

# SPECIFICATION FOR MLM-180 MEDIA

## **I. PHYSICO-CHEMICAL PROPERTIES OF CHEMICAL PORCELAIN USED TO MANUFACTURE MLM**

<b>IA.</b>	<u>Chemical Composition</u>	<u>% by Weight</u>
	SiO <sub>2</sub>	65 – 75
	Al <sub>2</sub> O <sub>3</sub>	18 – 23
	Fe <sub>2</sub> O <sub>3</sub>	≤ 1.5
	K <sub>2</sub> O + Na <sub>2</sub> O	≤ 4

### **IB.** Physical Properties

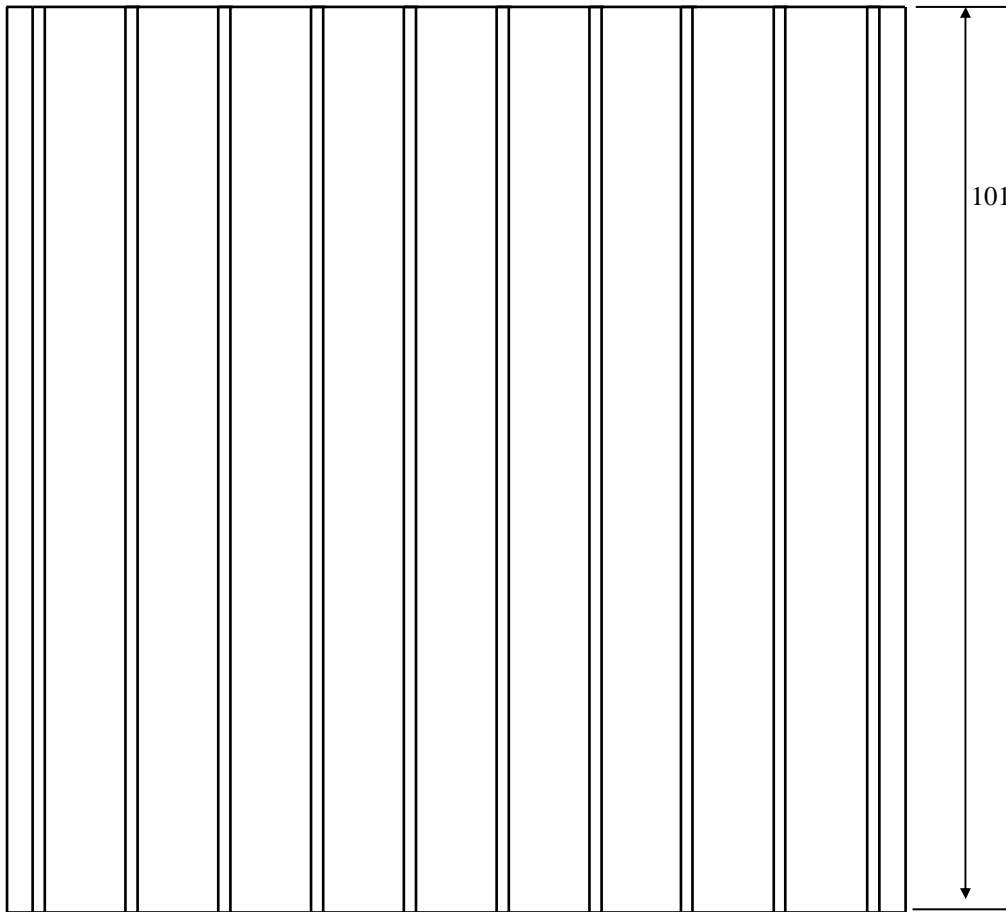
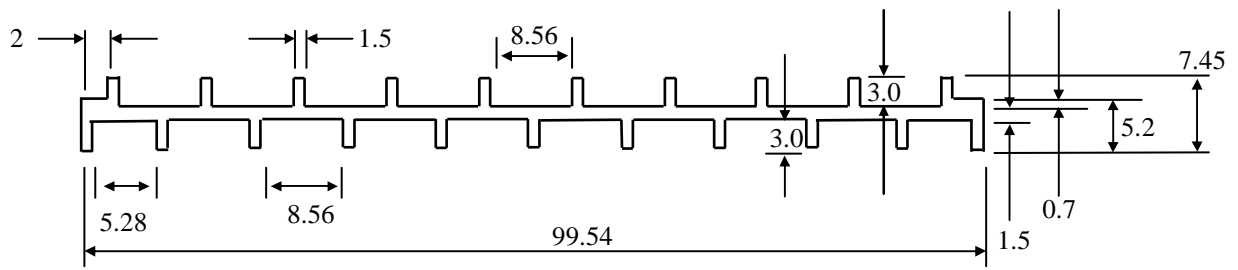
Specific Gravity	2.2 – 2.5
Maximum Working Temperature	2,150 °F
Heat Capacity	0.22 BTU/lb °F
Cold Crushing Strength	12,500 lbs/ft <sup>2</sup>

## **II. DIMENSIONAL TOLERANCES OF INDIVIDUAL LAYERS**

### **IIA.** Layer Dimensional Tolerances:

Length x Width x Height = 101 ± 1.0 x 100 ± 1.0 x 7.5 ± 0.2 (mm)

**II.B.** Layer Dimensions (see diagram below)



**II.C.** Wall Thickness  $1.5 \pm 0.15$  (mm)

**II.D.** Parallelism:\*  $< 2.0$  mm

**II.E.** Perpendicularity:  $90 \pm 1.5^\circ$

\*Deviation from being perfectly flat

### **III. DIMENSIONAL TOLERANCES OF ASSEMBLED MODULES**

**IIIA.** Over-all Dimensions: 12" x 12" x 4"

**IIIB.** Over-all Dimensional Tolerances:

Length x Width x Height =  $305 \pm 3.0$  x  $305 \pm 3.0$  x  $101 \pm 1.5$  (mm)

**IIIC.** Parallelism:

< 3.0 mm between two 12" x 12" surfaces

< 2mm between two 12" x 4" surfaces

**IIID.** Perpendicularity:

$90 \pm 1^\circ$  between any two adjacent surfaces perpendicular to each other

**IIIE.** Fin Height and Thickness  $2.7 \pm 0.15$  (mm) – Height

$1.4 \pm 0.15$  (mm) – Thickness

**IIIF.** Distance between Adjacent Layers ("Top Side" to "Top Side") shall be between 5.0 mm and 5.4 mm. Spacing between any two adjacent plates may be as much as 6.5 mm, as long as the average remains within the specified range. The plate count shall be 55 to 59 plates per 305mm stack, or 165 to 177 plates per module.

### **IV. WEIGHT VARIATION**

19.8 lbs to 22.7 lbs per module

### **V. VOID FRACTION**

56% to 62 %

### **VI. CRUSHING STRENGTH**

12,500 lbs/ft<sup>2</sup>

## **VII. VISUAL INSPECTION**

- ~ Cracks in layers: less than 5 per module
- ~ Cracked or missing fins: not to exceed three (3) per module
- ~ The adhesive will be applied evenly and completely without any cracks, crevices or gaps. Excessive application of adhesives must be avoided.

## **VIII. QUALITY ASSURANCE TESTING PROCEDURE**

- ~ All modules shall be visually inspected to ensure that the requirements as detailed above, are met.
- ~ Two (2) modules from each crate shall be tested for Dimensional Tolerance, Weight Variation and Plate Count.

## **XI. RAMIFICATIONS**

- ~ If more than twenty (20) of the fifty (50) samples tested fail any or all of the tests outlined, then the entire load of material will be rejected. All costs associated with the disposal of the rejected load will be the supplier's responsibility.
- ~ If less than twenty (20) fail, then the price of the load will be reduced in direct relationship to the percentage of failures. For example, if five (5) of the fifty (50) fail, the price reduction would be 10%.
- ~ Breakage during shipment shall be limited to 2%. The ramifications listed apply only to the remaining modules.

## **XII. ENVIRONMENTAL ASPECTS**

Due to its physico-chemical properties, MLM is no hazardous waste and thus can be safely disposed of without any threat to the environment.