

# Rotary Steerable System (RSS™)

## SureSteer-RSS475

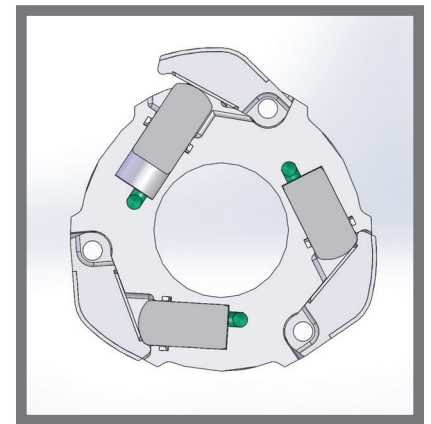


Designed for directional drilling applications throughout the world, the APS SureSteer™ Rotary Steerable tools provide “major service company” rotary steerable system functionality with the straightforward directional control procedures used with steerable motors. Utilizing APS’s proprietary control systems, SureSteer can be programmed to use a closed-loop feedback system for vertical or tangent angle control, or to operate with surface-supplied instructions to efficiently drill any directional well plan.

The SureSteer-RSM® is designed to maximize horsepower at the bit, and the SureSteer-RSS™ to maximize build rate. Together, they provide an unparalleled capability to match the major service companies’ advanced trajectory control.

### SureSteer-RSS475 Description

The SureSteer-RSS475 steering head houses the steering pads; directional measurement and control electronics; and the electrical and hydraulic power systems, which are driven by an integrated turbine and alternator system. The control electronics provide timing signals to a hydraulic manifold to control the steering direction and force to achieve the desired directional objective.



### Modes of Operation

Utilizing APS’s proprietary control systems, the SureSteer-RSS475 can be programmed to use a closed-loop feedback system for vertical or tangent angle control, or to operate with surface-supplied instructions to efficiently drill any directional well plan. The mode of operation can easily be changed downhole. A series of timed pump speed changes allow for switching between modes or turning the tool off for events such as wiper trips, drilling out or back-reaming.

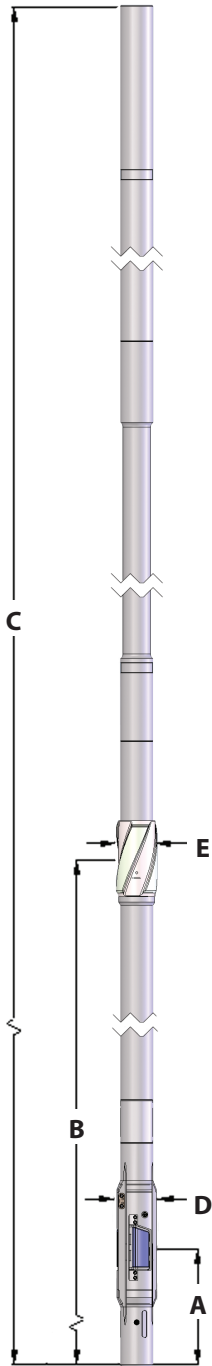
### Programmable Downhole

The APS SureSteer-RSS475 is straightforward to use. The desired tool face on the initial unit is set by surface orientation, similar to a steerable motor. This minimizes the amount of time required for downlinking. The desired build rate is communicated with timed pump speed changes. Depending on the deployment method, the SureSteer-RSS475 can be directly linked to an APS MWD or LWD system for higher-level, comprehensive trajectory control.

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## Product Specifications

The SureSteer-RSS475 can be run alone or with a variety of drilling motors. The specifications below are shown for the SureSteer-RSS-475 alone. Contact our sales office for details.



### Dimensions

DIM	Description	Dimensions	
	<b>Nominal Hole Size</b>	<b>6.0 in. (152.4 mm)</b>	<b>6.75 in. (171 mm)</b>
A	Bit Box to Center of Steering Pad	1.4 ft (0.4 m)	
B	Bit Box to Center of Sleeve Stabilizer	9.3 ft (2.8 m)	
C	Overall Length including Pulser	32.4 ft (9.9 m)	
	Steering Pad Dia. – Retracted	5.9 in. (149.9 mm)	
	Steering Pad Dia. – Extended	6.6 in. (167.4 mm)	7.0 in. (177.8 mm)
D	Steering Pad Upset Dia.	5.75 in. (146 mm)	
E	Sleeve Stabilizer Dia.	5.9375 in. (150.8 mm)	6.6875 in. (169.9 mm)
	Bottom Connection	3-1/2 in. API REG box	
	Top Connection – Standard, Housing	3-1/2 in. IF box	

### Operational

<b>Flow Rate</b>	150 to 350 gpm (9.5 to 22 l/sec)
<b>Maximum Drill String Rotation Speed</b>	200 RPM
<b>Maximum Operating Torque</b>	9,700 ft-lbs (13,150 N-m)
<b>Pressure Drop</b>	200 psi @ 350 gpm (1.4 MPa @ 22 l/sec)
<b>Build Rate Capability</b>	To 12°/100 ft (30 m)

### Environmental

<b>Maximum Temperature</b>	302°F (150°C)
<b>Maximum Pressure</b>	20,000 psi (137.9 MPa)
<b>Maximum Bend Radius – Rotating</b>	15°/100 ft
<b>Maximum Bend Radius – Sliding</b>	21°/100 ft

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Specifications subject to change without notice.

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