ATV 安特威

HELP YOU ENJOY GOOD LIFE

Soft Seal Ball Valve

Antiwear (Suzhou) Industrial Intelligent Technology Co., Ltd.

Leader in the design and manufacture of a full range of industrial valves

As a leader in the design and manufacture of a full range of industrial valves, Antiwear produces ball valves, butterfly valves, gate valves, globe valves, check valves, plug valves, piston valves, regulating valves, disc valves, labyrinth valves and other products for both common working conditions to harsh conditions. They have been widely used in oil refining, natural gas, petroleum, power, water, chemical industry, construction, papermaking, pipeline transportation and other applications, and are recognized by a large number of users and engineering companies.

Antiwear firmly believes that integrity is not only a virtue, but also a working attitude and lifestyle. With the rapid development, Antiwear gradually formed the cultural gene of "It's reliable", that is, reliable products, trustworthy people, and timely services. In this regard, Antiwear has completed the quality system certification and obtained a series of certificates, including ISO9001, ISO14000, ISO18000, TS, API6D, API607, ISO15848, PED, EPA, TA-LUFT, API6FA, etc.

With standardization, digitization, informatization and intelligence, Antiwear is establishing intelligent production lines in the super discrete field. Furthermore, it is creating interconnected factories through big data and cloud computing, digital delivery systems, lean production, global rapid response systems, supply chain integration and other means to realize zero distance between users and the manufacturer, redefine production cycles and quality management, and establish a C2M smart trading platform in the super discrete manufacturing field, truly achieving "HELP YOU ENJOY GOOD LIFE"!

Best solution

With the spirit of keeping improving, Antiwear has been continuously improving valve quality. In addition to common working conditions, Antiwear has conducted fruitful research on harsh working conditions such as high temperature, high pressure, multiphase media, strong corrosion, crystallization, high-frequency action, etc., which are common in the silicon chemical industry, coal chemical industry, petrochemical industry, hydrometallurgy and other fields, and has summarized effective solutions through extensive practices.

- High temperature and high pressure pure oxygen and hydrogen conditions → oxygen and hydrogen ball valve, globe valve, check valve
- Solid abrasive material conveying conditions → metal seated ball valve, disc valve, double disc valve
- Above 450°C high temperature conditions → High temperature ball valve, high temperature disc valve, double-wedge high temperature gate valve

- PP/PE/PSA devices opened/closed 1.6 million cycles/year - PDS high-frequency metal seated and soft seal ball valve
- High differential pressure venting and regulation of solid containing materials - slide valve
- Corrosive conditions - plug valve, ball valve
- Fiber and pulp conditions - eccentric semi-ball valve
- Bidirectional sealing ball valves for high temperature solid-containing materials - S ZORB ball valve
- Scouring, flashing, cavitation conditions - angle regulating valve
- Zero leakage condition of large size gas media - triple offset butterfly valve
- Pulp condition - Y-shape globe valve
- Crystallization or slurry working conditions - plug valve, eccentric semi-ball valve
- Sedimentation condition - piston valve
- Multi-stage pressure reduction and flashing working conditions - labyrinth regulating valve

Antiwear's Five Advantages

Turnkey Solution
- Full range of valves
- Applications in all industries
- Applications for all conditions
- Customizable for customers
- Excellent performance in harsh conditions
- Extensive R&D and service experience

Best Quality
- Digital inspection
- Intelligent judgment
- Remote real-time monitoring
- Digital product delivery
- Advanced processing and inspection equipment
- Complete quality control system and certification

Quick Response
- 5*1+1 global rapid response
- Close to customers' factories
- Worldwide sales and distributors
- Quick selection/quotation software
- One-click order in the APP's Smart Mall
- C2M platform

Interconnected Factories Model
- Flexible production line
- Lean production
- Shared supply platform
- Shared products and production ways
- Shared intelligent quality control methods

Reliable Culture
- Reliable products
- Trustworthy people
- Timely service
- HELP YOU ENJOY GOOD LIFE

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Products for harsh conditions

Metal seated ball valve
It adopts quantitative compression with double bearings, disc spring and unique metal seated materials, with excellent performance, and can be widely used in various abrasive and high temperature conditions.
Bore size: DN15 ~ DN600，1/2″~ 24″
Temperature range: -196℃~ 850℃
Nominal pressure: PN10 ~ PN670，CLASS150 ~ CLASS4000

Ball valve for oxygen
It has thoroughly overcome the technical difficulties of cemented carbide bonding in high-pressure, high-temperature and ultra-pure gas applications. It opens/closes smoothly with no jamming. It is deoiled and degreased, waterproof and anti-static, with the sealing performance reaching or exceeding Level 6 leakage protection for a long time.
Bore size: DN15 ~ DN500，1/2″~ 20″
Temperature range: -196℃~ 500℃
Nominal pressure: PN10 ~ PN260，CLASS150 ~ CLASS1500

Triple offset butterfly valve
During the opening/closing process, the butterfly plate sealing pair has no contact friction, and the actuator provides torque to the valve stem to make the valve tightly closed. The greater the torque, the greater the closing pressure, achieving "zero leakage" in single-way or even double-way sealing.
Bore size: DN50 ~ DN4000，2″~ 160″
Temperature range: -196℃~ 600℃
Nominal pressure: PN10 ~ PN420，CLASS150 ~ CLASS2500

S Zorb metal seated ball valve
It adopts a quantitative floating design with a pressure relief groove, a disc spring and unique metal seated materials. Featuring good sealing, good wear resistance and no jamming under high temperature conditions, it is an ideal choice for the ball valve used in S Zorb devices.
Bore size: DN15 ~ DN300，1/2″~ 12″
Temperature range: ≤ 650℃
Nominal pressure: PN10 ~ PN260，CLASS150 ~ CLASS1500

Disc valve
Mainly used in the coal chemical industry and polysilicon industry, for material conveying and cutting under abrasive conditions, with excellent performance and long service life.
Bore size: DN25 ~ DN1200，1″~ 48″
Temperature range: -196℃~ 850℃
Nominal pressure: PN10 ~ PN260，CLASS150 ~ CLASS1500

Double-wedge high temperature gate valve
The unique double-gate structure allows the gate to quickly leave the sealing surface when opening, avoiding the gate being wedged due to deformation of the sealing surface under high temperature conditions, which would cause the valve to be unable to open.
Bore size: DN200 ~ DN1400，8″~ 56″
Temperature range: ≤ 816℃
Nominal pressure: PN10 ~ PN420，CLASS150 ~ CLASS2500

High frequency ball valve
Featuring fast switching, high frequency action, and adaptability to various complex media, it can be widely used in various applications that require frequent switching. It is the best choice for PDS systems in PP, PE, and PSA devices.
Bore size: DN15 ~ DN1200，1/2″~ 48″
Temperature range: -46℃~ 450℃
Nominal pressure: PN10 ~ PN260，CLASS150 ~ CLASS1500

Double disc valve
Featuring self-rotating, self-grinding and self-pressure release, no pressure building, no jamming and long service life, it is the best choice for coal lock hopper, slag lock hopper and ash lock hopper valves.
Bore size: DN40 ~ DN600，1-1/2″~ 24″
Temperature range: -196℃~ 850℃
Nominal pressure: PN10 ~ PN260，CLASS150 ~ CLASS1500

Labyrinth regulating valve
The maximum pressure reduction capacity up to Level 24 can effectively avoid damage to the valve caused by flashing and cavitation under high differential pressure conditions, while greatly reducing the operating noise of the valve, with excellent performance and long service life.
Bore size: DN25 ~ DN600，1″~ 24″
Temperature range: ≤ 700℃
Nominal pressure: PN10 ~ PN760，CLASS150 ~ CLASS4500

Patents

Certificates

ISO9001

API607

API6FA

PED

ISO14001

OHSAS18001

ISO15848

API6D

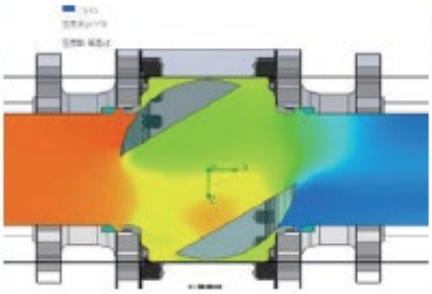
Contents

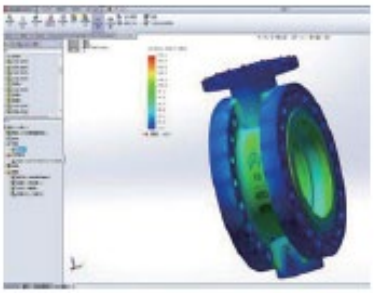
Design and R&D System

Since its inception, Antiwear has been committed to the R&D and application of new products. To this end, the Group's annual investment in research and development exceeds 10% of its sales. It not only has a powerful R&D team, but also has established a world-class intelligent R&D test platform. It has developed various general and targeted products for both common and harsh working conditions. These products have won praise for Antiwear time and time again.

The design center adopts a standardized and modular design to achieve interchangeability between parts. When designing new products, Antiwear uses technical means such as 3D simulation and finite element analysis to simulate and verify the rationality of product design before new products are put into mass production to ensure the reliability and stability of final products.

Our employees are committed to continuous development and innovation, improving production and technical capabilities. Antiwear has a team of professional engineers, technical salespersons and certified service technicians. Antiwear firmly believes that innovation is the source of the Company's development, and the foundation of becoming an excellent enterprise.





Production Management System

Antiwear adopts flexible production and a real-time visible and controllable production management system, taking the lead in realizing the transformation and upgrading from valve manufacturing to intelligent manufacturing. All factories of the Group implement paperless operations, eliminating all interference of human factors and ensuring the accuracy and visualization of data at every step from blank to finished products.

The central database summarizes and records data from raw material procurement, and parts processing to product assembly and testing in real time. In addition, through data interpretation and analysis, automatic ordering, automatic scheduling, automatic procurement, and optimization of the entire production system can be achieved with ERP/MRP/PLM/APS/MES/MOS/SRM/ODP/VSM/DDS/SQS, etc., achieving rapid response to users and excellent product quality.

All interconnected factories, including those of outsourced suppliers, can share standardized, digital, information-based and intelligent production systems and quality control systems.

Quality Management System

Antiwear creatively adopts an intelligent quality control system. Through digital production, intelligent judgment, fully automatic transmission and digital delivery, it not only achieves retrospective traceability, but also realizes remote and real-time quality control without any human intervention throughout the process.

Antiwear has established a physical and chemical laboratory that is equipped with advanced instruments such as a roundness tester, metal chromatograph, multifunctional metal mechanical tester, carbon and sulfur analyzer, three-coordinate measuring instrument, Rockwell and Vickers hardness tester, ultrasonic flaw detector, ultrasonic thickness gauge, automatic pressure testing device and torque tester.

Antiwear has made full use of cloud platforms and intelligent means to establish a world-class quality control system. Our products not only comply with relevant international standards such as ASME/API/ISO/PED, but have also obtained relevant strict certifications. Additionally, through establishing a digital product delivery platform, users can access all the product information with the "identity card" of each product, including the production progress, and even manufacturing drawings, processes and processing procedures. Our goal is to make our customers completely satisfied and "ENJOY GOOD LIFE".

Overview of Soft Seal Ball Valves

Antiwear has conducted in-depth research on the problems often encountered in the use of soft seal ball valves, and has optimized the valve structure in a unique and innovative way by building physical and mathematical models. The soft seal ball valves produced have the advantages of stable torque, reliable sealing, and long service life compared to similar products. They can maintain good sealing performance and operability within a wide range of temperature and pressure, helping customers to easily cope with various working conditions.

Product features

Zero leakage	Zero internal or external leakage;
Small torque	Elastic seat design reduces torque;
No jamming under high temperature	The torque is stable within the temperature range of 80°C~200°C, and there is no jamming;
Cold flow prevention	Quantitative compression, no position of the seat and valve body exceeds the allowable stress, and the cold flow is small;
Anti-blowout valve stem	When disassembling the packing online, the valve stem will not get out of the valve body, which ensures safety;
Fireproof structure	The sealing performance can still be guaranteed in the case of fire;
Anti-static structure	The valve stem, ball and valve body are electrically conductive to prevent sparks from static electricity and ensure safety;
Long life	The high-performance type, long-life type, and high-frequency type correspond to 10,000, 50,000, and 1,000,000+ switching cycles respectively;
Low temperature	(-110°C~-51°C) The service life of soft seal ball valve is more than 1,000 cycles, meeting the requirements of BS6364 (see the *Low-temperature/Cryogenic Soft Seal Ball Valve* sample for details);
Ultra-low temperature	(-196°C~-110°C) The service life of soft seal ball valve is more than 500 cycles, meeting the requirements of BS6364 (see the *Low-temperature/Cryogenic Soft Seal Ball Valve* sample for details)

Applications

- ●Municipal - Infrastructure
- ●Oil & Gas
- ●Petrochemical
- ●Water & Wastewater Treatment
- ●Food, Drug
- ●Ships
- ●Chemical Industry
- ●Polysilicon, Silicone
- ●Oil Refining
- ●Fine Chemicals
- ●Metallurgy, Lithium Battery
- ●Others

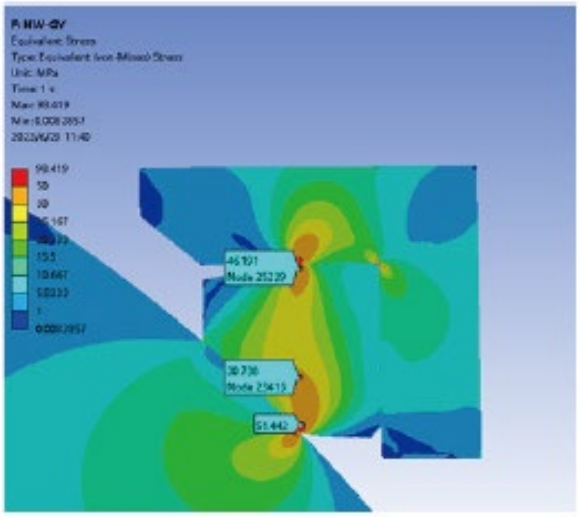




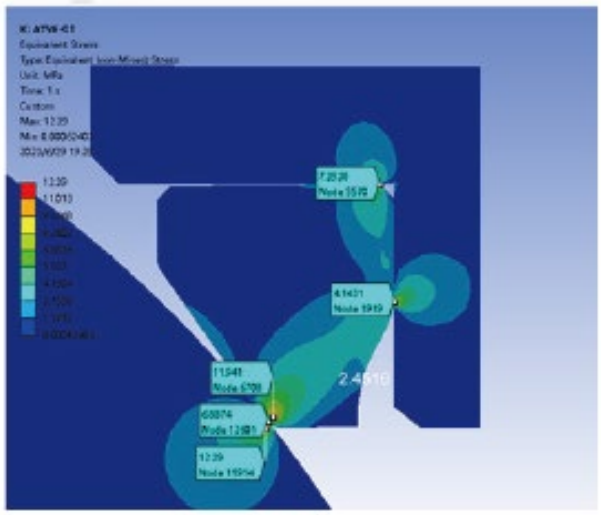

Core design concept: slowing down cold flow

The phenomenon that a thermoplastic material flow under ambient pressure at room temperature is called cold flow. Cold flow can cause internal or external leakage of valves. The cold flow rate mainly depends on the load, ambient temperature and medium. The ambient temperature and medium are working conditions that cannot be changed, so the best way to slow down the cold flow is to reduce the load, i.e. stress. How to reduce the internal stress of thermoplastic materials is the key to extending the life of soft seal valves. For soft seal valves, it can be deemed that "low stress means long life".

Antiwear believes that the internal stress of thermoplastic materials such as PTFE should not exceed the permissible stress (about 17.5MPa on average), otherwise it will accelerate the cold flow to produce plastic damage and reduce the service life. With the concept of "slowing down cold flow", Antiwear has developed specific structures and designs. The figure below shows the stress distributions of the general structure and Antiwear's patented seat structure.



The internal stress of the general seat structure is too large



The internal stress of patented high performance elastic seat is low

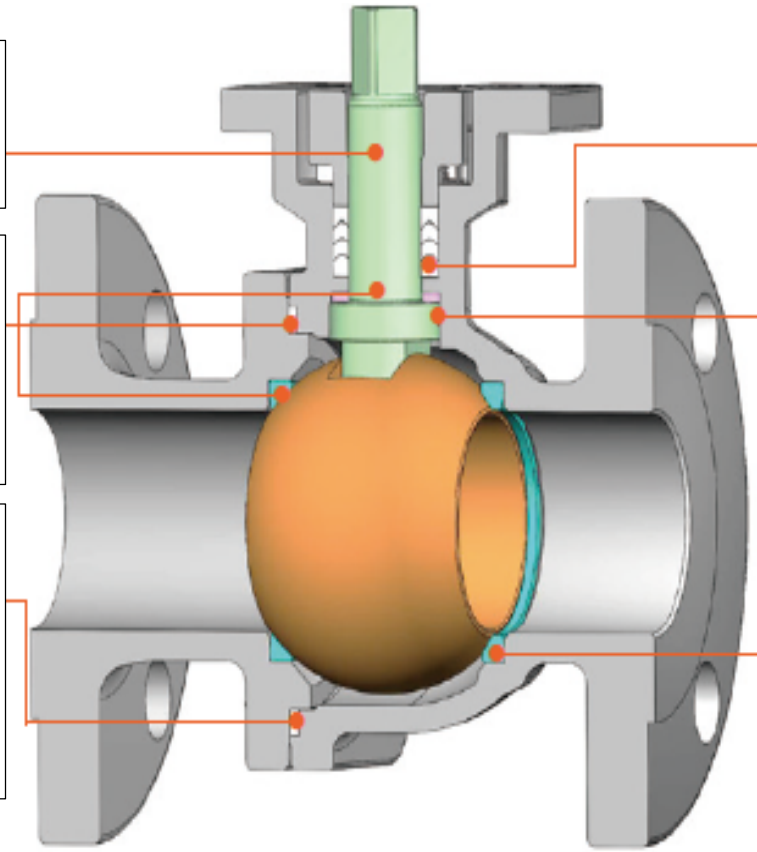
Through a large number of tests, Antiwear found that the permissible stresses of plastic materials such as PTFE vary from manufacturer to manufacturer. As long as the internal stress of structural parts is controlled below the required permissible stress, the life of plastic materials from different manufacturers, including import enterprises, joint ventures and domestic companies, tends to be consistent with no obvious difference!

Floating ball solution

Stem design
●Anti-blowout valve stem design
●Strict finish control

Fireproof design
●Meet the standard API607/API6FA
●Valve stem, seat and middle flange adopt fireproof design as standard

Quantitative compression of middle flange
●Preset compression & stop design
●Reduce cold flow
●Stable switching torque
●High assembly consistency



External leakage prevention design
●Optional V-type PTFE/flexible graphite packing
●With both sealing and fireproof functions

Anti-static structure design
●The metal ball, valve stem and valve body keep in contact all the time
●Eliminate electrostatic accumulation

Elastic seat design
●A variety of structures are available according to the working conditions
(See the introduction on the next page)
●Stable torque
●Temperature insensitive, pressure adaptive
●Two-way zero leakage

Note: Antiwear reserves the right to modify the structure

Floating soft seal ball valve range					
	PN	10/16/25	40	63/100	150
DN	NPS/CLASS	150	300	600	900
15	1/2	●	●	●	●
20	3/4	●	●	●	●
25	1	●	●	●	●
40	1-1/2	●	●	●	●
50	2	●	●	●	◐
65	2-1/2	●	●	●	/
80	3	●	●	◐	/
100	4	●	●	/	/
125	5	●	●	/	/
150	6	◐	◐	/	/

● Manual + Pneumatic ◐ Manual only / Not applicable

Floating ball and elastic seat design

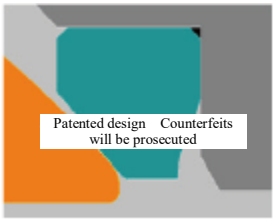
For soft seal floating ball valves, in order to better adapt to various temperature and pressure situations, Antiwear provides 4 different elastic seat structures:

SF-CY01 series (conventional)

SF-CY01 series (conventional)

Applicable to working conditions with temperature < 200°C, pressure rating ≤ CLASS300 and less than 200 switching cycles. Features: (this structure is similar to the designs of most manufacturers)

◆Pressure and temperature sensitive; ◆Short life ◆Low assembly pass rate



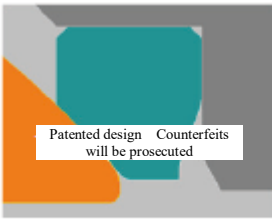
SF-CY02 series (high performance)

SF-CY02 series (high performance)

Applicable to working conditions with temperature < 200°C, pressure rating ≤ CLASS300 and less than 10,000 switching cycles. Features:

◆Prevent cold flow after excessive compression; ◆Long cantilever beam, low torque;

◆Pressure and temperature adaptive; ◆Stable torque; ◆Fireproof design



SF-GSM-CY01 series (long life)

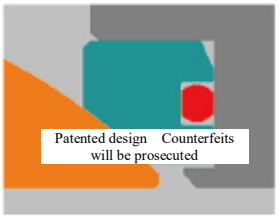
SF-GSM-CY01 series (long life)

Applicable to working conditions with temperature < 200°C, pressure rating ≤ CLASS300 and less than 50,000 switching cycles. Features:

◆Prevent cold flow after excessive compression; ◆Long cantilever beam;

◆Pressure and temperature adaptive; ◆Stable torque; ◆Fireproof design

◆Wide sealing surface, low pressure, slow wear, long life, and 50,000 switching cycles available



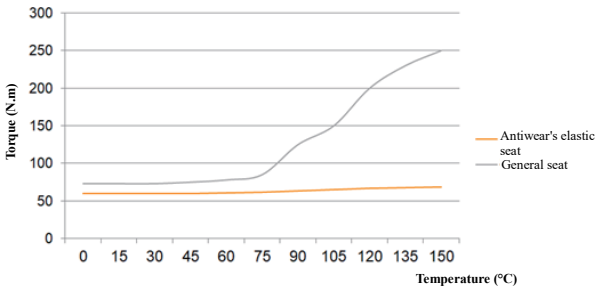
SF-GP-CY01 series (high frequency)

SF-GP-CY01 series (high frequency)

Applicable to working conditions with normal temperature and pressure, fast switching requirements; ultra-long life with 50,000 ~ 1,000,000+ cycles. Features:

◆Prevent cold flow after excessive compression; ◆Pressure and temperature adaptive; ◆Small and stable torque, which can meet the requirements of ultra-fast switching; ◆Fireproof design ◆Low pressure on the sealing surface, slow wear and long life

Compared with the general seat designs, the biggest advantage of Antiwear's elastic seats is that they are not temperature sensitive, so they can easily cope with various working conditions and have a long service life. From the comparative test below, it can be seen that with the increase of temperature, the torque increase of Antiwear's elastic seats is very small; while for general seats, when the temperature rises to above 80°C, the valve torque increases sharply, so the valves are prone to jamming or locking.



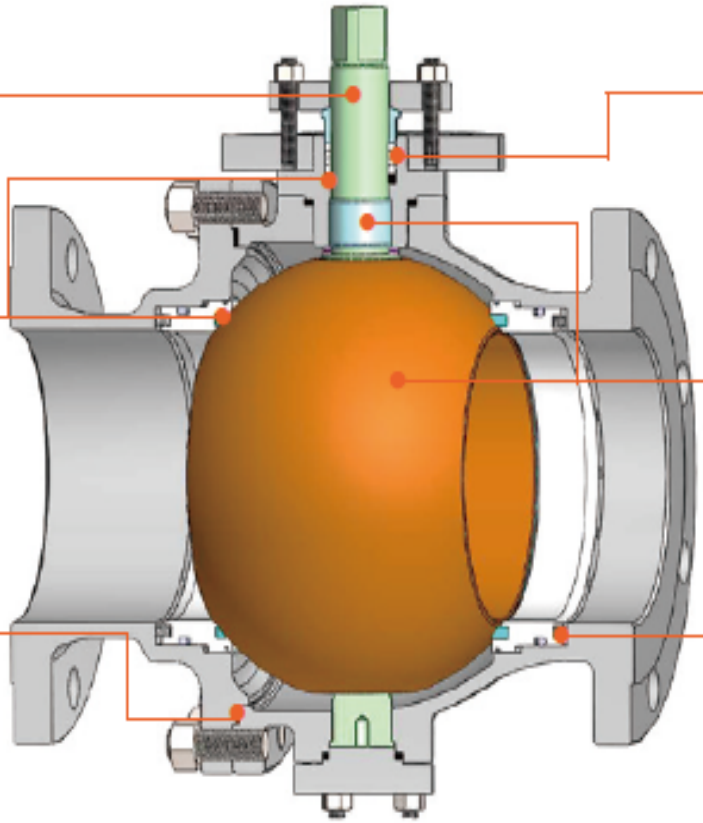
Note: The torques shown are based on 3"-150lb floating ball, PTFE seat, SF-CY02 configuration

Trunnion mounted ball solution

Stem design
●Anti-blowout valve stem design
●Strict finish control

Reliable fireproof design
●Meet the standard API607/API6FA
●Valve stem, seat and middle flange adopt fireproof design as standard

Quantitative compression of middle flange
●Preset compression & stop design
●Reduce cold flow
●Stable switching torque
●High assembly consistency



External leakage prevention design
●V-type PTFE+flexible graphite combined packing
●With both sealing and fireproof functions

More reliable operation
●The ball surface has been polished to be smoother
●Self-lubricating bushing with low friction coefficient
●The seat is made of imported materials, with low friction coefficient and long service life

Reliable sealing
●Optimized spring design ensures excellent sealing under low differential pressure
●Two-way zero leakage

Trunnion mounted soft seal ball valve range					
	PN	16/25	40	63/100	150
DN	NPS/CLASS	150	300	600	900
50	2	/	/	/	◐
65	2-1/2	/	/	/	●
80	3	/	/	◐	●
100	4	/	/	●	●
125	5	/	/	●	●
150	6	◐	◐	●	●
200	8	●	●	●	●
250	10	●	●	●	●
300	12	●	●	●	●
350	14	●	●	●	●
400	16	●	●	●	●
450	18	●	●	●	●
500	20	●	●	●	●
550	24	●	●	●	●
600	28	●	●	●	●
750	30	●	●	●	●
800	32	●	●	●	●
900	36	●	●	●	●

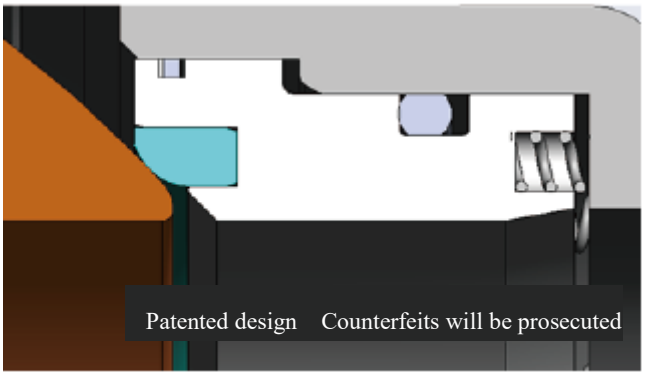
● Manual + Pneumatic ◐ Manual only / Not applicable

Trunnion mounted ball seat design

Structural features of SF-CY01 series (conventional) seats:

◆Compensating spring; ◆Small torque; ◆Stable torque; ◆Low cold flow;

◆Small contact sealing surface of ball seat, easy to seal; ◆Fireproof design; ◆Anti-jamming design

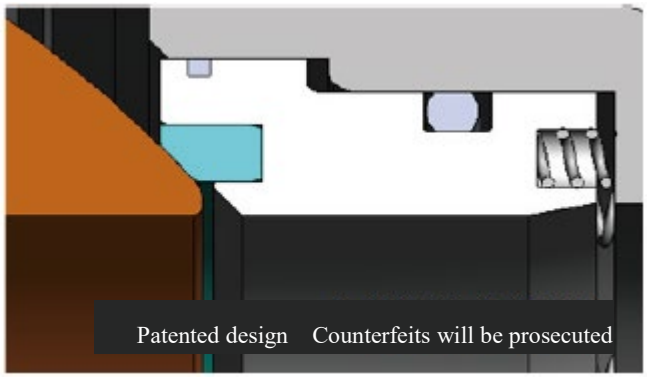


Structural features of SF-GSM-01 series (long life) and SF-GP-CY01 series (high frequency) seats:

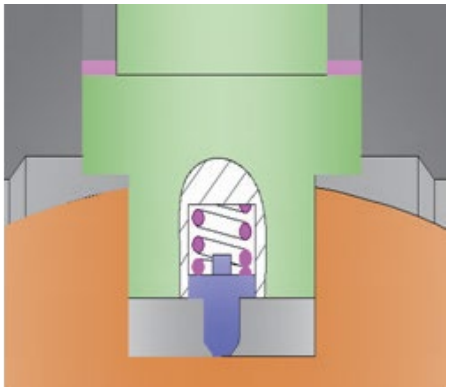
◆Special spring design provides long-term and stable pretension; ◆Ultra-low torque; ◆Stable torque;

◆Low cold flow; ◆Large contact sealing surface of ball seat, low stress and long service life; ◆Fireproof design;

◆Anti-jamming design

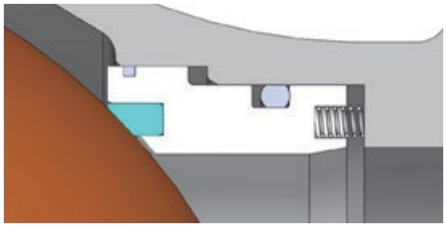


Other features

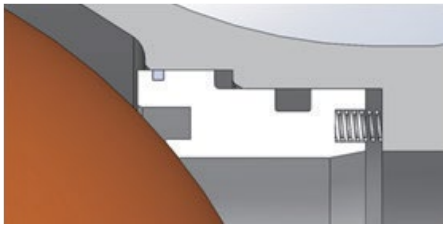


●Anti-static structure design

Anti-static device is standard in Antiwear's soft seal ball valve design. The valve stem is equipped with a spring and a grounding plug to ensure that the ball, valve stem and valve body always keep in contact to conduct electricity, forming a conductive circuit, which can avoid the electrostatic accumulation caused by friction when the valve is opened and closed, and prevent the risks of fire or explosion caused by static sparks.



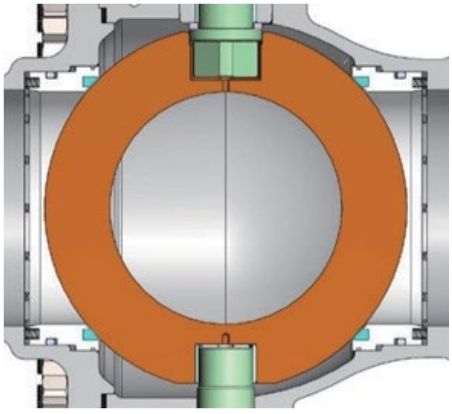
Before fire



After fire

● Fireproof structure design

An O-ring+graphite double seal is designed between the valve body and the seat support ring of Antiwear's trunnion mounted soft seal ball valve. When the O-ring is damaged in a fire, the outer layer of graphite can work well for auxiliary sealing. When the sealing ring at the seat is damaged, the metal seat will automatically form a metal seal with the ball under the thrust of the spring to avoid safety hazards. The fireproof design of valve complies with API 607 & API 6FA and other standards and specifications.



●Self-relief design of middle cavity

If the pipeline or ambient temperature rises abnormally, the medium or highly volatile liquid accumulated in the middle cavity of valve body may evaporate and cause the cavity pressure to rise abnormally.

When the pressure in the middle cavity exceeds the sum of the spring pretension and the medium pressure, the seat is pushed away from the ball by such pressure, thereby relieving the pressure.

Other optional features

●Extended stem design
●Reducer design
●Double piston effect seat
●Thermal jacket design
●Drain and purge design

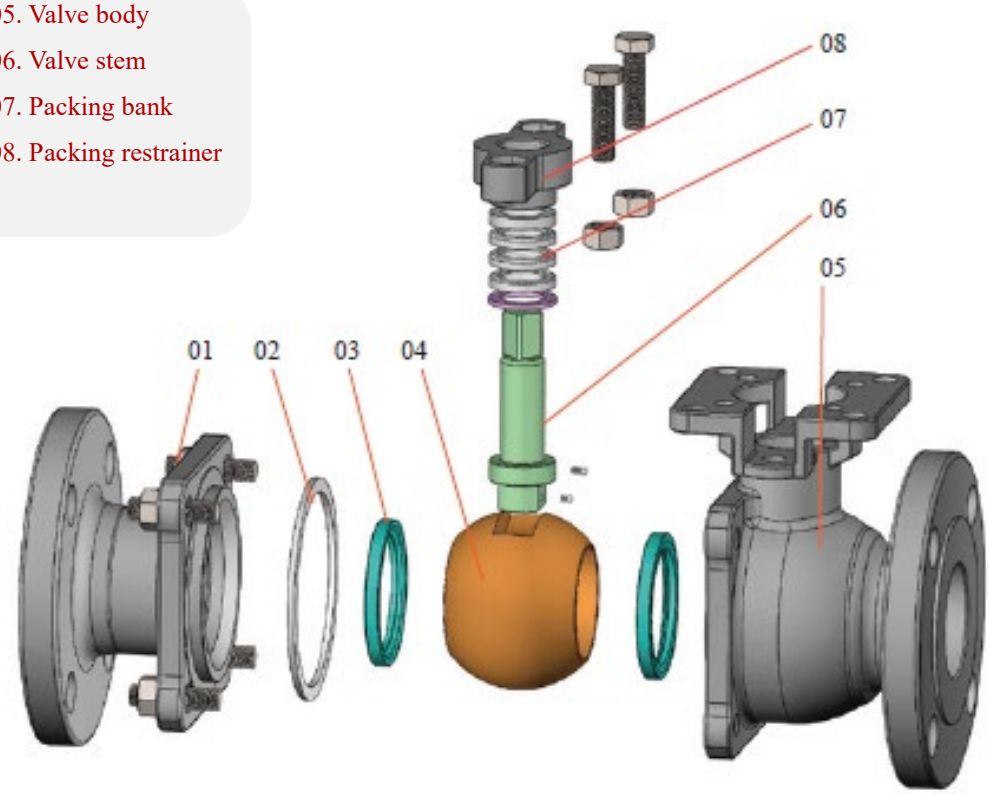
Technical Specifications and Material Selection

Floating ball valve

Technical specifications

Design standards	API 608/API 6D/ASME B16.34/ GB/T 12237
Structural length	ASME B16.10/GB/T 12221
Flange size	ASME B16.5/HG/T 20615/HG/T 20592
Inspection and test	API 598/ ISO5208/GB/T 13927/ FCI70.2

01 Bonnet
02. Sealing gasket
03. Seat
04. Ball
05. Valve body
06. Valve stem
07. Packing bank
08. Packing restrainer



Material of main parts:

Part name	Valve body	Ball	Seat	Valve stem	Packing	Bolts/Nuts
Common materials	A216 WCB/A105 A352 LCB/ A350 LF2 A351 CF8/ A182 F304 A351 CF3M/ A182 F316L F51 MONEL INCOLOY etc.	A105+ENP A182 F304 A182 F316L MONEL F51 INCOLOY etc.	PTFE RPTFE PPL DEVLON PEEK	304 316L 630 F51 INCOLOY etc.	PTFE Flexible graphite	B7/2H L7/7 B8-2/8

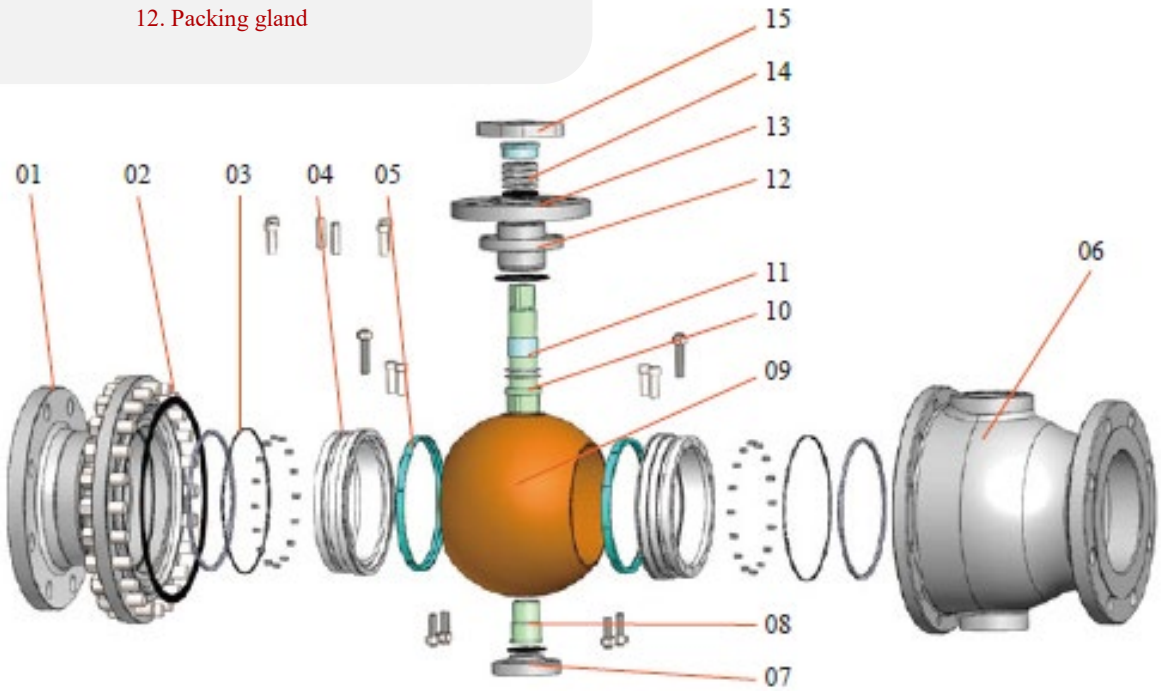
Note: The materials listed in the above table are only commonly used materials. Please consult Antiwear for more materials.

Trunnion mounted ball valve

Technical specifications

Design standards	API 608/API 6D/ASME B16.34/ GB/T 12237
Structural length	ASME B16.10/GB/T 12221
Flange size	ASME B16.5/ HG/T 20615/HG/T 20592
Inspection and test	API 598/ ISO5208/GB/T 13927/FCI70.2

01 Bonnet	07. Lower cover	13. Connection plate
02. Sealing gasket	08. Bottom shaft	14. Packing bank
03. Seat O-ring	09. Ball	15. Packing restrainer
04. Seat support ring	10. Valve stem	
05. Seat	11. Stem bearings	
06. Seat	12. Packing gland	



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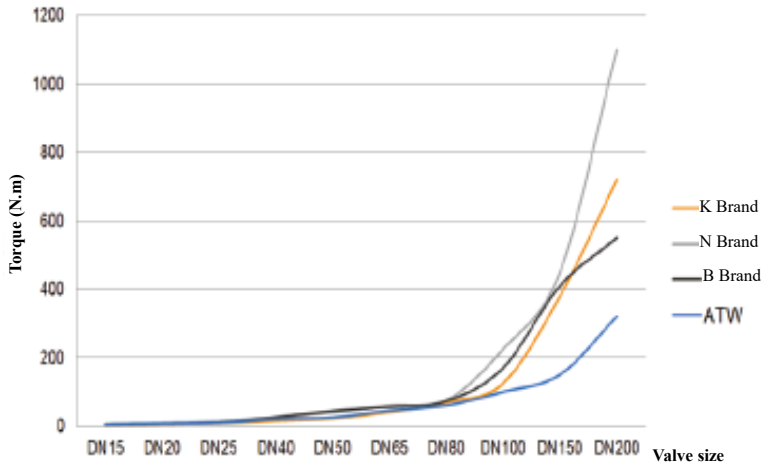
Note: The materials listed in the above table are only commonly used materials. Please consult Antiwear for more materials.

Torque Comparison

The figure below shows a comparison of the torques of soft seal ball valves produced by Antiwear and internationally renowned manufacturers. Antiwear's valve has lower torque and switches more reliably.

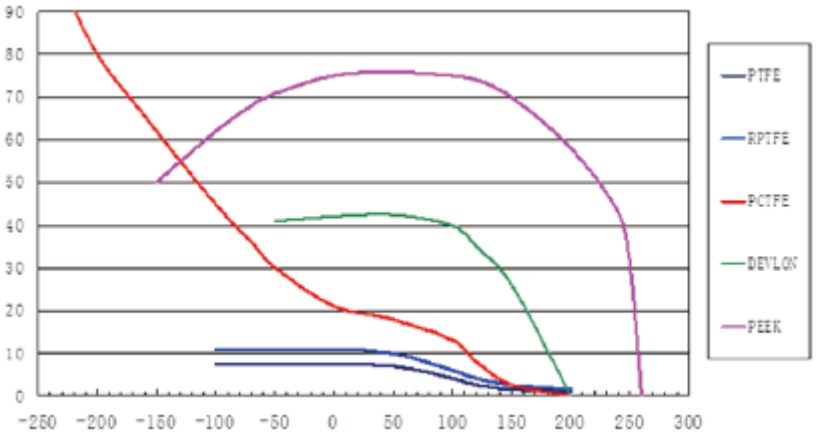


Note: The above data is based on 150lb full differential pressure torque, and PTFE seat;
The torques of K Brand / N Brand / B Brand are based on their public release samples.

Engineering Data

Temperature and pressure curves of common sealing materials

The figure below shows the temperature and pressure curve of soft seal materials:



Properties of common seat sealing materials

Material properties		PTFE	PCTFE	PEEK	DEVLON V-API
Temperature range (°C)		-100℃ ~150℃	-200℃ ~150℃	-100℃ ~260℃	-50℃ ~150℃
Pressure range		150lb~ 300lb	150lb~ 1500lb	150lb~ 2500lb	150lb~900lb
Mechanical properties	Tensile strength (MPa)	30	37	134	79
	Shore Type D hardness	55~60	85	88~90	78~80
	Elongation (%)	350	150	2.2	5.3
Friction coefficient		PEEK>RPTFE>PCTFE>PTFE			
Applications		Almost all chemical media. Excellent corrosion resistance (strong acid, strong alkali, strong oxidizing media)	Ultra-low temperature conditions	High temperature and high pressure conditions	High pressure conditions

Note: The above data are only typical values of the materials and are for reference only. When selecting the specific model, you need to choose the appropriate material according to the actual specifications, temperature, pressure, and medium. For more information, please consult Antiwear.

Material compatibility

Medium \ Material	Carbon steel	Stainless steel	Acetai	Flexible graphite	Virgin/Glass/PTFE	UHMWPE	Devion V	PEEK		Medium \ Material	Carbon steel	Stainless steel	Acetai	Flexible graphite	Virgin/Glass/PTFE	UHMWPE	Devion V	PEEK
Acetaldehyde	C	A	A	A	A	U	B	A		Calcium carbonate	U	B	A	B	A	A	I	A
Acetate solvent	A	A	U	A	A	I	I	I		Calcium sulfate	C	B	A	A	A	A	I	A
Acetaldehyde, containing no air	U	A	U	A	A	I	I	I		Carbon dioxide	B	B	A	A	A	U	I	I
Acetic anhydride	U	B	C	A	A	C	I	I		Sulfuric acid	U	B	A	A	A	I	A	A
Acetone	A	A	A	A	A	A	A	A		Carbon monoxide	I	A	A	I	A	A	I	A
Other ketones	A	A	A	A	A	I	I	I		Chlorinated solvent	C	A	A	A	A	I	I	B
Acetylene	A	A	A	A	A	I	A	A		Drilling fluid	B	A	A	A	A	I	I	I
Acid gas	U	B	U	C	A	I	I	I		Ethers	A	A	C	A	A	U	A	A
Air	A	A	A	B	A	A	A	I		Ethyl acetate	B	B	C	A	A	C	A	A
Aluminum chloride solution	I	U	U	A	A	A	I	I		Ethylene glycol	B	B	A	A	A	A	B	A
Ammonia, alum	I	A	C	A	A	I	I	I		Fatty acid	U	A	B	A	A	A	A	I
Ammonium acetate	I	B	U	B	A	I	I	I		Ferrous sulfate	U	B	A	A	A	A	I	A
Ammonium chloride	U	C	C	A	A	A	I	A		Flue gas	I	A	C	A	A	I	I	I
Ammonium nitrate	U	A	U	B	A	A	A	A		Formaldehyde, cold	A	A	B	A	A	A	B	A
Barium carbonate	B	B	A	A	A	A	I	I		Formic acid, cold	U	B	U	A	A	A	C	A
Boric acid	U	B	A	A	A	A	A	A		Freon gas, dry	B	A	C	A	A	I	I	I
Saturated salt water	U	B	A	A	A	A	I	A		Hydrogen, cold	B	A	A	A	A	A	A	A
Bromide, dry	U	U	U	B	A	U	I	C		Hydrogen peroxide, concentrated	U	B	U	U	A	C	D	A
										Methane	B	A	A	A	A	I	A	A

Remarks:

A: Excellent resistance - almost no change in mechanical properties or weight.

B: Good - May show deterioration of mechanical properties or change in weight over time.

C: Poor - The material is damaged within a short period of time.

U: Unsuitable - Do not use.

I: Insufficient data or no data on which a conclusive rating can be based.

Ordering Instructions

Model composition

1. Product code: SSB - soft seal ball valve, CGB - low temperature soft seal ball valve (see the *Low Temperature/Cryogenic Soft Seal Ball Valve* sample for details)

2. Series:

F2	Floating two-piece valve	F3	Floating three-piece valve
T2	Fixed two-piece valve	T3	Fixed three-piece valve

3. Pressure rating

Pressure	Class150	Class300	Class600	Class900
No.	150	300	600	900

Pressure	PN10	PN16	PN25	PN40	PN63	PN100	PN160
No.	10	16	25	40	63	100	160

4. Bore size

NPS	0.5	0.75	1	1.5	2	2.5	3	4	5	6	8
DN	15	20	25	40	50	65	80	100	125	150	200
NPS	10	12	14	16	18	20	24	28	30	32	36
DN	250	300	350	400	450	500	600	700	750	800	900

5. Flange sealing type①

Raised face	Ring joint face	Female face	Male face
RF	RJ	FM	M

6. Special options②

Reducer	Thermal jacket	Extended stem	Double piston effect seat	None
AN	BN	EN	FN	NN

Note: ①For other flange connections, please consult Antiwear;

②For other special requirements, please consult Antiwear.

FLOWTEX
It's reliable

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