

A photograph of several tall, silver industrial distillation columns in a refinery or chemical plant, set against a clear blue sky. The columns are surrounded by scaffolding and piping.

# MT-LAYOUT

## TUBESHEET LAYOUT AND OPTIMIZATION PROGRAM

### MT-MECH: MECHANICAL CODES AT YOUR FINGERTIPS

A COMPLETE SUITE OF PROGRAMS FOR MECHANICAL DESIGN IN CHEMICAL ENGINEERING

- MT-EXCH SHELL & TUBE HEAT EXCHANGERS
- MT-VESS HORIZONTAL & VERTICAL VESSELS
- MT-COMP EXCHANGERS & VESSELS COMPONENTS
- MT-LAYOUT TUBESHEET LAYOUT ANALYSIS

MT-LAYOUT optimizes the number of tubes that can be placed on a Shell & Tubes heat exchanger tubesheet.



### OPTIMIZATION OBJECTIVES

- Arrange the maximum number of tubes into the assigned tubesheet.
- Distribute uniformly tubes in each tube pass (about the same number of tubes)

### PROGRAM FUNCTIONALITIES

The program solves three different kinds of problems:

- Optimization of tubes into an assigned tubesheet diameter.
- Find the minimum tubesheet diameter for placing an assigned number of tubes.
- Allocate a specified number of tubes into an assigned tubesheet diameter.

### PROGRAM FEATURES

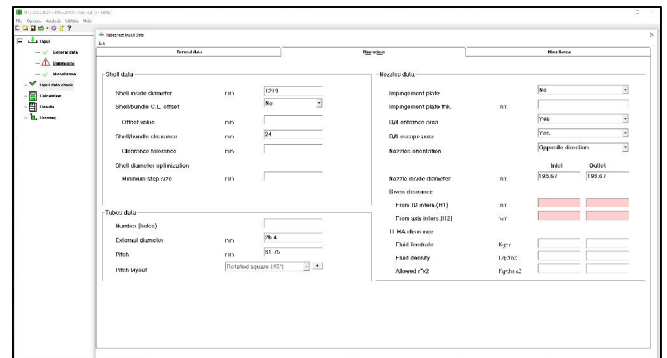
- Can handle tubesheets through 16 passes.
- Verifies the  $\rho \cdot v^2$  (according to TEMA) for I/O nozzles.

- Can handle 6 different passes arrangements
  - Mixed horizontal
  - Mixed vertical
  - Quadrant horizontal
  - Quadrant vertical
  - Ribbon horizontal
  - Ribbon vertical
- Automatically allocates on the tubesheet:
  - Tie rods (according to TEMA or user specified)
  - Sliding strips
  - Sealing strips

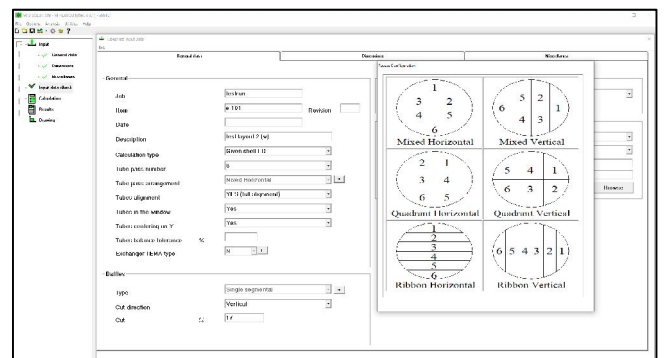
### INPUT

Data entry quick, easy and checkable.

Most of the data are preset and the user simply selects them from a list



When needed, drawings are associated to the input fields to make the selection even easier



Measurement units are completely free and customizable. The user can insert new units,

define new unit systems or modify on the fly a single unit on the calculation

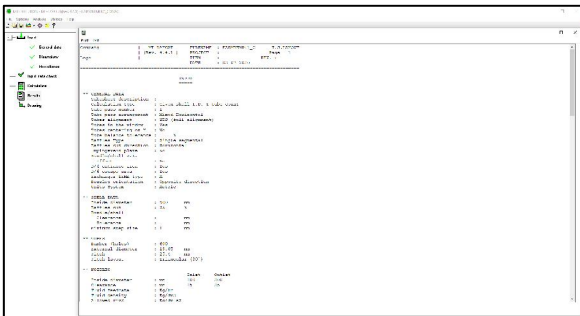
Import data from thermal rating is available. The program can read Xist.dbo file from HTRI or neutral file from other programs (Chemstations CC-THERM)

## OUTPUT

Report results clear and exhaustive.

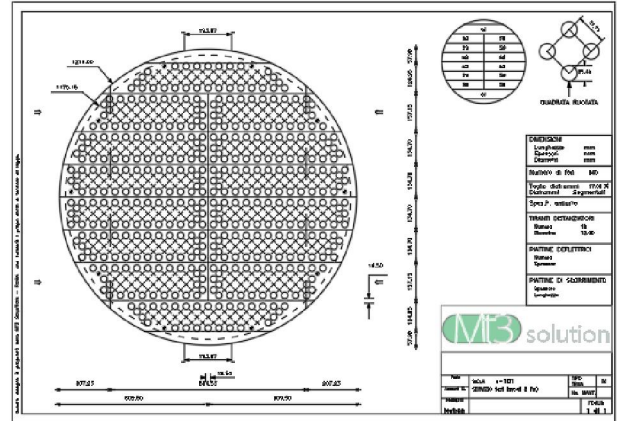
- **TABULAR REPORT**

All the data of the layout are printed out



- **DRAWINGS**

Drawing is automatically generated by the program



The drawing can be generated in English or in Italian language (additional languages can be easily implemented).

Measurement System Units of drawing are user definable.

The drawing is generated in DXF format and can be imported by the most common and diffused CAD programs (AUTOCAD, MICROSTATION etc.). This gives the user the further possibility to manage the drawing in order to modify or add details according to its own standards.



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