



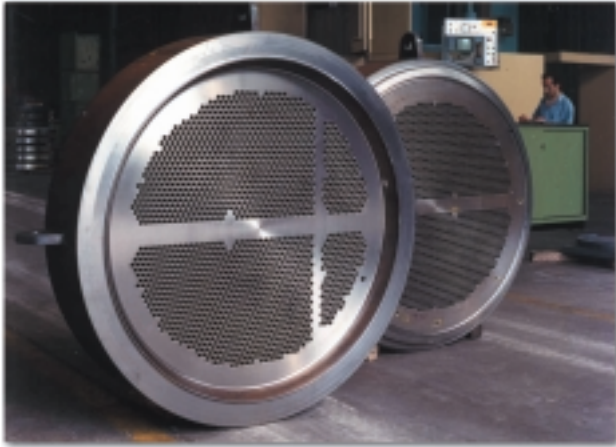
MT-LAYOUT

TUBESHEET LAYOUT AND OPTIMIZATION PROGRAM

MT-MECH : MECHANICAL CODES AT YOUR FINGERTIPS

A COMPLETE SUITE OF PROGRAMS FOR MECHANICALS 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

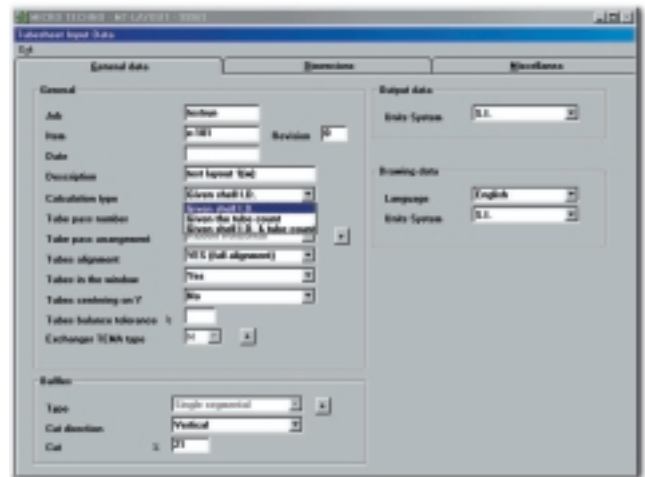
- Can handle tubesheets through 16 passes.
- Can handle 6 different passes arrangements
 - Mixed horizontal
 - Mixed vertical
 - Quadrant horizontal
 - Quadrant vertical
 - Ribbon horizontal
 - Ribbon vertical

- Verifies the $\rho \cdot v^2$ (according to TEMA) for I/O nozzles.
- Automatically allocates on the tubesheet:
 - Tie rods (according to TEMA or user specified)
 - Sliding strips
 - Sealing strips

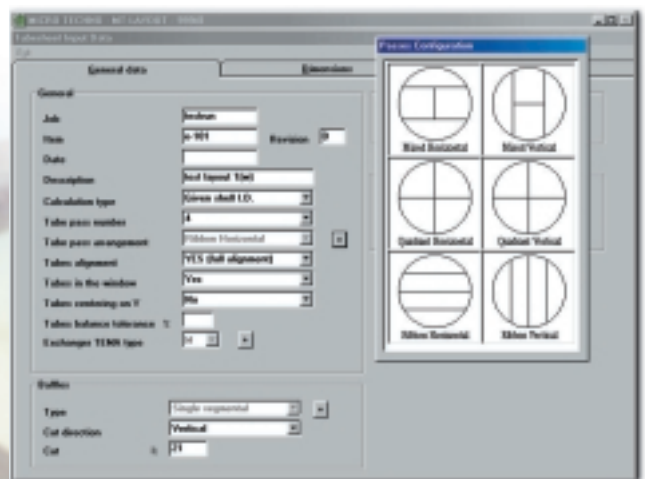
INPUT

The input for MT-LAYOUT is very easy

- 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 units systems or modify on the fly a single unit on the calculation
- Import data from thermal rating. Through the use of a neutral file MT-LAYOUT can import data generated by the thermal rating of the exchanger.

OUTPUT

The results of the tubesheet layout calculation consist of tabular report and layout drawing.

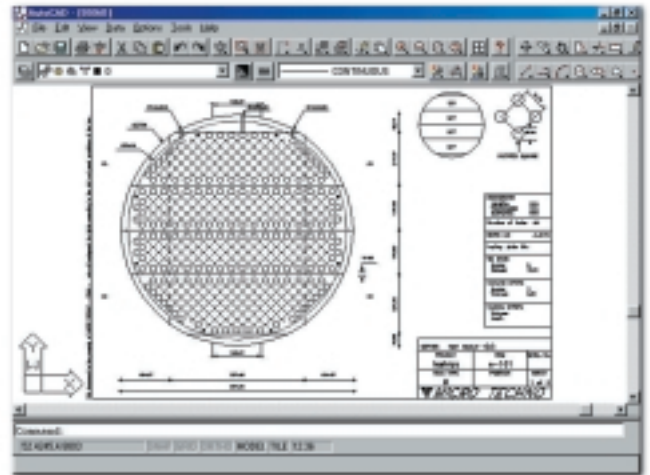
• Tabular Report

All the data of the layout are printed out

OUTPUT	
*** SHELL DATA ***	
inside diameter	: 503 mm
o.d.s.	: 575 mm
baffle offset	: 21 mm
baffle sub	: 21 mm
vert.pass part. width	: mm
horiz.pass part. width	: 19.5255 mm
*** TUBES ***	
total number	: 322
outside diameter	: 23.6 mm
pitch	: 21.75 mm
pitch layout	: 308.5025 mm
*** SHE RING ***	
number	: 8
diameter	: 12 mm
*** SEALING STRIPS ***	

• Drawing

The drawing is automatically generated by the program



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

The system units is user definable.

The drawing is generated in DXF format and can be imported by the most common and diffused CAD programs (AUTOCAD, MICRO-STATION 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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