COBRA-AHS™
ADVANCED HIGH-SPEED
COMPUTER OPTIMIZED BALL & ROLLER BEARING ANALYSIS

COBRA-AHS is a bearing analysis program that computes the behavior of up to five (5) bearing rows on a flexible or rigid shaft loaded in 5 DOF. The program has a modern menu-driven Windows interface with a multi-tabbed worksheet format, allowing users to interactively change input data and quickly generate results. COBRA-AHS Full Edition is integrated with ANSYS FEA to perform fit-up and temperature-distribution analyses, including iterative thermal/dimensional interaction.

PROGRAM CAPABILITIES INCLUDE:
- Up to 5 Bearings on flexible or rigid shaft
- Up to 10 Applied Loads in 5 DOF
- Up to 20 Shaft Sections
- Tapered and hollow shaft sections
- Pre-defined defaults for many inputs
- Housing and Shaft Distortion inputs
- Housing and Shaft Sleeves option
- Crowned Rollers w/ Lamina
- Bearing Preload
- Bearing heat generation & cage forces
- Internal Clearance & End-Play
- STLE Fatigue Life Adjustments
- Misalignment, Location Offsets
- Hybrid Bearings, Duplex Bearings
- Lubricant Film Thickness
- Lubricant Effects on L10 Life
- Library of Lubricants
- Interactive Roller Edge Stress Analysis w/ Contour Plot Outputs
- Interactive Sensitivity Studies
- Interactive Duty Cycle Analysis
- Up to 2000 Duty Cycle Conditions
- Skid Estimates for Ball and Cylindrical Roller Bearings
- Input in SI or US units
- Results in SI and US units
- Copy Results & Plots to Clipboard
- Print Results & Plots
- Automatic Update of Results & Plots

4 BEARING TYPES:
- Radial (Conrad) Ball, Angular Contact Ball
- Cylindrical Roller, Tapered Roller

3 EDITIONS AVAILABLE:
- Baseline: analysis capabilities equivalent to Jones Code, plus more output options and modern Windows user-interface
- Intermediate: all Baseline features plus: interactive Roller Crown Design Cell with Edge-Stress estimation (see below)
- Full: all Intermediate features plus: ANSYS integration for temperature distributions and more rigorous Fit-Up analysis
Integration with ANSYS FEA FOR DIMENSIONAL/THERMAL INTERACTION
Available in COBRA-AHS Full Edition only

ANSYS Plot of Temperature Distribution of Duplex Pair of Ball Bearings with Spacers

ANSYS Plot of VonMises Stress and Deformed Geometry

ANSYS Diagram of 3-Bearing Rotor System
PROGRAM RESULTS INCLUDE:
- Bearing Reactions & Load Sharing
- Radial & Axial Spring Rates
- Angular Spring Rate
- Dynamic Capacity
- System L10 Life, Bearing L10 Life
- Bearing Stiffness Coefficients
- Load Zones
- Hertz Contact Stress
- Sub-Surface Shear Stress
- Operating Contact Angle
- Element Loads
- Contact Ellipse Dimensions
- Required Shoulder Heights
- Lubricant Film Thickness
- Life Adjustment Factor-Lubrication
- Individual Element Outputs
- Per Bearing Plots of 11 parameters
- Heat Generation

SYSTEM REQUIREMENTS:
- IBM-compatible PC; 32-bit or 64-bit Windows Operating System (Windows 7, 8, 10); CD drive
- 40 MB hard disk space; 192 MB RAM installed (256 MB preferred); 800x600 pixel screen resolution; 16-bit color display

PACKAGE INCLUDES:
- Installation CD; End-User License; Example Problems; Printed Manual; Release Notes, USB Hardware Security Key
- Free Technical Support for 1 year. Fee-based support available thereafter.