

Stator & Rotor Measuring Tools

Regular monitoring of rotor and stator measurements provides valuable information on stator and rotor wear, resulting in reduced downhole power section failure and increased confidence in power section performance.

Stator Measuring Tools

The NOV Stator Measurement Tools (SMT) provide an easy and accurate method to measure downhole motor stator sizes. These tools are manufactured to a tight tolerance and offer precise measurement to an accuracy of +/- 0.002 in. with a very high rate of repeatability.

Accurately measuring rotor and stator clearance to adjust interference for elevated hole temperatures greatly increases stator life. Adequate temperature compensation can even result in successful motor performance at temperatures which exceed manufacturer recommendations.



Extension pad installation

Features and Benefits

- **Easy to use** – Measurements can be taken easily by one person.
- **Repeatable** - Three point measurements and long measurement pads ensure that measurement is always centralized and the same every time.
- **Compact design** – Can be collapsed for quick and easy storage to prevent damage when not in use.
- **Precise measurements** – Determine initial stator and rotor interference for quality assurance and evaluate the need for interference adjustments for hot-hole conditions.
- **Reliable performance** – Enable monitoring of stator wear life with successive measurements between field runs.

Stator Measurement Tools and Kits

Part Number	Description	Tool Length	Tool Measurement Range
77-SMT2-0 ¹	Kit (Standard)	63.5 in.	0.770 in. - 1.550 in.
77-SMT2-2 ³	Tool Only (Standard)	63.5 in.	0.770 in. - 1.550 in.
150-SMT1-0 ¹	Kit (Standard)	73.5 in.	1.500 in. - 3.335 in.
150-SMT1-1 ¹	Kit (Extended)	144.5 in.	1.500 in. - 3.335 in.
150-SMT1-2 ³	Tool Only (Standard)	73.5 in.	1.500 in. - 3.335 in.
150-SMT1-3 ³	Tool Only (Extended)	144.5 in.	1.500 in. - 3.335 in.
300-SMT1-0 ²	Kit (Standard)	90.5 in.	3.000 in. - 7.300 in.
300-SMT1-1 ²	Kit (Extended)	156.5 in.	3.000 in. - 7.300 in.
300-SMT1-2 ³	Tool Only (Standard)	90.5 in.	3.000 in. - 7.300 in.
300-SMT1-3 ³	Tool Only (Extended)	156.5 in.	3.000 in. - 7.300 in.

¹Series 77 and 150 kits include extension pads (qty 3 per size range), calibration sleeves (qty 1 per size range) and a v-block (qty 1) to measure over the entire tool range.

²Series 300 kit includes extension pads, calibration sleeves and a v-block to cover the 3.000 in. – 5.900 in. measurement range. Pads and calibration sleeves to measure 5.800 in. – 7.300 in. must be ordered separately.

³Tool Only options include the measuring tool and base pads only. Calibration sleeves, additional pads and v-blocks must be ordered separately.

Technical Specification

Rotor Measurement and Comparator Tools

The NOV Rotor Measurement and Comparator Tools have been designed as a simple and accurate way to measure the rotor dimensions of downhole motors. A single Rotor Measurement Tool provides direct measurement of rotor major diameters for downhole motors ranging from 2 $\frac{7}{8}$ in. OD to 11 $\frac{1}{4}$ in. OD while a series of Rotor Comparator Tools provide direct measurement of the rotor lobe height over the same range.



Part Numbers

No.	Description	Range
5241	Rotor Measurement Tool	2 $\frac{7}{8}$ in. – 11 $\frac{1}{4}$ in.
5232	Rotor Comparator Tool	9 $\frac{5}{8}$ in. – 11 $\frac{1}{4}$ in.
5233	Rotor Comparator Tool	8 in.
5234	Rotor Comparator Tool	6 $\frac{3}{4}$ in.
5235	Rotor Comparator Tool	6 $\frac{1}{4}$ in.
5236	Rotor Comparator Tool	4 $\frac{3}{4}$ in.
5239	Rotor Comparator Tool	2 $\frac{7}{8}$ in. – 3 $\frac{3}{8}$ in.

Extension Pads

Tool	Part Number	Type	Length	Measurable Range
77-SMT2	Base Pads (77-SMT2-220)	Standard	7.25 in.	.77 in. to 1.115 in.
	77-SMT2-039	Standard	7.25 in.	1.10 in. to 1.445 in.
	77-SMT2-040	Standard	7.25 in.	1.20 in. to 1.545 in.
	77-SMT2-062	Extended	29 in.	1.50 in. to 1.85 in.
	77-SMT2-063	Optional	10 in.	1.80 in. to 2.115 in.
150-SMT1	Base Pads (150-SMT1-022, 023, 024)	Standard	8 in.	1.50 in. to 2.15 in.
	150-SMT1-039	Standard	9.5 in.	
	150-SMT1-058	Extended	18 in.	2.10 in. to 2.75 in.
	150-SMT1-059	Extended	25 in.	
	150-SMT1-040	Standard	9.5 in.	2.70 in. to 3.35 in.
	150-SMT1-060	Extended	29 in.	
300-SMT1	Base Pads (300-SMT1-022, 023, 024)	Standard	10.5 in.	3.00 in. to 3.80 in.
	300-SMT1-039	Standard	12 in.	3.70 in. to 4.50 in.
	300-SMT1-049	Extended	20 in.	
	300-SMT1-040	Standard	14 in.	4.40 in. to 5.20 in.
	300-SMT1-055	Extended	24 in.	
	300-SMT1-041	Standard	18.5 in.	5.10 in. to 5.90 in.
	300-SMT1-056	Extended	28 in.	
	300-SMT1-042	Optional	20 in.	5.80 in. to 6.60 in.
	300-SMT1-043	Optional	20 in.	6.50 in. to 7.30 in.

*Three extension pads required per set.

Gauge Sleeve

Part Number	ID	Colour
77-SMT2-028	0.80 in.	White
77-SMT2-029	1.12 in.	Yellow
77-SMT2-030	1.22 in.	Blue
150-SMT1-056	1.80 in.	no paint
150-SMT1-028	1.50 in.	White
150-SMT1-029	2.10 in.	Yellow
150-SMT1-030	2.70 in.	Blue
300-SMT1-028	3.00 in.	Green
300-SMT1-029	3.70 in.	Brown
300-SMT1-030	4.40 in.	Red
300-SMT1-031	5.10 in.	Black
300-SMT1-032	5.80 in.	Orange
300-SMT1-033	6.50 in.	Yellow