



## CLARKSON SEVERE SERVICE KNIFE GATE VALVES

MODEL KS1

The KS1 is a true bi-directional, zero-leakage ASME Class 150 Knife Gate Valve designed for the rigors of severe service applications



### FEATURES

- True bi-directional flow and zero leakage shut-off; can be installed in either direction
- Heavy cross section precision-molded elastomer seat provides more surface area for superior isolation
- Field-adjustable, patent-pending gate edge seal system prevents leakage through top of valve
- Enclosed body design prevents any leakage to the outside environment
- Full round port and seat design offers low pressure drop across valve and longer service life in abrasive applications
- Standard inlet and outlet replaceable, rotatable Ni-Resist wear rings extend service life
- Modular frame design allows for installation of any standard accessory without modification
- Fully piggable
- Available in raised or flat face

### NOTE

All valves hydrotested per MSS SP-151 and will meet zero leakage isolation from zero to 1.1x Maximum Allowable Working Pressure (MAWP).

### GENERAL APPLICATION

The KS1 has many features designed to improve service life and lower cost of ownership. It is suitable for a wide range of severe service slurry applications in:

- Mining and Mineral processing
- Oil Sands processing
- Pulp and Paper plants
- Coal Preparation plants
- Power
- Steel processing

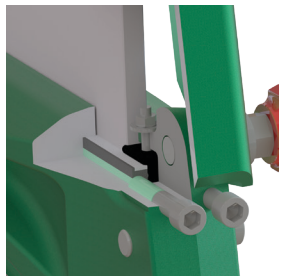
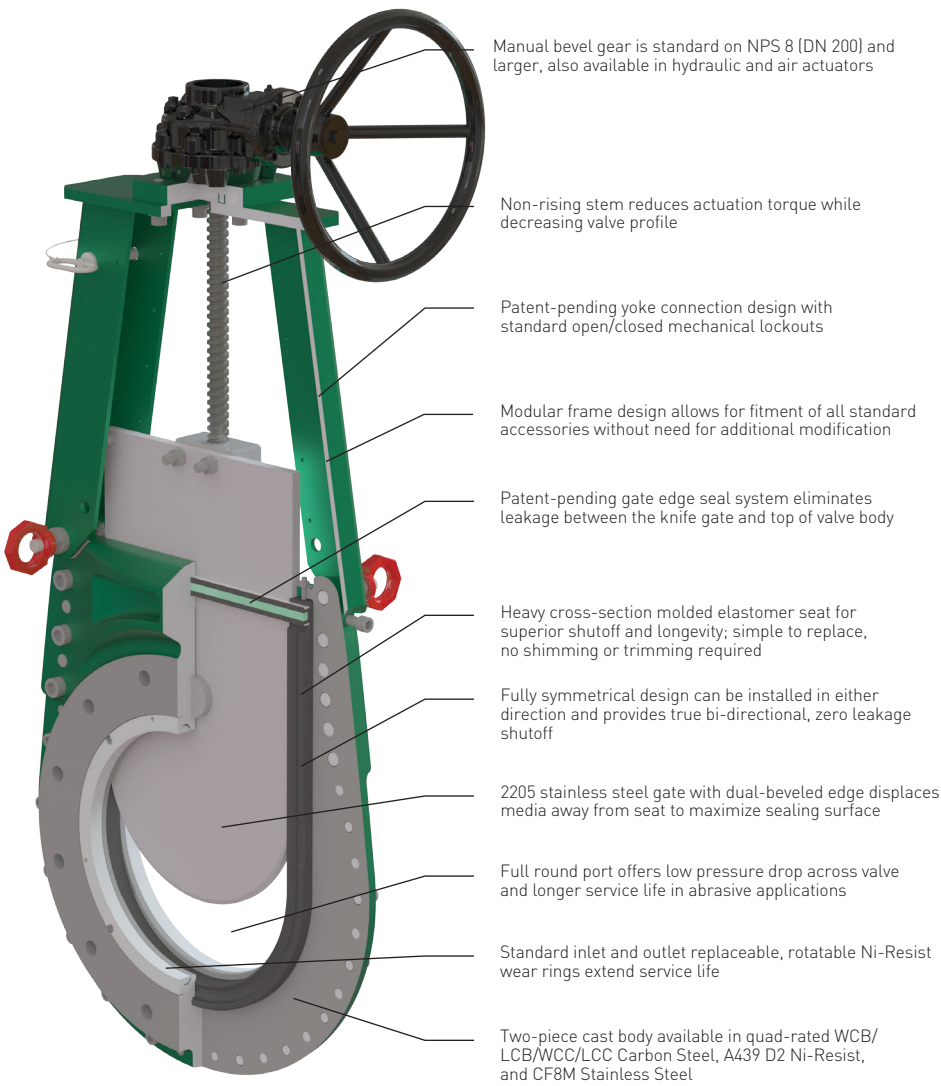
### TECHNICAL DATA

Size range:	NPS 2 - 16 (DN 50 - 400)
Temperature rating:	NR 175 °F (80 °C) EPDM 300 °F (150 °C) HNBR 300 °F (150 °C)
Pressure rating:	ASME Class 150
Compliance to:	MSS SP-135 ASME B31.3
Face to face:	MSS SP-135 short
Flange drillings:	ASME 150/300 AS 2129 Table D/E PN 10/16/20 SANS T1600

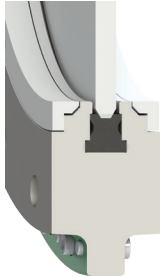
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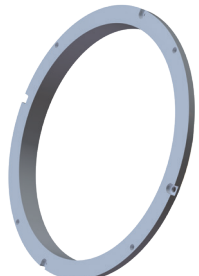
### VALVE BENEFITS



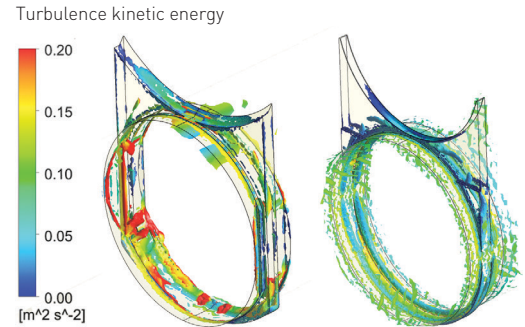
Patent-pending gate edge seal interlocks with transverse seal and scrapers to provide a continuous seal around gate, incorporating benefits of adjustments to packing pressure while valve is in service



Robust, heavy cross-section seat provides superior isolation performance over the life of the valve, delivering higher cycle life at zero leakage compared to O-ring designs



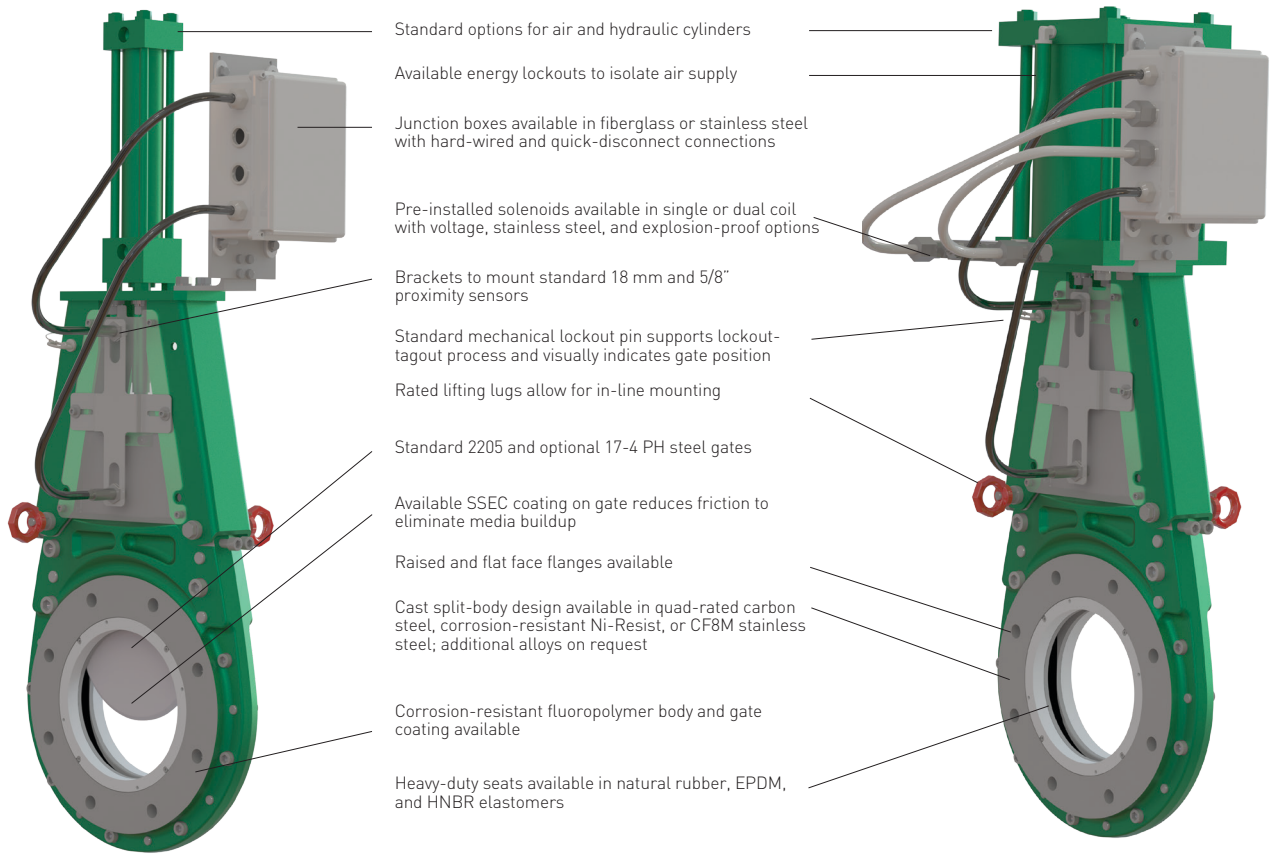
Replaceable and rotatable wear rings reduce wear to the valve body and prolong service life. Rings can be rotated three times through four positions before requiring replacement



Full round port minimizes any disruption to flow compared to non-round ports, resulting in reduced wear on the valve and downstream components

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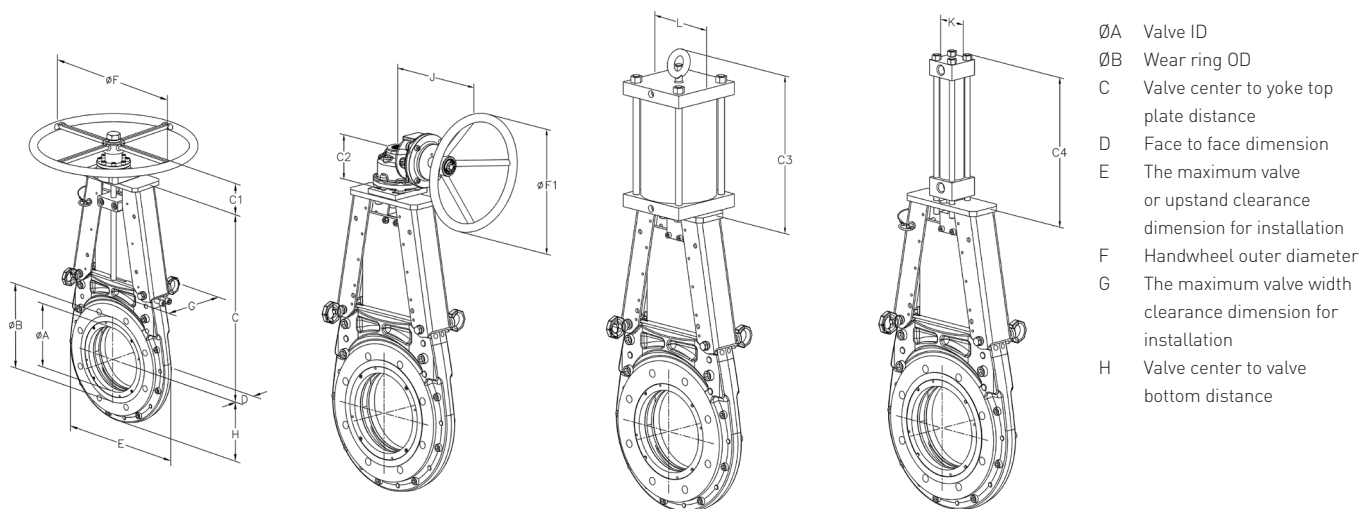


### MATERIAL LIST

Component	Material	Properties
Base valve configuration	Body material: WCB/LCB/WCC/LCC	Quad-rated carbon steel for wide temperature range
	Body coating: Clarkson™ Paint	ISO 12944-2 with C3 corrosive rating
	Gate material: 2205 Stainless steel	High corrosion resistance
	Wear ring: A439 D2 Ni-Resist	Improved corrosion resistance and hardness
	Seat material: Natural rubber	175 °F (80 °C) max. temperature
		High tensile strength, superior tear and abrasion resistance
Optional body materials	A439 D2 Ni-Resist	Improved corrosion resistance and hardness
	CF8M Stainless steel	High corrosion resistance and chemical compatibility
Optional body coatings	Fluoropolymer	Reduces coefficient of friction to minimize media buildup in valve internals
Optional gate materials	17-4 PH Stainless steel	High abrasion resistance
Optional gate coatings	SSEC	Low coefficient of friction prevents sticky, viscous, corrosive, and/or abrasive media from sticking to the gate, thus reducing drag, improving seat life, and leading to more reliable isolation
	Fluoropolymer	Reduces coefficient of friction to minimize media buildup on gate
Optional seat materials	EPDM	300 °F (150 °C) max. temperature
		High resistance to alkalis, acids, and oxygenated solvents
		Low resistance to oil and hydrocarbon-based solvents
	HNBR	300 °F (150 °C) max. temperature
		High resistance to oil, silicone greases, hydrocarbon-based solvents, and nonoxidizing chemicals
		Low resistance to ozone and oxygenated solvents

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### DIMENSIONS (inches)

NPS	ØA	ØB	C	C1	C2	C3	C4	D	E	ØF	ØF1	G	H	J	K	L
2	2.0	3.6	9.9	3.4	-	7.3	7.8	2.0	8.5	12.0	-	6.6	4.2	-	2.5	4.5
3	3.0	5.0	12.0	3.4	-	8.3	8.8	2.0	10.0	12.0	-	6.6	5.0	-	2.5	4.5
4	4.0	6.2	14.0	3.4	-	10.1	10.2	2.0	11.2	12.0	-	6.6	5.6	-	2.5	5.5
6	6.0	8.5	18.4	3.4	-	12.8	12.3	2.3	13.4	20.0	-	7.2	6.7	-	2.5	7.5
8	8.0	10.6	22.9	3.4	5.1	15.0	14.9	2.8	16.0	20.0	11.8	8.7	8.0	11.8	3.0	8.5
10	10.0	12.8	27.0	-	5.1	18.0	17.0	2.8	18.2	-	11.8	8.6	9.1	11.8	3.5	10.6
12	12.0	15.0	31.3	-	5.1	19.5	19.0	3.0	21.5	-	11.8	9.8	10.8	11.8	3.5	12.8
14	13.3	16.3	34.4	-	5.5	22.5	21.2	3.0	23.5	-	15.8	9.9	11.8	14.4	4.5	14.8
16	15.3	18.5	38.5	-	5.5	24.7	23.3	3.5	26.3	-	15.8	10.7	13.5	14.4	4.5	17.0

### MHW/BG TORQUE

ft-lb
2
3
5
16
42 (MHW) / 16 (BG)
24
35
39
52

### DIMENSIONS (mm)

DN	ØA	ØB	C	C1	C2	C3	C4	D	E	ØF	ØF1	G	H	J	K	L
50	51	92	250	86	-	186	186	51	215	305	-	168	107	-	64	114
80	76	127	304	86	-	210	224	51	254	305	-	168	127	-	64	114
100	102	157	355	86	-	257	259	51	284	305	-	168	142	-	64	140
150	152	216	468	86	-	325	311	57	341	508	-	183	170	-	64	191
200	203	270	582	86	129	380	379	70	406	508	300	220	203	299	76	216
250	254	324	685	-	129	456	431	70	462	-	300	219	231	299	89	270
300	305	381	794	-	129	495	483	76	546	-	300	250	273	299	89	324
350	337	413	872	-	139	572	539	76	597	-	400	251	299	366	114	375
400	387	470	977	-	139	627	591	89	668	-	400	272	343	366	114	432

### MHW/BG TORQUE

N-m
2
4
6
22
57 (MHW) / 21 (BG)
33
47
53
70

### NOTES

1. Input torque is value at handwheel to open valve at rated pressure.
2. Actuator bore size based on required thrust to open valve at rated pressure with 80 psi (5.5 bar) pneumatic or 2,000 psi (138 bar) hydraulic supply pressure.

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