



The new degree of comfort.®



Condensing Units
SAWL-SHGL Series

Rheem Commercial High-Efficiency Condensing Units



SAWL



SAWL



SAWL



SHGL

SAWL /SHGL - SERIES
MODEL 078 – 150



R-410A
earth friendly refrigerant

50 Hz



INTEGRATED AIR & WATER

SAWL-SHGL-2018-KWT-04

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CONDENSING UNIT

CABINET—Galvanized steel with a durable powder paint finish. Stamped louvered panels offer 100% protection for the condenser coil.

COMPRESSOR—The Scroll Compressor is hermetically sealed with internal overload protection and durable insulation on motor windings. The entire compressor is mounted on rubber grommets to reduce vibration and noise.

CONDENSER COIL—Constructed with copper tubes and aluminum fins mechanically bonded to the tubes for maximum heat transfer capabilities.

BASE PAN—Galvanized steel with powder paint finish.

REFRIGERANT CONNECTIONS—Field piping connections are made through a fixed panel. This allows removal of access panels after piping connections have been made.

CRANKCASE HEATERS—Standard, all models. Prevents refrigerant migration to compressor(s).

LOW AMBIENT CONTROL—A pressure sensitive fan cycling control to allow unit operation down to 4.4°C [50°F] is standard.

SERVICE VALVES—Standard on liquid and suction lines. Allows outdoor section to be isolated from indoor coil.

SERVICE ACCESS—Control box as well as the compressor and other refrigerant controls are accessible through access panels. Control box may be open without affecting the normal operation of the unit. Condenser fan motors are accessible by removing wire grilles.

FILTER DRIER—Standard (uninstalled) on all models. Helps ensure refrigerant cleanliness.

TRANSFORMER—Step-down type, line to 24 volts. Provides control circuit voltage.

CONTACTOR—The contactor is an electrical switch which operates the compressor and condenser fans.

HIGH PRESSURE CONTROL—Opens the contactor circuit on high refrigerant pressure; manual reset.

LOW PRESSURE CONTROL—Stops compressor operation in the event of loss of refrigerant.

CONDENSER FAN MOTOR (Direct Drive)—Ball bearing 895 RPM motors are mounted to minimize vibration and noise problems. These are permanent split capacitor types.

TESTING—All units are run tested at the factory prior to shipment. Units are shipped with a holding charge of nitrogen.

EXTERNAL GAUGE PORTS—Allows pressures to be checked without removing access panel.

COIL LOUVERS—Helps prevent damage to outdoor coils.

TIME DELAY—Supplied on tandem compressor models to provide a delay between stages.

EQUIPMENT GROUND—Lug for field connection of ground wire.

AIR HANDLING UNIT

CABINET—Powder coat painted. Matching discharge plenums and decorative supply and return air grilles are available for use when units are to be installed within conditioned space.

MOTOR—Inherently protected motors are mounted inside of insulated cabinet to reduce motor noise. A choice of motor horsepower and drive combinations are available to allow you to meet specified CFM at various static pressures up to 2" [.498 kPa] external static pressure.

LOW PROFILE—Allows for horizontal installation in most standard drop ceiling applications, and the movement of units through most standard doorways for addition or replacement work.

THERMAL EXPANSION VALVES—Standard all models.

FILTERS—One inch [25 mm] throwaway filters are standard, but filter racks are designed to accept either one inch [25 mm] or two inch [51 mm] filters.

EVAPORATOR COIL—Two circuit, interlaced row split coils are constructed with copper tubes and aluminum fins mechanically bonded to the tubes for maximum heat transfer capabilities. All coil assemblies are leak tested up to 450 PSIG [3100 kPa] internal pressure prior to installation into units.

REFRIGERANT CONNECTIONS—Field piping connections are made through a fixed post between two side access panels on either side of the unit. Allows flexibility to meet most field conditions as well as full accessibility after the installation is complete.

Units may be used with two straight cool condensing units or single circuit manifolded in the field using the copper fittings shipped with each unit. The SHGL Air Handler has not been tested, rated or certified to operate with dual remote heat pumps.

DRAIN PAN—The galvanized steel drain pan is designed to trap condensate in either vertical or horizontal installations. Condensate drain connections are located on both sides of the unit allowing complete flexibility to meet most field conditions.

SERVICE ACCESS—Two removable panels on top and each side of the unit are easily removed for access to motors, blowers, sheaves, and filters.

HORIZONTAL OR VERTICAL—All models are designed for either application and can be installed in either position as supplied from the factory. (See page 13)

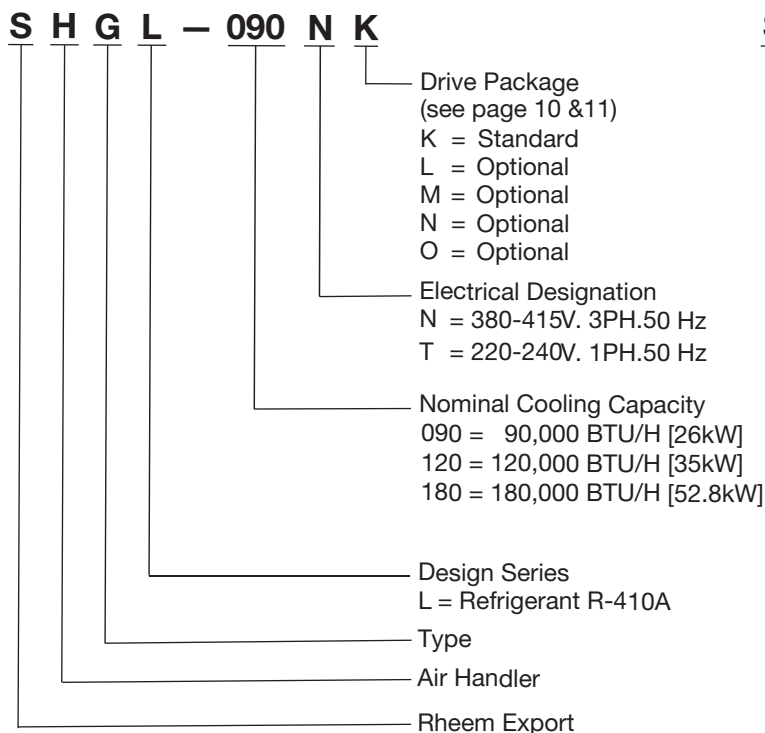
TESTING—All units are run tested at the factory prior to shipment. Units are shipped with a holding charge of nitrogen.

HEAT PUMP—The SHGL-120 Air Handler is designed for heat pump and air conditioning applications. It has two TX valves with internal check valves that allow reverse flow to occur, providing superior control during heating and cooling cycles. SHGL-120 Air Handler has been rated and certified to operate with SAWL-090 & 120 condensing units and SAWL-090 & 120 remote heat pumps. SHGL-090 heat pump air handler is **NOT** available.

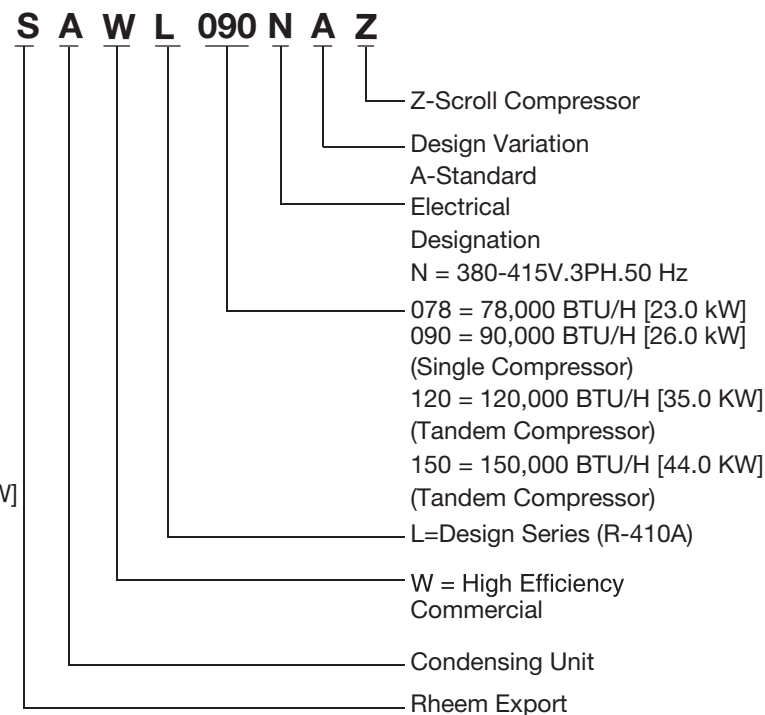
] Designates Metric Conversions

MODEL NUMBER DESIGNATION

AIR HANDLING UNITS



CONDENSING UNITS



WHY USE A HIGH EFFICIENCY AIR COOLED SPLIT SYSTEM ?

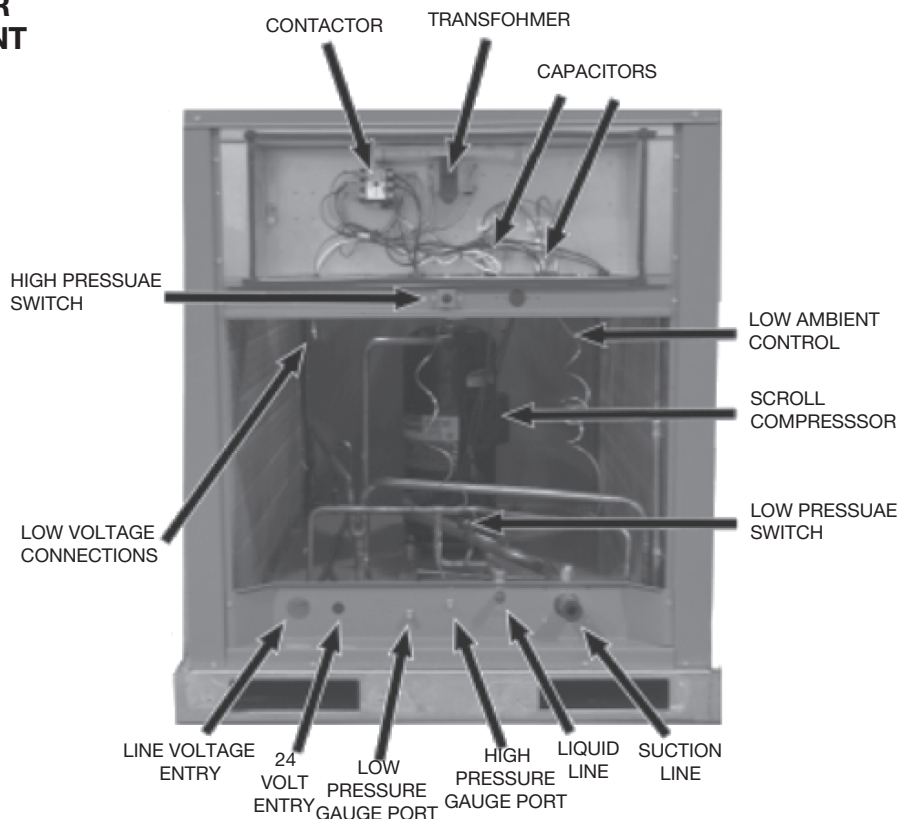
- The size ranges offered by Rheem® allow you to mix or match components to meet actual job requirements, thus eliminating the need to use oversized or undersized equipment. Equipment sized to meet the actual load will provide better operating economy, better humidity control, and longer equipment life.
- With an air cooled system, you have no water or sewer connections to make, and no troublesome and costly water treatment problems.
- Since the condensing unit is located outside the building, and the low profile air handling unit can be installed in the drop ceiling or in the conditioned space, you will not need a separate equipment room which takes up valuable building space.
- Remote mounting of the already quiet condensing unit keeps the compressor and condenser fan noise outside, and the vertical discharge fans carry the sound up and away from the surrounding area.
- Because of the simple design of the Rheem condensing unit, installation is quick and simple, and very little maintenance is required.

[] Designates Metric Conversions

SAWL (078, 090, 120, 150) MODELS

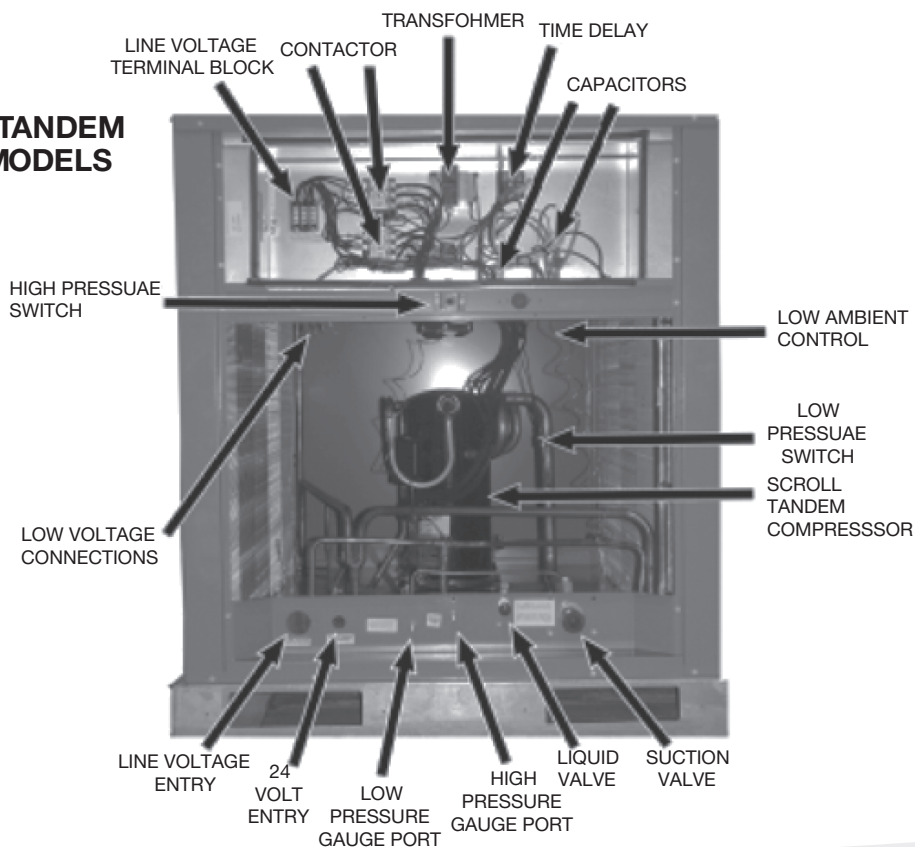
COMPRESSOR COMPARTMENT

SAWL-090



CONTROL BOX

SAWL (120, 150) SHOWN, OTHER TANDEM COMPRESSOR MODELS TYPICAL





MEW Performance Data

Models	Test Description	Test IDU/ODU Conditions	Max Airflow (CFM)	Rated Capacity (BTU/Hr)	Rated Total Watts (W)	KW/Ton
(SAWL-078N - SHGL-090N)	T1	27/19-35C	2218	68600	5300	
	MEW	80/67-118.4F	2423	62800	6630	1.27
	MEW CONTINUITY	80/67-125.6F	2423	Passed 2 - hour continuity @ 125.6 F, 52C		
(SAWL-090N - SHGL-090N)	T1	27/19-35C	2374	82000	6490	
	MEW	80/67-118.4F	2452	73800	8250	1.34
	MEW CONTINUITY	80/67-125.6F	2452	Passed 2 - hour continuity @ 125.6 F, 52C		
(SAWL-120N - SHGL-120N)	T1	27/19-35C	3149	114000	7420	
	MEW	80/67-118.4F	3130	99500	9450	1.14
	MEW CONTINUITY	80/67-125.6F	3130	Passed 2 - hour continuity @ 125.6 F, 52C		
(SAWL-150N - SHGL-180N)	T1	27/19-35C	5044	154000	10300	
	MEW	80/67-118.4F	5043	132500	13000	1.18
	MEW CONTINUITY	80/67-125.6F	5043	Passed 2 - hour continuity @ 125.6 F, 52C		

Note: Rated Total PI (Watts) includes the power input of compressor, cond. motor and evap. motor



PERFORMANCE DATA @ AHRI STANDARD CONDITIONS – COOLING: SAWL

MODEL NUMBERS		80°F [26.5°C] DB/67°F [19.5°C]WB INDOOR AIR 95°F [35°C] DB OUTDOOR AIR			SOUND RATING dB	INDOOR CFM [L/s]
OUTDOOR UNIT SAWL-	INDOOR COIL AND/OR AIR HANDLER	GROSS CAPACITY BTU/H [kW]	GROSS SENSIBLE BTU/H [kW]	LATENT BTU/H [kW]		
Rev. 2/20/2009						
078NAZ	SHGL-090N	67,539 [19.8]	51,539 [15.1]	16,000 [4.7]	86	2,200 [1038]
078PAZ	SHGL-090P	67,539 [19.8]	51,539 [15.1]	16,000 [4.7]	86	2,200 [1038]
090NAZ	SHGL-090N	80,696 [23.6]	57,696 [16.9]	23,000 [6.7]	86	2,300 [1085]
	SHGL-120N	82,696 [24.2]	59,696 [17.5]	23,000 [6.7]	86	2,600 [1227]
090PAZ	SHGL-090P	80,696 [23.6]	57,696 [16.9]	23,000 [6.7]	86	2,300 [1085]
	SHGL-120P	82,696 [24.2]	59,696 [17.5]	23,000 [6.7]	86	2,600 [1227]

ELECTRICAL & PHYSICAL DATA – COOLING: SAWL

Model No. SAWL-	ELECTRICAL									
	Phase Frequency (Hz) Voltage (Volts)	Compressor			Condenser Fan Motor			Minimum Circuit Ampacity Amperes	Fuse or HACR Circuit Breaker	
		Rated Load Amperes (RLA)	Nos	Locked Rotor Amperes (LRA)	HP	Amperes Fan Motors (FLA)	Nos		Minimum Amperes	Maximum Amperes
078NAZ	3-50-380/415	10.6/10.6	1	75	1/3	1.3	1	15/15	20/20	25/25
078PAZ	3-50-200/220	22.4/22.4	1	149	1/3	2.2	1	31/31	40/40	50/50
90NAZ	3-50-380/415	12.2/12.2	1	100	1/3	1.3	1	17/17	20/20	25/25
90PAZ	3-50-200/220	25/25	1	164	1/3	2.2	1	34/34	40/40	50/50
120NAZ	3-50-380/415	16.7/16.7	1	114	1/3	1.4	2	24/24	30/30	40/40
150NAZ	3-50-380/415	10.6/10.6	2	75	1/3	1.4	2	27/27	30/30	35/35

Model No. SAWL-	PHYSICAL					
	Outdoor Coil			Refrig. Per Circuit Oz. [g]	Weight	
	Face Area Sq. Ft. [Sq. m] ³	No. Rows	CFM [L/s]		Net Lbs. [kg]	Ship Lbs. [kg]
078NAZ	23.0 [2.14]	1.5	3900 [1840]	178 [5046]	291 [132]	314 [142.4]
078PAZ	23.0 [2.14]	1.5	3900 [1840]	178 [5046]	291 [132]	314 [142.4]
90NAZ	23.0 [2.14]	2	3900 [1840]	242 [686]	318 [144.2]	341 [154.7]
90PAZ	23.0 [2.14]	2	3900 [1840]	242 [686]	318 [144.2]	341 [154.7]
120NAZ	27.0 [2.31]	2	6667 [3146]	339 [9611]	501 [227.3]	541 [245.4]
150NAZ	32.9 [3.05]	2	6667 [3146]	378 [10716]	650 [294.8]	690 [313.0]

CONDENSING UNIT ACCESSORIES - OPTIONAL

Accessory Description	MODEL NUMBER	SIZES USED ON
Anti-Short Cycle Timer Kit	RXAT - A01	ALL
Sight Glass	RXAT - A048	090, 120
Sight Glass	RXAG - A020	090
Sight Glass	RXAG - A048	078
Sight Glass	RXAG - A078	090
Liquid Line Solenoid Valve*	RXAV-CD078	078, 090
Liquid Line Solenoid Valve*	RXAV - CD -120	120, 150
Minimum Run Timer	RXAU-A01	078

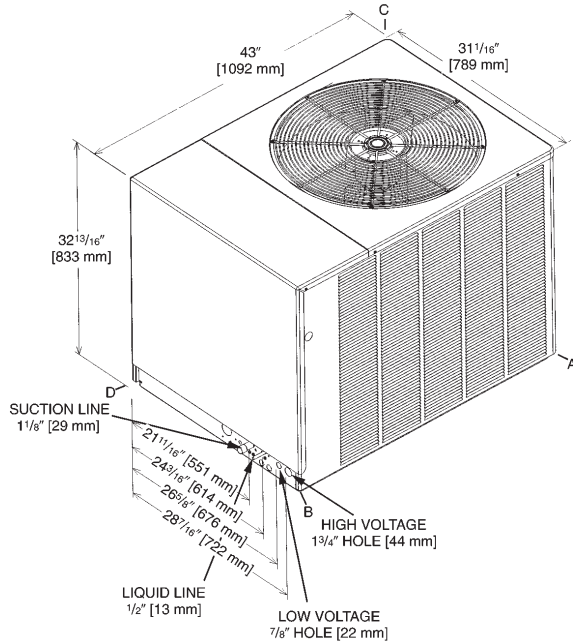
*Cannot be used as a pump down solenoid.

[] Designates Metric Conversions

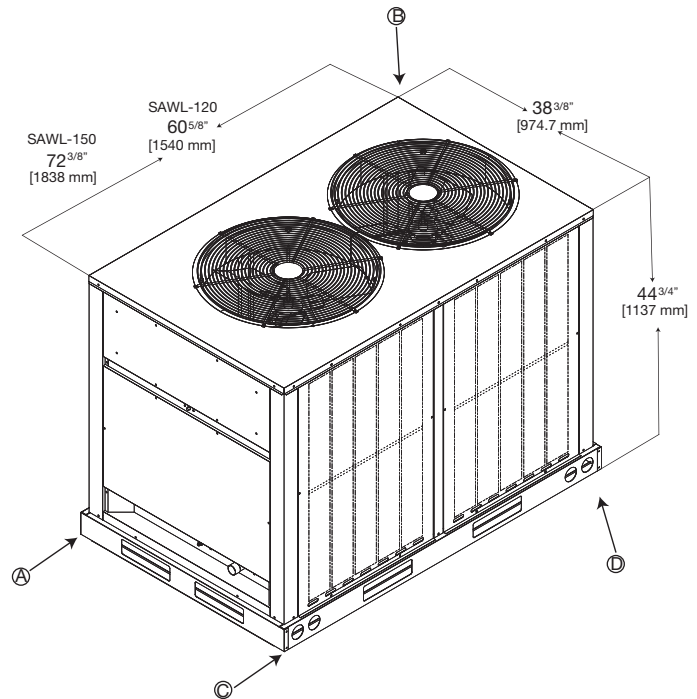
UNIT DIMENSIONS AND WEIGHTS SAWL SERIES

MODEL	TOTAL WEIGHT LBS. [kg]	Corner Weights, Lbs. [kg]			
		A	B	C	D
SAWL-078	291 [132.0]	50 [22.7]	73 [33.1]	69 [31.3]	99 [45.0]
SAWL-090	318 [144.2]	53 [24.0]	84 [38.1]	71 [32.2]	110 [50.0]
SAWL-120	501 [227.0]	123 [58.0]	132 [60.0]	119 [54.0]	127 [58.0]
SAWL-150	650 [295.0]	160 [72.0]	171 [78.0]	154 [70.0]	165 [75.0]

SAWL - 078 & 90



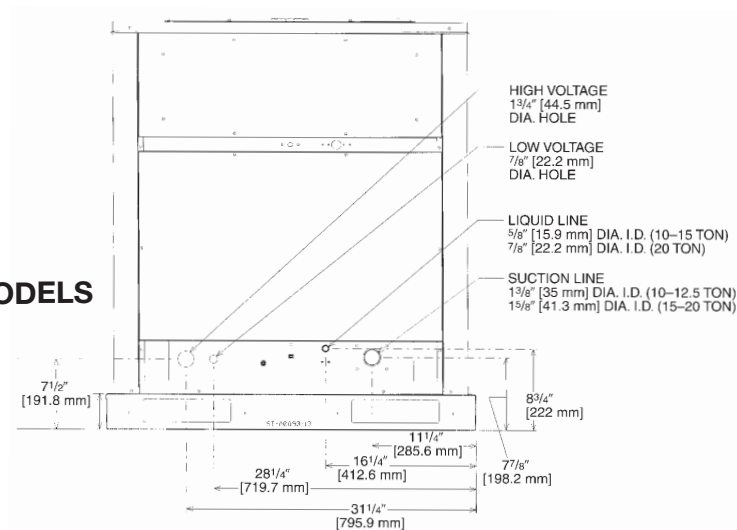
SAWL -120 & 150



CONTROL ACCESS SIDE VIEW

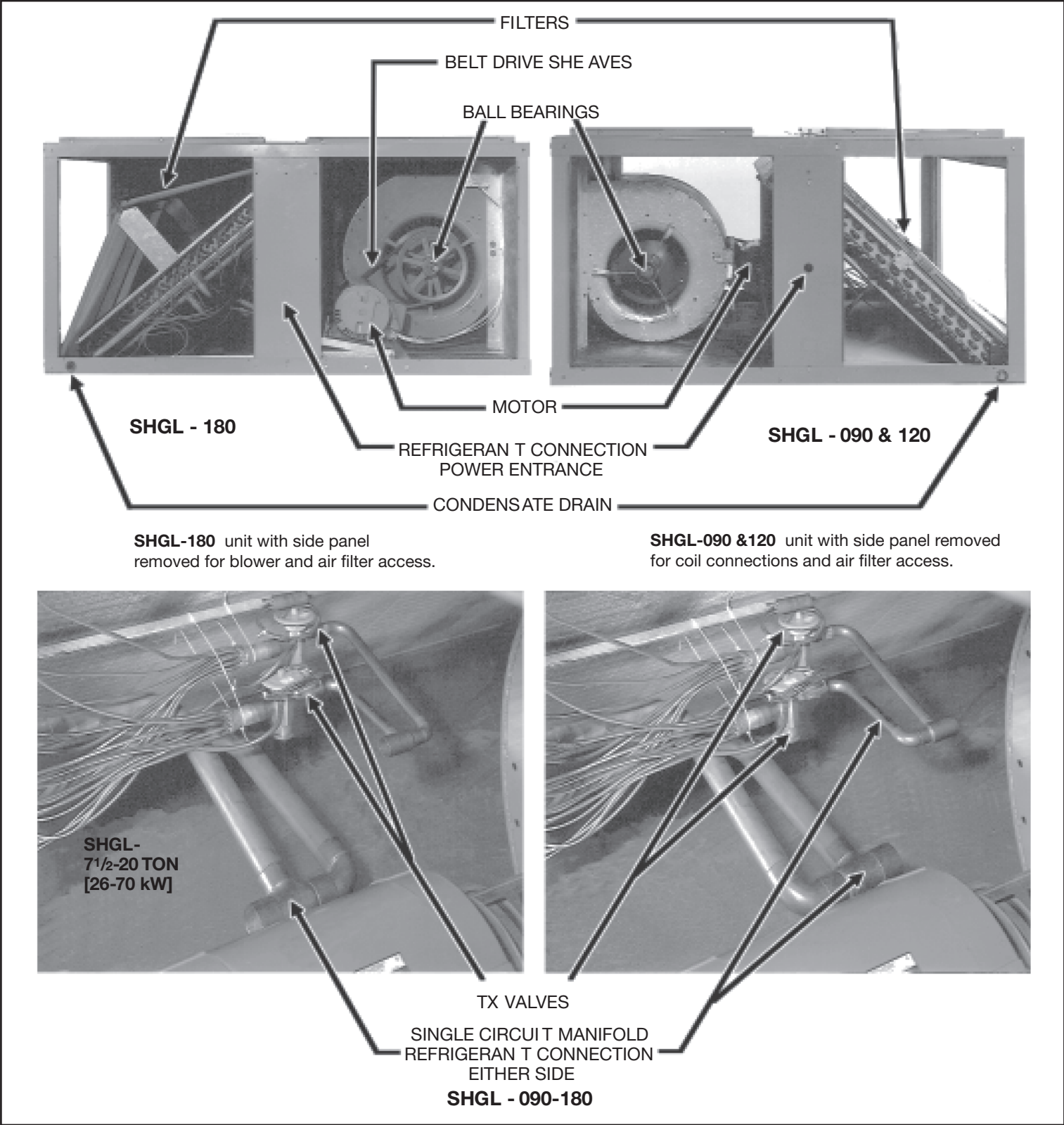
SAWL 090-120-150

ALL MODELS



[] Designates Metric Conversions

COMPONENT LOCATION—SHGL- SERIES

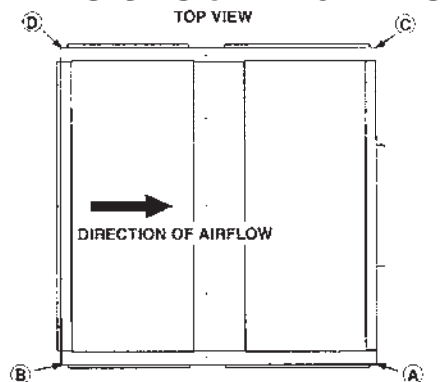


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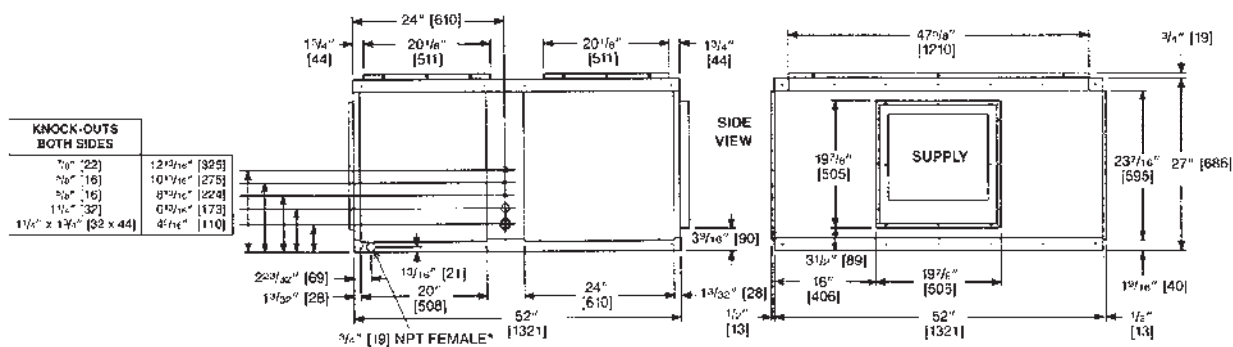
UNIT DIMENSIONS & WEIGHT - SHGL SERIES

[090 & 120]



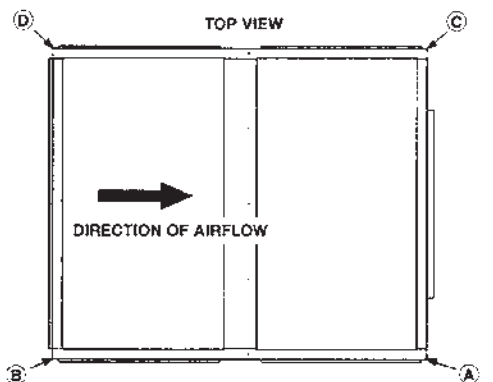
MODEL	REFRIGERANT STUB SIZES, IN. [mm]			
	DUAL LIQ.	DUAL SUC.	SINGLE LIQ.	SINGLE SUC.
090	1/2, 1/2 [13, 13]	7/8, 7/8 [22, 22]	1/2 [13]	1 1/8 [29]
120	1/2, 1/2 [13, 13]	7/8, 7/8 [22, 22]	5/8 [16]	1 3/8 [35]

MODEL	CORNER WEIGHTS, LBS. [kg]				TOTAL WEIGHT
	A	B	C	D	
090	88 [40]	78 [35]	87 [39]	77 [35]	330 [150]
120	93 [42]	82 [37]	92 [42]	80 [36]	347 [157]



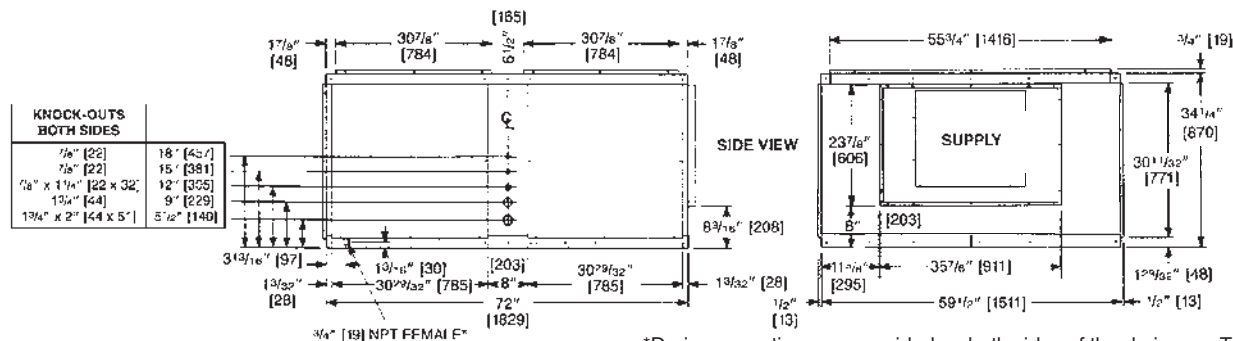
*Drain connections are provided on both sides of the drain pan. The drain can be connected to either side of the drain pan, but not both. The drain must be trapped.

[180]



MODEL	REFRIGERANT STUB SIZES, IN. [mm]			
	DUAL LIQ.	DUAL SUC.	SINGLE LIQ.	SINGLE SUC.
180	1/2, 1/2 [13, 13]	1 1/8, 1 1/8 [29, 29]	5/8 [16]	1 5/8 [41]

MODEL	CORNER WEIGHTS, LBS. [kg]				TOTAL WEIGHT
	A	B	C	D	
180	144 [65]	127 [58]	117 [53]	105 [48]	495 [225]



*Drain connections are provided on both sides of the drain pan. The drain can be connected to either side of the drain pan, but not both. The drain must be trapped.

PHYSICAL DATA TABLE : SHGL (AIR HANDLING UNITS)



Physical Data
SHGL Series

ITEM		MODEL NO. SHGL		
		090	120	180
Nominal Size BTU/H [kW]		90,000 [26]	120,000 [35]	180,000 [53]
Nominal CFM [L/s] @ Rated E.S.P., in. [kPa] of water		2500 @ .25 [1180 @ .062]	3167 @ .30 [1495 @ .075]	5000 @ .35 [2360 @ .087]
MOTOR	Standard — 1500 RPM [W] 10 30	1 HP [766] 1 HP [766]	2 HP [1491] 1½ HP [1119]	— 2 HP [1491]
	Optional — 1500 RPM [W] 30	1½ HP, 2 HP [1119, 1491]	2 HP, 3 HP [1491, 2237]	3 HP, 5 HP [2237, 3729]
Blower Size—diameter & width, in. [mm]		12 x 12 [305 x 305]	12 x 12 [305 x 305]	18 x 15 [457 x 381]
Blower Shaft Size (diameter) in. [mm]		¾ [19]	¾ [19]	1 [25]
Motor Sheave Size Adjustment (std.) in. [mm] 1725 RPM 3		3.4-4.4 [86-112]	4.0-5.0 [102-127]	— 3.1-4.1 [79-104]
Coil Face Area, sq. feet [m²]		10.2 [.95]	10.2 [.95]	16.5 [1.53]
Coil Tube Diameter in. [mm]		⅜ [10]	⅜ [10]	⅜ [10]
Coil, Rows Deep / Fins Per Inch [mm]		3/15 [.59]	4/15 [.59]	3/13 [.51]
Refrigerant Control—Thermal Expansion Valves (Quantity)		(2)	(2)	(2)
Filter Size, in. [mm] (Number Required) Disposable*		16 x 25 x 1 (4) [406 x 635 x 25]	16 x 25 x 1 (4) [406 x 635 x 25]	20 x 25 x 1 (6) [508 x 635 x 25]
CABINET: Finish		Powder Paint	Powder Paint	Powder Paint
Sheet Metal		Galvanized	Galvanized	Galvanized
Gauge (nominal) Top		18	18	18
Sides		16	16	16
Bottom		18	18	16
Doors and Covers		20 min.	20 min.	20 min.
UNIT WEIGHTS: Operating (lbs.) [kg]		330 [150]	347 [157]	495 [225]
Shipping (lbs.) [kg]		350 [159]	367 [166]	530 [240]
PACKAGED DIMENSIONS: (H x W x L) [mm]		31½" x 56" x 57¼" [800 x 1422 x 1454]	31½" x 56" x 57¼" [800 x 1422 x 1454]	39" x 63" x 76½" [991 x 1600 x 1943]

*Unit will accept 2" [51 mm] filters.

NOTE: If a factory accessory heater kit is not used, a field supplied fan contactor is required and should have a 24 volt coil with contacts rated to handle the evaporator motor FLA at desired voltage. A factory supplied 30Amp 3 Pole (Part #42-17810-83) contactor may be purchased from the Parts Department.

ELECTRICAL DATA TABLE : SHGL (AIR HANDLING UNITS)

AIR HANDLER			RATING PLATE AMPS	MOTOR LRA	MINIMUM CIRCUIT AMPACITY	RECOMMENDED MINIMUM Cu WIRE SIZE (3% VOLTAGE 75°C DROP) MAX. RUN IN FEET	MAX. FUSES BREAKERS
HP [W]	VOLTS	PHASE - Hz					
1 [746]	380/415	3Ø - 50	1.8	10.8	15	#14/400	15
1½ [1119]	380/415	3Ø - 50	2.6	15.6	15	#14/300	15
2 [1491]	380/415	3Ø - 50	3.4	20.4	15	#14/275	15
3 [2237]	380/415	3Ø - 50	4.8	26.8	15	#14/230	15
5 [3729]	380/415	3Ø - 50	7.6	45.6	15	#14/185	15
7½ [5593]	380/415	3Ø - 50	11.0	66	15	#14/135	15

NOTE: N.E.C., C.E.C. and local codes take precedence over suggested wire and fuse sizes.



INTEGRATED AIR & WATER

INDOOR BLOWER PERFORMANCE (DRYCOIL) SHGL-090 N

DRIVE PKG	STD CFM [L/s]	E . S . P . - I N C H E S O F W A T E R [k P a]																																												
		.1 [0.02]		.2 [0.05]		.3 [0.07]		.4 [0.10]		.5 [0.12]		.6 [0.15]		.7 [0.17]		.8 [0.20]		.9 [0.22]		1.0 [0.25]		1.1 [0.27]		1.2 [0.30]		1.3 [0.32]		1.4 [0.35]		1.5 [0.37]		1.6 [0.40]		1.7 [0.42]		1.8 [0.45]		1.9 [0.47]		2.0 [0.50]						
		RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W					
K	1600 [755]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	1667 [787]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	1833 [865]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	2000 [944]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	2167 [1023]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
L	2333 [1101]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	2500 [1180]	525	550	550	608	579	646	608	700	642	767	667	829	692	883	717	954	742	1017	779	1025	804	1071	829	1121	850	1171	875	1254	900	1300	925	1367	929	1375	950	1450	975	1513	986	1571	—	—	—	—	
	2667 [1259]	550	675	579	717	604	767	638	833	663	892	688	950	713	1021	742	1096	767	1142	800	1154	821	1204	846	1275	867	1350	892	1404	904	1413	929	1483	946	1563	—	—	—	—	—	—	—	—			
	2833 [1337]	575	783	604	833	633	908	658	963	683	1021	708	1104	738	1175	763	1217	792	1238	817	1308	842	1383	858	1400	871	1454	896	1525	—	—	—	—	—	—	—	—	—	—	—	—	—	—			
	3000 [1416]	600	933	625	988	658	1042	683	1096	708	1192	738	1267	763	1325	788	1338	813	1413	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

K = IVP50, AZ100, 1 HP [766 W] M = IVP68, AZ100, 1 1/2 HP [1119 W]
L = IVP60, AZ100, 1 1/2 HP [1119 W] N = IVP75, AZ100, 2 HP [1491 W] [Field Supplied]

INDOOR BLOWER PERFORMANCE (DRYCOIL) SHGL-120 N

DRIVE PKG	STD CFM [L/s]	E . S . P . - I N C H E S O F W A T E R [k P a]																																										
		.1 [0.02]		.2 [0.05]		.3 [0.07]		.4 [0.10]		.5 [0.12]		.6 [0.15]		.7 [0.17]		.8 [0.20]		.9 [0.22]		1.0 [0.25]		1.1 [0.27]		1.2 [0.30]		1.3 [0.32]		1.4 [0.35]		1.5 [0.37]		1.6 [0.40]		1.7 [0.42]		1.8 [0.45]		1.9 [0.47]		2.0 [0.50]				
		RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W			
K	2500 [1180]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	2667 [1259]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	2833 [1337]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	3000 [1416]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	3167 [1495]	621	1054	650	1125	675	1213	700	1292	729	1358	754	1450	783	1533	796	1588	825	1708	854	1788	871	1854	896	1929	896	1992	917	1992	942	2079	958	2158	975	2208	992	2258	1017	2308	1054	2413			
L	3333 [1573]	650	1221	675	1313	708	1408	733	1483	758	1567	783	1675	808	1758	825	1817	850	1917	875	2000	896	2075	896	2038	917	2142	942	2242	954	2321	975	2379	988	2433	1013	2488	1050	2575	1063	2638			
	3500 [1652]	688	1458	713	1533	738	1604	767	1717	783	1800	804	1883	829	1971	854	2058	875	2133	900	2233	900	2238	917	2329	942	2408	958	2500	971	2567	992	2621	—	—	—	—	—	—	—	—			
	3667 [1731]	704	1604	754	1750	771	1829	792	1933	808	2025	829	2125	858	2208	875	2296	879	2300	904	2379	917	2488	942	2596	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	3833 [1809]	763	1854	775	1979	796	2079	817	2183	842	2292	858	2367	863	2458	879	2467	900	2558	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	4000 [1888]	775	2129	800	2233	821	2342	846	2450	871	2533	863	2538	879	2650	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
N	4167 [1967]	800	2392	825	2508	850	2613	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

K = IVP56, AZ100, 1 1/2 HP [1119 W] M = IVP68, AZ100, 3 HP [2237 W]
L = IVP62, AZ100, 2 HP [1491 W] N = IVP75, AZ20, 3 HP [2237 W] [Field Supplied]
O = IVP75, AZ20, 3 HP [2237 W] [Field Supplied]

BELT DRIVE PACKAGE AND MOTOR DETAILS

NOTES: 1. Standard air @ .075 lbs/ft³ [m³]
2. Operation below heavy lines
require optional drives.

- Motor efficiency = .85
- BHP = WATTS x MOTO R EFFICIENCY
746
- BHP = Brake Horsepower
RPM = Blower Speed

N O M I N A L B T U H [kW]	D R I V E P A C K A G E	B E L T	S H E A V E S E L E C T I O N S*, I N . [mm]		M O T O R	A P P R O X . B L O W E R R P M @ M O T O R S H E A V E T U R N S O P E N										
			M O T O R B O R E			B L O W E R										
90,000 [26]	K	4L530	3.4-4.4-	5/8	[86-112-16]	9.75 [248]	1	[746]/3	Ø	65.8	633	60.8	58.3	55.4	52.5	—
	L	4L530	4.2-5.2-	5/8	[107-132-16]	9.75 [248]	1.5	[1119]/3	Ø	77.1	746	71.7	68.8	65.8	62.5	—
	M	4L550	5.2-6.2-	5/8	[132-157-16]	9.75 [248]	1.5	[1119]/3	Ø	93.8	908	87.9	85.0	82.1	78.8	—
	N	4L550	5.7-6.7-	7/8	[145-170-22]	9.75 [248]	2	[1491]/3	Ø	99.6	97.1	94.2	91.7	88.8	85.8	—
120,000 [35]	K	4L530	4.0-5.0-	5/8	[102-127-16]	9.75 [248]	1.5	[1119]/3	Ø	738	713	68.8	66.3	63.3	60.8	—
	L	4L540	4.6-5.6-	7/8	[117-142-22]	9.75 [248]	2	[1491]/3	Ø	82.9	800	77.5	74.6	71.7	68.8	—
	M	4L550	5.2-6.2-	7/8	[132-157-22]	9.75 [248]	3	[2237]/3	Ø	93.8	908	87.9	85.0	82.1	78.8	—
	ΔN	4L530	4.7-5.7-	7/8	[119-145-22]	7.75 [197]	3	[2237]/3	Ø	102.1	99.2	95.8	92.5	89.2	85.8	—
	O	4L540	5.7-6.7-	7/8	[145-170-22]	8.75 [222]	3	[2237]/3	Ø	106.7	104.2	101.8	98.8	95.8	92.9	—

INDOOR BLOWER PERFORMANCE (DRY COIL) SHGL-180 N

DRIVE PKG	STD CFM [L/s]	E.S.P.—INCHES OF WATER [kPa]																																											
		.1 [0.02]		.2 [0.05]		.3 [0.07]		.4 [0.10]		.5 [0.12]		.6 [0.15]		.7 [0.17]		.8 [0.20]		.9 [0.22]		1.0 [0.25]		1.1 [0.27]		1.2 [0.30]		1.3 [0.32]		1.4 [0.35]		1.5 [0.37]		1.6 [0.40]		1.7 [0.42]		1.8 [0.45]		1.9 [0.47]		2.0 [0.50]					
		RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W				
K	3333 [1573]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	3667 [1731]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
	4000 [1888]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	4333 [2045]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
L	4667 [2203]	408	1183	429	1254	450	1350	467	1417	492	1517	508	1588	529	1733	550	1867	567	1971	583	2092	600	2221	617	2283	638	2383	654	2488	671	2588	683	2688	696	2792	708	2908	725	3075	750	3125	—	—	—	—
	5000 [2360]	425	1367	442	1458	467	1550	492	1625	508	1804	525	1892	550	2042	563	2142	579	2271	600	2421	617	2479	638	2583	650	2683	667	2796	679	2900	696	3017	708	3129	721	3208	746	3238	758	3363	—	—	—	—
	5333 [2517]	442	1583	463	1650	492	1879	508	1975	525	2058	546	2217	563	2333	579	2471	600	2650	613	2713	633	2800	646	2904	667	3025	683	3125	692	3242	708	3363	721	3442	742	3458	754	3558	767	3700	—	—	—	—
	5667 [2675]	475	1975	492	2046	508	2146	521	2225	546	2392	563	2525	583	2546	600	2646	617	2792	633	2904	650	3017	667	3125	679	3233	692	3350	704	3467	721	3600	742	3692	754	3829	767	3963	779	4113	—	—	—	—
M-N	6000 [2832]	492	2238	508	2333	525	2454	542	2583	567	2663	583	2758	600	2875	621	3008	600	3121	650	3258	667	3367	683	3525	692	3621	704	3725	721	3858	742	3992	754	4154	767	4292	—	—	—	—	—	—	—	

K = IVP44, BK120, 2 HP [1491 W]
L = IVP50, BK120, 3 HP [2237 W]
M = IVP50, BK100, 5 HP [3729 W]
N = IVP65, BK110, 5 HP [3729 W] [Field Supplied]

BELT DRIVE PACKAGE AND MOTOR DETAILS

NOMINAL BTUH [kW]	DRIVE PACKAGE	BELT	SHEAVE SELECTIONS*, IN. [mm]		MOTOR HP [W]/PHASE	APPROX. BLOWER RPM @ MOTOR SHEAVE TURNS OPEN							
			MOTOR/BORE	BLOWER		0 1 2 3 4 5 6							
180,000 [53] ①	K	BP-52	3.1-4.1-7/8	[79-104-22]	11.4 [290]	2 [1491]/30	538	517	492	471	446	425	400
	L	BP-52	3.7-4.7-7/8	[94-119-22]	11.4 [290]	3 [2237]/30	608	588	567	546	525	500	475
	M	BP-45	3.7-4.7-1 1/8	[94-119-29]	9.4 [239]	5 [3729]/30	725	700	675	650	625	596	567
	N	BP-50	4.8-6.0-1 1/8	[122-152-29]	10.4 [264]	5 [3729]/30	821	800	779	758	738	717	696

[] Designates Metric Conversions

AIRFLOW CORRECTION FACTORS

SHGL-090 @ 2500 CFM [1180 L/S]								SHGL-120 @ 3167 CFM [1495 L/S]									
ACTUAL—CFM [L/s]	2000 [944]	2167 [1023]	2333 [1101]	2500 [1180]	2667 [1259]	2833 [1337]	3000 [1416]	2500 [1180]	2667 [1259]	2833 [1337]	3000 [1416]	3167 [1495]	3333 [1573]	3500 [1652]	3667 [1731]	3833 [1809]	4000 [1888]
TOTAL MBH	.85	.90	.95	1.00	1.04	1.09	1.13	.86	.89	.93	.97	1.00	1.03	1.06	1.10	1.12	1.15
SENSBLE MBH	.83	.88	.94	1.00	1.06	1.11	1.16	.82	.87	.91	.96	1.00	1.04	1.08	1.13	1.17	1.21

SHGL-180 @ 5000 CFM [2360 L/S]									
ACTUAL—CFM [L/s]	3667 [1730]	4000 [1888]	4333 [2045]	4667 [2202]	5000 [2359]	5333 [2539]	5583 [2635]	6000 [2831]	6333 [2989]
TOTAL MBH	0.83	0.88	0.92	0.96	1.00	1.04	1.07	1.10	1.13
SENSBLE MBH	0.78	0.84	0.89	0.95	1.00	1.05	1.10	1.15	1.20

NOTES: 1. Multiply correction factor times gross performance data.
2. Resulting sensible capacity cannot exceed total capacity.

[] Designates Metric Conversions

RIGGING ROOFTOP INSTALLATION

If rooftop installation is required, make certain that the building construction is adequate for the weight of the unit. (Refer to physical data chart.) Before placing the unit on the roof, make certain that the nylon rigging slings are of sufficient length to maintain equilibrium of the unit when lifting. Under no circumstances should the unit be lifted by only one corner for rooftop installation.

GENERAL INSTALLATION

The condensing unit should be installed outdoors. It should be located as near as possible to the evaporator section to keep connecting refrigerant tubing lengths to a minimum. The unit must be installed to allow a free air flow to the condenser coils.

If several units are installed adjacent to each other, care must be taken to avoid recirculation of air from one condenser to another. In all installations, adequate space must be provided for installation and servicing.

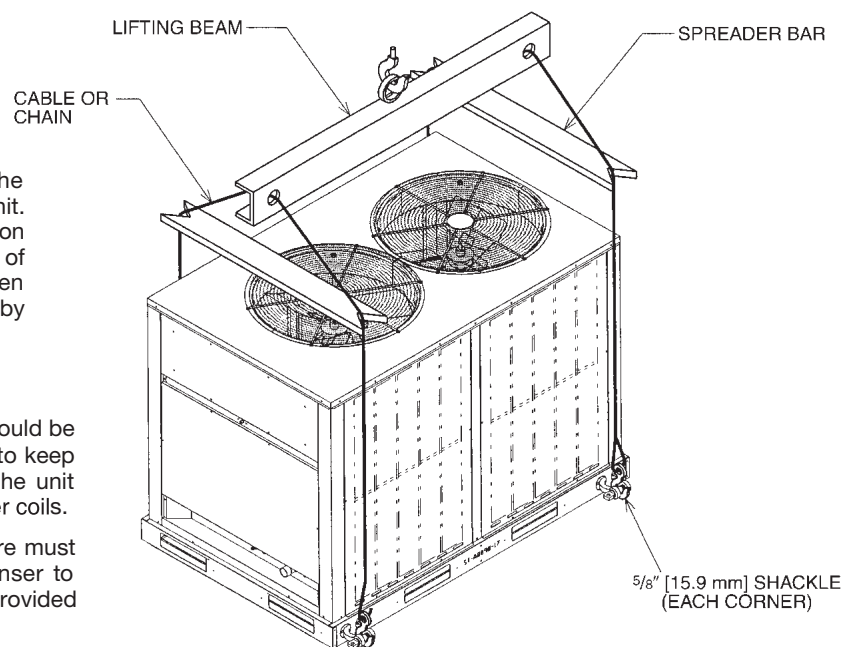
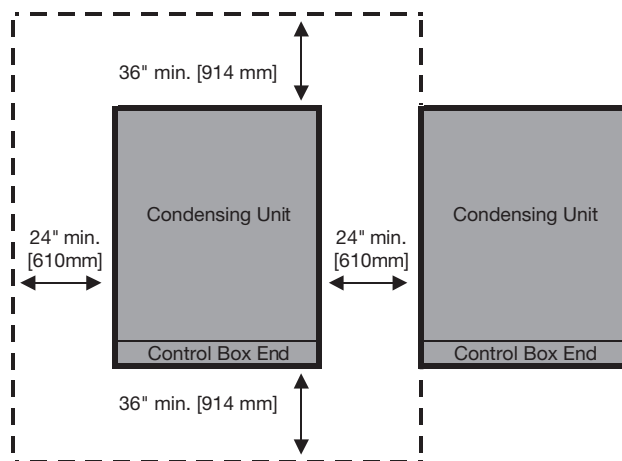


Illustration
ST-A0890-17

CLEARANCES



SLAB INSTALLATION

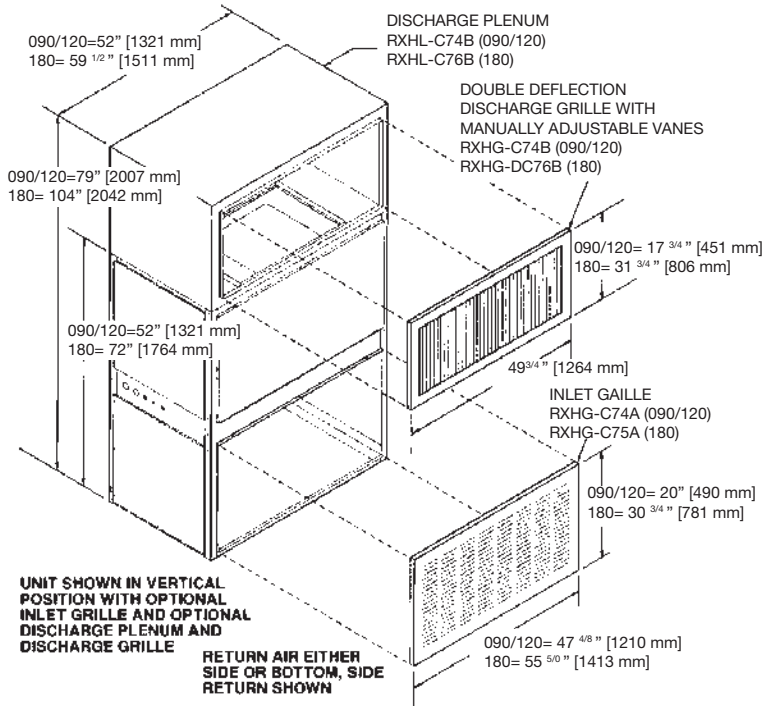
Condensing units should be set on a solid level foundation. When installed at ground level, the unit should be placed on a cement slab. If the pad is formed at the installation site, do not pour the pad tight against the structure, otherwise vibration will be transmitted from the unit through the pad.

The unit must not be connected to any duct work. Do not locate unit under a roof drip; if necessary, install gutters, etc., to prevent water run-off from hitting the unit. To prevent air recirculation, it is recommended that the unit not be installed under an overhang, but if necessary **allow a minimum of 60 inches [1524 mm] above the unit for air discharge.**

AIR HANDLER ACCESSORIES



Unit Dimension
SHGL Series



ACCESSORY DESCRIPTION	MODEL NUMBER	SIZES USED ON	NET WEIGHT (LBS) [kg]
Hot Water Coil	RXHC-C74W	090, 120	200 [91]
	RXHC-C76W	180	200 [91]
Steam Coil	RXHC-C74S	090, 120	200 [91]
	RXHC-C76S	180	200 [91]
Filter Frame Kit	RXHF-B74A	090, 120	90 [41]
	RXHF-B76A	180	117 [53]
Inlet Grille Kit	RXHG-C74A	090, 120	9 [4]
	RXHG-C76A	180	12 [5]
Discharge Grille Kit	RXHG-C74B	090, 120	15 [7]
	RXHG-C76B	180	23 [10]
Discharge Plenum Kit	RXHL-C74B	090, 120	38 [17]
	RXHL-C76B	180	62 [28]
Mixing Box	RXHM-BC74H	090, 120	120 [54]
	RXHM-BC76H	180	195 [88]
Auxiliary Heater Kit	RXHE-DE020*A	090, 120	75 [34]
	RXHE-DE030*A	090, 120	75 [34]
	RXHE-CE030*C	180	90 [41]
	RXHE-CE040*C	180	98 [44]

NOTE: *Designates "C", "D" or "Y" Voltage

RXHM MIXING BOX



DOUBLE DEFLECTION DISCHARGE GRILLE

MODEL NO.	AIR HANDLERS SIZES USED NO.	NOMINAL CFM [L/s]	FT. [m] OF THROW
RXHG-C74B	090	3000 [1416]	0° DEFLECTION - 43' [13.1] 22° DEFLECTION - 37' [11.3] 45° DEFLECTION - 22' [6.7]
	120	4000 [1888]	0° DEFLECTION - 53' [16.2] 22° DEFLECTION - 46' [14] 45° DEFLECTION - 27' [8.2]
RXHG-C76B	180	6000 [2831]	0° DEFLECTION - 52' [15.8] 22° DEFLECTION - 36' [11] 45° DEFLECTION - 18' [5.5]

TYPICAL APPLICATION SHGL (090, 120, 180)

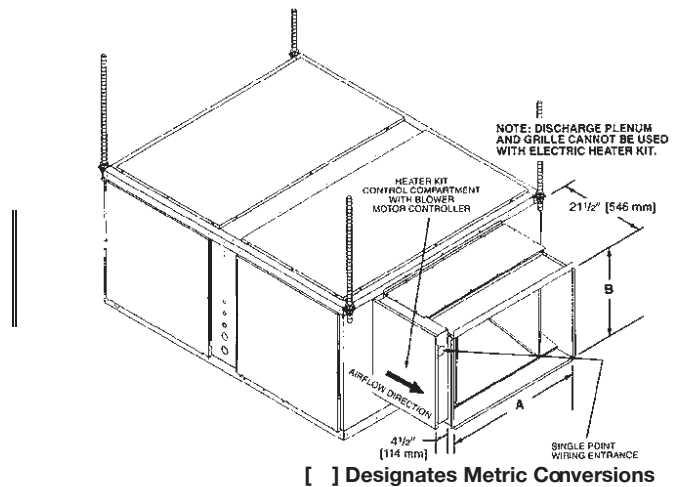
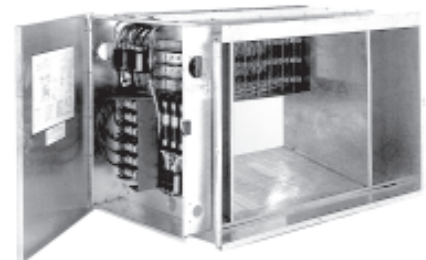
OPTIONAL ELECTRICAL HEATER KIT SHOWN INSTALLED IN HORIZONTAL POSITION AND CONNECTED DIRECTLY TO THE AIR HANDLER. THE HEATER KIT MAY ALSO BE INSTALLED WITH THE AIR HANDLER SET IN THE VERTICAL POSITION. IN EITHER POSITION THE HEATER KIT CONTROL COMPARTMENT MUST BE ON THE LEFT SIDE FACING THE AIR DISCHARGE OPENING.

MODEL NO.	AIR HANDLERS SIZES USED NO.	IN. [mm]	
		A	B
RXHE-DE***A	090, 120	20 [508]	20 [508]
RXHE-CE***C	180	36 [914]	24 [610]

THE BOTTOM OF THE AIR HANDLER SHOULD BE SLOPED IN TWO PLANES THAT PITCH THE CONDENSATE TO THE DRAIN CONNECTION. THE DRAIN PAN SHOULD NOT LEAVE PUDDLES LARGER THAN 2 INCHES IN DIAMETER AND 1/8 INCH DEEP FOR MORE THAN 3 MINUTES.

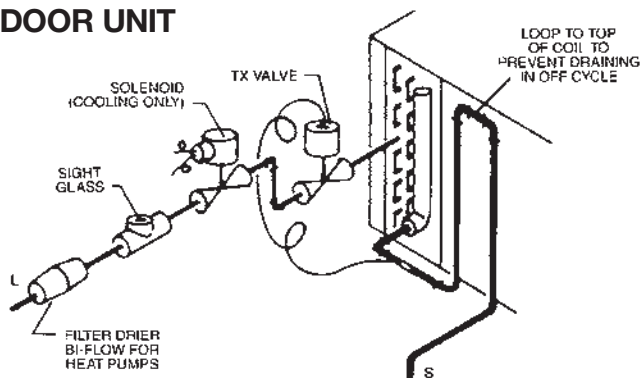
FOUR HEAVY GAUGE ANGLES ARE FURNISHED (SHIPPED LOOSE) FOR SUSPENDING UNITS FROM ALL FOUR CORNERS, MINIMUM OF 1/2" [13] SUPPORT RODS ARE RECOMMENDED. IF ALL-THREAD IS USED, IT IS ALSO RECOMMENDED THAT TWO NUTS AND TWO LOCKWASHERS BE TIGHTENED SECURELY AGAINST THE SUSPENSION ANGLES. WHEN HOT WATER OR STEAM COIL, MIXING BOX OR DISCHARGE AIR PLENUM ACCESSORIES ARE REQUIRED, UNITS CANNOT BE SUSPENDED AS ILLUSTRATED, AN ALTERNATE SUSPENSION METHOD SUCH AS ANGLES OR CHANNELS (FIELD SUPPLIED) SHOULD BE LOCATED UNDER UNIT. (SHOWN BELOW)

RXHE ELECTRIC HEATER KIT



INTEGRATED AIR & WATER

TYPICAL PIPING RECOMMENDATIONS INDOOR COIL ABOVE OUTDOOR UNIT



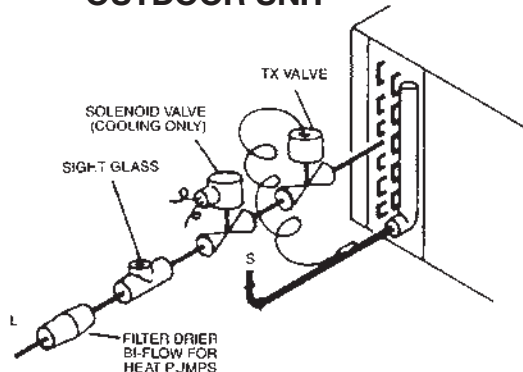
NOTE: PIPING ACCESSORIES SHOWN SHOULD BE MOUNTED AS CLOSE TO AIR HANDLING UNIT AS POSSIBLE.

The SHGL series Air Handlers are designed as two (2) circuit, full face equal distribution coils. As shipped from the factory, the suction and liquid lines are dual circuits. Copper fittings are supplied in the unit to field manifold the suction and liquid lines for single circuit.

NOTE: The expansion valve bulbs must be secured to the corresponding suction lines. The circuits are marked accordingly. See illustration under Typical Piping recommendations for additional information.

When dual straight cool condensing units are used refer to the refrigerant piping size charts for the individual condensing unit piping.

INDOOR COIL BELOW OUTDOOR UNIT



CONDENSATE DRAIN PIPING

- Consult local codes or ordinances for specific requirements regarding condensate drain.
- Condensate drain is open to atmosphere and must be trapped. Trap must be at least 3 inches [76 mm] deep and made of flexible material or fabricated to prevent freeze-up.
- Pitch the drain line at least 1/4 inch [6 mm] per foot away from the drain pan.
- Do not reduce the drain line size from the connection size provided on the unit.
- Do not connect the drain line to a closed sewer line.

REFRIGERANT PIPING (See Tables below)

The following will be of help in accomplishing a successful installation.

1. Size liquid line for no more than 50 PSIG [345 kPa] pressure drop.
2. Size suction lines for no more than 2°F [1.1°C] loss which corresponds to approximately 5 PSIG [34 kPa] pressure drop.
3. When indoor unit is installed below outdoor unit, do not exceed the recommended vapor line O.D. This will insure adequate velocities for proper oil return.
4. Install strainer-drier and sight glass in liquid line.

5. Pitch all horizontal suction lines downward in the direction of flow for cooling only applications.
6. Locate the outdoor unit and indoor unit as close together as possible to minimize piping runs.
7. A liquid line solenoid installed just ahead of the expansion valve is recommended for cooling applications only. Be sure condensing unit is suitable for pump down.
8. Piping runs between condenser and evaporator not to exceed 150' [46 m] linear length (90' [27 m] linear length for heat pumps).

NOTE: Refer to suction and liquid line pressure drop charts found in condensing unit and remote heat pump literature.

PIPING SIZES 090 & 120				
LINEAR LENGTH, FT. [m]	LIQUID LINE O.D., IN. [mm]		SUCTION LINE O.D., IN. [mm]	
	090	120	090	120
0-50 [0-15]	1/2 [13]	5/8 [16]	1 1/8 [29]	1 3/8 [35]
51-100* [16-30]	1/2 [13]	5/8 [16]	1 3/8 [35]	1 5/8 [41]
101-150 [31-46]	1/2 [13]	5/8 [16]	1 3/8 [35]	1 5/8 [41]

*For cooling only, refer to remote heat pump literature for piping recommendations.

PIPING SIZES 180		
LINEAR LENGTH, FT. [m]	LIQUID LINE O.D., IN. [mm]	SUCTION LINE O.D., IN. [mm]
	180	180
0-50 [0-15]	3/4 [19]	1 3/8 [35]
51-100 [16-30]	3/4 [19]	1 5/8 [41]
101-150 [31-46]	3/4 [19]	2 1/8 [54]

EQUIVALENT LENGTH, FT. [m] OF STRAIGHT TYPE "L" TUBING FOR NON-FERROUS VALVES AND FITTINGS (BRAZED)						
TUBE SIZE INCHES [mm] O.D.	SOLE-NOID VALVE	ANGLE VALVE	SHORT RADIUS ELL	LONG RADIUS ELL	TEE LINE FLOW	TEE BRANCH FLOW
1/2 [13]	12 [3.7]	8.3 [2.5]	1.6 [0.5]	1.0 [0.3]	1.0 [0.3]	3.1 [0.9]
5/8 [16]	15 [4.6]	10.4 [3.2]	1.9 [0.8]	1.2 [0.4]	1.2 [0.4]	3.6 [1.1]
3/4 [19]	18 [5.5]	12.5 [3.8]	2.1 [0.7]	1.4 [0.4]	1.4 [0.4]	4.2 [1.3]
7/8 [22]	21 [6.4]	14.8 [4.4]	2.4 [0.7]	1.6 [0.5]	1.6 [0.5]	4.8 [1.5]
1 1/8 [29]	12 [3.7]	18.8 [5.7]	3.0 [0.9]	2.0 [0.6]	2.0 [0.6]	6.0 [1.8]
1 3/8 [35]	15 [4.6]	22.9 [7.0]	3.6 [1.1]	2.4 [0.7]	2.4 [0.7]	7.2 [2.2]
1 5/8 [41]	18 [5.5]	27.1 [8.3]	4.2 [1.3]	2.8 [0.8]	2.8 [0.8]	8.4 [2.6]
2 1/8 [54]	21 [6.4]	35.4 [10.8]	5.3 [1.6]	3.5 [1.1]	3.5 [1.1]	10.7 [3.3]

TYPICAL REFRIGERANT PIPING RECOMMENDATIONS(cont.)



Typical Refrigerant Piping
SAWL Series

General Notes:

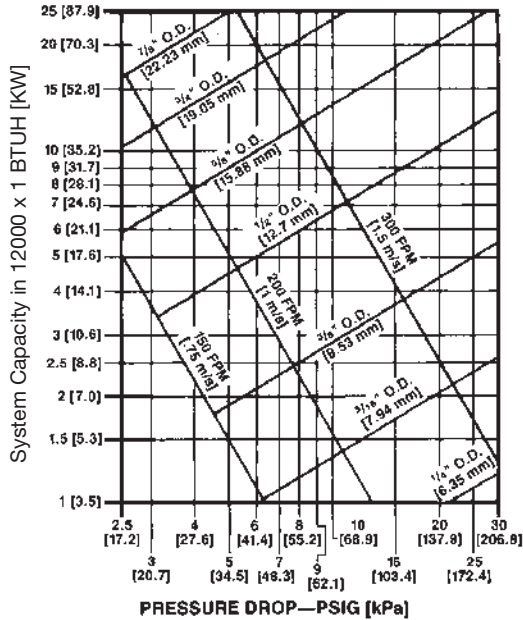
1. Vertical risers not to exceed 60 feet [18.29 m].
2. Locate the condensing unit and evaporator(s) as close together as possible to minimize piping runs.
3. Condensing units are shipped with a nitrogen holding charge. Evacuate condensing unit before charging with refrigerant.

BASIC SYSTEM CHARGE*

SAWL-078	SAWL-090	SAWL-120	SAWL-150
178 oz. [5046 g]	239 oz. [6775 g]	339 oz. [9610 g]	378 oz. [10716 g]

*System with 0 feet [m] of tubing.

LIQUID LINE PRESSURE DROP PER 100 FEET [30.48 m] EQUIVALENT LENGTH (TYPE L COPPER TUBING)



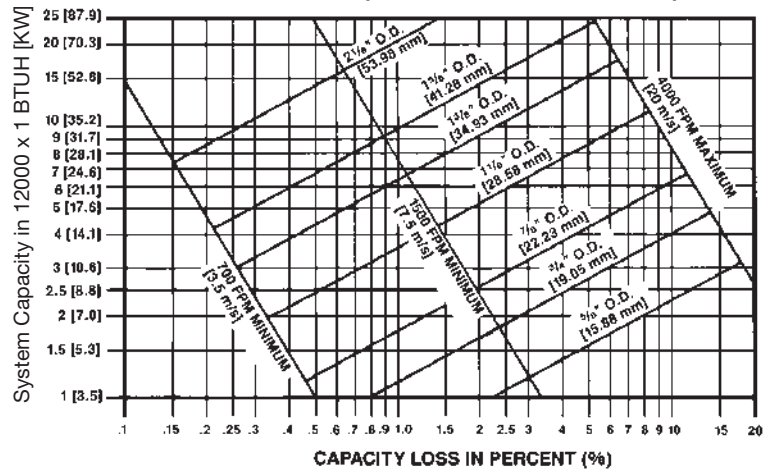
NOTES:

- 1) When evaporator coil is above condenser, the pressure drop due to vertical lift (.5 PSIG per foot of lift) [1.05 kPa per meter] **must** be added to the pressure drop derived from this curve.
- 2) Size liquid line for **no more than** 10°F [5.6°C] loss (approximately 50 PSIG [206.8 kPa] total pressure drop).
- 3) Do not oversize liquid line. Oversized **liquid lines** add significantly to the amount of refrigerant required to charge the system.
- 4) The maximum recommended velocity with solenoid valves or other quick closing devices in the liquid line is 300 FPM [1.5 m/s].

NOTE: LIQUID LINE SOLENOID VALVE MUST NOT BE INSTALLED FOR PUMP DOWN. LIQUID LINE SOLENOID VALVE MAY BE INSTALLED FOR "REFRIGERANT ISOLATION" ONLY DURING THE OFF-CYCLE. THE SOLENOID VALVE SHOULD BE CLOSED WHEN THE THERMOSTAT IS SATISFIED (VALVE CLOSED)

WHEN "Y" IS DE-ENERGIZED) FOR EFFECTIVE "REFRIGERANT ISOLATION".

VAPOR LINE SYSTEM CAPACITY LOSS IN PERCENT PER 100 FEET [30.48 m] EQUIVALENT LENGTH (TYPE L COPPER TUBING)



NOTES:

- 1) The minimum velocity line (700 fpm) [3.6 m/s] is recommended.
- 2) For vapor pressure drop (PSIG) [6.9 kPa], multiply percent (%) loss by 1.18.
- 3) Size vapor lines for no more than 2°F [1.1°C] loss which corresponds to approximately 5 PSIG [20.7 kPa] pressure drop.
- 4) Pitch all horizontal vapor lines downward in the direction of flow (1/2" [12.7 mm] to 10' [3.0 m] run).

REQUIRED OZS. [g] R410A CHARGE PER FT. [0.305m] OF TUBING

TUBE SIZE O.D. (IN.) [mm]	LIQUID (OZ.) [g]	VAPOR (OZ.) [g]
1/2 [12.7]	1.06 [30.0]	.04 [1.13]
5/8 [15.88]	1.65 [46.7]	.07 [1.98]
3/4 [19.05]	2.46 [69.7]	.10 [2.83]
7/8 [22.23]	3.28 [92.9]	.13 [3.68]
1 1/8 [28.58]		.22 [6.23]
1 3/8 [34.93]		.34 [9.63]
1 5/8 [41.28]		.48 [13.60]
2 1/8 [53.98]		.84 [23.81]

Quantities based on 110°F liquid and 45°F vapor.

WARNING

Do not use oxygen to purge lines or pressure system for leak test. Oxygen reacts violently with oil, which can cause an explosion resulting in severe personal injury or death.



INTEGRATED AIR & WATER

GUIDE SPECIFICATIONS CONDENSING UNITS

Furnish and install as shown on the drawing Rheem Model _____ air cooled condensing unit suitable for outdoor application.

COMPRESSOR—Unit shall have scroll compressor(s). It shall be externally mounted on rubber grommets to reduce vibration transmission and noise to surrounding area. Maximum power input shall not be more than _____ at conditions specified.

LOW AMBIENT CONTROL—All units shall have standard head pressure controls that cycle the condenser fan motors to maintain condensing pressures for operation down to 4.4°C [50°F] ambient (150,000 BTUH & 180,000 BTUH [44.0 and 52.8 kW] models only.)

CAPACITY—Capacity shall be _____ BTUH when operating at _____ °F [°C] saturated suction temperature.

MOTORS & FANS—Each unit shall have 895 RPM sleeve bearing, permanently lubricated motor(s) fixed with direct-drive, dual bladed fan(s). Motor(s) shall be equipped with inherent overload protection. Motor(s) & fan(s) shall be mounted on top panel for easy access. Condenser air shall discharge vertically.

COILS—Coils shall be fabricated of 3/8" [9.53 mm] O.D. seamless copper tubing and aluminum fins with die-formed collars mechanically bonded to tubes arranged in a staggered pattern. All coils shall be submitted to a pressure test after fabrication.

GUIDE SPECIFICATIONS AIR HANDLING UNITS

Furnish and install as shown on the drawing Rheem Model _____ draw through air handler suitable for both horizontal and vertical applications. The entire assembly shall be UL and cUL listed with the cooling (and heat pump heating) capacity A.R.I. Certified.

DRIVE PACKAGE—A complete drive package shall be factory or field installed. Package shall consist of a dual voltage, single phase open drip proof motor not requiring an external starter. Variable pitch motor sheave, fixed pitch fan sheave, and belt.

COILS—Coils shall be fabricated of 3/8" [10 mm] O.D. seamless copper tubing expanded into aluminum fins. All coils shall be submitted to an air pressure test of up to 550 PSIG [2068 kPa] under water after fabrication and dehydrated prior to assembly in unit. Units shall be shipped with a nitrogen holding charge. Airflow shall be draw through design providing uniform air distribution across the coil surface.

BLOWER, BEARINGS AND SHAFT — Fans shall be a double width, double inlet, forward curve, centrifugal type, statically and dynamically balanced, and constructed of galvanized steel. They shall be mounted on 3/4" [19 mm] = 90,000 BTUH [26 kW] & 120,000 BTUH [35 kW], diameter solid shafts made of high carbon steel, centerless ground and polished, supported by resilient mounted sealed bearings.

DRAIN PAN—The drain pan shall be manufactured of zinc coated steel. The pan shall have internally threaded pipe size drain connections and shall be designed to accept condensate in either horizontal or vertical type applications on either side of unit.

FILTERS—Filter mounting hardware shall be designed to accept up to 2" [51 mm] filters for field replacement. One inch [25 mm] throw away filters shall be furnished with the unit.

CABINET—Cabinets shall be manufactured of galvanized steel subjected to multi-stage cleaning and finished with powder coat

cation and dehydrated. Units shall be shipped with a dry nitrogen holding charge. Airflow shall be drawn through design providing uniform air distribution across the coil surface.

CASINGS—Casings shall make unit suitable for outdoor installation. Casing, base pan and framework shall be manufactured of galvanized sheet metal subjected to multistage cleaning, primed, and finished with a durable powder coat paint, capable of withstanding a 1000-HR salt spray test per ASTM B 117. Units shall have stamped louver panels offering 100% protection of the condenser coil. Openings shall be provided for power. Dimensions of entire assembly shall be not more than _____ inches [mm] high, _____ inches [mm] long and _____ inches [mm] wide.

REFRIGERATION CIRCUIT—Shall include the compressor, the condenser coils, all internal refrigerant piping and liquid and suction line service valves. Refrigerant stubs shall be extended through the cabinet for external field connection without affecting accessibility to compressor compartment.

CONTROL PANEL—The panel shall be designed for single power source to the compressor and fan motor(s) and shall include fan cycling control, and compressor contactor.

SAFETY CONTROLS—Manual reset high pressure and automatic reset low pressure control shall be provided.

FACTORY TESTING—All units shall be test run at the factory.

paint. Units shall have removable service access panels on each side and top.

INSULATION—Cabinets shall be insulated with 1/2" [13 mm] by 1 1/2 pound [.68 kg] density fiberglass insulation coated with neoprene and bonded to the cabinet surface with a U.L. approved adhesive. Insulation shall have fire retarding characteristics in accordance with smoke developed rating not to exceed 50 and flame spread rating of 25 per Underwriters Laboratories testing procedures.

FACTORY TESTING—In addition to the pre-assembly testing mentioned above, each coil shall be leak tested after assembly into the unit. While under pressure, the coil shall be leak tested using an Electronic Leak Detector.

ELECTRIC HEATERS—UL and cUL listed electric heater kits shall be available in a wide range of capacities. All kits shall offer two stages of capacity, blower motor controller and single point connection. Heater kits shall be available for installation directly on the supply fan discharge for either horizontal or vertical application.

MIXING BOX—Mixing box accessory shall be available for mixing return air with outside air before entering the air handler. The accessory shall include both return and outside air dampers and economizer controls factory mounted. Economizer controls shall include enthalpy and mixed air sensors and damper motors. Mixing box accessory shall be available for installation to the return air section of the air handler for either horizontal or vertical applications.

DISCHARGE PLENUM AND GRILLE—Shall be available for vertical application. Discharge grille shall provide manually adjustable double deflection discharge vanes.

RETURN AIR GRILLES—Shall be provided for vertical return applications.

HOT WATER OR STEAM COILS—Shall be available for field installation. All coils shall be tested to 300 psi. Coils shall be available for either horizontal or vertical air handler applications.

[] Designates Metric Conversions

SEQUENCE OF OPERATION

SAWL 78 - 90 -120, Single Stage

1. When the room thermostat is set on "Cool", "Fan Auto", and the temperature is higher than the thermostat setting, the thermostat "Y1" circuit closes and energizes the compressor contactor (CC) through the closed contacts of the high pressure and low pressure controls. Power to the crankcase heater (CCH) will be de-energized by the auxiliary contacts (AUX-1).
2. Simultaneously, the "G" circuit provides power to the indoor blower motor circuit and starts indoor air circulation through the evaporator coil.
3. When the discharge pressure increases to 450 psig, the contacts on the low ambient control (LAC) will allow supply power to start the outdoor fan motors (ODF) which begin to pull air through the condenser coils.
4. The system will continue cooling operation, as long as the room thermostat "Y1" circuit and all safety device contacts are closed. The low ambient control (LAC) will open and close, allowing the outdoor fans to maintain discharge pressure between 250 and 450 psig.
5. When the thermostat is satisfied, the "Y1" circuit will open and de-energize the compressor contactor (CC), stopping compressor operation and closing the auxiliary contacts (AUX-1), which energizes the crankcase heater (CCH).
6. The thermostat "G" circuit will stop blower operation.

SEQUENCE OF OPERATION

SAWL 150, Two Stage

1. When the room thermostat is set on "Cool", "Fan Auto", and the temperature is higher than the thermostat setting, the thermostat "Y1" circuit closes and energizes the number one compressor contactor (CC1) through the closed cooling relay (R) contacts. Power to the crankcase heater (CCH1) will be de-energized by the auxiliary contacts (AUX-1).
2. Simultaneously, the "G" circuit provides power to the indoor blower motor circuit and starts indoor air circulation through the evaporator coil.
3. When the discharge pressure increases to 450 psig, the contacts on the low ambient control (LAC) will allow supply power to start the outdoor fan motors (ODF) which begin to pull air through the condenser coils. The system is now in first stage cooling, operating at near fifty percent of full load capacity.
4. If the temperature at the thermostat continues to increase, the thermostat "Y2" circuit closes and after a 30 second delay, power passes through the time delay control (TDC) and energizes the number two compressor contactor (CC2) through the second set of closed cooling relay (R) contacts. Power to the crankcase heater (CCH2) will be de-energized by the auxiliary contacts (AUX-2).
5. The system will continue cooling at maximum capacity, as long as the room thermostat is demanding full load and all safety device contacts are closed. The low ambient control (LAC) will open and close, allowing the outdoor fans to maintain discharge pressure between 250 and 450 psig.
6. As the temperature at the thermostat drops enough to satisfy "Y2", the circuit will open and de-energize the compressor contactor (CC2), stopping compressor operation and closing the auxiliary contacts (AUX-2), which energizes the crankcase heater (CCH2).
7. When continued cooling satisfies the "Y1" circuit, it will open and de-energize the compressor contactor (CC1), stopping compressor operation and closing the auxiliary contacts (AUX-1), which energizes the crankcase heater (CCH1).
8. The thermostat "G" circuit will stop blower operation.



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