

**DHV** DHV Industries, Inc.

# MUD GATE VALVE

Sizes: 2-1/16" - 4 -1/16" Pressure: API 2000-5000

## APPLICATIONS

- Oil and Gas lines
- Wellheads
- Manifolds and Pipelines
- Crude Oil and Sour Gas
- Well Treating Chemicals
- Drilling Chemicals
- Water Flood Lines
- Abrasive Drilling Mud



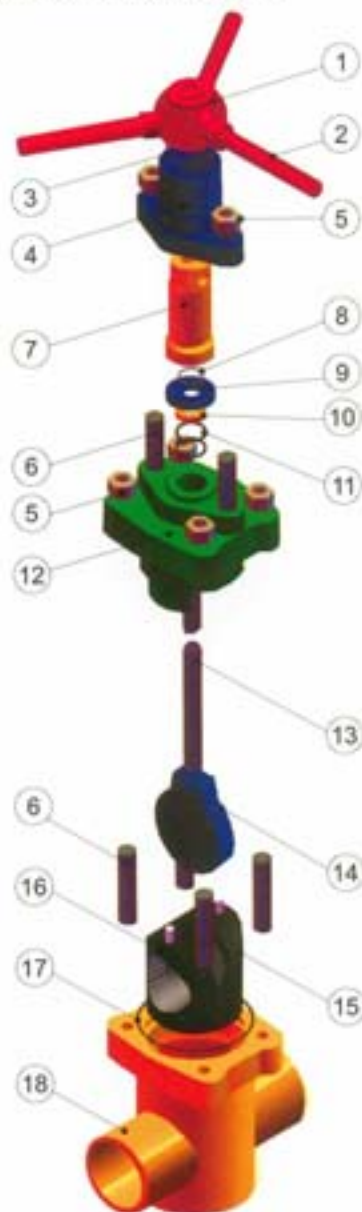
## MUD GATE VALVE

DHV gate valve is offered in two basic design types: ANSI & API

ANSI series valves conform to the standard flange dimension and pressure requirements for ANSI classes 400,600,900 and 1500.

API series valves conform to the standard flange and pressure requirements for API classes 2000, 3000 and 5000.

Both series are offered with threaded, weld and flanged end connections. End connection availability varies by size and pressure based on market requirements. Some sizes in the ANSI series are offered with grooved end connections.



### PARTS LIST AND MATERIAL SPECIFICATIONS

1	Hub Assembly	Steel
2	Lock Handle	Steel
3	Stem Screw Seal	Buna N
4	Screw Housing	Steel
5	Nut	A194 2H, A194 2HM
6	Studs	Cold Finished Steel ASTM A193 B7, A193 B7M
7	Stem Screw	Steel
8	secondary seal	Buna N
9	Retainer	Steel
10	Tight Ring	Copper
11	Seal Ring	Buna N
12	Bonnet	* Cast Steel AISI 4130 Cast Steel ASTM A487 4N or 4Q or 4C Cast Steel ASTM A216 WCB
13	Stem	Wrought Stainless Steel-type 303 cold finished, Wrought Stainless Steel 316 CF Annealed * AISI 4130/4135+nitrided Wrought Steel AISI 1045-Nickel plated Cast Stainless Steel ASTM A351 CF8M Annealed Wrought Stainless Steel 316 CF Annealed Cast Monnel-type S, Wrought Monnel-type 400 Wrought Steel AISI 1045+ENP * Wrought Steel AISI 4130+nitrided
14	Gate	
15	Seat Elastomer	* Buna N Hypalon Viton
16	Seat Insert	Forged Steel AISI 1040 Cast Stainless Steel ASTM A351 CF8M Annealed Cast MONEL-TYPE H * Wrought Steel AISI 4140/4130
17	Bonnet Seal	Buna N, Viton
18	Body	* Cast Steel AISI 4130 Cast Steel ASTM A487 4N or 4Q or 4C Cast Steel ASTM A216 WCB

\*\*\* Indicates a standard material. Others are optional .

### PRESSURE RATINGS

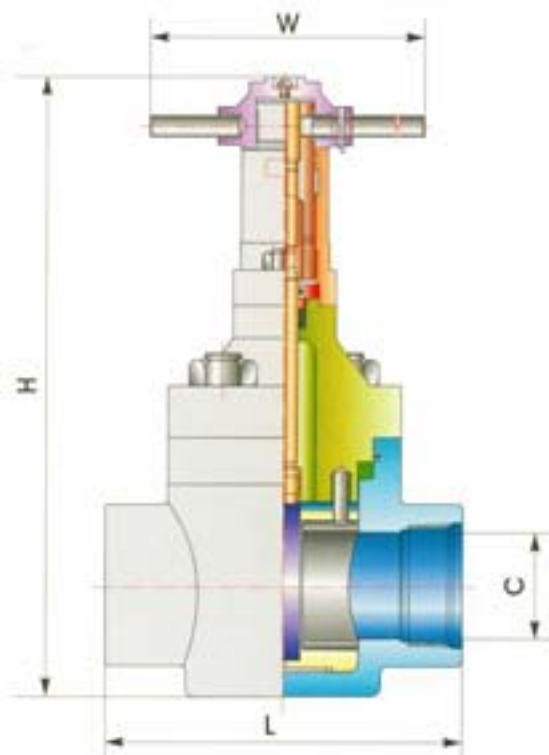
DHV gate valves operate at working and test pressures tabulated below:

Nominal Pressure	ANSI				API		
	400 LB	600 LB	900 LB	1500 LB	2000 WP	3000 WP	5000 WP
Working Pressures (psi)	985	1480	2220	3705	2000	3000	5000
Test Pressures (psi)	1500	2225	3350	5575	4000	6000	10000

# MUD GATE VALVE

## DESIGN FEATURES

- The bonnet is easily removed for internal parts inspection and replacement without removing the valve from the line. This design simplicity permits fast and easy service without the need for special tools. Be sure pressure is released from line and upstream valve is closed before disassembly.
- Optional materials for stems, gates, seat inserts and seat elastomers make it easier to trim valves for a wide range of service conditions.
- 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 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.



## DIMENSION (FULL PORT)

### API

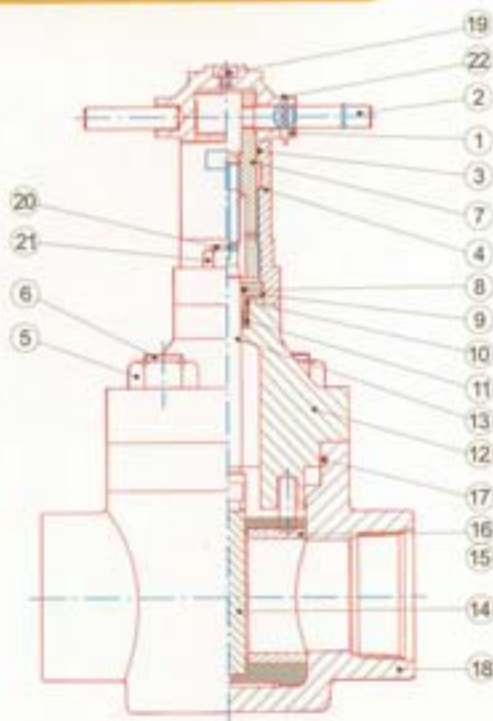
PRESSURE RATING		2000Psi				3000Psi				5000psi			
SIZE		2 1/2"	2 3/4"	3 1/2"	4 1/2"	2 1/2"	2 3/4"	3 1/2"	4 1/2"	2 1/2"	2 3/4"	3 1/2"	4 1/2"
L	Screwed, Grooved, Weld	9.02	9.76	10.98	12.99	9.02	9.76	10.98	12.99	9.02	9.76	10.98	16.93
	Flanged-RTJ	11.61	13.11	14.13	17.13	14.6	16.61	17.13	20.12	14.6	16.61	18.62	21.61
H	Open Position	14.57	18.90	20.08	22.83	14.57	18.90	20.08	22.83	14.57	18.90	20.08	29.92
C	Seat Bore Diameter	1.97	2.56	2.95	4.02	1.97	2.56	2.95	4.02	1.97	2.56	2.95	4.02
W	Handwheel Diameter	14.02	17.72	17.72	17.72	14.02	17.72	17.72	17.72	14.02	17.72	17.72	17.72
D	Flange Diameter	6.50	7.48	8.27	10.83	8.46	9.65	9.45	11.61	8.50	9.65	10.63	12.24
n-d	Flange Boltes	8-3/8	8-3/4	8-3/4	8-7/8	8-7/8	8-1	8-3/4	8-1 1/2	8-3/4	8-1	8-1 1/2	8-1 1/2
R	Ring Gasket Number-RTJ	R23	R26	R31	R37	R24	R27	R31	R37	R24	R27	R35	R39

## DIMENSION (FULL PORT)

### ANSI

PRESSURE RATING		Class 400				Class 600				Class 900				Class 1500		
SIZE		2"	2 1/2"	3"	4"	2"	2 1/2"	3"	4"	2"	2 1/2"	3"	4"	2"	3"	4"
L	Screwed, Grooved, Weld	9.02	9.76	10.98	12.99	9.02	9.76	10.98	12.99	9.02	9.76	10.98	12.99	9.02	10.98	16.93
	Flanged-Raised Face	11.5	13	14	16	11.5	13	14	17	14.5	16.5	15	18	14.5	18.5	21.5
	Flanged-RTJ	11.62	13.12	14.12	16.12	11.62	13.12	14.12	17.12	14.62	16.62	15.12	18.12	14.62	18.62	21.62
H	Open Position	14.57	18.90	20.08	22.83	14.57	18.90	20.08	22.83	14.57	18.90	20.08	22.83	14.57	20.08	29.92
C	Seat Bore Diameter	1.97	2.56	2.95	4.02	1.97	2.56	2.95	4.02	1.97	2.56	2.95	4.02	1.97	2.95	4.02
W	Handwheel Diameter	14.02	17.72	17.72	17.72	14.02	17.72	17.72	17.72	14.02	17.72	17.72	17.72	14.02	17.72	17.72
D	Flange Diameter	6.50	7.5	8.25	10	6.5	7.5	8.25	10.75	8.5	9.62	9.5	11.5	8.5	10.5	12.25
n-d	Flange Boltes	8-3/8	8-3/4	8-3/4	8-7/8	8-3/8	8-3/4	8-3/4	8-7/8	8-3/8	8-1	8-3/4	8-1 1/2	8-3/8	8-1 1/2	8-1 1/2
R	Ring Gasket Number-RTJ	R23	R26	R31	R37	R23	R26	R31	R37	R24	R27	R31	R37	R24	R35	R39

## MUD GATE VALVE



### DISASSEMBLY

DHV Gate valves for high pressure service are designed for disassembly for repairs or inspection without full removal from the line. All parts are completely interchangeable between valves of the same model. In in-line valve repair or inspection, be certain all pressure is released from the line and upstream valve is closed, locked and monitored during the procedure.

1 Fully open the gate valve. Remove nuts (5) and withdraw the bonnet assembly from the body. Collapse the seat (16), by compressing the insert pins together, and remove it from the body.

2 With the bonnet assembly on its side, remove pin (22) and lock handle (2) then lift off hub (1). Turn stem screw (7) clockwise to bottom, then withdraw gate (14) from stem (13) by rotating a quarter turn and sliding it off the tee-head of the stem.

3 Seat or gate replacement may be made at this point. To reassemble the valve, proceed from reassembly instruction 3. If it is desired to inspect other parts, the following instructions apply.

4 Turn the stem clockwise, until it disengages from stem screw (7) and withdraw it from the underside of the bonnet. Unscrew the lock screw (21) and lift screw housing (4) off the bonnet. Remove retainer (9) o-ring seal (8) and stem seal assembly (10) from the bonnet. Turn stem screw (7) clockwise out of the screw housing and bonnet seal (17) from the valve body.

Thoroughly clean all parts and inspect them for wear or damage. It is recommended that seals (3), (8), (17) and stem seal assembly (10) be replaced if they are worn or cut. Inspect the outside surface of the stem, where it passes through the packing, for nicks or scratches and smooth with emery cloth if required. Before reassembling, apply a good grade of general purpose grease to all threads, seal rings and exterior of the seat and on the surfaces of the bonnet, stem and stem screw which are in contact with seals.

### REASSEMBLY

1 Slide the threaded end of the stem through the bonnet bore, from the underside, and place the stem seal assembly over the stem. This assembly consists of the seal rings, a flat-backed follower ring and a bushing, which are placed over the end of the stem in that order. Slide the retainer (9), with o-ring seal (8) inside, beveled side first, over the stem. Seat the stem seal assembly into its counter bore in the bonnet.

2 Engage the stem screw (7) in the screw housing (4) about half its total travel and place the screw housing on the bonnet and stem. Replace lock nuts (21)

3 Rotate the stem screw clockwise until it bottoms on the retainer, then back it up approximately one-eighth turn. Engage the gate on the tee-head of the stem and turn them together, counter clockwise, until the gate touches the underside of the bonnet lugs. Align the gate with the opening between the lugs and retract it into the bonnet by turning the stem screw, insert the lock handle and retain it with the cotter pin. Do not spread the pin since it may be removed later while adjusting the gate level.

4 Install the seat on the bonnet and stand the assembly upright, resting on the seat. Turn the handle clockwise until the hub is stopped by the top of the screw housing.

5 Replace bonnet seal (17) and install the seat and bonnet in the body, making sure the gate is started into the seat and the top pins on the seat are started into the drilled holes in the bonnet. Replace and tighten nuts (5). Spread the cotter pin (22) in the lock handle and repack the hub with general purpose grease through fitting (19).

When the high pressure gate valve is reassembled in the manner described, the hub is stopped by the screw housing at the proper down position of the gate. Over tightening is impossible and maximum sealing efficiency is assured.

Your Local DHV Agent



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