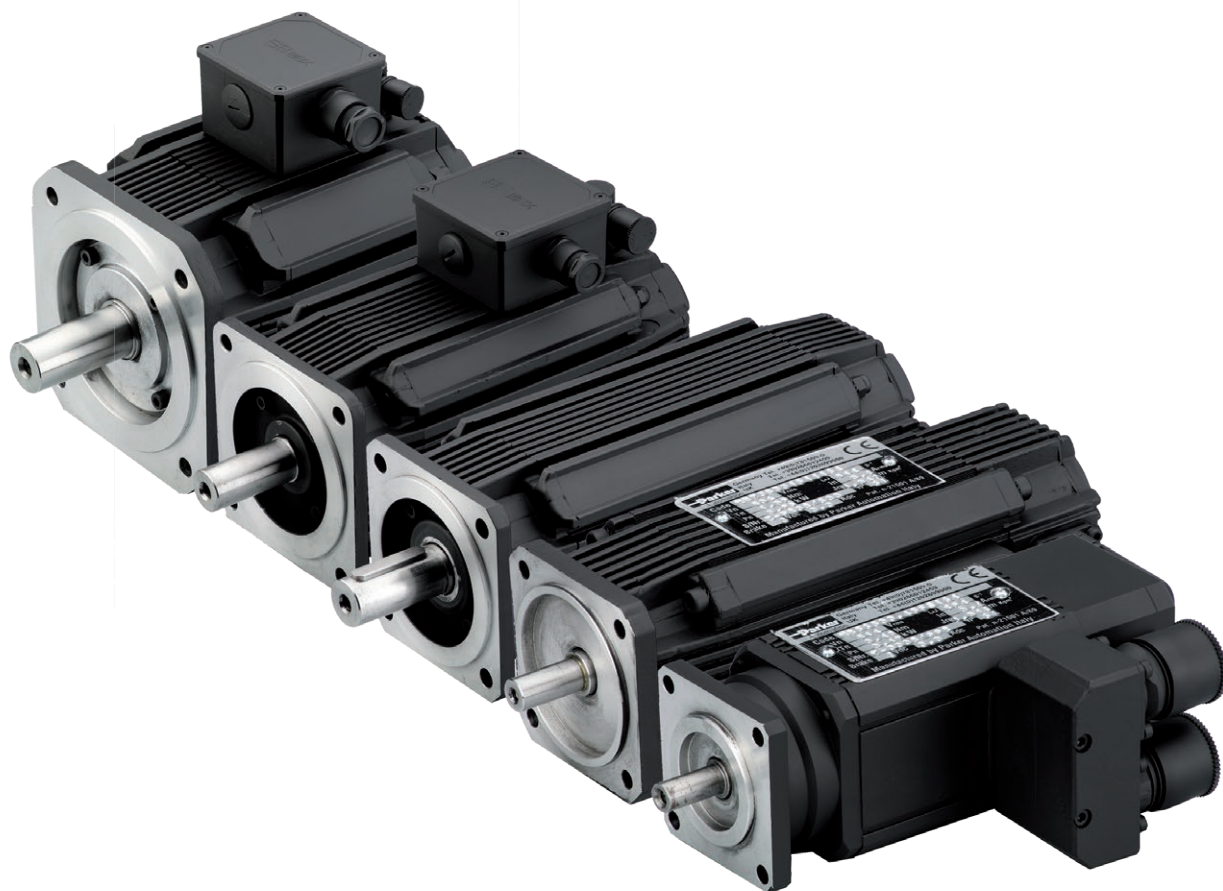




# SERIE MH / MB SERVO MOTORS

Servo Motors from 0.5 to 285 Nm

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# Parker Hannifin

## The global leader in motion and control technologies

### A world class player on a local stage

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Parker Hannifin has more than 40 years experience in the design and manufacturing of drives, controls, motors and mechanical products. With dedicated global product development teams, Parker draws on industry-leading technological leadership and experience from engineering teams in Europe, North America and Asia.

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Dijon, France  
Offenburg, Germany  
Filderstadt, Germany  
Milan, Italy

##### Asia

Wuxi, China  
Jangan, Korea  
Chennai, India

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Irwin, Pennsylvania  
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Milan, Italy



Littlehampton, UK



Filderstadt, Germany



Dijon, France

# Servo Motor - MH / MB

## Overview

### Description

The MH / MB series caters for torques in the range of 0.5 to 285 Nm, speeds up to 10 000 min<sup>-1</sup> and includes a total of 50 models available across 5 frame sizes. Thanks to the high quality and performance of the Neodymium-Iron-Boron magnets, and also the encapsulation method used to fasten them to the shaft, the MH / MB series of motors can achieve very high accelerations and withstand high overload without the risk of demagnetisation or detachment of the magnets.

Furthermore, shaft and flange size flexibility on all models provides the user with the possibility to optimise their motor selection for any given application.

Adequate mechanical over-sizing, low inertia in an extra-strong mechanism and a broad range of models permits the application of the MH / MB series in all fields where high dynamic performance and utmost reliability are crucial features.

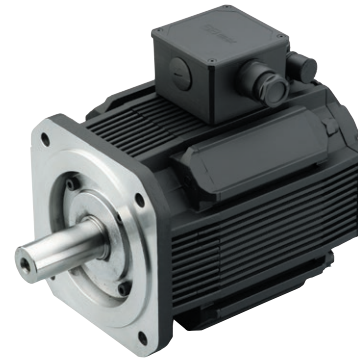
Typical applications include any type of automatic machinery, especially in the product packaging and handling industry, and wherever the demand exists for axis speed and position synchronisation.

### Features

- Large set of feedback option
- Customization
- Increase inertia option
- Options
  - Flying cables
  - Terminal box (power and resolver)
  - External encoder
  - Increased inertia
  - Brake
  - Feedback - resolver/incremental/SinCos/absolute encoder
  - Thermal protection (PTC for MB and KTY compatible for MH)
  - Second shaft

### Application

- Food, Pharma & Beverage
- Packaging Machines
- Material Forming
- Material Handling
- Factory Automation
- Life Science Diagnostic
- Automotive Industry / In-Plant
- Printing Industry
- Textile Machines
- Robotics
- Servo Hydraulic Pumps



### Technical Characteristics - Overview

|                                         |                                                                                                                                                                 |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Motor Type</b>                       | Permanent magnets synchronous servo motor                                                                                                                       |
| <b>Rotor Design</b>                     | Rotor with surface rare earth magnets                                                                                                                           |
| <b>Power supply</b>                     | 230 VAC or 400 VAC                                                                                                                                              |
| <b>Operating temperature</b>            | -10/+40 °C                                                                                                                                                      |
| <b>Number of poles</b>                  | 4 for M_ 70<br>8 for M_ 105-145-205-265                                                                                                                         |
| <b>Power Range</b>                      | 0.05...67 kW                                                                                                                                                    |
| <b>Torque Range</b>                     | 0.2...285 Nm                                                                                                                                                    |
| <b>Speed Range</b>                      | 0...10 000 min <sup>-1</sup>                                                                                                                                    |
| <b>Mounting</b>                         | Flange with smooth holes B14, B3 option                                                                                                                         |
| <b>Shaft End</b>                        | Plain keyed shaft<br>Plain smooth shaft (option)                                                                                                                |
| <b>Cooling</b>                          | Natural ventilation<br>Self-ventilation (option for size 105-145-205)<br>Forced ventilation (option for size 105-145-205)<br>Water cooled (option for size 145) |
| <b>Protection Level (IEC60034-5)</b>    | IP64<br>IP65 (option)                                                                                                                                           |
| <b>Feedback sensor</b>                  | Resolver<br>Absolute EnDat or Hiperface<br>Incremental Encoder                                                                                                  |
| <b>Voltage Supply</b>                   | 230 / 400 VAC                                                                                                                                                   |
| <b>Temperature Class</b>                | Class F                                                                                                                                                         |
| <b>Connections</b>                      | Connectors<br>Flying cables<br>Terminal Box<br>(see table option for combination)                                                                               |
| <b>Marking</b>                          | CE                                                                                                                                                              |
| <b>Standards</b><br>In compliance with: | 73/23/CEE and 93/68/CEE<br>EN60034-1<br>EN60034-5<br>EN60034-5/A1<br>EN60034-9<br>EN60034-14                                                                    |

## Technical Characteristics

### MH / MB Motors, Size 70 - 0.5...2.5 Nm

#### 230 VAC

| Model        | Size | Stall                                     |                      | Nominal                |                        |                       | Peak Torque <sup>(1)</sup> | Inertia                |                        | Ke <sup>(2)(3)</sup> | Kt <sup>(2)(3)</sup>      |
|--------------|------|-------------------------------------------|----------------------|------------------------|------------------------|-----------------------|----------------------------|------------------------|------------------------|----------------------|---------------------------|
|              |      | Torque <sup>(1)</sup>                     | Current              | Torque <sup>(1)</sup>  | Speed                  | Current               |                            | No brake               | With brake             |                      |                           |
|              |      | T <sub>065</sub> (T <sub>105</sub> ) [Nm] | I <sub>065</sub> [A] | T <sub>n065</sub> [Nm] | n [min <sup>-1</sup> ] | I <sub>n065</sub> [A] | T <sub>max</sub> [Nm]      | J [kgmm <sup>2</sup> ] | J [kgmm <sup>2</sup> ] | Ke [Vs]              | Kt [Nm/A <sub>rms</sub> ] |
| M_ 70 20 0,5 | 70   | 0.5 (0.9)                                 | 0.44                 | 0.5                    | 2000                   | 0.43                  | 2.8                        | 26                     | 55                     | 0.67                 | 1.17                      |
| M_ 70 38 0,5 |      |                                           | 0.72                 | 0.4                    | 3800                   | 0.66                  |                            |                        |                        | 0.41                 | 0.71                      |
| M_ 70 75 0,5 |      |                                           | 1.37                 | 0.4                    | 7500                   | 1.00                  |                            |                        |                        | 0.22                 | 0.38                      |
| M_ 70 20 01  |      | 1.0 (1.6)                                 | 0.84                 | 1.0                    | 2000                   | 0.80                  | 5.1                        | 40                     | 69                     | 0.72                 | 1.25                      |
| M_ 70 38 01  |      |                                           | 1.39                 | 0.8                    | 3800                   | 1.23                  |                            |                        |                        | 0.42                 | 0.72                      |
| M_ 70 75 01  |      |                                           | 2.65                 | 0.5                    | 7500                   | 1.43                  |                            |                        |                        | 0.23                 | 0.39                      |
| M_ 70 20 1,5 |      | 1.5 (2.2)                                 | 1.23                 | 1.5                    | 2000                   | 1.18                  | 6.8                        | 54                     | 83                     | 0.73                 | 1.27                      |
| M_ 70 38 1,5 |      |                                           | 2.25                 | 1.4                    | 3800                   | 1.96                  |                            |                        |                        | 0.42                 | 0.72                      |
| M_ 70 75 1,5 |      |                                           | 4.07                 | 0.7                    | 7500                   | 1.85                  |                            |                        |                        | 0.23                 | 0.39                      |
| M_ 70 20 02  |      | 2.0 (2.7)                                 | 1.55                 | 1.9                    | 2000                   | 1.47                  | 8.4                        | 68                     | 97                     | 0.78                 | 1.36                      |
| M_ 70 38 02  |      |                                           | 2.82                 | 1.7                    | 3800                   | 2.40                  |                            |                        |                        | 0.43                 | 0.75                      |
| M_ 70 75 02  |      |                                           | 5.36                 | 0.6                    | 7500                   | 1.74                  |                            |                        |                        | 0.23                 | 0.39                      |
| M_ 70 20 2,5 |      | 2.5 (3.1)                                 | 1.90                 | 2.4                    | 2000                   | 1.82                  | 9.8                        | 81                     | 11                     | 0.79                 | 1.36                      |
| M_ 70 38 2,5 |      |                                           | 3.56                 | 2.1                    | 3800                   | 3.01                  |                            |                        |                        | 0.42                 | 0.73                      |
| M_ 70 75 2,5 |      |                                           | 6.77                 | 0.6                    | 7500                   | 1.77                  |                            |                        |                        | 0.22                 | 0.38                      |

#### 400 VAC

| Model        | Size | Stall                                     |                      | Nominal                |                        |                       | Peak Torque <sup>(1)</sup> | Inertia                |                        | Ke <sup>(2)(3)</sup> | Kt <sup>(2)(3)</sup>      |
|--------------|------|-------------------------------------------|----------------------|------------------------|------------------------|-----------------------|----------------------------|------------------------|------------------------|----------------------|---------------------------|
|              |      | Torque <sup>(1)</sup>                     | Current              | Torque <sup>(1)</sup>  | Speed                  | Current               |                            | No brake               | With brake             |                      |                           |
|              |      | T <sub>065</sub> (T <sub>105</sub> ) [Nm] | I <sub>065</sub> [A] | T <sub>n065</sub> [Nm] | n [min <sup>-1</sup> ] | I <sub>n065</sub> [A] | T <sub>max</sub> [Nm]      | J [kgmm <sup>2</sup> ] | J [kgmm <sup>2</sup> ] | Ke [Vs]              | Kt [Nm/A <sub>rms</sub> ] |
| M_ 70 37 0,5 | 70   | 0.5 (0.9)                                 | 0.44                 | 0.5                    | 3700                   | 0.41                  | 2.8                        | 26                     | 55                     | 0.67                 | 1.17                      |
| M_ 70 70 0,5 |      |                                           | 0.72                 | 0.4                    | 7000                   | 0.55                  |                            |                        |                        | 0.41                 | 0.71                      |
| M_ 70 37 01  |      | 1.0 (1.6)                                 | 0.84                 | 0.9                    | 3700                   | 0.74                  | 5.1                        | 40                     | 69                     | 0.72                 | 1.25                      |
| M_ 70 70 01  |      |                                           | 1.39                 | 0.6                    | 7000                   | 0.85                  |                            |                        |                        | 0.42                 | 0.72                      |
| M_ 70 37 1,5 |      | 1.5 (2.2)                                 | 1.23                 | 1.3                    | 3700                   | 1.07                  | 6.8                        | 54                     | 83                     | 0.73                 | 1.27                      |
| M_ 70 70 1,5 |      |                                           | 2.25                 | 0.8                    | 7000                   | 1.27                  |                            |                        |                        | 0.42                 | 0.72                      |
| M_ 70 37 2,0 |      | 2.0 (2.7)                                 | 1.55                 | 1.7                    | 3700                   | 1.32                  | 8.4                        | 68                     | 97                     | 0.78                 | 1.36                      |
| M_ 70 70 2,0 |      |                                           | 2.82                 | 0.9                    | 7000                   | 1.35                  |                            |                        |                        | 0.43                 | 0.75                      |
| M_ 70 37 2,5 |      | 2.5 (3.1)                                 | 1.90                 | 2.1                    | 3700                   | 1.60                  | 9.8                        | 81                     | 110                    | 0.79                 | 1.36                      |
| M_ 70 70 2,5 |      |                                           | 3.56                 | 1.2                    | 7000                   | 1.73                  |                            |                        |                        | 0.42                 | 0.73                      |

<sup>(1)</sup> Data referred to motor suspend in horizontal position in free still air, 20 °C ambient temperature

<sup>(2)</sup> Data measured at 20 °C. When "hot" consider 5 % derating

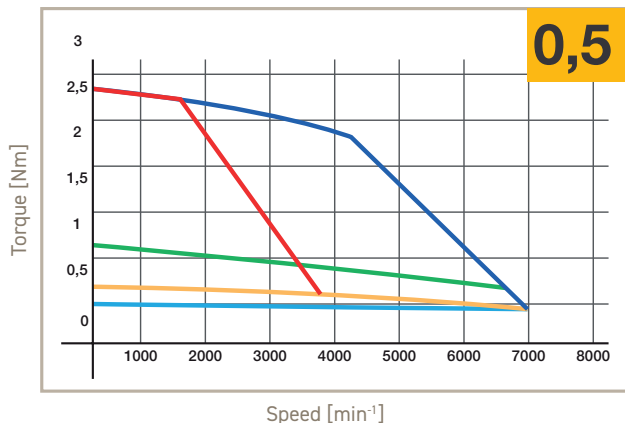
<sup>(3)</sup> Tolerance data ±10 %



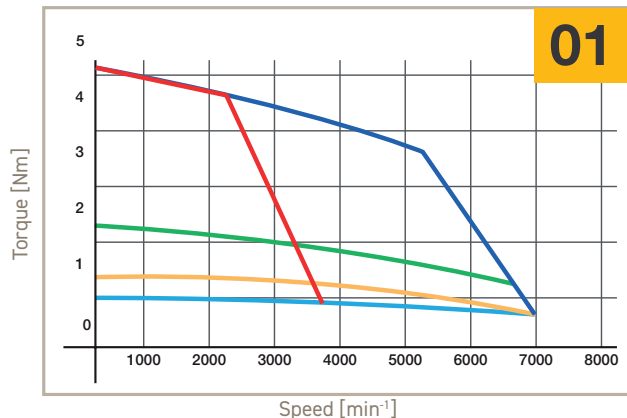
## Speed Torque Curves

### MH/MB70

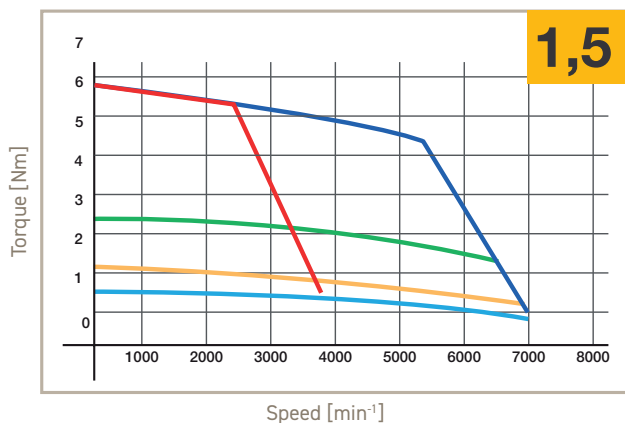
3800 min<sup>-1</sup> 230 V - 7000 min<sup>-1</sup> 400 V



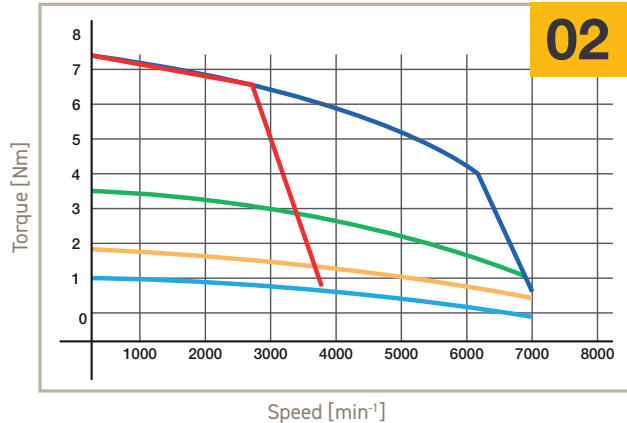
3800 min<sup>-1</sup> 230 V - 7000 min<sup>-1</sup> 400 V



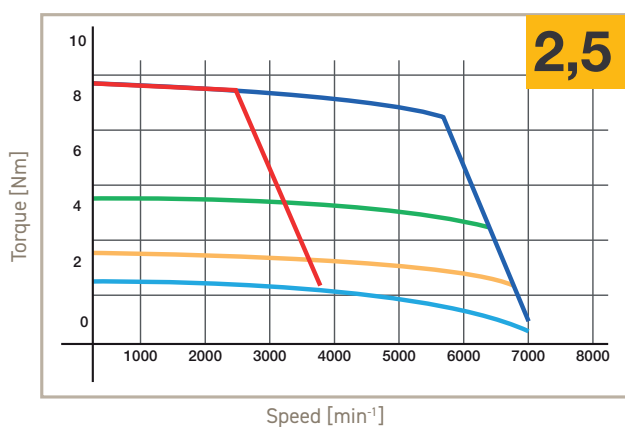
3800 min<sup>-1</sup> 230 V - 7000 min<sup>-1</sup> 400 V



3800 min<sup>-1</sup> 230 V - 7000 min<sup>-1</sup> 400 V



3800 min<sup>-1</sup> 230 V - 7000 min<sup>-1</sup> 400 V



— S1 65 K, ΔT  
— S3 10 %, 5 min, 400 V  
— S3 10 %, 5 min, 230 V  
— S3 50 %, 5 min  
— S3 20 %, 5 min

## MH / MB Motors, Size 105 - 2.2...8 Nm

### 230 VAC

| Model        | Size | Stall                                     |                      | Nominal                |                        |                       | Peak Torque <sup>(1)</sup> | Inertia                |                        | Ke <sup>(2)(3)</sup> | Kt <sup>(2)(3)</sup>      |
|--------------|------|-------------------------------------------|----------------------|------------------------|------------------------|-----------------------|----------------------------|------------------------|------------------------|----------------------|---------------------------|
|              |      | Torque <sup>(1)</sup>                     | Current              | Torque <sup>(1)</sup>  | Speed                  | Current               |                            | No brake               | With brake             |                      |                           |
|              |      | T <sub>065</sub> (T <sub>105</sub> ) [Nm] | I <sub>065</sub> [A] | T <sub>n065</sub> [Nm] | n [min <sup>-1</sup> ] | I <sub>n065</sub> [A] | T <sub>max</sub> [Nm]      | J [kgmm <sup>2</sup> ] | J [kgmm <sup>2</sup> ] | Ke [Vs]              | Kt [Nm/A <sub>rms</sub> ] |
| M_ 105 16 02 | 105  | 2.2 (3.5)                                 | 1.5                  | 2.2                    | 1600                   | 1.4                   | 11.0                       | 190                    | 253                    | 0.9                  | 1.63                      |
| M_ 105 25 02 |      |                                           | 2.1                  | 2.1                    | 2500                   | 2.0                   |                            |                        |                        | 0.6                  | 1.11                      |
| M_ 105 30 02 |      |                                           | 2.8                  | 2.1                    | 3000                   | 2.6                   |                            |                        |                        | 0.5                  | 0.83                      |
| M_ 105 50 02 |      |                                           | 4.3                  | 1.8                    | 5000                   | 3.5                   |                            |                        |                        | 0.3                  | 0.55                      |
| M_ 105 16 04 |      | 4.0 (6.1)                                 | 2.6                  | 4.0                    | 1600                   | 2.5                   | 19.5                       | 340                    | 403                    | 1.0                  | 1.65                      |
| M_ 105 25 04 |      |                                           | 3.8                  | 3.7                    | 2500                   | 3.5                   |                            |                        |                        | 0.7                  | 1.13                      |
| M_ 105 30 04 |      |                                           | 5.0                  | 3.6                    | 3000                   | 4.4                   |                            |                        |                        | 0.5                  | 0.85                      |
| M_ 105 50 04 |      |                                           | 7.4                  | 2.7                    | 5000                   | 5.0                   |                            |                        |                        | 0.3                  | 0.58                      |
| M_ 105 16 06 |      | 6.0 (8.3)                                 | 3.9                  | 5.9                    | 1600                   | 3.7                   | 26.2                       | 480                    | 543                    | 1.0                  | 1.65                      |
| M_ 105 25 06 |      |                                           | 5.6                  | 5.5                    | 2500                   | 5.0                   |                            |                        |                        | 0.7                  | 1.15                      |
| M_ 105 30 06 |      |                                           | 7.4                  | 5.2                    | 3000                   | 6.4                   |                            |                        |                        | 0.5                  | 0.87                      |
| M_ 105 50 06 |      |                                           | 11.2                 | 3.6                    | 5000                   | 6.7                   |                            |                        |                        | 0.3                  | 0.58                      |
| M_ 105 16 08 |      | 8.0 (10.0)                                | 5.2                  | 7.8                    | 1600                   | 5.0                   | 31.7                       | 620                    | 683                    | 1.0                  | 1.65                      |
| M_ 105 25 08 |      |                                           | 7.5                  | 7.2                    | 2500                   | 6.6                   |                            |                        |                        | 0.7                  | 1.15                      |
| M_ 105 30 08 |      |                                           | 9.7                  | 6.8                    | 3000                   | 8.2                   |                            |                        |                        | 0.5                  | 0.88                      |
| M_ 105 50 08 |      |                                           | 14.2                 | 4.4                    | 5000                   | 7.9                   |                            |                        |                        | 0.4                  | 0.61                      |

### 400 VAC

| Model        | Size | Stall                                     |                      | Nominal                |                        |                       | Peak Torque <sup>(1)</sup> | Inertia                |                        | Ke <sup>(2)(3)</sup> | Kt <sup>(2)(3)</sup>      |
|--------------|------|-------------------------------------------|----------------------|------------------------|------------------------|-----------------------|----------------------------|------------------------|------------------------|----------------------|---------------------------|
|              |      | Torque <sup>(1)</sup>                     | Current              | Torque <sup>(1)</sup>  | Speed                  | Current               |                            | No brake               | With brake             |                      |                           |
|              |      | T <sub>065</sub> (T <sub>105</sub> ) [Nm] | I <sub>065</sub> [A] | T <sub>n065</sub> [Nm] | n [min <sup>-1</sup> ] | I <sub>n065</sub> [A] | T <sub>max</sub> [Nm]      | J [kgmm <sup>2</sup> ] | J [kgmm <sup>2</sup> ] | Ke [Vs]              | Kt [Nm/A <sub>rms</sub> ] |
| M_ 105 30 02 | 105  | 2.2 (3.5)                                 | 1.5                  | 2.1                    | 3000                   | 1.4                   | 11.0                       | 190                    | 253                    | 0.9                  | 1.63                      |
| M_ 105 45 02 |      |                                           | 2.1                  | 1.9                    | 4500                   | 1.8                   |                            |                        |                        | 0.6                  | 1.11                      |
| M_ 105 60 02 |      |                                           | 2.8                  | 1.7                    | 6000                   | 2.2                   |                            |                        |                        | 0.5                  | 0.83                      |
| M_ 105 30 04 |      | 4.0 (6.1)                                 | 2.6                  | 3.6                    | 3000                   | 2.3                   | 19.5                       | 340                    | 403                    | 1.0                  | 1.65                      |
| M_ 105 45 04 |      |                                           | 3.8                  | 3.0                    | 4500                   | 2.8                   |                            |                        |                        | 0.7                  | 1.13                      |
| M_ 105 60 04 |      |                                           | 5.0                  | 2.4                    | 6000                   | 3.0                   |                            |                        |                        | 0.5                  | 0.85                      |
| M_ 105 30 06 |      | 6.0 (8.3)                                 | 3.9                  | 5.3                    | 3000                   | 3.4                   | 26.2                       | 480                    | 543                    | 1.0                  | 1.65                      |
| M_ 105 45 06 |      |                                           | 5.6                  | 4.1                    | 4500                   | 3.8                   |                            |                        |                        | 0.7                  | 1.15                      |
| M_ 105 60 06 |      |                                           | 7.4                  | 3.0                    | 6000                   | 3.7                   |                            |                        |                        | 0.5                  | 0.87                      |
| M_ 105 30 08 |      | 8.0 (10.0)                                | 5.2                  | 6.9                    | 3000                   | 4.4                   | 31.7                       | 620                    | 683                    | 1.0                  | 1.65                      |
| M_ 105 45 08 |      |                                           | 7.5                  | 5.2                    | 4500                   | 4.9                   |                            |                        |                        | 0.7                  | 1.15                      |
| M_ 105 60 08 |      |                                           | 9.7                  | 3.6                    | 6000                   | 4.4                   |                            |                        |                        | 0.5                  | 0.88                      |

<sup>(1)</sup> Data referred to motor suspend in horizontal position in free still air, 20 °C ambient temperature

<sup>(2)</sup> Data measured at 20 °C. When "hot" consider 5 % derating

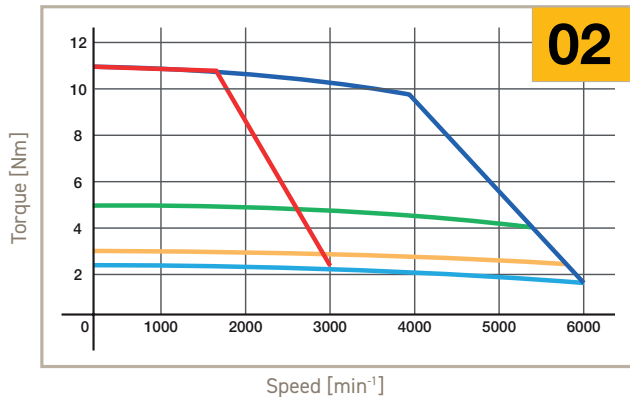
<sup>(3)</sup> Tolerance data ±10 %



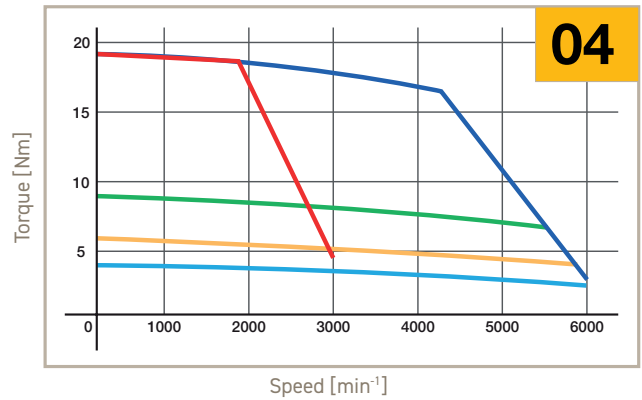
## Speed Torque Curves

### MH/MB105

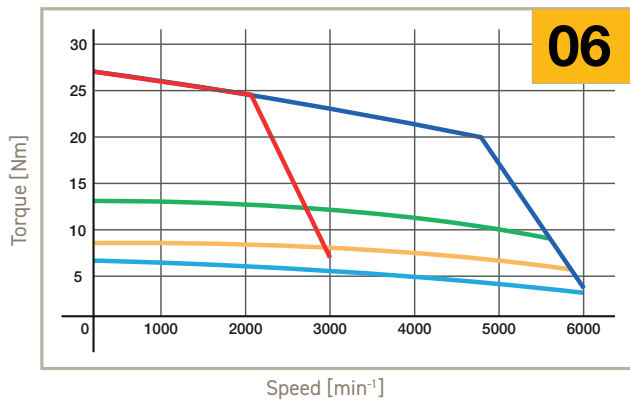
3000 min<sup>-1</sup> 230 V - 6000 min<sup>-1</sup> 400 V



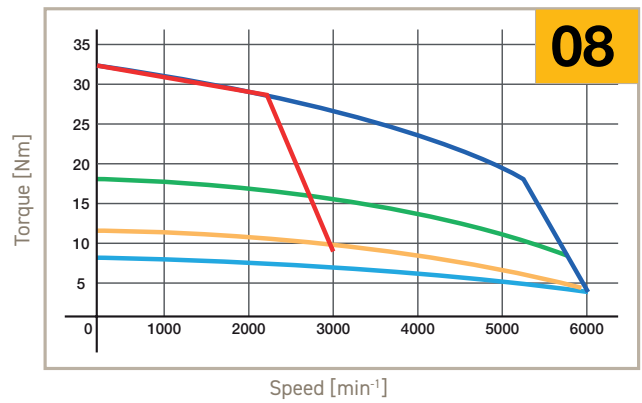
3000 min<sup>-1</sup> 230 V - 6000 min<sup>-1</sup> 400 V



3000 min<sup>-1</sup> 230 V - 6000 min<sup>-1</sup> 400 V



3000 min<sup>-1</sup> 230 V - 6000 min<sup>-1</sup> 400 V



- S1 65 K, ΔT
- S3 10 %, 5 min, 400 V
- S3 10 %, 5 min, 230 V
- S3 50 %, 5 min
- S3 20 %, 5 min

## MH / MB Motors, Size 145 - 4.5...28 Nm

### 230 VAC

| Model         | Size | Stall                                        |                         | Nominal                   |                           |                          | Peak Torque <sup>(1)</sup> | Inertia                   |                           | Ke <sup>(2)(3)</sup> | Kt <sup>(2)(3)</sup>         |
|---------------|------|----------------------------------------------|-------------------------|---------------------------|---------------------------|--------------------------|----------------------------|---------------------------|---------------------------|----------------------|------------------------------|
|               |      | Torque <sup>(1)</sup>                        | Current                 | Torque <sup>(1)</sup>     | Speed                     | Current                  |                            | No brake                  | With brake                |                      |                              |
|               |      | T <sub>065</sub> (T <sub>105</sub> )<br>[Nm] | I <sub>065</sub><br>[A] | T <sub>n065</sub><br>[Nm] | n<br>[min <sup>-1</sup> ] | I <sub>n065</sub><br>[A] | T <sub>max</sub><br>[Nm]   | J<br>[kgmm <sup>2</sup> ] | J<br>[kgmm <sup>2</sup> ] | Ke<br>[Vs]           | Kt<br>[Nm/A <sub>rms</sub> ] |
| M_ 145 5,5 04 | 145  | 4.5<br>(9)                                   | 1.1                     | 4.6                       | 550                       | 1.1                      | 28                         | 780                       | 975                       | 2.1                  | 3.65                         |
| M_ 145 11 04  |      |                                              | 2.3                     | 4.6                       | 1100                      | 2.4                      |                            |                           |                           | 1.2                  | 2.03                         |
| M_ 145 16 04  |      |                                              | 3.4                     | 4.5                       | 1600                      | 3.3                      |                            |                           |                           | 0.8                  | 1.42                         |
| M_ 145 25 04  |      |                                              | 4.7                     | 4.3                       | 2500                      | 4.5                      |                            |                           |                           | 0.6                  | 1.01                         |
| M_ 145 40 04  |      |                                              | 8.1                     | 4.1                       | 4000                      | 7.2                      |                            |                           |                           | 0.4                  | 0.60                         |
| M_ 145 5,5 08 |      | 8.7<br>(16)                                  | 2.0                     | 8.7                       | 550                       | 2.0                      | 49                         | 1050                      | 1245                      | 2.7                  | 4.69                         |
| M_ 145 11 08  |      |                                              | 3.7                     | 8.7                       | 1100                      | 3.6                      |                            |                           |                           | 1.4                  | 2.49                         |
| M_ 145 16 08  |      |                                              | 5.4                     | 8.6                       | 1600                      | 5.2                      |                            |                           |                           | 1.0                  | 1.70                         |
| M_ 145 25 08  |      |                                              | 8.2                     | 8.1                       | 2500                      | 7.4                      |                            |                           |                           | 0.7                  | 1.14                         |
| M_ 145 40 08  |      |                                              | 12.3                    | 7.0                       | 4000                      | 9.7                      |                            |                           |                           | 0.4                  | 0.76                         |
| M_ 145 5,5 15 |      | 15.0<br>(27)                                 | 3.3                     | 15.0                      | 550                       | 3.2                      | 86                         | 1600                      | 1795                      | 2.9                  | 4.94                         |
| M_ 145 11 15  |      |                                              | 6.2                     | 14.7                      | 1100                      | 5.9                      |                            |                           |                           | 1.5                  | 2.59                         |
| M_ 145 16 15  |      |                                              | 9.1                     | 14.3                      | 1600                      | 8.5                      |                            |                           |                           | 1.0                  | 1.78                         |
| M_ 145 25 15  |      |                                              | 14.2                    | 13.6                      | 2500                      | 12.5                     |                            |                           |                           | 0.7                  | 1.14                         |
| M_ 145 40 15  |      |                                              | 21.3                    | 10.9                      | 4000                      | 15.0                     |                            |                           |                           | 0.4                  | 0.76                         |
| M_ 145 5,5 22 |      | 22.0<br>(37)                                 | 4.7                     | 21.9                      | 550                       | 4.6                      | 117                        | 2150                      | 2345                      | 2.9                  | 5.03                         |
| M_ 145 11 22  |      |                                              | 8.9                     | 21.3                      | 1100                      | 8.4                      |                            |                           |                           | 1.5                  | 2.65                         |
| M_ 145 16 22  |      |                                              | 13.1                    | 20.8                      | 1600                      | 12.1                     |                            |                           |                           | 1.0                  | 1.80                         |
| M_ 145 25 22  |      |                                              | 20.8                    | 19.1                      | 2500                      | 17.6                     |                            |                           |                           | 0.7                  | 1.13                         |
| M_ 145 40 22  |      |                                              | 31.1                    | 13.4                      | 4000                      | 18.6                     |                            |                           |                           | 0.4                  | 0.76                         |
| M_ 145 5,5 28 |      | 28.0<br>(45)                                 | 5.9                     | 27.8                      | 550                       | 5.8                      | 143                        | 2700                      | 2895                      | 2.9                  | 5.07                         |
| M_ 145 11 28  |      |                                              | 11.3                    | 26.9                      | 1100                      | 10.6                     |                            |                           |                           | 1.5                  | 2.65                         |
| M_ 145 16 28  |      |                                              | 17.0                    | 26.2                      | 1600                      | 15.5                     |                            |                           |                           | 1.0                  | 1.78                         |
| M_ 145 25 28  |      |                                              | 26.5                    | 23.2                      | 2500                      | 21.4                     |                            |                           |                           | 0.7                  | 1.13                         |
| M_ 145 40 28  |      |                                              | 39.6                    | 14.1                      | 4000                      | 19.7                     |                            |                           |                           | 0.4                  | 0.76                         |

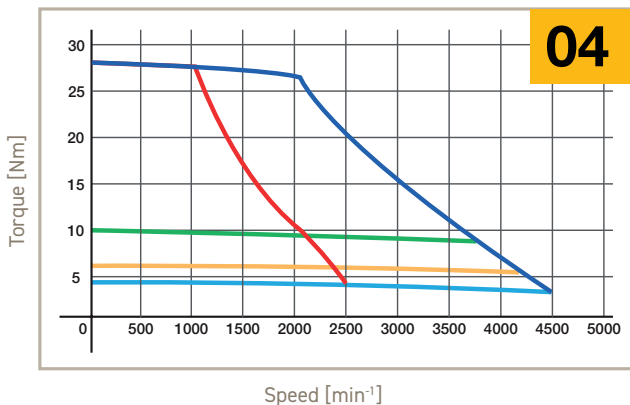
### 400 VAC

| Model        | Size | Stall                                        |                         | Nominal                   |                           |                          | Peak Torque <sup>(1)</sup> | Inertia                   |                           | Ke <sup>(2)(3)</sup> | Kt <sup>(2)(3)</sup>         |
|--------------|------|----------------------------------------------|-------------------------|---------------------------|---------------------------|--------------------------|----------------------------|---------------------------|---------------------------|----------------------|------------------------------|
|              |      | Torque <sup>(1)</sup>                        | Current                 | Torque <sup>(1)</sup>     | Speed                     | Current                  |                            | No brake                  | With brake                |                      |                              |
|              |      | T <sub>065</sub> (T <sub>105</sub> )<br>[Nm] | I <sub>065</sub><br>[A] | T <sub>n065</sub><br>[Nm] | n<br>[min <sup>-1</sup> ] | I <sub>n065</sub><br>[A] | T <sub>max</sub><br>[Nm]   | J<br>[kgmm <sup>2</sup> ] | J<br>[kgmm <sup>2</sup> ] | Ke<br>[Vs]           | Kt<br>[Nm/A <sub>rms</sub> ] |
| M_ 145 10 04 | 145  | 4.5<br>(9)                                   | 1.1                     | 4.5                       | 1000                      | 1.1                      | 28                         | 780                       | 975                       | 2.1                  | 3.65                         |
| M_ 145 20 04 |      |                                              | 2.3                     | 4.5                       | 2000                      | 2.3                      |                            |                           |                           | 1.2                  | 2.03                         |
| M_ 145 30 04 |      |                                              | 3.4                     | 4.3                       | 3000                      | 3.2                      |                            |                           |                           | 0.8                  | 1.42                         |
| M_ 145 45 04 |      |                                              | 4.7                     | 3.9                       | 4500                      | 4.0                      |                            |                           |                           | 0.6                  | 1.01                         |
| M_ 145 10 08 |      | 8.7<br>(16)                                  | 2.0                     | 8.7                       | 1000                      | 1.9                      | 49                         | 1050                      | 1245                      | 2.7                  | 4.69                         |
| M_ 145 20 08 |      |                                              | 3.7                     | 8.4                       | 2000                      | 3.5                      |                            |                           |                           | 1.4                  | 2.49                         |
| M_ 145 30 08 |      |                                              | 5.4                     | 7.9                       | 3000                      | 4.8                      |                            |                           |                           | 1.0                  | 1.70                         |
| M_ 145 45 08 |      |                                              | 8.2                     | 7.1                       | 4500                      | 6.6                      |                            |                           |                           | 0.7                  | 1.14                         |
| M_ 145 10 15 |      | 15.0<br>(27)                                 | 3.3                     | 14.8                      | 1000                      | 3.1                      | 86                         | 1600                      | 1795                      | 2.9                  | 4.94                         |
| M_ 145 20 15 |      |                                              | 6.2                     | 13.7                      | 2000                      | 5.5                      |                            |                           |                           | 1.5                  | 2.59                         |
| M_ 145 30 15 |      |                                              | 9.1                     | 12.7                      | 3000                      | 7.5                      |                            |                           |                           | 1.0                  | 1.78                         |
| M_ 145 45 15 |      |                                              | 14.2                    | 9.8                       | 4500                      | 9.1                      |                            |                           |                           | 0.7                  | 1.14                         |
| M_ 145 10 22 |      | 22.0<br>(37)                                 | 4.7                     | 21.4                      | 1000                      | 4.5                      | 117                        | 2150                      | 2345                      | 2.9                  | 5.03                         |
| M_ 145 20 22 |      |                                              | 8.9                     | 19.4                      | 2000                      | 7.6                      |                            |                           |                           | 1.5                  | 2.65                         |
| M_ 145 30 22 |      |                                              | 13.1                    | 17.3                      | 3000                      | 10.1                     |                            |                           |                           | 1.0                  | 1.80                         |
| M_ 145 45 22 |      |                                              | 20.8                    | 11.6                      | 4500                      | 10.8                     |                            |                           |                           | 0.7                  | 1.13                         |
| M_ 145 10 28 |      | 28.0<br>(45)                                 | 5.9                     | 27.1                      | 1000                      | 5.6                      | 143                        | 2700                      | 2895                      | 2.9                  | 5.07                         |
| M_ 145 20 28 |      |                                              | 11.3                    | 23.9                      | 2000                      | 9.4                      |                            |                           |                           | 1.5                  | 2.65                         |
| M_ 145 30 28 |      |                                              | 17.0                    | 21.1                      | 3000                      | 12.5                     |                            |                           |                           | 1.0                  | 1.78                         |
| M_ 145 45 28 |      |                                              | 26.5                    | 10.0                      | 4500                      | 9.4                      |                            |                           |                           | 0.7                  | 1.13                         |

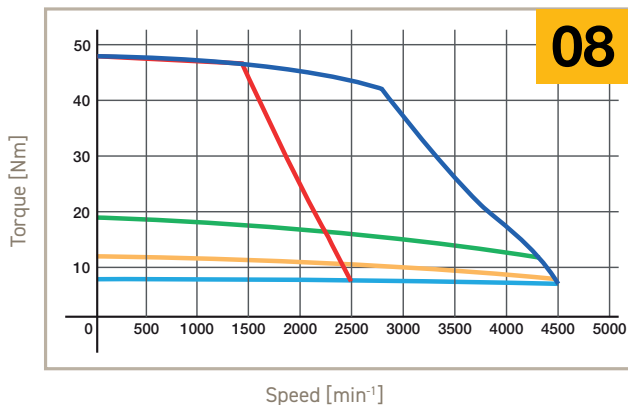
## Speed Torque Curves

### MH/MB145

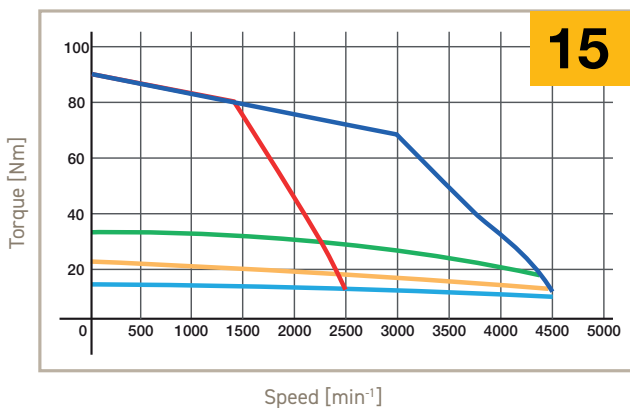
2500 min<sup>-1</sup> 230 V - 4500 min<sup>-1</sup> 400 V



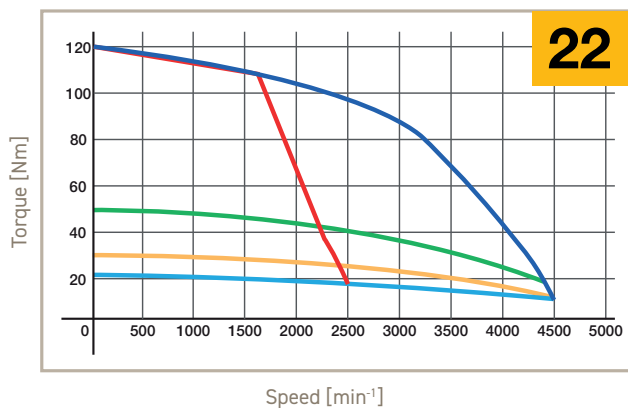
2500 min<sup>-1</sup> 230 V - 4500 min<sup>-1</sup> 400 V



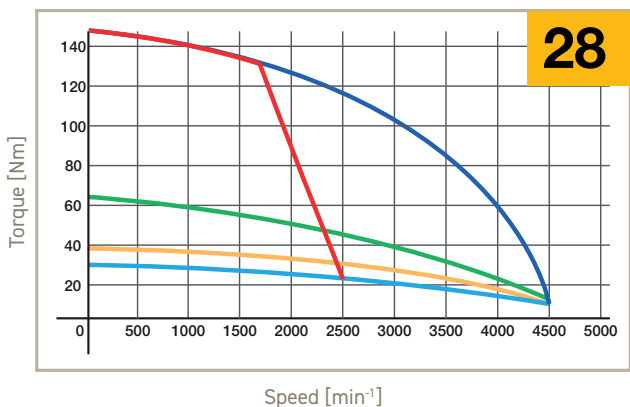
2500 min<sup>-1</sup> 230 V - 4500 min<sup>-1</sup> 400 V



2500 min<sup>-1</sup> 230 V - 4500 min<sup>-1</sup> 400 V



2500 min<sup>-1</sup> 230 V - 4500 min<sup>-1</sup> 400 V



— S1 65 K, ΔT  
— S3 10 %, 5 min, 400 V  
— S3 10 %, 5 min, 230 V  
— S3 50 %, 5 min  
— S3 20 %, 5 min

<sup>(1)</sup> Data referred to motor suspend in horizontal position in free still air, 20 °C ambient temperature

<sup>(2)</sup> Data measured at 20 °C. When "hot" consider 5 % derating

<sup>(3)</sup> Tolerance data ±10 %

## MH / MB Motors, Size 205 - 15...90 Nm

### 230 VAC

| Model         | Size | Stall                                        |                         | Nominal                   |                           |                          | Peak Torque <sup>(1)</sup> | Inertia                   |                           | Ke <sup>(2)(3)</sup> | Kt <sup>(2)(3)</sup>         |
|---------------|------|----------------------------------------------|-------------------------|---------------------------|---------------------------|--------------------------|----------------------------|---------------------------|---------------------------|----------------------|------------------------------|
|               |      | Torque <sup>(1)</sup>                        | Current                 | Torque <sup>(1)</sup>     | Speed                     | Current                  |                            | No brake                  | With brake                |                      |                              |
|               |      | T <sub>065</sub> (T <sub>105</sub> )<br>[Nm] | I <sub>065</sub><br>[A] | T <sub>n065</sub><br>[Nm] | n<br>[min <sup>-1</sup> ] | I <sub>n065</sub><br>[A] | T <sub>max</sub><br>[Nm]   | J<br>[kgmm <sup>2</sup> ] | J<br>[kgmm <sup>2</sup> ] | Ke<br>[Vs]           | Kt<br>[Nm/A <sub>rms</sub> ] |
| M_ 205 11 15  | 205  | 15                                           | 6.3                     | 14.7                      | 1150                      | 6.2                      | 69                         | 3500                      | 4035                      | 1.4                  | 2.38                         |
| M_ 205 17 15  |      | (22)                                         | 8.6                     | 14.4                      | 1700                      | 8.3                      |                            |                           |                           | 1                    | 1.74                         |
| M_ 205 5,5 28 |      | 28<br>(39)                                   | 6.9                     | 28.6                      | 550                       | 6.9                      | 123                        | 5000                      | 5535                      | 2.5                  | 4.35                         |
| M_ 205 11 28  |      |                                              | 13.0                    | 28.2                      | 1150                      | 12.7                     |                            |                           |                           | 1.3                  | 2.31                         |
| M_ 205 17 28  |      |                                              | 20.1                    | 27.6                      | 1700                      | 19.3                     |                            |                           |                           | 0.9                  | 1.50                         |
| M_ 205 5,5 50 |      | 50<br>(70)                                   | 12.4                    | 51.3                      | 550                       | 12.3                     | 222                        | 8000                      | 8535                      | 2.5                  | 4.35                         |
| M_ 205 11 50  |      |                                              | 22.1                    | 50.0                      | 1150                      | 21.3                     |                            |                           |                           | 1.4                  | 2.45                         |
| M_ 205 17 50  |      |                                              | 33.1                    | 48.0                      | 1700                      | 30.8                     |                            |                           |                           | 0.9                  | 1.63                         |
| M_ 205 5,5 70 |      | 70<br>(98)                                   | 16.8                    | 71.1                      | 550                       | 16.5                     | 310                        | 11 000                    | 11 535                    | 2.6                  | 4.49                         |
| M_ 205 11 70  |      |                                              | 30.7                    | 68.6                      | 1150                      | 29.3                     |                            |                           |                           | 1.4                  | 2.45                         |
| M_ 205 17 70  |      |                                              | 46.1                    | 65.0                      | 1700                      | 41.7                     |                            |                           |                           | 0.9                  | 1.63                         |
| M_ 205 5,5 90 |      | 90<br>(126)                                  | 22.1                    | 90.9                      | 550                       | 21.8                     | 398                        | 14 000                    | 14 535                    | 2.5                  | 4.35                         |
| M_ 205 11 90  |      |                                              | 44.3                    | 87.0                      | 1150                      | 41.8                     |                            |                           |                           | 1.3                  | 2.18                         |
| M_ 205 17 90  |      |                                              | 59                      | 81.7                      | 1700                      | 52.4                     |                            |                           |                           | 0.9                  | 1.63                         |

### 400 VAC

| Model        | Size | Stall                                        |                         | Nominal                   |                           |                          | Peak Torque <sup>(1)</sup> | Inertia                   |                           | Ke <sup>(2)(3)</sup> | Kt <sup>(2)(3)</sup>         |
|--------------|------|----------------------------------------------|-------------------------|---------------------------|---------------------------|--------------------------|----------------------------|---------------------------|---------------------------|----------------------|------------------------------|
|              |      | Torque <sup>(1)</sup>                        | Current                 | Torque <sup>(1)</sup>     | Speed                     | Current                  |                            | No brake                  | With brake                |                      |                              |
|              |      | T <sub>065</sub> (T <sub>105</sub> )<br>[Nm] | I <sub>065</sub><br>[A] | T <sub>n065</sub><br>[Nm] | n<br>[min <sup>-1</sup> ] | I <sub>n065</sub><br>[A] | T <sub>max</sub><br>[Nm]   | J<br>[kgmm <sup>2</sup> ] | J<br>[kgmm <sup>2</sup> ] | Ke<br>[Vs]           | Kt<br>[Nm/A <sub>rms</sub> ] |
| M_ 205 20 15 | 205  | 15                                           | 6.3                     | 14.1                      | 2000                      | 5.9                      | 69                         | 3500                      | 4035                      | 1.4                  | 2.38                         |
| M_ 205 30 15 |      | (22)                                         | 8.6                     | 13.4                      | 3000                      | 7.7                      |                            |                           |                           | 1                    | 1.74                         |
| M_ 205 10 28 |      | 28<br>(39)                                   | 6.9                     | 28.2                      | 1000                      | 6.8                      | 123                        | 5000                      | 5535                      | 2.5                  | 4.35                         |
| M_ 205 20 28 |      |                                              | 13.0                    | 27.3                      | 2000                      | 12.3                     |                            |                           |                           | 1.3                  | 2.31                         |
| M_ 205 30 28 |      |                                              | 20.1                    | 25.7                      | 3000                      | 18.0                     |                            |                           |                           | 0.9                  | 1.50                         |
| M_ 205 10 50 |      | 50<br>(70)                                   | 12.4                    | 50.4                      | 1000                      | 12.1                     | 222                        | 8000                      | 8535                      | 2.5                  | 4.35                         |
| M_ 205 20 50 |      |                                              | 22.1                    | 47.0                      | 2000                      | 20.1                     |                            |                           |                           | 1.4                  | 2.45                         |
| M_ 205 30 50 |      |                                              | 33.1                    | 41.7                      | 3000                      | 26.8                     |                            |                           |                           | 0.9                  | 1.63                         |
| M_ 205 10 70 |      | 70<br>(98)                                   | 16.8                    | 69.4                      | 1000                      | 16.1                     | 310                        | 11 000                    | 11 535                    | 2.6                  | 4.49                         |
| M_ 205 20 70 |      |                                              | 30.7                    | 62.9                      | 2000                      | 26.9                     |                            |                           |                           | 1.4                  | 2.45                         |
| M_ 205 30 70 |      |                                              | 46.1                    | 52.3                      | 3000                      | 33.7                     |                            |                           |                           | 0.9                  | 1.63                         |
| M_ 205 10 90 |      | 90<br>(126)                                  | 22.1                    | 88.2                      | 1000                      | 21.2                     | 398                        | 14 000                    | 14 535                    | 2.5                  | 4.35                         |
| M_ 205 20 90 |      |                                              | 44.3                    | 78.3                      | 2000                      | 37.7                     |                            |                           |                           | 1.3                  | 2.18                         |
| M_ 205 30 90 |      |                                              | 59.0                    | 61.6                      | 3000                      | 39.7                     |                            |                           |                           | 0.9                  | 1.63                         |

<sup>(1)</sup> Data referred to motor suspend in horizontal position in free still air, 20 °C ambient temperature

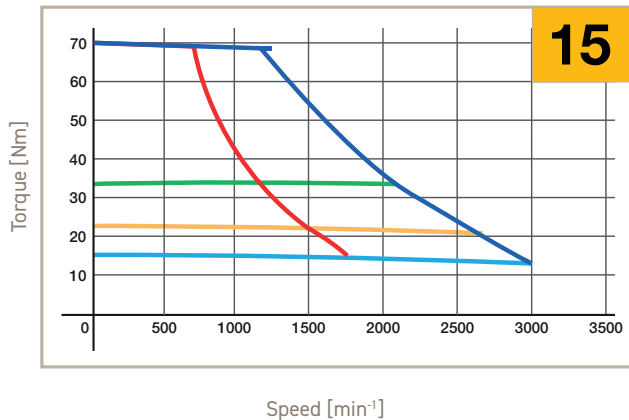
<sup>(2)</sup> Data measured at 20 °C. When "hot" consider 5 % derating

<sup>(3)</sup> Tolerance data ±10 %

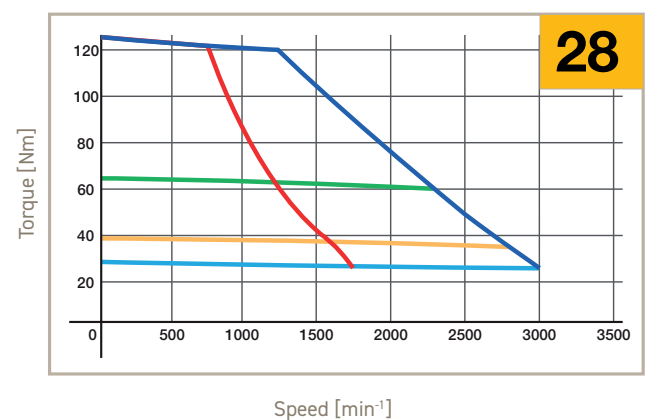
## Speed Torque Curves

### MH/MB205

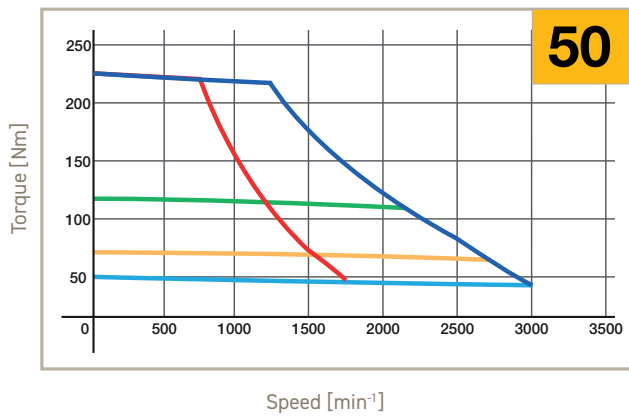
1700 min<sup>-1</sup> 230 V - 3000 min<sup>-1</sup> 400 V



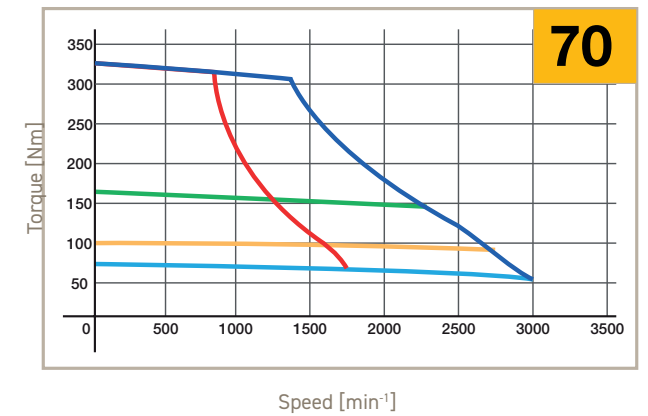
1700 min<sup>-1</sup> 230 V - 3000 min<sup>-1</sup> 400 V



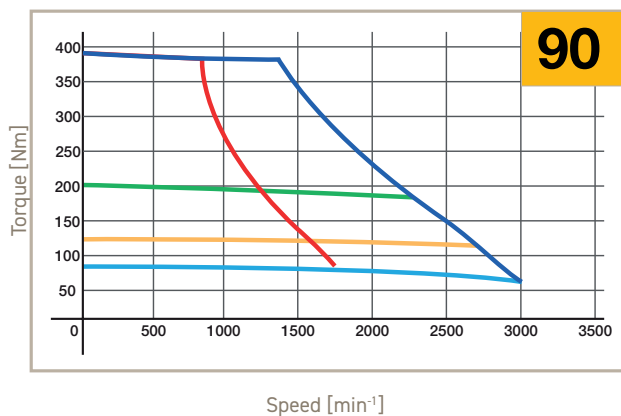
1700 min<sup>-1</sup> 230 V - 3000 min<sup>-1</sup> 400 V



1700 min<sup>-1</sup> 230 V - 3000 min<sup>-1</sup> 400 V



1700 min<sup>-1</sup> 230 V - 3000 min<sup>-1</sup> 400 V



- S1 65 K, ΔT
- S3 10 %, 5 min, 400 V
- S3 10 %, 5 min, 230 V
- S3 50 %, 5 min
- S3 20 %, 5 min

## MH / MB Motors, Size 265 - 75...270 Nm

### 400 VAC

| Model         | Size | Stall                                        |                         | Nominal                   |                           |                          | Peak Torque <sup>(1)</sup> | Inertia                   |                           | Ke <sup>(2)(3)</sup> | Kt <sup>(2)(3)</sup>         |
|---------------|------|----------------------------------------------|-------------------------|---------------------------|---------------------------|--------------------------|----------------------------|---------------------------|---------------------------|----------------------|------------------------------|
|               |      | Torque <sup>(1)</sup>                        | Current                 | Torque <sup>(1)</sup>     | Speed                     | Current                  |                            | No brake                  | With brake                |                      |                              |
|               |      | T <sub>065</sub> (T <sub>105</sub> )<br>[Nm] | I <sub>105</sub><br>[A] | T <sub>n105</sub><br>[Nm] | n<br>[min <sup>-1</sup> ] | I <sub>n105</sub><br>[A] | T <sub>max</sub><br>[Nm]   | J<br>[kgmm <sup>2</sup> ] | J<br>[kgmm <sup>2</sup> ] | Ke<br>[Vs]           | Kt<br>[Nm/A <sub>rms</sub> ] |
| M_ 265 10 75  | 265  | 75 (95)                                      | 17.8                    | 94                        | 1000                      | 17.6                     | 240                        | 22 000                    | 30 100                    | 3.08                 | 5.33                         |
| M_ 265 20 75  |      |                                              | 35.6                    | 92                        | 2000                      | 34.5                     |                            |                           |                           | 1.54                 | 2.67                         |
| M_ 265 30 75  |      |                                              | 55.3                    | 87                        | 3000                      | 48.8                     |                            |                           |                           | 1.03                 | 1.78                         |
| M_ 265 10 150 |      | 145 (175)                                    | 32.8                    | 175                       | 1000                      | 32.8                     | 480                        | 36 000                    | 44 100                    | 3.08                 | 5.33                         |
| M_ 265 20 150 |      |                                              | 73.7                    | 170                       | 2000                      | 71.6                     |                            |                           |                           | 1.37                 | 2.37                         |
| M_ 265 30 150 |      |                                              | 98.1                    | 144                       | 3000                      | 80.7                     |                            |                           |                           | 1.03                 | 1.78                         |
| M_ 265 10 220 |      | 205 (255)                                    | 47.8                    | 254                       | 1000                      | 47.6                     | 695                        | 49 000                    | 61 960                    | 3.08                 | 5.33                         |
| M_ 265 20 220 |      |                                              | 95.6                    | 231                       | 2000                      | 86.6                     |                            |                           |                           | 1.54                 | 2.67                         |
| M_ 265 30 220 |      |                                              | 143                     | 185                       | 3000                      | 104                      |                            |                           |                           | 1.03                 | 1.78                         |
| M_ 265 10 285 |      | 270 (330)                                    | 69.5                    | 325                       | 1000                      | 68.5                     | 900                        | 63 000                    | 75 960                    | 2.74                 | 4.75                         |
| M_ 265 20 285 |      |                                              | 139                     | 288                       | 2000                      | 121                      |                            |                           |                           | 1.37                 | 2.37                         |
| M_ 265 30 285 |      |                                              | 185                     | 215                       | 3000                      | 151                      |                            |                           |                           | 1.03                 | 1.78                         |

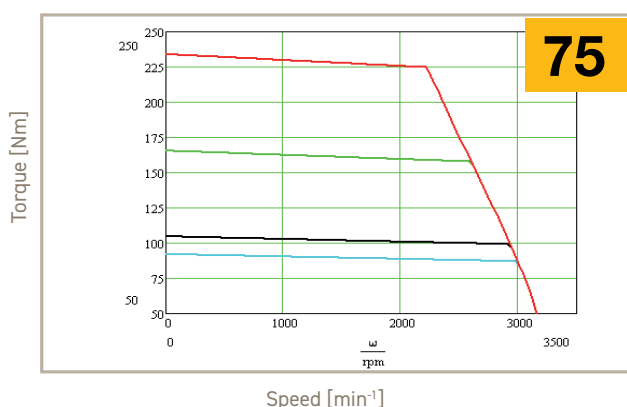
<sup>(1)</sup> Data referred to motor suspend in horizontal position in free still air, 20 °C ambient temperature

<sup>(2)</sup> Data measured at 20 °C. When "hot" consider 5 % derating

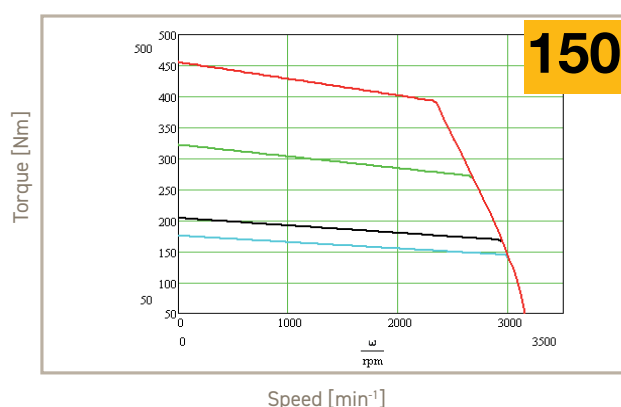
<sup>(3)</sup> Tolerance data ±10 %

### Speed Torque Curves

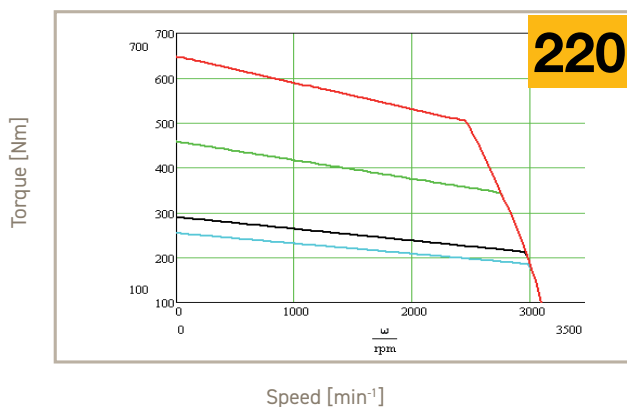
#### 3000 min<sup>-1</sup> 400 V



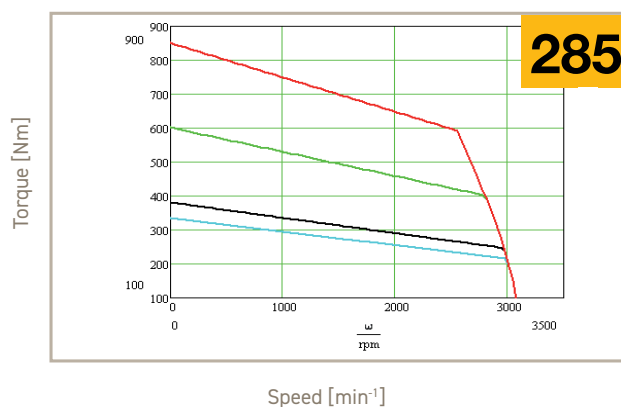
#### 3000 min<sup>-1</sup> 400 V



#### 3000 min<sup>-1</sup> 400 V

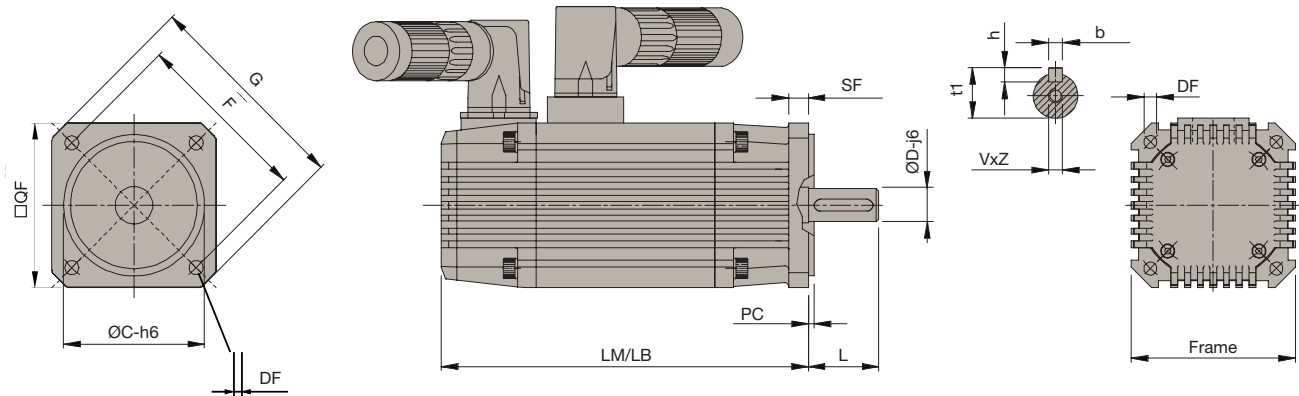


#### 3000 min<sup>-1</sup> 400 V



— S1 65 K, ΔT                      — S3 50 %, 5 min  
— S3 10 %, 5 min, 400 V        — S3 20 %, 5 min

## Dimensions



| Motor - Size |     |     | LM/LB   | Weight | DxL                     | bxh          | t1               | VxZ                      | C   | F   | DF   | G   | SF  | PC  | QF  | Order<br>code<br>QF |
|--------------|-----|-----|---------|--------|-------------------------|--------------|------------------|--------------------------|-----|-----|------|-----|-----|-----|-----|---------------------|
|              | 70  | 0,5 | 158/214 | 2      | 11x23<br>14x30          | 4x4<br>5x5   | 12.5<br>16       | M4x10<br>M4x12.5         | 60  | 75  | 6    | 90  | 8.5 | 2.5 | 70  | 5                   |
|              |     | 01  | 188/244 | 2.8    |                         |              |                  |                          |     |     |      |     |     |     |     |                     |
|              |     | 1,5 | 218/274 | 3.5    |                         |              |                  |                          |     |     |      |     |     |     |     |                     |
|              |     | 02  | 248/304 | 4.3    |                         |              |                  |                          |     |     |      |     |     |     |     |                     |
|              |     | 2,5 | 278/334 | 5.1    |                         |              |                  |                          |     |     |      |     |     |     |     |                     |
|              | 105 | 02  | 186/250 | 5      | 19x40<br>24x50          | 6x6<br>8x7   | 21.5<br>27       | M6x16<br>M8x19           | 95  | 115 | 9.5  | 140 | 10  | 3.5 | 105 | 5                   |
|              |     | 04  | 229/293 | 7      |                         |              |                  |                          | 95  | 115 | 9.5  | 140 | 10  | 3.5 | 105 | 4                   |
|              |     | 06  | 273/337 | 9      |                         |              |                  |                          | 80  | 115 | 9.5  | 140 | 10  | 3.5 | 105 | 9                   |
|              |     | 08  | 317/381 | 11     |                         |              |                  |                          | 110 | 115 | 9.5  | 140 | 10  | 3.5 | 105 | 6                   |
|              | 145 | 04  | 200/274 | 8      | 19x40<br>24x50<br>28x60 | 6x6<br>8x7   | 21.5<br>27<br>31 | M6x16<br>M8x19<br>M10x22 | 130 | 165 | 11.5 | 200 | 12  | 3.5 | 145 | 5                   |
|              |     | 08  | 231/305 | 12     |                         |              |                  |                          | 130 | 165 | 11.5 | 200 | 12  | 3.5 | 145 | 4                   |
|              |     | 15  | 292/366 | 18     |                         |              |                  |                          |     |     |      |     |     |     |     |                     |
|              |     | 22  | 354/428 | 23     |                         |              |                  |                          |     |     |      |     |     |     |     |                     |
|              |     | 28  | 416/490 | 28     |                         |              |                  |                          |     |     |      |     |     |     |     |                     |
|              | 205 | 15  | 239/338 | 20     | 38x80<br>42x110         | 10x8<br>12x8 | 41<br>45         | M12x32<br>M16x40         | 180 | 215 | 14   | 250 | 18  | 4   | 205 | 5                   |
|              |     | 28  | 273/372 | 29     |                         |              |                  |                          |     |     |      |     |     |     |     |                     |
|              |     | 50  | 342/441 | 44     |                         |              |                  |                          |     |     |      |     |     |     |     |                     |
|              |     | 70  | 411/510 | 59     |                         |              |                  |                          |     |     |      |     |     |     |     |                     |
|              |     | 90  | 480/579 | 74     |                         |              |                  |                          |     |     |      |     |     |     |     |                     |
|              | 265 | 75  | 340/475 | 89     | 48X110                  | 14x9         | 51.5             | M16x40                   | 250 | 300 | 19   | 342 | 35  | 4   | 264 | 5                   |
|              |     | 150 | 447/582 | 126    |                         |              |                  |                          |     |     |      |     |     |     |     |                     |
|              |     | 220 | 554/689 | 164    |                         |              |                  |                          |     |     |      |     |     |     |     |                     |
|              |     | 285 | 661/796 | 203    |                         |              |                  |                          |     |     |      |     |     |     |     |                     |

**LM:** Motor length without brake with resolver  
**LB:** Motor length with brake with resolver  
**DxL:** Shaft  
**bxh:** Key  
**t1:** Overall shaft height  
**VxZ:** Shaft hole depth

mm for dimensions, kg for weight

**C:** Center  
**F:** Distance between center of holes clamp  
**DF:** Fixing holes  
**G:** Dimension in diagonal  
**SF:** Flange thickness  
**PC:** Centering depth  
**QF:** Flange square



## Options

Parker Mx family motors are available with standard and custom options to adapt motor on your application. If the option for your application is not listed, please consult our technical department.

### Holding Brake

All MH, MB motors are available with an optional holding brake. Two different brake types exist, standard holding brake (option A) and special brake (option B) depending on the features of your application needs.

Incorporated into the motor is the fail-safe holding brake (supply voltage 24 VDC  $\pm 10\%$ ) which is applied when no voltage is present. Because of the power taken by the brake, torque values must be reduced by 5 % (10 % for size 265). The holding brake shall be used with the motor only at a standstill and not for dynamic braking. For maintenance, please refer to technical manual.

| Holding Brake <sup>(1)</sup> | Option | Voltage<br>[V] | Current<br>@20 °C<br>[A] | Torque<br>@20 °C<br>[Nm] | Added Length<br>[mm] | Added Weight<br>[kg] | Torque derating of<br>motor |  |  |
|------------------------------|--------|----------------|--------------------------|--------------------------|----------------------|----------------------|-----------------------------|--|--|
| M_70_A                       | A      | 24 ±10 %       | 0.53                     | 2                        | 56                   | 1.1                  | 5 %                         |  |  |
| M_70_B                       | B      | n.a.           |                          |                          |                      |                      |                             |  |  |
| M_105_A                      | A      | 24 ±10 %       | 1.1                      | 10                       | 64                   | 3                    | 5 %                         |  |  |
| M_105_B                      | B      | n.a.           |                          |                          |                      |                      |                             |  |  |
| M_145_A_04                   | A      | 24 ±10 %       | 1.8                      | 4                        | 74                   | 5                    | 5 %                         |  |  |
| M_145_A_08                   |        |                |                          | 8                        |                      |                      |                             |  |  |
| M_145_A_15                   |        |                |                          | 15                       |                      |                      |                             |  |  |
| M_145_A_22                   |        |                |                          | 22                       |                      |                      |                             |  |  |
| M_145_A_28                   |        |                |                          | 28                       |                      |                      |                             |  |  |
| M_145_B                      | B      | 24 ±10 %       | 0.8                      | 22                       | 74                   | 5                    | 5 %                         |  |  |
| M_205_B                      | B      | 24 ±10 %       | 2.1                      | 120                      | 99                   | 14                   | 5 %                         |  |  |
| M_265_A_75                   | A      | 24 ±10 %       | 2.9                      | 225                      | 135                  | 30                   | 10 %                        |  |  |
| M_265_A_150                  |        |                |                          | 450                      |                      | 35                   |                             |  |  |
| M_265_A_220                  |        |                |                          |                          |                      |                      |                             |  |  |
| M_265_A_285                  |        |                |                          |                          |                      |                      |                             |  |  |
| M_265_B                      | B      | n.a.           |                          |                          |                      |                      |                             |  |  |

<sup>(1)</sup> If more than one option is required, please check with our technical department the feasibility.

### Fan cooling

For high duty cycle applications, Parker offer 3 different types of cooling option: servo-ventilated, self ventilated and water cooled. Please refer to motors in the table below.

With servo-ventilated the motors (order Code M\_SV), an increase of 25 % torque and current based on nominal values (except for the maximum torque and current data) is provided. The servo-ventilated 205 motor is equipped with an external condenser for starting the fan.

With the self-ventilated option (order Code M\_V), the torque is increased proportionally to the nominal speed.

For water-cooled motors (order code M\_W, available only for size 145), consider a performance increase of approx. 100 % in the torque and current, except peak data.

| Motor<br>MB / MH | Option <sup>(1)</sup> | Voltage                            | Current<br>[A] | Frequency<br>[Hz] | Speed<br>[min <sup>-1</sup> ] | Added Length<br>[mm] | Added Weight<br>[kg] | Torque<br>increasing of<br>motor |
|------------------|-----------------------|------------------------------------|----------------|-------------------|-------------------------------|----------------------|----------------------|----------------------------------|
| 105              | SV                    | 24 VDC $\pm 10\%$                  | 0.17           | n.a.              | 3000                          | 64                   | 1                    | 25 %                             |
|                  | V                     | n.a.                               | n.a.           | n.a.              | n.a.                          | 34                   | 0.25                 | Depending of<br>speed            |
| 145              | SV                    | 230 VAC Single<br>Phase $\pm 10\%$ | 0.35           | 50                | 3000                          | 97                   | 2                    | 25 %                             |
|                  | V                     | n.a.                               | n.a.           | n.a.              | n.a.                          | 44                   | 0.55                 | Depending of<br>speed            |
| 205              | SV                    | 230 VAC Single<br>Phase $\pm 10\%$ | 0.22           | 50                | 3000                          | 109                  | 2.2                  | 25 %                             |
|                  | V                     | n.a.                               | n.a.           | n.a.              | n.a.                          | 54                   | 1.1                  | Depending of<br>speed            |

<sup>(1)</sup> If more than one option is required, please check with our technical department the feasibility.

## Feedback options

M\_ motors are available with standard resolver feedback, but for different type of application we can offer the following types of feedback:

- Incremental Encoder with hall sensors
- Hiperface absolute encoder (single or multi-turn), DSL®
- EnDat absolute encoder (single or multi-turn)

### Resolver

|                       |               |
|-----------------------|---------------|
| Poles                 | 2             |
| Transformation ratio  | 0.5           |
| Operating temperature | -50...+150 °C |
| Motor associations    | all sizes     |

### Incremental Encoder with Hall Sensor

| Code                           | A1                                 | A2           | A3            | B1      | C4   |
|--------------------------------|------------------------------------|--------------|---------------|---------|------|
| Resolution [C/T]               | 2000                               | 2048         | 4096          | 3000    | 5000 |
| Poles                          | 8                                  |              |               | 4       | 8    |
| System Accuracy                | ±32"                               | ±32"         | ±16"          | ±22"    | ±13" |
| Voltage                        | +5 VDC ±5 % - 200 mA               |              |               |         |      |
| Reference Mark                 | Yes                                |              |               |         |      |
| Max Speed [min <sup>-1</sup> ] | 6000                               |              |               |         |      |
| Output Circuit                 | Line drive differential mode 20 mA |              |               |         |      |
| Operating Temperature          | -20...+100 °C                      | -20...+85 °C | -20...+100 °C |         |      |
| M_ Motors Associations         |                                    |              |               |         |      |
| M_70                           | -                                  | -            | -             | Δ 10 mm | -    |
| M_105                          | ✓                                  | ✓            | ✓             | -       | ✓    |
| M_145                          | ✓                                  | ✓            | ✓             | -       | ✓    |
| M_205                          | ✓                                  | ✓            | ✓             | -       | ✓    |
| M_265                          | -                                  | -            | -             | -       | -    |

- Not possible

✓ Possible without increment

Δ Possible with increment motor length

### Hiperface Absolute Encoder

| Code                           | S1                                      |  | S2      |  | A6              |  | A7      |  | S5                                      |  | S6      |  | L2                 |  | L4                                      |  |
|--------------------------------|-----------------------------------------|--|---------|--|-----------------|--|---------|--|-----------------------------------------|--|---------|--|--------------------|--|-----------------------------------------|--|
| Type                           | Optical                                 |  |         |  |                 |  |         |  |                                         |  |         |  |                    |  |                                         |  |
| Turn                           | Single                                  |  | Multi   |  | Single          |  | Multi   |  | Single                                  |  | Multi   |  | Multi              |  | Multi                                   |  |
| Incremental Signals            | 1 V <sub>pp</sub>                       |  |         |  |                 |  |         |  | -                                       |  | -       |  | -                  |  | -                                       |  |
| Line Count                     | 1024                                    |  |         |  |                 |  |         |  | -                                       |  | -       |  | -                  |  | -                                       |  |
| Resolution                     | 32 768 (15 bit)                         |  |         |  | 32 768 (15 bit) |  |         |  | 262 144 (18 bit)                        |  |         |  | 2 097 152 (21 bit) |  |                                         |  |
| Absolute rotation              | 1                                       |  | 4096    |  | 1               |  | 4096    |  | 1                                       |  | 4096    |  | 4096               |  |                                         |  |
| System Accuracy                | ±45"                                    |  |         |  |                 |  |         |  | ±40"                                    |  |         |  | ±52"               |  |                                         |  |
| Power Supply                   | 8 VDC                                   |  |         |  |                 |  |         |  | 7...12 VDC                              |  |         |  | 7...12 VDC         |  |                                         |  |
| Max Speed [min <sup>-1</sup> ] | 6000                                    |  |         |  |                 |  |         |  | -                                       |  |         |  | 9000               |  |                                         |  |
| Temperature                    | -20...+115°C                            |  |         |  |                 |  |         |  | -20...+105°C                            |  |         |  | -30°C...<br>+120°C |  | -30°C ...<br>+115°C                     |  |
| Safety integrity level         | SIL2 (IEC 61508),<br>SILCL2 (IEC 62061) |  |         |  | Not Available   |  |         |  | SIL2 (IEC 61508),<br>SILCL2 (IEC 62061) |  |         |  | -                  |  | SIL2 (IEC 61508),<br>SILCL2 (IEC 62061) |  |
| MB / MH Motors Associations    |                                         |  |         |  |                 |  |         |  |                                         |  |         |  |                    |  |                                         |  |
| M_70                           | Δ 10 mm                                 |  | Δ 10 mm |  | Δ 10 mm         |  | Δ 10 mm |  | -                                       |  | -       |  | -                  |  | -                                       |  |
| M_105                          | Δ 19 mm                                 |  | Δ 19 mm |  | Δ 19 mm         |  | Δ 19 mm |  | -                                       |  | -       |  | -                  |  | -                                       |  |
| M_145                          | Δ 19 mm                                 |  | Δ 19 mm |  | Δ 19 mm         |  | Δ 19 mm |  | Δ 19 mm                                 |  | Δ 19 mm |  | Δ 19 mm            |  | Δ 19 mm                                 |  |
| M_205                          | Δ 19 mm                                 |  | Δ 19 mm |  | Δ 19 mm         |  | Δ 19 mm |  | Δ 19 mm                                 |  | Δ 19 mm |  | Δ 19 mm            |  | Δ 19 mm                                 |  |
| M_265                          | -                                       |  | -       |  | -               |  | -       |  | -                                       |  | -       |  | -                  |  | -                                       |  |

- Not possible

✓ Possible without increment

Δ Possible with increment motor length

## EnDat Absolute Encoder

| Code                           | B9               | D5            |
|--------------------------------|------------------|---------------|
| Type                           | Inductive        | Optical       |
| Turn                           | Multi            | Multi         |
| Incremental Signals            | 1V <sub>PP</sub> |               |
| Line Count                     | 32               | 512           |
| Positions per revolutions      | 524288 (19bit)   | 8192 (13 bit) |
| Distinguishable revolutions    | 4096             |               |
| System Accuracy                | ±400"            | ±60"          |
| Power Supply                   | 5 VDC            |               |
| Max Speed [min <sup>-1</sup> ] | 12 000           | 7000          |
| Temperature                    | -20...+115 °C    | -30...+115 °C |
| Absolute position values       | EnDat 2.1        | EnDat 2.2     |
| Safety integrity level:        | not available    |               |
| M_ Motors Associations         |                  |               |
| M_70                           | -                | -             |
| M_105                          | Δ 19 mm          | Δ 19 mm       |
| M_145                          | ✓                | Δ 19 mm       |
| M_205                          | Δ 19 mm          | Δ 19 mm       |
| M_265                          | -                | ✓             |

- Not possible

✓ Possible without increment

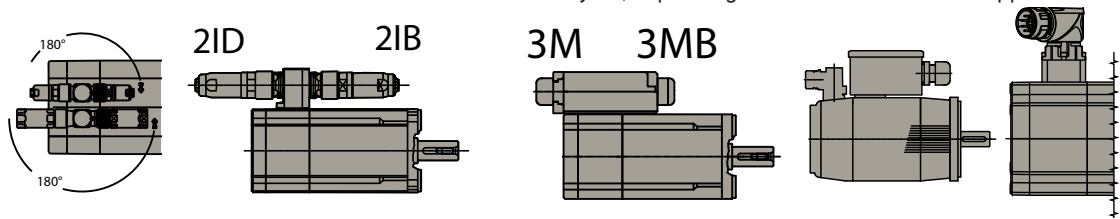
Δ Possible with increment motor length

## Technical specification for high inertia

| Option<br>Inertia | Added ... | Unit    | 105   |    |      |    | 145   |     |    |      |    | 205    |      |    |      |    |
|-------------------|-----------|---------|-------|----|------|----|-------|-----|----|------|----|--------|------|----|------|----|
|                   |           |         | 02    | 04 | 06   | 08 | 04    | 08  | 15 | 22   | 28 | 15     | 28   | 50 | 70   | 90 |
| M                 | Inertia   | [kgmm²] | 140   |    |      |    | 790   |     |    |      |    | 4400   |      |    |      |    |
|                   | Length    | [mm]    | 0     |    |      |    | 0     |     |    |      |    | 0      |      |    |      |    |
|                   | Weight    | [kg]    | 0.340 |    |      |    | 0.990 |     |    |      |    | 2.065  |      |    |      |    |
| ML                | Inertia   | [kgmm²] | 530   |    | n.a. |    | 1770  |     |    | n.a. |    | 12 100 |      |    | n.a. |    |
|                   | Length    | [mm]    | 64    |    | n.a. |    | 74    |     |    | n.a. |    | 99     |      |    | n.a. |    |
|                   | Weight    | [kg]    | 1.5   |    | n.a. |    | 3.3   | 3.6 |    | n.a. |    | 7.6    | 11.9 |    | n.a. |    |

## Layout and connectors

M\_ motors are available with different combinations of connectors and layout, depending of size of motor and the application



|        | 2x Parallel upright connectors | 2x Forward facing connectors | 2x Rear facing connectors | Terminal box rear facing | Terminal box forward facing | Terminal box forward facing | Hiperface DSL® connector |
|--------|--------------------------------|------------------------------|---------------------------|--------------------------|-----------------------------|-----------------------------|--------------------------|
|        | 2I                             | 2IB                          | 2ID                       | 3M                       | 3MB                         | 3I                          | IZ                       |
| MH_70  | ✓                              | -                            | -                         | -                        | -                           | -                           | -                        |
| MH_105 | ✓                              | -                            | -                         | -                        | -                           | -                           | -                        |
| MH_145 | -                              | -                            | -                         | -                        | -                           | ✓                           | ✓                        |
| MH_205 | -                              | -                            | -                         | -                        | -                           | ✓                           | ✓                        |
| MH_265 | -                              | -                            | -                         | ✓                        | -                           | -                           | -                        |
| MB_70  | ✓                              | -                            | -                         | ✓                        | ✓                           | -                           | -                        |
| MB_105 | ✓                              | -                            | -                         | ✓                        | ✓                           | -                           | -                        |
| MB_145 | ✓                              | -                            | -                         | ✓                        | ✓                           | ✓                           | ✓                        |
| MB_205 | -                              | -                            | -                         | ✓                        | ✓                           | ✓                           | ✓                        |
| MB_265 | -                              | -                            | -                         | ✓                        | -                           | -                           | -                        |
| ME_70  | ✓                              | -                            | -                         | -                        | -                           | -                           | -                        |
| ME_105 | ✓                              | -                            | -                         | -                        | -                           | -                           | -                        |
| ME_145 | ✓                              | -                            | -                         | -                        | -                           | ✓                           | ✓                        |
| ME_205 | -                              | -                            | -                         | -                        | -                           | ✓                           | ✓                        |
| ME_265 | -                              | -                            | -                         | ✓                        | -                           | -                           | -                        |

- Not possible
- ✓ Possible without increment
- Δ Possible with increment motor length

## Shaft

M\_ motors are available with or without key option; shafts are available in different sizes suitable for your existing machine or gearbox

## Increased Safety

M\_ motors size 105 and 145 are also available with increased safety which conform to ATEX.... directive 94/9/CE  II 2G Ex e II T3 with environment temperature between -20 and +40 °C

Only with drive HIXD. The feature and characteristics of the MBX motors are different from the standard version. For more info please consult technical department of Parker EME.

## Custom options

### Flange and shafts

In addition to the standard product it is possible to specify a fully customized mechanical interface for the motor ie flange, shaft and mounting holes. This option requires technical collaboration between the customer and Parker.

### KIT (frameless) options

We can also supply our motors as only stator + rotor. Our mechanical team will develop / propose the right solution for your mechanical application which integrates into the existing elements of the machine.

A second output shaft / external encoder mount

Certain applications need a second shaft on the rear of motor; for this reason with M\_ motors we offer alternative solutions for adding existing feedback or other mechanical accessories. For more details contact your Parker sales engineer.

## Order Code

### MH / MB Motors

To ensure that you select the correct motor we recommend that you have the following information.

- Diagram speed / time of load cycle to identify the type of the cycle (S1, S3 or others)
- Information about inertia load system
- Check the duty cycle - acceleration/deceleration
- Calculate the average torque and peak torque of the system
- Calculate the average speed and maximum speed of the cycle
- Check the temperature and altitude of environment / application
- Check the mechanical compatibility

With these preliminary data you can start to choose the motor (with the correct drive) for your application.

|               | 1  | 2 | 3 | 4 | 5   | 6  | 7  | 8 | 9 | 10 | 11  | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|---------------|----|---|---|---|-----|----|----|---|---|----|-----|----|----|----|----|----|----|----|
| Order example | MH | x | A | V | 205 | 11 | 28 | 5 | 9 |    | 2IB |    |    | 64 | A1 |    |    | 2  |

|                                                 |                                                                                                                                                                 |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1 Type Of Motor (mandatory field)</b>        |                                                                                                                                                                 |
| <b>MH</b>                                       | Motor with Resolver MH Series for PSD/C3                                                                                                                        |
| <b>MB</b>                                       | Motor with Resolver MB Series for TPDM/SLVDN                                                                                                                    |
| <b>ME</b>                                       | Motor with Encoder ME Series for TPDM/SLVDN                                                                                                                     |
| <b>2 EX Protection</b>                          |                                                                                                                                                                 |
| empty field                                     | Standard motor no EX Certification                                                                                                                              |
| <b>x</b>                                        | Motor with EX Certification (increased protection safety)<br>(only for 105 and 145 without the holding brake at 3000 min <sup>-1</sup> )<br>(only with HID, MB) |
| <b>3 Brake Option</b>                           |                                                                                                                                                                 |
| empty field                                     | No Brake Option                                                                                                                                                 |
| <b>A</b>                                        | Motor with Holding Brake<br>(brakes when the supply voltage is 0)                                                                                               |
| <b>B</b>                                        | Motor with Holding Brake<br>(size 145 up to 15Nm and 205)                                                                                                       |
| <b>4 Cooling Option</b>                         |                                                                                                                                                                 |
| empty field                                     | no cooling option                                                                                                                                               |
| <b>V</b>                                        | Motor with shaft-drive fan cooling                                                                                                                              |
| <b>SV</b>                                       | Motor with (single-phase) motorised fan cooling                                                                                                                 |
| <b>W</b>                                        | Water cooled motor (only size 145)                                                                                                                              |
| <b>5 Motor Frame Size (mandatory field)</b>     |                                                                                                                                                                 |
| <b>70</b>                                       | Torque range 0.5...2,5 Nm                                                                                                                                       |
| <b>105</b>                                      | Torque range 2.2...8 Nm                                                                                                                                         |
| <b>145</b>                                      | Torque range 4.5...28 Nm                                                                                                                                        |
| <b>205</b>                                      | Torque range 15...90 Nm                                                                                                                                         |
| <b>265</b>                                      | Torque range 75...265 Nm                                                                                                                                        |
| <b>6 Winding (mandatory field)</b>              |                                                                                                                                                                 |
| <b>nn</b>                                       | min <sup>-1</sup> (x100) except for size 205 1150 min <sup>-1</sup> which is only 11                                                                            |
| <b>7 Motor Torque (mandatory field)</b>         |                                                                                                                                                                 |
| <b>nn</b>                                       | Torque in Nm                                                                                                                                                    |
| <b>8 Flange (mandatory field)</b>               |                                                                                                                                                                 |
| <b>5</b>                                        | B5 Flange                                                                                                                                                       |
| <b>6</b>                                        | 116 mm Flange, only for frame 105                                                                                                                               |
| <b>9</b>                                        | 96 mm Flange, only for frame 105                                                                                                                                |
| <b>9 Shaft (mandatory field)</b>                |                                                                                                                                                                 |
| <b>11</b>                                       | 11x23 mm for size 70                                                                                                                                            |
| <b>14</b>                                       | 14x30 mm for size 70                                                                                                                                            |
| <b>19</b>                                       | 19x40 mm for size 105/145                                                                                                                                       |
| <b>24</b>                                       | 24x50 mm for size 105/145                                                                                                                                       |
| <b>28</b>                                       | 28x60 mm for size 145                                                                                                                                           |
| <b>38</b>                                       | 38x80 mm for size 205                                                                                                                                           |
| <b>42</b>                                       | 42x110 mm for size 205                                                                                                                                          |
| <b>48</b>                                       | 48x110 mm for size 265                                                                                                                                          |
| <b>A*</b>                                       | Special shaft under request                                                                                                                                     |
| <b>10 Key Shaft option</b>                      |                                                                                                                                                                 |
| empty field                                     | Shaft with key                                                                                                                                                  |
| <b>S</b>                                        | Shaft without key                                                                                                                                               |
| <b>11 Layout - Connectors (mandatory field)</b> |                                                                                                                                                                 |
| <b>2I</b>                                       | Interconnectron rotatables receptacles<br>(not for size 265 and 205 with brake)                                                                                 |
| <b>3M</b>                                       | Terminal Box - opposite shaft glands                                                                                                                            |
| <b>3MB</b>                                      | Terminal Box -toward shaft glands                                                                                                                               |
| <b>2IB</b>                                      | 90° Interconnectron receptacles - forward facing                                                                                                                |
| <b>2ID</b>                                      | 90° Interconnectron receptacles - rear facing                                                                                                                   |
| <b>3I</b>                                       | Terminal Box + Interconnectron 90°<br>(not for size 265)                                                                                                        |
| <b>3MBS</b>                                     | Terminal Box + Interconnectron 90°<br>(only for size 265)                                                                                                       |
| <b>12 Female connectors option</b>              |                                                                                                                                                                 |
| empty field                                     | With Female / flying connectors                                                                                                                                 |
| <b>W</b>                                        | Without Female / flying connectors                                                                                                                              |
| <b>13 Form Option</b>                           |                                                                                                                                                                 |
| empty field                                     | no Foot Mount Option                                                                                                                                            |
| <b>3</b>                                        | B3 - Foot Mount Option                                                                                                                                          |
| <b>14 Protection Degree (mandatory field)</b>   |                                                                                                                                                                 |
| <b>64</b>                                       | IP64                                                                                                                                                            |
| <b>65</b>                                       | IP65                                                                                                                                                            |

|           |                       |                                                                                    |
|-----------|-----------------------|------------------------------------------------------------------------------------|
| <b>15</b> | <b>Feedback</b>       |                                                                                    |
|           | empty field           | Resolver (Standard)<br>not for ME motors                                           |
|           | <b>A1</b>             | Tamagawa OIH48 2000 ppr / on request - No Stock                                    |
|           | <b>A2</b>             | Tamagawa OIH48 2048 ppr<br>for size 105/145/205                                    |
|           | <b>A3</b>             | Tamagawa OIH48 4096 ppr<br>for size 105/145/205                                    |
|           | <b>A6</b>             | Stegman SRS50 Hiperface Single-Turn<br>for size 70/105/145/205                     |
|           | <b>A7</b>             | Stegman SRM50 Hiperface Multi-Turn<br>for size 70/105/145/205                      |
|           | <b>B1</b>             | Encoder 3000 ppr + Hall - TAMAGAWA OIH35                                           |
|           | <b>B9</b>             | SinCos EnDat Encoder Multi-Turn -<br>HEIDENHAIN EQI1331                            |
|           | <b>C4</b>             | Encoder 5000 ppr + Hall - TAMAGAWA OIH48                                           |
|           | <b>D5</b>             | SinCos EnDat Encoder Multi-Turn -<br>HEIDENHAIN EQN1325                            |
|           | <b>S1</b>             | SinCos Hiperface Encoder Single-Turn -<br>STEGMANN SRS50S                          |
|           | <b>S2</b>             | SinCos Hiperface Encoder Multi-Turn -<br>STEGMANN SRS50S                           |
|           | <b>S5</b>             | Hiperface DSL® Encoder Feedback SIL2<br>262 144 ppr - Single Turn                  |
|           | <b>S6</b>             | Hiperface DSL® Encoder Feedback SIL2<br>262 144 ppr - Multi Turn                   |
|           | <b>L2</b>             | Hiperface DSL® Encoder Feedback<br>2 097 152 ppr x 4096 Multi Turn                 |
|           | <b>L4</b>             | Hiperface DSL® Encoder Feedback SIL2<br>2 097 152 ppr x 4096 Multi Turn            |
| <b>16</b> | <b>Option Inertia</b> |                                                                                    |
|           | empty field           | Standard Inertia                                                                   |
|           | <b>M</b>              | Medium Inertia                                                                     |
|           | <b>ML</b>             | High Inertia                                                                       |
| <b>17</b> | <b>Special Option</b> |                                                                                    |
|           | empty field           | No Special Option                                                                  |
|           | <b>Exx</b>            | Prearrangement for external encoder<br>mounting; where xx is the model of feedback |
| <b>18</b> | <b>Voltage</b>        |                                                                                    |
|           | <b>2</b>              | 220-230 V                                                                          |
|           | <b>4</b>              | 380-400 V                                                                          |

## Order Code

### Motor Power Cable for MH / MB Motors

|               | 1   | 2   | 3 | 4 |   | 5   |   | 6   |   | 7    |   | 8  |
|---------------|-----|-----|---|---|---|-----|---|-----|---|------|---|----|
| Order example | CBM | 005 | H | D | - | M15 | - | PSX | - | 0010 | - | 00 |

|          |                                              |
|----------|----------------------------------------------|
| <b>1</b> | <b>Power Cable Drive</b>                     |
| CBM      | Power cable drive                            |
| <b>2</b> | <b>Section [mm²]</b>                         |
| 005      | 0.5 mm²                                      |
| 007      | 0.7 mm²                                      |
| 010      | 1 mm²                                        |
| 015      | 1.5 mm²                                      |
| 025      | 2.5 mm²                                      |
| <b>3</b> | <b>Cable</b>                                 |
| S        | Standard                                     |
| H        | High Flex                                    |
| <b>4</b> | <b>Brake</b>                                 |
| 0        | Power cable standard - without brake         |
| B        | Power cable standard - with brake            |
| D        | DSL® Power cable with brake                  |
| <b>5</b> | <b>Motor Connector</b>                       |
| M15      | M15 Interconnectron connector                |
| M23      | M23 Interconnectron connector                |
| M40      | M40 Interconnectron connector                |
| <b>6</b> | <b>Drive</b>                                 |
| PSX      | Parker PSD1-S                                |
| PMX      | Parker PSD1-M                                |
| SDX      | Parker Servonet DC                           |
| <b>7</b> | <b>Length</b>                                |
| 0000     | Cable length 4 digits (example 50 m = 0500)* |
| <b>8</b> | <b>Special Execution</b>                     |
| 00       | Standard                                     |

\* Available length in meter: 1; 2.5; 5; 7.5; 10; 15; 20; 25; 30; 35; 40; 45; 50

## Motor Feedback Cable for MH / MB Motors

|               | 1   | 2   | 3 | 4 |   | 5   |   | 6   |   | 7    |   | 8  |
|---------------|-----|-----|---|---|---|-----|---|-----|---|------|---|----|
| Order example | CBF | RE0 | H | 0 | - | M15 | - | PSX | - | 0010 | - | 00 |

|          |                                              |
|----------|----------------------------------------------|
| <b>1</b> | <b>Power Cable Drive</b>                     |
| CBF      | Feedback cable drive                         |
| <b>2</b> | <b>Feedback</b>                              |
| RE0      | Resolver                                     |
| <b>3</b> | <b>Cable</b>                                 |
| H        | High Flex                                    |
| <b>4</b> | <b>Brake</b>                                 |
| 0        | Power cable standard - without brake         |
| <b>5</b> | <b>Motor Connector</b>                       |
| M15      | M15 Interconnectron connector                |
| M23      | M23 Interconnectron connector                |
| M40      | M40 Interconnectron connector                |
| <b>6</b> | <b>Drive</b>                                 |
| PSX      | Parker PSD1-S                                |
| PMX      | Parker PSD1-M                                |
| SDX      | Parker Servonet DC                           |
| <b>7</b> | <b>Length</b>                                |
| 0000     | Cable length 4 digits (example 50 m = 0500)* |
| <b>8</b> | <b>Special Execution</b>                     |
| 00       | Standard                                     |

\* Available length in meter: 1; 2.5; 5; 7.5; 10; 15; 20; 25; 30; 35; 40; 45; 50







# Parker's Motion & Control Technologies

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 00800 27 27 5374



## Aerospace Key Markets

Aftermarket services  
Commercial transports  
Engines  
General & business aviation  
Helicopters  
Launch vehicles  
Military aircraft  
Missiles  
Power generation  
Regional transports  
Unmanned aerial vehicles

## Key Products

Control systems & actuation products  
Engine systems & components  
Fluid conveyance systems & components  
Fluid metering, delivery & atomization devices  
Fuel systems & components  
Fuel tank inerting systems  
Hydraulic systems & components  
Thermal management  
Wheels & brakes



## Climate Control Key Markets

Agriculture  
Air conditioning  
Construction Machinery  
Food & beverage  
Industrial machinery  
Life sciences  
Oil & gas  
Precision cooling  
Process  
Refrigeration  
Transportation

## Key Products

Accumulators  
Advanced actuators  
CO<sub>2</sub> controls  
Electronic controllers  
Filter driers  
Hand shut-off valves  
Heat exchangers  
Hose & fittings  
Pressure regulating valves  
Refrigerant distributors  
Safety relief valves  
Smart pumps  
Solenoid valves  
Thermostatic expansion valves



## Electromechanical Key Markets

Aerospace  
Factory automation  
Life science & medical  
Machine tools  
Packaging machinery  
Paper machinery  
Plastics machinery & converting  
Primary metals  
Semiconductor & electronics  
Textile  
Wire & cable

## Key Products

AC/DC drives & systems  
Electric actuators, gantry robots & slides  
Electrohydraulic actuation systems  
Electromechanical actuation systems  
Human machine interface  
Linear motors  
Stepper motors, servo motors, drives & controls  
Structural extrusions



## Filtration Key Markets

Aerospace  
Food & beverage  
Industrial plant & equipment  
Life sciences  
Marine  
Mobile equipment  
Oil & gas  
Power generation & renewable energy  
Process  
Transportation  
Water Purification

## Key Products

Analytical gas generators  
Compressed air filters & dryers  
Engine air, coolant, fuel & oil filtration systems  
Fluid condition monitoring systems  
Hydraulic & lubrication filters  
Hydrogen, nitrogen & zero air generators  
Instrumentation filters  
Membrane & fiber filters  
Microfiltration  
Sterile air filtration  
Water desalination & purification filters & systems



## Fluid & Gas Handling

### Key Markets

Aerial lift  
Agriculture  
Bulk chemical handling  
Construction machinery  
Food & beverage  
Fuel & gas delivery  
Industrial machinery  
Life sciences  
Marine  
Mining  
Mobile  
Oil & gas  
Renewable energy  
Transportation

### Key Products

Check valves  
Connectors for low pressure fluid conveyance  
Deep sea umbilicals  
Diagnostic equipment  
Hose couplings  
Industrial hose  
Mooring systems & power cables  
PTFE hose & tubing  
Quick couplings  
Rubber & thermoplastic hose  
Tube fittings & adapters  
Tubing & plastic fittings



## Hydraulics

### Key Markets

Aerial lift  
Agriculture  
Alternative energy  
Construction machinery  
Forestry  
Industrial machinery  
Machine tools  
Marine  
Material handling  
Mining  
Oil & gas  
Power generation  
Refuse vehicles  
Renewable energy  
Truck hydraulics  
Turf equipment

### Key Products

Accumulators  
Cartridge valves  
Electrohydraulic actuators  
Human machine interfaces  
Hybrid drives  
Hydraulic cylinders  
Hydraulic motors & pumps  
Hydraulic systems  
Hydraulic valves & controls  
Hydrostatic steering  
Integrated hydraulic circuits  
Power take-offs  
Power units  
Rotary actuators  
Sensors



## Pneumatics

### Key Markets

Aerospace  
Conveyor & material handling  
Factory automation  
Life science & medical  
Machine tools  
Packaging machinery  
Transportation & automotive

### Key Products

Air preparation  
Brass fittings & valves  
Manifolds  
Pneumatic accessories  
Pneumatic actuators & grippers  
Pneumatic valves & controls  
Quick disconnects  
Rotary actuators  
Rubber & thermoplastic hose & couplings  
Structural extrusions  
Thermoplastic tubing & fittings  
Vacuum generators, cups & sensors



## Process Control

### Key Markets

Alternative fuels  
Biopharmaceuticals  
Chemical & refining  
Food & beverage  
Marine & shipbuilding  
Medical & dental  
Microelectronics  
Nuclear Power  
Offshore oil exploration  
Oil & gas  
Pharmaceuticals  
Power generation  
Pulp & paper  
Steel  
Water/wastewater

### Key Products

Analytical Instruments  
Analytical sample conditioning products & systems  
Chemical injection fittings & valves  
Fluoropolymer chemical delivery fittings, valves & pumps  
High purity gas delivery fittings, valves, regulators & digital flow controllers  
Industrial mass flow meters/ controllers  
Permanent no-weld tube fittings  
Precision industrial regulators & flow controllers  
Process control double block & bleeds  
Process control fittings, valves, regulators & manifold valves



## Sealing & Shielding

### Key Markets

Aerospace  
Chemical processing  
Consumer  
Fluid power  
General Industrial  
Information technology  
Life sciences  
Microelectronics  
Military  
Oil & gas  
Power generation  
Renewable energy  
Telecommunications  
Transportation

### Key Products

Dynamic seals  
Elastomeric o-rings  
Electro-medical instrument design & assembly  
EMI shielding  
Extruded & precision-cut, fabricated elastomeric seals  
High temperature metal seals  
Homogeneous & inserted elastomeric shapes  
Medical device fabrication & assembly  
Metal & plastic retained composite seals  
Shielded optical windows  
Silicone tubing & extrusions  
Thermal management  
Vibration dampening

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