

The S-GATE knife gate valve fitted with a pneumatic actuator is dedicated to the automatic shut off of heavy fluids line like slurries and powder. For the right operating of the valve, it is necessary to respect following instructions. **Moreover, if the** valve has to be installed in an explosive hazardous atmosphere, special additional instructions described in the « IMEVMATEX » document have to be respected.

S-GATE's references

Reference	version	Code
S-GATE 170/171	Cast iron body – NBR seat	440
S-GATE 172	Stainless steel body – EPDM seat	445
S-GATE 176	Cast iron body – Metal seat	446
S-GATE 177/178	Cast iron body – bidirectional seat	448
S-GATE 179	Cast iron body – through-going gate	449



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1 / DECLARATION OF CONFORMITY ACCORDING TO CE 97/23

	DECLARATION OF CONFORMITY PED 97/23/CE
Shangh	ai Duqing Corp. Ltd
Decla	res that its range of knife gate valve fulfils the requirements of
DIRECT	IVE OF THE COUNCIL 97/23/CE (P.E.D.) about PRESSURE EQUIPMENT
Catego	ry I (module A) fluids: 1(b) and 2.
The de: Barope:	sign and construction is according to company's quality procedure and the an Standards:
• 1	EN 12266-1 EN 1092-2 EN 558-1
Vr Your	fu WU I Manager
	08 Oct. 2008

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2 / WARNING



2.1 – Danger of injury by limb's crushing or cutting

Never connect the compressed air supply nor operate the knife gate valve before his complete installation on the pipe. The accidental movement of the gate can crush or cut a limb of the operator.

2.2 – Danger of burn

If the S-GATE valve includes a solenoid pilot valve, this solenoid is intended for continuous tensioning. In this case, the coil can become very hot. To avoid any burn injury, do not touch the coil.

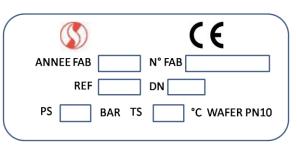
3/ VERIFICATIONS AFTER RECEIVING

3.1- verification of the order's reference

The type of the valve is written on the SECTORIEL's label sticked on the actuator. Verify that the type is the same as the one written on the delivery order and the one written on the order's acknowledgment.

3.2- verification of the dimensions of the valve

The S-GATE valve can have big dimensions, especially in large sizes. Verify that you will have enough space around the pipe, taking into account the mounting's positions indicated at § 5.2.



3.3- verification of the size of the valve

The size of the valve is also written on the SECTORIEL's label stocked on the actuator. Verify that this size is the same as the size of the pipe.

3-4-verification of the standard of the flanges

The S-GATE valves are intented for pipes fitted with PN10 flanges according to EN 1092-1 or with ANSI 150 RF flanges according to ANSI B16.5. Verify that the flanges of the pipe suit the standard of the valve.

3.5- verification of the voltage

If You have ordered the valve with a solenoid pilot valve, the power supply voltage of the solenoid pilot valve is written on the coil. Verify that this voltage matches the voltage intended for the control of the valve.

3.6- verification of the compressed air feeding

The feeding compressed air pressure in written on the name plate of the actuator. Verify that the compressed air network gives the right pressure air and that it is correctly lubricated. If necessary install upstream a filter-regulator-lubricator. You can use the following SECTORIEL reference:

DN	DN 50 à DN 200	DN 250 à DN 400
Référence	UFR+L 1/4"	UFR+L 3/8"
Code	170002	170003

3.7- verification of the fluid's condition and area's temperature

The limits of use of the valve are indicated on the name-plate. Verify that the pressure and temperature of the application are included in these limits. Also verify the area's temperature limits.



4 / STORAGE INSTRUCTIONS

Should the SECTORIEL equipment not be installed immediately after delivery, please follow the below instructions:

4.1. STORE THE EQUIPMENT IN ITS ORIGINAL PACKING MATERIAL

The material is delivered in a packing adapted to its temporary storage. Please keep it in this packaging until installation and respect the below instructions:

4.2. UNPACKING AND CONTENTS CHECKING

In the event of unpacking for check upon delivery, the equipment has to be reconditioned in its original packaging until its mounting. Do not remove the valve inlet protection caps.

4.3. STORAGE

Store the package on a pallet or a shelf in a dry, sheltered, well ventilated area that is not subject to flooding, and if possible in a sealed hangar. Customers are responsible for the protection from theft and damages.

Climatic conditions	Possible range
Room temperature	-20 °C - +80 °C
Air humidity	30% < φ < 70%

4.4. STACKING

Only material delivered in a wooden crate can be stacked. Material delivered on a pallet, in a carton or Pal-Box[®] packaging shall not be stacked.

4.5. PROLONGED STORAGE

Should the material be stored for several months, the steel components (e.g. the valve) have to be treated with oil or grease protective coating.

Please regularly check the material condition.

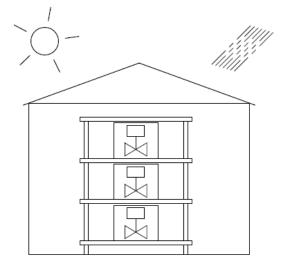
5 / MOUNTING'S INSTRUCTIONS

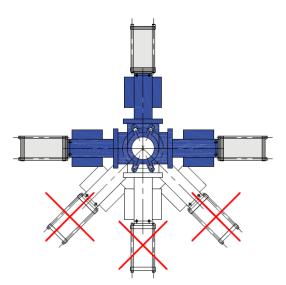
5.1 – Place of installation

The automatic S-GATE valve can be installed either indoor or outdoor, tacking into account the temperature's limits indicated at § 3.7. The protection grade of electrical parts is IP 65.

5.2 - Mounting's positions

The S-GATE valve can be installed in the three positions indicated on the opposite drawing. When installation horizontally provide a jack support.







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5.3 – Direction of the valve

The S-GATE valves, range 170, 172 and 176 have a unidirectional in-line tightness. During the mounting's operations, take care of the direction of the fluid indicated by the arrow stamped on the body of the valve.

In the case of use on powder or pellets, install the valve in the opposite direction of the arrow. (excepted in case of use with a deflector).

The S-GATE range 178 is bidirectional. It can be installed in both directions.

5.4 - Support of the piping

For the S-GATE of large sizes having a heavy weight in relation to the solidity of the pipe, it is absolutely necessary to plan an independent of the pipe support. Also the valve cannot itself support the pipes that have to be themselves supported.

Weight of the S-170 valves (kg)

Size	50	65	80	100	125	150	200	250	300	350	400
Weight	9	11	12	13	18	22	40	67	82	130	165

5.5 - Alignement of the piping

Before the installation of the valve, make sure that the upstream and downstream pipes are right aligned and that the flanges' parallelism.

5.6 – Cleaning of the piping

Before the installation on the valve on the pipe, clean carrefully inside the valve with water or compressed air. Verify the miss of weld beads or metal chips that could damage the internal parts of the valve.

5.7 - Carrying of the valve

During the mounting of the valve on the piping, use appropriated means of lifting (overhead crane, lift truck, tackle,..) The valve has to be right positioned and without axial stress during the fixing operation.

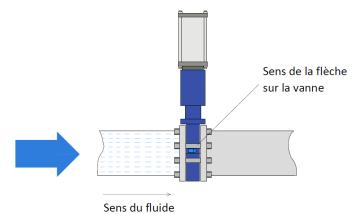
5.8 - Preparation of the flanges' faces

Before positioning the valve between the two flanges, clean carrefully the two flanges' surfaces and the two valve' s gasket surfaces. Verify that there is no harshness. Select flanges' gaskets adapted to the right size, to the right flanges'standard and to the fluid flowing through the valve

Informations données à titre indicatif et sous réserve de modifications éventuelles

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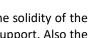






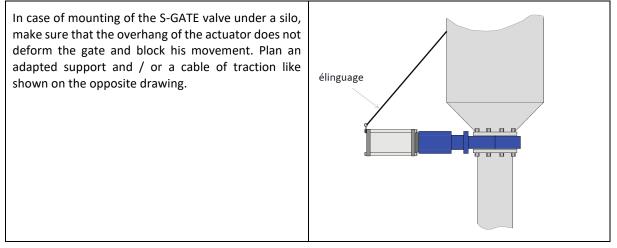
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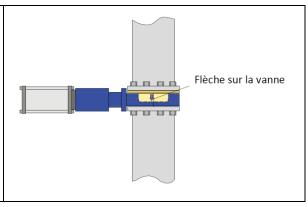


5.9 – Installation under a silo

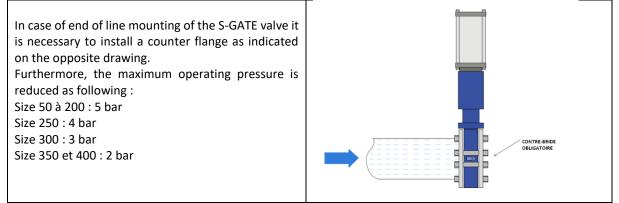


5.10 – Installation with a deflector

In case of mounting of the S-GATE with a deflector, insert this one between the upper flange of the pipe and the valve like indicated on the opposite drawing. Do not forget to take into account the direction of the flow indicated by the arrow on the body. Also do not forget the gasket between the flange and the deflector.



5.11 – End of line mounting



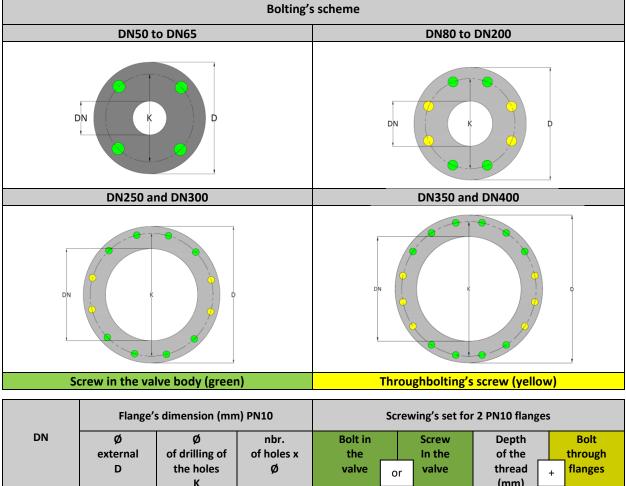
5.12 – Installation with the simple effect kit

See the special mounting's drawing in the document « S-GATE SIMPLE EFFECT KIT »

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5.13 – Fastening on PN10 flanges

Once the valve and the gaskets positions are determinated between the two flanges, choose screws and nuts according to the size of the valve in the table below: use 6.8 minimum quality zinc plated steel bolts. Screw them flowing the torque table indicated below. Make an in cross tightening.



	_		~				+
		К				(mm) 🗋	
50	165	125	4x18	8 x M16-60	8 x M16-25	8	-
65	185	145	4x18	8 x M16-60	8 x M16-25	8	-
80	200	160	8x18	8 x M16-60	8 x M16-30	9	4 x M16-120
100	220	180	8x18	8 x M16-60	8 x M16-30	9	4 x M16-120
125	250	210	8x18	8 x M16-65	8 x M16-30	9	4 x M16-120
150	285	240	8x22	8 x M20-70	8 x M20-35	10	4 x M20-130
200	340	295	8x22	8 x M20-75	8 x M20-35	12	4 x M20-140
250	395	350	12x22	16 x M20-80	16 x M20-40	12	4 x M20-150
300	445	400	12x22	16 x M20-80	16 x M20-40	12	4 x M20-150
350	505	460	16x22	20 x M20-85	20 x M20-45	19	6 x M20-180
400	565	515	16x26	20 x M24-90	20 x M24-50	20	6 x M24-190
450	615	565	20x26	28 x M24-100	28 x M24-55	24	6 x M24-200
500	670	620	20x26	28 x M24-100	28 x M24-55	24	6 x M24-200

Tightening torque (m.kg) for 6.8 zinc plated steel bolts

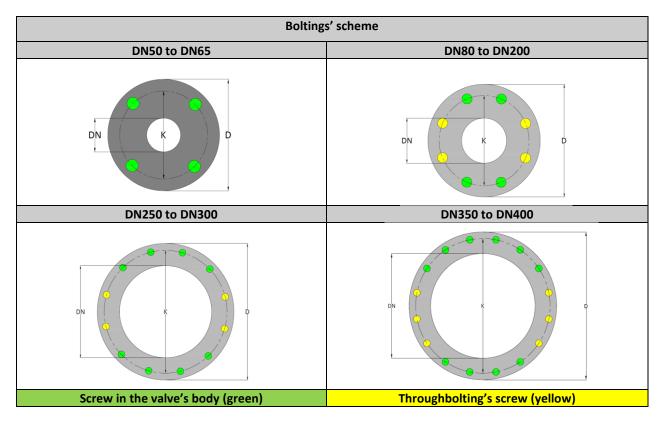
DN	50	65	80	100	125	150	200	250	300	350	400	450	500
Couple	14,6	14,6	14,6	14,6	14,6	29	29	29	29	29	49	49	49



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5.14 – Fastening on ANSI 150

Once the valve and the gaskets positions are determinated between the two flanges, choose screws and nuts according to the size of the valve in the table below:



	Flange's din	nensions (mm) A	NSI 150	Screwing's set for 2 ANSI 150 flanges					
DN	Ø external D	Ø of drilling of the holes K	nbr. of holes x Ø	Bolt in the valve	Screw In the valve	Depth of the thread (mm)	Bolt throught + flanges		
50	152	120,4	4	8 x 5/8"-60	8 x 5/8"-25	8	-		
65	178	134,7	4	8 x 5/8"-60	8 x 5/8"-25	8	-		
80	190	152,4	4	8 x 5/8"-60	8 x 5/8"-30	9	4 x 5/8"-120		
100	229	140,5	8	8 x 5/8"-60	8 x 5/8"-30	9	4 x 5/8"-120		
125	254	215,9	8	8 x 3/4"-65	8 x 3/4"-30	9	4 x 3/4"-120		
150	279	241,3	8	8 x 3/4"-70	8 x 3/4"-35	10	4 x 3/4"-130		
200	343	218,4	8	8 x 3/4"-75	8 x 3/4"-35	12	4 x 3/4"-140		
250	406	362,0	12	16 x 7/8"-80	16 x 7/8"-40	12	4 x 7/8"-150		
300	483	431,8	12	16 x 7/8"-80	16 x 7/8"-40	12	4 x 7/8"-150		
350	533	476,2	12	20 x 1"-85	20 x 1"-45	19	6 x 1"-180		
400	597	539,8	16	20 x 1"-90	20 x 1"-50	20	6 x 1"-190		
450	635	577,8	16	28 x 1-1/8"-100	28 x 1-1/8"-55	24	6 x 1-1/8"-200		
500	813	635	20	28 x 1-1/8"-100	28 x 1-1/8"-55	24	6 x 1-1/8"-200		



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5.15- - connection to the compressed air network

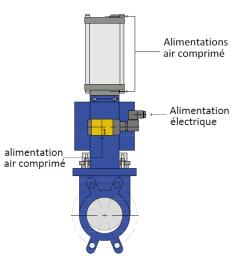
Before making the connection of the valve to the compressed air network, close this one upstream and depressurize it. Double acting actuator: lower port is for valve opening / upper port is for valve closing.

 If you have ordered the S-GATE valve with the 341 P pilot valve: simply connect the compressed air supply to the port 1.

Tube connection Ø					
DN50 to 200	DN250 to 400				
G 1/8"	G 1/4"				

2. If you directly control from a 5/2 pilot valve: connect the opening air supply to the lower port of the actuator. Connect the closing air supply to the upper port of the actuator.

Port connection Ø			
DN50 to 300	DN350 to 400		
G 1/4"	G 3/8"		



5.16- connection to the electrical control network

If you have ordered the S-GATE valve with the BM 520 solenoid pilot valve: the electrical connection has to me made by a skilled worker and according to the existing standards. Before starting, switch off the supplying electrical network. According to the power supply voltage, the components have to be connected to the earth according to the local existing standards.

Standard coil: introduce the cable into the cable grip and the packing gland (PG9).Connect the blades of the cable to the terminal strip of the coil and to the ground connector.

5.17 – Functioning's test

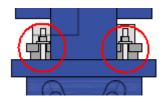
Put slowly the pipe in pressure. In case of a hydraulic test of the piping, do not exceed the max. pressure of the valve.

- 1. Open the compressed air supply network
- 2. Supply the solenoid pilot valve with electricity
- 3. If you have ordered the valve with the 341 pilot valve, use the manual screw to verify that the valve is correctly opening and closing. (visually follow the movement of the gate)
- If you directly control though a 5/2 pneumatic pilot valve
 Switch the pilot valve in any position and verify that the related movement of the gate is occurring. (visually follow the movement of the gate)



5.18- tighten of the stuffing box

The knife gate valves are always delivered with a loosen stuffing box. After having put the pipe under pressure, verify the tightness at the packing of the gate and if a leak is stated, tighten more if necessary (in a cross way). Take care not to overtighten: it could block the movement of the gate. Also verify that there is no contact between the gate and the stuffing box.



Maximum tightening torque (N.m) for stuffing box's nuts

DN	50	65	80	100	125	150	200	250	300	350	400	450	500
Torque	20 Nm			30 Nm		35 Nm							

6 / MAINTENING'S INSTRUCTIONS

Make the valve regulary operate: it will avoid sticking or fouling phenomena. We advise to make at least one opening/closing cycle per month. Periodically verify the state of the valve, especially taking care to following points: in-line tightness, packing tightness and functioning of the actuator.

6.1 – Before any operation

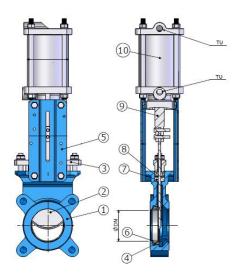
6.1.1 - Depressurize, drain and bring the pipe on which the valve is fitted to room temperature.

6.1.2 – Close the compressed air supply and depressurize the actuator.

6.1.3 – Switch off the electrical supply of the pilot valve if any

6.1.4 – Wear adapted protection's equipements.

6.1.5 – Plan the appropriated means of lifting for the maintenance operations.



6.2 – Maintenance of the valve

In case of in-line leakage, verify the state of the gate (1) and the seat (4). Replace it if necessary.

Spare parts codes list :

DN	NBR	EPDM	FKM	PTFE	Gate	Standard	Graphite
	seat	seat	seat	seat		packing	Packing
50	985500	985520	985560	985540	985400	985600	985620
65	985501	985521	985561	985541	985401	985601	985621
80	985502	985522	985562	985542	985402	985602	985622
100	985503	985523	985563	985543	985403	985603	985623
125	985504	985524	985564	985544	985404	985604	985624
150	985505	985525	985565	985545	985405	985605	985625
200	985506	985526	985566	985546	985406	985606	985626
250	985507	985527	985567	985547	985407	985607	985627
300	985508	985528	985568	985548	985408	985608	985628
350	985509	985529	985569	985549	985409	985609	985629
400	985510	985530	985570	985550	985410	985610	985630



In case of leakage at the stuffing box (7): tighten it again in a reasonable range. Verify that the gate can still move. If the leakage continue, remake the packing, using a set indicated in the table above.

6.3 – Maintenance of the actuator

In case of leakage or blocking of the actuator (10), replace the seals or the complete actuator.

Spare parts codes :

DN	Seal Kit	Complete actuator	DN	Seal Kit	Complete actuator
50		035010	200	985693	035016
65	985690	035011	250	985694	035017
80		035012	300	965094	035018
100	985691	035013	350		035019
125	985692	035014	400	985695	035020
150	963092	035015	450		on request

6.4 - Maintenance of the pilot valve

In case of damage on the pilot solenoid valve, firstly verify the state of the coil.

En cas de dommage sur l'électrovanne-pilote, vérifier d'abord l'état de la bobine.

Spare parts codes type 341P :

DN5	0 to 200 – 341P01	pilot	DN250 to 400 – 341P02 pilot			
Voltage	Coil	Complete pilot	Voltage	Coil	Complete pilot	
230V CA	980240	042450N	230V CA	980240	042460N	
24V CA	980241	042451N	24V CA	980241	042461N	
48V CA	980242	042452N	48V CA	980242	042462N	
110V CA	980243	042453N	110V CA	980243	042463N	
12V CC	980244	042454N	12V CC	980244	042464N	
24V CC	980245	042455N	24V CC	980245	042465N	

Spare parts codes type BM 520 :

DN50 to 400 – BM 520 pilot					
Voltage	Coil	Complete pilot			
230V CA	980550	042490			
24V CA	980551	042491			
24V CC	980552	042492			



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7 / HELP FOR TROUBLE SHOOTING

Despite an order to open or close the valve stays in position	Verify the compressed air supply (flow + pressure)	
	Verify the tightness of the actuator	
	Verify the lubrication of the actuator	
	Verify the power supply of the pilot valve	§ 5.15
	Verify the absence of foreign body in the pilot valve	
	Verify the state of the coil	
	Verify the absence of foreign body blocking the gate	
No flow or very low flow in open position	Verify the upstream pressure in the pipe	
	Verify the absence of foreign body blocking the gate	
In line leakage despite the valve is closed	Verify the direction of installation of the valve	§ 5.3
	Verify the stat of the seat	§ 6.2
Leakage at the stuffing box	Verify the state of the packing §	
Leakage between the valve and the flange	Verify the state of the flanges' gaskets and the screw §	
Self heating of the actuator	Verify the lubrication of the actuator	

8 / INSTRUCTION FOR WASTE DISPOSAL AND RECYCLING OF THE PRODUCT

The S-GATE valve includes no dangerous material. After the equipment mounting, the packaging materials have to be collected and provided to an approved disposal and recycling facility.

Our valve does not include dangerous material. At the end of the life of the product, after having removed the valve from the pipe, the user has to ask a recycling company to sort out the metals parts of the valve. For information, following materials families are included in this valve: carbon steel, stainless steel and aluminum.

For the electrical parts of the valve, they must be separated and given to a recycling company according to EC 2002/96 regulation.





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