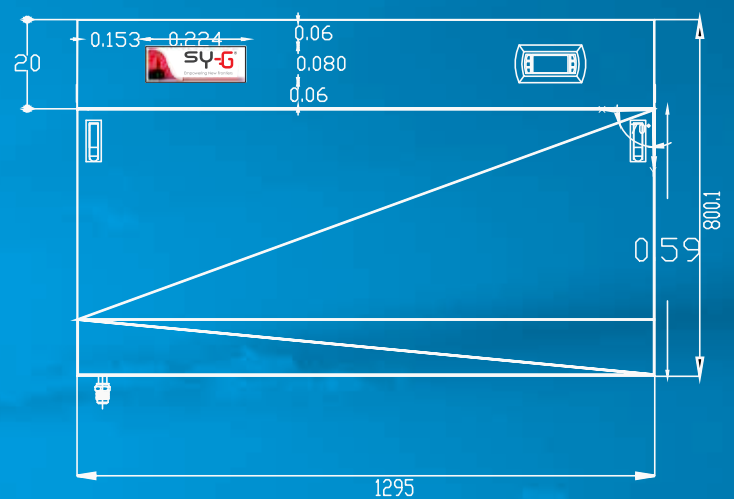


SY-G®

Empowering New Frontiers™



AIR CONDITIONER FOR INDUSTRIAL ENVIRONMENT  
ACHIEVER SERIES  
COOLING CAPACITY: 5.2KW~15.0KW

[www.sy-g.com](http://www.sy-g.com)

## ACHIEVER

**Air Conditioner For Industrial Environment**  
**Cooling Capacity: 5.2kW~15.0kW**

ACHIEVER is a wall-mount design air conditioning system, providing precise temperature and humidity control for small areas where space distribution is a concern. It is specially designed for industrial environment, standing up to high temperatures, heavy pollution and continuous working demands.

### FEATURES:

- Constructed with a steel frame and painted with epoxy powder to ensure proper adhesion to the surface
- Microprocessor control system with LCD display
- R410A environmentally-friendly refrigerant
- Equipped with double inlet, three speed adjustable, directly-coupled centrifugal fan (no belts and pulleys)
- Independent electrical protections for compressor, fan, motor, heater, and humidifier
- Electric resistance heaters with temperature control, built with low density heating components and non-corrosive metal sheath tubular finned
- Self-contained immersed electrode boiler type humidifier with water level control and auto-drain functions (separate chassis)
- Thermodynamic expansion valve
- Liquid detection sensor
- Independent refrigerant charging system for high and low pressure lines
- Indoor service valves
- Include hot-gas bypass.
- Random insertion of multiple units after a power failure, with a time delay from 2 to 60 seconds, to avoid simultaneous starting of the units.
- Electronic thermostat for temperature control
- Voltage supervisor with phase sensor.
- Automatic start after a power failure

### OPTIONAL FEATURES:

- Electronic expansion valve
- Touch-screen display for the controller
- Multiple communication protocols for remote monitoring, such as: SNMP (web interface), Modbus and BACnet.
- Can be designed and manufactured to operate at 3,000 meters above sea level without suffering any degradation
- Electronically Commuted (EC), directly coupled, variable speed fan, for more efficient and lower noise level units.
- Reduces the fan speed when the unit is working at a low load level and adjusts the fan speed according to the pressure of the air circulation system to guarantee appropriate airflow.
- Smoke detection sensor.
- Fresh air inlet connection with and air filter to allow the introduction of external air directly into the unit.

### BENEFITS:

- Capability for cooling, heating, de-humidifying, and humidifying, as well as filtering air in the room
- Provide high Sensible Heat Ratio (SHR) and world-class Energy Efficiency Ratio (EER)
- Versatile wall-mount installation
- Directly-coupled centrifugal fans are 35% more efficient, have an average lifespan of 10 to 15 years, and for ease of maintenance, there are no belts to change or pulleys to adjust
- The control system allows customized programming of temperature, relative humidity, and manual start-up of components, etc.
- Compressor positive start to avoid short-cycling alarms and low-pressure lockout
- Highly accurate temperature and humidity control that extends the service interval and life-cycle, designed to operate with ordinary tap water and equipped with automatic water supply and flushing system to reduce mineral precipitation



### APPLICATIONS

- Data centers
- Rail transit
- Mine workings
- Metallurgy industry
- Petrochemical industry
- Industrial process control center

## NOMENCLATURE

Series	Air Flow	Cooling Method	Capacity (KW)	Frequency (Hz)	Voltage (V)	Phase Number	Internal Code
<b>WP:</b> Wall-fit precision	<b>U:</b> Upflow	<b>A:</b> Air	10 15	<b>F:</b> 50 <b>S:</b> 60	<b>L:</b> 208 <b>H:</b> 220 <b>H:</b> 380	1P 2P 3P	Internal Kardex Code
<b>WP</b>	<b>U</b>	<b>A</b>	<b>10</b>	<b>F</b>	<b>H</b>	<b>1P</b>	<b>AS</b>

## MAIN COMPONENTS INDOOR UNIT:

### Plug-in AC centrifugal fans:

- Backwards curved, directly coupled, Carbon-fiber fan.
- Lifespan of 10 to 15 years.
- Maintenance-free ball bearings.
- No belts and pulleys.
- Does not require belt changes and pulley adjustments.
- High efficiency.
- Quiet operation.
- High-strength, corrosion-resistant aluminum alloy carrier with a jacket of special, fiber-reinforced plastic.
- Thermal overload motor protection.



### Heater:

- Electric resistance heaters with temperature control.
- Low density heating components, tubular finned construction with a non-corrosive metal sheath and are electrically and thermally protected.



### Immersed Electrode Humidifier:

- Self-contained electrode boiler type with water level control and auto-drain functions.
- Incorporates advanced control system, which supplies highly accurate humidity control and also extends the service interval and life-cycle.
- Designed to operate with ordinary tap water and equipped with automatic water supply and flushing system to reduce mineral precipitation.



### Filters:

- G3 fiber-pad folded filter.
- Washable, built with an exterior mount aluminum structure.



### **Microprocessor Control System:**

- All components are connected to the microprocessor and are continuously monitored and controlled, and to avoid malfunction, the unit is shut down and the failure is shown on the display.
- All units are built with Carel's most recent pCO microprocessor with automatic control and monitoring capabilities.
- All the pCO series controllers feature a 16-bit microprocessor, 2 MB flash memory, and a large LCD display.
- The control system has an adjustable tolerance temperature of +/- 0.5°C and a relative tolerance humidity control of +/-3% RH.
- The pCO series controllers can interface with various communication protocols like: ModBus®, BacNet™, Johnson Metasys®, DLL for Windows®, TCP/IP, SNMP, LonWorks®, Trend, among others.
- The pCO series control system allow for configuration and display in several languages, including: English, Spanish, Chinese, Japanese, among others.
- Multiple levels of password protection for parameter configuration.
- Up to sixteen (16) units can be installed to function synchronized in parallel or redundant configuration.
- Lead-lag control when two or more units are installed, in case of a unit failure, the standby unit will activate automatically.
- Allows setting daily starts and stops of the unit according to weekly program.
- Dry contacts inputs and outputs.



### **CONTROL SYSTEM:**

#### **Temperature and humidity:**

- Return air temperature.
- Return air relative humidity.

#### **Working status:**

- Indoor unit supply fans.
- Compressors.
- Dehumidification activation valves.
- Two - stage electric heaters.
- Automatic or manual restart status of components.
- High pressure of the refrigeration system.
- Control and monitoring of the unit.
- Outdoor unit fans.

#### **Working hours of every main component:**

- Indoor unit supply fans.
- Individual compressor.
- Humidifier.
- Heaters.

#### **Alarm display:**

- Date and time of most recent intervened alarm (yy/mm/dd/hh/mm).
- High and low temperature.
- High and low humidity.
- High and low pressure.
- High and low voltage.
- Filter dirty.
- Low airflow.
- Fire.
- Flood.
- Compressor short-cycle.
- Compressor overload.
- Phase loss.

#### **Alarm display:**

- Able to activate or deactivate each component according to the needs of commissioning and service of the unit.
- Optional energy saving working mode:
- There are two kinds of running modes that can be chosen:
  - 1) Standard running mode with temperature and humidity controlled in a narrower range.
  - 2) Energy savings mode with temperature and humidity controlled in a wider range.



## MAIN COMPONENTS OUTDOOR UNIT:

### MAINTENANCE:

All units are 100% front serviceable, which provides important space savings.

All major components are located away from the airflow stream, including compressor, humidifier and control and safety devices, making ordinary service and preventive maintenance easy during operation.

All units are equipped with directly coupled fans, for ease of maintenance there are no belts to change end pulleys to adjust.



- Remote direct expansion air-cooled outdoor unit with axial fans (DXA).
- Built entirely in heavy gauge corrosion resistant aluminum.
- All units incorporate aluminum fins and copper tubes staggered in direction of the airflow.
- Filter & drier
- Refrigerant charge valve
- Fan speed governor

### Fan motor:

- Fan speed is step-less controlled by microprocessor according to compressor discharge pressure, providing steady operation, lower noise level, energy savings and low temperature start-up.

### Condenser coil:

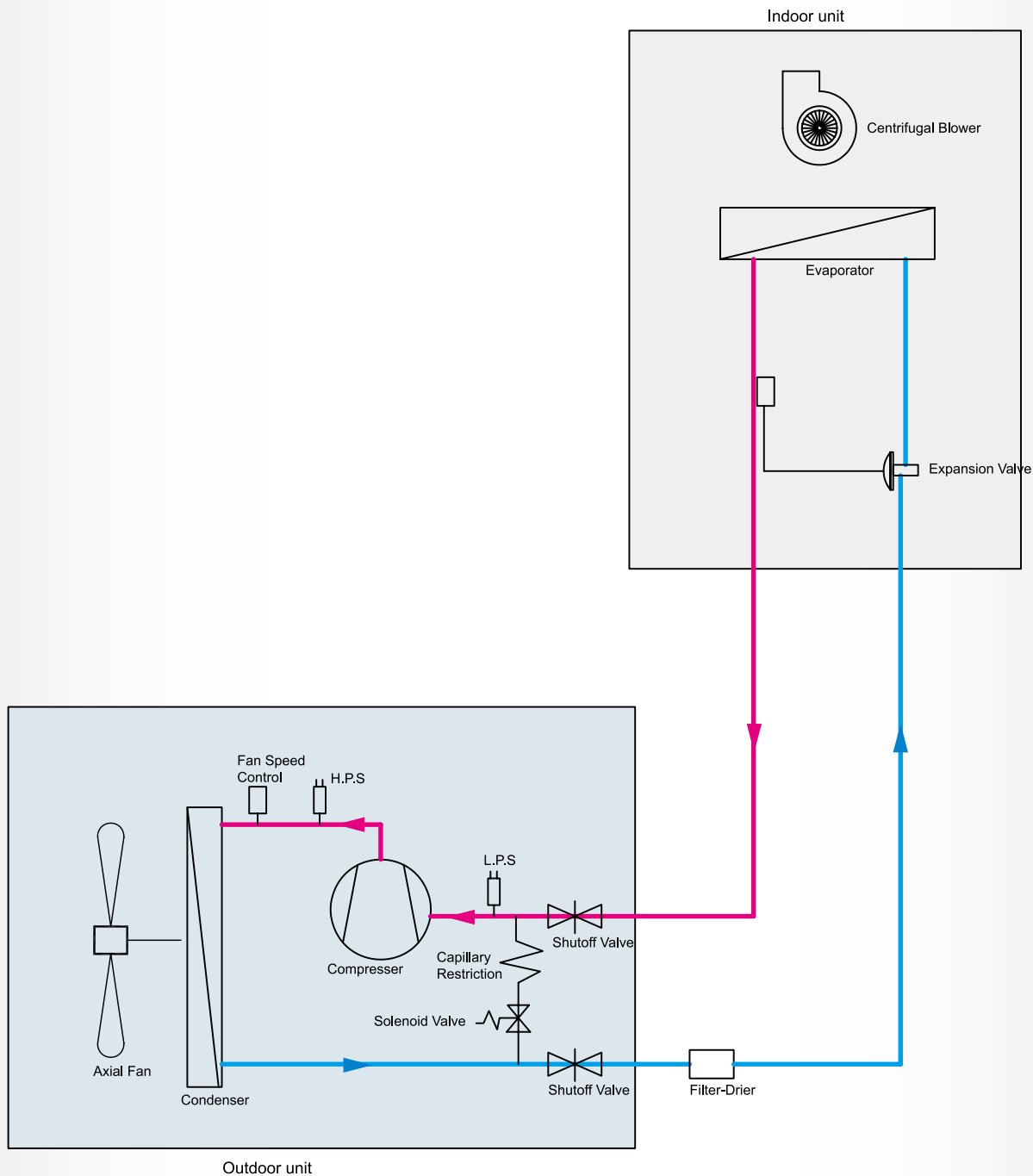
- Staggered type coil.
- Cooling coil with copper tubes and aluminum fins.
- Manufactured by Sy-G® quality tested with Nitrogen up to 500psi to guarantee a leak-free coil.

### Compressor:

- Hermetic scroll compressor equipped with electric protector, exhaust muffler and oil tank heater.
- Compressor rubber absorber.
- Phase loss monitor.
- Installed away from the air path to avoid disturbing the unit's operation during service visits.



# Working principle for mechanical compressing refrigeration system



**Technical Specifications for:  
Achiever 10 - 15 KW - 208~230V/1Ph/60Hz**

UNIT MODEL		WPUA10SL1PAS/WPUA10SH1PAS	WPUA13SL1PAS/WPUA13SH1PAS	WPUA15SL1PAS/WPUA15SH1PAS
Supply air scheme		U: Upflow		
<b>POWER SUPPLY</b>				
Power source		208 - 230V, 1Ph, 60Hz		
<b>COOLING CAPACITY <sup>(2)</sup></b>				
Total (1)	KW [Btu/h]	10.0 [36,508]	13.0 [44,356]	15.0 [51,182]
Sensible(1)	KW [Btu/h]	7.1 [24,225]	11.1 [37,873]	14.1 [48,111]
<b>EVAPORATION FAN</b>				
Type		Double inlet centrifugal fan		
Qty of fan	n	1		
Air Volume	m3/h [CFM]	1,600 [941]	2,000 [1,177]	
<b>COMPRESSOR</b>				
Type		Hermetic scroll compressor		
Qty of Compressor		1		
<b>REFRIGERANT</b>				
Type		R410A / R407C		
Control		Thermal expansion valve		
<b>ELECTRICAL HEATER CAPACITY</b>				
Electrical heater capacity <sup>(2)</sup>	KW	4.5		
<b>DIMENSIONS AND WEIGHT</b>				
Width	mm	1,295		
Depth	mm	310		
Height	mm	803		
Weight	Kg	64	67	69
<b>OUTDOOR UNIT</b>				
Fan type		Axial fan		
Qty of fan	n	1		
Width	mm	1275		
Depth	mm	590		
Height	mm	855		
Weight	Kg	123		
<b>PIPE CONNECTION</b>				
Condensing water drainage	mm	16		
Refrigerant liquid	in	1/2"		
Refrigerant gas	in	3/4"		
<b>CERTIFICATIONS &amp; STANDARDS</b>				
Quality & Compliance		ISO 9001:2008 ; ISO:14001:2004 ; ISO 13485:2003 ; OHSAS 18001:2007 ; CE		

(1) - Return air dry bulb temperature 27 °C, wet bulb temperature 19 °C, outdoor dry bulb temperature 35 °C, wet bulb temperature 24 °C.

(2) - Option.

Sy-G reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Sy-G products previously or subsequently sold.

**Technical Specifications for:  
Achiever 10 - 15 KW - 380~415V/3Ph/50Hz**

UNIT MODEL		WPUA10FH3PAS	WPUA13FH3PAS	WPUA15FH3PAS
Supply air scheme		U: Upflow		
<b>POWER SUPPLY</b>				
Power source		380 - 415V, 3Ph, 50Hz		
<b>COOLING CAPACITY <sup>(2)</sup></b>				
Total (1)	KW [Btu/h]	10.0 [34,120]	13.0 [44,356]	15.0 [51,182]
Sensible(1)	KW [Btu/h]	7.1 [24,225]	11.1 [37,873]	14.1 [48,111]
<b>EVAPORATION FAN</b>				
Type		Double inlet centrifugal fan		
Qty of fan	n	1		
Air Volume	m3/h [CFM]	1,600 [941]	2,000 [1,177]	
<b>COMPRESSOR</b>				
Type		Hermetic scroll compressor		
Qty of Compressor		1		
<b>REFRIGERANT</b>				
Type		R410A / R407C		
Control		Thermal expansion valve		
<b>ELECTRICAL HEATER CAPACITY</b>				
Electrical heater capacity <sup>(2)</sup>	KW	4.5		
<b>DIMENSIONS AND WEIGHT</b>				
Width	mm	1,295		
Depth	mm	310		
Height	mm	803		
Weight	Kg	64	67	69
<b>OUTDOOR UNIT</b>				
Fan type		Axial fan		
Qty of fan	n	1		
Width	mm	1275		
Depth	mm	590		
Height	mm	855		
Weight	Kg	123		
<b>PIPE CONNECTION</b>				
Condensing water drainage	mm	16		
Refrigerant liquid	in	1/2"		
Refrigerant gas	in	3/4"		
<b>CERTIFICATIONS &amp; STANDARDS</b>				
Quality & Compliance		ISO 9001:2008 ; ISO:14001:2004 ; ISO 13485:2003 ; OHSAS 18001:2007 ; CE		

(1) - Return air dry bulb temperature 27 °C, wet bulb temperature 19 °C, outdoor dry bulb temperature 35 °C, wet bulb temperature 24 °C.

(2) - Option.

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**Technical Specifications for:  
Achiever 10 - 15 KW - 220~230V/1Ph/50Hz**

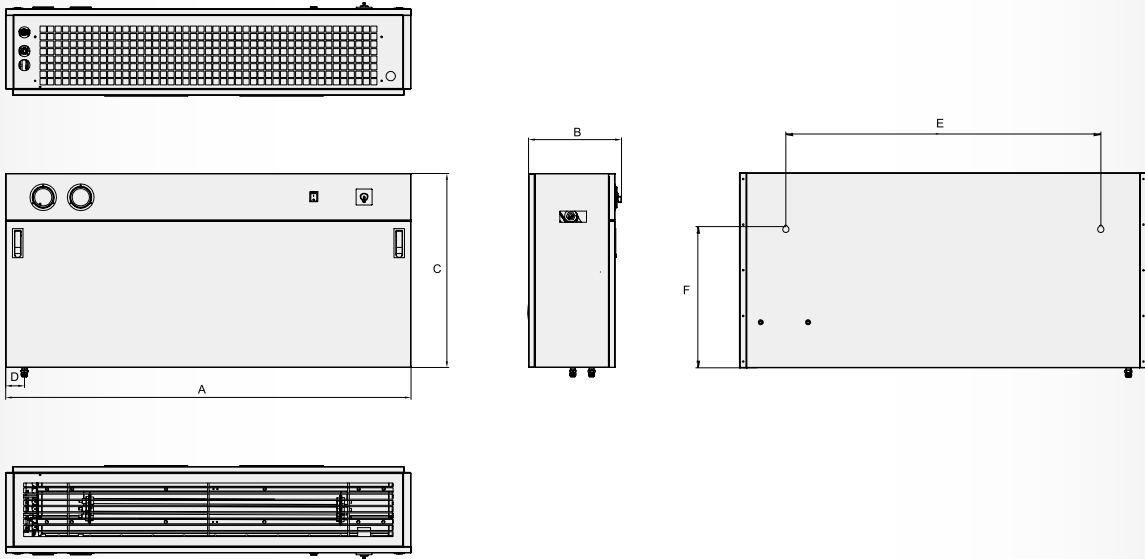
UNIT MODEL		WPUA10FH1PAS	WPUA13FH1PAS	WPUA15FH1PAS
Supply air scheme		U: Upflow		
<b>POWER SUPPLY</b>				
Power source		220 - 230V, 1Ph, 50Hz		
<b>COOLING CAPACITY <sup>(2)</sup></b>				
Total (1)	KW [Btu/h]	10.0 [34,120]	13.0 [44,356]	15.0 [51,182]
Sensible(1)	KW [Btu/h]	7.1 [24,225]	11.1 [37,873]	14.1 [48,111]
<b>EVAPORATION FAN</b>				
Type		Double inlet centrifugal fan		
Qty of fan	n	1		
Air Volume	m <sup>3</sup> /h [CFM]	1,600 [941]	2,000 [1,177]	
<b>COMPRESSOR</b>				
Type		Hermetic scroll compressor		
Qty of Compressor		1		
<b>REFRIGERANT</b>				
Type		R410A / R407C		
Control		Thermal expansion valve		
<b>ELECTRICAL HEATER CAPACITY</b>				
Electrical heater capacity <sup>(2)</sup>	KW	4.5		
<b>DIMENSIONS AND WEIGHT</b>				
Width	mm	1,295		
Depth	mm	310		
Height	mm	803		
Weight	Kg	64	67	69
<b>OUTDOOR UNIT</b>				
Fan type		Axial fan		
Qty of fan	n	1		
Width	mm	1275		
Depth	mm	590		
Height	mm	855		
Weight	Kg	123		
<b>PIPE CONNECTION</b>				
Condensing water drainage	mm	16		
Refrigerant liquid	in	1/2"		
Refrigerant gas	in	3/4"		
<b>CERTIFICATIONS &amp; STANDARDS</b>				
Quality & Compliance		ISO 9001:2008 ; ISO:14001:2004 ; ISO 13485:2003 ; OHSAS 18001:2007 ; CE		

(1) - Return air dry bulb temperature 27 °C, wet bulb temperature 19 °C, outdoor dry bulb temperature 35 °C, wet bulb temperature 24 °C.

(2) - Option.

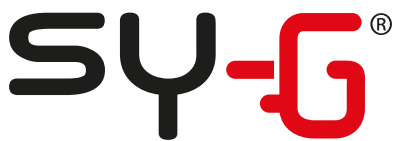
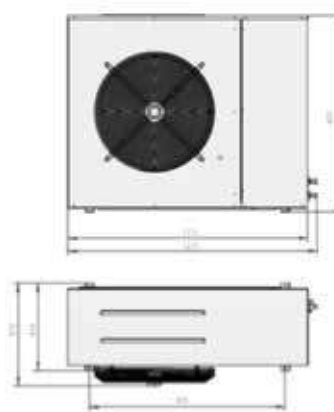
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**ACHIEVER indoor unit dimensions drawing:**



MODEL		ACHIEVER 10KW/15KW
A	mm	1295
B	mm	310
C	mm	803
D	mm	60
E	mm	1000
F	mm	630

**ACHIEVER: outdoor unit dimensions drawing:**



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