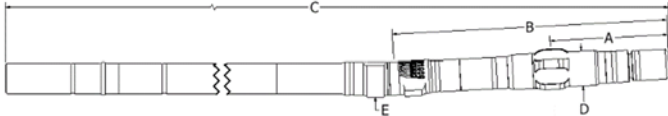


RVEN-50 : 7/8 Lobe 4.5 Stage



Dimensions

| | | |
|--------------------------|---|---------|
| Bit to Stabilizer Center | A | 11.1 in |
| Bit to Bend, ABH | B | 52 in |
| Bit to Bend, Fixed | B | 53 in |
| Bit to Top Sub | C | 338 in |
| Body OD, Slick | D | 5.0 in |
| Body OD, Stabilizer | D | 5.7 in |
| Pad Radius, Fixed & ABH | E | 2.75 in |
| Bottom Connection | 3-1/2 REG Box 3-1/2 IF Pin XT39 NC35 | |
| Top Connection | 3-1/2 IF Box 4 FH Box | |
| Top Sub Float Bore | 3-1/2 IF | |

Recommended Operating Limits

| | |
|------------------------|-------------|
| Max WOB | 29,000 lbf |
| Max Overpull, Backream | 43,000 lbf |
| Max Overpull, Re-Run | 137,000 lbf |
| Max Overpull, POOH | 331,000 lbf |

Performance Details

HP

| | |
|-------------------|---------------|
| Max Diff Pressure | 1,060 psi |
| Max Torque | 5,490 lbf-ft |
| Stall Torque | 8,640 lbf-ft |
| Rotation | 0.460 rev/gal |
| Flow Range | 150-300 gpm |
| Speed Range | 70-140 rpm |

Predicted Build Rates (Adj.) – Degrees/100ft

| Bend Setting | Slick Hole Size | | | Stabilized Hole Size | | |
|--------------|-----------------|------|-------|----------------------|------|-------|
| | Deg | 6 | 6 1/4 | 6 3/4 | 6 | 6 1/4 |
| 0.39 | 1.4 | - | - | 1.6 | 1.7 | 2.0 |
| 0.78 | 4.1 | 3.3 | 1.6 | 4.1 | 4.1 | 4.4 |
| 1.15 | 6.7 | 5.9 | 4.2 | 6.7 | 6.3 | 6.6 |
| 1.50 | 9.1 | 8.3 | 6.6 | 9.1 | 8.4 | 8.7 |
| 1.83 | 11.4 | 10.6 | 8.9 | 11.4 | 10.6 | 10.7 |
| 2.12 | 13.4 | 12.6 | 10.9 | 13.4 | 12.6 | 12.5 |
| 2.38* | 15.2 | 14.4 | 12.7 | 15.2 | 14.4 | 14.1 |
| 2.60* | 16.7 | 15.9 | 14.3 | 16.7 | 15.9 | 15.4 |
| 2.77* | 17.9 | 17.1 | 15.4 | 17.9 | 17.1 | 16.4 |
| 2.90* | 18.8 | 18.0 | 16.3 | 18.8 | 18.0 | 17.2 |
| 2.97* | 19.3 | 18.5 | 16.8 | 19.3 | 18.5 | 17.6 |
| 3.00* | 19.5 | 18.7 | 17.0 | 19.5 | 18.7 | 17.8 |

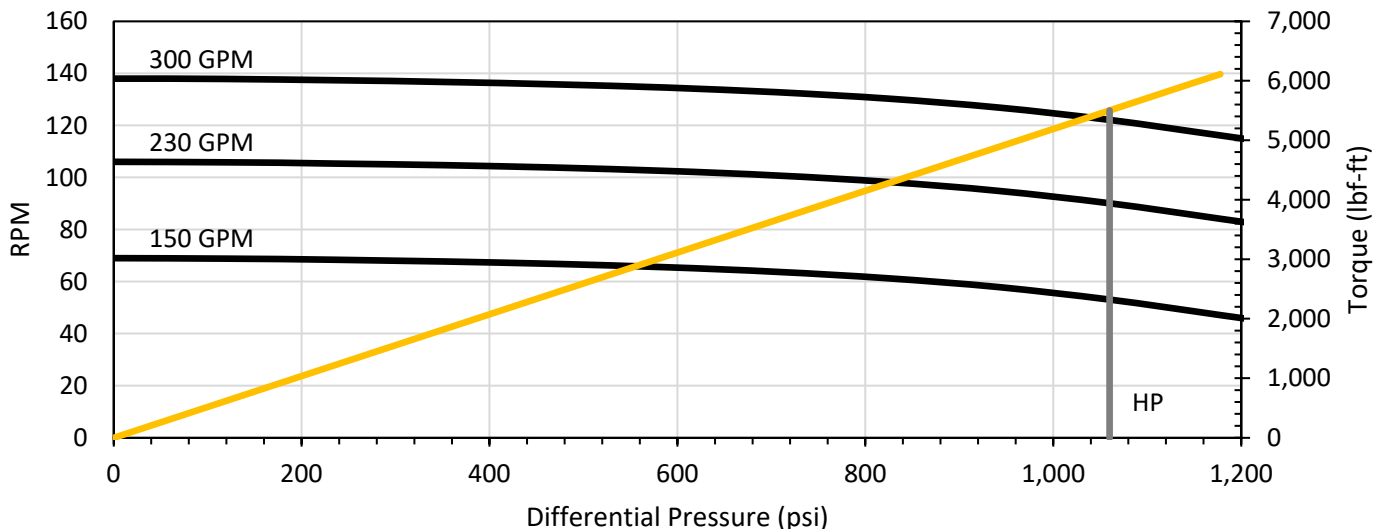
*Bend Setting not recommended for Rotary Drilling

Predicted Build Rates (Fixed) – Degrees/100ft

| Bend Setting | Slick Hole Size | | | Stabilized Hole Size | | |
|--------------|-----------------|------|-------|----------------------|------|-------|
| | Deg | 6 | 6 1/4 | 6 3/4 | 6 | 6 1/4 |
| 0.78 | 4.1 | 3.3 | 1.7 | 4.1 | 4.1 | 4.4 |
| 1.15 | 6.7 | 5.9 | 4.3 | 6.7 | 6.3 | 6.6 |
| 1.50 | 9.1 | 8.3 | 6.7 | 9.1 | 8.4 | 8.7 |
| 1.75 | 10.9 | 10.1 | 8.4 | 10.9 | 10.1 | 10.2 |
| 1.83 | 11.4 | 10.6 | 9.0 | 11.4 | 10.6 | 10.7 |
| 2.00 | 12.6 | 11.8 | 10.2 | 12.6 | 11.8 | 11.7 |
| 2.12 | 13.4 | 12.6 | 11.0 | 13.4 | 12.6 | 12.5 |
| 2.25* | 14.3 | 13.5 | 11.9 | 14.3 | 13.5 | 13.2 |
| 2.38* | 15.2 | 14.4 | 12.8 | 15.2 | 14.4 | 14.0 |
| 2.50* | 16.1 | 15.3 | 13.6 | 16.1 | 15.3 | 14.8 |

*Bend Setting not recommended for Rotary Drilling

Theoretical Performance Curve



Performance curves based on testing at 70°F. Actual field performance may vary with field operation conditions.