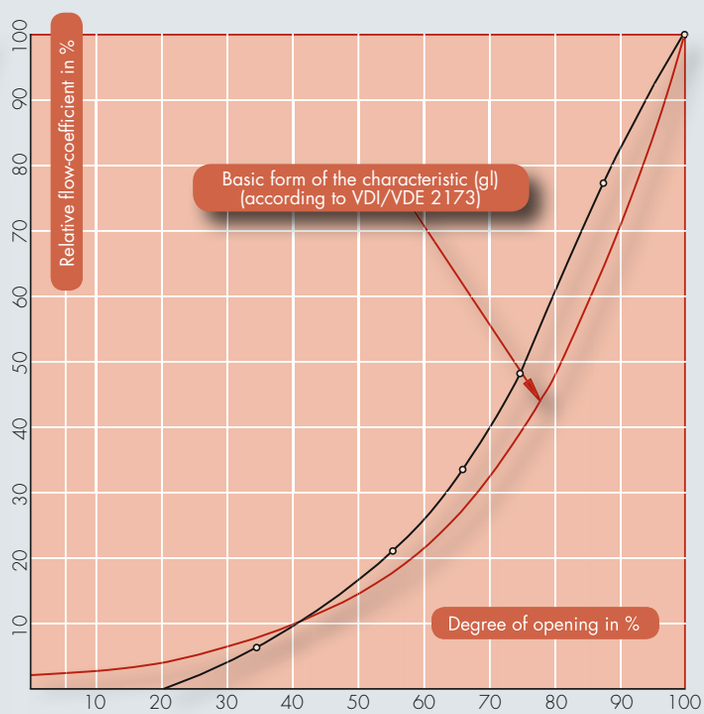
The desired control behaviour of the valve is determined by the nominal diameter of the center housing and the geometry of the ball bore. Round or triangular bores can be rotated by between 0 and 90° and define exact opening cross-sections. **Special contours across all nominal diameters with adjusted Kvs/Cv values are available.**
The installation lengths of the ball valves correspond to those of the control valves.



Characteristics

Nominal diameter:	DN 15-200 • ½"- 8"	Nominal diameter:	DN 15-200 • ½"- 8"
Ball bore:	triangle	Ball bore:	round
Characteristic:	equal percentage	Characteristic:	equal percentage





Ceramic materials
Properties – advantages and distinctive features

Corrosion resistance:

Compared to other materials, the corrosion resistance of the ceramic materials is significantly more higher and can be used in broader range on corrosive applications. Ceramics are completely resistant against the majority of solvents. Aqueous brines are generally no problem. The ceramics used are highly resistant against the majority of acids up to relatively high temperatures. Nevertheless, there are large differences that are to be observed. All oxidic ceramic materials are not resistant against fluorides for example. Some materials (e.g. Y-PSZ) are sensitive to water vapour (not hydrothermally resistant). It must be observed that mixtures of reagents generally react differently than the individual components.

Pressure resistance and flexural strength:

In contrast to metals, the mechanical strength properties of ceramic materials are different when bent, when under load and when under pressure. While the pressure resistance in almost all dense ceramics is many times higher than that of metals, the tensile and flexural strength must be closely observed.

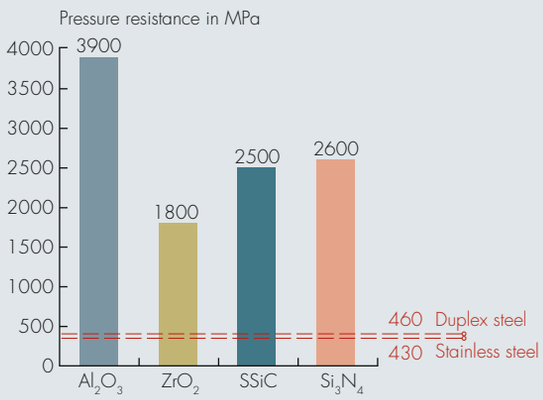
The extremely high pressure resistance of Al_2O_3 can be an advantage, especially in the seat of a ball valve.

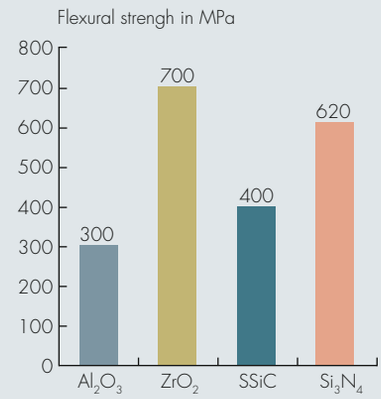
Even if the comparison of the strength values of metals and ceramics is problematic, it does demonstrate the difference in size:

Due to the high torque load, balls require materials with a high flexural strength. Therefore, the materials zirconium dioxide and silicon nitride are used for balls.

Ceramic materials:

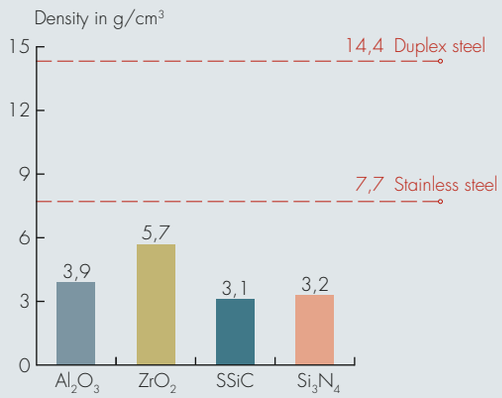
Al_2O_3	Aluminium oxide
ZrO_2	Zirconium dioxide
SSiC	Silicon carbide
Si_3N_4	Silicon nitride





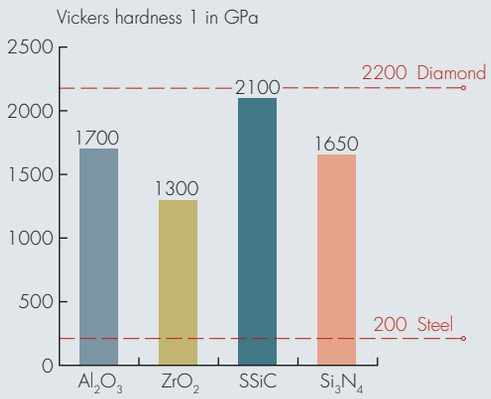
Density:

Weight is also generally saved when ceramics are used as these materials have a density up to 78 % less than that of hard metal / 60 % less than that of stainless steel.



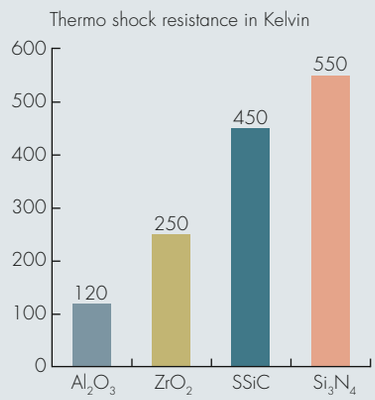
Hardness and wear resistance:

The wear resistance of components is significantly influenced by the respective type of load. Thanks to their extremely high hardness, ceramic materials have a wear resistance against friction that is many times higher than metals.
The mixture of loads that often occur in practice such as friction wear, radiation wear and impact wear as well as cavitations are generally absorbed better by ceramic components than metal components. All direct impact loads required closer observation.



Thermo shock resistance:

In contrast to the maximum operating temperature, the thermo shock resistance must be closely observed. Ceramic components maintain their shape and strength as well as their further physical characteristics up to extremely high temperatures. In addition to the material dependency, the thermo shock resistance is also highly dependent upon the geometry. Simple geometric shapes such as pipes are less sensitive than such parts that have highly differing wall thicknesses for example.



Torque values

Type	Shaft	Max. temperature	Bearing	Ball material	Center body		Recommended TORQUE in Nm at Δp up to										Max. permitted torque	Max. switchable pressure difference
					DIN	ANSI NPS	1bar	2bar	3bar	4bar	6bar	10bar	16bar	20bar	25bar	40bar	Nm	bar
KS_	1.4462 / 2.4605	310 °C / 180 °C	Floating ball	Ce-ramic ZrO_2 / Si_3N_4	DN 15	½	12	12	12	12	12	12	12	12	12	16	**40**	**80**
					DN 25	1	23	23	23	23	23	23	28	35	45	71	**100**	**50**
					DN 40	1 ½	45	45	45	45	45	51	82	103	128		**160**	**35**
					DN 65	2 ½	65	65	65	65	95	158					**180**	**15**
					DN 80	3	116	116	116	116	150	170					**190**	**10**
					DN 100	4	165	165	165	165	200						**230**	**8**
					DN 125	5	250	250	250	250	330						**340**	**6**
					DN 150	6	450	450	450	450							**500**	**4**
KS_	1.4462 / 2.4605	310 °C / 180 °C	Floating ball	Steel 1.4112	DN 15	½	12	12	12	12	12	12	12	12	12	16	**50**	**160**
					DN 25	1	23	23	23	23	23	23	28	35	45	71	**130**	**100**
					DN 40	1 ½	45	45	45	45	45	51	82	103	128		**160**	**35**
					DN 65	2 ½	65	65	65	65	95	158	215	250			**250**	**20**
					DN 80	3	116	116	116	116	150	170					**340**	**12**
					DN 100	4	165	165	165	165	150	270					**520**	**10**
					DN 125	5	250	250	250	250	330	490					**1800**	**10**
					DN 150	6	450	450	450	450	530	700					**3000**	**10**
KA_	1.4462 / 2.4605	310 °C / 180 °C	Floating ball	Ce-ramic ZrO_2 / Si_3N_4	DN 15	½	12	12	12	12	12	12	15	18	23	36	**40**	**40**
					DN 25	1	25	25	25	25	25	40	60	73	90		**100**	**25**
					DN 40	1 ½	50	50	50	60	80	120					**160**	**13**
					DN 65	2 ½	50	70	95	120	170						**180**	**7**
					DN 80	3	80	120	150	180							**190**	**5**
					DN 100	4	100	165	200								**230**	**3**
					DN 125	5	190	340									**340**	**2**
					DN 150	6	250	450									**500**	**2**
KA_	1.4462 / 2.4605	310 °C / 180 °C	Floating ball	Steel 1.4112	DN 15	½	12	12	12	12	12	12	15	18	23	36	**50**	**40**
					DN 25	1	25	25	25	25	25	40	60	73	90		**130**	**30**
					DN 40	1 ½	50	50	50	60	80	160					**160**	**13**
					DN 65	2 ½	70	70	95	120	170	250					**250**	**10**
					DN 80	3	120	120	150	210	340						**340**	**6**
					DN 100	4	200	250	380	470							**520**	**4**
					DN 125	5	280	370	560	750	1110						**1630**	**6**
					DN 150	6	360	750	1100	1550	2500						**3000**	**6**
BR26 CE-RA	1.4462 / 2.4605	200 °C	Floating ball	Ce-ramic ZrO_2	DN 15	½	12	12	12	12	12	12	12	12	12	16	**40**	**40**
					DN 25	1	23	23	23	23	23	23	28	35	45	71	**100**	**40**
					DN 40	1 ½	45	45	45	45	45	51	82	103	128		**160**	**40**
					DN 50	2	45	45	45	45	45	51	82	103	128		**160**	**40**
					DN 80	3	116	116	116	116	150	170					**190**	**26**
					DN 100	4	165	165	165	165	200						**230**	**13**

Type	Shaft	Max. temperature	Bearing	Ball material	Center Housing		Recommended TORQUE in Nm at Δp up to										Max. permitted torque	Max. switchable pressure difference
					DIN	ANSI NPS	1bar	2bar	3bar	4bar	6bar	10bar	16bar	20bar	25bar	40bar	Nm	bar
KBR liquid conveying	Stainless steel 1.4301	310 °C	Floating ball	Chromium chilled cast 30 EH	DN 25	1	70	70	70	70	70	70	70				380	16
					DN 40	1 ½	80	80	80	80	80	80	80				425	16
					DN 50	2	120	120	120	120	120	120	120				450	16
					DN 65	2 ½	230	230	230	230	230	230	230				820	16
					DN 80	3	270	270	270	270	270	270	270				820	16
					DN 100	4	330	330	330	330	330	330					820	10
			Trunnion mounted ball		DN 125	5	550	550	550	550	550	550					1630	10
					DN 150	6	1050	1050	1050	1050	1050	1050					4000	10
					DN 175	7	1250	1250	1250	1250	1250	1250					4000	10
					DN 200	8	on request											
					DN 250	10	on request											
					DN 300	12	on request											
					DN 350	14	on request											
KBR dust conveying	Stainless steel 1.4301	310 °C	Floating ball	Chromium chilled cast 30 EH	DN 25	1	200	200	200	200	200	200	200				380	16
					DN 40	1 ½	230	230	230	230	230	230	230				425	16
					DN 50	2	290	290	290	290	290	290	290				450	16
					DN 65	2 ½	400	400	400	400	400	400	400				820	16
					DN 80	3	520	520	520	520	520	520	520				820	16
					DN 100	4	680	680	680	680	680	680					820	10
			Trunnion mounted ball		DN 125	5	1110	1110	1110	1110	1110	1110					1630	10
					DN 150	6	2000	2000	2000	2000	2000	2000					4000	10
					DN 175	7	2300	2300	2300	2300	2300	2300					4000	10
					DN 200	8	on request											
					DN 250	10	on request											
					DN 300	12	on request											
					DN 350	14	on request											
KZ_	1.4462 / 2.4605	310 °C / 180 °C	Trunnion mounted ball	ZrO_2 / Si_3N_4	DN 80	3	300	300	300	300	300	350	360	380			430	20
					DN 100	4	380	380	380	380	380	450	470				560	16
					DN 125	5	580	580	580	580	580	880	920				950	16
					DN 150	6	1200	1200	1200	1200	1200	1800					1800	10
					DN 200	8	2200	2200	2200	2200	2200	2990					3750	10
KG_	1.4462/2.4605	310 °C / 180 °C	Trunnion mounted ball	ZrO_2 / Si_3N_4	DN 80	3	200	200	200	200	200	250	250	360	370		430	25
					DN 100	4	250	250	250	250	250	340	350	380			560	20
					DN 125	5	450	450	450	450	450	650	810				950	18
					DN 150	6	850	850	850	850	850	1300	1700				1800	16
					DN 200	8	1300	1300	1300	1300	1300	1800	2250				3750	16

We reserve the right to make changes within the context of technical development. Date: May 2015

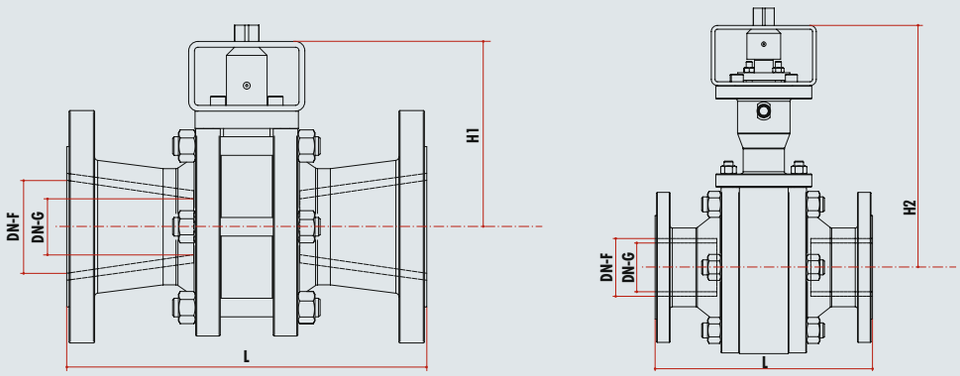
Torque values

Type	Shaft	Max. temperature	Bearing	Ball material	Center body		Recommended TORQUE in lbs at Δp up to										Max. permitted torque	Max. switchable pressure difference
					DIN	ANSI NPS	15 psi	30 psi	45 psi	60 psi	90 psi	145 psi	230 psi	290 psi	360 psi	580 psi	in-lbs	psi
KS_	1.4462 / 2.4605	310 °C / 180 °C	Floating ball	Ce-ramic ZrO_2 / Si_3N_4	DN 15	½	106	106	106	106	106	106	106	106	106	142	**354**	**1160**
					DN 25	1	204	204	204	204	204	204	248	310	398	628	**885**	**725**
					DN 40	1 ½	398	398	398	398	398	451	726	912	1133		**1420**	**508**
					DN 65	2 ½	575	575	575	575	841	1400					**1590**	**218**
					DN 80	3	1030	1030	1030	1030	1330	1500					**1680**	**145**
					DN 100	4	1460	1460	1460	1460	1770						**2040**	**116**
					DN 125	5	2210	2210	2210	2210	2920						**3010**	**87**
					DN 150	6	3980	3980	3980	3980							**4430**	**58**
KS_	1.4462 / 2.4605	310 °C / 180 °C	Floating ball	Steel 1.4112	DN 15	½	106	106	106	106	106	106	106	106	106	142	**443**	**2321**
					DN 25	1	204	204	204	204	204	204	248	310	398	628	**1150**	**1450**
					DN 40	1 ½	398	398	398	398	398	451	726	912	1133		**1420**	**508**
					DN 65	2 ½	575	575	575	575	841	1400	1900	2210			**2210**	**290**
					DN 80	3	1030	1030	1030	1030	1330	1500					**3010**	**174**
					DN 100	4	1460	1460	1460	1460	2210	2390					**4600**	**145**
					DN 125	5	2210	2210	2210	2210	2920	4340					**16000**	**145**
					DN 150	6	3980	3980	3980	3980	4690	6200					**26600**	**145**
KA_	1.4462 / 2.4605	310 °C / 180 °C	Floating ball	Ce-ramic ZrO_2 / Si_3N_4	DN 15	½	106	106	106	106	106	106	133	159	204	319	**354**	**580**
					DN 25	1	221	221	221	221	221	354	531	646	797		**885**	**363**
					DN 40	1 ½	443	443	443	531	708	1060					**1420**	**189**
					DN 65	2 ½	443	620	841	1060	1500						**1590**	**102**
					DN 80	3	708	1060	1330	1590							**1690**	**73**
					DN 100	4	885	1460	1770								**2040**	**44**
					DN 125	5	1680	3010									**3010**	**29**
					DN 150	6	2210	3980									**4430**	**29**
KA_	1.4462 / 2.4605	310 °C / 180 °C	Floating ball	Steel 1.4112	DN 15	½	106	106	106	106	106	106	133	159	204	319	**443**	**580**
					DN 25	1	221	221	221	221	221	354	531	646	797		**1150**	**435**
					DN 40	1 ½	443	443	443	531	708	1420					**1420**	**189**
					DN 65	2 ½	620	620	841	1060	1500	2210					**2210**	**145**
					DN 80	3	1060	1060	1330	1860	3010						**3010**	**87**
					DN 100	4	1770	2210	3360	4160	5750						**4600**	**58**
					DN 125	5	2480	3270	4960	6640	9820						**14400**	**87**
					DN 150	6	3190	6640	9740	13700	22100						**26600**	**87**
BR26 CE-RA	1.4462 / 2.4605	200 °C	Floating ball	Ce-ramic ZrO_2	DN 15	½	106	106	106	106	106	106	106	106	106	142	**355**	**580**
					DN 25	1	204	204	204	204	204	204	248	310	398	628	**885**	**580**
					DN 32												**885**	**580**
					DN 40	1 ½	398	398	398	398	398	451	726	912	1133		**1415**	**580**
					DN 50	2											**1415**	**580**
					DN 65	2 ½	575	575	575	575	841	1400					**1595**	**375**
					DN 80	3	1030	1030	1030	1030	1330	1500					**1680**	**290**
					DN 100	4	1460	1460	1460	1460	1770						**2035**	**190**

Type	Shaft	Max. temperature	Bearing	Ball material	Center Housing		Recommended TORQUE in lbs at Δp up to										Max. permitted torque	Max. switchable pressure difference
					DIN	ANSI NPS	15 psi	30 psi	45 psi	60 psi	90 psi	145 psi	230 psi	290 psi	360 psi	580 psi	in-lbs	psi
KBR liquid conveying	Stainless steel 1.4301	590 °F	Floating ball	Chromium chilled cast 30 EH	DN 40	1 ½	708	708	708	708	708	708	708				3760	232
					DN 50	2	1060	1060	1060	1060	1060	1060	1060				3980	232
					DN 65	2 ½	2040	2040	2040	2040	2040	2040	2040				7260	232
					DN 80	3	2390	2390	2390	2390	2390	2390	2390				7260	232
					DN 100	4	2920	2920	2920	2920	2920	2920					7260	145
					DN 125	5	4870	4870	4870	4870	4870	4870					14400	145
			Trunnion mounted ball		DN 150	6	9290	9290	9290	9290	9290	9290					35400	145
					DN 175	7	11100	11100	11100	11100	11100	11100					35400	145
					DN 200	8	on request											
					DN 250	10	on request											
					DN 300	12	on request											
					DN 350	14	on request											
KBR dust conveying	Stainless steel 1.4301	590 °F	Floa-ting ball	Chromium chilled cast 30 EH	DN 40	1 ½	2040	2040	2040	2040	2040	2040	2040				3760	232
					DN 50	2	2570	2570	2570	2570	2570	2570	2570				3980	232
					DN 65	2 ½	3540	3540	3540	3540	3540	3540	3540				7260	232
					DN 80	3	4600	4600	4600	4600	4600	4600	4600				7260	232
					DN 100	4	6020	6020	6020	6020	6020	6020					7260	145
					DN 125	5	9820	9820	9820	9820	9820	9820					14400	145
			Trunnion mounted ball		DN 150	6	17700	17700	17700	17700	17700	17700					35400	145
					DN 175	7	20400	20400	20400	20400	20400	20400					35400	145
					DN 200	8	on request											
					DN 250	10	on request											
					DN 300	12	on request											
					DN 350	14	on request											
KZ_	1.4462 / 2.4605	590 °F / 356 °F	Trunnion mounted ball	ZrO_2 / Si_3N_4	DN 80	3	2660	2660	2660	2660	2660	3100	3190	3360			3810	290
					DN 100	4	3360	3360	3360	3360	3360	3980	4160				4960	232
					DN 125	5	5130	5130	5130	5130	5130	7790	8140				8410	232
					DN 150	6	10600	10600	10600	10600	10600	15900					15900	145
					DN 200	8	19500	19500	19500	19500	19500	26500					33200	145
KG_	1.4462/2.4605	590 °F / 356 °F	Trunnion mounted ball	ZrO_2 / Si_3N_4	DN 80	3	1770	1770	1770	1770	1770	2210	2210	3190	3280		3810	363
					DN 100	4	2210	2210	2210	2210	2210	3010	3100	3360			4960	290
					DN 125	5	3980	3980	3980	3980	3980	5750	7170				8410	261
					DN 150	6	7520	7520	7520	7520	7520	11500	15000				15900	232
					DN 200	8	11500	11500	11500	11500	11500	15900	19900				33200	232

We reserve the right to make changes within the context of technical development. Date: May 2015

Connection dimensions



Size		Installation height DIN ISO 5211 (H1)											
DN-G		F05-VK14		F07-VK17		F10-VK22		F12-VK27		F14-VK36		F16-VK46	
DIN	ANSI / NPS	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
DN 15	½	124,0	4.88	124,0	4.88	144,0	5.67	-	-	-	-	-	-
DN 25	1	142,5	5.61	142,5	5.61	162,5	6.40	162,5	6.40	162,5	6.79	-	-
DN 40	1 ½	158,0	6.22	158,0	6.22	178,0	7.01	178,0	7.01	178,0	7.40	-	-
DN 65	2 ½	201,5	7.93	201,5	7.93	201,5	7.93	201,5	7.93	201,5	8.33	241,5	9.51
DN 80	3	216,0	8.50	216,0	8.50	216,0	8.50	216,0	8.50	216,0	8.90	256,0	10.08
DN 100	4	232,5	9.15	232,5	9.15	232,5	9.15	232,5	9.15	232,5	9.55	272,5	10.73
DN 125	5	-	-	-	-	253,5	11.12	253,5	11.12	253,5	12.93	273,5	12.93
DN 150	6	-	-	-	-	282,5	11.12	282,5	11.12	282,5	12.93	328,5	12.93
DN 200	8	-	-	-	-	-	-	-	-	-	-	-	-

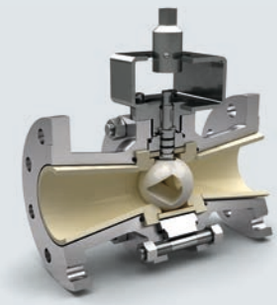
Size		Installation length (L) EN 558									
DN-F		Series 1	Series 27	Series 37		Series 38		Series 3		Series 12	
DIN	ANSI / NPS	mm	mm	inch	mm	inch	mm	inch	mm	inch	mm
DN 15	½	130	115	-	-	-	-	-	-	-	-
DN 20	¾	150	120	-	-	-	-	-	-	-	-
DN 25	1	160	125	7,25	184	7,75	197	5	127	-	-
DN 32	1¼	180	130	-	-	-	-	-	-	-	-
DN 40	1½	200	140	8,75	222	9,25	235	6½	165	-	-
DN 50	2	230	150	10,00	254	10,50	267	7	178	-	-
DN 65	2½	290	170	11,40	290	-	-	7½	190	-	-
DN 80	3	310	180	11,75	298	12,50	317	8	203	-	-
DN 100	4	350	190	13,88	352	14,50	368	9	229	-	-
DN 125	5	400	325	-	-	-	-	-	-	9	356
DN 150	6	480	350	17,75	451	18,62	473	-	-	14,50	394
DN 200	8	600	400	21,38	543	22,38	568	-	-	18	457
DN 250	10	730	450	26,50	673	27,87	708	-	-	-	-
DN 300	12	850	500	29,02	737	30,51	775	-	-	-	-

Size		Installation height DIN ISO 5211 (H2)											
DN-G		F05-VK14		F07-VK17		F10-VK22		F12-VK27		F14-VK36		F16-VK46	
DIN	ANSI / NPS	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
DN 15	½	224,0	8.82	224,0	8.82	244,0	9.61	-	-	-	-	-	-
DN 25	1	242,5	9.55	242,5	9.55	262,5	10.33	262,5	10.33	272,5	10.73	-	-
DN 40	1 ½	258,0	10.16	258,0	10.16	278,0	10.94	278,0	10.94	288,0	11.34	-	-
DN 65	2 ½	321,5	12.66	321,5	12.66	321,5	12.66	321,5	12.66	331,5	13.05	361,5	14.23
DN 80	3	336,0	13.23	336,0	13.23	336,0	13.23	336,0	13.23	346,0	13.62	376,0	14.80
DN 100	4	382,5	15.06	382,5	15.06	382,5	15.06	382,5	15.06	392,5	15.45	402,5	15.85
DN 125	5	-	-	-	-	403,5	15.89	403,5	15.89	403,5	15.89	423,5	15.89
DN 150	6	-	-	-	-	-	-	-	-	472,0	18.58	472,0	18.58

CERA VALVE valve weights in kg (lbs)									
Nominal diameter		Center Housing							
DIN	ANSI/NPS	DN 15	DN 25	DN 40	DN 65	DN 80	DN 100	DN 125	DN 150
		½	1	1 ½	2 ½	3	4	5	6
DN 15	½	6 (14)							
DN 20	¾	6 (14)							
DN 25	1	6 (14)	10 (22)						
DN 32	1¼	7 (15)	11 (24)						
DN 40	1½	7 (16)	12 (26)	18 (40)					
DN 50	2	8 (17)	15 (33)	18 (40)					
DN 65	2½		18 (40)	21 (46)	38 (84)				
DN 80	3		22 (49)	24 (53)	39 (86)	48 (106)			
DN 100	4			28 (62)	40 (88)	50 (110)	66 (146)		
DN 125	5				44 (97)	54 (119)	77 (170)	99 (218)	
DN 150	6				51 (112)	58 (128)	81 (179)	110 (243)	165 (364)
DN 200	8						105 (231)	140 (309)	177 (390)
DN 250	10							165 (364)	188 (414)
DN 300	12								233 (514)
DN 350	14								289 (637)
Example: Ball valve DN 80 - 40 - 80 or 3″ - 1 ½″ - 3″									

CERA VALVE valve weights in kg (lbs) Installation length (L) EN 558				
Nominal diameter		KBR Series 1	BR26 CERA Series 1	BR26 CERA Series 27
DIN	ANSI/NPS			
DN 15	½	-	2,6 (5)	2 (4)
DN 25	1	10 (22)	5 (11)	4 (8)
DN 32	1 ¼	11 (24)	-	-
DN 40	1 ½	12 (26)	9 (19)	7,5 (16)
DN 50	2	13 (29)	12 (26)	10 (22)
DN 65	2 ½	26 (57)	-	-
DN 80	3	34 (75)	28 (61)	23 (50)
DN 100	4	38 (84)	48 (105)	33 (72)
DN 125	5	80 (176)	-	-
DN 150	6	138 (304)	-	-
DN 175	7	178 (392)	-	-
DN 200	8	195 (430)	-	-

Products and services



Ball valves
Cera System offers wear and corrosion resistant ball valves for open / close and control function. The use of ceramic lined valves is sensible in all cases where standard valves reach their limits (abrasion, corrosion, temperature and pressure). A large range of metallic and ceramic materials permits solutions for almost all industrial sectors. Special applications are solved in close cooperation with our customers.

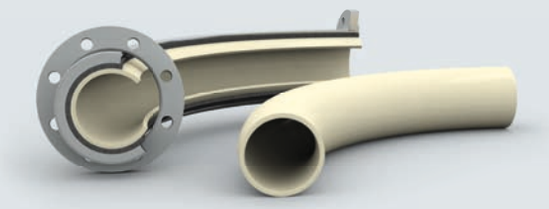


Sliding disc valve
Cera System offers wear and corrosion resistant disc slide valves for open / close and control function. With this type of construction just the ceramic are wetted by the fluid. It is therefore suitable for highly corrosive media. Further advantages: Excellent control of small amounts containing solids – completely cavity free. The slide valve is available from DN 2 (5/6″) up to DN 50 (2″).

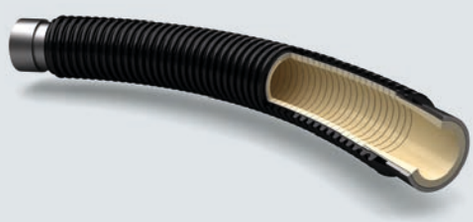


Ceramic components
Cera System develops and produces customer-specific ceramic precision components in small batch sizes through to series production for the most diverse areas of application. Focal points are sealing and control discs for air conditioning, sanitary fittings as well as many other applications. Ceramic components for the sensor, food engineering and building services sectors round off our portfolio.

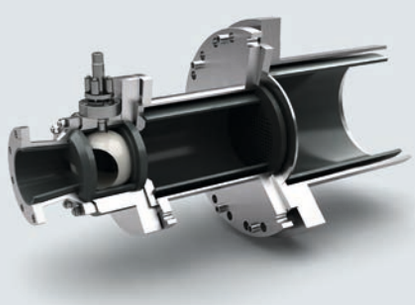
Pipe waer protection
Cera System offers wear resistant pipe elbows, Y and T parts as well as other shaped pieces. The most diverse of ceramics are used. The ceramic is solid (wall thickness approx. 6 mm (¼″)). All solutions are nominal size conformant, they can be assembled problem-free without having to adjust the pipelines. The clear width corresponds to the flange connection. Our speciality: the ceramic pipe elbows are actually curved (no apposition of straight sections).



Ceramic hoses
Cera System supplies wear resistant flexible solutions. Ceramic hoses manufactured by Cera System can be used everywhere where hoses regularly wear and must be replaced. The hose consists of ceramic rings that are vulcanised together with special reinforced rubber materials. Pressures of up to 10 bar / 145 psi are permitted.



Ceramic system solutions
Cera System offers system solutions with ceramic components. In-house development and sales engineers ensure for the complete design of ceramic systems and create economical, customer-specific complete solutions all over the world. Product developments in the coal gasification and photovoltaic sector are only examples of numerous other industry-specific applications.



SAMSON AT A GLANCE

EMPLOYEES

- Worldwide 4.300
- Europe 3.300
- Asia 500
- America 200
- Frankfurt am Main, Germany, 1.800

MARKETS

- Chemicals and petrochemicals
- Power and energy
- District energy and building automation
- General industry
- Industrial gases
- Food and beverages
- Metallurgy and mining
- Oil and gas
- Pharmaceuticals and biotechnology
- Marine equipment
- Water and wastewater
- Pulp and paper

PRODUCTS

- Valves
- Self-operated regulators
- Actuators
- Accessories
- Signal converters
- Automation systems
- Sensors and thermostats
- Digital solutions

SALES LOCATIONS

- More than 50 subsidiaries in over 40 countries
- More than 200 agencies

PRODUCTION SITES

- SAMSON Germany, Frankfurt, established 1916
  Total plot and production area: 150.000 m²
- SAMSON France, Lyon, established 1962
  Total plot and production area: 23.400 m²
- SAMSON Turkey, Istanbul, established 1984
  Total plot and production area: 11.053 m²
- SAMSON USA, Baytown, TX, established 1992
  Total plot and production area: 9.200 m²
- SAMSON China, Beijing, established 1998
  Total plot and production area: 10.138 m²
- SAMSON India, Pune district, established 1999
  Total plot and production area: 18.000 m²
- SAMSON Russia, Rostov-on-Don, established 2015
  Total plot and production area: 5.000 m²
- SAMSON AIR TORQUE, Bergamo, Italy
  Total plot and production area: 27.684 m²
- SAMSON CERA SYSTEM, Hermsdorf, Germany
  Total plot and production area: 14.700 m²
- SAMSON KT-ELEKTRONIK, Berlin, Germany
  Total plot and production area: 1.060 m²
- SAMSON LEUSCH, Neuss, Germany
  Total plot and production area: 18.400 m²
- SAMSON PFEIFFER, Kempen, Germany
  Total plot and production area: 35.400 m²
- SAMSON RINGO, Zaragoza, Spain
  Total plot and production area: 18.270 m²
- SAMSON SED, Bad Rappenau, Germany
  Total plot and production area: 10.370 m²
- SAMSON STARLINE, Bergamo, Italy
  Total plot and production area: 26.409 m²
- SAMSON VDH PRODUCTS, Netherlands
- SAMSON VETEC, Speyer, Germany
  Total plot and production area: 27.090 m²

CERA SYSTEM Verschleißschutz GmbH
Am Globus 2 · 07629 Hermsdorf
Phone: +49 36601 919-0
Fax: +49 36601 919-90
E-mail: sales-cera-de@samsongroup.com
Internet: www.cerasystem.de