

## Overview of NEWAY Facilities



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 newest assembly plant was expanded in 2013, and it now covers 35,000 square meters.

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

## Introduction of Foundries



As one of pressure-contained equipments in process control pipeline, valve castings' quality is most important for valve life, personnel safety and environment safety, especially for the high temperature and high pressure fields. So castings are always certified firstly by the strict customer before valve manufacturer are pre-qualified and approved as a qualify supplier.



Comparing with most of other competitors, Neway owns two self foundries: one is mainly to produce big size sand castings by organic ester water glass sand cast process, and other is mainly to produce small size investment castings by loss wax cast process. So we can provide 100% castings with different weight from 1kg up to 11000kg by ourselves, monthly produce capacity is up to 1200 ton. And each foundry is equipped with all kind of quality inspection facilities, such as: spectrum instrument, non-destructive test machinery, mechanical capability testing equipment and so on. So we can monitor the whole process of valve manufacture to ensure the valve quality, delivery, and competitive price, and to enable Neway remain a creditable supplier for every customer.



## Technical Innovation

NEWAY technical research center utilizes the most advanced computer technology to improve the existing products and develop the new lines, this includes a highly educated and trained engineering team and 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 to virtually verify the new design prior to production, this has resulted in dramatically reducing the new product design time and ensure a safe and cost efficient final product.

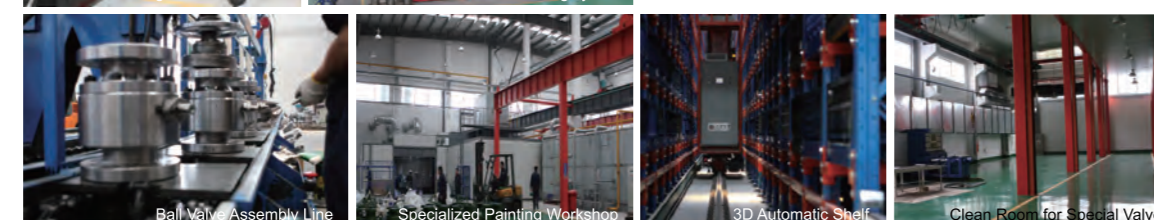
NEWAY technical personnel are always ready to offer on line or on site technical training and support for all of its distributors, agents and end users.



## Advanced Manufacturing



The latest computer technology are also widely applied in NEWAY for valve manufacturing, this includes a large number of numeric control machines (Machining center, CNC horizontal and vertical lathe, CNC drilling machine) and ERP management system which significantly improve our machining quality and process control. NEWAY also employs a number of conventional lathe with capacity up to machine 64 " gate valve. NEWAY manufacturing philosophy is to ensure stable quality and just in time delivery.



## Nuclear Valve Quality Control

NEWAY developed an extensive and advanced inspection and test facility to control the quality from rough castings or forgings to final products. These facilities enable us to do Radio graphic test, Ultra-sonic test, Dye-penetrant test, Magnetic test, Positive Material Identifier (PMI), Impact test, Tensile test, Hardness test, Fire safe test, Cryogenic test, Vacuum test, Low fugitive emission test, High pressure gas test, High temperature test and Hydro-static test.



## Nuclear Valve Product Presentation

### Nuclear Gate Valve

- Split Wedge Gate Valve
- Parallel Slide Gate Valve



Design criteria: RCC-M, ASME BPVC-III, ASME B16.34  
The range of products:

Safety class	1, 2, 3, non-nuclear grade
Nominal diameter	≤600mm
Operating temperature	-196~370°C
Design pressure	≤25MPa
Seismic category	I
Type of connection	Welding, Flange
Type of actuate	Manual, Pneumatic, Electric
Material of the main body	Carbon steel, Alloy steel, Stainless steel
Structural type	Split(C-Type), Parallel(V/W-Type)

Structural feature:

- Body to bonnet connection can select bolted bonnet and pressure seal bonnet.
- Optional seal welding for screwed bonnet connection, sealing is more reliable and can realize the disassembling maintenance.
- Fully guided disc, hardfaced, wear-resistant for longer usage life.
- Stem with the form of packing seal, strict requirement to medium leakage, optional choose bellow and packing double sealing form, including metal bellow products are imported from Germany.
- To parallel slide gate valve, mechanical limit opening and closing position, precisely control the opening and closing position of wedge.

### Nuclear Globe Valve

- T-Type Globe Valve
- Y-Type Globe Valve



Design criteria: RCC-M, ASME BPVC-III, ASME B16.34  
The range of products:

Safety class	1, 2, 3, non-nuclear grade
Nominal diameter	≤600mm
Operating temperature	-196~370°C
Design pressure	≤25MPa
Seismic category	I
Type of connection	Welding, Flange
Type of actuate	Manual, Pneumatic, Electric
Material of the main body	Carbon steel, Alloy steel, Stainless steel
Structural type	T-type, Y-type, Angle type, Z-type, 3 way type

Structural feature:

- Body to bonnet connection can select bolted bonnet, optional screwed bonnet with seal welding or pressure seal bonnet.
- Optional seal welding for screwed bonnet connection, sealing is more reliable and can realize the disassembling maintenance.
- Fully guided disc, hard-faced, wear-resistant for longer usage life.
- Connection disc and stem by disc cover, with non-rotating disc, restrict the disc to rotate, while allowing tiny movement to seal in the face.
- Stem with the form of packing seal, strict requirement to medium leakage, optional choose bellow and packing double sealing form, including metal bellow products are imported from Germany.
- Optional cobalt free hard facing.

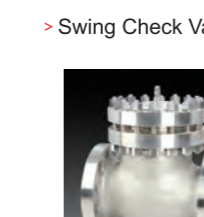
### Nuclear Check Valve

- Lift Check Valve
- Swing Check Valve
- Axial Flow Check Valve
- Dual Plate Check Valve



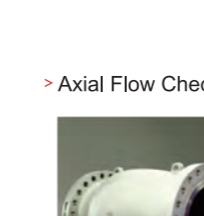
Design code: RCC-M, ASME BPVC-III, ASME B16.34  
The range of products:

Security level	Nuclear safety level 1, level 2, level 3, the non-nuclear grade
Nominal diameter	≤50mm
Operating temperature	-196~370°C
Design pressure	≤25MPa
Seismic category	I
Type of connection	Socket Welding, Butt welding, Flange
Material of the valve body	Carbon steel, Alloy steel, Stainless steel



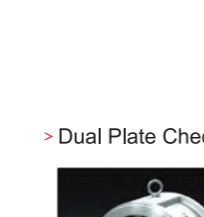
Design code: RCC-M, ASME BPVC-III, ASME B16.34  
The range of products:

Security level	Nuclear safety level 1, level 2, level 3, the non-nuclear grade
Nominal diameter	>50mm
Operating temperature	-196~370°C
Design pressure	≤25MPa
Seismic category	I
Type of connection	Butt welding, Flange
Material of the valve body	Carbon steel, Alloy steel, Stainless steel



Design code: RCC-M, ASME BPVC-III, ASME B16.34  
The range of products:

Security level	Nuclear safety level 1, level 2, level 3, the non-nuclear grade
Nominal diameter	≥15mm
Operating temperature	-196~370°C
Design pressure	≤25MPa
Seismic category	I
Type of connection	Socket Welding, Butt welding, Flange
Material of the valve body	Carbon steel, Alloy steel, Stainless steel



Design code: RCC-M, ASME BPVC-III, ASME B16.34  
The range of products:

Security level	Nuclear safety level 1, level 2, level 3, the non-nuclear grade
Nominal diameter	>50mm
Operating temperature	-196~370°C
Design pressure	≤25MPa
Seismic category	I
Type of connection	Wafer, Flange
Material of the valve body	Carbon steel, Alloy steel, Stainless steel

Structural feature:

- Body to bonnet connection: Bolted Bonnet, Optional screwed with seal welds or Pressured seal bonnet.
- Threaded connection with standby lip seal welding is more reliable and can realize the disassembling maintenance.
- Fully Bonnet-guided and Control the length of guide to prevent unsmooth stagnation of opening and closing the disc.
- Hard faced disc piston. Wear-resistant for longer usage life.
- Low pressure differential to open and low pressure to seal: the piston sealing performance can be tested in line.
- Optional Cobalt Free Hard Facing.

Structural feature:

- Body to bonnet connection: Bolted Bonnet and pressured seal bonnet.
- Design of Built-in pin decreases the leakage path in body and increases readability.
- Structure of anti-rotary disc realizes the seal and anti-rotary of disc.
- Optional Cobalt Free Hard Facing.
- Switch position indicator, quick-opening and slowly-closing are elected extra by demand.

Structural feature:

- Both the body and seat design are suitable for medium flowing. The design features ensure flow efficiency of the service medium and minimize pressure loss.
- Because of the features of the spring load, low mass disc and shorter travel, the disc can be closed as quickly as possible.
- Closed steadily and No water hammer.
- Optional Cobalt Free Hard Facing.
- Manual switch and check online for seals are elected extra by demand.

Structural feature:

- Short in length, Small size and Light in weight.
- Valve bodies are a one-piece and short cylinder design with no holes through body wall, there is no need for external pins or plugs and no leakage toward outside.
- Two high torsion springs ensure valve closure as quick as possible, and reduces water hammer.
- Grinding by special purpose machine, valve is sealed with plane and has high interchangeability.
- Optional cobalt free hard facing.

## Nuclear Ball Valve

- Manual ball valve
- Electric actuator ball valve
- Pneumatic actuator ball valve



Design criteria: RCC-M, ASME BPVC-III, ASME B16.34  
The range of products:

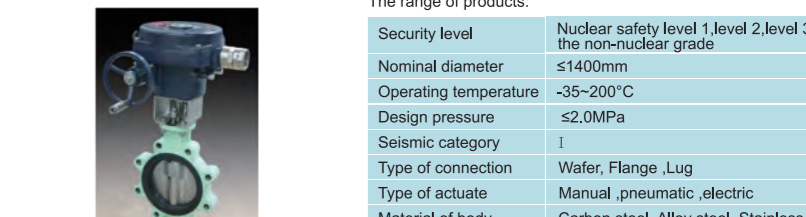
Security level	Nuclear safety level 1, level 2, level 3, the non-nuclear grade
Nominal diameter	≤1500mm
Nominal pressure	Class 150~Class 2500
Operating temperature	-196~370°C
Seismic category	I
Type of connection	Socket Welding, Butt welding, Flange
Type of actuate	Manual, pneumatic, electric
Material of the valve body	Carbon steel, Alloy steel, Stainless steel, Duplex stainless steel
Structural type	Floating Ball Valve, Trunnion Mounted Ball Valve

Structural feature:

- Structure is simple and reliable, little installation space, small flowing resistance.
- Top-Entry, body/bonnet connection is bolted with male/female and metal/metal contact easy maintenance quick disassembly (patent protected) remove the ball by special tool.
- The ball and stem is integral one-piece designed for ND≤50, seal is more reliable.
- Disc spring or wave spring is designed for seat preloaded, simple structure, Reduce the hidden trouble of the metal parts into pipeline.
- Soft seal or metal seal structure according to the working condition.
- Cobalt hard facing or cobalt free hard facing for metal seat ball valve.

## Nuclear Butterfly Valve

- Concentric butterfly valve
- Double offset butterfly valve
- Triple offset butterfly valve



Design criteria: RCC-M, ASME BPVC-III, ASME B16.34  
The range of products:

Security level	Nuclear safety level 1, level 2, level 3, the non-nuclear grade
Nominal diameter	≤1400mm
Operating temperature	-35~200°C
Design pressure	≤2.0MPa
Seismic category	I
Type of connection	Wafer, Flange, Lug
Type of actuate	Manual, pneumatic, electric
Material of body	Carbon steel, Alloy steel, Stainless steel

Structural feature:

- Simple structure, reliable sealing, long service life, easy maintenance.
- Frameless type seat, lower operating torque.
- Stem triple offset seal to resist outside leakage.
- No pin to resist internal leakage.
- Anti-blowout shaft.

Structural feature:

- Lower torque and Low friction.
- Replaceable seat.
- Long service life, easy maintenance.
- Zero leakage in both directions pressure.

Structural feature:

- General sealing ring, easy maintenance.
- Zero leakage in both directions and total pressure.
- Lower torque, easy operation.
- One-piece shaft, high strength and safety.
- Prevent the shaft blowout protection function.
- Wear-resistant bearing for longer service life.
- Instruction: Users choose metal-graphite or pure metal sealing ring structure according to actual working condition.

## Nuclear Valve Supply Reference Introduction

### Reference For NPPs

#### Valves designed in compliance with RCC-M Standard



#### Valves designed in compliance with ASME Standard



### Supplied Nuclear Valves Photo

- TAISHAN NNP 24inch Class 600 Gate Valve
- YANGJIANG/FANGCHENGANG NNPs DN550, PN64 Vacuum Gate Valve
- YANGJIANG/FANGCHENGANG NNPs LOT45EA Actuator Gate Valve
- TAISHAN NNP No.1/4 M41 DN25 Class 150 Top Entry Ball Valve



## Nuclear Valve Qualification

- Civil Nuclear Safety Equipment Design/ Manufacturing License by China NNSA
- ASME N Certificate for Nuclear Valve
- ASME NPT Certificate for Nuclear Valve



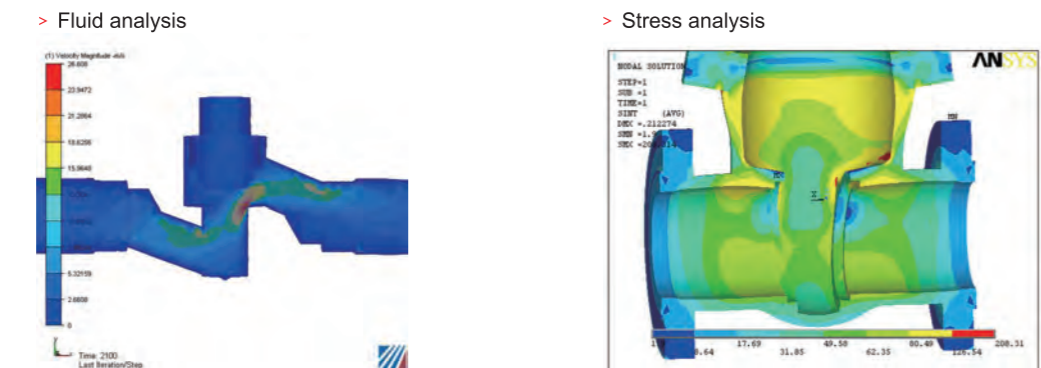
- ISO 9001 by DNV
- TS by AQSIS
- CE-PED by BV (Module H1)



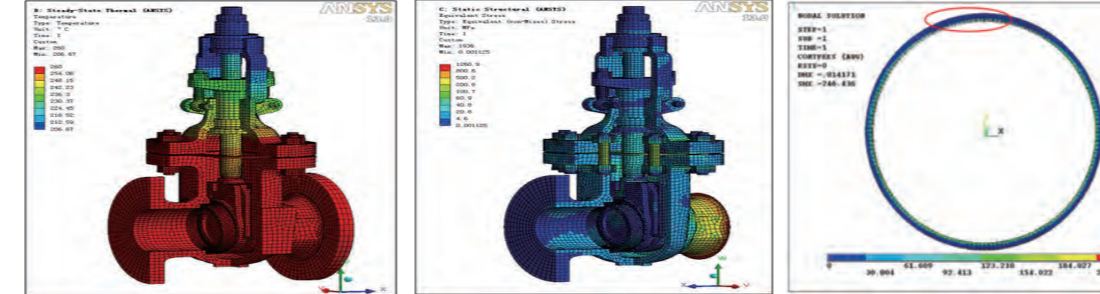
## Nuclear Valve R&D

### Advanced Methods And Software

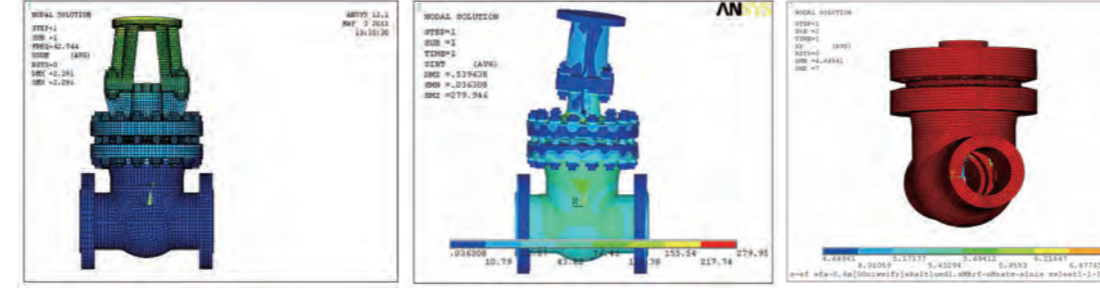
Innovation design process ?Simulation-driven design  
CAE analysis tools, including ANSYS, FE-safe, CF-Design and FLUENT. In valve conceptual design phase, the simulation analysis for fluid, stress, temperature, thermal stress, sealing performance, seismic and fatigue, was performed to ensure superior performance and reliable quality.



- Temperature and thermal stress analysis
- Sealing performance analysis



- Valve seismic analysis
- Valve fatigue analysis



### Advanced Qualification Test System



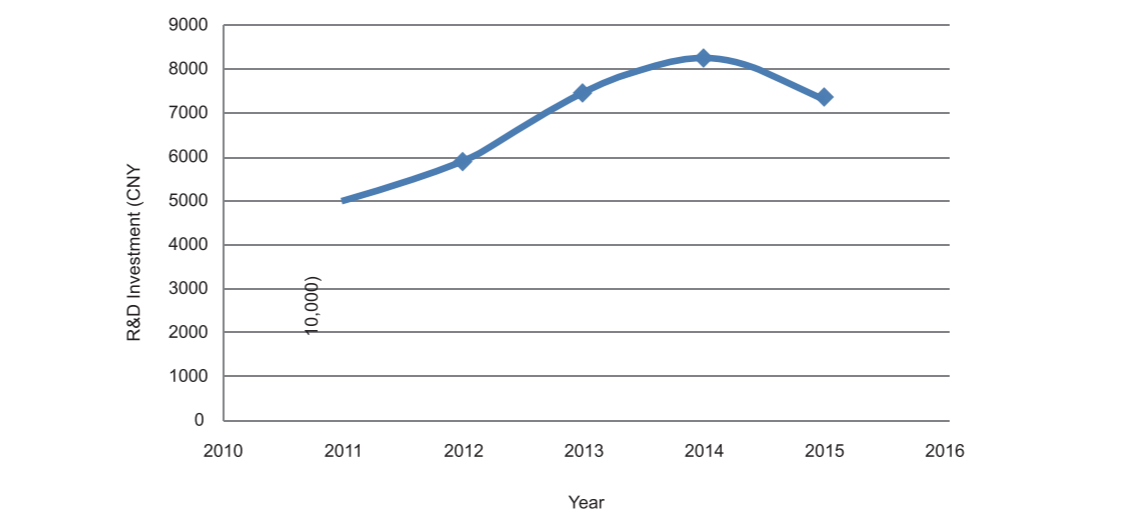
Nuclear valve qualification test system can meet functional qualification requirements for check valve and on/off valve of Nuclear Power Plants, such as Hua Long 1 Project, AP1000 ,CAP1400 and EPR. The qualification test such as life test, thermal cycle test for on/off valve, cold and hot alternation test, the flow interruption test for on/off valve and check valve is done with simulation of nuclear power plant condition.



## R&D Strength And Investment Of Nuclear Valve

Introduction to R&D engineers  
There are 276 R&D engineers, approximately 13% of the total. The R&D team consists of 17 senior engineers, 95 intermediate engineers and 101 junior engineers, out of which 22 engineers focus on developing nuclear power valves, including 2 senior engineers, 7 intermediate engineers and 13 junior engineers.

R&D investment  
Neway attaches great importance to R&D. The investment throughout previous years: RMB 73.64 million in 2015; RMB 82.47 million in 2014; RMB 74.41 million in 2013; RMB 58.77 million in 2012; RMB 49.94 million in 2011.



## Nuclear Valve Supply Reference List

Year	Project Site	NPP	Size	Pressure	Operating Mode	Valve Type	Safety Class	Q/TY
2018	France	ITER Organization Project	DN25 DN40 DN50	Class 150	Manual, On-off	Globe	NC	358
2018	France	EDF UTO MRO	DN15, DN25, DN50, DN200 DN400	Class 600 Class 1500	Manual	Globe, Y-type Globe	NC	6
2017	KOREA	KOREA CFVS Venting Project	DN15, DN25, DN50, DN200 DN400	Class 150	Manual	Globe Butterfly Safety Valve	NC	402
2017	UK	UK HPC Project	DN8, DN15 DN25, DN50	3-250 Bar	Manual	Globe Valve	Q2, Q3, NC	2062
2016	Fangchenggang China	Fangchenggang Project unit 3-4 LOT190Ga Nuclear Bellows Globe Valve	DN8, DN 1.5 DN20, DN25 DN40, DN50 DN80, DN100	Class 150 Class 2500	Manual Power-driven Far-driven	Globe Valve Bellows Globe Valve Lifting Check Valve	SC-2, SC-3 NNS(S), NNS	3556
2016	Fangchenggang China	Fangchenggang Project unit 3-4 LOT190Gb Nuclear Globe & Lift Check Valve	DN 8, DN 1.5 DN20, DN25 DN40, DN50 DN80, DN100	Class 150 Class 2500	Manual Power-driven Far-driven	Globe Valve Lifting Check Valve	SC-2, SC-3 NNS(S), NNS	5740
2016	Guangdong China	Yangjiang Nuclear Power Plant unit 5-6 Reserved diesel generator set	DN15, DN20 DN25, DN40 DN50	PN16, PN63 Class 150, 300 Class 400, 600 Class 1500 PN64	Manual	Check, Globe Ball Valves	Non-Safety	112
2016	Guangdong China	Yangjiang Nuclear Power Plant unit 5-6 Reserved diesel generator set	DN 8, DN 1.5 DN20, DN25 DN300, DN332 DN40	Class 150 Class 300 PN16	Manual	Safety Valve	Non-Safety	1556
2016	Guangdong China	Lingdong Nuclear Power Co., Ltd.	DN100, DN200 DN25, DN40 DN50	Class 300 PN16	Manual	Check Butterfly Valves	Non-Safety	41
2016	Karachi Pakistan	PakistanK2-K3 Project	DN100, DN20 DN25, DN40 DN50	Class 150 Class 300	Manual	Check Globe Valves	Non-Safety Class 3	152

2016	Lufeng China	Lufeng unit 1&2 LOT45C High Pressure Gate, Check Valve	DN 125 DN 750	PN 40 PN 150	Manual Power-driven Pneumatic	Gate Check Valve	Non-Safety	118
2016	Karachi Pakistan	PakistanK2-K3 Project Emergency Diesel Generator	DN 20 DN 100	Class 150 Class 300	Manual	Check Globe Valves	Nuclear Class 3	108
2016	Haiyang China	PV00 Gate, Globe and Check Valve of Haiyang unit 3&4	DN 25 DN 100	Class 150	Manual	Gate, Globe Check Valve	Non-Safety	42
2016	Lufeng China	PV00 Gate, Globe and Check Valve of Lufeng unit 1&2	DN 25 DN 100	Class 150	Manual	Gate, Globe Check Valve	Non-Safety	42
2016	Dongguan China	China Spallation Neutron Source project water cooling system valve CNS target station	DN 10 DN 50	Class 150	Manual	Globe Valve	Non-Safety	36
2016	Shenzhen China	CNPRI Experiment Project Valves	DN 25 DN 65	Class 150 Class 2500	Power-driven Manual	Globe, Control Safety Valve	Non-Safety	23
2016	Shandong China	Huangyandong shidaozi high temperature gas cooled reactor NPP emergency diesel generator auxiliary valves	DN 8 DN 80	Class 150 Class 400	Power-driven Manual	Ball, Globe Check Safety Valve	Nuclear Class 3	212
2015	Liaoning China	Hongyanhe 5&6 LOT45EA Conventional Island Gate, Motorized globe, Swing check valve	DN 20 DN 700	PN 16 DN 40	Power-driven Manual	Gate, Globe Check Valve	Non-Safety	560
2015	Dongguan China	China Spallation Neutron Source project water cooling system valve CNS target station	DN 10 DN 50	Class 150	Manual	Bellows Globe Check Valve	Nuclear Class 3	221
2015	Beijing China	Type II voltage regulator testing valve	DN 15 DN 25 DN 40	Class 900 Class 2500	Manual	Globe, Check Control, Safety Valve	Non-Safety	41
2015	Fujian China	Fuqing NPP 5&6 Check Valve	DN 50 DN 75 DN 100	PN 16	-	Check Valve	Nuclear Class 3	48
2015	Guangdong China	Yangjiang Nuclear Power Plant unit 5-6 Reserved diesel generator set	DN 15 DN 50	PN 10 PN 40	Manual	Globe, Check Ball, Safety Valve	Non-Safety	214
2015	Karachi Pakistan	PakistanK2-K3 Project	DN 8 DN 50	Class 150 Class 2100	Manual	Globe Valve	Nuclear Class 3	1058
2015	Liaoning China	Hongyanhe 5&6 LOT190 Ic Nuclear Manual Ball Valve	DN 15 DN 50	Class 150	Manual	Ball Valve	Nuclear Class 2,3	417
2015	Liaoning China	Hongyanhe 5&6 LOT190 Gb Nuclear Island class 2.3 manual Globe, lift Check valve	DN 8 DN 50	Class 150 Class 1500	Manual	Globe Check Valve	Nuclear Class 2,3	1942
2015	Liaoning China	Hongyanhe 5&6 LOT190 Gc Nuclear Island Gate, Globe, Check valve	DN 8 DN 250	Class 150 Class 1500	Power-driven Manual	Gate, Globe Check Valve	Nuclear Class 3 and non-nuclear	2621
2014	Shandong China	The non-nuclear manual Gate valves, Globe valves and Check valves in the pressurized water reactor demonstration project unit 1&2 PV33 by SNPTC	DN 80 DN 600	Class 150 Class 2100	Manual	Gate, Globe Check Valve	Nuclear Island Non-nuclear	322
2014	Shandong China	The non-nuclear manual stop valve and Check valve (DN<=50 ) of Lufeng unit 1&2 PV32	DN<=50	Class 150 Class 2100	Manual	Globe Check Valve	Nuclear Island Non-nuclear	2944
2014	Shandong China	The non-nuclear manual stop valve and Check valve (DN<=50 ) of Haiyang unit 3&4 PV32	DN<=50	Class 150 Class 2100	Manual	Globe Check Valve	Nuclear Island Non-nuclear	2902
2014	Guangdong China	Yangjiang Nuclear Power Plant valve spare parts				Packing Gasket Gate	Spare Parts	123
2014	Guangdong China	Daya bay Valve replacement	DN 150	PN 16	Manual	Butterfly Valve	Non-Safety	30
2014	Guangdong China	Yangjiang Nuclear Power Plant valve spare parts				Packing Gasket PN 160	Spare Parts	32
2014	Guangdong China	Yangjiang Nuclear Power Plant valve replacement	DN 15	PN 10	Manual	Forged Globe	Non-Safety	25
2013	Shandong China	The stainless steel pipe valve of Type II pile loop - Natural circulation test	DN 25 DN 80	PN 64	Manual	Check, Safety Valve	Non-Safety	30
2013	Guangdong China	The valve of the non-active emergency high cooling water system development demonstration project	DN 15 DN 150	PN 64	Manual, Power-driven	Gate, Globe, Check Ball, Butterfly Valve	Nuclear Class 2,3	35
2013	Guangdong China	The spare parts of the valves and the seals in the Yangjiang nuclear power station	DN 15 DN 550	PN 10 PN 160	Manual, Power-driven	Gate, Globe Check Valve	Non-Safety	53
2011	Gansu China	Nuclear waste reprocessing	DN 100 DN 800	PN 10 PN 64	Manual	Gate Valve	Non-Safety	25
2010	Guangdong China	Globe, lift Check valve in the Nuclear Island of Yangjiang-5-LOT190EG-3	DN 8 DN 80	PN 10 PN 160	Manual	Globe Check Valve	Nuclear Class 3	2305
2010	Guangxi China	Globe, lift Check valve in the Nuclear Island of Port of Fangcheng-1-2 LOT190EG-3	DN 8 DN 80	PN 10 PN 160	Manual	Globe Check Valve	Nuclear Class 3	2220
2010	Guangdong China	Gate, Globe, Check valves in the Conventional Island of Taishan unit 1-2 M65A/M66	DN 15 DN 400	PN 10 PN 160	Manual, Power-driven	Gate, Globe Check Valve	Non-Safety	3584

# MW NEWAY

## NUCLEAR VALVE

Countries across the world have put the first priority on developing nuclear power for the reason that it has been recognized as one of the cleanest energy at present. Neway Valve has the civil nuclear safety equipment design / manufacturing license issued by China NNSA , the ASME N & NPT certificate issued by ASME authentication center and a complete quality assurance system to guarantee a high-quality solution of nuclear valves. So far, Neway has offered nuclear valves in various domestic nuclear projects and experimental reactors. With the professional nuclear valve R&D team and advanced laboratory equipment, Neway Valve will be dedicated in realizing localization of nuclear power equipment in the long-run.



## 360° Support and service

As one of the leading valve manufacturers in the world, Neway employs the latest state of art and specialises in the development of superior and innovative product through our intensive R&D programs along with our management commitment to excellence and to the engineering of product to provide the valve solutions to meet the industrial needs.

Complete Solutions for Industrial Valves