

Rotary Steerable Motor (RSM®)

SureSteer-RSM675

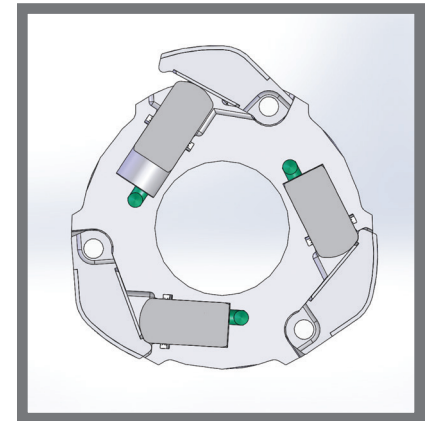


The APS SureSteer™-RSM®675 combines an advanced technology Rotary Steerable steering unit with a drilling motor power section. Using proven “Push-the-Bit” technology and designed with a very small auxiliary equipment footprint, the RSM provides rotary steerable control while continuously rotating the drill string with the optimum power and bit speed for the application. The SureSteer-RSM675 is unique in that it can be configured to operate with various types of available power sections, from the traditional Rotary Steerable-compatible, low-speed variety all the way up to high-speed configurations to deliver the ideal bit speed for the drilling application.

Designed for directional drilling applications throughout the world, the RSM provides “major service company” rotary steerable system functionality with the simple directional control commands commonly used with steerable motors.

SureSteer-RSM675 Description

The SureSteer-RSM675 steering head houses the steering pads; directional measurement and control electronics; and the electrical and hydraulic power systems, which are driven by the power section drive shaft. 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-RSM675 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 may be easily changed downhole with a series of timed pump speed changes to switch between modes or to turn the tool off for back-reaming.

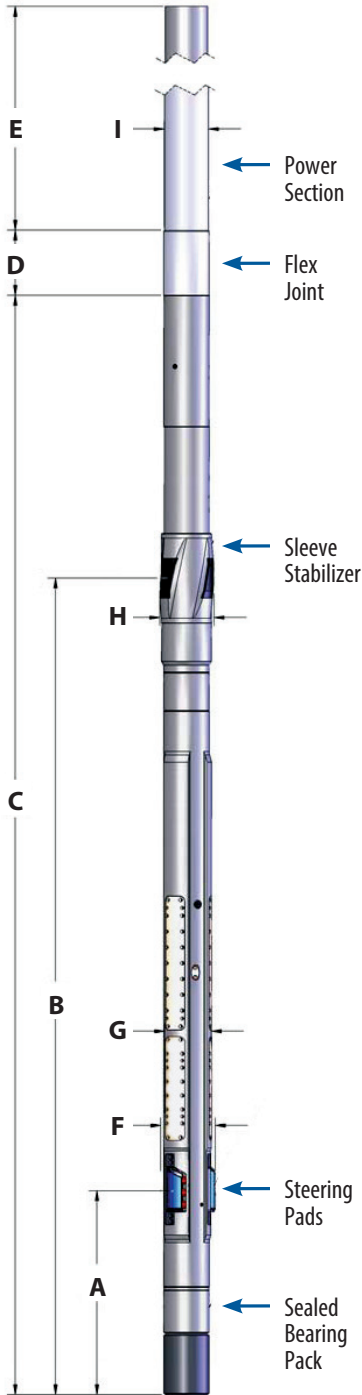
Programmable Downhole

The APS SureSteer-RSM675 is straightforward to use. The desired tool face on the initial unit is set by surface orientation, similar to a steerable motor. The desired build rate is communicated with timed pump speed changes. Future plans include a short-range telemetry system linking the RSM and the APS MWD system for higher-level control.

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Product Specifications

The SureSteer-RSM675 can be run with a variety of power sections. The specifications below are shown for the RSM itself, and in combination with a typical 6-3/4 in., 7/8, 5-stage motor power section. Contact our sales office for other available combinations.



Dimensions				
DIM	Description	Dimensions		
Nominal Hole Size		8.375 in. (213 mm)	8.5 in. (216 mm)	8.75 in. (222 mm)
A	Bit Box to Center of Steering Pad	2.8 ft (86.1 cm)		
B	Bit Box to Center of Sleeve Stabilizer	10.8 ft (3.3 m)		
C	Steering Unit Overall Length	14.5 ft (4.4 m)		
D	Flex Joint Housing	3.5 ft (1.1 m)		
E	Power Section Overall Length	17.2 ft (5.24 m)		
F	Steering Pad Dia. – Retracted	7.72 in. (196 mm)	7.97 in. (202 mm)	
F	Steering Pad Dia. – Extended	9.08 in. (231 mm)	9.33 in. (237 mm)	
G	Steering Unit Upset Dia.	7.88 in. (200 mm)		
H	Sleeve Stabilizer Dia.	8.375 in. (213 mm)	8.5 in. (216 mm)	8.75 in. (222 mm)
I	Power Section Dia.	6.75 in. (171 mm)		
	Bottom Connection	4.5 in. API Reg.		
Operational				
Flow Rate		300 to 600 gpm (19 to 39 l/sec)		
Mud Motor Speed		100 to 175 RPM		
Drill String Rotation Speed		20 to 80 RPM		
Operating Torque		10,540 ft-lbs (15,000 N-m)		
Pressure Drop (RSM)		130 psi @ 600 gpm (0.90 MPa @ 38 l/sec); water 150 psi @ 600 gpm (1.03 MPa @ 38 l/sec); 10 ppg mud		
Build Rate Capability		8.0°/100 ft (30 m)		
Environmental				
Maximum Temperature		302°F (150°C)		
Maximum Pressure		20,000 psi (137.9 MPa)		
Maximum Bend Radius – Rotating		12°/100 ft		
Maximum Bend Radius – Sliding		15°/100 ft		

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Specifications subject to change without notice.

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