

coils

*Refra*<sup>®</sup>  
[www.refra.eu](http://www.refra.eu)



# ABOUT COMPANY

JSC "Refra" is one of the leading companies in the refrigeration equipment production field. The long-term work experience, cooperation with world leading refrigeration components producers and individual approach to each client allowed us to develop and offer a wide range of products for refrigeration and air conditioning applications.

# HEAT EXCHANGER

While working with equipment which needs an air cooling, Refra encountered a need to expand its production capabilities. We have developed and launched our own air cooled coil production line with latest machinery and tools. Today we have whole new series of air-cooled condensers and drycoolers to offer. Also we can offer not only standard products. Now large variety of finned pack heat exchangers is available to meet our customer needs. Refra now offers the production of specific coils for Original equipment manufacturers (OEM). Fully individual product can be developed according to customer requirements, ensuring high quality and stable supply.

## DEPARTMENT



## CONDENSING COILS

- Usually used for refrigeration or air conditioning equipment as remote condenser or as a part of condensing unit.
- Standard tubes: copper; inner grooved or smooth; 5 mm, 7,94 mm, 9,52 mm, 12,7 mm
- Standard fins: aluminum, epoxy coated, hydrophilic, copper; corrugated fin shape
- Standard frame: galvanized steel, stainless steel, aluminum

## EVAPORATING COILS

- Usually used for refrigeration or air conditioning equipment or air-handling units
- Standard tubes: copper; inner grooved or smooth; 5 mm, 7,94 mm, 9,52 mm, 12,7 mm
- Standard fins: aluminum, hydrophilic, copper; corrugated fin shape
- Standard frame: galvanized steel, stainless steel, aluminum

## WATER AND BRINE COILS

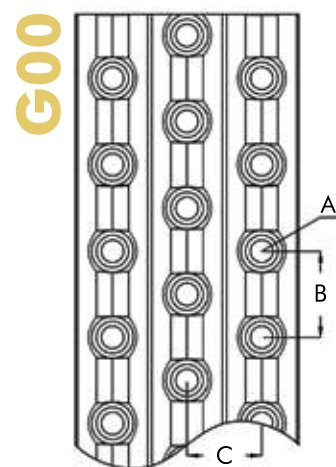
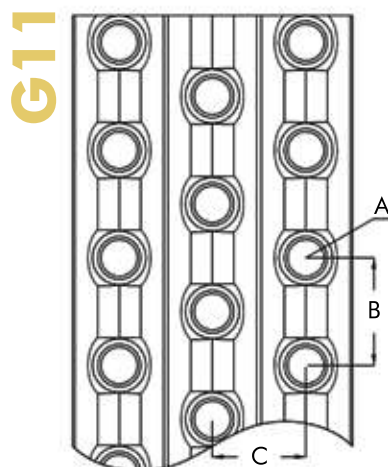
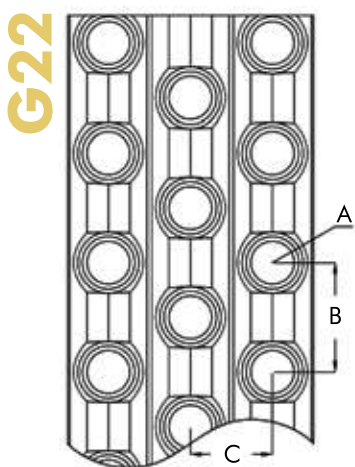
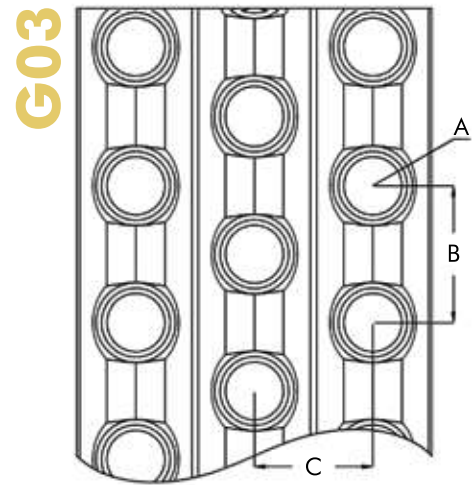
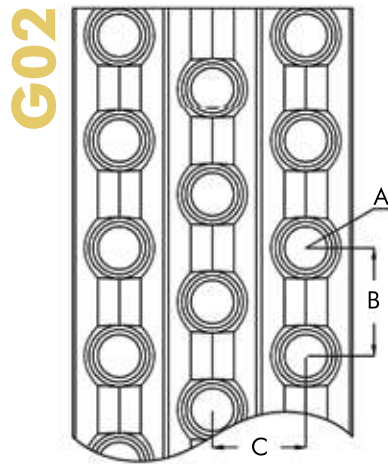
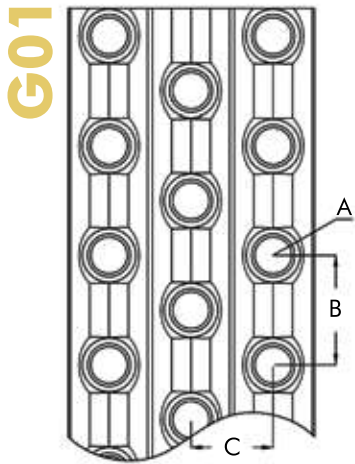
- Usually used for drycoolers, fan coils, air heaters or coolers and air handling units
- Standard tubes: copper; inner grooved or smooth; 9,52 mm, 12,7 mm
- Standard fins: aluminum, hydrophilic, copper; corrugated fin shape
- Standard frame: galvanized steel, stainless steel, aluminum

## OTHER COILS

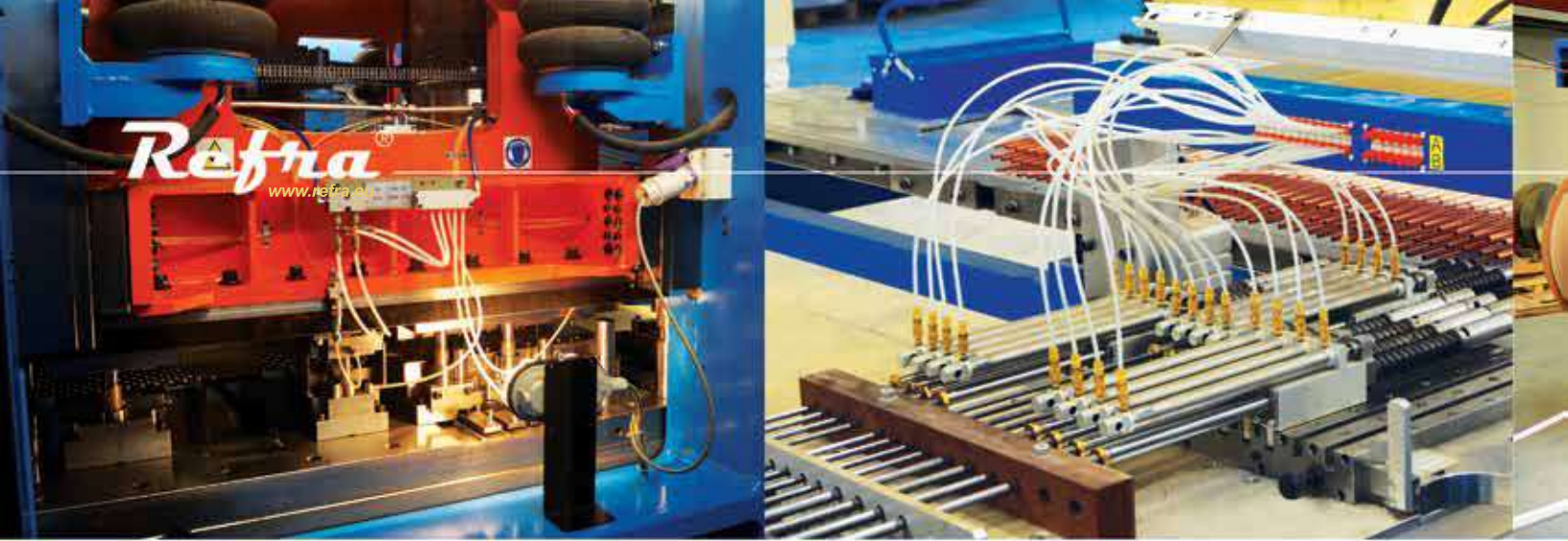
- Various other applications, such as oil coolers, gas coolers, heat pumps, water coolers, are available according to customer requirements.

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# REFRA GEOMETRIES



Measurements	G01	G02	G03	G22	G11	G00
<b>A</b>	Ø 7.94 mm	Ø 9.52 mm	Ø 12.70 mm	Ø 9.52 mm	Ø 7.94 mm	Ø 5.00 mm
<b>B</b>	25.40 mm	25.00 mm	31.75 mm	25.40 mm	25.00 mm	20.00 mm
<b>C</b>	19.05 mm	21.65 mm	27.50 mm	19.05 mm	21.65 mm	17.30 mm



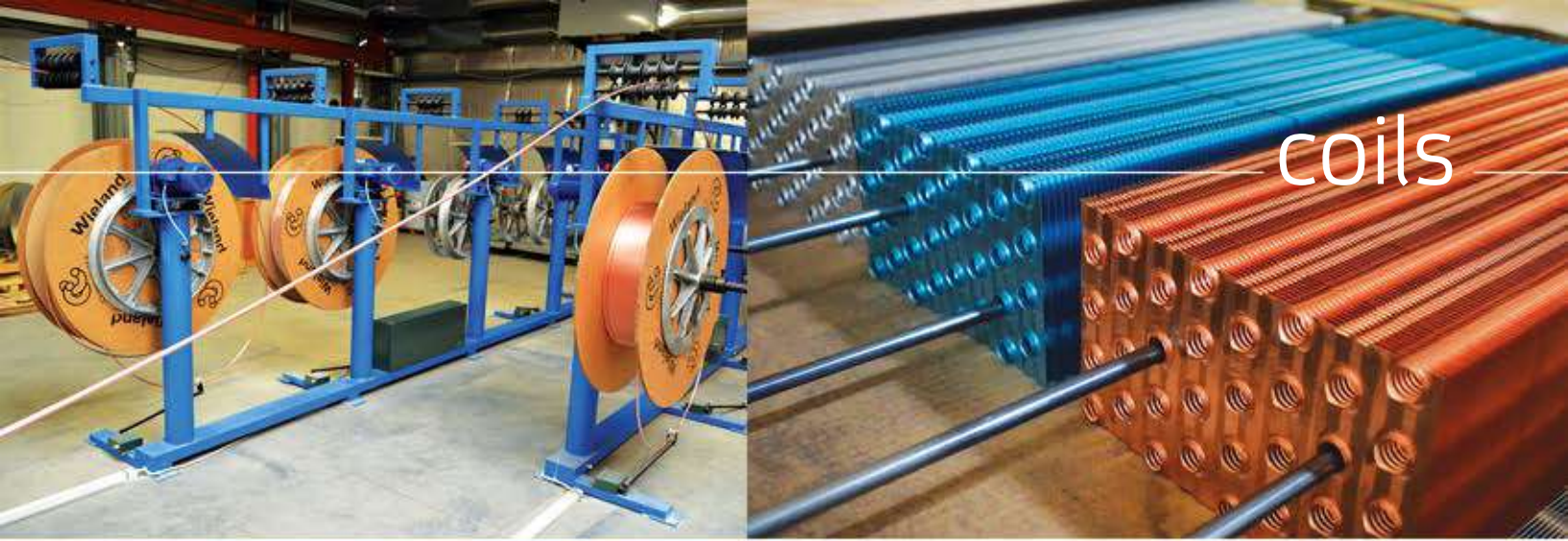
## REFRA HEAT EXCHANGERS PRODUCTION CAPABILITIES

Geometry	D, mm	A, mm	C, mm	Corrugation	Fin spacing	Tubes	Tube wall
<b>G00</b>	5,00	20,00	17,30	C	1,5 - 3,5 mm	Grooved	0,25 mm
<b>G01</b>	7,94	25,40	19,05	C, L	1,5 - 3,5 mm	Grooved	0,28 mm 0,54 mm*
<b>G02</b>	9,52	25,00	21,65	C	1,5 - 4,5 mm	Grooved Smooth	0,35 mm
<b>G03</b>	12,70	31,75	27,50	C	1,5 - 8,0 mm	Smooth	0,41 mm
<b>G11</b>	7,94	25,00	21,65	C	1,5 - 4,5 mm	Grooved	0,28 mm 0,54 mm*
<b>G22</b>	9,52	25,40	19,05	C	1,5 - 3,5 mm	Grooved Smooth	0,35 mm

\* K65 tube for high pressures up to 120 bar

## QUALITY

Refra coil production line is completed with modern automatic machinery and tools, responsible personnel and management system. This combination allows us to achieve high quality production process with minimum deviations from designed result. We use only certified high quality tubes and aluminum or copper sheets for coil production to achieve maximum reliability. All our coils are tested with high pressure and fit PED (Pressure Equipment Directive) – No. 23/1997/EC.



# SOFTWARE

For all heat exchanger calculations Refra uses Unilab heat transfer calculation software, which meets Eurovent requirements and ensures precise results in any heat transfer case. For our OEM customers we offer coil calculation software developed by Unilab especially for Refra, incorporating all our production capabilities. This tool helps Refra customers calculate developed coils in different conditions or create new coils.

The software interface displays the following data for a project:

Parameter	Value	Unit
Capacity	28.17	m³/h
Pressure Drop	25	Pa
Outlet Air Temperature	35.5	°C
Outlet Air Relative Humidity	37.6	%
Pressure Drop	25	Pa
Number of fans	1	
Kind of fan	Edm	
Series	EbmDGenex	
Model	A30630AR8501	
Voltage (V)	400	
Fluid	R404A	
Mass Flow	632.2134	kg/h
Volumetric Flow	0	m³/h
Evaporating Temperature	0	°C
Condensing Temperature	44.84396	°C
Overheating	25	K
Subcooling	1	K
Pressure Drop	7.44993	MPa
Fouling Factor	0	(m² K)/W
Fluid Velocity (Gaseous Phase)	1.745994	m/s
Fluid Velocity (Liquid Phase)	0.2187772	m/s
Calculation temperature	0	°C
Density	0	kg/m³
Viscosity	0	kg/(m s)
Thermal Conductivity	0	W/(m K)

# CUSTOMER SERVICE

Refra is located in Lithuania, which is in eastern European part. We work with customers from all over the world. Our main priority is to establish close contact with every customer to meet their requests and fulfill all tasks on time. Our flexibility allows us to find different solutions in various situations for every customer, ensure high production quality, provide aftersales support.



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