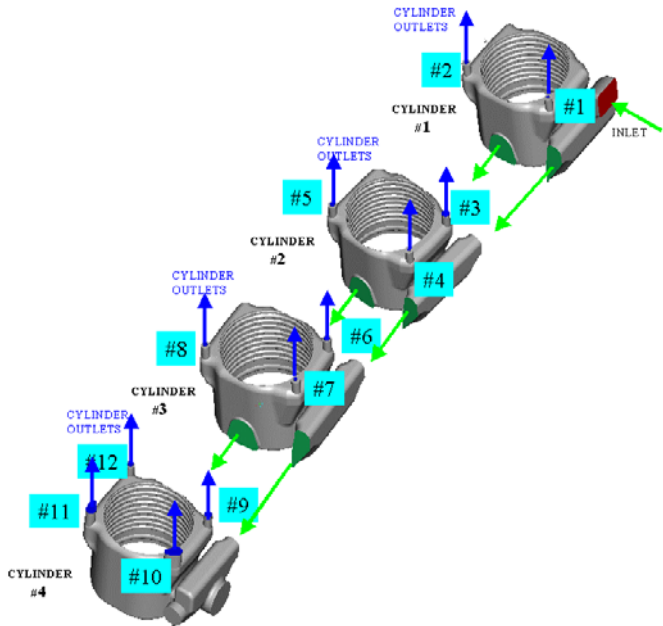


# PASSAGE<sup>®</sup>/SYSFLOW

## OVERVIEW

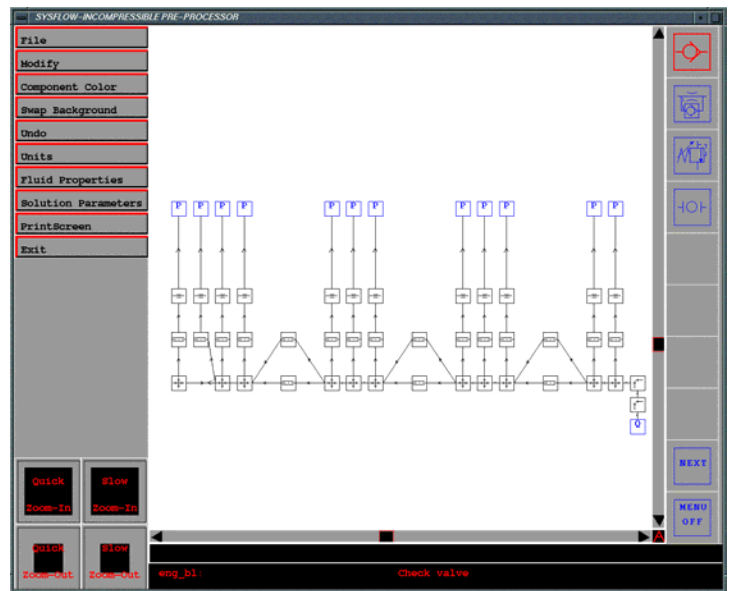
- **PASSAGE<sup>®</sup>/SYSFLOW** software is a one-dimensional System Flow and Heat Transfer Analysis program for the prediction of flow network performance.
- **PASSAGE<sup>®</sup>/SYSFLOW** software is fast, user-friendly and effectively predicts performance in a variety of user-defined networks.
- Steady, compressible and incompressible flow problems can be solved including heat transfer effects.
- Virtually any flow network system and/or sub-system can be modeled using combinations of components included in the standard library.



*Flow Paths in a Four-Cylinder Engine Block Cooling*

## APPLICATIONS

- Automotive
- HVAC
- Gas Turbine Secondary Flow Systems
- Electric Motor Flow and Cooling
- Process Lines
- Appliances
- Utilities



*Four-Cylinder Engine Block Cooling Circuit Flow*

## PASSAGE<sup>®</sup>

- **PASSAGE<sup>®</sup>** software is a collection of finite element programs for flow, heat transfer and related analyses in 3-D geometries.
- **PASSAGE<sup>®</sup>** software consists of the following stand-alone programs:
  - **PASSAGE<sup>®</sup>/FLOW** flow and heat transfer analysis.
  - **PASSAGE<sup>®</sup>/DUCT** flow through complex passages. blade passages.
  - **PASSAGE<sup>®</sup>/PowerCAST** casting processes.
  - **PASSAGE<sup>®</sup>/SYSFLOW** one-dimensional simulation of flow networks.
  - **PASSAGE<sup>®</sup>/FreezeDrying** primary and secondary freeze-drying modeling using coupled mass and heat transfer analyses.
  - **PASSAGE<sup>®</sup>/COMPRESSION** compression molding analysis of thin-walled plastic parts.
- All programs are supported by pre-processors for geometry, mesh, flow/process conditions definition; and post-processors for color results display as x-y graphs, vector and contour plots.
- Application areas are widespread in automotive, fan/ HVAC, appliance, aerospace, equipment and pharmaceutical /chemical/food industries.

## FEATURES

- An X-Windows based graphical User Interface provides a user-friendly environment to build networks by interactively adding various components.
- Existing components and their associated properties can be modified, deleted and moved easily to change the network characteristics or to build new networks from existing ones.
- The Post-Processor is a powerful graphical tool for the result interpretation of pressure, velocity, temperature and density.
- Components:
  - \* Sources - fixed pressure or flows, pumps, fans
  - \* Pipes - different geometries
  - \* Fittings - contractions, expansions, bends, & junctions
  - \* Valves - proportional, relief
  - \* Heat Exchangers
  - \* Filters
- **PASSAGE<sup>®</sup>/SYSFLOW** software runs on PC based workstations.

## BENEFITS

- **PASSAGE<sup>®</sup>/SYSFLOW** software can minimize the cost and time of traditional prototype building and testing, thus shortening product design cycles.
- Designs can be analyzed and modified many times to evaluate flow losses on the computer before expensive and time consuming design decisions are finalized.
- Technalysis offers software customization services whereby **PASSAGE<sup>®</sup>/SYSFLOW** software can be integrated with other software or customized to fit unique customer specifications.