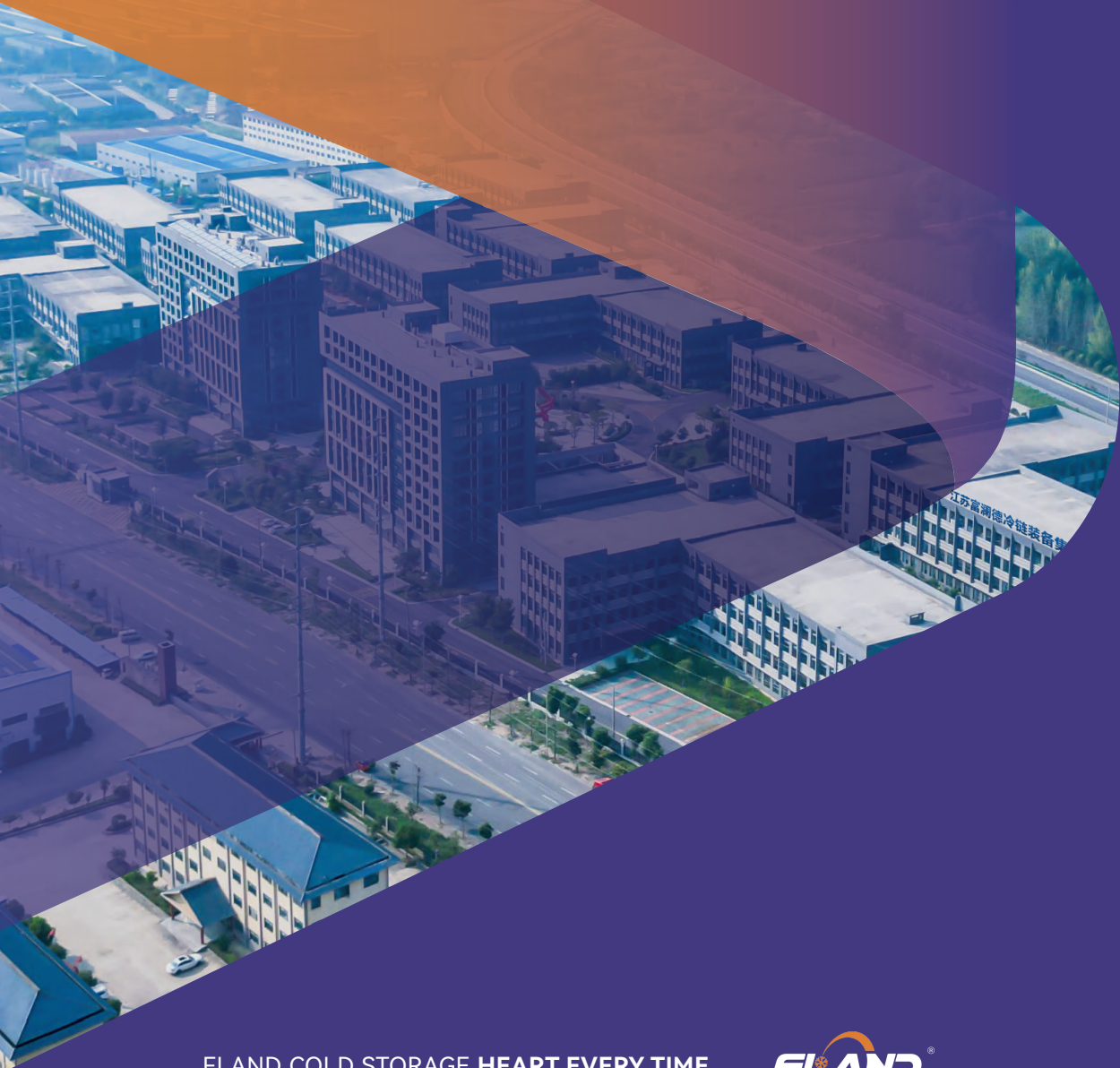


ADVANTAGE ANALYSIS HUIHUANG SERIES



FLAND COLD STORAGE HEART EVERY TIME



FLAND
REFRIGERATION
TECHNOLOGY CO., LTD



COMPANY INTRODUCTION

SOURCE FACTORY

Jiangsu, Anhui, Chongqing, and Guangdong have established production bases.

10000+

Undertakes the construction of over 10,000 cold storage units each year.

100+

Exports to the United States, the United Kingdom, and over 100 countries.

PREFERRED BRAND

Ranked first in the top ten brands of the cold storage industry for 2022.

3600+

3600+ installation service Nationwide.

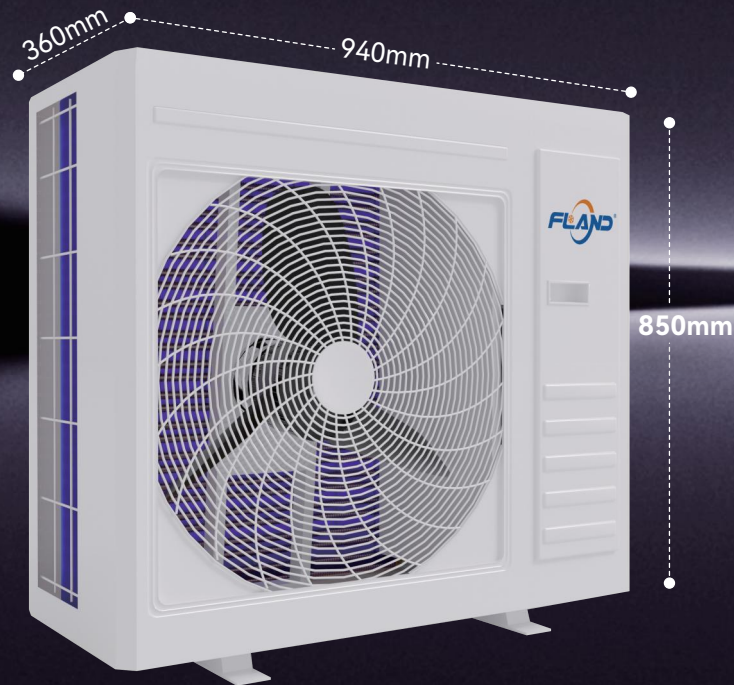
100+

Honored with hundreds of patents, software copyrights, and certifications.



OVERALL DESIGN--THE MOST IMMEDIATE CHANGE (TAKING 3P AS AN EXAMPLE)

● CLASSIC SERIES COLD SOURCE



● HUIHUANG SERIES COLD SOURCE



The conventional product structure of the market cannot meet the design requirements and fails to satisfy the current more scientific and standardized design and layout. Therefore, we have **redesigned the structure** and sheet metal of the refrigeration unit.

ACTUAL COOLING CAPACITY DESIGN

Small cooling load with a large cold source, highly efficient and energy-saving.



CLASSIC SERIES COLD SOURCE			
POWER	WORKING HOURS	DAILY ELECTRICITY CONSUMPTION	ANNUAL ELECTRICITY CONSUMPTION
20P/14.7KW	10H	147KW.H	54,000KWH

TAKING A 300-CUBIC-METER COLD STORAGE FACILITY(-18°C)AS AN EXAMPLE



HUIHUANG SERIES COLD SOURCE			
POWER	WORKING HOURS	DAILY ELECTRICITY CONSUMPTION	ANNUAL ELECTRICITY CONSUMPTION
13P/9.5KW	10H	95KW.H	34,000KWH



SAVE **19,000** YUAN IN ELECTRICITY BILLS IN A YEAR.

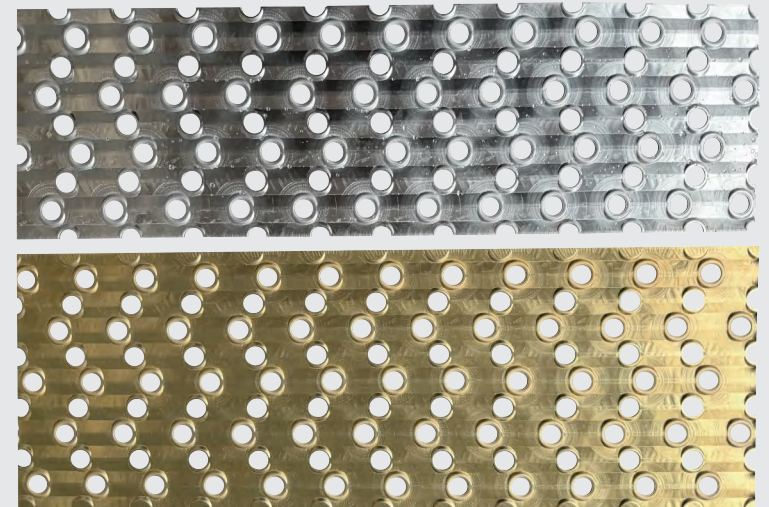
UNIT DESIGN -- HEAT DISSIPATION DESIGN

(CONDENSING FIN)

	CLASSIC SERIES COLD SOURCE	HUIHUANG SERIES COLD SOURCE
CONDENSING FIN	H = 0.095 mm, Gap = 1.8 mm	H = 0.105 mm, Gap = 2.1 mm
	Blue hydrophilic aluminum fins	Golden hydrophilic aluminum fins

Note:H=0.105 mm(thicker aluminum foil),Gap=2.1 mm,designed with a wider spacing.

- Greater structural strength, with fins that are less likely to bend or deform. They are resistant to moisture and corrosion. The golden color is not paint; it is an aerospace-grade ceramic coating, which provides three times more corrosion resistance than ordinary aluminum sheets. It is unaffected by salt, alkali, or seafood odors, reducing maintenance costs and extending service life.
- Lower air resistance, with better air circulation, reduces fan energy consumption and enhances the heat dissipation effect of the condenser.
- The gap ranges from 1.8 mm to 2.1 mm, allowing frost to shed automatically, reducing frost formation, and providing better anti-dust accumulation capabilities. This minimizes fin blockage and ensures effective condenser heat dissipation.



UNIT DESIGN--HEAT DISSIPATION DESIGN (COPPER TUBE)

	CLASSIC SERIES COLD SOURCE	HUIHUANG SERIES COLD SOURCE
INTERNAL THREADED COPPER TUBES IN STAGGERED ARRANGEMENT	25*21.65-φ9*0.24mm-0.12mm	21*18.19-φ7*0.24mm-0.18mm

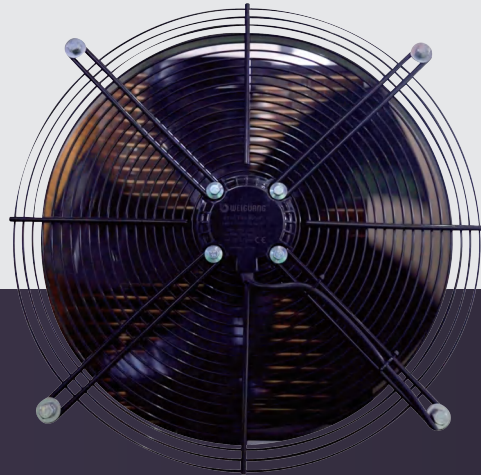
DESIGN WITH SMALL-DIAMETER TUBES IN DENSE ARRANGEMENT

More copper tubes are arranged to increase the heat transfer surface area. The small tube diameter promotes a faster refrigerant flow velocity, creating a turbulent effect, which enhances the heat transfer capability of the condenser and improves the heat dissipation efficiency.

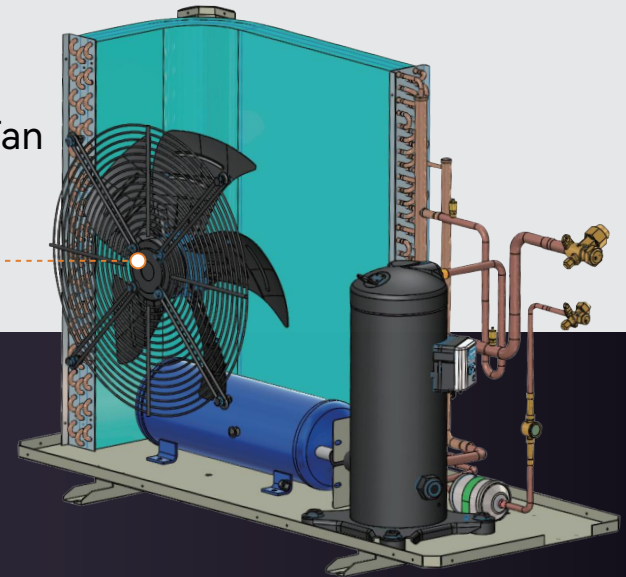


UNIT DESIGN--HEAT DISSIPATION DESIGN (MOTOR)

	CLASSIC SERIES COLD SOURCE	HUIHUANG SERIES COLD SOURCE
MOTOR	Conventional Axial Flow Motor:65W	External Rotor Motor:150W



External Rotor
External Rotor Fan



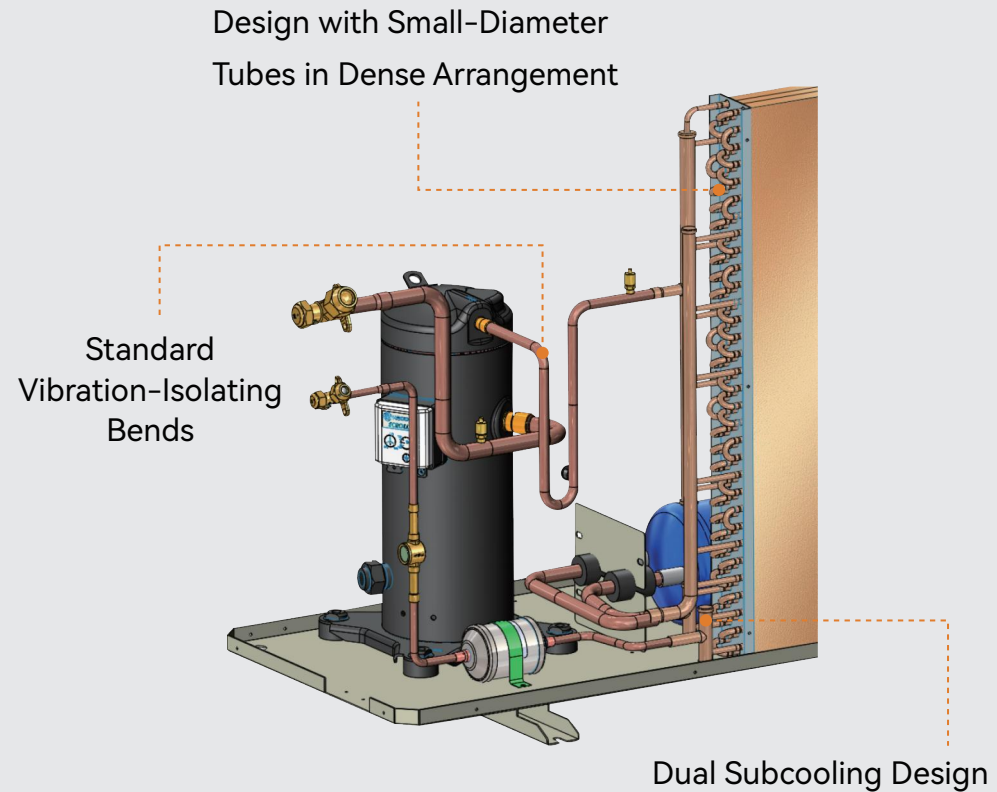
- The structure features a rotor that surrounds the stator, resulting in high airflow, good heat dissipation, high energy efficiency, low noise, and long service life.

UNIT DESIGN--HEAT DISSIPATION DESIGN (MOTOR)

	CLASSIC SERIES COLD SOURCE	HUIHUANG SERIES COLD SOURCE
SUBCOOLING DESIGN	/	Dual Subcooling Design

SECONDARY SUBCOOLING DESIGN

More copper tubes are arranged to increase the heat transfer surface area. The small tube diameter promotes a faster refrigerant flow velocity, creating a turbulent effect, which enhances the heat transfer capability of the condenser and improves the heat dissipation efficiency.



UNIT DESIGN -- RESERVOIR DESIGN

	CLASSIC SERIES COLD SOURCE	HUIHUANG SERIES COLD SOURCE
SUBCOOLING DESIGN	/	Dual Subcooling Design



2L RECEIVER



6L RECEIVER

SECONDARY SUBCOOLING DESIGN

- A large-capacity receiver enhances the condensation effect and ensures that the refrigerant entering the expansion valve is in a fully liquid state. This reduces the flash-gas generation, improves the heat transfer efficiency of the evaporator, and increases the COP (Coefficient of Performance) of the refrigeration system. It is particularly suitable for applications with a high refrigeration load.
- Additionally, the large-capacity receiver can effectively facilitate refrigerant recovery during shutdown, improve defrosting efficiency, and reduce the risk of compressor liquid slugging.

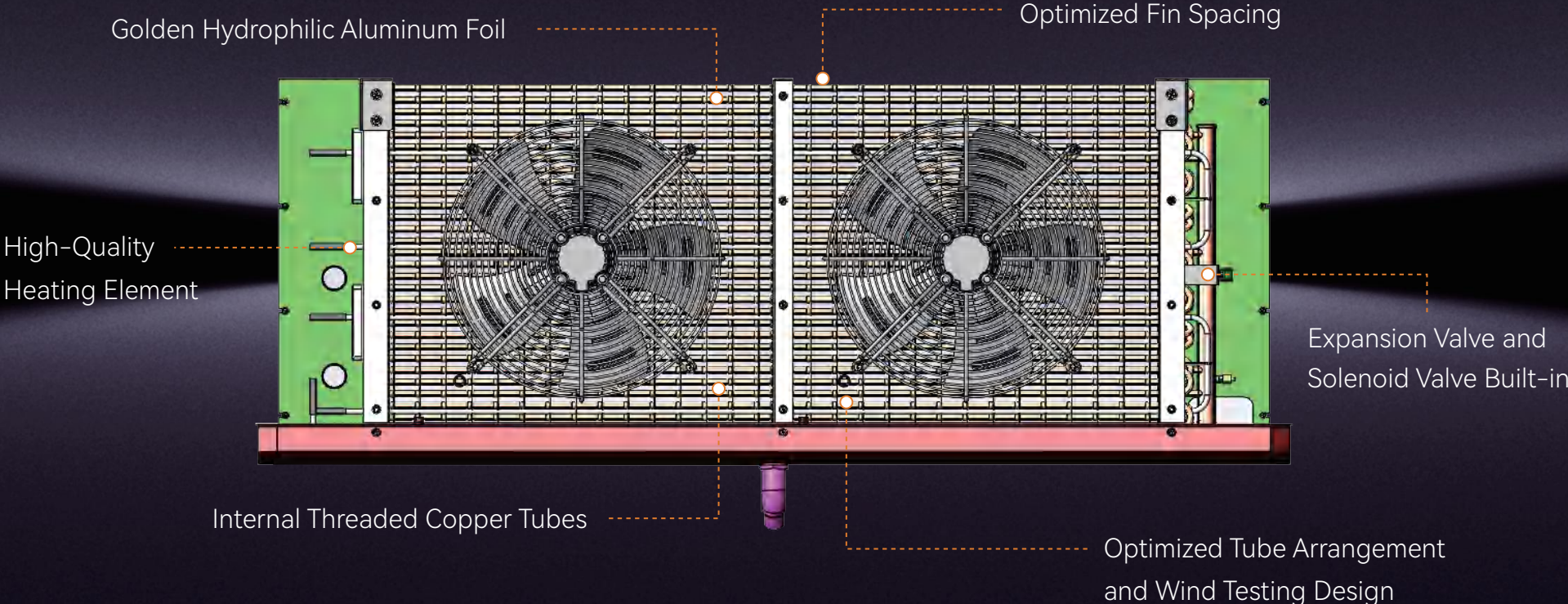
UNIT DESIGN--AIR RETURN VALVE DESIGN

	CLASSIC SERIES COLD SOURCE	HUIHUANG SERIES COLD SOURCE
SUBCOOLING DESIGN	Low-Position Air Return Valve	High-Position Air Return Valve

- Prevents oil and liquid accumulation, which can lead to liquid slugging issues.



COLD AIR FAN DESIGN



CHILLER DESIGN - EVAPORATING FINS

	CLASSIC SERIES COLD SOURCE	HUIHUANG SERIES COLD SOURCE
EVAPORATOR FINS	Using 0.18 mm thick standard aluminum foil	Using 0.25 mm thick golden hydrophilic aluminum foil

- Compared to 0.18 mm thin aluminum foil, using 0.25 mm thick aluminum foil for the heat dissipation fins offers greater mechanical strength, higher thermal conductivity, better corrosion resistance, and a longer service life. In particular, in environments with high temperatures, high humidity, or significant vibrations, the thicker aluminum foil fins provide more stable and durable heat dissipation effects.
- Hydrophilic aluminum foil reduces the formation of water droplets and water films, minimizes frosting, enhances heat transfer efficiency, and is corrosion-resistant, which extends the lifespan of the equipment.



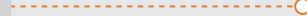
CHILLER DESIGN - COPPER PIPE

	CLASSIC SERIES COLD SOURCE	HUIHUANG SERIES COLD SOURCE
INTERNALLY GROOVED COPPER TUBE	$\phi 9.52 (0.27+0.16)$	$\phi 9.52 (0.27+0.16)$

INLET AIR TEMPERATURE
-18°C



EXIT TEMPERATURE
-19°C



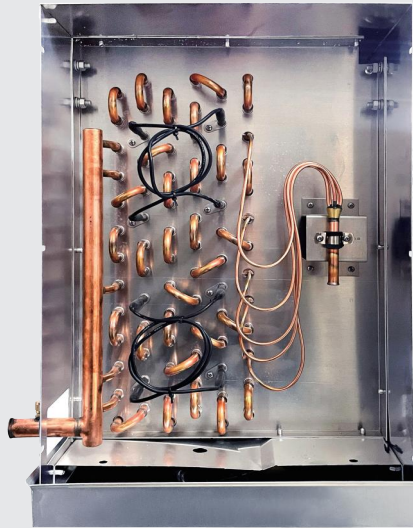
EXHAUST AIR TEMPERATURE
-20°C

EVAPORATION TEMPERATURE
-25°C

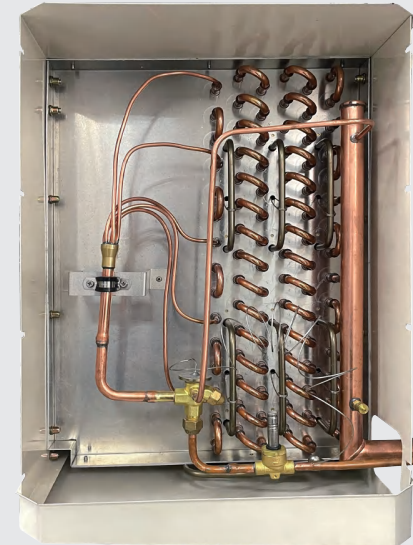
- High-threaded inner tubes increase the heat exchange surface area and enhance the turbulence effect, typically improving the cooling efficiency by 20% to 30%.

CHILLER DESIGN-PIPE ROW

	CLASSIC SERIES COLD SOURCE	HUIHUANG SERIES COLD SOURCE
PIPELINE ARRANGEMENT METHOD	37.5×32.48 mm/staggered arrangement	36 mm×31.18 mm/staggered arrangement
NUMBER OF TUBE ROWS	4 rows	6 rows



4Rows



6Rows

- A denser cross-staggered arrangement design increases the heat exchange surface area, thus improving the heat exchange efficiency of the refrigeration system. It is suitable for scenarios that require enhanced cooling effects.

CHILLER DESIGN - LAYOUT

	CLASSIC SERIES COLD SOURCE	HUIHUANG SERIES COLD SOURCE
STRUCTURAL OPTIMIZATION	The expansion valve is installed outside the evaporator fan, while the solenoid valve is located in the outdoor unit, at a distance from the evaporator fan.	Built-in solenoid valve and expansion valve

THE EXPANSION VALVE IS INSTALLED INSIDE THE EVAPORATOR FAN UNIT:

Prevent the refrigerant from vaporizing prematurely, which can produce bubbles, lead to uneven liquid distribution, and reduce cooling efficiency. Ensure adequate liquid supply to the evaporator, stabilize the throttling effect, and enhance cooling efficiency.

THE SOLENOID VALVE IS INSTALLED INSIDE THE EVAPORATOR FAN UNIT:

During shutdown, it can more quickly cut off the liquid refrigerant, reducing the liquid accumulation in the system when it is off, and preventing liquid return to the compressor.

- Horizontal/vertical exhaust pipe velocity: 10–15 m/s
- Horizontal/vertical high-pressure liquid supply pipe velocity: 0.75–1.5 m/s
- Liquid drain pipe velocity without vapor balance (from condenser to receiver): <0.5 m/s
- Vertical return gas pipe velocity: 7.5–12 m/s
- Horizontal return gas pipe velocity: 5.0–8.0 m/s
- System piping gradient: 1.0%–2.0%

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