Dry All®

Full Range of HVAC&R Line Products

Accumulator Charge Compensators

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Introduction

In heat pump applications, achieving optimal refrigerant levels is pivotal for system efficiency and performance. When transitioning between cooling and heating modes, a common issue arises: excess refrigerant accumulation due to high temperatures in the suction line. This surplus refrigerant can lead to elevated discharge pressure and diminished heat output, ultimately hampering system effectiveness. Enter the Dry All Accumulator Charge Compensator—a strategic solution designed to address this challenge. By efficiently managing refrigerant levels, this component facilitates better system control, enhances efficiency, and ensures seamless operation during mode transitions. With the Dry All Accumulator Charge Compensator, maintaining optimal refrigerant levels is no longer a hurdle but a streamlined process, optimizing system performance and longevity.

Features

- Energy Storage: The Dry All Accumulator Charge Compensator stores excess refrigerant, acting as a hydraulic battery, ready to release stored energy as needed.
- Balancing Flow: Ensures smooth system operation by balancing hydraulic fluid flow, compensating for variations in load demand.
- Supplementing Pump Flow: Provides additional fluid during peak demand periods, optimizing system performance and reliability.
- Preventing Pressure Fluctuations: Maintains consistent fluid volume, stabilizing system pressure and reducing wear on components.
- Safety Device: Acts as a safety mechanism in case of engine or pump failure or fluid leaks, preventing sudden load drops.
- Shock Absorption: Absorbs shock from load starting, stopping, or reversing, enhancing overall system safety and performance.

Advantages

- Enhanced Efficiency: By controlling refrigerant levels and stabilizing system pressure, the Dry All Accumulator Charge Compensator improves system efficiency and performance.
- Increased Reliability: Acts as a safety device to prevent sudden load drops, ensuring uninterrupted operation even in the event of equipment failure.
- Extended Component Life: Reduces wear on system components by maintaining consistent fluid volume and minimizing pressure fluctuations.
- Versatile Applications: Suitable for a wide range of heat pump applications, including Heating and Cooling Reverse Cycle HVAC&R Systems.

Applications

- Heating and Cooling Reverse Cycle HVAC&R Systems
- Industrial Heat Pump Applications
- Refrigeration Systems
- Lift Equipment
- Hydraulic Systems

Working of Charge Compensator

An Dry All Accumulator Charge Compensator is installed in the suction line after the evaporator/ outdoor coil and before the reversing valve as shown in the refrigeration cycle **image 1.**
On installation of charge compensator in suction line, during the heating mode refrigerant is pulled into the charge compensator from the liquid line due to the low temperature of the vapor refrigerant flowing through center tube as shown in refrigeration cycle **image 2.**
The extra refrigerant charge is stored in the charge compensator till the cycle reverses. In the cooling mode the refrigerant flowing through its center tube is hot, causing the refrigerant to be forced back into the liquid line and again into circulation.

The net effect is that in heating mode, the system utilizes less amount of refrigerant, while in cooling mode, the entire refrigerant charged initially added to the system is utilized. This results in optimized system performance during both heating and cooling operations.

HEAT PUMP REFRIGERATION CYCLE

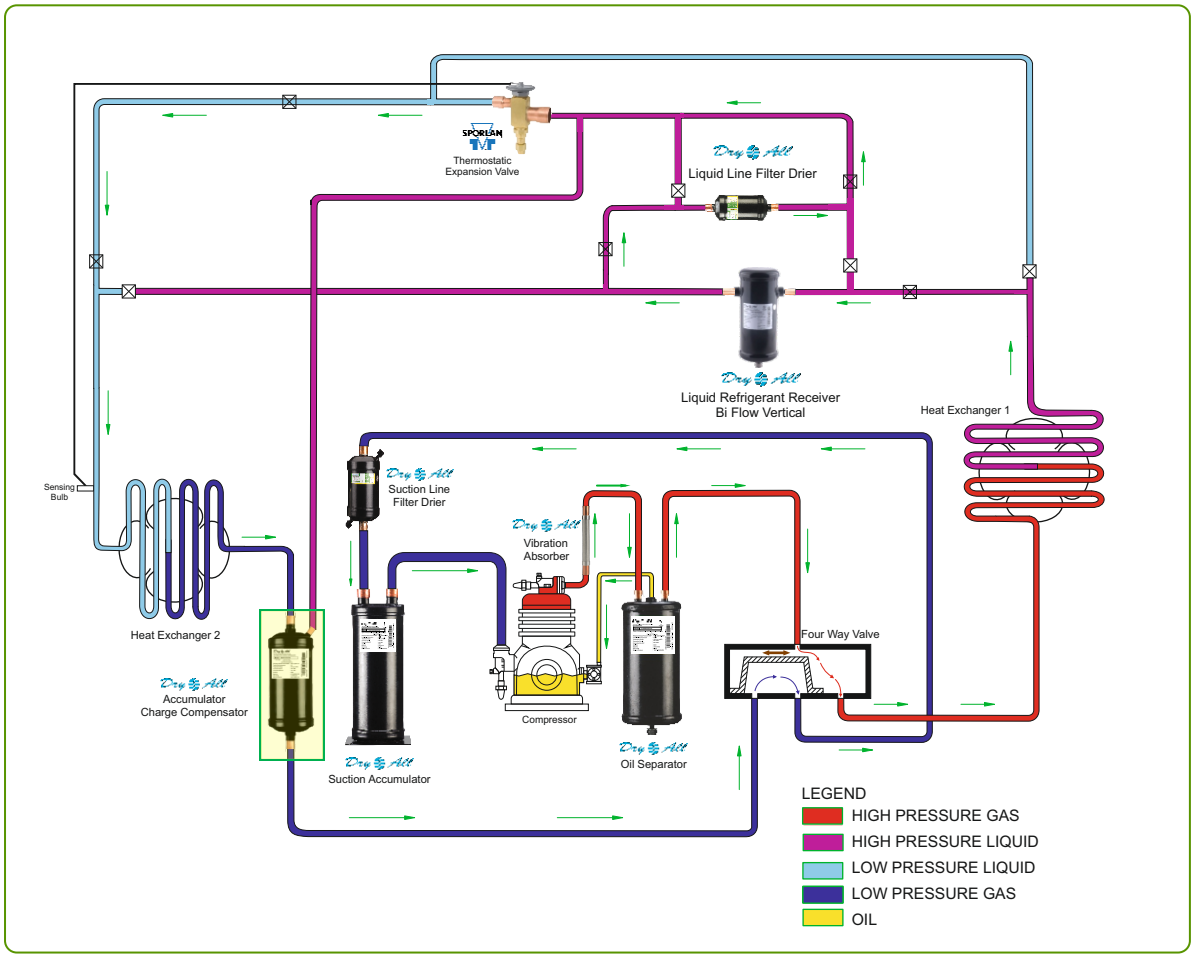


Image 1

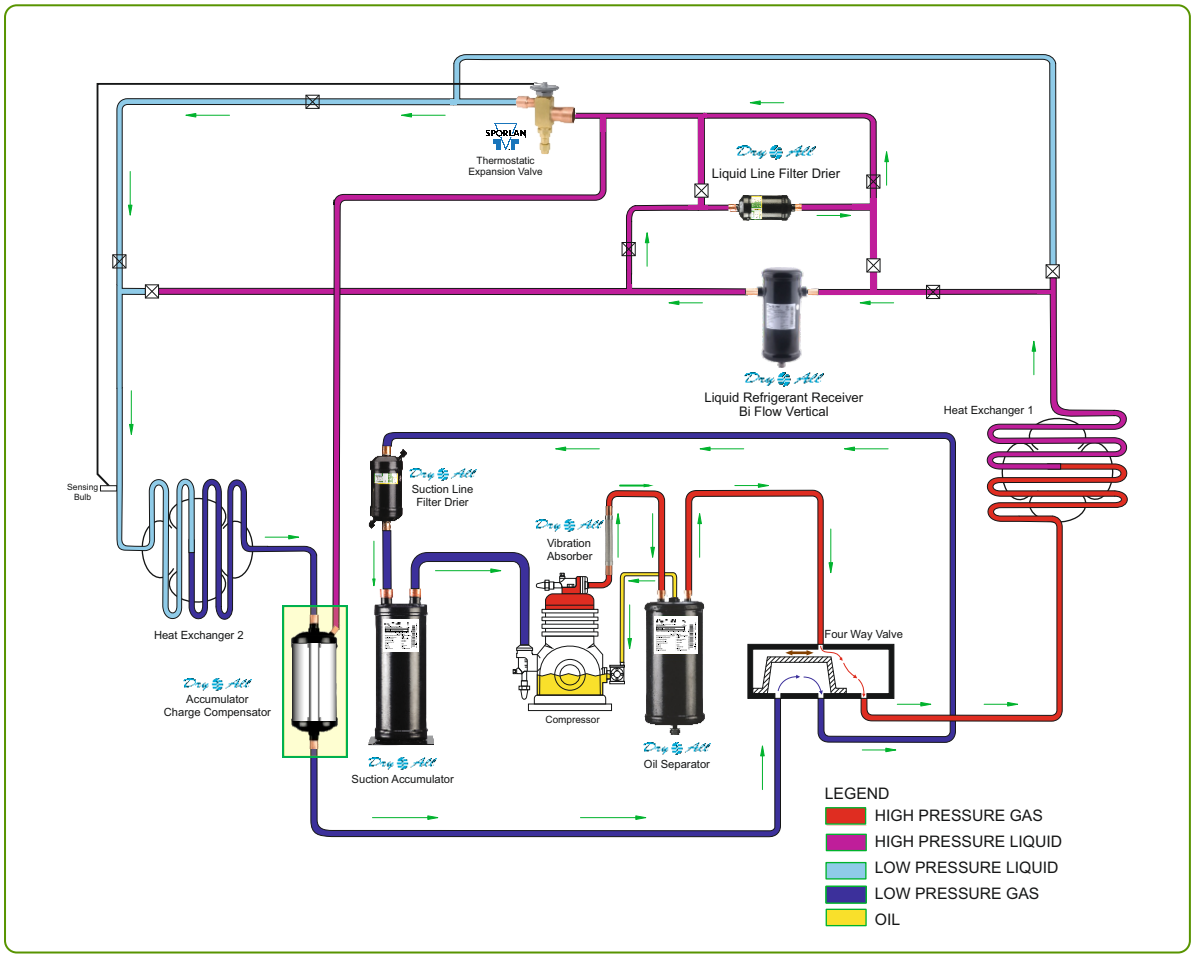
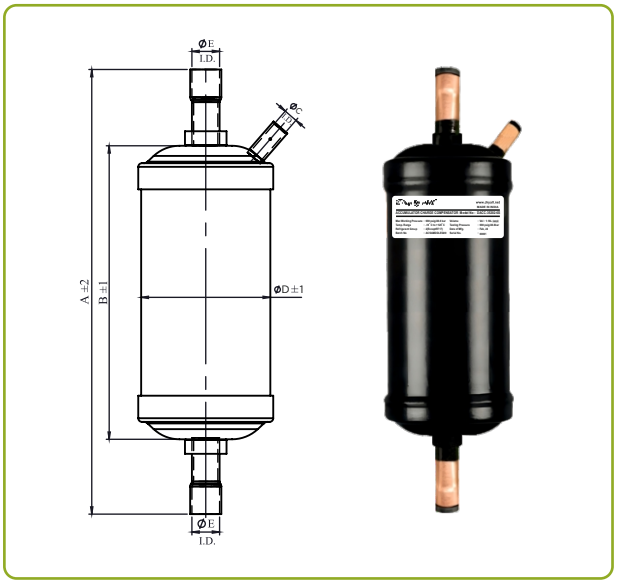


Image 2

Product Specifications

- Maximum working pressure: 45 bar.
- Solid Copper Solder Connection.
- Minimum Pressure Drop.
- Powder Coated Surface Can Survive 500 hours of Salt Spray Test.
- Designed for use with all HFC, HCFC, and CFC Refrigerants Excluding R-123.
- Applicable Medium Temperature: -30°C to 120°C.
- Applicable Ambient Temperature: -30°C to 55°C.

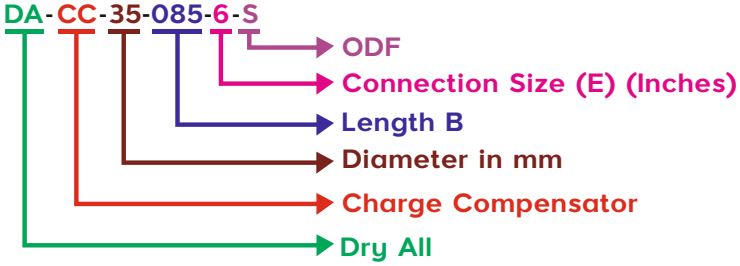
Drawing

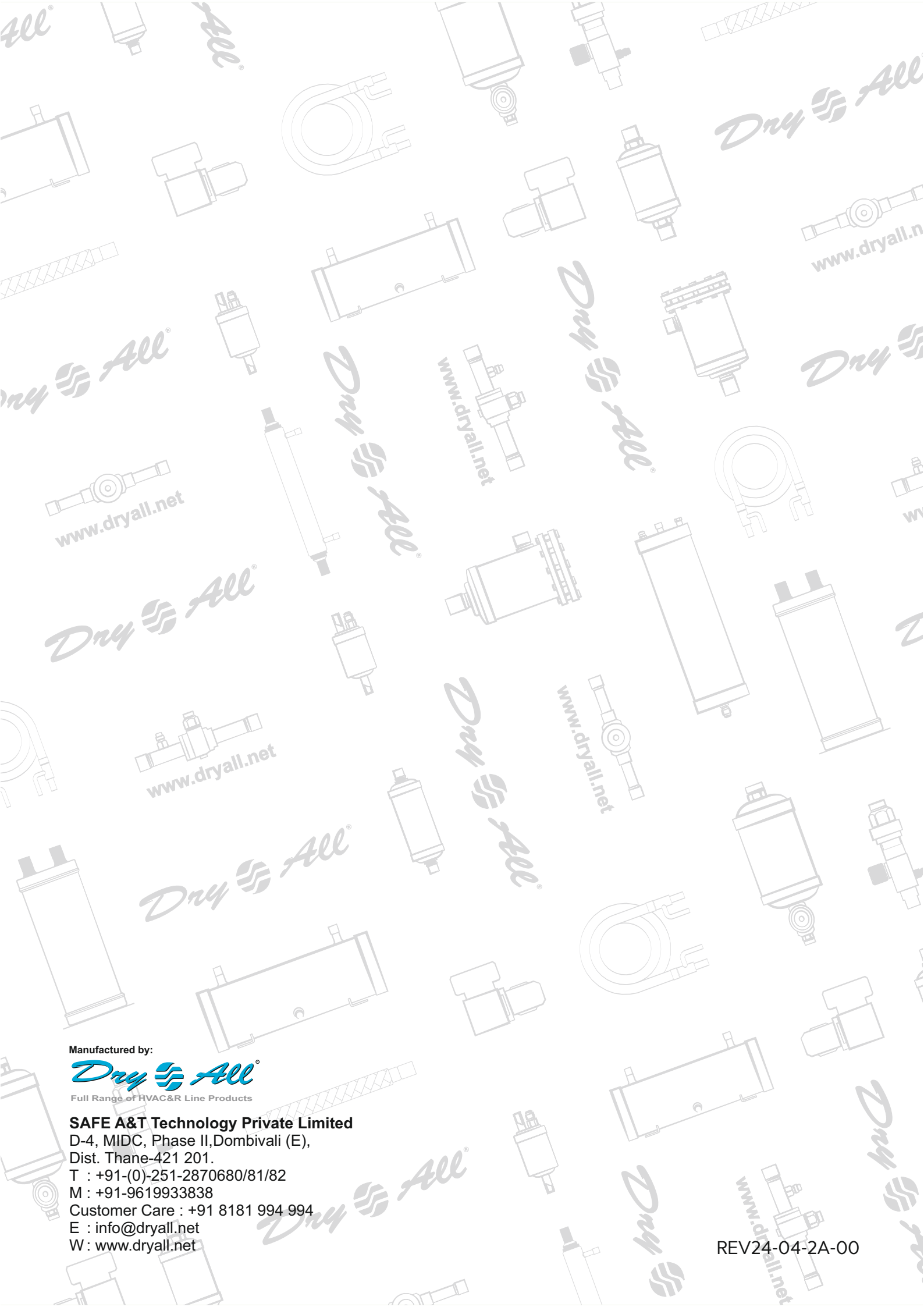


Available Models

S/N	Model No.	Liquid Line Connection (ØC)	Connections Inlet & Outlet (ØE)	Dimensions (mm)			Internal Volume (cu.in.)	Holding Capacity (Oz) R-410A	
				ØD	A	B		75°F	125°F
1	DACC-35085-6S	3/8" ODF	3/4" ODF	88.9	190	85	25	15	13
2	DACC-35129-6S	3/8" ODF	3/4" ODF	88.9	234	129	38	24	20
3	DACC-35160-6S	3/8" ODF	3/4" ODF	88.9	265	160	47	29	24
4	DACC-35183-6S	3/8" ODF	3/4" ODF	88.9	288	183	54	36	28
5	DACC-35208-6S	3/8" ODF	3/4" ODF	88.9	313	208	62	42	35
6	DACC-35260-6S	3/8" ODF	3/4" ODF	88.9	365	260	78	50	42
7	DACC-35305-6S	3/8" ODF	3/4" ODF	88.9	410	305	91	56	47
8	DACC-35366-6S	3/8" ODF	3/4" ODF	88.9	471	366	122	79	65
9	DACC-35085-7S	3/8" ODF	7/8" ODF	88.9	194	85	25	16	14
10	DACC-35129-7S	3/8" ODF	7/8" ODF	88.9	238	129	38	25	21
11	DACC-35160-7S	3/8" ODF	7/8" ODF	88.9	269	160	47	31	26
12	DACC-35183-7S	3/8" ODF	7/8" ODF	88.9	292	183	54	37	29
13	DACC-35208-7S	3/8" ODF	7/8" ODF	88.9	317	208	62	40	34
14	DACC-35260-7S	3/8" ODF	7/8" ODF	88.9	369	260	78	51	43
15	DACC-35305-7S	3/8" ODF	7/8" ODF	88.9	414	305	91	58	49
16	DACC-35366-7S	3/8" ODF	7/8" ODF	88.9	475	366	122	80	66

Nomenclature





Manufactured by:

Dry All®

Full Range of HVAC&R Line Products

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REV24-04-2A-00