DE **Montage- und Betriebsanleitung**
Wandeinbauventilatoren

UK **Mounting and Operating instructions**
Wall-mounted fans

FR **Instructions de montage et Mode d'emploi**
Ventilateurs muraux encastrables

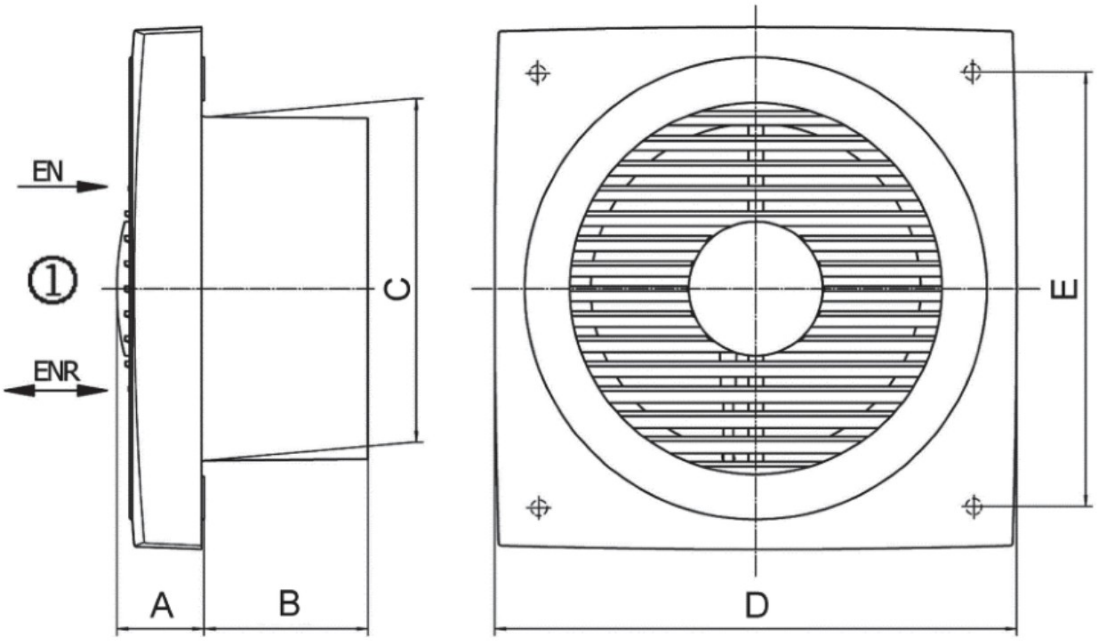
MAICO VENTILATOREN

EN 20
EN 25
EN 31

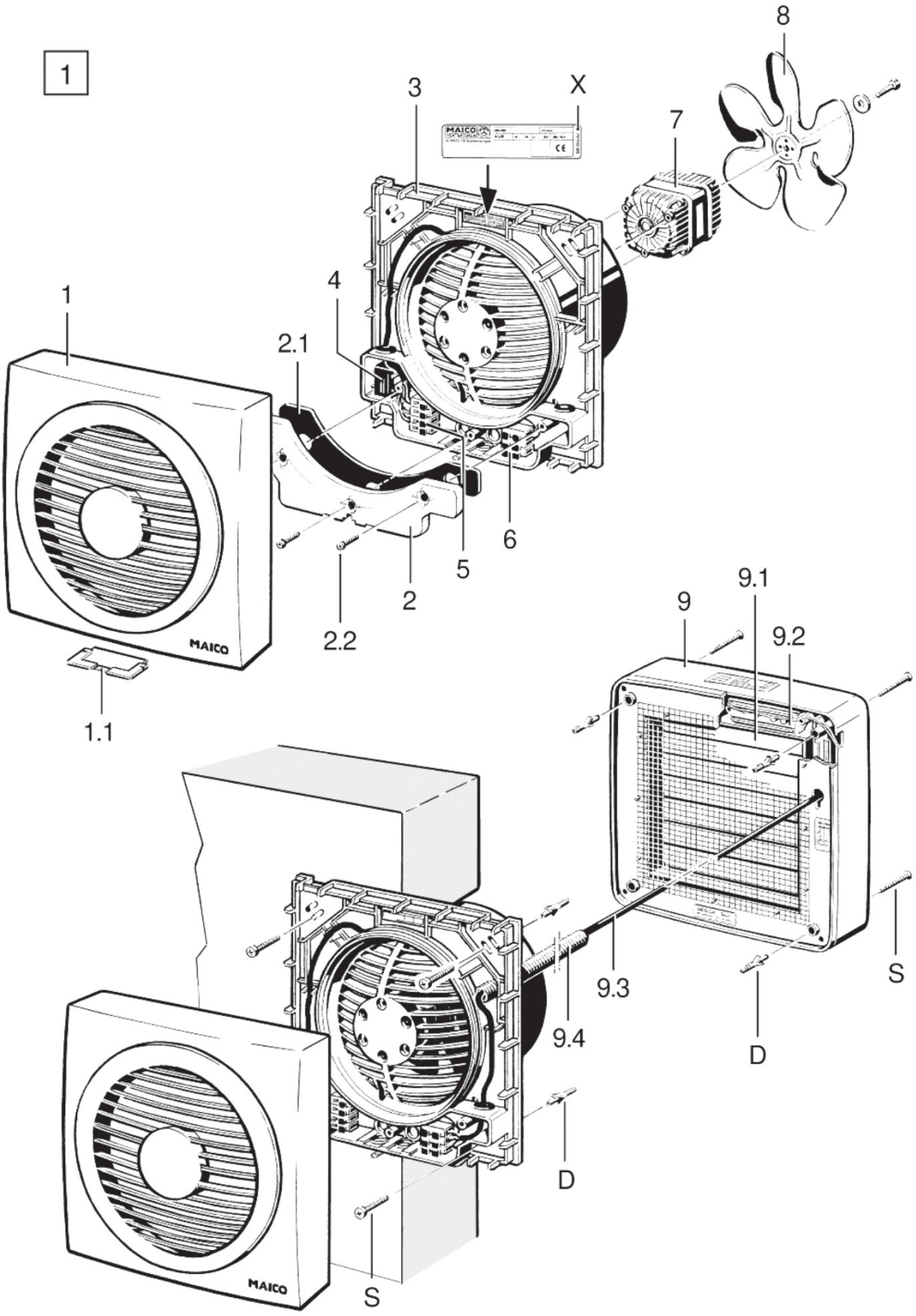
ENR 20
ENR 25
ENR 31

www.maico-ventilatoren.com

EN .. / ENR ..
Abmessungen / Dimensions



	A	B	C	D	E
EN 20	55	103	212	320	268
EN 25	55	103	266	370	315
EN 31	60	126	320	445	375
ENR 20	55	103	212	320	268
ENR 25	55	103	266	370	315
ENR 31	60	126	320	445	375


1
8
3
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7
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1
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S
9.4
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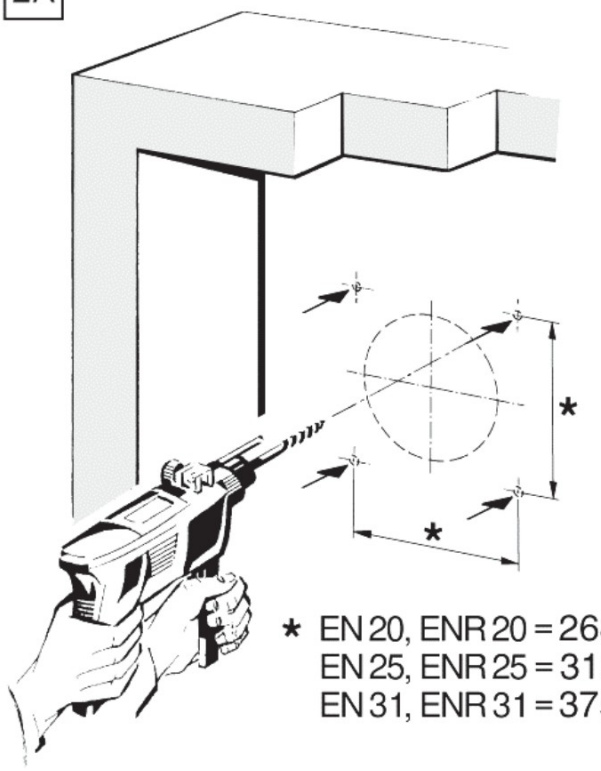
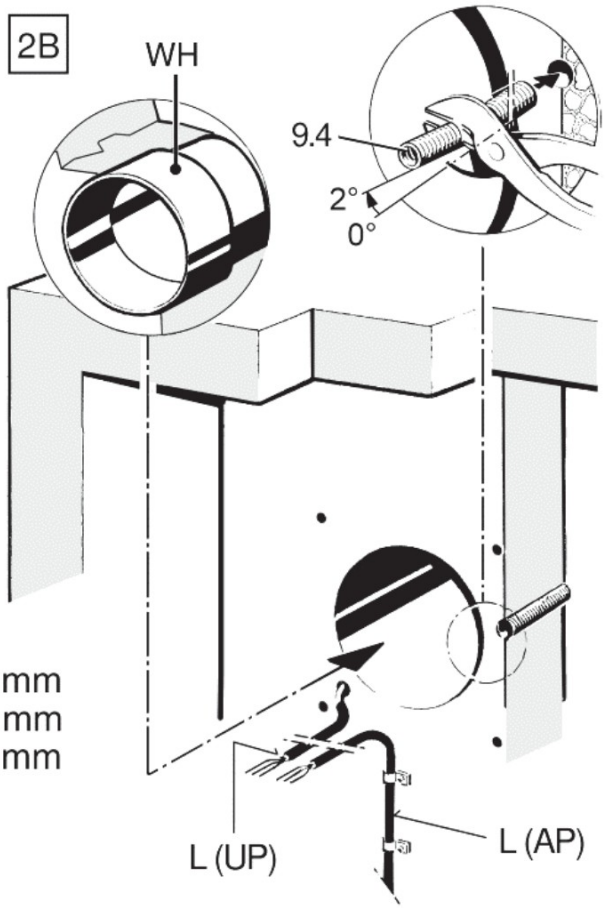
D
S
MAICO
MAICO

2A

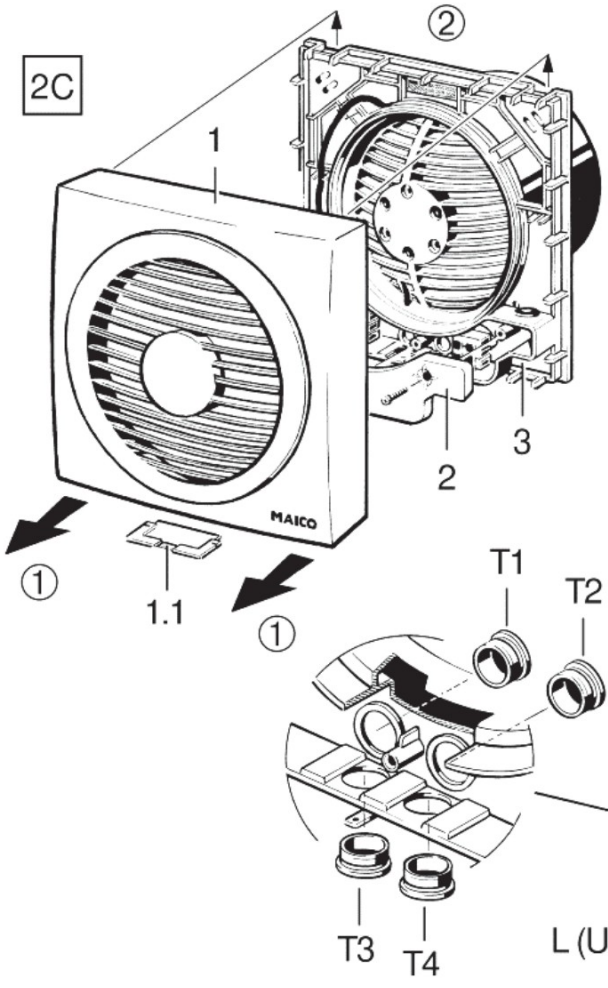


* EN 20, ENR 20 = 268 mm
EN 25, ENR 25 = 315 mm
EN 31, ENR 31 = 375 mm

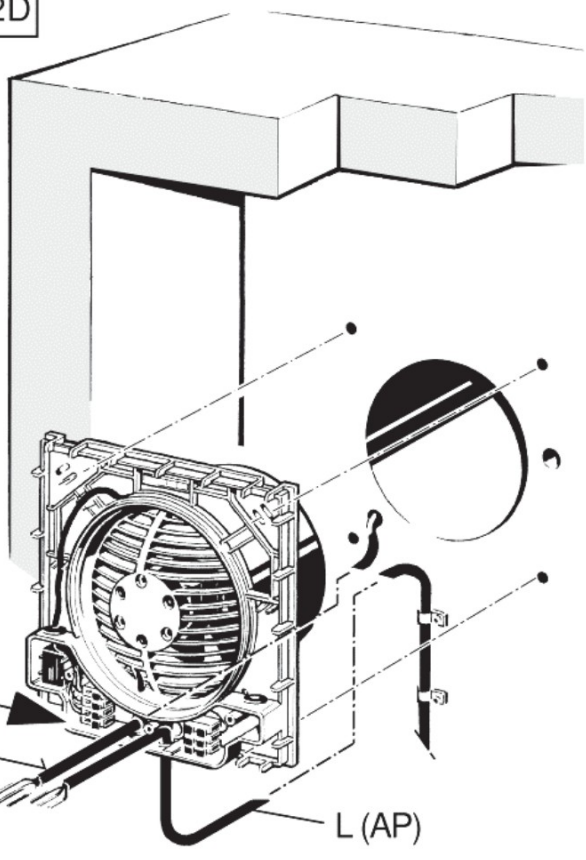
2B

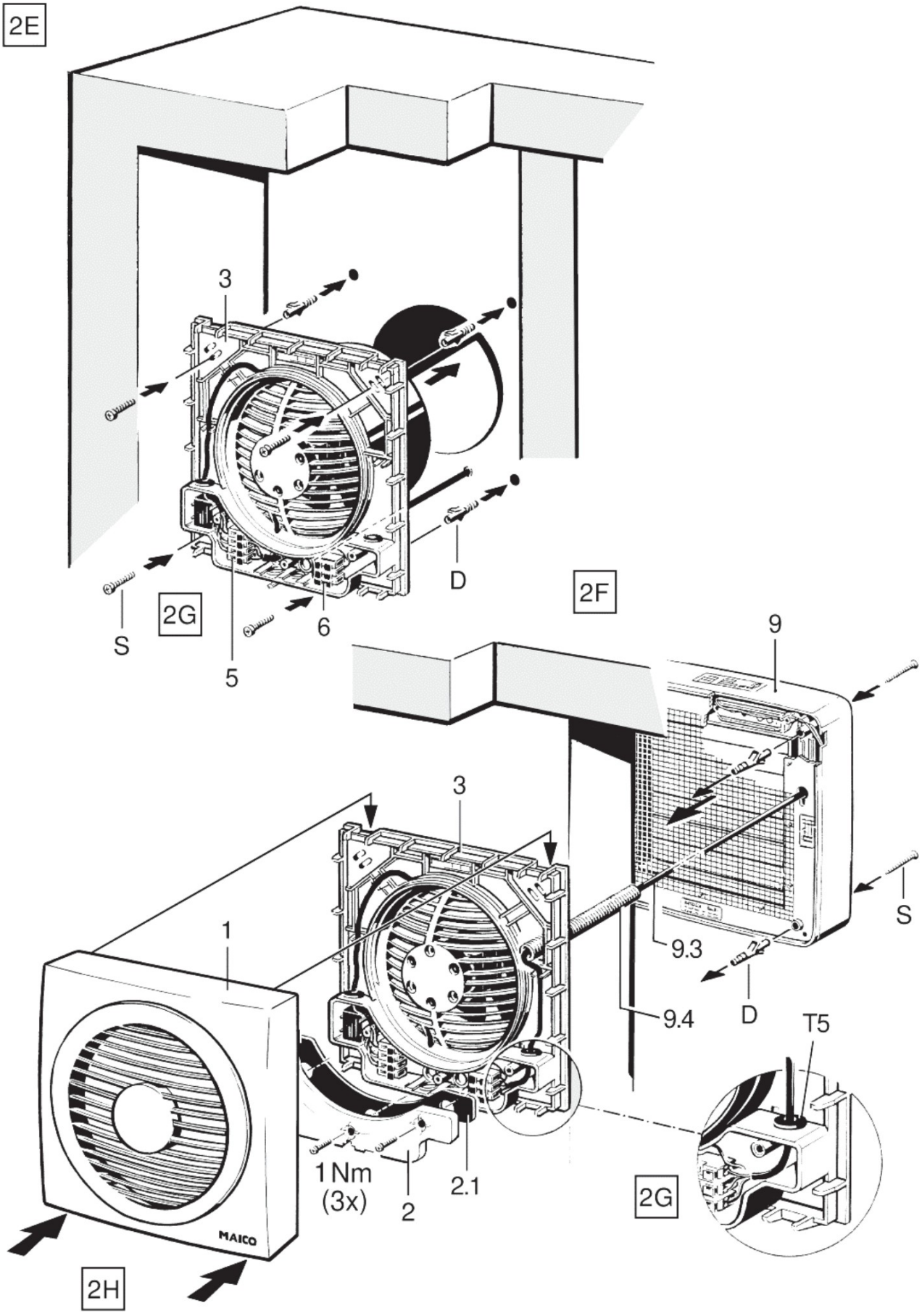


2C



2D




2E
3
D
S
2G
5
6
2F
9
3
S
9.3
D
9.4
T5
1
1 Nm
(3x)
2
2.1
2G
MAICO
2H

EN/ENR wall-mounted fans

Please read the instructions carefully before mounting and using for the first time. Follow the instructions. Pass these instructions onto the owner for safekeeping.

Figures

Fig. 1: Unit overview (spare parts in bold, also refer to Chapter 14)

1 **Internal cover cpl.** with protective bar [1.1]
2 **Terminal box cover complete** with sealing [2.1] and 3 screws [2.2]
3 **Connecting flange complete**
4 **Capacitor (only ENR)**
5 Terminal block (EN: 3-pin, ENR: 4-pin)
6 Terminal block (3-pin)
7 **Motor, complete**
8 **Impeller, complete**
9 Shutter accessories: MK shutter (see fig.)
  9.1 Lamella
  9.2 Gear motor
  9.3 Connecting cable
  9.4 Cable conduit
  Alternatively (not shown): BK2 shutter or AS airstream-operated shutter
D Dowel (to be supplied by the customer)
S Fixing screw (to be supplied by the customer)
X Rating plate

Fig. 2A … 2H: Mounting sequence

1. Scope of delivery

Wall-mounted fan, these mounting and operating Instructions.

2. Specialist installer qualification

Mounting may only be carried out by **specialists** who have the necessary knowledge and experience in **ventilation engineering**.

Only a **trained electrician** is permitted to work on the electrics. You are deemed a trained electrician if you are familiar with the relevant standards and guidelines, can competently and safely connect units to an electrical power supply in line with the attached wiring diagram and are able to recognise and avoid risks and dangers associated with electricity on the basis of your technical training and experience.

3. Intended use

EN and ENR fans are used to **extract air** from offices, business and commercial premises, restaurants, doctors' practices etc. **ENR** fans with the additional reversing switch are reversible (**ventilation** and **air extraction** air direction).

Surface installation on the wall, ceiling or in pitched roofs is permissible.

The fans must be combined with a shutter, e.g. with a Maico MK or BK. The Maico AS shutter is also available for the ENR.

The fans are speed controllable. The fans are only intended for domestic use and similar purposes.

4. Safety instructions and warnings

The fan unit **must not** be used in the following situations **under any circumstances.**

Risk of combustion/fire from flammable materials, liquids or gases in the vicinity of the fan. Do not place any flammable materials, liquids or gases near the fan, which may ignite in the event of heat or sparks and catch fire.

Explosive gases and dusts may ignite and cause serious explosions or fire. Never use fan unit in an explosive atmosphere (risk of explosion).

Risk from operating in single air extraction systems in accordance with DIN 18017-3. Fan does not satisfy the DIN 18017-3 standard. Do not use fan in systems in accordance with DIN 18017-3.

Risk to health from chemicals or aggressive gases/vapours. Chemicals or aggressive gases/vapours may harm health, especially if they are distributed throughout the rooms by the fan. Never use fan to convey chemicals or aggressive gases/vapours.

Grease and oil vapours from range hoods may contaminate the fan and ventilation ducts and reduce efficiency. Never use fan to convey greasy air, e.g. in combination with range hoods with exhaust air operation.

Read all the safety instructions.

Risks for children and people with reduced physical, sensory or mental capabilities or a lack of knowledge. Fan may only be installed, commissioned, cleaned and maintained by people who can safely recognise and avoid the risks associated with this work.

Danger of injury due to suction from fan and rotating impeller. Hair, clothing, jewellery etc. may be pulled into the fan if you get too close to it. During operation always keep far enough away to prevent this from happening.

Danger of injury if foreign bodies are inserted into the unit. Do not insert any objects in the unit.

A fan not installed correctly may result in operation not as intended/ inadmissible. Operation is only permitted if the internal cover and shutter are fitted. The fan may be operated only if the protection against accidental contact with the impeller is guaranteed to be in accordance with EN 13857.

Risk of injury and health risk in the event of changes or modifications or if components which are not permitted are used. The unit may only be operated with original components. Changes and modifications are not permitted and release the manufacturer from any guarantee obligations and liability, e.g. if the unit is drilled at a point which is not permitted.

Danger of injury when working at heights. Use appropriate climbing aids (ladders). Stability should be ensured, if necessary have the ladders steadied by a 2nd person. Ensure that you are standing securely and cannot lose your balance and that there is no one under the unit.

Risk of death from carbon monoxide when operating with air-ventilated fireplaces. When operating with air-ventilated fireplaces and in **"air extraction" installation position**, a sufficient fresh air supply must be ensured. The maximum permitted pressure difference per living unit is 4 Pa. The consent of a professional chimney sweep is needed in all cases.

Danger of electric shock from operating with the unit not fully mounted. Before taking off the terminal box cover, shut down all supply circuits (switch off mains fuse), secure against being accidentally switched back on and position a visible warning sign. Only operate the fan when it is completely installed.

Danger if the relevant regulations for electrical installations are not observed.

→ Before installing the electrics, shut down all supply circuits, deactivate the mains fuse and secure it so it cannot be switched back on. Attach a warning sign in a clearly visible place.

→ Be sure to observe the relevant regulations for electrical installation; e.g. EN 50110-1, in Germany this is particularly VDE 0100, with the corresponding parts.

→ A mains isolation device with contact openings of at least 3 mm at each pole is mandatory.

→ Only connect unit to a permanently wired electrical installation with NYM-O / NYM-J, 3 x 1.5 mm² or 5x 1.5 mm² (depending on unit type) cables.

→ The units may only be operated using the voltage and frequency shown on the rating plate.

→ The degree of protection stated on the rating plate is only guaranteed if installation is undertaken correctly and if the connection cable is correctly guided through the cable grommet(s). The grommets must tightly seal the cable sheathing.

→ Check protective-conductor opening on housing.

→ Unit may be energized even when at a standstill and may be switched on automatically by sensors, such as for time delay or humidity etc. Maintenance and fault finding only permissible when carried out by trained specialists.

Exercise caution when handling packaging materials.

→ Observe applicable safety and accident prevention requirements.

→ Store packaging material out of the reach of children.

5. Operation

Fan is switched on/off with light switch or separate switch (both to be supplied by the customer). The fan switches on/off immediately when the switch is pressed.

In the event of thermal overload, the integrated motor overload protection switches the unit off. Before starting the fan back up leave it switched off long enough for the motor and temperature limiter to cool down. Only then switch it back on.

6. Technical data

Rated voltage	230 VAC
Power frequency	50 Hz
Sound pressure level	45 to 57 dB(A)*
Degree of protection	IP 44
Weight	2 to 5 kg*

* Depending on unit variant

For more technical data, → rating plate.
For dimensions, → fold-out page.

7. Environmental conditions and operating limits

Maximum permitted temperature of the air medium: + 40 °C

8. Storage

Store unit exclusively in a dry location (-20 to +50 °C).

9. Mounting instructions

NOTICE

Damage to unit/functional problems in the event of rubbing impeller [8].
→Do not fit connecting flange [3] so it is twisted or crushed. Make sure there is a level seating.

Danger of short-circuits/damage to unit as a result of-build-up of condensation in fan housing.
→ Thermally insulate ventilation ducts in a professional manner.

- Minimum wall thickness:
  EN/ENR 20 and EN/ENR 25: 105 mm
  EN/ENR 31: 130 mm
- Make sure there is sufficient space to the wall or ceiling.
- Select installation site where foreign bodies will not be accidentally drawn in.
- Any installation position can be selected.
- Electrical connection can be either surface- or recessed-mounted.
- Use mounting material suitable for base and of sufficient dimensions.
- In order to guarantee the degree of protecttion (IP value), the cable grommets [T…] must be drilled through/pierced correctly, i.e. with a circular hole that is somewhat smaller than the cable diameter.
- **Never dismantle the shutter → Damage to the unit.** Only mount the shutter on a level surface in order to guarantee the shutter function.
- If electric "shutters with plug connections" are present, disconnect the connector and wire the individual cable cores in accordance with the wiring diagram in Chapter 17.

10. Mounting

10.1 Wall mounting (Figures 2A to 2H)

1. Switch off mains fuse, secure against being accidentally switched back on and position a warning sign.
2. Mark and drill dowel holes, for connecting flange drilling distances → Fig. 2A.
3. Fit wall breakthrough, power cable [L] (surface-mounted AP or recess-mounted UP) and if necessary wall sleeve WH. Lay an empty ducting [9.4] with a slight incline towards the outside, for an electrically operated shutter → Fig 2B.
4. Take off internal cover [1] → Fig. 2C. The internal cover can be taken off the connecting flange [3] without any tools. To do this, grip connecting flange, swivel out internal cover [1] at the underside ① and remove upwards ②.
5. For surface-mounted connection, remove protective bar [1.1].
6. Remove the terminal box cover [2].
7. Pierce desired cable grommet [T...] (→ Fig. 2D) of connecting flange all the way round and insert power cable [L].
8. Attach the connecting flange [3] to the wall with suitable mounting material → Fig. 2E.
9. Fit shutter in accordance with relevant instructions → Fig. 2F. For electrically operated shutter, guide connection cable through duct [9.4] into connecting flange and guide through black grommet [T5] into terminal box. To prevent moisture from entering the terminal box, pierce grommet all the way round and slightly smaller than the connection cable. The cable grommet must tightly seal the connection cable.

10. **Connect the unit electrically**
→ wiring diagrams on page 21...24.

Cut off and insulate PE conductor and individual cable cores that are not required!

Wire up electrics for fan on terminal block [5] and for shutter on terminal block [6] → relevant wiring diagram. With airstream-operated Maico AS shutter, there are no connections on terminal block [6].

The degree of protection is only guaranteed if the cables are fed through correctly using the intended cable grommets [T1]...[T5].

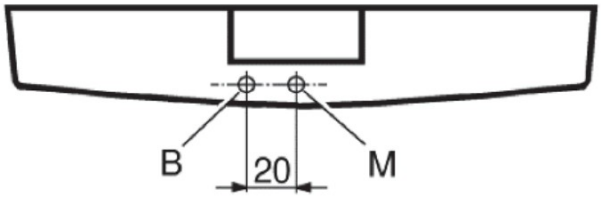
11. Check protective-conductor opening on housing.
12. Attach terminal box cover [2] and screw down (tightening torque of the 3 screws is 1 Nm each) → Fig. 2H. Ensure the sealing [2.1] is fitted correctly.
13. If necessary, connect a speed controller (ST, STU, STS) or frequency converter.

The technology used in the phase angle controller may cause humming noises. If using a frequency converter, you may need to use a mains filter.

14. Fit internal cover [1]. To do this, hang internal cover [3] on the top of the connecting flange [3], swivel down and clip it into place in the safety catch. Do not twist it.
15. Switch the mains fuse on. Run function test.

10.2 Ceiling mounting (not shown)

1. Carry out the ceiling installation as described in the wall mounting section.



2. Drill through the internal cover [1] at position [B] carefully and with a suitable drill bit (Ø 3.5 mm). **The hole prevents the build-up of damp and bacteria in the fan housing. Observe dimensions.**
3. Secure the internal cover [1] with the supplied screw at marking [M]. 3 x 10 mm screw is secured in the internal cover with sticky tape.

10.3 Mounting on pitched roofs (not shown)

See Chapter 10.2, Ceiling mounting.

11. Cleaning

Clean fan with dry cloth only. If necessary, use a vacuum cleaner. If possible, swivel the lamellae upwards to clean the shutter.
Do not use aggressive, harmful or easily flammable cleaning agents for cleaning work.

NOTICE

The internal cover will be damaged if the internal grille is pulled
→ Remove internal cover from connecting flange [3] as shown in Figure 2C. Under no circumstances pull it off by the internal grille or its top.

NOTICE

The internal cover will be damaged if cleaned in a dishwasher
→ Do not clean internal cover in a dishwasher.

1. Take off internal cover [1] (no tools needed).
2. Clean the internal parts with a dry cloth.
3. Position internal cover [1] as shown in Figure 2H.

12. Maintenance

The unit is maintenance-free.

13. Fault rectification

Fault	Cause, measure
Fan does not switch on.	No mains voltage. Check whether the mains fuse has failed. Switch on if necessary.
Impeller not turning.	Switch off unit. Ensure that the impeller is not blocked by foreign bodies.
Motor's thermal overload protection switches the fan off.	Motor too hot. Leave the unit switched off until the motor and the temperature limiter cool down. Cool-down time can be **up to 30 minutes**. The fan then starts up automatically. Fault rectification should only be carried out by a trained electrician.
Fan does not switch on.	Impeller is blocked. **Fault rectification may only be carried out by a trained electrician:** Check impeller and clean if necessary.
The fan will stop and suffer functional problems if the output voltage on the speed controller is too low.	Observe information in the speed controller operating instructions. Always set the minimum speed on the speed controller such that the fan motor starts up again after power failure.
Deposits on the impeller and in the housing caused by dust in the air.	Call on the services of a trained electrician. Under no circumstances should the inside of the unit be cleaned with water or a high-pressure cleaner.

If the fault still continues or occurs again, disconnect the fan from the power supply at all poles. Let a certified electrician determine the cause of the fault and eliminate it.

14. Spare parts

→ Key Fig. 1:
Spare parts in bold.

When ordering spare parts, please provide the following details:

1. Print no. of these instructions 0185.0992.0004.
2. Rating plate no. "X" at side on rating plate.
3. Item number according to Figure 1

Address for orders

Maico Elektroapparate-Fabrik GmbH
Steinbeisstraße 20
78056 Villingen-Schwenningen, Germany
Tel. +49 7720 694445 / Fax +49 7720 694175
E-mail: ersatzteilservice@maico.de

15. Dismantling

Dismantling should only be carried out by a trained electrician.

1. Before dismantling, disconnect the unit at all poles from the power supply (switch off mains fuse), secure against being accidentally switched back on and fit a visible warning sign.

16. Environmentally responsible disposal

The unit and the packaging contain parts that can be recycled, and should not end up in the domestic waste. Dispose of the packaging material in an environmentally-friendly way, in compliance with the regulations valid in the country where you are.

At the end of its service life, dispose of the unit in an environmentally-friendly way, in compliance with the regulations valid in the country where you are.