

MODEL FS-R

Forged Body Reverse Acting Slab Gate Valves for Actuation



Forged Body Gate Valves

FEATURES

Adaptability

Model FS-R valves are designed to accept pneumatic, hydraulic or electric actuators from any manufacturer. Omni will provide interface drawings upon request. Omni has a complete line of pneumatic and hydraulic actuators and can deliver FS-R valves with actuators already mounted, ready for immediate deployment.

Operating Temperatures

Model FS-R valves are available with API 6A Temperature ratings of L (-50 F) through X (350 F). Valves for API Temperature rating X are pressure de-rated as required per Annex G of API 6A 20th Edition.

Reverse Acting Slab Gate

The reverse acting slab gate has the conduit opening on the upper portion of the gate. This means that the valve will be open when the gate is in the down position. The gate is moved to the down position by application of adequate control pressure to the actuator. Upon loss of control pressure, pressure acting on the gate and stem will cause the valve to close automatically. Under zero bore pressure conditions, valve closure is assisted by a spring contained in the actuator/bonnet assembly.

Full Through Conduit Bore

The full through conduit bore provides for smooth flow with minimal turbulence. It also provides an unobstructed passage for well intervention tools.

All Model FS-R valves are drift tested in accordance with API 6A 20th Edition requirements.

Seat Designs

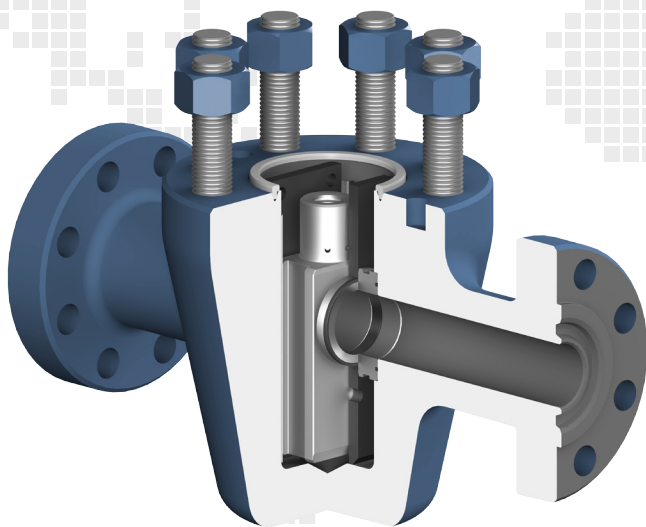
The standard gate to seat and seat to body sealing interface is two-piece design consisting of a seat ring and a body bushing, assisted by inserts in the rear of each piece. Metal-to-metal gate to seat interface is standard. Metal inserts are used for high-temperature applications.

Grease Fittings

The valve body may be lubricated through the grease fitting provided in the actuated bonnet. All fittings meet the requirements of NACE MR0175.

Exposed Bolting

All exposed bolting meets the requirements of NACE MR0175.



INTRO

Omni Model FS-R forged-body reverse acting slab gate valves are designed to be used as surface safety valves for oil and natural gas wellhead, manifold or other critical service applications with operating pressures from 10,000 to 15,000 psi. An appropriate pneumatic, hydraulic or electric actuator is required in conjunction with the Model FS-R.

All Model FS-R reverse acting slab gate valves are API 6A 20th Edition monogrammed equipment and are available in bore sizes ranging from $1 \frac{13}{16}$ " through $4 \frac{1}{16}$ ".

INTERNAL CONFIGURATION

Valve depicted without actuator.

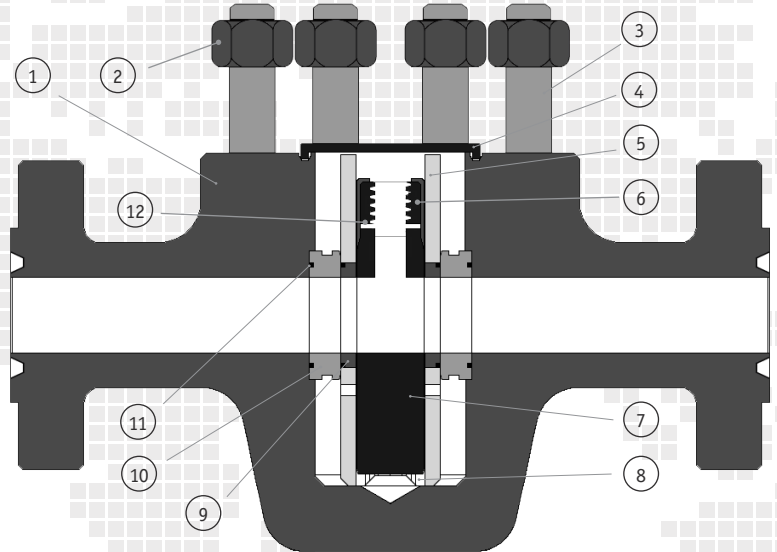
See page 5 for materials of construction based on API material class.



Forged Body Gate Valves

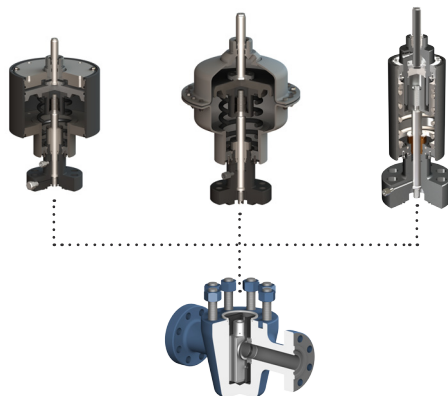
Component	Description	Qty
1	Valve Body	1
2	Nut	*
3	Stud	*
4	Bonnet Seal Ring	1 (VRK)
5	Retainer Plate	2
6	Stem Nut	1
7	Reverse Acting Slab Gate	1 (VRK)
8	Gate Guide	2
9	Seat Ring	2 (VRK)
10	Body Bushing	2 (VRK)
11	Seat Seal Ring / Body Bushing Seal Ring	4 (VRK)
12	Stem Pin	1 (VRK)

* Quantities will vary by valve size
(VRK) = Valve Redress Kit Item



OMNI GATE VALVES PREPARED FOR ACTUATOR:

Omni offers a complete line of pneumatic and hydraulic actuators for manifold and safety shutdown applications that can easily be provided in conjunction with Omni Model FS-R valves. All Omni actuators can be provided as actuated valve assemblies ready to be put into service or as actuators adapted to mount on valves from any valve manufacturer. Model FS-R valves are also designed to accept actuators from other manufacturers.



Full Assembly



Component	Description
DX	Pneumatic Diaphragm Actuator (Fail Safe)
PX	Pneumatic Piston Actuator (Fail Safe, Removable Manual Override)
PMX	Pneumatic Piston Actuator (Fail Safe, Integrated Manual Override)
HX	Hydraulic Piston Actuator (Fail Safe)
HWX	Hydraulic Piston Actuator (Fail Safe, Wirecutting)
HDX	Hydraulic Piston Actuator (Double Acting)

FAIL-SAFE OPERATION

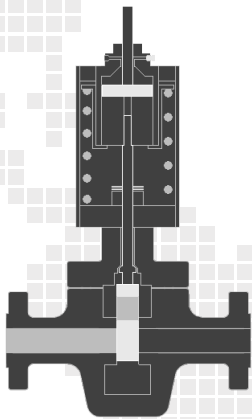
Fail “closed” operation is depicted

Fail “open” operation is available upon request

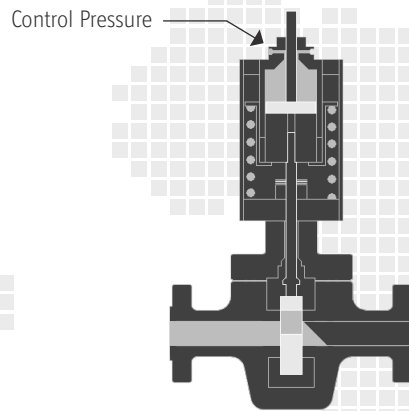


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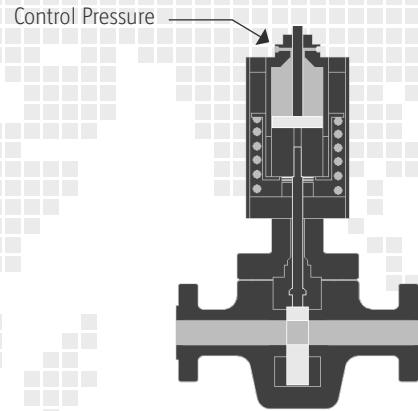
Open / close operation of a modified manually operated valve which utilizes a direct acting slab gate (DASG) is depicted. Utilize control pressure to the lower port to open the valve and control pressure to the upper port to close the valve.



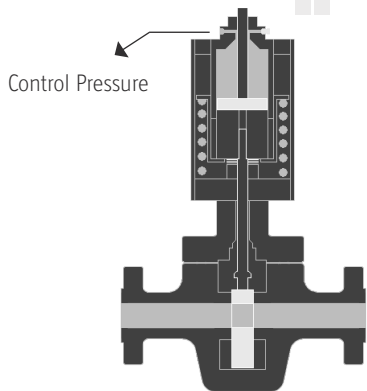
When no control pressure is applied to actuator, valve is in closed position (gate all the way up)



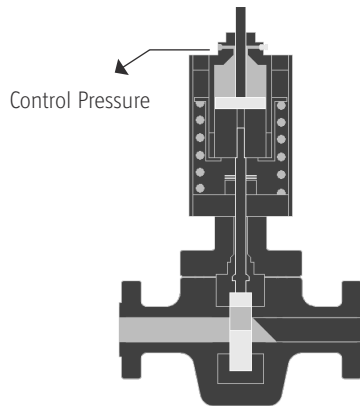
Upon application of adequate control pressure to the actuator port, valve begins to open (gate moves down)



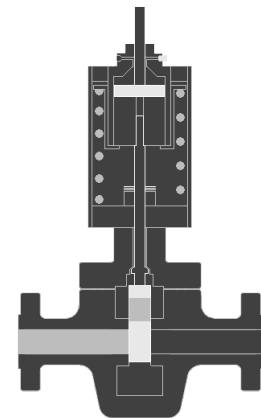
With continued application of adequate control pressure, valve moves to the fully open position (gate all the way down)



Valve remains in fully open positions as long as adequate control pressure is present (gate all the way down)



Upon loss of control pressure, valve begins to close (gate moves up)

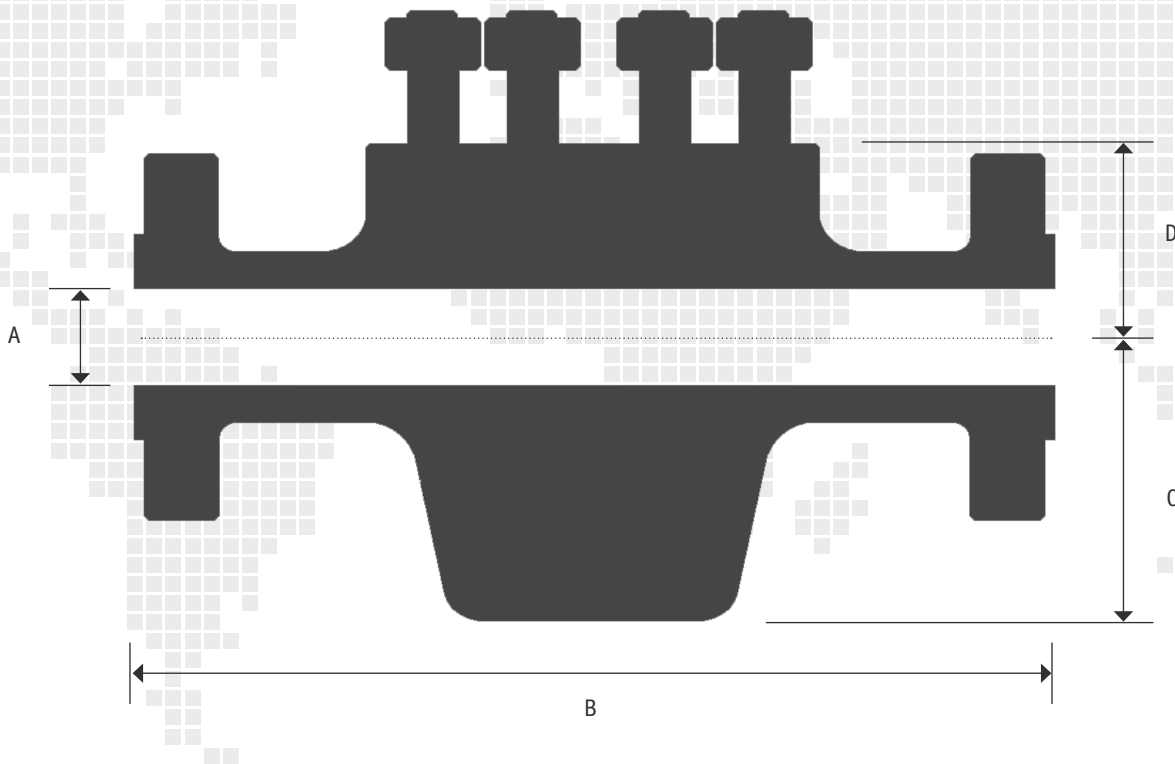


Valve fully closes and remains closed until application of control pressure to the upper actuator port (gate all the way up)

DIMENSIONAL DATA



Forged Body Gate Valves



Common Dimensions

Valve Bore Size	Working Pressure (psi)	API Ring #	A		B		C		D		Weight		Stroke	
			in	mm	in	mm	in	mm	in	mm	lbs	kgs	in	mm
1 13/16"	10,000	BX151	1.81	46	18.25	464	5.69	145	3.88	99	162	73	2.25	57
	15,000	BX151	1.81	46	18.00	457	5.90	150	3.88	99	219	99	2.25	57
2 1/16"	10,000	BX152	2.06	52	20.50	521	5.69	145	3.88	99	188	85	2.44	62
	15,000	BX152	2.06	52	19.00	483	5.90	150	3.88	99	244	111	2.44	62
2 9/16"	10,000	BX153	2.56	65	22.25	565	6.75	171	4.70	119	275	125	2.95	75
	15,000	BX153	2.56	65	21.00	533	7.74	197	4.88	124	364	165	3.02	77
3 1/16"	10,000	BX154	3.06	78	24.38	619	8.12	206	5.61	142	388	176	3.62	92
	15,000	BX154	3.06	78	23.56	598	9.65	245	6.13	156	655	297	3.85	98
4 1/16"	10,000	BX155	4.06	103	26.38	670	10.19	259	7.23	184	657	298	4.57	116
	15,000	BX155	4.06	103	29.00	737	11.71	297	7.70	196	865	392	4.90	124

TRIM CHART



Forged Body Gate Valves

Materials of construction listed below are as provided in Omni's standard valve configurations. Alternate materials are available upon customer request.

NON-NACE TRIMS

NACE TRIMS

API Mat'l Class	AA	BB	CC	DD-NL	EE-0,5	EE-1,5	EE-NL	FF-0,5	FF-1,5	FF-NL
Service	General	General	General	Sour	Sour	Sour	Sour	Sour	Sour	Sour
Trim	Standard	SS Trim	Full SS	Standard	SS Trim	SS Trim	SS Trim	Ful SS	Full SS	Full SS
Corrosive	No	Slightly	Moderate	No	Moderate	Moderate	Moderate	Highly	Highly	Highly
Avail API Temp	L to Y	L to Y	P to Y	L to Y	L to Y	L to Y	L to Y	P to Y	P to Y	P to Y

COMPONENTS

Body	AISI 4130 75K ALLOY	AISI 4130 75K ALLOY	AISI 410 75K SS	AISI 4130 75K ALLOY	AISI 4130 75K ALLOY	AISI 4130 75K ALLOY	AISI 4130 75K ALLOY	AISI 410 75K SS	AISI 410 75K SS	AISI 410 75K SS
Gate	AISI 4130 75K NITRIDED	AISI 410 SS 75K NITRIDED	AISI 410 SS 75K NITRIDED	AISI 4130 75K NITRIDED	AISI 410 SS 75K NITRIDED	AISI 410 SS 75K NITRIDED	AISI 410 SS 75K NITRIDED	AISI 410 SS 75K NITRIDED	AISI 410 SS 75K NITRIDED	AISI 410 SS 75K NITRIDED
Seats	AISI 4130 75K NITRIDED	AISI 410 SS 75K NITRIDED	AISI 410 SS 75K NITRIDED	AISI 4130 75K NITRIDED	AISI 410 SS 75K NITRIDED	AISI 410 SS 75K NITRIDED	AISI 410 SS 75K NITRIDED	AISI 410 SS 75K NITRIDED	AISI 410 SS 75K NITRIDED	AISI 410 SS 75K NITRIDED
Bonnet Seal Ring	AISI 316 SS	AISI 316 SS	AISI 1018/1020	AISI 316 SS	AISI 316 SS	AISI 316 SS	AISI 316 SS	AISI 316 SS	AISI 316 SS	AISI 316 SS
Studs	ASTM A193 GR B7	ASTM A193 GR B7	ASTM A193 GR B7	ASTM A193 GR B7M or ASTM A320 GR L7M	ASTM A193 GR B7M or ASTM A320 GR L7M	ASTM A193 GR B7M or ASTM A320 GR L7M	ASTM A193 GR B7M or ASTM A320 GR L7M	ASTM A193 GR B7M or ASTM A320 GR L7M	ASTM A193 GR B7M or ASTM A320 GR L7M	ASTM A193 GR B7M or ASTM A320 GR L7M
Nuts	ASTM A194 GR 2H	ASTM A194 GR 2H	ASTM A194 GR 2HM	ASTM A194 GR 2HM	ASTM A194 GR 2HM	ASTM A194 GR 2HM	ASTM A194 GR 2HM	ASTM A194 GR 2HM	ASTM A194 GR 2HM	ASTM A194 GR 2HM

NOTES

1	Nitriding is standard on all gates and seats. Tungsten Carbide, HF6 or other hardfacing techniques are also available.
2	High temperature (API Temp Ratings X,Y) valves use graphite packing. Other special packing is available upon request.
3	Charpy impact test results are provided as required by API according to the temperature rating and material class.
4	Materials for sour service trims conform to latest edition of NACE MR0175. Explanation for suffixes used for sour trims: 0,5 = 0.5 psi maximum partial pressure of hydrogen sulfide 1,5 = 1.5 psi maximum partial pressure of hydrogen sulfide NL = No limit to hydrogen sulfide exposure.
5	Omni reserves the right to use material class ZZ when customers request materials of construction that do not comply with current NACE MR0175/ISO standards.

All Model FS-R valves are available in API PSL-1, PSL-2, PSL-3 or PSL-3G, PR-1 or PR-2. Please specify at time of order.

MODEL FS-R

Product Warranty



Forged Body Gate Valves

LIMITED PRODUCT WARRANTY

All products manufactured or sold by Omni are warranted against defects of material and workmanship for a period of twelve (12) months from the date of installation or eighteen (18) months from date of shipment, whichever period first expires, when all such products are used in the service and within the pressure range for which they were manufactured.

In the case of products or parts not wholly of Omni's manufacture, Omni's liability shall be limited to the extent of Omni's recovery from the original manufacturer of such products or parts under its warranty or liability to Omni.

Any repair work performed by Omni is warranted for one year from completion of such repairs and applies only to work performed. If, within these specified periods, Omni receives notice from Buyer of any alleged defect in or nonconformance of any product or repair and if in Omni's sole judgment the product or repair does not conform or is found to be defective in material or workmanship, then, Buyer shall, at Omni's request, return the part or product F.O.B. to Omni's designated plant or service location.

Omni has no liability for removal or reinstallation of products or equipment. Omni, at its option and expense, shall repair or replace the defective part or product, or repay to Buyer the full price paid by Buyer for such defective part, repair or product. Any repayment of purchase price shall be without interest.

Omni's warranty liability, including defects caused by Omni's negligence, shall be limited to such repair, replacement or refund, and shall not include claims for labor costs, expenses of Buyer resulting from such defects, recovery under general tort law or strict liability or for damages resulting from delays, loss of use, or other direct, indirect, incidental or consequential damages of any kind.

Omni will not be responsible for failures of products which have been in any way tampered with or altered by anyone other than an authorized representative of Omni, failures due to lack of compliance with recommended maintenance procedures or products which have been repaired or altered in such a way (in Omni's judgment) as to affect the products adversely.



THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, STATUTORY OR IMPLIED, INCLUDING THE WARRANTY OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE WHICH EXCEED THE FOREGOING WARRANTY.

If you have questions regarding this warranty or if you would like information about other Omni products and services please contact us at the address and phone numbers below.

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