

DIGITAL INDUSTRIES SOFTWARE

# Simcenter Qsources thumper shaker

Simcenter/Q-TMP/3/20221111

## Product Information Sheet

### Summary

The Simcenter™ Qsources hardware thumper shaker is a compact, low-frequency shaker intended for frequency response function (FRF) acquisition in the 5- to 200Hz range. The shaker typically replaces instrumented sledgehammer applications and is used when hammer excitation is not possible due to space constraints. The lack of any external support enables fast instrumentation, so there's no longer any need to align the shaker, force sensor and test object. The shaker is mounted on a test structure with glued-on mounting studs with M8 thread. The shaker can be glued onto the test object in any orientation.

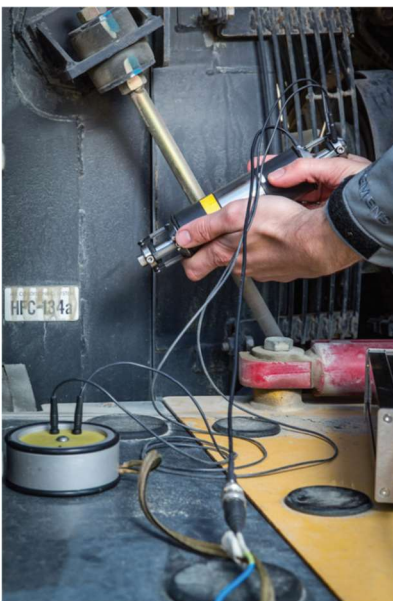
## BENEFITS

- Ensures self-suspension and alignment
- Provides excitation for any mounting angle
- Delivers frequency range of 5 to 200 Hz
- Facilitates scaled FRFs at low frequencies

## FEATURES

- Integrated 1D force sensor
- Suitable for random, large amplitude chirp and sine signals
- Full electric isolation from the test structure allows high resolution measurements with low electromagnetic signal disturbances
- Built-in protection for electronics

Its lean design makes it possible to excite in narrow spaces around machinery. The force level makes it possible to apply it for modal analysis or other kinds of analysis to large structures, such as ships, windmills and industrial installations. It is used in automotive applications to measure quasi-static deformation of vehicle bodies. To enable long reliable use of the shaker, Siemens PLM Software offers a sensitivity measurement service for the internal transducers, including a detailed performance check.



### Application

- Structural transfer functions
- Direct vibro-acoustic FRF
- Transfer path analysis (TPA)
- Structural modal analysis
- Body benchmarking
- Target setting
- Low-frequency force to strain transfer functions

### Physical specifications

- Dimensioning: 200 millimeters (mm) X Ø45 mm
- Weight, excluding cable: 1 kilogram (kg)
- Effective frequency range: 5 to 200 Hz
- Frequency range force sensor ( $\pm 2$  decibel): 5 to 200 Hz
- Maximum peak-to-peak displacement: 40 mm
- Output signal conditioning requirement: IEPE
- Mass loading axial/radial: 150/800 grams
- Sensor connector type: BNC
- Power cable connector: male banana
- Sensor cable length: 10 centimeters (cm)
- Power cable length: 4 meters
- Performance\*
- Frequency range for random testing: 5 to 200 Hz
- Force level: 25 Newton root mean square (Nrms)
- Internal sensors type: IEPE
- The performance and dimensions of the device cited above are only meant to act as a rough guideline. When used with broadband continuous random noise between 5 and 30 Hz.

### Supplied accessories

- User manual
- Sensor cable
- Mounting accessories
- Flight case
- Sensitivity sheet reference sensor

### Product requirements

- Simcenter Qsources measurement amplifier [Q-AMP230V/Q-AMP115V]
- Simcenter Testlab™ software MIMO FRF Testing, spectral acquisition or similar

### Options

- Calibration service [Q-SR-SENS]

### Simcenter Qsources structural and acoustic exciters

- Low-mid frequency volume source [Q-LMF]
- Mid-high frequency volume source [Q-MHF]
- High frequency shaker [Q-HSH]
- Miniature shaker [Q-MSH]
- Thumper shaker [Q-TMP]
- Low-frequency monopole source [Q-MED]