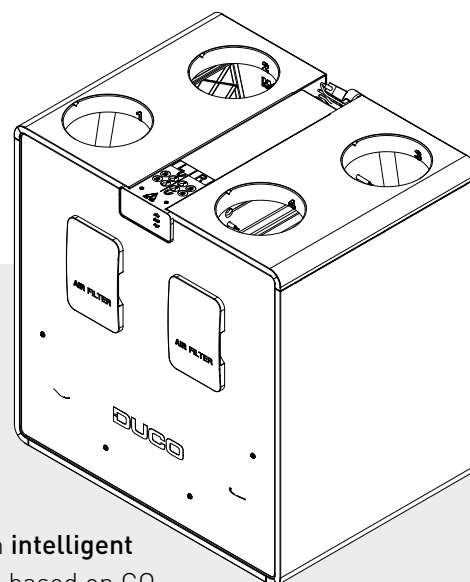


TECHNICAL DATA SHEET

DucoBox Energy Comfort Plus D450




The DucoBox Energy Comfort Plus D450 is a **mechanical ventilation unit with heat recovery**. DucoBox Energy Comfort Plus was developed with the aim of guaranteeing an even quieter operation. Within the DucoBox Energy Comfort range, the left/right exchange is 100% software-driven thanks to the patented principle of the double by-pass.

The demand control of the DucoBox Energy Comfort Plus D450 results in **intelligent and energy-efficient operation**. Together with the smart demand control based on CO₂ and humidity, the dynamic air distribution filters ensure exceptional efficiency within this compact unit.

The compact and quick-to-install 2-zone valves provide the most energy-efficient result that can be achieved with an MVHR system. Please note that the zone control reduces the noise by **at least 30%**! Comfort rules!

Versions

| Type | Certified by Passive House Institute | Supply and extraction capacity at 150 Pa | Supply and extraction capacity at 200 Pa | 2-zone system | Frost protection | Article number |
|----------------------------------|---|--|--|---------------------------|---|----------------|
| DucoBox Energy Comfort Plus D450 |  | 450 m ³ /h | 450 m ³ /h | yes (external - optional) | imbalance or external heater (optional) | 0000-4705 |

Physical characteristics

| | |
|------------------------------------|---|
| Width x Height x Depth (mm) | 760 x 803 x 584 |
| Casing | Coated sheet steel |
| Colours | White + green |
| Connections | Inner diameter: Ø 180 mm |
| Condensate drain | Ø 32 mm (1 ¼") (2x) |
| Heat exchanger | v1: PP - v2: PET/Alu |
| Material of inside section | EPP / PP / ABS |
| Weight | 47 kg |
| Power cable length | 2 m (from top of unit) |
| Mounting | Wall mounting (standard) Floor mounting as an option using a support frame |

Electrical characteristics

| | |
|-------------------------------------|--|
| Maximum power at 50 Pa | 150 W |
| Power supply | 230 V, 50 Hz via 3-core power cable with earthed plug |
| Contacts | 0-10 V in/output |
| Type of motor | DC |
| IP class | IP40 |
| Energy conversion efficiency | 87.8% (EN 13141-7) 82% (Passive House Institute) |

Miscellaneous characteristics

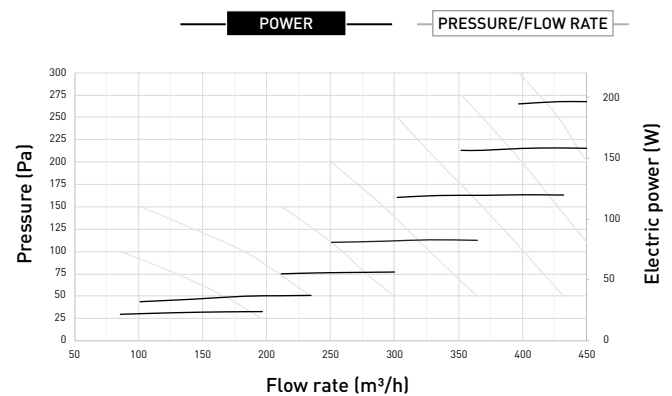
| | |
|------------------------------|---|
| Energy class | With 2 sensors (control factor 0.65): A+ Other: A |
| Filters | Dynamic airflow filter supply air (520 x 190 x 15 mm) Standard: ISO 16890 Coarse 65 % (= G4) Optional: ISO 16890 ePM1 55% (=F7) Dynamic airflow filter exhaust air (520 x 190 x 15 mm) Standard: ISO 16890 Coarse 65 % (= G4) |
| Fans | EC fan with backward curved blades |
| Automatic calibration | Yes (constant pressure) |
| Installer App | Via Duco Connectivity Board (if permanently mounted) Via Duco Installation Kit (mobile application) |
| Passive cooling | Automatic passive cooling control via 'NightBoost' function |
| Operation | Integrated display Use via remote controls and CO ₂ or Humidity Sensors Optional via smartphone/tablet (provided Duco Connectivity Board in device) |
| Sensors | Integrated: pressure, temperature, onboard switch sensor External: CO ₂ (via optional Room sensor), Humidity (via optional Room sensor or measurement in ETA duct), external Switch Sensor (voltage-free input) (optional) |
| Communication | Standard: Duco RF, Duco Wired, Switch Sensor Expandable with Duco Connectivity Board: Modbus TCP (local), REST API (local or via cloud) - both via Ethernet or Wi-Fi |

Pressure/flow characteristics

| Flow rate (m ³ /h) | Pressure (Pa) | Absorbed power* (W) |
|----------------------------------|------------------|------------------------|
| 390 | 300 | 197 |
| 350 | 300 | 171 |
| 428 | 250 | 197 |
| 400 | 250 | 176 |
| 350 | 250 | 144 |
| 300 | 250 | 117 |
| 450 | 200 | 196 |
| 400 | 200 | 157 |
| 350 | 200 | 126 |
| 300 | 200 | 101 |
| 450 | 150 | 176 |
| 400 | 150 | 138 |

* The values mentioned are an estimate and cannot be used as substantiation.

DucoBox Energy Comfort Plus D450



Optional accessories

| Product | Article number |
|---|----------------|
| Siphon flat (Energy) | 0000-4376 |
| Duco Connectivity Board | 0000-4810 |
| Humidity Sensor (DucoBox Energy Comfort (Plus)) | 0000-4723 |
| Mounting chair standing (Energy Comfort D400 / Plus) | 0000-4740 |
| Filter set 2 x Coarse 65% (Energy Comfort D400 / Plus) | 0000-4741 |
| Filter set Coarse 65% / ePM1 55% (Energy Comfort D400 / Plus) | 0000-4742 |
| Set Coaxial cable 8m | 0000-4418 |
| Pre-Heater DucoBox Energy Comfort (Plus) 1425W | 0000-4807 |
| External Multizone Valves | Miscellaneous |

Acoustic properties

Emission from casing measured in accordance with ISO 3741:2010

Supply and extraction noise level according to ISO 5135:1997 (with duct correction)

1. Emission from casing

| Measurement # | Flow rate m³/h | Pressure Pa | LwA emission from casing dB(A) | Octave band frequencies Hz | | | | | | | |
|---------------|----------------|-------------|--------------------------------|----------------------------|-------|------|-------|------|------|-------|-------|
| | | | | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 1 | 450 | 200 | 59,5 | 46,6 | 55,3 | 59 | 62,3 | 49,8 | 46,6 | 43,4 | 33,1 |
| 2 | 400 | 200 | 57 | 44,4 | 55 | 57,4 | 59,4 | 48,2 | 45 | 41,9 | 31,8 |
| 3 | 350 | 200 | 56,5 | 43,8 | 53,3 | 61 | 54,1 | 45,4 | 43,2 | 39,5 | <28,9 |
| 4 | 300 | 200 | 53 | 39,7 | 51,6 | 57,6 | 48,5 | 43,1 | 41,3 | 36,6 | <25,0 |
| 5 | 450 | 150 | 58 | 45,5 | 54 | 57,4 | 60,6 | 48,7 | 45,2 | 42,5 | 32,6 |
| 6 | 400 | 150 | 58,5 | 44 | 53,1 | 62 | 58,7 | 46,4 | 43,5 | 40,8 | 31,1 |
| 7 | 350 | 150 | 54,5 | 45,3 | 51,8 | 59,8 | 49,9 | 43,9 | 41,7 | 38,5 | <28,6 |
| 8 | 300 | 150 | 53,5 | <40,6 | 50,2 | 59,3 | 46,9 | 41,7 | 39,7 | 35,6 | <24,6 |
| 9 | 400 | 100 | 53,5 | 47,1 | 50,2 | 57,9 | 50,5 | 44,3 | 41,9 | 39,3 | <30,0 |
| 10 | 350 | 100 | 53,5 | 41,6 | 49,3 | 58,9 | 48,1 | 42,4 | 40,1 | 37,3 | <28,0 |
| 11 | 300 | 100 | 51,5 | 40 | 48,1 | 57,3 | 45,5 | 40,4 | 38,2 | 34,7 | <24,8 |
| 12 | 250 | 100 | 48,5 | 43,5 | 47,3 | 55,2 | 43,3 | 38,4 | 35,9 | 31,4 | <20,2 |
| 13 | 315 | 50 | 48,5 | 38,3 | 46,2 | 54,7 | 44 | 38,8 | 36,7 | 33,5 | <24,5 |
| 14 | 300 | 50 | 48,5 | <36,4 | 45,6 | 55 | 43,1 | 38,1 | 35,8 | 32,6 | <23,6 |
| 15 | 250 | 50 | 48,5 | <35,4 | 43,4 | 56,6 | 40,09 | 35,4 | 32,9 | 28,8 | <18,7 |
| 16 | 245 | 50 | 48 | <35,7 | 43,5 | 56,4 | 40,9 | 35,2 | 32,7 | 28,4 | <18,0 |
| 17 | 200 | 50 | 42,5 | <30,8 | 39,9 | 50,9 | 39,3 | 32,3 | 29 | <22,5 | <10,0 |
| 18 | 200 | 25 | 40 | <33,2 | 40,9 | 47,5 | 37,3 | 30,6 | 27,3 | <21,3 | <11,0 |
| 19 | 150 | 25 | 34,5 | <32,7 | <39,7 | 39,3 | 31,3 | 26,6 | 21,9 | <12,7 | <7,9 |
| 20 | 100 | 25 | 30 | <32,9 | 35,3 | 35,1 | 26,9 | 22,5 | 15,6 | <4,9 | <7,3 |

2. Supply noise

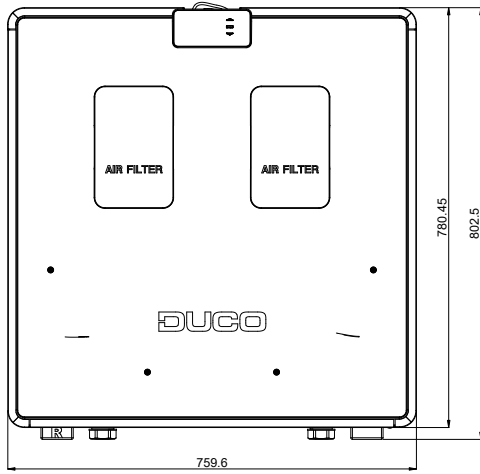
| Measurement # | Flow rate m³/h | Pressure Pa | LwA supply dB(A) | Octave band frequencies Hz | | | | | | | |
|---------------|----------------|-------------|------------------|----------------------------|------|------|------|------|------|-------|-------|
| | | | | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 1 | 450 | 200 | 78,5 | 76,9 | 73,2 | 75,9 | 81 | 72 | 65,6 | 62,4 | 58,3 |
| 2 | 400 | 200 | 79 | 73,5 | 71,6 | 75,2 | 82 | 71,4 | 63,5 | 60,2 | 56,1 |
| 3 | 350 | 200 | 74,5 | 71,7 | 70,5 | 78,8 | 72,3 | 64,7 | 60,6 | 56,9 | 52,1 |
| 4 | 300 | 200 | 74 | 70,5 | 70 | 79,1 | 69,6 | 61,9 | 58,2 | 53,4 | 47,4 |
| 5 | 450 | 150 | 78 | 74,9 | 72,6 | 75,4 | 80,8 | 70,2 | 64,8 | 61,6 | 57,8 |
| 6 | 400 | 150 | 79 | 75 | 71,3 | 82,8 | 79 | 67,2 | 62,3 | 59,3 | 55,6 |
| 7 | 350 | 150 | 72 | 71 | 69,5 | 75,5 | 70,4 | 63,2 | 59,9 | 56,6 | 52,5 |
| 8 | 300 | 150 | 72,5 | 69,1 | 68,4 | 77,4 | 68,3 | 60,5 | 57,2 | 53,3 | 48,2 |
| 9 | 400 | 100 | 76 | 72,6 | 70,6 | 80,2 | 73 | 65,3 | 61,5 | 58,5 | 55 |
| 10 | 350 | 100 | 73 | 70,1 | 69,1 | 77,7 | 69,7 | 61,9 | 58,9 | 56 | 52,5 |
| 11 | 300 | 100 | 72 | 68,7 | 67,2 | 78,5 | 67 | 59 | 55,7 | 52,4 | 47,9 |
| 12 | 250 | 100 | 68,5 | 66,8 | 65,4 | 75,7 | 63,4 | 56,5 | 52,1 | 47,4 | 40,8 |
| 13 | 315 | 50 | 68,5 | 67,9 | 66,8 | 74 | 66,5 | 58,8 | 55,4 | 52,4 | 48,7 |
| 14 | 300 | 50 | 69 | 67,8 | 66,4 | 75,8 | 64,9 | 57,9 | 54,5 | 51,5 | 47,7 |
| 15 | 250 | 50 | 65 | 65,3 | 64,4 | 72,4 | 61,6 | 54 | 50,3 | 46,5 | 40,9 |
| 16 | 245 | 50 | 65 | 65 | 64,3 | 72,3 | 61,5 | 53,6 | 50 | 45,9 | 40,1 |
| 17 | 200 | 50 | 63 | 63,1 | 61,1 | 72,9 | 58,2 | 49,8 | 45,1 | 38,9 | <29,4 |
| 18 | 200 | 25 | 60 | 63,2 | 63,6 | 67,6 | 57,7 | 48,3 | 43,7 | 38,1 | <29,0 |
| 19 | 150 | 25 | 54,5 | 61,9 | 65,2 | 56,5 | 50,5 | 42,9 | 36,3 | 27,3 | <14,7 |
| 20 | 100 | 25 | 49 | 60,7 | 62,1 | 51,5 | 44,7 | 36 | 26,9 | <13,2 | <9,7 |

3. Extraction noise

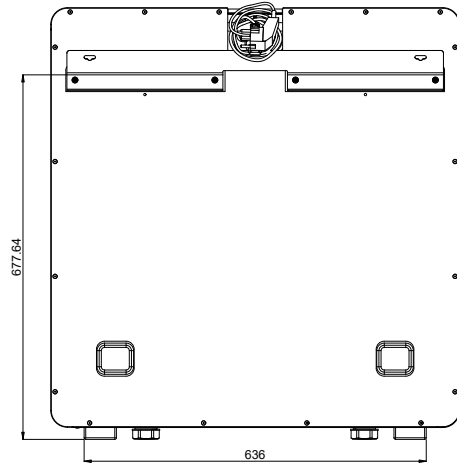
| Measurement # | Flow rate m³/h | Pressure Pa | LwA extraction dB(A) | Octave band frequencies Hz | | | | | | | |
|---------------|----------------|-------------|----------------------|----------------------------|------|------|------|------|------|-------|-------|
| | | | | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| 1 | 450 | 200 | 59 | 64,6 | 62 | 61,9 | 59,7 | 52,1 | 43,7 | 40 | 34,9 |
| 2 | 400 | 200 | 58 | 62,6 | 60,8 | 61 | 57,7 | 50,8 | 41,4 | 37,6 | 32,4 |
| 3 | 350 | 200 | 57,5 | 61,4 | 59,9 | 62,8 | 54 | 48 | 39,4 | 35,4 | 29,7 |
| 4 | 300 | 200 | 56,5 | 59,1 | 58,8 | 62,4 | 51,1 | 45,7 | 37,1 | 32,2 | <25,4 |
| 5 | 450 | 150 | 58,5 | 62,7 | 60,6 | 61,3 | 59,5 | 52,2 | 42,7 | 39,1 | 34,4 |
| 6 | 400 | 150 | 58,5 | 61,9 | 59,6 | 63,7 | 56 | 49 | 40,4 | 36,9 | 32,2 |
| 7 | 350 | 150 | 56,5 | 60,2 | 58,6 | 61,9 | 52 | 46,3 | 38,1 | 34,4 | <29,1 |
| 8 | 300 | 150 | 57,5 | 58,6 | 57,4 | 63,6 | 49,8 | 44,2 | 35,8 | 31,5 | <25,5 |
| 9 | 400 | 100 | 55,5 | 60,1 | 58,3 | 59,5 | 52,7 | 47,7 | 39,6 | 36,2 | 31,7 |
| 10 | 350 | 100 | 57 | 58,5 | 56,8 | 63,1 | 50,2 | 45 | 37 | 33,7 | <29,1 |
| 11 | 300 | 100 | 59,5 | 57,6 | 55,6 | 67,2 | 47,7 | 42,8 | 34,5 | 30,6 | <25,2 |
| 12 | 250 | 100 | 53 | <55,5 | 54 | 60,7 | 45,5 | 40,5 | 31,3 | 26,2 | <19,2 |
| 13 | 315 | 50 | 57,5 | <55,9 | 54 | 66,4 | 46,8 | 42,3 | 34 | 30,7 | <26,3 |
| 14 | 300 | 50 | 56,5 | <55,1 | 53,4 | 64,4 | 45,5 | 41,2 | 32,9 | 29,4 | <24,8 |
| 15 | 250 | 50 | 51 | <53,8 | 51,1 | 59,3 | 43,9 | 38 | 29,2 | 25 | <19,0 |
| 16 | 245 | 50 | 48 | 54,9 | 51,5 | 55,7 | 43,3 | 37,5 | 28,6 | 24,1 | <17,6 |
| 17 | 200 | 50 | 45,5 | <53,3 | 49,1 | 54,1 | 39,9 | 34,3 | 24,4 | <18,1 | <10,3 |
| 18 | 200 | 25 | 43 | 55,3 | 49,4 | 50,7 | 38,3 | 32,4 | 23 | <16,6 | <9,8 |
| 19 | 150 | 25 | 42 | <51,5 | 52,8 | 46 | 33,8 | 27,7 | 16,7 | <8,7 | <7,5 |
| 20 | 100 | 25 | 36 | <49,5 | 47,1 | 41,5 | 28,5 | 22,2 | <9,2 | <1,6 | <7,4 |

Dimensions of DucoBox Energy Comfort Plus D450

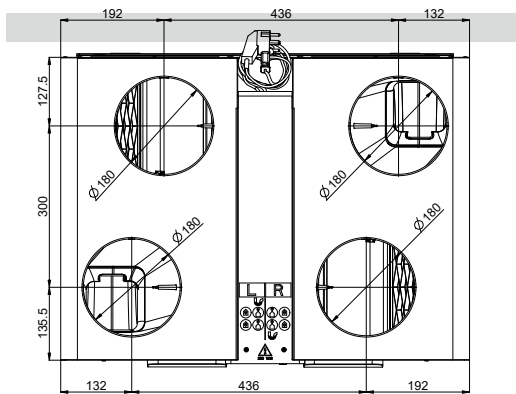
Front view



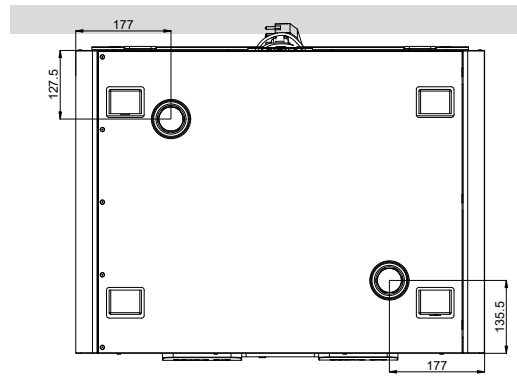
Rear view



Top view



Bottom view



Side view

