

# CHIP SORTER

## Model CS - 10



The chip tester Model CS - 10 is designed for automatic testing and sorting of chip components depending on the measuring bridge used on the machine.

Chip are tested individually in the rotary carrier plate with a sliding contact and sorted according to preset parameters. Chips are binned into 10 bins and 1 bin for untested plus out of range chips.

Chips are transported by the rotary test plate to the test position where they are probed. Depending on the options used, the machine can have up to 5 measuring probes. The vacuum prevents chips to fall out of the test plate until they are binned in one of 11 bins.

A special design of the sliding contact ensures a reliable contacting and long life time. This contact method provides accurate measurements of different parameters including very accurate test of C and tg D testing at 1 MHz.

The automatic chips feeding is provided by the bulk feeder. An video display is available on the test bridge for continuous bin counting and information of preset tolerances.

It is also possible to preset number of chips in a bin. When this number is reached, the machine stops sorting.

Fewer moving parts of the machine ensure lower maintenance costs, reliable operation and long life time of the machine.

**TECHNICAL DATA :**

- Max. chip size : 4,5 x 3,2 mm
- Min. chip size : 1,6 x 0,8 mm
- Dimensions: 1000 x 700 x 1500 mm
- Power requirement :
  - Electricity 220 V, 50 Hz
  - Compressed air : 6 bars, 100 l/min
  - Vacuum : 0,6 bar, 200 l/min

**Option 1 :**

- capacitance measurements ( instrument HP 4278 A )
- Capacity : up to 50.000 pcs / hour
- Range and test accuracy :

|                | 1 kHz                                     | 1MHz                  |
|----------------|---|-----------------------|
| C - range :    | 1000 pF - 2 uF                            | 1 pF - 2048 nF        |
| C - accuracy : | + - ( A+0,05 pF + 0,005 % of full scale ) |                       |
|                | A = bridge accuracy                       |                       |
| D - range      | 0,00000 - 0,99999                         | 0,00000 - 0,05000     |
| D - accuracy   | + (B=(3,15 x 10 x C in nF)                | + (B+(3,15x10xCin pF) |
|                | B= bridge accuracy                        |                       |

**Option 2 :**

- measurements of chip VDR
- instrument : KEITHLEY 2400 ( 200 V )  
 KEITHLEY 2410 ( 1100 V )
- tests :
  1. Nominal VDR voltage at specified DC current of specified duration
  2. DC standby current at specified DC voltage of specified duration
  3. Non linear exponent test at specified currents ( I1 and I2 )
$$\alpha = \log ( I2 / I1 ) / \log ( V2 / V1 )$$
- Capacities :
  - 1 instrument
    - 35.000 pcs/hour one side measurement
    - 18.000 pcs/hour two sides measurement
  - 2 instruments
    - 35.000 pcs/hour two sides measurement

**Option 3 :**

- measurements of chip NTC or chip PTC
- resistance measurements ( instrument HP 34401 MULTIMETER)

| Resistance | Resolution | Accuracy<br>% of reading + % of range | Current source |
|------------|------------|---------------------------------------|----------------|
| 100 ohm    | 100 uohm   | 0.010 + 0.004                         | 1 mA           |
| 1 kohm     | 1 mohm     | 0.010 + 0.001                         | 1 mA           |
| 10 kohm    | 10 mohm    | 0.010 + 0.001                         | 100 uA         |
| 100 kohm   | 100 mohm   | 0.010 + 0.001                         | 10 uA          |
| 1 Mohm     | 1 ohm      | 0.010 + 0.001                         | 1 uA           |
| 10 Mohm    | 10 ohm     | 0.040 + 0.001                         | 500 nA         |
| 100 Mohm   | 100 ohm    | 0.800 + 0.010                         | 500 nA         |

- Capacities :
- 36.000 pcs/hour