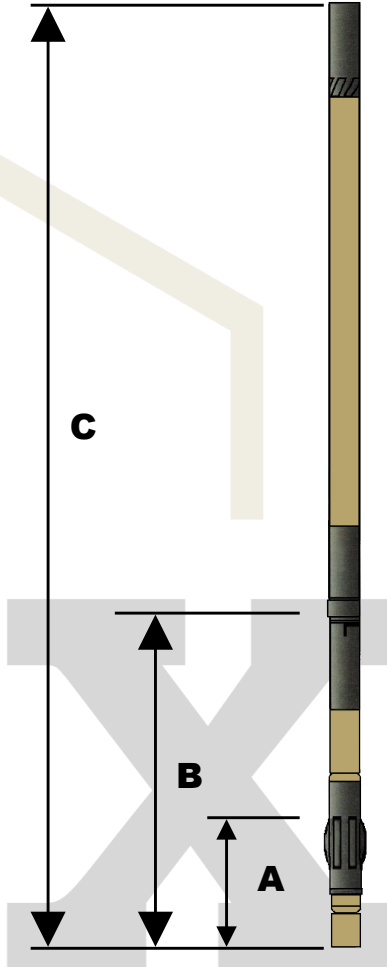




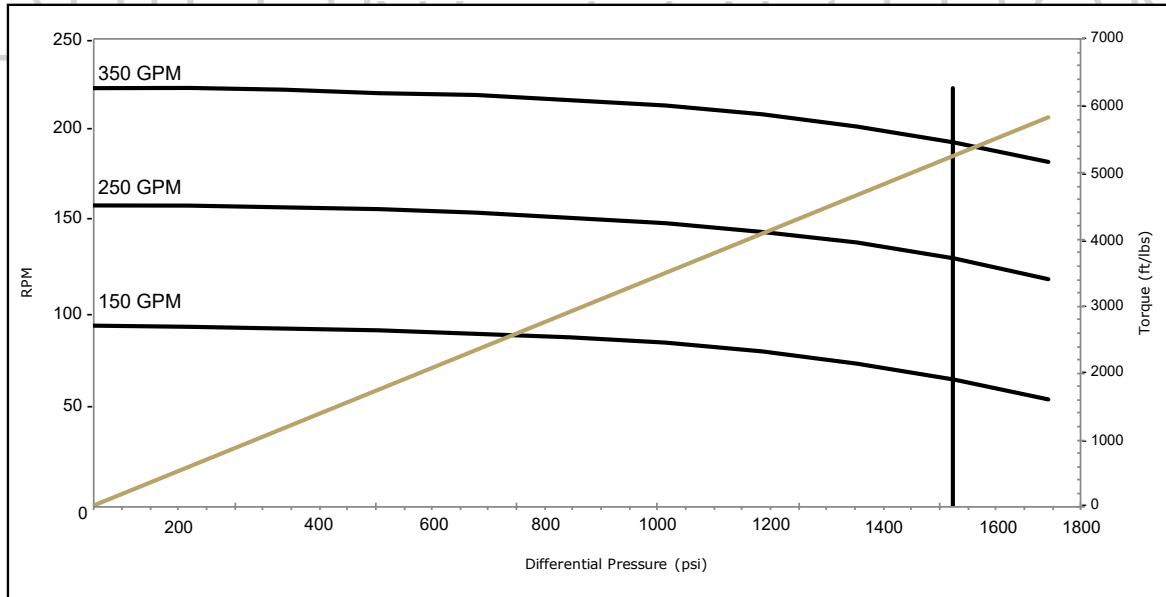
# 5.00" 5/6 6.7 STAGE

5.00" 5/6 6.7 Stage HR	
<b>Motor OD</b>	5.00 inch
<b>Lobe Configuration</b>	5 - 6 Lobe 6.7 Stage
<b>Bit Size Range</b>	6 - 7 7/8 inches
<b>Bit Box Connection</b>	3 1/2 REGULAR
<b>A = Bit to Stabilizer (Center)</b>	21.00 inches
<b>B = Bit to Bend - Flex Shaft</b>	47.63 inches
<b>B = Bit to Bend - Fixed</b>	51.13 inches
<b>B = Bit to Bend - Adjustable</b>	63.38 inches
<b>C = Overall - Flex Shaft (w/Top Sub)</b>	407.88 inches
<b>C = Overall (with Top Sub)</b>	353 inches
<b>Adjustable Makeup Torque</b>	10,000 ft. lbs
<b>Weight</b>	1,510 lbs
<b>Max WOB - w/Flow</b>	40,500 lbs
<b>Optimum WOB - w/Flow</b>	20,250 lbs
<b>Max WOB - w/o Flow</b>	129,000 lbs
<b>Max Bit Pull - w/Damage</b>	200,000 lbs

Rev. Per Gallon	Flow Rate Range	Bit Speed Range	Torque Output	Max Diff Pressure
RPG	GPM	RPM	Ft. Lbs	PSI
0.63	150 - 350	90 - 220	6,330	1,580



## 5.00" 5/6 LOBE 6.7 STAGE HR





**5.00" 5/6 6.7 STAGE HR**

**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (FIXED)**

Angle (Deg)	Hole Size (in) - Slick Sleeve				Hole Size (in) - Stabalized			
	6"	6 1/8"	6 3/4"	7 7/8"	6"	6 1/8"	6 3/4"	7 7/8"
<b>0.25</b>	2.7	2.6	1.7		1.3	1.3	1.7	2.4
<b>0.50</b>	4.0	3.9	3.0		2.8	2.9	3.2	3.9
<b>0.75</b>	5.3	5.2	4.3	2.8	4.3	4.4	4.7	5.4
<b>1.00</b>	6.6	6.5	5.6	4.1	5.8	5.9	6.3	6.9
<b>1.25</b>	7.9	7.8	6.9	5.4	7.3	7.4	7.8	8.4
<b>1.50</b>	9.2	9.1	8.2	6.7	8.9	8.9	9.3	10.0
<b>1.75</b>	10.5	10.4	9.5	8.0	10.4	10.4	10.8	11.5
<b>2.00</b>	11.8	11.7	10.8	9.3	11.9	12.0	12.3	13.0
<b>2.25</b>	13.1	13.0	12.1	10.6	13.4	13.5	13.9	14.5
<b>2.50</b>	14.4	14.3	13.4	11.9	14.9	15.0	15.4	16.0
<b>2.75</b>	15.7	15.6	14.7	13.2	16.5	16.5	16.9	17.5

DRILLING SOLUTIONS

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



**5.00" 5/6 6.7 STAGE HR**

**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (ABH)**

Angle (Deg)	Hole Size (in) - Slick Sleeve				Hole Size (in) - Stabalized			
	6"	6 1/8"	6 3/4"	7 7/8"	6"	6 1/8"	6 3/4"	7 7/8"
<b>0.25</b>	1.3	1.2			1.2	1.3	1.6	2.3
<b>0.50</b>	2.6	2.5	1.9		2.7	2.7	3.1	3.8
<b>0.75</b>	3.9	3.8	3.2	2.1	4.1	4.2	4.6	5.2
<b>1.00</b>	5.2	5.1	4.5	3.4	5.6	5.6	6.0	6.7
<b>1.25</b>	6.5	6.4	5.8	4.7	7.0	7.1	7.5	8.1
<b>1.50</b>	7.9	7.7	7.1	6.1	8.5	8.6	8.9	9.6
<b>1.75</b>	9.2	9.0	8.4	7.4	9.9	10.0	10.4	11.0
<b>2.00</b>	10.5	10.4	9.8	8.7	11.4	11.5	11.8	12.5
<b>2.25</b>	11.8	11.7	11.1	10.0	12.9	12.9	13.3	13.9
<b>2.50</b>	13.1	13.0	12.4	11.3	14.3	14.4	14.7	15.4
<b>2.75</b>	14.4	14.3	13.7	12.6	15.8	15.8	16.2	16.9

DRILLING SOLUTIONS

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



**5.00" 5/6 6.7 STAGE HR**

**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (Flex Shaft Fixed)**

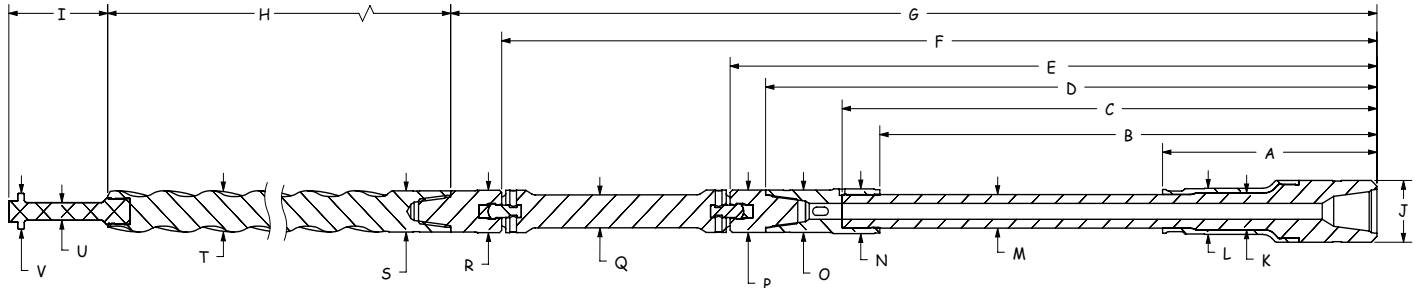
Angle (Deg)	Hole Size (in) – Slick Sleeve				Hole Size (in) - Stabilized			
	6"	6 1/8"	6 3/4"	7 7/8"	6"	6 1/8"	6 3/4"	7 7/8"
<b>0.25</b>	1.0	0.8			1.0	1.0	1.3	1.8
<b>0.50</b>	2.4	2.2	1.1		2.3	2.3	2.6	3.1
<b>0.75</b>	3.8	3.6	2.5	0.5	3.6	3.7	3.9	4.4
<b>1.00</b>	5.2	5.0	3.9	1.9	4.9	5.0	5.3	5.7
<b>1.25</b>	6.6	6.4	5.3	3.3	6.3	6.3	6.6	7.1
<b>1.50</b>	8.0	7.8	6.7	4.7	7.6	7.6	7.9	8.4
<b>1.75</b>	9.5	9.2	8.1	6.1	8.9	9.0	9.2	9.7
<b>2.00</b>	10.9	10.6	9.5	7.5	10.2	10.3	10.6	11.0
<b>2.25</b>	12.3	12.0	10.9	8.9	11.6	11.6	11.9	12.4
<b>2.50</b>	13.7	13.4	12.3	10.3	12.9	13.0	13.2	13.7
<b>2.75</b>	15.1	14.8	13.7	11.7	14.2	14.3	14.5	15.0

DRILLING SOLUTIONS

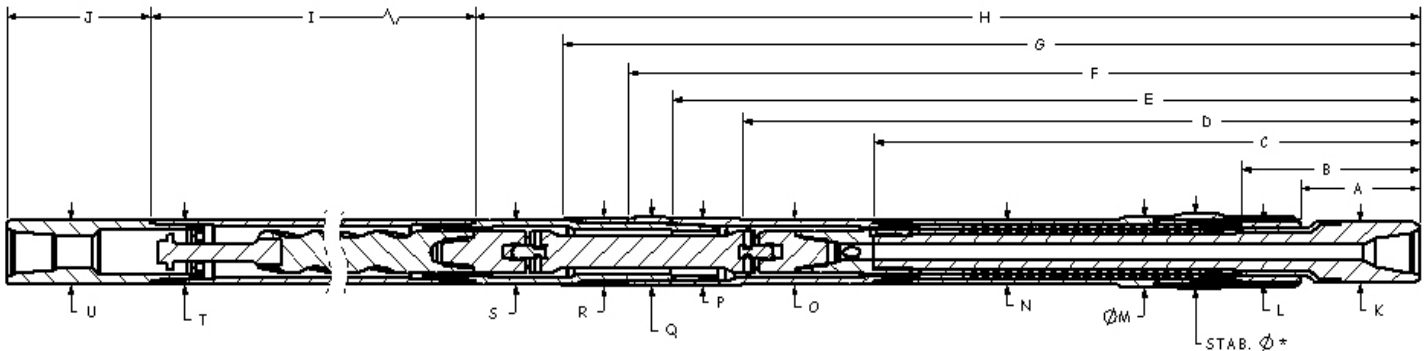
\* Actual Build Up Rates subject to varying factors; including formation, weight on bit, etc.



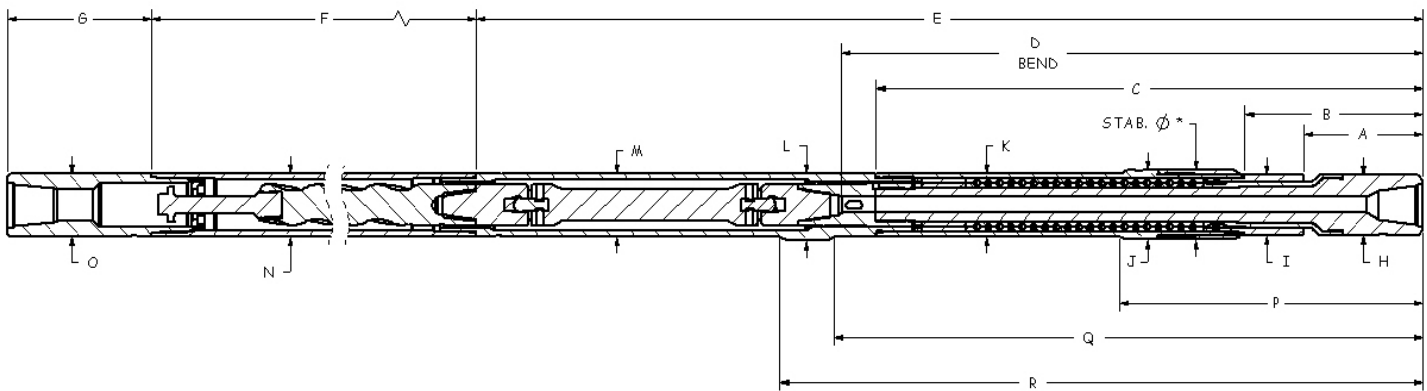
**5.00" 5/6 6.7 STAGE HR  
STANDARD DRIVE SHAFT**



INNER FISHING DIMENSIONS																					
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
20.3	43.19	46.94	53.19	56.12	77.19	81.76	235	9.15	4.88	3.69	3.03	2.77	3.53	3.38	3.38	2.75	3.38	2.900	3.120	1.15	2.38



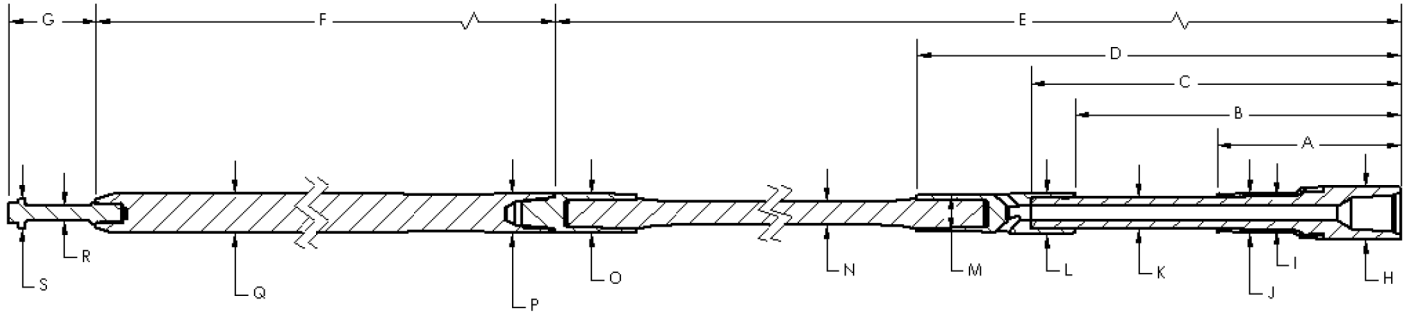
OUTER FISHING DIMENSIONS (ABH)																				
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
11.75	16.55	46.94	56.94	63.5	67.28	74.24	81.71	250	21.38	4.88	4.88	5.75	5.00	5.00	5.38	5.63	5.38	5.0	5.0	5.0



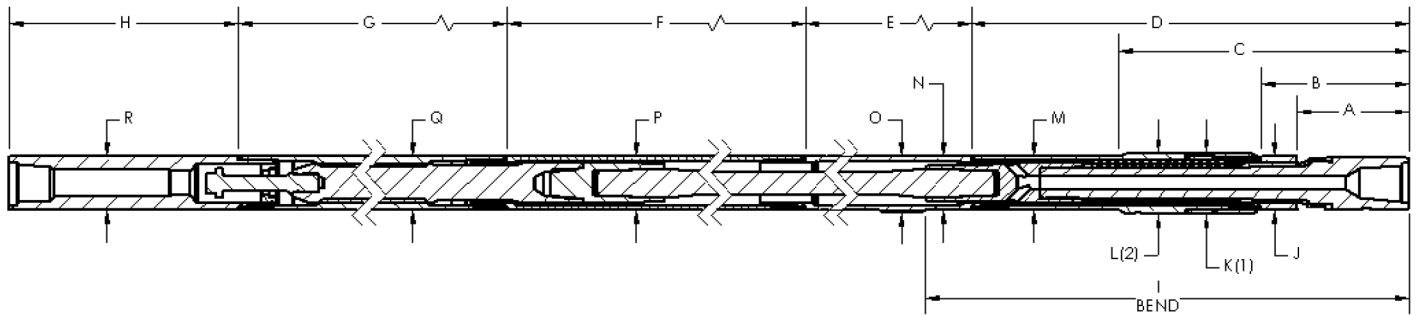
OUTER FISHING DIMENSIONS (FIXED)																	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
11.75	16.55	46.94	51.13	81.71	250	21.38	4.88	4.88	5.75	5.0	5.31	5.0	5.0	5.0	31.51	64.92	70.92



**5.00" 5/6 6.7 STAGE HR**  
**FLEX DRIVE SHAFT**



INNER FISHING DIMENSIONS																		
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
20.3	31.76	35.5	44.39	111.36	265.0	12.75	4.88	3.03	3.69	2.77	3.725	3.25	2.188	3.063	3.063	3.298	1.15	2.38



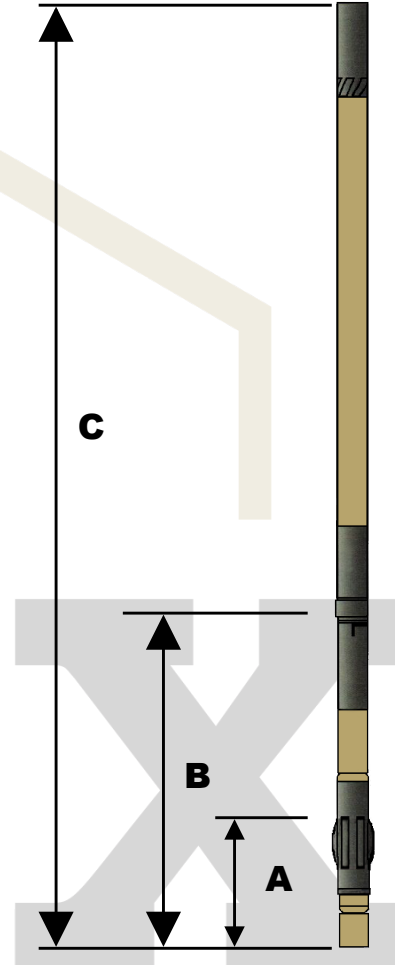
OUTER FISHING DIMENSIONS (FIXED)																	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
11.75	16.55	31.51	43.38	16.80	51.20	275	21.50	47.63	5.00	5.75	5.00	5.00	5.00	5.25	5.00	5.00	5.00



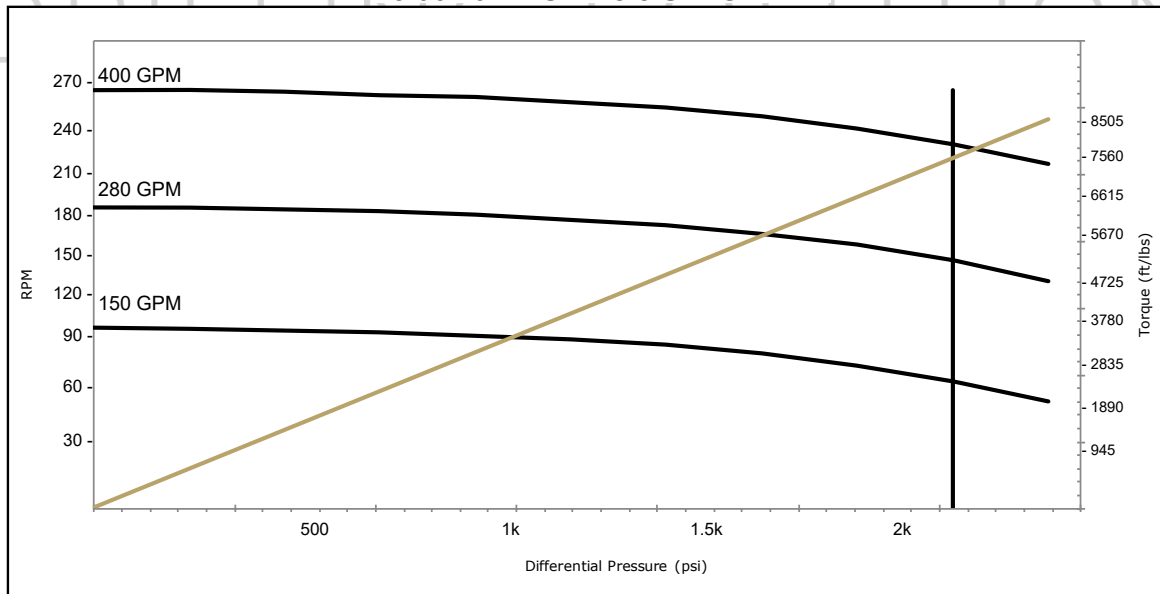
# 5.00" 6/7 8.8 STAGE

5.00" 6/7 8.8 Stage HR	
<b>Motor OD</b>	5.00 inch
<b>Lobe Configuration</b>	6 - 7 Lobe 8.8 Stage
<b>Bit Size Range</b>	6 - 7 7/8 inches
<b>Bit Box Connection</b>	3 1/2 REGULAR
<b>A = Bit to Stabalizer (Center)</b>	21.00 inches
<b>B = Bit to Bend - Flex Shaft</b>	47.63 inches
<b>B = Bit to Bend - Fixed</b>	51.13 inches
<b>B = Bit to Bend - Adjustable</b>	63.38 inches
<b>C = Overall - Flex Shaft (w/Top Sub)</b>	407.88 inches
<b>C = Overall (with Top Sub)</b>	378 inches
<b>Adjustable Makeup Torque</b>	10,000 ft. lbs
<b>Weight</b>	1,575 lbs
<b>Max WOB - w/Flow</b>	40,500 lbs
<b>Optimum WOB - w/Flow</b>	20,250 lbs
<b>Max WOB - w/o Flow</b>	129,000 lbs
<b>Max Bit Pull - w/Damage</b>	200,000 lbs

Rev. Per Gallon	Flow Rate Range	Bit Speed Range	Torque Output	Max Diff Pressure
RPG	GPM	RPM	Ft. Lbs	PSI
0.66	150 - 400	100 - 260	7,660	2,070



## 5.00" 6/7 LOBE 8.8 STAGE HR





**5.00" 6/7 8.8 STAGE HR**

**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (FIXED)**

Angle (Deg)	Hole Size (in) - Slick Sleeve				Hole Size (in) - Stabalized			
	6"	6 1/8"	6 3/4"	7 7/8"	6"	6 1/8"	6 3/4"	7 7/8"
<b>0.25</b>	2.5	2.4	1.5		1.2	1.2	1.5	2.1
<b>0.50</b>	3.7	3.6	2.8		2.6	2.6	3.0	3.5
<b>0.75</b>	5.0	4.8	4.0	2.5	4.0	4.1	4.4	5.0
<b>1.00</b>	6.2	6.0	5.2	3.7	5.4	5.5	5.8	6.4
<b>1.25</b>	7.4	7.2	6.4	4.9	6.9	6.9	7.3	7.8
<b>1.50</b>	8.6	8.5	7.6	6.1	8.3	8.4	8.7	9.3
<b>1.75</b>	9.8	9.7	8.8	7.3	9.7	9.8	10.1	10.7
<b>2.00</b>	11.1	10.9	10.1	8.6	11.2	11.2	11.5	12.1
<b>2.25</b>	12.3	12.1	11.3	9.8	12.6	12.7	13.0	13.5
<b>2.50</b>	13.5	13.3	12.5	11.0	14.0	14.1	14.4	15.0
<b>2.75</b>	14.7	14.5	13.7	12.2	15.5	15.5	15.8	16.4

DRILLING SOLUTIONS

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





<b>5.00" 6/7 8.8 STAGE HR</b>								
<b>CALCULATED BUILD UP RATES - DEGREES / 100ft. * (ABH)</b>								
<b>Angle (Deg)</b>	<b>Hole Size (in) - Slick Sleeve</b>				<b>Hole Size (in) - Stabalized</b>			
	<b>6"</b>	<b>6 1/8"</b>	<b>6 3/4"</b>	<b>7 7/8"</b>	<b>6"</b>	<b>6 1/8"</b>	<b>6 3/4"</b>	<b>7 7/8"</b>
<b>0.25</b>	1.1	1.0	0.4		1.1	1.2	1.5	2.1
<b>0.50</b>	2.4	2.3	1.6		2.5	2.5	2.9	3.4
<b>0.75</b>	3.6	3.5	2.9	1.8	3.9	3.9	4.2	4.8
<b>1.00</b>	4.8	4.7	4.1	3.0	5.2	5.3	5.6	6.2
<b>1.25</b>	6.1	5.9	5.3	4.2	6.6	6.7	7.0	7.6
<b>1.50</b>	7.3	7.2	6.6	5.5	8.0	8.0	8.4	8.9
<b>1.75</b>	8.5	8.4	7.8	6.7	9.4	9.4	9.7	10.3
<b>2.00</b>	9.8	9.6	9.0	7.9	10.7	10.8	11.1	11.7
<b>2.25</b>	11.0	10.9	10.3	9.2	12.1	12.2	12.5	13.1
<b>2.50</b>	12.2	12.1	11.5	10.4	13.5	13.5	13.9	14.4
<b>2.75</b>	13.4	13.3	12.7	11.6	14.9	14.9	15.2	15.8

DRILLING SOLUTIONS

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



**5.00" 6/7 8.8 STAGE HR**

**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (Flex Shaft Fixed)**

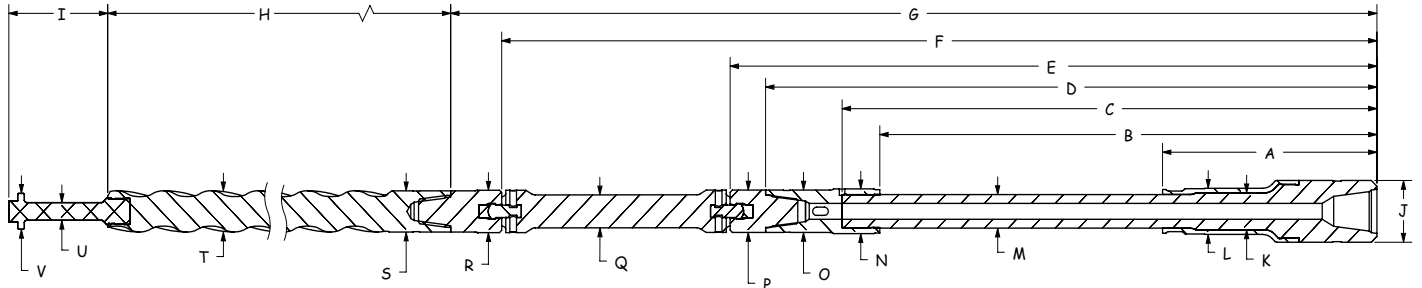
Angle (Deg)	Hole Size (in) – Slick Sleeve				Hole Size (in) - Stabilized			
	6"	6 1/8"	6 3/4"	7 7/8"	6"	6 1/8"	6 3/4"	7 7/8"
<b>0.25</b>	1.0	0.8			1.0	1.0	1.3	1.8
<b>0.50</b>	2.4	2.2	1.1		2.3	2.3	2.6	3.1
<b>0.75</b>	3.8	3.6	2.5	0.5	3.6	3.7	3.9	4.4
<b>1.00</b>	5.2	5.0	3.9	1.9	4.9	5.0	5.3	5.7
<b>1.25</b>	6.6	6.4	5.3	3.3	6.3	6.3	6.6	7.1
<b>1.50</b>	8.0	7.8	6.7	4.7	7.6	7.6	7.9	8.4
<b>1.75</b>	9.5	9.2	8.1	6.1	8.9	9.0	9.2	9.7
<b>2.00</b>	10.9	10.6	9.5	7.5	10.2	10.3	10.6	11.0
<b>2.25</b>	12.3	12.0	10.9	8.9	11.6	11.6	11.9	12.4
<b>2.50</b>	13.7	13.4	12.3	10.3	12.9	13.0	13.2	13.7
<b>2.75</b>	15.1	14.8	13.7	11.7	14.2	14.3	14.5	15.0

DRILLING SOLUTIONS

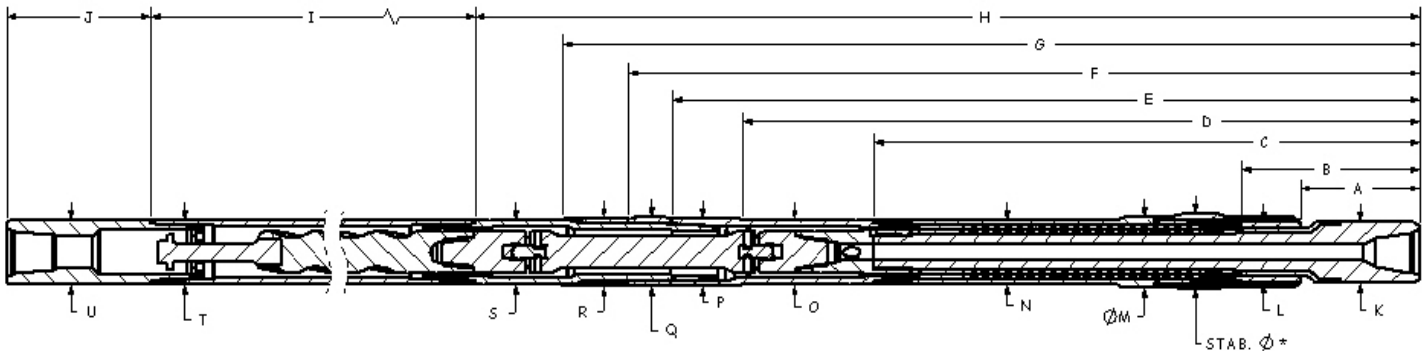
\* Actual Build Up Rates subject to varying factors; including formation, weight on bit, etc.



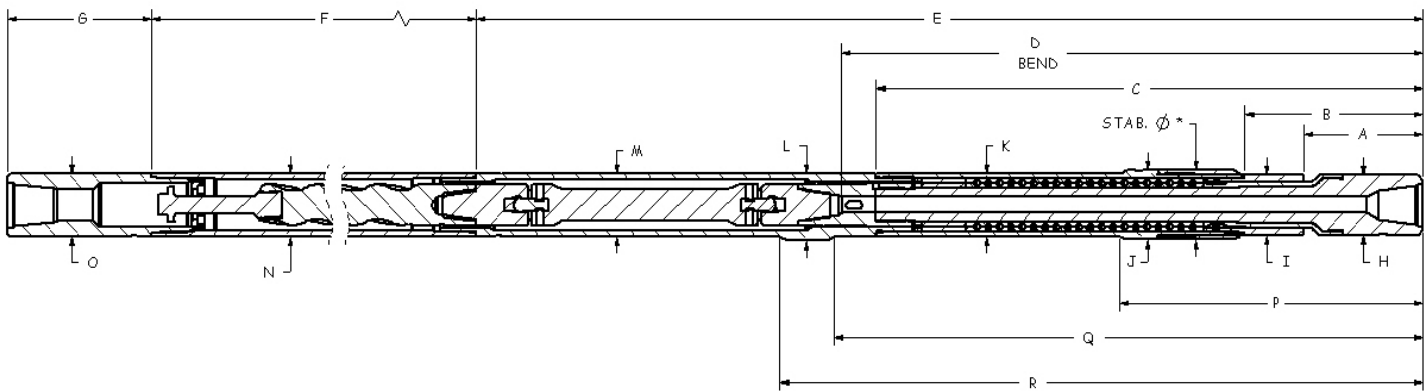
**5.00" 6/7 8.8 STAGE HR  
STANDARD DRIVE SHAFT**



INNER FISHING DIMENSIONS																					
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
20.3	43.19	46.94	53.19	56.12	77.19	81.76	265	9.15	4.88	3.69	3.03	2.77	3.53	3.38	3.38	2.75	3.38	3.063	2.916	1.15	2.38



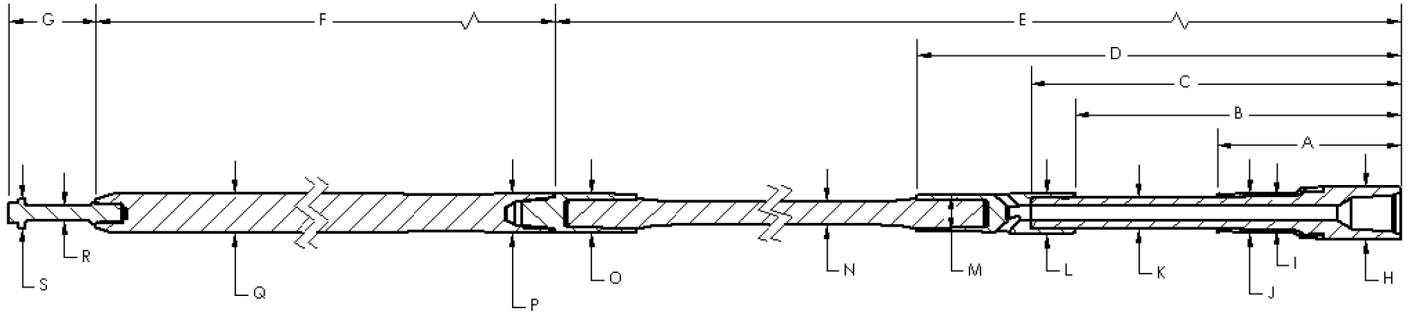
OUTER FISHING DIMENSIONS (ABH)																				
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
11.75	16.55	46.94	56.94	63.5	67.28	74.24	81.71	275	21.38	4.88	4.88	5.75	5.00	5.00	5.38	5.63	5.38	5.0	5.0	5.0



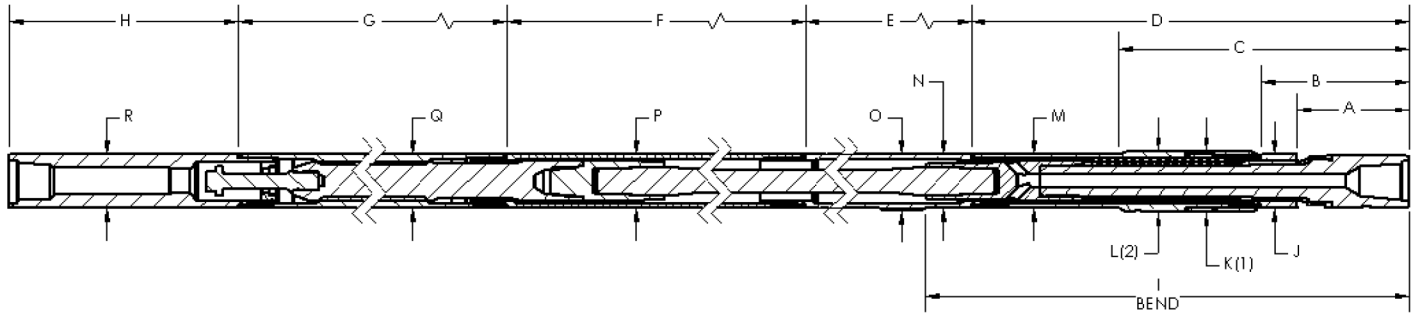
OUTER FISHING DIMENSIONS (FIXED)																	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
11.75	16.55	46.94	51.13	81.71	275	21.38	4.88	4.88	5.75	5.0	5.31	5.0	5.0	5.0	31.51	64.92	70.92



**5.00" 6/7 8.8 STAGE HR**  
**FLEX DRIVE SHAFT**



INNER FISHING DIMENSIONS																		
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
20.3	31.76	35.5	44.39	111.36	265.0	12.75	4.88	3.03	3.69	2.77	3.725	3.25	2.188	3.063	3.063	3.298	1.15	2.38



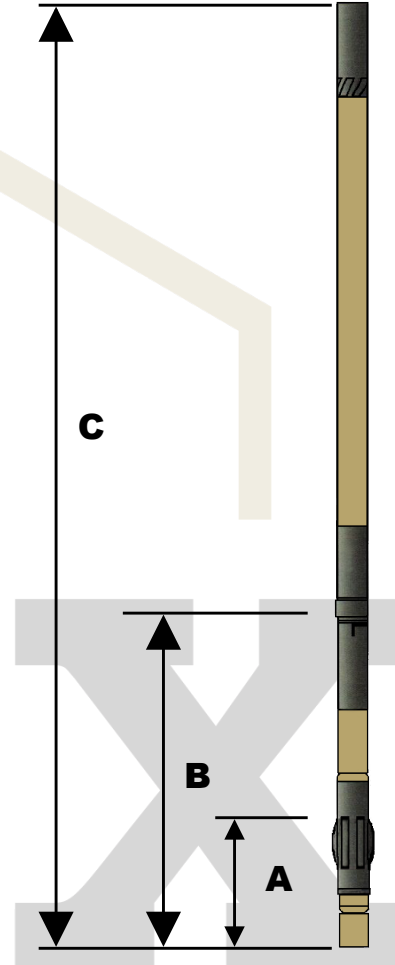
OUTER FISHING DIMENSIONS (FIXED)																	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
11.75	16.55	31.51	43.38	16.80	51.20	275	21.50	47.63	5.00	5.75	5.00	5.00	5.00	5.25	5.00	5.00	5.00



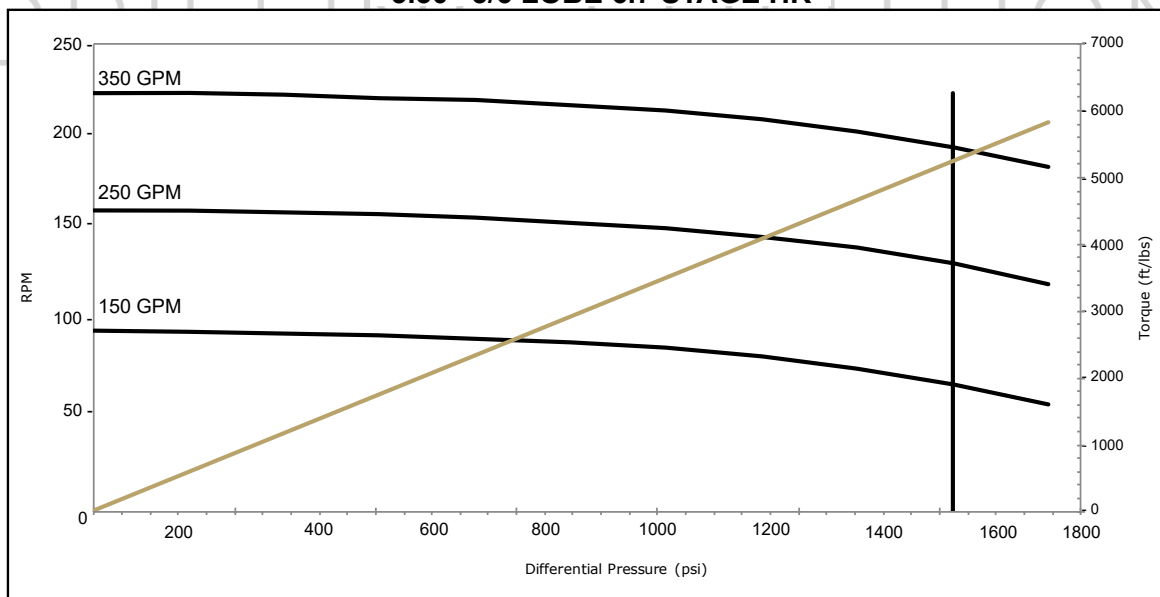
# 5.50" 5/6 6.7 STAGE

5.50" 5/6 6.7 Stage HR	
<b>Motor OD</b>	5.50 inch
<b>Lobe Configuration</b>	5 - 6 Lobe 6.7 Stage
<b>Bit Size Range</b>	6 1/2 - 7 7/8 inches
<b>Bit Box Connection</b>	3 1/2 REGULAR or IF
<b>A = Bit to Stabilizer (Center)</b>	21.50 inches
<b>B = Bit to Bend - Flex Shaft - Fixed</b>	53.88 inches
<b>C = Overall - Flex Shaft - Fixed (w/Top Sub)</b>	429.13 inches
<b>Weight</b>	1,550 lbs
<b>Max WOB - w/Flow</b>	46,500 lbs
<b>Optimum WOB - w/Flow</b>	23,250 lbs
<b>Max WOB - w/o Flow</b>	146,750 lbs
<b>Max Bit Pull - w/Damage</b>	220,000 lbs

Rev. Per Gallon	Flow Rate Range	Bit Speed Range	Torque Output	Max Diff Pressure
<i>RPG</i>	<i>GPM</i>	<i>RPM</i>	<i>Ft. Lbs</i>	<i>PSI</i>
<b>0.63</b>	150 - 350	90 - 220	6,330	1,580



**5.50" 5/6 LOBE 6.7 STAGE HR**



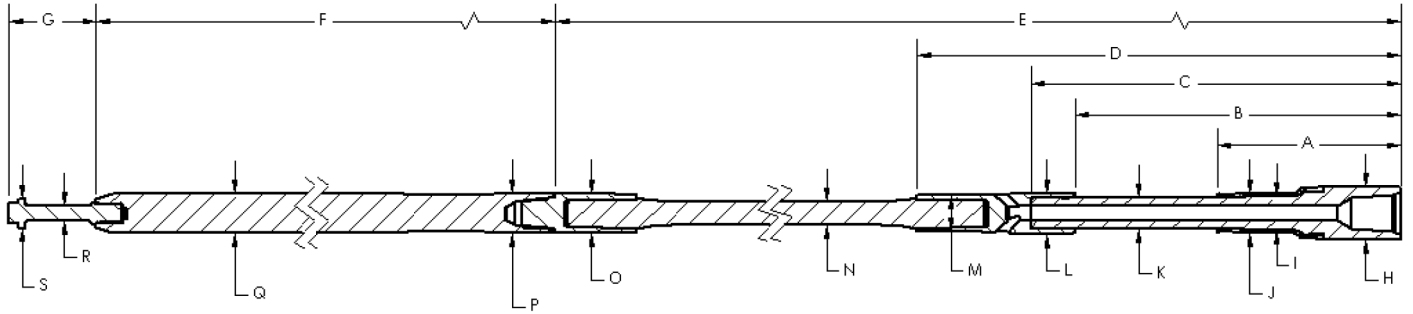


<b>5.50" 5/6 6.7 STAGE HR</b>								
<b>CALCULATED BUILD UP RATES - DEGREES / 100ft. * (FIXED)</b>								
<b>Angle (Deg)</b>	<b>Hole Size (in) - Slick Sleeve</b>				<b>Hole Size (in) - Stabalized</b>			
		<b>6 1/2"</b>	<b>6 3/4"</b>	<b>7 7/8"</b>		<b>6 1/2"</b>	<b>6 3/4"</b>	<b>7 7/8"</b>
<b>0.25</b>		1.6	0.6	-		0.7	1.0	1.4
<b>0.50</b>		3.0	2.0	-		2.0	2.2	2.7
<b>0.75</b>		4.3	3.3	1.6		3.2	3.5	3.9
<b>1.00</b>		5.6	4.7	3.0		4.5	4.7	5.1
<b>1.25</b>		7.0	6.0	4.3		5.7	6.0	6.4
<b>1.50</b>		8.3	7.4	5.7		7.0	7.2	7.6
<b>1.75</b>		9.7	8.7	7.0		8.2	8.5	8.9
<b>2.00</b>		11.0	10.1	8.4		9.5	9.7	10.1
<b>2.25</b>		12.4	11.4	9.7		10.7	11.0	11.4
<b>2.50</b>		13.7	12.8	11.0		12.0	12.2	12.6
<b>2.75</b>		15.1	14.1	12.4		13.2	13.4	13.9
<b>3.00</b>		16.4	15.5	13.7		14.5	14.7	15.1

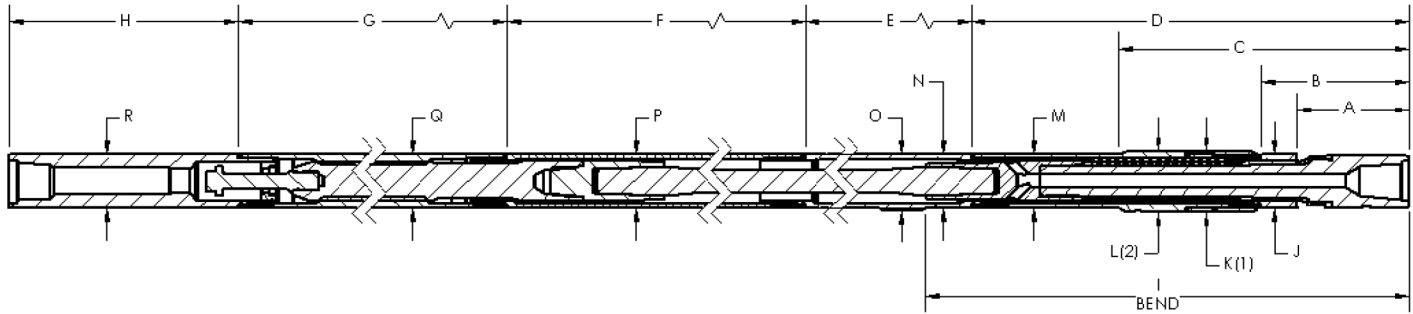
\* Actual Build Up Rates subject to varying factors; including formation, weight on bit, etc.



**5.50" 5/6 6.7 STAGE HR**  
**FLEX DRIVE SHAFT**



INNER FISHING DIMENSIONS																		
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
18.74	36.88	40.63	50.63	122.64	241	8.22	5.38	3.53	4.19	3.28	4.23	3.68	2.31	3.75	3.063	3.12	1.25	2.63



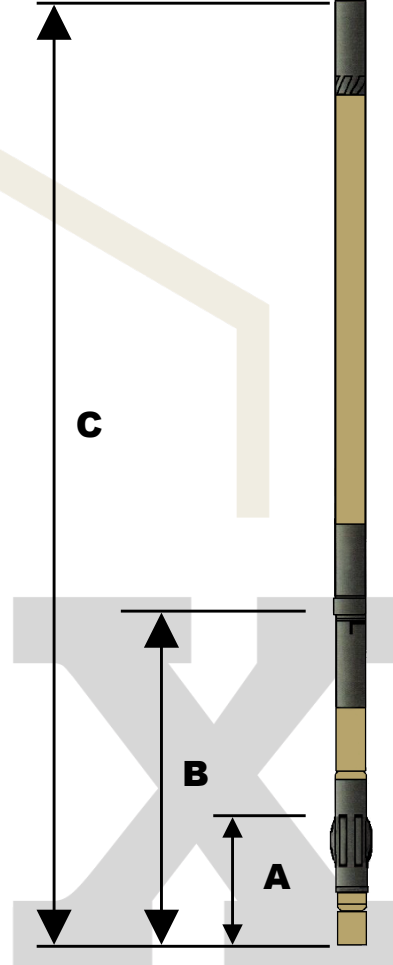
OUTER FISHING DIMENSIONS (FIXED)																	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
11.74	14.99	31.63	49.63	16.80	59.2	250	21.75	53.88	5.38	6.25	6.25	5.50	5.50	5.75	5.50	5.00	5.00



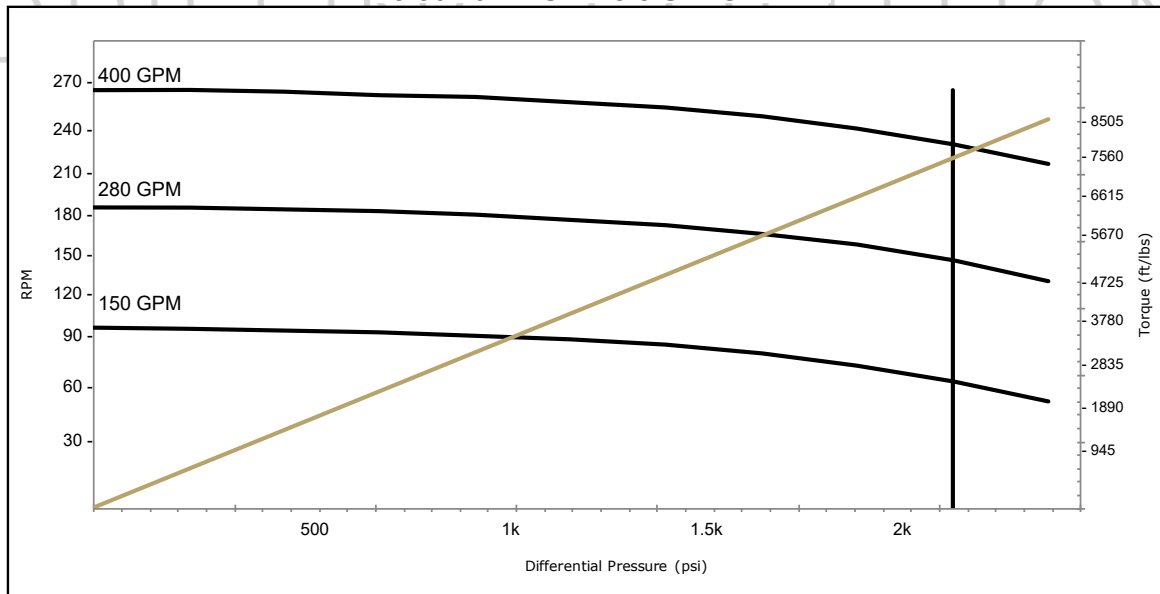
# 5.50" 6/7 8.8 STAGE

5.50" 6/7 8.8 Stage HR	
<b>Motor OD</b>	5.50 inch
<b>Lobe Configuration</b>	6 - 7 Lobe 8.8 Stage
<b>Bit Size Range</b>	6 1/2 - 7 7/8 inches
<b>Bit Box Connection</b>	3 1/2 REGULAR
<b>A = Bit to Stabilizer (Center)</b>	21.50 inches
<b>B = Bit to Bend - Flex Shaft - Fixed</b>	53.88 inches
<b>C = Overall - Flex Shaft - Fixed (w/Top Sub)</b>	454.13 inches
<b>Weight</b>	1,700 lbs
<b>Max WOB - w/Flow</b>	46,500 lbs
<b>Optimum WOB - w/Flow</b>	23,250 lbs
<b>Max WOB - w/o Flow</b>	146,750 lbs
<b>Max Bit Pull - w/Damage</b>	220,000 lbs

Rev. Per Gallon	Flow Rate Range	Bit Speed Range	Torque Output	Max Diff Pressure
<i>RPG</i>	<i>GPM</i>	<i>RPM</i>	<i>Ft. Lbs</i>	<i>PSI</i>
<b>0.66</b>	150 - 400	100 - 260	7,660	2,070



**5.50" 6/7 LOBE 8.8 STAGE HR**





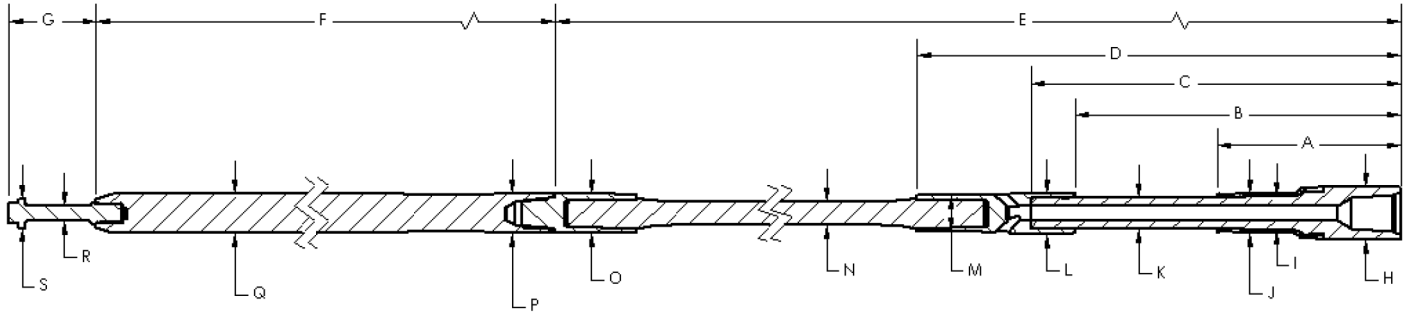


<b>5.50" 6/7 8.8 STAGE HR</b>								
<b>CALCULATED BUILD UP RATES - DEGREES / 100ft. * (FIXED)</b>								
<b>Angle (Deg)</b>	<b>Hole Size (in) - Slick Sleeve</b>				<b>Hole Size (in) - Stabalized</b>			
	<b>6 1/2"</b>	<b>6 3/4"</b>	<b>7 7/8"</b>		<b>6 1/2"</b>	<b>6 3/4"</b>	<b>7 7/8"</b>	
<b>0.25</b>	1.5	0.6	-		0.7	0.9	1.3	
<b>0.50</b>	2.8	1.8	-		1.9	2.1	2.5	
<b>0.75</b>	4.1	3.1	1.4		3.1	3.3	3.7	
<b>1.00</b>	5.3	4.4	2.7		4.3	4.5	4.8	
<b>1.25</b>	6.6	5.7	4.0		5.4	5.7	6.0	
<b>1.50</b>	7.9	6.9	5.3		6.6	6.8	7.2	
<b>1.75</b>	9.2	8.2	6.5		7.8	8.0	8.4	
<b>2.00</b>	10.4	9.5	7.8		9.0	9.2	9.6	
<b>2.25</b>	11.7	10.8	9.1		10.2	10.4	10.8	
<b>2.50</b>	13.0	12.0	10.4		11.4	11.6	12.0	
<b>2.75</b>	14.3	13.3	11.6		12.6	12.8	13.2	
<b>3.00</b>	15.5	14.6	12.9		13.7	14.0	14.3	

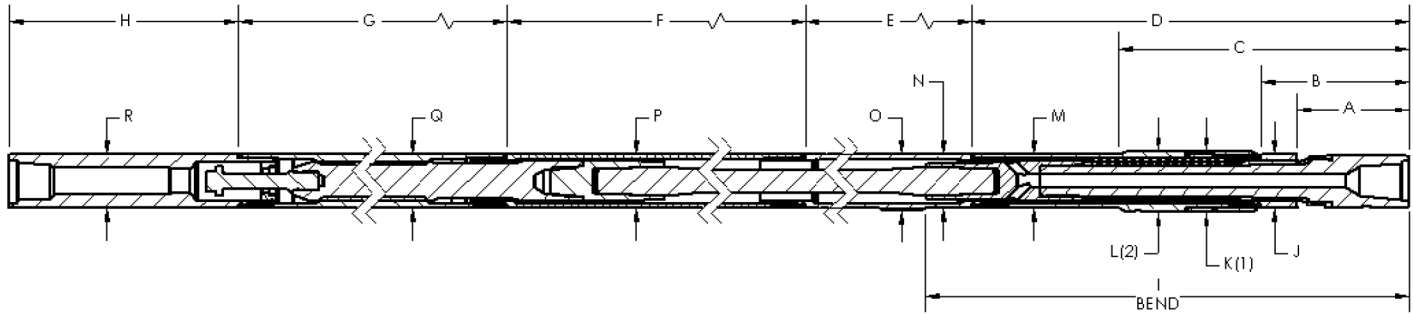
\* Actual Build Up Rates subject to varying factors; including formation, weight on bit, etc.



**5.50" 6/7 8.8 STAGE HR**  
**FLEX DRIVE SHAFT**



INNER FISHING DIMENSIONS																		
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
18.74	36.88	40.63	50.63	122.64	265	8.22	5.38	3.53	4.19	3.28	4.23	3.68	2.31	3.75	3.063	3.298	1.25	2.63



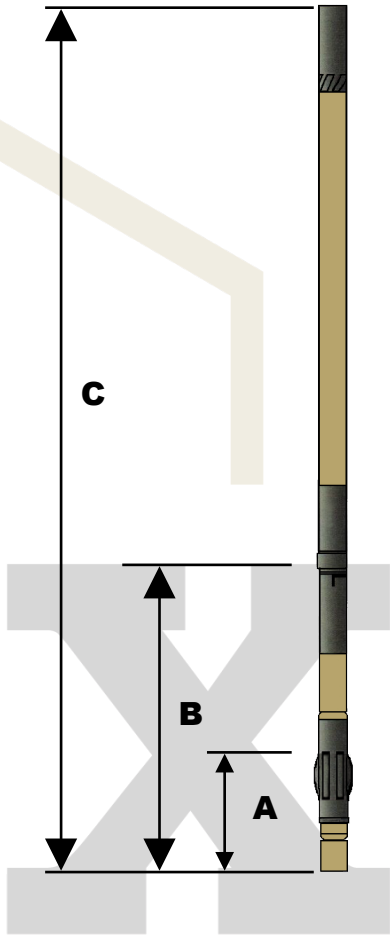
OUTER FISHING DIMENSIONS (FIXED)																	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
11.74	14.99	31.63	49.63	16.80	59.2	275	21.75	53.88	5.38	6.25	6.25	5.50	5.50	5.75	5.50	5.00	5.00



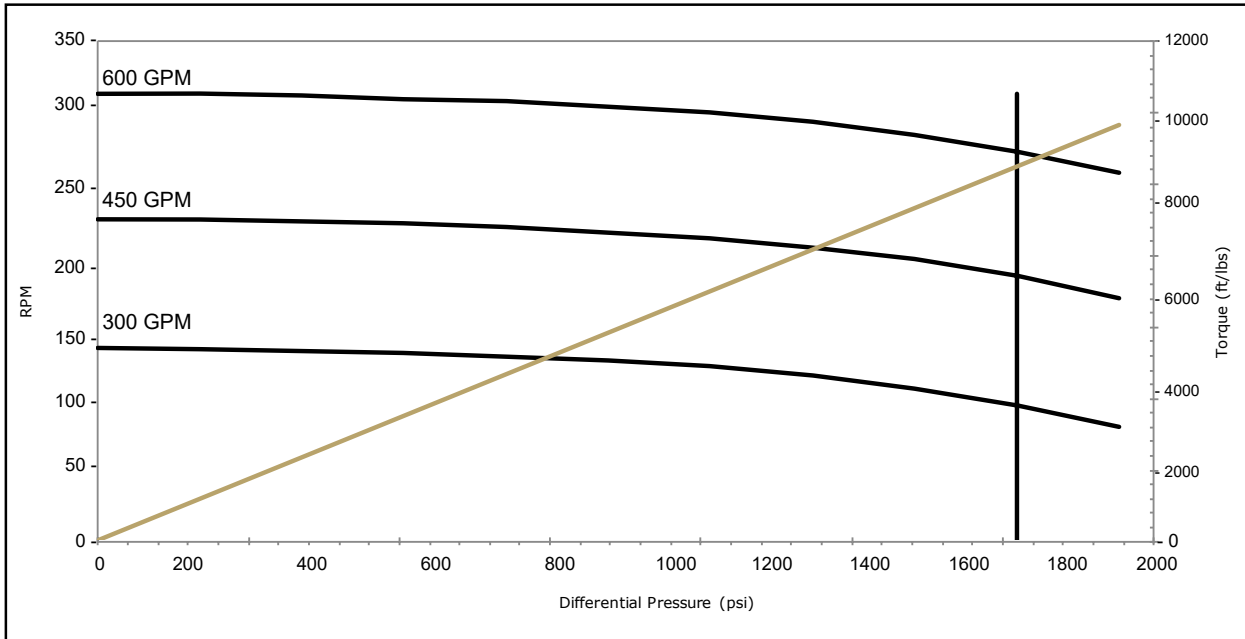
# 6.75" 4/5 7.0 STAGE

6.75" 4/5 7.0 Stage HR	
<b>Motor OD</b>	6.75 inch
<b>Lobe Configuration</b>	4 - 5 Lobe 7.0 Stage
<b>Bit Size Range</b>	7 7/8 - 9 7/8 inches
<b>Bit Box Connection</b>	4 1/2 REGULAR
<b>A = Bit to Stabilizer (Center)</b>	24.00 inches
<b>B = Bit to Bend - Fixed</b>	64.25 inches
<b>B = Bit to Bend - Adjustable</b>	82.50 inches
<b>C = Overall (with Top Sub)</b>	330 inches
<b>Adjustable Makeup Torque</b>	28,500 ft. lbs
<b>Weight</b>	2,575 lbs
<b>Max WOB - w/Flow</b>	110,000 lbs
<b>Optimum WOB - w/Flow</b>	55,000 lbs
<b>Max WOB - w/o Flow</b>	275,000 lbs
<b>Max Bit Pull - w/Damage</b>	380,000 lbs

Rev. Per Gallon	Flow Rate Range	Bit Speed Range	Torque Output	Max Diff Pressure
RPG	GPM	RPM	Ft. Lbs	PSI
0.49	300 - 600	150 - 300	8,820	1,650



## 6.75" 4/5 LOBE 7.0 STAGE HR





**6.75" 4/5 7.0 STAGE HR**

**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (FIXED)**

Angle (Deg)	Hole Size (in) - Slick Sleeve				Hole Size (in) - Stabalized			
	7 7/8"	8 1/2"	8 3/4"	9 7/8"	7 7/8"	8 1/2"	8 3/4"	9 7/8"
<b>0.25</b>	2.5	2.0	1.8		1.5	1.9	2.1	2.8
<b>0.50</b>	3.9	3.4	3.2		3.0	3.4	3.6	4.3
<b>0.75</b>	5.3	4.8	4.6	3.6	4.5	4.9	5.1	5.8
<b>1.00</b>	6.6	6.1	5.9	5.0	6.1	6.5	6.6	7.4
<b>1.25</b>	8.0	7.5	7.3	6.4	7.6	8.0	8.2	8.9
<b>1.50</b>	9.3	8.8	8.6	7.7	9.1	9.5	9.7	10.4
<b>1.75</b>	10.7	10.2	10.0	9.1	10.6	11.0	11.2	11.9
<b>2.00</b>	12.1	11.6	11.4	10.4	12.1	12.6	12.7	13.5
<b>2.25</b>	13.4	12.9	12.7	11.8	13.7	14.1	14.2	15.0
<b>2.50</b>	14.8	14.3	14.1	13.2	15.2	15.6	15.8	16.5
<b>2.75</b>	16.2	15.6	15.4	14.5	16.7	17.1	17.3	18.0

DRILLING SOLUTIONS

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



**6.75" 4/5 7.0 STAGE HR**

**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (ABH)**

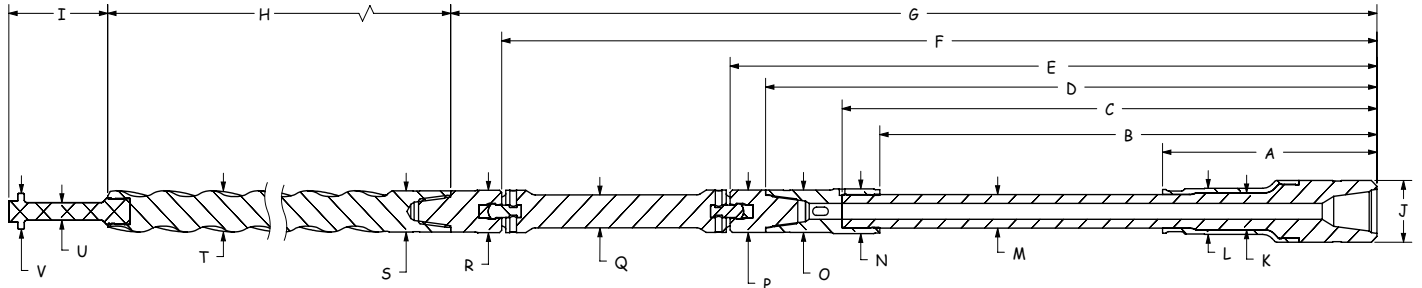
Angle (Deg)	Hole Size (in) - Slick Sleeve				Hole Size (in) - Stabalized			
	7 7/8"	8 1/2"	8 3/4"	9 7/8"	7 7/8"	8 1/2"	8 3/4"	9 7/8"
<b>0.25</b>	1.6	1.4	1.3		1.4	1.8	2.0	2.7
<b>0.50</b>	3.0	2.7	2.6		2.8	3.2	3.4	4.1
<b>0.75</b>	4.3	4.1	4.0	3.6	4.2	4.6	4.8	5.5
<b>1.00</b>	5.7	5.5	5.4	5.0	5.6	6.0	6.2	6.9
<b>1.25</b>	7.1	6.8	6.7	6.3	7.1	7.5	7.6	8.4
<b>1.50</b>	8.4	8.2	8.1	7.7	8.5	8.9	9.0	9.8
<b>1.75</b>	9.8	9.6	9.5	9.1	9.9	10.3	10.5	11.2
<b>2.00</b>	11.2	10.9	10.8	10.4	11.3	11.7	11.9	12.6
<b>2.25</b>	12.5	12.3	12.2	11.8	12.7	13.1	13.3	14.0
<b>2.50</b>	13.9	13.7	13.6	13.2	14.2	14.6	14.7	15.5
<b>2.75</b>	15.3	15.0	15.0	14.5	15.6	16.0	16.1	16.9

DRILLING SOLUTIONS

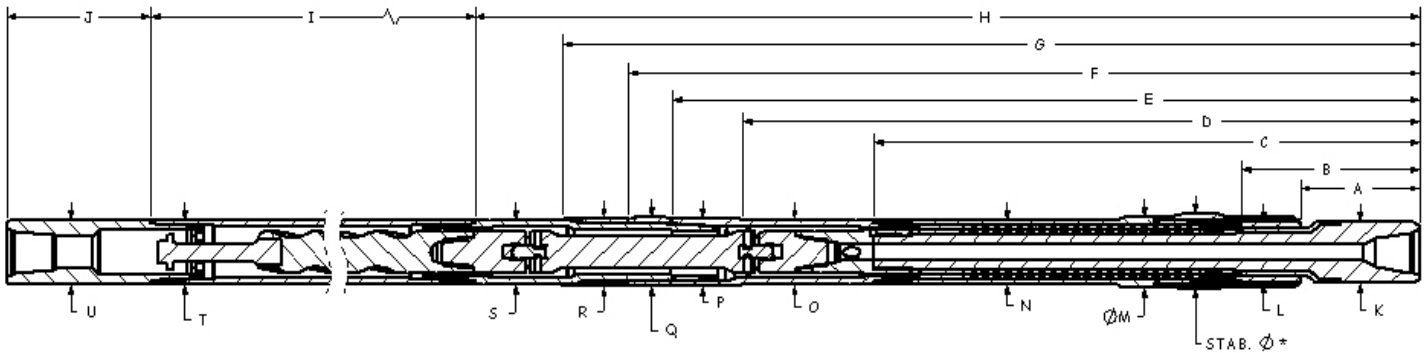
\* Actual Build Up Rates subject to varying factors; including formation, weight on bit, etc.



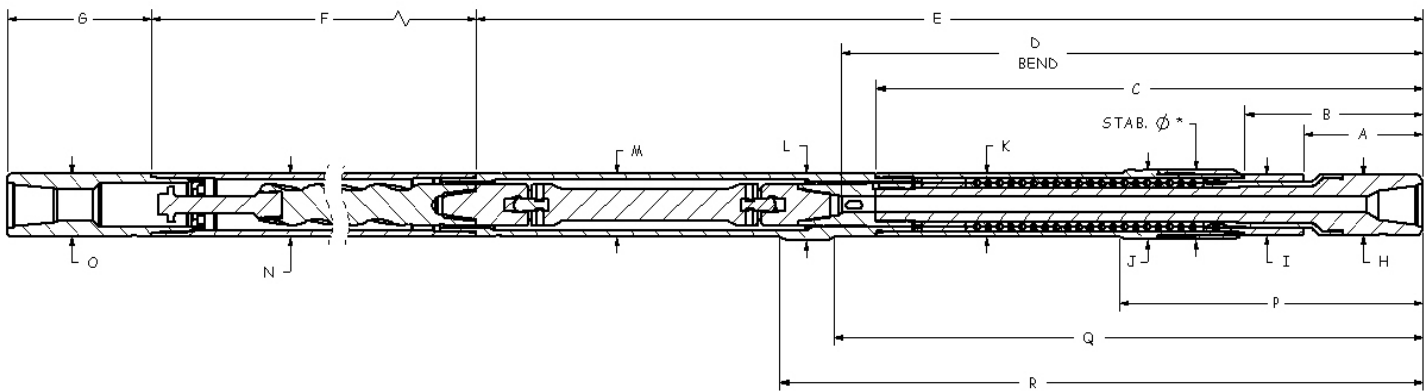
**6.75" 4/5 7.0 STAGE HR  
STANDARD DRIVE SHAFT**



INNER FISHING DIMENSIONS																					
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
24.15	56.03	60.28	68.88	72.38	99.2	104.4	202.5	10.9	6.55	3.94	4.92	3.58	4.75	4.5	4.5	3.50	4.50	4.00	4.22	1.88	3.8



OUTER FISHING DIMENSIONS (ABH)																				
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
13.15	19.65	60.28	74.72	82.5	87.33	94.56	97.65	210	22.38	6.55	6.55	7.5	6.50	6.50	6.88	7.13	6.88	6.50	6.50	6.50

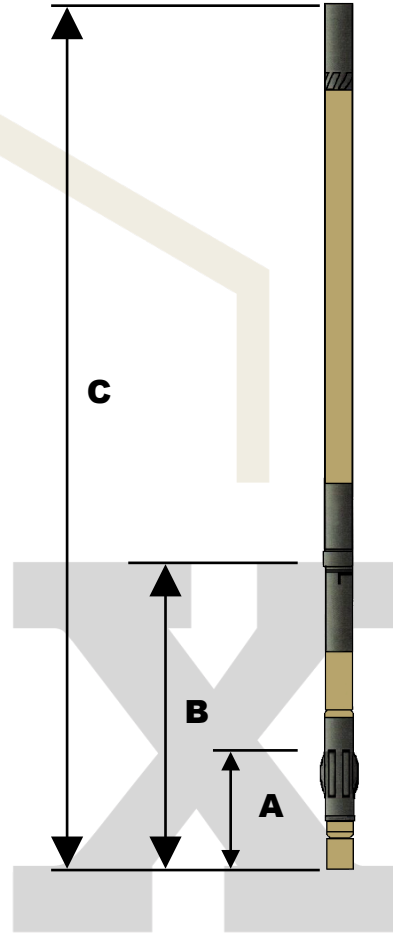


OUTER FISHING DIMENSIONS (FIXED)																	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
13.15	19.65	60.28	64.25	97.65	210	22.38	6.55	6.55	7.50	6.50	7.13	6.50	6.50	6.50	33.53	64.63	69.75



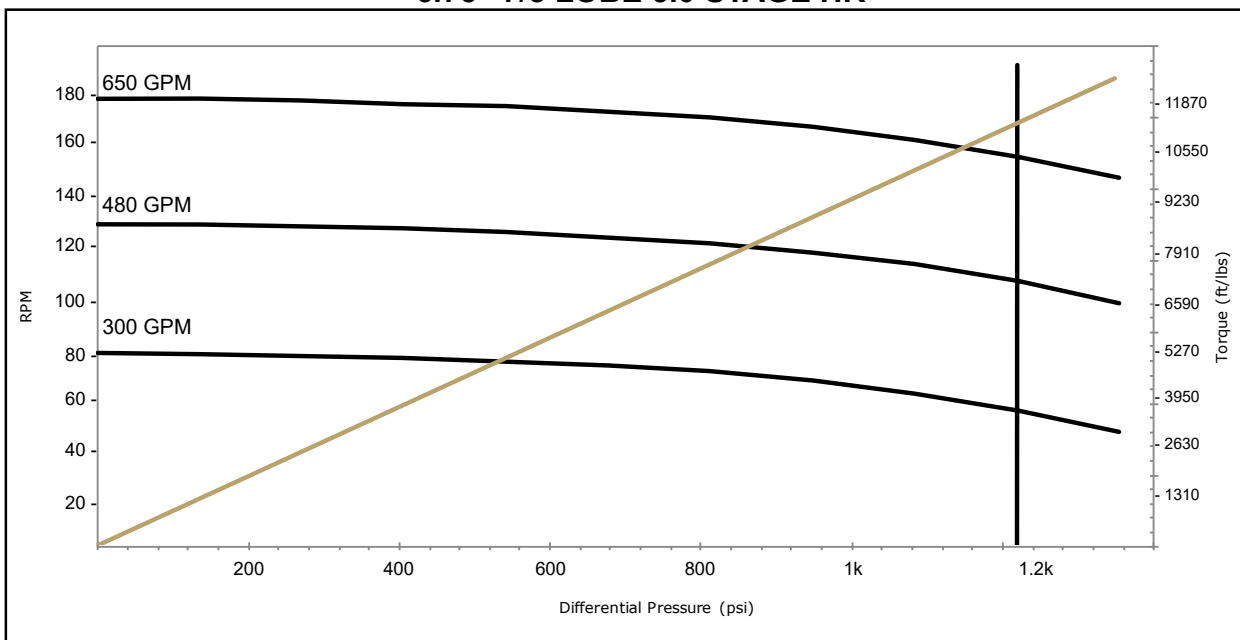
# 6.75" 7/8 5.0 STAGE

6.75" 7/8 5.0 Stage HR	
<b>Motor OD</b>	6.75 inch
<b>Lobe Configuration</b>	7 - 8 Lobe 5.0 Stage
<b>Bit Size Range</b>	7 7/8 - 9 7/8 inches
<b>Bit Box Connection</b>	4 1/2 REGULAR
<b>A = Bit to Stabalizer (Center)</b>	24.00 inches
<b>B = Bit to Bend - Fixed</b>	64.25 inches
<b>B = Bit to Bend - Adjustable</b>	82.50 inches
<b>C = Overall (with Top Sub)</b>	320 inches
<b>Adjustable Makeup Torque</b>	28,500 ft. lbs
<b>Weight</b>	2,325 lbs
<b>Max WOB - w/Flow</b>	110,000 lbs
<b>Optimum WOB - w/Flow</b>	55,000 lbs
<b>Max WOB - w/o Flow</b>	275,000 lbs
<b>Max Bit Pull - w/Damage</b>	380,000 lbs



Rev. Per Gallon	Flow Rate Range	Bit Speed Range	Torque Output	Max Diff Pressure
RPG	GPM	RPM	Ft. Lbs	PSI
0.27	300 - 650	80 - 160	10,650	1,180

## 6.75" 7/8 LOBE 5.0 STAGE HR





**6.75" 7/8 5.0 STAGE HR**

**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (FIXED)**

Angle (Deg)	Hole Size (in) - Slick Sleeve				Hole Size (in) - Stabalized			
	7 7/8"	8 1/2"	8 3/4"	9 7/8"	7 7/8"	8 1/2"	8 3/4"	9 7/8"
<b>0.25</b>	2.6	2.1	1.9		1.5	2.0	2.2	2.9
<b>0.50</b>	4.0	3.5	3.3		3.1	3.5	3.7	4.5
<b>0.75</b>	5.4	4.9	4.7	3.9	4.7	5.1	5.3	6.1
<b>1.00</b>	6.8	6.3	6.1	5.3	6.2	6.7	6.8	7.6
<b>1.25</b>	8.2	7.7	7.5	6.7	7.8	8.2	8.4	9.2
<b>1.50</b>	9.6	9.1	8.9	8.1	9.4	9.8	10.0	10.7
<b>1.75</b>	11.0	10.5	10.3	9.5	10.9	11.3	11.5	12.3
<b>2.00</b>	12.4	11.9	11.7	10.9	12.5	12.9	13.1	13.9
<b>2.25</b>	13.8	13.3	13.1	12.3	14.0	14.5	14.6	15.4
<b>2.50</b>	15.2	14.7	14.5	13.7	15.6	16.0	16.2	17.0
<b>2.75</b>	16.6	16.1	15.9	15.1	17.2	17.6	17.8	18.6

DRILLING SOLUTIONS

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





**6.75" 7/8 5.0 STAGE HR**

**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (ABH)**

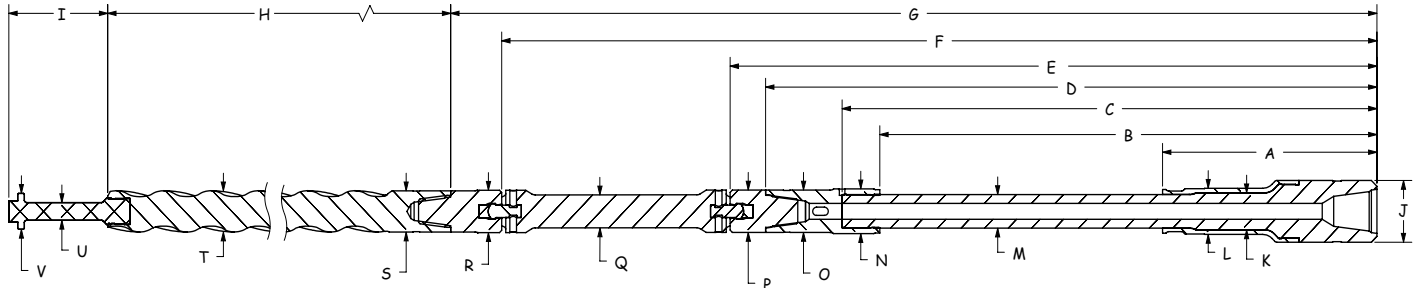
Angle (Deg)	Hole Size (in) - Slick Sleeve				Hole Size (in) - Stabalized			
	7 7/8"	8 1/2"	8 3/4"	9 7/8"	7 7/8"	8 1/2"	8 3/4"	9 7/8"
<b>0.25</b>	1.7	1.5	1.4		1.4	1.9	2.0	2.8
<b>0.50</b>	3.1	2.9	2.8		2.9	3.3	3.5	4.3
<b>0.75</b>	4.5	4.3	4.2	3.8	4.3	4.8	4.9	5.7
<b>1.00</b>	5.9	5.7	5.6	5.3	5.8	6.2	6.4	7.2
<b>1.25</b>	7.3	7.1	7.0	6.7	7.2	7.7	7.8	8.6
<b>1.50</b>	8.7	8.5	8.4	8.1	8.7	9.1	9.3	10.1
<b>1.75</b>	10.1	9.9	9.8	9.5	10.1	10.6	10.7	11.5
<b>2.00</b>	11.5	11.3	11.3	10.9	11.6	12.0	12.2	13.0
<b>2.25</b>	12.9	12.7	12.7	12.3	13.0	13.5	13.6	14.4
<b>2.50</b>	14.4	14.2	14.1	13.7	14.5	14.9	15.1	15.9
<b>2.75</b>	15.8	15.6	15.5	15.1	15.9	16.4	16.5	17.3

DRILLING SOLUTIONS

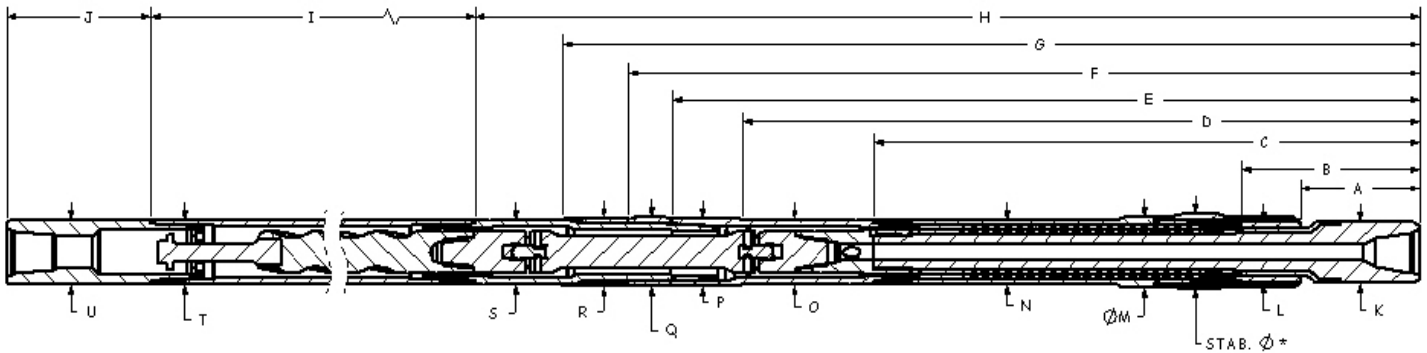
\* Actual Build Up Rates subject to varying factors; including formation, weight on bit, etc.



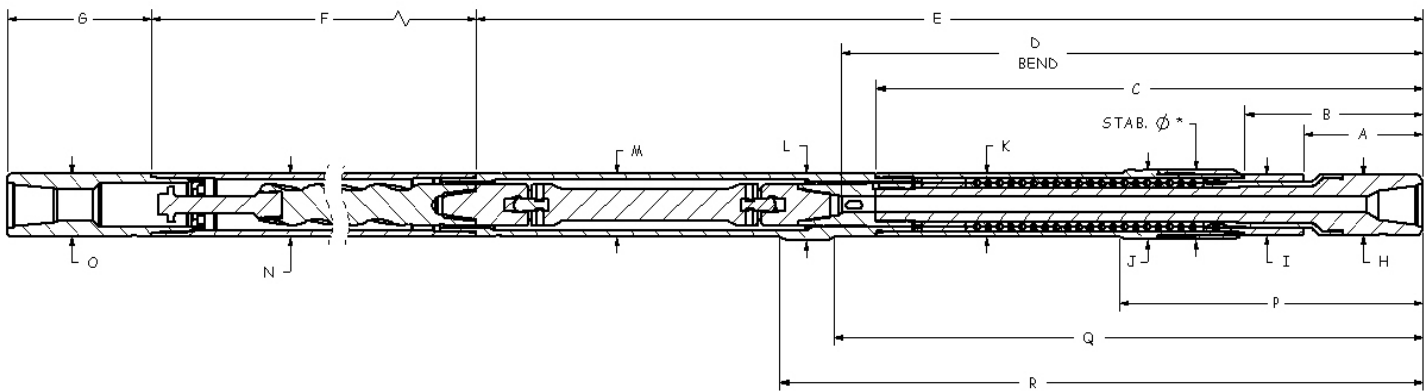
**6.75" 7/8 5.0 STAGE HR**  
**STANDARD DRIVE SHAFT**



INNER FISHING DIMENSIONS																					
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
24.15	56.03	60.28	68.88	72.38	99.2	104.4	188	10.9	6.55	3.94	4.92	3.58	4.75	4.5	4.5	3.5	4.5	4.00	4.22	1.88	3.8



OUTER FISHING DIMENSIONS (ABH)																				
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
13.15	19.65	60.28	74.72	82.5	87.33	94.56	97.65	200	22.38	6.55	6.55	7.5	6.75	6.75	7.13	7.31	7.13	6.75	6.75	6.75

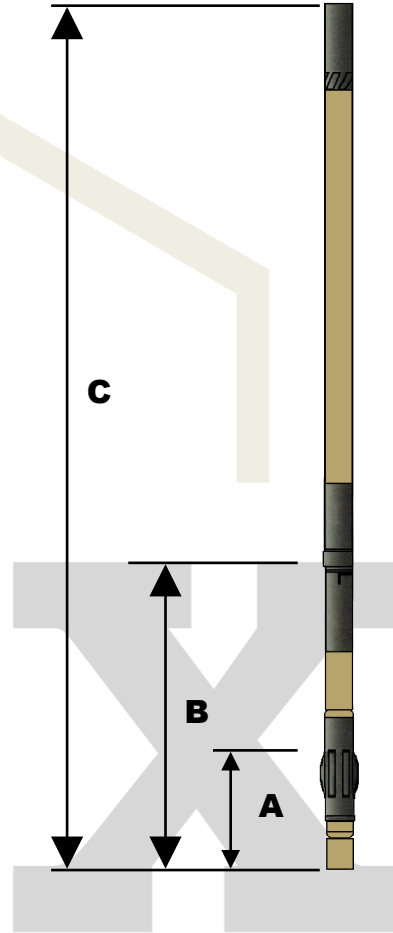


OUTER FISHING DIMENSIONS (FIXED)																	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
13.15	19.65	60.28	64.25	97.65	200	22.38	6.55	6.55	7.5	6.75	7.06	6.75	6.75	6.75	33.53	64.63	69.75



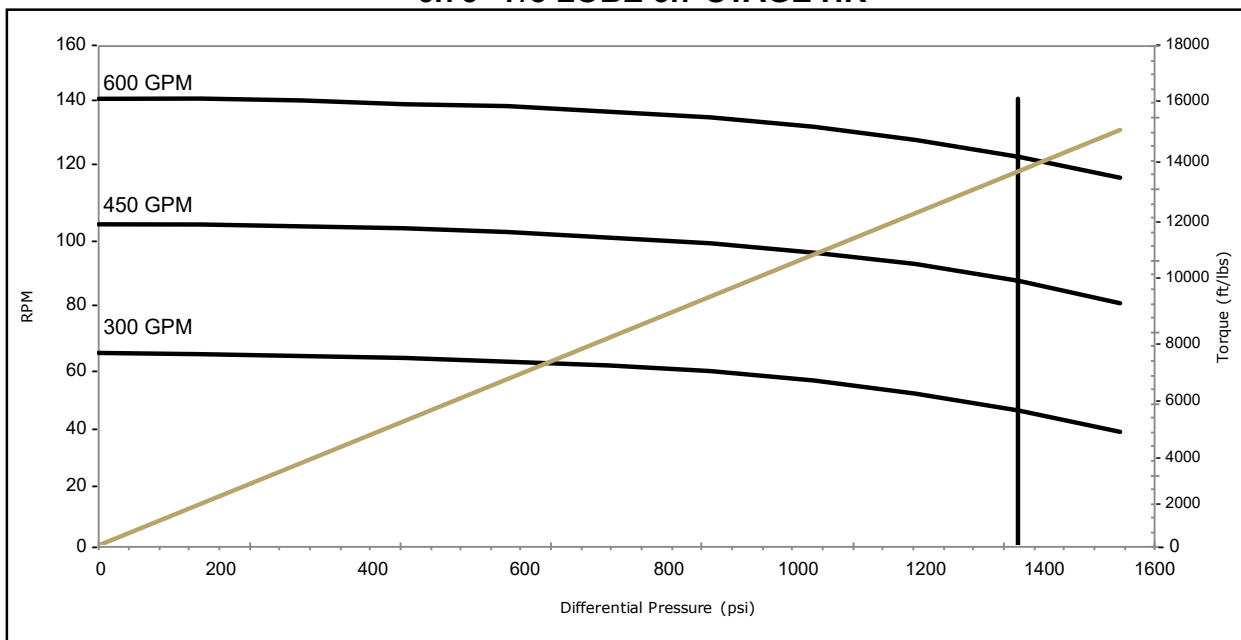
# 6.75" 7/8 5.7 STAGE

6.75" 7/8 5.7 Stage HR	
<b>Motor OD</b>	6.75 inch
<b>Lobe Configuration</b>	7 - 8 Lobe 5.7 Stage
<b>Bit Size Range</b>	7 7/8 - 9 7/8 inches
<b>Bit Box Connection</b>	4 1/2 REGULAR
<b>A = Bit to Stabalizer (Center)</b>	24.00 inches
<b>B = Bit to Bend - Fixed</b>	64.25 inches
<b>B = Bit to Bend - Adjustable</b>	82.50 inches
<b>C = Overall (with Top Sub)</b>	375 inches
<b>Adjustable Makeup Torque</b>	28,500 ft. lbs
<b>Weight</b>	2,850 lbs
<b>Max WOB - w/Flow</b>	110,000 lbs
<b>Optimum WOB - w/Flow</b>	55,000 lbs
<b>Max WOB - w/o Flow</b>	275,000 lbs
<b>Max Bit Pull - w/Damage</b>	380,000 lbs



Rev. Per Gallon	Flow Rate Range	Bit Speed Range	Torque Output	Max Diff Pressure
RPG	GPM	RPM	Ft. Lbs	PSI
0.23	300 - 600	70 - 140	14,200	1,340

## 6.75" 7/8 LOBE 5.7 STAGE HR





**6.75" 7/8 5.7 STAGE HR**

**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (FIXED)**

Angle (Deg)	Hole Size (in) - Slick Sleeve				Hole Size (in) - Stabalized			
	7 7/8"	8 1/2"	8 3/4"	9 7/8"	7 7/8"	8 1/2"	8 3/4"	9 7/8"
<b>0.25</b>	2.0	1.5	1.3		1.4	1.8	1.9	2.5
<b>0.50</b>	3.3	2.7	2.5		2.8	3.2	3.3	3.9
<b>0.75</b>	4.5	4.0	3.8	2.8	4.2	4.6	4.7	5.3
<b>1.00</b>	5.7	5.2	5.0	4.0	5.6	6.0	6.1	6.7
<b>1.25</b>	7.0	6.4	6.2	5.2	7.0	7.3	7.5	8.1
<b>1.50</b>	8.2	7.7	7.5	6.5	8.4	8.7	8.9	9.5
<b>1.75</b>	9.5	8.9	8.7	7.7	9.8	10.1	10.3	10.9
<b>2.00</b>	10.7	10.1	9.9	8.9	11.2	11.5	11.7	12.3
<b>2.25</b>	11.9	11.4	11.2	10.2	12.6	12.9	13.1	13.7
<b>2.50</b>	13.2	12.6	12.4	11.4	14.0	14.3	14.5	15.1
<b>2.75</b>	14.4	13.8	13.6	12.6	15.4	15.7	15.9	16.5

DRILLING SOLUTIONS

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



**6.75" 7/8 5.7 STAGE HR**

**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (ABH)**

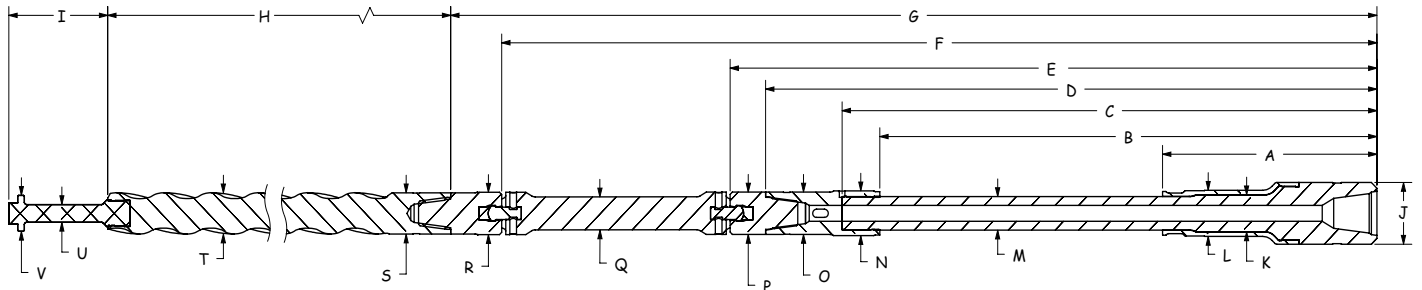
Angle (Deg)	Hole Size (in) - Slick Sleeve				Hole Size (in) - Stabalized			
	7 7/8"	8 1/2"	8 3/4"	9 7/8"	7 7/8"	8 1/2"	8 3/4"	9 7/8"
<b>0.25</b>	1.1				1.3	1.7	1.8	2.4
<b>0.50</b>	2.3	2.0	1.9		2.7	3.0	3.1	3.7
<b>0.75</b>	3.5	3.2	3.1	2.6	4.0	4.3	4.4	5.0
<b>1.00</b>	4.8	4.5	4.4	3.8	5.3	5.6	5.7	6.3
<b>1.25</b>	6.0	5.7	5.6	5.1	6.6	6.9	7.1	7.7
<b>1.50</b>	7.2	6.9	6.8	6.3	7.9	8.2	8.4	9.0
<b>1.75</b>	8.5	8.2	8.1	7.5	9.2	9.6	9.7	10.3
<b>2.00</b>	9.7	9.4	9.3	8.8	10.5	10.9	11.0	11.6
<b>2.25</b>	10.9	10.6	10.5	10.0	11.9	12.2	12.3	12.9
<b>2.50</b>	12.2	11.9	11.8	11.2	13.2	13.5	13.6	14.2
<b>2.75</b>	13.4	13.1	13.0	12.5	14.5	14.8	14.9	15.5

DRILLING SOLUTIONS

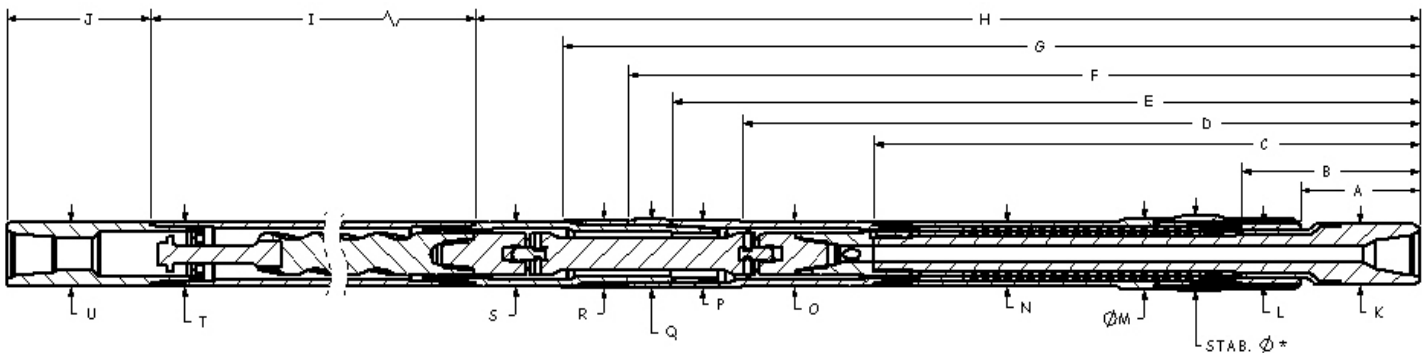
\* Actual Build Up Rates subject to varying factors; including formation, weight on bit, etc.



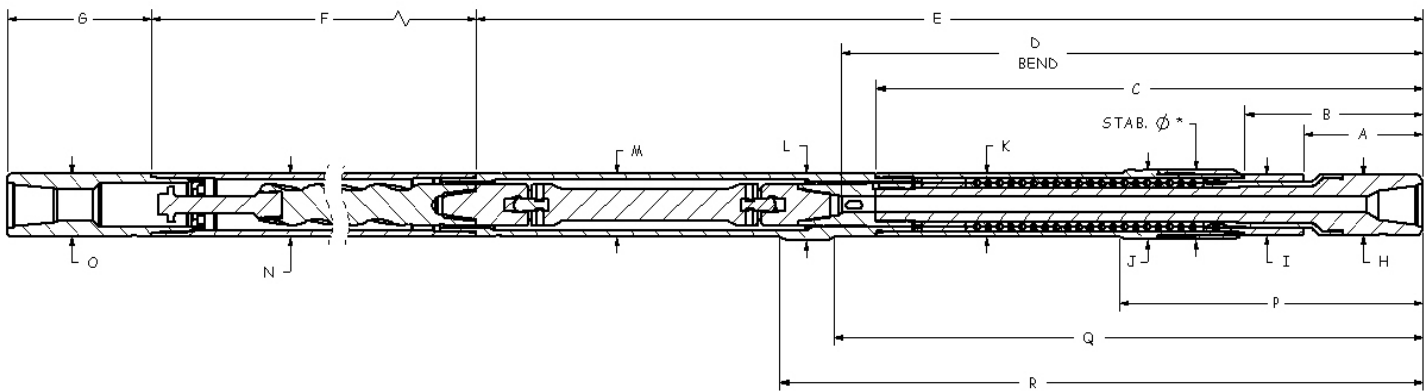
**6.75" 7/8 5.7 STAGE HR  
STANDARD DRIVE SHAFT**



INNER FISHING DIMENSIONS																					
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
24.15	56.03	60.3	68.9	72.4	99.2	104.4	252	11.15	6.55	3.94	4.92	3.58	4.75	4.5	4.5	3.5	4.5	4.38	4.644	1.88	3.80



OUTER FISHING DIMENSIONS (ABH)																				
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
13.15	19.65	60.28	74.72	82.51	87.33	94.56	100.35	260	22.38	6.55	6.55	6.75	6.75	7.13	7.31	7.13	6.75	6.75	6.75	6.75

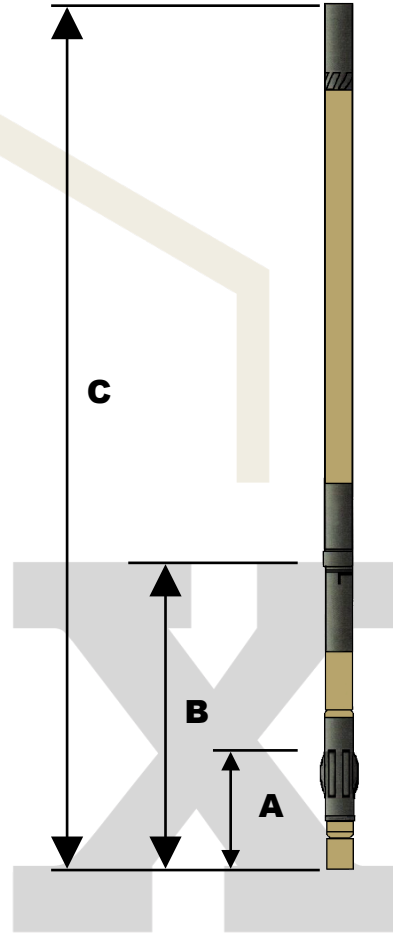


OUTER FISHING DIMENSIONS (FIXED)																	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
13.15	19.65	60.28	64.25	100.35	260	22.38	6.55	6.55	7.50	6.50	7.13	6.50	6.50	6.50	64.5	69.63	69.75



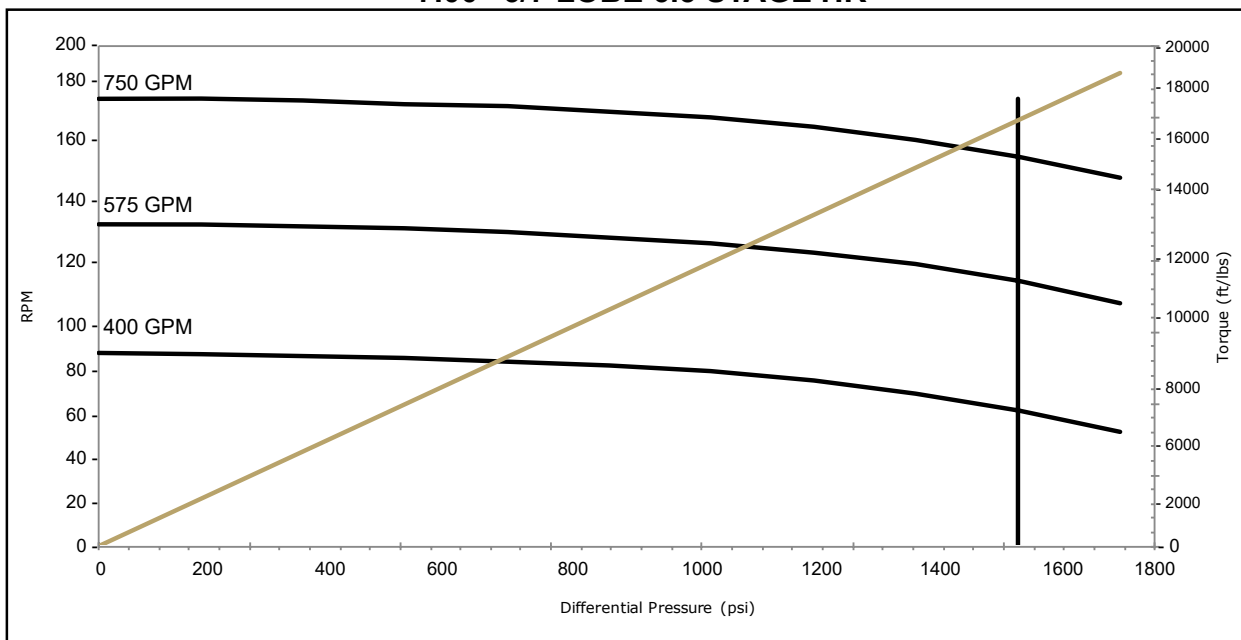
# 7.00" 6/7 6.5 STAGE

7.00" 6/7 6.5 Stage HR	
<b>Motor OD</b>	7.00 inch
<b>Lobe Configuration</b>	6 - 7 Lobe 6.5 Stage
<b>Bit Size Range</b>	8 1/2 - 9 7/8 inches
<b>Bit Box Connection</b>	4 1/2 REGULAR
<b>A = Bit to Stabalizer (Center)</b>	23.00 inches
<b>B = Bit to Bend - Fixed</b>	60.88 inches
<b>B = Bit to Bend - Adjustable</b>	79.0 inches
<b>C = Overall (with Top Sub)</b>	398.38 inches
<b>Adjustable Makeup Torque</b>	31,500 ft. lbs
<b>Weight</b>	3,050 lbs
<b>Max WOB - w/Flow</b>	114,000 lbs
<b>Optimum WOB - w/Flow</b>	57,000 lbs
<b>Max WOB - w/o Flow</b>	300,000 lbs
<b>Max Bit Pull - w/Damage</b>	400,000 lbs



Rev. Per Gallon	Flow Rate Range	Bit Speed Range	Torque Output	Max Diff Pressure
RPG	GPM	RPM	Ft. Lbs	PSI
<b>0.23</b>	400 - 750	90 - 170	16,690	1,530

## 7.00" 6/7 LOBE 6.5 STAGE HR





**7.00" 6/7 6.5 STAGE HR**

**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (FIXED)**

Angle (Deg)	Hole Size (in) - Slick Sleeve				Hole Size (in) - Stabalized			
	7 7/8"	8 1/2"	8 3/4"	9 7/8"	7 7/8"	8 1/2"	8 3/4"	9 7/8"
<b>0.25</b>	2.3	1.7	1.5		1.1	1.4	1.5	2.0
<b>0.50</b>	3.5	2.9	2.6		2.4	2.7	2.8	3.3
<b>0.75</b>	4.6	4.0	3.8	2.7	3.7	4.0	4.1	4.6
<b>1.00</b>	5.7	5.1	4.9	3.8	5.0	5.3	5.4	5.9
<b>1.25</b>	6.9	6.3	6.0	5.0	6.3	6.6	6.7	7.2
<b>1.50</b>	8.0	7.4	7.2	6.1	7.7	7.9	8.1	8.6
<b>1.75</b>	9.1	8.5	8.3	7.2	9.0	9.3	9.4	9.9
<b>2.00</b>	10.3	9.7	9.4	8.4	10.3	10.6	10.7	11.2
<b>2.25</b>	11.4	10.8	10.6	9.5	11.6	11.9	12.0	12.5
<b>2.50</b>	12.6	12.0	11.7	10.7	12.9	13.2	13.3	13.8
<b>2.75</b>	13.7	13.1	12.9	11.8	14.3	14.5	14.6	15.1

DRILLING SOLUTIONS

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





**7.00" 6/7 6.5 STAGE HR**

**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (ABH)**

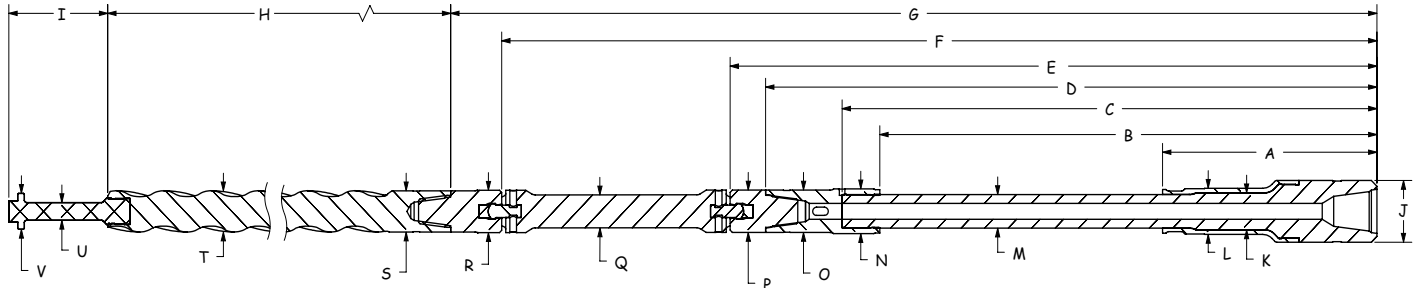
Angle (Deg)	Hole Size (in) - Slick Sleeve				Hole Size (in) - Stabalized			
	7 7/8"	8 1/2"	8 3/4"	9 7/8"	7 7/8"	8 1/2"	8 3/4"	9 7/8"
<b>0.25</b>	1.2	0.9	0.7		1.0	1.3	1.4	1.9
<b>0.50</b>	2.4	2.0	1.9		2.2	2.5	2.6	3.1
<b>0.75</b>	3.5	3.2	3.0	2.4	3.5	3.8	3.9	4.4
<b>1.00</b>	4.7	4.3	4.2	3.5	4.7	5.0	5.1	5.6
<b>1.25</b>	5.8	5.4	5.3	4.6	6.0	6.3	6.4	6.9
<b>1.50</b>	6.9	6.6	6.4	5.8	7.2	7.5	7.6	8.1
<b>1.75</b>	8.1	7.7	7.6	6.9	8.5	8.8	8.9	9.4
<b>2.00</b>	9.2	8.9	8.7	8.1	9.7	10.0	10.1	10.6
<b>2.25</b>	10.3	10.0	9.8	9.2	11.0	11.3	11.4	11.9
<b>2.50</b>	11.5	11.1	11.0	10.3	12.2	12.5	12.6	13.1
<b>2.75</b>	12.6	12.3	12.1	11.5	13.5	13.8	13.9	14.4

DRILLING SOLUTIONS

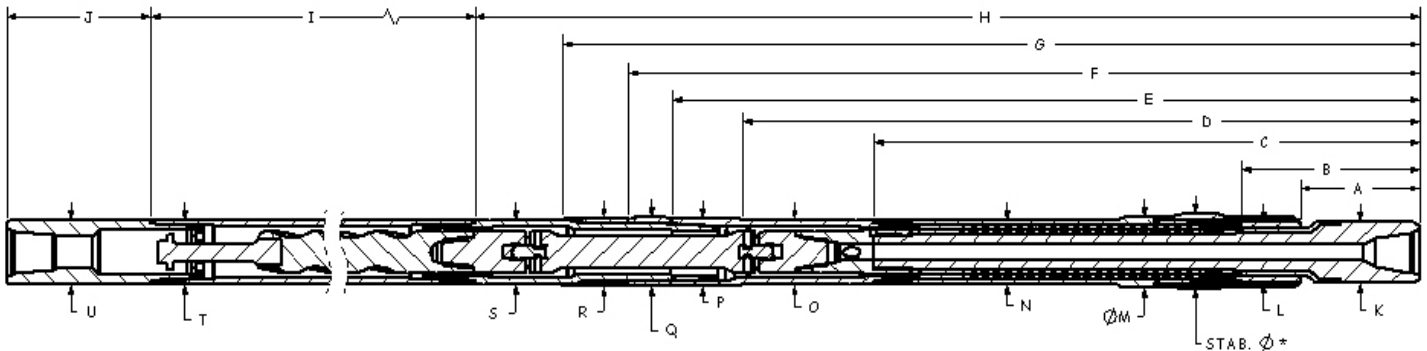
\* Actual Build Up Rates subject to varying factors; including formation, weight on bit, etc.



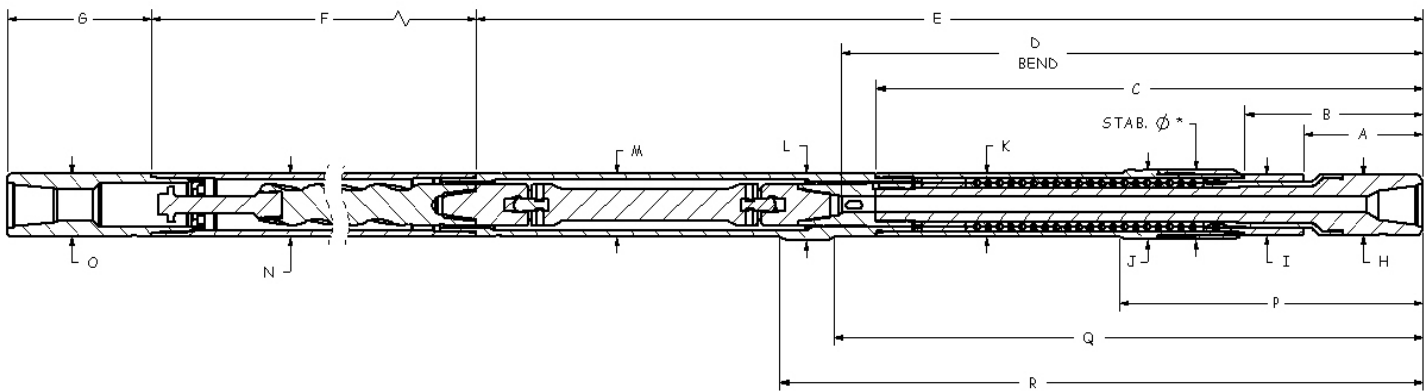
**7.00" 6/7 6.5 STAGE HR  
STANDARD DRIVE SHAFT**



INNER FISHING DIMENSIONS																					
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
22.4	52.46	56.80	65.34	69.34	96.5	101.0	267	10.9	6.80	4.11	5.069	3.74	5.0	4.665	5.0	4.0	5.0	4.38	4.669	1.88	3.8



OUTER FISHING DIMENSIONS (ABH)																				
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
13.03	17.91	56.8	60.88	71.24	79.0	91.20	101.0	275	22.38	6.80	6.80	7.76	7.00	7.00	7.38	7.75	7.38	7.38	7.38	7.38



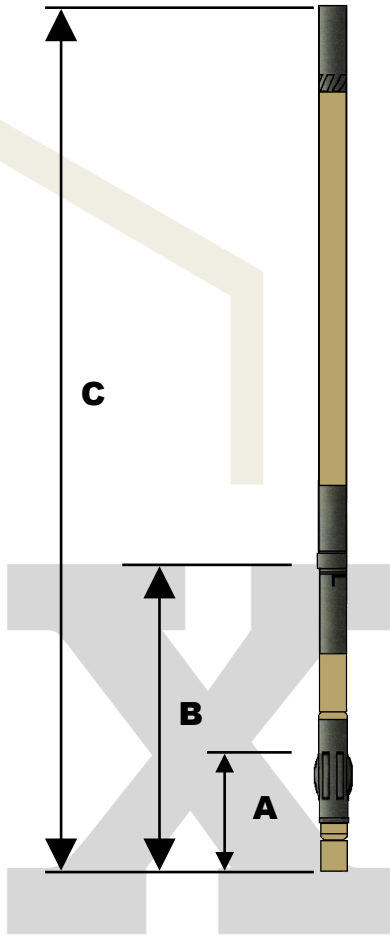
OUTER FISHING DIMENSIONS (FIXED)																	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
13.03	17.91	56.8	64.25	101.0	275	22.38	6.80	6.80	7.76	7.00	7.188	7.00	7.00	7.00	33.53	61.43	66.63



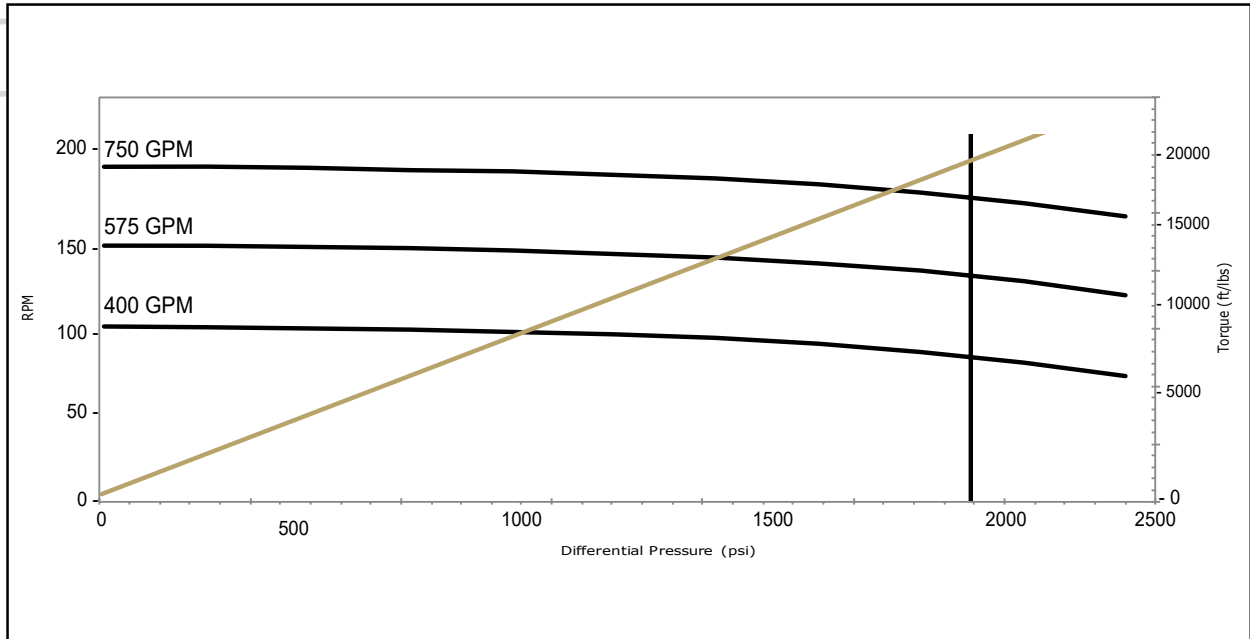
# 7.00" 7/8 8.5 STAGE

7.00" 7/8 8.5 Stage HR	
<b>Motor OD</b>	7.00 inch
<b>Lobe Configuration</b>	7 - 8 Lobe 8.5 Stage
<b>Bit Size Range</b>	8 1/2 - 9 7/8 inches
<b>Bit Box Connection</b>	4 1/2 REGULAR
<b>A = Bit to Stabalizer (Center)</b>	23.00 inches
<b>B = Bit to Bend - Fixed</b>	60.88 inches
<b>B = Bit to Bend - Adjustable</b>	79.00 inches
<b>C = Overall (with Top Sub)</b>	423.38 inches
<b>Adjustable Makeup Torque</b>	31,500 ft. lbs
<b>Weight</b>	3,400 lbs
<b>Max WOB - w/Flow</b>	114,000 lbs
<b>Optimum WOB - w/Flow</b>	57,000 lbs
<b>Max WOB - w/o Flow</b>	300,000 lbs
<b>Max Bit Pull - w/Damage</b>	400,000 lbs

Rev. Per Gallon	Flow Rate Range	Bit Speed Range	Torque Output	Max Diff Pressure
RPG	GPM	RPM	Ft. Lbs	PSI
0.26	400 - 750	100 - 200	19,540	2,000



7.00" 7/8 LOBE 8.5 STAGE HR





**7.00" 7/8 8.5 STAGE HR**

**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (FIXED)**

Angle (Deg)	Hole Size (in) - Slick Sleeve				Hole Size (in) - Stabalized			
	7 7/8"	8 1/2"	8 3/4"	9 7/8"	7 7/8"	8 1/2"	8 3/4"	9 7/8"
<b>0.25</b>	2.2	1.6	1.3		1.0	1.2	1.3	1.8
<b>0.50</b>	3.3	2.7	2.4		2.2	2.5	2.6	3.0
<b>0.75</b>	4.3	3.7	3.5	2.4	3.5	3.7	3.8	4.3
<b>1.00</b>	5.4	4.8	4.6	3.5	4.8	5.0	5.1	5.5
<b>1.25</b>	6.5	5.9	5.6	4.6	6.0	6.2	6.3	6.8
<b>1.50</b>	7.6	7.0	6.7	5.7	7.3	7.5	7.6	8.0
<b>1.75</b>	8.6	8.0	7.8	6.7	8.5	8.8	8.9	9.3
<b>2.00</b>	9.7	9.1	8.9	7.8	9.8	10.0	10.1	10.5
<b>2.25</b>	10.8	10.2	9.9	8.9	11.0	11.3	11.4	11.8
<b>2.50</b>	11.8	11.3	11.0	10.0	12.3	12.5	12.6	13.0
<b>2.75</b>	12.9	12.3	12.1	11.0	13.5	13.8	13.9	14.3

DRILLING SOLUTIONS

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



**7.00" 7/8 8.5 STAGE HR**

**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (ABH)**

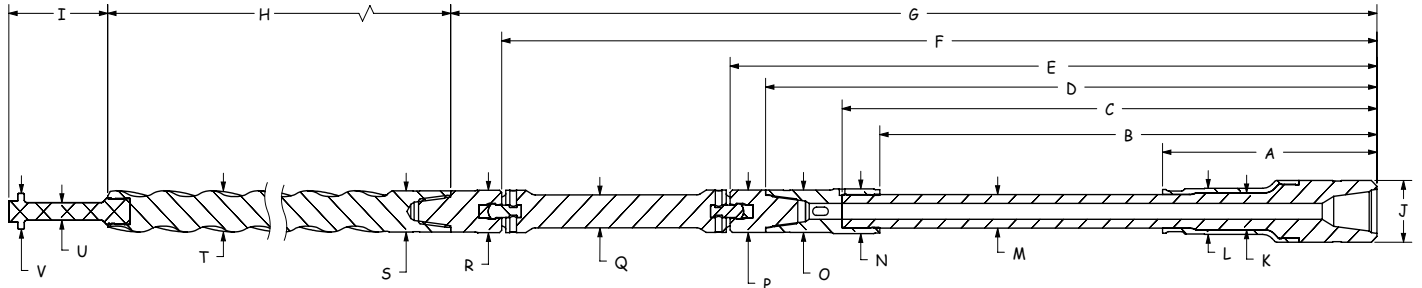
Angle (Deg)	Hole Size (in) - Slick Sleeve				Hole Size (in) - Stabalized			
	7 7/8"	8 1/2"	8 3/4"	9 7/8"	7 7/8"	8 1/2"	8 3/4"	9 7/8"
<b>0.25</b>	1.1	0.8	0.6		0.9	1.2	1.3	1.7
<b>0.50</b>	2.2	1.8	1.7		2.1	2.4	2.5	2.9
<b>0.75</b>	3.3	2.9	2.8	2.1	3.3	3.6	3.7	4.1
<b>1.00</b>	4.4	4.0	3.8	3.2	4.5	4.7	4.8	5.3
<b>1.25</b>	5.4	5.1	4.9	4.2	5.7	5.9	6.0	6.5
<b>1.50</b>	6.5	6.1	6.0	5.3	6.9	7.1	7.2	7.7
<b>1.75</b>	7.6	7.2	7.1	6.4	8.1	8.3	8.4	8.9
<b>2.00</b>	8.7	8.3	8.1	7.5	9.3	9.5	9.6	10.0
<b>2.25</b>	9.7	9.4	9.2	8.5	10.4	10.7	10.8	11.2
<b>2.50</b>	10.8	10.4	10.3	9.6	11.6	11.9	12.0	12.4
<b>2.75</b>	11.9	11.5	11.4	10.7	12.8	13.1	13.2	13.6

DRILLING SOLUTIONS

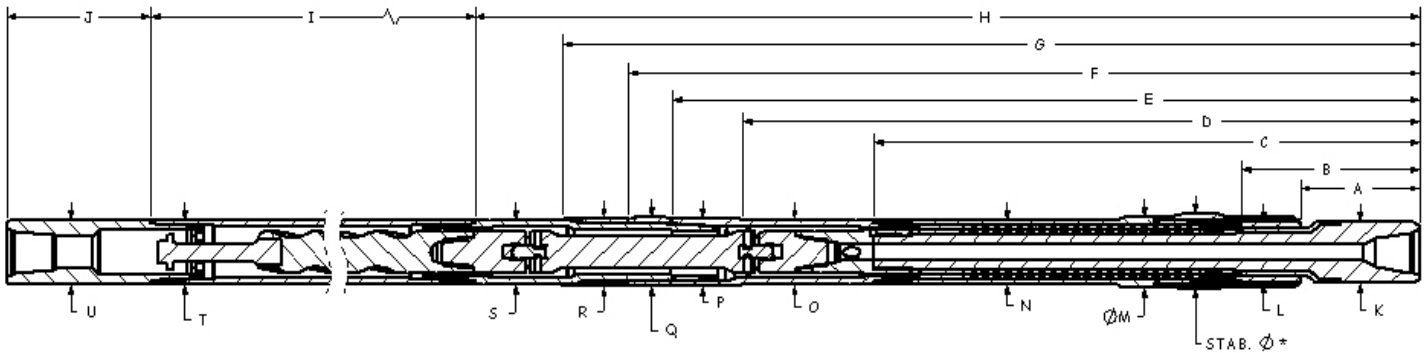
\* Actual Build Up Rates subject to varying factors; including formation, weight on bit, etc.



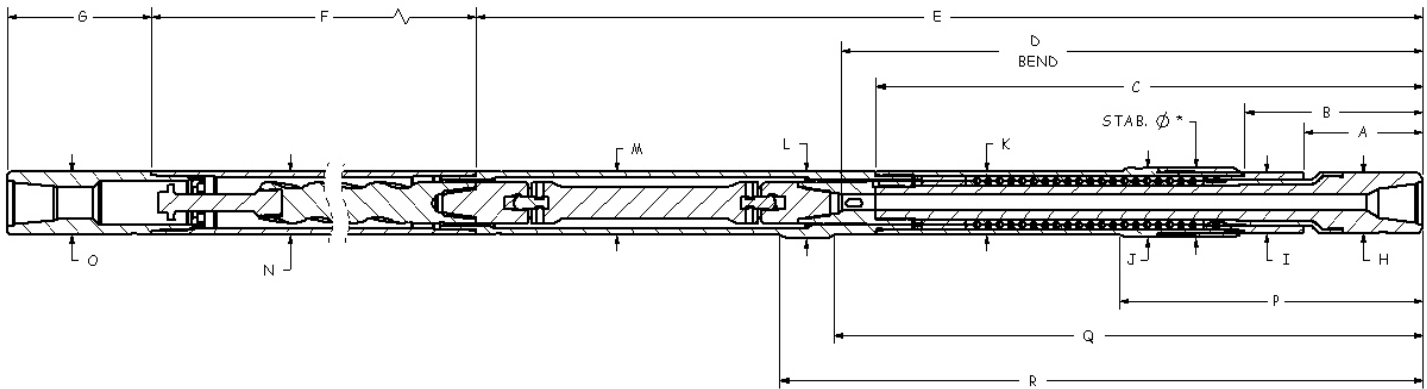
**7.00 7/8 8.5 STAGE HR**  
**STANDARD DRIVE SHAFT**



INNER FISHING DIMENSIONS																					
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
22.4	52.46	56.80	65.34	69.34	96.5	101.0	291	10.9	6.80	4.11	5.069	3.74	5.0	4.665	5.0	4.0	5.0	4.38	4.669	1.88	3.8



OUTER FISHING DIMENSIONS (ABH)																				
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
13.03	17.91	56.8	60.88	71.24	79.0	91.20	101.0	300	22.38	6.80	6.80	7.76	7.00	7.00	7.38	7.75	7.38	7.38	7.38	7.38

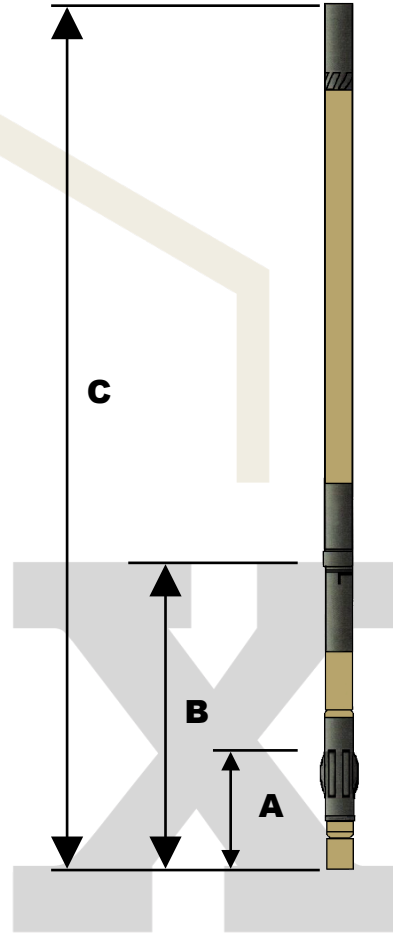


OUTER FISHING DIMENSIONS (FIXED)																	
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
13.03	17.91	56.8	64.25	101.0	300	22.38	6.80	6.80	7.76	7.00	7.188	7.00	7.00	7.00	33.53	61.43	66.63



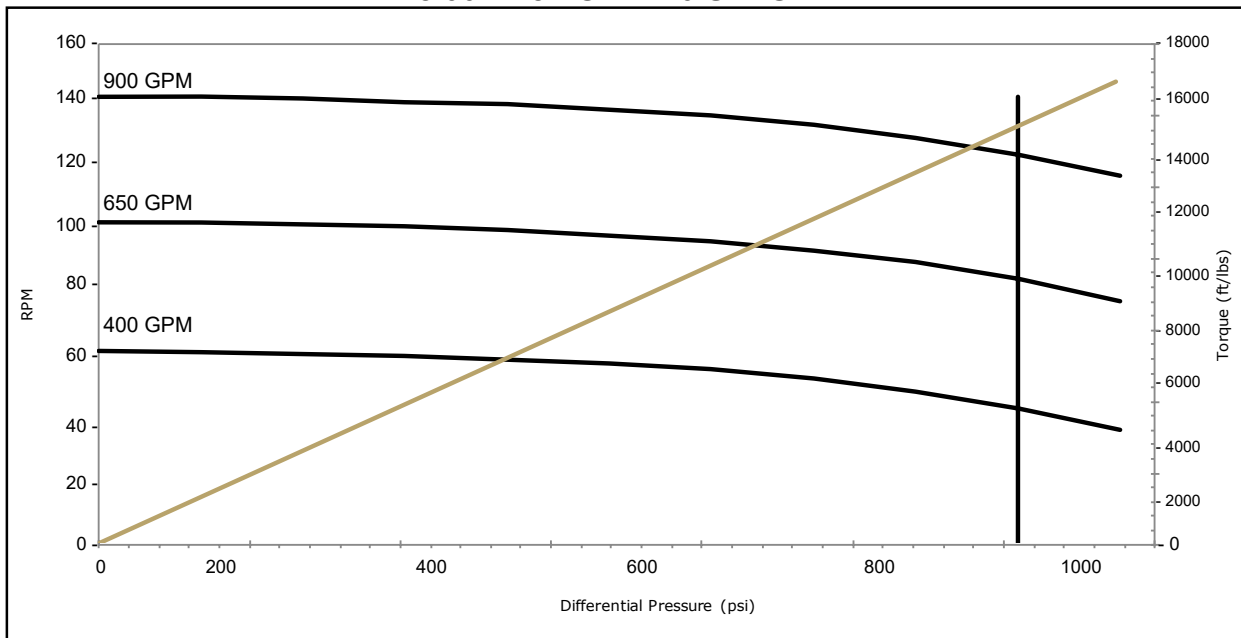
# 8.00" 7/8 4.0 STAGE

8.00" 7/8 4.0 Stage HR	
<b>Motor OD</b>	8.00 inch
<b>Lobe Configuration</b>	7 - 8 Lobe 4.0 Stage
<b>Bit Size Range</b>	9 7/8 - 12 1/4 inches
<b>Bit Box Connection</b>	6 5/8 REGULAR
<b>A = Bit to Stabalizer (Center)</b>	26.50 inches
<b>B = Bit to Bend - Fixed</b>	68.50 inches
<b>B = Bit to Bend - Adjustable</b>	88.50 inches
<b>C = Overall (with Top Sub)</b>	342 inches
<b>Adjustable Makeup Torque</b>	45,000 ft. lbs
<b>Weight</b>	3,750 lbs
<b>Max WOB - w/Flow</b>	133,000 lbs
<b>Optimum WOB - w/Flow</b>	66,500 lbs
<b>Max WOB - w/o Flow</b>	350,000 lbs
<b>Max Bit Pull - w/Damage</b>	540,000 lbs



Rev. Per Gallon	Flow Rate Range	Bit Speed Range	Torque Output	Max Diff Pressure
<i>RPG</i>	<i>GPM</i>	<i>RPM</i>	<i>Ft. Lbs</i>	<i>PSI</i>
<b>0.15</b>	400 - 900	60 - 140	14,830	940

## 8.00" 7/8 LOBE 4.0 STAGE HR





<b>8.00" 7/8 4.0 STAGE HR</b>								
<b>CALCULATED BUILD UP RATES - DEGREES / 100ft. * (FIXED)</b>								
<b>Angle (Deg)</b>	<b>Hole Size (in) - Slick Sleeve</b>				<b>Hole Size (in) - Stabalized</b>			
	<b>9 7/8"</b>	<b>10 5/8"</b>	<b>12 1/4"</b>		<b>9 7/8"</b>	<b>10 5/8"</b>	<b>12 1/4"</b>	
<b>0.25</b>	0.8	0.2			1.9	2.4	3.4	
<b>0.50</b>	2.1	1.5	0.4		3.4	3.8	4.8	
<b>0.75</b>	3.4	2.9	1.7		4.8	5.3	6.3	
<b>1.00</b>	4.7	4.2	3.0		6.3	6.8	7.8	
<b>1.25</b>	6.0	5.5	4.3		7.8	8.2	9.2	
<b>1.50</b>	7.3	6.8	5.6		9.2	9.7	10.7	
<b>1.75</b>	8.7	8.1	6.9		10.7	11.2	12.2	
<b>2.00</b>	10.0	9.4	8.3		12.2	12.6	13.6	
<b>2.25</b>	11.3	10.7	9.6		13.6	14.1	15.1	
<b>2.50</b>	12.6	12.1	10.9		15.1	15.6	16.6	
<b>2.75</b>	13.9	13.4	12.2		16.6	17.0	18.0	

DRILLING SOLUTIONS

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





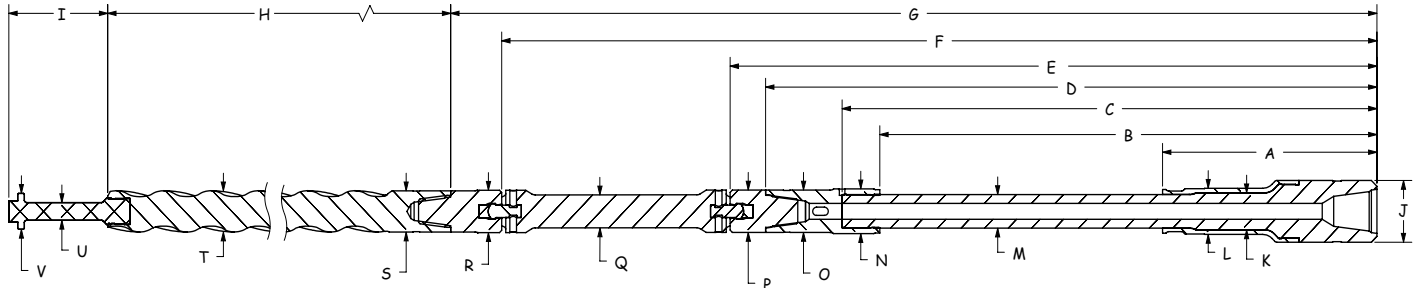
<b>8.00" 7/8 4.0 STAGE HR</b>								
<b>CALCULATED BUILD UP RATES - DEGREES / 100ft. * (ABH)</b>								
<b>Angle (Deg)</b>	<b>Hole Size (in) - Slick Sleeve</b>				<b>Hole Size (in) - Stabalized</b>			
	<b>9 7/8"</b>	<b>10 5/8"</b>	<b>12 1/4"</b>		<b>9 7/8"</b>	<b>10 5/8"</b>	<b>12 1/4"</b>	
<b>0.25</b>	0.7	0.4			2.5	3.0	4.0	
<b>0.50</b>	2.0	1.7	1.0		3.9	4.4	5.4	
<b>0.75</b>	3.3	3.0	2.3		5.3	5.8	6.8	
<b>1.00</b>	4.6	4.3	3.7		6.7	7.1	8.1	
<b>1.25</b>	6.0	5.7	5.0		8.1	8.5	9.5	
<b>1.50</b>	7.3	7.0	6.3		9.5	9.9	10.9	
<b>1.75</b>	8.6	8.3	7.6		10.8	11.3	12.3	
<b>2.00</b>	9.9	9.6	9.0		12.2	12.7	13.7	
<b>2.25</b>	11.3	10.9	10.3		13.6	14.1	15.1	
<b>2.50</b>	12.6	12.3	11.6		15.0	15.5	16.4	
<b>2.75</b>	13.9	13.6	12.9		16.4	16.8	17.8	

DRILLING SOLUTIONS

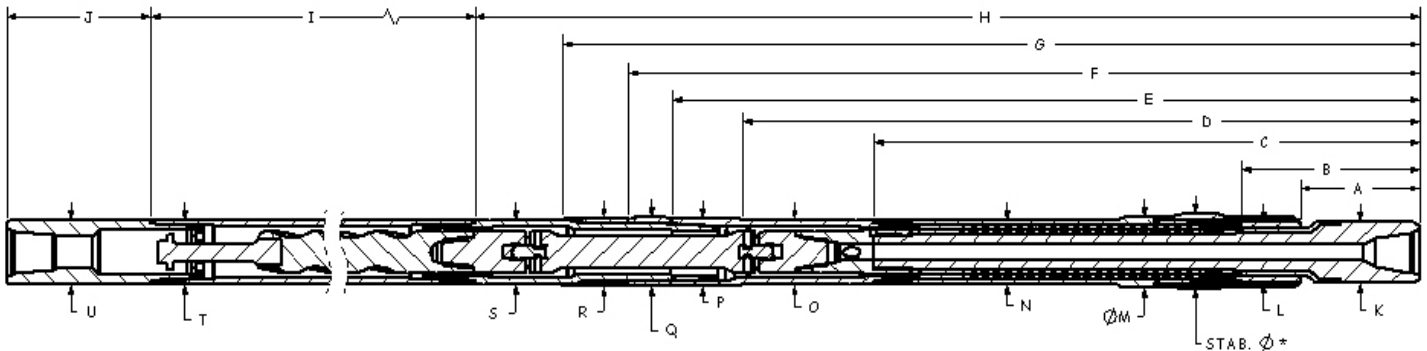
\* Actual Build Up Rates subject to varying factors; including formation, weight on bit, etc.



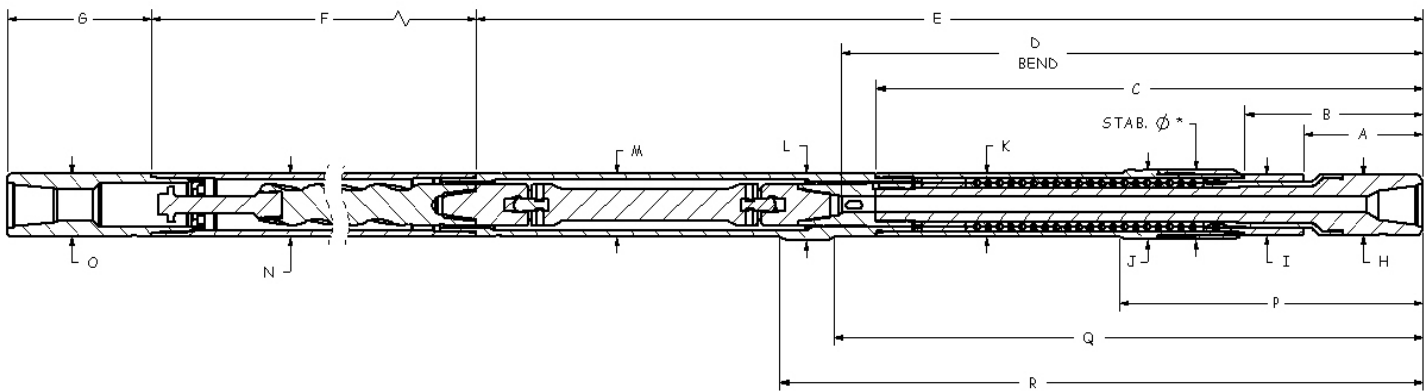
**8.00" 7/8 4.0 STAGE HR  
STANDARD DRIVE SHAFT**



INNER FISHING DIMENSIONS																					
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
26.75	62	66.63	74.89	78.9		111.13	196.3		7.85	4.89	5.98	4.32	5.69	5.2	5.63	4.25	5.63	4.75	4.94	2.06	4.06



OUTER FISHING DIMENSIONS (ABH)																			
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
14.75	21.88	66.63	80.40	88.76	94.37	101.7	111.13	203.25	27.38	7.85	7.93	8.0	8.0	8.38	8.69	8.38	8.0	8.0	8.0

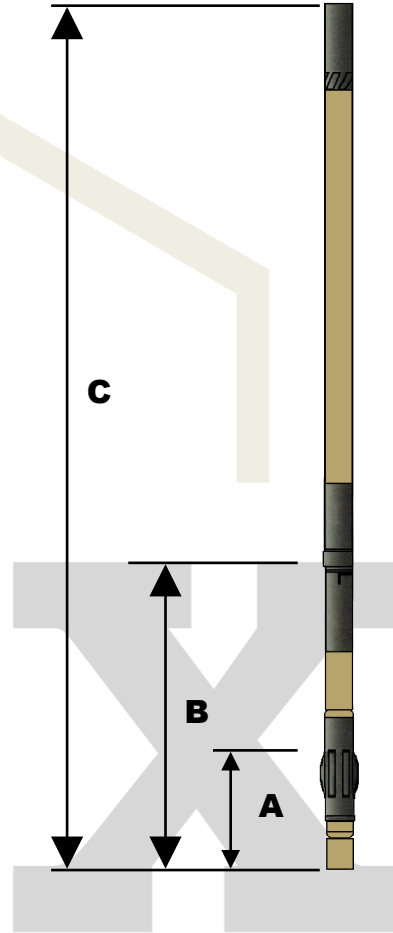


OUTER FISHING DIMENSIONS (FIXED)																
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
14.75	21.88	66.63	68.50	111.13	203.25	27.38	7.85	7.93	8.83	8.0	8.38	8.0	8.0	8.0	69.0	74.5



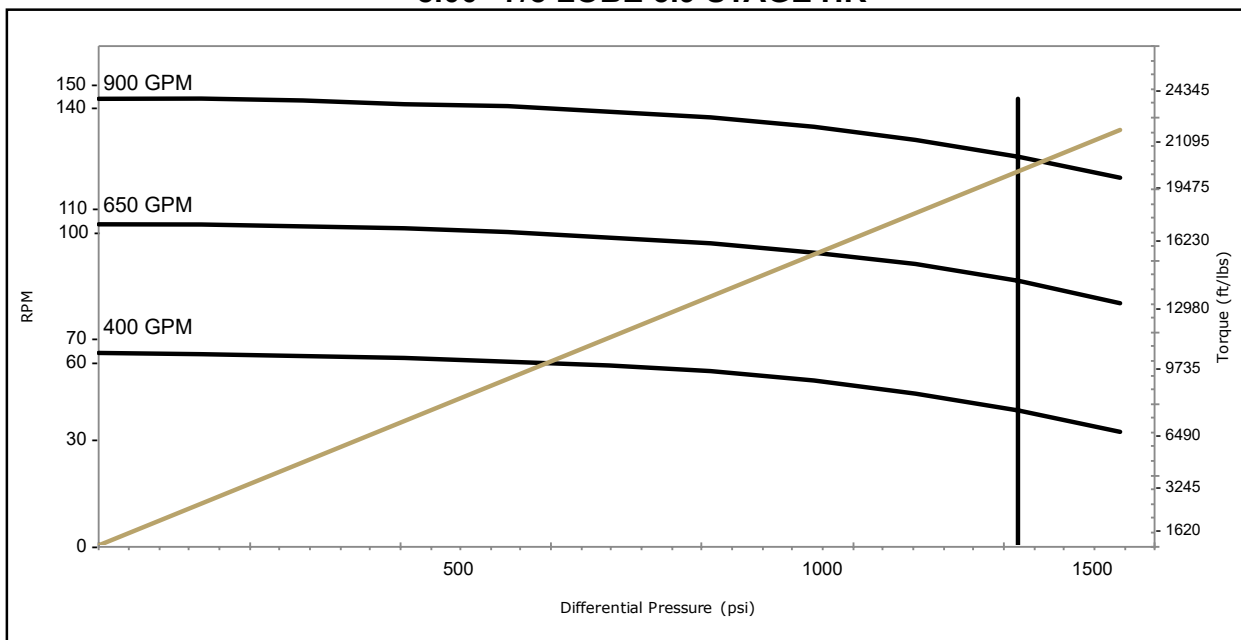
# 8.00" 7/8 5.9 STAGE

8.00" 7/8 5.9 Stage HR	
<b>Motor OD</b>	8.00 inch
<b>Lobe Configuration</b>	7 - 8 Lobe 5.9 Stage
<b>Bit Size Range</b>	9 7/8 - 12 1/4 inches
<b>Bit Box Connection</b>	6 5/8 REGULAR
<b>A = Bit to Stabalizer (Center)</b>	26.50 inches
<b>B = Bit to Bend - Fixed</b>	68.50 inches
<b>B = Bit to Bend - Adjustable</b>	88.50 inches
<b>C = Overall (with Top Sub)</b>	438.68 inches
<b>Adjustable Makeup Torque</b>	45,000 ft. lbs
<b>Weight</b>	4,750 lbs
<b>Max WOB - w/Flow</b>	133,000 lbs
<b>Optimum WOB - w/Flow</b>	66,500 lbs
<b>Max WOB - w/o Flow</b>	350,000 lbs
<b>Max Bit Pull - w/Damage</b>	540,000 lbs



Rev. Per Gallon	Flow Rate Range	Bit Speed Range	Torque Output	Max Diff Pressure
<i>RPG</i>	<i>GPM</i>	<i>RPM</i>	<i>Ft. Lbs</i>	<i>PSI</i>
<b>0.16</b>	400 - 900	60 - 140	21,870	1,390

## 8.00" 7/8 LOBE 5.9 STAGE HR





<b>8.00" 7/8 5.9 STAGE HR</b>								
<b>CALCULATED BUILD UP RATES - DEGREES / 100ft. * (FIXED)</b>								
<b>Angle (Deg)</b>	<b>Hole Size (in) - Slick Sleeve</b>				<b>Hole Size (in) - Stabalized</b>			
	<b>9 7/8"</b>	<b>10 5/8"</b>	<b>12 1/4"</b>		<b>9 7/8"</b>	<b>10 5/8"</b>	<b>12 1/4"</b>	
<b>0.25</b>	0.3				1.3	1.6	2.2	
<b>0.50</b>	1.3	0.7			2.5	2.8	3.4	
<b>0.75</b>	2.3	1.7	0.5		3.7	4.0	4.6	
<b>1.00</b>	3.4	2.8	1.5		4.9	5.2	5.8	
<b>1.25</b>	4.4	3.8	2.5		6.1	6.4	7.0	
<b>1.50</b>	5.5	4.9	3.6		7.3	7.6	8.2	
<b>1.75</b>	6.5	5.9	4.6		8.5	8.8	9.4	
<b>2.00</b>	7.5	6.9	5.7		9.7	10.0	10.6	
<b>2.25</b>	8.6	8.0	6.7		10.9	11.2	11.8	
<b>2.50</b>	9.6	9.0	7.7		12.1	12.4	13.0	
<b>2.75</b>	10.7	10.1	8.8		13.3	13.6	14.2	

DRILLING SOLUTIONS

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



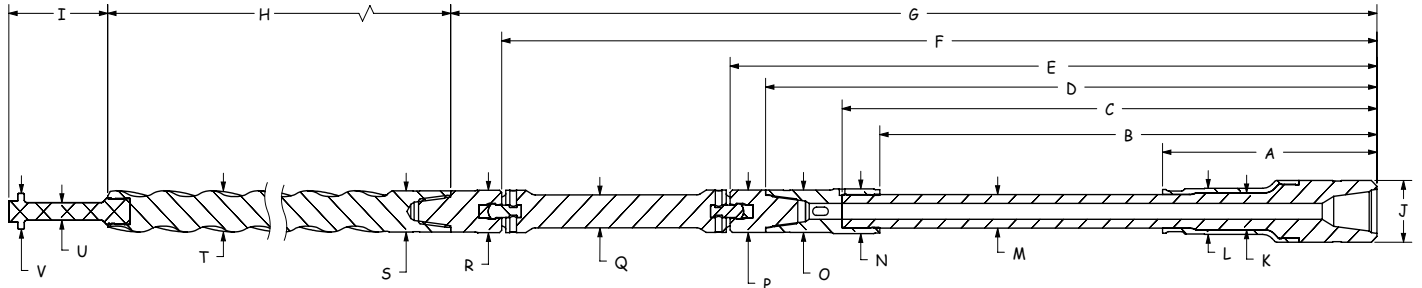
<b>8.00" 7/8 5.9 STAGE HR</b>								
<b>CALCULATED BUILD UP RATES - DEGREES / 100ft. * (ABH)</b>								
<b>Angle (Deg)</b>	<b>Hole Size (in) - Slick Sleeve</b>				<b>Hole Size (in) - Stabalized</b>			
	<b>9 7/8"</b>	<b>10 5/8"</b>	<b>12 1/4"</b>		<b>9 7/8"</b>	<b>10 5/8"</b>	<b>12 1/4"</b>	
<b>0.25</b>					1.7	2.0	2.6	
<b>0.50</b>	0.9	0.4			2.9	3.1	3.7	
<b>0.75</b>	1.9	1.5	0.6		4.0	4.3	4.9	
<b>1.00</b>	3.0	2.5	1.6		5.1	5.4	6.0	
<b>1.25</b>	4.0	3.6	2.7		6.3	6.6	7.2	
<b>1.50</b>	5.1	4.6	3.7		7.4	7.7	8.3	
<b>1.75</b>	6.1	5.7	4.7		8.6	8.9	9.5	
<b>2.00</b>	7.1	6.7	5.8		9.7	10.0	10.6	
<b>2.25</b>	8.2	7.8	6.8		10.9	11.1	11.7	
<b>2.50</b>	9.2	8.8	7.9		12.0	12.3	12.9	
<b>2.75</b>	10.3	9.9	8.9		13.2	13.4	14.0	

DRILLING SOLUTIONS

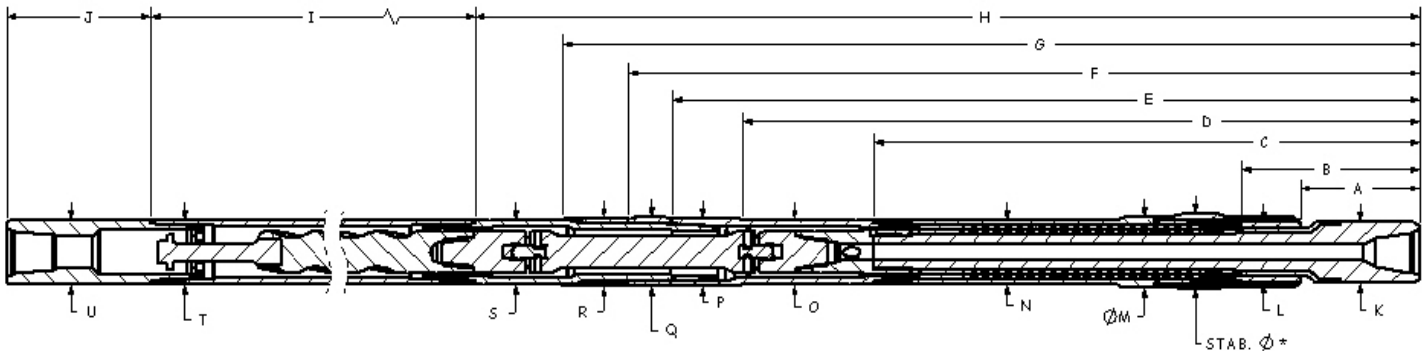
\* Actual Build Up Rates subject to varying factors; including formation, weight on bit, etc.



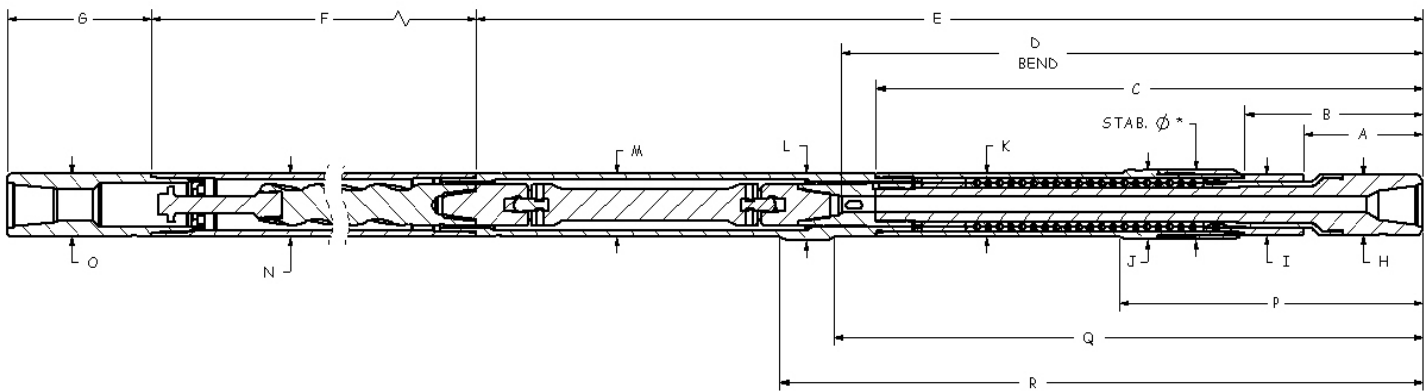
**8.00" 7/8 5.9 STAGE HR  
STANDARD DRIVE SHAFT**



INNER FISHING DIMENSIONS																					
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
26.75	62	66.63	74.89	78.9	105.38	111.13	284.5	12.39	7.85	4.89	5.98	4.32	5.69	5.2	5.63	4.25	5.63	4.75	4.94	2.06	4.06



OUTER FISHING DIMENSIONS (ABH)																			
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
14.75	21.88	66.63	80.40	88.76	94.37	101.7	111.13	300	27.38	7.85	7.93	8.0	8.0	8.38	8.69	8.38	8.0	8.0	8.0

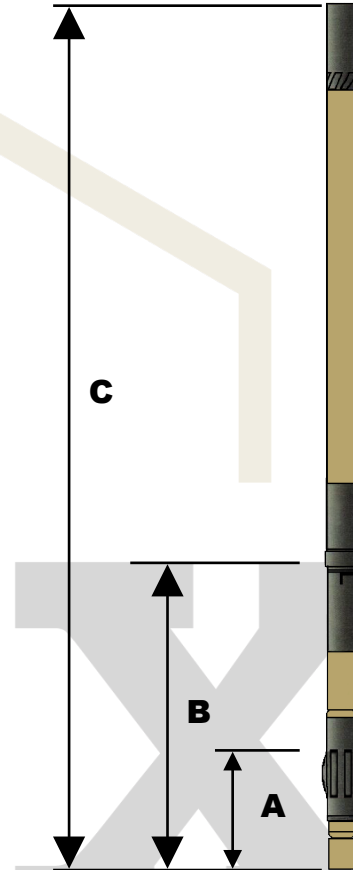


OUTER FISHING DIMENSIONS (FIXED)																
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
14.75	21.88	66.63	68.50	111.13	300	27.38	7.85	7.93	8.83	8.0	8.38	8.0	8.0	8.0	69.0	74.5



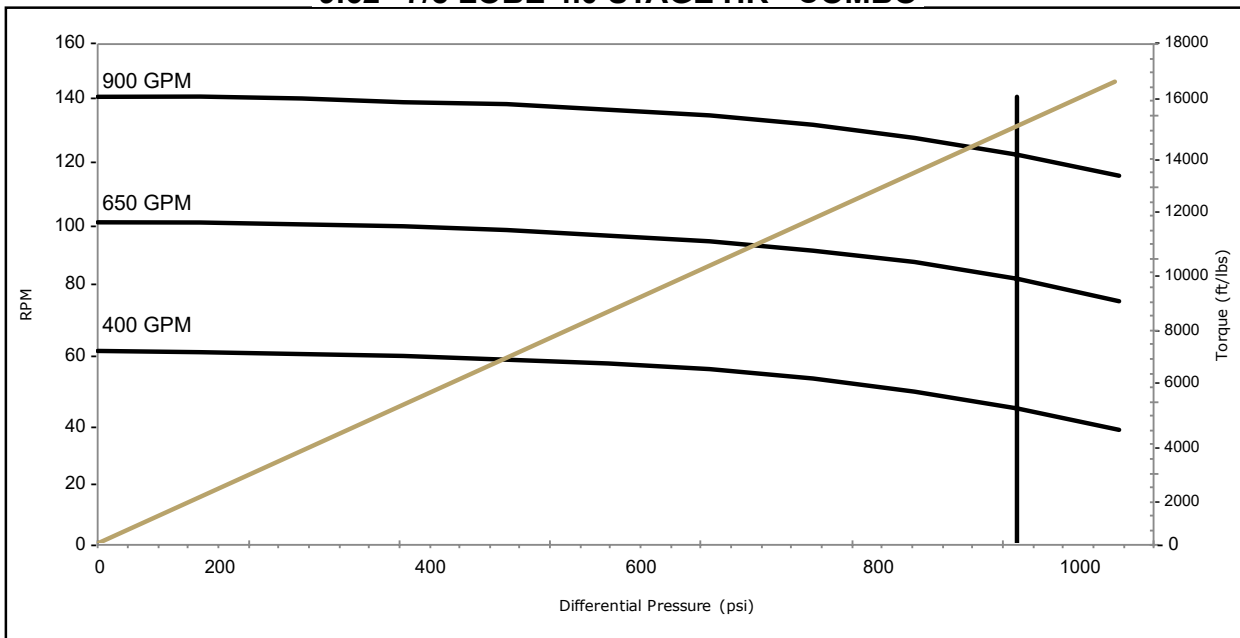
# 9.62" 7/8 4.0 STAGE COMBO

9.62" 7/8 4.0 Stage HR - COMBO	
<b>Motor OD</b>	9.62 inch
<b>Lobe Configuration</b>	7 - 8 Lobe 4.0 Stage
<b>Bit Size Range</b>	12 1/4 - 17 1/2 inches
<b>Bit Box Connection</b>	6 5/8 REGULAR
<b>A = Bit to Stabalizer (Center)</b>	28.00 inches
<b>B = Bit to Bend - Fixed</b>	77.00 inches
<b>B = Bit to Bend - Adjustable</b>	101.00 inches
<b>C = Overall (with Top Sub)</b>	373.50 inches
<b>Adjustable Makeup Torque</b>	70,000 ft. lbs
<b>Weight</b>	4,700 lbs
<b>Max WOB - w/Flow</b>	140,000 lbs
<b>Optimum WOB - w/Flow</b>	70,000 lbs
<b>Max WOB - w/o Flow</b>	490,000 lbs
<b>Max Bit Pull - w/Damage</b>	800,000 lbs



Rev. Per Gallon	Flow Rate Range	Bit Speed Range	Torque Output	Max Diff Pressure
<i>RPG</i>	<i>GPM</i>	<i>RPM</i>	<i>Ft. Lbs</i>	<i>PSI</i>
<b>0.15</b>	400 - 900	60 - 140	14,830	940

## 9.62" 7/8 LOBE 4.0 STAGE HR - COMBO





**9.62" 7/8 4.0 STAGE HR**

**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (FIXED)**

Angle (Deg)	Hole Size (in) - Slick Sleeve				Hole Size (in) - Stabilized			
	12.25	13.50	14.75	17.50	12.25	13.50	14.75	17.50
<b>0.25</b>					3.0	3.7	4.3	5.7
<b>0.50</b>	0.8	0.2			4.3	5.0	5.6	7.1
<b>0.75</b>	2.0	1.4	0.7		5.7	6.3	7.0	8.4
<b>1.00</b>	3.2	2.6	1.9	0.5	7.0	7.7	8.3	9.7
<b>1.25</b>	4.4	3.8	3.1	1.7	8.4	9.0	9.7	11.1
<b>1.50</b>	5.6	5.0	4.3	2.9	9.7	10.3	11.0	12.4
<b>1.75</b>	6.8	6.2	5.5	4.1	11.0	11.7	12.3	13.7
<b>2.00</b>	8.0	7.4	6.7	5.3	12.4	13.0	13.7	15.1
<b>2.25</b>	9.2	8.6	7.9	6.5	13.7	14.4	15.0	16.4
<b>2.50</b>	10.4	9.8	9.1	7.7	15.0	15.7	16.3	17.8
<b>2.75</b>	11.6	11.0	10.3	8.9	16.4	17.0	17.7	19.1
<b>3.00</b>	12.8	12.2	11.5	10.1	17.7	18.4	19.0	20.4

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





**9.62" 7/8 4.0 STAGE HR**

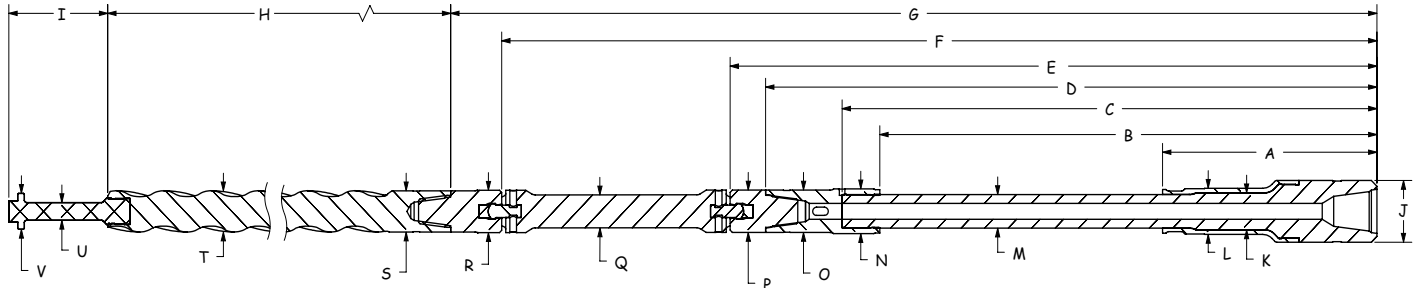
**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (ABH)**

Angle (Deg)	Hole Size (in) - Slick Sleeve				Hole Size (in) - Stabilized			
	12.25	13.50	14.75	17.50	12.25	13.50	14.75	17.50
<b>0.25</b>	1.0				2.9	3.5	4.2	5.6
<b>0.50</b>	2.2	2.0	1.8		4.1	4.8	5.4	6.8
<b>0.75</b>	3.4	3.2	3.0	2.6	5.4	6.0	6.7	8.1
<b>1.00</b>	4.6	4.4	4.2	3.8	6.6	7.2	7.9	9.3
<b>1.25</b>	5.8	5.6	5.4	5.0	7.8	8.5	9.1	10.5
<b>1.50</b>	7.0	6.8	6.6	6.2	9.0	9.7	10.3	11.8
<b>1.75</b>	8.2	8.0	7.8	7.4	10.3	10.9	11.6	13.0
<b>2.00</b>	9.3	9.2	9.0	8.6	11.5	12.2	12.8	14.2
<b>2.25</b>	10.5	10.4	10.2	9.8	12.7	13.4	14.0	15.5
<b>2.50</b>	11.7	11.6	11.4	11.0	14.0	14.6	15.3	16.7
<b>2.75</b>	12.9	12.7	12.6	12.1	15.2	15.8	16.5	17.9
<b>3.00</b>	14.1	13.9	13.8	13.3	16.4	17.1	17.7	19.1

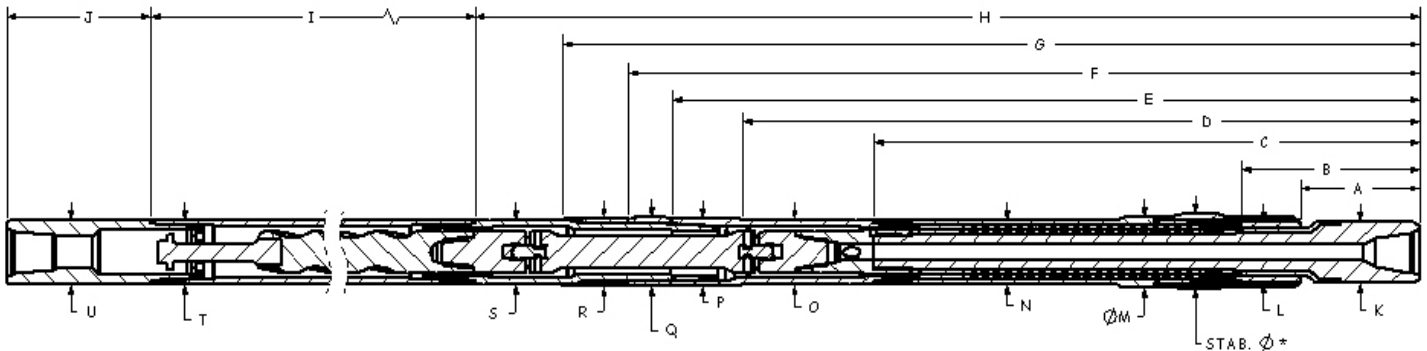
\* Actual Build Up Rates subject to varying factors; including formation, weight on bit, etc.



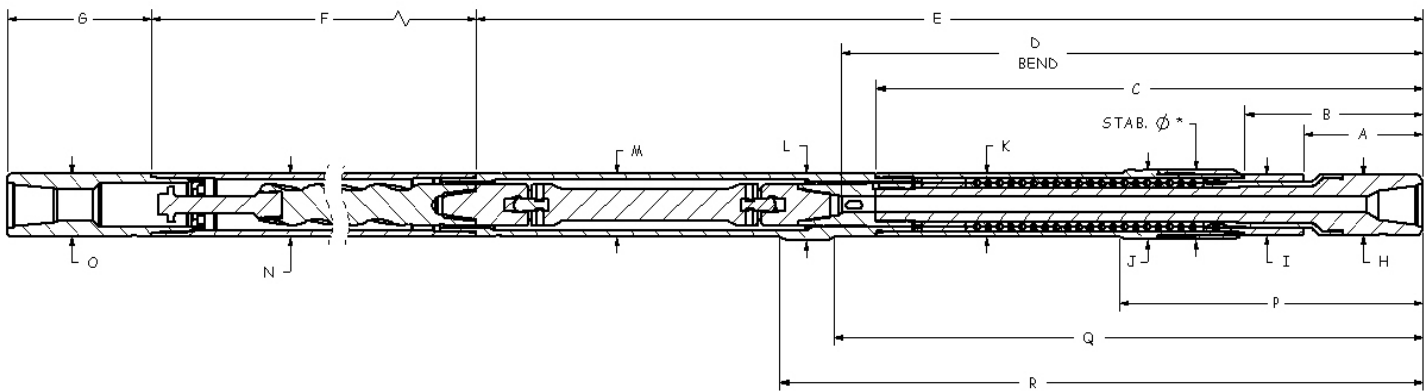
**9.62" 7/8 4.0 STAGE HR**  
**STANDARD DRIVE SHAFT**



INNER FISHING DIMENSIONS																					
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
29.8	66.97	72.5	83.27	88.39	123.88	140.0	196	12.4	9.45	5.69	7.03	5.41	6.88	5.88	6.25	5.0	6.25	5.0	5.186	2.25	5.25



OUTER FISHING DIMENSIONS (ABH)																			
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
16.3	23.8	72.47	89.59	101.09	107.76	117.11	140.0	206	27.38	9.45	9.45	9.63	9.63	10.13	10.51	10.13	9.63	8.00	8.00

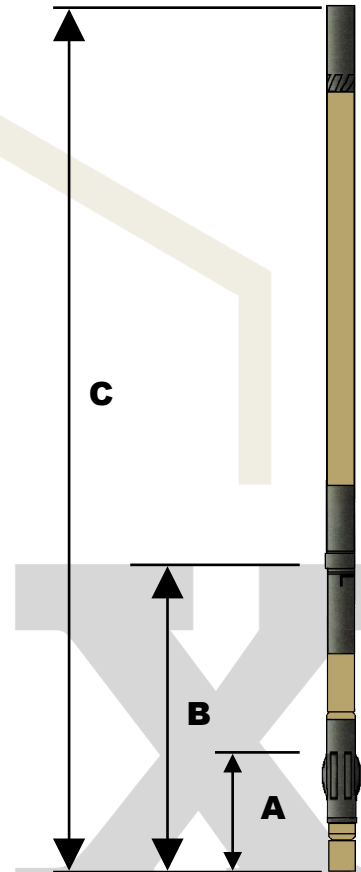


OUTER FISHING DIMENSIONS (FIXED)																
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
16.3	23.8	72.47	77	140.0	206	27.38	9.45	9.45	10.63	9.63	9.94	9.63	8.00	8.00	82.25	88.25



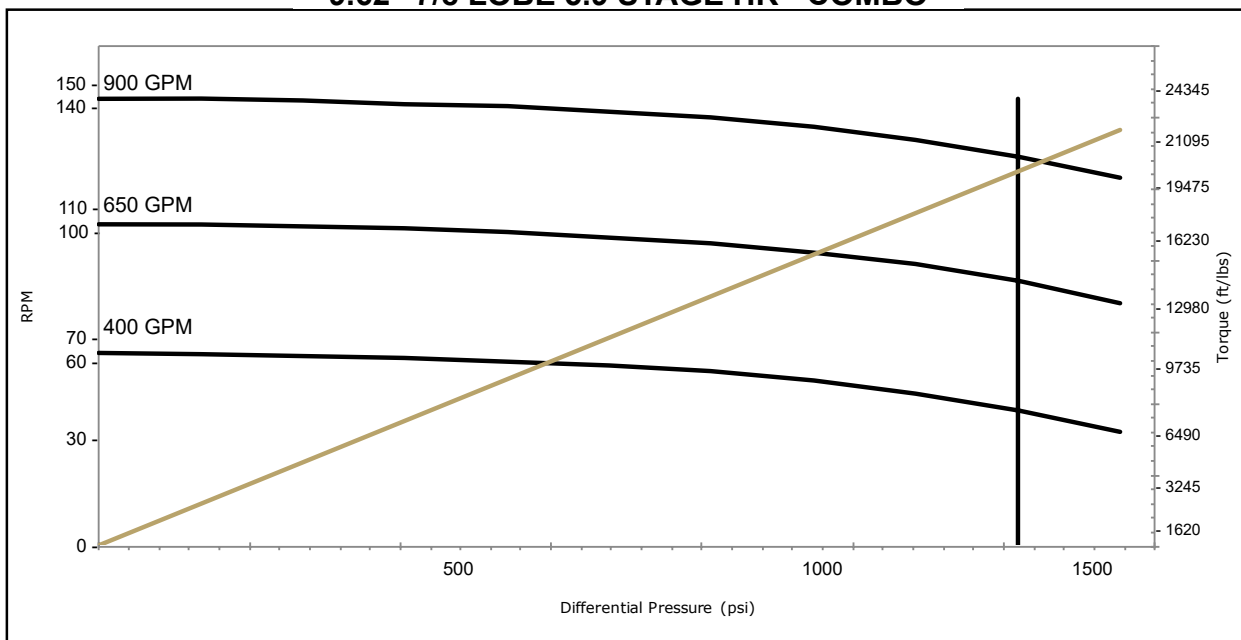
# 9.62" 7/8 5.9 STAGE COMBO

9.62" 7/8 5.9 Stage HR - COMBO	
<b>Motor OD</b>	9.62 inch
<b>Lobe Configuration</b>	7 - 8 Lobe 5.9 Stage
<b>Bit Size Range</b>	12 1/2 - 17 1/2 inches
<b>Bit Box Connection</b>	6 5/8 REGULAR
<b>A = Bit to Stabalizer (Center)</b>	28.00 inches
<b>B = Bit to Bend - Fixed</b>	77.00 inches
<b>B = Bit to Bend - Adjustable</b>	101.00 inches
<b>C = Overall (with Top Sub)</b>	470.25 inches
<b>Adjustable Makeup Torque</b>	70,000 ft. lbs
<b>Weight</b>	5,750 lbs
<b>Max WOB - w/Flow</b>	140,000 lbs
<b>Optimum WOB - w/Flow</b>	70,000 lbs
<b>Max WOB - w/o Flow</b>	490,000 lbs
<b>Max Bit Pull - w/Damage</b>	800,000 lbs



Rev. Per Gallon	Flow Rate Range	Bit Speed Range	Torque Output	Max Diff Pressure
RPG	GPM	RPM	Ft. Lbs	PSI
0.16	400 - 900	60 - 140	21,870	1,390

## 9.62" 7/8 LOBE 5.9 STAGE HR - COMBO





**9.62" 7/8 5.9 STAGE HR - COMBO**

**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (FIXED)**

Angle (Deg)	Hole Size (in) - Slick Sleeve				Hole Size (in) - Stabalized			
	12.25	13.50	14.75	17.50	12.25	13.50	14.75	17.50
<b>0.25</b>					1.5	1.9	2.4	3.2
<b>0.50</b>	0.9	0.2			2.7	3.1	3.5	4.3
<b>0.75</b>	1.9	1.1	0.4		3.8	4.2	4.6	5.5
<b>1.00</b>	2.9	2.1	1.4		4.9	5.3	5.7	6.6
<b>1.25</b>	3.8	3.1	2.3	0.7	6.0	6.4	6.8	7.7
<b>1.50</b>	4.8	4.0	3.3	1.6	7.1	7.5	7.9	8.8
<b>1.75</b>	5.8	5.0	4.3	2.6	8.2	8.6	9.0	9.9
<b>2.00</b>	6.7	6.0	5.2	3.6	9.3	9.7	10.1	11.0
<b>2.25</b>	7.7	6.9	6.2	4.5	10.4	10.8	11.2	12.1
<b>2.50</b>	8.7	7.9	7.2	5.5	11.5	11.9	12.3	13.2
<b>2.75</b>	9.6	8.9	8.1	6.5	12.6	13.0	13.4	14.3
<b>3.00</b>	10.6	9.8	9.1	7.4	13.7	14.1	14.5	15.4

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



**9.62" 7/8 5.9 STAGE HR - COMBO**

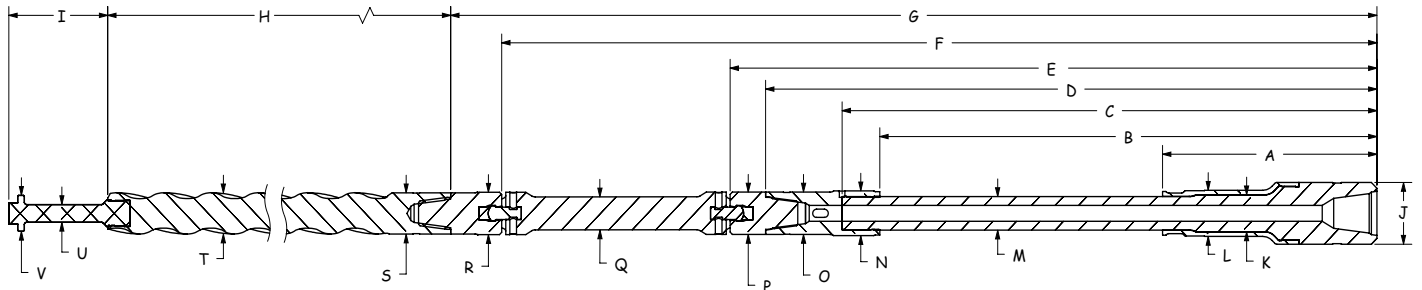
**CALCULATED BUILD UP RATES - DEGREES / 100ft. \* (ABH)**

Angle (Deg)	Hole Size (in) - Slick Sleeve				Hole Size (in) - Stabalized			
	12.25	13.50	14.75	17.50	12.25	13.50	14.75	17.50
<b>0.25</b>	0.5	0.1			1.5	1.9	2.3	3.2
<b>0.50</b>	1.5	1.0	0.6		2.5	2.9	3.3	4.2
<b>0.75</b>	2.4	2.0	1.6	0.7	3.6	4.0	4.4	5.2
<b>1.00</b>	3.4	3.0	2.6	1.7	4.6	5.0	5.4	6.3
<b>1.25</b>	4.4	4.0	3.5	2.6	5.6	6.0	6.4	7.3
<b>1.50</b>	5.3	4.9	4.5	3.6	6.7	7.1	7.5	8.4
<b>1.75</b>	6.3	5.9	5.5	4.6	7.7	8.1	8.5	9.4
<b>2.00</b>	7.3	6.9	6.4	5.5	8.8	9.2	9.6	10.4
<b>2.25</b>	8.2	7.8	7.4	6.5	9.8	10.2	10.6	11.5
<b>2.50</b>	9.2	8.8	8.4	7.5	10.8	11.2	11.6	12.5
<b>2.75</b>	10.2	9.8	9.3	8.4	11.9	12.3	12.7	13.6
<b>3.00</b>	11.1	10.7	10.3	9.4	12.9	13.3	13.7	14.6

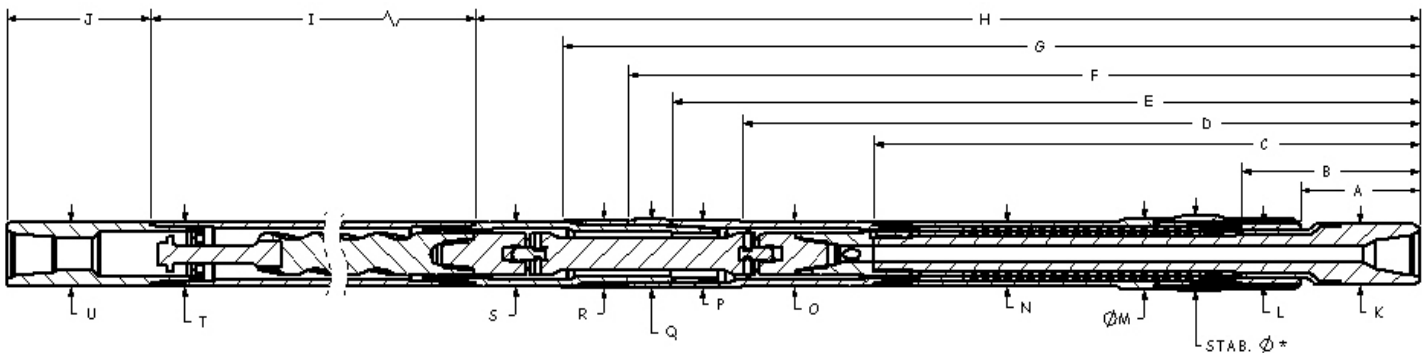
\* Actual Build Up Rates subject to varying factors; including formation, weight on bit, etc.



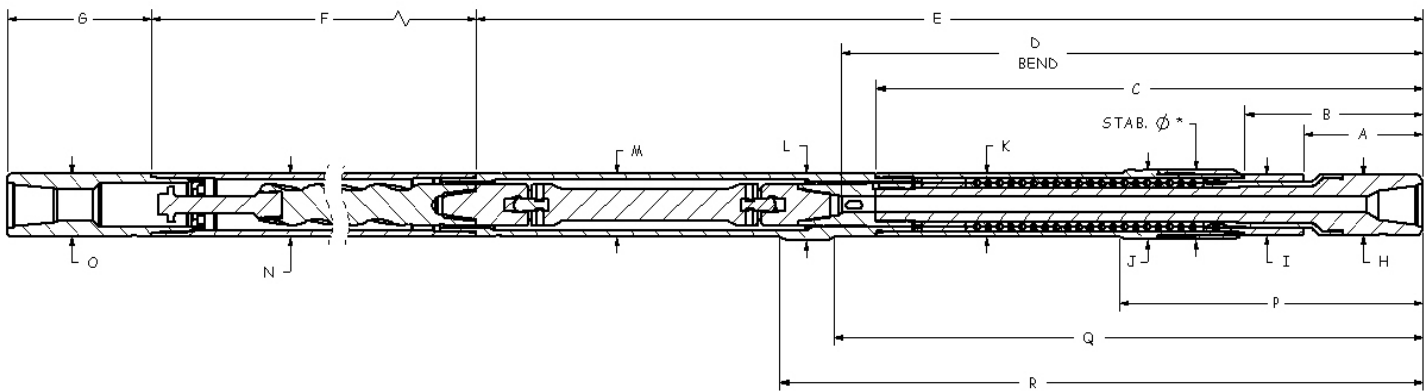
**9.62" 7/8 5.9 STAGE HR - COMBO**  
**STANDARD DRIVE SHAFT**



INNER FISHING DIMENSIONS																					
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
29.8	66.97	72.5	83.27	88.39	123.88	140.0	284.5	12.4	9.45	5.69	7.03	5.41	6.88	5.88	6.25	5.0	6.25	5.2	5.186	2.25	5.25



OUTER FISHING DIMENSIONS (ABH)																			
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
16.3	23.8	72.47	89.59	101.09	107.76	117.11	140.0	300	27.38	9.45	9.45	9.63	9.63	10.13	10.51	10.13	9.63	8.00	8.00



OUTER FISHING DIMENSIONS (FIXED)																
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
16.3	23.8	72.47	77	140.0	300	27.38	9.45	9.45	10.63	9.63	9.94	9.63	8.00	8.00	82.25	88.25