AQURA

BRASS CONNECTORS
HVAC

BRASS FLARED CONNECTORS

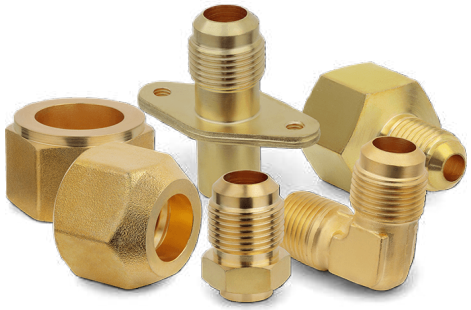
BRASS FITTINGS & CONNECTORS FOR HVAC

Aqura has been manufacturing and supplying HVAC components and assemblies for over a decade, serving some of the largest OEM manufacturers worldwide. We are known for delivering cost-effective, high-precision parts that meet the demands of the HVAC industry.

Aqura continues to invest in advanced machinery and engineering expertise to manufacture brass components such as 45° Flared Brass Connectors and Distributors. These components are made from high-quality extruded brass and machined using CNC equipment, ensuring accuracy and consistency. Our quality standards are maintained in line with certifications such as ISO 9001.

45° FLARED BRASS CONNECTORS

Our range of 45° Flared Brass Connectors includes nuts, unions, elbows, tees, and adapters. These are manufactured using brass forgings or extruded brass rods and are precision-machined on CNC machines. A smooth internal finish ensures unrestricted flow and minimizes pressure drop.



Aqura's 45° Flared Brass Fittings and Brass Flanges meet industry standards and are widely used by leading OEM manufacturers globally.

FEATURES :

SIZES AVAILABLE	1/4″ FL x 1/4″, 3/8″ FL x 3/8″, 1/2″ FL x 1/2″, 5/8″ FL x 5/8″, 3/4″, 7/8″
MATERIAL	High-quality brass conforming to BS-218 & IS-319, C3606
PRESSURE RATING	Tested up to 600 PSI to prevent leakage or porosity
REFRIGERANT COMPATIBILITY	R-22, R-134A, R-410A, R-407C
FINISH	Smooth internal finish ensures better flow and reduced pressure drop

BRASS DISTRIBUTORS

In any refrigeration system, the evaporator coil is one of the most important components. Its job is to create the right pressure conditions for the refrigerant to change from liquid to gas. Most of this pressure drop is handled by the metering device, typically a thermostatic expansion valve (TXV).

WHAT IS A DISTRIBUTOR?

In systems where the evaporator has multiple circuits, the distributor comes right after the TXV. A refrigerant distributor is usually a brass component (though materials may vary) that acts like a central hub. It connects to several small tubes called circuit tubes or leads each feeding a separate section of the evaporator coil.

As the name suggests, its main role is to evenly distribute the refrigerant across all these circuits, ensuring balanced performance throughout the coil.

Think of it this way: if the expansion valve does the heavy lifting in controlling pressure, the distributor fine-tunes the process. The TXV manages the bulk of the pressure drop, while the distributor ensures that the refrigerant flows evenly and efficiently into each circuit.

WHY IS A DISTRIBUTOR IMPORTANT?

When refrigerant enters the evaporator, its pressure drops, but the flow rate stays constant. This causes part of the liquid refrigerant to start boiling, creating a mixture of liquid and vapor known as two-phase flow.

This two-phase condition is ideal for heat transfer, making the system far more efficient than if the refrigerant remained purely liquid or vapor.

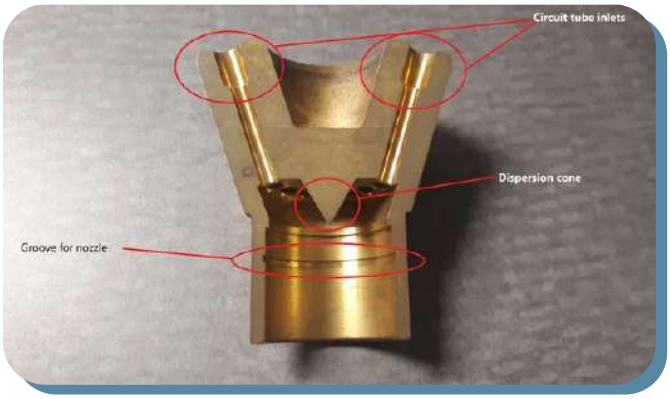
Without a distributor (for example, if only a simple header is used), achieving this balanced two-phase flow becomes difficult in multi-circuit coils. The result is uneven distribution, reduced efficiency, and poor cooling performance.

COMMON DISTRIBUTOR TYPES & INSTALLATION ORIENTATIONS

ORIFICE DISTRIBUTORS

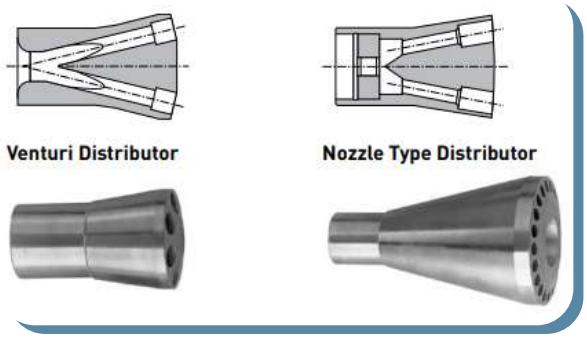
These work similarly to how a showerhead controls water flow. An orifice distributor uses a small, precisely sized opening (nozzle) to regulate the refrigerant flow.

Inside the distributor, a nozzle disk is fitted into a groove. The size of this opening is selected based on the required flow velocity as refrigerant enters the circuit tubes. Proper sizing ensures consistent and efficient distribution.



VENTURI DISTRIBUTORS

Venturi distributors operate on the Venturi effect, discovered by Giovanni Venturi. This principle explains how pressure drops when a fluid flows through a narrowed section.



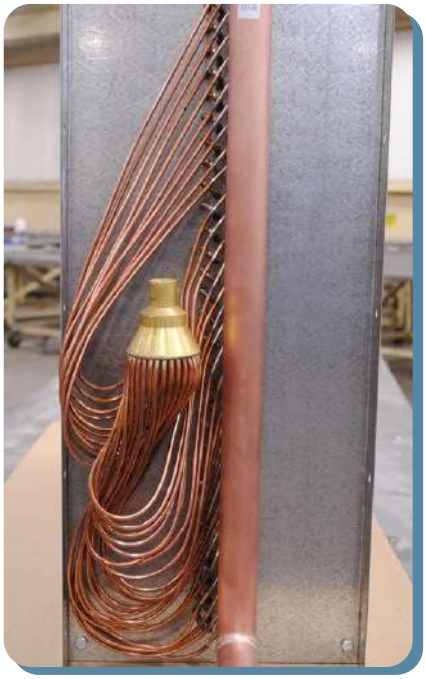
Instead of a sharp-edged hole like in orifice types, Venturi distributors have a smoothly tapered throat. This design helps control flow more gradually and efficiently. However, these must be precisely designed during manufacturing and cannot be adjusted later.

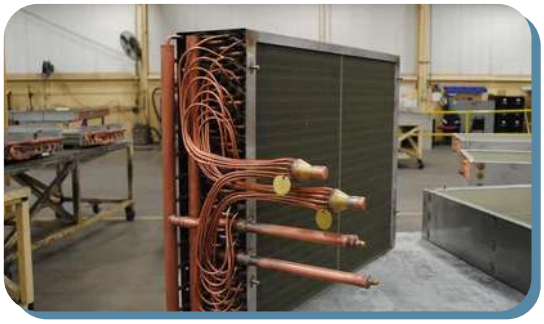
BRASS DISTRIBUTORS

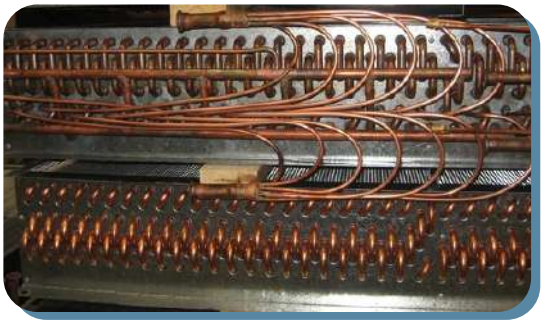
INSTALLATION ORIENTATION

Distributors can be installed in different positions depending on system design and space constraints.

A vertical installation is often preferred because gravity helps improve distribution efficiency. However, in real-world applications, horizontal or angled installations are also common due to layout limitations.







SIZING

One of the most critical aspects of a distributor is selecting the right nozzle size.

- If the nozzle is too large → refrigerant velocity drops, and proper two-phase flow may not develop
- If the nozzle is too small → excessive pressure drop occurs, reducing system efficiency and capacity

Getting this balance right is essential for optimal performance. Even though it's sometimes overlooked, correct nozzle selection plays a major role in how well the entire refrigeration system operates.

BRASS REFRIGERANT DISTRIBUTORS

THE SCIENCE OF DISTRIBUTION

Refrigerant distributors are pivotal in multi-circuit evaporator systems. Their primary function is to equally divide the flashed refrigerant (liquid and vapor) from the thermostatic expansion valve (TXV) into individual evaporator circuits.

Our brass distributors are engineered to minimize pressure drop while maintaining a high velocity to ensure uniform oil return. By using high-density forged brass, we eliminate the risk of refrigerant leakage common in cast alternatives.

KEY ADVANTAGES

- Uniform refrigerant distribution across all circuits.
- Reduced flash gas turbulence via optimized internal geometry.
- Forged brass construction for maximum structural integrity.
- Compatibility with all HFC, HCFC, and Natural Refrigerants.

MATERIAL SPECS	OPERATING TEMP	MAX PRESSURE
ASTM B124 / B16	-40°C to +150°C	700 PSI (48 Bar)
Alloy C37700 (Forging Brass)		

BRASS REFRIGERANT DISTRIBUTORS

STANDARD CONFIGURATION MODELS

MODEL NO.	INLET (ODF)	NO. OF OUTLETS	OUTLET SIZE (ODF)	CAPACITY (TONS)
TFD-04-02	1/2"	2	3/16" or 1/4"	1.0 - 3.5
TFD-05-04	5/8"	4	1/4" or 5/16"	3.0 - 7.5
TFD-07-06	7/8"	6	5/16" or 3/8"	7.0 - 15.0
TFD-09-12	1-1/8"	12	3/8"	15.0 - 30.0

INSTALLATION BEST PRACTICES

1. **Orientation :** For optimal gravity-independent distribution, the distributor should be installed vertically with the inlet pointing upward.

2. **SIZING :** Always select the distributor based on the evaporator capacity and the number of circuits, rather than pipe size alone.

3. **BRAZING :** Use a wet cloth to wrap the body during brazing to prevent overheating the internal orifice plate.

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