

Needle valve Manual Type

User's Manual



Thank you for choosing our product.
This User's manual contains important information for safe use of our product, so please be sure to read it before handling the product.
After reading this manual, please be sure to keep it in a place where the user can see it at any time

ASAHI YUKIZAI CORPORATION

-SAFETY PRECAUTIONS-



This User's manual is written on the assumption that the person who Handle Wheels our products has a basic knowledge of our products, electrical equipment, machinery, control, etc., and it contains technical terms depending on the handling contents.

Please read this manual carefully and fully understand the contents and observe the safety precautions for proper use.

In this manual, the warning, caution, prohibition, and enforcement are categorized together with the symbol to inform the situation and scale of human injury or property damage.

Failure to observe this precaution may result in unexpected failure or damage. Be sure to observe this precaution.

<WARNING/CAUTION indications>

 Warning	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 Caution	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage.

<Prohibited/Forced display>



 Prohibition	In the handling of the product, it is prohibited to do it in "Do not do it".
 Forcing	In the handling of the product, it is forced by "contents to be carried out without fail".

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1. Our product warranty coverage

Unless otherwise stated in the Contract or Specifications, etc., the warranty for the piping material products (hereinafter referred to as "applicable products") such as valves manufactured or sold by us is as follows.

Applicable to

This warranty applies only when the product is used in Japan. If you intend to use the product overseas, please contact us.

Warranty Period

The warranty period is one year after delivery.

Guaranteed range

In the event of failure or malfunction due to our responsibility during the above warranty period, we will replace or repair the product with a substitute free of charge.

Provided, however, that even within the warranty period, the warranty shall not apply to any of the following cases (charged service).



- ▶ When the storage, operating conditions, precautions, etc. described in the specifications, User's manual, etc. are not adhered to in the construction, installation, handling, maintenance, etc.
- ▶ Defects, such as the design of the customer's equipment or software, caused by other than the target product.
- ▶ The fault is due to modification or secondary processing of the product by something other than us.
- ▶ In the case of a failure which can be deemed to have been avoided if the periodic inspection described in the User's manual, etc. or the maintenance or replacement of consumable parts has been performed normally.
- ▶ The component is used for purposes other than the product's intended use.
- ▶ Failure or malfunction due to causes that could not be foreseen by our level of science and technology at the time of shipment.
- ▶ The fault is due to an external factor that is not our responsibility, such as natural disaster or disaster.

Disclaimer



- ▶ The warranty will not cover secondary damage (damage to equipment, loss of opportunity, loss of profit, etc.) or any other damage caused by the failure of our product.
- ▶ Although we strive to improve the quality and reliability of our products, we do not guarantee their integrity. Especially when using this product for equipment that may infringe human life, body or property, take appropriate safety design measures, etc., with full consideration of problems that may normally occur. We assume no responsibility for such use if we have not obtained our consent in advance in writing of specifications, etc.
- ▶ Please observe the product specifications and precautions when using our products. We shall not assume any responsibility for any damage to the customer caused by the customer's negligence. However, this does not apply to damage caused by a defect in our product.




2. Safety Instructions

Unpacking, Transportation and Storage

 Prohibition	<p>The valve can be damaged, or leak.</p> <ul style="list-style-type: none"> ▶ Do not subject the product to impact by throwing, dropping or hitting. ▶ Do not scratch or pierce the product with a sharp object such as a knife or hand hook. ▶ Do not pile up cardboard boxes forcefully to prevent the load from collapsing. ▶ Avoid contact with coal tar, creosote (a wood preservative), white pesticides, insecticides, paints, etc. ▶ Do not hang the Handle Wheel when transporting the valve.
 Forcing	<p>The valve can be damaged, or leak.</p> <ul style="list-style-type: none"> ▶ Keep in cardboard until just before piping, and store indoors (at room temperature) away from direct sunlight. Also, avoid storing the product in places of high temperature. (The strength of cardboard packaging decreases when it gets wet. Be very careful when storing and handling it.) ▶ After unpacking, make sure that the product is correct and that it meets the specifications.

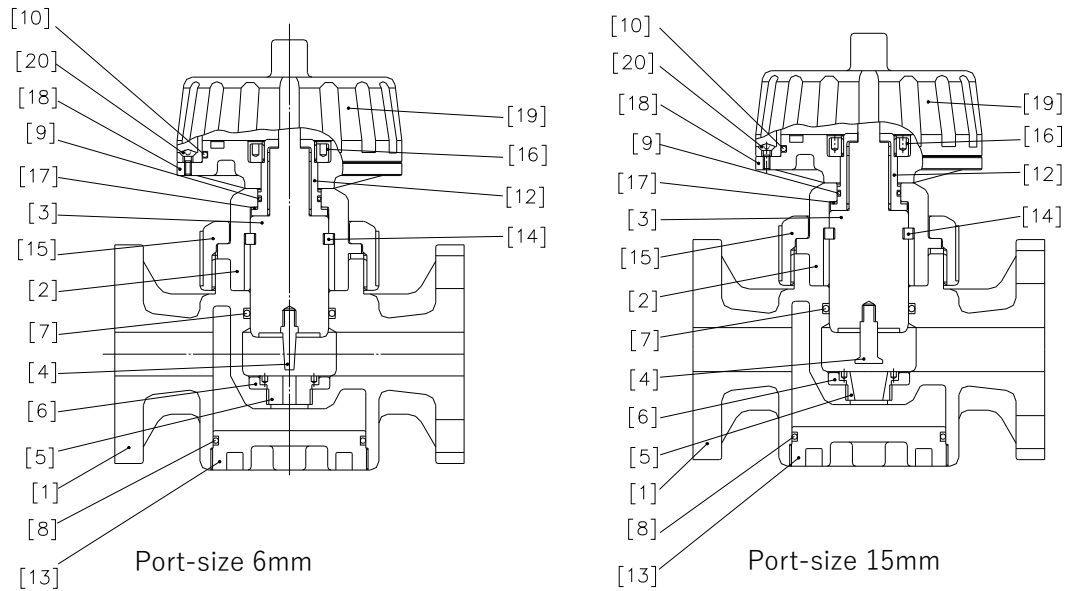
Product Handling

 Warning	
 Forcing	<p>Serious injury can result.</p> <ul style="list-style-type: none"> ▶ If positive pressure gas is used for our resin piping material, a dangerous condition may occur due to the repulsive force peculiar to compressible fluids even if the pressure is the same as the water pressure. Therefore, be sure to take safety measures for the surrounding area, such as covering the piping with protective materials. If you have any questions, please contact us separately. ▶ When conducting a pipe leak test after completion of piping construction, be sure to check with water pressure. Contact us in advance if you are unavoidable to test with a gas.

 Caution	
 Prohibition	<p>The valve can be damaged, or leak.</p> <ul style="list-style-type: none"> ▶ Do not step on the valve or place heavy objects on it. ▶ Keep away from fire and hot objects. ▶ Do not use for fluids with viscosities higher than 35cp. ▶ Never disassemble the valve travel indicator.
 Forcing	<p>There is a danger of injury.</p> <ul style="list-style-type: none"> ▶ Secure sufficient space for maintenance and inspection when piping. <p>The valve can be damaged, or leak.</p> <ul style="list-style-type: none"> ▶ Keep the pressure and temperature of the fluid within the allowable range. (The maximum allowable pressure includes water hammer pressure.) ▶ Use a valve of suitable material for the operating conditions. (Depending on the type of chemical liquid, the parts may be damaged. Contact us in advance for details.) ▶ Use fluids containing crystalline material under conditions that do not recrystallize. ▶ Avoid any place where the valve is constantly exposed to splashes of water and dust, or direct sunlight, or protect the valve with a cover or the like to cover the entire area. ▶ Perform maintenance on a regular basis referring to "8. Inspection items." Pay particular attention to temperature changes and aging during long-term storage or shutdown or use. ▶ Attach a strainer (60 mesh) on the upstream side if there is a risk of dirt or foreign matter entering the product.

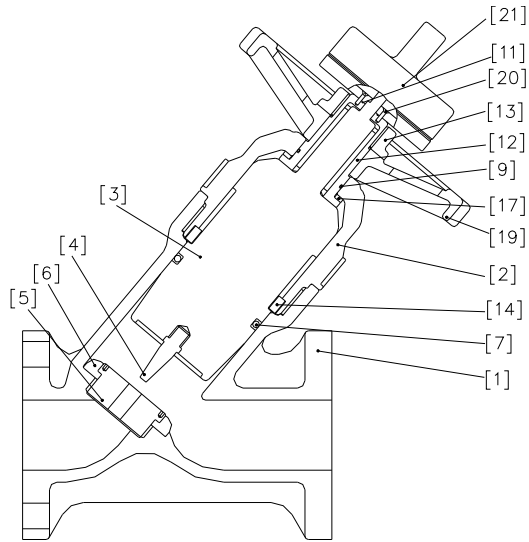
3. Name of each part

15、20 mm

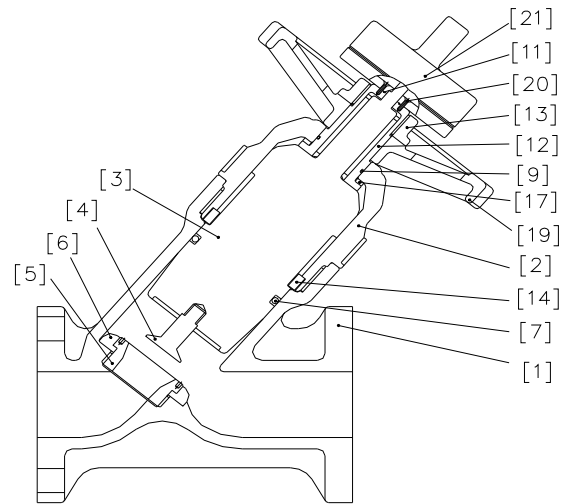


[1]	Body	[8]	O- type retaining ring (B)	[16]	Nut
[2]	Bonnet	[9]	O- type retaining ring (C)	[17]	Thrust ring
[3]	Cylinder	[10]	O- type retaining ring (D)	[18]	Handle Wheel base
[4]	Plug	[12]	Sleeve	[19]	Handle Wheel
[5]	Orifice	[13]	Cap	[20]	Screw
[6]	Seat	[14]	Key		
[7]	O- type retaining ring (A)	[15]	Union nut		

25mm



Port-size 6mm



Port-size 15mm

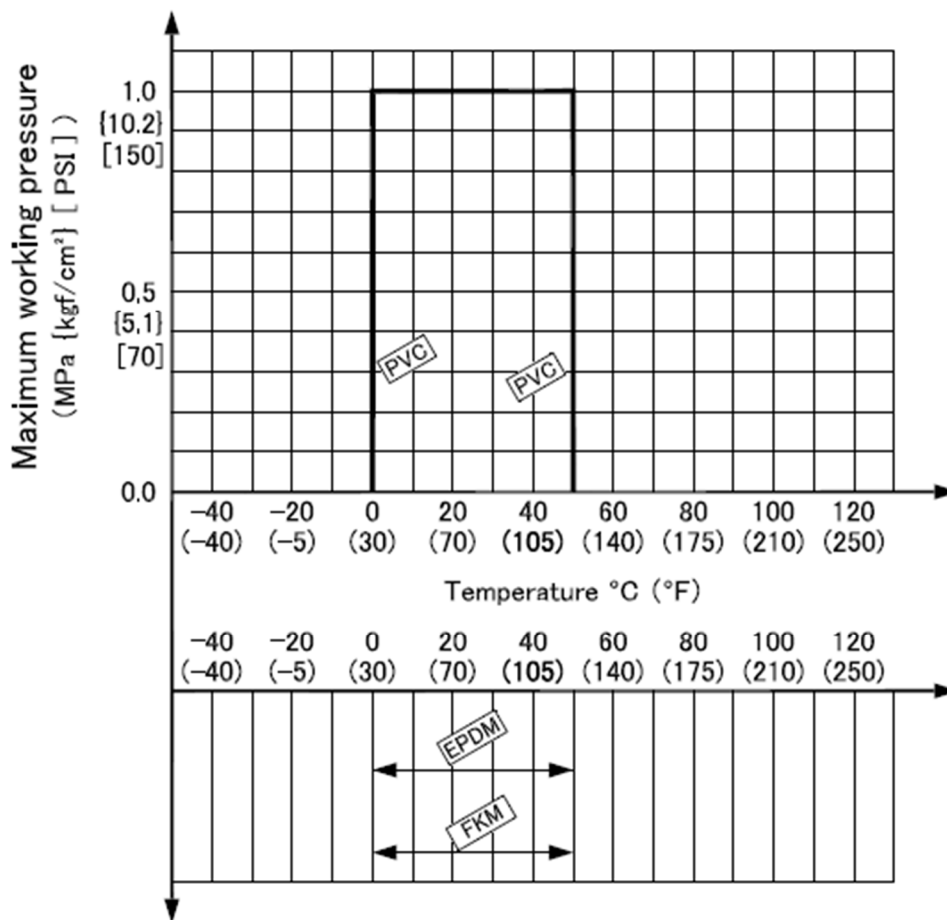
[1]	Body	[7]	O- type retaining ring (A)	[17]	Thrust ring
[2]	Bonnet	[9]	O- type retaining ring (C)	[19]	Handle Wheel
[3]	Cylinder	[11]	O- type retaining ring (E)	[20]	Screw
[4]	Plug	[12]	Sleeve	[21]	Lift indicator
[5]	Orifice	[13]	Cap		
[6]	Seat	[14]	Key		

4. Product Specifications

Model number table

ACTUATION	TYPE	OPERATING SYSTEM	BODY MATERIAL	SEAL MATERIAL	CONNECTION	STANDARD	SIZE	HIGH PURITY SERIES
V	ND	MH	U	*	F	*	***	*
V MANUAL	ND NEEDLE VALVE	MH ROUND HANDLE	U PVC	E EPDM V FKM	F FLANGED	1 JIS 10K 5 JIS 5K D DIN A ANSI	015 15mm 020 20mm 025 25mm	1 LIBRICANT FREE

Relationship between maximum allowable pressure and temperature



5. Piping method

Warning

Forcing

Serious injury can result.

- ▶ Be sure to perform safety inspections of the machine tool and power tool beforehand.
- ▶ When installing piping, be sure to wear the appropriate protective equipment according to the operation details.

Caution

Forcing



The valve can be damaged, or leak.

- ▶ Be careful not to overtighten the pipe support when you remove it with a U band or the like.
- ▶ When installing the product, make sure that no excessive stress such as tension, compression, bending or impact is applied to the piping or valve.
- ▶ Use a connection flange with a full-face seat.
- ▶ Check that the flange standards of each other are correct.
- ▶ Be sure to use the sealing gaskets (AV packing), bolts/nuts, and washers and tighten them to the specified tightening torque. (When other than AV packing, the tightening torque value will change.)
- ▶ Piping is possible on any horizontal or vertical line. However, install the product so that the primary and secondary pipes are always filled with fluid.



Preparations	▶ Torque Wrench	▶ AV packing
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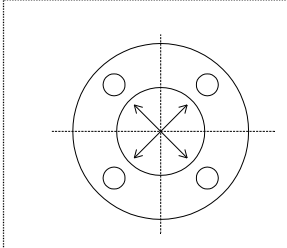
[Procedure]

- 1) Set AV packing between the flanges.
- 2) Insert the washer and bolt from the connecting flange side, insert the washer and nut from the valve side, and tighten temporarily by hand.

 Caution							
 Forcing	The valve can be damaged, or leak. ▶ Flange surface parallelism and shaft misalignment should be less than the values shown in the table below.						
	<table border="1"> <thead> <tr> <th>Size (mm)</th> <th>Shaft misalignment</th> <th>Parallelism (a-b)</th> </tr> </thead> <tbody> <tr> <td>15~25</td> <td>1.0mm</td> <td>0.5mm</td> </tr> </tbody> </table>	Size (mm)	Shaft misalignment	Parallelism (a-b)	15~25	1.0mm	0.5mm
Size (mm)	Shaft misalignment	Parallelism (a-b)					
15~25	1.0mm	0.5mm					




- 3) Gradually tighten to the specified torque value diagonally (see Fig. 5-1) with a torque wrench.

 Caution				
 Forcing	The valve can be damaged, or leak. ▶ Tighten the bolts and nuts of the connection flange diagonally to the specified torque value.			
	Specified torque value		Units: N•m {kgf•cm}	
Size	15 mm	20 mm	25 mm	
PTFE · PVDF (coated)	17.5 {179}	17.5{179}	20.0{204}	
Rubber	8.0 {82}	8.0 {82}	20.0 {204}	



(Fig. 5-1)




6. Operation method

 Caution	
 Prohibition	<p>The valve can be damaged, or leak.</p> <ul style="list-style-type: none"> ▶ Do not open or close the valve with dust or other foreign matter in the fluid. ▶ When fully opening and closing the valve, do not perform any operation (other than the scale) with excessive force. ▶ Never disassemble the valve travel display.
 Forcing	<p>The valve can be damaged, or leak.</p> <ul style="list-style-type: none"> ▶ When setting the scale, be sure to turn the Handle Wheel to the right.

[Procedure]

- ▶ Turn gently to open/close operation.
(Turning the Handle Wheel clockwise decreases the flow rate. Turning the Handle Wheel counterclockwise increases the flow rate.)
- ▶ Turn the Handle Wheel to set the pointer to the desired scale.
- ▶ To fully close the valve, set the pointer to "0" on the scale.
(A rubber seat is used for the valve seat, so water can be completely stopped simply by closing it lightly by hand.)

7. How to disassemble/assemble for parts replacement

 Caution	
 Prohibition	<p>Serious injury can result.</p> <ul style="list-style-type: none"> ▶ Never disassemble the valve travel indicator. ▶ When installing piping, be sure to wear the appropriate protective equipment according to the operation details.
 Forcing	<p>The valve can be damaged, or leak.</p> <ul style="list-style-type: none"> ▶ When installing the product, make sure that no excessive stress such as tension, compression, bending or impact is applied to the piping or valve. ▶ Completely drain the fluid in the piping when replacing the valve or replacing parts. If the fluid does not escape, reduce the fluid pressure to zero. ▶ When removing the bonnet, be sure to fully open the Handle Wheel and remove the bonnet.

<Disassembly>

[Procedure]

- 1) Turn the Handle Wheel counterclockwise to the fully open position.
- 2) Remove the bonnet from the body.
- 3) For 15mm, 20mm, you can also remove the cap on the bottom of the unit.
(Do not scratch the orifice and plug when disassembling.)


<Assembly>

[Procedure]

- 1) Keep the hood fully open when mounting the bonnet.
- 2) The body and bonnet of 15mm, 20mm have convex and concave parts. Align these parts and close the cap nut.
- 3) 25mm has a matching mark on the body and bonnet. Match this part.
- 4) After assembly is completed, turn the Handle Wheel clockwise to the fully closed position and check if the pointer matches the scale of "0".

8. Inspection item

Caution

 Forcing	<p>The valve can be damaged, or leak.</p> <ul style="list-style-type: none"> ▶ Maintenance should be performed every 3 to 6 months as a guide in order to keep the watch in normal condition and use it for a long time. Pay particular attention to temperature changes and aging during long-term storage or shutdown or use. ▶ When removing the valve from the piping when replacing the valve or parts, completely remove the fluid from the piping before starting work. ▶ If any trouble is found, take the appropriate action referring to "9. Cause of malfunction and remedy".
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Daily inspection

Inspection items and inspection methods	Guideline of judgment	Check point	Treatment method
External leakage (visual inspection)	No leakage	Pipe flange connection	① Retighten the pipe bolts to the specified torque. ② Remove the valve from the pipe and re-tighten the pipe bolts. (Ref: 5. Piping method)
		Surface of the entire valve	Remove the valve from the pipe and replace the valve. (Ref: 7. How to disassemble/assemble for parts replacement)
Internal leakage (visual and measurement)	No leakage	Leakage to secondary side when valve is fully closed	Remove the valve from the piping and replace the valve or defective part. (Ref: 7. How to disassemble/assemble for parts replacement)
		Measured values of flowmeters, pressure gauges, etc.	Remove the valve from the piping and replace the valve or defective part. (Ref: 7. How to disassemble/assemble for parts replacement)
Abnormal noise (hearing)	No abnormal noise	Valve	Remove the valve from the pipe and replace the valve. (Ref: 7. How to disassemble/assemble for parts replacement)
		Piping around the valve	Reconfirm the conditions of use (Ref: 2. Handling Precautions)

Periodic inspection**●Guideline for the inspection cycle: 3 months**

Inspection items and inspection methods	Guideline of judgment	Check point	Remedy for malfunctions
Vibration (palpation)	No difference from other parts	Valve	Recheck the operating conditions and remove the source of vibration. (Ref: 2. Handling Precautions)
			Remove the valve from the pipe and replace the valve. (Ref: 7. How to disassemble/assemble for parts replacement)
		Piping around the valve	Recheck the operating conditions and remove the source of vibration. (Ref: 2. Handling Precautions)

Periodic inspection**●Guideline of the inspection cycle: 6 months**

Inspection items and inspection methods	Guideline of judgment	Check point	Remedy for malfunctions
Operability of manual handle (touch)	Rotates smoothly	Manual operation unit	Remove the valve from the pipe and replace the valve. (Ref: 7. How to disassemble/assemble for parts replacement)
Looseness of bolts (visual and palpation)	No Loose	[Flange type] For flange piping	Retighten the pipe bolts to the specified torque. (Ref: 5 Piping method)
Product damage	No scratches, cracks, or deformation	Appearance of the product	Remove the valve from the pipe and replace the valve. (Ref: 7. How to disassemble/assemble for parts replacement)

9. Cause of malfunction and remedy

Caution

Forcing

There is a danger of injury.

- ▶ If any malfunction is found, immediately stop using the product and take appropriate action.
- ▶ When removing the valve from the piping when replacing the valve or parts, completely remove the fluid from the piping before starting work.

Failure phenomenon	Possible cause	Measures and measures
The valve cannot be opened or closed.	Foreign matter caught in valve	Remove foreign matter.
Fluid does not stop	Damage to the valve seat and seat	Body and cylinder replacement ¹⁾
	Foreign matter caught in valve	Remove foreign matter.
Fluid leaks out of valve	Abrasion "spool Ass'y"	O - ring replacement
Fluid leaks even when fully closed (internal leak)	High fluid pressure	Use below the maximum allowable pressure (Ref: 7. How to disassemble/assemble for parts replacement)
	Seat or plug is scratched	Remove the valve from the piping, replace the relevant part, or replace the valve. (Ref: 7. How to disassemble/assemble for parts replacement)
	Missing parts	Remove the valve from the piping and attach the relevant part or replace the valve. (Ref: 7. How to disassemble/assemble for parts replacement)
	Foreign matter caught in valve	Remove the valve from the piping, disassemble it, and remove foreign matter. (Ref: 7. How to disassemble/assemble for parts replacement)
	Piping stress is applied to the	Remove the piping stress

CAUSE OF FAILURE AND HOW TO REMEDY (continued)

Failure phenomenon	Possible cause	Measures and measures
Fluid leaks from valve (external leak)	Cap nut is loose	Retighten the cap nut (Ref: 5. Piping method)
	O-ring is scratched, worn, melted, or altered	Stop using the product immediately, remove the valve from the piping, replace the relevant part, or replace the valve. (Ref: 7. How to disassemble/assemble for parts replacement)
	Scratches or wear are found on the sliding or fixing surfaces of the O-ring.	Stop using the product immediately, remove the valve from the piping, replace the relevant part, or replace the valve. (Ref: 7. How to disassemble/assemble for parts replacement)
	Valve is cracked or broken	Stop using the product immediately, remove the valve from the piping, and replace the valve. (Ref: 7. How to disassemble/assemble for parts replacement)
Valve is corroded or deformed	The watch is exposed to water, chemical liquids, or other liquids.	Stop using the product immediately, remove the valve from the piping, and replace the valve. (Ref: 7. How to disassemble/assemble for parts replacement)

10. Disposal method of residual materials and waste materials

 Warning	
 Forcing	<p>When burnt, toxic gas is generated.</p> <p>▶ When disposing of the product or parts, please dispose of them according to the guidelines of each local authority by a professional disposal company.</p>

Inquiries

Contact the nearest dealer, our sales office, or our web website for inquiries about this product.

[User's manual]

Needle valve
(Manual operation)



<https://www.asahi-yukizai.co.jp/en>

Please note that the content of this manual is subject to change without notice.

April 2024

[User's Manual] Needle valve (for manual operation)