0 Nomenclature

A	area	m^2
a	amplitude	m
a	sonic velocity	m/s
a	thermal diffusivity, $a = \lambda/(\rho \cdot c)$	m^2/s
B, b	breadth, width	m
b	acceleration	m/s^2
c	heat capacity	$J/(kg \cdot K) = m^2/(K \cdot s^2)$
c	concentration	$kmol/m^3$, kg/m^3
D, d	diameter	m
D	diffusion coefficient	m^2/s
D_{ax}	axial dispersion coefficient	m^2/s
E	elastic modulus	$kg/(m \cdot s^2)$
E	energy	$J = kg \cdot m^2/s^2$
e	unit	-
F	force	$N = kg \cdot m/s^2$
F	gas load, $F \equiv (v_G \cdot \sqrt{\rho_G})$	$Pa^{1/2}$
f	scale factor, $f \equiv (l/l_M)$	-
$\dot{G}$	volumetric gas flow	m^3/s
g	acceleration of gravity	m/s^2
H, h	height	m
I	area momentum	m^4
J	momentum of inertia	$kg \cdot m^2$
k	rate constant of reaction	s^{-1}
$\dot{L}$	volumetric liquid flow	m^3/s
L, l	length	m
M, m	mass	kg
m	number of π groups in a set	-
m	fainting exponent	m^{-1}
$\dot{m}$	mass flow rate	kg/s
n	number of relevant quantities	-
n	rotation speed	s^{-1}
P	power	$W = kg\, m^2/s^3$

p	degree of homogeneity	-
p	pressure	$Pa = kg/(m \cdot s^2)$
Δp	pressure loss	Pa
q	exponent	-
q	degree of homogeneity	-
$\dot{Q}$	heat flux	$W = kg \cdot m^2/s^3$
r	rank of dimensional matrix	-
r	degree of homogeneity	-
T	Kelvin temperature	K
ΔT	temperature difference	K, ^oC
ΔT	reverberation	s
t	time	s
t	Celsius temperature	^oC
$\dot{V}$	volumetric flow	m^3/s
v	velocity	m/s
W	weir height	m
$\bar{x}$	quantity	
x	number	-
x	coordinate	m
$\bar{y}$	quantity	
y	number	-
y	coordinate	m
$\bar{z}$	quantity	
z	number	-
z	coordinate	m
z_π	number of π sets	-

Greek Symbols

α	heat transfer coefficient	$W/(m^2 \cdot K) = kg/(K \cdot s^3)$
α	sound absorption coefficient	-
β	angle	-
$\dot{\beta}$	angle velocity	s^{-1}
$\ddot{\beta}$	angle acceleration	s^{-2}

δ	distance	m
$\dot{\delta}$	velocity	m/s
$\ddot{\delta}$	acceleration	m/s^2
γ	temperature sensivity coefficient	K^{-1}
ε	volume fraction	-
η	dynamic viscosity	$Pa \cdot s = kg/(m \cdot s)$
ϑ	Celsius temperature	^oC
κ	heat capacity ratio	-
λ	conductivity of heat	$W/(m \cdot K) = kg\, m/(K \cdot s^3)$
λ	wave length	m
μ	constant in viscosity function, friction coefficient	-
m	friction factor	-
ξ	drag coefficient	-
π	dimensionless number	-
π_c	circular constant	-
ρ	density	kg/m^3
$\Delta\rho$	density difference	kg/m^3
σ	surface tension	$N/m = kg/s^2$
σ	breaking stress coefficient	$kg/(m \cdot s^2)$
φ	angle	-
ω	frequency	s^{-1}

Subscripts

c	continuous phase
d	dispersed phase
G	gas
g	glass
i	variable
j	variable
L	liquid
m	mold
M	model
o	end, reference
p	particle

s	swarm
S	solid
x	quantities of type x
y	quantities of type y
z	quantities of type z

Mathematical Operations

$=$	equal
$\neq$	not equal
$\equiv$	definition
$\approx$	approximately equal
$\sim$	proportional
Det	determinante
f	function
Δ	difference
Π	product

Comments

- The exact meaning of the symbols is explained at the end of the tables.
- In Chapter 1, quantities are marked by a bar ($\bar{x}$) to avoid any confusion with numbers (x).