



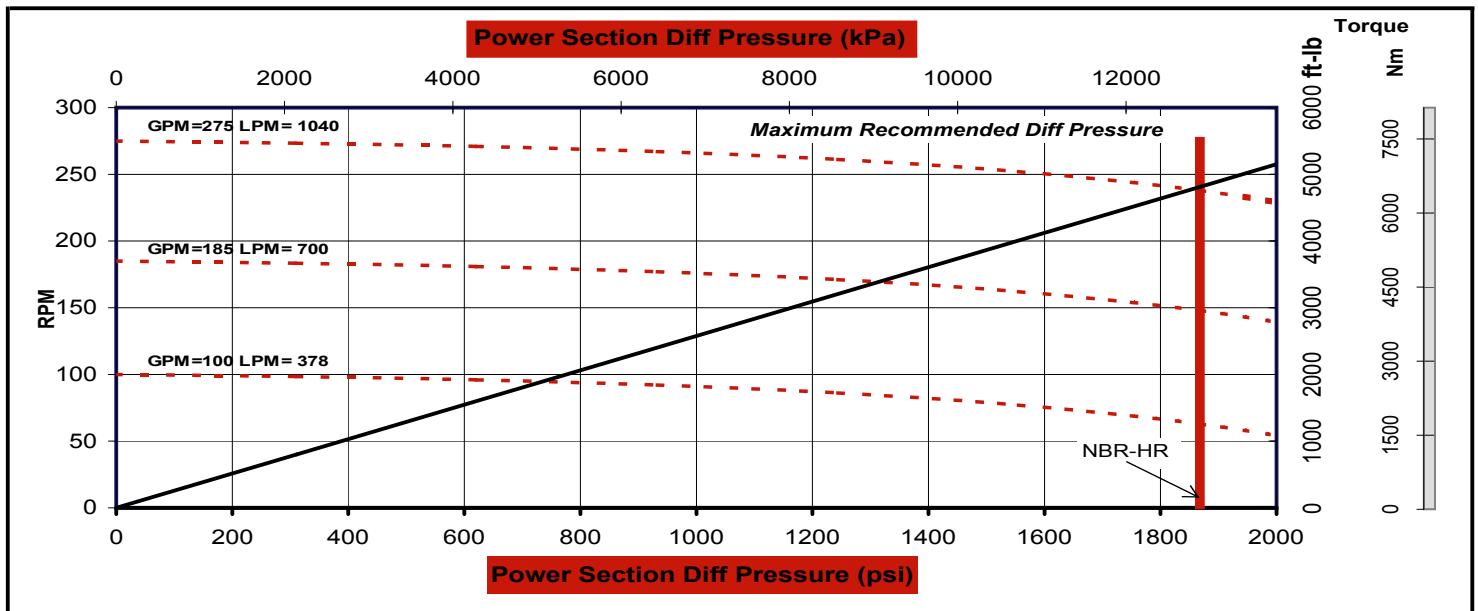
Discovery
Downhole
Services, Inc.

**SUPERHAWK 475 – 5:6 Profile
8.3 Stage HR - 4 3/4" O.D.**

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GENERAL DATA			
BIT SIZES	6" thru 7 7/8"	MAX. WOB – (w/flow)	38,500 lbs
BIT CONNECTION	3 1/2 REG	OPTIMUM WOB - (w/flow)	19,250 Lbs
TOP CONNECTION	3 1/2 IF	MAX. WOB – (w/o flow)	129,000 lbs
TORQUE - CONNECTIONS	8,500 ft-lb	MAX. BIT PULL – (w/damage)	190,000 lbs
TORQUE - ABH	9,000 ft-lb	MAX BODY PULL – (w/damage)	403,000 lbs

PHYSICAL PROPERTIES	
BIT TO BEND LENGTH (ABH)	63.00 in.
BIT TO BEND LENGTH (FIXED)	52.69 in.
NOMINAL LENGTH	344.5 in.
WEIGHT	1,300 lbs
PERFORMANCE DATA	
FLOW RANGE	100 - 300 gpm
SPEED RANGE	100 - 300 rpm
SPEED RATIO	1.00 rev/gal
MAX. DIFFERENTIAL PRESSURE	1000 psi
TORQUE RATIO	2.576 ft-lb/psi
TORQUE AT MAX DIFFERENTIAL	4,810 ft-lbs
STALL TORQUE	7,220 ft-lbs



Angle (Deg)	CALCULATED BUILD UP RATES – DEGREES / 100 ft.* (FIXED)							
	Hole Size (in) – Slick Sleeve				Hole Size (in) - Stabilized			
	6"	6 1/8"	6 3/4"	7 7/8"	6"	6 1/8"	6 3/4"	7 7/8"
0.25	2.4	2.3	1.5		1.4	1.5	1.9	2.5
0.50	3.7	3.6	2.8		2.9	3.0	3.4	4.0
0.75	5.0	4.9	4.1	2.6	4.5	4.5	4.9	5.6
1.00	6.4	6.2	5.4	4.0	6.0	6.1	6.4	7.1
1.25	7.7	7.5	6.7	5.3	7.5	7.6	7.9	8.6
1.50	9.0	8.8	8.0	6.6	9.0	9.1	9.5	10.1
1.75	10.3	10.1	9.3	7.9	10.5	10.6	11.0	11.7
2.00	11.6	11.5	10.7	9.2	12.1	12.1	12.5	13.2
2.25	12.9	12.8	12.0	10.5	13.6	13.7	14.0	14.7
2.50	14.3	14.1	13.3	11.8	15.1	15.2	15.6	16.2
2.75	15.6	15.4	14.6	13.2	16.6	16.7	17.1	17.8
3.00	16.9	16.7	15.9	14.5	18.2	18.2	18.6	19.3

Angle (Deg)	CALCULATED BUILD UP RATES – DEGREES / 100 ft.* (ABH)							
	Hole Size (in) – Slick Sleeve				Hole Size (in) - Stabilized			
	6"	6 1/8"	6 3/4"	7 7/8"	6"	6 1/8"	6 3/4"	7 7/8"
0.25	1.1				1.3	1.4	1.8	2.5
0.50	2.4	2.3	1.7		2.8	2.9	3.3	3.9
0.75	3.7	3.6	3.0	1.9	4.3	4.4	4.7	5.4
1.00	5.1	4.9	4.3	3.2	5.8	5.8	6.2	6.9
1.25	6.4	6.3	5.7	4.6	7.2	7.3	7.7	8.4
1.50	7.7	7.6	7.0	5.9	8.7	8.8	9.2	9.8
1.75	9.0	8.9	8.3	7.2	10.2	10.2	10.6	11.3
2.00	10.4	10.3	9.6	8.6	11.6	11.7	12.1	12.8
2.25	11.7	11.6	11.0	9.9	13.1	13.2	13.6	14.2
2.50	13.0	12.9	12.3	11.2	14.6	14.7	15.0	15.7
2.75	14.4	14.2	13.6	12.6	16.1	16.1	16.5	17.2
3.00	15.7	15.6	15.0	13.9	17.5	17.6	18.0	18.7

* Actual Build Up Rates subject to varying factors; including formation, weight on bit.