M&M CARNOT

Aquilon DS
TransCritical CO_2 Condensing Unit

Natural CO_2 refrigerant in a packaged system, ideal for smaller industrial applications.

The power behind **your mission**

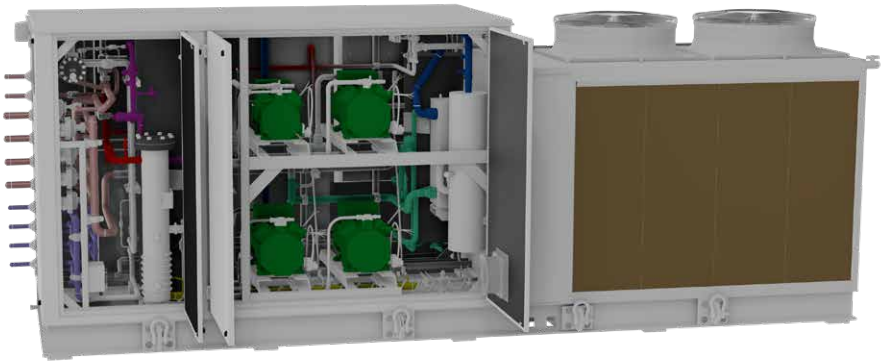
Johnson Controls

Aquilon DS™

The Aquilon DS is a CO_2 condensing unit integrating system control and gas cooler.

This unit is well suited for low-temperature and medium-temperature cold rooms, as well as process chilling.

The Aquilon DS is a natural refrigerant alternative and replacement for synthetic refrigerant split systems and offers an excellent opportunity for heat recovery.



Design features

- Stainless steel piping construction
- High-pressure design eliminates a need for a back-up generator or separate small condensing unit for off-cycle, over-pressure protection
- Transcritical booster system with multiple semi-hermetic reciprocating compressors in each suction group
- Variable-frequency drives on lead compressors
- High-efficiency oil management system with coalescing separator
- Integrated liquid subcooler
- Integrated dry or adiabatic gas cooler with EC fans
- High standstill design pressure, including low temperature (LT) compressors
- Optional heat recovery circuit available
- Air, electric or two-pipe hot gas defrost evaporator*
- Direct expansion CO_2 liquid feed with electronic control valves
- Microprocessor-based package and system control with multiple level password parameter protection and extended computer-based application interface
- CO_2 leak detection
- Compressor saturated suction temperatures from -40˚F to 40˚F**
- Industrial welded frame design

* Restrictions apply for hot gas defrost depending on evaporators and equipment layout.

** Consult factory for applications outside this range.

Contractor benefits

- Single-point electrical power supply connection for the DS package
  - Optional power distribution with circuit breakers for remote evaporators
- Full access doors for commissioning, start-up, maintenance and service
- Pre-insulated refrigerant vessels and piping
- Easy rigging and mounting
- Integrated gas cooler minimizes field piping
- Evaporator isolation and control valves provided
  - Up to four evaporators* – they are unit mounted
  - More than four evaporators* – items are shipped loose for remote mounting

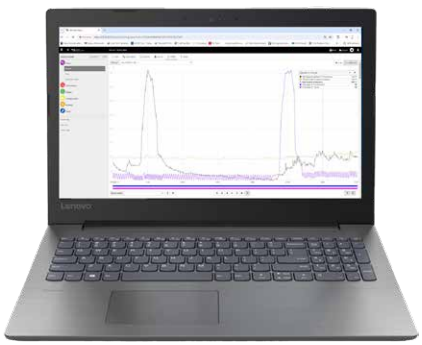
End-user benefits

- Long-term, environmentally friendly, natural refrigerant that's a fraction of HFC cost
- Regulatory associated costs and compliance burden are significantly reduced
- Reduce energy costs
  - Operating at higher suction temperatures
  - Floating head pressure
  - Intelligent and efficient heat recovery
- Reduce evaporative cooling water consumption by using adiabatic-enhanced dry air coolers
- Significant reduction in maintenance
  - Semi-hermetic compressors do not require inspections for shaft seal replacements
  - Potential for no condenser/gas cooler water treatment
  - Potential for no condenser/gas cooler waste water sewer costs
  - Direct drive EC gas cooler fans eliminate belt drive maintenance
- Indoor design units available – consult factory
- Significant energy reclaim opportunities available

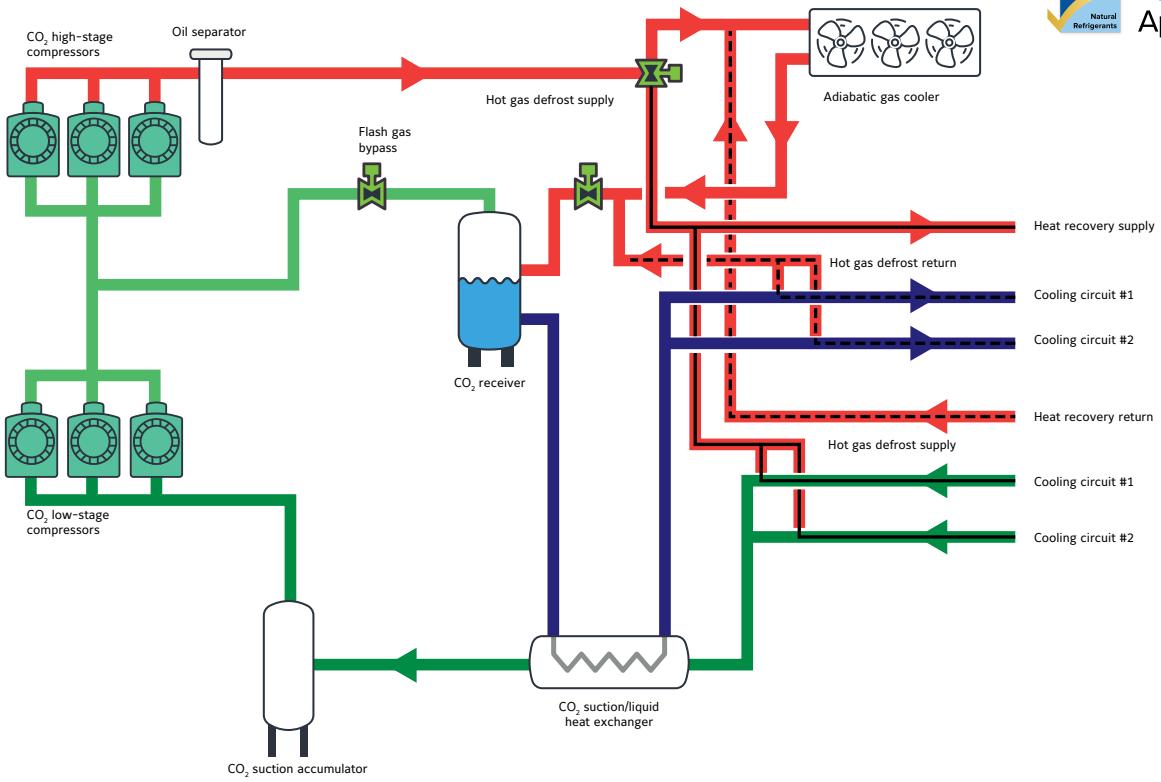
* Restrictions apply for hot gas defrost depending on evaporators and equipment layout.

Aquilon DS packaged system micro-controller

- Built using commercially available hardware to aid resiliency
- Process sensors and transmitters strategically located to enhance diagnostic trending, improve control accuracy and long-term reliability
- Optimized high-pressure valve and flash-gas valve control for maximum energy efficiency at any ambient conditions
- Built-in safeties to provide comprehensive system protection
- Advanced evaporator controls with refined superheat monitoring minimizes energy consumption
- Email alarm notification and remote access (network connection required)
- On-board Ethernet port
- Optional Modbus, BACnet
- Comprehensive user-adjustable setpoints



Typical system diagram



Technical data: Medium temperature[1, 3, 4]

Model	GC Fans	Compressors	HP	Operating weight (lbs)	Dry weight (lbs)	Dimensions (in.)			MCA/MOP[2] (A)		Capacity (TR)[4]
						L	W	H	MCA	MOP	22°F SST
AQU-DS-20M	1	2	20	10,100	9,300	172	60	80	66	90	18
AQU-DS-35M	2	2	40	11,400	10,500	211	60	80	111	160	35
AQU-DS-50M	3	2	60	13,200	12,100	250	60	80	154	220	53
AQU-DS-65M	4	3	80	15,100	13,900	289	60	80	195	260	69
AQU-DS-80M	5	3	90	17,000	15,600	328	60	80	219	280	78

Technical data: Low temperature[1, 3, 4]

Model	GC Fans	Compressors	HP	Operating weight (lbs)	Dry weight (lbs)	Dimensions (in.)			MCA/MOP[2] (A)		Capacity (TR)[4]
						L	W	H	MCA	MOP	-22°F SST
AQU-DS-15L	1	4	32	11,300	10,500	172	60	80	90	120	15
AQU-DS-30L	2	4	79	12,800	11,900	211	60	80	181	240	30
AQU-DS-45L	3	6	108	16,100	15,000	272	60	80	243	300	45
AQU-DS-60L	4	6	139	17,700	16,500	311	60	80	299	360	60

1. Selections for MT only or LT only solutions.
2. 460v/3/60, excluding evaporator power. 575v/3/60 available upon request.
3. Receiver surge volume: 4.95 ft³.
4. Capacities at 100°F dry bulb and 70°F wet bulb. Consult M&M Carnot for operation outside these conditions.

Visit **www.johnsoncontrols.com** for more information and follow **@johnsoncontrols** on social platforms.

Form 800.100-SG1 (2025-06) Supersedes: 800.100-SG1 (2024-06) · Subject to change without notice · Printed in USA · 06/25 · PDF

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