

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

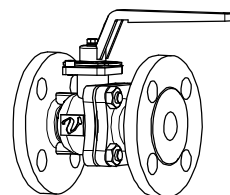
BR type For various fluids and general use.

BS type For Wafer.

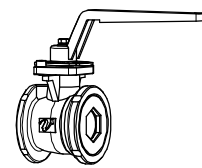
TR / LR type For mixing / dividing.

T3 type Trunnion structure. (with flow paths)

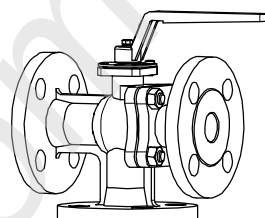
L3 type Trunnion structure.



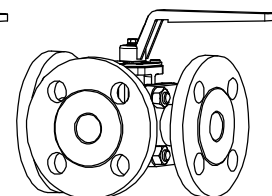
BR / VR



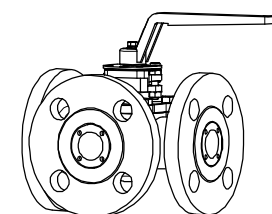
BS



TR



LR



T3 / L3

PRODUCT CODE

BR type	(JIS 10K)	M A X B R		-	1				-				
	(JIS 20K)	M A X B R		-	3	T	T		-				
BS type	(Full port)	M A X B S		-	1				-				
	(Standard port)	M A X B S		-	1				R				
VR type	(V-port)	M A X V R		-	1	U	U		-				
	(Reduced port)	M A X V R		-	1	U	U		R	0	1	5	-
TR / LR type		M A X	:		-	1	T	T	P	-			
T3 type		M A X T 3		-	1	T	T	G	-				
L3 type		M A X L 3		-	1	T	T	G	-				
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	

(1) Actuator
MAX

(4) Sizing code
- : Hyphen

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

(10) Option
ST : Seat for abnormal
pressure rise

(2) Valve
BR BS VR
TR LR
T3 L3

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

(9) Size [mm]
ex. 25 A → 025

(11) Flow paths
a to d : T3 type

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

(6) Body material
T : SCS13A
U : SCS14A

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

VALVES SPECIFICATIONS

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

BR BS VR type

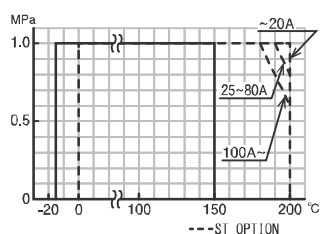
Valve type		BR			BS		VR
Design		2-way, Full port			2-way, Wafer		2-way, V-port
Connection		JIS10K Flanged-end		JIS20K Flanged-end	JIS Flanges 10K		JIS10K Flanged-end
Fluid		     			     		    
Max pressure		1 MPa		2 MPa	1 MPa		1 MPa
Size [mm]		015 to 100	015 to 150	015 to 080	015 to 150		015 to 080
Material	Body	SCS14A	SCS13A	SCS13A	SCS13A	SCS14A	SCS14A
	Ball	SCS14A	SCS13A	SCS13A	SCS13A	SCS14A	SUS316 / SCS14A
	Seat	F-PTFE R-PTFE R-F-PTFE			F-PTFE R-PTFE R-F-PTFE		R-PTFE R-F-PTFE
Stem seal	Packing	R-PTFE			R-PTFE		R-PTFE
	O-ring	FKM			FKM		FKM

The optional for steam fluids.

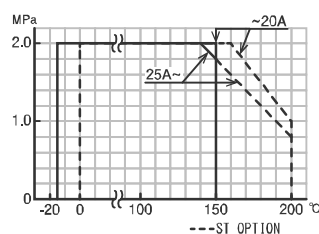
Valve type			Option code	O-ring
BR	BS	VR	ST	Replace (Steam resistant FKM)

PRESSURE & TEMPERATURE RATING

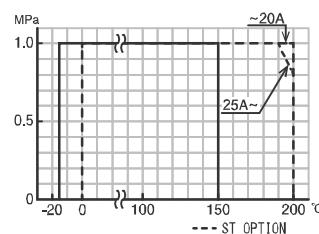
BR (JIS 10K)



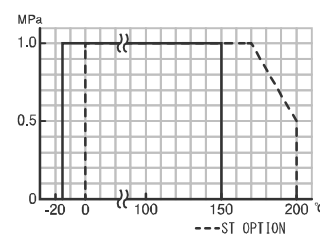
BR (JIS 20K)



BS



VR

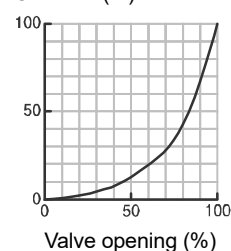


Note) Insulation options are required for use with fluids more than 150 °C.

INHERENT FLOW CHARACTERISTIC

BS (100 to 150 mm)

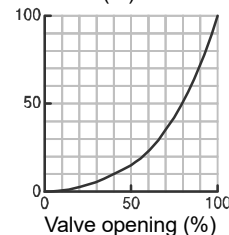
Cv value (%)



Range ability 30:1

VR

Cv value (%)



Range ability

 VR-1UUG - 015 to 080
 VR-1UUG R 015

 50:1
 100:1

VALVES SPECIFICATIONS

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

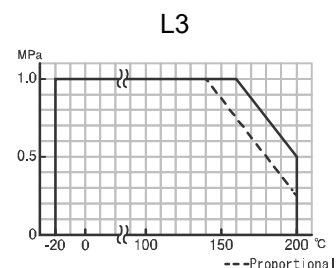
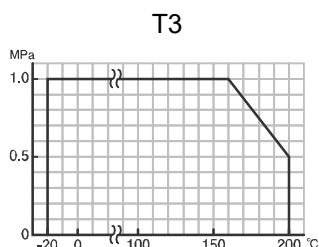
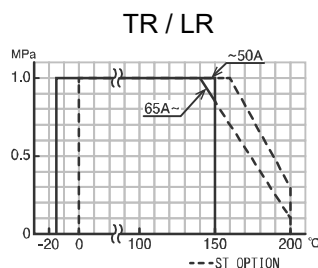
TR LR T3 L3 type

Valve type		TR / LR		T3 / L3
Design		3-way, Full port		3-way, Full port
Connection		JIS10K Flanged-end		JIS10K Flanged-end
Fluid		    		    
Max pressure		1 MPa		1 MPa
Size [mm]		020 to 040	050 to 100	025 to 150
Material	Body	SCS13A		SCS13A
	Ball	SUS304	SCS13A	SCS13A
	Seat	R-PTFE		R-PTFE
Stem seal	Packing	R-PTFE		PTFE
	O-ring	FKM		-

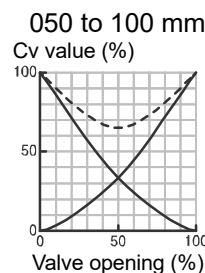
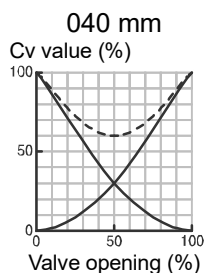
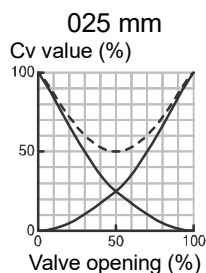
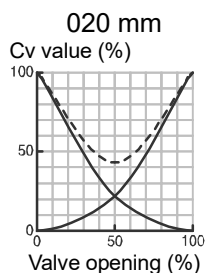
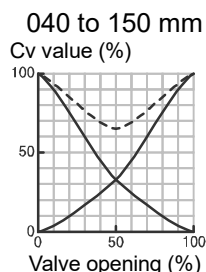
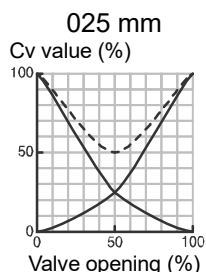
The optional for steam fluids.

Valve type	Option code	O-ring
TR LR	ST	Replace
T3 L3	ST-VF	Add

O-ring: Steam resistant FKM

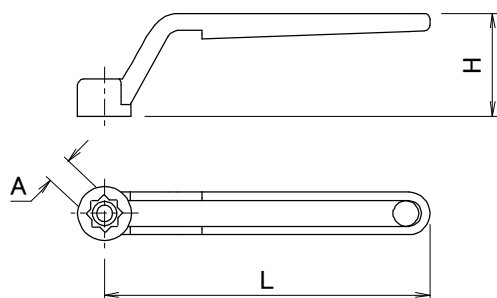
PRESSURE & TEMPERATURE RATING

Note) Insulation options are required for use with fluids more than 150 °C. (T3 / L3: 170 °C)

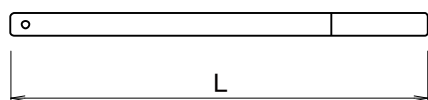
INHERENT FLOW CHARACTERISTIC (TR / LR)Range ability
20:1**INHERENT FLOW CHARACTERISTIC (L3)**Range ability
30:1**FLOW PATHS (Position① / P1) (Position② / P2)**

TR	LR	L3	T3 (Form: a)	T3 (Form: b)	T3 (Form: c)	T3 (Form: d)
P1	P2		P1	P2	P1	P2
						

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

INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS**LEVER AND GEAR DIMENSIONS****①CASTING LEVER**

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

②PIPE LEVER

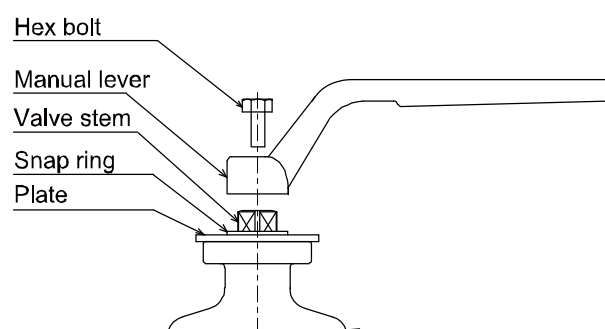
Valve size [mm]		Lever	Knob bolt
BR L3	T3	L	
150	125 to 150	750	M10×25

HANDLING OF MANUAL LEVER**①Attention**

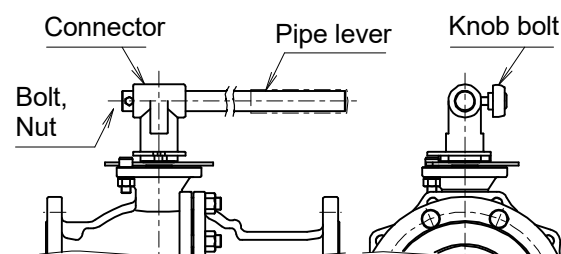
- The lever handle is removed and shipped.
- The lever mounting direction can be changed in units of 45 degrees.
- Do not apply excessive torque to the lever.
- Do not strike or extend the lever with a tool.
- The arrow on the plate indicates the direction of flow.

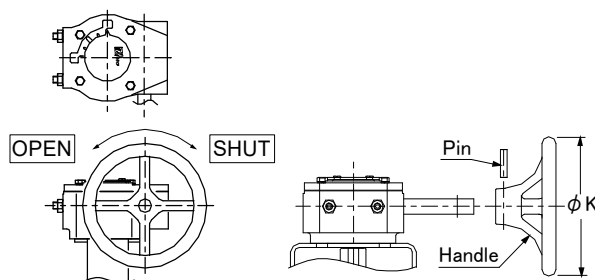
②LEVER HANDLE INSTALLATION (Casting lever)

- 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]			K	Actuator
BS	BR VR TR LR L3	T3		
065 to 100	065 to 080	050 to 065	Φ150	MAG-F07
125 to 150	100 to 125	080 to 100	Φ300	MAG-F10
-	150	125 to 150	Φ300	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.

HANDLING & STORAGE**① HANDLING**

Proper care in handling the valve should be taken to prevent damage. Do not drop or throw it.

② STORAGE

Store the valve in the protected area from dust, moisture, and direct sunlight. If possible, should be kept in the original packaging.

③ CHECKING

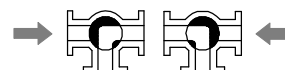
- Check the product code before installation.
- Confirm that there is no screw loose or part deformation.

INSTALLATION**① PRECAUTIONS**

Before installing, clean pipe and valve ends. Make sure they are free of dirt, dust and etc.

② PIPING FLANGES

- VR type has a flow direction. Install the valve accordingly.
- Specify the ST option if a steam fluid. Flow direction is restricted by ST option. (BR / BS)
- 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)
- In the TR / LR type, when the flow path is subjected to a high pressure from arrow, it may leak slightly to the low pressure port.

**③ ENVIRONMENT**

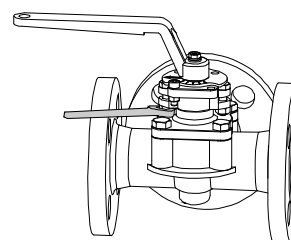
If there is a possibility that the fluid and drive part freeze, please take measures to prevent freezing.

④ POSITIONING

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

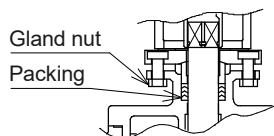
⑤ CAUTIONS FOR MAINTENANCE (T3 / L3)

Do not keep warm for maintenance of the valve gland.



INSTALLATION, OPERATION & MAINTENANCE INSTRUCTIONS**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.



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

TROUBLESHOOTING

Problem	Cause	Solution
Stop in the mid position.	• Biting of valve seat. • The scale has adhered to the valve ball.	Remove a foreign object.
Leakage from valve body	• 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 (T3 / L3)	Gland packing is worn or distorted.	Tighten the gland nut.
		Replace the gland packing.

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.

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