

COMPRESSOR DEFINITION

Designation	FMF T415U
Nominal Voltage/Frequency	230 V 53-167 Hz
Engineering Number	513805006

A - APPLICATION / LIMIT WORKING CONDITIONS

1 Type	Hermetic reciprocating compressor		
2 Refrigerant	R-290		
3 Nominal voltage and frequency	230 / 53-167	[V / Hz]	
4 Application type	Low-Medium Back Pressure (Light Commercial)		
4.1 Evaporating temperature range	-40°C to 0°C	(-40°F to 32°F)	
5 Motor type	BPM		
6 Starting torque	LST/HST - Low/High 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	1 1/4	[hp]
2 Displacement	14.77	[cm ³] (0.901 cu.in)
2.1 Bore [mm]	28.000	
2.2 Stroke [mm]	24.000	
3 Lubricant charge	430	[ml] (14.54 fl.oz.)
3.1 Lubricants approved		
3.2 Lubricants type/viscosity	ESTER / ISO22	
4 Weight (with oil charge)	10.87	[kg] (23.96 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 53-167Hz 3 ~ (Three phase)	
2 Starting device type	Inverter	
2.1 Starting device		
3 Start capacitor	-	[μF(VAC minimum)]
4 Run capacitor	-	[μF(VAC minimum)]
5 Motor protection	CF10B01 N 0.1 XX A Y	
6 Start winding resistance		[Ω at 25°C (77°F)] +/- 8%
7 Run winding resistance		[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		

D - PERFORMANCE - CHECK POINT DATA

E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V1600RPM		ASHRAE32 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)	629	158	184	120	1.07	1.85	5.43	1.37	1.59
-35	(-31)	874	220	256	145	1.26	2.59	5.99	1.51	1.75
-30	(-22)	1138	287	333	169	1.43	3.38	6.68	1.68	1.96
-25	(-13)	1432	361	420	190	1.58	4.26	7.52	1.89	2.20
-20	(- 4)	1768	445	518	208	1.71	5.28	8.52	2.15	2.50
-15	(+ 5)	2157	544	632	224	1.82	6.46	9.71	2.45	2.85
-10	(+14)	2610	658	765	238	1.92	7.86	11.10	2.80	3.25
-5	(+23)	3140	791	920	248	1.99	9.50	12.71	3.20	3.72
0	(+32)	3757	947	1101	256	2.05	11.42	14.56	3.67	4.27

TEST CONDITIONS: @115V1600RPM		ASHRAE32 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)	614	155	180	132	1.15	1.81	4.85	1.22	1.42
-35	(-31)	834	210	244	158	1.34	2.47	5.31	1.34	1.55
-30	(-22)	1081	272	317	184	1.53	3.21	5.84	1.47	1.71
-25	(-13)	1366	344	400	209	1.71	4.06	6.48	1.63	1.90
-20	(- 4)	1701	429	498	233	1.89	5.07	7.24	1.82	2.12
-15	(+ 5)	2098	529	615	257	2.05	6.28	8.13	2.05	2.38
-10	(+14)	2567	647	752	279	2.21	7.72	9.18	2.31	2.69
-5	(+23)	3121	786	914	301	2.36	9.44	10.40	2.62	3.05
0	(+32)	3770	950	1105	321	2.51	11.46	11.80	2.97	3.46

TEST CONDITIONS: @115V1600RPM		ASHRAE32 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)	563	142	165	135	1.16	1.66	4.25	1.07	1.25
-35	(-31)	763	192	224	164	1.38	2.26	4.69	1.18	1.37
-30	(-22)	999	252	293	194	1.60	2.96	5.16	1.30	1.51
-25	(-13)	1281	323	375	225	1.82	3.81	5.68	1.43	1.66
-20	(- 4)	1621	409	475	257	2.05	4.84	6.27	1.58	1.84
-15	(+ 5)	2031	512	595	290	2.28	6.08	6.96	1.75	2.04
-10	(+14)	2522	636	739	324	2.52	7.59	7.74	1.95	2.27
-5	(+23)	3106	783	910	358	2.77	9.39	8.65	2.18	2.54
0	(+32)	3793	956	1112	392	3.01	11.53	9.70	2.45	2.84

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 65°C (+149°F))					
@115V1600RPM		Fan								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40	(-40)	475	120	139	130	1.12	1.40	3.51	0.88	1.03
-35	(-31)	662	167	194	163	1.37	1.96	4.01	1.01	1.17
-30	(-22)	893	225	262	199	1.64	2.65	4.49	1.13	1.32
-25	(-13)	1178	297	345	239	1.92	3.50	4.99	1.26	1.46
-20	(- 4)	1530	385	448	280	2.22	4.56	5.50	1.39	1.61
-15	(+ 5)	1959	494	574	325	2.53	5.87	6.05	1.53	1.77
-10	(+14)	2478	624	726	371	2.86	7.45	6.66	1.68	1.95
-5	(+23)	3097	780	908	420	3.21	9.36	7.35	1.85	2.15
0	(+32)	3829	965	1122	471	3.57	11.63	8.13	2.05	2.38

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@115V3000RPM		Fan								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40	(-40)	1236	311	362	242	2.02	3.64	5.15	1.30	1.51
-35	(-31)	1637	412	480	281	2.27	4.84	5.81	1.47	1.70
-30	(-22)	2106	531	617	322	2.54	6.25	6.53	1.65	1.91
-25	(-13)	2652	668	777	362	2.82	7.89	7.31	1.84	2.14
-20	(- 4)	3285	828	963	402	3.10	9.80	8.19	2.06	2.40
-15	(+ 5)	4014	1011	1176	439	3.37	12.03	9.17	2.31	2.69
-10	(+14)	4848	1222	1421	473	3.62	14.59	10.29	2.59	3.01
-5	(+23)	5797	1461	1699	503	3.82	17.53	11.55	2.91	3.39
0	(+32)	6869	1731	2013	527	3.98	20.89	12.99	3.27	3.81

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@115V3000RPM		Fan								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40	(-40)	1184	298	347	253	2.07	3.49	4.73	1.19	1.39
-35	(-31)	1579	398	463	298	2.36	4.67	5.31	1.34	1.56
-30	(-22)	2040	514	598	344	2.67	6.05	5.92	1.49	1.73
-25	(-13)	2578	650	755	392	3.01	7.67	6.56	1.65	1.92
-20	(- 4)	3202	807	938	440	3.35	9.55	7.26	1.83	2.13
-15	(+ 5)	3920	988	1149	487	3.68	11.74	8.04	2.03	2.36
-10	(+14)	4743	1195	1390	531	4.00	14.27	8.92	2.25	2.61
-5	(+23)	5679	1431	1664	573	4.29	17.17	9.92	2.50	2.91
0	(+32)	6739	1698	1975	610	4.54	20.49	11.06	2.79	3.24

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@115V3000RPM		Fan								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40	(-40)	1063	268	311	251	2.07	3.13	4.27	1.08	1.25
-35	(-31)	1455	367	426	303	2.40	4.30	4.82	1.21	1.41
-30	(-22)	1914	482	561	357	2.76	5.67	5.36	1.35	1.57
-25	(-13)	2447	617	717	414	3.16	7.28	5.91	1.49	1.73
-20	(- 4)	3066	773	898	472	3.57	9.15	6.49	1.64	1.90
-15	(+ 5)	3778	952	1107	530	3.98	11.32	7.12	1.79	2.09
-10	(+14)	4594	1158	1346	587	4.38	13.82	7.82	1.97	2.29
-5	(+23)	5523	1392	1618	641	4.76	16.70	8.61	2.17	2.52
0	(+32)	6574	1657	1926	692	5.10	19.98	9.50	2.40	2.79

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 65°C (+149°F))					
@115V3000RPM		Fan								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40	(-40)	873	220	256	238	2.01	2.57	3.67	0.93	1.08
-35	(-31)	1268	320	372	298	2.39	3.75	4.25	1.07	1.24
-30	(-22)	1728	435	506	362	2.81	5.12	4.78	1.20	1.40
-25	(-13)	2262	570	663	429	3.27	6.72	5.29	1.33	1.55
-20	(- 4)	2880	726	844	498	3.76	8.59	5.80	1.46	1.70
-15	(+ 5)	3591	905	1052	568	4.25	10.75	6.33	1.59	1.85
-10	(+14)	4405	1110	1291	639	4.74	13.25	6.89	1.74	2.02
-5	(+23)	5330	1343	1562	708	5.21	16.11	7.52	1.90	2.20
0	(+32)	6377	1607	1869	775	5.66	19.38	8.23	2.07	2.41

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@115V3600RPM		Fan								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40	(-40)	1365	344	400	344	2.48	4.03	4.44	1.12	1.30
-35	(-31)	1874	472	549	336	2.64	5.55	5.63	1.42	1.65
-30	(-22)	2457	619	720	368	2.95	7.29	6.49	1.64	1.90
-25	(-13)	3130	789	917	426	3.36	9.31	7.17	1.81	2.10
-20	(- 4)	3911	986	1146	498	3.80	11.67	7.82	1.97	2.29
-15	(+ 5)	4816	1214	1411	568	4.21	14.43	8.57	2.16	2.51
-10	(+14)	5863	1477	1718	625	4.53	17.65	9.58	2.41	2.81
-5	(+23)	7068	1781	2071	653	4.70	21.38	10.99	2.77	3.22
0	(+32)	8448	2129	2475	640	4.65	25.69	12.95	3.26	3.80

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@115V3600RPM		Fan								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40	(-40)	1313	331	385	337	2.60	3.87	4.13	1.04	1.21
-35	(-31)	1794	452	526	353	2.74	5.31	5.09	1.28	1.49
-30	(-22)	2346	591	687	406	3.05	6.96	5.73	1.44	1.68
-25	(-13)	2987	753	875	482	3.48	8.88	6.20	1.56	1.82
-20	(- 4)	3734	941	1094	568	3.95	11.14	6.63	1.67	1.94
-15	(+ 5)	4604	1160	1349	649	4.42	13.79	7.19	1.81	2.11
-10	(+14)	5612	1414	1645	713	4.82	16.89	8.00	2.02	2.34
-5	(+23)	6777	1708	1986	745	5.09	20.49	9.23	2.33	2.70
0	(+32)	8115	2045	2378	732	5.17	24.67	11.01	2.78	3.23

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@115V3600RPM		Fan								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40	(-40)	1226	309	359	309	2.69	3.61	3.98	1.00	1.17
-35	(-31)	1678	423	492	349	2.81	4.96	4.77	1.20	1.40
-30	(-22)	2200	554	645	423	3.13	6.52	5.24	1.32	1.54
-25	(-13)	2809	708	823	516	3.59	8.35	5.54	1.40	1.62
-20	(- 4)	3521	887	1032	615	4.11	10.50	5.82	1.47	1.71
-15	(+ 5)	4354	1097	1276	706	4.65	13.04	6.23	1.57	1.82
-10	(+14)	5323	1342	1560	776	5.14	16.02	6.90	1.74	2.02
-5	(+23)	6448	1625	1889	811	5.52	19.49	7.99	2.01	2.34
0	(+32)	7743	1951	2269	798	5.73	23.53	9.65	2.43	2.83

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 65°C (+149°F))					
@115V3600RPM		Fan								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40	(-40)	1105	279	324	281	2.72	3.25	3.68	0.93	1.08
-35	(-31)	1528	385	448	345	2.85	4.52	4.34	1.09	1.27
-30	(-22)	2019	509	592	438	3.19	5.99	4.69	1.18	1.38
-25	(-13)	2594	654	760	547	3.68	7.71	4.88	1.23	1.43
-20	(- 4)	3271	824	958	659	4.27	9.75	5.06	1.27	1.48
-15	(+ 5)	4066	1025	1191	760	4.89	12.17	5.37	1.35	1.57
-10	(+14)	4996	1259	1464	836	5.48	15.03	5.95	1.50	1.74
-5	(+23)	6079	1532	1781	874	5.99	18.38	6.96	1.75	2.04
0	(+32)	7331	1847	2148	859	6.34	22.28	8.54	2.15	2.50

E - PERFORMANCE - CURVES

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 35°C (+95°F))					
@115V5000RPM		Fan								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40	(-40)	2109	531	618	413	3.42	6.24	4.95	1.25	1.45
-35	(-31)	2634	664	772	481	3.75	7.80	5.48	1.38	1.61
-30	(-22)	3310	834	970	548	4.15	9.81	6.08	1.53	1.78
-25	(-13)	4141	1043	1213	615	4.59	12.31	6.76	1.70	1.98
-20	(- 4)	5129	1293	1503	682	5.05	15.30	7.51	1.89	2.20
-15	(+ 5)	6279	1582	1840	751	5.51	18.81	8.32	2.10	2.44
-10	(+14)	7594	1914	2225	821	5.94	22.86	9.20	2.32	2.70
-5	(+23)	9077	2287	2660	893	6.31	27.46	10.14	2.56	2.97
0	(+32)	10733	2705	3145	967	6.62	32.63	11.14	2.81	3.26

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 45°C (+113°F))					
@115V5000RPM		Fan								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40	(-40)	1967	496	576	417	3.35	5.81	4.60	1.16	1.35
-35	(-31)	2563	646	751	502	3.80	7.58	5.09	1.28	1.49
-30	(-22)	3276	826	960	583	4.29	9.71	5.64	1.42	1.65
-25	(-13)	4110	1036	1204	660	4.82	12.22	6.25	1.58	1.83
-20	(- 4)	5069	1277	1485	735	5.35	15.12	6.92	1.74	2.03
-15	(+ 5)	6157	1551	1804	807	5.86	18.44	7.64	1.92	2.24
-10	(+14)	7376	1859	2161	877	6.33	22.20	8.41	2.12	2.46
-5	(+23)	8731	2200	2558	945	6.73	26.40	9.22	2.32	2.70
0	(+32)	10224	2577	2996	1012	7.04	31.08	10.09	2.54	2.96

TEST CONDITIONS:		ASHRAE32			(Condensing temperature 55°C (+131°F))					
@115V5000RPM		Fan								
Evaporating temperature		Cooling capacity			Power consumption	Current consumption	Gas flow rate	EFFICIENCY RATE		
		+/- 5%			+/- 5%	+/- 5%	+/- 5%	+/- 7%		
°C	(°F)	[Btu/h]	[kcal/h]	[W]	[W]	[A]	[kg/h]	[Btu/Wh]	[kcal/Wh]	[W/W]
-40	(-40)	1706	430	500	405	3.28	5.03	4.19	1.05	1.23
-35	(-31)	2387	602	699	512	3.85	7.06	4.64	1.17	1.36
-30	(-22)	3152	794	924	612	4.46	9.35	5.14	1.29	1.51
-25	(-13)	4006	1009	1174	705	5.08	11.91	5.68	1.43	1.66
-20	(- 4)	4951	1248	1451	791	5.69	14.77	6.27	1.58	1.84
-15	(+ 5)	5991	1510	1755	872	6.26	17.94	6.89	1.74	2.02
-10	(+14)	7129	1797	2089	946	6.78	21.45	7.56	1.90	2.21
-5	(+23)	8370	2109	2453	1016	7.21	25.31	8.25	2.08	2.42
0	(+32)	9717	2449	2847	1081	7.55	29.54	8.98	2.26	2.63

E - PERFORMANCE - CURVES

TEST CONDITIONS: @115V5000RPM		ASHRAE32 Fan			(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]
-40	(-40)	1324	334	388	377	3.24	3.89	3.73	0.94	1.09
-35	(-31)	2106	531	617	511	3.94	6.23	4.15	1.05	1.22
-30	(-22)	2939	741	861	635	4.67	8.71	4.60	1.16	1.35
-25	(-13)	3826	964	1121	748	5.39	11.38	5.08	1.28	1.49
-20	(- 4)	4772	1203	1398	851	6.08	14.24	5.59	1.41	1.64
-15	(+ 5)	5780	1457	1694	944	6.73	17.31	6.12	1.54	1.79
-10	(+14)	6854	1727	2008	1028	7.31	20.61	6.68	1.68	1.96
-5	(+23)	7996	2015	2343	1104	7.79	24.17	7.26	1.83	2.13
0	(+32)	9212	2321	2699	1172	8.15	28.00	7.85	1.98	2.30

F - EXTERNAL CHARACTERISTICS

1 Base plate	Universal EG/F/AMEM version 2		
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	Straight		
3.2 DISCHARGE	6.5 +0.12/-0.08	[mm]	(0.256" +0.005"/-0.003")
3.2.1 Material	Copper		
3.2.2 Shape	Straight		
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	Straight		
3.4 Oil cooler (Copper)	No	[mm]	
3.5 Connector sealing	Rubber Plugs		