# Mississippi State University Notice of Proposed Sole Source Purchase

# 234-57

Mississippi State University anticipates purchasing the item(s) listed below as a sole source purchase. Anyone objecting to this purchase shall follow the procedures outlined below.

## Commodity or commodities to be purchased (make, model, description):

Make: Polytec

Model: PSV QTec H Scanning Laser Vibrometer

Description: The Polytec QTec Scanning Vibrometer is a state-of-the-art for fast noise and vibration measurements in research and development, which includes a PSV-F-600 laser head, a PSV-I-680 scanning head with QTec, time domain analysis software, a data acquisition system, and some accessories. It can determine operational deflection shapes and Eigenmodes for noise, vibration, acoustics, structural dynamics, ultrasonics, FEM validation, and non-destructive testing.

## Explanation of the need to be fulfilled by this item(s), how is it unique from all other options, and why it is the only one that can meet the specific needs of the department:

As state-of-the-art equipment, the Polytec QTec laser Doppler vibrometer provides a full-field nonintrusive optical technique to measure deformation, vibration, and strain of almost any object. Its acquisition will enable highly qualified researchers to work together to address challenging problems in different fields, including nonlinear wave propagation and metamaterials, structural health monitoring, fluid-structural interaction (FSI), nonlinear dynamics, thermal modal parameter identification, biological materials, strain measurements, and vibration energy harvesting. It will enhance interdisciplinary research collaborations in such areas as FSI, nonlinear dynamics, and insect dynamics, which will lead to breakthroughs in these interdisciplinary fields. For example, use of the equipment will fill knowledge gaps in the dynamic system thematic area, such as developing understanding of effects of nonlinearities on band gaps of structures and stability of nonlinear wave propagation, developing novel structural damage detection techniques for sandwich panels, developing advanced FSI diagnostic technologies with simultaneous flow and structural measurement capability, understanding complex quasiperiodic nonlinear dynamic behaviors of structures, and investigating the hypothesis of increasing natural frequencies of structures at high temperature by intentionally introducing geometrical imperfections.

The Polytec laser Doppler vibrometer with a patented QTec multi-path interferometer technology will be used to measure vibration and conduct vibration-based damage detection of complex structures and rotation machinery. The QTec technology from Polytec is the only solution that can eliminate noise in vibration measurement, which can significantly benefit research on vibration-based structural health monitoring.

As a noncontact-type vibration measurement method, the laser vibrometer can avoid the mass loading problem that is common in vibration measurement using accelerometers. Moreover, the laser vibrometer has a few benefits over another common optical-based noncontact vibration measurement device, digital imaging correlation (DIC): Polytec laser Doppler vibrometer can measure at large standoff distances and maintain accuracy over larger test specimens.

## Name of company/individual selling the item and why that source is the only possible source that can provide the required item(s):

Company name/individual: Polytec / Jack Danieli (j.danieli@polytec.com)

Jack Danieli is the Sales Manager at Polytec Corporation. He is responsible for the sales funnel for the US and Canada. He gives final approval on all sales, trade-ins, financing and credit arrangements.

## Estimated cost of item(s) and an explanation why the amount to be expended is considered reasonable:

The requested Polytec QTec laser Doppler vibrometer includes includes a PSV-F-600 laser head, a PSV-I-680 scanning head with QTec, time domain analysis software, a data acquisition system, an extended geometry processing system, a signal generator, a signal processor, and some accessories. The total price, including software maintenance and training/installation, is $167,000 (see the price quotation from Polytec).

Comparing with the price of a VIC-3D DIC measurement system with a high-speed camera (VRI-V2640-288G-M) of $274,000, the price of Polytec QTec laser Doppler vibrometer is more REASONABLE.

## Explanation of the efforts taken by the department to determine this is the only source and the efforts used to obtain the best possible price:

The initial quote of the Polytec QTec laser Doppler vibrometer was $180,000. After two month negotiation, I was able to secure a final quote of $167,000.

Any person or entity that objects and proposes that the commodity listed is not sole source and can be provided by another person or entity shall submit a written notice to:

Jennifer Mayfield, CPPO  
Interim Deputy Director of Procurement & Contracts  
[jmayfield@procurement.msstate.edu](mailto:jmayfield@procurement.msstate.edu)  
Subject Line must read “Sole Source Objection”

The notice shall contain a detailed explanation of why the commodity is not a sole source procurement. Appropriate documentation shall also be submitted if applicable.

If after a review of the submitted notice and documents, MSU determines that the commodity in the proposed sole source request can be provided by another person or entity, then MSU will withdraw the sole source request publication from the procurement portal website and submit the procurement of the commodity to an advertised competitive bid or selection process.

If MSU determines after review that there is only one (1) source for the required commodity, then MSU will appeal to the Public Procurement Review Board. MSU will have the burden of proving that the commodity is only provided by one (1) source.