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Planning inlet air and ...

Planning requirements

Points that you must observe when planning inlet air and exhaust air ducting in the studio.

When planning ventilation in the studio, you must ensure that the required air throughput for each piece of equipment is constant over the entire tube or hose system and is not reduced by obstructions.

To support the flow of exhaust air throughput, it may be necessary to take an additional fan in the system into account, if applicable (see calculation example for design of additional fan).

The inlet air temperature must not exceed 40 °C. Temperatures in excess of 40 °C could impede the operation of the sunbed.

Additional filtering of the inlet air is especially recommended.

There are 3 possible inlet and exhaust air assembly variants for Ergoline sunbeds. The following planning examples can be applied to all Ergoline sunbeds contained in the sunbed range presented in this Planning Manual. Additional information is given in the respective device descriptions for devices that make special requirements on installation.

When fitted with the correct central bracket for inlet and exhaust air, Ergoline sunbeds can also be operated with a free air outlet, i.e. without being connected to a ventilation system in the studio.

Installing “exhaust air ducting via a suspended ceiling and with a double rear wall” is an optically elegant solution without using the central exhaust air bracket.

If you want to use hot air recirculation in conjunction with an exhaust duct, the exhaust duct cannot be routed above a suspended ceiling.



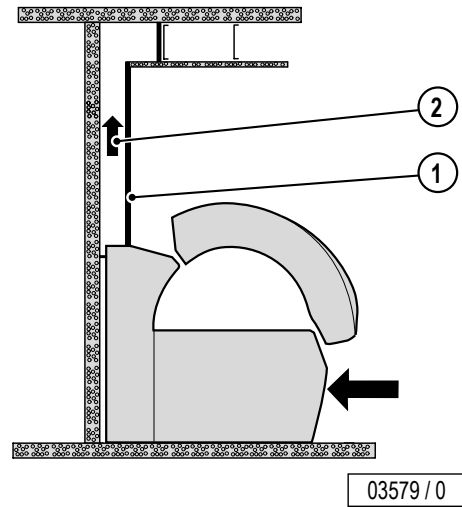
Caution!

Before putting a tanning device into operation, the transport pallet must be removed from under the tanning unit. Installation on the transport pallet may result in damage to the device due to obstruction of the air routing.

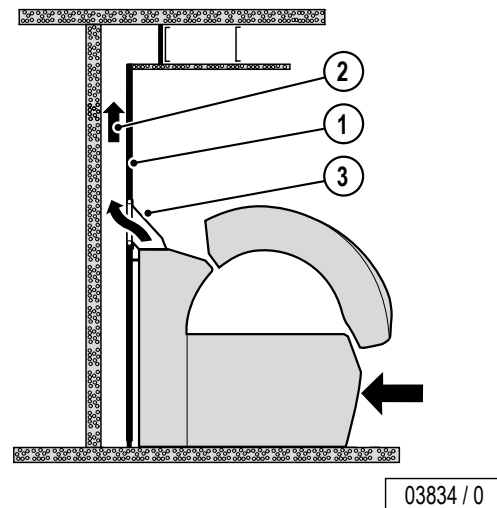
Inlet and exhaust connection with and without double rear wall

With double rear wall

Without exhaust-air adapter: An intermediate wall (1) (e.g. chipboard) tightly enclosing the sunbed at the rear serves as an upward channel for the exhaust air (2), if required right up to the hanging ceiling. So that the exhaust air is properly extracted, a slight vacuum is required behind the intermediate wall (1); an auxiliary fan must be installed if necessary. This installation variant is used mostly for single devices.



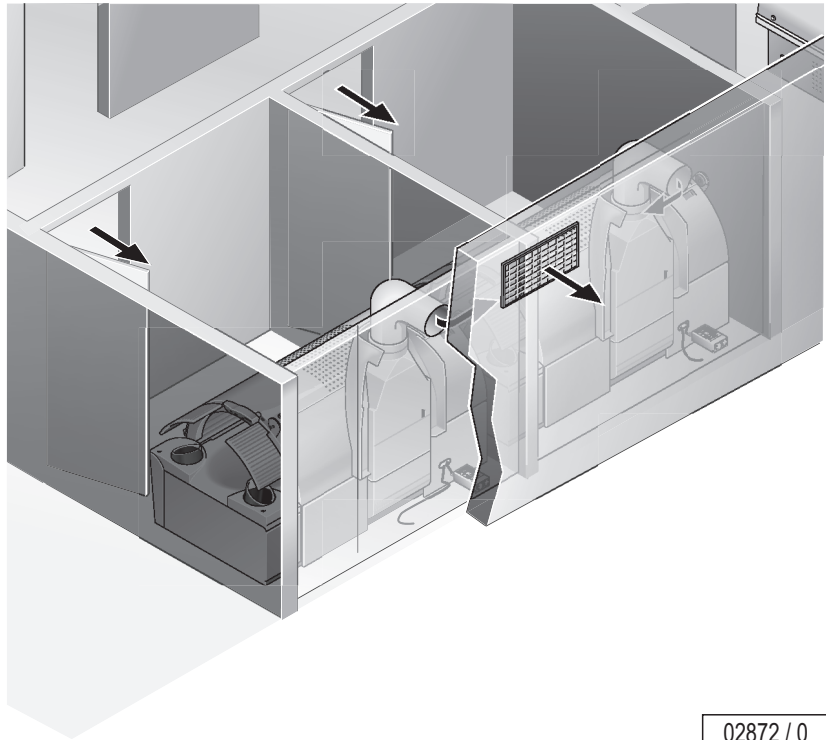
With exhaust air adapter: A cut-out is mounted on the intermediate wall. A rubber profile on the exhaust-air adapter (3) ensures an air-tight seal on the intermediate wall.



Planning inlet air and ...

Variant A, transverse ventilation:

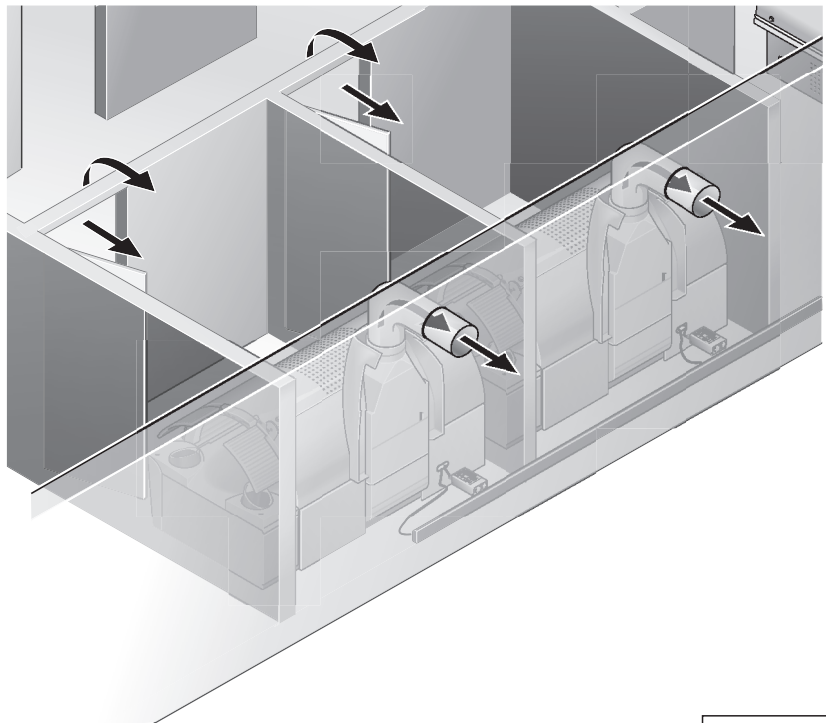
The equipment exhaust air (2) is fed upwards through the exhaust air channel (space behind the double rear wall, approx. 15 cm) underneath the studio ceiling and is expelled there through opposing exhaust air openings.



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Variant B, direct exhaust air:

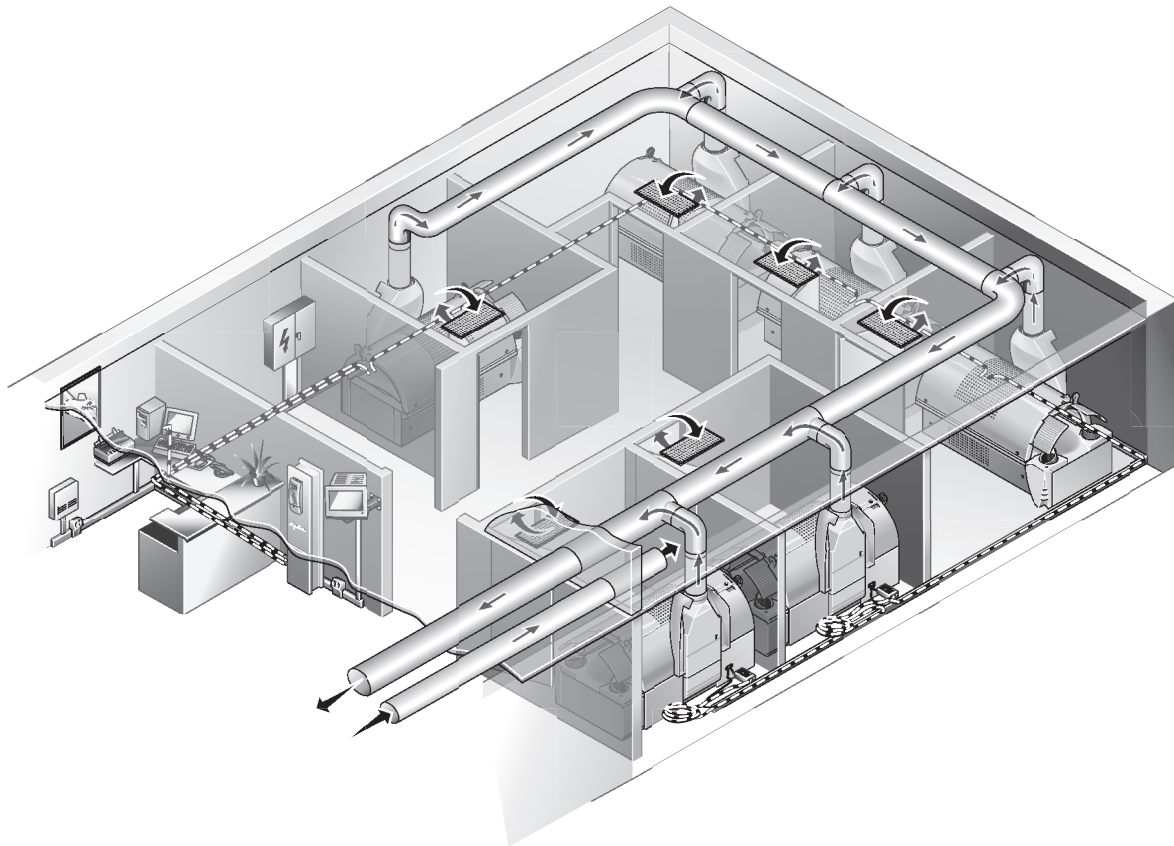
The equipment exhaust air (2) is channelled directly outside through the exterior wall.



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Planning inlet air and ...

Inlet and exhaust air connection via a hanging studio ceiling with a separate exhaust air ducting



Planning inlet air and ...

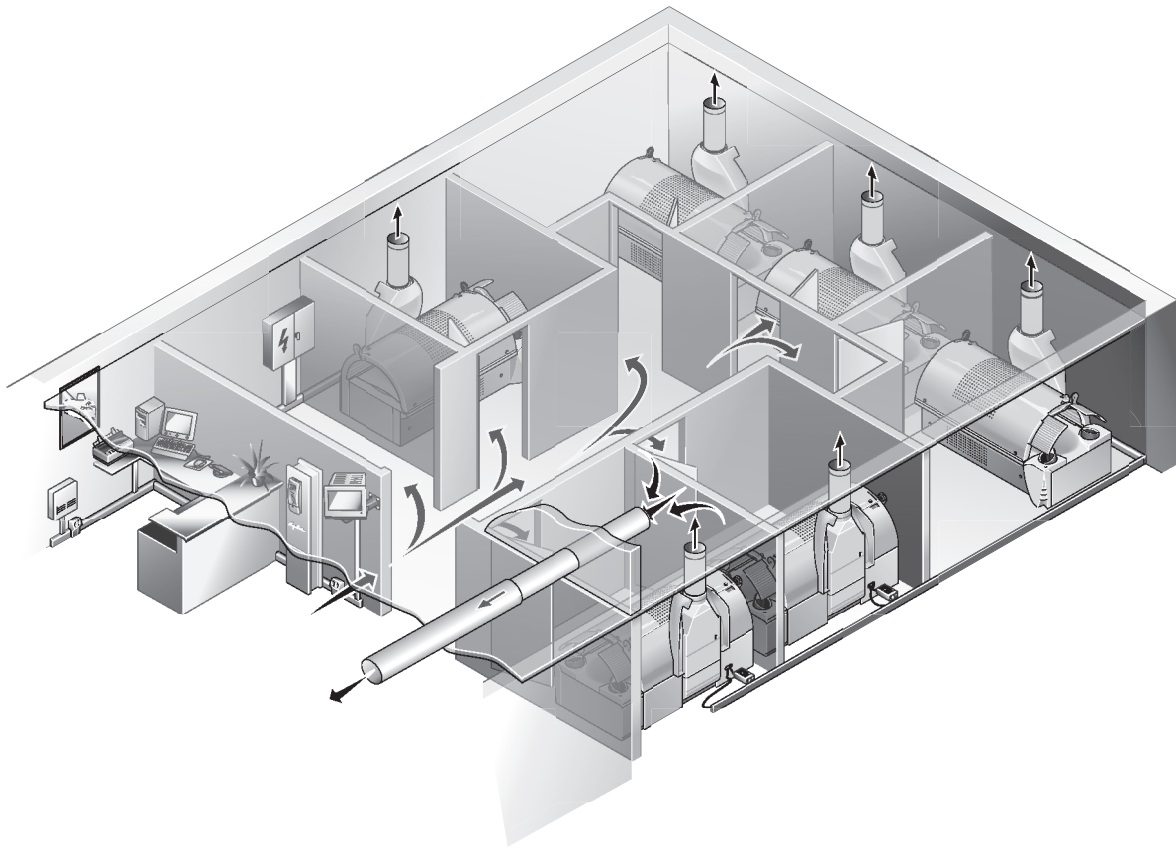
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To utilise all the benefits of the innovative ventilation concept of Ergoline sunbeds and to prevent the unnecessary heating of the studio, we recommend that the inlet air for cooling the air conditioning units be supplied from outside via a filtered (as airtight as possible) hanging ceiling and that the exhaust air be expelled to the outside via a separate hose or duct system.

Exhaust air connection is made using a separate, heat-insulated ducting system (1) inside a hanging studio ceiling. The space in between the room ceiling and the hanging ceiling serves as a channelling space for the equipment inlet air.

Inlet and exhaust air connection via a hanging studio ceiling without an exhaust air ducting system

Planning inlet air and ...



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If Ergoline sunbeds are connected with the exhaust air ducting to a hanging studio ceiling without a separate exhaust air ducting system (i.e. the space in between is all that is used for exhaust air transport!), the required inlet air must be supplied from the studio ambient air.

In such cases, it is imperative that you ensure that the inlet air is not drawn in from the warm air in the studio ceiling area as this could result in the maximum permissible temperature of 40 °C being exceeded.

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Note:

The assorted technical information in this chapter applies to all variants of each device type.

Performance and air requirements

Ergoline professional sunbed	Capacity		Fuses ¹⁾ Ampere	UV low pressure lamps	UV high pressure lamps	Temperature difference exhaust / supply air °C	Air requirement max. ⁴⁾ m ³ /h
	w/o	with		performance	performance		
	Air conditioner			Watt	Watt		
Excellence IQ Intelligent Power System	–	16500	3 x 35	51 x 120-180	4 x 520	15	2800
Excellence 800 Automatic Power System	–	18300	3 x 35	51 x 160	4 x 520	15	2800
Excellence 800 Turbo Power	–	18300	3 x 35	51 x 160	4 x 520	15	2800
Excellence 700 Automatic Power System	–	18300	3 x 35	51 x 160	4 x 520	15	2800
Excellence 700 Turbo Power	15000	18300	3 x 35	51 x 160	4 x 520	10 ⁵⁾ 15 ⁶⁾	2800
Evolution IQ Intelligent Power System	–	12600	3 x 35	46 x 120-160	3 x 520	11	2800
Evolution 600 Automatic Power System	–	14500	3 x 35	46 x 160	3 x 520	11	2800
Evolution 600 Turbo Power	13300	14500	3 x 35	46 x 160	3 x 500	6 ⁵⁾ 11 ⁶⁾	2800
Evolution 600 Super Power	9800	11000	3 x 25	46 x 100	3 x 500	6 ⁵⁾ 11 ⁶⁾	2800
Evolution 575 Turbo Power	10100	11500	3 x 25	17 x 160 17 x 180	45 x 25 ⁷⁾	6 ⁵⁾ 11 ⁶⁾	2800
Evolution 500 Automatic Power System	–	13900	3 x 35	43 x 160	3 x 520	11	2800
Evolution 500 Turbo Power	12700	13900	3 x 35	43 x 160	3 x 500	6 ⁵⁾ 11 ⁶⁾	2800
Evolution 500 Super Power	8400	–	3 x 16	43 x 100	3 x 400	6	2800
Advantage 400 Automatic Power System	9700	–	3 x 20	40 x 160	3 x 400	7 ⁵⁾	2700
	–	10700	3 x 25	40 x 160	3 x 400	10 ⁶⁾	
Advantage 400 Turbo Power	9700	–	3 x 20	40 x 160	3 x 400	7 ⁵⁾	2700
	–	10700	3 x 25	40 x 160	3 x 400	10 ⁶⁾	
Advantage 400 Super Power	7700	–	3 x 16	40 x 100	3 x 360	7	2700
Advantage 350 Turbo Power	9600	–	3 x 20	38 x 160	3 x 400	10	2700
Advantage 350 Super Power	7600	–	3 x 16	38 x 100	3 x 360	7	2700
Ambition 250 Super Power	6300	–	3 x 16	36 x 100	3 x 400	15	1600
Lounge Turbo Power	12500	–	3 x 25	50 x 180	–	10	2900
Open Sun A.R.T. 600 Super Power	13300	–	3 x 25	17 x 100	4 x 700 ²⁾ 6 x 800 ³⁾	11	2500
Open Sun A.R.T. 450 Super Power	8300	–	3 x 16	45 x 100	2 x 600	10	2100
Classic 300 Super Power	7000	–	3 x 16	38 x 100	3 x 400	15	950
Classic 200 Super Power	6200	–	3 x 16	32 x 100	3 x 400	15	950
Classic 8000 Ultra	5500	–	3 x 16	–	6 x 500	8	1200

1) All the tanning devices are connected to 400-415V ~3N only delay-action fuses must be used.
The specified connection voltages must lie within a tolerance range from +/- 5% to retain the guaranteed output data for Ergoline sunbeds.

- 2) Feet area
3) Upper-body area
4) Ambient temperature max. 25 °C and inlet air max. 40 °C
5) without air conditioner
6) with air conditioner
7) UV low pressure lamps (25W) in canopy and side part

With the electrical connected rating in a studio, a simultaneity factor of 1 must be expected.

Inlet and exhaust air cross-sections

Ergoline professional sunbed	Exhaust air cross-sections without exhaust air system	Pipe \varnothing	Cabin Inlet air cross-section at 1.5 m/s	Inlet and exhaust air cross-sections with exhaust system
	Exhaust air ¹⁾ cm ²	mm	cm ²	Exhaust air cm ²
Excellence IQ				
Excellence 800	588	300	5200	710
Excellence 700				
Evolution IQ				
Evolution 600				
Evolution 575	588	300	4200	710
Evolution 500				
Advantage 400				
Advantage 350	430	300	5000	710
Ambition 250	802	–	–	–
Lounge	430	300	5370	710
Open Sun A.R.T. 600	435	300	4000	710
Open Sun A.R.T. 450	550	250 (300) ²⁾	4100	490 (710) ²⁾
Classic 300				
Classic 200	450	250	1300	490
Classic 8000 Ultra	430	–	2200	–

1) Device exit opening
 2) Can be extended

Maximum exhaust pipe length without additional ventilator

Calculation base (without additional ventilator):

Back pressure	100 Pascal
Air pressure	100,000 Pascal
Air temperature	40 °C
Density	1.112 kg/m ³
Dynamic inertia of the air	1.92E-05 Pa x s

Ergoline professional sunbed	Corrugated pipe ∅ mm	Roughness (at centre) k _{absolute} mm	Flow volume m ³ /h	Loss coefficient		90° bend in line (metal) pieces	Permissible length of straight line m
				of bend	of pipe		
Excellence IQ / 800 / 700	300	8	2500	0.182 ¹⁾	0.21 ¹⁾	0	10
						1	9
						2	8
						3	7
Evolution IQ / 600 / 575 / 500	300	8	2500	0.182 ¹⁾	0.21 ¹⁾	0	10
						1	9
						2	8
						3	7
Advantage 400 / 350	300	8	2300	0.182 ¹⁾	0.21 ¹⁾	0	12
						1	11
						2	10
						3	9
Lounge	300	8	2600	0.182 ¹⁾	0.21 ¹⁾	0	10
						1	8.5
						2	7.5
						3	6
Open Sun A.R.T. 600	250	8	2500	0.182 ¹⁾	0.21 ¹⁾	0	12
						1	10
						2	8
						3	6
Open Sun A.R.T. 450	300	8	2150	0.182 ¹⁾	0.21 ¹⁾	0	12
						1	10
						2	8
						3	6
Classic 300 / 200	250	8	950	0.182 ¹⁾	0.21 ¹⁾	0	8
						1	6
						2	4
						3	2

1) zeta value (ζ)

Permissible only for direct connection of the exhaust air from inside to outside via a special canal system with pipe bends with smooth surfaces.

Weights

Ergoline professional sunbed	without air conditioner	with air conditioner
	kg ¹⁾	kg ¹⁾
Excellence IQ Intelligent Power System	–	681
Excellence 800 Automatic Power System	–	649
Excellence 800 Turbo Power	–	647
Excellence 700 Automatic Power System	–	680
Excellence 700 Turbo Power	618	678
Evolution IQ Intelligent Power System	–	626
Evolution 600 Automatic Power System	–	636
Evolution 600 Turbo Power	556	634
Evolution 600 Super Power	556	634
Evolution 575 Turbo Power	567	637
Evolution 500 Automatic Power System	562	630
Evolution 500 Turbo Power	560	628
Evolution 500 Super Power	504	–
Advantage 400 Automatic Power System	405	473
Advantage 400 Turbo Power	403	–
Advantage 400 Super Power	373	–
Advantage 350 Turbo Power	388	–
Advantage 350 Super Power	368	–
Ambition 250 Super Power	265	–
Lounge Turbo Power	546	–
Open Sun A.R.T. 600 Super Power	450	–
Open Sun A.R.T. 450 Super Power	547	–
Classic 300 Super Power	232	–
Classic 200 Super Power	226	–
Classic 8000 Ultra	340	–

1) all datas are round figures