



Please read this manual before installation and use.

GENERAL

This series is suitable for main or bypass valve in piping system.
The position of manual handle can be changed.

Manual operation

Valve only

Lever

Gear

Valve

BR type For various fluids and general use.

BS type For Wafer.

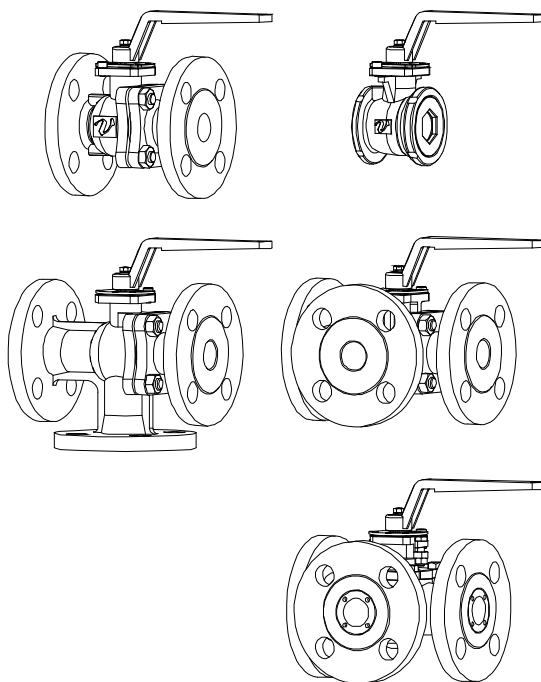
VR type For control.

TR type For mixing / dividing.

LR type For mixing / dividing.

T3 type Trunnion structure. (with flow paths)

L3 type Trunnion structure.



PRODUCT CODE

BR type		M A X B R	<input type="checkbox"/>	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
BS type	(Full port)	M A X B S	<input type="checkbox"/>	-	1	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	(Standard port)	M A X B S	<input type="checkbox"/>	-	1	<input type="checkbox"/>	<input type="checkbox"/>	R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VR type		M A X V R	<input type="checkbox"/>	-	1	U	U	<input type="checkbox"/>	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	(Standard port)	M A X V R	<input type="checkbox"/>	-	1	U	U	<input type="checkbox"/>	R	0	1	5
TR type		M A X T R	<input type="checkbox"/>	-	1	T	T	P	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LR type		M A X L R	<input type="checkbox"/>	-	1	T	T	P	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
T3 type		M A X T 3	<input type="checkbox"/>	-	1	T	T	G	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L3 type		M A X L 3	<input type="checkbox"/>	-	1	T	T	G	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)

(1) Actuator
MAX

(2) Valve
BR BS VR
TR LR
T3 L3

(3) Operation
0 : (Zero) Valve only
L : With manual lever
G : Gear

(4) Hyphen

(5) Connection
1 : JIS 10K
3 : JIS 20K

(6) Body material
T : SCS13A
U : SCS14A

(7) Ball material
T : SUS304 / SCS13A
U : SUS316 / SCS14A








(8) Seat material
F : F-PTFE
G : R-PTFE
R : R-F-PTFE
P : R-PTFE

(9) Size [mm]
ex. 25 A → 025
















(10) Option

(11) Flow paths (T3)
a to d : 3 way valve flow

VALVES SPECIFICATIONS

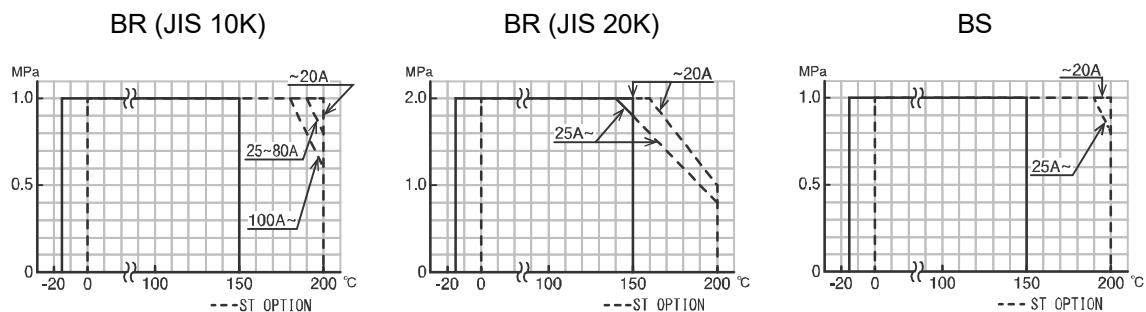
 Water
  Oil
  Air, Gas
  Steam
  Chemicals
  Sea water
  Slurry
  Negative pressure

BR BS type

Valve type		BR			BS		
Design		2-way, Full port			2-way, Wafer		
					Full port		Standard port
Connection		JIS10K Flanged-end	JIS20K Flanged-end	JIS Flanges 10K			
Fluid		       			      		
Max pressure		1 MPa		2 MPa	1 MPa		
Size [mm]		015 to 100	015 to 150	015 to 080	015 to 80		R100 to R150
Material	Body	SCS14A	SCS13A	SCS13A	SCS13A	SCS14A	SCS13A
	Ball	SCS14A	SCS13A	SCS13A	SCS13A	SCS14A	SCS13A
	Seat	F-PTFE	R-PTFE	R-F-PTFE	F-PTFE	R-PTFE	R-F-PTFE
Stem seal	Packing	R-PTFE			R-PTFE		
	O-ring	FKM			FKM		

The optional for steam fluids.

Valve type	Option code	O-ring
BR BS	ST	Replace (Steam resistant FKM)

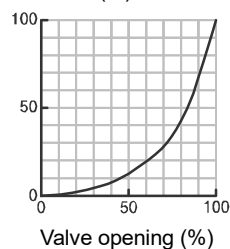
PRESSURE & TEMPERATURE RATING

Note) Insulation options are required for use with fluids more than 150 °C.

INHERENT FLOW CHARACTERISTIC (BS)









R100 to R150 mm

Cv value (%)








Range ability 30:1

VALVES SPECIFICATIONS

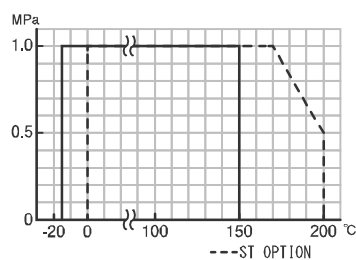
 Water
  Oil
  Air, Gas
  Steam
  Chemicals
  Sea water
  Slurry
  Negative pressure

VR type

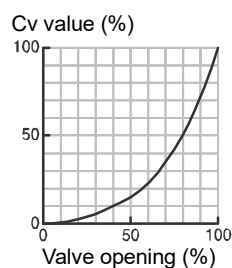
Valve type	VR		
Design	2-way, V-port		
Connection	JIS10K Flanged-end		
Fluid	    		
Max pressure	1 MPa		
Size [mm]	R015	015 to 080	
Material	Body	SCS14A	
	Ball	SUS316	SCS14A
	Seat	R-PTFE	R-F-PTFE
Stem seal	Packing	R-PTFE	
	O-ring	FKM	

The optional for steam fluids.

Valve type	Option code	O-ring
VR	ST	Replace (Steam resistant FKM)

PRESSURE & TEMPERATURE RATING

Note) Insulation options are required for use with fluids more than 150 °C.








INHERENT FLOW CHARACTERISTIC

Range ability






VR-1UUG R 015 100:1

VR-1UUG - 015 to 080 50:1

VALVES SPECIFICATIONS

 Water
  Oil
  Air, Gas
  Steam
  Chemicals
  Sea water
  Slurry
  Negative pressure

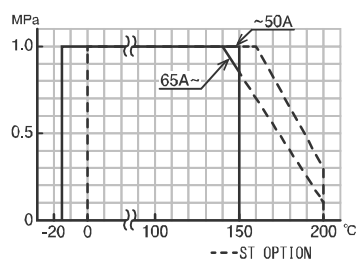
TR LR type

Valve type	TR LR	
Design	3-way, Full port	
Connection	JIS10K Flanged-end	
Fluid	    	
Max pressure	1 MPa	
Size [mm]	020 to 040	050 to 100
Material	Body	SCS13A
	Ball	SUS304 SCS13A
	Seat	R-PTFE
Stem seal	Packing	R-PTFE
	O-ring	FKM

The optional for steam fluids.

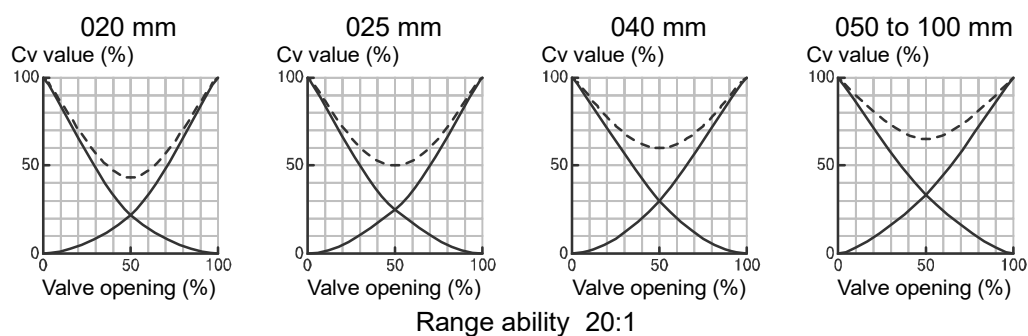
Valve type	Option code	O-ring
TR LR	ST	Replace (Steam resistant FKM)

PRESSURE & TEMPERATURE RATING

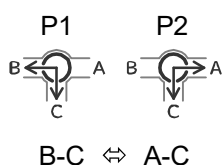


Note) Insulation options are required for use with fluids more than 150 °C.

INHERENT FLOW CHARACTERISTIC











FLOW PATHS (Position① / P1) (Position② / P2)








Note) When a closed path is exposed to high pressure, it may leak slightly to an open path.

VALVES SPECIFICATIONS

 Water
  Oil
  Air, Gas
  Steam
  Chemicals
  Sea water
  Slurry
  Negative pressure

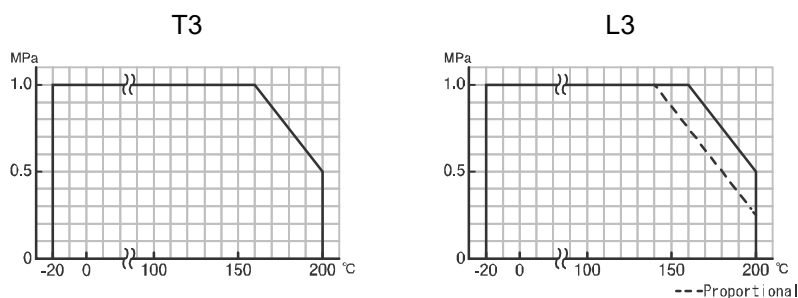
T3 L3 type

Valve type		T3 L3
Design		3-way, Full port
Connection		JIS10K Flanged-end
Fluid		    
Max pressure		1 MPa
Size [mm]		025 to 150
Material	Body	SCS13A
	Ball	SCS13A
	Seat	R-PTFE
Stem seal	Packing	PTFE

The optional for steam fluids.

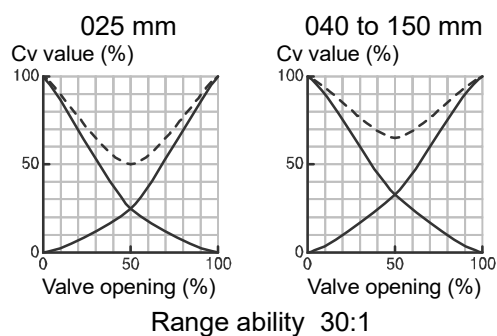
Valve type	Option code	O-ring
T3 L3	ST-VF	Add (Steam resistant FKM)

PRESSURE & TEMPERATURE RATING

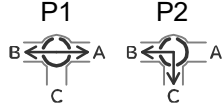
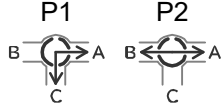
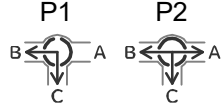
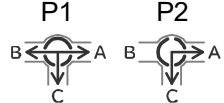
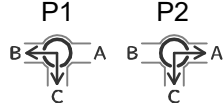


Note) Insulation options are required for use with fluids more than 170 °C.

INHERENT FLOW CHARACTERISTIC (L3)



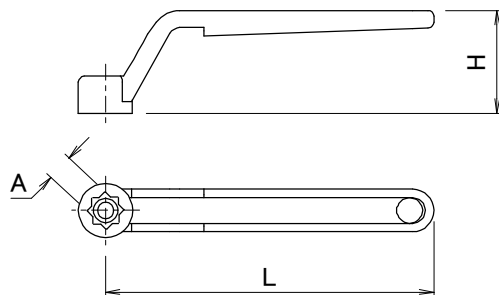
FLOW PATHS (Position① / P1) (Position② / P2)

T3				L3
Code: a	Code: b	Code: c	Code: d	
 A-B ⇔ B-C	 A-C ⇔ A-B	 B-C ⇔ A-B-C	 A-B-C ⇔ A-C	 B-C ⇔ A-C

INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS

MANUAL LEVER DIMENSIONS

①CASTING LEVER



Valve size [mm]			Lever [mm]			
BS	BR VR TR LR L3	T3	L	H	A	
015 020	015 020	-	115	36	9	M5×15
025 032	025 032	025	145	46	11	
040 050	040 050	040	220	52	14	M6×15
065 080 100	065 080 065	050 065	320	55	17	M8×15
125 150	100 125	080 100	430	60	22	M10×20

②PIPE LEVER



Valve size [mm]		Lever [mm]	Knob bolt
BR L3	T3	L	
150	125 150	750	M10×25

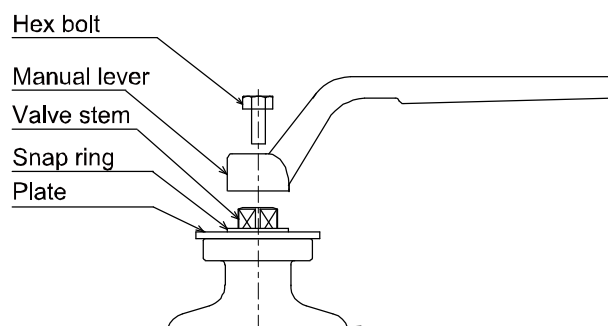
HANDLING OF MANUAL LEVER

①Attention

- The lever handle is removed and shipped.
- The lever mounting direction can be changed in units of 45 degrees.
- Do not apply excessive torque to the lever.
- Do not strike or extend the lever with a tool.
- The arrow on the plate indicates the direction of flow.

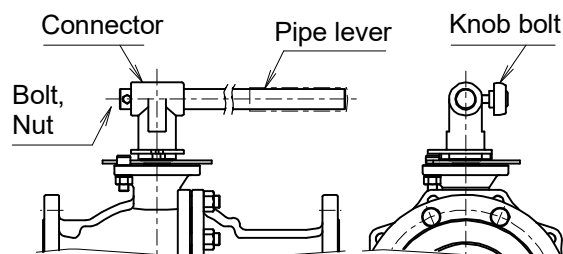
②LEVER HANDLE INSTALLATION (Casting lever)

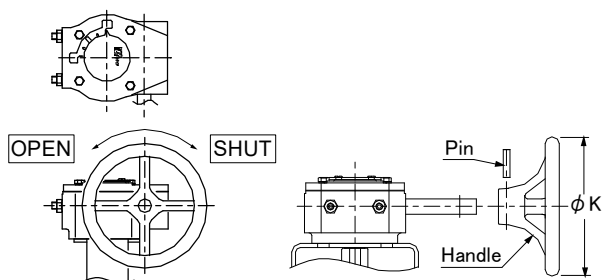
- Plate of position indicator is attached on the valve by C-type snap ring. Install the manual lever on it tightening the bolt.
- The position of manual lever can be changed according to piping circumstances.



③LEVER HANDLE INSTALLATION (Pipe lever)

- Remove the bolt and nut from the lever.
- Loosen the knob bolt. Insert the lever into the connector.
- Tighten the bolts so that the lever does not fall off.
- Fix the lever with the knob bolt.



INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS**GEAR DIMENSIONS**

Valve size [mm]			ϕK [mm]	Actuator
BS	BR VR TR LR L3	T3		
065 080 100	065 080	050 065	150	MAG-F07
125 150	100 125	080 100	300	MAG-F10
-	150	125 150	300	MAG-F12

HANDLING OF GEAR

- The handle wheel of the gear is removed and shipped.
- Insert the handle into the gear shaft.
- Insert a pin into the hole in the handle.

INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS

HANDLING & STORAGE

①HANDLING

Do not drop or throw the product as it may break.

②STORAGE

- Store away from dust, moisture and direct sunlight.
- If possible, store in the original package.
- Do not remove a dust proof cap until the piping.

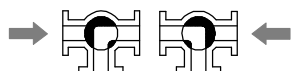
③CHECKING

- Check the product code before installation.
- Make sure that the bolts are not loose.

INSTALLATION

①PRECAUTIONS

- Flush the pipeline carefully before installing the valve. Foreign particles, such as sand or pieces of welding electrode, will damage the ball and seats.
- For valves with specified flow direction (VR) or with ST / SC option, check the arrows on the product before piping.
- When the flow path is subjected to a high pressure from arrow, it may leak slightly to the low pressure port. (TR, LR)



②PIPING FLANGES

- Gasket should be selected appropriately to suit the fluid, pressure and temperature.
- Use spring washer to prevent from decreasing surface pressure gasket when the temperature change happens frequently.
- Tighten all bolts using crossover method to load the joint evenly.
- Wafer type ball valve is put between two seats of flanged-end and tightened with long bolts. (BS)

③ENVIRONMENT

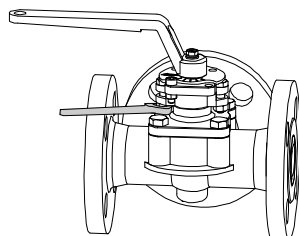
If there is a possibility that the fluid and drive part freeze, please take measures to prevent freezing.

④POSITIONING

Should be positioned through 90° upward from horizontal. Provide space around the product to allow manual operation, inspection and replacement work.

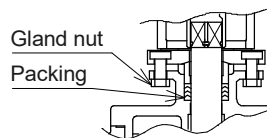
⑤CAUTIONS FOR MAINTENANCE (T3, L3)

Do not keep warm for maintenance of the valve gland.



TIGHTEN THE GLAND NUTS (T3, L3)

- Check that there is no leakage from the gland packing.
- If it leakage, tighten gland nuts by alternately. Do not over-tighten the gland nuts.



Valve size [mm]		T Recommended torques [N·m]
T3	L3	
025	025	3.5
040	040 050	7
050 065	065 080	10
080 100	100 125	14
125 150	150	20

MAINTENANCE

Do the routine maintenance at least once in half a year.

Inspection items

- Confirm operation of opening and closing.
- Confirm whether screws are loose or not.
- Confirm the fluid temperature or pressure.
- Confirm the leak from valve stem.
- Confirm the bolt tightening torque.

INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS**TROUBLESHOOTING**

Problem	Cause	Solution
Stop in the mid position.	<ul style="list-style-type: none"> • Biting of valve seat. • The scale has adhered to the valve ball. 	Remove a foreign object.
Leakage from valve body	<ul style="list-style-type: none"> • Valve cap get loose. • Valve body is damaged. 	Replace the valve.
Leakage from valve seat	Seat is worn or damaged.	Replace the valve. Replace the seat.
Leakage from valve stem	Stem packing is worn or distorted.	Replace the valve. Replace the packing.
Leakage from valve gland	Gland packing is worn or distorted.	Tighten the gland nut.
T3 L3		Replace the gland packing.

For more information contact
NIPPON VALVE CONTROLS, INC. for consultation.