

## ANCHORING & POSITIONING SYSTEMS

**MCR's Electro-Mechanical Anchor** is an electric line or slickline\* deployed anchoring device intended for use with MCR's systems. With outside diameters (retracted) of 1-1/2", 1-3/4" and 2-1/2", EMA's effectively anchor tools for cutting tubulars from 2-3/8" to 7-5/8". Anchor arm material design allow for fixation within ALL tubular materials covered by MCR system specifications, e.g. Monel®, Hastelloy®, Inconel®, Chrome, and plastic coated tubulars.

\* Call MCR for slickline deployment possibilities.

### OPERATION

Operational control & safety are programmed into every Electro - Mechanical Anchor. Arm actuation is limited to DC (+) positive voltage application. Firing authority is limited to DC (-) negative voltage application.

In most situations, use of the EMA eliminates the need for perforations prior to cutting. As always recommended, consult with MCR for deployment specific advice (available 24/7 for ANY job planning questions!). See website for contact information.

The EMA easily interfaces with "suitcase" type firing panels when run with MCR's Fire Panel Filter (FPF), available separately as MCR item FPF-0000-100. The FPF is required when the DC source contains  $\geq 10\%$  AC ripple.

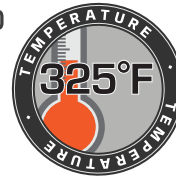
MCR's CheckFire Panel (CFP) enables the operator to determine precise actuation and firing thresholds of any downhole, spooled-off E-Line configuration. The CFP also simulates MCR's EMA and **Thermal Generator™ (THG™)** activator when instructing or setting programmable firing sequences. MCR's CheckFire Panel is available separately as MCR item CFP-1500-100.

### SUPPORTING TOOLS

- CheckFire Panel (CFP)
  - Firing competency tool & training aid used with MCR's Electro-Mechanical Anchor and Thermal Generator activator
- Fire Panel Filter (FPF)
  - Provides filtered DC output for sensitive electronics; can be used with most firing panel systems
- Remote Firing Mechanism (RFM)
  - Data logging tool and firing system; safely enables all MCR tool systems



UP TO



UP TO



## SPECIFICATIONS

### 1-1/2" EMA TOOL SPECIFICATIONS

DESCRIPTION:	1-1/2" ELECTRO-MECHANICAL ANCHOR
LENGTH:	47.9" (121.7 cm)
WEIGHT:	13.5 Lb (6.1 kg)
MAX. DIAMETER (arms stowed):	1-1/2" (3.8 cm)
PRESSURE RATING:	10,000 psi (69 MPa)
TEMPERATURE RATING:	325°F (163°C)
APPLIED VOLTAGE* (at cablehead):	TG-B-150E-01 ≈ 130-175 VDC (-) NEG

\*Initial processor voltage application to begin arm actuation Cycle ≈ 50 - 90 VDC (+) POS

### 1-3/4" EMA TOOL SPECIFICATIONS

DESCRIPTION:	1-3/4" ELECTRO-MECHANICAL ANCHOR
LENGTH:	47.2" (120 CM)
WEIGHT:	23.5 LB (10.7 KG)
MAX. DIAMETER (arms stowed):	1.75" (4.45 CM)
PRESSURE RATING:	20,000 psi (138 MPa)
TEMPERATURE RATING:	325°F (163°C)
APPLIED VOLTAGE* (at cablehead):	TG-B-150E-01 ≈ 130-175 VDC (-) NEG

\*Initial processor voltage application to begin arm actuation Cycle ≈ 50 - 90 VDC (+) POS

### 2-1/2" EMA TOOL SPECIFICATIONS

DESCRIPTION:	2-1/2" ELECTRO-MECHANICAL ANCHOR
LENGTH:	47.2" (120 CM)
WEIGHT:	31 LB (14.1KG)
MAX. DIAMETER (arms stowed):	2.5" (6.35 CM)
PRESSURE RATING:	15,000 psi (103 MPa)
TEMPERATURE RATING:	325°F (163°C)
APPLIED VOLTAGE* (at cablehead):	TG-B-150E-01 ≈ 130-175 VDC (-) NEG

\*Initial processor voltage application to begin arm actuation Cycle ≈ 50 - 90 VDC (+) POS

### 1-1/2" ARM SPECIFICATIONS

ARM I.D.	I.D. RANGE(IN)	ORDER #
ARM-1500-040	1.815" to 1.867"	ARM-1500-340
ARM-1500-041	1.867" to 2.041"	ARM-1500-341
ARM-1500-042	2.151" to 2.259"	ARM-1500-342
ARM-1500-043	2.259" to 2.441"	ARM-1500-343
ARM-1500-044	2.480" to 2.750"	ARM-1500-344
ARM-1500-045	2.764" to 3.068"	ARM-1500-345
ARM-1500-046	3.340" to 3.548"	ARM-1500-346
ARM-1500-047	3.640" to 4.090"	ARM-1500-347
ARM-1500-048	4.151" to 4.545"	ARM-1500-348
ARM-1500-049	4.545" to 4.950"	ARM-1500-349

### 1-3/4" ARM SPECIFICATIONS

ARM I.D.	I.D. RANGE(IN)	ORDER #
ARM-1500-043	2.259" to 2.441"	ARM-1500-343
ARM-1500-044	2.480" to 2.750"	ARM-1500-344
ARM-1500-045	2.764" to 3.068"	ARM-1500-345
ARM-1500-046	3.340" to 3.548"	ARM-1500-346
ARM-1500-047	3.640" to 4.090"	ARM-1500-347
ARM-1500-048	4.151" to 4.545"	ARM-1500-348
ARM-1500-049	4.545" to 4.950"	ARM-1500-349

### 2-1/2" ARM SPECIFICATIONS

ARM I.D.	I.D. RANGE(IN)	ORDER #
ARM-2500-041	3.87" to 4.50"	ARM-2500-341
ARM-2500-042	4.50" to 4.75"	ARM-2500-342
ARM-2500-043	4.75" to 5.01"	ARM-2500-343
ARM-2500-044	5.68" to 6.09"	ARM-2500-344
ARM-2500-045	6.09" to 6.44"	ARM-2500-345
ARM-2500-046	6.44" to 6.90"	ARM-2500-346

## BENEFITS

- Predictable excess pull yielding: four modes of arm yield behavior
- 6063 aluminum arms dissolve in strong acids, aided by arm geometry
- Selectable arms provide best anchoring angle
- Effective in scaled, corrode
- Effective in scaled, corroded, pitted and plastic coated targets
- Arm components are single-use components only, to ensure that new systems are used on every run

\*USE OF PROPER JAR SYSTEMS REQUIRED