

Slot Cutter

ReSOLVE iX extreme-performance instrumented wireline intervention service

Precise, mechanical cutting of multiple slots per station and multiple stations per run



Slot cuts:
up to 200 slot cuts per run



Cutting range:
2.75- to 7-in [69.85- to 177.8-mm] tubing



Real-time:
monitoring of cut progress and confirmation of completion



Active casing collar locator (CCL):
for additional cut and depth confirmation in the same descent

Applications

- Alternative solution to conventional explosive tubing punchers or other mechanical punchers
- Through-tubing pressure equalization
- Fluid circulation
- Production enhancement for sand-screen-completed wells

Benefits

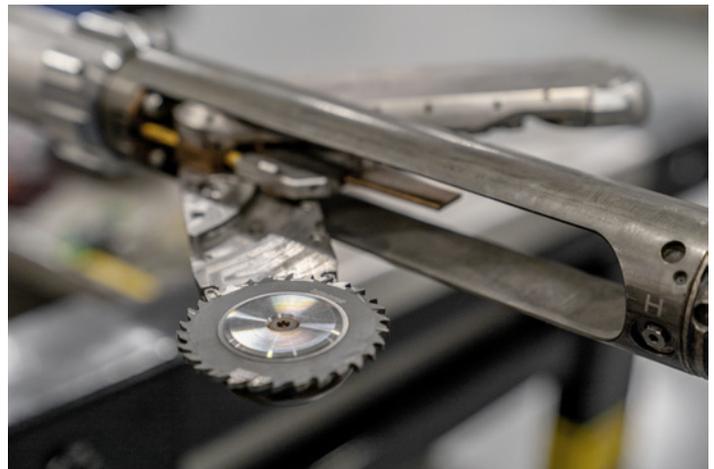
- Increases flow area
- Delivers precise depth of cuts to avoid wellbore components damage
- Enables cutting up to eight slots simultaneously and up to 200 slots in a single run while maintain cutting efficiency
- Cuts ~60% faster than other mechanical punchers
- Eliminates the logistic and HSE challenges of handling and shipping explosives

Features

- Real-time monitoring of cutting progress and confirmation of cut completion
- Sour service qualification
- Seamless combinability with other intervention services, including logging, cleaning, cutting, and milling, and combinability with other mechanical intervention and production logging tools for condensing multiple operations in one run
- Adjustable slot cut spacing, orientation, and depth
- Reliable pressure equalization via anchor mechanism
- Wide cutting range for various tubing sizes
- Debris-tolerant design
- Additional cut and cut depth confirmation via active CCL in the same run
- High-force, high-expansion anchoring
 - Large expansion ratio for anchoring tubulars below restrictions
 - Minimized tubing impression



Anchor tool of ReSOLVE iX service slot cutter.



ReSOLVE iX service slot cutter with rotatable blade on one arm and support anchor on the other arm.

How it improves well intervention

In all well stages, slot cutting services are critical and required for enabling through-tubing pressure equalization, fluid circulation, and production enhancement for sand-screen-completed wells. A high number of cuts may be required in a wide variety of casing types, grades, and potentially extreme downhole conditions.

The [ReSOLVE iX* extreme-performance instrumented wireline intervention service](#) has been customized to define an extreme-performance slot cutter application. This instrumented and surface-controlled, nonexplosive mechanical slot cutter is an alternative solution to conventional explosive tubing punchers or other mechanical punchers, expanding the operational capacity of downhole cutting and perforating methods for increasingly complex well designs. The precise cut depth with completion confirmation significantly reduces

Slot Cutter

the risk of damaging control lines directly behind the tubing and eliminates the risk of damaging the annular tubing beyond the required holes for fluid communication. Compared with explosive tubing punchers, the slot cutter eliminates the logistic and HSE challenges of handling and shipping explosives.

How it works

The slot cutter comprises a scissor opening assembly developed using a rotatable cutting blade on one arm and a fixed anchor to provide the necessary stability on the other. The ReSOLVE iX service slot cutter configuration is extremely versatile, enabling the combination of up to eight slot cutter sections, up to eight cuts per station, and multiple stations per run with a wireline footprint.

The cutting process is controlled using downhole regulation of the hydraulic pressure used to open the cutter arms. The progress is monitored in real time, and the maximum depth of cut is controlled by the blade design.

ReSOLVE iX Service Slot Cutter Specifications[†]

Output	Slot cut completion confirmation
	Cutting power and electronics temperature monitoring
	Cutting blade opening pressure and speed measurement
	Anchor opening force and diameter measurement
	Head tension, wellbore pressure, and temperature
	CCL and optional gamma ray
	Logging while cutting slot
Pipe ID, min. [‡]	2.75 in [69.85 mm]
Pipe OD, max. [‡]	7 in [177.8 mm]
Slot punch width	0.12 in [3.05 mm]
Pressure rating	20,000 psi [137 MPa]
Temperature range	32 to 350 degF [0 to 176 degC]
Hole size, min. [‡]	2.85 in [72.39 mm]
OD [‡]	2.68 in [68.07 mm] for tubing thickness <0.254 in [6.45 mm]
	3.2 in [81.28 mm] for tubing thickness <0.6 in [15.24 mm]
Length [‡]	3.49 ft [1.06 m]
Weight [‡]	33.5 lbm [15.2 kg]
Tension	25,000 lbf [111,200 N]
Compression	25,000 lbf [111,200 N]
Special applications	Slot cut length: Configuration and pipe dependent
	Qualified for up to 200 slot cuts per run; custom applications available upon request for high-strength pipe, higher number of slot cuts per run, and slot extension for larger flow areas
	NACE MR0175 compliant for H ₂ S and CO ₂ resistance
	API RP 67 compliant for explosives operations
	Fishing capability: Optional 2 ¹ / ₈ - or 3 ¹ / ₈ -in [53.98- or 79.38-mm] WIRed* wireline inline release devices above and below tractors

[†] All values are for standard specifications and subject to change without notice. A dedicated engineering team is available for customizing tools to address your challenges.

[‡] Values depend on configuration.

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