MULTI ARM
CALIPER IMAGING

The ProMAC series Multi-Arm Caliper tools are the latest generation of electromechanical cased hole logging instruments for measuring the internal profile of the tubing, casing and completion assembly.



Applications

A multi-finger caliper log of the inside of a completion enables operators to cost-effectively plan work-over and remedial operations, and to keep historical records of the general condition of tubing and casing in order to assess any problems associated to corrosion, wear or mechanical deformation through the life of the well.

ProMAC series

The ProMAC series tools are available in 24, 40 and 60-finger option with a full range of measurement. The tools come in 1-11/16 in (43.0 mm), 2-3/4 in (69.9 mm) and 3-3/4 in (95.3 mm) O.D. to log tubulars ranging from 1.75 to 11.75 in (44.5 to 298.4 mm).

As multi-arm caliper tools log the internal profile of the completion, the actuation of each finger is converted to an individual electrical signal.
The toolmeasures at a rate of 50 times per second. Directional data is acquired simultaneously and can also be included in the log presentation.

The ProMAC series multi-arm caliper tools incorporate mechanical, electrical and electronic design features that enhance performance and reliability. The ProMAC tools also incorporate robust temperature compensation stability thanks to patent-pending DVRTs.
Surface Read-Out capable with a Warrior™ cased-hole logging panel, or Memory capable, downhole data is plotted and processed using Warrior™ software for all telemetry options.

SPECIFICATIONS - MULTI ARM CALIPER			
	MAC24	**MAC40**	**MAC60**
MECHANICAL SPECIFICATIONS			
Outside diameter [in/mm]	1.69 / 43.0	2.75 / 69.9	3.75 / 95.3
Length [ft/m]	5.1 / 1.55	5.3 / 1.62	7.46 / 1.66
Weight [lbs/kg]	25 / 11.3	80 / 36.3	135 / 61.2
Temperature Rating [°F/ °C]	350 / 177	350 / 177	350 / 177
Pressure Rating [psi/bar]	15,000 / 1041	20,000 / 1338	20,000 / 1338
No. of arms	24	40	60
MEASUREMENT SPECIFICATIONS			
Diameter Range [in]	1.75 - 7.00	3.00 - 9.63	4.00 - 11.75
Output	Primary: 24, 40 or 60 Internal casing radii, inclination and rotation Secondary: Head voltage, internal temperature		
Logging Speed ft/min [m/min]	Recommended: 30 [9.14], Max. 60 [18.28]		
Vertical Resolution [in/mm]	0.12 / 3.0		
Radial Resolution [in/mm]	0.001 / 0.025		
Radial accuracy +/- [in/mm]	0.02 / 0.5		
Sampling rate [frames/sec.]	50		
Combinability	GR,CCL,PLT, RAS, RADii		
Sensor type	**Caliper:** DVRT	**Inclinometer:** 3-axis accelerometer	
ELECTRICAL SPECIFICATIONS			
Voltage, V DC	50V Surface Readout 19.2V Memory mode		