

# MAJOR ENHANCEMENTS

## RELEASE 2015 UPDATE 1

### SHARED COMPANY DATABASE

Flownex now allows companies, departments or users to have a shared re-usable repository for components, fluids, charts, compounds and default settings. In order to achieve this, the library and database functionality in Flownex has been reworked.

A database contains libraries of components, charts, compounds, solvers, and component defaults.

- The old External library now called Master Database, is read only.
- There is an editable project database part of every project.
- Users can create and connect to any number of databases that can also be shared amongst colleagues in a company.

### STATIC PRESSURE BOUNDARY CONDITIONS

Users can select to specify a static pressure boundary rather than a total pressure boundary condition. This is useful where static pressures are measured and therefore known on a plant or system. Previously this had to be iterated using the designer. The static pressure is also a known boundary condition in typical rotational flow fields in turbo machinery secondary flows.

### SUBDIVIDED CAVITIES

Rotor-Rotor and Rotor-Stator cavities in turbo machinery secondary flow applications can now be automatically incremented in the radial direction. The moment balance in each increment is treated individually resulting in a core swirl ratio unique to each increment. As a result the pressure distribution throughout the cavity is therefore better known.

### EXCEL INPUT SHEETS

It has become common for users to use Excel components as an overview and input sheet for a simulation. In order to simplify and speed up this process a dedicated Excel input sheet functionality has been added where inputs can be hooked up to any combination of properties without data transfer links.

### EXCEL PARAMETER TABLES

In order to parameterize a simulation and quickly switch between a set of parameters, the functionality was added to specify parameter tables in Excel. Each parameter in the table can be linked to any number of inputs. Parametric studies can run through all parameter definitions in the tables.

### COPYING OF CHARTS AND FLUIDS

Charts/Fluids are not automatically copied over to project database anymore – this will save space in projects and ensure you are always working with most current versions.

### COMPONENT DEFAULTS

User creatable component defaults were added. You can save a default component by dragging and dropping it onto a library on the tree. This component with its current inputs can then be easily re-used in the project and other projects.

### COMPOUND COMPONENT ENHANCEMENTS

The compounds functionality was updated so that Flownex doesn't have to restart when compounds are moved, exported or imported.

### FIND BASED ON PROPERTY VALUES

In the find dialog you can now search on property values. You can search all properties for values or select a specific type of property to search. You can type > 50 into the search box for example to search all components with properties with values bigger than 50.

### NETWORK BUILDING VIA API

The API has been updated so that a user can now build and connect a network through the API. You can also do this in the scripts in Flownex.

### AUTOMATIC ELEVATION IMPORTING IN GIS

The GIS importing and map drawing functionality was improved so that you have the option to retrieve surface elevations from the internet for imported and newly drawn components.

### FLOW INTERFACE COMPONENT

Some systems require the use of different fluid types such as the modelling of liquid fuelled rockets where both two-phase and compressible flow applications are important. The flow interface component enables the coupling of two networks with different individual fluids and/or fluid types, whilst maintaining a mass balance over the coupling and also calculating the resulting pressure at the interface.

### ADDITIONAL STATIC CONDITION CALCULATIONS

In many cases like with pressure relieve valves set points are in static pressure. For these cases the upstream and downstream areas and correct piping diameters are important. The upstream and downstream area can now be specified for many additional components including Restrictors and Nozzles in order for Flownex to calculate upstream and downstream static properties.