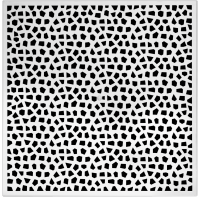
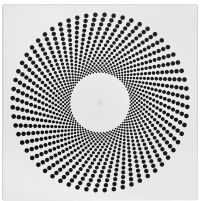


Square diffuser face with square face style



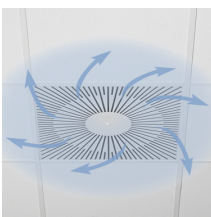
Square diffuser face with square face style



Square diffuser face with circular face style



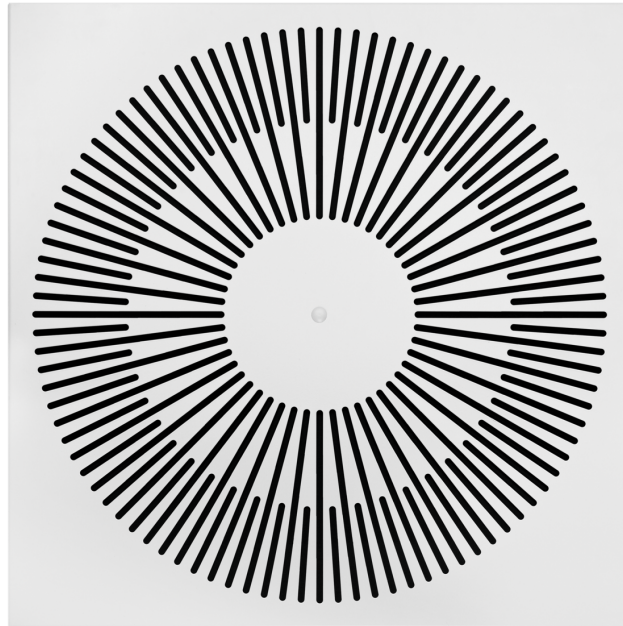
Circular diffuser face



Horizontal swirling air discharge

Ceiling diffusers

XARTO



For more refined comfort zones with special demands on architecture and design, with fixed air control blades

Circular and square ceiling swirl diffusers for high volume flow rates at low sound power levels and low differential pressure

- Nominal sizes 600, 625
- Volume flow rate range 31 – 265 l/s or 110 – 954 m³/h
- Diffuser face made of galvanised sheet steel, powder-coated
- For supply and extract air
- For variable and constant volume flows
- For all types of ceiling systems, and with an extended border also suitable for freely suspended installation
- Swirl unit inside for the best swirl effect and high induction levels
- Plenum box with acoustically optimised and lockable damper blade
- Ideal for comfort zones

Optional equipment and accessories

- Exposed diffuser face available in RAL Classic colours

General information	2	Order code	8
Function	3	Variants	9
Technical data	5	Dimensions	18
Quick sizing	5	Product details	21
Specification text	7	Nomenclature	26

General information

Application

- Type XARTO ceiling swirl diffusers are used as supply air or extract air diffusers for comfort zones
- Attractive design element for building owners and architects with demanding aesthetic requirements
- Horizontal swirling supply air discharge for mixed flow ventilation
- The efficient swirl creates high induction levels, thereby rapidly reducing the temperature difference and airflow velocity (supply air variant)
- For variable and constant volume flows
- For supply air to room air temperature differences from -12 – +10 K
- For room heights up to 4 m (lower edge of suspended ceiling)
- For all types of ceiling systems
- With an extended border also suitable for freely suspended installation (supply air variant)

Special features

- High induction results in a rapid reduction of the supply air to room air temperature difference and airflow velocity
- Separation of function and design. Various diffuser faces can be combined with a swirl element behind them
- For highest demands in design, even customer or project-specific designs are possible
- For all types of ceiling systems, and with an extended border also suitable for freely suspended installation

Nominal sizes

- 600, 625

Variants

- XARTO-Q*: Square diffuser face, square face style
- XARTO-R*: Square diffuser face, circular face style
- XARTO-C*: Circular diffuser face, circular face style
- XARTO-**-Z: Supply air
- XARTO-**-A: Extract air

Construction features

- Spigot suitable for circular ducts to EN 1506 or EN 13180
- Circular plenum boxes with horizontal spigot for nominal sizes 250, 400L, 400H and 600
 - Spigot made of black ABS
 - Spigots are fitted with a groove for a lip seal
 - Retrofitting of the lip seal is possible at a later stage
 - Damper blade and lip seal (optional) are factory fitted
 - Plenum box for supply air, with an optimised equalising element that ensures a uniform airflow through the diffuser face
- Simple installation of the diffuser face due to central fixing screw with cap
- Plenum box for supply air, with an optimised equalising element that ensures a uniform airflow through the diffuser face
- Simple installation of the diffuser face due to central fixing screw with decorative cap

Materials and surfaces

- Grille face made of galvanised sheet steel
- Swirl unit, spigot and damper blade made of ABS plastic, UL 94, V-0, flame retardant
- Equalising element made of polyester
- Diffuser face coated RAL 9010, pure white
- P1: Powder-coated, RAL Classic colour

Standards and guidelines

- Sound power level of the air-regenerated noise measured according to EN ISO 5135

Maintenance

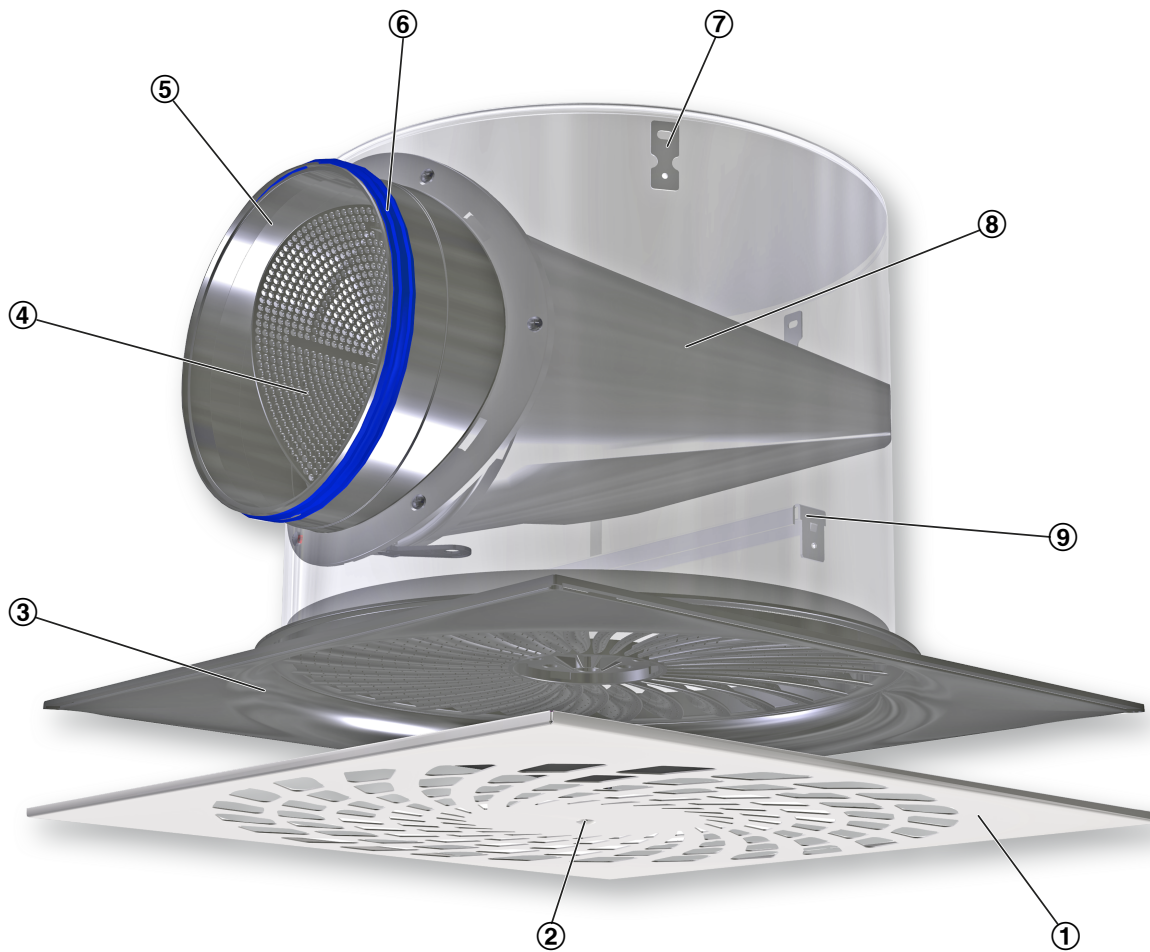
- Low maintenance as construction and materials are not subject to wear
- Inspection and cleaning to VDI 6022

Function

Ceiling swirl diffusers in air conditioning systems create a swirl to supply air to rooms. The resulting airflow induces high levels of room air, thereby rapidly reducing the airflow velocity and the temperature difference between supply air and room air. Ceiling swirl diffusers allow for large volume flow rates. The result is a mixed flow ventilation in comfort zones, with good overall room ventilation, creating only very little turbulence in the occupied zone. Design ceiling swirl diffusers are characterised by a diffuser face plate with a particular pattern. The swirl unit

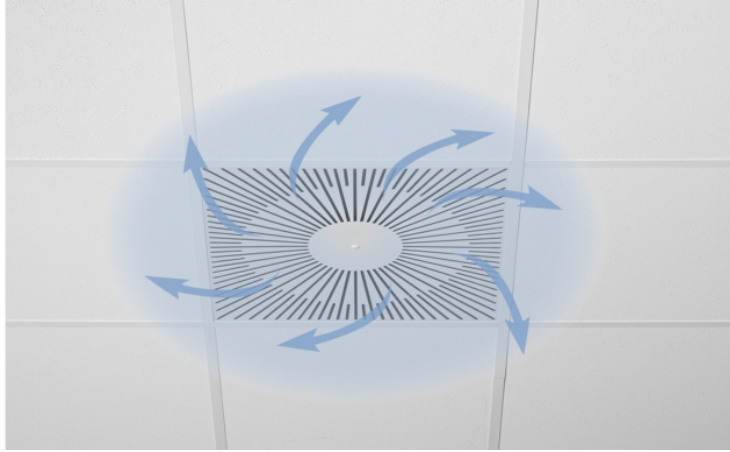
required for the swirling air discharge is situated inside the plenum box. It is therefore not visible to the room occupant. Type XARTO ceiling swirl diffusers have fixed blades. Air discharge is horizontal omni directional. The supply air to room air temperature difference can be -12 to $+10$ K. A damper blade simplifies volume flow rate balancing for commissioning. To give rooms an aesthetic, uniform look, type XARTO diffusers may also be used for extract air.

Schematic illustration of the XARTO, with plenum box for horizontal duct connection



- ① Diffuser face
- ② Central fixing screw
- ③ Swirl unit (for supply air only)
- ④ Damper blade for volume flow rate balancing
- ⑤ Spigot
- ⑥ Double lip seal
- ⑦ Suspension lug
- ⑧ Equalising element (for supply air only)
- ⑨ Cross bar

Horizontal omni directional flow



Technical data

Nominal sizes	600, 625 mm
Minimum volume flow rate, with $\Delta t_z = -6$ K	31 – 43 l/s or 110 – 155 m ³ /h
Maximum volume flow rate, with LWA \approx 50 dB(A)	220 – 265 l/s or 792 – 954 m ³ /h
Supply air to room air temperature difference	-12 – 10 K

Quick sizing

Quick sizing tables provide a good overview of the volume flow rates and corresponding sound power levels and differential pressures.

The minimum volume flow rates apply to a supply air to room air temperature difference of -6 K.

The maximum volume flow rates apply to a sound power level of approx. 50 dB (A) with damper blade position 0°.

Exact values for all parameters can be determined with our Easy Product Finder design program.

XARTO-Q*-Z (supply air), sound power level and total differential pressure

①	qv [l/s]	qv [m ³ /h]	0°		45°		90°	
			Δp_t [Pa]	LWA [dB(A)]	Δp_t [Pa]	LWA [dB(A)]	Δp_t [Pa]	LWA [dB(A)]
Q1	39	142	2	<15	3	<15	5	<15
Q1	100	360	11	19	18	20	33	33
Q1	160	576	29	32	46	33	85	47
Q1	260	936	77	50	122	52	224	77
Q2	38	137	2	<15	3	<15	5	16
Q2	105	378	13	21	20	24	36	36
Q2	175	630	36	35	56	37	101	50
Q2	255	918	76	50	118	51	215	68
Q3	42	151	2	<15	3	<15	6	<15
Q3	115	414	14	22	23	24	42	37
Q3	185	666	37	37	59	38	108	52
Q3	258	930	72	50	115	50	211	65
Q4	34	124	1	<15	2	<15	4	<15
Q4	105	378	13	22	20	22	34	32
Q4	175	630	37	37	56	37	96	50
Q4	245	882	73	50	110	51	187	62
Q5	42	150	2	<15	3	<15	5	<15
Q5	115	414	14	22	23	24	41	36
Q5	190	684	38	37	62	39	112	56
Q5	265	954	75	50	120	52	217	76
Q6	43	155	2	<15	3	<15	6	<15
Q6	120	432	16	23	25	25	46	38
Q6	190	684	39	37	63	38	116	54
Q6	260	936	73	50	117	51	217	73

① Diffuser face

XARTO-R*-Z, XARTO-C*-Z (supply air), sound power level and total differential pressure

①	qv [l/s]	qv [m³/h]	0°		45°		90°	
			Δpt [Pa]	LWA [dB(A)]	Δpt [Pa]	LWA [dB(A)]	Δpt [Pa]	LWA [dB(A)]
C1, R1	38	138	2	<15	3	<15	5	<15
C1, R1	105	378	13	24	19	24	34	34
C1, R1	170	612	33	38	50	38	89	50
C1, R1	240	864	66	50	99	51	178	64
C2, R2	38	138	2	<15	2	<15	4	<15
C2, R2	105	378	12	23	19	23	33	32
C2, R2	170	612	32	36	49	37	86	49
C2, R2	240	864	65	50	97	50	172	66
C3, R3	38	136	2	<15	2	<15	4	<15
C3, R3	105	378	13	23	19	23	33	33
C3, R3	170	612	33	37	49	37	85	50
C3, R3	240	864	65	50	98	51	170	67
C4, R4	31	110	1	<15	2	<15	3	<15
C4, R4	95	342	12	23	17	22	27	28
C4, R4	155	558	31	37	44	37	73	46
C4, R4	220	792	63	50	89	51	147	62
C5	38	138	2	<15	3	<15	4	<15
C5	110	396	14	26	25	25	37	31
C5	180	648	37	39	66	40	98	48
C5	250	900	72	51	128	52	189	62
C6	38	138	2	<15	2	<15	4	<15
C6	110	396	14	26	18	26	35	31
C6	180	648	36	39	48	39	95	48
C6	250	900	70	50	93	51	182	61

① Diffuser face

Specification text

This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design program.

Specification text

Design ceiling swirl diffusers with square or circular diffuser face, for comfort zones with particularly demanding requirements of aesthetics and design. For supply air or extract air. Excellent aerodynamic and acoustic function due to swirl unit with optimised aerofoil contours, for horizontal swirling air discharge, creating high levels of induction. For installation in suspended ceilings of all kinds. Ready-to-install component which consists of the casing, diffuser face, swirl unit, spigot, and a cross bar to which the diffuser face is fixed. Diffuser face fixing with central screw to the cross bar, concealed by a decorative cap. Spigots are suitable for ducting according to EN 1506 or EN 13180.

Sound power level of the air-regenerated noise measured according to EN ISO 5135.

Special features

- High induction results in a rapid reduction of the supply air to room air temperature difference and airflow velocity
- Separation of function and design. Various diffuser faces can be combined with a swirl element behind them
- For highest demands in design, even customer or project-specific designs are possible
- For all types of ceiling systems, and with an extended border also suitable for freely suspended installation

Materials and surfaces

- Grille face made of galvanised sheet steel
- Swirl unit, spigot and damper blade made of ABS plastic, UL 94, V-0, flame retardant
- Equalising element made of polyester
- Diffuser face coated RAL 9010, pure white
- P1: Powder-coated, RAL Classic colour

Technical data

- Nominal sizes: 600, 625
- Minimum volume flow rate, with $\Delta t_z = -6$ K: 31 – 43 l/s or 110 – 155 m³/h
- Maximum volume flow rate, at LWA \cong 50 dB(A): 220 – 265 l/s or 792 – 954 m³/h
- Supply air to room air temperature difference: -12 to +10 K

Order code

XARTO – R1 – Z / 625 / P1 - RAL ...
 | | | | |
 1 2 3 4 5

1 Type

XARTO Swirl diffuser

C4
C5
C6

2 Construction style

Square diffuser face – circular face style

R1
R2
R3
R4

3 System

Z supply air
A extract air

Square diffuser face – square face style

Q1
Q2
Q3
Q4
Q5
Q6

4 Nominal size [mm]

600 □Q, ØD
625 only □Q

Circular diffuser face – circular face style

C1
C2
C3

5 Surface

No entry required: powder-coated RAL 9010, pure white
P1 powder-coated, specify RAL CLASSIC colour

Gloss level

RAL 9010 50 %
RAL 9006 30 %
All other RAL colours 70 %

Order example: XARTO-Q6-Z/600/P1-RAL 9006

Style

Square diffuser face, square face style

Air conditioning system

Supply air

Nominal size

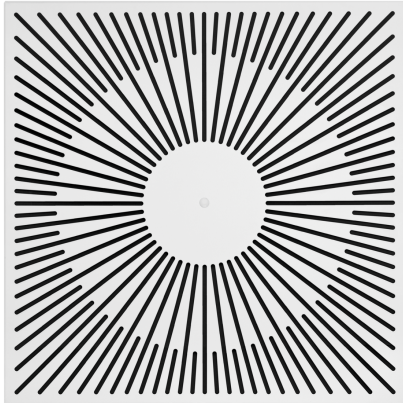
600

User interface

RAL 9006, white aluminium, gloss level 30%

Variants

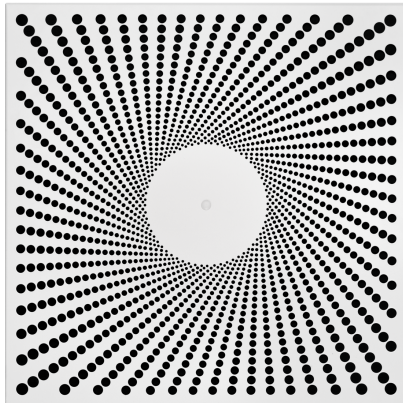
XARTO-Q1



Nominal sizes

- 600, 625
-

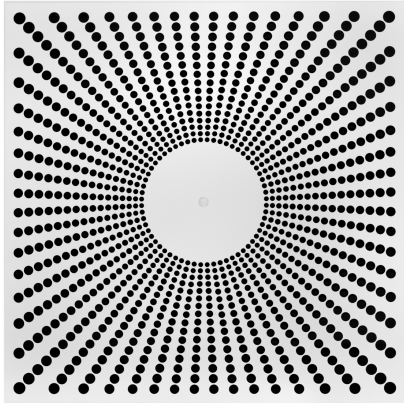
XARTO-Q2



Nominal sizes

- 600, 625
-

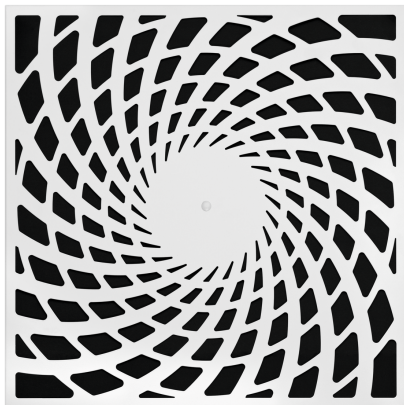
XARTO-Q3



Nominal sizes

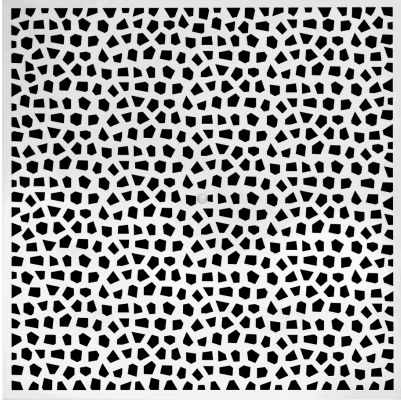
- 600, 625
-

XARTO-Q4

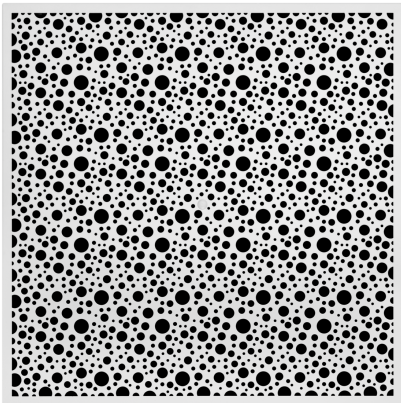


Nominal sizes

- 600, 625
-

XARTO-Q5**Nominal sizes**

- 600, 625
-

XARTO-Q6**Nominal sizes**

- 600, 625

Variants

- Square diffuser face, square face style
- Plenum box for horizontal duct connection
- Circular opening to accommodate the diffuser face
- Optimised equalising element that ensures a uniform airflow through the diffuser face (supply air variant)
- Damper blade for volume flow rate balancing, can be set in 15° intervals between 0 and 90°

Nominal sizes

- 600, 625

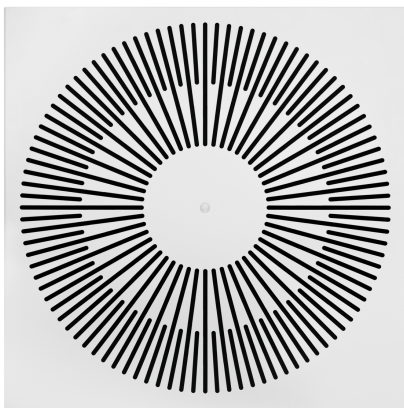
Parts and characteristics

- Square diffuser face
- Spigot with double lip seal

- Simple installation of the diffuser face due to central fixing screw with decorative cap

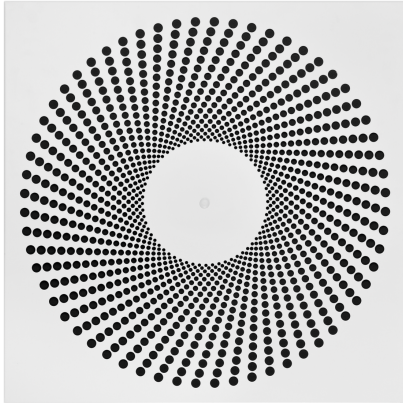
Construction features

- Spigot suitable for circular ducts to EN 1506 or EN 13180
 - Spigot with double lip seal
-

XARTO-R1**Nominal sizes**

- 600, 625
-

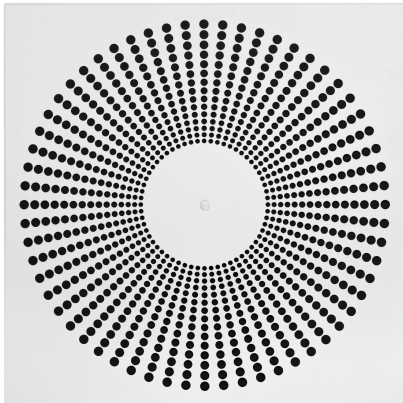
XARTO-R2



Nominal sizes

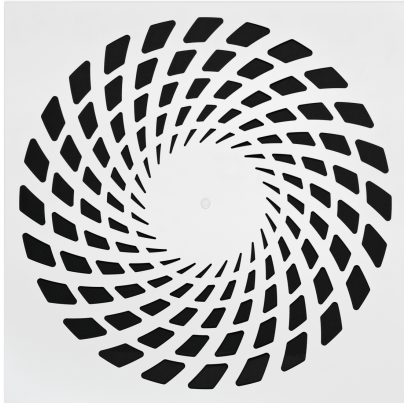
- 600, 625
-

XARTO-R3



Nominal sizes

- 600, 625
-

XARTO-R4**Nominal sizes**

- 600, 625

Variants

- Square diffuser face, circular face style

Nominal sizes

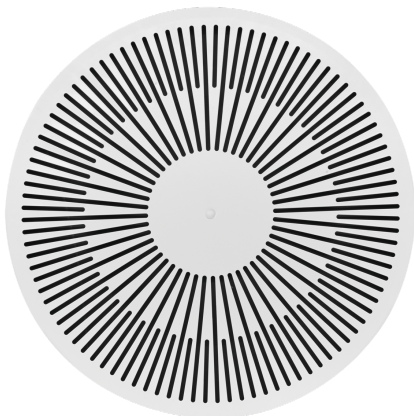
- 600, 625

Parts and characteristics

- Square diffuser face
- Plenum box for horizontal duct connection
- Circular opening to accommodate the diffuser face
- Optimised equalising element that ensures a uniform airflow through the diffuser face (supply air variant)
- Damper blade for volume flow rate balancing, can be set in 15° intervals between 0 and 90°
- Spigot with double lip seal
- Simple installation of the diffuser face due to central fixing screw with decorative cap

Construction features

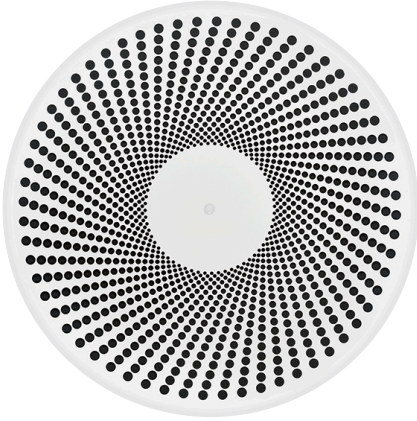
- Spigot suitable for circular ducts to EN 1506 or EN 13180
 - Spigot with double lip seal
-

XARTO-C1

Nominal sizes

- 600
-

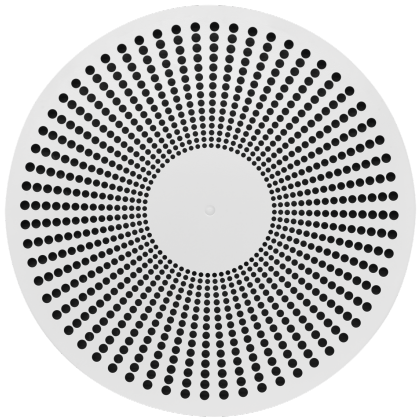
XARTO-C2



Nominal sizes

- 600
-

XARTO-C3



Nominal sizes

- 600
-

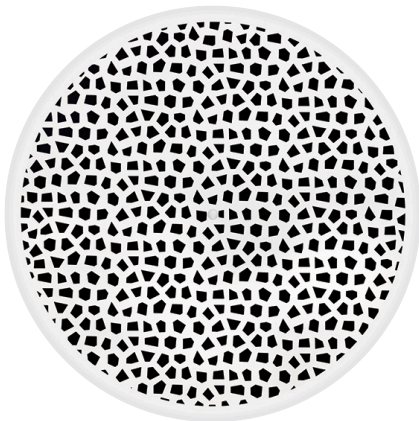
XARTO-C4



Nominal sizes

- 600
-

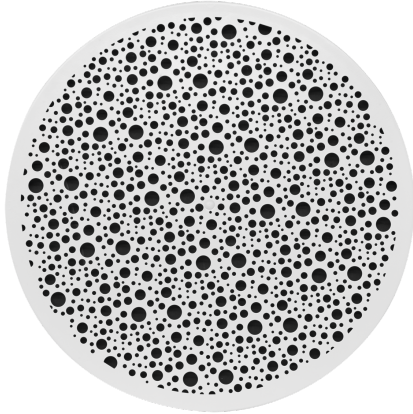
XARTO-C5



Nominal sizes

- 600
-

XARTO-C6

**Nominal sizes**

- 600
-

Variants

- Circular diffuser face, circular face style

Nominal sizes

- 600

Parts and characteristics

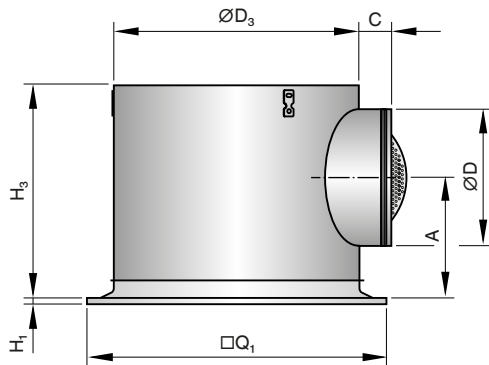
- Circular diffuser face
- Plenum box for horizontal duct connection
- Circular opening to accommodate the diffuser face
- Optimised equalising element that ensures a uniform airflow through the diffuser face (supply air variant)
- Damper blade for volume flow rate balancing, can be set in 15° intervals between 0 and 90°
- Spigot with double lip seal
- Simple installation of the diffuser face due to central fixing screw with decorative cap

Construction features

- Spigot suitable for circular ducts to EN 1506 or EN 13180
- Spigot with double lip seal

Dimensions

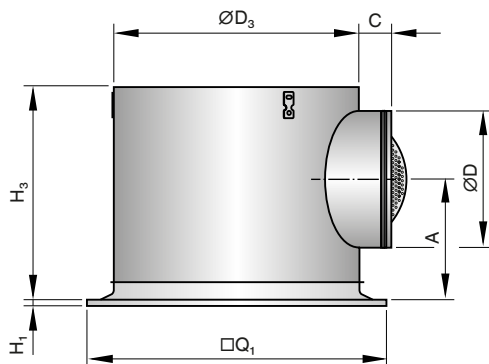
XARTO-Q



XARTO-Q

NS	XARTO-Q*-Z	XARTO-Q*-A							
	m [kg]		Q ₁	H ₁	ØD ₃	H ₃	ØD	A	C
600	9,5	9	598	8	462	371	248	220	60
625	9,5	9	623	8	462	371	248	220	60

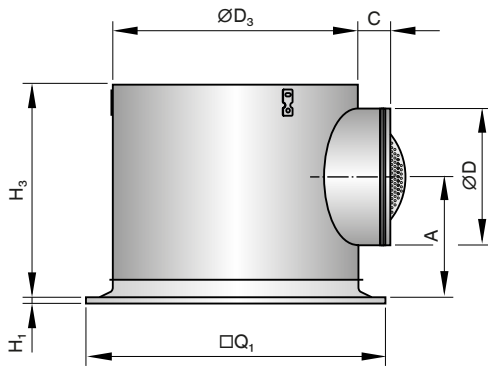
XARTO-R



XARTO-R

NS	XARTO-R*-Z	XARTO-R*-A	Q ₁	H ₁	ØD ₃	H ₃	ØD	A	C
	m [kg]								
600	9	8.5	598	8	462	356	248	205	60
625	9	8.5	623	8	462	356	248	205	60

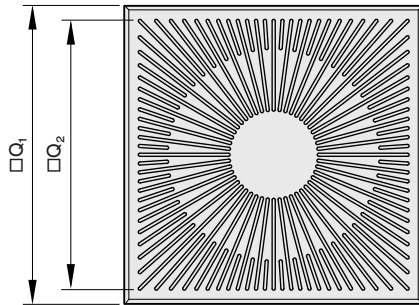
XARTO-C



XARTO-C

NS	XARTO-C*-Z	XARTO-C*-A	Q ₁	H ₁	ØD ₃	H ₃	ØD	A	C
	m [kg]								
600	8,5	8	600	8	462	356	248	205	80

Diffuser face XARTO Q

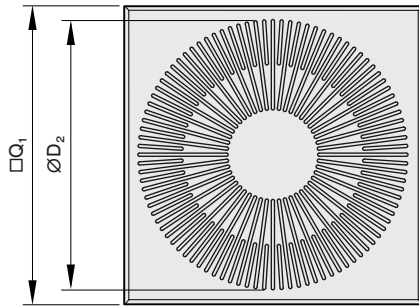


XARTO-Q

	Q ₁	Q ₂	A _{eff}
			m ²
	Q1	566	0.0384
	Q2	566	0.0374
	Q3	566	0.0403
	Q4	566	0.0344
	Q5	566	0.0401
	Q6	566	0.0411

Nominal size 600: □, Q1 = 598

Diffuser face XARTO-R

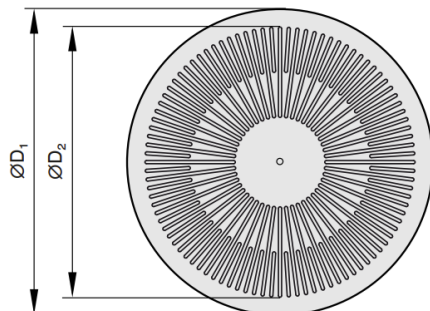


XARTO-R

	$\varnothing D_2$	A_{eff} m^2
R1	550	0.03760
R2	550	0.03750
R3	550	0.03720
R4	550	0.03130

Nominal size 600: \square , $Q_1 = 598$

Diffuser face XARTO-C

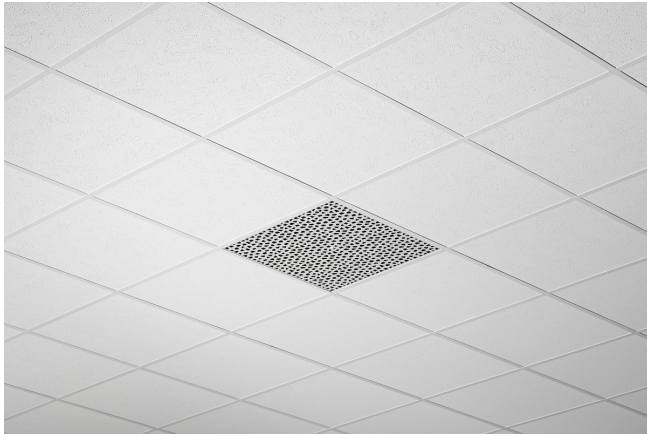
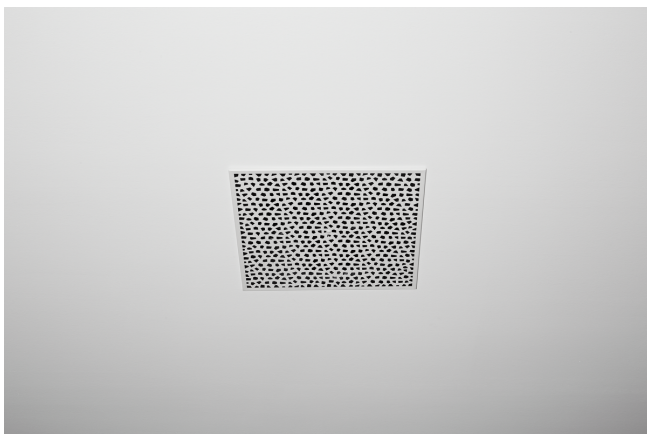


XARTO-C

	$\varnothing D_1$	$\varnothing D_2$	A_{eff} m^2
C1	600	550	0.03760
C2	600	550	0.03750
C3	600	550	0.03720
C4	600	550	0.03130
C5	600	550	0.03764
C6	600	550	0.03764

Product details

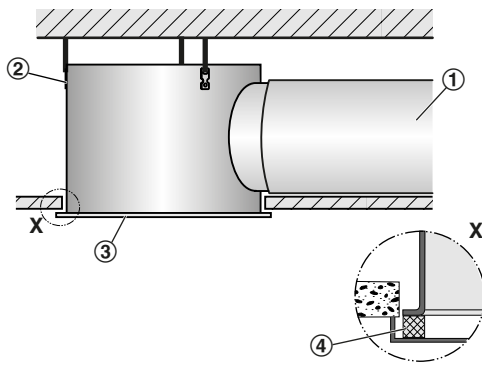
Type XARTO swirl diffusers meet the most demanding requirements of technical function, comfort, and design. Diffuser faces come in classic, modern and flamboyant styles and can be creatively integrated with all types of ceilings. In fact, they are an attractive design element for building owners and architects. The combination of swirl unit, newly developed equalising element and innovative plenum box provides high volume flow rates, a low sound power level and low differential pressure. The air control blades of the swirl unit have three-dimensionally profiled contours to create an efficient swirl. As a consequence, the airflow velocities and temperature differences in the occupied zone are very low, and the level of comfort is excellent. A spigot with double lip seal provides a low-leakage connection of the plenum box to the ducting, and a damper blade for volume flow rate balancing simplifies commissioning.

Installation in T-bar ceilings**Installation in T-bar ceilings****Installation in T-bar ceilings, arrangement in a row****Installation in T-bar ceilings, arrangement in a row****Installation in continuous ceilings****Installation in continuous ceilings****Installation and commissioning**

- Preferably for rooms with a clear height up to 4.0 m
- Flush ceiling installation
- Freely suspended installation only with an extended border (supply air variant)
- Horizontal duct connection
- If necessary, carry out volume flow rate balancing with the damper element

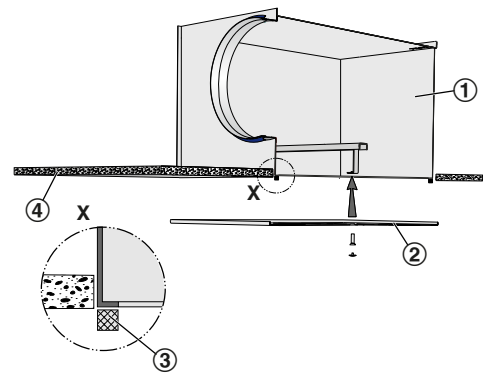
Note: The illustrations are schematic and serve to create a better understanding of the installation details.

Installation flush with the ceiling with round junction box



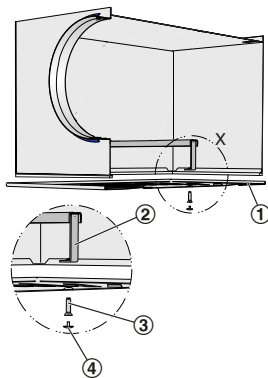
- ① Air duct
 - ② Suspension bracket
 - ③ Diffuser face
- Horizontal duct connection
 - 3 suspension brackets
 - Customer-side suspension with ropes, suspension wires or nonius hangers

Diffuser face – sealing



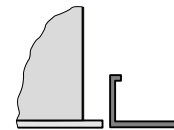
- ① Plenum box
 - ② Diffuser face
 - ③ Seal
 - ④ Ceiling tile
- The self-adhesive sealing tape (included in supply package) has to be applied to the return edges of the plenum box by others

Diffuser face – central screw fixing

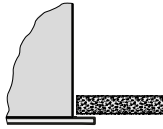
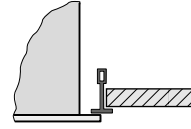


- ① Diffuser face
 - ② Cross bar
 - ③ Central fixing screw
 - ④ Decorative cap
- Using the central fixing screw, fix the diffuser face to the cross bar of the plenum box
 - Attach the decorative cap

Installation in metal ceilings



- Fix the plenum box to the ceiling
- Ceiling tile of the metal ceiling is independent of the air terminal device
- Fix the diffuser face after the ceiling has been completed

Installation in continuous ceilings**Installation in T-bar ceilings**

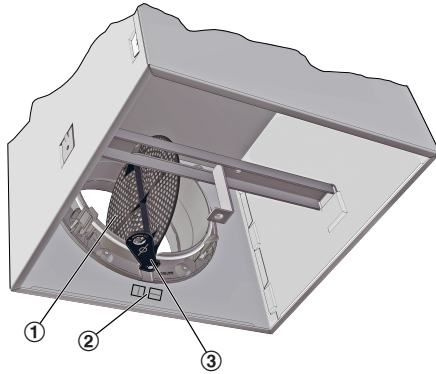
- Fix the plenum box (possibly with diffuser face) to the ceiling
- Adjust plasterboard ceiling tile as required (flush mounted or offset)
- If necessary, fix the diffuser face after the ceiling has been completed
- Installation in T-bar ceiling. Attach the connection box to the ceiling
- T-bar ceiling is independent of the air passage
- Fasten the diffuser face below the T-bar profile after completing the ceiling work

Volume flow rate balancing

When several diffusers are connected to just one volume flow controller, it may be necessary to balance the volume flow rates.

- To do so, the diffuser face can be removed to access the damper unit; the damper unit can then be set in 15° intervals between 0 and 90°.

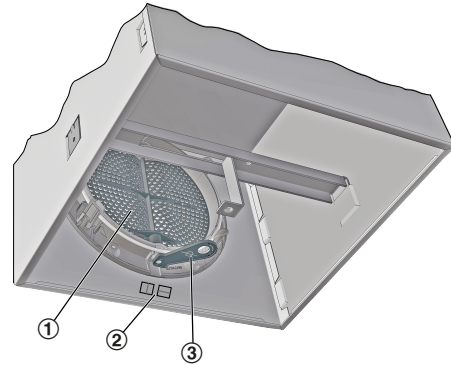
AIRNAMIC, XARTO Volume flow rate balancing



- ① Damper blade
- ② Sticker explaining the damper blade position
- ③ Setting lever

Open, 0°

AIRNAMIC, XARTO Volume flow rate balancing



- ① Damper blade
- ② Sticker explaining the damper blade position
- ③ Setting lever

Maximum restriction, 90°

Nomenclature

A [mm]

Position of the spigot, defined by the distance of the spigot centre line to the lower edge of the suspended ceiling

A_{eff} [m²]

Effective air discharge area

C [mm]

Length of the spigot

ØD [mm]

Outer diameter of the spigot

ØD₁ [mm]

Outer diameter of a circular diffuser face

ØD₂ [mm]

Diameter of a circular diffuser face style

ØD₃ [mm]

Diameter of a circular plenum box

H₁ [mm]

Distance (height) from the lower edge of the suspended ceiling to the lower edge of the diffuser face

H₂ [mm]

Height of a ceiling diffuser, from the lower edge of the suspended ceiling to the upper edge of the spigot

H₃ [mm]

Height of a ceiling diffuser with plenum box, from the lower edge of the suspended ceiling to the upper edge of the plenum box or of the spigot

L_{WA} [dB(A)]

A-weighted sound power level of air-regenerated noise

m [kg]

Weight

NS [mm]

Nominal size

Δp_t [Pa]

Total differential pressure

□**Q₁** [mm]

Outer diameter of a square diffuser face

□**Q₂** [mm]

Dimensions of a square diffuser face style

□**Q₃** [mm]

Dimensions of a square plenum box

q_v [m³/h]; [l/s]

Volume flow rate

Δt_z [K]

Supply air to room air temperature difference, i.e. supply air temperature minus room temperature

Lengths

Lengths are given in [mm] unless stated otherwise.

All sound power levels are based on 1 pW.