Important Dimensions of Complete Physics

Mechanics

S. N.	Quantity	Unit	Dimension
(1)	Velocity or speed (v)	m/s	$[M^0L^1T^{-1}]$
(2)	Acceleration (a)	m/s^2	$[M^0LT^{-2}]$
(3)	Momentum (P)	kg-m/s	$[M^1L^1T^{-1}]$
(4)	Impulse (I)	Newton-sec or kg-m/s	$[M^1L^1T^{-1}]$
(5)	Force (F)	Newton	$[M^1L^1T^{-2}]$
(6)	Pressure (P)	Pascal	$[M^1L^{-1}T^{-2}]$
(7)	Kinetic energy (E_K)	Joule	$[M^1L^2T^{-2}]$
(8)	Power (P)	Watt or Joule/s	$[M^1L^2T^{-3}]$
(9)	Density (d)	kg/m^3	$[M^1L^{-3}T^0]$
(10)	Angular displacement (θ)	Radian (rad.)	$[M^0L^0T^0]$
(11)	Angular velocity (ω)	Radian/sec	$[M^0L^0T^{-1}]$
(12)	Angular acceleration (α)	$Radian/sec^2$	$[M^0L^0T^{-2}]$
(13)	Moment of inertia (I)	$kg\text{-}m^2$	$[M^1L^2T^0]$
(14)	Torque (τ)	Newton-meter	$[M^1L^2T^{-2}]$
(15)	Angular momentum (L)	Joule-sec	$[M^1L^2T^{-1}]$
(16)	Force constant or spring constant (k)	Newton/m	$[M^1L^0T^{-2}]$
(17)	Gravitational constant (G)	$N\text{-}m^2/kg^2$	$[M^{-1}L^3T^{-2}]$
(18)	Intensity of gravitational field (E_g)	N/kg	$[M^0L^1T^{-2}]$
(19)	Gravitational potential (V_g)	Joule/kg	$[M^0L^2T^{-2}]$
(20)	Surface tension (T)	N/m or $Joule/m^2$	$[M^1L^0T^{-2}]$
(21)	Velocity gradient (V_g)	$Second^{-1}$	$[M^0L^0T^{-1}]$
(22)	Coefficient of viscosity (η)	kg/m-s	$[M^1L^{-1}T^{-1}]$
(23)	Stress	N/m^2	$[M^1L^{-1}T^{-2}]$

S. N.	Quantity	Unit	Dimension
(24)	Strain	No unit	$[M^0L^0T^0]$
(25)	Modulus of elasticity (E)	N/m^2	$[M^1L^{-1}T^{-2}]$
(26)	Poisson Ratio (σ)	No unit	$[M^0L^0T^0]$
(27)	Time period (T)	Second	$[M^0L^0T^1]$
(28)	Frequency (n)	Hz	$[M^0L^0T^{-1}]$

Heat

S. N.	Quantity	Unit	Dimension
(1)	Temperature (T)	Kelvin	$[M^0L^0T^0\theta^1]$
(2)	Heat (Q)	Joule	$[ML^2T^{-2}]$
(3)	Specific Heat (c)	Joule/kg-K	$[M^0L^2T^{-2}\theta^{-1}]$
(4)	Thermal capacity	Joule/K	$[M^1L^2T^{-2}\theta^{-1}]$
(5)	Latent heat (L)	Joule/kg	$[M^0L^2T^{-2}]$
(6)	Gas constant (R)	Joule/mol-K	$[M^1L^2T^{-2}\theta^{-1}]$
(7)	Boltzmann constant (k)	Joule/K	$[M^1L^2T^{-2}\theta^{-1}]$
(8)	Coefficient of thermal conductivity (K)	Joule/m-s-K	$[M^1L^1T^{-3}\theta^{-1}]$
(9)	Stefan's constant (σ)	$Watt/m^2\text{-}K^4$	$[M^1L^0T^{-3}\theta^{-4}]$
(10)	Wien's constant (b)	Meter-K	$[M^0L^1T^0\theta^1]$
(11)	Planck's constant (h)	Joule-s	$[M^1L^2T^{-1}]$
(12)	Coefficient of Linear Expansion (·)	$Kelvin^{-1}$	$[M^0L^0T^0\theta^{-1}]$
(13)	Mechanical eq. of Heat (J)	Joule/Calorie	$[M^0L^0T^0]$
(14)	Vander wall's constant (a)	$Newton\text{-}m^4$	$[ML^5T^{-2}]$
(15)	Vander wall's constant (b)	m^3	$[M^0L^3T^0]$

Electricity

S. N.	Quantity	Unit	Dimension
(1)	Electric charge (q)	Coulomb	$[M^0L^0T^1A^1]$
(2)	Electric current (I)	Ampere	$[M^0L^0T^0A^1]$
(3)	Capacitance (C)	Coulomb/volt or Farad	$[M^{-1}L^{-2}T^4A^2]$
(4)	Electric potential (V)	Joule/coulomb	$M^1L^2T^{-3}A^{-1}$
(5)	Permittivity of free space (ε_0)	$\frac{Coulomb^2}{Newton - meter^2}$	$[M^{-1}L^{-3}T^4A^2]$
(6)	Dielectric constant (K)	Unitless	$[M^0L^0T^0]$
(7)	Resistance (R)	Volt/Ampere or ohm	$[M^1L^2T^{-3}A^{-2}]$
(8)	Resistivity or Specific resistance (ρ)	Ohm-meter	$[M^1L^3T^{-3}A^{-2}]$
(9)	Coefficient of Self-induction (L)	$\frac{volt - second}{ampere}$ or henery or ohm-second	$[M^1L^2T^{-2}A^{-2}]$
(10)	Magnetic flux (ϕ)	Volt-second or weber	$[M^1L^2T^{-2}A^{-1}]$
(11)	Magnetic induction (B)	$\frac{newton}{ampere - meter}$ $\frac{Joule}{ampere - meter^2}$ $\frac{volt - \text{second}}{meter^2}$ or Tesla	$[M^1L^0T^{-2}A^{-1}]$
(12)	Magnetic Intensity (H)	Ampere/meter	$[M^0L^{-1}T^0A^1]$
(13)	Magnetic Dipole Moment (M)	Ampere-meter^2	$[M^0L^2T^0A^1]$
(14)	Permeability of Free Space (μ_0)	$\frac{Newton}{ampere^2}$ or $\frac{Joule}{ampere^2 - meter}$ or $\frac{Volt - \text{second}}{ampere - meter}$ or $\frac{Ohm - \text{sec}\,ond}{meter}$ or $\frac{henery}{meter}$	$[M^1L^1T^{-2}A^{-2}]$
(15)	Surface charge density (σ)	$Coulomb\ metre^{-2}$	$[M^0L^{-2}T^1A^1]$
(16)	Electric dipole moment (p)	$Coulomb - meter$	$[M^0L^1T^1A^1]$
(17)	Conductance (G) (1/R)	ohm^{-1}	$[M^{-1}L^{-2}T^3A^2]$
(18)	Conductivity (σ) (1/ρ)	$ohm^{-1}meter^{-1}$	$[M^{-1}L^{-3}T^3A^2]$
(19)	Current density (J)	Ampere/m^2	$M^0L^{-2}T^0A^1$
(20)	Intensity of electric field (E)	Volt/meter, Newton/coulomb	$M^1L^1T^{-3}A^{-1}$

S. N.	Quantity	Unit	Dimension
(21)	Rydberg constant (R)	m^{-1}	$\mathbf{M^0L^{-1}T^0}$