DCT-1 CO_2 HEAT PUMP – PROVEN U.S. INSTALLATIONS

High-Efficiency. Low Emissions. Real-World Results.

Dalrada's DCT-1 (Water/Water) **Heat Pump** is a cutting-edge climate solution that delivers **simultaneous heating, cooling, and domestic hot water**—all powered by **R-744** (CO_2), a natural refrigerant with an **ultra-low** Global Warming Potential (GWP) of 1. Engineered for performance, the DCT-1 transforms building energy usage with groundbreaking efficiency and sustainability.

FEATURES & BENEFITS

- ✓ **Simultaneous heating and cooling** from one all-electric unit
- ✓ **R-744 (CO_2):** non-toxic, non-flammable, **ultra-low GWP refrigerant**
- ✓ **Up to 7x more efficient** than traditional boilers and chillers
- ✓ **Delivers 60–80% energy savings** while significantly cutting CO_2 emissions
- ✓ **COP of 1:7** — for every unit of energy used, up to seven units are delivered
- ✓ **Hot water supply range:** +50°C – +85°C (+122°F – +185°F)
- ✓ **Cold water supply range:** 0°C – +15°C (32°F – +59°F)
- ✓ **Modular & scalable design —** ideal for retrofits or new construction
- ✓ **Real-time performance data enabled** with advanced control module

Dalrada is showcasing the real-world power of the **DCT-1** through **active installations across the U.S.**

www.DalradaClimateTech.com | DCTinquiries@Dalrada.com
600 La Terraza Blvd., Escondido, CA 92025 • 858.529.9910

INSTALLATION 1: LAS VEGAS DEMONSTRATION SITE

Location: Las Vegas, Nevada

Purpose: Live technical showcase & training hub

Dalrada's DCT-1 system is installed at a **dedicated demonstration site** in Las Vegas, providing real-world performance data in a **high-heat climate**. The site offers **guided tours, installer training**, and **live demonstrations** of the system in operation.

Key Objectives:

- Demonstrate **combined heating, cooling, and DHW performance**
- Highlight **best practices** in installation and integration
- Offer **hands-on experience** for engineers and decision-makers
- **800+ runtime hours** logged under high-load conditions

System Highlights:

- **CO_2-based heat pump** with Siemens control panel
- **Dual-mode** output: high-temp DHW + space conditioning
- **BMS-compatible** with full diagnostics and monitoring
- **UL-compliant installation; AHRI/Energy Star validation underway**
- Fits existing HVAC infrastructure with **minimal disruption**

Performance Results:

- **Up to 70% reduction** in building energy consumption
- **Reliable performance** in extreme desert temperature swings
- **COP values consistently exceed industry benchmarks**

Open For:

- **Private site visits** and technical walkthroughs
- **Partner and installer training** sessions
- **Live performance validation f**or engineers and decision-makers

INSTALLATION 2: MULTI-UNIT COMMERCIAL DEPLOYMENT

Location: U.S.-based commercial facility

Scale: 8 DCT-1 units operating in parallel

This large-scale commercial site features **eight DCT-1 units** running in parallel, demonstrating **modular scalability, outdoor durability**, and **all-season reliability**.

Site Highlights:

- **Outdoor installation** with custom shed (open front for airflow)
- **30°F–95°F operating range** throughout the year
- **Smart system coordination** with remote monitoring

System Advantages:

- **Highly scalable** for large commercial applications
- **Durable design** for variable climate conditions
- **Low maintenance** and long-term system resilience

Supports:

- **Large-scale decarbonization goals**
- **Infrastructure efficiency upgrades**
- **Long-term energy and cost savings**

PARTNER WITH US

Ready to reduce emissions, save on energy, and future-proof your HVAC system?

Dalrada invites engineers, developers, and facility managers to visit our demonstration sites or connect with our technical team.

Powered by innovation — green, sustainable, and energy-efficient.