Explanation of teminology

1 Nominal voltage

is the applied voltage between two powered phases in block commutation.

2 No load speed

is the speed at which the unloaded motor runs with the nominal voltage applied. It is approximately proportional to the applied voltage.

3 No load current

This is the typical current that the unloaded motor draws when operating at nominal voltage. It increases with rising speed owing to bearing friction and iron losses. No load friction depends heavily on temperature. It decreases in extended operation and increases at lower temperatures.

4 Nominal speed

is the speed set for operation at nominal voltage and nominal torque at a motor temperature of 25° C.

5 Nominal torque

is the torque generated for operation at nominal voltage and nominal current at a motor temperature of 25° C. It is at the limit of the motor's continuous operation range. Higher torques heat up the winding too much.

6 Nominal current

is the current in the active phase in block commutation that generates the nominal torque at the given nominal speed (= max. permissible continuous load current).

7 Stall torque

is the torque produced by the motor when at standstill. Rising motor temperatures reduce stall torque.

8 Stall current

is the quotient from nominal voltage and the motor's terminal resistance. Stall current is equivalent to stall torque.

9 Max. efficiency

is the optimal relationship between input and output power at nominal voltage. It also doesn't always denote the optimal operating point.

10 Terminal resistance phase to phase

is determined through the resistance at 25° C between two connections.

11 Terminal inductance phase to phase

is the winding inductance between two connections. It is measured at 1 kHz, sinusoidal.

12 Torque constant

This may also be referred to as «specific torque» and represents the quotient from generated torque and applicable current.

13 Speed constant

indicates the theoretical no load speed per volt of applied voltage, disregarding friction losses.

14 Speed/torque gradient

The speed/torque gradient is an indicator of the motor's performance. The smaller the value, the more powerful the motor and consequently the less motor speed varies with load variations. It is based on the quotient of ideal no load speed and ideal stall torque (tolerance ± 20%).

15 Mechanical time constant

is the time required for the rotor to accelerate from standstill to 63% of its no load speed.

16 Rotor moment of inertia

is the mass moment of inertia of the rotor, based on the axis of rotation.