



TEDDINGTON
AIR CURTAIN SYSTEMS



C - S E R I E S

THE GREEN WAY
FOR SHOP & BUSINESS

DOORS
MADE OF
AIR

Efficient, economical, intelligent.

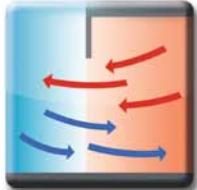
Expensive, heated air escapes through open doors. This is unpleasant and wastes a great deal of energy.

Teddington air curtain systems counteract this effect. Heat energy is retained.

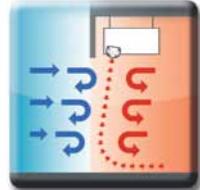
Good air conditioning. Good for your wallet. Good for the environment.



**LESS ENERGY
GREATER EFFICIENCY**



A great deal of energy gets lost through unprotected doors. Enormous savings potential exists here.



An air curtain system counteracts incoming cold air using a counterflow – an invisible air door.

The **C-Series** allows you to adapt the air curtain perfectly to suit your individual entrance situation.

The energy required to heat the room is greatly reduced using the patented **CONVERGO®** pressure chamber nozzle technology from Teddington, permitting savings of over 80% compared to entrances with no protection.

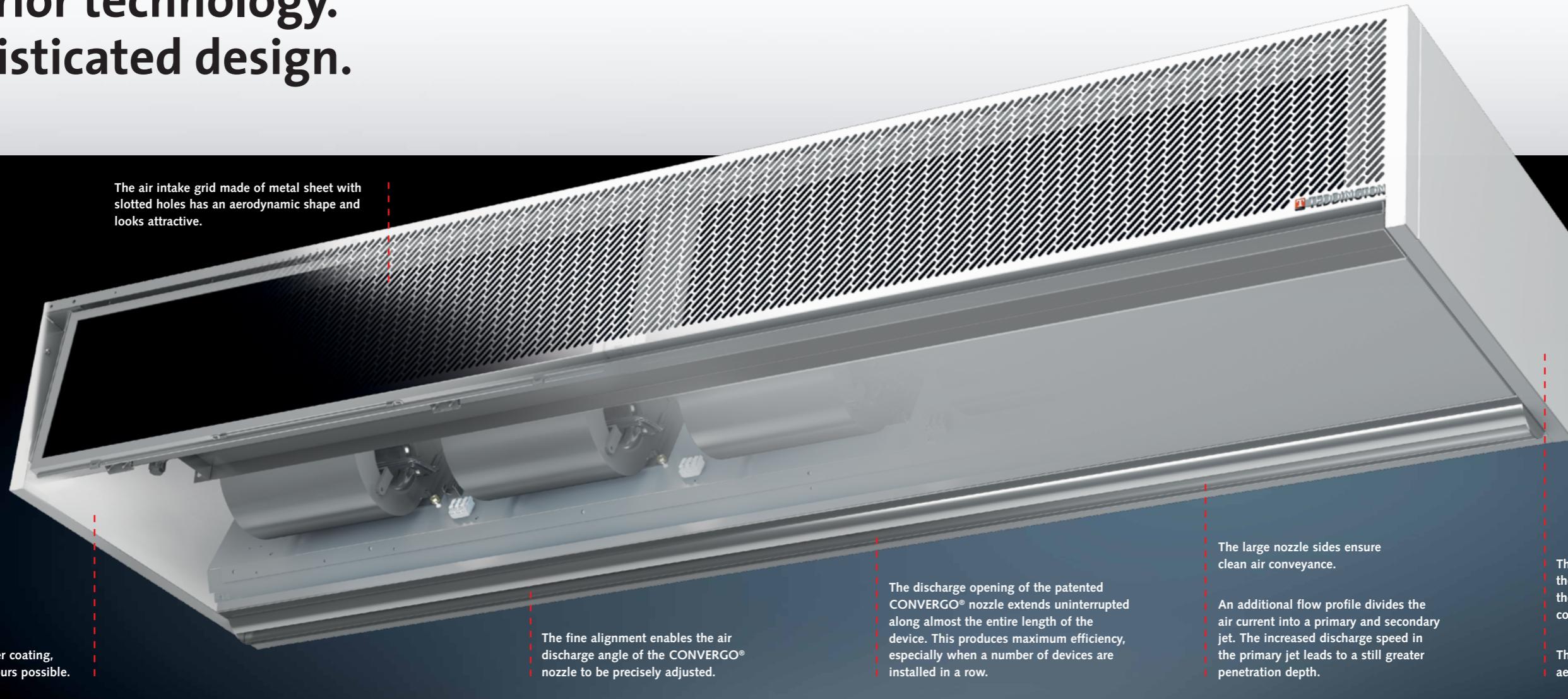
A reduction in heating energy of more than 40% is also possible compared to conventional air curtain devices with lamella technology.



The air discharge angle on the nozzle can be finely adjusted, enabling the air curtain to be adapted to suit local conditions.

- Energy-saving
- Good air-conditioning
- Improved sales psychology
- Environmental protection

Superior technology. Sophisticated design.



The **C-Series** sets new benchmarks in efficacy, energy efficiency and functional performance.

Future-oriented technology, high quality and workmanship, the greatest flexibility and trendsetting design make the **C-Series** a reliable all-rounder for all requirements and every situation.

Devices in the **C-Series** are available with energy-saving EC fans with variably adjustable controller. This optimises use and increases savings.

- Self-supporting, CNC-manufactured sheet steel housing
- With the patented **CONVERGO®** nozzle technology, energy savings of more than 80% are possible compared to entrances with no protection
- Available in 5 lengths
- 2 performance categories and 3 models to choose from
- Concentrated, homogeneous air jet with high discharge range
- Individually adjustable air discharge angle
- A concentrated air curtain/air jet is created along the entire width of the device using the **CONVERGO®** pressure chamber nozzle system

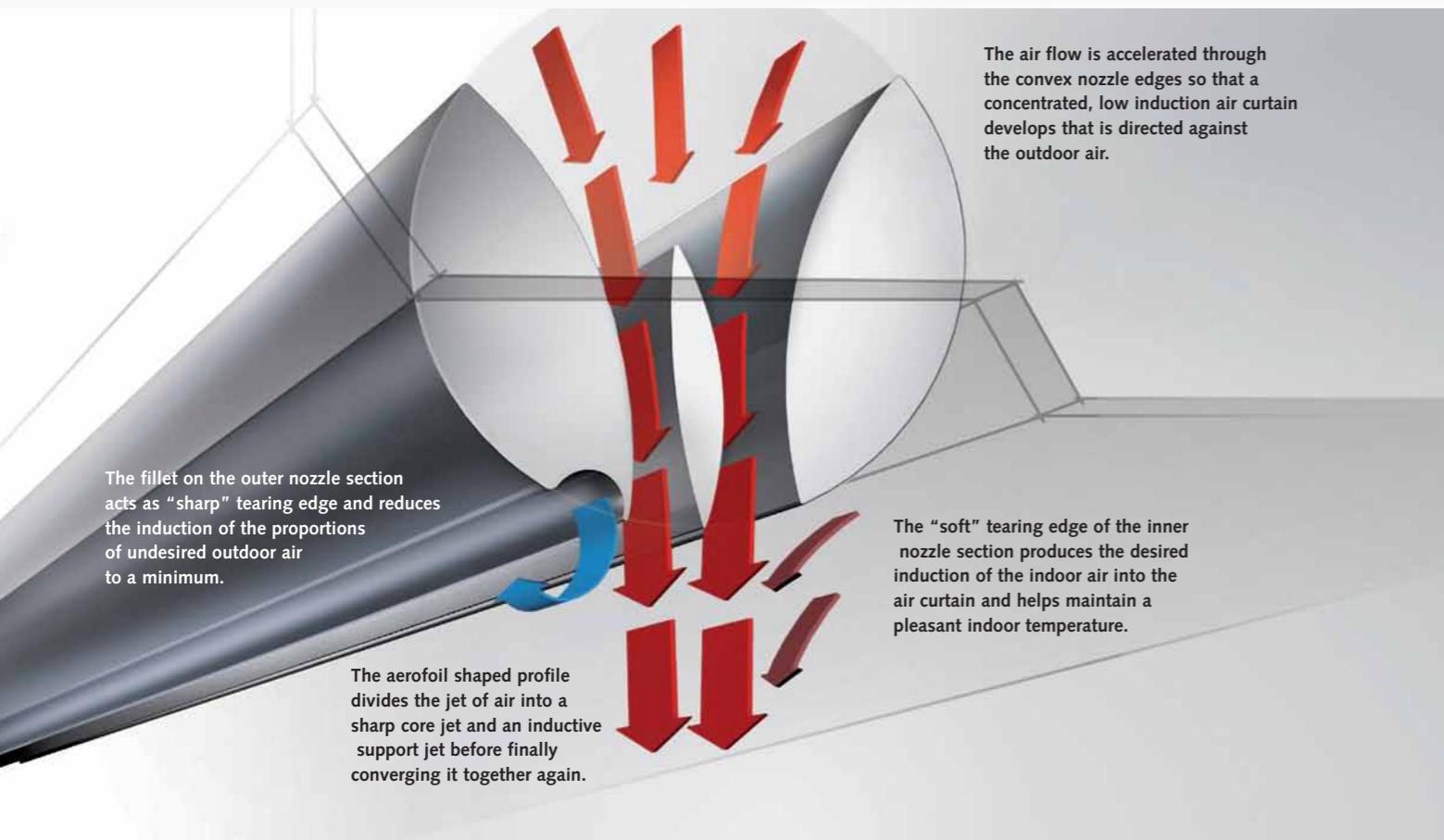


No problem changing the filter

Filter maintenance can be performed in a few simple steps using a separate flap which can be opened without tools. This technology rules out any accidental contact with functional elements from the start.

- Energy efficient**
- Quiet operation**
- Low maintenance**
- Simple operation by means of variably adjustable (EC fans), 5 or 3 stage controllers**
- Quality – Made in Germany**

CONVERGO® – Maximum efficiency.



With the patented **CONVERGO®** pressure chamber nozzle system, the air flow is compressed in the pressure chamber and distributed evenly by the nozzle across the entire discharge width.

An aerofoil shaped flow profile divides the homogeneous air flow into a primary and secondary air jet. As a result the front section of the air discharge area receives a greater volume flow rate than the rear section.

The primary jet thus accelerated is supported by the slowed down secondary jet. An air curtain is created with significantly greater penetration depth and more stable flow direction.

Considerably less air and therefore less energy is required to achieve the same screening effect as a conventional system.



The ultimate in air curtain technology.



A plus for the environment.

The nozzle makes all the difference.

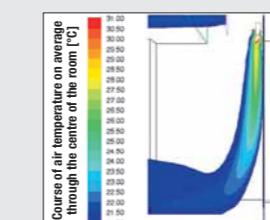
Traditional systems with conventional air conveyance guide the air current across lamella. The flow profile created is relatively turbulent and the direction of air discharge can only be adjusted to a limited extent. A high air volume and a great deal of heat energy are needed – especially in the case of large doors – to generate an adequate screening effect.

The mode of operation of air curtain systems was examined scientifically in a test chamber for a university dissertation at the Faculty of Process Engineering, Energy and Mechanical Systems of the Institute for Technical Building Equipment at the University of Applied Sciences in Cologne.

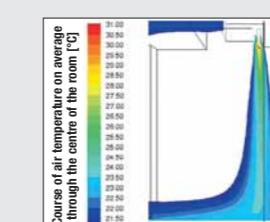
A direct system comparison was also made between a conventional device with lamella technology in the air discharge area and a device with an **EVOLVENT®** nozzle.

Through further developing this system into the **CONVERGO®** nozzle, Teddington has significantly further increased the effect. After many years of work, this system was ready to patent.

The displays of the respective temperature curve clearly show that the lower area of the air roll of the lamella device is pressed inwards from outside by the draught of air:



By contrast, the air roll of the nozzle device remains stable down to the bottom:



In order to stabilise the air roll of the lamella device to achieve the same screening effect as the nozzle, the device had to be operated at a much higher volume flow. This in turn led to increased consumption of heat energy.

System comparison
(equal screening performance)



Conventional system*



Pressure chamber nozzle system**

Air intake temperature	20 °C	20 °C
Air discharge temperature	37 °C	37 °C
Air volume	5400 m³/h	3000 m³/h
Heating energy requirement	31,4 kW	19,5 kW
Amortisation period	2,5 Years	2 Years

* Comparison model with conventional air conveyance by means of lamella (at installation height of 3.0 m, door width 2.0 m and 1.3 m/s screening effect).

** Comparison model C 2-200 (at installation height of 3.0 m, door width 2.0 m and 1.3 m/s screening effect at power setting 4 of 5).



To achieve the optimal result we repeatedly tested the **CONVERGO®** nozzle in a wind tunnel until the shape and position of the section were perfect.



The energy saved using the **CONVERGO® pressure chamber nozzle system** compared to conventional systems ensures rapid amortisation.

The investment pays for itself quickly. The operating costs are reduced permanently.

It all depends on the situation.

An important consideration when selecting the right design of air curtain system is knowing and assessing the building situation.

Two different types of installation are used, depending on whether there is excess pressure or constant pressure, and low or high exposure to wind. These are **IDW installation** where the air roll rotates inwards and **ADW installation** where it rotates outwards.

Various device variations exist within these two types of installation, offering the opportunity to achieve the optimum effect for the building situation concerned.

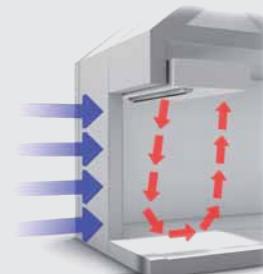
IDW installation

(air roll rotating inwards)

Air is sucked in from the direction of the building and discharged above the door. This creates an air roll whose direction of rotation is directed into the room. This IDW method for installing an air curtain system is in principle the most favourable method in terms of energy.

Preferred application area:

To equalise pressure or where there is excess pressure. For small and medium-sized buildings where no employees are permanently stationed in the door area.



IDW installation:
Air roll rotating inwards.

ADW installation

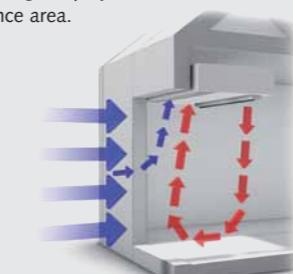
(air roll rotating outwards)

Air is sucked in above the door and the discharge nozzle in the building. This creates an air roll whose direction of rotation is directed outside, counteracting the cold air flowing into the building. This achieves a marked increase in the screening performance.

There is less air movement in the entrance area. As a result of the lower temperatures in the air intake area, the heat output is greater than with IDW installation. A frost protection thermostat should be provided with ADW installation.

Preferred application area:

Where there is low pressure, high wind, multi-storey or large building, employees are working in the entrance area.



ADW installation:
Air roll rotating outwards.

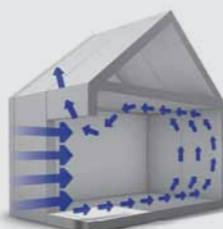
Reference values

- Establish which building situation applies (A, B or C).
- Check the discharge height at which the system will be installed.
- You can see the likely screening performance of the C-Series 1 or 2 for both **IDW installation** (air roll rotating inwards) and **ADW installation** (air roll rotating outwards) in the adjacent diagram.
- The necessary screening will depend on meteorological and building-related factors. Examples of these are direct and strong wind load, an entrance shielded by streets or across the general wind direction etc.

Note: air current should be measured at different wind pressures.

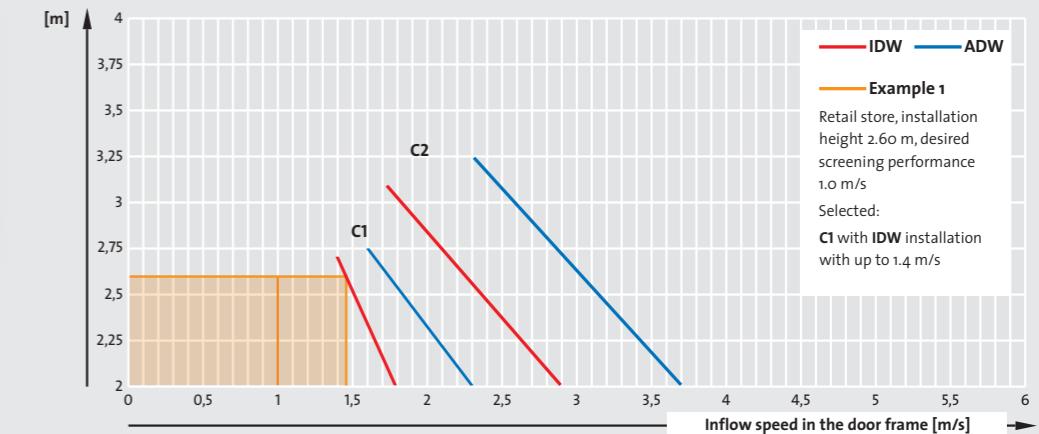
Thrust and thermals based on the example of different building situations

Building situation A

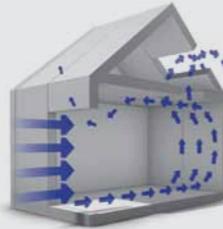


Door surfaces are on one side of the building.
No notable possibilities to discharge air through thermal or chimney effect.

Air discharge height at entrances which are the same height or lower

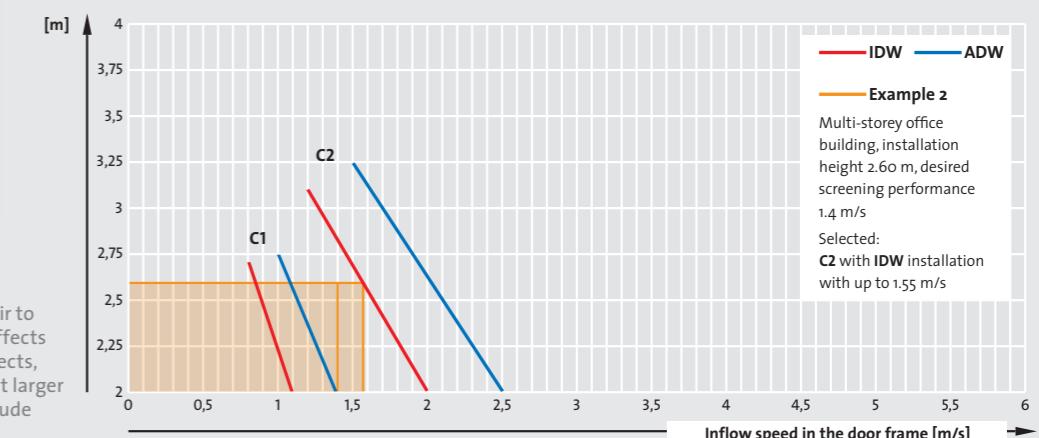


Building situation B

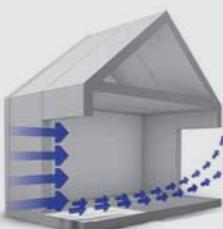


Door surfaces are on one side of the building.
Possibilities exist to discharge air to upper floors through thermal effects or outside through chimney effects, across surfaces whose size is not larger than half the door surface (altitude not taken into consideration).

Air discharge height at entrances which are the same height or lower

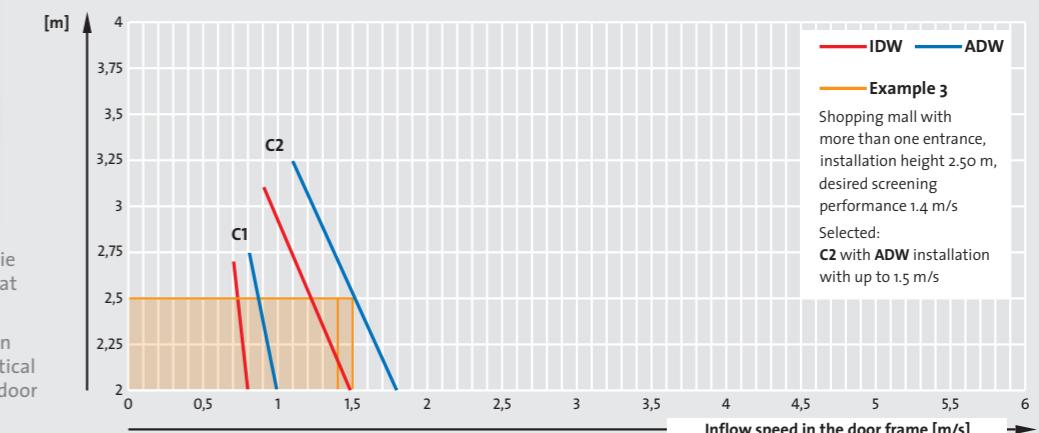


Building situation C



Unscreened door surfaces also lie on other sides of buildings, e.g. at the side or opposite.
The size of the surface which can be used for air discharge is identical to or larger than the size of the door surface to be screened.

Air discharge height at entrances which are the same height or lower



Series	C1					C2				
Overall width [cm]	100	150	200	250	300	100	150	200	250	300
Max. installation height [m]	2,75					3,25				
Max. air discharge speed [m/s]	10,8					12,5				
Nominal flow rate [m ³ /h]	1.960	2.940	3.920	4.900	5.880	1.960	3.920	4.900	5.880	6.860
Actual flow rate [m ³ /h]	1.500	2.250	3.000	3.750	4.500	1.700	3.000	3.750	4.500	5.250
Max. sound level [dB]	55	56	58	60	61	55	56	59	61	62
Weight Model S [kg]	46	65	84	103	122	46	69	88	107	126
Weight Model U [kg]	55	77	98	120	141	55	81	102	124	145
Weight Model Z [kg]	60	84	107	131	155	60	88	111	135	159
Electrical data for fans										
AC technology										
Voltage, frequency [V/Hz]	230/50									
Output [kW]	0,46	0,69	0,92	1,15	1,38	0,46	0,92	1,15	1,38	1,61
Power consumption [A]	2,10	3,15	4,20	5,25	6,30	2,10	4,20	5,25	6,30	7,35
EC technology										
Voltage, frequency [V/Hz]	230/50									
Output [kW]	0,33	0,50	0,66	0,83	0,99	0,33	0,66	0,83	0,99	1,16
Power consumption [A]	2,40	3,60	4,80	6,00	7,20	2,40	4,80	6,00	7,20	8,40
Technical data for heater battery										
LTHW 70/50°C at an air intake and air discharge temperature of 20/37°C										
Heat output [kW]	9,3	14,0	18,6	23,3	28,0	10,6	18,6	23,3	28,0	32,6
Flow rate [m ³ /h]	0,40	0,60	0,80	1,00	1,20	0,45	0,80	1,00	1,20	1,40
Water resistance [kPa]	1,17	1,23	1,81	2,43	3,84	1,51	2,01	2,50	3,03	5,14
LTHW 70/50°C at an air intake and air discharge temperature of 10/35°C										
Heat output [kW]	12,4	18,5	24,7	30,9	37,1	14,0	24,7	30,9	37,1	43,3
Flow rate [m ³ /h]	0,53	0,80	1,06	1,33	1,59	0,60	1,06	1,33	1,59	1,86
Water resistance [kPa]	2,65	3,01	4,80	6,49	11,42	3,06	4,22	6,26	8,08	13,76
LTHW 60/40°C at an air intake and air discharge temperature of 20/32°C										
Heat output [kW]	6,6	9,9	13,2	16,5	19,7	7,5	13,2	16,5	19,7	23,0
Flow rate [m ³ /h]	0,28	0,42	0,57	0,71	0,85	0,32	0,57	0,71	0,85	0,99
Water resistance [kPa]	0,71	0,86	1,47	2,04	3,74	0,85	1,21	1,91	2,54	4,49
Pipe connections										
Flow/return flow [inches]	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Electrical heater battery										
Level 1/2/3 [kW]	3/6/9	4,5/9/13,5	6/12/18	8/16/24	9/18/27	4/8/12	6/12/18	8/16/24	9/18/27	12/24/36
dt max. [K]	16,7	16,7	16,7	17,9	16,7	19,7	16,7	17,9	16,7	19,1

Design

CNC manufactured sheet steel housing in a modern design, powder coated in RAL 9010 (pure white) or in a chosen colour.

Effective air conveyance by means of the **CONVERGO®** pressure chamber nozzle system, which generates a concentrated, low induction air flow across the entire air discharge width.

Energy savings of more than 40% are possible compared to conventional lamella devices and even more than 80% compared to entrances with no protection.

The screening efficiency is significantly boosted by the ability to move the nozzle and therefore the air discharge direction.

Manufactured in accordance with DIN EN ISO 9001:2008.

Servicing

Inspection flap on the underside of the device, with hinges on one side, opened with quick release fasteners. Filter cassettes (Grade G2) with aluminium frame, easily removable via a separate flap, ensure a constantly high level of heat transfer and durability of the device.

Fans

Vibration-free mounted, double-sided air intake radial flow fans with 230 V / 50 Hz AC motors, directly driven, multiple blades, quiet operation with high outlet pressure. Full motor protection via external thermal contacts. Actuation using a 5-stage transformer installed in the device as standard.

Optionally available with extremely efficient EC fans for maximum air output and minimum energy consumption.

Mounting

Simple mounting of the device by means of M 10 internal thread on the top of the housing and optional mounting material.

Water-heated model

Heat exchanger made of Cu/AL for heat exchanger model, Cu accumulator, connections with internal thread 3/4", secured to prevent twisting.

Electrically heated model

Electrical heater battery with resistant heating elements, corrosion-resistant with spiral lamella and thermal overheating protection.

Controller

A range of 5 different electronic controllers and extensive accessories for heat control are available to facilitate individual control comfort.

Order key for the C-Series**C = Article**

1 = Series (power setting)

2 = Series (power setting)

S = Visible device

U = Visible device or device installed in ceiling recesses

Z = Device installed in suspended ceiling

100, 150, 200, 250, 300 = overall width in cm

N = Low temperature hot water 80/60 °C - 60/40 °C

NNT = Low temperature hot water 45/35 °C

E = Electrical heater battery

K = Without heat exchanger

9010 = in RAL 9010. Other colours possible

C 1-S-100 N 9010 = Example

Subject to technical changes.

TLC 700 The intelligent controller for complex systems



With the TLC 700 controller you can precisely adapt your Teddington air curtain system to suit the most diverse requirements.

You can see your system with actual status in real time on the touch display and have all functions and parameters clearly in view.

This makes the programming and setting of the wide-ranging functions and options extremely simple and intuitive.

An installation assistant guides you through the menu and supports you with commissioning. An information button is available for every function so that you can access all information quickly.



*Sophisticated technology
and user-friendly
intelligence*

Subject to technical change.

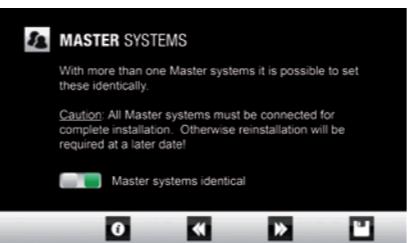


The TLC 700 is freely programmable as electronic remote control for 5-stage or infinitely adjustable activation of Teddington air curtain systems.

Multifunctional

With its multi-device capability, the TLC 700 as central controller can regulate up to 9 units in parallel or individually.

All using a single control unit with touchscreen. This avoids the need to procure and install several control units, saving time and money.



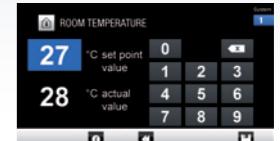
Every Master unit can be differently and individually programmed using the controller. Setting can also be assumed for all Master units. This means a multitude of configurations can be realised, which can be precisely adapted to building requirements.

Perfect integration

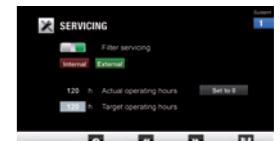
The new TLC 700 controller can be integrated in all building management systems via coupling modules. It is therefore possible to incorporate the air curtain devices in the overall concept for the heating and air conditioning technology and the fire protection and safety technology.

Subject to technical change.

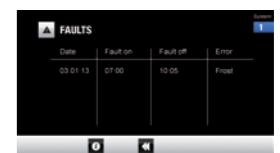
Each function – perfectly thought through



Integrated room temperature sensor to control the heating function and display the current room temperature.



Integrated filter monitoring which can easily be adapted on site to suit operating conditions.



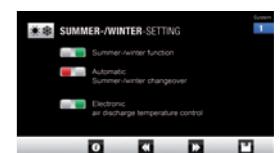
Retrieval of error messages by means of an error memory with battery back-up for remote diagnosis.



Integrated clock with freely selectable programming of switching times for enabling or automatic mode and date display.



Key lock with adjustable code can be activated.



Summer/winter function, activation of solenoid valve and/or pump. Automatic summer/winter changeover by means of outside temperature sensor and electronic air discharge temperature control.

Thermostats

FTE frost protection thermostat

To safeguard hot water heater batteries, with capillary tube sensor, capillary tube length 3 m, intrinsically safe, pre-installed in the device as single-pole potential-free toggle, protection class IP 30.


FTM electronic frost protection thermostat

Only in combination with our electronic controllers. With capillary tube sensor, capillary tube length 0.9 m, protection class IP 30, pre-assembled in the device, only suitable for low voltage (open contacts).


ERT electromechanical room air thermostat

5 - 30°C with bimetal, pure white (similar to RAL 9010), switching capacity 230 V AC, 50...60 Hz, toggle (changeover) 10 (4 = inductive load) A, differential gap 0.5 K, protection class IP 30, air humidity 0...95 % non-condensing, operating temperature 0...40°C, thermal feedback, dimensions 75 x 75 x 25 mm.

Repair switches

REP-S repair switch

For switching the system off using the software. Only in combination with our electronic controllers. Switch pre-assembled in the device behind the inspection cover.


REP-L repair switch

3-pole repair switch in surface-mounted housing, loose in accessory pack, for customer installation in the device supply line.

Door contacts

TK model door contact

Protection class IP 65, jump feed with H-jumpers and full contact up to the changeover point, touch-proof connecting terminals in accordance with VDE 0106 Part 100 (VBG 4), cable entry 2 x PG 13.5, at the bottom and the side, switching voltage 230 V AC, 24 V DC, switching current 6 A AC, 4 A DC.


TKB model door contact

Contactless door contact in protection class IP 00, consisting of reed contact and permanent magnet for working current circuits (contact open when magnet is applied), switching voltage 100 V DC, switching current 250 mA DC.

Control/shut-off and solenoid valves

Model KR 2-E DN 20 built-in thermostatic control valve

Thermostatic control valve (angle valve) KR-2 with thermostatic head, for regulation of a constant air discharge temperature, completely installed. Special valve to control especially high volumes of water. kvs value 7.0, length of capillary tube sensor 2 m, connection DN 20.


Model KR 2-L DN 20 thermostatic control valve

Thermostatic control valve (straight way valve) KR-2 with thermostatic head, for regulation of a constant air discharge temperature, loose in accessory pack. Special valve to control especially high volumes of water. kvs value 5.0, length of capillary tube sensor 2 m, connection DN 20.


Model KR 3-L DN 20/25/32 thermostatic control valve

Thermostatic control valve (three way valve) KR 3-L with thermostatic head, for regulation of a constant air discharge temperature, loose in accessory pack. Special valve to control especially high volumes of water. Length of capillary tube sensor 2 m, DN 20 kvs 4.5, DN 25 kvs 6.5, DN 32 kvs 9.5.


Model TAV thermoelectric shut-off valve

230 V, normally closed, loose in accessory pack, for shutting off water via summer/winter switch or to regulate water flow rate volumes with customer actuator. Special valve to control especially high volumes of water. kvs value 5.0. Connection DN 20.


Model MR 2-E DN 20 built-in control valve

Control valve (angle valve) MR 2, with electric actuator to adjust a constant air discharge temperature, including air discharge temperature sensor, completely installed and wired. The type MR-2 control valves are special valves to regulate especially high volumes of water; kvs value 7.5. Connection DN 20.


MV solenoid valve

230 V, normally closed, gentle closing, for shutting off water via the summer / winter switch, loose in accessory pack. DN 20 kvs 11; DN 25 kvs 13; DN 32 kvs 30.

Brackets

DH ceiling bracket

Mounting bracket, vibration damper, 1 m threaded rods, locknut and counter nut, anchor bolt, minimum space requirement 0.1 m, suspension length 1 m (number of units depends on device length and model)


DHD deluxe ceiling bracket

Mounting bracket, vibration damper 17 dB, turnbuckle, right-left grub screw, 1 m threaded rods, locknut and counter nut, drive-in dowel, minimum space requirement 0.2 m, suspension length 1.1 m (number of units depends on device length and model).

We will be happy to advise you if you have any questions about our extensive range of accessories.



TEDDINGTON
LUFTSCHLEIERANLAGEN

Our innovations have set new benchmarks in air curtain technology and offer our customers not only convenient solutions, but also first and foremost the opportunity to save a great deal of energy and money.

In doing so we also make a substantial contribution to environmental protection.

IGREENtec®

-  **Nozzle technology**
-  **Highly efficient motors**
-  **Low temperature heat exchangers**
-  **Intelligent controllers**

Teddington Luftschieieranlagen GmbH
Industriepark Nord 42 · D-53567 Buchholz (Mendt)
Phone +49 (2683) 9694-0 · Fax +49 (2683) 9694-50
info@teddington.de · www.teddington.de

