

High-Pressure Rotary Jet Blasting Tool

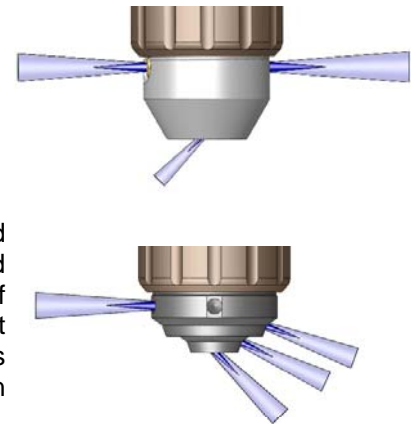


High-pressure rotary jetting offers the ability to safely remove mineral scale and to stimulate well completions with *no risk of damage to production tubing or downhole equipment*. High pressure provides the power needed for fast milling and stimulation. Tempress jet rotors operate reliably at up to 5000 psi differential pressure. The tools are fully acid capable and are routinely run in high-temperature, sour gas environments. The jetting tools are compatible with a broad range of fluids embracing almost any service job. All of the tools operate at full pressure on energized fluids including nitrogen and carbon dioxide. Dry gas may be run through the tool to complete the job.

Patented high-efficiency, low-torque seals virtually eliminate power losses due to leakage and friction. The open seal design ensures that all of the hydraulic power is delivered to the jets (in contrast to conventional jetting tools, which incorporate significant flow restrictions). When the tool tags bridged scale or debris, the pump pressure will drop allowing the operator to adjust feed rates. A proprietary speed governor provides controlled high rotary speeds allowing high feed rates without leaving spiral ribs of uncut scale. The compact size of the tools simplifies setup of the BHA and job execution.

The tool kits include two field-replaceable heads:

- ❑ **Stimulation head** for acidizing and screen cleaning. Acid jetting multiplies the effect of the acid by ensuring constant exposure of the formation to fresh acid. Bleach, solvents, polymers and surfactants can be jetted to enhance the well service.
- ❑ **Milling head** for scale, barite sag, frac sand cleanout and bridges. Jet milling with mild acid provides an economical means of cleaning carbonate scales from gas lift mandrels, valves and capillary tubing. This head is also used for hydrate and paraffin removal.



***Both configurations have found widespread acceptance
by operators in Western Canada***

Procedures are clearly defined in the Operating Guide, making the tool easy to use effectively. Field service involves a simple flushing and inspection – generally allowing multiple jobs. A 500 micron screen is deployed above the tool on most jobs to prevent debris from plugging the nozzles.

Fluid compatibility	Acid, Water, Nitrogen & Solvents, Sour Gas
Diameter	1.69 inch (42.9 mm)
Length	16 inch (406 mm)
Max differential pressure	5000 psi (35 MPa)
Design pressure	3000 psi (20 MPa)
Max temperature	390°F (200°C)
Flow rate at design pressure	up to 50 gpm (185 lpm)
Jet hydraulic power	43 kW (60 hhp)
Rotary speed	3600 rpm

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