



*SINGLE & MULTIPLE COMPRESSORS*

*VS and CS*

*10 to 450 TR*



**PISTON TYPE**  
10 – 100 TR



**AIR COOLED**  
50 – 200 TR



**SCREW or SCROLL TYPE**  
CS 50 – 100 TR



**SCREW or SCROLL TYPE**  
VS 100 – 450 TR

**50 / 60 Hz**

R-134A, R407c  
R-407F, R410A

**ACMVTECH CHILLERS**  
**WATER COOLED AND AIR COOLED**  
**VARIABLE and CONSTANT SPEED**  
**HIGH ENERGY EFFICIENCY ; +HEAT RECOVERY**

# VS and CS CHILLERS

## ACMCVTECH CHILLERS

HEF series Water Cooled Chillers are mid-range capacity series, compact and energy-efficient designed for commercial and industrial applications like office buildings, hotels, hospitals, schools, and for industry process cooling.

Capacities range from 50 to 450 TR designated as **mini-chillers**. All units are factory tested to industry standards prior to delivery to ensure its reliability.

## WASTE ENERGY RECOVERY (HEAT RECOVERY UNIT)

ACMVTECH Chillers can be fitted with Heat Exchanger to Recover Waste energy to heat water mainly for use in hotels, hospitals, commercial buildings and process heating. The Chillers generate hot water as primary source and the chilled water can be used for any cooling purposes. Hot water can be used to reheat off-cooling coil air in primary or main air handling units to reduce the space humidity in order to achieve a comfortable space environment using free waste energy.

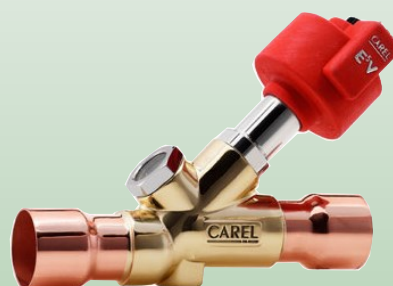
## VARIABLE SPEED CONTROL

Rising energy cost and growing environmental awareness are major issues affecting all areas of the air conditioning industry. At the same time, customers have increasingly high expectations when it comes to energy consumption while local laws are becoming more stringent with respect to environment protection. In buildings air conditioning system the cooling load varies throughout the day thereby ACMVTECH Chillers were designed with high part-load efficiency to meet customer's expectations.

ACMVTECH Chillers features variable speed (VS) compressors to meet customer's needs more efficiently. Screw compressors are proven, precise, simple and reliable.

## DIRECT EXPANSION CHILLERS

ACMVTECH Chillers can be fitted with either shell and tube or Brazed Plate Heat Exchangers as direct expansion evaporators. Refrigerant expansion is supplied with either a thermostatic type or an Electronic Expansion Valve (EXV).



Electronic EV

Thermostatic expansion valve (TXV) have been used reliably for many years. The TXV has external equalizers and proprietary bulb charges for maintaining constant gas superheats.



Today Electronic Expansion Valve (EXV) have become more cost effective and with its inherent precise flow control of the refrigerant during full and part-load operation, the evaporator capacity is easily optimized. The EXV respond faster to meet cooling demands thereby improves the ACMVTECH Chiller's efficiency.

## FLOODED TYPE CHILLERS

ACMVTECH Chillers is supplied with flooded type shell and tube heat exchangers which are sized to have the optimum evaporating temperatures. High evaporating temperature is an important feature to have low compressor compression ratio to achieve high efficiency system. Flooded chillers refrigerant charge level during operation are controlled with EXV. This will always make sure full and partial ACMVTECH Chiller efficiency is maintain in optimum.

## SCREW or SCROLL COMPRESSOR WITH VSD

### High Efficiency

- Optimized integrated part load value over time
- High accuracy temperature control
- Discharge and suction volume ratio is automatically adjusted.

### Low Power Consumption:

- Gradual starting for low and no-inrush current
- Conventional starters not required
- Maintains good power factor while in operation

### Built-In Protection

- Frequency inverter
  - Efficiency—one of the industry best
  - C3 level RFI filter
  - UL & CE certified
  - Inbuilt harmonics reduction
  - Optional IEEE 519 compliance
- Built-in high and low pressure protection using transducers
- Built-in motor overload protection
- Integrated oil level and temperature protection



Variable Speed Compressor  
Screw or Scroll

### Low noise level



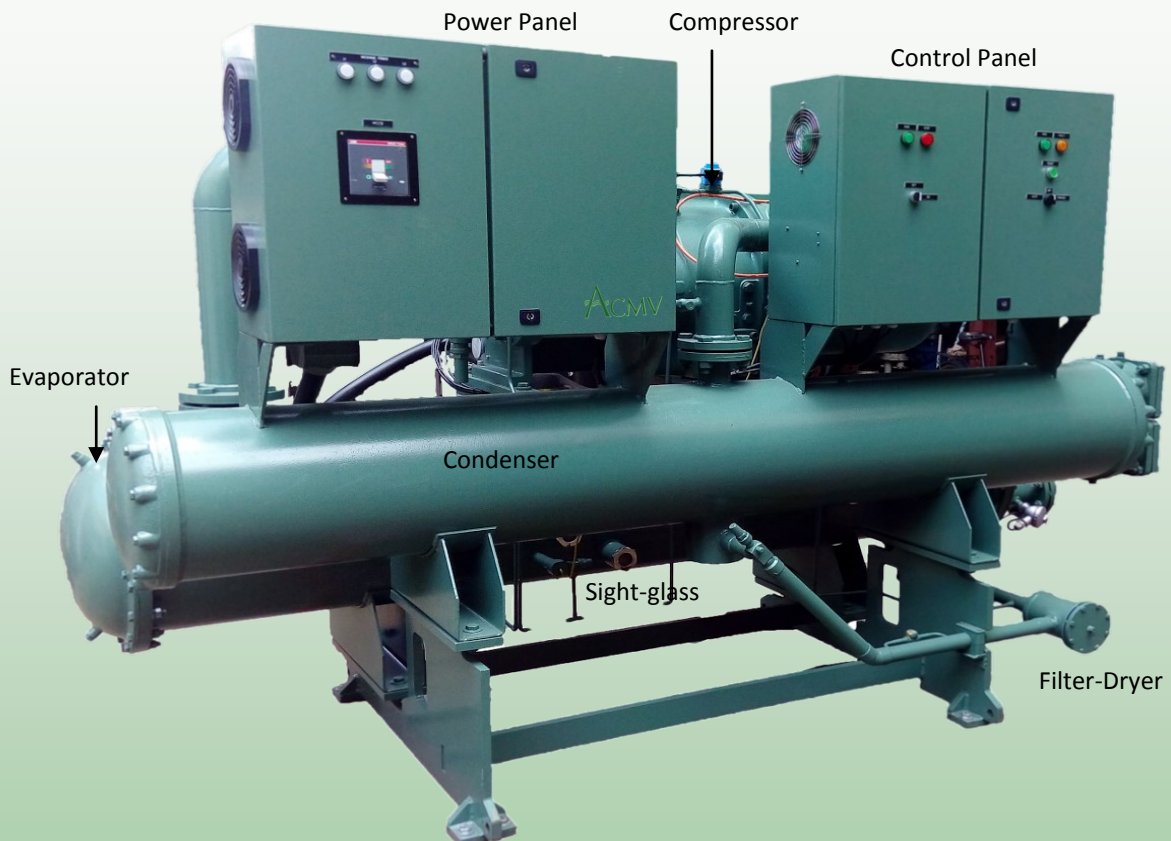
Braze Plate Heat Exchanger  
(Optional)

## IMPORTANT FEATURES OF ACMVTECH CHILLERS VS AND CS

- Serviceable semi-hermetic compressor or Reliable hermetic scroll compressors
- Optimized heat exchangers for narrow chilled water temperature approach
- Low condensing temperature design
- Infinite compressor unloading for VSD drive from 100 to 16%.
- Step unloading for CS from 100 to 25% or combination step and infinite
- EXV for DX evaporator
- EXV for level control on Flooded evaporator
- R134a, R407c, R407F and R410A refrigerants (R410-A for Scroll compressors only)

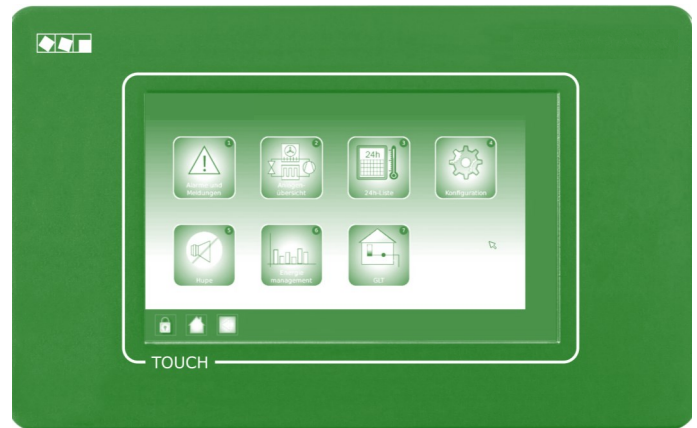


Shell & Tube Heat Exchanger



## HMI DISPLAY INFORMATION

- Return chilled water temperature
- Leaving chilled water temperature
- Compressor motor current
- Compressor % load
- Oil level alarm indication
- Suction and discharge pressure and temperature
- Power supply
- Chiller elapsed time in operation
- Compressor on-off
- Fault alarms
- MODBUS or local operation



HMI—Touch Screen Monitor

## CHILLER CONTROLLERS

ACMVTECH Chillers has three controller options with codes as **N, M, MH**.

**N** is a control type for Constant Speed compressor that uses basic Controller and relays for normal operations.

**M** is a microprocessor based control use to manage the chiller operation. It has a small LCD display to read important data like, chilled water temperatures and refrigerant pressures. The M controller is able to record events that is downloadable with a computer. It has MODBUS protocol to communicate to the BMS.

**MH** type is a microprocessor based controller with human-machine interphase (HMI). Like **M** type it will fully control ACMVTECH Chiller operation and important data can be displayed on the HMI. Operator can easily check the conditions of the chiller while in operation. The MH has also MODBUS protocol to communicate to the BMS as well as record events up to 30-days operation.



Temperature Controller



Microprocessor Based Controller

## OPERATOR-FRIENDLY

**MH** type is an advance PLC controller option for all ACMVTECH Chillers. The Controller is programmed to manage analog and digital inputs to achieve control set point precisely. Inputs can be simple on the touch screen with Menus to guide the operator. Temperature and pressures, power, and current of the motor is displayed.

**REMOTE-MODE OPERATION (BMS):** Auto start and stop can be programmed for the whole year operation. This minimizes the operators time. All the conditioned can be done and/or recorded remotely through MH MODBUS. The unit with MH is fitted with Local and Remote switch.

**AUTO-MODE OPERATION :** Using a single push button the Auto-Mode is perform locally at the chiller's control panel. Once unit is switch on its operation is fully automatic through the PLC.

**SERVICING MODE:** This allow the operator or serviceman to test the unit either preventive or during troubleshooting.

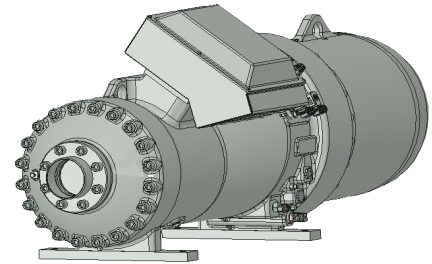
**NON-BMS MODE:** Like the Remote Mode, the ACMVTECH Chiller operation can be programmed the whole year locally on the touch screen or HMI.



HMI—Touch Screen Monitor

## SYSTEM PROTECTION INDEPENDENT FROM BUILT-IN CONTROLS

- Pressure Relief Valve
- High Discharge pressure
- Low Leaving Chilled Water Temperature
- Anti-Ice thermostat or Evaporator Freeze-up protection
- Chilled Water Temperature sensor error
- Earth Fault
- Circuit breaker



Single Speed Compressor

## SYSTEM PROTECTION INDEPENDENT FROM BUILT-IN CONTROLS

- Pressure Relief Valve
- High Discharge pressure
- Low Leaving Chilled Water Temperature
- Anti-Ice thermostat or Evaporator Freeze-up protection
- Chilled Water Temperature sensor error
- Earth Fault
- Circuit breaker



Scroll Compressor

## ALARMS FOR DIAGNOSTICS FOR PREVENTIVE MAINTENANCE

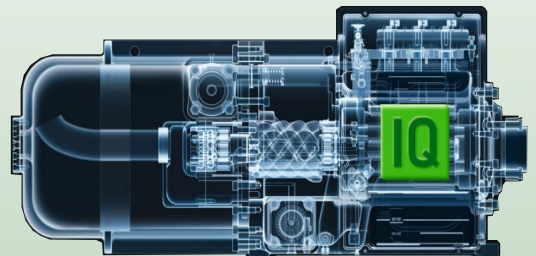
- Last unit trip before reaching 8000 hours or one year of operation
- Alarms of tripping save and display with the time and day
- Built-in protection trips

## COMPRESSOR BUILT-IN ADAPTIVE CONTROL

- Compressor to automatically unload to limit the high and low pressures to avoid unit tripping.
- Compressor current limiting

## BASIC UNIT

- Compressor
- Evaporator and Condenser Heat Exchangers
- Control and Power panel c/w controllers and electrical circuit breakers, safety protection switches
- COM port for MODBUS
- Single point power supply connection

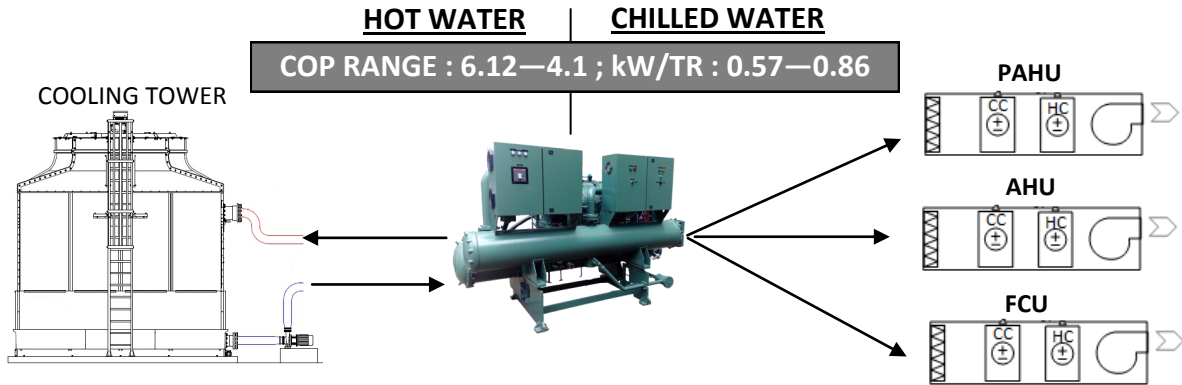


## OPTIONAL HEAT EXCHANGERS

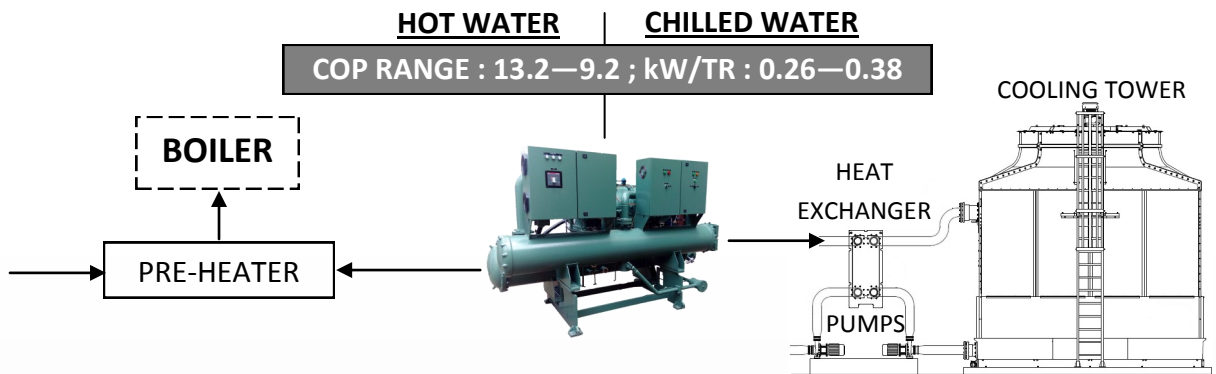
- Low temperature evaporator using glycol as cooling fluid
- All brazed plate heat exchangers for potable water heating and cooling

# APPLICATIONS

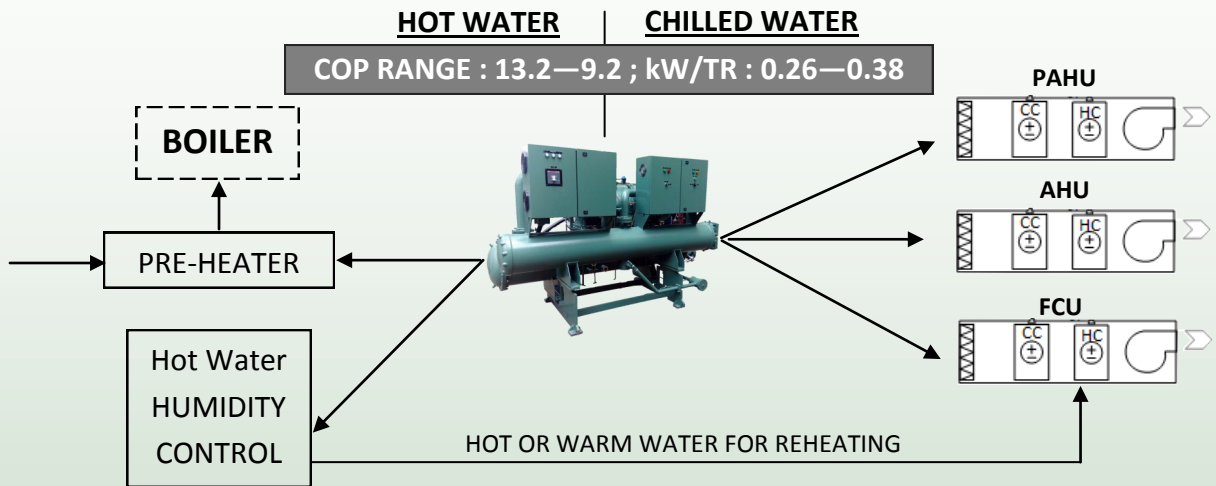
## CONVENTIONAL APPLICATION: CHILLED WATER SUPPLY TO AHU'S AND FCU'S



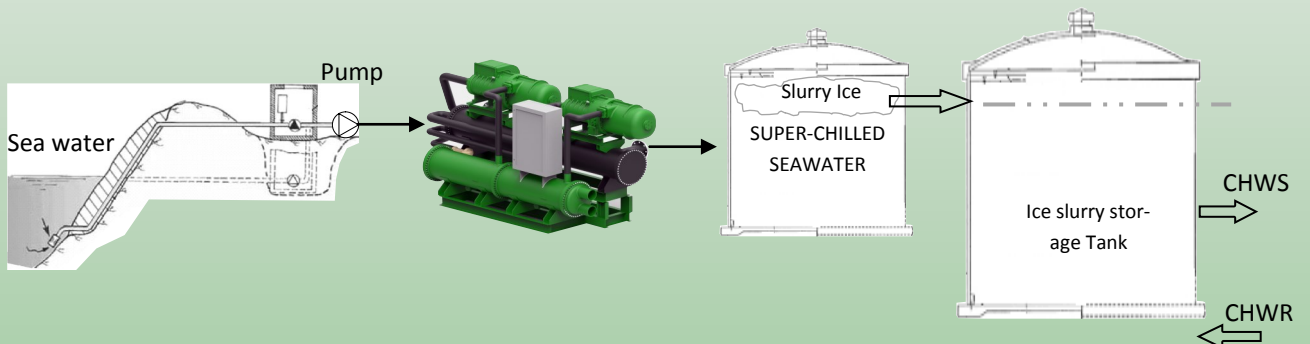
## HOT WATER AS PRIORITY USE, CHILLED WATER TO COOL CONDENSER WATER



## HOT WATER FOR HEATING, CHILLED WATER FOR COOLING (EITHER ONE AS PRIORITY)



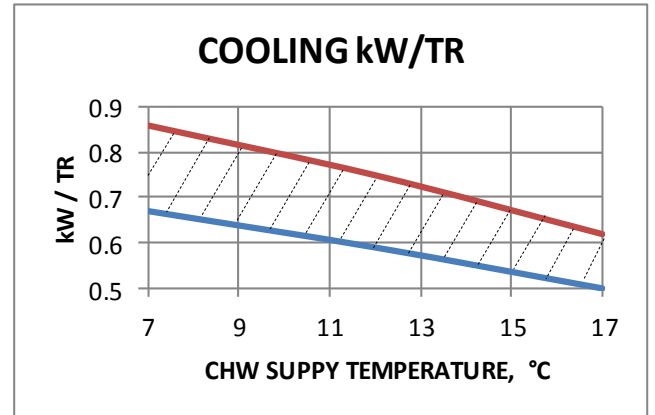
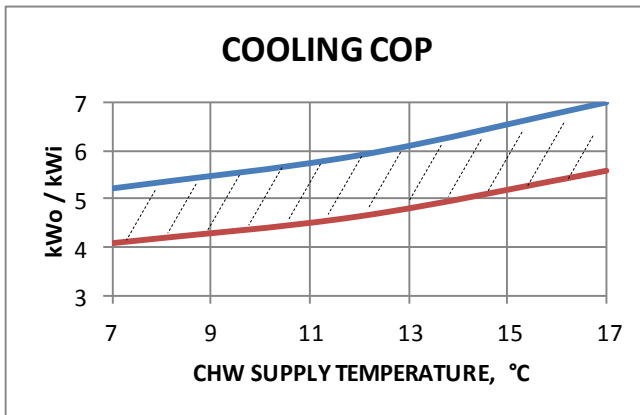
## COGENERATION : SEA WATER TO FRESH WATER FOR COOLING, DOMESTIC WATER OR IRRIGATION USE





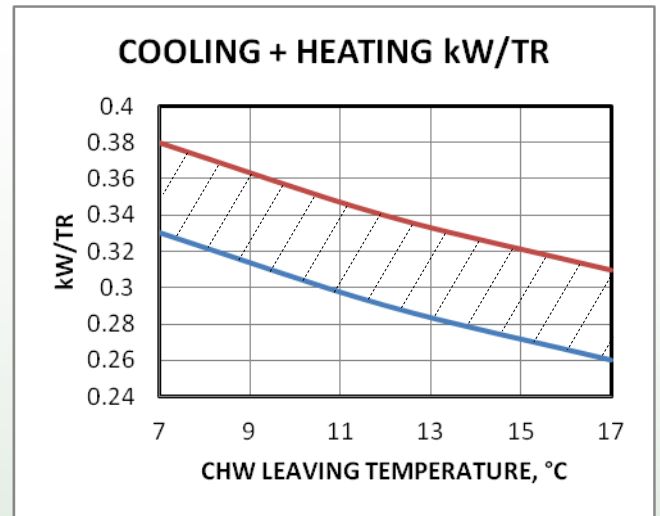
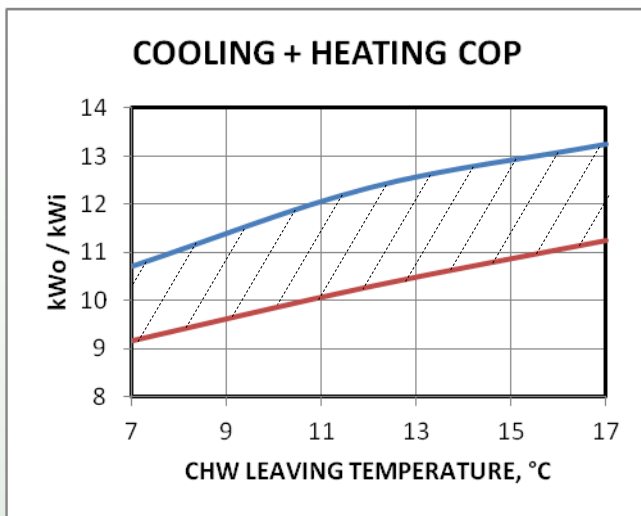
# CHILLERS EFFICIENCY / CAPACITY

## COOLING APPLICATION COP AND kW / TR



Condensing temperature : 45°C — 38°C —

## COOLING + HEATING APPLICATION COP AND kW / TR



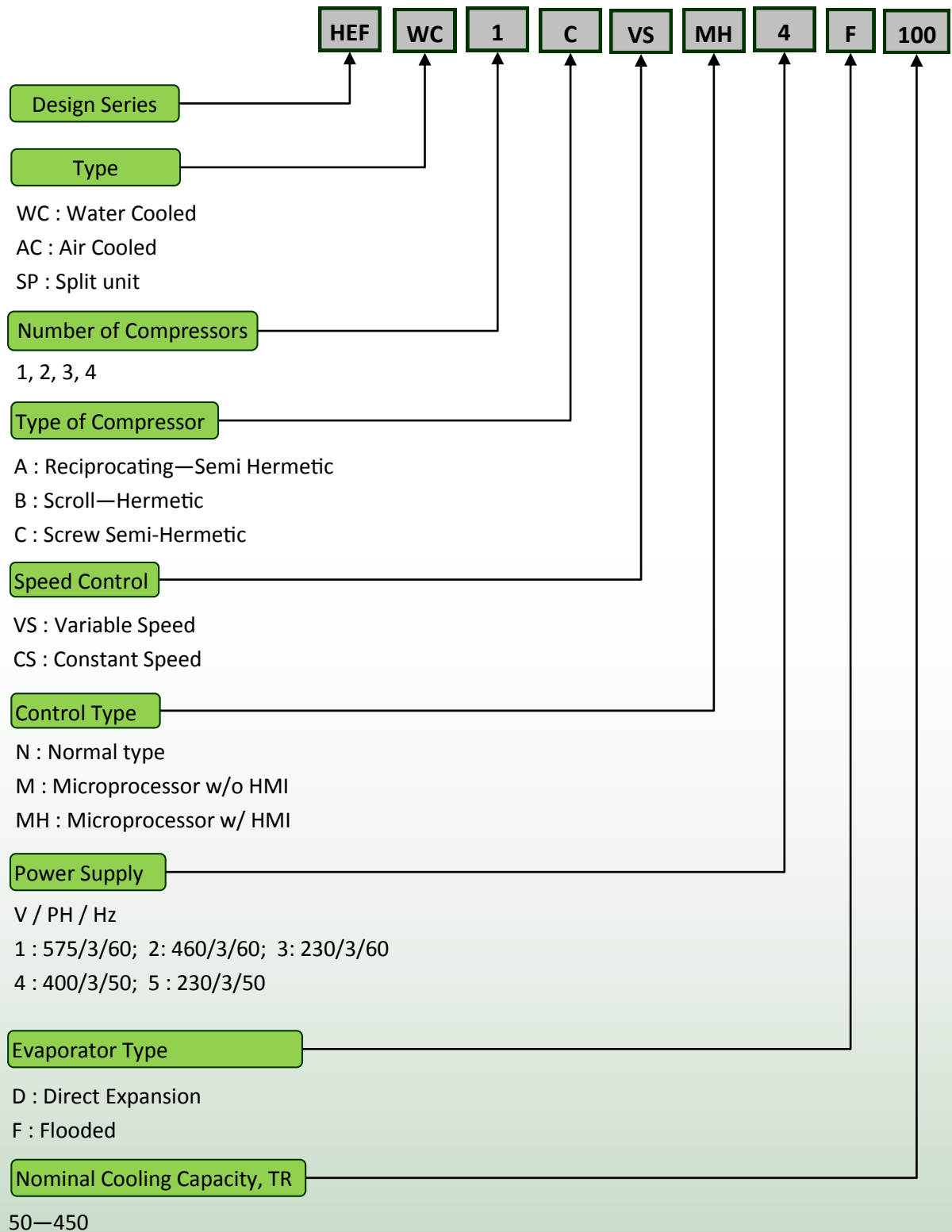
Condensing temperature : 45°C — 38°C —

## ACMVTECH SCREW CHILLERS CAPACITY TABULATION

Model	Evaporating Temp. = 2°C ; Condensing Temp. = 40°C						Bitzer Screw Comp. Model (R-134A)
	Cooling Capacity, kW		Power Input, kW		COP		
	100%	25%	100%	25%	100%	25%	
HEF-80	288.0	68.30	66.0	17.30	4.4	3.9	CSVH24-125Y
HEF-100	366.0	88.00	85.5	23.00	4.3	3.8	CSVH25-160Y
HEF-120	450.0	109.30	107.8	28.30	4.2	3.9	CSVH-26-220Y
HEF-160	579.3	144.80	135.0	66.90	4.3	2.2	CSVH-37-240Y

Note: For Scroll and reciprocating compressors and other refrigerants consult the factory.

## MODEL NOMENCLATURE



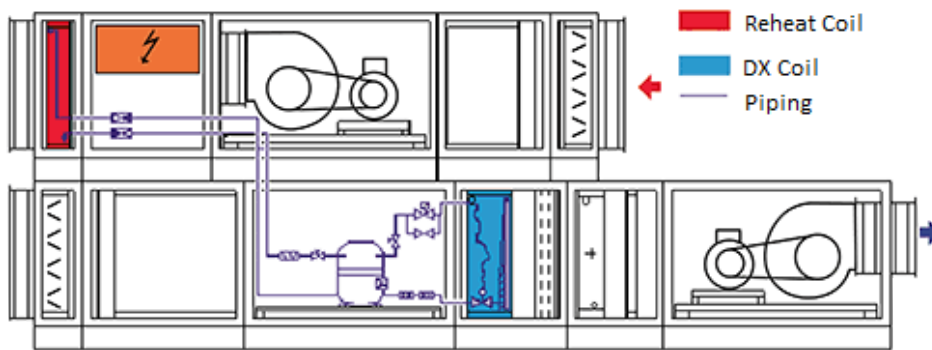
## PRODUCTS TO PAIR WITH ACMVTECH CHILLERS

### AIR HANDLING UNITS WITH DEHUMIDIERS AND HUMIDIFIERS

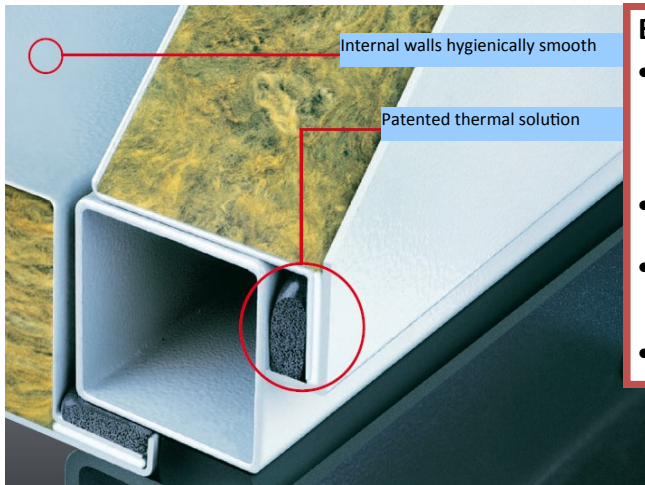


Unit construction totally smooth inner surfaces without edges, joints & grooves.

Thermal optimized casing structure by GRP (glass reinforced plastics) profile



Typical 2-Deck Arrangement (Other configurations available)



Internal walls hygienically smooth

Patented thermal solution

#### Efficiency and Economy

- Reduced energy consumption and minimized internal pressure losses by optimized air flow through the treatment components.
- Selection of fans adapted to the operating point
- Use of all conventional heat recovery systems; layout to the actual application
- "Life-Cycle-Cost—optimized air

#### Top quality for all applications

- Suitable for interior and exterior installation
- Hygienic Finish
- Integrated cooling units
- Various material versions designed to be dismantled
- Large and special units
- DCS (Desiccant Cooling System)

**AHU**

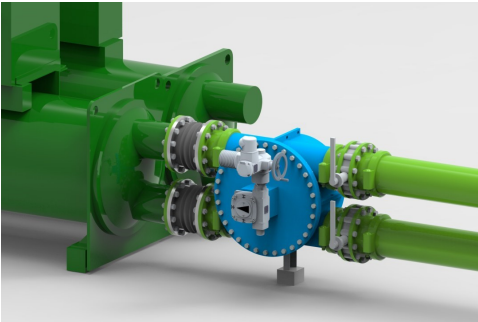
### AIR TO AIR Heat Recovery and High Efficiency motors



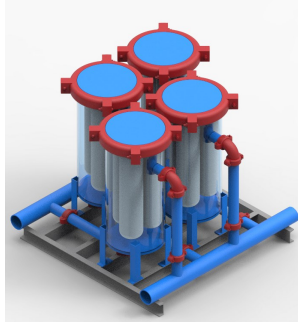
# ACMVTECH CHILLERS

## SUPPLY OPTIONS

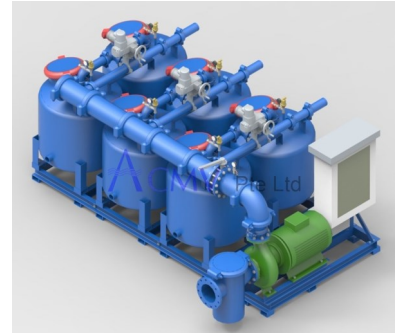
- Screw or Scroll compressors
- Plate heat exchangers
- Reciprocating compressors
- Automatic Tube cleaning for condenser tubes
- Single or multiple compressors
- Air cooled Condensers



Automatic Tube Brush Cleaning for Shell & Tube Condensers



In line filters



Sand Filters

HVAC AHU, Clean Room and Industrial Applications Supplied w/ Heat Recovery Dehumidifier System



Electronic Air Filters

**ACMV Pte. Ltd.**

59P Tuas South Ave. 1, Singapore(637415)

T. +65-68633231 ; F. +65-68639665

[www.acmvtech.com](http://www.acmvtech.com)