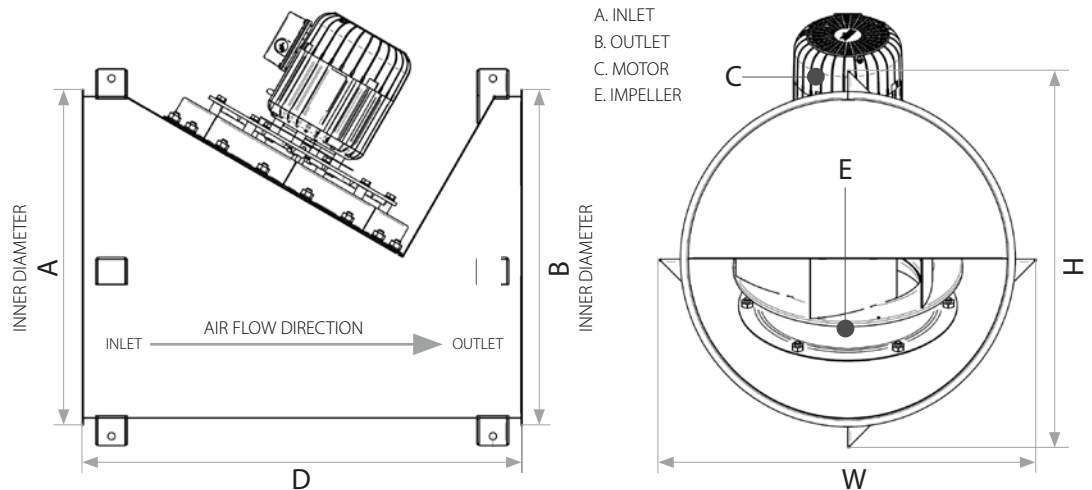


## Inline fan CFIR

The CFIR inline fan supplies mechanical draught to gas, oil and steam installations. Designed to work at continuous flue gas temperatures of up to 600 °C, the CFIR inline fan can be installed both vertically and horizontally in your duct system, indoor as well as outdoor (from -40 °C to +50 °C), providing you with more freedom of design.

Stable construction suitable for pulsating boilers. All stainless steel in accordance with EN1.4404(316L) makes it suitable for corrosive environments. New, improved and space-saving cylindrical design replaces old CFI box design for a more seamless and aesthetically pleasing integration with cylindrical ducts and chimney flues.

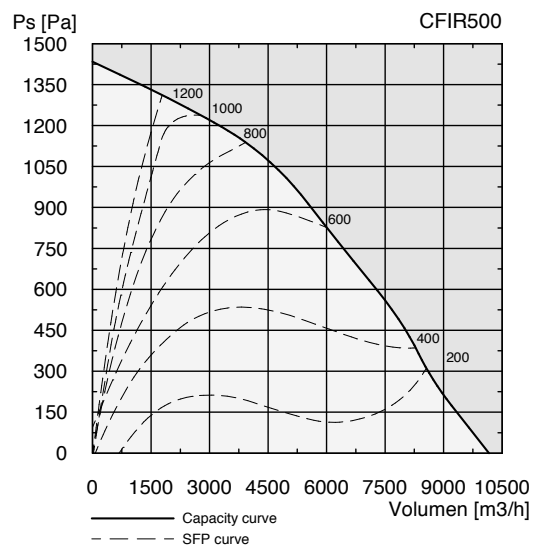
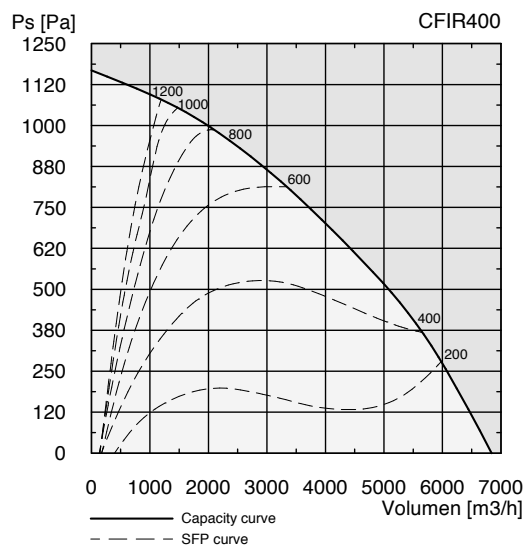
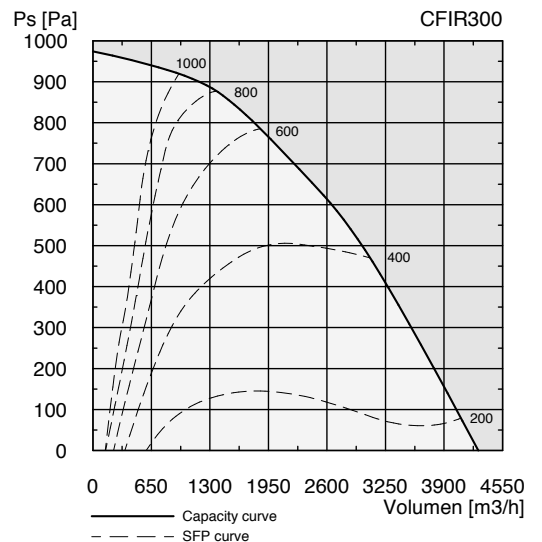
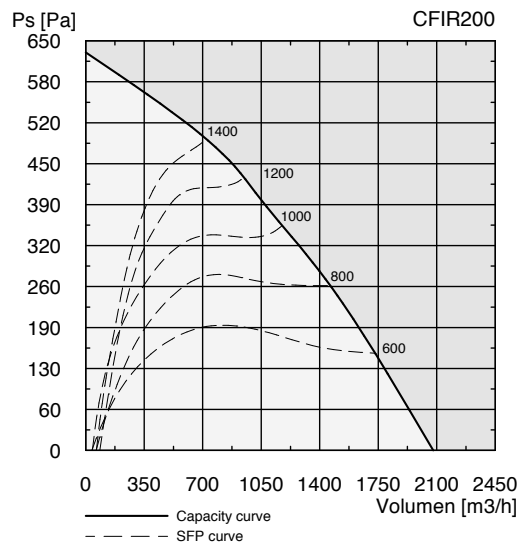


Type	Motor data					Frequency inverter		Weight [kg]	Dimensions					Temp. rating	
	RPM (nominal)	RPM (max.)	Voltage [V]	Power [kW]	Current [A]	Voltage [V]	Current [A]		A Ø [mm]	B Ø [mm]	D [mm]	H [mm]	W [mm]		Chimney Ø [mm]
CFIR200	1750	2400	3 x 208-240*	0.75	3.0	3 x 208-240	4.3	23	406	406	600	568	491	300**	Maximum 600 °C
CFIR300	1750	2200	3 x 380-400*	1.5	3.7	3 x 380-400	5.6	38	508	508	700	662	599	350**	
CFIR400	1750	1950	3 x 380-400*	2.2	4.8	3 x 380-400	7.5	56	610	610	850	784	700	400**	
CFIR500	1750	1950	3 x 380-400*	3.0	7.3	3 x 380-400	11.5	75	711	711	1000	859	802	500**	

\* exodraft frequency inverter required

\*\* Nominal chimney connection

# Capacity diagram



= Specific Fan Power (SFP) curve  
= Capacity curve

### SFP

$$\text{SFP} = [\text{joule/m}^3]$$

P1 = consumption [watt]

V = volume [m<sup>3</sup>/h]

$$P1 = \frac{\text{SFP} \times V}{3600}$$

### Capacity curve

The capacity diagrams are measured with a flue gas temperature of 20 °C. The fan's capacity changes with the temperature of the flue gases. The correction of the capacity can be calculated using the following equation:

$P_{s_t}$  = static pressure at a certain temperature (t)

t = temperature measured in °C

$P_{s_{20}}$  = static pressure at 20 °C

$$P_{s_{20}} = P_{s_t} \times \frac{(273 + t)}{293}$$

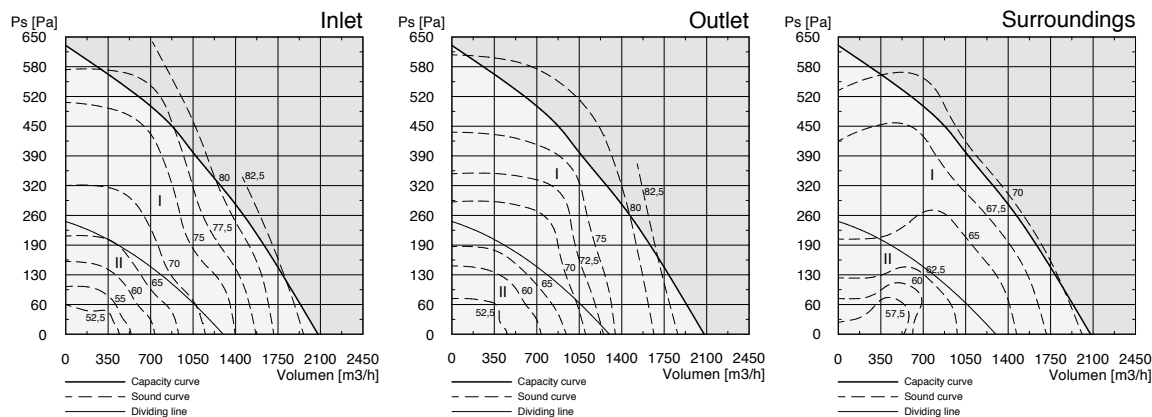
Example:

System demand: 1.800 m<sup>3</sup>/h and 32 Pa at 180 °C

Fan selection: CFIR300 1.800 m<sup>3</sup>/h and 49 Pa at 20 °C

$$P_{s_{20}} = 32 \times \frac{(273 + 180)}{293}$$

# Sound data CFIR200



**Table 1**

Correction factors for calculating sound output in the first octave band to channels and surroundings. [dB]

	Area	63Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Inlet channel ( $K_W$ )	I	7	4	7	-4	-15	-16	-17	-20
	II	10	13	2	-5	-14	-17	-17	-28
Outlet channel ( $K_W$ )	I	6	2	6	-3	-8	-12	-14	-19
	II	8	10	2	-6	-6	-14	-17	-27
Surroundings ( $K_W$ )	I	-1	-3	-1	-3	-5	-8	-11	-12
	II	2	-1	-6	-2	-5	-15	-17	-14

**Table 2**

Correction factors for calculating A-weighted sound pressure to surroundings [dB(A)]

	Area	5m							
Pressure ( $K_{pA}$ )	I	-22							
	II	-22							

**Table 3**

**Example:** Sound power output level for inlet channel [dB] = (Readings in Diagram A) + (Correction factor in Table 1)

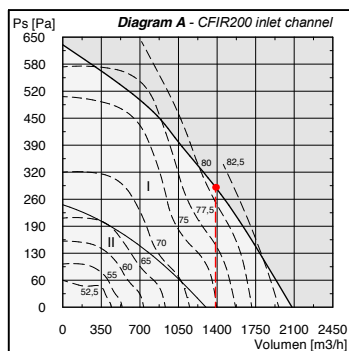
	Area	63Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Sound power output to inlet channel in the first octave band ( $L_{W1}$ )	I	88	85	88	77	66	65	64	61
	II	-	-	-	-	-	-	-	-

**Table 4**

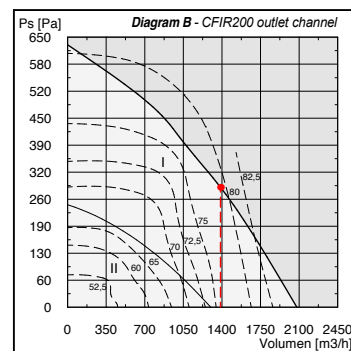
**Example:** Sound power output level for outlet channel [dB] = (Readings in Diagram B) + (Correction factor in Table 1)

	Area	63Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Sound power output to outlet channel in the first octave band ( $L_{W2}$ )	I	85	81	85	76	71	67	65	60
	II	-	-	-	-	-	-	-	-

For the values in **Table 3** is read the factor ( $L_{WA1}$ ) in **Diagram A** at 2/3 of max. flow. 2/3 of 2079 m³/h = 1386 m³/h  
Reading = 81 dB



For the values in **Table 4** is read the factor ( $L_{WA2}$ ) in **Diagram B** at 2/3 of max. flow. 2/3 of 2079 m³/h = 1386 m³/h  
Reading = 79 dB

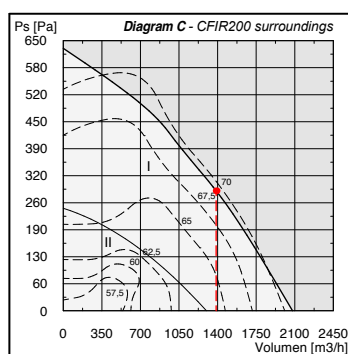


# Sound data CFIR200

Table 5									
<b>Example:</b> Sound power output level for surroundings [dB] = (Readings in Diagram C) + (Correction factor in Table 1)									
Sound power output to surroundings in the first octave band ( $L_{W3}$ )	Area	63Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
	I	68	66	68	66	64	61	58	57
	II	-	-	-	-	-	-	-	-

Table 6									
<b>Example:</b> Sound pressure to surroundings [dB(A)] = (Readings in Diagram C) + (Correction factor in Table 2) Every time that distance doubles another 6dB is withdrawn. Example: 10m = 69 -22 -6 = 41									
A-weighted sound pressure in ( ) meters distance ( $L_{pA3}$ )	Area	5m	10m	20m	40m				
	I	47	41	35	29				
	II	-	-	-	-				

For the values in **Table 5** and **Table 6** is read the factor (LWA1) in **Diagram C** at 2/3 of max. flow. 2/3 of 2079 m<sup>3</sup>/h = 1386 m<sup>3</sup>/h  
Reading = 69 dB

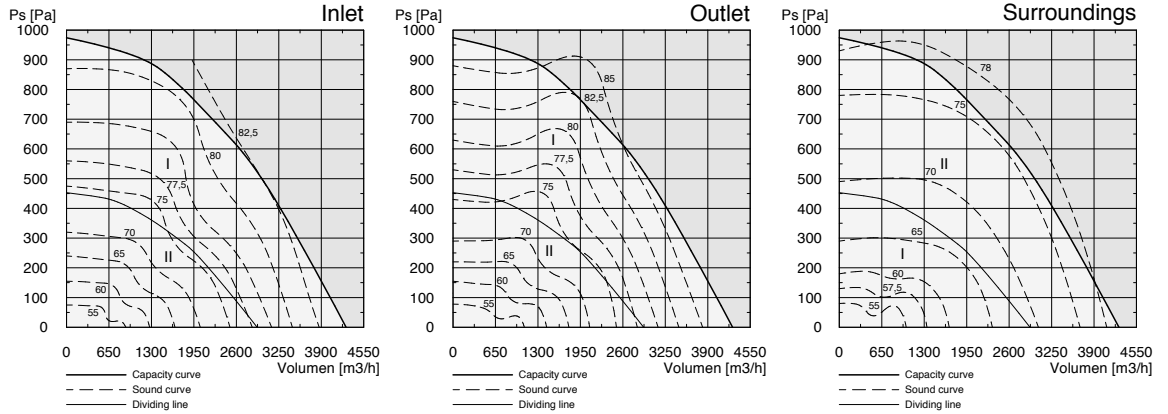


$K_{W1}$ : Correction factor for calculating sound output in the first octave band.  
 $K_{pA}$ : Correction factor for calculating A-weighted sound pressure.

$L_{W1}$ : Sound power output level for inlet channel  
 $L_{W2}$ : Sound power output level for the outlet channel  
 $L_{W3}$ : Sound power output level to surroundings  
 $L_{pA3}$ : Sound pressure level dB(A) at a distance of 10 metres from hemi-spherical sound dissipation in free field and with insulated connection ducts.

I: Upper operating area.  
II: Lower operating area.  
 $L_{W(A)}$  can be read from the curve diagram.

# Sound data CFIR300



**Table 1**  
Correction factors for calculating sound output in the first octave band to channels and surroundings. [dB]

	Area	63Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Inlet channel ( $K_W$ )	I	7	5	8	-6	-13	-13	-15	-21
	II	11	13	3	-7	-13	-14	-16	-25
Outlet channel ( $K_W$ )	I	4	2	7	-4	-8	-12	-15	-22
	II	9	11	2	-5	-8	-12	-16	-26
Surroundings ( $K_W$ )	I	-3	-3	-3	-2	-5	-8	-12	-15
	II	1	-3	-3	-2	-6	-11	-15	-7

**Table 2**  
Correction factors for calculating A-weighted sound pressure to surroundings [dB(A)]

	Area	5m							
Pressure ( $K_{pA}$ )	I	-22							
	II	-22							

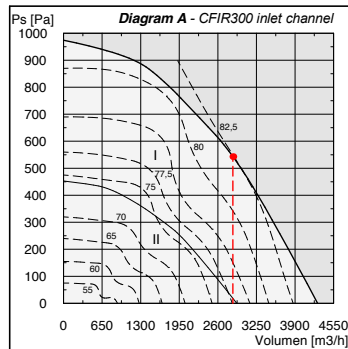
**Table 3**  
**Example:** Sound power output level for inlet channel [dB] = (Readings in Diagram A) + (Correction factor in Table 1)

	Area	63Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Sound power output to inlet channel in the first octave band ( $L_{W1}$ )	I	90	87	90	76	70	69	68	61
	II	-	-	-	-	-	-	-	-

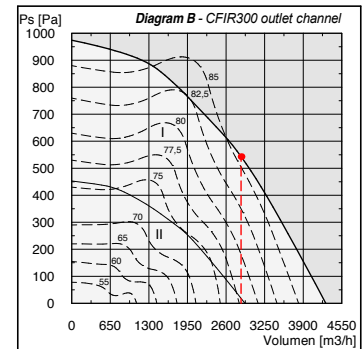
**Table 4**  
**Example:** Sound power output level for outlet channel [dB] = (Readings in Diagram B) + (Correction factor in Table 1)

	Area	63Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Sound power output to outlet channel in the first octave band ( $L_{W2}$ )	I	90	88	93	82	78	74	71	64
	II	-	-	-	-	-	-	-	-

For the values in **Table 3** is read the factor ( $L_{WA1}$ ) in **Diagram A** at 2/3 of max. flow. 2/3 of 4281 m³/h = 2854 m³/h  
Reading = 82,5 dB



For the values in **Table 4** is read the factor ( $L_{WA2}$ ) in **Diagram B** at 2/3 of max. flow. 2/3 of 4281 m³/h = 2854 m³/h  
Reading = 86 dB

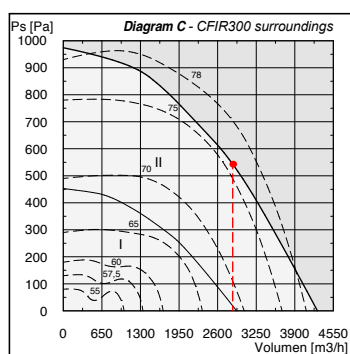


# Sound data CFIR300

Table 5									
<b>Example:</b> Sound power output level for surroundings [dB] = (Readings in Diagram C) + (Correction factor in Table 1)									
Sound power output to surroundings in the first octave band ( $L_{W3}$ )	Area	63Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
I		73	73	73	74	71	68	64	61
II		-	-	-	-	-	-	-	-

Table 6									
<b>Example:</b> Sound pressure to surroundings [dB(A)] = (Readings in Diagram C) + (Correction factor in Table 2) Every time that distance doubles another 6dB is withdrawn. Example: 10m = 76 -22 -6 = 48									
A-weighted sound pressure in ( ) meters distance ( $L_{pA3}$ )	Area	5m	10m	20m	40m				
I		54	48	42	36				
II		-	-	-	-				

For the values in **Table 5** and **Table 6** is read the factor (LWA1) in **Diagram C** at 2/3 of max. flow. 2/3 of 4281 m<sup>3</sup>/h = 2854 m<sup>3</sup>/h  
Reading = 76 dB

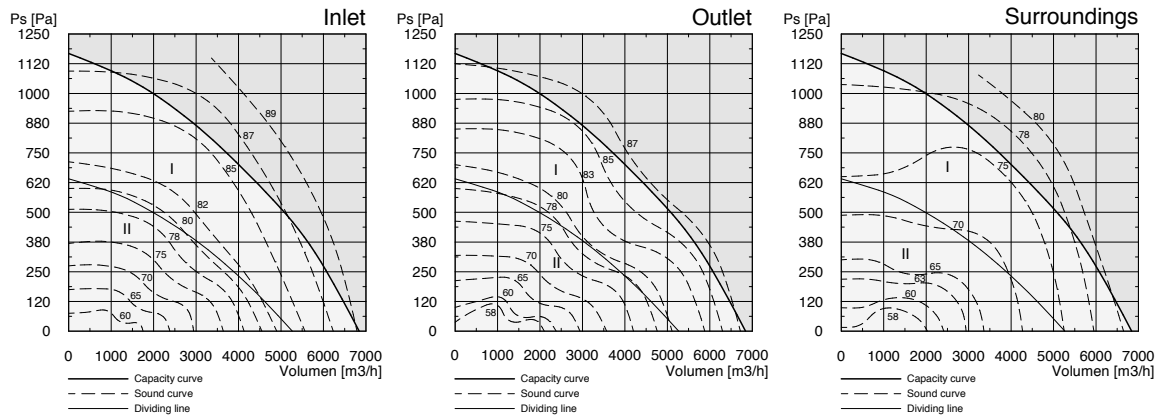


$K_{W1}$ : Correction factor for calculating sound output in the first octave band.  
 $K_{pA}$ : Correction factor for calculating A-weighted sound pressure.

$L_{W1}$ : Sound power output level for inlet channel  
 $L_{W2}$ : Sound power output level for the outlet channel  
 $L_{W3}$ : Sound power output level to surroundings  
 $L_{pA3}$ : Sound pressure level dB(A) at a distance of 10 metres from hemi-spherical sound dissipation in free field and with insulated connection ducts.

I: Upper operating area.  
II: Lower operating area.  
 $L_{WA1}$  can be read from the curve diagram.

# Sound data CFIR400



**Table 1**

Correction factors for calculating sound output in the first octave band to channels and surroundings. [dB]

	Area	63Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Inlet channel ( $K_W$ )	I	7	7	7	-8	-11	-13	-14	-20
	II	9	15	1	-10	-13	-15	-17	-22
Outlet channel ( $K_W$ )	I	7	7	6	-7	-9	-13	-13	-15
	II	12	13	1	-7	-9	-13	-14	-15
Surroundings ( $K_W$ )	I	2	2	-2	-2	-6	-8	-14	-14
	II	4	1	-4	-1	-8	-12	-17	-6

**Table 2**

Correction factors for calculating A-weighted sound pressure to surroundings [dB(A)]

	Area	5m							
Pressure ( $K_{pA}$ )	I	-22							
	II	-22							

**Table 3**

**Example:** Sound power output level for inlet channel [dB] = (Readings in Diagram A) + (Correction factor in Table 1)

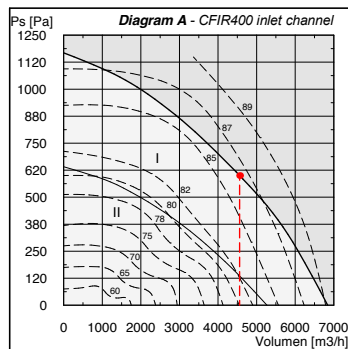
	Area	63Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Sound power output to inlet channel in the first octave band ( $L_{W1}$ )	I	93	93	93	78	75	73	72	66
	II	-	-	-	-	-	-	-	-

**Table 4**

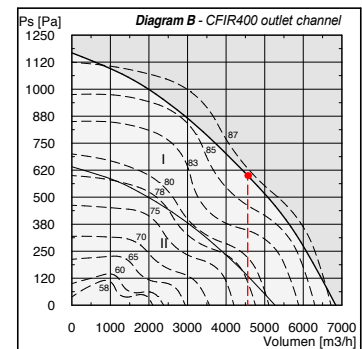
**Example:** Sound power output level for outlet channel [dB] = (Readings in Diagram B) + (Correction factor in Table 1)

	Area	63Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Sound power output to outlet channel in the first octave band ( $L_{W2}$ )	I	94	94	92	79	78	74	73	72
	II	-	-	-	-	-	-	-	-

For the values in **Table 3** is read the factor ( $L_{WA1}$ ) in **Diagram A** at 2/3 of max. flow. 2/3 of 6840 m³/h = 4560 m³/h  
Reading = 86 dB



For the values in **Table 4** is read the factor ( $L_{WA2}$ ) in **Diagram B** at 2/3 of max. flow. 2/3 of 6840 m³/h = 4560 m³/h  
Reading = 86,5 dB

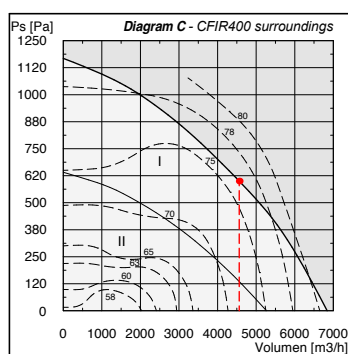


# Sound data CFIR400

Table 5									
<b>Example:</b> Sound power output level for surroundings [dB] = (Readings in Diagram C) + (Correction factor in Table 1)									
Sound power output to surroundings in the first octave band ( $L_{W3}$ )	Area	63Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
	I	78	78	74	74	70	68	62	62
	II	-	-	-	-	-	-	-	-

Table 6									
<b>Example:</b> Sound pressure to surroundings [dB(A)] = (Readings in Diagram C) + (Correction factor in Table 2) Every time that distance doubles another 6dB is withdrawn. Example: 10m = 76 -22 -6 = 48									
A-weighted sound pressure in ( ) meters distance ( $L_{pA3}$ )	Area	5m	10m	20m	40m				
	I	54	48	42	36				
	II	-	-	-	-				

For the values in **Table 5** and **Table 6** is read the factor (LWA1) in **Diagram C** at 2/3 of max. flow. 2/3 of 6840 m<sup>3</sup>/h = 4560 m<sup>3</sup>/h  
Reading = 76 dB



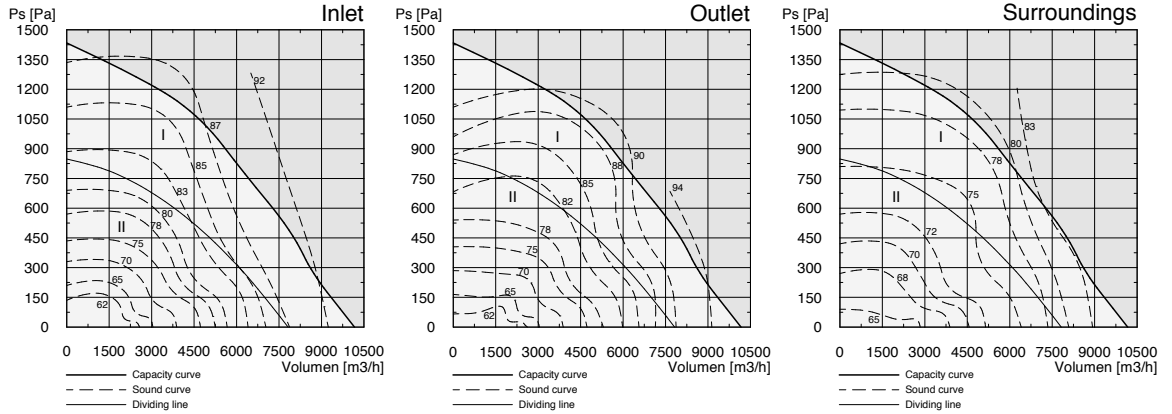
$K_{W1}$ : Correction factor for calculating sound output in the first octave band.  
 $K_{pA}$ : Correction factor for calculating A-weighted sound pressure.

$L_{W1}$ : Sound power output level for inlet channel  
 $L_{W2}$ : Sound power output level for the outlet channel  
 $L_{W3}$ : Sound power output level to surroundings  
 $L_{pA3}$ : Sound pressure level dB(A) at a distance of 10 metres from hemi-spherical sound dissipation in free field and with insulated connection ducts.

I: Upper operating area.  
II: Lower operating area.  
 $L_{WA1}$  can be read from the curve diagram.



# Sound data CFIR500



**Table 1**

Correction factors for calculating sound output in the first octave band to channels and surroundings. [dB]

	Area	63Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Inlet channel ( $K_W$ )	I	7	5	7	-7	-9	-12	-12	-20
	II	9	14	2	-9	-10	-13	-17	-22
Outlet channel ( $K_W$ )	I	2	5	4	-3	-6	-12	-13	-22
	II	8	11	2	-3	-6	-12	-16	-20
Surroundings ( $K_W$ )	I	1	1	-1	-2	-7	-8	-14	-11
	II	1	-1	-8	-8	-12	-15	-21	0

**Table 2**

Correction factors for calculating A-weighted sound pressure to surroundings [dB(A)]

	Area	5m							
Pressure ( $K_{pA}$ )	I	-22							
	II	-22							

**Table 3**

**Example:** Sound power output level for inlet channel [dB] = (Readings in Diagram A) + (Correction factor in Table 1)

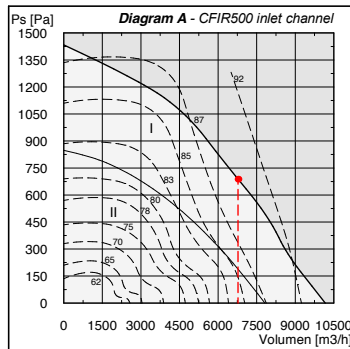
	Area	63Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Sound power output to inlet channel in the first octave band ( $L_{W1}$ )	I	97	95	97	83	81	78	78	70
	II	-	-	-	-	-	-	-	-

**Table 4**

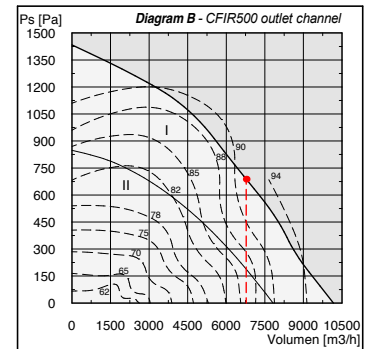
**Example:** Sound power output level for outlet channel [dB] = (Readings in Diagram B) + (Correction factor in Table 1)

	Area	63Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
Sound power output to outlet channel in the first octave band ( $L_{W2}$ )	I	93	96	95	88	85	79	78	69
	II	-	-	-	-	-	-	-	-

For the values in **Table 3** is read the factor ( $L_{WA1}$ ) in **Diagram A** at 2/3 of max. flow. 2/3 of 10166 m³/h = 6777 m³/h  
Reading = 90 dB



For the values in **Table 4** is read the factor ( $L_{WA2}$ ) in **Diagram B** at 2/3 of max. flow. 2/3 of 10166 m³/h = 6777 m³/h  
Reading = 91 dB



# Sound data CFIR500

**Table 5**

**Example:** Sound power output level for surroundings [dB] = (Readings in Diagram C) + (Correction factor in Table 1)

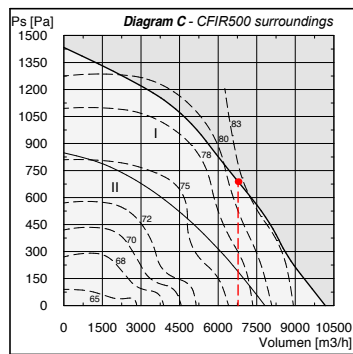
Sound power output to surroundings in the first octave band ( $L_{W3}$ )	Area	63Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz
I		83	83	81	80	75	74	68	71
II		-	-	-	-	-	-	-	-

**Table 6**

**Example:** Sound pressure to surroundings [dB(A)] = (Readings in Diagram C) + (Correction factor in Table 2)  
Every time that distance doubles another 6dB is withdrawn. Example: 10m = 82 -22 -6 = 54

A-weighted sound pressure in ( ) meters distance ( $L_{pA3}$ )	Area	5m	10m	20m	40m				
I		60	54	48	42				
II		-	-	-	-				

For the values in **Table 5** and **Table 6** is read the factor ( $L_{WA1}$ ) in **Diagram C** at 2/3 of max. flow. 2/3 of 10166 m<sup>3</sup>/h = 6777 m<sup>3</sup>/h  
Reading = 82 dB



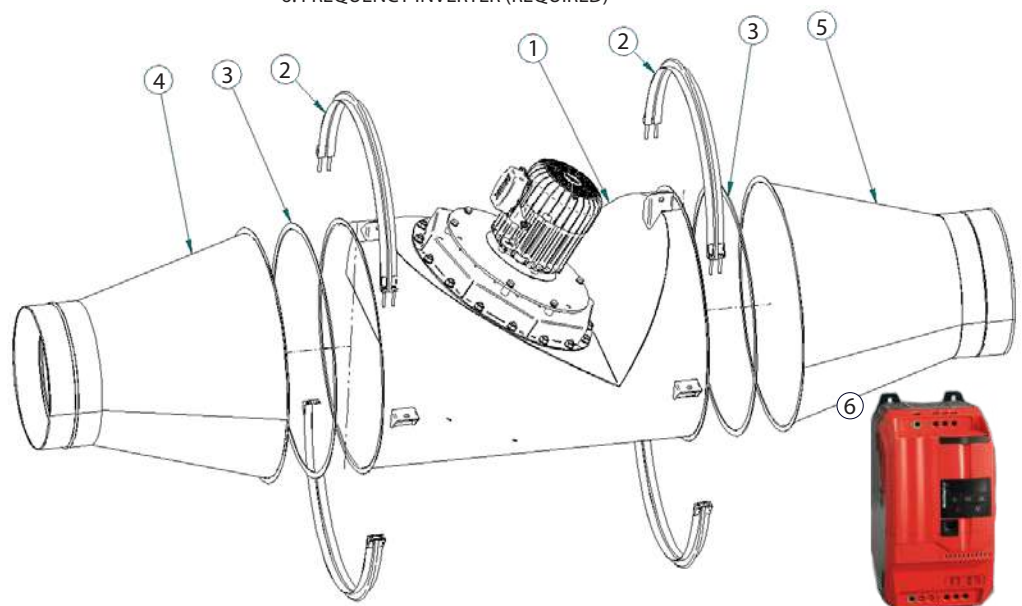
$K_{W1}$ : Correction factor for calculating sound output in the first octave band.  
 $K_{pA}$ : Correction factor for calculating A-weighted sound pressure.

$L_{W1}$ : Sound power output level for inlet channel  
 $L_{W2}$ : Sound power output level for the outlet channel  
 $L_{W3}$ : Sound power output level for surroundings  
 $L_{pA3}$ : Sound pressure level dB(A) at a distance of 10 metres from hemi-spherical sound dissipation in free field and with insulated connection ducts.

I: Upper operating area.  
II: Lower operating area.  
 $L_{WA1}$  can be read from the curve diagram.

## Complete solution

1. CFIR INLINE FAN
2. U-BAND (2x)
3. FLANGE GASKET (2x)
4. INLET CONE (NIPPLE COUPLING)
5. OUTLET CONE (SLEEVE COUPLING)
6. FREQUENCY INVERTER (REQUIRED)

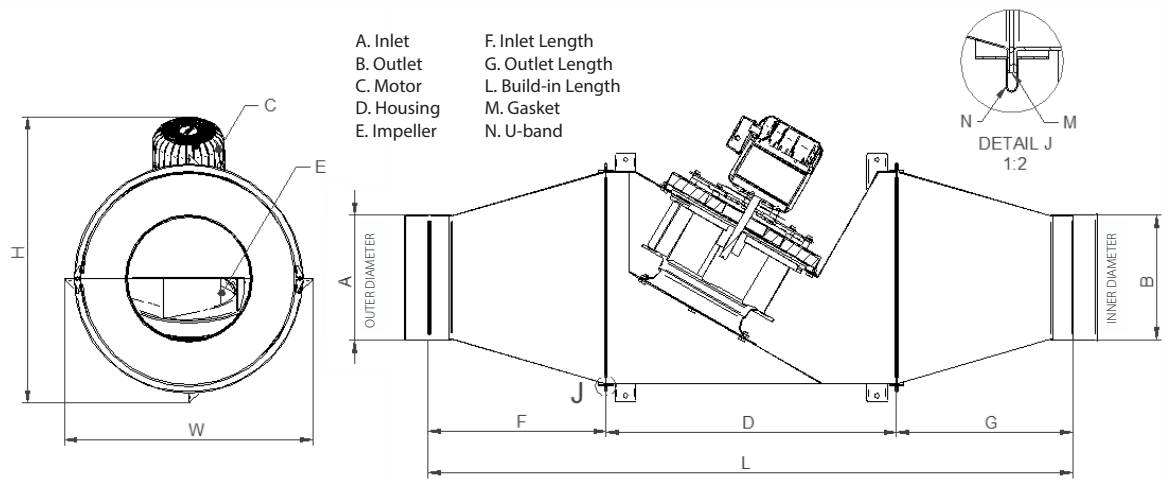


On the next page, you find an overview of the various components in different sizes, allowing you to select a matching set for the sizing you need.

**exodraft a/s**  
Industrivej 10  
5550 Langeskov  
Denmark

www.exodraft.com

# Configurations



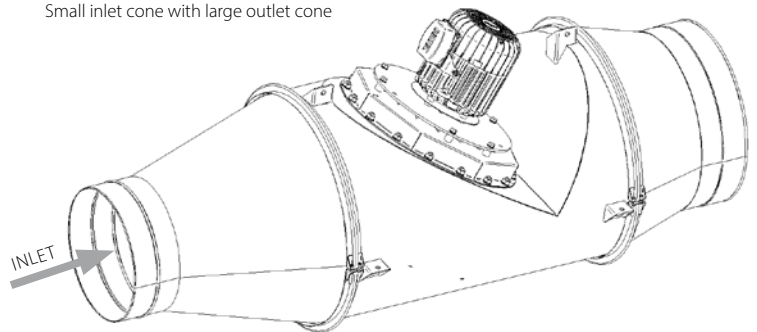
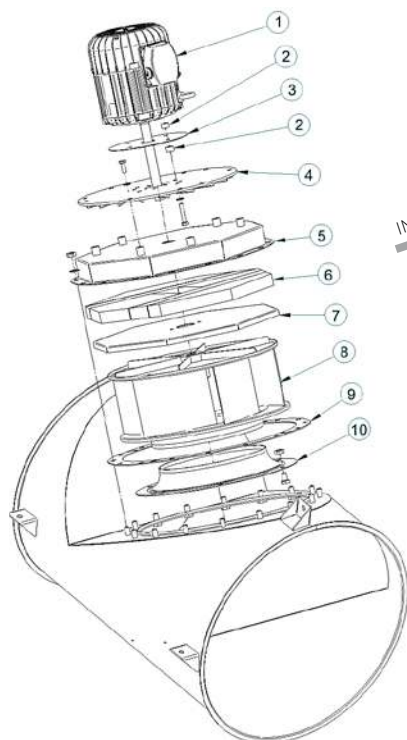
Model	Fan			Cone Inlet	Cone Outlet	U-band	Gasket	Dimensions & Weight									
	RPM (max)	Voltage [V]	Power [kW]					Weight [kg]	A [mm]	B [mm]	D [mm]	F [mm]	G [mm]	H [mm]	L [mm]	W [mm]	Chimney [mm]
<b>1 pcs.</b>				<b>1 pcs.</b>	<b>1 pcs.</b>	<b>2 pcs.</b>	<b>2 pcs.</b>										
CFIR200	2400	3 x 208 -230*	0.75	CFIR200-STUDS250	CFIR200-MUFFE250	CFIR200-UBAND	CFIR200-PAK	30	250.5	251.3	600	338	333	568	1272	491	250**
				CFIR200-STUDS300	CFIR200-MUFFE300			29	300.5	301.3		251	246		1097		
CFIR300	2200	3 x 380 -480*	1.5	CFIR300-STUDS300	CFIR300-MUFFE300	CFIR300-UBAND	CFIR300-PAK	50	300.5	301.3	700	431	426	662	1557	599	300**
				CFIR300-STUDS350	CFIR300-MUFFE350			48	350.5	351.3		343	339		1382		
				CFIR300-STUDS400	CFIR300-MUFFE400			47	400.5	401.3		257	251		1208		
CFIR400	2000	3 x 380 -480*	2.2	CFIR400-STUDS400	CFIR400-MUFFE400	CFIR400-UBAND	CFIR400-PAK	71	400.5	401.3	850	435	429	784	1614	700	400**
				CFIR400-STUDS500	CFIR400-MUFFE500			67	500.5	501.3		260	255		1265		
CFIR500	2000	3 x 380 -480*	3.0	CFIR500-STUDS500	CFIR500-MUFFE500	CFIR500-UBAND	CFIR500	93	500.5	501.3	1000	436	431	859	1867	802	500**
				CFIR500-STUDS600	CFIR500-MUFFE600			89	600.5	601.3		262	257		1519		

\* exodraft frequency inverter required

\*\* Nominal chimney connection

### Example of asymmetrical configuration

Small inlet cone with large outlet cone



1. MOTOR
2. SPACER
3. MOTOR HEAT SHIELD
4. MOTOR PLATE DOMEL
5. MOTOR MOUNTING PLATE
6. INSULATION
7. INSULATION COVER
8. IMPELLER
9. GASKET
10. INLET CONE FOR IMPELLER

Fan model	Cone (inlet)	Cone (outlet)	U-band	Gasket
<b>1 pcs.</b>	<b>1 pcs.</b>	<b>1 pcs.</b>	<b>2 pcs.</b>	<b>2 pcs.</b>
CFIR300	CFIR300-STUDS300	CFIR300-MUFFE400	CFIR300-UBAND	CFIR300-PAK

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