



Technical Manual

Condensing unit for medium temperature application

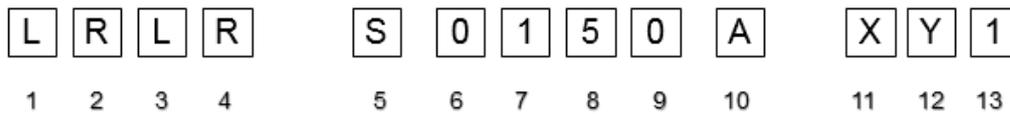
DRM Codes	DMSS Codes
JEHBCU-0150-M-1	LRMRS0150AXV1
JEHBCU-0150-M-3	LRMRS0150AXY1
JEHBCU-0225-M-1	LRMRS0225AXV1
JEHBCU-0225-M-3	LRMRS0225AXY1
JEHBCU-0300-M-1	LRMRS0300AXV1
JEHBCU-0300-M-3	LRMRS0300AXY1
JEHBCU-0400-M-3	LRMRS0400AXY1
JEHBCU-0500-M-3	LRMRS0500AXY1
JEHBCU-0600-M-3	LRMRS0600AXY1
JEHBCU-0675-M-3	LRMRS0675AXY1
JEHBCU-0825-M-3	LRMRS0825AXY1
JEHBCU-1000-M-3	LRMRS1000AXY1

Condensing unit for low temperature application

DRM Codes	DMSS Codes
JEHBCU-0175-L-1	LRLRS0175AXV1
JEHBCU-0175-L-3	LRLRS0175AXY1
JEHBCU-0225-L-1	LRLRS0225AXV1
JEHBCU-0225-L-3	LRLRS0225AXY1
JEHBCU-0350-L-3	LRLRS0350AXY1
JEHBCU-0400-L-3	LRLRS0400AXY1
JEHBCU-0725-L-3	LRLRS0725AXY1
JEHBCU-0825-L-3	LRLRS0825AXY1

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1. Nomenclature



Digit	Description
1	L – Daikin low temperature air conditioner
2	R – Outdoor Unit
3 & 4	LR – Low Temp. Reciprocating; MR – Medium Temp. Reciprocating
5	Refrigerant, S – R404A
6,7, 8 & 9	Compressor horse power, 0150 – 1.5HP
10	A – First revision
11	X - Produce by Daikin Refrigeration Malaysia
12 & 13	Power supply: V1 – 1ph/50Hz/220~240V; Y1 – 3ph/50Hz/380~415V

2. Standard Product Configuration

- Reliable reciprocating type compressor for medium and low temperature models with oil sight glass
- IP54 rated control panel
- Magnetic contactor (Note: except single phase medium temperature application condensing unit).
- External shut off valves for quick installation and easy access and maintenance.
- Weather proof housing made of epoxy coated steel
- Corrugated aluminium fin and inner groove hairpin condenser
- Liquid receiver is sized to accumulate refrigerant amount up to 25m piping length during pump down. Fusible plug on the liquid receiver to protect system from exploded when ambient temperature goes higher than 100°C
- Oil separator and non-return valve for low temperature models
- Sight glass and flare type filter drier
- Dual pressure switch to protect compressor
- Designed for zero ozone depletion potential (ODP=0) refrigerant R404A (available for all range condensing units) or R134a (available for medium temperature application condensing units).
- The condensing unit is fully factory tested and is filled with nitrogen in order to always ensure the highest quality of our products.

3. Specifications

3.1 General Medium Temperature Application

Model		Electrical Data	Compressor							Fan Motors	
DRM Codes	DMSS Codes	Power Input	Type	Swept volume m ³ /h	Oil type (Danfoss)	Oil Charge (cm ³)	Operating Current (A)*	MCC**	LRC (A)	No.	FLC (A)
								(A)			
JEHBCU-0150-M-1	LRMRS0150AXV1	230V/1~/50Hz	MTZ18-5VM	5.26	Polyester oil (160PZ)	950	6.6	10	40	1	0.6
JEHBCU-0150-M-3	LRMRS0150AXY1	400V/3~/50Hz	MTZ18-4VM	5.26		950	2.7	5	20	1	0.6
JEHBCU-0225-M-1	LRMRS0225AXV1	230V/1~/50Hz	MTZ28-5VM	8.36		950	11	20	51	1	0.6
JEHBCU-0225-M-3	LRMRS0225AXY1	400V/3~/50Hz	MTZ28-4VM	8.36		950	4	7.5	23	1	0.6
JEHBCU-0300-M-1	LRMRS0300AXV1	230V/1~/50Hz	MTZ36-5VM	10.52		950	15.2	22	60	1	0.6
JEHBCU-0300-M-3	LRMRS0300AXY1	400V/3~/50Hz	MTZ36-4VM	10.52		950	4.9	9	30	1	0.6
JEHBCU-0400-M-3	LRMRS0400AXY1	400V/3~/50Hz	MTZ50-4VM	14.9		1800	6.5	12	47	1	1.1
JEHBCU-0500-M-3	LRMRS0500AXY1	400V/3~/50Hz	MTZ64-4VM	18.74		1800	8.3	13.5	64	1	1.1
JEHBCU-0600-M-3	LRMRS0600AXY1	400V/3~/50Hz	MTZ72-4VM	21.04		1800	8.7	17.5	80	1	1.1
JEHBCU-0675-M-3	LRMRS0675AXY1	400V/3~/50Hz	MTZ80-4VM	23.63		1800	10.3	18.5	80	1	1.1
JEHBCU-0825-M-3	LRMRS0825AXY1	400V/3~/50Hz	MTZ100-4VM	29.8		3900	12.4	22	90	2	1.2
JEHBCU-1000-M-3	LRMRS1000AXY1	400V/3~/50Hz	MTZ125-4VM	37.49		3900	14.3	27	105	2	1.2

Model		Coil Volume (Litre)	Condenser Airflow (m ³ /h)	Receiver volume (Litre)	Connection		Dimensions			Weight (kg)	Sound pressure dB(A) at 10m***
DRM Codes	DMSS Codes				Suction (inch)	Liquid (inch)	Width (mm)	Depth (mm)	Height (mm)		
JEHBCU-0150-M-1	LRMRS0150AXV1	1.5	3040	4.6	1/2	3/8	1109	478	649	82	38
JEHBCU-0150-M-3	LRMRS0150AXY1	1.5	3040	4.6	1/2	3/8	1109	478	649	82	38
JEHBCU-0225-M-1	LRMRS0225AXV1	3.1	2620	4.6	1/2	3/8	1109	478	649	89	39
JEHBCU-0225-M-3	LRMRS0225AXY1	3.1	2620	4.6	1/2	3/8	1109	478	649	89	39
JEHBCU-0300-M-1	LRMRS0300AXV1	3.1	2620	4.6	5/8	3/8	1109	478	649	89	40
JEHBCU-0300-M-3	LRMRS0300AXY1	3.1	2620	4.6	5/8	3/8	1109	478	649	89	40
JEHBCU-0400-M-3	LRMRS0400AXY1	4.7	6050	7.6	7/8	1/2	1335	529	884	120	40
JEHBCU-0500-M-3	LRMRS0500AXY1	4.7	6050	7.6	7/8	1/2	1335	529	884	120	42
JEHBCU-0600-M-3	LRMRS0600AXY1	7.6	5180	7.6	7/8	1/2	1335	529	884	126	45
JEHBCU-0675-M-3	LRMRS0675AXY1	7.6	5180	7.6	1 1/8	1/2	1335	529	884	126	45
JEHBCU-0825-M-3	LRMRS0825AXY1	6.9	6770	14	1 1/8	1/2	1258	590	1436	205	43
JEHBCU-1000-M-3	LRMRS1000AXY1	6.9	6770	14	1 1/8	1/2	1258	590	1436	205	43

* Refer to condition: Evaporation temperature = -10°C, Outside ambient temperature = 32°C (Medium temperature application, R404A)

** MCC= Maximum Continuous Current

*** Sound Pressure Level measured in an anechoic room at (-10/+32°C) MT conditions. Alternative conditions may produce different results.

3.2 General Low Temperature Application

Model		Electrical Data	Compressor							Fan Motor	
			Power Input	Type	Swept volume m ³ /h	Oil type (Danfoss)	Oil Charge (cm ³)	Operating Current (A)*	MCC** (A)	LRC (A)	No.
DRM Codes	DMSS Codes										
JEHBCU-0175-L-1	LRLRS0175AXV1	230V/1~/50Hz	NTZ48-5VM	8.3	Polyester oil (175Z)	950	5.9	11	37	1	0.6
JEHBCU-0175-L-3	LRLRS0175AXY1	400V/3~/50Hz	NTZ48-4VM	8.3		950	2.6	4.8	16	1	0.6
JEHBCU-0225-L-1	LRLRS0225AXV1	230V/1~/50Hz	NTZ68-5VM	11.8		950	10.8	17	53	1	0.6
JEHBCU-0225-L-3	LRLRS0225AXY1	400V/3~/50Hz	NTZ68-4VM	11.8		950	4.1	8.4	25	1	0.6
JEHBCU-0350-L-3	LRLRS0350AXY1	400V/3~/50Hz	NTZ96-4VM	16.7	Polyester oil (160Z)	1800	4.3	10.1	32	1	1.1
JEHBCU-0400-L-3	LRLRS0400AXY1	400V/3~/50Hz	NTZ136-4VM	23.7		1800	7.5	14.3	51	1	1.1
JEHBCU-0725-L-3	LRLRS0725AXY1	400V/3~/50Hz	NTZ215-4VM	37.4		3900	9.8	22.3	74	2	1.2
JEHBCU-0825-L-3	LRLRS0825AXY1	400V/3~/50Hz	NTZ271-4VM	47.1		3900	12.8	27	96	2	1.2

Model		Coil Volume (Litre)	Condenser Airflow (m ³ /h)	Receiver volume (Litre)	Connection		Dimensions			Weight (kg)	Sound pressure dB(A) at 10m***
					Suction (inch)	Liquid (inch)	Width (mm)	Depth (mm)	Height (mm)		
DRM Codes	DMSS Codes										
JEHBCU-0175-L-1	LRLRS0175AXV1	1.5	3040	4.6	5/8	3/8	1109	478	649	86	38
JEHBCU-0175-L-3	LRLRS0175AXY1	1.5	3040	4.6	5/8	3/8	1109	478	649	86	38
JEHBCU-0225-L-1	LRLRS0225AXV1	3.1	2620	4.6	5/8	3/8	1109	478	649	92	39
JEHBCU-0225-L-3	LRLRS0225AXY1	3.1	2620	4.6	5/8	3/8	1109	478	649	92	39
JEHBCU-0350-L-3	LRLRS0350AXY1	5	6050	7.6	7/8	1/2	1335	529	884	125	42
JEHBCU-0400-L-3	LRLRS0400AXY1	5	6050	7.6	1 1/8	1/2	1335	529	884	125	42
JEHBCU-0725-L-3	LRLRS0725AXY1	6.9	6770	14	1 1/8	1/2	1258	590	1436	203	43
JEHBCU-0825-L-3	LRLRS0825AXY1	6.9	6770	14	1 1/8	1/2	1258	590	1436	203	43

* Refer to condition: Evaporation temperature = -25°C, Outside ambient temperature = 32°C (Low temperature application, R404A)

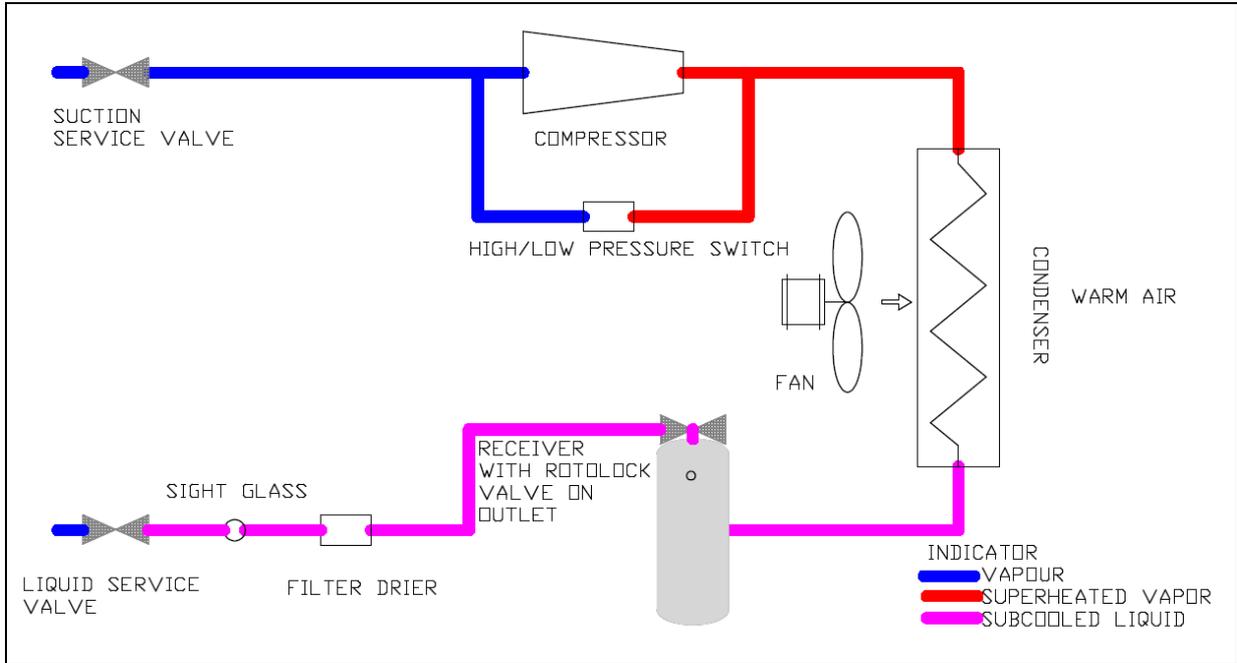
** MCC= Maximum Continuous Current

*** Sound Pressure Level measured in an anechoic room at (-25/+32°C) LT conditions. Alternative conditions may produce different results.

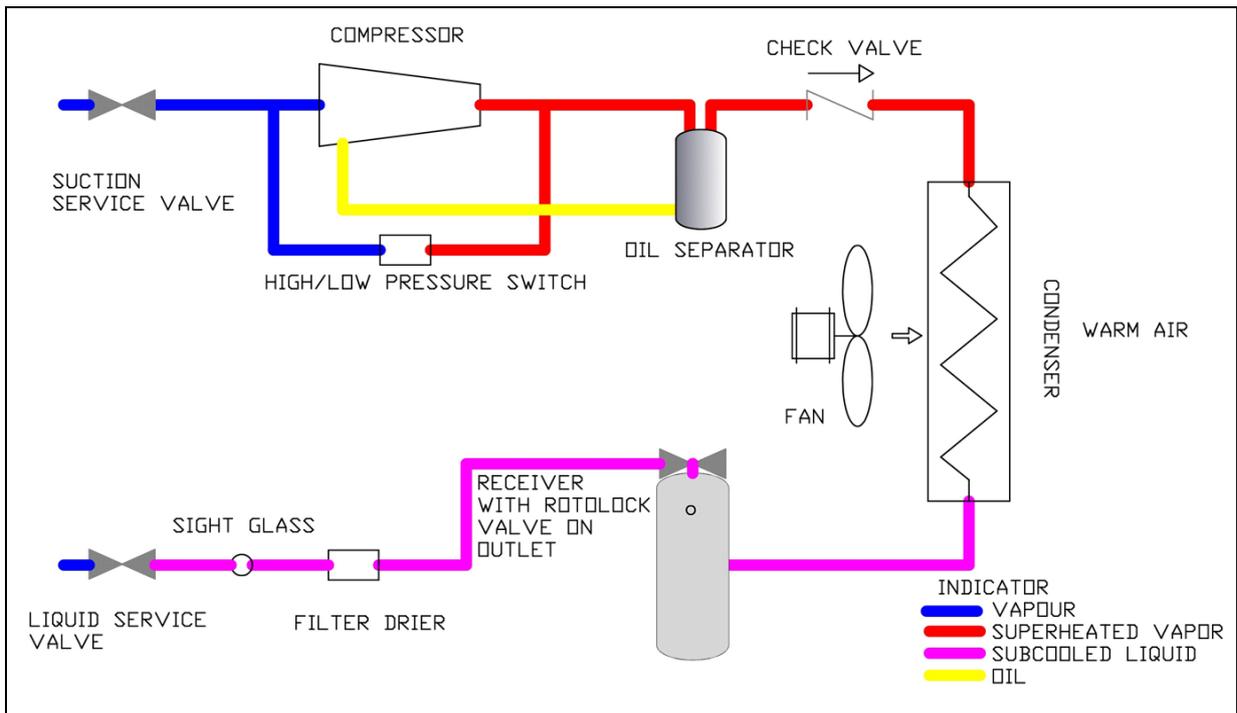
**Note: (1) Additional 500ml oil for condensing unit LRLRS00175~0225AXY1/V1 with oil separator.
(2) Additional 600ml oil for condensing unit LRLRS0350~0825AXY1/V1 with oil separator.**

4. Product System Cycle

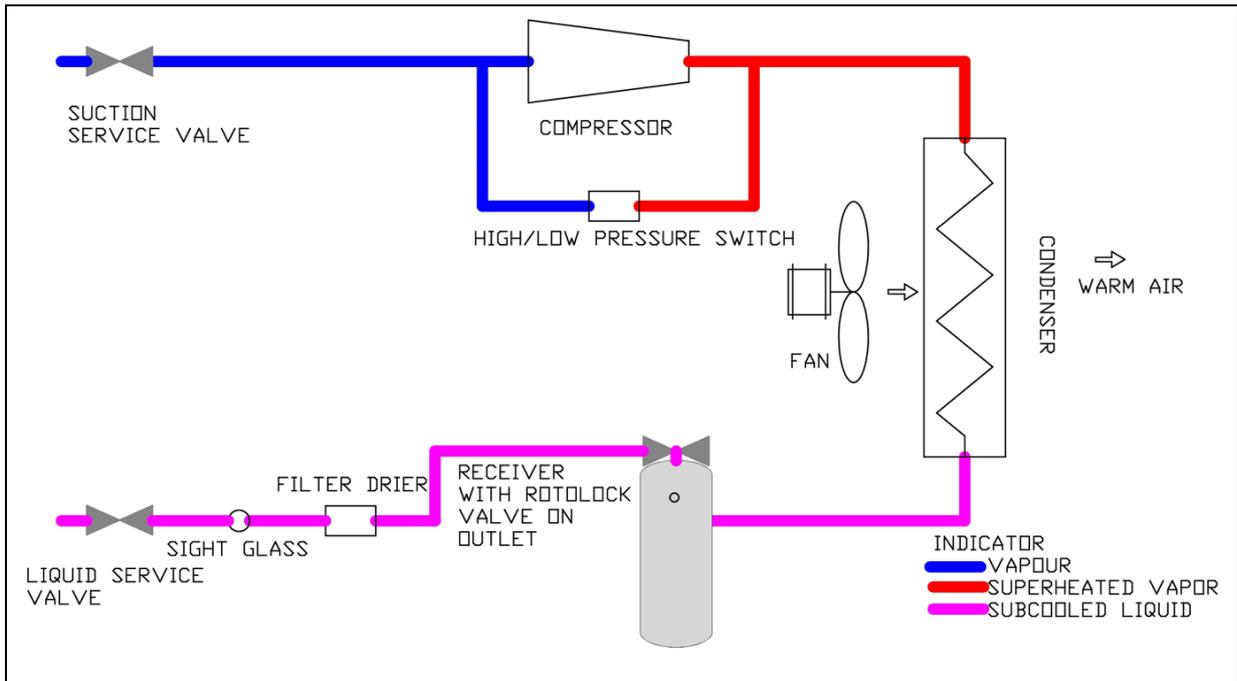
Series 2 MT : JEHBCU0150~JEHBCU0300
LRMRS0150~ LRMRS0300



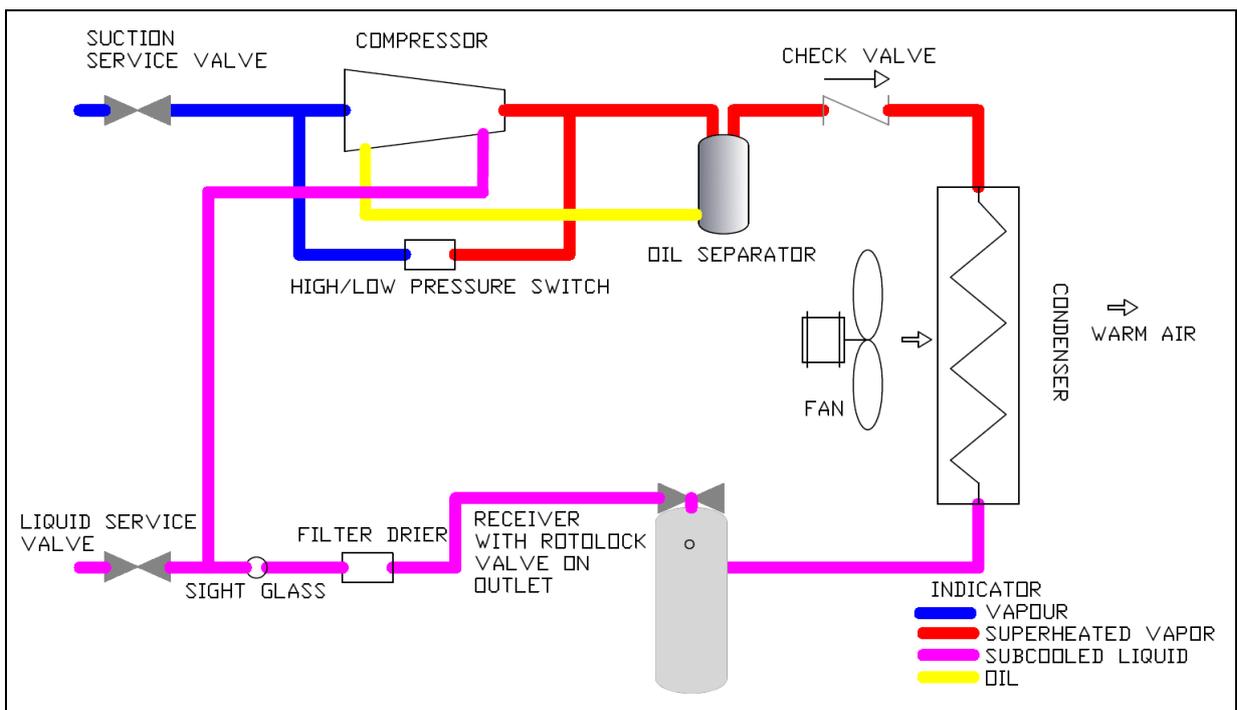
Series 2 LT : JEHBCU0175~JEHBCU0225
LRLRS0175~ LRLRS0225



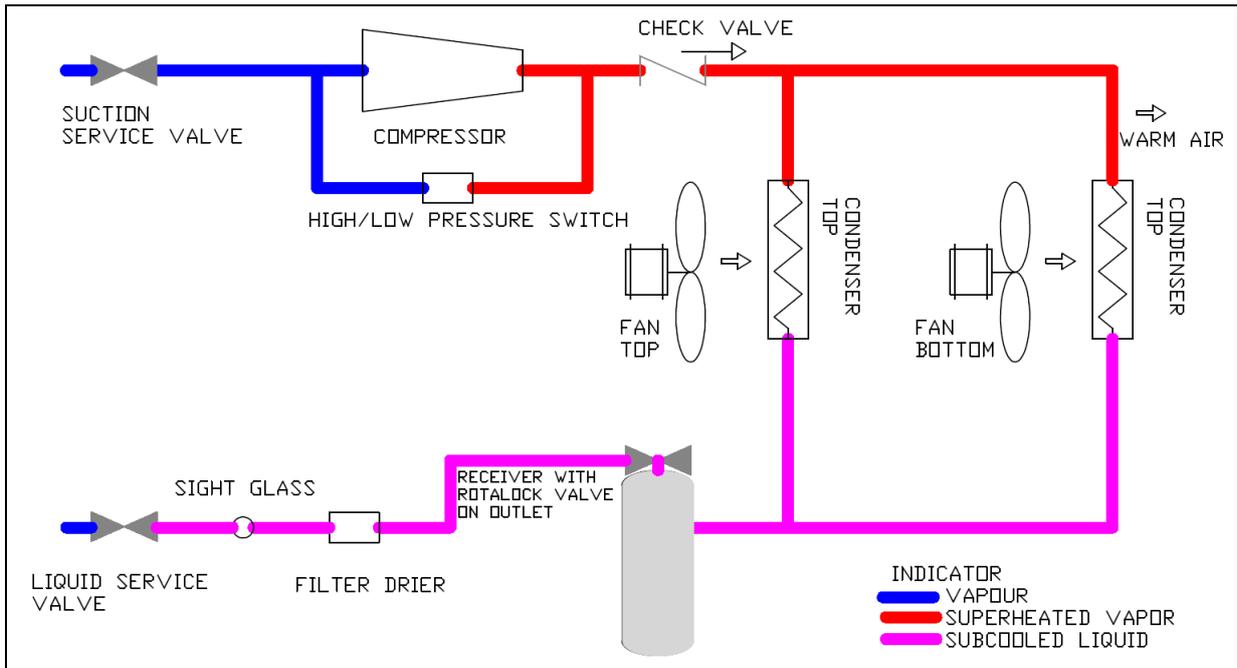
Series 3 MT : JEHBCU0400~JEHBCU0675
LRMRS0400~ LRMRS0675



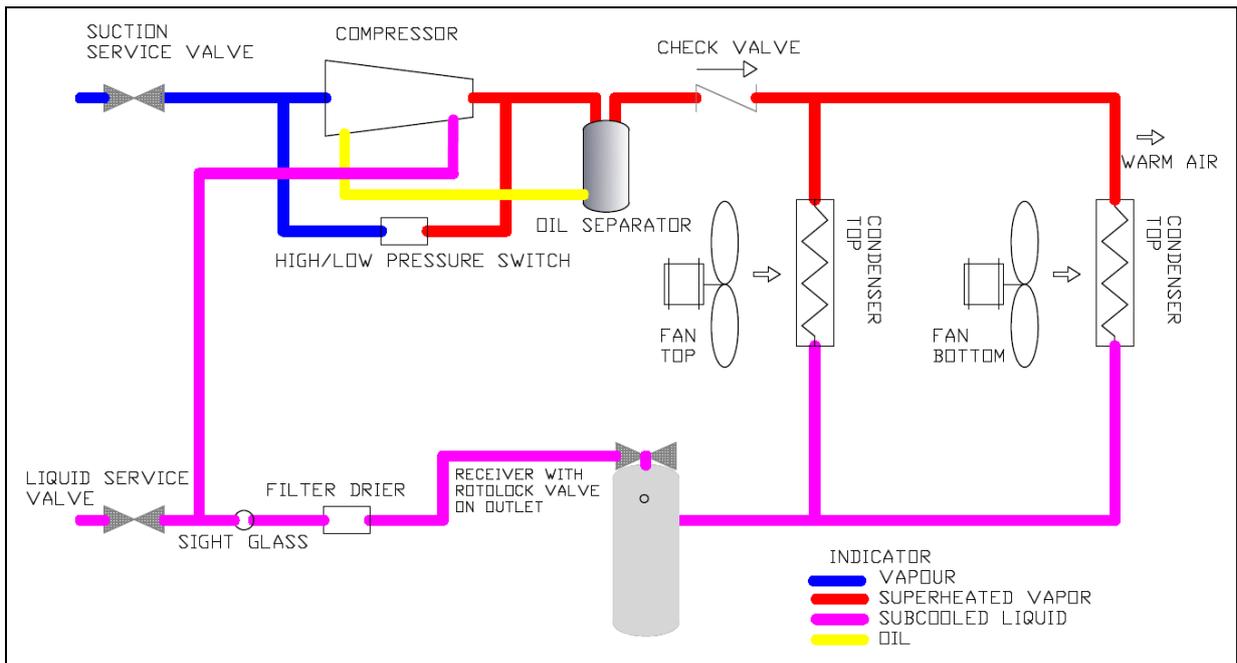
Series 3 LT : JEHBCU0350~JEHBCU0400
LRLRS0350~ LRLRS0400



Series 4 MT : JEHBCU0825~JEHBCU1000
LRMRS0825~ LRMRS1000

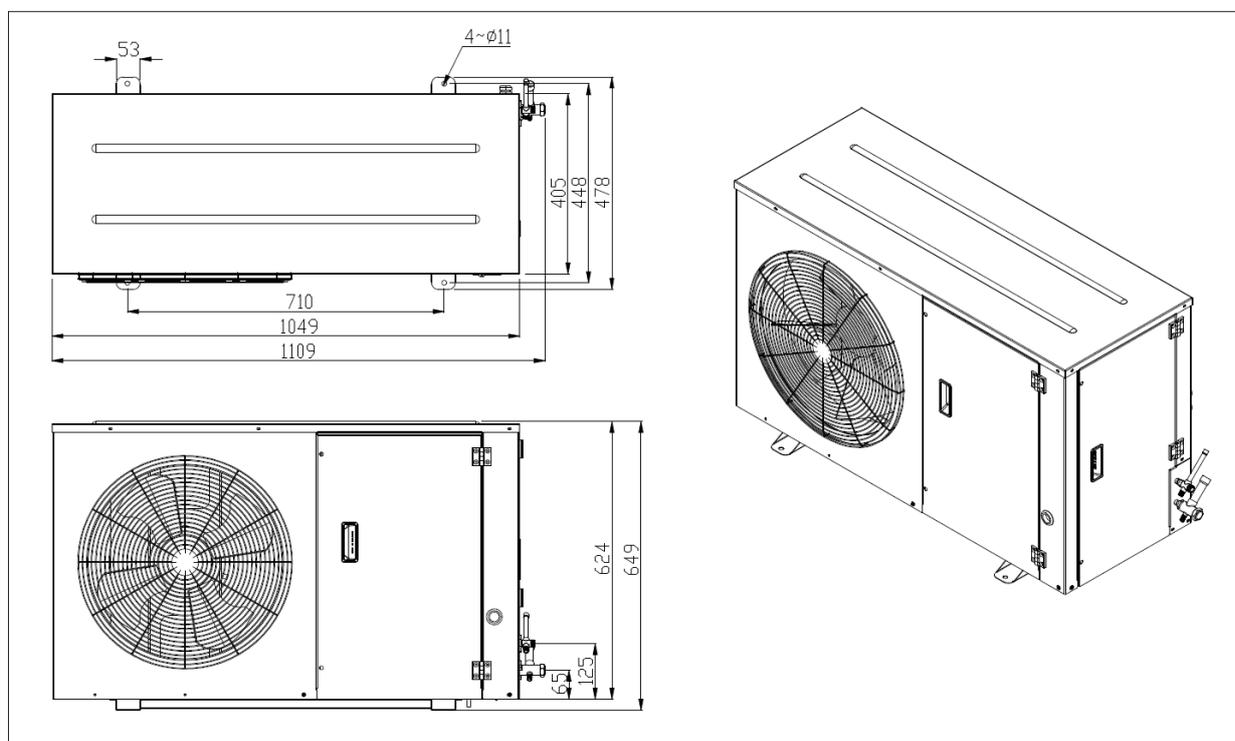


Series 4 LT : JEHBCU0725~JEHBCU825
LRLRS0725~ LRLRS0825

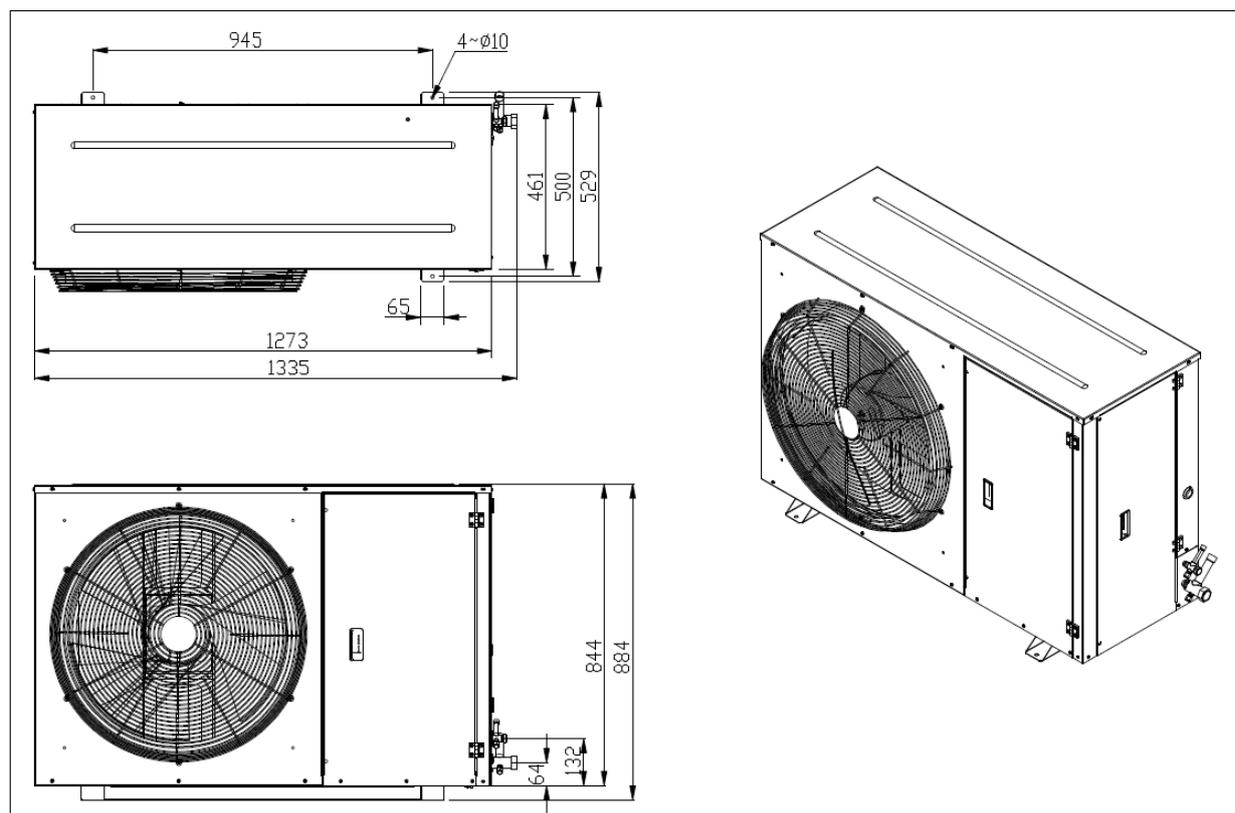


5. Outline Drawings

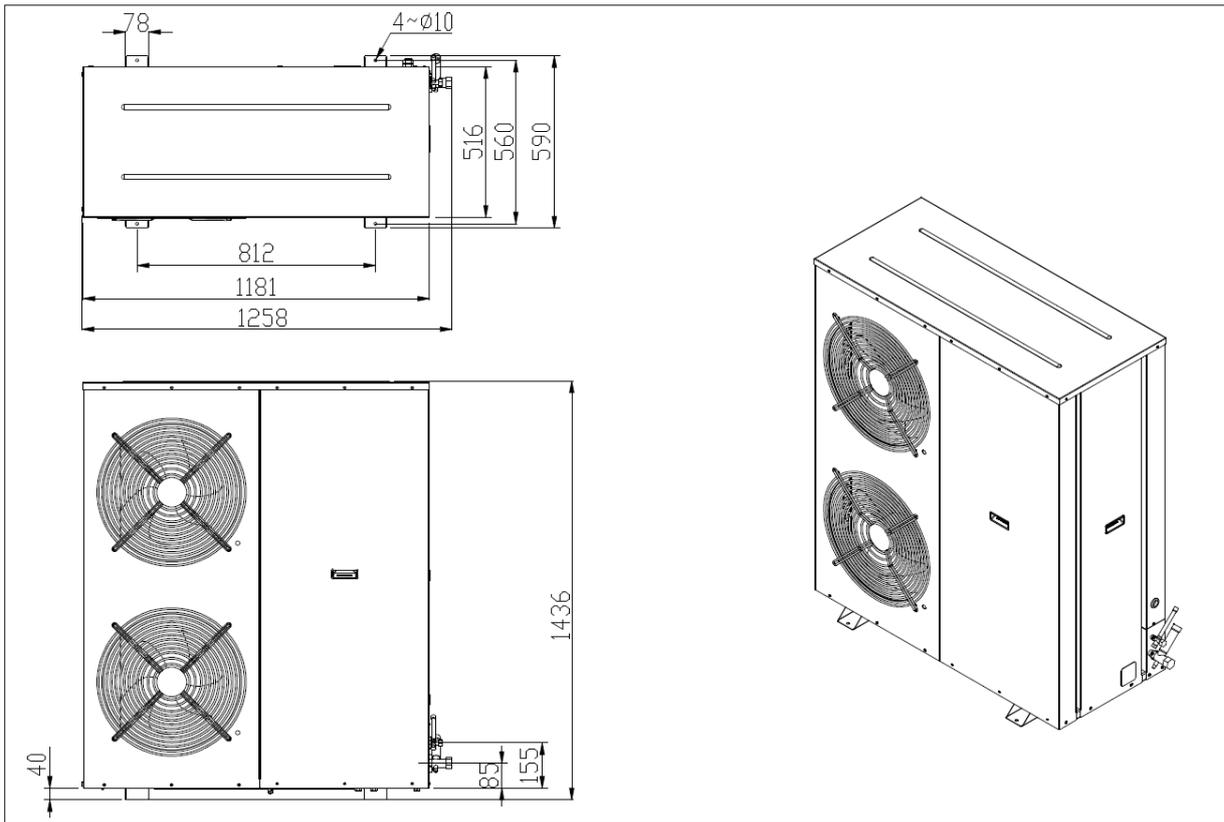
**Series 2: JEHBCU0150~JEHBCU0300;
LRMRS0150~ LRMRS0300; LRLRS0175~ LRLRS0225**



**Series 3: JEHBCU0350~JEHBCU0675
LRMRS0400~ LRMRS0675; LRLRS0350~ LRLRS0400**



Series 4: JEHBCU0725~JEHBCU1000
LRMRS0825~ LRMRS1000; LRLRS0725~ LRLRS0825



6. Performance Data

R404A Medium Temperature (Rating Condition: Superheat 10K, Sub cooling 0K)

		MODEL		HP	TE										
		DRM Codes	DMSS Codes		TA										
MEDIUM TEMPERATURE	Series 2	JEHBCU0150M1	LRMRS0150AXV1	1.5	27	CC (W)	1033	1438	1914	2459	3073	3758	4513		
		JEHBCU0150M3	LRMRS0150AXY1		32	PC (W)	945	1040	1137	1237	1339	1444	1550		
					38	CC (W)	900	1269	1708	2217	2796	3444	4163		
						PC (W)	959	1063	1169	1276	1385	1495	1607		
						CC (W)	730	1061	1457	1917	2441	3030	3684		
						PC (W)	973	1084	1197	1313	1431	1552	1675		
				JEHBCU0225M1	LRMRS0225AXV1	2.25	27	CC (W)	1851	2517	3258	4074	4967	5933	6976
				JEHBCU0225M3	LRMRS0225AXY1		32	PC (W)	1394	1597	1799	1999	2198	2395	2395
							38	CC (W)	1603	2230	2933	3710	4563	5491	6495
								PC (W)	1409	1621	1831	2041	2249	2457	2663
								CC (W)	1390	1963	2602	3303	4071	4902	5799
								PC (W)	1418	1637	1859	2081	2306	2531	2758
			JEHBCU0300M1	LRMRS0300AXV1	3	27	CC (W)	2479	3264	4161	5172	6295	7531	8881	
			JEHBCU0300M3	LRMRS0300AXY1		32	PC (W)	1936	2193	2460	2737	3024	3321	3627	
						38	CC (W)	2279	3026	3882	4844	5915	7092	8377	
							PC (W)	1957	2213	2484	2770	3071	3387	3718	
							CC (W)	2009	2737	3563	4484	5503	6618	7830	
							PC (W)	2015	2262	2530	2817	3125	3452	3800	
		Series 3	JEHBCU0400M3	LRMRS0400AXY1	4	27	CC (W)	3491	4693	6095	7696	9495	11494	13691	
						32	PC (W)	2616	2927	3240	3555	3872	4191	4512	
						38	CC (W)	3118	4218	5518	7017	8714	10610	12705	
							PC (W)	2686	3004	3327	3655	3988	4326	4669	
								CC (W)	2668	3665	4840	6191	7721	9427	11311
								PC (W)	2731	3064	3407	3760	4123	4496	4879
				JEHBCU0500M3	LRMRS0500AXY1	5	27	CC (W)	4607	5973	7559	9365	11393	13640	16108
							32	PC (W)	3149	3610	4076	4547	5023	5504	5989
							38	CC (W)	4152	5421	6912	8623	10554	12705	15078
								PC (W)	3265	3722	4189	4666	5153	5650	6157
								CC (W)	3598	4801	6181	7739	9474	11386	13476
								PC (W)	3309	3786	4278	4785	5307	5844	6396
			JEHBCU0600M3	LRMRS0600AXY1	6	27	CC (W)	4949	6532	8325	10326	12539	14960	17591	
						32	PC (W)	3517	4001	4505	5029	5573	6137	6721	
						38	CC (W)	4495	5986	7676	9564	11652	13938	16424	
							PC (W)	3608	4093	4604	5139	5700	6285	6896	
							CC (W)	3908	5314	6877	8595	10469	12499	14686	
							PC (W)	3680	4173	4701	5264	5862	6495	7162	
		JEHBCU0675M3	LRMRS0675AXY1	6.75	27	CC (W)	5503	7263	9212	11348	13673	16185	18887		
					32	PC (W)	3840	4447	5065	5692	6330	6977	7635		
					38	CC (W)	4937	6626	8476	10488	12660	14994	17489		
						PC (W)	3911	4548	5190	5837	6489	7146	7808		
						CC (W)	4365	5962	7688	9544	11528	13642	15884		
						PC (W)	4047	4666	5310	5979	6673	7392	8136		
	Series 4	JEHBCU0825M3	LRMRS0825AXY1	8.25	27	CC (W)	5961	8027	10320	12838	15582	18551	21747		
						32	PC (W)	4916	5601	6282	6959	7632	8301	8965	
						38	CC (W)	5356	7327	9488	11836	14373	17097	20010	
							PC (W)	5013	5696	6389	7092	7805	8528	9260	
							CC (W)	4675	6496	8485	10639	12961	15449	18104	
							PC (W)	5148	5817	6511	7230	7974	8743	9537	
		JEHBCU1000M3	LRMRS1000AXY1	10	27	CC (W)	8287	10547	13001	15648	18489	21523	24751		
					32	PC (W)	6158	7000	7893	8835	9828	10870	11963		
					38	CC (W)	7451	9697	12060	14543	17143	19862	22699		
						PC (W)	6286	7127	8029	8990	10012	11093	12235		
						CC (W)	6617	8678	10865	13174	15608	18164	-		
						PC (W)	6424	7281	8198	9175	10212	11309	-		

TE: Evaporating Temperature (°C) CC: Cooling Capacity (W), ± 10%
 TA: Ambient Temperature (°C) PC: Power consumption (W), ± 10%

R404A Low temperature (Rating Condition: Superheat 10K, Sub cooling 0K)

MODEL		HP	TE				-40	-35	-30	-25	-20	
			DRM Codes	DMSS Codes								TA
LOW TEMPERATURE	Series 2	JEHBCU0175L1	LRLRS0175AXV1	1.75	27	CC (W)	793	1130	1499	1900	2333	
		JEHBCU0175L3	LRLRS0175AXY1		32	PC (W)	720	937	1164	1401	1648	
					38	CC (W)	691	1018	1373	1753	2162	
						PC (W)	756	971	1196	1431	1676	
						CC (W)	529	860	1217	1602	2012	
						PC (W)	793	995	1212	1444	1691	
		Series 2	JEHBCU0225L1	LRLRS0225AXV1	2.25	27	CC (W)	1347	1847	2389	2975	3602
			JEHBCU0225L3	LRLRS0225AXY1		32	PC (W)	1348	1579	1840	2131	2452
						38	CC (W)	1224	1685	2197	2765	3385
							PC (W)	1443	1667	1922	2206	2521
							CC (W)	1093	1516	2008	2570	3202
							PC (W)	1449	1689	1955	2245	2561
		Series 3	JEHBCU0350L3	LRLRS0350AXY1	3.5	27	CC (W)	1619	2302	3119	4070	5156
						32	PC (W)	1621	1953	2296	2648	3011
						38	CC (W)	1346	1983	2760	3677	4732
							PC (W)	1687	2021	2365	2719	3083
							CC (W)	1161	1723	2442	3316	4347
							PC (W)	1779	2101	2438	2790	3157
		Series 3	JEHBCU0400L3	LRLRS0400AXY1	4	27	CC (W)	2531	3440	4477	5645	6940
						32	PC (W)	2554	3047	3574	4137	4734
						38	CC (W)	2172	3036	4039	5183	6465
							PC (W)	2567	3065	3603	4181	4799
							CC (W)	1880	2682	3651	4786	6088
							PC (W)	2578	3079	3625	4216	4852
	Series 4	JEHBCU0725L3	LRLRS0725AXY1	7.25	27	CC (W)	3746	5071	6513	8074	9753	
					32	PC (W)	3454	4220	5066	5992	6998	
					38	CC (W)	3300	4563	5965	7508	9189	
						PC (W)	3497	4272	5126	6061	7075	
						CC (W)	2755	3995	5390	6941	8648	
						PC (W)	3551	4318	5169	6106	7127	
	Series 4	JEHBCU0825L3	LRLRS0825AXY1	8.25	27	CC (W)	5174	6954	8878	10949	13163	
					32	PC (W)	4796	5726	6755	7885	9114	
					38	CC (W)	4597	6254	8078	10068	12225	
						PC (W)	4868	5805	6846	7993	9244	
						CC (W)	3991	5494	7196	9097	11196	
						PC (W)	4931	5877	6932	8098	9373	

TE: Evaporating Temperature (°C) CC: Cooling Capacity (W), ± 10%
 TA: Ambient Temperature (°C) PC: Power consumption (W), ± 10%

R134a (Rating Condition: Superheat 10K, Sub cooling 0K)

		MODEL		HP	TE								
		DRM Codes	DMSS Codes		TA								
MEDIUM TEMPERATURE	Series 2	JEHBCU0150M1 JEHBCU0150M3	LRMRS0150AXV1 LRMRS0150AXY1	1.5	27	CC (W)	918	1347	1826	2355	2934	3563	4242
						PC (W)	701	751	801	853	905	959	1013
						CC (W)	842	1229	1671	2168	2720	3327	3989
						PC (W)	721	775	831	889	949	1011	1075
						CC (W)	761	1091	1481	1931	2441	3011	3641
		PC (W)	738	800	864	932	1002	1076	1152				
		JEHBCU0225M1 JEHBCU0225M3	LRMRS0225AXV1 LRMRS0225AXY1	2.25	27	CC (W)	1547	2128	2823	3634	4559	5600	6755
						PC (W)	949	1053	1163	1280	1403	1533	1670
						CC (W)	1436	1958	2595	3347	4214	5196	6293
	PC (W)	973	1082	1197	1320	1449	1586	1730					
	CC (W)	1310	1763	2330	3013	3810	4723	5750					
	PC (W)	1002	1113	1234	1365	1506	1657	1818					
	Series 3	JEHBCU0300M1 JEHBCU0300M3	LRMRS0300AXV1 LRMRS0300AXY1	3	27	CC (W)	2426	3160	3998	4942	5990	7144	8402
						PC (W)	1313	1456	1609	1772	1945	2128	2321
						CC (W)	2279	2948	3721	4600	5583	6672	7865
						PC (W)	1353	1510	1677	1854	2041	2238	2445
						CC (W)	1941	2584	3332	4185	5143	6206	7374
		PC (W)	1396	1570	1754	1948	2152	2366	2590				
		JEHBCU0400M3	LRMRS0400AXY1	4	27	CC (W)	3198	4306	5624	7152	8890	10838	12996
						PC (W)	1825	1991	2157	2324	2489	2655	2821
						CC (W)	2917	3925	5143	6571	8209	10057	12115
	PC (W)	1853	2044	2234	2424	2613	2802	2990					
	CC (W)	2593	3482	4582	5891	7411	9140	11080					
	PC (W)	1877	2097	2317	2535	2753	2969	3185					
JEHBCU0500M3	LRMRS0500AXY1	5	27	CC (W)	3930	5271	6833	8614	10616	12837	15279		
				PC (W)	2196	2426	2672	2932	3208	3498	3804		
				CC (W)	3593	4823	6273	7943	9833	11943	14273		
				PC (W)	2200	2473	2756	3049	3352	3665	3988		
				CC (W)	3195	4295	5614	7154	8913	10893	13092		
PC (W)	2222	2531	2850	3179	3518	3867	4226						
JEHBCU0600M3	LRMRS0600AXY1	6	27	CC (W)	4594	6092	7814	9762	11934	14332	16954		
				PC (W)	2398	2658	2947	3267	3616	3996	4405		
				CC (W)	4309	5680	7272	9083	11115	13366	15838		
				PC (W)	2413	2717	3046	3400	3779	4183	4612		
				CC (W)	3811	5052	6507	8178	10063	12164	14479		
PC (W)	2429	2765	3126	3512	3923	4359	4820						
JEHBCU0675M3	LRMRS0675AXY1	6.75	27	CC (W)	5027	6653	8519	10625	12971	15557	18383		
				PC (W)	2604	2878	3188	3532	3912	4326	4776		
				CC (W)	4667	6153	7879	9845	12051	14497	17183		
				PC (W)	2634	2945	3292	3673	4090	4541	5028		
				CC (W)	4355	5676	7242	9053	11109	13410	15956		
PC (W)	2675	3030	3421	3846	4307	4802	5333						
Series 4	JEHBCU0825M3	LRMRS0825AXY1	8.25	27	CC (W)	5800	7728	9922	12380	15104	18092	21346	
					PC (W)	3188	3549	3929	4330	4750	5191	5651	
					CC (W)	5322	7083	9110	11401	13958	16779	19866	
	PC (W)	3261	3662	4083	4524	4985	5466	5967					
	CC (W)	4796	6349	8172	10265	12628	15261	18164					
	PC (W)	3313	3775	4252	4744	5251	5773	6310					
JEHBCU1000M3	LRMRS1000AXY1	10	27	CC (W)	7256	9494	11993	14751	17770	21048	24587		
				PC (W)	3647	4152	4687	5252	5847	6472	7127		
				CC (W)	6615	8667	10980	13552	16385	19477	22830		
PC (W)	3686	4237	4818	5429	6070	6741	7442						
CC (W)	5875	7701	9792	12148	14769	17655	20806						
PC (W)	3685	4304	4947	5616	6309	7028	7771						

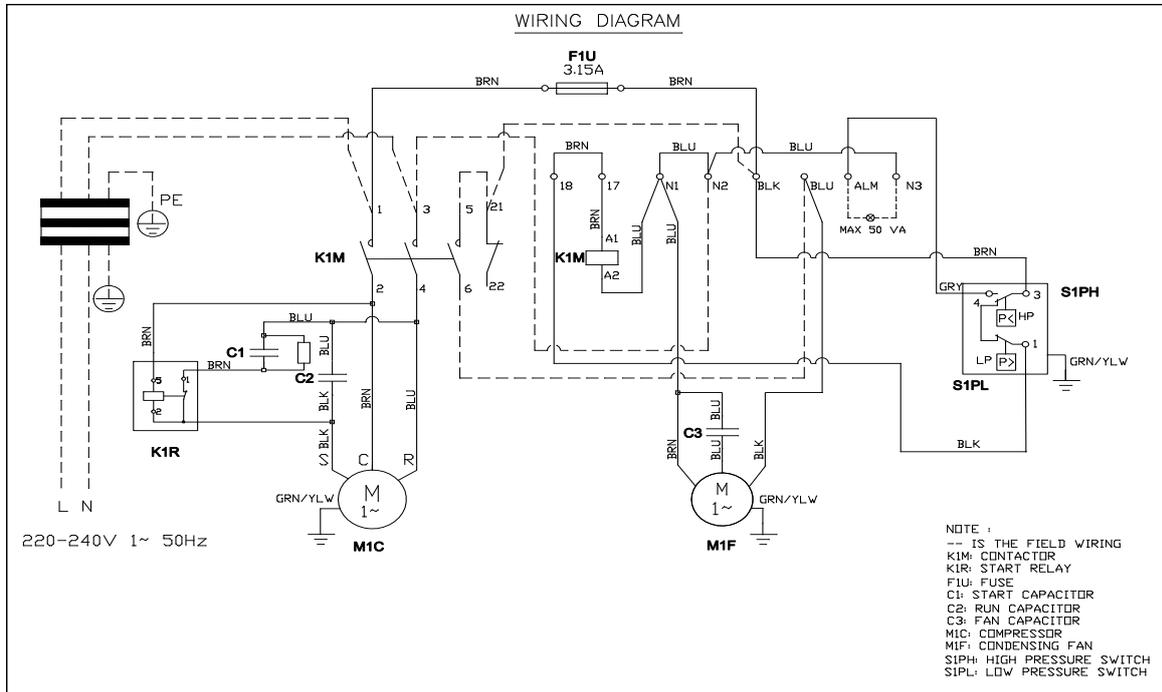
TE: Evaporating Temperature (°C) CC: Cooling Capacity (W), ± 10%
 TA: Ambient Temperature (°C) PC: Power consumption (W), ± 10%

7. Wiring Diagram

Important Note: All wiring and connections to the condensing unit must be made in accordance to the local codes.

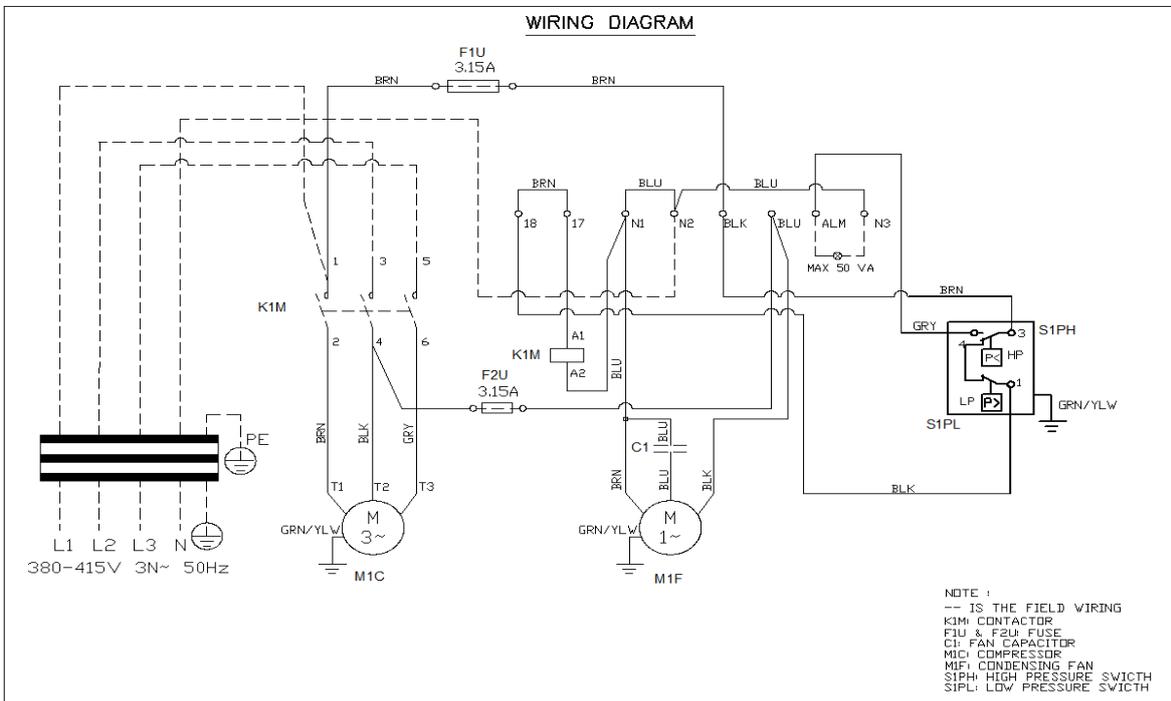
Series 2 MT (230V/1ph/50Hz)

JEHBCU0150M1, JEHBCU0225M1, JEHBCU0300M1
LRMRS0150AXV1, LRMRS0225AXV1, LRMRS0300AXV1



Series 2 MT (400V/3ph/50Hz)

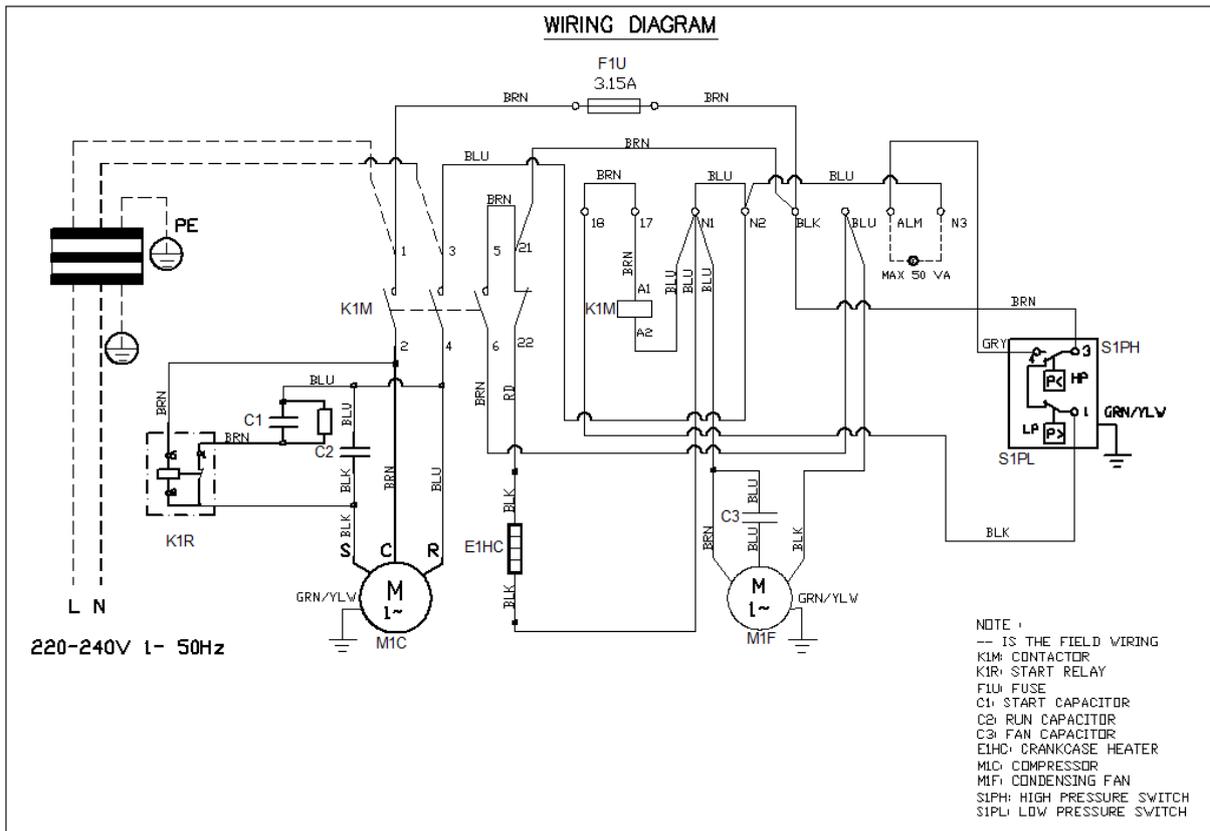
JEHBCU0150M3, JEHBCU0225M3, JEHBCU0300M3
LRMRS0150AXY1, LRMRS0225AXY1, LRMRS0300AXY1



Series 2 LT (230V/1ph/50Hz)

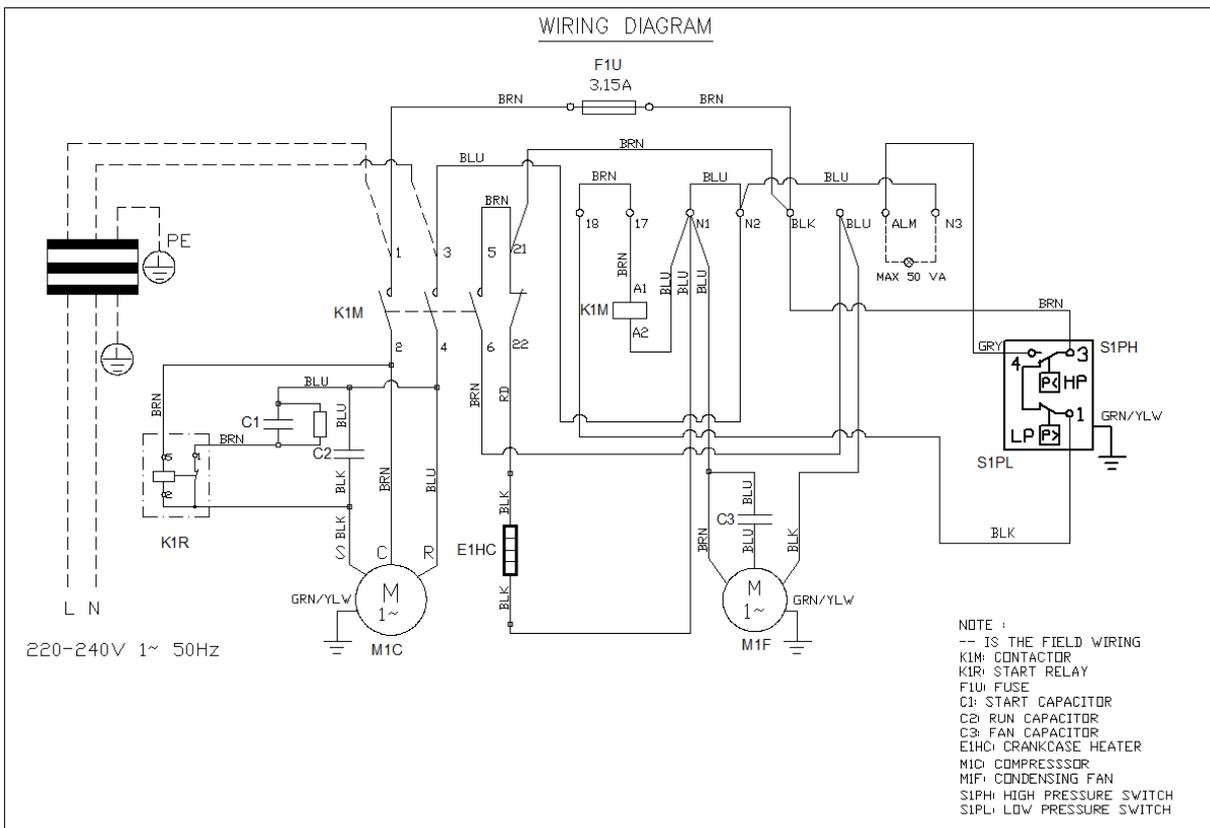
JEHBCU0175L1

LRLRS0175AXV1

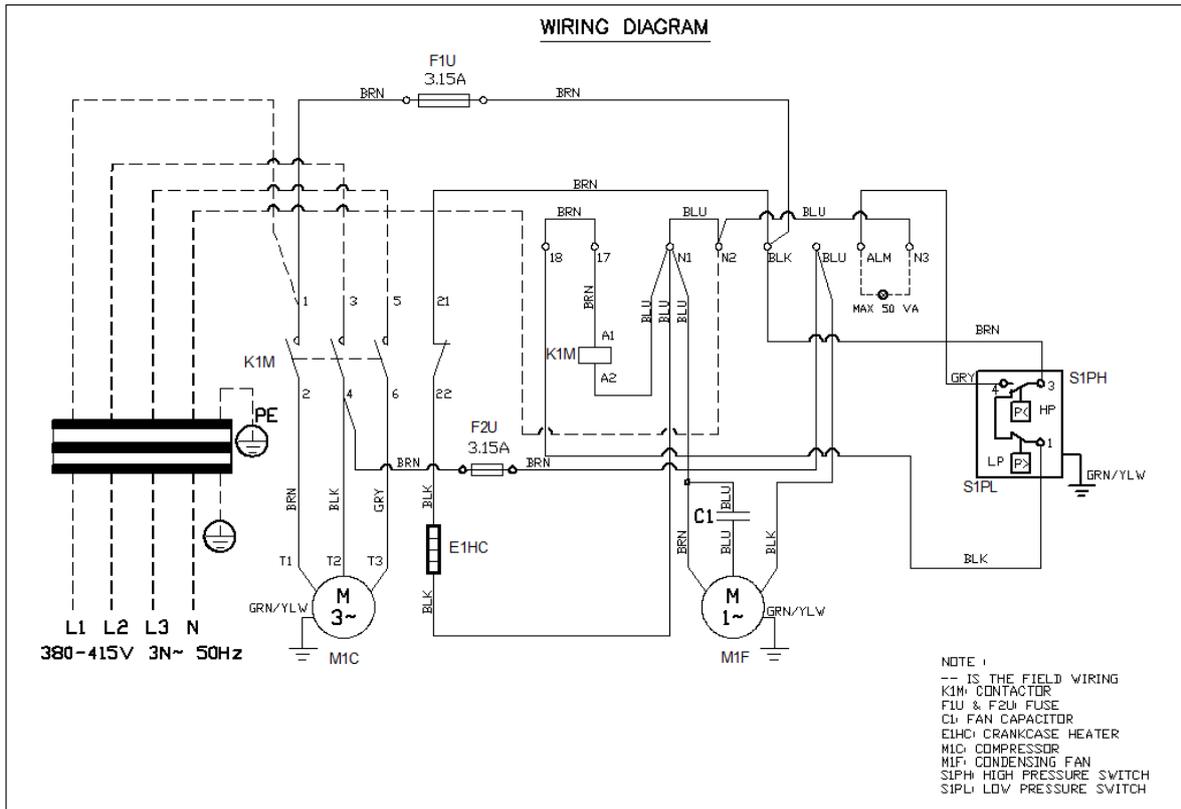


JEHBCU0225L1

LRLRS0225AXV1



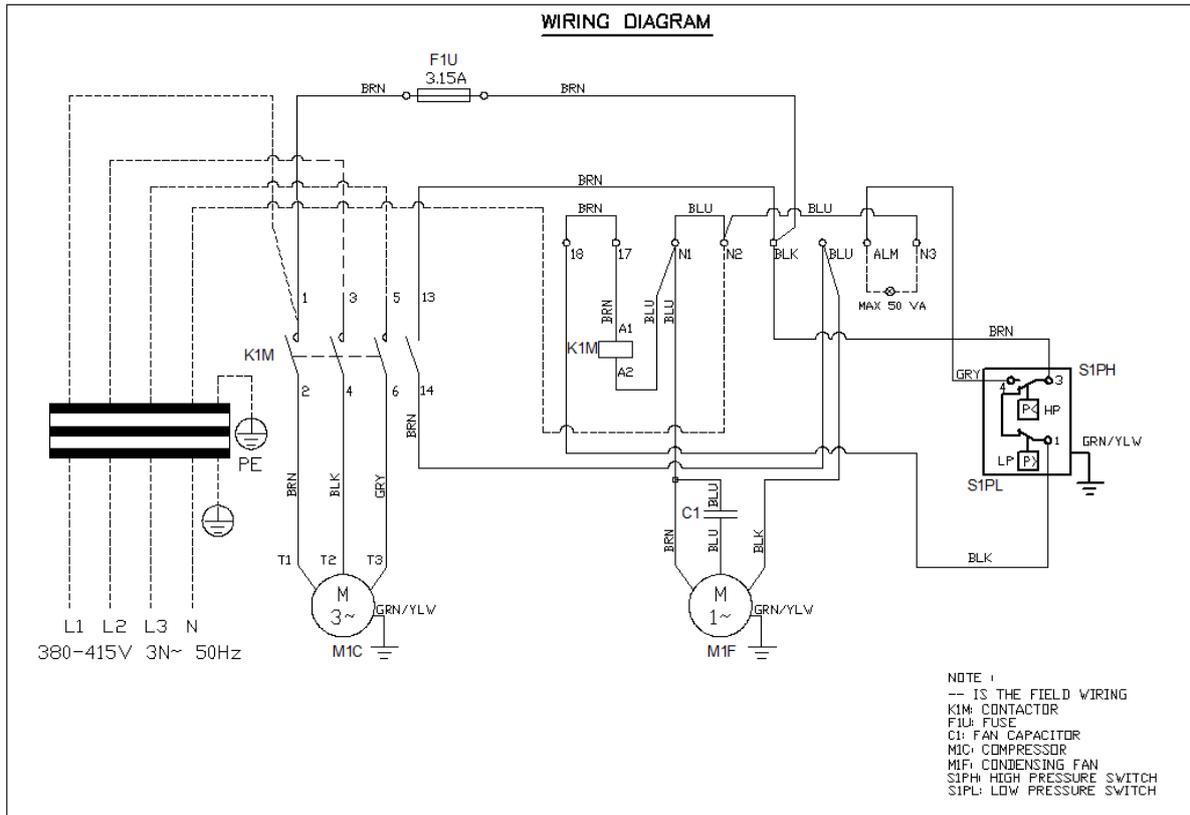
Series 2 LT (400V/3ph/50Hz)
 JEHBCU0175L3, JEHBCU0225L3
 LRLRS0175AXY1, LRLRS0225AXY1



Series 3 MT (400V/3ph/50Hz)

JEHBCU0400M3, JEHBCU0500M3, JEHBCU0600M3, JEHBCU0675M3

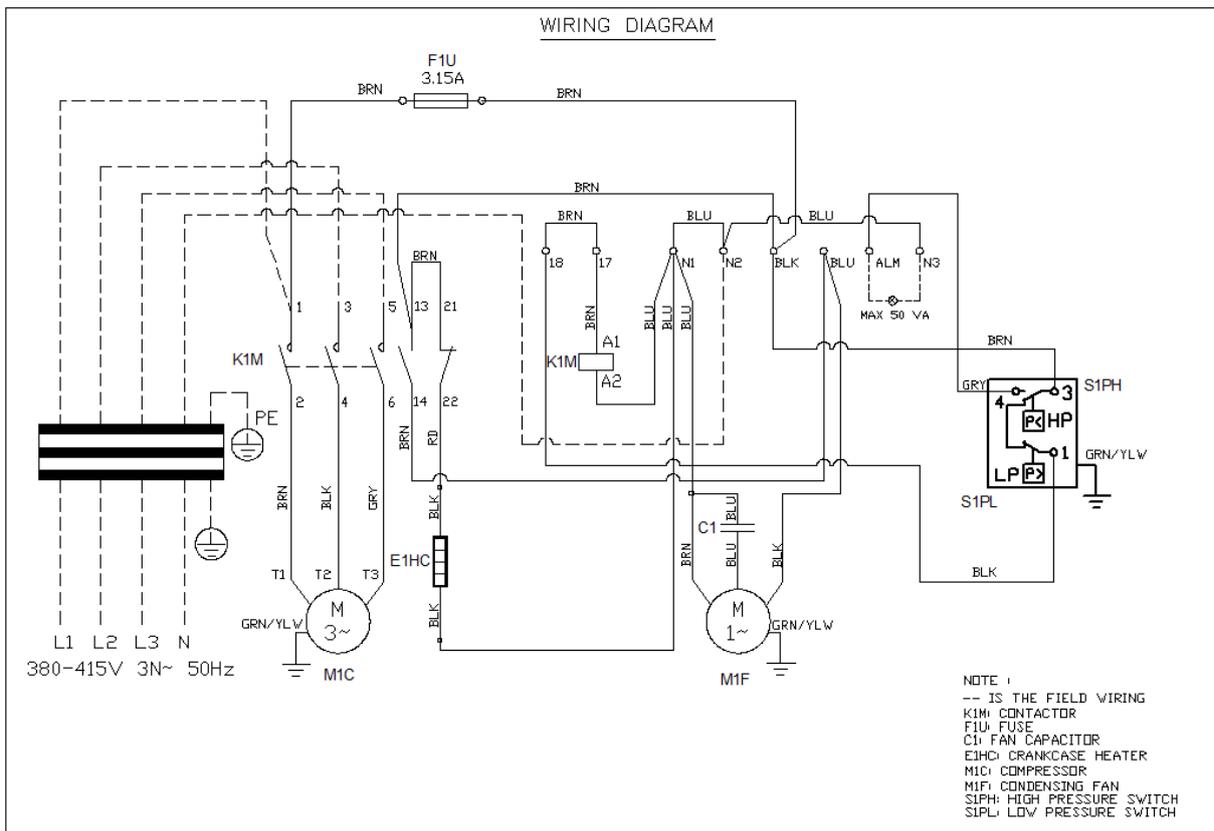
LRMRS0400AXY1, LRMRS0500AXY1, LRMRS0600AXY1, LRMRS0675AXY1



Series 3 LT (400V/3ph/50Hz)

JEHBCU0350L3, JEHBCU0400L3

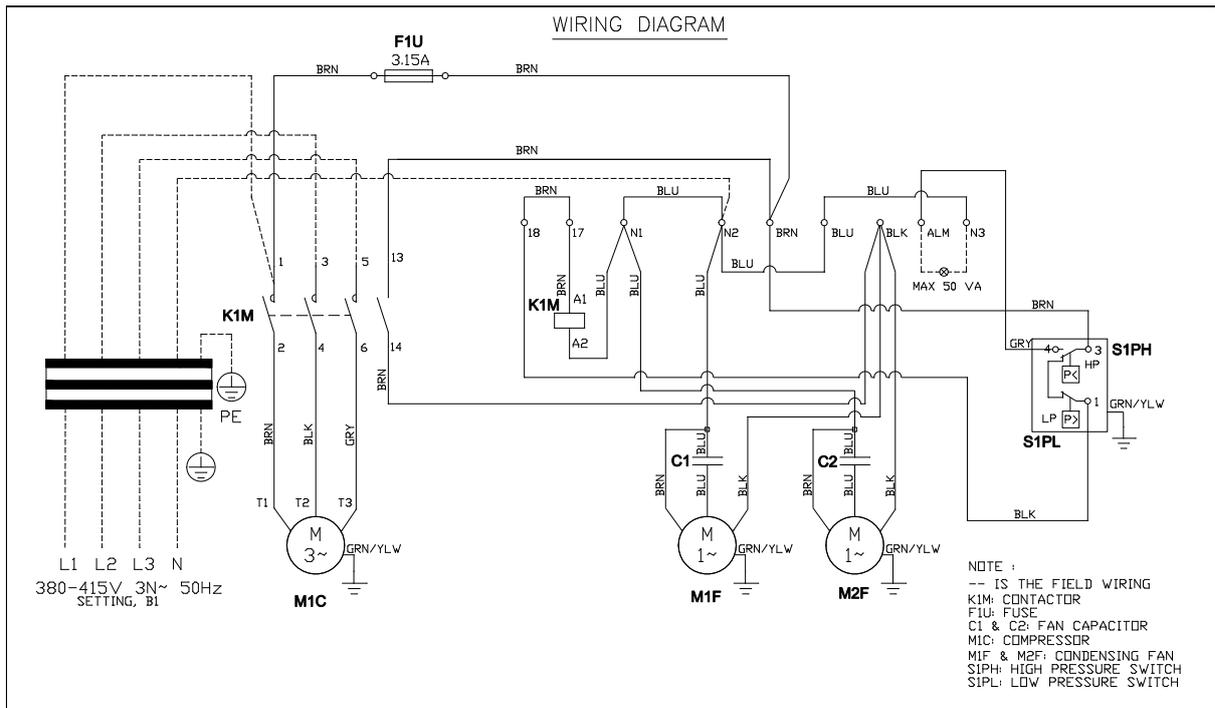
LRLRS0350AXY1, LRLRS0400AXY1



Series 4 MT (400V/3ph/50Hz)

JEHBCU0825M3, JEHBCU1000M3

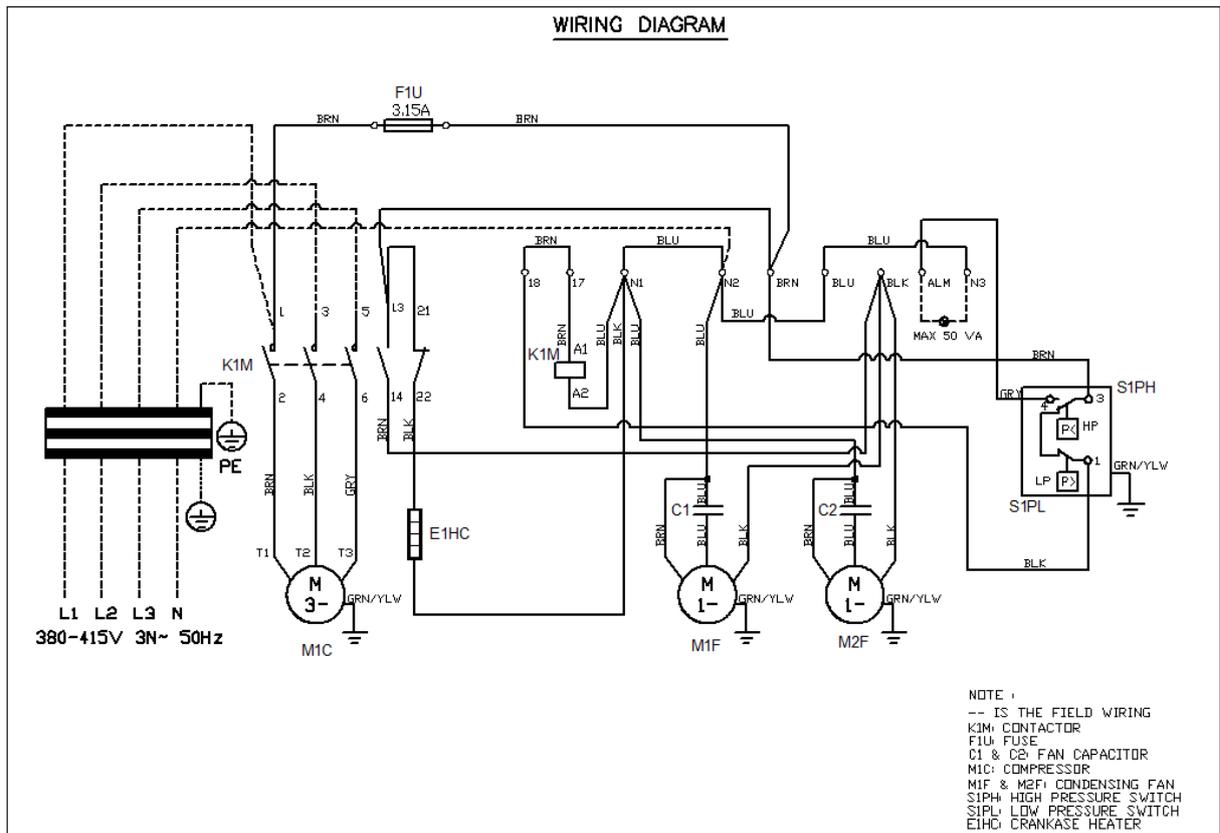
LRMRS0825AXY1, LRMRS1000AXY1



Series 4 LT (400V/3ph/50Hz)

JEHBCU0725L3, JEHBCU0825L3

LRLRS0725AXY1, LRLRS0825AXY1



8. Safety and Health

Important Note

Only qualified specialists could carry out the installation, maintenance and commissioning of the system. To avoid potential injury, use care when working around coil surfaces or sharp edges of metal cabinets. All piping and electrical wiring should be installed in accordance with all applicable codes, ordinances and local by-laws.

General Information

Before Installation

- Ensure the units received are the correct models for the intended application.
- Ensure the refrigerant, voltage and MWP are all suitable for the proposed application.
- Check there is no damage to the units. Any damage should be advised to the supplier immediately.
- Check that the proposed equipment locations are suitable and provide adequate support for the weight of the units.

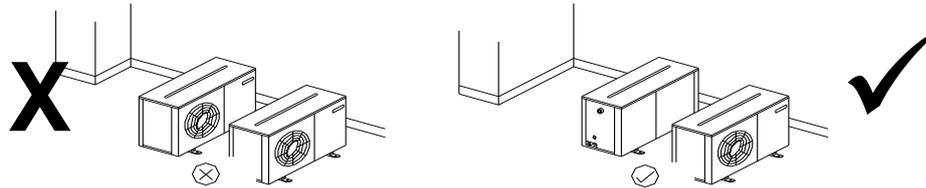
During Installation and subsequent maintenance

- Installation and maintenance are to be performed only by qualified personnel who are familiar with local codes and regulations, and experienced with this type of equipment.
- The condensing unit is delivered with a protective nitrogen holding charge.
- If lifting equipment is required, ensure that it is suitable for purpose, certificated and that the operatives are qualified to use it.
- Safe working methods are identified and operatives have suitable Personal Protective Equipment (PPE).
- Ensure the working area has adequate ventilation during brazing procedures.
- The units contain moving machinery and electrical power hazards, which may cause severe injury or death. Disconnect and shut off power before installation or service of the equipment.
- Refrigerant release into the atmosphere is illegal. Proper evacuation, recovery, handling and leak testing procedures must be observed at all times.
- Units must be earthed and no maintenance work should be attempted prior to disconnecting the electrical supply.
- The electrical covers and fan guards must remain fitted at all times.
- Use of the units outside of the design conditions and the application for which the units were intended may be unsafe and be detrimental to the units, regardless of short or long term operation.
- The condensing units are not designed to withstand loads or stresses from other equipment or personnel. Such extraneous loads or stress may cause failure/leak/injury.
- In some circumstances, a suction accumulator (not supplied) may be required. It offers protection against refrigerant flood back during operation and also against off-cycle migration by adding internal free volume to the low side of the system.
- Tests must be conducted to ensure the amount of off-cycle migration to the compressor does not exceed the compressor's charge limit.
- Wherever possible the system should be installed to utilize a pump down configuration.
- After installation, the system should be allowed to run for 3 – 4 hours. Additional oil should be added as necessary depending on length of pipe run. It should then be rechecked after 24 hours once the system has stabilized. For details of the oil requirements, please refer to *page 28* in the service and maintenance section.

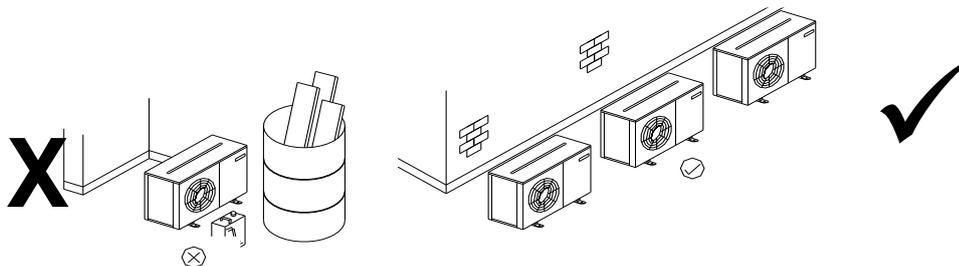
9. Installation & Commissioning

9.1 Unit site location

- In order to achieve maximum cooling capacity, the installation location for the condensing unit should be carefully selected.
- Install the condensing unit in such a way so that hot air ejected by the condensing unit cannot be drawn in again (short circuit of hot discharge air). Allow sufficient space for maintenance around the unit.



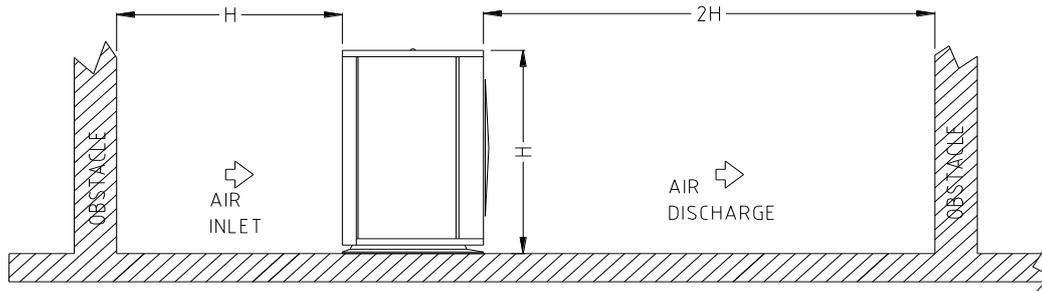
- Ensure that there is no obstruction to air flow into or out of the unit. Remove obstacles which block air intake or discharge.



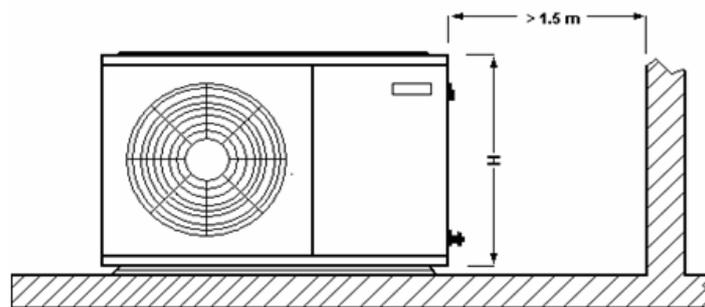
- The location must be well ventilated, so the unit can draw in and distribute plenty of air thus lowering the condensing temperature.
- To optimize the unit running conditions, the condenser coil must be cleaned at regular intervals.
- The unit must be level in all directions.

9.2 Installation clearances

- The installation location should allow sufficient space for air flow and maintenance around the unit.

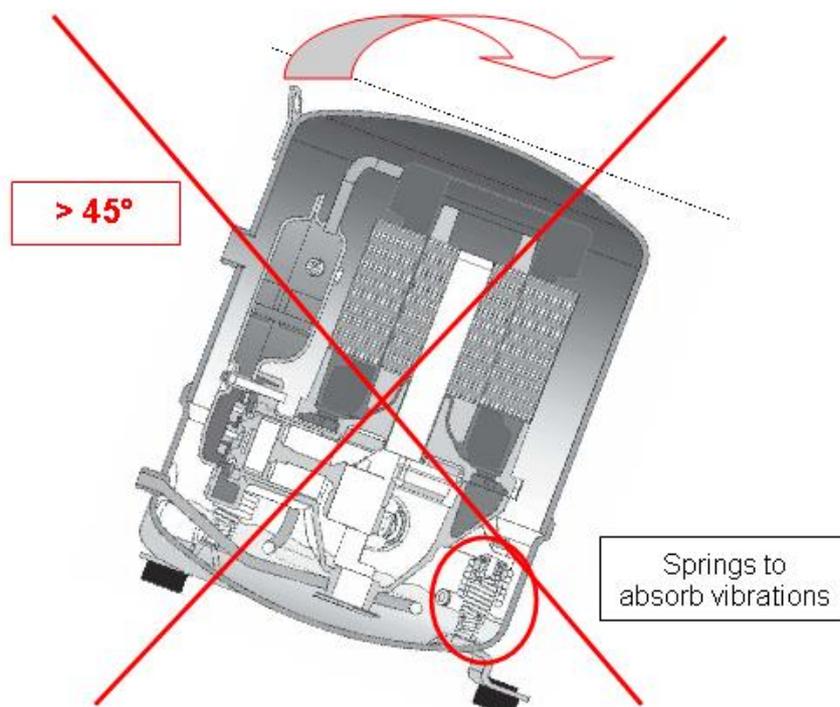


- Space not less than 1.5m is necessary for installation or maintenance.



9.3 Compressor handling

To ensure compressor reliability, the condensing unit together with the compressor must not tilt greater than an angle of 45°. Otherwise, the internal part of the compressor can offset from the housing springs and produce abnormal sound and vibration.



9.4 Field piping

Important Note:

Pipe sizing should only be determined by qualified personnel. All local codes of practice must be observed in the installation of refrigerant piping.

To ensure satisfactory operation and performance, the following points should be noted for field piping arrangements:

- Pipework routes must be as simple and as short as possible.
- Avoid low points on pipework where oil can accumulate.
- Suction gas velocity must be sufficient to ensure good oil return.
- Use only clean, dehydrated refrigeration grade copper tube with long radius bends.
- Avoid flare type connections and take great care when brazing. Use only silver alloy rods.
- Run braze without over filling to ensure there is no leakage into the tube.
- To prevent oxidation, blow oxygen free nitrogen through pipework when brazing.
- Install insulation on all suction lines and on all pipes penetrating walls or passing through hot areas.
- Adequately support all pipe work at a maximum of 2 metre intervals.
- In vertical pipework, the use of U-trap and double suction risers is often required. These suction risers must always be fitted with a U-trap at the bottom and a P-trap at the top and never be higher than 4m unless a second U-trap system is fitted.
- When installing a single compressor unit with multiple evaporators connected, care should be taken to ensure that the evaporating pressure/temperature does not fall outside the compressor operating limit. Ideally, multiple evaporators when operated in pump-down mode should be fed by a single solenoid valve.
- Suction pipework should slope gently back towards the unit to assist oil return to the compressor. A fall of approximately 2cm per metre of pipework is acceptable.
- Liquid lines should be sized to ensure a full supply of liquid refrigerant to the expansion device. Careful attention should be paid to sizing of liquid lines on large risers (above 6m).
- Piping length less than 25m is highly recommended. An additional oil might be required if piping length exceeds 20m or with many oil traps. Normally quantity of top up oil required should not exceed 2% of the total refrigerant charge.

Correct line sizing will minimize the pressure drop and maintain sufficient gas velocity for proper oil return.

Important Note:

One of the main factors affecting equipment reliability and compressor service life is refrigeration circuit contamination. During installation, circuit contamination can be caused by:

- Brazing & Welding Oxides
- Filings & Particles from de-burring pipework
- Brazing Flux
- Moisture & Air

9.5 Pressure testing

- It is recommended to use inert gas such as nitrogen for pressure testing.
- The pressure differential between the high and low side of the compressor should not exceed 30 bar (435 psig).
- Test pressures are : 19 bar (275 psig) on the Low Side
28 bar (405 psig) on the High Side

9.6 Leak detection

- Make sure that all isolation valves throughout the system are fully open.
- Perform a leak detection using compatible refrigerant and pressurize nitrogen, detected by leak detector for the applied refrigerant.
- Never use CFC or HCFC refrigerants for leak detection of HFC systems.
- Leak detecting additives shall not be used as they may affect the lubricant properties.

9.7 Evacuation & Charging

Important Note:

Moisture prevents proper functioning of the compressor and the refrigeration system. Ensure that a good quality vacuum pump is used to pull a minimum vacuum of 250 microns (0.33 mbar).

Once pressure testing has been completed, the system can now be evacuated to remove air and any moisture from the piping. This can be done as follows:

- Ensure any nitrogen charge is safely released from the system.
- Connect a gauge manifold to the connections on the service valves on the condensing unit.
- Connect a vacuum pump and vacuum gauge to the system.
- Ensure all gauge manifold and service valves are open as required.
- Evacuate the system until vacuum is below 250 microns (0.33 mbar).

Note: A triple evacuation procedure is recommended for all new systems or where moisture is suspected

Once the system is isolated and the vacuum pump is switched off, any rise in pressure indicates that either there may be a leak in the system or moisture is still present. In this case, recheck the system for leaks, repair as necessary, and then restart the evacuation procedure. Once completed satisfactorily, the vacuum pump and vacuum gauge can be removed.

At this point, the refrigerant charge can be added to the system as required. Refrigerants must be charged in the liquid phase. **Charging of liquid into the suction side of the system should ONLY be done with a metering device.** Use calibrated weighing scales to record the amount of refrigerant added to the system.

9.8 Electrical

Important Note:

The mains electrical supply to the condensing unit must be via a suitable motor rated circuit breaker or fuse.

J&E Hall Basic Reciprocating condensing units require either a 230 volt / 1 phase / 50Hz supply or a 400 volt / 3 phase / 50Hz supply, both of which must include a Neutral and an Earth. These systems are not suitable for any other supply voltages (other than a deviation of +/- 10% of the above values) and are not suitable for 60Hz supplies.

Mains cable type and sizing must be selected for the particular application and the electrical installation should confirm to the current local standards.

- Cables to the condensing unit should wherever possible be routed through the cable glands supplied on the rear of the units.
- Connect the mains supply to the units as per the wiring diagrams on *pages 14 – 18*.

To gain access to the electrical box, turn off the power supply, remove the screws from the end cover panel and remove panel. The electrical box is located behind the panel. Remove the screws in the electrical box cover to access components.

Important Note:

There must be no more than 10 compressor starts per hour. A higher number reduces the service life of the compressor. There is no minimum off time for scroll compressors, as they start unloaded. However, consideration should be given to ensuring an adequate minimum run time to ensure proper oil return.

9.9 Pre start-up checks

Before starting the condensing unit the following checks should be carried out as a minimum:

- Check electrical supply is correct and all connections are sound.
- All moving parts are free and guards fitted.
- Compressor oil level satisfactory.
- Initial settings for safety switches.
- Overload set correctly.
- Valves in correct operating position.
- Initial refrigerant charge.
- Gauge manifold connected to both low and high sides of system.

9.10 Running the unit

- Run the unit and check compressor and condenser fan operation.
- Check system pressures and temperatures, gas charge and running currents of motors to ensure correct operation.
- Check compressor superheat.
- Final adjustment of safety switch setting.
- Check compressor oil level and adjust as necessary.
- Carry out final leak test and ensure all panels/covers are fitted and screws tightened.
- Log all information along with the system model and serial numbers for future reference.
- Ensure that the customer / responsible person are provided with basic operating instructions and where electrical isolators are situated in case of emergency.

Important Information!

Vacuum operation:

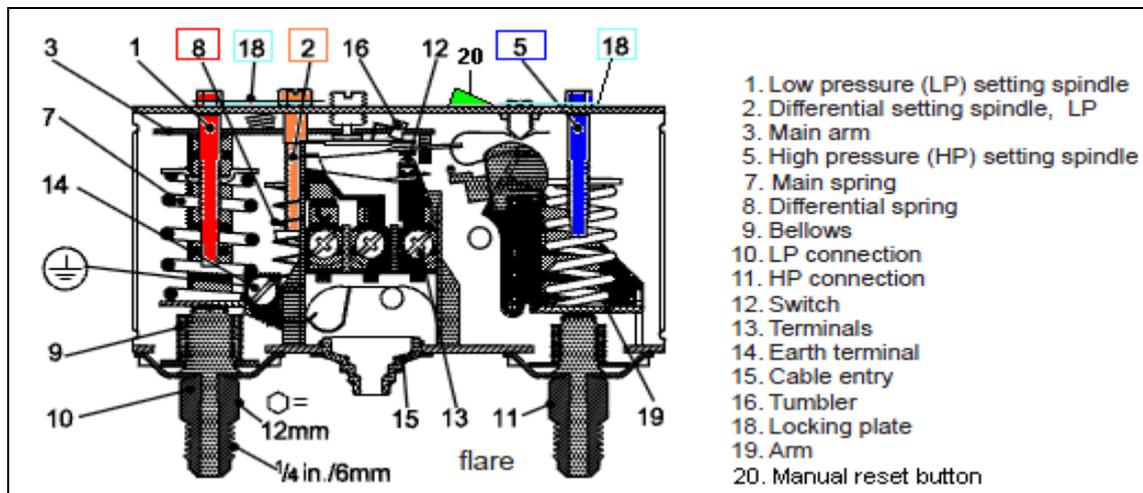
Do not operate scroll compressors in a vacuum condition, as this will cause the scrolls to overheat very quickly causing premature failure.

System charge:

Ensure an adequate liquid charge has been introduced to the high side of the system before starting to ensure a minimum operating pressure on the suction side of 0.5 bar is maintained, otherwise overheating of the scrolls and subsequent damage may occur.

9.11 Safety pressure switch settings

The pressure switch fitted to JEH model condensing units with auto reset for Low Pressure and manual reset for High Pressure is **NOT** factory preset. **BOTH THE LP AND HP SWITCH SETTINGS MUST BE ADJUSTED TO SUIT THE APPLICATION BEFORE STARTING THE UNIT.** Be sure that the high pressure setting does not exceed the receiver's maximum service pressure.



9.11.1 Setting adjustment

High pressure side

Turning the adjusting screw (5) clockwise will increase the cut-out pressure setting. Turning the adjusting screw anti-clockwise will decrease the cut-out pressure setting. The differential setting is fixed so the cut-in will vary with the cut-out setting.

Low pressure side

Range: Turning the range adjusting screw (1) clockwise will decrease the cut-in pressure setting. Turning the range adjusting screw anti-clockwise will increase the cut-in pressure setting.

Differential: Turning the differential adjusting screw (2) clockwise will increase the differential pressure setting. Turning the differential adjusting screw anti-clockwise will decrease the differential pressure setting.

9.11.2 High pressure safety (Manual reset)

The high pressure safety switch is required to stop the compressor should the discharge pressure exceed the values shown in the following table. The high pressure switch can be set to lower values depending on the type of refrigerant, application and ambient conditions.

Refrigerant	R404A	R134a
Cut Out (bar g)	27.7	18
Cut Out (psi g)	402	261

9.11.3 Low pressure safety (Auto reset)

The low pressure safety switch protects the compressor against deep vacuum operation, a potential cause of failure due to internal arcing and also operation outside the compressor limits.

The low pressure safety cut out should never be set below the settings as shown in the following table.

Refrigerant	R404A		R134a
Application	M*	L*	M*
Cut out (bar g)	1.0	0.1	0.6
Cut out (psi g)	14.5	1.5	9.0

* M: Medium temperature; L: Low temperature

The low pressure cut out pressure is the setting of cut in minus the differential.

Important Note

There must be no more than 12 compressor starts per hour. A higher number of starts reduce the service life of the compressor. If necessary, use an anti-short-cycle timer in the control circuit. It is recommended minimum 2 minutes run in time and 3 minutes idle time for each start and stop of the compressor. The compressor may run in shorter interval during pump down cycle.

9.12 Wiring

The unit must be isolated from power supply prior to installation. In order to ensure the safety of the installation and its smooth operation, it is necessary to:

- Verify the installation is compatible with the wiring diagram.
- Select the motor circuit breaker by using the maximum continuous current. Refer *Section 4*.
- Size the wiring for the connection (power and control circuit) according to the properties of the installed unit.
- Protect and earth the electrical power supply.
- Carry out electrical connections according to the norms of the respective country.
- Secure the cable from touching hot parts and sharp edges with cable clamps.
- Close the electrical box after completion of the wiring.

9.13 Commissioning of the Condensing Unit

Make sure all isolation valves are fully open before starting the system for the first time. The shut off valve on the condensing unit could found on outlet of liquid receiver, inlet and outlet of condensing unit.

10. Checklist

- Check all electrical termination and circuits.
- Check the service valves are fully open.
- Check compressor oil level.
- Check the pressure switch for right settings.
- Ensure fan motor and fan blades are installed properly.
- Observed the system pressures during the charging and initial operation process.
- Continue to charge the system until sight glass is clear. Make sure that high pressure is > 13.2 bars for R404A and > 7.9 bars for R134a when judge the refrigerant charging amount.
- Check the compressor's discharge and suction pressure, ensure it is working within the operating range.
- Check condenser fan, ensure warm air blowing off.
- Check evaporator blower, ensure discharge air is cool.
- Check suction superheat and adjust expansion valve to prevent liquid flood back to the compressor.

11. Service and Maintenance

Important Note

Warning! – Disconnect the main electrical supply before servicing or opening the unit

Warning! – Ensure there is no refrigerant in refrigerant circuit before dismantle it

The condensing units are designed to give long life operation with minimum maintenance. However, they should be routinely checked and the following service schedule is recommended under normal circumstances:

The removal of the top, side and front panels ensures that all parts are accessible.

1. Compressor – Inspect at regular intervals

- Check for refrigerant leaks on all joints and fittings.
- Check mountings for tightness and wear.
- Check operation of crankcase heater.
- Check electrical connections.
- Ensure that no abnormal noise or vibration is detected during test run.
- Check the compressor oil levels and top up if required. The oil level should be visible at least ½ way up the sight glass (where fitted).

2. Condenser Fan Motor & Blade – Clean and inspect at regular intervals

- Check for abnormal noise, vibration and fan imbalance.
- Ensure that the fan motor is clean and spins freely.
- Check that the condenser fan blade is clean and free from restriction and damage/imbalance.
- **Note:** The Fan Motor is pre-lubricated and factory sealed so no maintenance is necessary.

3. Condenser Coil – Clean and inspect at regular intervals.

- Check and remove the dirt and debris between the fins using a suitable chemical coil cleaner.
- Check and remove any obstacles which may hinder the airflow through the condenser coil.

4. Controls

- Check settings and operation of pressure switches.
- Check overload setting.

5. Power Supply – Inspect at regular intervals.

- Check the running current and voltage for the condensing unit.
- Check the electrical wiring and tighten the wires onto the terminal blocks if necessary.

6. Refrigerant Charge

- Check the refrigerant charge by ensuring that the system is operating correctly, the pressures are as expected and that the liquid line sight glass shows a full bore of liquid refrigerant.
- Carry out a full leak test.

7. Unit decommissioning and disposal

- At the end of the unit's useful life, a suitably qualified engineer should decommission it. The refrigerant and compressor oil are classed as hazardous waste and as such must be reclaimed and disposed of in the correct manner, including completion of waste transfer paperwork. The unit components must be disposed of or recycled as appropriate in the correct manner.

12. Trouble Shooting

The following is some guidelines to troubleshoot some common failure of condensing unit. Consult to qualified specialists before taking any corrective action.

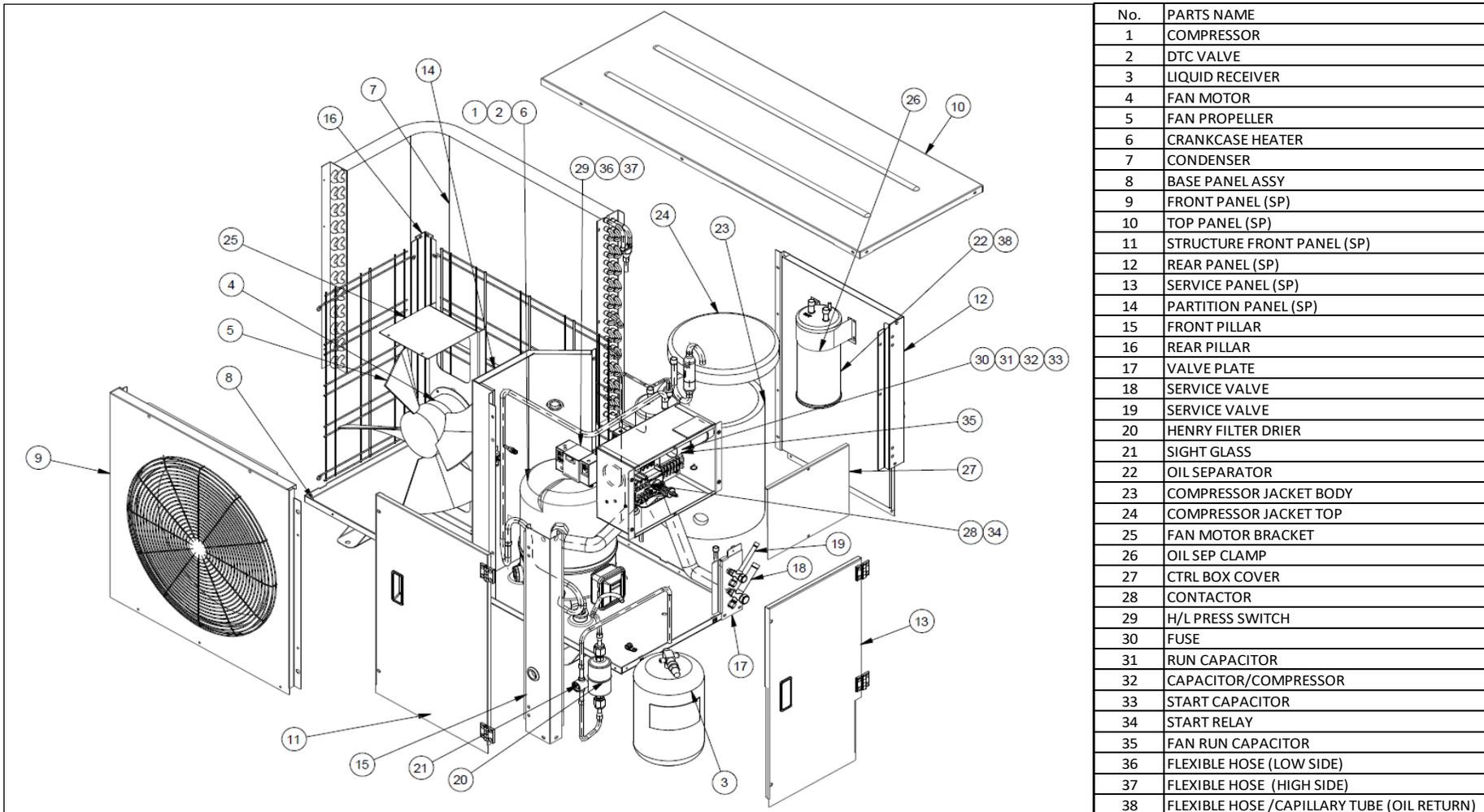
Failure	Possible Causes
Fan does not work	<ul style="list-style-type: none"> • Improper wiring • Fan motor faulty
Compressor does not start	<ul style="list-style-type: none"> • Improper wiring • Defective contactor or coil • System stopped because of tripped of safety device. • Defective start/run capacitor • Compressor faulty
Insufficient cooling	<ul style="list-style-type: none"> • Low refrigerant charge • Condenser coil dirty • Obstacle blocking air inlet/outlet • Improper thermostat setting

Important Note

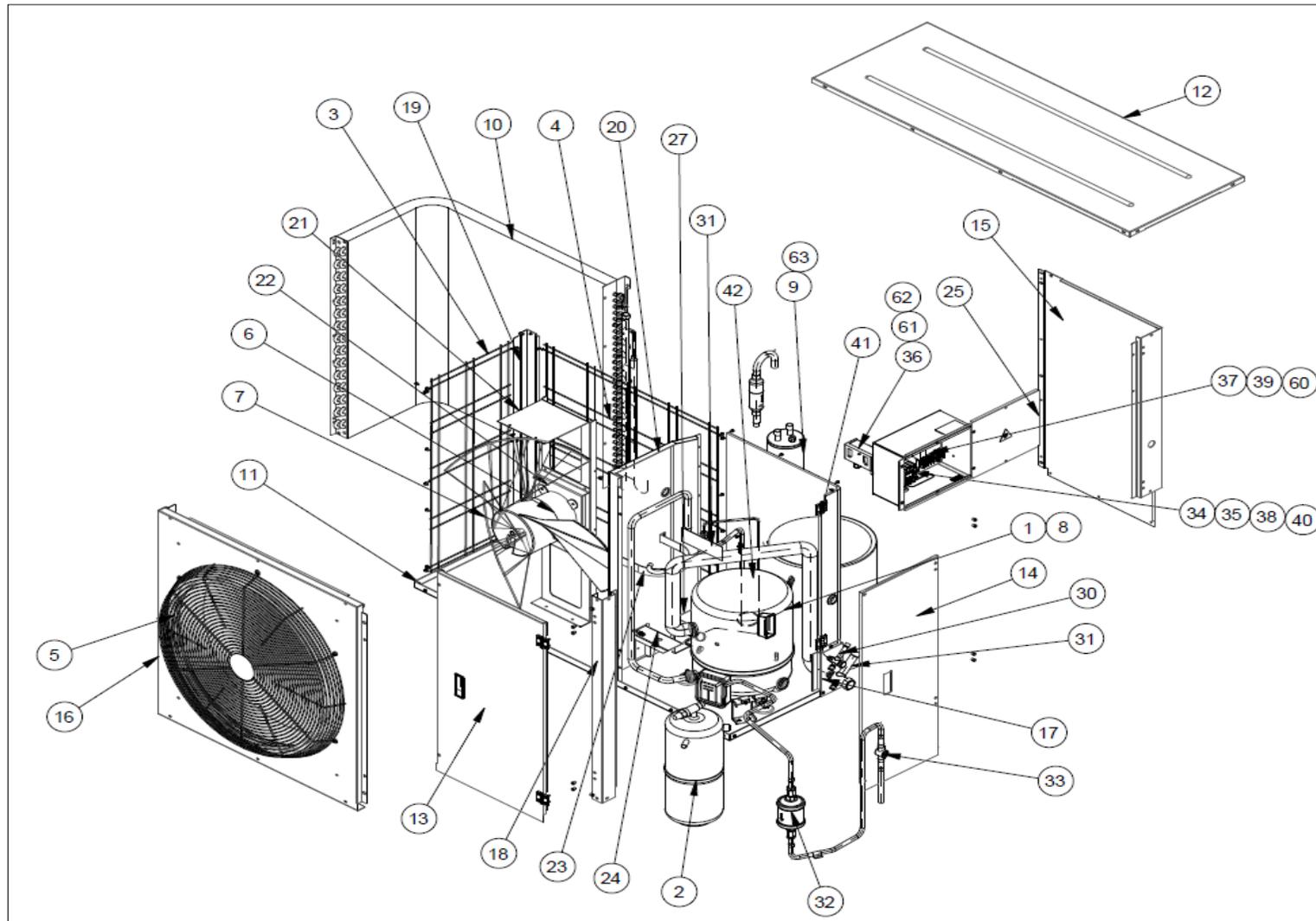
Warning! – Immediately shut off power of the unit if there is any event of accident or breakdown.

13. Exploded View

Series 2:

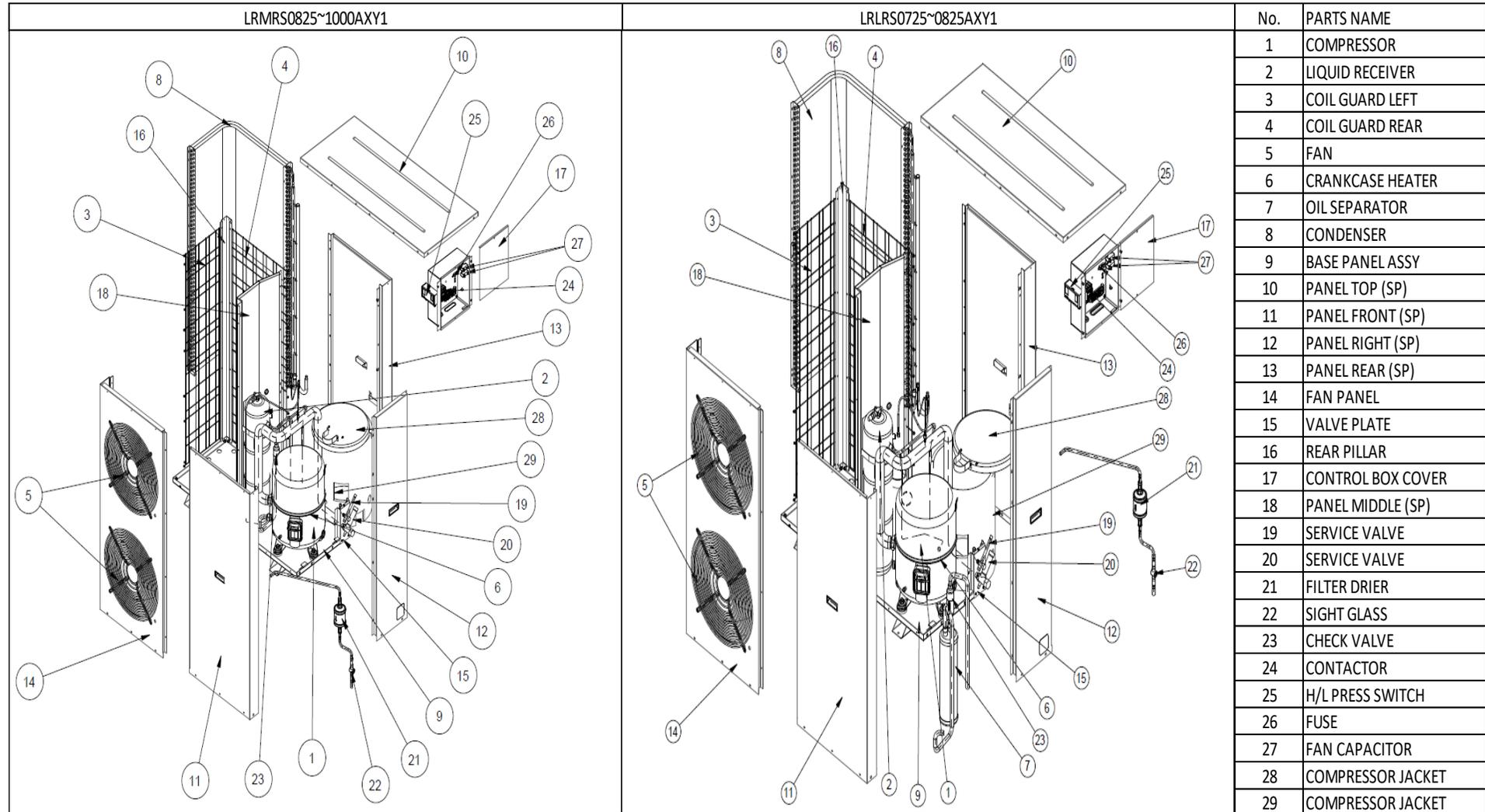


Series 3:



No.	PARTS NAME
1	COMPRESSOR
2	LIQUID RECEIVER
3	COIL GUARD LEFT
4	COIL GUARD REAR
5	FAN GUARD
6	FAN MOTOR
7	FAN PROPELLER
8	CRANKCASE HEATER
9	OIL SEPARATOR
10	CONDENSER
11	BASE PANEL ASSY
12	PANEL TOP (SP)
13	PANEL FRONT (SP)
14	PANEL RIGHT (SP)
15	PANEL REAR (SP)
16	FAN PANEL
17	VALVE PLATE
18	FRONT PILLAR
19	REAR PILLAR
20	PANEL MIDDLE (SP)
21	FAN BRACKET
22	FAN BRACKET ADAPTOR
23	LIQUID RECEIVER CLAMP
24	LIQUID RECEIVER BRACKET
25	CONTROL BOX COVER
27	OIL SEP BRACKET
30	SERVICE VALVE
31	SERVICE VALVE
32	HENRY FILTER DRIER
33	SIGHT GLASS
34	ABB
35	CONTACTOR
36	H/L PRESS SWITCH
37	FUSE
38	ABB DOOR HANDLE
39	RUN CAPACITOR
40	ABB AUXILIARY CONTACT
41	COMPRESSOR JACKET
42	COMPRESSOR JACKET
60	FAN CAPACITOR
61	FLEXIBLE HOSE (LOW SIDE)
62	FLEXIBLE HOSE (HIGH SIDE)
63	CAPILLARY TUBE (OIL RETURN)

Series 4:



No.	PARTS NAME
1	COMPRESSOR
2	LIQUID RECEIVER
3	COIL GUARD LEFT
4	COIL GUARD REAR
5	FAN
6	CRANKCASE HEATER
7	OIL SEPARATOR
8	CONDENSER
9	BASE PANEL ASSY
10	PANEL TOP (SP)
11	PANEL FRONT (SP)
12	PANEL RIGHT (SP)
13	PANEL REAR (SP)
14	FAN PANEL
15	VALVE PLATE
16	REAR PILLAR
17	CONTROL BOX COVER
18	PANEL MIDDLE (SP)
19	SERVICE VALVE
20	SERVICE VALVE
21	FILTER DRIER
22	SIGHT GLASS
23	CHECK VALVE
24	CONTACTOR
25	H/L PRESS SWITCH
26	FUSE
27	FAN CAPACITOR
28	COMPRESSOR JACKET
29	COMPRESSOR JACKET