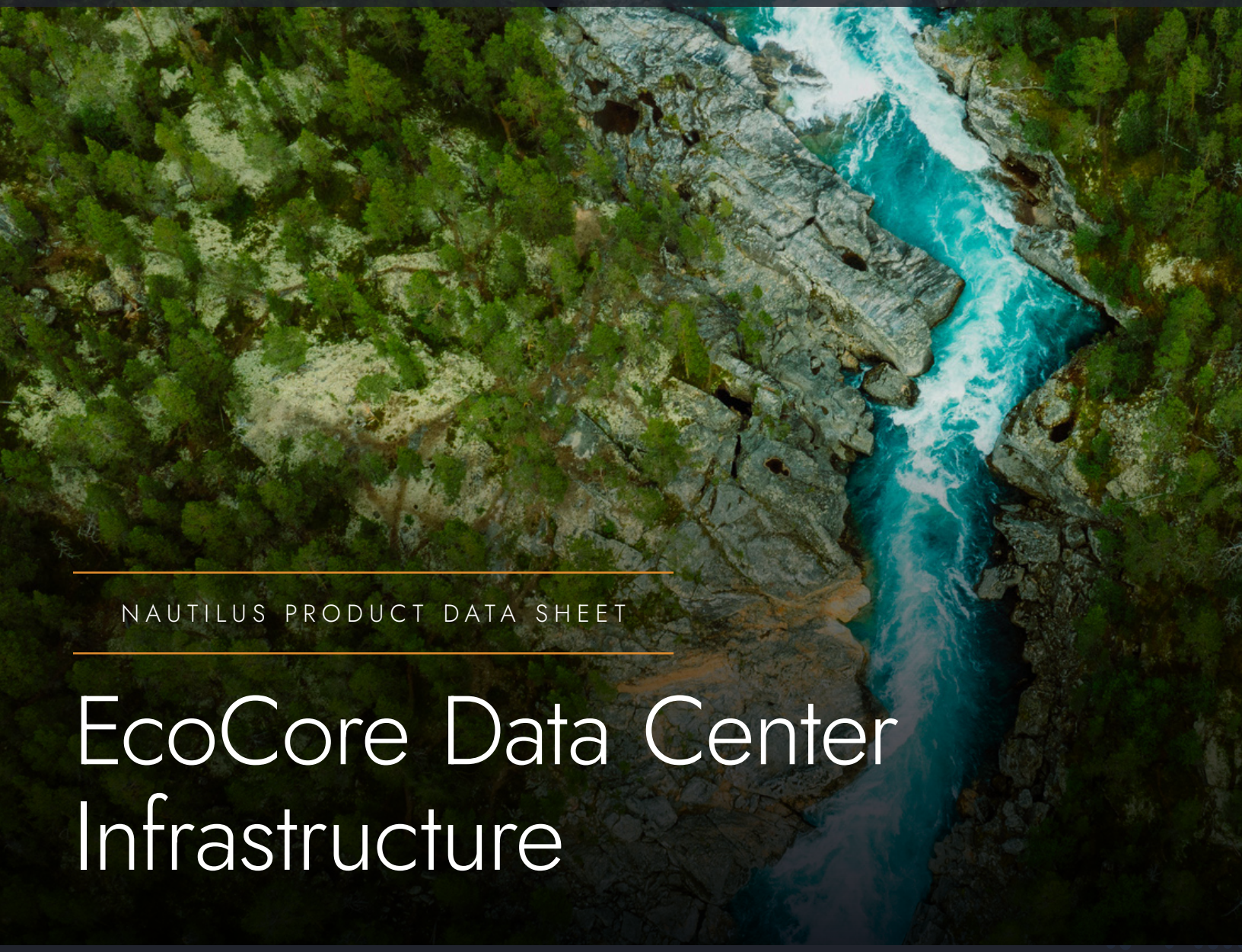
NAUTILUS®
DATA TECHNOLOGIES



NAUTILUS PRODUCT DATA SHEET

# EcoCore Data Center Infrastructure

The EcoCore solution revolutionizes data center infrastructure with innovative, sustainable, and space-efficient design. It employs our patented water-cooling system, significantly enhancing heat rejection capabilities and removing the use of chemicals and water. This approach does away with traditional cooling mechanisms, resulting in a smaller physical footprint and improved efficiency.

The infrastructure is comprised of prefabricated units that tightly integrate our cooling technology and MEP systems with data hall floor space. We achieve high integration and efficiency because our solution eliminates the need for chiller plants, ductwork, and other elements found in conventional cooling approaches. Thus, the Integrated solution only requires 30% of typical shipping splits needed and consumes half the physical footprint required for traditional prefabricated data centers.

With 70% of assembly work conducted off-site, the modular design allows straightforward on-site assembly limited to site preparation, Unit assembly, and utility integration. The Units are designed for installation into the steel truss frame of a powered shell using standardized connectors. By leveraging EcoCore, the facility can meet hyperscale demand (100MW+) with a 20% reduction in capital costs, lower operational overhead, and accelerated time to market.

## Nautilus' Water Cooling Technology

Nautilus' patented water-cooling system is capable of delivering ~8600 Watts per square meter of heat rejection at a PUE of 1.15, or less, with no chemical use or water consumption. Our solution is both highly sustainable and 50% more efficient than the industry average for new builds.

**LEARN MORE ABOUT HOW OUR COOLING SYSTEM WORKS**

**NO CHEMICALS** | **NO WATER CONSUMPTION**

Unleashes High-Performance Compute for AI and Machine Learning

## How EcoCore Simplifies Deployment

### Accelerate Deployments

60% Prefabricated assembly with integrated cooling and MEP

### Reduce Costs

20% reduction in capital costs removing conventional cooling

### Achieve Sustainability through Design

High-efficiency computing with no chemicals or water consumption

### Enable All Cooling Methods

Compatible with Traditional Hot Aisle, Rear-Door Cooling, Immersion, Direct-to-Chip

## 2.5MW Block of EcoCore Infrastructure

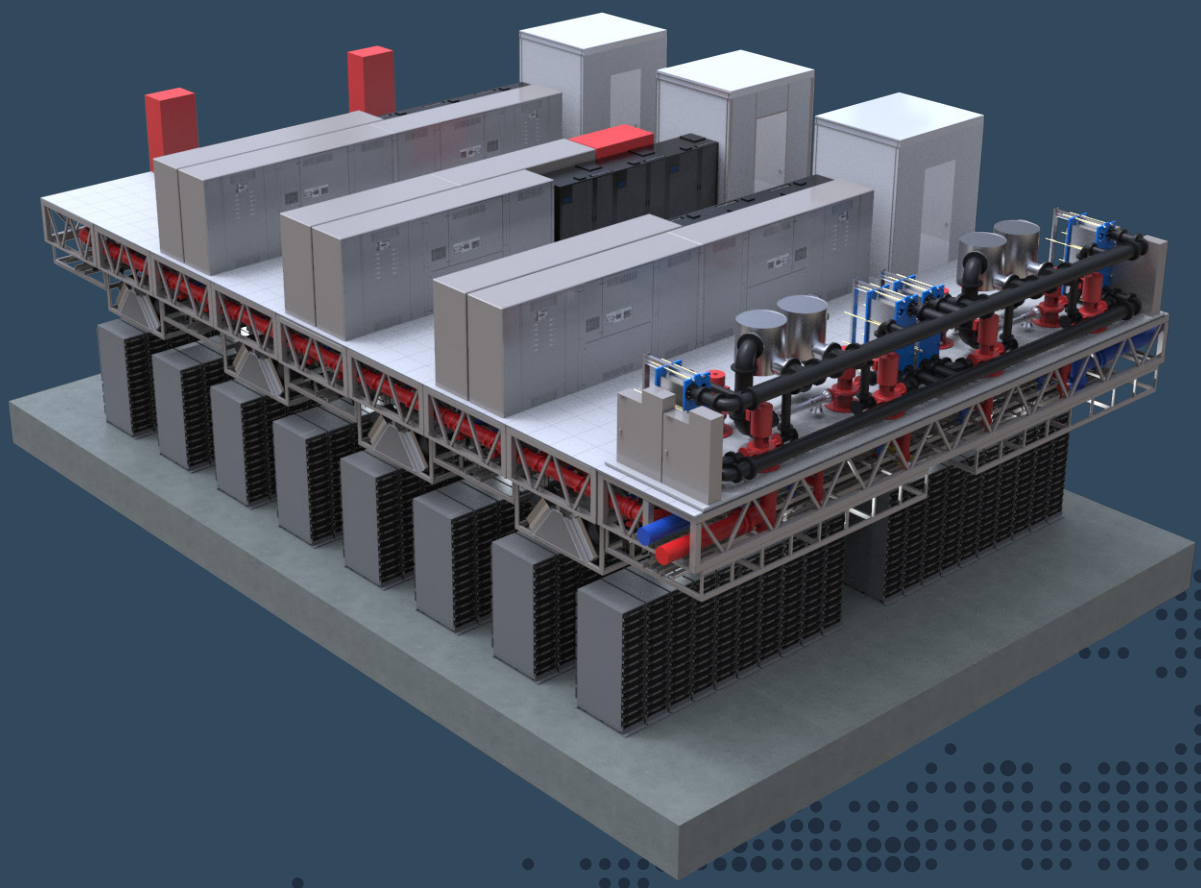
EcoCore is designed in 2.5 MW Blocks made from Nautilus integrated units:

- (2) Power Unit (PWR-LV-2500)
- (1) Reserve Unit (RES-LV-1250)
  *depending on redundancy level*
- (4) Hot Aisle Unit (AISLE-HT)
- (1) Accessory Space Unit (AISLE-CL)
- (1) Cooling Distribution Unit (COOL2500)

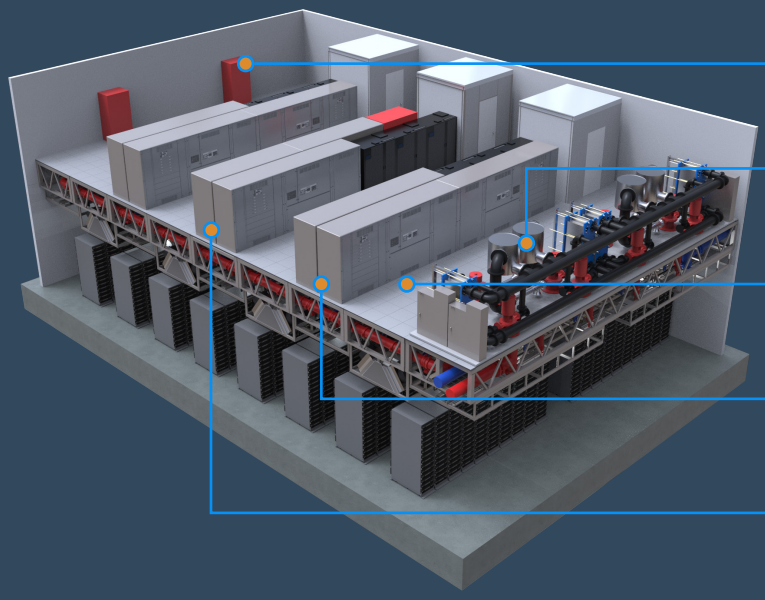
Factory assembled, shipped, and fit into post and beam structure using standardized connectors

- Horizontal connections 3.4m (11.25) apart
- Shell height allowance minimum 9.2m (30')

The infrastructure is a scalable compute environment forming the 2500kW core of a data center hall ready to accept servers and other IT equipment. The core creates the data center white space with the grey space and integrated MEP contained above it. The solution is concurrently maintainable, supports non-Unitking power distribution, and cools using Nautilus' highly efficient and sustainable water-cooling infrastructure.



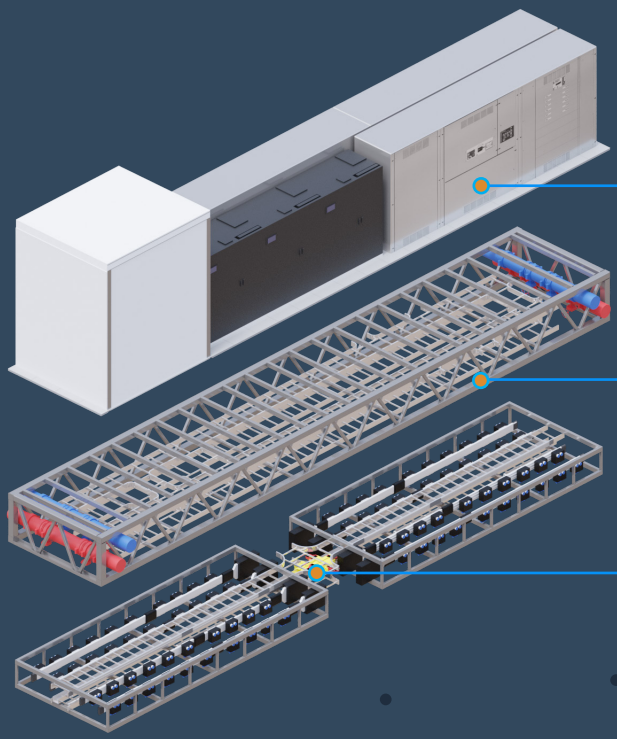
## EcoCore Infrastructure used with Post and Beam



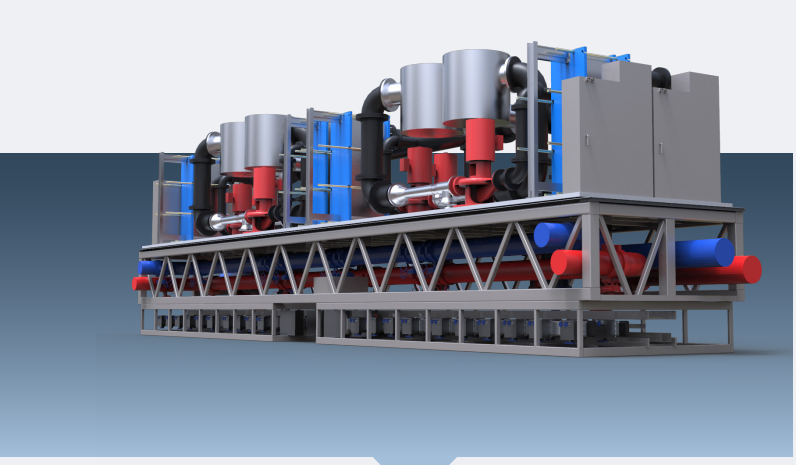
- Accessory
- Cooling Distribution Unit
- Aisle
- Primary Electrical
- Reserve Power Unit

Hot aisle cooling rendering only. Rear door, direct-to-chip, and immersion options are available.

## EcoCore Units



- Electrical Equipment
- MEP/Structural Floor
- Ceiling Package for Data Hall



## COOLING DISTRIBUTION UNIT – COOL2500

**Dimensions:** 45.125’ (13.75m) x 8’ (2.44m)

**Unit Details:** Features four parallel Nautilus Cooling Distribution Unit (CDU) skids each capable of providing up to 833kW of heat rejection.

**Components Include:**

- Heat exchangers
- HDPE piping
- Valves
- Filters
- Pumps
- Variable frequency drives
- Control unit and sensors

**Integrated Structure:** The CDU skids are housed on an interstitial structure that also contains:

- Bus bars and tap-boxes
- Cable ladder tray
- Sensors
- Fire detection and suppression
- Lighting
- Security and access infrastructure
- Fittings and connectors

## PWR-LV-2500

**Dimensions:** 45.125’ (13.75m) x 8’ (2.44m)

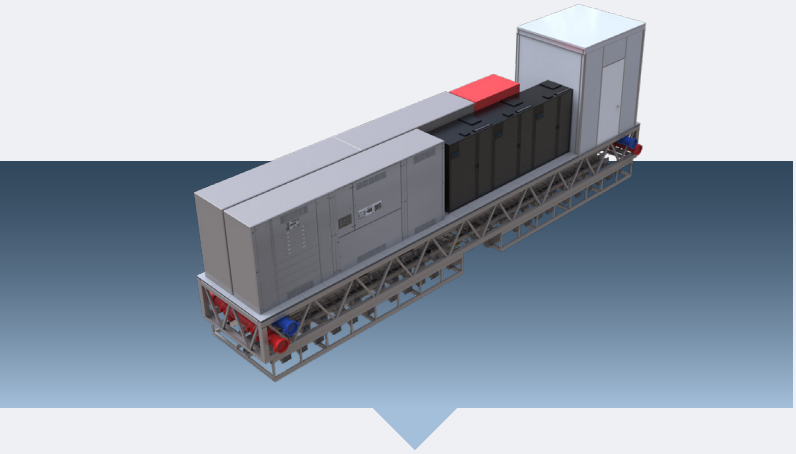
**Unit Details:** Delivers 1250 kW of 415V 3-phase power distribution.

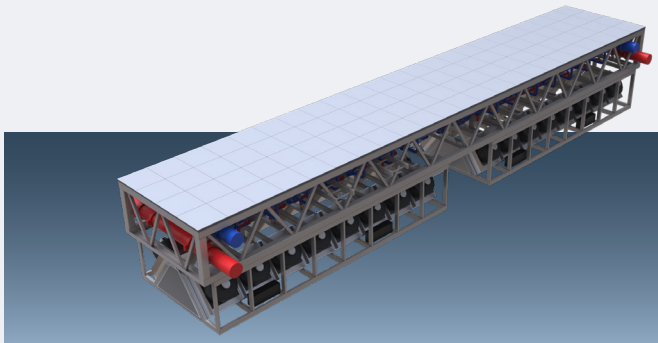
**Components Include:**

- Input switchboard
- Transformer
- UPS
- Battery room with batteries
- Output + Bypass switchboard
- Static Transfer Switch and power distribution unit

**Integrated Structure:** Built on an interstitial structure that includes:

- Bus bars and tap-boxes
- Cable ladder tray
- Power and BMS monitoring sensors
- Fire detection and suppression
- Lighting
- Security and access infrastructure
- Wiring
- Fittings and connectors





## RES-LV-1250

**Dimensions:** 45.125’ (13.75m) x 8’ (2.44m)

**Unit Details:** Offers 1250kW of reserve power deployed in N+1 redundancy configuration with options for distributed redundancy operation.

**Components Include:**

- Similar equipment and packages used in the Power Units.

## AISLE-CL

**Dimensions:** 45.125’ (13.75m) x 8’ (2.44m)

**Unit Details:** Features accessory space in the MEP area and is constructed on an interstitial structure.

**Components Include:**

- Bus bars and tap-boxes
- Cable ladder tray
- Power and BMS monitoring sensors
- Fire detection and suppression
- Lighting
- Security and access infrastructure
- Fittings and connectors

See Table 3 for more detailed customer configuration options.

## AISLE-HT

**Dimensions:** 45.125’ (13.75m) x 8’ (2.44m)

**Unit Details:** A hot aisle Unit designed for the customer-configured IT cooling solution.

**Components Include:**

- HDPE piping
- Valves and tap-offs
- Bus bars and tap-boxes
- Cable ladder tray
- Power and BMS monitoring sensors
- Fire detection and suppression
- Lighting
- Security and access infrastructure
- Fittings and connectors

Refer to Table 3 for specific customer configuration options.

## PRIME-LOOP

Unit Details: Equipped with piping, valves, gauges, and sensors to support the distribution of facility-provided primary-loop water supply and return across the Integrated solution.

| Component | 10MW Deployment *(2.5MW Blocks x 4)* | 25MW Deployment *(2.5MW Blocks x 10)* | 50MW Deployment *(2.5MW Blocks x 20)* |
|---|---|---|---|
| **COOLING DISTRIBUTION UNIT – COOL2500** | 4 units | 10 units | 20 units |
| **PWR-LV-1250** | 8 units | 20 units | 40 units |
| **RES-LV-1250** | 2 units (in 5:4) | 4 units (12:10) | parallel 12:10 systems |
| **AISLE-HT** | 16 units | 40 units | 80 units |
| **AISLE-CL** | 3 units | 8 units | 15 |
| **PRIME-LOOP** | 1 set | 2 sets | 4 sets |

## Services and Features

- **Basic Configuration:** Configuring EcoCore for primary allowable ΔT, primary and secondary loop flow rates, data hall operating temperature, and filtration requirements.
- **Engineering Design Services:** Design and support services for installation and/or customization of EcoCore and coordination/ collision analysis.
- **Federated Design Documentation:** Includes structural model with design reference, MEP model, architectural model, and related documentation.
- **MOPs-SOPs-EOPs:** Procedures guidebook for operating and managing the Integrated solution including routine maintenance tasks and emergency procedures.
- **Warranty Services:** Operation and maintenance services for the Integrated solution order spanning 24 months.
- **Shipping and Contingency:** Delivery and staging of the Integrated solution order to the customer site.

## Customer-Provided Structures and Services for EcoCore Installation and Operation

- **Shell:** Steel truss frame meeting Structural Design Reference.
- **Unit Installation:** Installation and fit-out of EcoCore.
- **Electrical Feed:** Medium or low voltage feed (depending on approach) accessible from the powered shell's service point.
- **Water Supply:** Access to facility water supply and discharge supporting design water temperatures supplied by pump stations and piping sized to support design flowrates.
- **Fiber Connections:** Ensure availability for EcoCore integration.

## Customer Specifications that Tailor the EcoCore Design to a Given Site

- **Lift/Stairs:** Designed for MEP (Mechanical, Electrical, and Plumbing) space.
- **Security:** Data hall & MEP security and access provisions.
- **Air Handling:** Make-up Air handling & MEP space cooling systems.
- **BMS Integration:** Building Management System integration features.

## Optional Design Parameters that Customize the Base Model

| Configurable Item | Base Offering | Option 1 | Option 2 |
|---|---|---|---|
| **Line-Up** | Low Voltage | Medium Voltage | - |
| **Power Protection** | UPS | Independently Powered | - |
| **IT Cooling** | Liquid | Air: Fan Coil | Hybrid |
| **Rack Density** | 160 (13.6kW) | 200 (10.9kW) | Custom |
| **Fire Suppression** | Inert Gas | Clean Agent | Pre-Action Water |