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*DHV Industries, Inc.*

3451 Pegasus Drive,  
Bakersfield, CA 93308 U.S.A.  
Call TollFree: (887) DHV-USA1  
Phone: (661) 392-8948  
Fax: (661) 392-8947  
E-mail: [sales@dhvindustries.com](mailto:sales@dhvindustries.com)  
Website: [www.dhvindustries.com](http://www.dhvindustries.com)

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*DHV Valve Company Inc.*

10401 South Sam Houston Pkwy  
West Houston, TX, 77071 U.S.A.  
Call Toll Free: 884-828-2169  
Tel: 346-304-2968  
Fax: 346-304-2971  
E-mail: [sales@dhvvalve.com](mailto:sales@dhvvalve.com)  
Website: [www.dhvvalve.com](http://www.dhvvalve.com)

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# ***Wellhead Valves***



# DHV Figure Numbers

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### Code

- C = Cast Steel Valves
- F = Forged Steel Valves
- I = Cast Iron Valves
- B = Ball Valves
- W = Wellhead Valves
- WB = Wafer Butterfly Valves

### Type

- 1 = Slab Gate Valves
- 2 = Expanding Gate Valves
- 3 = Needle Adjustable Choke
- 4 = External Sleeve Adjustable Choke
- 5 = Positive Choke
- 6 = Check Valves
- 7 = Mud Gate Valves
- X = Special

### Body Material

- A = AA
- B = BB
- C = CC
- D = DD
- E = EE
- F = FF
- H = HH

*2 1/16" Wellhead Expanding Gate Valve, 5000psi, DD Body Material, Class PSL-1, PR-1, U Temperature Rating, Threaded End*

Example: 2 1/16"-W205D11UT

### Pressure Class

- 02 = 2000psi
- 03 = 3000psi
- 05 = 5000psi
- 10 = 10000psi
- 20 = 20000psi
- 51 = 150LB
- 53 = 300LB
- 56 = 600LB
- 58 = 800LB
- 59 = 900LB
- 65 = 1500LB
- 75 = 2500LB

### Product Specification Level

- 1 = PSL1
- 2 = PSL2
- 3 = PSL3
- 4 = PSL4

### Performance Requirement Level

- 1 = PR1
- 2 = PR2

### Temperature Rating

- K, L, P, R, S, T, U, V

### End Connection

- F = RF (B16.5)
- J = RTJ (API 6A)
- R = RTJ (B16.5)
- T = Threaded End
- U = Union
- W = Welded End
- X = Special



# Slab Gate Valve

## Features:

- Metal to Metal Seal
- Parallel Gate and Seal With Preloaded Spring.
- Positive Upstream and Downstreams seal.
- Double Block and Bleed Capability.
- Automatic Relief of excess body pressure.
- The full port design allows for pigging or hot tapping.

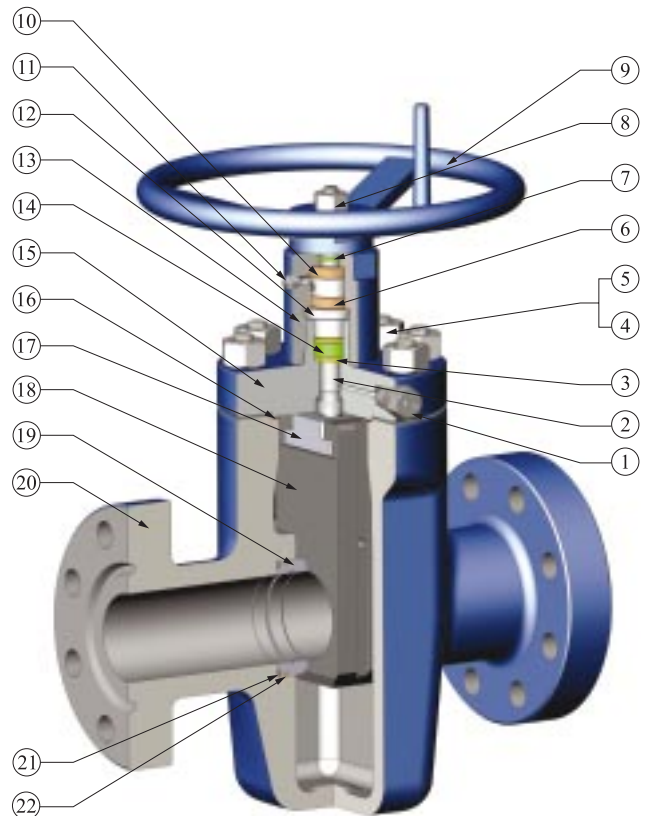
## Specifications:

	<i>Non-rising stem gate valve</i>	<i>Rising stem gate valve</i>
• Basic Design and Test	API-6A	API-6A
• Working Pressure (Psi)	2000, 3000, 5000, 10000, 15000	10000, 15000, 20000
• Main Nominal Size	1-13/16, 2-1/16, 2-9/16, 3-1/16, 3-1/8, 4-1/16	1-13/16, 2-1/16, 3-1/16, 3-1/8, 4-1/16
• Product Specification Level	PSL1, PSL2, PSL3, PSL4	PSL1, PSL2, PSL3, PSL4
• Performance Requirement Level	PR1, PR2	PR1, PR2
• Material Class	AA, BB, CC, DD, EE, FF	AA, BB, CC, DD, EE, FF
• Working Temperature	-20°F~250°F (P~U)	-20°F~250°F (P~U)

## Parts List

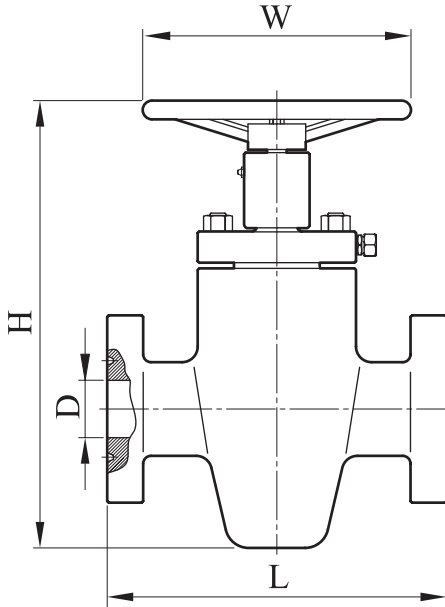
No	Name	Material
1	STEM INJECTION FITTING	AISI 4140
2	STEM	AISI 4135
3	GLAND RING	COPPER
4	BOLT	ASTM A 193 B7M
5	NUT	ASTM A 194 2HM
6	BEARING	STEEL
7	DUST SEAL	PTFE
8	HANDWHEEL NUT	ASTM A 194 2HM
9	HANDWHEEL	CARBON STEEL
10	BEARING	STEEL
11	GREASE ZERK	STAINLESS STEEL
12	PACKING GLAND	ASTM A276 420
13	BEARING HOUSING	AISI 1045
14	STEM PACKING	PTFE WITH GRAPHITE
15	BONNET	AISI 4130
16	BONNET GASKET	SPIRAL WOUND 316SS GRAPHITE
17	STEM NUT	ASTM A276 410
18	GATE	ASTM A276 410+NITRIDED
19	SEAT	ASTM A276 410+NITRIDED
20	BODY	AISI 4130
21	SEAT SPRING	INCONEL X-750
22	O-RING	VITON-B

Other trim and body material are available upon request.





# Slab Gate Valve



## Dimensions

2000Psi				
NPS	L	D	H	W
	in mm	in mm	in mm	in mm
2 1/16"	11.62	2.06	17.75	9.84
	295	52.4	451	250
2 9/16"	13.12	2.56	20.06	9.84
	333	65.1	510	250
3 1/8"	14.12	3.12	22.00	13.00
	359	79.4	559	330
4 1/16"	17.12	4.06	25.00	13.00
	435	103.2	635	330

3000Psi				
NPS	L	D	H	W
	in mm	in mm	in mm	in mm
2 1/16"	14.62	2.06	17.83	13.00
	359	52.4	453	330
2 9/16"	16.62	2.56	20.06	13.00
	422	65.1	510	330
3 1/8"	17.12	3.12	22.76	13.00
	435	79.4	578	330
4 1/16"	20.12	4.06	26.25	15.75
	511	103.2	667	400

5000Psi				
NPS	L	D	H	W
	in mm	in mm	in mm	in mm
2 1/16"	14.62	2.06	17.83	13.00
	359	52.4	453	330
2 9/16"	16.62	2.56	20.06	13.00
	422	65.1	510	330
3 1/8"	18.62	3.12	23.35	15.75
	473	79.4	593	400
4 1/16"	21.62	4.06	26.38	17.75
	549	103.2	670	450

10000Psi				
NPS	L	D	H	W
	in mm	in mm	in mm	in mm
2 1/16"	20.50	2.06	28.38	15.75
	521	52.4	721	400
2 9/16"	22.25	2.56	34.63	17.75
	565	65.1	879	450
3 1/16"	24.38	3.06	25.55	17.75
	619	77.72	649	450
4 1/16"	26.38	4.06	41.56	19.68
	670	103.2	1056	500

15000Psi				
NPS	L	D	H	W
	in mm	in mm	in mm	in mm
2 1/16"	19.00	2.06	28.38	15.75
	483	52.4	721	400
2 9/16"	21.00	2.56	36.50	17.75
	533	65.1	927	450
3 1/16"	23.56	3.06	37.06	17.75
	598	77.72	941	450
4 1/16"	29.00	4.06	43.00	19.68
	737	103.2	1092	500



# Expanding Gate Valve

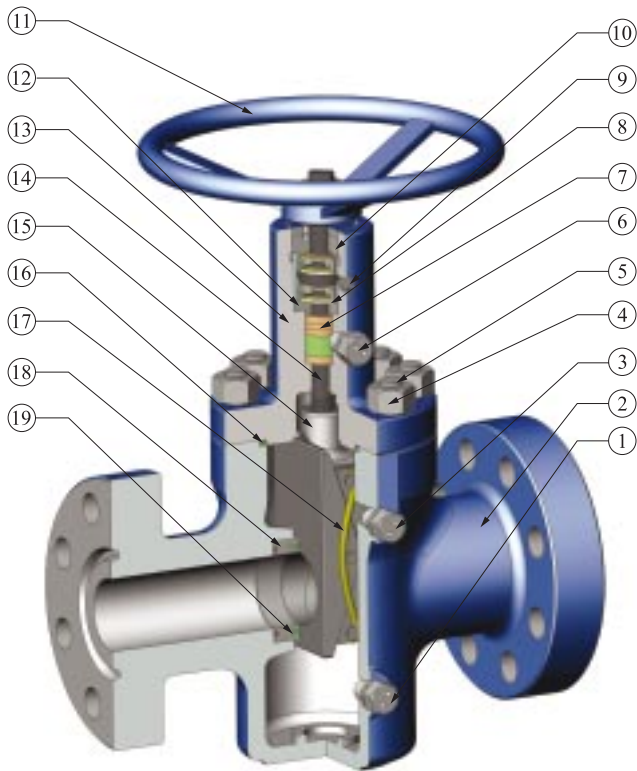
## Features:

- Parallel expanding gate gives positive seal across both seats.
- A double row roller thrust bearing on the stem makes operation easy, even under full pressure.
- Upper and lower roller thrust bearings are used to minimize torque and are isolated from pressure of medium.
- The full bore through conduit design minimize pressure drop, eliminating turbulence.
- The seal faces are protected from in the open and closed positions for long life.

## Specifications:

- |                                 |                                                       |
|---------------------------------|-------------------------------------------------------|
| • Basic Design and Test         | <b>API-6A</b>                                         |
| • Working Pressure (Psi)        | <b>2000, 3000, 5000</b>                               |
| • Main Nominal Size             | <b>1-13/16, 2-1/16, 2-9/16, 3-1/16, 3-1/8, 4-1/16</b> |
| • Product Specification Level   | <b>PSL1, PSL2, PSL3, PSL4</b>                         |
| • Performance Requirement Level | <b>PR1, PR2</b>                                       |
| • Material Class                | <b>AA, BB, CC, DD, EE, FF</b>                         |
| • Working Temperature           | <b>-50 °F~250 °F (L~U)</b>                            |

## Parts List



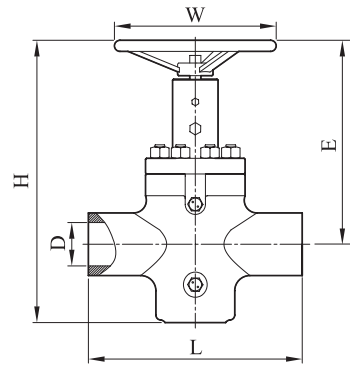
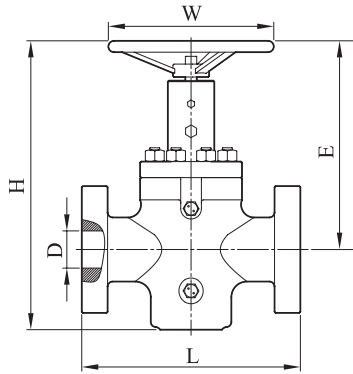
No	Name	Material
1	GREASE FITTING	AISI 4140
2	BODY	AISI 4130
3	GREASE FITTING	AISI 4140
4	NUT	ASTM A194 2HM
5	BOLT	ASTM A193 B7M
6	GREASE FITTING	STAINLESS STEEL
7	PACKING	TEFLON
8	BEARING	STEEL
9	GREASEI ZERK	STAINLESS STEEL
10	BEARING GLAND	AISI 1045
11	HANDWHEEL	ASTM A216 WCB
12	PACKING GLAND	AISI 4130
13	BONNET	AISI 4130
14	STEM	AISI 4130
15	GATE	AISI 4130
16	BONNET GASKET	SPIRAL WOUND 316SS GRAPHITE
17	GATE SPRING	INCONEL X-750
18	SEAT RETAINER	AISI 4135
19	SEAT	TEFLON

Other trim and body material are available upon request.



# Expanding Gate Valve

## Dimensions



### Flanged End Values

2000Psi					
NPS	L	D	E	H	W
	in mm	in mm	in mm	in mm	in mm
2 1/16"	11.62	2.06	4.81	19.25	11.00
	295	52.4	122	489	280
2 9/16"	13.12	2.56	5.63	20.19	13.00
	333	65.1	143	513	330
3 1/8"	14.12	3.12	6.94	22.50	13.00
	359	79.4	176	572	330
4 1/16"	17.12	4.06	8.63	25.94	16.00
	435	103.2	219	659	406

### Threaded End Values

2000Psi					
NPS	L	D	E	H	W
	in mm	in mm	in mm	in mm	in mm
2 1/16"	9.63	2.06	4.81	19.25	11.00
	244	52.4	122	489	280
2 9/16"	10.25	2.56	5.63	20.19	13.00
	260	65.1	143	513	330
3 1/8"	11.38	3.12	6.94	22.50	13.00
	289	79.4	176	572	1330
4 1/16"	13.00	4.06	8.63	25.94	16.00
	330	103.2	219	659	406

3000Psi					
NPS	L	D	E	H	W
	in mm	in mm	in mm	in mm	in mm
2 1/16"	14.62	2.06	5.06	19.44	13.00
	359	52.4	129	494	330
2 9/16"	16.62	2.56	5.94	20.44	16.00
	422	65.1	151	519	406
3 1/8"	17.12	3.12	7.31	22.75	16.00
	435	79.4	186	578	406
4 1/16"	20.12	4.06	9.06	26.38	20.00
	511	103.2	230	670	508

3000Psi					
NPS	L	D	E	H	W
	in mm	in mm	in mm	in mm	in mm
2 1/16"	9.63	2.06	5.06	19.44	13.00
	244	52.4	129	494	330
2 9/16"	10.25	2.56	5.94	20.44	16.00
	260	65.1	151	519	406
3 1/8"	11.38	3.12	7.31	22.75	16.00
	289	79.4	186	578	406
4 1/16"	13.00	4.06	9.06	26.38	20.00
	330	103.2	230	670	508

5000Psi					
NPS	L	D	E	H	W
	in mm	in mm	in mm	in mm	in mm
2 1/16"	14.62	2.06	5.06	19.44	13.00
	359	52.4	129	494	330
2 9/16"	16.62	2.56	5.94	20.44	16.00
	422	65.1	151	519	406
3 1/8"	18.62	3.12	7.31	22.75	16.00
	473	79.4	186	578	406
4 1/16"	21.62	4.06	9.06	26.38	20.00
	549	103.2	230	670	508

5000Psi					
NPS	L	D	E	H	W
	in mm	in mm	in mm	in mm	in mm
2 1/16"	9.63	2.06	5.06	19.44	13.00
	244	52.4	129	494	330
2 9/16"	10.25	2.56	5.94	20.44	16.00
	260	65.1	151	519	406
3 1/8"	11.38	3.12	7.31	22.75	16.00
	289	79.4	186	578	406
4 1/16"	13.00	4.06	9.06	26.38	20.00
	330	103.2	230	670	508



# Mud Gate Valve

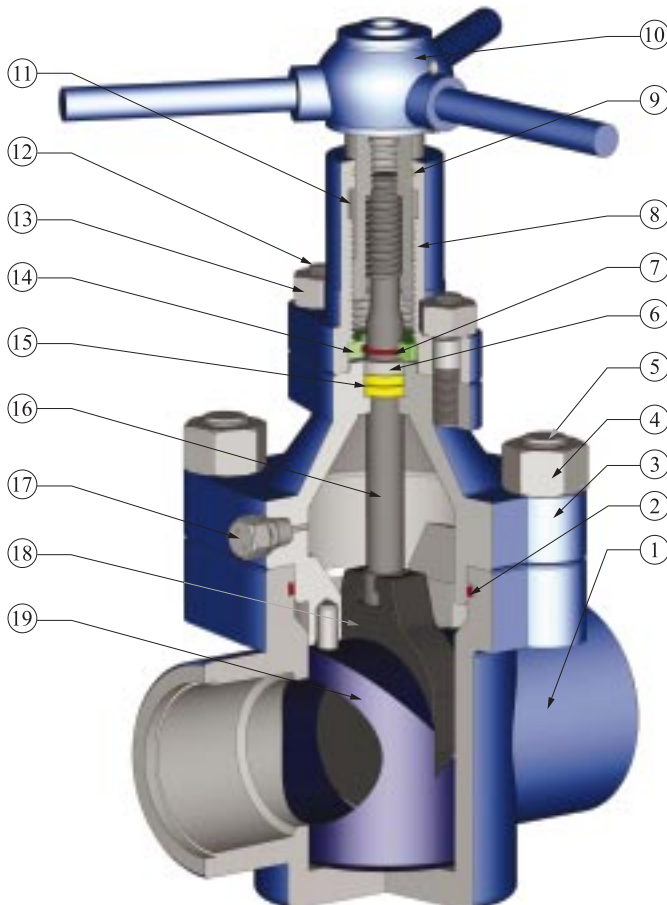
## Features:

- The unique design of the mud gate valve seat assures tight shut-off after exposure to the most rigorous field conditions.
- Rising stems are driven by means of a double acting thread for fast operation with low turning effort.
- Both stem and stem screw are permanently lubricated and sealed with the aid of an O-ring between the stem and screw housing. The stem seal assembly assures sealing under both low and high pressure.

## Specifications:

Basic Design and Test	<b>API-6A</b>	<b>ANSI</b>
Working Pressure	<b>2000, 3000, 5000 (Psi)</b>	<b>400, 600, 900, 1500 (LB)</b>
Main Nominal Size (in)	<b>2-1/16, 2-9/16, 3-1/8, 4-1/16</b>	<b>2, 2-1/2, 3, 4</b>
Product Specification Level	<b>PSL1, PSL2, PSL3, PSL4</b>	<b>PSL1, PSL2, PSL3, PSL4</b>
Performance Requirement Level	<b>PR1, PR2</b>	<b>PR1, PR2</b>
Material Class	<b>AA, BB, CC, DD, EE, FF</b>	<b>AA, BB, CC, DD, EE, FF</b>
End Connection	<b>Flanged, Thread, Union</b>	<b>Flanged, Thread, Union</b>

## Parts List



No	Name	Material
1	BODY	AISI 4130
2	BONNET SEAL	VITON-B
3	BONNET	AISI 4130
4	NUT	ASTM A194 2HM
5	BOLT	ASTM A193 B7M
6	PACKING RING	STAINLESS STEEL
7	O-RING	BUNA-N
8	SCREW HOUSING	ASTM A216 WCB
9	O-RING	BUNA-N
10	HANDWHEEL	CARBON STEEL
11	NUT	AISI 1045+ZN
12	BOLT	ASTM A193 B7M
13	NUT	ASTM A194 2HM
14	GLAND	STAINLESS STEEL
15	PACKING	BUNA-N
16	STEM	AISI4130+NITRIDED
17	INJECTION FITTING	STAINLESS STEEL
18	GATE	AISI 4130+NITRIDED
19	SEAT	AISI 4140+BUNA-N

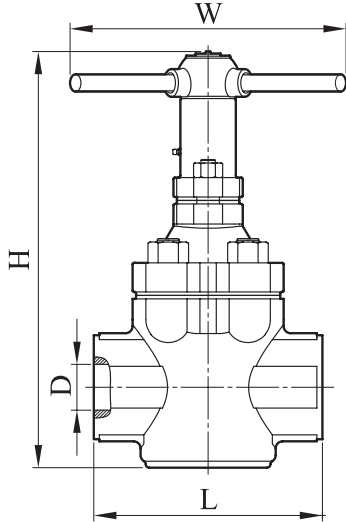
Other trim and body material are available upon request.





# Mud Gate Valve

## Dimensions



### ANSI Type Dimension

Class 400					
NPS	Flanged (RTJ) L	Threaded L	D	Open H	W
	in	in		in	in
2"	11.5	9.02	2.06	14.57	19.25
	292	229	52.4	370	489
2 1/2"	13	9.76	2.56	18.90	20.19
	330	248	65.1	480	513
3"	14	10.98	3.12	20.08	22.50
	356	279	79.4	510	572
4"	16	12.99	4.06	22.83	25.94
	406	330	103.2	580	659

Class 600					
NPS	Flanged (RTJ) L	Threaded L	D	Open H	W
	in	in		in	in
2"	11.62	9.02	2.06	14.57	14.02
	295	229	52.4	370	356
2 1/2"	13.12	9.76	2.56	18.90	17.72
	333	248	65.1	480	450
3"	14.12	10.98	3.12	20.08	17.72
	359	279	79.4	510	450
4"	17.12	12.99	4.06	22.83	17.72
	435	330	103.2	580	450

Class 900					
NPS	Flanged (RTJ) L	Threaded L	D	Open H	W
	in	in		in	in
2"	14.5	9.02	2.06	14.57	14.02
	368	229	52.4	370	356
2 1/2"	16.5	9.76	2.56	18.90	17.72
	419	248	65.1	480	450
3"	15	10.98	3.12	20.08	17.72
	381	279	79.4	510	450
4"	18	12.99	4.06	22.83	17.72
	457	330	103.2	580	450

Class 1500					
NPS	Flanged (RTJ) L	Threaded L	D	Open H	W
	in	in		in	in
2"	14.62	9.02	2.06	14.57	14.02
	359	229	52.4	370	356
3"	16.62	10.98	2.56	20.08	17.72
	422	279	65.1	510	450
4"	18.62	16.93	3.12	29.92	17.72
	473	430	79.4	760	450

### API 6A Type Dimension

2000Psi					
NPS	Flanged (RTJ) L	Threaded L	D	Open H	W
	in	in		in	in
2 1/16"	11.61	9.02	2.06	14.57	14.02
	295	229	52.4	370	356
2 9/16"	13.11	9.76	2.56	18.90	17.72
	333	248	65.1	480	450
3 1/8"	14.13	10.98	3.12	20.08	17.72
	359	279	79.4	510	450
4 1/16"	17.13	12.99	4.06	22.83	17.72
	435	330	103.2	580	450

3000Psi					
NPS	Flanged (RTJ) L	Threaded L	D	Open H	W
	in	in		in	in
2 1/16"	14.62	9.02	2.06	14.57	14.02
	359	229	52.4	370	356
2 9/16"	16.62	9.76	2.56	18.90	17.72
	422	248	65.1	480	450
3 1/8"	17.12	10.98	3.12	20.08	17.72
	435	279	79.4	510	450
4 1/16"	20.12	12.99	4.06	28.35	17.72
	511	330	103.2	720	450

5000Psi					
NPS	Flanged (RTJ) L	Threaded L	D	Open H	W
	in	in		in	in
2 1/16"	14.62	9.02	2.06	14.57	14.02
	359	229	52.4	370	356
2 9/16"	16.62	9.76	2.56	18.90	17.72
	422	248	65.1	480	450
3 1/8"	18.62	10.98	3.12	20.08	17.72
	473	279	79.4	510	450
4 1/16"	21.62	16.93	4.06	29.92	17.72
	549	3430	103.2	760	450





# External Sleeve Adjustable Choke

## Features:

- Both sleeves in the external sliding sleeve and seat nozzle are made of solid Tungsten Carbide, which are abrasion and erosion resistance.
- With the pressure-balancing bores in the external sliding sleeve, the stem will face the minimum load from downstream pressure.
- With bean size indicator on the stem, the throttle bore can be observed.
- The stem will be locked when tighten to the wing nut position so as to assure the selected flow rate maintained.

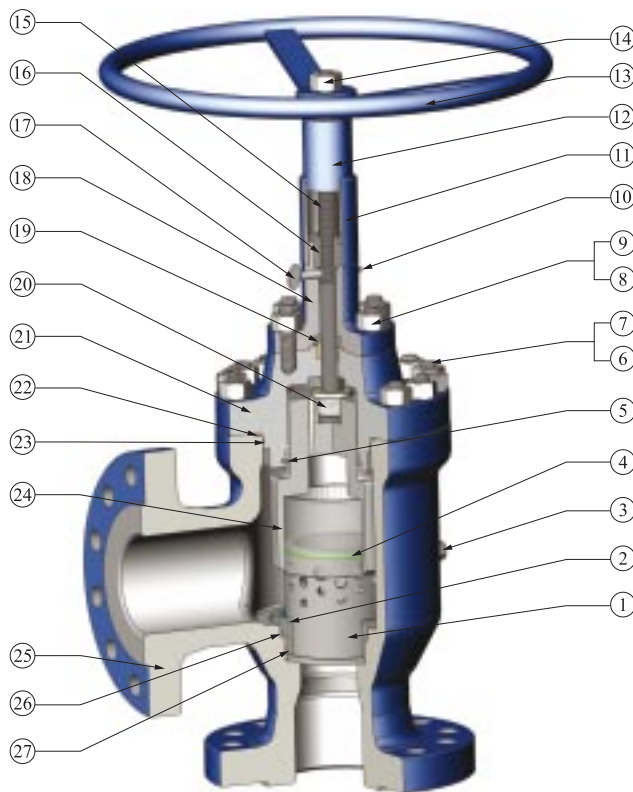
## Specifications:

• Basic Design and Test	<b>API-6A</b>	<b>ANSI</b>
• Working Pressure	<b>2000, 3000, 5000, 6000 (Psi)</b>	<b>400, 600, 900, 1500, 2500 (LB)</b>
• Main Nominal Size (in)	<b>2-1/16, 2-9/16, 3-1/8, 4-1/16, 5-1/8, 7-1/16</b>	<b>2, 2-1/2, 3, 4, 6, 8</b>
• Product Specification Level	<b>PSL1, PSL2, PSL3, PSL4</b>	<b>PSL1, PSL2, PSL3, PSL4</b>
• Performance Requirement Level	<b>PR1, PR2</b>	<b>PR1, PR2</b>
• Material Class	<b>AA, BB, CC, DD, EE, FF</b>	<b>AA, BB, CC, DD, EE, FF</b>
• End Connection	<b>Flanged</b>	<b>Flanged, Welded</b>

## Parts List

No	Name	Material
1	SEAT CAGE	TUNGSTEN CARBIDE
2	SEAT INSERT	PTFE
3	DRAIN FITTING	STAINLESS STEEL
4	O-RING	VITON-B
5	SEAT SEALING	VITON
6	NUT	ASTM A194 2HM
7	BOLT	ASTM A193 B7M
8	NUT	ASTM A194 2HM
9	BOLT	ASTM A193 B7M
10	LUBRICATOR	CARBON STEEL
11	STEM PROTECTOR	ASTMA276 420
12	INDICATOR COVER	CARBON STEEL
13	HANDWHEEL	ASTMA216 WCB
14	HANDWHEEL NUT	ASTM A194 2HM
15	STEM	17- 4PH
16	STEM NUT	ASTM A439 D2
17	LOCK NUT	STAINLESS STEEL
18	YOKE	ASTMA216 WCB
19	STEM SEALING	VITON
20	RETAINER NUT	17- 4PH
21	BONNET	ASTMA216 WCB
22	GASKET	SPIRAL WOUND 316SS GRAPHITE
23	O-RING	VITON-B
24	EXTERNAL SLEEVE	17-4PH / TUNGSTEN CARBIDE
25	BODY	ASTM A216 WCB
26	O-RING	VITON-B
27	SEAT BODY	17- 4PH

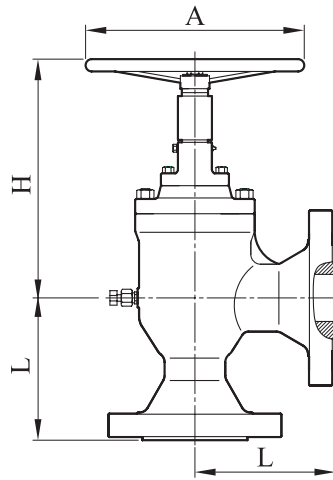
Other trim and body material are available upon request.





# External Sleeve Adjustable Choke

## Dimension



NPS		H	
FP	RP	Close in / mm	Open in / mm
2"	3"x2"	12.80	13.82
		325	351
3"	4"x3"	15	16.57
		381	421
4"	6"x4"	19.61	21.06
		498	535
6"	8"x6"	24.5	27.48
		622	698

NPS	2"		3"		4"		6"	
	L	A	L	A	L	A	L	A
	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm
150LB	7.00	13.78	7.25	13.78	8.25	13.78	10.00	17.72
	178	350	184	350	210	350	254	450
300LB	7.25	13.78	7.63	13.78	8.75	13.78	10.38	17.72
	184	350	194	350	222	350	264	450
600LB	7.63	13.78	8.25	13.78	9.51	17.72	11.38	17.72
	194	350	210	350	242	450	289	450
900LB	8.75	13.78	8.75	13.78	10.00	17.72	12.25	23.62
	222	350	222	350	254	450	311	600
1500LB	8.75	13.78	9.5	13.78	10.38	17.72	13.50	23.62
	222	350	242	350	264	450	343	600
2500LB	10.00	13.78	11.38	13.78	13.00	17.72	17.48	23.62
	254	350	289	350	330	450	444	600
2000PSI	7.63	13.78	8.25	13.78	9.5	17.72	11.38	17.72
	194	350	210	350	242	450	289	450
3000PSI	8.75	13.78	8.75	13.78	10.00	17.72	12.25	23.62
	222	350	222	350	254	450	311	600
5000PSI	8.75	13.78	9.5	13.78	10.38	17.72	13.50	23.62
	222	350	242	350	264	450	343	600
NPS	3"x2"		4"x3"		6"x4"		8"x6"	
	L	A	L	A	L	A	L	A
	in mm	in mm	in mm	in mm	in mm	in mm	in mm	in mm
150LB	7.25	13.78	8.25	13.78	10.00	13.78	15.0	17.72
	184	350	210	350	254	350	381	450
300LB	7.63	13.78	8.75	13.78	10.38	13.78	15.38	17.72
	194	350	222	350	264	350	391	450
600LB	8.25	13.78	9.5	13.78	11.38	17.72	16.5	17.72
	210	350	242	350	289	450	419	450
900LB	8.75	13.78	10.00	13.78	12.25	17.72	17.52	23.62
	222	350	254	350	311	450	448	600
1500LB	9.5	13.78	10.38	13.78	13.50	17.72	19.62	23.62
	242	350	264	350	343	450	498	600
2500LB	11.38	13.78	13.00	13.78	17.48	17.72	23.75	23.62
	289	350	330	350	444	450	603	600
2000PSI	8.25	13.78	9.5	13.78	11.38	17.72	16.5	17.72
	210	350	242	350	289	450	419	450
3000PSI	8.75	13.78	10.00	13.78	12.25	17.72	17.52	23.62
	222	350	254	350	311	450	448	600
5000PSI	9.5	13.78	10.38	13.78	13.50	17.72	19.62	23.62
	242	350	264	350	343	450	498	600

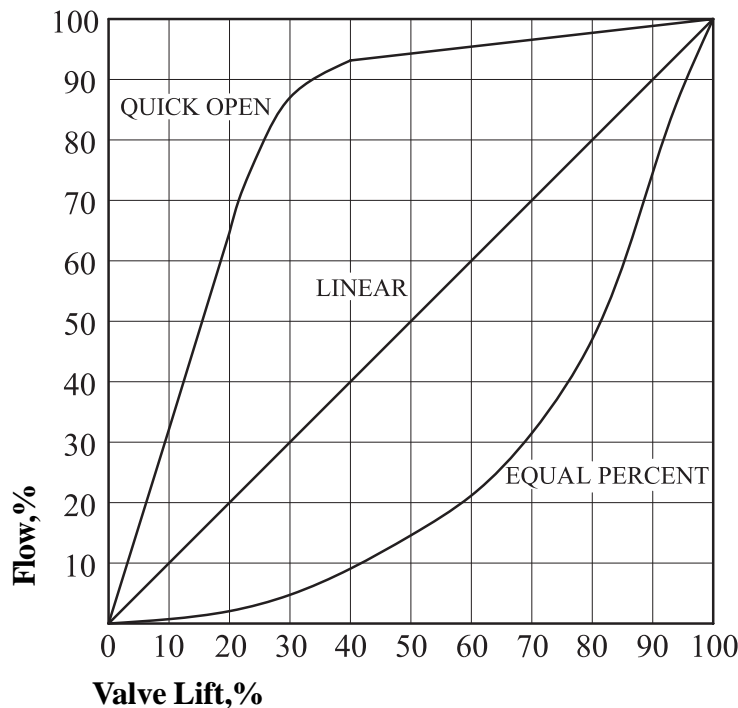


# External Sleeve Adjustable Choke

**Nozzle Bean Size Selection Table**

<b>Equivalent Orifice DIA. (Bean Size)</b>	<b>20</b>	<b>32</b>	<b>48</b>	<b>64</b>	<b>80</b>	<b>96</b>	<b>112</b>	<b>128</b>	<b>144</b>	<b>160</b>
<b>Orifice Area (in<sup>2</sup>)</b>	0.077	0.196	0.442	0.785	1.227	1.767	2.405	3.142	3.976	4.909
<b>Cv* Values</b>	1.4	3.7	8.3	14.8	23.2	33.3	45.4	59.3	75.0	92.6
<b>2FB 3RB</b>		*	*	*						
<b>3FB 4RB</b>			*	*	*	*	*			
<b>4FB 6RB</b>					*	*	*	*	*	*
<b>6FB 8RB</b>							*	*	*	*
<b>Equivalent Orifice DIA. (Bean Size)</b>	<b>176</b>	<b>192</b>	<b>208</b>	<b>224</b>	<b>240</b>	<b>256</b>	<b>272</b>	<b>288</b>	<b>304</b>	
<b>Orifice Area (in<sup>2</sup>)</b>	5.940	7.069	8.296	9.621	11.0447	12.57	14.1863	15.90	17.72	
<b>Cv* Values</b>	112.1	141	166	192	221	251	284	318	354	
<b>2FB 3RB</b>										
<b>3FB 4RB</b>										
<b>4FB 6RB</b>	*	*								
<b>6FB 8RB</b>	*	*	*	*	*	*	*	*	*	

\*Cv values listed above are the approximation for each bean size and may vary for different valve configurations.



## Trim Configuration

The three basic types of flow characteristics are quick opening, linear, and equal percentage.

Controllability of a valve throughout its range is maximized with equal percent trim. This trim meets the precise control requirements at low set points, yet still offers overall flow capacity.

The linear configuration provides good control in the upper range but suffers from poor control in the lower region.

Quick opening trim is only suitable for use at the upper end of its travel.



# Needle Adjustable Choke

## Features:

- Long life and low maintenance.
- Body to bonnet contact behind the O-ring seal eliminates bonnet seal extrusion.
- A locking device is set on stem.
- Ideal for many flow regulating services and easily converted to a positive choke.
- The stem of adjustable choke are made of high strength alloy steel. The material have the feature of abrasion resistance, erosion resistance and reliable serviceability.
- The valve and seat can be removed by hand, without special tools and without removal of the valve body from the line, by simply removing the bonnet.

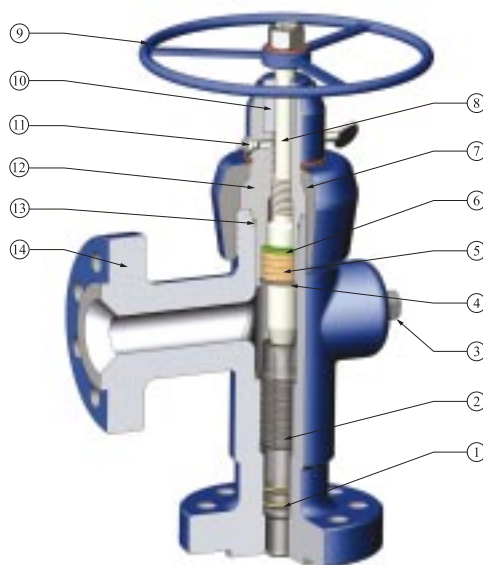
## Specifications:

• Basic Design and Test	<b>API-6A</b>	<b>ANSI</b>
• Working Pressure	<b>2000, 3000, 5000, 10000, 15000, 20000 (Psi)</b>	<b>400, 600, 900, 1500, 2500 (LB)</b>
• Main Nominal Size(in)	<b>2-1/16, 2-9/16, 3-1/16, 3-1/8, 4-1/16</b>	<b>2, 2-1/2, 3, 4, 6, 8</b>
• Product Specification Level	<b>PSL1, PSL2, PSL3, PSL4</b>	<b>PSL1, PSL2, PSL3, PSL4</b>
• Performance Requirement Level	<b>PR1, PR2</b>	<b>PR1, PR2</b>
• Material Class	<b>AA, BB, CC, DD, EE, FF</b>	<b>AA, BB, CC, DD, EE, FF</b>
• End Connection	<b>Flanged, Thread, Flanged and Thread</b>	<b>Flanged, Weld</b>

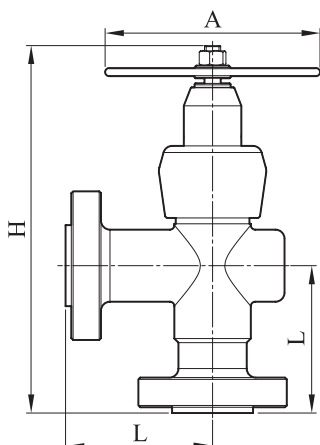
## Parts List

No	Name	Material
1	O-RING	VITON-B
2	SEAT	AISI 4135
3	DRAIN FITTING	AISI 4140
4	MALE ADAPTER	ASTM A182 F6a
5	V-PACKING	VITON
6	FEMALE ADAPTER	ASTM A182 F6a
7	WING NUT	AISI 4130
8	STEM	AISI 4135
9	HANDWHEEL	ASTM 47
10	INDICATOR	CARBON STEEL
11	LUBRICATOR	CARBON STEEL
12	BONNET	AISI 4130
13	O-RING	VITON-B
14	BODY	AISI 4130

Other trim and body material are available upon request.



## Dimensions



NPS	2"			3"			4"			6"		
	L	H	A	L	H	A	L	H	A	L	H	A
	in	in	in	in	in	in	in	in	in	in	in	in
600LB	6.38	8.44	13.78	7	10.19	13.78	8.5	18.19	17.72	11	22	17.72
	162	215	350	178	259	350	216	462	450	279.5	559	450
900LB	7.25	8.44	13.78	7.5	10.19	13.78	9	18.19	17.72	12	22	23.62
	184	215	350	190.5	259	350	228.5	462	450	305	559	600
1500LB	7.25	8.44	13.78	9.25	10.19	13.78	10.75	18.19	17.72	13.87	22	23.62
	184	215	350	235	259	350	273	462	450	352	559	600
2500LB	8.75	8.44	13.78	11.3	10.19	13.78	13.25	18.19	17.72	18	22	23.62
	222	215	350	287	259	350	336.5	462	450	457	559	600
2000PSI	6.44	8.44	13.78	7.06	10.19	13.78	8.56	18.19	17.72	11.06	22	17.72
	163.5	215	350	179.5	259	350	217.5	462	450	281	559	450
3000PSI	7.31	8.44	13.78	7.57	10.19	13.78	9.06	18.19	17.72	12.06	22	23.62
	185.5	215	350	192	259	350	230	462	450	306.5	559	600
5000PSI	7.31	8.44	13.78	9.31	10.19	13.78	10.81	18.19	17.72	14	22	23.62
	185.5	215	350	236.5	259	350	274.5	462	450	355.5	559	600



# Positive Choke

## Features:

- Body to bonnet contact behind the O-ring seal eliminates bonnet seal extrusion.
- The bean of positive choke are made of ceramic or hard alloy steel. Both have the feature of abrasion resistance, erosion resistance and reliable serviceability.
- Flow bean chamfers are available from 2/64" to 64/64", in 1/64" increments for precise regulation of flow rate.
- The choke bean may be dismantled quickly for change of beans.

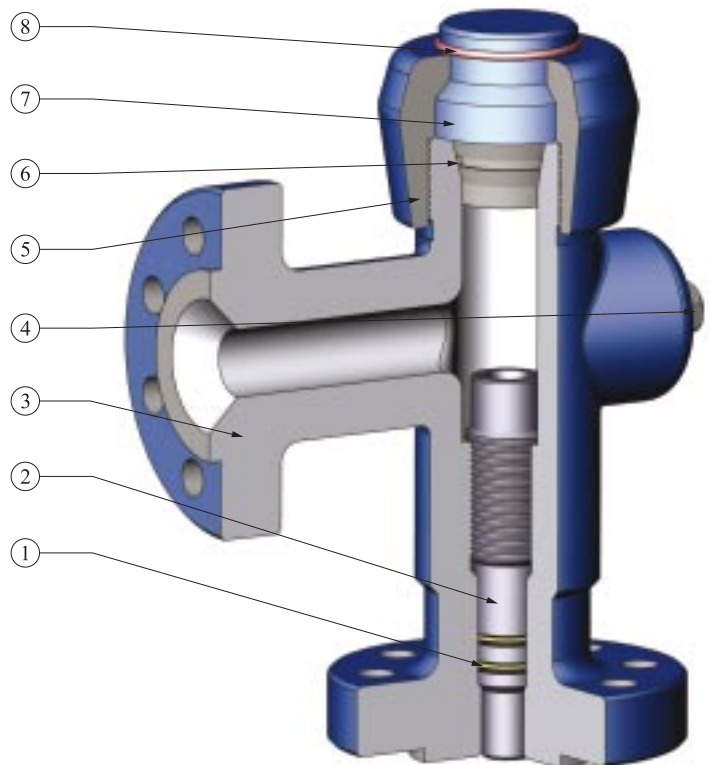
## Specifications:

- |                                 |                                                       |
|---------------------------------|-------------------------------------------------------|
| • Basic Design and Test         | <b>API-6A</b>                                         |
| • Working Pressure (Psi)        | <b>2000, 3000, 5000, 10000, 15000, 20000</b>          |
| • Main Nominal Size (in)        | <b>1-13/16, 2-1/16, 2-9/16, 3-1/16, 3-1/8, 4-1/16</b> |
| • Product Specification Level   | <b>PSL1, PSL2, PSL3, PSL4</b>                         |
| • Performance Requirement Level | <b>PR1, PR2</b>                                       |
| • Material Class                | <b>AA, BB, CC, DD, EE, FF</b>                         |
| • End Connection                | <b>Flanged, Thread, Flanged and Thread</b>            |

## Parts List

No	Name	Material
1	O-RING	VITON-B
2	SEAT	AISI 4135
3	BODY	AISI 4135
4	DRAIN FITTING	AISI 4140
5	WING NUT	AISI 4130
6	O-RING	VITON-B
7	BONNET	AISI 4135
8	GLAND RING	ALLOY STEEL

*Other trim and body material are available upon request.*





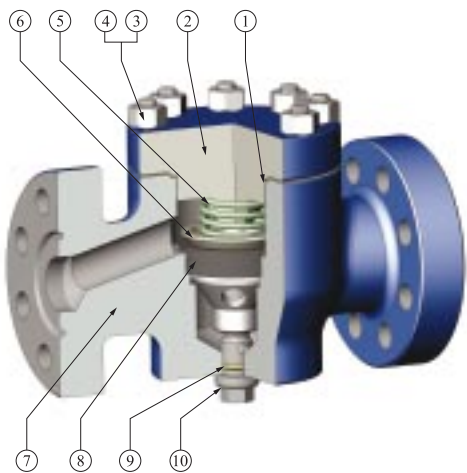
# Check Valve

## Features:

- Check valve flows in single direction.
- Check valve may be furnished in the following types:
  - Regular swing check
  - Full opening swing check
  - Lift check, reduced opening
- It is usually used for kill manifold.

## Specifications:

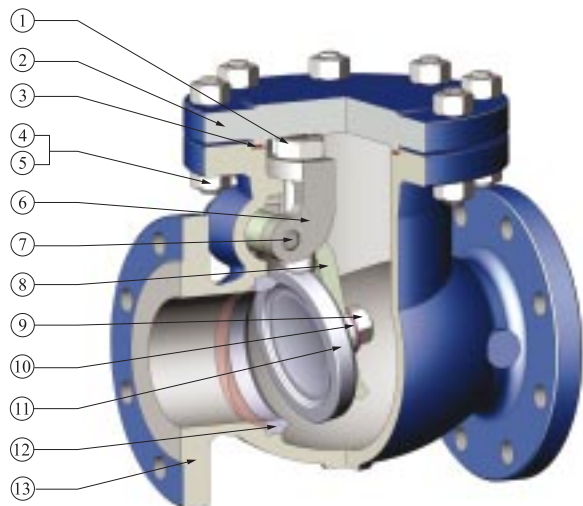
- |                                 |                                              |
|---------------------------------|----------------------------------------------|
| • Basic Design and Test         | <b>API-6A</b>                                |
| • Working Pressure (Psi)        | <b>2000, 3000, 5000, 10000, 15000</b>        |
| • Main Nominal Size (in)        | <b>2-1/16, 2-9/16, 3-1/16, 3-1/8, 4-1/16</b> |
| • Product Sepcification Level   | <b>PSL1, PSL2, PSL3, PSL4</b>                |
| • Performance Requirement Level | <b>PR1, PR2</b>                              |
| • Material Class                | <b>AA, BB, CC, DD, EE, FF</b>                |
| • End Connection                | <b>Flanged, wafer, Treated</b>               |



Parts List

No	Name	Material
1	GASKET	SPIRAL WOUND 316SS GRAPHITE
2	BONNET	AISI 4130
3	NUT	2HM
4	BOLT	B7M
5	SPRING	INCONEL X-750
6	DISC	AISI 4130
7	BODY	AISI 4130
8	SEAT	AISI 4135+VITON
9	O-RING	VITON-B
10	SCREW	AISI 4130

Other trim and body material are available upon request.



Parts List

No	Name	Material
1	BOLT	ASTM A193 B7M
2	COVER	ASTM A-487-4C
3	GASKET	SPIRAL WOUND 316SS GRAPHITE
4	BOLT	ASTM A193 B7M
5	NUT	ASTM A194 2HM
6	HINGE	ALLOY STEEL
7	CLAPPER PIN	STAINLESS STEEL
8	HINGE	ASTM A-487-4C
9	DISC NUT	ASTM A194 2HM
10	DISC WASHER	ALLOY STEEL
11	DISC	ASTM A-487-4C
12	SEAT RING	AISI 4130
13	BODY	ASTM A-487-4C

Other trim and body material are available upon request.





# Design and Performance Requirements

## API 6A Valve Material Specification

	Body & Bonnet Material		Trim Material				Service	
	Type	Material API 60K,75K	Type	Stem	Gate & Disc	Seat		Bonnet Seal
<b>AA</b>	Alloy Steel	ASTMA487-4C ANSI 4130/4140	Alloy Steel	4130/4140 Nitrided	4130/4140 Nitrided	4130/4140	CS	General Oilfield Gas, Oil
<b>BB</b>	Alloy Steel	ASTMA487-4C ANSI 4130/4140	Stainless	17-4PH, 630SS	410, F6NM	410, F6NM	SS	General Moderately Corrosive CO <sub>2</sub>
<b>CC</b>	Stainless	CA6NM, F6NM ASTMA217-CA15	Full Stainless	17-4PH, 630SS	410, 630SS, 17-4PH	410, 630SS, 17-4PH	SS	General Highly Corrosive CO <sub>2</sub>
<b>DD</b>	Alloy Steel NACE MR01-75	ASTMA487-4C Impact Tested ANSI 4130/4140	Alloy Steel NACE MR01-75	4130/4140 Nitrided	4130/4140 Nitrided	4130/4140	CS	Low Temperature - Sour Gas and Oil
<b>EE</b>	Alloy Steel NACE MR01-75	ASTMA487-4C ANSI 4130/4140	Full Stainless NACE MR01-75	17-4PH, 630SS	410SS, 630SS, 17-4PH	410SS, 630SS, 17-4PH	SS	Sour (H <sub>2</sub> S) Gas and Oil
<b>FF</b>	Stainless	CA6NM, F6NM ASTMA217-CA15	Full Stainless	17-4PH, 630SS	410SS, 630SS, 17-4PH,	410SS, 630SS, 17-4PH,	SS	Highly Corrosive CO <sub>2</sub> & Sour (H <sub>2</sub> S) Gas and Oil

## Temperature Ratings

Temperature Classification	Temperature Ratings			
	°F		°C	
	Min	Max	Min	Max
<b>K</b>	- 75	180	- 60	82
<b>L</b>	- 50	180	- 46	82
<b>P</b>	- 20	180	- 29	82
<b>R</b>	Room Temperature		Room Temperature	
<b>S</b>	0	180	- 18	66
<b>T</b>	0	250	- 18	82
<b>U</b>	0	250	- 18	121
<b>V</b>	35	250	2	121

## Material Requirements

Material Class	Minimum Material Requirements		
	Service	Body, bonnet, End and Outlet Connections	Pressure Controlling Parts, Stems and Madrel Hangers
<b>AA</b>	General	Carbon or low alloy steel	Carbon or low alloy steel
<b>BB</b>	General		Stainless steel
<b>CC</b>	General	Stainless steel	Carbon or low alloy steel
<b>DD</b>	Sour <sup>a</sup>	Carbon or low alloy steel <sup>b</sup>	Carbon or low alloy steel
<b>EE</b>	Sour <sup>a</sup>		Stainless steel <sup>b</sup>
<b>FF</b>	Sour <sup>a</sup>	Stainless steel <sup>b</sup>	Stainless steel <sup>b</sup>
<b>HH</b>	Sour <sup>a</sup>	CRAs <sup>b</sup>	CRAs <sup>b</sup>

<sup>a</sup>As defined by NACE Standard MR0175.

<sup>b</sup>In compliance with NACE Standard MR0175.



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### **DHV Industries, Inc.**

3451 Pegasus Drive, Bakersfield, CA 93308 U.S.A.  
Call TollFree: (887) DHV-USA1  
Phone: (661) 392-8948 Fax: (661) 392-8947  
E-mail: [sales@dhvindustries.com](mailto:sales@dhvindustries.com)  
Website: [www.dhvindustries.com](http://www.dhvindustries.com)

### **DHV Valve Company Inc.**

10401 South Sam Houston Pkwy  
West Houston, TX. 77041 U.S.A.  
Call Toll Free: 844-828-2169  
TEL: 346-304-2968 Fax: 346-304-2971  
E-mail: [sales@dhvvalve.com](mailto:sales@dhvvalve.com)  
Website: [www.dhvvalve.com](http://www.dhvvalve.com)