

Nomenclature

α	Absorption coefficient
c	Adiabatic speed of sound
c_i	Speed of sound in material
d	Depth of rigidly backed layer
D	Diameter of the screw
E	Young's modulus
f	Frequency
$F(\omega)$	Viscosity correction function
h	Layer thickness
H_{max}	Maximum feed depth of screw
i	$\sqrt{-1}$
k	Wave number
$k_b(\omega)$	Complex wave number
k_r	Rate of reaction
l	Characteristic dimension of the pore
M_T	Torque at the circumference of the screw root
N_{pr}	Prandtl number
P_α	Absorbed acoustic energy
P_i	Incident acoustic energy
P_r	Reflected acoustic energy
P_t	Transmitted acoustic energy
P	Acoustic pressure at entrance to the pore

P_0	Ambient pressure
q	Tortuosity
r	Pore radius
S	Fluid stress within the porous material
U	Velocity of wave motion at entrance to pore
u_y	Solid displacements
U_y	Fluid displacements
u	Displacement velocity at media interface
v_y	Acoustic particle velocity
V_0	Ambient volume
$z(\omega)$	Normalised impedance ratio
Z	Acoustic impedance
$Z_b(\omega)$	Complex acoustic impedance
σ	Flow resistivity
σ_y	Solid stress
ρ_ω	Complex density
ρ_0	Equilibrium density of the air
ρ_s	Solid density
ρ_x	Complex dynamic density
ρ_b	Bulk dynamic density
λ_x	Dimensionless parameter
ω	Angular frequency
μ	Dynamic viscosity of air
η	Fluid dynamic viscosity

τ	Viscous frictional stress on pore wall
τ_s	Allowable shear stress of the screw metal
τ_{xy}	Shear acting on the solid phase
κ	Thermal conductivity
κ_s	Solid permeability
γ	Ratio of specific heats
ϕ	Volume porosity
Λ	Characteristic length
Λ'	Thermal length
ν	Poisson's ratio
λ	Wavelength
Δ	Screw deflection