Technical Manual

Condensing unit

for medium temperature application

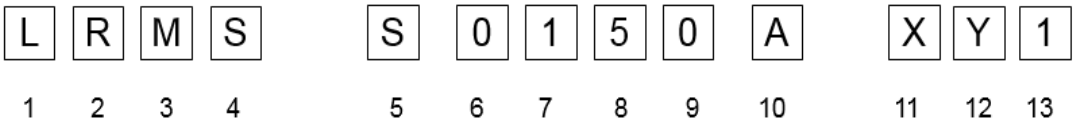
DRM Codes	DMSS Codes
JEHBSCU0200M1	LRMSS0200AXV1
JEHBSCU0200M3	LRMSS0200AXY1
JEHBSCU0250M1	LRMSS0250AXV1
JEHBSCU0250M3	LRMSS0250AXY1
JEHBSCU0300M1	LRMSS0300AXV1
JEHBSCU0300M3	LRMSS0300AXY1
JEHBSCU0350M1	LRMSS0350AXV1
JEHBSCU0350M3	LRMSS0350AXY1
JEHBSCU0400M1	LRMSS0400AXV1
JEHBSCU0400M3	LRMSS0400AXY1
JEHBSCU0500M3	LRMSS0500AXY1
JEHBSCU0600M3	LRMSS0600AXY1
JEHBSCU0680M3	LRMSS0680AXY1
JEHBSCU0800M3	LRMSS0800AXY1
JEHBSCU1000M3	LRMSS1000AXY1

Condensing unit

for low temperature application

DRM Codes	DMSS Codes
JEHBSCU0200L3	LRLSS0200AXY1
JEHBSCU0300L3	LRLSS0300AXY1
JEHBSCU0400L3	LRLSS0400AXY1
JEHBSCU0500L3	LRLSS0500AXY1
JEHBSCU0600L3	LRLSS0600AXY1
JEHSCU0750CL3	LRLSFS0750BXY1
JEHSCU0951CL3 EVI	LRLVFS0951BXY1

1. Nomenclature



Digit	Description
1	L – Daikin low temperature air conditioner
2	R – Outdoor Unit
3 & 4	LS – Low Temp. Scroll MS – Medium Temp. Scroll (propose) LSF – Low Temp. Scroll with Fan Speed Controller LVF – Low Temp. Scroll Vapor Injection with Fan Speed Controller
5	Refrigerant, S – R404A
6,7, 8 & 9	Compressor horse power, 0150 – 1.5HP
10	A – First revision B – Second 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

- Copeland hermetic scroll compressors
- 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 100^0C
- 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

Model		Electrical Data	Compressor							Fan Motors	
DRM codes	DMSS codes	Power Input	Type	Swept Volume (m3/h)	Oil type	Oil Charge (cm^3)	Operating Current (A)*	MCC (A)**	LRC (A)	No.	FLC (A)
JEHBSCU-0200-M1	LRMSS0200AXV1	230V/1-/50Hz	ZB15KQE-PFJ	5.9	Emkarate RL32-3MAF & Mobil Arctic 22CC	1240	7.7	18.5	58	1	0.6
JEHBSCU-0200-M3	LRMSS0200AXY1	400V/3-/50Hz	ZB15KQE-TFD	5.9		1240	3.1	7.0	26	1	0.6
JEHBSCU-0250-M1	LRMSS0250AXV1	230V/1-/50Hz	ZB19KQE-PFJ	6.8		1300	9.6	20.5	61	1	0.6
JEHBSCU-0250-M3	LRMSS0250AXY1	400V/3-/50Hz	ZB19KQE-TFD	6.8		1360	4.1	7.0	32	1	0.6
JEHBSCU-0300-M1	LRMSS0300AXV1	230V/1-/50Hz	ZB21KQE-PFJ	8.6		1450	12.6	21.5	82	1	0.6
JEHBSCU-0300-M3	LRMSS0300AXY1	400V/3-/50Hz	ZB21KQE-TFD	8.6		1450	5.0	10.3	40	1	0.6
JEHBSCU-0350-M1	LRMSS0350AXV1	230V/1-/50Hz	ZB26KQE-PFJ	9.9		1500	13.9	25.0	97	1	1.1
JEHBSCU-0350-M3	LRMSS0350AXY1	400V/3-/50Hz	ZB26KQE-TFD	9.9		1500	5.5	9.0	46	1	1.1
JEHBSCU-0400-M1	LRMSS0400AXV1	230V/1-/50Hz	ZB29KQE-PFJ	11.4		1360	15.6	28.0	114	1	1.1
JEHBSCU-0400-M3	LRMSS0400AXY1	400V/3-/50Hz	ZB29KQE-TFD	11.4		1360	7.0	11.0	50	1	1.1
JEHBSCU-0500-M3	LRMSS0500AXY1	400V/3-/50Hz	ZB38KQE-TFD	14.4		2070	9.4	13.5	66	1	1.1
JEHBSCU-0600-M3	LRMSS0600AXY1	400V/3-/50Hz	ZB45KQE-TFD	17.1		1890	9.7	14.2	74	1	1.1
JEHBSCU-0680-M3	LRMSS0680AXY1	400V/3-/50Hz	ZB48KQE-TFD	18.8		1800	9.9	19.1	101	1	1.1
JEHBSCU-0800-M3	LRMSS0800AXY1	400V/3-/50Hz	ZB58KCE-TFD	22.1		2500	12.4	23.0	95	2	1.2
JEHBSCU-1000-M3	LRMSS1000AXY1	400V/3-/50Hz	ZB76KCE-TFD	29.1		3200	16.8	28.0	118	2	1.2
JEHBSCU-0200-L3	LRLSS0200AXY1	400V/3-/50Hz	ZF06KQE-TFD	5.9	Emkarate RL32-3MAF & Mobil Arctic 22CC	1300	2.9	6.0	26	1	0.6
JEHBSCU-0300-L3	LRLSS0300AXY1	400V/3-/50Hz	ZF09KQE-TFD	8.0		1500	4.8	6.5	40	1	0.6
JEHBSCU-0400-L3	LRLSS0400AXY1	400V/3-/50Hz	ZF13KQE-TFD	11.8		1900	5.2	10.0	52	1	1.1
JEHBSCU-0500-L3	LRLSS0500AXY1	400V/3-/50Hz	ZF15KQE-TFD	14.5		1900	6.8	12.0	64	1	1.1
JEHBSCU-0600-L3	LRLSS0600AXY1	400V/3-/50Hz	ZF18KQE-TFD	17.1		1900	7.2	12.5	74	1	1.1
JEHSCU0750CL3	LRLSFS0750BXY1	400V/3-/50Hz	ZF25K5E-TFD	21.4		1900	6.9	16.6	102	2	1.2
JEHSCU0951CL3 EVI	LRLVFS0951BXY1	400V/3-/50Hz	ZFI26KQE-TFD	17.1		1900	7.3	13.0	74	2	1.2

Model		Coil Volume (Litre)	Condenser Airflow (m^3/h)	Receiver volume (Litre)	Connections		Dimensions			Weight (kg)	Sound pressure dB(A) at 10m***
DRM Codes	DMSS Codes				Suction (inch)	Liquid (inch)	Width (mm)	Depth (mm)	Height (mm)		
JEHBSCU-0200-M1	LRMSS0200AXV1	3.1	2620	4.6	3/4	3/8	1109	478	649	88	37
JEHBSCU-0200-M3	LRMSS0200AXY1	3.1	2620	4.6	3/4	3/8	1109	478	649	88	37
JEHBSCU-0250-M1	LRMSS0250AXV1	3.1	2620	4.6	3/4	3/8	1109	478	649	90	37
JEHBSCU-0250-M3	LRMSS0250AXY1	3.1	2620	4.6	3/4	3/8	1109	478	649	90	37
JEHBSCU-0300-M1	LRMSS0300AXV1	3.1	2620	4.6	3/4	3/8	1109	478	649	92	39
JEHBSCU-0300-M3	LRMSS0300AXY1	3.1	2620	4.6	3/4	3/8	1109	478	649	92	39
JEHBSCU-0350-M1	LRMSS0350AXV1	4.7	6050	7.6	3/4	1/2	1335	529	884	114	38
JEHBSCU-0350-M3	LRMSS0350AXY1	4.7	6050	7.6	3/4	1/2	1335	529	884	114	38
JEHBSCU-0400-M1	LRMSS0400AXV1	4.7	6050	7.6	7/8	1/2	1335	529	884	121	37
JEHBSCU-0400-M3	LRMSS0400AXY1	4.7	6050	7.6	7/8	1/2	1335	529	884	121	37
JEHBSCU-0500-M3	LRMSS0500AXY1	4.7	6050	7.6	7/8	1/2	1335	529	884	126	38
JEHBSCU-0600-M3	LRMSS0600AXY1	7.6	5180	7.6	7/8	1/2	1335	529	884	128	43
JEHBSCU-0680-M3	LRMSS0680AXY1	7.6	5180	7.6	7/8	1/2	1335	529	884	129	43
JEHBSCU-0800-M3	LRMSS0800AXY1	6.9	6770	14	1 1/8	1/2	1261	594	1435	201	47
JEHBSCU-1000-M3	LRMSS1000AXY1	6.9	6770	14	1 3/8	1/2	1261	594	1435	201	47
JEHBSCU-0200-L3	LRLSS0200AXY1	3.1	2620	4.6	3/4	3/8	1109	478	649	94	32
JEHBSCU-0300-L3	LRLSS0300AXY1	3.1	2620	4.6	3/4	3/8	1109	478	649	96	33
JEHBSCU-0400-L3	LRLSS0400AXY1	4.7	6050	7.6	7/8	1/2	1335	529	884	129	38
JEHBSCU-0500-L3	LRLSS0500AXY1	4.7	6050	7.6	7/8	1/2	1335	529	884	130	39
JEHBSCU-0600-L3	LRLSS0600AXY1	4.7	6050	7.6	7/8	1/2	1335	529	884	130	44
JEHSCU0750CL3	LRLSFS0750BXY1	4.1	5750	13.6	1 1/8	1/2	1348	612	1727	203	41
JEHSCU0951CL3 EVI	LRLVFS0951BXY1	8.7	5870	13.6	7/8	1/2	1348	612	1727	200	37

Refer to condition:

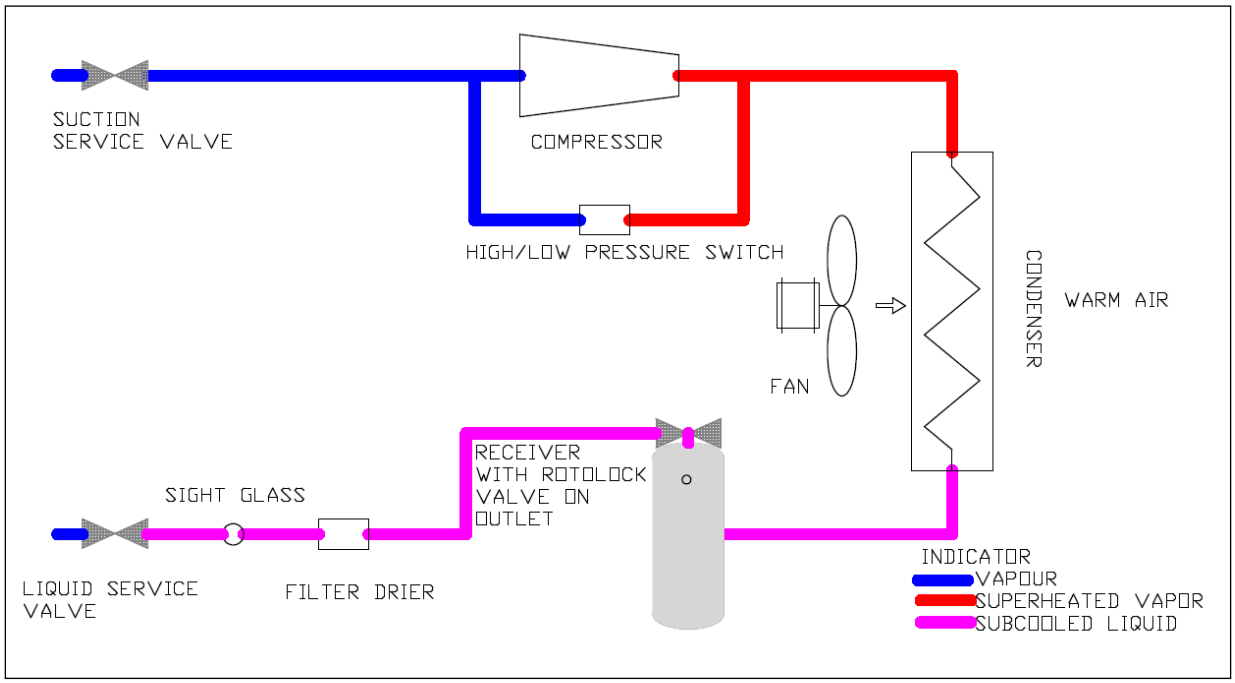
* Evaporation temperature = -10°C, Outside ambient temperature = 32°C (Medium temperature application, R404A)
Evaporation temperature = -35°C, Outside ambient temperature = 32°C (Low temperature application, R404A)

** MCC= Maximum Continuous Current

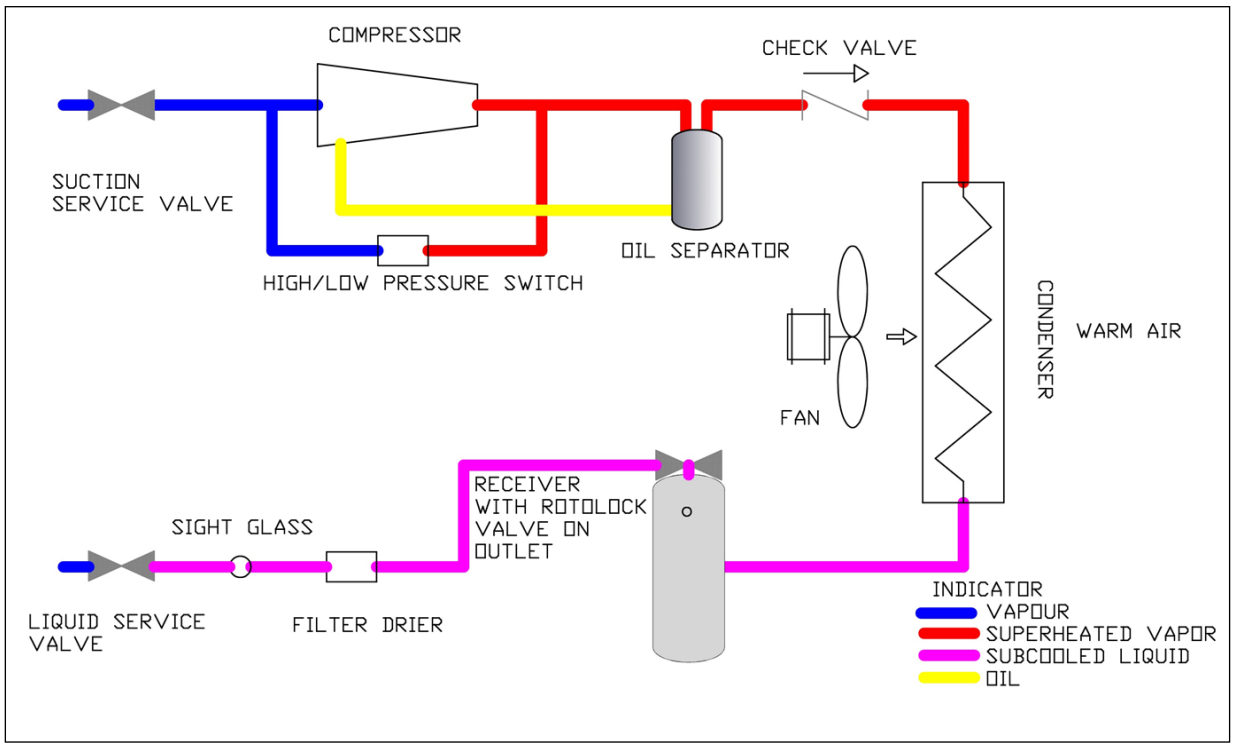
*** Sound Pressure Level measured in an anechoic room at (-10/+32°C) MT & (-25/+32°C) LT conditions. Alternative conditions may produce different results.

4. Product System Cycle

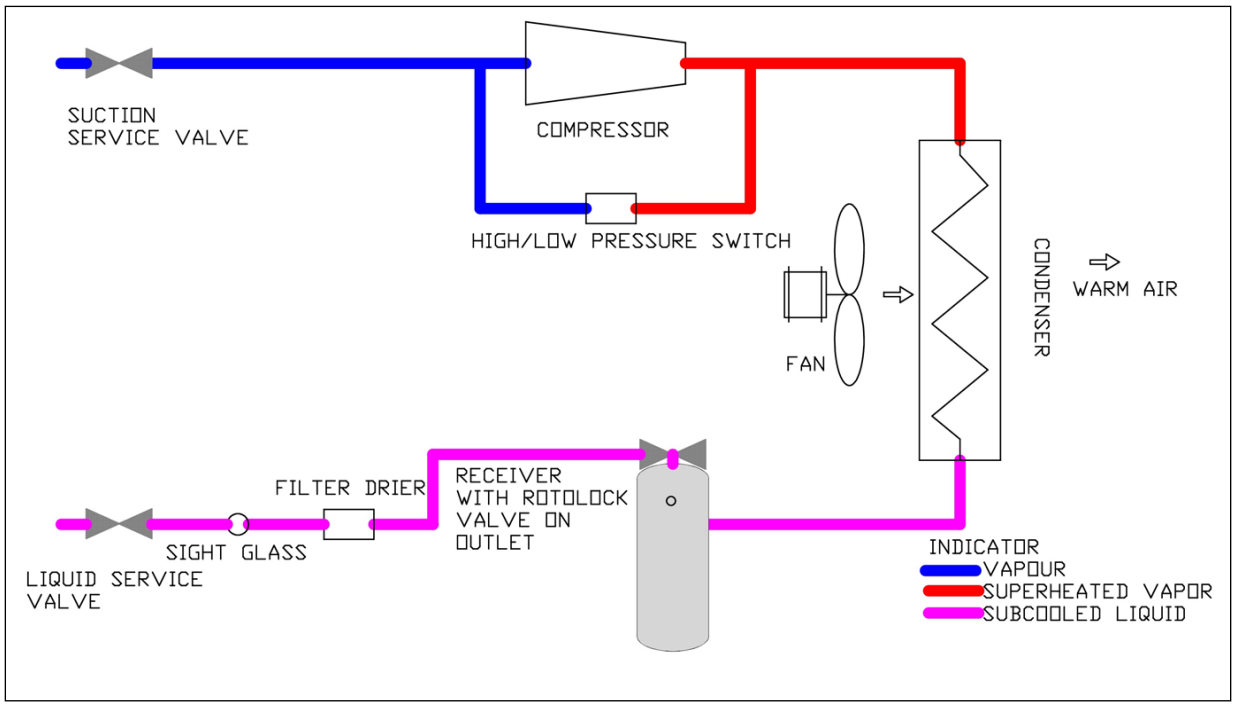
Series 2 MT : JEHBSCU0200M~JEHBSCU0300M
LRMSS0200~ LRMSS0300



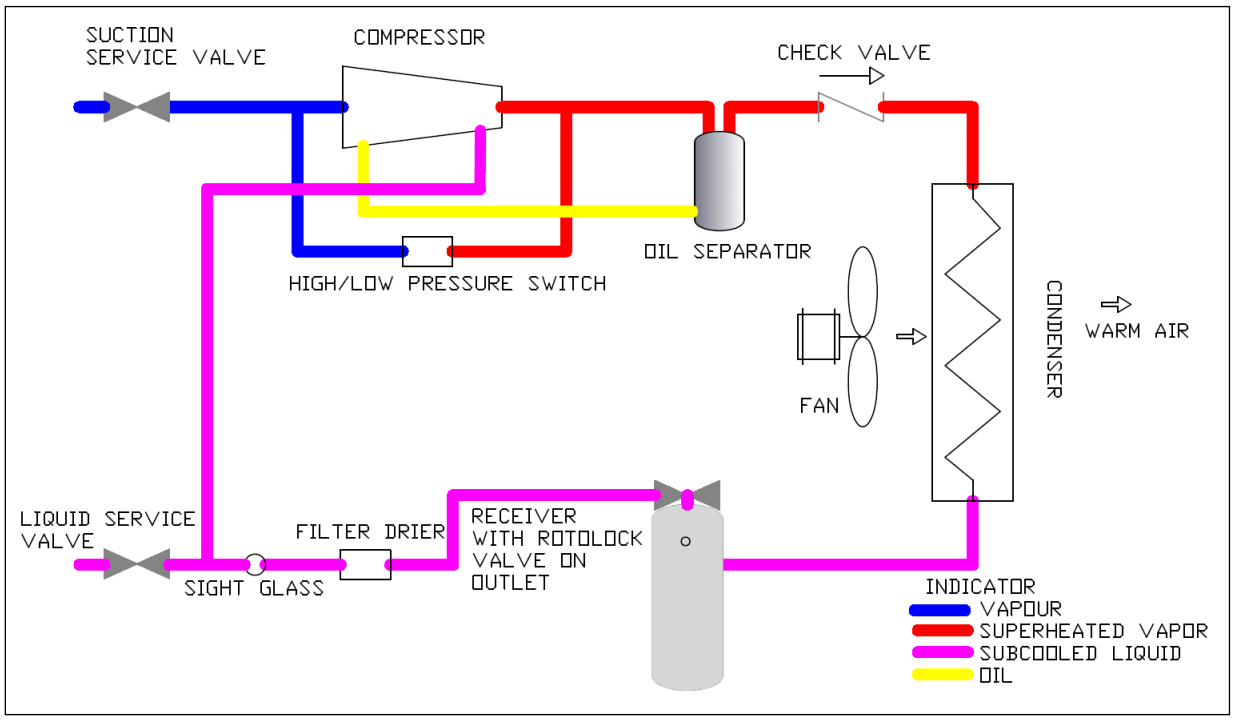
Series 2 LT : JEHBSCU0200L3 & JEHBSCU0300L3
LRLSS0200 & LRLSS0300



Series 3 MT : JEHBSCU0350M~JEHBSCU0680M
LRMSS0350~ LRMSS0680

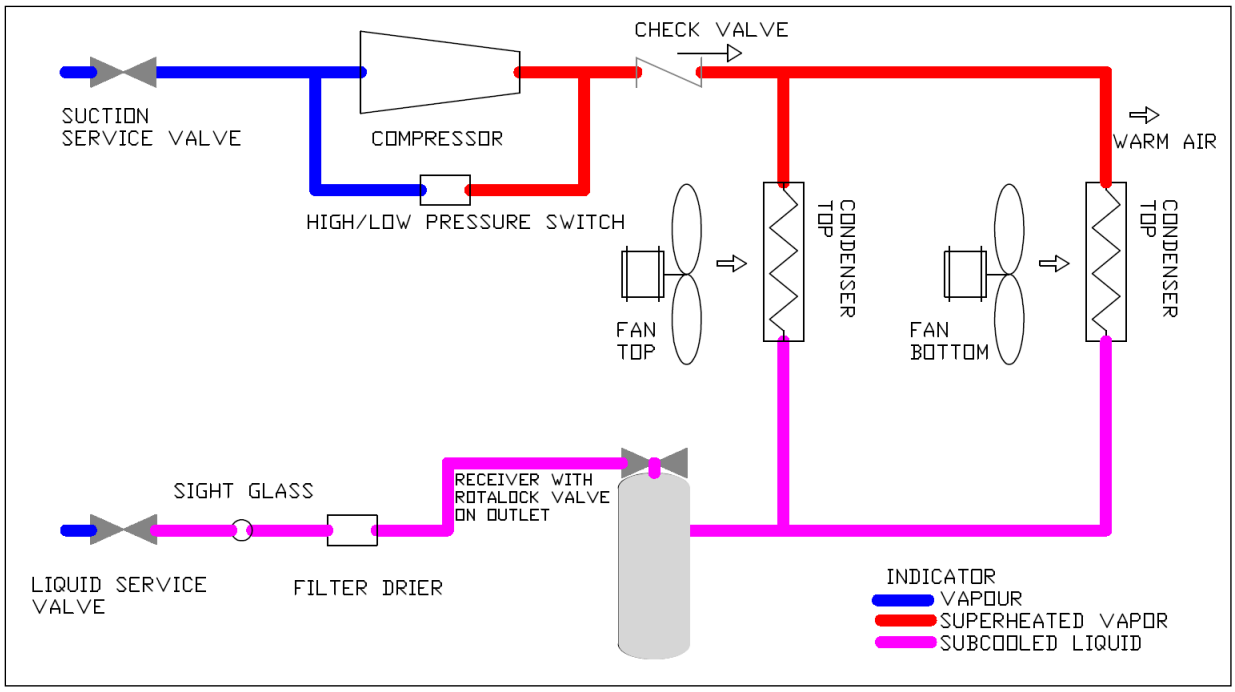


Series 3 LT : JEHBSCU0400L3~JEHBSCU0600L3
LRLSS0400~ LRLSS0600



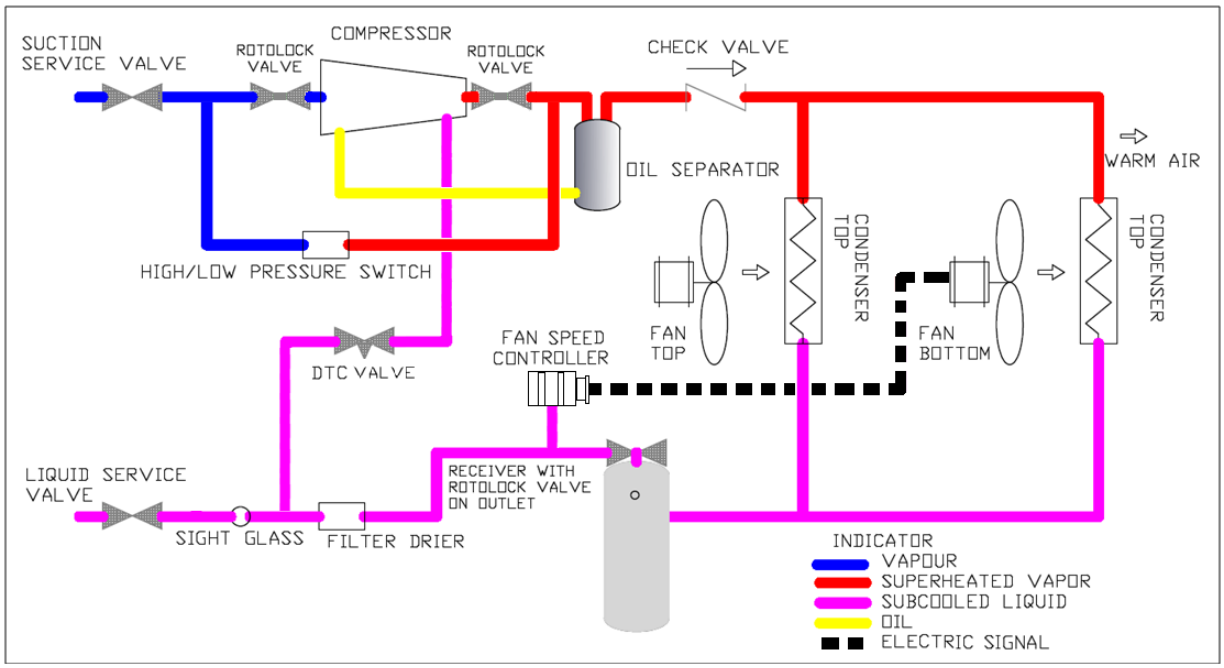
Series 4 MT : JEHBSCU0800M3~JEHBSCU1000M3

LRMSS0800~ LRMSS1000



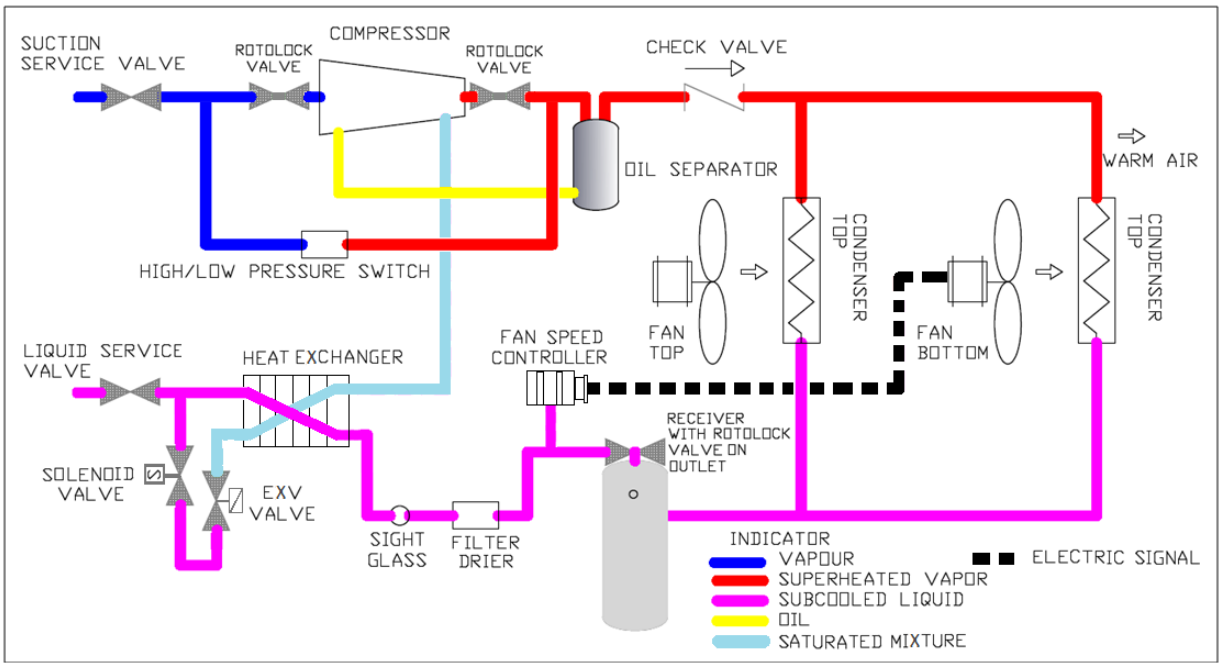
Series 4 LT : JEHSCU0750CL3

LRLSFS0750



Series 4 LT EVI : JEHSCU0951CL3 EVI

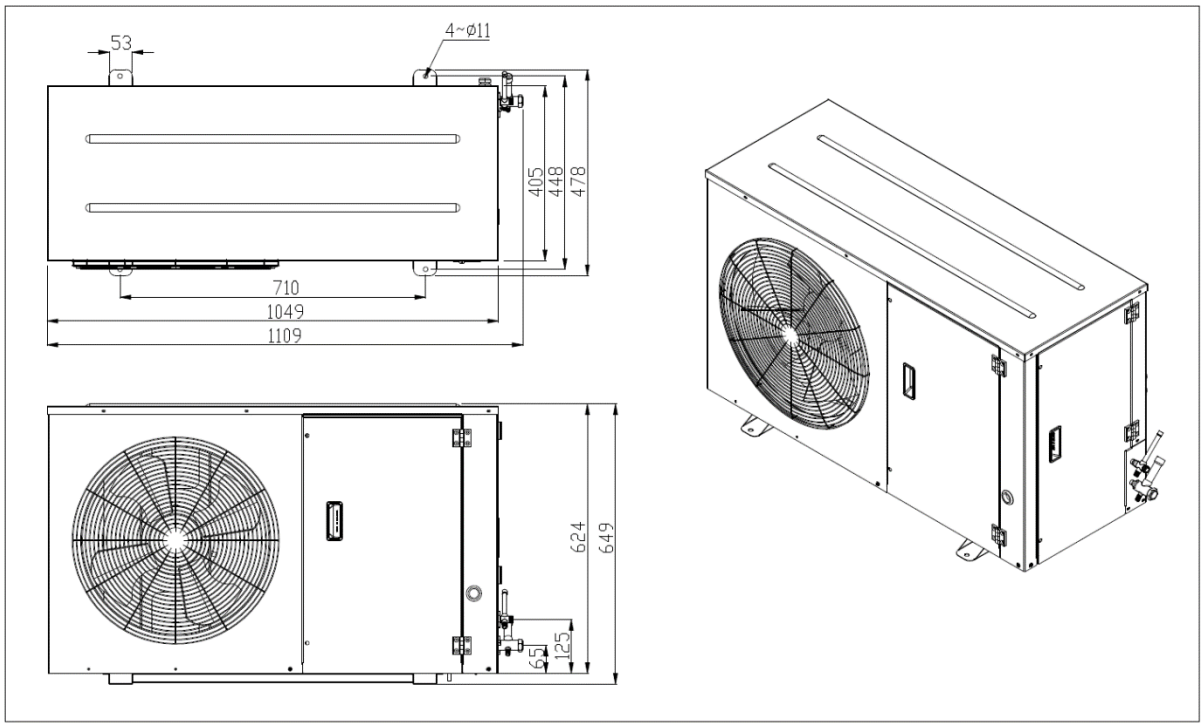
LRLVFS0951



5. Outline Drawings

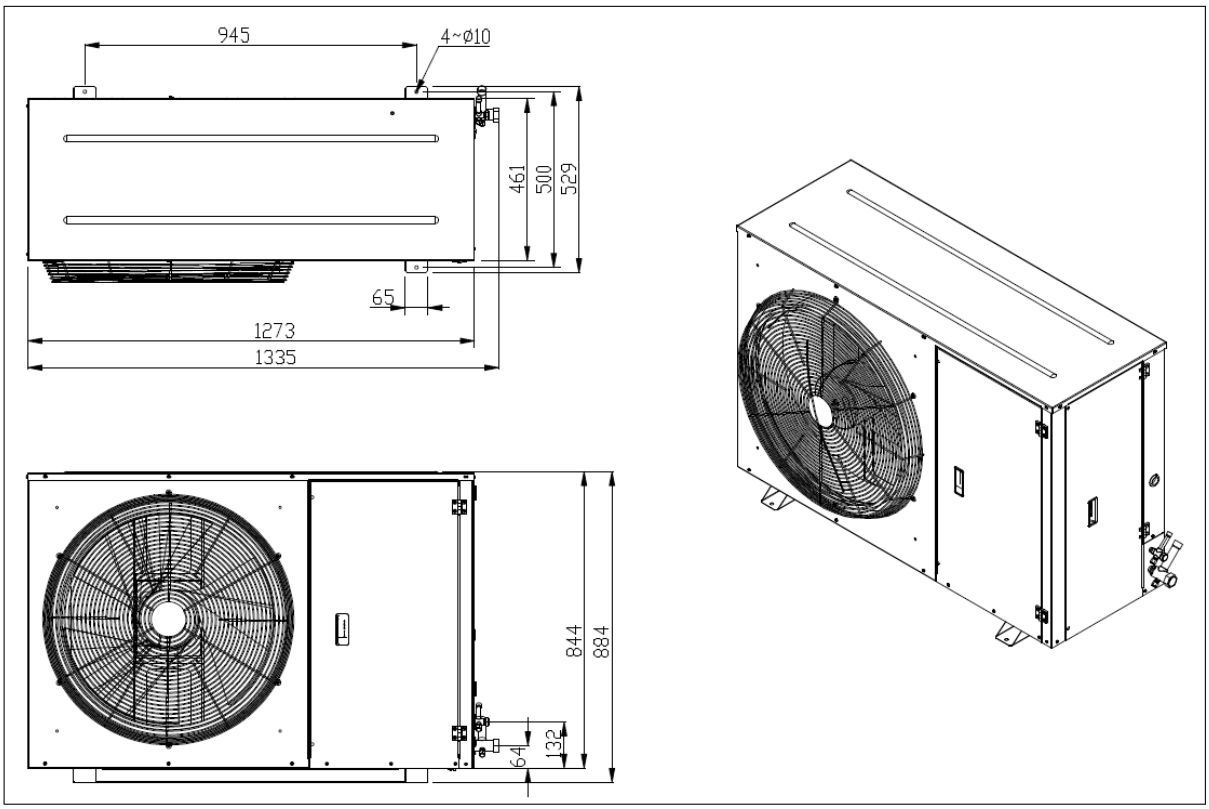
Series 2: JEHBSCU0200~JEHBSCU0300;

LRMSS0200~ LRMSS0300; LRLSS0200 & LRLSS0300



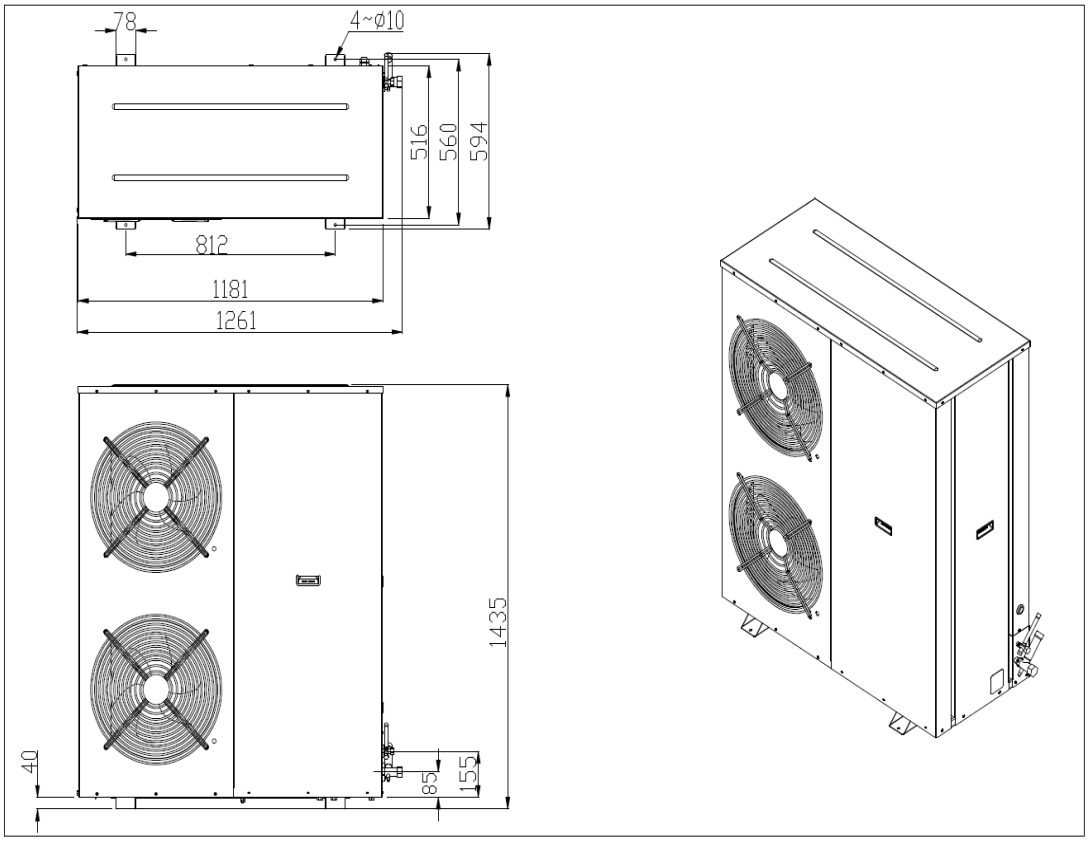
Series 3: JEHBSCU0350~JEHBSCU0680

LRMSS0350~ LRMSS0680; LRLSS0400~ LRLSS0600



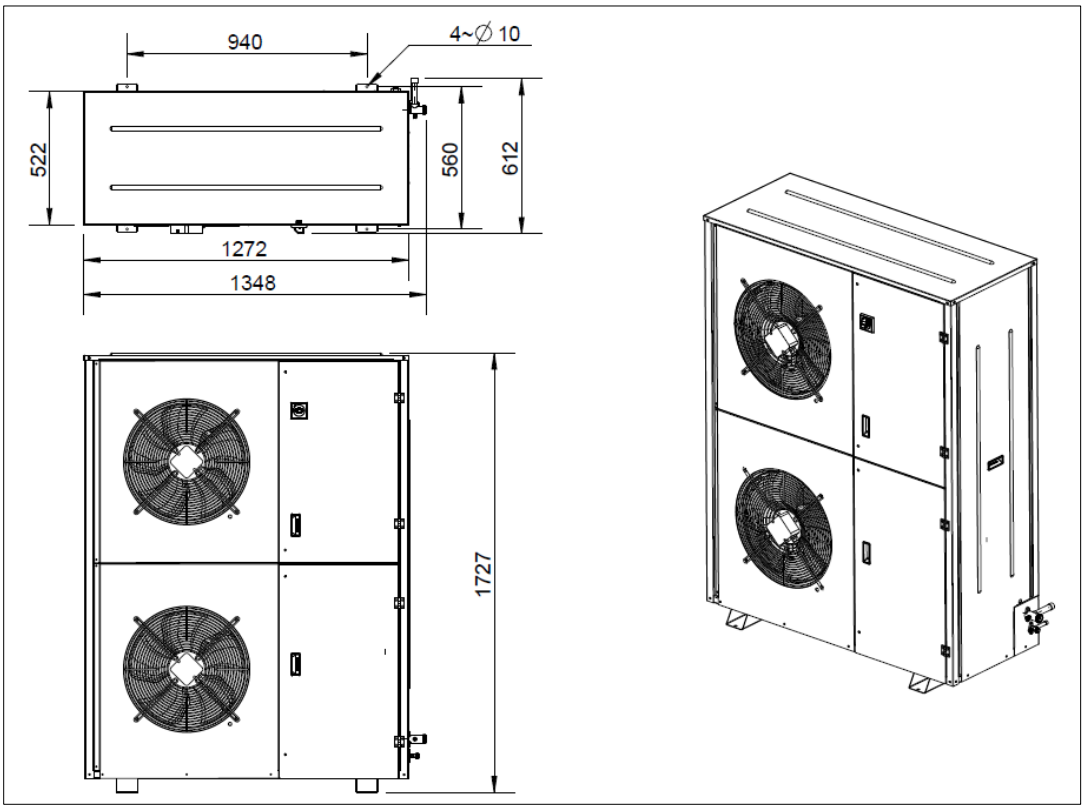
Series 4 MT: JEHBSCU0800~JEHBSCU1000

LRMSS0800~ LRMSS1000



Series 4 LT: JEHSCU0750~JEHSCU0951

LRLSFS0750~ LRLVFS0951



6. Performance Data

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

		MODEL		HP	TE / TA		-20	-15	-10	-5	0	5
		DRM Codes	DMSS Codes									
MEDIUM TEMPERATURE	Series 2	JEHBSCU0200M1	LRMSS0200AXV1	2.0	27	CC (W)	2688	3279	3924	4676	5536	6470
		JEHBSCU0200M3	LRMSS0200AXY1			PC (W)	1460	1510	1560	1600	1630	1655
					32	CC (W)	2489	3032	3655	4354	5160	6038
						PC (W)	1590	1630	1680	1720	1760	1799
					38	CC (W)	2231	2736	3279	3978	4730	5587
						PC (W)	1770	1810	1860	1900	1940	1979
		JEHBSCU0250M1	LRMSS0250AXV1	2.5	27	CC (W)	2956	3655	4408	5321	6289	7373
		JEHBSCU0250M3	LRMSS0250AXY1			PC (W)	1910	1940	1970	2000	2040	2077
					32	CC (W)	2790	3440	4193	4999	5966	6994
						PC (W)	2030	2060	2100	2130	2170	2208
					38	CC (W)	2575	3171	3870	4676	5644	6704
						PC (W)	2200	2240	2270	2300	2320	2336
		JEHBSCU0300M1	LRMSS0300AXV1	3.0	27	CC (W)	3655	4515	5429	6558	7794	9169
		JEHBSCU0300M3	LRMSS0300AXY1			PC (W)	2480	2520	2570	2610	2670	2726
					32	CC (W)	3440	4246	5160	6235	7364	8643
						PC (W)	2630	2670	2730	2770	2830	2885
					38	CC (W)	3225	3978	4838	5805	6934	8159
						PC (W)	2830	2880	2930	2970	3020	3061
	Series 3	JEHBSCU0350M1	LRMSS0350AXV1	3.5	27	CC (W)	4569	5590	6773	8224	9783	11577
		JEHBSCU0350M3	LRMSS0350AXY1			PC (W)	2630	2660	2700	2730	2780	2826
					32	CC (W)	4246	5214	6343	7633	9138	10793
						PC (W)	2850	2890	2930	2970	3020	3067
					38	CC (W)	3816	4676	5698	6934	8278	9826
						PC (W)	3190	3230	3270	3310	3350	3390
		JEHBSCU0400M1	LRMSS0400AXV1	4.0	27	CC (W)	5149	6343	7697	9256	11019	12960
		JEHBSCU0400M3	LRMSS0400AXY1			PC (W)	3040	3080	3130	3180	3230	3285
					32	CC (W)	4816	5913	7192	8643	10309	12145
						PC (W)	3280	3330	3390	3440	3500	3558
					38	CC (W)	4300	5311	6472	7805	9342	11031
						PC (W)	3670	3720	3780	3830	3880	3929
		JEHBSCU0500M3	LRMSS0500AXY1	5.0	27	CC (W)	6289	7686	9299	11073	13169	15426
						PC (W)	3920	4010	4100	4190	4290	4387
					32	CC (W)	5805	7149	8654	10374	12309	14427
						PC (W)	4270	4350	4440	4520	4610	4698
					38	CC (W)	5214	6396	7740	9353	11126	13126
						PC (W)	4740	4840	4930	5020	5110	5194

TE: Evaporating Temperature (ºC) CC: Cooling Capacity (W), ± 10%

TA: Ambient Temperature (ºC) PC: Power consumption (W), ± 10%

Rating Condition: Superheat 10K, Sub cooling 0K

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

		MODEL		HP	TE		-20	-15	-10	-5	0	5
		DRM Codes	DMSS Codes		TA							
MEDIUM TEMPERATURE	Series 3	JEHBSCU0600M3	LRMSS0600AXY1	6.0	27	CC (W)	7149	8708	10535	12578	14835	17340
						PC (W)	4560	4660	4770	4890	5030	5177
					32	CC (W)	6611	8116	9836	11718	13921	16286
						PC (W)	4940	5050	5150	5300	5400	5534
					38	CC (W)	5966	7310	8869	10589	12524	14642
						PC (W)	5450	5550	5700	5800	5950	6090
		JEHBSCU0680M3	LRMSS0680AXY1	6.8	27	CC (W)	7686	9406	11288	13491	15856	18479
						PC (W)	5090	5210	5350	5500	5700	5908
					32	CC (W)	7203	8761	10589	12524	14835	17297
						PC (W)	5450	5600	5750	5950	6100	6290
					38	CC (W)	6450	7848	9514	11341	13330	15545
						PC (W)	6050	6200	6350	6550	6750	6980
	Series 4	JEHBSCU0800M3	LRMSS0800AXY1	8.0	27	CC (W)	8987	11288	13814	16501	19511	22689
						PC (W)	6010	6150	6350	6580	6830	7129
					32	CC (W)	8310	10503	12900	15426	18221	21162
						PC (W)	6450	6610	6800	7050	7300	7604
					38	CC (W)	7321	9385	11610	13975	16501	19174.78
						PC (W)	7120	7280	7480	7730	7990	8301
		JEHBSCU1000M3	LRMSS1000AXY1	10.0	27	CC (W)	11395	13814	16448	19296	22253	-
						PC (W)	8320	8720	9170	9660	10200	-
					32	CC (W)	10503	12793	15265	17845	20586	-
						PC (W)	8930	9350	9810	10310	10860	-
					38	CC (W)	9310	11449	13706	16179	18759	-
						PC (W)	9810	10210	10660	11110	11610	-

TE: Evaporating Temperature (ºC) CC: Cooling Capacity (W), ± 10%

TA: Ambient Temperature (ºC) PC: Power consumption (W), ± 10%

Rating Condition: Superheat 10K, Sub cooling 0K

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

MODEL				HP	TE / TA		-40	-35	-30	-25	-20
		DRM Codes	DMSS Codes								
LOW TEMPERATURE	Series 2	JEHBSCU0200L3	LRLSS0200AXY1	2.0	27	CC (W)	1156	1451	1790	2182	2634
						PC (W)	1390	1480	1580	1690	1800
					32	CC (W)	1075	1355	1677	2053	2483
						PC (W)	1480	1570	1670	1770	1890
					38	CC (W)	984	1247	1553	1914	2333
						PC (W)	1610	1690	1780	1870	1980
		JEHBSCU0300L3	LRLSS0300AXY1	3.0	27	CC (W)	1500	1892	2333	2827	3386
						PC (W)	1760	1830	1910	2020	2150
					32	CC (W)	1414	1768	2193	2666	3225
						PC (W)	1880	1950	2020	2120	2240
					38	CC (W)	1306	1650	2048	2510	3042
						PC (W)	2030	2080	2140	2230	2330
	Series 3	JEHBSCU0400L3	LRLSS0400AXY1	4.0	27	CC (W)	2225	2865	3601	4408	5375
						PC (W)	2200	2300	2420	2560	2720
					32	CC (W)	2086	2671	3333	4139	5053
						PC (W)	2360	2470	2590	2730	2880
					38	CC (W)	1914	2446	3075	3816	4676
						PC (W)	2580	2680	2790	2920	3050
		JEHBSCU0500L3	LRLSS0500AXY1	5.0	27	CC (W)	2682	3440	4300	5268	6343
						PC (W)	2600	2790	3000	3220	3470
					32	CC (W)	2505	3225	4031	4945	5966
						PC (W)	2790	2990	3200	3420	3670
					38	CC (W)	2295	2951	3709	4569	5590
						PC (W)	3040	3230	3430	3640	3860
		JEHBSCU0600L3	LRLSS0600AXY1	6.0	27	CC (W)	3279	4139	5053	6128	7364
						PC (W)	2980	3410	3630	3870	4140
					32	CC (W)	3064	3870	4730	5751	6934
						PC (W)	3190	3630	3840	4080	4340
					38	CC (W)	2817	3548	4408	5429	6558
						PC (W)	3430	3860	4060	4280	4510
	Series 4	JEHSCU0750CL3	LRLSFS0750BXY1	7.5	27	CC (W)	3980	4990	6150	7510	9100
						PC (W)	3290	3620	3970	4330	4690
					32	CC (W)	3620	4560	5650	6930	8430
						PC (W)	3540	3880	4230	4590	4960
					38	CC (W)	3170	4040	5040	6220	7610
						PC (W)	3880	4230	4590	4960	5330
		JEHSCU0951CL3 EVI	LRLVFS0951BXY1	9.5	27	CC (W)	4965	5995	7196	8600	10241
						PC (W)	3963	4156	4339	4515	4683
					32	CC (W)	4951	5921	7054	8381	9937
						PC (W)	4244	4491	4731	4965	5192
					38	CC (W)	4930	5790	6823	8064	9544
						PC (W)	4953	5214	5463	5698	5920

TE: Evaporating Temperature (ºC) CC: Cooling Capacity (W), ± 10%

TA: Ambient Temperature (ºC) PC: Power consumption (W), ± 10%

Rating Condition: Superheat 10K, Sub cooling 0K

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

MODEL				HP	TE		-15	-10	-5	0	5	10	15
		DRM Codes	DMSS Codes		TA								
MEDIUM TEMPERATURE	Series 2	JEHBSCU0200M1	LRMSS0200AXV1	2.0	27	CC (W)	1840	2305	2830	3450	4150	4950	5850
		JEHBSCU0200M3	LRMSS0200AXY1			PC (W)	931	953	992	1027	1066	1109	1150
					32	CC (W)	1735	2175	2680	3250	3950	4700	5550
						PC (W)	1016	1045	1086	1124	1160	1210	1250
					38	CC (W)	1610	2015	2490	3050	3700	4400	5200
						PC (W)	1128	1170	1210	1250	1300	1340	1390
		JEHBSCU0250M1	LRMSS0250AXV1	2.5	27	CC (W)	2105	2625	3250	3900	4700	5600	6600
		JEHBSCU0250M3	LRMSS0250AXY1			PC (W)	1055	1088	1135	1180	1230	1290	1340
					32	CC (W)	1985	2475	3050	3700	4500	5350	6300
						PC (W)	1150	1200	1240	1290	1350	1400	1460
					38	CC (W)	1840	2285	2830	3450	4150	5000	5900
						PC (W)	1280	1340	1390	1450	1500	1560	1620
		JEHBSCU0300M1	LRMSS0300AXV1	3.0	27	CC (W)	2600	3250	3950	4800	5750	6900	8000
		JEHBSCU0300M3	LRMSS0300AXY1			PC (W)	1310	1350	1420	1490	1570	1620	1750
					32	CC (W)	2450	3050	3750	4550	5450	6450	7550
						PC (W)	1430	1500	1560	1630	1720	1810	1900
					38	CC (W)	2265	2800	3450	4200	5050	6000	7050
						PC (W)	1600	1690	1740	1830	1910	2010	2110
	Series 3	JEHBSCU0350M1	LRMSS0350AXV1	3.5	27	CC (W)	3100	3900	4800	5900	7150	8550	10150
		JEHBSCU0350M3	LRMSS0350AXY1			PC (W)	1490	1510	1560	1600	1650	1710	1770
					32	CC (W)	2950	3700	4550	5600	6800	8150	9650
						PC (W)	1620	1660	1710	1760	1810	1860	1920
					38	CC (W)	2720	3400	4250	5200	6350	7600	9050
						PC (W)	1800	1860	1910	1960	2010	2070	2130
		JEHBSCU0400M1	LRMSS0400AXV1	4.0	27	CC (W)	3600	4550	5600	6850	8250	9900	11700
		JEHBSCU0400M3	LRMSS0400AXY1			PC (W)	1700	1740	1800	1860	1930	2000	2070
					32	CC (W)	3400	4300	5300	6500	7850	9400	11100
						PC (W)	1860	1920	1980	2040	2110	2180	2260
					38	CC (W)	3150	3950	4950	6050	7300	8800	10400
						PC (W)	2070	2150	2210	2280	2350	2430	2510
		JEHBSCU0500M3	LRMSS0500AXY1	5.0	27	CC (W)	4400	5450	6750	8200	9850	11700	13750
						PC (W)	2170	2230	2330	2430	2530	2650	2780
					32	CC (W)	4100	5150	6350	7750	9300	11100	13050
						PC (W)	2370	2470	2560	2670	2780	2900	3040
					38	CC (W)	3800	4750	5900	7200	8650	10350	12150
						PC (W)	2650	2790	2870	2990	3110	3240	3390
		JEHBSCU0600M3	LRMSS0600AXY1	6.0	27	CC (W)	5250	6550	8050	9800	11700	13850	16100
						PC (W)	2390	2490	2620	2750	2890	3040	3210
					32	CC (W)	4950	6150	7600	9250	11100	13150	15300
						PC (W)	2630	2760	2890	3030	3180	3320	3520
					38	CC (W)	4550	5600	7000	8550	10250	12150	14200
						PC (W)	2960	3140	3250	3400	3560	3740	3930
		JEHBSCU0680M3	LRMSS0680AXY1	6.8	27	CC (W)	5963	7389	8957	10712	12687	14851	16958
						PC (W)	2814	2982	3155	3346	3559	3801	3687
					32	CC (W)	5588	6928	8420	10082	11959	14015	15972
						PC (W)	3100	3311	3528	3758	3970	4201	4142
					38	CC (W)	5124	6363	7765	9304	11074	13012	14799
						PC (W)	3453	3715	3983	4266	4469	4681	4683
	Series 4	JEHBSCU0800M3	LRMSS0800AXY1	8.0	27	CC (W)	6700	8300	10150	12350	14600	17200	20100
						PC (W)	3270	3410	3600	3750	4010	4190	4320
					32	CC (W)	6300	7800	9550	11650	13750	16300	19000
						PC (W)	3600	3760	3960	4130	4400	4580	4730
					38	CC (W)	5800	7200	8850	10800	12750	15100	17700
						PC (W)	4030	4220	4440	4620	4910	5100	5250
		JEHBSCU1000M3	LRMSS1000AXY1	10.0	27	CC (W)	8600	10550	12850	15400	18200	21300	24500
						PC (W)	4370	4610	4910	5240	5610	5910	6210
					32	CC (W)	8050	9900	12050	14450	17100	20000	23100
						PC (W)	4820	5080	5410	5760	6110	6460	6760
					38	CC (W)	7450	9100	11050	13300	15800	18500	21400
						PC (W)	5410	5710	6060	6410	6810	7160	7460

TE: Evaporating Temperature (ºC) CC: Cooling Capacity (W), ± 10%

TA: Ambient Temperature (ºC) PC: Power consumption (W), ± 10%

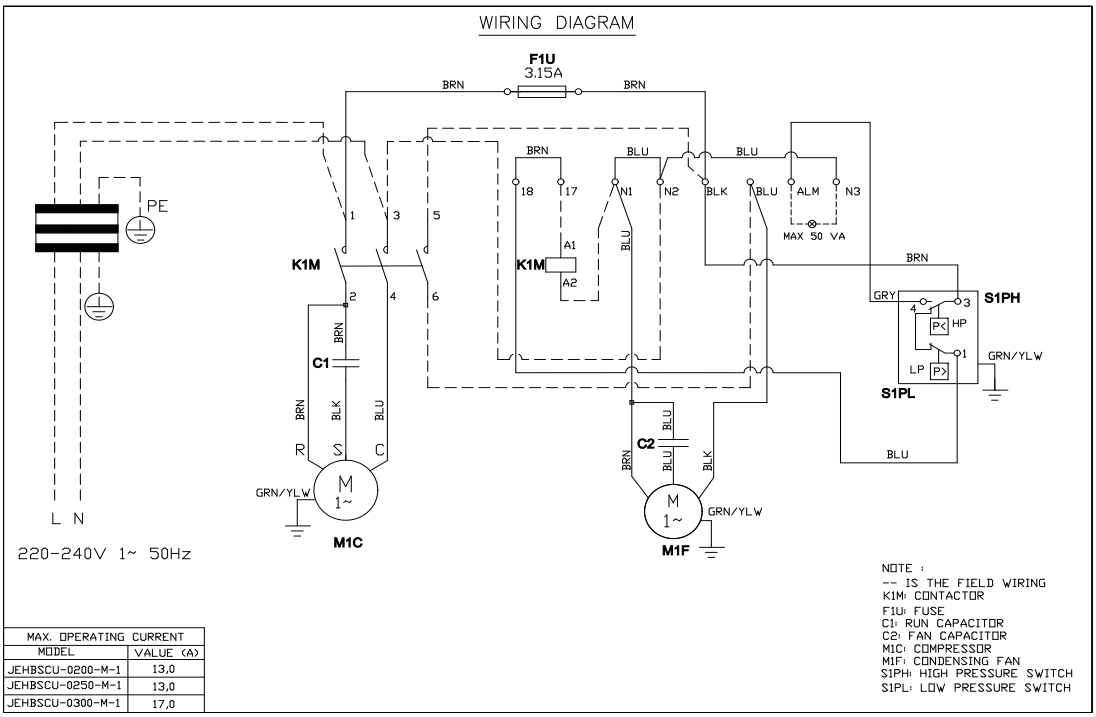
Rating Condition: Superheat 10K, Sub cooling 0K

7. Wiring Diagram

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

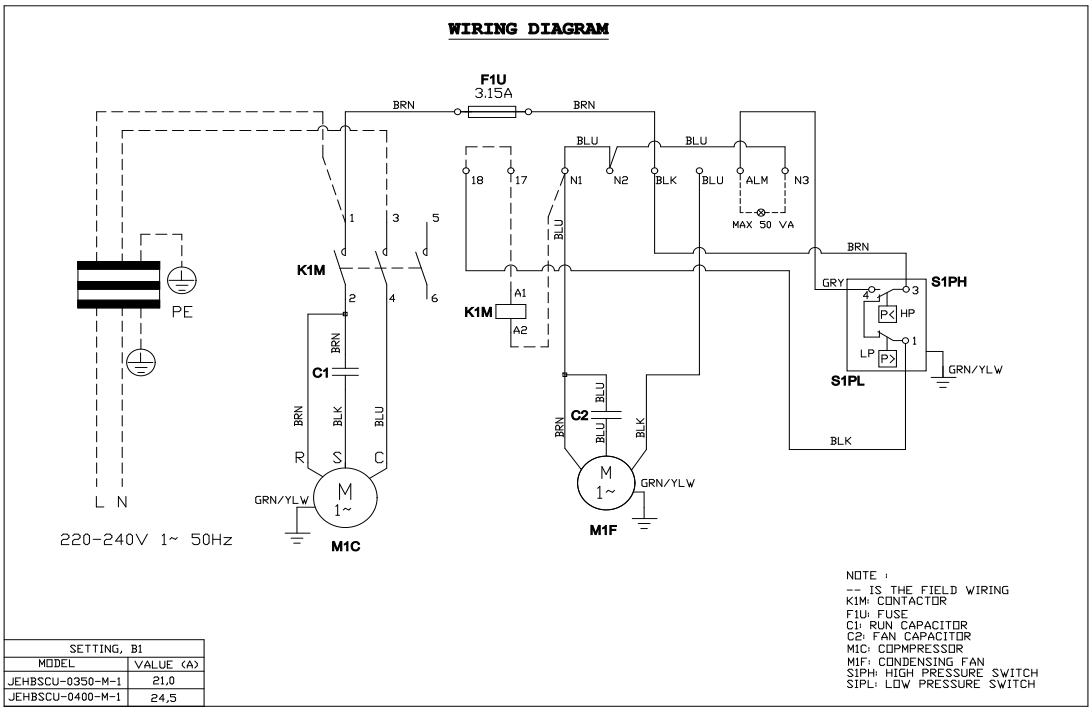
SINGLE PHASE

Series 2 MT:
JEHBSCU0200M1, JEHBSCU0250M1, JEHBSCU0300M1
LRMSS0200AXV1, LRMSS0250AXV1, LRMSS0300AXV1



MAX. OPERATING CURRENT	
MODEL	VALUE (A)
JEHBSCU-0200-M-1	13,0
JEHBSCU-0250-M-1	13,0
JEHBSCU-0300-M-1	17,0

Series 3 MT:
JEHBSCU0350M1, JEHBSCU0400M1
LRMSS0350AXV1, LRMSS0400AXV1

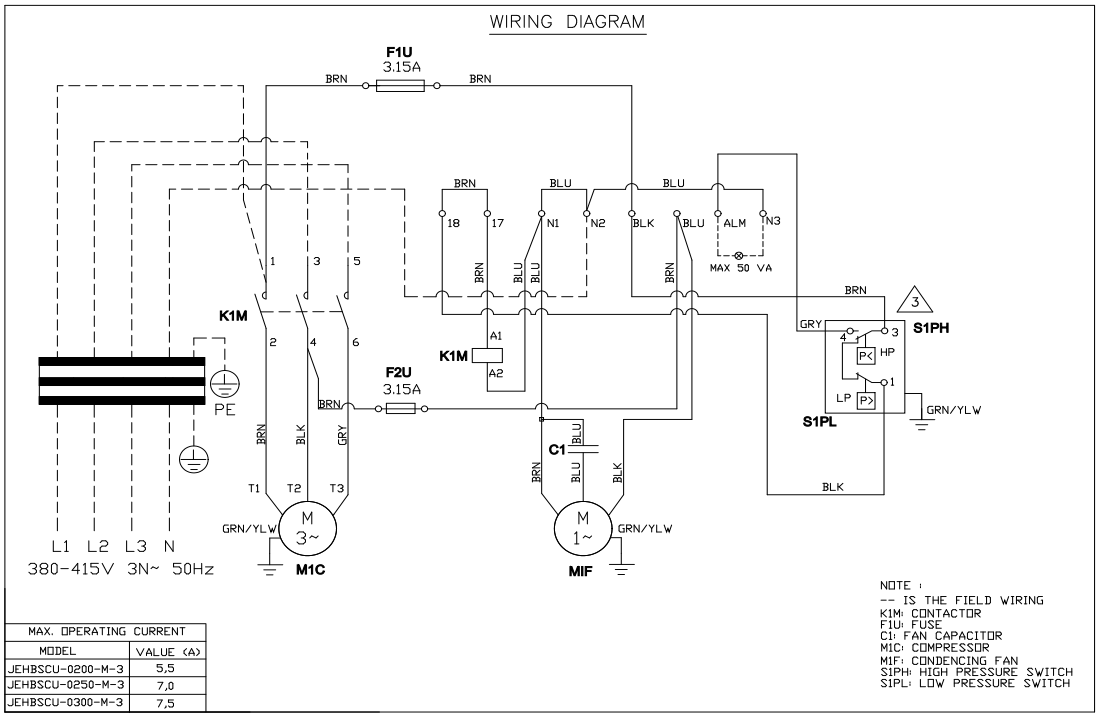


SETTING, B1	
MODEL	VALUE (A)
JEHBSCU-0350-M-1	21,0
JEHBSCU-0400-M-1	24,5

THREE PHASE

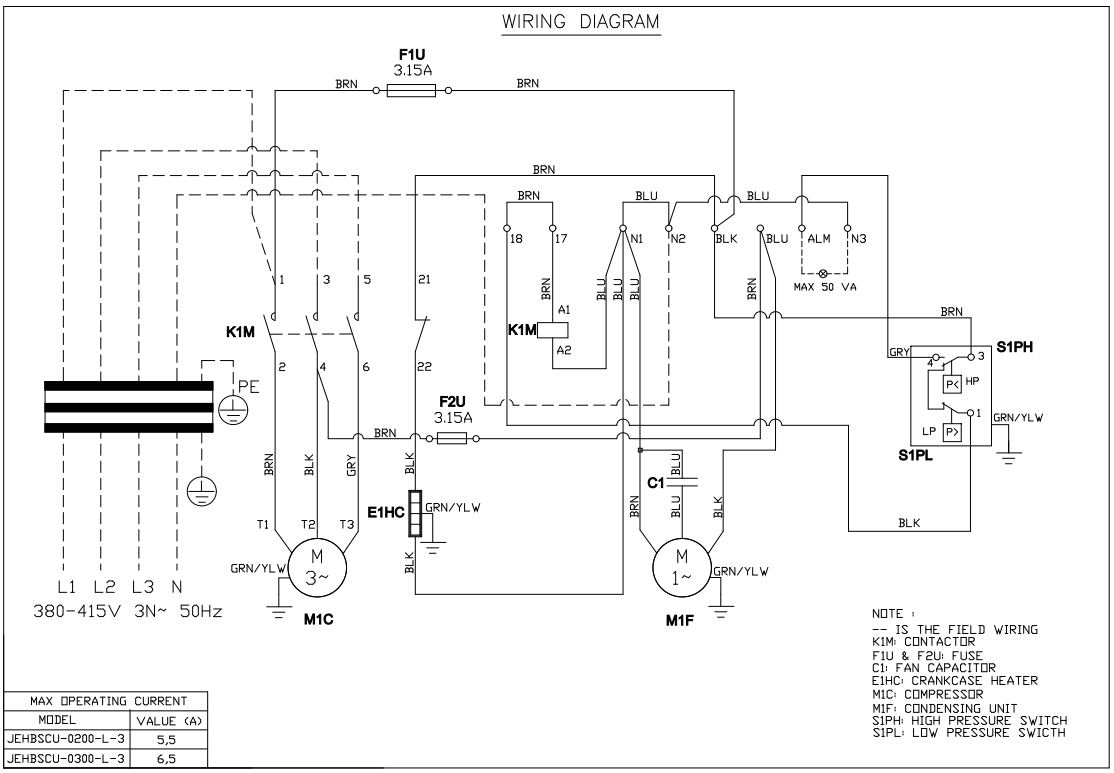
Verification of proper rotation direction is made by observing that suction pressure drops and discharge pressure rises when the compressor is energized. Reverse rotation of a scroll compressor could results in substantially reduced current draw, suction temperature will be high, discharge temperature will be low and the abnormal sound is heard from the compressor.

Series 2 MT:
JEHBSCU0200M3, JEHBSCU0250M3, JEHBSCU0300M3
LRMSS0200AXY1, LRMSS0250AXY1, LRMSS0300AXY1



MAX. OPERATING CURRENT	
MODEL	VALUE (A)
JEHBSCU-0200-M-3	5,5
JEHBSCU-0250-M-3	7,0
JEHBSCU-0300-M-3	7,5

Series 2 LT:
JEHBSCU0200L3, JEHBSCU0300L3
LRLSS0200AXY1, LRLSS0200AXY1

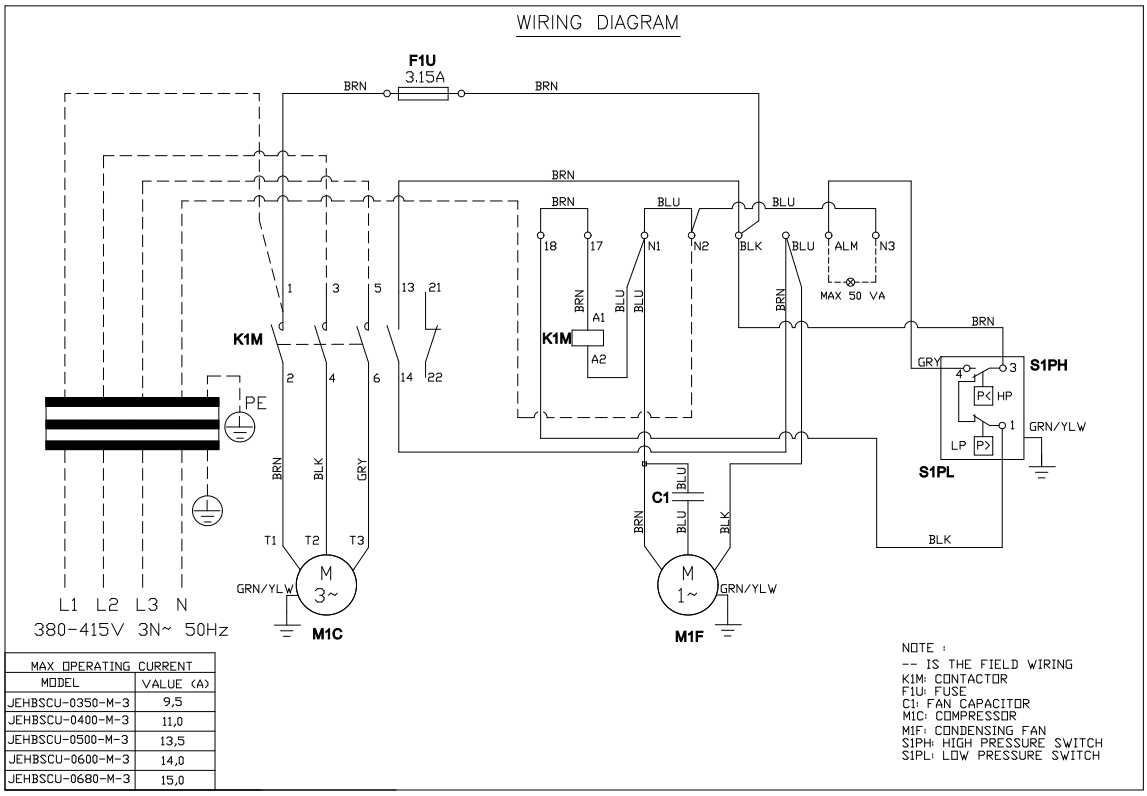


MAX OPERATING CURRENT	
MODEL	VALUE (A)
JEHBSCU-0200-L-3	5,5
JEHBSCU-0300-L-3	6,5

Series 3 MT:

JEHBSCU0350M3, JEHBSCU0400M3, JEHBSCU0500M3, JEHBSCU0600M3, JEHBSCU0680M3,

LRMSS0350AXY1, LRMSS0400AXY1, LRMSS0500AXY1, LRMSS0600AXY1

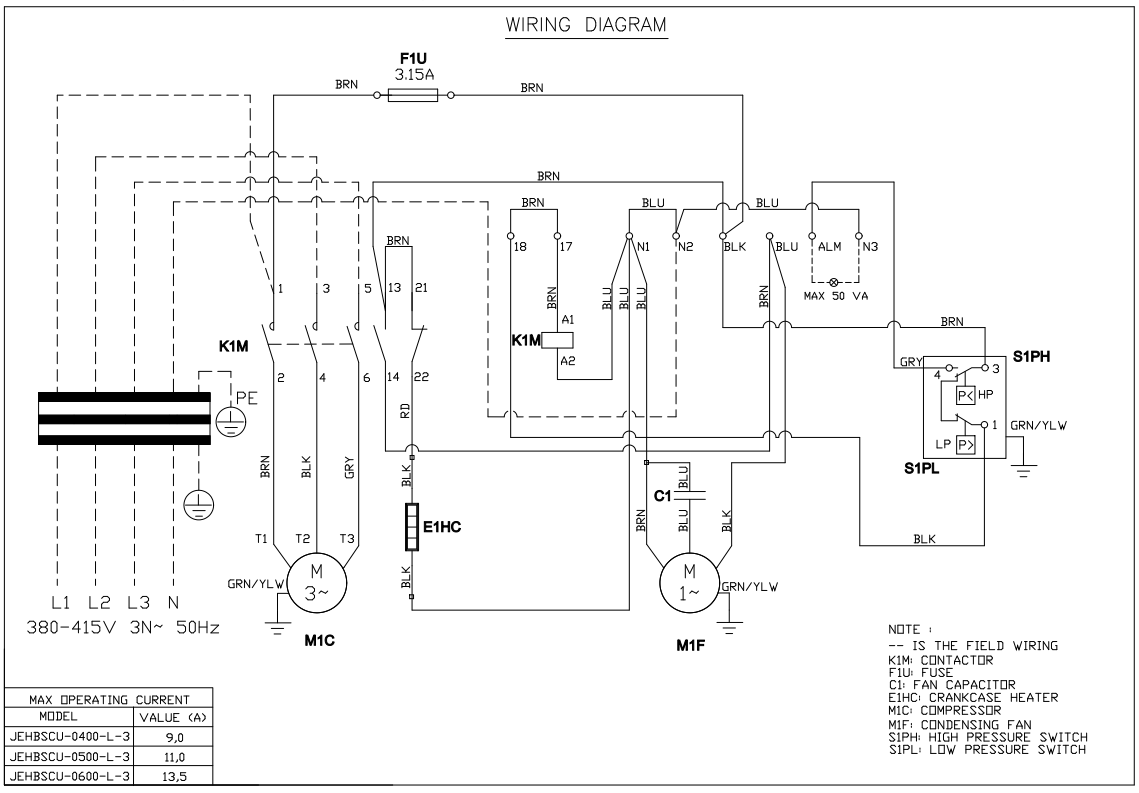


MAX OPERATING CURRENT	
MODEL	VALUE (A)
JEHBSCU-0350-M-3	9,5
JEHBSCU-0400-M-3	11,0
JEHBSCU-0500-M-3	13,5
JEHBSCU-0600-M-3	14,0
JEHBSCU-0680-M-3	15,0

Series 3 LT:

JEHBSCU0400L3, JEHBSCU0500L3, JEHBSCU0600L3

LRLSS0400AXY1, LRLSS0500AXY1, LRLSS0600AXY1

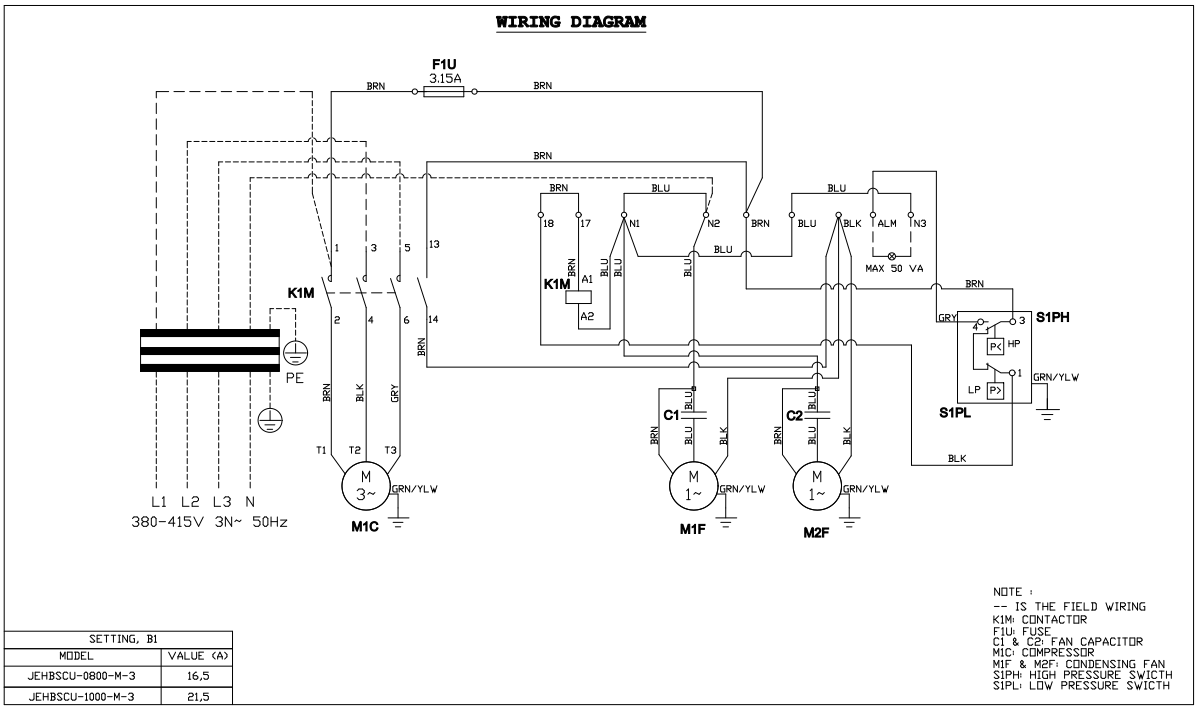


MAX OPERATING CURRENT	
MODEL	VALUE (A)
JEHBSCU-0400-L-3	9,0
JEHBSCU-0500-L-3	11,0
JEHBSCU-0600-L-3	13,5

Series 4 MT:

JEHBSCU0800M3, JEHBSCU1000M3

LRMSS0800AXY1, LRMSS1000AXY1

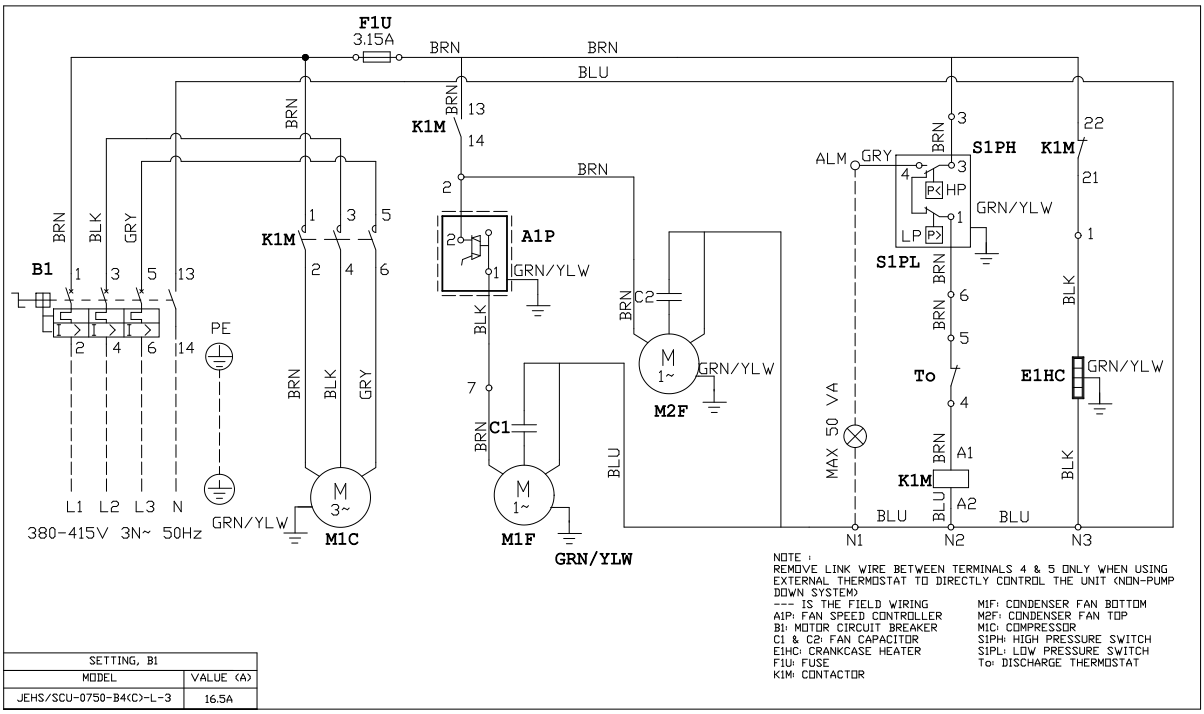


SETTING, B1	
MODEL	VALUE (A)
JEHBSCU-0800-M-3	16,5
JEHBSCU-1000-M-3	21,5

Series 4 LT:

JEHSCU0750CL3

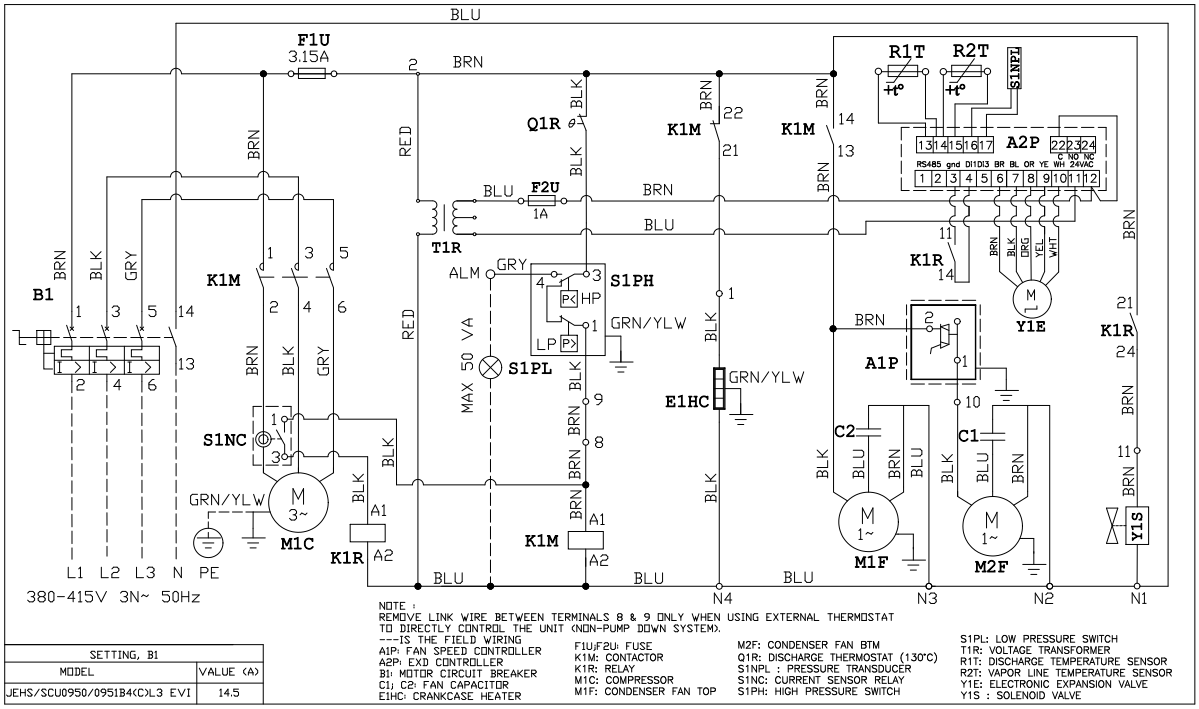
LRLSFS0750BXY1



SETTING, B1	
MODEL	VALUE (A)
JEHS/SCU-0750-B4(C)-L-3	16.5A

JEHSCU0951CL3

LRLVFS0951BXY1



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

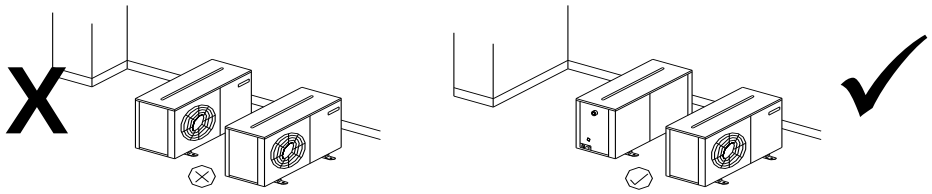
- Installation and maintenance are to be performed only by qualified personnel who are familiar with local codes and regulations, and experienced with this type of equipment.
- The condensing unit is delivered with a protective nitrogen holding charge.
- If lifting equipment is required, ensure that 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 33* in the service and maintenance section.

9. Installation & Commissioning

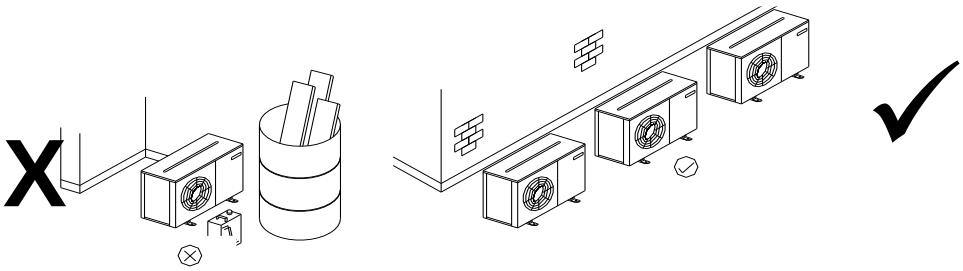
9.1 Unit site location

- 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.



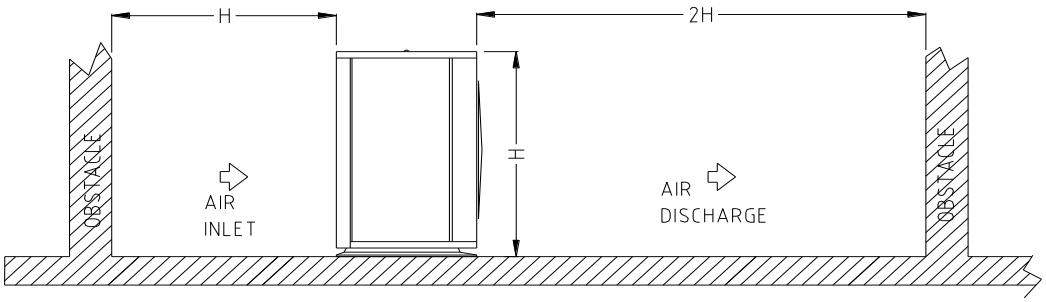
- Ensure that there is no obstruction to air flow into or out of the unit. Remove obstacles which block air intake or discharge.



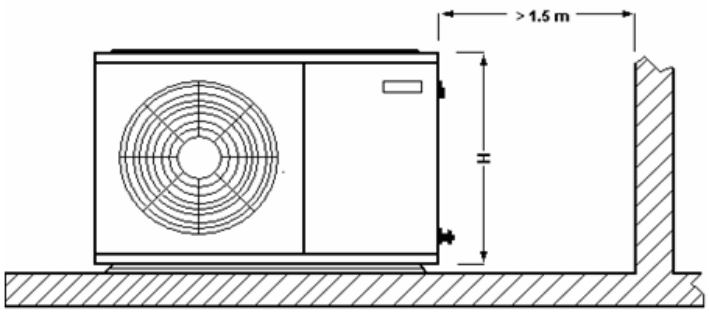
- The location must be well ventilated, so the unit can draw in and distribute plenty of air thus lowering the condensing temperature.
- To optimize the unit running conditions, the condenser coil must be cleaned at regular intervals.
- The unit must be level in all directions.

9.2 Installation clearances

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

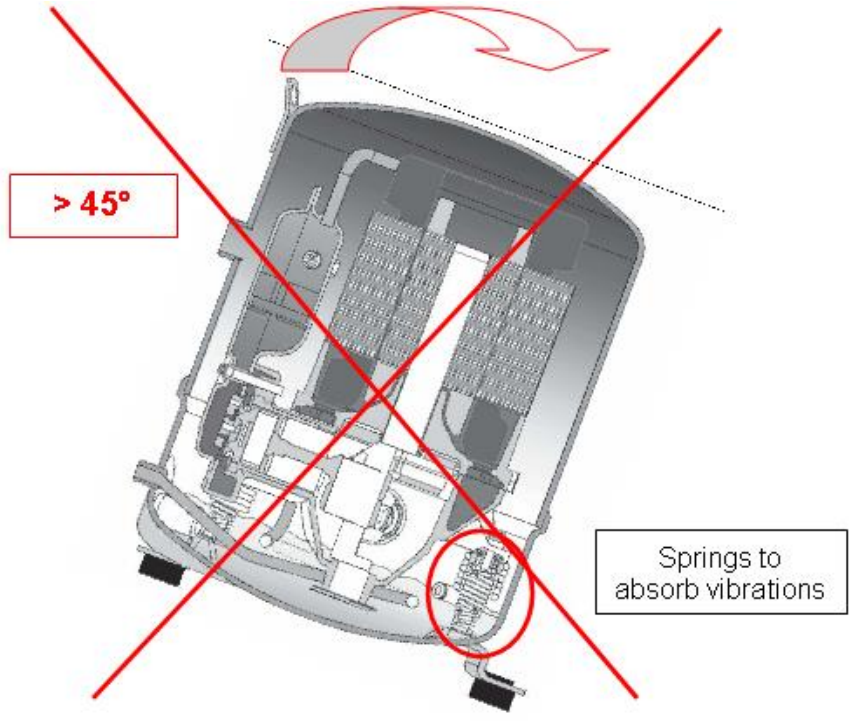


- Space not less than1.5m is necessary for installation or maintenance.



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 Pipe Size Selection (For EVI unit Only)

Sizing of liquid and suction lines for EVI model will be different from standard scroll models. Piping sizes of this model need to follow the recommended correction coefficient of cooling capacity. This is vital as if the pipework selected is oversized, especially for the suction pipe, the gas velocity will be decreased at low mass flow rate / low evaporating temperature, causing oil return problems. Undersized suction lines will also cause decreased capacity due to increased pressure drop.

The correction factor of refrigerant R404A is shown as below table:

Ta \ Te	(Watts)	-40	-35	-30	-25	-20
27	CF	0.64	0.66	0.68	0.70	0.72
32	CF	0.61	0.63	0.65	0.67	0.69
35	CF	0.59	0.61	0.63	0.65	0.67
38	CF	0.57	0.59	0.61	0.63	0.65
43	CF	0.54	0.55	0.57	0.58	0.60

For instance,

At condition of Te -35°C, Ta +32°C
Refrigerant R404A
Published cooling capacity = 5.9kW.

Cooling capacity = Correction factor x Published cooling capacity
= 0.63 x 5.9 kW
= **3.707kW**

Therefore, the pipe sizes should be selected against the **corrected** capacity of 3.71kW.

9.6 Insulation Selection (For EVI unit Only)

The liquid pipe connecting CCU service valve to the evaporator must be well insulated with recommended wall thickness of minimum ¾''.

9.7 Expansion Valve Selection (For EVI unit Only)

The lower liquid temperature of the EVI unit can increase evaporator expansion valve capacities**.** Selection of the expansion valve needs to be done based on the expected amount of sub-cooling shown in below tables:

R404A

Amount of Sub-cooling (K)					
Ta\Te	**-40**	**-35**	**-30**	**-25**	**-20**
27	39.9	36.9	33.9	30.9	27.9
32	40.9	37.9	34.9	31.9	28.9
35	41.5	38.5	35.5	32.5	29.5
38	42.1	39.1	36.1	33.1	30.1
43	43.1	40.1	37.1	34.1	31.1

9.8 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

9.9 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.

9.10 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.

9.11 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 Scroll 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 15 – 19*.

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.

9.12 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.

9.13 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 switches setting and fan speed controller.
- 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!

Compressor operation

Scroll compressors are designed to run only in one direction. This is not an issue with single phase compressors as they will always run in the correct direction. Three phase scroll compressors however can run in either direction depending on the connection of the three phases to the unit. Correct rotation can be determined by a drop in suction pressure and a rise in discharge pressure when the compressor is energized. Running the compressor for a short period of time in reverse direction will have no negative impact but prolonged running in reverse direction may cause premature failure. ***To reverse the rotation on a three phase scroll compressor, simply swap connection of any two of the three compressor phases and recheck operating pressures.***

Vacuum operation:

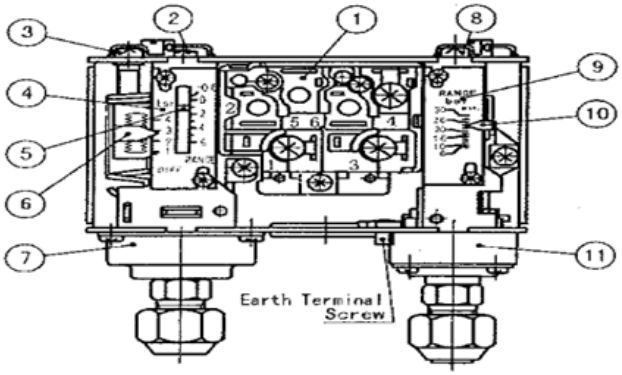
Do not operate scroll compressors in a vacuum condition, as this will cause the scrolls to overheat very quickly causing premature failure.

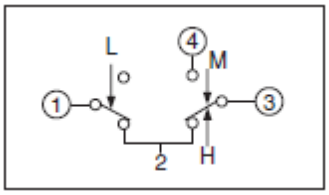
System charge:

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.

9.14 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.





1. Micro Switch
2. Range Adjusting Screw
3. Differential Adjusting Screw
4. Low Pressure Scale plate
5. Low Pressure Range pointer
6. Differential pointer
7. Low Pressure Bellows cover
8. High Pressure range Adjusting Screw
9. High Pressure Scale plate
10. High Pressure Range pointer
11. High Pressure Bellow cover

9.14.1 Setting adjustment

High pressure side

Turning the adjusting screw (8) 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 (2) 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 (3) clockwise will increase the differential pressure setting. Turning the differential adjusting screw anti-clockwise will decrease the differential pressure setting.

9.14.2 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.

Unit Type	Series 2, 3 & 4	
Refrigerant	R404A	R134a
Cut Out (bar g)	27	18
Cut Out (psi g)	392	261

9.14.3 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. For systems without pump-down the LP switch signal contact shall be used to energize a low pressure safety alarm.

Unit Type	Series 2 & 3			Series 4		
Refrigerant	R404A		R134a	R404A		R134a
Application	M*	L*	M*	M*	L*	M*
Cut Out (bar g)	2.0	0.1	0.6	2.0	0.3	0.6
Cut Out (psi g)	30	1.5	9	30	5.0	9

** M: Medium Temperature; L: Low Temperature*

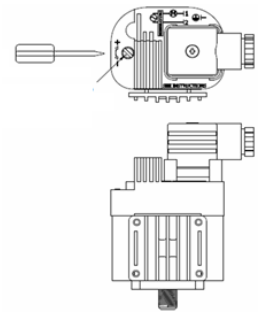
The low pressure cut out pressure is the setting of cut in minus the differential.

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.

9.14.4 XGE Fan Speed Controller

Model JEHSCU0750CL3 and JEHSCU0951CL3 EVI are mounted with fan speed controller which used to regulate the bottom fan motor. The fan speed controller is factory set to 19 bar for operation with R4*** series refrigerant to ensure compressor always operates within envelope at all declared working condition. If operate with R134a, the fan speed controller setting need to be change to 13bar. The XGE controls are set to stop fan at Pmin.



Clockwise: Increase pressure set point

Anticlockwise: Decrease pressure set point

360 ^{0} = 1 turn
Approx. 1.5 barG

9.14.5 Discharge Thermostat

Model JEHSCU0750CL3 and JEHSCU0951CL3 EVI are mounted with discharge thermostat (cut out = 125°C, cut in = 90°C) to protect the compressor. For other unit models, it is recommended to install the discharge thermostat if operating in extreme condition (low evaporating and high ambient temperature).

9.14.6 For EVI unit only

Controller EXD-HP1

The controller EXD-HP1 used in the Series 4 EVI unit operates as an economizer control. The setting of controller is preset by the factory and is password protected. Users are not allowed to change any settings in the controller.

Safety Instructions:

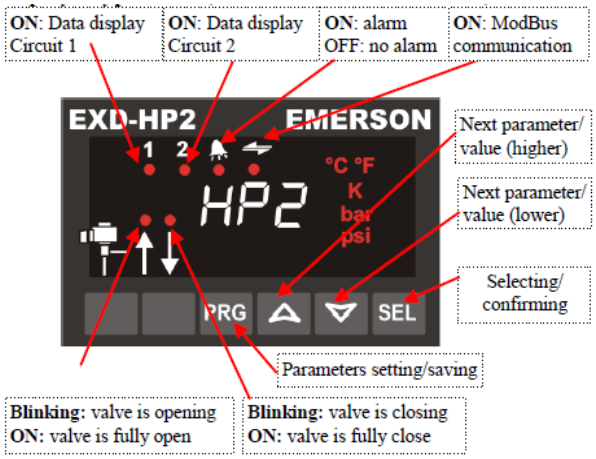
1. Read installation instruction carefully. Failure to comply can result in device failure, system damage or personal injury.
2. Only person having appropriate knowledge and skill are allowed to manipulate the controller.
3. Disconnect all voltages from system before installation.

Electrical Installation

- Do not operate system before all cable connections are completed.
- Refer to wiring diagram for electrical connections.
- Class II category transformer is required for 24VAC power supply
- Do not connect any EXD-HP1 input to main voltage as it will permanently damage the controller.
- When connecting wires of expansion valve and pressure sensor, consider color coding as follow:

1. EXM : BR: BROWN; BL: BLUE, OR: ORANGE; YE: YELLOW; WH: WHITE
2. PT5 : BN: BROWN; WH: WHITE

Display/ keypad unit (LEDs and button functions)



- In standard mode the superheat is shown at the display. In case of liquid injection and economizer function this changes to discharge temperature.
- To display other data of EXD-HP1 press "SEL" button for 1 second until index number according to below table appears. Release "SEL" button and the next variable data will appears. By repeating the procedure variable data can be displayed in sequence as measured superheat (K) → Measured suction pressure (bar) → valve position (%) → Measured suction gas temperature (°C) → Calculated saturated temperature (°C) → Measured discharge temperature (°C) (if economizer function is selected) → REPEATING

Variable data	Controller EXD-HP1
Default Superheat, K	1 0
Suction pressure, bar	1 1
Valve position, %	1 2
Suction gas temperature, °C	1 3
Saturation temperature, °C	1 4
Discharge temperature, °C	1 5

Digital input Di1/Di2

- The digital input Di1 is the interface between controller EXD-HP1 and system controller if Modbus communication has not been used.
- The digital status is dependent to operation of system's compressor or demand.

Operating Condition	Digital input status
Compressor starts	Closed (Start)
Compressor stops	Open (Stop)

Manual mode operation

Warning: All alarms are disabled during manual control. We do not recommend unattended operation of system during manual control.

- Press PRG **and** ▼ together for 5 seconds to access to manual mode operation.
- List of parameters in scrolling sequence by pressing ▼ button

Code	*Parameter description and choices*	*Min*	*Max*	*Factory setting*	*Field setting*
1Ho	Manual mode operation; circuit 1 0 = disabled; 1 = Enabled	0	1	0	
1HP	Valve opening (%)	0	100	0	
2Ho	Manual mode operation; circuit 2 0 = disabled; 1 = Enabled	0	1	0	
2HP	Valve opening (%)	0	100	0	

Manual alarm reset clearing functional alarms (except hardware error)

- **Press PRG and SEL together for 5 seconds. When the clearing is done, "CL" message appears for 2 seconds.**

EXD – HP1 Error/ Alarm handling

Alarm code	Description	Related parameter	Valve	What to do?	Requires manual reset after resolving alarm
1E0/2E0	Pressure sensor 1/2 error	-	Fully close	Check wiring connection and measure the signal 4 to 20 mA	No
1E1/2E0	Temperature sensor 1/2 error	-	Fully close	Check wiring connection and measure the resistance of sensor	No
1Ed	Discharge hot gas temperature sensor 3 error	-	Operating	Check wiring connection and measure the resistance of sensor	No
1AII/2AII	EXM/EXL electrical connection error	-	-	Check wiring connection and measure the resistance of winding	No
1Ad	Discharge hot gas temperature above limit		Operating	Check valve opening/ check liquid flow for flash gas free/check discharge hot gas temperature sensor	No
AF	Freeze protection	1P4/2P4: 1	Fully close	Check the system for cause of low pressure such as insufficient load on evaporator	No
AF blinking		1P4/2P4: 2	Fully close		Yes
AL	Low superheat (<0,5K)	1uL/2uL: 1	Fully close	Check wiring connection and operation of valve	No
AL blinking		1uL/2uL: 2	Fully close		Yes
AH	High superheat	1uH/2uH: 1	Operating	Check the system	No
AP	Low pressure	1P9/2P9: 1	Operating	Check the system for cause of low pressure such as refrigerant loss	No
AP blinking		1P9/2P9: 2	Operating		Yes

9.15 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.

9.16 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.

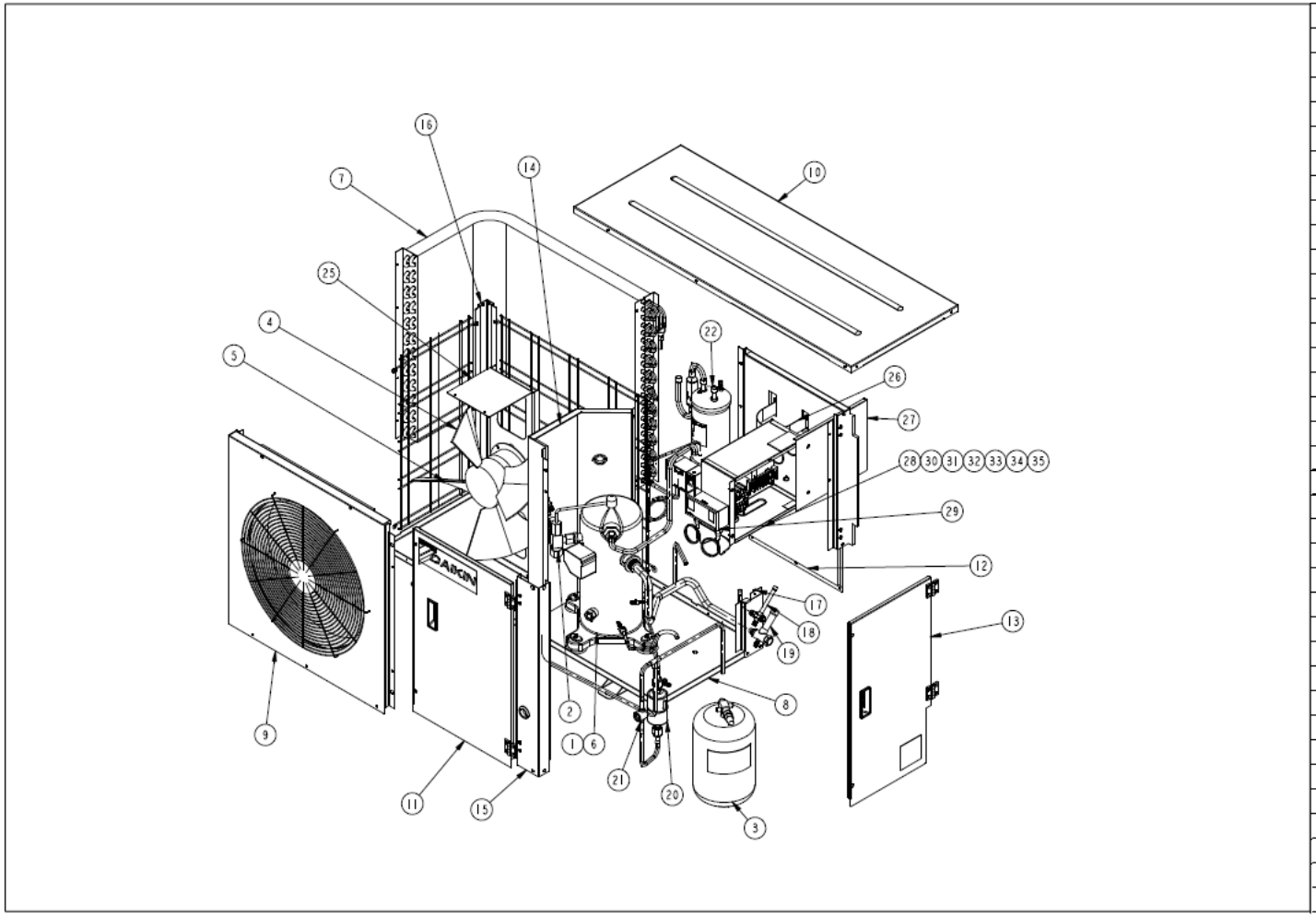
Failure	Possible Causes
Fan does not work	• Improper wiring • Fan motor faulty
Compressor does not start	• Improper wiring • Defective contactor or coil • System stopped because of tripped of safety device. • Defective start/run capacitor • Compressor faulty
Insufficient cooling	• Low refrigerant charge • 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.

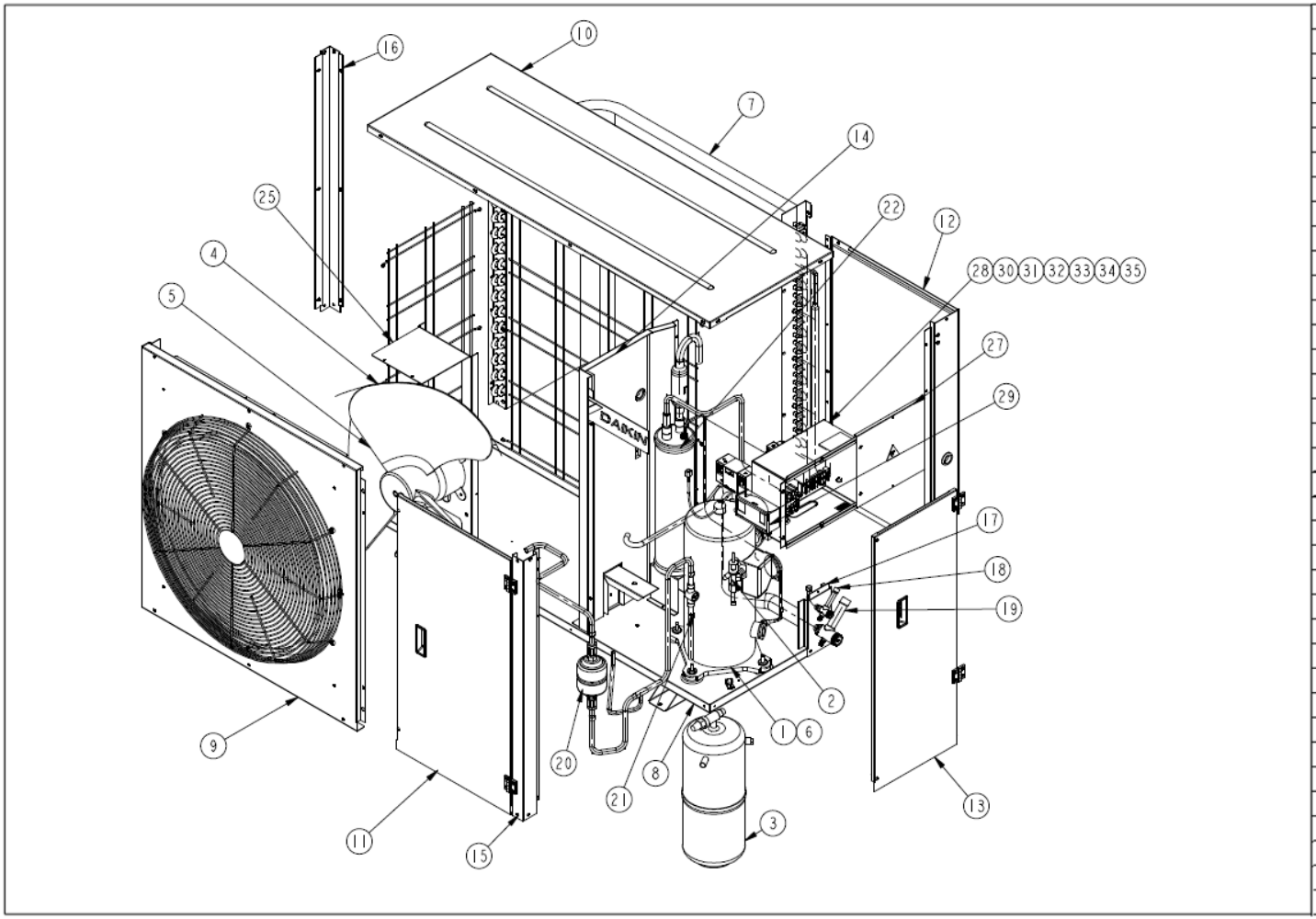
13. Exploded View

Series 2:



No.	PARTS NAME
1	COMPRESSOR
2	DTC VALVE
3	LIQUID RECEIVER
4	FAN MOTOR
5	FAN PROPELLER
6	CRANKCASE HEATER
7	CONDENSER
8	BASE PANEL ASSY
9	FRONT PANEL (SP)
10	TOP PANEL (SP)
11	STRUCTURE FRONT PANEL (SP)
12	REAR PANEL (SP)
13	SERVICE PANEL (SP)
14	PARTITION PANEL (SP)
15	FRONT PILLAR
16	REAR PILLAR
17	VALVE PLATE
18	SERVICE VALVE
19	SERVICE VALVE
20	HENRY FILTER DRIER
21	SIGHT GLASS
22	OIL SEPARATOR
23	FLEXIBLE HOSE (LOW SIDE)
24	FLEXIBLE HOSE (HIGH SIDE)
25	FAN MOTOR BRACKET
26	OIL SEP CLAMP
27	CTRL BOX COVER
28	CONTACTOR
29	H/L PRESS SWITCH
30	FUSE
31	RUN CAPACITOR
32	CAPACITOR/COMPRESSOR
33	START CAPACITOR
34	START RELAY
35	FAN RUN CAPACITOR
36	FLEXIBLE HOSE /CAPILLARY TUBE (OIL RETURN)

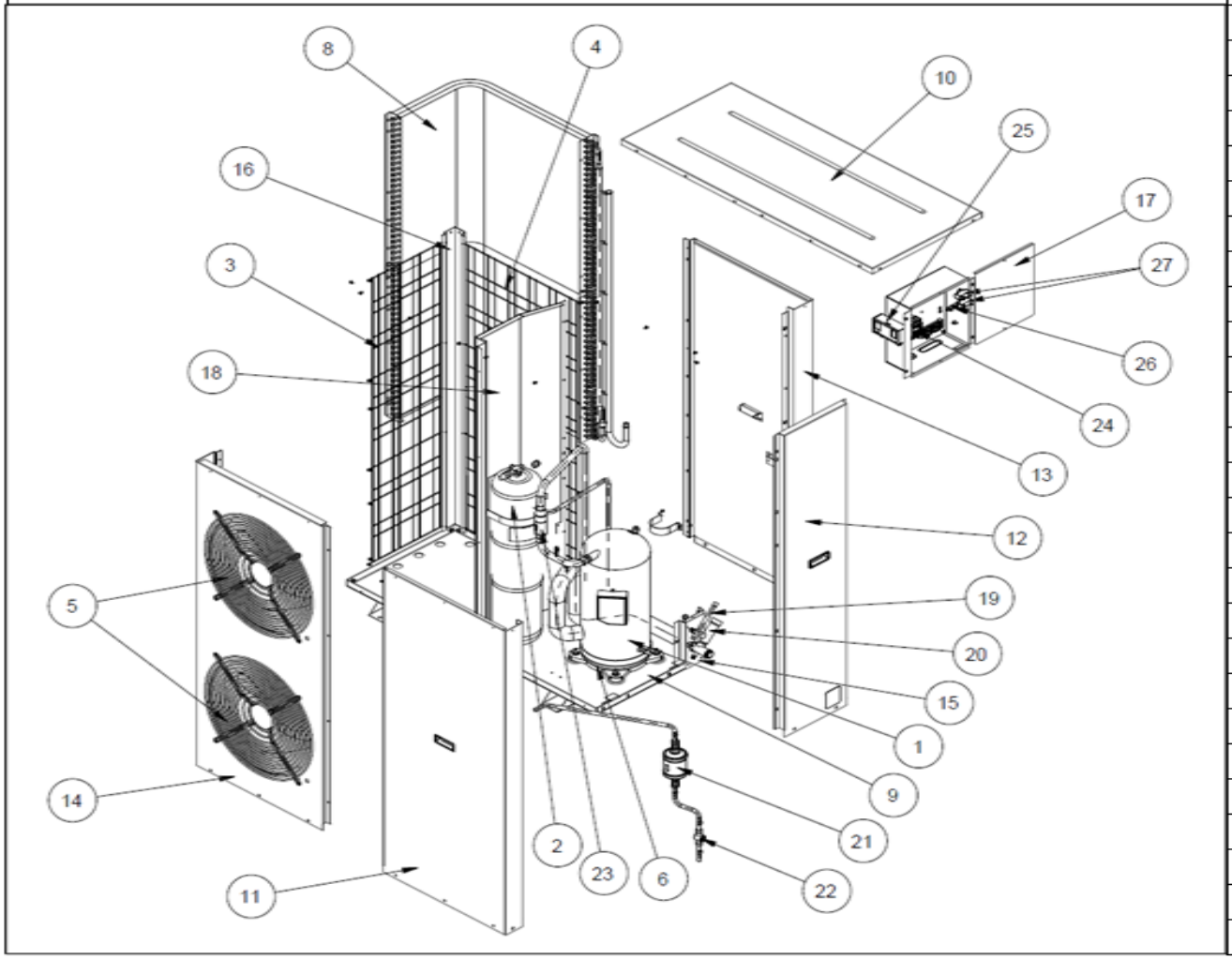
Series 3:



No.	PARTS NAME
1	COMPRESSOR
2	DTC VALVE
3	LIQUID RECEIVER
4	FAN MOTOR
5	FAN PROPELLER
6	CRANKCASE HEATER
7	CONDENSER
8	BASE PANEL ASSY
9	FRONT PANEL (SP)
10	TOP PANEL (SP)
11	STRUCTURE FRONT PANEL (SP)
12	REAR PANEL (SP)
13	SERVICE PANEL (SP)
14	PARTITION PANEL (SP)
15	FRONT PILLAR
16	REAR PILLAR
17	VALVE PLATE
18	SERVICE VALVE
19	SERVICE VALVE
20	HENRY FILTER DRIER
21	SIGHT GLASS
22	OIL SEPARATOR
23	FLEXIBLE HOSE (LOW SIDE)
24	FLEXIBLE HOSE (HIGH SIDE)
25	FAN MOTOR BRACKET
26	OIL SEP CLAMP
27	CTRL BOX COVER
28	CONTACTOR
29	H/L PRESS SWITCH
30	FUSE
31	RUN CAPACITOR
32	CAPACITOR/COMPRESSOR
33	START CAPACITOR
34	START RELAY
35	FAN RUN CAPACITOR
36	FLEXIBLE HOSE /CAPILLARY TUBE (OIL RETURN)

Series 4 MT:

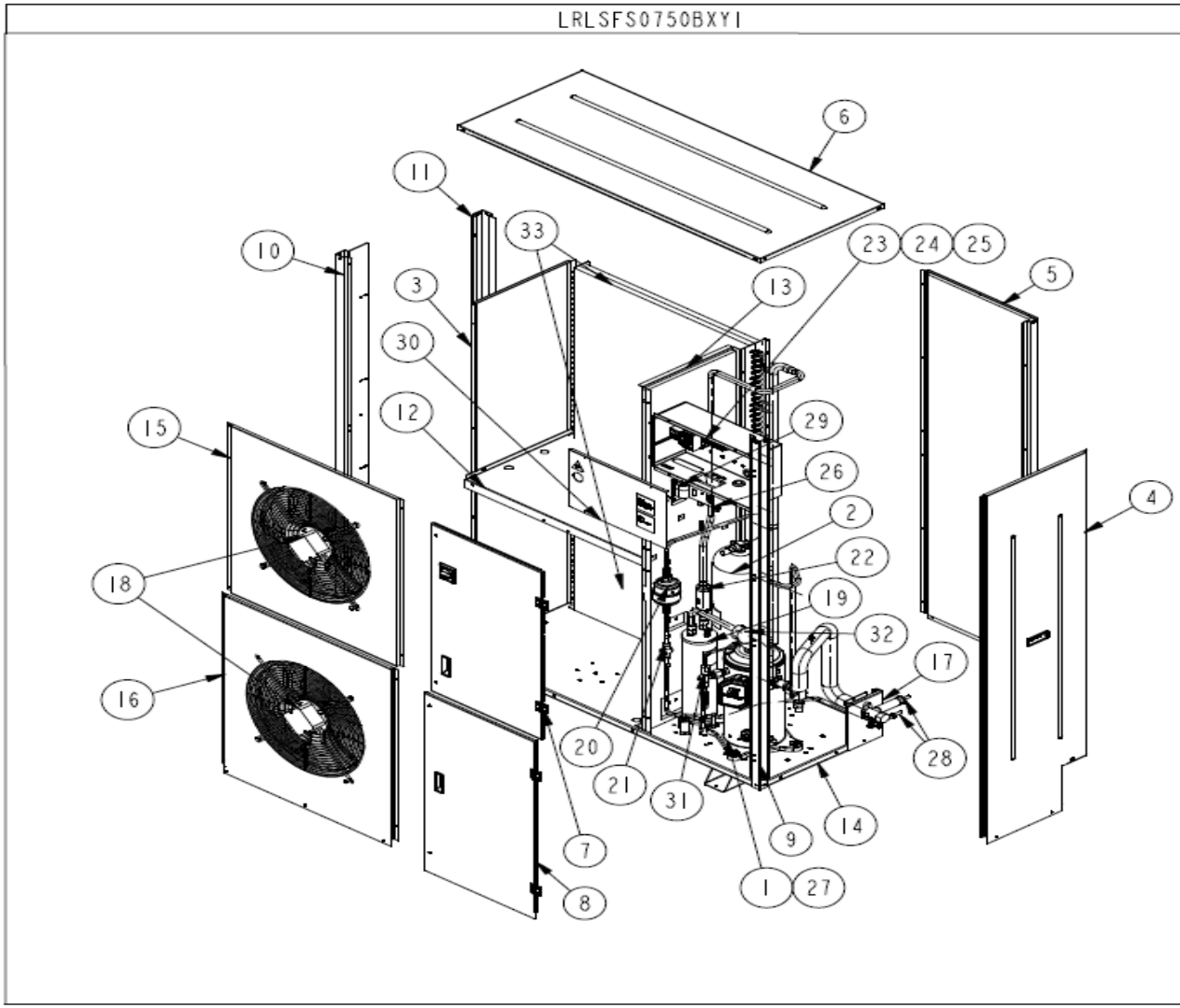
LRMSS0800~1000AXY1



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

Series 4 LT:

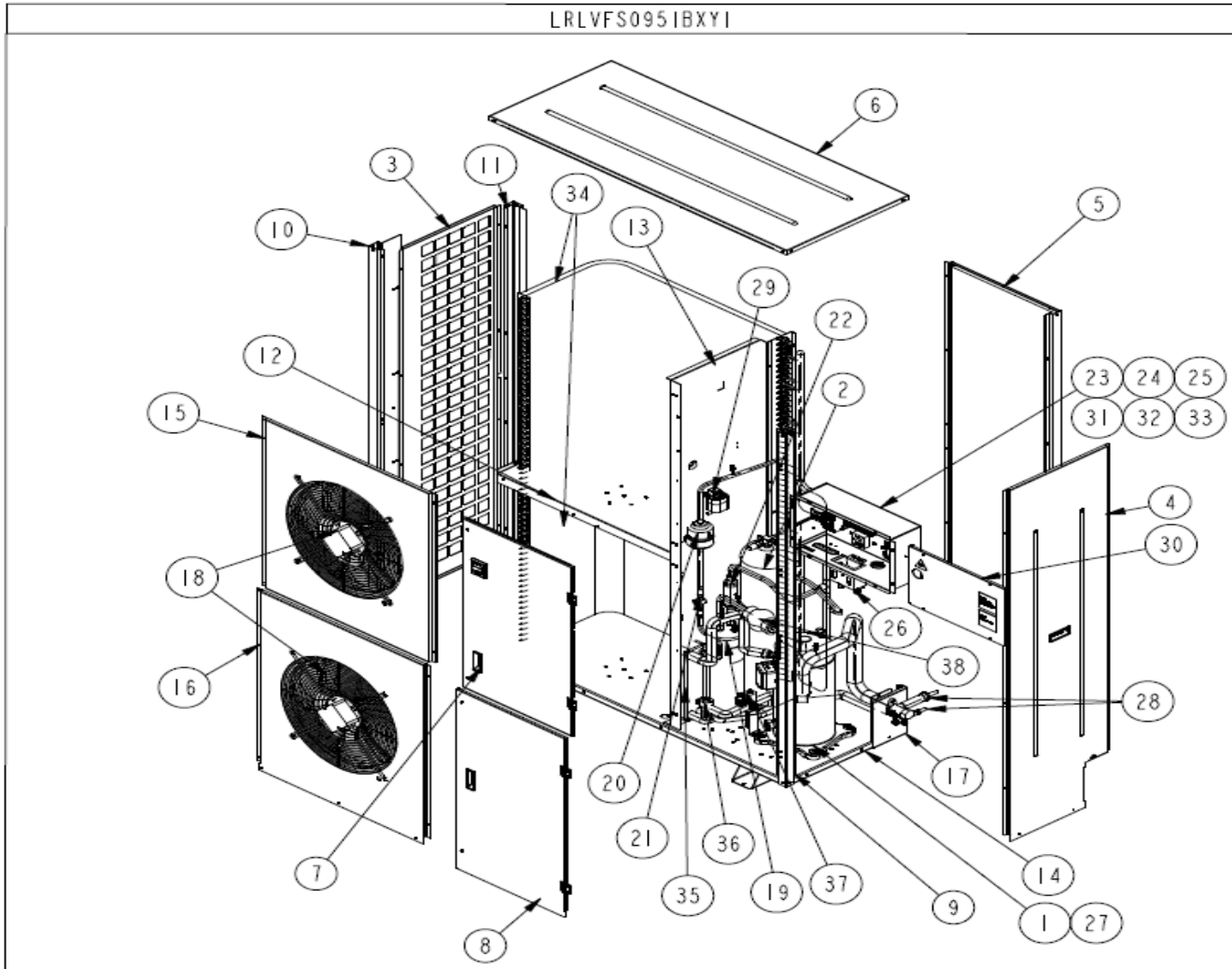
LRLSFS0750BXYI



NO.	PARTS NAME
1	COMPRESSOR
2	LIQUID RECEIVER
3	LEFT PANEL
4	RIGHT PANEL ASSY (SP)
5	REAR PANEL (SP)
6	TOP PANEL (SP)
7	DOOR PANEL TOP (SP)
8	DOOR PANEL BTM (SP)
9	FRONT RIGHT PILLAR
10	FRONT LEFT PILLAR
11	REAR LEFT PILLAR
12	FAN PARTITION
13	MIDDLE PARTITION (SP)
14	BASE PANEL ASSY
15	FAN PANEL TOP ASSY
16	FAN PANEL BTM ASSY
17	VALVE PLATE
18	FAN
19	OIL SEPARATOR
20	FILTER DRIER
21	SIGHT GLASS
22	CHECK VALVE
23	FUSE
24	CONTACTOR
25	ISOLATOR
26	H/L PRESSURE SWITCH
27	CRANKCASE HEATER
28	SERVICE VALVE
29	FAN SPEED CONTROLLER
30	CONTROL BOX COVER
31	DTC VALVE
32	THERMOSTAT
33	CONDENSER

Series 4 LT EVI:

LRLVFS095IBXYI



NO.	PARTS NAME
1	COMPRESSOR
2	LIQUID RECEIVER
3	LEFT PANEL
4	RIGHT PANEL ASSY (SP)
5	REAR PANEL (SP)
6	TOP PANEL (SP)
7	DOOR PANEL TOP (SP)
8	DOOR PANEL BTM (SP)
9	FRONT RIGHT PILLAR
10	FRONT LEFT PILLAR
11	REAR LEFT PILLAR
12	FAN PARTITION
13	MIDDLE PARTITION (SP)
14	BASE PANEL ASSY
15	FAN PANEL TOP ASSY
16	FAN PANEL BTM ASSY
17	VALVE PLATE
18	FAN
19	OIL SEPARATOR
20	FILTER DRIER
21	SIGHT GLASS
22	CHECK VALVE
23	FUSE
24	CONTACTOR
25	ISOLATOR
26	H/L PRESSURE SWITCH
27	CRANKCASE HEATER
28	SERVICE VALVE
29	FAN SPEED CONTROLLER
30	CONTROL BOX COVER
31	CURRENT SENSING RELAY
32	TRANSFORMER
33	EVI CONTROLLER
34	CONDENSER
35	BRAZED PLATE HEAT EXCHANGER
36	ELECTRONIC EXPANSION VALVE
37	SOLENOID VALVE
38	THERMOSTAT

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