

Valve size from DN15 to 50

Small size forged valves

for high-temperature and high-pressure applications for thermal power plants

# CATALOG SUP SERIES

Globe valve / Angle valve Y-globe valve / Lift check valve

**OKANO VALVE MFG. CO. LTD.** 



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## Series title

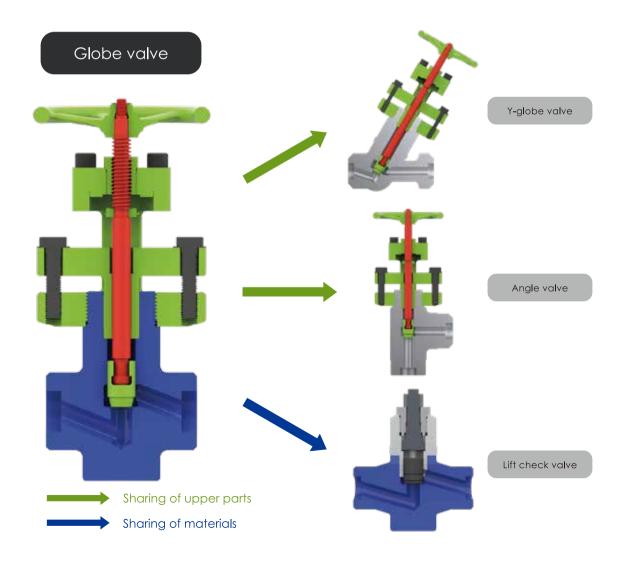
# SUP Series

This series was named SUP series, the acronym of our design and development concept, "Smart," "Utility" and "Productive."

# Concept

We standardized the structure of all valves as much as possible, to improve the productivity.

By doing so, we have succeeded in sharing main components and minimized the disadvantages of valves made to order, which enables us to deliver products of optimal quality at an optimal timing and at an optimal price.



## **Basic specifications**

#### Valve standards

When manufacturing valves, it is necessary to select standards and regulations to be applied, and materials, manufacturing, tests, inspection, etc. prescribed by them.

Standard/regulation	Remarks
ASME B16.34	Standard by American Society of Mechanical Engineers: VALVES-FLANGED, THREADED, WELDING END
JEAC3706	Japan Electric Association Code : regulations on pressure piping and valves.
Rules and Regulations for Ships	• If you have requirements related to the Rules and Regulations for Ships, please contact us.
Other	• If you have other requirements, please contact us.

#### Material standards

With regard to industrial materials, chemical components and mechanical properties are prescribed by respective material standards. Standard materials prescribed by applicable valve standards are used for pressure retaining components and important parts of valves.

Standard/regulation	Remarks
ASTM	Standard by American Society of Testing Materials.
ASME	Standard by American Society of Mechanical Engineers.
JIS	Japanese Industrial Standard.
Other	• If you have other requirements, please contact us.

#### Valve types

(1)Globe valve

②Angle valve

3Y-globe valve

**4**Lift check valve

### Valve size/Pressure rating class

Valve size Pressure rating class	DN15	DN20	DN25	DN40	DN50
1500	0	0	0	0	0
2500	0	0	0	0	0
4500	0	0	0	0	0

(Note) The specifications for valves whose pressure rating class is 900 or less are the same as those for valves whose pressure rating class is 1500.

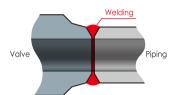
#### Body materials

Material group	ASTM	ASME
Carbon steel	ASTM A105M	ASME SA 105M
2.5Cr-1Mo steel	ASTM A182M F22	ASME SA182M F22
9Cr-1Mo-V steel	ASTM A182M F91	ASME SA182M F91
18Cr-8 Ni steel	ASTM A182M F304	ASME SA182M F304
18Cr-9 Ni-2 Mo steel	ASTM A182M F316	ASME SA182M F316

#### Connection

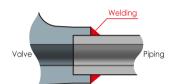
Methods for connecting valves with piping are described. Since the connection part inevitably has a higher risk of fluid leakage, select optimum connection methods in accordance with valve operating conditions such as a fluid, pressure, and temperature will be selected.

# BW (Butt Welding-end)



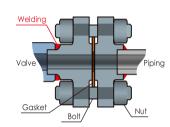
With this connection method, grooves are provided for the valve and piping, and the end surfaces are butted and welded. This connection method is excellent in reliability and durability against leakage. However, it requires advanced welding technique and the cost is high, and once they are connected, it is not easily detached. This connection method is mainly selected for high-temperature and high-pressure valves.

#### SW (Socket Welding-end)



With this connection method, the valve end surface is made socket form and the end surface of piping is inserted and welded. This method does not reguire advanced welding technique compared to BW. However, because the valve end surface becomes large, this method is not appropriate for large size valves. It is selected for small size valves.

# FL (Flange-end)



With this connection method, flanges are provided for end surfaces of the valve and piping and they are connected using bolts and nuts. Because of the balance between reliability against leakage and attachment/detachment performance, generally this method is most widely used. However, as the temperature and pressure of piping increase, the flange size expands therefore measures against weight are required.

#### Operation

The operation methods for opening/closing valves are described. An optimum operation method is selected depending on the operating force required for valve opening/closing, opening/closing frequency, installation environment, and so on.

НО

With the hand operated method, the handle is operated manually. This method is selected when operating force for valve opening/closing is small, when opening/closing frequency is low, when it is easy to access the valve, and so on.

MO

With the motor operated method, a valve is operated using motor operation by an electric controller. This method is selected when operating force for valve opening/closing is large, when opening/closing frequency is high, when it is difficult to access the valve, and so on.





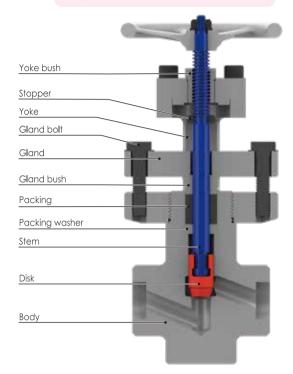
# Globe valve

It is called globe valve because the body shape looks like a globe. The disk operates vertically against the seat to shut off fluid. It is a shut-off valve and can also be used as a flow regulating valve by adjusting the opening degree.



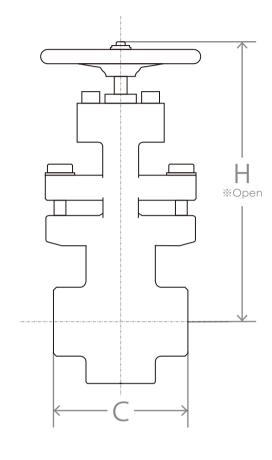
#### Characteristics

- Due to the structure, it is relatively easy to shut off fluids.
- It causes large pressure loss.
- It requires large operating force and is not suitable for large size valves.



Forged valve (DN50 or under)

## Major specifications



#### Pressure rating class 1500

Valve size		Dimension	Mass (kg)	
Α	В	C:Face to Face H:Heigh		Mass (kg)
15	1/2	128	295	13
20	3/4	128	295	13
25	1	128	295	13
40	1½	216	425	34
50	2	216	535	68

#### Pressure rating class 2500

Valve	e size	Dimensior	Mass (kg)		
Α	В	C: Face to Face H: Height		Mass (kg)	
15	1/2	128	295	13	
20	3/4	128	295	13	
25	1	128	295	13	
40	1½	216	425	34	
50	2	216	535	68	

### Pressure rating class 4500

Valve	e size	Dimensior	Mana (ka)	
A B		C : Face to Face	H:Height	Mass (kg)
15	1/2	178	295	18
20	3/4	178	295	18
25	1	178	295	18
40	1½	216	425	48
50	2	216	535	75

#### Product information

Pressure rating class	Body materials	DN	115	DI	V20	DI	V25	DN	140	DI	150
		НО	MO	НО	MO	НО	MO	НО	МО	НО	MO
	Carbon steel	•	0	•	0	•	0	•	0	•	0
	2.5Cr-1Mo steel	•	0	•	0	•	0	•	0	•	0
1500	9Cr-1Mo-V steel	0	0	0	0	0	0	0	0	0	0
	18Cr-8 Ni steel	0	0	0	0	0	0	0	0	0	0
	18Cr-9 Ni-2 Mo steel	0	0	0	0	0	0	0	0	0	0
	Carbon steel	•	0	•	0	•	0	•	0	•	0
	2.5Cr-1Mo steel	•	0	•	0	•	0	•	0	•	0
2500	9Cr-1Mo-V steel	0	0	0	0	0	0	0	0	0	0
	18Cr-8 Ni steel	0	0	0	0	0	0	0	0	0	0
	18Cr-9 Ni-2 Mo steel	0	0	0	0	0	0	0	0	0	0
	Carbon steel	0	0	0	0	0	0	0	0	0	0
	2.5Cr-1Mo steel	•	0	•	0	•	0	•	0	•	0
4500	9Cr-1Mo-V steel	0	0	0	0	0	0	0	0	0	0
	18Cr-8 Ni steel	0	0	0	0	0	0	0	0	0	0
	18Cr-9 Ni-2 Mo steel	0	0	0	0	0	0	0	0	0	0

<sup>•:</sup> Inventory of completed valves O: Inventory of main components

<sup>-:</sup> Not applicable

<sup>\*</sup>Only SW connection-type valves are in stock.

\*The specifications for valves whose pressure rating class is 900 or less are the same as those for valves whose pressure rating class is 1500.

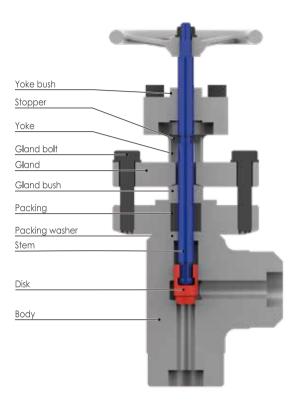
# **Angle valve**

Because it has a structure of the central axes of the flow channel inlet and outlet crossing at right angles, it is called angle valve. Among globe valves, it has a structure that can reduce pressure loss the most. It is used for right-angled piping or as a drain valve.

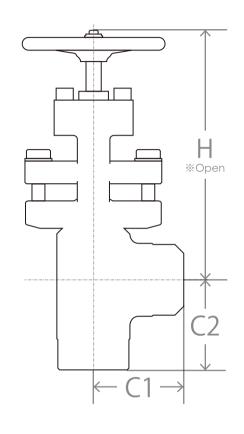


#### Characteristics

• Pressure loss is the smallest among globe valves.



# Major specifications



### Pressure rating class 1500

Valv	Valve size Dimension (mm)			A 4 (1)	
Α	В	C1: Face to center	C2: Face to center	H:Height	Mass (kg)
15	1/2	75	75	285	12
20	3/4	85	85	285	13
25	1	95	95	285	15
40	1½	125	125	405	30
50	2	170	170	510	62

## Pressure rating class 2500

Valve size Dimension (mm)					
Α	В	C1: Face to center	C2: Face to center	H:Height	Mass (kg)
15	1/2	75	75	285	12
20	3/4	85	85	285	13
25	1	95	95	285	15
40	1½	125	125	405	30
50	2	170	170	510	62

### Pressure rating class 4500

Valve size		Din	., .		
Α	В	C1 : Face to center	Mass (kg)		
15	1/2	85	85	285	14
20	3/4	95	95	285	16
25	1	105	105	285	17
40	1½	140	140	405	38
50	2	170	170	515	71

### Product information

Pressure	Body materials	DI	N15	DI	120	DI	V25	DN	140	DN	50
rating class	body materials	НО	MO	НО	MO	НО	МО	НО	MO	НО	МО
	Carbon steel	0	0	0	0	0	0	0	0	0	0
	2.5Cr-1Mo steel	0	0	0	0	0	0	0	0	0	0
1500	9Cr-1Mo-V steel	0	0	0	0	0	0	0	0	0	0
	18Cr-8 Ni steel	0	0	0	0	0	0	0	0	0	0
	18Cr-9 Ni-2 Mo steel	0	0	0	0	0	0	0	0	0	0
	Carbon steel	0	0	0	0	0	0	0	0	0	0
	2.5Cr-1Mo steel	0	0	0	0	0	0	0	0	0	0
2500	9Cr-1Mo-V steel	0	0	0	0	0	0	0	0	0	0
	18Cr-8 Ni steel	0	0	0	0	0	0	0	0	0	0
	18Cr-9 Ni-2 Mo steel	0	0	0	0	0	0	0	0	0	0
	Carbon steel	0	0	0	0	0	0	0	0	0	0
	2.5Cr-1Mo steel	0	0	0	0	0	0	0	0	0	0
4500	9Cr-1Mo-V steel	0	0	0	0	0	0	0	0	0	0
	18Cr-8 Ni steel	0	0	0	0	0	0	0	0	0	0
	18Cr-9 Ni-2 Mo steel	0	0	0	0	0	$\overline{\circ}$	0	0	0	0

Inventory of completed valves

O: Inventory of main components

<sup>-:</sup> Not applicable

<sup>\*</sup>The specifications for valves whose pressure rating class is 900 or less are the same as those for valves whose pressure rating class is 1500.

# Y-globe valve

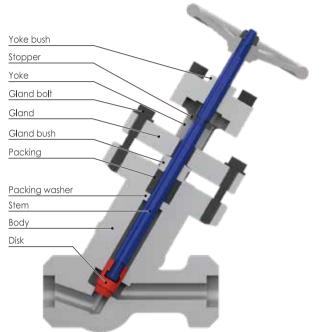
It is called Y-globe valve because it looks like the alphabetic character Y. It has a structure of the upper mechanism being tilted. Because the flow channel is gentler than that of the (standard) globe valve, pressure loss can be reduced.

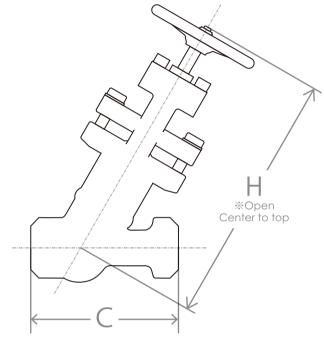
#### Characteristics

- The flow path is smoother than that of the standard globe valve.
- · Capable of reducing pressure loss.

## Major specifications







### Pressure rating class 1500

Valve	size	Dimension	Mass (kg)	
АВ		C : Face to Face	H:Height	Mass (kg)
15	1/2	190	345	14
20	3/4	190	345	14
25	1	190	345	15
40	1½	250	475	34
50 2		340	610	71

### Pressure rating class 2500

Valve size		Dimensior	Mass (kg)	
A B		C : Face to Face	H:Height	Mass (kg)
15	1/2	190	345	14
20	3/4	190	345	14
25	1	190	345	15
40 1½		250	475	34
50 2		340	610	71

#### Pressure rating class 4500

Valve	size	Dimension	n(mm)	Maron (Ica)	
A B		C : Face to Face	H:Height	Mass (kg)	
15	1/2	190	345	17	
20	3/4	190	345	18	
25	1	190	345	18	
40	1½	280	500	46	
50	2	340	610	86	

### Product information

Pressure	Rody materials	DN	115	DI	<b>√</b> 20	DI	N25	DN	140	DN	50
rating class	Body materials	НО	MO	НО	MO	НО	MO	НО	MO	НО	МО
	Carbon steel	0	0	0	0	0	0	0	0	0	0
	2.5Cr-1Mo steel	0	0	0	0	0	0	0	0	0	0
1500	9Cr-1Mo-V steel	0	0	0	0	$\circ$	0	0	0	0	0
	18Cr-8 Ni steel	0	0	0	0	0	0	0	0	0	0
	18Cr-9 Ni-2 Mo steel	0	0	0	0	0	0	0	0	0	0
	Carbon steel	0	0	0	0	0	0	0	0	0	0
	2.5Cr-1Mo steel	0	0	0	0	0	0	0	0	0	0
2500	9Cr-1Mo-V steel	0	0	0	0	0	0	0	0	0	0
	18Cr-8 Ni steel	0	0	0	0	$\circ$	0	0	0	0	$\circ$
	18Cr-9 Ni-2 Mo steel	0	0	0	0	0	0	0	0	0	0
	Carbon steel	0	0	0	0	0	0	0	0	0	0
	2.5Cr-1Mo steel	0	0	0	0	0	0	0	0	0	0
4500	9Cr-1Mo-V steel	0	0	0	0	0	0	0	0	0	0
	18Cr-8 Ni steel	0	0	0	0	0	0	0	0	0	0
	18Cr-9 Ni-2 Mo steel	0	0	0	0	0	0	0	0	0	0

<sup>-:</sup> Not applicable

<sup>\*</sup>The specifications for valves whose pressure rating class is 900 or less are the same as those for valves whose pressure rating class is 1500.

# Lift check valve

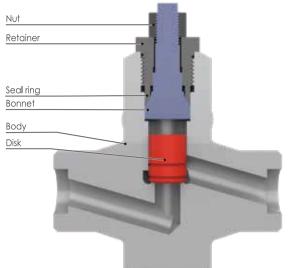
Because the disk is moved up/down (lifted) by a fluid, it is called lift check valve. The disk can be opened by low fluid pressure. However, because the flow channel is S-shaped, pressure loss is greater. It is mainly used for small size valves.

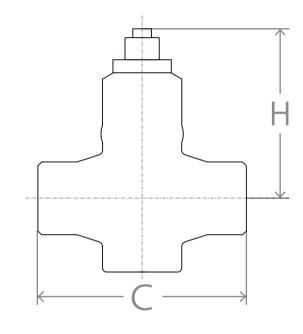
#### Characteristics

Automatically shut out only the back-flow of fluid.

# Major specifications







#### Pressure rating class 1500

Valve size		Dimension	Mass (kg)		
А В		C : Face to Face	H:Height	Muss (kg)	
15	1/2	150	125	7	
20	3/4	170	135	8	
25 1		190	145	11	
40 11/2		250	210	20	
50 2		340	240	44	

#### Pressure rating class 2500

Valve	e size	Dimensior	Mass (ka)		
Α	В	C : Face to Face	H:Height	Mass (kg)	
15	1/2	150	115	7	
20	3/4	170	135	8	
25	1	190	150	12	
40	11/2	250	210	23	
50	2	340	245	47	

#### Pressure rating class 4500

If you have requirements pressure rating class 4500, please contact us.

### Product information

Pressure	Body materials	DN	N15	D1	N20	DN	25	DN.	40	DN	50
Pressure rating class	body materials	НО	MO	НО	MO	НО	MO	НО	MO	НО	MO
	Carbon steel	0	_	0	_	0	_	0	_	0	_
	2.5Cr-1Mo steel	0	_	0	_	0	_	0	_	0	_
1500	9Cr-1Mo-V steel	0	_	$\circ$	_	0	_	$\circ$	_	0	_
	18Cr-8 Ni steel	0	_	0	_	0	_	0	_	0	_
	18Cr-9 Ni-2 Mo steel	0	_	0	_	0	_	0	_	0	_
	Carbon steel	0	_	0	_	0	_	0	_	0	_
	2.5Cr-1Mo steel	0	_	0	_	0	_	0	_	0	_
2500	9Cr-1Mo-V steel	0	_	0	_	0	_	0	_	0	
	18Cr-8 Ni steel	0	_	0	_	0	_	0	_	0	_
	18Cr-9 Ni-2 Mo steel	0	_	0	_	0	_	0	_	0	<u>_</u>

4500

•: Inventory of completed valves O: Inventory of main components

If you have requirements pressure rating class 4500, please contact us.

-: Not applicable

\*The specifications for valves whose pressure rating class is 900 or less are the same as those for valves whose pressure rating class is 1500.

# **Options**

## Function options

Additional product functions are determined in detail to improve operating efficiency of thermal power plants, maintain long-term performance under high-temperature and high-pressure environments.

#### List of optional function items

O: Available

	Item	Globe valve	Y-globe valve	Angle valve	Lift check valve	Remarks
Countermea	sures against high-temperature and thermal atack	0	0	0	0	
Co	ountermeasures against erosion	0	0	0	_	
Countermed	asures against externa <b>l l</b> eakage	0	0	0	_	
Countermed	asures against vacuum pressure	0	0	0	-	
Operation options	Instructions on the number of operations (frequency)	0	0	0	_	Exclusive option for MO valves
Operation options	Instructions on opening/ closing time (speed)	0	0	0	_	Exclusive option for MO valves
Exclusive options for globe valve	Instructions on flow rate (regulation)	0	0	0	_	
Counter	measures against salt damage (rust prevention)	0	0	0	0	
	Dust proof	0	0	0	_	
Mea	sures for seating characteristics	_	_	_	0	
	Opening indicator	0	0	0	_	
Simple options	Support lug	0	0	0	1	Exclusive option for MO valves
	Handle lock	0	0	0	<u> </u>	
	Name plate	0	0	0	0	

<sup>\*</sup> We may recommend the addition of function options based on the presented specifications and contents of specification adjustment, or the customer may be asked to determine the addition directly.

# Inspection options

Products (components) are inspected based on the standards and OKANO's standard. If there is any special request, it is handled as an option. By avoiding excessive inspection, product procurement costs can be optimized.

#### List of standard inspection items

© : Test/inspection performed in accordance with requirements of standards
O: Test/inspection performed as OKANO's standard

Chemical analysis set for controlled inspection  A licating			It a	Target	Taura at a aut	Implementation	[ASME B16.34 is applied.]		
An Moterial inspection  Another inspection  Another inspection  Pressure retaining Press			Item	component	Target part		Standard	Special	
Moderical inspection   Product components   Pressure retaining   - After heat treatment   - After welding   - After we			Chemical analysis		-	At casting	0	0	
Report   R	Δ		Analysis test for controlled minor components	Pressure retaining	-	At casting			
B Heat treatment Pressure retaining Order westing Order order westing Order order westing Order Orde		inspection	Product analysis test		-	After heat treatment			
Pressure retaining			Mechanical test		-	After heat treatment	0	0	
Volumetric inspection   Resource retaining   Body   Body   After welding   After machining   After welding   After wel	В	Heat treatment		Pressure retaining	-	After casting, after welding	0	0	
Nondestructive examination   Richard   Richa					Entire volume	After heat treatment		© UT	
Surface inspection (Mit of Pt)   Pressure retaining   Pressure retaini				Pressure retaining		After welding		◎ RT	
Nondestructive examination   Surface inspection (MT or PT)   Pressure retaining   Pressure retaining   Mechanical processing surface   After reachining   Mechanical processing surface   After machining   Method   Mechanical processing surface   After machining   Method   Mechanical processing surface   After defect removal   After repair welding   Method				Body	Groove part of inlet/ outlet butt welding	After heat treatment			
Nondestructive examination   Surface inspection (MT or PT)   Pressure retaining   Pressure retaining   Pressure retaining   Pressure retaining   Pressure retaining   After welding part   After welding part   After defect removal   After completing   After mochining   After defect removal   After defect removal   After completing   After machining   After completing   After machining   After machining   After completing   After machining   After ma					Exterior surface				
Surface inspection (Mil or PT)  Pressure retaining		Nondestructive			All accessible inter of surface	After heat treatment		0	
Pressure retaining   After defect removal   After repoir welding part		examination	Surface inspection	Pressure retaining		After welding		0	
Repair welding part  After repair welding  Body  Machining surface of inlet/ outlet welding and  After completion  After completion of materials  After completion of component			(MT or PT)	, and the second		After machining			
Body   Machining surface of inlet/ outlet welding end   After repair welding					Pengir welding part	After defect removal			
Dimension inspection  Parts  Pressure retaining  Pressure retaining  Pressure retaining  Pressure retaining  Pressure retaining  Dimension inspection  Parts  Pressure retaining  Pressure retaining  Pressure retaining  Pressure retaining  Octoomponent  After completion of materials  After completion of component  After completion of component  After completion  Octoomponent  After machining  Octoomponent  After valve assembly  After valve assembly  Octoomponent  Octoomponent  Octoomponent  Octoomponent  Octoomponent  After valve assembly  Octoomponent  Octoomponent  Octoomponent  Octoomponent  Octoomponent  Octoomponent  After valve assembly  Octoomponent  Octoomponent  Octoomponent  Octoomponent  Octoomponent  Octoomponent  Octoomponent  After valve assembly  Octoomponent  Oc						After repair welding			
Parts   Pressure retaining   -   After completion of component   -   -   After completion of component   -   -   After completion of component   -   -   -   After completion of component   -   -   -   -   -   -   -   -   -				Body	Machining surface of inlet/ outlet welding end	After machining			
Parts  Pressure retaining  Parts  Pressure retaining  After completion of component  After completion of component  After completion of component  After machining  After walve assembly  After valve assembly  After valve assembly  O  O  Valve  Assembly  Assembly  After valve assembly  O  O  After valve assembly  After valve assembly  O  O  After valve assembly  After valve assembly  O  O  Assembly inspection  Assembly inspection  Assembly  After valve assembly  After valve assembly  O  O  After valve assembly  After valve a	D	Welding work insp	ection	Pressure retaining	Welding part	After welding	0	0	
Dimension inspection					-	After completion of materials	0	0	
Inspection   Body   Groove part of inlet/ outlet butt welding   After machining   O   O	_		Parts	Pressure retaining	-	After completion	0	0	
Parts Pressure retaining -	E			Body			0	0	
Parts Pressure retaining - After valve assembly O O  Walve Assembly - After valve assembly O O  Material verification inspection Pressure retaining - O O  H Assembly inspection Assembly - After valve assembly O O  Parts Pressure retaining - O O  Parts Pressure retaining - O O  After valve assembly O O  Valve Assembly - After valve assembly O O  After val			Valve	Assembly	-	After valve assembly	0	0	
F Visual inspection  Valve  Assembly  - After valve assembly  O  O  Material verification inspection  Pressure retaining  - After valve assembly  O  O  H Assembly inspection  Parts  Pressure retaining  - After valve assembly  O  O  O  O  After valve assembly  After va				Proceuro rotainina	-		0	0	
G Material verification inspection Pressure retaining - After valve assembly O O H Assembly inspection Assembly - After valve assembly O O Shell test Parts Pressure retaining - After valve assembly O O  Valve Assembly - After valve assembly O O  Valve Assembly - After valve assembly O O Back seat leak inspection Assembly - After valve assembly O O Back seat leak inspection Assembly - After valve assembly O O  K Steam inspection Assembly - After valve assembly O O Electrical product test Auxiliary (electrical item) - After valve assembly O O Shipping inspection Assembly - After completion of valve O Shipping inspection Assembly - After completion of valve O D After painting O O  After painting O O D D D D D D D D D D D D D D D D D D	F	Visual inspection	Parts	Fressore retaining	-		0	0	
H Assembly inspection Assembly - After valve assembly O O  Shell test Parts Pressure retaining - After valve assembly O O  Valve Assembly - After valve assembly O O  Valve seat leak inspection Assembly - After valve assembly O O  Back seat leak inspection Assembly - After valve assembly O O  K Steam inspection Assembly - After valve assembly O O  L Operating inspection Valve Assembly - After valve assembly O O  Electrical product test Auxiliary (electrical item) - After valve assembly O O  Shipping inspection Assembly - After completion of valve O O  After completion O O  After painting O O			Valve	Assembly	-	After valve assembly	0	0	
Parts Pressure retaining - After valve assembly    Valve Assembly - After valve assembly    Valve seat leak inspection Assembly - After valve assembly    K Steam inspection Assembly - After valve assembly    Valve seat leak inspection Assembly - After valve assembly    K Steam inspection Assembly - After valve assembly    Uperating inspection    Valve Assembly - After valve assembly    Valve Assembly - After valve assembly    Electrical product test (electrical item) - At the time of acceptance    Inspection before shipment Assembly - After completion of valve    Departing inspection Assembly - After painting O O O O O O O O O O O O O O O O O O O	G	Material verificat	ion inspection	Pressure retaining	-		0	0	
I Shell test Valve Assembly - After valve assembly ©  Universe at leak inspection Assembly - After valve assembly ©  Read Steam inspection	Н	Assembly inspec	tion	Assembly	-	After valve assembly	0	0	
Valve Assembly - After			Parts	Pressure retaining	-		0	0	
Closure test   Back seat leak inspection   Assembly   - After valve assembly	I	Shell test	Valve	Assembly	-	After valve assembly	0	0	
Back seat leak inspection Assembly - After valve assembly  K Steam inspection Assembly - After valve assembly  Under Assembly - After valve assembly  Under Assembly - After valve asse		Clasura tost	Valve seat leak inspection	Assembly	-	After valve assembly	0	0	
L Operating inspection    Valve	J	Closure test	Back seat leak inspection	Assembly	-	After valve assembly			
L Operating inspection  Electrical product test Auxiliary (electrical item)  M Shipping inspection  Assembly  Auxiliary (electrical item)  Assembly  After completion of valve  painting inspection  Assembly  Assembly  After painting  O	K	Steam inspection		Assembly	-	After valve assembly			
Inspection Electrical product test Auxiliary (electrical item) - At the time of acceptance			Valve	,	-	After valve assembly	0	0	
M Shipping inspection before shipment Assembly - After completion of valve O O  painting inspection Assembly - After painting O O			Electrical product test	Auxiliary (electrical item)	-		0	0	
inspection paining inspection Assembly After paining O			Inspection before shipment		-	After completion	0	0	
	М		painting inspection	Assembly	-	After painting	0	0	
, and passing			Packing inspection	Assembly	-	After packing	0	0	

 $<sup>^{*}</sup>$  For function options named as "Countermeasures against  $^{***}$ ," please determine whether to adopt them.

<sup>\*</sup> For function options named as "Instructions on \*\*\*," the customer is requested to present detailed conditions.

<sup>\*</sup>Please refer to the "Catalog of General high-temperature and high-pressure valves for Thermal Power Plants" for details of optional functions.





岡野バルブ製造株玄會社 OKANO VALVE MFG. CO. LTD.

http://www.okano-valve.co.jp/english/



Vinnova Exploration sales@vinnova.asia 063-271-9119 www.vinnova.asia