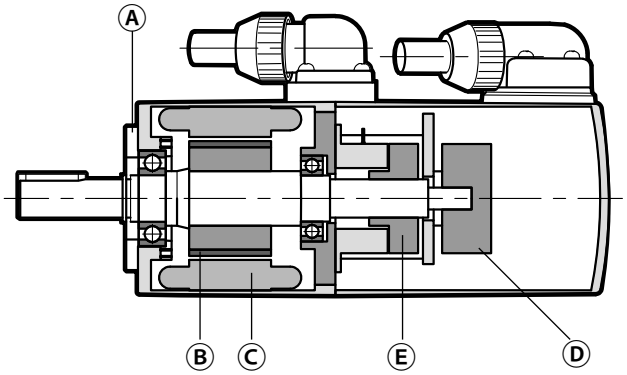
MBH
BRUSHLESS MOTORS
SERIES 20

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.

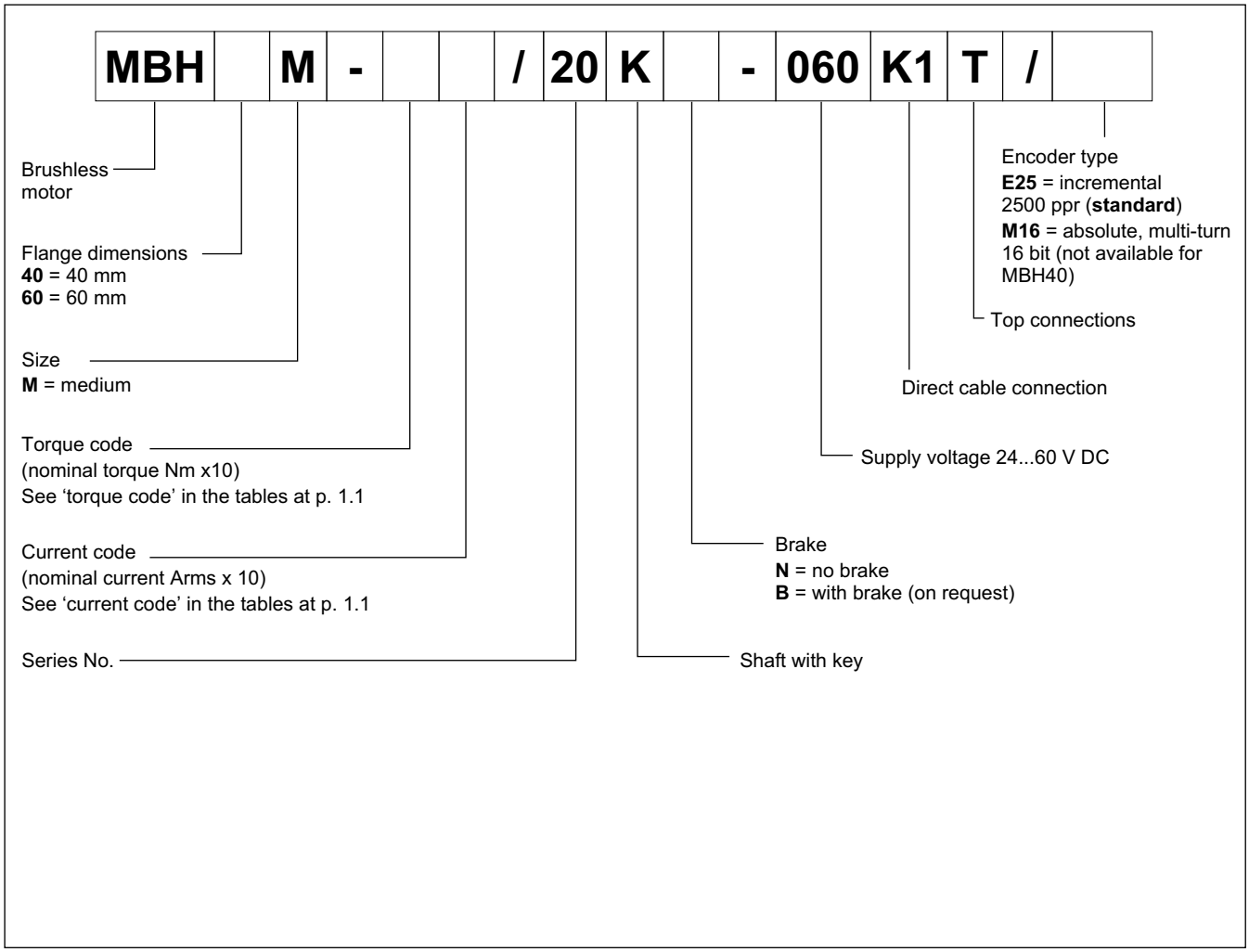
The MBH brushless motors are equipped with incremental (standard) or absolute feedback sensors. The version with brake is available upon request.

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

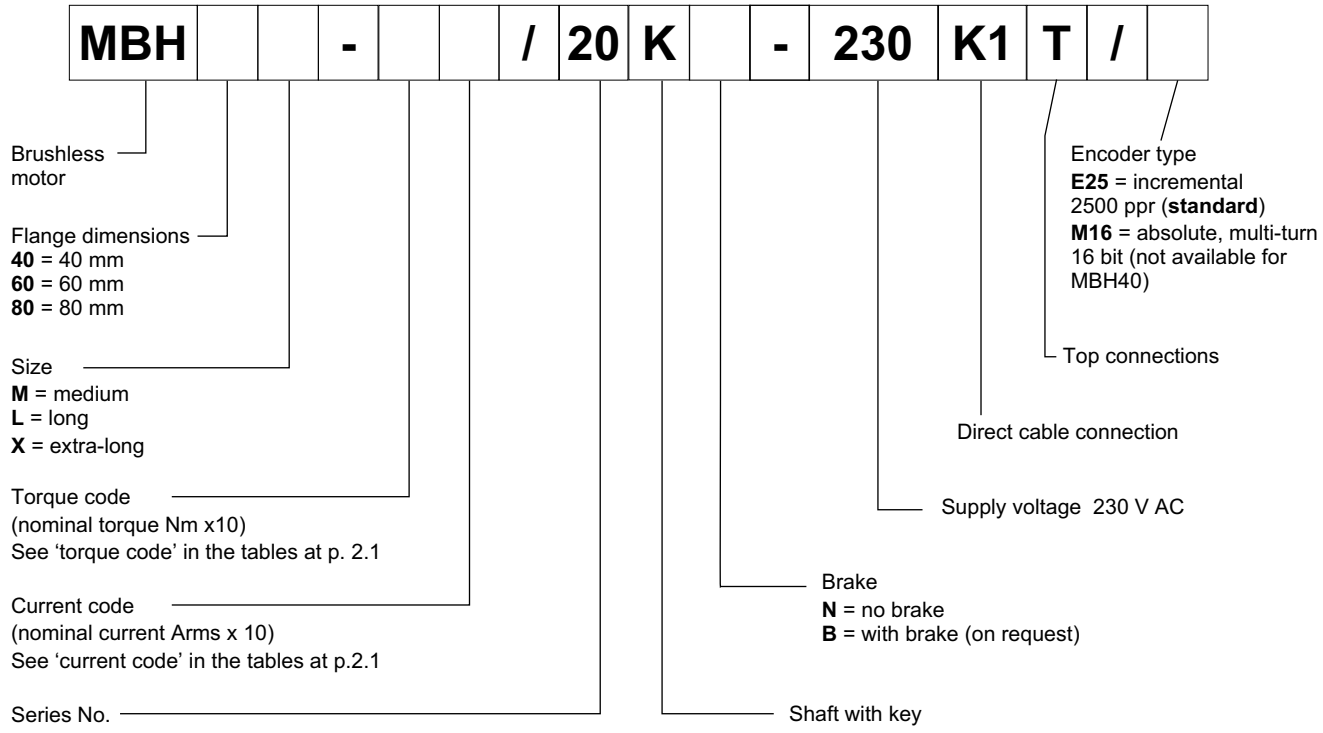
1 - IDENTIFICATION CODE FOR SUPPLY VOLTAGE UP TO 60 V DC



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



NOTE: Check the effective availability of sizes and equipments in the table of point 2.1.

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

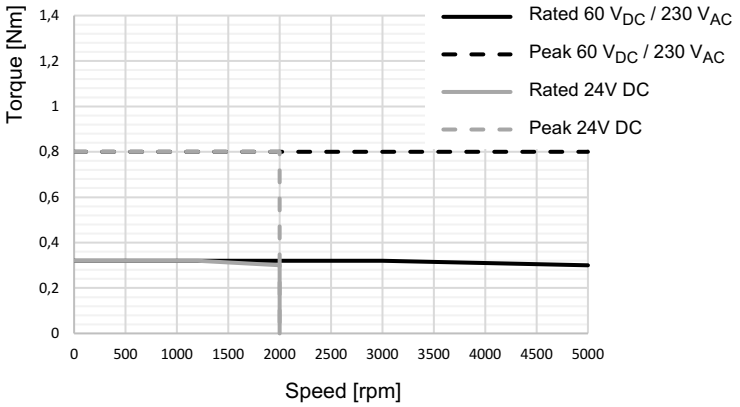
3 - ASSOCIATED CONTROLLERS

3.1 - Motor / controller matching table

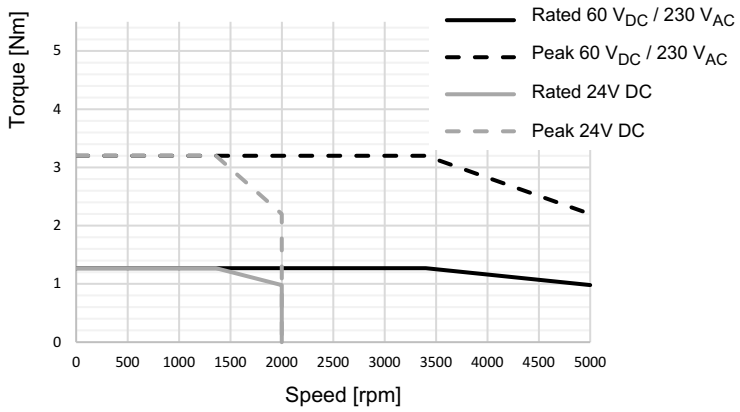
Motor		**Controller**			
type	power	power supply	type		
			ModBus / CanOpen	EtherCAT	ProfiNet
MBH40M-*060*	100 W	60 V DC	SCH060-3C5/20-CM	SCH060-3C5/20-EC	SCH060-3C5/20-PN
MBH60M-*060*	400 W		SCH060-7C10/20-CM	SCH060-7C10/20-EC	SCH060-7C10/20-PN
MBH40M-*230*	100 W	230 V AC	SCH230-6C2/20-CM	SCH230-6C2/20-EC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

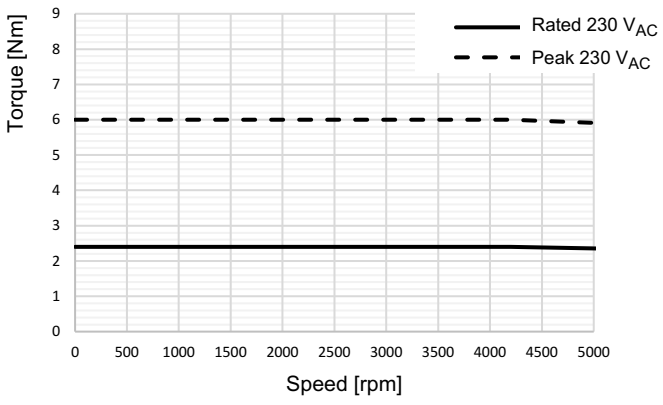


4.2 - Torque characteristic curves MBH60M

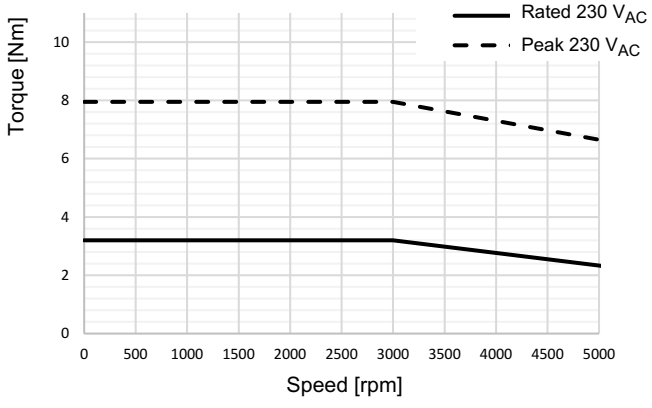


4.3 - Torque characteristic curves MBH80*

MBH80L



MBH80X



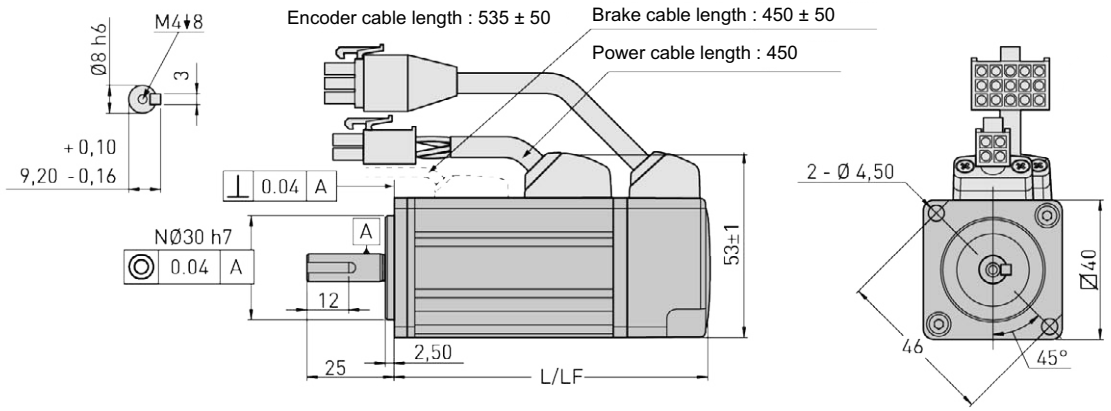
5 - MBH* MOTORS WITH SUPPLY VOLTAGE 060 (24…60V DC)

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•m²	0.0035
Brake torque	Nm	0.3
Maximum axial force	N	70
Encoder type		E25

5.2 - MBH40M - Overall dimensions

dimensions in mm



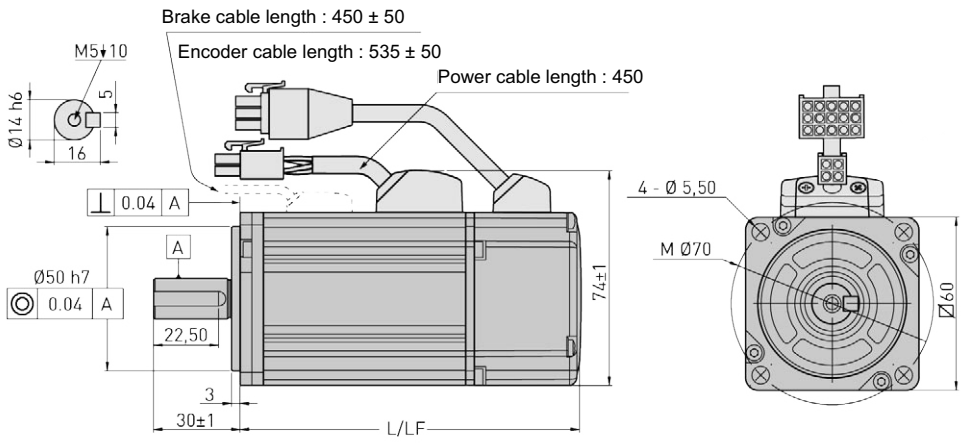
Brake		N	B
Mass	kg	0.5	0.8
Length L/LF (±1.5)	mm	99	136

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•m²	0.045
Brake torque	Nm	1.3
Maximum axial force	N	70
Encoder type		E25 or M16

5.4 - MBH60M - Overall dimensions

dimensions in mm



Brake		N	B
Mass	kg	1.4	1.9
Length L/LF (±1.5) (**NOTE**)	mm	124 (143)	165 (184)

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

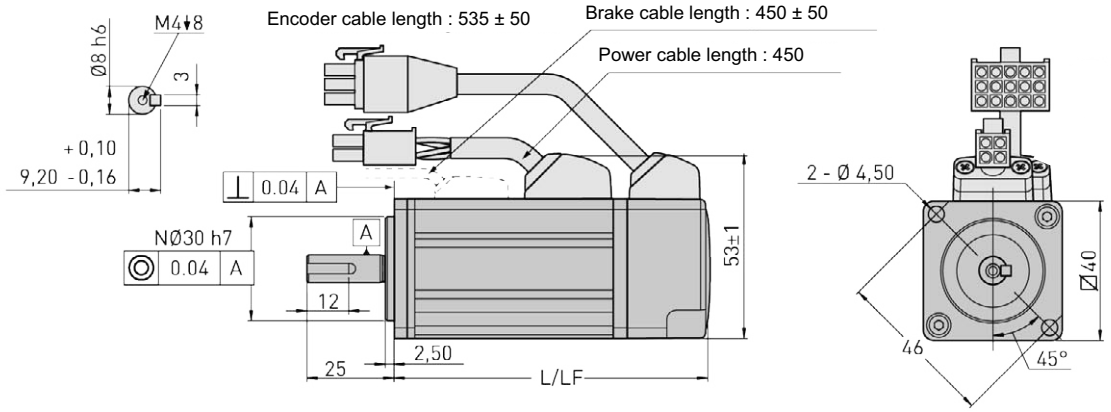
6 - MBH* MOTORS WITH SUPPLY VOLTAGE 230 (230 V AC)

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•m²	0.0036
Brake torque	Nm	0.3
Maximum axial force	N	70
Encoder type		E25

6.2 - MBH40M - Overall dimensions

dimensions in mm



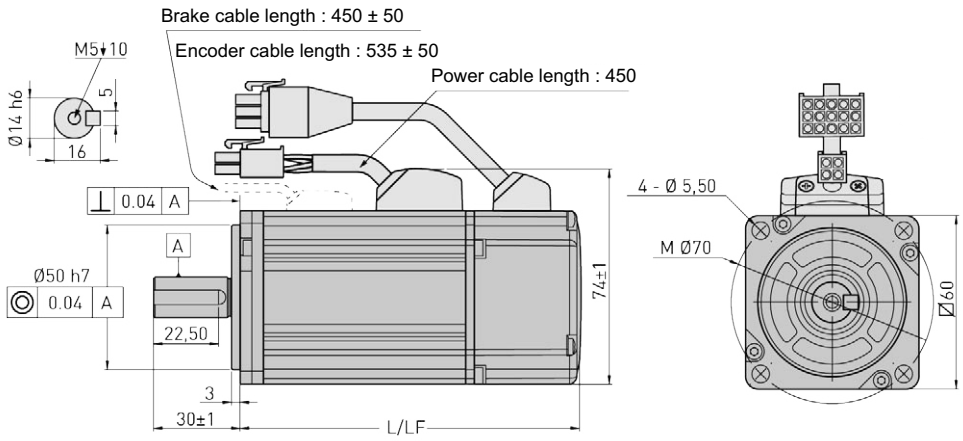
Brake		N	B
Mass	kg	0.5	0.8
Length L/LF (±1.5)	mm	99	136

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•m²	0.0435
Brake torque	Nm	1.3
Maximum axial force	N	70
Encoder type		E25 or M16

6.4 - MBH60M - Overall dimensions

dimensions in mm



Brake		N	B
Mass	kg	1.4	1.9
Length L/LF (±1.5) (**NOTE**)	mm	124 (143)	165 (184)

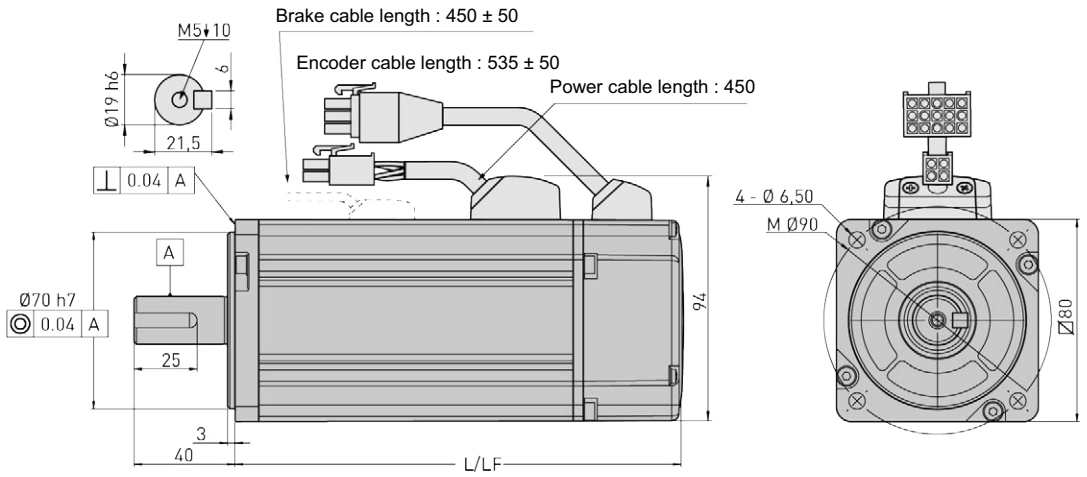
NOTE: The value in brackets refers to models with M16 encoder.

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•m²	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

dimensions in mm



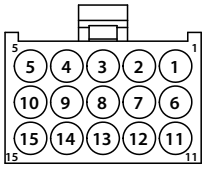
		MBH80L		MBH80X	
Brake		**N**	**B**	**N**	**B**
Mass	kg	3.1	3.6	3.6	4.1
Length L/LF (±1.5) (**NOTE**)	mm	188 (145)	168 (188)	143 (163)	186 (206)

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

7 - ELECTRICAL CONNECTIONS

7.1 - Encoder

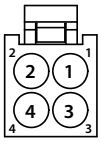
Connector plug type: AMP172171-1, 15 pin



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

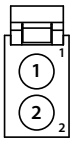
Connector plug type: AMP172167-1, 4 pin



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**