

## OVERVIEW

The EnhancePRO™ slim-line multi-stage system is designed for your dynamic well applications. The system can be used in variable-rate injection/production well conversions or high-rate re-frac applications, allowing operators to maximize the use of existing well inventory. The EnhancePRO™ system is composed of multiple mechanically shifted re-closable valves run in the injection or re-completion string that are actuated using a specially designed coiled tubing bottomhole assembly (BHA). Isolation between the valves is accomplished by dual-piston cased-hole packers designed to be retrievable or permanent. The retrievable packers can be set up to be triggered or released with variable shear screw configurations based on operators' requirements. The retrievable packers can be run with an optional shearable disconnect which is pinned higher than the packers' retrievable shear setting. In this way, the operator can stage the system out of the well as required. ACTS has designed a modular packer/anchor while having a small polished bore receptacle that will allow the tubing string to be retrieved without disturbing the system.

## HOW IT WORKS

The EnhancePRO™ valves are run-in with the liner, separated by packers to straddle existing perforations or valves already installed in a wellbore. A liner closing valve at the bottom of the string is initiated by dropping a ball, which will isolate the string so that the liner can be pressured, anchors initiated, and the packers set to isolate the stages. For injection operations, the coil tubing BHA is then used to shift the valves open. For re-fracturing or slim-line open-hole applications, the system is designed to be ball drop activated.



EnhancePRO™ re-closable valve

## VALVE STYLE AND FEATURES

Style	Application	Description
DPI valve	Low-rate Injection	Dual-position, low-rate flow and closed
TPI valve	Low-rate injection	Tri-position, 2 low-rate flow sizes and closed
RF valve	Re-frac	Coil re-closable, ball drop activated

The EnhancePRO™ valves are delivered to the wellsite where they are run as part of the injection or re-completion string. The valves do not require pup joints for make-up and permit torque to be transferred through.

## Applications

- Dynamic Wells
- Convert existing Horizontal Multi-stage Completions to Injection Wells
- Refrac existing Horizontal Multi-stage Completions
- Retrievable or Permanent system
- Slim-line large bore or regular bore system

## EnhancePRO™ BHA Features and Benefits

- Designed to function properly in severe proppant-laden environments incorporating radial self-cleaning jets
- Ability to depth correlate to valves whether open or closed
- Single tool configuration with ability to frac or actuate in any sequence
- Lower applied pressure from surface is required to set the dual-piston designed packers, to reach maximum packoff force
- Large bore 2-7/8" × 4-1/2" system allows 2" coil to be used

## EnhancePRO™ Re-closable Valve Features and Benefits

- Compact Valve Design – no pup joints and can be torqued through
- Tri-position or Dual-position allows operator to change flow rate or stop the flow over the life of injection program
- Reliable re-sealability upon re-closing through non-elastomeric V-seal stacks
- Full bore system

## EnhancePRO™ Multi-stage Slim-line Injection Re-fracturing System

Multiple valve configurations are available, either for high-rate re-frac applications or variable-rate injection applications. The tri-position variable-rate injection valve enables the operator to tailor port size, allowing for two unique flow rates as the injection program changes.

### BOTTOMHOLE ASSEMBLY (BHA)

The EnhancePRO™ actuating tool contains mechanical dogs which auto-engage an internal piston in the downhole valves to mechanically shift the valve open or closed. The actuating tool is engineered to automatically engage and shift a valve when coiled tubing circulation is stopped while passing through the valve, and to automatically disengage after the valve has functioned. The actuating tool can pass through a valve without shifting the valve by initiating circulation through the tool, which retracts the actuating tool's shifting keys. This functionality allows for efficient operations, minimizing time between stages. The tool has also been specifically designed to function reliably in severe proppant-laden environments incorporating radial jets which clean the immediate exterior area of the tool, as well as the internal geometries of the valves.

For refrac'ing operations, the valves utilize a ball on seat design in order to maximize frac rates in a slim-line refrac system.

The EnhancePRO™ system can be tailored for the operator to maximize the use of existing well inventory. Contact your ACTS representative today to find out how our EnhancePRO™ system can be designed for your specific application and minimize your well conversion cost.



EnhancePRO™ actuating tool

### SYSTEM SPECIFICATIONS

System	Size	Permanent	Retrievable
Regular-bore	2-3/8" × 4-1/2"	√	√
	2-7/8" × 5-1/2"		
Large-bore	2-7/8" × 4-1/2"	√	√
	3-1/2" × 5-1/2"		