

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			EN12900LBP_HH Fan		Evaporating temperature (Condensing temperature		-35°C (-31°F) 40°C (104°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]
870	219	255	204	0.96	2.75	4.26	1.07	1.25

TEST CONDITIONS: @220V2400RPM			EN12900LBP_HH Fan		Evaporating temperature (Condensing temperature		-35°C (-31°F) 40°C (104°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]
1013	255	297	238	1.11	3.20	4.26	1.07	1.25

TEST CONDITIONS: @220V3000RPM			EN12900LBP_HH Fan		Evaporating temperature (Condensing temperature		-35°C (-31°F) 40°C (104°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]
1248	314	366	299	1.38	3.95	4.17	1.05	1.22

TEST CONDITIONS: @220V3600RPM			EN12900LBP_HH Fan		Evaporating temperature (Condensing temperature		-35°C (-31°F) 40°C (104°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]
1441	363	422	362	1.67	4.56	3.98	1.00	1.17

TEST CONDITIONS: @220V4500RPM			EN12900LBP_HH Fan		Evaporating temperature (Condensing temperature		-35°C (-31°F) 40°C (104°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]
1793	452	525	461	2.12	5.67	3.89	0.98	1.14

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V2000RPM		EN12900HH 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)	737	186	216	171	0.80	2.23	4.30	1.08	1.26	
-35 (-31)	923	232	270	193	0.90	2.80	4.78	1.20	1.40	
-30 (-22)	1168	294	342	216	1.01	3.55	5.41	1.36	1.59	
-25 (-13)	1475	372	432	239	1.11	4.49	6.17	1.56	1.81	
-20 (- 4)	1848	466	541	262	1.22	5.64	7.03	1.77	2.06	
-15 (+ 5)	2288	577	671	287	1.33	7.02	7.98	2.01	2.34	
-10 (+14)	2799	705	820	312	1.45	8.63	8.99	2.26	2.63	

TEST CONDITIONS: @220V2000RPM		EN12900HH 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)	592	149	173	171	0.82	1.95	3.47	0.88	1.02	
-35 (-31)	770	194	226	201	0.95	2.55	3.84	0.97	1.13	
-30 (-22)	999	252	293	231	1.08	3.31	4.32	1.09	1.27	
-25 (-13)	1283	323	376	262	1.22	4.27	4.89	1.23	1.43	
-20 (- 4)	1623	409	476	293	1.36	5.42	5.53	1.39	1.62	
-15 (+ 5)	2023	510	593	326	1.51	6.78	6.21	1.56	1.82	
-10 (+14)	2484	626	728	360	1.67	8.37	6.92	1.74	2.03	

TEST CONDITIONS: @220V2000RPM		EN12900HH 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)	466	117	137	175	0.85	1.70	2.66	0.67	0.78	
-35 (-31)	628	158	184	209	1.00	2.30	2.99	0.75	0.88	
-30 (-22)	833	210	244	244	1.15	3.05	3.40	0.86	1.00	
-25 (-13)	1084	273	318	281	1.31	3.99	3.87	0.97	1.13	
-20 (- 4)	1383	348	405	318	1.48	5.11	4.36	1.10	1.28	
-15 (+ 5)	1733	437	508	357	1.65	6.43	4.86	1.23	1.42	
-10 (+14)	2136	538	626	398	1.84	7.97	5.35	1.35	1.57	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V2400RPM		EN12900HH 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)	857	216	251	202	0.94	2.59	4.23	1.07	1.24	
-35 (-31)	1100	277	322	232	1.08	3.34	4.75	1.20	1.39	
-30 (-22)	1406	354	412	262	1.22	4.27	5.37	1.35	1.57	
-25 (-13)	1776	448	520	291	1.35	5.41	6.10	1.54	1.79	
-20 (- 4)	2214	558	649	320	1.48	6.76	6.93	1.75	2.03	
-15 (+ 5)	2722	686	798	347	1.60	8.35	7.84	1.98	2.30	
-10 (+14)	3303	832	968	374	1.72	10.18	8.83	2.22	2.59	

TEST CONDITIONS: @220V2400RPM		EN12900HH 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)	712	179	209	209	0.97	2.35	3.42	0.86	1.00	
-35 (-31)	928	234	272	243	1.13	3.07	3.83	0.97	1.12	
-30 (-22)	1198	302	351	277	1.28	3.97	4.32	1.09	1.27	
-25 (-13)	1525	384	447	312	1.44	5.07	4.88	1.23	1.43	
-20 (- 4)	1913	482	560	347	1.60	6.38	5.51	1.39	1.61	
-15 (+ 5)	2362	595	692	382	1.76	7.92	6.19	1.56	1.81	
-10 (+14)	2877	725	843	416	1.92	9.69	6.92	1.74	2.03	

TEST CONDITIONS: @220V2400RPM		EN12900HH 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)	586	148	172	216	1.01	2.14	2.70	0.68	0.79	
-35 (-31)	774	195	227	254	1.18	2.83	3.05	0.77	0.89	
-30 (-22)	1009	254	296	293	1.36	3.70	3.45	0.87	1.01	
-25 (-13)	1293	326	379	333	1.54	4.76	3.89	0.98	1.14	
-20 (- 4)	1630	411	478	374	1.72	6.02	4.36	1.10	1.28	
-15 (+ 5)	2022	509	592	416	1.91	7.50	4.87	1.23	1.43	
-10 (+14)	2470	623	724	458	2.09	9.22	5.39	1.36	1.58	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V3000RPM		EN12900HH 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)	1025	258	300	251	1.16	3.10	4.07	1.03	1.19	
-35 (-31)	1326	334	388	290	1.34	4.02	4.58	1.15	1.34	
-30 (-22)	1709	431	501	329	1.52	5.19	5.21	1.31	1.53	
-25 (-13)	2176	548	638	367	1.69	6.63	5.93	1.50	1.74	
-20 (- 4)	2725	687	799	405	1.86	8.33	6.73	1.70	1.97	
-15 (+ 5)	3358	846	984	443	2.03	10.30	7.59	1.91	2.22	
-10 (+14)	4072	1026	1193	480	2.19	12.55	8.47	2.14	2.48	

TEST CONDITIONS: @220V3000RPM		EN12900HH 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)	863	217	253	259	1.20	2.85	3.35	0.84	0.98	
-35 (-31)	1123	283	329	302	1.40	3.71	3.73	0.94	1.09	
-30 (-22)	1460	368	428	346	1.60	4.84	4.21	1.06	1.23	
-25 (-13)	1874	472	549	391	1.80	6.23	4.78	1.20	1.40	
-20 (- 4)	2364	596	693	437	2.00	7.89	5.40	1.36	1.58	
-15 (+ 5)	2931	739	859	483	2.21	9.82	6.07	1.53	1.78	
-10 (+14)	3574	901	1047	531	2.41	12.04	6.74	1.70	1.97	

TEST CONDITIONS: @220V3000RPM		EN12900HH 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)	748	189	219	269	1.24	2.73	2.77	0.70	0.81	
-35 (-31)	959	242	281	315	1.45	3.51	3.05	0.77	0.89	
-30 (-22)	1240	313	363	363	1.67	4.55	3.42	0.86	1.00	
-25 (-13)	1592	401	466	413	1.89	5.86	3.85	0.97	1.13	
-20 (- 4)	2013	507	590	465	2.13	7.44	4.33	1.09	1.27	
-15 (+ 5)	2505	631	734	519	2.37	9.30	4.83	1.22	1.42	
-10 (+14)	3067	773	899	576	2.62	11.44	5.32	1.34	1.56	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V3600RPM		EN12900HH 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)	1233	311	361	310	1.44	3.73	3.96	1.00	1.16	
-35 (-31)	1549	390	454	354	1.63	4.69	4.40	1.11	1.29	
-30 (-22)	1974	498	579	399	1.83	5.99	4.96	1.25	1.45	
-25 (-13)	2509	632	735	446	2.04	7.64	5.62	1.42	1.65	
-20 (- 4)	3152	794	924	494	2.26	9.63	6.37	1.61	1.87	
-15 (+ 5)	3904	984	1144	544	2.49	11.98	7.17	1.81	2.10	
-10 (+14)	4765	1201	1396	595	2.72	14.69	8.02	2.02	2.35	

TEST CONDITIONS: @220V3600RPM		EN12900HH 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)	1022	258	300	316	1.47	3.37	3.24	0.82	0.95	
-35 (-31)	1330	335	390	368	1.70	4.40	3.62	0.91	1.06	
-30 (-22)	1726	435	506	423	1.94	5.73	4.08	1.03	1.20	
-25 (-13)	2211	557	648	478	2.19	7.36	4.62	1.16	1.35	
-20 (- 4)	2785	702	816	536	2.45	9.30	5.19	1.31	1.52	
-15 (+ 5)	3447	869	1010	595	2.72	11.55	5.80	1.46	1.70	
-10 (+14)	4197	1058	1230	656	3.00	14.13	6.40	1.61	1.87	

TEST CONDITIONS: @220V3600RPM		EN12900HH 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)	801	202	235	320	1.49	2.92	2.51	0.63	0.74	
-35 (-31)	1100	277	322	380	1.75	4.02	2.88	0.73	0.85	
-30 (-22)	1467	370	430	441	2.03	5.38	3.31	0.83	0.97	
-25 (-13)	1902	479	557	504	2.31	6.99	3.77	0.95	1.11	
-20 (- 4)	2405	606	705	569	2.60	8.88	4.24	1.07	1.24	
-15 (+ 5)	2976	750	872	635	2.91	11.05	4.70	1.18	1.38	
-10 (+14)	3615	911	1059	704	3.22	13.50	5.12	1.29	1.50	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V4500RPM		EN12900HH 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)	1517	382	445	398	1.83	4.59	3.80	0.96	1.11	
-35 (-31)	1886	475	553	449	2.06	5.71	4.22	1.06	1.24	
-30 (-22)	2377	599	697	503	2.30	7.22	4.74	1.19	1.39	
-25 (-13)	2992	754	877	561	2.56	9.11	5.33	1.34	1.56	
-20 (- 4)	3729	940	1093	622	2.83	11.39	5.98	1.51	1.75	
-15 (+ 5)	4589	1156	1345	686	3.11	14.08	6.68	1.68	1.96	
-10 (+14)	5572	1404	1633	753	3.40	17.17	7.40	1.87	2.17	

TEST CONDITIONS: @220V4500RPM		EN12900HH 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)	1269	320	372	401	1.85	4.18	3.16	0.80	0.93	
-35 (-31)	1645	414	482	466	2.14	5.44	3.53	0.89	1.03	
-30 (-22)	2119	534	621	534	2.44	7.03	3.97	1.00	1.16	
-25 (-13)	2693	679	789	603	2.75	8.96	4.46	1.12	1.31	
-20 (- 4)	3365	848	986	674	3.06	11.23	4.99	1.26	1.46	
-15 (+ 5)	4136	1042	1212	747	3.38	13.86	5.54	1.40	1.62	
-10 (+14)	5006	1262	1467	822	3.71	16.86	6.10	1.54	1.79	

TEST CONDITIONS: @220V4500RPM		EN12900HH 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)	1033	260	303	400	1.84	3.77	2.59	0.65	0.76	
-35 (-31)	1397	352	409	479	2.19	5.11	2.91	0.73	0.85	
-30 (-22)	1837	463	538	558	2.55	6.73	3.28	0.83	0.96	
-25 (-13)	2351	592	689	638	2.91	8.64	3.69	0.93	1.08	
-20 (- 4)	2940	741	862	718	3.27	10.86	4.10	1.03	1.20	
-15 (+ 5)	3605	908	1056	799	3.62	13.38	4.52	1.14	1.32	
-10 (+14)	4344	1095	1273	880	3.98	16.22	4.92	1.24	1.44	

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		