



# Specification Sheet

## 3.125" Multi- Shifting Circulating Sub “Regulator”

### The Challenge

Today's drilling applications are becoming more challenging with deeper, longer and more complex well being drilled faster than ever before. One of the most common challenges is keeping the hole clean while drilling which is achieved with higher flow rates. These flow rates are limited by the power sections on the motors and quite often lead to premature failure due to over pumping.

### Features

- Utilize optimal performance of the power section in motors.
- No need to drop balls or darts for activation.
- Motor stalls are still visible at surface.
- Application not only conventional drilling, but also coil tubing, and completions operations.

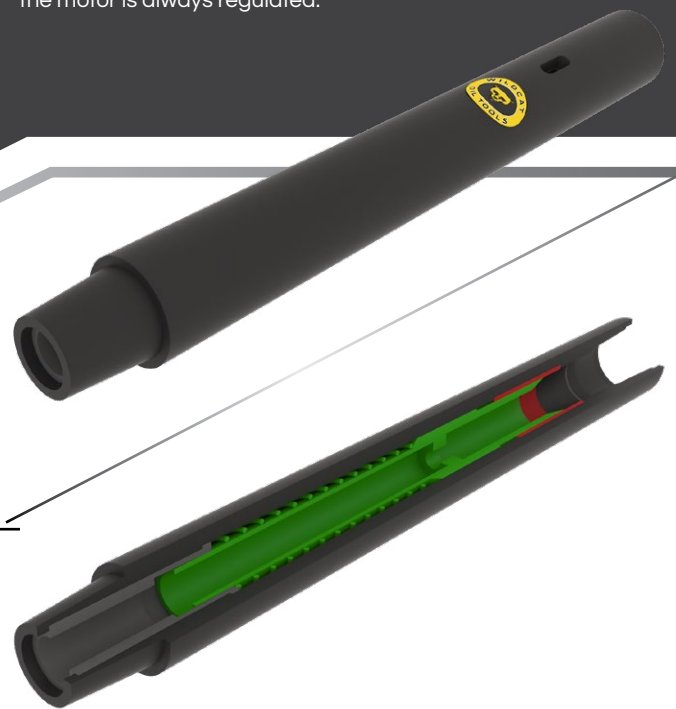
### The Answer

Wildcat's Multi-Shift Circulating Sub is designed to continually regulate the flow rate through the motor to a pre-set limit.

The extra fluid needed to help clean the hole is bypassed to the annulus for increased hole cleaning. Our Circulating Sub employs a variable size exit orifice to actively moderate the flow that goes through the motor continuously – extra fluid is vented out the side. The exit orifice is controlled by a valve that measures the flow entering the motor.

When a motor over-spins as it is brought off bottom, the exit orifices will open to let more fluid out the side and save the motor from being damaged.

The valve mechanism responds in milliseconds so that the flow to the motor is always regulated.



### Spec

<b>Tool Size</b>	3.125"
<b>Overall Length</b>	35"
<b>Pin Connection ID</b>	1.13"
<b>Motor Flow Rate</b>	80 / 600 gpm
<b>Setting Rate (Max/Min)</b>	21 / 158 gpm
<b>Max Pump Rate</b>	315 gpm
<b>Max Overpull</b>	150,000 lbs

Orifice	9.1 - 8.3 PPG 382-349 LB/BBL	10.0 - 9.1 PPG 420 - 382 LB/BBL	10.8 - 10.0 PPG 454-420 LB/BBL	11.6-10.8 PPG 487-454 LB/BBL	Orifice
<b>0.45</b>	74 - 82 GPM 1.76 - 1.95 BBL/Min	71 - 79 GPM 1.69 - 1.88 BBL/Min	68 - 76 GPM 1.63 - 1.81 BBL/Min	66 - 73 GPM 1.57 - 1.74 BBL/Min	<b>0.45</b>
<b>0.48</b>	82 - 92 GPM 1.95 - 2.19 BBL/Min	79 - 88 GPM 1.88-2.11 BBL/Min	76 - 85 GPM 1.81-2.03 BBL/Min	73 - 82 GPM 1.74-1.95 BBL/Min	<b>0.48</b>
<b>0.5</b>	92 - 114 GPM 2.1 - 2.71 BBL/Min	88 - 110 GPM 2.11- 2.61 BBL/Min	85 - 105 GPM 2.03- 2.51 BBL/Min	82 - 101 GPM 1.95-2.41 BBL/Min	<b>0.5</b>
<b>0.55</b>	114 - 137 GPM 2.71 - 3.26 BBL/Min	110 - 132 GPM 2.61 - 3.14 BBL/Min	105 - 127 GPM 2.51 - 3.02 BBL/Min	101 - 122 GPM 2.41 - 2.90 BBL/Min	<b>0.55</b>
<b>0.6</b>	137 - 158 GPM 3.26 - 3.76 BBL/Min	132 - 152 GPM 3.14 - 3.62 BBL/Min	127 - 146 GPM 3.02 - 3.48 BBL/Min	122 - 140 GPM 2.90 - 3.34 BBL/Min	<b>0.6</b>
<b>0.64</b>	158 - 182 GPM 3.76 - 4.33 BBL/Min	152 - 175 GPM 3.62 - 4.17 BBL/Min	146 - 168 GPM 3.48 - 4.01 BBL/Min	140 - 162 GPM 3.34 - 3.85 BBL/Min	<b>0.64</b>
<b>0.67</b>	182 - 206 GPM 4.33 - 4.90 BBL/Min	175 - 198 GPM 4.17 - 4.72 BBL/Min	168 - 190 GPM 4.01 - 4.53 BBL/Min	162 - 183 GPM 3.85 - 4.36 BBL/Min	<b>0.67</b>



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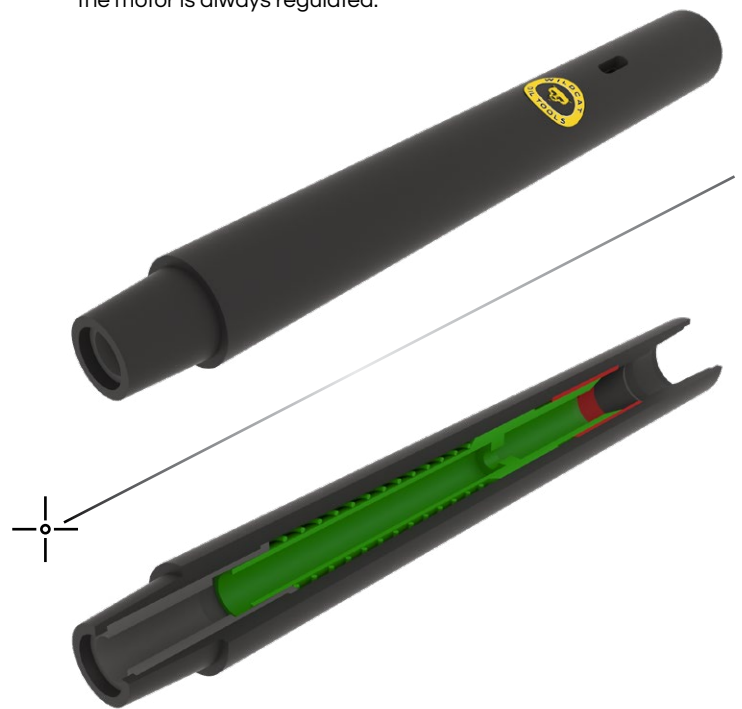
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