U.S. Department of Energy (DOE) improves energy efficiency standards in the U.S. and Canada

In the United States, the Department of Energy (DOE) regulates the energy efficiency of both the condensing unit and unit cooler used in a walk-in. The minimum efficiency factor required is referred to as the Annual Walk-in Efficiency Factory (AWEF). In Canada, Natural Resources Canada (NRCan) and the Office of Energy Efficiency have aligned with the U.S.

ANNUAL WALK-IN EFFICIENCY FACTOR (AWEF)

AWEF – Ratio of heat removed from the envelope to the total energy input of the refrigeration system over one year.

AFFECTED APPLICATIONS WITHIN REFRIGERATION

Walk-in Coolers & Walk-in Freezers (WICFs): An enclosed storage space refrigerated to temperatures, respectively, above, and at or below 32°F that can be walked into, and has a total chilled storage area of less than 3,000 ft².

U.S. DOE AWEF refrigeration system standards

Equipment Class	Capacity	Minimum AWEF (Btu/W-h)
Dedicated Condensing System - Med Indoor	—	5.61
Dedicated Condensing System - Med Outdoor	—	7.6
Dedicated Condensing Unit - Low, Indoor with a Net Capacity (qnet) of	<6,500 Btu/h	$9.091*10^{-5}*Q_{net}+1.81$
	≥6,500 Btu/h	2.4
Dedicated Condensing Unit - Low, Outdoor with a Net Capacity (qnet) of	< 6,500 Btu/h	$6.522*10^{-5}*Q_{net}+2.73$
	≥ 6,500 Btu/h	3.15
Unit Cooler -Medium	—	9
Unit Cooler - Low, Outdoor with a Net Capacity (qnet) of	<15,000 Btu/h	$1.575 \times 10^{-5} \times Q_{net} + 3.91$
	≥15,000 Btu/h	4.15

* Where qnet is net capacity as determined in accordance with 10 CFR 431.304 and certified in accordance with 10 CFR part 429.

Benefits for everyone

- Energy consumption savings when using units with higher AWEF
- Standard way to measure the performance
- Eco-friendly products
- Future-proof units complying with regulations
- **Coolselector®2** software provides AWEF levels when applicable

ENGINEERING TOMORROW

For more information on Danfoss solutions for walk-in coolers & freezers,
Call us at **1-888-DANFOSS** or visit our website
danfoss.com/walk-ins

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ENGINEERING TOMORROW

Danfoss Solutions for Walk-in Coolers & Freezers

Go **Beyond Cool**

In Danfoss we understand the importance of highly efficient and dependable walk-in coolers and freezers. That's why we offer reliable, easy to install and service components built with market leading expertise in refrigeration applications.

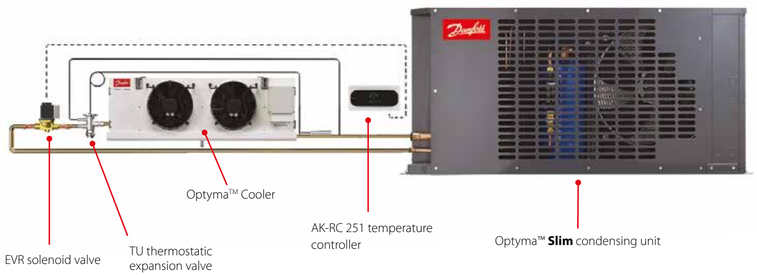
Trusted
partner, delivering easy and reliable solutions.

danfoss.com/walk-ins

Go Beyond Cool by creating better solutions

With industry-leading quality and application expertise, Danfoss offers a comprehensive combination enabling us to maximize walk-in operations.

Whether your goal is to maximize system lifespan, improve efficiency, or simplify maintenance and installation, Danfoss has what you need to offer customers the best possible solution.



Contractor-friendly design
Danfoss products are developed with technicians in mind. Our contractor-friendly designs allow for quick installation and easy system maintenance.

Industry expertise
Danfoss products are backed by over 80 years of experience in the refrigeration industry, so you know you can count on our expertise

Energy efficiency
Danfoss components are designed to deliver the most efficient equipment operation possible, ensuring systems are always running at peak performance regardless of operating conditions.

Product reliability
Our engineers work diligently to ensure our products are of the highest quality possible. Installing a Danfoss part provides peace of mind for you and your customers.

Wholesaler availability
With our vast network of distribution partners across the United States, you can get Danfoss products whenever and wherever you need them.

Proven reliability
Full portfolio of solutions for walk-in coolers and freezers

Solenoid Valves
EVR – The EVR is a direct or servo-operated solenoid valve used for hot gas defrosting or isolating refrigerant from the compressor for start-up protection. Our unique design helps improve system reliability by enabling lower maintenance and quick installation and removal when necessary.

Temperature Controllers
AK-RC 251 – The AK-RC 251 is an electrical controller that eliminates the need for mechanical thermostats in cooling applications along with defrost timers in freezer applications.

Scroll Compressors
MLZ, LLZ - Danfoss low (LLZ) and medium (MLZ) temperature compressors offer a highly efficient solution for demanding refrigeration applications. These two series of scrolls compressors offer cooling capacity from 2 to 10 HP qualified for refrigerants allowed to be used today and in the future.

Filter Driers
DCL, DML - All Danfoss filter driers are constructed with a solid core design to maximize moisture removal while minimizing pressure drop. Liquid line driers are available with 100% molecular sieve (DML) for superior protection against moisture or a mixture of molecular sieve and activated alumina (DCL) to both adsorb system moisture and capture acid and prevent solid contaminants from entering the system.

Expansion Valves
TU, ETS 5M - The Danfoss TU thermostatic expansion valve can regulate the flow of refrigerants based on system needs, ensuring maximum efficiency due to maintaining tight superheat. The ETS valves are designed for precise liquid injection in evaporators. The valve is fully balanced and uses a bipolar motor to provide precise flow regulation. This valve pairs well with EKE controllers and sensors.

Application	Condensing Unit									Solenoid Valve		Unit Cooler			
	Horsepower	Danfoss Model No.	Danfoss Code No.	Btu/h[1] 90° ambient R404A	Btu/h[1] 90° ambient R448A	AWEF R404A	AWEF R448A / R449A	Voltage/ Phase	Technology	Danfoss Type	Danfoss Code No.	Danfoss Model No.	Danfoss Code No.	Unit Coolers needed	AWEF
Medium Temp.	1 ½	HJZM0150UWG000N	**114N3485**	13,124	11,330	7.85	8.19	230V/1	Recip	EVR 3	**032L1204**	DACC RX L141.1A4/A1	**114U0003**	**1**	9.45
	1 ½	HJZM0150UWG000Q	**114N3486**	13,124	11,330	7.85	8.19	230V/3	Recip	EVR 3	**032L1204**	DACC RX L141.1A4/A1	**114U0003**	**1**	9.45
	2	HNXM0200UWG000N	**114N3487**	19,740	17,690	10.06	8.44	230V/1	Scroll	EVR 4	**032L7110**	DACC RX L210.1A4/A1	**114U0005**	**1**	9.45
	2	HNXM0200UWG000Q	**114N3488**	19,740	17,690	10.04	8.77	230V/3	Scroll	EVR 4	**032L7110**	DACC RX L210.1A4/A1	**114U0005**	**1**	9.45
	2 ½	HNXM0250UWG000N	**114N3489**	25,090	22,770	10.04	8.79	230V/1	Scroll	EVR 6	**032L1209**	DACC RX L282.1A4/A1	**114U0006**	**1**	9.45
	2 ½	HNXM0250UWG000Q	**114N3490**	25,090	22,770	10.3	9.19	230V/3	Scroll	EVR 6	**032L1209**	DACC RX L282.1A4/A1	**114U0006**	**1**	9.45
	3	HNXM0300UWG000N	**114N3491**	26,400	24,180	9.92	8.92	230V/1	Scroll	EVR 6	**032L1209**	DACC RX L305.1A4/A1	**114U0007**	**1**	9.45
	3	HNXM0300UWG000Q	**114N3492**	26,400	24,180	10.27	9.24	230V/3	Scroll	EVR 6	**032L1209**	DACC RX L305.1A4/A1	**114U0007**	**1**	9.45
	3 ½	HNXM0350UWG000N	**114N3493**	33,300	29,960	10.33	9.22	230V/1	Scroll	EVR 8	**032L7121**	DACC RX L354.1A4/A1	**114U0008**	**1**	9.45
	3 ½	HNXM0350UWG000Q	**114N3494**	33,300	29,960	10.58	9.87	230V/3	Scroll	EVR 8	**032L7121**	DACC RX L354.1A4/A1	**114U0008**	**1**	9.45
	4	HNXM0400UWG000N	**114N3495**	38,120	35,420	9.62	9.4	230V/1	Scroll	EVR 8	**032L7121**	DACC RX L380.1A4/A1	**114U0009**	**1**	9.45
	4	HNXM0400UWG000Q	**114N3496**	38,120	35,420	10.51	9.8	230V/3	Scroll	EVR 8	**032L7121**	DACC RX L380.1A4/A1	**114U0009**	**1**	9.45
	5	HRXM0500UWG000N	**114N3497**	47,720	43,210	9.64	9.06	230V/1	Scroll	EVR 8	**032L7121**	DACC RX L150.1A4/A1	**114U0004**	**3**	9.45
	5	HRXM0500UWG000Q	**114N3498**	47,720	43,210	10.48	9.58	230V/3	Scroll	EVR 8	**032L7121**	DACC RX L150.1A4/A1	**114U0004**	**3**	9.45
	6	HRXM0600UWG000Q	**114N3499**	56,540	52,510	10.57	9.64	230V/3	Scroll	EVR 10	**032L1217**	DACC RX L210.1A4/A1	**114U0005**	**3**	9.45
	7	HRXM0700UWG000Q	**114N3500**	61,060	57,410	10.45	9.83	230V/3	Scroll	EVR 10	**032L1217**	DACC RX L210.1A4/A1	**114U0005**	**3**	9.45
	7 ½	HRXM0750UWG000Q	**114N3501**	76,050	69,310	10.66	10.28	230V/3	Scroll	EVR 10	**032L1214**	DACC RX L380.1A4/A1	**114U0009**	**2**	9.45
	10	HRXM1000UWG000Q	**114N3502**	95,020	85,550	10.3	9.88	230V/3	Scroll	EVR 15	**032L1228**	DACC RX L305.1A4/A1	**114U0007**	**3**	9.45
Low Temp.	1 ½	LJHM0150UWH000N	**114N3508**	6,509	-	3.87	-	230V/1	Recip	EVR 3	**032L1204**	DACC RX L063.1A4/E1	**114U0011**	**1**	4.16
	1 ½	LJHM0150UWH000Q	**114N3509**	6,509	-	3.65	-	230V/3	Recip	EVR 3	**032L1204**	DACC RX L063.1A4/E1	**114U0011**	**1**	4.16
	2	LJHM0200UWH000N	**114N3518**	8,785	-	4.1	-	230V/1	Recip	EVR 3	**032L1204**	DACC RX L084.1A4/E1	**114U0012**	**1**	4.18
	2	LJHM0200UWH000Q	**114N3511**	8,785	-	3.91	-	230V/3	Recip	EVR 3	**032L1204**	DACC RX L084.1A4/E1	**114U0012**	**1**	4.18
	4	LNYM0400UWH000Q	**114N3652**	15,330	12,470	3.79	3.4	230V/3	Scroll	EVR 4	**032L7110**	DACC RX L186.1A4/E1	**114U0015**	**1**	4.28
	5	LNYM0500UWH000Q	**114N3653**	18,500	15,280	3.75	3.46	230V/3	Scroll	EVR 6	**032L1209**	DACC RX L233.1A4/E1	**114U0016**	**1**	4.33
	6	LNYM0600UWH000Q	**114N3654**	22,520	18,430	3.57	3.53	230V/3	Scroll	EVR 6	**032L1209**	DACC RX L260.1A4/E1	**114U0017**	**1**	4.35
	8	LRYM0800UWH000Q	**114N3655**	27,740	22,620	3.72	3.39	230V/3	Scroll	EVR 6	**032L1209**	DACC RX L315.1A4/E1	**114U0018**	**1**	4.35

[1] Medium temperature unit capacity is based on an evaporator temperature of 25°F, return gas temperature of 65°F, and 5°F of subcooling. Low temperature unit capacity is based on an evaporator temperature of -20°F, return gas temperature of 65°F, and 5°F of subcooling.

Solenoid Valve Coils

Voltage	Frequency	Danfoss Code No.[2]
110 120	50/60 60	**018F4110**
208-230 230	60 50	**018F4120**
110 110-120 230 208-230	50 60 50 60	**018F4180**

[2] All coils with 7" wire in junction box. Version available with 18" wire with conduit hub.

Temperature Controller

Voltage	Danfoss Code No.
100-240 VAC, 5060 Hz, autodetect	**080Z5000**