

Sustainable Refrigeration Summit

Connecting the Pieces for
Supermarket Refrigeration Solutions



RIVACOLD



NORTH AMERICAN
**Sustainable
Refrigeration
Council**

nasrc.org

RIVACOLD

The Green Evolution

Modular Technologies for Existing Stores

Chapter 1

Introduction

Chapter 2

Transcritical CO2 Condensing Units

Chapter 3

R290 Packaged Systems



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Transcritical CO2 Condensing Units

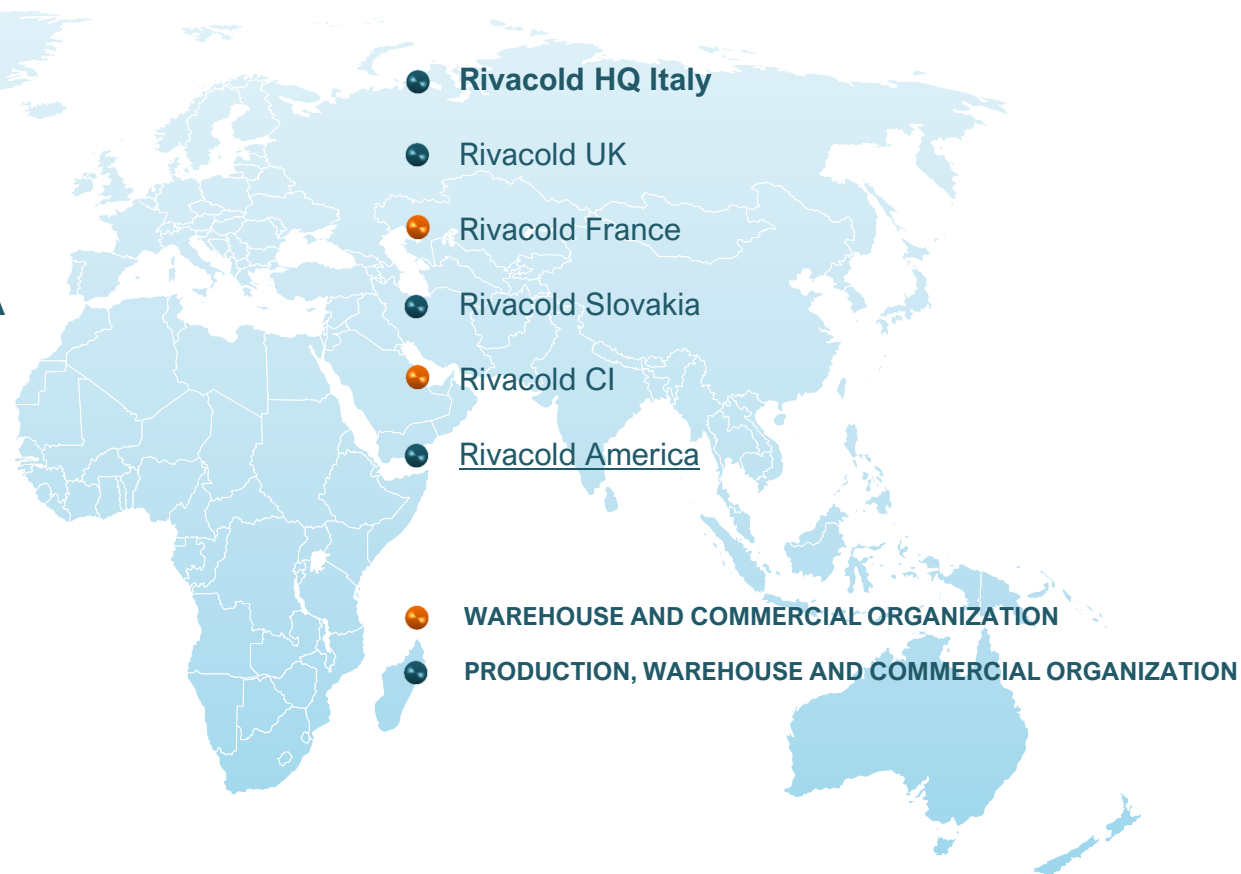
Chapter 3

R290 Packaged Systems





- ESTABLISHED IN 1966
- OVER 1700 EMPLOYEES
- 350MM USD TURNOVER
- 1,8M SQFT MANUFACTURING & STOCKING AREA
- 300,000+ REFRIGERATION SYSTEMS / YEAR
- 700,000+ HEAT EXCHANGERS / YEAR
- 2008 FIRST R290 PACKAGED SYSTEM
- 2011 FIRST TC CO2 CONDENSING UNIT
- 2019 VRL AND RIVACOLD AMERICA



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TRANSCRITICAL CO₂ CONDENSING UNITS

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SN SPLIT CO₂NNEXT



CN CO₂NNEXT



NATURAL
REFRIGERANT



LOW
NOISE



ENERGY
SAVING



EASY
FIX



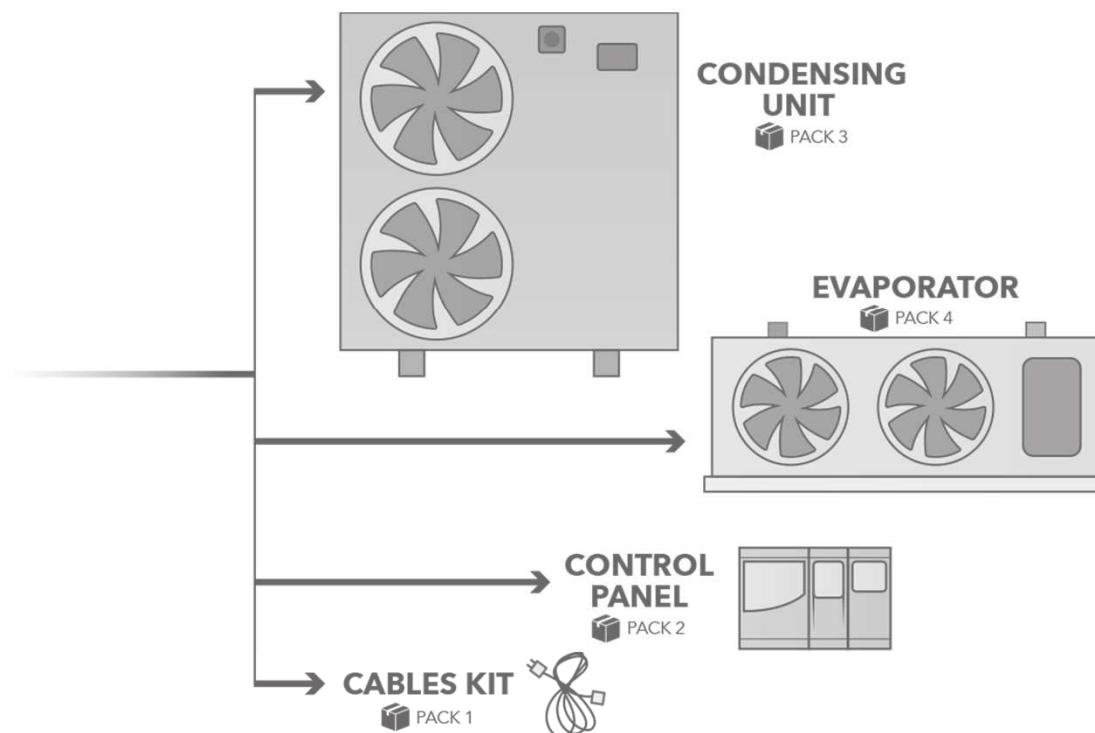
VARIABLE
CAPACITY



WEATHER
PROOF



SN SPLIT CO₂NNEXT



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LOW
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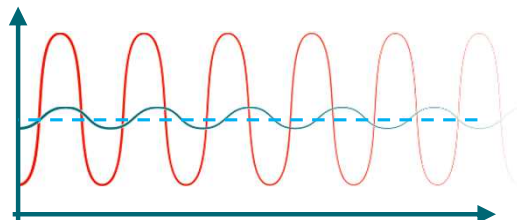
WEATHER
PROOF



SN SPLIT CO₂NNEXT

PERFECT FOOD PRESERVATION

- ✓ The continuous modulation of the compressor enables core product temperature to be met constantly



ENERGY SAVING

- ✓ Up to **-25%** vs an R404A On/Off system
- ✓ Up to **-15%** vs a CO2 SE system with Inverter
- ✓ **Smart defrost** function



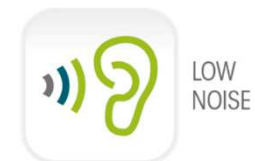
RELIABILITY

- ✓ Maximum security and guarantee of any interruption to the cooling process
- ✓ **Future-proof** solution!



LOW NOISE

- ✓ **Less vibration and noise**
down to < 40db(A) @ 35ft free field



END USER BENEFITS





SN SPLIT CO₂NNEXT

INSTALLER BENEFITS



TIME AND COST SAVING

- ✓ **-33% time** and cost needed for installation & commissioning of the system
- ✓ **Guided installation**
- ✓ **Fast connections** between evaporator and control panel
- ✓ Evaporator with built-in valves and sensors: **no wiring needed and fast connection**
- ✓ Cold room **control panel preset** by Rivacold, simple and **auto-configuration** by wizard



RELIABILITY

- ✓ **Quality** of components and **advanced systems** for the oil return
- ✓ **Total control** of the system through **IOT** and alarm logic preventing any interruption to the cooling process





SN SPLIT CO₂NNEXT

MBP MODELS

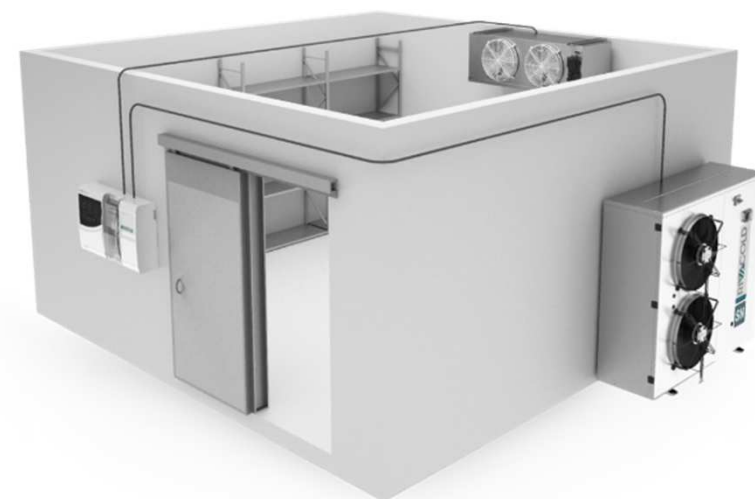
SN030M145XU215
SN045M145XU215
SN067M245XU215
SN100M245XU216

LBP MODELS

SN075L145XU215
SN112L245XU216
SN167L245XU216



**AWEF
COMPLIANT**



R744	MBP	LBP
OPERATING RANGE (Tc)	50°F ÷ 35°F 10°C ÷ 1.7°C	0°F ÷ -15°F -17.8°C ÷ -26.1°C
COMPRESSOR DISPLACEMENT	0.12 in ³ / rev ÷ 0.39 in ³ / rev 3 cm ³ / rev ÷ 10 cm ³ / rev	0.18 in ³ / rev ÷ 0.39 in ³ / rev 4.5 cm ³ / rev ÷ 10 cm ³ / rev
REFRIGERATING CAPACITY*	8845 BTU/h ÷ 34235 BTU/h 2590 W ÷ 10027 W	9317 BTU/h ÷ 22328 BTU/h 2729 W ÷ 6540 W
ROOM SIZE**	1261 ft ³ ÷ 9570 ft ³ 36 m ³ ÷ 271 m ³	1024 ft ³ ÷ 6497 ft ³ 29 m ³ ÷ 184 m ³

*T_a = 90°F/32.2°C; T_e MT = 35°F/ 1.7°C; T_e LT = -10°F/ -23.3°C

**T_a = 90°F/32.2°C

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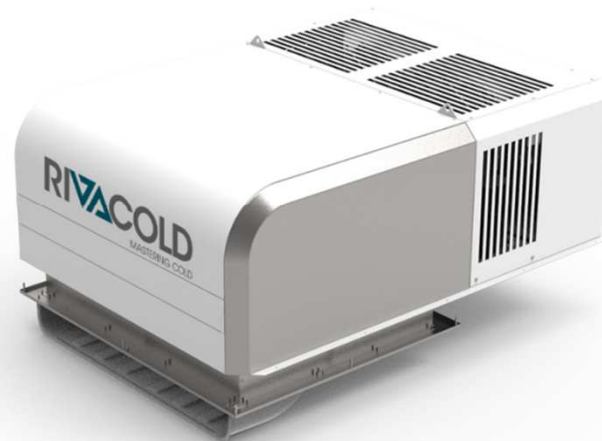
SF WL

- R290 (Propane) Refrigerant
- **Water Condensation**



BE BEST

- R290 (Propane) Refrigerant
- **Air Condensation**





BEST CM R290 PACKAGED SYSTEM - Introduction

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► **Energy Efficiency**

+40%*

► **Eco-Sustainability**

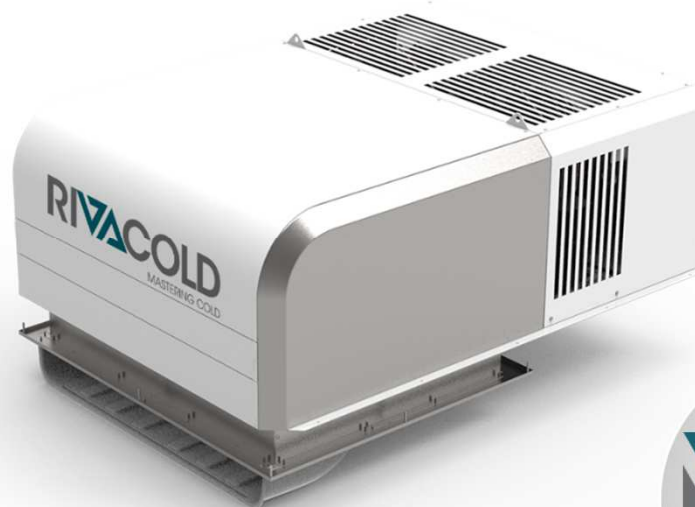
R290, TEWI -41%

► **Quality and Reliability**

VRL Lab, Electronic Heart

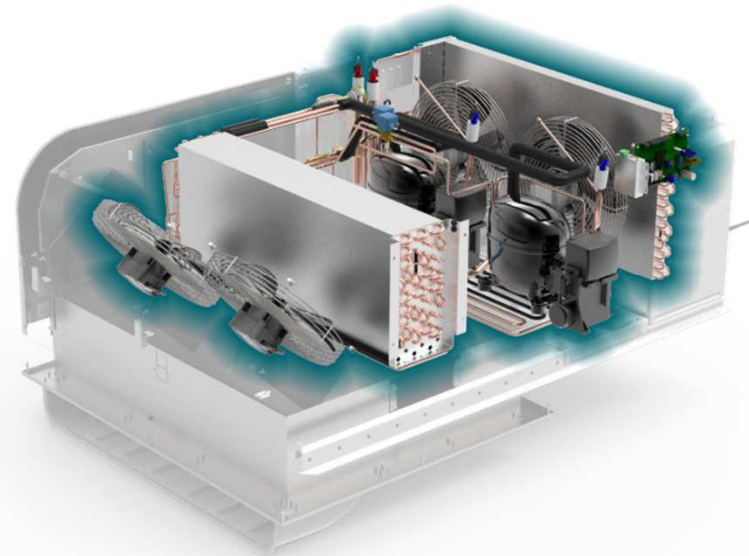
► **Easy Fix**

Quick Installation, Smart Control and Stress-free Service





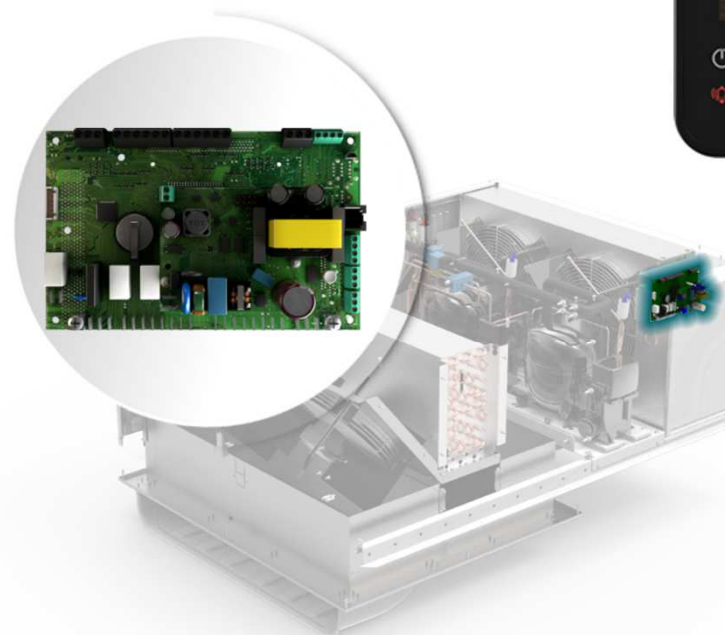
- Completely revised circuit to maximize **COP**
- Last generation high-efficiency compressors:
BLDC Variable Speed
- **Electronic Thermostatic Valve:**
 - Pull-down cycles -50%;
 - Extended operating range covers Amb Temp from 40°F to 110°F
- **EC Fan Motors:** low consumption, low noise and improved air throw and distribution
- High performance heat exchangers:
 - **Rifled 5mm tube Condenser**
 - **Rifled 5/16 tube Evaporator**





- RIV-OLUTION Electronics and New Rivacold Software
- Smart Defrost
- Leak Detector
- HACCP Ready, Alarm History and Parameter Recording
- Predisposition for **Humidity Control** and **Neutral Zone**

BE **BEST**

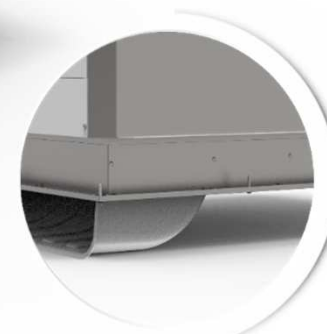
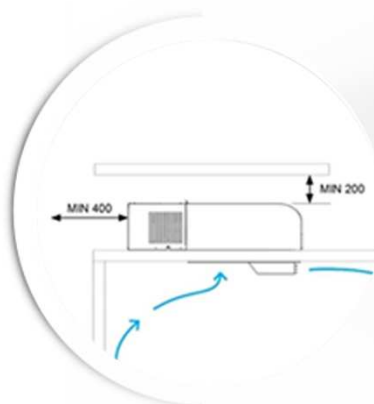




BEST CM R290 PACKAGED SYSTEM - Easy Fix

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- ▶ Removable panels for quick service access
- ▶ Increased insulation gap: flexible from 3 to 8 inches
- ▶ Low Profile: 7 inches the minimum distance from store ceiling and 15 from an eventual rear wall
- ▶ Supplied with **Power Cord** (and Plug for single-phase models)
- ▶ **Integrated Dissipation Pan** (no drain)
- ▶ Control Via **App**

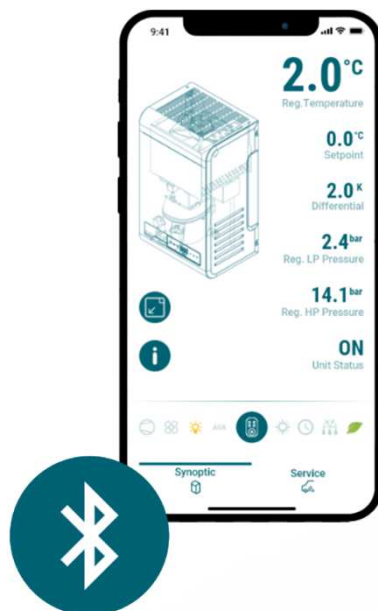




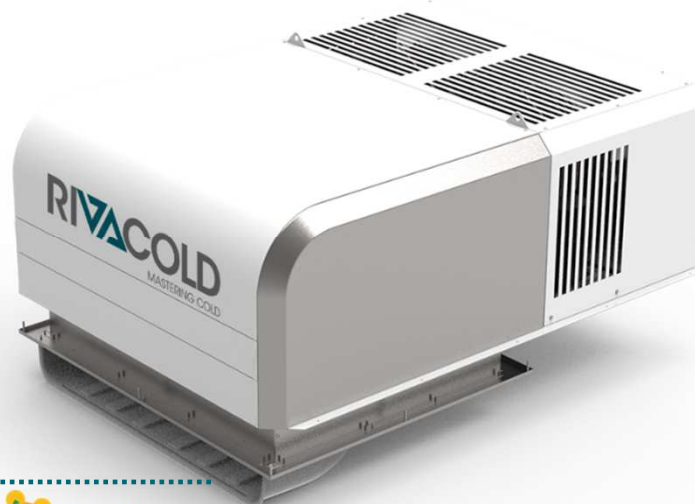
BEST CM R290 PACKAGED SYSTEM - Rivacold My I.D. App

RIVACOLD

- Visualize settings, pressures, temperatures and status of the Unit
- **Control Mirroring**
- **Personalized Graphs** in Real Time
- **72-hour Data Recording**
- **Modbus** Connectivity System
- Copy and Paste your **Optimized Configuration**
- **QR Code** with Start-up Procedure Videos



BE BEST





BEST CM R290 PACKAGED SYSTEM - Range



PERFORMANCE TABLES



R290		Capacity Ta= 80°F / 26.7 °C								Capacity Ta= 90°F / 32.2 °C								Capacity Ta= 110°F / 43.3 °C							
CODE		Tc 23°F Tc -5°C		Tc 35°F Tc 1.7°C		Tc 38°F Tc 3.3°C		Tc 50°F Tc 10°C		Tc 23°F Tc -5°C		Tc 35°F Tc 1.7°C		Tc 38°F Tc 3.3°C		Tc 50°F Tc 10°C		Tc 23°F Tc -5°C		Tc 35°F Tc 1.7°C		Tc 38°F Tc 3.3°C		Tc 50°F Tc 10°C	
		BTU/h	ft³	BTU/h	ft³	BTU/h	ft³	BTU/h	ft³	BTU/h	ft³	BTU/h	ft³	BTU/h	ft³	BTU/h	ft³	BTU/h	ft³	BTU/h	ft³	BTU/h	ft³	BTU/h	ft³
		min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
BECM1301MA10P (13/15-UL)	min	2237	180	2745	321	2878	371	3454	777	2124	138	2615	240	2742	275	3294	554	1893	74	2339	127	2452	145	2956	254
	max	3935	364	4777	689	4985	795	5923	1494	3754	283	4559	512	4760	611	5654	1148	3355	162	4082	268	4266	304	5071	593
BECM2302MA20P (15/14-UL)	min	4546	438	5579	840	5845	968	7014	1829	4317	339	5313	653	5569	756	6694	1420	3850	198	4757	328	4985	371	6015	766
	max	8000	968	9708	1653	10141	1886	12041	3394	7635	784	9272	1345	9684	1533	11502	2744	6834	413	8314	805	8689	918	10332	1632
BECM2353MA30P (15/14-UL)	min	6912	805	8498	1409	8900	1617	10697	2970	6568	639	8095	1134	8484	1300	10213	2380	5858	339	7253	660	7608	763	9190	1391
	max	12252	1632	14912	2744	15584	3115	18557	5474	11713	1360	14264	2285	14909	2596	17759	4556	10506	862	12818	1462	13405	1663	15989	2903

PERFORMANCE TABLES



R290		Capacity Ta= 80°F / 26.7 °C						Capacity Ta= 90°F / 32.2 °C						Capacity Ta= 110°F / 43.3 °C					
CODE		Tc -13°F Tc -25°C		Tc -10°F Tc -23.3°C		Tc 0°F Tc -17.8°C		Tc -13°F Tc -25°C		Tc -10°F Tc -23.3°C		Tc 0°F Tc -17.8°C		Tc -13°F Tc -25°C		Tc -10°F Tc -23.3°C		Tc 0°F Tc -17.8°C	
		BTU/h	ft³	BTU/h	ft³	BTU/h	ft³	BTU/h	ft³	BTU/h	ft³	BTU/h	ft³	BTU/h	ft³	BTU/h	ft³	BTU/h	ft³
		min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max	min	max
BECM1301LA10P (13/15-UL)	min	1272	71	1361	85	1695	145	1224	57	1309	64	1623	109	1067	32	1142	35	1419	57
	max	2428	184	2578	212	3127	343	2322	145	2465	166	2980	261	2008	81	2141	92	2602	141
BECM2302LA20P (15/14-UL)	min	2571	198	2759	233	3434	392	2482	159	2656	184	3291	300	2162	88	2319	102	2881	166
	max	4914	530	5228	646	6343	1098	4709	388	5002	459	6056	840	4085	222	4351	254	5299	392
BECM2353LA30P (15/14-UL)	min	3887	353	4170	413	5204	816	3761	283	4027	328	4999	622	3287	162	3526	187	4385	300
	max	7471	1035	7952	1208	9681	2013	7188	823	7645	964	9279	1596	6268	403	6677	501	8153	893



END USER AND INSTALLER BENEFITS

- ✓ Unprecedented Energy Savings
- ✓ Future-Proof Solution
- ✓ Perfect Food Preservation
- ✓ Maximize Storage Space
- ✓ Fast Installation and Easy Service
- ✓ Smart Control
- ✓ Redundancy
- ✓ Modularity
- ✓ Retrofit
- ✓ Flexibility



Modular Technologies for Existing Stores



- Water Condensation – Closed Water Loop Installations
- Low Cost of Refrigerant Charge
- No Water Waste
- Possibility of Heat Recovery

R290 CODE	Capacity TH ₂ O = 41°F								Capacity TH ₂ O = 99°F								Capacity TH ₂ O = 118°F							
	Tc +50°F		Tc +41°F		Tc +32°F		Tc +23°F		Tc +50°F		Tc +41°F		Tc +32°F		Tc +23°F		Tc +50°F		Tc +41°F		Tc +32°F		Tc +23°F	
	btu/h	ft ³	btu/h	ft ³	btu/h	ft ³	btu/h	ft ³	btu/h	ft ³	btu/h	ft ³	btu/h	ft ³	btu/h	ft ³	btu/h	ft ³	btu/h	ft ³	btu/h	ft ³	btu/h	ft ³
SFM034PWL4-UL	20656	2195	18067	2552	15699	1726	13559	1397	16081	2431	13969	1889	12034	1234	10277	987	14156	2087	12270	1617	10540	1042	8967	828

R290 CODE	Capacity TH ₂ O = 41°F						Capacity TH ₂ O = 99°F						Capacity TH ₂ O = 118°F					
	Tc +5°F		Tc -4°F		Tc -13°F		Tc +5°F		Tc -4°F		Tc -13°F		Tc +5°F		Tc -4°F		Tc -13°F	
	btu/h	ft ³	btu/h	ft ³	btu/h	ft ³	btu/h	ft ³	btu/h	ft ³	btu/h	ft ³	btu/h	ft ³	btu/h	ft ³	btu/h	ft ³
SFL034PWL4-UL	16889	2953	14371	2408	12041	1725	12682	1875	10656	1524	8830	1047	10908	1501	9124	1214	7561	838



NATURAL
REFRIGERANT



ENERGY
SAVING



WATER COOLED
CLOSED LOOP
SYSTEM



EASY
FIX

THANKS FOR YOUR ATTENTION

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