



**DBS**

**DYNAMIC BOOSTING SYSTEMS**

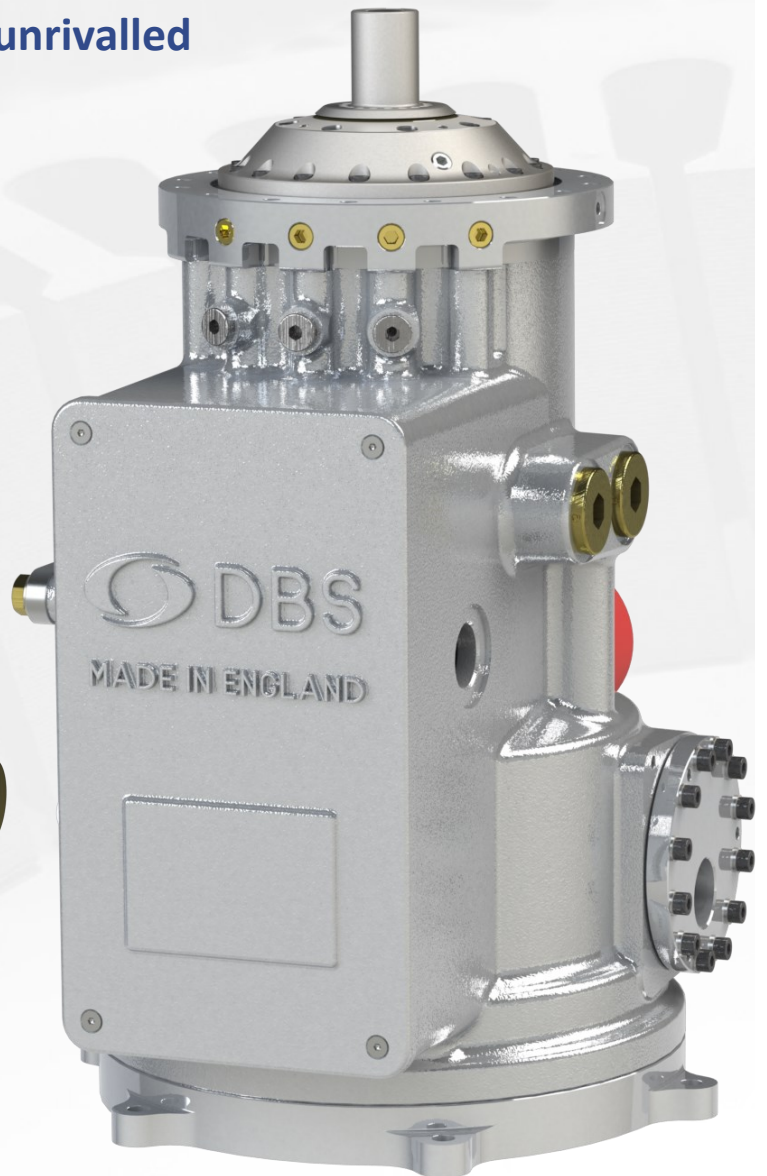
**HIGH-SPEED MOTORS,  
ALTERNATORS & GENERATORS**

# High speed motors, alternators and generators

“Over 100 years of combined experience has gone into producing DBS’s unrivalled electric machine technology”



**M-series**



**IAM-series**

DBS offers its electric machines up to 150 kW and 150,000 rpm and can tailor its designs to suit specific requirements. Its existing IAM-series and M-series ranges offer the following as standard:

CE compliant

IE4 efficiency standard

Liquid-cooled stator

Super-precision bearings

Keyed shaft

Integral electrical box

DBS standard flange face

In-built instrumentation

# Applications

DBS's electric machines can be delivered to meet a wide range of applications. Some of those already addressed are described below:

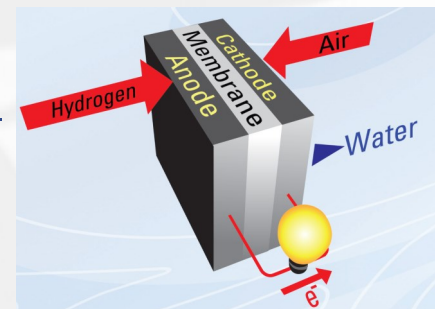


## High-speed precision machining (spindle)

Super-precision bearings are employed to cater for shaft end loads for machining applications.

## Fuel cell air management system

Designs are available for a wide range of voltage requirements whilst retaining the high speed optimised operation.



## Turbocharging and supercharging

Low cost BLDC designs suitable for 12 - 48 DC automotive applications and compatible with the high temperature requirements of EGR.

## Power generation / ORC

Semi-hermetically sealed machines optimised for high efficiency and direct mounting of the expanding turbine.

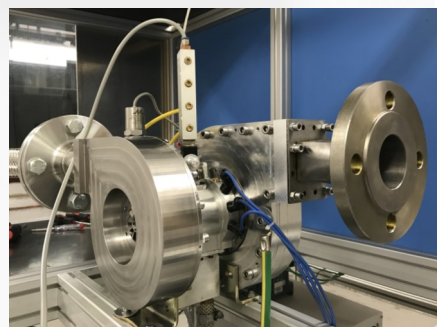


## Turbo compressors

In house developed shaft seal technology for demanding applications and encapsulated motor windings as necessary.

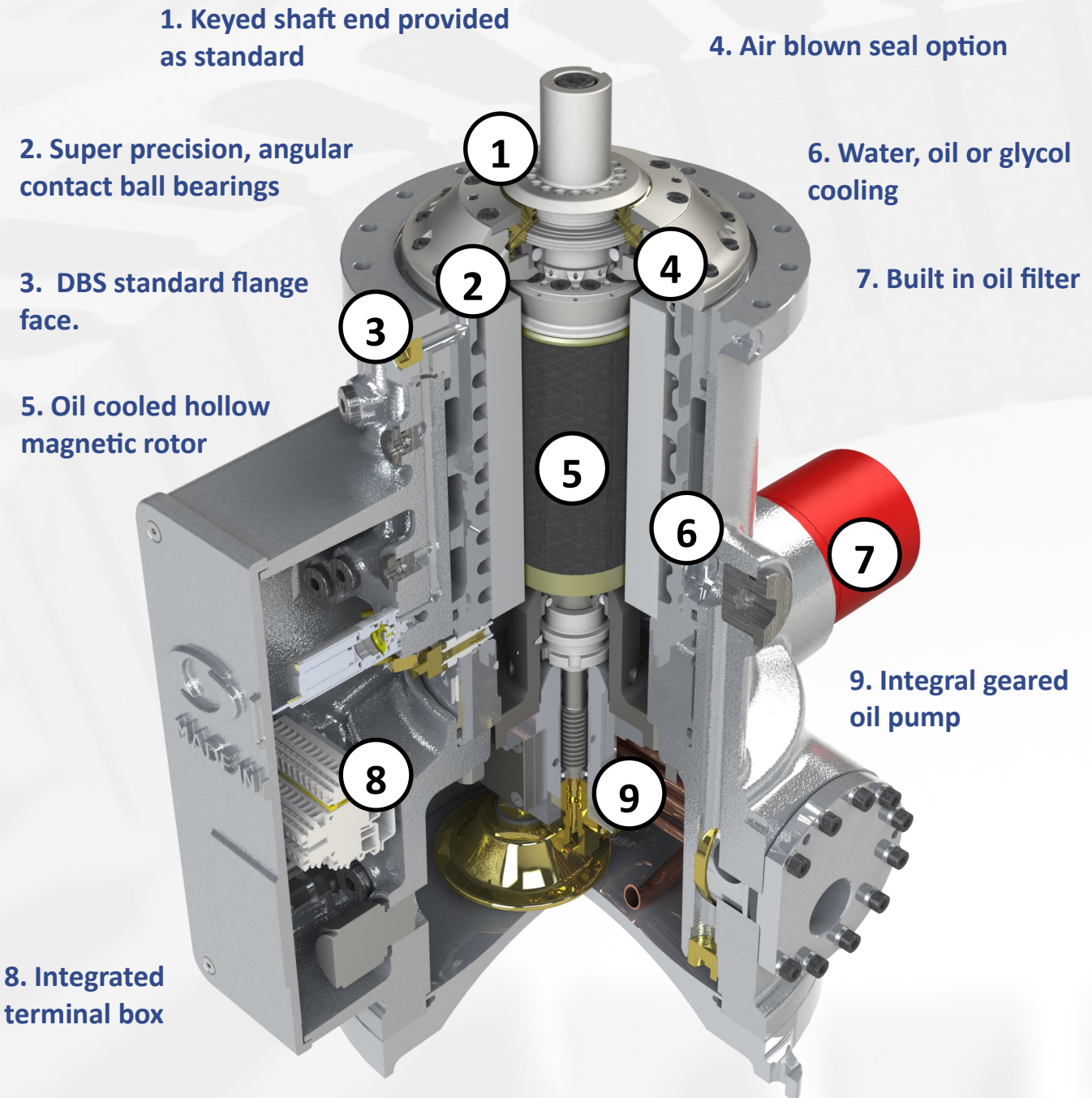
## R&D / motor-generator test bench

Bespoke machines for R&D purposes are available with customer specified interfaces and instrumentation.



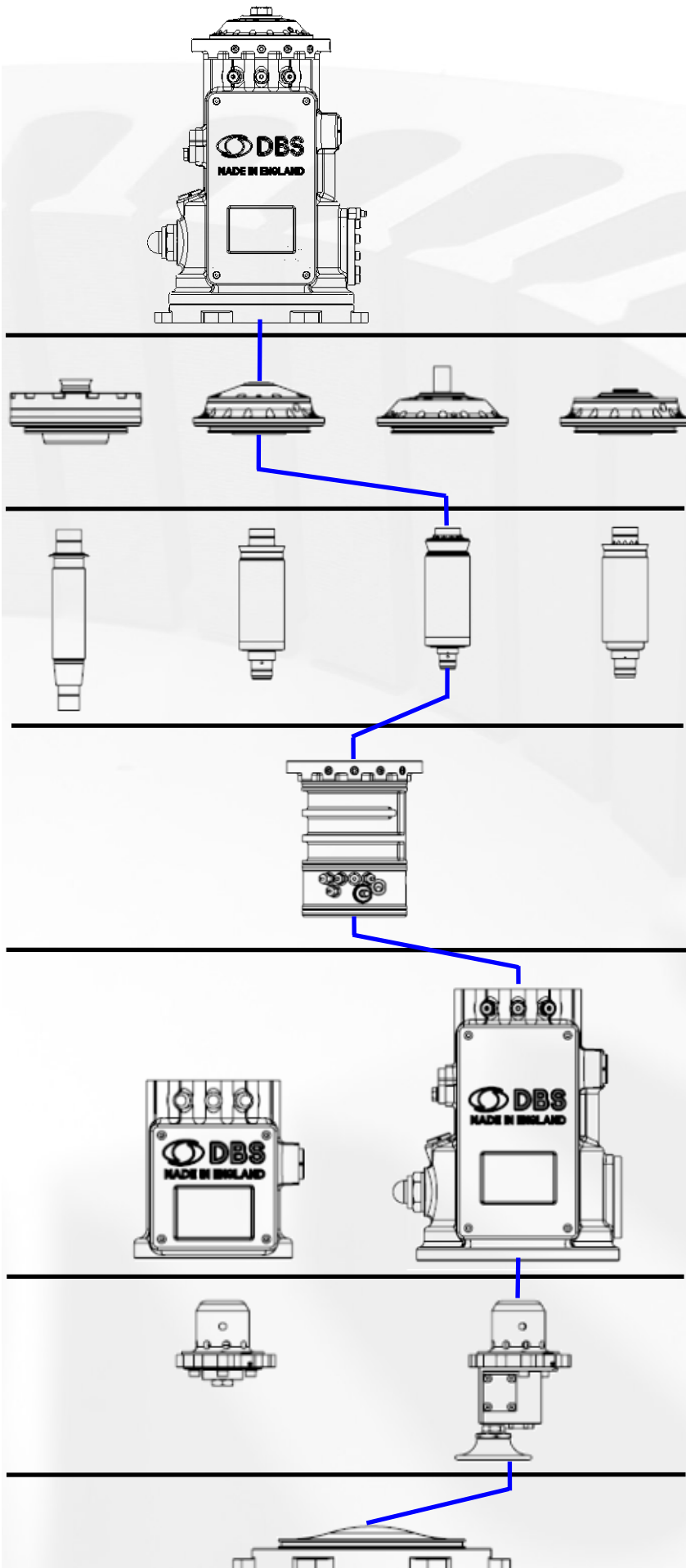
# IAM & M-Series

**IAM-Series:** A range of high speed electric machines with an integrated lubrication system with a large selection of standard options.



**M-Series:** The M-series is equally suitable for motor or generator applications and operates on sealed-for-life grease packed bearings. M-series can be operated at pressure up to 40 bar(g) or under vacuum.

# Modular design



## Bearing & bearing housing:

- Application-specific bearings and housings
- Oil / grease / mag bearings

## Shaft:

- Permanent magnet / Induction
- 2-pole / 4-pole
- Liquid-cooled / air-cooled

## Core and stator:

- Aluminium core
- DC windings
- AC single or 3-phase windings
- DC stator

## Motor body:

- External or Integrated ancillaries
- Semi-hermetically sealed or canned
- Liquid or air-cooled
- Integrated terminal box

## Lubrication system:

- Grease lubrication
- External or integrated oil-pump

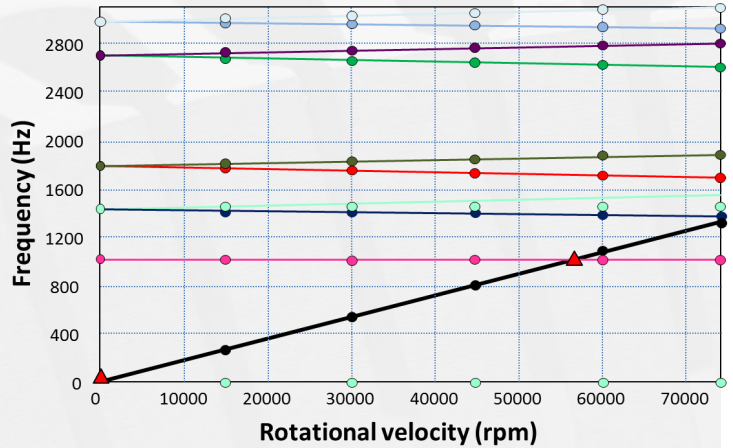
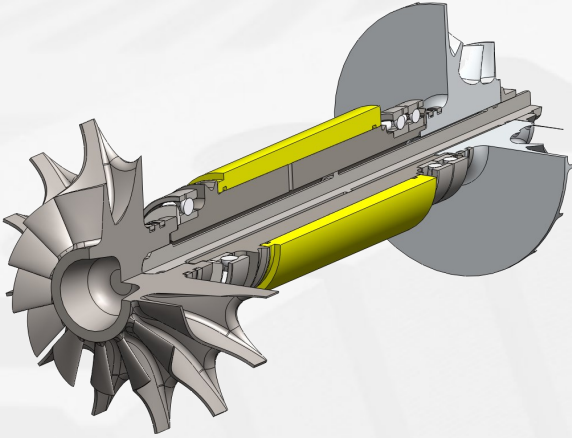
## Foot or flange mounted

# Custom design capabilities

The experienced team at DBS can deliver bespoke electric machines designed to meet specific customer requirements. Our capabilities include:

## Shaft dynamic analysis

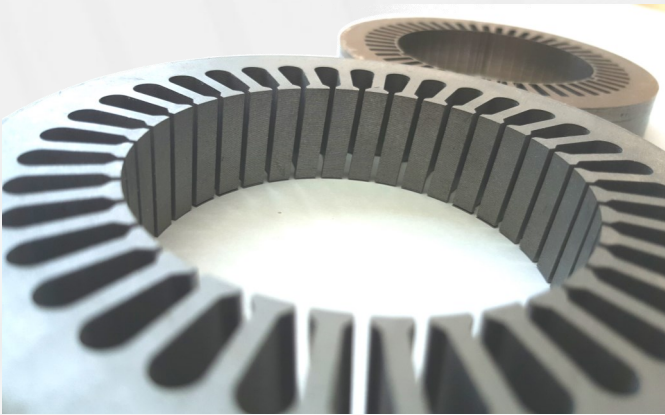
Design, analysis, and optimisation to ensure robust and safe product operation.



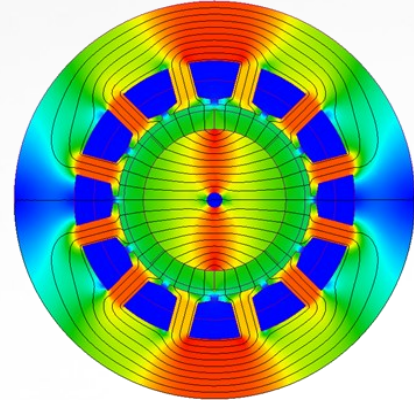
Sample rotordynamic model and Campbell diagram

## Electric machine performance

Simulation software developed in-house for optimised operational performance.



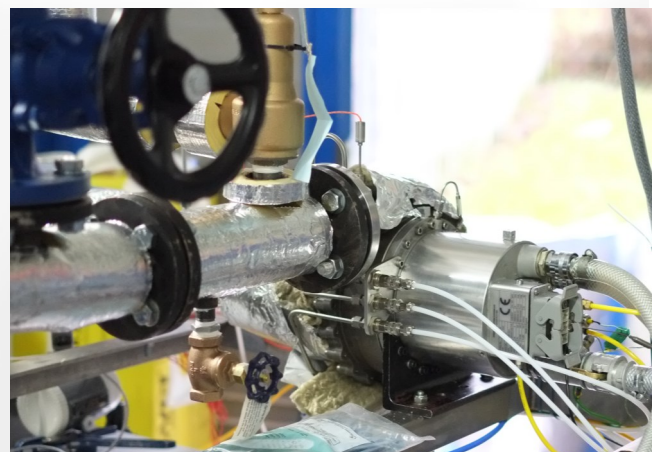
Material selection and lamination design for optimised performance



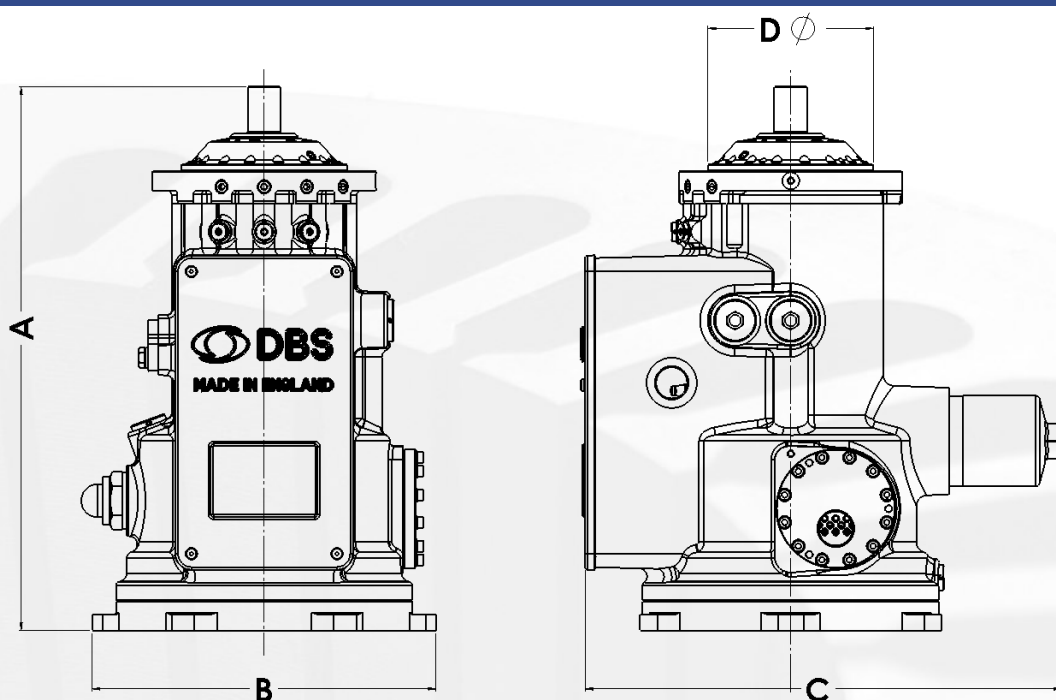
Slotted brushless DC Motor flux distribution at no load

## Production and validation

Production management, in house assembly, commissioning and test validation before delivery.



# IAM-Series data sheet

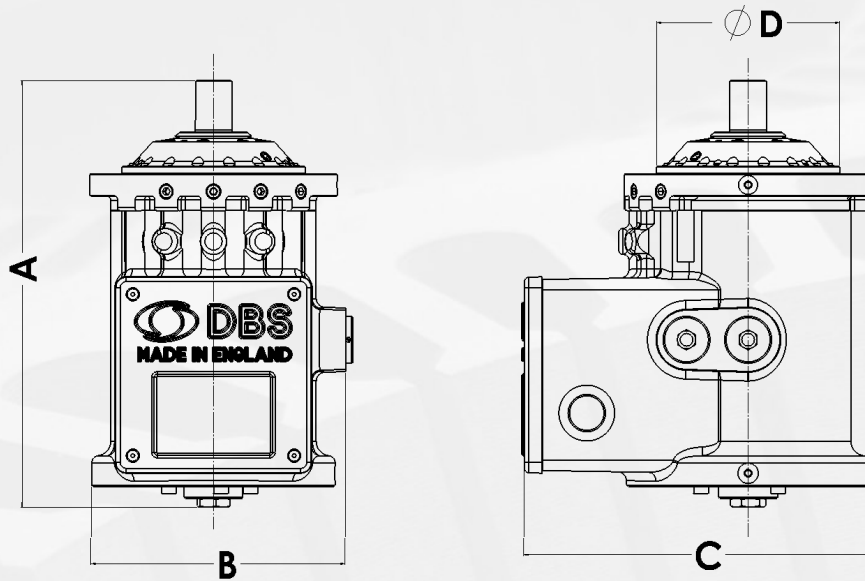


**IAM-Series specification table**

Fame size		IAM80	IAM125	IAM170	IAM240
Power (max)	kW	15	37	75	150
Torque	Nm	1.30	4.71	10.23	47.74
Speed (max)	rpm	110,000	75,000	70,000	30,000
Motor type	Brushless AC, permanent magnet (synchronous)				
Number of poles		2	2	2 / 4	2 / 4 / 6
Dimensions (A x B x C x D)	mm	315 x 215 x 290 x 80	411 x 260 x 361 x 125	503 x 318 x 441 x 170	631 x 399 x 554 x 240
Weight (dry)	kg	~14	~26	~36	~46
Voltage	v	230 / 400*			
Body material	Aluminium				
Pressure rating*	Bar(a)	16 (25 and 41 available on request)			
Orientation	Vertical / horizontal as per Euronorm 60034-7				
Coolant	Water or water-glycol mixture				
<b>Environmental conditions</b>					
Ambient temperature	°C	0 - 60 °C *			
Ambient pressure	Bar(a)	0.1 (lower pressure options available on request)			
Instrumentation	Built in vibration, stator and bearing temperatures.				
Balancing	ISO G6.3 as standard (higher grade of balancing available on request) *				
Lubrication	Grease / oil				

*\* Special options available.*

# M-Series data sheet



**M-Series specification table**

Fame size		M80	M125	M170	M240
Power (max)	kW	10	30	60	150
Torque (max)	N.m	0.73	3.82	8.18	47.74
Speed (max)	rpm	130,000	75,000	70,000	30,000
Motor type	Brushless AC, permanent magnet (synchronous)				
Number of poles		2	2	2 / 4	2 / 4 / 6
Dimensions (A x B x C x D)	mm	205 x 122 x 166 x 80	291 x 173 x 237 x 125	356 x x212 x 289 x 170	446 x 266 x 363 x240
Weight (dry)	kg	~5	~15	~25	~35
Voltage	v	230 / 400*			
Body material		Aluminium			
Pressure rating*	Bar(a)	16 (25 and 41 available on request)			
Orientation		Vertical / horizontal as per Euronorm 60034-7			
Coolant		Air, water or water-glycol mixture			
<b>Environmental conditions</b>					
Ambient temperature	°C	0 - 60 °C *			
Ambient pressure	Bar(a)	0.1 (lower pressure options available on request)			
Instrumentation		Built in vibration, stator and bearing temperatures.			
Balancing		ISO G6.3 as standard (higher grade of balancing available on request) *			
Lubrication		Grease / oil (external system required)			

**\* Special options available.**

This document is for informational purposes only and should not be considered as a binding description of the products or their performance in all applications. The performance data in this document depicts typical performance under controlled conditions. Actual performance may vary depending on the operating environment and application. Contact DBS to confirm suitability of the product for your application.