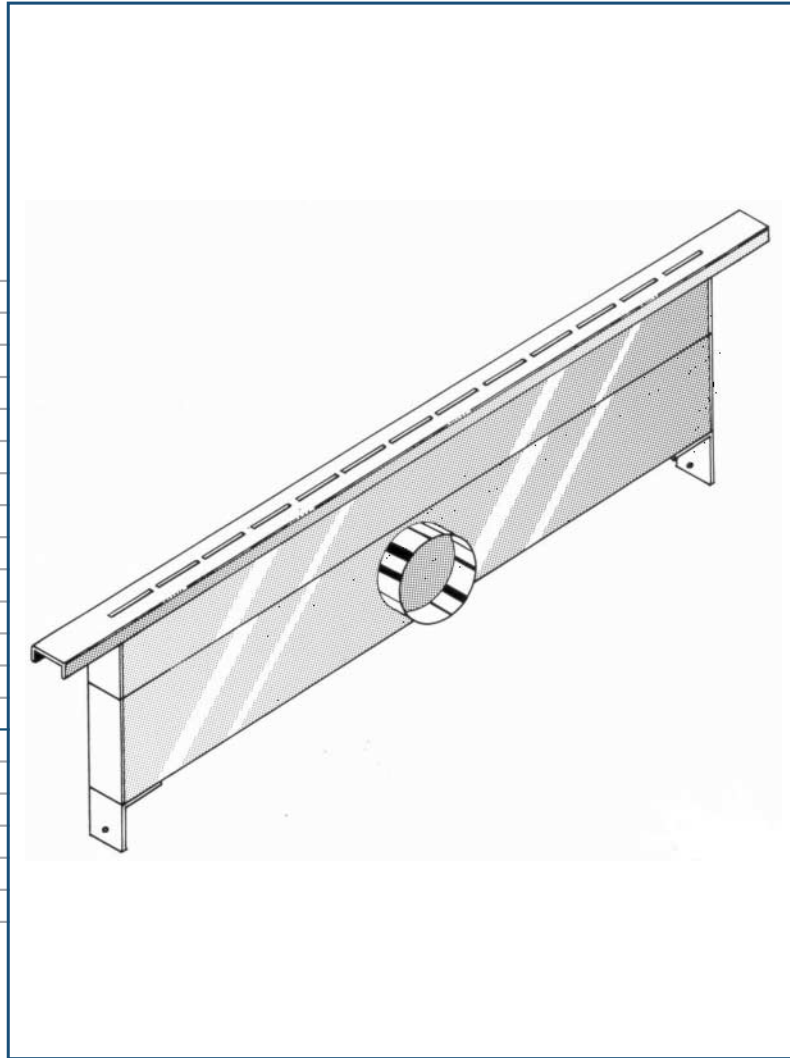
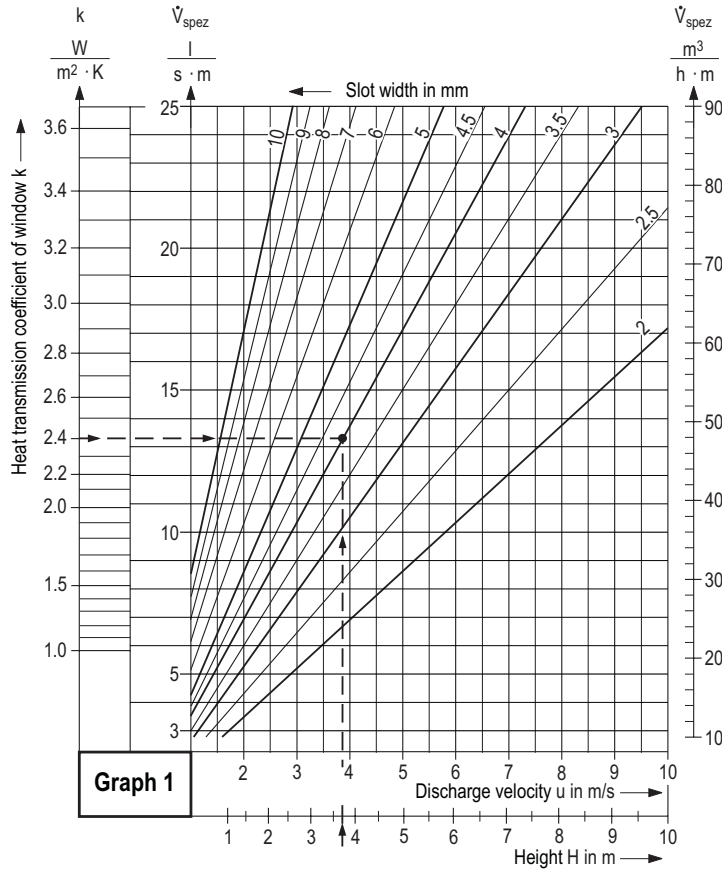


Technical Selection



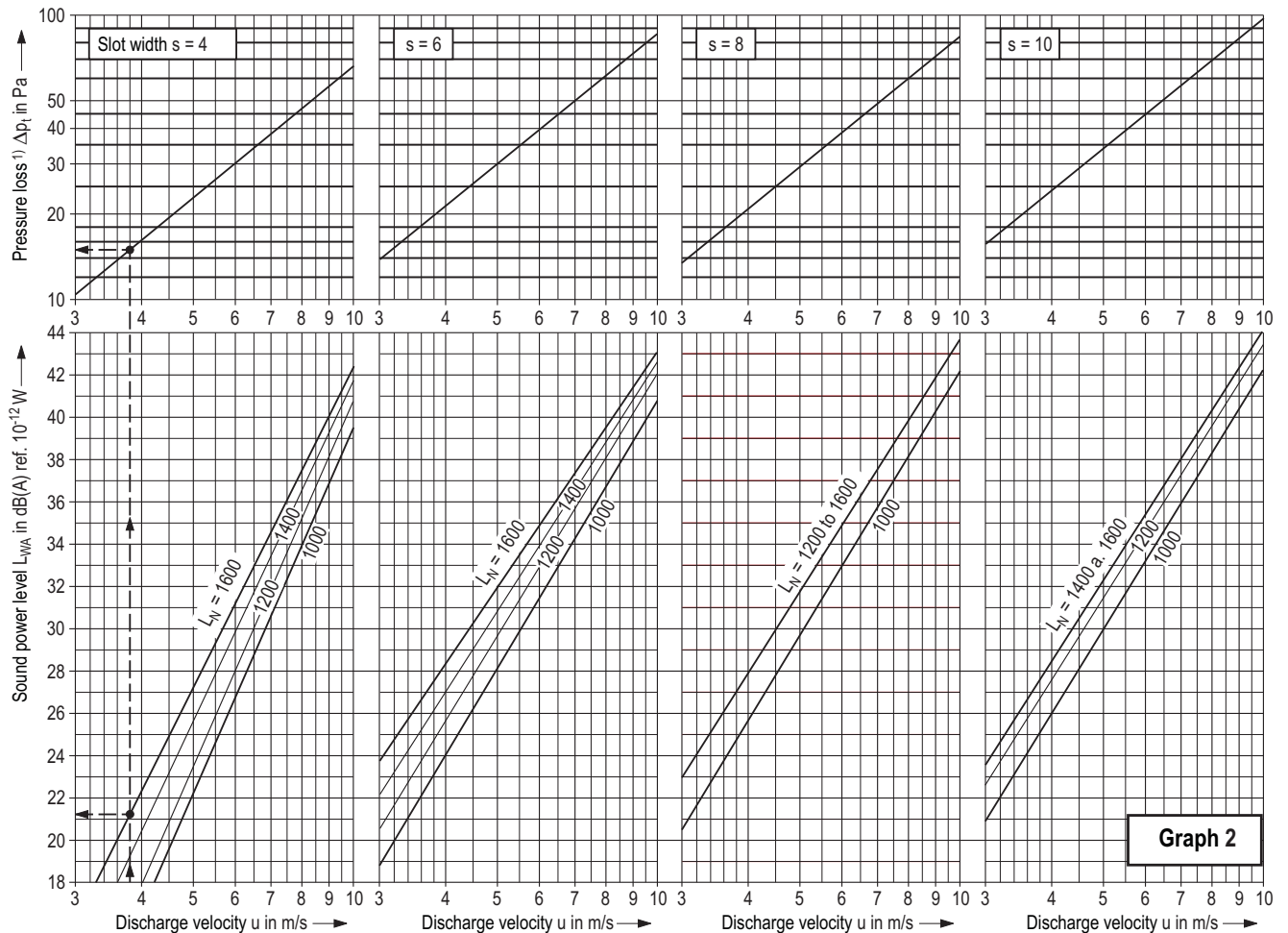
Window air curtain unit FSG

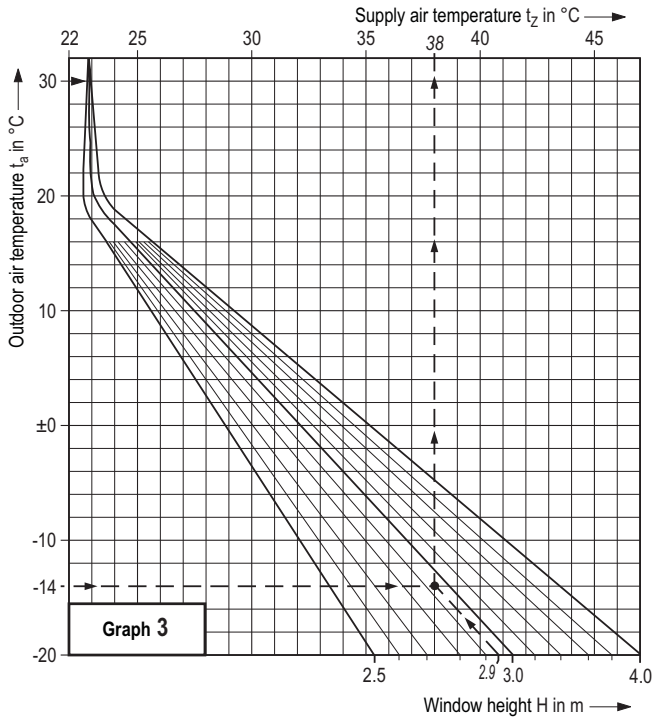


Layout example

- 1 Window height h = 2.9 m
- 2 Height from discharge plane to ceiling H = 3.7 m
- 3 Heat transmission coefficient of window k = 2.4 W / (m² · K)
- 4 Outdoor temperature in winter t_{a min} = - 14 °C
- 5 Outdoor temperature in summer t_{a max} = + 30 °C
- 6 Requisite unit length L = 1.6 m = L_N = 1600 mm
- 7 Supply air volume flow rate $\dot{V}_{spez} = 13.3 \text{ l/(s} \cdot \text{m)}$ (48 m³/(h · m)) [from Graph 1]
- 8 Discharge velocity u = 3.8 m/s [from Graph 1]
- 9 Slot width s = 4 mm [from Graph 1]
- 10 Spigot \varnothing / number = DN 100 / 1 piece [from Fig. 4]
- 11 Sound power level L_{WA} ≈ 22 dB(A) [from Graph 2]
- 12 Total pressure loss Δp_t = 15 Pa [from Graph 2]
- 13 Supply air volume flow rate per unit ≈ 77 m³/h [from 6 · 7]
- 14 Requisite supply air temperature in winter = 38 °C [from Graph 3]
- 15 Requisite supply air temperature in summer = 23 °C [from Graph 3]

1) Applies to all nominal lengths





Key

- k = Heat transmission coefficient of window
- H = Height from discharge plane to ceiling
- h = Window height
- h₁ = Height from discharge slot to floor (h₁ ≥ 0)
- \dot{V} = Supply air volume flow rate
- s = Width of discharge slot
- t_a = Outdoor air temperature
- t_z = Supply air temperature at discharge slot

The point of reference is always the heat transmission coefficient of the window to which corresponds a given specific supply air volume flow rate \dot{V} . Graph 3 applies for 22 °C indoor air temperature in winter and for varying indoor air temperatures in summer according to the following equation:

$$t_i = 22 \text{ °C} + 0.4 (t_a - 22 \text{ °C}) \text{ with } t_a \geq 22 \text{ °C}.$$

Our layout program "KOMPAUS" is available for layout cases that cannot be calculated with this graph (e.g. other specific supply air volume flow rates in relation to the k value or other indoor air temperatures).

Nominal length ⇒		L _N = 1000 mm							L _N = 1400 mm						
Slot width s mm	Discharge velocity u m/s	Sound power level in dB ref. 10 ⁻¹² W													
		L _{WA} dB(A)	Octave band centre frequency in Hz						L _{WA} dB(A)	Octave band centre frequency in Hz					
			125	250	500	1 K	2 K	4 K		125	250	500	1 K	2 K	4 K
4	4	17	25	16	15	—	—	—	21	29	19	20	15	—	—
	6	27	27	28	27	20	18	—	30	31	32	29	23	20	—
	8	34	30	30	31	32	18	—	36	33	33	33	34	21	—
6	4	24	26	23	22	20	—	—	27	29	26	25	23	19	—
	6	31	32	33	28	27	16	—	34	35	36	32	30	20	—
	8	37	37	39	36	32	18	15	39	40	41	38	34	21	17
8	4	26	28	26	25	20	15	—	28	29	28	26	23	20	17
	6	33	33	35	31	29	18	—	35	35	37	33	30	21	18
	8	38	39	38	37	34	23	16	40	40	42	37	36	24	20
10	4	26	30	27	25	20	16	—	28	33	30	25	22	20	—
	6	33	35	36	31	30	16	—	35	38	37	33	29	21	—
	8	38	41	39	38	33	18	16	39	43	41	39	34	21	—
Nominal length ⇒		L _N = 1200 mm							L _N = 1600 mm						
4	4	18	26	16	17	—	—	—	22	30	20	22	16	—	—
	6	28	28	30	26	21	19	—	31	32	33	30	24	21	—
	8	35	31	31	32	33	19	—	37	34	35	33	35	25	20
6	4	26	28	25	24	22	18	—	28	30	28	27	24	18	—
	6	33	34	35	30	29	18	—	35	36	37	33	31	20	15
	8	38	39	41	38	32	20	15	40	42	41	39	35	22	19
8	4	28	30	28	27	22	17	—	28	30	28	27	21	20	17
	6	35	36	37	33	31	20	—	35	36	36	33	31	21	19
	8	40	41	40	39	36	25	18	40	42	41	38	37	25	20
10	4	27	32	29	24	21	17	—	28	34	31	25	22	20	17
	6	35	37	37	33	30	17	—	35	39	37	33	30	21	19
	8	39	42	40	39	34	20	19	40	44	41	40	34	22	21

Fig. 3: Sound power levels in relation to octave band centre frequencies

Sound power level and pressure loss

The sound power level is rather low. It is dependent upon the connection spigots indicated in the table of Fig. 4 and can be read off Graph 2 for various slot widths, depending on the discharge velocity 'u'.

The same is true for the pressure loss.

Fig. 3 gives sound power levels in relation to octave band centre frequencies.

Slot width s mm	Nom. length L _N mm	Nominal diameter DN and number of connection spigots per window air curtain unit								
		Discharge velocity u in m/s								
		3	4	5	6	7	8	9	10	
≤ 4	1000									
	1200		1 x 80				1 x 100			
	1400								2 x 100	
	1600									
≤ 6	1000				2 x 80					
	1200		1 x 80							
	1400			1 x 100			2 x 100		2 x 125	
	1600									
≤ 8	1000		1 x 100							
	1200									
	1400				2 x 100			2 x 125		
	1600								2 x 160	
≤ 10	1000	1 x 100	2 x 80					2 x 125		2 x 160
	1200	2 x 80								
	1400		2 x 100							
	1600				2 x 125	2 x 160			2 x 180	

Fig. 4: Connection spigots for window air curtain units

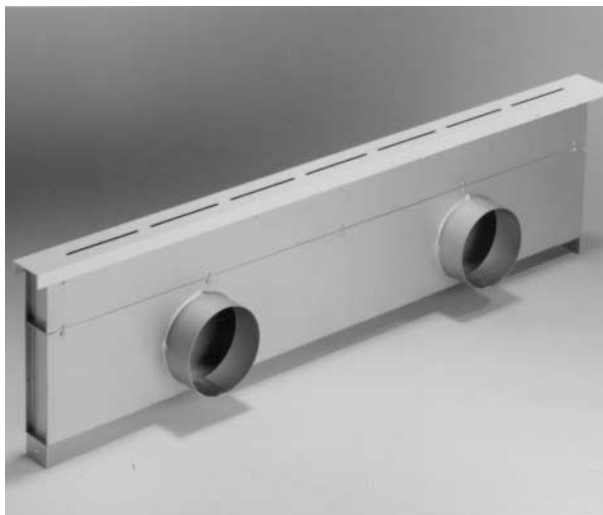
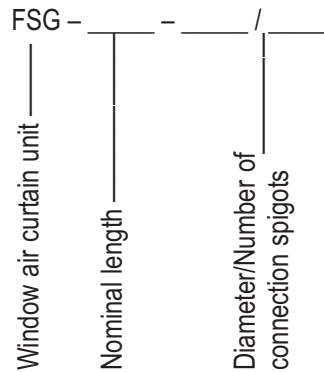


Fig. 5: Window air curtain unit

Type code



Nominal length: 1000, 1200, 1400, 1600 mm

Connection spigots: one or two, DN 80 to DN 180 depending on volume flow rate and nominal length of unit.

Tender text

..... units

Window air curtain unit for installation along the inner side of a facade where it generates an air curtain, consisting of:

- a linear discharge element with several slots in a line,
- a connection box with lateral connection spigot(s),
- fastening brackets under the connection box,
- an upper cover profile.

Technical data

- Volume flow rate: l/s (m³/h)
- Permissible sound power level: dB(A)
- Nominal length of unit: mm
- Length of cover profile: mm
- Slot width: mm
- Diameter of connection spigot: DN
- Number of connection spigots: piece(s)

Material

- Discharge element and connection box: galvanized sheet metal
- Cover profile: sheet metal painted to RAL

Make: KRANTZ KOMponenten

Type: FSG – — — — / — — — — —

Subject to technical alterations!



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