

Atom	Capture limit		Doppler limit		Recoil limit	
	$v_c$	$T_c$	$v_D$	$T_D$	$v_r$	$T_r$
	(m/s)	(mK)	(cm/s)	( $\mu$ K)	(cm/s)	( $\mu$ K)
$^1\text{H}$	12.11	17.77	443.	2389.	325.	1285.
$^4\text{He}^*$	1.76	1.49	28.44	38.95	9.200	4.075
$^4\text{He}^*$	0.58	0.16	27.25	35.75	25.6	31.61
$^7\text{Li}$	3.97	13.33	41.03	142.11	8.474	6.061
$^9\text{Be}$	25.58	709.4	155.23	2612.	18.8	38.48
$^{20}\text{Ne}^*$	5.43	70.80	29.07	203.29	3.116	2.335
$^{23}\text{Na}$	5.90	96.18	29.47	240.18	2.945	2.399
$^{24}\text{Mg}$	23.09	1539.	82.04	1942.	5.830	9.80
$^{40}\text{Ar}^*$	4.77	109.33	17.12	140.96	1.230	0.727
$^{39}\text{K}$	4.67	102.23	17.66	146.16	1.335	0.836
$^{40}\text{Ca}$	14.64	1031.	41.57	831.	2.361	2.680
$^{52}\text{Cr}$	2.13	28.41	13.87	120.23	1.805	2.035
$^{84}\text{Kr}^*$	4.51	205.47	11.50	133.40	0.586	0.346
$^{85}\text{Rb}$	4.66	222.12	11.85	143.41	0.602	0.370
$^{88}\text{Sr}$	2.07	45.15	10.09	107.58	0.985	1.025
$^{132}\text{Xe}^*$	4.25	286.83	8.54	115.64	0.343	0.186
$^{133}\text{Cs}$	4.42	312.14	8.82	124.39	0.352	0.198
$^{138}\text{Ba}$	10.15	1710.	16.28	439.96	0.522	0.453

TABLE C.3. Limiting values for the velocity and temperature for laser cooling of different elements. Values for the velocity  $v$  and temperature  $T$  are given for the capture, Doppler and recoil limit.