

## SERIES 2100

# EXCITER STINGERS

- Provide convenient excitation connection between shaker and structure
- Alleviates need for alignment accuracy
- Reduces force sensor measurement error
- Isolates fragile exciter armatures
- Adapts to different mounting threads

## TYPICAL APPLICATIONS

- Modal analysis
- Ground vibration testing
- Body-in-white testing
- Structural testing

## FOR ELECTRODYNAMIC SHAKERS

An excitation stinger consists of a thin, flexible rod, with attachment means at both ends. The stinger transmits forces in the stiff axial direction and flexes laterally to reduce input side loads to the structure. Reducing the side loading is important because the lateral structural inputs are not measured by a uniaxial reference force sensor. These forces, which enter a test structure and are not measured as input, add noise to the measurement process. Therefore, elimination or relocation of these lateral inputs improve the accuracy of the measurement.

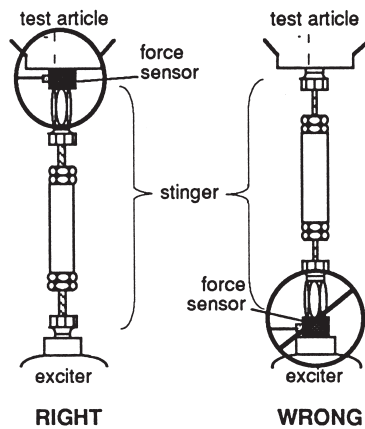
The force transducer should be rigidly fixed to the test article and the stinger should be placed between the exciter and the force transducer. This configuration is necessary to avoid problems with the inertial effects and resonant behavior of the stinger, which cause errors in measurement of the force. Some of the applied force will be absorbed because the stinger's mass must be accelerated to the desired vibration level. Furthermore, at a resonance of the stinger, the stinger will alter the transmission of force through it to the test article, resulting in dynamic decoupling of the exciter from the article.

The stinger also helps to isolate the exciter armature from the structure, lessening inadvertent shocks and possibly prevent damaging a fragile exciter armature. Likewise, the stinger can protect a fragile structure from large, inadvertent excitations.

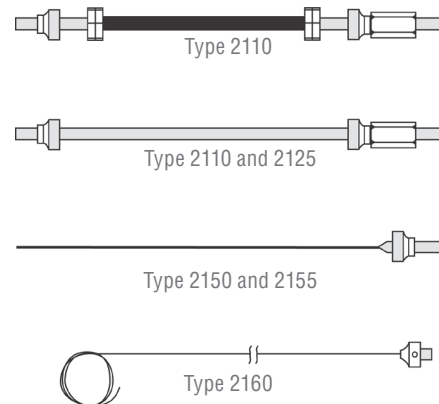
| SPECIFICATIONS         |                                    |                              |                              |                           |                           |                           |
|------------------------|------------------------------------|------------------------------|------------------------------|---------------------------|---------------------------|---------------------------|
|                        | 2110GXX <sup>[1]</sup>             | 2120GXX <sup>[1]</sup>       | 2125GXX <sup>[1]</sup>       | 2150GXX <sup>[1]</sup>    | 2155GXX <sup>[1]</sup>    | K2160G                    |
| Material               | Threaded nylon rod w/ support tube | Threaded stainless steel rod | Threaded stainless steel rod | Steel rod w/ threaded end | Steel rod w/ threaded end | Flexible steel piano wire |
| Diameter/thread (in.)  | 10-32                              | 10-32                        | ¼-28                         | 0.0625                    | 0.09375                   | 0.028                     |
| Std Lengths (in.)      | 6, 9, 12                           | 9, 12, 18                    | 9, 12, 18                    | 12                        | 12                        | N/A                       |
| Load Sensor Attachment | 10-32                              | 10-32                        | ¼-28                         | 10-32                     | 10-32                     | 10-32                     |
| Exciter Attachment     | 10-32                              | 10-32                        | ¼-28                         | Collet                    | Collet                    | Collet                    |
| Quantity               | pack of 3                          | pack of 3                    | pack of 3                    | pack of 3                 | pack of 3                 | 50 ft.                    |

[1] XX indicates stinger length (in inches). Example: To order a pack of three 9-inch nylon stingers, use model number 2110G09.

| Related Products |                                |
|------------------|--------------------------------|
| 288D01           | Impedance Head                 |
| 2050A            | Lateral Excitation Stand       |
| 2060E            | Modal Shaker                   |
| 2100E21-400      | Shaker Amplifier               |
| 8032S            | AirRide Test Structure Support |



Installation Diagram



Stinger Styles

## THE MODAL SHOP

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The Modal Shop, Inc. offers structural vibration and acoustic sensing systems and services for various applications in design and test laboratories as well as manufacturing plants. An extensive sound and vibration rental program, precision calibration systems, and both modal and vibration shakers are designed to simplify test phases. Non Destructive Testing Systems help manufacturers provide 100% quality inspection of metal components. The Modal Shop, Inc. is a subsidiary of PCB Piezotronics, Inc., and PCB® is a wholly owned subsidiary of MTS Systems Corporation.

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