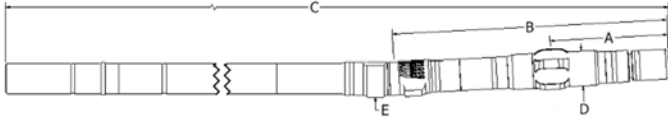


RVDX-70 : 7/8 Lobe 5.0 Stage



Dimensions

Bit to Stabilizer Center	A	25.2 in
Bit to Bend, ABH	B	61.4 in
Bit to Bend, Fixed	B	42 in
Bit to Top Sub	C	307 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	
Top Connection	4-1/2 IF 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	1,130	1,250 psi
Max Torque	10,460	11,630 lbf-ft
Stall Torque	15,690	17,440 lbf-ft
Rotation	0.288	0.288 rev/gal
Flow Range	300-600	300-600 gpm
Speed Range	86-173	86-173 rpm

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

Bend Setting	Slick Hole Size			Stabilized Hole Size		
	Deg	8 1/2	8 3/4	9 7/8	8 1/2	8 3/4
0.39	-	-	-	2.8	3.0	3.9
0.78	3.4	2.7	-	5.4	5.6	6.4
1.15	6.2	5.5	2.1	7.8	8.0	8.8
1.50	8.8	8.1	4.8	10.1	10.3	11.1
1.83	11.3	10.6	7.3	12.2	12.4	13.3
2.12	13.5	12.8	9.5	14.1	14.3	15.2
2.38*	15.5	14.8	11.4	15.8	16.0	16.9
2.60*	17.2	16.4	13.1	17.3	17.4	18.3
2.77*	18.4	17.7	14.4	18.4	18.6	19.4
2.90*	19.4	18.7	15.4	19.4	19.4	20.3
2.97*	20.0	19.2	15.9	20.0	19.9	20.7
3.00*	20.2	19.4	16.1	20.2	20.1	20.9

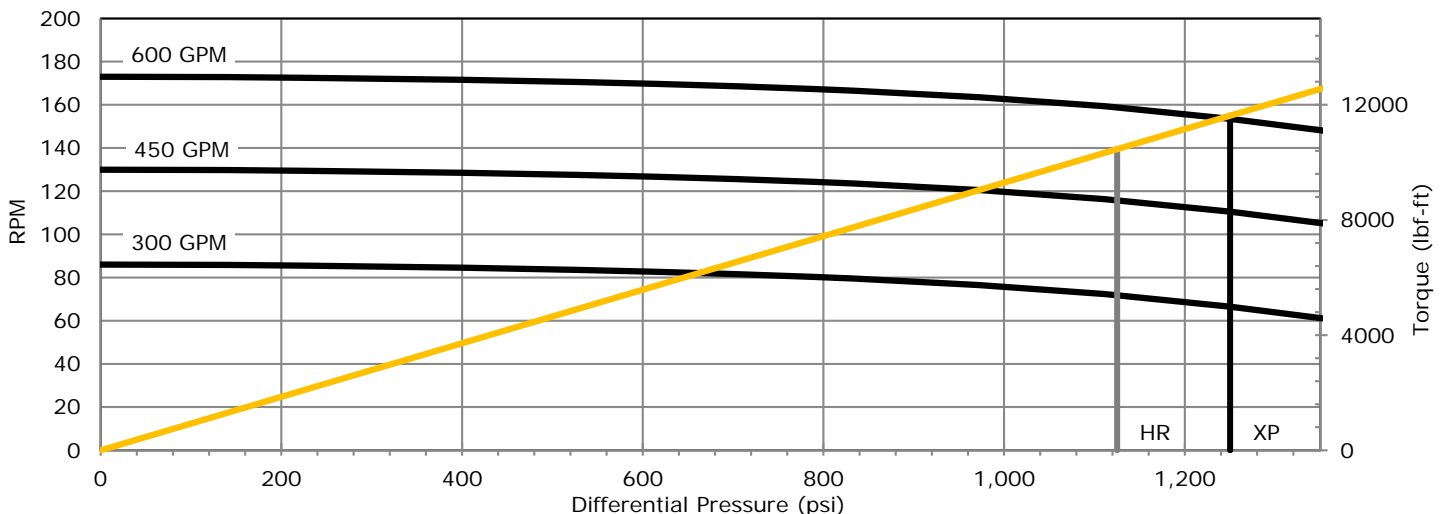
*Bend Setting not recommended for Rotary Drilling

Predicted Build Rates (Fixed) – Degrees/100ft

Bend Setting	Slick Hole Size			Stabilized Hole Size		
	Deg	8 1/2	8 3/4	9 7/8	8 1/2	8 3/4
0.75	2.1	1.1	-	5.6	5.8	6.6
1.00	4.0	3.0	-	7.3	7.5	8.4
1.25	5.9	4.9	-	9.1	9.3	10.1
1.50	7.8	6.7	2.2	10.9	11.0	11.9
1.63	8.7	7.7	3.2	11.8	12.0	12.8
1.75	9.6	8.6	4.1	12.6	12.8	13.7
1.88	10.6	9.6	5.1	13.5	13.7	14.6
2.00	11.5	10.5	6.0	14.4	14.6	15.4
2.25*	13.4	12.4	7.9	16.1	16.3	17.2
2.38*	14.4	13.4	8.9	17.1	17.2	18.1
2.50*	15.3	14.3	9.8	17.9	18.1	18.9

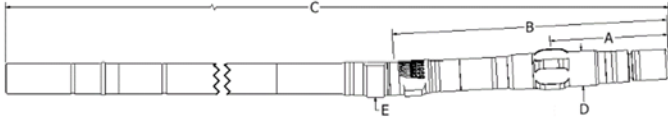
*Bend Setting not recommended for Rotary Drilling

Theoretical Performance Curve



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

RVDX-70 : 7/8 Lobe 5.7 Stage



Dimensions

Bit to Stabilizer Center	A	25.2 in
Bit to Bend, ABH	B	61.4 in
Bit to Bend, Fixed	B	42 in
Bit to Top Sub	C	379 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	
Top Connection	4-1/2 IF 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	300-650	300-650 gpm
Speed Range	73-157	73-157 rpm

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

Bend Setting	Slick Hole Size			Stabilized Hole Size		
	Deg	8 1/2	8 3/4	9 7/8	8 1/2	8 3/4
0.39	-	-	-	2.2	2.3	2.9
0.78	2.7	2.1	-	4.3	4.5	5.0
1.15	5.0	4.4	1.7	6.4	6.5	7.1
1.50	7.1	6.5	3.8	8.3	8.4	9.0
1.83	9.2	8.6	5.9	10.1	10.2	10.8
2.12	10.9	10.3	7.6	11.7	11.8	12.4
2.38*	12.5	11.9	9.2	13.1	13.2	13.8
2.60*	13.9	13.3	10.6	14.3	14.5	15.0
2.77*	14.9	14.3	11.6	15.3	15.4	15.9
2.90*	15.7	15.1	12.4	16.0	16.1	16.7
2.97*	16.2	15.6	12.9	16.4	16.5	17.0
3.00*	16.4	15.8	13.1	16.5	16.6	17.2

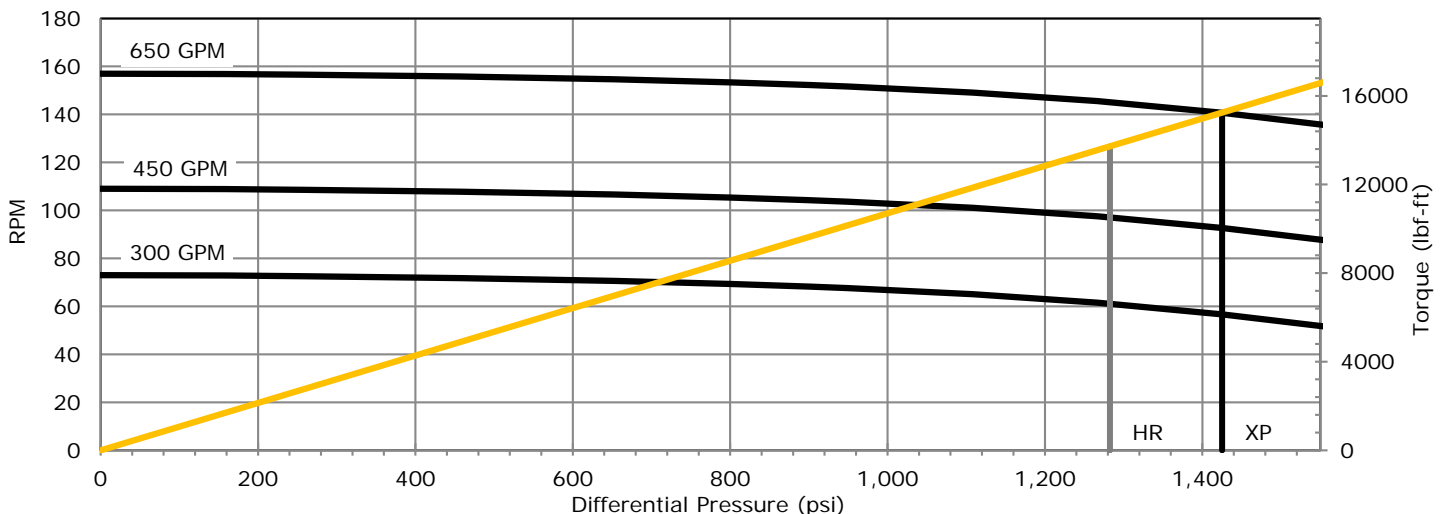
*Bend Setting not recommended for Rotary Drilling

Predicted Build Rates (Fixed) – Degrees/100ft

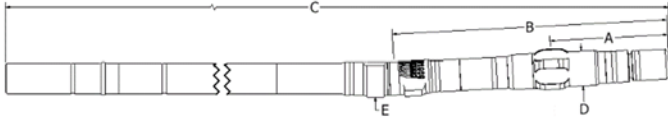
Bend Setting	Slick Hole Size			Stabilized Hole Size		
	Deg	8 1/2	8 3/4	9 7/8	8 1/2	8 3/4
0.75	1.6	-	-	4.4	4.5	5.1
1.00	3.2	2.3	-	5.9	6.0	6.6
1.25	4.7	3.9	-	7.3	7.5	8.0
1.50	6.2	5.4	1.7	8.8	8.9	9.5
1.63	7.0	6.2	2.5	9.6	9.7	10.2
1.75	7.8	7.0	3.3	10.3	10.4	10.9
1.88	8.6	7.8	4.1	11.0	11.1	11.7
2.00	9.3	8.5	4.8	11.7	11.8	12.4
2.25*	10.9	10.0	6.4	13.2	13.3	13.8
2.38*	11.7	10.9	7.2	13.9	14.0	14.6
2.50*	12.4	11.6	7.9	14.6	14.7	15.3

*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.

RVDX-70 : 6/7 Lobe 10.7 Stage

Dimensions

Bit to Stabilizer Center	A	25.2 in
Bit to Bend, ABH	B	61.4 in
Bit to Bend, Fixed	B	42 in
Bit to Top Sub	C	419 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	
Top Connection	4-1/2 IF 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	2,410	2,650 psi
Max Torque	17,230	18,950 lbf-ft
Stall Torque	25,840	28,420 lbf-ft
Rotation	0.360	0.360 rev/gal
Flow Range	300-700	300-700 gpm
Speed Range	108-260	108-260 rpm

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

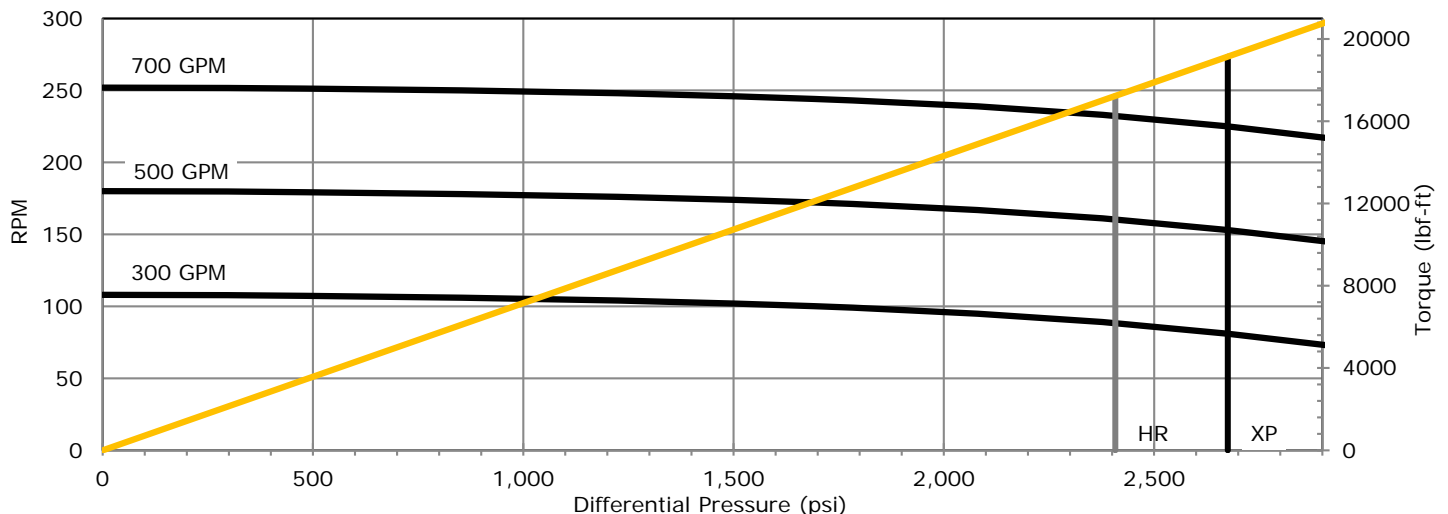
Bend Setting	Slick Hole Size			Stabilized Hole Size		
	8 1/2	8 3/4	9 7/8	8 1/2	8 3/4	9 7/8
Deg						
0.39	-	-	-	1.9	2.1	2.5
0.78	2.4	1.9	-	3.9	4.0	4.5
1.15	4.5	3.9	1.5	5.8	5.9	6.3
1.50	6.4	5.9	3.4	7.5	7.6	8.1
1.83	8.3	7.7	5.3	9.2	9.3	9.8
2.12	9.9	9.4	6.9	10.7	10.8	11.2
2.38*	11.3	10.8	8.4	12.0	12.1	12.5
2.60*	12.6	12.0	9.6	13.1	13.2	13.6
2.77*	13.5	13.0	10.5	13.9	14.0	14.5
2.90*	14.3	13.7	11.3	14.6	14.7	15.2
2.97*	14.6	14.1	11.6	15.0	15.1	15.5
3.00*	14.8	14.3	11.8	15.1	15.2	15.7

*Bend Setting not recommended for Rotary Drilling

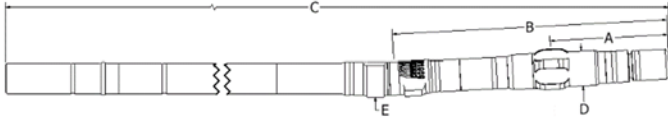
Predicted Build Rates (Fixed) – Degrees/100ft

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	1.4	-	-	4.0	4.1	4.5
1.00	2.8	2.1	-	5.3	5.4	5.9
1.25	4.2	3.5	-	6.6	6.7	7.2
1.50	5.6	4.9	1.6	8.0	8.1	8.5
1.63	6.4	5.6	2.3	8.7	8.8	9.2
1.75	7.0	6.3	3.0	9.3	9.4	9.8
1.88	7.8	7.0	3.7	10.0	10.1	10.5
2.00	8.4	7.7	4.4	10.6	10.7	11.2
2.25*	9.8	9.1	5.8	11.9	12.0	12.5
2.38*	10.6	9.8	6.5	12.6	12.7	13.2
2.50*	11.2	10.5	7.1	13.3	13.4	13.8

*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.

RVDX-70 : 4/5 Lobe 7.0 Stage

Dimensions

Bit to Stabilizer Center	A	25.2 in
Bit to Bend, ABH	B	61.4 in
Bit to Bend, Fixed	B	42 in
Bit to Top Sub	C	322 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	
Top Connection	4-1/2 IF 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	1,580	1,740 psi
Max Torque	9,090	10,000 lbf-ft
Stall Torque	13,630	15,000 lbf-ft
Rotation	0.497	0.497 rev/gal
Flow Range	300-600	300-600 gpm
Speed Range	149-300	149-300 rpm

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

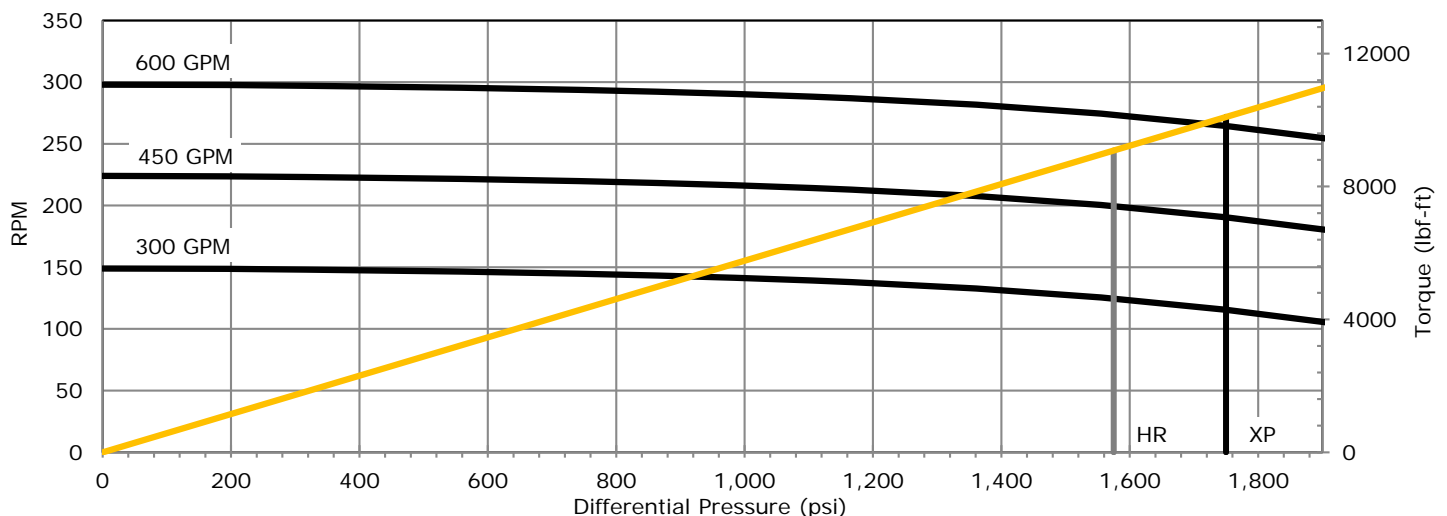
Bend Setting	Slick Hole Size			Stabilized Hole Size		
	Deg	8 1/2	8 3/4	9 7/8	8 1/2	8 3/4
0.39	-	-	-	2.7	2.8	3.6
0.78	3.2	2.5	-	5.1	5.3	6.1
1.15	5.9	5.2	2.0	7.5	7.6	8.4
1.50	8.4	7.7	4.6	9.7	9.8	10.6
1.83	10.8	10.1	6.9	11.7	11.9	12.7
2.12	12.9	12.2	9.0	13.6	13.7	14.5
2.38*	14.8	14.1	10.9	15.2	15.4	16.1
2.60*	16.4	15.7	12.5	16.6	16.7	17.5
2.77*	17.6	16.9	13.7	17.6	17.8	18.6
2.90*	18.6	17.9	14.7	18.6	18.6	19.4
2.97*	19.1	18.4	15.2	19.1	19.1	19.9
3.00*	19.3	18.6	15.4	19.3	19.3	20.0

*Bend Setting not recommended for Rotary Drilling

Predicted Build Rates (Fixed) – Degrees/100ft

Bend Setting	Slick Hole Size			Stabilized Hole Size		
	Deg	8 1/2	8 3/4	9 7/8	8 1/2	8 3/4
0.75	2.0	-	-	5.3	5.5	6.3
1.00	3.8	2.8	-	7.0	7.2	7.9
1.25	5.6	4.6	-	8.7	8.8	9.6
1.50	7.4	6.4	2.1	10.4	10.5	11.3
1.63	8.3	7.4	3.1	11.2	11.4	12.2
1.75	9.2	8.2	3.9	12.1	12.2	13.0
1.88	10.1	9.2	4.9	12.9	13.1	13.9
2.00	11.0	10.0	5.7	13.7	13.9	14.7
2.25*	12.8	11.9	7.5	15.4	15.6	16.4
2.38*	13.8	12.8	8.5	16.3	16.5	17.3
2.50*	14.6	13.7	9.3	17.1	17.3	18.1

*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.