

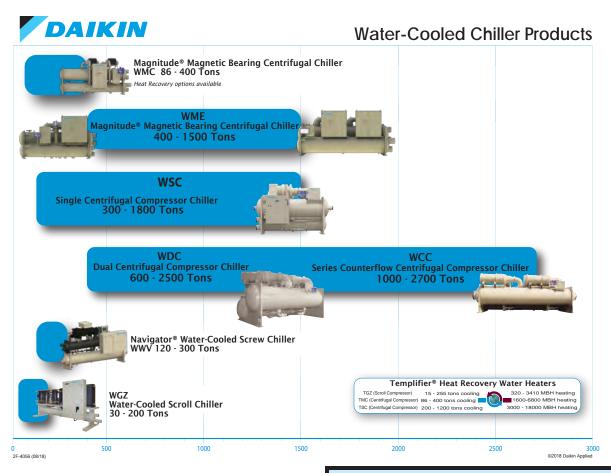
Catalog 605-7

# **Centrifugal Compressor Water Chillers**

Models WDC, WCC 600 to 2700 Tons (880 to 9500 kW) HFC-134a Refrigerant 60/50 Hz







## Model WDC

- Capacity: 600-2500 tons (AHRI conditions)
- Outstanding part load performance
- Redundancy for increased reliability
- Some sizes available with 10/11kV50Hz power option

### Model WCC

- · Capacity: 1000-2700 tons (AHRI conditions)
- Two refrigerant circuits for true counterflow. Built-in redundancy with dual compressors and dual circuits
- Outstanding full load performance
- Some sizes available with 10/11kV50Hz power option
- Available single water pass arrangement to reduce pump energy costs

Centrifugal Products included in separate manuals: Magnitude<sup>®</sup> Magnetic Bearing Compressor Chillers Magnitude<sup>®</sup> Model WMC

- · Capacity: 86-400 tons
- Oil-free, frictionless compressor
- Excellent part-load performance
- See CAT 628 for more information

#### Magnitude® Model WME

- Capacity: 400-1500 tons
- · Oil-free, frictionless compressor
- Outstanding efficiency
- See CAT 629 and CAT 632 for more information

#### Templifier™ Model TSC Water Heater

- · Recovers waste heat from process applications
- 5,000 19,000 MBH
- Hot water 140°F; COP as high as 7
- See CAT 614 for more information

#### Model WSC Sinle Compressor Centrifugal

- Capacity: 300-1800 tons (AHRI conditions)
- High part load efficiency with optional unit mounted VFD's
- Excellent full load performance

## World-Class Design Leader

As part of Daikin Industries, a Fortune Global 500 company, Daikin is the world's largest air conditioning, heating, ventilating and refrigeration company. We have earned a worldwide reputation for providing a full line of quality products and expertise to meet the demands of our customers. The engineered flexibility of our products allows you to fine tune your HVAC system to meet the specific requirements of your application. You benefit from lower installed and operating costs, high energy efficiency, quiet operation, superior indoor air quality (IAQ) and low cost maintenance and service.

## Design Features Excellent Performance

Daikin offers a wide range of centrifugal vessel and component combinations to provide the right solution for your specific application. Our dual compressor WDC chillers offer many benefits, including outstanding part-load efficiency, and system redundancy similar to two separate chillers, with a lower total installed cost. WCC models also offer the dual compressor advantage but with counterflow vessels, and a separate refrigerant circuit for each compressor. In addition, the WCC excels in full load efficiency. Contact your Daikin representative for detailed information to decide which model is right for your job requirements.

Figure 1: Centrifugal Models & Possible Applications

Application	Daikin Model
Cooling <1800 tons, most hours at full load	WSC
Cooling >1250 tons, most hours at full load	WCC
Cooling, most hours at part load	WDC
Heating Application	TSC
Simultaneous Cooling and Heating	HSC
Optimized Part Load Performance	Optional VFD

## Gear Driven Advantage

Daikin's precision-engineered gear driven design allows for lighter components, less vibration, and ability to select gear ratios that will provide the optimum impeller speed for your application. Older direct-drive designs must use large, heavy impellers to reach similar tip speeds, which cause more vibration and greater stress on shaft and motor during unexpected electrical interruptions.

The compact design and lighter weight components allow for efficient hydrodynamic bearings to be used. This means that during operation, the shaft is supported on a film of lubricant, with no shaft-to-bearing contact, providing theoretical infinte life bearings under normal circumstances. The design simplicity of the Daikin centrifugal compressors provides increased durability and reliable performance.

## Smart Refrigerant

HFC-134a refrigerant contains no chlorine and has zero Ozone Depletion Potential (ODP), making it an environmentally superior alternative to other refrigerants such as HCFC-123. It also has an A1 ASHRAE Safety Classification - the lowest toxicity and flammability rating. R-134a provides the assurance of a safe, smart, and sustainable solution.

R-123 requires about six times the gas flow rate (cfm/ton) of R-134a, which means that the suction and discharge piping must also be six times larger. Using R-134a allows Daikin to provide you with a smaller footprint chiller.

	HFC-134a	HCFC-R-123 / R-514a
ENVIRONMENTAL	No Ozone Depletion Potential	Ozone-depleting substance (R-123 only)
	No Refrigerant Phase Out Date	Montreal Protocol requires phase out in new equipment by the end of 2019; production cease by 2030 (R-123 only)
	HFC refrigerants qualify for 1 LEED point	HCFC refrigerants do not
INSTALLATION AND MAINTENANCE	Physically smaller, requiring less mechanical room space.	Requires larger refrigerant flow rate, with subsequent increase in compressor and chiller size.
	No oil change is required	Annual oil change is recommeded
SAFETY	A1 ASHRAE Safety Classification -lowest toxicity/flammability rating	B1 ASHRAE Safety Classification- higher toxicity level

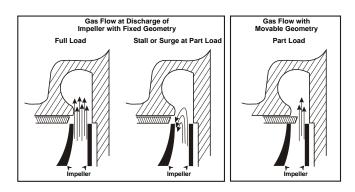
See www.DaikinApplied.com /Daikin/DesignSolutions/ RefrigerantResourceCenter for references and more information

## **Unmatched Unloading**

Daikin pioneered the use of moveable discharge geometry to lower the surge point of centrifugal compressors. The point at which the compressor enters a stall or surge condition generally limits compressor unloading. Chillers with a fixed discharge will experience stall or surge at low loads due to refrigerant re-entering the impeller. When in a stall condition, the refrigerant gas is unable to enter the volute due to its low velocity and remains stalled in the impeller. In a surge condition the gas rapidly reverses direction in the impeller causing excessive vibration and heat. Daikin compressors reduce the discharge area as load decreases to maintain gas velocity and greatly reduce the tendency to stall or surge.



#### Figure 2: Fixed vs. Moveable Discharge Geometry



In Figure 2, the drawing on the left shows a cross-section view of the operation at full load of a unit with a fixed compressor discharge. At full load, a large quantity of gas is discharged with a fairly uniform discharge velocity as indicated by the arrows.

The center drawing shows a fixed compressor discharge at reduced capacity. Note that the velocity is not uniform and the refrigerant tends to reenter the impeller. This is caused by low velocity in the discharge area and the high pressure in the condenser, resulting in unstable surge operation and with noise and vibration generated.

Figure 3 shows the unique Daikin movable discharge geometry. As the capacity reduces, the movable unloader piston travels inward, reducing the discharge cross section area and maintaining the refrigerant velocity. This mechanism allows our excellent unloading capacity reduction.

# Figure 3: Moveable diffuser closes impeller discharge area as load decreases

### **Trouble-Free Startup**

All Daikin chillers are factory tested on AHRI qualified computer-controlled test stands. Operating controls are checked and adjusted, and the refrigerant charge is adjusted for optimum operation and recorded on the unit nameplate. Units operating with 50-Hz power are tested with a 50-Hz power supply. The testing helps ensure correct operation prior to shipment, and allows factory calibration of chiller operating controls.

All domestic Daikin centrifugal chillers are commissioned by your service representative for Daikin Applied, or by authorized and experienced Daikin Applied startup technicians. This procedure helps ensure that proper starting and checkout procedures are employed and helps in a speedy commissioning process, giving you confidence that your chiller is operating as expected.

### **Lubrication System**

A separately driven electric oil pump assembly supplies lubrication at controlled temperature and pressure to all bearing surfaces and is the source of hydraulic pressure for the capacity control system.

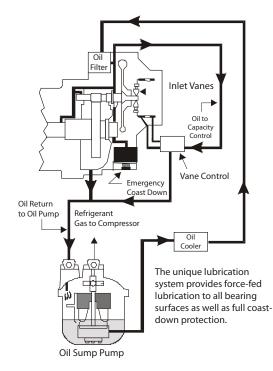
The control system will not allow the compressor to start until oil pressure, at the proper temperature, is established. It also allows the oil pump to operate after compressor shutdown to provide lubrication during coast-down.Lubricant from the pump is supplied to the compressor through a water-cooled, brazedplate heat exchanger and single or dual five-micron oil filters internal to the compressor. All bearing surfaces are pressure lubricated. Drive gears operate in a controlled lubricant mist atmosphere that efficiently cools and lubricates them.

Lubricant is made available under pressure from the compressor oil filter to the unit capacity control system and is used to position the inlet guide vanes in response to changes in leaving chiller water temperature.

If a power failure occurs, an emergency oil reservoir provides adequate lubrication flow under pressure, and prevents damage that could occur during the coast-down period with the oil pump stopped.

Since Daikin chillers are positive pressure, there is no need to change the lubricant or filter on a regular basis. As with any equipment of this type, an annual oil check is recommended to evaluate the lubricant condition.

#### Figure 4: Lubrication System Schematic





## **Enhanced Surge Protection**

When centrifugal compressors operate at part load, the volume of refrigerant gas entering the impeller is reduced. At the reduced flow, the impeller's capacity to develop the peak load head is also reduced. At conditions of low refrigerant flow and high compressor head (pressure difference), stall and/or surge can occur (a stall is gas static in the impeller, a surge condition is gas rapidly reversing direction through the impeller). A number of things can contribute to this condition including inadequate maintenance of condenser tube cleanliness, a cooling tower or control malfunction, or unusual ambient temperatures among others.

For these abnormal conditions, Daikin compressor designers have developed a protective control system that senses the potential for a surge, looks at the entire chiller system operation and takes corrective action if possible; or stops the compressor, to help prevent any damage from occurring. This protection is provided as standard on all Daikin centrifugal compressors.

# Benefits of Dual Compressor Chillers

## **Superior Efficiency**

In most applications, chillers spend about 99% of their operating hours at part-load conditions. When coupled with a variable frequency drive, the extremely efficient Dual Compressor Chillers are considerably more efficient than single compressor chillers in the same size range, with IPLVs (Integrated Part Load Value) as low as 0.3 kW per ton. IPLV conditions are set by AHRI and subject to stringent testing. Insist on AHRI-certified IPLV efficiency when making efficiency comparisons.

## The Redundancy Feature

Daikin dual centrifugal chillers have two of everything connected to the evaporator and condenser - two compressors, two lubrication systems, two control systems, and two starters.

If any component on a compressor system fails, the component can be removed or repaired without shutting down the other compressor; providing an automatic back-up with at least 60 percent of the chiller design capacity available on WDC units and 50 percent on WCC units.

Redundancy is also built into the distributed control system, which consists of a unit controller, a compressor controller for each compressor and an operator interface touch screen. The chiller will operate normally without the touch screen being functional. If a compressor controller is unavailable, the other compressor will operate normally and handle as much of the load as possible.

## **Lower Installed Costs**

The redundancy feature pays off in lower installed costs. Below is an example of how to incorporate dual compressor chillers into a system requiring redundancy:

Job requirement 1,200 tons (4200 kW), 50% Backup

#### WDC Dual Compressor Chillers

(2) 750 ton (2100 kW ) Units with

1,200 (4200 kW) On Line tons \*

1,500 ton (5250 kW ) Installed Capacity

\* One 750-ton (2100 kW) dual chiller running on two compressors for 750 tons (2100 kW), plus one 750-ton (2100 kW) dual chiller running on one compressor for 60% of 750 tons (2100 kW) = 450 tons (1575 kW), for a total of 1200 tons (4200 kW) on any 3 of the 4 total compressors.

The elimination of the extra pumps, valves, piping, controls, rigging, and floor space can result in as much as a 35% reduction in the installation cost for a chiller plant, plus the savings on the chillers themselves.

## **Lower Inrush Current**

With dual compressor chillers, there are two smaller motors (as compared to a single compressor chiller with one larger motor) which produce the same cooling capacity. The microprocessor control logic is built in such a way that when the second compressor is to be started, the first compressor is unloaded further and the second compressor startup is initiated. This starting method reduces the total inrush current of the dual compressor chillers. Additionally, if an emergency power backup generator is utilized, this method can reduce the size of the generator.

### Lower Run Hours

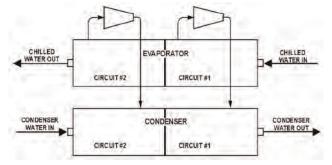
For chillers operating at 60% and below load for WDC's, & 50% load for WCC's, Daikin has programed the unit controls to allow only one compressor to run, which results in lower run hours. Lower run hours inherently reduce wear and tear of the compressor and increase its overall life as compared to a single compressor chiller.

## **Dual and Single Circuit Chillers**

Daikin is the expert when it comes to dual centrifugal compressor technology, successfully building dual compressor centrifugal chillers since 1971. Daikin is the only company that builds them with either a single refrigerant circuit (Model WDC) or two refrigerant circuits (Model WCC) in size ranges below 1500 tons.

There are subtle but important differences between the single circuit WDC and two circuit WCC chillers.

#### Figure 5: Dual Circuit WCC Counterflow Chillers



These chillers have a separate refrigerant circuit for each compressor. They are available in single pass only. By reducing the lift on each compressor, they provide the high full load efficiency advantage of two separate chillers arranged for counterflow operation in a single, compact unit.

#### Single Circuit WDC Chillers

These chillers have a single-refrigerant circuit for the evaporator and condenser with two compressors running in parallel and are available in one, two or three-pass configurations. Their salient feature is that at singlecompressor, part load operation, the running compressor can utilize the entire chiller's heat transfer surface, providing outstanding part load performance.

## **Application of Water-Cooled Chillers**

#### Use WCC chillers when:

- Project requirement is lowest kW per ton performance at full load with high electrical demand charges.
- Project has a large central plant where cycling chillers for system capacity reduction is expected (three or more chillers).
- High chilled water delta-T and low water pressure drops are desired.
- Built-in redundancy is required. A single compressor will provide 50% of the unit's full load capacity.
- High efficiency and large capacity is required with series flow. Use two WCC units in series-counterflow with each other in the 3,000 to 4,000 ton range.

#### Use WDC chillers when:

- Project requirement is overall lowest energy consumption with best part load performance.
- Project has smaller chilled water plant where unit unloading is expected versus cycling of chillers associated with large multi-chiller plants.
- Floor space is limited (16-foot vessel length compared to 20-foot for WCC).
- Two or three pass vessels are required, typical of retrofit applications.
- Built-in redundancy is required. A single compressor will provide 60% of the unit's full load capacity.

# Use a combination of WDC and WCC chillers when:

• Peak overall system efficiency is important; for example, use three WCC and one WDC chiller, all in parallel. The WCC units are optimized for running at full load and the WDC is optimized for part load operation. The WCC units cycle on and off and the WDC unit (consider variable frequency drives on this unit) trims the load, running between five and one hundred percent capacity.

### Compressor Motor Failure Will Not Contaminate the Common Refrigerant Circuit

A motor burnout on a single-circuit dual compressor chiller is not a problem on the Daikin WDC chillers, because of compressor construction and chiller layout.

The compressor motor is isolated from the main refrigerant flow circuit so that any contaminants generated by a motor failure will not pass into the main refrigerant circuit. Moisture, acid and/or carbon particles will be automatically trapped within the compressor's dedicated coolant feed and exit lines.

Internally, the compressor motor compartment is separated and sealed from the main refrigerant compression chamber. A double shaft seal on the motor side of the gear housing prevents cross flow of refrigerant along the motor shaft. The motor coolant feed line is equipped with both a solenoid valve and a check valve. These mechanical components, plus the higher pressure of the liquid refrigerant, prevent back feed into the main refrigerant system. Refrigerant vapor exiting the motor compartment must pass through a high pressure drop filter-drier, sized to immediately plug up and seal off the motor compartment. Both the coolant feed and return lines are equipped with manual shutoff valves to permit component service.

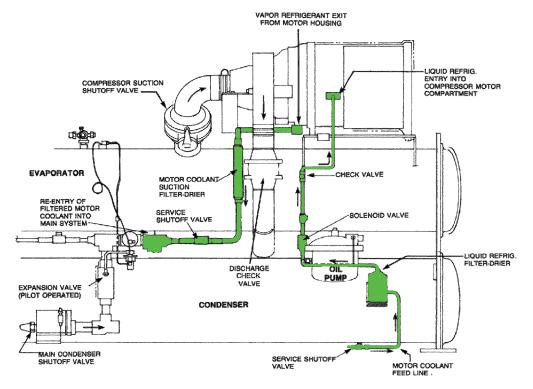
Over 30 years of field experience have proven the reliability of these compressor motors. Despite the reliability inherent in the motor design and the protective control, electrical distribution system faults and lightning strikes can occur that are beyond the control of the most conscientious designer. The coolant protective system protects the unit charge from being contaminated.

Special WDC Warranty: In the unlikely event of a motor burnout, the chiller refrigerant charge will not be contaminated. This is so well proven that it is guaranteed for five years. In areas supported by your service representative for Daikin Applied, if a motor burnout occurs in one compressor and contaminates the refrigerant circuit, any resultant damage to the other compressor will be repaired and the refrigerant charge replaced at no cost to the customer for parts and labor. The terms of the original chiller warranty apply to the original burned out compressor.

See Figure 6 on page 8 for a diagram of the WDC motor cooling.



#### Figure 6: WDC Motor Cooling



## Efficiency

Chillers usually spend 99% of their operating hours under part load conditions, and most of this time at less than 60% of design capacity. One compressor of a dual WDC chiller operates with the full heat transfer surface of the entire unit. For example, one 500-ton (1,750 kW) compressor on a 1,000 ton (3,500 kW) dual chiller utilizes 1,000 tons (3500 kW) of evaporator and condenser surface. This increases the compressor's capacity and also results in very high efficiency. Typical efficiencies for a WDC dual chiller, taken from a selection computer run, look like this:

Full load efficiency: 0.550 kW per ton (6.5 COP)

60% load, one compressor: 0.364 kW per ton (9.6 COP)

IPLV: 0.415 kW per ton (8.5 COP)

The addition of VFDs to the WDC dual compressor chiller produces an astonishing AHRI certified IPLV of 0.340 for the above case. Specific selections can vary up or down from this example. IPLV is defined in the Selection section of this manual beginning on page 24.

WCC chillers, with their counterflow design, excel at full load efficiency. Each of the two compressors operates at a lower head (pressure differential) than single compressor chillers in parallel. With any pump or compressor, lower head means lower power for a given flow. As shown on page 21, the #2 (downstream compressor) makes 42 F water but has only 89 F condenser water leaving instead of 95 F typical of a single compressor unit. The #1 compressor has 95 F condenser water leaving, but only has to make 47.6 F chilled water.

## The Replacement Market Advantage

- Retrofit flexibility allows an easy retrofit with flexible knock-down options. See page 14 for details.
- Bolt-together construction on single and dual compressor chillers along with factory disassembly available as an option simply the tough entrance situations.
- · Put 20% or more tons in the same footprint.
- · Add dual compressor redundancy
- Greatly reduce chiller energy consumption.
- Opens many options for multiple chiller plants using WDC and WCC combinations.



#### Figure 7: WDC Layout

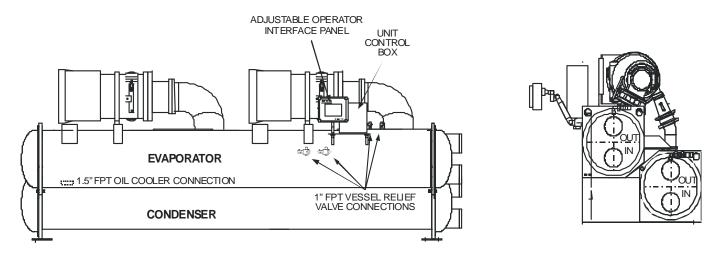
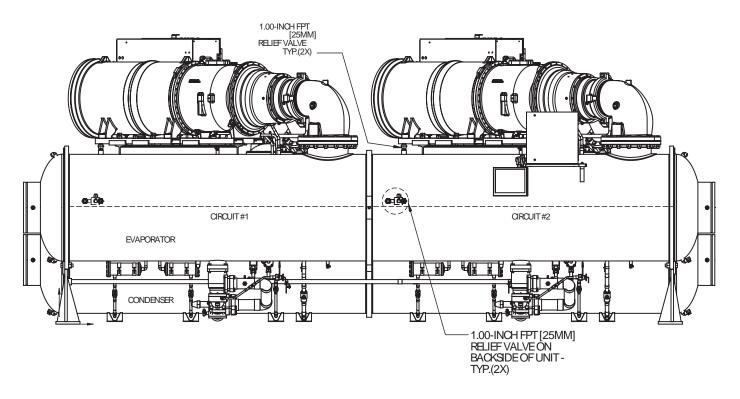


Figure 8: WCC Layout



NOTE: Contact the Daikin Applied sales office for full dimensional information



## Vessels

#### Marine water boxes

Provides tube access for inspection, cleaning, and removal without dismantling water piping.

#### Flanges (Victaulic connections are standard)

ANSI raised face flanges on either the evaporator or condenser. Mating flanges are by others.

#### 0.028 or 0.035 in. tube wall thickness

For applications with aggressive water conditions requiring thicker tube walls.

#### Cupro-nickel or titanium tube material

For use with corrosive water conditions, includes clad tube sheets and coated water heads.

# *Water-side vessel construction of 300 psi (150 psi is standard)*

For high-pressure water systems, typically high-rise building construction.

#### Water differential pressure switches

This option provides evaporator and condenser water thermal dispersion flow sensors as a factory mounted and wired option. A proof-of-flow device is mandatory in both the chilled water and condenser water systems.

#### Single insulation

<sup>3</sup>/<sub>4</sub>-inch, on evaporator, suction piping, and motor barrel; For normal machine room applications.

#### Double insulation

1-1/2 inch, on evaporator, suction piping, and motor barrel; For high humidity locations and ice making applications.

## Electrical

#### Optional starters for factory or field mounting

See details in"Motor Starters" on page 15.

#### Variable frequency drives (VFD)

The variable frequency drive option is a technology used to control motor speed on a wide variety of motor-drive applications. When applied to centrifugal compressor motors, significant gains in compressor part load performance can be realized. The improvement in efficiency and reduction of annual energy cost is maximized when there are long periods of part load operation, combined with low compressor lift (lower condenser water temperatures). When atmospheric conditions permit, Daikin chillers equipped with VFDs can operate with entering condenser as low as 50°F (10° C), which results in extremely low kW/ton values. Starting Inrush: The use of a VFD on centrifugal chillers also provides an excellent method of reducing motor starting inrush, even better than solid-state starters. Starting current can be closely controlled since both the frequency and voltage are regulated. This can be an important benefit to a building's electrical distribution system.

#### NEMA 4 watertight enclosure

For use where there is a possibility of water intrusion into the control panel.

#### NEMA 12 Dust tight enclosure

For use in dusty areas.

## Controls

#### English or Metric Display

Either English or metric units for operator ease of use.

#### **BAS Interface Module**

Factory-installed on the unit controller (can also be retrofitted for integration to BAS using LonTalk<sup>®</sup>, BACnet<sup>®</sup> or Modbus<sup>®</sup> protocal

## Unit

#### Export packaging

Can be either slat or full crate for additional protection during shipment. Units normally shipped in containers.

# Pumpout Unit, Model RRU with or without storage vessel

Available in a variety of sizes. Details under the Pumpout section on page 54.

#### **Refrigerant monitor**

For remote mounting, including accessories such as 4-20ma signal, strobe light, audible horn, air pick-up filter.

#### Hot gas bypass

Reduces compressor cycling and its attendant chilled water temperature swings at very low loads.

#### Sound attenuation package

For extremely sensitive projects, an optional discharge line sound package is offered consisting of sound insulationinstalled on the unit's discharge line. An additional 2 to 4 dbA reduction normally occurs.



#### **Extended warranties**

Extended 1, 2, 3, or 4-year warranties for parts only or for parts and labor are available for the entire unit, refrigerant or compressor/ motor only.

#### **Optional Certified Test**

A Daikin engineer oversees the testing, certifies the accuracy of the computerized results, and then translates the test data onto an easy-to-read spreadsheet. The tests can be run at AHRI load points and are run to AHRI tolerance of capacity and power. 50 Hz units are run tested at 60 Hz to their maximum motor power. A test result booklet will be provided.

#### **Optional Witness Test**

A Daikin engineer oversees the testing in the presence of the customer or their designate and translates the test data onto an easy-to-read spreadsheet. The tests can be run at AHRI load points and are run to AHRI tolerance of capacity and power. Allow two to three hours of test time per load point specified. Units built for 50 Hz power can be run-tested using an onsite 50 Hz generator. A test result booklet will be provided.

#### **Special Order Options**

The following special order options are available; requiring factory pricing, additional engineering and possible dimension changes or extended delivery: Consult the Daikin sales office for other possible specials.

• Non-standard location of nozzle connections on heads (compact water boxes) or marine water boxes

• Special corrosion inhibiting coatings on any "wetted surface" including tubesheets, heads (compact water boxes), marine water boxes, or nozzles

Clad tube sheets

• Sacrificial anodes in heads (compact water boxes) or marine water boxes

- Eddy current testing and report used to verify baseline tube condition
- Special NEMA enclosures

• Hinges for marine water box covers or heads (compact water boxes)

• Accelerometer and vibration monitoring pickup mounting (WDC/WCC/HSC)

• Spacer rings on heads to accommodate automatic tube brush cleaning systems (installed by others)

#### Refrigerant Recovery Units/Monitors

Although Daikin chillers can pump the entire refrigerant charge into the condenser and valve it off, there are occasions when pumpout units are required, due purely to specification requirements or unusual job considerations. Daikin offers two sizes of refrigerant recovery units (Model RRU) and one recovery unit that is factory mounted on a storage vessel (Model PRU). Recovery units are ETL listed. The storage tank is designed, constructed and stamped in accordance with ASME standards.



## **On-site Disassembly**

The major components (evaporator, condenser, and compressor) are shipped fully assembled and charged and can be taken apart at the site to facilitate difficult rigging work. The chillers are shipped assembled from the factory after testing, and then disassembled and reassembled on site under supervision of authorized Daikin service personnel. Contact local Daikin Factory Service for price quotation and scheduling.

## Shipped Disassembled

Chillers can be shipped knocked down from the factory. The evaporator, condenser and oil pump are shipped bolted together and easily unbolted at the job site into the pieces shown on the following page. Other options, such as shipping less compressor or less compressor and control panel are also available. Site reassembly must be supervised by Daikin startup personnel.Contact local Daikin Factory Service for price quotation and scheduling.

# Type A Knockdown

The units are shipped fully assembled, factory charged, runtested, insulated and painted. Included are the vessel bolt-on connection brackets, discharge line bolt-on flanges at the condenser and bolt-on oil pump assembly. Site disassembly and reassembly must be supervised by Daikin startup personnel. Contact local Daikin Factory Service for price quotation and scheduling.

## Type B Knockdown

Daikin provides ease of installation without requiring construction alterations of entryways to your building. The compressor and compressor control box are removed and put on a skid. All associated wiring and piping will remain attached if possible. The remaining loose parts will be packaged in a separate crate.

- 1. Blockoffs will cover all openings on the compressor and vessels.
- 2. The compressor and vessels will receive a helium holding charge.
- 3. The compressor will not be insulated at the factory. An insulation kit will be shipped with the unit.
- The starter will ship loose. Bracket and cable kit to be included for unit-mounted starters and/or cableway for mini-cabinet.
- 5. The evaporator will be insulated at the factory.
- 6. Refrigerant will not be shipped with the unit and must secured locally and furnished and installed by the installer.
- 7. Oil will be shipped in containers from the factory for field installation.
- 8. All field-piping connections will be grooved, o-ring face seal or copper brazing.

- 9. All free piping ends will be capped.
- 10. Touch-up paint will be included.
- 11. The unit will undergo the standard, rigorous, full factory test program.

Contact local Daikin Factory Service for price quotation and scheduling.



#### Daikin Applied Training and Development

Now that you have made an investment in modern, efficient Daikin Applied equipment, its care should be a high priority. For training information on all Daikin Applied HVAC products, please visit us at www.DaikinApplied.com and click on Training, or call 540-248-9646 and ask for the Training Department.

#### Warranty

All Daikin Applied equipment is sold pursuant to its standard terms and conditions of sale, including Limited Product Warranty. Consult your local Daikin Applied representative for warranty details. To find your local Daikin Applied representative, go to www.DaikinApplied.com.

#### Aftermarket Services

To find your local parts office, visit www.DaikinApplied.com or call 800-37PARTS (800-377-2787). To find your local service office, visit www.DaikinApplied.com or call 800-432-1342.

This document contains the most current product information as of this printing. For the most up-to-date product information, please go to www.DaikinApplied.com.

Products manufactured in an ISO Certified Facility.