

COMPRESSOR DEFINITION

Designation	ES I20HLP
Nominal Voltage/Frequency	220-240 V 50-60 Hz
Engineering Number	518100024

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-134a		
3 Nominal voltage and frequency	220-240 / 50-60	[V / Hz]	
4 Application type	Low-Medium Back Pressure		
4.1 Evaporating temperature range	-35°C to -5°C	(-31°F to 23°F)	
5 Motor type	RSIR		
6 Starting torque	LST - Low Starting Torque		
7 Expansion device	Capillary tube		
8 Compressor cooling	Operating voltage range		
		50 Hz	60 Hz
8.1 LBP (32°C Ambient temperature)	-	-	-
8.2 LBP (43°C Ambient temperature)	Static	198 to 255 V	198 to 255 V
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
9 Maximum condensing temperature			
9.1 Operating	14.2	[kgf/cm ²] (202 psig)	/ °C - °F
9.2 Peak	15.9	[kgf/cm ²] (226 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/12	[hp]
2 Displacement	2.30	[cm ³] (0.140 cu.in)
2.1 Bore [mm]	15.500	
2.2 Stroke [mm]	12.200	
3 Lubricant charge	115	[ml] (3.89 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO10	
4 Weight (with oil charge)	4.69	[kg] (10.34 lb.)
5 Nitrogen charge	0.2 to 0.3	[kgf/cm ²] (2.84 to 4.27 psig)

C - ELETRICAL DATA

1 Nominal Voltage/Frequency/Number of Phases	220-240 V 50-60 Hz 1 ~ (Single phase)	
2 Starting device type	PTC	
2.1 Starting device	8EA17C1/8EA17E61/8EA17E62/8EA17E63/8EA17E64/QPS2-A	
3 Start capacitor	-	[µF(VAC minimum)]
4 Run capacitor	-	[µF(VAC minimum)]
5 Motor protection	OLP 5TM134RFBYY-53	
6 Start winding resistance	21.61	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	45.18	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (60 Hz)	2.84/2.63	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (60 Hz)	0.47/0.44	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (60 Hz)	0.56/0.47	[A] - Measured according to UL 984
11 Approval boards certification	TUV	

D - PERFORMANCE - CHECK POINT DATA

TEST CONDITIONS: @220V50Hz			ASHRAELBP32 Static		Evaporating temperature (Condensing temperature		-23.3°C (-9.94°F) 54.4°C (129.92°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]
193	49	56	49	0.41	1.09	3.93	0.99	1.15

TEST CONDITIONS: @220V60Hz			ASHRAELBP32 Static		Evaporating temperature (Condensing temperature		-23.3°C (-9.94°F) 54.4°C (129.92°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]
233	59	68	54	0.38	1.32	4.33	1.09	1.27

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz			ASHRAE32 Static		(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]
-35 (-31)	120	30	35	36	0.38	0.68	3.36	0.85	0.98
-30 (-22)	167	42	49	42	0.39	0.95	4.06	1.02	1.19
-25 (-13)	222	56	65	46	0.39	1.26	4.89	1.23	1.43
-20 (- 4)	288	73	85	47	0.39	1.64	5.85	1.47	1.71
-15 (+ 5)	372	94	109	50	0.39	2.13	6.92	1.74	2.03
-10 (+14)	478	121	140	57	0.42	2.74	8.09	2.04	2.37
-5 (+23)	611	154	179	68	0.47	3.52	9.35	2.36	2.74

TEST CONDITIONS: @220V50Hz			ASHRAE32 Static		(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]
-35 (-31)	102	26	30	36	0.38	0.58	2.92	0.74	0.86
-30 (-22)	153	39	45	45	0.42	0.87	3.72	0.94	1.09
-25 (-13)	208	52	61	49	0.43	1.18	4.51	1.14	1.32
-20 (- 4)	273	69	80	53	0.43	1.56	5.28	1.33	1.55
-15 (+ 5)	353	89	103	57	0.42	2.01	6.02	1.52	1.77
-10 (+14)	452	114	132	64	0.42	2.59	6.72	1.69	1.97
-5 (+23)	576	145	169	76	0.44	3.31	7.36	1.86	2.16

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V50Hz		ASHRAE32 Static			(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]
-35 (-31)	66	17	19	28	0.30	0.37	2.01	0.51	0.59	
-30 (-22)	124	31	36	40	0.39	0.70	3.10	0.78	0.91	
-25 (-13)	183	46	54	49	0.44	1.04	4.04	1.02	1.18	
-20 (- 4)	249	63	73	56	0.46	1.42	4.82	1.21	1.41	
-15 (+ 5)	328	83	96	63	0.47	1.87	5.43	1.37	1.59	
-10 (+14)	423	107	124	73	0.47	2.43	5.84	1.47	1.71	
-5 (+23)	541	136	158	88	0.49	3.11	6.06	1.53	1.78	

TEST CONDITIONS: @220V50Hz		ASHRAE32 Static			(Condensing temperature 65°C (+149°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]
-35 (-31)	6	2	2	4	0.05	0.04	0.17	0.04	0.05	
-30 (-22)	73	19	22	24	0.21	0.42	1.75	0.44	0.51	
-25 (-13)	140	35	41	39	0.33	0.80	3.04	0.77	0.89	
-20 (- 4)	211	53	62	52	0.40	1.20	4.03	1.01	1.18	
-15 (+ 5)	292	73	85	65	0.45	1.66	4.69	1.18	1.38	
-10 (+14)	387	97	113	80	0.48	2.21	5.03	1.27	1.47	
-5 (+23)	501	126	147	100	0.51	2.88	5.03	1.27	1.47	

TEST CONDITIONS: @220V60Hz		ASHRAE32 Static			(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]
-35 (-31)	143	36	42	39	0.32	0.81	3.75	0.95	1.10	
-30 (-22)	202	51	59	44	0.35	1.14	4.62	1.16	1.35	
-25 (-13)	271	68	79	49	0.35	1.54	5.45	1.37	1.60	
-20 (- 4)	354	89	104	54	0.36	2.02	6.33	1.59	1.85	
-15 (+ 5)	455	115	133	59	0.38	2.60	7.37	1.86	2.16	
-10 (+14)	579	146	170	65	0.41	3.32	8.66	2.18	2.54	
-5 (+23)	728	183	213	74	0.46	4.19	10.30	2.60	3.02	

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V60Hz		ASHRAE32 Static			(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]
-35	(-31)	121	31	36	38	0.33	0.69	3.29	0.83	0.96
-30	(-22)	183	46	54	47	0.37	1.04	4.23	1.07	1.24
-25	(-13)	252	64	74	54	0.39	1.43	5.00	1.26	1.46
-20	(- 4)	333	84	98	60	0.40	1.90	5.70	1.44	1.67
-15	(+ 5)	429	108	126	65	0.41	2.45	6.42	1.62	1.88
-10	(+14)	545	137	160	72	0.43	3.12	7.28	1.83	2.13
-5	(+23)	684	172	200	79	0.46	3.93	8.36	2.11	2.45

TEST CONDITIONS: @220V60Hz		ASHRAE32 Static			(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]
-35	(-31)	76	19	22	28	0.26	0.43	2.24	0.56	0.66
-30	(-22)	144	36	42	42	0.34	0.82	3.46	0.87	1.01
-25	(-13)	217	55	64	54	0.40	1.23	4.38	1.10	1.28
-20	(- 4)	300	75	88	64	0.44	1.70	5.11	1.29	1.50
-15	(+ 5)	395	99	116	72	0.46	2.25	5.74	1.45	1.68
-10	(+14)	506	128	148	80	0.48	2.90	6.37	1.61	1.87
-5	(+23)	638	161	187	89	0.51	3.67	7.10	1.79	2.08

TEST CONDITIONS: @220V60Hz		ASHRAE32 Static			(Condensing temperature 65°C (+149°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]
-35	(-31)	7	2	2	4	0.04	0.04	0.25	0.06	0.07
-30	(-22)	86	22	25	25	0.19	0.49	1.97	0.50	0.58
-25	(-13)	167	42	49	44	0.30	0.95	3.27	0.82	0.96
-20	(- 4)	254	64	75	59	0.39	1.45	4.24	1.07	1.24
-15	(+ 5)	352	89	103	72	0.45	2.01	4.99	1.26	1.46
-10	(+14)	464	117	136	85	0.50	2.66	5.61	1.41	1.64
-5	(+23)	593	149	174	96	0.55	3.41	6.20	1.56	1.82

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal ES/FMS		
2 Tray holder	No		
3 Connectors			
3.1 SUCTION	8.2 +0.12/-0.08	[mm]	(0.323" +0.005"/-0.003")
3.1.1 Material	Copper		
3.1.2 Shape	Slanted 45° up		
3.2 DISCHARGE	4.94 +0.08/-0.08	[mm]	(0.194" +0.003"/-0.003")
3.2.1 Material	Copper		
3.2.2 Shape	Slanted 59° up		
3.3 PROCESS	6.5 +0.12/-0.08	[mm]	(0.256" +0.005"/-0.003")
3.3.1 Material	Copper		
3.3.2 Shape	Slanted 55° up		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		