Exhibit 1 – Dimensions and units of measurement

The following table (Table E1.1) shows the dimensions of a variety of physical quantities in terms of the basic units *mass, length, time* (M,L,T) or *force, length, time* (F,L,T). The table also shows the preferred units for those quantities in both the International System (S.I.) and the English System (E.S.) of units. Additional units commonly used for the quantities listed are shown in the last column of the table.

Table E1.1 – Dimensions and units of measurement

	Dimensions		**Preferred units**		**Other**
Quantity	(M,L,T)	(F,L,T)	S.I.	E.S.	**units**
Length (L)	L	L	m	ft	in, mi
Time (T)	T	T	s	s	h, d
Mass (M)	M	FT^2L^{-1}	kg	slug	
Area (A)	L^2	L^2	m^2	ft^2	Ac
Volume (Vol)	L^3	L^3	m^3	ft^3	Ac-ft
Velocity (V)	LT^{-1}	LT^{-1}	m/s	ft/s or fps	--
Acceleration (a)	LT^{-2}	LT^{-2}	m/s^2	ft/s^2	--
Discharge (Q)	L^3T^{-1}	L^3T^{-1}	m^3/s	ft^3/s or cfs	--
Kinematic viscosity (ν)	L^2T^{-1}	L^2T^{-1}	m^2/s	ft^2/s	St
Force (F)	MLT^{-2}	F	N	lb	--
Pressure (p)	$ML^{-1}T^{-2}$	FL^{-2}	Pa	lb/ft^2	psi, atm
Shear stress (τ)	$ML^{-1}T^{-2}$	FL^{-2}	Pa	lb/ft^2	psi
Density (ρ)	ML^{-3}	FT^2L^{-4}	kg/m^3	$slug/ft^3$	--
Specific weight (ω)	$ML^{-2}T^{-2}$	FL^{-3}	N/m^3	lb/ft^3	--
Energy/Work/Heat (E)	ML^2T^{-2}	FL	J	lb ft	--
Power (P)	ML^2T^{-3}	FLT^{-1}	W	lb ft/s	hp
Dynamic viscosity (μ)	$ML^{-1}T^{-1}$	FTL^{-2}	$N\ s/m^2$	$lb\ s/ft^2$	P

The symbols for the units used in Table E1-1 are listed next:

Ac : acre, a unit of area
Ac-ft : acre × feet
atm : atmosphere
cfs : cubic feet per second
fps : feet per second
ft : foot or feet
hp : horse power
in : inch
J : joule
kg : kilogram
cfs : cubic feet per second
lb : pound
m : meter
N : newton
mi : mile
P : poise
Pa : pascal
psi : pounds per square inch
s : second
St : stokes
W : watt