

# WWT Super 4 (S4) Non-Rotating Protectors (NRP)<sup>™</sup>



- Reduce rotary torque • Protect against casing, riser, and drill pipe wear
- Reduce buckling, heat checking, vibration and stick-slip • Open-hole capabilities

## Model S4 Specifications



WWT NRP Model	S4-350	S4-400- SLIM	S4-400	S4-450- SLIM	S4-500	S4-550	S4-578	S4-658
Drill Pipe Size	3.50"	4.00"	4.00"	4.50"	5.00"	5.50"	5.88"	6.63"
Sleeve Max OD	5.50"	5.50"	5.75"	6.25"	7.30"	7.75"	8.00"	9.13"
Hydraulic Effective OD	5.12"	5.24"	5.48"	5.98"	6.87"	7.28"	7.57"	8.64"
Collar OD	5.00"	5.07"	5.38"	5.88"	6.50"	7.00"	7.38"	8.13"
Sleeve Length	12"	12"	12"	12"	12"	12"	12"	12"
Sleeve Volume	123 in <sup>3</sup>	102 in <sup>3</sup>	127 in <sup>3</sup>	140 in <sup>3</sup>	196 in <sup>3</sup>	199 in <sup>3</sup>	202 in <sup>3</sup>	265 in <sup>3</sup>
Sleeve Weight	8.9 lbs	7.4 lbs	9.2 lbs	10.1 lbs	11.6 lbs	12.3 lbs	12.5 lbs	15.4 lbs
Side-Load Rating	2,200 lbs	2,200 lbs	2,200 lbs	3,000 lbs	3,000 lbs	3,000 lbs	3,500 lbs	3,500 lbs
Cross-Sectional Area	11.2 in <sup>2</sup>	9.0 in <sup>2</sup>	11.0 in <sup>2</sup>	12.2 in <sup>2</sup>	17.4 in <sup>2</sup>	17.9 in <sup>2</sup>	17.9 in <sup>2</sup>	24.1 in <sup>2</sup>
<b>Total Flow Area</b>								
7" x 32 ppf Csg.	8.3 in <sup>2</sup>	7.6 in <sup>2</sup>	5.6 in <sup>2</sup>					
7" x 29 ppf Csg.	9.2 in <sup>2</sup>	8.5 in <sup>2</sup>	6.5 in <sup>2</sup>					
7" x 26 ppf Csg.	10.1 in <sup>2</sup>	9.4 in <sup>2</sup>	7.4 in <sup>2</sup>					
7-5/8" x 39 ppf Csg.	13.7 in <sup>2</sup>	12.9 in <sup>2</sup>	10.9 in <sup>2</sup>	6.4 in <sup>2</sup>				
9-5/8" x 53.5 ppf Csg.	36.4 in <sup>2</sup>	35.6 in <sup>2</sup>	33.6 in <sup>2</sup>	29.1 in <sup>2</sup>	20.2 in <sup>2</sup>	15.6 in <sup>2</sup>	12.2 in <sup>2</sup>	
10-3/4" x 55.5 ppf Csg.	54.0 in <sup>2</sup>	53.2 in <sup>2</sup>	51.2 in <sup>2</sup>	46.7 in <sup>2</sup>	37.8 in <sup>2</sup>	33.2 in <sup>2</sup>	29.8 in <sup>2</sup>	16.2 in <sup>2</sup>
13-3/8" x 72 ppf Csg.	98.9 in <sup>2</sup>	98.2 in <sup>2</sup>	96.2 in <sup>2</sup>	91.6 in <sup>2</sup>	82.7 in <sup>2</sup>	78.1 in <sup>2</sup>	74.7 in <sup>2</sup>	61.2 in <sup>2</sup>
Collar Material	6061-T651 Extruded Aluminum Alloy							
Sleeve Material	High-Temperature Polyurethane							
Max. Temperature	275° F (135° C)							

## Features and Benefits

- Positive protection against casing and riser wear during drilling operations.
- Significant torque reduction created by our patented fluid bearing design allows for improved ROP.
- Compatible with most oil-, synthetic- and water-based drilling fluids.
- Optimum operating performance range of 30 - 250 RPM.
- Reduces drillstring and surface equipment stress.
- Each assembly accepts up to 30,000 lbs. of axial force before slippage.
- Installation time: less than 1 minute.
- Free, no-obligation confidential torque, drag and wear analysis.
- Global leadership in some of the world's most challenging drilling environments since 1989.
- On/off-site technical support 24/7.

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