

THE **Triple 7**® EQUILATERAL ADVANTAGE



HEAVY
DUTY

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COOLING

INDUSTRIAL
COOLING

WEATHERING
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CONDITIONS

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BEYOND THERMAL
ENGINEERING

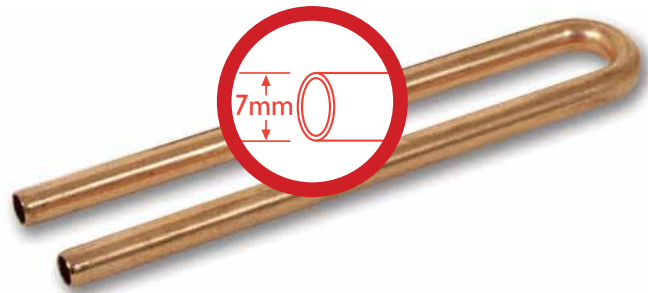
TRIPLE 7[®] - THE EQUILATERAL ADVANTAGE

Since 1958 Lordan has been specializing in designing fin and tube coils for the HVAC&R markets.

The Triple 7[®] was developed and introduced to the market in response to evolving demands of the high technology sectors and in the midst of changing regulations and standards growing out of environmental concerns.

The Triple 7 is an exceptionally high capacity coil pattern with high airflow in one of the smallest possible tube diameters on the market today for finned coils. It is well suited for specialized applications where volume and weight can be critical. The Triple 7's small size and weight takes less refrigerant, making it a cost-effective and environmentally friendly choice.

Triple 7[®] owes its name to its 7mm tube length, tube diameter, equilateral tube arrangement, and optimal ratio between tube diameter and tube distance.



Tube diameter: 7mm=0.2756"
Pattern: 19.05x16.51 (3/4"x0.65")
The smaller the tube diameter, the greater amount of tubes in a fin cross-section.
Equilateral tube arrangement:
equal distances between each tube and its six adjacent tubes.
The equilateral pitch allows heat to travel at the shortest possible distance from fins to tube.
As a result, the equilateral pitch produces the highest fin efficiency.



BENEFITS OF THE TRIPLE 7[®]

- Occupies less volume than any other coil
- Is lightweight
- Uses reduced refrigerant
- Cost-effective
- Environmentally friendly

COIL MATERIALS & SHAPE OPTIONS

- All Aluminum
- Stainless Steel
- Round Shape
- Single Bend
- Double Bends
- Triple Bends

TRIPLE 7[®] APPLICATIONS

THE HIGH CAPACITY TRIPLE 7[®] COIL IS SUITABLE WITH ANY TYPE OF FLUID AND CAN BE CUSTOMIZED TO A RANGE OF SPECIALIZED HEAVY DUTY, PRECISION COOLING OR INDUSTRIAL COOLING APPLICATIONS.



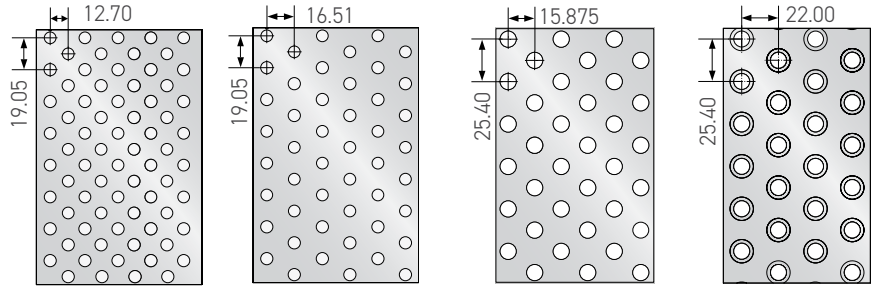
TRIPLE 7[®] OUTDOOR COILS – LASTING PERFORMANCE GUARANTEE

Lordan's Triple 7[®] coil technology provides superior DX evaporator coil performance:

- 7 mm tubing cuts refrigerant costs by up to 40%.
- Coils are 26% leaner, facilitating smaller housings and less ice build-up.
- Fin densities (from 6-18 fins per inch) with or without special coatings are produced to suit any climate.
- Available in all fin sizes.

COIL PATTERNS INDEX

LORDAN COIL PATTERNS

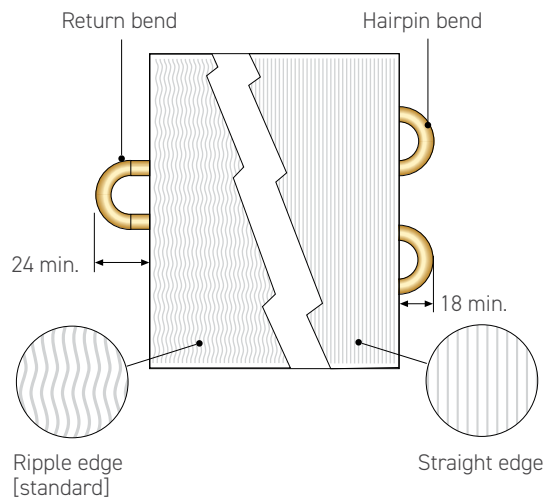
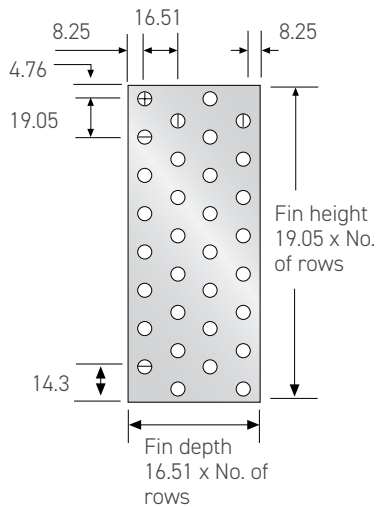


Pattern No.	55 Lord Five		15 Triple 7		8		9	
Tube diameter mm	5mm		7mm		9.5mm 3/8"		9.5mm 3/8"	
Tube material	Cu		Cu/Al/St.St.		Cu/Al		Cu/Al/St.St.	
Tube matrix mm [inch]	19.05 X 12.70 (3/4" X 1/2")		19.05 X 16.51 (3/4" X 0.65")		25.4 X 15.88 (1" X 5/8")		25.4 X 22 (1" X 0.866")	
Tube pitch	Staggered		Staggered		Staggered		Staggered	
Tube geometry			Equilateral				Equilateral	
Fin shape			Louvered				Louvered	
	Corrugated		Corrugated		Corrugated		Corrugated	
	Sine wave		Sine wave				Sine wave	
	Flat		Flat				Flat	
Fin edge	Rippled / straight		Ripple / Straight		Ripple / Straight		Ripple / Straight	
Fin density / spacing	FPI	(mm)	FPI	(mm)	FPI	(mm)	FPI	(mm)
Aluminum 0.12 mm (.0045")	10-21	(2.5-1.2)	10-22	(2.5-1.2)	9-17	(2.8-1.5)	9-18	(2.8-1.4)
Aluminum 0.15 mm (.0060") Natural, Hydrophobic, Hydrophilic, marine Al	8-21	(3.2-1.2)	7-22	(3.6-1.2)	7-17	(3.6-1.5)	6-18	(4.2-1.4)
Aluminum 0.20 mm (.0080") Natural, Hydrophobic, Hydrophilic, marine Al	7-16	(3.6-1.6)	6-16	(4.2-1.6)	7-17	(3.6-1.5)	4-18	(6.3-1.4)
Aluminum 0.30 mm (.0120") Natural, Hydrophobic, Hydrophilic	7-16	(3.6-1.6)	6-16	(4.2-1.6)			4-18	(6.3-1.4)
Copper 0.13 mm (.0052")	10-21	(2.5-1.2)	10-16	(2.5-1.6)	10-16	(2.5-1.6)	10-16	(2.5-1.6)
Copper 0.15 mm (.0060")	8-21	(3.2-1.2)	8-16	(3.2-1.6)	8-16	(3.2-1.6)	8-16	(3.2-1.6)
Copper 0.20 mm (.0080")	8-16	(3.2-1.6)	6-16	(4.2-1.6)			7-16	(3.6-1.6)

TRIPLE 7

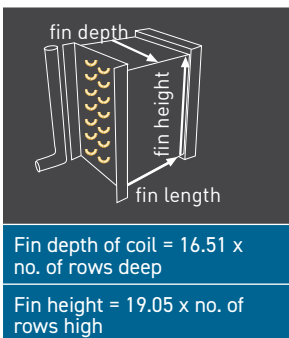
TRIPLE 7 / PATTERN 15 / 19.05 X 16.5

TUBE Ø 7MM



Fin Density Details

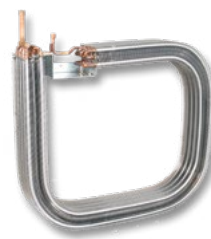
Fins Per Inch (FPI)	6	7	8	9	10	11	12	13	14	15	16	17	18	20	22
Distance (mm)	4.2	3.6	3.2	2.8	2.5	2.3	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.3	1.2
Aluminum Fin Thickness (mm)	0.2, 0.3	0.15, 0.2, 0.3			0.12, 0.15, 0.2, 0.3						0.12, 0.15				
Copper Fin Thickness (mm)	0.2		0.15, 0.2		0.13, 0.15, 0.2										
Fin Shapes	Louvered, Corrugated, High Corrugated, Sine Wave, Flat														



Optional Specifications



Slanted Coils



Bent and Circular Coils

Triple 7

Coil Patterns

LORDAN COIL DESCRIPTION KEY

15 / 3 X 9 X 800 / 11 - 5 [0]

pattern# rows deep rows high fins length mm fpi circuits empty holes



TUBES & APPLICATIONS

Applications

Tube Shape		Applicable Diameters mm (inch)		Applicable Lordan Patterns	Common Uses
Smooth		15.88mm	(5/8")	5,6,7,8,9,11,13,14 Triple 7 (15) Five (55)	Standard in all coils
		12.70mm	(1/2")		
9.52mm	(3/8")				
7mm					
5mm					
Rifled		12.70mm	(1/2")	7,8,9,11,13,14 Triple 7 (15) Five (55)	Condensers and evaporators for increased capacities
		9.52mm	(3/8")		
		7mm			
		5mm			
Turbo Spirals in Tube		15.88mm	(5/8")	5,6,7,8,9,11,13,14 Triple 7 (15)	Improved capacities for liquid carrying coils with limited size restrictions
		12.70mm	(1/2")		
		9.52mm	(3/8")		
		7mm			

Tubes

Tube Materials Options

Standard Tube Material	Specification and Standard	Tube diameter		Available Wall Thickness		
		mm	(inch)	mm	(inch)	
Copper		ASTM B-280	15.88mm	(5/8")	0.40mm 0.46mm	.016", .018"
			12.70mm	(1/2")	0.35mm 0.40mm	.014", .016"
			9.52mm	(3/8")	0.28mm 0.35mm	.011", .014"
			7mm		0.25mm, 0.28mm 0.50mm, 0.71mm	.010", .011" .020", .028"
			5mm		0.25mm, 0.35mm 0.40mm	.010", .014" .016"
Stainless Steel		316L	12.70mm	(1/2")	0.89mm	.035"
			9.52mm	(3/8")	0.71mm	.028"
			7mm		0.51mm	.020"

TUBES BENDING CAPABILITY

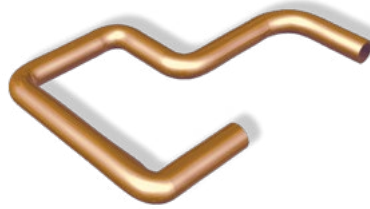
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Available Tube O.D.

inch		3/16"	1/4"		5/16"	3/8"			1/2"		5/8"		3/4"
mm	4			7			10	12		15		18	

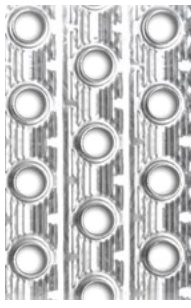
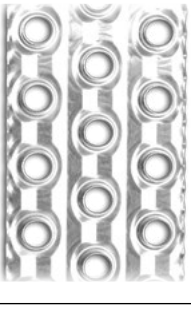


End Forming Of Copper Tubes – Standard Options

		O.D. range
O-Ring Long Pilot		9.53 to 19.05 (3/8" to 3/4")
O-Ring Short Pilot		9.53 to 19.05 (3/8" to 3/4")
Flare		6.35 to 19.05 (1/4" to 3/4")
Water O-Ring		9.53 to 22.22 (3/8" to 7/8")
Water Cone Head		9.53 to 19.05 (3/8" to 3/4")
Reduced Diameter		Any
Expanded Diameter		Any

FINS: SHAPES & APPLICATIONS



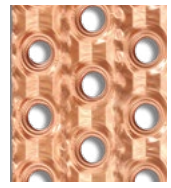
Shapes & Applications

Fins




Fin Shapes		Characteristics	Common Applications
Louvered		Louvered fins increase the heat-transfer capacity by creating air turbulence which reduces the boundary layer on the fin's surface, but at a cost of increased air-pressure drop across the coil.	<ul style="list-style-type: none"> • Evaporators • Heaters and Coolers • Condensers operating in areas with light to normal dust conditions • This fin shape is for all applications with normal dust conditions
Corrugated (low and high)		Corrugated fins improve the heat transfer factor to a lower degree than louvered fins. They also have a lower resistance to air flow.	<ul style="list-style-type: none"> • Used where icing or heavy-dust conditions are expected, like condensers for off road vehicles and for heavy dust applications
Sine Wave		Sine wave fins improve the heat transfer factor to a higher degree than corrugated fins. These have about the same resistance to air flow as the corrugated fins.	<ul style="list-style-type: none"> • Good all purpose selection for all types of coils, provides the best output to air pressure drop ratio • Default fin shape when not otherwise specified
Flat		Flat fins reduce ice accumulation on fins. They have the lowest resistance to air flow.	<ul style="list-style-type: none"> • Deep freezers • Cooling / freezing systems • Passive air flow systems

FINS: MATERIAL OPTIONS

Natural Materials

Fin Type	Characteristics	Common Applications
<p>Regular Aluminum</p> 	<p>Regular Aluminum of the 8xxx alloy series is the most common and cost effective fin material. It exhibits good endurance under normal environmental conditions.</p>	<ul style="list-style-type: none"> Residential applications (both indoors and outdoors) Vehicles of all kind Large coils for central systems Freeze & deep-freeze
<p>Marine Quality Aluminum</p> 	<p>Marine Quality Aluminum has improved resistance to salty, humid conditions. It is cost effective and has demonstrated first-rate Salt Spray test results.</p>	<ul style="list-style-type: none"> Coils for marine equipment Coils for coastal residences Coils for mining equipment Coils for corrosive industries Applications exposed to salty, humid and/or corrosive conditions
<p>Copper</p> 	<p>Copper has higher heat conductivity and mass, and is more costly than Aluminum.</p>	<ul style="list-style-type: none"> Coolers for special industrial machines Areas with space limitations High-tech environments

Precoated Materials

Fin Type	Characteristics	Common Uses
<p>Hydrophobic</p> 	<p>The epoxy based hydrophobic coating effectively repels water and inhibits dust and bacterial accumulation. Salt Spray test results are excellent (over 1,000 hours).</p>	<ul style="list-style-type: none"> Condensers for coastal residencies Condenser coils for polluted areas Coils for corrosive industries Coils for laboratories and hospitals
<p>Hydrophilic</p> 	<p>The special two-micron pre-coated polymer hydrophilic coating improves airflow by reducing thickness of condensing water layers, known as water carry-over phenomenon.</p>	<ul style="list-style-type: none"> Evaporators and coolers Avoids carry-over of condensed water at high air velocities
<p>Nano Coating</p> 	<p>The nano coating is only 5µ thin with high heat transfer capabilities. Resists corrosion, salt water, and dust; Salt Spray test results are superior (over 5,000 hours).</p>	<ul style="list-style-type: none"> Protection against organic solvents and chemicals Self-cleaning Reduced dirt accumulation Lower energy consumption Lower maintenance costs

FINS: SPECIAL COATINGS

Special Coatings

Today, a long-lasting coil is as important as the air quality it handles. Lordan offers specialized coatings for extended product life and protection against bacteria buildup and corrosion, especially important for central cooling systems, offices, shopping centers, as well as central systems for residential buildings.

SOLUTIONS FOR EXTREME ENVIRONMENTS



Complex heating, cooling and refrigeration challenges demand high enduring coils suitable to withstand exposure to extreme environments. Harsh conditions found in coastal or industrial environments release airborne contaminants that are corrosive to the materials of the coil.

Lordan's specialized coatings are designed to reduce deterioration by sealing out moisture and airborne contaminants such as salt and salt-spray, humidity, corrosive fumes emitted from highly polluted industrial areas and chemical production, and other damaging elements.

Fins

NANO-COATING



BUILT TO LAST



ROHS



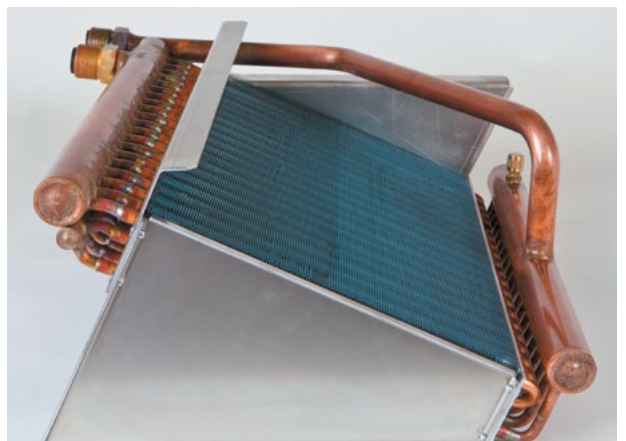
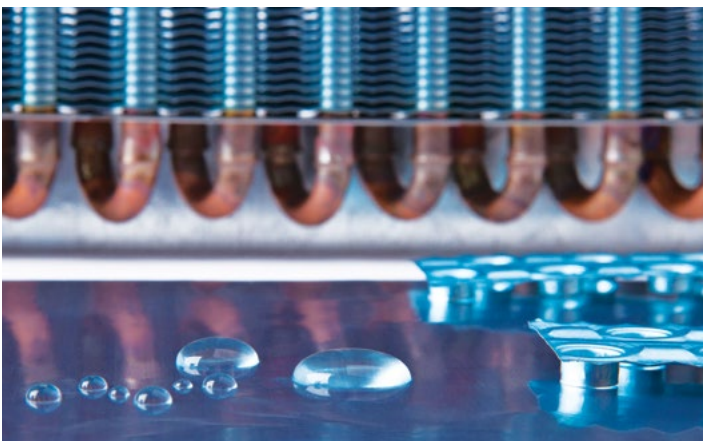
ENERGY SAVER



LOW MAINTENANCE

Lordan offers an innovative super water repellent coating with an enhanced hydrophobic layer that is only 5µ thin. Our nano-coating guarantees extended product life while maintaining excellent heat transfer capabilities.

The coating has proven self-cleaning and its low dirt accumulation attributes significantly reduce energy consumption and maintenance costs, while protecting against many organic solvents and chemicals.



EPOXY COATING LORD-PHOB EPOXY COATING



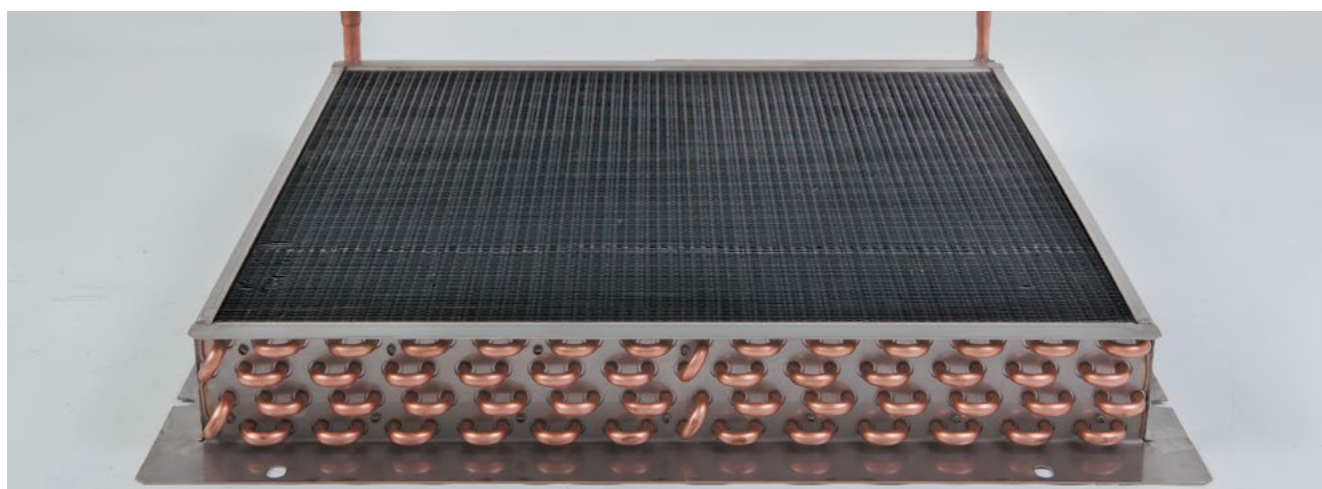
BUILT TO LAST



ROHS



LOW MAINTENANCE



Lord-Phob is an epoxy based coated fin providing first-grade resistance to corrosive conditions. The ultra thin epoxy-based coating preserves the appropriate gap needed for effective heat transfer between the fin and the surrounding air.

LORD-PHILL HYDROPHILIC COATING

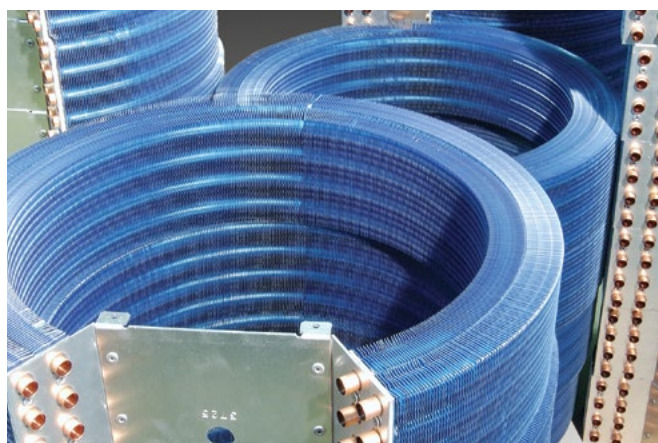


ENERGY SAVER



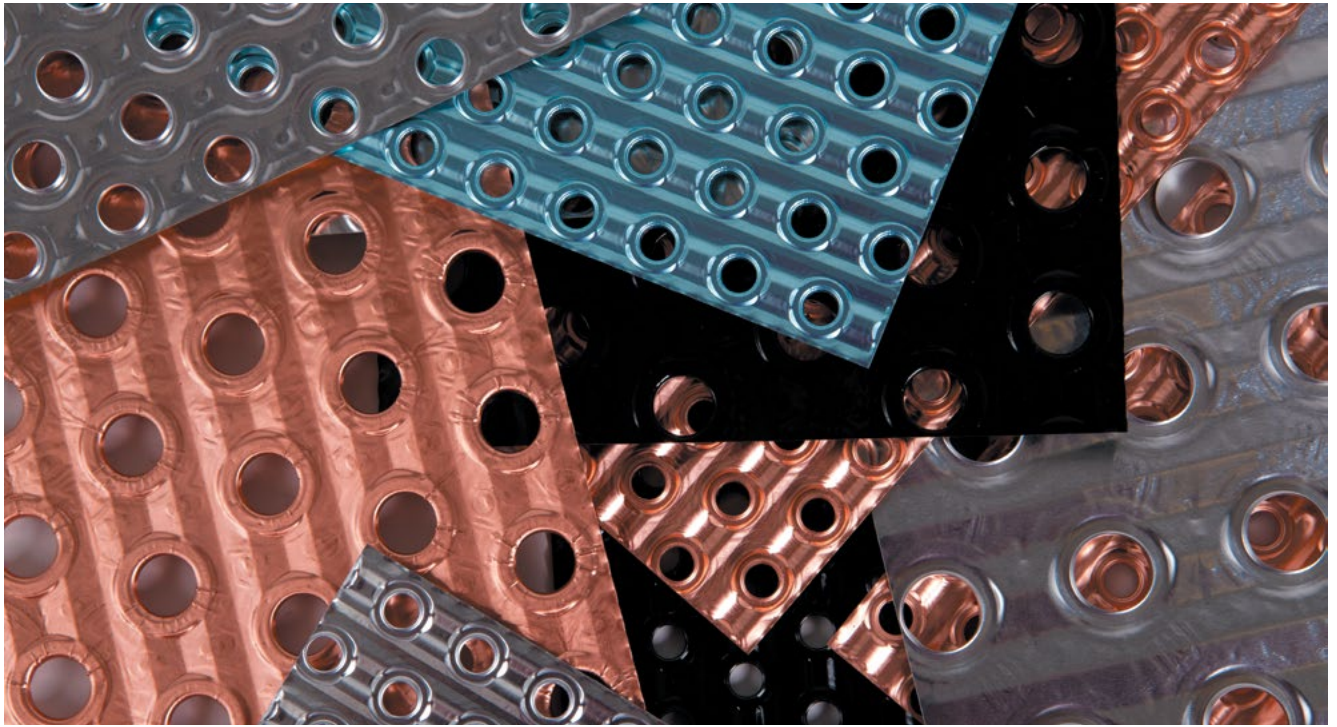
ROHS

Our hydrophilic coating is a 2-micron special pre-coated polymer. The hydrophilic surface-tensile qualities flatten condensing water droplets on the fin, thereby reducing water layer buildup that can restrict air flow between the fin layers.



The coating also prevents the phenomenon of water carry-over from drops getting into the evaporator's airflow at high air speeds.

This is especially significant for evaporators with tangential blowers.

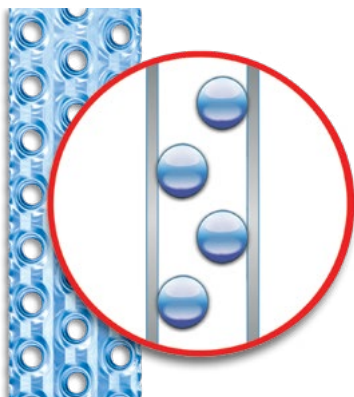
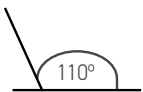


Fins

Technical Specifications	Nano	Lord Phob	Lord Phill
Material type	polymer	epoxy based + chemical conversion	polymer + chemical conversion
Layer thickness	~ 5 micron	~ 3 micron	~ 2 micron
Thermal conductivity effects	< 1%	< 1%	< 1%
Standard color	light blue	black	light blue
Temperature resistance	-20°C to 250°C	-20°C to 200°C	-20°C to 120°C
Salt spray humidity endurance test	5,000 hours	1,000 hours	500 hours

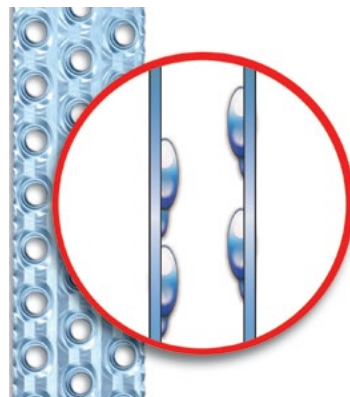
Nano

Nano coating prevents the adhering of the water droplets on the fin surface, keeping the fin dry and not prone to dust accumulation.



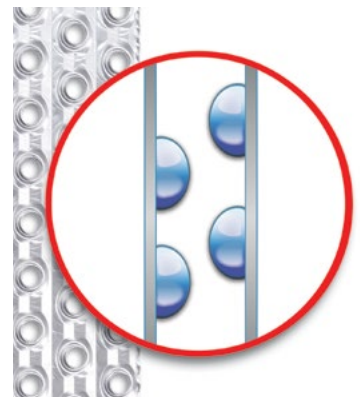
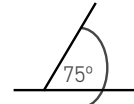
Lord Phill

Lord Phill coating reduces surface tension by flattening water droplets and allowing increased air flow.



Uncoated

On uncoated fins, large round water droplets accumulate that can restrict air flow and produce water spray.



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VOLUME SAVING
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REDUCED WEIGHT
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ROHS
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RECYCLED MATERIALS
- 
REDUCED CO₂ FOOTPRINT

Rising concern over energy savings and the environment has prompted us to take waste reduction measures without compromising performance. Lordan is pleased to offer recyclable round aluminium tubing that is one hundred percent recyclable, designed for both water and gas applications.

Our recyclable All-Al (all aluminum) coils significantly reduces coil weight and provides better corrosion resistance that translates to energy efficiency in terms of lower operating costs and volume savings.

Benefits of Aluminum


- Cost-effectiveness: Best cost/quality ratio
- 100 percent recyclable
- High strength
- Lightweight and easy to handle
- Non-corrosive
- Good heat and cold conductor
- Suited for heavy duty applications

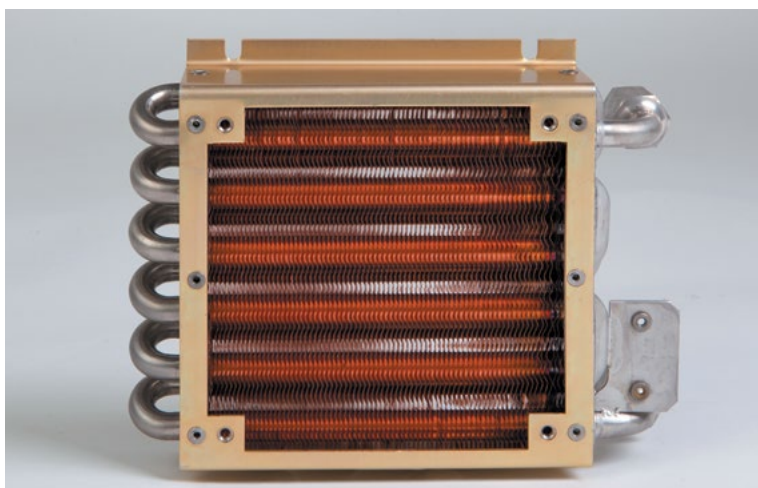


All-Al Aluminum Coils & Stainless Steel Coils

Premium Coils

STAINLESS STEEL COILS

- 
BUILT TO LAST
- 
ROHS



We offer stainless steel tubing especially suited for highly corrosive fluids and applications.

Benefits of Stainless Steel

- Cost-effective
- High strength, solid material
- Better wear resistance
- Non-corrosive
- Non-abrasive
- Inert metal
- Superior heat and cold conductor
- Suited for heavy duty applications