PCXZAS16

Air-Cooled Screw Chiller

105-450TR

HFC 134a REFRIGERANT

Cooling Only

Daikin Chiller

Innovation that delivers solutions

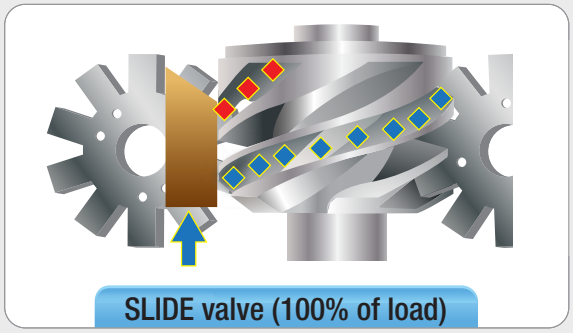
Daikin products offer industry leading result in quality, performance and sustainability. As the designer and manufacturer of large air-cooled chiller, Daikin is committed to technical improvement and innovation, thus leading to the development of the air cooled chiller technology.

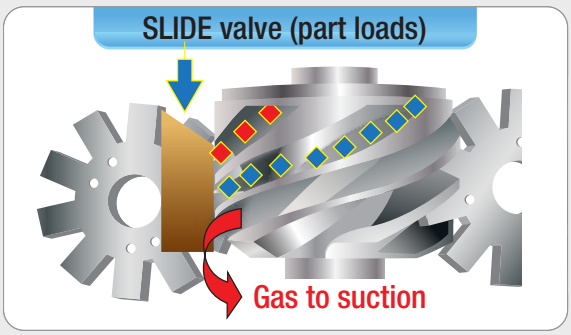
For consideration of environment protection, Daikin chillers run on R134a refrigerant. Without neglecting the importance of energy saving, the Daikin chillers has full load COP of over 3.2 W/W, thanks to the advanced technology ultilized by Daikin's latest ultra efficient air cooled chiller. This value is higher than the energy saving product certification standard, which makes them one of the most efficient, energy saving and quiet air conditioning solutions.

Why Daikin Single Screw Compressor?

Part loading capability

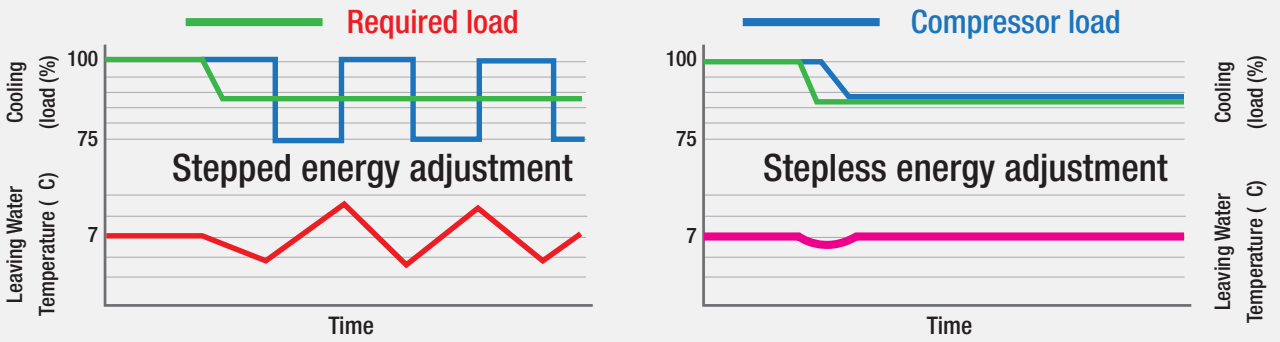
Compressor capacity adjustment through two axially sliding and asymmetric valves (adopted in most of the screw compressors in the market).





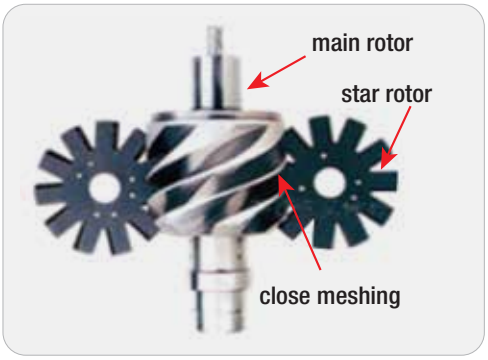
Stepless adjustment, high efficiency and energy saving

- The advanced efficient single-screw compressor is adopted. The compressor can perform stepless adjustment within the range of 10% to 100% maximum workload. Compared to the traditional compressors, this compressor has a wider adjustment range and better efficiency.
- The systems can regulate the leaving water tempearture based on the actual cooling load, whether it is running at full load or partial load. Therefore, the temperature of leaving water is more stable, resulting in better comfort level.



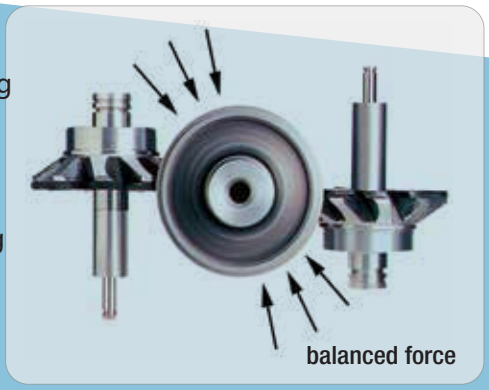
Zero clearance fit

- Close meshing between main rotor & star rotor eliminates leakage between the high and low pressure sides during compression
- Special gaterotor made from an advanced composite and thermally stabled material that contributes to zero clearance design.

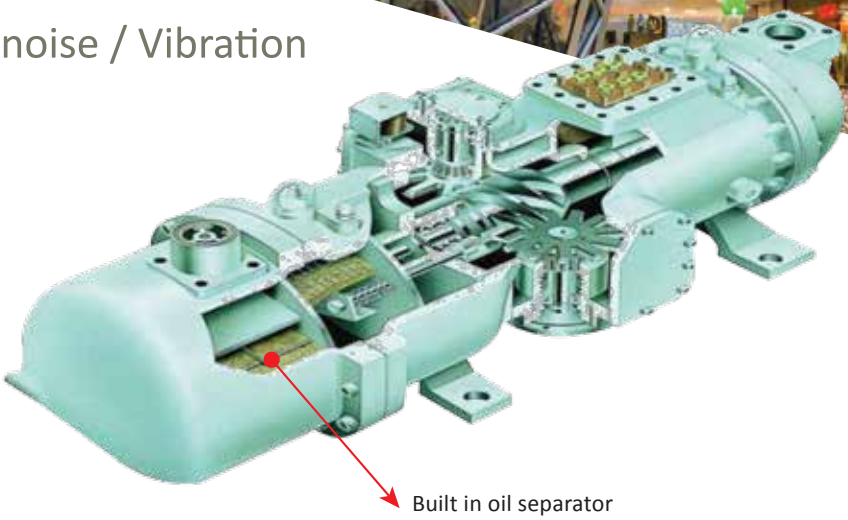


Balanced force

- Daikin single screw compressor balances the load completely during its operation.
  Therefore, vibration can be ignored because the noise value is lower than the industry standard.
- The compressor does not come into contact with any metal during compression, thus, minimizing the noise generation.



Lower noise / Vibration



Minimal moving components

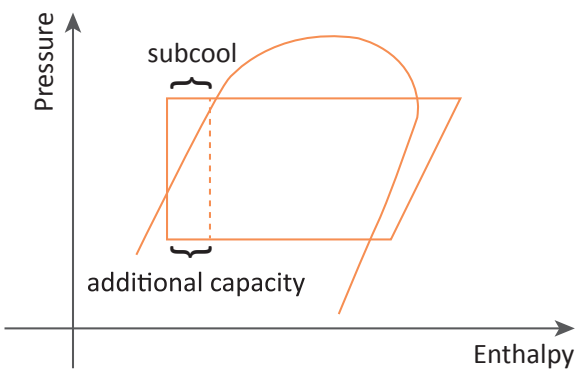
- Daikin single screw compressor consists of only 5 moving components, a screw rotor, 2 star wheels and two energy adjustment slide valves.

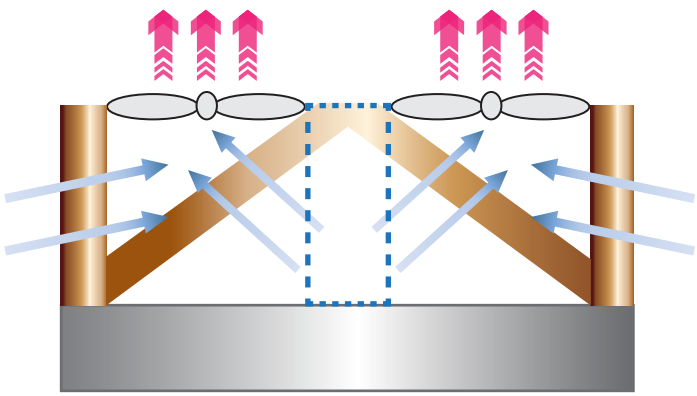
Long duration and high reliability

- The star wheels made of high strength composite material can ensure the accuracy and the minimum gap, guaranteed operation without wear and tear.

Optimized performance condenser coil

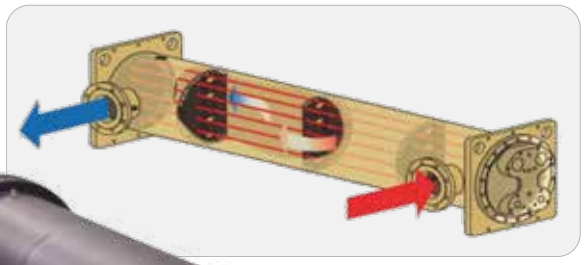
- All units are constructed with smooth copper tubes arranged in a staggered row pattern and mechanically expanded into slit aluminium fin with full fin collars.
- “W” type coil improves heat transfer efficiency and reduces the unit footprint.
- Built-in sub-cooling cycle, optimizing cooling capacity.

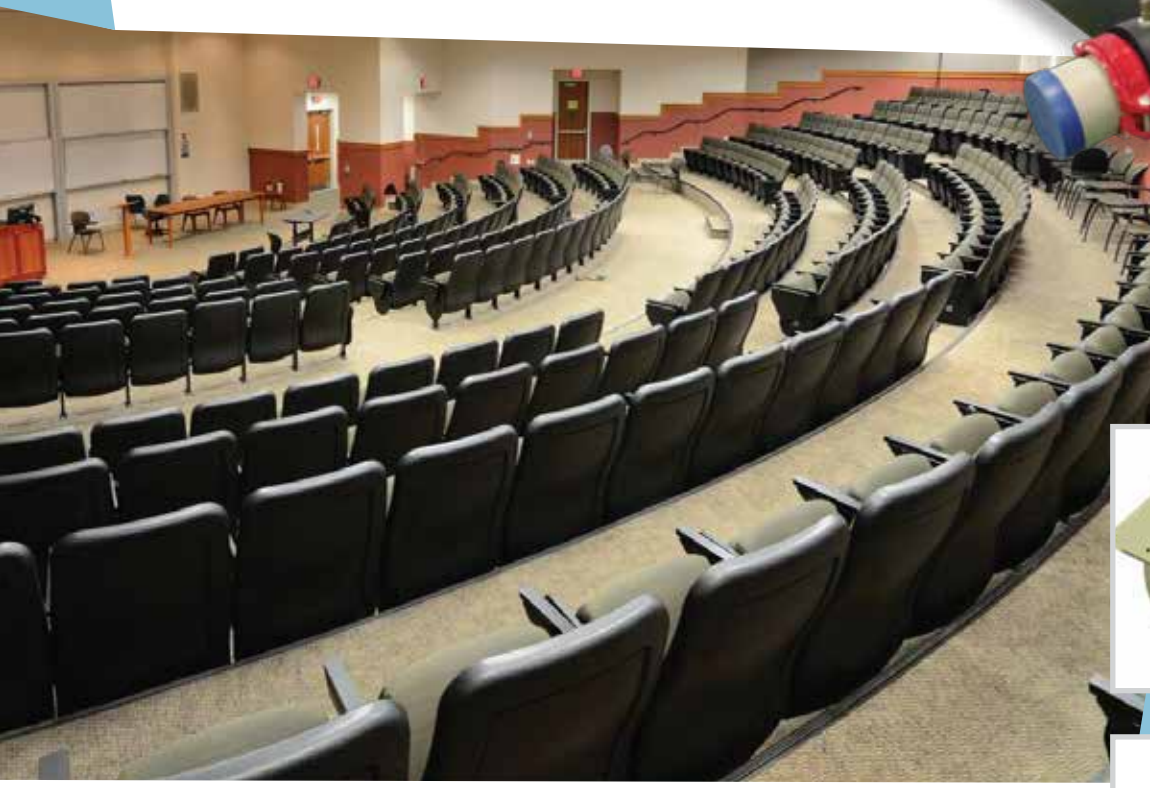




DX shell & tube evaporator

- Direct expansion type with refrigerant inside the copper tubes, and polypropylene baffles.
- The copper tubes are roll expanded into carbon steel tube plates.
- An insulation with closed cell material (standard thickness: 20mm) wrapped around the evaporator and heater for freeze protection.
- New high efficiency counter flow, with single pass only on refrigerant side.
  (with one or two independent circuits)
- High efficiency tube with new geometry allowing better heat exchange efficiency due to turbulence of refrigerant flow.
- Increased v=essel length without causing additonal refrigerant and water pressure drops.



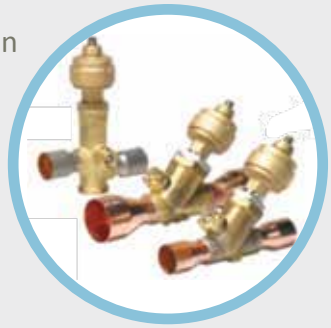


High efficiency condensing axial fan

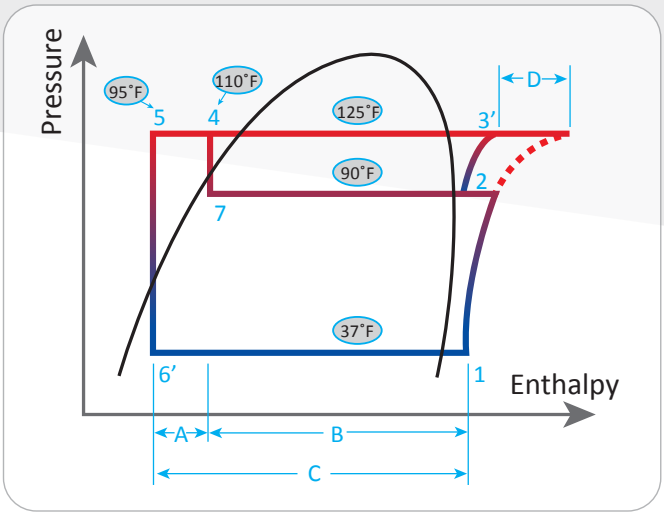
- All condenser fans are helical type.
- Fan blades made from reinforced resin fiberglass, which can withstand UV and high ambient temperature.
- Airflow without turbulences and sound spectrum without irritating frequencies.
- 3-phase motors are supplied as standard with IP54 protection and insulation class F.

Electronic expansion valve - EXV

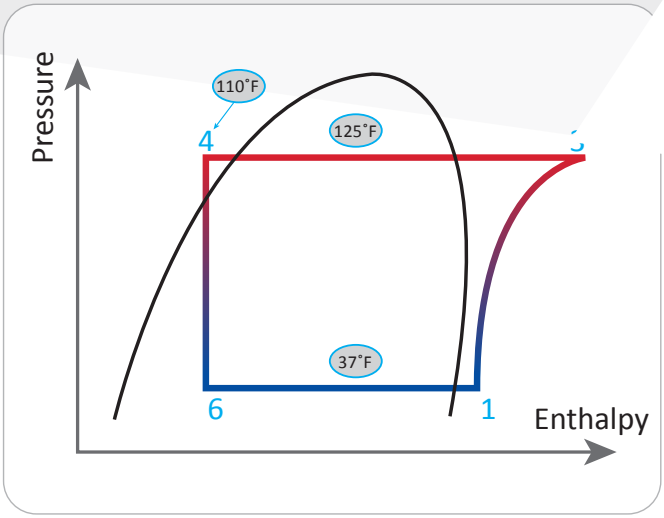
- Precise control of refrigerant flow
- Internal & external corrosion resistant design
- Optimal control of liquid injection
- Hermetic design



Economizer as standard



With economizer



Without economizer

A: Additional sub-cool, capacity increased due to economizer

B: Original capacity without economizer

C: Improved capacity with economizer

D: Compressor work reduction due to economized cycle

Note: Temperature numbers are for reference only, actual application may vary case by case.

MicroTech III

Intelligent network controller

- Daikin chillers adopt the new generation Daikin Micro Tech III controller . This controller integrates the heatpump applications and technologies of Daikin of more than 40 years and is equipped with programmable software. This enables compressors and fans to reach the highest COP.

Main Components

Built-in controller

- Control type: PLC programmable
- Operation language: Chinese/English
- Screen display: LCD display
- Operating environment: Temperature:-20˚C~60˚C, Relative: <90%

External remote monitoring (option)

Main Functions

- Automatic load/unload based on changes of the actual air conditioning load
- Operating status display of the units
- Common fault alarm display
- Water temperature control to an accuracy to 0.5˚C
- Output load PID control
- Balancing the operating duration of each compressor
- Compressor load control
- Three-level password protection
- Stepless load adjustment
- Failure history query

Operating Status Query

- Unit status
- Temperature of inlet/outlet water
- Compressor status
- Suction and discharge pressure
- Temperature and superheat of suction and discharge
- Opening of electrical expansion valve
- Oil pressure
- Ambient temperature

Protection Functions

- High pressure protection
- Low pressure protection
- Fan overload protection
- High discharge temperature protection
- Compressor overload protection
- Low compression ratio protection
- High oil pressure difference protection

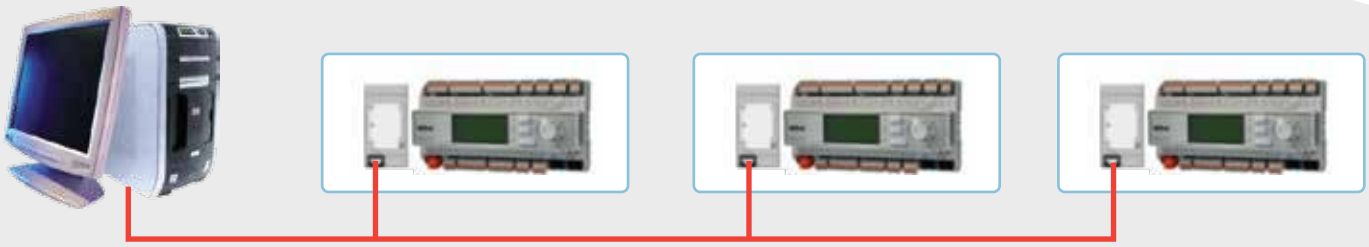
- Factory/Field installation COM module
- Max 2 COM modules at the same time:
  - To chiller sequencing panel
  - To BMS or Plant Visor (for monitoring only)

BMS Management Station

- Siemens (Apogee and Design)
- Johnson Control
- Honeywell
- Invensy (TAC)

Supported Protocols:

- LON
- BACnet/IP
- BACnet/MSTP
- ModBusRTU
- IP (Internet Protocol)



Options

- Anticorrosion aluminium fins
- Ammeter and voltmeter
- High/low pressure gauge
- Soft starter
- External control panel
- Building automation interface: Modbus, Lon Works, and BACnet

Note: please refer to sales office if there is requirement of other options.

Daikin Single-Screw (Cooling Only)

Specification for Cooling Only - High Efficiency Series

Model Unit UAA		ST3M	105ST3M	125ST3M	150ST3M	175ST3M	204ST3M	220ST3M
Nominal Cooling Capacity		kW	370	449	586	663	717	802
		USRT	105	128	167	189	204	228
		x 10⁴kcal/h	32	39	50	57	62	69
Compressor Power Input (Cooling)		kW	103.5	122.5	158.7	177.3	192.1	214.6
Power Supply			380-415V/3N~/50Hz					
Capacity Steps			10%~100%					
Refrigerant	Type		R134a					
	Circuit No.		1					
	Flow Control		EXV					
Refrigerant Oil		L	22		28			
Compressor	Type		Semi-hermetic single-screw					
	Quantity		1					
	Startup		Star delta					
	Cooling		Liquid injection cooling					
Condenser	Type		Crossed fin and tube					
Fan	Type		Efficient spiral axial fan					
	Quantity	n	6	8	10	12	12	14
	Air Flow	x 10⁴m³/h	10.8	14.4	18.0	21.6	21.6	25.2
	Motor Power Input	kW	12.0	16.0	20.0	24.0	24.0	28.0
Evaporator	Type		Shell and tube heat exchanger					
	Water Flow Rate	m³/h	64	77	101	114	123	138
	Water Resistance	kPa	58	75	68	70	76	62
	Connection Pipe (OD)	inch	4		5		6	
	Maximum Pressure-bearing	mPa	1.0					
Unit Dimensions	Length	mm	3570	4470	5380	6280	6280	7180
	Width	mm	2260					
	Height	mm	2435					
Weight	Transport	kg	2880	3630	4560	4930	5050	5690
	Operation	kg	2950	3740	4700	5100	5300	5940
Standard Accessories			Unit installation manual, certificate, spring shock absorber, water flow switch					

Model Unit UAA		STM3	245ST3M	291ST3M	348ST3M	380ST3M	400ST3M	450ST3M
Nominal Cooling Capacity		kW	898	1035	1172	1326	1434	1604
		USRT	255	294	333	377	408	456
		x 10⁴kcal/h	77	89	101	114	123	138
Compressor Power Input (Cooling)		kW	245.0	281.2	317.4	354.6	384.2	429.2
Power Supply			380-415V/3N~/50Hz					
Capacity Steps			5%~100%					
Refrigerant	Type		R134a					
	Circuit No.		2					
	Flow Control		EXV					
Refrigerant Oil		L	22+22	22+28				
Compressor	Type		Semi-hermetic single-screw					
	Quantity		2					
	Startup		Star delta					
	Cooling		Liquid injection cooling					
Condenser	Type		Crossed fin and tube					
Fan	Type		Efficient spiral axial fan					
	Quantity	n	16	18	20	24	24	28
	Air Flow	x 10⁴m³/h	28.8	32.4	36.0	43.2	43.2	50.4
	Motor Power Input	kW	32.0	36.0	40.0	48.0	48.0	56.0
Evaporator	Type		Shell and tube heat exchanger					
	Water Flow Rate	m³/h	154	178	202	228	247	276
	Water Resistance	kPa	72	74	78	83	61	79
	Connection Pipe (OD)	inch	6				8	
	Maximum Pressure-bearing	mPa	1.0					
Unit Dimensions	Length	mm	8660	9560	10490	12290	12290	14090
	Width	mm	2260					
	Height	mm	2435					
Weight	Transport	kg	7220	8030	8820	9570	9800	11180
	Operation	kg	7480	8340	9120	9950	10320	11690
Standard Accessories			Unit installation manual, spring shock absorber, water flow switch					

Notes: Nominal cooling conditions: EWT/LWT 12/7˚C; ambient DB temperature is 35˚C
The transport weight including steel packaging weight
The operaton weight including the weight of the water inside water-side heat exchanger, excluding steel packaging weight

Dealer

DAIKIN MALAYSIA SDN. BHD.
Lot 60334, Persiaran Bukit Rahman Putra 3,
Taman Perindustrian Bukit Rahman Putra,
47000 Sungai Buloh, Selangor Darul Ehsan, Malaysia
www.daikinmalaysia.com

DAIKIN INDUSTRIES, LTD.
Head office:
Umeda Center Bldg., 2-4-12, Nakazaki-Nishi,
Kita-ku, Osaka, 530-8323 Japan.