

Multi-Finger Caliper Tools

Titan Division | Instruments

Overview

The Multi-finger Caliper Tool is a mechanical tool for hole diameter measurement. It is mainly composed of measuring fingers, driver rod and inductive sensors. Each finger is independently connected with a sensor, which transforms radial change of casing inner wall damage to longitudinal change during moving and the hole diameter is thus measured.

To eliminate the influence of inductive coil temperature drift on measurement, the MCT performs real-time temperature drift compensation by RH (High Reference Sensor) and RL (Low Reference Sensor), using its characteristic of temperature change reflection only.

The Multi-Finger Caliper sends an I.D. image (One output per finger) plus additional curves: Deviation and Relative Bearing for orientation. In addition, there are calculated curves derived from the image: Average I.D., Maximum I.D., and Minimum I.D.

Applications

- Corrosion assessment
- Deformation evaluation
- Perforation mapping
- Well construction determination
- Accurate location of holes or anomalies

Features

- Wide range of pipe sizes measurable
- Ease of finger replacement
- SRO/memory modes
- High H2S resistance, H2S concentration 17%

Benefits

- Casing is analyzed for deformation, bending, fractures, holes, pits, slots, cracks, or splits
- Measures internal diameter and its concentricity. Identifies casing joints with differing weights or wall thickness.
- Finds and evaluates defects due to mechanical failure, exposes separated collars, and detects distorted or collapsed sections
- Reveals scale and paraffin buildup.
- Real time logging provides fast, accurate onsite evaluations
- Real time downhole finger temperature compensation



24 Finger
MCT Tool

40 Finger
MCT Tool

60 Finger
MCT Tool

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 **WELL-SUN**

24 Finger-MCT

- 1.69" (43 mm) OD
- 24 Caliper Fingers
- Provides visibility in Tubing and smaller OD (under 7 inches)

H2S Service-24 Finger-MCT

- Designed to run in high H2S applications
- 1.69" (43 mm) OD
- 24 Caliper Fingers
- Provides visibility in Tubing and smaller OD (under 7 inches)

40-Finger MCT

- 2.875" - (73mm) OD
- 40 Caliper Fingers
- Provides higher visibility in the well

60 Finger MCT

- 4.0" - (102mm) OD
- 60 Caliper Fingers
- Highest visibility in the well

Specifications

Multi-Finger Caliper Tool String (MFC)					
	MCT41	MCT42	MCT57	MCT43	MCT46
DIAMETER	1.69" - (43mm)	2.875" - (73mm)	2.875" - (73mm)	4.0" - (102mm)	4.0" - (102mm)
Makeup Length	58.27" - (1480mm)	58.23" - (1479mm)	60.39 - (1534mm)	60.51" - (1537mm)	66.34" - (1685mm)
Weight	49.8 lbs - (22KG)	49.8 lbs - (22KG)	55.13 lbs - (25kg)	68.34lbs - (31kg)	89.96lbs - (40.8kg)
Arms	24	40	40	60	60
Measuring Range - STD Finger	N/A	2.9" - 7.5" (73mm - 190.5mm)	2.9" - 7.5" (73mm - 190.5mm)	4" - 10" (102mm - 254mm)	4" - 10" (102mm - 254mm)
Measuring Range - EXT Finger	1.75" - 7" (45-178)	N/A	2.9" - 9.625" (73mm - 244.5mm)	N/A	4" - 10" (102mm - 254mm)
Measuring Range - X-EXT Finger	N/A	N/A	N/A	UNK" - 17" (UNKmm - 431.8mm)	UNK" - 17" (UNKmm - 431.8mm)
MAX. Pressure	15,000psi (100MPa)	15,000psi (100MPa)	15,000psi (100MPa)	15,000 psi (100MPa)	15,000 psi (100MPa)
MAX. Temperature	350F - (175C)	350F - (175C)	350F - (175C)	350F - (175C)	350F - (175C)
Sensor Information					
Rec. Logging Speed Min/Max	30-60F/min (9.1 -18.2m/min)	30-60F/min (9.1 -18.2m/min)	30-60F/min (9.1 -18.2m/min)	30-60F/min (9.1 -18.2m/min)	30-60F/min (9.1 -18.2m/min)
Radius Resolution - STD Finger	N/A	.003" (.076mm)	.003" (.076mm)	.003" (.076mm)	.003" (.076mm)
Radius Resolution - EXT Finger	.003" (.076mm)	N/A	.005" (.127mm)	N/A	N/A
Radius Accuracy - X-EXT Finger	N/A	N/A	N/A	UNK	UNK
Radius Accuracy - STD Finger	N/A	.03" (.76mm)	.03" (.76mm)	.03" (.76mm)	.03" (.76mm)
Radius Accuracy - EXT Finger	.03" (.76mm)	N/A	.05" (1.27mm)	N/A	.05" (1.27mm)
Radius Accuracy - X-EXT Finger	N/A	N/A	N/A	UNK	UNK
Rotation Accuracy	+/-5 deg (0-100deg)	+/-5 deg (0-100deg)	+/-5 deg (0-100deg)	+/-5 deg (0-100deg)	+/-5 deg (0-100deg)
Inclination Accuracy	+/-5 deg (0-60deg)	+/-5 deg (0-60deg)	+/-5 deg (0-60deg)	+/-5 deg (0-60deg)	+/-5 deg (0-60deg)
Finger Tip Width	.047" - (1.2mm)	.055" - (1.4mm)	.055" - (1.4mm)	.064" - (1.63mm)	.055" - (1.4mm)
Finger Tension Min/Max	.83 lb - 1.24 lb (.37kg - .55kg)	.75 lb - 1.25 lb (.34kg - .56kg)	.75 lb - 1.25 lb (.34kg - .56kg)	.75 lb - 1.25 lb (.34kg - .56kg)	.75 lb - 1.25 lb (.34kg - .56kg)

MCT-Log

