FLOWNEX®
SIMULATION ENVIRONMENT HVAC

Flownex® SE determines pressure drop [flow] and heat transfer [temperature] for the connected components of a complete system in steady state and transient, e.g. pumps or compressors, pipes, valves, tanks and heat exchangers.

TYPICAL USES:

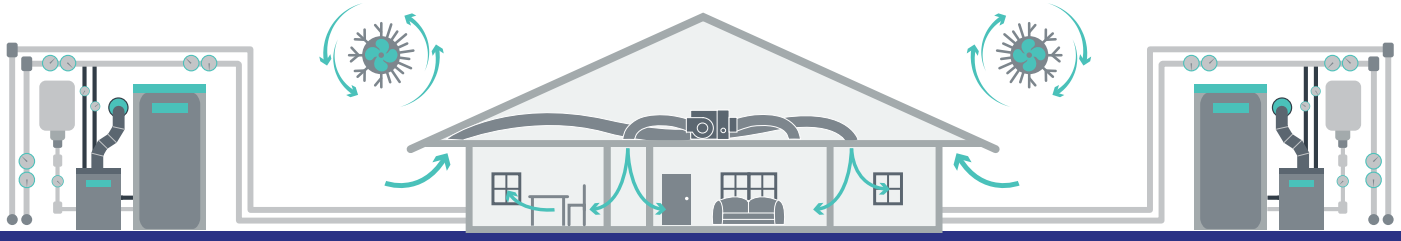
ANALYSIS
- Simulation.
- Performance assessment.
- Modification assessment.
- Fault root cause assessment.

DESIGN
- System sizing.
- Component sizing.
- Determining operating ranges.
- Flow, temperature, pressure, power consumption, etc.
- Testing of control philosophy.

TRAINING
- System behavior examination.
- Performing basic flow and heat transfer calculations.
- Thermohydraulic principles and properties referencing.

BRINGING NUCLEAR QUALITY AND STANDARDS TO SYSTEM SIMULATION

Flownex® is developed in an ISO 9001:2008 quality assurance system and NQA1 supplier approved environment.



"Flownex® gave an excellent overview of all interactions in the assembled system. Hence we were able to design a system that fits into a confined space and still control the temperatures and humidity within the tight ranges required by high-voltage power electronics."

Dr. Herman van Antwerpen
System Engineer
M-Tech Industrial

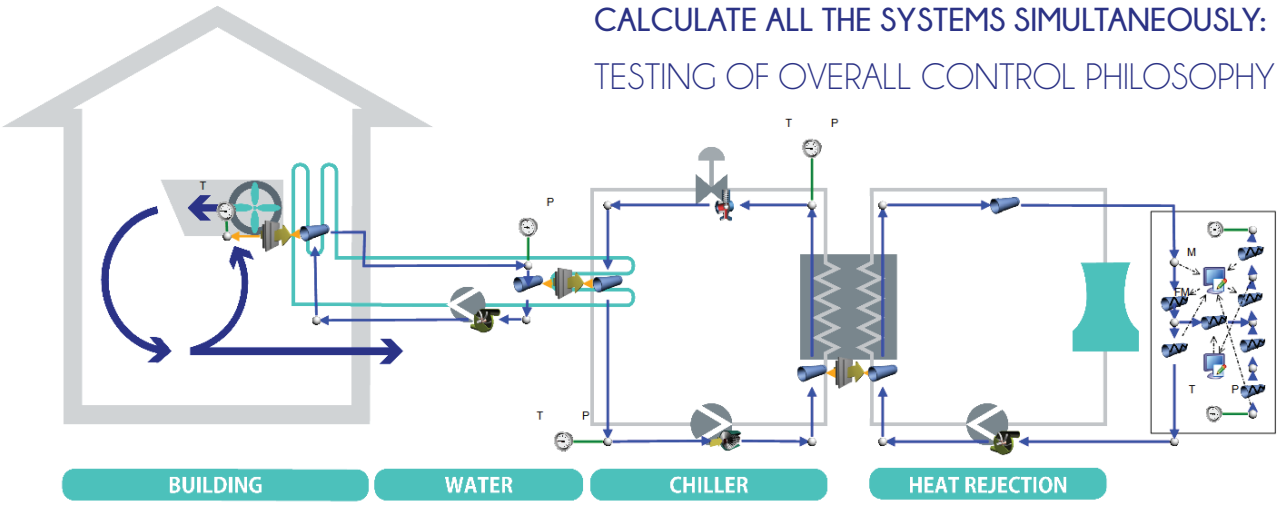
www.flownex.com +27 18 297 0326/7 enquire1@flownex.com

ONE STOP TOOL FOR HVAC SYSTEM DESIGN

UNIQUE AND COMPLEX NON-STANDARD APPLICATIONS

CALCULATE ALL THE SYSTEMS SIMULTANEOUSLY:

TESTING OF OVERALL CONTROL PHILOSOPHY



BUILDING INTERNAL AIR

- Heat load.
- Temperatures, humidity, pressure.
- Sizing of fans, louvres, ducts.
- Heat exchangers.
- Recirculation rates.
- Control philosophy.

WATER SYSTEMS (HEATING/COOLING)

- Pipework velocities, pressure drops.
- Pump and valve sizing.
- Control philosophy.
- Flow balancing in branching networks.
- Calculation of NPSH and prediction of cavitation.
- Water hammer.
- Sizing of safety relief valves.

CHILLER UNIT

- Compressor performance.
- Pressures, temperature.
- Condition dependent COP.
- Design of compound refrigeration cycles with multiple compression/expansion loops.
- Evaporator design: natural circulation or once-through.

HEAT REJECTION SYSTEM

- Cooling tower sizing.
- Performance according to ambient wet bulb temperature.
- Evaporation rate as function of environment wet bulb temperature.
- Pump sizing and energy optimization.
- Fan sizing.

FOR HVAC, FLOWNEX EXCELS IN NON-STANDARD APPLICATIONS.

SPECIALIZED APPLICATIONS:

- Heating: Building heating or district heating.
- Design of liquid circulation or distribution systems: pump & pipe sizing.
- Air cycle refrigeration: aircraft cabin pressurization from engine turbocompressor.
- Insulation sizing.