

# NOVA 15-B

## Venturi Orifice Gas Lift Valve

### APPLICATIONS

- Continuous-flow gas lift production
- High-reliability operations

### BENEFITS

- Enhances safety because wellbore integrity is ensured during shut-in periods
- Increases production because of optimized gas lift efficiency and well productivity
- Reduces downtime because of reliable performance
- Lowers costs because of versatility and efficiency

### FEATURES

- Qualification to API Specification 19G2 V1, ISO 17078-2 V1, and barrier standards
- Dynamically-generated injection gas flow profile
- Simple field-proven design that stabilizes injection pressure and production rate
- Corrosion resistance through stainless steel or nickel alloy construction
- Barrier-qualified, reverse-flow check valve that provides positive seal between tubing and casing annulus
- Usable with Camco\* standard and select side pocket mandrels

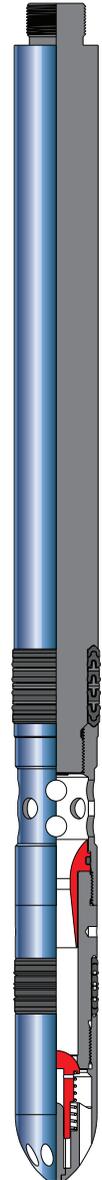
Schlumberger NOVA\* 15-B Barrier Series venturi orifice gas lift valves have an exclusive dynamically tested flow profile to promote a constant-flow gas injection rate. This profile produces maximum gas passage with minimal differential across the valve. The NOVA valve flow regime eliminates most effects of tubing pressure on the gas injection rate and stabilizes the gas injection pressure. Stable injection rates can result in more stable tubing pressure, increased production, and reduced operating expenses.

NOVA 15-B valves replace traditional operating orifice valves where the injection rate is inherently unstable because of the effect of tubing pressure. Even slight variations in the tubing flow regime can lead to wide fluctuations in tubing pressure and result in unsteady injection rates, instability, and slugging. Traditional square-edged orifice valves require a pressure drop of approximately 50% to achieve critical gas flow, and, in most cases, operating with this much pressure loss is not practical.

NOVA 15-B valves achieve critical flow with a pressure drop as little as 10% or less. Within the critical flow regime, the injection rate is constant because the tubing pressure does not affect the injection volume. Stabilizing the injection pressure can lead to reduced maintenance costs and improved productivity and profit. This stabilization is achieved through innovative engineering and a field-proven design.

### Operation

The NOVA 15-B valve uses a nozzle venturi orifice and a positive-sealing, barrier-qualified check valve for continuous flow operations. It is installed in a side pocket mandrel. Injection fluid or gas enters through the valve entry ports and then flows through the nozzle venturi orifice. Injection pressure moves the check valve off the seat, allowing gas to enter the production tubing. During periods of no gas injection, the normally closed positive-sealing barrier check valve prevents tubing fluids and pressure from flowing back into the casing.



NOVA 15-B venturi orifice gas lift valve.

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## NOVA 15-B Valve Specifications

OD (not including latch), in	1.500
Length with latch, in [mm]	28.524 [724.510]
Operating pressure (max. unloading differential), psi [kPa] <sup>†</sup>	10,000 [68,947.6]
Max. differential across check section, psi [kPa]	10,000 [68,947.6]
Max. temperature, degF [degC]	350 [177]
Min. temperature, degF [degC]	50 [10]
Venturi orifice size range, in	$\frac{3}{64}$ to $\frac{27}{64}$

## Materials

Body parts	Monel <sup>®</sup> 400 and K-500
O-rings and seals	Viton <sup>®</sup>
Bellows	NA
Seat/venturi	Tungsten carbide
Packing	Modified Campac carbon and moly-filled Teflon <sup>®</sup> with PTFE/carbon fiber/graphite-filled PEEK <sup>™</sup> backup and Monel <sup>®</sup> K-500 retainer ring

## Secondary accessories

Latch	RA, RK, and RK-1 latch, depending on type of mandrel
Running tool	JC-3 and RK-1
Pulling tool	2-in JDC and 1 $\frac{1}{2}$ -in JDS
Kickover tool	L, L2-D, OM series, and TPD, depending on type of mandrel
Mandrel series	MMA, MMG, and MMRG

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