

# Well Intervention

## Production optimisation

### Autonomous Well Intervention System

**The autonomous solids removal system acts as a guardian of your well investment, maximising production by utilising an autonomous system to remove waxes, solids and asphaltenes from the well bore in an intelligent, safe manner.**

The system is the world's first fully automated well intervention service which allows the operator to maintain their well and reduce downtime, thus generating more income with reduced overheads.

Permanently mounted on the well head, a direct drive mini electric winch lowers the tool string into the well at intervals defined by the operator or alternatively as often as the well conditions dictate.

The specially-designed scraping tool maintains 360 degree contact to the tubing wall with a minimal drag coefficient as it is run in and out of the well. The tool scrapes the solid deposits from the inner wall of the tubing, eliminating any associated restriction of fluid flow. The innovative tool geometry allows for increased flow-by area while running in, and reduces likelihood of wax build-up on the tool itself.

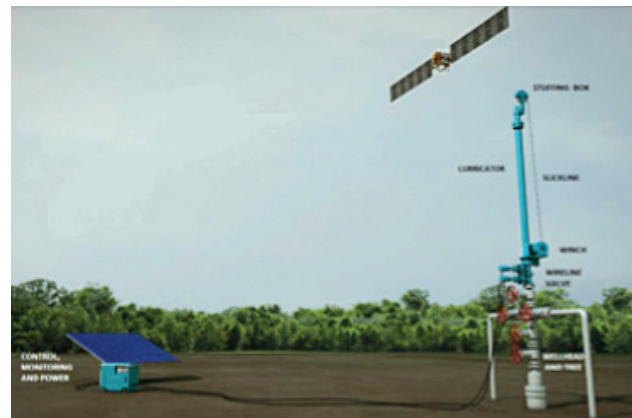
Continuous monitoring of the pressure control equipment integrity, as well as tool depth, line speed and line tension, ensures the system reacts instantly in the instance of an unforeseen event, making the well safe. In-field personnel are notified immediately to ensure the quickest possible response times.

Between deployments, the tool string is parked within a short lubricator section which is mounted directly above dual shear-and-seal electrically actuated gate valves. These valves, in conjunction with the stuffing box, provide a triple barrier between the well bore and environment during normal production operations.

The robust stuffing box design is coupled with a sensor that allows piston pressure on the packings to be increased as the packings wear; prolonging the service life, increasing maintenance intervals and therefore reducing the total number of required personnel visits to the well site.

In locations where mains electricity is unavailable, energy for the solids removal system is supplied by battery, charged by solar panels. The power and control units are situated out-with Zone 2 with all other electrical equipment within Zone 1 being ex-e protected.

Remote monitoring of the system can take place from anywhere in the world thanks to the in-built satellite communication capabilities. Real-time data and images of the well site can be sent on request.



#### Features and benefits

- Increased flow area, and therefore production rates, through innovative solids removal from the inner wall of the well
- Allows production to continue in remote locations or areas that are inaccessible to wireline crews at certain times of the year
- Wax scraping intervals defined by well conditions rather than availability of wireline crew and equipment
- Reduced safety risk for personnel due to reduced manual handling at the well site
- Reduced environmental impact to field and surrounding areas
- Lower investment due to reduction in manpower and associated overheads
- 24/7 monitoring from anywhere in the world
- Reduction in overall costs versus traditional wireline intervention operations

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Technical specifications	
<b>Design</b>	
Codes	API 6A
Service	H2S NACE MR 0175
<b>Operational limits (within well)</b>	
Working pressure (max)	5000psig
Temperature range	-20°F TO 250°F (-29°C to +121°C)
<b>General</b>	
Minimum internal diameter	3 <sup>1</sup> / <sub>16</sub> in
Connections	3in 5000psi, API flange
<b>Gate valve</b>	
Valve closing time codes	30 seconds
Valve opening time codes	30 seconds
Visual position indicator codes	Yes (Open/Close)
Manual override	Yes (with interlock)
<b>Lubricator</b>	
Length	10' (3.05 m)
Pipe NPS and schedule	3", SCH 80
Bleed valves	½ NPT
<b>Stuffing box</b>	
Type	API 9A
Wire Size	0.092"*
<b>Winch</b>	
Drive	Worm
Power	12v DC or 24vDC
Load (max)	992 lbs (450 kg)
Drum capacity (min)	4265' (1300 m)*
<b>Slickline</b>	
Wire diameter (min)	0.092in*
Cable length for intervention (min)	4265' (1300 m)*
Material	Steel*

\* Specifications can be tailored according to operating conditions. Contact Expro for more information.

