





## KNIFE GATE VALVE

PRODUCT REF: KG01/KG21

## INTRODUCTION





This document describes the correct use of IVALTEC product, operating, maintenance and spare change. Before applying the present document, user should read and fully understand the safety and installation instructions delivered together with IVALTEC product, which is also downloadable from IVALTEC website: [www.ivaltec.fr](http://www.ivaltec.fr)

In order to attract user's attention on important information and security concerns, following symbols are used.

 <b>Attention and useful information</b>	Information and useful advices to be followed.
 <b>Warning</b>	Security measures must be followed to avoid any human injury.
 <b>Warning</b>	Instruction when using valves in ATEX classified zone
 <b>Related document</b>	Refer to related document for detailed instruction

## Installation

- Remove the valve end protection.
- The inside of the valve should be inspected and blown out with compressed air. Adjacent piping must be clean and free from debris to prevent damage to the valve.
- To prevent valve distortion, inefficient operation or early maintenance problems, support piping on each side of the valve.
- Make sure the valve is positioned such that there is sufficient space so that the hand wheel is easily and safely reached and there is enough clearance for the stem when the valve is open.
- Install the valve according to the flow indicator on the valve body. In some special cases, valves could be installed in the opposite direction of the direction arrow on the body.

 <b>Attention and useful information</b>	The range KG01 is generally with unidirectional seat with an arrow on the body indicating the normal flow direction. In certain cases, valves are suggested to be mounted against the normal direction with the approval of IVALTEC.
 <b>Attention and useful information</b>	To avoid leakage and damage of valves, assure that pipeline flanges are aligned and in parallel with the valve facing surfaces. Supervise correct distance between pipe flanges.
 <b>Attention and useful information</b>	When using machine bolt for blind holes, well measure body thread profound, flange thickness to be sure that bolt length is limited that bolting will not weaken the blind hole when torqueing.
 <b>Related document</b>	Refer to Product datasheet for information.

- Install the valve according to the flow indicator on the valve body. In some special cases, valves could be installed in the opposite direction of the direction arrow on the body with the approval of IVALTEC.
- It is suggested that the valve be kept in the closed position when installing on the pipeline.
- Valves should be installed with the stem in a horizontal position or in a position above the horizontal. Use of valves with the stem position hanging below is not recommended.

- Installation of flanged valves should follow prevailing site standards. The following will also be considered.
- The valve ends and the pipe ends/ flanges should be aligned.
- Pipe work in flanged construction should have the correct gasket thickness.
- Flange bolting for end flanged shall be of the correct size, length and the material for the service conditions.
- Assemble all bolts and hand tight. Evenly tighten the bolts. Refer to Annex of bolting torques

## MOUNTING POSITION AND SUPPORTING


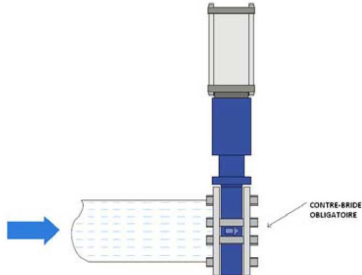
IVALTEC KG01 should be installed vertically with actuator on the top.

On vertical pipeline, KG01 should be installed with horizontally with seat at the lower side.

Other installation positions should be approved by IVALTEC. Otherwise IVALTEC will not be responsible for product damage or malfunctioning.

In general case, valve actuator should be supported for DN>250. The valve on site supporting could be necessary for smaller valves in considering actuator weight and service conditions like vibration or frequent actuating.

When valve is in end line service, a counter flange must be used as shown on the right.

 <p><b>Warning</b></p>	<p>The service pressure is limited to half of normal service pressure. Assure also protection against any human intrusion in the downstream zone of the valve. A counter flange should always be used.</p>	
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## MAINTENANCE AND REPAIR

### Inspection and Maintenance

A periodic maintenance inspection should be recommended at least every 6 months. This periodicity may be shorter depending on the installation environment of the valve, at the evaluation of the installer. It must be shorter also if the fluids conveyed are corrosive or dangerous.

A periodic inspection should include the following:

- Examine the valve stem for cleanliness and lubrication. The stem threads should be coated with a clean grease lubricant.
- Some valves have a grease fitting in the bonnet or yoke. If it is dry, lubricate with a hand grease gun.
- Open and close the valve. The actions should be smooth without any binding of the stem through full travel.
- If valve is in service and under pressure:
  - a. Examine the body to bonnet connection for leakage through the gasket. If leakage is found, tighten the bonnet nuts evenly in a star pattern until the leakage stops. Do not exceed the maximum torque values as specified in the Annexe. If the leakage persists, see "Trouble-shooting" section.
  - b. Check the stem packing for any leakage during the opening and closing action. If a leak is found tighten the gland nuts alternately with no more than a quarter turn on each nut until the leak stops. If the leakage persists, see "Trouble-shooting" section.
  - c. Inspect the exterior of the valves for cleanliness. Remove any dirt, grime or oil from the valve body and bonnet.



DN	50-200	250-500	600-800
Maximum Torque (Nm)	35	50	70

### Trouble-shooting.

The following table will cover the various problems which are common to valves. The information provided will aid in isolating and correcting these problems.

PROBLEM	POSSIBLE PROBLEM ORIGIN	SOLUTION
Problems in operating valve	a. Stem binding during travel b. Stem packing exerts excessive force on the stem c. Stem is damaged	a. Remove dirt and lubricate stem with grease b. Check torque on gland nuts. c. Examine stem through full open and close action. Repair or replace as required
Gland Leakage	d. Gland nuts are loose e. Gasket is damaged	d. Tighten to values as specified. e. Disassemble and install a new gasket.
Seat Leakage	f. Valve not properly seated g. Internal components damaged or worn	f. Check to see if valve is tightly closed g. Inspect internal components and repair as required (for detailed repair consult IVALTEC)

### Packing Replacement.

	<b>Warning</b>	To prevent injury, ensure that all pressure is removed from the valve both upstream and downstream before disassembly.
	<b>Attention and useful information</b>	IVALTEC valves do not contain any dangerous materials. Used packing and seat materials should be collected for treatment or recycling facility in compliance with local regulations.

- a. Check original tightness of valve operation. Remove gland nuts. Lift the gland up the stem clear of the packing chamber.
- b. Remove the existing or defective packing rings with a sharp tool or packing remover. Do not scratch or score the machined surfaces of the stem or packing chamber.
- c. Install new packing with joints at opposite position one to another. Install rings individually using a split ring spacer, compressing each ring by hand tightening +1/4 turns on each gland nut.
- d. When packing chamber becomes filled with packing, reassemble gland and gland flange. Alternately tighten gland flange nuts 1/4 turn at a time until valve packing tightness.
- e. Compare valve operation to original tightness. If valve operation is considerably tighter than original operating tightness, back off 1/4 turn on each gland nut and recheck tightness.
- f. Several hours after a repacked valve has been returned to service, inspect the packing area to ensure full compression, tight bolting and no leakage. Should leakage occur, tighten gland nuts at 1/4 turn increments until leakage stops.

### Seat Replacement.

- a. Loose packing gland and open the valve totally.
- b. Unscrew the connection between the support plates and valve body.
- c. Put valve horizontally with seat up. Draw slightly the gate so that the gate edge is no more opposing the seat retainer (Part 6).

- d. Chase the seat retainer away by using a pin hunt and a hammer. Move slightly the retainer all around until it goes out without being damaged.
- e. Now turn the valve with seat downside. Take away the old seat. Deform the new seat in heart form and put it into the body.
- f. Put the seat retainer evenly into the seat by taping the retainer edge all around. Note that when taping, you need to hold the other side of the retainer to prevent it getting out.

## VALVE OPERATION

By turning the hand wheel counter-clockwise, the stem, to which the gate is attached at the base, is drawn up through the yoke sleeve. By turning the hand wheel clockwise, the action is reversed and the gate is lowered into the closed position.

Disassembly and reassembly instructions: refer to annex in this document.



[Related document](#)

Actuator user instruction in case of valve with actuator.



[Warning](#)

Instruction when using valves in ATEX classified zone

## Identifying IVALTEC Product Ref

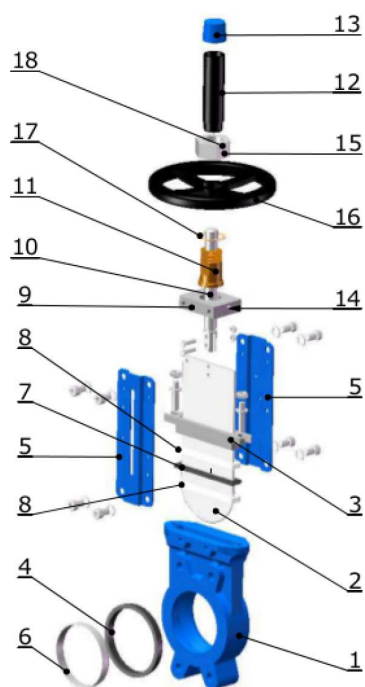
IVALTEC valves can be identified by a distinct Product REF on the identification plate. This plate is located either on the body/bonnet flange or on the supporting plate. The Product REF gives all the necessary information for identifying valve type, material, end connections, pressure rating, etc. Please contact your local sales engineers for detailed information.

## Ordering Parts

All valve's parts can be replaced. With proper care and maintenance, they will provide continuous satisfactory service. Should a part require replacement, please contact your IVALTEC Sales Representative with nameplate information and your order N°.

It is recommended that a spare gasket and set of packing rings for the various valves be kept in stock.

## ANNEX A - Valve Assembly Drawing with Part Number



Handwheel Operated Valve Assembly

18	FIXING SCREW	SS304	SS304
17	WASHER	BRASS	BRASS
16	HANDWHEEL	STEEL	STEEL
15	FIXING SCREW	STEEL	STEEL
14	OIL HOLE	STEEL	STEEL
13	HOOD COVER	PLASTIC	PLASTIQUE
12	HOOD	STEEL	STEEL
11	STEM NUT	BRASS	BRONZE
10	SHAFT	SS304	SS304
9	YOKE	STEEL	STEEL
8	PAKING	PTFE	PTFE
7	O-RING	NBR	EPDM
6	RETAINER	SS304	SS316
5	SUPPORT	STEEL	STEEL
4	SEAT	NBR	EPDM
3	GLAND	DI	CF8M
2	KNIFE	SS304	SS316L
1	BODY	GG25	CF8M
N°	DESIGNATION	KG01W10H-14N	KG01W10H-66E

### Seat type



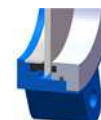
Soft seat



Reinforced soft seat






Metal seat



Bidirectional seat KG21

## ANNEX B - Disassembly and Reassembly Instructions

 <p>Warning</p>	<ul style="list-style-type: none"> <li>To prevent injury, ensure that all pressure is removed from the valve both upstream and downstream before disassembly.</li> </ul> <p><u>In case of dangerous fluid:</u></p> <ul style="list-style-type: none"> <li>Make sure that used parts be decontaminated by qualified person before any handling.</li> <li>Residual fluid should be isolated and treated.</li> </ul>
 <p>Warning</p>	<p>Observe Instruction when using valves in ATEX classified zone. Refer to ATEX manual accompanying the product.</p>
 <p>Related document</p>	<p>Refer to actuator document for detailed instruction.</p>

### Disassembly

- Assured there is no more pressure in the line.
- Take away by unscrewing the lateral security protection in case of automatic valve.
- Unscrew supporting plates from actuator and valve body,
- Unscrew the connection between the stem and gate,
- Dissociate the actuator (handwheel, gear, cylinder, electric motor) from the valve part.
- remove the gland nuts. Take away the packing material.
- Lift the gate out of the body.
- Tape the seat retainer lightly and evenly on its interior periphery with brass bar (or other soft metal) and a hammer until the retainer gets out of the body.
- Take away the seat.

### Reassembly

- Thoroughly clean the valve interior and all components. Remove all scale, oil, grease, or other foreign material. Wipe the seating surface of the gate and valve seat with a solvent soaked cloth. Clean the body and bonnet flange surfaces and all bolting.
- Install seat and its retainer
- Install the gate in the body paying attention to gate side in case of unidirectional valve.
- Install packing material in the body, then the packing gland.
- Fix actuator kit on the gate and the supporting plates.
- Check good valve functioning by opening/closing valve.
- Install the lateral security protection in case of automatic valve.



