

# SteamXL v1.0 Demo

Quick Start Guide



Hill Technologys

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## **1. Installing SteamXL v1.0 Demo**

Following steps demonstrates installation procedure for SteamXL v1.0 Demo.

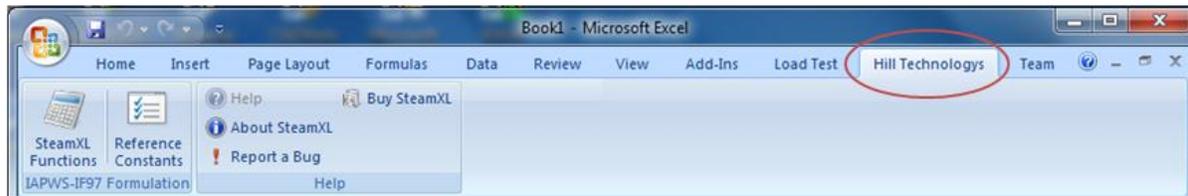
1. Run the setup.exe.
2. A flash Screen will come up. Click Next Button in the flash screen.
3. Welcome screen will come up which contains the copyright warning. Click Next Button to continue.
4. License Agreement screen will come up. Read carefully the agreement and select "I Agree". Click Next Button to continue.
5. Demo information screen will come up. This contains the functionalities available in the Demo version. Click Next Button to continue.
6. Customer information screen will come up. Enter the Name and Company Name in appropriate text boxes. Click Next Button to continue.
7. Select Installation Folder screen will come up. Select a folder path to install. Click Next Button to continue.
8. Confirmation Screen will come up. Click Next Button to Confirm and install. The Installer will install SteamXL version1.0 Demo based on the information provided.
9. Finally Installation complete Screen will come up. You should get "SteamXL v1.0 Demo has been successfully installed". Click Close Button to complete the installation process. If you get other than this message please contact Hill Technologys.

## 2. Quick Start Tutorial

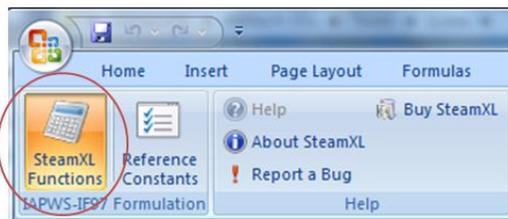
### **Example 1: Specific Enthalpy of Steam at pressure 50 MPa and temperature 1000 K**

This chapter will guide you how to use SteamXL v1.0 Demo and to calculate Specific enthalpy of steam at pressure 50 MPa and temperature 1000 K

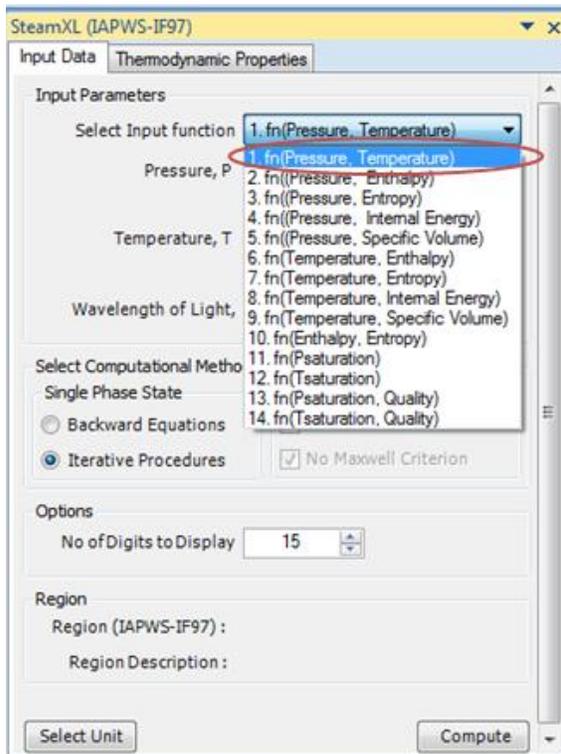
- a) After successful installation of SteamXL v1.0 Demo, open Microsoft Excel. The **SteamXL v1.0 Add-in** can be visible in the Ribbon Menu under menu name **“Hill Technologys”**.



- b) Click **“SteamXL Functions”** toggle button under Hill Technologys Ribbon Menu. A Task pane **“SteamXL (IAPWS-IF97)”** will open up on the right side of the Excel worksheet. This Task pane is the main User Interface for SteamXL Add-in. You can use it like a Windows Application. The Results will be displayed on the tab item **“Thermodynamic Properties”**.



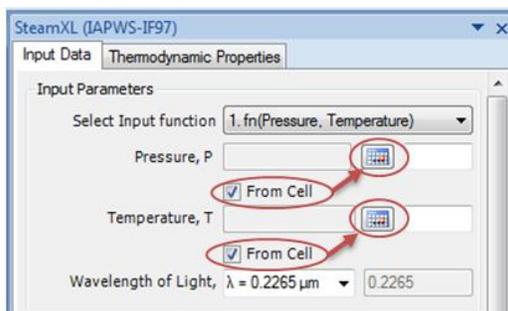
- c) Select **“1. fn (Pressure, Temperature)”** option from combo box labeled as **“Select Input Function”**. Since our input parameters are Pressure and Temperatures (Note: SteamXL selects this by default).

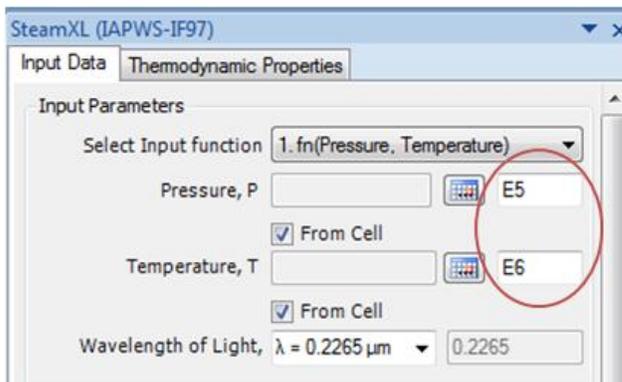
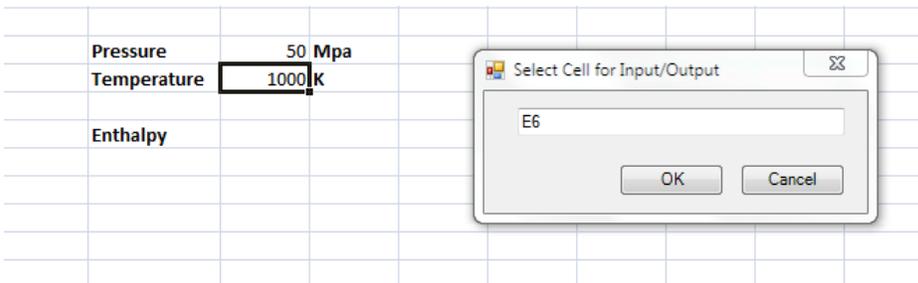
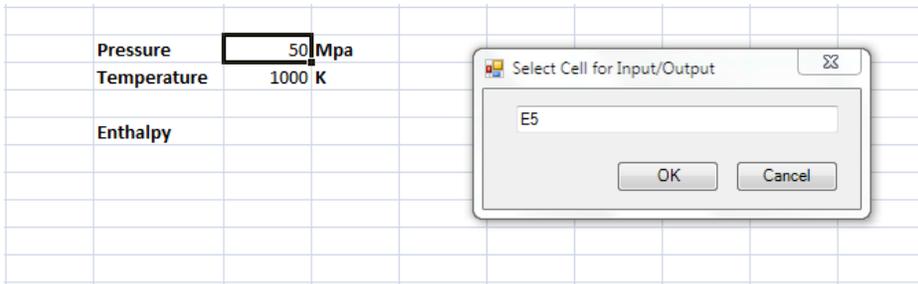


d) Then SteamXL provides two options for entering input parameters.

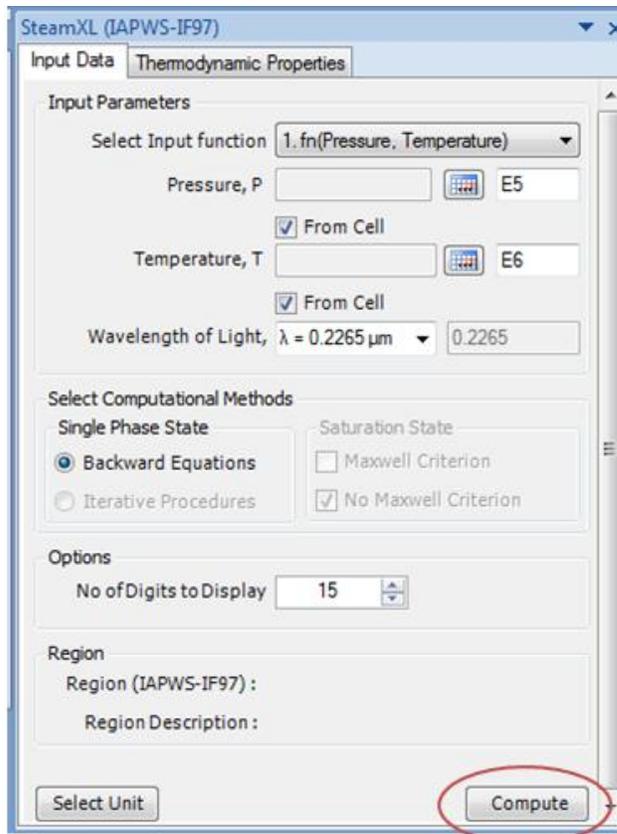
1. 'By textbox' option
2. 'By selecting' from cell option.

By entering input parameters in textbox, you cannot use values from excel workbook cell. Input parameters from Excel cells can be used by using the second option. This example explains second option. For this enter Pressure and temperature values (50 MPa and 1000 K) in the Excel cells as shown below. Please check the checkboxes labeled as "From Cell" for both Pressure and Temperature parameters. Then click the 'OK' button





- e) Then hit **"Compute"** button in order to compute the properties. SteamXL automatically pop up the results tab.



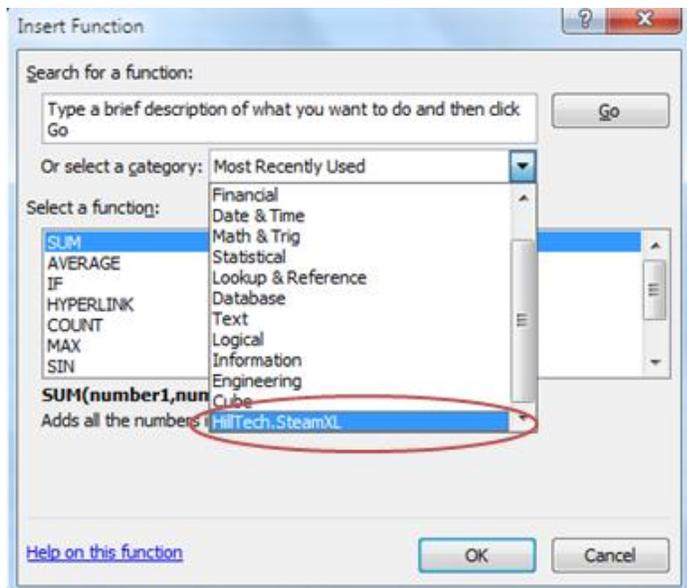
- f) Then pick the button next to property values shown to use the property value in cell calculations. In this example, we want specific enthalpy. So select button in the row labeled “**h [kJ/kg]**”. A dialog box will pop up and pick the cell you want this property and click “**OK**” button. The values will be transferred to the corresponding cell with the formula so that you can modify later the input parameters.

	<b>Pressure</b>	<b>50 Mpa</b>	
	<b>Temperature</b>	<b>1000 K</b>	
	<b>Enthalpy</b>	<b>3701.494 kJ/kg</b>	

**NOTE:** after sending values to the cell, if you get “**#NAME**” or “**#VALUE**” error message, Please see **Chapter 3 – Configuring SteamXL v1.0 Demo**

	<b>Pressure</b>		<b>50 Mpa</b>	
	<b>Temperature</b>		<b>1000 K</b>	
	<b>Enthalpy</b>	<b>#NAME?</b>	<b>kJ/kg</b>	

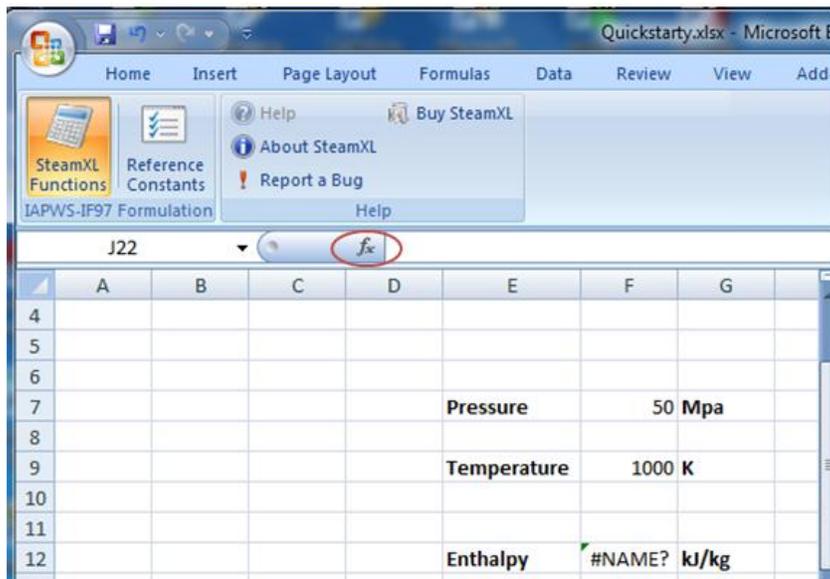
- g) The transferred value not only contains the calculated property, but also the computational function to calculate such property. You can access the formula by selecting the cell and Click **"Insert function"** button on the Formula bar (as shown below). Insert function dialog will pop up. In this dialog, click the combo box with label "Select a Category". Scroll down to bottom. Check for "HillTech.SteamXL". if it is not listed, then see **Chapter 3 – Configuring SteamXL v1.0 Demo**



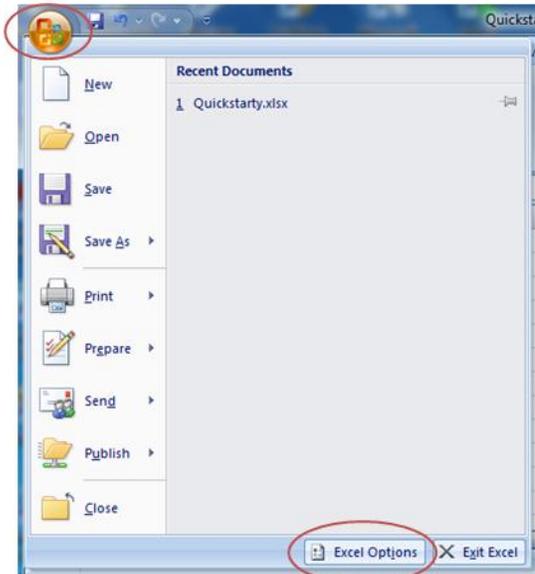
### 3. Configuration of Steam XL v1.0 Demo

After installing SteamXL, if you are not able to access SteamXL functions from "Formula bar" or if you are getting "#VALUE" or "#NAME" error in applying functions in the workbook cells, then do the following steps

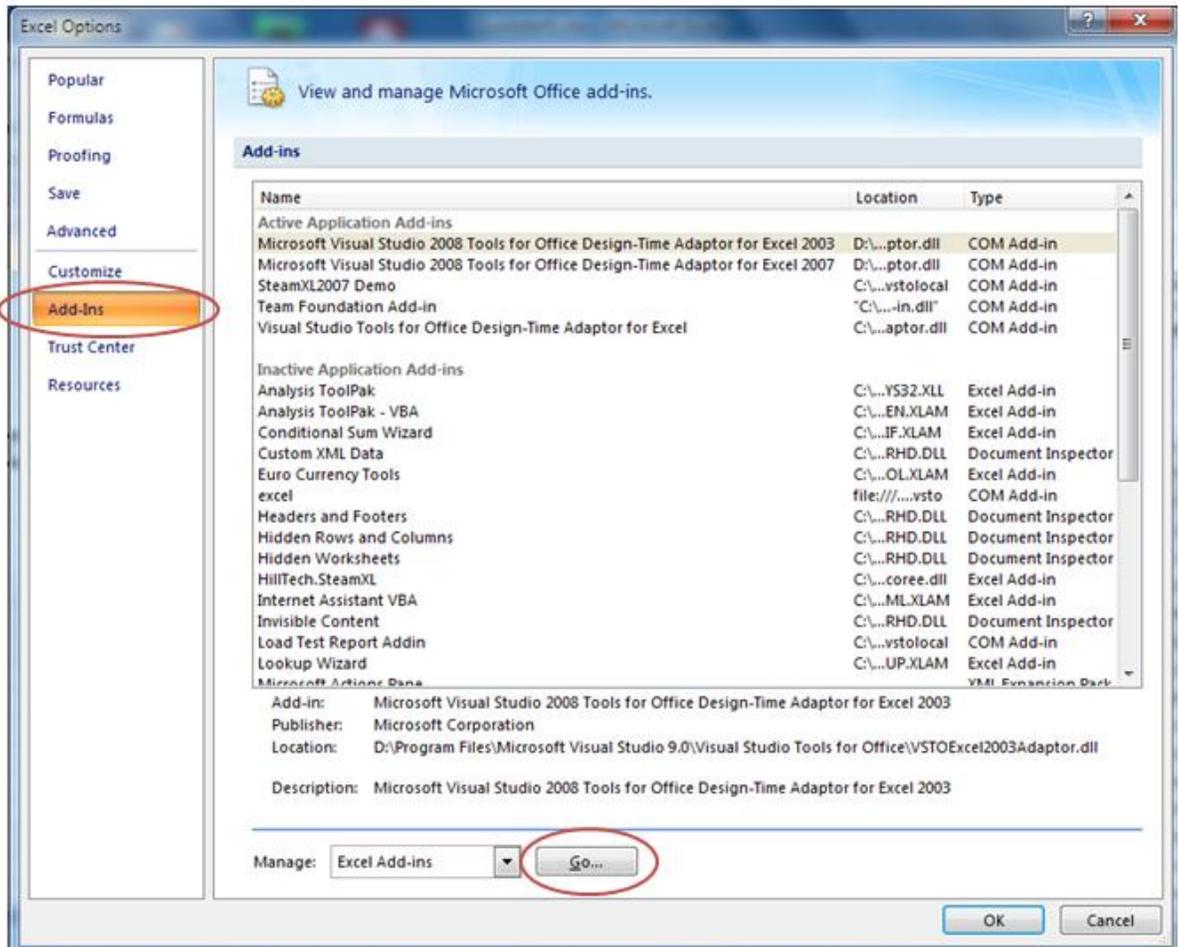
1. Open Excel
2. Click "**Insert function**" button on the Formula bar. Insert function dialog will pop up. In this dialog, click the combo box with label "Select a Category". Scroll down to bottom. Check for "HillTech.SteamXL". If "HillTech.SteamXL" is not listed then proceed step 3. If it is available no need to configure, leave this chapter



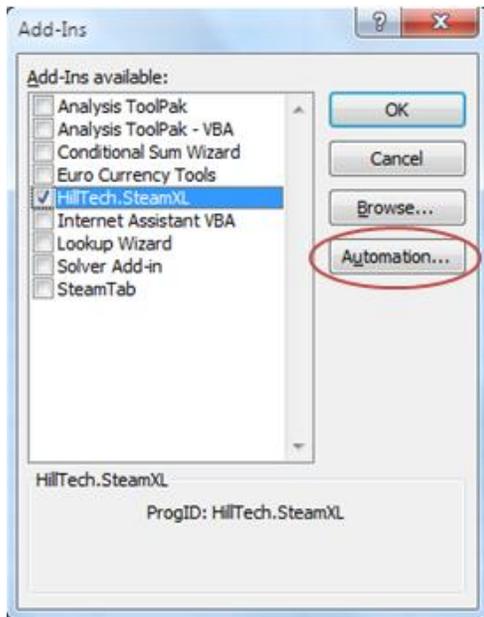
3. Go to "**Office button**" of Excel. And click "**Excel Options**" button to open Excel Options Dialog box



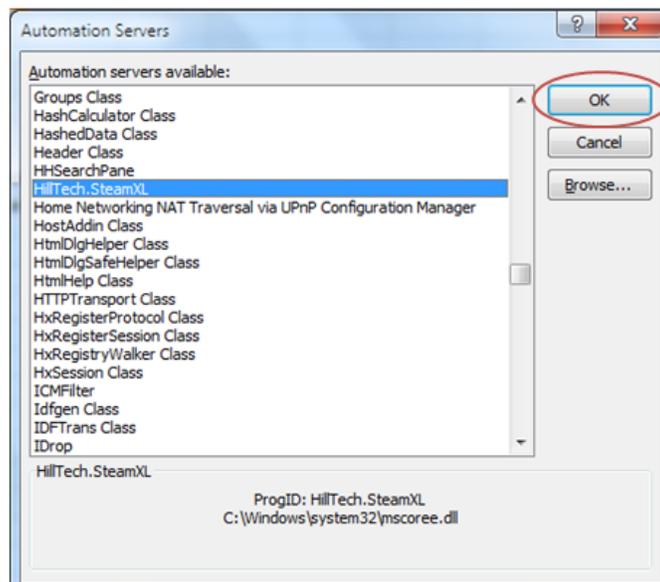
4. In Excel Options Dialog box, click **“Add-Ins”** and click **“Go”** to open Add-Ins Dialog box.



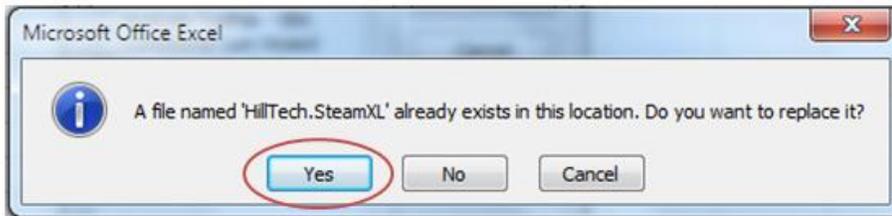
5. In the Add-Ins Dialog box click "**Automation**" button



6. In the "Automation Servers Available" list, search for "**HillTech.SteamXL**" and select it. Click "Ok" button to finish.



7. An information dialog box asking to "overwrite the existing file". Click **"Yes"** button to overwrite it.



#### 4. PropertyID List

S.No	Property	PropertyID
1	Region	region
2	Pressure	p
3	Temperature	t
4	Density	rho
5	Specific Volume	v
6	Specific enthalpy	h
7	Specific entropy	s
8	Specific internal energy	u
9	Specific isobaric heat capacity	cp
10	Specific isochoric heat capacity	cv
11	Speed of sound	w
12	Isentropic exponent	kapa
13	Specific Helmholtz free energy	f
14	Specific Gibbs free energy	g
15	Compressibility factor	z
16	Isothermal Stress Coefficient	betap
17	Relative Pressure Coefficient	alphap
18	Isobaric Cubic expansion coefficient	alphav
19	Isothermal Throttling Coefficient	deltat
20	Isothermal compressibility	kt
21	Partial derivative (dV/dT) <sub>p</sub>	dvdtp
22	Partial derivative (dV/dP) <sub>T</sub>	dvdpt
23	Partial derivative (dP/dT) <sub>v</sub>	dpdtv
24	Partial derivative (dP/dV) <sub>T</sub>	dpdvt
25	Joule-Thomson coefficient	jtc
26	Dynamic viscosity	eta
27	Kinematic viscosity	mu
28	Thermal conductivity	lamda
29	Thermal diffusivity	a
30	Dielectric Constant	epsilon
31	Prandtl number	pr
32	Surface Tension	sigma
33	fugacity	f*
34	Refractive Index	n