



The next revolution in Operating Deflection Shape analysis from the people who invented Operating Deflection Shape analysis.

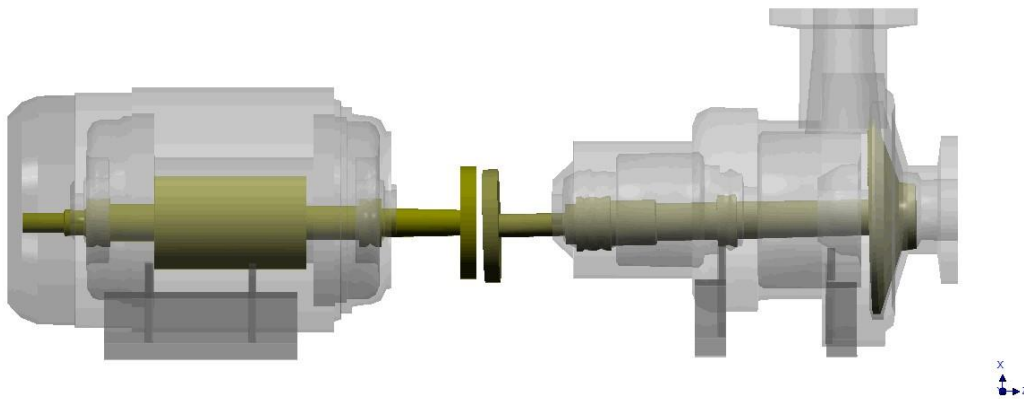
Presenting Vibrant Technology's **MEscope ODS Videos™**

Frequently Asked Questions.....

What is an ODS and why should it interest me?

An "ODS" is short for Operating Deflection Shape. The ODS is a time or frequency "phase-based" analysis of vibration data collected on a structure or piece of rotating machinery. A small set of "phase" data can be used by the plant vibration analyst to provide an "indication of motion" in a machine. A larger set of measurements can be used to bring that "indication of motion" to life! This visual animation information is used to confirm or refute a whole series of vibration issues. Some of these phase-related problems are; Unbalance, Eccentricity, Looseness, Misalignment, Bent Shafts, Cocked Bearings and Resonant Amplification. These VISUAL animations capture the imagination of the audience and help the analyst explain and solve difficult problems.

Y View
FSD



Where did this ODS Technology come from?

The term "Operating Deflection Shape" or ODS was originally coined by Dr. Mark Richardson, founder of Vibrant Technology in the late 1990's. The process allowed the user to animate a set of magnitude and phase measurement data whose "deflection shape" varied with the cursor frequency position. The dynamic ODS "Operating Shape" is analogous to the static Experimental Modal Analysis "Mode Shape".

What is this MEscope ODS Video™ Technology?

This video animation process starts with the collection of a high-speed video of an operating machine or structure. The video processing defines the apparent motion of the individual pixels on the 2-dimensional (x,y) plane. The process computes estimates of changing pixel color and intensity from a high speed video frame by frame. The result is the construction of a time-based or frequency-based ODS animation from literally tens-of-thousands of data points.

How is Optical Flow ODS™ related to MEscope ODS Videos™

A **MEscope ODS Video™** is the process of creating an Operating Deflection Shape (ODS) animation of a machine or structure via a signal processing enhancement of a high-speed video at the pixel level.



Optical Flow ODS™ is the analysis algorithm used to construct the Vibration ODS Videos directly from high-speed video frames. This technology extracts real-time Time Waveforms (TWF's) from each pixel location and maps them to the video image.

If I already own a "Motion Amplification" Camera from another vendor, why do I need the Vibrant Technology product?

It can be argued that there are many benefits of the **MEscope ODS Videos™** Optical Flow algorithm that will result in better video animations. However; a better argument could be made for what happens after the initial Video analysis. After isolating several potential problems in the machine, the other camera vendors at this point will usually recommend a Traditional Accelerometer-based ODS analysis and/or Experimental Modal Analysis (EMA) to get to the problem root cause.

The Vibrant Technology user is way ahead of the game, since the MEscope software platform equips the user to perform BOTH the **MEscope ODS Videos™** analysis AND the Traditional Accelerometer-Based ODS/EMA analysis with its Visual ODS Pro software.

Another argument is that the **MEscope ODS Videos™** process can be used with any High-Speed Video Camera. The camera recommended by Vibrant Technology is a high-resolution Color model. The other vendors only offer black and white imaging cameras. Regardless, if you already own a camera you don't have to buy another one.

Along those lines, if you already own the MEscope basic ODS software from Vibrant Technology, they only require the Visual ODS Pro signal processing option and the **MEscope ODS Videos™** option. if your current software is Visual ODS Pro or better you only need the Vibration ODS Videos™ option (see options below).

What does the MEscope ODS Videos™ cost compared to other vendors?

The requirements for creating **MEscope ODS Videos™** are as follows:

Starting from "Scratch", the full package includes:

Chronos Camera HW & Flicker-Free LED Lighting Kit	\$ 6,400.00
MEscope VT-420 Visual ODS Pro Software	\$ 7,595.00 MEscope VES-9000
Vibration ODS Videos™ Software	\$ 6,000.00
From Scratch Total Cost	\$ 19,995.00

If you already own the MEscope VT-620 Basic ODS Software you need:

Chronos Camera HW & Flicker-Free LED Lighting Kit	\$ 6,400.00
MEscope VES-3000 Signal Processing Upgrade	\$ 3,000.00
MEscope VES-9000 Vibration ODS Videos™ Software	\$ 6,000.00
Current MEscope VT-620 User Total Cost	\$ 15,400.00

If you already own MEscope VT-420 Visual ODS Pro Software (or better)

Chronos Camera HW & Flicker-Free LED Lighting Kit	\$ 6,400.00
MEscope VES-9000 Vibration ODS Videos™ Software	\$ 6,000.00
Current MEscope VT-420 User Total Cost	\$ 12,400.00

If you already own MEscope VT-420 Visual ODS Pro Software (or better) and you already have a Camera and Lighting Kit, all you need is:

MEscope VES-9000 Vibration ODS Videos™ Software	\$ 6,000.00
Total Cost	\$ 6,000.00



Comparing this to the two top competitors;

Their camera systems start at \$30,000.00. No competitor has the Signal Processing power of the MEscope Software required for Traditional Accelerometer-Based ODS analysis. In fact, the competition will commonly seek out an MEscope field service vendor to quote a "traditional" ODS analysis

Is there an ODS Training Option for the Vibrant Technology MEscope ODS Video™ Product?

Yes! The training includes use of the high-speed video camera. Imaging techniques training, ME'scope video processing, ME'scope structural modelling and traditional accelerometer-based ODS data analysis. This training is typically performed at the customer site where the class has access to on-site machinery. This is a balanced start-to-finish training experience.

Hands-on TRAINING using VT-450 ODS Videos™ and VT-800 High-Speed Camera Kit

- Two days of On-Site or Regional training in the USA or Canada (\$5000.00 for up to 2 students).
- Additional training days by customer request (\$2500.00 per day).
- Additional students by customer request (\$1000.00 per student).
- Includes course notes, Project Workbook and a 14-day software license.

What is included in the Mescope ODS Videos™ Kit?

- **MEscope VT-420 ODS Pro Software**
- **MEscope VT-450 Optical Flow ODS Option**
- **MEscope VT-800 High Speed Camera Kit**
 - Chronos 1.4 High Speed Color Camera**
 - 1280x1024 Resolution / 1069 fps Frame rate**
 - Flicker-free, LED lights (2) / Stands (2)**

What is included in the MEscope Vibration VT-450 ODS Videos™ Software?

- **Video ODS Animations compiled in the Time and/or Frequency Domain**
- **Signal Processing via Optical Flow ODS algorithm**
- **Digital Filtering Signal Processing Tools**
- **FFT and Inverse FFT Transformations**
- **External Camera Triggering to lock onto rotor speed.**
- **Access to Raw High Speed Video**
- **Capable of Traditional (transducer based) ODS Analysis**
- **Capable of Traditional (transducer based) EMA Analysis**

IF you Can't SEE IT YOU Can't FIX IT!