



C O R P O R A T I O N

## Technical Data Sheet

### Head Expander Options

TDS-1

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#### 1. DAMPING TREATMENT

M/RAD utilizes a visco-elastic material, P/N C2003-19, which is adhered to the underside of the head expander to minimize the amplification factor associated with a resonant frequency. A Q of 40 - 50 is typical WITHOUT the Damping Material. A Q of 20 - 25 is typical WITH the Damping Material. Please note that the Damping Material does not eliminate the natural frequency, rather it serves to reduce the amplification factor. It may still be necessary to use Multi-point averaging or notching to control the head expander to required tolerance limits, if applicable.

M/RAD has fabricated over 450 head expanders over the years and offers over 20 years of engineering expertise in the manufacture of these fixtures. The anticipated natural frequency is based on the following criteria:

- a. Analysis of a beam using a free-free mode whose length is equal to the diagonal of the head expander.
- b. Experience with similar applications. (Please note that it is impossible to predict the precise performance of a head expander from one shaker to another since each shaker has its own peculiar performance characteristics, thereby, rendering the performance of each head expander to be slightly different).

#### 2. THERMAL BARRIER

The head expander may operate with the top of the table exposed to climatic conditions of -100 to +200 degrees F and up to 100% relative humidity. The test item, may be at temperature extremes 24 hours a day for several days at a time. The thermal barrier shall be SG200, 3/8 inch thick which shall provide the best balance of dynamic transmissibility, thermal isolation, moisture absorption, machinability, durability, environmental contamination, thermal expansion and density.

#### 3. THERMAL TREATMENT

The head expander shall have polyurethane foam placed in each of the cavities to lessen the thermal load that a chamber may have in order to change temperature.

#### 4. INSERTS, INSTALLED

M/RAD shall drill, tap and install stainless steel inserts in anycustomer selected pattern. If interference should occur between the insert and counterbore, then the counterbore shall take precedence.