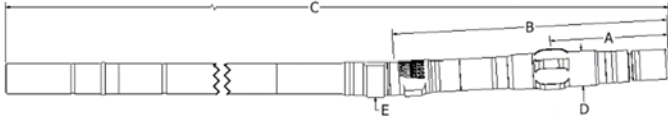


RVDF-70 : 7/8 Lobe 5.7 Stage



Dimensions

| | | |
|--------------------------|-------------------------------|---------|
| Bit to Stabilizer Center | A | 30 in |
| Bit to Bend, ABH | B | 68.4 in |
| Bit to Bend, Fixed | B | 49 in |
| Bit to Top Sub | C | 386 in |
| Body OD, Slick | D | 7.25 in |
| Body OD, Stabilizer | D | 7.25 in |
| Pad Radius, ABH | E | 3.75 in |
| Pad Radius, Fixed | E | 3.75 in |
| Bottom Connection | 4-1/2 REG Box 4-1/2 IF Pin | |
| Top Connection | 4-1/2 IF Box 4-1/2 XH Box | |
| Top Sub Float Bore | 4R & 5R | |

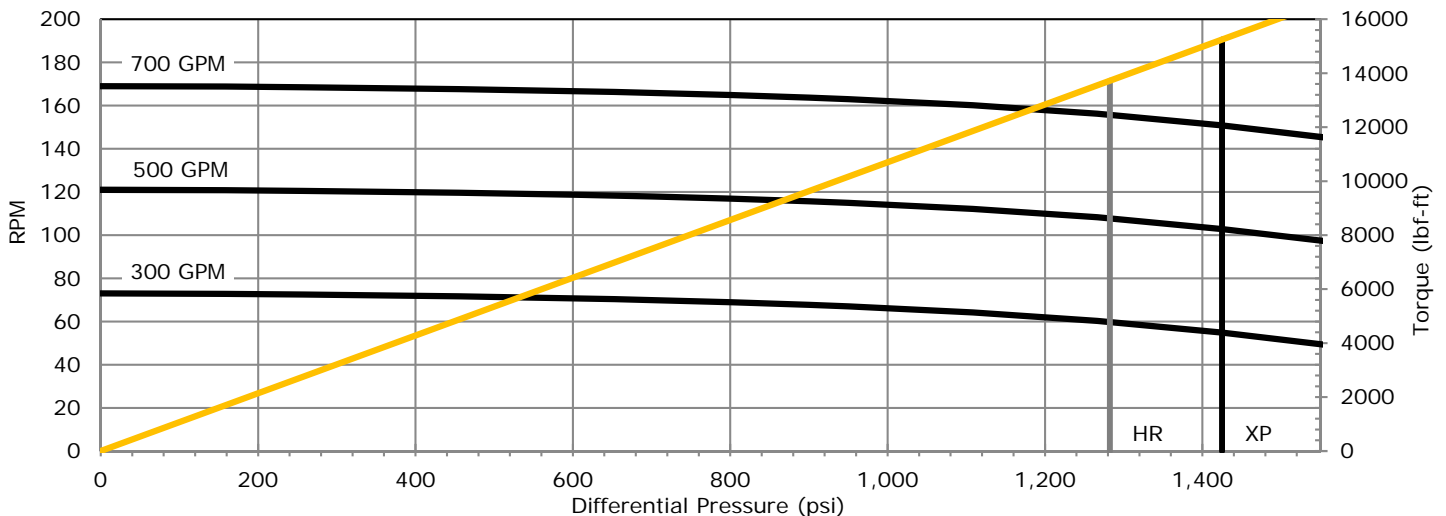
Recommended Operating Limits

| | |
|------------------------|-------------|
| Max WOB | 160,000 lbf |
| Max Overpull, Backream | 231,000 lbf |
| Max Overpull, Re-Run | 319,000 lbf |
| Max Overpull, POOH | 875,000 lbf |

Performance Details

| | HR | XP |
|-------------------|---------|---------------|
| Max Diff Pressure | 1,280 | 1,430 psi |
| Max Torque | 13,720 | 15,240 lbf-ft |
| Stall Torque | 20,580 | 22,870 lbf-ft |
| Rotation | 0.242 | 0.242 rev/gal |
| Flow Range | 300-700 | 300-700 gpm |
| Speed Range | 72-169 | 72-169 rpm |

Theoretical Performance Curve



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

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

| Bend Setting | Slick Hole Size | | | Stabilized Hole Size | | |
|--------------|-----------------|-------|-------|----------------------|-------|-------|
| | 8 1/2 | 8 3/4 | 9 7/8 | 8 1/2 | 8 3/4 | 9 7/8 |
| Deg | | | | | | |
| 0.39 | - | - | - | 2.2 | 2.3 | 2.9 |
| 0.78 | 2.8 | 2.3 | - | 4.3 | 4.4 | 5.0 |
| 1.15 | 5.1 | 4.5 | 2.1 | 6.3 | 6.4 | 7.0 |
| 1.50 | 7.2 | 6.6 | 4.2 | 8.2 | 8.3 | 8.9 |
| 1.83 | 9.2 | 8.6 | 6.2 | 10.0 | 10.1 | 10.6 |
| 2.12 | 10.9 | 10.4 | 8.0 | 11.5 | 11.6 | 12.2 |
| 2.38* | 12.5 | 12.0 | 9.5 | 12.9 | 13.0 | 13.6 |
| 2.60* | 13.8 | 13.3 | 10.9 | 14.1 | 14.2 | 14.7 |
| 2.77* | 14.9 | 14.3 | 11.9 | 15.0 | 15.1 | 15.7 |
| 2.90* | 15.6 | 15.1 | 12.7 | 15.7 | 15.8 | 16.4 |
| 2.97* | 16.1 | 15.5 | 13.1 | 16.1 | 16.2 | 16.7 |
| 3.00* | 16.2 | 15.7 | 13.3 | 16.2 | 16.3 | 16.9 |

*Bend Setting not recommended for Rotary Drilling

Predicted Build Rates (Fixed) – Degrees/100ft

| Bend Setting | Slick Hole Size | | | Stabilized Hole Size | | |
|--------------|-----------------|-------|-------|----------------------|-------|-------|
| | 8 1/2 | 8 3/4 | 9 7/8 | 8 1/2 | 8 3/4 | 9 7/8 |
| Deg | | | | | | |
| 0.75 | 2.0 | 1.2 | - | 4.4 | 4.5 | 5.1 |
| 1.00 | 3.5 | 2.8 | - | 5.8 | 6.0 | 6.5 |
| 1.25 | 5.0 | 4.3 | 1.1 | 7.3 | 7.4 | 7.9 |
| 1.50 | 6.5 | 5.8 | 2.6 | 8.7 | 8.8 | 9.3 |
| 1.63 | 7.3 | 6.6 | 3.4 | 9.4 | 9.5 | 10.1 |
| 1.75 | 8.0 | 7.3 | 4.1 | 10.1 | 10.2 | 10.8 |
| 1.88 | 8.8 | 8.1 | 4.9 | 10.8 | 11.0 | 11.5 |
| 2.00 | 9.5 | 8.8 | 5.6 | 11.5 | 11.6 | 12.2 |
| 2.25* | 11.0 | 10.3 | 7.1 | 12.9 | 13.1 | 13.6 |
| 2.38* | 11.8 | 11.1 | 7.9 | 13.7 | 13.8 | 14.3 |
| 2.50* | 12.5 | 11.8 | 8.6 | 14.4 | 14.5 | 15.0 |

*Bend Setting not recommended for Rotary Drilling