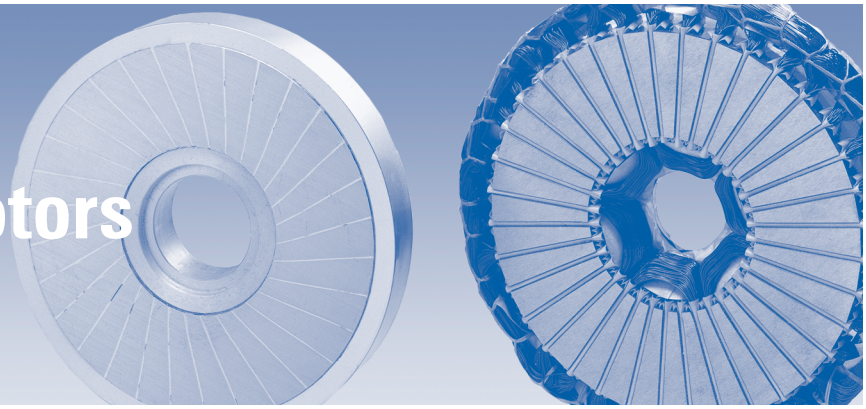
Axial airgap motors



Outputs 0.11kW to 2.2kW

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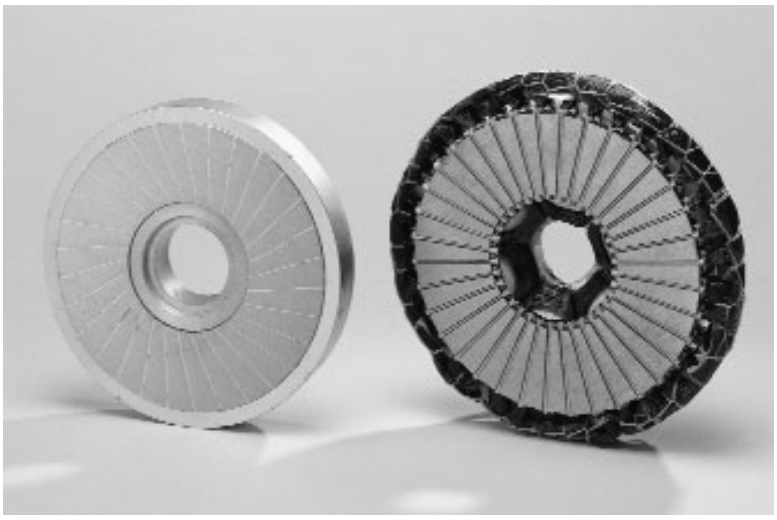
BROOK CROMPTON

Axial airgap motors

The axial airgap motor has been developed by Brook Crompton Special Products (previously Electrodrives), based in Birmingham, England. The motor concept is different from a conventional totally enclosed motor in that it has a very short length, but is larger in diameter (i.e. Pancake). It is an ideal solution for equipment manufacturers requiring compact motors in large batches. The manufacture of the motor required a totally different approach to traditional methods. This is now fully operational at Brook Crompton.



SCOPE OF USE

Essentially the axial airgap motor consists of a wound stator and rotor unit which is developed individually to the customers' requirements. These units are then incorporated into the product as an integrated motor. Alternatively a customised frame can be designed and manufactured, again incorporating the customers' specific mechanical requirements.

The principle advantage of the axial airgap motor lies in its configuration where the overall length provides Original Equipment Manufacturers (OEMs) with competitive advantages for their own products, for example fans where the overall depth of the fan can be significantly reduced. Other applications include: floor cleaners, hoists, pumps and compressors.

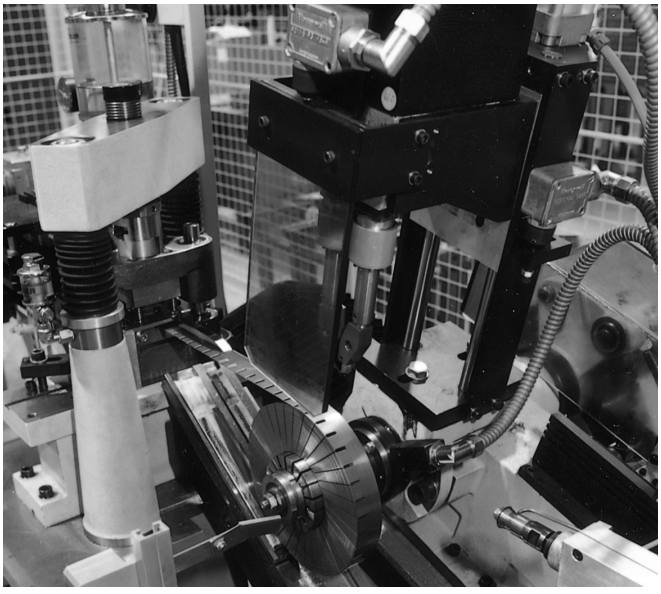
Flexibility in the manufacturing process allows the design engineer increased scope for balancing of specific electrical requirements. For example, application requirements such as torque, noise, or optimisation of efficiencies, can be accommodated.

TECHNICAL CHARACTERISTICS

Three 'frames' are currently available, AAG115, AAG145 and AAG181 (based on the overall diameter of the stator pack). Table 1 details the outputs available for the three phase design.

Outputs from about 100W up to 2.2kW are achieved from this family of three phase motor sizes. The exact performance which can be achieved from each is dependent upon application considerations such as the degree of cooling provided and vary for each integrated drive solution developed. As a guide, the following table indicates the size of active components required for different outputs given a level of cooling equivalent to the TEFV (totally enclosed fan ventilated) arrangement present on most conventional industrial motors.

Information provided here relates to three phase, single speed induction motor designs. This construction is equally suited to single phase, multi-speed or induction generator designs, details of which can be provided upon request. The optimisation of the motor design and the exploitation of opportunities for integration, such as shared bearing arrangements and customised enclosures, benefits from involvement early in the equipment product development cycle and joint development programmes.

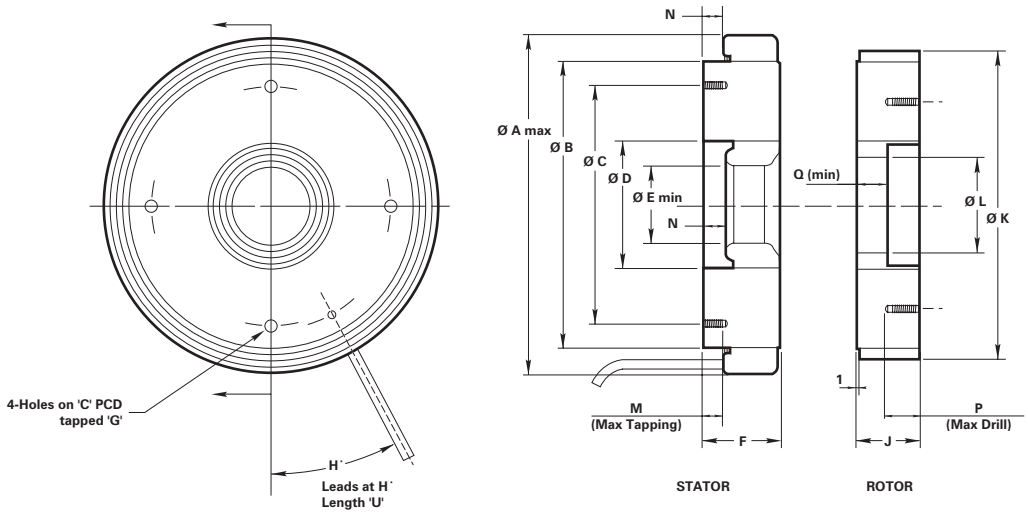


Axial airgap motor core manufacture.

Dimensions

Supply - 380-415V, 3 Phase, 50Hz. Cooling - TEFV arrangement.

Output (kW)	3000 min^{-1} (2 Pole)	1500 min^{-1} (4 Pole)	1000 min^{-1} (6 Pole)	750 min^{-1} (8 Pole)
0.11	AA115	AA115	AA115	AA115
0.18	AA115	AA115	AA115	AA115
0.25	AA115	AA115	AA115	AA145
0.37	AA115	AA115	AA145	AA145
0.55	AA115	AA145	AA145	AA145
0.75	AA145	AA145	AA145	AA181
1.1	AA145	AA145	AA181	-
1.5	AA181	AA181	-	-
2.2	AA181	-	-	-



Dimensions

Type	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	U
AA115	160	115	80	60	20	50	M6	45	30	128	30	18	10	20	8	400
AA145	194	145	105	70	25	50	M6	45	40	152	40	18	10	25	10	400
AA181	233	180	130	80	30	50	M6	45	40	192	50	18	10	25	10	400

Overall axial length occupied by active components = F+J

Notes

All dimensions in millimetres.
Dimensions shown are typical and may be subject to variation dependent upon the exact details of any specific application.

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