THE Lord FiVe™ COMPACT ADVANTAGE






LORDAN
BEYOND THERMAL ENGINEERING

SMALL SIZE, BIG ADVANTAGES

Lord FiVe™

When Lordan launched its advanced Triple 7® coil pattern over a decade ago, it distinguished itself as a leading developer of advanced fin and tube technology. The debut of Lord FiVe™ marks the company as a global specialist.

Lord FiVe is a compact, lightweight coil pattern with a 5 mm diameter tube – the smallest and most advanced coil on the market today.

COMPACT ADVANTAGE

Fin and tube technology must match the pace of modern innovation, which emphasizes economization, by avoiding waste and reducing expenditures. Lordan watches your bottom line while maintaining its responsibility to the environment, and is always searching for optimal solutions requiring minimum raw materials.

The compact Lord FiVe™, with its 5 mm tubes and dense pattern measuring 19.05x12.70 (3/4"x1/2"), is the key to its exceptional performance and efficiency, offering you a five-fold advantage.

FIVE-FOLD ADVANTAGES

The high capacity Lord FiVe™ is the first of its type to be introduced to the HVAC industry. With its ultimate new size and unsurpassed performance, the advantages it passes onto you are fivefold.

Lord FiVe saves you:

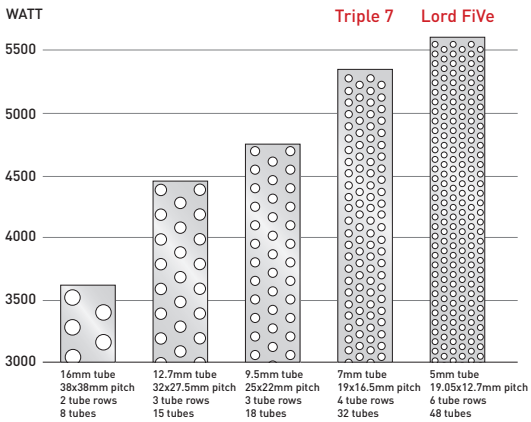
- **Space:** Can fit into almost any small area
- **Weight:** Lightest coil currently available
- **Refrigerant:** Requires low amounts
- **Cost:** Saves on operating expenses
- **Environment:** Conserves raw materials and energy

COIL MATERIALS & SHAPE OPTIONS

- Copper
- Aluminum
- Round Shape
- Single Bend
- Double Bends
- Triple Bends

LORD FIVE™ APPLICATIONS

THE UNIQUE ADVANTAGE OF THE HIGH PERFORMING LORD FIVE™ COIL IS ITS COMPACTNESS ALLOWING IT TO FIT INTO SMALL AREAS WHILE PROVIDING HIGH HEATING AND COOLING OUTPUTS. THE COIL IS SUITABLE WITH REFRIGERANT APPLICATIONS AND CAN BE CUSTOMIZED TO OPERATE WITH A RANGE OF SPECIALIZED HEAVY DUTY, PRECISION COOLING OR INDUSTRIAL COOLING (GAS COILS) APPLICATIONS.



HEAVY DUTY

Automotive Condensers
Trucks
Refrigerated Containers
Marine Condensers & Evaporators
Heavy Mining Equipment

PRECISION COOLING

Electronic & Computer Components
MRI
CAT Scans
Military Sensitive Technology

INDUSTRIAL COOLING

Refrigeration Unites
Heat Pumps

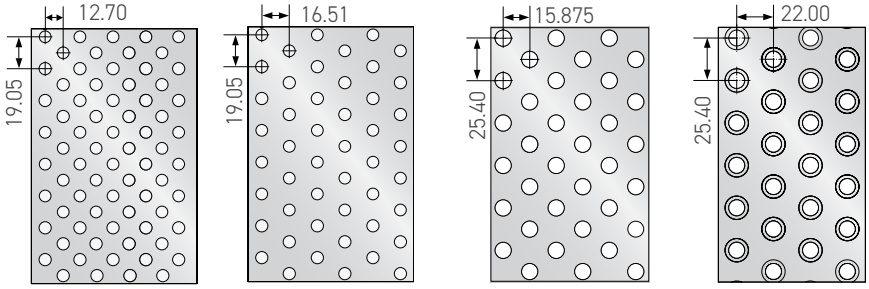
LORD FIVE™ OUTDOOR COILS – LASTING PERFORMANCE GUARANTEE

Lordan's Lord FiVe™ coil technology provides superior DX evaporator coil performance:

- 5 mm coils are much lighter compared with the 3/8 pattern, making it an ideal solution for automotive industry.
- 5 mm coils are leaner as compared with 3/8 pattern, facilitating significantly smaller housings and less ice build-up.
- Saves on raw materials as compared with 3/8 pattern.
- Conserves energy output, surpassing immediate and long term targets
- Fin densities with or without special coatings are produced to suit any climate.
- Available in all fin sizes.

COIL PATTERNS INDEX

LORDAN COIL PATTERNS

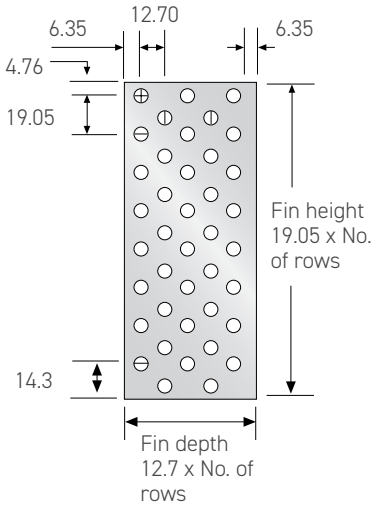


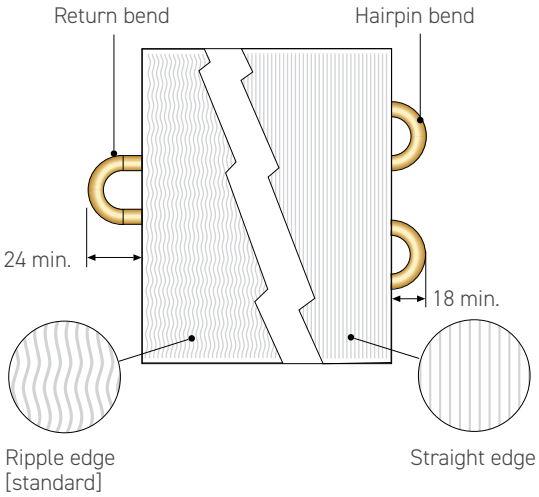
Pattern No.	55 Lord FiVe		15 Triple 7		8		9	
Tube diameter mm	5mm		7mm		9.5mm 3/8"		9.5mm 3/8"	
Tube material	Cu		Cu/Al/St.St.		Cu/Al		Cu/Al/St.St.	
Tube matrix mm [inch]	19.05 X 12.70 (3/4" X 1/2")		19.05 X 16.51 (3/4" X 0.65")		25.4 X 15.88 (1" X 5/8")		25.4 X 22 (1" X 0.866")	
Tube pitch	Staggered		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)

Lord FiVe

LORD FIVE / PATTERN 55 /19.05 X 12.7 TUBE Ø 5MM

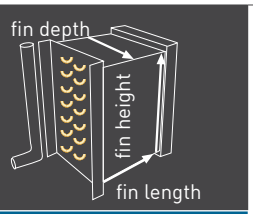
REDUCED REFRIGERANTS | VOLUME SAVING | ENERGY SAVER | ROHS | REDUCED CO_2 FOOTPRINT





Fin Density Details

Fin Per Inch (FPI)	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Distance (mm)	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	1.3	1.2
Aluminum Fin Thickness (mm)	0.20, 0.30	0.15, 0.20, 0.30		0.12, 0.15, 0.20, 0.30							0.12, 0.15				
Copper Fin Thickness (mm)		0.15, 0.20		0.13, 0.15, 0.20							0.13, 0.15				
Fin Shapes	Flat			Sine wave, Corrugated, Flat									Flat		



Fin depth of coil = 12.7 x no. of rows deep

Fin height = 19.05 x no. of rows high

Optional Specifications

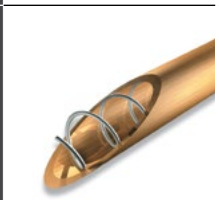
Slanted Coils

Bent and Circular Coils

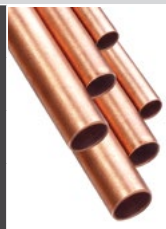
LORDAN COIL DESCRIPTION KEY

55	/	3	X	9	X	800	/	11	-	5	[0]
pattern#		rows deep		rows high		fins length mm		fpi		circuits	empty holes

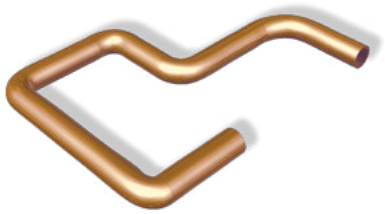
TUBES & APPLICATIONS

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

Tube Materials Options

Standard Tube Material		Specification and Standard	Tube diameter mm (inch)	Available Wall Thickness 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"

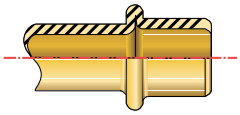
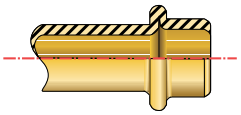
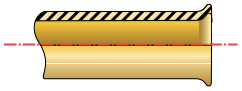
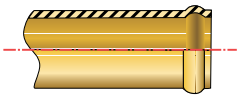
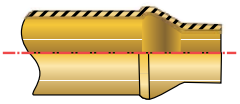
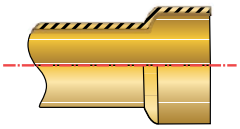
TUBES BENDING CAPABILITY

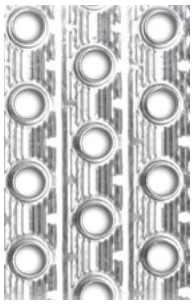
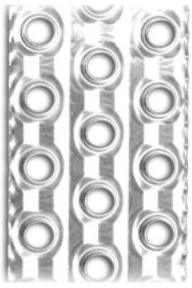
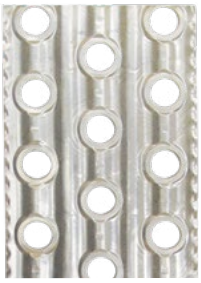

Available Tube O.D.

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

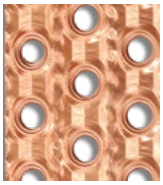
		O.D. range
O-Ring Long Pilot		9.53 to 19.05 (3/8" to 3/4")
O-Ring Short Pilot		9.53 to 19.05 (3/8" to 3/4")
Flare		6.35 to 19.05 (1/4" to 3/4")
Water O-Ring		9.53 to 22.22 (3/8" to 7/8")
Water Cone Head		9.53 to 19.05 (3/8" to 3/4")
Reduced Diameter		Any
Expanded Diameter		Any

FINS: SHAPES & APPLICATIONS

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.	• 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.	• 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.	• 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.	• Deep freezers • Cooling / freezing systems • Passive air flow systems

FINS: MATERIAL OPTIONS

Natural Materials

Fin Type		Characteristics	Common Applications
Regular Aluminum		Regular Aluminum of the 8xxx alloy series is the most common and cost effective fin material. It exhibits good endurance under normal environmental conditions.	• Residential applications (both indoors and outdoors) • Vehicles of all kind • Large coils for central systems • Freeze & deep-freeze
Marine Quality Aluminum		Marine Quality Aluminum has improved resistance to salty, humid conditions. It is cost effective and has demonstrated first-rate Salt Spray test results.	• 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
Copper		Copper has higher heat conductivity and mass, and is more costly than Aluminum.	• Coolers for special industrial machines • Areas with space limitations • High-tech environments

Precoated Materials

Fin Type		Characteristics	Common Uses
Hydrophobic		The epoxy based hydrophobic coating effectively repels water and inhibits dust and bacterial accumulation. Salt Spray test results are excellent (over 1,000 hours).	• Condensers for coastal residencies • Condenser coils for polluted areas • Coils for corrosive industries • Coils for laboratories and hospitals
Hydrophilic		The special two-micron pre-coated polymer hydrophilic coating improves airflow by reducing thickness of condensing water layers, known as water carry-over phenomenon.	• Evaporators and coolers • Avoids carry-over of condensed water at high air velocities
Nano Coating		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).	• Protection against organic solvents and chemicals • Self-cleaning • Reduced dirt accumulation • Lower energy consumption • Lower maintenance costs

FINS:
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.

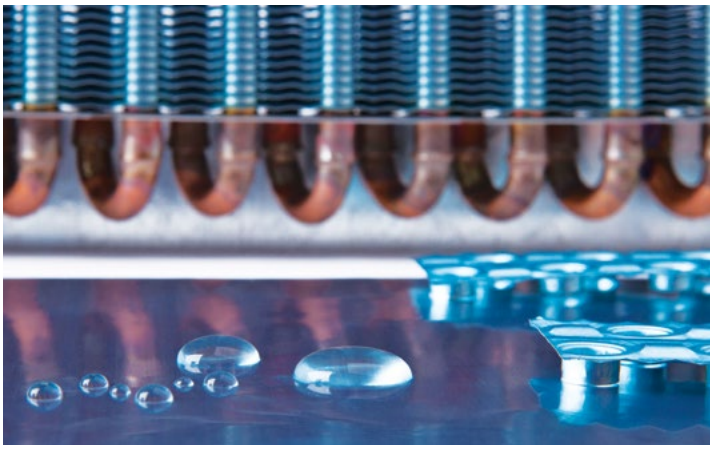
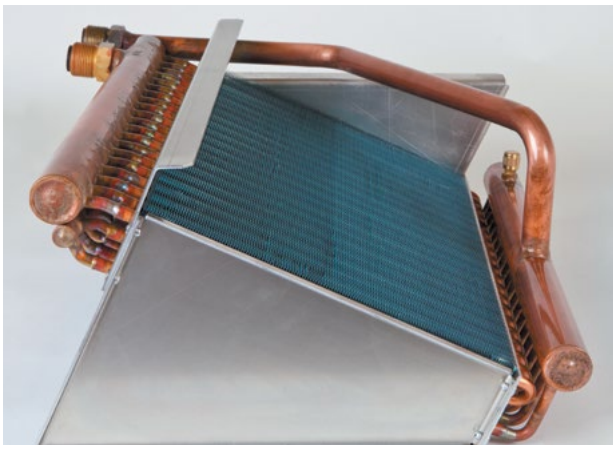
Lordan's specialized coatings are designed to reduce deterioration by sealing out moisture and airborne contaminants such as salt and salt-spray, humidity, corrosive fumes emitted from highly polluted industrial areas and chemical production, and other damaging elements.

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.

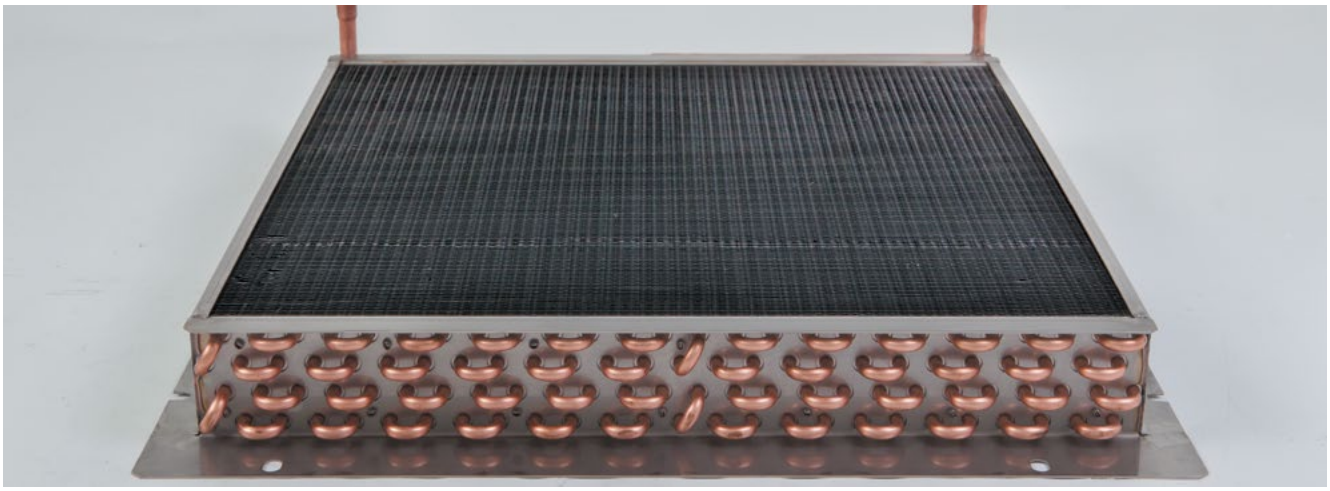



EPOXY COATING
LORD-PHOB EPOXY COATING

BUILT TO LAST

ROHS

LOW MAINTENANCE



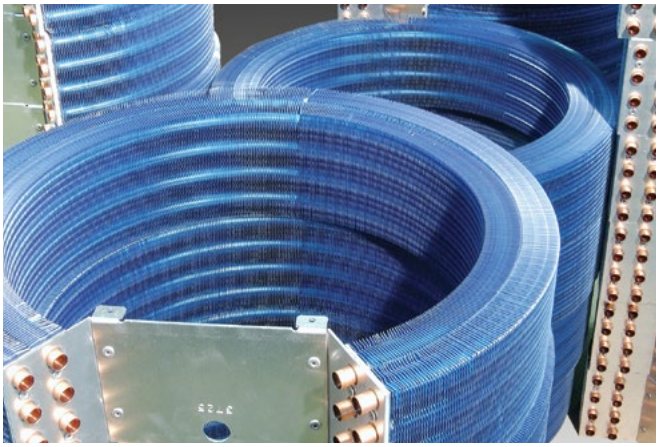
Lord-Phob is an epoxy based coated fin providing first-grade resistance to corrosive conditions. The ultra thin epoxy-based coating preserves the appropriate gap needed for effective heat transfer between the fin and the surrounding air.

LORD-PHILL
HYDROPHILIC COATING

ENERGY SAVER

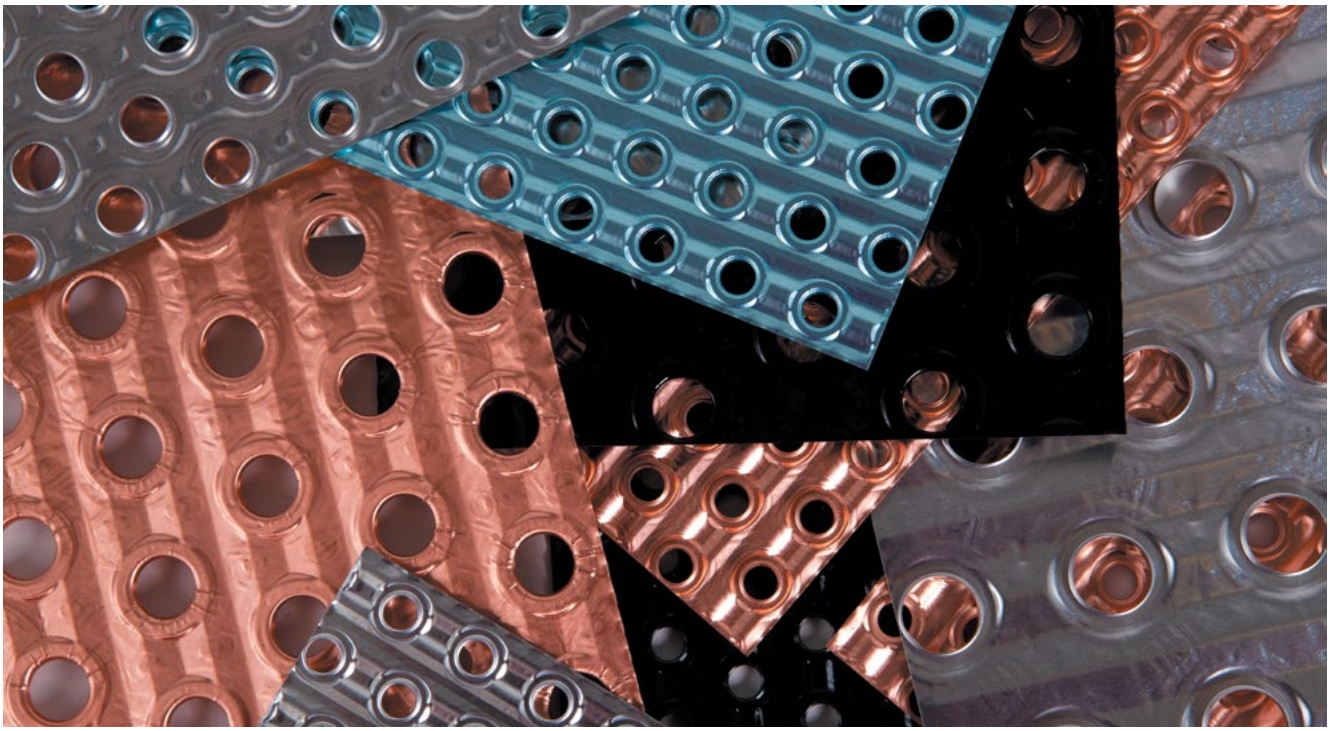
ROHS

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.

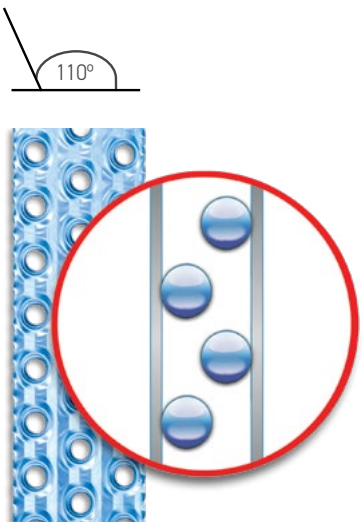
This is especially significant for evaporators with tangential blowers.



Technical Specifications	Nano	Lord Phob	Lord Phil
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

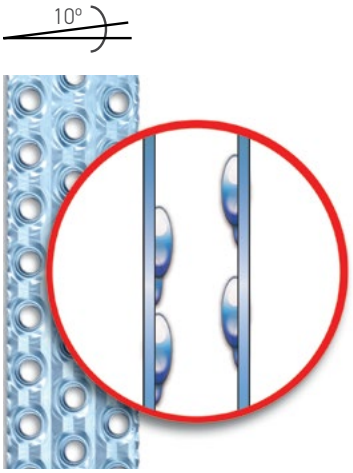
Nano

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



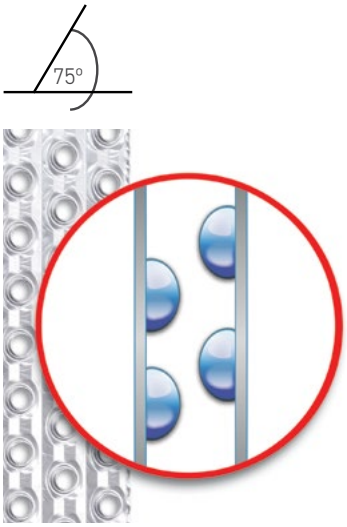
Lord Phill

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.



PREMIUM COILS

ALL-AL ALUMINUM COILS

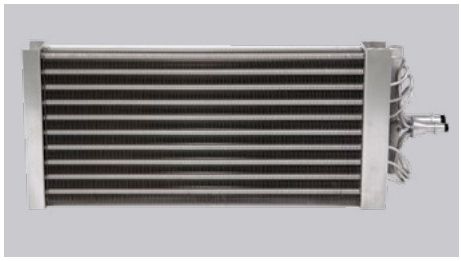
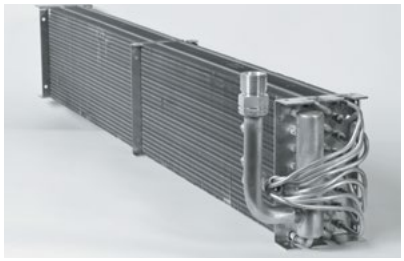
VOLUME SAVING | REDUCED WEIGHT | ROHS | RECYCLED MATERIALS | REDUCED CO_2 FOOTPRINT

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.

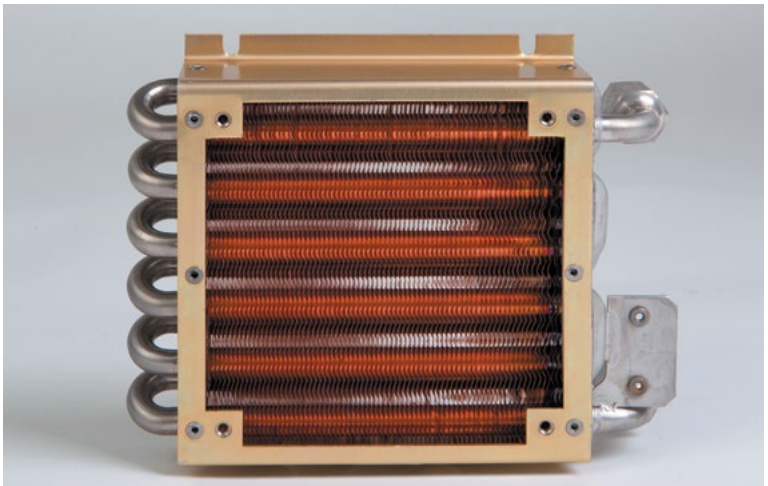
Benefits of Aluminum

- 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

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