



**NO:** 16-12

**DATE:** 07/31/12

**TO: EMERSON CLIMATE TECHNOLOGIES WHOLESALERS**  
**-EXECUTIVES**  
**-PRODUCT MANAGERS**  
**-BUYERS**

**SUBJECT: MULTI-REFRIGERANT F-LINE CONDENSING UNITS WITH SCROLL COMPRESSORS**

Our planned transition of the F-Line condensing units from “C” compressors to scrolls has begun. The first phase includes FGAH R22 models. As inventory of the FGAH is depleted we will replace them with the new FFAP model. A key advantage for your business is the reduction from roughly 600 models to fewer than 100 models, which provides the ability to better service your customer with one condensing unit that operates with R22, 407C, 404a or 134a. These features are covered in the attached product brochure (2012ECT-40).

The benefits of using a scroll compressor over reciprocating technology include a 15% reduction in energy consumption, lower sound levels and improved reliability. The new FFAP also includes Emerson’s exclusive Electronic Unit Controller (EUC) that provides a number of features including diagnostics for troubleshooting and bump start for compressor protection. The EUC consolidates the low pressure control, anti short cycle relay, discharge line temperature protection and fan cycling into one easy-to-use control for contractors. As a recap the FFAP will provide our wholesalers with a great selling story, competitive price and fewer models to stock.

This bulletin includes the following support information shown below. Pricing for FFAP condensing units and new ZS service compressors used in these condensing units will be provided in a separate cover.

Table 1:	Transition plan from FGAH / FJAM / FTAH to FFAP
Table 2:	Unit model and compressor model cross reference
Table 3:	FFAP Air-cooled performance summary
Table 4:	FFAP Air-cooled electrical and mechanical specs
Table 5:	FGAH / FFAP Comparison
Table 6:	FFWP Water-cooled performance summary
Table 7:	FFWP Water-cooled electrical and mechanical specs
Table 8:	FGWH / FFWP Comparison

If you have any questions concerning the information in this bulletin please contact your DSM, Customer Service or Distribution Servicing Marketing. Information is also included in the wholesaler portal or OPI.



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**Table 1: Transition plan from FGAH / FJAM / FTAH to FFAP**

Hp Size	New Scroll Models			Current Recip Models							
	Multi-Ref CDU	Dimensions (L x W x H)	Scroll Compressor	R22 / 407C CDU	Dimensions (L x W x H)	R404A MT CDU	Dimensions (L x W x H)	R134a CDU*	Dimensions (L x W x H)	R404A LT CDU*	Dimensions (L x W x H)
1.5	FFAP-015Z	24 18.3 16.6	ZS09KAE	FGAH-A151	24 18.3 <b>16.3</b>					FJAL-A103	24 <b>17.2 15</b>
1.75	FFAP-017Z	24 18.3 16.6	ZS11KAE	FGAH-A171	24 18.3 <b>16.3</b>	FJAM-A150	24 18.3 <b>16.3</b>	FTAH-A101	24 <b>17.2 15</b>	FJAL-A150	24 <b>17.2 15</b>
						FJAM-A175					
2.0	FFAP-020Z	25.2 34 19	ZS13KAE	FGAH-A201	25.2 34 19	FJAM-A200	25.2 34 19				
2.25	FFAP-022Z	25.2 34 19	ZS15KAE	FGAH-A225	25.2 34 19	FJAM-A225	25.2 34 19	FTAH-A125	24 <b>18.3 16.3</b>	FJAL-B200	24 <b>18.3 16.3</b>
										FJAL-A300	24 <b>18.3 16.3</b>
										FJAL-A225	25.2 34 19
3.0	FFAP-030Z	25.2 34 19	ZS19KAE			FJAM-A300	25.2 34 19	FTAH-A150	24 <b>18.3 16.3</b>		
3.25	FFAP-032Z	25.2 34 19	ZS21KAE	FGAH-A301	25.2 34 19	FJAM-A325	25.2 34 19	FTAH-A201	25.2 34 19	FJAL-B301	25.2 34 19
				FGAH-A325							
4.0	FFAP-040Z	28.2 44 27	ZS26KAE			FJAM-B400	28.2 44 27			FJAL-B390	28.2 44 27
4.25	FFAP-042Z	28.2 44 27	ZS33KAE	FGAH-A401	28.2 44 27	FJAM-B500	28.2 44 27				
5.0	FFAP-050Z	28.6 44 27	ZS38KAE	FGAH-A501	28.6 44 27						
Product Phase Out Beginning						Preliminary Cross Reference: Product Available Through 2012 - Phase Out Date to be Announce Later					

In FY13 for 404A LT and 134a models, Emerson will release a model with the same length and width as product that is currently available for applications where there are space constraints.

Water-Cooled product is also available. See table 2 of this bulletin.

Items bolded in blue font indicate differences in dimensions.

**Table 2: Unit model and compressor model cross reference**

The table below shows the current FGAH/FGWH model numbers and what they will be replaced with (FFAP/FFWP) when the inventory is depleted at the Distribution Center. The columns on the right show the CR to Scroll compressor changes for each model. Models highlighted in yellow are already rolling to the new condensing unit model because the CR compressor inventory is depleted.

<b>C to Scroll Cross Reference</b>			
<b>Current Model</b>	<b>New Model</b>	<b>Current Compressor</b>	<b>New Compressor</b>
FGAH-A151-CFV-020	FFAP-015Z-CFV-072	CR18KQE-PFV-226TN	ZS09KAE-PFV
FGAH-A151-CFV-072	FFAP-015Z-CFV-072	CR18KQE-PFV-226TN	ZS09KAE-PFV
FGAH-A151-TFC-020	FFAP-015Z-TFC-072	CR18KQE-TF5-226TN	ZS09KAE-TF5
FGAH-A151-TFC-072	FFAP-015Z-TFC-072	CR18KQE-TF5-226TN	ZS09KAE-TF5
FGAH-A151-TFD-020	FFAP-015Z-TFD-072	CR18KQE-TFD-226TN	ZS09KAE-TFD
FGAH-A171-CFV-072	FFAP-017Z-CFV-072	CR20KQE-PFV-226TN	ZS11KAE-PFV
FGAH-A201-CFV-015	FFAP-020Z-CFV-071	CR24KQE-PFV-240CN	ZS13KAE-PFV
FGAH-A201-CFV-020	FFAP-020Z-CFV-072	CR24KQE-PFV-226TN	ZS13KAE-PFV
FGAH-A201-TFC-015	FFAP-020Z-TFC-071	CR24KQE-TF5-240CN	ZS13KAE-TF5
FGAH-A201-TFC-020	FFAP-020Z-TFC-072	CR24KQE-TF5-226TN	ZS13KAE-TF5
FGAH-A201-TFD-015	FFAP-020Z-TFD-071	CR24KQE-TFD-226TN	ZS13KAE-TFD
FGAH-A201-TFD-020	FFAP-020Z-TFD-072	CR24KQE-TFD-226TN	ZS13KAE-TFD
FGAH-A225-CFV-015	FFAP-022Z-CFV-071	CR28KQE-PFV-240CN	ZS15KAE-PFV
FGAH-A225-CFV-020	FFAP-022Z-CFV-071	CR28KQE-PFV-226TN	ZS15KAE-PFV
FGAH-A225-TFC-015	FFAP-022Z-TFC-071	CR28KQE-TF5-240CN	ZS15KAE-TF5
FGAH-A225-TFC-020	FFAP-022Z-TFC-071	CR28KQE-TF5-226TN	ZS15KAE-TF5
FGAH-A225-TFD-015	FFAP-022Z-TFD-071	CR28KQE-TFD-226TN	ZS15KAE-TFD
FGAH-A225-TFD-020	FFAP-022Z-TFD-071	CR28KQE-TFD-226TN	ZS15KAE-TFD
FGAH-A301-CFV-015	FFAP-032Z-CFV-071	CR37KQE-PFV-26HRE	ZS21KAE-PFV
FGAH-A301-CFV-020	FFAP-032Z-CFV-071	CR37KQE-PFV-26HRE	ZS21KAE-PFV
FGAH-A301-TFC-015	FFAP-032Z-TFC-071	CR37KQE-TF5-26HRE	ZS21KAE-TF5
FGAH-A301-TFC-020	FFAP-032Z-TFC-071	CR37KQE-TF5-26HRE	ZS21KAE-TF5
FGAH-A301-TFD-015	FFAP-032Z-TFD-071	CR37KQE-TFD-26HRE	ZS21KAE-TFD
FGAH-A301-TFD-020	FFAP-032Z-TFD-071	CR37KQE-TFD-26HRE	ZS21KAE-TFD
FGAH-A325-CFV-015	FFAP-032Z-CFV-071	CR41KQE-PFV-26HRE	ZS21KAE-PFV
FGAH-A325-CFV-020	FFAP-032Z-CFV-071	CR41KQE-PFV-26HRE	ZS21KAE-PFV
FGAH-A325-TFC-015	FFAP-032Z-TFC-071	CR41KQE-TF5-26HRE	ZS21KAE-TF5
FGAH-A325-TFC-020	FFAP-032Z-TFC-071	CR41KQE-TF5-26HRE	ZS21KAE-TF5
FGAH-A325-TFD-015	FFAP-032Z-TFD-071	CR41KQE-TFD-26HRE	ZS21KAE-TFD
FGAH-A325-TFD-020	FFAP-032Z-TFD-071	CR41KQE-TFD-26HRE	ZS21KAE-TFD
FGAH-A401-CFV-015	FFAP-042Z-CFV-071	CR53KQE-PFV-266RE	ZS33KAE-PFV
FGAH-A401-CFV-020	FFAP-042Z-CFV-071	CR53KQE-PFV-266RE	ZS33KAE-PFV
FGAH-A401-TFC-015	FFAP-042Z-TFC-071	CR53KQE-TF5-266RE	ZS33KAE-TF5
FGAH-A401-TFC-020	FFAP-042Z-TFC-071	CR53KQE-TF5-266RE	ZS33KAE-TF5
FGAH-A401-TFD-015	FFAP-042Z-TFD-071	CR53KQE-TFD-266RE	ZS33KAE-TFD

FGAH-A401-TFD-020	FFAP-042Z-TFD-071	CR53KQE-TFD-266RE	ZS33KAE-TFD
FGAH-A501-CFV-015	FFAP-050Z-CFV-071	CRNQ-050E-PFV-272	ZS38K4E-PFV
FGAH-A501-CFV-020	FFAP-050Z-CFV-071	CRNQ-050E-PFV-272	ZS38K4E-PFV
FGAH-A501-TFC-015	FFAP-050Z-TFC-071	CRNQ-050E-TF5-272	ZS38K4E-TF5
FGAH-A501-TFC-020	FFAP-050Z-TFC-071	CRNQ-050E-TF5-272	ZS38K4E-TF5
FGAH-A501-TFD-015	FFAP-050Z-TFD-071	CRNQ-050E-TFD-274	ZS38K4E-TFD
FGAH-A501-TFD-020	FFAP-050Z-TFD-071	CRNQ-050E-TFD-274	ZS38K4E-TFD
FGAH-A501-TFE-015	FFAP-050Z-TFE-071	CRNQ-050E-TFE-272	ZS38K4E-TFE
FGAH-A501-TFE-020	FFAP-050Z-TFE-071	CRNQ-050E-TFE-272	ZS38K4E-TFE
FGWH-A151-CFV-020	FFWP-015Z-CFV-020	CR18KQE-PFV-226TN	ZS09KAE-PFV
FGWH-A151-TFC-020	FFWP-015Z-TFC-020	CR18KQE-TF5-226TN	ZS09KAE-TF5
FGWH-A151-TFD-020	FFWP-015Z-TFD-020	CR18KQE-TFD-226TN	ZS09KAE-TFD
FGWH-A201-CFV-020	FFWP-020Z-CFV-020	CR24KQE-PFV-226TN	ZS13KAE-PFV
FGWH-A201-TFC-020	FFWP-020Z-TFC-020	CR24KQE-TF5-226TN	ZS13KAE-TF5
FGWH-A201-TFD-020	FFWP-020Z-TFD-020	CR24KQE-TFD-226TN	ZS13KAE-TFD
FGWH-A225-CFV-020	FFWP-022Z-CFV-020	CR28KQE-PFV-226TN	ZS15KAE-PFV
FGWH-A225-TFC-020	FFWP-022Z-TFC-020	CR28KQE-TF5-226TN	ZS15KAE-TF5
FGWH-A301-CFV-020	FFWP-032Z-CFV-020	CR37KQE-PFV-26HRE	ZS21KAE-PFV
FGWH-A301-TFC-020	FFWP-032Z-TFC-020	CR37KQE-TF5-26HRE	ZS21KAE-TF5
FGWH-A301-TFD-020	FFWP-032Z-TFD-020	CR37KQE-TFD-26HRE	ZS21KAE-TFD
FGWH-A325-CFV-020	FFWP-032Z-CFV-020	CR41KQE-PFV-26HRE	ZS21KAE-PFV
FGWH-A325-TFC-020	FFWP-032Z-TFC-020	CR41KQE-TF5-26HRE	ZS21KAE-TF5
FGWH-A325-TFD-020	FFWP-032Z-TFD-020	CR41KQE-TFD-26HRE	ZS21KAE-TFD
FGWH-A401-CFV-020	FFWP-042Z-CFV-020	CR53KQE-PFV-266RE	ZS33KAE-PFV
FGWH-A401-TFC-020	FFWP-042Z-TFC-020	CR53KQE-TF5-266RE	ZS33KAE-TF5
FGWH-A401-TFD-020	FFWP-042Z-TFD-020	CR53KQE-TFD-270	ZS33KAE-TFD
FGWH-A501-CFV-020	FFWP-050Z-CFV-020	CRNQ-050E-PFV-272	ZS38K4E-PFV
FGWH-A501-TFC-020	FFWP-050Z-TFC-020	CRNQ-050E-TF5-272	ZS38K4E-TF5
FGWH-A501-TFD-020	FFWP-050Z-TFD-020	CRNQ-050E-TFD-274	ZS38K4E-TFD
FGWH-A501-TFE-020	FFWP-050Z-TFE-020	CRNQ-050E-TFE-272	ZS38K4E-TFE



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**Table 3: FFAP Air-cooled performance summary**

HIGH/MED TEMP Model	BOM	Refrig.	H.P.	Capacity (BTU/Hr) at 90° Ambient - Evaporator Temp (°F)																
				-30	-25	-20	-15	-10	-5	0	+5	+10	+15	+20	+25	+30	+35	+40	+45	
FFAP-015Z	075, 072	22	1								6,730	7,630	8,530	9,460	10,400	11,400	12,400	13,600	14,800	16,100
		134a	1								4,220	4,770	5,360	6,000	6,880	7,540	8,340	9,200	10,100	11,100
		404A	1	2,650	3,320	4,000	4,690	5,440	6,160		6,890	7,660	8,470	9,300	10,200	11,500	12,400	13,400	14,500	15,600
		407C	1								5,630	6,490	7,410	8,330	9,290	10,400	11,400	12,500	13,600	14,800
FFAP-017Z	075, 072	22	1 3/4								7,790	8,830	9,880	10,900	12,000	13,100	14,300	15,600	17,000	18,400
		134a	1 3/4								5,000	5,640	6,340	7,080	7,880	8,900	9,840	10,800	11,900	13,100
		404A	1 3/4	4,130	4,630	5,200	5,800	6,460	7,170		7,920	8,740	9,610	10,500	11,500	13,100	14,300	15,500	16,900	18,500
		407C	1 3/4								6,860	7,860	8,970	10,100	11,200	12,500	13,700	14,900	16,200	17,500
FFAP-020Z	071, 072	22	2								9,000	10,200	11,400	12,600	13,900	15,200	16,600	18,100	19,600	21,300
		134a	2								5,710	6,450	7,240	8,080	9,010	10,200	11,200	12,400	13,600	14,900
		404A	2	4,980	5,590	6,280	7,020	7,830	8,700		9,620	10,600	11,700	12,900	14,100	15,300	16,600	17,900	19,200	20,600
		407C	2								7,600	8,760	9,990	11,200	12,500	14,000	15,300	16,800	18,200	19,700
FFAP-022Z	071	22	2								10,700	12,100	13,500	15,000	16,500	18,300	20,000	21,700	23,600	25,600
		134a	2								6,810	7,660	8,640	9,660	10,800	12,300	13,600	15,000	16,500	18,100
		404A	2	5,820	6,560	7,360	8,230	9,160	10,200		11,200	12,400	13,700	15,000	16,400	18,900	20,600	22,500	24,400	26,800
		407C	2								9,400	10,800	12,200	13,700	15,200	17,300	19,000	20,700	22,500	24,400
FFAP-030Z	071	22	3								12,300	13,900	15,500	17,200	19,000	20,800	22,700	24,800	27,000	29,400
		134a	3								7,670	8,690	10,000	11,200	12,500	14,100	15,600	17,200	19,000	20,800
		404A	3	6,550	7,400	8,330	9,340	10,400	11,600		12,900	14,300	15,900	17,500	19,200	21,600	23,500	25,400	27,500	29,600
		407C	3								10,700	12,300	14,000	15,800	17,600	19,700	21,700	23,700	26,100	28,700
FFAP-032Z	071	22	3								16,000	18,200	20,300	22,500	24,700	27,400	29,800	32,400	35,100	38,000
		134a	3								10,400	11,800	13,200	14,700	16,400	18,500	20,400	22,500	24,700	27,100
		404A	3	8,880	10,000	11,200	12,500	13,900	15,400		17,000	18,800	20,700	22,700	24,800	27,300	29,500	31,800	34,200	36,700
		407C	3								13,900	16,000	18,200	20,400	22,700	25,400	27,900	30,400	33,000	35,800
FFAP-040Z	071	22	4								18,600	21,100	23,700	26,300	29,000	31,700	34,800	38,100	41,600	45,400
		134a	4								11,800	13,400	15,100	16,900	18,900	21,300	23,700	26,200	28,900	31,800
		404A	4	10,100	11,400	12,900	14,400	16,200	18,000		20,100	22,300	24,700	27,300	30,000	34,200	37,500	41,000	44,800	49,500
		407C	4								16,700	19,300	21,900	24,600	27,500	30,700	33,800	37,100	41,000	45,200
FFAP-042Z	071	22	4								22,800	25,900	28,900	32,100	35,400	38,700	42,400	46,400	50,500	55,000
		134a	4								14,600	16,500	18,500	20,700	23,100	26,100	29,000	32,000	35,200	38,700
		404A	4	12,400	14,000	15,800	17,700	19,800	22,100		24,500	27,300	30,200	33,300	36,600	40,800	44,800	49,100	54,000	59,000
		407C	4								19,600	22,700	25,800	29,000	32,400	36,300	39,900	43,800	47,700	51,900
FFAP-050Z	071	22	5								26,200	29,100	32,100	35,400	38,900	43,100	47,100	51,500	55,500	60,500
		134a	5								16,600	18,700	20,900	23,400	26,000	29,400	32,500	35,800	39,300	43,000
		404A	5	13,500	15,100	16,900	18,700	20,700	22,900		25,100	27,600	30,100	32,900	35,700	45,400	49,300	53,500	57,500	62,000
		407C	5								21,200	24,500	28,100	32,000	36,100	41,600	46,100	50,800	55,500	60,100



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**Table 4: FFAP Air-cooled electrical and mechanical specs**

Model	Refrigerant	Comp	Overall Dimensions (In)			Connecting Lines		Minimum Circuit Ampacity - Max Fuse Size				Pump down Capacity (lbs)	Ship Weight (lbs)
			L	W	H	Suction	Liquid	208/230-1	230-3	460-3	575 - 3		
FFAP-015Z	22	ZS09KAE	24.0	18.3	16.6	7/8 S	3/8 S	13.9 - 20	11.4 - 15	6.4 - 15	7.4	121	
	134a										7.5		
	404A										6.4		
	407C										5.9		
FFAP-017Z	22	ZS11KAE	24.1	18.3	16.6	7/8 S	3/8 S	17.2 - 25			7.4	130	
	134a										7.5		
	404A										6.4		
	407C										5.9		
FFAP-020Z	22	ZS13KAE	25.2	34	19	7/8 S	3/8 S	16.8 - 25	13.9 - 20	7.1 - 15	13	191	
	134a										13.1		
	404A										11.2		
	407C										11.4		
FFAP-022Z	22	ZS15KAE	25.2	34	19	7/8 S	3/8 S	22.4 - 35	16.1 - 20	10 - 15	13	191	
	134a										13.1		
	404A										11.2		
	407C										11.4		
FFAP-030Z	22	ZS19KAE	25.2	34.1	19	7/8 S	3/8 S	25.3 - 40	19.9 - 30	11.3 - 15	13	209	
	134a										13.1		
	404A										11.2		
	407C										11.4		
FFAP-032Z	22	ZS21KAE	25.2	34.1	19	7/8 S	3/8 S	31.8 - 50	21.8 - 30	11.8 - 15	13	209	
	134a										13.1		
	404A										11.2		
	407C										11.4		
FFAP-040Z	22	ZS28KAE	28.2	44.1	26.8	1 1/8 S	1/2 S	33.1 - 50	23 - 35	11 - 15	21.5	290	
	134a										21.8		
	404A										18.7		
	407C										18.3		
FFAP-042Z	22	ZS33KAE	28.2	44.1	26.8	1 1/8 S	1/2 S	38.9 - 60	31.5 - 50	14.9 - 20	21.5	296	
	134a										21.8		
	404A										18.7		
	407C										18.3		
FFAP-050Z-	22	ZS38KAE	28.6	44.1	26.9	1 1/8 S	1/2 S	43.4 - 70	30.4 - 45	14.4 - 20	11.9 - 15	21.5	297
	134a											21.8	
	404A											18.7	
	407C											18.3	

Pumpdown capacity is receiver volume only at 90%, 90°F ambient



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**Table 5: FGAH / FFAP Comparison**

Status	Product Number	Compressor	Length (in)	Width (in)	Height (in)	Refrigerant	Application	Capacity	CDU MCA / Fuse
Obsolete	FGAH-A301-CFV	CR37KQE-PFV	25.5	34.0	19.0	R22	HT	24,600	28.9 - 40
Active	FFAP-032Z-CFV	ZS21KAE-PFV	25.2	34.0	19.0	R22	HT	27,400	31.8 - 50
Obsolete	FGAH-A301-TFC	CR37KQE-TF5	25.5	34.0	19.0	R22	HT	24,600	19.7 - 20
Active	FFAP-032Z-TFC	ZS21KAE-TF5	25.2	34.0	19.0	R22	HT	27,400	21.8 - 30
Obsolete	FGAH-A301-TFD	CR37KQE-TFD	25.5	34.0	19.0	R22	HT	24,600	10.2 - 15
Active	FFAP-032Z-TFD	ZS21KAE-TFD	25.2	34.0	19.0	R22	HT	27,400	11.8 - 15
Obsolete	FGAH-A325-CFV	CR41KQE-PFV	25.5	34.0	19.0	R22	HT	26,400	30.1 - 40
Active	FFAP-032Z-CFV	ZS21KAE-PFV	25.2	34.0	19.0	R22	HT	27,400	31.8 - 50
Obsolete	FGAH-A325-TFC	CR41KQE-TF5	25.5	34.0	19.0	R22	HT	26,400	22.2 - 25
Active	FFAP-032Z-TFC	ZS21KAE-TF5	25.2	34.0	19.0	R22	HT	27,400	21.8 - 30
Obsolete	FGAH-A325-TFD	CR41KQE-TFD	25.5	34.0	19.0	R22	HT	26,400	10.6 - 15
Active	FFAP-032Z-TFD	ZS21KAE-TFD	25.2	34.0	19.0	R22	HT	27,400	11.8 - 15
Obsolete	FGAH-A401-CFV	CR53KQE-PFV	28.6	44.1	26.8	R22	HT	37,500	39.9 - 60
Active	FFAP-042Z-CFV	ZS33KAE-PFV	28.2	44.1	26.8	R22	HT	38,700	38.9 - 60
Obsolete	FGAH-A401-TFC	CR53KQE-TF5	28.6	44.1	26.8	R22	HT	37,500	26.1 - 40
Active	FFAP-042Z-TFC	ZS33KAE-TF5	28.2	44.1	26.8	R22	HT	38,700	31.5 - 50
Obsolete	FGAH-A401-TFD	CR53KQE-TFD	28.6	44.1	26.8	R22	HT	37,500	13.8 - 20
Active	FFAP-042Z-TFD	ZS33KAE-TFD	28.2	44.1	26.8	R22	HT	38,700	14.9 - 20
Obsolete	FGAH-A501-CFV	CRNQ-050E-PFV	28.6	44.1	26.8	R22	HT	43,200	46.5 - 70
Active	FFAP-050Z-CFV	ZS38K4E-PFV	28.2	44.1	26.8	R22	HT	43,100	43.4 - 70
Obsolete	FGAH-A501-TFC	CRNQ-050E-TF5	28.6	44.1	26.8	R22	HT	43,200	30.4 - 45
Active	FFAP-050Z-TFC	ZS38K4E-TF5	28.2	44.1	26.8	R22	HT	43,100	30.4 - 45
Obsolete	FGAH-A501-TFD	CRNQ-050E-TFD	28.6	44.1	26.8	R22	HT	43,200	14.4 - 20
Active	FFAP-050Z-TFD	ZS38K4E-TFD	28.2	44.1	26.8	R22	HT	43,100	14.4 - 20
Obsolete	FGAH-A501-TFE	CRNQ-050E-TFE	28.6	44.1	26.8	R22	HT	43,200	11.9 - 15
Active	FFAP-050Z-TFE	ZS38K4E-TFE	28.2	44.1	26.8	R22	HT	42,600	11.9 - 15

Capacity at +25° F Evap, 90° F Ambient, 85° F Return Gas



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**Table 6: FFWP Water-cooled performance summary**

HIGH/MED TEMP				Capacity (BTU/Hr) at 105° Condensing Temp (°F)															
Model	BOM	Refrig.	H.P.	-30	-25	-20	-15	-10	-5	0	+5	+10	+15	+20	+25	+30	+35	+40	+45
FFWP-015Z	020	22	1							6,770	7,740	8,720	9,750	10,800	12,100	13,300	14,700	16,100	17,700
		134a	1							4,070	4,620	5,220	5,870	6,590	7,620	8,500	9,460	10,500	11,600
		404A	1	3,230	3,670	4,140	4,670	5,240	5,890	6,590	7,370	8,230	9,180	10,200	11,400	13,600	14,900	16,400	18,000
		407C	1							5,750	6,670	7,620	8,630	9,700	11,100	12,300	13,600	15,000	16,500
FFWP-017Z	020	22	1							7,970	9,100	10,300	11,500	12,700	14,200	15,700	17,300	19,000	20,900
		134a	1							4,850	5,510	6,230	7,010	7,870	9,090	10,100	11,300	12,500	13,900
		404A	1	3,990	4,520	5,110	5,750	6,470	7,260	8,130	9,090	10,200	11,300	12,600	14,900	16,600	18,400	20,400	22,700
		407C	1							6,870	7,980	9,100	10,300	11,600	13,300	14,700	16,300	18,000	19,700
FFWP-020Z	020	22	2							9,180	10,500	11,800	13,200	14,600	16,400	18,000	19,900	21,800	24,000
		134a	2							5,540	6,290	7,110	8,010	8,990	10,400	11,600	12,900	14,300	15,900
		404A	2	4,400	4,980	5,630	6,350	7,140	8,010	8,970	10,000	11,200	12,500	13,900	17,000	18,800	20,900	23,200	25,800
		407C	2							7,840	9,090	10,400	11,800	13,200	15,100	16,800	18,600	20,500	22,500
FFWP-022Z	020	22	2							10,800	12,300	13,900	15,500	17,200	19,200	21,200	23,400	25,700	28,200
		134a	2							6,680	7,590	8,570	9,650	10,800	12,500	14,000	15,600	17,300	19,100
		404A	2	5,300	6,010	6,790	7,650	8,600	9,650	10,800	12,100	13,500	15,100	16,800	20,400	22,700	25,200	28,000	31,100
		407C	2							9,450	11,000	12,500	14,200	15,900	18,300	20,300	22,400	24,700	27,200
FFWP-032Z	020	22	3							16,400	18,800	21,200	23,600	26,300	29,400	32,400	35,600	39,200	43,000
		134a	3							10,100	11,500	13,000	14,600	16,400	19,000	21,200	23,600	26,200	29,000
		404A	3	8,220	9,320	10,500	11,900	13,300	15,000	16,800	18,700	20,900	23,300	26,000	30,700	34,100	37,900	42,100	46,700
		407C	3							14,300	16,600	19,000	21,500	24,200	27,700	30,700	34,000	37,500	41,200
FFWP-042Z	020	22	4							22,600	25,900	29,200	32,600	36,200	40,500	44,600	49,100	54,000	59,300
		134a	4							14,000	15,800	17,900	20,200	22,600	26,100	29,200	32,500	36,100	40,000
		404A	4	11,300	12,800	14,500	16,300	18,400	20,800	23,100	25,800	28,900	32,200	35,800	43,000	47,700	53,000	58,800	65,300
		407C	4							19,700	22,900	26,200	29,600	33,300	38,100	42,300	46,800	51,600	56,800
FFWP-050Z	020	22	4							28,200	29,300	32,800	36,300	40,200	44,800	49,400	54,300	59,500	65,100
		134a	4							16,000	18,100	20,400	23,000	25,800	29,800	33,200	36,900	40,800	45,200
		404A	4	14,100	15,900	17,900	20,100	22,500	25,000	27,900	30,900	34,300	37,900	41,900	48,700	53,500	58,800	64,400	70,400
		407C	4							22,500	26,200	30,400	35,000	39,900	45,000	50,400	55,900	61,500	67,200

Performance @ 40°F Return Gas (65°F Return Gas For Performance In bold), 5° SubCooling





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**Table 7: FFWP Water-cooled electrical and mechanical specs**

Model	Refrigerant	Comp	Overall Dimensions (In)			Connecting Lines		Minimum Circuit Ampacity - Max Fuse Size				Pump down Capacity (lbs)	Ship Weight (lbs)
			L	W	H	Suction	Liquid	208/230-1	230-3	460-3	575-3		
FFWP-015Z	22	ZS09KAE	16.1	24	16.6	7/8 S	3/8 S	12.5 - 20	10 - 15	4.8 - 15	13	115	
	134a										13.1		
	404A										11.2		
	407C										11.4		
FFWP-017Z	22	ZS11KAE	16.1	24	16.6	7/8 S	3/8 S	15.8 - 25	13 - 20	6.4 - 15	13	115	
	134a										13.1		
	404A										11.2		
	407C										11.4		
FFWP-020Z	22	ZS13KAE	16.1	24	16.6	7/8 S	3/8 S	15 - 25	12.1 - 20	6 - 15	13	114	
	134a										13.1		
	404A										11.2		
	407C										11.4		
FFWP-022Z	22	ZS15KAE	16.1	24	16.6	7/8 S	3/8 S	19.6 - 35	13.3 - 20		13	116	
	134a										13.1		
	404A										11.2		
	407C										11.4		
FFWP-032Z	22	ZS21KAE	27.2	21.5	19.2	1 1/8 S	3/8 S	23.1 - 40	13.9 - 20	7 - 15	13	170	
	134a										13.1		
	404A										11.2		
	407C										11.4		
FFWP-042Z	22	ZS33KAE	27.2	21.6	21.1	1 1/8 S	1/2 S	36.3 - 60	22.5 - 40		21.5	325	
	134a										21.8		
	404A										18.7		
	407C										18.3		
FFWP-050Z	22	ZS38K4E	27.5	21.7	21.1	1 1/8 S	1/2 S	39.8 - 70	26.8 - 45	12 - 20	21.5	342	
	134a										21.8		
	404A										18.7		
	407C										18.3		

Pumpdown capacity is receiver volume only at 90%, 90°F ambient

**Table 8: FGWH / FFWP Comparison**

Status	Water Cooled Models	Compressor	Length (in)	Width (in)	Height (in)	Refrigerant	Application	Capacity	CDU MCA / Fuse
Obsolete	FGWH-A151-CFV	CR18KQE-PFV	24.0	16.7	14.3	R22	HT	13,500	11.3 - 20
Active	FFWP-0172-CFV	ZS11KAE-PFV	24.0	16.9	16.6	R22	HT	14,200	15.8 - 25
Obsolete	FGWH-A151-TFC	CR18KQE-TF5	24.0	16.7	14.3	R22	HT	13,500	7.5 - 15
Active	FFWP-0172-TFC	ZS11KAE-TF5	24.0	16.9	16.6	R22	HT	14,200	13 - 20
Obsolete	FGWH-A151-TFD	CR18KQE-TFD	24.0	16.7	15.4	R22	HT	13,500	3.8 - 15
Active	FFWP-0172-TFD	ZS11KAE-TFD	24.0	16.9	16.6	R22	HT	14,200	5.4 - 15
Obsolete	FGWH-A201-CFV	CR24KQE-PFV	24.0	16.7	15.0	R22	HT	16,900	16.9 - 30
Active	FFWP-0202-CFV	ZS13KAE-PFV	16.1	24.0	16.6	R22	HT	16,400	15 - 25
Obsolete	FGWH-A201-TFC	CR24KQE-TF5	24.0	16.7	14.3	R22	HT	16,900	9.4 - 15
Active	FFWP-0202-TFC	ZS13KAE-TF5	16.1	24.0	16.6	R22	HT	16,400	12.1 - 20
Obsolete	FGWH-A201-TFD	CR24KQE-TFD	24.0	16.7	15.4	R22	HT	16,900	4.6 - 15
Active	FFWP-0202-TFD	ZS13KAE-TFD	16.1	24.0	16.6	R22	HT	16,400	6 - 15
Obsolete	FGWH-A225-CFV	CR28KQE-PFV	24.0	16.7	15.0	R22	HT	19,300	18.8 - 30
Active	FFWP-0222-CFV	ZS15KAE-PFV	16.1	24.0	16.6	R22	HT	19,200	19.6 - 35
Obsolete	FGWH-A225-TFC	CR28KQE-TF5	24.0	16.7	14.6	R22	HT	19,300	11 - 15
Active	FFWP-0222-TFC	ZS15KAE-TF5	16.1	24.0	16.6	R22	HT	19200	13.3 - 20
Obsolete	FGWH-A301-CFV	CR37KQE-PFV	25.0	21.0	15.5	R22	HT	27,300	23.1 - 40
Active	FFWP-0322-CFV	ZS21KAE-PFV	27.2	21.5	18.2	R22	HT	29,400	29 - 50
Obsolete	FGWH-A301-TFC	CR37KQE-TF5	25.0	21.0	15.8	R22	HT	27,300	13.9 - 20
Active	FFWP-0322-TFC	ZS21KAE-TF5	27.2	21.5	18.2	R22	HT	29,400	19 - 30
Obsolete	FGWH-A301-TFD	CR37KQE-TFD	25.0	21.0	15.8	R22	HT	27,300	7 - 15
Active	FFWP-0322-TFD	ZS21KAE-TFD	27.2	21.5	18.2	R22	HT	29,400	8.6 - 15
Obsolete	FGWH-A325-CFV	CR41KQE-PFV	25.0	21.0	15.5	R22	HT	30,200	24.3 - 40
Active	FFWP-0322-CFV	ZS21KAE-PFV	27.2	21.5	18.2	R22	HT	29,400	29 - 50
Obsolete	FGWH-A325-TFC	CR41KQE-TF5	25.0	21.0	15.5	R22	HT	30,200	16.4 - 25
Active	FFWP-0322-TFC	ZS21KAE-TF5	27.2	21.5	18.2	R22	HT	29,400	19 - 30
Obsolete	FGWH-A401-CFV	CR53KQE-PFV	26.8	21.0	21.1	R22	HT	39,400	36.3 - 60
Active	FFWP-0422-CFV	ZS33KAE-PFV	27.2	21.6	21.1	R22	HT	40,500	35.3 - 60
Obsolete	FGWH-A401-TFC	CR53KQE-TF5	26.8	21.0	21.1	R22	HT	39,400	22.5 - 40
Active	FFWP-0422-TFC	ZS33KAE-TF5	27.2	21.6	21.1	R22	HT	40,500	27.9 - 50
Obsolete	FGWH-A501-CFV	CRNQ-050E-PFV	25.8	21.8	21.1	R22	HT	45,100	42.9 - 70
Active	FFWP-0502-CFV	ZS38K4E-PFV	27.5	21.7	21.1	R22	HT	44,800	39.8 - 70
Obsolete	FGWH-A501-TFC	CRNQ-050E-TF5	25.8	21.8	21.1	R22	HT	45,100	26.8 - 45
Active	FFWP-0502-TFC	ZS38K4E-TF5	27.5	21.7	21.1	R22	HT	44,800	26.8 - 45
Obsolete	FGWH-A501-TFD	CRNQ-050E-TFD	25.8	21.8	21.1	R22	HT	45,100	12 - 20
Active	FFWP-0502-TFD	ZS38K4E-TFD	27.5	21.7	21.1	R22	HT	44,800	12 - 20
Obsolete	FGWH-A501-TFE	CRNQ-050E-TFE	25.8	21.8	21.1	R22	HT	45,100	9.9 - 15
Active	FFWP-0502-TFE	ZS38K4E-TFE	27.5	21.7	21.1	R22	HT	44,800	9.9 - 15

Capacity at +25° F Evap, 105° F Condensing, 85° F Return Gas

# Copeland Scroll™

## Air-cooled refrigeration condensing units



## FFAP multi-refrigerant models; low, medium and high temperature; R-404A, R-134a, R-407C and R-22

### Unmatched reliability and efficiency

- Improved efficiency from 10%-15% annually
- Optimized for multiple applications

### Diagnostic protection

Equipped with electronic unit controller:

- Troubleshooting diagnostics
- System protection
- Reduces potential service costs

### Application flexibility

- Operating range of -30°F -45°F evap (R-404A)
- Designed for up to 110° ambient
- Designed to work with multiple refrigerants
- Optional hood available

### Fully featured

- Integrated electronic controls
- Advanced system protection
- Part of the industry's broadest line of integral horsepower condensing units for refrigeration applications

## Physical and electrical data

Model	Voltages *	Comp	Overall dimensions (In)			Connecting lines		Minimum circuit ampacity - Max fuse size				R-404A Pump down capacity (lbs)	Ship weight (lbs)
			L	W	H	Suction	Liquid	208/230-1	230-3	460-3	575-3		
FFAP-015Z	CFV, TFC, TFD	ZS09KAE	24.0	18.3	16.6	7/8 S	3/8 S	13.9 - 20	11.4 - 15	6.4 - 15		8.9	121
FFAP-017Z	CFV, TFC, TFD	ZS11KAE	24.1	18.3	16.6	7/8 S	3/8 S	17.2 - 25	14.4 - 20	7.1 - 15		8.9	130
FFAP-020Z	CFV, TFC, TFD	ZS13KAE	25.2	34	19	7/8 S	3/8 S	16.8 - 25	13.9 - 20	7.1 - 15		15.2	191
FFAP-022Z	CFV, TFC, TFD	ZS15KAE	25.2	34	19	7/8 S	3/8 S	22.4 - 35	16.1 - 20	10 - 15		15.2	191
FFAP-030Z	CFV, TFC, TFD	ZS19KAE	25.2	34.1	19	7/8 S	3/8 S	25.3 - 40	19.9 - 30	11.3 - 15		17.2	209
FFAP-032Z	CFV, TFC, TFD	ZS21KAE	25.2	34.1	19	7/8 S	3/8 S	31.8 - 50	21.8 - 30	11.8 - 15		17.2	209
FFAP-040Z	CFV, TFC, TFD	ZS26KAE	28.2	44.1	26.8	1 1/8 S	1/2 S	33.1 - 50	23 - 35	11 - 15		29.5	290
FFAP-042Z	CFV, TFC, TFD	ZS33KAE	24.0	18.3	16.1	1 1/8 S	7/8 S	38.9 - 60	31.5 - 50	14.9 - 20		29.5	296
FFAP-050Z	CFV, TFC, TFD, TFE	ZS38K4E	28.6	44.1	26.9	1 1/8 S	1/2 S	43.4 - 70	30.4 - 45	14.4 - 20	11.9 - 15	29.5	297

\*CFV = single phase, 208/230 volt TFC = three phase, 208/230 volt TFD = three phase, 460 volt TFE = three phase, 575 volt. All models available for use with R-22, R-134a, R-404A, R-407C

## Features

BOM	F-line		
	-071	-072	-075
Fan motor	Fixed speed	Fixed speed	Fixed speed
Head pressure control	Fan cycle		Head Pressure Control Valve
Refrigerants	404A, 134a, 407C, 22	404A, 134a, 407C, 22	404A, 134a, 407C, 22
Service valves	Steel	Steel	Steel
Receiver	✓	✓	✓
Liquid shut off	✓	✓	✓
Moisture indicator	✓	✓	✓
Filter drier	✓	✓	✓
Fixed HP	✓	✓	✓
Adjustable LP	✓	✓	✓
CCH	✓		✓
Accumulator	✓		Specific models
Optional features		Specific models	
Hood		015z-017z	505-7066-01
		020z-032z	505-7066-02
		040z-050z	505-7066-03

## Capacity data

Model	Capacity (BTU/Hr) 90° Amb, 25° Evap				90° Amb, -20° evap R-404A
	R-404A	R-134a	R-407C	R-22	
FFAP-015Z	11,500	7,540	10,400	11,400	4,000
FFAP-017Z	13,100	8,900	12,500	13,100	5,200
FFAP-020Z	15,300	10,200	14,000	15,200	6,280
FFAP-022Z	18,900	12,300	17,300	18,300	7,360
FFAP-030Z	21,600	14,100	19,700	20,800	8,330
FFAP-032Z	27,300	18,500	25,400	27,400	11,200
FFAP-040Z	34,200	21,300	30,700	31,700	12,900
FFAP-042Z	40,800	26,100	36,300	38,700	15,800
FFAP-050Z	45,400	29,400	41,600	43,100	16,900

25°F capacities are at 60 Hertz with 65° return gas and 5°F subcooling.

-20°F capacities are at 60 Hertz with 40° return gas and 5°F subcooling.

## Emerson™ Electronic Unit Controller

Key functions	Key benefits
- Controls unit based on suction pressure	- Quick & easy set-up
- Fan cycling with mid coil temperature	- Improved set-point accuracy
- Discharge line protection	- Enables multi-refrigerant product
	- Trouble shooting diagnostics
	- Added system safeguards