

IMST-ART: SOFTWARE FOR THE SIMULATION AND DESIGN OF REFRIGERATION EQUIPMENT

DESCRIPTION OF THE INVENTION

In the past, refrigeration equipment designers have based their work mainly on their company background and on direct experimentation. To effectively reduce development costs, meet new standards and regulations, and continuously improve the efficiency and quality of their products, refrigerant equipment designers must turn more and more to the use of modern simulation tools.

IMST-ART© is an advanced performance simulation, computer-aided engineering design system. IMST-ART© combines accurate and fast algorithms, easy-to-use graphical interface and powerful analysis capabilities into a single software package suitable

for modelling any vapour-compression refrigeration system operating with any refrigerant and secondary fluids.

Researchers from the Instituto de Ingeniería Energética of the Universitat Politècnica de València (UPV) have developed this tool. The UPV searches firms interested in licensing the IMST-ART© software.

SECTORS OR BUSINESS APPLICATION

IMST-ART© is appropriate for an extremely wide range of refrigeration equipment based on the single vapour compression cycle such as domestic freezers, supermarket cabinets, cold warehouses, air/conditioning units, heat pumps..., with a wide range of refrigerants and secondary fluids and the possibility to incorporate almost any component or configuration.

TECHNICAL AND BUSINESS ADVANTAGES

The principal feature of IMST-ART© is its accurate evaluation of the refrigeration unit performance including an accurate modeling of every single component at the same time. Thus, any modification in one or several components can be always assessed from the perspective of the global performance of the unit.

Numerical robustness is another special feature of IMST-ART©: if the real system is able to work under the specified operating conditions, IMST-ART© will find the solution.

IMST-ART© has been designed to combine high accuracy with a low CPU time in order to become a truly practical tool to support the design of refrigeration equipment.

The advanced graphical capabilities of IMST-ART© help the designer to understand what takes place inside the system, clarifying the reasons for the observed performance or efficiency changes. Capabilities for analysis include:

- Easy-to-handle user-defined plots.
- Visualization of the evolution of the refrigerant and the secondary fluids properties throughout the evaporator and condenser.
- Investigation into the state of the refrigerant and its properties at every stage of the refrigeration cycle.

IMST-ART: SOFTWARE FOR THE SIMULATION AND DESIGN OF REFRIGERATION EQUIPMENT

TECHNOLOGY DEVELOPMENT STAGE

IMST-ART© is ready to enter the market and become the professional tool that refrigeration equipment designers demand. IMST-ART© has undergone an extensive experimental validation.

INTELLECTUAL PROPERTY RIGHTS

The software is protected by copyright.

COLLABORATION NEEDED

The UPV is searching for firms interested in obtaining licences of this software. Use licenses and distribution licences are both negotiable.

Technical contact

José González Maciá
Instituto de Ingeniería Energética
jgonzalv@ter.upv.es
Tel. 963877000 Ext. 79127

Business contact

Elsa Domínguez Tortajada
Centro de Transferencia de Tecnología
eldotor@ctt.upv.es
Tel. 963877409