

Effective Temperature, Bolometric Correction and Absolute Luminosity

Main Sequence Stars $LC = V$

Effective temperature, T_e , color index, $(CI)_o = (U - B)_o$, $(B - V)_o$ or $(R - I)_o$, absolute visual magnitude, M_V , bolometric correction, BC, absolute luminosity, L , in units of the solar value, $L_\odot$, for main sequence stars, or luminosity class $LC = V$. Schmidt-Kaler (1982).

Sp	$\log T_{\text{eff}}$	T_{eff} (°K)	$(CI)_o$ (mag)	M_V (mag)	BC (mag)	M_{bol} (mag)	L ($L_\odot$)
$(U - B)_o$							
O3	4.720	52500	-1.22	-6.0	-4.75	-10.7	1.4×10^6
4	4.680	48000	-1.20	-5.9	-4.45	-10.3	9.9×10^5
5	4.648	44500	-1.19	-5.7	-4.40	-10.1	7.9×10^5
6	4.613	41000	-1.17	-5.5	-3.93	-9.4	4.2×10^5
7	4.580	38000	-1.15	-5.2	-3.68	-8.9	2.6×10^5
8	4.555	35800	-1.14	-4.9	-3.54	-8.4	1.7×10^5
9	4.518	33000	-1.12	-4.5	-3.33	-7.8	9.7×10^4
$(B - V)_o$							
B0	4.486	30000	-1.08	-4.0	-3.16	-7.1	5.2×10^4
1	4.405	25400	-0.95	-3.2	-2.70	-5.9	1.6×10^4
2	4.342	22000	-0.84	-2.4	-2.35	-4.7	5.7×10^3
3	4.271	18700	-0.71	-1.6	-1.94	-3.5	1.9×10^3
5	4.188	15400	-0.58	-1.2	-1.46	-2.7	8.3×10^2
6	4.146	14000	-0.50	-0.9	-1.21	-2.1	500
7	4.115	13000	-0.43	-0.6	-1.02	-1.6	320
8	4.077	11900	-0.34	-0.2	-0.80	-1.0	180
9	4.022	10500	-0.20	+0.2	-0.51	-0.3	95
$(B - V)_o$							
AO	3.978	9520	-0.02	+0.6	-0.30	+0.3	54
1	3.965	9230	+0.01	+1.0	-0.23	+0.8	35
2	3.953	8970	+0.05	+1.3	-0.20	+1.1	26
3	3.940	8720	+0.08	+1.5	-0.17	+1.3	21

**Effective Temperature, Bolometric Correction
and Absolute Luminosity**

Main Sequence Stars $LC = V$

Sp	log T_{eff}	T_{eff} (°K)	$(CI)_o$ (mag)	M_V (mag)	BC (mag)	M_{bol} (mag)	L ($L_\odot$)
$(B - V)_o$							
A5	3.914	8200	+0.15	+1.9	-0.15	+1.7	14
7	3.895	7850	+0.20	+2.2	-0.12	+2.1	10.5
8	3.880	7580	+0.25	+2.4	-0.10	+2.3	8.6
F0	3.857	7200	+0.30	+2.7	-0.09	+2.6	6.5
2	3.838	6890	+0.35	+3.6	-0.11	+3.5	2.9
5	3.809	6440	+0.44	+3.5	-0.14	+3.4	3.2
8	3.792	6200	+0.52	+4.0	-0.16	+3.8	2.1
G0	3.780	6030	+0.58	+4.4	-0.18	+4.2	1.5
2	3.768	5860	+0.63	+4.7	-0.20	+4.5	1.1
5	3.760	5770	+0.68	+5.1	-0.21	+4.9	0.79
8	3.746	5570	+0.74	+5.5	-0.40	+5.1	0.66
K0	3.720	5250	+0.81	+5.9	-0.31	+5.6	0.42
1	3.706	5080	+0.86	+6.1	-0.37	+5.7	0.37
2	3.690	4900	+0.91	+6.4	-0.42	+6.0	0.29
3	3.675	4730	+0.96	+6.6	-0.50	+6.1	0.26
4	3.662	4590	+1.05	+7.0	-0.55	+6.4	0.19
5	3.638	4350	+1.15	+7.4	-0.72	+6.7	0.15
7	3.609	4060	+1.33	+8.1	-1.01	+7.1	0.10
$(R - I)_o$							
M0	3.585	3850	+0.92	+8.8	-1.38	+7.4	7.7×10^{-2}
1	3.570	3720	+1.03	+9.3	-1.62	+7.7	6.1×10^{-2}
2	3.554	3580	+1.17	+9.9	-1.89	+8.0	4.5×10^{-2}
3	3.540	3470	+1.30	+10.4	-2.15	+8.2	3.6×10^{-2}
4	3.528	3370	+1.43	+11.3	-2.38	+8.9	1.9×10^{-2}
5	3.510	3240	+1.61	+12.3	-2.73	+9.6	1.1×10^{-2}
6	3.485	3050	+1.93	+13.5	-3.21	+10.3	5.3×10^{-3}
7	3.468	2940	+2.1	+14.3	-3.46	+10.8	3.4×10^{-3}
8	3.422	2640	+2.4	+16.0	-4.1	+11.9	1.2×10^{-3}

Effective Temperature, Bolometric Correction and Absolute Luminosity

Giant Stars LC = III

Effective temperature, T_{eff} , color index, $(CI)_o = (U - B)_o$, $(B - V)_o$ or $(R - I)_o$, absolute visual magnitude, M_V , bolometric correction, BC, absolute luminosity, L , in units of the solar value, $L_\odot$, for giant stars, or luminosity class LC = III. Schmidt-Kaler (1982).

Sp	$\log T_{\text{eff}}$	T_{eff} (°K)	$(CI)_o$ (mag)	M_V (mag)	BC (mag)	M_{bol} (mag)	L ($L_\odot$)
$(U - B)_o$							
O3	4.698	50000	-1.22	-6.6	-4.58	-11.2	2.1×10^6
4	4.658	45500	-1.20	-6.5	-4.28	-10.8	1.5×10^6
5	4.628	42500	-1.18	-6.3	-4.05	-10.3	9.9×10^5
6	4.596	39500	-1.17	-6.1	-3.80	-9.9	6.5×10^5
7	4.568	37000	-1.14	-5.9	-3.58	-9.5	4.4×10^5
8	4.541	34700	-1.13	-5.8	-3.39	-9.2	3.4×10^5
9	4.505	32000	-1.12	-5.6	-3.13	-8.7	2.2×10^5
B0	4.463	29000	-1.08	-5.1	-2.88	-8.0	1.1×10^5
1	4.381	24000	-0.97	-4.4	-2.43	-6.8	3.9×10^4
2	4.308	20300	-0.91	-3.9	-2.02	-5.9	1.7×10^4
3	4.234	17100	-0.74	-3.0	-1.60	-4.6	5.0×10^3
5	4.177	15000	-0.58	-2.2	-1.30	-3.5	1.8×10^3
6	4.150	14100	-0.51	-1.8	-1.13	-2.9	1.1×10^3
7	4.120	13200	-0.44	-1.5	-0.97	-2.5	700
8	4.095	12400	-0.37	-1.2	-0.82	-2.0	460
9	4.042	11000	-0.20	-0.6	-0.71	-1.3	240
$(B - V)_o$							
A0	4.005	10100	-0.03	+0.0	-0.42	-0.4	106
1	3.977	9480	+0.01	+0.2	-0.29	-0.1	78
2	3.954	9000	+0.05	+0.3	-0.20	+0.1	65
3	3.935	8600	+0.08	+0.5	-0.17	+0.3	53

**Effective Temperature, Bolometric Correction
and Absolute Luminosity**

Giant Stars LC = III

Sp	log T _{eff}	T _{eff} (°K)	(CI) _o (mag)	M _V (mag)	BC (mag)	M _{bol} (mag)	L (L _⊙)
(B - V)_o							
A5	3.908	8100	+0.15	+0.7	-0.14	+0.6	43
7	3.884	7650	+0.22	+1.1	-0.10	+1.0	29
8	3.873	7450	+0.25	+1.2	-0.10	+1.1	26
F0	3.854	7150	+0.30	+1.5	-0.11	+1.4	20
2	3.837	6870	+0.35	+1.7	-0.11	+1.6	17
5	3.811	6470	+0.43	+1.6	-0.14	+1.6	17
8	3.789	6150	+0.54		-0.16		
G0	3.767	5850	+0.65	+1.0	-0.20	+0.8	34
2	3.737	5450	+0.77	+0.9	-0.27	+0.6	40
5	3.712	5150	+0.86	+0.9	-0.34	+0.6	43
8	3.690	4900	+0.94	+0.8	-0.42	+0.4	51
K0	3.676	4750	+1.00	+0.7	-0.50	+0.2	60
1	3.663	4600	+1.07	+0.6	-0.55	+0.1	69
2	3.646	4420	+1.16	+0.5	-0.61	-0.1	79
3	3.623	4200	+1.27	+0.3	-0.76	-0.5	110
4	3.602	4000	+1.38	+0.0	-0.94	-0.9	170
5	3.596	3950	+1.50	-0.2	-1.02	-1.2	220
7	3.586	3850	+1.53	-0.3	-1.17	-1.5	280
(R - I)_o							
M0	3.580	3800	+0.90	-0.4	-1.25	-1.6	330
1	3.570	3720	+0.96	-0.5	-1.44	-1.9	430
2	3.559	3620	+1.08	-0.6	-1.62	-2.2	550
3	3.548	3530	+1.30	-0.6	-1.87	-2.5	700
4	3.535	3430	+1.60	-0.5	-2.22	-2.7	880
5	3.522	3330	+1.91	-0.3	-2.48	-2.8	930
6	3.510	3240	+2.20	-0.2	-2.73	-2.9	1070

Effective Temperature, Bolometric Correction and Absolute Luminosity

Supergiant Stars LC = I

Effective temperature, T_{eff} , color index, $(CI)_o = (U - B)_o$, $(B - V)_o$ or $(R - I)_o$, absolute visual magnitude, M_V , bolometric correction, BC, absolute luminosity, L , in units of the solar value, $L_\odot$, for supergiant stars, or luminosity class approximately $LC \approx \text{Iab}$. Schmidt-Kaler (1982).

Sp	$\log T_{\text{eff}}$	T_{eff} (°K)	$(CI)_o$ (mag)	M_V (mag)	BC (mag)	M_{bol} (mag)	L ($L_\odot$)
$(U - B)_o$							
O3	4.675	47300	-1.21	-6.8:	-4.41	-11.2:	2.2×10^6
4	4.644	44100	-1.19	-6.7:	-4.17	-10.9:	1.6×10^6
5	4.605	40300	-1.17	-6.6	-3.87	-10.5	1.1×10^6
6	4.591	39000	-1.16	-6.5	-3.74	-10.2	9.0×10^5
7	4.553	35700	-1.14	-6.5	-3.48	-10.0	7.1×10^5
8	4.535	34200	-1.13	-6.5	-3.35	-9.8	6.2×10^5
9	4.513	32600	-1.13	-6.5	-3.18	-9.7	5.3×10^5
B0	4.415	26000	-1.06	-6.4	-2.49	-8.9	2.6×10^5
1	4.318	20800	-1.00	-6.4	-1.87	-8.3	1.5×10^5
2	4.267	18500	-0.94	-6.4	-1.58	-8.0	1.1×10^5
3	4.209	16200	-0.83	-6.3	-1.26	-7.6	7.6×10^4
5	4.133	13600	-0.72	-6.2	-0.95	-7.2	5.2×10^4
6	4.114	13000	-0.69	-6.2	-0.88	-7.1	4.9×10^4
7	4.085	12200	-0.64	-6.2	-0.78	-7.0	4.4×10^4
8	4.048	11200	-0.56	-6.2	-0.66	-6.9	4.0×10^4
9	4.012	10300	-0.50	-6.2	-0.52	-6.7	3.5×10^4
$(U - B)_o$							
A0	3.988	9730	-0.38	-6.3	-0.41	-6.7	3.5×10^4
1	3.965	9230	-0.29	-6.4	-0.32	-6.7	3.5×10^4
2	3.958	9080	-0.25	-6.5	-0.28	-6.7	3.6×10^4
3	3.943	8770	-0.14	-6.5	-0.21	-6.7	3.5×10^4

**Effective Temperature, Bolometric Correction
and Absolute Luminosity**

Supergiant Stars LC = I

Sp	log T _{eff}	T _{eff} (°K)	(CI) _o (mag)	M _V (mag)	BC (mag)	M _{bol} (mag)	L (L _o)
(U - B) _o							
A5	3.930	8510	-0.07	-6.6	-0.13	-6.7	3.5 × 10 ⁴
7	3.911	8150	+0.00	-6.6	-0.06	-6.7	3.3 × 10 ⁴
8	3.900	7950	+0.11	-6.6	-0.03	-6.6	3.2 × 10 ⁴
(B - V) _o							
F0	3.886	7700	+0.17	-6.6	-0.01	-6.6	3.2 × 10 ⁴
2	3.866	7350	+0.23	-6.6	-0.00	-6.6	3.1 × 10 ⁴
5	3.839	6900	+0.32	-6.6	-0.03	-6.6	3.2 × 10 ⁴
8	3.785	6100	+0.56	-6.5	-0.09	-6.6	3.1 × 10 ⁴
G0	3.744	5550	+0.76	-6.4	-0.15	-6.6	3.0 × 10 ⁴
2	3.716	5200	+0.87	-6.3	-0.21	-6.5	2.9 × 10 ⁴
5	3.686	4850	+1.02	-6.2	-0.33	-6.5	2.9 × 10 ⁴
8	3.663	4600	+1.15	-6.1	-0.42	-6.5	2.9 × 10 ⁴
K0	3.645	4420	+1.24	-6.0	-0.50	-6.5	2.9 × 10 ⁴
1	3.636	4330	+1.30	-6.0	-0.56	-6.6	3.0 × 10 ⁴
2	3.628	4250	+1.35	-5.9	-0.61	-6.5	2.9 × 10 ⁴
3	3.611	4080	+1.46	-5.9	-0.75	-6.6	3.3 × 10 ⁴
4	3.597	3950	+1.53	-5.8	-0.90	-6.7	3.4 × 10 ⁴
5	3.585	3850	+1.60	-5.8	-1.01	-6.8	3.8 × 10 ⁴
7	3.568	3700	+1.63	-5.7	-1.20	-6.9	4.1 × 10 ⁴
(R - I) _o							
M0	3.562	3650	+0.96	-5.6	-1.29	-6.9	4.1 × 10 ⁴
1	3.550	3550	+1.04	-5.6	-1.38	-7.0	4.4 × 10 ⁴
2	3.538	3450	+1.15	-5.6	-1.62	-7.2	5.5 × 10 ⁴
3	3.505	3200	+1.37	-5.6	-2.13	-7.7	5.6 × 10 ⁴
4	3.474	2980	+1.59	-5.6	-2.75	-8.3	1.6 × 10 ⁵
5	3.446	2800	+1.80	-5.6	-3.47	-9.1	3.0 × 10 ⁵
6	3.415	2600	+2.02	-5.6	-3.90	-9.5	4.5 × 10 ⁵

**Effective Temperature, Bolometric Correction
and Absolute Luminosity****Wolf-Rayet Stars**

Type	T_{eff} (°K)	BC (mag)	M_{bol} (mag)
WN3	50000	-4.4	-8.8
4	47000	-4.0	-7.8
5	43000	-3.7	-7.7
6	39000	-3.6	-8.0
7	32000	-3.0	-9.7
8	29000	-2.8	-8.4
WC6	60000	-4.5	-8.3
7	54000	-3.9	-8.3
8	46000	-3.9	-8.7
9	38000	-3.1	-8.1

9.8 Absolute Visual Magnitudes of the Stars

Absolute Visual Magnitudes in
the MK System, Population I

LC	V	IV	III	II	Ib	Iab	Ia	Ia-0
Sp	Absolute Visual Magnitude, M_V							
O3	-6.0						-6.8	
4	-5.9	-6.1	-6.5				-6.8	
5	-5.7	-6.0	-6.3				-6.8	
6	-5.5	-5.8	-6.1			-6.5	-6.8	
7	-5.2	-5.5	-5.9	-6.0	-6.3	-6.5	-6.8	
8	-4.9	-5.4	-5.8	-6.0	-6.2	-6.5	-6.8	
9	-4.5	-5.2	-5.6	-5.9	-6.2	-6.5	-6.8	
B0	-4.0	-4.7	-5.1	-5.7	-6.1	-6.4	-6.9	-8.2
1	-3.2	-3.8	-4.4	-5.4	-5.8	-6.4	-6.9	-8.3
2	-2.45	-3.1	-3.9	-4.8	-5.7	-6.4	-6.9	-8.3
3	-1.6	-2.4	-3.0	-4.5	-5.5	-6.3	-7.0	-8.3
5	-1.2	-1.7	-2.2	-4.0	-5.4	-6.2	-7.0	-8.4
7	-0.6	-1.1	-1.5	-3.5	-5.3	-6.2	-7.1	-8.4
8	-0.25	-0.7	-1.2	-3.1	-5.2	-6.2	-7.1	-8.5
9	+0.2	-0.2	-0.6		-5.2	-6.2	-7.1	-8.5
A0	+0.65	+0.3	+0.0	-3.0	-5.2	-6.3	-7.1	-8.5
1	+1.0	+0.7	+0.2	-3.0	-5.2	-6.4	-7.2	-8.5
2	+1.3	+1.0	+0.3	-2.9	-5.2	-6.5	-7.2	-8.6
3	+1.5	+1.2	+0.5	-2.8	-5.2	-6.5	-7.2	-8.7
5	+1.95	+1.3	+0.7	-2.8	-5.1	-6.6	-7.4	-8.8
7	+2.2	+1.7	+1.1	-2.7	-5.1		-7.7	-8.9
8	+2.4	+2.0	+1.2	-2.6	-5.1		-7.8	-8.9

**Absolute Visual Magnitudes in
the MK System, Population I**

LC	V	IV	III	II	Ib	Iab	Ia	Ia-0
Sp	Absolute Visual Magnitude, M_V							
F0	+2.7	+2.2	+1.5	-2.5	-5.1	-6.6	-8.0	-9.0
2	+3.6	+2.4	+1.7	-2.4	-5.1	-6.6	-8.0	-9.0
5	+3.5	+2.5	+1.6	-2.3	-5.1	-6.6	-8.0	-9.0
8	+4.0	+2.8		-2.3	-5.1	-6.5	-8.0	-9.0
G0	+4.4	+3.0	+1.0	-2.3	-5.0	-6.4	-8.0	-8.9
2	+4.7	+3.0	+0.9	-2.3	-5.0	-6.3	-8.0	-8.8
5	+5.1	+3.1	+0.9	-2.3	-4.6	-6.2	-7.9	-8.6
8	+5.5	+3.1	+0.8	-2.3	-4.4	-6.1	-7.8	-8.5
K0	+5.9	+3.1	+0.7	-2.3	-4.3	-6.0	-7.7	-8.5
1	+6.15	+3.1	+0.6	-2.3	-4.3	-6.0	-7.6	
2	+6.4		+0.5	-2.3	-4.3	-5.9	-7.6	
3	+6.65		+0.3	-2.3	-4.3	-5.9	-7.5	
4	+7.0		+0.0	-2.3	-4.3	-5.8	-7.5	
5	+7.35		-0.2	-2.3	-4.4	-5.8	-7.5	
7	+8.1		-0.3	-2.3	-4.4	-5.7	-7.4	
M0	+8.8		-0.4	-2.5	-4.5	-5.6	-7.0	-8.0
1	+9.3		-0.5	-2.5	-4.6	-5.6	-7.0	-8.0
2	+9.9		-0.6	-2.6	-4.7	-5.6	-6.9	-8.0
3	+10.4		-0.6	-2.6	-4.8	-5.6	-6.9	-8.0
4	+11.3		-0.5	-2.6	-4.8	-5.6	-6.8	-8.0
5	+12.3		-0.3		-4.8	-5.6	-6.8	

**Absolute Visual Magnitudes, M_V ,
and Intrinsic Colors, $(B - V)_0$**

Different Luminosity Classes, LC (Schmidt - Kaler, 1982).
 V_0 = Zero - Age Main Sequence (ZAMS)

LC	Ia	Ib	II	III	IV	V	V_0	VI	VII
$(B - V)_0$	Absolute Visual Magnitude, M_V								
-0.3	-6.8	-6.2	-5.8	-5.3	-4.9	-4.0	-3.25		+9.6
-0.2	-6.9	-5.8	-4.5	-2.8	-2.3	-1.5	-1.1		+10.2
-0.1	-7.0	-5.4	-3.1	-1.0	-0.5	-0.1	+0.6		+10.6
0.0	-7.1	-5.2	-3.0	+0.2	+0.6	+0.9	+1.5		+11.4
+0.1	-7.5	-5.1	-2.8	+0.5	+1.2	+1.4	+1.9		+11.9
+0.2	-8.0	-5.1	-2.6	+1.0	+1.7	+2.2	+2.4		+12.8
+0.3	-8.0	-5.1	-2.4	+1.5	+2.2	+2.7	+2.8		+13.2
+0.4	-8.0	-5.1	-2.3	+1.6	+2.5	+3.3	+3.4	+4.0	+13.8
+0.5	-8.0	-5.1	-2.3		+2.7	+3.9	+4.1	+5.0	+14.1
+0.6	-8.0	-5.1	-2.3		+3.0	+4.3	+4.7	+5.7	+14.5
+0.7	-8.0	-5.0	-2.3	+1.0	+3.1	+5.2	+5.2	+6.4	+14.8
+0.8	-8.0	-5.0	-2.3	+0.9	+3.1	+5.8	+5.8	+6.9	+15.1
+0.9	-8.0	-4.9	-2.3	+0.8	+3.1	+6.3	+6.3	+7.4	+15.3
+1.0	-7.8	-4.6	-2.3	+0.7	+3.1	+6.7	+6.7	+7.9	+15.7
+1.1	-7.8	-4.5	-2.3	+0.5		+7.2	+7.2		
+1.2	-7.8	-4.3	-2.3	+0.5		+7.5	+7.5		
+1.3	-7.6	-4.2	-2.3	+0.3		+7.9	+8.0		
+1.4	-7.6	-4.3	-2.3	0.0		+8.8	+8.8		
+1.5	-7.5	-4.3	-2.3	-0.2		+10.3	+10.3		
+1.6	-7.5	-4.4	-2.6	-0.6		+11.9	+12.0		
+1.7	-7.0	-4.8	-2.6			+13.2	+13.2		
+1.8	-6.8	-4.8				+14.2	+14.2		
+1.9	-6.8	-4.8				+15.5:	+15.5:		
+2.0						+16.7:	+16.7:		