

AVCO

Alloy Valves and Control

KNIFEGATE VALVES SERIES 10



Size

2" - 48"

End Connections

150# Wafer

Port Types

Standard
V-Port
Deflector Cone

Body & Trim Materials

304 Stainless Steel
316 Stainless Steel
Cast Iron
Hastelloy C

Seat Materials

Metal
NBR
EPDM
FKM-FPM
VMQ
PTFE

Service Applications

Chemical
Food & Beverage
Mining
Power Plants
Pulp & Paper
Waste Water
Bulk handling

Applicable Standards

ASME B16.5
ASME B16.47

Alloy Valves and Control

Series 10 Features

Body

- Wafer style cast monoblock with raised faces and reinforcing ribs in large diameters for extra body strength
- Internal cast-in gate wedges and guides allow for a tighter shut-off between gate and seat
- Full port design for greater flow capacity and minimal pressure drop
- The internal body design avoids any accumulation of solids that would prevent the valve from closing

Gate

- Stainless steel gate
- Gate is polished on both sides to avoid jamming and seat damage
- Bottom of the gate edge is machined to a bevel to cut through solids for a tighter seal in the closed position
- The thickness and/or material of the gate can be changed on request for higher pressure requirements

Seat

- Unique design which mechanically locks the seat in the valve body using a stainless steel retainer ring
- Resilient EPDM seat as standard with different materials available as options

Packing

- Braided PTFE impregnated fibre and EPDM o-ring as standard for improved stem sealing
- Long-life braided packing is available in a wide range of materials

Stem

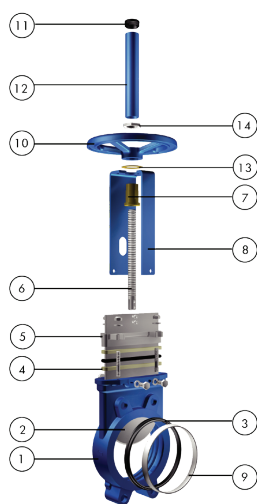
- Long life corrosion resistant stainless steel stem as standard
- Hand wheel assemblies include a protective cover for the stem to prevent against the ingress of dust

Actuators

- AVCO supplies actuators which are interchangeable and have standard mounting kits for easy site installation

Yoke and Support Plates

- Made from Epoxy coated carbon steel with stainless steel available upon request
- Compact design makes it extremely robust even in severe conditions



Part	Description
1 Body	EN-GJL250 / EN-GJS400 / CF8M ¹
2 Gate	AISI 304 / AISI 316 ¹
3 Seat	Metal-Metal / EPDM / NBR
4 Packing	PTFE Impreg. Synth. Fibre (With a EPDM O-Ring)
5 Gland follower	Al. (DN 2in/50mm - 12in/300mm) / EN-GJS400 (DN 14in/350mm -48in/1200mm) / CF8M ¹
6 Stem	Stainless Steel
7 Stem nut	Brass
8 Yoke	Epoxy-coated Carbon Steel
9 "A" ring	AISI 304 / AISI 316 ¹
10 Handwheel	EN-GJS400
11 Cap	Plastic
12 Stem protector	Epoxy-coated Carbon Steel
13 Friction washer	Brass
14 Nut	Zinc Plated Carbon Steel

¹ Stainless steel configuration

Please contact AVCO for all size and material combinations not shown in this literature

Alloy Valves and Control

OTHER OPTIONS

Other materials of construction

Ductile iron, carbon steel, special stainless steels (Duplex, ...), special alloys (254SMO, Hastelloys, ...), etc.

Fabricated valves

AVCO designs, produces and delivers special fabricated valves for special process conditions (big sizes and/or high pressures)

Surface treatments

Valve components can be protected or coated for a longer life expectancy, depending on the application of the valves and the valve service conditions. At AVCO we can offer alternative treatments and coatings for the different valve components to improve their properties against abrasion (Stellite, hard-chroming, carbides, ...), against corrosion and against adherence

Bonnet (Fig. 1)

Assures tight sealing to atmosphere. Reduces packing maintenance



Fig.1



Fig.2

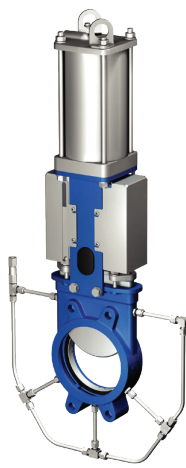


Fig.3



Fig.4



Fig.5

V-Port (Fig. 2)

60 degree and pentagonal port design. Selection depends on the desired fluid control type

Locking device (Fig. 2)

The valve can be designed with a locking pin system to block the gate in emergency situations or for maintenance operations

Flush ports (Fig. 3)

Allow for cleaning of solids trapped within the body cavities that can obstruct the flow or prevent the valve from closing. Depending on the process, purging can be made with air, steam, liquids, etc.

Mechanical stops

Mechanical stops can be added to limit stem travel at a certain stroke position

Actuator manual override (Fig. 4)

Pneumatic and electric actuators can be equipped with manual override handwheels to manually operate the actuators in emergency situations or for maintenance operations

Stem extensions and floor stand (Fig. 5)

Extensions for valve operation when valves are installed in positions below operation level are available, including wall brackets and different types of pedestals for actuators

Accessories for pneumatic valve automation

Limit and proximity switches, solenoid valves, positioners, flow regulations, air filter units, silencers, junction boxes

Alloy Valves and Control

SEAT/SEAL TYPES

Material	Max.T (°F)	Max.T (°C)	Applications
Metal/Metal	>482	>250	High temp./Low tightness
EPDM (E)	248	120	Acids and non mineral oils
NBR (N)	248	120	Resistance to petroleum products
FKM-FPM (V)	392	200	Chemical service / High temp.
VMQ (S)	482	250	Food service / High temp.
PTFE (T)	482	250	High corrosion

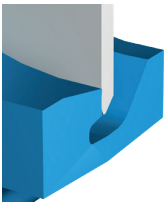
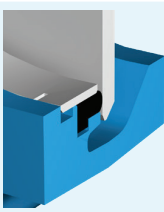
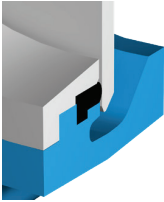
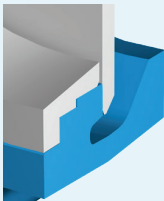
PACKING TYPES

Material	Max.T (°F)	Max.T (°C)	pH
PTFE impregn. synth. fibre (ST)	482	250	2-13
Braided PTFE (TH)	500	260	0-14
Graphited (GR)	1112	600	0-14
Ceramic fibre (FC)	2192	1200	- - -

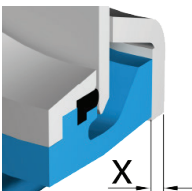
All types include an elastomere O-ring (same material as seat), excluding TH, GR and FC

More details and other materials under request

SEAT CONFIGURATIONS/DESIGNS

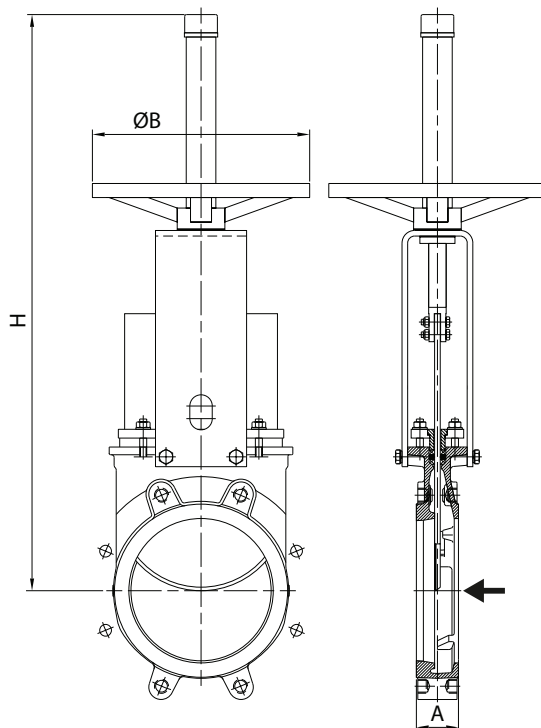
Type	Features	
Metal / Metal	- High temperature applications - High density media applications - When full tightness is not required	
A Ring Resilient	- Standard resilient seat - See temperature chart for seat materials - Seat with replaceable ring	
B Ring Resilient	- Reinforced resilient seat design - See temperature chart for seat materials - Seat with replaceable retainer ring - Ring available in different materials: AISI 316, Ni Hard,...	
B Ring Metal / Metal	- High temperature applications - High density media applications - When full tightness is not required - Replaceable ring	

OTHER SEAT FEATURES

Type	Features	
Deflection cone C	- Used to protect valve seats and internals - Material: AISI 316, Ni-Hard, etc. - Face-to-face dimension increases: DN 2in/50mm - DN 10in/250mm X = 0.35in/9mm DN 12in/300mm - DN 24in/600mm X = 0.47in/12mm Larger diameters on request	

MANUALLY OPERATED RISING STEM HANDWHEEL VERSION

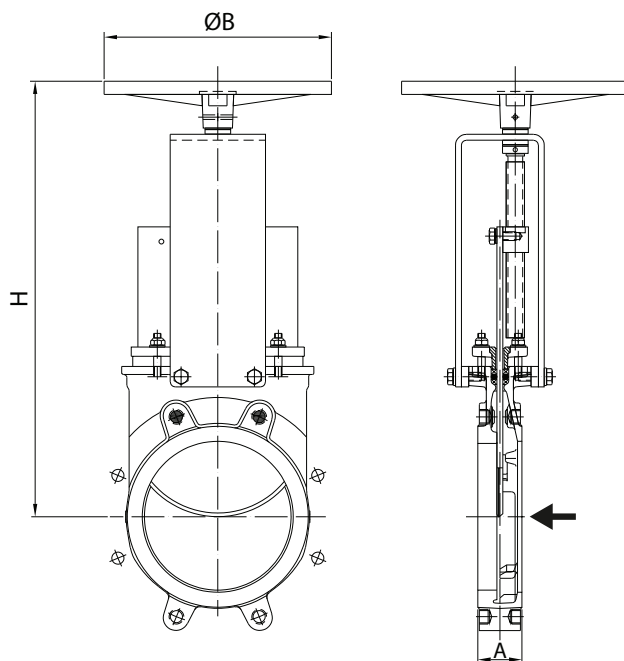
Standard manual actuator available from 2in to 40in and recommended with gearbox from 12in and above



DN (in/mm)	A (in/mm)	ØB (in/mm)	H (in/mm)	Weight (lbs./kg.)
2/50	1,57/40	8,86/225	16,53/420	25/11
2,5/65	1,57/40	8,86/225	17,71/450	27/12
3/80	2,00/50	8,86/225	18,70/475	28/13
4/100	2,00/50	8,86/225	20,47/520	31/14
5/125	2,00/50	8,86/225	23,62/600	38/17
6/150	2,36/60	8,86/225	25,67/652	47/21
8/200	2,36/60	12,20/310	32,36/822	75/34
10/250	2,75/70	12,20/310	40,23/1022	101/46
12/300	2,75/70	12,20/310	44,17/1122	142/64
14/350	3,78/96	16,14/410	52,08/1323	208/94
16/400	3,93/100	16,14/410	56,18/1427	276/125
18/450	4,17/106	21,65/550	62,75/1594	356/162
20/500	4,33/110	21,65/550	67,20/1707	440/200
24/600	4,33/110	21,65/550	79,60/2022	630/286
28/700	4,33/110	31,50/800	109,37/2778	893/405
30/750	4,33/110	31,50/800	114,17/2900	1003/455
32/800	4,33/110	31,50/800	117,32/2980	1129/512
36/900	4,33/110	31,50/800	126,57/3215	1499/680
40/1000	4,33/110	31,50/800	133,86/3400	1907/865

MANUALLY OPERATED NON-RISING STEM HANDWHEEL VERSION

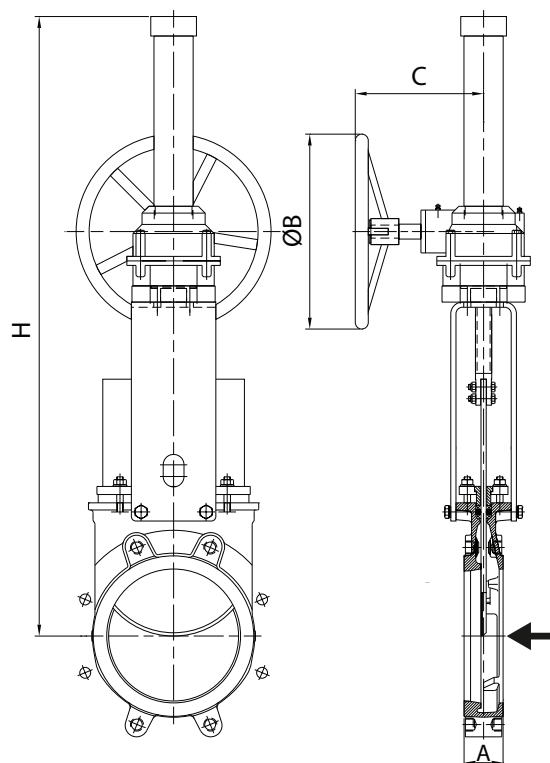
Manual actuator recommended for installation where space is limited, available from 2in to 40in and recommended with gearbox from 14in and above



DN (in/mm)	A (in/mm)	ØB (in/mm)	H (in/mm)	Weight (lbs./kg.)
2/50	1,57/40	8,86/225	12,28/312	22/10
2,5/65	1,57/40	8,86/225	13,34/339	25/11
3/80	2,00/50	8,86/225	14,33/364	27/12
4/100	2,00/50	8,86/225	15,94/405	29/13
5/125	2,00/50	8,86/225	17,28/439	33/15
6/150	2,36/60	8,86/225	19,29/490	40/18
8/200	2,36/60	12,20/310	23,42/595	70/32
10/250	2,75/70	12,20/310	27,36/695	99/45
12/300	2,75/70	12,20/310	31,30/795	132/60
14/350	3,78/96	16,14/410	37,20/945	204/93
16/400	3,93/100	16,14/410	41,30/1049	278/126
18/450	4,17/106	21,65/550	44,92/1141	395/179
20/500	4,33/110	21,65/550	49,37/1254	457/207
24/600	4,33/110	21,65/550	57,44/1459	615/279
28/700	4,33/110	31,50/800	68,38/1737	-
30/750	4,33/110	31,50/800	73,07/1856	-
32/800	4,33/110	31,50/800	76,34/1939	-
36/900	4,33/110	31,50/800	85,59/2174	-
40/1000	4,33/110	31,50/800	93,74/2381	-

MANUALLY OPERATED GEAR VERSION

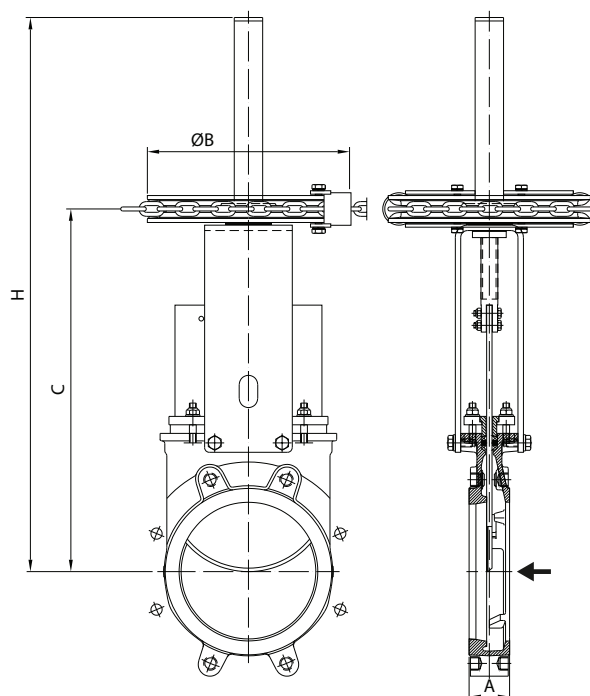
Manual actuator recommended for valves larger than 12in. Available for rising stem and non-rising stem configurations



DN (in/mm)	A (in/mm)	ØB (in/mm)	H (in/mm)	C (in/mm)	Weight (lbs./kg.)
8/200	2,36/60	12,00/300	39,13/994	7,87/200	111/50
10/250	2,75/70	12,00/300	43,07/1094	7,87/200	141/64
12/300	2,75/70	12,00/300	47,00/1194	7,87/200	172/78
14/350	3,78/96	18,00/450	65,24/1657	10,31/262	251/114
16/400	3,93/100	18,00/450	69,33/1761	10,31/262	309/140
18/450	4,17/106	18,00/450	72,95/1853	10,31/262	382/173
20/500	4,33/110	18,00/450	77,40/1966	10,31/262	484/220
24/600	4,33/110	18,00/450	85,47/2171	10,31/262	653/296
28/700	4,33/110	18,00/450	95,39/2423	10,31/262	-
30/750	4,33/110	18,00/450	100,59/2555	10,31/262	-
32/800	4,33/110	26,00/650	115,19/2926	10,24/260	-
36/900	4,33/110	26,00/650	124,41/3160	11,34/288	-
40/1000	4,33/110	26,00/650	131,57/3342	11,34/288	-
48/1200	6,00/150	33,00/850	154,92/3935	14,37/365	-

MANUALLY OPERATED CHAINWHEEL VERSION

Manual actuator recommended for elevated installations: The handwheel is replaced by a chainwheel to accommodate the chain. Available for both rising stem and non-rising stem and for sizes from 2in to 24in

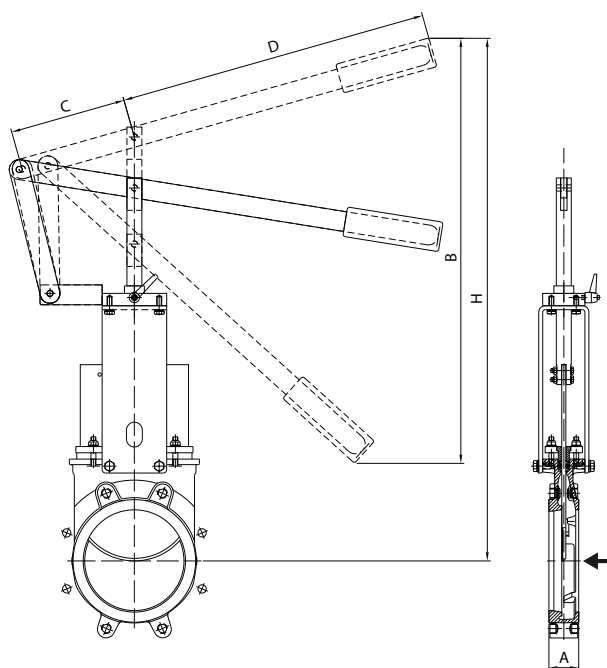


DN (in/mm)	A (in/mm)	ØB (in/mm)	C (in/mm)	H (in/mm)	Weight (lbs./kg.)
2/50	1,57/40	8,86/225	9,96/253	16,53/420	31/14
2,5/65	1,57/40	8,86/225	11,02/280	17,71/450	33/15
3/80	2,00/50	8,86/225	12,00/305	18,70/475	36/16
4/100	2,00/50	8,86/225	13,66/347	20,47/520	40/18
5/125	2,00/50	8,86/225	14,96/380	23,62/600	44/20
6/150	2,36/60	8,86/225	16,97/431	25,67/652	53/24
8/200	2,36/60	11,81/300	21,18/538	32,36/822	86/39
10/250	2,75/70	11,81/300	25,11/638	40,23/1022	117/53
12/300	2,75/70	11,81/300	29,05/738	44,17/1122	153/69
14/350	3,78/96	17,87/454	33,70/856	52,08/1323	234/106
16/400	3,93/100	17,87/454	37,79/960	56,18/1427	292/132
18/450	4,17/106	17,87/454	41,41/1052	62,75/1594	386/175
20/500	4,33/110	17,87/454	45,87/1165	67,20/1707	479/217
24/600	4,33/110	17,87/454	53,93/1370	79,60/2022	646/293

Alloy Valves and Control

MANUALLY OPERATED LEVER HANDLE VERSION

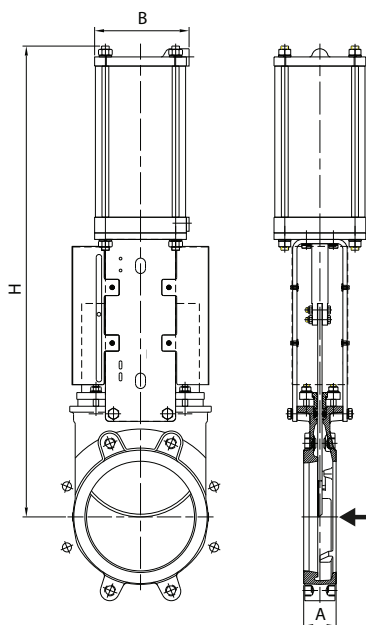
Manual actuator recommended for quick opening and closing. Available from 2in to 8in



DN (in/mm)	A (in/mm)	B (in/mm)	C (in/mm)	D (in/mm)	H (in/mm)	Weight (lbs./kg.)
2/50	1,57/40	10,08/256	5,90/150	12,40/315	16,06/408	25/11
2,5/65	1,57/40	10,20/259	5,90/150	12,40/315	17,12/435	27/12
3/80	2,00/50	12,08/307	5,90/150	12,40/315	20,03/509	31/14
4/100	2,00/50	17,28/439	5,90/150	16,33/415	25,08/637	33/15
5/125	2,00/50	20,83/529	5,90/150	16,33/415	29,72/755	38/17
6/150	2,36/60	24,40/620	5,90/150	16,33/415	35,23/895	42/19
8/200	2,36/60	32,36/822	9,25/235	24,40/620	40,86/1038	82/37

PNEUMATIC CYLINDER VERSION

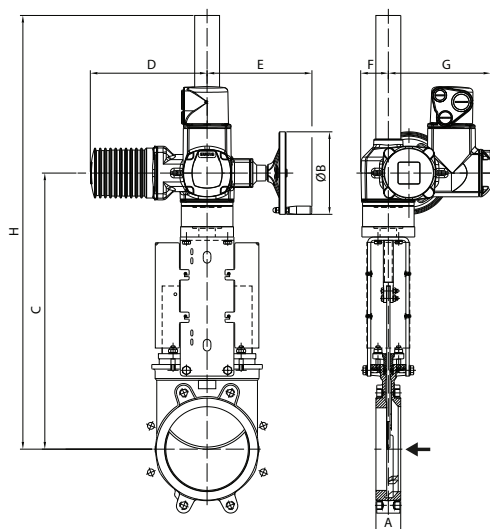
Double-acting and single-acting pneumatic cylinders available. Available in sizes 2in to 40in. Actuators sized for 85psi air supply. For valves installed in a horizontal position, actuator supports are recommended.



DN (in/mm)	A (in/mm)	B (in/mm)	H (in/mm)	Connect.	Weight (lbs./kg.)
2/50	1,57/40	4,53/115	16,22/412	1/4 "G	23/10
2,5/65	1,57/40	4,53/115	17,87/454	1/4 "G	27/12
3/80	2,00/50	4,53/115	19,56/497	1/4 "G	29/13
4/100	2,00/50	4,53/115	21,96/558	1/4 "G	34/15
5/125	2,00/50	5,51/140	24,88/632	1/4 "G	47/21
6/150	2,36/60	5,51/140	27,87/708	1/4 "G	56/25
8/200	2,36/60	6,89/175	34,33/872	1/4 "G	91/41
10/250	2,75/70	8,66/220	41,02/1042	3/8" G	133/60
12/300	2,75/70	8,66/220	46,93/1192	3/8" G	166/75
14/350	3,78/96	10,90/277	54,60/1387	3/8" G	283/128
16/400	3,93/100	10,90/277	60,67/1541	3/8" G	344/156
18/450	4,17/106	15,03/382	67,32/1710	1/2" G	516/234
20/500	4,33/110	15,03/382	73,74/1873	1/2" G	589/267
24/600	4,33/110	15,03/382	85,71/2178	1/2" G	737/334
28/700	4,33/110	17,48/444	100,24/2546	3/4" G	1146/520
30/750	4,33/110	17,48/444	107,28/2725	3/4" G	1290/585
32/800	4,33/110	17,48/444	112,20/2850	3/4" G	1433/650
36/900	4,33/110	20,27/515	126,06/3202	3/4" G	1874/850
40/1000	4,33/110	20,27/515	137,32/3488	3/4" G	2334/1060

ELECTRIC ACTUATOR VERSION

Designed with a yoke flange for the actuator according to ISO 5210. Available from 2in to 48in, rising and non-rising stems, and with manual overrides. For valves installed in a horizontal position, actuator supports are recommended.

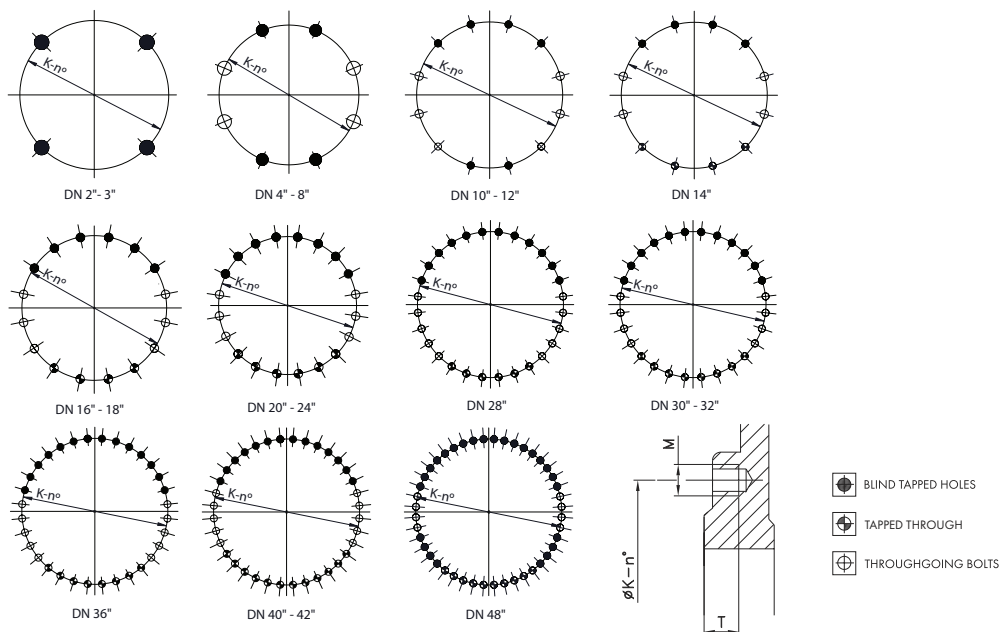


DN (in/mm)	A (in/mm)	C (in/mm)	ØB (in/mm)	H (in/mm)	D (in/mm)	E (in/mm)	F (in/mm)	G (in/mm)	Torque (ft.LBS/Nm)	Weight (lbs./kg.)
2/50	1,57/40	14,84/377	6,30/160	21,53/547	10,43/265	9,80/249	2,44/62	9,37/238	7,4/10	150/68
2,5/65	1,57/40	15,90/404	6,30/160	22,60/574	10,43/265	9,80/249	2,44/62	9,37/238	7,4/10	153/69
3/80	2,00/50	16,88/429	6,30/160	23,58/599	10,43/265	9,80/249	2,44/62	9,37/238	7,4/10	155/70
4/100	2,00/50	18,50/470	6,30/160	25,19/640	10,43/265	9,80/249	2,44/62	9,37/238	7,4/10	159/72
5/125	2,00/50	19,84/504	6,30/160	26,53/674	10,43/265	9,80/249	2,44/62	9,37/238	11,1/15	164/74
6/150	2,36/60	21,85/555	6,30/160	41,55/1055	10,43/265	9,80/249	2,44/62	9,37/238	14,8/20	175/79
8/200	2,36/60	26,33/669	6,30/160	46,02/1169	10,43/265	9,80/249	2,44/62	9,37/238	22,2/30	199/90
10/250	2,75/70	30,27/769	6,30/160	49,96/1269	10,43/265	9,80/249	2,44/62	9,37/238	33,3/45	225/102
12/300	2,75/70	34,21/869	6,30/160	53,89/1369	10,43/265	9,80/249	2,44/62	9,37/238	29,50/40	267/121
14/350	3,78/96	37,00/940	7,87/200	56,69/1440	11,14/283	10,00/254	2,55/65	9,76/248	51,8/70	280/127
16/400	3,93/100	41,10/1044	7,87/200	60,78/1544	11,14/283	10,00/254	2,55/65	9,76/248	66,38/90	318/144
18/450	4,17/106	46,14/1172	7,87/200	65,82/1672	11,14/283	10,00/254	2,55/65	9,76/248	81,4/110	422/191
20/500	4,33/110	50,39/1280	7,87/200	70,07/1780	11,14/283	10,00/254	3,58/91	9,76/248	70,06/95	514/233
24/600	4,33/110	61,61/1565	12,40/315	81,29/2065	15,31/389	13,22/336	3,58/91	11,25/286	103,26/140	741/336
28/700	4,33/110	69,40/1763	12,40/315	112,04/2846	15,31/389	13,22/336	3,58/91	11,25/286	88,50/120	-
30/750	4,33/110	74,09/1882	12,40/315	116,73/2965	15,31/389	13,22/336	3,58/91	11,25/286	103,26/140	-
32/800	4,33/110	76,69/1948	12,40/315	110,33/3031	15,31/389	13,22/336	3,58/91	11,25/286	132,76/180	-
36/900	4,33/110	84,92/2157	15,74/400	127,55/3240	15,31/389	13,34/339	3,58/91	11,25/286	163,74/220	-
40/1000	4,33/110	92,51/2350	15,74/400	135,07/3431	15,31/389	13,34/339	3,58/91	11,25/286	221,27/300	-
48/1200	5,90/150	107,55/2732	20,00/500	162,87/4137	16,93/430	14,37/365	4,61/117	11,93/303	354,03/480	-

FLANGE AND BOLTING DETAILS ASME B16.5, CLASS 150*

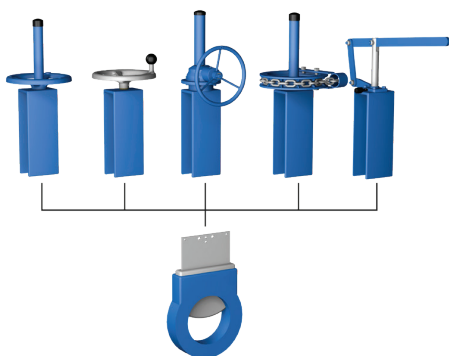
DN	K	n°	M	T	  
2"	4 3/4"	4	5/8" - 11 UNC	3/8"	4 - 0 - 0
2 1/2"	5 1/2"	4	5/8" - 11 UNC	3/8"	4 - 0 - 0
3"	6"	4	5/8" - 11 UNC	3/8"	4 - 0 - 0
4"	7 1/2"	8	5/8" - 11 UNC	3/8"	4 - 0 - 4
5"	8 1/2"	8	3/4" - 10 UNC	3/8"	4 - 0 - 4
6"	9 1/2"	8	3/4" - 10 UNC	1/2"	4 - 0 - 4
8"	11 3/4"	8	3/4" - 10 UNC	1/2"	4 - 0 - 4
10"	14 1/4"	12	7/8" - 9 UNC	3/4"	6 - 0 - 6
12"	17"	12	7/8" - 9 UNC	3/4"	6 - 0 - 6
14"	18 3/4"	12	1" - 8 UNC	7/8"	4 - 4 - 4
16"	21 1/4"	16	1" - 8 UNC	1"	6 - 4 - 6
18"	22 3/4"	16	1 1/8" - 7 UNC	1"	6 - 4 - 6
20"	25"	20	1 1/8" - 7 UNC	1"	8 - 6 - 6
24"	29 1/2"	20	1 1/4" - 7 UNC	1"	8 - 6 - 6
28"	34"	28	1 1/4" - 7 UNC	3/4"	12 - 6 - 10
30"	36"	28	1 1/4" - 7 UNC	3/4"	12 - 8 - 8
32"	38 1/2"	28	1 1/2" - 6 UNC	3/4"	12 - 8 - 8
36"	42 3/4"	32	1 1/2" - 6 UNC	3/4"	14 - 8 - 10
40"	47 1/4"	36	1 1/2" - 6 UNC	3/4"	14 - 12 - 10
42"	49 1/2"	36	1 1/2" - 6 UNC	3/4"	14 - 12 - 10
48"	56"	44	1 1/2" - 6 UNC	13/16"	26 - 10 - 8

* From NPS 24, acc. to ASME B16.47 Series A (class 150)



Alloy Valves and Control

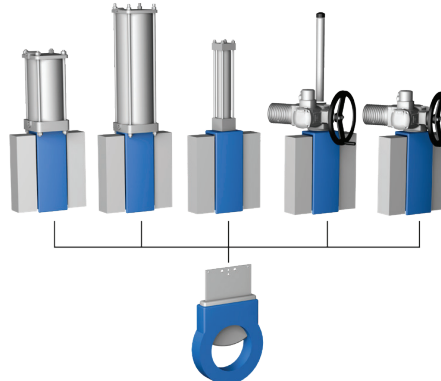
Manual RS Manual NRS Bevel Gear Chainwheel Lever



Manual Valves

Handwheel
Bevel Gear
Lever
Chainwheel
Custom Extensions
Lock Out

Pneumatic Double Acting Pneumatic Single Acting Hydraulic Electric RS Electric NRS



Actuated Valves

Pneumatic
Hydraulic
Double Acting/Spring Return
Solenoid Valves
Limit Switches
Positioners 4-20 mA/3-15 psi
Intelligent Positioner

HOW TO ORDER

AV10	36	36	M	-	2.0
Series	Body	Seat	Seat Material	Options	Size
Series 10 Wafer Style Knifegate Valve*	304SS - 34	304SS - 34	M - Metal	SSY - Stainless Steel Yoke	2" - 2.0
	316SS - 36	316SS - 36	RB - Resilient Buna	HT - High Temperature Packing	3" - 3.0
	317SS - 37	317SS - 37	RE - Resilient EPDM	BP - Backing Pins	4" - 4.0
	210 SMO - 25	250 SMO - 25	RN - Resilient Neoprene	BGO - Bevel Gear Operator	5" - 5.0
	Titanium - Ti	Titanium - Ti	RH - Resilient Hypalon	DA - Double Acting Pneumatic Actuator	6" - 6.0
	Hastelloy C276 - HC	Hastelloy C276 - HC	RV - Resilient Viton	SA - Spring Return Pneumatic Actuator	8" - 8.0
	Cast Iron - 21	Carbon Steel - 24		HW - Handwheel	10" - 10.0
	Ductile Iron - 23			BG - Bevel Gear	12" - 12.0
	Carbon Steel - 24			HW/C - Chainwheel on Handwheel	14" - 14.0
				BG/CW - Chainwheel on Gear	16" - 16.0
				EL120 - Electric 120vac	18" - 18.0
				EL460 - Electric 460vac	20" - 20.0
				DAH - Hydraulic Cylinder	24" - 24.0
				LV - Lever Handle	26" - 26.0
				SRFC - Spring fail close	28" - 28.0
				SRFO - Spring fail open	30" - 30.0
					36" - 36.0
					40" - 40.0
					48" - 48.0

* Valves by Orbinox

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