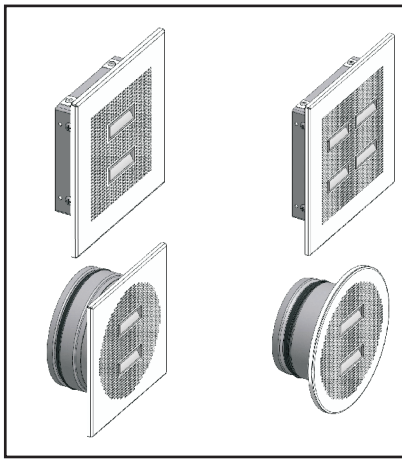


Air diffusion systems

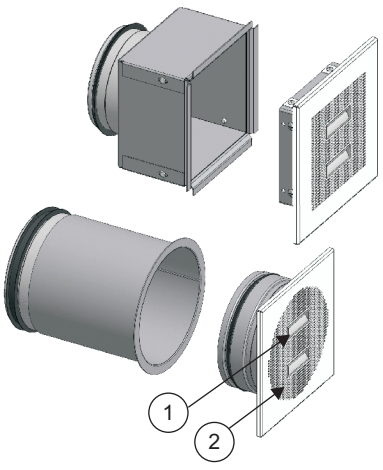
Wall supply air duct BKZ

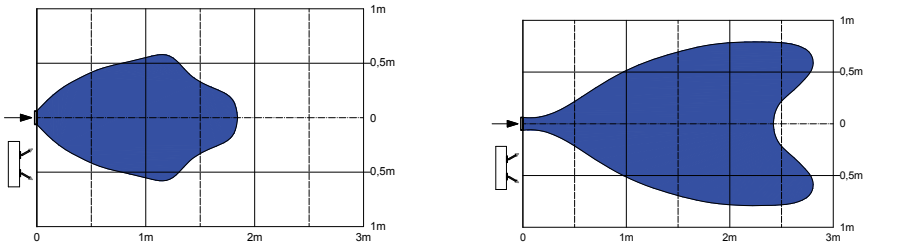
Application

The supply air duct BKZ serves as mixed air duct for draught-free and extremely low-noise supply of air in smaller rooms such as living or office rooms as well as hotel rooms. It is applied as wall duct depending on installation size for
volume flows of 40 to 120 m3/h. Its advantages, next to the low sound level, are its variable flow profile which can be adjusted to the room geometry in direction and trajectory length with various jet types and settings. Temperature differences of 6K for heating and cooling are achieved. The duct ensures compliance with the requirements according to DIN EN 13779.

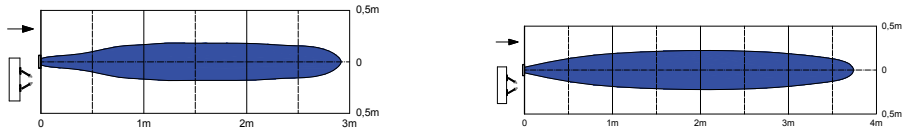
Structure

The air exhaust unit of the supply air duct BKZ consists of flow-enhancing rectangular nozzles (1), which are integrated in a perforated plate (2). The nozzle blocks can be set to blow parallel, against each other or in opposite directions.
The duct unit is located in a square or round connection element which is flush with the wall on the front and has a supply air nozzle at the back. The duct culvert unit is held in the connection element either by spring clips or a rubber lip seal.

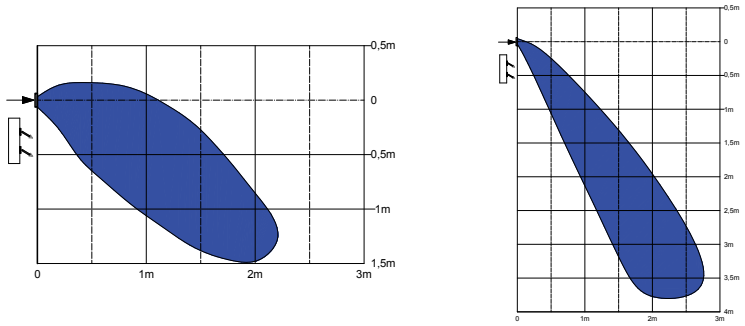




Nozzle blocks blowing in opposite directions



Nozzle blocks blowing against each other



Nozzle blocks blowing parallel

Flow pattern BKZ 100 (left) at volume flow of 60 m³/h and BKZ 125 (right) at 120 m³/h, Isovele 0.2 m/s

Function

The volume flow entering the room is composed from the component flowing in through the nozzle and that of the perforated plate. The component via the nozzles determines the flow pattern through arrangement and direction of the nozzles.

Installation

The installation occurs by inserting the square junction box or the cylindrical installation frame in the wall and the connection of the rear supply air nozzle to the air distribution system. The duct culvert unit itself is inserted subsequently and held by spring clips or a rubber lip seal. In case of the round connection nozzle the direct installation in existing pipes is also possible.

Wall supply air duct BKZ

Technical data

	Volume flow area [m^3/h]	Horizontal trajectory length [m]	Vertical penetration depth [m]	BKZ L_w [dB(A)]	BKZ ΔP [Pa]	BKZ-R / BKZ-RR L_w [dB(A)]	BKZ-R / BKZ-RR ΔP [Pa]
Size 100 Nozzles apart Nozzles against each other Nozzles parallel	40 - 70	1,2 - 1,8 1,8 - 2,9 1,4 - 2,2	0,28 - 0,4	15 - 31	12 - 40	18 - 35	16 - 45
Fixed nozzle F_0=40%				-1	+3 - +12	-1	+3 - +12
Fixed nozzle F_0=30%				±0	+7 - +21	±0	+7 - +21
Size 125 Nozzles apart Nozzles against each other Nozzles parallel	60 - 120	2,1 - 4,0 2,7 - 5,4 2,3 - 4,3	0,38 - 0,6	15 - 36	10 - 50	17 - 36	23 - 80
Fixed nozzle F_0=40%				±0 - +4	+4 - +14	±0 - +4	+4 - +14
Fixed nozzle F_0=30%				+2	+8 - +23	+2	+8 - +23

Illustration 1 Operating conditions and areas for various design types and sizes

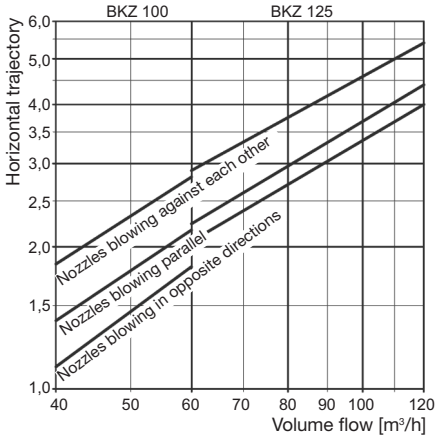


Illustration 2
Horizontal trajectory length [m] depending on the volume flow

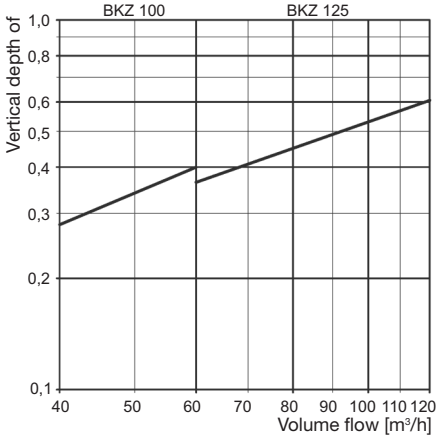


Illustration 3
Vertical penetration depth [m] depending on the volume flow

As well as the sound performance level, also the horizontal and vertical depth of penetration have to be considered when selecting the appropriate duct culvert type.
Illustration 1 shows in the overview the Outlet types at the limit value settings.
Illustration 2 and 3 show the horizontal trajectory lengths L_H and the vertical depths of penetration L_V.
Sound performance and loss of pressure are shown in illustration 5 to 10.

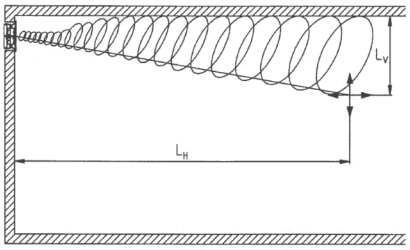


Illustration 4
Illustration of horizontal and vertical depth of penetration

Subject to technical alterations.

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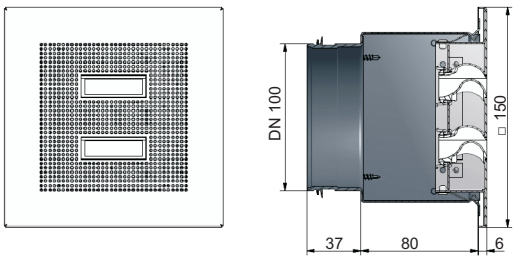
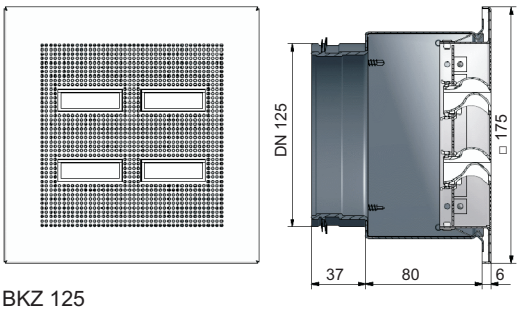
Wall supply air duct BKZ

Technical data

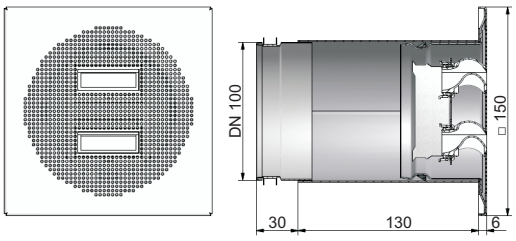
Dimensions



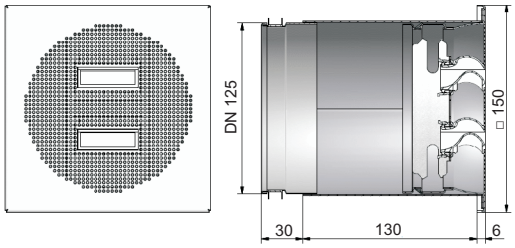
BKZ 100
Illustration 5



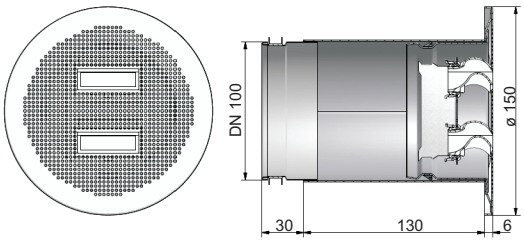
BKZ 125
Illustration 6



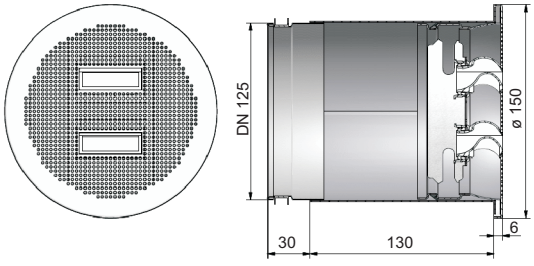
BKZ-R 100
Illustration 7



BKZ-R 125
Illustration 8

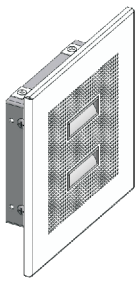


BKZ-RR 100
Illustration 9



BKZ-RR 125
Illustration 10

Sound performance level and loss of pressure



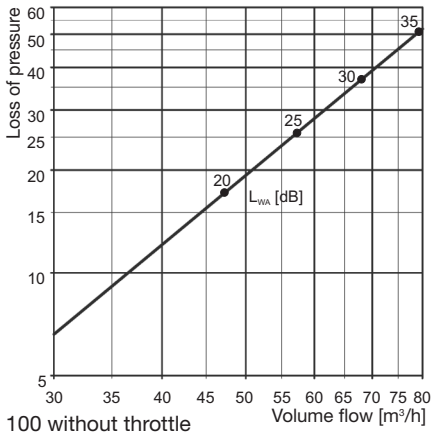
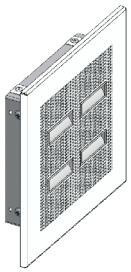


Illustration 11 BKZ 100 without throttle



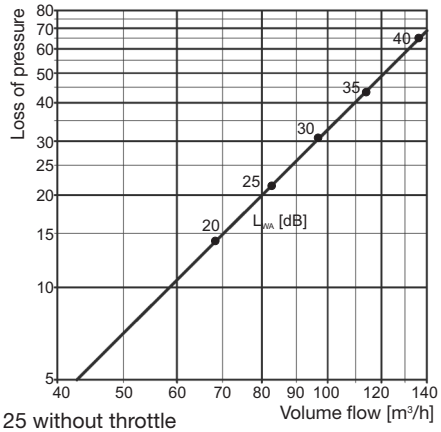
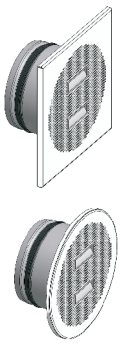


Illustration 12 BKZ 125 without throttle



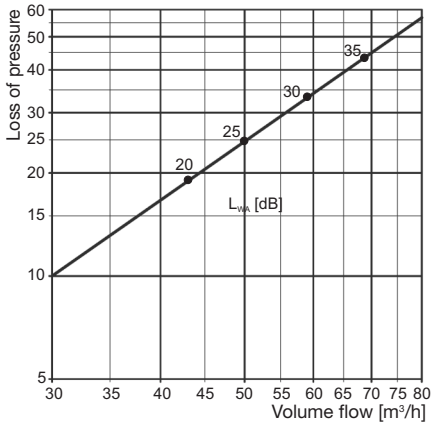
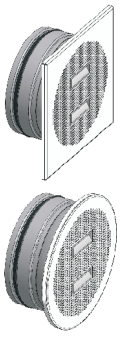


Illustration 13 BKZ-R 100 and BKZ-RR 100 without throttle



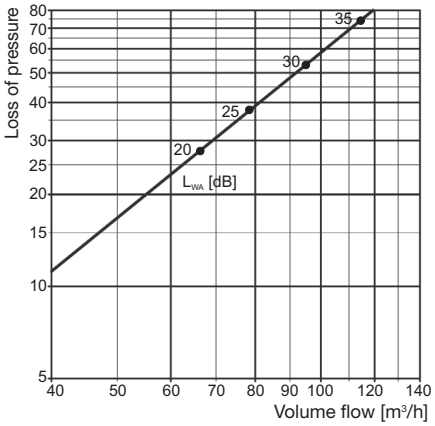


Illustration 14 BKZ-R 125 and BKZ-RR 125 without throttle

Throttle

A slit throttle in the junction box or a blower control valve in the culvert element in the BKZ-R can be supplied to throttle volume flow. However, these have the disadvantage that they increase the sound level depending on the design and the volume flow.
If really necessary, the utilisation of a special perforated plate fixed throttle with a free diameter of 30% or 40% is recommended which creates a defined loss of pressure under minimal increase of the noise level, depending on volume flow and design of the supply air duct.

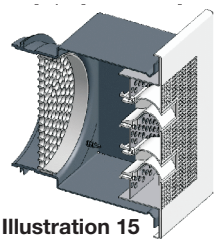


Illustration 15

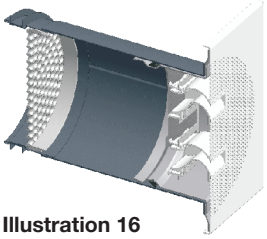


Illustration 16

Perforated plate fixed throttle in special design as insertion element for the air supply nozzle. Also suitable as refit component.
No influence on sound level in case of size DN 100. Increase of sound level by max 2 dB(A) at size 125. Illustration 15 and 16 show the increase of loss of pressure for the designs with 30% or 40% free diameter.

Wall supply air duct BKZ

Technical data

Slit throttle for BKZ with junction box

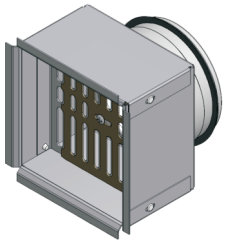
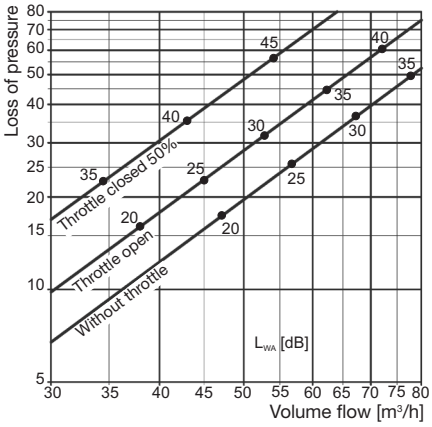
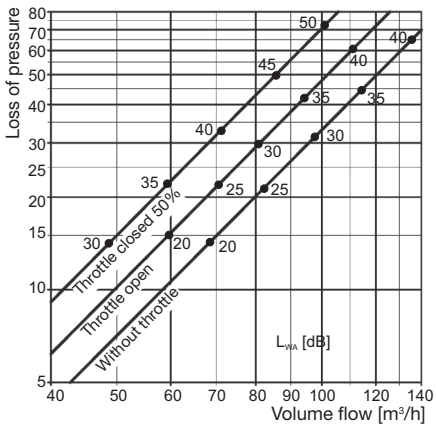


Illustration 17 and 18
Sound performance level and loss of pressure for size DN 100 (left) and DN 125 (right)





Blower control valve for BKZ with installation pipe

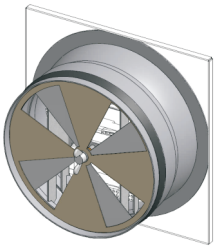
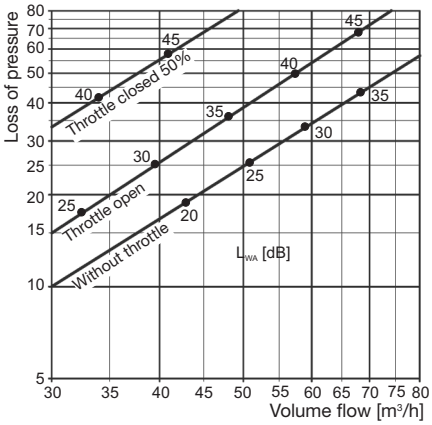
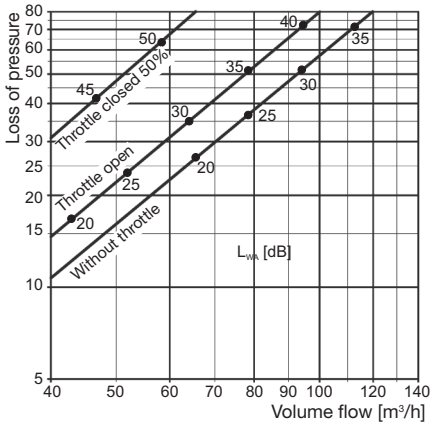


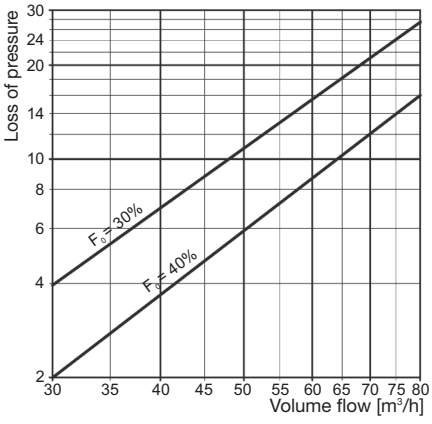
Illustration 19 and 20
Sound performance level and loss of pressure for size DN 100 (left) and DN 125 (right)

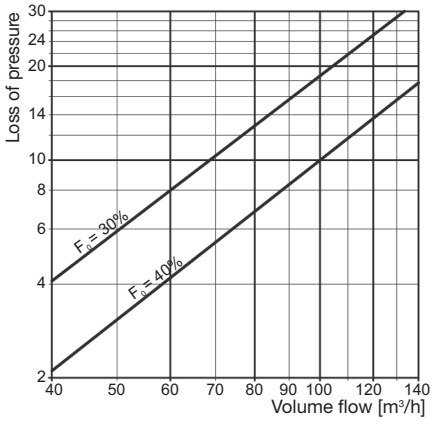




Perforated plate fixed throttle

Illustration 21 and 22
Increase of loss of pressure after volume flow, perforated plate throttle DN 100 (left) and DN 125 (right)





Tender text/Order form

Position	Description	Unit Item	Single price EUR	Total price EUR
	Wall supply air duct BKZ for draught-free and low noise supply of air in smaller rooms, consisting of the exhaust unit and a junction box and/or installation frame. The exhaust unit is held in the junction box and/or installation frame with spring clips an/or rubber lips. Exhaust unit in square or round form with 2 or 4 nozzle units, which are integrated in a perforated plate. The direction of the nozzle blocks determining the flow profile is variable. Material junction box (square): galvanised steel sheeting Material installation frame (round): powder-coated steel sheeting RAL 9005 Material exhaust unit: Front plate: powder-coated steel sheeting RAL 9010 Exhaust nozzles: ABS plastic, RAL9010 **Construction types** ☐ BZK 100 square front plate, square junction box ☐ BZK 125 square front plate, square junction box ☐ BZK 100 square front plate, round installation frame ☐ BZK 125 square front plate, round installation frame ☐ BZK-RR 100 round front plate, round installation frame ☐ BZK-RR 125 round front plate, round installation frame ☐ Exhaust angle nozzle 45° ☐ Nozzle position parallel ☐ Nozzle position apart ☐ Nozzle position against each other **Material and surface exhaust unit** ☐ Steel, powder-coated RAL 9010 ☐ Steel, powder-coated RAL _____ Horizontal trajectory lengt: ..... m Volume flow: ..... m^3/h Max. sound performance level: ..... dB(A) Make: **Strulik GmbH** Type: **Wall supply air duct BKZ**			