

# Kirby Titan Condensing Unit



Huge capacity and  
maximum performance  
in harsh conditions





**Front Cover - Boab Tree, the Kimberley region of Western Australia**

As a result of its impressive capacity, the tough and compact Boab tree survives high temperatures and arid conditions by storing up to 120,000 litres of water in its trunk. Also renowned for its ability to thrive in harsh ambient conditions, the **Kirby Titan Condensing Unit** is a natural performer. It has an equally impressive capacity which is conveniently packaged in a small footprint for easy installation.

# Kirby Titan Condensing Unit

A tough, compact and robust commercial condensing unit, the Kirby Polar Pack Titan offers impressive performance and capacity (ranging from 12-41 kW) within a small footprint.

Pre-wired for convenient installation, the Titan thrives in harsh ambient conditions and under heavy loads. Being a fully enclosed system, it can be installed indoors or outside.

And because it's from Kirby, the Titan has an enviable reputation for toughness, efficiency and reliability.

- Impressive capacity
- Enhanced compressor technology
- Designed for harsh conditions
- Quiet and efficient operations
- Copes with ambient conditions up to 45°C
- Easy to service
- Fast installation
- Fully pre-wired
- Fan speed control
- Coil protection standard



## Kirby Titan Condensing Units – Nomenclature Data

PP H 100 MH A1 2

PP = Polar Pack

### Compressor Type

H = Hermetic Reciprocating  
S = Semi Hermetic Reciprocating

### R404A CAPACITY (kW) X 10

at -5°C SST for "MH" & "LMH" Range  
eg. 100 = 10 (kW) x 10

### Operating Range for R404A

MH = Medium / High  
LMH = Low / Medium / High

### Power Supply to Compressor

Odd Number = Single Phase  
Even Number = Three Phase

### Condenser Type & Variant

A = Air-Cooled  
Number = Sequential for Different Available Condensers



# Kirby Titan Condensing Unit Performance Rating Basis



## 1. CONDENSING UNIT RATINGS ARE AT THE FOLLOWING CONDITIONS:

- Ambient temperature of 30, 35, 40 and 45°C.
- Liquid entering temperature with inherent subcooling averaging 2° to 3° C.
- Return vapour temperature of 20°C. Return vapour temperature should never exceed 20°C for any refrigerant. Low temperature applications should be restricted to maximum 20K return vapour superheat.
- All capacity data based on continuous condenser fan operation without the consideration of fan speed control.

## 2. THE FOLLOWING FACTORS MAY BE USED WITH SUFFICIENT ACCURACY FOR CAPACITY CORRECTION AS REQUIRED:

- For changed ambient temperature: interpolate as necessary.
- For changed liquid entering temperature: increase capacity 1% for each 1°C lower liquid temperature. Vice versa for each 1°C higher liquid temperature.
- For lower return vapour temperature:  
R22: Disregard - generally marginal.  
R404A: Use factors below for 10K return vapour superheat.

SST	-40	-30	-20	-10	0	10
R404A	0.88	0.89	0.91	0.94	0.97	1

Multiply rated capacity by factor to get capacity at 10K superheat.

## 3. LIQUID RECEIVER CAPACITY:

- Based on 80% liquid and 20% vapour by volume at 32°C (rated ambient) condition.
- Refrigerant factor for liquid receiver capacity:  
R507: multiply R404A liquid receiver capacity by 1.02 to find R507 capacity data.  
R407C: multiply R22 liquid receiver capacity by 0.96 to find R407C capacity data.

## 4. UNIT INPUT WATTS, MCC (MAXIMUM CONTINUOUS CURRENT) AND RLA (RATED LOAD AMPS):

- RLA and input watts values are given for the stated load condition based on calorimeter data where possible. Actual values may vary with varying conditions.
- RLA and input watts are intended as a guide for comparison purposes with other equipment.

- MCC is intended to be used as a guide for power supply rating, protection setting, and functional settings such as CPR valve.
- Unit RLA = Compressor RLA + Condenser Fan RLA.
- Unit MCC = Compressor MCC + Condenser Fan RLA.
- Unit Input Watts = Compressor Input Watts + Condenser Fan Input Watts.

## 5. SOUND POWER LEVEL RATINGS:

- Values given are provisional based on compressor manufacturer's data and tested fan data, and are subject to change. Actual levels may vary according to unit loading.

MODEL	APPL. RANGE	100% FAN SPEED		MODEL	APPL. RANGE	100% FAN SPEED	
		LWA	LPA 3M			LWA	LPA 3M
PPH 131 MH A1-2	M / H	81.5	61.0	PPS 178 LM A1-2	L / M	81.0	60.5
PPH 153 MH A1-2	M / H	81.5	61.0	PPS 212 LM A1-2	L / M	81.5	61.0
PPH 170 MH A1-2	M / H	85.7	65.2	PPS 242 LM A1-2	L / M	81.6	61.1
PPH 217 MH A1-2	M / H	85.0	64.5	PPS 264 LM A1-2	L / M / H	81.8	61.3
PPH 251 MH A1-2	M / H	84.9	64.4	PPS 328 LM A1-2	L / M	82.3	61.8
PPH 283 MH A1-2	M / H	84.9	64.4	PPS 338 LM A1-2	L / M / H	84.6	64.1
PPS 124 LM A1-2	L / M	77.5	57.0	PPS 370 LM A1-2	L / M	82.6	62.1
PPS 149 LM A1-2	L / M	80.5	60.0	PPS 411 LM A1-2	L / M	84.8	64.3
PPS 152 LM A1-2	L / M	81.0	60.5				

The sound numbers are maximum achieved at full fan motor speed. Fan Speed Control is fitted as standard on all of the model numbers listed and will generally ensure lower noise levels are achieved, especially in the evening where low refrigeration load is experienced and low ambient occur.

Approved acoustic sound blankets are available upon request for the Maneurop Hermetic compressors that can achieve up to 6 dB(A) reduction (manufacturers data).

## 6. UNIT CAPACITY (REFRIGERANT FACTOR) DATA:

- Refrigerant capacity correction data is based on compressor capacity data from the manufacturer, and published thermodynamic data from the refrigerant manufacturers.
- Figures are an average of data for all models, and are given at 32°C ambient condition.
- Values can be used with sufficient accuracy over a wide range of ambient temperature without further correction.  
R507: multiply R404A capacity by 1.03 to find R507 capacity data (preliminary only). R507 application limits are the same as for R404A.  
R407C: the capacity and application limits are the same as for R22.

# Kirby Titan Condensing Unit

## Performance Rating Basis



### 1. OIL TYPES USED IN KIRBY TITAN POLAR PACK CONDENSING UNITS

- All compressors used in Kirby Titan Polar Pack condensing units including Danfoss Maneurop and Dorin are charged with PolyolEster (POE) oil.
- POE oil can be used with HCFC refrigerants, such as R22, and HFC refrigerants, such as R404A, R507, R407C and R134a.
- Use ONLY POE oil, do NOT mix POE with other oils, when using HFC refrigerants.
- Use RL32HT Oil if the exact oil listed on the compressor is not available

### 2. RECOMMENDED HIGH/LOW PRESSURE SWITCH SETTING

#### HIGH PRESSURE LIMIT SETTING

- Kirby Titan Polar Pack condensing units have a maximum operating pressure of 32 Bar(a) set by pressure vessels codes which apply to items such as liquid receiver.
- Pressure limiting device can have a maximum setting of 29 Bar(a), =  $0.9 \times 32$ . Lower values are also acceptable in accordance with AS/NZS1677.2:1998.
- Kirby Titan Polar Pack condensing units have a maximum design condensing temperature of 60°C for Maneurop and 58°C for Dorin. When setting the HP control, consideration must be given to the type of refrigerant used and the maximum ambient temperature to ensure compliance with AS/NZS1677.2 and avoiding nuisance tripping. Maneurop recommendations - R404A = 27.7 Bar(g), R134a = 22.6 Bar(g), R22 = 27.7 Bar(g).

#### LOW PRESSURE SAFETY

- The cut-out points shall be 3-5 K below the minimum design evaporating temperature, the differential shall be no more than 2 Bar depending on the application and compressor.
- When the units are installed in a very cold ambient, the cut-out pressure shall be lower than the pressure corresponding to the ambient temperature.
- The cut-out pressure shall be in the positive pressure region.
- Do not operate compressors in deep vacuum conditions as this can cause electrical failure. Compressors should never be used to evacuate refrigeration or air conditioning systems.

### 3. REFER TO THE SECTION OF "STANDARD & OPTIONAL CONFIGURATIONS" FOR INFORMATION ON OPTIONS

#### Standard configurations

- Crankcase heater & internal overload protection for the units with Maneurop compressor.
- Crankcase heater & INT69 protection for the units with Dorin compressor.
- Oil separator, condenser coil corrosion protection, liquid receiver, liquid line dryer, liquid line dryer & oil line sightglasses & suction vibration eliminators, universal dual pressure control, MP15D motor protection and fan speed control for all units.
- Suction accumulator in either M/T or L/T application.

### 4. FAN SPEED CONTROL "RGE-Z1N4-5" (4A, 1-Ph), "RGE-Z1Q4-5" (8A, 1-Ph), "RGE-X3R4-7" (5A, 3-Ph) FROM SAGINOMIYA

- The controller varies the supply voltage to the fan motor from 45% (1-Ph) or 35% (3-Ph) to at least 95% over the proportional condensing pressure band which is factory fixed at 4 bar.
- The full voltage set point (FVS) is adjustable from 8-28bar, and is set by Heatcraft at 19 Bar for R404A medium temp. By turning the setting screw clockwise, the pressure setting increases. Turn anti-clockwise to decrease the pressure setting. The set point can be seen on the range setting pointer.
- The cut-off point is defined at 45% (1-Ph) or 35% (3-Ph) supply voltage to the fan motor, at factory setting this is  $15 \pm 1$  Bar depending on actual load and / or power supply.
- When the condensing pressure reduces to the minimum speed condition, the factory setting of "Min Speed" on the change-over switch ensures that the fans continue to run at this speed regardless of how low the pressure goes below the minimum. Alternatively, the change-over switch can be set in the field to "Cut-Off", in which case the controller will cut power to the fans and the fans will stop. The fans will then restart at low speed when the pressure rises. For details, please refer to the manufacturers' product specification.
- Heatcraft factory setpoint for R404A is 19 Bar(g) for M/T & 14 Bar(g) for L/T units. Heatcraft Australia recommends 16 Bar(g) for R22, 10 Bar(g) for R134a units.

# Kirby Titan Condensing Unit

## KMT-H Medium Temperature Heater

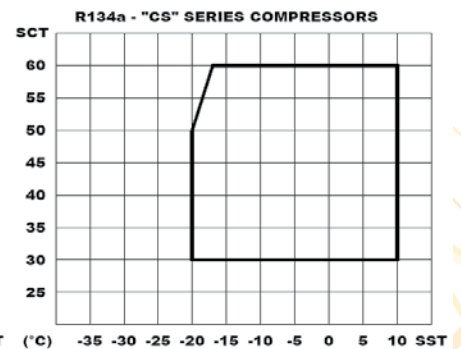
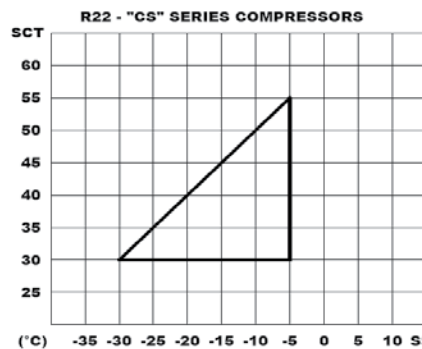
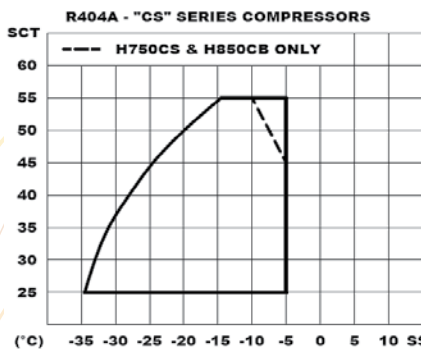
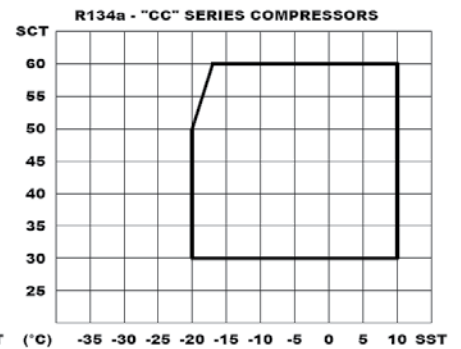
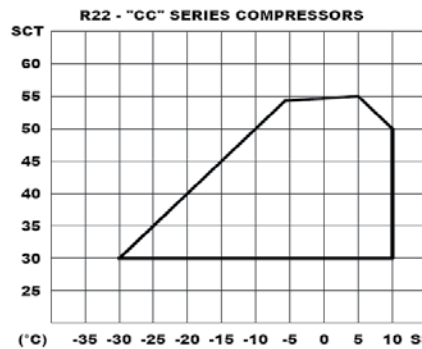
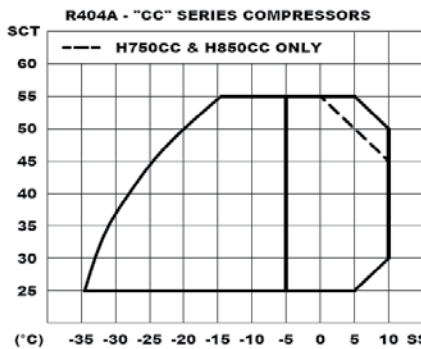
### Defrost Induced Draught Coolers



#### 5. CAPACITY CONTROL FOR DORIN H34 & H4 SERIES COMPRESSORS

- Dorin H34 & H4 compressors are 4 cylinders with 2 discharge heads. When capacity control is in operation, one discharge head is disabled by blocking the suction gas from entering the cylinders. Due to less refrigerant flow, thus less cooling effect to the electric motor, the running discharge head becomes hotter and the inactive head continually has reciprocating mechanical motion, thus been heating up over time. Hence it is recommended to have the following protection features implemented during capacity control operation.
- Fit a head cooling fan to reduce the temperature of compressor heads.
- Limit compressor operating range.
- Limit compressor continuous operating time to 2 - 3 hours. Then a 3 - 5 minutes operation at full capacity is necessary to cool the compressor down before the next capacity control operation.

“...the Kirby Titan thrives in harsh ambient conditions and under heavy loads.”



# Kirby Titan Condensing Unit

## R404A/R507 Medium/High Temperature

### Maneurop Hermetic Reciprocating Compressors



AMB.	LT				MT			HT			REC'R CAP.	
(°C)	-35	-30	-25	-20	-15	-10	-5	0	5	10	(L)	(KG)
PPH 131 MH A1-2												
30			5,130	6,750	8,600	10,710	13,090	15,760	18,690	21,840	14.5	12.0
35			4,510	6,090	7,830	9,780	11,970	14,450	17,220	20,220		
40			3,980	5,350	6,920	8,720	10,770	13,040	15,460	18,000		
45			3,480	4,690	6,120	7,770	9,620	11,660	13,870			
PPH 153 MH A1-2												
30			6,210	8,030	10,130	12,550	15,280	18,290	21,530	24,980	14.5	12.0
35			5,560	7,270	9,240	11,490	13,990	16760	19,800	23,080		
40			4,890	6,480	8,300	10,360	12,670	15,210	17,960	20,840		
45			4,280	5,710	7,380	9,270	11,390	13,700	16,160			
PPH 170 MH A1-2												
30			7,065	9,370	11,865	14,545	17,415	20,480	23,725	27,165	14.5	12.0
35			6,370	8,540	10,880	13,385	16,065	18,915	21,930	25,120		
40			5,680	7,710	9,895	12,225	14,715	17,350	20,135	23,075		
45			4,985	6,880	8,910	11,070	13,360	15,785	18,340	21,030		
PPH 217 MH A1-2												
30			9,705	12,550	15,620	18,910	22,425	26,165	30,125	34,315	14.5	12.0
35			8,680	11,375	14,225	17,230	20,385	23,700	27,165	30,785		
40			7,650	10,200	12,830	15,545	18,345	21,230	24,200	27,255		
45			6,625	9,025	11,435	13,865	16,305	18,765	21,240			
PPH 251 MH A1-2												
30			11,325	14,535	18,045	21,850	25,955	30,355	35,055	40,055	24.5	20.2
35			10,140	13,195	16,475	19,970	23,690	27,630	31,790	36,170		
40			8,955	11,860	14,905	18,095	21,425	24,900	28,520	32,285		
45			7,770	10,520	13,335	16,215	19,160	22,175	25,255			
PPH 283 MH A1-2												
30			13,205	16,675	20,595	24,955	29,760	35,010	40,705	46,850	24.5	20.2
35			11,815	15,110	18,755	22,745	27,085	31,770	36,805	42,185		
40			10,420	13,545	16,915	20,540	24,410	28,530	32,900	37,520		
45			9,030	11,980	15,080	18,330	21,735	25,290	29,000	32,855		

# Kirby Titan Condensing Unit

## R404A/R507 Low/Medium/High Temperature

### Dorin Semi-Hermetic Reciprocating Compressors



AMB. (°C)	LT						MT			HT			REC'R CAP.	
	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	(L)	(KG)
PPS 124 LM A1-2														
30			3,470	4,310	5,400	6,750	8,370	10,260	12,400	14,790	17,410	20,200	14.5	12.0
35			3,030	3,880	4,900	6,140	7,640	9,440	11,490	13,750	16,130	18,570		
40			2,810	3,490	4,390	5,530	6,930	8,570	10,460	12,540	14,770	17,080		
45			2,370	3,030	3,870	4,930	6,220	7,730	9,450	11,340	13,360			
PPS 149 LM A1-2														
30			4,000	4,980	6,280	7,910	9,880	12,210	14,870	17,860	21,130	24,660	14.5	12.0
35			3,470	4,430	5,670	7,200	9,050	11,220	13,720	16,530	19,610	22,920		
40			2,790	3,830	5,040	6,470	8,180	10,190	12,490	15,080	17,880	20,800		
45			2,660	3,450	4,480	5,760	7,330	9,190	11,320	13,670	16,180			
PPS 152 LM A1-2														
30			4,000	5,110	6,480	8,160	10,160	12,480	15,120	18,060	21,270	24,700	14.5	12.0
35			3,450	4,570	5,880	7,440	9,300	11,480	13,970	16,740	19,760	22,960		
40			2,770	3,950	5,240	6,710	8,430	10,430	12,710	15,260	18,000	20,850		
45			2,590	3,540	4,640	5,970	7,540	9,390	11,490	13,810	16,270			
PPS 178 LM A1-2														
30			4,820	6,190	7,830	9,770	12,070	14,730	17,740	21,080	24,690	28,530	14.5	12.0
35			4,220	5,540	7,100	8,940	11,100	13,590	16,410	19,540	22,950	26,560		
40			3,650	4,900	6,340	8,040	10,020	12,310	14,890	17,750	20,830	24,030		
45			3,180	4,260	5,580	7,160	9,000	11,100	13,460	16,080	18,900			
PPS 212 LM A1-2														
30			5,720	7,430	9,440	11,790	14,520	17,650	21,180	25,080	29,300	33,770	14.5	12.0
35			5,080	6,680	8,550	10,740	13,290	16,230	19,550	23,220	27,190	31,400		
40			4,180	5,850	7,650	9,670	12,010	14,690	17,730	21,070	24,610	28,240		
45			3,850	5,190	6,770	8,620	10,770	13,230	16,000	19,050	22,280			
PPS 242 LM A1-2														
30			7,250	9,405	11,870	14,650	17,745	21,155	24,875				24.5	20.2
35			6,530	8,570	10,890	13,500	16,395	19,580	23,045					
40			5,815	7,730	9,910	12,345	15,045	18,005						
45			5,095	6,895	8,925	11,195	13,695	16,430						
PPS 264 LMH A1-2														
30				9,965	12,580	15,605	19,050	22,905	27,170	31,850	36,945	42,455	24.5	20.2
35				9,055	11,530	14,375	17,585	21,170	25,125	29,450	34,145	39,210		
40				8,145	10,480	13,140	16,125	19,440	23,080	27,050	31,345			
45				7,235	9,430	11,905	14,665	17,710	21,035	24,650	28,545			
PPS 328 LM A1-2														
30			9,995	12,850	16,145	19,885	24,070	28,700	33,770				24.5	20.2
35			8,980	11,695	14,800	18,310	22,215	26,515	31,215					
40			7,965	10,535	13,455	16,730	20,355	24,335	28,665					
45			6,950	9,380	12,110	15,150	18,500	22,150	26,110					
PPS 338 LMH A1-2														
30				12,960	16,370	20,275	24,675	29,565	34,950	40,825	47,195	54,055	24.5	20.2
35				11,775	14,960	18,610	22,735	27,325	32,385	37,920	43,920	50,390		
40				10,590	13,545	16,950	20,795	25,090	29,825	35,010	40,640			
45				9,410	12,135	15,285	18,855	22,850	27,265	32,105	37,365			
PPS 370 LM A1-2														
30			11,360	14,660	18,430	22,655	27,345	32,495	38,110				24.5	20.2
35			10,265	13,390	16,935	20,895	25,275	30,070	35,285					
40			9,170	12,120	15,440	19,135	23,205	27,645	32,460					
45			8,080	10,850	13,950	17,375	21,135	25,220	29,635					
PPS 411 LM A1-2														
30			12,380	16,115	20,350	25,085	30,320	36,060	42,295				24.5	20.2
35			11,170	14,700	18,680	23,120	28,010	33,360	39,160					
40			9,960	13,280	17,015	21,150	25,700	30,655	36,020					
45			8,750	11,865	15,345	19,185	23,390	27,955	32,885					

# Kirby Titan Condensing Unit

## R134a Medium/High Temperature

### Maneurop Hermetic Reciprocating Compressors



AMB.	LT		MT			HT			REC'R CAP.	
(°C)	-25	-20	-15	-10	-5	0	5	10	(L)	(KG)
PPH 131 MH A1-2										
30				7,130	9,010	11,220	13,800	16,730	14.5	13.8
35				6,490	8,300	10,420	12,880	15,660		
40				5,830	7,570	9,570	11,880	14,510		
45				5,200	6,840	8,740	10,940	13,420		
PPH 153 MH A1-2										
30				8,200	10,320	12,820	15,720	18,990	14.5	13.8
35				7,510	9,550	11,950	14,740	17,920		
40				6,800	8,770	11,030	13,650	16,630		
45				6,130	8,000	10,140	12,620	15,450		
PPH 170 MH A1-2										
30				8,605	10,985	13,680	16,695	20,030	14.5	13.8
35				7,950	10,210	12,755	15,595	18,720		
40				7,300	9,435	11,835	14,490	17,410		
45				6,645	8,660	10,910	13,390	16,100		
PPH 217 MH A1-2										
30				10,930	13,810	17,060	20,680	24,680	14.5	13.8
35				10,050	12,800	15,875	19,295	23,060		
40				9,175	11,785	14,690	17,905	21,440		
45				8,300	10,770	13,510	16,520	19,820		
PPH 251 MH A1-2										
30				13,700	17,115	20,940	25,170	29,805	24.5	23.3
35				12,745	15,990	19,610	23,595	27,950		
40				11,785	14,865	18,275	22,020	26,095		
45				10,830	13,740	16,945	20,445	24,240		
PPH 283 MH A1-2										
30				15,130	18,955	23,265	28,065	33,350	24.5	23.3
35				14,100	17,705	21,750	26,235	31,160		
40				13,070	16,460	20,240	24,410	28,970		
45				12,040	15,215	18,730	22,585	26,780		

# Kirby Titan Condensing Unit

## R134a Medium/High Temperature

### Dorin Semi-Hermetic Reciprocating Compressors



AMB.	LT			MT			HT			REC'R CAP.	
(°C)	-30	-25	-20	-15	-10	-5	0	5	10	(L)	(KG)
PPS 124 LM A1-2											
30			4,110	5,320	6,740	8,390	10,290	12,460	14,920	14.5	13.8
35			3,840	4,980	6,350	7,940	9,770	11,860	14,240		
40			3,540	4,640	5,950	7,470	9,220	11,220	13,510		
45			3,250	4,300	5,550	7,010	8,690	10,610	12,820		
PPS 149 LM A1-2											
30			4,950	6,310	7,970	9,920	12,170	14,720	17,610	14.5	13.8
35			4,530	5,880	7,490	9,380	11,530	13,990	16,790		
40			4,210	5,480	7,010	8,800	10,860	13,210	15,890		
45			3,780	5,040	6,530	8,260	10,220	12,470	15,070		
PPS 152 LM A1-2											
30			5,380	6,340	7,940	9,940	12,290	14,980	18,010	14.5	13.8
35			4,470	5,810	7,490	9,500	11,840	14,460	17,320		
40			4,310	5,520	7,060	8,930	11,130	13,630	16,370		
45			3,900	5,100	6,580	8,370	10,470	12,860	15,490		
PPS 178 LM A1-2											
30			6,190	7,600	9,590	11,940	14,630	17,720	21,290	14.5	13.8
35			5,530	7,080	9,030	11,370	14,090	17,170	20,620		
40			5,140	6,660	8,530	10,740	13,290	16,180	19,460		
45			4,700	6,160	7,950	10,060	12,490	15,270	18,420		
PPS 212 LM A1-2											
30			6,970	9,200	11,710	14,560	17,790	21,460	25,570	14.5	13.8
35			6,660	8,640	11,020	13,800	16,950	20,470	24,390		
40			6,140	8,050	10,320	12,960	15,950	19,300	23,050		
45			5,700	7,490	9,640	12,140	14,990	18,200	21,800		
PPS 242 LM A1-2											
30			8,995	11,405	14,200	17,380	20,940	24,885	29,210	24.5	23.3
35			8,365	10,675	13,350	16,385	19,780	23,545	27,670		
40			7,740	9,945	12,495	15,390	18,625	22,200	26,125		
45			7,115	9,215	11,640	14,390	17,465	20,860	24,585		
PPS 264 LMH A1-2											
30			8,800	11,285	14,190	17,505	21,230	25,370	29,925	24.5	23.3
35			8,200	10,565	13,325	16,475	20,010	23,935	28,250		
40			7,600	9,850	12,465	15,445	18,785	22,495	26,570		
45				9,130	11,600	14,415	17,565	21,060	24,895		
PPS 328 LM A1-2											
30			11,535	14,595	18,120	22,110	26,565	31,490	36,880	24.5	23.3
35			10,700	13,620	16,980	20,775	25,010	29,675	34,780		
40			9,865	12,650	15,845	19,445	23,450	27,860	32,680		
45			9,030	11,680	14,710	18,110	21,890	26,045	30,575		
PPS 338 LMH A1-2											
30			11,390	14,475	18,105	22,275	26,985	32,235	38,030	24.5	23.3
35			10,610	13,575	17,050	21,025	25,510	30,500	35,995		
40			9,835	12,675	15,990	19,775	24,035	28,760	33,960		
45				11,775	14,935	18,525	22,555	27,025	31,930		
PPS 370 LM A1-2											
30			13,335	16,755	20,680	25,110	30,040	35,480	41,425	24.5	23.3
35			12,410	15,675	19,415	23,625	28,310	33,465	39,090		
40			11,480	14,595	18,150	22,145	26,580	31,450	36,760		
45			10,555	13,520	16,885	20,665	24,845	29,435	34,425		
PPS 411 LM A1-2											
30			14,645	18,520	22,975	28,005	33,615	39,805	46,570	24.5	23.3
35			13,595	17,300	21,545	26,340	31,670	37,550	43,970		
40			12,540	16,075	20,120	24,670	29,730	35,295	41,370		
45			11,490	14,855	18,695	23,005	27,790	33,040	38,770		

# Kirby Titan Condensing Unit

## R22 Medium/High Temperature

### Maneurop Hermetic Reciprocating Compressors



AMB.	LT				MT			HT			REC'R CAP.	
(°C)	-35	-30	-25	-20	-15	-10	-5	0	5	10	(L)	(KG)
PPH 131 MH A1-2												
30			4,140	5,760	7,670	9,850	12,310	15,040	18,060	21,360	14.5	13.6
35			3,700	5,270	7,100	9,190	11,540	14,150	17,030	20,230		
40				4,800	6,510	8,490	10,730	13,200	15,930	18,930		
45					5,930	7,820	9,940	12,300	14,920	17,790		
PPH 153 MH A1-2												
30			5,150	7,020	9,180	11,640	14,400	17,460	20,830	24,520	14.5	13.6
35			4,670	6,480	8,560	10,910	13,540	16,460	19,690	23,250		
40				5,940	7,910	10,140	12,630	15,400	18,460	21,810		
45					7,260	9,380	11,750	14,390	17,310	20,480		
PPH 170 MH A1-2												
30			6,025	7,890	10,160	12,835	15,915	19,400	23,290	27,580	14.5	13.6
35			5,350	7,140	9,315	11,875	14,810	18,135	21,840	25,925		
40			4,675	6,395	8,470	10,910	13,710	16,865	20,385	24,265		
45				5,645	7,625	9,945	12,605	15,600	18,935	22,610		
PPH 217 MH A1-2												
30			7,935	10,470	13,475	16,945	20,875	25,270	30,125	35,450	14.5	13.6
35			7,235	9,660	12,515	15,800	19,520	23,665	28,245	33,250		
40			6,535	8,845	11,555	14,660	18,165	22,065	26,360	31,055		
45				8,035	10,595	13,520	16,805	20,460	24,480	28,860		
PPH 251 MH A1-2												
30			9,180	12,000	15,380	19,320	23,820	28,875	34,490	40,665	24.5	23.0
35			8,360	11,045	14,255	17,985	22,235	27,005	32,295	38,110		
40			7,540	10,090	13,130	16,650	20,650	25,135	30,100	35,550		
45				9,135	12,000	15,310	19,065	23,265	27,905	32,995		
PPH 283 MH A1-2												
30			10,285	13,380	17,115	21,490	26,505	32,160	38,460	45,395	24.5	23.0
35			9,395	12,340	15,885	20,025	24,765	30,105	36,040	42,570		
40			8,505	11,305	14,660	18,565	23,030	28,045	33,620	39,745		
45				10,270	13,430	17,105	21,290	25,990	31,200	36,920		

# Kirby Titan Condensing Unit

## R22 Medium/High Temperature

### Dorin Semi-Hermetic Reciprocating Compressors



AMB.	LT						MT			HT			REC'R CAP.	
(°C)	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	(L)	(KG)
PPS 124 LM A1-2														
30							7,680	9,770	11,960	14,220	16,620	19,390	14.5	13.6
35							7,320	9,230	11,220	13,390	15,880	18,850		
40							6,690	8,450	10,410	12,640	15,120	17,840		
45							6,200	7,840	9,710	11,860	14,270			
PPS 149 LM A1-2														
30							9,800	11,760	13,980	16,450	19,170	22,100	14.5	13.6
35							9,020	10,900	13,080	15,500	18,120	20,920		
40							8,400	10,180	12,200	14,440	16,910	19,650		
45							7,680	9,380	11,300	13,440	15,850			
PPS 152 LM A1-2														
30							10,240	12,440	14,980	17,910	21,260	24,980	14.5	13.6
35							9,370	11,590	14,160	17,050	20,250	23,770		
40							8,780	10,840	13,230	15,960	19,040	22,510		
45							8,150	10,020	12,290	14,990	18,070			
PPS 178 LM A1-2														
30							12,350	14,930	17,890	21,330	25,270	29,650	14.5	13.6
35							11,540	14,050	16,940	20,250	24,020	28,240		
40							10,620	13,040	15,830	19,020	22,630	26,720		
45							9,830	12,090	14,760	17,880	21,440			
PPS 212 LM A1-2														
30							15,010	18,160	21,710	25,710	30,160	35,010	14.5	13.6
35							13,860	16,910	20,380	24,260	28,530	33,260		
40							12,760	15,710	19,030	22,740	26,870	31,530		
45							11,930	14,590	17,710	21,370	25,550			
PPS 242 LM A1-2														
30					10,990	13,545	16,550	19,995	23,885				24.5	23.0
35					10,145	12,605	15,505	18,850	22,635					
40					9,300	11,665	14,465	17,705	21,385					
45					8,455	10,720	13,425	16,560	20,135					
PPS 264 LMH A1-2														
30					11,690	14,470	17,795	21,675	26,105	31,085	36,615	42,695	24.5	23.0
35					10,790	13,440	16,630	20,360	24,640	29,460	34,825	40,735		
40					9,895	12,410	15,460	19,050	23,175	27,840	33,040			
45					8,995	11,375	14,290	17,735	21,710	26,220	31,255			
PPS 328 LM A1-2														
30					15,020	18,615	22,770	27,480	32,750				24.5	23.0
35					13,855	17,280	21,250	25,765	30,825					
40					12,690	15,945	19,730	24,050	28,900					
45					11,525	14,610	18,210	22,335	26,980					
PPS 338 LMH A1-2														
30					15,185	18,660	22,850	27,755	33,380	39,720	46,775	54,550	24.5	23.0
35					14,005	17,335	21,370	26,120	31,580	37,750	44,630	52,225		
40					12,830	16,010	19,895	24,485	29,780	35,780	42,485			
45					11,650	14,685	18,415	22,850	27,980	33,810	40,340			
PPS 370 LM A1-2														
30					17,190	21,225	25,840	31,030	36,805				24.5	23.0
35					15,925	19,780	24,190	29,160	34,695					
40					14,665	18,330	22,545	27,295	32,585					
45					13,400	16,885	20,895	25,425	30,475					
PPS 411 LM A1-2														
30					18,960	23,410	28,515	34,280	40,705				24.5	23.0
35					17,555	21,800	26,685	32,205	38,365					
40					16,145	20,195	24,855	30,135	36,030					
45					14,740	18,585	23,025	28,060	33,690					

# Kirby Titan Condensing Unit

## Technical Data



### Electrical Specifications - Medium/High Temperature - Maneurop Hermetic Reciprocating Compressors

UNIT MODEL	COMPRESSOR								CONDENSER FAN			UNIT		
	MODEL	DISPL. (m³/Hr)	Volts / Ph (50Hz)	MOTOR TYPE	RLA*	LRA	MCC	INPUT*	Volts / Ph (50Hz)	RLA (Amps)	INPUT (Watts)	RLA	MCC	INPUT (Watts)
					(Amps/Ph)			(Watts)				(Amps/Ph)		
PPH 131 MH A1-2	MTZ73-4VM	21.00	380 - 420 / 3	3 Ph	9.5	80.0	17.0	5,113	240 / 1	1.8	360	11.3	18.8	5,473
PPH 153 MH A1-2	MTZ81-4VM	23.60	380 - 420 / 3	3 Ph	10.3	80.0	19.0	6,108	240 / 1	3.6	800	13.9	22.6	6,908
PPH 170 MH A1-2	MTZ100-4VM	29.80	380 - 420 / 3	3 Ph	12.8	90.0	22.0	7,265	240 / 1	1.9	375	16.6	25.8	8,015
PPH 217 MH A1-2	MTZ125-4VM	37.50	380 - 420 / 3	3 Ph	14.8	105.0	27.0	9,162	240 / 1	1.9	375	18.6	30.8	9,912
PPH 251 MH A1-2	MTZ144-4VM	42.10	380 - 420 / 3	3 Ph	17.4	115.0	30.0	10,598	240 / 1	1.9	375	23.1	35.7	11,723
PPH 283 MH A1-2	MTZ160-4VM	47.30	380 - 420 / 3	3 Ph	19.6	140.0	36.0	12,051	240 / 1	1.9	375	25.3	41.7	13,176

### Electrical Specifications - Low/Medium Temperature - Dorin Semi-Hermetic Reciprocating Compressors

UNIT MODEL	COMPRESSOR								CONDENSER FAN			UNIT		
	MODEL	DISPL. (m³/Hr)	Volts / Ph (50Hz)	MOTOR TYPE	RLA*	LRA	MCC	INPUT*	Volts / Ph (50Hz)	RLA (Amps)	INPUT (Watts)	RLA	MCC	INPUT (Watts)
					(Amps/Ph)			(Watts)				(Amps/Ph)		
PPS 124 LM A1-2	H403CC/HTCR	19.98	380 - 420 / 3	3 Ph	8.8	63.1	13.5	4,990	240 / 1	1.8	360	10.6	15.0	5,350
PPS 149 LM A1-2	H503CC/HTCR	22.83	380 - 420 / 3	3 Ph	10.6	63.1	17.5	6,120	240 / 1	3.6	800	14.2	21.1	6,920
PPS 152 LM A1-2	H550CC (4CYL)	22.55	380 - 420 / 3	3 Ph	8.8	63.1	13.5	5,784	240 / 1	3.6	800	17.1	21.8	9,330
PPS 178 LM A1-2	H700CC (4CYL)	27.33	380 - 420 / 3	3 Ph	10.5	86.0	17.5	6,838	240 / 1	3.6	800	21.1	30.9	10,820
PPS 212 LM A1-2	H750CC (4CYL)	33.47	380 - 420 / 3	3 Ph	10.5	86.0	17.5	8,261	240 / 1	3.6	800	21.1	37.1	11,920
PPS 242 LM A1-2	H750CS	38.26	380 - 420 / 3	3 Ph	17.2	86.0	17.5	10,000	240 / 1	1.9	375	22.9	23.2	11,125
PPS 264 LMH A1-2	H1000CC	38.65	380 - 420 / 3	3 Ph	17.1	109.0	23.0	9,940	240 / 1	1.9	375	22.8	28.7	11,065
PPS 328 LM A1-2	H1000CS	48.82	380 - 420 / 3	3 Ph	22.3	135.0	25.0	13,030	240 / 1	1.9	375	28.0	30.7	14,155
PPS 338 LMH A1-2	H1500CC	48.82	380 - 420 / 3	3 Ph	24.9	171.0	34.0	12,800	415 / 3	1.2	670	28.5	37.6	14,810
PPS 370 LM A1-2	H1500CS	56.95	380 - 420 / 3	3 Ph	28.1	171.0	34.0	15,000	240 / 1	1.9	375	33.8	39.7	16,125
PPS 411 LM A1-2	H1600CS	62.92	380 - 420 / 3	3 Ph	30.5	177.0	38.0	16,580	415 / 3	1.2	670	34.1	41.6	18,590

\* = Compressor RLA and Input Watts data are taken at -5°C SST / +45°C SCT with refrigerant R404A. Compressor LRA and MCC data are supplied by compressor manufacturer.

### Physical Specifications - Medium/High Temperature - Maneurop Hermetic Reciprocating Compressors

UNIT		COND. FAN		REFRIGERANT CONNECTIONS		DIMENSIONS						Approx.		
MODEL	APPL. RANGE	FAN QTY. x DIA.	AIR FLOW (l/s)			OVERALL			MT'G HOLE			WEIGHT		SHIP'G VOL. (m³)
				SUCT'N (mm)	LIQUID (mm)	HEIGHT (mm)	WIDTH (mm)	DEPTH (mm)	CRS (mm)	CRS (mm)	CRS (mm)	NET (kg)	GROSS ((kg)	
PPH 131 MH A1-2	M / H	2 x 350	1,450	34.9	15.9	1060	1,846	840	530	815	783	225	250	2.84
PPH 153 MH A1-2	M / H	2 x 450	2,630	34.9	15.9	1094	1,846	840	530	815	783	229	254	2.84
PPH 170 MH A1-2	M / H	2 x 450	2,630	34.9	15.9	1,094	1,846	840	530	815	783	235	260	2.84
PPH 217 MH A1-2	M / H	2 x 450	2,350	34.9	15.9	1,094	1,846	840	530	815	783	255	280	2.84
PPH 251 MH A1-2	M / H	3 x 450	3,945	34.9	22.2	1,094	2,413	840	932	932	783	320	395	3.58
PPH 283 MH A1-2	M / H	3 x 450	3,735	34.9	22.2	1,094	2,413	840	932	932	783	335	405	3.58

### Physical Specifications - Low/Medium/High Temperature - Dorin Semi-Hermetic Reciprocating Compressors

UNIT		COND. FAN		REFRIGERANT CONNECTIONS		DIMENSIONS						Approx.		
MODEL	APPL. RANGE	FAN QTY. x DIA.	AIR FLOW (l/s)			OVERALL			MT'G HOLE			WEIGHT		SHIP'G VOL. (m³)
				SUCT'N (mm)	LIQUID (mm)	HEIGHT (mm)	WIDTH (mm)	DEPTH (mm)	CRS (mm)	CRS (mm)	CRS (mm)	NET (kg)	GROSS ((kg)	
PPS 124 LM A1-2	L / M	2 x 350	1,490	28.6	12.7	1060	1846	840	530	815	783	260	285	2.84
PPS 149 LM A1-2	L / M	2 x 450	2,630	28.6	12.7	1094	1,846	840	530	815	783	262	287	2.84
PPS 152 LM A1-2	L / M	2 x 450	2,630	28.6	15.9	1094	1,846	840	530	815	783	279	304	2.84
PPS 178 LM A1-2	L / M	2 x 450	2,490	34.9	15.9	1094	1,846	840	530	815	783	287	312	2.84
PPS 212 LM A1-2	L / M	2 x 450	2,240	34.9	15.9	1094	1,846	840	530	815	783	304	329	2.84
PPS 242 LM A1-2	L / M	3 x 450	3,945	34.9	22.2	1,094	2,413	840	932	932	783	365	435	3.58
PPS 264 LMH A1-2	L / M / H	3 x 450	3,735	34.9	22.2	1,094	2,413	840	932	932	783	395	465	3.58
PPS 328 LM A1-2	L / M	3 x 450	3,525	34.9	22.2	1,094	2,413	840	932	932	783	405	475	3.58
PPS 338 LMH A1-2	L / M / H	3 x 500	4,285	34.9	22.2	1,094	2,413	840	932	932	783	425	495	3.58
PPS 370 LM A1-2	L / M	3 x 450	3,360	34.9	22.2	1,094	2,413	840	932	932	783	425	495	3.58
PPS 411 LM A1-2	L / M	3 x 500	4,285	34.9	22.2	1,094	2,413	840	932	932	783	425	495	3.58

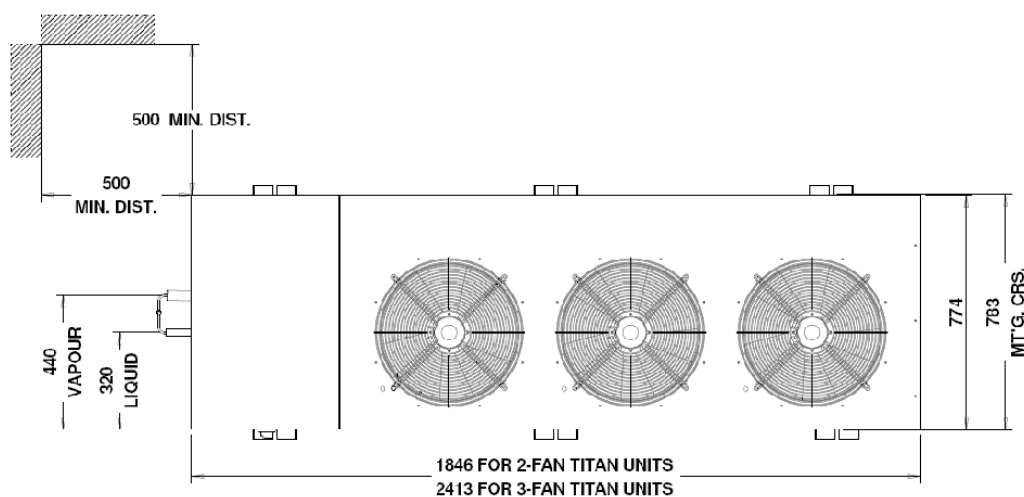
# Kirby Titan Condensing Unit

## Technical Data

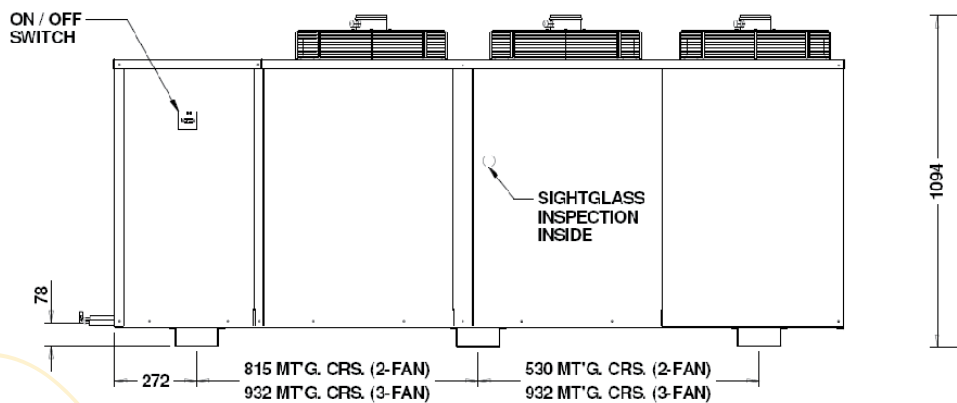


### Three Fan Physical Dimensions

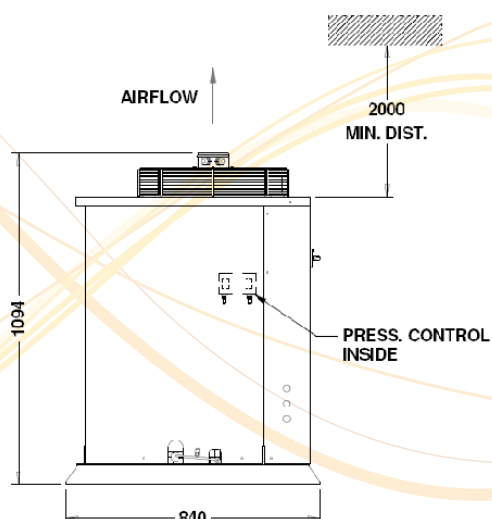
#### ■ Plan View



#### ■ Side View



#### ■ End View (right side of unit)



# Kirby Titan Condensing Unit Configurations



## Standard Configurations - All Models

- Dorin H32, H34 & H4 New Generation Semi Hermetic Compressors ( 11 Models)
- Maneurop Hermetic Compressor (6 Models)
- Provision for Capacity Control Function / H34 & H4 Semi Hermetic Compressors
- Danfoss Maneurop compressor complete with internal overload protector and crankcase heater
- Electrical Motor Protection INT69 on Dorin Compressors
- Universal-Multi Function Dual Pressure Control
- Liquid receiver, Drier & Moisture Indicator Sight Glass
- Oil Separator & Suction Accumulator
- High Efficiency, Low Noise External Rotor, Condenser Fan Motors
- Fan Speed Control
- Electrical Panel - Fully Wired Doc Complete With 3PH. Main Isolator Switch
- Phase Failure Control - MP15D
- Kirby Blue Kote Protection to Condenser Coil
- True High Ambient (45°C) Condenser Design
- Durable weatherproof Colorbond™ casing

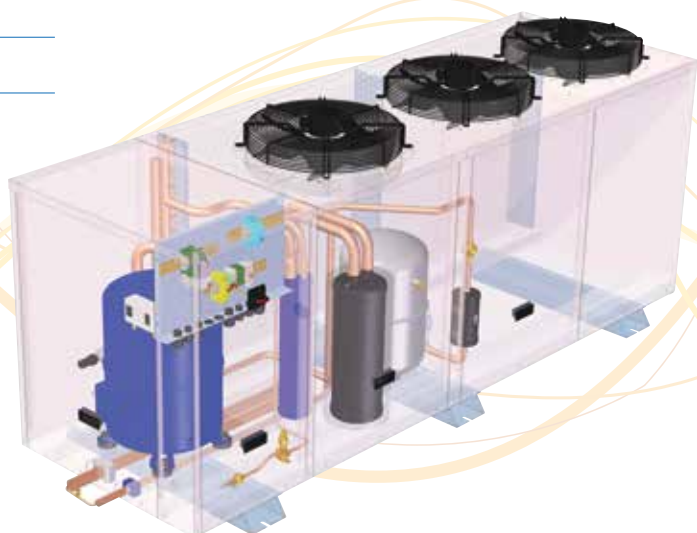


## Optional Configurations - By Unit Model

UNIT MODEL	Head Cooling Fan		PWS Wiring + Pre-Unload Start By Pass		Capacity Control (50%)+ LPC & Head Cooling Fan		Trax Oil / Oil Watch Alarm	
	Factory Fitted	Field Install - Supply Kit	Factory Fitted	Field Install - Supply Kit	Factory Fitted	Field Install - Supply Kit	Factory Fitted	Field Install - Supply Kit
PPH131MHA1-2	-	-	-	-	-	-	-	-
PPH153MHA1-2	-	-	-	-	-	-	-	-
PPH170MHA1-2	-	-	-	-	-	-	-	-
PPH217MHA1-2	-	-	-	-	-	-	-	-
PPH251MHA1-2	-	-	-	-	-	-	-	-
PPH283MHA1-2	-	-	-	-	-	-	-	-
PPS124LMA1-2	-	-	-	-	-	-	KP541-3F	KP541-3
PPS149LMA1-2	-	-	-	-	-	-	KP541-3F	KP541-3
PPS152LMA1-2	KP541-2F	KP541-2	-	-	KP541-7F	KP541-7	KP541-3F	KP541-3
PPS178LMA1-2	KP541-2F	KP541-2	-	-	KP541-7F	KP541-7	KP541-3F	KP541-3
PPS212LMA1-2	KP541-2F	KP541-2	-	-	KP541-7F	KP541-7	KP541-3F	KP541-3
PPS242LMA1-2	KP541-2F	KP541-2	-	-	KP541-7F	KP541-7	KP541-3F	KP541-3
PPS264LMA1-2	KP541-1F	KP541-1	KP541-4F	KP541-4	KP541-6F	KP541-6	KP541-3F	KP541-3
PPS328LMA1-2	KP541-1F	KP541-1	KP541-4F	KP541-4	KP541-6F	KP541-6	KP541-3F	KP541-3
PPS338LMA1-2	KP541-1F	KP541-1	KP541-5F	KP541-5	KP541-6F	KP541-6	KP541-3F	KP541-3
PPS370LMA1-2	KP541-1F	KP541-1	KP541-4F	KP541-4	KP541-6F	KP541-6	KP541-3F	KP541-3
PPS411LMA1-2	KP541-1F	KP541-1	KP541-5F	KP541-5	KP541-6F	KP541-6	KP541-3F	KP541-3

For Liquid Line Solenoid Valve please contact your nearest Heatcraft Store

# Kirby Titan Condensing Unit Notes





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