

said regulator system in order to cause said DC-link capacitor voltage to be limited within said predetermined voltage range, without using said lines currents and/or DC-link currents.

5 Preferably, the method comprises the steps of: receiving first voltage signals indicative of the duty cycles of said switching signals; receiving first current signals indicative of said output currents provided to said electric motor receiving said voltage of the DC-link capacitor, determining a torque limit value based on said first voltage signals, said first current signals, and said voltage of the DC-link capacitor.

10 Preferably, the method comprises: determining an active current based on said first voltage signals and said first current signals, determining an instantaneous maximum allowable regeneration current based on the measured voltage level and the prefixed parameter corresponding to a maximum absolute active current ( $i_a(t)$ ) for regeneration by means of the following equation:  $i_{aIstAbs}(t) = \omega V * I_{aMaxAbs}$ ,

15 wherein  $\omega V$  is a weight coefficient that depends on the voltage  $V_{dc}(t)$  and a nominal DC-link voltage  $V_{dcnom}$  and on a highvoltage limit  $V_{high}$ ; calculate a current value indicative of the difference between said active current and said maximum allowable regeneration current, performing a proportional-integral function on said current value to calculate said torque limit.

20 Preferably, the method comprises: comparing said torque target with said torque limit, set the torque reference with the torque limit, when said motor speed is positive and said torque target is lower or equal to said torque limit.

Preferably the method comprises the step of: set the torque reference with the torque limit when the motor speed is negative and the torque target is greater than, or  
25 equal to the torque limit.

A non-limiting embodiment of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 shows a perspective view of a laundry-treating machine according to a first embodiment of the present disclosure,

30 Figure 2 shows a schematic view of a laundry treating machine provided with