NOMENCLATURE

Cp  Specific Heat, kJ/kgK
E   Young’s modulus of elasticity
E_f  Total fluid energy
E_s  Total solid medium energy
H   Hardness of eroded surface, kg/m s^2
H_a  Hardness of eroding surface, kg/m s^2
Hg  Adiabatic enthalpy, J/kg
H_P  Enthalpy of products of combustion
H_R  Enthalpy of reactants
M   Total mass of impinging particles, kg
P. D  Pressure drop in mm of water column across the module
S'_f  Fluid enthalpy source term
V   Velocity of impinging particles, m/s
V_⊥  Normal component of particle velocity
V_∥  Parallel component of particle velocity
W   Wear rate, m^3/s
W_D  Deformation wear
f_0  Co-efficient of friction for eroded surface
k   Thermal Conductivity, W/m K
k_{eff}  Effective thermal conductivity of the medium
k_f  Fluid phase thermal conductivity
k_s  Solid medium thermal conductivity
m   Mass of impinging particle, kg
q   Poisson’s ratio
t   Thickness, m
Greek Symbols

α  Angle of impingement, °, degree
γ  Porosity of the medium
η  Bounce angle of particle
κ  Effective viscosity,
θ₁ Temperature of eroded surface, °C, K
θ₂ Temperature of abrasive material, °C, K
λ  Sharpness factor,
ρ  Density in kg/m³
ρ₀ Density of particle impacting
Φ  Cutting energy in J/ m³
φ  Parameters porosity,

Abbreviations

ASLD  Acoustic Steam Leak Detection
ASME  American Society for Mechanical engineers
BHEL  Bharat Heavy Electricals Limited
BTF   Boiler Tube Failure
BTL   Boiler Tube Leakages
CAVT  Cold Air Velocity Test
CFD   Computational Fluid Dynamics
CPRI  Central Power Research Institute
CRH   Cold Re-Heater
ECO   Economizer
EPRI  Electric Power Research Institute
FAE   Fly Ash Erosion
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>FEGT</td>
<td>Furnace Exit Gas Temperature</td>
</tr>
<tr>
<td>FSH</td>
<td>Final Super Heater</td>
</tr>
<tr>
<td>HP</td>
<td>High Pressure</td>
</tr>
<tr>
<td>HPT</td>
<td>High Pressure Turbine</td>
</tr>
<tr>
<td>HRH</td>
<td>Hot Re-heater</td>
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<tr>
<td>LPT</td>
<td>Low Pressure Turbine</td>
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<tr>
<td>LTSH</td>
<td>Low Temperature Super Heater</td>
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<tr>
<td>MAHAGEN</td>
<td>Maharashtra Generation Company</td>
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<tr>
<td>MCR</td>
<td>Maximum Continuous Rating</td>
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<tr>
<td>NTPS</td>
<td>Nashik Thermal Power Station</td>
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<tr>
<td>PSH</td>
<td>Platen Super Heater</td>
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<tr>
<td>RH</td>
<td>Re-heater</td>
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<tr>
<td>SH</td>
<td>Super Heater</td>
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<tr>
<td>ST</td>
<td>Steam Touched</td>
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<tr>
<td>UTS</td>
<td>Ultimate Tensile Strength</td>
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<tr>
<td>WT</td>
<td>Water Touched</td>
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<tr>
<td>WWP</td>
<td>Water wall Platen</td>
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