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1	2	3	4	5	6	7	8	9	10	11
Model	$\dot{M}$ [$M_\odot$/yr]	r_1 [10^{14} cm]	r_1/r_*	ue [km/s]	$ue/v_{\rm esc}(r_1)$	$v_{\rm drift}/ue$	$\tau_{\rm V}$	τ_{10}	$\tau_{\rm F}$	β
C6_m	$3 \cdot 10^{-7}$	2.0035	7.78	11.39	0.99	1.11	0.0870	0.0693	0.0232	0.0169
C6_n		——	—–	—–	—-	—-	——-	——	——	——
C5_m	$5 \cdot 10^{-7}$	2.0277	7.87	13.00	1.14	0.80	0.1502	0.1197	0.0401	0.0321
C5_n		2.0512	7.97	9.02	0.79	0.97	0.1947	0.1551	0.0519	0.0223
C4_m	$1 \cdot 10^{-6}$	2.1052	8.18	14.60	1.30	0.53	0.3126	0.2491	0.0832	0.0721
C4_n		2.1272	8.26	11.39	1.02	0.61	0.3744	0.2984	0.0995	0.0563
C3_m	$3 \cdot 10^{-6}$	2.3394	9.09	15.86	1.49	0.29	0.9642	0.7685	0.2507	0.2349
C3_n		2.3736	9.22	12.91	1.22	0.33	1.1050	0.8808	0.2857	0.1912
C2_m	$1 \cdot 10^{-5}$	2.8814	11.19	15.07	1.57	0.15	3.1430	2.5050	0.7431	0.7440
C2_n		2.9417	11.42	11.97	1.26	0.17	3.5980	2.8670	0.8353	0.5909
C1_m	$3 \cdot 10^{-5}$	3.6333	14.11	12.72	1.49	0.07	9.2440	7.3670	1.7750	1.8840
C1_n		3.7549	14.58	9.32	1.11	0.10	11.1600	8.8940	2.0450	1.3811

Table 2. Main properties of the circumstellar gas/dust shell around an *Oxygen star* with $M* = 1\,M_\odot, L* = 1 \cdot 10^4\,L_\odot, T_{eff} = 3000$ K as a function of adopted mass loss rate $\dot{M}$ (column 2). Columns 3 to 11 list the following quantities: (3): dust condensation radius r_1 in [10^{14} cm], (4): r_1 in stellar radii r_*, (5): the terminal gas velocity ue in [km/s], (6): ue in units of the local escape velocity $v_{\rm esc}(r_1)$, (7): the terminal drift velocity $w - u$ in units of ue, (8): the total optical depth of the dust shell in the visual ($\lambda\, 0.55\,\mu$m), (9): τ_{10}, the optical depth at $\lambda\, 10\,\mu$m, (10): $\tau_{\rm F}$, the flux-averaged optical depth (cf. Eq.**??**), and (11): the ratio of momentum flux in the outflow to the photon momentum flux, $\beta = \dot{M} ue\; c/L*$. Dust consists of *astronomical silicates* with properties given in Table1. The initial velocity (gas and dust) at the inner boundary r_1 is taken to be $u_1 = 2$ km/s. For each mass loss rate, the second row (model designations Ci_n) lists the corresponding results from a model calculation ignoring gas pressure, (—) indicating that no steady state solution was found. The velocity structure and resulting spectral energy distribution for models C6_m, C3_m and C1_m (including gas pressure) are displayed in Fig.2.

Model	$\dot{M}$ [$M_\odot$/yr]	r_1 [10^{14} cm]	r_1/r_*	ue [km/s]	$ue/v_{\rm esc}(r_1)$	$v_{\rm drift}/ue$	$\tau_{\rm V}$	τ_{10}	$\tau_{\rm F}$	β
D5_m	$3 \cdot 10^{-6}$	4.3621	5.26	17.96	1.15	0.55	0.3740	0.2981	0.0761	0.0532
D5_n		4.4096	5.32	15.10	0.97	0.61	0.4381	0.3492	0.0893	0.0447
D4_m	$1 \cdot 10^{-5}$	4.9238	5.94	20.51	1.40	0.29	1.2260	0.9774	0.2521	0.2026
D4_n		4.9957	6.03	18.04	1.24	0.31	1.3600	1.0840	0.2793	0.1782
D3_m	$3 \cdot 10^{-5}$	6.0076	7.25	20.12	1.51	0.16	3.4940	2.7850	0.6922	0.5961
D3_n		6.1165	7.38	17.51	1.33	0.18	3.8460	3.0650	0.7554	0.5189
D2_m	$1 \cdot 10^{-4}$	7.8759	9.50	16.96	1.46	0.08	11.2100	8.9380	1.8730	1.6753
D2_n		8.0928	9.76	14.06	1.23	0.10	12.7100	10.1300	2.0660	1.3881
D1_m	$3 \cdot 10^{-4}$	10.378	12.52	13.71	1.36	0.03	32.3300	25.7700	4.3940	4.0605
D1_n		10.945	13.20	10.71	1.09	0.06	38.6300	30.7900	5.0890	3.1735

Table 3. Same as Tab. 2 but for an Oxygen star with $M* = 4\,M_\odot, L* = 5 \cdot 10^4\,L_\odot, T_{eff} = 2500$ K. The velocity structure and resulting spectral energy distribution for models D5_m, D3_m and D1_m are displayed in Fig.3.

Model	$\dot{M}$ [$M_\odot$/yr]	r_1 [10^{14} cm]	r_1/r_*	ue [km/s]	$ue/v_{esc}(r_1)$	v_{drift}/ue	τ_V	τ_{10}	τ_F	β
E5_m	$1 \cdot 10^{-5}$	12.009	5.12	34.79	2.34	0.61	0.2184	0.1740	0.0442	0.0429
E5_n		12.023	5.13	33.63	2.26	0.62	0.2248	0.1791	0.0455	0.0415
E4_m	$3 \cdot 10^{-5}$	12.966	5.53	38.31	2.68	0.34	0.6936	0.5528	0.1421	0.1419
E4_n		12.990	5.54	37.19	2.60	0.35	0.7099	0.5657	0.1455	0.1378
E3_m	$1 \cdot 10^{-4}$	15.549	6.63	38.17	2.92	0.19	2.2620	1.8030	0.4593	0.4712
E3_n		15.567	6.64	36.93	2.83	0.19	2.3080	1.8390	0.4684	0.4558
E2_m	$3 \cdot 10^{-4}$	19.720	8.41	33.98	2.93	0.11	6.4970	5.1780	1.1920	1.2583
E2_n		19.720	8.41	32.56	2.81	0.11	6.6270	5.2810	1.2140	1.2057
E1_m	$1 \cdot 10^{-3}$	26.339	11.23	27.29	2.72	0.05	21.0000	16.7400	3.0640	3.3700
E1_n		26.412	11.26	25.71	2.56	0.06	21.5600	17.1800	3.1320	3.1728

Table 4. Same as Tab. 2 but for an Oxygen star with $M* = 10\,M_\odot, L* = 4 \cdot 10^5\,L_\odot, T_{eff} = 2500$ K, and $u_1 = 4$ km/s. The velocity structure and resulting spectral energy distribution for models E5_m, E3_m and E1_m are displayed in Fig.4.

Model	$\dot{M}$ [$M_\odot$/yr]	r_1 [10^{14} cm]	r_1/r_*	ue [km/s]	$ue/v_{esc}(r_1)$	v_{drift}/ue	τ_V	τ_{10}	τ_F	β
F4_m	$1 \cdot 10^{-5}$	12.109	5.16	26.19	1.02	0.71	0.2719	0.2167	0.0552	0.0323
F4_n		12.140	5.18	24.33	0.95	0.73	0.2893	0.2305	0.0587	0.0300
F3_m	$3 \cdot 10^{-5}$	13.140	5.60	31.83	1.29	0.37	0.8002	0.6378	0.1643	0.1179
F3_n		13.189	5.62	30.33	1.23	0.39	0.8328	0.6637	0.1710	0.1124
F2_m	$1 \cdot 10^{-4}$	15.849	6.76	32.85	1.47	0.20	2.5290	2.0160	0.5113	0.4055
F2_n		15.911	6.78	31.25	1.40	0.21	2.6180	2.0860	0.5285	0.3858
F1_m	$3 \cdot 10^{-4}$	20.077	8.56	29.15	1.46	0.11	7.3010	5.8190	1.3150	1.0796
F1_n		20.137	8.59	27.26	1.37	0.12	7.5830	6.0430	1.3580	1.0097

Table 5. Same as Tab. 2 but for an Oxygen star with $M* = 30\,M_\odot, L* = 4 \cdot 10^5\,L_\odot, T_{eff} = 2500$ K, and $u_1 = 4$ km/s. The velocity structure and resulting spectral energy distribution for models F4_m, F2_m and F1_m are displayed in Fig.5.

Model	$\dot{M}$ [$M_\odot$/yr]	r_1 [10^{14} cm]	r_1/r_*	ue [km/s]	$ue/v_{esc}(r_1)$	v_{drift}/ue	τ_V	τ_{10}	τ_F	β
G6_m	$3 \cdot 10^{-7}$	3.356	5.79	11.15	1.25	2.21	0.1630	0.0008	0.0154	0.0165
G6_n		3.357	5.79	3.01	0.34	4.25	0.2908	0.0015	0.0273	0.0045
G5_m	$5 \cdot 10^{-7}$	3.364	5.81	12.49	1.41	1.61	0.3017	0.0016	0.0283	0.0308
G5_n		3.363	5.80	7.54	0.85	2.06	0.4044	0.0021	0.0376	0.0186
G4_m	$1 \cdot 10^{-6}$	3.378	5.83	14.07	1.59	1.04	0.6922	0.0036	0.0631	0.0694
G4_n		3.381	5.84	10.11	1.14	1.22	0.8540	0.0044	0.0769	0.0499
G3_m	$3 \cdot 10^{-6}$	3.467	5.98	15.35	1.75	0.51	2.5320	0.0131	0.2044	0.2274
G3_n		3.478	6.00	11.83	1.35	0.57	2.9840	0.0154	0.2344	0.1753
G2_m	$1 \cdot 10^{-5}$	3.695	6.38	13.90	1.64	0.21	10.6000	0.0548	0.6051	0.6862
G2_n		3.714	6.41	10.02	1.19	0.24	12.5500	0.0649	0.6734	0.4951
G1_m	$3 \cdot 10^{-5}$	4.105	7.09	10.43	1.30	0.07	39.8500	0.2061	1.3170	1.5456
G1_n		4.169	7.20	5.71	0.72	0.12	51.9200	0.2685	1.5020	0.8455

Table 6. Same as Tab. 2 but for a *Carbon star* with $M* = 1\,M_\odot, L* = 1 \cdot 10^4\,L_\odot$, and $T_{eff} = 2000$ K. Dust consists of *graphite* with properties given in Tab. **??**. The velocity structure and resulting spectral energy distribution for models G6_m, G3_m and G1_m are displayed in Fig.6.

Model	$\dot{M}$ $[M_\odot/\mathrm{yr}]$	r_1 $[10^{14}$ cm]	r_1/r_*	ue [km/s]	$ue/v_{\rm esc}(r_1)$	$v_{\rm drift}/ue$	$\tau_{\rm V}$	τ_{10}	$\tau_{\rm F}$	β
H6_m	$3\cdot10^{-6}$	7.546	5.82	19.83	1.93	1.14	0.6350	0.0033	0.0581	0.0587
H6_n		7.553	5.83	17.10	1.67	1.22	0.7144	0.0037	0.0650	0.0507
H5_m	$1\cdot10^{-5}$	7.764	5.99	22.00	2.17	0.52	2.6260	0.0136	0.2110	0.2172
H5_n		7.786	6.01	19.52	1.93	0.54	2.8820	0.0149	0.2281	0.1928
H4_m	$3\cdot10^{-5}$	8.236	6.36	20.03	2.04	0.23	9.6690	0.0500	0.5706	0.5936
H4_n		8.266	6.38	17.28	1.76	0.25	10.6000	0.0548	0.6062	0.5118
H3_m	$1\cdot10^{-4}$	9.283	7.17	14.46	1.56	0.08	42.0000	0.2172	1.3610	1.4284
H3_n		9.345	7.21	11.10	1.20	0.11	47.6100	0.2462	1.4490	1.0960
H2_m	$3\cdot10^{-4}$	10.792	8.33	9.68	1.13	0.02	155.8000	0.8057	2.7420	2.8676
H2_n		10.990	8.48	5.52	0.65	0.06	200.8000	1.0390	3.1300	1.6349
H1_m	$6\cdot10^{-4}$	12.221	9.43	7.69	0.95	0.01	333.6000	1.7250	4.3270	4.5594
H1_n		12.685	9.79	2.20	0.28	0.06	501.8000	2.5950	5.5080	1.3026

Table 7. Same as Tab. 6 but for a Carbon star with $M* = 3\,M_\odot, L* = 5\cdot10^4\,L_\odot$, and $T_{eff} = 2000$ K. The velocity structure and resulting spectral energy distribution for models H6_m, H4_m and H2_m are displayed in Fig.7.

Model	$\dot{M}$ $[M_\odot/\mathrm{yr}]$	r_1 $[10^{14}$ cm]	r_1/r_*	ue [km/s]	$ue/v_{\rm esc}(r_1)$	$v_{\rm drift}/ue$	$\tau_{\rm V}$	τ_{10}	$\tau_{\rm F}$	β
I5_m	$3\cdot10^{-6}$	7.560	5.84	17.47	1.32	1.20	0.6955	0.0036	0.0634	0.0518
I5_n		7.561	5.84	13.91	1.05	1.34	0.8327	0.0043	0.0751	0.0412
I4_m	$1\cdot10^{-5}$	7.780	6.01	20.07	1.54	0.54	2.8050	0.0145	0.2230	0.1981
I4_n		7.804	6.02	17.16	1.32	0.57	3.1610	0.0163	0.2462	0.1694
I3_m	$3\cdot10^{-5}$	8.266	6.38	18.02	1.42	0.24	10.3600	0.0536	0.5968	0.5339
I3_n		8.302	6.41	14.75	1.17	0.26	11.6900	0.0604	0.6451	0.4368
I2_m	$8\cdot10^{-5}$	9.129	7.05	13.19	1.09	0.10	35.1400	0.1817	1.2320	1.0427
I2_n		9.196	7.10	8.96	0.75	0.14	41.8800	0.2166	1.3470	0.7075
I1_m	$2\cdot10^{-4}$	10.278	7.93	8.17	0.72	0.03	114.6000	0.5924	2.2940	1.6127
I1_n		——	—-	—-	—-	—-	——–	——–	——–	——–

Table 8. Same as Tab. 6 but for a Carbon star with $M* = 5\,M_\odot, L* = 5\cdot10^4\,L_\odot$, and $T_{eff} = 2000$ K. The velocity structure and resulting spectral energy distribution for models I5_m, I3_m and I1_m are displayed in Fig.8.

Model	$\dot{M}$ $[M_\odot/\mathrm{yr}]$	r_1 $[10^{14}$ cm]	r_1/r_*	ue [km/s]	$ue/v_{\rm esc}(r_1)$	$v_{\rm drift}/ue$	$\tau_{\rm V}$	τ_{10}	$\tau_{\rm F}$	β
J6_m	$3\cdot10^{-7}$	2.723	4.70	10.85	1.10	1.76	0.1090	0.0024	0.0175	0.0161
J6_n		——	—-	——	—-	—-	——-	——–	——–	——–
J5_m	$5\cdot10^{-7}$	2.730	4.71	12.30	1.25	1.27	0.1966	0.0043	0.0313	0.0304
J5_n		2.730	4.71	6.92	0.70	1.70	0.2775	0.0061	0.0439	0.0171
J4_m	$1\cdot10^{-6}$	2.744	4.74	13.96	1.42	0.83	0.4377	0.0096	0.0684	0.0689
J4_n		2.747	4.74	9.88	1.00	0.98	0.5476	0.0120	0.0848	0.0488
J3_m	$3\cdot10^{-6}$	2.827	4.88	15.41	1.59	0.42	1.5220	0.0332	0.2195	0.2282
J3_n		2.840	4.90	11.83	1.22	0.47	1.7940	0.0392	0.2538	0.1752
J2_m	$1\cdot10^{-5}$	3.072	5.30	14.36	1.54	0.18	5.8870	0.1285	0.6639	0.7091
J2_n		3.098	5.35	10.46	1.13	0.21	6.9060	0.1508	0.7436	0.5168
J1_m	$3\cdot10^{-5}$	3.542	6.11	11.25	1.30	0.07	20.0400	0.4374	1.5040	1.6662
J1_n		3.610	6.23	6.75	0.79	0.11	25.2300	0.5507	1.7270	0.9993

Table 9. Same as Tab. 6, but for dust consisting of *amorphous carbon* with properties given in Tab. ??. The velocity structure and resulting spectral energy distribution for models J6_m, J3_m and J1_m are displayed in Fig.9.

Model	$\dot{M}$ $[M_\odot/\mathrm{yr}]$	r_1 $[10^{14}$ cm$]$	r_1/r_*	ue [km/s]	$ue/v_{\mathrm{esc}}(r_1)$	v_{drift}/ue	τ_{V}	τ_{10}	τ_{F}	β
K6_m	$3 \cdot 10^{-6}$	6.126	4.73	20.09	1.76	0.90	0.3969	0.0087	0.0622	0.0595
K6_n		6.135	4.74	17.40	1.53	0.96	0.4466	0.0097	0.0698	0.0515
K5_m	$1 \cdot 10^{-5}$	6.334	4.89	22.42	2.00	0.42	1.5580	0.0340	0.2243	0.2214
K5_n		6.356	4.91	19.97	1.78	0.45	1.7030	0.0372	0.2427	0.1972
K4_m	$3 \cdot 10^{-5}$	6.838	5.28	20.97	1.94	0.20	5.3470	0.1167	0.6198	0.6212
K4_n		6.875	5.31	18.25	1.70	0.22	5.8140	0.1269	0.6588	0.5407
K3_m	$1 \cdot 10^{-4}$	8.039	6.21	15.94	1.60	0.08	20.7700	0.4535	1.5450	1.5742
K3_n		8.123	6.27	12.72	1.28	0.10	23.1200	0.5047	1.6480	1.2566
K2_m	$3 \cdot 10^{-4}$	9.968	7.69	11.61	1.30	0.02	67.5200	1.4740	3.2770	3.4403
K2_n		10.257	7.92	8.04	0.91	0.05	80.3600	1.7540	3.6570	2.3820
K1_m	$6 \cdot 10^{-4}$	11.784	9.10	9.72	1.18	0.01	133.0000	2.9040	5.2360	5.7570
K1_n		12.357	9.54	5.81	0.72	0.04	167.3000	3.6530	6.0970	3.4421

Table 10. Same as Tab. 9 but for a Carbon star with $M* = 3\,M_\odot, L* = 5 \cdot 10^4\,L_\odot$, and $T_{eff} = 2000$ K. The velocity structure and resulting spectral energy distribution for models K6_m, K4_m and K2_m are displayed in Fig.10.

Model	$\dot{M}$ $[M_\odot/\mathrm{yr}]$	r_1 $[10^{14}$ cm$]$	r_1/r_*	ue [km/s]	$ue/v_{\mathrm{esc}}(r_1)$	v_{drift}/ue	τ_{V}	τ_{10}	τ_{F}	β
L5_m	$3 \cdot 10^{-6}$	6.142	4.74	17.22	1.17	0.97	0.4456	0.0097	0.0696	0.0510
L5_n		6.148	4.75	13.42	0.91	1.09	0.5474	0.0120	0.0848	0.0398
L4_m	$1 \cdot 10^{-5}$	6.352	4.90	20.14	1.39	0.44	1.6870	0.0368	0.2407	0.1989
L4_n		6.381	4.93	17.17	1.19	0.48	1.9050	0.0416	0.2677	0.1696
L3_m	$3 \cdot 10^{-5}$	6.872	5.30	18.70	1.35	0.21	5.7730	0.1260	0.6553	0.5540
L3_n		6.928	5.35	15.39	1.11	0.23	6.4740	0.1413	0.7115	0.4559
L2_m	$8 \cdot 10^{-5}$	7.822	6.04	14.46	1.11	0.10	17.8000	0.3886	1.3980	1.1429
L2_n		7.925	6.12	10.42	0.80	0.12	20.7200	0.4522	1.5330	0.8230
L1_m	$2 \cdot 10^{-4}$	9.256	7.14	10.24	0.85	0.03	50.5900	1.1040	2.6950	2.0219
L1_n		9.530	7.36	5.08	0.43	0.08	66.4600	1.4510	3.1720	1.0035

Table 11. Same as Tab. 9 but for a Carbon star with $M* = 5\,M_\odot, L* = 5 \cdot 10^4\,L_\odot$, and $T_{eff} = 2000$ K. The velocity structure and resulting spectral energy distribution for models L5_m, L3_m and L1_m are displayed in Fig.11.