Electronic Arrangements, Molecular Geometries, and Central Atom Hybridization for Covalent Compounds With One Central Atom

Number of Repulsions Determined from Lewis Structure	Hybridization of Central Atom	Repulsion Angles	Formula	Bonding Electron Repulsions	Lone Electron Pairs	Geometric Arrangement of All Repulsions	Molecular Shape
2	sp	180°	AX_2	2	0	Linear	Linear
3	sp^2	120°	AX_3	3	0	Trigonal Planar	Trigonal Planar
3	sp^2	120°	AX_2	2	1	Trigonal Planar	Angular or Bent
4	sp^3	109.5°	AX_4	4	0	Tetrahedral	Tetrahedral
4	sp^3	109.5°	AX_3	3	1	Tetrahedral	Trigonal Pyramid
4	sp^3	109.5°	AX_2	2	2	Tetrahedral	Angular
5	dsp^3	90°, 120°	AX_5	5	0	Trigonal Bipyramid	Trigonal Bipyramid
5	dsp^3	90°, 120°	AX_4	4	1	Trigonal Bipyramid	See-Saw
5	dsp^3	90°, 120°	AX_3	3	2	Trigonal Bipyramid	T-shaped
5	dsp^3	90°, 120°	AX_2	2	3	Trigonal Bipyramid	Linear
6	d^2sp^3	90°	AX_6	6	0	Octahedral	Octahedral
6	d^2sp^3	90°	AX_5	5	1	Octahedral	Square Pyramid
6	d^2sp^3	90°	AX_4	4	2	Octahedral	Square Planar