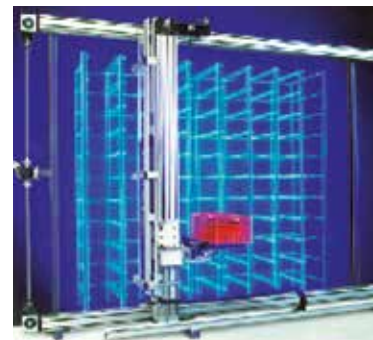


aerospace  
climate control  
**electromechanical**  
filtration  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding



## SMH / SMB Series

Low Inertia Servo Motors



ENGINEERING YOUR SUCCESS.

**ARA**<sup>®</sup>  
PNEUMATIK

ul. Wyścigowa 38, 53-012 Wrocław  
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|  |           |
|--|-----------|
| <b>Overview .....</b>                                      | <b>5</b>  |
| <b>Technical Characteristics.....</b>                      | <b>6</b>  |
| Technical Data.....  | 6         |
| Speed Torque Curves .....                                  | 8         |
| Dimensions of Standard Motors with Resolver Feedback ..... | 11        |
| <b>Options.....</b>  | <b>12</b> |
| Holding Brake .....  | 12        |
| Medium Inertia.....  | 12        |
| Feedback.....  | 12        |
| <b>Layout and Connectors .....</b>                         | <b>15</b> |
| <b>Associated Drives .....</b>                             | <b>17</b> |
| <b>Order Code.....</b>                                     | <b>18</b> |
| Serie SMH /SMB / SME .....                                 | 18        |
| Motor Power Cable for SMH /SMB Motors.....                 | 20        |
| Feedback Cable for SMH /SMB Motors .....                   | 21        |

# Parker Hannifin

## The global leader in motion and control technologies

### 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  
Jangan, Korea  
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



Filderstadt, Germany



Dijon, France

# Low Inertia Servo Motors - SMH / SMB

## Overview

### Description

The SMH / SMB Series of highly-dynamic brushless servo motors have been design to combine the cutting-edge technology of Parker Hannifin products with an extremely high performance.

Thanks to the innovative "salient pole" technology, the motor's dimensions are considerably reduced with significant advantages in terms of specific torque, overall dimensions and dynamic performance. Compared to traditional-technology brushless servo motors, the specific torque is approximately 30 % higher, overall dimensions are considerably reduced and, consequently rotor inertias are extremely low. Thanks to the high quality of Neodymium-Iron-Boron magnets, and also the encapsulation method used to fasten them to the shaft, the SMH/B motors can achieve very high acceleration and withstand high overloads without risk of demagnetisation or detachment of the magnets.

Specific applications for the SMH/B Series include all types especially those for the packaging and handling industry, and all those applications where very high dynamic performances and very low inertias are required.

### Features

- High number of feedback options
- Customised windings/voltages
- Increased Inertia option
- Multiple connection options

### 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 servomotor   |
| <b>Rotor Design</b>                  | Rotor with surface rare earth magnets  |
| <b>Number of poles</b>               | 8  |
| <b>Power Range</b>                   | 0.1 – 9.4 kW   |
| <b>Torque Range</b>                  | 0.19 – 60 Nm   |
| <b>Speed Range</b>                   | 0 – 7500 min <sup>-1</sup>   |
| <b>Mounting</b>                      | Flange with smooth holes   |
| <b>Shaft End</b>                     | Plain keyed shaft<br>Plain smooth shaft (option)   |
| <b>Cooling</b>                       | Natural ventilation  |
| <b>Protection Level (IEC60034-5)</b> | IP64<br>IP65 (option/standard for SM_170)  |
| <b>Feedback sensor</b>               | Resolver<br>Absolute Endat or Hiperface<br>Incremental Encoder   |
| <b>Thermal protection</b>            | PTC for SMB and KTY compatible with SMH  |
| <b>Other options</b>                 | Brake<br>Second shaft<br>Increased inertia   |
| <b>Marking</b>                       | CE<br>UL (SM_40 and SM_170 excluded)   |
| <b>Voltage Supply</b>                | 80 / 230 / 400 VAC<br>other voltage under request  |
| <b>Temperature Class</b>             | Class F  |
| <b>Connections</b>                   | Rotatable connectors<br>Flying cables<br>Terminal Box<br>(see table option for combination)<br>Special connector (under request) |

# Technical Characteristics

## Technical Data

### 230 VAC supply voltage

| Model         | Size | Stall <sup>(1)</sup>                      |                      | Nominal <sup>(1)</sup> |                        |                       | Peak <sup>(1)</sup>   | Inertia                |                        | Ke <sup>(2) (3)</sup> | Kt <sup>(2) (3)</sup>     |
|---------------|------|---|----------------------|------------------------|------------------------|-----------------------|-----------------------|------------------------|------------------------|-----------------------|---------------------------|
|               |      | Torque                                    | Current              | Torque                 | Speed                  | Current               | Torque                | 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> ] |
| SM_40 60 0,19 | 40   | 0.19                                      | 0.78                 | 0.16                   | 6000                   | 0.66                  | 0.6                   | 3.7                    | -                      | 0.14                  | 0.242                     |
| SM_40 60 0,38 |      | 0.38                                      | 1.2                  | 0.27                   | 6000                   | 0.86                  | 1.17                  | 6.1                    |                        | 0.181                 | 0.31                      |
| SM_60 30 0,55 | 60   | 0.55<br>(0.68)                            | 0.7                  | 0.50                   | 3000                   | 0.66                  | 1.7                   | 18                     | 30.5                   | 0.44                  | 0.76                      |
| SM_60 45 0,55 |      |   | 1.0                  | 0.39                   | 4500                   | 0.74                  |                       |                        |                        | 0.30                  | 0.53                      |
| SM_60 60 0,55 |      |   | 1.4                  | 0.24                   | 6000                   | 0.60                  |                       |                        |                        | 0.23                  | 0.40                      |
| SM_60 16 1,4  |      | 1.4<br>(1.7)                              | 0.95                 | 1.35                   | 1600                   | 0.91                  | 4.4                   | 30                     | 42.5                   | 0.85                  | 1.48                      |
| SM_60 30 1,4  |      |   | 1.73                 | 1.20                   | 3000                   | 1.50                  |                       |                        |                        | 0.47                  | 0.81                      |
| SM_60 45 1,4  |      |   | 2.37                 | 1.00                   | 4500                   | 1.69                  |                       |                        |                        | 0.34                  | 0.59                      |
| SM_60 60 1,4  |      |   | 2.98                 | 0.80                   | 6000                   | 1.70                  |                       |                        |                        | 0.27                  | 0.47                      |
| SM_60 75 1,4  |      |   | 3.85                 | 0.15                   | 7500                   | 0.41                  |                       |                        |                        | 0.21                  | 0.36                      |
| SM_82 10 03   | 82   | 3 (3.7)                                   | 1.2                  | 2.9                    | 1000                   | 1.2                   | 9                     | 140                    | 183                    | 1.43                  | 2.48                      |
| SM_82 16 03   |      |   | 1.8                  | 2.9                    | 1600                   | 1.7                   |                       |                        |                        | 0.96                  | 1.66                      |
| SM_82 30 03   |      |   | 3.1                  | 2.7                    | 3000                   | 2.8                   |                       |                        |                        | 0.55                  | 0.96                      |
| SM_82 33 03   |      |   | 3.5                  | 2.4                    | 3300                   | 2.8                   |                       |                        |                        | 0.49                  | 0.85                      |
| SM_82 45 03   |      |   | 4.7                  | 2.2                    | 4500                   | 3.4                   |                       |                        |                        | 0.37                  | 0.64                      |
| SM_82 60 03   |      |   | 6.1                  | 1.5                    | 6000                   | 3.1                   |                       |                        |                        | 0.28                  | 0.49                      |
| SM_82 75 03   |      |   | 7.5                  | 0.6                    | 7500                   | 1.6                   |                       |                        |                        | 0.23                  | 0.40                      |
| SM_100 16 06  | 100  | 6 (9)                                     | 3.7                  | 5.8                    | 1600                   | 3.6                   | 18                    | 336                    | 440                    | 0.92                  | 1.60                      |
| SM_100 30 06  |      |   | 5.9                  | 5.0                    | 3000                   | 4.9                   |                       |                        |                        | 0.59                  | 1.02                      |
| SM_100 45 06  |      |   | 9.4                  | 3.5                    | 4500                   | 5.5                   |                       |                        |                        | 0.37                  | 0.64                      |
| SM_100 55 06  |      |   | 11.8                 | 2.6                    | 5500                   | 5.1                   |                       |                        |                        | 0.29                  | 0.51                      |
| SM_100 75 06  |      |   | 14.7                 | 0.6                    | 7500                   | 1.5                   |                       |                        |                        | 0.24                  | 0.41                      |
| SM_115 16 10  | 115  | 10 (12.5)                                 | 6.0                  | 9.0                    | 1600                   | 5.4                   | 32                    | 900                    | 1000                   | 0.96                  | 1.66                      |
| SM_115 30 10  |      |   | 10.5                 | 8.0                    | 3000                   | 8.4                   |                       |                        |                        | 0.55                  | 0.95                      |
| SM_115 40 10  |      |   | 14.7                 | 7.6                    | 4000                   | 11.2                  |                       |                        |                        | 0.39                  | 0.68                      |
| SM_115 54 10  |      |   | 18.2                 | 7.1                    | 5400                   | 12.9                  |                       |                        |                        | 0.32                  | 0.55                      |
| SM_142 18 15  | 142  | 15 (19)                                   | 9.7                  | 13.3                   | 1800                   | 8.6                   | 47                    | 1400                   | 1600                   | 0.89                  | 1.54                      |
| SM_142 30 15  |      |   | 16.0                 | 12.5                   | 3000                   | 13.4                  |                       |                        |                        | 0.54                  | 0.94                      |
| SM_170 11 35  | 170  | 35  | 13.3                 | 30                     | 1100                   | 11.4                  | 111                   | 2900                   | 4500                   | 1.52                  | 2.6                       |
| SM_170 16 35  |      |   | 20                   | 28                     | 1600                   | 16.0                  |                       |                        |                        | 1.03                  | 1.8                       |
| SM_170 25 35  |      |   | 29                   | 26                     | 2500                   | 22.0                  |                       |                        |                        | 0.69                  | 1.2                       |

<sup>(1)</sup> Data referred to motor mounted on a steel flange in horizontal position with resolver and without brake. Stall torques refer to motor turning at 100 min<sup>-1</sup>

<sup>(2)</sup> Data measured at 20 °C. When "hot" consider -0.09 %/K derating

<sup>(3)</sup> Manufacturing tolerance ±10 %

400 VAC power supply

| Model        | Size | Stall <sup>(1)</sup>                         |                         | Nominal <sup>(1)</sup>    |                           |                          | Peak <sup>(1)</sup>      | Inertia                   |                           | Ke <sup>(2) (3)</sup> | Kt <sup>(2) (3)</sup>        |
|--------------|------|--|-------------------------|---------------------------|---------------------------|--------------------------|--------------------------|---------------------------|---------------------------|-----------------------|------------------------------|
|              |      | Torque                                       | Current                 | Torque                    | Speed                     | Current                  | Torque                   | 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> ] |
| SM_60 30 1,4 | 60   | 1.4<br>(1.7)                                 | 0.95                    | 1.2                       | 3000                      | 0.81                     | 4.4                      | 30                        | 42.5                      | 0.81                  | 1.48                         |
| SM_60 45 1,4 |      |  | 1.37                    | 1.0                       | 4500                      | 0.98                     |                          |                           |                           | 0.59                  | 1.02                         |
| SM_60 60 1,4 |      |  | 1.73                    | 0.8                       | 6000                      | 0.99                     |                          |                           |                           | 0.68                  | 0.81                         |
| SM_60 75 1,4 |      |  | 2.15                    | 0.15                      | 7500                      | 0.23                     |                          |                           |                           | 0.38                  | 0.65                         |
| SM_82 30 03  | 82   | 3<br>(3.7)                                   | 1.8                     | 2.7                       | 3000                      | 1.6                      | 9                        | 140                       | 183                       | 0.96                  | 1.66                         |
| SM_82 45 03  |      |  | 2.7                     | 2.2                       | 4500                      | 2.0                      |                          |                           |                           | 0.64                  | 1.11                         |
| SM_82 56 03  |      |  | 3.1                     | 1.6                       | 5600                      | 1.7                      |                          |                           |                           | 0.55                  | 0.96                         |
| SM_82 60 03  |      |  | 3.5                     | 1.7                       | 6000                      | 2.0                      |                          |                           |                           | 0.49                  | 0.85                         |
| SM_82 75 03  |      |  | 4.4                     | 0.6                       | 7500                      | 0.9                      |                          |                           |                           | 0.39                  | 0.68                         |
| SM_100 30 06 | 100  | 6<br>(9)                                     | 3.7                     | 5.0                       | 3000                      | 3.1                      | 18                       | 336                       | 440                       | 0.92                  | 1.60                         |
| SM_100 45 06 |      |  | 5.6                     | 3.5                       | 4500                      | 3.3                      |                          |                           |                           | 0.62                  | 1.07                         |
| SM_100 56 06 |      |  | 5.9                     | 2.5                       | 5600                      | 2.4                      |                          |                           |                           | 0.59                  | 1.02                         |
| SM_100 75 06 |      |  | 9.4                     | 0.6                       | 7500                      | 0.9                      |                          |                           |                           | 0.37                  | 0.64                         |
| SM_115 20 10 | 115  | 10<br>(12.5)                                 | 4.5                     | 9.0                       | 2000                      | 4.06                     | 32                       | 900                       | 1000                      | 1.28                  | 2.22                         |
| SM_115 30 10 |      |  | 6.0                     | 8.0                       | 3000                      | 4.82                     |                          |                           |                           | 0.96                  | 1.66                         |
| SM_115 40 10 |      |  | 8.0                     | 7.6                       | 4000                      | 6.05                     |                          |                           |                           | 0.73                  | 1.26                         |
| SM_115 56 10 |      |  | 10.5                    | 6.0                       | 5600                      | 6.30                     |                          |                           |                           | 0.55                  | 0.95                         |
| SM_142 20 15 | 142  | 15<br>(19)                                   | 6.4                     | 13.0                      | 2000                      | 5.5                      | 47                       | 1400                      | 1600                      | 1.36                  | 2.35                         |
| SM_142 30 15 |      |  | 9.7                     | 12.5                      | 3000                      | 8.1                      |                          |                           |                           | 0.89                  | 1.54                         |
| SM_142 45 15 |      |  | 14.4                    | 10.9                      | 4500                      | 10.5                     |                          |                           |                           | 0.60                  | 1.04                         |
| SM_142 56 15 |      |  | 16.0                    | 9.2                       | 5600                      | 9.8                      |                          |                           |                           | 0.54                  | 0.94                         |
| SM_142 10 17 |      | 17<br>(21)                                   | 3.5                     | 16.4                      | 1000                      | 3.4                      | 54                       |                           |                           | 2.83                  | 4.90                         |
| SM_142 30 17 |      |  | 9.6                     | 14.0                      | 3000                      | 8.1                      |                          |                           |                           | 1.02                  | 1.77                         |
| SM_142 56 17 |      |  | 15.8                    | 10.6                      | 5600                      | 9.8                      |                          |                           |                           | 0.62                  | 1.08                         |
|              |      |  |                         |                           |                           |                          |                          |                           |                           |                       |                              |
| SM_170 10 35 | 170  | 35   | 6.8                     | 31                        | 1000                      | 6.1                      | 111                      | 2900                      | 4500                      | 2.95                  | 5.1                          |
| SM_170 20 35 |      |  | 13.3                    | 27                        | 2000                      | 10.3                     |                          |                           |                           | 1.52                  | 2.6                          |
| SM_170 27 35 |      |  | 18                      | 22                        | 2700                      | 11                       |                          |                           |                           | 1.15                  | 2.0                          |
| SM_170 30 35 |      |  | 20                      | 19                        | 3000                      |                          |                          |                           |                           | 1.03                  | 1.8                          |
| SM_170 10 60 |      | 60   | 11.7                    | 53                        | 1000                      | 10.4                     | 190                      | 5800                      | 7400                      | 2.95                  | 5.1                          |
| SM_170 20 60 |      |  | 22.6                    | 44                        | 2000                      | 16.6                     |                          |                           |                           | 1.53                  | 2.7                          |
| SM_170 30 60 |      |  | 35.7                    | 30                        | 3000                      | 17.9                     |                          |                           |                           | 0.97                  | 1.7                          |

<sup>(1)</sup> Data referred to motor mounted on a steel flange in horizontal position with resolver and without brake. Stall torques refer to motor turning at 100 min<sup>-1</sup>

<sup>(2)</sup> Data measured at 20 °C. When "hot" consider -0.09 %/K derating

<sup>(3)</sup> Manufacturing tolerance data ±10 %

**STANDARDS**

In compliance with: 2006/95 EC

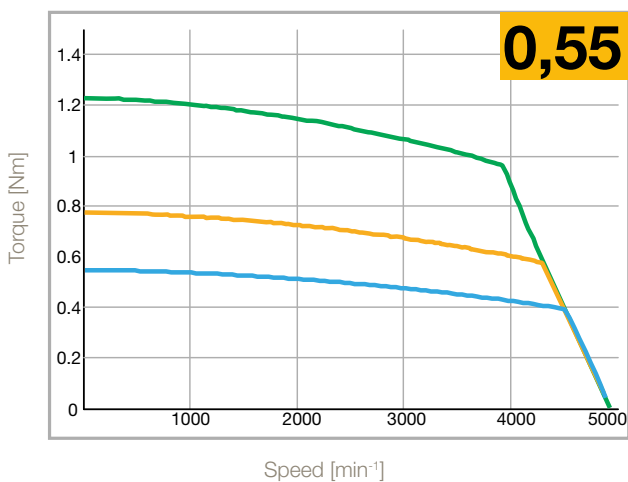
- EN60034-1
- EN60034-5
- EN60034-5/A1

Marked  Marked  (except SM\_40 and SM\_170)

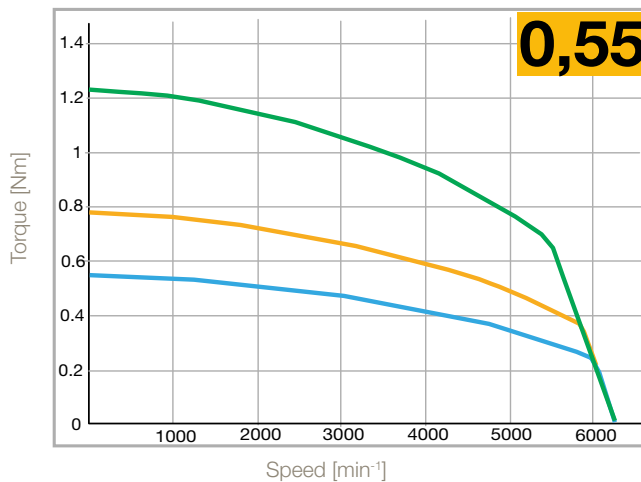
## Speed Torque Curves

### SMH/B60

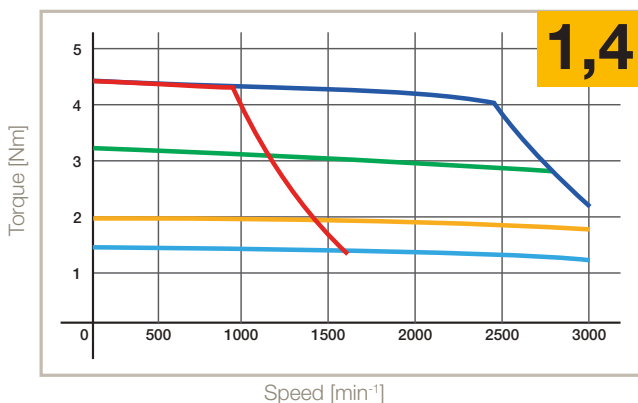
4500 min<sup>-1</sup> 230 V



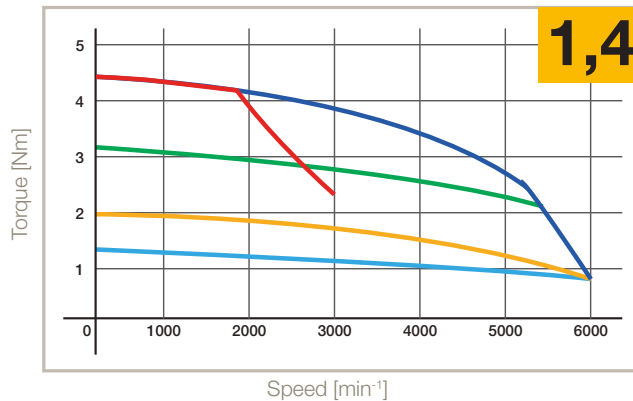
6000 min<sup>-1</sup> 230 V



1600 min<sup>-1</sup> 230 V - 3000 min<sup>-1</sup> 400 V



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

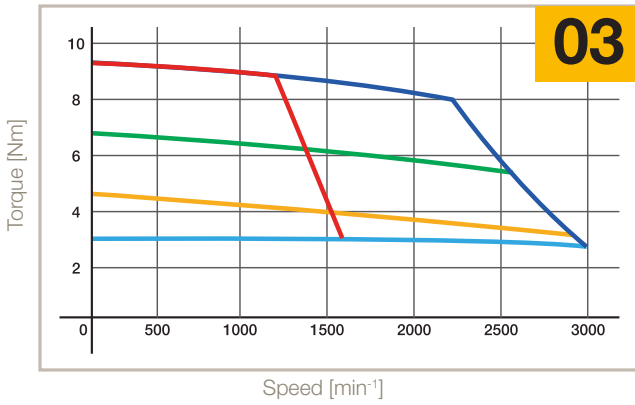


- S1 65 K, ΔT
- S3 10 %, 5 min, 400 V
- S3 50 %, 5 min
- S3 10 %, 5 min, 230 V
- S3 50 %, 5 min
- S3 20 %, 5 min

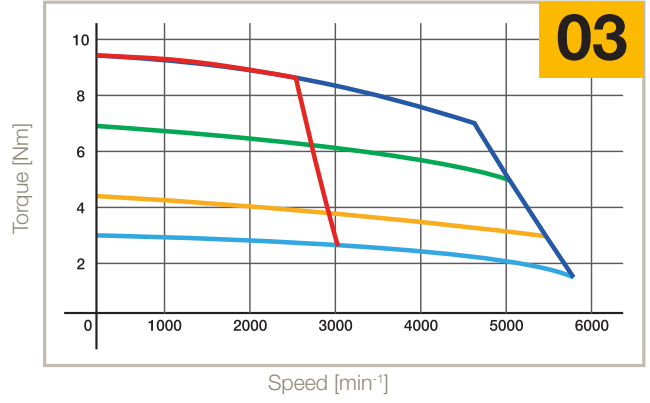


**SMH/B82**

1600 min<sup>-1</sup> 230 V - 3000 min<sup>-1</sup> 400 V

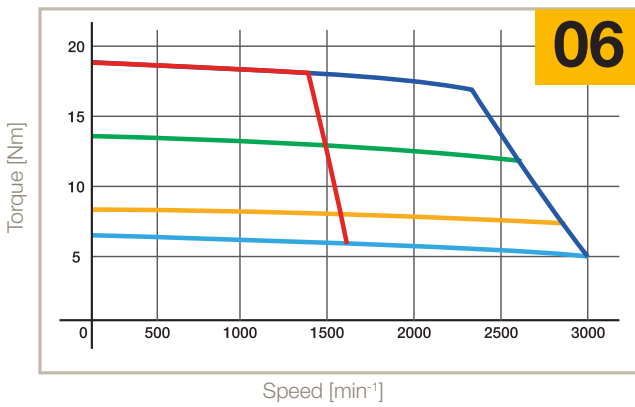


3000 min<sup>-1</sup> 230 V - 5600 min<sup>-1</sup> 400 V

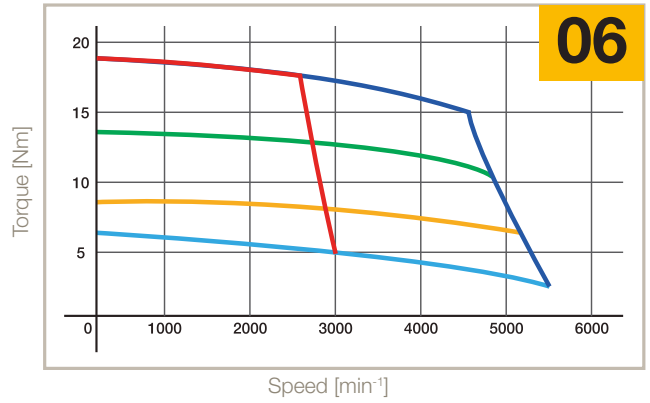


**SMH/B100**

1600 min<sup>-1</sup> 230 V - 3000 min<sup>-1</sup> 400 V

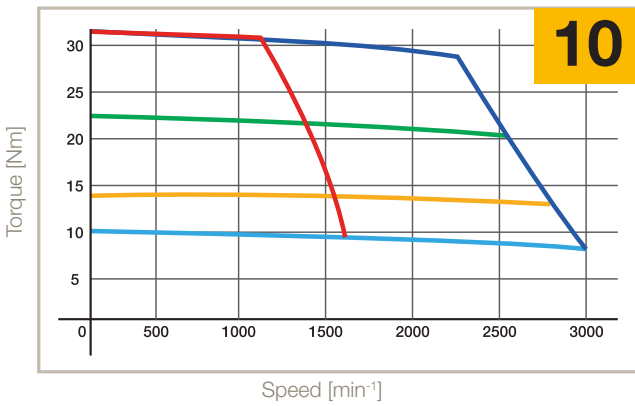


3000 min<sup>-1</sup> 230 V - 5600 min<sup>-1</sup> 400 V

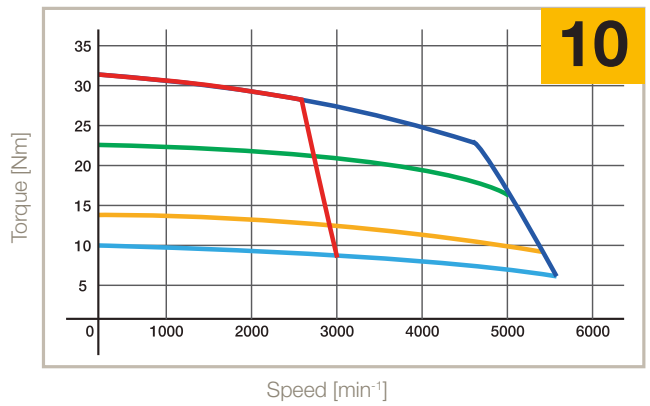


**SMH/B115**

1600 min<sup>-1</sup> 230 V - 3000 min<sup>-1</sup> 400 V



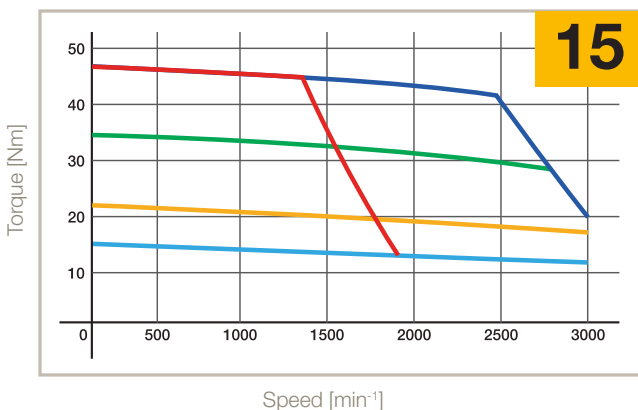
3000 min<sup>-1</sup> 230 V - 5600 min<sup>-1</sup> 400 V



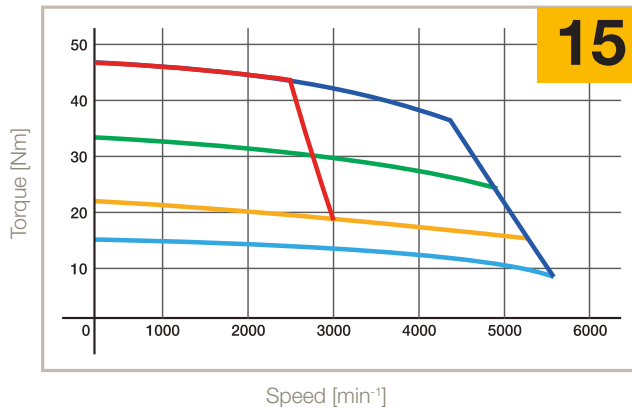
- S1 65 K, ΔT
- S3 10 %, 5 min, 400 V
- S3 10 %, 5 min, 230 V
- S3 50 %, 5 min
- S3 50 %, 5 min
- S3 20 %, 5 min

**SMH/B142**

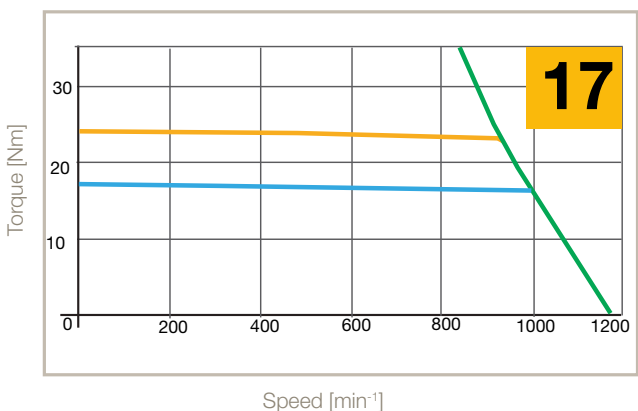
1800 min<sup>-1</sup> 230 V - 3000 min<sup>-1</sup> 400 V



3000 min<sup>-1</sup> 230 V - 5600 min<sup>-1</sup> 400 V

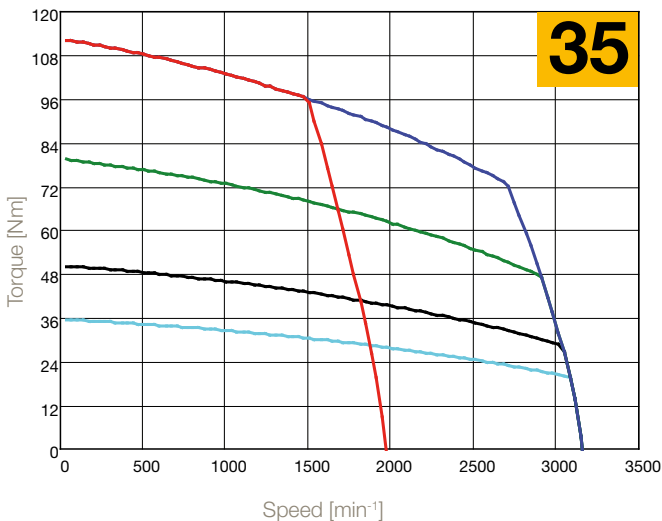


1000 min<sup>-1</sup> 400 V

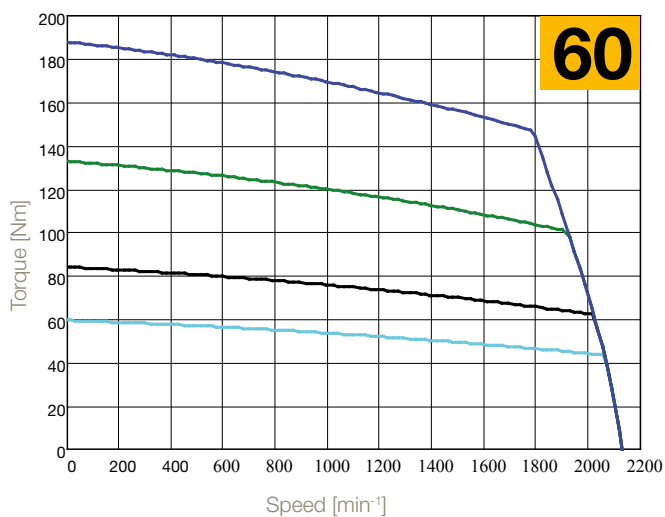


**SMH/B170**

1600 min<sup>-1</sup> 230 V - 3000 min<sup>-1</sup> 400 V

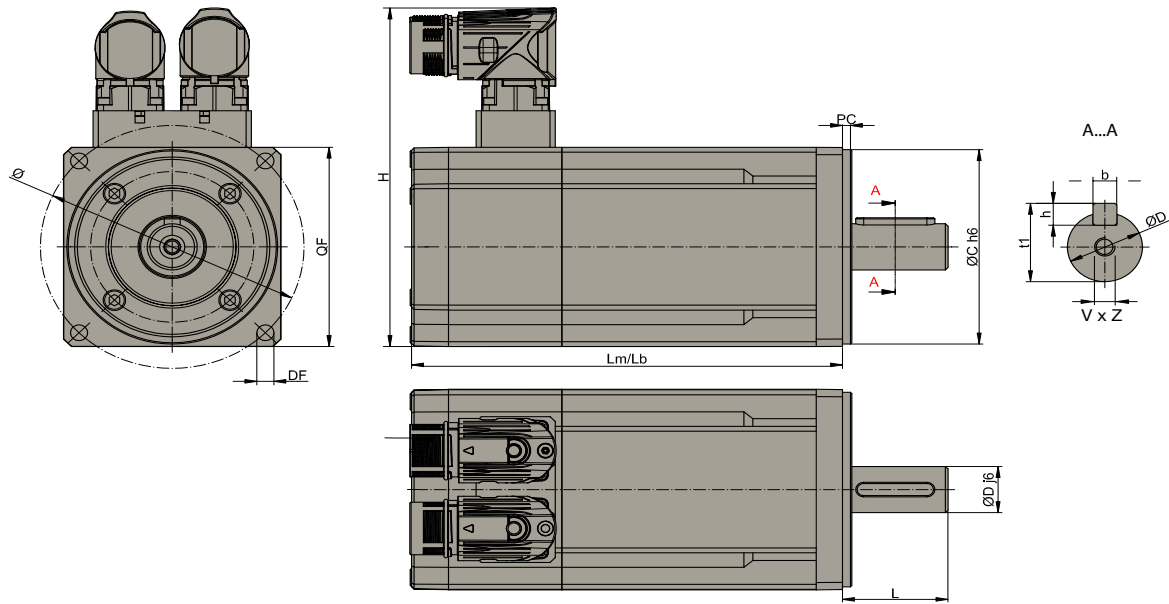


2000 min<sup>-1</sup> 400 V



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

### Dimensions of Standard Motors with Resolver Feedback



Dimensions [mm]

| Motors Size |     | LM   | LB             | Weight [kg]  | DxL   | bxh               | t1                 | VxZ                       | H                  | C   | Ø   | DF  | PC  | QF  | Order Code QF |
|-------------|-----|------|----------------|--------------|---|-------------------|--------------------|---------------------------|--------------------|-----|-----|-----|-----|-----|---------------|
| SMH / B     | 40  | 0,19 | 87.5<br>119.5  | 0.53<br>n.a. | 8x20  | 3x3               | 9.2                | n.a.                      | 60<br>Layout 2Y    | 30  | 50  | 4.3 | 2.5 | 40  | 5             |
|             |     | 0,38 | 105.5<br>137.5 | 0.68<br>n.a. | 8x20  | 3x3               | 9.2                | n.a.                      | 60<br>Layout 2Y    | 30  | 50  | 4.3 | 2.5 | 40  | 5             |
|             | 60  | 0,55 | 91.2<br>137    | 1<br>1.3     | 9x20<br>11x23   | 3x3<br>4x4        | 10.2<br>12.5       | -<br>M4x10                | 118<br>Layout 2I   | 40  | 63  | 5.5 | 2.5 | 60  | 8             |
|             |     |      | 60             | 75           | 6   | 2.5               | 70                 | 5                         |                    |     |     |     |     |     |               |
|             |     | 1,4  | 129.5<br>161   | 1.5<br>1.8   | 9x20<br>11x23   | 3x3<br>4x4        | 10.2<br>12.5       | -<br>M4x10                |                    | 40  | 63  | 5.5 | 2.5 | 60  | 8             |
|             |     |      | 60             | 75           | 6   | 2.5               | 70                 | 5                         |                    |     |     |     |     |     |               |
|             | 82  | 03   | 159<br>202     | 3.6<br>4.3   | 11x23 <sup>(2)</sup><br>14x30                         | 4x4<br>5x5        | 12.5<br>16         | M4x10<br>M5x12.5          | 140<br>Layout 2I   | 60  | 75  | 6   | 2.5 | 70  | 7             |
|             |     |      | 163.5<br>206.5 | 3.6<br>4.3   | 11x23 <sup>(2)</sup><br>14x30<br>19x40 <sup>(1)</sup> | 4x4<br>5x5<br>6x6 | 12.5<br>16<br>21.5 | M4x10<br>M5x12.5<br>M6x16 |                    | 80  | 100 | 6.5 | 3.5 | 82  | 8             |
|             |     |      | 95             | 115          | 9   | 3.5               | 100                | 5                         |                    |     |     |     |     |     |               |
|             | 100 | 06   | 191.5<br>238.5 | 4.7<br>5.3   | 19x40<br>24x50  | 6x6<br>8x7        | 21.5<br>27         | M6x16<br>M8x19            | 157.5<br>Layout 2I | 80  | 100 | 7   | 3.5 | 100 | 8             |
|             |     |      | 95             | 115          | 9   | 3.5               | 100                | 5                         |                    |     |     |     |     |     |               |
|             | 115 | 10   | 220<br>265     | 7.7<br>9.7   | 19x40<br>24x50<br>28x60                               | 6x6<br>8x7<br>8x7 | 21.5<br>27<br>31   | M6x16<br>M8x19<br>M10x22  | 157.5<br>Layout 2I | 95  | 115 | 9   | 3.5 | 115 | 9             |
|             |     |      |                |              |   |                   |                    |                           |                    | 95  | 130 | 9   | 3.5 | 115 | 8             |
|             |     |      |                |              |   |                   |                    |                           |                    | 110 | 130 | 9   | 3.5 | 130 | 7             |
|             |     |      |                |              |   |                   |                    |                           |                    | 130 | 165 | 11  | 3.5 | 145 | 5             |
|             | 142 | 15   | 243<br>293     | 13<br>16     | 19x40<br>24x50<br>28x60                               | 6x6<br>8x7<br>8x7 | 21.5<br>27<br>31   | M6x16<br>M8x19<br>M10x22  | 185<br>Layout 2I   | 130 | 165 | 11  | 3.5 | 142 | 5             |
| 170         | 35  | 306  | 30             | 38x80        | 10x8  | 41                | M12x32             | 212.3<br>Layout 2I        | 180                | 215 | 14  | 4   | 205 | 5   |               |
|             | 60  | 409  | 50             | 38x80        | 10x8  | 41                | M12x32             | 212.3<br>Layout 2I        | 180                | 215 | 14  | 4   | 205 | 5   |               |

- LM:** Motor's length without brake and with resolver
- LB:** Motor's length with brake and resolver
- DxL:** Shaft diameter x shaft length
- bxh:** Key dimension
- t1:** Overall shaft height
- VxZ:** Shaft hole depth
- C:** Centering

- H:** Height
- DF:** Fixing holes
- Ø:** Interaxis hole
- QF:** Mounting flange
- PC:** Centre Depth

<sup>1)</sup> not available with flange 7  
<sup>2)</sup> only for torque <2 Nm

## Options

Parker SMH / SMB 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 SMH / SMB motors are available with option holding brake.

The fail-safe (supply voltage 24 VDC  $\pm 10\%$ ) holding brake is incorporated in the motor at the opposite side of the front flange (SM\_170 front side) and is applied when there is no voltage present. Because of the power loss caused by the brake, torque values must be reduced by 5 %. The holding brakes shall be used with the motor at a standstill and not for dynamic braking. For normal uses, they are maintenance free brakes.

| Motor        | Voltage [V] | Current [A] | Torque @20 °C [Nm] | Added Length with resolver [mm] | Added Weight [kg] | Added Inertia [kgmm <sup>2</sup> ] |
|--------------|-------------|-------------|--------------------|---------------------------------|-------------------|------------------------------------|
| SMH / SMB40  | 24          | 0.25        | 0.4                | 32                              | 0.15              | -                                  |
| SMH / SMB60  |             | 0.34        | 2.2                | 31.5                            | 0.3               | 12.5                               |
| SMH / SMB82  |             | 0.5         | 5                  | 43                              | 0.7               | 43                                 |
| SMH / SMB100 |             | 0.67        | 11                 | 47                              | 0.6               | 104                                |
| SMH / SMB115 |             | 0.67        | 11                 | 45                              | 2                 | 100                                |
| SMH / SMB142 |             | 0.75        | 22                 | 50                              | 3                 | 200                                |
| SMH / SMB170 |             | 1.67        | 72                 | -                               | 2.9               | 1600                               |

### Medium Inertia

Where the application needs different values of inertia, SMH / SMB can provide a standard adder.

| Motor        | Added inertia [kgmm <sup>2</sup> ] | Added length with resolver [mm] | Added weight [kg] |
|--------------|------------------------------------|---------------------------------|-------------------|
| SMH / SMB60  | 29                                 | 31.5                            | 0.32              |
| SMH / SMB82  | 270                                | 43                              | 0.91              |
| SMH / SMB100 | 284                                | 47                              | 0.68              |
| SMH / SMB115 | 900                                | 45                              | 2.28              |
| SMH / SMB142 | 690                                | 50                              | 2.49              |
| SMH / SMB170 | consult Parker                     | consult Parker                  | consult Parker    |

### Feedback

Motors may be equipped with various feedback types in order to meet the different requirements for precision, signal that the application needs. The standard motor includes the resolver feedback. Hiperface Encoder, DSL Encoder, EnDat Encoder, Incremental Encoder are available like the following tables.

#### Resolver

|                       |               |
|-----------------------|---------------|
| Poles                 | 2             |
| Transformation ratio  | 0.5           |
| Operating temperature | -50...+150 °C |
| SM_ associations      | All Sizes     |

#### Incremental Encoder with Hall Sensor

| Code                           | A1                                 | A2              | A3               | B3                | C4              | D3                |
|--------------------------------|------------------------------------|-----------------|------------------|-------------------|-----------------|-------------------|
| Resolution [C/T]               | 2000                               | 2048            | 4096             | 2048              | 5000            | 5000              |
| Poles                          | 8                                  |                 |                  |                   |                 |                   |
| System accuracy                | $\pm 32''$                         | $\pm 32''$      | $\pm 16''$       | $\pm 32''$        | $\pm 13''$      | $\pm 13''$        |
| Voltage                        | +5 VDC $\pm 5\%$ - 200 mA          |                 |                  |                   |                 |                   |
| Reference mark                 | Yes                                |                 |                  |                   |                 |                   |
| Max speed [min <sup>-1</sup> ] | 6000                               |                 |                  |                   |                 |                   |
| Output circuit                 | Line drive differential mode 20 mA |                 |                  |                   |                 |                   |
| Operating temperature          | -20 °C...+100 °C                   | -20 °C...+85 °C | -20 °C...+100 °C | -20 °C...+100 °C  | -20 °C...+85 °C | -20 °C...+85 °C   |
| <b>SM_ motors associations</b> |                                    |                 |                  |                   |                 |                   |
| SM_40                          | N                                  | N               | N                | N                 | N               | N                 |
| SM_60                          | N                                  | N               | N                | Y (+17 mm length) | N               | Y (+17 mm length) |
| SM_82                          | Y                                  | Y               | Y                | N                 | Y               | N                 |
| SM_100                         | Y                                  | Y               | Y                | N                 | Y               | N                 |
| SM_115                         | Y                                  | Y               | Y                | N                 | Y               | N                 |
| SM_142                         | Y                                  | Y               | Y                | N                 | Y               | N                 |
| SM_170                         | Y                                  | Y               | Y                | N                 | Y               | N                 |

### Hiperface Absolute Encoder

| Code                           | S1  | S2    | S3  | S4    | S5  | S6    |
|--------------------------------|---|-------|---|-------|---|-------|
| Type                           | Optical   |       |   |       |   |       |
| Turn                           | Single  | Multi | Single  | Multi | Single  | Multi |
| Incremental signals            | 1 V <sub>PP</sub>   |       |   |       | -   | -     |
| Line count                     | 1024  |       | 128   |       | -   | -     |
| Resolution                     | 32768 (15 bit)  |       | 4096 (12 bit)   |       | 262144 (18 bits)  |       |
| Absolute rotation              | 1   | 4096  | 1   | 4096  | 1   | 4096  |
| System accuracy                | ±45"  |       | ±320"   |       | ±40"  |       |
| Power supply                   | 8 VDC   |       |   |       | 7...12 VDC  |       |
| Max speed [min <sup>-1</sup> ] | 6000  |       | 12000   | 9000  |   |       |
| Temperature                    | -20 °C...+115 °C  |       | -20 °C...+110 °C  |       | 20 °C...+105 °C   |       |
| Safety integrity level         | SIL2 (IEC 61508), SILCL2 (IEC 62061)                          |       |   |       | SIL2 (IEC 61508), SILCL2 (IEC 62061)                          |       |
| <b>SM_ motors associations</b> |   |       |   |       |   |       |
| SM_40                          | N   | N     | N   | N     | N   | N     |
| SM_60                          | N   |       | Y (+17 mm length without brake)<br>(+30 mm length with brake) |       | Y (+17 mm length without brake)<br>(+30 mm length with brake) |       |
| SM_82                          | Y (+17 mm length without brake)<br>(+30 mm length with brake) |       | Y   | Y     | Y   | Y     |
| SM_100                         | Y (+20 mm length)   |       |   |       | Y (+20 mm length)   |       |
| SM_115                         | Y   | Y     | Y   | Y     | Y   | Y     |
| SM_142                         | Y   | Y     | Y   | Y     | Y   | Y     |
| SM_170                         | Y   | Y     | Y   | Y     | Y   | Y     |

| Code                           | A6  | A7    | C6  | C7    |
|--------------------------------|---|-------|---|-------|
| Type                           | Optical   |       |   |       |
| Turn                           | Single  | Multi | Single  | Multi |
| Incremental signals            | 1 V <sub>PP</sub>   |       |   |       |
| Line count                     | 1024  |       | 128   |       |
| Resolution                     | 32768 (15 bit)  |       | 4096 (12 bit)   |       |
| Absolute rotation              | 1   | 4096  | 1   | 4096  |
| System accuracy                | ±45"  |       | ±320"   |       |
| Power supply                   | 8 VDC   |       |   |       |
| Max speed [min <sup>-1</sup> ] | 6000  |       | 12000   | 9000  |
| Temperature                    | -20 °C...+115 °C  |       | -20 °C...+110 °C  |       |
| Safety integrity level         | Not Available   |       | Not Available   |       |
| <b>SM_ motors associations</b> |   |       |   |       |
| SM_40                          | N   | N     | N   | N     |
| SM_60                          | N   |       | Y (+17 mm length without brake)<br>(+30 mm length with brake) |       |
| SM_82                          | Y (+17 mm length without brake)<br>(+30 mm length with brake) |       | Y   | Y     |
| SM_100                         | Y (+20 mm length)   |       |   |       |
| SM_115                         | Y   | Y     | Y   | Y     |
| SM_142                         | Y   | Y     | Y   | Y     |
| SM_170                         | Y   | Y     | Y   | Y     |

### EnDat Absolute Encoder

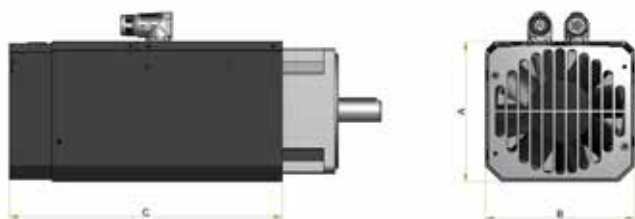
| Code                           | B9  | D5               | F2   | F4               |
|--------------------------------|---|------------------|--|------------------|
| Type                           | Inductive   | Optical          |  | Inductive        |
| Turn                           | Multi   |                  |  |                  |
| Incremental signals            | 1 V <sub>PP</sub>   |                  |  |                  |
| Line count                     | 32  | 512              |  | 16               |
| Positions per revolutions      | 131 072 (17 bit)  | 8192 (13 bit)    |  | 262 144 (18 bit) |
| Distinguishable revolutions    | 4096  | 4096             |  |                  |
| System accuracy                | ±400"   | ±60"             |  | ±480"            |
| Power supply                   | 5 VDC   |                  |  |                  |
| Max speed [min <sup>-1</sup> ] | 12 000  | 7 000            | 12 000   |                  |
| Temperature                    | -20 °C...+115 °C  | -30 °C...+115 °C | -40 °C...+115 °C   | -20 °C...+115 °C |
| Absolute position values       | EnDat 2.1   | EnDat 2.2        |  | EnDat 2.1        |
| Safety integrity level         | Not Available   |                  |  |                  |
| <b>SM_ motors associations</b> |   |                  |  |                  |
| SM_40                          | N   | N                | N  | N                |
| SM_60                          | N   | N                | Y (+17 mm length without brake)<br>(+9 mm length with brake) |                  |
| SM_82                          | Y (+22.5 mm length without brake)<br>(+18 mm length with brake) |                  | N  | N                |
| SM_100                         | Y (+20 mm length)   |                  | N  | N                |
| SM_115                         | Y   | Y                | N  | N                |
| SM_142                         | Y   | Y                | N  | N                |
| SM_170                         | Y   | Y                | N  | N                |

### Servofan kit

Designed for the SMH/SMB servo motors family, the new Servofan kit allows extra performances over and above the specified motor torque rating.

Brushless servo motors are meant for high dynamic applications and where the functionality is un-constant (S3 Cycle). In this conditions the new Servofan kit increases by 25% the motor torque and it also permits the use in continuous duty (S1) improving the performances.

Suitable for 100-115, 142 and 170mm frames sizes within the SMB/SMH ranges, the kit is available with an IP20 rating and is ideal for deployment in applications within food/ packaging, hydraulic servo pump application, material forming, factory automation and material handling sectors. For customers who already have motors in the specified frame sizes and would like more torque the new Servofan kit can be purchased separately and added.



#### Dimensions

| Model      | A     | B   | C   |
|------------|-------|-----|-----|
| SF-1000-00 | 131,7 | 128 | 271 |
| SF-1420-00 | 162   | 159 | 296 |
| SF-1701-00 | 184   | 186 | 365 |
| SF-1702-00 |       |     | 465 |

#### Order code

|               | 1  |   | 2   | 3  |   | 4  |
|---------------|----|---|-----|----|---|----|
| Order example | SF | - | 100 | 00 | - | 00 |

#### 1 Servofan kit

SF Servofan kit

#### 2 SMH-SMB motor size

100 For SMH-SMB size 100 or 115

142 For SMH-SMB size 142

170 For SMH-SMB size 170

#### 3 Motor length

0 Standard for all size except size 170

1 Only for 170 size - Length 1 - 35Nm

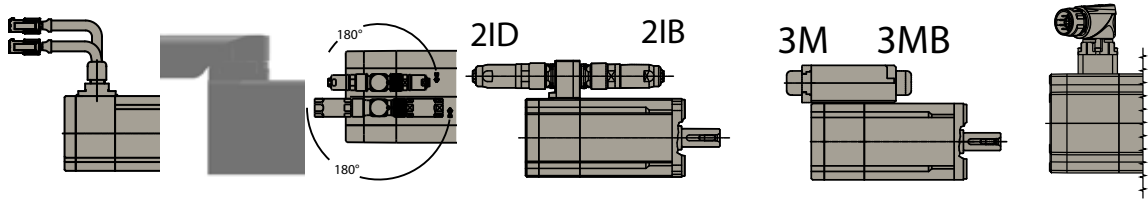
2 Only for 170 size - Length 2 - 60Nm

#### 4 Special execution

00 Standard version

01 Special version without connectors

# Layout and Connectors



|         | 200 mm Flying leads with molex plugs 0V | Y-Tech rotatable connector 2Y | 2x Parallel upright connectors 2I | 2x Forward facing connectors 2IB | 2x Rear facing connectors 2ID | Terminal box rear facing 3M | Terminal box forward facing 3MB | Hiperface DSL® Connector (IZ) |
|---------|---|-------------------------------|-----------------------------------|----------------------------------|-------------------------------|-----------------------------|---------------------------------|-------------------------------|
| SMH_40  | N                                       | Y                             | N                                 | N                                | N                             | N                           | N                               | N                             |
| SMH_60  | Y                                       | Y                             | Y                                 | Y                                | N                             | N                           | N                               | Y                             |
| SMH_82  | N                                       | N                             | Y                                 | Y                                | N                             | N                           | N                               | Y                             |
| SMH_100 | N                                       | N                             | Y                                 | Y                                | N                             | N                           | N                               | Y                             |
| SMH_115 | N                                       | N                             | Y                                 | Y                                | N                             | N                           | N                               | Y                             |
| SMH_142 | N                                       | N                             | Y                                 | Y                                | N                             | N                           | N                               | Y                             |
| SMH_170 | N                                       | N                             | Y                                 | N                                | N                             | N                           | N                               | Y                             |
| SMB_40  | N                                       | Y                             | N                                 | N                                | N                             | N                           | N                               | N                             |
| SMB_60  | Y                                       | Y                             | Y                                 | Y                                | Y                             | Y                           | Y                               | N                             |
| SMB_82  | N                                       | N                             | Y                                 | Y                                | Y                             | Y                           | Y                               | N                             |
| SMB_100 | N                                       | N                             | Y                                 | Y                                | Y                             | Y                           | Y                               | N                             |
| SMB_115 | N                                       | N                             | Y                                 | Y                                | Y                             | Y                           | Y                               | N                             |
| SMB_142 | N                                       | N                             | Y                                 | Y                                | Y                             | Y                           | Y                               | N                             |
| SMB_170 | N                                       | N                             | Y                                 | N                                | N                             | N                           | N                               | N                             |
| SME_60  | N                                       | Y                             | N                                 | Y                                | Y                             | N                           | N                               | Y                             |
| SME_82  | N                                       | N                             | N                                 | Y                                | Y                             | N                           | N                               | Y                             |
| SME_100 | N                                       | N                             | N                                 | Y                                | Y                             | N                           | N                               | Y                             |
| SME_115 | N                                       | N                             | Y                                 | N                                | N                             | N                           | N                               | Y                             |
| SME_142 | N                                       | N                             | Y                                 | N                                | N                             | N                           | N                               | Y                             |
| SME_170 | N                                       | N                             | Y                                 | N                                | N                             | N                           | N                               | Y                             |

## Power connector (0V)

|   |   |   |
|---|---|---|
| 6 | 5 | 4 |
| 3 | 2 | 1 |

| Pin | Description   |
|-----|---------------|
| 1   | GND - shield  |
| 2   | Brake 0 VDC   |
| 3   | Brake +24 VDC |
| 4   | W             |
| 5   | V             |
| 6   | U             |

| Part number     |                  |
|-----------------|------------------|
| <b>CONMOT6M</b> | Female Connector |

## Resolver connector (0V)

|    |    |    |   |   |   |
|----|----|----|---|---|---|
| 12 | 11 | 10 | 9 | 8 | 7 |
| 6  | 5  | 4  | 3 | 2 | 1 |

| Pin | Description  |
|-----|--------------|
| 1   | n.c.         |
| 2   | n.c.         |
| 3   | n.c.         |
| 4   | PTC          |
| 5   | PTC          |
| 6   | GND - shield |
| 7   | SIN +        |
| 8   | SIN -        |
| 9   | COS +        |
| 10  | COS -        |
| 11  | EXTC -       |
| 12  | EXTC +       |

| Part number      |                  |
|------------------|------------------|
| <b>CONRES12M</b> | Female Connector |

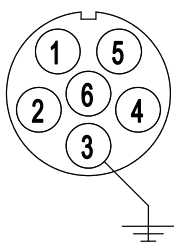
## Hiperface connector (0V)

|    |    |    |   |   |   |
|----|----|----|---|---|---|
| 12 | 11 | 10 | 9 | 8 | 7 |
| 6  | 5  | 4  | 3 | 2 | 1 |

| Pin | Description  |
|-----|--------------|
| 1   | SIN +        |
| 2   | SIN -        |
| 3   | RS485 +      |
| 4   | 0 V          |
| 5   | PTC          |
| 6   | PTC          |
| 7   | VDC +        |
| 8   | COS +        |
| 9   | COS -        |
| 10  | RS485 -      |
| 11  | GND - shield |
| 12  | n.c.         |

| Part number      |                  |
|------------------|------------------|
| <b>CONRES12M</b> | Female Connector |

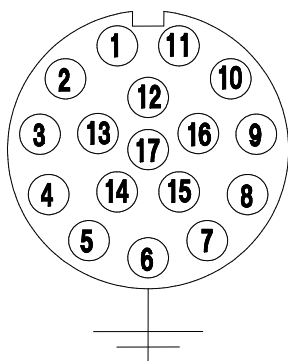
**Power connector (2I, 2IB, 2ID)**



| Pin | Description   |
|-----|---------------|
| 1   | U             |
| 2   | V             |
| 3   | GND - shield  |
| 4   | Brake +24 VDC |
| 5   | Brake 0 VDC   |
| 6   | W             |

| Part number      |                  |
|------------------|------------------|
| <b>CONMOT82F</b> | Female Connector |

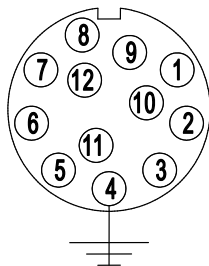
**Incremental encoder connector (2I, 2IB, 2ID)**



| Pin | Description |       |
|-----|-------------|-------|
| 1   | 5 V         |       |
| 2   | 0 V         |       |
| 3   | A +         |       |
| 4   | A -         |       |
| 5   | B +         |       |
| 6   | B -         |       |
| 7   | Z +         |       |
| 8   | PTC         | KTY - |
| 6   | PTC         | KTY + |
| 10  | Z -         |       |
| 11  | Hall A +    |       |
| 12  | Hall A -    |       |
| 13  | Hall B +    |       |
| 14  | Hall B -    |       |
| 15  | Hall C +    |       |
| 16  | Hall C -    |       |
| 17  | n.c.        |       |

| Part number    |                  |
|----------------|------------------|
| <b>CONENCF</b> | Female Connector |

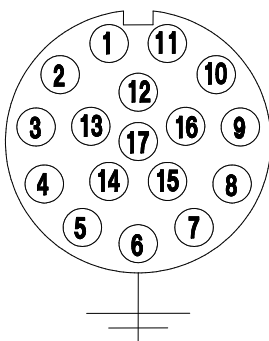
**Resolver connector (2I, 2IB, 2ID)**



| Pin | Description  |       |
|-----|--------------|-------|
| 1   | SIN -        |       |
| 2   | SIN +        |       |
| 3   | n.c.         |       |
| 4   | GND - shield |       |
| 5   | n.c.         |       |
| 6   | n.c.         |       |
| 7   | EXCT -       |       |
| 8   | PTC          | KTY - |
| 9   | PTC          | KTY + |
| 10  | EXCT +       |       |
| 11  | COS +        |       |
| 12  | COS -        |       |

| Part number      |                  |
|------------------|------------------|
| <b>CONRES82F</b> | Female Connector |

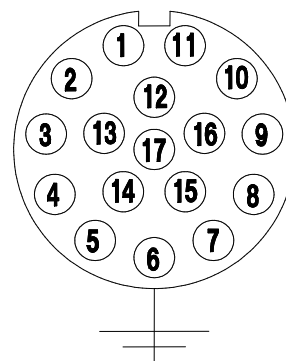
**Absolute encoder SINCOS - EnDat (2I, 2IB, 2ID)**



| Pin | Description  |       |
|-----|--------------|-------|
| 1   | UP Sensor    |       |
| 2   | n.c.         |       |
| 3   | n.c.         |       |
| 4   | 0 V Sensor   |       |
| 5   | PTC          | KTY - |
| 6   | PTC          | KTY + |
| 7   | UP           |       |
| 8   | CK +         |       |
| 9   | CK -         |       |
| 10  | 0 V          |       |
| 11  | GND - shield |       |
| 12  | B +          |       |
| 13  | B -          |       |
| 14  | Data +       |       |
| 15  | A +          |       |
| 16  | A -          |       |
| 17  | Data -       |       |

| Part number    |                  |
|----------------|------------------|
| <b>CONENCF</b> | Female Connector |

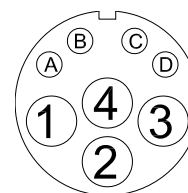
**Absolute encoder SINCOS - Hiperface (2I, 2IB, 2ID)**



| Pin | Description  |       |
|-----|--------------|-------|
| 1   | SIN +        |       |
| 2   | SIN -        |       |
| 3   | RS485 +      |       |
| 4   | n.c.         |       |
| 5   | n.c.         |       |
| 6   | n.c.         |       |
| 7   | GND - shield |       |
| 8   | PTC          | KTY - |
| 9   | PTC          | KTY + |
| 10  | + VDC        |       |
| 11  | COS +        |       |
| 12  | COS -        |       |
| 13  | RS485 -      |       |
| 14  | n.c.         |       |
| 15  | n.c.         |       |
| 16  | n.c.         |       |
| 17  | n.c.         |       |

| Part number      |                  |
|------------------|------------------|
| <b>CONRES82F</b> | Female Connector |

**Hiperface DSL® Connector (IZ)**



| Pin | Description |
|-----|-------------|
| 1   | U           |
| 2   | GND         |
| 3   | V           |
| 4   | W           |
| A   | Brake +     |
| B   | Brake -     |
| C   | Signal +    |
| D   | Signal -    |

| Part number       |                  |
|-------------------|------------------|
| <b>CONMOT2IZF</b> | Female Connector |



## Associated Drives

| Motor                         | Rated Speed<br>[min <sup>-1</sup> ] | Stall Current<br>[A] | PSD1S      | PSD1M      |
|-------------------------------|-------------------------------------|----------------------|------------|------------|
| <b>230 VAC supply voltage</b> |                                     |                      |            |            |
| SM_40_60_0,19                 | 6000                                | 0.78                 | PSD1S_1200 | PSD1M_1222 |
| SM_40_60_0,38                 | 6000                                | 1.2                  | PSD1S_1200 | PSD1M_1222 |
| SM_60_30_0,55                 | 3000                                | 0.7                  | PSD1S_1200 | PSD1M_1222 |
| SM_60_45_0,55                 | 4500                                | 1                    | PSD1S_1200 | PSD1M_1222 |
| SM_60_60_0,55                 | 6000                                | 1.4                  | PSD1S_1200 | PSD1M_1222 |
| SM_60_16_1,4                  | 1600                                | 0.95                 | PSD1S_1200 | PSD1M_1222 |
| SM_60_30_1,4                  | 3000                                | 1.73                 | PSD1S_1200 | PSD1M_1222 |
| SM_60_45_1,4                  | 4500                                | 2.37                 | PSD1S_1300 | PSD1M_1433 |
| SM_60_60_1,4                  | 6000                                | 2.98                 | PSD1S_1300 | PSD1M_1433 |
| SM_60_75_1,4                  | 7500                                | 3.85                 | PSD1S_1300 | PSD1M_1433 |
| SM_82_10_03                   | 1000                                | 1.2                  | PSD1S_1200 | PSD1M_1222 |
| SM_82_16_03                   | 1600                                | 1.8                  | PSD1S_1200 | PSD1M_1222 |
| SM_82_30_03                   | 3000                                | 3.1                  | PSD1S_1300 | PSD1M_1433 |
| SM_82_33_03                   | 3300                                | 3.5                  | PSD1S_1300 | PSD1M_1433 |
| SM_82_45_03                   | 4500                                | 4.7                  | PSD1S_1300 | PSD1M_1433 |
| SM_82_60_03                   | 6000                                | 6.1                  | n.a.       | PSD1M_1433 |
| SM_82_75_03                   | 7500                                | 7.5                  | n.a.       | PSD1M_1433 |
| SM_100_16_06                  | 1600                                | 3.7                  | PSD1S_1300 | PSD1M_1433 |
| SM_100_30_06                  | 3000                                | 5.9                  | n.a.       | PSD1M_1433 |
| SM_100_45_06                  | 4500                                | 9.4                  | n.a.       | PSD1M_1630 |
| SM_100_55_06                  | 5500                                | 11.8                 | n.a.       | PSD1M_1630 |
| SM_100_75_06                  | 7500                                | 14.7                 | n.a.       | PSD1M_1630 |
| SM_115_16_10                  | 1600                                | 6                    | n.a.       | PSD1M_1433 |
| SM_115_30_10                  | 3000                                | 10.5                 | n.a.       | PSD1M_1630 |
| SM_115_40_10                  | 4000                                | 14.7                 | n.a.       | PSD1M_1630 |
| SM_115_54_10                  | 5400                                | 18.2                 | n.a.       | PSD1M_1800 |
| SM_142_18_15                  | 1800                                | 9.7                  | n.a.       | PSD1M_1630 |
| SM_142_30_15                  | 3000                                | 16                   | n.a.       | PSD1M_1800 |
| SM_170_11_35                  | 1100                                | 13.3                 | n.a.       | PSD1M_1630 |
| SM_170_16_35                  | 1600                                | 20                   | n.a.       | PSD1M_1800 |
| SM_170_25_35                  | 2500                                | 29                   | n.a.       | PSD1M_1800 |

|                               |      |      |      |            |
|-------------------------------|------|------|------|------------|
| <b>400 VAC supply voltage</b> |      |      |      |            |
| SM_60_30_1,4                  | 3000 | 0.95 | n.a. | PSD1M_1222 |
| SM_60_45_1,4                  | 4500 | 1.37 | n.a. | PSD1M_1222 |
| SM_60_60_1,4                  | 6000 | 1.73 | n.a. | PSD1M_1222 |
| SM_60_75_1,4                  | 7500 | 2.15 | n.a. | PSD1M_1433 |
| SM_82_30_03                   | 3000 | 1.8  | n.a. | PSD1M_1222 |
| SM_82_45_03                   | 4500 | 2.7  | n.a. | PSD1M_1433 |
| SM_82_56_03                   | 5600 | 3.1  | n.a. | PSD1M_1433 |
| SM_82_60_03                   | 6000 | 3.5  | n.a. | PSD1M_1433 |
| SM_82_75_03                   | 7500 | 4.4  | n.a. | PSD1M_1433 |
| SM_100_30_06                  | 3000 | 3.7  | n.a. | PSD1M_1433 |
| SM_100_45_06                  | 4500 | 5.6  | n.a. | PSD1M_1433 |
| SM_100_56_06                  | 5600 | 5.9  | n.a. | PSD1M_1433 |
| SM_100_75_06                  | 7500 | 9.4  | n.a. | PSD1M_1630 |
| SM_115_20_10                  | 2000 | 4.5  | n.a. | PSD1M_1433 |
| SM_115_30_10                  | 3000 | 6.0  | n.a. | PSD1M_1433 |
| SM_115_40_10                  | 4000 | 8.0  | n.a. | PSD1M_1433 |
| SM_115_56_10                  | 5600 | 10.5 | n.a. | PSD1M_1630 |
| SM_142_20_15                  | 2000 | 6.4  | n.a. | PSD1M_1433 |
| SM_142_30_15                  | 3000 | 9.7  | n.a. | PSD1M_1630 |
| SM_142_45_15                  | 4500 | 14.4 | n.a. | PSD1M_1630 |
| SM_142_56_15                  | 5600 | 16   | n.a. | PSD1M_1800 |
| SM_170_10_35                  | 1000 | 6.8  | n.a. | PSD1M_1630 |
| SM_170_20_35                  | 2000 | 13.3 | n.a. | PSD1M_1630 |
| SM_170_27_35                  | 2700 | 18   | n.a. | PSD1M_1800 |
| SM_170_30_35                  | 3000 | 20   | n.a. | PSD1M_1800 |
| SM_170_10_60                  | 1000 | 11.7 | n.a. | PSD1M_1630 |
| SM_170_20_60                  | 2000 | 22.6 | n.a. | PSD1M_1800 |
| SM_170_30_60                  | 3000 | 35.7 | n.a. | n.a.       |

# Order Code

## Serie SMH / SMB / SME

|               | 1   | 2 | 3  | 4  | 5   | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |   |
|---------------|-----|---|----|----|-----|---|---|---|---|----|----|----|----|----|---|
| Order example | SMH | A | 60 | 30 | 1,4 | 5 | 9 |   |   | 2I |    | 64 | A6 | M  | 2 |

|   |                    |  |
|---|--------------------|--|
| <b>1 Type Of Motor (mandatory field)</b>              | <b>SMH</b>         | Motor with Resolver for PSD/C3   |
|   | <b>SMB</b>         | Motor with Resolver for TPDM/SLVDN                                     |
|   | <b>SME</b>         | Motor with Encoder for TPDM/SLVDN                                      |
| <b>2 Brake Option</b>                                 | <b>empty field</b> | No Brake Option  |
|   | <b>A</b>           | Motor with Holding Brake   |
| <b>3 Motor Frame Size (mandatory field)</b>           | <b>40</b>          | Torque range 0.19 Nm or 0.35 Nm  |
|   | <b>60</b>          | Torque range 0.55 or 1.4 Nm  |
|   | <b>82</b>          | Torque range 3 Nm  |
|   | <b>100</b>         | Torque range 6 Nm  |
|   | <b>115</b>         | Torque range 10 Nm   |
|   | <b>142</b>         | Torque range 15 or 17 Nm   |
|   | <b>170</b>         | Torque range 35 or 60 Nm   |
| <b>4 Winding (mandatory field)</b>                    | <b>nn</b>          | min <sup>-1</sup> (x100)<br>see "Technical Data" (page 6)              |
| <b>5 Motor Torque (mandatory field)</b>               | <b>nn</b>          | Torque [Nm]<br>see "Technical Data" (page 6)                           |
| <b>6 Flange (mandatory field)</b>                     | <b>5</b>           | All sizes  |
|   | <b>7</b>           | Only for Size 82 and 115   |
|   | <b>8</b>           | Only for Size 60, 82, 100 and 115                                      |
|   | <b>9</b>           | Only for Size 115  |
| <b>7 Shaft (mandatory field)</b>                      | <b>8</b>           | 8x20 mm for size 40  |
|   | <b>9</b>           | 9x20 mm for size 60  |
|   | <b>11</b>          | 11x23 mm for size 60   |
|   | <b>14</b>          | 14x30 mm for size 82   |
|   | <b>19</b>          | 19x40 mm for size 82/100/115/142                                       |
|   | <b>24</b>          | 24x50 mm for size 100/115/142  |
|   | <b>28</b>          | 28x60 mm for size 115/142  |
|   | <b>38</b>          | 38x80 mm for size 170  |
| <b>8 Key Shaft option</b>                             | <b>Empty field</b> | Shaft with Key   |
|   | <b>S</b>           | Shaft without key  |
| <b>9 Layout - Connectors (mandatory field)</b>        | <b>0V</b>          | Cable exit and Molex Flying connectors - 200 mm above                  |
|   | <b>2I</b>          | Rotatable Interconnectron receptacles                                  |
|   | <b>2IB</b>         | 90° Interconnectron receptacles - forward facing                       |
|   | <b>2ID</b>         | 90° Interconnectron receptacles - rear facing                          |
|   | <b>3M</b>          | Terminal box rear facing   |
|   | <b>3MB</b>         | Terminal box forward facing  |
|   | <b>2Y</b>          | Y-Tech connectors  |
|   | <b>IZ</b>          | DSL® connectore (not for size 40)                                      |
| <b>10 Female connectors option (only for SMB/SME)</b> | <b>Empty field</b> | With Female / flying connectors  |
|   | <b>W</b>           | Without Female / flying connectors                                     |
| <b>11 Protection Degree (mandatory field)</b>         | <b>64</b>          | IP64   |
|   | <b>65</b>          | IP65 (standard for SMB170)   |
| <b>12 Feedback</b>                                    | <b>Empty field</b> | Standard Resolver  |
|   | <b>A1</b>          | Encoder 2000 ppr + Hall - TAMAGAWA OIH48                               |
|   | <b>A2</b>          | Encoder 2048 ppr + Hall - TAMAGAWA OIH48                               |
|   | <b>A3</b>          | Encoder 4096 ppr + Hall - TAMAGAWA OIH48                               |
|   | <b>A6</b>          | SinCos Hiperface Encoder Single-Turn - STEGMANN SRS50/52               |
|   | <b>A7</b>          | SinCos Hiperface Encoder Multi-Turn - STEGMANN SRS50/52                |
|   | <b>B3</b>          | Encoder 2048 ppr + Hall - TAMAGAWA OIH35                               |
|   | <b>B9</b>          | SinCos EnDat Encoder Multi-Turn - HEIDENHAIN EQI1331                   |
|   | <b>C4</b>          | Encoder 5000 ppr + Hall - TAMAGAWA OIH48                               |
|   | <b>C6</b>          | SinCos Hiperface Encoder Single-Turn - STEGMANN SKS36                  |
|   | <b>C7</b>          | SinCos Hiperface Encoder Multi-Turn - STEGMANN SKM36                   |
|   | <b>D3</b>          | Encoder 5000ppr + Hall - TAMAGAWA OIH35                                |
|   | <b>D5</b>          | SinCos EnDat Encoder Multi-Turn - HEIDENHAIN EQN1325                   |
|   | <b>F2</b>          | SinCos EnDat Encoder Multi-Turn - HEIDENHAIN EQN1125                   |
|   | <b>F4</b>          | SinCos EnDat Encoder Multi-Turn - HEIDENHAIN EQI1130                   |
|   | <b>S1</b>          | SinCos Hiperface Encoder Single-Turn - STEGMANN SRS50S, SIL2           |
|   | <b>S2</b>          | SinCos Hiperface Encoder Multi-Turn - STEGMANN SRS50S, SIL2            |
|   | <b>S3</b>          | SinCos Hiperface Encoder Single-Turn - STEGMANN SKS36S, SIL2           |
|   | <b>S4</b>          | SinCos Hiperface Encoder Multi-Turn - STEGMANN SKM36S, SIL2            |
|   | <b>S5</b>          | Hiperface DSL® Encoder Feedback SIL2 32768 steps/rev Single Turn       |
|   | <b>S6</b>          | Hiperface DSL® Encoder Feedback SIL2 32768 steps/rev x 4096 Multi Turn |

**13 Option Inertia**

**Empty field** Standard Inertia

**M** Medium Inertia

**14 Voltage**

**0** 80 V

**2** 220-230 V (Standard)

**4** 380-400 V (Standard)

## Order Code

### Motor Power Cable for SMH / SMB Motors

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

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

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

## Motor Feedback Cable for SMH / SMB Motors

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

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

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





# Parker's Motion & Control Technologies

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



## Aerospace

### Key Markets

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

### Key Products

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



## Climate Control

### Key Markets

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

### Key Products

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



## Electromechanical

### Key Markets

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

### Key Products

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



## Filtration

### Key Markets

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

### Key Products

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



## Fluid & Gas Handling

### Key Markets

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

### Key Products

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



## Hydraulics

### Key Markets

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

### Key Products

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



## Pneumatics

### Key Markets

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

### Key Products

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



## Process Control

### Key Markets

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

### Key Products

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



## Sealing & Shielding

### Key Markets

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

### Key Products

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

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