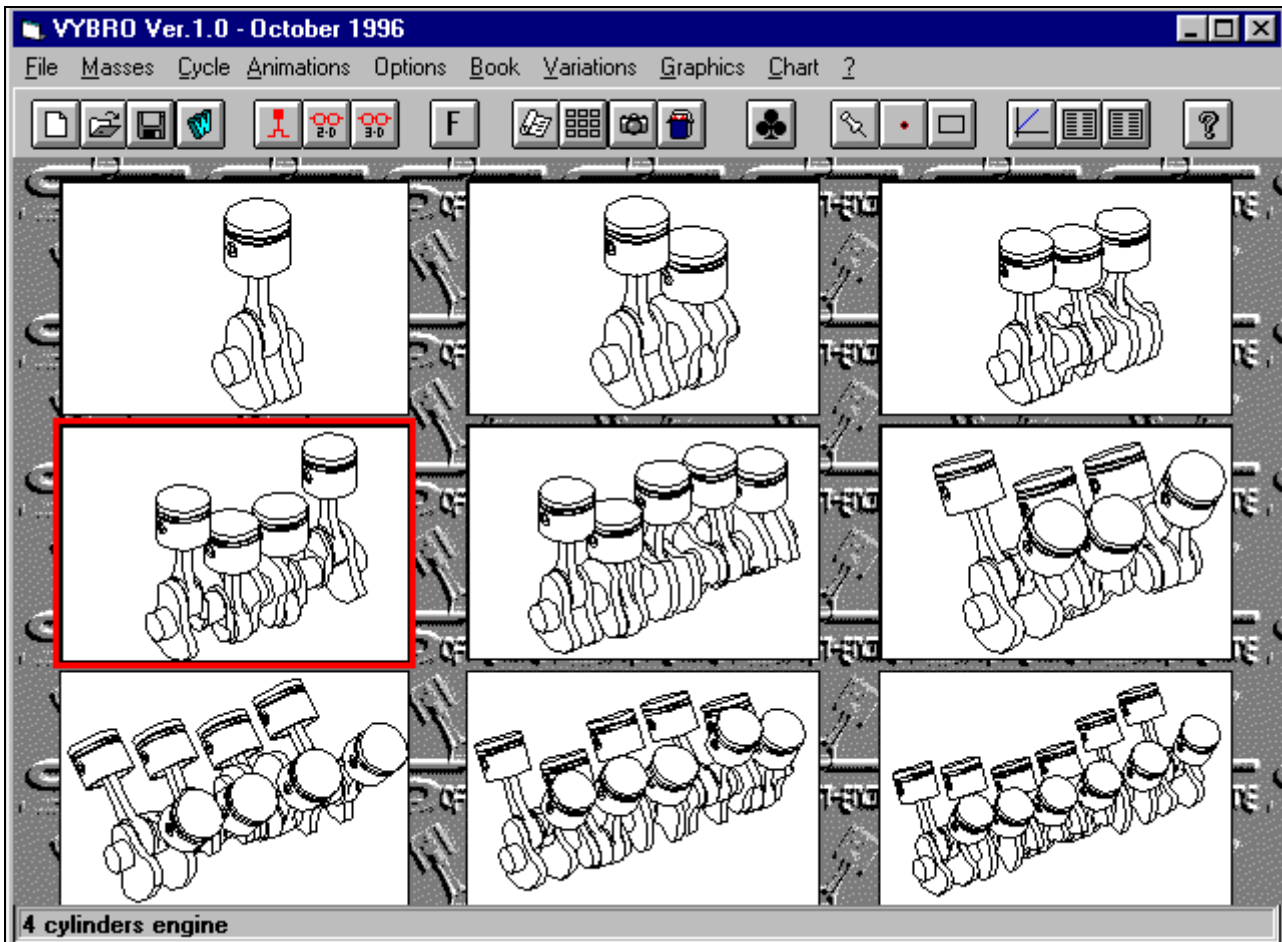# Soft-Engine - Software Vybro

Main features

VYBRO is a **software** by **Soft-Engine** to calculate any **cylinder** architecture, from one to four cylinders, of all structures of **crank mechanisms**. This program runs on Windows. Data can be entered through graphics and drawings, etc., which have a good visual and educational impact

Main window - engine selection

Version 1.0

Computing of all engine vibrations. Any engine (1 to 4 cylinders) architecture is possible, above all:

☞ **piston** 2D and 3D **animation**:

　● final and component inertial force (arrows in movement)

☞ **Otto** and **Diesel thermodynamic 4 stroke** cycle

☞ balance

　● **balace factor** (didactic method)

It includes very powerful variation options where all data can be processed by means of:

🔘 data redefinition

🔘 setting

🔘 range variations

with an immediate superimposition of graphed values. There is also an important educational section performing:

🔘 definitions, a dictionary where basic term concepts related to crank mechanics are explained

🔘 layout, through which phenomena, such as the origin of inertial torque, etc. are illustrated. You can add more layouts to your library on request.

🔘 Beautiful images in which layouts of crank mechanisms of 2, 3, and 4 cylinders can be matched. In this case too, you can have more images on request.

Animations

🔘 Drawings, these are default drawings (in BMP format) which can be requested separately and inserted as you prefer. However, drawings produced by users and representing layouts of any existing engines may be added too.

🔘 Existing engine layout, to monitor items (if single, twin cylinder, etc.) while the program is running.
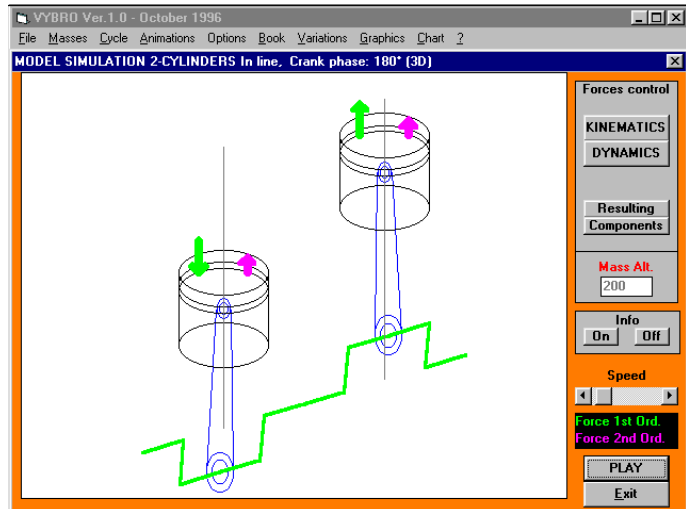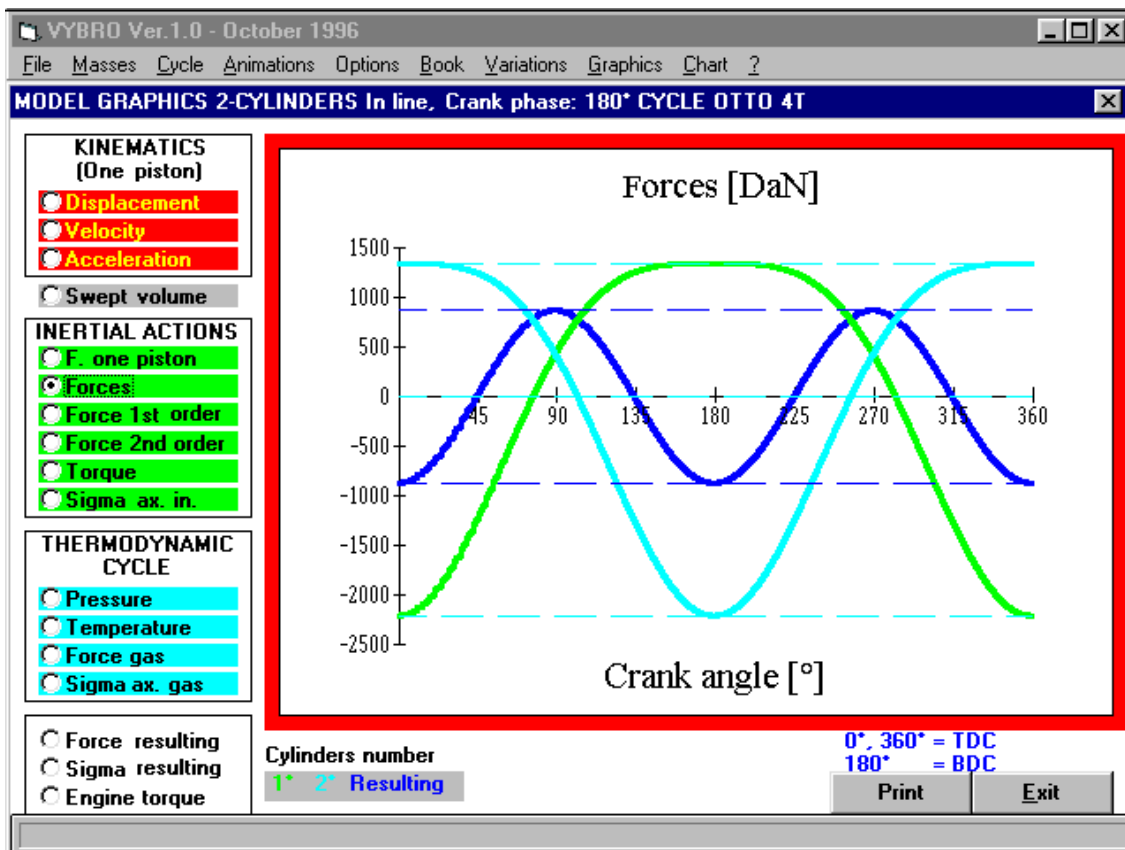
Piston inertia forces diagram

Values graphs and charts:

- **displacement**, **velocity** and **piston acceleration**
- **force** :
  - of 1st, 2nd order and resultant inertia
  - of **gases**
  - resulting
  - **tangential**
  - **radial**
  - rotating
  - horizontal
  - vertical
  - **con-rod** axis
- **sigma** (**stress**)
  - due to inertia
  - due to gases
  - resulting
- **torque** :
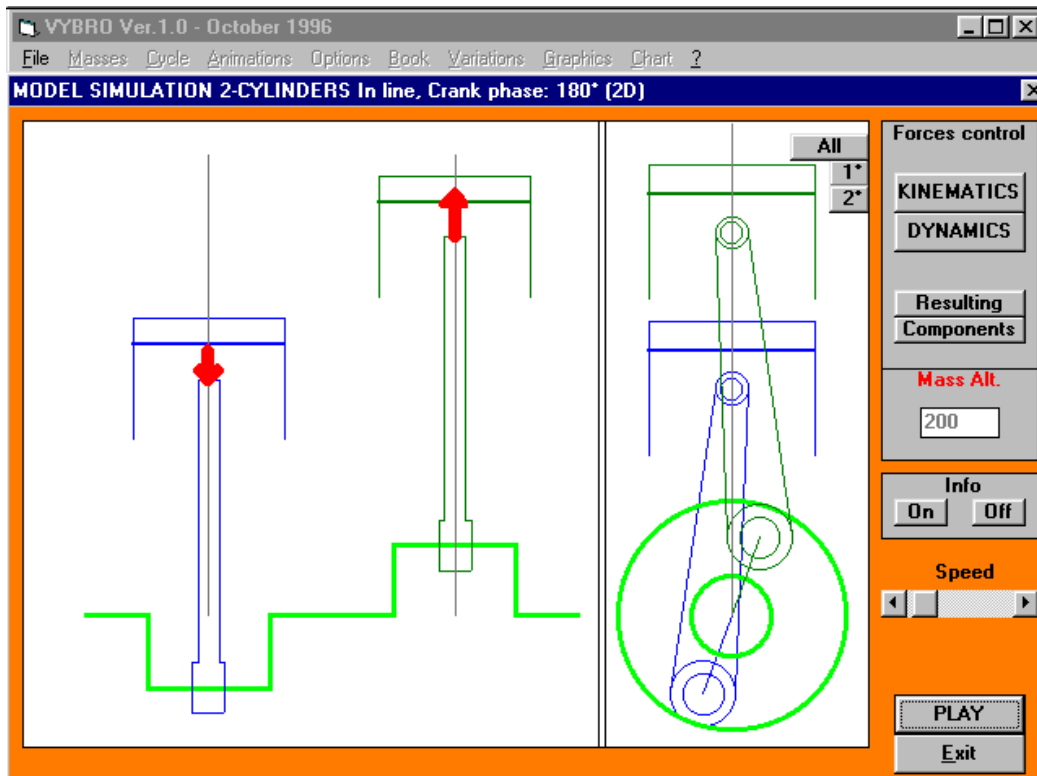 - of **inertia**
  - of con-rod correction
  - of reaction
- engine timing
- cylinder gas **pressure**
- gas **temperature** in the cylinder
- **P-V diagram**

A Help utility is available.

Twin-cylinder engine inertial forces
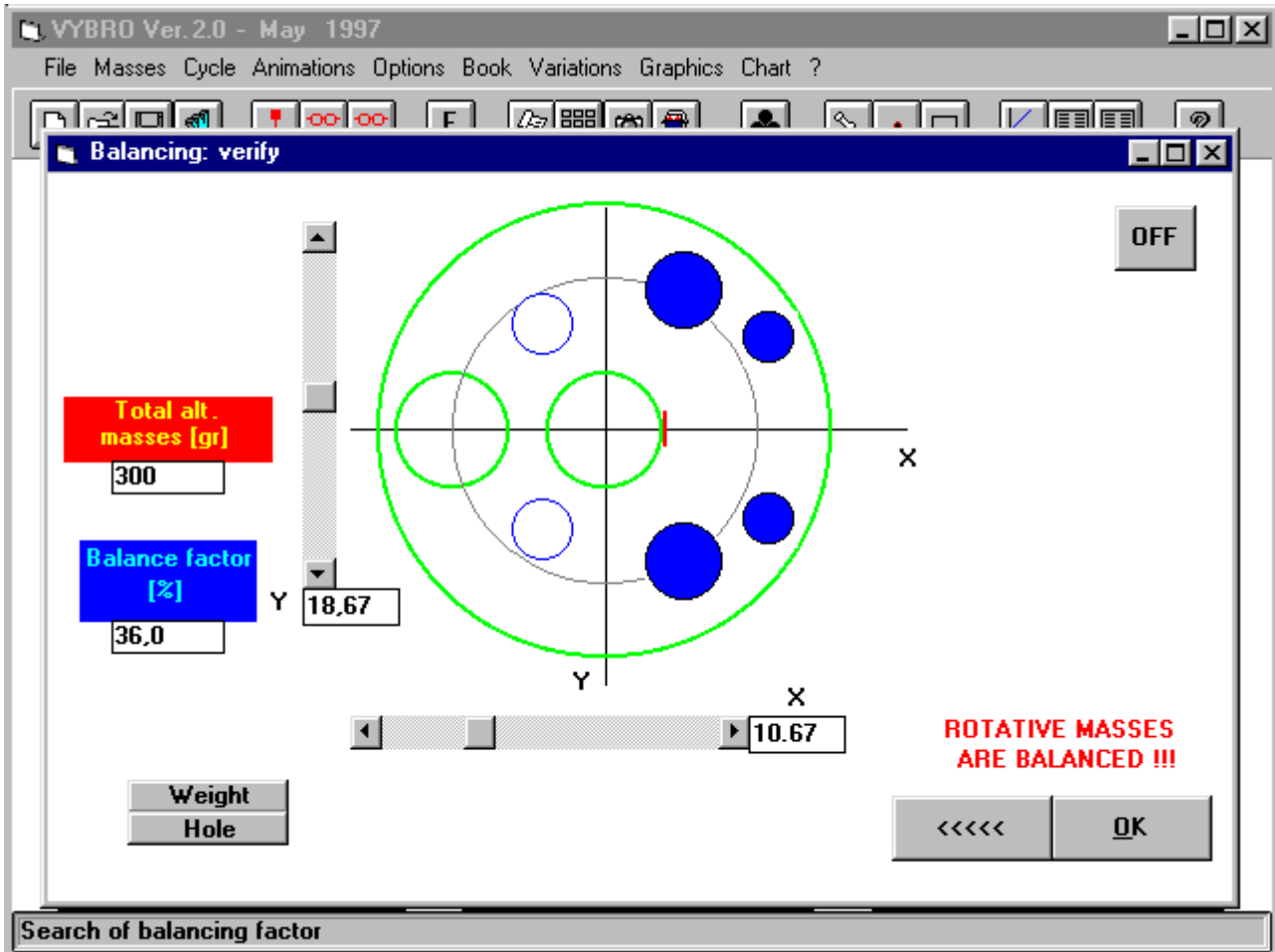
Version 2.0

Like version 1.0 including:

🌀 **2 stroke cycle**

🌀 balance of rotating and alternating crankshaft masses with counterweights :

  🔴 cranks drilling

  🔴 using various several counterweight materials

🌀 updated educational section.

Single cylinder engine balancing procedure
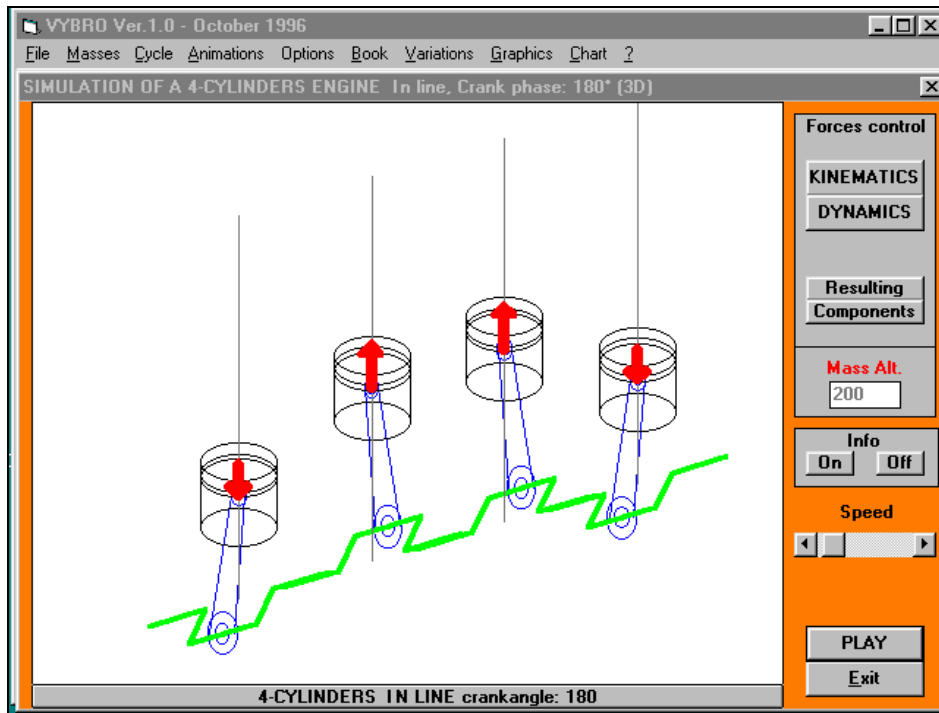
Version 3.0

Like version 2.0 but including:

🌀 **Polar diagrams** for **crank shaft system loads**
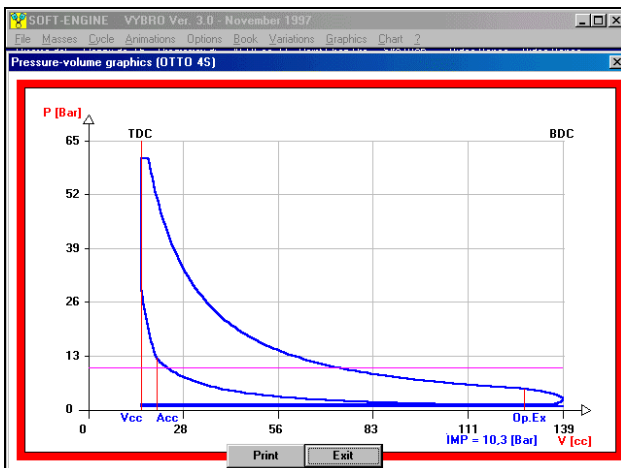
🌀 **Inertial ellipsoid**

🌀 **Con-rod** conception and test (con-rod stresses)

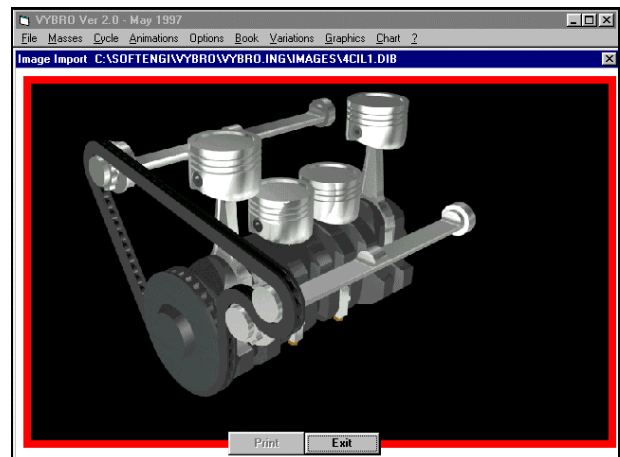This is a very professional software for engine mechanics.

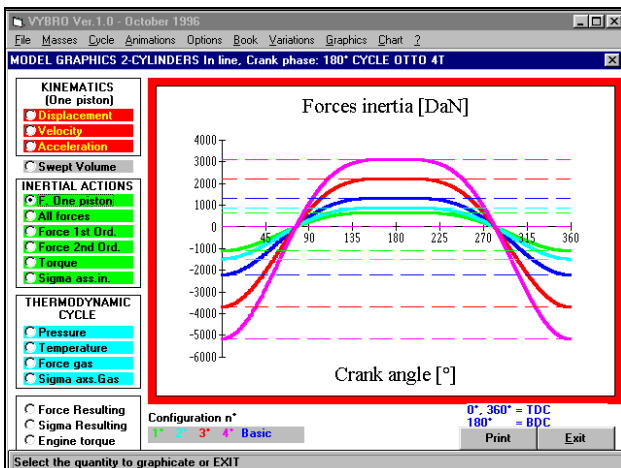# Soft-Engine engine simulation software – software "Vybro"
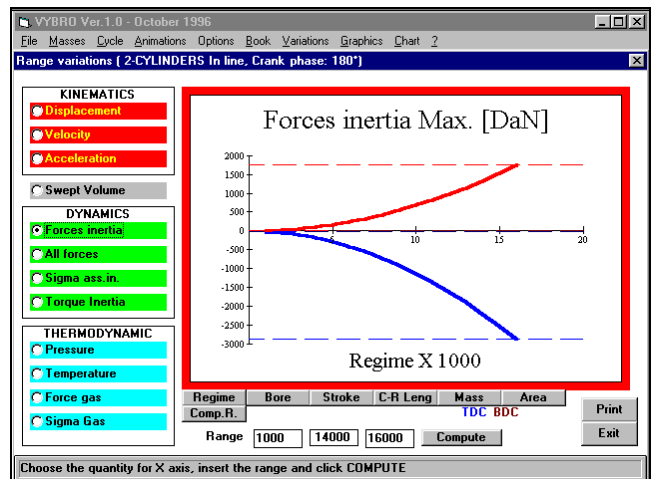

Four-cylinder engine inertial forces

P-V diagram

Four cylinder engine planning

Data variation, effects on computings

"Range" variation effect for a quantity

Versions and costs

Version	Cost
Vybro 1.0	€ 180.00
Vybro 2.0	€ 350.00
Vybro 3.0	€ 800.00

PC minumum configuration

Feature	Description
Processor:	Any personal computer IBM compatible.
System:	Windows ME, NT, Xp, Vista, Seven, Eight, - 32 or 64 bit systems.
Memory RAM and Hard Disk:	At least 512 MB RAM and 2 GB free in the hard disk (for best Windows performances).
CDrom or Dvdrom device:	Speed at least 52X.
Graphic card:	VGA, SVGA and compatible cards, set at least 32 bit, Min. resolution: 1024x768.
Miscellaneous:	Keyboard, mouse, at least 1 USB port free (to connect the printer).
Printer:	Any ink-jet printer. Total compatibility with laser printers.
Total compatibility with notebooks and cases minitower PC.	