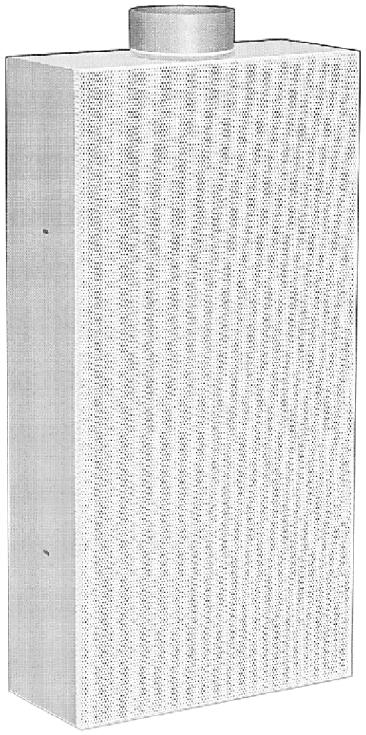
SCHAKO
KLIMA-LUFT

Wall Displacement Diffuser

Model WQA



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Wall Displacement Diffuser Model WQA

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Wall Displacement Diffuser Model WQA

Description

Large rooms such as industrial halls in which high amounts of harmful substances are produced are best ventilated by means of a **low-turbulence displacement air flow** (displacement ventilation). This is due to the fact that in low-turbulence displacement air flows the supply air enters the room **at low velocities** (approx. 0.2 m/s). The **fresh air sinks to the floor**, spreads itself and displaces the contaminated air towards the air discharge openings. Natural convection currents from the heat sources inside the room causes the air to rise to the upper levels. Consequently the heat loads of these heat sources are eliminated together with the air. To support these convection currents, the air discharge diffusers should be mounted at the top.
The wall displacement diffuser **can be fitted directly to the wall**. However, it **can also be flush mounted in the wall**. The wall displacement diffuser can be connected directly to spiral ducts.
To ensure a uniform distribution over the entire air diffuser area, an air distribution plate or a filter pocket (standard) is installed. The filter pocket cleans the supply air and ensures a completely uniform intake of fresh air over the entire diffuser area of the grille. The filter can be easily changed by removing the perforated faceplate of the wall displacement diffuser.
For simple system regulation, it is possible to fit various throttle and measuring devices to the wall displacement diffuser. Depending on the design of the connecting piece, a hit-and-miss damper or a throttle damper can be fitted to the connecting piece.
All wall displacement diffuser can be opened for easy cleaning on the inside and outside.

Construction

Filter pocket
- Synthetic fibre class EU2

Filter mat
- Synthetic fibre class EU2

Front grille
- perforated, made of galvanised sheet steel (standard)
- perforated sheet steel painted to RAL 9010 (white)

Housing
- Galvanised sheet steel (standard)
- Sheet steel painted to RAL 9010 (white)

Air distribution plate (-LV)
- Galvanised sheet steel

The WQA can be manufactured as painted aluminium model (at an extra charge) up to a size of 1000x1000 mm.
The WQA is not available as anodised aluminium model.

Model

WQA-R-...	-	with round connection pipe
WQA-K-...	-	with rectangular connection pipe
WQA-...-O	-	Top connection pipe
WQA-...-U	-	Bottom connection pipe
WQA-...-H	-	Back connection pipe
WQA-...-L/R	-	Lateral left or right connection pipe
WQA-...-...-FT	-	with filter pocket (standard)
WQA-...-...-LV	-	with air diffuser plate (standard for WQA-...-H).
WQA-...-H-FV	-	with filter mat

Accessories

Throttling element (WQA-R-...only)
- Sheet steel

Rubber lip seal (-GD) (WQA-R only)
- Special rubber

Hit-and-miss damper (SS-K) (WQA-K-... only)
- Electrolytically galvanised sheet steel

Fastening

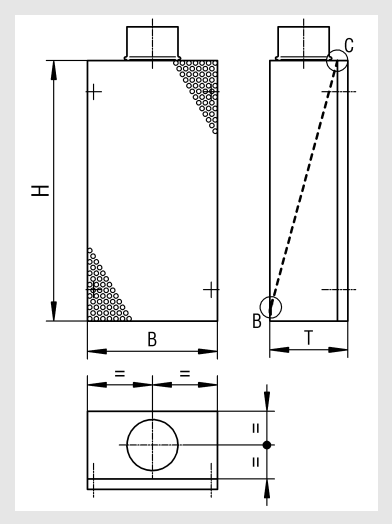
Screw mounting (-SM)
- Standard

Wall Displacement Diffuser Model WQA

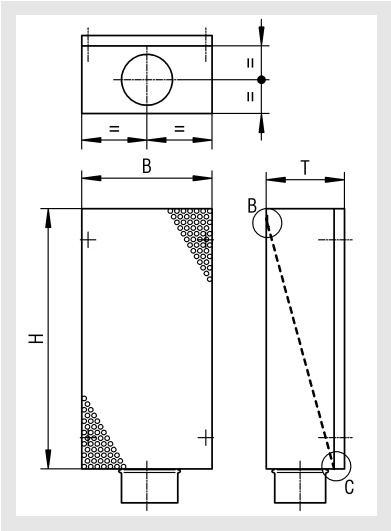
Connection options

(with air diffuser plate)

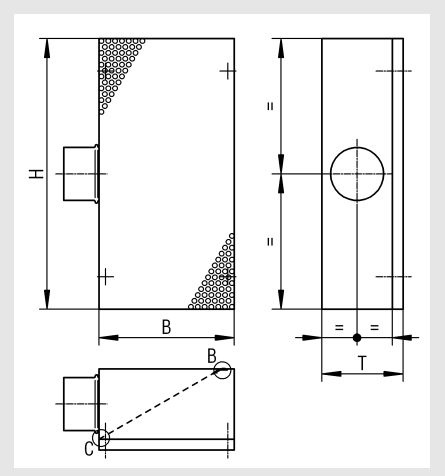
WQA-...-O



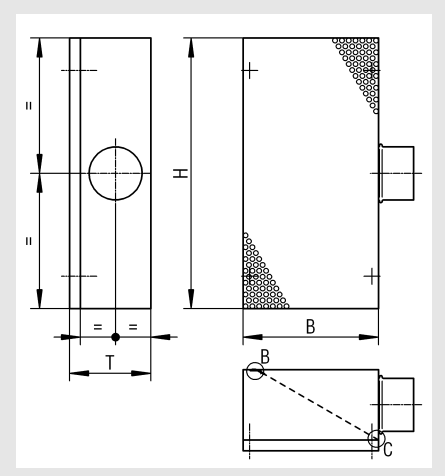
WQA-...-U



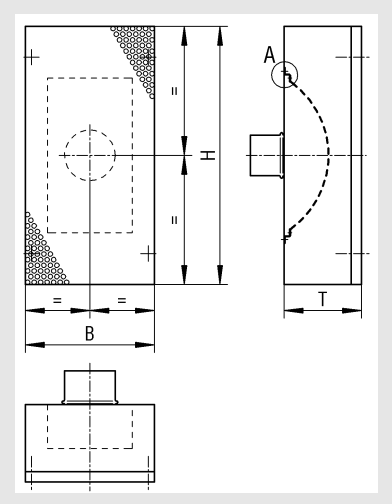
WQA-...-L



WQA-...-R



WQA-...-H



Model	Filter pocket (-FT)	Air diffuser plate (-LV)	Filter mat (-FV)
WQA-...-H	-	x (standard)	x
WQA-...-O / U	x (≥H=500)	x (<H=500)	x
WQA-...-L / R	x (≥B=500)	x (<B=500)	x

\- = not possible

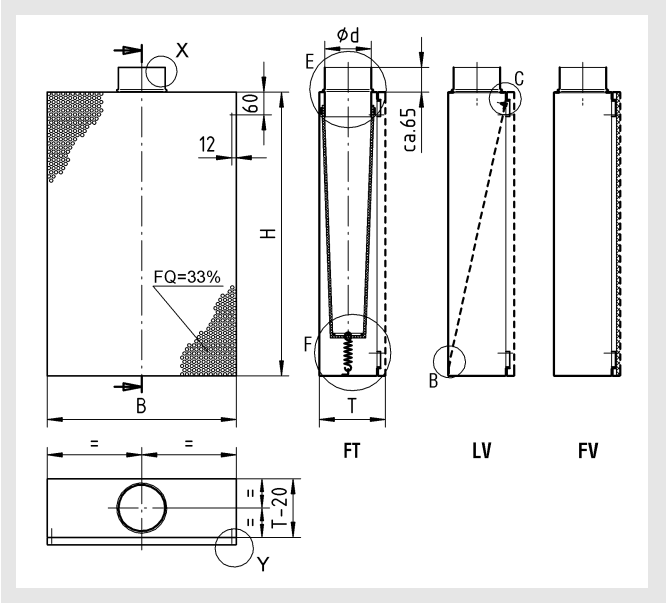
x = possible

Wall Displacement Diffuser Model WQA

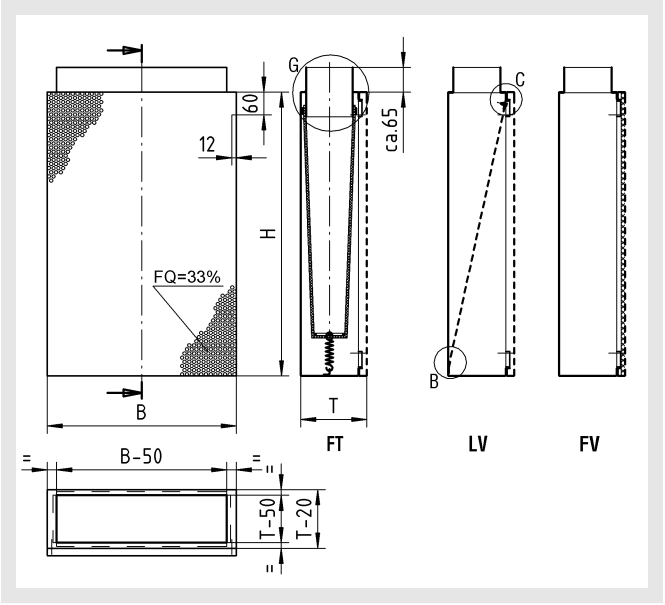
Models and dimensions

Dimensions

WQA-R-...-FT / -LV / -FV



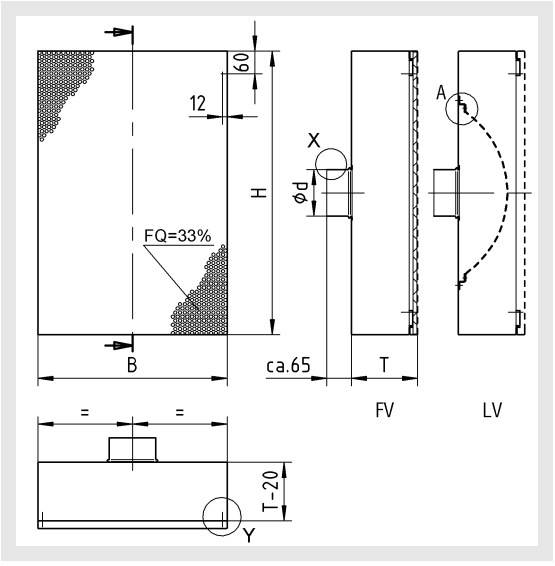
WQA-K-...-FT / -LV / -FV



Available sizes

Height			Width 250	500	750	1000
	150	ød	98	98	98	98
		T	150	150	150	150
	300	ød	98	98	123	158
		T	150	150	175	200
	450	ød	98	123	158	198
		T	150	175	200	250
	500	ød	98	123	158	198
		T	150	175	200	250
	600	ød	98	158	198	198
		T	150	200	250	250
	750	ød	123	158	198	223
		T	175	200	250	275
	1000	ød	123	198	223	298
		T	175	250	275	350

WQA-...-H-FV / -LV

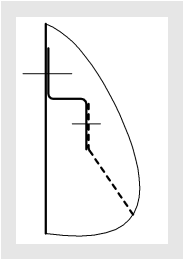


All combined widths and heights available.
Special dimensions available at an extra charge.
Max. single-piece dimension is 1150 x 2000 mm (W x H). Models in several pieces are available after technical clarification.

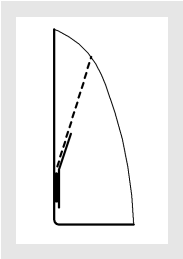
Wall Displacement Diffuser Model WQA

Air diffuser plate

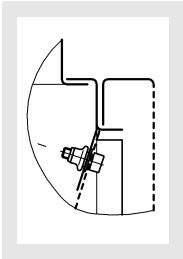
Detail A



Detail B



Detail C



Filter pocket fastening

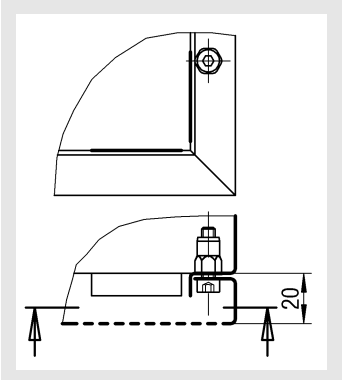
Detail E

Detail F

Detail G

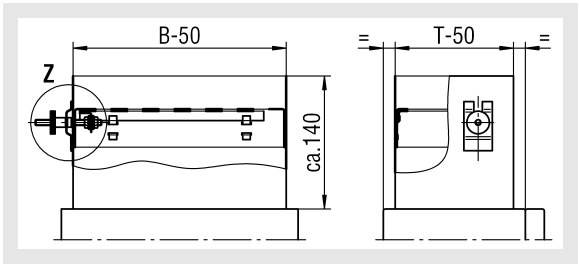
Screw mounting (-SM)

Detail Y

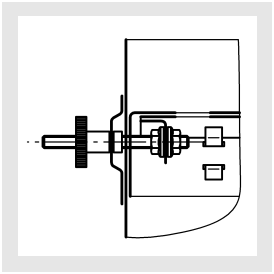


Dimensions of accessories

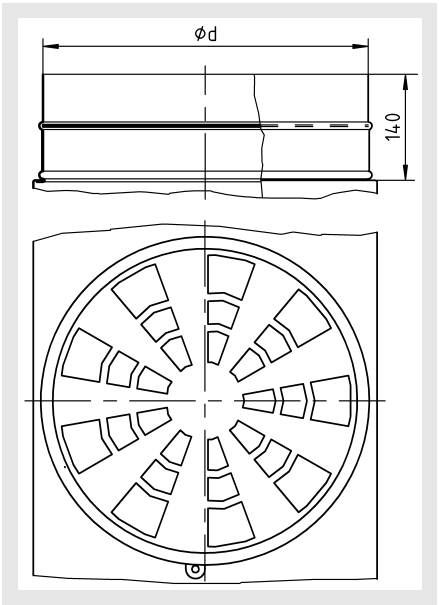
Hit-and-miss damper (-SS, WQA-K only)



Detail Z

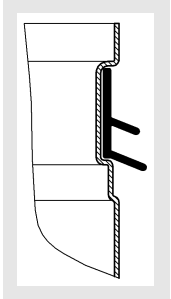


Throttling element (WQA-R-only)



Rubber lip seal (-GD) (WQA-R only)

Detail X



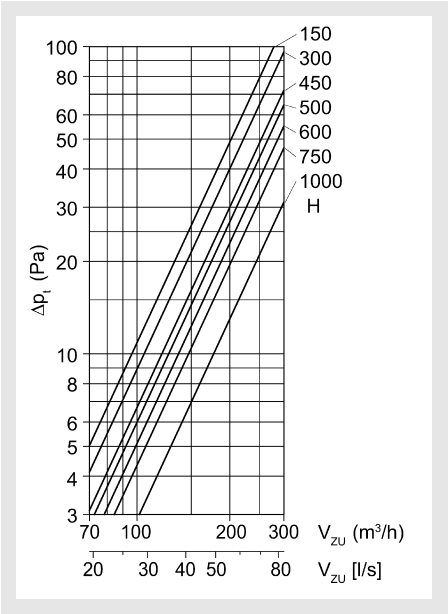
Wall Displacement Diffuser Model WQA

Technical Data

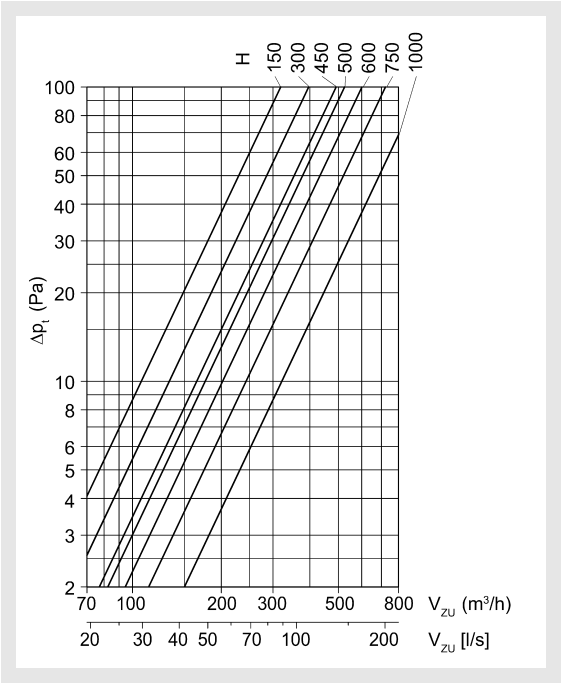
Pressure loss

For the preselection of the supply air volume (V_{ZU}), see Page 8

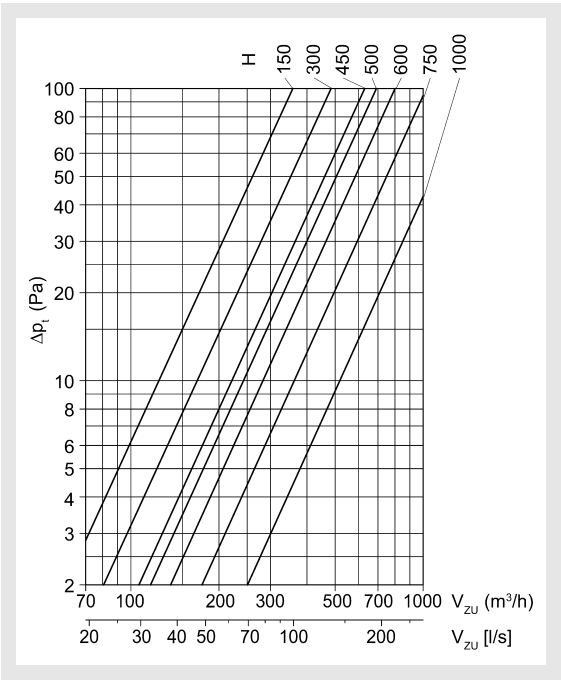
WQA / B = 250



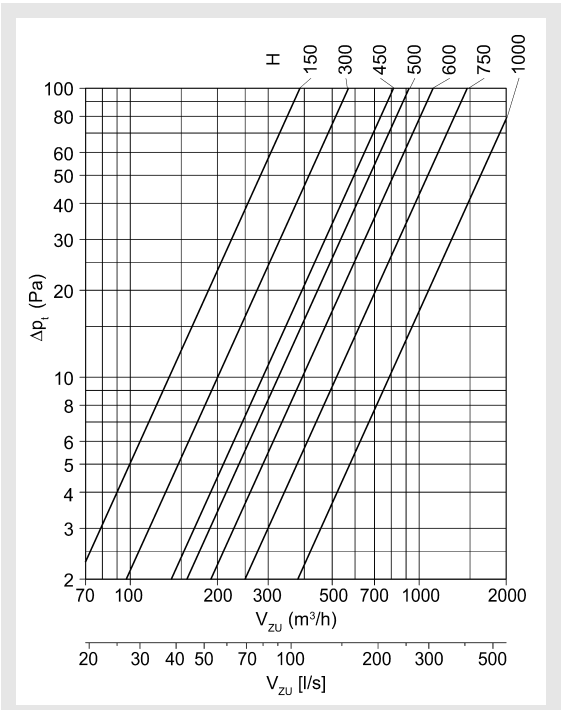
WQA / B = 500



WQA / B = 750



WQA / B = 1000

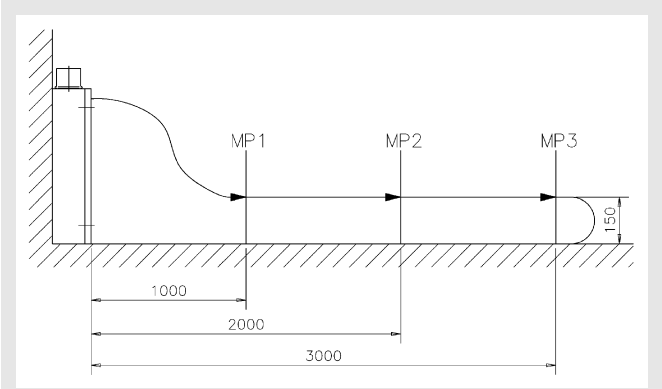


Wall Displacement Diffuser Model WQA

Velocity data and noise level at -3 Kelvin

H (mm)	v_K (m/s)		B(mm) 250 V_{ZU} (m3/h)	250 V_{ZU} [l/s]	250 MP (m) 1	250 MP (m) 2	250 MP (m) 3	500 V_{ZU} (m3/h)	500 V_{ZU} [l/s]	500 MP (m) 1	500 MP (m) 2	500 MP (m) 3	750 V_{ZU} (m3/h)	750 V_{ZU} [l/s]	750 MP (m) 1	750 MP (m) 2	750 MP (m) 3	1000 V_{ZU} (m3/h)	1000 V_{ZU} [l/s]	1000 MP (m) 1	1000 MP (m) 2	1000 MP (m) 3
150	min	3	81	22,6	0,75	0,48	0,29	81	22,6	0,34	0,25	0,19	81	22,6	0,22	0,19	0,13	81	22,6	0,16	0,13	0,11
	middle	5	136	37,8	1,43	0,93	0,64	136	37,8	0,67	0,51	0,35	136	37,8	0,37	0,30	0,22	136	37,8	0,28	0,21	0,11
	max	7	190	52,8	2,07	1,45	1,05	190	52,8	1,03	0,80	0,60	190	52,8	0,61	0,47	0,39	190	52,8	0,43	0,31	0,26
300	min	3	81	22,6	0,37	0,24	0,17	81	22,6	0,20	0,16	0,10	128	35,6	0,22	0,20	0,11	212	58,8	0,23	0,20	0,17
	middle	5	136	37,8	0,70	0,48	0,34	136	37,8	0,28	0,21	0,15	214	59,4	0,30	0,25	0,22	353	98,1	0,36	0,32	0,26
	max	7	190	52,8	1,09	0,88	0,61	190	52,8	0,43	0,38	0,27	300	83,3	0,45	0,40	0,31	494	137,2	0,56	0,50	0,38
450	min	3	81	22,6	0,28	0,21	0,14	128	35,6	0,22	0,17	0,11	212	58,8	0,24	0,22	0,17	333	92,4	0,31	0,27	0,22
	middle	5	136	37,8	0,42	0,32	0,26	214	59,4	0,33	0,28	0,20	353	98,1	0,39	0,34	0,29	554	153,9	0,42	0,39	0,33
	max	7	190	52,8	0,61	0,51	0,38	300	83,3	0,40	0,36	0,29	494	137,2	0,53	0,50	0,44	776	215,6	0,57	0,51	0,44
500	min	3	81	22,6	0,25	0,19	0,13	128	35,6	0,20	0,15	0,10	212	58,8	0,22	0,20	0,15	333	92,4	0,28	0,25	0,20
	middle	5	136	37,8	0,38	0,29	0,23	214	59,4	0,30	0,25	0,18	353	98,1	0,35	0,31	0,26	554	153,9	0,38	0,35	0,30
	max	7	190	52,8	0,55	0,46	0,34	300	83,3	0,36	0,32	0,26	494	137,2	0,48	0,45	0,40	776	215,6	0,51	0,46	0,40
600	min	3	81	22,6	0,22	0,17	0,10	212	58,8	0,25	0,24	0,16	333	92,4	0,25	0,22	0,20	333	92,4	0,22	0,20	0,15
	middle	5	136	37,8	0,30	0,26	0,20	353	98,1	0,40	0,38	0,30	554	153,9	0,46	0,43	0,37	554	153,9	0,33	0,30	0,25
	max	7	190	52,8	0,42	0,38	0,27	494	137,2	0,60	0,59	0,47	776	215,6	0,66	0,62	0,58	776	215,6	0,44	0,42	0,36
750	min	3	128	35,6	0,25	0,20	0,13	212	58,8	0,20	0,16	0,15	333	92,4	0,25	0,21	0,17	422	117,7	0,26	0,27	0,22
	middle	5	214	59,4	0,36	0,34	0,17	353	98,1	0,34	0,28	0,25	554	153,9	0,30	0,29	0,28	703	195,3	0,30	0,30	0,28
	max	7	300	83,3	0,48	0,44	0,38	494	137,2	0,48	0,39	0,30	776	215,6	0,48	0,43	0,36	964	267,7	0,39	0,41	0,40
1000	min	3	128	35,6	0,25	0,16	0,10	333	92,4	0,30	0,20	0,10	422	117,7	0,27	0,13	0,11	753	209,9	0,23	0,25	0,20
	middle	5	214	59,4	0,30	0,27	0,17	554	153,9	0,36	0,28	0,25	703	195,3	0,22	0,21	0,15	1255	348,6	0,27	0,31	0,28
	max	7	300	83,3	0,39	0,35	0,30	776	215,6	0,54	0,44	0,38	964	267,7	0,36	0,32	0,20	1758	488,3	0,47	0,45	0,42
					V_{max} (m/s)					V_{max} (m/s)					V_{max} (m/s)					V_{max} (m/s)		

$V_{ZU\ min}$: vK = 3 m/s < 20 dB(A)
$V_{ZU\ middle}$: vK = 5 m/s ≅ 25 dB(A)
$V_{ZU\ max}$: vK = 7 m/s ≅ 30 dB(A)

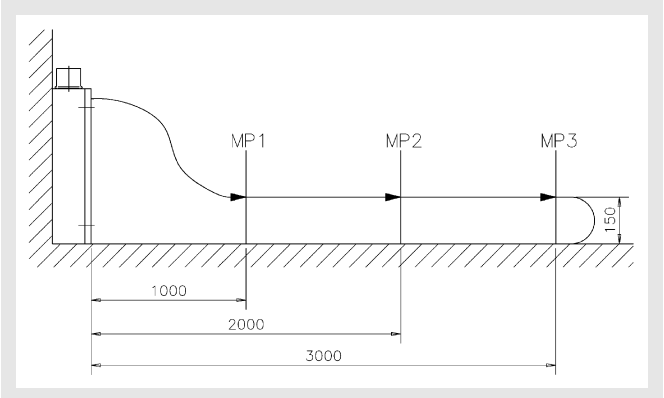


Wall Displacement Diffuser Model WQA

Velocity data and noise level at -6 Kelvin

H (mm)	v_K (m/s)		B (mm) 250 V_{ZU} (m3/h)	V_{ZU} [l/s]	MP (m) 1	2	3	B (mm) 500 V_{ZU} (m3/h)	V_{ZU} [l/s]	MP (m) 1	2	3	B (mm) 750 V_{ZU} (m3/h)	V_{ZU} [l/s]	MP (m) 1	2	3	B (mm) 1000 V_{ZU} (m3/h)	V_{ZU} [l/s]	MP (m) 1	2	3
150	min	3	81	22,6	0,78	0,52	0,32	81	22,6	0,36	0,27	0,22	81	22,6	0,26	0,22	0,16	81	22,6	0,18	0,15	0,13
	middle	5	136	37,8	1,53	1,01	0,66	136	37,8	0,70	0,48	0,40	136	37,8	0,41	0,35	0,25	136	37,8	0,30	0,23	0,19
	max	7	190	52,8	2,25	1,49	1,06	190	52,8	1,06	084	0,65	190	52,8	0,64	0,53	0,45	190	52,8	0,45	0,33	0,29
300	min	3	81	22,6	0,40	0,27	0,20	81	22,6	0,24	0,20	0,14	128	35,6	0,28	0,25	0,19	212	58,8	0,28	0,23	0,20
	middle	5	136	37,8	0,73	0,51	0,37	136	37,8	0,35	0,25	0,20	214	59,4	0,38	0,31	0,25	353	98,1	0,38	0,35	0,30
	max	7	190	52,8	1,12	0,90	0,67	190	52,8	0,46	0,40	0,31	300	83,3	0,55	0,49	0,36	494	137,2	0,59	0,54	0,44
450	min	3	81	22,6	0,32	0,26	0,20	128	35,6	0,30	0,19	0,12	212	58,8	0,33	0,28	0,21	333	92,4	0,37	0,33	0,28
	middle	5	136	37,8	0,47	0,36	0,28	214	59,4	0,39	0,31	0,23	353	98,1	0,42	0,39	0,32	554	153,9	0,50	0,44	0,38
	max	7	190	52,8	0,65	0,56	0,40	300	83,3	0,52	0,50	0,38	494	137,2	0,61	0,54	0,48	776	215,6	0,67	0,59	0,48
500	min	3	81	22,6	0,29	0,23	0,18	128	35,6	0,30	0,19	0,12	212	58,8	0,30	0,25	0,19	333	92,4	0,33	0,30	0,25
	middle	5	136	37,8	0,42	0,32	0,25	214	59,4	0,35	0,28	0,21	353	98,1	0,38	0,35	0,29	554	153,9	0,45	0,40	0,34
	max	7	190	52,8	0,59	0,50	0,36	300	83,3	0,47	0,45	0,34	494	137,2	0,55	0,49	0,43	776	215,6	0,60	0,53	0,43
600	min	3	81	22,6	0,25	0,20	0,15	212	58,8	0,35	0,30	0,21	333	92,4	0,32	0,30	0,25	333	92,4	0,28	0,26	0,20
	middle	5	136	37,8	0,37	0,28	0,22	353	98,1	0,42	0,41	0,33	554	153,9	0,48	0,45	0,39	554	153,9	0,36	0,34	0,29
	max	7	190	52,8	0,46	0,39	0,28	494	137,2	0,65	0,62	0,50	776	215,6	0,68	0,64	0,60	776	215,6	0,52	0,45	0,39
750	min	3	128	35,6	0,33	0,25	0,15	212	58,8	0,35	0,25	0,18	333	92,4	0,30	0,28	0,20	422	117,7	0,29	0,30	0,25
	middle	5	214	59,4	0,39	0,37	0,23	353	98,1	0,35	0,31	0,28	554	153,9	0,41	0,32	0,30	703	195,3	0,36	0,38	0,31
	max	7	300	83,3	0,57	0,50	0,39	494	137,2	0,53	0,43	0,33	776	215,6	0,49	0,45	0,39	964	267,7	0,43	0,46	0,45
1000	min	3	128	35,6	0,27	0,20	0,14	333	92,4	0,48	0,30	0,19	422	117,7	0,23	0,16	0,14	753	209,9	0,38	0,28	0,24
	middle	5	214	59,4	0,36	0,30	0,22	554	153,9	0,53	0,41	0,37	703	195,3	0,35	0,27	0,17	1255	348,6	0,32	0,41	0,33
	max	7	300	83,3	0,47	0,39	0,35	776	215,6	0,60	0,52	0,41	964	267,7	0,40	0,38	0,28	1758	488,3	0,50	0,48	0,46
					V_{max} (m/s)					V_{max} (m/s)					V_{max} (m/s)					V_{max} (m/s)		

$V_{ZU\ min}$: vK = 3 m/s < 20 dB(A)
$V_{ZU\ medium}$: vK = 5 m/s ≅ 25 dB(A)
$V_{ZU\ max}$: vK = 7 m/s ≅ 30 dB(A)

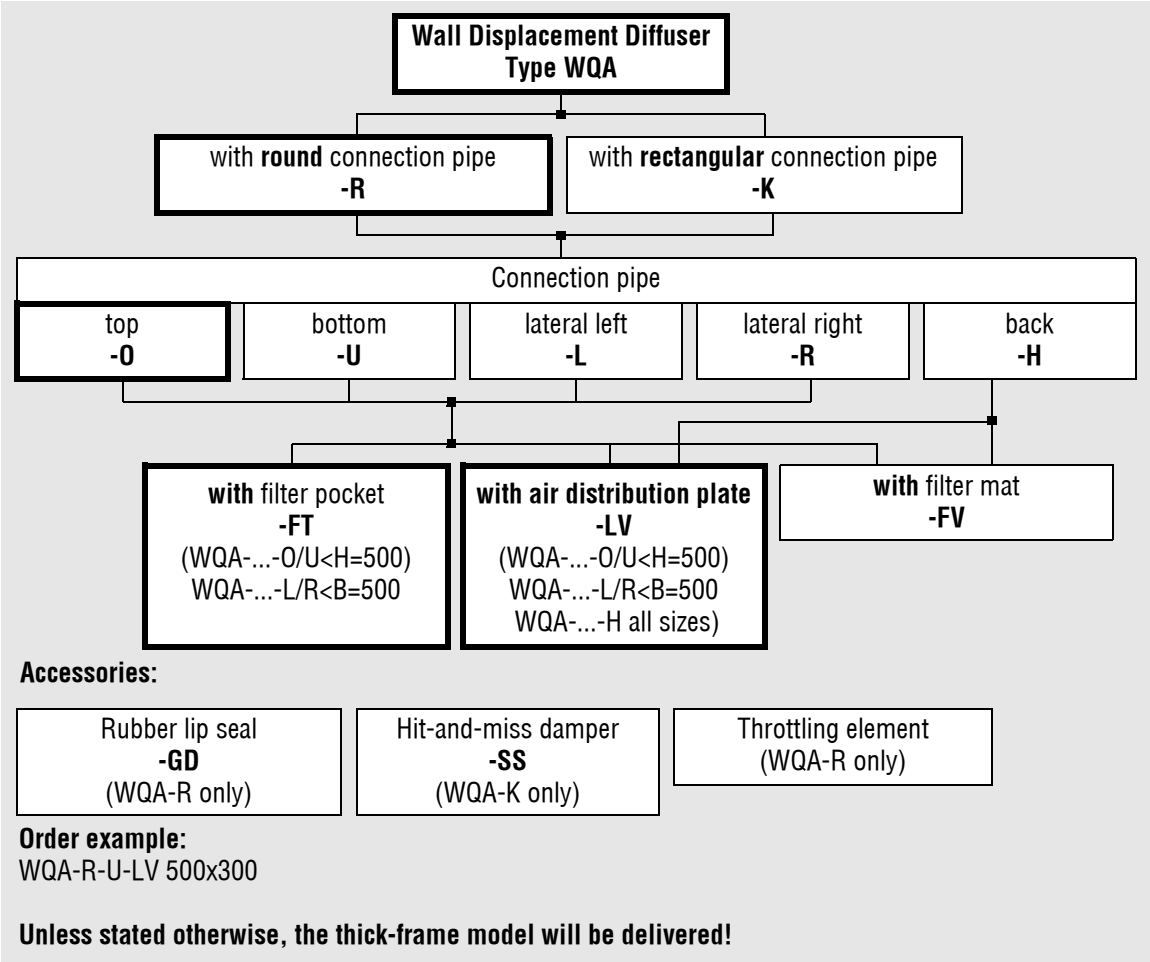


Legend

V_{ZU}	(m³/h)	=	Supply air volume
V_{ZU}	[l/s]	=	Supply air volume
vK	(m/s)	=	Connection pipe velocity
V_{max}	(m/s)	=	Maximum end velocity of jet
MP	(m)	=	Measuring point
Δp_t	(Pa)	=	Pressure loss
B	(mm)	=	Width
H	(mm)	=	Height

Wall Displacement Diffuser Model WQA

Order details



Order example:
WQA-R-U-LV 500x300

Unless stated otherwise, the thick-frame model will be delivered!

Specification texts

Wall displacement diffuser type WQA with removable perforated sheet steel faceplate for easy cleaning according to VDI 6022. Suitable for low-turbulence supply air entry at low air entry velocities. Consisting of a housing and a front grille made of galvanised sheet steel (standard) or sheet steel painted to RAL 9010 (white). To achieve even air flow, a removable synthetic fibre filter mat, alternatively an air diffuser plate made of perforated sheet steel, may be installed. The displacement diffuser can also be provided with a high-quality powder coating in a RAL colour. Suitable for installation in or fitting to walls

- with round connection pipe
  Product: SCHAKO **type WQA-R**

- with rectangular connection pipe
  Product: SCHAKO **type WQA-K**

Models:

- WQA-...-O: Top connection pipe
- WQA-...-U: Bottom connection pipe
- WQA-...-H: Back connection pipe.
- WQA-...-L: Lateral left connection pipe
- WQA-...-R: Lateral right connection pipe.
- WQA-...-...-FT: with filter pocket (standard)
- WQA-...-...-LV: with air diffuser plate (standard for WQA-...-H).
- WQA-...-H-FV: with filter mat

Accessories:

- Rubber lip seal (-GD), made of special rubber (WQA-R only)
- Hit-and-miss damper (SS) for simple air volume regulation (WQA-K only).
- Throttling element for simple air volume regulation (WQA-R only)