

BINARY ASTEROID PARAMETERS

Asteroid/satellite	D_p	D_s/D_p	D_s	Per_p	Per_s	Per_{orb}	a	a/D_p	ρ_p	a'
22 Kalliope/ Linus	170	0.213	36	4.1482		86.16	1065	6.3	2.5	2.910
45 Eugenia/ Petit-Prince	195	0.036	7.0	5.6991		114.38	1184	6.1	1.1	2.724
87 Sylvia/ Romulus	256	0.063	16	5.1836		87.59	1356	5.3	1.5	3.493
90 Antiope/ S/2000 1	86.7	0.955	82.8	16.5051	16.5051	16.5051	171	1.97	1.26	3.154
107 Camilla/ S/2001 1	206	0.050	10	4.8439		89.04	1235	6.0	1.9	3.495
121 Hermione/ S/2002 1	(205)	0.066	(14)	5.5513		61.97	768	(3.7)	(1.1)	3.448
130 Elektra/ S/2003 1	179	0.026	4.7	5.225		(94.1)	(1252)	(7.0)	(3.0)	3.124
243 Ida/ Dactyl	28.1	0.048	1.34	4.6336					2.7	2.860
283 Emma/ S/2003 1	145	0.079	11	6.888		80.74	596	4.1	0.8	3.046
379 Huenna/ S/2003 1	90	0.078	7.0	(7.022)		1939	3400	38	1.2	3.136
617 Patroclus/ Menoetius	101	0.92	93	(102.8)		102.8	680	6.7	1.3	5.218
624 Hektor/ Skamandrios	220	0.05	11	6.92051			(1700)	(8)		5.242
762 Pulcova	133	0.16	21	5.839		96	810	6.1	1.9	3.157
809 Lundia	6.9	0.89	6.1	15.418	15.418	15.418	(15)	(2.2)	(2.0)	2.283
854 Frostia	5.7	0.98	6	(37.711)	(37.711)	37.711	(24)	(4.1)	(2.0)	2.368
939 Isberga	10.56	0.29	3.1	2.9173		26.8	(28)	(2.6)	(2.0)	2.246
1052 Belgica	9.8	(0.36)	(3.5)	2.7097		47.26	(38)	(3.9)	(2.0)	2.236
1089 Tama	9.1	0.9	8	(16.4461)	(16.4461)	16.4461	(21)	(2.3)	(2.0)	2.214
1139 Atami	5	0.8	4.0	(27.45)	(27.45)	27.45	(15)	(3.1)	(2.0)	1.947
1313 Berna	9.5	0.97	9.2	(25.464)	(25.464)	25.464	(30)	(3.1)	(2.0)	2.656
1338 Duponta	7.7	0.24	1.8	3.85453		17.5680	(15)	(2.0)	(2.0)	2.264
1453 Fennia	6.33	0.28	1.8	4.4121	(23.1)	23.00351	(16)	(2.6)	(2.0)	1.897
1509 Esclangona/ S/2003 1	8.5	0.33	2.8	3.25283	6.6422	(768)	(210)	(25)	(2.0)	1.866
1717 Arlon	7.8	(0.6)	(4.7)	(5.148)	(18.23)	117.0	(59)	(7.5)	(2.0)	2.196
1727 Mette	9	(0.20)	(1.8)	2.98109		20.99	(21)	(2.2)	(2.0)	1.854
1830 Pogson	8.0	(0.30)	(2.4)	2.57003		24.24580	(20)	(2.5)	(2.0)	2.188
1862 Apollo	1.55	0.05	0.075	3.06545						1.470
1866 Sisyphus	6.8	(0.1)	(0.7)	2.400						1.894
2006 Polonskaya	4.7	(0.23)	(1.1)	(3.1180)		19.153	(9.8)	(2.1)	(2.0)	2.325
2044 Wirt	6.0	0.25	1.5	3.6897		18.970	(13)	(2.1)	(2.0)	2.380
2047 Smetana	3.06	0.21	0.64	2.4970		22.43	(7.1)	(2.3)	(2.0)	1.872
2121 Sevastopol	8.6	0.41	3.5	2.90660	37.13	37.1536	(29)	(3.3)	(2.0)	2.183
2131 Mayall	8.2	0.30	2.5	2.5678	23.47	23.4849	(20)	(2.4)	(2.0)	1.887
2478 Tokai	7.6	0.86	6.6	25.897	25.897	25.897	(23)	(3.0)	(2.0)	2.225
2486 Metsähovi	6.9	(0.7)	(4.8)	(2.6402)	(4.4524)					2.269
2577 Litva	5.7	(0.34)	(1.9)	2.81292		35.8723	(18)	(3.2)	(2.0)	1.904
2623 Zech	6.8	(0.29)	(2.0)	2.7401	18.718	117.2	(48)	(7.1)	(2.0)	2.255
2691 Sersic	5.00	(0.43)	(2.15)	3.8811		26.81	(13.5)	(2.7)	(2.0)	2.246
2754 Efimov	4.8	0.22	1.0	2.44967		14.77578	(8.4)	(1.8)	(2.0)	2.228
2815 Soma	6.9	0.25	1.7	2.73325		17.915	(14)	(2.0)	(2.0)	2.234
3034 Climenhaga	9	(0.20)	(1.8)	2.7376		(18.954)	(18)	(2.1)	(2.0)	2.324
3073 Kursk	4.9	0.25	1.2	3.4468		44.96	(18)	(3.7)	(2.0)	2.243
3145 Walter Adams	3.69	0.22	0.81	2.7113		(17.5)	(7.3)	(2.0)	(2.0)	2.192
3309 Brorfelde	4.4	0.26	1.2	2.5042	(18.6)	18.46444	(9.1)	(2.0)	(2.0)	1.817
3671 Dionysus/ S/1997 1	1.43	0.2	0.29	2.7053		27.74	(3.8)	(2.7)	(2.0)	2.198
3673 Levy	6.3	0.26	1.6	2.68741		21.68	(14)	(2.3)	(2.0)	2.345
3703 Volkonskaya	3.46	0.4	1.4	3.235		(24)	(8.6)	(2.5)	(2.0)	2.331
3749 Balam/ S/2002 1	4.25	0.45	1.9	2.80483		33.38	(13.2)	(3.1)	(2.0)	2.237
3782 Celle	6.0	0.43	2.6	3.839		36.57	(20)	(3.3)	(2.0)	2.415
3868 Mendoza	9.3	0.17	1.6	2.77089		12.195	(14)	(1.5)	(2.0)	2.333
3873 Roddy	6.9	(0.27)	(1.9)	2.4797		19.24	(14)	(2.1)	(2.0)	1.892
3905 Doppler	7	0.87	6	50.8	50.8	50.8	(34)	(4.8)	(2.0)	2.560
3951 Zichichi	6.4	(0.33)	(2.11)	3.39423		27.59	(17)	(2.7)	(2.0)	2.339
3982 Kastel'	5.4	(0.8)	(4.3)	(5.8358)	(8.4865)					2.259
4029 Bridges	7.6	0.27	2.1	3.5750		16.31701	(14)	(1.9)	(2.0)	2.525
4383 Suruga	6.39	(0.19)	(1.2)	3.4068	(16.34)	16.34	(12.0)	(1.9)	(2.0)	2.424
4492 Debussy	12.6	0.93	12	(26.606)	(26.606)	26.606	(40)	(3.2)	(2.0)	2.766
4607 Seilandfarm	6.06	0.30	1.8	3.96822		31.65	(18)	(2.9)	(2.0)	2.264
4674 Pauling/ S/2004 1	4.30	0.32	1.4	2.5306		(2791)	(250)	(58)	(2.0)	1.859
4786 Tatianina	3.4	0.19	0.65	2.9227		21.67	(7.7)	(2.3)	(2.0)	2.361
4951 Iwamoto	4.2	0.88	3.7	118.0	118.0	118.0	(35)	(8.4)	(2.0)	2.257
5143 Heracles	3.6	0.17	0.6	2.706						1.833
5381 Sekhmet	1.0	0.30	0.3	2.7	10	12.5	1.54	1.54	1.8	0.948
5407 1992 AX	3.7	0.22	0.8	2.5488	(13.52)	13.51	(6.1)	(1.7)	(2.0)	1.838
5474 Gingasen	(4.1)	(0.7)	(2.9)	(3.1095)	(3.6242)					2.383
5477 Holmes	3.0	0.39	1.2	2.9940	24.40	24.4036	(7.5)	(2.5)	(2.0)	1.917
5481 Kiuchi	3.6	0.35	1.27	3.6196	20.91	20.904	(8.2)	(2.2)	(2.0)	2.339
5646 1990 TR	1.9	(0.5)	(0.9)	3.1999	(19.47)					2.142
5828 1991 AM	(1.9)			2.6666	(18.34)					1.698
5899 Jedicke	2.5	(0.4)	(1.0)	(2.7481)		16.72	(4.8)	(1.9)	(2.0)	1.928
5905 Johnson	4.48	0.38	1.7	3.7823	21.76	21.7970	(10.4)	(2.3)	(2.0)	1.910
6084 Bascom	6.0	0.37	2.2	2.7453		43.51	(22)	(3.7)	(2.0)	2.313
6244 Okamoto	4.8	0.25	1.2	2.8957		20.317	(10.4)	(2.2)	(2.0)	2.160
6265 1985 TW ₃	4.95	(0.32)	(1.58)	2.7092		15.86	(9.3)	(1.9)	(2.0)	2.166
6369 1983 UC	3.3	0.36	1.2	2.39707		39.80	(11.3)	(3.4)	(2.0)	2.293

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6615 Plutarchos	3.04	(0.26)	(0.79)	2.3247		(40.02)	(10.4)	(3.4)	(2.0)	2.170
7088 Ishtar	1.05	0.42	0.44	2.6786	20.60	20.63	(2.4)	(2.2)	(2.0)	1.981
7187 Isobe	6.0	(0.16)	(1.0)	4.2431		(32.7)	(18)	(3.0)	(2.0)	1.938
7225 Huntress	6.6	0.21	1.4	2.4400		14.67	(11.5)	(1.7)	(2.0)	2.341
7369 Gavrilin	4.6	0.7	3.2	(49.12)	(49.12)	49.12	(20)	(4.4)	(2.0)	2.369
7888 1993 UC	2.7			2.3398						2.436
7958 Leakey	2.82	(0.30)	(0.85)	2.34843		50.29	(11.3)	(4.0)	(2.0)	1.877
8116 Jeanperrin	4.5	(0.4)	(1.8)	3.6169		36.11	(14)	(3.2)	(2.0)	2.249
8306 Shoko	2.4	0.45	1.1	3.3503	36.20	36.20	(7.9)	(3.3)	(2.0)	2.242
8373 Stephengould	6	(0.4)	(2.5)	4.4345		34.15	(20)	(3.2)	(2.0)	3.283
9069 Hovland	2.7	(0.4)	(1.1)	4.2175	(30.33)	(30.33)	(7.8)	(2.9)	(2.0)	1.913
9260 Edwardolson	3.9	0.27	1.1	3.0854	(17.75)	17.785	(7.8)	(2.0)	(2.0)	2.290
9617 Grahamchapman	2.7	(0.27)	(0.7)	2.28561		19.387	(5.8)	(2.1)	(2.0)	2.224
9783 Tensho-kan	8.3	0.26	2.1	3.0111		29.57	(23)	(2.8)	(2.0)	2.669
10123 Fideoja	3.1	0.36	1.1	2.86611		56.49	(13)	(4.3)	(2.0)	2.269
10208 Germanicus	3.2	0.46	1.5	3.3484		58.55	(14)	(4.5)	(2.0)	2.235
11217 1999 JC ₄	(2.2)			4.8219	(9.584)					1.944
11264 Claudiomaccone	2.97	0.4	1.2	3.1872		15.11	(5.4)	(1.8)	(2.0)	2.578
13123 Tyson	8.0	(0.4)	(3.2)	(3.3303)	(3.862)					2.360
15268 Wendelinefroger	3.4	0.3	1.0	2.4224		25.07	(9)	(2.5)	(2.0)	2.366
15700 1987 QD	2.9	(0.31)	(0.9)	3.0586						2.209
15822 1994 TV ₁₅	1.7	(0.19)	(0.32)	2.9600		(20.13)	(3.7)	(2.2)	(2.0)	1.948
16525 Shumarinaiko	5.15	0.20	1.0	2.5932		14.409	(8.9)	(1.7)	(2.0)	2.399
16635 1993 QO	3.6	(0.35)	(1.3)	2.2083	(32.25)	32.25	(11)	(3.0)	(2.0)	2.298
17246 Christophedumas/ S/200	4.5	0.40	1.8			2034	228	(48)	(2.0)	2.840
17260 Kušnirák	3.3	0.26	0.9	3.1287	(14.74)	14.7576	(5.9)	(1.8)	(2.0)	2.205
20325 Julianoey	6.8	0.30	2.0	3.24490		23.54	(16)	(2.4)	(2.0)	2.379
21436 Chaoyichi	1.84	0.35	0.64	2.86532		81.17	(10.2)	(5.5)	(2.0)	2.187
22899 Alconrad/ S/2003 1	5.4	0.32	1.7			1356	182	34	1.6	2.846
26074 Carlwirtz	(2.5)			2.5493	(16.11)					1.811
26416 1999 XM ₈₄	3.4	0.27	0.92	2.9660		20.76	(7.5)	(2.2)	(2.0)	2.342
26471 Tracybecker	7.0	0.36	2.5	2.6868		39.28	(24)	(3.4)	(2.0)	1.918
27568 2000 PT ₆	2.3	(0.5)	(1.1)	3.4885	16.35					1.963
29168 1990 KJ	(4.5)			2.5825	(34.4)					2.308
31345 1998 PG	0.82	(0.4)	(0.33)	(2.5162)	(14.01)	(14.01)	(1.4)	(1.7)	(2.0)	2.016
32008 Adriángalád	3.0	(0.5)	(1.5)	3.0171		40.24	(10.8)	(3.6)	(2.0)	2.192
32039 2000 JO ₂₃	2.6	(0.65)	(1.7)	6.5979	(11.099)	(360)	(43)	(16)	(2.0)	2.223
34706 2001 OP ₈₃	2.8	0.28	0.78	2.5944		20.76	(6.1)	(2.2)	(2.0)	2.252
35107 1991 VH/ S/2008 1	1.2	0.38	0.46	2.6237	(12.836)	32.67	3.26	2.72	1.4	1.137
43008 1999 UD ₃₁	1.8	(0.40)	(0.72)	2.7420	16.749	16.745	(3.5)	(1.9)	(2.0)	2.350
44620 1999 RS ₄₃	2.0	0.34	0.67	3.1401	33.2	33.63	(6.0)	(3.1)	(2.0)	2.176
46829 McMahon	2.5	0.40	0.98	(2.6236)		16.83	(4.8)	(2.0)	(2.0)	2.401
51356 2000 RY ₇₆	2.4	(0.21)	(0.50)	(2.5572)		62.05	(11)	(4.6)	(2.0)	1.812
52316 Daveslater	2.5	(0.20)	(0.5)	2.7629		(13.44)	(4.1)	(1.6)	(2.0)	1.897
53432 1999 UT ₅₅	1.7	(0.35)	(0.6)	(3.571)		14.10	(3.0)	(1.7)	(2.0)	1.871
65803 Didymos	0.75	0.22	0.17	2.2593	(11.91)	11.91	(1.14)	(1.5)	(2.0)	1.644
66063 1998 RO ₁	0.8	0.48	0.38	2.4924		14.52	(1.4)	(1.8)	(2.0)	0.991
66391 1999 KW ₄	1.28	0.330	0.423	2.7645	(17.422)	17.422	2.548	1.99	2.0	0.642
69230 Hermes	0.6	0.9	0.54	(13.894)	(13.894)	13.894	(1.2)	(2.0)	(2.0)	1.655
76818 2000 RG ₇₉	2.5	0.34	0.85	3.1665	14.132	14.1299	(4.3)	(1.7)	(2.0)	1.930
79472 Chiorny	2.7	(0.32)	(0.8)	2.8802		25.95	(6.9)	(2.6)	(2.0)	1.962
80218 1999 VO ₁₂₃	0.88	0.32	0.28	3.1451	(33.4)	33.10	(2.7)	(3.1)	(2.0)	2.219
85938 1999 DJ ₄	0.35	0.5	0.17	2.5141	17.70	17.73	(0.7)	(2.1)	(2.0)	1.852
88710 2001 SL ₉	0.70	0.28	0.19	2.4004		16.40	(1.3)	(1.9)	(2.0)	1.061
99913 1997 CZ ₅	6.1	0.19	1.2	2.8351		14.68	(11)	(1.8)	(2.0)	2.295
114319 2002 XD ₅₈	1.7	(0.5)	(0.9)	(2.9649)	(7.954)					2.257
136617 1994 CC	0.62	0.18	0.113	2.3886	26	29.8	1.729	2.8	2.0	1.638
136993 1998 ST ₄₉	0.69	0.11	0.075	2.3017						2.310
137170 1999 HF ₁	3.7	0.23	0.9	2.31927	(14.03)	14.03	(6.3)	(1.7)	(2.0)	0.819
138095 2000 DK ₇₉	(1.8)			4.243						1.777
153591 2001 SN ₂₆₃	2.5	0.31	0.77	3.4256	13.43	149.4	16.63	6.7	1.0	1.987
153958 2002 AM ₃₁	0.45	0.27	0.120	(2.8174)		26.3	1.5	3.3	4.3	1.703
162000 1990 OS	0.3	0.15	0.045			21	(0.7)	(2.2)	(2.0)	1.678
162483 2000 PJ ₅	0.82	(0.5)	(0.41)	2.642		(14.14)	(1.5)	(1.8)	(2.0)	0.873
164121 2003 YT ₁	1.0	0.18	0.18	2.343		36.7	(3.2)	(3.2)	(2.0)	1.110
175706 1996 FG ₃	1.64	0.29	0.48	3.59519	16.15	16.1508	2.46	1.5	1.3	1.054
185851 2000 DP ₁₀₇	0.86	0.40	0.34	2.7745	42.5	42.13	2.66	3.09	1.3	1.366
218144 2002 RL ₆₆	2.8	(0.5)	(1.4)	2.492	587					2.305
276049 2002 CE ₂₆	3.45	0.09	0.3	3.2930	15	15.6	4.7	1.36	0.8	2.233
285263 1998 QE ₂	3	0.25	0.75	4.749	31.31	31.31	6.21	2.1	0.7	2.423
311066 2004 DC	0.3	0.20	0.06		7	23				1.634
363027 1998 ST ₂₇	0.8	0.15	0.12			(85)	4.5	5.6	(2.0)	0.819
363067 2000 CO ₁₀₁	0.52	0.09	0.045							1.076
363599 2004 FG ₁₁	0.15	(0.3)	(0.04)	(3)		20.0	(0.32)	(2.2)	(2.0)	1.588
374851 2006 VV ₂	1.8	0.28	0.5	2.430						2.387

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385186 1994 <i>AW</i> ₁	0.9	0.49	0.44	2.5193		22.39	(2.2)	(2.4)	(2.0)	1.105
399774 2005 <i>NB</i> ₇	0.5	0.34	0.17	3.488	15.28	15.28	(0.91)	(1.8)	(2.0)	2.044
450894 2008 <i>BT</i> ₁₈	(0.6)	(0.50)	(0.3)	2.5702						2.223
452561 2005 <i>AB</i>	1.9	0.24	0.46	3.339		17.93	(3.8)	(2.0)	(2.0)	3.220
461852 2006 <i>GY</i> ₂	0.4	0.20	0.08	2.5		11.7	(0.60)	(1.5)	(2.0)	1.858
481532 2007 <i>LE</i>	0.5	0.36	0.18	2.603	13		0.82	1.64	2.0	1.839
488453*1994 <i>XD</i>	0.6	0.53	0.32	2.6920	17.94		(1.3)	(2.1)	(2.0)	2.350
494658*2000 <i>UG</i> ₁₁	0.26	0.58	0.15	4.44	18.4		(0.56)	(2.2)	(2.0)	1.929

F o o t n o t e. The Table contains some data on binary asteroids taken from files maintained by Petr Pravec (see Pravec, P., Harris, A. W. Binary Asteroid Population. 1. Angular Momentum Content. *Icarus*, 190 (2007) 250–259; Pravec, P., and 41 colleagues, 2012. Binary Asteroid Population. 2. Anisotropic distribution of orbit poles of small, inner main belt binaries. *Icarus*, 218 (2012) 125–143; Pravec, P., et al., 2016. Binary Asteroid Population. 3. Secondary rotations and elongations. *Icarus* 267 (2016) 267–295).

The data in the Table embrace estimated parameters for 158 binary systems in near Earth, Mars crossing, main belt and Trojan orbits as of 18 September 2015. The columns D_p and D_s contain estimated values of diameters of primary and secondary components of a system, expressed in kilometers and in column D_s/D_p their ratio is given. Columns Per_p and Per_s contain estimated values of rotation periods of components in hours and in columns Per_{orb} and a the orbital period of a secondary expressed in hours and estimated value of semi-major axis of its orbit expressed in kilometers are displayed. In subsequent columns the ratio of semi-major axis of the orbit and diameter of primary, the volume density of primary and the mean distance of the system from the Sun (semi-major axis of heliocentric orbit, a' , in a. u.) are tabulated. An asterisk (*) between the asteroid number and name denotes a new or significantly changed entry.

For triple system 87 Sylvania the satellite-related data are given for greater component Romulus.

When a value in the Table is less reliable or it is based on extra assumptions, it is given in brackets (see more on the precision of data at the <http://www.asu.cas.cz/asteroid/binastdata.htm>).

Additional data on binary asteroids including Centaurs and transneptunian objects one can find at the web site run by Wm. Robert Johnston <http://www.johnstonsarchive.net/astro/asteroidmoons.html>.