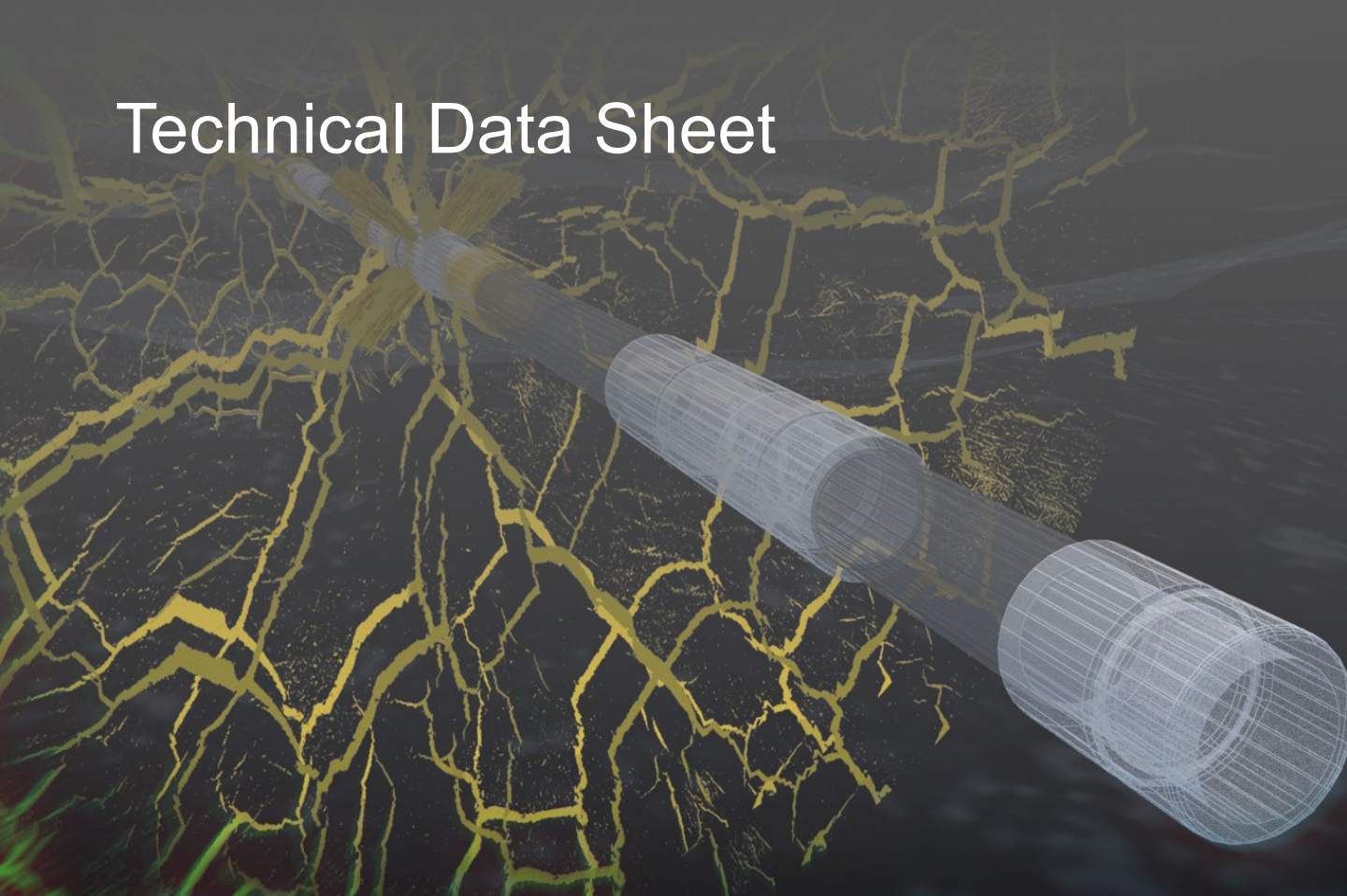




Frontier
Oil Tools

F1 Liner Hanger Packer 4-1/2" x 7" API 19LH VI Qualified

Technical Data Sheet



OVERVIEW

F1 Rotating Liner Hanger-Packer utilizes multiple sets of constrained slips to enable increased load rating. Constrained slips also allow for rotation while running the liner downhole, and are held firmly to the cone preventing slip damage.

FEATURES

- API 19LH V1 Qualified
- 15,000psi Pressure Rating
- Multiple slip sets provide for increased load rating
- Allows rotation while running
- Anti Preset Feature
- Fully hardened, mechanically constrained slips
- Integral Liner Packer and Liner Hanger provides the shortest in the industry overall length for use in deviated applications
- Reliable hydraulic slip activation
- No weld construction and Non-swabbing, bonded packing element
- Field adjustable setting pressures
- Equipped with a positive stop to prevent the cylinder from over stroking
- A premium double threaded locking ring system assures the packing element stays firmly set and sealed

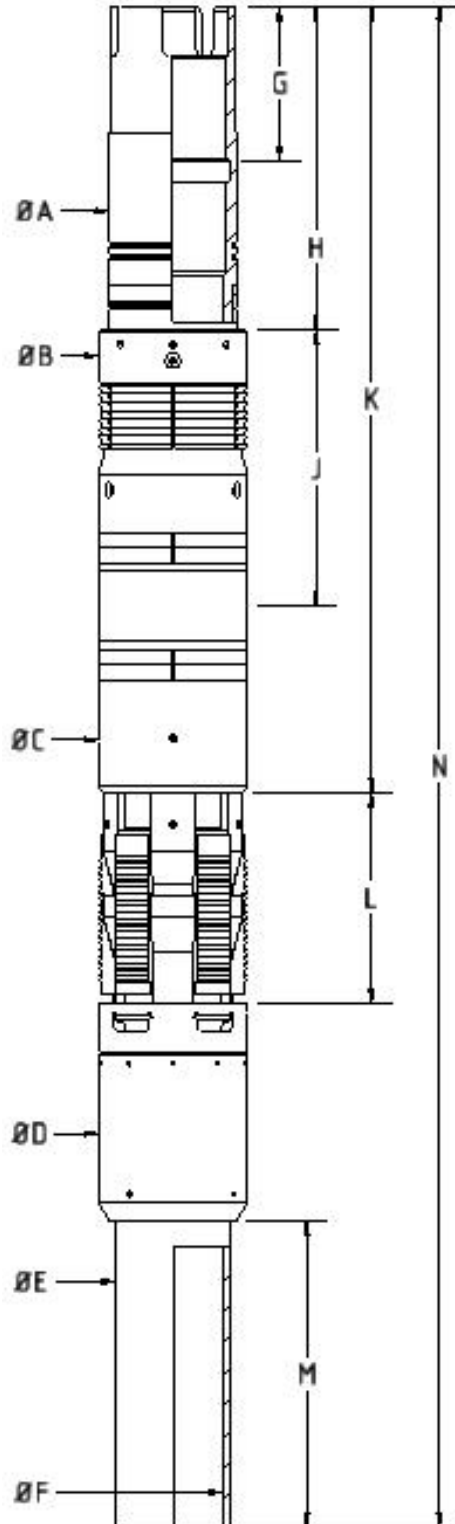


| Liner Size | Casing Size | Casing Weight Range | | Max. OD Packer | |
|------------|-------------|---------------------|-------------|----------------|---------|
| | | lbs/ft | kg/m | in | mm |
| 4 1/2 | 7 | 26-32 | 34.23-47.62 | 5.890 | 149.606 |

*Other sizes are available on request.

** ID may vary depending on connecting configuration selected.

- Dimensions Map – Refer to Next Page For Dimensions and Additional Specifications



- 4.50" 13.5# X 7.00" 26-32# F1 ROTATING LINER HANGER PACKER, W/ INTEGRAL HYDRAULIC PROFILE, W/ HOLD DOWN SLIPS, HNBR, W/ VAM TOP PIN DOWN, F/5.00" ID TBR, 3000 PSI MAX SHEAR (300 PSI PER SCREW)

| Dimensions, in (mm) | |
|---------------------|------------------|
| ØA | 4.993 (126.822) |
| ØB | 5.890 (149.606) |
| ØC | 5.825 (147.955) |
| ØD | 5.890 (149.606) |
| ØE | 4.520 (114.808) |
| ØF | 3.920 (98.628) |
| G | 6.10 (154.940) |
| H | 12.81 (325.374) |
| J | 10.88 (276.352) |
| K | 38.420 (975.868) |
| L | 8.31 (211.074) |
| M | 12.0 (304.800) |
| N | 60.0 (1524.000) |

4-1/2: 13.5# Liner Hanger will drift 11.6# (3.875")

- 4.50" 13.5# X 7.00" 26-32# F1 ROTATING LINER HANGER SYSTEM SPECIFICATIONS

| HANGING CAPACITIES HOST CASING (UNSUPPORTED CASING) | | | | |
|---|-------|---------|---------|---------|
| CSG | WT/FT | L-80 | P-110 | Q-125 |
| 7 | 26 | 173,000 | 238,000 | 270,000 |
| | 29 | 224,000 | 308,000 | 350,000 |
| | 32 | 270,000 | 372,000 | 422,000 |

| PRESSURE RATINGS | | | |
|------------------|--------|--------|----------|
| | YIELDS | BURST | COLLAPSE |
| MANDREL | L-80 | 10,120 | 8,980 |
| MANDREL | P-110 | 14,890 | 13,120 |
| CYLINDER | L-80 | 12,060 | 10,480 |
| CLYINDER | P-110 | 16,590 | 14,410 |

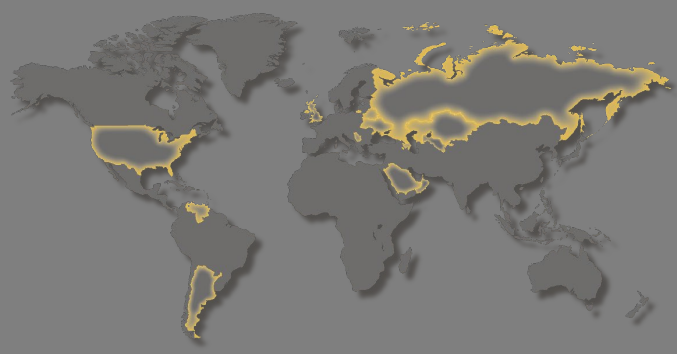
| MECHANICAL RATINGS | |
|--------------------------------|---------|
| MAX TORQUE (FT-LBS) | 20,000 |
| CYLINDER MAX COMPRESSION (LBS) | 50,000 |
| MAX HOLD-DOWN CAPACITY (LBS) | 200,000 |

■ 4.50" 13.5# X 7.00" 26-32# F1 ROTATING LINER HANGER SYSTEM SPECIFICATIONS

| HANGER SETTING PRESSURE | | |
|----------------------------|-------|-----------|
| PRESSURE PER SCREW (PSI) | 300 | 1 SCREW |
| MIN SETTING PRESSURE (PSI) | 900 | 3 SCREWS |
| MAX SETTING PRESSURE (PSI) | 3,000 | 10 SCREWS |

| BYPASS AREAS (AT HANGER SLIPS) | | | |
|--------------------------------|-------|--------------|-----------|
| CSG | WT/FT | UN-SET (IN2) | SET (IN2) |
| 7 | 26 | 6.13 | 4.37 |
| | 29 | 5.23 | 3.78 |
| | 32 | 4.37 | 3.24 |

| PACKER RATINGS | |
|--|--------|
| STANDARD SETTING WEIGHT (LBS) | 24,000 |
| MAX DIFFERENTIAL PRESSURE (GAS) L-80 (PSI) | 8,000 |
| MAX DIFFERENTIAL PRESSURE (GAS) P110 (PSI) | 10,000 |
| MAX DIFFERENTIAL PRESSURE (Oil) P110 (PSI) | 12,500 |
| MAX TEMPERATURE (°F) | 300 |



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