

MULTIFINGER CALIPER 40 FINGERS (MFC 40)

HT
HP

FLODIM
Challenging the limits

2" 7/8 - 40 fingers caliper tool

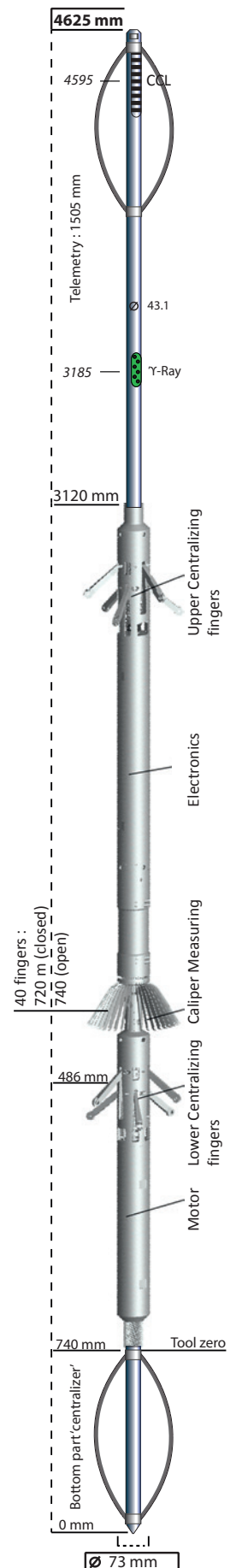
OPERATING PRINCIPLE:

Adapted to the highest industry standards, the Multifinger Caliper is a mechanical downhole well logging tool. Its main function is to detect deformation, bending, fractures, perforation and inside corrosion of the casing with 40 measuring caliper fingers. Measuring fingers and centralizing fingers are opened and closed by a motor, ensuring the tool centralization during the acquisition. Supported by springs, measuring fingers move along the inner casing wall and maintain close contact with the wall. The inner casing wall shape and deformation is obtained by measuring the displacement of each finger independently with a non-contact displacement transducer that features small sizes, long service life and high measurement accuracy. All signals are processed and coded downhole before being transferred to surface. All logging data, including 40-channels of pipe diameter, well temperature, cartridge

temperature, well deviation and relative bearing, and cable head voltage are acquired by the tool and sent via uplink to the surface system via mono-cable. After data is processed by the computer software, the diagram of pipe inner diameter and a 3-D image of the casing are created to intuitively demonstrate the damage details of downhole casing.

To ensure depth correlation with previous logs, the MFC-40 telemetry module is equipped with GR and CCL sensors.

The MFC-40 is frequently used in casing corrosion monitoring for geothermal and Oil & Gas wells, where measurement accuracy and resolution are of high importance to anticipate unwanted deviations.

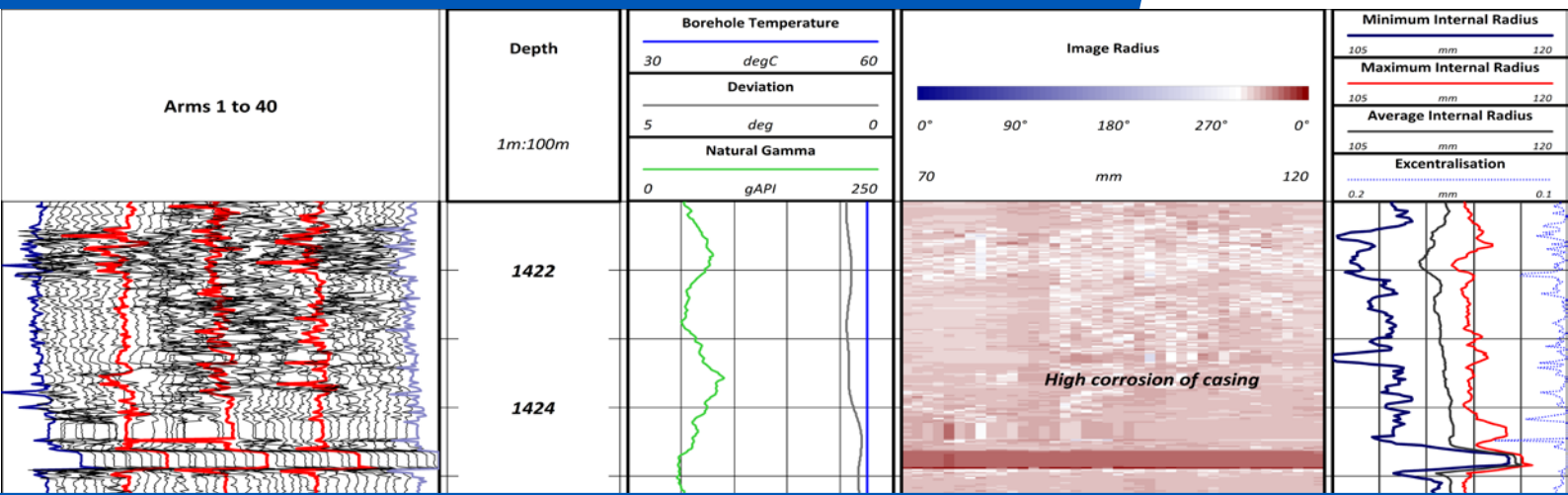


APPLICATIONS

- / Deep Geothermal wells
- / Oil&Gas Cased Hole monitoring
- / Leakage position identification
- / Casing corrosion
- / Casing deformation
- / Casing bending
- / Fractures identification

BENEFITS

- / High resolution shape output
- / High Temperature and pressure rating
- / Adapted to highest industry standards
- / Smart-cost logging



SPECIFICATIONS:

Technical Specifications

	imperial	metric
Max. OD	2.875"	73 mm
	93.8"	2.38 m
Length with Telemetry	15 157.5"	3.85 m
	81.5 lbs	37 kg
Weight with Telemetry	108 lbs	49 kg
Max. Temp.	350 °F	175° C
Max. Press.	15 000 psi	1 000 bar

Output

40 Radii	RAD1 to RAD40 in mm
Min. Radius	Min. RAD in mm
Max. Radius	Max. RAD in mm
Average Radius	AverageRAD in mm
Inclination of the borehole	Deviation in deg
Borehole temperature	BHT in °C/°F
Rel Bearing	RelBearing in deg
MFC Eccentricity	Ecc in mm
Sensor Temperature	STemp in °C/°F
Gamma Ray	GR in gAPI
Casing Collar Locator	CCL

Measuring Parameters

Radius

Measuring Range	3.125" - 8.25"	80 - 210 mm
	w. extensions	231.14 m
	w. exch. Fingers to	273 mm
Accuracy	+/- 0.02"	+/- 0.5 mm
Space between two fingers	0.25" - 0.65"	6.277 - 16.476 mm
Min. Resolution Radius	0.0039"	0.1mm

	Range	Accuracy	Resolution	Response Time
Wellbore and Cartridge Temperature	-25°C - 175°C	+/- 2°C	0.05°C	<=2sec
Tool Deviation	0-180°C	+/- 5°C (Dev>=5°C)	+/- 0.1° C (Dev >= 5°C)	
Relative Azimuth	0-360°C	+/- 5°C	+/- 0.1°	
CCL				Coil
Natural Gamma Ray (*)	0- 3000 GAPI	+/- 5% of measured values ¹	1" x 4" NaI (Ti) scintillation crystal	

¹ Gamma Ray measurements are radioactive measurements and hence subject to statistical variations. These variations depend inter alia on logging speed and filter strength.

Logging Parameters

	imperial	metric
Casing OD Range	3" 1/8-8" 1/4	80-210 mm
	optional with extensions	
	@ 3 mm Vertical Resolution	600 ft/hr
	@ 20 mm Vertical Resolution	3 m/min
Recommended Logging Speed	3 900 ft/hr	20 m/min
Cable requirements	Mono or multi conductor	
Working Voltage & Current	90V +/- 10% , 35 +/-5 mA	
Combinability	Telemetry (GR-CCL) on top, other production logging tools	
Tool zero	Tool bottom	
T measure Points	0.72 m Opened fingers 0.74 m closed fingers	