

TABLE 3.2 Dimensions of Hydraulic Quantities

Geometric characteristics	
Length	$L$
Area	$L^2$
Volume	$L^3$
Fluid properties <sup>a</sup>	
Mass	$FT^2/L$
Density ( $\rho$ )	$FT^2/L^3$
Specific weight ( $\gamma$ )	$FT/L^3$
Kinematic viscosity ( $\nu$ )	$L^2/T$
Absolute viscosity ( $\mu$ )	$FT/L^2$
Elastic modulus ( $E$ )	$FT/L^2$
Surface tension ( $\sigma$ )	$FT/L$
Flow characteristics	
Velocity ( $v$ )	$L/T$
Angular velocity ( $\omega$ )	$1/T$
Acceleration ( $a$ )	$L/T^2$
Pressure ( $\Delta p$ )	$FT/L^2$
Force (drag, lift, shear)	$F$
Shear stress ( $\tau$ )	$FT/L^2$
Pressure gradient ( $\Delta p/L$ )	$F/L^3$
Discharge	$L^3/T$
Mass flow rate	$FT/L$
Torque and moment	$FL$
Work or energy	$FL$
Work or energy per unit weight	$L$
Work or energy per unit mass	$L^2/T^2$
<sup>a</sup> Density, viscosity, elastic modulus, and surface tension depend on temperature; therefore, temperature is not considered a property in the sense used here.	
MLT	FLT