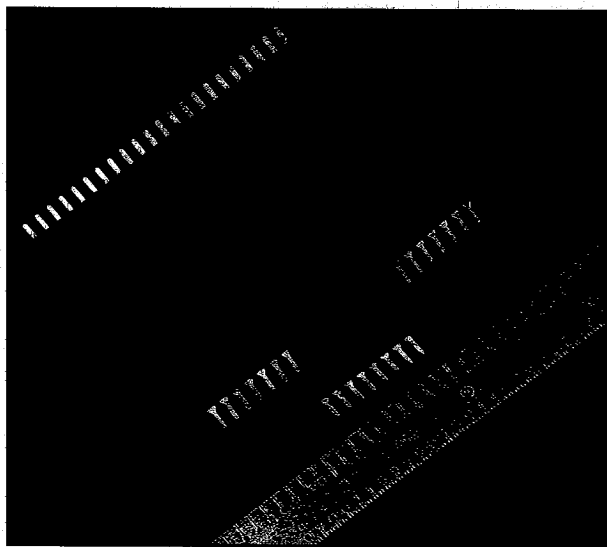
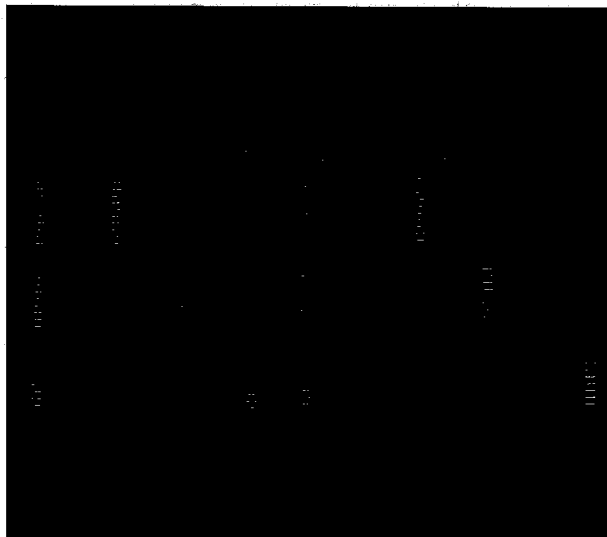


# CUSTOM AND STANDARD SCULPTURED® JUMPERS YOUR COMPETITIVE EDGE

Advanced Circuit Technology (ACT) manufactures a complete line of standard Sculptured® jumpers designed to interconnect commonly used components and subassemblies found within all electronic systems. ACT's patented manufacturing process allows it to literally carve each Sculptured® jumper out of a solid sheet of copper. The resulting jumper has rigid terminal pins that are integral extensions of the thin flexible conductors. Because these pins are not added on, there are no attachment joints to inspect or fail. Sculptured® jumpers offer you the highest level of quality at the lowest installed unit cost. ACT's unique manufacturing process allows it to economically build custom jumpers to satisfy all your non-standard interconnections. ACT's various jumpers are used by approximately 450 companies; spanning the breadth of the electronics industry from consumer goods to aerospace. ACT's Sculptured® jumpers are especially attractive to manufacturers of highly sophisticated electronic products where reliability and custom features are of particular importance.



Custom jumpers; innovative solutions for custom applications.



Standard jumpers; more of what you want for less than you'd expect to pay.

Sculptured® flexible circuits are protected by U.S. patent #4085502, #4357750 and related foreign patents. Other patent applications are also pending.

## CUSTOM SCULPTURED® JUMPERS OFFER:

### Design Versatility

Each Sculptured® jumper is designed to the precise geometric shape of your package. Its length, current carrying capacity, contact shape, plating finish, and pitch centers can be tailored to fit your specific requirement.

### The Power You Need

Sculptured® jumpers easily accommodate both power and signal conductors within the same circuit layer, eliminating heavy gauge wires, associated assembly problems and wiring errors.

### The Ability to Automate Your Assembly Process

Sculptured® jumpers are designed to encourage automated assembly techniques. Simply plug them in, solder assemble, test and ship.

## STANDARD SCULPTURED® JUMPERS OFFER:

### Reliability

Sculptured® jumpers feature built-in terminations. Each pin is an integral extension of its conductor. There is no attachment joint to test or fail.

### Lowest Installed Cost

ACT's patented manufacturing process allows it to build Sculptured® jumpers at a low unit cost and inventory a large variety of standard jumpers ready for immediate shipment when needed. Each circuit is easily tested, quickly connected, and there are no interconnecting errors.

### Variety

Standard Sculptured® jumpers from ACT are available off the shelf in lengths of 1", 1.5", 2", 2.5", 3" and 4"; from 1 to 170 conductors.

The advantages of standard jumpers are:

- Self-terminating ability
- Available from stock
- Eliminate wiring errors
- U.L. approved
- Variety of insulating materials
- Great flexibility
- Low installed cost
- No tooling charge

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# 1. CUSTOM SCULPTURED® JUMPERS

## A. Materials

1. **Insulation (Substrate & Coverlay)**
  - a. Kapton (Preferred) \*IPC-FC-232, IPC-FC-231, UL 94V-0
  - b. Mylar
2. **Adhesive**
  - a. Modified Acrylic \*IPC-FC-233
  - b. Modified "FR" Acrylic \*UL 94-VTM-0
3. **Conductor**
  - a. Copper
    1. 1/4 hard \*IPC-FC-150 type W6
    2. 1/2 hard \*IPC-FC-150 type W6
4. **Stiffeners**
  - a. GFN \*MIL-P-13949
  - b. Polyimide Board \*MIL-P-13949
  - c. Kapton Patch
5. **Plating**
  - a. Bright Tin-MIL-T-10727B
  - b. Tin/Lead \*MIL-P-81728
  - c. Gold \*MIL-G-45204
  - d. Solder \*QQ-S-571
6. **Shielding**
  - a. Silver Epoxy (Preferred)
  - b. Copper Foil

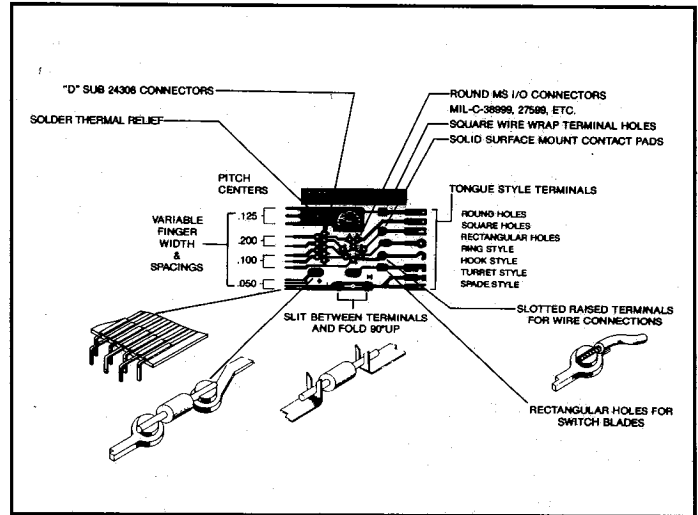
## B. Physical Properties

1. **Maximum Size**
  - a. 22" by 22"
2. **Tolerance**
  - a. Thru Holes and Solder Fingers
    1. .010" Cu + or - .003"
    2. .013" Cu + or - .004"
    3. .020" Cu + or - .005"
  - b. Conductor Pitch
    1. Down to .035" (Raised Area)
    2. Down to .025" (Reduced Area)
  - c. Conductor Thickness
    1. + or - .001"
  - d. Finger Thickness
    1. + or - .001" before plate
  - e. Outlines
    1. + or - .020"
    2. + or - .010" (1 up die)
    3. + or - .005" (male/female die)
3. **Temperature**
  - a. -55° C to +125° C Nominal
4. **Flexibility (Bend Radius)**
  - a. 2 times thickness of material (Static Bend Only)

## C. Electrical Capabilities

1. **Design Parameters**
  - a. Design parameters in accordance with MIL-STD-2118 or IPC 2223 for electrical requirements
2. **Impedance Control (Z-con™ Laminate)**
  - a. Microstrip = up to 93 OHMs
  - b. Stripline = up to 68 OHMs

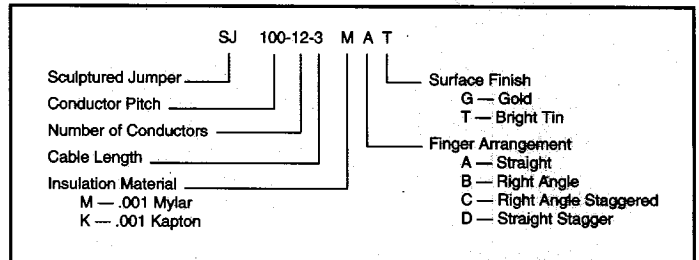
# CUSTOM JUMPERS THAT ARE COMPATIBLE WITH YOUR PACKAGING NEEDS



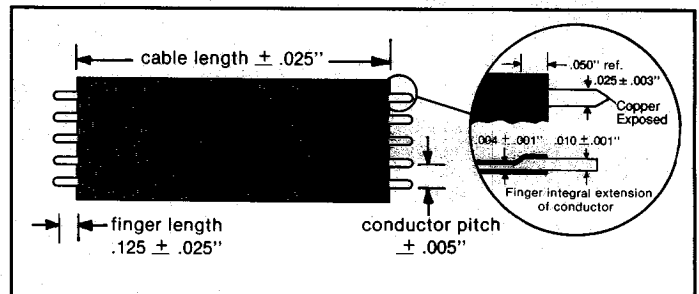
## Design Tips for ACT's Sculptured® Circuits:

- Always form fingers prior to solder assembly
- For ease of assembly, keep cable width within 3 inches
- Take advantage of Sculptured® jumpers' unique strain-relieving characteristics by using a 10% service loop
- The length of a Sculptured® jumper is measured from one end of the insulation to the other, not including the finger length
- Depending on your requirements, Sculptured® jumpers can meet MIL-P-50884, type 1 or IPC-FC-250, class 1, 2 and 3, UL categories ZPMV2, ZPFW2, and CSA 602a

## STANDARD JUMPER ORDERING CODE



## STANDARD JUMPER GENERAL SPECIFICATIONS



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