MULTI-FINGER CALIPER (MFC)

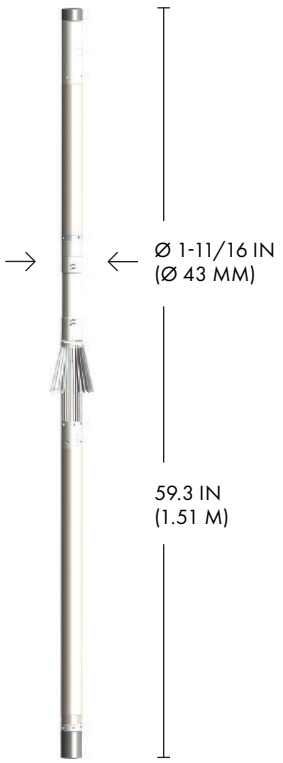
Multi-Finger Caliper tools provide direct, accurate and reliable measurements of internal tubing and casing diameters. Used in both drilling and production environments, applications include the evaluation of corrosion, erosion, wear, bending, buckling, pits, holes and other defects with high accuracy.

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.

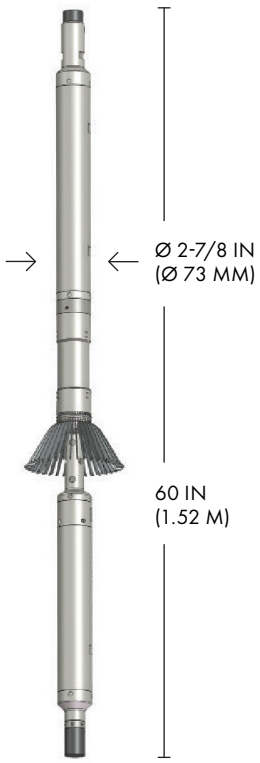
The Multi-Finger Caliper may also be used to measure the buildup of scale, paraffin or other mineral deposits in the wellbore. Auxiliary measurements include an integral wellbore temperature probe, along with deviation and relative bearing information. A range of instrument diameters with different finger arrays are available to provide optimized measurements in tubulars ranging from 2-3/8 in. to 16 in. diameter.

Application & Features

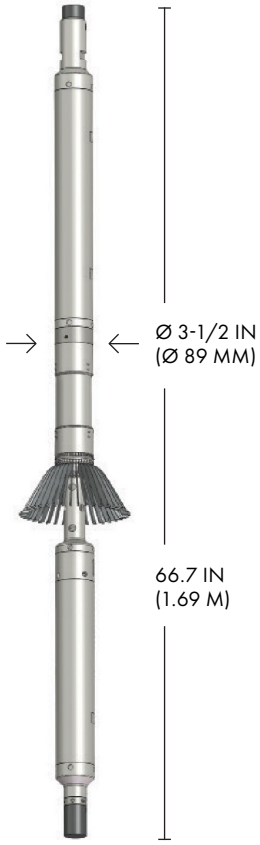
- Available in 24, 40, and 56 fingers
- Extended fingers available
- Combinable with all Pegasus Series Tools
- Compatible with PegasusStar Cased Hole Logging Platform
- Has Built-in Wellbore Temperature and 3-axis accelerometer able to provide crucial information about the Well Conditions including: Temperature, Deviation and Finger position
- ViewWell™ Compatible for analysis and reporting
- Warrior Compatible



MFC24C-J



MFC40C-G



MFC56C-H

SPECIFICATIONS				
		MFC24C-J	MFC40C-G	MFC56C-H
General Specs		P/N 100511763	P/N 100511762	P/N 100512537
Maximum Pressure		15,000 PSI (103 Mpa)		
Maximum Temperature		350°F (175°C)		
Diameter		1-11/16 in (43 mm)	2-7/8 in (73 mm)	3-1/2 in (89mm)
Length		59.3 in (1.51m)	60.0 in (1.52 m)	66.7 in (1.69 m)
Caliper Measure Point		28.7 in (728 mm)	21.9 in (556 mm)	26.3 in (669 mm)
Weight		28.7 lbs (13 kg)	81.6 lbs (37.0 kg)	138.9 lbs (63.0 kg)
Max Tensile Strength		100,000 lbf		
Max Tensile Strength		17-4 SST, Titanium & Al-Bronze		
CALIPER MEASUREMENT				
Number of arms		24	40	56
STD	Minimum, Diameter	2 in (51 mm)	3.5 in (89 mm)	4 in (101.6 mm)
	Maximum, Diameter	7 in (178 mm)	8-1/4 in (209.6 mm)	9-5/8 in (244.5 mm)
	Accuracy	±0.02 in (0.5 mm)	±0.02 in (0.5 mm)	±0.02 in (0.7 mm)
	Radial Resolution	0.0039 in (0.1mm)	0.0039 in (0.1mm)	0.0039 in (0.1mm)
EF	Minimum, Diameter	2 in (51mm)	3.5 in (89 mm)	4 in (101.6 mm)
	Maximum, Diameter	9-5/8 in (244.5 mm)	9-5/8 in (244.5 mm)	13-3/8 in (340 mm)
	Accuracy	±0.035 in (0.89 mm)	±0.035 in (0.89 mm)	±0.035 in (0.89 mm)
	Radial Resolution	0.005 in (0.13mm)	0.005 in (0.13mm)	0.005 in (0.13mm)
EXF	Minimum, Diameter	N/A		4 in (101.6 mm)
	Maximum, Diameter			16 in (406.4 mm)
	Accuracy			±0.045 in (1.14 mm)
	Radial Resolution			0.005 in (0.13mm)
Sensor type		Linear Displacement sensor		
INCLINATION MEASUREMENT				
Minimum Maximum Accuracy		0° 180° ±5.0°		
RELATIVE BEARING MEASUREMENT				
Minimum Maximum Accuracy		0° 360° ±5.0° (Dev≥5.0°)		
VERTICAL RESOLUTION				
Typical Logging Speed		30 ft/min (9.14 m/min)		
Vertical Resolution @ 100 samples/ft		0.12 in (3.05 mm)		
BUILDIN CENTRALIZER				
Buildin Centralizer		NONE		

MULTI-FINGER CALIPER (MFC) SOUR SERVICE TOOLS

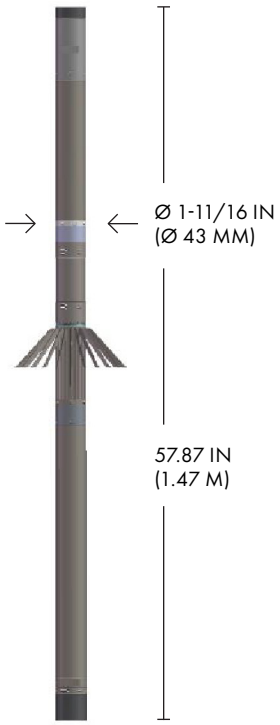
Multi-Finger Caliper tools provide direct, accurate and reliable measurements of internal tubing and casing diameters. Used in both drilling and production environments, applications include the evaluation of corrosion, erosion, wear, bending, buckling, pits, holes and other defects with high accuracy.

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.

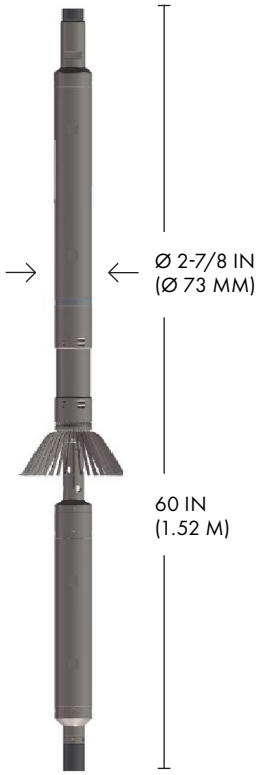
The Multi-Finger Caliper may also be used to measure the buildup of scale, paraffin or other mineral deposits in the wellbore. Auxiliary measurements include an integral wellbore temperature probe, along with deviation and relative bearing information. A range of instrument diameters with different finger arrays are available to provide optimized measurements in tubulars ranging from 2-3/8 in. to 16 in. diameter.

Application & Features

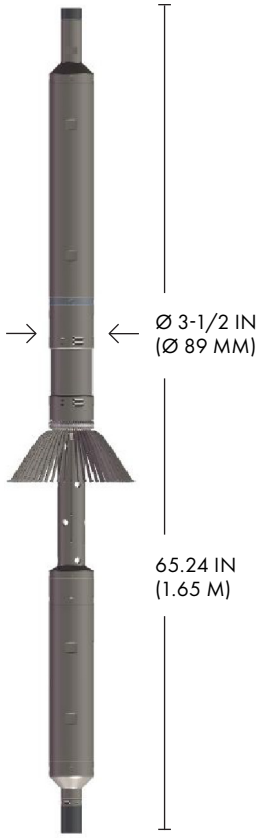
- Available in 24, 40, and 56 fingers
- Extended fingers available
- Combinable with all Pegasus Series Tools
- Compatible with PegasusStar Cased Hole Logging Platform for surface readout and memory operations
- Has built-in 3-axis accelerometer to provide Well Deviation and Finger position (relative bearing)
- ViewWell™ Compatible for analysis and reporting
- Compliant to NACE MR0175/ISO 15156-2015



MFC24J-A



MFC40J-B



MFC56J-B

SPECIFICATIONS				
		MFC24J-A P/N 100516686	MFC40J-B P/N 100518238	MFC56J-B P/N 100518246
Maximum Pressure		15,000 PSI (103 Mpa)		
Maximum Temperature		350°F (175°C)		
Diameter		1-11/16 in (43 mm)	2-7/8 in (73 mm)	3-1/2 in (89mm)
Length		57.87 in (1.47 m)	60.0 in (1.52 m)	65.24 in (1.66 m)
Caliper Measure Point		27.87 in (708mm)	21.87 in (555.5mm)	26.34 in (669mm)
Weight		26.5 lbs (12kg)	44.1 lbs (20kg)	59.5 lbs (27kg)
Max Tensile Strength		100,000 lbf		
Max Tensile Strength		17-4 SST, Titanium & Al-Bronze		
CALIPER MEASUREMENT				
Number of arms		24	40	56
STD	Minimum, Diameter	2 in (51 mm)	3.5 in (89 mm)	4 in (101.6 mm)
	Maximum, Diameter	7 in (178 mm)	8-1/4 in (209.6 mm)	9-5/8 in (244.5 mm)
	Accuracy	±0.02 in (0.5 mm)	±0.02 in (0.5 mm)	±0.02 in (0.7 mm)
	Radial Resolution	0.0039 in (0.1mm)	0.0039 in (0.1mm)	0.0039 in (0.1mm)
EF	Minimum, Diameter	2 in (51mm)	3.5 in (89 mm)	4 in (101.6 mm)
	Maximum, Diameter	9-5/8 in (244.5 mm)	9-5/8 in (244.5 mm)	13-3/8 in (340 mm)
	Accuracy	±0.035 in (0.89 mm)	±0.035 in (0.89 mm)	±0.035 in (0.89 mm)
	Radial Resolution	0.005 in (0.13mm)	0.005 in (0.13mm)	0.005 in (0.13mm)
EXF	Minimum, Diameter	N/A		4 in (101.6 mm)
	Maximum, Diameter			16 in (406.4 mm)
	Accuracy			±0.045 in (1.14 mm)
	Radial Resolution			0.005 in (0.13mm)
Sensor type		Linear Displacement sensor		
INCLINATION MEASUREMENT				
Minimum Maximum Accuracy		0° 180° ±5.0°		
RELATIVE BEARING MEASUREMENT				
Minimum Maximum Accuracy		0° 360° ±5.0° (Dev≥5.0°)		
VERTICAL RESOLUTION				
Typical Logging Speed		30 ft/min (9.14 m/min)		
Vertical Resolution @ 100 samples/ft		0.12 in (3.05 mm)		
BUILDIN CENTRALIZER				
Buildin Centralizer		NONE		

MULTI-FINGER CALIPER (MFC) WITH BUILT-IN MOTORIZED CENTRALIZERS

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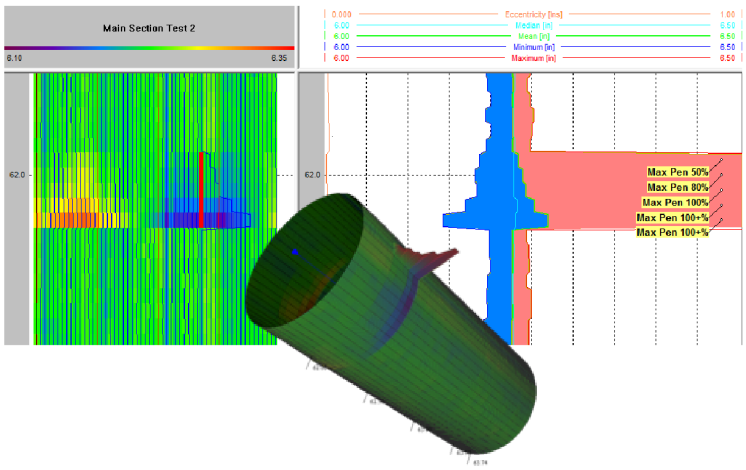
The Multi-Finger Caliper may also be used to measure the buildup of scale, paraffin or other mineral deposits in the wellbore. Auxiliary measurements include an integral wellbore temperature probe, along with deviation and relative bearing information. A range of instrument diameters with different finger arrays are available to provide optimized measurements in tubulars ranging from 2-3/8 in. to 16 in. diameter.

Application & Features

- Available in 24, 40, and 56 fingers
- Extended fingers available
- Combinable with all Pegasus Series Tools
- Compatible with PegasusStar Cased Hole 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
- ViewWell™ Compatible for analysis and reporting

MFC 3D View



MFC24C-C MFC40C-B MFC56C-G

SPECIFICATIONS				
General Specs		MFC24C-C P/N 100504482	MFC40C-B P/N 100514223	MFC56C-G P/N 100514361
Maximum Pressure		15,000 PSI (103 Mpa)		
Maximum Temperature		350°F (175°C)		
Diameter		1-11/16 in (43 mm)	2-7/8 in (73 mm)	3-1/2 in (90mm)
Length		61.46 in (1.56 m)	77.95 in (1.98 m)	81.85 in (2.079 m)
Caliper Measure Point		33.9 in (861 mm)	28.06 in (713 mm)	29.13 in (740 mm)
Weight		25.4 lbs (11.5kg)	79.4 lbs (35.5kg)	112.4 lbs (51kg)
Max Tensile Strength		100,000 lbf		
Max Tensile Strength		17-4 SST, Titanium & Al-Bronze		
TOP AND BOTTOM CONNECTION				
Top/Bottom Connection		Nine 4 Conductor Slip Ring Connection	Nine 13-pin Connection	
CALIPER MEASUREMENT				
Number of arms		24	40	56
Extended finger		EF kit(Bigger OD)		
STD	Total Diameter	1-11/16 in (43 mm)	2-7/8 in (73 mm)	3-1/2 in (90 mm)
	Minimum, Diameter	2 in (51 mm)	3.5 in (89 mm)	4 in (101.6 mm)
	Maximum, Diameter	7 in (178 mm)	8-1/4 in (209.6 mm)	9-5/8 in (244.5 mm)
	Accuracy	±0.02 in (0.5 mm)	±0.02 in (0.5 mm)	±0.02 in (0.7 mm)
	Radial Resolution	0.0039 in (0.1mm)	0.0039 in (0.1mm)	0.0039 in (0.1mm)
EF	Total Diameter	2.56 in (65mm)	4.72 in (120 mm)	7.09in (180mm)
	Minimum, Diameter	3.5 in (89 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	±0.035 in (0.89 mm)	±0.035 in (0.89 mm)	±0.035 in (0.89 mm)
	Radial Resolution	0.005 in (0.13mm)	0.005 in (0.13mm)	0.005 in (0.13mm)
EXF	Total Diameter	N/A		7.87in (200mm)
	Minimum, Diameter			8.35 in (212.2 mm)
	Maximum, Diameter			20 in (508 mm)
	Accuracy			±0.045 in (1.14 mm)
	Radial Resolution			0.005 in (0.13mm)
Sensor type		Linear Displacement sensor		
WELLBORE TEMPERATURE MEASUREMENT				
Minimum Maximum Accuracy		N/A	13°F (-25°C) 347°F (175°C) ± 2°C	
INCLINATION MEASUREMENT				
Minimum Maximum Accuracy			0° 180° ±5.0°	
RELATIVE AZIMUTH MEASUREMENT				
Minimum Maximum Accuracy			0° 360° ±5.0° (Dev≥5.0°)	
VERTICAL RESOLUTION				
Typical Logging Speed			30 ft/min (9.14 m/min)	
Vertical Resolution @ 600 m/h			0.12 in (3.05 mm)	
BUILDIN CENTRALIZER				
Buildin Centralizer		Lower	Upper/Lower	

For more information, and to find a representative near you, visit nineenergyservice.com