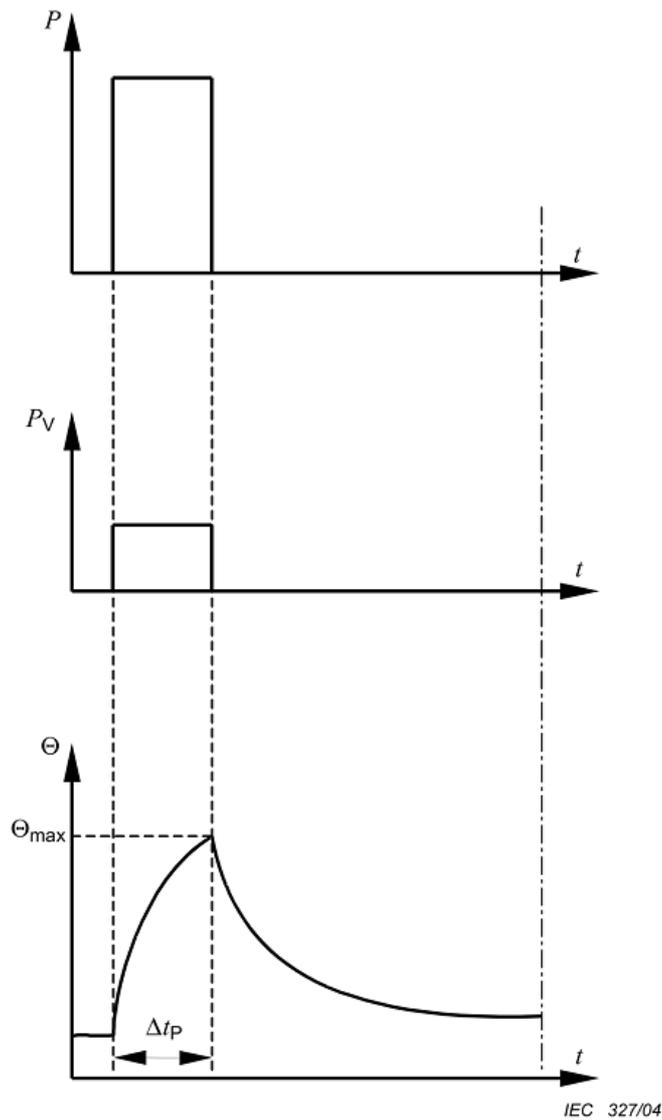


4.2.2 Duty type S2 - Short-time duty

Operation at constant load for a given time, less than that required to reach thermal equilibrium, followed by a time de-energized and at rest of sufficient duration to re-establish machine temperatures within 2 K of the coolant temperature, see Figure 2.

The appropriate abbreviation is S2, followed by an indication of the duration of the duty,

Example: S2 60min.



Key:

- P load
- P_v electrical losses
- θ temperature
- θ_{max} maximum temperature attained
- t time
- Δt_p operation time at constant load

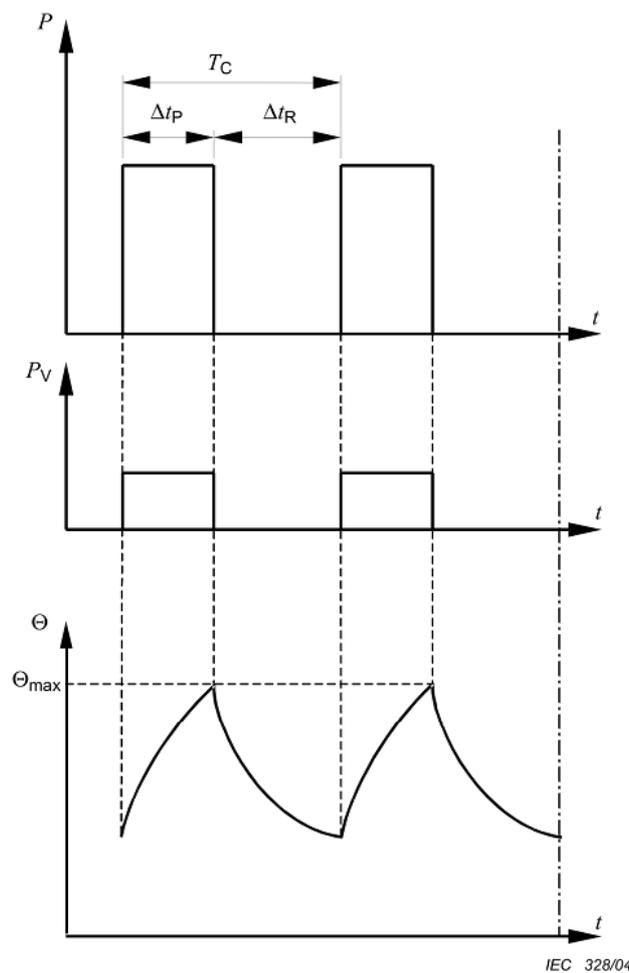
Figure 2 - Short-time duty - Duty type S2

4.2.3 Duty type S3 - Intermittent periodic duty⁽²⁾

A sequence of identical duty cycles, each including a time of operation at constant load and a time de-energized and at rest, see Figure 3. In this duty, the cycle is such that the starting current does not significantly affect the temperature rise.

The appropriate abbreviation is S3, followed by the cyclic duration factor.

Example: S3 25%



- Key:
- P load
 - P_v electrical losses
 - θ temperature
 - θ_{max} maximum temperature attained
 - t time
 - T_c time of one load cycle
 - Δt_p operation time at constant load
 - Δt_R time de-energized and at rest
 - Cyclic duration factor = $\Delta t_p / T_c$

Figure 3 - Intermittent periodic duty - Duty type S3

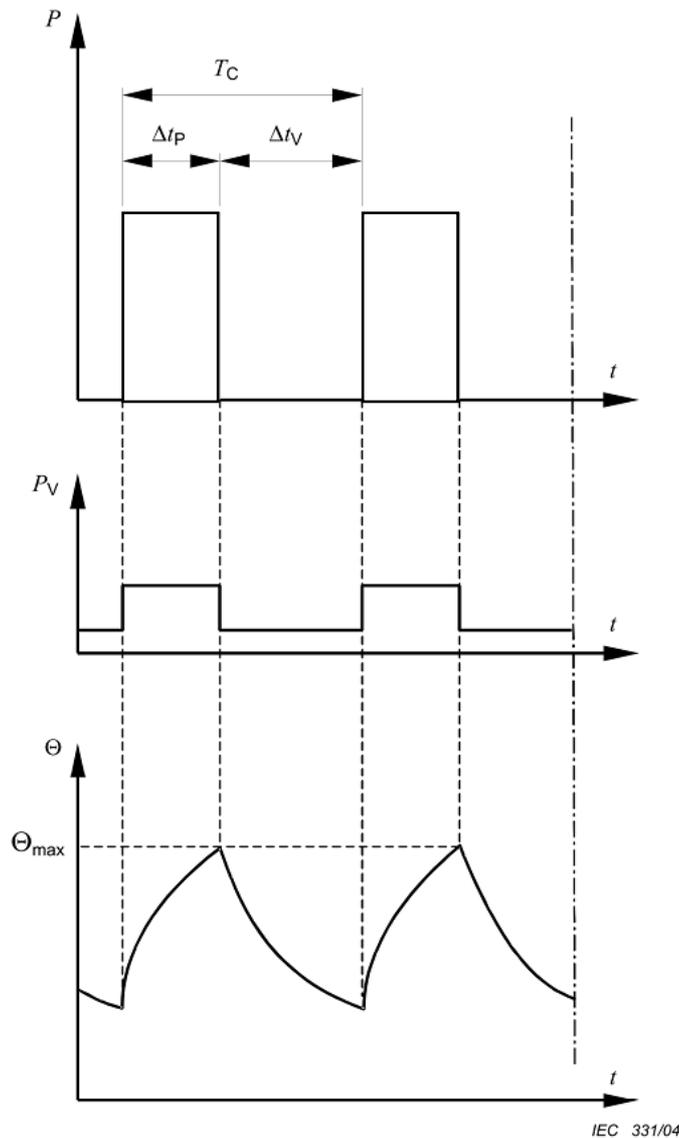
⁽²⁾ Periodic duty implies that thermal equilibrium is not reached during the time on load.

4.2.6 Duty type S6 - Continuous-operation periodic duty⁽²⁾

A sequence of identical duty cycles, each cycle consisting of a time of operation at constant load and a time of operation at no-load. There is no time de-energized and at rest, see Figure 6.

The appropriate abbreviation is S6, followed by the cyclic duration factor.

Example: S6 40%



Key:

P	load	t	time
P_v	electrical losses	T_c	time of one load cycle
θ	temperature	Δt_p	operation time at constant load
θ_{max}	maximum temperature attained	Δt_v	operation time at no-load
Cyclic duration factor = $\Delta t_p / T_c$			

Figure 6 - Continuous operation periodic duty - Duty type S6

⁽²⁾ Periodic duty implies that thermal equilibrium is not reached during the time on load.