Keeping Industry Turning

AC Motors & Variable Speed Drives

BROOK CROMPTON
Keeping Industry Turning

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Changes for the Better

20161E

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Introduction

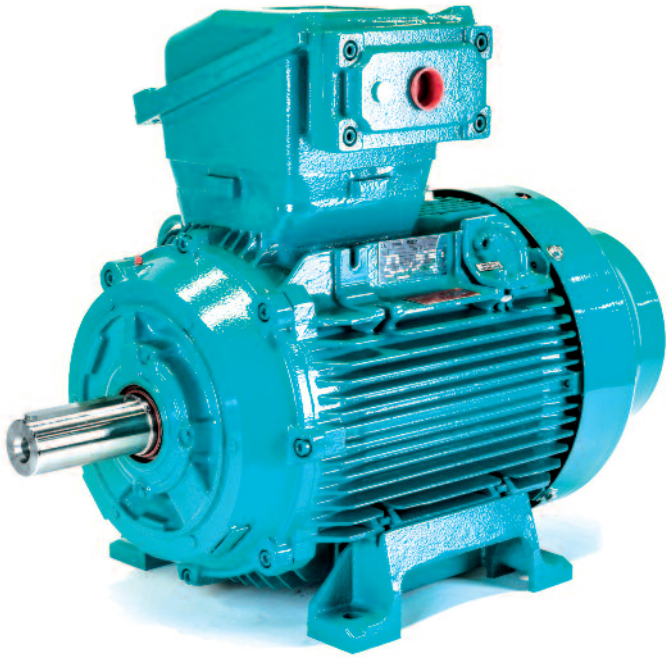
Mitsubishi Electric and Brook Crompton have worked successfully in partnership for many years and have recently strengthened their strategic alliance. The goal of this alliance is always to offer 'Best in Class' Motor and VSD (Variable Speed Drive) combination providing the optimum solution for our customers.
The advanced auto tuning capabilities of the Mitsubishi Electric VSD range mean that they are ideally suited to the premium motor technology offered by Brook Crompton. This combination of class leading technologies means that you can be assured you are purchasing a 'premium matched pair', that will offer the very best energy saving capabilities by utilising, for instance, Mitsubishi Electric's unique AOEC (Advanced Optimum Excitation Control) as well as highest levels of torque performance in vector or advanced sensorless vector.
The motor-drive packages ensure compliance to European Minimum Energy Performance Standard (EU MEPS). High levels of efficiency can be obtained when combining IE3 motors and the latest optimised drive technology. We are happy to offer advice on best practice and our team of consultants are on hand to offer you the best solution and to tailor packages, for example, for hazardous area or braked vector, to suit your needs.
Benefits of this partnership include:

- 3 Year Warranty when purchased as a package with 'W' range motor.
- All Standard drives ex-stock.
- Drives and motors from 'one source'.
- Other drive product ranges available.
- Commissioning and installation services available.
- Pre-installation energy surveys available.
- Built in intelligent drive functionality to offer the best possible energy saving, when matched with a high efficiency Brook Crompton motor.
- Stocks of Brook Crompton's electric motors and Mitsubishi's range of VSD are available 24/7 from qualified, dedicated stockists across the UK.

The Brook Crompton range of AC motors:

Brook Crompton's range of adaptable AC electric motors meet international standards for outputs, performance, dimensions and mounting with efficiency levels that meet the latest ErP directive.
Brook Crompton's range of Safe Area and Ex certified motors are available from 0.09kW to 25MW to the following specifications:

- Variable speed compliant
- Low voltage & High voltage up to 11kV.
- Gas or Dust protection.
- Zone 1 Ex db / db eb
- Zone 2 Ex nA non sparking
- IIB or IIC enclosure classes
- Increased outputs
- Brake motors
- Certified to: ATEX, IECEx, PTB, NEPSI, TestSafe.



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Variable Speed Drive Motor Duty De-rating Factor:

The factors in the derate table below are applied to the standard motor 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
	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 14.1kW

Shaft Voltage & Bearing Current:

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

Variable Speed Drive Selection

The following example shows typical information required when selecting an appropriate drive:

Environmental
Ambient temperature (°C)
Drive location (indoor / outdoor)
IP rating required
Cable distance (Metres)
Space limitation

Application
Type of load
Load torque characteristic (Variable or Constant)
Drive control method (0-10volt / 4-20ma, network)

Power Supply
Voltage supply (V)
Single or Three phase
Supply restrictions
Harmonic mitigation required

Motor Data
Rated Power (kW)
Full load current (A)
Number of poles
Rated Voltage (V)
Rated Frequency (Hz)
Minimum Operating Speed required (rpm)
Maximum Operating Speed required (rpm)

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dh1603/*/**/08/16 20161E Issue 1.1. AC Motors & Variable Speed Drives