



## KEYSTONE KNIFE GATE VALVES

FIGURE PCS17

Bi-directional zero leakage knife gate valve. The new standard for innovation and performance with its drop-in new generation perimeter seat, that ensures zero leakage in either direction



### FEATURES

- Unique drop-in next-generation perimeter cartridge seats ensure zero leakage and quick and cost-effective maintenance resulting in lower cost of ownership.
- Re-engineered seat geometry and a new precision moulding process ensure zero water leakage at low or high pressures.
- Seat material is available a variety of materials including EPDM, Viton (FKM), Nitrile (NBR).
- The seat is in-line replaceable.
- Solid cast, one piece body in 316 stainless steel or WCB cast carbon steel. Designed and qualified through FEA analysis for optimum performance and reliability.
- Four post yoke design makes it easier to make packing adjustments and is more efficient for seat repair/replacement. Also makes actuator retro-fitting quick and easy.
- Built to industry standards including; MSS SP-81 face to face and full port design to Schedule 40.

### GENERAL APPLICATION

- Waste water
- Mining
- Power
- Chemical
- Petrochemical
- General process

### TECHNICAL DATA

Size range: DN 50 - 900 (NPS 2 - 36)  
 Temperature rating: 150°C (300°F) EPDM (std)  
 120°C (250°F) NBR  
 205°C (400°F) FKM  
 Pressure rating: DN 50 - 600 = 1034 kPa  
 (NPS 2 - 24 = 150 psi)  
 DN 750 - 900 = 690 kPa  
 (NPS 30 - 36 = 100 psi)  
 at ambient temperature  
 End connections: MSS SP-81 Face to face

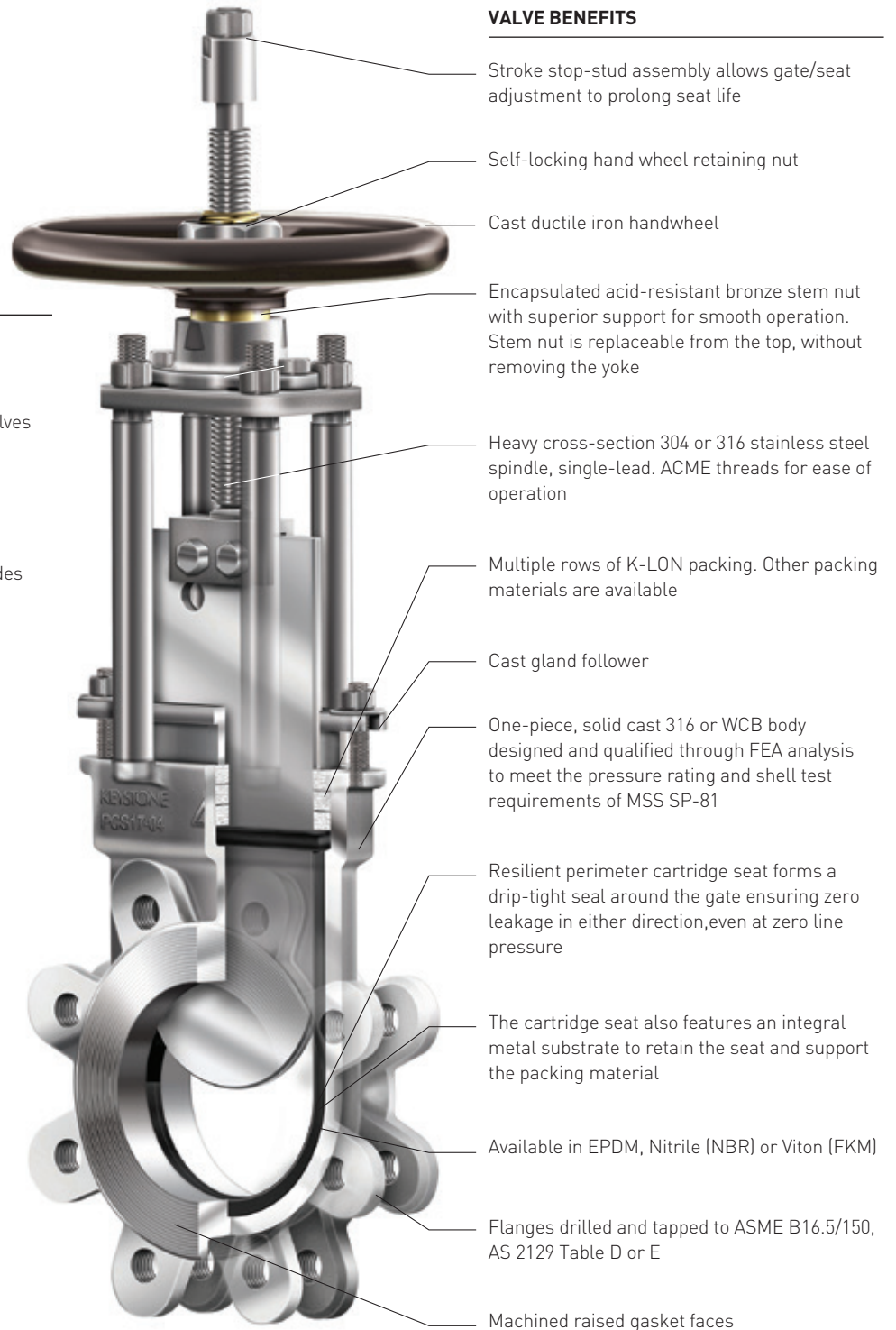
# KEYSTONE KNIFE GATE VALVES

FIGURE PCS17

## OPTIONS

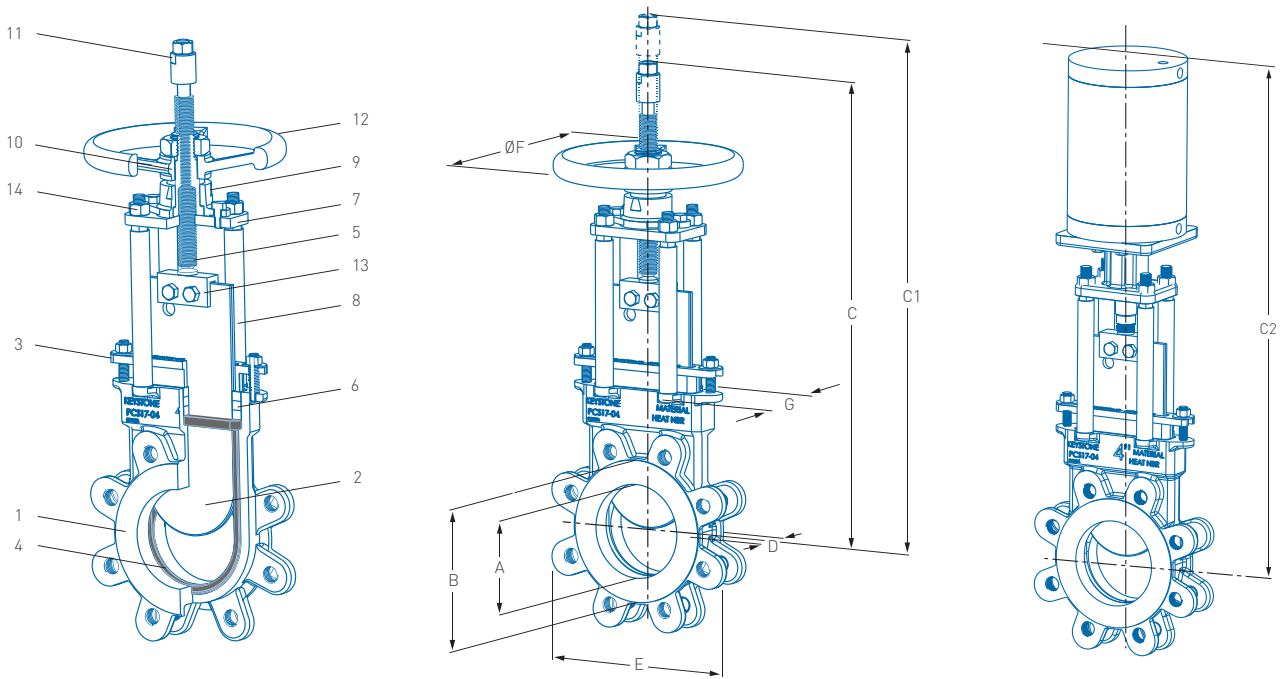
- Handwheel (standard)
- Bevel gear operators
- Non-rising stem actuator
- Cable lockout for manual handwheel valves
- Lock-pin style lockouts for open/closed positions
- Pneumatic/hydraulic/spring cylinders
- Electric actuators
- Control accessories
- Extension stems, floorstands, stem guides
- Safety guards and shrouds

## VALVE BENEFITS



# KEYSTONE KNIFE GATE VALVES

FIGURE PCS17



**PARTS LIST**

No.	Description	Material	No.	Description	Material
1	Body	Carbon steel, 316 S/S	8	Yoke post	Carbon steel, 316 S/S
2	Gate	304 S/S, 316 S/S	9	Bushing retainer	304 S/S
3	Gland follower	Carbon steel, 316 S/S	10	Stem nut	Bronze
4	Seat	EPDM , Nitrile, FKM	11	Stroke adjustment nut	304 S/S
5	Spindle	304 S/S, 316 S/S	12	Handwheel	Iron
6	Gland packing	K-LON	13	Clevis	304 S/S, 316 S/S
7	Yoke top plate	Carbon steel, 316 S/S	14	Fasteners	304 S/S

**DIMENSIONS mm (inches)**

Valve size DN (NPS)	Bore		Rising spindle		Mass						
	A	ASME 150 B	(closed) C	(open) C1	C2	D	E	ØF	G	kg (lbs)	K <sub>v</sub> * (C <sub>v</sub> ❖) at full open
50 (2)	51 (2.00)	92 (3.62)	362 (14.25)	419 (16.50)	438 (17.25)	48 (1.88)	152 (6.0)	305 (12)	70 (2.75)	11.8 (26)	246 (284)
80 (3)	76 (3.00)	127 (5.00)	406 (16.00)	486 (19.13)	527 (20.75)	51 (2.00)	191 (7.5)	305 (12)	73 (2.88)	13.6 (30)	587 (678)
100 (4)	102 (4.00)	157 (6.19)	454 (17.88)	559 (22.00)	600 (23.63)	51 (2.00)	229 (9.0)	305 (12)	73 (2.88)	16.8 (37)	1109 (1281)
150 (6)	152 (6.00)	216 (8.50)	597 (23.50)	756 (29.75)	783 (30.81)	57 (2.25)	279 (11.0)	305 (12)	89 (3.50)	27.7 (61)	2753 (3180)
200 (8)	203 (8.00)	270 (10.62)	699 (27.50)	895 (35.25)	978 (38.50)	70 (2.75)	343 (13.5)	305 (12)	89 (3.50)	38.1 (84)	4711 (5441)
250 (10)	254 (10.00)	324 (12.75)	810 (31.88)	1067 (42.00)	1143 (45.00)	70 (2.75)	406 (16.0)	406 (16)	127 (5.00)	63.1 (139)	7766 (8970)
300 (12)	305 (12.00)	381 (15.00)	927 (36.50)	1232 (48.50)	1362 (53.63)	76 (3.00)	483 (19.0)	406 (16)	127 (5.00)	86.2 (190)	11742 (13562)
350 (14)	333 (13.12)	413 (16.25)	1026 (40.38)	1359 (53.50)	1549 (61.00)	76 (3.00)	533 (21.0)	508 (20)	127 (5.00)	130.2 (287)	13401 (15478)
400 (16)	381 (15.00)	470 (18.50)	1130 (44.50)	1511 (59.50)	1699 (66.88)	89 (3.50)	597 (23.5)	508 (20)	178 (7.00)	171.9 (379)	16965 (19594)
450 (18)	429 (16.88)	533 (21.00)	1232 (48.50)	1664 (65.50)	1851 (72.88)	89 (3.50)	635 (25.0)	508 (20)	267 (10.50)	205.0 (452)	21247 (24540)
500 (20)	478 (18.81)	584 (23.00)	1346 (53.00)	1826 (71.88)	2019 (79.50)	114 (4.50)	711 (28.0)	508 (20)	289 (11.38)	284.9 (628)	26452 (30552)
600 (24)	575 (22.62)	692 (27.25)	1581 (62.25)	2159 (85.00)	2353 (92.63)	114 (4.50)	838 (33.0)	508 (20)	397 (15.63)	430.0 (948)	38872 (44897)
750 (30)	730 (28.75)	857 (33.75)	2083 (82.00)	2661 (104.75)	-	117 (4.63)	978 (38.5)	457 (18)	356 (14.00)	872.3 (1923)	66850 (77212)
900 (36)	876 (34.50)	1022 (40.25)	2388 (94.00)	3115 (122.63)	-	117 (4.63)	1168 (46.0)	457 (18)	457 (18.00)	1140.8 (2515)	96189 (111098)

**NOTE**

Dimension D = The face to face dimension.

Dimension E = The maximum valve or upstand clearance dimension for installation.

\* K<sub>v</sub> = The flow rate of water in m<sup>3</sup>/hr that will pass through a valve with a differential pressure of 1 bar (100 kPa) at 20°C.

❖ C<sub>v</sub> = The volume of water in US gpm that will pass through a valve with a differential pressure of 1 psi at 60°F.

C<sub>v</sub> = 1.155 K<sub>v</sub>

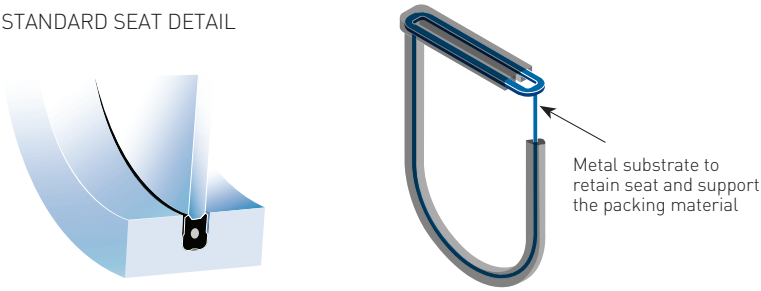
Dimensions are nominal.

DN 750 and 900 (NPS 30 and 36) are with bevel gear operator.

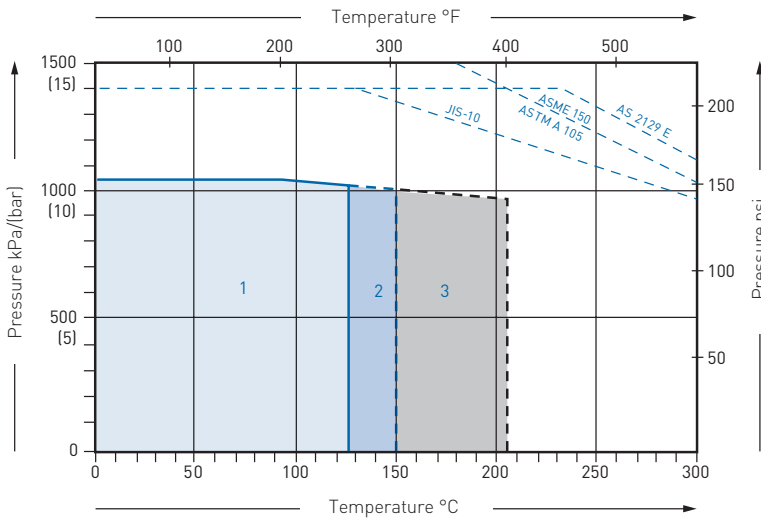
# KEYSTONE KNIFE GATE VALVES

FIGURE PCS17

## STANDARD SEAT DETAIL



## PRESSURE/TEMPERATURE GRAPH (DN 50 - 600 (NPS 2 - 24) ONLY)



## PRESSURE/TEMPERATURE RATINGS

**Nitrile seated**  
 1034 kPa/10.3 bar (150 psi) at 100°C (212°F)  
 1020 kPa/10.2 bar (148 psi) at 120°C (250°F)

**EPDM seated**  
 1034 kPa/10.3 bar (150 psi) at 100°C (212°F)  
 1006 kPa/10.0 bar (146 psi) at 150°C (300°F)

**FKM seated**  
 1034 kPa/10.3 bar (150 psi) at 100°C (212°F)  
 1000 kPa/10.0 bar (145 psi) at 205°C (400°F)

1. Nitrile seated valve trim code numbers are 521 and 531
2. EPDM seated valve trim code numbers are 520 and 530
3. FKM seated valve trim code numbers are 522 and 532

## SELECTION GUIDE

<b>Example:</b>	<b>250 (10)</b>	<b>PCS17</b>	<b>520</b>	<b>AS 2129 E</b>
<b>Valve size</b>	DN 50 - 900 (NPS 2 - 36)			
<b>Figure number</b>	PCS17 Resilient perimeter seat			
<b>Trim code</b>	See table			
<b>End connections</b>	AS 2129 E or ASME 150			

## NOTE

To minimize risk to personnel, Emerson recommend the use of purpose built guards and shrouds. Refer to the Emerson data sheet or consult factory for details.

Trim code	Body	Gate	Seat	Gland follower	Bridge	Spindle	Packing
520	316 S/S	316 S/S	EPDM	316 S/S	316 S/S	316 S/S	K-LON
530	Carbon steel	304 S/S	EPDM	Carbon steel	Carbon steel	304 S/S	K-LON
521	316 S/S	316 S/S	Nitrile	316 S/S	316 S/S	316 S/S	K-LON
531	Carbon steel	304 S/S	Nitrile	Carbon steel	Carbon steel	304 S/S	K-LON
522	316 S/S	316 S/S	FKM	316 S/S	316 S/S	316 S/S	K-LON
532	Carbon steel	304 S/S	FKM	Carbon steel	Carbon steel	304 S/S	K-LON