



YOUR
TECHNOLOGY
ADVISOR

Customer References

Designing a tube-cluster heat exchanger
in a configurator

Ing. Massimo Arcolin

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›01

Job description:

The client

Multi-national Leader in supply and services for efficient use of heat-vector steam and fluids used in industrial processes and heat exchange.



Their products include:

- ›Apparatuses for steam plants
- ›Electronic and pneumatic instrumentation for Process Regulation
- ›Regulating valves
- ›Humidification systems
- ›Heat exchangers

›01

Job description:

The product

Tube-cluster heat exchangers, including various Fixed-plate and U-form types in a wide range of standard models, as well as customised projects for special constructions, respecting international and particular norms

details of a fixed-plate exchanger:
note corrugation of the tubes to optimise exchange efficiency



›01

Job description:

The objective

›Creo Parametric Essentials

›Creo AAX (Advanced Assembly Extension)

›Recognition of the complete logical sequence of all choices and project restrictions required by the design technician to create an entire exchanger model

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- ›Recognition of the complete logical sequence of all choices and project restrictions required by the design technician to create an entire exchanger model
- ›Possibility of developing projects for exchangers from existing catalogues (automatic remake, in 3D, of an old two-dimensional database)

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- ›Possibility to develop projects for exchangers according to specific commissions
- ›Automate creation of three dimensional models
- ›Automate creation of production drawings and formatted materials list for the Purchasing Dept.

›02

What does configure a heat exchanger entail:

Creating the 3D model

›All design restrictions and mechanical parameters defining the geometry of the model are introduced through a simple graphic interface called 'Layout'

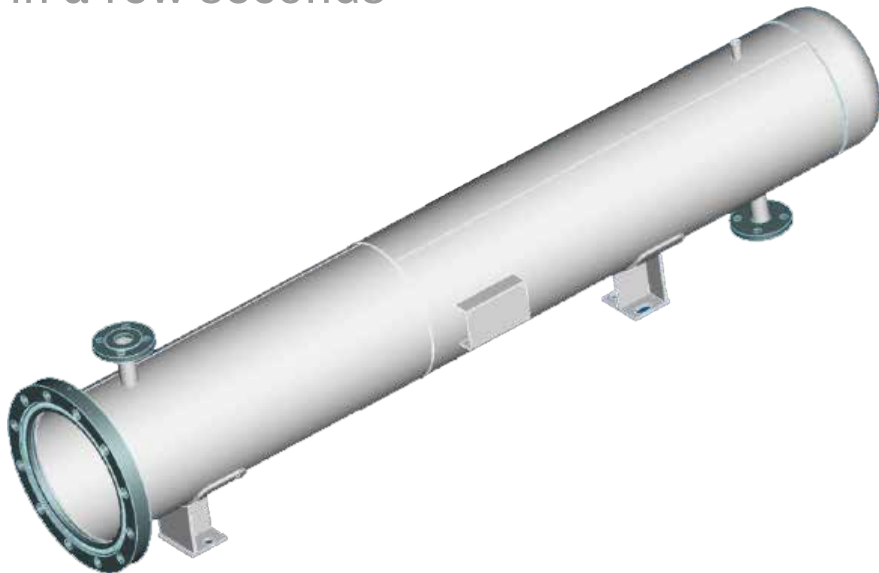


›02

What does configure a heat exchanger entail:

Creating the 3D model

The layout guides a master 3D model that -according to the design choices introduced- consequentially adapts itself in a few seconds

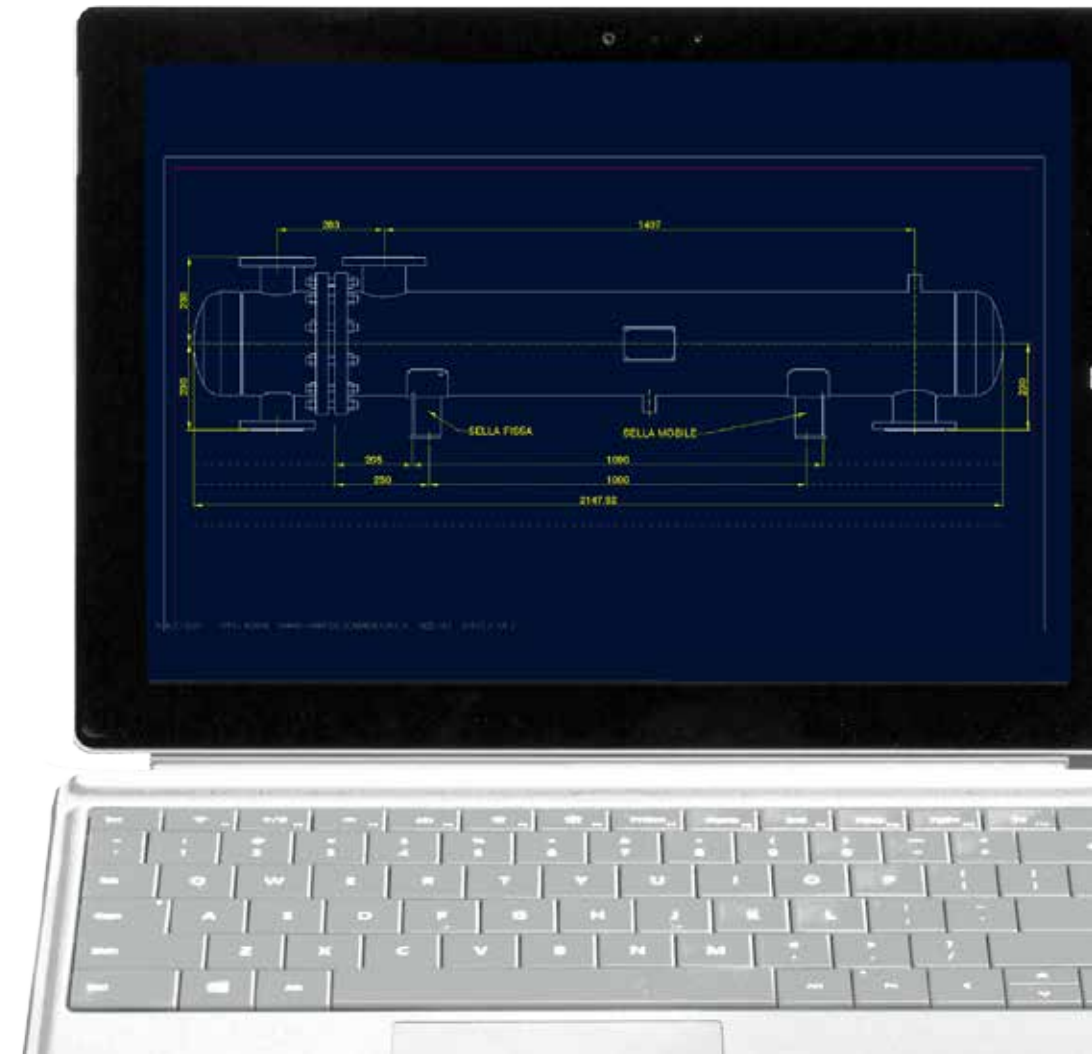
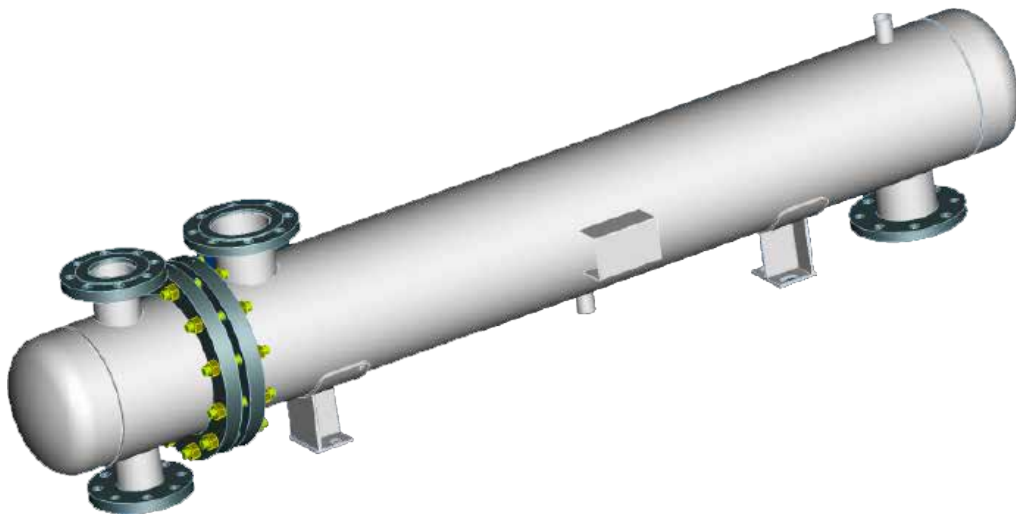


>02

What does configure a heat exchanger entail:

Automatic updating of the drawing

The production drawings are correctly updated within the drawing program and are automatically ready for plotting

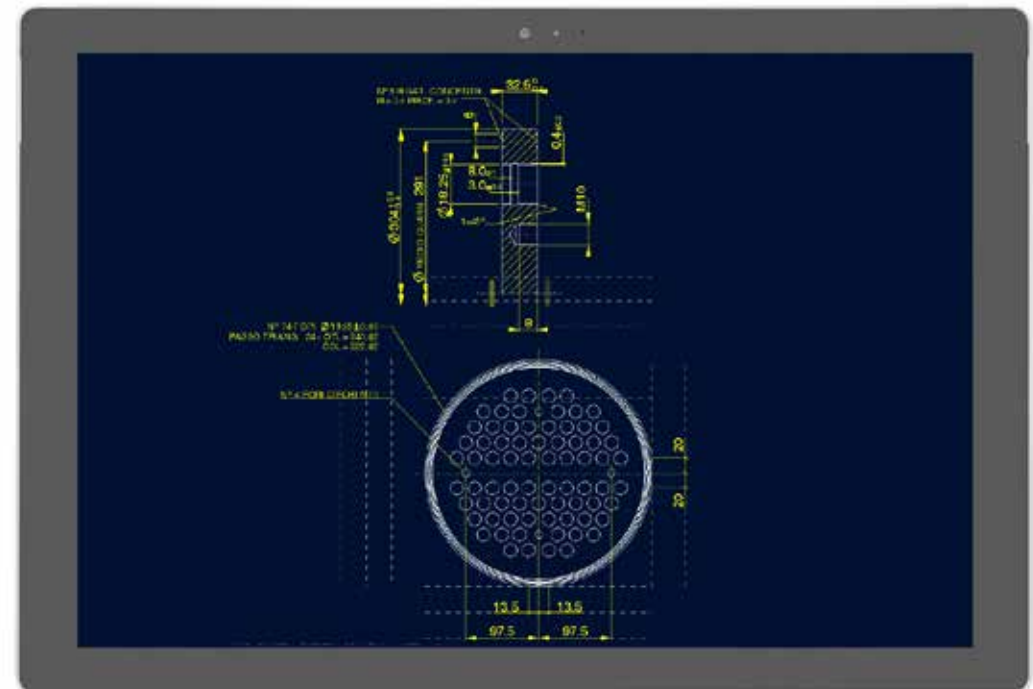


>02

What does configure a heat exchanger entail:

Automatic updating of the drawing

Correctly detailed drawings of each single item are also generated



›02 Extraction of a Bill of Materials for the Purchasing Dept

The materials list is properly formatted so as to be readily available for insertion into the Administrative System and forwarding to other Offices (Purchasing, Quality, etc.)

PESO TOTALE A VUOTO (total empty weight) [Kg]										67.2	
11	RONDELLA DENTATA		4	DIN 9798	18.0	1.00	0.0	4620895001	Fe 37 B UNI 7070		
13	DADO ESAG.		4	M10 UNI 2988			0.0	48212401003	Fe 37 B UNI 7070		
12	TIRANTE FILETTATO		4		18.0		1267	1.4		Fe 37 B UNI 7070	
11	DIAPHRAGMA		10	DIAM 280.5 Sp. 2			4.1	36163425004	ASTM A240-Tp304		
10	FORCINA AD U		4		18.0	1.00	5.9	36164330071	ASTM A 249 Tp 316L		
9	FORCINA AD U		6		18.0	1.00	6.7	36164330081	ASTM A 249 Tp 316L		
8	FORCINA AD U		8		18.0	1.00	11.4	36164330051	ASTM A 249 Tp 316L		
7	FORCINA AD U		3		18.0	1.00	12.6	36164330041	ASTM A 249 Tp 316L		
6	FORCINA AD U		1		18.0	1.00	1.4	36164330032	ASTM A 249 Tp 316L		
5	FORCINA AD U		1		18.0	1.00	1.3	36164330021	ASTM A 249 Tp 316L		
4	FORCINA AD U		4		18.0	1.00	5.5	36164330012	ASTM A 249 Tp 316L		
3	FORCINA AD U		4		18.0	1.00	0.4	36164330011	ASTM A 249 Tp 316L		
2	SUPP. ANTIVIBRANTE		1	DN 200 Sp. 2			0.0	36163420002	ASTM A 240 Tp 304		
1	PIASTRA TUBIERA	230	1	DIAM 304 Sp. 22			9.2	36166780074	ASTM A 106		
POG.	DESCRIZIONE - Description	QUA.	UNI	Q.	DIMENSIONI - Dimensions	GA.	SP.	LO.	PESO	CODICE - Code	MATERIALI - Materials

›03

Advantages of using a Product Configurator



The layout interface
renders the mechanical
design of a new project
quick and easy

›03 Advantages of using a Product Configurator



The layout interface renders the mechanical design of a new project quick and easy



Design mistakes are drastically reduced thanks to 3D controls (global interferences, barycentre ...)

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Models can be easily re-used for new commissions

›03

Advantages of using a Product Configurator

One can create new heat exchangers by choosing standard components from a digital library

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If the heat exchanger is special, one can create his components starting from scratch

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One can create new heat exchangers by choosing standard components from a digital library 

If the heat exchanger is special, one can create his components starting from scratch 

One can also mix the standard components from the digital library with new components

›03 Advantages of using a Product Configurator

Example of an exchanger created with mixed techniques: two components were taken from libraries while the third has been configured

From Library



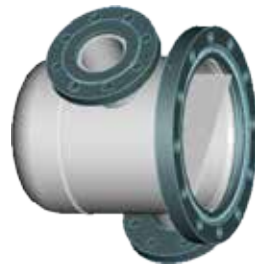
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Example of an exchanger created with mixed techniques: two components were taken from libraries while the third has been configured

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New Component



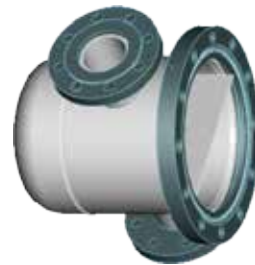
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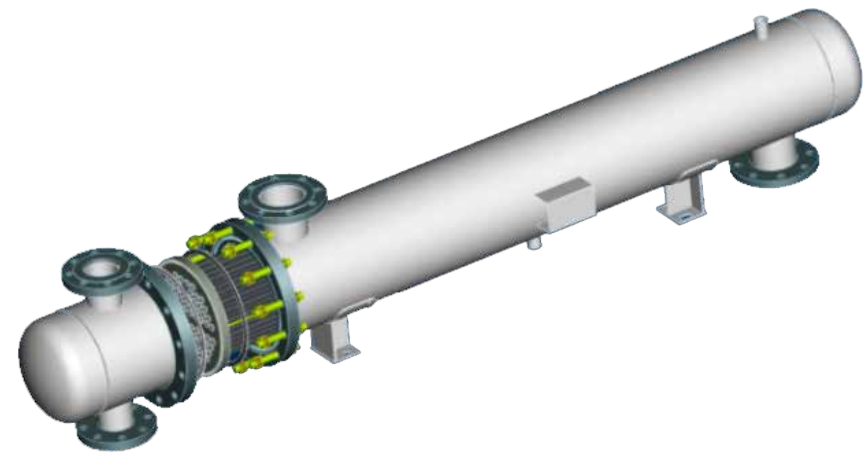
From Library



New Component



Complete Exchanger



›04 Conclusions

Creation of a layout underlying the exchangers, thanks to the ease-of-use offered by the graphic interface and to the flexibility afforded by combining various components, reduced the project-time, from 10 -12 hours to the few minutes necessary for completing the configuration.

Such time savings are often determinant during estimate stages for acquiring the order requested by the client.

Thank you!



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