

COMPRESSOR DEFINITION

Designation	VNE K213U
Nominal Voltage/Frequency	100-300 V 33-75 Hz
Engineering Number	860AX71

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-290		
3 Nominal voltage and frequency	100-300 / 33-75	[V / Hz]	
4 Application type	Low Back Pressure R290		
4.1 Evaporating temperature range	-40°C to -10°C	(-40°F to 14°F)	
5 Motor type	BPM		
6 Starting torque	HST - Hight starting torque		
7 Expansion device	Capillary tube or Expansion valve		
8 Compressor cooling	Operating voltage range		
		50 Hz	60 Hz
8.1 LBP (32°C Ambient temperature)	-	-	-
8.2 LBP (43°C Ambient temperature)	-	-	-
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
9 Maximum condensing temperature			
9.1 Operating	18.4	[kgf/cm ²] (262 psig)	/ °C - °F
9.2 Peak	20.6	[kgf/cm ²] (293 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation		[hp]
2 Displacement	13.54	[cm ³] (0.826 cu.in)
2.1 Bore [mm]	29.362	
2.2 Stroke [mm]	20.000	
3 Lubricant charge	500	[ml] (16.91 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO22	
4 Weight (with oil charge)	11.6	[kg] (25.57 lb.)
5 Nitrogen charge	-	[kgf/cm ²]

C - ELETRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	100-300 V 33-75 Hz 3 ~ (Three phase)	
2 Starting device type	Inverter	
2.1 Starting device	VCCHP2456XXXXX	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	MST26GL-3166	
6 Start winding resistance	3.82	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	2.53	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (50/60 Hz)	-	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (50/60 Hz)	-	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (50/60 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification	VDE	

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V2000RPM			ARILBP Fan		Evaporating temperature (Condensing temperature)		-23.3°C (-9.94°F) 48.9°C (120.02°F)	
Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
1094	276	321	285	1.33	4.44	3.84	0.97	1.13

TEST CONDITIONS: @220V2400RPM			ARILBP Fan		Evaporating temperature (Condensing temperature)		-23.3°C (-9.94°F) 48.9°C (120.02°F)	
Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
1322	333	387	338	1.56	5.37	3.91	0.99	1.15

TEST CONDITIONS: @220V3000RPM			ARILBP Fan		Evaporating temperature (Condensing temperature)		-23.3°C (-9.94°F) 48.9°C (120.02°F)	
Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
1700	428	498	425	1.95	6.90	4.00	1.01	1.17

TEST CONDITIONS: @220V3600RPM			ARILBP Fan		Evaporating temperature (Condensing temperature)		-23.3°C (-9.94°F) 48.9°C (120.02°F)	
Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
1953	492	572	516	2.37	7.93	3.78	0.95	1.11

TEST CONDITIONS: @220V4500RPM			ARILBP Fan		Evaporating temperature (Condensing temperature)		-23.3°C (-9.94°F) 48.9°C (120.02°F)	
Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%		
[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
2415	609	708	659	3.03	9.81	3.66	0.92	1.07

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V2000RPM		ARI4 Fan			(Condensing temperature 35°C (+95°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40 (-40)	665	168	195	173	0.82	2.31	3.84	0.97	1.12	
-35 (-31)	794	200	233	197	0.92	2.76	4.05	1.02	1.19	
-30 (-22)	990	249	290	219	1.02	3.46	4.50	1.13	1.32	
-25 (-13)	1253	316	367	242	1.13	4.40	5.16	1.30	1.51	
-20 (- 4)	1585	399	464	265	1.23	5.60	5.98	1.51	1.75	
-15 (+ 5)	1984	500	581	287	1.34	7.05	6.91	1.74	2.03	
-10 (+14)	2450	617	718	310	1.45	8.78	7.93	2.00	2.32	

TEST CONDITIONS: @220V2000RPM		ARI4 Fan			(Condensing temperature 45°C (+113°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40 (-40)	573	144	168	175	0.85	2.19	3.26	0.82	0.95	
-35 (-31)	681	172	199	206	0.98	2.62	3.32	0.84	0.97	
-30 (-22)	847	213	248	236	1.11	3.27	3.60	0.91	1.05	
-25 (-13)	1071	270	314	265	1.24	4.16	4.05	1.02	1.19	
-20 (- 4)	1354	341	397	293	1.36	5.29	4.63	1.17	1.36	
-15 (+ 5)	1695	427	497	320	1.48	6.67	5.30	1.34	1.55	
-10 (+14)	2095	528	614	346	1.60	8.32	6.02	1.52	1.76	

TEST CONDITIONS: @220V2000RPM		ARI4 Fan			(Condensing temperature 55°C (+131°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40 (-40)	400	101	117	153	0.72	1.72	2.62	0.66	0.77	
-35 (-31)	523	132	153	200	0.94	2.26	2.63	0.66	0.77	
-30 (-22)	694	175	203	246	1.14	3.01	2.81	0.71	0.82	
-25 (-13)	915	230	268	289	1.34	3.99	3.15	0.79	0.92	
-20 (- 4)	1184	298	347	331	1.53	5.21	3.58	0.90	1.05	
-15 (+ 5)	1503	379	440	371	1.72	6.66	4.07	1.03	1.19	
-10 (+14)	1871	472	548	409	1.89	8.37	4.58	1.15	1.34	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V2400RPM		ARI4 Fan			(Condensing temperature 35°C (+95°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40 (-40)	686	173	201	207	0.96	2.37	3.30	0.83	0.97	
-35 (-31)	912	230	267	237	1.11	3.17	3.85	0.97	1.13	
-30 (-22)	1197	302	351	267	1.24	4.18	4.50	1.13	1.32	
-25 (-13)	1541	388	452	295	1.37	5.41	5.23	1.32	1.53	
-20 (- 4)	1945	490	570	323	1.50	6.87	6.02	1.52	1.76	
-15 (+ 5)	2408	607	706	351	1.62	8.56	6.86	1.73	2.01	
-10 (+14)	2931	739	859	377	1.73	10.50	7.74	1.95	2.27	

TEST CONDITIONS: @220V2400RPM		ARI4 Fan			(Condensing temperature 45°C (+113°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40 (-40)	512	129	150	204	0.93	1.96	2.54	0.64	0.74	
-35 (-31)	715	180	210	242	1.11	2.75	2.94	0.74	0.86	
-30 (-22)	972	245	285	280	1.29	3.75	3.44	0.87	1.01	
-25 (-13)	1283	323	376	317	1.46	4.98	4.02	1.01	1.18	
-20 (- 4)	1648	415	483	353	1.63	6.43	4.65	1.17	1.36	
-15 (+ 5)	2066	521	605	389	1.79	8.13	5.32	1.34	1.56	
-10 (+14)	2539	640	744	424	1.95	10.08	6.03	1.52	1.77	

TEST CONDITIONS: @220V2400RPM		ARI4 Fan			(Condensing temperature 55°C (+131°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40 (-40)	523	132	153	206	0.97	2.25	2.52	0.63	0.74	
-35 (-31)	678	171	199	250	1.17	2.93	2.72	0.69	0.80	
-30 (-22)	881	222	258	294	1.36	3.82	3.01	0.76	0.88	
-25 (-13)	1132	285	332	337	1.56	4.94	3.37	0.85	0.99	
-20 (- 4)	1432	361	420	378	1.74	6.29	3.79	0.95	1.11	
-15 (+ 5)	1780	448	522	420	1.93	7.89	4.24	1.07	1.24	
-10 (+14)	2176	548	638	460	2.11	9.74	4.71	1.19	1.38	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V3000RPM		ARI4 Fan			(Condensing temperature 35°C (+95°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40 (-40)	924	233	271	260	1.20	3.20	3.56	0.90	1.04	
-35 (-31)	1214	306	356	297	1.37	4.23	4.09	1.03	1.20	
-30 (-22)	1574	397	461	335	1.54	5.50	4.70	1.18	1.38	
-25 (-13)	2004	505	587	373	1.72	7.04	5.38	1.35	1.58	
-20 (- 4)	2504	631	734	412	1.89	8.84	6.09	1.54	1.78	
-15 (+ 5)	3073	774	900	451	2.07	10.93	6.82	1.72	2.00	
-10 (+14)	3712	935	1088	490	2.25	13.30	7.55	1.90	2.21	

TEST CONDITIONS: @220V3000RPM		ARI4 Fan			(Condensing temperature 45°C (+113°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40 (-40)	783	197	229	269	1.25	3.00	2.92	0.74	0.86	
-35 (-31)	1013	255	297	312	1.44	3.89	3.25	0.82	0.95	
-30 (-22)	1312	331	385	355	1.64	5.06	3.68	0.93	1.08	
-25 (-13)	1681	424	493	400	1.84	6.52	4.19	1.06	1.23	
-20 (- 4)	2120	534	621	445	2.04	8.28	4.75	1.20	1.39	
-15 (+ 5)	2628	662	770	492	2.25	10.34	5.35	1.35	1.57	
-10 (+14)	3205	808	939	539	2.47	12.73	5.96	1.50	1.75	

TEST CONDITIONS: @220V3000RPM		ARI4 Fan			(Condensing temperature 55°C (+131°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40 (-40)	750	189	220	269	1.25	3.22	2.76	0.70	0.81	
-35 (-31)	899	227	263	318	1.47	3.88	2.85	0.72	0.84	
-30 (-22)	1118	282	327	368	1.69	4.85	3.05	0.77	0.89	
-25 (-13)	1405	354	412	420	1.92	6.13	3.35	0.84	0.98	
-20 (- 4)	1762	444	516	473	2.16	7.75	3.72	0.94	1.09	
-15 (+ 5)	2188	551	641	527	2.41	9.70	4.14	1.04	1.21	
-10 (+14)	2682	676	786	583	2.66	12.01	4.59	1.16	1.35	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V3600RPM		ARI4 Fan			(Condensing temperature 35°C (+95°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40 (-40)	985	248	289	315	1.45	3.41	3.13	0.79	0.92	
-35 (-31)	1324	334	388	363	1.67	4.61	3.65	0.92	1.07	
-30 (-22)	1753	442	514	412	1.89	6.13	4.26	1.07	1.25	
-25 (-13)	2270	572	665	462	2.11	7.97	4.92	1.24	1.44	
-20 (- 4)	2877	725	843	512	2.34	10.16	5.63	1.42	1.65	
-15 (+ 5)	3572	900	1047	563	2.56	12.70	6.35	1.60	1.86	
-10 (+14)	4357	1098	1277	614	2.80	15.61	7.08	1.78	2.07	

TEST CONDITIONS: @220V3600RPM		ARI4 Fan			(Condensing temperature 45°C (+113°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40 (-40)	833	210	244	321	1.49	3.19	2.61	0.66	0.76	
-35 (-31)	1112	280	326	375	1.73	4.27	2.97	0.75	0.87	
-30 (-22)	1476	372	433	429	1.97	5.70	3.42	0.86	1.00	
-25 (-13)	1925	485	564	486	2.23	7.47	3.94	0.99	1.16	
-20 (- 4)	2459	620	721	544	2.49	9.60	4.51	1.14	1.32	
-15 (+ 5)	3078	776	902	604	2.76	12.11	5.10	1.29	1.50	
-10 (+14)	3782	953	1108	665	3.04	15.02	5.70	1.44	1.67	

TEST CONDITIONS: @220V3600RPM		ARI4 Fan			(Condensing temperature 55°C (+131°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40 (-40)	780	197	229	330	1.54	3.35	2.35	0.59	0.69	
-35 (-31)	969	244	284	387	1.79	4.18	2.52	0.63	0.74	
-30 (-22)	1239	312	363	447	2.06	5.37	2.78	0.70	0.82	
-25 (-13)	1590	401	466	510	2.34	6.94	3.12	0.79	0.92	
-20 (- 4)	2021	509	592	574	2.63	8.89	3.52	0.89	1.03	
-15 (+ 5)	2534	639	743	642	2.93	11.23	3.95	0.99	1.16	
-10 (+14)	3128	788	917	712	3.25	14.00	4.39	1.11	1.29	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V4500RPM		ARI4 Fan			(Condensing temperature 35°C (+95°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40 (-40)	1274	321	373	398	1.84	4.41	3.21	0.81	0.94	
-35 (-31)	1667	420	489	456	2.09	5.81	3.65	0.92	1.07	
-30 (-22)	2162	545	633	516	2.35	7.56	4.18	1.05	1.22	
-25 (-13)	2758	695	808	578	2.63	9.69	4.76	1.20	1.40	
-20 (- 4)	3456	871	1013	643	2.93	12.21	5.38	1.36	1.58	
-15 (+ 5)	4255	1072	1247	710	3.24	15.13	6.00	1.51	1.76	
-10 (+14)	5156	1299	1511	780	3.56	18.48	6.61	1.66	1.94	

TEST CONDITIONS: @220V4500RPM		ARI4 Fan			(Condensing temperature 45°C (+113°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40 (-40)	1256	317	368	426	2.07	4.82	2.94	0.74	0.86	
-35 (-31)	1532	386	449	489	2.32	5.89	3.14	0.79	0.92	
-30 (-22)	1913	482	561	554	2.58	7.38	3.46	0.87	1.01	
-25 (-13)	2400	605	703	622	2.87	9.30	3.86	0.97	1.13	
-20 (- 4)	2993	754	877	693	3.17	11.68	4.32	1.09	1.27	
-15 (+ 5)	3691	930	1082	767	3.48	14.53	4.82	1.21	1.41	
-10 (+14)	4495	1133	1317	843	3.81	17.86	5.32	1.34	1.56	

TEST CONDITIONS: @220V4500RPM		ARI4 Fan			(Condensing temperature 55°C (+131°F))					
Evaporating temperature	Cooling capacity +/- 5%			Power consumption +/- 5%	Current consumption +/- 5%	Gas flow rate +/- 5%	EFFICIENCY RATE +/- 7%			
	°C (°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40 (-40)	1052	265	308	418	1.96	4.51	2.51	0.63	0.74	
-35 (-31)	1243	313	364	491	2.28	5.36	2.55	0.64	0.75	
-30 (-22)	1543	389	452	567	2.61	6.70	2.72	0.69	0.80	
-25 (-13)	1953	492	572	646	2.96	8.53	3.01	0.76	0.88	
-20 (- 4)	2473	623	725	728	3.33	10.88	3.38	0.85	0.99	
-15 (+ 5)	3102	782	909	813	3.72	13.76	3.81	0.96	1.12	
-10 (+14)	3841	968	1126	901	4.12	17.18	4.28	1.08	1.25	

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal
2 Tray holder	No
3 Connectors	
3.1 SUCTION	8.1 +0.10/+0.00 [mm] (0.319" +0.004"/+0.000")
3.1.1 Material	Copper
3.1.2 Shape	Slanted 42°
3.2 DISCHARGE	6.45 +0.10/+0.00 [mm] (0.254" +0.004"/+0.000")
3.2.1 Material	Copper
3.2.2 Shape	Slanted parallel to Base Plate
3.3 PROCESS	6.45 +0.10/+0.00 [mm] (0.254" +0.004"/+0.000")
3.3.1 Material	Copper
3.3.2 Shape	Slanted 42°
3.4 Oil cooler (Copper)	No [mm]
3.5 Connector sealing	Rubber Plugs