



# FienX Toolkit

*Add-in for Steam System Modelling in Microsoft Excel*

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Below, FCL will stand for **Fien Consulting Limited**.

## Delivery

The FienX Toolkit comes as a deliverable from modelling work done by Fien Consulting Limited (FCL). Any utility system model developed by FCL in Microsoft Excel will rely on the add-in and the add-in will check for itself whether it is dealing with a model created from an FCL template workbook.

## Installation

### XLL file

The FienX Toolkit add-in consists only of a single XLL file. It can be opened (loaded) – like any other Excel workbook – directly from Excel 's File / Open menu, or by double-clicking on its icon in any folder or on the desktop. It will snugly nestle into Excel and present its own ribbonbar menu, titled "Fien Consult".

The XLL file can simply be copied or moved to another location, just like any Excel workbook. We recommend you put it – and any models that use it – in one of Excel's *Trusted Locations* (see below).

**The full Toolkit functionality can ONLY be used in conjunction with a workbook that is derived from the template file provided and customised by FCL.**

The XLL file also contains within its "packing" this help document in PDF format. It can be accessed from the FienX ribbon menu in Excel, or downloaded separately from [www.FienConsulting.com](http://www.FienConsulting.com)

### Excel Options Settings

The template workbook, and any models derived from it, contains macros and therefore requires the following "Options" settings in Excel:

- Put XLL and models in a Trusted Location
- Or...
- In "Trust Center", enable
  - Access to all macros
  - Access to VBA project model
- Under "Add-Ins"
  - Select the Solver Add-in

For more detail, see the short "Set-up & Start-up" document, which can be downloaded from the website.

## Security

The splash screen ("About" panel) of the add-in will state to which particular entity the Toolkit is granted. That person or company can use the add-in to their heart's content without reference to licence fees, contractual arrangements, or further support.

The template workbook functionality, which the add-in requires, includes VBA macro coding that is protected by password. This code should only be accessed by FCL staff. Most of this is standard

FienX code, but some may have been developed specifically for the client to which the workbook was delivered.

## Features

Loading the add-in will create a new menu ribbon in Excel, entitled “Fien Consult”. In broad terms, this ribbon offers the following features

### Check Workbook

Determines whether the currently active workbook is derived from a FienX template file.

### Tools & Options

Requires a workbook to be active. Gives short-cut access to a few important Excel settings, as well as:

#### Clear calc logs on F9

This erases the Calc. Log, each time you press F9 to recalculate the workbook.

#### Unlock sheets

Depending on the password entered, this will unlock worksheets for editing.

#### Find external links

A handy tool for finding cells that contain links to other workbooks.

#### Get HardDrive Serial Nr.

Can be used by an administrator to give automatic editing permissions on particular computers.

### Show Calc. Log

Displays the log of UnitOp function calls and any resulting error messages.

### UnitOp Models

Gives access to all “equipment models” via a drop-down menu.

### Fuel Table

Creates a standard table for entering data for a fuel and for doing certain standard calculations for its properties and combustion emissions. There are separate tables for

#### Gaseous Fuels

Takes a full composition analysis, for accurate calculation of heating value and combustion emissions.

#### Liquid Fuels

Expects more approximate measures of API, WatsonK and Sulphur mass-fraction, to estimate heating value and combustions products.

The table section for heater combustion calcs can be copied separately, for modelling multiple equipments.

## Trends Table

Creates a new worksheet with carefully designed lay-out for collecting, filtering and trending process values. The columns can be easily copied for trending multiple parameters.

At the top of the sheet you can specify the values for validating and filtering the raw data. It is up to the user to specify how the historical data can be accessed.

The Trends Table sheet implements the FienX “FilterValue” function. For this, macro code is added to the workbook, which means **it will have to be saved as a macro-enabled “XLSM” file.**

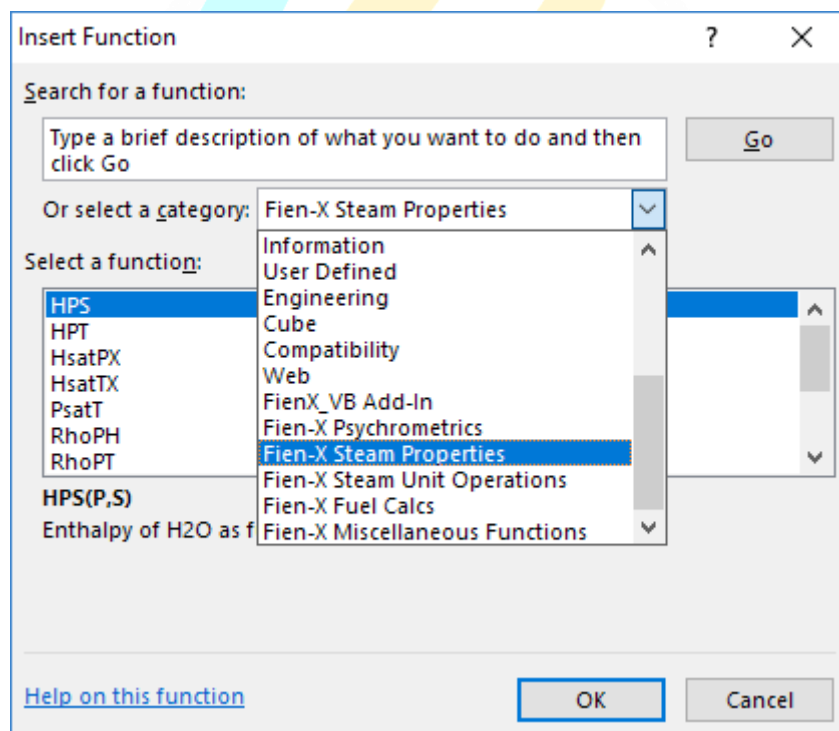
To support the “FilterValue” function, another sheet is also created, called “NmdRngs” (Named Ranges). This can be re-used for other purposes, wherever the FilterValue function is needed.

The “Binary Text” table on the NmdRngs sheet is used to translate textual status information to a binary value (1 or 0). Add more rows to this table depending on how many strings are used to indicate equipment status in your historian.

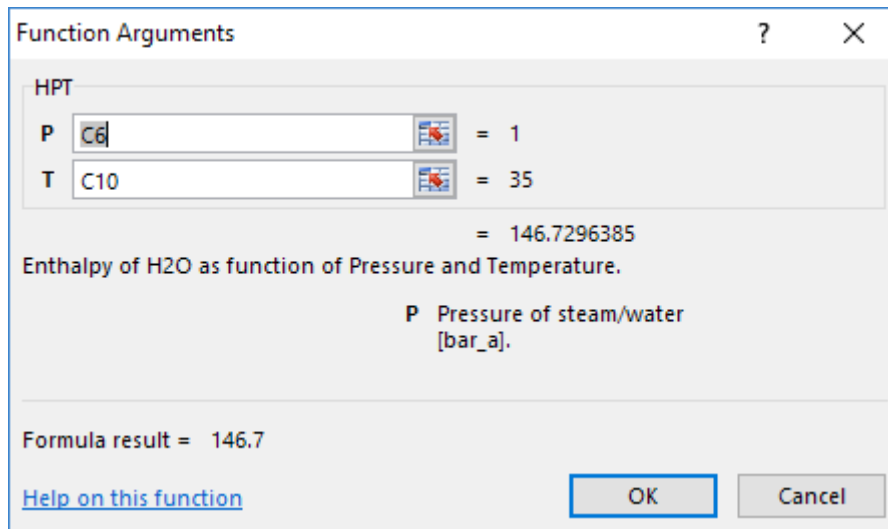
## Finding a Function

### General

When you have opened a FienX workbook, you can use the regular Excel Function Wizard (see image below), to explore and access the ToolKit functions.



Selecting a function presents the usual Arguments entry window, containing various bits of helpful text, including the units of measure expected in the current workbook.



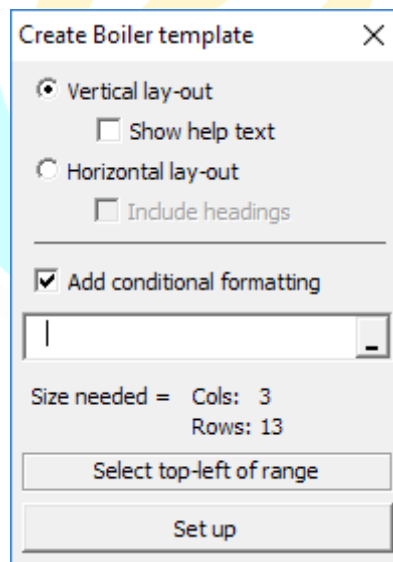
For Steam Unit Operations, there are two ways to create them: via the Function Wizard or via the FienX toolkit menu in the ribbon bar.

### Adding UnitOps via Excel's Function Wizard

Select the function in the Wizard and then fill out the arguments window. However, most unitops are "array" functions, returning multiple results. Even if you know how to handle array functions (with Ctrl-Shift-Enter), the values produced may be too cryptic to understand. **We therefore strongly recommend...**

### Adding UnitOps via the FienX menu

When you add a UnitOp via the FienX menu – in this case for a Boiler –, the ToolKit presents the following window:



The radio buttons determine whether data entry and results will all be in either a single column or a single row. The vertical lay-out allows some additional help text to be shown. The horizontal lay-out is better suitable for creating tables of multiple equipments of the same type.

Conditional formatting will automatically show “hard-coded” values or text in a blue font and formula results in the default (normally black) font.

The range selector is for choosing the top-left cell of where the model is to be created. You can see how many rows and columns are needed for the chosen lay-out.

Press “Set up” to complete the process.

