

- 1** Thermostatic Expansion Valve (TXV) is a precision device used to modulate the flow of refrigerant entering the evaporator coil at the same rate as the refrigerant being boiled off in the evaporator coil. The TXV also provides the necessary pressure drop within the system to separate the high and low pressure sides of the system. This separation allows the low pressure refrigerant to absorb heat.
- 2** The cabinet of the Model 1700/1720 is fully insulated with a 1" insulation that is designed to reduce unit operating sound levels, prevent condensation from forming on the exterior of the unit, and prevent the possibility of heat gain when the unit is located in higher temperature locations, such as mechanical rooms or above ceilings.
- 3** The evaporator coil features a unique lanced fin and double row tube design, giving the Model 1700/1720 better surface contact with the moisture-laden air. The R-22 refrigerant within the coil provides the maximum temperature differential required for the air to reach dewpoint sooner, removing more moisture. These features provide the unit with a 60% SHR rating at 80°F and 60% RH.
- 4** The Model 1700/1720 can be controlled two ways; by using the control that is integrated into the cabinet of the unit, or by using a separate Model 70 control mounted in the occupied space. When the integral control is utilized, it is designed as a "set it and forget it control", the only interaction required is through a "more" or "less" dry adjustment knob located on the inlet side of the unit. When the Model 70 control is utilized, it becomes the sensor, determines unit operation, and display the space RH%.
- 5** Inlet and Discharge connections are designed for 8" insulated, flexible duct or can be ducted with standard 8" round or spiral duct.
- 6** The unit is equipped with a safety disconnect switch that will completely shut the power off during any service or maintenance.
- 7** The internal blower is a direct drive forward curved blower designed to deliver the air flow required for air "sampling" and distribution. The unit is designed to deliver the proper amount of air quietly and efficiently.



#### MODEL 1700 PERFORMANCE AT INLET AIR CONDITIONS AND 275 CFM

		Water Removal, lb/hr (PPD)						
		Relative Humidity, % Rh						
Dry Bulb Temp., °F		50	55	60	65	70	75	80
	60	1.5 (35)	1.9 (44)	2.3 (53)	2.8 (64.5)	3.2 (74)	3.6 (83)	3.9 (90)
	65	1.8 (42)	2.3 (53)	2.8 (65)	3.3 (76.1)	3.7 (85)	4.2 (97)	4.6 (106)
	70	2.1 (48)	2.7 (62)	3.2 (74)	3.7 (85.3)	4.2 (97)	4.7 (108)	5.2 (120)
	75	2.5 (58)	3.1 (72)	3.7 (85)	4.3 (99.1)	4.8 (111)	5.4 (125)	5.9 (136)
	80	2.9 (67)	3.5 (81)	3.9 (90)	4.7 (108.3)	5.3 (122)	6 (138)	6.6 (152)
	85	3.3 (76)	4 (92)	4.7 (108)	5.4 (125)	6.0 (138)	6.6 (152)	7.2 (166)
90	3.7 (85)	4.5 (104)	5.2 (119.9)	5.9 (136)	6.6 (152)	7.3 (168)	7.9 (182)	

#### MODEL 1720 PERFORMANCE AT INLET AIR CONDITIONS AND 500 CFM

		Water Removal, lb/hr (PPD)						
		Relative Humidity, % Rh						
Dry Bulb Temp., °F		50	55	60	65	70	75	80
	60	2.3 (53)	3 (69)	3.7 (85)	4.4 (101)	5.1 (118)	5.8 (134)	6.4 (148)
	65	2.8 (65)	3.6 (83)	4.4 (101)	5.2 (120)	5.9 (136)	6.7 (154)	7.4 (171)
	70	3.3 (76)	4.2 (97)	5 (115)	5.9 (136)	6.7 (154)	7.6 (175)	8.4 (194)
	75	3.9 (90)	4.9 (113)	5.8 (134)	6.7 (154)	7.6 (175)	8.6 (198)	9.5 (219)
	80	4.5 (104)	5.5 (127)	6.5 (150)	7.5 (173)	8.5 (196)	9.5 (219)	10.5 (242)
	85	5.1 (118)	6.2 (143)	7.3 (168)	8.4 (194)	9.5 (219)	10.5 (242)	11.5 (265)
90	5.6 (129)	6.9 (159)	8.1 (187)	9.3 (214)	10.4 (240)	11.5 (265)	12.5 (288)	

### PRODUCT SPECIFICATIONS

	Model 1700	Model 1720
Capacity	3.9 lbs/hr @ 80°F & 60% RH	6.5 lbs/hr @ 80°F & 60% RH
Voltage	115/1/60 (8' grounded power cord)	115/1/60 (8' grounded power cord)
Amp Draw	8 amps	14 amps
Air Flow	275 cfm @ .6" E.S.P	500 cfm @ .8" E.S.P
Filter	1" Washable, Merv 8	1" Washable, Merv 8
Controls	Built-In Automatic Control or Model 70 Space Control	Built-In Automatic Control or Model 70 Space Control
Cabinet Insulation	1" Foil-faced Expanded Polystyrene	1" Foil-faced Expanded Polystyrene
Inlet Temperature Range	40°F - 105°F	40°F - 105°F
Inlet Humidity Range	30% RH - 100% RH	30% RH - 100% RH
Ambient Operating Temperature Range	40°F - 150°F	40°F - 150°F
Ambient Operating Humidity Range	0% RH - 100% RH	0% RH - 100% RH
Approximate Discharge Air Temperature	103°F @ 80°F & 60% RH	99°F @ 80°F & 60% RH
Approximate Discharge Air Relative Humidity	25% RH @ 80°F & 60% RH	25% RH @ 80°F & 60% RH
Refrigerant Type	R-22	R-22
Sound Level	48 dBA Ducted; 54 dBA Non-ducted	53 dBA Ducted; 67 dBA Non-ducted
Weight	93 lbs.	100 lbs.
Duct Size	8" dia.	8" dia.
Drain Size	0.75" dia.	0.75" dia.



# MODEL 1700/1720 DEHUMIDIFIER

## PRINCIPLE OF OPERATION

The Aprilaire Model 1700/1720 is designed to dehumidify the air coming into the unit by passing the incoming air over a cooling coil to drop the air temperature and dewpoint of the air. Moisture is removed from the air and drained out of the unit to a common floor or waste drain. The air is then reheated in the condenser coil and exits the unit.

It dehumidifies until a preset dewpoint setpoint is reached, then shuts off until periodic sampling determines a need for operation.

The Model 1700 can be installed in two types of configurations: "Whole-Building" or "Localized/Spot".

### Typical "Whole-Building" Operation:

In the "Whole-Building" configuration, the Model 1700/1720 is used to dehumidify the entire building. In this application, the Model 1700/1720 must be wired to the HVAC equipment blower.

In this configuration, the unit can be installed two ways:

1. Pulling air from the occupied space, through the dehumidifier and discharging it into the supply duct/plenum of the HVAC system.

2. In a bypass method, pulling air from the return, through the dehumidifier and discharging it into the supply duct/plenum of the HVAC system.

In order to check the dewpoint of the incoming air, the 1700/1720 must "sample" the air. To do this, the 1700/1720 will turn on with the first HVAC equipment blower call in each selectable cycle (time) period. In the event that the blower is on continuously or during occupied times, the dehumidifier will sample at the first available opportunity within the cycle period. If no HVAC equipment blower call occurs during the cycle period, the 1700/1720 will activate it's internal blower 3 minutes prior to the end of the cycle to enable it to sample the air. If the incoming air is above the desired set point, the dehumidifier compressor will turn on. If the HVAC equipment blower call ends prior to the dehumidification set point becoming satisfied, the 1700/1720 will continue to run and operate until the set point is met. The unit can be set to "sample" the air every 30 minutes, 1 hour, 2 hours, or 3 hours.

### Typical "Localized/Spot" Operation:


In the "Localized/Spot" configuration, the Model 1700/1720 is used to dehumidify a specific room or location within the building.

In this configuration, the unit can be installed two ways:

1. Pulling air from the occupied space, through the dehumidifier, and discharging it directly back into the occupied space. This is typically done using wall grilles or ceiling diffusers.
2. Pulling air from the occupied space, through the dehumidifier, and discharging it into the supply duct serving the same occupied space that the air was pulled from. This allows the warmer, dehumidified air to mix with cooler supply air from the HVAC System when the HVAC system air conditioning is on.

If the Model 1700/1720 is wired to the HVAC equipment blower, the operation is the same as the typical "Whole-Building" operation.

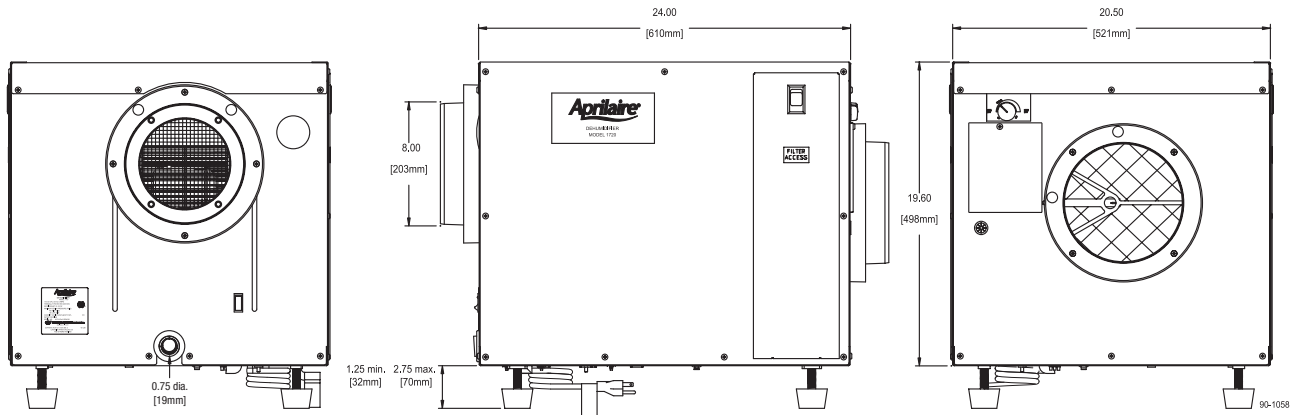
If the Model 1700/1720 is operated independently of the HVAC equipment blower, the unit will use its internal blower to both sample the air and provide the air flow necessary to distribute the air into the space.



### MODEL 70 OCCUPIED SPACE CONTROL

- On/Off buttons
- Displays set point indication bars and measured RH in the area
- Senses dewpoint in the occupied space
- Adjustable to achieve "more" or "less" dry conditions

PRODUCT SPECIFICATIONS	
Low Dewpoint Control Level ("MORE DRY" or 7 bars on display)	40°F
High Dewpoint Control Level ("LESS DRY" or 1 bar on display)	65°F
Temperature Sensor Range	40°F to 100°F
Relative Humidity Sensor Range	30% to 100%
Temperature Storage Range	-30°F to 120°F
Relative Humidity Storage Conditions	0% to 100%
Supply Voltage (DC from Model 1700/1720 Control Board)	12 VDC



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