

## RH-2 Gas-Lift Valve

Provides enhanced flow performance to maximize the production rate and reduce nonproductive time

### Applications

- Wells requiring equipment to be wireline retrievable
- Wells that require high injection pressures
- Wells with high injection pressures that require gas-lift valves to have dome charges up to 2,200 psi (152 bar) and differential-submergence pressures up to 6,000 psi (413 bar)
- Wells that require high injection rates to maximize production rates
- High-profile wells with high intervention costs

### Features and Benefits

- The complete assembly has been flow-performance tested and provides predictable gas passage for maximum well productivity.
- An inverted bellows is used for high-injection-pressure and high-injection-volume systems, enabling deeper points of injection and higher production rates.
- Positive bellows protection is provided when a mechanical stop prevents bellows overtravel, and a noncompressible silicon fluid provides support for bellows when high differential pressures are applied to the valve. This protection reduces operational failures, nonproductive time (NPT), and operating costs.
- Viscous dampening fluid prevents bellows fatigue and reduces associated well NPT by decreasing stem pounding/chatter.
- Lapped and matched tungsten-carbide seats provide a robust and resilient seal, which reduces chances of seal damage during the unloading phase. A tight seal provides upper unloading valves a positive seal for more efficient well operation.

### Tool Description

The Weatherford RH-2 gas-lift valve is specifically designed for deepwater or other high-profile well applications. It is a wireline-retrievable, injection-pressure-operated gas-lift valve with a 1 1/2-in. nominal outside diameter (OD). The high dome-charge capability and the differential-submergence-pressure rating of 6,000 psi (413 bar) make this valve applicable in high-pressure injection systems to achieve deep points of injection and to maximize production. This valve features an inverted-bellows mechanical stop that enhances bellows protection to prevent bellows deformation. Depending on operator preference and specific well conditions, the assembly can be equipped with the Weatherford QS-type reverse-flow check valve, which has a combination modified-PTFE and metal-to-metal seal, or the Q-type reverse-flow check



Cutaway of RH-2 gas-lift valve.



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valve, which has a strictly metal-to-metal seal. These check valves were designed by applying computational flow-dynamics analysis and physical testing to maximize gas-passage capability and erosion resistance.

Weatherford RH-2 gas-lift valves can be provided to meet API 19G2 V-1 certification, currently the highest standard in the industry.

### Specifications

Valve Series Model	Valve Model Number	Latch Type	Valve OD		Effective Bellows Area (Ab)		Port Size		Area of Port (Ap)		Ap/Ab Ratio <sup>#</sup>	1-(Ap/Ab)	PPEF* Ap/Ab 1-(Ap/Ab)
			(in.)	(mm)	(in. <sup>2</sup> )	(mm <sup>2</sup> )	(in.)	(mm)	(in. <sup>2</sup> )	(mm <sup>2</sup> )			
RH-2	0233-XXX	Rk-2	1.5	38.1	0.77	496.8	3/16	4.76	0.029	18.71	0.048	0.952	0.050
							¼	6.35	0.052	33.55	0.078	0.922	0.085
							5/16	7.94	0.081	51.61	0.127	0.873	0.145
							3/8	9.53	0.114	73.55	0.165	0.835	0.198
							7/16	11.11	0.154	99.35	0.219	0.781	0.280

<sup>#</sup>Ap/Ab values are obtained from open/close test data and are not calculated using the actual geometric values.

\*PPEF = Production Pressure Effect

