

## RED & CLOSE DOUBLE STARS

SBO Catalog Number	Common Name	Constellation	Epoch 2000		Visible Mag	Apparent Separation (arcsec)	Stellar Arrangement	Distance Light Years	Description or Comments
			R. A. h m s	Dec deg ' "					
<b>Red (Carbon) Stars</b>									
226	UU Aur	Aur	06 36 33	+ 38 26 42	5.29	-----	*	650	C5 II carbon star, variable 5-7 mag. in 2/3 yr
246	Y Cvn	CVn	12 45 08	+ 45 26 24	4.99	-----	*	1,600	Carbon star, spectral type C7 I
301	mu Cep	Cep	21 43 30	+ 58 46 48	4.08	-----	*	1,000	Herschel's garnet star, M2 lae, semiregular
305	19 (TX) Psc	Psc	23 46 23	+ 03 29 12	5.04	-----	*	1,000?	C5 II, very red, in cirlet of Pisces
<b>Tight Doubles (4 arcseconds or less)</b>									
205	alpha Psc	Psc	02 02 03	+ 02 45 48	4 + 5	1.8"	**	650	White + white, AO +A3, 350 AU app. separation
523	6 Tri	Tri	02 12 22	+ 30 18 12	5 + 7	3.6"	**	800	Bluish + yellow, F5 III + G5 III, 850 AU
210	gamma Cet	Cet	02 43 18	+ 03 14 12	4 + 6	3"	**	63	Blue + yellow, A3 V + F2, 60 AU separation
515	Struve 67	Cam	03 57 08	+ 61 06 30	5 + 8	1.7"	**	220	Gold + green, K3 supergiant + AO dwarf
215	eta Ori	Ori	05 24 29	- 02 23 48	4 + 5	1.5"	**	460	Close pair, white + white, B1 V + B2e, 210 AU
223	theta Aur	Aur	05 59 43	+ 37 12 42	3 + 8	3.5"	**	110	B9 V + solar type, 800y period, 110 AU app. sep.
524	mu CMa	CMa	06 56 07	- 14 02 36	5 + 8	3"	**	?	Yellowish + bluish, G5 III + A2
241	xi UMa	UMa	11 18 11	+ 31 31 48	4 + 5	2.9"	**	24	White + white, both G0 V, 60 yr. period, 21 AU
245	gamma Vir	Vir	12 41 40	- 01 27 00	4 + 4	4"	**	33	Wh + wh, 172 yr. period, 0.4" periastron in 2008
253	epsilon Boo	Boo	14 44 59	+ 27 04 30	3 + 5	3"	**	200	Yellow + blue, K0 II + A2 V, 180 AU app. sep.
257	delta Ser	Ser	15 34 48	+ 10 32 18	4 + 4	4"	**	150	Both type F0 IV, white, 180 AU apparent sep.
263, 511	Antares	Sco	16 29 24	- 26 25 54	1 + 6	3"	• *	520	Red M1 supergiant + emerald green B4 V comp.
272	rho Her	Her	17 23 41	+ 37 08 48	5 + 6	4"	**	?	Attractive with small aperture, B9.5 III + AO V
526	90 Her	Her	17 53 18	+ 40 00 30	5 + 8	1.6"	**	240	K3 III primary, difficult uneven pair
280	70 Oph	Oph	18 05 27	+ 02 30 00	4 + 6	2"	**	16	Yel + red, 88 yr per., 10 AU app. sep, K0 V prim.
292, 420	delta Cyg	Cyg	19 44 58	+ 45 07 54	3 + 6	2"	**	270	B9.5 IV + F1 V (230 deg p.a.), 400 yr apparent per
528	49 Cyg	Cyg	20 41 03	+ 32 18 24	6 + 9	2.8"	**	?	G8 IIb primary + A type secondary
302	zeta Aqr	Aqr	22 28 50	- 00 01 12	5 + 5	1.8"	**	150	Both white, F3 V + F6 IV, 80 AU apparent sep.
<b>Intermediate Doubles (4 to 12 Arcseconds)</b>									
520	55 Psc	Psc	00 39 56	+ 21 26 18	6 + 9	6.6"	* *	360	Orange + blue, K0 III +F3 V, 700 AU
203	eta Cas	Cas	00 49 06	+ 57 49 00	4 + 8	12"	* *	18	Yellow + red/purple, 500 y period, 65 AU
204	gamma Ari	Ari	01 53 32	+ 19 17 36	5 + 5	9"	* *	125	White + white, A1 p + B9 V, 340 AU
211	theta Eri	Eri	02 58 16	- 40 18 18	3 + 4	9"	* *	93	White + white, A4 III + A1 V, 250 AU
517	Struve 320	Cep	03 06 08	+ 79 25 06	6 + 9	4.8"	* *	410	Orange + blue, M1 III + F7 IV
212	32 Eri	Eri	03 54 17	- 02 57 12	5 + 6	7"	* *	800	Yellow + blue/green, G8 III + A2 V, 1,700 AU
214, 505	Rigel	Ori	05 14 32	- 08 12 06	0 + 7	10"	• *	900	B8 supergiant, 50 Mo, 57,000 x Lo
216	lambda Ori	Ori	05 35 08	+ 09 56 06	4 + 6	4.5"	* *	460	White + white, O8e + B0.5 V, 620 AU
219	iota Ori	Ori	05 35 26	- 05 54 36	3 + 7	11.5"	* *	130	O9 III primary, 450 AU apparent separation
228, 501	Sirius	CMa	06 45 09	- 16 43 00	-1 + 9	8"	• *	8.6	A1 V + white dwarf, 20 AU sep., 51 yr period
229	delta Gem	Gem	07 20 07	+ 21 59 00	4 + 8	6"	* *	53	Yellow + red/purple, F2 IV primary, 100AU sep.
232	kappa Pup	Pup	07 38 50	- 26 48 12	4 + 5	10"	* *	325	White + white (B5 IV + B6 V), primary is double
239	gamma Leo	Leo	10 19 58	+ 19 50 30	3 + 4	4.3"	* *	150	Yellow + yellow, K0 III + G0 III, 407 yr. period
254	xi Boo	Boo	14 51 23	+ 19 06 06	5 + 7	7"	* *	22	Yellow + red, 150 yr. period, 50 AU app. sep.
258	zeta CrB	CrB	15 39 22	+ 36 38 12	5 + 6	6"	* *	220	Bluish + greenish, B7 V + B9 V
269	alpha Her	Her	17 14 39	+ 14 23 24	3 + 5	4.5"	* *	430	Orange + blue/green, M5 Ib + (G5 III + F2 V)
270	delta Her	Her	17 15 02	+ 24 50 24	3 + 9	10"	* *	95?	Optical double (unrelated stars), white + purple
527	omicron Oph	Oph	17 18 01	- 24 17 12	5 + 7	10"	* *	250	K0 II - III + F6 IV - V
278	95 Her	Her	18 01 30	+ 21 35 42	5 + 5	6"	* *	400	Pale red & green (colors change), G5 III + A5 III
295	gamma Del	Del	20 46 39	+ 16 07 30	4 + 5	10"	* *	125	Yellow + pale green, K1 IV + F7 V

## WIDE DOUBLE & MULTIPLE STARS

SBO Catalog Number	Common Name	Constellation	Epoch 2000		Visible Mag	Apparent Separation (arcsec)	Stellar Arrangement	Distance Light Years	Description or Comments
			R. A. h m s	Dec deg ' "					
<b>Wide Doubles (12 to 62 Arcseconds)</b>									
521	66 Cet	Cet	02 12 47	- 02 23 36	6 + 8	16"	* *	72	Blue + yellow, F8 V + G4 V (solar-type star)
522	eta Per	Per	02 50 42	+ 55 53 42	4 + 9	28"	* *	540	Yellowish + bluish (M3 supergiant primary)
525	epsilon Mon	Mon	06 23 46	+ 04 35 36	4 + 6	13"	* *	130	Bluish + yellowish, A5 IV + F5 V
235	iota Cnc	Cnc	08 46 41	+ 28 45 42	4 + 7	31"	* *	190	Yellow/orange + blue, G8 III + A3 V, 1800 AU
242	delta Crv	Crv	12 29 52	- 16 30 54	3 + 8	24"	* *	135	White + lilac, B9.5 V primary, 1000 AU
243	24 Com	Com	12 35 07	+ 18 22 36	5 + 7	20"	* *	1,600	Orange + blue/green, K2 III + A9 V
516	Struve 1694	Cam	12 49 10	+ 83 24 54	5 + 6	22"	* *	3,300	Al III shell + (A0 V + A2 V)
248, 413	Cor Caroli	CVn	12 56 01	+ 38 19 00	3 + 6	20"	* *	120	Both blue/white, A0 + F0 V, 720 AU app. sep.
260	beta Sco	Sco	16 05 26	- 19 48 12	3 + 5	14"	* *	360	Both blue/white, B1 V + B2 V, 1,500 AU app. sep.
273	nu Dra	Dra	17 32 13	+ 55 10 42	5 + 5	62"	* *	95	A4 + A6 V, white, evenly matched stars
518	psi Dra	Dra	17 41 57	+ 72 09 12	5 + 6	30"	* *	60	F5 IV + G0 V, 55 AU apparent separation
288	theta Ser	Ser	18 56 14	+ 04 12 12	5 + 5	23"	* *	130	Both white A5 V stars, 900 AU apparent sep.
289	Albireo	Cyg	19 30 44	+ 27 57 48	3 + 5	35"	* *	200	Vivid orange + blue, (K3 II + B0.5 V) + B8 V
297	61 Cyg	Cyg	21 06 54	+ 38 44 42	5 + 6	28"	* *	11	Both orange, K5 V + K7 V, 5.26"/yr. prop. motion
299	beta Cep	Cep	21 28 40	+ 70 33 42	3 + 8	14"	* *	240	Both blue/white, B1 IV primary, very unequal
303	delta Cep	Cep	22 29 10	+ 58 24 54	4 + 8	41"	* *	1,000	Primary is prototype Cepheid var., 5.4 day period
519	94 Aqr	Aqr	23 19 07	- 13 27 30	5 + 7	13"	* *	82	G5 IV primary + K2 companion
<b>Multiple Star Systems</b>									
206, 403	gamma And	And	02 03 55	+ 42 19 48	2 + 5+6	10", 0.5"	* **	250	Orange + blue(2), 61 year period, 800 & 30 AU
209	iota Cas	Cas	02 29 04	+ 67 24 12	5+8 + 7	2.5", 7"	***	800	Yellow + blue/white + blue/white
217	Trapezium	Ori	05 35 15	- 05 23 12	5+7+7+8	8,12,14,20"	****	1,900	Theta-1 Ori, young hot O + B0 stars exciting M 42
220	sigma Ori	Ori	05 38 46	- 02 36 00	4+6+7+10	11,12,42"	*** *	1,400	All O & B stars, 35 Mo primary w/ companion
221	zeta Ori	Ori	05 40 46	- 01 56 36	2+4 + 9	2.5", 58"	** *	1,600	East star of "belt", excites emission nebula
225	beta Mon	Mon	06 28 49	- 07 02 00	5 + 5+6	7.4", 2.8"	***	155	All are yellow/white B3, 350 & 150 AU app. sep.
227	12 Lyn	Lyn	06 46 14	+ 59 26 30	5+6 + 8	1.7", 8"	***	300	A3 V primary, 150 & 700 AU apparent separation
231, 408	Castor	Gem	07 34 36	+ 31 53 18	2+3 + 10	2", 60"	** *	48	Wh +wh+orange; 30, 900 AU (each is spect. bin.)
234	zeta Cnc	Cnc	08 12 13	+ 17 38 54	6 + 6+6	6", 1"	***	84	60, 18 yr periods for close pairs; 150, 25, 5 AU
250	Mizar (w/Alcor)	UMa	13 23 56	+ 54 55 24	2+4,4	15", 720"	** *	88	Alcor is 12' away; compare visual vs. telescope
256	mu Boo	Boo	15 24 30	+ 37 21 48	4 + 6+8	108", 2"	* **	95	B9 V + G1 V, latter double (43 AU, 260 yr. period)
259	xi Sco	Sco	16 04 22	- 11 22 24	5 + 5	1", 7"	*** **	80	** * with another 12" ** 4.5' from the triple
261	nu Sco	Sco	16 11 59	- 19 27 18	4+6 + 7+8	42", 2", 1"	** **	400	Colorful double double
264	16 - 17 Dra	Dra	16 36 13	+ 52 54 48	6 + 6+7	90", 3"	* **	330	B9.5 V + (B9 V + A1 V)
285	epsilon Lyr	Lyr	18 44 21	+ 39 38 30	5+5 + 5+6	208,2.3,2.7"	** **	150	Double double, all white A or F type stars