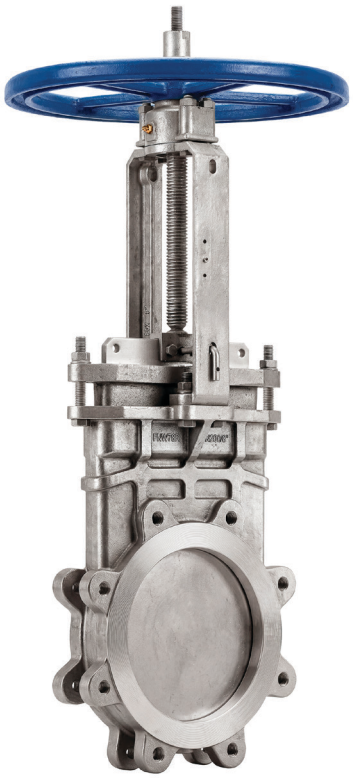
FIGURE 78R
KNIFE GATE VALVES

STAINLESS STEEL BI-DIRECTIONAL RESILIENT SEATED KNIFE GATE VALVE

Figure 78R Knife Gate Valve has an all cast stainless steel body and yoke with investment cast packing follower. It is a general purpose zero-leak bi-directional shutoff valve. Perimeter gate sealing is not pressure dependent, so there is no minimum differential needed for shutoff. Port sizing is similar to schedule 40 pipe, so the valve offers unrestricted flow and minimal pressure drop.



FEATURES

- Bi-directional bubble-tight shutoff
- Wire reinforced and retained cartridge seat
- Maximum pressure: 150 PSI CWP
- Maximum temperature
  - Aflas: 370°F
  - Buna: 212°F
- Non-differential pressure dependent shutoff
- Cast stainless steel body, yoke, and packing gland
- Stainless steel hardware
- Machined gland pocket area
- Bonnetless, outside screw & yoke
- Rising stem
- Cast iron handwheel
- Available in sizes 2"–24"
- Standard design accommodates locking device

PRODUCT SPECIFICATIONS

Standards

- Face-to-face: MSS SP-81
- Flange drilling: ANSI B16.5
- Testing
  - Shell (before assembly): 1.5 time max. CWP (no leak)
  - Seat: 1.1 times max. CWP (no leak)
- Material: ASME B16.34

FIGURE NUMBER MATRIX

FNW 78R					
BODY	SEAT	GATE	OPERATOR	SIZE (IN.)	
CF8M = S	Aflas = AF Buna = BN	316 Stainless Steel = 16	Handwheel = HW	2 = K 3 = M 4 = P 6 = U 8 = X 10 = 10	12 = 12 14 = 14 16 = 16 18 = 18 20 = 20 24 = 24

FIGURE 78R
KNIFE GATE VALVES

STAINLESS STEEL BI-DIRECTIONAL RESILIENT SEATED KNIFE GATE VALVE

CV & WEIGHT

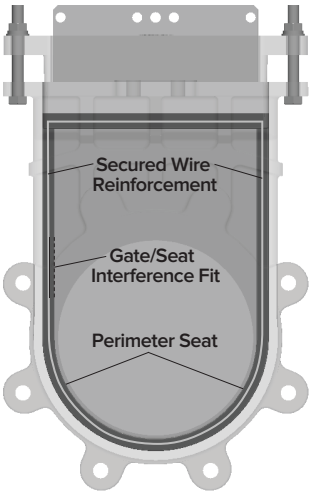
Size (in.)	Cv	Wt (lbs)	Size (in.)	Cv	Wt (lbs)
2	298	24	12	10,736	206
3	671	30	14	13,125	303
4	1,193	40	16	17,308	417
6	2,684	68	18	22,171	524
8	4,772	100	20	27,634	738
10	7,456	158	24	40,229	963

Weights are for general reference only.

SEAT SEAL CONFIGURATION

Figure 78R Knife Gate Valve provides bubble-tight shutoff. When the valve is closed, there is a friction fit along the entire perimeter between the flat edge of the gate and the elastomer seat. This friction fit ensures tight shutoff without the requirement of a minimum line pressure, but is tight enough to maintain shutoff at maximum rated pressures as well. There is no recommended flow direction because the seal is made at the gate's edge, hence bi-directional flow capability.

Seat seal retention is twofold. First, the seat is retained in a channel with a machined retention lip. This lip overhangs both sides of the seat, preventing seat removal from high velocity flows. Secondly, the seat is reinforced with a heavy stainless steel wire. The wire adds rigidity to the seat form which also prevents seat movement during high flow or valve opening/closing operation.



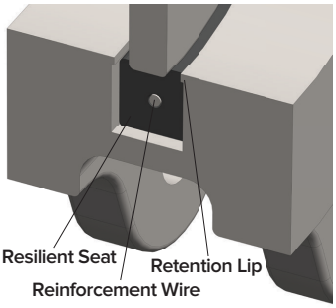


FIGURE 78R
KNIFE GATE VALVES

FNW®

STAINLESS STEEL BI-DIRECTIONAL RESILIENT SEATED KNIFE GATE VALVE

FEATURES

Handwheel is heavy cast iron, with a rounded grip and epoxy-coated handwheel.

Screws prevent threaded-on handwheel from backing off or coming loose.

Thrust needle bearings reduce handwheel rim pull force.

Ni-resist thrust components for anti-galling operation.

Grease fitting for maintaining smooth drive sleeve operation.

Cast stainless steel yoke arms provide optimum flexural rigidity.

Stainless steel hardware is standard.

Horizontal clevis bolts provide flexibility of the gate during travel.

Stem-to-gate clevis is deliberately loose to allow play in gate to minimize binding.

Multiple layers of PTFE impregnated square braid packing provides excellent gland sealing at full valve pressure differential.

The single piece cast all-stainless steel body is rugged and compact. It offers better leak tightness than fabricated or two-piece designs.

The gate is high-quality, ground-finished stainless steel. A generous gate thickness, well supported by the packing.

Port sizing is similar to schedule 40 pipe, so the valve offers unrestricted flow and minimal pressure drop.

Perimeter gate sealing is not pressure dependent, so there is no minimum differential needed for shutoff.

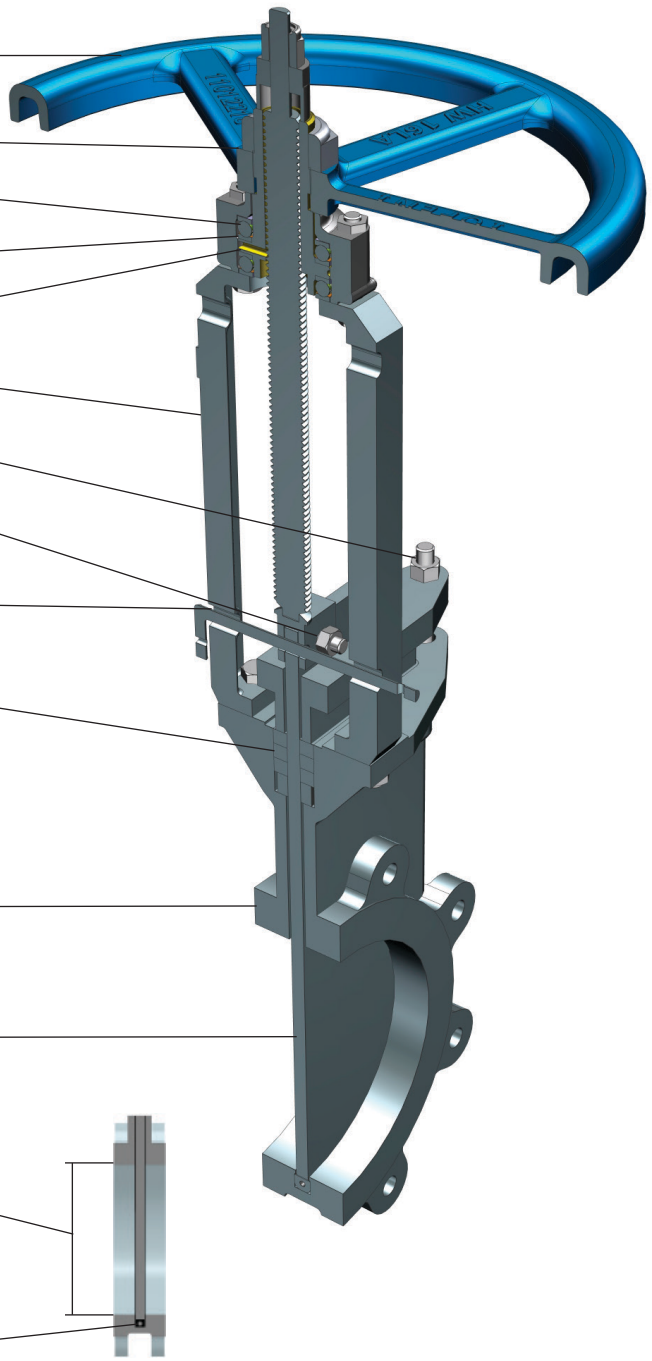
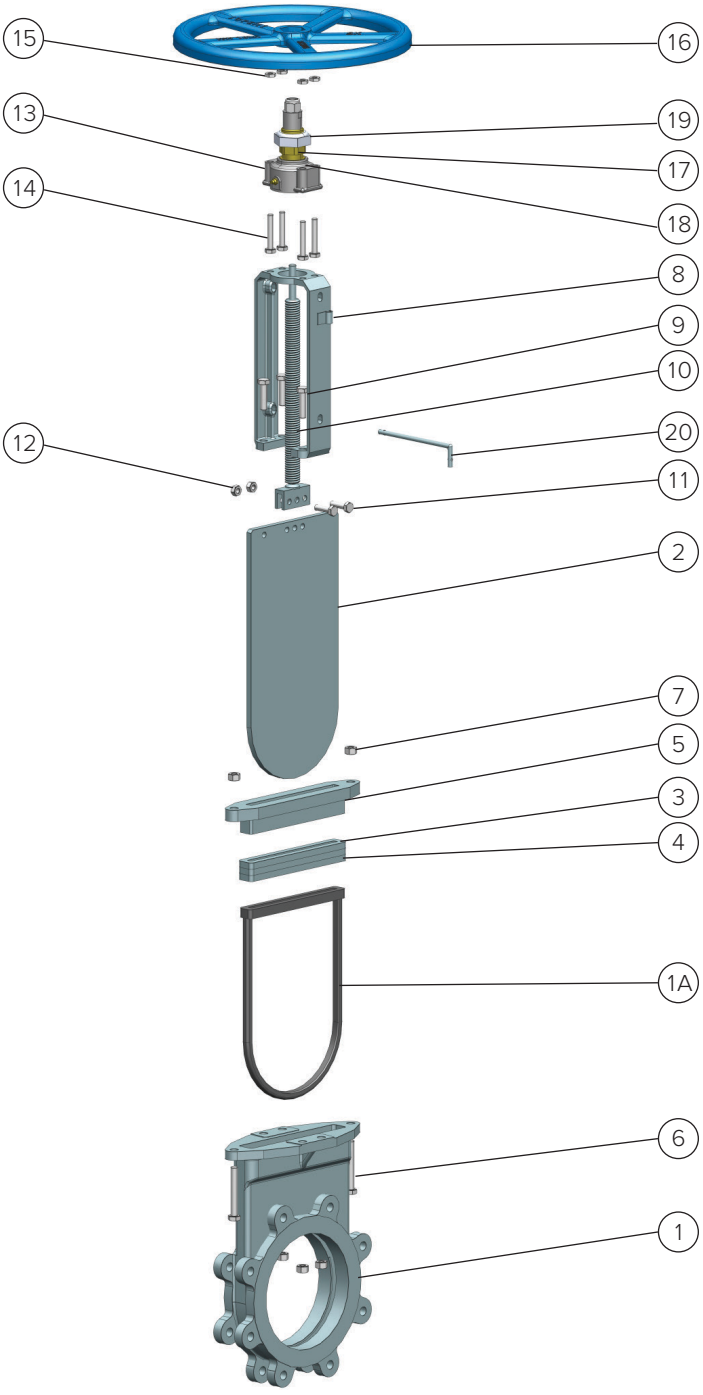


FIGURE 78R
KNIFE GATE VALVES

FNW

STAINLESS STEEL BI-DIRECTIONAL RESILIENT SEATED KNIFE GATE VALVE

STANDARD MATERIALS



PART MATERIALS & QUANTITY

Ref #	Description	Material	Qty
1	Body	Stainless Steel, ASTM A351 Gr. CF8M	1
1A	Seat	Buna / Aflas	1
2	Gate	Stainless Steel, ASTM A240 Type 316	1
3	Packing	PTFE Impregnated Fiber	2 (2"–10") 3 (12"–24")
4	EPDM Core	PTFE Impregnated Fiber, EPDM	1
5	Gland	Stainless Steel, ASTM A351 Gr. CF8M	1
6	Gland Bolt	Stainless Steel 304, ASTM A193 Gr. B8	2–10
7	Gland Nut	Stainless Steel 304, ASTM A194 Gr. 8	2–10
8	Yoke Arm	Stainless Steel, ASTM A351 Gr. CF8	1
9	Yoke Bolt	Stainless Steel 304, ASTM A193 Gr. B8	4
10	Stem	Stainless Steel, ASTM A276 Type 304	1
11	Clevis Bolt	Stainless Steel 304, ASTM A193 Gr. B8	2
12	Clevis Nut	Stainless Steel 304, ASTM A194 Gr. 8	2
13	Yoke Retainer	Stainless Steel, ASTM A351 Gr. CF8	1
14	Retainer Bolt	Stainless Steel 304, ASTM A193 Gr. B8	4
15	Retainer Nut	Stainless Steel 304, ASTM A194 Gr. 8	4
16	Handwheel	Cast Iron, ASTM A126 Gr. B	1
17	Stem Nut	Ni-Resist	1
18	Thrust Bearing	ASTM A295 Gr. 52100	2 (6"–24")
19	Handwheel Nut	Zinc-Plated Carbon Steel	1
20	Lock Pin	17-4 PH	1

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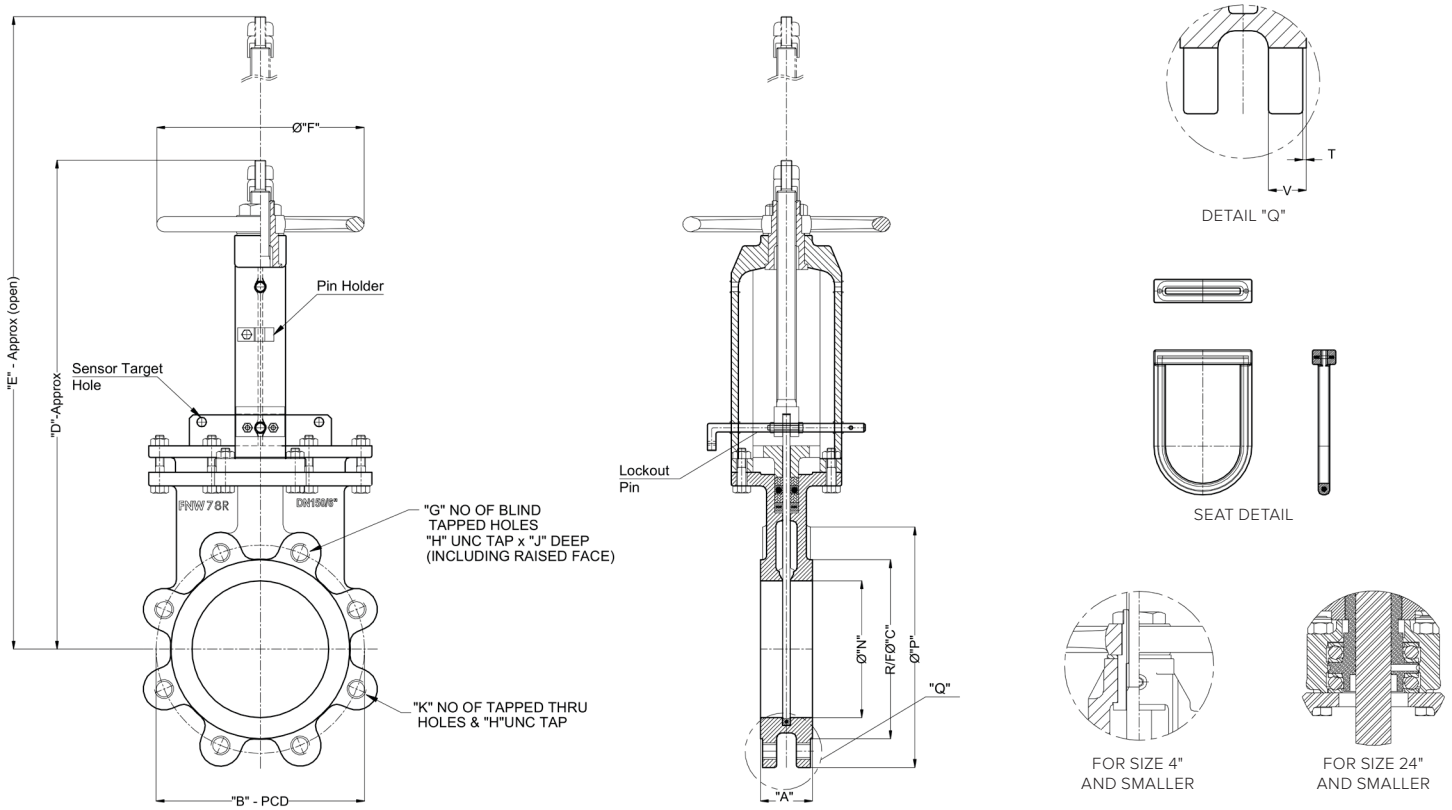

Size		Dimensions (in.)													
in.	DN	A	B	C	D	E	F	G	H	J	K	N	P	T	V
2	50	1.88	4.75	3.6	16.1	18.4	9.8	2	5/8–11	0.5	2	2	5.9	0.1	0.6
3	80	2.00	6.00	5	17.8	21.2	9.8	2	5/8–11	0.5	2	3	7.5	0.1	0.6
4	100	2.00	7.50	6.2	20	24.3	9.8	2	5/8–11	0.5	6	4	9.1	0.1	0.6
6	150	2.25	9.50	8.5	25.1	31.4	11.8	2	3/4–10	0.6	6	6	11	0.1	0.8
8	200	2.75	11.75	10.6	29.3	37.7	11.8	2	3/4–10	0.6	6	8	13.6	0.1	0.7
10	250	2.75	14.25	12.8	33.6	43.9	13.8	4	7/8–9	0.6	8	10	15.9	0.1	0.9
12	300	3.00	17.00	15	37.8	50.2	13.8	4	7/8–9	0.7	8	12	19.1	0.1	0.9
14	350	3.00	18.75	16.3	42	56.1	17.7	4	1–8	0.7	8	13.3	21.1	0.1	0.9
16	400	3.50	21.25	18.5	46.2	61.9	17.7	6	1–8	0.9	10	15.2	23.6	0.1	1.1
18	450	3.50	22.75	21	51.1	68.8	23.6	6	1-1/8–7	1	10	17.2	25	0.1	1.0
20	500	4.50	25.00	23	55.9	75.6	23.6	8	1-1/8–7	1	12	19.3	27.6	0.1	1.2
24	600	4.50	29.50	27.3	64.1	87.8	23.6	8	1-1/4–7	1	12	23.3	32.1	0.1	1.2