



# SPIRA<sup>®</sup> Power Sections

Specifications Handbook



# Why SPIRA® ?



**SPIRA®**



**SPIRA® TNT**

## Benefits of pre-contoured uniform rubber thickness SPIRA<sup>®</sup> stators

- Higher ROP by increased motor differential pressure
- Higher operating temperature
- High performance, high temperature NBR & HNBR rubber compounds
- Increased longevity / less tripping / to depth drilling
- Lends itself to low speed / high torque motor designs
- Higher torque at same length of conventional power sections
- Shorter power sections at same torque of conventional power sections
- Less swelling & stator profile distortion by aggressive drilling fluids
- Uniform swelling around stator contour
- Uniform heat expansion around stator contour
- Minimal stator profile distortion by heat expansion
- Excellent thermal conductivity through thin uniform rubber layer and contoured steel tube
- Minimal internal heat-build-up → no hysteresis
- High precision, consistent quality stators and rotors „Made in Germany“





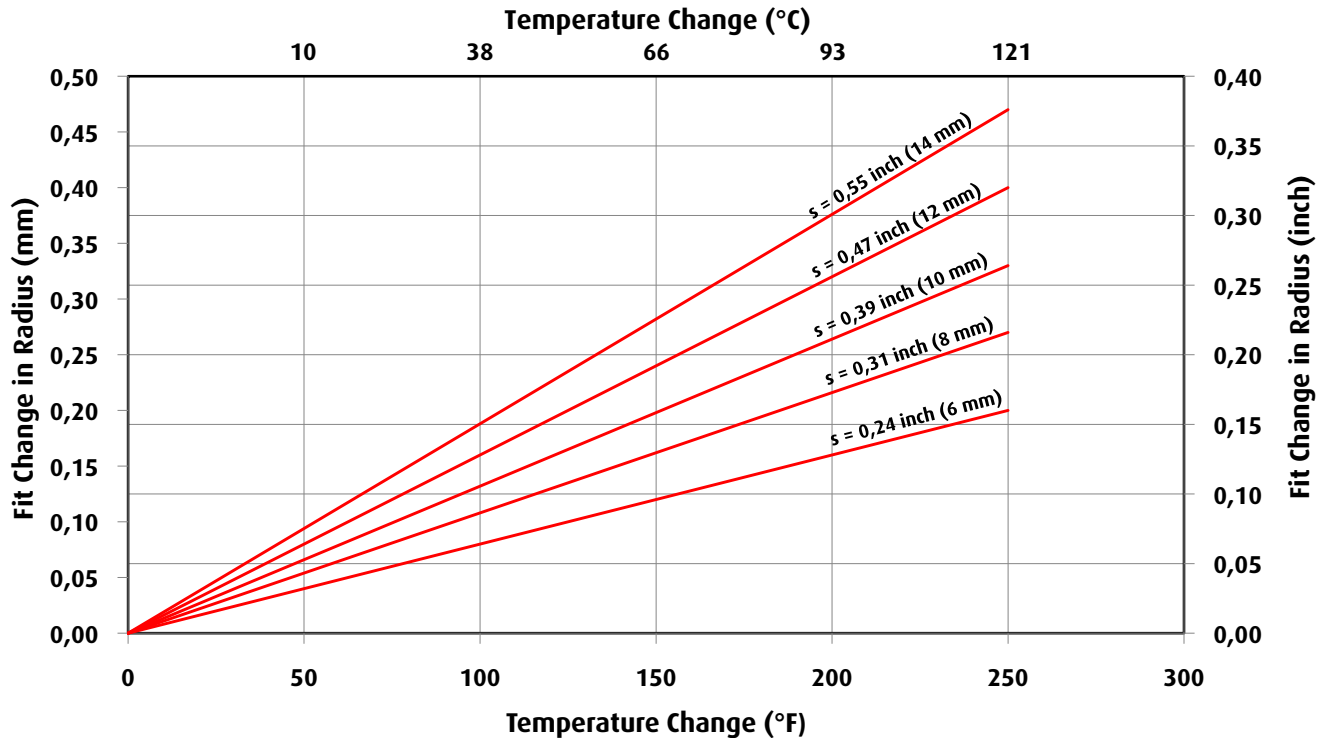
# Table of Contents

Type	Motor Output			Motor Input		Physical Motor Data		
	Bit Speed	Torque	Power Out	Flow Range	Motor Pressure	No. of Stages	No. of Lobes	Displacement
	rpm	ft-lbs ( Nm)	HP (kw)	gqm (lpm)	psi (bar)			rev/gal (rev/l)
2.125" 5/6 6.0 SPIRA	270-680	219 (298)	32 (24)	20-50 (76-189)	1305 (90)	6.0	5/6	13.612 (3.626)
2.875" 5/6 3.5 SPIRA	181-362	510 (694)	48 (36)	60-120 (227-454)	761 (53)	3.5	5/6	3.333 (0.888)
4.75" 5/6 3.4 SPIRA	75-152	4,521 (6,149)	78 (57)	150-300 (568-1,136)	740 (51)	3.4	5/6	0.506 (0.134)
4.75" 7/8 3.8 SPIRA TNT	78-156	4,410 (5,998)	110 (83)	150-300 (568-1,136)	827 (57)	3.8	7/8	0.521 (0.138)
6.75" 5/6 3.9 SPIRA	61-182	8,622 (11,692)	240 (178)	200-600 (757-2,271)	856 (59)	3.9	5/6	0.304 (0.080)
6.75" 5/6 5.3 SPIRA	61-182	11,618 (15,754)	327 (240)	200-600 (757-2,271)	1146 (79)	5.3	5/6	0.304 (0.080)
6.75" 7/8 5.0 SPIRA TNT	58-173	11,576 (15,698)	310 (227)	200-600 (757-2,271)	1088 (75)	5.0	7/8	0.288 (0.076)
6.75" 7/8 5.9 SPIRA TNT	58-173	13,660 (18,523)	365 (268)	200-600 (757-2,271)	1276 (88)	5.9	7/8	0.288 (0.076)
8.00" 5/6 3.3 SPIRA	75-170	11,670 (15,871)	324 (243)	400-900 (1,514-3,407)	725 (50)	3.3	5/6	0.190 (0.050)
8.00" 5/6 4.5 SPIRA	75-170	15,762 (21,831)	442 (331)	400-900 (1,514-3,407)	979 (67)	4.5	5/6	0.190 (0.050)

rev. 04/2014



# Power Section Fit Change



s = rubber thickness



## Artemis 2.125" 5/6 6.0 SPIRA®

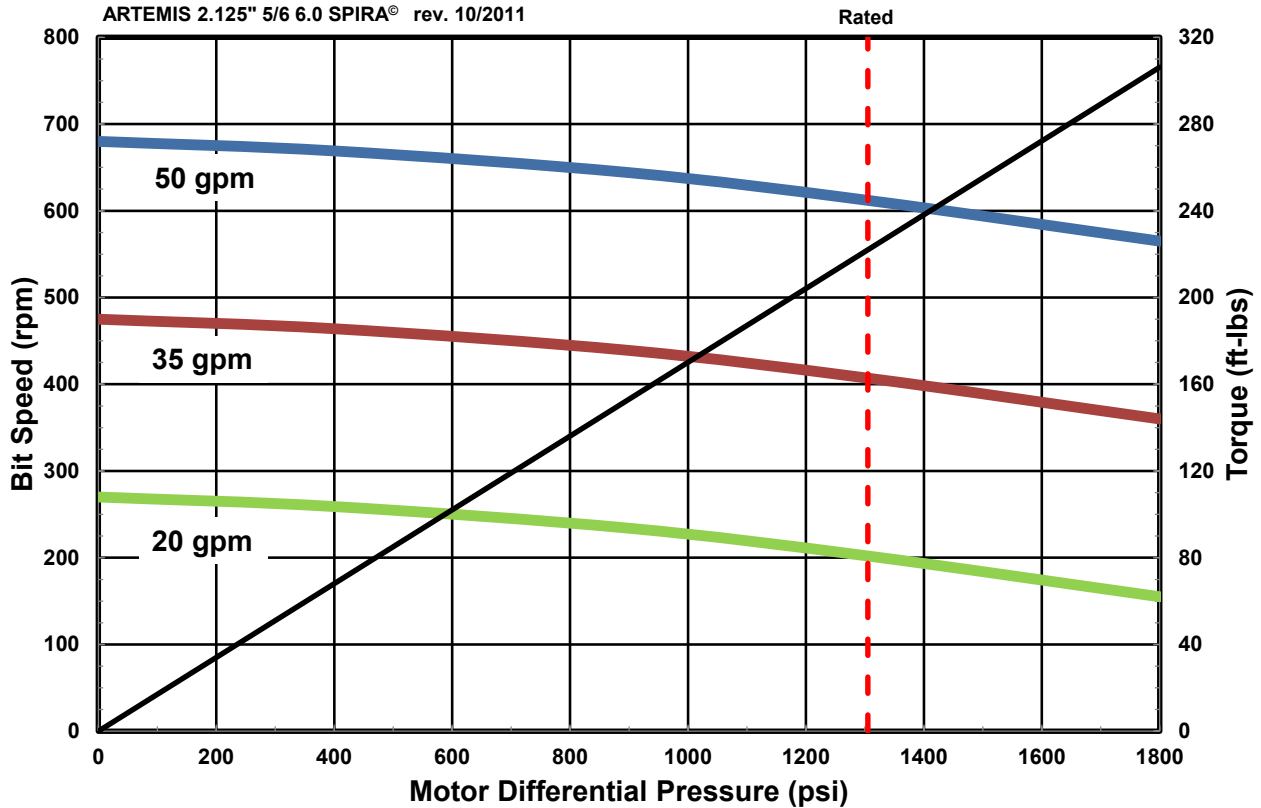


No. of Stages	6.0	
No. of Lobes Rotor/Stator	5/6	
Overall Length	88 (2,232)	inch (mm)
Rubber Cutback	5.0 (127)	inch (mm)
Max. OD	2.125 (54)	inch (mm)
Connections	to customer's specification	
Rubber Types	NBR, HNBR	



Bit Speed	270-680	rpm
Flow Range	20-50 (76-189)	gqm (lpm)
Displacement	13.612 (3.626)	rev/gal (rev/l)
Motor Pressure	1305 (90)	psi (bar)
Torque	219 (298)	ft-lbs (Nm)
Power Out	32 (24)	HP (Kw)

Performance curves are for reference only (@ 175 °F). Actual power section performance may vary depending on operating conditions (e.g. chosen rotor/stator interference fit, possible rubber swelling by drilling fluid, actual downhole temperature, actual stator temperature, physical properties of the drilling fluid). Data subject to change without notice.



## Artemis 2.875" 5/6 3.5 SPIRA®



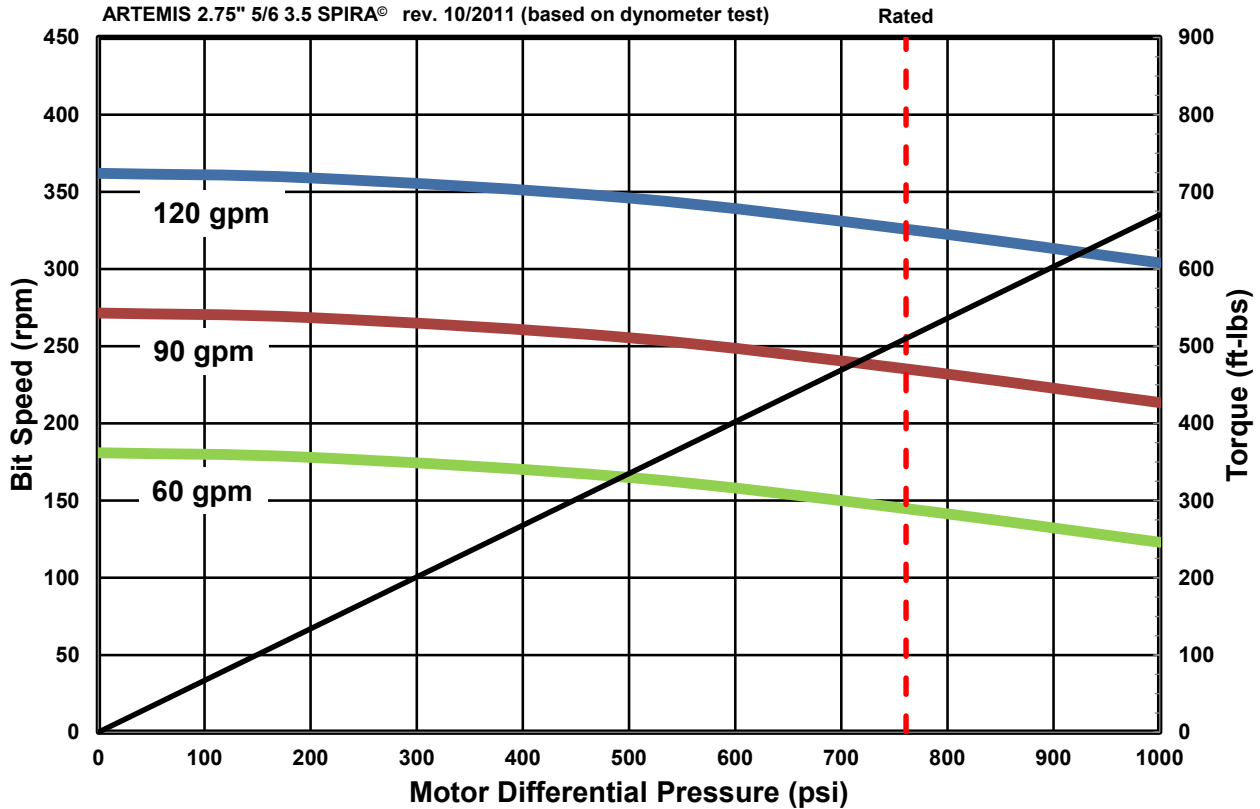
No. of Stages	3.5	
No. of Lobes Rotor/Stator	5/6	
Overall Length	98.4 (2,500)	inch (mm)
Rubber Cutback	6.89 (175)	inch (mm)
Max. OD	2.875 (73)	inch (mm)
Connections	to customer's specification	
Rubber Types	NBR, HNBR	



Bit Speed	181-362	rpm
Flow Range	60-120 (227-454)	gqm (lpm)
Displacement	3.333 (0.888)	rev/gal (rev/l)
Motor Pressure	761 (53)	psi (bar)
Torque	510 (694)	ft-lbs (Nm)
Power Out	48 (36)	HP (Kw)

Performance curves are for reference only (@ 175 °F). Actual power section performance may vary depending on operating conditions (e.g. chosen rotor/stator interference fit, possible rubber swelling by drilling fluid, actual downhole temperature, actual stator temperature, physical properties of the drilling fluid). Data subject to change without notice.





## Artemis 4.75" 5/6 3.4 SPIRA®

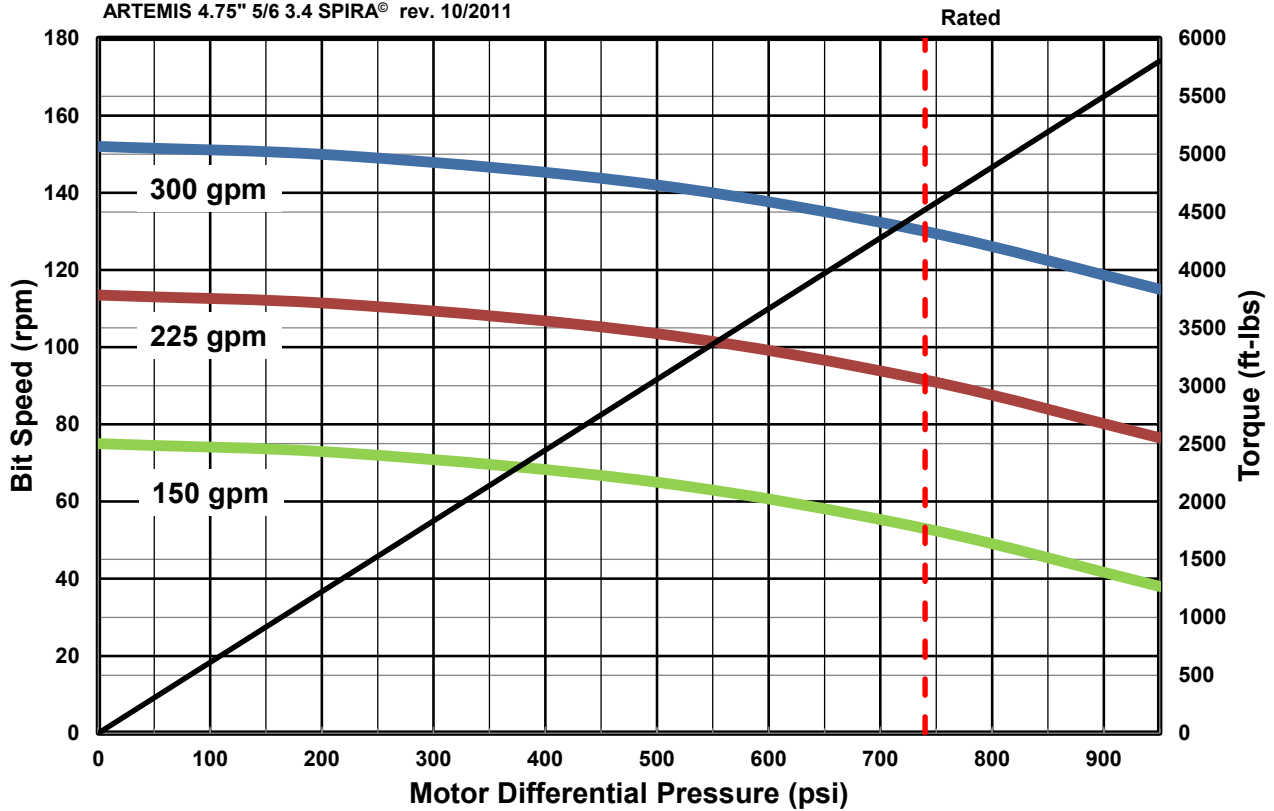


No. of Stages	3.4	
No. of Lobes Rotor/Stator	5/6	
Overall Length	196 (4,978)	inch (mm)
Rubber Cutback	9.0 (229)	inch (mm)
Max. OD	4.8 (122)	inch (mm)
Connections	to customer's specification	
Rubber Types	NBR, HNBR	
Options	also with 5" terminals available	

Bit Speed	75-152	rpm
Flow Range	150-300 (568-1,136)	gqm (lpm)
Displacement	0.506 (0.134)	rev/gal (rev/l)
Motor Pressure	740 (51)	psi (bar)
Torque	4,521 (6,149)	ft-lbs (Nm)
Power Out	78 (57)	HP (Kw)



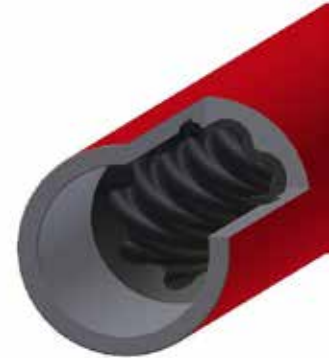
Performance curves are for reference only (@ 175 °F). Actual power section performance may vary depending on operating conditions (e.g. chosen rotor/stator interference fit, possible rubber swelling by drilling fluid, actual downhole temperature, actual stator temperature, physical properties of the drilling fluid). Data subject to change without notice.



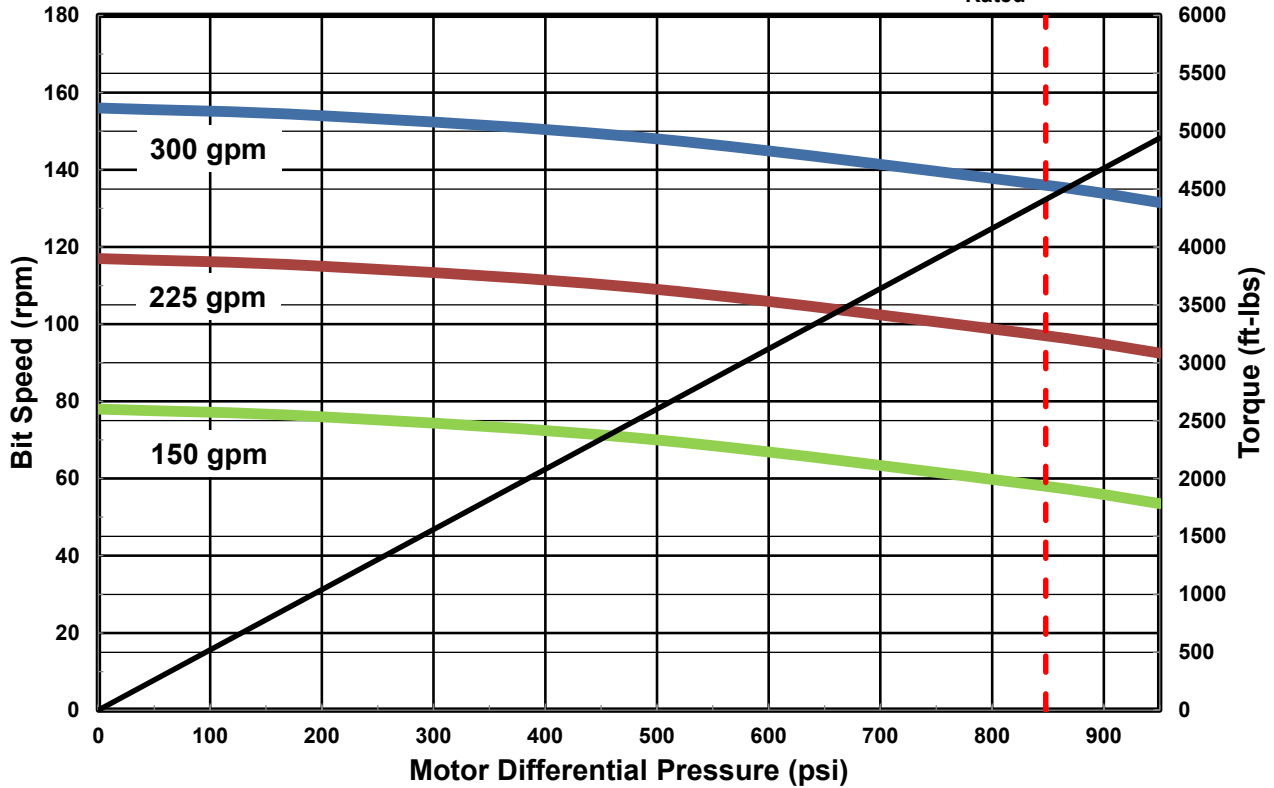
## Artemis 4.75" 7/8 3.8 SPIRA® TNT



No. of Stages	3.8	
No. of Lobes Rotor/Stator	7/8	
Overall Length	200 (5,080)	inch (mm)
Rubber Cutback	10.0 (254)	inch (mm)
Max. OD	4.8 (122)	inch (mm)
Connections	to customer's specification	
Rubber Types	NBR, HNBR	
Options	also with 5" terminals available	
Bit Speed	78-156	rpm
Flow Range	150-300 (568-1,136)	gqm (lpm)
Displacement	0.521 (0.138)	rev/gal (rev/l)
Motor Pressure	827 (57)	psi (bar)
Torque	4,410 (5,998)	ft-lbs (Nm)
Power Out	110 (83)	HP (Kw)



Performance curves are for reference only (@ 175 °F). Actual power section performance may vary depending on operating conditions (e.g. chosen rotor/stator interference fit, possible rubber swelling by drilling fluid, actual downhole temperature, actual stator temperature, physical properties of the drilling fluid). Data subject to change without notice.



## Artemis 6.75" 5/6 3.9 SPIRA®



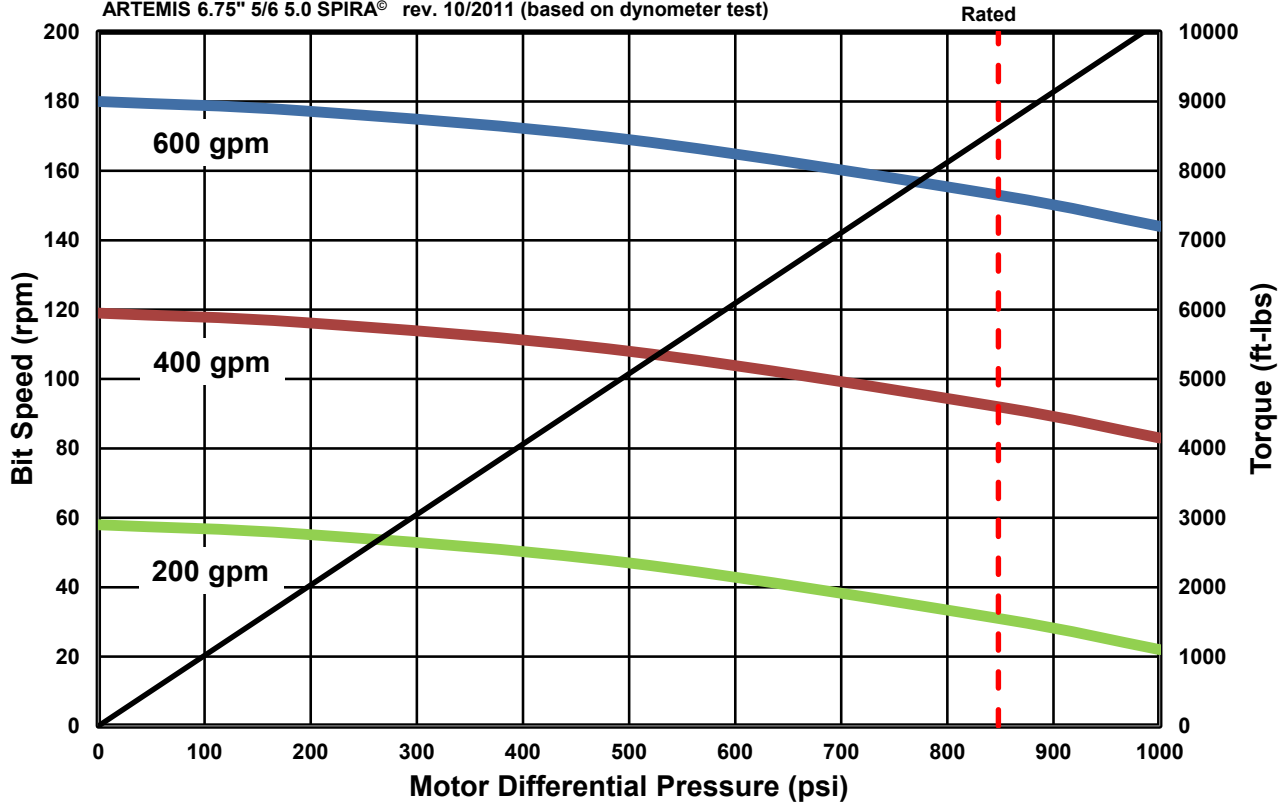
No. of Stages	3.9	
No. of Lobes Rotor/Stator	5/6	
Overall Length	177.5 (4,508)	inch (mm)
Rubber Cutback	10.0 (254)	inch (mm)
Max. OD	6.93 (176)	inch (mm)
Connections	to customer's specification	
Rubber Types	NBR, HNBR	
Options	also with 7" terminals available	

Bit Speed	61-182	rpm
Flow Range	200-600 (757-2,271)	gqm (lpm)
Displacement	0.304 (0.080)	rev/gal (rev/l)
Motor Pressure	856 (59)	psi (bar)
Torque	8,622 (11,692)	ft-lbs (Nm)
Power Out	240 (178)	HP (Kw)



Performance curves are for reference only (@ 175 °F). Actual power section performance may vary depending on operating conditions (e.g. chosen rotor/stator interference fit, possible rubber swelling by drilling fluid, actual downhole temperature, actual stator temperature, physical properties of the drilling fluid). Data subject to change without notice.

ARTEMIS 6.75" 5/6 5.0 SPIRA® rev. 10/2011 (based on dynamometer test)



## Artemis 6.75" 5/6 5.3 SPIRA®

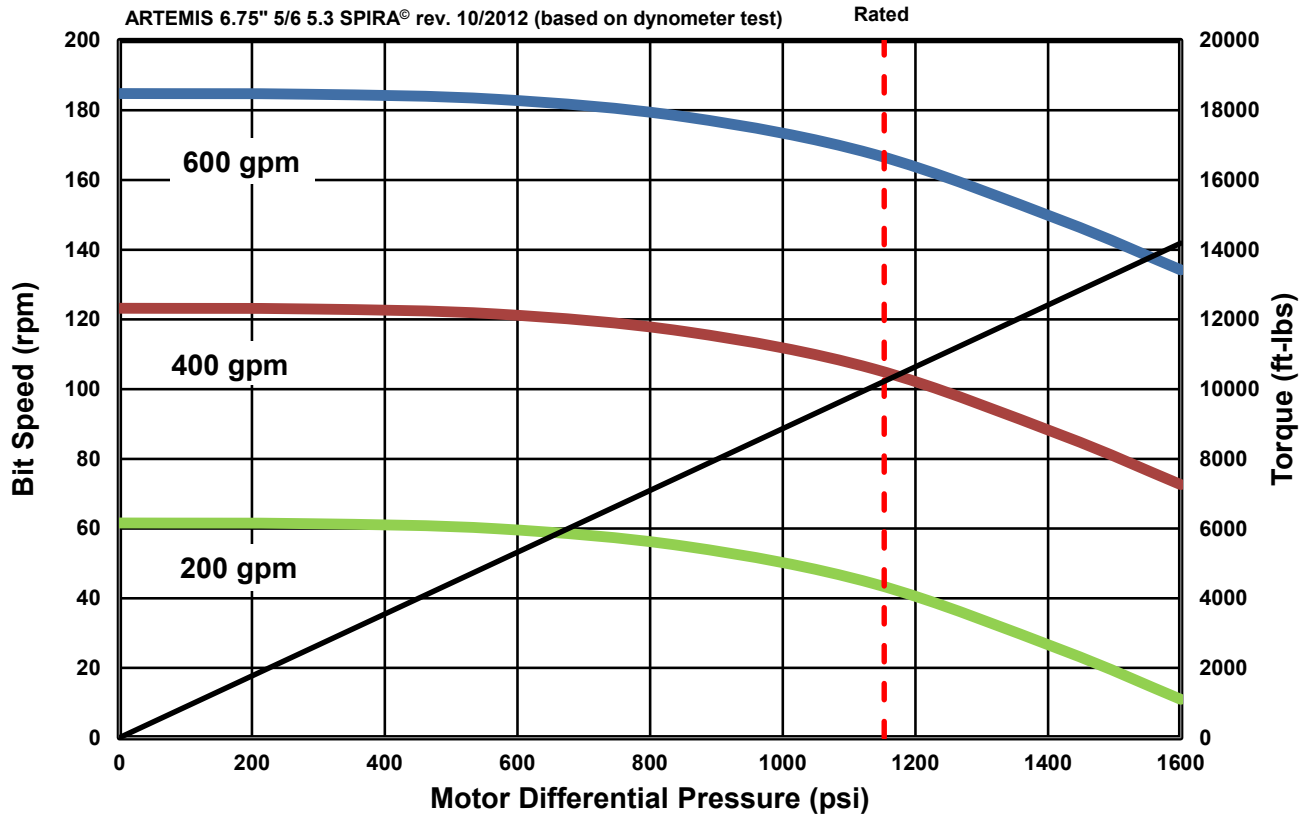


No. of Stages	5.3	
No. of Lobes Rotor/Stator	5/6	
Overall Length	235.8 (5,990)	inch (mm)
Rubber Cutback	10.0 (254)	inch (mm)
Max. OD	6.93 (176)	inch (mm)
Connections	to customer's specification	
Rubber Types	NBR, HNBR	
Options	also with 7" terminals available	
Bit Speed	61-182	rpm
Flow Range	200-600 (757-2,271)	gqm (lpm)
Displacement	0.304 (0.080)	rev/gal (rev/l)
Motor Pressure	1146 (79)	psi (bar)
Torque	11,618 (15,754)	ft-lbs (Nm)
Power Out	327 (240)	HP (Kw)



Performance curves are for reference only (@ 175 °F). Actual power section performance may vary depending on operating conditions (e.g. chosen rotor/stator interference fit, possible rubber swelling by drilling fluid, actual downhole temperature, actual stator temperature, physical properties of the drilling fluid). Data subject to change without notice.

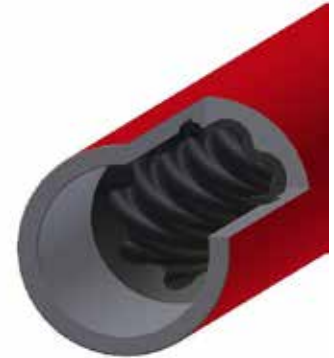




## Artemis 6.75" 7/8 5.0 SPIRA® TNT



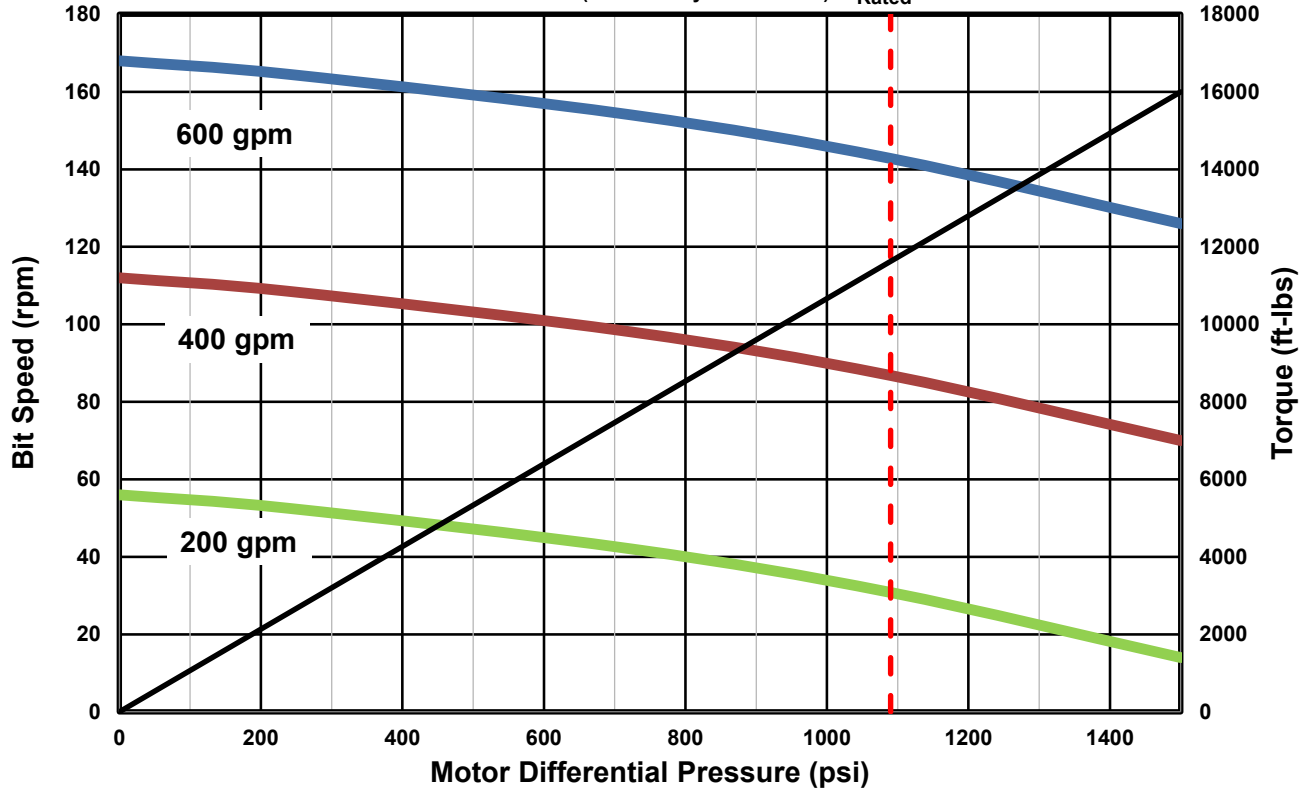
No. of Stages	5.0	
No. of Lobes Rotor/Stator	7/8	
Overall Length	200 (5,080)	inch (mm)
Rubber Cutback	10.0 (259)	inch (mm)
Max. OD	6.89 (173)	inch (mm)
Connections	to customer's specification	
Rubber Types	NBR, HNBR	
Options	also with 7" terminals available	



Bit Speed	58-173	rpm
Flow Range	200-600 (757-2,271)	gpm (lpm)
Displacement	0.288 (0.076)	rev/gal (rev/l)
Motor Pressure	1088 (75)	psi (bar)
Torque	11,576 (15,698)	ft-lbs (Nm)
Power Out	310 (227)	HP (Kw)

Performance curves are for reference only (@ 175 °F). Actual power section performance may vary depending on operating conditions (e.g. chosen rotor/stator interference fit, possible rubber swelling by drilling fluid, actual downhole temperature, actual stator temperature, physical properties of the drilling fluid). Data subject to change without notice.

ARTEMIS 6.75" 7/8 5.0 SPIRA® TNT rev. 10/2011 (based on dynamometer test) Rated

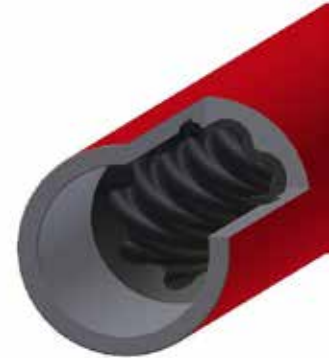


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## Artemis 6.75" 7/8 5.9 SPIRA® TNT

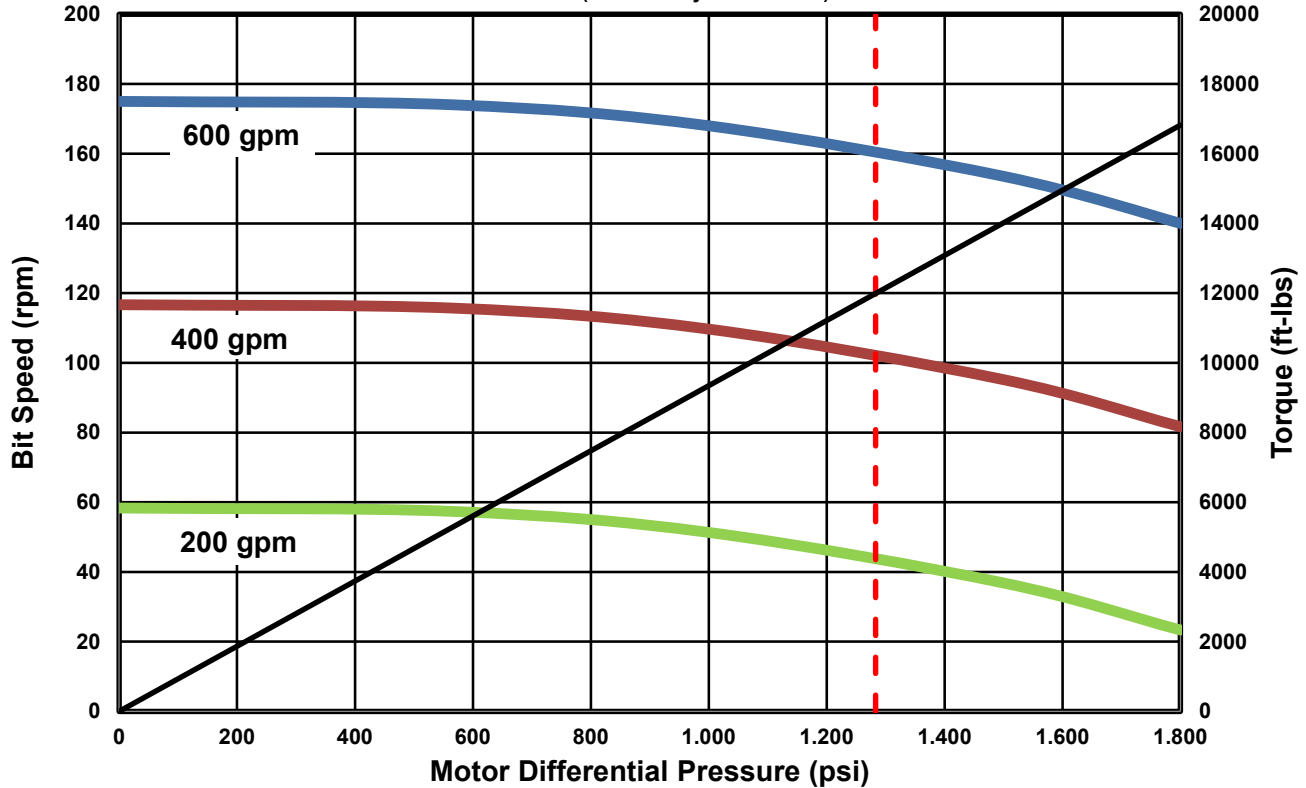


No. of Stages	5.9	
No. of Lobes Rotor/Stator	7/8	
Overall Length	235.8 (5,990)	inch (mm)
Rubber Cutback	10.0 (259)	inch (mm)
Max. OD	6.89 (175)	inch (mm)
Connections	to customer's specification	
Rubber Types	NBR, HNBR	
Options	also with 7" terminals available	
Bit Speed	58-173	rpm
Flow Range	200-600 (757-2,271)	gqm (lpm)
Displacement	0.288 (0.076)	rev/gal (rev/l)
Motor Pressure	1276 (88)	psi (bar)
Torque	13,660 (18,523)	ft-lbs (Nm)
Power Out	365 (268)	HP (Kw)



Performance curves are for reference only (@ 175 °F). Actual power section performance may vary depending on operating conditions (e.g. chosen rotor/stator interference fit, possible rubber swelling by drilling fluid, actual downhole temperature, actual stator temperature, physical properties of the drilling fluid). Data subject to change without notice.

ARTEMIS 6.75" 7/8 5.9 SPIRA® TNT rev. 10/2012 (based on dynamometer test) Rated



## Artemis 8.00" 5/6 3.3 SPIRA®

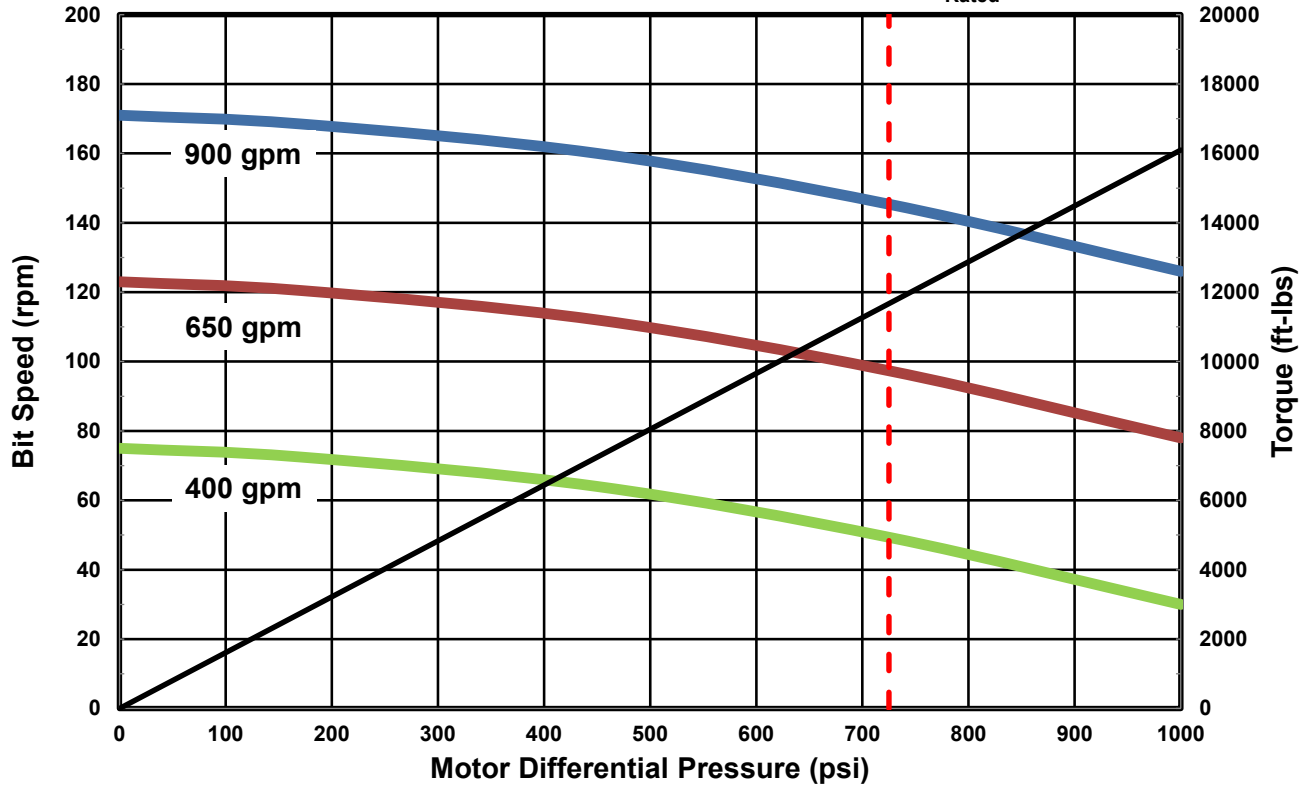


No. of Stages	3.3	
No. of Lobes Rotor/Stator	5/6	
Overall Length	177.5 (4,508)	inch (mm)
Rubber Cutback	9 (229)	inch (mm)
Max. OD	8.25 (210)	inch (mm)
Connections	to customer's specification	
Rubber Types	NBR, HNBR	
Options	Terminal for 9 5/8" Lower Section avail.	

Bit Speed	75-170	rpm
Flow Range	400-900 (1,514-3,407)	gqm (lpm)
Displacement	0.190 (0.050)	rev/gal (rev/l)
Motor Pressure	725 (50)	psi (bar)
Torque	11,670 (15,871)	ft-lbs (Nm)
Power Out	324 (243)	HP (Kw)



Performance curves are for reference only (@ 175 °F). Actual power section performance may vary depending on operating conditions (e.g. chosen rotor/stator interference fit, possible rubber swelling by drilling fluid, actual downhole temperature, actual stator temperature, physical properties of the drilling fluid). Data subject to change without notice.



## Artemis 8.00" 5/6 4.5 SPIRA®



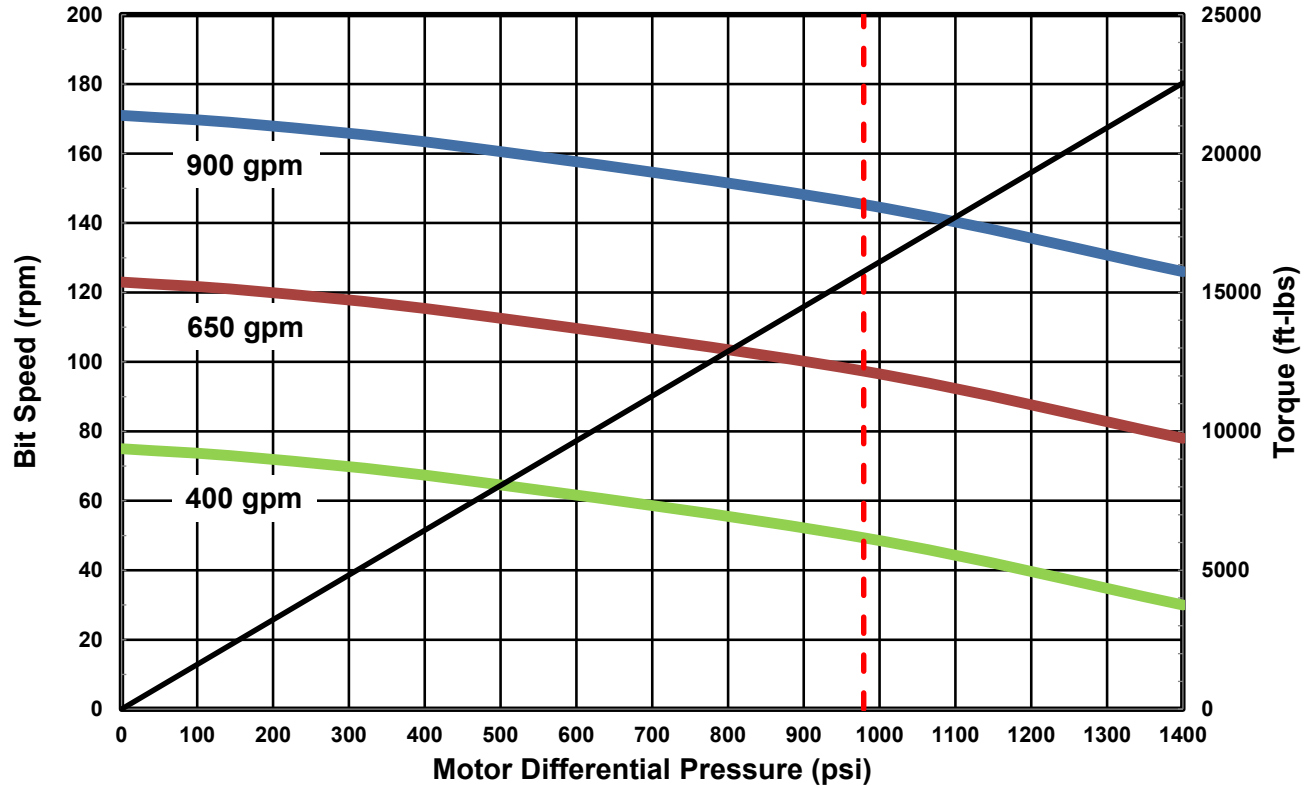
No. of Stages	4.5	
No. of Lobes Rotor/Stator	5/6	
Overall Length	235.8 (5,990)	inch (mm)
Rubber Cutback	9 (229)	inch (mm)
Max. OD	8.25 (210)	inch (mm)
Connections	to customer's specification	
Rubber Types	NBR, HNBR	
Options	Terminal for 9 5/8" Lower Section avail.	

Bit Speed	75-170	rpm
Flow Range	400-900 (1,514-3,407)	gqm (lpm)
Displacement	0.190 (0.050)	rev/gal (rev/l)
Motor Pressure	979 (67)	psi (bar)
Torque	15,762 (21,831)	ft-lbs (Nm)
Power Out	442 (331)	HP (Kw)



Performance curves are for reference only (@ 175 °F). Actual power section performance may vary depending on operating conditions (e.g. chosen rotor/stator interference fit, possible rubber swelling by drilling fluid, actual downhole temperature, actual stator temperature, physical properties of the drilling fluid). Data subject to change without notice.







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