



PRODUCT CATALOG

CAT-638

FEBRUARY 2024

NAVIGATOR® WWV/TWV

WATER-COOLED SCREW CHILLERS







- MODEL WWV/TWV
- 150 TO 300 TONS
- R-134a & R-513A REFRIGERANT

CHART A CONFIDENT COURSE TOWARD HIGHER EFFICIENCIES



PERFORMANCE

-  Low-GWP R-513A Refrigerant
-  150-300 tons
-  7,000 MBH
-  140°F Continuous Loop Water Temperature¹

¹ Available with TWV configuration

LINKS:

 [Installation & Operation Manual](#)

 [Engineering Submittal Data](#)

In a world where no two buildings are identical and each day brings unique climate conditions, we've crafted an HVAC solution that embraces adaptability and efficiency. Utilizing the cutting-edge water-cooled screw technology, the Navigator is engineered as a fully Variable Frequency Drive (VFD)-driven platform, engineered to seamlessly adapt to any building's unique needs, day or hour.

Set your sights on unparalleled efficiency. Daikin's proprietary design ensures that the Navigator perfectly aligns with your building's HVAC requirements, effortlessly adapting to fluctuating climate conditions and usage patterns. Why settle for a chiller that operates at full capacity when your building demands less? The Navigator, a true master of adaptability, delivers precisely the cooling power you need, whenever you need it.

With an emphasis on sustainability, the Navigator water-cooled screw chiller goes beyond mere cooling efficiency. Its optional Templifier® heat pump water heater configuration harnesses the power of waste heat, transforming it into a valuable resource for hot water generation.

CERTIFICATIONS



90.1
Standard



*Certification Only Applies for WWV model

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Environmentally Friendly

As we become more aware of the environmental impact of their energy consumption and look for ways to reduce carbon footprint, the demand for electric HVAC systems has grown. With the ability for heating water, the Navigator's TWV Templifier® eliminates the need for fossil fuel-powered boilers, making it an attractive option for building owners and facility managers seeking to reduce carbonization. Coupled with performance levels that can be up to three times more energy-efficient than traditional electric resistance water heaters and gas-fired boilers, this translates into lower energy consumption, reduced operating costs and a smaller environmental footprint.



ASHRAE Standard 34 Safety Groups

Higher Flammability (3)	A3	B3
Flammable (2)	A2	B2
Lower Flammability (2L)	A2L	B2L
No Flame Propagation (1)	A1	B1
	Lower Toxicity (A)	Higher Toxicity (B)

Low GWP Refrigerant

WWV chillers are designed around R-513A, a next-generation refrigerant with an ultra-low GWP of 1 and an A1 safety group classification. This combination results in the lowest possible flammability and toxicity scores, making R513A a truly sustainable solution. This refrigerant translates into a substantial reduction in greenhouse gas emissions, actively contributing to the mitigation of climate change.

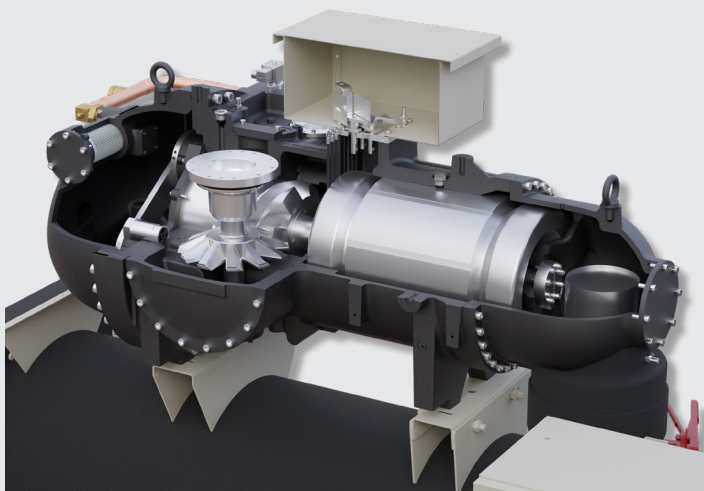
Building owners who are committed to sustainability often pursue Leadership in Energy and Environmental Design (LEED) Green Building Certification. Enhanced Refrigerant Management (formerly EA Credit 4) qualification is partially determined by tonnage and refrigerant quantity, and WWV chillers meet these requirements, making them eligible for LEED certification.

Sustainable Heat Pump Technology

In the evolving energy landscape shaped by electrification, heat pump technology takes center stage as a compelling solution for a cleaner and more sustainable future. The Navigator's optional TWV Templifier® configuration, operates with up to 140°F leaving condenser water, utilizing the advantages of heat pump technology.

This sustainable and efficient solution for hot water heating aligns with global electrification trends, reducing reliance on fossil fuels. By utilizing electricity as the primary energy source, heat pump technology eliminates direct fossil fuel consumption, contributing to decarbonization efforts. Operating at lower temperatures than conventional systems, heat pumps conserve energy and lower operational costs. Additionally, heat pumps seamlessly integrate with renewable energy sources, such as solar and wind power, further enhancing their benefits for environmental sustainability.





VVR COMPRESSION

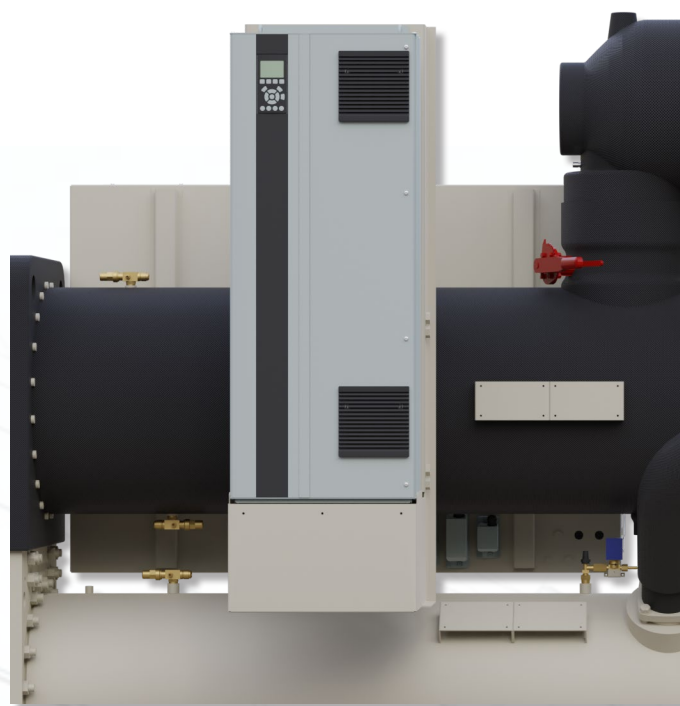
Leveraging the innovative technology found across Daikin's chiller portfolio, Navigator's performance is optimized for every condition and at every hour of the day with Variable Volume Ratio (VVR®) technology and patented high-efficiency oil separation. VVR compression technology senses the precise amount of lift needed and adjusts the compression ratio on the fly to deliver optimal efficiency, regardless of ambient temperature or time of day. This gives you the power of efficiencies that in many cases meet or exceed ASHRAE 90.1 – 2016 levels. While performance is matched in real-time as conditions vary, built-in and patented compressor mechanics reduce noise and vibration resulting in indoor-friendly sound levels at all load points.

Integrated Variable Frequency Drive

Navigator introduces a breakthrough in performance with a single VFD-driven compressor, ideal for applications unsuited to traditional centrifugals or magnetic bearing solutions. The innovative single rotor design ensures quiet operation across all load conditions, providing a versatile solution for diverse environments. The VFD dynamically adjusts compressor speed in direct response to varying loads and evaporator/condenser pressures.

ENERGY EFFICIENCY:

The VFD stands out for its ability to significantly reduce annual energy costs, particularly during prolonged part-load operations and low compressor lift scenarios. By maintaining a lower condenser water temperature, the VFD adapts seamlessly to diverse conditions, promoting sustainability and cost optimization. Moreover, the VFD elevates power factor, mitigating utility surcharges. This not only bolsters financial resilience but also fosters a more efficient utilization of electrical power, harmonizing with sustainability initiatives and minimizing environmental impact.



SMOOTH MOTOR STARTING:

The VFD's intelligent modulation capabilities result in a reduced inrush current during motor starting. This not only enhances the lifespan of the motor but also contributes to a more stable and reliable operation, minimizing stress on the electrical system.

EFFICIENT EMERGENCY POWER USAGE:

In mission-critical applications, the VFD plays a pivotal role in optimizing emergency power supply. By reducing the size requirements of backup generators, it ensures an efficient use of resources during unexpected outages, enhancing the resilience of essential cooling systems.



IDEAL FOR MISSION CRITICAL APPLICATIONS INCLUDING HOSPITALS OR DATA CENTERS

Maximum Uptime

A power loss could turn into a critical loss of cooling in mission critical facilities such as data centers, health care buildings, or manufacturing processes. A short-term power loss can occur during power interruptions, brown-outs or utility switching operations.

RAPIDRESTORE® AND FAST-LOADING

The Navigator chiller is available with a RapidRestore® option that allows it to start **as fast as 35 seconds** after power is restored. Once power has been restored and the chiller is back online, the next critical step is reaching 100% cooling capacity as fast as possible. That's when the Fast-Loading ability of a Navigator chiller with RapidRestore proves its worth. With Fast-Loading, the Navigator chiller can reach 100% cooling capacity in **less than 160 seconds**. Comparable water-cooled chillers need up to 10 minutes.

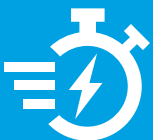
RapidRestore® Times - After Power Restoration

	Compressor Start ³	Fast-Loading to 100% Load
Navigator	35 sec ^{2,4}	160 sec

² Restart time with UPS (without UPS = 60 sec)
³ Time after power is restored
⁴ Dependent on power loss duration

RAPIDRESTORE®

ABILITY TO RESTART QUICKLY AFTER A POWER LOSS EVENT



**35 SECOND
CHILLER REBOOT**

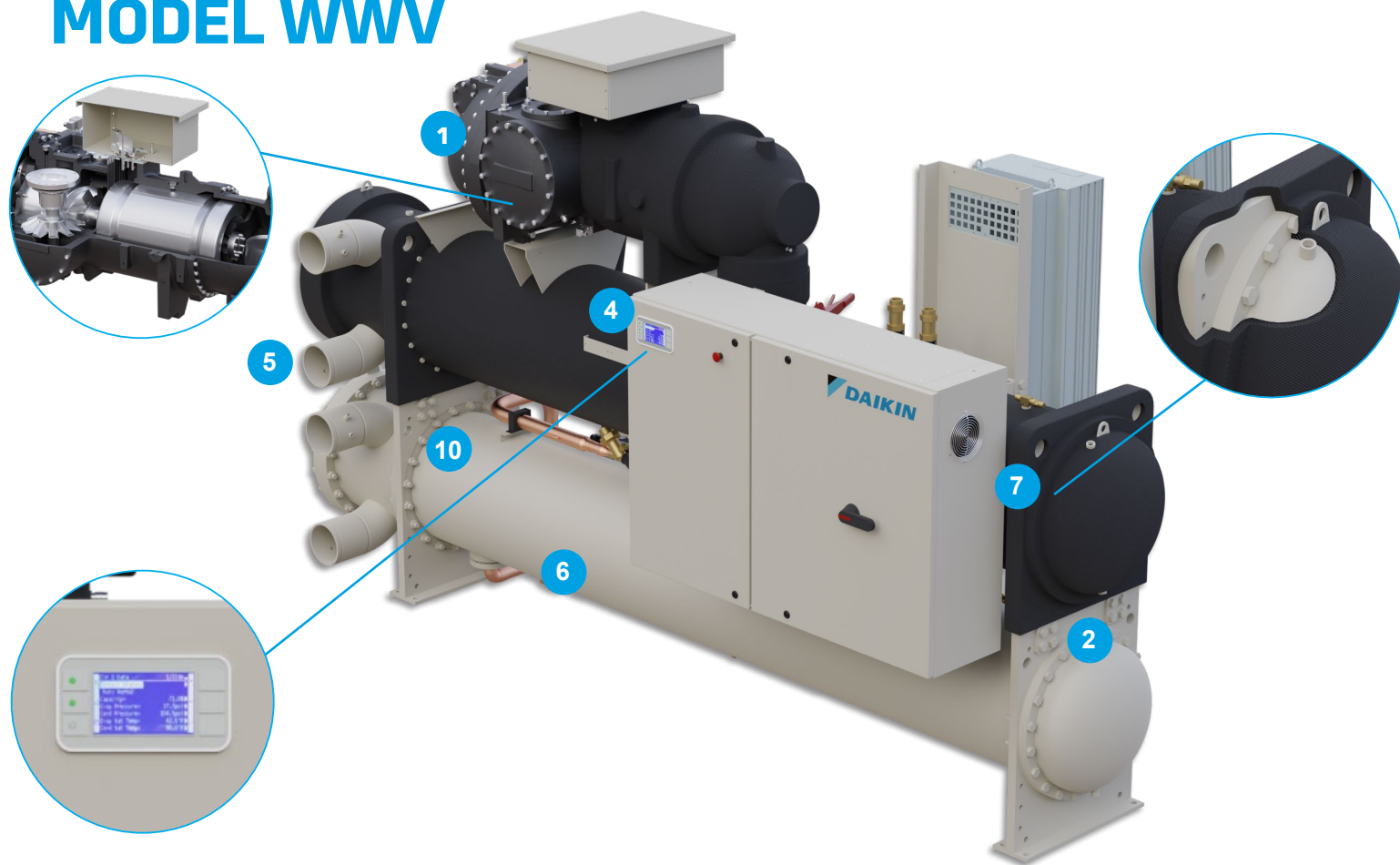
FAST-LOADING

ABILITY TO REACH FULL LOAD OPERATION AFTER A POWER LOSS EVENT



**160 SECOND
RESTORE TO FULL LOAD
COOLING CAPACITY**

MODEL WWV



1 VARIABLE VOLUME RATIO (VVR) COMPRESSOR

- Senses the precise amount of lift needed and adjusts the compression ratio to deliver optimal efficiency
- Built-in compressor mechanics reduce noise/vibration for indoor-friendly sound levels at all load points

2 DISHED WATERBOXES OR MARINE WATER BOX HEAD

- Dished waterboxes provide enhanced resistance to pressure fluctuations and vibration, and enable a higher refrigerant charge to boost capacity and efficiency
- Optional marine water box heads designed with corrosion resistance, vibration damping, shock mitigation for marine and offshore applications

3 RAPIDRESTORE®

- Restarts in as little as 35 seconds after power is restored & can recover full-load cooling capacity in just under 160 seconds

4 CONTROLS/AUTOMATION

- MicroTech® controllers monitor operating status, provides fault protections and intuitive setpoint adjustments
- BACnet®, Modbus®, or LonWorks® data communication options provide easy, affordable integration into a building automation system (BAS)

5 GROOVED OR FLANGED NOZZLE CONNECTIONS

- Flanged Nozzles ensure easy integration into buildings via quick, universal fittings
- Flanged water connection offers increased durability, increased leak-proof reliability and enhanced compatibility with existing plumbing systems or future modifications

6 PROTECTIVE COATINGS

- Various tube thicknesses and material types extend the life of the equipment
- Optional tube sheet or water box coating materials and alloy anodes are anti-corrosive

7 INSULATION

- Optional single or double thickness mitigates condensation in high-humidity environments to improve efficiency

8 SOUND ATTENUATION

- Low noise construction as standard
- Factory installed discharge line wrap and compressor sound box options also available.

9 R-513A REFRIGERANT:

- Environmentally-friendly refrigerant with a low GWP of 1 and Group A1 safety classification.

10 2 PASS EVAPORATOR

- Evaporator configurations to meet specific application requirements



MODEL TWV TEMPLIFIER® HEAT PUMP WATER HEATER

Adaptable Cooling and Sustainable Heat Recovery

In today's dynamic world, buildings across various industries face unique HVAC challenges stemming from shifting climate conditions, varying occupancy patterns and specialized requirements. WWV's dynamic cooling system seamlessly adapts to these fluctuating demands, ensuring optimal temperatures, humidity levels, and quiet operation across diverse vertical markets. With Navigator's TWV Templifier® configuration, it harnesses the power of waste heat, transforming it into useful energy for a variety of heating applications.



1 HOT WATER TEMPERATURE CONTROL

- 140°F maximum leaving condenser water temperature
- Constant condenser leaving water temperature during full and part load operation

2 LOW-NOISE SCREW COMPRESSOR:

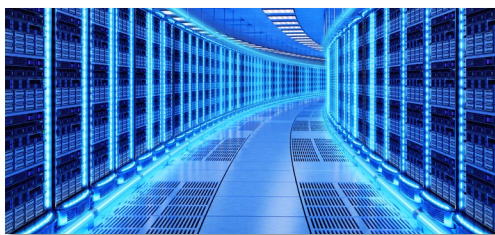
- Features a sound-absorbing inlet and discharge silencer, along with a vibration isolation system, for minimal noise operation.

3 INSULATED CONDENSER

- Allows the unit to maintain a higher temperature within the condenser, allowing more effective heat extraction

4 FLANGED WATER CONNECTIONS

- Durable connection offers increased leak-proof reliability and an adaptable connection compatible with existing plumbing systems or potential future modifications



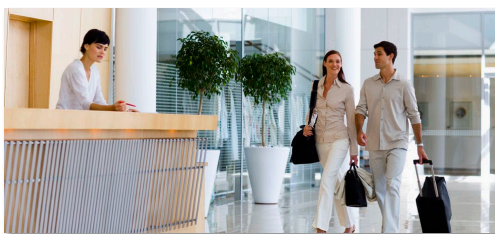
DATA CENTERS

When uptime is of the utmost importance, Navigator's RapidRestore technology drastically reduces restart times after power losses, bringing the unit back online in as little as 35 seconds. Coupled with its Fast-Loading option, the chiller can recover full-load cooling capacity in just under 160 seconds, ensuring servers stay comfortable and operational – vital for preventing costly downtime and maintaining data integrity.



HEALTHCARE

Elevate patient health outcomes through cutting-edge technology tailored for healthcare facilities. Navigator goes beyond expectations with features like RapidRestore, ensuring seamless operations for critical missions. With options for low-noise operation, Navigator adds an extra layer of comfort, creating healing environments that prioritize patient well-being and contribute to superior outcomes toward recovery.



HOSPITALITY

Enhance your efficiency with TWV's cutting-edge heat pump technology. By adeptly harnessing heat and elevating leaving water temperature from a water loop, such as a cooling loop or geothermal loop, TWV can significantly reduce energy consumption for municipal water heating. Coupled with its low-noise operation, TWV ensures tranquil indoor spaces, enhancing the overall guest experience.



MANUFACTURING

With industrial processes that often generate a significant amount of waste heat, the TWV's heat pump technology offers a sustainable and efficient way to capture and utilize energy for process heating applications.

WATER-COOLED CHILLER SOLUTIONS



NAME/MODEL:

NAVIGATOR®

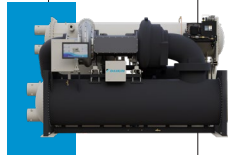
WWV
Screw compressor



150-300 tons

MAGNITUDE®

WMT
Magnetic bearing compressor



350-600 tons

MAGNITUDE®

WMC,/WME
Magnetic bearing compressor

86-1,600 tons



CENTRIFUGAL

WSC
Single compressor

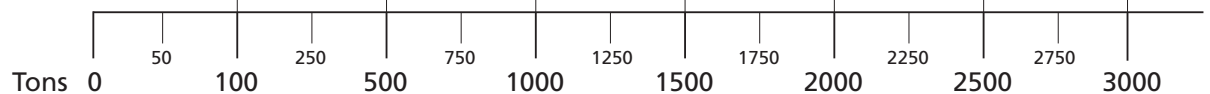
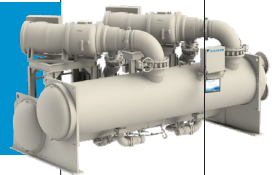
350-1,200 tons



CENTRIFUGAL

WDC/WCC
Dual compressor

1,700-2,500 tons



LEARN MORE AT

DAIKINAPPLIED.COM/PRODUCTS/CHILLER-PRODUCTS

MAINTAIN AND REPAIR

PROTECTIVE MAINTENANCE SERVICES



[LEARN MORE](#)



REPAIR SERVICES

Breakdowns happen and when your equipment has an issue, time is of the essence. Call us at 800-432-1342 to get Daikin Service professionals dispatched quickly and minimize downtime. Your local team is backed by nearly 100 years of experience to alleviate undue stress in your operations.

- **24/7 Emergency Service**
- **System Repairs & Assessments**
(Ancillary Equipment: Boilers, Cooling Towers)
- **Equipment Diagnostics**
- **Technical Troubleshooting**
- **Building Automation & Controls**
- **OEM & Generic Parts/Supply**
- **All Equipment Types & Brands**

PLANNED MAINTENANCE SERVICES

Daikin Applied's service technicians can perform all of the vital maintenance your system needs to ensure your equipment is running at peak efficiency. From proper cleaning to software upgrades and necessary maintenance, our techs will maximize your system to help extend the life of your equipment.

- **Regularly Scheduled Maintenance**
- **Seasonal Startup & Shutdown**
- **System Diagnostics**
- **Condenser Cleaning**
- **Air Filters**
- **On-site System Inspections**

PREDICTIVE SERVICES

Predictive maintenance services anticipate failures before they happen to mitigate the risk of catastrophic failure. For those who have in-house maintenance capabilities, Daikin Service can also guide your team and be on standby for more complex technical needs with predictive maintenance.

- **Oil & Refrigerant Analysis**
- **Vibration Analysis**
- **System Diagnostics**
- **Eddy Current Testing**
- **Infrared Analysis**
- **Combustion Analysis**
- **IAQ Assessments**
- **Laser Alignments**
- **Bearing Analysis**

PROACTIVE SERVICES

With proactive maintenance services, we support you with proven experts, offerings and processes to ensure customers get the help they need from a trusted advisor.

- **Building Operations Review**
- **Contingency Planning**



PARTS & SUPPLIES

OEM AND GENERIC AFTERMARKET SOLUTIONS

[LEARN MORE](#)



LOCAL PARTS INVENTORY. LOCAL EXPERTISE.

When you need OEM or generic parts to repair your HVAC system, you need them quickly. Daikin Service has an expansive inventory and a centralized distribution center to get the right parts to you faster than ever before. To mitigate downtime, we have 80 locations (and counting) across North America to help you take care of your critical parts demand.



- ONE-STOP SHOP FOR ALL OEM & GENERIC PARTS
- NATIONAL LOCATION/DISTRIBUTION NETWORK
- CENTRALIZED DISTRIBUTION
- FACTORY-AUTHORIZED REPLACEMENT PARTS
- SAME-DAY SHIPPING ON MOST ORDERS
- EXPERT SUPPORT
- RELIABLE PERFORMANCE
- WALK-IN STORE LOCATIONS
- EXTENDED COMPONENT WARRANTIES (VFDS, COMPRESSORS, MOTORS)

RENTAL SOLUTIONS

KEEPING YOU UP AND RUNNING



[LEARN MORE](#)



CHILLERS | AIR CONDITIONERS | DEHUMIDIFIERS | HEATING | POWER

EMERGENCY RENTALS

When your equipment fails, limiting downtime is mission critical. Daikin Applied provides quick delivery and installation of reliable rental products to help you weather the outage. We're here to help get you back up and running, and can provide a turnkey solution.

- **Industry-leading efficiency and proven technology**
- **24-hour turnaround on available inventory**
- **8-hour average set up with on-site experts**
- **Comprehensive package, including pumps, flexible water piping connection and electrical hookups**

EQUIPMENT FOR PLANNED SITUATIONS

Forming a contingency plan in the event of an outage can help you quickly get operations back to normal and limit financial loss, and help you breathe easier when the unexpected happens. Selecting the right-sized equipment is just one part of the process. The best contingency plans start by assessing and understanding your financial risk, and then using this information to drive the rest of your plan. Our Rental Solutions experts can specify the supplemental cooling system required to support any situation you're experiencing.

- **System maintenance**
- **Building expansion**
- **Server room heat generation**
- **Seasonal/staff heat load swings**
- **Contingency plans**

SUPPLEMENTAL CAPACITY

When the demand of your facility or process exceeds your current system's capacity because of record-high temperatures or changes to cooling requirements, Daikin temporary rentals can be used to increase your heating or cooling output. By eliminating the need to purchase additional equipment that might be only used part of the year, you save on capital expenditures.

STANDBY

Standby for critical applications and processes is another efficient use for temporary rental equipment. A temporary system is sometimes used to back up manufacturing and chemical processes, or when a hospital's required system redundancy has been reduced.

COMPLETE HVAC SYSTEM SOLUTIONS

SELF-CONTAINED | ROOFTOPS | COILS | CONDENSING UNITS
AIR HANDLERS | WATER-COOLED CHILLERS | AIR-COOLED CHILLERS
MODULAR CENTRAL PLANTS | SITELINE BUILDING CONTROLS
UNIT HEATERS | FAN COILS | AIR PURIFIERS | WATER SOURCE HEAT PUMPS
VARIABLE AIR VOLUME UNITS | UNIT VENTILATORS



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LEARN MORE AT
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