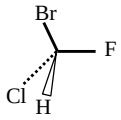
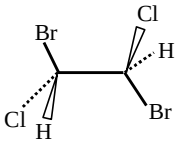
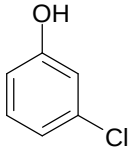
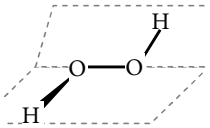
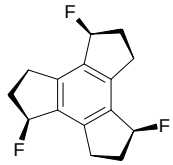
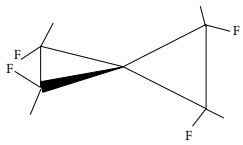
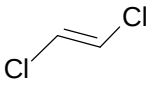
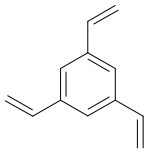
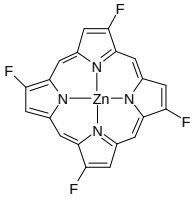
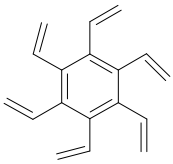
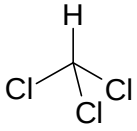
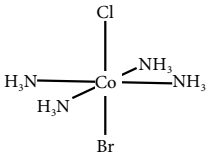
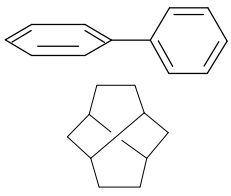
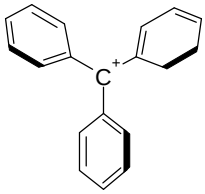
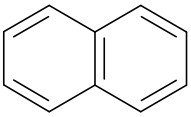
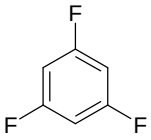
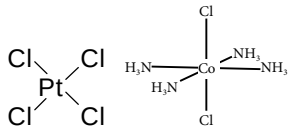
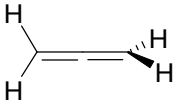
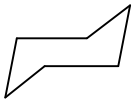
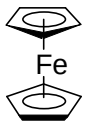
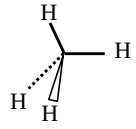
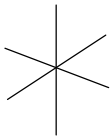
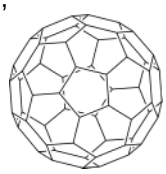
Examples of point groups, character tables and comparison of Schönflies & Hermann-Mauguin (or International) term symbols.

Examples of some Point Groups

(from Beddard, Applying Maths in the Chemical & Biomolecular Sciences', p338)

Most of the H atoms are not included on the structures.

C_1 CHClFBr, cholesterol 	C_i staggered 1,2-bibromo-1,2-dichloroethane 	C_s meta-chlorophenol, HN_3 
C_2 H_2O_2 	C_3 	S_4 
C_{2h} trans ClHC=CHCl 	C_{3h} 1,3,5-trivinylbenzene (if planar) 	C_{4h} tetra fluoroZn-porphyrin 
C_{6h} hexa-vinylbenzene (if planar) 	C_{2v} H_2O, $COCl_2$, CH_2F_2, $CF_2C=CH_2$, pyridine (C_5H_5N) 	C_{3v} NH_3, $CHCl_3$, OPF_3 
C_{4V} B_5H_9, SF_5Cl 	$C_{\infty v}$ HF and all other heteronuclear diatomics, HCN, F–C≡C–H	D_2 twisted biphenyl, twistane. 

D_3 triphenylmethane$^+$ ion (propeller shaped) 	D_{2h} CH_2=CH_2, Naphthalene 	D_{3h} BF_3, C_3H_3, 1, 3, 5- trifluorobenzene 
D_{4h} $PtCl_4^{2-}$ 	D_{5h} $C_5H_5^-$, IF_7, $Ru(C_5H_5)_2$ 	D_{6h} Benzene 
D_{7h} Tropylium ion $C_7H_7^-$. 	D_{2d} CH_2=C=CH_2, (allene) 	D_{3d} staggered ethane, chair cyclohexane 
D_{4d} crown S_8, $B_{10}H_{10}^{2-}$, (no H are shown, B atom at each apex) 	D_{5d} Ferrocene 	$D_{\infty h}$ H_2 and all other homonuclear diatomics, F–C≡C–F, C_2N_2, CO_2
T_d (Tetrahedral) CH_4, CF_4 	O_h (octahedral) SF_6, cubane, $Fe(CN)_6^{4-}$ 	I_h (icosahedral) $B_{12}H_{12}^{2-}$, C_{60}, football, 

Simple comparison of common point groups

C_n *n*-fold rotation axis only.

C_{nv} *n*-fold rotation with axis *parallel* to *n* mirror planes.

C_{nh} *n*-fold rotation with axis *perpendicular* (normal) to a mirror plane.

D_n *n*-fold axis and at least one perpendicular 2-fold axis. No mirror planes.

D_{nd} same as D_n plus mirror planes bisecting 2-fold axes.

S_4, S_6 2 fold & 3 fold rotation inversion respectively. ($S_2 \equiv i$) .

T, T_d, T_h 2 & 3 fold rotation axes.

O, O_h 2, 3 & 4 fold rotation axes.

I_h 2, 3, & 5 fold rotation axes.

Point Groups and their Symmetry Operations (excluding the identity *E*).

$C_n \equiv 360°/n$ fold rotation; $n = 2 \equiv 180°$; $n = 3 \equiv 120°$; $n = 4 \equiv 90°$ rotation. $i =$ inversion,

σ_h = horizontal mirror plane, σ_v = vertical mirror, σ_d = dihedral mirror plane. Angle is $360°/n$.

S_n = rotation-reflection. C_n^2 means C_n applied twice over, S_n^5 means S_n applied 5 times etc.

Note that for 3, 4, 5, 6 etc. axes, but not 2-fold axes (C_2), an entry such as $8C_3$ indicates that there are only four C_3 axes, with half of the operations clockwise rotation and half anti-clockwise.
(Note also that $C_n^n = E$, $S_2 = i$, $S_{2n}^n = C_n$)

Symmetry Operations

Point group	C_2	C_3	$C_{4,5,6,8}$	i	σ_v	σ_h	σ_d	S_n	***all the rest*** (*excluding identity E, except* C_1)
C_1									*E* (identity only)
C_s						σ_h			
C_i				i					
C_2	C_2								
C_3		C_3							C_3^2
C_{2v}	C_2				σ_v, $\sigma_{v'}$				
C_{3v}		$2C_3$			$3\sigma_v$				
C_{4v}	C_2		$2C_4$		$2\sigma_v$		$2\sigma_d$		
C_{5v}			$2C_5$		$5\sigma_v$				$2C_5^2$
C_{6v}	C_2	$2C_3$	C_6		$3\sigma_v$		$3\sigma_d$		
C_{2h}	C_2			i		σ_h			
C_{3h}		C_3				σ_h		S_3	C_3^2, S_3^5
C_{4h}	C_2		C_4	i		σ_h		S_4	C_4^3, S_4^3
C_{6h}	C_2	C_3	C_6	i		σ_h		S_6	S_3, S_3^5, S_6^5, C_3^2, C_6^5
D_2	$3C_2$								$C_2 \equiv C_2(x)$, $C_2(y)$, $C_2(z)$
D_3	$3C_2$	$2C_3$							
D_4	C_2		$2C_4$						$2C_2'$, C_2''
D_{2h}	$3C_2$			i	$2\sigma_v$	σ_h			$\sigma \equiv \sigma(xy), \sigma(xz), \sigma(yz)$
D_{3h}	$3C_2$	$2C_3$			$3\sigma_v$	σ_h		$2S_3$	
D_{4h}	C_2		$2C_4$	i	$2\sigma_v$	σ_h	$2\sigma_d$	$2S_4$	$2C_2'$, $2C_2''$
D_{5h}	$5C_2$		$5C_5$		$5\sigma_v$	σ_h		$2S_5$	$2C_5^2$
D_{6h}	C_2	$2C_3$	$2C_6$	i	$3\sigma_v$	σ_h	$3\sigma_d$	$2S_6$	$3C_2'$, $3C_2''$, $2S_3$,
D_{8h}	C_2		$2C_8$	i	$4\sigma_v$	σ_h	$4\sigma_d$	$2S_8$	$4C_2'$,$4C_2''$, $2C_4$, C_8^3, $2S_8$, $2S_8^3$
D_{2d}	C_2						$2\sigma_d$	$2S_4$	$2C_2'$
D_{3d}	$3C_2$	$2C_3$		i			$3\sigma_d$	$2S_6$	
D_{4d}	C_2		$2C_4$				$4\sigma_d$	$2S_8$	$4C_2'$, $2S_8^3$
D_{5d}	$5C_2$		$2C_5$	i			$5\sigma_d$	$2S_{10}$	$2C_5^2$, $2S_{10}^3$
S_4	C_2							S_4	S_4^3
S_6		C_3		i				S_6	C_3^2, S_6^5
T	$3C_2$	$4C_3$							$4C_3^2$
T_d	$3C_2$	$8C_3$					$6\sigma_d$	$6S_4$	
T_h	$3C_2$	$4C_3$		i		$3\sigma_h$		$4S_6$	$4C_3^2$, $4S_6^5$
O	$3C_2$	$8C_3$	$6C_4$						$6C_2$,
O_h	$6C_2$	$8C_3$	$6C_4$	i		$3\sigma_h$	$6\sigma_d$	$6S_4$	$8S_6$, $3C_2$
I_h	$15C_2$	$20C_3$	$12C_5$	i		15σ		$12S_{10}$	$20S_6$, $12S_{10}^3$, $12C_5^2$

Identify **$D_{\infty h}$** (e.g. homonuclear diatomic) and **$C_{\infty v}$** (e.g. heteronuclear diatomic) directly by their shape.

Character tables

C_1	E
A	1

C_i	E	i		
A_g	1	1	R_x, R_y, R_z	$x^2, y^2, z^2, xy, xz, yz$
A_u	1	–1	x, y, z	

C_s	E	σ_h		
A'	1	1	x, y, R_z	x^2, y^2, z^2, xy
A''	1	–1	z, R_x, R_y	yz, xz

C_2	E	C_2		
A	1	1	z, R_z	x^2, y^2, z^2, xy
B	1	–1	$x, y, R_x, R,$	xz, yz

C_3	E	C_3	C_3^2	$\varepsilon = e^{2\pi i/3}$	
A	1	1	1	z, R_z	$x^2 + y^2$
E	1	ε	ε^*	$(x, y),$	$(x^2 - y^2, xy),$
	1	ε^*	ε	(R_x, R_y)	(xz, yz)

C_4	E	C_4	C_2	C_4^3		
A	1	1	1	1	z, R_z	$x^2 + y^2, z^2$
B	1	–1	1	–1		$x^2 - y^2, xy$
E	1 1	i $-i$	–1 –1	$-i$ i	(x, y),(R_x, R_y)	(xz, yz)

C_5	E	C_5	C_5^2	C_5^3	C_5^4	$\varepsilon = e^{2\pi i/5}$	
A	1	1	1	1	1	z, R_z	$x^2 + y^2, z^2$
E_1	1 1	ε ε^*	ε^2 ε^{2*}	ε^{2*} ε^2	ε^* ε	(x, y), (R_x, R_y)	(xz, yz)
E_2	1 1	ε^2 ε^{2*}	ε^* ε	ε ε^*	ε^{2*} ε^2		($x^2 - y^2$, xy)

C_6	E	C_6	C_3	C_2	C_3^2	C_6^5	$\varepsilon = e^{2\pi i/6}$	
A	1	1	1	1	1	1	z, R_z	$x^2 + y^2, z^2$
B	1	–1	1	–1	1	–1		
E_1	1 1	ε ε^*	$-\varepsilon^*$ $-\varepsilon$	–1 –1	$-\varepsilon$ $-\varepsilon^*$	ε^* $-\varepsilon$	(x, y), (R_x, R_y)	(xz, yz)
E_2	1 1	$-\varepsilon^*$ $-\varepsilon$	$-\varepsilon$ $-\varepsilon^*$	1 1	$-\varepsilon^*$ $-\varepsilon$	$-\varepsilon$ $-\varepsilon^*$		($x^2 - y^2$, xy)

C_8	E	C_8	C_4	C_2	C_4^3	C_8^3	C_8^5	C_8^7	$\varepsilon = e^{2\pi i/8}$	
A	1	1	1	1	1	1	1	1	z, R_z	$x^2 + y^2$, z^2
B	1	–1	1	1	1	–1	–1	–1		
E_1	1	ε	i	–1	–i	$-\varepsilon^*$	$-\varepsilon$	ε^*	(x, y), (R_x, R_y)	(xz, yz)
	1	ε^*	–i	–1	i	$-\varepsilon$	$-\varepsilon^*$	ε		
E_2	1	i	–1	1	–1	–i	i	–i		($x^2 - y^2$, xy)
	1	–i	–1	1	–1	i	–i	i		
E_3	1	$-\varepsilon^*$	i	–1	–i	ε^*	ε	$-\varepsilon^*$		
	1	$-\varepsilon^*$	–i	–1	i	ε	ε^*	$-\varepsilon$		

D_2	E	$C_2(z)$	$C_2(x)$	$C_2(y)$		
A	1	1	1	1		x^2, y^2, z^2
B_1	1	1	–1	–1	z, R_z	xy
B_2	1	–1	–1	1	y, R_y	xz
B_3	1	–1	1	–1	x, R_x	yz

D_3	E	$2C_3$	$3C_2$		
A_1	1	1	1		$x^2 + y^2$, z^2
A_2	1	1	–1	z, R_z	
E	2	–1	0	(x, y), (R_x, R_y)	($x^2 - y^2$, xy), (xz, yz)

D_4	E	$2C_4$	C_2	$2C_2'$	$2C_2''$		
A_1	1	1	1	1	1		$x^2 + y^2$, z^2
A_2	1	1	1	–1	–1	z, R_z	
B_1	1	–1	1	1	–1		$x^2 - y^2$
B_2	1	–1	1	–1	1		xy
E	2	0	–2	0	0	(x, y), (R_x, R_y)	(xz, yz)

$\boldsymbol{D_5}$	E	$2C_5$	$2C_5^2$	$5\,C_2$	$\theta = 2\pi/5 \equiv 72°$	
A_1	1	1	1	1		$x^2 + y^2, z^2$
A_2	1	1	1	–1	z, R_z	
E_1	2	$2\cos(\theta)$	$2\cos(2\theta)$	0	(x, y), (R_x, R_y)	(xz, yz)
E_2	2	$2\cos(2\theta)$	$2\cos(\theta)$	0		$(x^2 - y^2, xy)$

$\boldsymbol{S_4}$	E	S_4	C_2	S_4^3		
A	1	1	1	1	R_z,	$x^2 + y^2, z^2$
B	1	–1	1	–1	z	$x^2 - y^2, xy$
E	1	i	–1	$-i$	(x, y), (R_x, R_y)	(xz, yz)
	1	$-i$	–1	i		

$\boldsymbol{S_6}$	E	C_3	C_3^2	i	S_6^5	S_6	$\varepsilon = \varepsilon^{2\pi i/6}$	
A_g	1	1	1	1	1	1	R_z	$x^2 + y^2, z^2$
E_g	1	ε	ε^*	1	ε	ε^*	(R_x, R_y)	$(x^2 - y^2, xy)$, (xz, yz)
	1	ε^*	ε	1	ε^*	ε		
A_u	1	1	1	–1	–1	–1	z	
E_u	1	ε	ε^*	–1	$-\varepsilon$	$-\varepsilon^*$	(x, y)	
	1	ε^*	ε	–1	$-\varepsilon^*$	$-\varepsilon$		

$\boldsymbol{C_{2v}}$	E	C_2	$\sigma_v(xz)$	$\sigma_v'(yz)$		
A_1	1	1	1	1	z	x^2, y^2, z^2
A_2	1	1	–1	–1	R_z	xy
B_1	1	–1	1	–1	x, R_y	xz
B_2	1	–1	–1	1	y, R_x	yz

$\boldsymbol{C_{3v}}$	E	$2C_3$	$3\sigma_v$		
A_1	1	1	1	z	$x^2 + y^2, z^2$
A_2	1	1	–1	R_z	
E	2	–1	0	$(x, y), (R_x, R_y)$	$(x^2 – y^2, xy), (xz, yz)$

$\boldsymbol{C_{4v}}$	E	$2C_4$	C_2	$2\sigma_v$	$2\sigma_d$		
A_1	1	1	1	1	1	z	$x^2 + y^2, z^2$
A_2	1	1	1	–1	–1	R_z	
B_1	1	–1	1	1	–1		$x^2 – y^2$
B_2	1	–1	1	–1	1		xy
E	2	0	–2	0	0	$(x, y), (R_x, R_y)$	(xz, yz)

$\boldsymbol{C_{5v}}$	E	$2C_5$	$2C_5^2$	$5\sigma_v$	$\theta = 2\pi/5 \equiv 72°$	
A_1	1	1	1	1	z	$x^2 + y^2, z^2$
A_2	1	1	1	–1	R_z	
E_1	2	$2\cos(\theta)$	$2\cos(2\theta)$	0	$(x, y), (R_x, R_y)$	(xz, yz)
E_2	2	$2\cos(2\theta)$	$2\cos(\theta)$	0		$(x^2 – y^2, xy)$

$\boldsymbol{C_{6v}}$	E	$2C_6$	$2C_3$	C_2	$3\sigma_v$	$3\sigma_d$		
A_1	1	1	1	1	1	1	z	$x^2 + y^2, z^2$
A_2	1	1	1	1	–1	–1	R_z	
B_1	1	–1	1	–1	1	–1		
B_2	1	–1	1	–1	–1	1		
E_1	2	1	–1	–2	0	0	$(R_x, R_y), (x, y)$	(xz, yz)
E_2	2	–1	–1	2	0	0		$(x^2 - y^2, xy)$

$\boldsymbol{C_{2h}}$	E	C_2	i	σ_h		
A_g	1	1	1	1	R_z	x^2, y^2, z^2, xy
B_g	1	–1	1	–1	R_x, R_y	xz, yz
A_u	1	1	–1	–1	z	
B_u	1	–1	–1	1	x, y	

$\boldsymbol{C_{3h}}$	E	C_3	C_3^2	σ_h	S_3	S_3^5	$\varepsilon = e^{2\pi i/3}$	
A'	1	1	1	1	1	1	R_z	$x^2 + y^2, z^2$
E'	1	ε	ε^*	1	ε	ε^*	(x, y)	$(x^2 - y^2, xy)$
	1	ε^*	ε	1	ε^*	ε		
A''	1	1	1	–1	–1	–1	z	
E''	1	ε	ε^*	–1	$-\varepsilon$	$-\varepsilon^*$	(R_x, R_y)	(xz, yz)
	1	ε^*	ε	–1	$-\varepsilon^*$	$-\varepsilon$		

C_{4h}	E	C_4	C_2	C_4^3	i	S_4^3	σ_h	S_4		
A_g	1	1	1	1	1	1	1	1	R_z	$x^2 + y^2, z^2$
B_g	1	–1	1	–1	1	–1	1	–1		$x^2 - y^2, xy$
E_g	1	i	–1	$-i$	1	i	–1	$-i$	(R_x, R_y)	(xz, yz)
	1	$-i$	–1	i	1	$-i$	–1	i		
A_u	1	1	1	1	–1	–1	–1	–1	z	
B_u	1	–1	1	–1	–1	1	–1	1		
E_u	1	i	–1	$-i$	–1	$-i$	1	i	(x, y)	
	1	$-i$	–1	i	–1	i	1	$-i$		

C_{5h}	E	C_5	C_5^2	C_5^3	C_5^4	σ_h	S_5	S_5^7	S_5^3	S_5^9	$\varepsilon = e^{2\pi i/5}$	
A'	1	1	1	1	1	1	1	1	1	1	R_z	$x^2 + y^2, z^2$
E_1'	1	ε	ε^2	ε^{2*}	ε^*	1	ε	ε^2	ε^{2*}	ε^*	(x, y)	
	1	ε^*	ε^{2*}	ε^2	ε	1	ε^*	ε^{2*}	ε^2	ε		
E_2'	1	ε^2	ε^*	ε	ε^{2*}	1	ε^2	ε^*	ε	ε^{2*}		$(x^2 - y^2, xy)$
	1	ε^{2*}	ε	ε^*	ε^2	1	ε^{2*}	ε	ε^*	ε^2		
A''	1	1	1	1	1	–1	–1	–1	–1	–1	z	
E_1''	1	ε	ε^2	ε^{2*}	ε^*	–1	$-\varepsilon$	$-\varepsilon^2$	$-\varepsilon^{2*}$	$-\varepsilon^*$	(R_x, R_y)	(xz, yz)
	1	ε^*	ε^{2*}	ε^2	ε	–1	$-\varepsilon^*$	$-\varepsilon^{2*}$	$-\varepsilon^2$	$-\varepsilon$		
E_2''	1	ε^2	ε^*	ε	ε^{2*}	–1	$-\varepsilon^2$	$-\varepsilon^*$	$-\varepsilon$	$-\varepsilon^{2*}$		
	1	ε^{2*}	ε	ε^*	ε^2	–1	$-\varepsilon^{2*}$	$-\varepsilon$	$-\varepsilon^*$	$-\varepsilon^2$		

C_{6h}	E	C_6	C_3	C_2	C_3^2	C_6^5	i	S_3^5	S_6^5	σ_h	S_6	S_3	$\varepsilon = e^{2\pi i/6}$	
A_g	1	1	1	1	1	1	1	1	1	1	1	1	R_z	$x^2 + y^2, z^2$
B_g	1	−1	1	−1	1	−1	1	−1	1	−1	1	−1		
E_{1g}	1	ε	$-\varepsilon^*$	−1	$-\varepsilon$	ε^*	1	ε	$-\varepsilon^*$	−1	$-\varepsilon$	ε^*	(R_x, R_y)	(xz, yz)
	1	ε^*	$-\varepsilon$	−1	$-\varepsilon^*$	ε	1	ε^*	$-\varepsilon$	−1	$-\varepsilon^*$	ε		
E_{2g}	1	$-\varepsilon^*$	$-\varepsilon$	1	$-\varepsilon^*$	$-\varepsilon$	1	$-\varepsilon^*$	$-\varepsilon$	1	$-\varepsilon^*$	$-\varepsilon$		$(x^2 - y^2, xy)$
	1	$-\varepsilon$	$-\varepsilon^*$	1	$-\varepsilon$	$-\varepsilon^*$	1	$-\varepsilon$	$-\varepsilon^*$	1	$-\varepsilon$	$-\varepsilon^*$		
A_u	1	1	1	1	1	1	−1	−1	−1	−1	−1	−1	z	
B_u	1	−1	1	−1	1	−1	−1	1	−1	1	−1	1		
E_{1u}	1	ε	$-\varepsilon^*$	−1	$-\varepsilon$	ε^*	−1	$-\varepsilon$	ε^*	1	ε	$-\varepsilon^*$	(x, y)	
	1	ε^*	$-\varepsilon$	−1	$-\varepsilon^*$	ε	−1	$-\varepsilon^*$	ε	1	ε^*	$-\varepsilon$		
E_{2u}	1	$-\varepsilon^*$	$-\varepsilon$	1	$-\varepsilon^*$	$-\varepsilon$	−1	ε^*	ε	−1	ε^*	ε		
	1	$-\varepsilon$	$-\varepsilon^*$	1	$-\varepsilon$	$-\varepsilon^*$	−1	ε	ε^*	−1	ε	ε^*		

D_{2h}	E	$C_2(z)$	$C_2(y)$	$C_2(x)$	i	$\sigma(xy)$	$\sigma(xz)$	$\sigma(yz)$		
A_g	1	1	1	1	1	1	1	1		x^2, y^2, z^2
B_{1g}	1	1	−1	−1	1	1	−1	−1	R_z	xy
B_{2g}	1	−1	1	−1	1	−1	1	−1	R_y	xz
B_{3g}	1	−1	−1	1	1	−1	−1	1	R_x	yz
A_u	1	1	1	1	−1	−1	−1	−1		
B_{1u}	1	1	−1	−1	−1	−1	1	1	z	
B_{2u}	1	−1	1	−1	−1	1	−1	1	y	
B_{3u}	1	−1	−1	1	−1	1	1	−1	x	

$\boldsymbol{D_{3h}}$	E	$2C_3$	$3C_2$	σ_h	$2S_3$	$3\sigma_v$		
A_1'	1	1	1	1	1	1		$x^2 + y^2, z^2$
A_2'	1	1	–1	1	1	–1	R_z	
E'	2	–1	0	2	–1	0	(x, y)	$(x^2 – y^2, xy)$
A_1''	1	1	1	–1	–1	–1		
A_2''	1	1	–1	–1	–1	1	z	
E''	2	–1	0	–2	1	0	(R_x, R_y)	(xz, yz)

$\boldsymbol{D_{4h}}$	E	$2C_4$	C_2	$2C_2'$	$2C_2''$	i	$2S_4$	σ_h	$2\sigma_v$	$2\sigma_d$		
A_{1g}	1	1	1	1	1	1	1	1	1	1		$x^2 + y^2, z^2$
A_{2g}	1	1	1	–1	–1	1	1	1	–1	–1	R_z	
B_{1g}	1	–1	1	1	–1	1	–1	1	1	–1		$x^2 – y^2$
B_{2g}	1	–1	1	–1	1	1	–1	1	–1	1		xy
E_g	2	0	–2	0	0	2	0	–2	0	0	(R_x, R_y)	(xz, yz)
A_{1u}	1	1	1	1	1	–1	–1	–1	–1	–1		
A_{2u}	1	1	1	–1	–1	–1	–1	–1	1	1	z	
B_{1u}	1	–1	1	1	–1	–1	1	–1	–1	1		
B_{2u}	1	–1	1	–1	1	–1	1	–1	1	–1		
E_u	2	0	–2	0	0	–2	0	2	0	0	(x, y)	

$\boldsymbol{D_{5h}}$	E	$2C_5$	$2C_5^2$	$5C_2$	σ_h	$2S_5$	$2S_5^3$	$5\sigma_v$	$\theta = 2\pi/5 \equiv 72°$	
A_1'	1	1	1	1	1	1	1	1		$x^2 + y^2, z^2$
A_2'	1	1	1	–1	1	1	1	–1	R_z	
E_1'	2	$2\cos(\theta)$	$2\cos(2\theta)$	0	2	$2\cos(\theta)$	$2\cos(2\theta)$	0	(x, y)	
E_2'	2	$2\cos(2\theta)$	$2\cos(\theta)$	0	2	$2\cos(2\theta)$	$2\cos(\theta)$	0		$(x^2 - y^2, xy)$
A_1''	1	1	1	1	–1	–1	–1	–1		
A_2''	1	1	1	–1	–1	–1	–1	1	z	
E_1''	2	$2\cos(\theta)$	$2\cos(2\theta)$	0	–2	$-2\cos(\theta)$	$-2\cos(2\theta)$	0	(R_x, R_y)	(xz, yz)
E_2''	2	$2\cos(2\theta)$	$2\cos(\theta)$	0	–2	$-2\cos(2\theta)$	$-2\cos(\theta)$	0		

$\boldsymbol{D_{6h}}$	E	$2C_6$	$2C_3$	C_2	$3C_2'$	$3C_2''$	i	$2S_3$	$2S_6$	σ_h	$3\sigma_d$	$3\sigma_v$		
A_{1g}	1	1	1	1	1	1	1	1	1	1	1	1		$x^2 + y^2, z^2$
A_{2g}	1	1	1	1	–1	–1	1	1	1	1	–1	–1	R_z	
B_{1g}	1	–1	1	–1	1	–1	1	–1	1	–1	1	–1		
B_{2g}	1	–1	1	–1	–1	1	1	–1	1	–1	–1	1		
E_{1g}	2	1	–1	–2	0	0	2	1	–1	–2	0	0	(R_x, R_y)	(xz, yz)
E_{2g}	2	–1	–1	2	0	0	2	–1	–1	2	0	0		$(x^2 - y^2, xy)$
A_{1u}	1	1	1	1	1	1	–1	–1	–1	–1	–1	–1		
A_{2u}	1	1	1	1	–1	–1	–1	–1	–1	–1	1	1	z	
B_{1u}	1	–1	1	–1	1	–1	–1	1	–1	1	–1	1		
B_{2u}	1	–1	1	–1	–1	1	–1	1	–1	1	1	–1		
E_{1u}	2	1	–1	–2	0	0	–2	–1	1	2	0	0	(x, y)	
E_{2u}	2	–1	–1	2	0	0	–2	1	1	–2	0	0		

$\boldsymbol{D_{8h}}$	E	$2C_8$	$2C_4$	$2C_8^3$	C_2	$4C_2'$	$4C_2''$	i	$2S_8^3$	$2S_8$	$2S_4$	σ_h	$4\sigma_d$	$4\sigma_v$		
A_{1g}	1	1	1	1	1	1	1	1	1	1	1	1	1	1		$x^2 + y^2, z^2$
A_{2g}	1	1	1	1	1	–1	–1	1	1	1	1	1	–1	–1	R_z	
B_{1g}	1	–1	1	–1	1	1	–1	1	–1	–1	1	1	1	–1		
B_{2g}	1	–1	1	–1	1	–1	1	1	–1	–1	1	1	–1	1		
E_{1g}	2	√2	0	–√2	–2	0	0	2	√2	–√2	0	–2	0	0	(R_x, R_y)	(xz, yz)
E_{2g}	2	0	–2	0	2	0	0	2	0	0	–2	2	0	0		$(x^2 – y^2, xy)$
E_{3g}	2	–√2	0	√2	–2	0	0	2	–√2	√2	0	–2	0	0		
A_{1u}	1	1	1	1	1	1	1	–1	–1	–1	–1	–1	–1	–1		
A_{2u}	1	1	1	1	1	–1	–1	–1	–1	–1	–1	–1	1	1	z	
B_{1u}	1	–1	1	–1	1	1	–1	–1	1	1	–1	–1	–1	1		
B_{2u}	1	–1	1	–1	1	–1	1	–1	1	1	–1	–1	1	–1		
E_{1u}	2	√2	0	–√2	–2	0	0	–2	–√2	√2	0	2	0	0	(x, y)	
E_{2u}	2	0	–2	0	2	0	0	–2	0	0	2	–2	0	0		
E_{3u}	2	–√2	0	√2	–2	0	0	–2	√2	–√2	0	2	0	0		

$\boldsymbol{D_{2d}}$	E	$2S_4$	C_2	$2C_2'$	$2\sigma_d$		
A_1	1	1	1	1	1		x^2, y^2, z^2
A_2	1	1	1	–1	–1	R_z	
B_1	1	–1	1	1	–1		$x^2 - y^2$
B_2	1	–1	1	–1	1	z	xy
E	2	0	–2	0	0	$(x, y), (R_x, R_y)$	(xz, yz)

$\boldsymbol{D_{3d}}$	E	$2C_3$	$3C_2$	i	$2S_6$	$3\sigma_d$		
A_{1g}	1	1	1	1	1	1		$x^2 + y^2, z^2$
A_{2g}	1	1	–1	1	1	–1	R_z	
E_g	2	–1	0	2	–1	0	(R_x, R_y)	$(x^2 - y^2, xy), (xz, yz)$
A_{1u}	1	1	1	–1	–1	–1		
A_{2u}	1	1	–1	–1	–1	1	z	
E_u	2	–1	0	–2	1	0	(x, y)	

$\boldsymbol{D_{4d}}$	E	$2S_8$	$2C_4$	$2S_8^3$	C_2	$4C_2'$	$4\sigma_d$		
A_1	1	1	1	1	1	1	1		$x^2 + y^2, z^2$
A_2	1	1	1	1	1	–1	–1	R_z	
B_1	1	–1	1	–1	1	1	–1		
B_2	1	–1	1	–1	1	–1	1	z	
E_1	2	$\sqrt{2}$	0	$-\sqrt{2}$	–2	0	0	(x, y)	
E_2	2	0	–2	0	2	0	0		$(x^2 - y^2, xy)$
E_3	2	$-\sqrt{2}$	0	$\sqrt{2}$	–2	0	0	(R_x, R_y)	(xz, yz)

$\boldsymbol{D_{5d}}$	E	$2C_5$	$2C_5^2$	$5C_2$	i	$2S_{10}$	$2S_{10}^3$	$5\sigma_d$	$\theta = 2\pi/5 \equiv 72°$	
A_{1g}	1	1	1	1	1	1	1	1		$x^2 + y^2, z^2$
A_{2g}	1	1	1	–1	1	1	1	–1	R_z	
E_{1g}	2	$2\cos(\theta)$	$2\cos(2\theta)$	0	2	$2\cos(2\theta)$	$2\cos(\theta)$	0	(R_x, R_y)	(xz, yz)
E_{2g}	2	$2\cos(2\theta)$	$2\cos(\theta)$	0	2	$2\cos(\theta)$	$2\cos(2\theta)$	0		$(x^2 - y^2, xy)$
A_{1u}	1	1	1	1	–1	–1	–1	–1		
A_{2u}	1	1	1	–1	–1	–1	–1	1	z	
E_{1u}	2	$2\cos(\theta)$	$2\cos(2\theta)$	0	–2	$-2\cos(2\theta)$	$-2\cos(\theta)$	0	(x, y)	
E_{2u}	2	$2\cos(2\theta)$	$2\cos(\theta)$	0	–2	$-2\cos(\theta)$	$-2\cos(2\theta)$	0		

$\boldsymbol{T}$	E	$4C_3$	$4C_3^2$	$3C_2$	$\varepsilon = e^{2\pi i/3}$	
A	1	1	1	1		$x^2 + y^2 + z^2$
E	1	ε	ε^*	1		$(2z^2 - x^2 - y^2, x^2 - y^2)$
	1	ε^*	ε	1		
T	3	0	0	–1	$(x, y, z), (R_x, R_y, R_z)$	(xy, xz, yz)

$\boldsymbol{T_h}$	E	$4C_3$	$4C_3^2$	$3C_2$	i	$4S_6$	$4S_6^5$	$3\sigma_h$	$\varepsilon = e^{2\pi i/3}$	
A_g	1	1	1	1	1	1	1	1		$x^2 + y^2 + z^2$
A_u	1	1	1	1	–1	–1	–1	–1		
E_g	1	ε	ε^*	1	1	ε	ε^*	1		$(2z^2 - x^2 - y^2, x^2 - y^2)$
	1	ε^*	ε	1	1	ε^*	ε	1		
E_u	1	ε	ε^*	1	–1	$-\varepsilon$	$-\varepsilon^*$	–1		
	1	ε^*	ε	1	–1	$-\varepsilon^*$	$-\varepsilon$	–1		
T_g	3	0	0	–1	3	0	0	–1	(R_x, R_y, R_z)	(xy, xz, yz)
T_u	3	0	0	–1	–3	0	0	1	(x, y, z)	

$\boldsymbol{T_d}$	E	$8C_3$	$3C_2$	$6S_4$	$6\sigma_d$		
A_1	1	1	1	1	1		$x^2 + y^2 + z^2$
A_2	1	1	1	–1	–1		
E	2	–1	2	0	0		$(2\,z^2 - x^2 - y^2,\, x^2 - y^2)$
T_1	3	0	–1	1	–1	(R_x, R_y, R_z)	
T_2	3	0	–1	–1	1	(x, y, z)	(xy, xz, yz)

$\boldsymbol{O}$	E	$6C_4$	$3C_2\,(=C_4^2)$	$8C_3$	$6C_2$		
A_1	1	1	1	1	1		$x^2 + y^2 + z^2$
A_2	1	–1	1	1	–1		
E	2	0	2	–1	0		$(2\,z^2 - x^2 - y^2,\, x^2 - y^2)$
T_1	3	1	–1	0	–1	(R_x, R_y, R_z), (x, y, z)	
T_2	3	–1	–1	0	1		(xy, xz, yz)

$\boldsymbol{O_h}$	E	$8C_3$	$6C_2$	$6C_4$	$3C_2\,(=C_4^2)$	i	$6S_4$	$8S_6$	$3\sigma_h$	$6\sigma_d$		
A_{1g}	1	1	1	1	1	1	1	1	1	1		$x^2 + y^2 + z^2$
A_{2g}	1	1	–1	–1	1	1	–1	1	1	–1		
E_g	2	–1	0	0	2	2	0	–1	2	0		$(2\,z^2 - x^2 - y^2,\, x^2 - y^2)$
T_{1g}	3	0	–1	1	–1	3	1	0	–1	–1	(R_x, R_y, R_z)	
T_{2g}	3	0	1	–1	–1	3	–1	0	–1	1		(xy, xz, yz)
A_{1u}	1	1	1	1	1	–1	–1	–1	–1	–1		
A_{2u}	1	1	–1	–1	1	–1	1	–1	–1	1		
E_u	2	–1	0	0	2	–2	0	1	–2	0		
T_{1u}	3	0	–1	1	–1	–3	–1	0	1	1	(x, y, z)	
T_{2u}	3	0	1	–1	–1	–3	1	0	1	–1		

$\boldsymbol{I_h}$	E	$12C_5$	$12C_5^2$	$20C_3$	$15C_2$	i	$12S_{10}$	$12S_{10}^3$	$20S_6$	15σ	$\varepsilon = \pi/5 \equiv 36°$	
A_g	1	1	1	1	1	1	1	1	1	1		$x^2 + y^2 + z^2$
T_{1g}	3	$2\cos(\varepsilon)$	$2\cos(3\varepsilon)$	0	–1	3	$2\cos(3\varepsilon)$	$2\cos(\varepsilon)$	0	–1	(R_x, R_y, R_z)	
T_{2g}	3	$2\cos(3\varepsilon)$	$2\cos(\varepsilon)$	0	–1	3	$2\cos(\varepsilon)$	$2\cos(3\varepsilon)$	0	–1		
G_g	4	–1	–1	1	0	4	–1	–1	1	0		
H_g	5	0	0	–1	1	5	0	0	–1	1		§
A_u	1	1	1	1	1	–1	–1	–1	–1	–1		
T_{1u}	3	$2\cos(\varepsilon)$	$2\cos(3\varepsilon)$	0	–1	–3	$-2\cos(3\varepsilon)$	$-2\cos(\varepsilon)$	0	1	(x, y, z)	
T_{2u}	3	$2\cos(3\varepsilon)$	$2\cos(\varepsilon)$	0	–1	–3	$-2\cos(\varepsilon)$	$-2\cos(3\varepsilon)$	0	1		
G_u	4	–1	–1	1	0	–4	1	1	–1	0		
H_u	5	0	0	–1	1	–5	0	0	1	–1		

§ = $(2z^2 - x^2 - y^2, x^2 - y^2, xy, xz, yz)$

Comparison of Schönflies (Sc) & Hermann-Mauguin (or International) term symbols.

Sc: C_n	C_1	C_2	C_3	C_4	C_5	C_6	C_8
H-M:	1	2	3	4	5	6	8

Sc:	C_i	C_s	S_6 (C_{3i})	S_4			
H-M:	$\bar{1}$	m (≡ $\bar{2}$)	$\bar{3}$	$\bar{4}$			

Sc: C_{nh}		C_{2h}	C_{3h}	C_{4h}	C_{5h}	C_{6h}	C_{8h}
H-M:		2/m	3/m (≡ $\bar{6}$)	4/m	5/m (≡ $\bar{10}$)	6/m	8/m

Sc: C_{nv}		C_{2v}	C_{3v}	C_{4v}	C_{5v}	C_{6v}	C_{8v}
H-M:		mm2	3m	mm4	5m	mm6	mm8

Sc: D_n		D_2	D_3	D_4	D_5	D_6	D_8
H-M		222	32	422	52	622	822

Sc: D_{nd}		D_{2d}	D_{3d}	D_{4d}	D_{5d}		
H-M		$\bar{4}$ 2m	$\bar{3}$ m	$\bar{8}$ 2m	$\bar{5}$ m		

Sc: D_{nh}		D_{2h}	D_{3h}	D_{4h}	D_{5h}	D_{6h}	D_{8h}
H-M		2/mmm (≡ mmm)	$\bar{6}$ m2 (≡3/mm)	4/mmm	$\bar{10}$ m2	6/mmm	8/mmm

Sc:	T	T_h	O	T_d	O_h	I_h	
H-M	23	m $\bar{3}$	432	$\bar{4}$ 3m	m $\bar{3}$ m	$\bar{5}$ $\bar{3}$ m	

(after Borchardt-Ott, Crystallography - An introduction, Springer, p127)

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