Central Ducted Dehumidifier Series

Instruction Manual | BBEL D35 / D65 / D138

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BBEL® branded products are supplied under strict quality-control review, final nameplate verification and project engineering approval.

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This manual is prepared for qualified installers, service technicians and project users. Read completely before installation, commissioning, operation or maintenance.

1. Scope and applications

The BBEL D35, D65 and D138 are central ducted dehumidifiers intended for indoor concealed installations such as villas, basements, gyms, wellness areas, storage rooms, archives, offices, hotels and humidity-sensitive spaces. Final product selection, duct layout and drainage design must be reviewed by the project consultant or qualified HVAC designer.
Use only in suitable indoor environments at normal atmospheric pressure. Do not use in explosive atmospheres or spaces containing corrosive, flammable or harmful gases unless specifically engineered and approved.

2. Safety instructions

• Disconnect electrical power before opening service panels or maintenance access.
• Electrical wiring must be carried out by qualified personnel in accordance with local electrical requirements.
• Do not wash the unit with water or install where water can directly contact electrical components.
• Do not insert fingers, tools or objects into air inlets, outlets or moving components.
• Install the unit on a structure capable of safely supporting the operating weight and installation loads.
• Ensure the unit is grounded correctly. Do not use unreliable grounding points.
• Do not modify internal wiring, PCB, sensors, controller, refrigerant circuit or safety devices without written supplier approval.
• After transport, allow the unit to stand for 2-4 hours before first start-up.
• A contact separation device of not less than 3 mm should be provided in the power supply line where required by local code.
• Poor drainage, blocked airflow, incorrect duct sizing or improper electrical connection may cause water leakage, poor dehumidification, compressor damage, electric shock or fire.

3. Product overview and working principle

The fan draws humid return air through the unit. The refrigeration circuit cools the evaporator surface below dew point, causing moisture to condense and drain away. The air is reheated through the condenser section and supplied back to the treated space. The controller maintains the target humidity automatically and displays operating status and alarms.
Main features: central ducted configuration, built-in drain pump with DN15 drain connection, adjustable centrifugal fan, primary filter, automatic humidity control, fault indication, anti-corrosion treated sheet metal construction, and copper tube heat exchanger with aluminium fin.

4. Model specifications

Model	D35	D65	D138
Rated extraction	35 L/day	65 L/day	138 L/day
Applicable area	20-50 m^2	60-110 m^2	110-150 m^2
Air volume	350 m^3/h	550 m^3/h	1000 m^3/h
External pressure	80 Pa	110 Pa	130 Pa
Input power	400 W	700 W	1180 W
Noise	36 dB(A)	40 dB(A)	45 dB(A)
Dimensions	892×490×270 mm	942×570×270 mm	972×580×400 mm
Weight	37 kg	45 kg	60 kg
Duct diameter	150 / 150 mm	145 / 145 mm	195 / 195 mm
Refrigerant	R134a	R134a	R410a
Drain	Built-in pump, DN15	Built-in pump, DN15	Built-in pump, DN15

Compressor note: The units use a high-efficiency hermetic compressor. Specific compressor make may vary by approved production batch and should be verified through the supplier/nameplate where required for submittal approval.

5. Installation planning

• Install horizontally in concealed ceiling/indoor technical space with adequate structural support.
• Reserve minimum 400 × 600 mm service access near the filter, electrical panel and drain-pump area.
• Avoid placing the controller near direct sunlight, heat sources, supply air jets, return-air short-circuiting, kitchens or humid exhaust streams.
• Keep ducts short and smooth; avoid excessive elbows, undersized ducts and restrictive diffusers.
• Do not install where flammable, corrosive or harmful gases may be present unless specifically engineered for that environment.
• Allow the unit to stand for 2-4 hours after transportation before energising.

6. Drainage requirements

• Connect drain outlet to suitable condensate pipework using DN15 drain connection.
• Drain pipe should have a continuous downward slope of 1-2% where gravity drainage applies.
• The built-in drain pump maximum lift is approximately 1 m; avoid long vertical lifts and air-locks.
• Inspect drain route, trap, slope and pump operation during commissioning.
• Poor drainage can cause water leakage, overflow alarm or equipment damage.

7. Controller and Wi-Fi functions

The BBEL controller provides local operation, humidity setting, fan selection, timing functions, filter reminder, fault indication and Wi-Fi connectivity for app-based monitoring/control where enabled.

Function	Description
Power / mode	Switch unit ON/OFF; select dehumidification or internal circulation mode where applicable.
Humidity setting	Set target relative humidity within typical 30-90% RH range.
Fan speed	Select high, medium or low fan speed where enabled.
Timer	Set timed operation according to project/user requirements.
Child lock	Lock controller keys to avoid accidental changes.
Filter reminder	Displays filter maintenance reminder and accumulated filter time.
Wi-Fi	2.4 GHz Wi-Fi connectivity for app-based monitoring/control via Smart Life app where enabled.
Fault indication	Displays diagnostic codes for overflow, sensor, pressure and temperature-related alarms.

Wi-Fi setup summary: Put the controller in fast configuration mode, open the supported app, add the device manually under an air-conditioning/controller category, connect the phone to a 2.4 GHz Wi-Fi network, and follow the app prompts. Keep the controller close to the router or use a Wi-Fi extender where signal is weak. App availability, naming and exact functions may vary by region, mobile operating system, router and product batch.

8. Commissioning checklist

Unit fixed securely and levelled.
Service access available and unobstructed.
Power supply, earthing and breaker rating verified.
Return and supply ducts connected, insulated where required, and free of blockage.
Filter fitted and accessible.
Drain pipe connected, sloped and tested; pump lift within permitted range.
Controller powered and humidity setpoint verified.
Wi-Fi/app pairing tested where project requires remote/app control.
Measured airflow, noise and drain operation acceptable.
Serial number, installation date and warranty certificate recorded.

9. Maintenance guidance

• Clean or replace filter regularly depending on site dust level.
• Inspect drain tray, drain pipe, pump and overflow switch regularly.
• Check duct connections, insulation, vibration, abnormal noise and airflow.
• Inspect electrical terminals, controller cable and sensors during scheduled maintenance.
• Keep service access clear at all times.
• Only qualified technicians should inspect refrigerant circuit components.

10. Fault indication summary

Code	Typical indication
E1	Coil temperature sensor fault
E2	Return-air temperature / humidity sensor fault
E4	Water overflow / drainage fault
E5	High temperature protection
E6	Low pressure / system protection
E7	High pressure / system protection

Fault codes indicate probable causes only. Always inspect power supply, airflow, drainage, sensors, refrigerant circuit and installation conditions before replacing components.

11. Warranty and support

Warranty is subject to the BBEL warranty certificate issued for the specific project or sale, and is valid only when the product is installed, commissioned and maintained by qualified personnel in accordance with this manual and project requirements.
Typical exclusions:
• Incorrect installation, blocked airflow, wrong duct sizing, poor drainage, abnormal electrical supply or unsuitable site conditions.
• Unauthorized modification, relocation, repair, controller replacement or third-party accessories not approved in writing.
• Consumables such as filters, civil works, access panels, ducts, drains, ceilings, finishes or consequential site works.
• Damage caused by water leakage, flooding, misuse, neglect, poor maintenance, transport damage after delivery, or external events.
• Normal wear, corrosion caused by unsuitable environmental conditions, or damage caused by harmful gases/chemicals unless specifically engineered.

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