Heat Source

A source of thermal energy (heat) E_H with a reference to location in 3D space.

The quantitative value is given by the pace of thermal energy variation (production or consumption) per unit time:

(1) $$W_H(\mathbf{r}) = \frac{\delta E_H}{\delta t}$$

where

$\mathbf{r}$	position vector in 3D space

Symbol	Dimension	SI units	Oil metric units	Oil field units
W_H	$M^1 L^2 T^3$	W	W	BTU/hr

The total volume of Heat Source contained in a given volume Ω can be calculated as:

(2) $$W_H(\mathbf{r}) = \int_{\Omega} q_H(\mathbf{r}) dV$$

where

$q_H(\mathbf{r})$	Heat Source Density at point $\mathbf{r}$

See also

Physics / Thermodynamics / Thermodynamic process

[Heat Source Density (q_H)]