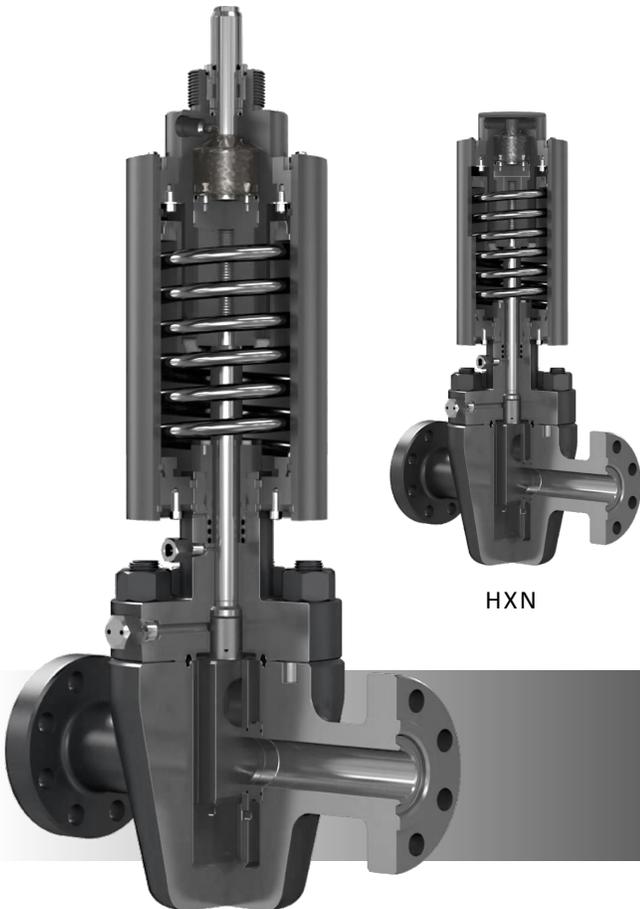




HYDRAULIC FAIL-SAFE



HXN

HX

# Model HX/HXN

## Hydraulic Fail Safe Actuator

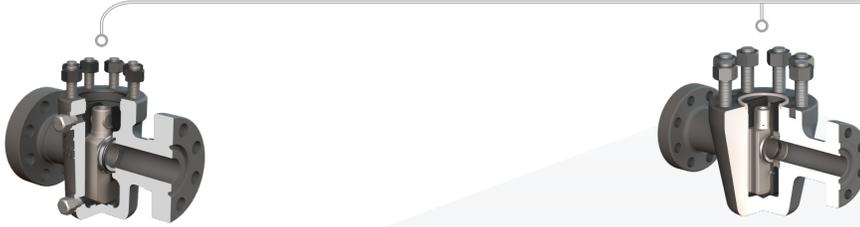
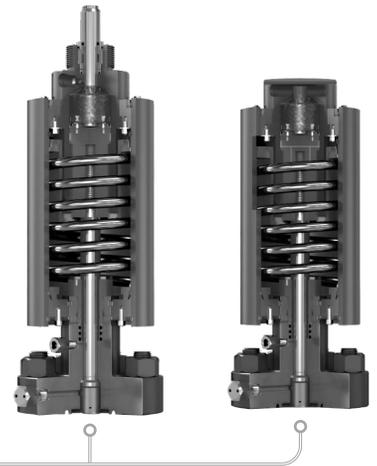
For surface safety and other energy production, distribution & storage applications.

- API 6A Monogrammed
- Highest Quality
- Delivered to Exact Customer Specifications
- Engineered for Years of Trouble Free Service

# Model HX with FS-R or CS-R Gate Valves

## Valve Characteristics

- » The Omni Model CS-R is a surface safety valve used for low pressure (2,000 / 3,000 / 5,000 psi) applications. It has single-piece floating seat design with o-ring seat seals. This arrangement provides excellent sealing integrity (even at extremely low bore pressures) and allows for variation in seal material based on the specific attributes of the bore media.
- » The Omni Model FS-R is a surface safety valve used for both low pressure (3,000 / 5,000 psi) and higher pressure (10,000 / 15,000 psi) applications. It has a two-piece seat and bushing design that can accommodate a variety of seal designs and materials. This arrangement makes the FS-R an extremely reliable solution for high pressure, critical service deployments in a variety of services.
- » **Both the CS-R and FS-R:**
  - Are API 6A monogrammed equipment
  - Are available in standard PR-2 or PR-2F (API 6A Annex F) configurations
  - Have been qualified for API 6AV1 Class I (Standard Service) and Class II (Sandy Service)
  - Can be certified SSV for use in Federal Offshore Waters (when provided in PR-2F Configuration)



Model CS-R			
Bore Size	Pressure (psi)	API Ring #	Available PSL
2 1/16"	2,000	R23	PSL-1, 2
	3,000 / 5,000	R24	PSL-1, 2, 3, 3G
2 9/16"	2,000	R26	PSL-1, 2
	3,000 / 5,000	R27	PSL-1, 2, 3, 3G
3 1/8"	2,000 / 3,000	R31	PSL-1, 2
	5,000	R35	PSL-1, 2, 3, 3G
4 1/16"	2,000 / 3,000	R37	PSL-1, 2
	5,000	R39	PSL-1, 2, 3, 3G
5 1/8"	2,000 / 3,000	R41	PSL-1, 2
	5,000	R44	PSL-1, 2
7 1/8"	2,000 / 3,000	R45	PSL-1, 2
	5,000	R46	PSL-1, 2

Model FS-R (HIGH Pressure)			
Bore Size	Pressure (psi)	API Ring #	Available PSL
1 13/16"	10,000	BX151	PSL-2, 3, 3G
	15,000		PSL-3, 3G
2 1/16"	10,000	BX152	PSL-2, 3, 3G
	15,000		PSL-3, 3G
2 9/16"	10,000	BX153	PSL-2, 3, 3G
	15,000		PSL-3, 3G
3 1/16"	10,000	BX154	PSL-2, 3, 3G
	15,000		PSL-3, 3G
4 1/16"	10,000	BX155	PSL-2, 3, 3G

Model FS-R (LOW Pressure)			
Bore Size	Pressure (psi)	API Ring #	Available PSL
2 1/16"	3,000 / 5,000	R24	PSL-1, 2, 3, 3G
2 9/16"		R27	
3 1/8"	5,000	R35	
4 1/16"	5,000	R39	

## API Material Classes, Materials, & Temperature Ratings

General Service Trims / Materials		See Notes 1,2,3		Available Temp Ratings	
Material Class (Notes)	NACE	Body / Bonnet	Internals	Low	High
AA	(1 / 2 / 3)	No	Carbon or Low Alloy Steel	L (-50°F / -46°C)	X (350°F / 177°C)
BB		No	Carbon or Low Alloy Steel Steel		
CC		No	SS or CRA (*)		

Sour Service Trims / Materials		See Notes 1,2,3,4		Available Temp Ratings	
Material Class (Notes)	NACE	Body / Bonnet	Internals	Low	High
DD	(1 / 2 / 3 / 4)	Carbon or Low Alloy Steel	Stainless Steel or CRA	L (-50°F / -46°C)	X (350°F / 177°C)
EE-0,5					
EE-1,5					
EE-360					
EE		Stainless Steel or CRA	P (-20°F / -29°C)		
FF-0,5					
FF-1,5					
FF-360					
FF					

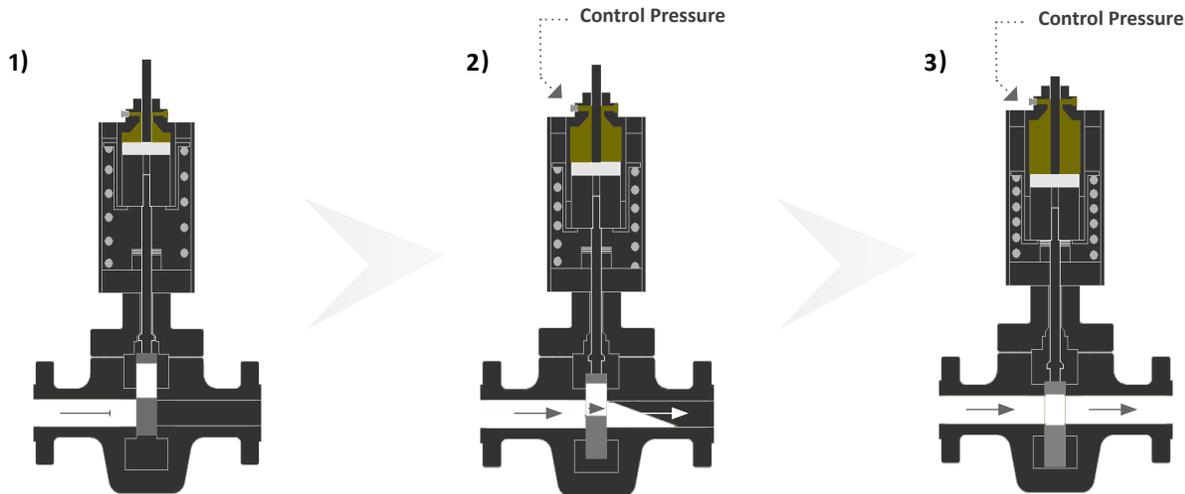
## Technical Notes

1	Nitriding is the standard surface treatment for both NACE and NON-NACE trims. Hardfacing or other treatments are also available.
2	CRA: Corrosion Resistant Alloy per NACE MR0175 / ISO 15156.
3	Some valves with high temp ratings (X) might be subject to de-rated working pressure. Consult Omni for a specific size and pressure.
4	NACE trims are required to have qualifiers indicating acceptable partial pressure of hydrogen sulfide. Common qualifiers are 0,5 / 1,5 / 360. NACE trims listed without qualifiers (DD / EE / FF) are assumed to have no limit (NL) to hydrogen sulfide exposure.

# Model HX/HXN - Operational Stages



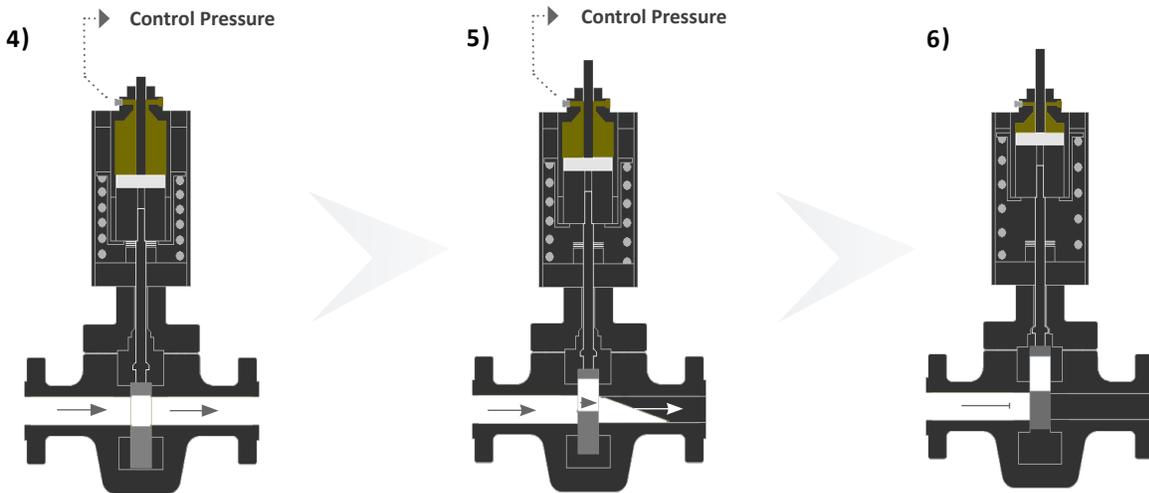
Fail “**CLOSED**” operation is depicted. Fail “**OPEN**” operation is available upon request.



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, valve begins **OPENING** (Gate moving 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** position as long as adequate control pressure is present (Gate all the way down)

Upon loss of control pressure, valve begins **CLOSING** (Gate moving up)

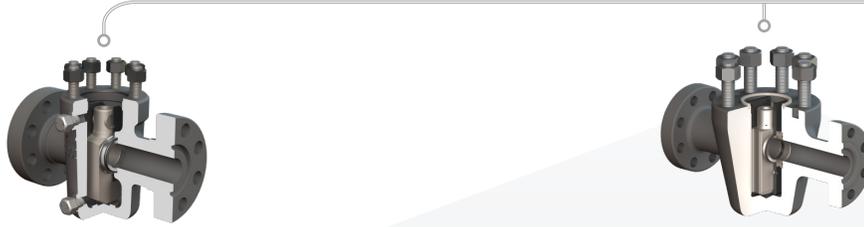
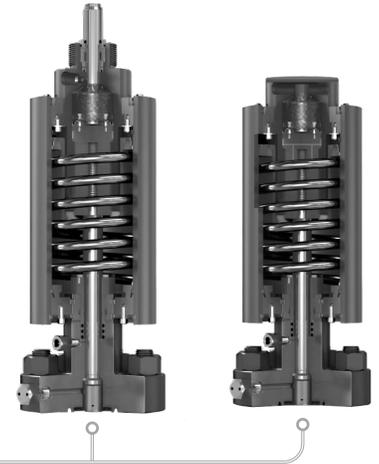
Valve **FULLY CLOSES** & remains closed until application of control pressure to the actuator (Gate all the way up)

Standard Actuator Specifications		
Maximum Operating Pressure	4,000 PSI	Up to 4,500 PSI (Based on Actuator Maximum Operating Pressure)
API Material Class	BB	Not appropriate if control source contains H2S (is sour)
API Temperature Rating	P (-20 F to 180 F)	(-29 C to 82 C)

# Model HX with FS-R or CS-R Gate Valves

## Valve Characteristics

- » The Omni Model CS-R is a surface safety valve used for low pressure (2,000 / 3,000 / 5,000 psi) applications. It has single-piece floating seat design with o-ring seat seals. This arrangement provides excellent sealing integrity (even at extremely low bore pressures) and allows for variation in seal material based on the specific attributes of the bore media.
- » The Omni Model FS-R is a surface safety valve used for both low pressure (3,000 / 5,000 psi) and higher pressure (10,000 / 15,000 psi) applications. It has a two-piece seat and bushing design that can accommodate a variety of seal designs and materials. This arrangement makes the FS-R an extremely reliable solution for high pressure, critical service deployments in a variety of services.
- » **Both the CS-R and FS-R:**
  - Are API 6A monogrammed equipment
  - Are available in standard PR-2 or PR-2F (API 6A Annex F) configurations
  - Have been qualified for API 6AV1 Class I (Standard Service) and Class II (Sandy Service)
  - Can be certified SSV for use in Federal Offshore Waters (when provided in PR-2F Configuration)



Model CS-R			
Bore Size	Pressure (psi)	API Ring #	Available PSL
2 1/16"	2,000	R23	PSL-1, 2
	3,000 / 5,000	R24	PSL-1, 2, 3, 3G
2 9/16"	2,000	R26	PSL-1, 2
	3,000 / 5,000	R27	PSL-1, 2, 3, 3G
3 1/8"	2,000 / 3,000	R31	PSL-1, 2
	5,000	R35	PSL-1, 2, 3, 3G
4 1/16"	2,000 / 3,000	R37	PSL-1, 2
	5,000	R39	PSL-1, 2, 3, 3G
5 1/8"	2,000 / 3,000	R41	PSL-1, 2
	5,000	R44	PSL-1, 2
7 1/8"	2,000 / 3,000	R45	PSL-1, 2
	5,000	R46	PSL-1, 2

Model FS-R (HIGH Pressure)			
Bore Size	Pressure (psi)	API Ring #	Available PSL
1 13/16"	10,000	BX151	PSL-2, 3, 3G
	15,000		PSL-3, 3G
2 1/16"	10,000	BX152	PSL-2, 3, 3G
	15,000		PSL-3, 3G
2 9/16"	10,000	BX153	PSL-2, 3, 3G
	15,000		PSL-3, 3G
3 1/16"	10,000	BX154	PSL-2, 3, 3G
	15,000		PSL-3, 3G
4 1/16"	10,000	BX155	PSL-2, 3, 3G

Model FS-R (LOW Pressure)			
Bore Size	Pressure (psi)	API Ring #	Available PSL
2 1/16"	3,000 / 5,000	R24	PSL-1, 2, 3, 3G
2 9/16"		R27	
3 1/8"	5,000	R35	
4 1/16"	5,000	R39	

## API Material Classes, Materials, & Temperature Ratings

General Service Trims / Materials		See Notes 1,2,3		Available Temp Ratings	
Material Class (Notes)	NACE	Body / Bonnet	Internals	Low	High
AA	(1 / 2 / 3)	No	Carbon or Low Alloy Steel	L (-50°F / -46°C)	X (350°F / 177°C)
BB		No	Carbon or Low Alloy Steel Steel		
CC		No	SS or CRA (*)		

Sour Service Trims / Materials		See Notes 1,2,3,4		Available Temp Ratings	
Material Class (Notes)	NACE	Body / Bonnet	Internals	Low	High
DD	(1 / 2 / 3 / 4)	Carbon or Low Alloy Steel	Stainless Steel or CRA	L (-50°F / -46°C)	X (350°F / 177°C)
EE-0,5					
EE-1,5					
EE-360		Stainless Steel or CRA	P (-20°F / -29°C)		
EE					
FF-0,5					
FF-1,5					
FF-360					
FF					

## Technical Notes

1	Nitriding is the standard surface treatment for both NACE and NON-NACE trims. Hardfacing or other treatments are also available.
2	CRA: Corrosion Resistant Alloy per NACE MR0175 / ISO 15156.
3	Some valves with high temp ratings (X) might be subject to de-rated working pressure. Consult Omni for a specific size and pressure.
4	NACE trims are required to have qualifiers indicating acceptable partial pressure of hydrogen sulfide. Common qualifiers are 0,5 / 1,5 / 360. NACE trims listed without qualifiers (DD / EE / FF) are assumed to have no limit (NL) to hydrogen sulfide exposure.

# Model EX & EXE Self-Contained Control System



## EX Features & Details

The Omni Model EX is a self-contained hydraulic control system mounted onto the Omni HX actuator. The EX systems are designed to provide fail-safe ESD capability, are rugged, compact and easy to access in a field service environment. High quality components provide years of trouble free service even in the harshest of conditions.

The system energizes the actuator using its own hydraulic fluid reservoir. There is no need for access to a hydraulic power source at the well site or wherever the actuated valve is deployed. This makes it ideally suited for deployment in remote locations or locations with limited power source options.

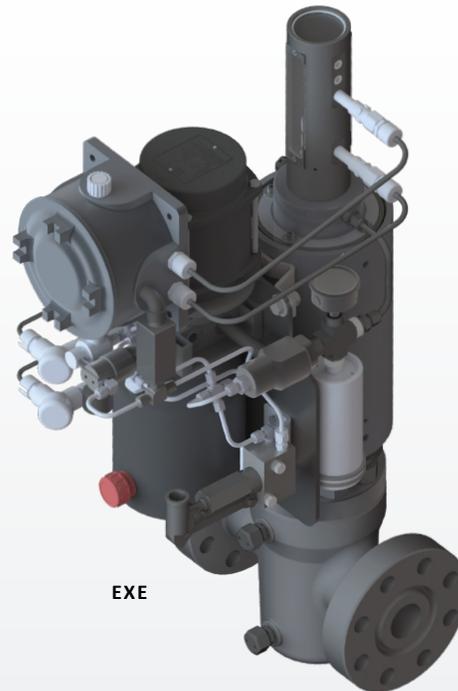


EX

## EXE Features & Details

The Omni Model EXE is a self-contained hydraulic control system mounted onto the Omni HX actuators and utilizes electric power to control hydraulically actuated surface safety valves. The EXE systems are designed to provide fail-safe ESD capability, are rugged, compact and easy to access in a field service environment.

Components are designed to perform well and provide years of trouble-free service even in the harshest of operating conditions. The system is normally energized by an electric motor-driven pump, but has a manual pump that can be used in case power is lost.



EXE

### Options

- High or Low Pressure Pilots (or both)
- Solenoid Valve (12, 24 or other vdc electric)
- Combination of Pilots and Solenoid
- Connectivity to SCADA or Other Controls
- Integrated Position Indication (Limit Switches)

### System Specifications

Temperature Range	-20 to 180 °F
Reservoir Capacity	½ gal
Maximum Operating Pressure	3,000 psi

### Options

- High or Low Pressure Switches (or both)
- Solenoid Valve (12, 24 or other vdc electric)
- Customizable ESD Logic
- Integrated Position Indication (Limit Switches)
- Connectivity to SCADA or Other Controls, Including
  - Programmable Logic Controllers
  - Remote Terminal Units
  - Local Operator Interfaces

### System Specifications

Temperature Range	-20 to 180 °F
Reservoir Capacity	1 gal
Maximum Operating Pressure	3,000 psi
Electric Motor	Variable Max Amp, 1.8 watt continuous





HYDRAULIC FAIL-SAFE

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**Product Warranty**

All products quoted are subject to Omni Valve's limited product warranty available at: [omnivalve.com/warranty.php](https://omnivalve.com/warranty.php)