

Integral Injection Control Valve (TRGV-E)

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Integral Valve for Injection Control of Water and Polymers in Mandrels, with Adapters for Use Sealed or for Measurement

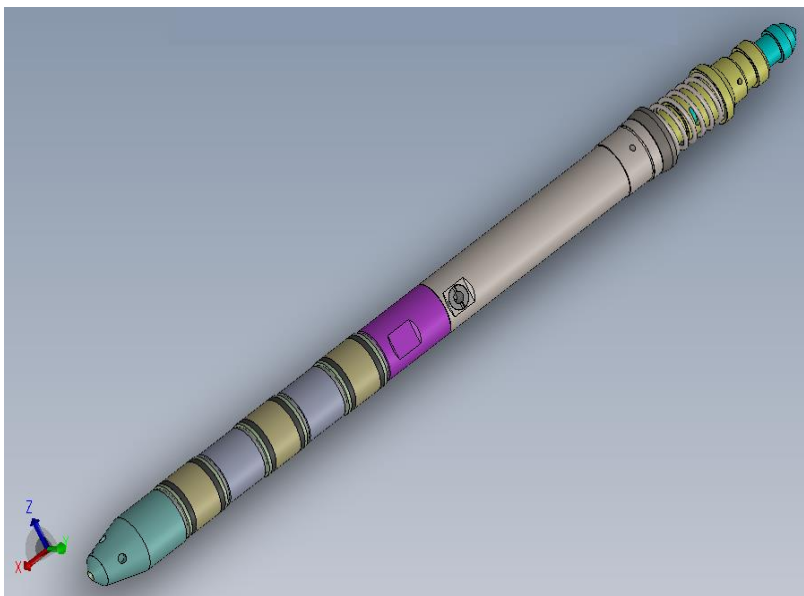
The **TRGV – E (Tandem Regulator Injection Valve)** allows for insertion or removal from mandrels with modules for controlling and regulating the injection of water and polymers in fields with multiple reservoirs under secondary recovery in strings that use mandrels. It was developed and patented by Ecopetrol and JPT. This device is based on conventional injection valve designs but incorporates various improvements based on observations from Ecopetrol.

The device allows for controlling the maximum volume of water or polymer injected per zone according to the

module used. Additionally, it can be used as a sealing or blind valve and as a measurement valve for parameters when the electronics and measuring sensors are inserted.

Each valve is made from different types of stainless steel, optimizing the lifespan and thus reducing costs. It also incorporates a sealing system of up to three modules for strings with wear.

The system is a national technology developed by Ecopetrol and has continuous support from JPT Consulting and Services.



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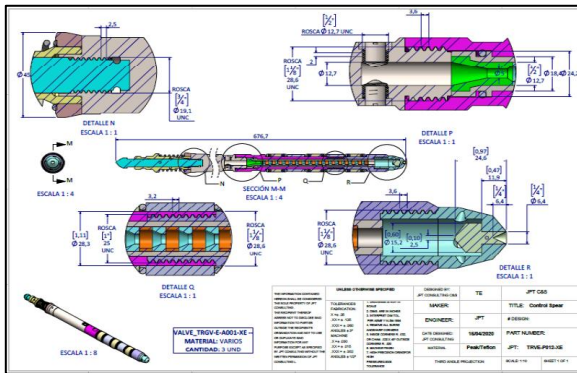
Applications

- Control and regulation of water and polymer injection in mature fields in wells with selective completion using mandrels.
- Stabilization of the injection for each zone.
- Can be used as a sealing or blind valve and as a measurement valve for injection parameters in each zone if necessary.
- The recovery system is compatible with existing systems in the market, allowing for cost optimization.
- Special sealing system for strings and mandrels with wear due to use.

Advantages and Benefits

- Modular design allows for cost and inventory optimization; it also standardizes the different types of valves.
- Can be adapted as a sealing or blind valve, optimizing costs and inventory.
- Manufactured from stainless steel for hostile conditions and durability, thus optimizing service-related costs.
- Simple system with easy selection of regulators and straightforward use and installation in the field.
- Valve can be adapted for measurement purposes.
- National technology with local technical support.

Technical Specifications



General Technical Specifications	
Parameter	Specifications and Comments
Valve Diameter	1.675 in valve OD / TRGV: L-6 in; OD-1 in
Material	SST ANSI 316 / 304
Max. Operating Temperature	400°F - determined by O-ring
Maximum Flow Rate	2500 BWPD per zone/mandrel
Pressure Range	0 psi to 20,000 psi
Maximum Wear	1% for 10,000 hours at 1000 BWPD
Safety	Intrinsically Safe

