Built-in Encoder Motors

BAE-BMEAV series

Built-in Encoder Motors
Motors with built-in encoder represent a revolutionary component in the automation field providing OEM and end user with new opportunities and with notable economic advantages due to its user-friendly design. The range of three phase asynchronous motors with built-in encoder has been designed specifically to offer to the end user a comprehensive choice of an already widely tested motor with superior quality.
MGM motors with integrated encoder can be divided in two different series of brake motors (BAE/BMEAV) and two series of standard motors without brake (SAE/SMEAV). The power range starts from 0.06 kW up to 90 kW (frame size from 56 up to 280). The unit consists of a three phase asynchronous high efficiency motor with a low moment of inertia and with the encoder located at the Non-Drive side.
Motors are designed to be suitable for inverter use. Precise dynamic balancing together with an accurate motor insulation system are adopted in order to withstand electrical and mechanical stress. The mechanical coupling is the same standard motors (special shaft and flange are available on request), wirings are very simple to be made: power and electrical signal duly separated. MGM motors with integrated encoder can be supplied in conformity with requirements of standards UL 1004 “Electric motors” and CSA C 22.2 No. 100-95 “Motors and generators” (cCSAus approval).

MGM provides 4 different motor series suitable to meet accurately all possible drives challenges.

BAE series: asynchronous end phase fan cooled brake motors with built-in encoder and frame size from 71 up to 280. The encoder is located at the Non-Drive end side in a safe place protected by a well closed cover. Forced ventilation is available on request. The motor is provided as standard with separate brake supply. The brake coil is AC as standard, while DC is available on request.
BMEAV series: asynchronous three phase brake motors with DC brake with axial forced ventilation, built-in encoder and frame size from 63 up to 160. The encoder is located at the Non-Drive end side between the brake and the servo fan. The motor is supplied as standard with separate brake supply. Side manual return brake release is available on request.
SAE series: asynchronous three phase fan cooled motors with built-in encoder and shaft heights between 71 mm and 280 mm. The encoder is located at the Non-Drive end side in a safe place protected by a well closed cover. On request it’s available with forced ventilation.
SMEAV series: asynchronous three phase motors equipped with forced ventilation with built-in encoder and frame size from 71 up to 280. The encoder is located at the Non-Drive end side inside the fan cover between the motor and the forced cooling fan.

Encoder
The encoder is a rotational transducer to convert an angular movement into a series of electrical digital impulses. Usually the encoders used on MGM motors are based on the working principle of the angular movement transduction. The reading system is based on the rotation of a radial graduated disc formed by opaque windows alternated with transparent ones. This system is all illuminated in perpendicular way by an infrared light source, so the light projects the disc image on the surface, which is covered by a grating, having the same step as the disc.
The receiver converts the light variations occurring with the disc shifting into their corresponding electrical variations. Incremental encoder position is determined by the number of impulses from the zero index. Absolute encoder position is determined by an output position code which is univocally determined within each encoder revolution. To identify exactly the needed incremental encoder, the following characteristics have to be indicated:
- Resolution
- Impulse of Zero
- Power supply
- Electronic output configuration

To identify absolute encoders are additionally required:
- Code
- Single turn or Multi turn

The output cable is provided as standard without connector (floating cable). On request a connector can be supplied.
Please contact MGM for further information.

Cooling
Motor cooling is usually assigned to the motor self-cooling fan (BAE and SAE series). BMEAV and SMEAV series are forced cooling motors. On request the BMEAV and SMEAV series motors can be provided without forced ventilation (BME and SME series self-cooled motors).