

Heat Capacity = C

@wikipedia

Amount of [heat](#) to be supplied to a given amount of a material to produce a unit change in its [temperature](#):

$$C = \frac{\delta Q}{\delta T}$$

Symbol	Dimension	SI units	Oil metric units	Oil field units
C	$M L^2 T^{-2} K^{-1}$	J/K	J/K	BTU/°R

[Heat Capacity](#) depends on the way the [heat](#) is transferred and as such is not a table property of the matter.

The two major [heat transfer processes](#) are [isobaric](#) and [isochoric](#) which result in different values of [heat capacity](#):

Isobaric heat capacity (C_p)	Isochoric heat capacity (C_v)
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Both C_p and C_v are proportional to the [amount of chemical substance](#) involved in a [heat transfer](#) process and as such are not the [material properties](#).

The ratio $\gamma = C_p/C_v$ is called a [Heat Capacity Ratio](#) () or [Adiabatic Index](#) () or [Isentropic expansion factor](#) () and is a [material property](#).

Based on [Mayer's relation](#) the [Isobaric heat capacity](#) is always greater than [Isochoric heat capacity](#):

$$(1) \quad C_p \geq C_v$$

One can relate them to [material properties](#) through the known material [mass](#) m or a material [volume](#) V or material [amount of substance](#) ν :

Molar Heat Capacity	Specific heat capacity	Volumetric Heat Capacity
(2) $c = C/\nu$	(3) $c_m = C/m$	(4) $c_v = C/V$

Overall, there are totally six different [intensive physical properties](#) related to [heat capacity](#):

	Molar Heat Capacity	Specific heat capacity	Volumetric Heat Capacity
Isobaric ($V = \text{const}$)	Isobaric molar heat capacity (5) $c_p = C_p/\nu$	Isobaric specific heat capacity (6) $c_{pm} = C_p/m$	Isobaric volumetric heat capacity (7) $c_{pv} = C_p/V$
Isochoric ($P = \text{const}$)	Isochoric molar heat capacity (8) $c_v = C_v/\nu$	Isochoric specific heat capacity (9) $c_{vm} = C_v/m$	Isochoric volumetric heat capacity (10) $c_{vv} = C_v/V$

See also

[Physics](#) / [Thermodynamics](#) / [Thermodynamic process](#) / [Heat Transfer](#)

[[Heat](#)] [[Isobaric heat capacity](#)] [[Isochoric heat capacity](#)]

[[Specific heat capacity](#)] [[Volumetric Heat Capacity](#)] [[Molar Heat Capacity](#)] [[Mayer's relation](#)]