

Wafer Bidirectional Knife Gate Valve

REFERENCE TECHNICAL DATA



1. Description

The UP series knife gate valve is a bidirectional valve deals with flow in both directions, while offering 0 leakage. The u-shape peripheral seat design ensures full-port flow and non-clogging shutoff. It is suitable for media such as pulp stock, chemicals, sludge, bio mass, slurry and water.

2. Technical Data

Size: DN 50 to DN 600 (larger diameters on request)

Working pressure:

DN 50 to DN250	10 Bar	NPS 2-10	150 psi
DN 300 to DN450	7 Bar	NPS 12-18	90 psi
DN 500 to DN600	4 Bar	NPS 20-24	60 psi

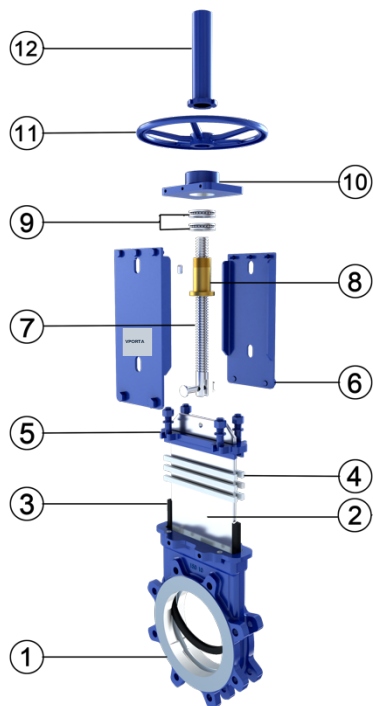
Standard flange connection:

EN1092	GB/T 9113
ASME B16.5	AS 2129/4087
JIS B2220	Others on request

Application:

Pulp and Paper/ Mining /Waste Water Treatment/ Food and Beverage/
 Chemical Plants/ Power Plants/ Steel Industry/Etc.

3. Design Features



STANDARD PART LIST

Parts	GGG40
1. Body	GGG40
2. Gate	304SS
3. Seat	Viton/EPDM
4. Packing	PTFE
5. Gland	WCB
6. Yoke	45#
7. Stem	2Cr13
8. Stem Nut	Brass
9. Thrust Bearing	65Mn
10. Bearing Housing	WCB
11. Hand wheel	GGG30 (Epoxy Coated)
12. Stem Protector	304SS
13. Fasteners	A2-70

Note: Hand wheel nut is available for valve without stem protector. Non-stainless parts are epoxy coated.

BODY:

- Integral body design ensures easy assembly and 0 shell leakage.
- Full port design minimizes pressure drop and maximize flow capacity.
- Cavity free bore prevents valve body from any particle accumulation.

GATE:

- Beveled knife edge provides strong cutting stress and tight sealing.
- Gate thickness can be increased to meet higher pressure.
- Gate surface is well polished at both sides for tight seal and less jamming.

SEAT:

- U-shaped elastomer seat provides a peripheral seal along the edge of the gate and ensures tight seal in both flow directions.

Other:

- Stem cover is available to ensure long service life for stem.
- Two thrust bearings minimize operation torque.
- Grease nipple is available for bearing lubrication.



4. Actuator Options

Manual

Hand wheel (Rising & Non-rising Stem)
 Bevel Gear
 Chain wheel
 Lever

Automatic

Electric
 Pneumatic (single & double-acting)
 Hydraulic

***Note: for other options, please contact us for availability.**

Accessories

Actuator Manual Override
 Stem Extension
 Positioner
 Proximity Switches

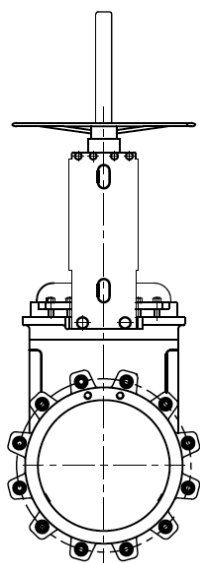
Locking Device
 Solenoid Valve
 Limit Switches
 ISO Mount

5. Other Options

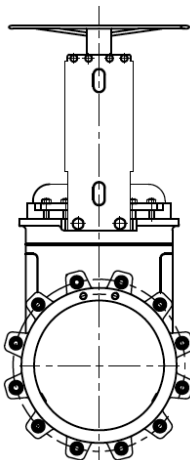
Semi Lug Design

Fabricated Valve

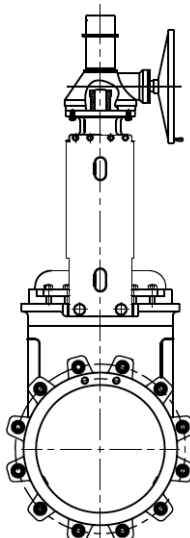
Other materials for valve



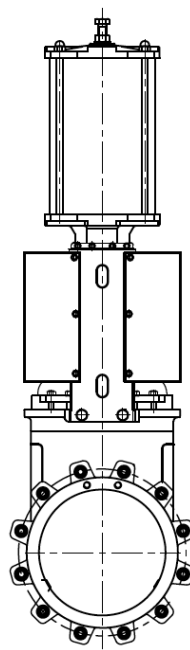
Rising Stem Valve



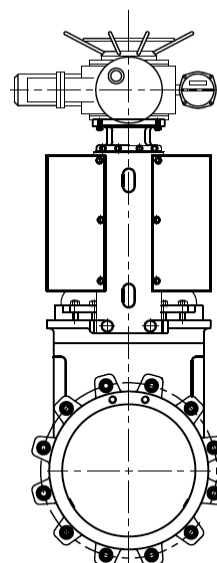
Non-rising Stem Valve



Bevel Gear Valve



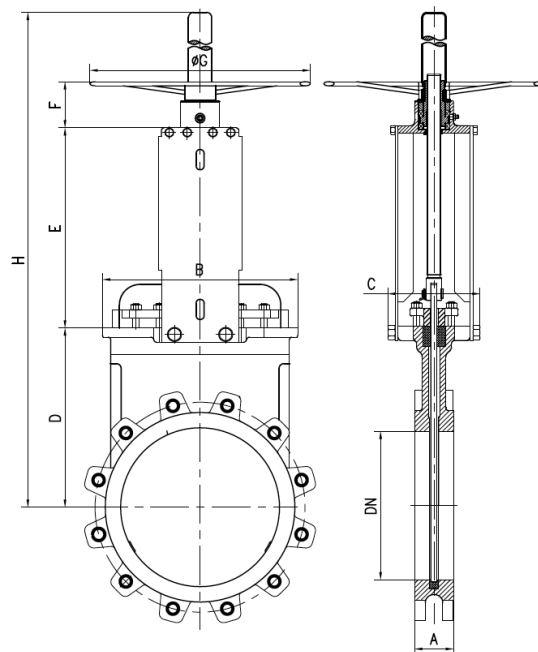
Pneumatic Valve



Electric Valve

Dimension I – Hand Wheel Operated Valve (Rising Stem)

- Standard Manual Actuator
- Including:
 - ⊕ Hand Wheel
 - ⊕ Stem
 - ⊕ Stem Nut
- Size Range:
 - ⊕ DN50-DN400
 - ⊕ Gearbox is suggested for size $\geq$ DN 450
- Options:
 - ⊕ Stem Cover
 - ⊕ Stem Extension
 - ⊕ Side Cover for gate safety
 - ⊕ Rod-type Yoke
 - ⊕ Locking Device

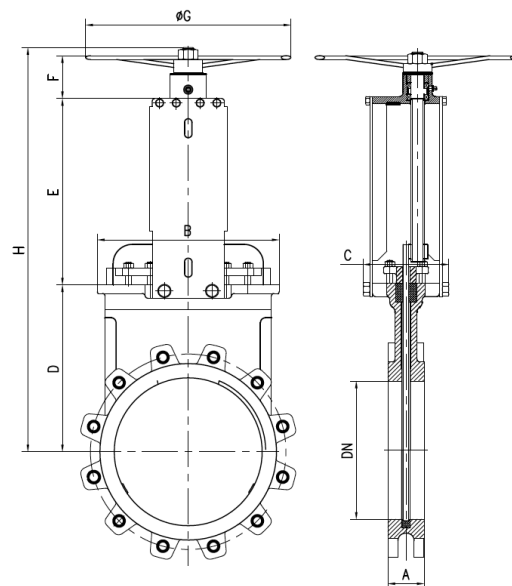


DN	A	B	C	D	E	F	G	H	Weight (kg)
50	48	130	106	105	129	85	180	400	9
65	48	145	106	125	147	85	180	446	11
80	51	160	106	140	168	85	200	497	12
100	51	180	106	155	192	85	200	565	16
125	57	215	120	185	215	87	250	655	20
150	57	215	130	200	245	87	280	720	25
200	70	280	130	225	302	105	300	880	43
250	70	330	140	275	355	105	350	1045	62
300	76	380	160	325	401	105	400	1175	78
350	76	440	180	370	465	117	450	1345	112
400	89	490	180	435	511	117	450	1505	154

Note: Valve $\geq$ DN400 is flange type.

Dimension II – Hand Wheel Operated Valve (Non-rising Stem)

- Application: For the installation where space is limited
- Including:
 - ⊕ Hand Wheel
 - ⊕ Stem
 - ⊕ Stem Nut (fixed to gate)
- Size Range:
 - ⊕ DN50-DN400
 - ⊕ Bevel Gear is suggested for size $\geq$ DN 450
- Options:
 - ⊕ Side Cover for gate safety
 - ⊕ Rod-type Yoke
 - ⊕ Locking Device

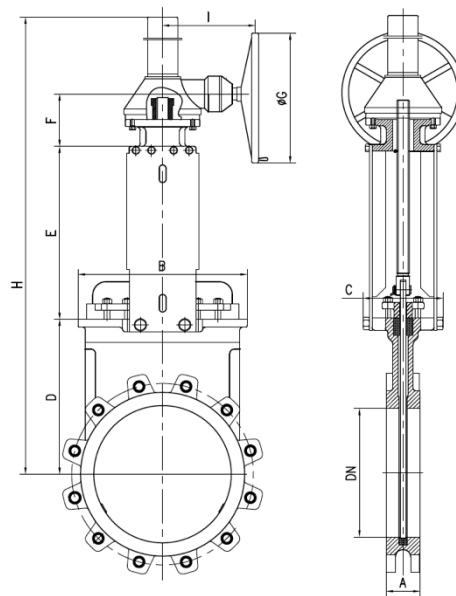


DN	A	B	C	D	E	F	G	H	Weight (kg)
50	48	130	106	105	129	85	180	400	9
65	48	145	106	125	147	85	180	446	11
80	51	160	106	140	168	85	200	497	12
100	51	180	106	155	192	85	200	565	16
125	57	215	120	185	215	87	250	655	20
150	57	215	130	200	245	87	280	720	25
200	70	280	130	225	302	105	300	880	43
250	70	330	140	275	355	105	350	1045	62
300	76	380	160	325	401	105	400	1175	78
350	76	440	180	370	465	117	450	1345	112
400	89	490	180	435	511	117	450	1505	154

Note: Valve $\geq$ DN400 is flange type.

Dimension III – Bevel Gear Operated Valve

- Mainly applied to valve size $\geq \text{DN}450$
- Including:
 - ⊕ Gearbox (Standard Ratio: 4.5:1) with hand wheel
 - ⊕ Stem
 - ⊕ Stem Protector
- Options:
 - ⊕ Locking Device
 - ⊕ Stem Extensions
 - ⊕ Rod-type yoke
 - ⊕ Chain wheel
 - ⊕ Rising/Non-rising Stem type

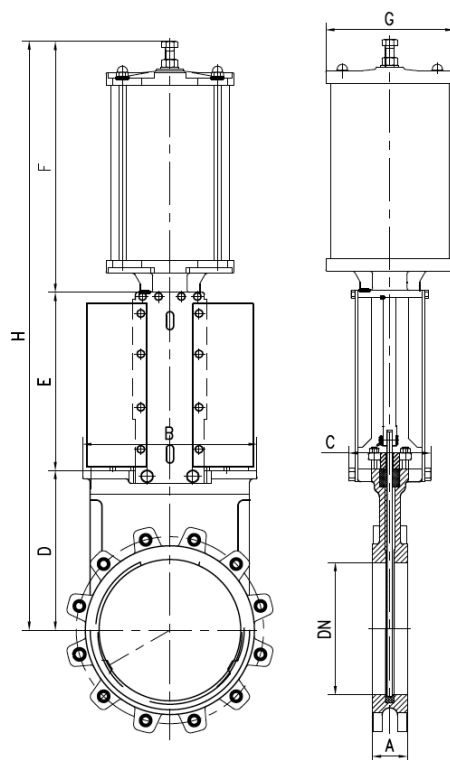


DN	A	B	C	D	E	F	G	H	I	Weight (kg)
200	70	280	130	225	302	105	310	1055	150	60
250	70	330	140	275	355	105	310	1210	150	88
300	76	380	160	325	401	105	310	1390	170	103
350	76	440	180	370	465	117	310	1570	170	163
400	89	490	180	435	511	117	310	1720	170	204
450	89	555	240	480	580	178	460	1780	233	238
500	114	590	270	520	640	178	460	1910	233	265
600	114	690	270	625	740	178	460	2180	233	300

Note: Valve $\geq \text{DN}400$ is flange type.

Dimension IV – Double Acting Pneumatic Valve

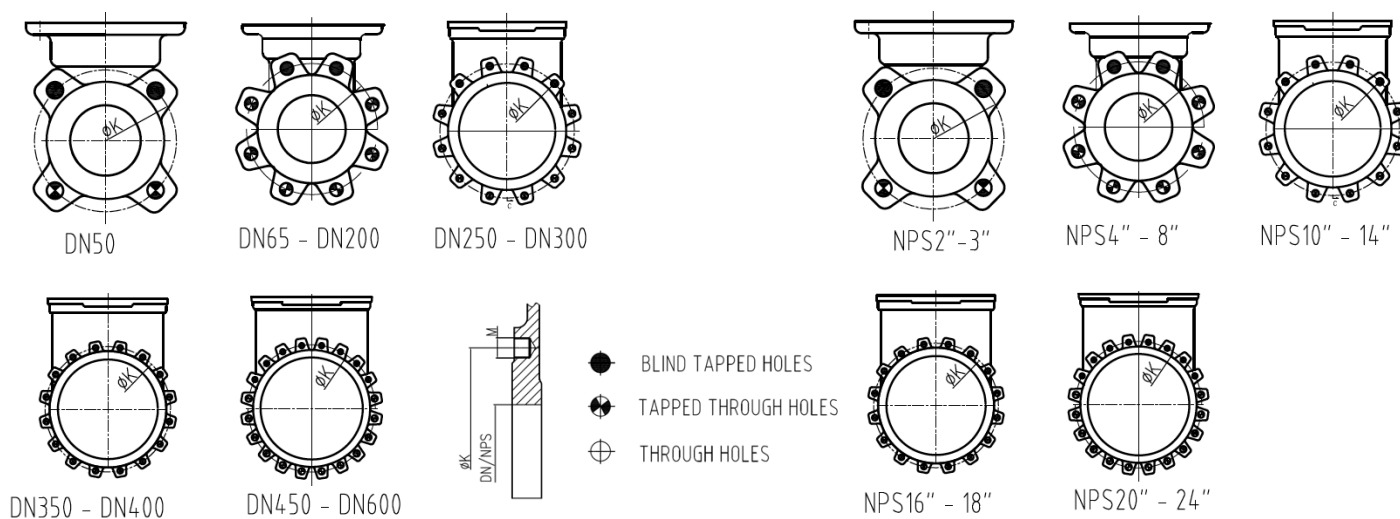
- Standard DA pneumatic actuator including:
 - ⊕ ≤DN200 : Aluminum Cylinder
 - ⊕ ≥DN250 : WCB cylinder (Epoxy Coated)
 - ⊕ WCB caps (Epoxy Coated)
 - ⊕ #45Steel+Cr Piston Rod
- Size Range: DN50-DN600
- Air Supply Pressure Range
 - ⊕ 4 bar to 7 bar.
- Options:
 - ⊕ Gate cover for safe operation
 - ⊕ Manual override
 - ⊕ Locking Device
 - ⊕ Air tank for fail-safe operation
 - ⊕ Limit Switch
 - ⊕ Positioner
 - ⊕ Solenoid Valve
 - ⊕ Flow Regulator



DN	A	B	C	D	E	F	G	H	Cylinder	Connect	Weight (kg)
50	48	130	106	105	129	230	100	465	C80/60	F1/4	15
65	48	145	106	125	147	245	100	520	C80/75	F1/4	17
80	51	160	106	140	168	270	120	580	C100/85	F1/4	18
100	51	180	106	155	192	300	120	650	C100/100	F1/4	22
125	57	215	120	185	215	330	150	730	C125/135	F1/4	29
150	57	215	130	200	245	350	150	795	C125/160	F1/4	34
200	70	280	130	225	302	440	195	970	C160/210	F3/8	69
250	70	330	140	275	355	505	240	1135	C200/260	F3/8	101
300	76	380	160	325	401	550	280	1275	C250/310	F3/8	138
350	76	440	180	370	465	620	380	1450	C250/360	F3/8	210
400	89	490	180	435	511	670	395	1620	C300/410	F3/8	250
450	89	555	240	480	580	710	395	1770	C300/460	F3/8	310
500	114	590	270	520	640	800	425	1960	C320/510	F3/8	347
600	114	690	270	625	740	910	425	2275	C320/610	F3/8	392

Note: Valve ≥ DN400 is flange type.

Dimension V – FLANGE AND BOLTING DETAILS



EN 1092

DN	K	n°	M	T	  
50	125	4	M-16	11	2 - 2 - 2
65	145	4	M-16	11	2 - 2 - 2
80	160	8	M-16	11	2 - 6 - 6
100	180	8	M-16	11	2 - 6 - 6
125	210	8	M-16	11	2 - 6 - 6
150	240	8	M-20	14	2 - 6 - 6
200	295	8	M-20	14	2 - 6 - 6
250	350	12	M-20	18	4 - 8 - 8
300	400	12	M-20	18	4 - 8 - 8
350	460	16	M-20	22	6 - 10 - 10
400	515	16	M-24	24	6 - 10 - 10
450	565	20	M-24	24	8 - 12 - 12
500	620	20	M-24	24	8 - 12 - 12
600	725	20	M-24	24	8 - 12 - 12

ANSI B16.5

DN	K	n°	M	T	  
2"	4 3/4"	4	5/8" UNC	3/8"	2 - 2 - 2
2 1/2"	5 1/2"	4	5/8" UNC	3/8"	2 - 2 - 2
3"	6"	8	5/8" UNC	3/8"	2 - 2 - 2
4"	7 1/2"	8	5/8" UNC	3/8"	2 - 6 - 6
5"	8 1/2"	8	3/4" UNC	3/8"	2 - 6 - 6
6"	9 1/2"	8	3/4" UNC	1/2"	2 - 6 - 6
8"	11 1/2"	8	3/4" UNC	1/2"	2 - 6 - 6
10"	14 1/2"	12	7/8" UNC	3/4"	4 - 8 - 8
12"	17"	12	7/8" UNC	3/4"	4 - 8 - 8
14"	18 1/2"	16	1" UNC	7/8"	4 - 8 - 8
16"	21 1/2"	16	1" UNC	1"	6 - 10 - 10
18"	22 1/2"	20	1 1/8" UNC	1"	6 - 10 - 10
20"	25"	20	1 1/8" UNC	1"	8 - 12 - 12
24"	29 1/2"	20	1 1/4" UNC	1"	8 - 12 - 12

Appendix – Actuator Selection Data

DN	Thrust (N)	Torque (N*M)	# of Turns	Stem Size
50	2000	24	15	Tr20*4 LH
65	2300	32	18	Tr20*4 LH
80	2800	35	23	Tr20*4 LH
100	3900	42	28	Tr20*4 LH
125	5600	59	28	Tr22*5 LH
150	6750	78	33	Tr22*5 LH
200	10000	108	37	Tr28*6 LH
250	16000	180	45	Tr28*6 LH
300	25000	219	52	Tr28*6 LH
350	31800	272	60	Tr32*6 LH
400	37500	345	69	Tr32*6 LH
450	40000	488	66	Tr35*6 LH
500	47000	578	73	Tr40*7 LH
600	54000	735	88	Tr40*7 LH

Note: Thrust and Torque data are reference for normal application, for specific conditions, please contact us for further support.