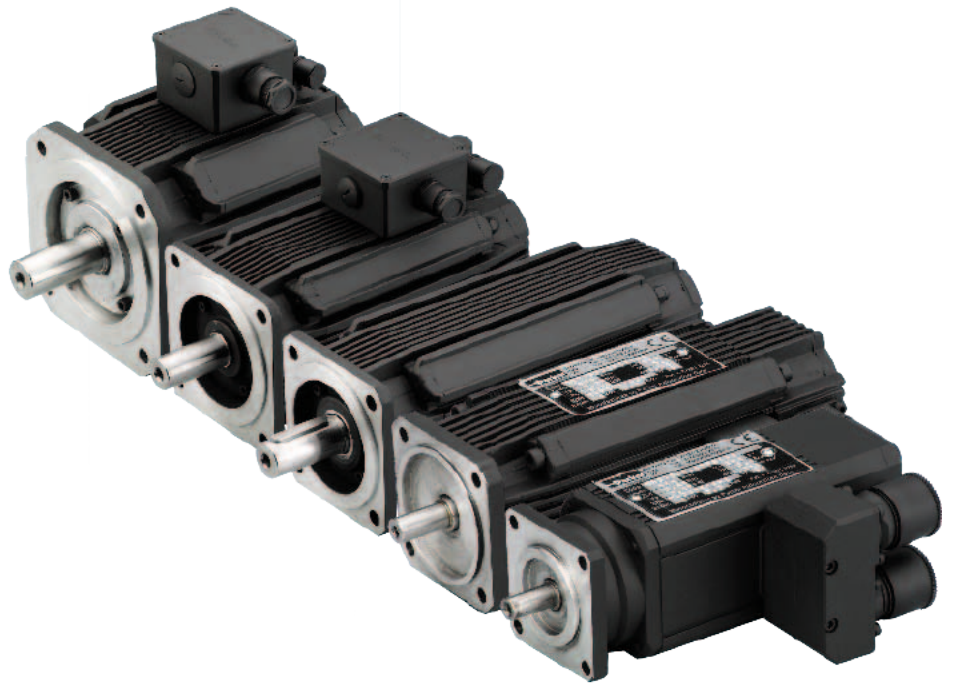
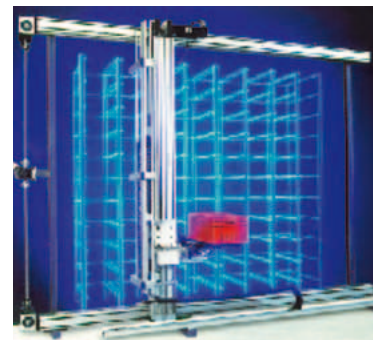


aerospace  
climate control  
**electromechanical**  
filtration  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding



## MB / MH Series

Servo Motors from 0.2 to 285 Nm



ENGINEERING YOUR SUCCESS.



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# Parker Hannifin

## The global leader in motion and control technologies

### A world class player on a local stage

#### Global Product Design

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.

#### Local Application Expertise

Parker has local engineering resources committed to adapting and applying our current products and technologies to best fit our customers' needs.

#### Manufacturing to Meet Our Customers' Needs

Parker is committed to meeting the increasing service demands that our customers require to succeed in the global industrial market. Parker's manufacturing teams seek continuous improvement through the implementation of lean manufacturing methods throughout the process. We measure ourselves on meeting our customers' expectations of quality and delivery, not just our own. In order to meet these expectations, Parker operates and continues to invest in our manufacturing facilities in Europe, North America and Asia.

#### Electromechanical Worldwide Manufacturing Locations

##### Europe

Littlehampton, United Kingdom  
Dijon, France  
Offenburg, Germany  
Filderstadt, Germany  
Milan, Italy

##### Asia

Wuxi, China  
Chennai, India

##### North America

Rohnert Park, California  
Irwin, Pennsylvania  
Charlotte, North Carolina  
New Ulm, Minnesota



Offenburg, Germany

#### Local Manufacturing and Support in Europe

Parker provides sales assistance and local technical support through a network of dedicated sales teams and authorized technical distributors throughout Europe.

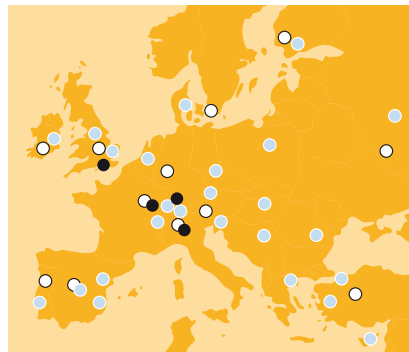
For contact information, please refer to the Sales Offices on the back cover of this document or visit [www.parker.com](http://www.parker.com)



Milan, Italy



Littlehampton, UK



- Electromechanical Manufacturing
- Parker Sales Offices
- Distributors



Dijon, France

# Servo Motor - MB / MH

## Overview

### Description

The MB / MH <sup>(1)</sup> series caters for torques in the range of 0.2 to 285 Nm, speeds up to 10 000 min<sup>-1</sup> and includes a total of 75 models available across 6 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 MB / MH 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 MB / MH 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
- ATEX certification for MB/MH105/145
- 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 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_ 56-70<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  |

<sup>(1)</sup> MB for drives: TPD-M, SLVD-N, TWIN-N, SPD-N, Hi-Drive, MH for drive: Compax3

## Technical Characteristics

### MB / MH Motors, Size 56 - 0.2...0.6 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_56 25 0,2  | 56   | 0.2<br>(0.40)                             | 0.27                 | 0.21                   | 2500                   | 0.26                  | 1.3                        | 11                     | 28                     | 0.48                 | 0.83                      |
| M_56 50 0,2  |      |   | 0.46                 | 0.19                   | 5000                   | 0.42                  |                            |                        |                        | 0.28                 | 0.48                      |
| M_56 100 0,2 |      |   | 0.84                 | 0.15                   | 10000                  | 0.60                  |                            |                        |                        | 0.15                 | 0.26                      |
| M_56 25 0,4  |      | 0.4<br>(0.80)                             | 0.49                 | 0.40                   | 2500                   | 0.46                  | 2.5                        | 16                     | 33                     | 0.52                 | 0.91                      |
| M_56 50 0,4  |      |   | 0.84                 | 0.35                   | 5000                   | 0.71                  |                            |                        |                        | 0.30                 | 0.53                      |
| M_56 100 0,4 |      |   | 1.52                 | 0.21                   | 10000                  | 0.81                  |                            |                        |                        | 0.17                 | 0.29                      |
| M_56 25 0,6  |      | 0.6<br>(1.14)                             | 0.67                 | 0.60                   | 2500                   | 0.63                  | 3.6                        | 21                     | 38                     | 0.57                 | 0.99                      |
| M_56 50 0,6  |      |   | 1.21                 | 0.51                   | 5000                   | 0.98                  |                            |                        |                        | 0.32                 | 0.55                      |
| M_56 100 0,6 |      |   | 2.18                 | 0.18                   | 10000                  | 0.71                  |                            |                        |                        | 0.18                 | 0.31                      |

#### 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_56 50 0,2 | 56   | 0.2<br>(0.40)                             | 0.27                 | 0.19                   | 5000                   | 0.24                  | 1.3                        | 11                     | 28                     | 0.48                 | 0.83                      |
| M_56 95 0,2 |      |   | 0.46                 | 0.16                   | 9500                   | 0.36                  |                            |                        |                        | 0.28                 | 0.48                      |
| M_56 50 0,4 |      | 0.4<br>(0.80)                             | 0.49                 | 0.34                   | 5000                   | 0.40                  | 2.5                        | 16                     | 33                     | 0.52                 | 0.91                      |
| M_56 95 0,4 |      |   | 0.84                 | 0.23                   | 9500                   | 0.48                  |                            |                        |                        | 0.30                 | 0.53                      |
| M_56 50 0,6 |      | 0.6<br>(1.14)                             | 0.67                 | 0.50                   | 5000                   | 0.54                  | 3.6                        | 21                     | 38                     | 0.57                 | 0.99                      |
| M_56 95 0,6 |      |   | 1.21                 | 0.25                   | 9500                   | 0.51                  |                            |                        |                        | 0.32                 | 0.55                      |

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

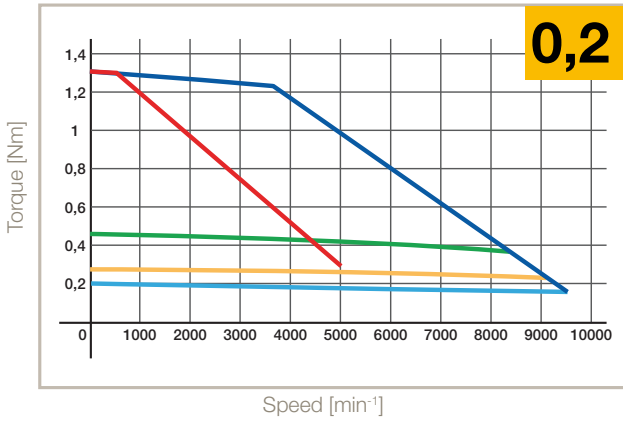
<sup>(2)</sup> Data measured at 20 °C. When "hot" consider 5 % derating

<sup>(3)</sup> Tolerance data ±10 %

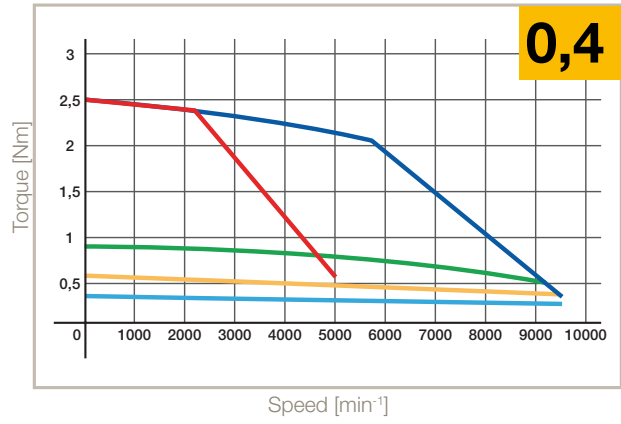
Speed Torque Curves

MB/MH56

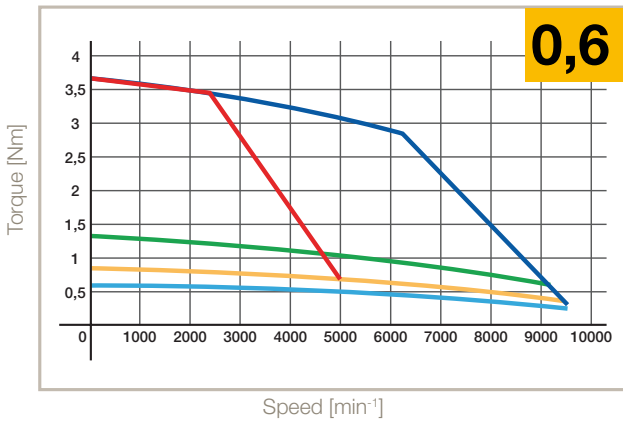
5000 min<sup>-1</sup> 230 V - 9500 min<sup>-1</sup> 400 V



5000 min<sup>-1</sup> 230 V - 9500 min<sup>-1</sup> 400 V



5000 min<sup>-1</sup> 230 V - 9500 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

## MB / MH 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

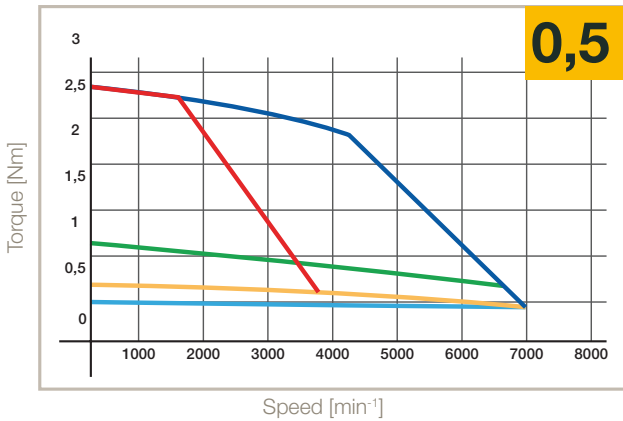
<sup>(3)</sup> Tolerance data ±10 %



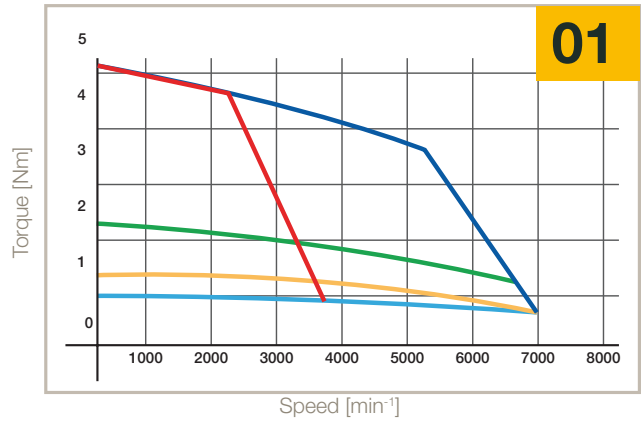
Speed Torque Curves

MB/MH70

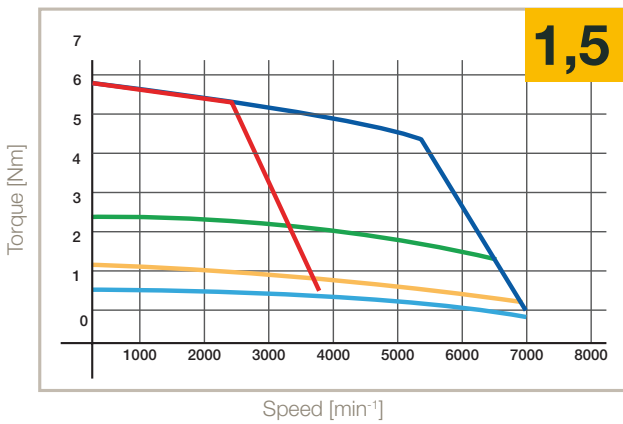
3800 min<sup>-1</sup> 230 V - 7000 min<sup>-1</sup> 400 V



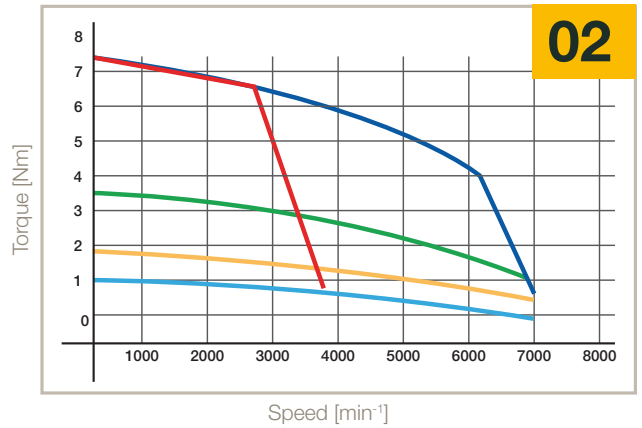
3800 min<sup>-1</sup> 230 V - 7000 min<sup>-1</sup> 400 V



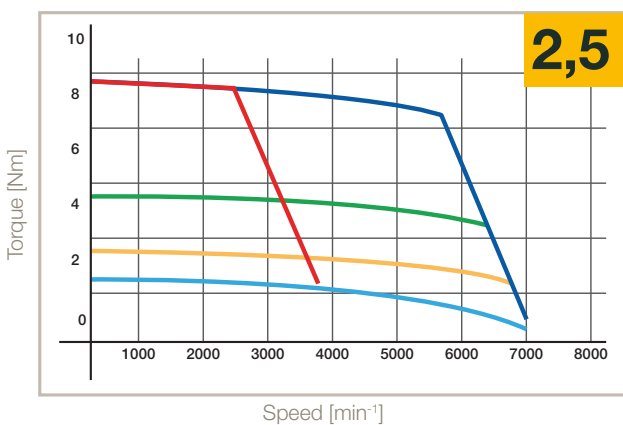
3800 min<sup>-1</sup> 230 V - 7000 min<sup>-1</sup> 400 V



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

## MB / MH 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<br>(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<br>(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<br>(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<br>(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<br>(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<br>(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<br>(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<br>(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

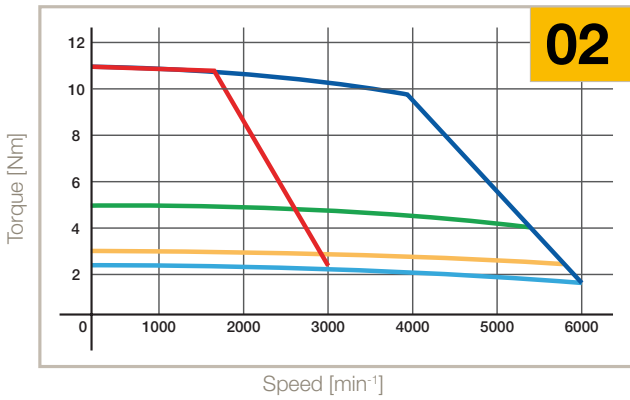
<sup>(2)</sup> Data measured at 20 °C. When "hot" consider 5 % derating

<sup>(3)</sup> Tolerance data ±10 %

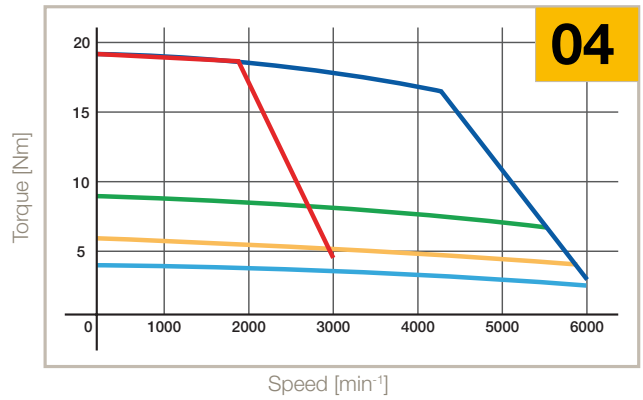
**Speed Torque Curves**

**MB/MH105**

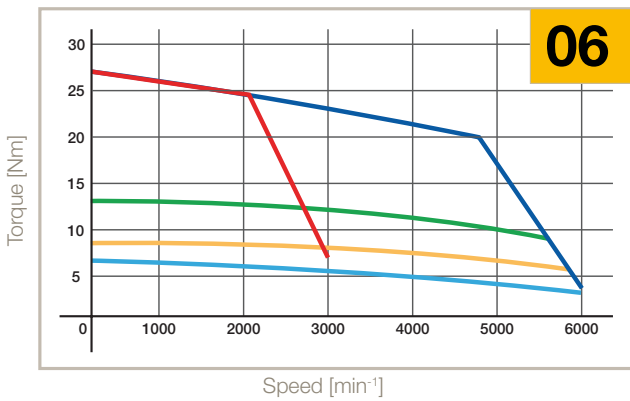
3000 min<sup>-1</sup> 230 V - 6000 min<sup>-1</sup> 400 V



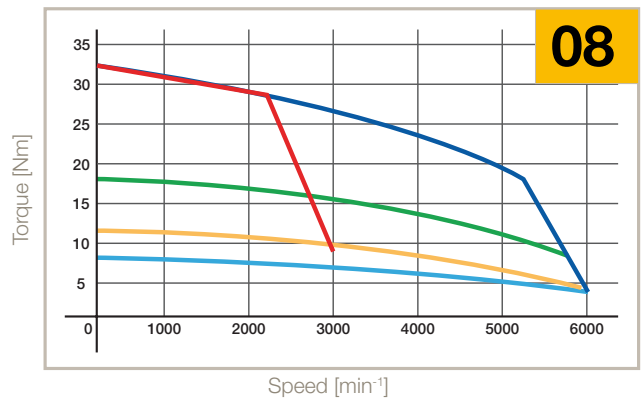
3000 min<sup>-1</sup> 230 V - 6000 min<sup>-1</sup> 400 V



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

## MB / MH 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                         |

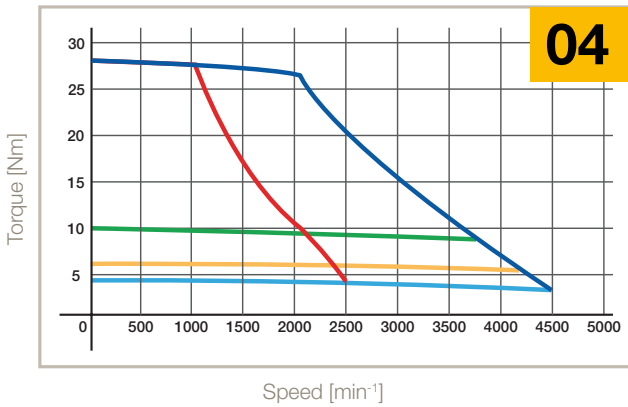
### 400 VAC

| 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                           |
| 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                 |                              |
| 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                          |
| 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                 |                              |
| 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                         |

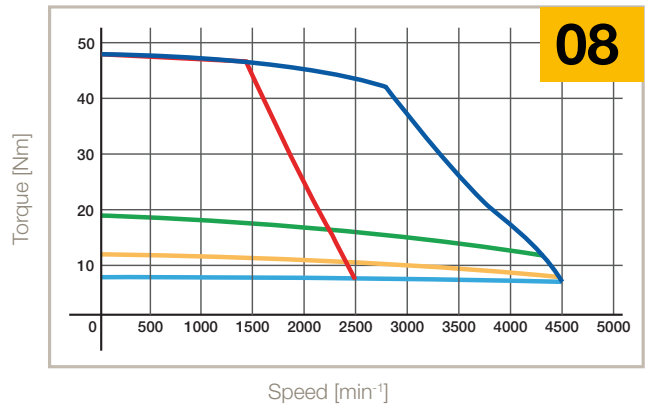
Speed Torque Curves

MB/MH145

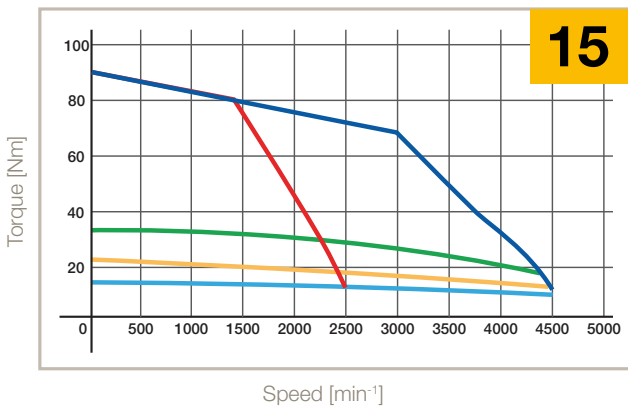
2500 min<sup>-1</sup> 230 V - 4500 min<sup>-1</sup> 400 V



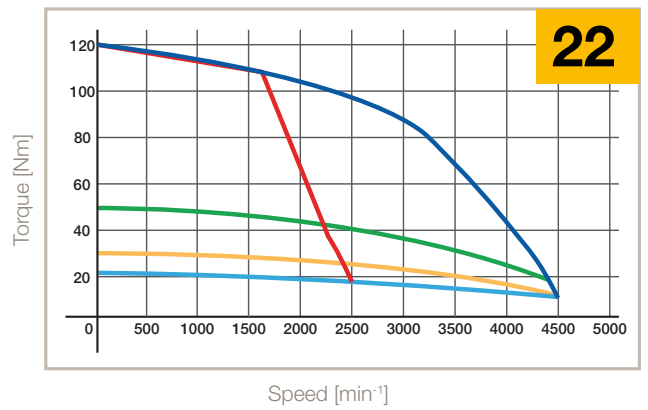
2500 min<sup>-1</sup> 230 V - 4500 min<sup>-1</sup> 400 V



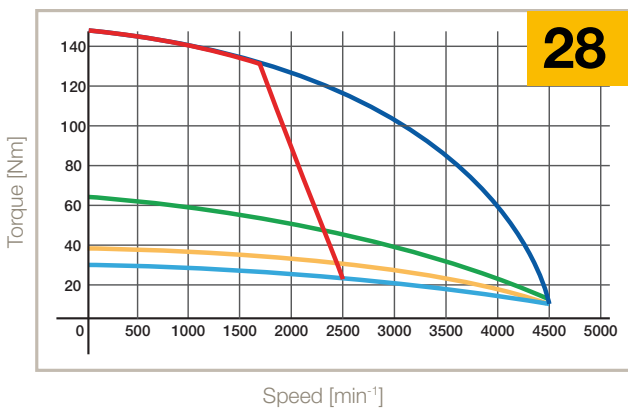
2500 min<sup>-1</sup> 230 V - 4500 min<sup>-1</sup> 400 V



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

(1) Data referred to motor suspend in horizontal position in free still air, 20 °C ambient temperature  
 (2) Data measured at 20 °C. When "hot" consider 5 % derating  
 (3) Tolerance data ±10 %

## MB / MH 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<br>(22)                                   | 6.3                     | 14.7                      | 1150                      | 6.2                      | 69                         | 3500                      | 4035                      | 1.4                  | 2.38                         |
| M_205 17 15  |      |  | 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<br>(22)                                   | 6.3                     | 14.1                      | 2000                      | 5.9                      | 69                         | 3500                      | 4035                      | 1.4                  | 2.38                         |
| M_205 30 15 |      |  | 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

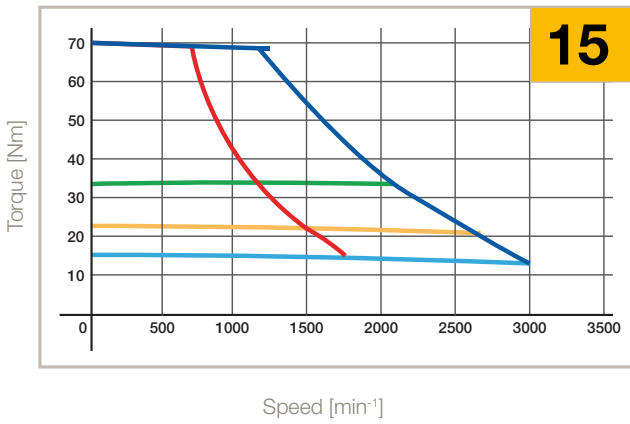
<sup>(2)</sup> Data measured at 20 °C. When "hot" consider 5 % derating

<sup>(3)</sup> Tolerance data ±10 %

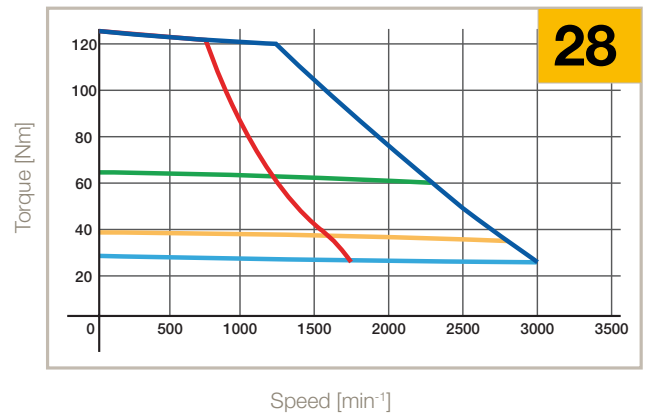
**Speed Torque Curves**

**MB/MH205**

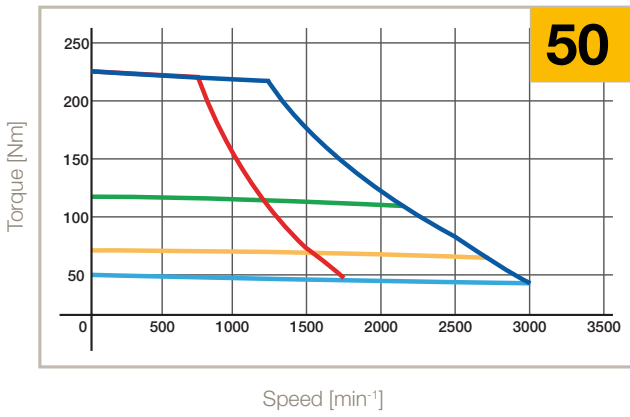
1700 min<sup>-1</sup> 230 V - 3000 min<sup>-1</sup> 400 V



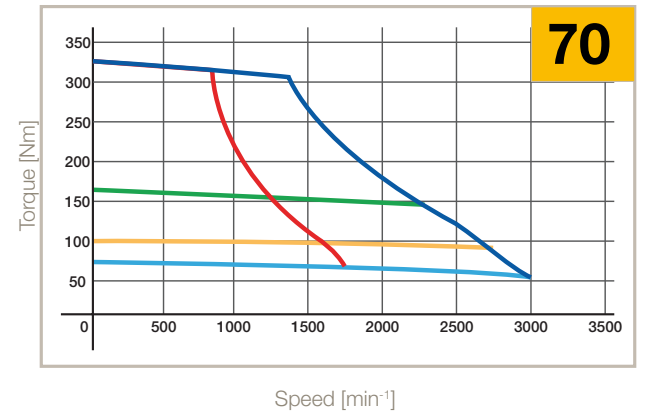
1700 min<sup>-1</sup> 230 V - 3000 min<sup>-1</sup> 400 V



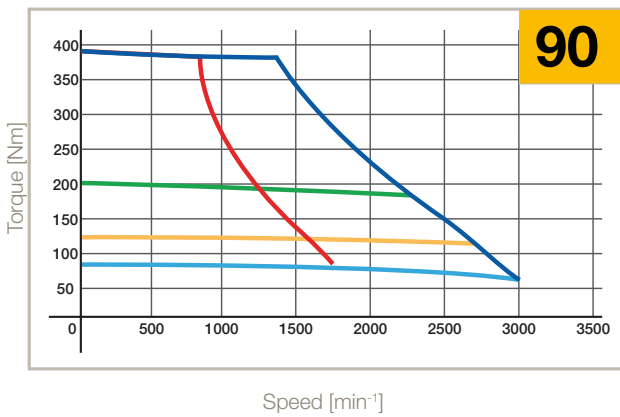
1700 min<sup>-1</sup> 230 V - 3000 min<sup>-1</sup> 400 V



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

## MB / MH 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> ) [Nm] | I <sub>105</sub> [A] | T <sub>n105</sub> [Nm] | n [min <sup>-1</sup> ] | I <sub>n105</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_265 10 75  | 265  | 75 (94)                                   | 20                   | 94                     | 1000                   | 20.1                  | 235                        | 22 000                 | 30 100                 | 2.86                 | 4.71                      |
| M_265 20 75  |      | 74 (92)                                   | 39                   | 92                     | 2000                   | 39                    |                            |                        |                        | 1.43                 | 2.35                      |
| M_265 30 75  |      |   | 59                   | 87                     | 3000                   | 55                    |                            |                        |                        | 0.95                 | 1.57                      |
| M_265 10 150 |      | 142 (176)                                 | 37                   | 176                    | 1000                   | 37                    | 451                        | 36 000                 | 44 100                 | 2.86                 | 4.71                      |
| M_265 20 150 |      | 144 (179)                                 | 86                   | 170                    | 2000                   | 81                    |                            |                        |                        | 1.27                 | 2.09                      |
| M_265 30 150 |      | 141 (175)                                 | 112                  | 144                    | 3000                   | 92                    |                            |                        |                        | 0.95                 | 1.57                      |
| M_265 10 220 |      | 206 (255)                                 | 54                   | 254                    | 1000                   | 54                    | 657                        | 49 000                 | 61 960                 | 2.86                 | 4.71                      |
| M_265 20 220 |      | 206 (255)                                 | 108                  | 231                    | 2000                   | 98                    |                            |                        |                        | 1.43                 | 2.35                      |
| M_265 30 220 |      | 205 (254)                                 | 162                  | 185                    | 3000                   | 118                   |                            |                        |                        | 0.95                 | 1.57                      |
| M_265 10 285 |      | 267 (332)                                 | 64                   | 325                    | 1000                   | 62                    | 857                        | 63 000                 | 75 960                 | 3.18                 | 5.23                      |
| M_265 20 285 |      | 267 (332)                                 | 159                  | 288                    | 2000                   | 138                   |                            |                        |                        | 1.27                 | 2.09                      |
| M_265 30 285 |      | 269 (334)                                 | 213                  | 215                    | 3000                   | 137                   |                            |                        |                        | 0.95                 | 1.57                      |

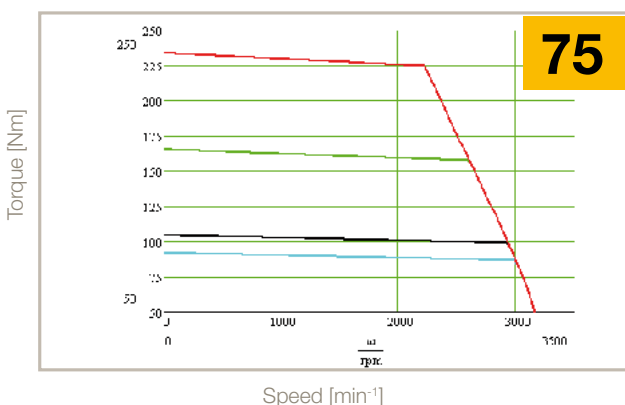
<sup>(1)</sup> Data referred to motor suspend in horizontal position in free still air, 20 °C ambient temperature

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

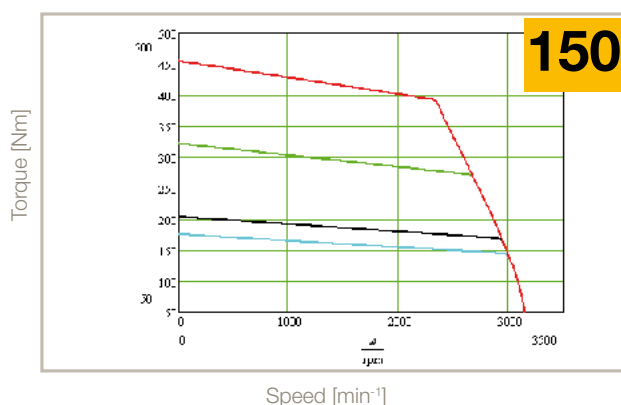
<sup>(3)</sup> Tolerance data ±10 %

### Speed Torque Curves

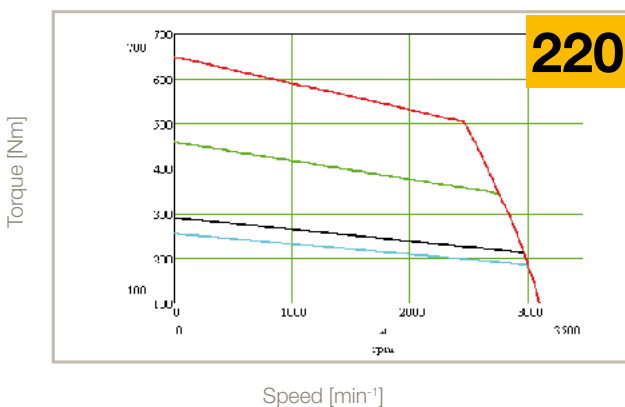
3000 min<sup>-1</sup> 400 V



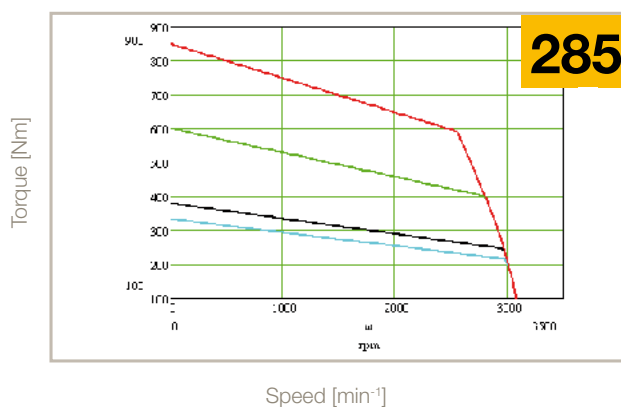
3000 min<sup>-1</sup> 400 V



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



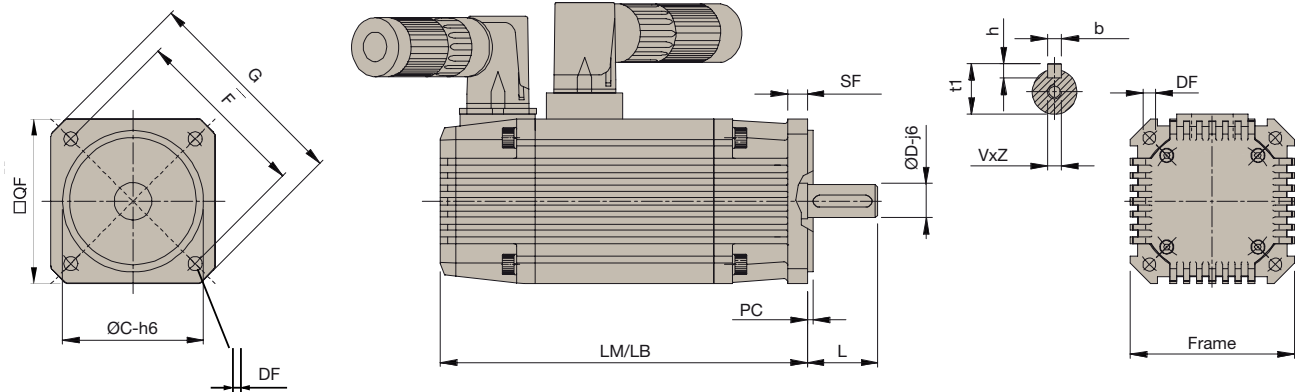
3000 min<sup>-1</sup> 400 V



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



## Dimensions



| Motor - Size |         | LM/LB   | Weight      | DxL    | bxh                     | t1           | VxZ              | C                        | F   | DF  | G    | SF  | PC  | QF  | Order code QF |   |  |
|--------------|---------|---------|-------------|--------|-------------------------|--------------|------------------|--------------------------|-----|-----|------|-----|-----|-----|---------------|---|--|
| MB / MH      | 56      | 0,2     | 135/181.5   | 0.7    | 9x20<br>11x23           | 3x3<br>4x4   | 10.2<br>12.5     | M4x10                    | 40  | 63  | 5.5  | 74  | 6.5 | 2.5 | 56            | 5 |  |
|              |         | 0,4     | 150.5/201.5 | 1      |                         |              |                  |                          |     |     |      |     |     |     |               |   |  |
|              |         | 0,6     | 170.5/221.5 | 1.3    |                         |              |                  |                          |     |     |      |     |     |     |               |   |  |
|              | 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    |                         |              |                  |                          |     |     |      |     |     |     |               |   |  |
|              | 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     |                         |              |                  |                          |     |     |      |     |     |     |               |   |  |
|              | 205     | 28      | 416/490     | 28     |                         |              |                  |                          |     |     |      |     |     |     |               |   |  |
|              |         | 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          |        |                         |              |                  |                          |     |     |      |     |     |     |               |   |  |
| 265          | 90      | 480/579 | 74          |        |                         |              |                  |                          |     |     |      |     |     |     |               |   |  |
|              | 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 MB, MH 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. When used normally they are maintenance free.

| 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_56_A                       | A      | 24 $\pm$ 10 %  | 0.32                     | 0.6                      | 51                   | 0.8                  | 5 %                         |
| M_56_B                       | B      |                |                          |                          | n.a.                 |                      |                             |
| M_70_A                       | A      | 24 $\pm$ 10 %  | 0.53                     | 2                        | 56                   | 1.1                  | 5 %                         |
| M_70_B                       | B      |                |                          |                          | n.a.                 |                      |                             |
| M_105_A                      | A      | 24 $\pm$ 10 %  | 1.1                      | 10                       | 64                   | 3                    | 5 %                         |
| M_105_B                      | B      |                |                          |                          | n.a.                 |                      |                             |
| M_145_A_04                   | A      | 24 $\pm$ 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 $\pm$ 10 %  | 0.75                     | 22                       | 74                   | 5                    | 5 %                         |
| M_205_A                      | A      | 24 $\pm$ 10 %  | 1.35                     | 90                       | 99                   | 14                   | 5 %                         |
| M_205_B                      | B      | 24 $\pm$ 10 %  | 1.2                      | 120                      | 99                   | 14                   | 5 %                         |
| M_265_A_75                   | A      | 24 $\pm$ 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. 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 speed               |
| 145              | SV                    | 230 VAC Single Phase $\pm$ 10 % | 0.35           | 50                | 3000                          | 97                   | 2                    | 25 %                             |
|                  | V                     | n.a.                            | n.a.           | n.a.              | n.a.                          | 44                   | 0.55                 | Depending of speed               |
| 205              | SV                    | 230 VAC Single 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 speed               |
| 265              | SV                    | 230 VAC Single Phase $\pm$ 10 % | 0.22           | 50                | 3000                          | 109                  | 2.2                  | 25 %                             |

<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)
- 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_56                           | -                                  | -            | -             | -       | -    |
| 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      |
|--------------------------------|--------------------------------------|---------|----------------|---------|
| Type                           | Optical                              |         |                |         |
| Turn                           | Single                               | Multi   | Single         | Multi   |
| Incremental Signals            | 1 V <sub>PP</sub>                    |         |                |         |
| Line Count                     | 1024                                 |         |                |         |
| Resolution                     | 32768 (15 bit)                       |         | 32768 (15 bit) |         |
| Absolute rotation              | 1                                    | 4096    | 1              | 4096    |
| System Accuracy                | ±45"                                 |         |                |         |
| Power Supply                   | 8 VDC                                |         |                |         |
| Max Speed [min <sup>-1</sup> ] | 6000                                 |         |                |         |
| Temperature                    | -20...+115°C                         |         |                |         |
| Safety integrity level:        | SIL2 (IEC 61508), SILCL2 (IEC 62061) |         | Not Available  |         |
| MB / MH Motors Associations    |                                      |         |                |         |
| M_56                           | -                                    | -       | -              | -       |
| 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 |
| M_205                          | 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               | C1            | D5            |
|--------------------------------|------------------|---------------|---------------|
| Type                           | Inductive        | Optical       |               |
| Turn                           | Multi            | Single        | Multi         |
| Incremental Signals            | 1V <sub>PP</sub> |               |               |
| Line Count                     | 32               | 512           |               |
| Positions per revolutions      | 131 072 (17 bit) | 8192 (13 bit) |               |
| Distinguishable revolutions    | 4096             | 1             | 4096          |
| System Accuracy                | ±400"            | ±60"          |               |
| Power Supply                   | 5 VDC            |               |               |
| Max Speed [min <sup>-1</sup> ] | 12 000           |               | 7 000         |
| Temperature                    | -20...+115 °C    | -40...+115 °C | -30...+115 °C |
| Absolute position values       | EnDat 2.1        | EnDat 2.2     |               |
| Safety integrity level:        | not available    |               |               |
| <b>M_ Motors Associations</b>  |                  |               |               |
| M_56                           | -                | -             | -             |
| M_70                           | -                | -             | -             |
| M_105                          | Δ 19 mm          | Δ 19 mm       | Δ 19 mm       |
| M_145                          | ✓                | Δ 19 mm       | Δ 19 mm       |
| M_205                          | Δ 19 mm          | Δ 19 mm       | Δ 19 mm       |
| M_265                          | -                | -             | ✓             |

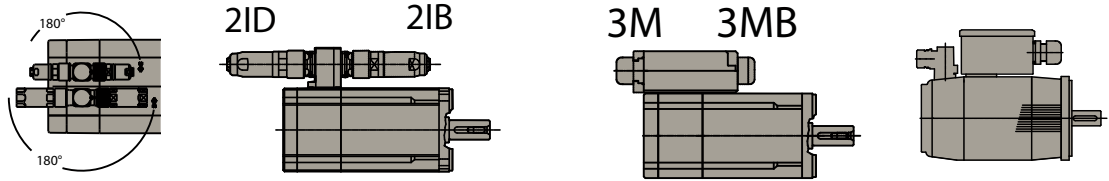
- Not possible
- ✓ Possible without increment
- Δ Possible with increment motor length

### Technical specifications for High inertia

| Option Inertia | Added ... | Unit                 | 105   |    |      |    | 145   |    |      |    | 205    |    |      |    | 265        |    |      |     |      |
|----------------|-----------|----------------------|-------|----|------|----|-------|----|------|----|--------|----|------|----|------------|----|------|-----|------|
|                |           |                      | 02    | 04 | 06   | 08 | 04    | 08 | 15   | 22 | 28     | 15 | 28   | 50 | 70         | 90 | 75   | 150 | 205  |
| M              | Inertia   | [kgmm <sup>2</sup> ] | 140   |    |      |    | 790   |    |      |    | 4400   |    |      |    | on request |    |      |     |      |
|                | Length    | [mm]                 | 0     |    |      |    | 0     |    |      |    | 0      |    |      |    | on request |    |      |     |      |
|                | Weight    | [kg]                 | 0.340 |    |      |    | 0.990 |    |      |    | 2.065  |    |      |    | on request |    |      |     |      |
| ML             | Inertia   | [kgmm <sup>2</sup> ] | 530   |    | n.a. |    | 1770  |    | n.a. |    | 12 100 |    | n.a. |    | n.a.       |    |      |     |      |
|                | Length    | [mm]                 | 64    |    | n.a. |    | 74    |    | n.a. |    | 99     |    | n.a. |    | n.a.       |    |      |     |      |
|                | Weight    | [kg]                 | 1.5   |    | n.a. |    | 3.3   |    | 3.6  |    | n.a.   |    | 7.6  |    | 11.9       |    | n.a. |     | 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<br>2I | 2x Forward facing connectors<br>2IB | 2x Rear facing connectors<br>2ID | Terminal box rear facing<br>3M | Terminal box forward facing<br>3MB | Terminal box forward facing<br>3I |
|--------|--------------------------------------|-------------------------------------|----------------------------------|--------------------------------|------------------------------------|-----------------------------------|
| MB_56  | -                                    | ✓                                   | ✓                                | -                              | -                                  | -                                 |
| MB_70  | ✓                                    | -                                   | -                                | ✓                              | ✓                                  | -                                 |
| MB_105 | ✓                                    | -                                   | -                                | ✓                              | ✓                                  | -                                 |
| MB_145 | ✓                                    | -                                   | -                                | ✓                              | ✓                                  | ✓                                 |
| MB_205 | -                                    | -                                   | -                                | ✓                              | ✓                                  | ✓                                 |
| MB_265 | -                                    | -                                   | -                                | ✓                              | -                                  | -                                 |
| MH_56  | -                                    | ✓                                   | ✓                                | -                              | -                                  | -                                 |
| MH_70  | ✓                                    | -                                   | -                                | -                              | -                                  | -                                 |
| MH_105 | ✓                                    | -                                   | -                                | -                              | -                                  | -                                 |
| MH_145 | -                                    | -                                   | -                                | -                              | -                                  | ✓                                 |
| MH_205 | -                                    | -                                   | -                                | -                              | -                                  | ✓                                 |
| MH_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 HIDX. 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

### MB / MH 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 | <b>MB</b> | <b>x</b> | <b>A</b> | <b>V</b> | <b>205</b> | <b>11</b> | <b>28</b> | <b>5</b> | <b>9</b> |    | <b>2IB</b> |    |    | <b>64</b> | <b>A1</b> |    |    | <b>2</b> |

#### 1 Type Of Motor (mandatory field)

|           |                               |
|-----------|-------------------------------|
| <b>ME</b> | Motor with Encoder ME Series  |
| <b>MB</b> | Motor with Resolver MB Series |
| <b>MH</b> | Motor with Resolver MH Series |

#### 2 EX Protection

|             |   |
|-------------|---|
| 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 HIDX...) |

#### 3 Brake Option

|             |  |
|-------------|--|
| empty field | No Brake Option  |
| <b>A</b>    | Motor with Holding Brake (brakes when the supply voltage is 0) |
| <b>B</b>    | Motor with BINDER Holding Brake (size145 up to 15Nm and 205)   |

#### 4 Cooling Option

|             |   |
|-------------|---|
| 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)              |

#### 5 Motor Frame Size (mandatory field)

|            |                           |
|------------|---------------------------|
| <b>56</b>  | Torque range 0.2...0.6 Nm |
| <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  |

#### 6 Winding (mandatory field)

|           |  |
|-----------|--|
| <b>nn</b> | min <sup>-1</sup> (x100) except for size 205 1150 min <sup>-1</sup> which is only 11 |
|-----------|--|

#### 7 Motor Torque (mandatory field)

|           |              |
|-----------|--------------|
| <b>nn</b> | Torque in Nm |
|-----------|--------------|

#### 8 Flange (mandatory field)

|          |                                   |
|----------|-----------------------------------|
| <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  |

#### 9 Shaft (mandatory field)

|           |                             |
|-----------|-----------------------------|
| <b>9</b>  | 9x20 mm for size 56         |
| <b>11</b> | 11x23 mm for size 56/70     |
| <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 |

#### 10 Key Shaft option

|             |                   |
|-------------|-------------------|
| empty field | Shaft with key    |
| <b>S</b>    | Shaft without key |

#### 11 Layout - Connectors (mandatory field)

|             |   |
|-------------|---|
| <b>2I</b>   | Interconnectron rotatables receptacles (not for size 56 - 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° (not for size 56 - 265)                        |
| <b>3MBS</b> | Terminal Box + Interconnectron 90° (only for size 265)                            |

#### 12 Female connectors option

|             |                                    |
|-------------|------------------------------------|
| empty field | With Female / flying connectors    |
| <b>W</b>    | Without Female / flying connectors |

#### 13 Form Option

|             |                        |
|-------------|------------------------|
| empty field | no Foot Mount Option   |
| <b>3</b>    | B3 - Foot Mount Option |

#### 14 Protection Degree (mandatory field)

|           |      |
|-----------|------|
| <b>64</b> | IP64 |
| <b>65</b> | IP65 |

### 15 Feedback

|             |  |
|-------------|--|
| empty field | Resolver (Standard)<br>not for ME motors                       |
| <b>A1</b>   | Tamagawa OIH48 2000 ppr / on request -<br>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<br>OIH35                    |
| <b>B9</b>   | SinCos EnDat Encoder Multi-Turn -<br>HEIDENHAIN EQI1331        |
| <b>C1</b>   | SinCos EnDat Encoder Single-Turn -<br>HEIDENHAIN EQI1113       |
| <b>C4</b>   | Encoder 5000 ppr + Hall - TAMAGAWA<br>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       |

### 16 Option Inertia

|             |                  |
|-------------|------------------|
| empty field | Standard Inertia |
| <b>M</b>    | Medium Inertia   |
| <b>ML</b>   | High Inertia     |

### 17 Special Option

|             |  |
|-------------|--|
| empty field | No Special Option  |
| <b>1Bxx</b> | Motor with 2-side output shaft Where xx is<br>the diameter of second shaft             |
| <b>Exx</b>  | Prerarrangement for external encoder<br>mounting; where xx is the model of<br>feedback |

### 18 Voltage

|           |           |
|-----------|-----------|
| <b>0A</b> | 24 V      |
| <b>0B</b> | 34 V      |
| <b>0C</b> | 48 V      |
| <b>0D</b> | 50 V      |
| <b>0E</b> | 60 V      |
| <b>0F</b> | 72 V      |
| <b>0G</b> | 74 V      |
| <b>0</b>  | 80 V      |
| <b>0H</b> | 96 V      |
| <b>1A</b> | 108-110 V |
| <b>1D</b> | 120 V     |
| <b>1B</b> | 125 V     |
| <b>1C</b> | 150 V     |
| <b>1</b>  | 180 V     |
| <b>2</b>  | 220-230 V |
| <b>2A</b> | 222 V     |
| <b>2B</b> | 200 V     |
| <b>3</b>  | 330 V     |
| <b>4</b>  | 380-400 V |
| <b>4A</b> | 425 V     |
| <b>4C</b> | 460 V     |
| <b>4B</b> | 490 V     |

Cables and connectors are part of the accessories required for Parker motors; for different combination we offer propose different types of cables for signals and power. Below you will find the code structure.

### Motor Power Cable for MB Motors

|               | 1       | 2 | 3    | 4 | 5   | 6 | 7  |
|---------------|---------|---|------|---|-----|---|----|
| Order example | CAVOMOT | A | 1,5x | 5 | PM- | I | 40 |

|                                   |                    |  |
|-----------------------------------|--------------------|--|
| <b>1 Cable</b>                    | <b>CAVOMOT</b>     | Power cable drive - motor                                      |
| <b>2 Brake wire</b>               | <b>empty field</b> | without brake wire   |
|                                   | <b>A</b>           | Brake wire   |
| <b>3 Section [mm<sup>2</sup>]</b> | <b>1,5x</b>        | 1,5 mm <sup>2</sup>  |
|                                   | <b>2,5x</b>        | 2,5 mm <sup>2</sup>  |
|                                   | <b>4x, 6x, 10x</b> | 4 mm <sup>2</sup> , 6 mm <sup>2</sup> , 10 mm <sup>2</sup>     |
|                                   | <b>25x</b>         | 25 mm <sup>2</sup> (not for "PM" type)                         |
| <b>4 Length [m]</b>               | <b>1, ...</b>      | Length in metre  |
| <b>5 Application Type</b>         | <b>PF-</b>         | Standard cable   |
|                                   | <b>PM-</b>         | Highflex cable   |
| <b>6 Motor Connector</b>          | <b>M</b>           | Military Connector (Mil)<br>(all layout except 08 and 5]       |
|                                   | <b>8</b>           | Military Connector (Mil)<br>(all layout 8]                     |
|                                   | <b>I</b>           | Interconnectron Connector<br>(all layout)                      |
|                                   | <b>3</b>           | Terminal Connection Box<br>(all layout except 3M/3MB/3MC/3MA)  |
|                                   | <b>S</b>           | Terminal Connection Box layout<br>3M/3M/3MC/3MA                |
|                                   | <b>SY</b>          | Terminal Connection for MBX motors<br>(Cable no ATEX)          |
|                                   | <b>SL</b>          | Terminal connection box layout 6i only<br>for MB / MH205 motor |
|                                   | <b>F</b>           | Fast Connector   |
|                                   | <b>A</b>           | Amphenol Connector<br>(layout 0P, 1A, 1C, 2DA, ...)            |
|                                   | <b>T</b>           | Trilogy Connector  |
|                                   | <b>SL</b>          | Terminal connection box layout 6i only<br>for MB / MH205 motor |
|                                   | <b>PRM</b>         | Patch Cord Military Connector (Mil)<br>(all layout except 08]  |
| <b>7 Motor Size</b>               | <b>40..265</b>     | Motor Size   |

### Feedback Cable for MB Motors

|               | 1       | 2 | 3   | 4 | 5     |
|---------------|---------|---|-----|---|-------|
| Order example | CAVORES | 4 | PM- | I | SLVDN |

|                            |                 |  |
|----------------------------|-----------------|--|
| <b>1 Signal Cable type</b> | <b>CAVORES</b>  | Resolver   |
|                            | <b>CAVOENC</b>  | Incremental encoder  |
|                            | <b>CAVOABS</b>  | Absolute Encoder EnDat+SinCos                                  |
|                            | <b>CAVOHIP</b>  | Absolute Encoder Hiperface+SinCos                              |
|                            | <b>CAVOSIN</b>  | SinCos Encoder   |
|                            | <b>CAVOHAL</b>  | SinCos Encoder + Hall sensor                                   |
| <b>2 Length [m]</b>        | <b>1, ...</b>   | Length in metre  |
| <b>3 Application Type</b>  | <b>PM</b>       | Moving Application   |
| <b>4 Motor Connector</b>   | <b>M</b>        | Military Connector (Mil)<br>(all layout except 08]             |
|                            | <b>8</b>        | Military Connector (Mil)<br>(all layout 8]                     |
|                            | <b>I</b>        | Interconnectron Connector<br>(all layout)                      |
|                            | <b>S</b>        | Terminal Connection Box layout<br>3M/3M/3MC/3MA and motor MBX  |
|                            | <b>F</b>        | Fast Connector   |
|                            | <b>A</b>        | Amphenol Connector<br>(layout 0P, 1A, 1C, 2DA, ...)            |
|                            | <b>T</b>        | Trilogy Connector  |
|                            | <b>NX</b>       | Motors NX2-3-4-6-8 type<br>NX----AKR7---                       |
|                            | <b>E</b>        | Free signal cable for EX motors                                |
|                            | <b>PRM</b>      | Patch Cord Military Connector (Mil)<br>(all layout except 08]  |
| <b>5 Drive Type</b>        | <b>LVD</b>      | LVD Drive  |
|                            | <b>HPD</b>      | HPD Drive  |
|                            | <b>SLVD</b>     | SLVD and SLVD-N Drive  |
|                            | <b>SLVDN</b>    | SLVD-N Drive   |
|                            | <b>TPD</b>      | TPD-M  |
|                            | <b>SPD/TWIN</b> | TWIN-N and SPD-N Drive or wire<br>without connector drive side |
|                            | <b>HIDRIVE</b>  | Hi-Drive   |
|                            | <b>631</b>      | Servodrives 631  |
|                            | <b>638</b>      | Servodrives 638  |
|                            | <b>637F</b>     | Servodrives 637F   |



## Motor Power Cable for MH Motors

|               | 1          | 2            |
|---------------|------------|--------------|
| Order example | <b>MOK</b> | <b>55/02</b> |

| 1                            | Cable  |
|------------------------------|--|
| <b>MOK</b>                   | Motor cable <sup>(2)</sup>                               |
| 2                            | Type   |
|                              | <b>for MH56 / MH70 / MH105 <sup>(3)</sup></b>            |
| <b>55/....<sup>(1)</sup></b> | 1.5 mm <sup>2</sup> ; up to 13.8 A                       |
| <b>54/....<sup>(1)</sup></b> | 1.5 mm <sup>2</sup> ; up to 13.8 A<br>Moving application |
| <b>56/....<sup>(1)</sup></b> | 2.5 mm <sup>2</sup> ; up to 18.9 A                       |
| <b>57/....<sup>(1)</sup></b> | 2.5 mm <sup>2</sup> ; up to 18.9 A<br>Moving application |
|                              | <b>for MH145 / MH205 <sup>(4)</sup></b>                  |
| <b>60/....<sup>(1)</sup></b> | 1.5 mm <sup>2</sup> ; up to 13.8 A                       |
| <b>63/....<sup>(1)</sup></b> | 1.5 mm <sup>2</sup> ; up to 13.8 A<br>Moving application |
| <b>59/....<sup>(1)</sup></b> | 2.5 mm <sup>2</sup> ; up to 18.9 A                       |
| <b>64/....<sup>(1)</sup></b> | 2.5 mm <sup>2</sup> ; up to 18.9 A<br>Moving application |
| <b>61/....<sup>(1)</sup></b> | 6 mm <sup>2</sup> ; up to 32.3 A<br>Moving application   |
| <b>62/....<sup>(1)</sup></b> | 10 mm <sup>2</sup> ; up to 47.3 A<br>Moving application  |

MOK55 and MOK54 are also possible for linear motors LXR406, LXR412 and BLMA.

## Length code for cables

<sup>(1)</sup> Length code 1 (Example: SSK01/09 = length 25 m)

| Length [m] | 1,0 | 2,5 | 5,0 | 7,5 | 10,0 | 12,5 | 15,0 | 20,0 | 25,0 | 30,0 | 35,0 | 40,0 | 45,0 | 50,0 |
|------------|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|
| Order code | 01  | 02  | 03  | 04  | 05   | 06   | 07   | 08   | 09   | 10   | 11   | 12   | 13   | 14   |

<sup>(2)</sup> Color according to DESINA

<sup>(3)</sup> with motor connector

<sup>(4)</sup> with cable eye for motor terminal box

## Feedback Cable for MH Motors

|               | 1               |
|---------------|-----------------|
| Order example | <b>REK42/02</b> |

| 1                               | Signal Cable type   |
|---------------------------------|---|
|                                 | <b>for MH-Motors</b>  |
| <b>REK42/....<sup>(1)</sup></b> | Resolver cable <sup>(2)</sup>                                 |
| <b>REK41/....<sup>(1)</sup></b> | Resolver cable <sup>(2)</sup><br>Moving application           |
| <b>GBK24/....<sup>(1)</sup></b> | SinCos© Feedback cable <sup>(2)</sup><br>Moving application   |
| <b>GBK38/....<sup>(1)</sup></b> | EnDat 2.1 Feedback cable <sup>(2)</sup><br>Moving application |
| <b>GBK23/....<sup>(1)</sup></b> | Encoder cable <sup>(2)</sup>                                  |
|                                 | <b>for linear motors</b>                                      |
| <b>GBK33/....<sup>(1)</sup></b> | Feedback cable for LXR<br>Moving application                  |
| <b>GBK32/....<sup>(1)</sup></b> | Feedback cable for BLMA<br>Moving application                 |



# 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

- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

### Key Products

- Flight control systems & components
- Fluid conveyance systems
- Fluid metering delivery & atomization devices
- Fuel systems & components
- Hydraulic systems & components
- Inert nitrogen generating systems
- Pneumatic systems & components
- Wheels & brakes



## CLIMATE CONTROL

### Key Markets

- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Precision cooling
- Processing
- Transportation

### Key Products

- CO<sup>2</sup> controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves



## ELECTROMECHANICAL

### Key Markets

- Aerospace
- Factory automation
- Food & beverage
- 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
- Controllers
- Gantry robots
- Gearheads
- Human machine interfaces
- Industrial PCs
- Inverters
- Linear motors, slides and stages
- Precision stages
- Stepper motors
- Servo motors, drives & controls
- Structural extrusions



## FILTRATION

### Key Markets

- Food & beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation
- Process
- Transportation

### Key Products

- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & coolant filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators



## FLUID & GAS HANDLING

### Key Markets

- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

### Key Products

- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & PFA hose, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



## HYDRAULICS

### Key Markets

- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

### Key Products

- Diagnostic equipment
- Hydraulic cylinders & accumulators
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



## PNEUMATICS

### Key Markets

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

### Key Products

- Air preparation
- Compact cylinders
- Field bus valve systems
- Grippers
- Guided cylinders
- Manifolds
- Miniature fluidics
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves and controls
- Rodless cylinders
- Rotary actuators
- Tie rod cylinders
- Vacuum generators, cups & sensors



## PROCESS CONTROL

### Key Markets

- Chemical & refining
- Food, beverage & dairy
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation

### Key Products

- Analytical sample conditioning products & systems
- Fluoropolymer chemical delivery fittings, valves & pumps
- High purity gas delivery fittings, valves & regulators
- Instrumentation fittings, valves & regulators
- Medium pressure fittings & valves
- Process control manifolds



## SEALING & SHIELDING

### Key Markets

- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

### Key Products

- Dynamic seals
- Elastomeric o-rings
- EMI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management

# Parker Worldwide

## Europe, Middle East, Africa

**AE – United Arab Emirates, Dubai**  
Tel: +971 4 8127100  
parker.me@parker.com

**AT – Austria, Wiener Neustadt**  
Tel: +43 (0)2622 23501-0  
parker.austria@parker.com

**AT – Eastern Europe, Wiener Neustadt**  
Tel: +43 (0)2622 23501 900  
parker.easteurope@parker.com

**AZ – Azerbaijan, Baku**  
Tel: +994 50 2233 458  
parker.azerbaijan@parker.com

**BE/LU – Belgium, Nivelles**  
Tel: +32 (0)67 280 900  
parker.belgium@parker.com

**BY – Belarus, Minsk**  
Tel: +375 17 209 9399  
parker.belarus@parker.com

**CH – Switzerland, Etoy**  
Tel: +41 (0)21 821 87 00  
parker.switzerland@parker.com

**CZ – Czech Republic, Klecany**  
Tel: +420 284 083 111  
parker.czechrepublic@parker.com

**DE – Germany, Kaarst**  
Tel: +49 (0)2131 4016 0  
parker.germany@parker.com

**DK – Denmark, Ballerup**  
Tel: +45 43 56 04 00  
parker.denmark@parker.com

**ES – Spain, Madrid**  
Tel: +34 902 330 001  
parker.spain@parker.com

**FI – Finland, Vantaa**  
Tel: +358 (0)20 753 2500  
parker.finland@parker.com

**FR – France, Contamine s/Arve**  
Tel: +33 (0)4 50 25 80 25  
parker.france@parker.com

**GR – Greece, Athens**  
Tel: +30 210 933 6450  
parker.greece@parker.com

**HU – Hungary, Budaörs**  
Tel: +36 23 885 470  
parker.hungary@parker.com

**IE – Ireland, Dublin**  
Tel: +353 (0)1 466 6370  
parker.ireland@parker.com

**IT – Italy, Corsico (MI)**  
Tel: +39 02 45 19 21  
parker.italy@parker.com

**KZ – Kazakhstan, Almaty**  
Tel: +7 7273 561 000  
parker.easteurope@parker.com

**NL – The Netherlands, Oldenzaal**  
Tel: +31 (0)541 585 000  
parker.nl@parker.com

**NO – Norway, Asker**  
Tel: +47 66 75 34 00  
parker.norway@parker.com

**PL – Poland, Warsaw**  
Tel: +48 (0)22 573 24 00  
parker.poland@parker.com

**PT – Portugal, Leca da Palmeira**  
Tel: +351 22 999 7360  
parker.portugal@parker.com

**RO – Romania, Bucharest**  
Tel: +40 21 252 1382  
parker.romania@parker.com

**RU – Russia, Moscow**  
Tel: +7 495 645-2156  
parker.russia@parker.com

**SE – Sweden, Spånga**  
Tel: +46 (0)8 59 79 50 00  
parker.sweden@parker.com

**SK – Slovakia, Banská Bystrica**  
Tel: +421 484 162 252  
parker.slovakia@parker.com

**SL – Slovenia, Novo Mesto**  
Tel: +386 7 337 6650  
parker.slovenia@parker.com

**TR – Turkey, Istanbul**  
Tel: +90 216 4997081  
parker.turkey@parker.com

**UA – Ukraine, Kiev**  
Tel: +380 44 494 2731  
parker.ukraine@parker.com

**UK – United Kingdom, Warwick**  
Tel: +44 (0)1926 317 878  
parker.uk@parker.com

**ZA – South Africa, Kempton Park**  
Tel: +27 (0)11 961 0700  
parker.southafrica@parker.com

## North America

**CA – Canada, Milton, Ontario**  
Tel: +1 905 693 3000

**US – USA, Cleveland**  
Tel: +1 216 896 3000

## Asia Pacific

**AU – Australia, Castle Hill**  
Tel: +61 (0)2-9634 7777

**CN – China, Shanghai**  
Tel: +86 21 2899 5000

**HK – Hong Kong**  
Tel: +852 2428 8008

**IN – India, Mumbai**  
Tel: +91 22 6513 7081-85

**JP – Japan, Tokyo**  
Tel: +81 (0)3 6408 3901

**KR – South Korea, Seoul**  
Tel: +82 2 559 0400

**MY – Malaysia, Shah Alam**  
Tel: +60 3 7849 0800

**NZ – New Zealand, Mt Wellington**  
Tel: +64 9 574 1744

**SG – Singapore**  
Tel: +65 6887 6300

**TH – Thailand, Bangkok**  
Tel: +662 186 7000-99

**TW – Taiwan, Taipei**  
Tel: +886 2 2298 8987

## South America

**AR – Argentina, Buenos Aires**  
Tel: +54 3327 44 4129

**BR – Brazil, Sao Jose dos Campos**  
Tel: +55 800 727 5374

**CL – Chile, Santiago**  
Tel: +56 2 623 1216

**MX – Mexico, Apodaca**  
Tel: +52 81 8156 6000



### EMEA Product Information Centre

Free phone: 00 800 27 27 5374

(from AT, BE, CH, CZ, DE, DK, EE, ES, FI, FR, IE, IL, IS, IT, LU, MT, NL, NO, PL, PT, RU, SE, SK, UK, ZA)

### US Product Information Centre

Toll-free number: 1-800-27 27 537

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