

Everlasting endeavor and innovation based  
on utilization of others' experienc

Sea water resistant metal sealed butterfly valve

# Brief introduction

Bensv Valve Stock Co., Ltd. is located in Tianjin Baodi Jiuyuan Industrial Park on the coast of Bohai Sea. It is a non regional industry company integrating valve R & D, production, sales and service. Over the years, the company has been learning and innovating in the exploration, developing strongly in the competition and striving for "the first brand of water valve in China". In August 2017, the company was successfully listed in the national small and medium-sized enterprise stock transfer system (new third board), stock abbreviation: Bensv, securities code: 871874.

Bensv has passed the certification of ISO9001 quality management system, ISO14001 environmental management system, GB / T28001 occupational health and safety management system, EU CE, and the State Administration of quality supervision, inspection and Quarantine (TS), and has won the honors of "high-tech enterprise", "national defense special valve research and development center", "Tianjin enterprise technology center", "Tianjin Science and technology enterprise".

Bensv has been adhering to the enterprise spirit of "striving endlessly, absorbing for innovation", and attaches great importance to R & D investment and technology promotion and application. The "valve flow resistance test device" and "air valve inlet and exhaust performance detection device" are built by introducing three-dimensional simulation manufacturing test design software and hydraulic calculation software. Among them, the "air valve inlet and exhaust performance detection device" has advanced design, complete functions and strong test ability, reaching the international leading level. With Wuhan University, Changsha University of science and technology, North China University of water resources and hydropower, the company has widely carried out industry university research cooperation, and has established "academician expert workstation" and won the license of Tianjin Science and Technology Commission. The company has obtained more than 200 patent technologies, edited and participated in the compilation of more than 10 national and industrial standards, published more than 10 papers in important journals in the industry, and won one China machinery industry science and technology award.



Bensv's leading products include butterfly valve, gate valve, eccentric hemisphere valve, exhaust valve, flow regulating valve, water hammer protection equipment, expansion device and other series, which are energy-saving and environmental protection. With the strength of designing and manufacturing large-scale valves, many products have become the industry benchmark and applied to national large-scale engineering projects. The products have won the famous trademark of Tianjin, and are widely used in water supply fields such as long-distance water supply, water supply and drainage, petroleum, chemical industry, power plant, air conditioning, pipeline system, etc.

Bensv's product sales cover the whole country, providing technical and product services for major projects such as South to North Water Diversion, yellow water to east water diversion, water diversion from Yangtze River to Huaihe River, water supply from South Korea, water diversion from Central Jilin, Baise reservoir in Guangxi, China water affairs, Huaxing optoelectronics, Huacan photoelectric and other major projects. At the same time, it is also exported to the United States, Russia, France, Thailand, South Korea, Italy, UAE, Brazil, Iran, Ukraine, Malaysia, Saudi Arabia and other nearly 20 countries and regions. In response to the one new initiative of the one belt, one road is to actively develop economic and trade cooperation with the countries along the route.

Bensv always adheres to the policy of "struggle, introduction, absorption and improvement", follows the business philosophy of "integrity, cooperation, win-win and development", adheres to the principle of "good word first, seeking progress in stability", pays attention to product research and development and improvement, gives back customers and society with high-quality products and warm and thoughtful service, and advances towards a higher goal.





## PRECISE EQUIPMENTS TECHNICAL PILOT

"Want to be powerful needs to make ready the tools first". Bnsv gets greatly familiar with it, People of Bnsv know that good management, good ideas and good talents are not enough to mean an enterprise holds a powerful productive power and makes sure of a excellent product quality, as excellent equipments are also required. Bnsv leads in the production and process equipments of the world advanced level and the technical talents and holds high precise digital control machine tools, large processing facilities and special technological ones, all of which provide a powerful guarantee for the product quality and the enterprise development.



## PRECISE AND PERFECTION STRICT AND PRACTICAL

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# Academician and expert team

## Expert introduction



Mao Zhi

Mao Zhi, academician of Chinese Academy of engineering, water conservancy expert  
Professor and doctoral advisor of Wuhan University  
Consultant of science and Technology Committee of Ministry of water resources  
Director of Engineering Technology Committee of national water saving irrigation engineering technology center (Beijing).

He has long been committed to the research, teaching and production of water conservancy and farmland irrigation, and has made outstanding achievements in the theory and technology of irrigation engineering and water use management. The "water-saving irrigation method for farmland" has developed the theory of water-saving irrigation for farmland, which has far-reaching academic value. It has promoted 1.66 million hectares, increased 274000 tons of grain production, saved 1.3 billion cubic meters of water, and created more than 400 million yuan of economic benefits.

As the first prize winner, he has won 6 Awards above the provincial and ministerial level since 1995: the second prize of national science and technology progress, one national science and Technology Progress Award nominated by the Ministry of education and one second prize of Hubei Province, two second prizes of science and technology progress awarded by the Ministry of water resources, and the "outstanding contribution award of international agricultural water saving irrigation technology innovation" issued by the international irrigation and drainage Commission in 2000.

In addition, he also won the second prize of national popular science works and several third prizes of provincial and ministerial level scientific and technological progress. He was selected as the chief expert of the academic group of the national irrigation experimental network, and was selected as one of the "500 outstanding academic leaders in the world in recent 25 years" by the American Biography Institute. In recent years, he has given lectures in 18 countries, presided over international conferences and academic reports at international conferences, presided over water-saving research projects of international cooperation, and won praise from foreign peers. He has devoted himself to the development of China's water conservancy irrigation experiment and played an important role in the quality of China's irrigation experiment station. It has made an important contribution to improving the reputation of our country.

## Expert introduction



Jiang Jin

Professor, doctoral supervisor, School of power machinery, Wuhan University  
Director of Key Laboratory of hydraulic machinery transition process, Ministry of Education  
Member and Secretary General of pumping station professional committee of China Water Conservancy Society  
Young and middle-aged experts with outstanding contributions in Hubei Province (2005)  
Member of the national science and Technology Award

The main research directions are as follows

1. Experiment and numerical simulation of transient process of fluid mechanical device
2. Condition monitoring and fault diagnosis of fluid machinery
3. Three dimensional flow field simulation of fluid machinery (valve and pump)

He has been engaged in fluid machinery flow field calculation, pump system transient process calculation, rotating machinery condition monitoring and fault diagnosis research for a long time, especially in fluid transportation transient process calculation of ultra long distance pipeline.

He has successively undertaken a number of vertical projects such as National Natural Science Foundation of China, 948 project and national defense pre research of the 13th five year plan, participated in key projects of national science and technology support plan of the 11th Five Year Plan and the 12th Five Year Plan, 863 plan and other projects. In recent years, he has undertaken flow field calculation and optimization design of new nuclear reactors in main pump circuit of acpr1000+ and hualong-1 nuclear power plants, and advanced engine fuel supply system. We have also undertaken a large number of simulation and calculation projects for the transition process of water supply system, especially for the transition process of long-distance pipeline fluid transportation, including the transition process simulation projects for the longest single-stage water supply pipeline in China and the longest slurry pipeline under construction in the world. More than 60 papers have been published, and a number of provincial science and technology progress awards have been awarded.

## Expert introduction



Luo Yufeng

Professor, doctoral supervisor, School of water resources and hydropower, Wuhan University

Professor Luo Jia

Convenor of UNESCO International Symposium on the role of mathematical models in integrated watershed water resources management

Member of pastoral Water Conservancy Committee of China Water Conservancy Society.

The main research directions are as follows

1. Theory and technology of water saving irrigation
2. Water resources management and efficient utilization
3. Construction and management of Ecological Irrigation District
4. Intelligent irrigation system

Main achievements: presided over two NSFC projects, one key project, one sub project of key R & D plan and nearly 20 other projects, participated in Australian International Agricultural Research Center (ACIAR) project, "973 Plan" project, "863 Plan" project, National Science and technology support plan project, Ministry of water resources public welfare industry research special project, Ministry of water resources "948" project He has published more than 100 papers, including more than 40 SCI papers and 20 EI papers, published one monograph and one textbook, authorized more than 10 patents and 3 software copyrights.

## Expert introduction



Li Zhipeng

Professor, School of energy and power engineering, Changsha University of Technology

The executive director of fluid engineering branch of Chinese society of mechanical engineering

Member of hydraulic turbine special committee of China Power Engineering Society  
Director of drainage and irrigation machinery branch of China Agricultural Machinery Association

Member of pump and Pumping Station Committee of China Water Conservancy Society

Director of rotor dynamics special committee of Chinese society of Vibration Engineering

Member of energy and Power Engineering Committee of China Machinery Industry Education Association

Water supply and drainage pump valve expert of China Building Metal Structure Association

Member of National Technical Committee for standardization of small hydropower units in energy industry

Member of national safety relief device Standardization Technical Committee

Energy saving expert of Hunan development and Reform Commission

President of Hunan General Equipment Industry Association and chairman of test technology and quality management committee

Vice president and Secretary General of Changsha Pump and valve industry technology innovation strategic alliance

Member of the 3rd and 4th Academic Committee of Changsha University of technology, editorial board member of Journal of drainage and irrigation machinery engineering, Journal of Changsha University of technology, Journal of enterprise technology development, and specially invited editorial board member of Journal of hydraulic machinery technology and pump China.

Reserve candidates for the first batch of leaders of cross century academic and technical talents in Hunan Province

Excellent young and middle-aged experts in Hunan Province.

Main research directions

1. Internal flow research and optimization design of fluid machinery;
2. Fluid transportation system regulation control and safety protection;
3. Energy saving technology of fluid conveying system.

He has undertaken more than 50 national, provincial and ministerial level scientific research projects, won 12 provincial and ministerial level scientific and technological awards, published more than 100 academic papers, won 12 invention patents, published 3 academic monographs, participated in the compilation of 1 technical manual, presided over and participated in the drafting of more than 10 national industry standards and more than 20 enterprise standards.

# Future Prospect

As a hi-tech enterprise providing valves for water industry, energy saving and environmental protection engineering, with the attitudes of taking precautions, looking far and aiming high, BNSV is sparing no efforts to boost and drive the development of the water industry and making its own contributions to benefit the humans.





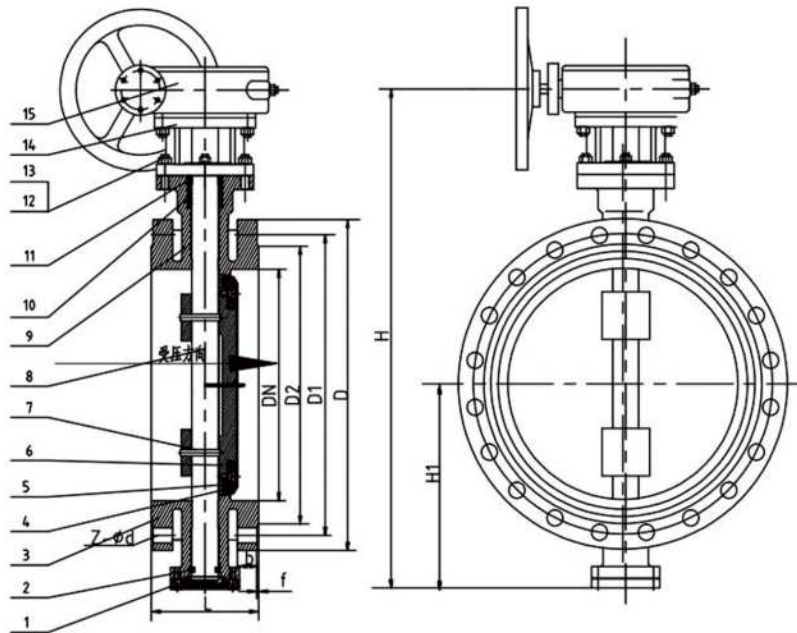


### Characteristic:

- Three eccentric hard seal butterfly valve has small fluid resistance, small impact on sealing surface, no change of medium flow direction, no disturbance, small pressure drop, small opening and closing torque, wide range of applicable pressure and temperature.
- Three eccentric bevel cone seal is adopted. The butterfly plate swing contact seal is used to seal the opening and closing without abrasion. The closer the closing is, the more reliable the sealing performance is. The sealing cover is completely separated from contact by opening to ensure that the sealing surface is not damaged.
- When the valve is opened, the butterfly plate and the valve seat contact instantaneously when closing, and the butterfly plate eccentricity is used to quickly break away from the valve seat, which reduces the wear of the sealing pair, with small friction torque and flexible opening. The eccentric conical surface enables the butterfly plate to pass through the inner hole of the valve seat to realize contact sealing when the valve is opened or closed. In addition, the rotation radius of the conical butterfly plate is larger than that of the contact position of the sealing pair, so the butterfly plate will be more and more tightly closed when the valve is closed, which can realize self-locking and prevent the butterfly plate from over position.
- The sealing surface is made of d507mo and cobalt base hard alloy, which has the characteristics of corrosion resistance, high temperature resistance and long service life, and overcomes the defect of easy leakage of thermal expansion valve in high temperature service.
- The butterfly plate seal ring adopts hard and soft laminated metal sheet, which has the dual characteristics of elastic seal and soft hard multi-level seal compatibility. It has good sealing performance no matter in the case of corrosion resistance and high temperature resistance.

### Main materials:

Part Name	Material	Part Name	Material
Body	Stainless steel, chromium molybdenum steel, alloy steel	Stem	2Cr13、1Cr13 Stainless Steel、Chromium molybdenum steel、2205、17-4Ph
Disc	Stainless steel, chromium molybdenum steel, alloy steel	Bearing	Austenitic stainless steel、304 nitrided
Seal RING	Stainless steel and high temperature resistant asbestos board are combined into multi-layer	Packing	Graphite



Main out-form and connection dimensions

DN(mm)	Main dimensions				Flange size and bolt norm							
					0.6MPa				1.0MPa			
	L	L <sub>1</sub>	H <sub>2</sub>	H <sub>1</sub>	D	D <sub>1</sub>	D <sub>2</sub>	n-Φd	D	D <sub>1</sub>	D <sub>2</sub>	n-Φd
100	127	56	285	107	210	170	144	4-19	220	180	156	8-18
125	140	64	300	123	240	200	174	8-19	230	210	184	8-18
150	140	70	320	140	265	225	199	8-19	285	240	211	8-18
200	152	71	370	180	320	280	254	8-19	340	295	266	8-22
250	165	76	420	200	375	335	309	12-19	395	350	310	12-22
300	178	83	500	250	440	395	363	12-23	445	400	370	12-22
350	190	92	530	270	490	445	413	12-23	505	460	429	16-22
400	216	102	570	300	540	495	463	16-23	565	515	480	16-26
450	222	114	600	320	595	550	518	16-23	615	565	530	16-26
500	229	127	680	360	645	600	568	20-23	670	620	582	20-26
600	267	154	750	420	755	705	667	20-26	780	725	682	20-30
700	292	165	810	480	860	810	772	24-26	895	840	794	24-30
800	318	190	905	540	975	920	878	24-31	1015	950	901	24-33
900	330	203	960	590	1075	1020	978	24-31	1115	1050	1001	28-33
1000	410	216	1010	640	1175	1120	1078	28-31	1230	1160	1112	28-36
1200	470	254	1175	750	1405	1340	1295	32-34	1455	1380	1328	32-39
1400	530	/	1310	860	1630	1560	1510	36-37	1675	1590	1530	36-42
1600	600	/	1460	980	1830	1760	1710	40-37	1915	1820	1750	40-48
1800	670	/	1560	1090	2045	1970	1918	44-40	/	/	/	/
2000	760	/	1670	1190	2265	2180	2125	48-43	/	/	/	/

Note: can be made per ANSI, JIS, DIN standards and non-standard dimensions.

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⊙ We are subject to change without notice. Users are requested to use the latest version, we have the right of final interpretation.

Ⓒ Revised in December 2020, printed with ecological paper.

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