DAIKIN
Equipment Submittal

For:

Mattison Avenue
Lakeside Village
9667 N. Central Expwy.
Dallas, TX 75225

General Contractor:

Warwick Construction
365 FM 1959
Houston, TX 77034

Prepared by:
Thermal Air, LLC.
PO Box 1878 Joshua, TX 76058 Phone: (817) 774-1305 TX License. # TACLA92864C

HVAC Equipment Submittal Data

For Review and Approval

10/14/2022

Project Info		**Submitted By**	
Project Name:	**MATTISON LAKESIDE**	Dealer Name:	**MICHAEL NEWTON**
		Email:	**michael.newton@ferguson.com**

Certifications:

Daikin brand heating and cooling units are certified as follows:

- AHRI Certified
- ETL & CETL Listed
- GAMA Certified

Limited Warranty:

- 5 year parts limited warranty
- 20 year heat exchanger limited warranty
- Complete warranty details attached

Daikin North America, LLC is not responsible for products installed outside the United States or its territories, or Canada.

Table of Contents

Note: Model Number is available only when the product(s) submitted to Quote or when product(s) submitted for future order placement

Design Requirements	
Cooling Capacity	**10 Ton**
Configuration	**Downflow**

- R-410A chlorine-free refrigerant
- High-efficiency Copeland scroll compressor(s)
- Copper tube / aluminum fin coils
- High-capacity, steel-cased filter dryer
- High- and Low-pressure switches
- Lugged electrical contactor
- Single-point power
- Color Coded Wiring
- Foil Faced Internal Insulation
- Heavy-gauge, galvanized-steel cabinet
- UV-resistant powder-paint finish
- Full perimeter base rail

Tag:	**RTU 1,3,4**
Cooling Performance	
Total Capacity	**112.71 MBh**
Sensible Capacity	**76.473 MBh**
Cooling Stages	**Two**
Refrig Type	**R410A**
Compressor Type	**Copeland Scroll**
Pressure Switches	**High & Low Pressure (std)**
Outdoor Design Temp	**95.0°F**
Entering Air Temp(db)	**80.0°F**
Entering Air Temp(wb)	**67.0°F**
Leaving Air Temp(db)	**58.3°F**
Leaving Air Temp(wb)	**55.7°F**
Efficiency	**12.7 IEER/11 EER**
Heating Performance	
High Stage Input / Output	**210/168 (KBTU/H)**
Low Stage Input / Output	**157/126 (KBTU/H)**
Entering Air Temp	**55.0°F**
Leaving Air Temp	**103.4°F**
AFUE	**80%**
Heat Exchanger	**Standard Aluminized**
Supply Air Blower Performance	
ACFM	**3213 CFM**
SCFM	**3213 CFM**
ESP	**0.1 IWG**
Total ESP	**0.18 IWG**
Blower Type	**Two Speed Belt Drive - Standard Static**
Elevation	**0**
Unit Electrical Data	
Power Supply	**208-230/3/60**
Total Unit MCA	**45.9/45.9**
Total Unit MOP	**60/60**
Indoor Motor HP	**2.00**
Physical Attributes	
Base Unit Oper. Weight (lbs)	**1150**
Filter(s)	**Qty (4) 20"x20"x2"**

Outdoor sound (db) at 60 Hz									
Model	**A-Weighted**	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**
120	82	91.9	82.8	81.9	79.1	76.9	72.9	68.3	66.0

db - deciel

Notes:

1 Outdoor sound data is measued in accordance with AHRI standard 270.

2 Measurements are expressed in terms of sound power. Do not compare these values to sound pressure values because sound pressure depends on specific environment factors which normally do not match individual applications. Sound power values are independent of the environment and therefore more accurate.

3 A-weighted sound ratings filter out high and very low frequencies, to better approximate the response of "average" human ear. A-weighted measurements for Daikin units are taken in accordance with AHRI standard 270.

LIST OF ACCESSORIES

Tag: RTU 1,3,4;

Accessories

Fld Inst	Fct Inst	Item #	Description	Dimensions	lbs
Y		0270L01153	14" Roof Curb		116
Y		HAILGD090120HE	Hail Guard		N/A
Y		0270L01756	Ultra Low-Leak Downflow Economizer w/ Enthalpy Sensor		103
			Base Unit Oper. Weight		1150
			Total Weight		1369.0

Design Requirements	
Cooling Capacity	**12.5 Ton**
Configuration	**Downflow**

- R-410A chlorine-free refrigerant
- High-efficiency Copeland scroll compressor(s)
- Copper tube / aluminum fin coils
- High-capacity, steel-cased filter dryer
- High- and Low-pressure switches
- Lugged electrical contactor
- Single-point power
- Color Coded Wiring
- Foil Faced Internal Insulation
- Heavy-gauge, galvanized-steel cabinet
- UV-resistant powder-paint finish
- Full perimeter base rail

Tag:	**RTU - 2**
Cooling Performance	
Total Capacity	**138.386 MBh**
Sensible Capacity	**93.564 MBh**
Cooling Stages	**Two**
Refrig Type	**R410A**
Compressor Type	**Copeland Scroll**
Pressure Switches	**High & Low Pressure (std)**
Outdoor Design Temp	**95.0°F**
Entering Air Temp(db)	**80.0°F**
Entering Air Temp(wb)	**67.0°F**
Leaving Air Temp(db)	**58.3°F**
Leaving Air Temp(wb)	**55.6°F**
Efficiency	**12.2 IEER/10.8 EER**
Heating Performance	
High Stage Input / Output	**210/168 (KBTU/H)**
Low Stage Input / Output	**157/126 (KBTU/H)**
Entering Air Temp	**55.0°F**
Leaving Air Temp	**94.6°F**
AFUE	**80%**
Heat Exchanger	**Standard Aluminized**
Supply Air Blower Performance	
ACFM	**3933 CFM**
SCFM	**3933 CFM**
ESP	**0.1 IWG**
Total ESP	**0.22 IWG**
Blower Type	**Two Speed Belt Drive - Standard Static**
Elevation	**0**
Unit Electrical Data	
Power Supply	**208-230/3/60**
Total Unit MCA	**57.3/57.3**
Total Unit MOP	**70/70**
Indoor Motor HP	**3.00**
Physical Attributes	
Base Unit Oper. Weight (lbs)	**1288**
Filter(s)	**Qty (4) 20"x25"x2"**

Outdoor sound (db) at 60 Hz									
Model	**A-Weighted**	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**
150	83	92.3	87.8	83.0	80.4	78.2	73.8	70.1	62.6

db - deciel

Notes:

1 Outdoor sound data is measued in accordance with AHRI standard 270.

2 Measurements are expressed in terms of sound power. Do not compare these values to sound pressure values because sound pressure depends on specific environment factors which normally do not match individual applications. Sound power values are independent of the environment and therefore more accurate.

3 A-weighted sound ratings filter out high and very low frequencies, to better approximate the response of "average" human ear. A-weighted measurements for Daikin units are taken in accordance with AHRI standard 270.

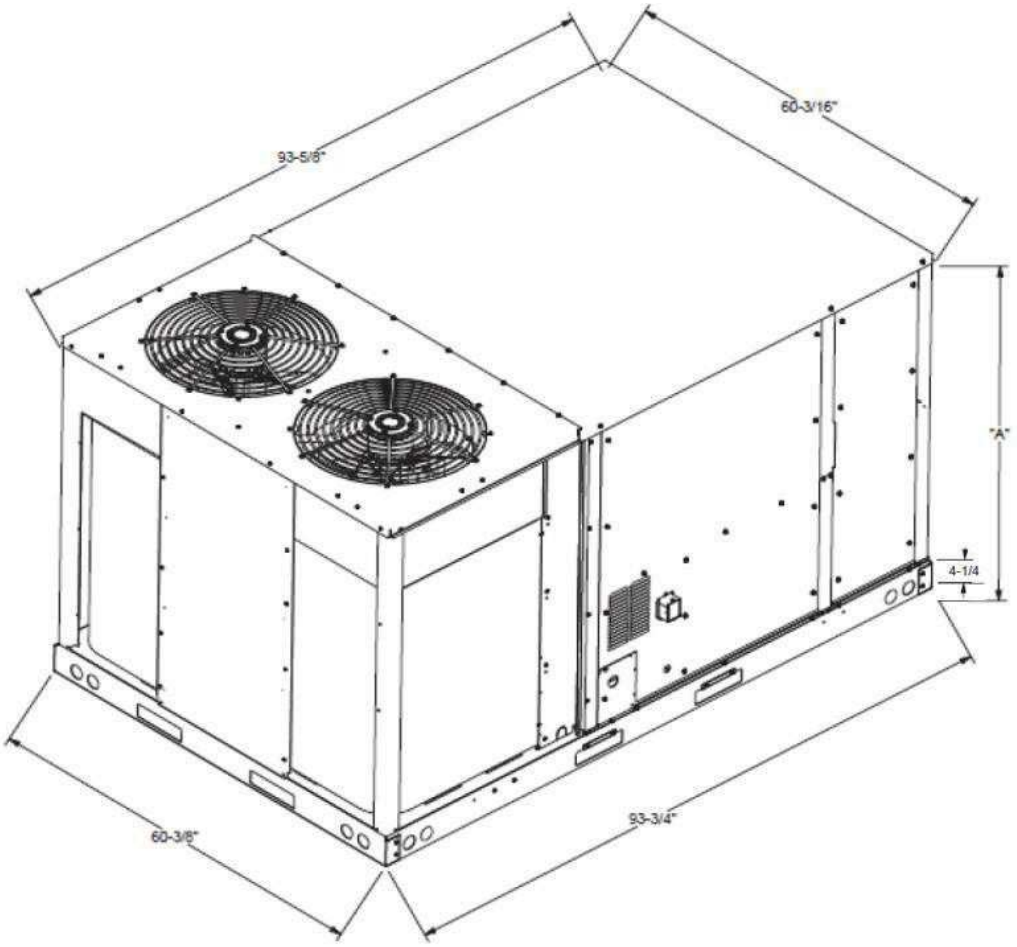
LIST OF ACCESSORIES

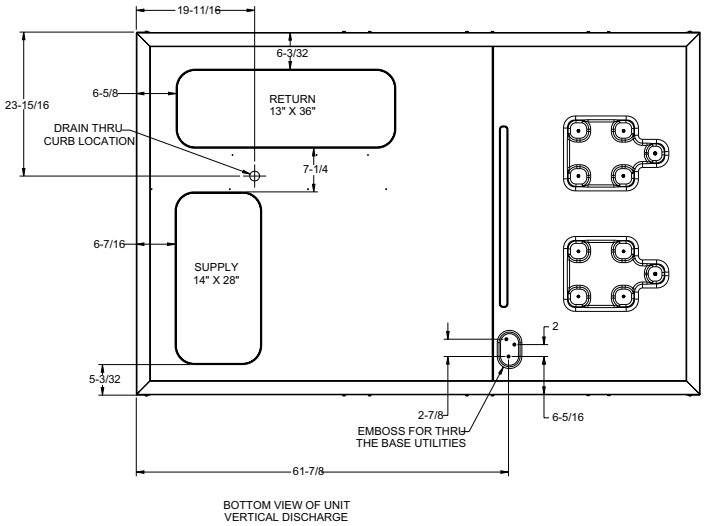
Tag: RTU - 2;

Accessories

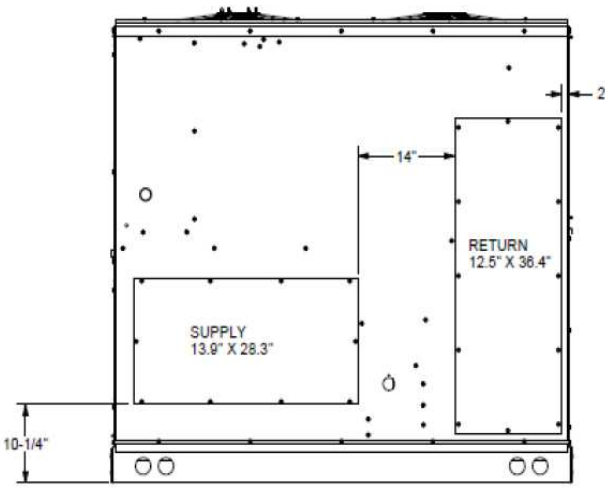
Fld Inst	Fct Inst	Item #	Description	Dimensions	lbs
Y		0270L01153	14" Roof Curb		116
Y		HAILGD090120HE	Hail Guard		N/A
Y		0270L01756	Ultra Low-Leak Downflow Economizer w/ Enthalpy Sensor		103
			Base Unit Oper. Weight		1288
			Total Weight		1507.0

Model Size	DIM "A"
DBG090-150	54 1/4





BOTTOM VIEW OF UNIT
VERTICAL DISCHARGE

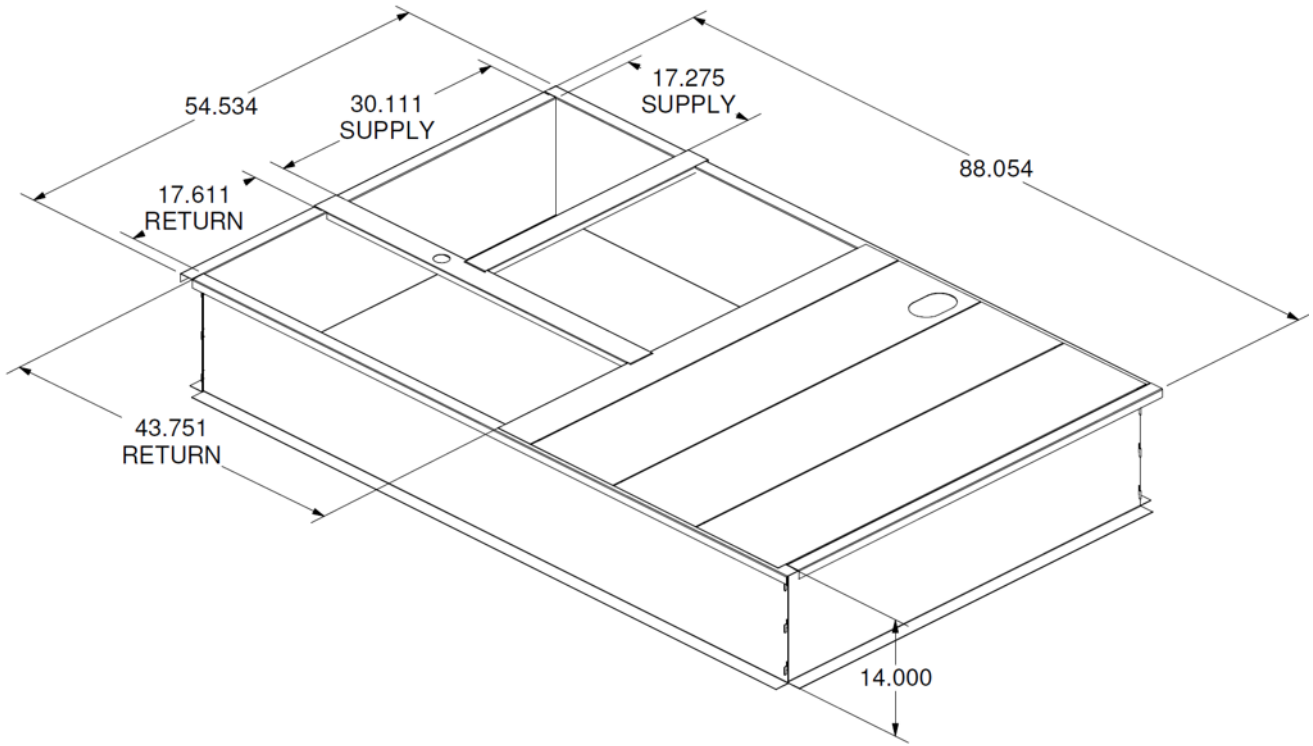


BOTTOM VIEW OF UNIT

VERTICAL DISCHARGE

HORIZONTAL DISCHARGE

MicroMetl	Date:		Specification Sheet for Daikin Medium Cabinet 7.5 to 12.5 Ton Knocked down 14” Tall Roof Curb	Part Number: Daikin PN: 0270L01153 MicroMetl PN: CRBK-DKN34SA-1411
Submitted To:		Job:		Notes:



Notes:

1. Roof curb ships knocked down for field assembly. Package includes plastic corrugated end caps.
2. Curb includes wood nailer, attached to curb sides and ends, and gasket package shipped inside of curb package.
3. Deck pans include 1” – 1.5 lb. density insulation.
4. Curb sides and ends are constructed of 18 gauge galvanized steel.

Product Operating Weight:
116 Lbs

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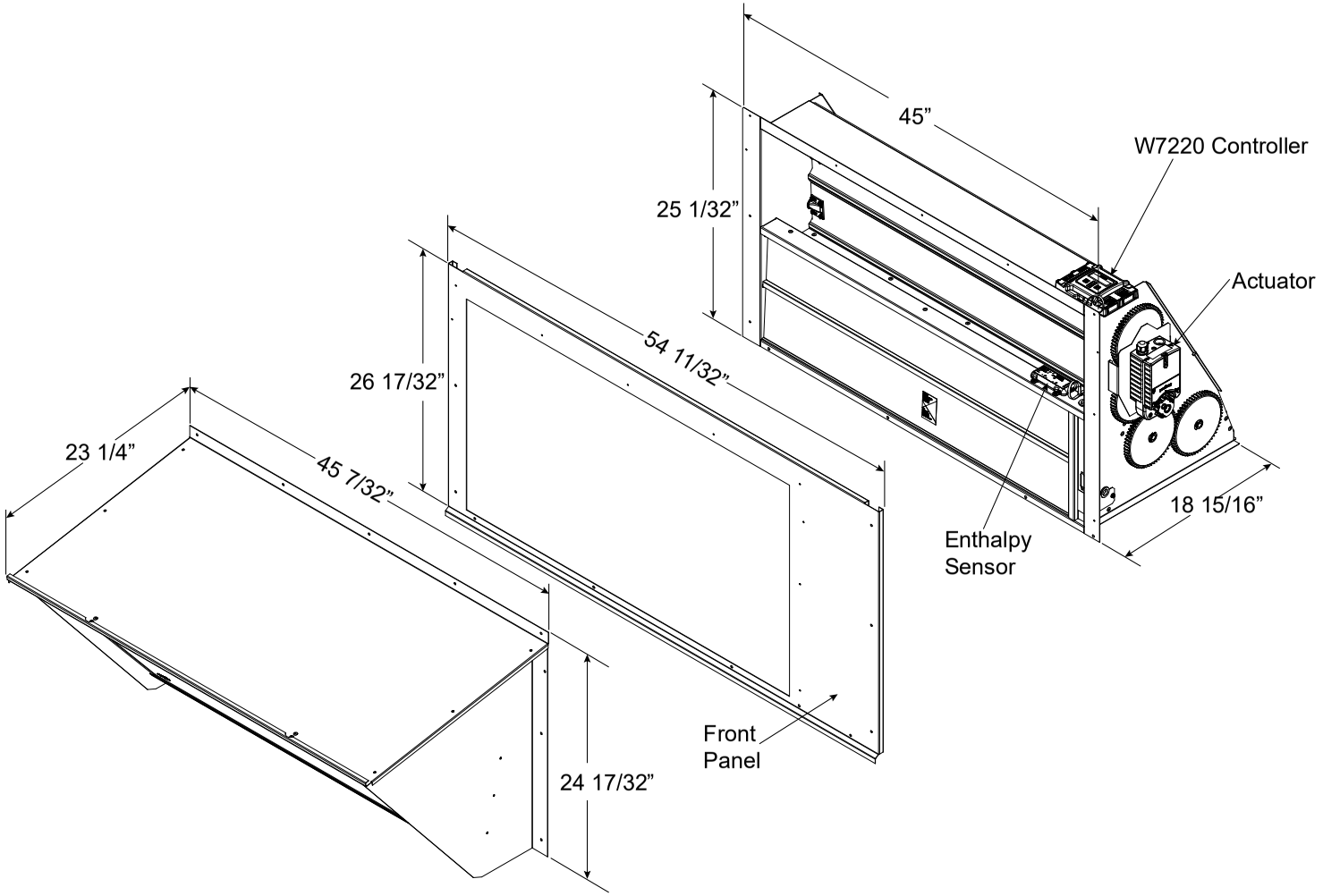
MicroMetl	Date:		Specification Sheet for Daikin Medium Cabinet 7.5 to 12.5 Ton Vertical Economizer Ultra Low-Leak JADE Enthalpy Sensor	Part Number: Daikin PN: 0270L01756 MicroMetl PN: ECD-DKN34CA-W2EH
Submitted To:		Job:		Notes:



Notes:

1. This economizer is for field installation
2. Access panel and hood are painted to match the unit.
3. Economizer controls include: actuator, W7220 controller, C7400 outside air enthalpy sensor, and C7250 mixed air sensor.
4. Hood is shipped knocked down for field assembly. Hood includes aluminum filter.
5. Access panel is insulated with 1” 1.5 lb density insulation.
6. Dampers meet Title 24, IECC, and ASHRAE Leakage Requirements.

Product Operating Weight:
99 Lbs

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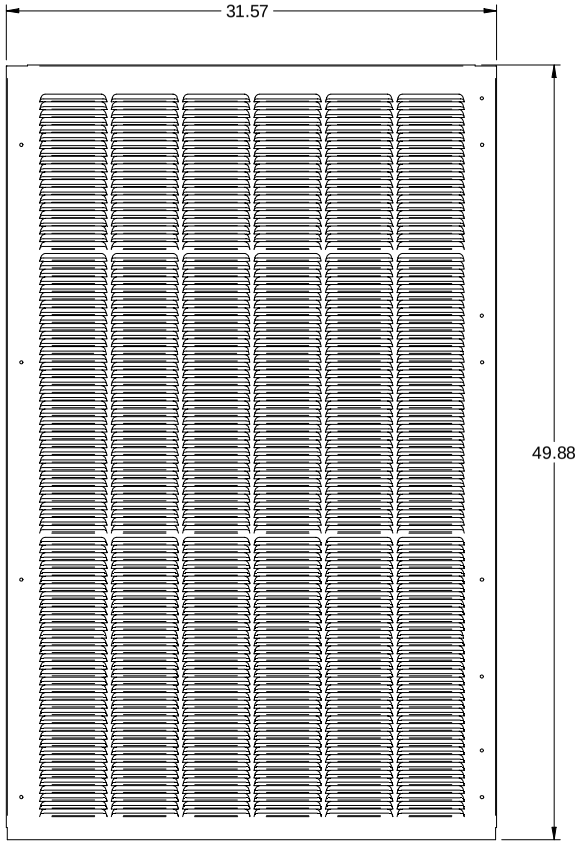
DAIKIN	Description: **Light Commercial Packaged RTU Condenser Hail Guards**	Part Number: **HAILGD090120HE**



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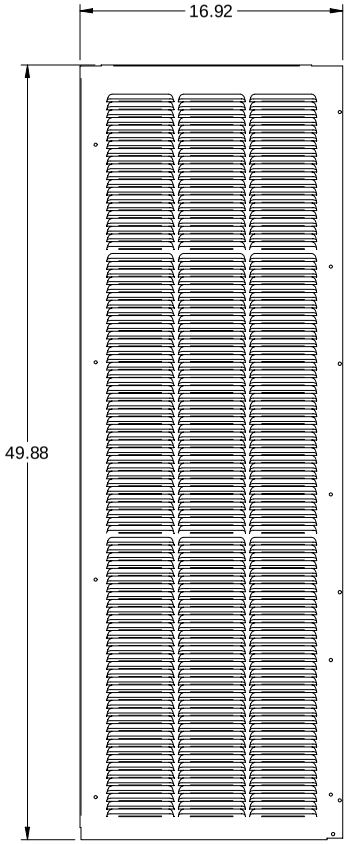

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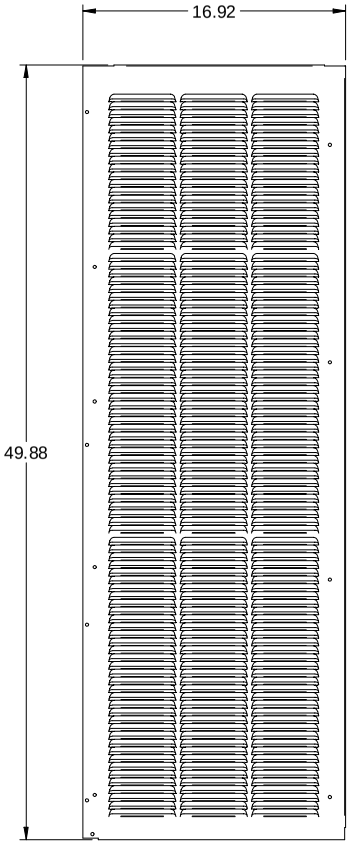
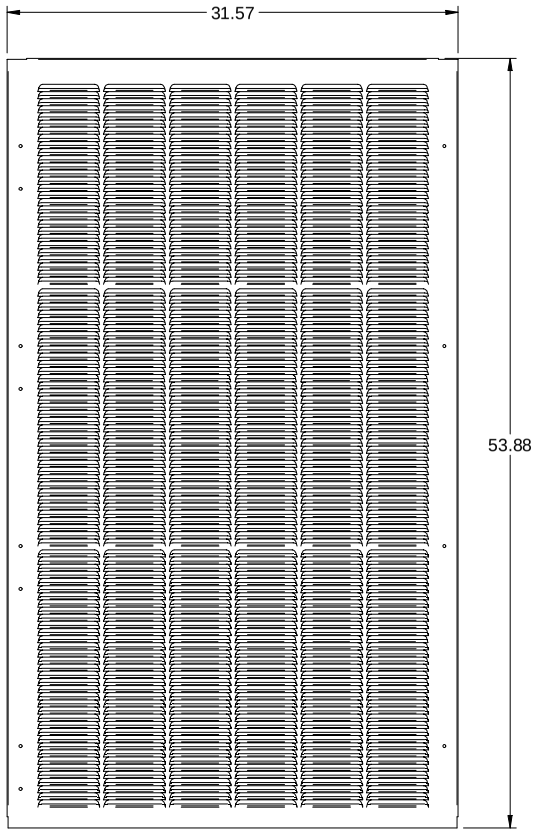


0121L04067 (Qty 1)

DAIKIN	Description: **Light Commercial Packaged RTU Condenser Hail Guards**	Part Number: **HAILGD150HE**



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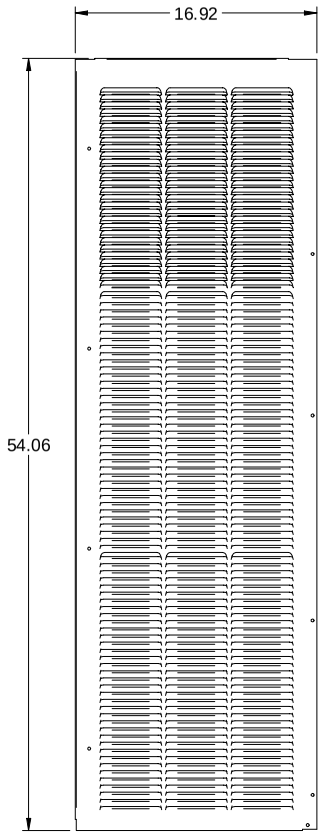

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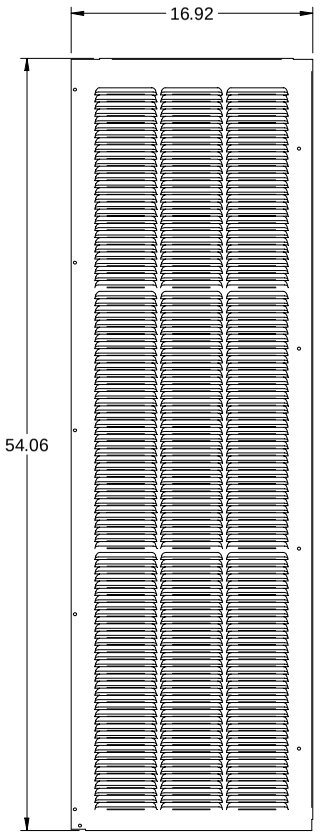

0121L03911 (Qty 1)

DAIKIN COMMERCIAL WARRANTY

Models: DBC, DBG, DBH

Who Is Providing The Warranty?
This warranty is provided to you by Daikin Manufacturing Company, L.P. ("Daikin"), which warrants all parts of this heating or air conditioning unit, as described below.

To What Type Of Installations Does This Warranty Apply?
This warranty applies to heating and air conditioning units in the installed in buildings other than residences.

What Units Does This Warranty Not Cover?
This warranty does not apply to:
- Units that are ordered over the Internet, by telephone, or by other electronic means unless the unit is installed by a dealer adhering to all applicable federal, state, and local codes, policies, and licensing requirements.
- Units that are installed outside the United States, its territories, or Canada.
- Units that are operated in incomplete structures.
- Units that are installed in residential buildings.

What Problems Does This Warranty Cover?
This warranty covers defects in materials and workmanship that appear under normal use and maintenance.

Other Warranties
THIS WARRANTY IS PROVIDED IN LIEU OF ANY OTHER WARRANTIES, WHETHER BY DAIKIN OR ANY OF ITS AFFILIATES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

What Problems Does This Warranty Not Cover?
Daikin is not responsible for:
- Damage or repairs required as a consequence of faulty installation or application.
- Damage as a result of floods, fires, winds, lightning, accidents, corrosive atmosphere, or other conditions beyond Daikin's control.
- Damage or the need for repairs arising from the use of components or accessories not compatible with this unit.
- Normal maintenance as described in the installation and operating manual, such as cleaning of the coils, filter cleaning and/or replacement, and lubrication.
- Parts or accessories not supplied or designated by the manufacturer.
- Damage or the need for repairs resulting from any improper use, maintenance, operation, or servicing.
- Damage or failure of the unit to start due to interruption in electrical service or inadequate electrical service.
- Any damage, or the need for any repairs, caused by frozen or broken water pipes, water damage, moisture intrusion, mold or other biological growth.
- Changes in the appearance of the unit that do not affect its performance.
- Replacement of fuses and replacement or resetting of circuit breakers.
- Damage or the need for repairs resulting from the use of unapproved refrigerant types or used or recycled refrigerant.

When Does Warranty Coverage Begin?
Warranty coverage begins on the "installation date." The installation date is one of two dates:
(1) The installation date is the date that the unit is originally installed.
(2) If the date the unit is originally installed cannot be verified, the installation date is three months after the manufacture date. The first four digits of the serial number (YYMM) on the unit indicate the manufacture date. For example, a serial number beginning with "2112" indicates the unit was manufactured in December 2021.

How Long Does Warranty Coverage Last?
The warranty lasts for a period up to (1) 20 YEARS for the heat exchanger (only applicable to units containing a heat exchanger) and (2) 5 YEARS on all other parts.

This warranty period does not continue after the unit is removed from the location where it was originally installed.

The replacement of a part under this warranty does not extend the warranty period. In other words, Daikin warrants a replacement part only for the period remaining in the applicable warranty that commenced on the installation date.

www.daikincomfort.com

For further information about this warranty, contact Homeowner Support by mail to 19001 Kermier Road, Waller, Texas 77484

Part No. PWDLCBEA
12/2021

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DAIKIN COMMERCIAL WARRANTY

Models: DBC, DBG, DBH

What Will Daikin Do To Correct Problems?
Daikin will furnish a replacement part, without charge for the part only, to replace any part that is found to be defective due to workmanship or materials under normal use and maintenance. Furnishing of the replacement part is Daikin's only responsibility under this warranty.

THE OWNER AGREES THAT THESE REMEDIES ARE THE OWNER'S EXCLUSIVE REMEDIES FOR BREACH OF ALL WARRANTIES.

What Won't Daikin Do To Correct Problems?
Daikin will not pay for:

- Labor, freight, or any other cost associated with the service, repair, or operation of the unit.
- Electricity or fuel costs, or increases in electricity or fuel costs, for any reason, including additional or unusual use of supplemental electric heat.
- Lodging or transportation charges.
- Refrigerant.

WHETHER ANY CLAIM IS BASED ON NEGLIGENCE OR OTHER TORT, BREACH OF WARRANTY OR OTHER BREACH OF CONTRACT, OR ANY OTHER THEORY, NEITHER DAIKIN NOR ANY OF ITS AFFILIATES SHALL IN ANY EVENT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LOST PROFITS, LOSS OF USE OF A UNIT, EXTRA UTILITY EXPENSES, OR DAMAGES TO PROPERTY.

How Can The Owner Receive Warranty Service?
If there is a problem with the unit, contact a licensed contractor.

To receive a replacement part, a licensed contractor must bring the defective part to a Daikin heating and air conditioning products distributor.

For more information about the warranty, write to Daikin, 19001 Kermier Road, Waller, Texas 77484.

Where Can Any Legal Remedies Be Pursued?
ARBITRATION CLAUSE. IMPORTANT. PLEASE REVIEW THIS ARBITRATION CLAUSE. IT AFFECTS YOUR LEGAL RIGHTS.

1. *Parties*: This arbitration clause affects your rights against Daikin and any of its affiliates or employees or agents, successors, or assigns, all of whom together are referred to below as "we" or "us" for ease of reference.
2. ***ARBITRATION REQUIREMENT*: EXCEPT AS STATED BELOW, ANY DISPUTE BETWEEN YOU AND ANY OF US SHALL BE DECIDED BY NEUTRAL, BINDING ARBITRATION RATHER THAN IN COURT OR BY JURY TRIAL**. "Dispute" will be given the broadest possible meaning allowable by law. It includes any dispute, claim, or controversy arising from or relating to your purchase of this heating or air conditioning unit, any warranty upon the unit, or the unit's condition. It also includes determination of the scope or applicability of this Arbitration Clause. The arbitration requirement applies to claims in contract and tort, pursuant to statute, or otherwise.
3. ***CLASS-ARBITRATION WAIVER*: ARBITRATION IS HANDLED ON AN INDIVIDUAL BASIS. IF A DISPUTE IS ARBITRATED, YOU AND WE EXPRESSLY WAIVE ANY RIGHT TO PARTICIPATE AS A CLASS REPRESENTATIVE OR CLASS MEMBER ON ANY CLASS CLAIM YOU MAY HAVE AGAINST US OR WE AGAINST YOU, OR AS A PRIVATE ATTORNEY GENERAL OR IN ANY OTHER REPRESENTATIVE CAPACITY, TO THE MAXIMUM EXTENT PERMITTED BY LAW. YOU AND WE ALSO WAIVE ANY RIGHT TO CLASS ARBITRATION OR ANY CONSOLIDATION OF INDIVIDUAL ARBITRATIONS.**
4. *Discovery and Other Rights*: Discovery and rights to appeal in arbitration are generally more limited than in a lawsuit. This applies to both you and us. Other rights that you or we would have in court may not be available in arbitration. Please read this Arbitration Clause and consult the rules of the arbitration organizations listed below for more information.
5. ***SMALL CLAIMS COURT OPTION*: YOU MAY CHOOSE TO LITIGATE ANY DISPUTE BETWEEN YOU AND ANY OF US IN SMALL CLAIMS COURT, RATHER THAN IN ARBITRATION, IF THE DISPUTE MEETS ALL REQUIREMENTS TO BE HEARD IN SMALL CLAIMS COURT.**
6. *Governing Law*: For residents of the United States, the procedures and effect of the arbitration will be governed by the Federal Arbitration Act (9 U.S.C. § 1 et seq.) rather than by state law concerning arbitration. For residents of Canada, the procedures and effect of the arbitration will be governed by the applicable arbitration law of the province in which you purchased your unit. The law governing your substantive warranty rights and other claims will be the law of the state or province in which you purchased your unit. Any court having jurisdiction may enter judgment on the arbitration award.

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DAIKIN COMMERCIAL WARRANTY

Models: DBC, DBG, DBH

7. *Rules of the Arbitration*: If the amount in controversy is less than $250,000, the arbitration will be decided by a single arbitrator. If the amount in controversy is greater than or equal to $250,000, the arbitration will be decided by a panel of three arbitrators. The arbitrator(s) will be chosen pursuant to the rules of the administering arbitration organization. United States residents may choose JAMS (1920 Main Street, Ste. 300, Irvine, CA 92614, www.jamsadr.com), or, subject to our approval, any other arbitration organization. In addition, Canadian residents may choose the ADR Institute of Canada (234 Eglinton Ave. East, Suite 405, Toronto, Ontario, M4P 1K5, www.amic.org). These organizations' rules can be obtained by contacting the organization or visiting its website. If the chosen arbitration organization's rules conflict with this Arbitration Clause, the provisions of this Arbitration Clause control. The award of the arbitrator(s) shall be final and binding on all parties.
8. *Location of the Arbitration Hearing*: Unless applicable law provides otherwise, the arbitration hearing for United States residents will be conducted in the federal judicial district in which you reside (in your hometown area) or, for Canadian residents, in the province in which you reside, and , if you choose, will be in-person.
9. *Costs of the Arbitration*: Each party is responsible for its own attorney, expert, and other fees unless applicable law requires otherwise. Each party is also responsible for one-half of any fees or costs charged by the arbitration organization to administer the arbitration to the maximum extent permitted by law or rule. Where permissible by law, the prevailing party may be required to reimburse the other party for the costs and fees of the arbitration organization and arbitrator(s) in whole or in part by decision of the arbitrator(s) at the discretion of the arbitrator(s).
10. *Survival and Enforceability of this Arbitration Clause*: This Arbitration Clause shall survive the expiration or termination, or any transfer, of the warranty on your unit. If any part of this Arbitration Clause, except waivers of class-action rights, is found to be unenforceable for any reason, the remainder of this clause and the warranty shall remain enforceable. If, in a case in which class-action allegations have been made, the waiver of class-action rights under this warranty is found to be unenforceable with respect to any part of the dispute, the parts of the dispute as to which the waiver of class-action rights have been found unenforceable will be severed and will proceed in court without reference or application of this Arbitration Clause. Any remaining parts will proceed in arbitration.

Part No. PWDLCBEA
12/2021

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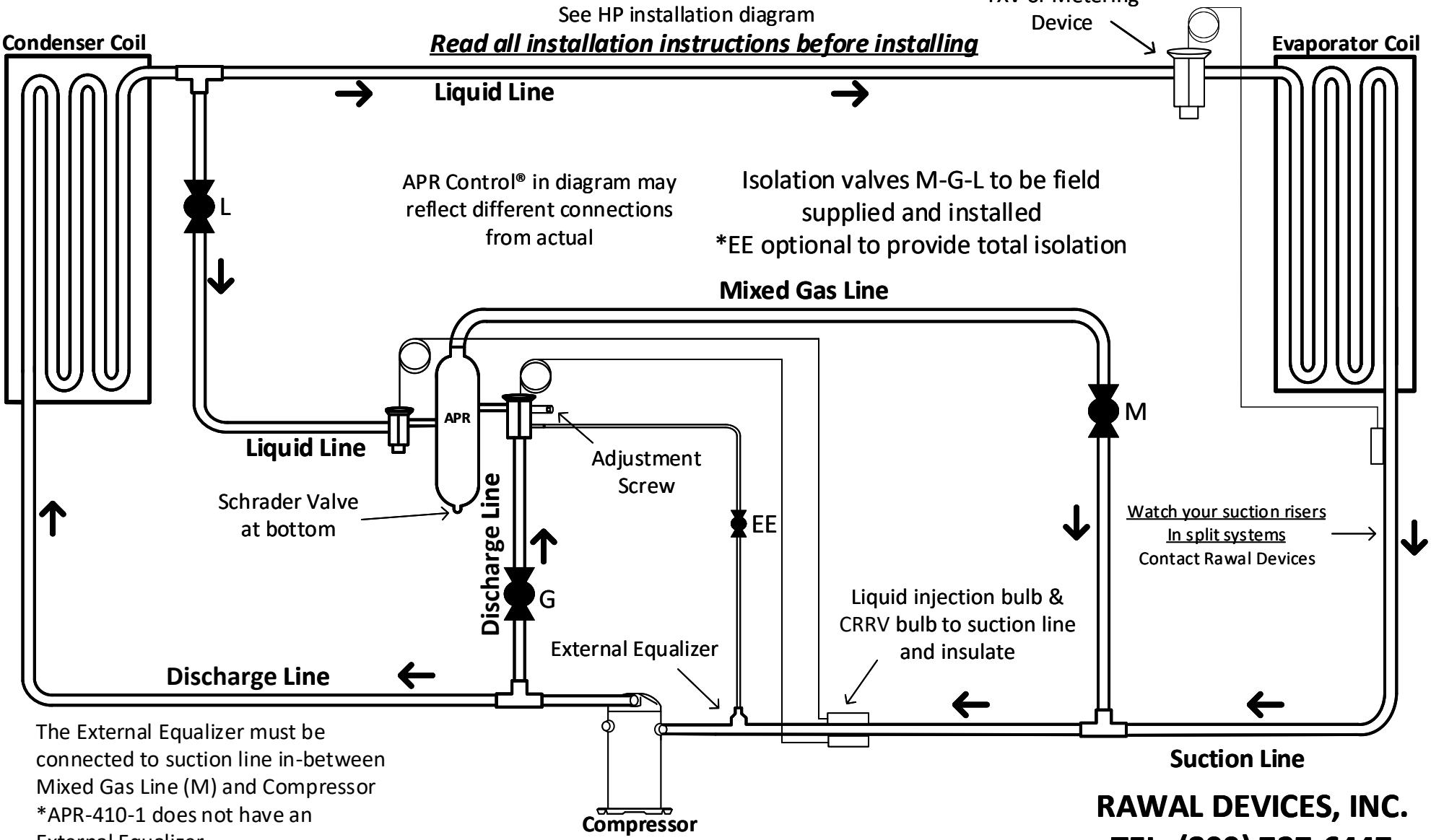
FREE 20-MINUTE ONLINE PRE-INSTALLATION TRAINING AVAILABLE

APR CONTROL® FOR R-410A IN SINGLE EVAPORATOR MODE

Heat Pump(HP) installation will be different.
See HP installation diagram

Read all installation instructions before installing



The External Equalizer must be connected to suction line in-between Mixed Gas Line (M) and Compressor
*APR-410-1 does not have an External Equalizer

RAWAL DEVICES, INC.
TEL. (800) 727-6447
www.Rawal.com
techsupport@rawal.com

*Drawing for illustrative purposes only
Please call for assistance

©2020 Rawal Devices, Inc. DOC#410A-SEM-01

APR CONTROL - R-410A - SPEC. & DIMENSION SHEET

			Unit Dimensions			Connection Dimensions (OD)				
Model #	Modulation Capacity		X	Y	Z	EE	L	M	G	Application
APR-410-1	1.5 tons		8.5"	8"	4"	N/A	3/8"	5/8"	3/8"	G - BOTTOM CONNECTION
APR-410-2	2.5 tons		8.5"	8"	4"	1/4"	3/8"	5/8"	3/8"	G - BOTTOM CONNECTION
APR-410-3	3.5 tons		8.5"	8"	4"	1/4"	3/8"	5/8"	3/8"	G - BOTTOM CONNECTION
APR-410-6	6.5 tons		9.5"	10"	4.5"	1/4"	3/8"	5/8"	5/8"	G - SIDE CONNECTION
APR-410-10	10 tons		12"	11"	5.5"	1/4"	3/8"	7/8"	7/8"	G - SIDE CONNECTION

The APR Control Compression Ratio Reduction (CRR) Valve should be set to begin opening at approximately *118 PSI* ~40°F

- SUPPLY BALL SHUT-OFF VALVES FOR ALL CONNECTIONS
- SUPPLY TEE FOR SUCTION LINE CONNECTION
- SUPPLY TEE FOR DISCHARGE LINE CONNECTION
- SUPPLY TEE FOR LIQUID LINE CONNECTION

APR Control Selection:

System or Stage size is reduced by the Modulation Capacity listed above

Oil entrainment in suction line must be addressed

Please refer to Rawal Devices Fast Selection Chart or Consult with Rawal Devices Engineers

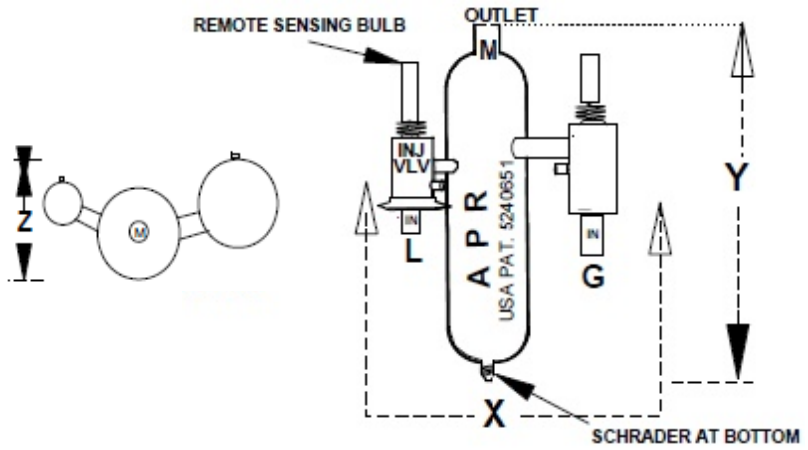
WHEN REQUIRED, SUPPLY TEE FOR EE CONNECTIONS EXTERNAL EQUILIZERS - EE - HAVE 1/4" SWEAT CONNECTION TEE EE CONNECTIONS INTO SUCTION LINE

BOTH SENSING BULBS ON LIQ INJ VALVE AND CRR VALVE MUST BE ATTACHED AND INSULATED TO SUCTION LINE BETWEEN TEE TO APR CONTROL DISCHARGE COMING FROM TOP OF THE CHAMBER AND COMPRESSOR

ONLY WHEN NECESSARY:

REMOVE CAPS FROM ADJUSTMENT STEMS PRIOR TO ADJUSTING

TO ADJUST VALVES WHEN FACING ADJUSTING STEM CLOCKWISE DECREASES PRESSURE / TEMPERATURE. COUNTER-CLOCKWISE INCREASES PRESSURE / TEMPERATURE.



RAWAL DEVICES, INC.

Call Tech Support: (800) 727-6447 WWW.RAWAL.COM

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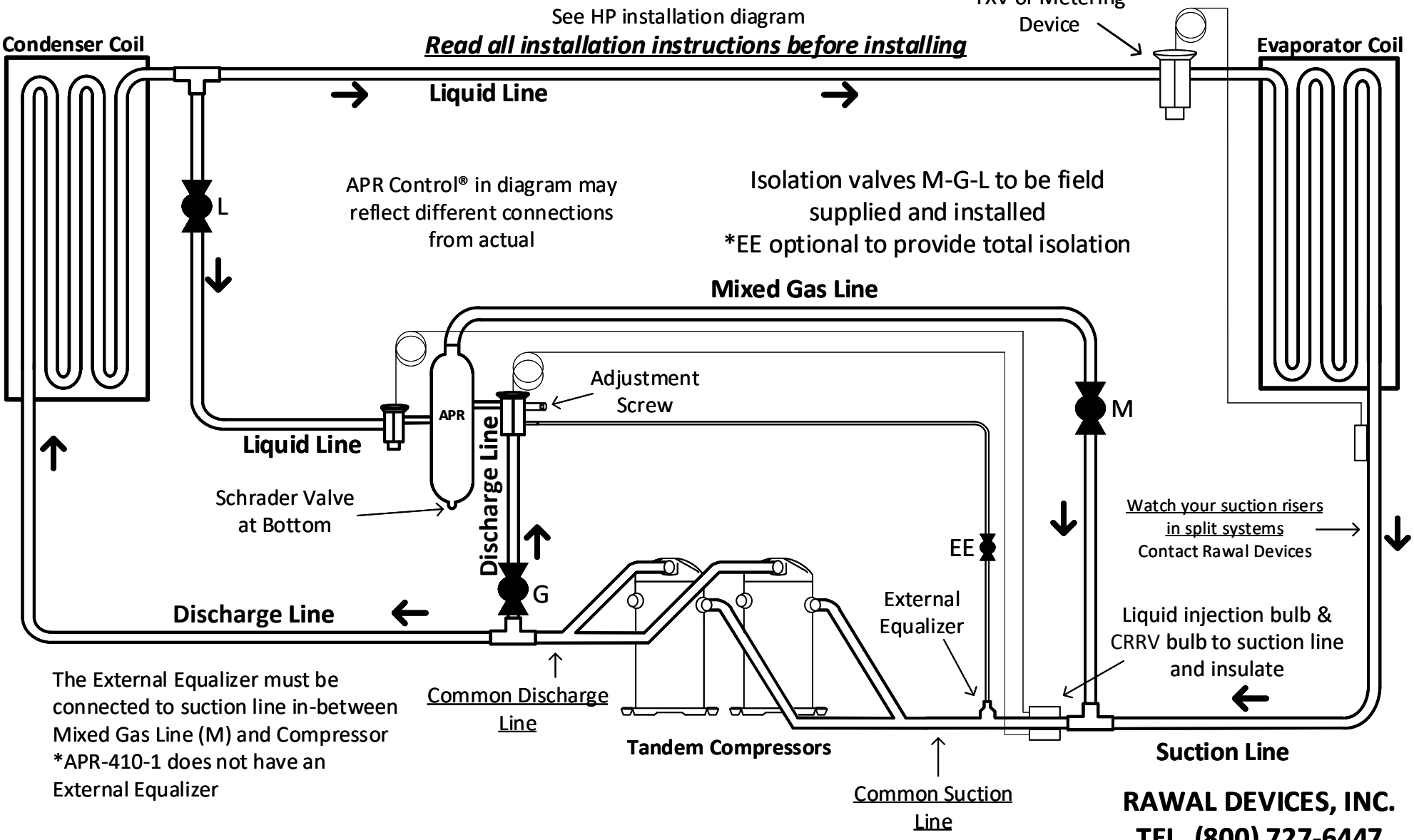
FREE 20-MINUTE ONLINE PRE-INSTALLATION TRAINING AVAILABLE

APR CONTROL® FOR R-410A IN TANDEM COMPRESSOR CONFIGURATION

Heat Pump(HP) Installation will be different.
See HP installation diagram

Read all installation instructions before installing



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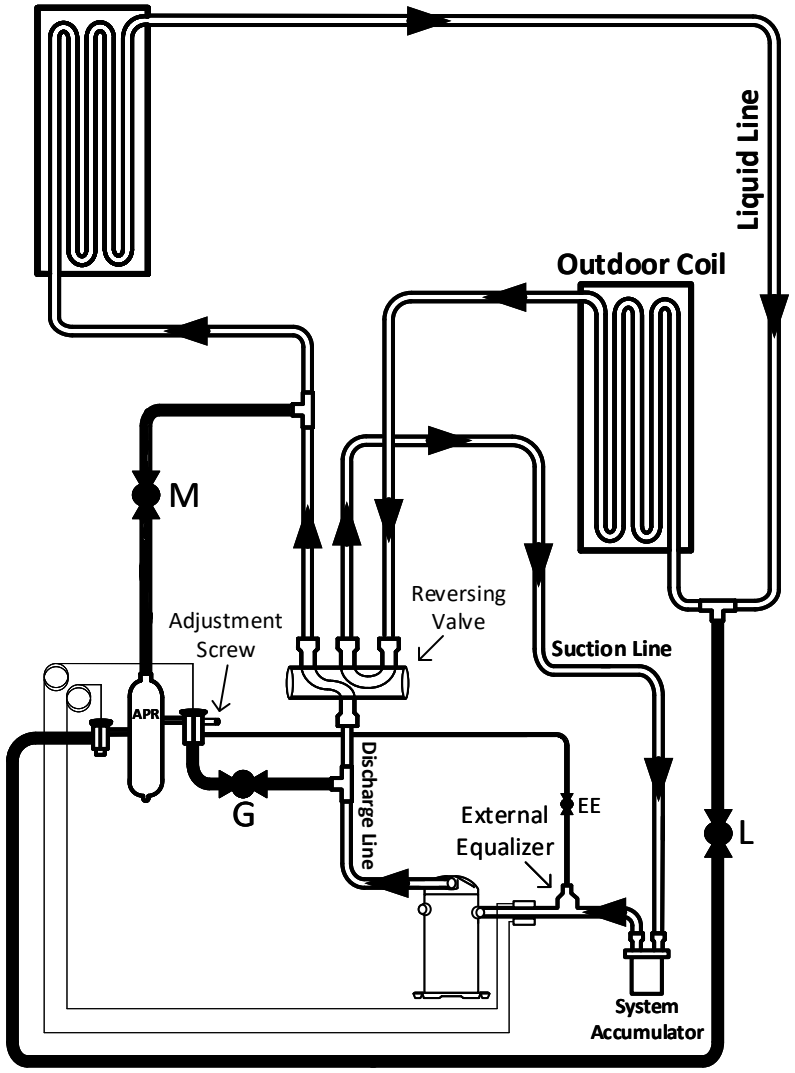
FREE 20-MINUTE ONLINE PRE-INSTALLATION TRAINING AVAILABLE

APR CONTROL® FOR R-410A IN A HEAT PUMP SYSTEM

Read all installation instructions before installing

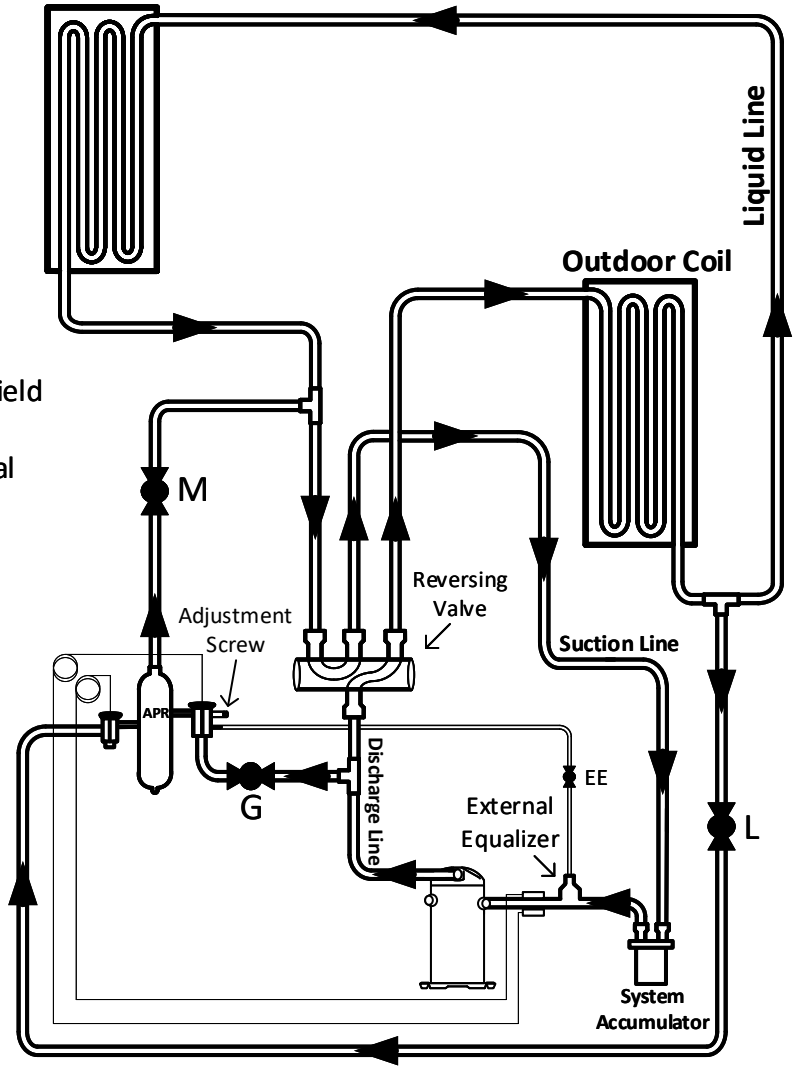
Heating Mode
APR Control® Inactive



Isolation valves M-G-L to be field supplied and installed
*EE optional to provide total isolation

APR Control® active in cooling mode only

Cooling Mode
APR Control® Active



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APR Control Installation Instructions APR-410A

If possible pump down system and lock existing refrigerant in the receiver or condenser. If you cannot secure existing system charge, use proper refrigerant recovery methods to save and store the refrigerant charge. Before installing the APR Control, make sure your system is clean –if not, or in doubt a new filter / strainer must be used to protect the APR Control to isolate and remove the system contaminants. Particles of dirt can settle on the valve seat of the Compression Ratio Reduction (CRR) Valve and prevent it from closing, leading to possible compressor overheating and system damage.

After you install the APR Control, use standard evacuation procedures and follow the directions listed below. All connections between the system and the APR Control can be made in the condensing section. The APR Control may be mounted outside the condensing unit housing if space or access are a problem. The APR Control should be mounted vertical, with discharge from the desuperheating chamber UP or an orientation so chamber discharge is above Schrader valve at bottom. Manual Shut off valves to isolate the APR Control connections to liquid, discharge and suction lines ***are to be field supplied and installed***. Functionally, isolation valves will assist in charging the systems and troubleshooting should difficulty with set-up arise.

Connections to the refrigerant circuit can be on horizontal or vertical pipes, but discharge from the APR Control desuperheating chamber to the suction line must be into the top of the suction line to prevent oil from draining into the APR Control chamber.

All connections to the APR Control should be made with Stay-Silv® 15 or equivalent Brazing Alloy. Keep in mind when brazing that the exterior of the APR Control is stainless while the interior is copper clad.

Always use plenty of wet rags or heat absorbing paste on the valves and aim your flame away from valve bodies to prevent possible damage.

1) Tee in a line shut off valve (G) at the compressor discharge line, (size to APR hot gas valve inlet) where strainer is supplied, install it in the APR hot gas inlet only.
2) Tee in a line shut off valve (M) at the suction line prior to compressor, (size to APR mixed gas discharge outlet at top of desuperheating chamber).
3) Tee in a line shut off valve (L) at the liquid line near the condenser coil or receiver outlet, size to APR injection valve inlet.
4) Mount APR Control securely in the condensing unit.
5) Connect discharge line from valve (G) to the inlet on CRR Valve connected to APR Control. CRR valve inlet marked with Red Discharge Line sticker.
6) Connect suction from the line valve (M) to the mixed gas outlet on top of APR Control desuperheating chamber.
7) Connect liquid from the line valve (L) to the liquid injection valve (TXV) inlet on APR Control.
8) External equalizers on sides of APR Control Compression Ratio Reduction valve should be connected to the suction line between mixed gas discharge connection from the APR Control and compressor inlet.
9) The injection valve bulb and CRR Valve bulb *must* be mounted, and insulated, to the suction line between compressor and mixed gas discharge connection from the APR Control.
10) Leak test system and evacuate. Before charging system close all APR Control line valves, do not leave the APR Control open when charging the system. No additional charge is required for the APR Control to operate.
11) For R-410a High Temperature Systems – **Compression Ratio Reduction Valve of the APR Control has been set to open at about 118 psig (40° F)**. See adjustment sheet if you require further instructions.
12) **APR Control Liquid Injection valve is set to open at around 65° F (or 20° superheat) to protect the compressor from overheating**.

***Please refer to the Spec. & Dimension sheet for connection sizes for specific model APR Control.**

***Adjustment settings to all APR-410A valves need to be confirmed in the field.**

DOC#410A-INST

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APR Control Operation and Adjustment (R-410A)

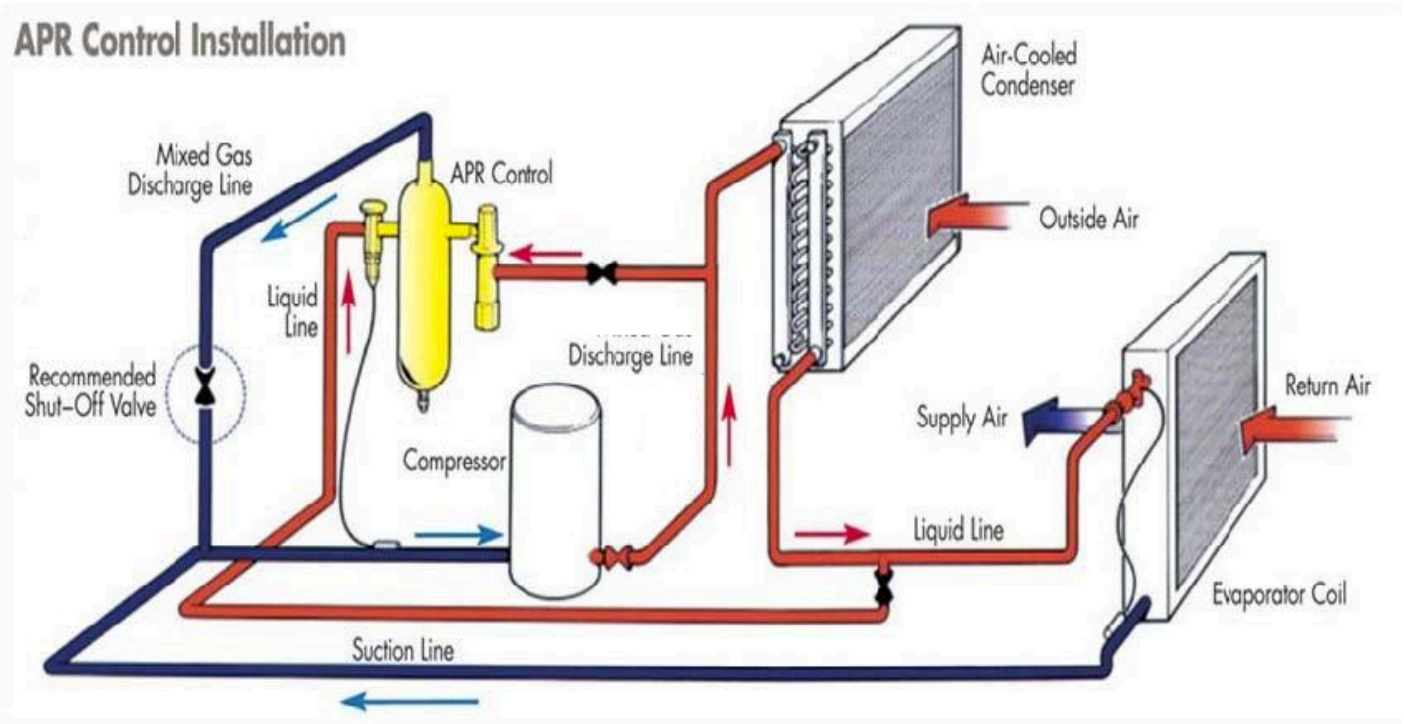
The APR Control® valve is a capacity modulation and dehumidification device that modulates the air conditioning system's refrigeration (circuit capacity to match the varying load conditions of the space. Often utilized to minimize the challenges of oversized air conditioning systems, the APR Control is a device that operates in response to suction pressure of an active air conditioning system. As the heat load (including occupancy, ventilation and solar loads, for example of the conditioned space drops, your suction pressure drops to the point the APR Control begins to open. A portion of discharge gets sent through the desuperheating chamber, then back to the suction line. A liquid injection valve mixes liquid with the discharge gas in the desuperheating chamber when the mixed gas temperature reaches approximately 20°superheat returning to the compressor.

The APR Control externally unloads the compressor, keeping the evaporator coil at a constant temperature below dew point, thereby dehumidifying during the extended run time achieved. Extended run time is achieved by keeping the thermostat from being satisfied too quickly (a standard cause of short cycling.

The APR Control comes factory set at approximately 120psig[1] and typically does not require adjustment. During part-load conditions, as the heat content of the return air (including the sensible temperature drops, the saturated suction temperature will drop, resulting in a drop in suction pressure. As the suction pressure falls to 120psig the APR Control will begin to open and attempt to stabilize the system suction pressure at approximately 120psig.

However, if the runtime is inadequate or low load operation fails to cause suction pressure to fall low enough (the point at which the APR Control starts to open), you may need to adjust the APR Control® Compression Ratio Reduction valve. The adjustment port can be found on the side or the bottom of the CRR valve. Remove the cap to access the set screw. A standard hex wrench can be used to turn the screw and adjust the pressure setting. The pressure setting will adjust in the range of 5 lbs per 360° turn[2]. Turning the wrench counter-clockwise (out will increase the pressure setting and turning the wrench clockwise (in will lower the pressure setting. The maximum pressure setting that most APR Controls can be adjusted to is approximately 130psig and the minimum is 95psig. As you adjust the APR Control, it will to reduce system capacity in order to match capacity to changing load conditions beginning at the new setting.

1: The factory setting for the **APR-410-5** is **105psig**, with an **adjustment range of 95 - 115psig**.
2: The pressure setting of the **APR-410-5** will **adjust 2.5 lbs per 360° turn**. Also note that turning the adjustment screw counter-clockwise (out will ***decrease*** the pressure setting while turning it ***clockwise*** (in will increase the pressure setting.



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