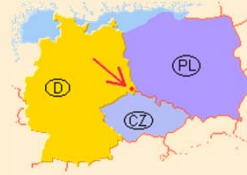
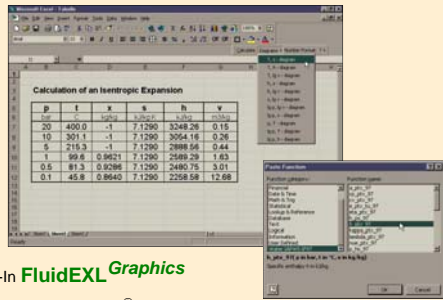


UNIVERSITY OF APPLIED SCIENCES OF ZITTAU AND GÖRLITZ

Department of Technical Thermodynamics

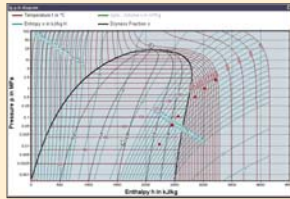
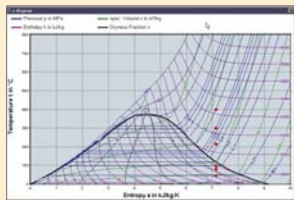


Property Databases for the Calculation of Heat Cycles and Turbines



Add-In **FluidEXL Graphics**
for MS-EXCEL®

Including **special charts** of FluidEXL Graphics



Dynamic Link Libraries FluidDLL for use in Window Programs

- LibIF97.dll** for **Water IAPWS-IF97**
 - New Industrial Formulation, valid since September 1997
- LibSF95.dll** for **Water IAPWS-95**
 - Scientific Formulation for high accuracy demands
- LibIF67.dll** for **Water IFC-67**
 - Previous Industrial Formulation
- LibIDGAS.dll** for **Gases and Mixtures**
 - Model of ideal gas for $c_p(T)$ of *Baehr and Brandt*
- LibFLUFT_FLT.dll** for **Humid Air**
for several pressures and $c_p(T)$
 - Model of ideal gas for $c_p(T)$ of *Baehr and Brandt*
- LibREFRIG.dll** for **Refrigerants**
 - Ammonia
 - R134a

Thermodynamic Charts

- T, s - Diagram
- h, s - Diagram
- $\log p, h$ - Diagram
- $\log p, \log v$ - Diagram
- $\log p, T$ - Diagram
- $s, \log v$ - Diagram
- T, h - Diagram
- $T, \log v$ - Diagram
- $\log p, s$ - Diagram
- $h, \log v$ - Diagram
- $s, \log v$ - Diagram

Thermophysical Property Calculations

Thermodynamic Properties

- Saturation pressure p_s
- Saturation temperature T_s
- Density ρ
- Specific volume v
- Specific enthalpy h
- Specific internal energy u
- Specific entropy s
- Specific isobaric heat capacity c_p
- Specific isochoric heat capacity c_v
- Isentropic exponent κ
- Speed of sound w
- Specific exergy e
- Surface tension σ

Transport Properties

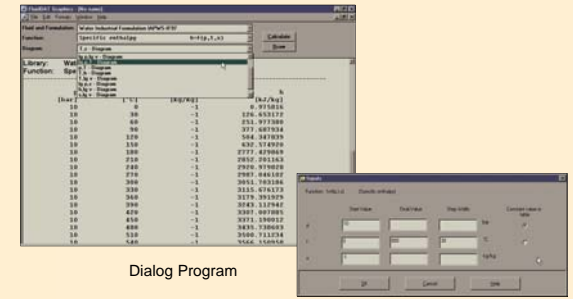
- Dynamic viscosity η
- Kinematic viscosity ν
- Thermal conductivity λ
- Prandtl* - number Pr

Thermodynamic Differential Quotients

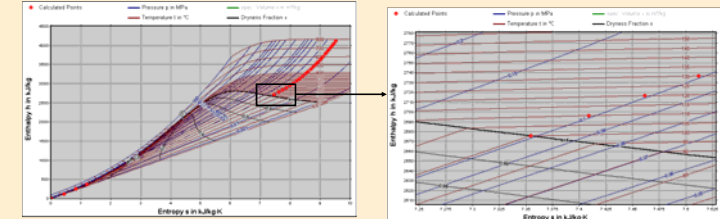
- All differential quotients can be calculated

Backward Functions

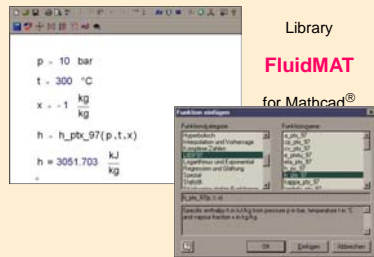
- $T, v, x, s(p, h)$
- $T, v, x, h(p, s)$
- $p, T, v, x(h, s)$



Dialog Program



FluidDAT Graphics



<http://thermodynamics.hs-zigr.de>

H.- J. Kretzschmar, I. Stöcker, I. Jähne, K. Knobloch
University of Applied Sciences of Zittau and Görlitz
Department of Technical Thermodynamics

J. Klinger, A. Dittman
Technical University of Dresden
Department of Technical Thermodynamics

