

Application Note: DYNOSCOPE

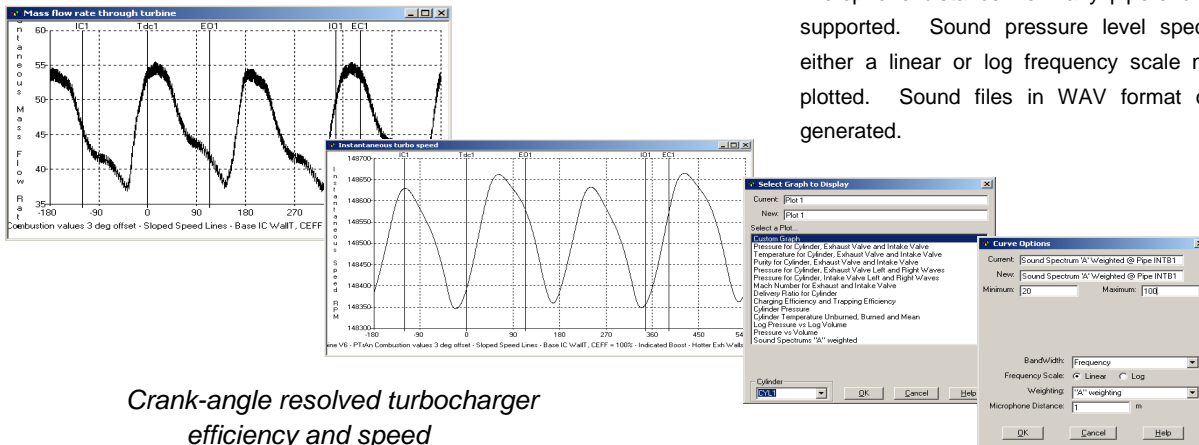
The benefit of engine cycle simulation software often depends on the ability to analyze simulation results and make appropriate design decisions. OPTIMUM Power Technology's VIRTUAL ENGINES provides several advanced post-processing applications to assist in this process. DYNOSCOPE allows comprehensive analysis of simulation output, displaying information on a crank-angle basis to replicate plots that might be obtained in a real engine test cell.

Plot all gas dynamic and thermodynamic parameters throughout the engine including:

- Superposition pressure and pressure waves
- Temperature, mass flow rate and Mach number
- Gas species and purity

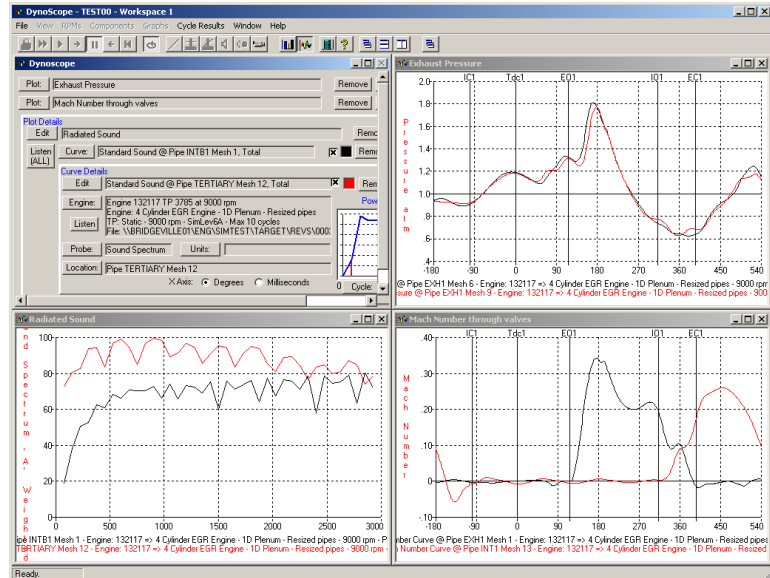
In addition, component-specific data may also be plotted. For example, DYNOSCOPE can plot turbocharger data such as instantaneous:

- Compressor and turbine efficiencies
- Mass flow rate and pressure ratio
- Turbocharger speed



Crank-angle resolved turbocharger efficiency and speed

Standard plots and Noise options



Sample data plots in DYNOSCOPE

Major features of DYNOSCOPE include:

- Comparison of multiple engines on a single plot
- Unlimited number of plots
- Complete user-customization including units
- Independent control of each plot
- Selection from standard plots

Analysis of radiated noise at a user-defined microphone distance from any pipe-end is also supported. Sound pressure level spectra on either a linear or log frequency scale may be plotted. Sound files in WAV format can be generated.