

## MULTI-FINGER CALIPER

### PURPOSE:

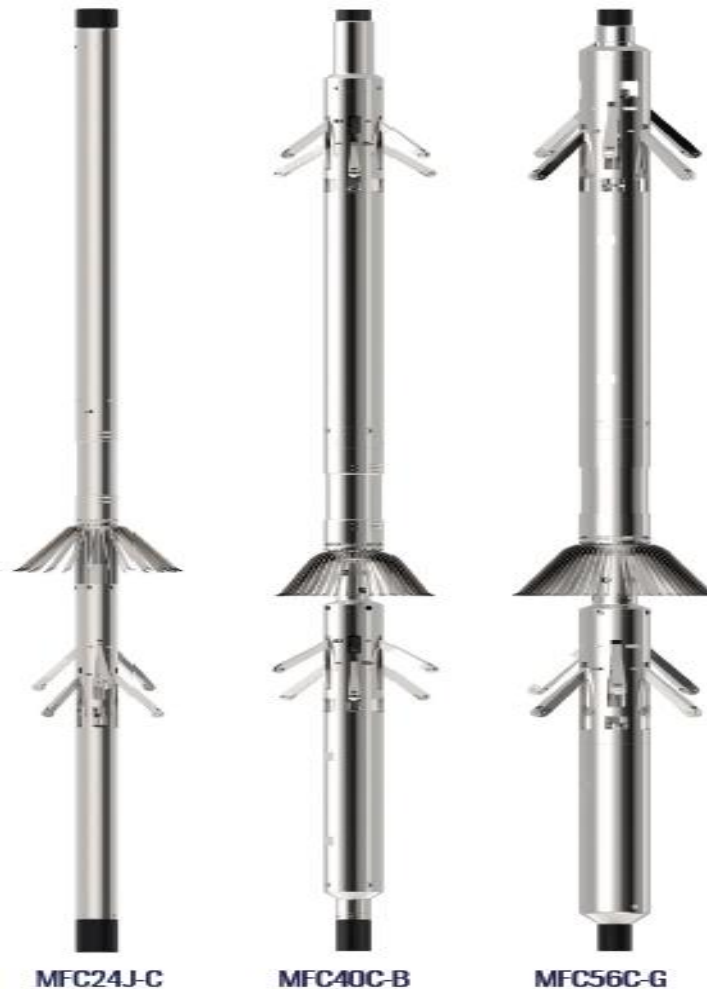
- The Multi-Finger Caliper (**MFC**) tools provide direct, accurate and reliable measurements of internal tubing and casing diameters. Used in both drilling and production environments. Measuring fingers move radially along the inner casing or tubing wall, detecting any diameter change. This produces a high-resolution record of the tubular geometry which can be viewed and presented as a conventional log, a cross section, or a 3-D color enhanced image. Auxiliary measurements include an integral wellbore temperature probe, along with deviation and relative bearing information. A range of instrument diameters with different finger arrays are available to provide optimized measurements in tubulars ranging from 2-3/8 in. to 16 in. diameter.

### ADVANTAGES:

- Available in 24 / 40 / 56 arm options
- Extended finger options available, allowing the tool to log up to 13 ¾" (*Special order extension fingers are available for casing sizes up to 20"*)
- Combinable with Pegasus series tools
- Compatible with Pegasus Star Logging platform.
- Has Built-in Wellbore Temperature and 3-axis accelerometer able to provide crucial information about the Well Conditions including: Temperature, Deviation and Finger position
- MIPSPro™ Compatible for analysis and reporting
- Warrior Compatible

**APPLICATIONS:**

- Measurements of internal tubing and casing diameters
- Measure the buildup of paraffin, scale, and mineral deposits in the wellbore
- Used in the evaluation of erosion, corrosion, wear, pitting, casing/tubing bends, as well as any holes or other defects present in the wellbore.

**TOOL DIAGRAM AND SPECIFICATIONS / INFORMATION:**

		MFC24J-C	MFC40C-B	MFC56C-G
<b>GENERAL SPECS</b>				
Maximum Pressure		15000 PSI (103 Mpa)	15000 PSI (103 Mpa)	15000 PSI (103 Mpa)
Maximum Temperature		350 °F (175 °C)	350 °F (175 °C)	350 °F (175 °C)
Diameter		1-11/16 in. (43 mm)	2-7/8 in. (73 mm)	3-1/2 in. (90 mm)
Length		59.3 in. (1506 mm)	77.95 in. (1980 mm)	81.85 in. (2079 mm)
Caliper Measure Point		26.7 in. (678 mm)	28.06 in. (713 mm)	29.13 in. (740 mm)
Top/Bottom Connection		GOWell 4 Conductor Slip Ring Connection	GOWell 13-pin Connection	
Number of arms		24 arms	40 arms	56 arms
Extended Finger		XF (Same OD)	EF kit(Bigger OD)	EF/EXF kit (Bigger OD)
STD	Minimum, Diameter	1.77 in. (45 mm)	3.14 in. (80 mm)	3.94 in. (100 mm)
	Maximum, Diameter	7.09 in. (180 mm)	8.26 in. (210 mm)	9-5/8 in. (244.5 mm)
	Accuracy, Radial	±0.02 in. (0.5 mm)	±0.02 in. (0.5 mm)	±0.02 in. (0.7 mm)
EF	Minimum, Diameter	1.77 in. (45 mm)	5 in. (127 mm)	7.5 in. (190.4 mm)
	Maximum, Diameter	9-5/8 in. (244.5 mm)	9-5/8 in. (244.5 mm)	13-3/8 in. (340 mm)
	Accuracy, Radial	±0.032 in. (0.81 mm)	±0.032 in. (0.81 mm)	±0.032 in. (0.81 mm)
EXF	Minimum, Diameter	N/A		8.35 in. (212.2 mm)
	Maximum, Diameter	N/A		20 in. (508 mm)
	Accuracy, Radial	N/A		±0.045 in. (1.14 mm)
Temperature Minimum/Maximum/Accuracy		N/A	13° F (-25° C) 347 °F (175°C) ± 2° C 13° F (-25° C)	
Deviation Minimum/Maximum/Accuracy		0° 180° ±5.0°		
Relative Bearing Minimum/Maximum/Accuracy		0° 360° ±5.0° (Dev≥5.0°)		
Typical Logging Speed Vertical Resolution @ 600m/h		32 ft/min (600 m/h) 0.12 in. (3.05mm)		
Working Voltage Working Current		18~36 Volts 80 mA (±20 mA) @18V		
Transmission Mode		CAN Bus		



	MFC24C-J	MFC40C-G	MFC56C-H
	P/N 100511763	P/N 100511762	P/N 100512537
<b>GENERAL SPECS</b>			
Maximum Pressure	15,000PSI (103MPa)		
Maximum Temperature	350°F (175°C)		
Diameter	1-11/16 in (43 mm)	2-7/8 in (73 mm)	3-1/2 in (89 mm)
Length	60 in. (1.52 m)		
Caliper Measure Point	33.9 in. (861 mm)	28.7 in. (729.5 mm)	27.7 in. (704.3 mm)
Weight	28.7 lbs (13 kg)	81.6 lbs (37.0 kg)	138.9 lbs (63.0 kg)
Steel Grade	17-4 SST, Titanium & Al-Bronze		
<b>CALIPER MEASUREMENT</b>			
Number of arms	24 arms	40 arms	56 arms
Minimum	1.96 in. (50 mm)	3.14 in. (80 mm)	3.94 in. (100 mm)
Maximum	7.09 in. (180 mm)	8.26 in. (210 mm)	9.65 in. (245 mm)
Finger Force	3.15 - 4.63 N	4.64 - 7.44 N	3 - 4.54 N
Accuracy	±0.02 in. (0.5 mm)		
Resolution	0.0039 in. (0.1 mm)		
Sensor Type	Linear Displacement Sensor		
<b>TEMPERATURE MEASUREMENT</b>			
Range	-13°F (-25° C) — 350 °F (175°C)		
Accuracy	± 2° C		
Resolution	0.05° C		
Response Time	≤2 sec		
Sensor Type	Platinum Resistor PT100		
<b>INCLINATION MEASUREMENT</b>			
Minimum	0°		
Maximum	180°		
Accuracy	±5.0°		
Resolution	0.1°		
<b>RELATIVE BEARING MEASUREMENT</b>			
Minimum	0°		
Maximum	360°		
Accuracy	±5.0° (Dev ≥ 5.0°)		
Resolution	0.1° (Dev ≥ 5.0°)		
<b>DATA ACQUISITION</b>			
Typical Logging Speed	30 ft/min (9.14 m/min)		
Vertical Resolution @100 samples/ft	0.12 in. (3.05 mm)		
<b>POWER REQUIREMENTS</b>			
Voltage	18V to 36V		
Current	80 mA (±5 mA)		
<b>EXTENDED FINGER OPTION</b>			
Maximum Casing Size	XF 9.7 in. (246 mm)		XF 13.78 in (350 mm) XXF 16 in (406.4 mm)
Accuracy	XF 0.032 in (0.81 mm)		XXF 0.041 in (1.04 mm)
Resolution	0.005 in (0.13 mm)		

**MFC PROCESSED DATA EXAMPLE:**
