



MBH

BRUSHLESS MOTORS

SERIES 20

DESCRIPTION

- A - Flange
- B - Permanent magnets
- C - Stator
- D - Feedback sensor
- E - Brake (on request)

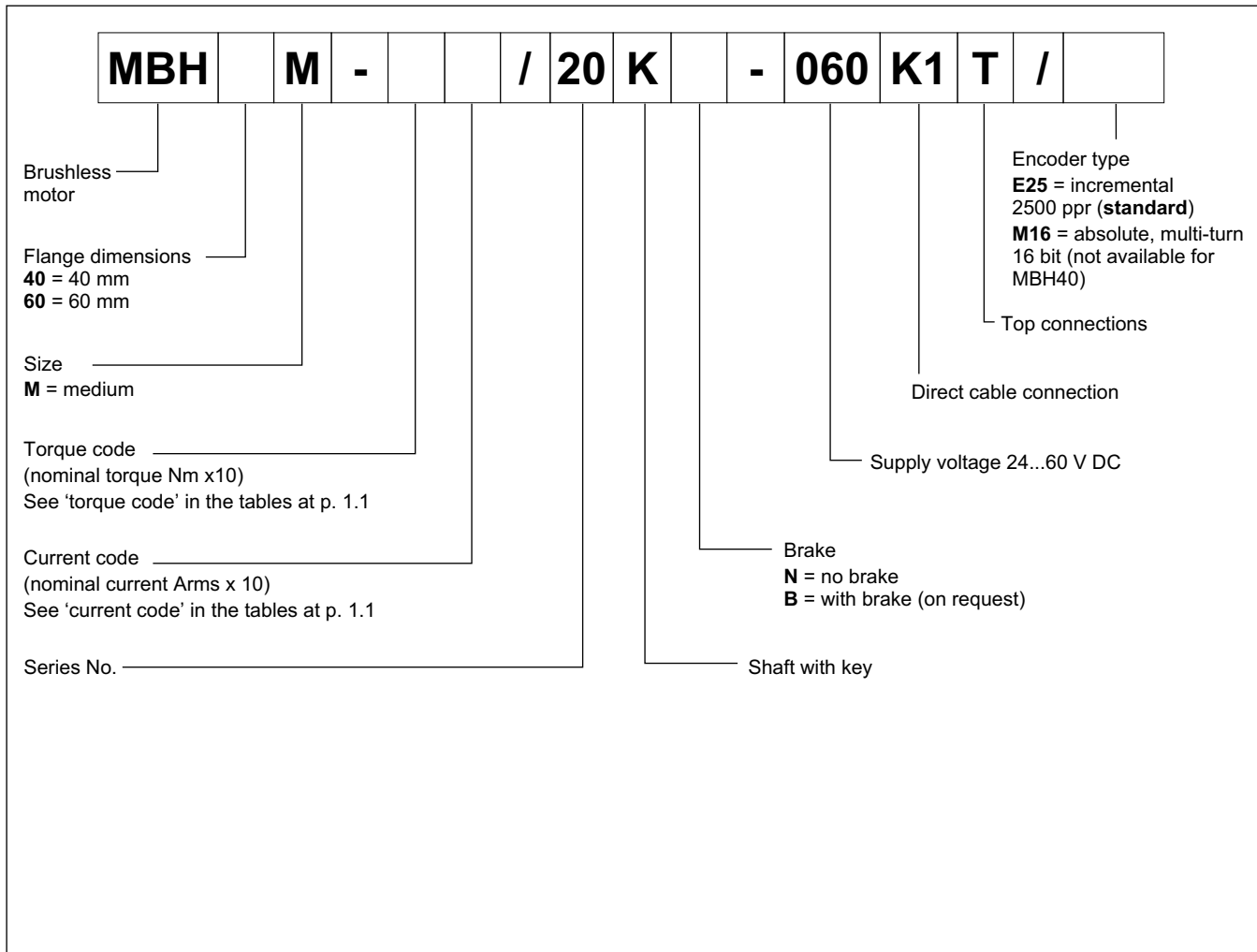
The MBH brushless motors can be employed for the most varied industrial automation applications. They are easy to use and install; they are cooled in natural convection. Each motor size provides the same performance even using controllers with different power supplies. The MBH brushless motors are equipped with incremental (standard) or absolute feedback sensors. The version with brake is available upon request. They are suitable for harsh environments and high temperatures.

CHARACTERISTICS

| | | |
|-------------------------------|-----|--|
| Flange dimensions | | 40 - 60 - 80 |
| Supply voltage | | 60 V DC, 230 V AC |
| Torque values | Nm | 0.32 ÷ 3.20 |
| Power | W | 100 ÷ 1000 |
| Maximum speed | rpm | up to 5000 |
| Poles pair number | | 4 |
| Feedback | | Incremental 2500ppr 5V LD / multi-turn absolute 16 bit (17 bit one-turn) |
| Cooling | | natural convection |
| Humidity | RH | < 80%, without condensation |
| Protection class | | IP54 |
| Ambient operating temperature | °C | -20 / +50 |



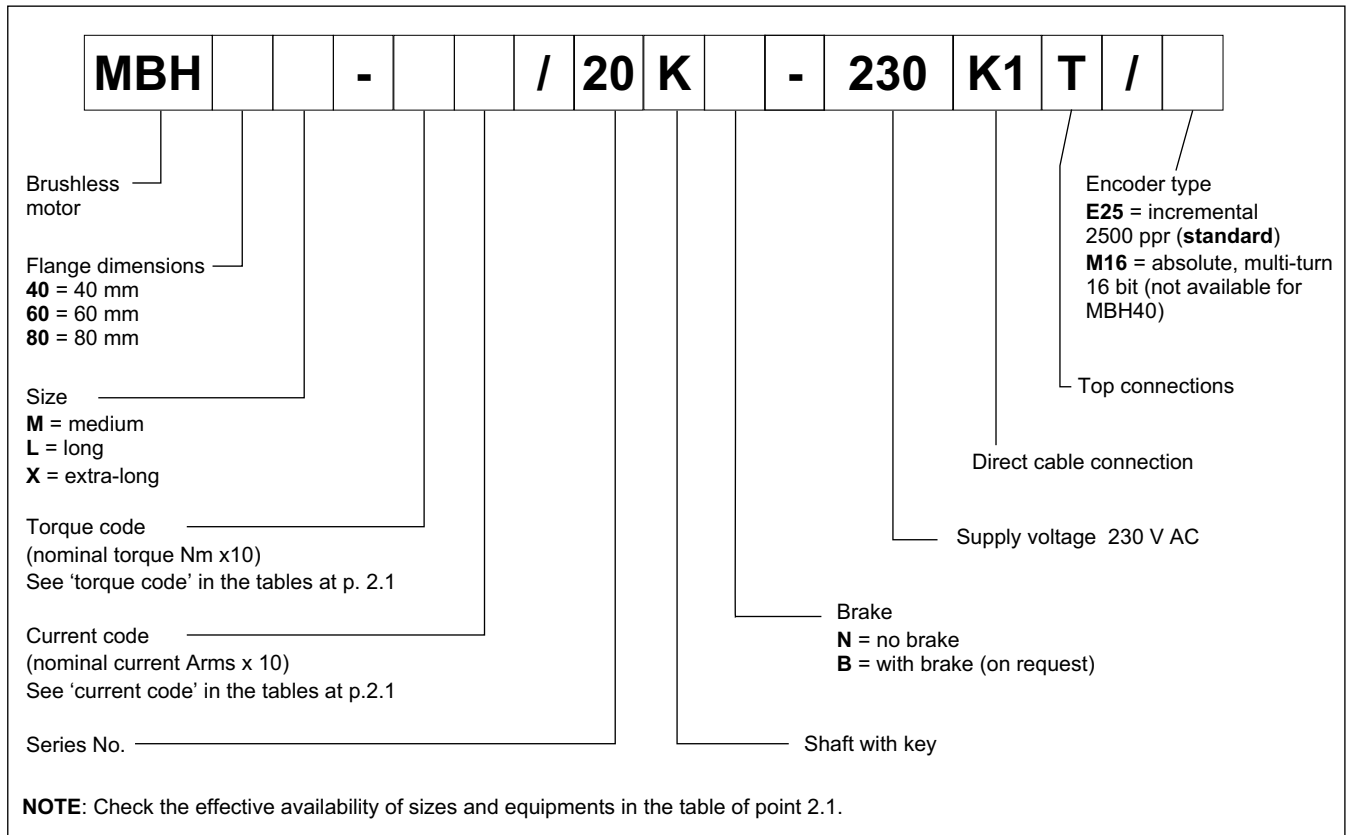
1 - IDENTIFICATION CODE FOR SUPPLY VOLTAGE UP TO 60 V DC



1.1 - Nominal torques and currents

| MOTOR | SIZE | POWER [W] | RATED SPEED [rpm] | TORQUE CODE | NOMINAL TORQUE [Nm] | CURRENT CODE | NOMINAL CURRENT [Arms] | ENCODER TYPE | CONNECTOR TYPE |
|--------------|----------|-----------|-------------------|-------------|---------------------|--------------|------------------------|--------------|----------------|
| MBH40 | M | 100 | 3000 | T03 | 0.32 | A27 | 2.7 | E25 | K1 |
| MBH60 | M | 400 | 3000 | T13 | 1.27 | A77 | 7.7 | E25 or M16 | K1 |

2 - IDENTIFICATION CODE FOR SUPPLY VOLTAGE UP TO 230 V AC



2.1 - Nominal torques and currents

| MOTOR | SIZE | POWER [W] | RATED SPEED [rpm] | TORQUE CODE | NOMINAL TORQUE [Nm] | CURRENT CODE | NOMINAL CURRENT [Arms] | ENCODER TYPE | CONNECTOR TYPE |
|--------------|----------|-----------|-------------------|-------------|---------------------|--------------|------------------------|--------------|----------------|
| MBH40 | M | 100 | 3000 | T03 | 0.32 | A09 | 0.9 | E25 | K1 |
| MBH60 | M | 400 | 3000 | T13 | 1.27 | A19 | 1.9 | E25 or M16 | K1 |
| MBH80 | L | 750 | 3000 | T24 | 2.40 | A32 | 3.2 | E25 or M16 | K1 |
| | X | 1000 | 3000 | T32 | 3.20 | A46 | 4.6 | E25 or M16 | K1 |

3 - ASSOCIATED CONTROLLERS

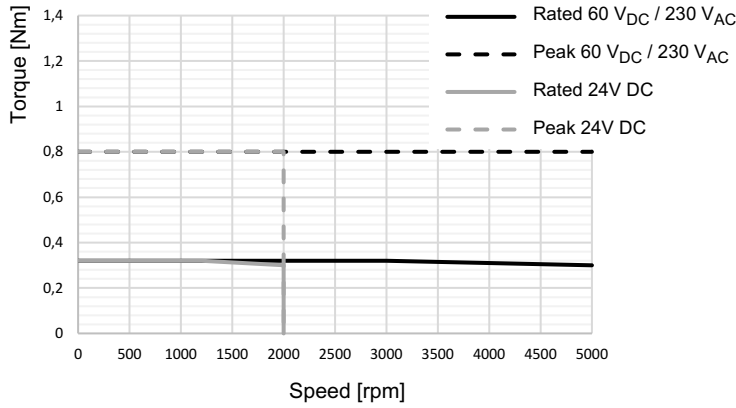
3.1 - Motor / controller matching table

| Motor | | Controller | | | |
|--------------|--------|--------------|-------------------|-------------------|-------------------|
| type | power | power supply | type | | |
| | | | ModBus / CanOpen | EtherCAT | ProfiNet |
| MBH40M-*060* | 100 W | 60 V DC | SCH060-3C5/20-CM | SCH060-3C5/20-EC | SCH060-3C5/20-PN |
| MBH60M-*060* | 400 W | | SCH060-7C10/20-CM | SCH060-7C10/20-EC | SCH060-7C10/20-PN |
| MBH40M-*230* | 100 W | 230 V AC | SCH230-6C2/20-CM | SCH230-6C2/20-EC | SCH230-6C2/20-PN |
| MBH60M-*230* | 400 W | | SCH230-6C2/20-CM | SCH230-6C2/20-EC | SCH230-6C2/20-PN |
| MBH80L-*230* | 750 W | | SCH230-13C4/20-CM | SCH230-13C4/20-EC | SCH230-13C4/20-PN |
| MBH80X-*230* | 1000 W | | SCH230-20C6/20-CM | SCH230-20C6/20-EC | SCH230-20C6/20-PN |

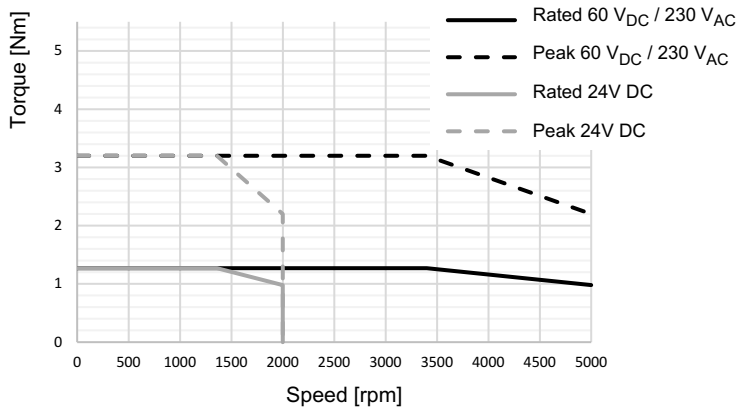


4 - CHARACTERISTIC CURVES

4.1 - Torque characteristic curves - MBH40M

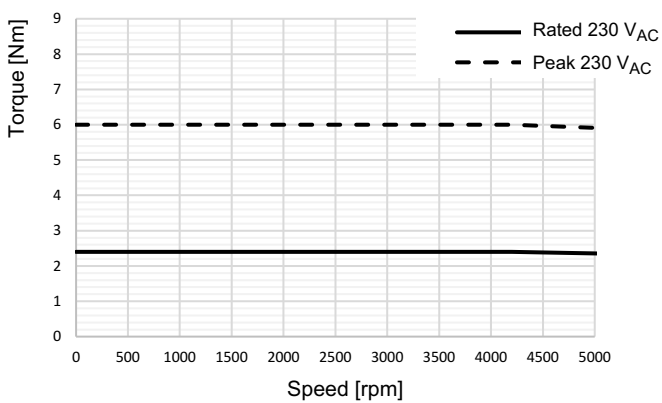


4.2 - Torque characteristic curves MBH60M

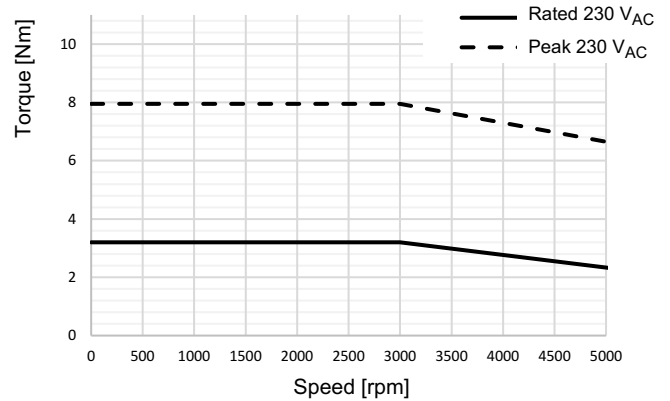


4.3 - Torque characteristic curves MBH80*

MBH80L

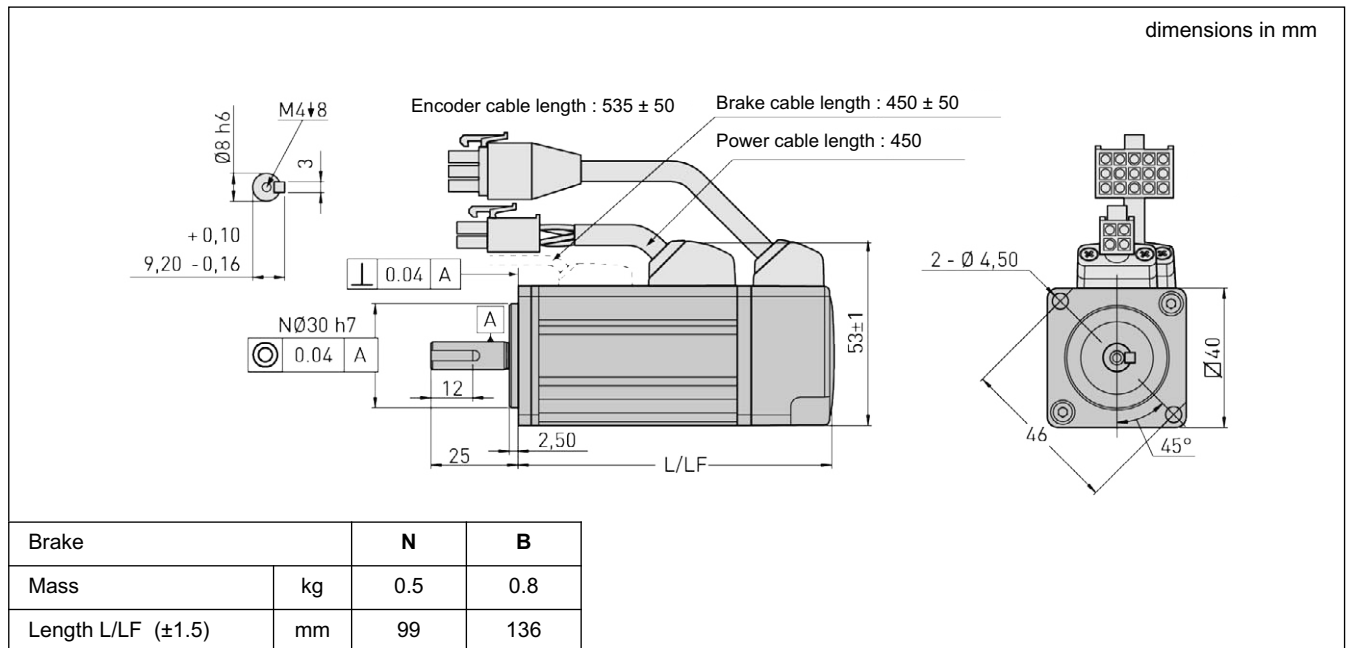


MBH80X



5 - MBH* MOTORS WITH SUPPLY VOLTAGE 060 (24...60V DC)
5.1 - MBH40M - Technical data

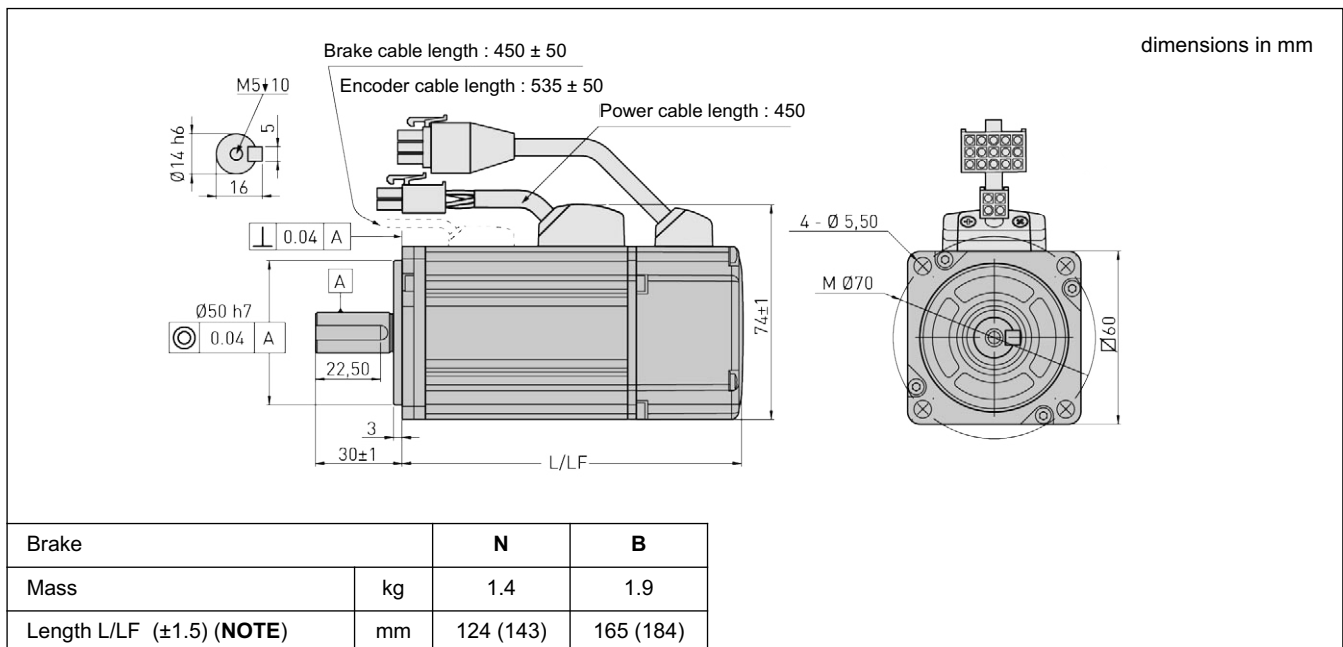
| | | MBH40M |
|--------------------------|------------------|---------------|
| Supply voltage | V DC | 60 |
| Rated power | W | 100 |
| Rated speed | rpm | 3000 |
| Rated torque | Nm | 0.32 |
| Rated current | A | 2.7 |
| Maximum torque | Nm | 0.96 |
| Maximum current | A | 8.1 |
| Standstill torque | Nm | 0.32 |
| Standstill current | A | 2.7 |
| Resistance line-line | Ohm | 1.8 |
| Inductance line-line | mH | 1.79 |
| Reverse voltage constant | V/krpm | 8.1 |
| Torque constant | Nm/A | 0.11 |
| Moment of inertia | g•m ² | 0.0035 |
| Brake torque | Nm | 0.3 |
| Maximum axial force | N | 70 |
| Encoder type | | E25 |

5.2 - MBH40M - Overall dimensions


5.3 - MBH60M - Technical data

| | | MBH60M |
|--------------------------|------------------|------------|
| Supply voltage | V DC | 60 |
| Rated power | W | 400 |
| Rated speed | rpm | 3000 |
| Rated torque | Nm | 1.27 |
| Rated current | A | 7.7 |
| Maximum torque | Nm | 3.8 |
| Maximum current | A | 23.1 |
| Standstill torque | Nm | 1.27 |
| Standstill current | A | 7.7 |
| Resistance line-line | Ohm | 0.28 |
| Inductance line-line | mH | 1.05 |
| Reverse voltage constant | V/krpm | 9.56 |
| Torque constant | Nm/A | 0.16 |
| Moment of inertia | g·m ² | 0.045 |
| Brake torque | Nm | 1.3 |
| Maximum axial force | N | 70 |
| Encoder type | | E25 or M16 |

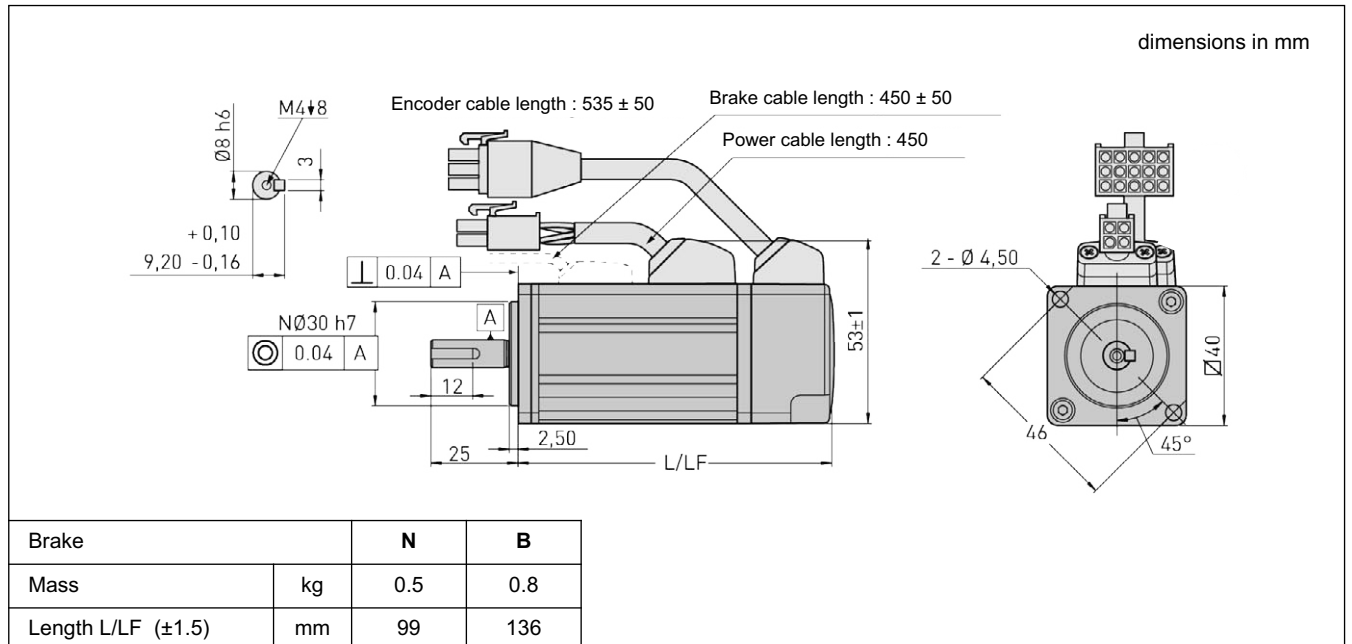
5.4 - MBH60M - Overall dimensions



NOTE: The value in brackets refers to models with M16 encoder.

6 - MBH* MOTORS WITH SUPPLY VOLTAGE 230 (230 V AC)
6.1 - MBH40M - Technical data

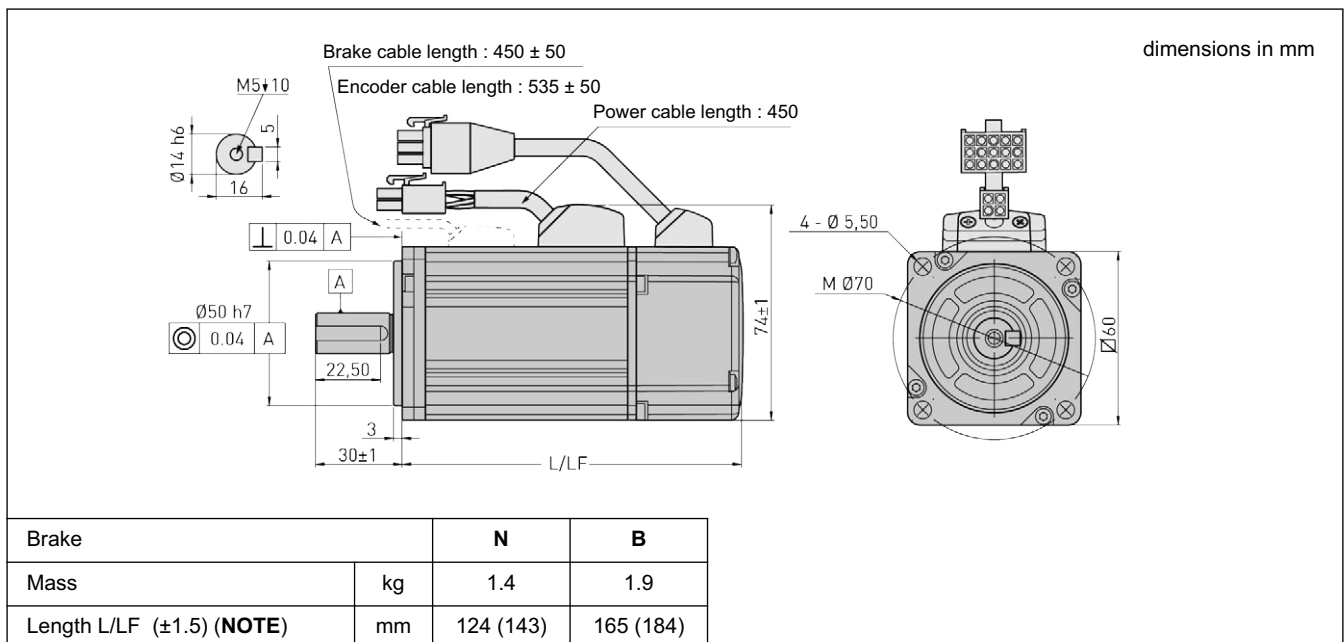
| | | MBH40M |
|--------------------------|------------------|---------------|
| Supply voltage | V AC | 230 |
| Rated power | W | 100 |
| Rated speed | rpm | 3000 |
| Rated torque | Nm | 0.32 |
| Rated current | A | 0.92 |
| Maximum torque | Nm | 0.96 |
| Maximum current | A | 2.76 |
| Standstill torque | Nm | 0.32 |
| Standstill current | A | 0.92 |
| Resistance line-line | Ohm | 9.05 |
| Inductance line-line | mH | 14.36 |
| Reverse voltage constant | V/krpm | 23.5 |
| Torque constant | Nm/A | 0.35 |
| Moment of inertia | g•m ² | 0.0036 |
| Brake torque | Nm | 0.3 |
| Maximum axial force | N | 70 |
| Encoder type | | E25 |

6.2 - MBH40M - Overall dimensions


6.3 - MBH60M - Technical data

| | | MBH60M |
|--------------------------|------------------|------------|
| Supply voltage | V AC | 230 |
| Rated power | W | 400 |
| Rated speed | rpm | 3000 |
| Rated torque | Nm | 1.27 |
| Rated current | A | 1.9 |
| Maximum torque | Nm | 3.8 |
| Maximum current | A | 5.7 |
| Standstill torque | Nm | 1.27 |
| Standstill current | A | 1.9 |
| Resistance line-line | Ohm | 5.3 |
| Inductance line-line | mH | 130.56 |
| Reverse voltage constant | V/krpm | 43.3 |
| Torque constant | Nm/A | 0.67 |
| Moment of inertia | g·m ² | 0.0435 |
| Brake torque | Nm | 1.3 |
| Maximum axial force | N | 70 |
| Encoder type | | E25 or M16 |

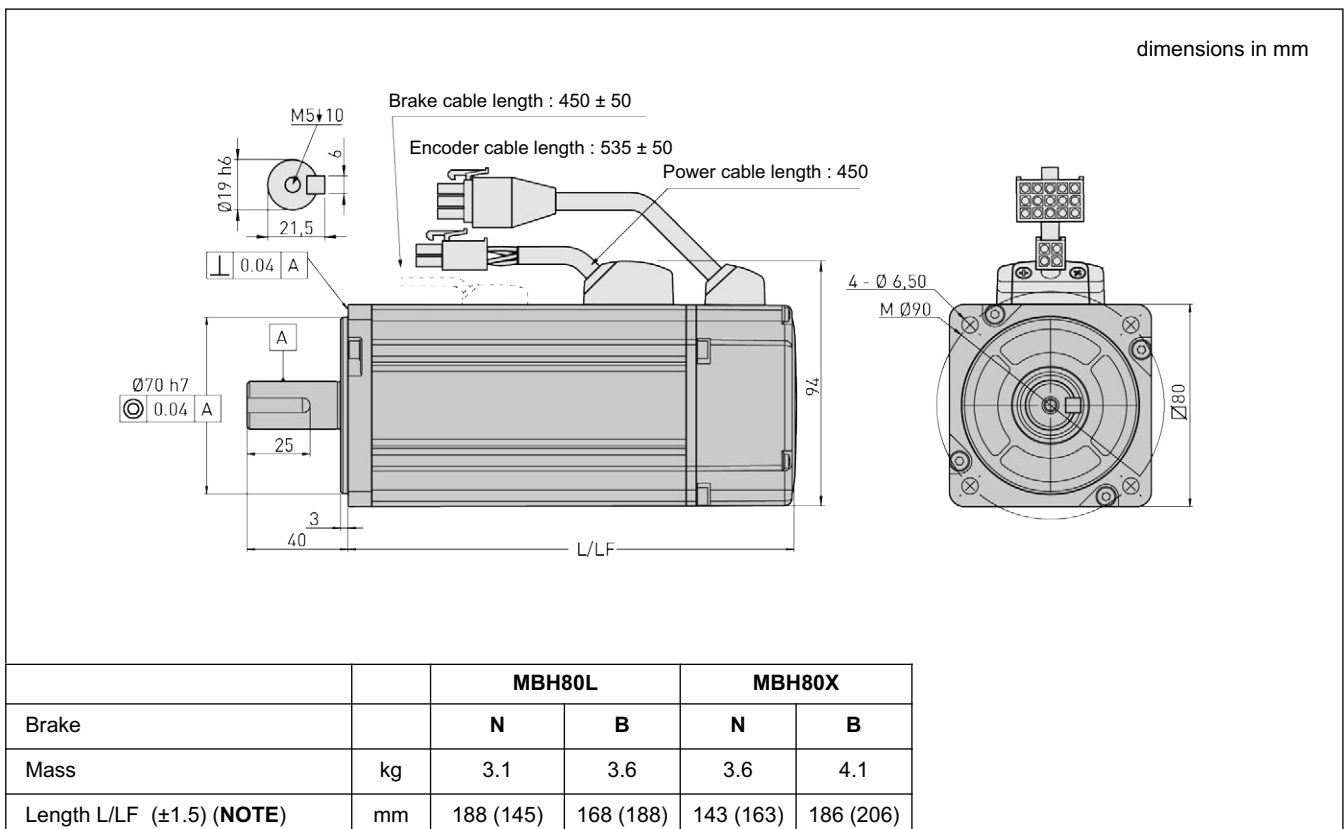
6.4 - MBH60M - Overall dimensions



6.5 - MBH80* - Technical data

| | | MBH80L | MBH80X |
|--------------------------|------------------|------------|------------|
| Supply voltage | V AC | 230 | 230 |
| Rated power | W | 750 | 1000 |
| Rated speed | rpm | 3000 | 3000 |
| Rated torque | Nm | 2.4 | 3.2 |
| Rated current | A | 3.2 | 4.6 |
| Maximum torque | Nm | 7.2 | 9.6 |
| Maximum current | A | 9.6 | 13.7 |
| Standstill torque | Nm | 2.4 | 3.2 |
| Standstill current | A | 3.2 | 4.6 |
| Resistance line-line | Ohm | 1.84 | 1.3 |
| Inductance line-line | mH | 17.4 | 10.1 |
| Reverse voltage constant | V/krpm | 47.3 | 44.6 |
| Torque constant | Nm/A | 0.75 | 0.70 |
| Moment of inertia | g•m ² | 1.05 | 1.34 |
| Brake torque | Nm | 3.2 | 3.2 |
| Maximum axial force | N | 70 | 70 |
| Encoder type | | E25 or M16 | E25 or M16 |

6.6 - MBH80* - Overall dimensions

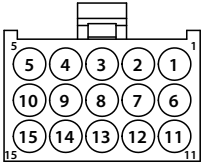


NOTE: The value in brackets refers to models with M16 encoder.

7 - ELECTRICAL CONNECTIONS

7.1 - Encoder

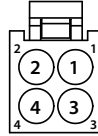
Connector plug type: AMP172171-1, 15 pin



| Pin | E25 | M16 |
|-----|---------|--------|
| 1 | +5V DC | +5V DC |
| 2 | GND | 0V |
| 3 | Hall W+ | - |
| 4 | Hall W- | - |
| 5 | Hall V+ | CK+ |
| 6 | Hall V- | CK- |
| 7 | Hall U+ | D+ |
| 8 | Hall U- | D- |
| 9 | A+ | - |
| 10 | A- | - |
| 11 | B+ | - |
| 12 | B- | - |
| 13 | Z | - |
| 14 | Z- | - |
| 15 | Shield | Shield |

7.2 - Power

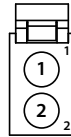
Connector plug type: AMP172167-1, 4 pin



| Pin | Function |
|-----|----------|
| 1 | U |
| 2 | V |
| 3 | W |
| 4 | PE |

7.3 - Brake

Connector plug type: AMP172165-1, 4 pin



| Pin | Function |
|-----|----------|
| 1 | + 24V DC |
| 2 | - 0V DC |

8 - CABLE CONNECTION

The connection cables to the SCH* controllers (catalog 3160) are available. They are flexible cables, pre-wired on the motor side and with free conductors to wire on the controller side.

The standard length is 5 meters. For other lengths, please contact our sales department.

Order them using the identification codes here below.

Power cable **CBHP-ML05**

M25 encoder cable **CBHE-ML05**

M16 encoder cable **CBHA-ML05**

Brake cable **CBHB-L05**