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Intelligent Intervention

The ReSOLVE instrumented wireline intervention service from Schlumberger allows operators to perform many major well-intervention operations without a rig or coiled-tubing unit. The advanced capabilities of the tools, coupled with the speed and small footprint of electric-wireline deployment, give operators intervention options to address production problems quickly, safely, and noninvasively. The new tools use down-hole sensors and high-speed telemetry to provide instantaneous monitoring of tool operation, responsive real-time control of all tool functions, and positive confirmation of intervention actions. The family of tools includes a high-force anchor and linear-actuator tool (Fig. 1) for pushing and pulling operations and an optional high-expansion universal shifting tool (UST) for shifting completion components selectively. A milling tool operates in combination with the company's TuffTRAC cased-hole tractor to mill through built-up scale and other well obstructions. A nonexplosive setting tool sets bridge and tubing plugs, packers, and other devices while providing a record of the setting force to confirm the setting operation. The services are deployed on standard wireline cables and surface equipment, with optional

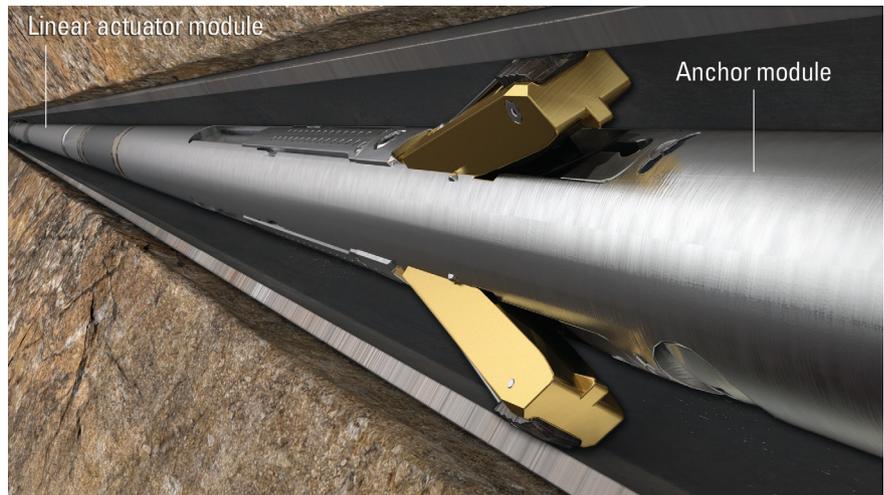


Fig. 1—The Schlumberger ReSOLVE linear-actuator tool anchors in tubing to push or pull with up to 45,000 lbf to perform setting, unsetting, shifting, fishing, and other intervention operations, while controlling force and displacement.

tractor conveyance. During operations, the tools are directly controlled at all times by the engineer at the surface, who can see feedback of all tool operations in real time. The linear-actuator tool anchors in tubing and precisely applies a controlled gripping of up to 45,000 lbf. The UST deploys shifting keys on command, even below restrictions. The milling tool uses the company's AutoMill control system to vary weight on bit

autonomously to maintain a constant bit torque to prevent stalling. The tool uses a custom polycrystalline-diamond-compact bit designed by Lyng Drilling specifically for scale-milling operations. The setting tool provides a fully controllable setting speed with a constant setting force of up to 78,000 lbf, without the use of explosives. **JPT**

► For additional information, visit www.slb.com/ReSOLVE.