

COMPRESSOR DEFINITION

Designation	VES F11C
Nominal Voltage/Frequency	230 V 32-150 Hz
Engineering Number	513907407

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-600a		
3 Nominal voltage and frequency	230 / 32-150	[V / Hz]	
4 Application type	Low-Medium Back Pressure (Fullmotion Compressors)		
4.1 Evaporating temperature range	-35°C to 0°C	(-31°F to 32°F)	
5 Motor type	BPM		
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)	-	-	-
8.3 HBP (32°C Ambient temperature)	-	-	-
8.4 HBP (43°C Ambient temperature)	-	-	-
9 Maximum condensing temperature			
9.1 Operating	6.9	[kgf/cm ²] (98 psig)	/ °C - °F
9.2 Peak	7.8	[kgf/cm ²] (111 psig)	/ °C - °F
10 Maximum winding temperature	130	[°C]	

B - MECHANICAL DATA

1 Commercial designation	1/5	[hp]
2 Displacement	11.14	[cm ³] (0.680 cu.in)
2.1 Bore [mm]	26.000	
2.2 Stroke [mm]	21.000	
3 Lubricant charge	205	[ml] (6.93 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ALQUILB / ISO5	
4 Weight (with oil charge)	6.6	[kg] (14.55 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	230 V 31.7-150 Hz 3~ (Three phase)	
2 Starting device type	Inverter	
2.1 Starting device	VESF 2456 XXX X	
3 Start capacitor	-	[μF(VAC minimum)]
4 Run capacitor	-	[μF(VAC minimum)]
5 Motor protection	INVERTER VESF 2456 X	
6 Start winding resistance	9.30	[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance	9.30	[Ω at 25°C (77°F)] +/- 8%
8 LRA - Locked rotor amperage (32/150 Hz)	2.10	[A] - Measured according to UL 984
9 FLA - Full load amperage L/MBP (32/150 Hz)	-	[A] - Measured according to UL 984
10 FLA - Full Load Amperage HBP (32/150 Hz)	-	[A] - Measured according to UL 984
11 Approval boards certification		

D - PERFORMANCE - CHECK POINT DATA

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V950RPM		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)	129	32	38	20	0.18	0.40	6.58	1.66	1.93
-30	(-22)	171	43	50	23	0.19	0.53	7.29	1.84	2.14
-25	(-13)	222	56	65	27	0.21	0.70	8.19	2.06	2.40
-20	(- 4)	286	72	84	31	0.23	0.90	9.30	2.34	2.72
-15	(+ 5)	363	91	106	34	0.25	1.14	10.63	2.68	3.12
-10	(+14)	456	115	134	37	0.26	1.44	12.22	3.08	3.58
-5	(+23)	566	143	166	40	0.27	1.79	14.08	3.55	4.13
0	(+32)	697	176	204	42	0.27	2.21	16.24	4.09	4.76

TEST CONDITIONS: @220V950RPM		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)	117	30	34	20	0.18	0.37	5.79	1.46	1.70
-30	(-22)	158	40	46	25	0.20	0.49	6.42	1.62	1.88
-25	(-13)	209	53	61	29	0.22	0.65	7.16	1.80	2.10
-20	(- 4)	272	68	80	34	0.25	0.85	8.03	2.02	2.35
-15	(+ 5)	349	88	102	38	0.27	1.10	9.05	2.28	2.65
-10	(+14)	444	112	130	43	0.30	1.40	10.25	2.58	3.00
-5	(+23)	557	140	163	48	0.32	1.76	11.65	2.93	3.41
0	(+32)	690	174	202	52	0.33	2.19	13.25	3.34	3.88

TEST CONDITIONS: @220V950RPM		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)	101	25	30	20	0.18	0.32	4.93	1.24	1.44
-30	(-22)	140	35	41	25	0.20	0.44	5.57	1.40	1.63
-25	(-13)	191	48	56	31	0.23	0.60	6.24	1.57	1.83
-20	(- 4)	255	64	75	37	0.26	0.80	6.97	1.76	2.04
-15	(+ 5)	334	84	98	43	0.30	1.05	7.78	1.96	2.28
-10	(+14)	430	108	126	49	0.34	1.36	8.68	2.19	2.54
-5	(+23)	546	138	160	56	0.37	1.73	9.70	2.44	2.84
0	(+32)	683	172	200	63	0.40	2.17	10.86	2.74	3.18

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V1300RPM		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)	179	45	52	27	0.25	0.56	6.62	1.67	1.94
-30	(-22)	237	60	69	32	0.28	0.74	7.37	1.86	2.16
-25	(-13)	307	77	90	37	0.31	0.96	8.30	2.09	2.43
-20	(- 4)	393	99	115	42	0.34	1.23	9.42	2.37	2.76
-15	(+ 5)	496	125	145	46	0.37	1.56	10.74	2.71	3.15
-10	(+14)	619	156	181	51	0.40	1.95	12.25	3.09	3.59
-5	(+23)	765	193	224	55	0.43	2.42	13.95	3.52	4.09
0	(+32)	936	236	274	59	0.46	2.97	15.86	4.00	4.65

TEST CONDITIONS: @220V1300RPM		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)	162	41	48	28	0.25	0.51	5.86	1.48	1.72
-30	(-22)	219	55	64	34	0.29	0.69	6.51	1.64	1.91
-25	(-13)	288	73	84	39	0.33	0.90	7.30	1.84	2.14
-20	(- 4)	372	94	109	45	0.37	1.17	8.22	2.07	2.41
-15	(+ 5)	473	119	139	51	0.41	1.49	9.28	2.34	2.72
-10	(+14)	595	150	174	57	0.45	1.88	10.49	2.64	3.07
-5	(+23)	739	186	217	63	0.49	2.34	11.84	2.98	3.47
0	(+32)	908	229	266	69	0.54	2.88	13.34	3.36	3.91

TEST CONDITIONS: @220V1300RPM		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)	145	36	42	28	0.26	0.45	5.11	1.29	1.50
-30	(-22)	199	50	58	35	0.30	0.62	5.70	1.44	1.67
-25	(-13)	265	67	78	42	0.35	0.83	6.37	1.61	1.87
-20	(- 4)	346	87	102	49	0.39	1.09	7.13	1.80	2.09
-15	(+ 5)	445	112	130	56	0.44	1.40	7.98	2.01	2.34
-10	(+14)	563	142	165	63	0.50	1.78	8.92	2.25	2.61
-5	(+23)	704	177	206	71	0.56	2.23	9.96	2.51	2.92
0	(+32)	871	219	255	79	0.62	2.76	11.09	2.80	3.25

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V1600RPM		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)	218	55	64	34	0.29	0.68	6.49	1.63	1.90
-30	(-22)	291	73	85	40	0.33	0.91	7.33	1.85	2.15
-25	(-13)	378	95	111	45	0.38	1.19	8.30	2.09	2.43
-20	(- 4)	483	122	141	51	0.42	1.52	9.41	2.37	2.76
-15	(+ 5)	609	154	179	57	0.46	1.92	10.68	2.69	3.13
-10	(+14)	762	192	223	63	0.50	2.40	12.14	3.06	3.56
-5	(+23)	943	238	276	68	0.54	2.98	13.79	3.48	4.04
0	(+32)	1157	292	339	74	0.59	3.67	15.68	3.95	4.59

TEST CONDITIONS: @220V1600RPM		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)	201	51	59	35	0.30	0.63	5.79	1.46	1.70
-30	(-22)	271	68	80	42	0.35	0.85	6.51	1.64	1.91
-25	(-13)	356	90	104	49	0.40	1.12	7.31	1.84	2.14
-20	(- 4)	458	115	134	56	0.44	1.44	8.21	2.07	2.41
-15	(+ 5)	582	147	170	63	0.49	1.83	9.23	2.33	2.70
-10	(+14)	731	184	214	70	0.55	2.31	10.39	2.62	3.04
-5	(+23)	909	229	266	78	0.61	2.88	11.72	2.95	3.43
0	(+32)	1121	282	328	85	0.68	3.55	13.23	3.33	3.88

TEST CONDITIONS: @220V1600RPM		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)	184	46	54	35	0.30	0.58	5.23	1.32	1.53
-30	(-22)	250	63	73	43	0.35	0.78	5.85	1.47	1.71
-25	(-13)	330	83	97	51	0.41	1.04	6.51	1.64	1.91
-20	(- 4)	429	108	126	59	0.47	1.35	7.23	1.82	2.12
-15	(+ 5)	549	138	161	68	0.53	1.73	8.04	2.02	2.35
-10	(+14)	694	175	203	78	0.60	2.19	8.94	2.25	2.62
-5	(+23)	869	219	255	87	0.68	2.75	9.96	2.51	2.92
0	(+32)	1076	271	315	97	0.77	3.41	11.13	2.80	3.26

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V2000RPM		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)	270	68	79	42	0.36	0.85	6.37	1.61	1.87
-30	(-22)	356	90	104	50	0.41	1.12	7.15	1.80	2.10
-25	(-13)	468	118	137	58	0.47	1.47	8.07	2.03	2.37
-20	(- 4)	606	153	178	66	0.53	1.90	9.13	2.30	2.68
-15	(+ 5)	770	194	226	75	0.59	2.42	10.33	2.60	3.03
-10	(+14)	959	242	281	83	0.65	3.02	11.66	2.94	3.42
-5	(+23)	1174	296	344	89	0.70	3.71	13.12	3.31	3.84
0	(+32)	1414	356	414	95	0.74	4.48	14.71	3.71	4.31

TEST CONDITIONS: @220V2000RPM		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)	254	64	74	44	0.38	0.79	5.74	1.45	1.68
-30	(-22)	334	84	98	52	0.43	1.05	6.43	1.62	1.88
-25	(-13)	442	111	129	61	0.49	1.39	7.22	1.82	2.11
-20	(- 4)	576	145	169	71	0.57	1.81	8.11	2.04	2.38
-15	(+ 5)	738	186	216	81	0.64	2.32	9.10	2.29	2.67
-10	(+14)	926	233	271	91	0.72	2.92	10.18	2.57	2.98
-5	(+23)	1141	287	334	101	0.80	3.61	11.36	2.86	3.33
0	(+32)	1382	348	405	109	0.86	4.38	12.63	3.18	3.70

TEST CONDITIONS: @220V2000RPM		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)	231	58	68	45	0.38	0.72	5.14	1.30	1.51
-30	(-22)	306	77	90	53	0.44	0.96	5.76	1.45	1.69
-25	(-13)	409	103	120	64	0.51	1.29	6.45	1.63	1.89
-20	(- 4)	541	136	158	75	0.59	1.70	7.21	1.82	2.11
-15	(+ 5)	700	176	205	87	0.69	2.20	8.02	2.02	2.35
-10	(+14)	887	224	260	100	0.78	2.80	8.90	2.24	2.61
-5	(+23)	1102	278	323	112	0.87	3.49	9.83	2.48	2.88
0	(+32)	1344	339	394	124	0.96	4.26	10.82	2.73	3.17

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V3000RPM		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)	386	97	113	65	0.51	1.21	5.95	1.50	1.74
-30	(-22)	524	132	154	77	0.59	1.64	6.76	1.70	1.98
-25	(-13)	693	175	203	91	0.69	2.17	7.62	1.92	2.23
-20	(- 4)	895	225	262	105	0.80	2.81	8.54	2.15	2.50
-15	(+ 5)	1132	285	332	119	0.91	3.56	9.52	2.40	2.79
-10	(+14)	1409	355	413	134	1.03	4.44	10.55	2.66	3.09
-5	(+23)	1727	435	506	148	1.13	5.46	11.64	2.93	3.41
0	(+32)	2090	527	612	163	1.21	6.62	12.80	3.22	3.75

TEST CONDITIONS: @220V3000RPM		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)	363	92	106	67	0.52	1.14	5.44	1.37	1.59
-30	(-22)	493	124	144	80	0.61	1.55	6.14	1.55	1.80
-25	(-13)	654	165	192	95	0.73	2.05	6.89	1.74	2.02
-20	(- 4)	848	214	248	110	0.85	2.66	7.68	1.94	2.25
-15	(+ 5)	1079	272	316	127	0.98	3.40	8.53	2.15	2.50
-10	(+14)	1349	340	395	143	1.11	4.26	9.42	2.37	2.76
-5	(+23)	1662	419	487	161	1.23	5.26	10.36	2.61	3.04
0	(+32)	2020	509	592	178	1.33	6.40	11.36	2.86	3.33

TEST CONDITIONS: @220V3000RPM		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)	335	84	98	68	0.53	1.05	4.96	1.25	1.45
-30	(-22)	457	115	134	82	0.64	1.43	5.57	1.40	1.63
-25	(-13)	610	154	179	98	0.77	1.91	6.23	1.57	1.82
-20	(- 4)	797	201	234	115	0.91	2.50	6.92	1.74	2.03
-15	(+ 5)	1022	257	299	133	1.05	3.22	7.65	1.93	2.24
-10	(+14)	1287	324	377	153	1.20	4.06	8.43	2.12	2.47
-5	(+23)	1595	402	467	172	1.33	5.04	9.24	2.33	2.71
0	(+32)	1949	491	571	193	1.45	6.18	10.10	2.55	2.96

E - PERFORMANCE - CURVES

TEST CONDITIONS: @220V4000RPM		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)	498	125	146	89	0.68	1.56	5.59	1.41	1.64
-30	(-22)	663	167	194	105	0.80	2.08	6.27	1.58	1.84
-25	(-13)	822	207	241	118	0.89	2.58	6.99	1.76	2.05
-20	(- 4)	1016	256	298	131	0.98	3.19	7.80	1.97	2.29
-15	(+ 5)	1287	324	377	147	1.08	4.05	8.75	2.20	2.56
-10	(+14)	1677	423	491	168	1.21	5.29	9.88	2.49	2.89
-5	(+23)	2228	561	653	199	1.40	7.04	11.23	2.83	3.29
0	(+32)	2980	751	873	240	1.67	9.44	12.85	3.24	3.77

TEST CONDITIONS: @220V4000RPM		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)	472	119	138	92	0.72	1.48	5.11	1.29	1.50
-30	(-22)	638	161	187	109	0.85	2.00	5.77	1.45	1.69
-25	(-13)	796	201	233	124	0.96	2.50	6.44	1.62	1.89
-20	(- 4)	990	249	290	139	1.05	3.11	7.17	1.81	2.10
-15	(+ 5)	1260	318	369	157	1.17	3.97	8.02	2.02	2.35
-10	(+14)	1649	415	483	182	1.31	5.20	9.02	2.27	2.64
-5	(+23)	2197	554	644	215	1.51	6.95	10.22	2.58	2.99
0	(+32)	2947	743	864	260	1.77	9.34	11.67	2.94	3.42

TEST CONDITIONS: @220V4000RPM		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)	442	111	130	93	0.72	1.38	4.76	1.20	1.39
-30	(-22)	607	153	178	111	0.87	1.90	5.36	1.35	1.57
-25	(-13)	764	193	224	128	1.00	2.40	5.96	1.50	1.75
-20	(- 4)	956	241	280	146	1.11	3.00	6.60	1.66	1.93
-15	(+ 5)	1225	309	359	168	1.23	3.86	7.32	1.84	2.15
-10	(+14)	1611	406	472	196	1.38	5.08	8.18	2.06	2.40
-5	(+23)	2156	543	632	234	1.58	6.82	9.21	2.32	2.70
0	(+32)	2903	732	851	284	1.85	9.20	10.46	2.64	3.07

F - EXTERNAL CHARACTERISTICS

1 Base plate	European Standard VES		
2 Tray holder	Yes		
3 Connectors			
3.1 SUCTION	6.1 +0.10/+0.00	[mm]	(0.240" +0.004"/+0.000")
3.1.1 Material	Copper		
3.1.2 Shape	Slanted 45° up + 15° to Back		
3.2 DISCHARGE	4.9 +0.10/-0.05	[mm]	(0.193" +0.004"/-0.002")
3.2.1 Material	Copper		
3.2.2 Shape	Slanted 0° up + 24° to Back		
3.3 PROCESS	6.35 +0.08/-0.08	[mm]	(0.250" +0.003"/-0.003")
3.3.1 Material	Copper(OD)		
3.3.2 Shape	Slanted 47° up + 59° to Back		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		