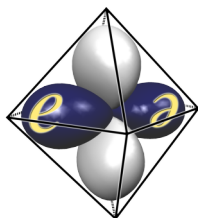


Atomic Covalent Radii

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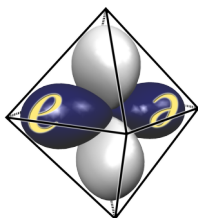
A. By Atomic Number

Z	Element	r (Å)	esd	Z	Element	r (Å)	esd
1	H	0.31	5	22	Ti	1.60	8
2	He	0.28		23	V	1.53	8
3	Li	1.28	7	24	Cr	1.39	5
4	Be	0.96	3	25	Mn-l.s.	1.39	5
5	B	0.84	3		h.s.	1.61	8
6	Csp ³	0.76	1	26	Fe-l.s.	1.32	3
	Csp ²	0.73	2		h.s.	1.52	6
	Csp	0.69	1	27	Co-l.s.	1.26	3
7	N	0.71	1		h.s.	1.50	7
8	O	0.66	2	28	Ni	1.24	4
9	F	0.57	3	29	Cu	1.32	4
10	Ne	0.58		30	Zn	1.22	4
11	Na	1.66	9	31	Ga	1.22	3
12	Mg	1.41	7	32	Ge	1.20	4
13	Al	1.21	4	33	As	1.19	4
14	Si	1.11	2	34	Se	1.20	4
15	P	1.07	3	35	Br	1.20	3
16	S	1.05	3	36	Kr	1.16	4
17	Cl	1.02	4	37	Rb	2.20	9
18	Ar	1.06	10	38	Sr	1.95	10
19	K	2.03	12	39	Y	1.90	7
20	Ca	1.76	10	40	Zr	1.75	7
21	Sc	1.70	7	41	Nb	1.64	6



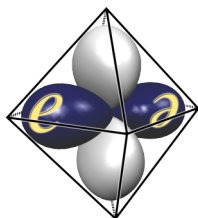
Z	Element	r (Å)	esd
42	Mo	1.54	5
43	Tc	1.47	7
44	Ru	1.46	7
45	Rh	1.42	7
46	Pd	1.39	6
47	Ag	1.45	5
48	Cd	1.44	9
49	In	1.42	5
50	Sn	1.39	4
51	Sb	1.39	5
52	Te	1.38	4
53	I	1.39	3
54	Xe	1.40	9
55	Cs	2.44	11
56	Ba	2.15	11
57	La	2.07	8
58	Ce	2.04	9
59	Pr	2.03	7
60	Nd	2.01	6
61	Pm	1.99	
62	Sm	1.98	8
63	Eu	1.98	6
64	Gd	1.96	6
65	Tb	1.94	5
66	Dy	1.92	7
67	Ho	1.92	7
68	Er	1.89	6
69	Tm	1.90	10

Z	Element	r (Å)	esd
70	Yb	1.87	8
71	Lu	1.87	8
72	Hf	1.75	10
73	Ta	1.70	8
74	W	1.62	7
75	Re	1.51	7
76	Os	1.44	4
77	Ir	1.41	6
78	Pt	1.36	5
79	Au	1.36	6
80	Hg	1.32	5
81	Tl	1.45	7
82	Pb	1.46	5
83	Bi	1.48	4
84	Po	1.40	4
85	At	1.50	
86	Rn	1.50	
87	Fr	2.60	
88	Ra	2.21	2
89	Ac	2.15	
90	Th	2.06	6
91	Pa	2.00	
92	U	1.96	7
93	Np	1.90	1
94	Pu	1.87	1
95	Am	1.80	6
96	Cm	1.69	3



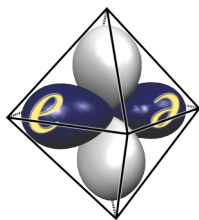
B. By Atomic Symbol.

Element	Z	r (Å)	esd	Element	Z	r (Å)	esd
Ac	89	2.15		Dy	66	1.92	7
Ag	47	1.45	5	Er	68	1.89	6
Al	13	1.21	4	Eu	63	1.98	6
Am	95	1.80	6	F	9	0.57	3
Ar	18	1.06	10	Fe-l.s.	26	1.32	3
As	33	1.19	4	Fe-h.s.		1.52	6
At	85	1.50		Fr	87	2.60	
Au	79	1.36	6	Ga	31	1.22	3
B	5	0.84	3	Gd	64	1.96	6
Ba	56	2.15	11	Ge	32	1.20	4
Be	4	0.96	3	H	1	0.31	5
Bi	83	1.48	4	He	2	0.28	
Br	35	1.20	3	Hf	72	1.75	10
Csp ³	6	0.76	1	Hg	80	1.32	5
Csp ²		0.73	2	Ho	67	1.92	7
Csp		0.69	1	I	53	1.39	3
Ca	20	1.76	10	In	49	1.42	5
Cd	48	1.44	9	Ir	77	1.41	6
Ce	58	2.04	9	K	19	2.03	12
Cl	17	1.02	4	Kr	36	1.16	4
Cm	96	1.69	3	La	57	2.07	8
Co-l.s.	27	1.26	3	Li	3	1.28	7
Co-h.s.		1.50	7	Lu	71	1.87	8
Cr	24	1.39	5	Mg	12	1.41	7
Cs	55	2.44	11	Mn-l.s.	25	1.39	5
Cu	29	1.32	4	Mn-h.s.		1.61	8



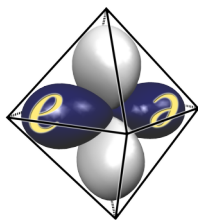
Element	Z	r (Å)	esd
Mo	42	1.54	5
N	7	0.71	1
Na	11	1.66	9
Nb	41	1.64	6
Nd	60	2.01	6
Ne	10	0.58	
Ni	28	1.24	4
Np	93	1.90	1
O	8	0.66	2
Os	76	1.44	4
P	15	1.07	3
Pa	91	2.00	
Pb	82	1.46	5
Pd	46	1.39	6
Pm	61	1.99	
Po	84	1.40	4
Pr	59	2.03	7
Pt	78	1.36	5
Pu	94	1.87	1
Ra	88	2.21	2
Rb	37	2.20	9
Re	75	1.51	7
Rh	45	1.42	7
Rn	86	1.50	

Element	Z	r (Å)	esd
Ru	44	1.46	7
S	16	1.05	3
Sb	51	1.39	5
Sc	21	1.70	7
Se	34	1.20	4
Si	14	1.11	2
Sm	62	1.98	8
Sn	50	1.39	4
Sr	38	1.95	10
Ta	73	1.70	8
Tb	65	1.94	5
Tc	43	1.47	7
Te	52	1.38	4
Th	90	2.06	6
Ti	22	1.60	8
Tl	81	1.45	7
Tm	69	1.90	10
U	92	1.96	7
V	23	1.53	8
W	74	1.62	7
Xe	54	1.40	9
Y	39	1.90	7
Yb	70	1.87	8
Zn	30	1.22	4
40	Zr	1.75	7



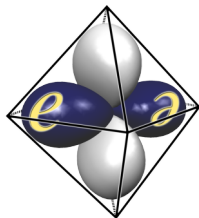
C. By Size.

Element	Z	r (Å)	esd	Element	Z	r (Å)	esd
He	2	0.28		Li	3	1.28	7
H	1	0.31	5	Fe-l.s.	26	1.32	3
F	9	0.57	3	Cu	29	1.32	4
Ne	10	0.58		Hg	80	1.32	5
O	8	0.66	2	Pt	78	1.36	5
N	7	0.71	1	Au	79	1.36	6
Csp	6	0.69	1	Te	52	1.38	4
Csp ²	6	0.73	2	Cr	24	1.39	5
Csp ³	6	0.76		Mn-l.s.	25	1.39	5
B	5	0.84	3	Pd	46	1.39	6
Be	4	0.96	3	Sn	50	1.39	4
Cl	17	1.02	4	Sb	51	1.39	5
S	16	1.05	3	I	53	1.39	3
Ar	18	1.06	10	Xe	54	1.40	9
P	15	1.07	3	Po	84	1.40	4
Si	14	1.11	2	Mg	12	1.41	7
Kr	36	1.16	4	Ir	77	1.41	6
As	33	1.19	4	Rh	45	1.42	7
Ge	32	1.20	4	In	49	1.42	5
Se	34	1.20	4	Cd	48	1.44	9
Br	35	1.20	3	Os	76	1.44	4
Al	13	1.21	4	Ag	47	1.45	5
Zn	30	1.22	4	Tl	81	1.45	7
Ga	31	1.22	3	Ru	44	1.46	7
Ni	28	1.24	4	Pb	82	1.46	5
Co-l.s.	27	1.26	3	Tc	43	1.47	7



Element	Z	r (Å)	esd
Bi	83	1.48	4
Co-h.s.	27	1.50	7
At	85	1.50	
Rn	86	1.50	
Re	75	1.51	7
Fe-h.s.	26	1.52	6
V	23	1.53	8
Mo	42	1.54	5
Ti	22	1.60	8
Mn-h.s.	25	1.61	8
W	74	1.62	7
Nb	41	1.64	6
Na	11	1.66	9
Cm	96	1.69	3
Sc	21	1.70	7
Ta	73	1.70	8
Zr	40	1.75	7
Hf	72	1.75	10
Ca	20	1.76	10
Am	95	1.80	6
Lu	71	1.87	8
Yb	70	1.87	8
Pu	94	1.87	1
Er	68	1.89	6
Y	39	1.90	7
Np	93	1.90	1
Tm	69	1.90	10
Dy	66	1.92	7
Ho	67	1.92	7

Element	Z	r (Å)	esd
Tb	65	1.94	5
Sr	38	1.95	10
Gd	64	1.96	6
U	92	1.96	7
Sm	62	1.98	8
Eu	63	1.98	6
Pm	61	1.99	
Pa	91	2.00	
Nd	60	2.01	6
K	19	2.03	12
Pr	59	2.03	7
Ce	58	2.04	9
Th	90	2.06	6
La	57	2.07	8
Ba	56	2.15	11
Ac	89	2.15	
Rb	37	2.20	9
Ra	88	2.21	2
Cs	55	2.44	11
Fr	87	2.60	



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