

NOMENCLATURE

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|-------|--|
| B | Magnetic field |
| C_p | Specific heat at constant pressure (kJ/kg.K) |
| g | Gravitational acceleration (m/s ²) |
| k | Thermal conductivity (W/m.K) |
| P | Dimensionless pressure |
| Pr | Prandtl number (ν_f/α_f) |
| R_o | Base circle (m) |
| Ra | Rayleigh number ($g\beta_f L^3 \Delta T/\nu_f \alpha_f$) |
| T | Temperature (K) |
| T_c | Temperature of the cold surface (K) |
| T_h | Temperature of the hot surface (K) |
| q | Heat coefficient |
| Nu | Average Nusselt number hot inner circular cylinder |
| U | Dimensionless velocity component in x-direction |
| u | Velocity component in x-direction (m/s) |
| V | Dimensionless velocity component in y-direction |
| v | Velocity component in y-direction (m/s) |

Greek symbols

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|----------|--|
| α | Thermal diffusivity (m ² /s) |
| θ | Dimensionless temperature ($(T-T_c)/\Delta T$) |
| Ψ | Dimensional stream function (m ² /s) |
| Φ | Angle of circular cylinder |
| ψ | Dimensionless stream function |
| Gr | Grashof number |
| μ | Dynamic viscosity (kg/m.s) |
| ν | Kinematic viscosity (m ² s ⁻¹) |
| β | Volumetric coefficient of thermal expansion (K ⁻¹) |
| ρ | Density (kg/m ³) |

Subscript

| | |
|---|--------------|
| c | Cold |
| f | Fluid (pure) |
| h | hot |