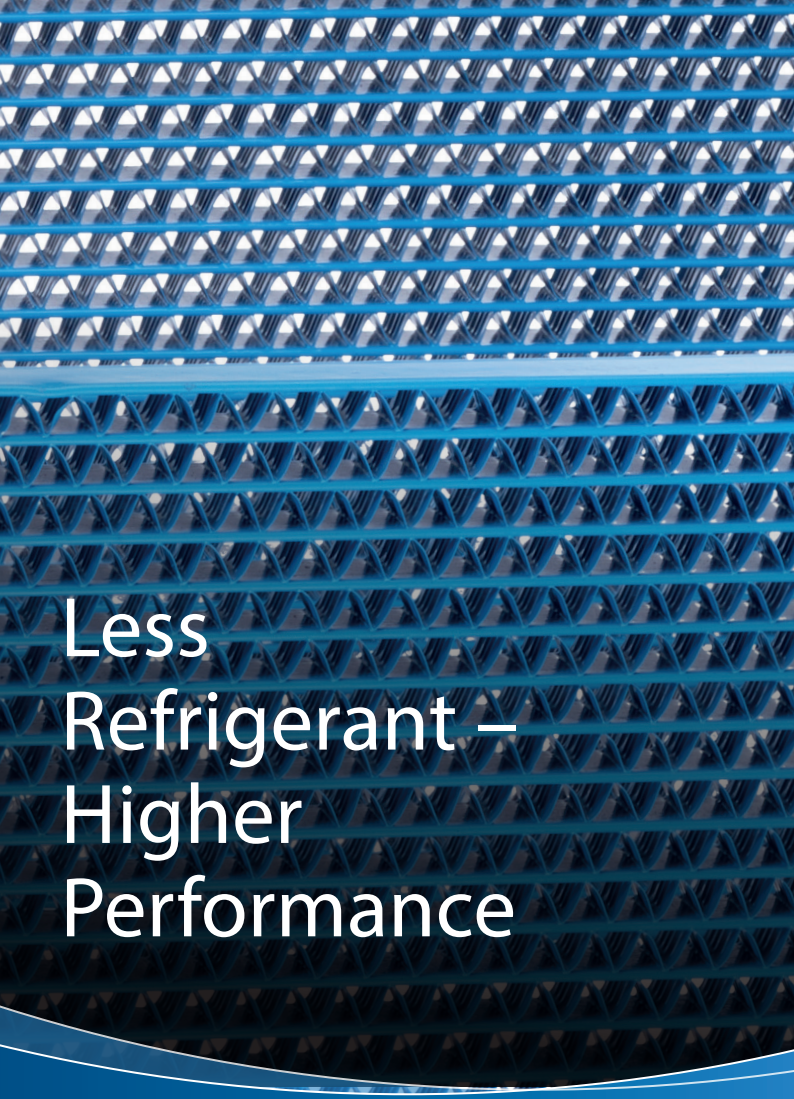


Less Refrigerant – Higher Performance

Microchannel Evaporator
Innovative and environmentally friendly for cooling oil and emulsion

Customized. Cooling. Solutions.

HYFRA
A LENNOX INTERNATIONAL COMPANY

Microchannel evaporator: Decide in favor of greater efficiency and reliability

Higher efficiency, lower operating costs

- An increase in the heat-exchanging surface creates more inflow surface. The medium's direction of flow is used optimally.
- In the evaporator, refrigerant consumption is reduced by up to 60%, which means savings in refrigerant procurement.

Simple maintenance and fast service

- Innovative cleaning concepts reduce the effort involved by up to 90%. Long chiller downtime is a thing of the past.

Trouble-free operation

- Reduction in the risk of leakage thanks to the innovative design of the various evaporator solutions
- Corrosion-resistant coating

Environmentally friendly

- Reduced use of refrigerant helps to avoid greenhouse gas emissions and improves your ecological footprint.

HYFRA Gamma immersion chillers

- Cooling capacity from 5 to 16 kW
- Faster evaporator cleaning thanks to easy chiller removal from the tank
- Reduction in the risk of leakage thanks to the elimination of over 85% of conventional solder points
- Flexible use even with highly contaminated media thanks to the innovative fin design

			Gamma 5	Gamma 7	Gamma 9	Gamma 13	Gamma 16
Temperature °C	Emulsion	Oil	Cooling capacity [a]				
32	15	20	4,4	6,6	8,2	11,9	14,3
	20	25	4,9	7,3	9,1	13,0	15,8

Emulsion		Gamma 5	Gamma 7	Gamma 9	Gamma 13	Gamma 16
Refrigerant		R134a	R410A			
Refrigerant charge	kg	0,9	0,9	0,9	1,1	1,1
Power consumption max.[b]	kW	3,0	4,0	4,6	5,8	6,7
Current consumption max.[b]	A	5,6	7,4	7,7	10,1	12,4
Air flow rate max.	m^3/h	4500				
Length of immersion part	mm	715				
Width of immersion part	mm	715				
Immersion depth	mm	500		600		
Minimum coolant level	mm	210			280	

Oil		Gamma 5	Gamma 7	Gamma 9	Gamma 13	Gamma 16
Refrigerant		R134a	R410A			
Refrigerant charge	kg	1,1	1,1	1,1	1,4	1,4
Power consumption max.[b]	kW	3,0	4,0	4,6	5,8	6,7
Current consumption max.[b]	A	5,6	7,4	7,7	10,1	12,4
Air flow rate max.	m^3/h	4500				
Length of immersion part	mm	715				
Width of immersion part	mm	715				
Immersion depth	mm	500		600		
Minimum coolant level	mm	280			350	

HYFRA Alpha circulating chillers

- Cooling capacity 5 to 16 kW
- Maintenance by simply opening the pot-type evaporator
- Easy-clean with a backwash function via the patented 4-way valve without disassembling the evaporator (optional)
- Up to 95% reduction in negative sludge build-up in the evaporator

			Alpha 5	Alpha 7	Alpha 9	Alpha 13	Alpha 16
Temperature °C	Emulsion	Oil	Cooling capacity [a]				
32	15	20	4,4	6,6	8,2	11,9	14,3
	20	25	4,9	7,3	9,1	13,0	15,8

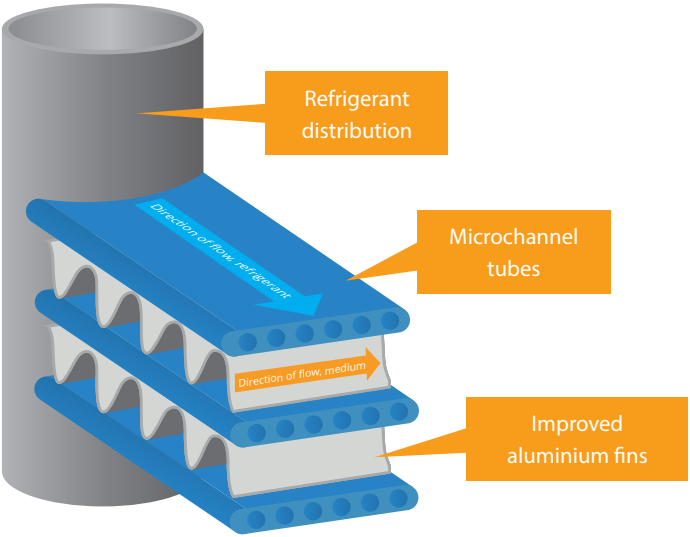
Emulsion		Alpha 5	Alpha 7	Alpha 9	Alpha 13	Alpha 16
Refrigerant		R134a	R410A			
Refrigerant charge	kg	1,2	0,8	0,8	0,9	1,1
Power consumption max.[b]	kW	3,4	4,4	5,0	6,2	7,1
Current consumption max.[b]	A	6,6	8,4	8,7	11,1	13,4
Air flow rate max.	m^3/h	4500				
Medium pressure	bar	1,0				
Nominal flow	m^3/h	3,5				
Connection inlet/outlet	inch	1 ¼				

Oil		Alpha 5	Alpha 7	Alpha 9	Alpha 13	Alpha 16
Refrigerant		R134a	R410A			
Refrigerant charge	kg	1,2	0,8	0,8	1,0	1,2
Power consumption max.[b]	kW	3,8	4,8	5,4	6,6	7,5
Current consumption max.[b]	A	7,6	9,4	9,7	12,1	14,4
Air flow rate max.	m^3/h	4500				
Medium pressure	bar	1,0				
Nominal flow	m^3/h	5,0				
Connection inlet/outlet	inch	1 ½				

a) Ensures a forced flow: all of the medium to be cooled must be guided through the evaporator. Min. medium level must cover the evaporator. Evaporator height must be at least 80-90% of min. medium level. For oil systems, cooling capacity determined with ISO-VG5 (max. viscosity ISO-VG22: > ISO-VG 5-22 upon request)

b) At 42 °C ambient temperature and 20 °C medium temperature

The Microchannel Evaporator Principle



The large number of small µ channels (shown in blue) provides a significantly larger heat-exchanging surface than that of conventional evaporators. The sinus wave/fins (light gray area) which control the temperature of the emulsion or oil in the cycle, are cooled much more quickly. This makes the evaporation process more efficient. The small capillary diameter also requires significantly less refrigerant. From the very beginning, the 2-pass system of refrigerant distribution creates balanced refrigerant gas speed without negatively impacting gas pressure, which translates into even greater efficiency.

Customized. Cooling. Solutions.

HYFRA is one of the most experienced suppliers of customized process cooling solutions. We cover the entire range of industrial process cooling solutions from plug & play compact devices to individually developed systems with extensive services. Our highly efficient, reliable machines are the key to our customers' success.

As LENNOX International company, we help mechanical engineers in more than 50 countries to continually set new standards of performance.

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