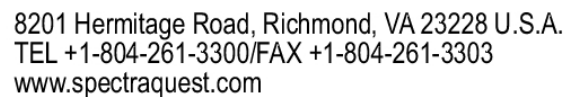# *Turnkey Training Packages*

Complete training for machinery diagnostics

Turnkey Training Packages For Machinery Diagnostics

❖ SpectraQuest simulators and software are conveniently sold as comprehensive training packages. The purchase of a training package provides you with all of the components necessary (simulator, training manuals, transducers, and data acquisition and analysis software) for a fully functional, turnkey training system.

❖ Benefits

  ❖ Turn your present engineers into vibration experts

  ❖ Accurate machinery problem assessment and identification as to root cause

  ❖ Improve process and machinery reliability and satisfy ISO and QS expectations

  ❖ Practice and experiment in laboratory environment to accelerate the learning process

  ❖ Experiment to clear doubts to achieve correct diagnosis every time.
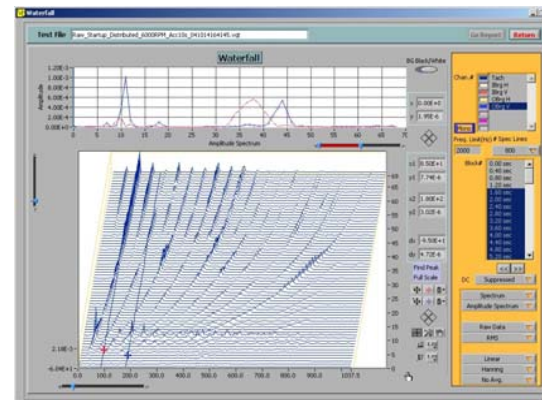
Turnkey Training Packages

Simulator

Training Manuals

Data Acquisition Hardware and Software

Transducers

SpectraQuest, Inc.

Turnkey Training Packages

	#1	#2	#3	#4	#5	#6
Balancing	✓	✓	✓	✓	✓	✓
Alignment		✓	✓	✓	✓	✓
Resonance		✓	✓	✓	✓	✓
Bearing Defects		✓	✓	✓	✓	✓
Rotor Dynamics			✓			✓
Machinery Defects				✓	✓	✓
Motor Defects					✓	✓
Simulator	BBS	MFS-LT	MFS-RDS	MFS	MFS	MFS-MG
Data Acquisition	8ch 5kHz	8ch 5kHz	8ch 5kHz	8ch 102kHz	8ch 102kHz	8ch 102kHz
Software	BQ	VQ-Lite	VQ-Pro	VQ-Pro	VQ-Pro	VQ-Pro
Transducers	Uni Accel	Uni Accel	Uni Accel Prox Prob	Uni Accel Tri Accel AC probe	Uni Accel Tri Accel AC probe	Uni Accel Tri Accel Prox Prob AC probe

Package 1: Basic Vibration Studies

This turnkey training package focuses on the vibration response to balancing.

❖ Simulator and Option Kits
  - ❖ BBS Simulator
  - ❖ Training curriculum
  - ❖ Eccentric and cocked rotors
  - ❖ Centrally bent rotor shaft for balance studies

❖ Data Acquisition System
  - ❖ BalanceQuest Software
  - ❖ 8 Channel 5kHz Portable USB DAQ
  - ❖ Analog input, 16 bit resolution, 8 channel simultaneous sampling at 5kHz or 2 channel simultaneous sampling at 20kHz, IEPE sensor input, Bipolar range -10 to 10, -5 to 5, -2 to 2, -1 to 1.

❖ Transducer
  - ❖ Two industrial ICP accelerometers, 0.3-10KHz, 100mV/G

Package 2: Basic Vibration Studies

This turnkey training package focuses on the vibration response to alignment, balancing, resonance, and bearing defects issues

- ❖ Simulator and Option Kits
  - ❖ MFS-Lite Simulator
  - ❖ Training curriculum
  - ❖ Eccentric and cocked rotors
  - ❖ Four coupling types
  - ❖ Centrally bent rotor shaft for balance studies
  - ❖ Coupling-end bent rotor shaft for alignment studies
  - ❖ Rolling bearing resonance/critical
  - ❖ Sleeve bearing resonance
  - ❖ 5/8" shaft bearing fault
  - ❖ 5/8" shaft bearing loader
  - ❖ 1" shaft bearing
  - ❖ 1" shaft bearing fault
  - ❖ 1" shaft bearing loader
  - ❖ Cocked bearing housing
  - ❖ 5/8" shaft sleeve bearing

- ❖ Data Acquisition System
  - ❖ VibraQuest Lite Software
  - ❖ 8 Channel 5kHz Portable USB DAQ
  - ❖ Analog input, 16 bit resolution, 8 channel simultaneous sampling at 5kHz or 2 channel simultaneous sampling at 20kHz, IEPE sensor input, Bipolar range -10 to 10, -5 to 5, -2 to 2, -1 to 1.

- ❖ Transducer
  - ❖ Four industrial ICP accelerometers, 0.3-10KHz, 100mV/G

Package 3: Rotor Vibration Studies

This turnkey training package focuses on the vibration response to alignment, balancing, resonance, bearing defects, and rotor dynamics issues.

- ❖ Simulator and Option Kits
    - ❖ MFS-RDS Simulator
    - ❖ Training curriculum
    - ❖ 1/2" shaft oil whirl/whip
    - ❖ 3/4" shaft oil whirl/whip
    - ❖ 3/4" shaft rolling bearings
    - ❖ Eccentric and cocked rotors
    - ❖ Four coupling types
    - ❖ Centrally bent rotor shaft for balance studies
    - ❖ Coupling-end bent rotor shaft for alignment studies
    - ❖ Rolling bearing resonance/critical
    - ❖ Sleeve bearing resonance
    - ❖ 3/4" shaft bearing fault
    - ❖ 3/4" shaft bearing loader
    - ❖ 1" shaft study kit
    - ❖ 1" shaft bearing fault
    - ❖ 1" shaft bearing loader
    - ❖ Cocked bearing housing
    - ❖ 3/4" shaft sleeve bearing
- ❖ Data Acquisition System
    - ❖ VibraQuest Pro Software
    - ❖ 8 Channel 5kHz Portable USB DAQ
    - ❖ Analog input, 16 bit resolution, 8 channel simultaneous sampling at 5kHz or 2 channel simultaneous sampling at 20kHz, IEPE sensor input, Bipolar range -10 to 10, -5 to 5, -2 to 2, -1 to 1.
- ❖ Transducer
    - ❖ Four industrial ICP accelerometers, 0.3-10KHz, 100mV/G
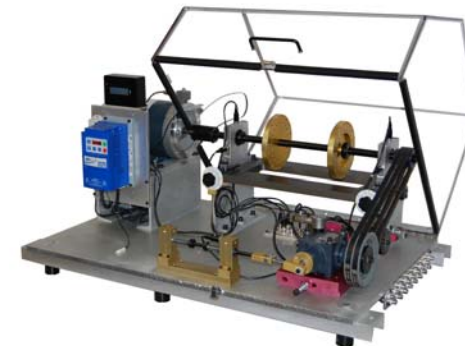   - ❖ Two Eddy current proximity probe with demodulator and power supply

Package 4: Machinery Vibration Studies

This turnkey training package focuses on the vibration response to alignment, balancing, resonance, bearing defect, gearbox, belt, reciprocating mechanism, mechanical rub, shaft crack, and damping.

- ❖ Simulator and Option Kits
    - ❖ MFS Simulator
    - ❖ Training curriculum
    - ❖ Eccentric and cocked rotors
    - ❖ Four coupling types
    - ❖ Center and end bent shafts
    - ❖ Rolling bearing resonance/critical
    - ❖ Sleeve bearing resonance
    - ❖ 3/4" and 1" shaft bearing fault
    - ❖ 3/4" and 1" shaft bearing loader
    - ❖ 1" shaft bearing
    - ❖ Cocked bearing housing
    - ❖ 3/4" shaft sleeve bearing
    - ❖ Multi-Belt drive, and straight tooth gearbox, and adjustable particle magnetic brake system
    - ❖ Belt-drive mounting block

- ❖ Defective gearbox pinions
- ❖ Worn straight tooth gearbox
- ❖ Eccentric sheave
- ❖ Reciprocating mechanism
- ❖ Direct driven belt drive, gearbox, and reciprocating mechanism
- ❖ Mechanical rub
- ❖ Damped bearing housing
- ❖ Crack shaft

Package 4: Machinery Vibration Studies

- ❖ Data Acquisition System
    - ❖ VibraQuest Pro Software
    - ❖ Desktop PC with securely mounted DAQ board, 24 bit resolution, 8 channel simultaneous sampling at 102.4 kHz, IEPE sensor power, Anti-Aliasing filter, eight 8 foot SMB to BNC cables.
- ❖ Transducer
    - ❖ Eight industrial ICP accelerometers, 0.3-10KHz, 100mV/G
    - ❖ One industrial ICP tri-axial accelerometer, 0.4 - 5 kHz , 100 mV/g
    - ❖ AC motor current probe
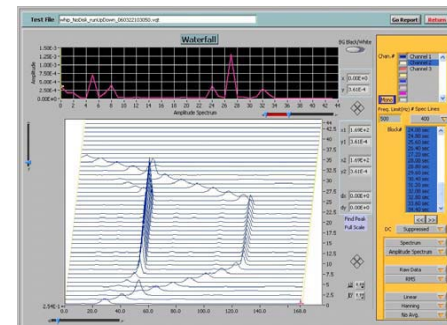
Package 5: Motor and Machinery Vibration Studies

This turnkey training package focuses on the vibration response to alignment, balancing, resonance, bearing defect, gearbox, belt, reciprocating mechanism, mechanical rub, shaft crack, damping, induction motor, pump, fan, and compressor.

❖ Simulator and Option Kits
  - ❖ MFS Simulator
  - ❖ Training curriculum
  - ❖ Eccentric and cocked rotors
  - ❖ Four coupling types
  - ❖ Center and end bent shafts
  - ❖ Rolling bearing resonance
  - ❖ Sleeve bearing resonance
  - ❖ 3/4" and 1" shaft bearing fault
  - ❖ 3/4" and 1" shaft bearing loader
  - ❖ 1" shaft bearing
  - ❖ Cocked bearing housing
  - ❖ 3/4" shaft sleeve bearing
  - ❖ Multi-belt drive and gearbox
  - ❖ Belt-drive mounting block
  - ❖ Eccentric sheave
  - ❖ Reciprocating mechanism
  - ❖ Mechanical rub
  - ❖ Damped bearing housing
  - ❖ Crack shaft
  - ❖ Fan vibration
  - ❖ Centrifugal pump
  - ❖ Reciprocating compressor
  - ❖ Faulted gearbox, pump, compressor
  - ❖ Direct driven belt drive, gearbox, reciprocating, pump, compressor
  - ❖ Seven AC motor with faults

Package 5: Motor and Machinery Vibration Studies

- ❖ Data Acquisition System
  - ❖ VibraQuest Pro Software
  - ❖ Desktop PC with securely mounted DAQ board, 24 bit resolution, 8 channel simultaneous sampling at 102.4 kHz, IEPE sensor power, Anti-Aliasing filter, eight 8 foot SMB to BNC cables.
- ❖ Transducer
  - ❖ Eight industrial ICP accelerometers, 0.3-10KHz, 100mV/G
  - ❖ Two industrial ICP tri-axial accelerometer, 0.4 - 5 kHz , 100 mV/g
  - ❖ AC motor current probe

Package 6: Rotor, Motor & Machinery Vibration Studies

This turnkey training package focuses on the vibration response to alignment, balancing, resonance, bearing defect, gearbox, belt, reciprocating mechanism, mechanical rub, shaft crack, damping, induction motor, pump, fan, and compressor and rotor dynamics.

❖ Simulator and Option Kits
- ❖ MFS-Magnum Simulator
- ❖ Training curriculum
- ❖ 1/2" and 3/4" shaft oil whirl/whip
- ❖ Eccentric and cocked rotors
- ❖ Four coupling types
- ❖ Center and end bent shafts
- ❖ Rolling bearing resonance/critical
- ❖ Sleeve bearing resonance
- ❖ 3/4" and 1" shaft bearing fault
- ❖ 3/4" and 1" shaft bearing loader
- ❖ 1" shaft bearing
- ❖ Cocked and damped bearing housing
- ❖ 3/4" shaft sleeve bearing

- ❖ Multi-belt drive and gearbox
- ❖ Belt-drive mounting block
- ❖ Eccentric sheave
- ❖ Reciprocating mechanism
- ❖ Mechanical rub
- ❖ Crack shaft
- ❖ Fan vibration
- ❖ Centrifugal pump
- ❖ Reciprocating compressor
- ❖ Faulted gearbox, pump, compressor
- ❖ Direct driven belt drive, gearbox, reciprocating, pump, compressor
- ❖ Seven AC motor with faults

Package 6: Rotor, Motor & Machinery Vibration Studies

- ❖ Data Acquisition System
  - ❖ VibraQuest Pro Software
  - ❖ Desktop PC with securely mounted DAQ board, 24 bit resolution, 8 channel simultaneous sampling at 102.4 kHz, IEPE sensor power, Anti-Aliasing filter, eight 8 foot SMB to BNC cables.
- ❖ Transducer
  - ❖ Eight industrial ICP accelerometers, 0.3-10KHz, 100mV/G
  - ❖ Two industrial ICP tri-axial accelerometer, 0.4 - 5 kHz , 100 mV/g
  - ❖ Four Eddy current proximity probe with demodulator and power supply
  - ❖ AC motor current probe