BX-BE-BN-MX-ME-M-BXN-MXN-MNN SERIES

Installation, Operation and Maintenance Manual

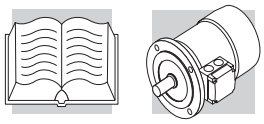
Bonfiglioli

OWNER'S MANUAL FOR ELECTRIC MOTORS SERIES BX, BE, BN, MX, ME, M BXN, MXN, MNN

Read carefully

Electrical hazard

Revisions
Refer to page 38 for the catalogue revision index.
Visit www.bonfiglioli.com to search for catalogues with up-to-date revisions.



1 FIELD OF APPLICATION

The following instructions apply to the three-phase asynchronous electric motors manufactured by BONFIGLIOLI RIDUTTORI S.p.A., series:
- BXN, BX, BE, BN
- MXN, MX, ME, M, MNN
in their standard version, with or without brake.

Special versions as described in the catalogues and/or in offers, or special applications (for example, power supply from inverter) will require additional information.

2 GENERAL SAFETY INFORMATION

The electric motors described in the following instructions are designed to be used in industrial installations and must be operated by qualified personnel only.

During operation, motors have live or moving parts. Therefore, removal of electrical or mechanical guards, improper use, or inadequate maintenance may cause serious damage to persons or property.

Installation and maintenance on motors must be performed only by qualified personnel who have thorough knowledge of the instructions and technical data for the product and who have been authorised to perform such operations by the safety supervisor.

Since the electric motor does not have a defined function for the final user and is going to be physically coupled to another machine, it is the responsibility of the installer to guarantee that all provisions for its safe operation have been taken.

3 INSTALLATION

3.1 Identification

Gearmotors and motors have a nameplate carrying their identification data.

In the case of serial number composed of 17 digits, the year of production is identified by digits 3-4.
In the case of serial nummber composed of 13 digits, the year of production is identified by digits 5-6.
See the following exsamples:

0	1	1	9	0	0	0	7	1	3	2	4	5	9	0	0	1
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
		Month		Year												

	E	V	O	1	9	0	0	0	0	0	0	1
1	2	3	4	5	6	7	8	9	10	11	12	13
X	X	X	X	X	X	X	X	X	X	X	X	X
				Year								

Table shows the plate used for all motor configurations.

On standard voltage electric motors with an FD brake, the nameplate only gives electrical data for the frequency identified by the motor designation.

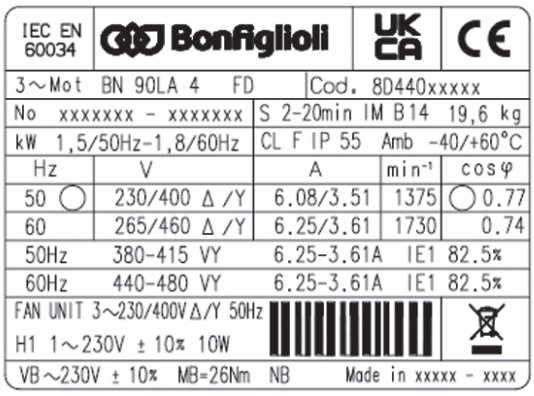
On standard voltage electric motors with an FA brake, the nameplate gives electrical data for 50 Hz and 60 Hz.

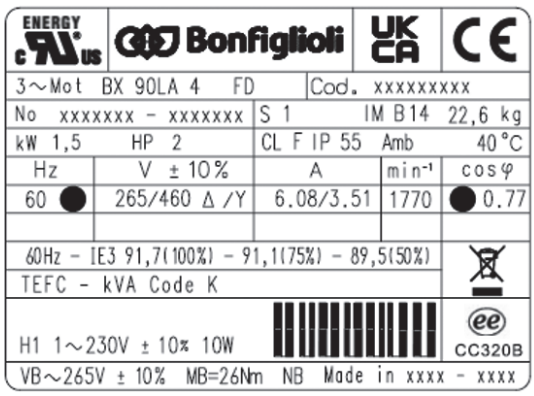
On non-standard voltage electric motors with a brake, the nameplate only gives electrical data for the frequency identified by the motor designation.

On motors with the CUS option, the nameplate only gives electrical data for the frequency identified by the motor designation.

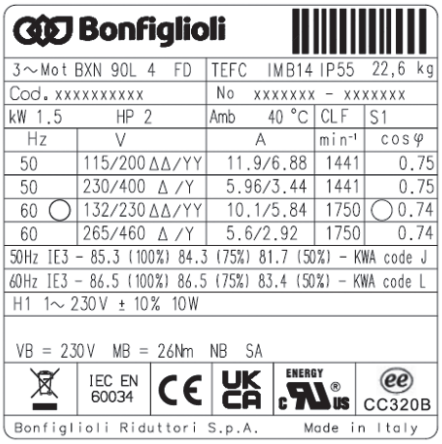
Some example of precompiled nameplates

BX, BE, BN, MX, ME, M



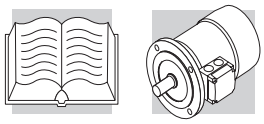


BXN, MXN, MNN



3.2 Reception

Upon receipt of the motor, check that it was not damaged during transportation; if damage is noted, inform the carrier immediately. In addition, check that the characteristics stated on the plate conform to those ordered and confirmed by BONFIGLIOLI RIDUTTORI S.p.A.



3.3 Transport and handling

Cartons containing more than one motor are usually attached to wooden boards to facilitate handling by forklifts or transpallets.

Motors may be handled individually by lifting them with belts or chains (if required due to weight).

Motors of frame sizes BXN 100 / MXN30, BX 100 / MX3, BE 100 / ME3 and BN 100 / M3 and larger, are provided with an eyebolt / lifting point for lifting purposes.

The eyebolts / lifting points are suitable for lifting the motor only.

Make sure that the motor rests in a stable manner and will not roll (in the case of flanged motors).

3.4 Storage

Observe the following instructions to ensure correct storage of products:

a) Do not store outdoors, in areas exposed to weather or with excessive humidity.

b) Always place boards in wood or other material between floor and products, to avoid direct contact with the floor.

c) For storage periods exceeding 60 days, all coupling surfaces such as flanges and shafts must be protected with a suitable anti-oxidation product (Mobilarma 248 or equivalent).

d) For storage periods exceeding 6 months, it is a good rule to turn the rotor every 1-2 months and to take adequate measures against corrosion and humidity.

3.5 Motor installation

Check that mains assembly and service conditions comply with the information on the plate and described in the technical documentation.

The following instructions must be observed when installing the motor:

Prior to installing the motor remove from the shaft the plastic guards that are supplied for transportation purposes.

These must be disposed of according to the rules applicable in the Country where the installation takes place.

If applicable, remove oxidation preventative coating of shaft by means of a suitable solvent, which afterwards must be disposed of according to the regulations applying locally.

Do not let the solvent be in touch with oilseal lips.

Make sure that the motor is well-ventilated, that there is nothing to obstruct the free circulation of air, and that no situation will arise that could block the regular heat dissipation.

The installation must also allow the performance of ordinary maintenance on the motor and, if supplied, of the brake.

Avoid hitting on the motor shaft: bearings may be damaged.

In outdoor installations, protect the motor from direct sun ratiation and, if possible, from inclement weather.

Prior to fitting flanged motors onto gear units make sure that the key is retained safely into the key seat. Coat thoroughly motor shaft with a suitable anti-seize product (Loctite 767 or equivalent) to prevent fretting corrosion and facilitate removal of motor at a later time.

Every 6-12 months it may be recommended to remove the motor from the gear head, clean the shaft area and re-apply the anti-seize product.

In order to avoid vibration once in operation, make sure the motor is secured tightly to mating gearbox flange. Should the motor need to be painted, screen name plate as well as vented plug (if applicable) and machined parts on beforehand.

After the installation of a brake motor is complete, unscrew and remove the lever that operates the manual brake release, thus preventing any accidental operation of the same.

3.6 Balancing

The rotor shaft is dynamically balanced with half key fitted. Assembly of external transmission unit must be performed with adeaquate instruments after suitable balancing, avoiding knocks which could damage the bearings.
Be especially careful not to operate the motor without having properly secured the key not being used (motors with two shaft ends).

Adopt adequate measures to avoid accidental contact with exposed live or moving parts.

Avoid contact with the motor case, since the temperature under normal operating conditions may exceed 50 °C.

3.7 Insulation test

Before start-up, or after long storage (or idle) periods, check insulation resistance to mass with Megger at 500V DC.
The value measured at 25 °C for new windings in good condition should exceed 10 MΩ.
If this value is not reached, oven drying will be required to eliminate excess humidity.

4 WIRING

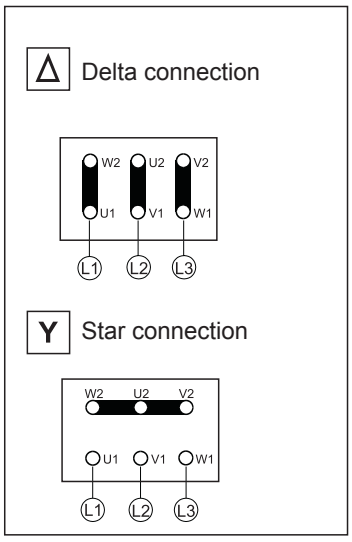
4.1 Norms applicable to all motors

Use cables with suitable section for the rated current and for installation conditions, avoiding excessive heating and/or voltage drops. Connection at the terminal board must be performed according to the diagrams shown in chart below or according to the instructions supplied in the terminal box, using the appropriate plates, nuts and washers. Earth according to current norms before connecting to the mains.

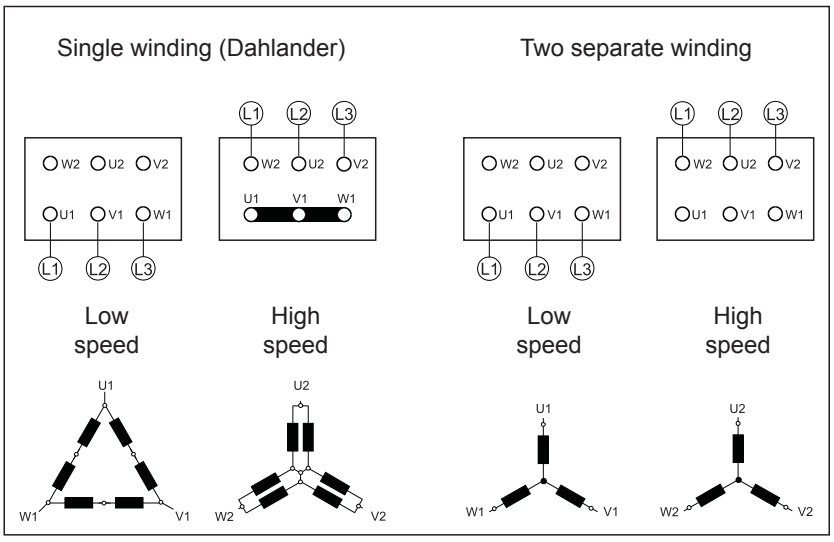
In addition to the main terminals, the conduit box may contain thermal protection, anti-condensation heaters, and brake connections.

Wire any device according to the diagrams contained in the conduit box.

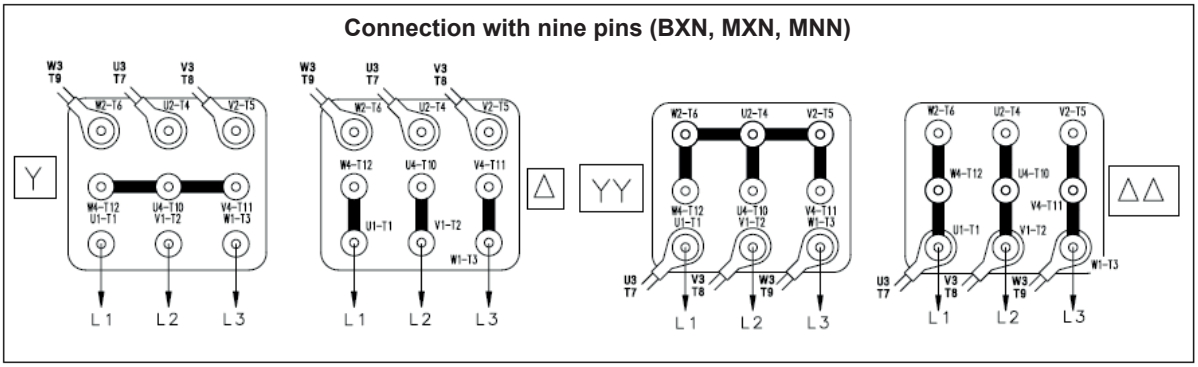
Single-speed motors



Two-speed motors



Connection with nine pins (BXN, MXN, MNN)



During rest time voltage may still apply to terminals of the heaters and/or the brake. When installing, repairing or maintaining the motor double check that all connections to the mains have been cut.

Furthermore, always prevent uncontrolled restarting of the motor as this may be extremely hazardous for the operator.

At the end of the wiring operations, place the gasket on its site and close the cover. Carefully tighten the cable gland and close all the openings that are not used.

4.2 Anti-condensate heaters

Power to the anti-condensate heaters must be supplied separately and it must always be disconnected while the motor is operating.

4.3 Ventilation

Motors are cooled through outer air blow (IC 411 according to CEI EN 60034-6) and are equipped with a plastic radial fan, which operates in both directions.

Ensure that fan cover is installed at a suitable distance from the closest wall so to allow air circulation and servicing of motor and brake, if fitted.

On request, all BX/MX, BE/ME motors and BN/M motors, starting from BN 71 or M1 size, can be supplied with independently power-supplied forced ventilation system.

Motor is cooled by an axial fan with independent power supply and fitted on the fan cover (IC 416 cooling system).

Brake motors of BN_BA type and all motors with rear shaft projection (PS option) are excluded.

4.4 Ratings of separate supply fan units

U1					
Fan wiring terminals are housed in a separate terminal box					
		**V a.c. ± 10%**	**Hz**	**P [W]**	**I [A]**
BN 71	**M1**	1 ~ 230	50 / 60	22	0.12
BN 80	**M2**			22	0.12
BN 90	**—**			40	0.30
BN 100	**M3**			50	0.25
BN 112	**—**	3 ~ 230Δ / 400Y		50	0.26 / 0.15
BN 132 ... BN 160MR	**M4**			110	0.38 / 0.22
BN 160M ... BN 180M	**M5**		50	180	1.25 / 0.72
BN 180L ... BN200L	**—**			250	1.51 / 0.87
		**V a.c. ± 10%**	**Hz**	**P [W]**	**I [A]**
BX 80 - BE 80	**MX2 - ME2**	1 ~ 230	50 / 60	22	0.12
BX 90 - BE 90	**—**			40	0.30
BX 100 - BE 100	**MX3 - ME3**			50	0.25
BX 112 - BE 112	**—**	3 ~ 230Δ / 400Y		50	0.26 / 0.15
BX 132 - BE 132	**MX4 - ME4**			110	0.38 / 0.22
BX 160 - BE 160	**MX5 - ME5**		50	180	1.25 / 0.72
BX 180 - BE 180	**—**			250	1.51 / 0.87

U2					
Fan terminals are wired in the motor terminal box					
		V a.c. ± 10%	Hz	P [W]	I [A]
BN 71	M1	1 ~ 230	50 / 60	22	0.12
BN 80	M2			22	0.12
BN 90	—			40	0.30
BN 100	M3	3 ~ 230Δ / 400Y		40	0.12 / 0.09
BN 112	—			50	0.26 / 0.15
BN 132 ... BN 160MR	M4			110	0.38 / 0.22

		V a.c. ± 10%	Hz	P [W]	I [A]
BE 80	ME2	1 ~ 230	50 / 60	22	0.12
BE 90	—			40	0.30
BE 100	ME3	3 ~ 230Δ / 400Y		40	0.12 / 0.09
BE 112	—			50	0.26 / 0.15
BE 132	ME4			110	0.38 / 0.22

4.5 Direction of rotation

If the mains with phase sequence L1, L2, L3 is connected to terminals U, V, W, the direction of rotation of the motor will be clockwise as seen from the drive end.
If any two terminals are switched, the direction of rotation will be counter-clockwise.

For unidirectional motors, a plate will be provided indicating the direction of rotation and the phase sequence to be applied (e.g., U, V, W).

This indication is present only when the motor, as a function of project characteristics, requires only one direction of rotation (for example, anti run-back device installed).

Pay special attention when single direction status is imposed by machine or plant specifications.

4.6 FD brake connections

On standard single-pole motors, the rectifier is connected to the motor terminal board at the factory.

For switch-pole motors and where a separate brake power supply is required, connection to rectifier must comply with brake voltage VB stated in motor name plate.

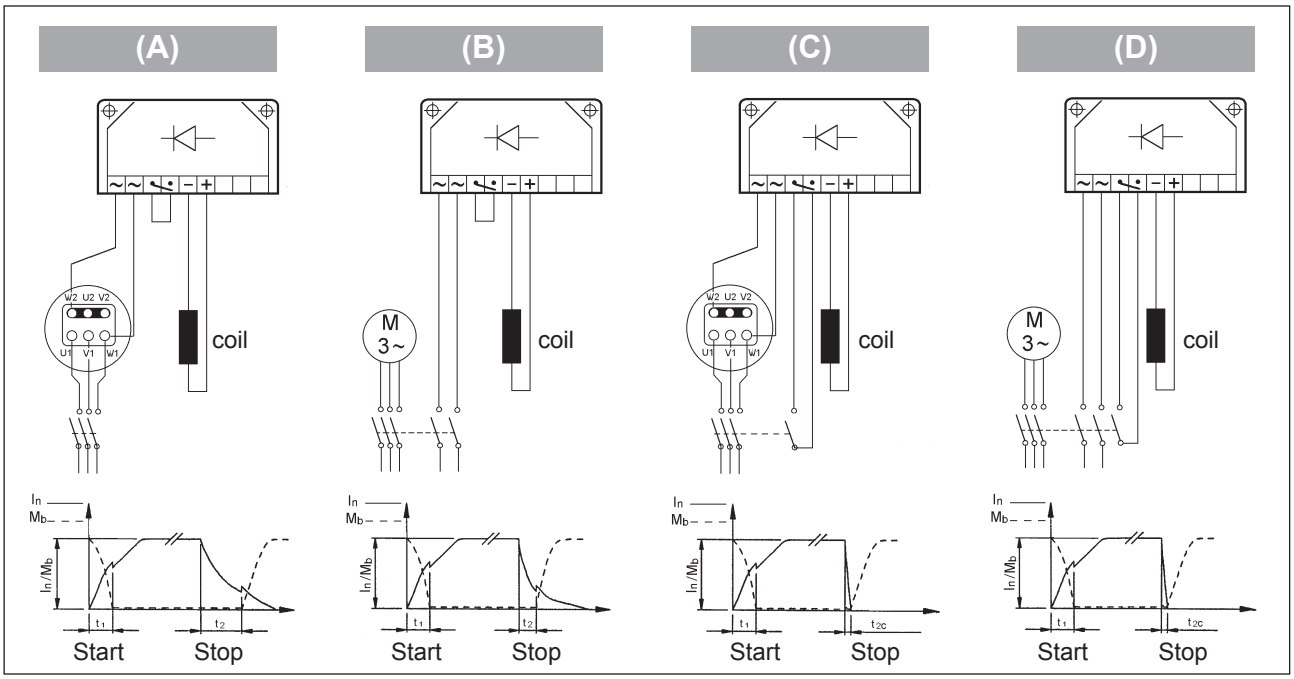
Because the load is of the inductive type, brake control and DC line interruption must use contacts from the usage class AC-3 to IEC 60947-4-1.

Scheme (A) - Brake power supply from motor terminals and a.c. line disconnection. Delayed stop time t_2 and function of motor time constants. Mandatory when soft-start/stops are required.

Scheme (B) - Separate supply of brake coil and a.c. line disconnect. Regular stopping time, independent on time constants of motor.

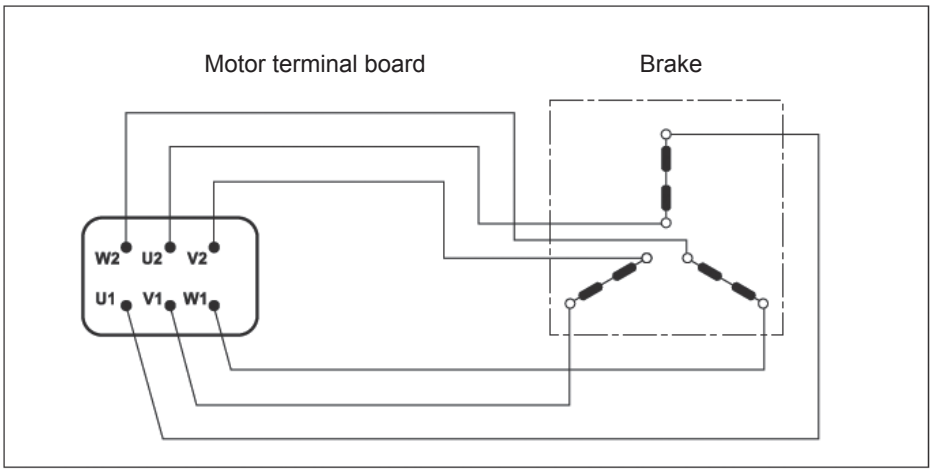
Scheme (C) - Brake coil power supply from motor terminals and AC/DC line disconnection.

Scheme (D) - Brake coil with separate power supply and AC/DC line disconnection.

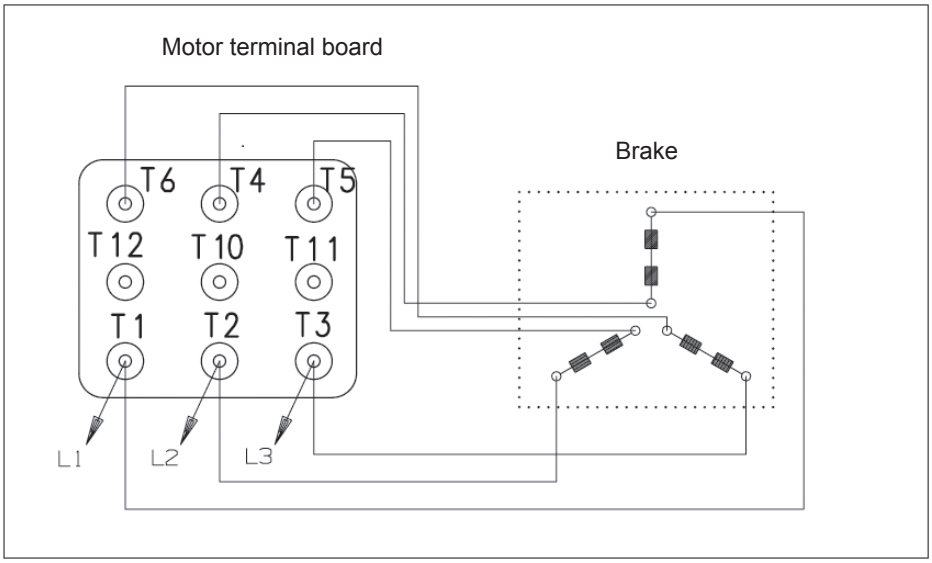


4.7 FA and BA brake connections

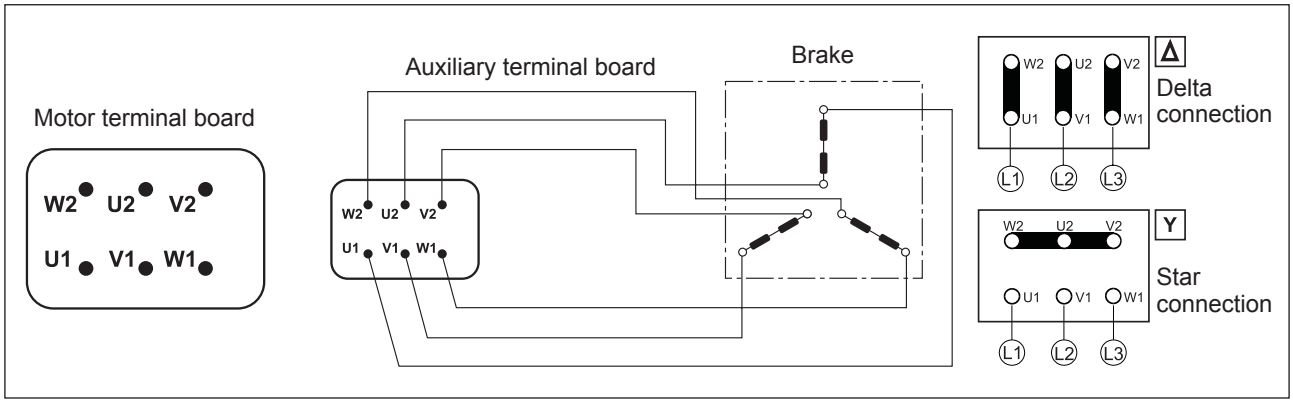
The diagram below shows the wiring when brake is connected directly to same power supply of the motor with a six pins terminal board:



The diagram below shows the wiring when brake is connected directly to same power supply of the motor with a nine pins terminal board (BXN, MXN, MNN):



Switch-pole motors, nine pin motors (BX, BE, BN, MX, ME, M, MNN) and, at request, single-pole motors with separate power supply are equipped with an auxiliary terminal board with six terminals for brake connection.
In this version, motors feature a larger terminal box.
See diagram:



Wire the brake according to voltage and type of connection as shown on motor name plate.

5 START-UP

Perform the following operations and checks before start-up:

1) check that all safety measures have been applied;
2) power up the motor unloaded at rated voltage;
3) check that the sepate fan cooling (if any) is operating;
4) check that operation is smooth and vibration-free;
5) If the brake is fitted, verify that it operates regularly;
6) if operation is satisfactory, apply the load to the motor while checking on values of absorbed current, power and voltage.

Abnormal operations such as over current, overheating, noise, or vibrations, may cause serious damage or hazardous conditions. In these cases, cut power and notify maintenance personnel immediately.

6 MAINTENANCE

Before any intervention, the motor, auxiliary circuits and/or accessories must be disconnected from the mains.

In particular:

- check disconnection from the electrical mains,
- provide suitable protections from exposed live parts,
- duble check that accidental restarts are not possible under any circumstances.

It is recommended that periodical checks of motor operating conditions are scheduled as a routine maintenance practice.

Check particularly on the following:

1) check that operation is smooth and absorbed current within rated value;

2) On brakemotors, check condition of the brake, gauge the air gap “T” and play “X” of the manual brake release device;when provided

3) keep motor clean and fan cowl unobstructed by accumulation of dust or foreign particles;

4) check that seal rings are in good condition;

5) check that lead-in wires and all wirings are safely and tightly secured;

6) If condensate draining holes are provided, remove periodically the screws that close the holes and allow the condensate to drain. On installing the motor make sure that the drain hole is located at the lowest point.

7) standard bearings are grease packed for life and in general no periodical maintenance is required; it is good practice however to check their condition and eventually replace them after approx. 3 years.

The motor does not have to be removed for normal inspections unless the bearings need to be replaced. In this case, the operations should be performed by specialised personnel and with appropriate tools.

6.1 Adjustment of air gap on motors with d.c. brake (FD) or a.c. brake (FA).

Loosen nut ref. 2

Depending on motor frame size adjust the air gap and set dimension T to the min. value indicated in diagram through either socket head screws ref. (1) or nut ref. (3).

Then after hold firmly screw ref. (1) and lock it by tightening nut ref.(2).

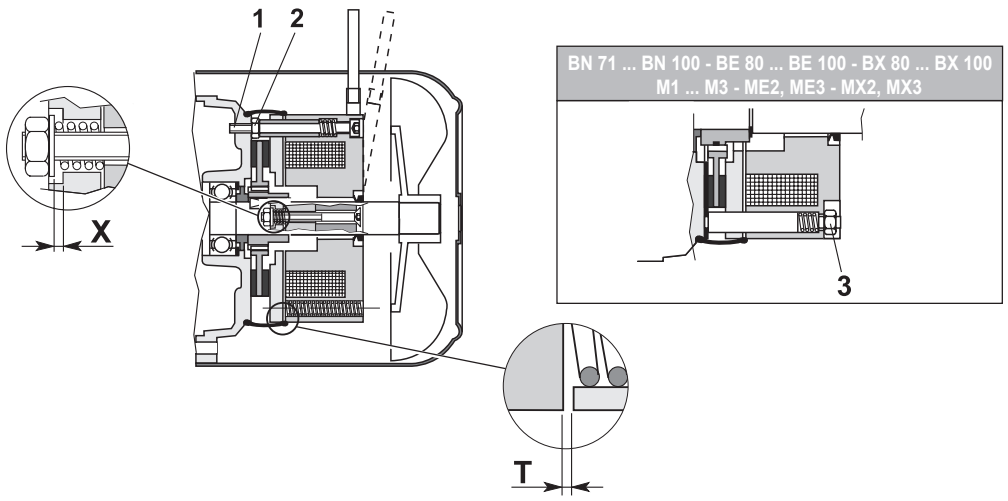
Check the air gap periodically and re-adjust it if dimension T is found exceeding the min/max values indicated in diagram.

Particularly, brake may become noisier if gap is wider than the max value. In extreme cases releasing of the brake might also be affected.

If the brake disengagement device is fitted, too wide a gap may lead the braking torque to drop significantly as a consequence of the reduced play in the release mechanism.

Distance “X” must mandatorily be equal to or greater than the value listed in the chart.

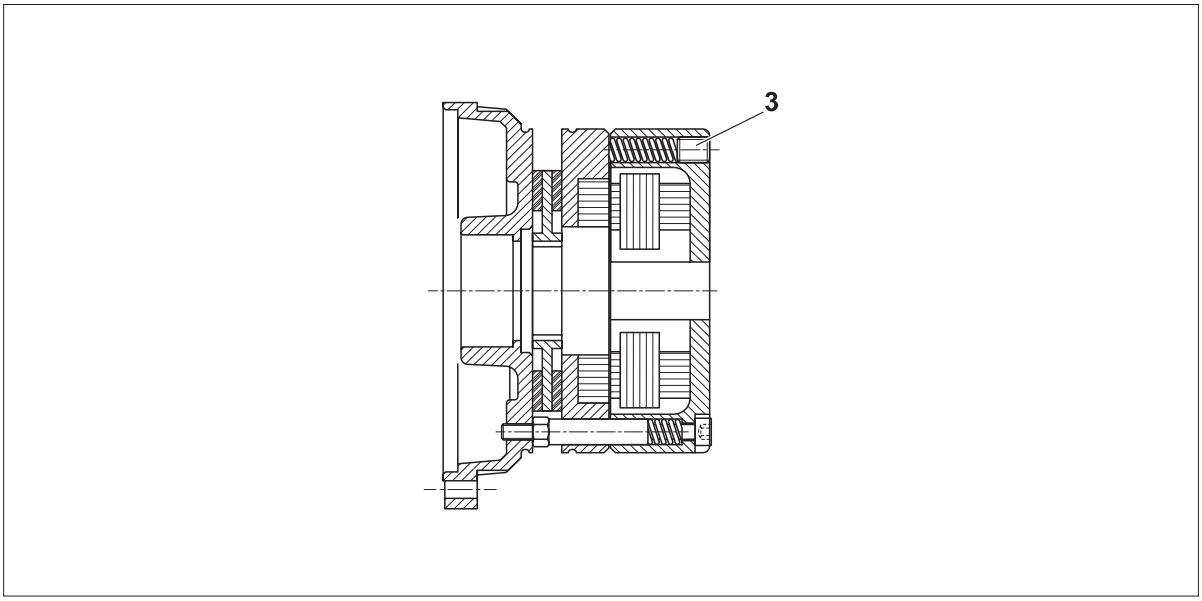
Thickness of disc lining must always be greater than 1.5 mm.



BRAKE TYPE									
FD		**FD 02**	**FD 03 FD 53**	**FD 04 FD 14**	**FD 05 FD 15 FD 55**	**FD 06S**	**FD 06 FD 56**	**FD 07**	**FD 08 FD 09**
FA		**FA 02**	**FA 03**	**FA 04 FA 14**	**FA 05 FA 15**	**FA 06S**	**FA 06**	**FA 07**	**FA 08**
T	Min	0.2	0.2	0.3	0.3	0.35	0.35	0.4	0.5
	Max	0.5	0.5	0.6	0.6	0.7	0.7	0.8	1.0
X	≥	0.8	0.8	1.0	1.0	1.1	1.1	1.2	1.5

T (mm) = Air gap

6.2 Brake torque setting on motors with a.c. brake (FA)



Brake torque can be adjusted steplessly by changing the preload of springs (3).

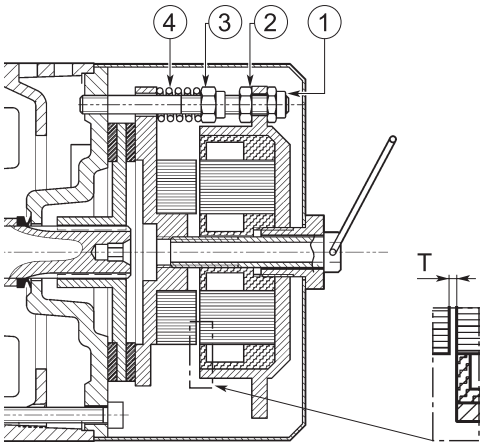
WARNING: For safety reasons, brake torque will not be set lower than 30% of rated value, even at springs fully unloaded.

BRAKE	Max. brake torque
FA 02	3.5
FA 03	7.5
FA 04	15
FA 14	15
FA 05	40
FA 15	40
FA 06S	60
FA 06	75
FA 07	150
FA 08	250

6.3 Brake torque setting on motors with a.c. brake (BA)

Loosen locking nut (2). Through nut (1) adjust the air gap and restore distance “T” to its minimum value, as listed in the chart Repeat the operation symmetrically on each stud bolt holding the brake. When setting is complete tighten nuts (1) and (2) on each stud bolt.

Too wide an air gap may result into noise and vibrations in operation and, in extreme cases, even prevent the motor from braking.



BRAKE TYPE								
BA		**BA 60**	**BA 70**	**BA 80**	**BA 90**	**BA 100**	**BA 110**	**BA 140**
T	Min	0.3	0.3	0.3	0.3	0.3	0.3	0.4
	Max	0.7	0.7	0.7	0.7	0.7	0.7	0.8

T (mm) = Air gap

6.4 Brake torque setting on motors with a.c. brake (BA)

Brake torque can be adjusted steplessly by changing the preload of springs (4) acting on nuts (3).

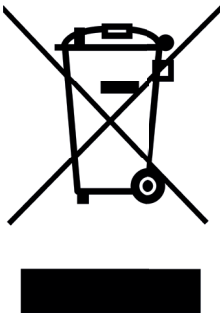
Braking torque will increase proportionally to the compression of springs (4).

Repeat the operation symmetrically on each stud bolt holding the brake.

BRAKE	Max. brake torque
BA 60	5
BA 70	8
BA 80	18
BA 90	35
BA 100	50
BA 110	75
BA 140	150

7 DISASSEMBLY, RECYCLING OR DISPOSAL

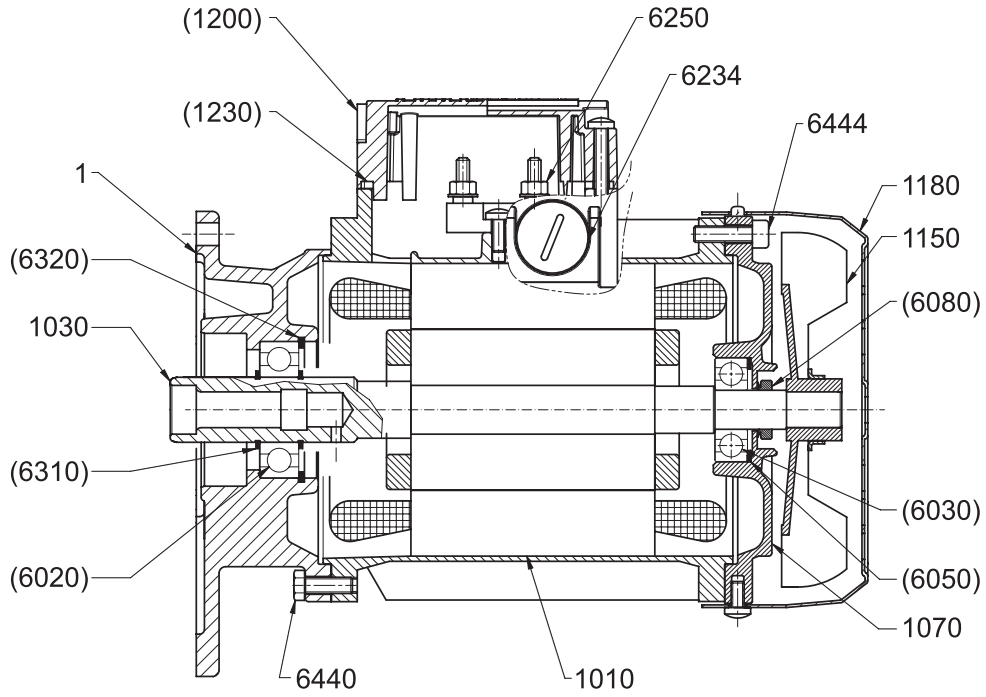
The electrical motors are mainly made by ferrous, non - ferrous, plastic materials and electric / electronic devices.
Bonfiglioli recommends and encourages the end of life motor dismantling and the differentiation and recycling of the components.



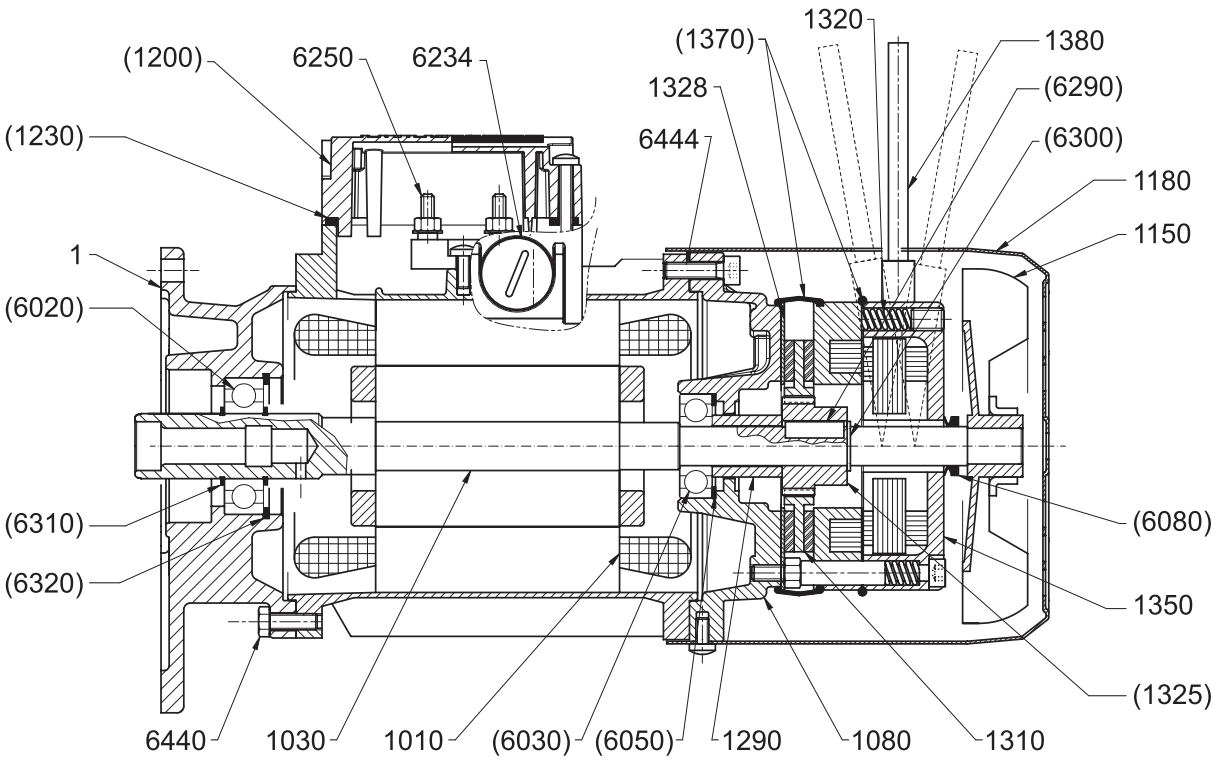
This product should not be mixed with general household waste. Disposal has to be carried out in conformity with EU Directive 2012/19/EU where established, and in accordance to national regulations.
Fulfill disposal in accordance with any other legislation in force throughout the country.

8 SPARE PARTS

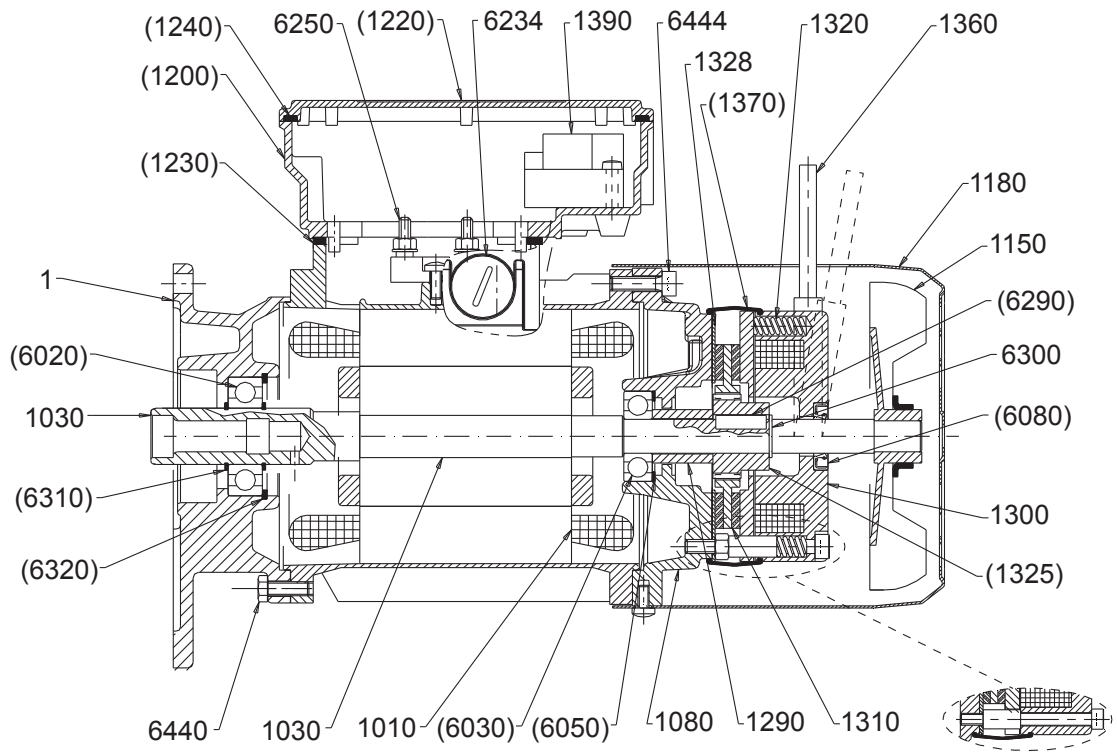
M05



M05 FA



M05 FD

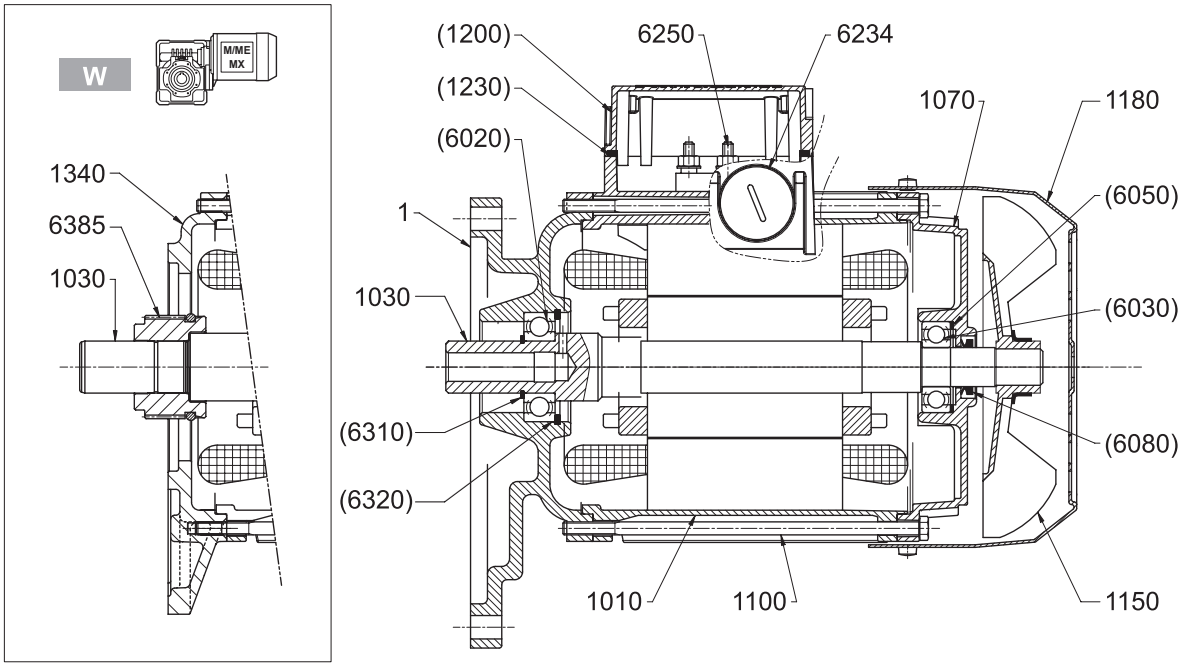


	kit	ref.	Description
M05 **M05 FD** **M05 FA**		1	Motor flange
		1010	Stator
		1030	Rotor
		1150	Fan
		1180	Fan cowl
	KSM	(1200)	Terminal box
		(1230)	Terminal box gasket
	KSA	(6020)	Bearing
		(6030)	Bearing
		(6050)	Compensation ring
		(6310)	Circlip
		(6320)	Circlip
		6234	Blank plug
		6250	Terminal board
		6440	Flange bolt
		6444	NDE shield bolt
M05		1070	Rear shield
	KSA	(6080)	V-ring

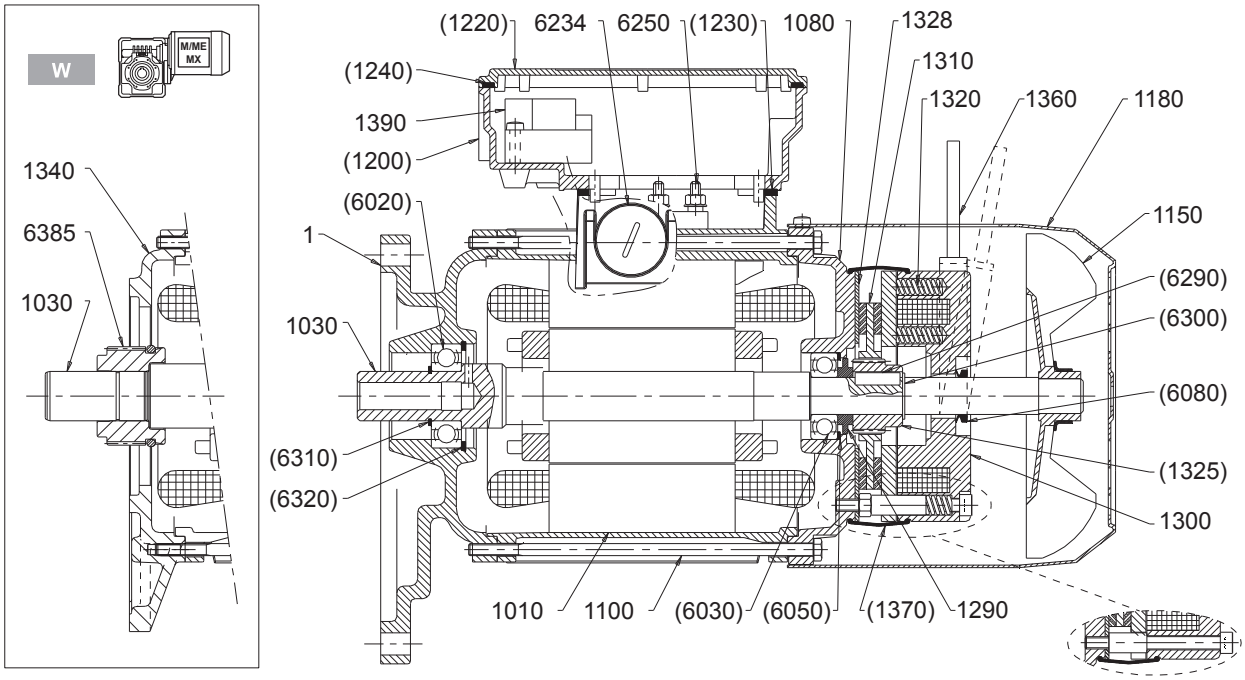
	kit	ref.	Description
M05 FD **M05 FA**		1080	Shield for brake motor
		1290	Spacer ring
		1310	Brake disc
		1320	Brake springs
	KTF	(1325)	Brake hub
		(6290)	Key (brake hub)
		(6300)	Circlip
		1328	Stainless steel disc
	KPF	(1370)	Water/dust guard (IP55)
		(6080	Brake seal ring/V-ring (IP55)
M05 FD	**KSM**	(1220)	Terminal box lid
		(1240)	Terminal box lid gasket
		1300	d.c. brake type FD
		1360	Brake release
		1390	ac/dc rectifier
M05 FA		1350	a.c. brake type FA
		1380	Brake release

(####) Only available as a complete kit

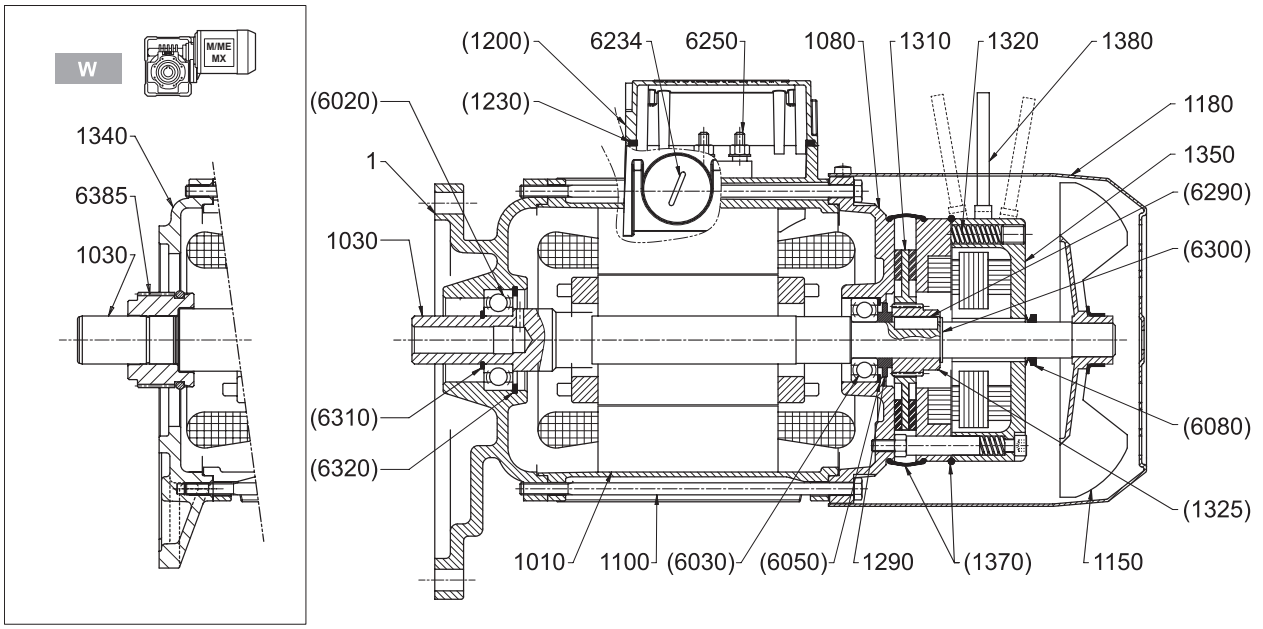
M_ ME_ MX_



M_ FD ME_ FD MX_ FD



M_ FA ME_ FA MX_ FA

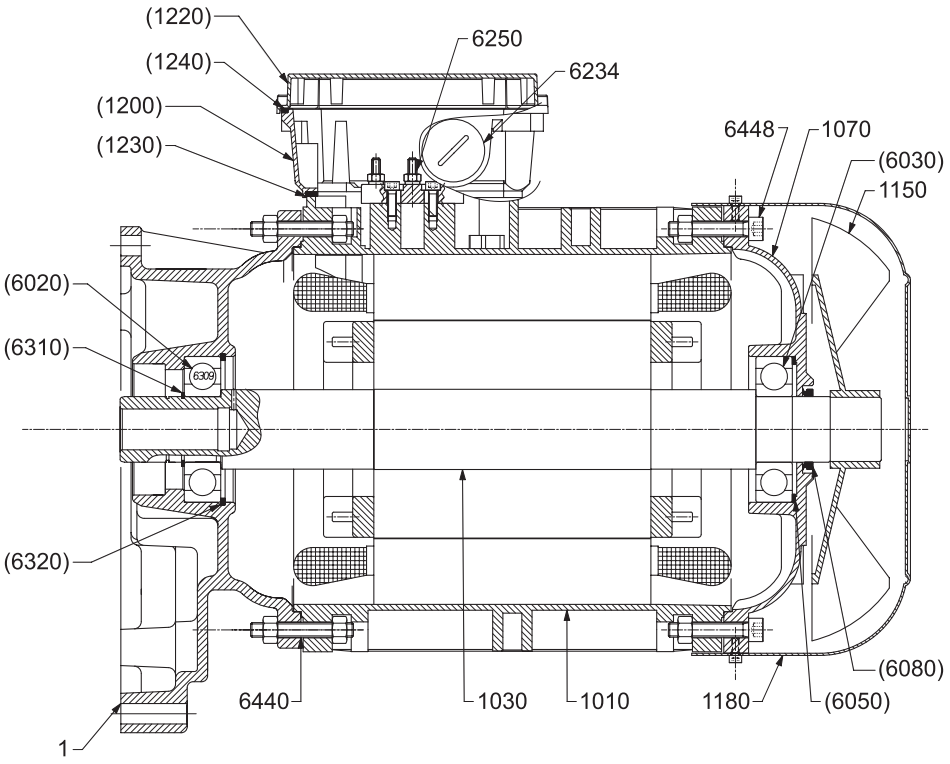


	kit	ref.	Description
M_ M_ FD M_ FA ME_ ME_ FD ME_ FA MX_ MX_ FD MX_ FA		1	Motor flange
		1010	Stator
		1030	Rotor
		1100	Tie-rods
		1150	Fan
		1180	Fan cowl
	KSM	(1200)	Terminal box
		(1230)	Terminal box gasket
		1340	Motor flange for W gearbox
	KSA	(6020)	Bearing
		(6030)	Bearing
		(6050)	Compensation ring
		(6310)	Circlip
		(6320)	Circlip
		6234	Blank plug
		6250	Terminal board
		6385	Kit bushing for W gearbox
M_ / ME_ MX_		1070	Rear shield
	KSA	(6080)	V-ring

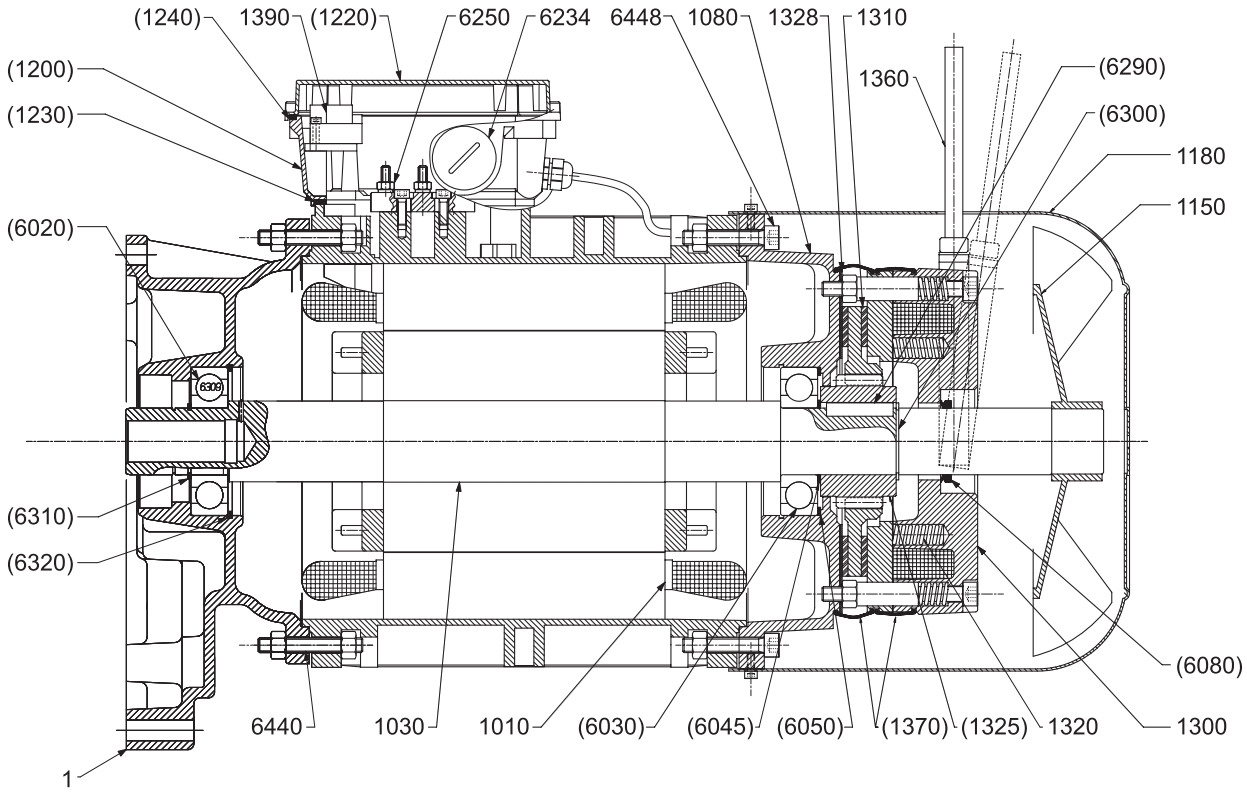
	kit	ref.	Description
M_ FD M_ FA ME_ FD ME_ FA MX_ FD MX_ FA		1080	Shield for brake motor
		1290	Spacer ring
		1310	Brake disc
		1320	Brake springs
	KTF	(1325)	Brake hub
		(6290)	Key (brake hub)
		(6300)	Circlip
	KPF	(1370)	Water/dust guard (IP55)
		(6080)	Brake seal ring/V-ring (IP55)
M_ FD ME_ FD MX_ FD	KSM	(1220)	Terminal box lid
		(1240)	Terminal box lid gasket
		1300	d.c. brake type FD
		1328	Stainless steel disc
		1360	Brake release kit
		1390	ac/dc rectifier
M_ FA ME_ FA MX_ FA		1350	a.c. brake type FA
		1380	Brake release kit

(####) Only available as a complete kit

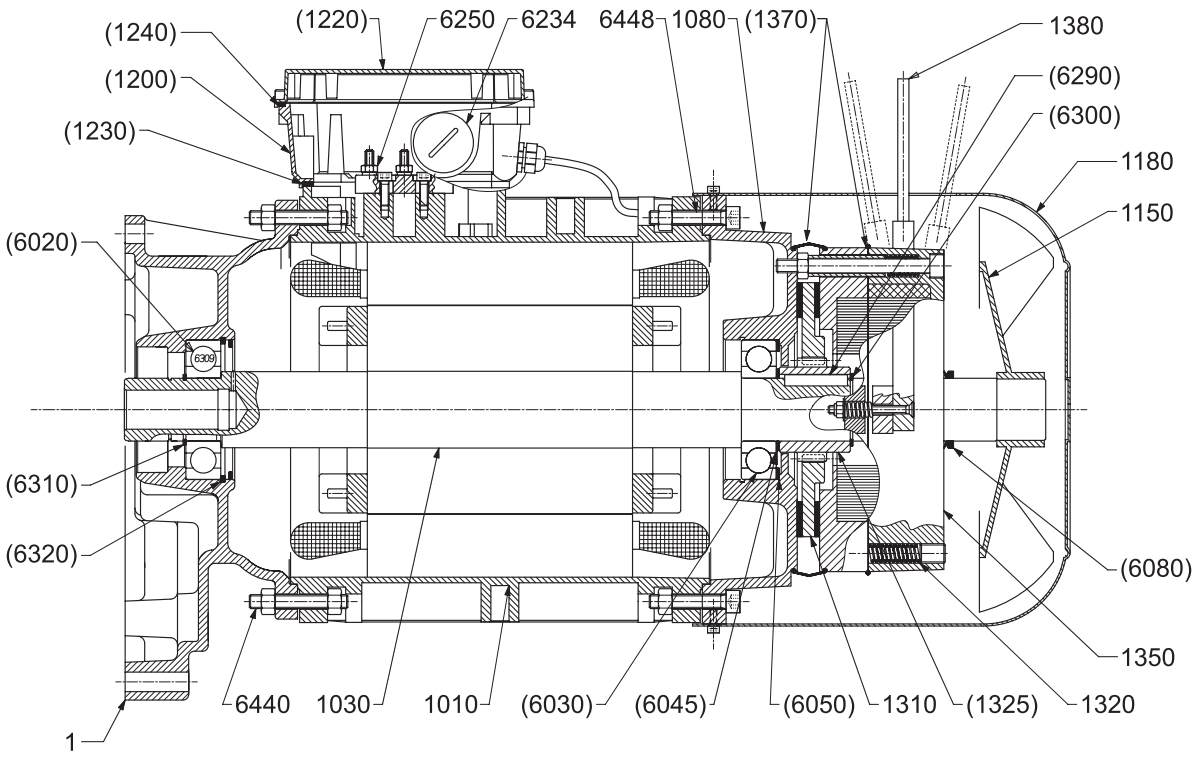
M5 ME5 MX5



M5 FD ME5 FD MX5 FD



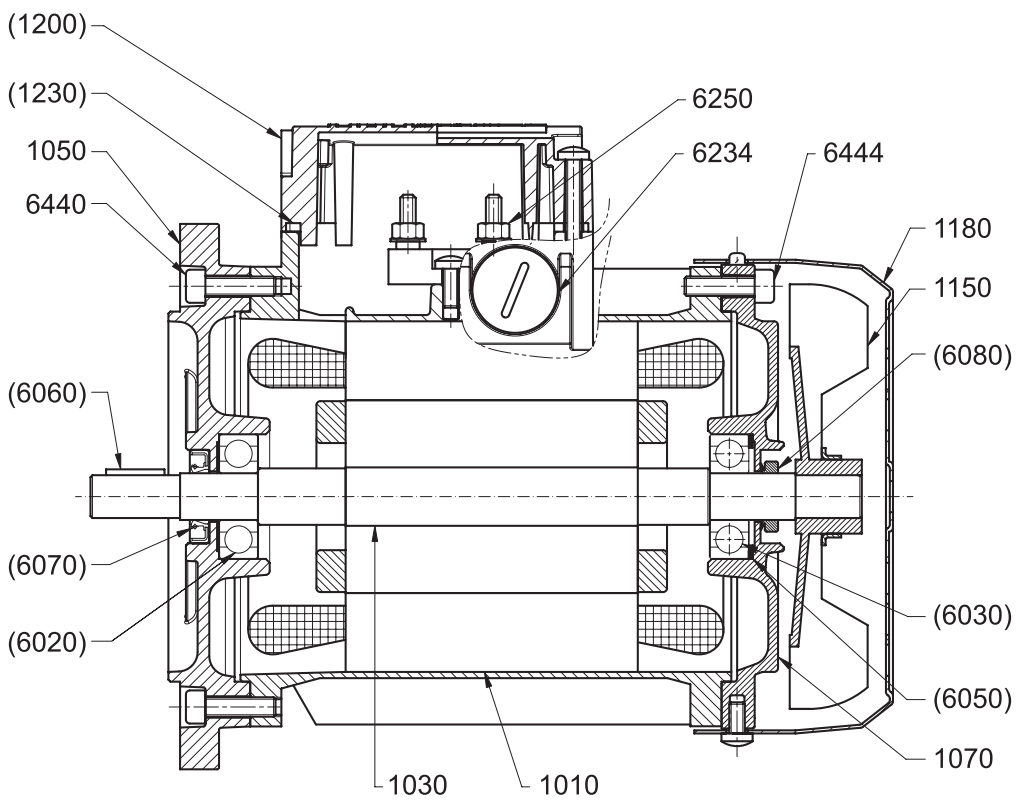
M5 FA ME5 FA MX5 FA



	kit	ref.	Description
		1	Motor flange
		1010	Stator
		1030	Rotor
		1150	Fan
		1180	Fan cowl
M5 **M5 FD** **M5 FA**	**KSM**	(1200)	Terminal box
		(1220)	Terminal box lid
		(1230)	Terminal box gasket
ME5 **ME5 FD** **ME5 FA**		(1240)	Terminal box lid gasket
	KSA	(6020)	Bearing
		(6030)	Bearing
MX5 **MX5 FD** **MX5 FA**		(6050)	Compensation ring
		(6310)	Circlip
		(6320)	Circlip
		6234	Blank plug
		6250	Terminal board
		6440	Flange bolt
		6448	NDE shield bolt

	kit	ref.	Description
M5 / ME5 **MX5**		1070	Rear shield
	KSA	(6080)	V-ring
M5 FD **M5 FA** **ME5 FD** **ME5 FA** **MX5 FD** **MX5 FA**		1080	Shield for brake motor
		1310	Brake disc
		1320	Brake springs
	KTF	(1325)	Brake hub
		(6045)	Spacer
		(6290)	Key (brake hub)
		(6300)	Circlip
	KPF	(1370)	Water/dust guard (IP55)
		(6080)	Brake V-ring (IP55)
M5 FD **ME5 FD** **MX5 FD**		1300	d.c. brake type FD
		1328	Stainless steel disc (IP55)
		1360	Brake release
		1390	ac/dc rectifier
M5 FA **ME5 FA** **MX5 FA**		1350	a.c. brake type FA
		1380	Brake release

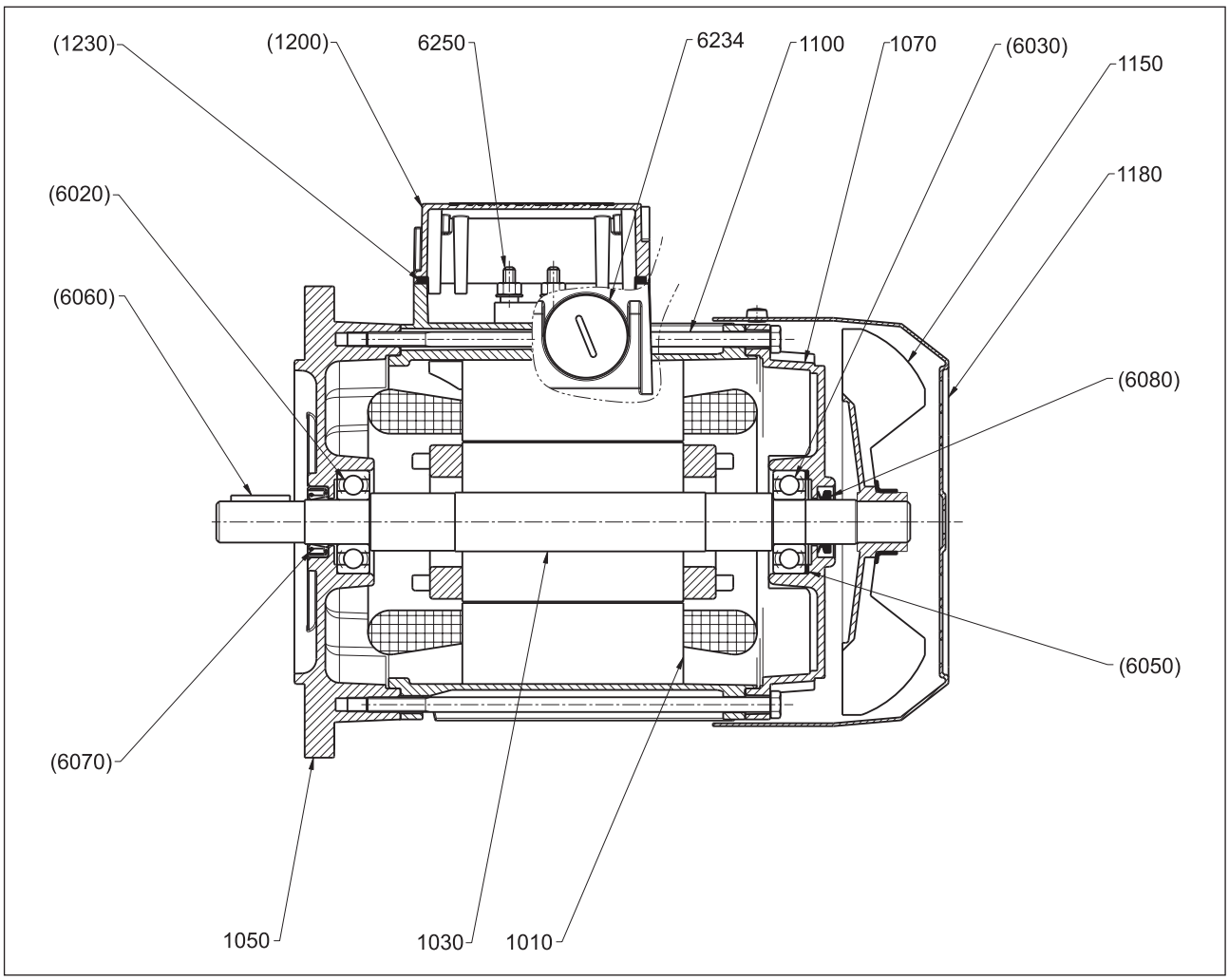
(####) Only available as a complete kit



kit	ref.	Description
	1010	Stator winding complete
	1030	Rotor shaft
	1050	Mounting flange (IM B5/IM B14)
	1070	Rear shield
	1150	Fan
	1180	Fan cover
KSM	(1200)	Terminal box lid
	(1230)	Terminal box gasket
	6234	Blank plug

kit	ref.	Description
	6250	Terminal board
	6440	Flange bolt
	6444	NDE shield bolt
KSA	(6020)	Bearing
	(6030)	Bearing
	(6050)	Compensation ring
	(6060)	Key
	(6070)	Seal ring
	(6080)	V-ring

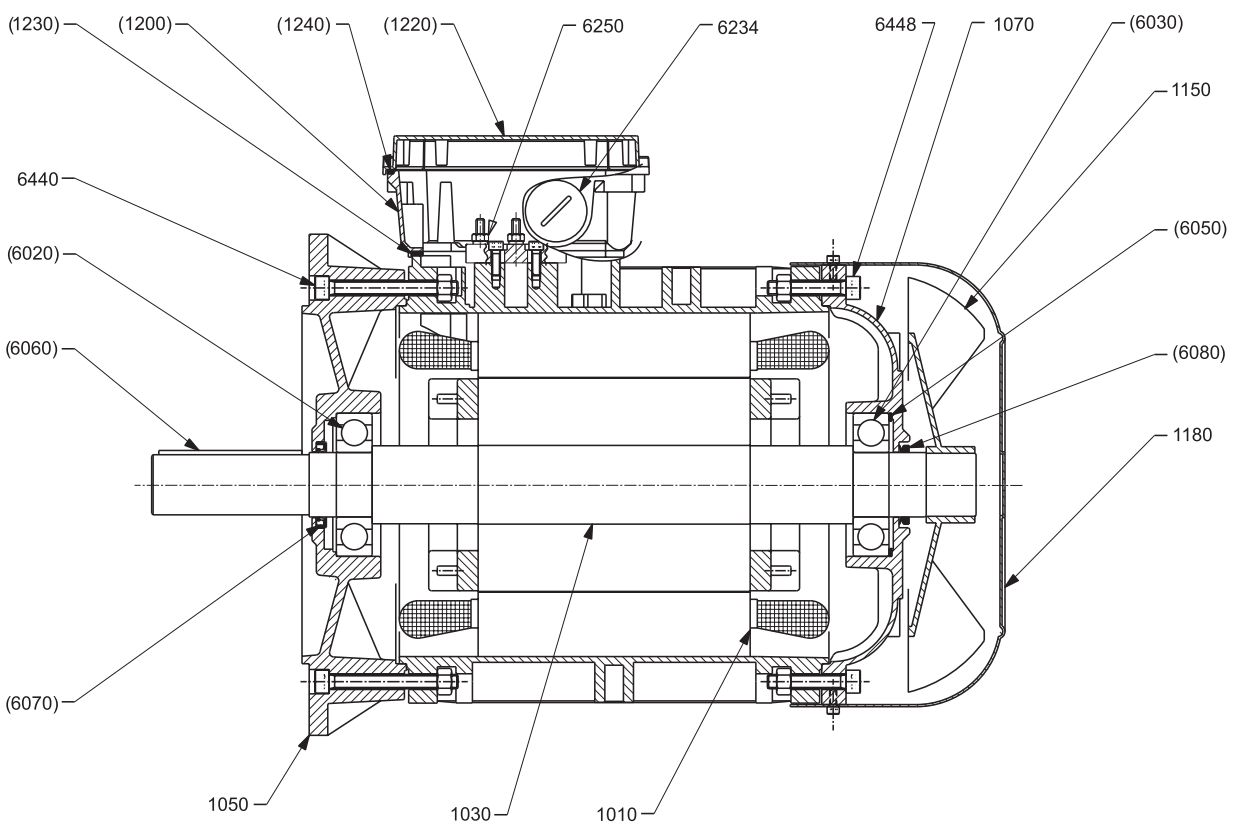
(####) Only available as a complete kit



kit	ref.	Description
	1010	Stator winding complete
	1030	Rotor shaft
	1050	Mounting flange (B5/B14)
	1070	Rear shield
	1100	Tie-rods
	1150	Fan
	1180	Fan cover
KSM	(1200)	Terminal box lid
	(1230)	Terminal box gasket

kit	ref.	Description
	6234	Blank plug
	6250	Terminal board
KSA	(6020)	Bearing
	(6030)	Bearing
	(6050)	Compensation ring
	(6060)	Key
	(6070)	Seal ring
	(6080)	V-ring

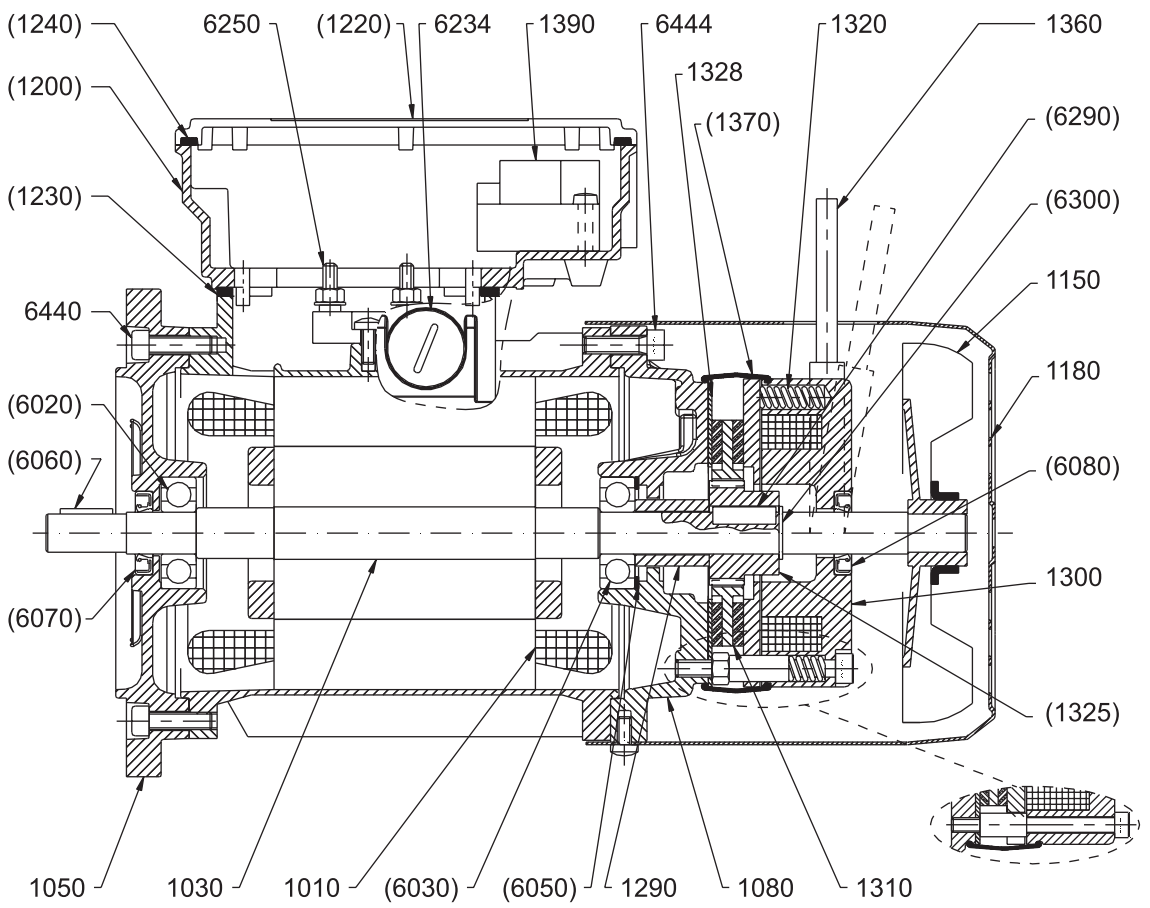
(####) Only available as a complete kit



kit	ref.	Description
	1010	Stator winding complete
	1030	Rotor shaft
	1050	Mounting flange (IM B5)
	1070	Rear shield
	1150	Fan
	1180	Fan cover
KSM	(1200)	Terminal box
	(1220)	Terminal box lid
	(1230)	Terminal box gasket
	(1240)	Lid gasket

kit	ref.	Description
	6234	Blank plug
	6250	Terminal board
	6440	DE flange bolts
	6448	NDE shield bolts
KSA	(6020)	Bearing
	(6030)	Bearing
	(6050)	Compensation ring
	(6060)	Key
	(6070)	Seal ring
	(6080)	V-ring

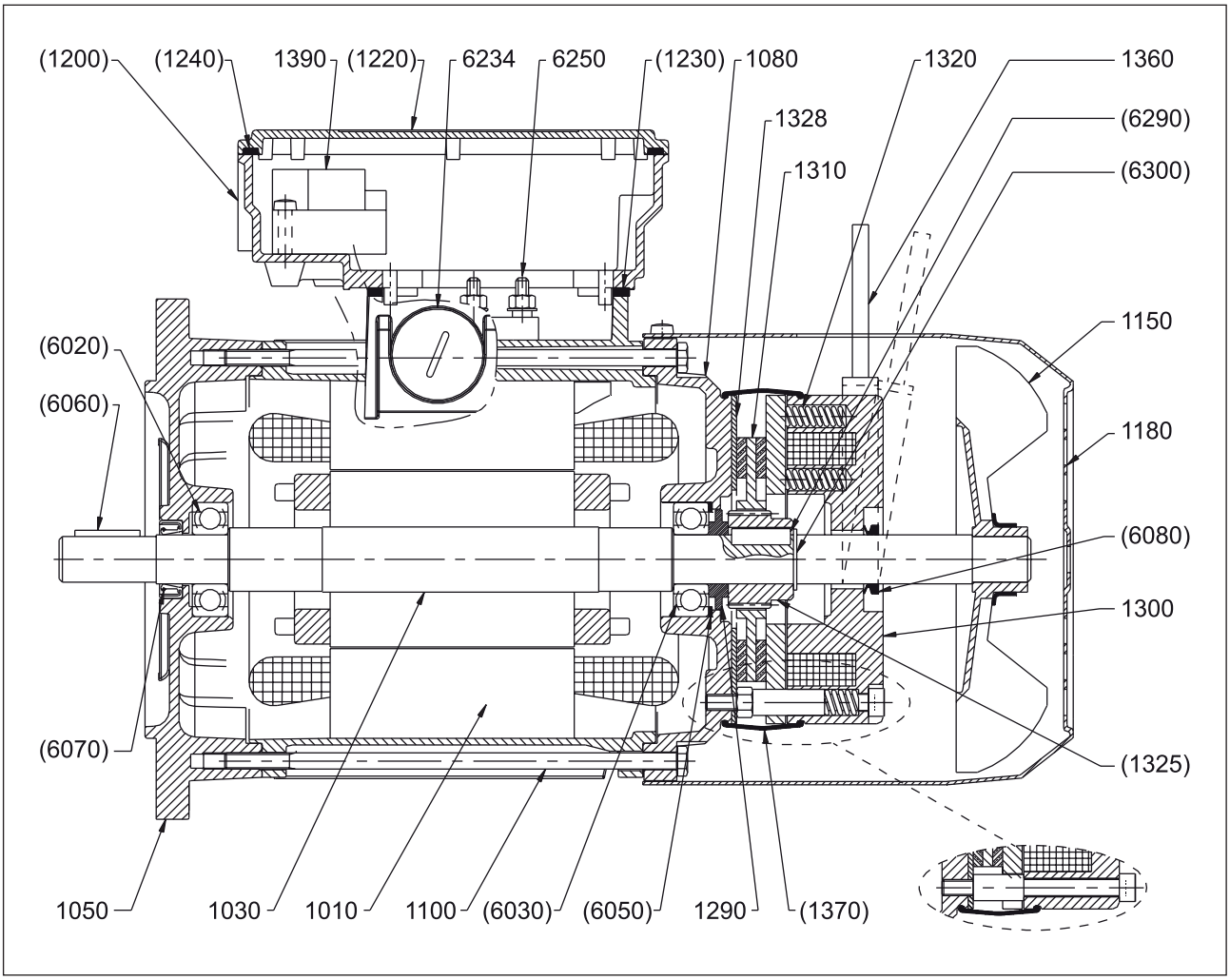
(####) Only available as a complete kit



kit	ref.	Description
	1010	Stator winding complete
	1030	Rotor shaft
	1050	Mounting flange (B5/B14)
	1080	Rear shield
	1150	Fan
	1180	Fan cover
KSM	(1200)	Terminal box
	(1220)	Terminal box lid
	(1230)	Terminal box gasket
	(1240)	Lid gasket
	1290	Spacer ring
	1300	d.c. brake type FD
	1310	Brake disc
	1320	Brake springs
KTF	(1325)	Brake hub
	(6290)	Key (brake hub)
	(6300)	Circlip

kit	ref.	Description
	1328	Stainless steel disc (IP55)
	1360	Hand release lever
KPF	(1370)	Grommet (IP55)
	(6080)	V-ring (IP55)
	1390	ac/dc rectifier
KSA	(6020)	Bearing
	(6030)	Bearing
	(6050)	Compensation ring
	(6060)	Key
	(6070)	Seal ring
	6234	Blank plug
	6250	Terminal board
	6440	Flange bolt
	6444	NDE shield bolts

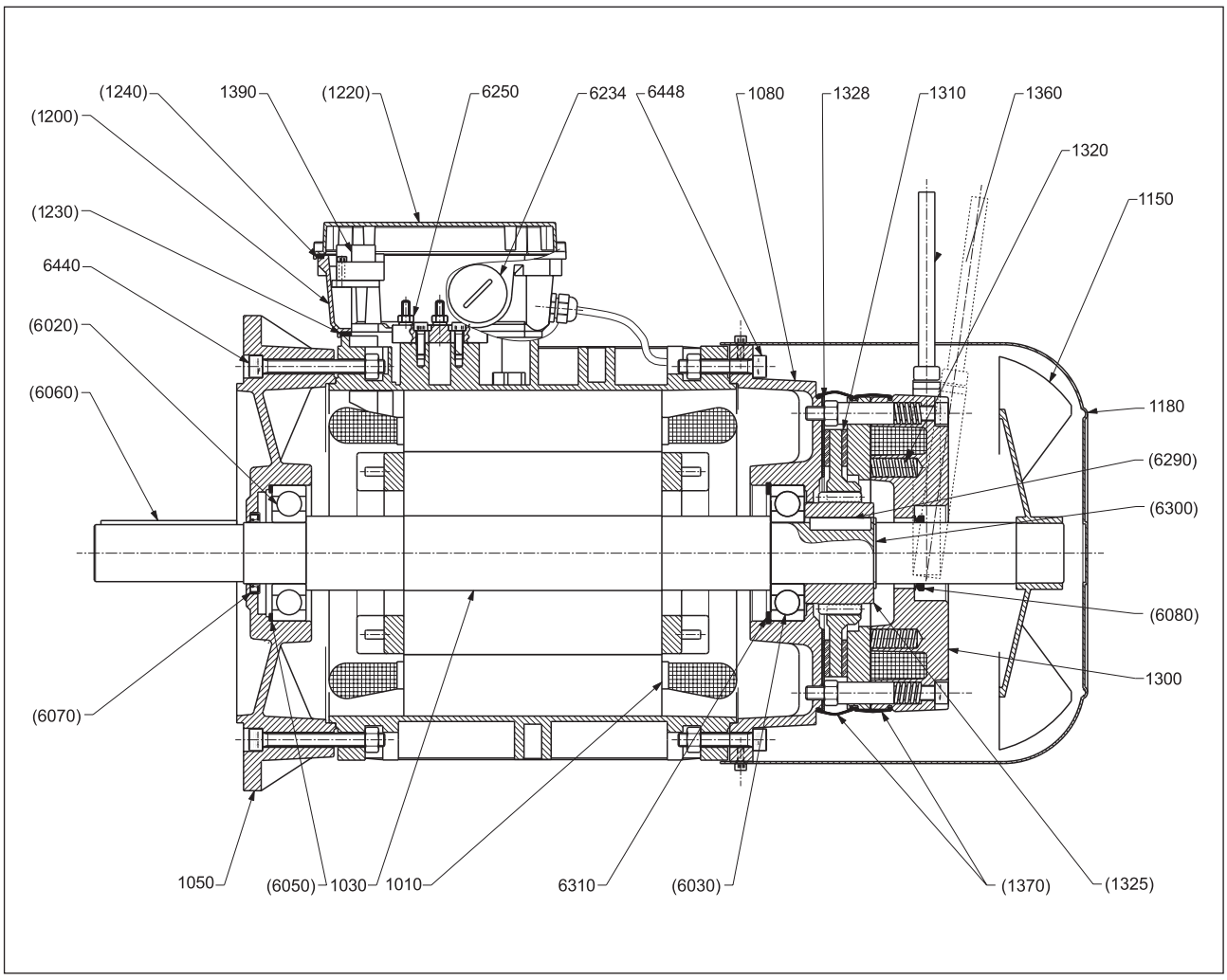
(####) Only available as a complete kit



kit	ref.	Description
	1010	Stator winding complete
	1030	Rotor shaft
	1050	Mounting flange (B5/B14)
	1080	Rear shield
	1100	Tie-rods
	1150	Fan
	1180	Fan cover
KSM	(1200)	Terminal box
	(1220)	Terminal box lid
	(1230)	Terminal box gasket
	(1240)	Lid gasket
	1290	Spacer ring
	1300	d.c. brake type FD
	1310	Brake disc
	1320	Brake springs

kit	ref.	Description
KTF	(1325)	Brake hub
	(6290)	Key (brake hub)
	(6300)	Circlip
	1328	Stainless steel disc (IP55)
	1360	Hand release lever
KPF	(1370)	Grommet (IP55)
	(6080)	V-ring (IP55)
	1390	ac/dc rectifier
KSA	(6020)	Bearing
	(6030)	Bearing
	(6050)	Compensation ring
	(6060)	Key
	(6070)	Seal ring
	6234	Blank plug
	6250	Terminal board

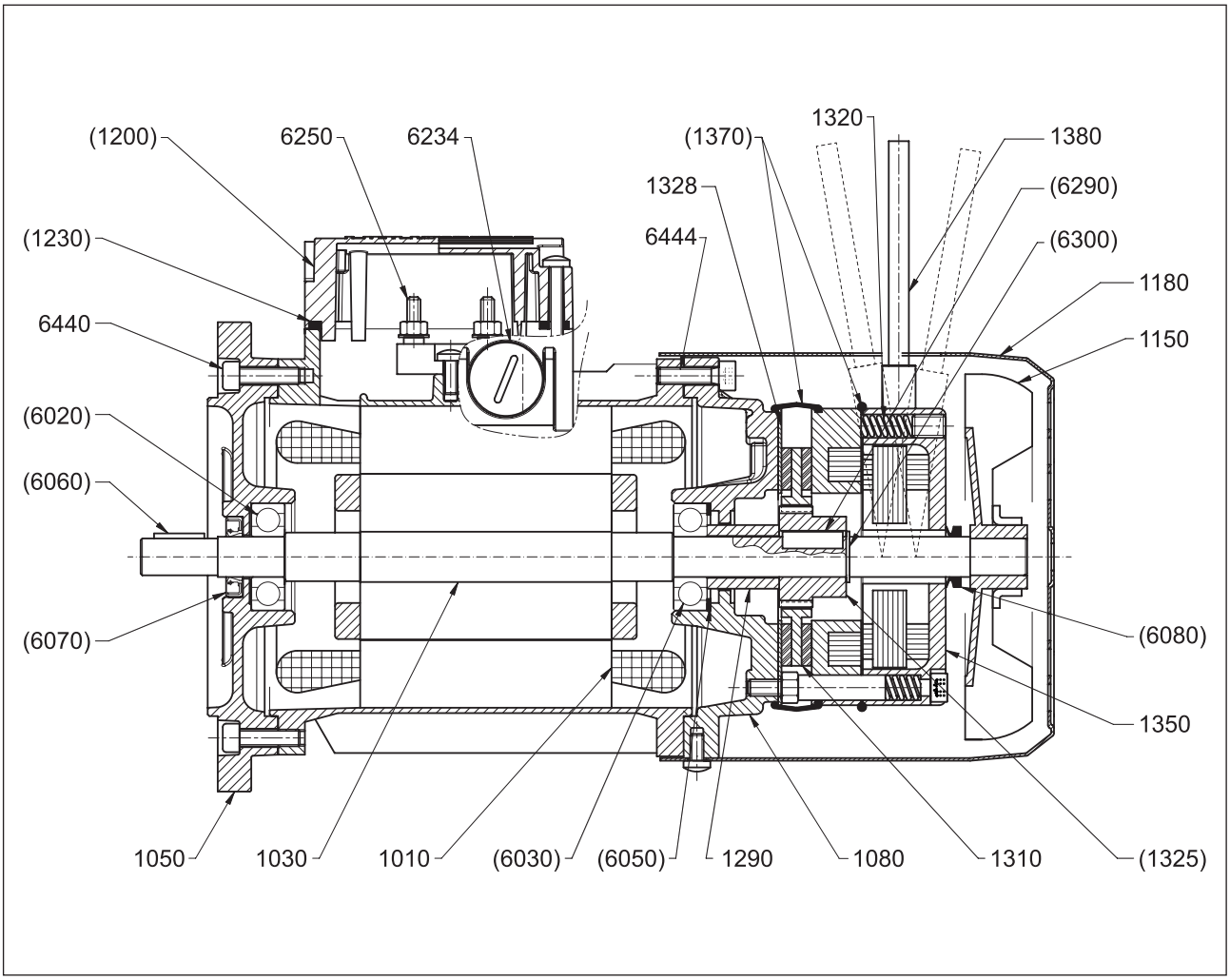
(####) Only available as a complete kit



kit	ref.	Description
	1010	Stator winding complete
	1030	Rotor shaft
	1050	Mounting flange (IM B5)
	1080	Rear shield (NDE)
	1150	Fan
	1180	Fan cover
KSM	(1200)	Terminal box
	(1220)	Terminal box lid
	(1230)	Terminal box gasket
	(1240)	Lid gasket
	1300	d.c. brake type FD
	1310	Brake disc
	1320	Brake springs
KTF	(1325)	Brake hub
	(6290)	Key (brake hub)
	(6300)	Circlip

kit	ref.	Description
	1328	Stainless steel disc (IP55)
	1360	Hand release lever
KPF	(1370)	Grommet (IP55)
	(6080)	V-ring (IP55)
	1390	ac/dc rectifier
KSA	(6020)	Bearing
	(6030)	Bearing
	(6050)	Compensation ring
	(6060)	Key
	(6070)	Seal ring
	6234	Blank plug
	6250	Terminal board
	6310	Circlip
	6440	Bolts DE
	6448	Bolts NDE

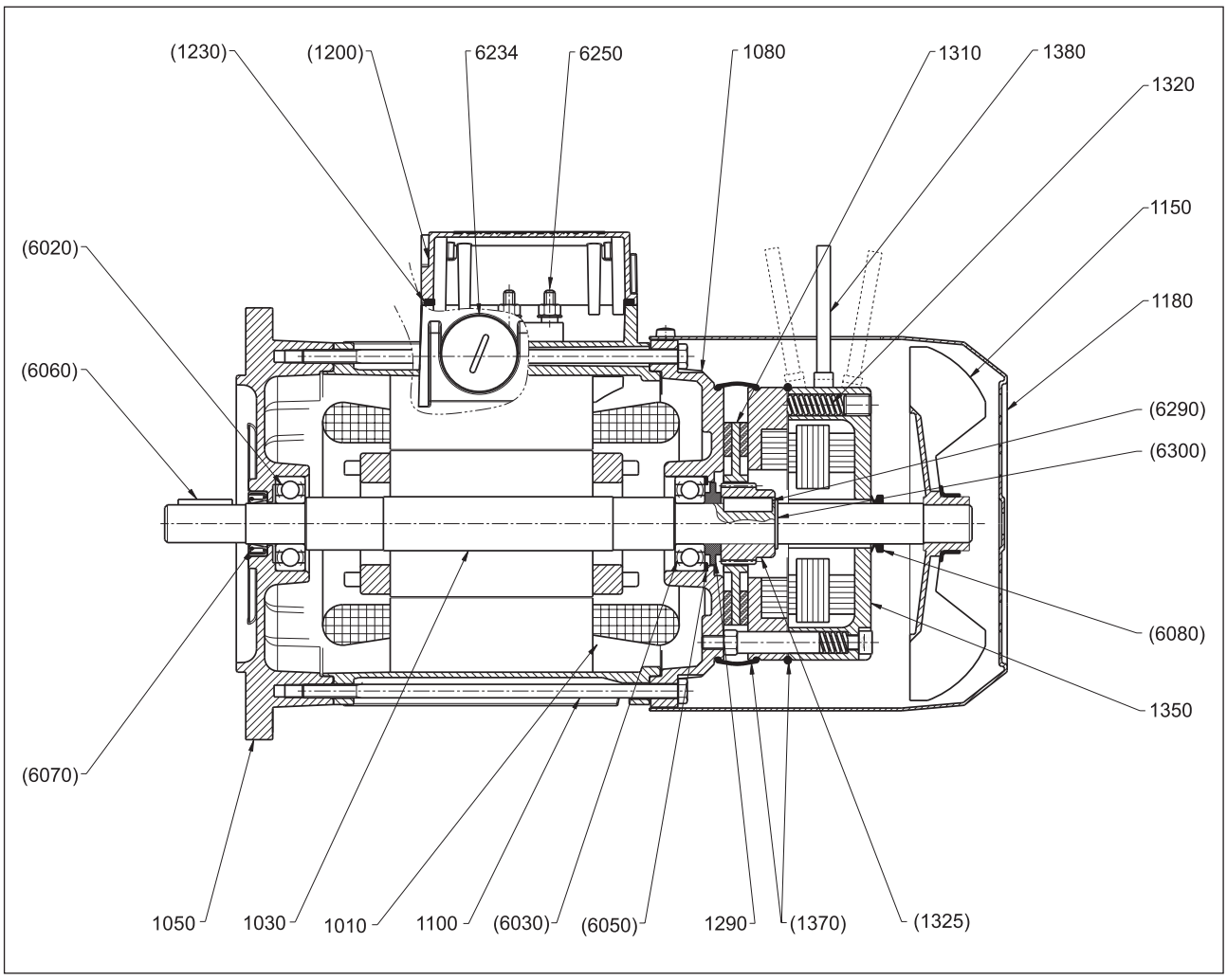
(####) Only available as a complete kit



kit	ref.	Description
	1010	Stator winding complete
	1030	Rotor shaft
	1050	Mounting flange (B5/B14)
	1080	Rear shield
	1150	Fan
	1180	Fan cover
KSM	(1200)	Terminal box
	(1230)	Terminal box gasket
	1290	Spacer ring
	1310	Brake disc
	1320	Brake springs
KTF	(1325)	Brake hub
	(6290)	Key (brake hub)
	(6300)	Circlip

kit	ref.	Description
	1328	Stainless steel disc (IP55)
	1350	a.c. brake type FA
KPF	(1370)	Grommet (IP55)
	(6080)	V-ring (IP55)
	1380	Hand release lever
KSA	(6020)	Bearing
	(6030)	Bearing
	(6050)	Compensation ring
	(6060)	Key
	(6070)	Seal ring
	6234	Blank plug
	6250	Terminal board
	6440	Flange bolt
	6444	NDE shield bolts

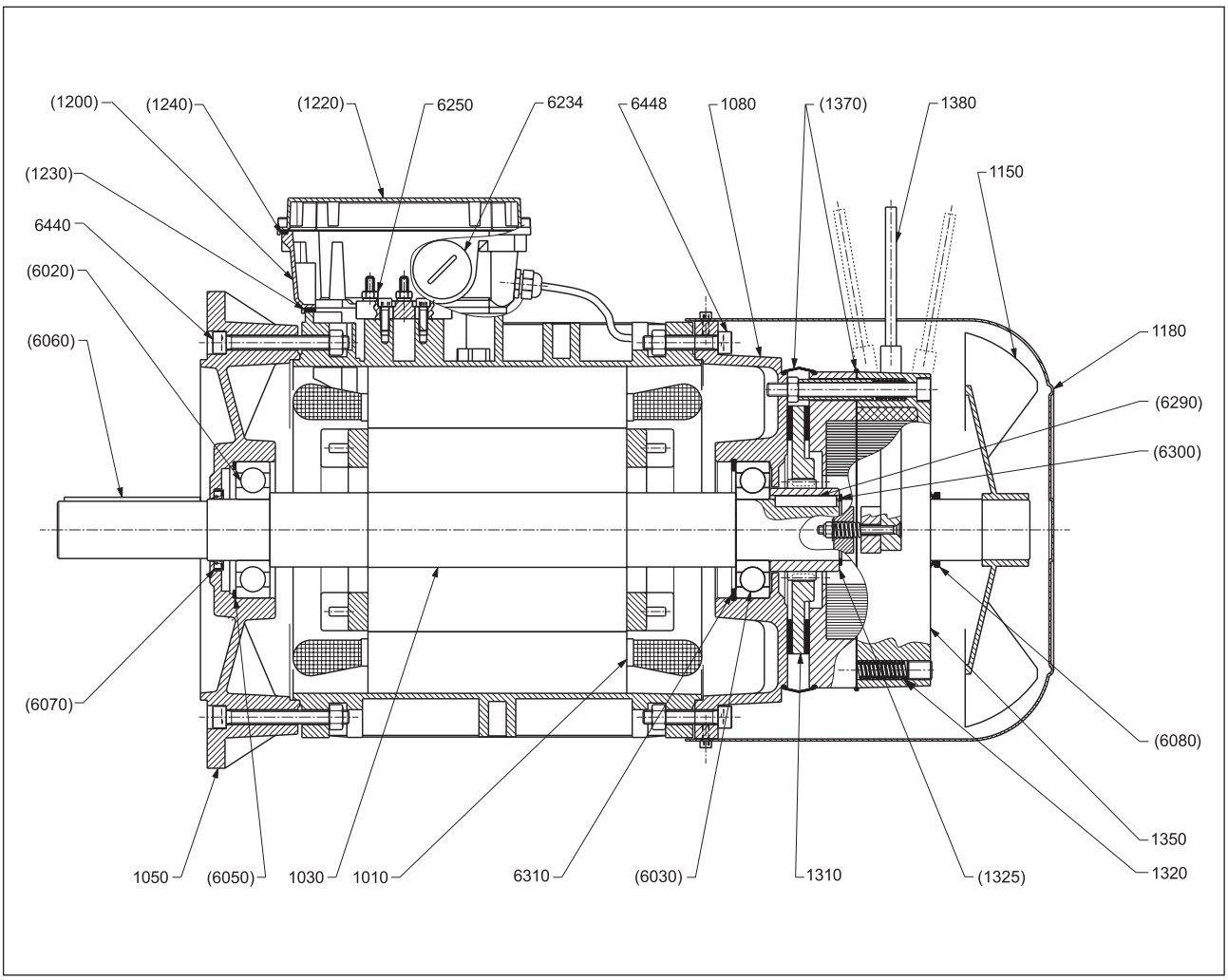
(####) Only available as a complete kit



kit	ref.	Description
	1010	Stator winding complete
	1030	Rotor shaft
	1050	Mounting flange (B5/B14)
	1080	Rear shield
	1100	Tie-rods
	1150	Fan
	1180	Fan cowl
KSM	(1200)	Terminal box
	(1230)	Terminal box gasket
	1290	Spacer ring
	1310	Brake disc
	1320	Brake springs
KTF	(1325)	Brake hub
	(6290)	Key (brake hub)
	(6300)	Circlip

kit	ref.	Description
	1350	a.c. brake type FA
KPF	(1370)	Brake seal kit (IP55)
	(6080)	V-ring (IP55)
	1380	Hand release lever
KSA	(6020)	Bearing
	(6030)	Bearing
	(6050)	Compensation ring
	(6060)	Key
	(6070)	Seal ring
	6234	Blank plug
	6250	Terminal board

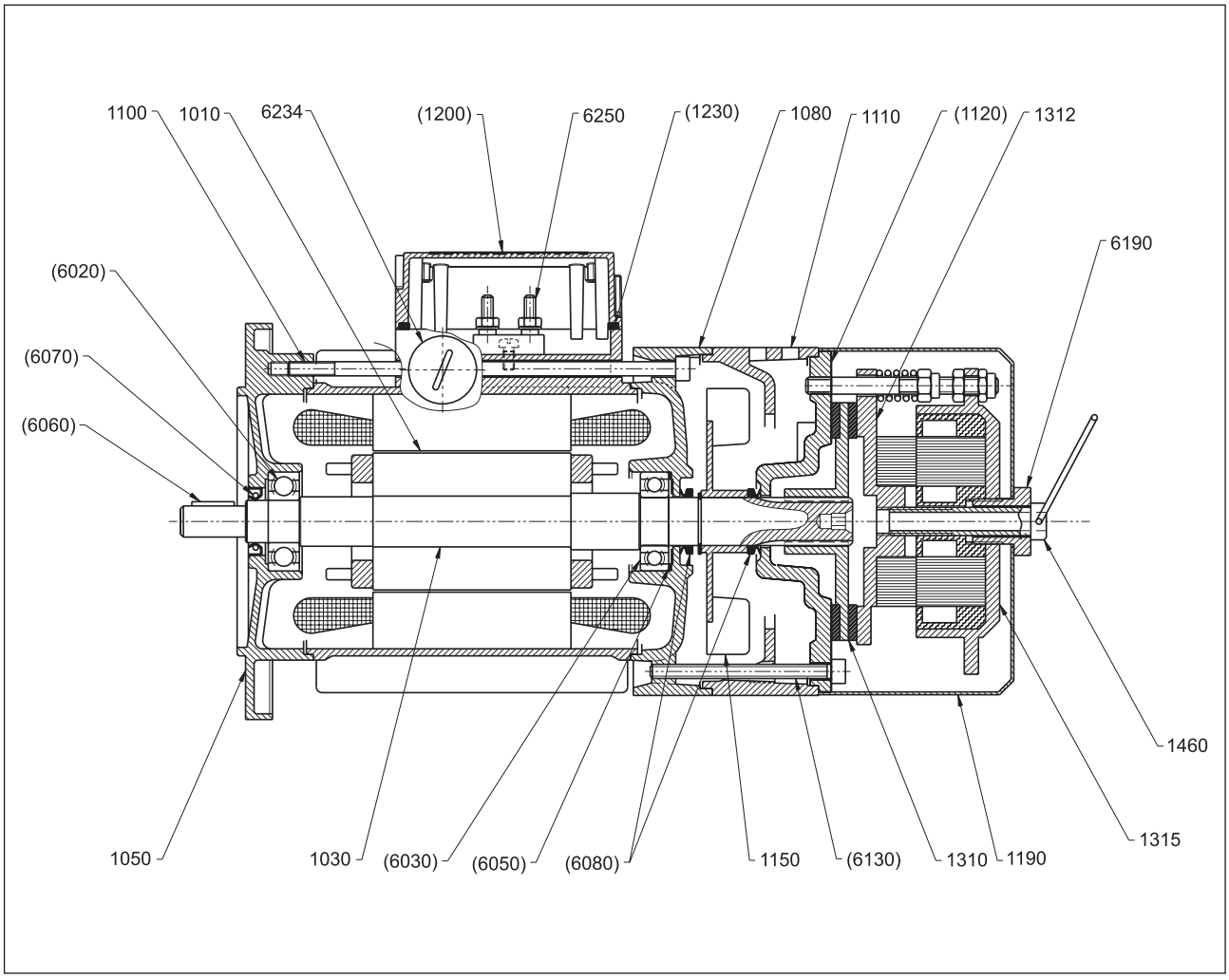
(####) Only available as a complete kit



kit	ref.	Description
	1010	Stator winding complete
	1030	Rotor shaft
	1050	Mounting flange (IM B5)
	1080	Rear shield
	1150	Fan
	1180	Fan cowl
KSM	(1200)	Terminal box
	(1220)	Terminal box lid
	(1230)	Terminal box gasket
	(1240)	Terminal box lid gasket
	1310	Brake disc
	1320	Brake springs
KTF	(1325)	Brake hub
	(6290)	Key (brake hub)
	(6300)	Circlip

kit	ref.	Description
	1350	a.c. brake type FA
KPF	(1370)	Brake seal kit (IP55)
	(6080)	V-ring (IP55)
	1380	Hand release lever
KSA	(6020)	Bearing
	(6030)	Bearing
	(6050)	Elastic ring
	(6060)	Key
	(6070)	Seal ring
	6234	Blank plug
	6250	Terminal board
	6310	Circlip
	6440	Bolt DE
	6448	Bolt NDE

(####) Only available as a complete kit

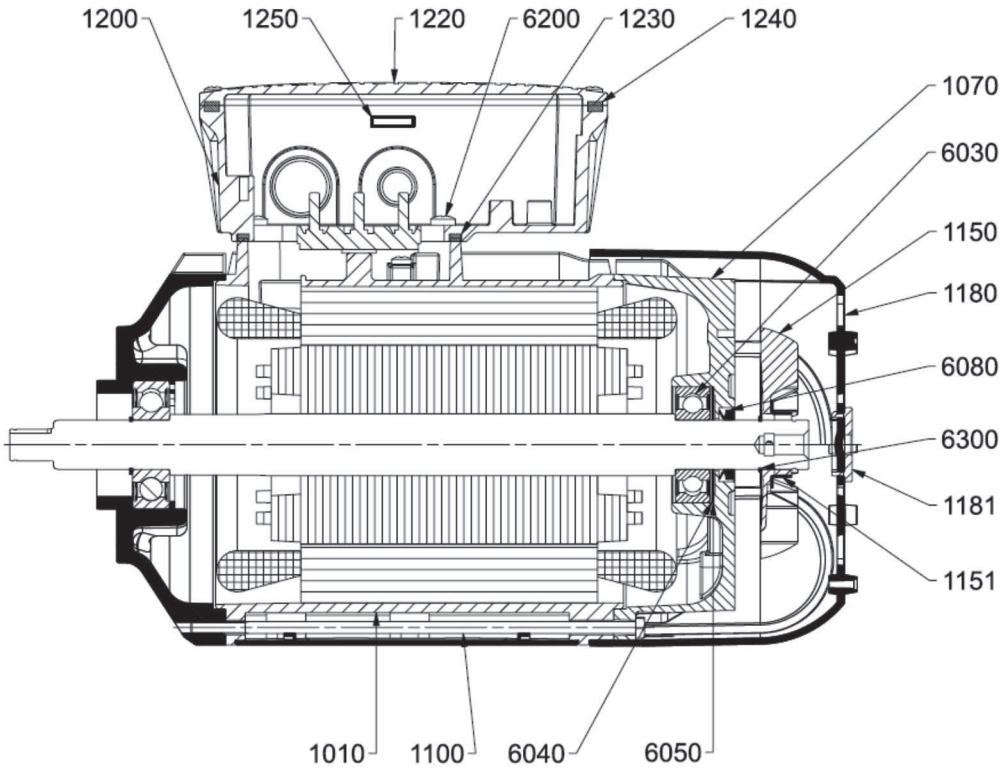


kit	ref.	Description
	1010	Stator winding complete
	1030	Rotor shaft
	1050	Mounting flange (B5/B14)
	1080	Rear shield
	1100	Tie rods
	1110	Fan cowling
KSF	(1120)	Brake holding plate
	(6130)	Bolts
	1150	Fan
	1190	Brake guard
KSM	(1200)	Terminal box
	(1230)	Terminal box gasket
	1310	Brake disc

kit	ref.	Description
	1312	Armature plate
	1315	a.c. brake type BA
	1460	Brake release
KSA	(6020)	Bearing
	(6030)	Bearing
	(6050)	Compensation ring
	(6060)	Key
	(6070)	Seal ring
	(6080)	V-ring
	6190	Nut screw
	6234	Blank plug
	6250	Terminal board

(####) Only available as a complete kit

MXN **MNN**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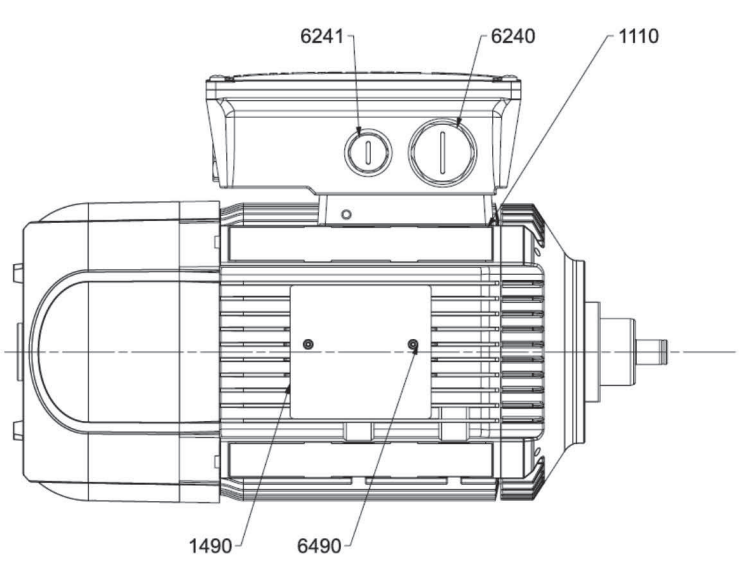
1010
1100
6040
6050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1490
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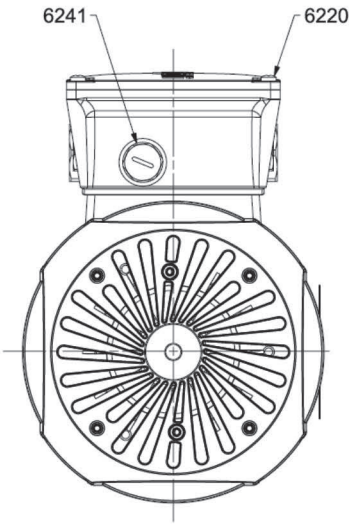
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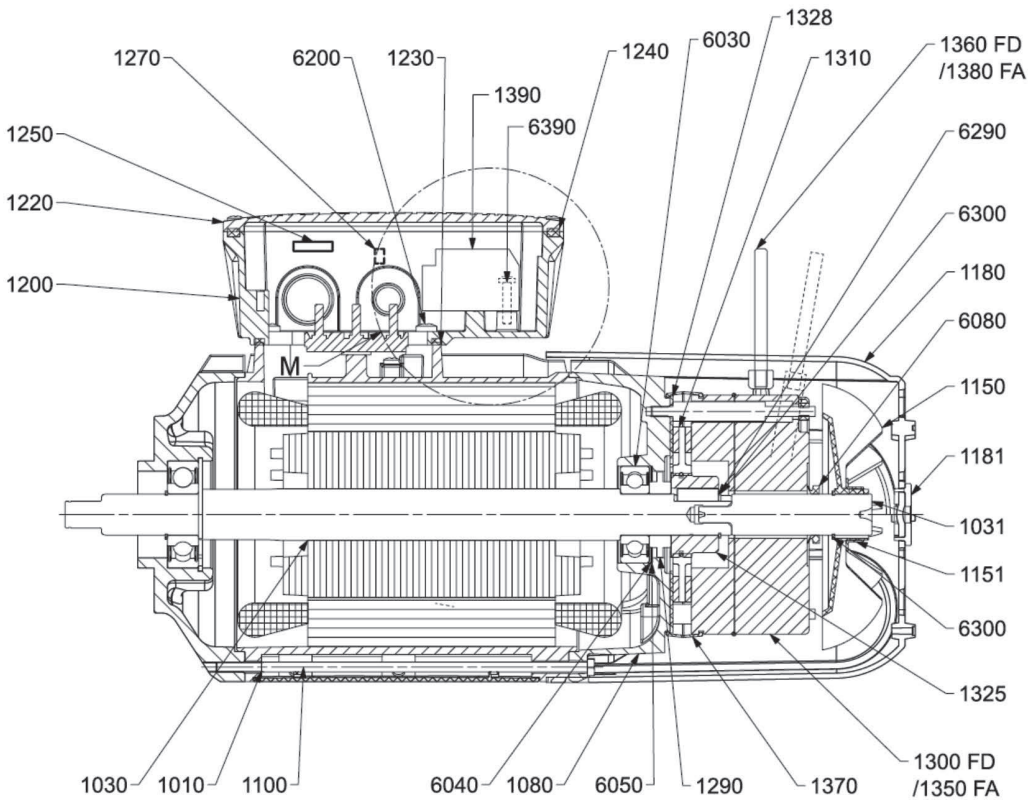
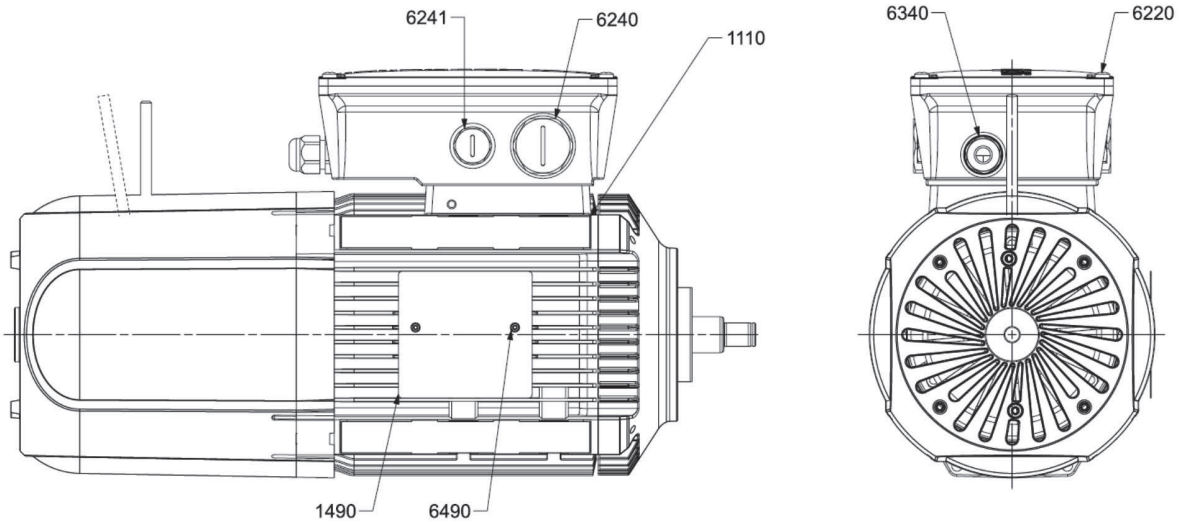
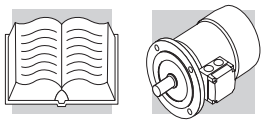
6220

MXN FD/FA

MNN FD/FA



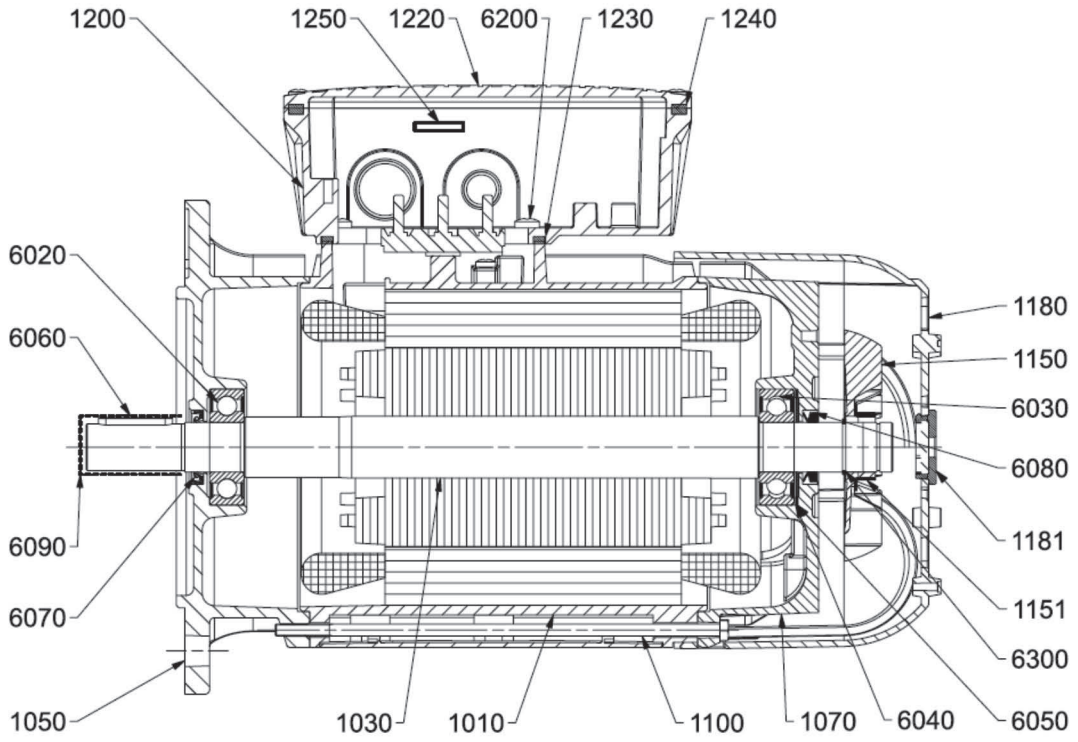




	ref.	Description
	1010	Hws
	1030	Finished rotor
	1050	Flange B5
	1100	Tie-rod
	1110	Tie-rod cover
	1150	Fan
	1151	Fan clamp ring
	1180	Fan cover
	1181	Fan cover capp
	1200	Terminal box
MXN **MXN FD/FA**	1220	Termina box cover
MNN **MNN FD/FA**	1230	Terminal box gasket
	1240	Cover box gasket
	1250	Terminal board fitt
	1490	Name plate
	6020	Bearing de
	6030	Bearing nde
	6040	Shrk.disc ring
	6050	Spring washer
	6060	Key UNI 6604
	6070	Oil seal
	6080	V-ring v-12a

	ref.	Description
	6090	Shaft protection
	6200	Screw t.c.c.i.c. UNI 8112
	6220	Screw t.c.c.i.c. UNI 7687
MXN **MXN FD/FA**	6240	Plug
MNN **MNN FD/FA**	6241	Plug
	6300	Circlip UNI 7435
	6300	Circlip UNI 7435
	6490	Rivet UNI 9200
	1031	Additional shaft FD/FA
	1080	Motor shield FD/FA
	1270	Brake instruction FD
	1290	Spacer
	1300/1350	FD/FA brake
	1310	Brake disc
MXN FD/FA **MNN FD/FA**	1325	Hub
	1328	Steel disc
	1360/1380	Brake release kit FD/FA
	1370	Gasket
	1390	Rectifier 1a CUS
	6290	Key FD/FA
	6340	Cable gland
	6390	Screw UNI 8112

BXN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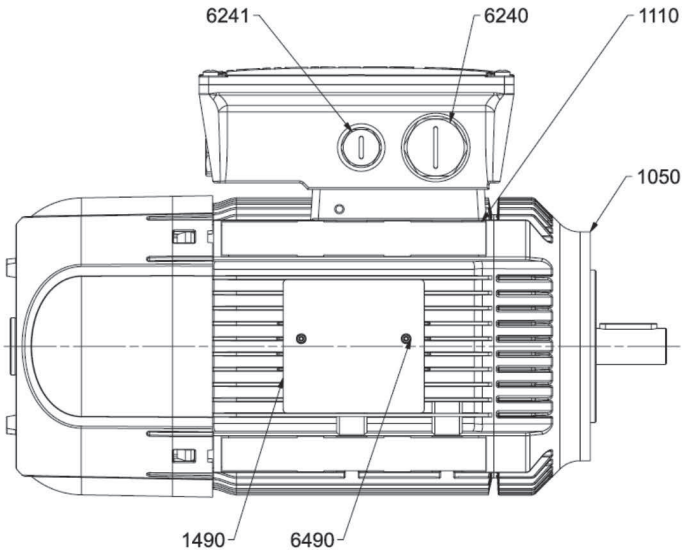
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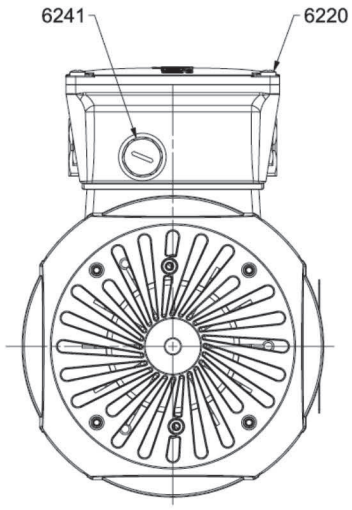
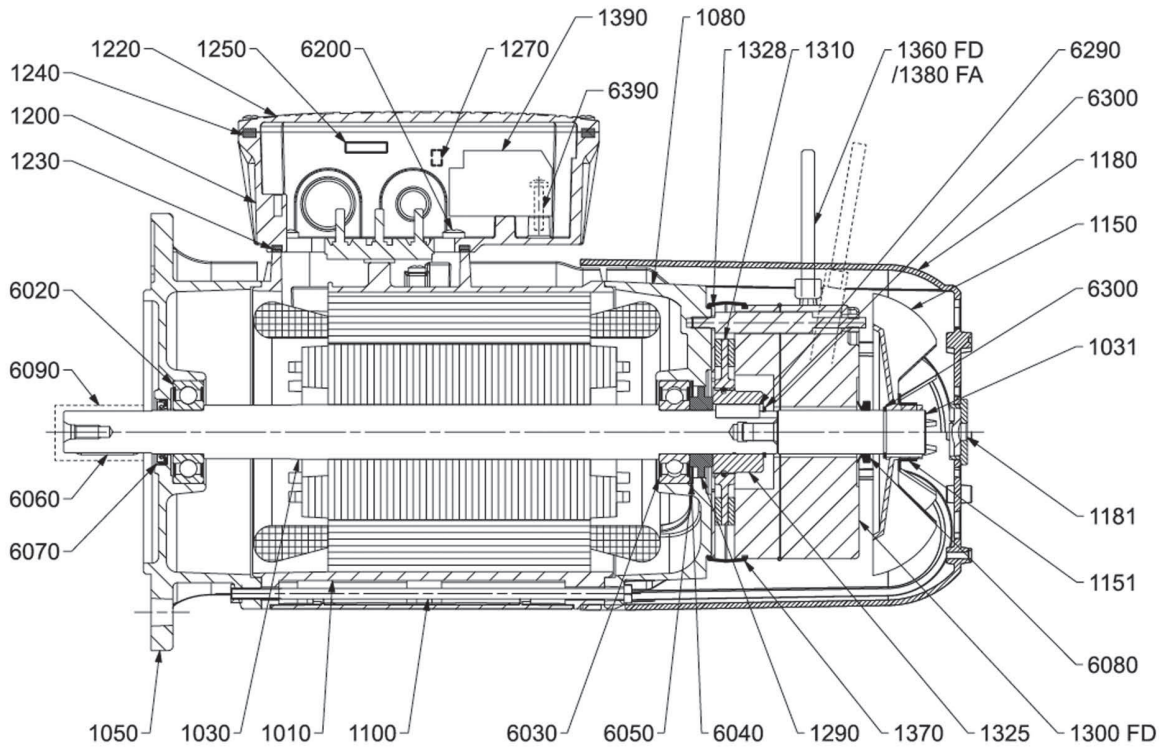
1050
1490
6490


6241
6220

BXN FD/FA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1080
1220
1250
6200
1270
1328
1310
1360 FD
/1380 FA
6290
1240
6390
6300
1200
1180
1230
1150
6020
6300
6090
1031
6060
1181
6070
1151
6080
1050
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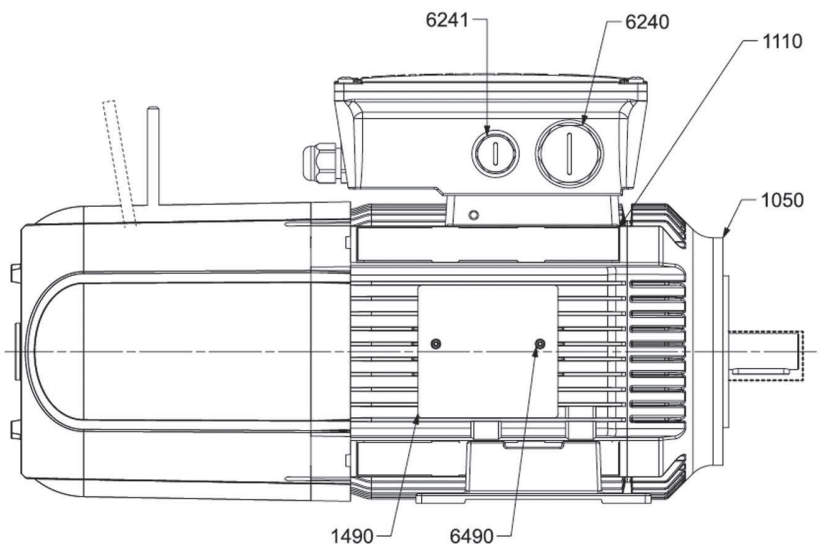
1010
1100
6030
6050
6040
1290
1370
1325
1300 FD
/1350 FA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1110
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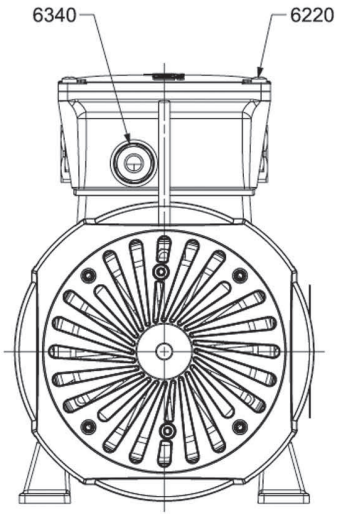
1490
6490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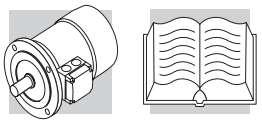
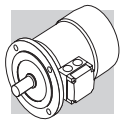
6220



	ref.	Description
BXN **BXN FD/FA**	1010	Hws
	1030	Finished rotor
	1050	Flange B5
	1100	Tie-rod
	1110	Tie-rod cover
	1150	Fan
	1151	Fan clamp ring
	1180	Fan cover
	1181	Fan cover capp
	1200	Terminal box
	1220	Terminal box cover
	1230	Terminal box gasket
	1240	Cover box gasket
	1250	Terminal board fitt
	1490	Name plate
	6020	Bearing DE
	6030	Bearing NDE
	6040	Shrink disc ring
	6050	Spring washer
	6060	KEY UNI 6604
	6070	Oil seal
	6080	V-ring v-12a

	ref.	Description
BXN **BXN FD/FA**	6090	Shaft protection
	6200	Screw t.c.c.i.c. UNI 8112
	6220	Screw t.c.c.i.c. UNI 7687
	6240	Plug
	6241	Plug
	6300	Circlip UNI 7435
	6300	Circlip UNI 7435
	6490	Rivet UNI 9200
BXN FD/FA	1031	Additional shaft FD/FA
	1080	Motor shield FD/FA
	1270	Brake instruction FD
	1290	Spacer
	1300/1350	FD/FA brake
	1310	Brake disc
	1325	Hub
	1328	Steel disc
	1360/1380	Brake release kit FD/FA
	1370	Gasket
	1390	Rectifier nb 1a CUS
	6290	Key FD/FA
	6340	Cable gland
	6390	Screw UNI 8112

INDEX OF REVISIONS (R)

BR_IOM_BX-BE-BN-MX-ME-M_BXN-MXN-MNN_STD_ENG_R03_0	
	Description
…	Added information about BXN, MXN, MNN motors.

Bonfiglioli

We have a relentless commitment to excellence, innovation & sustainability. Our team creates, distributes and services world-class power transmission & drive solutions to keep the world in motion.

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