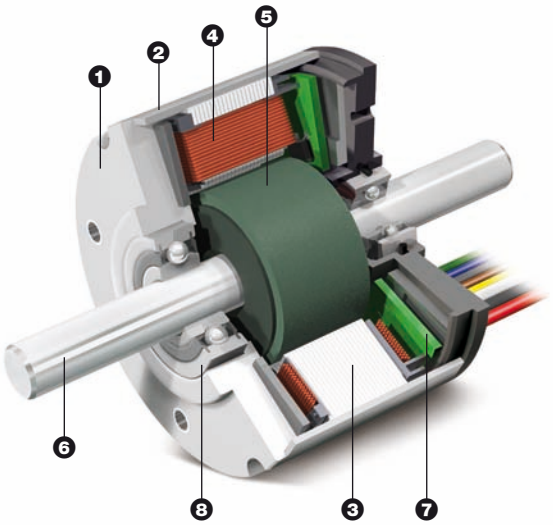
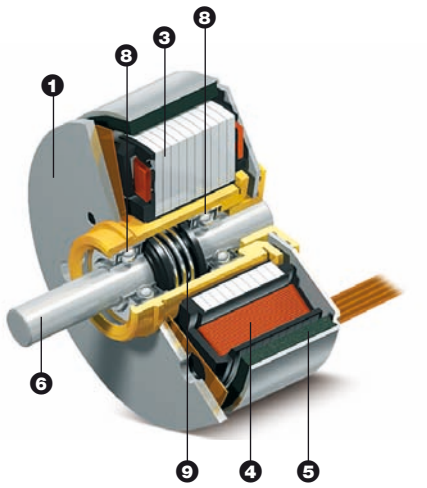




Sinusoidal commutation
Sinusoidal commutation for EC motors with slotted winding is basically possible, provided that an encoder can be mounted. The main benefit of sinusoidal commutation – the smooth operation – only comes into play to a limited degree due to the detent.

Integrated electronics

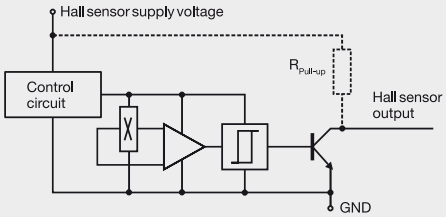
For motors with integrated electronics, the electronic commutation (mostly block commutation with Hall sensors) is built in. A speed controller and other functionalities can also be implemented.

Features
- Simple operation with DC voltage
- Fewer connections than with the EC motor
- No additional electronics required
- Output power reductions possible due to less space for power electronics

Hall sensor circuit

The open collector output of Hall sensors does not normally have its own pull-up resistance, as this is integral in maxon controllers. Any exceptions are specifically mentioned in the relevant motor data sheets.

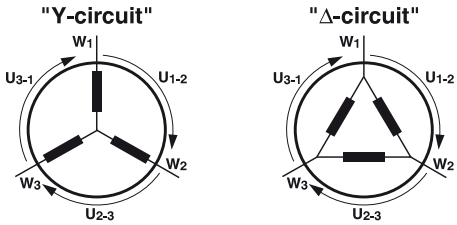
Wiring diagram for Hall sensors



The power consumption of a Hall sensor is typically 4 mA (for output of Hall sensor = “HI”).

Winding arrangement

The winding is divided into 3 partial windings which have several stator teeth each. The partial windings can be connected in two different manners - “Y” or “Δ”. This changes the speed and torque inversely proportional by the factor $\sqrt{3}$.
However, the winding arrangement does not play a decisive role in the selection of the motor. It is important that the motor-specific parameters (speed and torque constants) are in line with requirements. Flat motors and EC-i are normally “Y”-circuited.



The maximum permissible winding temperature is 125°C. (EC-i 155°C).

Legend
❶ Star point
❷ Time delay 30°
❸ Zero crossing of EMF

For further explanations, please see page 137 or “The selection of high-precision microdrives” by Dr. Urs Kafader.