



Data Center Solutions

Powering Data Centers with Smart HVAC Solutions



Data Centre Solutions Overview



- 1 Air cooled screw chillers
- 2 Water cooled chillers
- 3 Fan array units
- 4 Coolant distribution units
- 5 Computer room air handlers
- 6 Controls solutions

Air Cooled Screw Chillers

Package solutions up to 2000 kW

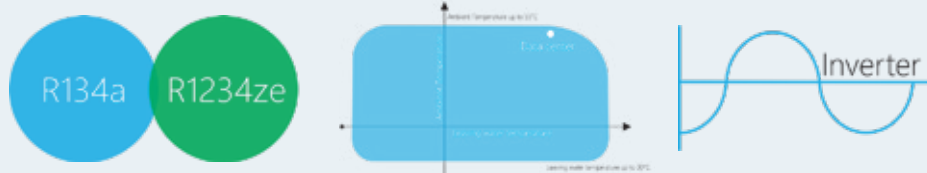
The Daikin chiller portfolio offers options of either HFC R134a or HFO R1234ze with up to 2,000 kW cooling capacity.

With leaving chilled water supply temperatures up to 30°C and operating ambient temperatures up to 55°C, the Daikin screw chillers offer a flexible and reliable solution to any data center.

Offering variable frequency drives on each compressor and EC motors on each condenser fan as standard, the Daikin screw chillers offer precise modulation of the cooling load & class leading energy efficiency.

Despite their large cooling capacities, Daikin chillers are compact, which allows them to be fit in constrained locations.

Every single air cooled screw chiller that is ordered goes through a functional run test in the manufacturing facility with water flowing through the evaporator, running the compressors and fans at full load.



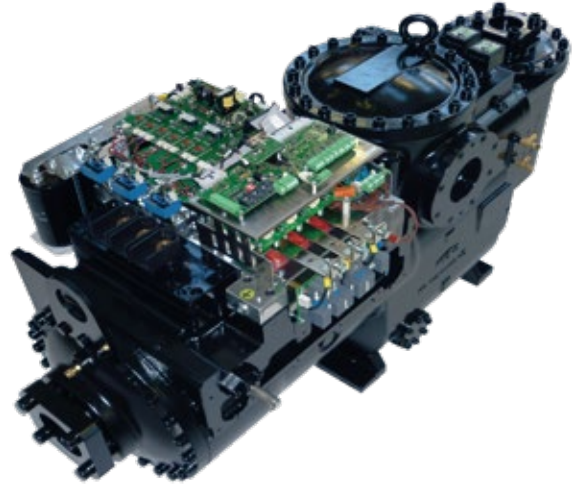
Air Cooled Screw Chillers

The Daikin Screw Compressor

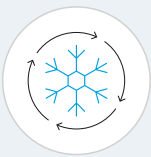
Each chiller is outfitted with 2 screw compressors serving independent refrigerant circuits.

The semi hermetic screw compressors are manufactured in house and are driven by in house manufactured inverters (variable frequency drives)

For optimum reliability, the inverters are compressor mounted and cooled through refrigerant ensuring a constant temperature even when working in the extreme conditions seen during summers in the middle east.



Flexibility for any data center



Integrated Free Cooling

As an option for data centers designed around extremely high supply temperatures, Daikin offers integrated free cooling coils. This technology automatically activates when the ambient temperatures are low, allowing heat rejection using only the EC condenser fans.



Inbuilt pumps

Daikin offers integrated pumping solutions with pump inverters & the associated waterside accessories. The pumps can either be powered through the chiller electrical panel or have an independent power termination to allow for the pump to be connected to a customer UPS.



Rapid Restart

For data centers, where any extended loss in cooling could lead to significant data center downtime, Daikin chillers can be outfitted with rapid restart where the chiller controller is powered through an onboard UPS. This option allows the chiller to restart within 30 seconds after power is restored and reach full capacity within 180 seconds.



Integrated Active Harmonic Filters

Daikin offers harmonic filters that are built into unit mounted electrical panel, meeting <5% iTHD at all loads. The harmonic filters are refrigerant cooled, ensuring high power quality at extreme ambient temperatures and harsh conditions.



Factory Testing

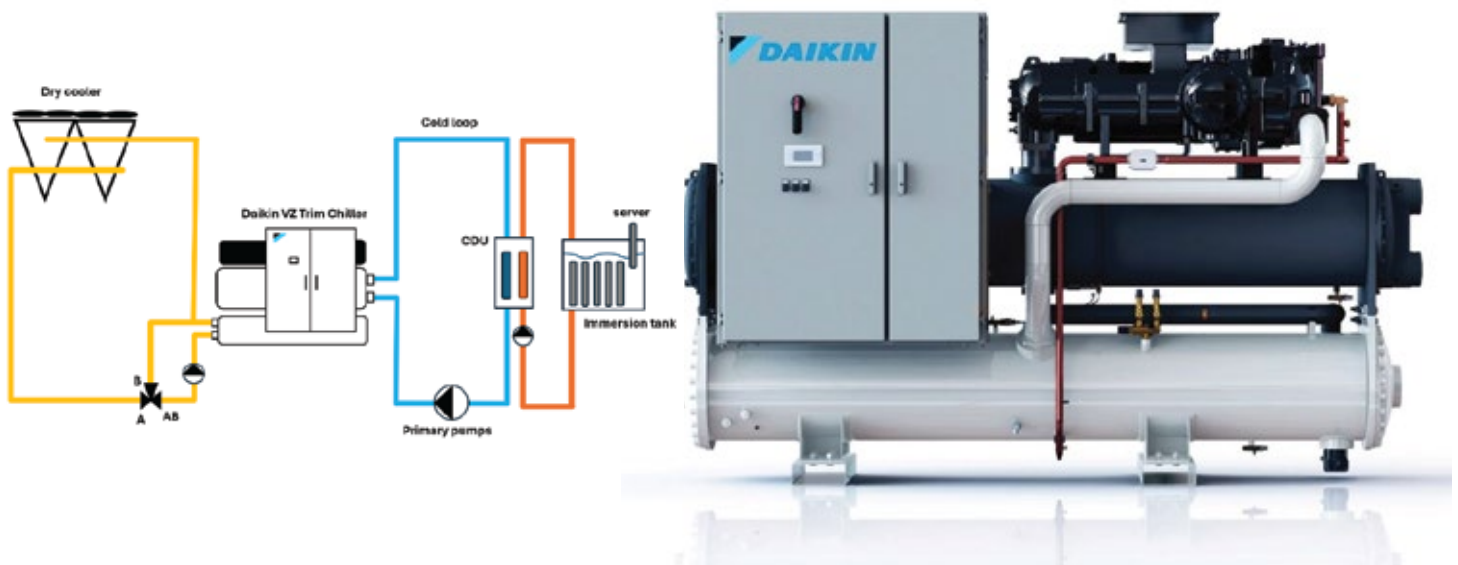
As an additional option for customers, Daikin offers a factory test at specific project design conditions in a state-of-the-art AHRI certified testing facility/climatic chamber.

Water Cooled Chillers

Immersion cooling ready up to 2000 kW

Outfitted with the in-house Daikin inverter driven screw compressors, the Daikin portfolio includes water cooled screw chillers able to reach chilled water setpoint temperatures as high as 45°C while connected to dry coolers.

Centrifugal chillers are available with higher capacities suitable for cooling tower operation. Please reach your nearest Daikin office to learn more



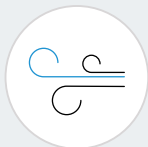
Inverter Driven Compressors

To optimize efficiency at any loading conditions, the screw compressor is driven by a VFD that is mounted in the electrical panel.



Available with both HFC R134a and HFO R1234ze

With an ODP of 0 & GWP of 7, R1234ze represents a sustainable solution to reduce carbon footprint.



Wide Operating Envelope

Allowing for operation on condenser side with cooling towers or dry coolers with no water evaporation.



Rapid Restart

Daikin water cooled screw chillers are capable of restarting within 30 seconds and reaching full capacity within 180 seconds.



Factory Testing of Water Cooled Chillers

As an additional option for customers, Daikin offers a factory test at specific project design conditions in a state-of-the-art AHRI certified testing facility/climatic chamber.

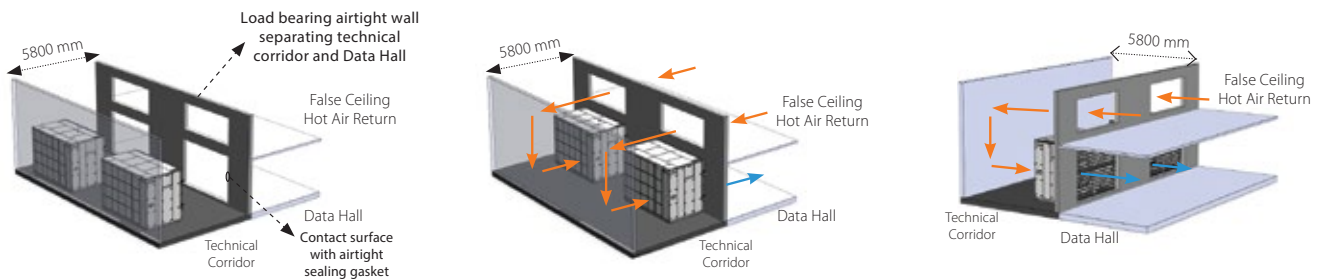
High Efficiency Fan Array Units

Meet the Pro-W. Our dedicated data center Computer Room Air Handling (CRAH) units are designed for large and hyperscale requirements – complete with chilled water coil, advanced controls for real-time demand and cooling capacity **up to 500 kW**.

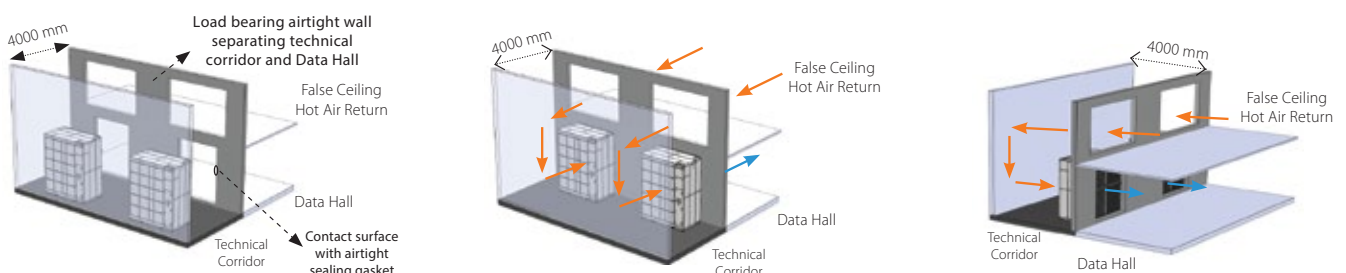


Installation and Airflow layout

Standard version



Compact version



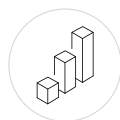
Pro-W Slim

Smallest footprint solution on the market for air & hybrid cooled Data Centre

The Daikin Fan Wall Slim delivers **high cooling capacity with superior energy efficiency**, significantly reducing power consumption and operating costs. Its compact design minimises construction requirements maximising usable space for IT racks. Thanks to its optimised engineering and advanced control strategies, the Pro-W Slim ensures **precise temperature regulation, exceptional flexibility, built-in redundancy, and low lifecycle operating costs**.



Key Benefits



Cooling capacity range from 100 kW to 150 kW



Plug & Play and ready to use



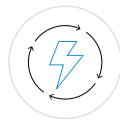
Sectioned design for simplified transportation



Internally developed advanced control



Cutting building construction costs

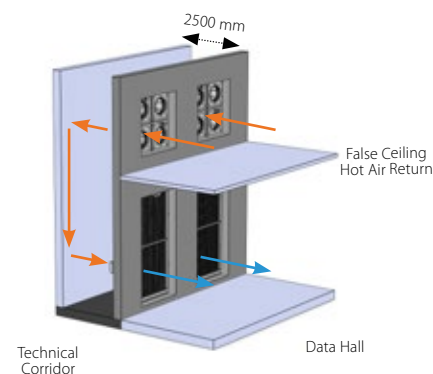
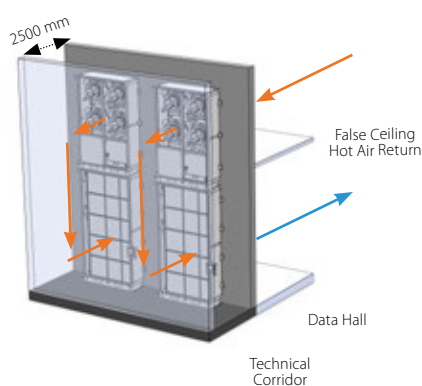
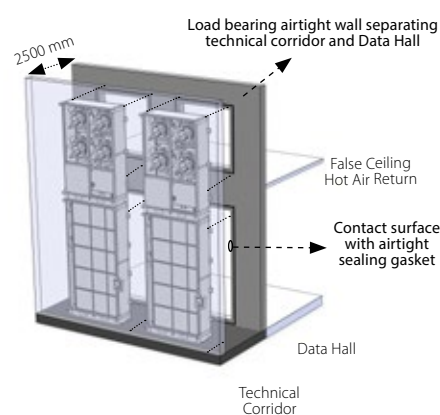


Energy-efficiency for sustainable operations



Quick installation thanks to fast assembly

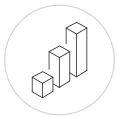
Installation and Airflow layout



Pro-C CRAH

The Pro-C unit is an ideal solution for thermal management.

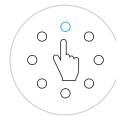
Efficiency is one of the key aspects achieved thanks to the product's main features, such as optimised chilled water heat exchangers, the latest generation of EC fan, and the integration of pressure-independent control valves and active harmonic filters. Advanced control solution strategies and automatic transfer switches guarantee reliability and prevent any power failure.



Wide cooling capacity range from 30 kW to 250 kW



Advanced controls strategies developed by Daikin, ensuring reliability and efficiency.

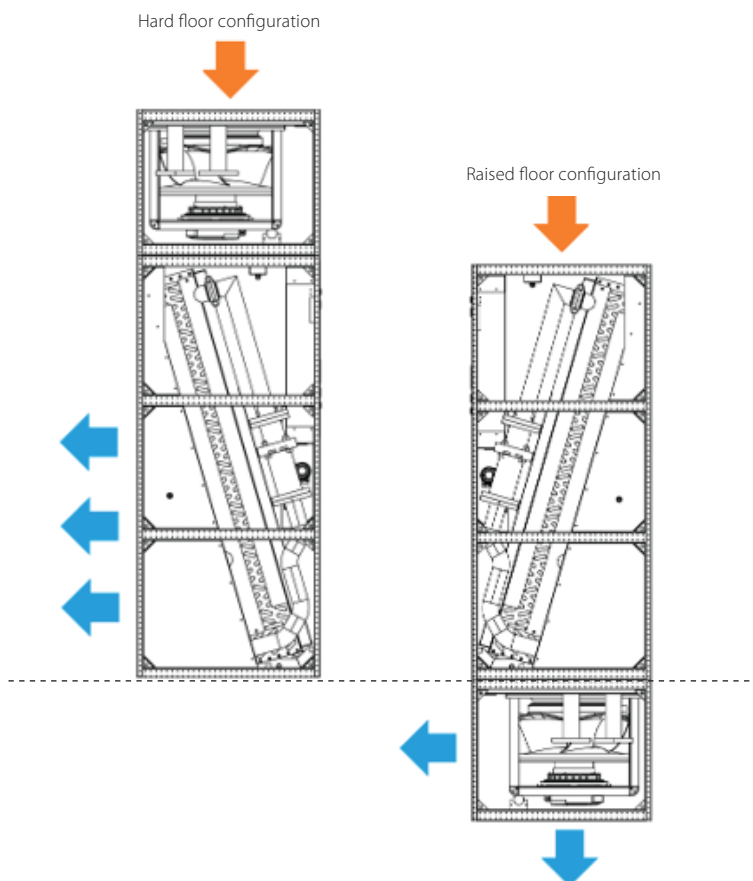


Wide list of accessories for all project requirements



Flexible and modular design suitable for any data centre layout and requirements.

Versatile airflow



Features of the Pro-C

1. **Flexibility:** The modular design suits all Data Center needs, with configurations for hard and raised floors. It optimises energy efficiency by recovering heat from expelled air.
2. **Optimised Heat Exchanger:** Efficient part-load operation focuses on sensible heat exchange, preventing condensate formation and adapting to free cooling chillers for higher efficiency.
3. **EC Fan with PFC:** Brushless DC motors match cooling load dynamically, reducing energy consumption and improving efficiency with active Power Factor Correction.
4. **Pressure-independent Control Valves:** Ensures stable water flow and better temperature control, reducing operating costs and enhancing system efficiency.
5. **Advanced Control Strategies:** Daikin's control systems optimise performance, provide redundancy, and adapt to evolving trends, ensuring reliable operation.
6. **Equipment Protection:** Automatic transfer switches and ultracapacitors ensure continuous operation during power failures, with quick fan activation.

Daikin iPlant Manager for Data Center Cooling

Plant rooms offer significant energy-saving potential but are often overlooked due to the complexity of HVAC systems. Efficient management—especially in critical environments like data centers—requires dedicated, specialized control solutions to ensure reliability and performance.



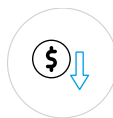
Advanced machine learning algorithms and AI for optimal operation and energy savings.



Promote sustainable image and reduce complaints from building users.



Compliant with TIER III Data Centers and can be tailored to meet specific design needs.



Minimize operation and maintenance related costs.

Key features of iPlant Manager

- 1. Optimized Cooling Efficiency:** It adjusts chiller operations based on real-time thermal loads, ensuring that only the necessary cooling capacity is used. By optimizing chiller sequencing, pump speeds, and thermal energy storage operations, it reduces energy consumption significantly.
- 2. Reliability & Uptime:** Redundancy management to ensure backup systems are ready and operational. Maintains optimal cooling conditions for servers, preventing overheating and hardware failure.
- 3. Real-time Monitoring & Analysis:** Provides insights into system performance, energy usage, and potential improvements. Notifies operators of anomalies or failures before they escalate.
- 4. Integration with BMS and DCIM:** Can be integrated with Building Management Systems (BMS) and Data Center Infrastructure Management (DCIM) platforms for unified oversight.
- 5. Cost Savings:** Cooling can account for up to 40% of a data center's energy use. Efficient chiller management can cut this drastically. Early detection of inefficiencies or faults helps avoid costly repairs and downtime.
- 6. Environmental Impact:** Efficient operation reduces greenhouse gas emissions and helps data centers to meet their sustainability goals.

Coolant Distribution Unit - CDU

Direct to Chip Liquid Cooling for Data Centres and AI-Factory

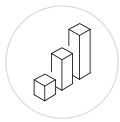
Compact and powerful, the Daikin CDU is designed to **fit any data centre layout**, whether installed in-row, at the end of an aisle, or in a technical corridor. It delivers **high efficiency with a low approach temperature** (ATD down to 2K) and **optimised pumping energy** thanks to the IE5 motor.

Engineered for maximum uptime, the CDU features pump redundancy and hot-swappable components. It precisely controls the leaving temperature on the TCS loop, maintaining constant coolant flow and pressure to respond rapidly to volatile AI thermal loads. It can meet any plant requirement with a wide range of options, including fully stainless-steel pumps, coolant filtration down to 25 µm, fully AISI-316 BPHE, integrated TDH < 5%, and an automatic transfer switch.

Easy routine maintenance activities, with only front and rear service access.



Key Benefits



Available in three sizes,
from 400 kW up to over 2.5 MW.

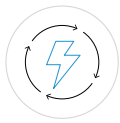
Cooling capacity up to 10+ MW
by grouping multiple CDUs on a
customisable skid.



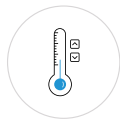
Internally developed
advanced control



On-demand
customisation



Optimised thermal & hydronic
performance



Precise and reliable
temperature control



Designed for
continuous operation

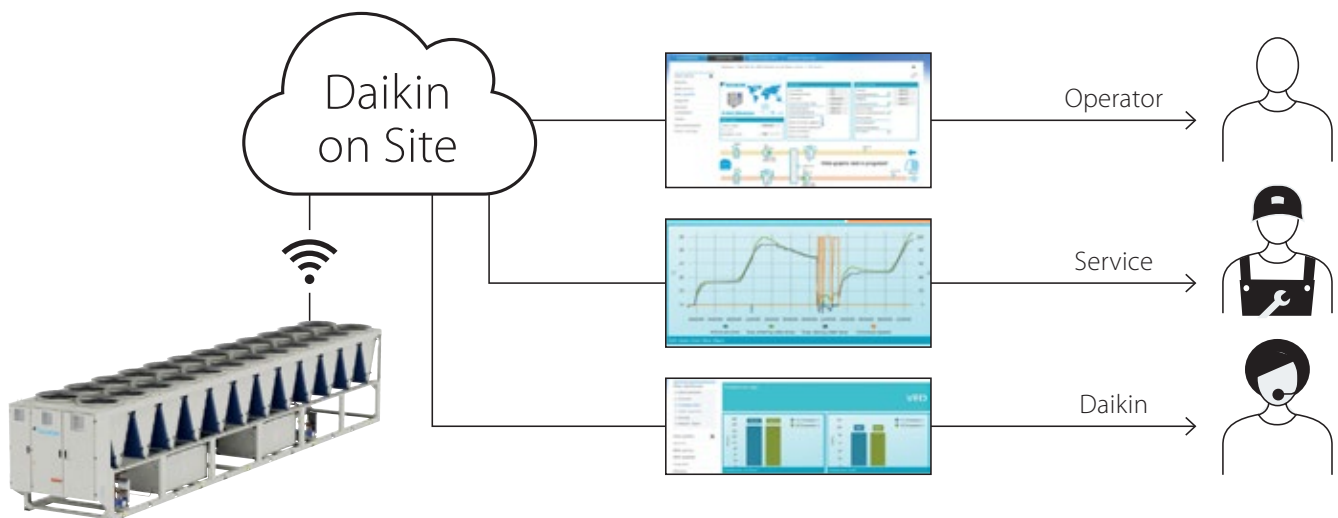


Top Class After Sales Services

Wherever your data center may be, we are there, too. With a worldwide service and partner network, there are more than enough resources to cover all your needs.

Daikin on Site – our cloud platform services for maximum system stability and performance

Daikin on Site is a cloud-based remote monitoring and control system that provides 24/7 real-time data, monitoring the operations of cooling plants and their proper functionality. It also provides periodic reports for in-depth plant analysis, energy analysis and intelligent maintenance. This continuously evolving service enables plant owners to keep the system efficiency high, take preventive measures and avoid the additional costs associated with breakdowns and downtime.



6 Key Strengths of Daikin

1. **Preventive Maintenance Plan:** Reliability over time with a detailed plan based on Daikin's 55 years of chiller technology experience, covering all necessary field activities and component checks.
2. **Extended Warranty:** The standard one-year warranty is extendable up to four additional years, providing greater security and peace of mind for customers.
3. **Global Service Availability:** With sales offices in over 170 countries, Daikin ensures service availability and expertise wherever and whenever needed, tailored to customer protocols.
4. **Spare Parts Management:** Timely and professional supply of maintenance parts, with the option to manage spare parts stock directly at the customer's premises for simplified maintenance.
5. **Comprehensive Maintenance Services:** Preventive and corrective maintenance, retrofit solutions, and upgrades to extend equipment life, to improve performance, and ensure consistent reliability.
6. **Daikin on Site (DoS):** Cloud-based remote monitoring service offers real-time assessment, reporting, and intelligent maintenance to proactively prevent failures and minimise associated costs.



www.daikinmea.com

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