



## Macfil Sdn Bhd (832402-V)

No16, Jalan 1/7, Taman Industri Selesa Jaya ,Balakong, 43300 Seri Kembangan, Selangor, Malaysia.  
Tel : +603-8964 5280 / +603-8964 1154 Fax : +603-8964 5380 Email: sales@macfil.com

# Brook Crompton Motor

## W Aluminium Motors



### SPECIFICATION

	Standard Feature	Option
Frame size	63-180	
Enclosure	IP55	IP56, IP65, IP66
Mounting Option	Foot (B3), Flange (B5), Face (B14) or Pad (B30)	Foot & Flange (B35), Foot & Face (B34)
Terminal box position	Top	Right hand side, left hand side
Voltage	3kW and below: 230/400	-
	4kW and below: 400/ 690	-
Frequency	50 Hz	60 Hz
Cooling	IC411	IC410, IC416 & IC418
Bearing Location	Non drive end	Drive end
Lubrication	63- 180 double shielded bearings	-
Insulation	Class F	Class H
Temperature rise	Class B	Class F
Paint colour	Water blue (RAL 5021)	On request
Fan cover	Steel	Plastic
Thermal protection	-	63- 180
Anti condensation heaters	-	63- 180
Drain holes	160- 180	63- 132
Inverter Duty	Variable Torque: 10:1	-
	Constant Torque: 2:1	Alternate speed range
Ambient temperature	-20°C to +40°C	-55°C to +80°C
Brake kit friendly	63- 132 frames	-
AC & DC brake option	63- 132	160 -180



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### W Cast Iron Motors

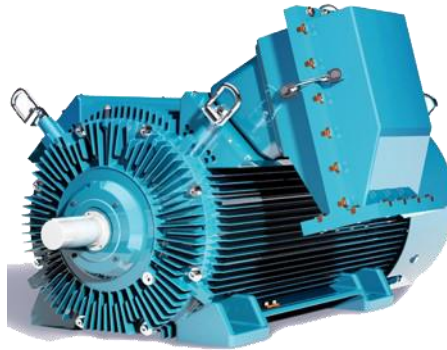


#### SPECIFICATION

	Standard Feature	Option
Frame size	80- 355	
Enclosure	IP55	IP56, IP65, IP66
Mounting Option	Foot (B3), Flange (B5), Face (B14) or Pad (B30)	Foot & Flange (B35), Foot & Face (B34)
Terminal box position	Top, (80 frame right hand side)	Right hand side, left hand side
Voltage	3kW and below: 230/400	-
	4kW and below: 400/ 690	-
Frequency	50 Hz	60 Hz
Cooling	IC411	IC410, IC416 & IC418
Bearing Location	Drive end	Non drive end
Lubrication	63- 180 double shielded bearings	Regreasing facility
	200- 355 regreasing facility	-
Insulation	Class F	Class H
Temperature rise	Class B	Class F
Paint colour	Water blue (RAL 5021)	On request
Fan cover	Steel	Plastic (80- 180)
Thermal protection	200- 355 (by thermistors)	80- 180
Anti condensation heaters	-	80- 355
Drain holes	160- 355	80- 132
Inverter Duty	Variable Torque: 10:1	-
	Constant Torque: 2:1	Alternate speed range
Ambient temperature	-20°C to +40°C	-50°C to +100°C
AC & DC brake option	-	80 -355



## W High Output



### SPECIFICATION W LOW VOLTAGE, HIGH OUTPUT

	Standard Feature	Option
Frame material	315 to 710 cast iron	
Enclosure	IP55	IP56, IP65
Mounting Option	Foot (B3), Foot & Flange (B35)	-
	Flange, shaft down (V1)	-
Terminal box position	Right	Left
Voltage	400/690	-
Frequency	50 Hz/ 60 Hz	-
Cooling	IC411	IC416
Bearing Location	Drive end	Non drive end
Insulation	Class F	Class H
Temperature rise	Class B	Class F (for inverter drive motor)
Paint colour	Water blue (RAL 5021)	-
Ambient temperature	-20°C to 40°C	-
Altitude	Up to 1000m above sea level	-
Inverter Duty (with derate)	Constant torque 2: 1, 5: 1 or 10: 1	Variable torque

### STANDARDS

The W low voltage, high output motors are manufactured to international standards listed below:

Performance	IEC 60034-1
Mounting	IEC 60034- 7
Enclosure protection	IEC 60034- 5
Vibration	IEC 60034- 14
Efficiency	IEC 60034- 2
Cooling	IEC 60034- 6



## Brake Motors



### Specification

Frame sizes	63 to 355
Construction	Aluminium or cast iron
Output	0.07kW to 400kW

Brook Crompton offers the most comprehensive range of brake motors with highly competitive delivery times, due in part to its innovative brake kit concept available on W motors.

### European directives

Three European directives apply in varying degrees to AC induction motors. Brook Crompton comply in the following manner:

Directive	Low voltage (LV)	Machinery (MD)	Electromagnetic compatibility (EMC)
Reference numbers	73/23/EEC	89/392/EEC	89/336/EEC
	93/68/EEC	91/368/EEC	92/31/EEC
		93/44/EEC	93/68/EEC
		93/68/EEC	
Motor CE marked	Yes	Yes	Yes
Brake CE marked	Yes	Yes	Yes
Standards	BS EN 60034	Not applicable	EN 55081 parts 1 and 2
			Emissions
			EN 50082 parts 1 and 2
			Immunity
Documentation for customers' technical file	Declaration of conformity	Certificate of incorporation	Statement*
Safety instruction with every motor	Yes	Yes	Yes
Comment	Relevant electrical equipment operating between 50 to 1000 volts AC	Component	Component

\* Motors operating from a correct applied, sinusoidal (AC) supply meet the requirements of the EMC directive and are within the limits specified in standards EN 50081 and EN 50082 for industrial, (part 2) and residential, commercial and light industrial environments (part 1)



## Brake Motors

### Permitted friction work per stop

The thermal capacity of the brake is given in kj/h and is a function of heat dissipation per stop and number of stops per hour. It is important that the thermal capacity of the brake is not exceeded during the braking period or period per hour. The figures given in the table 6 and 7 are the guidance only and illustrates the maximum kj that can be dissipated in one hour.

Borderline	Brake reference	Frames fitted to	Rated torque $M_{2v}$ Nm	Max switching energy ( $P_{max}$ ) kj/h	Input power ( $P_v$ ) W	Response time		Fiction disc and hub inertia kgcm <sup>2</sup>	Maximum disc speed min <sup>-1</sup>
						t <sub>1</sub> ms	t <sub>2</sub> ms		
08	764	63-80	4	200 <sup>(1)</sup>	23.5	18	30	0.32	10000
10	764	80/90	10	320 <sup>(1)</sup>	26	20	95	1.2	3500
11	764	90/100	20	430 <sup>(1)</sup>	30	30	80	2	3500
13	764	90/132	40	650 <sup>(1)</sup>	40	45	90	6	3500
14	764	112/132	60	800 <sup>(1)</sup>	53	86	84	8	3500
16	764	132/160	80	1000 <sup>(1)</sup>	55	90	190	16	3500
19	764	160/180	150	1200 <sup>(1)</sup>	80	130	270	38	3000
24	764	160/180	240	1400 <sup>(1)</sup>	110	225	236	108	3000
16	NFA/NFF	200/225S	160	96 <sup>(1)</sup>	124	225	355	0.00135 <sup>(2)</sup>	3800
25	NFA/NFF	200-355L	250	125 <sup>(1)</sup>	149	300	370	0.00325 <sup>(2)</sup>	3500
40	NFA/NFF	200-355L	400	216 <sup>(1)</sup>	170	390	380	0.00775 <sup>(2)</sup>	3200
63	NFA/NFF	200-355L	630	288 <sup>(1)</sup>	249	500	400	0.01375 <sup>(2)</sup>	3000
100	NFA/NFF	225M-355L	1000	412 <sup>(1)</sup>	270	640	410	0.0275 <sup>(2)</sup>	2800
160	NFA/NFF	250M-355L	1600	425 <sup>(1)</sup>	325	820	425	0.1492 <sup>(2)</sup>	2200
250	NFA/NFF	280M-355L	2500	450 <sup>(1)</sup>	400	1040	490	0.2385 <sup>(2)</sup>	1900
400	NFA/NFF	315M-355L	4000	448 <sup>(1)</sup>	482	1350	525	0.433 <sup>(2)</sup>	1600

t<sub>1</sub> - response time current OFF DC switchedt<sub>2</sub> - response time current ON<sup>(1)</sup> - one stop per hour, refer to table 8 for a higher number of stops per hour<sup>(2)</sup> - kgcm<sup>2</sup>



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### Series 10



#### SPECIFICATION

	Standard Product	Option
Frame material	56- 160 aluminium	-
	71- 450 cast iron	-
Enclosure	IP55	IP56, IP65
Mounting Option	Foot (B3), Flange (B5), Face (B14)	Foot & Flange (B35), Foot & Face (B34)
Terminal box position	Top	-
Voltage	3kW and below: 230/400	-
	4kW and below: 400/ 690	-
Frequency	50 Hz	60 Hz
Cooling	IC411	-
Bearing Location	56- 160 aluminium- non drive end	-
	71- 450 cast iron- non drive end	-
Lubrication	56- 160 double shielded bearings	-
	180- 450 through greasing	-
Insulation	Class F	-
Temperature rise	Class B	-
Paint colour	Water blue (RAL 5021)	-
Heaters	-	110- 115 volts or 220- 240 volts
Thermal protection- IE2	80*- 112 – Thermostats – aluminium	-
	132- 160 – Thermistors – aluminium	-
	71- 450 – Thermistors - cast iron	-
Inverter Duty (with derate)	Variable Torque: 10:1	-
	Constant Torque: 2:1	-
Ambient temperature	-20°C to +40°C	-

The above specification and option give a brief summary of features available for the Series 10 range.

For a full listing of optional features, please contact Brook Crompton sales.

\*Thermistors on the 80 frame 0.55kW 4 pole



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# Series 10

## SPECIFICATION

	Standard Product	Option
Frame material	80- 160 aluminium	-
	80- 355 cast iron	-
Enclosure	IP55	IP56, IP65
Mounting Option	Foot (B3), Flange (B5), Face (B14)	-
	Foot & Flange (B35), Foot & Face (B34)	-
Terminal box position	Top	-
Voltage	3kW and below: 230/400	-
	4kW and below: 400/ 690	-
Frequency	50 Hz	60 Hz
Cooling	IC411	-
Bearing Location	Aluminium (80- 160): non drive end	-
	Cast iron (80- 355): drive end	-
Lubrication	80- 225: double shielded bearings	-
	250- 355: through greasing	-
Insulation	Class F	-
Temperature rise	Class B	-
Paint colour	Water blue (RAL 5021)	-
Heaters	Aluminium (80-160)	110- 115 volts or 220- 240 volts
	Cast iron (80- 355): 220- 240 volts	110- 115 volts
Thermal protection- IE3	Aluminium (80- 160): Thermistors	-
	Cast iron (80- 355): Thermistors	-
Inverter Duty (with derate)	Variable Torque: 10:1	-
	Constant Torque: 2:1	-
Ambient temperature	-30°C to +40°C	-

The above specification and option give a brief summary of features available for the Series 10 IE3 range.  
For a full listing of optional features, please contact Brook Crompton sales.



## Flameproof Motors - Ex db / eb Zone 1



### SPECIFICATION

	Standard Product	Option
Frame sizes	90- 315	143- 505 (NEMA dimensions)
Protection type	Ex db	Ex db eb
Enclosure	IP55	IP56, IP65, IP66 or IP68
Mounting Option	Foot (B3), Flange (B5), Face (B14) or Pad (B30)	Foot & Flange (B35), Foot & Face (B34)
	Horizontal	Vertical
Terminal box position	Right hand side (frame sizes 90- 180)	Left hand side, Top
	Top (frame sizes 200- 315)	Right hand side, left hand side
Auxiliary box	-	Exdb eb only (frame sizes 160- 315)
Voltage	3kW and below: 220- 240/ 380- 415	-
	4kW and below: 380- 415	-
Frequency	50 Hz	60 Hz
Cooling	IC411	IC410 & IC418
Bearing Location	Non drive end (frame sizes 90- 180)	Drive end
	Drive end (frame sizes 200- 315)	
Lubrication	90- 180 double shielded bearings	-
	200- 315 regreasing facility	-
Insulation	Class F	Class H
Temperature rise	Class B	Class F (T3)
Paint colour	Water blue (RAL 5021)	On request
Thermal protection	200- 315 (by thermistors)	90- 180
Anti condensation heaters	-	90- 315
Inverter Duty <sup>(1)</sup>	Variable Torque: 10:1	Alternative speed range
	Constant Torque: 2:1	Alternative speed range
Ambient temperature	-20°C to +40°C	-50°C to +60°C
Certification	ATEX	IECEX (frames 90- 180)

The above specification and option give a brief summary of features available for the W flameproof range.

For a full listing of optional features, please contact Brook Crompton sales.

<sup>(1)</sup> thermistors & derate for Temperature class





## Increased Safety Motors - Ex e Zone 1



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### Increased Safety Motors

Frame sizes	63 to 355
Construction	Aluminium or cast iron
Output	0.07kW to 400kW

The W Ex e increased safety range of motors covers products with outputs from 0.18kW to 315kW in frame sizes W-DF80M to W-DF355L, in either 2,4,6 or 8 pole speeds.

ATEX approved by SGS Baseefa.

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## Non Sparking Motors - Ex nA Zone 2



### Ex nA CAST IRON SPECIFICATION

	Standard Product	Option
Frame sizes	80- 355 cast iron	71- 180 aluminium
Enclosure	IP55	IP56, IP65, IP66
Mounting Option	Foot (B3), Flange (B5), Face (B14) or Pad (B30)	Foot & Flange (B35), Foot & Face (B34) Vertical options (V1), (V18), (V3) etc
Terminal box position	Top (80 & 90 frame right hand side)	Right hand side, left hand side
Voltage	3kW and below: 220- 240/ 380- 415	-
	4kW and below: 380- 415	-
Frequency	50 Hz	60 Hz
Cooling	IC411	IC410 , IC416 & IC418
Bearing Location	80- 180 non drive end	Drive end
	200- 355 drive end	Non drive end
Lubrication	80- 180 double shielded bearings	Regreasing facility
	200- 355 regreasing facility	-
Insulation	Class F	Class H
Temperature rise	Class B	Class F
Paint colour	Water blue (RAL 5021)	On request
Fan cover	Steel	-
Thermal protection	200- 355 (by thermistors)	80- 180
Anti condensation heaters	-	110- 115V or 220- 240V
Ambient temperature	-20°C to +40°C	-55°C to +60°C

The above specification and option give a brief summary of features available for the W Ex nA iron range.  
For a full listing of optional features, please contact Brook Crompton sales.



## Non Sparking Motors - Ex nA Zone 2

### W Ex nA IE3 CAST IRON SPECIFICATION

	Standard Product	Option
Frame sizes	80- 355 cast iron	71- 180 aluminium
Enclosure	IP55	IP56, IP65, IP66
Mounting Option	Foot (B3), Flange (B5), Face (B14) or Pad (B30)	Foot & Flange (B35), Foot & Face (B34) Vertical options (V1), (V18), (V3) etc
Terminal box position	Top (80 & 90 frame right hand side)	Right hand side, left hand side
Voltage	3kW and below: 230/ 400- IE3	-
	4kW and above: 400/ 690- IE3	-
	3kW and below: 220- 240/ 380- 415 – 8 POLE	-
	4kW and above: 380- 415/ 660- 720 – 8 pole	-
Frequency	50 Hz	60 Hz
Cooling	IC411	IC410 , IC416 & IC418
Bearing Location	80- 180 non drive end	Drive end
	200- 355 drive end	Non drive end
Lubrication	80- 180 double shielded bearings	Regreasing facility
	200- 355 regreasing facility	-
Insulation	Class F	Class H
Temperature rise	Class B	Class F
Paint colour	Water blue (RAL 5021)	On request
Fan cover	Steel	-
Thermal protection	200- 355 (by thermistors)	80- 180
Anti condensation heaters	-	110- 115V or 220- 240V
Ambient temperature	-20°C to +40°C	-55°C to +60°C
The above specification and option give a brief summary of features available for the W Ex nA IE3 iron range. For a full listing of optional features, please contact Brook Crompton sales.		



## Ex tc Zone 22



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### Increased Safety Motors

Frame sizes	80 to 355
Construction	Aluminium or cast iron
Output	0.07kW to 400kW

The W Ex tc dust ignition proof range of motors covers products with outputs from 0.18kW to 400kW in cast iron frame sizes W-DF80M to W-DF355L, in either 2,4,6 or 8 pole spreads (also available in aluminium from 71 to 180 frames).

All relevant products fully comply with the requirements of ATEX.

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# Inverter Drives



Brook Crompton can offer variable speed drive solutions tailored to most applications in a variety of enclosure options, from a basic stand-alone drive (IP22), to a totally enclosed weatherproof solution (IP54).

Variable Speed Drive's are the perfect compliment to a Brook Crompton high efficient electric motor in maximizing energy savings to many applications. A good example of energy saving is variable torque loads (i.e. centrifugal fan / pump) where a 10% speed reduction will result in a 30% energy saving.

## AC MOTORS & VARIABLE SPEED DRIVES

### Variable Speed Drive Motor Duty De- rating Factor:

The factors in the derate table below are applied to the standard motor speed rated output (kW) at 50Hz mains supply to obtain the acceptable motor output (kW) at 50Hz for the application type/ speed range indicated.

Temperature rise	Description	Variable Torque	Constant Torque Self Ventilated					Constant Torque Force Ventilated	Constant Power
			50: 2.5	50: 25	50: 16	50: 10	50: 5		
	Frequency Range (Hz)	50: 2.5	50: 25	50: 16	50: 10	50: 5	50: 2.5	50: 2.5	100: 50
	Speed Range	20: 1	2: 1	3: 1	5: 1	10: 1	20: 1	20: 1	1: 2
Class B (80K)	De- rating Factor	0.94	0.88	0.80	0.73	0.65	0.60	0.94	0.94
Class F (105K)	De- rating Factor	1.04	1.0	0.89	0.80	0.70	0.65	1.04	1.04

Example: A motor with a rated output of 15kW running on a variable torque application with a speed range of 20: 1 and Class B rise, would be rated at 14kW

### Shaft Voltage & Bearing Current:

For variable speed drive operations o motor frame size 280 and above, insulated NDE bearings are fitted, in- line with GAMBICA guidelines.