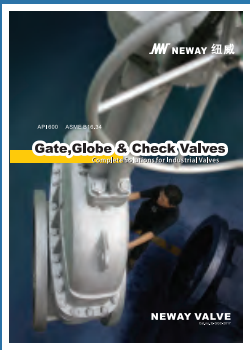
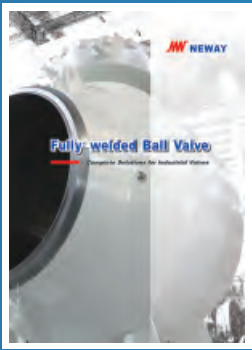




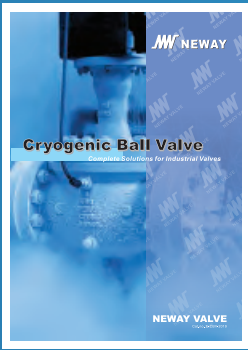
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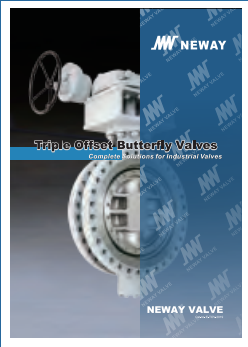
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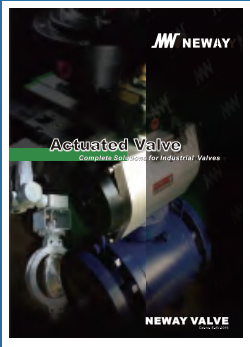
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Cat.no.:E-CBV



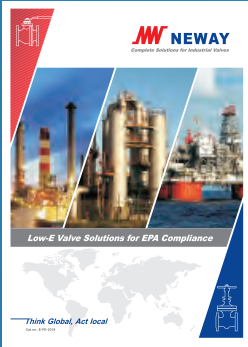
Cat.no.:TOBV



Cat.no.:E-AV



Cat.no.:E-PGV



Cat.no.:E-FE



Cat.no.:E-CTOBV



Cat.no.:E-SV



Cat.no.:E-OV



Cat.no.:E-LNG

NEWAY

Renewable & Green Energy Industry Valves

Complete Solutions for Industrial Valves

Cat.no.:E-RGEV-2022

NEWAY

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NEWAY VALVE

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Complete Solutions for Industrial Valves

As a global leader of valve manufacturing, Neway (SSE:603699) is dedicated to the production, research, and development of industrial valves. Neway is committed to providing complete valve solutions to all industries through advanced engineering and innovation.

Neway's product line includes Ball, Butterfly, Gate, Globe, Check, Nuclear, Control, Subsea, Safety valves. Our high quality standards and innovative ability are recognized by many global end users and EPC's. Neway valves are utilized in a wide variety of industries and working conditions such as Refining, Chemical, Coal Chemical, Offshore(including subsea), Air Separation, LNG, Nuclear Power, Power Generation, and Pipeline Transmission applications.

Facilities & Service

Neway has developed a sophisticated multi-plant management system operating one valve assembly plant, one API6A valve plant, three foundries, and one R&D center. Our largest assembly plant was expanded in 2013, and it now covers 230,000 square meters.

Advanced software (ANSYS, FE-Safe, CF-Design, Siemens PLM and NX) is applied here at Neway for the Research & Development of products. We use SAP&MES to control the traceability and status of all products during the manufacturing process. In order to ensure the safety, eco-friendliness, and reliability of our products, we use the most advanced fire-safe, cryogenic, high pressure, and fugitive emission test equipment.

As part of Neway's global strategy, to provide better service to our customers, we have established our overseas subsidiaries in USA, Netherlands, Italy, Singapore, Dubai, Vietnam and Nigeria along with over 80 agents and distributors worldwide.

New energy industry development

Neway is actively monitoring market trends and focuses on the development of new energy industries. To this end, Neway invests in the research, development, and production of valves to support wind, hydrogen, carbon capture, solar and geothermal energy initiatives. Neway also collaborates with end users to help draft relevant industry standards to provide complete valve solutions for green energy projects.

Quality Commitment

Neway recognizes the importance of valve quality for the safety and protection of personnel health and property. It is our quality commitment to focus our resources to provide our customers with first class products at a competitive price, that are designed, manufactured, inspected and tested in accordance with our customer's specifications and that comply with all international standards.

With respect to the facts that the current industrial standards do not always take into consideration the likelihood and consequences of possible deterioration in service, related to specific service fluids or the external environment in which they operate. Our customers are requested to keep an open line of communication with our engineering department to identify and implement standards, that will provide valves with the possibility of deterioration in service, so as to ensure safety over the valves expected lifetime.





Hydrogen Energy

Hydrogen energy Industry introduction

- Current energy industry trends are focused on reducing the overall global carbon footprint. Hydrogen is currently recognized as the most ideal energy carrier as it is a clean, efficient, safe and sustainable secondary energy. According to the International Hydrogen Energy Committee, it is estimated that hydrogen energy will take up 18% of the global energy terminal demand by 2050, and will become a major commodity along with gasoline and diesel to be stored.

Hydrogen, as an energy source, is derived from all hydrogen processes such as production, storage, and transportation.

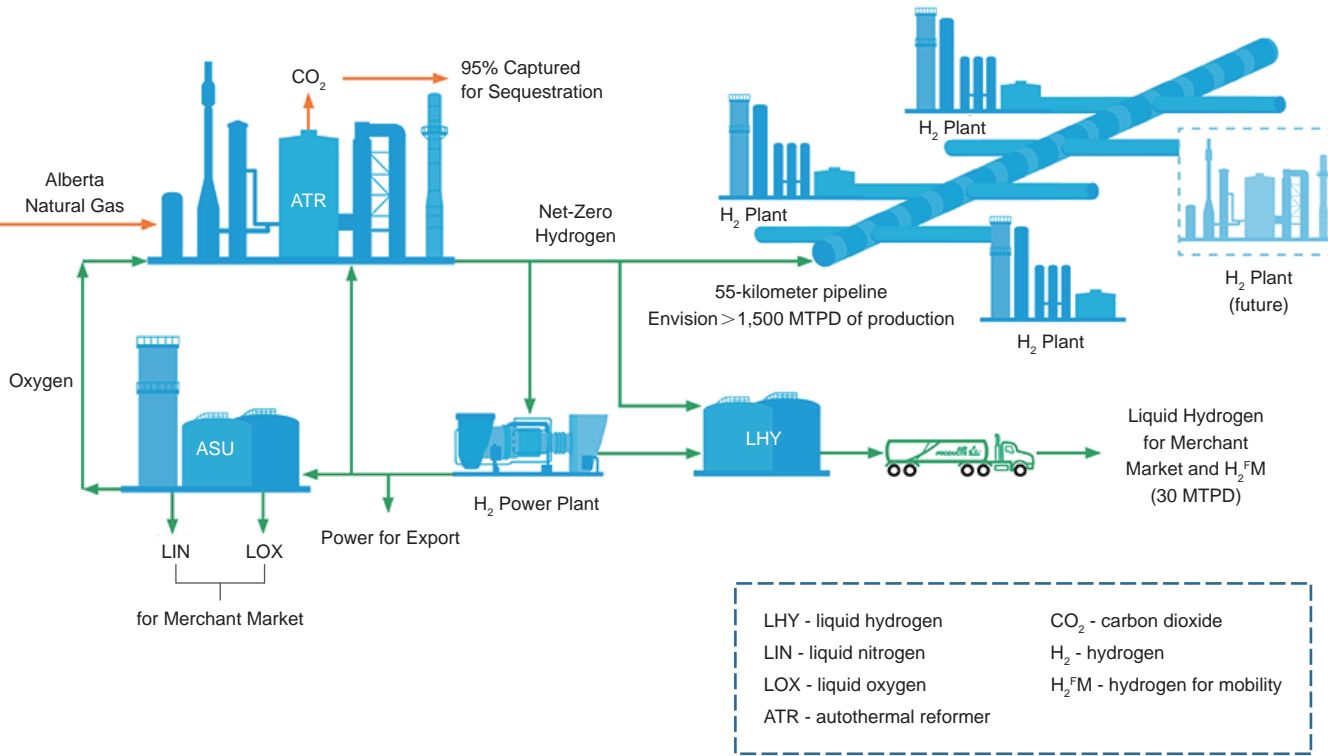


Diagram of Hydrogen energy industry chain

Products

- Neway's product range covers valves required for room temperature hydrogen production and manufacturing. For liquid hydrogen application, NEWAY can provide manual and automated valve products, including bellows sealing and non-bellows sealing products. Options include vacuum jacketed or unjacketed as below.

Regular valve required range						
NPS	GH ₂				LH ₂	
	Globe valve	Check valve	Ball valve	Butterfly valve	Globe valve	Check valve
	≤6	≤6	≤6	≤16	≤6	≤6
150LB	•	•	•	•	•	•
300LB	•	•	•		•	•
400LB	•	•	•		•	•
600LB	•	•			•	•

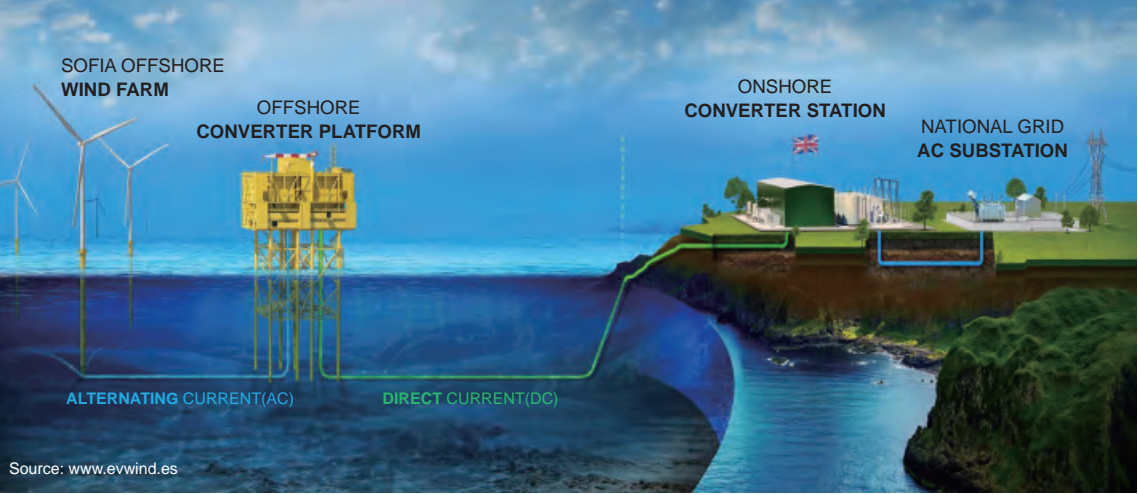
Product features

- Ferrite and other chemical element composition control, as applicable for -253°C working condition.
- Fugitive Emission valve design to comply with ISO 15848, all classes.
- Bellows seal design.
- Available for online maintenance.
- Optional vacuum jacket.

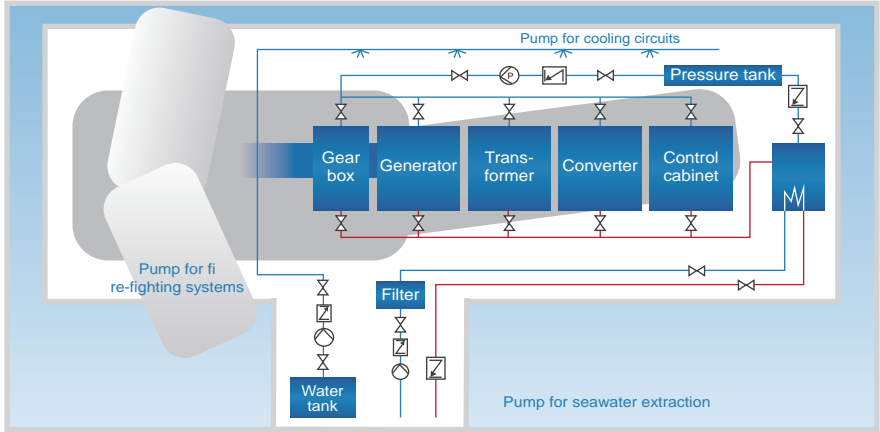


Wind Power

Offshore wind power



Applications

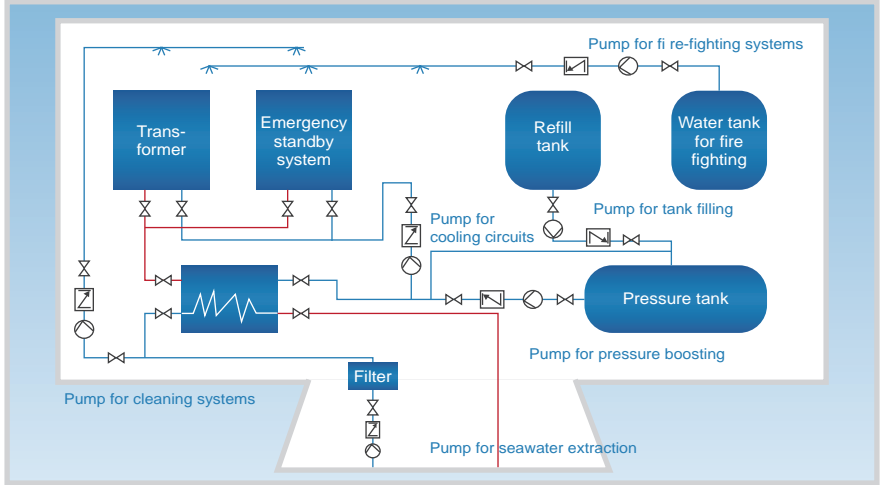


Offshore wind turbine

- Cooling medium coolers
- Cooling medium distribution
- Cooling medium expansion tank
- Cooling medium pumps
- Diesel system
- Oily water open drain system
- Seawater distribution
- Seawater lift pumps

Offshore transformer platforms

Offshore wind farms normally located no further than 50 km from the coast, the electricity generated by the wind turbines is generally collected on offshore transformer platforms and transported onward via high-voltage cable. When greater distances are involved, the electricity will be stepped up to HVDC (High Voltage Direct Current) so that less power loss during onward transmission. Multiple wind farms can be connected up to the platforms.



Wind farm valve features

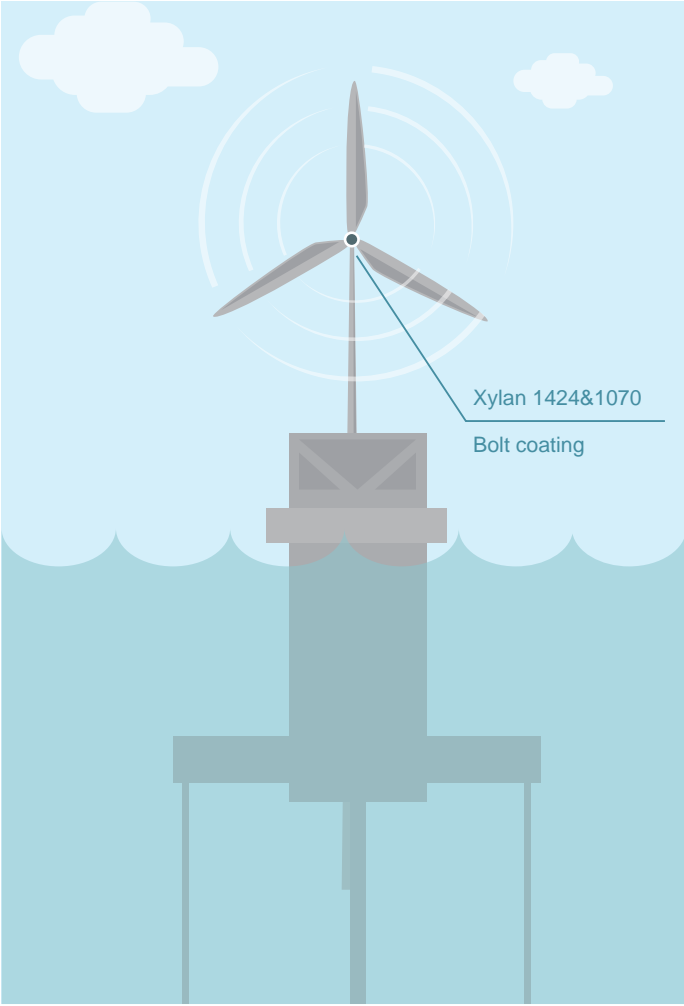
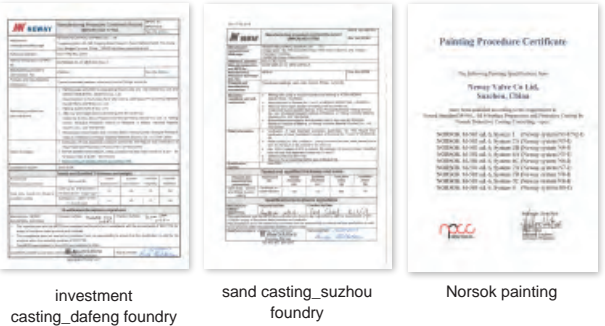
• Regular valve required range

Valve Type	Size	Rate	Material
Ball	≤2	≤300	SS/SDSS/Titanium(B381 F2/B367 C2)
Gate/ Globe/ Check	≤12	≤300	SS/SDSS/Titanium(B381 F2/B367 C2)
Butterfly	≤12	≤300	SS/SDSS/Titanium(B381 F2/B367 C2)

• Product features

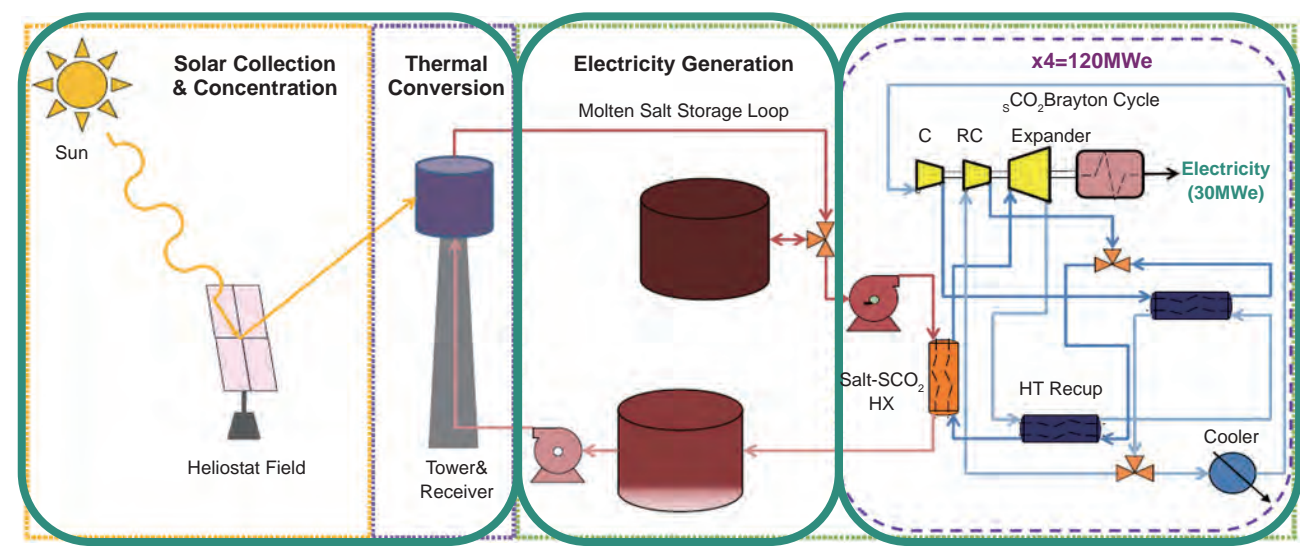
- Offshore Painting
- NORSOK
- IP67 gear box
- Anti-corrosion bolt
- Rounded (radius> 2 mm)-ISO 8501

• Certificate



Solar Energy

Solar energy system



Heat Collection station

Various devices are used to gather the solar energy to heat the working medium.

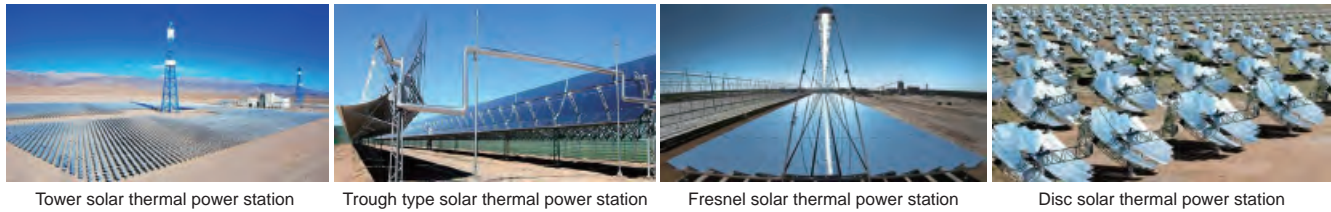
Heat storage station (molten salt)

The spare energy which generated in daytime will be stored by Molten salt heat storage medium , and which will be used at night or cloudy conditions.

Power station

The generation system is the same as thermal power.

Different types of technology for solar thermal power stations



Technical requirements for Solar energy (molten salt process) valves

- Frequently open and close operation, and particles should be cleaned during operation.
- Valve body material should be compatible with high temperature medium.
- The gasket and packing of the valve can withstand the corrosion of high temperature medium.
- The valve can keep the sealing performance under the temperature change and frequency mechanical cycle.

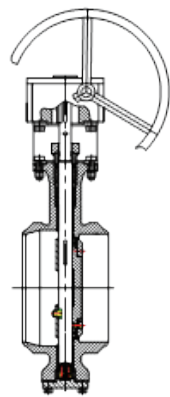


Valve selection of molten salt application

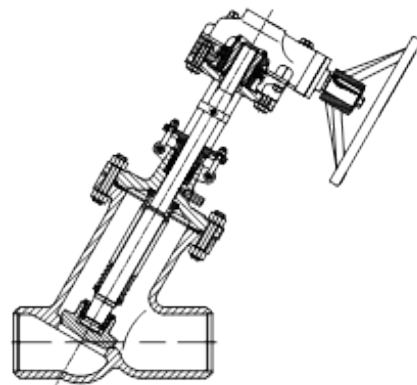
Parameter	Therosalt circuit (tower type)	Therosalt circuit (trough type)	Cold salt loop
Valve type selection	≤6 inches: globe valve >6 inches: Triple offset butterfly valve		
Design pressure	≤CLASS 600	CLASS 300	CLASS 600
Actual operating temperature	565°C	≈385°C	≈290°C
Casting material selection	CF8C	CF8C	WCB
Forging material selection	F347H or F321H	F347H or F321H	A105N
Sealing surface material selection	STL	STL	STL
Selection of the gasket	High temperature spiral gasket		Flexible graphite (According to customer requirements, select solid special gasket)
Packing selection	Bellows + combined packing (globe valve)/Combined packing (butterfly valve)		Bellows + combined packing (globe valve) Combined packing (butterfly valve)
Selecting bellows material	INCONEL 625		316Ti
Bellows temperature control	Ensure that the molten salt at the bellows area is in melting state (≥270°C)		
Packing temperature control	(avoid molten salt solidification)270°C ≤ packing temperature ≤ 330°C(avoid graphite corrosion)		Packing temperature ≥270°C(avoid molten salt solidification)

Solar Energy

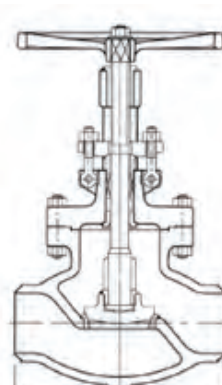
Valve selection



Triple Offset Butterfly Valve



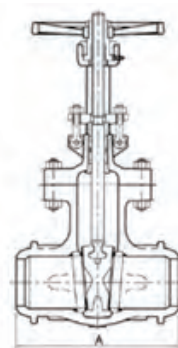
Y type bellows globe valve



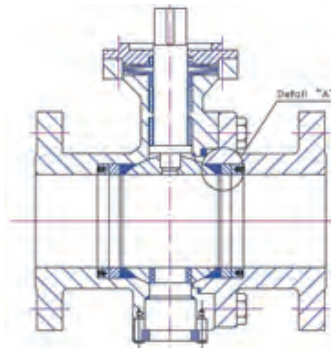
T bellows globe valve



- Normally the butt weld end design will be applied due to the corrosiveness of the molten salt on the gasket, and frequent temperature change.
- Bellows seal design will be applied for globe valves in consideration of valve stem sealing in molten salt working conditions.
- For the bellows globe valve, a leakage detection port is necessary, which is easy for bellows failure detection without disassembling the valve.
- For the butterfly valve, the sealing ring of disc adopts one-piece metal structure in molten salt working conditions.



Gate Valve



Ball Valve

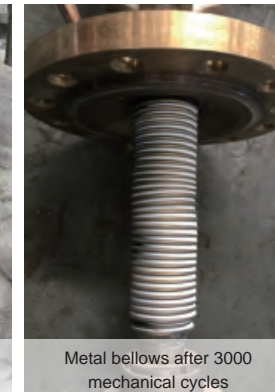


The impurities in valve cavity cannot be cleaned

Experimental process



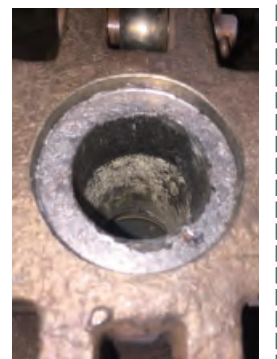
The test device is filled with molten salt



Metal bellows after 3000 mechanical cycles



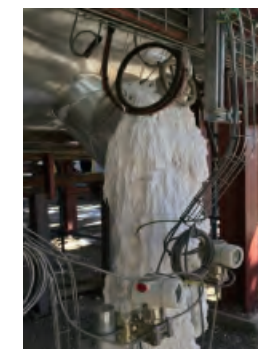
The combined packing has no leakage after 2.4MPa@575 and 1000 mechanical cycles



Heat preservation of molten salt valve - electric heat tracing of valve

Importance of heat tracing and insulation of molten salt valve:

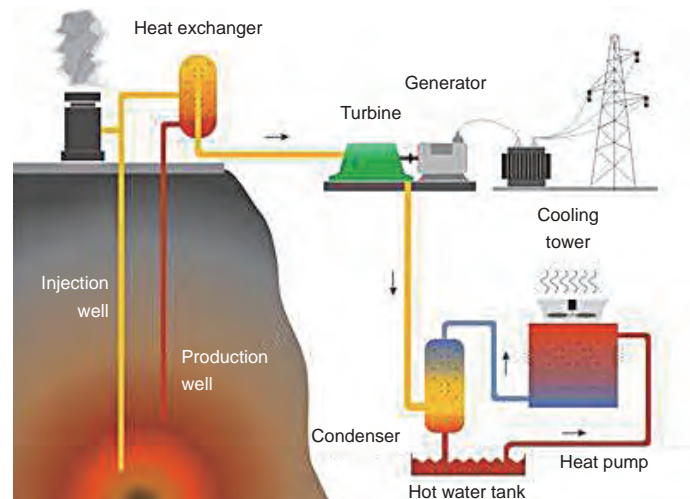
- Prevent the solidification of molten salt, leading to valve inoperability.
- Minimize temperature changes to reduce thermal stress of valve materials.
- When the molten salt is solidified, the packing loses elasticity.



Geothermal Energy

Introduction

- Geothermal energy is a renewable thermal energy source from heat that is continuously produced inside the earth, arising from the decay of the earth's molten magma and radioactive material. Deep circulation of groundwater and intrusion of magma from extreme depths into the Earth's crust carry heat from deep underground to near-surface layers. Geothermal energy is considered clean energy clean energy without pollution, but also it is renewable if the rate of heat extraction does not exceed the rate of replenishment. With the increasing awareness of environmental protection and the shortage of energy, the development and utilization of known geothermal resources has become increasingly popular.
- Geothermal energy generation is actually an energy conversion process which converts underground thermal energy into mechanical energy, and then converts mechanical energy into electrical energy. The developed geothermal resources are mainly divided into steam type and geothermal water type.

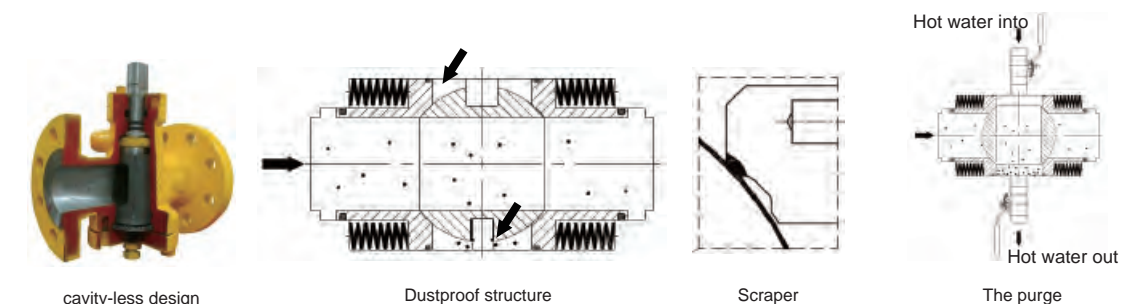


Geothermal water service

- **Corrosion:** Geothermal water contains many chemical substances, among which the main corrosive medium are dissolved oxygen (O_2), H^+ , CL^- , H_2S , CO_2 , NH_3 and SO_2 , with the support of the temperature, flow rate, pressure and other factors of the fluid, which lead to geothermal water will corrode various metal surfaces to varying degrees.
- **Erosion & Abrasion:** Geothermal water Contains solid impurities such as calcium carbonate and silicon dioxide, these particle , the inner cavity of the valve and the surface of the internal parts are easily damaged by these particles.
- **Scaling:** During the process of pumping from the ground, the temperature and pressure will change greatly, which will affect the solubility of various minerals, resulting in the precipitation of minerals from the water. Precipitate scaling will lead to the valve unable to open and close.

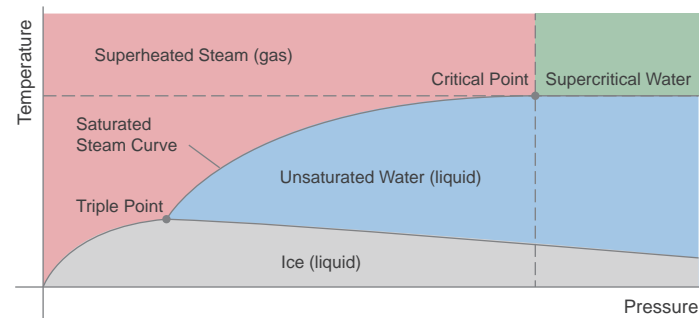
Product features

- **Product range:** Plug valve, Gate valve, Parallel slid gate valve, Triple offset butterfly valve, Metal seated ball valve, C type ball valve, Angle valve.
- **Special treatment:**
 - Anti-corrosion: NACE treatment for body/bonnet material.
 - Wear resistance: STL.6 surfacing or supersonic spraying on the sealing surface, surface hardening of valve sealing components
 - Anti-particle: Cavity-less design, dynamic seal/bearing with dust-proof design.
 - Low leakage: meet the standard of ISO 15848 Class B.



Geothermal steam service

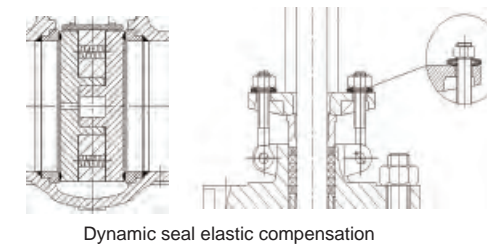
- **High temperature & high pressure:** The working conditions are usually accompanied by high temperature and high pressure in order to improve the power generation efficiency of the steam turbine.
- **Condensed water:** In steam conditions, a large amount of condensed water is usually generated due to improper insulation or shutdown, which may cause serious corrosion or component failure.
- **Various steam form**



Triple Point : 0°C, 0.61 KPa abs (32°F, 0.09 psia)
Critical Point : 374°C, 22.1 MPa abs (705°F, 3208 psia)

Product features

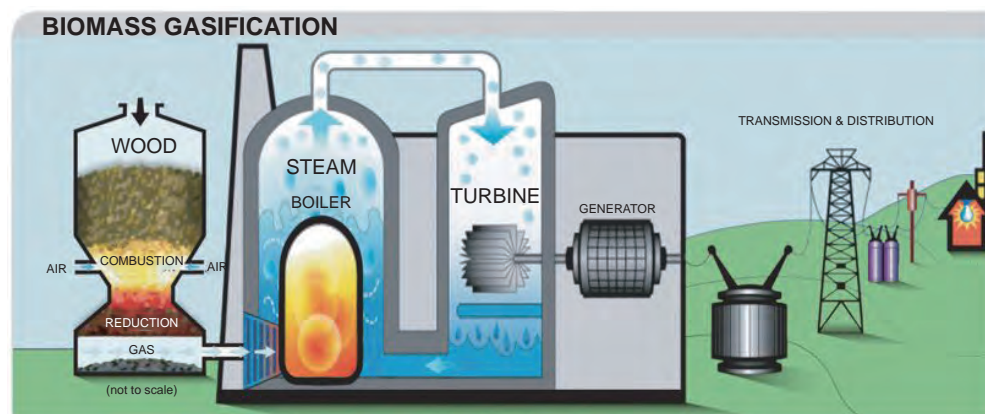
- **Product range:** Y-type globe valve, Gate valve, Parallel slide gate valve, Triple offset butterfly valve.
- **High temperature resistance:** Surfacing STL.6 or supersonic spraying on the sealing surface, Surface hardening of wedge / disc guides, Elastic compensation for dynamic and static seal loading .
- **Stuffing box:** ≥99.5 high-purity composite graphite.
- **High precision:** High dimensional accuracy.
- **Heat preservation:** The valve cover is raised according to SHELL 77/212.
- **Easy drainage:** Drainage hole at the bottom of the valve (option).



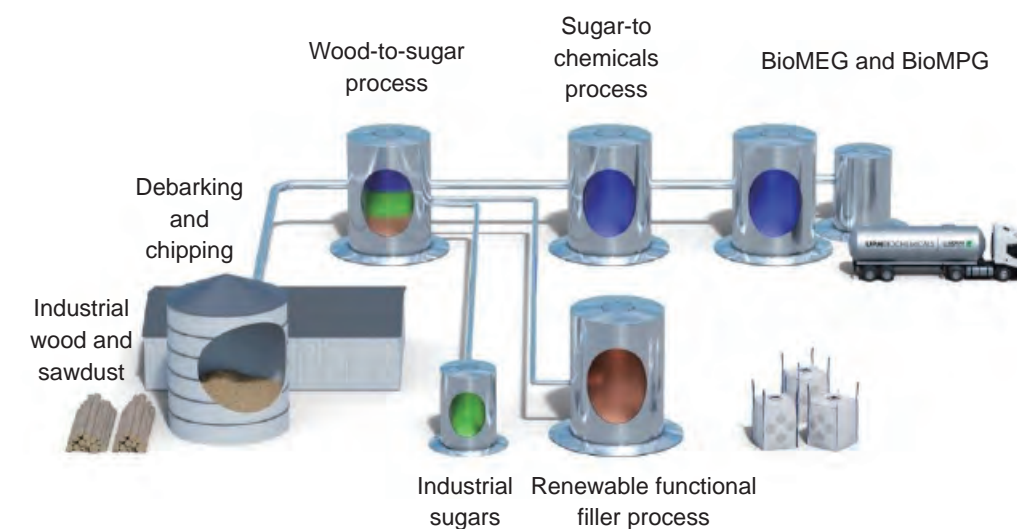
Bioenergy

Introduction

- Bioenergy is the energy provided by living plants in nature. These plants use biomass as a medium to store solar energy, converting the solar energy into chemical energy and storing it in biomass. It is calculated that the energy stored by biomass is 2 times larger than the total energy consumption of the world. Bioenergy can be converted into conventional solid, liquid and gaseous fuels, which are inexhaustible. It is a renewable energy source and the only renewable carbon source. The main forms of energy which are converted into daily consuming energy are: alcohol and fuel production, or electricity generation.
- Electricity generation is mainly converted from combustion or gasification biomass.



- Ethanol and fuel generation is mainly produced by biomass gasification or fermentation.

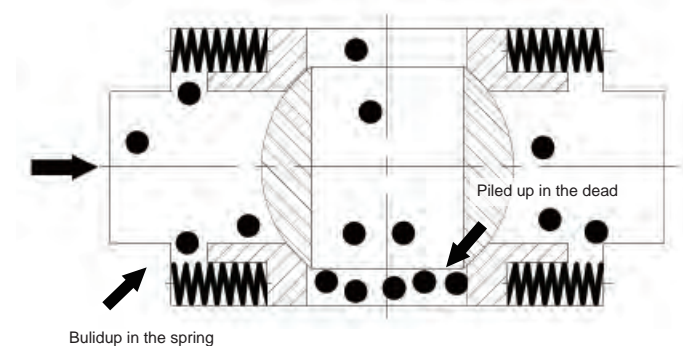


Particle working conditions

- Corrosion:** the corrosion will increase when particles such as bark, sawdust, or straw are combined with water.

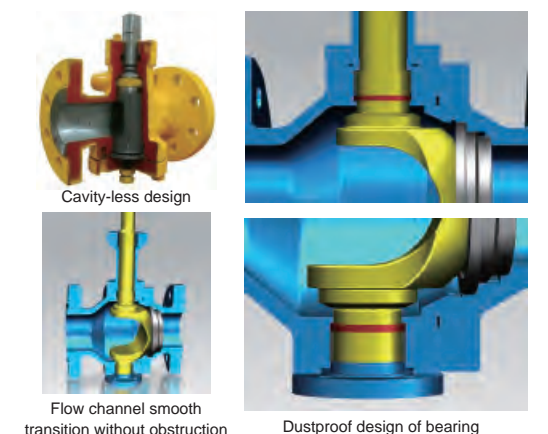


- Blocked:** Particle size is around 6~10mm, which easy to accumulate at the bottom of the valve or in the chamber, which will lead to the valve is not tightly closed.
- Abrasion:** The hardness is generally between 250~650kg.f/cm², it is easy to scratch the internal parts and the sealing surface at a higher flow rate.
- Flammability:** Bark, sawdust, or straw particles are flammable.



Product features

- Product range:** Plug valve, C-type ball valve, Gate valve.
- Abrasion resistance:** Surfacing STL.6 or supersonic spraying on the sealing surface. Smooth transition without obstruction.
- Anti-particle:** Cavity-less design/scrapper/backflush, dynamic seal/bearing with dust-proof design.
- Fireproof:** Metal body material with graphite sealing ring.



Sewage working condition

- **Corrosion:** The PH value of medium is acidic or alkaline, usually contains a large amount of CL-, F- , it is corrosive for the metal. Corrosion types include acid corrosion, pitting corrosion and crevice corrosion.
- **Abrasion:** The medium usually mixed with solid particles, it is easy to scratch the inner parts and the sealing surface.

		mild	moderate	severe	very severe
	chloride ppm	100 500	1,000 5,000	10,000 30,000	50,000 100,000 200,000
mild	ph 6.5	Type 316L stainless steel			nickel alloy 625 etc
moderate	ph 4.5		Type 317LMN stainless steel	6% Mo super duplex stainless steel	
severe	ph 2.0	Type 317LM stainless steel	22% Cr duplex stainless steel		nickel alloy C276 etc
very severe	ph 1.0	Type 317LMN stainless steel	6% Mo super austenitic stainless steel	nickel alloy 625 etc	

Recommended selection table for PH and CL- concentration at 50°C to 70°C

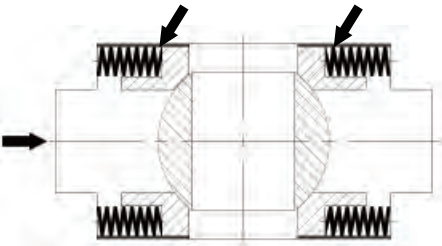
ppm Halogen-ions(Cl+F)	Acidity pH	neutral to slightly acidic		acidic		strongly acidic	
		6.5	4.5	3.0	2.0	1.5	1.0
low	< 100	317LMN					
	< 500			904L			
medium	< 1000		2205				
	< 5000		2507				
high	< 10000		254 SMO	4565	Alloy 625		
	< 50000				Alloy 31		
very high	< 100000			654 SMO			
	< 500000				Alloy C-276		Alloy 59

Table of recommended materials for PH value and CL-, F- concentration at 50°C to 70°C

- **Toxicity:** SO₂, NO_x or H₂S gas is easily volatilized and which is toxic.

Product features

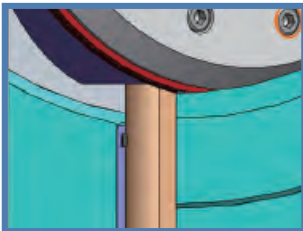
- **Product range:** Gate valve, Metal seated ball valve, Triple offset butterfly valve, Plug valve.
- **Anti-Corrosion:** NACE treatment, PTFE sealing.
- **Abrasion resistance:** Overlay on seat.
- **Anti-particle:** Cavity-less design/scrapper/backflush, dynamic seal/bearing with dust-proof design.
- **Low leakage:** ISO 15848 Class B.



Dynamic sealing face surfacing Inconel 625



Cavity-less design



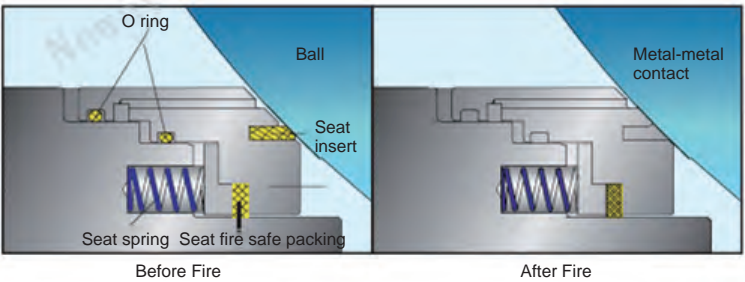
Dustproof design of bearing

Methane or syngas service

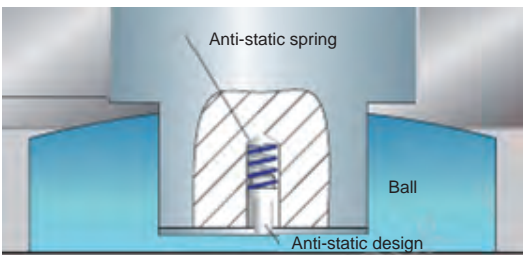
- **Corrosion:** Mixed gas contains CH₄, CO₂, H₂, CO, H₂S, N₂, O₂, etc. QT which is corrosiveness.
- **Explosive:** Medium contains CH₄, H₂, CO and other flammable and explosive gases.
- **Toxic:** H₂S gas is toxic.

Product features

- **Product range:** Ball valve, gate valve, globe valve.
- **Anti-Corrosion:** NACE treatment.
- **Fireproof:** Fire safe design and comply API 607/EN10497 certification and testing.
- **Low leakage:** ISO 15848 Class A.



Soft seal + metal hard seal



Grounding plug

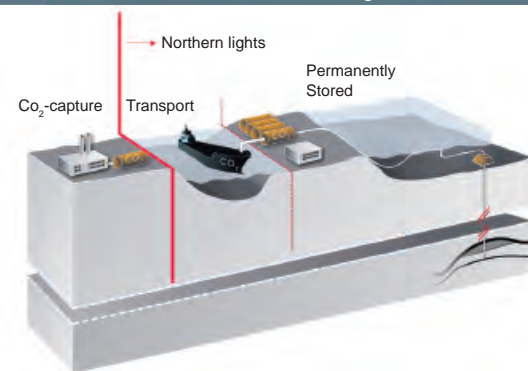
Carbon Capture and Storage

Introduction

- Carbon capture and storage (CCUS) means capture the carbon dioxide from atmosphere, compress it, and put back into the safe underground locations. By this way, it could reduce the carbon dioxide produced by burning fossil fuels. CCUS is a very important technical way for carbon neutrality. A complete CCUS value chain includes: emission source, capture, liquefaction, transportation, compression, storage and utilization.



- According to the different CO₂ concentration of the emission source, the appropriate carbon capture method should be selected. At present, the main methods are pre-combustion capture, post-combustion capture, and oxygen-enriched combustion capture. The captured CO₂ is then stored in underground, saline aquifers, etc.



Mixed gas condition

- Corrosion:** The mixed gas contains SO₂, acid gas, etc., which is corrosive to a certain extent.
- Flammability:** Some gas is flammable or flammable combustion support.
- Toxic:** Part of gases are toxic.

Product features

- Product range:** Double offset butterfly valve, Ball valve, Wedge gate valve, Swing check valve, Globe valve.
- Avoid pressure accumulation:** Pressure balance design.
- Reduce pressure loss:** Full bore design.
- Low leakage:** Meet ISO 15848 Class B low leakage requirements, reduce leakage points.
- Fireproof:** Fireproof design, fireproof certification.

O₂ service

- Corrosion:** The chemical properties of O₂ are active and have strong oxidizing properties.
- Explosive property:** Inflammable but Combustibility.

Product features

- Product range:** Metal sealing ball valve, Gate valve, Globe valve, Axial flow check valve.
- Reduce ignition source:** Degreasing treatment, BAM certified material, gear box protection level should comply IP67; cleanliness according to ISO 8051-1 Sa2.
- Anti pressure accumulation:** Balance hole in middle cavity; Bypass for the valve over 6 inch.
- Reduce friction:** Sharp edges is not allowed. Rounded corner design is required.
- Low leakage:** ISO 15848 Classes A.



Smooth and rounded runner

Particle working condition

- Blocked:** Particle size is around 6~10mm, which easy to accumulate at the bottom of the valve or in the chamber, so that the valve is not tightly closed.
- Abrasion:** The hardness is generally between 250~650kg.F/cm², it is easy to scratch the internal parts and even the sealing surface at a higher flow rate.

Product features

- Product range:** Plug valve, C-type ball valve, Gate valve.
- Abrasion resistance:** Surfacing STL.6 or supersonic spraying on the sealing surface, Smooth transition without obstruction.
- Anti-particle:** Cavity-less design/scrapper/backflush, dynamic seal/bearing with dust-proof design.

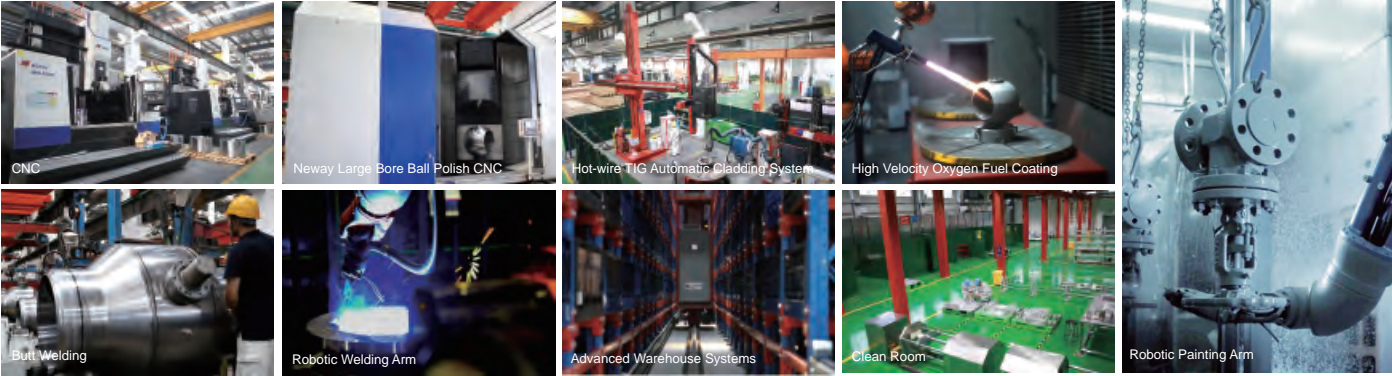
With cutting-edge computer technology utilized, NEWAY Technical Center focuses on providing outstanding quality products and developing new lines. There is a highly educated and well-trained engineering team, supported by a comprehensive internal computer network which links the entire operations of design, manufacturing and administration.

NEWAY design philosophy is to develop a safe and cost-efficient valve. We introduced the latest Ansys. Fe-safe CF-design and NX software for all our new product design research which include the advanced finite element analysis, fluid and fatigue analysis to virtually verify the new design prior to production, which has resulted in dramatically shortening development duration and assure a safe and cost-efficient final product.

NEWAY technical personnel are always ready to offer on line or on site technical training and support for all of its distributors, agents and end users.



The latest computer technology has been extensively applied in NEWAY manufacturing, which includes a large number of numeric control machines (machining center, CNC horizontal and vertical lathe, and CNC drilling machine) and ERP management system. Additionally, the data through all factories has been connected and shared. These facilitate resource integration, boost productivity, enhancing machining quality and tightening process control.



NEWAY developed comprehensive and advanced inspection and test facilities to control the quality from rough castings or forgings to final products, which enable us to perform ultrasonic testing, radiographic test, liquid penetrant test, magnetic-particle test, spectrum analysis, Material Positive Identification (MPI), impact test, tensile test, hardness test, fire safe test, cryogenic test, vacuum test, low fugitive emission test, high pressure gas test and hydrostatic test.



Neway Factory



NEWAY Head Office
Total area: 2,295sqm
Office area: 6,885sqm

Founded in 2014



NEWAY Manufacturing Base
Main products: Ball Valve, Butterfly Valve, Gate Valve, Globe Valve, Check Valve, Control Valve
Building area: 230,000 sqm
Work shop: 140,061 sqm

Founded in 2006
Expanded in 2013



NEWAY Foundry (Suzhou)
Main products: Sand Casting
Building area: 112,500 sqm
Work shop: 98,000 sqm

Founded in 2008
Expanded in 2015



NEWAY Foundry (Dafeng)
Main products: Lost wax investment casting
Building area: 40,000 sqm
Work shop: 20,000 sqm

Founded in 2008



Neway Precision Forging(Liyang),LTD
Main products: Hammer forging, annular forging
Office area: 3,000 sqm
Work shop: 30,000 sqm

Founded in 2017



Neway Butterfly Valve Plant
Main products: Butterfly Valve
Building area: 30,000 sqm
Work shop: 19,000 sqm (first floor)
7,000 sqm (second floor)

Founded in 2020

Product Warranty

Seller will replace without charge or refund the purchase price of products provided by Seller which prove to be defective in material or workmanship, provided in each case that the product is properly installed and is used in the service for which Seller recommends it and that written claim, specifying the alleged defect, is presented to the Seller within 18 months from the date of shipment or 12 months after installation, whichever occurs first. Seller shall in no event bear any labor, equipment, engineering or other costs incurred in connection with repair or replacement. The warranty stated in this paragraph is in lieu of all other warranties, either expressed or implied. With respect to warranties, this paragraph states Buyer's exclusive remedy and seller's exclusive liability.