

Instruction Manual

Gate Valve

Series GTV-01





Dembla

CONTENTS

PAGE NO.

1.0 Introduction	2
2.0 Storage&Transportation	3
2.1 Protection	3
2.2 Storage	3
2.3 Transportation	3
3.0 Installation to the pipeline	3
3.1 Witness Viewing	3
3.2 Fitness of flange and pipeline	3
3.3 Installation	4
4.0 Opearation	5
5.0 Maintenance	6
5.1 Daily Maintenance	6
5.2 Possible Fault&Solution	6
5.3 Replacement of wedge	6
5.4 Replacement of Gasket	7
5.5 Replacement of Stem O ring Seal	7
5.6 Replacement of Gland O ring	7



## Instruction for use

Thanks for selecting our product. With correct use, it will give long and reliable service. This manual has been prepared to assist you install, operate and maintain the valve to the maximum efficiency. For easy of reference, it has been divided into sections covering all aspects of use, and it is the users best interests to read it and ensure that it is fully understood.

## Health and Safety

It is always recommended that wherever work is being carried out on a valve that the valve is fully depressured prior to carrying it out, and for the convenience draining of the line may be beneficial. It is essential that the user of the valve is aware of the weight of the components and/or assembles that must be handled and manipulated during installation and maintenance. It is the users responsibility to ensure that safe working practices are followed at all times. Whenever our products are installed, operated, or maintained, it is essential that the staff that undertake these operations be adequately trained. The hazards of pressurised liquids can be served, and it is the responsibility of the users to ensure that trained, competent staff undertake these duties. This manual has been designed to assist, but it can never fully replace quality training in the workplace. Our technical staff will always be available to answer any questions relating to specific problems that may not be covered by this manual.

Our products are designed and manufactured to be fit for purpose, and to a high and reliable standard. This provides a safe product with minimum risk to health when used correctly for the purpose for which it was designed. However, this assumes that the equipment is used and maintained in accordance with the manual, and the user is advised to study this manual, and to make it available to all staff that may need to refer to it.

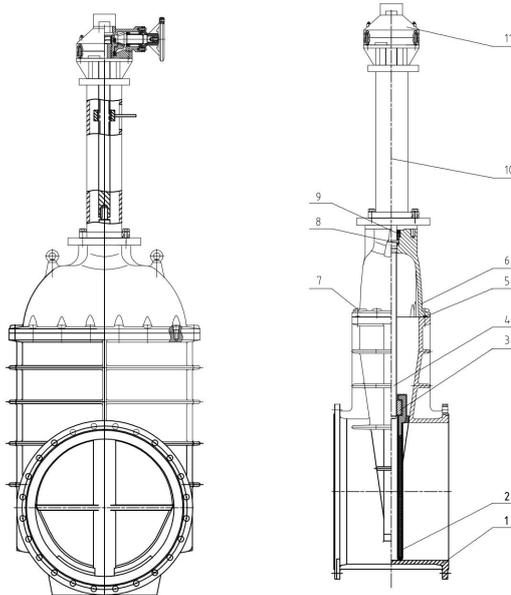
We cannot be held responsible for any incidents arising from incorrect installation, operation or maintenance. The responsibility for this must be rest wholly with the user.

## 1. Introduction

We provides the resilient seat gate valve from DN50 to DN1200. The vertical or horizontal installation is recommended. The valve can also be installed independent of the flow direction.

All gate valves are 100% tested in factory before shipping.

## Sectional drawing and components list



11	Bevel Gear	GGG50
10	Extension stem	Duplex 1.4462
9	O Ring	NBR
8	Packing	PTFE
7	Bolts	A2-70
6	Bonnet	GGG50
5	Bonnet Gasket	NBR
4	Shaft	Duplex 1.4462
3	Wedge Nut	BRASS
2	Wedge	GGG50+NBR
1	Body	GGG50
No.	Name of parts	Materials



## 2. Storage&Transportation

### 2.1 Protection

Delivery of valve should be strictly under "engineering instruction" protection requirements, to ensure that the flange surface, disc sealing ring from harm.

### 2.2 Storage

If the valves need to be stored before installation for some time, they should be kept in the wooden (wicker) boxes of the original delivery, off the ground in a dry and clean indoor area.

### 2.3 Transportation

#### 2.3.1 Packed Valves

Take out the valve from the wooden box or others, If the valve can not be carried by one person (over 25Kgs), then should use certain equipment to lift and carry the packed valves, and hook on to them in specified position (or proper position).

All packaging materials comply with local safety regulations and requirements to ensure safe transportation.

#### 2.3.2 Unpacked Valves

Use appropriate method to lift and transport the unpacked valves and within the carrying limit by tray and protect the machined surface ( flange) from damage. Meanwhile, the rope for lifting should keep certain distance from the valve body to prevent breaking paint. When lifting large diameter valves, use proper tools to load and lift them (like tray, hook, fastener, etc), and with loading balance tools, to avoid sliding or moving during the lifting and carrying. If lifting by a excavator, use proper method to protect the complete valve to avoid damage.

## 3. Installation to the pipeline

### Warning!

- The installation and setting up operator should use appropriate equipment and required to wear personal protective equipment.
- Must relief the pipeline pressure before installation
- Only qualified staff after mechanically trained could install the valves.
- It is forbidden to climb through the valves or its components, or to crane by valves or hand wheel.
- Verify the pipe pressure and temperature limits are within the application standard of the valves.
- Verify the fitness between the fluid media through the pipeline and application field of the valve.

### 3.1 Witness Viewing

3.1.1 Carefully take out the valve from the package without damage, including the valve body, hand wheel etc...

3.1.2 Check the materials shown in the rating label are suitable, as well as the using temperature and pressure., if no rating label, this valve is for general water service under PN16 ( or PN25) and 0-80°C

3.1.3 Forbidden to use the components from third party, to keep long service life of the valves.

### 3.2 Fitness of flange and pipeline

Before installation, check the sealing method and drilling between valves and pipeline.



Bolt list:

DN	PN	Bolts	Quantity	DN	PN	Bolts	Quantity
100	16	M16	8	150	16	M20	8
200	16	M20	12	250	16	M24	12
300	16	M24	12	350	16	M24	16
400	16	M27	16	450	16	M27	20
500	16	M30	20	600	16	M33	20
700	16	M33	24	750	16	M36	24
800	16	M36	24	900	16	M36	28
1000	16	M39	28	1200	16	M45	32

### 3.3 Installation

#### Importance Notice.

- Must clear up the trash in the pipeline before installation.
- Take off the protection materials from the valves.
- Avoid to put valve in the middle of two flanges, then weld the flanges ( for those connection with carbon steel pipe ), which would burn the rubber and cause leakage.
- The passageway center of the valve should align the center of the pipeline.
- To avoid heat or solder rubbish dropping on the wedge, during installation, if possible, should take measures to protect the wedge.
- Dry friction will variate the resilient seat, do not open or close the valve after installation before flow media goes through.
- After installation, should keep the valve in fully open position, and to clear up the solder rubbish in the pipeline with flushing many times, to avoid damage to the wedge.
- After installation, never use the valve as supporter to the pipeline.

#### 3.3.1 Extension stem installation

Before installation if the extension stem and gearbox were packed separately, assemble the extension stem and gearbox firstly.

3.3.1.1 Take out the extension stem from package. Connect the extension with valve bare stem by key or square head.

3.3.1.2 Take out the protection tube from package. Pass the extension stem through the protection tube and connect the protection tube flange with bare stem valve top flange by bolts.

3.3.1.3 If there are two pieces or more extension stem, take out the next extension stem from package. Connect the extension with first extension stem by connector

3.3.1.4 Take out the next protection tube from package. Pass the second extension stem through the protection tube and connect the protection tube flange with first one by bolts. And repeat 3.3.1.3 & 3.3.1.4 if have more extension stem needed.

3.3.1.5 Fix the gear box with top flange of the protection tube by bolts. Gearbox connect with the extension stem by key.

3.3.1.6 If use hand wheel operated directly, Fix the hand wheel in the top of the extension stem.



### **3.3. 2 Extension stem disassembly**

- 3.3.2.1 Remove the bolts between gearbox and top flange of the protection tube.
- 3.3.2.2 Remove the gearbox.
- 3.3.2.3 Remove the bolts between flange of the protection tube and valve top flange
- 3.3.2.4 Remove the protection tube.
- 3.3.2.5 Remove the extension stem and key (If have).
- 3.3.2.5 If there are two pieces or more extension stem, remove the bolts between two flanges of the protection tube.
- 3.3.2.6 Remove the protection tube.
- 3.3.2.7 Remove the extension stem and connector. Repeat 3.3.2.5 to 3.3.2.7 until remove the extension stem from the valve bare stem

### **3.3. 3 Importance Notice.**

To check if the matching flange surface in good status, no trash in the wedge, no damage during the delivery, and the pipeline is already clear.

- 3.3.3.1 Ensure the distance between end flanges of two pipelines enough for installation.
- 3.3.3.2 Ensure the seats and the flanges are clean when installing the gate valve.
- 3.3.3.3 Select the correct type of gasket. Gaskets with the correct flange size must be used.
- 3.3.3.4 When valves are provided with lifting lugs, plates or eye nuts, there must be used to lift the valve.
- 3.3.3.5 Place valves between pipe flanges and insert the bolts..
- 3.3.3.6 Tighten the bolt loosely..
- 3.3.3.7 Tighten the bolt in diagonal sequence to make sure flanges are pulled parallel.
- 3.3.3.8 To fasten the bolts in cross direction with proper torque.

## **4 Operation**

### **General**

The gate valve is suitable for use with water or neutral liquids from 0°C to 80°C. Insulation is essential for external temperature from 0°C to -10°C. The gate valve can be operated by either hand wheel, gearbox or electrical actuator.

#### **4.1 Operation Direction**

- 4.1.1 Valve closing: Operate the stem in clockwise direction.
- 4.1.2 Valve opening: Operate the stem in counter clockwise direction.

#### **4.2 Possible risk:**

- 4.2.1 Mechanical: If operate the valve manually, ensure there is enough space to operate the valve to avoid hand clamping.
- 4.2.2 Electric: Since the static electricity could cause the explosion, the valve should be ground connection.
- 4.2.3 Temperature: If the outside temperature is below 5 °C or above 40 °C, the valve surface will be very cold or hot, should take shield to protect the internal components of the valve, like O-ring, rubber kits, etc. People who operate the valve should be with protection.
- 4.2.4 Operational: If close the valve too fast, there will be water hammer come from the upstream. And the the water hammer may damage the valve. In any case, should avoid the water hammer.



## 5. Maintenance

Our valve only need the minimum maintenance and no lubrication is required.

### Warning!

- Before open the valve bonnet-relief pressure first and drain the water and pressure by un-fasten flange bolts. Any maintenance to the valve must be under condition that the valve inside is fully pressure relieving to avoid any damage to the worker.
- Any repair in the condition with media, pressure or temperature, should get approval of specialist, and set up working guidance.
- Before disassemble the valve, must ensure that the media left should have no harm to the operator or equipment, and in proper repair temperature.
- All the adjustment and repair operators should use proper equipment and wear job safety wares.
- Only qualified staff after mechanically trained could adjust and repair the valves.

### 5.1 Daily Maintenance:

Except the routine view inspection to ensure the satisfactory operation and sealing, no need the daily maintenance and lubricant.

### 5.2. Possible Fault&Solution

Malfunctions	Causes	Troubleshooting
Could not close the valve	Rubbish in the valve interior	Clean the rubbish
Internal leakage-wedge leak	Not close completely	Use higher torque to close
	Damage of rubber wedge/O ring	Change rubber Wedge/ O ring
Outside leaking from bonnet gasket	Rupture of gasket	Replace new gasket
Leakage from stem	Rupture of O ring seal	Replace all the top O ring
Leakage from gland	Rupture of gland O ring	Replace the O ring

### 5.3 Replacement of wedge

- 5.3.1 Isolate valve and ensure there is no pressure in the pipeline.
- 5.3.2 Counter clockwise stem to put the wedge into slightly open position.
- 5.3.3 Remove hot melt cover to expose the hex bolt. Then remove the bolts.
- 5.3.4 Lift the entire bonnet assembly and wedge from the valve body.
- 5.3.5 Unscrew wedge from the stem.
- 5.3.6 Fit new wedge on wedge nut.
- 5.3.7 Put the bonnet assembly with wedge into valve body.

- 5.3.8 Tighten the hex bolt on the bonnet.
- 5.3.9 The hot cover on the hex bolt is suggested, but not necessary.

#### **5.4 Replacement of Gasket**

- 5.4.1 Isolate valve and ensure there is no pressure in the pipeline
- 5.4.2 Counter clockwise stem to put the wedge into slightly open position.
- 5.4.3 Remove hot melt cover to expose the hex bolt. Then remove the bolts.
- 5.4.4 Lift the entire bonnet assembly and wedge up from the valve body.
- 5.4.5 Replace the gasket on the valve body..
- 5.4.6 Put the bonnet assembly with wedge into valve body.
- 5.4.7 Tighten the hex bolt on the bonnet.
- 5.4.9 The hot cover on the hex bolt is suggested, but not necessary.

#### **5.5 Replacement of Stem O ring Seal**

- 5.5.1 Isolate valve and ensure there is no pressure in the pipeline.
- 5.5.2 Remove hot melt cover to expose the hex bolt. Then remove the bolts.
- 5.5.3 Lift the entire gland assembly from bonnet.
- 5.5.4 Lift the entire bonnet assembly and wedge from the valve body.
- 5.5.5 Unscrew wedge and wedge nut from the stem.
- 5.5.6 Take out the stem from the bonnet and then replace the pair of O-ring on the stem.
- 5.5.7 Put the stem into bonnet.
- 5.5.7 Screw wedge and wedge nut on the stem.
- 5.5.8 Put the bonnet assembly with wedge into valve body.
- 5.5.9 Tighten the hex bolt on the bonnet.
- 5.5.10 Put the gland assembly on the top of the bonnet.
- 5.5.11 Tighten the hex bolt.

#### **5.6 Replacement of Gland O ring**

- 5.6.1 Remove hot melt cover to expose the hex bolt. Then remove the bolts.
- 5.6.2 Lift the entire gland assembly from bonnet.
- 5.6.3 Replace the O-Ring in the gland.
- 5.6.4 Put the gland assembly on the top of the bonnet.
- 5.6.5 Tighten the hex bolt.



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