



WWT Non-Rotating Protector Models

Similarities of WWT NRPs shown below:

- Create stand-off between the casing and drill pipe tool joint for casing protection and heat checking mitigation.
- Significant torque reduction created by WWT's patented fluid bearing design.
- Ability to run in open hole.
- Ability for a custom outer diameter to be compatible for MPD.

Comparison of each model:

NRP Model	Advantages	Disadvantages
Super Slider 3 (SS3)	<ul style="list-style-type: none"> • Drag reduction. • Low-friction exterior, best suitable for MPD. • Run in open hole. • Can be installed mid-span on joint to reduce buckling. 	<ul style="list-style-type: none"> • Rotates with drill pipe under high side force and LCM in the JSM field. • 220°F temperature limit.
Heavy Duty Super Slider 3 (HD-SS3)	<ul style="list-style-type: none"> • Same as above but with higher sideload ratings – includes wear reduction additives in the sleeve polymer and thrust collar. 	
Super 4 (S4)	<ul style="list-style-type: none"> • Higher temperature rating. • Higher friction, straight bladed exterior to mitigate rotating with the drill pipe. 	<ul style="list-style-type: none"> • Polyurethane exterior – no drag benefits.
High Temperature 3 (HT3)	<ul style="list-style-type: none"> • Highest temperature rating. 	<ul style="list-style-type: none"> • Higher friction rubber exterior – no drag benefits. • Lower side force limits.

Table below provides additional information:

Features	NRP Model			
	SS3	HD-SS3	S4	HT3
Rotating Relative FF	35%	35%	50%	50%
Axial (Drag) Relative FF	60%	60%	100%	100%
Temperature Rating	220 °F	220 °F	275 °F	330 °F
MPD suitable (ranking order)	2	1	3	4
Blade Design	Spiral	Spiral	Straight	Straight

* For more details, please refer to the 'NRP model comparison' spec sheets attached that includes previous model types that are no longer being manufactured.