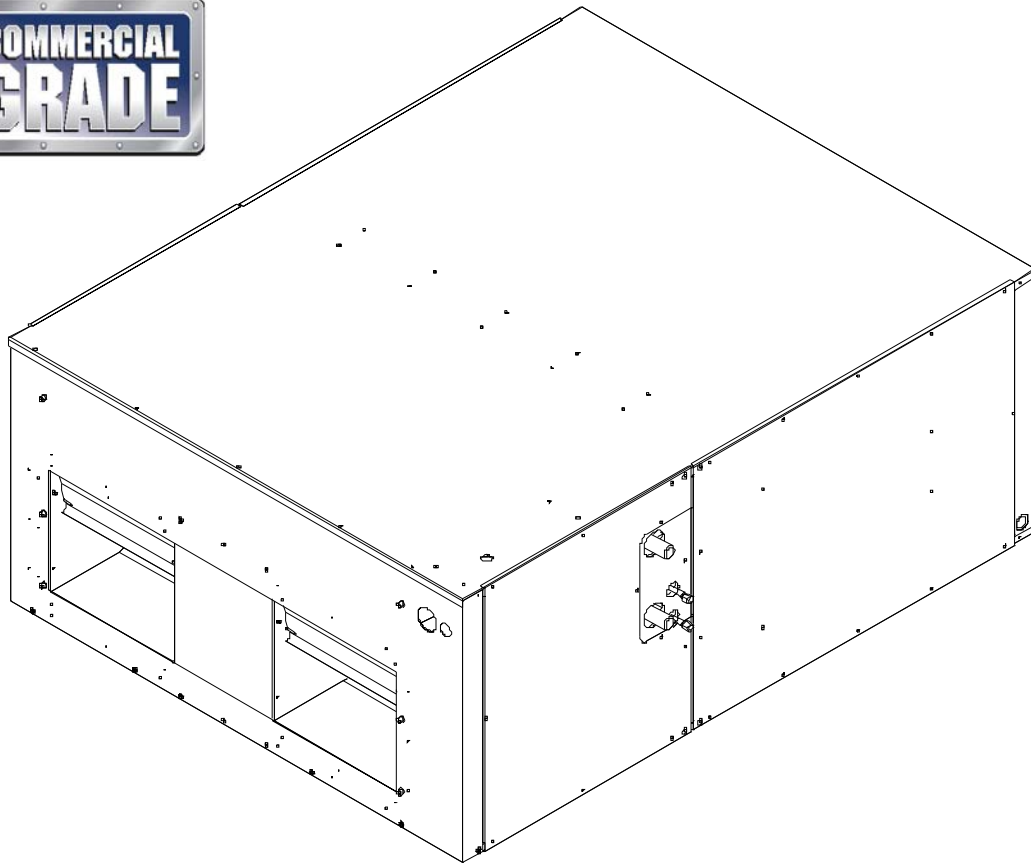


DAIKIN TECHNICAL MANUAL

DAR Light Commercial Air Handlers

- Refer to Service Manual RSD6200006 for installation, operation & troubleshooting information.
- All safety information must be followed as provided in the Service Manual.
- Refer to the appropriate Parts Catalog for part number information.
- Models listed on page 3.

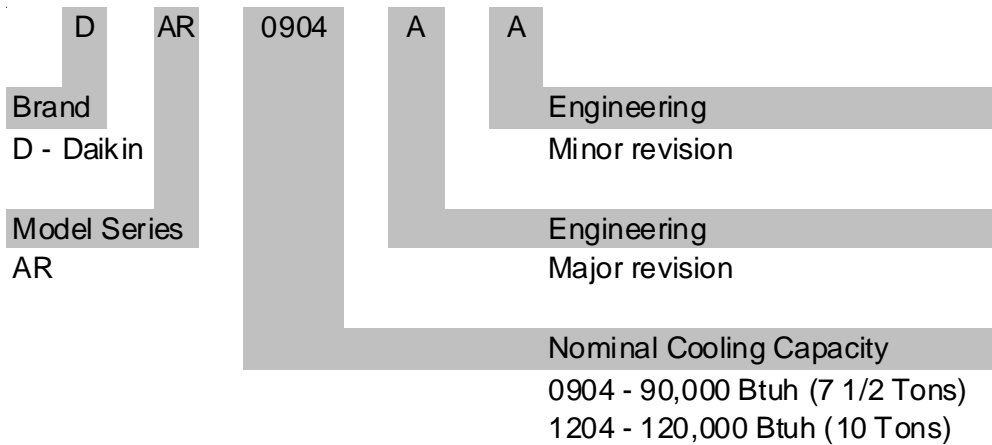




This manual is to be used by qualified, professionally trained HVAC technicians only. Daikin does not assume any responsibility for property damage or personal injury due to improper service procedures or services performed by an unqualified person.


RTD6121002
May 2013


PRODUCT IDENTIFICATION

The model number is used for positive identification of component parts used in manufacturing. Please use this number when requesting service or parts information.



 WARNING	HIGH VOLTAGE! Disconnect ALL power before servicing or installing this unit. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.	
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 WARNING	Daikin will not be responsible for any injury or property damage arising from improper service or service procedures. If you install or perform service on this unit, you assume responsibility for any personal injury or property damage which may result. Many jurisdictions require a license to install or service heating and air conditioning equipment.
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 WARNING	Installation and repair of this unit should be performed ONLY by individuals meeting (at a minimum) the requirements of an "entry level technician" as specified by the Air-Conditioning, Heating, and Refrigeration Institute (AHRI). Attempting to install or repair this unit without such background may result in product damage, personal injury or death.
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PRODUCT IDENTIFICATION

The model number is used for positive identification of component parts used in manufacturing. Please use this number when requesting service or parts information.

DAR0904AA
DAR1204AA

All Airhandlers use DIRECT DRIVE MOTORS. Power supply is AC 208-230v, 60 hz, 3 phase.



The United States Environmental Protection Agency (“EPA”) has issued various regulations regarding the introduction and disposal of refrigerants introduced into this unit. Failure to follow these regulations may harm the environment and can lead to the imposition of substantial fines. These regulations may vary by jurisdiction. Should questions arise, contact your local EPA office.



Do not connect or use any device that is not design certified by Daikin for use with this unit. Serious property damage, personal injury, reduced unit performance and/or hazardous conditions may result from the use of such non-approved devices.



To prevent the risk of property damage, personal injury, or death, do not store combustible materials or use gasoline or other flammable liquids or vapors in the vicinity of this appliance.

PRODUCT DESIGN



WARNING

When installing or servicing this equipment, safety clothing, including hand and eye protection, is strongly advised. If installing this equipment in an area that has special safety requirements (hard hats etc.), observe these requirements. To protect the unit when brazing close to the painted surfaces, the use of a quenching cloth is strongly advised to prevent scorching or marring of the equipment finish.



WARNING

HIGH VOLTAGE

Disconnect ALL power before servicing or installing this unit. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.



WARNING

The unit **MUST** have an uninterrupted, unbroken electrical ground to minimize the possibility of personal injury if an electrical fault should occur. The electrical ground circuit may consist of an appropriately sized electrical wire connecting the ground lug in the unit control box to the building electrical service panel. Other methods of grounding are permitted if performed in accordance with the "National Electric Code" (NEC)/"American National Standards Institute" (ANSI)/"National Fire Protection Association" (NFPA) 70 and local/state codes. In Canada, electrical grounding is to be in accordance with the Canadian Electric Code CSA C22.1. Failure to observe this warning can result in electrical shock that can cause personal injury or death.



WARNING

If this appliance is installed in an enclosed area such as a garage or utility room with any carbon monoxide (CO) producing appliance (i.e. automobile, furnace, water-heaters, etc.), ensure the area is properly ventilated.



WARNING

This airhandler is designed for Upflow or Horizontal-Left applications. **DO NOT INSTALL IN THE DOWNFLOW OR HORIZONTAL-RIGHT ORIENTATION.**

AIR HANDLERS

**See Air Handler Specification Sheet for Proper Combinations.*

AR0904 AND AR1204 AIR HANDLERS USE BELT DRIVE MOTORS. POWER SUPPLY IS 208-230 V, 60 HZ, 3 PHASE.



WARNING

THIS PRODUCT IS CAPABLE OF USING EITHER 208-230/3/60 OR 460/3/60 SUPPLY VOLTAGE. THE AIRHANDLER IS FACTORY SHIPPED FOR USE WITH 208-230/3/60 VOLTAGE. INSTALLATIONS USING 460/3/60 REQUIRE A MODIFICATION TO THE MOTOR AND TRANSFORMER ELECTRICAL CIRCUIT. DO NOT OPERATE THIS APPLIANCE USING A 460V POWER SUPPLY UNLESS THIS MODIFICATION HAS BEEN MADE. FAILURE TO OBSERVE THIS WARNING MAY RESULT IN PERSONAL INJURY, EQUIPMENT DAMAGE, AND FIRE.

IT IS ADVISABLE TO PERFORM THIS CONVERSION IN AN AREA THAT WILL PERMIT EASY ACCESSIBILITY.

NOTE: Airhandlers are designed for *indoor installation only.*

PRODUCT DESIGN

Installation

Before installing this appliance, insure that it is properly sized and adequate power is available.

This product is designed for zero inches (0 inches) clearance; however, adequate access for service or replacement must be considered without removing permanent structure. This unit can be installed on a platform when deemed necessary.

In an attic installation a secondary drain pan must be provided by the installer and placed under the entire unit with a separate drain line properly sloped and terminated in an area visible to the owner. This secondary drain pan is required in the event that there is a leak or main drain blockage. Closed cell insulation should be applied to the drain lines in unconditioned spaces where sweating may occur.

Appliances installed in garages, warehouses or other areas where they may be subjected to mechanical damage must be suitably guarded against such damage by installing behind protective barriers, being elevated or located out of the normal path of vehicles. When installed on a base, the base must also be protected by similar means.

Heating and cooling equipment located in garages, which

may generate a glow, spark or flame capable of igniting flammable vapors, must be installed with the ignition source at least 18" [46cm] above the floor level.

When more than one appliance is installed in a building it shall be permanently identified as to the area or space serviced by the equipment.

DAR04** is a multi-position, variable-speed air handler with R-410A. The unit's blower design includes a variable-speed belt drive motor and is compatible with heat pumps and variable-capacity cooling applications. (**See note below.*)

When matched with DX11 and DZ11 condenser this system complies with the minimum efficiency requirements found in ASHRAE 90.1-2007. See the Daikin DX11 and DZ11 specification sheets for details on these condensers. For other Daikin condenser(s) that can be matched with this airhandler to obtain ASHRAE 90.1-2007 compliance, consult with your local distributor.

The AR series is intended for use with a room thermostat. This thermostat is not supplied with this equipment. Only thermostats that use 24 VAC control circuitry are to be used.

PRODUCT DIMENSIONS

Model	Width	Depth	Height
DAR0904	48 1/2"	24"	60 1/2"
DAR1204	48 1/2"	24"	60 1/2"

PRODUCT SPECIFICATIONS

DAR[090-120]4

	DAR0904	DAR1204
Cooling/ Heating Capacities		
Cooling (BTU/h)	90,000	120,000
Heating (kW)	15, 20, 30	15, 20, 30
CFM	3,000	4,000
Electrical		
Unit volts	208/240/460	208/240/460
Hertz/ Phase	60/ 3	60/ 3
Voltage Range	187 - 253 / 414-506	187 - 253 / 414-506
FLA (Total)	5.2	6
Minimum Circuit Ampacity	6.5 / 3.3	9.8 / 3.3
Blower Motor Type		
Type	Belt Drive	Belt Drive
Horse Power	1½	2
Volts	208/230/460	208/230/460
Hertz/ Phase	60/ 3	60/ 3
FLA/ LRA	5.2/ 35	6.0/ 32
Blower & Controls		
Wheel Dia. & Width (Qty.)	11 x 10 (2)	11 x 10 (2)
Pulley Pitch Dia.	5.9"	6.5"
Bore	1"	1"
Motor Pulley Pitch Dia.	1.9 to 2.9	2.8 to 3.8
Belt Length & Width	39 x ½	41 x ½
Nominal Airflow (Ft./Min.)	3,000	4,000
Transformer (60 VAC.)	Standard	Standard
Blower Relay	Standard	Standard
Filter, Coil & Refrigerant		
Filter Size (Disposable) / Qty	16" x 20" x 2" / 4	16" x 20" x 2" / 2 20" x 20" x 2" / 2
Coil Area (sq. ft.)	9	10
FPI - Rows	14 - 4	14 - 4
Metering Device (Qty.)	Expansion Valve (1)	Expansion Valve (2)
Refrigerant	R-410A	R-410A
Liquid Connection (Qty.)	?"	?" (2) *
Suction Connection (Qty.)	1?"	1?" (2) *
Condensate Drain	¾ FPT	¾ FPT
Ship Weight (lbs)	405	430

* For two refrigerant lines

BLOWER PERFORMANCE DATA

DAR[090-120]4

Temperature Rise (°F)

DAR0904

Heat Kit kW	CFM	Supply Voltage		
		208	240	480
15	2,800	14	19	19
	2,900	14	18	18
	3,000	13	18	18
	3,100	13	17	17
	3,200	12	17	17
20	2,800	19	25	25
	2,900	18	24	24
	3,000	18	24	24
	3,100	17	23	23
	3,200	17	22	22
30	2,800	28	38	38
	2,900	27	37	37
	3,000	27	35	35
	3,100	26	34	34
	3,200	25	33	33

DAR1204

Heat Kit kW	CFM	Supply Voltage		
		208	240	480
15	3,800	10	14	14
	3,900	10	14	14
	4,000	10	13	13
	4,100	10	13	13
	4,200	9	13	13
20	3,800	14	19	19
	3,900	14	18	18
	4,000	13	18	18
	4,100	13	17	17
	4,200	13	17	17
30	3,800	21	28	28
	3,900	20	27	27
	4,000	20	27	27
	4,100	19	26	26
	4,200	19	25	25

* Tables shown on this page are calculated with both stages of electric heat engaged (2-stage heat systems).
Divide the temperature rise from the table by 2 for 1st stage operation for systems using staged electric heat.

Note: Assumes dry coil with filter in place; SCFM correction for wet coil = 4% (208V/240V)

DAR0904 Air Delivery*

Static Pressure	Motor Sheave Turns Open			
	1	2	3	4
0.1"	4,264	3,930	3,633	3,273
0.2"	3,996	3,705	3,235	2,998
0.3"	3,731	3,379	3,002	2,517
0.4"	3,445	3,066	2,613	
0.5"	3,113	2,662		

* With dry coil and 2" air filter

DAR1204 Air Delivery*

Static Pressure	Motor Sheave Turns Open					
	0	1	2	3	4	5
0.1"	5,193	5,037	4,790	4,529	4,097	4,097
0.2"	5,012	4,873	4,603	4,315	3,842	3,842
0.3"	4,852	4,675	4,393	4,091	3,589	3,589
0.4"	4,687	4,484	4,172	3,853	3,295	3,073
0.5"	4,501	4,268	3,939	3,561	2,922	2,610
0.6"	4,293	4,041	3,673	3,223	2,642	
0.7"	4,073	3,782	3,347	2,892		
0.8"	3,807	3,485	2,962			
0.9"	3,540	3,117				

* With dry coil and 2" air filter

Notes:

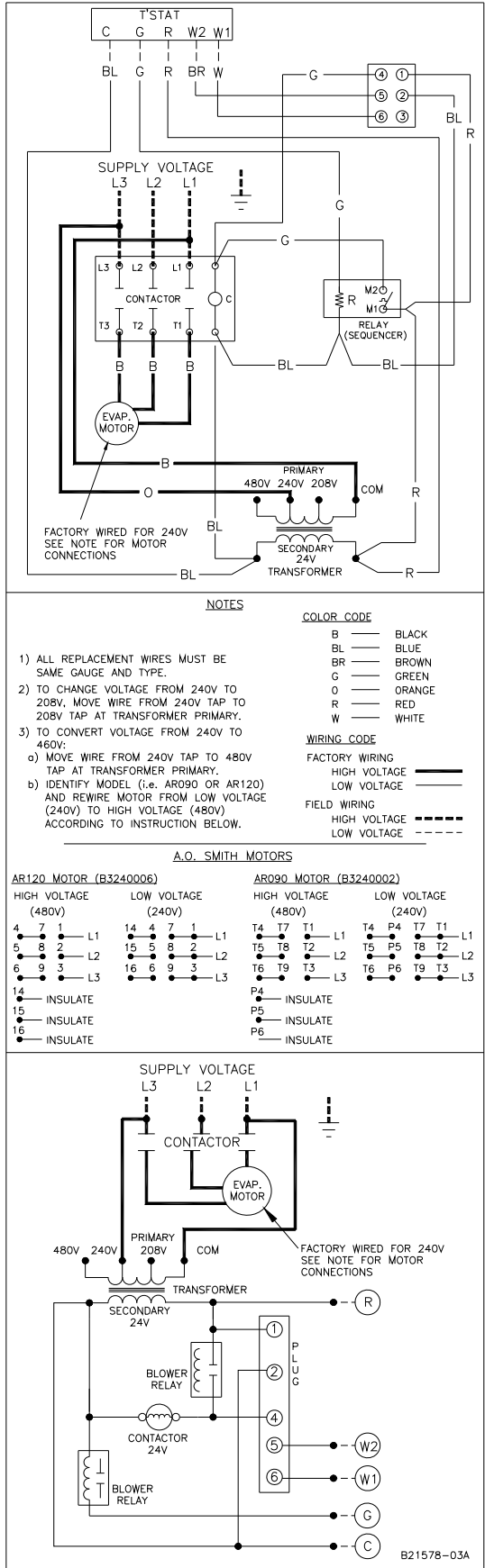
Any adjustment made to the blower should not cause the motor to draw more than the motors rated RLA.

Applications that exceed the above could require a larger motor.

HIGH VOLTAGE!
DISCONNECT ALL POWER BEFORE SERVICING OR INSTALLING THIS UNIT. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.



WARNING



Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.