



CLARKSON URETHANE KNIFE GATE VALVES

FIGURE SU10R

The SU10R valve offers bi-directional isolation with a field replaceable snap-in liner that completely protects the wetted area from abrasion and corrosive slurries, increasing reliability and service life



FEATURES

- True bi-directional flow and shut-off, allowing it to be installed in either direction.
- Unique one-piece precision molded high strength polyurethane liner protects the wetted parts from corrosion and abrasion.
- Liner is field replaceable in all sizes, no need to return to factory for repair.
- Liner has integral flange seals eliminating the need for flange gaskets in most cases*.
- Liner employs sealing beads to support and wipe slurry from the gate during operation, minimizing deflection and improving packing life.
- High temperature liner option available.
- It can replace conventional and short pattern slurry knife gate valves. As a true pressure vessel valve the SU10R does not discharge to atmosphere when cycled.
- Compact two piece split body construction for ease of maintenance.
- Testing as per MSS SP-151.
- Pressure rated 316 stainless steel gate, with optional 17-4 ph to provide improved abrasion resistance against the rigors of abrasive applications.
- Full round port and seat design offers low pressure drop across valve and longer service life in abrasive applications.
- Designed to be a repairable asset, lower the cost of ownership.
- Inverted self-aligning gland box allows for easier setup and longer packing life.
- Complies with MSS SP-81 face-to-face dimensions.
- All valves are factory pressure tested.
- A range of actuation options from manual hand wheel, bevel gear, chain wheel to pneumatic, hydraulic, and electric actuators.

GENERAL APPLICATION

The Clarkson SU10R valve is designed for a wide range of isolation applications in low to medium density slurry applications such as:

- Mining and mineral processing
- Coal preparation plants
- Chemical plants
- Corrosive environments
- Wastewater treatment plants

NOTE

Patent pending

* To ensure effective integral flange seal, pipeline flange internal diameter should not exceed ASME B16.5 minimum slip-on/socket welding bore dimension. Slip-on flanges are suitable within this limitation.

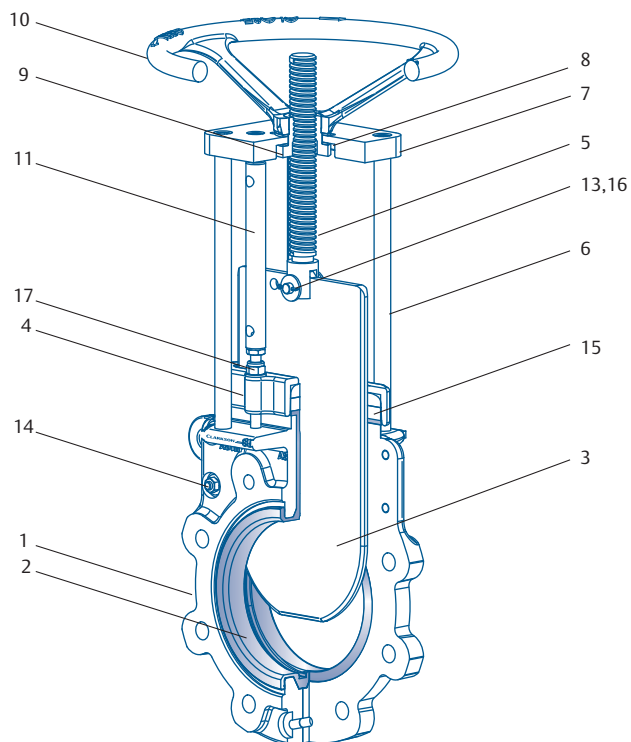
Consult Sales for advice on using SU10R in applications with non-metal pipe/liner/flange.

TECHNICAL DATA

Size range:	DN 50 - 600 NPS 2 - 24
Temperature rating:	50°C (120°F) for standard liner 120°C (250°F) for high temperature liner
Pressure rating:	1000 kPa (150 psi) at cold working pressure (non-shock) Not suitable for vacuum service

CLARKSON URETHANE KNIFE GATE VALVES

FIGURE SU10R



NOTE

DN 150 (NPS 6) valve illustrated.

PARTS LIST

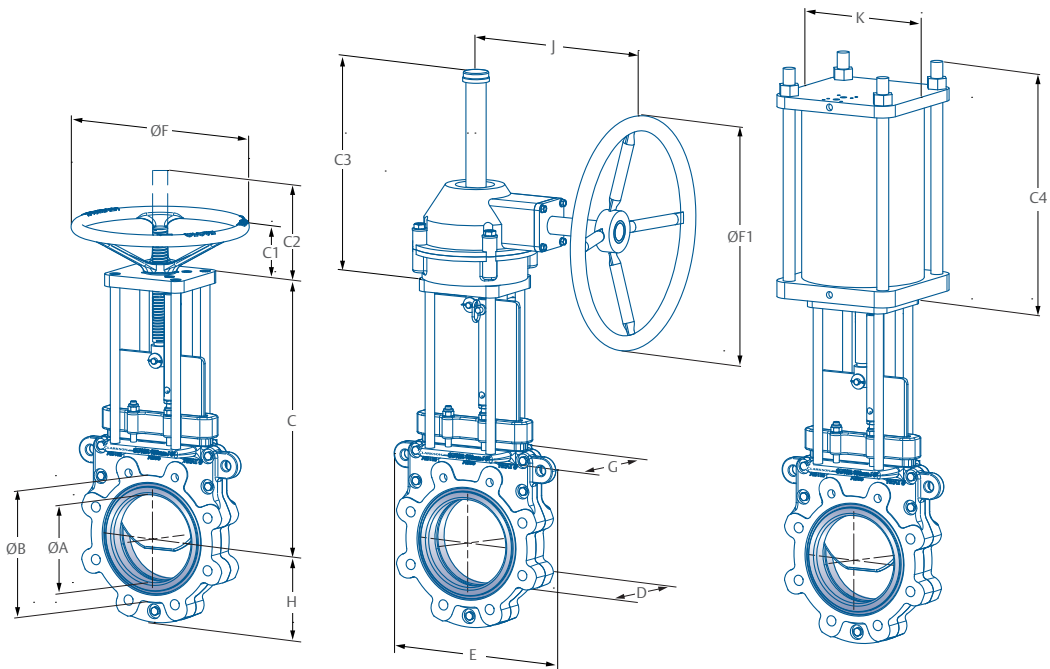
No.	Description	Material
1	Body	SG Iron ASTM A395-60
2	Liner	Standard polyurethane liner
3	Gate	316 S/S ASTM A240
4	Gland Box	SG Iron ASTM A395-60
5	Spindle	304 S/S ASTM A276
6	Pillar	Carbon Steel
7	Bridge	A36/A36M or AS/NZS 3678-250
8	Thrust washer	Nylon
9	Spindle nut	Leaded Gunmetal Bronze
10	Hand wheel	SG Iron
11	Locking post	Carbon Steel
12	Lockout pin (not shown)	431 S/S ASTM A276
13	Clevis pin	304 S/S ASTM A276
14	All fasteners	Plated alloy steel
15	Packing	K-LON, G-LON, H-LON
16	Split Pin	Plated alloy steel
17	Gland stud	Plated alloy steel

OPTIONS

- F738 Pneumatic actuators
- Electric actuators
- Bevel gear operators
- Solenoid valves
- Proximity switches
- F493 Pneumatic failsafe
- Safety guards and shrouds
- Safety lockouts

CLARKSON URETHANE KNIFE GATE VALVES

FIGURE SU10R



DIMENSIONS (mm)

Valve Size																H/W mass	B/gear mass	Pneu act mass	Bevel gear model	Pneu Act model
DN	ØA	ØB	C	C1	C2	C3	C4	D	E	ØF	ØF1	G	H	J	K	(kg)	(kg)	(kg)		
50	50	96	264	59	81	-	202	48	186	200	-	126	73	-	Ø89	11	-	11	-	P1
80	80	135	323	86	108	-	258	51	228	300	-	134	98	-	Ø110	19	-	20	-	P3
100	100	157	364	86	130	-	330	51	275	300	-	134	117	-	Ø150	24	-	29	-	P4
150	150	243	451	86	181	-	343	57	331	300	-	144	147	-	Ø210	33	-	43	-	P5
200	200	351	581	48	308	368	431	70	408	600	400	208	175	320	Ø210	75	97	81	B20	P6
250	250	411	687	48	308	458	508	70	483	600	400	220	207	320	330SQ	106	128	180	B20	P8
300	300	488	790	-	-	458	508	76	559	-	400	220	246	320	276SQ	-	166	192	B20	P7
350	333	538	861	-	-	508	558	76	596	-	400	224	271	320	330SQ	-	192	242	B20	P10
400	381	603	980	-	-	602	667	89	667	-	600	290	303	347	330SQ	-	306	363	B20	P17
450	429	647	1078	-	-	602	816	89	719	-	600	304	326	347	Ø505	-	371	544	B20	P14
500	478	722	1183	-	-	657	816	114	815	-	600	304	363	390	Ø505	-	500	656	B30	P14
600	575	832	1434	-	-	775	860	114	924	-	610	336	418	617	Ø626	-	728	1050	BG44GT	P16E

DIMENSIONS (inches)

Valve Size																H/W mass	B/gear mass	Pneu act mass	Bevel gear model	Pneu Act model
NPS	ØA	ØB	C	C1	C2	C3	C4	D	E	ØF	ØF1	G	H	J	K	(lbs)	(lbs)	(lbs)		
2	2.00	3.78	10.39	2.32	3.19	-	8.00	1.89	7.32	8	-	4.96	2.87	-	Ø3.5	24	-	24	-	P1
3	3.00	5.31	12.72	3.39	4.25	-	10.00	2.00	8.98	12	-	5.28	3.86	-	Ø4.3	42	-	44	-	P3
4	4.00	6.18	14.33	3.39	5.12	-	13.00	2.00	10.83	12	-	5.28	4.61	-	Ø5.9	53	-	64	-	P4
6	6.00	9.57	17.76	3.39	7.13	-	13.50	2.25	13.03	12	-	5.67	5.79	-	Ø8.3	73	-	95	-	P5
8	8.00	13.82	22.87	1.89	12.13	14.50	17.00	2.75	16.06	24	12	8.19	6.89	13.59	Ø8.3	165	213	179	BG3	P6
10	10.00	16.18	27.05	1.89	12.13	18.10	21.70	2.75	19.02	24	12	8.66	8.15	13.59	12.8SQ	233	282	415	BG3	P8
12	12.00	19.21	31.10	-	-	18.10	21.70	3.00	22.01	-	12	8.66	9.69	13.59	10.6SQ	-	365	432	BG3	P7
14	13.11	21.18	34.00	-	-	20.00	23.70	3.00	23.46	-	24	8.82	10.67	16.72	12.8SQ	-	422	551	BG3	P10
16	15.00	23.74	38.58	-	-	23.70	27.50	3.50	26.26	-	24	11.42	11.93	19.36	12.8SQ	-	680	820	BG4	P17
18	16.89	25.47	42.44	-	-	23.70	33.60	3.50	28.31	-	24	11.97	12.83	19.46	17.0SQ	-	823	1196	BG42	P14
20	18.82	28.43	46.57	-	-	25.90	33.60	4.50	32.09	-	24	11.97	14.29	19.46	17.0SQ	-	1070	1443	BG42	P14
24	22.64	32.76	56.46	-	-	30.50	35.30	4.50	36.38	-	24	13.23	16.46	24.30	21.0SQ	-	1602	2240	BG44GT	P16E

NOTES

- D = The face to face dimension.
- E = The maximum valve or upstand clearance dimension for installation.
- G = The maximum valve width clearance dimension for installation.

Pneumatic actuator sizing is based on clean water service at 1000 kPa valve line pressure and 550 kPa (80 psi) actuator air supply pressure for valves up to DN 250. For valves DN 300 to DN 600, clean water service at 550 kPa valve line pressure and 550 kPa (80 psi) actuator air supply pressure.

CLARKSON URETHANE KNIFE GATE VALVES

FIGURE SU10R ACTUATOR SELECTION GUIDE

PNEUMATIC ACTUATOR SELECTION CHART

Valve size DN (NPS)	Supply pressure kPa (psi)	Line Pressure Differential kPa (psi)			
		350 (50)	550 (80)	700 (100)	1000 (145)
50 (2)	1000 (145)	P1	P1	P1	P1
	700 (100)	P1	P1	P1	P1
	550 (80)	P1	P1	P1	P1
	415 (60)	P1	P1	P1	P2
80 (3)	1000 (145)	P3	P3	P3	P3
	700 (100)	P3	P3	P3	P3
	550 (80)	P3	P3	P3	P3
	415 (60)	P3	P3	P4	P4
100 (4)	1000 (145)	P3	P3	P3	P3
	700 (100)	P3	P3	P3	P3
	550 (80)	P3	P3	P4	P4
	415 (60)	P3	P3	P4	P4
150 (6)	1000 (145)	P3	P3	P3	P4
	700 (100)	P3	P4	P4	P4
	550 (80)	P4	P4	P4	P5
	415 (60)	P4	P4	P5	P5
200 (8)	1000 (145)	P6	P6	P6	P6
	700 (100)	P6	P6	P6	P6
	550 (80)	P6	P6	P6	P6
	415 (60)	P6	P6	P7	P7
250 (10)	1000 (145)	P6	P6	P6	P7
	700 (100)	P6	P7	P7	P7
	550 (80)	P7	P7	P8	P8
	415 (60)	P7	P8	P8	P11
300 (12)	1000 (145)	P6	P6	P7	P8
	700 (100)	P6	P7	P8	P11
	550 (80)	P7	P7	P8	P11
	415 (60)	P8	P8	P11	P12
350 (14)	1000 (145)	P9	P9	P9	P10
	700 (100)	P9	P9	P10	P11
	550 (80)	P9	P10	P11	P11
	415 (60)	P10	P11	P12	P12
400 (16)	700 (100)	P17	P17	P13	P14
	550 (80)	P17	P17	P14	P14
	415 (60)	P13	P13	P15	P16
450 (18)	700 (100)	P13	P13	P14	P15
	550 (80)	P13	P14	P15	P15
	415 (60)	P14	P15	P16	P18B
500 (20)	700 (100)	P13	P13	P15	P15
	550 (80)	P14	P14	P16	P16
	415 (60)	P15	P15	P18B	P18B
600 (24)	700 (100)	P16E	P16E	P16E	P18
	550 (80)	P16E	P16E	P18	P18
	415 (60)	P16E	P18	CS	CS

NOTE

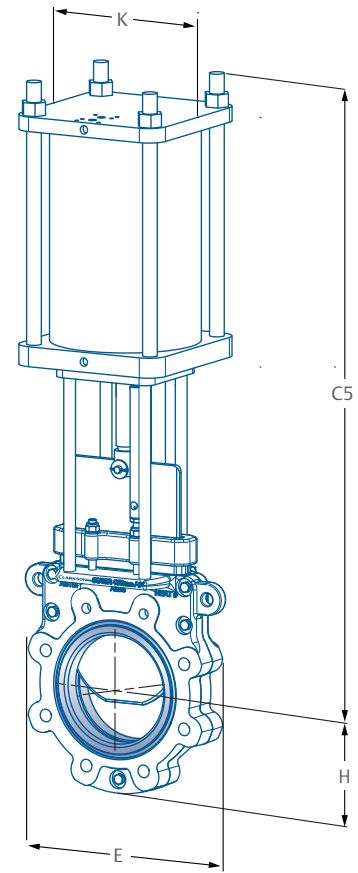
CS = Consult Sales

CLARKSON URETHANE KNIFE GATE VALVES

FIGURE SU10R METRIC ACTUATOR DATA

DIMENSIONS (mm)

Valve size DN	Acuator model	Bore x stroke	K	C5	H	E	Port size BSPT	Mass kg
50	P1	80 x 120	Ø89	466	73	186	1/8	11
	P2	100 x 120	Ø110	466			1/8	12
80	P3	100 x 176	Ø110	578	98	228	1/8	20
	P4	140 x 233	Ø150	653			1/4	23
100	P3	100 x 176	Ø110	619	117	276	1/8	25
	P4	140 x 233	Ø150	694			1/4	29
150	P3	100 x 176	Ø110	706	147	331	1/8	33
	P4	140 x 233	Ø150	781			1/4	36
	P5	200 x 233	Ø210	794			1/4	43
200	P6	200 x 321	Ø210	1012	175	408	1/4	81
	P7	250 x 351	276SQ	1089			3/8	127
250	P6	200 x 321	Ø210	1118	207	483	1/4	112
	P7	250 x 351	276SQ	1195			3/8	158
	P8	300 x 351	330SQ	1195			3/8	180
	P11	300 x 401	Ø448	1309			1/2	235
300	P6	200 x 321	Ø210	1221	246	559	1/4	146
	P7	250 x 351	276SQ	1298			3/8	192
	P8	300 x 351	330SQ	1298			3/8	214
	P11	356 x 401	Ø448	1412			1/2	279
	P12	406 x 401	Ø505	1412			1/2	326
350	P9	250 x 401	276SQ	1419	271	596	3/8	219
	P10	300 x 401	330SQ	1419			3/8	242
	P11	356 x 401	Ø448	1483			1/2	305
	P12	406 x 401	Ø505	1483			1/2	352
400	P17	300 x 500	330SQ	1647	303	667	3/8	363
	P13	356 x 595	Ø448	1796			1/2	432
	P14	406 x 595	Ø505	1796			1/2	479
	P15	457 x 595	Ø560	1805			1/2	562
	P16	508 x 595	Ø626	1810			1/2	657
	P18B	610 x 500	Ø718	1929			3/4	877
450	P13	356 x 595	Ø448	1894	326	719	1/2	497
	P14	406 x 595	Ø505	1894			1/2	544
	P15	457 x 595	Ø560	1903			1/2	627
	P16	508 x 595	Ø626	1908			1/2	722
	P18B	610 x 500	Ø718	1929			3/4	877
	P18B	610 x 500	Ø718	1929			3/4	877
500	P13	356 x 595	Ø448	1999	363	815	1/2	609
	P14	406 x 595	Ø505	1999			1/2	656
	P15	457 x 595	Ø560	2008			1/2	739
	P16	508 x 595	Ø626	2013			1/2	834
	P18B	610 x 500	Ø718	2034			3/4	989
600	P16E	508 x 625	Ø626	2294	418	924	1/2	1050
	P18	610 x 601	Ø718	2386			3/4	1220

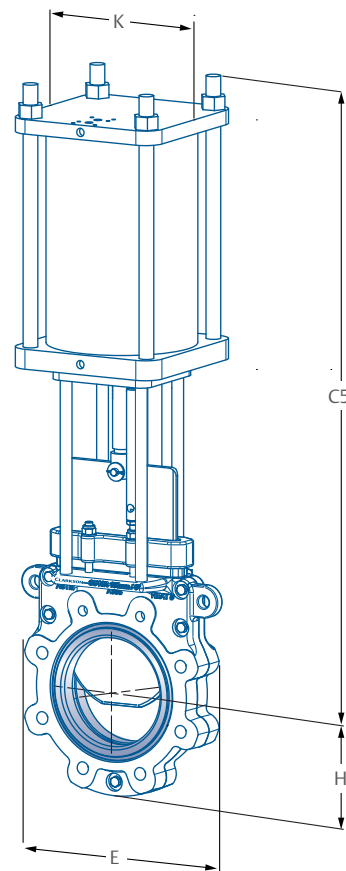


CLARKSON URETHANE KNIFE GATE VALVES

FIGURE SU10R IMPERIAL ACTUATOR DATA

DIMENSIONS (inches)

Valve size NPS	Acuator model	Bore x stroke	K	C5	H	E	Port size NPT	Mass lbs
2	P1	3.20 x 4.7	Ø3.5	18.4	2.87	7.32	1/8	24
	P2	3.90 x 4.7	Ø4.3	18.4			1/8	27
3	P3	3.90 x 6.9	Ø4.4	22.7	3.86	8.98	1/8	44
	P4	5.50 x 9.2	Ø6.0	25.7			1/4	51
4	P3	3.90 x 6.9	Ø4.4	24.3	4.61	10.83	1/8	56
	P4	5.50 x 9.2	Ø6.0	27.3			1/4	64
6	P3	3.90 x 6.9	Ø4.4	27.8	5.79	13.03	1/8	73
	P4	5.50 x 9.2	Ø6.0	30.8			1/4	80
	P5	7.90 x 9.2	Ø8.3	31.3			1/4	95
8	P6	7.90 x 12.6	Ø8.3	39.9	6.89	16.06	1/4	179
	P7	10 x 13.8	10.7SQ	44.6			1/2	289
10	P6	7.90 x 12.6	Ø8.3	44.1	8.15	19.02	1/4	247
	P7	10 x 13.8	10.7SQ	48.8			1/2	357
	P8	12 x 13.8	12.8SQ	48.8			1/2	415
	P11	14 x 15.8	14.8SQ	53.0			3/4	662
12	P6	7.90 x 12.6	Ø8.3	48.1	9.69	22.01	1/4	322
	P7	10 x 13.8	10.7SQ	52.8			1/2	432
	P8	12 x 13.8	12.8SQ	52.8			1/2	419
	P11	14 x 15.8	14.8SQ	57.1			3/4	603
	P12	16 x 15.8	17.0SQ	57.1			3/4	713
14	P9	10 x 15.8	10.6SQ	57.7	10.67	23.46	1/2	492
	P10	12 x 15.8	12.8SQ	57.7			1/2	551
	P11	14 x 15.8	14.8SQ	60.0			3/4	660
	P12	16 x 15.8	17.0SQ	60.0			3/4	770
16	P17	12 x 19.7	12.8SQ	66.1	11.93	26.26	3/4	820
	P13	14 x 23.4	14.8SQ	72.2			3/4	933
	P14	16 x 23.4	17.0SQ	72.2			3/4	1053
	P15	18 x 23.4	19.0SQ	72.5			3/4	1174
	P16	20 x 23.4	21.0SQ	72.7			3/4	1325
	18	P13	14 x 23.4	14.8SQ	76.0	12.83	28.31	3/4
P14		16 x 23.4	17.0SQ	76.0			3/4	1196
P15		18 x 23.4	19.0SQ	76.5			3/4	1317
P16		20 x 23.4	21.0SQ	76.5			3/4	1468
P18B		24 x 19.7	Ø28.3	79.9			3/4	1449
20		P13	14 x 23.4	14.8SQ	80.2	14.29	32.09	3/4
	P14	16 x 23.4	17.0SQ	80.2			3/4	1443
	P15	18 x 23.4	19.0SQ	80.5			3/4	1564
	P16	20 x 23.4	21.0SQ	80.7			3/4	1715
	P18B	24 x 19.7	Ø28.3	84.1			3/4	2181
	24	P16E	20 x 24.6	21.0SQ	92.0	16.46	36.38	3/4
P18		24 x 23.7	Ø28.3	94.2			3/4	2690



CLARKSON URETHANE KNIFE GATE VALVES

FIGURE SU10R

SELECTION GUIDE

Example:	150 (6)	SU10R	880	AS 2129 E
Valve size	DN 50-600 (NPS 2-24)			
Figure number	SU10R			
SU10R	Bi-directional resilient seated rising spindle valve			
Trim	See table			
End connections - Thru bolting (to suit)				
AS 2129	Table C, D, E metric threads			
ASME B16.5	Class 125 and 150 UNC threads			
BS 4504	PN 10 and 16			
JIS B2210	Table 10			
DIN 2501	Table 10, 16			
ASME B16.5 Metric	Class 125 and 150 metric threads			

NOTE

To minimize risk to personnel, Emerson recommends the use of purpose built guards and shrouds. Please consult your local Emerson sales representative for more details.

Trim code	Body	Gate	Liner	Gland box	Bridge	Spindle	Packing
880	S.G. Iron	316 S/S	Standard polyurethane	S.G. Iron	Carbon steel	304 S/S	K-LON
884	S.G. Iron	17-4PH	Standard polyurethane	S.G. Iron	Carbon steel	304 S/S	K-LON
860	S.G. Iron	316 S/S	High temp. polyurethane	S.G. Iron	Carbon steel	304 S/S	K-LON
864	S.G. Iron	17-4PH	High temp. polyurethane	S.G. Iron	Carbon steel	304 S/S	K-LON

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