

AIIFRAC

Alternate Path cased-hole frac-pack screens

APPLICATIONS

- Cased-hole gravel-pack and frac-pack operations
- Vertical and deviated wells
- Long intervals
- Heterogeneous formations
- Cased-hole, multizone gravel-pack operations

BENEFITS

- Ensures complete annular packing, which prolongs well life and optimizes productivity
- Permits continued fracture development past bridge, ensuring stimulation and productivity across the interval
- Enables multizone completions for more efficient operations, saving time and costs

FEATURES

- Bypasses sand bridges around the screen during pumping operations
- Is available with direct wire-wrapped, wire-wrapped, and premium sintered mesh screens
- Can be configured to meet frac-packing requirements by adjusting the number and size of tubes
- Aligns Alternate Path[†] gravel-pack shunt tubes automatically while connection is being made
- Has unique connector design for ease of deployment

AIIFRAC[†] Alternate Path[†] cased-hole frac-pack screens, used with the Schlumberger STIMPAC^{*} fracturing and gravel-packing service, offer a rugged, flexible technology for cased-hole sand control treatment design. They provide a redundant mechanism for placing a gravel pack around the screens inside the wellbore.

Complete gravel placement is critical to preventing formation sand production and completion failure. The frac-pack screen can

- lower the risk of gravel-pack failure
- minimize rig time spent on sand-control pumping operations
- increase wellbore operational reliability
- increase completion longevity
- maximize production and reserve recovery
- provide economical solutions for completing multiple intervals.

Alternate Path technology advantage

Standard sand screens are the mechanical filter in sand control completions that prevent gravel from entering the tubing with the produced oil and gas. A bridge can form where there is a large amount of leakoff from the wellbore, either to the screen or to the formation. Alternate Path technology uses shunt tubes and nozzles to provide alternate slurry pathways that bypass bridges. If a bridge forms, the slurry flows through the tubes and fills in any void below or past the bridge, allowing the sand control treatment to continue until the pack is complete. The result is complete annular packs, longer completion life, and better production and recovery. Without this complete pack, screens quickly fail.

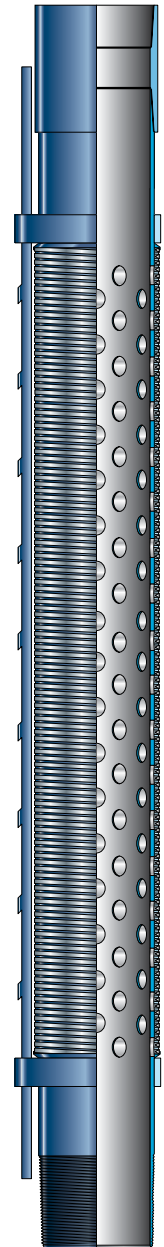
AIIFRAC screens

AIIFRAC Alternate Path frac-pack screens feature one or more 1.500-in × 0.750-in [38.1-mm × 19.0-mm] shunt tubes, attached either concentrically or eccentrically to the screen joint, with 0.375-in [9.5-mm] exit nozzles spaced out on each shunt tube for optimum performance.

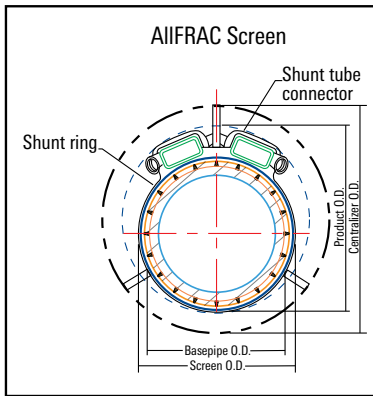
The screen is ideal for use in applications appropriate for the higher-rate STIMPAC service. Treatment rates can be up to 8 bbl/min for each shunt tube, depending on the screen, the blank length, and the type of carrier fluid. Configurations with multiple tubes are available for a wide variety of well treatments and multizone well types.

Alternate Path screen construction

Screen construction with Alternate Path technology offers many advantages. The construction is robust, the screens are available in material grades stainless steel 316L and nickel alloy 825, and the shunt tubes are made of durable stainless steel. The nozzles are erosion resistant, and timed premium threads are available for simultaneous torquing of the screen joints and aligning of the shunt tubes. A unique connector design is also part of the system, allowing for easier makeup and deployment. AIIFRAC screens are available with the LineSlot LT^{*} direct wire-wrapped screen, the LineSlot^{*} premium direct wire-wrapped screen, the WeldSlot^{*} slip-on wire-wrapped screen, and the MeshSlot XL^{*} four-layer premium sintered mesh screen—each with either one or two transport tubes.



On AIIFRAC screens, Alternate Path shunt tubes provide alternate slurry pathways that bypass bridges.



The number of tubes used is reflected in the naming convention: 1X refers to a screen assembly with one Alternate Path tube, 2X with two, and 3X with three. The packing tubes divert slurry to the open hole between the screen and wellbore when bridges form, allowing the empty spaces in the unpacked annulus to be filled. This process continues until the interval is fully packed.

Cross section of the AIFRAC Alternate Path screen.

AIFRAC Alternate Path Screen with LineSlot LT, LineSlot, and WeldSlot Screen Specifications

Basepipe OD, in	1X		2X		3X		Screen OD, in		
	Product OD, in	Additional Alternate Path Tube Weight, lbm/ft	Product OD, in	Additional Alternate Path Tube Weight, lbm/ft	Product OD, in	Additional Alternate Path Tube Weight, lbm/ft	LineSlot LT	LineSlot	WeldSlot
2.38	4.11	3.32	4.48	4.70	5.14	6.08	3.07	na [†]	3.04
2.88	4.61	3.61	4.89	5.00	5.65	6.38	3.57	na	3.54
3.50	5.20	3.83	5.42	5.19	6.23	6.55	4.19	na	4.16
4.00	5.75	4.04	5.94	5.40	6.83	6.76	4.70	4.82	4.66
4.50	6.25	4.42	6.40	5.78	7.32	7.14	5.20	5.32	5.18
5.00	6.74	4.51	6.88	5.87	7.81	7.23	5.70	8.82	5.68
5.50	7.23	4.87	7.35	6.22	8.30	7.58	6.20	6.30	6.19
6.63	8.39	5.67	8.48	7.02	9.49	8.38	7.33	7.44	7.32
7.00	8.77	5.69	8.85	7.05	9.88	8.41	7.68	7.82	7.70

[†]Not applicable

Notes: For rating values, refer to individual screen product sheets.

For final assembly weight, add screen and basepipe weight to additional Alternate Path shunt tube weight. ISO certifications are available on request.

AIFRAC Alternate Path Screen with MeshSlot XL Screen Specifications

Basepipe OD, in	1X		2X		3X		Screen OD with High-Flow Shroud, in		
	Product OD, in	Additional Alternate Path Tube Weight, lbm/ft	Product OD, in	Additional Alternate Path Tube Weight, lbm/ft	Product OD, in	Additional Alternate Path Tube Weight, lbm/ft	14 GA Without ODL [†]	14 GA With ODL	10 GA Without ODL
2.38	4.21	3.32	4.61	4.70	5.35	6.08	3.12	3.29	3.24
2.88	4.71	3.61	5.01	5.00	5.83	6.38	3.62	3.79	3.74
3.50	5.31	3.83	5.55	5.19	6.44	6.55	4.24	4.41	4.36
4.00	5.80	4.04	6.00	5.40	6.93	6.76	4.74	4.91	4.86
4.50	6.31	4.42	6.46	5.78	7.44	7.14	5.26	5.43	5.38
5.00	6.80	4.51	6.94	5.87	7.93	7.23	5.76	5.93	5.88
5.50	7.29	4.87	7.41	6.22	8.42	7.58	6.27	6.44	6.39
6.63	8.42	5.67	8.51	7.02	9.55	8.38	7.4	7.57	7.52
7.00	8.79	5.69	8.88	7.05	9.92	8.41	7.78	7.95	7.9

[†]Outer drainage layer.

Notes: For rating values, refer to individual screen product sheets.

For final assembly weight, add screen and basepipe weight to additional Alternate Path shunt tube weight. ISO certifications are available on request.