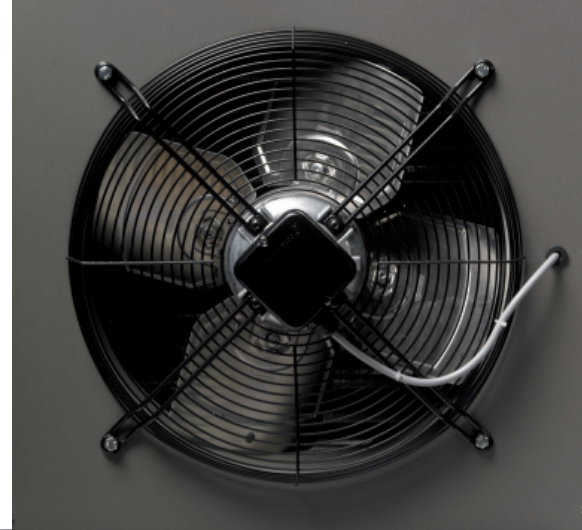
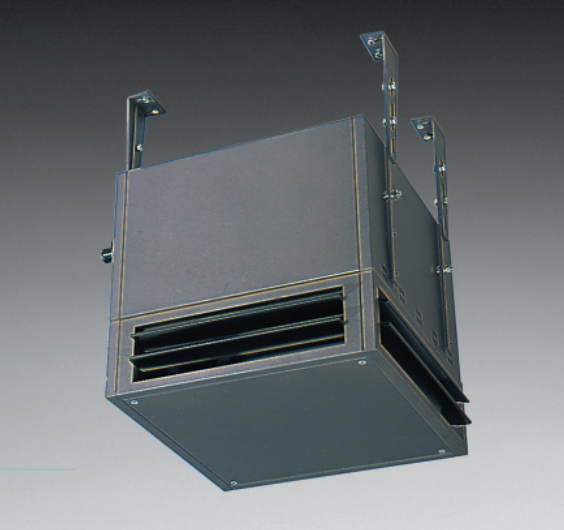
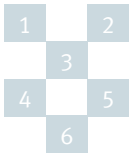


JAGA AVS-Unit Heater





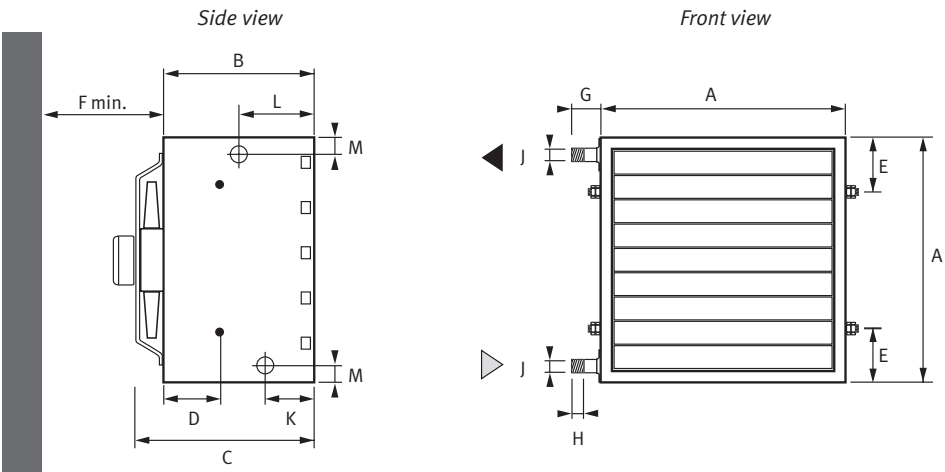
JAGA AVS-Unit heater



1. UH with 4-sided AVS air diffuser
2. a Ziehl-Abegg external motor
3. UH with exhaust cone
4. UH with set of brackets A
5. UH with safety switch
6. Mini UH

Jaga AVS® Unit heater

Dimensions



Type		021	031	120	130	220	230	320	330	420	430
Outside dimensions	A	41.0	41.0	53.0	53.0	65.0	65.0	77.0	77.0	89.0	89.0
	B	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
	C	43.5	43.5	44.0	44.0	44.6	44.6	45.2	45.2	46.5	46.5
Installation	D	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
	E	10.5	10.5	11.5	11.5	12.5	12.5	13.5	13.5	14.5	14.5
	F	30.0	30.0	35.0	35.0	45.0	45.0	56.0	56.0	65.0	65.0
Connections	G	4.8	4.8	4.8	4.8	4.8	4.8	5.1	5.1	5.1	5.1
	H	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.5	2.5	2.5
	ø J	G1"	G1"	G1"	G1"	G1"	G1"	G6/4"	G6/4"	G6/4"	G6/4"
	K	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.9
	L	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8	19.8
	M	4.5	4.5	4.5	4.5	4.5	4.5	5.2	5.2	5.2	5.2
Weight	kg	20.0	22.0	30.0	32.0	43.0	46.0	56.0	59.0	71.0	75.0

Dimensions in cm

Jaga AVS®: Air Venturi System

Lower exhaust temperature with an equal capacity

The stepless Venturi System can be adjusted continuously and is incorporated as standard in each Jaga AVS. The result is a direct mixture of the heated air with the ambient air. The exhaust air temperature drops and the heat carrying capacity increases, without any loss of output.

How it works::

The Jaga AVS® is provided with Venturi-openings and aerodynamic formed exhaust adjustable louvres each of which can be adjusted continuously and separately. These adjustable louvres may be placed in a normal parallel position, but they may also be directed in pairs towards each other.

In this position the exhaust opening will be reduced and due to the form of the adjustable louvres an underpressure will be created at the height of the Venturi-openings.

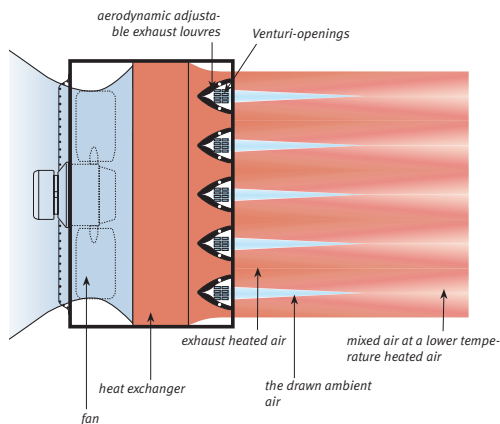
The result is that the entire ambient air will be equal and at a low speed be drawn and immediately mixed with the exhaust air, which results in a cooler exhaust temperature.

The ascending power of the air will be reduced strongly, resulting in more equal temperature and a faster heating up of the room will be obtained.

Advantages:

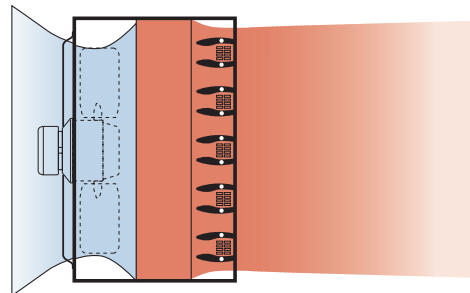
- higher comfort
- lower energy cost
- faster heating up speed
- equal temperature
- adjustable heat carrying capacity

The adjustable louvres in Venturi position



Not only the exhaust direction but also the heat carrying capacity may be adjusted. By adding cooler ambient air the exhaust temperature will drop and a more stable air jet and larger heat carrying capacity will be obtained.

The adjustable louvres in parallel position

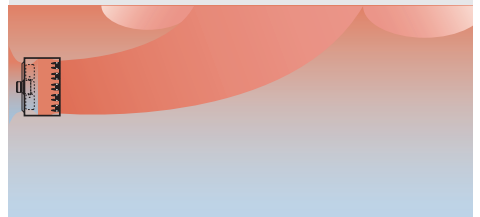


This is the normal position with common unit heaters. Without special accessories it is almost impossible to adjust the air jet. Only the exhaust direction may slightly be adjusted by moving the slats.

The main problem with unit heaters in general is the heat accumulation at the roof or ceiling level especially in high level roof spaces. The temperature difference between the floor and the ceiling increases in proportion to the exhaust temperature of the unit heater. The higher the exhaust temperature the faster the heated air rises, pushing the cooler down to floor level.

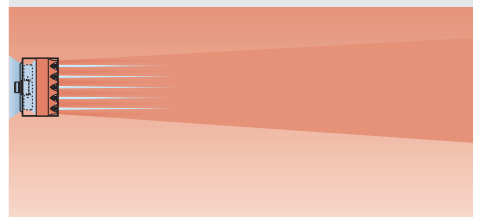
Consequently more energy will be required to heat up the floor area in order to create a comfortable temperature.

Higher air flow, lower exhaust temperature or additional fans can soften up the problem, but result in a considerable increase of cost or a higher noise level.



Standard unit heaters

Due to the higher air exhaust temperature the hot air will rise too quickly and the cooler air will consequently be pushed downwards.



The Jaga-AVS: Air Venturi System ®

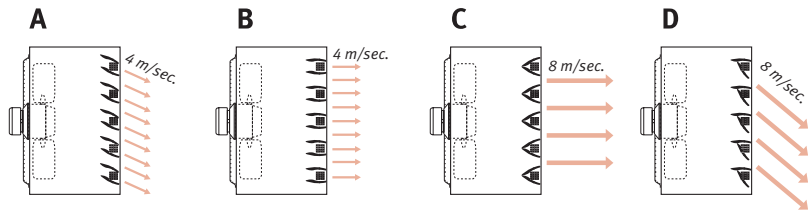
Due to the Air Venturi System the air exhaust temperature is lower, which reduces strongly the ascending power of the air. An even temperature, faster heating up and higher efficiency results.



Unit heater

Jaga Air Venturi System_positions

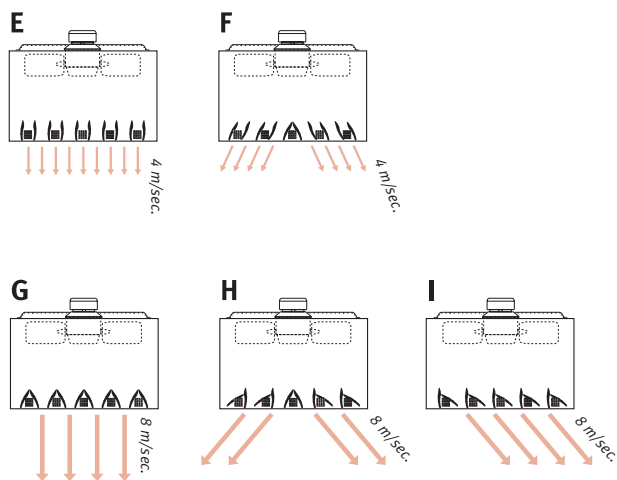
Wall mounting



adjusting AVS	
Height	Position
2.5 up to 3 m	B or C
3 up to 4 m	A
> 4 m	D

Tested with HA 221.
For other types contact the Jaga technical department.

Ceiling mounting



adjusting AVS	
Height	Position
H < Table	E or F
H = Table	G, H of I

see table of price and output page 239 up to 242.

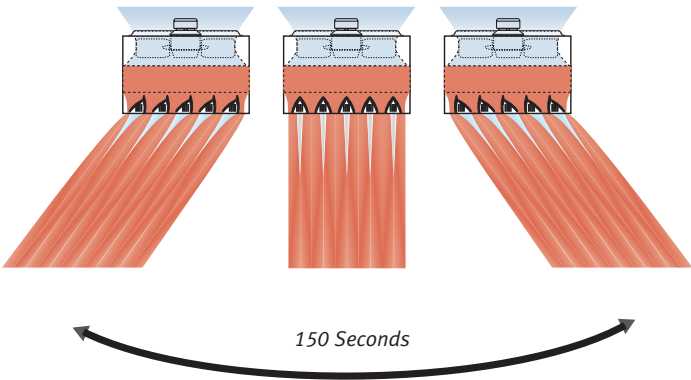
The modulating AVS® version

With the modulating AVS-version the exhaust louvers are linked in pairs and connected with a servomotor. This motor produces a continuous back and forth movement of the adjustable louvers. The air turbulation thus created provides an even better temperature distribution. The movement angle may be easily adjusted from 0 to 90°. A complete cycle takes around 150 seconds.

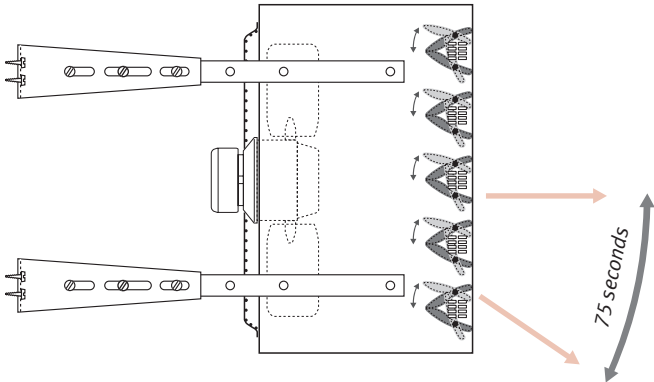
! The modulating operation is integrated into the equipment and therefore can not be delivered as an accessory.

Mini LV not available in the modulating version.

Ceiling mounting: position 90°

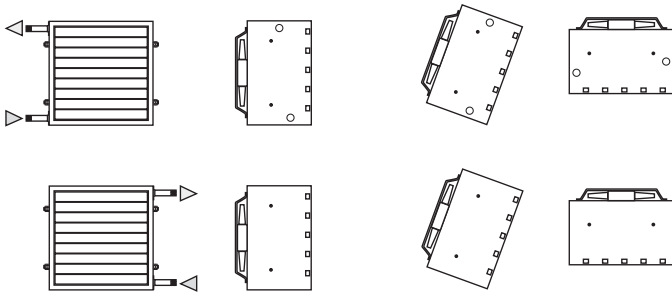


Wall mounting: position 45°

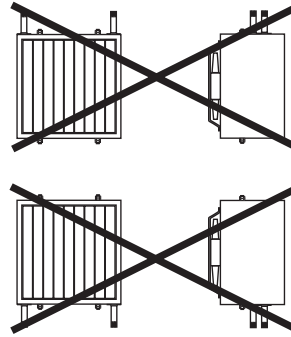


Jaga AVS® Unit heater_Hydraulic connection

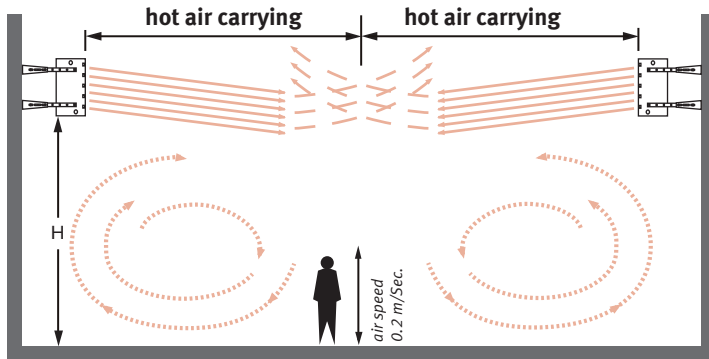
good



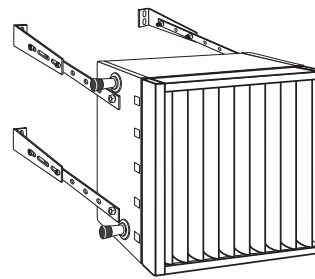
Incorrect



General Wall mounting

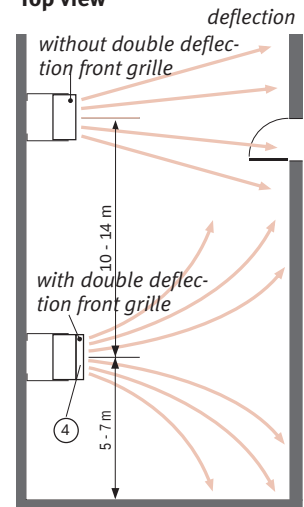


In order to maintain a comfortable feeling, please avoid exhausting heated air directly at people.

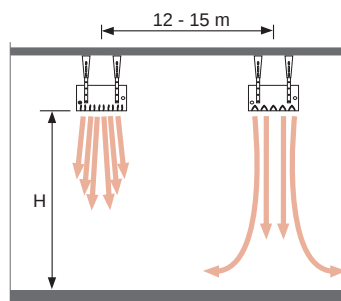


In small rooms a front grille must be fitted for double deflection to prevent a too high temperature at the opposite wall. The louvres are assembled both vertically and horizontally.

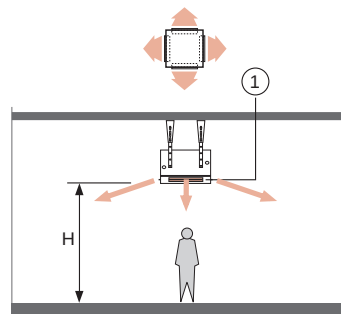
Top view



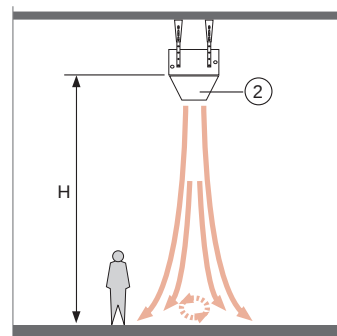
Ceiling design



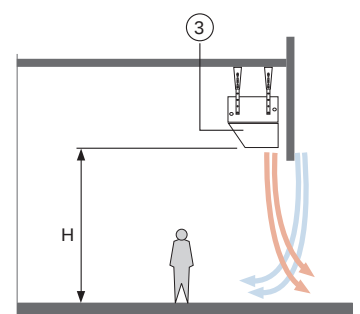
Position AVS: see page 236. 152.



In case of low ceilings a better horizontal diffusion should be obtained by using a 4 sided air diffuser.



With very high ceilings an outlet cone must be fitted on the appliance. (Higher than 6 metres).



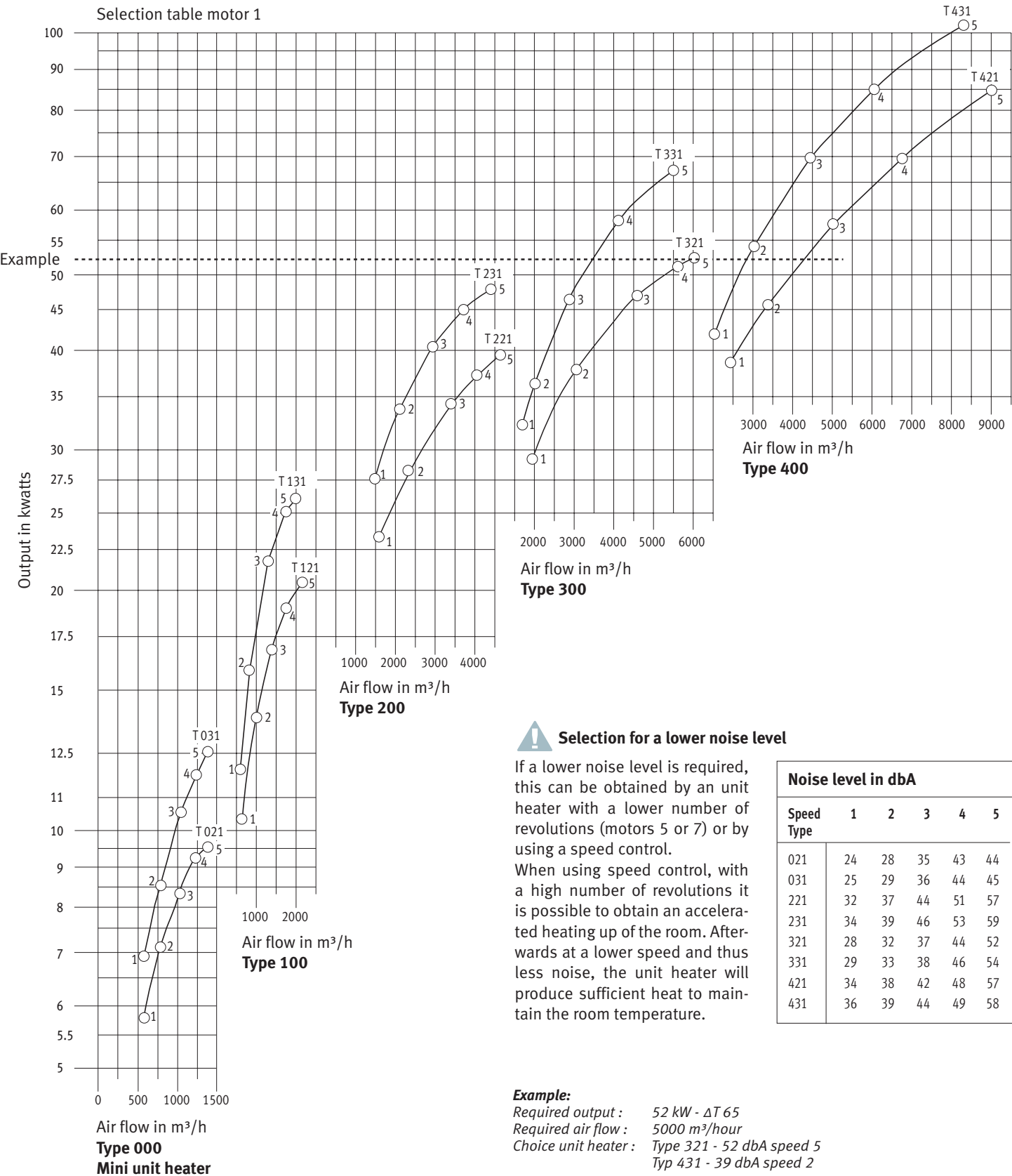
In order to prevent cold air entering the room via openings, a mouthpiece is available.

H see table of outputs

Jaga AVS® Unit heater_Selection table



Luchtverhitter



Jaga Mini Unit heater _ 230 V mono

Model Type
ORDERING CODE STANDARD:UNIT.021

Type		Output			Air exhaust-temperature			Revolutions	Air flow	The noise level	Hot air carrying			Hot air carrying is an approximative value for free drawing and exhausting air Tl ca. 15 à 20K over the room temperature.				
		Tv 80 Tr 60 Tl 20 ΔT=50	Tv 70 Tr 55 Tl 15 ΔT=42.5	Tv 55 Tr 45 Tl 15 ΔT=35	at the heat exchanger, before the AVS-effect makes the temperature drop Tl 15° Tl 15° ΔT=50 ΔT=42.5 ΔT=35					at 5m	Horizontal standard  H min	 with AVS	 without AVS	Vertical standard  H max	 H max	 H max	 4 sides open	 2 sides open
	Speed	kwatts	kwatts	kwatts	C°	C°	C°	RPM	m³/u	dBA	m	m	m	m	m	m	m	m
UNIT 021 646,90	5	7,3	6,2	5,1	35	32	25	1375	1470	44		21.0	16.0	8.0	5.5	2.5	5.0	10.0
	4	7,1	6,0	5,0	36	34	26	1220	1300	43		19.0	14.0	6.5	4.5		4.5	9.0
	3	6,4	5,4	4,5	38	35	27	1020	1060	35	2.5	15.0	12.0	5.0	3.5	2.5	3.5	7.0
	2	5,5	4,7	3,9	41	38	30	775	770	28		11.0	8.0					
	1	4,5	3,8	3,2	44	41	32	575	540	24		8.0	6.0					
UNIT 031 708,90	5	9,6	8,2	6,7	42	39	30	1370	1290	45		19.0	14.0	7.5	5.0	2.5	4.5	9.0
	4	9,0	7,7	6,3	43	40	31	1230	1140	44		17.0	12.0	6.5	4.5		4.0	8.0
	3	8,1	6,9	5,7	45	42	33	1030	930	36	2.5	14.0	10.0	5.0	3.5	2.5	3.0	6.5
	2	6,5	5,5	4,6	49	44	35	780	660	29		10.0	7.0					
	1	5,3	4,5	3,7	54	49	39	570	450	25		7.0	5.0					

Standard delivery

Fully preassembled equipment in colour 001 sandblast grey metallic
Including manual AVS-system
Not included safety switch.

Options

Fixing with set of brackets A p. 160
4-sided AVS air diffuser: p. 162
Double deflection front grille: p. 163
Switch boxes: p. 165

Connection options

CODE	Description
.../SS	Fitted safety switch 1 x 230 V at the side

Example: UNIT. 021/SS



Jaga Unit heater AVS_motor 1_230 V mono

Model Type
ORDERING CODE STANDARD: UNIT.121
MODULATING: UNIM.121

Type		Output			Air exhaust-temperature			Revolutions	Air flow	The noise level	Hot air carrying Hot air carrying is an approximative value for free drawing and exhausting air Tl ca. 15 à 20K over the room temperature.									
		Tv 80 Tr 60 Tl 20 ΔT=50	Tv 70 Tr 55 Tl 15 ΔT=42.5	Tv 55 Tr 45 Tl 15 ΔT=35	at the heat exchanger, before the AVS-effect makes the temperature drop Tl 15° Tl 15° ΔT=50 ΔT=42.5 ΔT=35						 H min with AVS without AVS op 5m	 H max H max	 H max H max	 H max	 H max	 4 sides open	 2 sides open			
	Speed	kwatts	kwatts	kwatts	C°	C°	C°	RPM	m³/u	dBA	m	m	m	m	m	m	m	m	m	
UNIT121	5	15,8	13,4	11,1	42	39	30	1390	2160	53	23.0	18.0	8.0	5.5	3.5	9.0	2.5	6.0	12.5	
	4	14,6	12,4	10,2	45	41	32	1230	1750	49	19.0	14.0	6.5	4.5		7.5		5.0	10.0	
UNIM 121	3	13,0	11,1	9,1	48	44	34	920	1380	41	2.5	15.0	11.0	5.0	3.5	3.5	6.0	2.5	4.0	8.0
	2	10,6	9,0	7,4	52	47	37	650	1000	34		11.0	8.0							
	1	7,9	6,7	5,5	56	51	40	490	650	30		7.0	5.0							
UNIT 131	5	20,1	17,1	14,1	50	46	36	1390	1990	54	22.0	16.0	7.5	5.0	3.0	8.5	2.5	6.0	11.5	
	4	19,4	16,5	13,6	53	48	38	1230	1740	50	19.0	14.0	6.5	4.5		7.5		5.0	10.0	
UNIM 131	3	16,8	14,3	11,8	59	53	42	920	1290	42	2.5	14.0	11.0	5.0	3.5	3.0	5.5	2.5	3.5	7.5
	2	12,2	10,4	8,5	64	57	45	650	830	35		9.0	7.0							
	1	9,2	7,8	6,4	67	59	47	490	590	31		6.0	5.0							
UNIT 221	5	30,4	25,8	21,3	40	37	28	1330	4640	57	37.0	28.0	10.0	6.0	4.5	11.0	2.5	11.0	21.5	
	4	28,6	24,3	20,0	41	38	30	1130	4050	51	33.0	25.0	8.5	5.0		9.5		10.0	18.5	
UNIM 221	3	26,4	22,4	18,5	43	40	31	910	3400	44	2.5	27.0	21.0	7.5	4.5	4.5	8.0	2.5	8.0	15.5
	2	21,8	18,5	15,3	48	44	34	680	2320	37		19.0	14.0							
	1	17,9	15,2	12,5	54	49	38	500	1580	32		13.0	10.0							
UNIT 231	5	36,7	31,2	25,7	45	41	32	1330	4400	59	35.0	27.0	9.5	5.5	4.0	10.5	2.5	10.5	20.0	
	4	34,6	29,4	24,2	48	44	34	1130	3710	53	30.0	23.0	8.0	5.0		9.0		9.0	17.0	
UNIM 231	3	31,1	26,4	21,8	52	47	37	910	2940	46	2.5	24.0	18.0	6.5	4.0	4.0	7.0	2.5	7.0	13.5
	2	25,9	22,0	18,1	57	51	40	680	2100	39		17.0	13.0							
	1	21,2	18,0	14,8	63	56	44	500	1480	34		12.0	9.0							
UNIT 321	5	40,2	34,2	28,1	40	37	29	910	6030	52	40.0	30.0	10.5	6.5	5.0	11.5	3.0	12.5	22.5	
	4	39,2	33,3	27,4	41	38	29	710	5600	44	37.0	28.0	10.0	6.0		10.5		11.5	21.0	
UNIM 321	3	36,0	30,6	25,2	43	40	31	520	4580	37	3.0	30.0	23.0	8.0	5.0	5.0	8.5	3.0	9.5	17.0
	2	29,1	24,7	20,4	48	44	35	380	3060	32		20.0	15.0							
	1	22,5	19,1	15,8	54	49	39	290	1950	28		13.0	10.0							
UNIT 331	5	51,8	44,0	36,3	48	44	34	910	5500	54	36.0	27.0	9.5	6.0	4.5	10.5	3.0	11.5	20.5	
	4	44,8	38,1	31,4	52	48	37	710	4130	46		27.0	21.0	7.0	4.5		8.0		8.5	15.5
UNIM 331	3	35,6	30,3	24,9	57	52	41	520	2860	38	3.0	19.0	14.0	5.0	3.0	4.5	5.5	3.0	6.0	10.5
	2	27,9	23,7	19,5	61	55	43	380	2010	33		13.0	10.0							
	1	24,8	21,1	17,4	64	57	45	290	1700	29		11.0	8.0							
UNIT 421	5	65,2	55,4	45,6	42	38	30	850	9010	57	54.0	41.0	11.0	9.5	6	12.5	3.0	15.5	27.0	
	4	53,5	45,5	37,5	44	40	31	620	6760	48	40.0	31.0	8.5	7.0		9.5		11.5	20.0	
UNIM 421	3	44,2	37,6	30,9	46	42	33	460	5030	42	3.0	30.0	23.0	6.0	5.5	6	7.0	3.0	8.5	15.0
	2	35,1	29,8	24,6	51	46	36	340	3380	38		20.0	15.0							
	1	29,7	25,2	20,8	57	51	40	250	2430	34		14.0	11.0							
UNIT 431	5	78,6	66,8	55,0	48	44	34	850	8290	58	49.0	37.0	10.0	8.5	5.5	11.5	3.0	14.0	25.0	
	4	65,4	55,6	45,8	52	47	37	620	6060	49	36.0	27.0	7.5	6.5		8.5		10.5	18.0	
UNIM 431	3	53,6	45,6	37,5	56	51	40	460	4460	44	3.0	27.0	20.0	5.5	4.5	5.5	6.0	3.0	7.5	13.5
	2	41,5	35,3	29,1	61	55	43	340	3030	39		18.0	14.0							
	1	32,2	27,4	22,5	67	60	47	250	2040	36		12.0	9.0							

Standard delivery

Fully preassembled equipment in
colour 001 sandblast grey metallic
Including manual AVS-system (Code
UNIT) or AVS-system modulating (Code
UNIM)

Not included safety switch.

Options

Brackets and fixing set: p. 160
Air inlet / air exhaust options : p. 162
Switch boxes: p. 165

Connection options

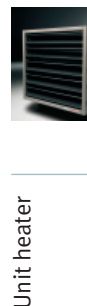
CODE	Description
.../TS	Clamp box at the side
.../SS	Fitted safety switch 1 x 230 V at the side

Example: UNIT. 121/TS

Jaga Unit heater AVS_motor 5_230 V mono_Speed reduction

Model Type
ORDERING CODE STANDARD: UNIT.125
MODULATING: UNIM.125

Type		Output			Air exhaust-temperature			Revolutions	Air flow	The noise level	Hot air carrying Hot air carrying is an approximative value for free drawing and exhausting air Tl ca. 15 à 20K over the room temperature.										
		Tv 80 Tr 60 Tl 20 ΔT=50	Tv 70 Tr 55 Tl 15 ΔT=42.5	Tv 55 Tr 45 Tl 15 ΔT=35	at the heat exchanger, before the AVS-effect makes the temperature drop Tl 15° Tl 15° ΔT=50 ΔT=42.5 ΔT=35						Horizontal standard    H min with AVS without AVS			Vertical standard   H max H max		mouthpiece cone   H max H max		air diffuser   H max 4 sides open 2 sides open			
	Speed	kwatts	kwatts	kwatts	C°	C°	C°	RPM	m³/u	dBA	m	m	m	m	m	m	m	m	m	m	
UNIT 125	5	13,6	11,6	9,5	47	43	34	950	1500	42		16.0	12.0		5.5	4.0	3.0	6.5	2.5	4.0	8.5
	4	13,1	11,1	9,2	48	44	34	910	1400	41		15.0	11.0		5.0	3.5		6.0		4.0	8.0
UNIM 125	3	12,6	10,7	8,8	49	44	35	850	1310	39	2.5	14.0	10.0		5.0	3.5		5.5	2.5	3.5	7.5
	2	11,2	9,5	7,8	51	46	36	680	1080	35		11.0	9.0								
	1	7,7	6,5	5,4	58	52	41	300	610	25		6.0	5.0								
UNIT 135	5	17,5	14,9	12,3	57	52	41	950	1400	43		15.0	11.0		5.0	3.5	2.5	6.0	2.5	4.0	8.0
	4	17,1	14,5	12,0	58	52	41	910	1340	42		14.0	11.0		5.0	3.5		5.5		4.0	7.5
UNIM 135	3	16,4	13,9	11,5	59	53	42	850	1250	40	2.5	13.0	10.0		4.5	3.0		5.0	2.5	3.5	7.0
	2	14,1	12,0	9,9	62	56	44	680	1000	36		11.0	8.0								
	1	8,7	7,4	6,1	66	59	47	300	560	26		6.0	4.0								
UNIT 225	5	24,4	20,7	17,1	45	41	32	890	2910	43		25.0	19.0		6.5	4.0	3.5	7.0	2.5	7.5	14.5
	4	19,4	16,5	13,6	51	47	37	520	1850	32		16.0	12.0		4.0	2.5		4.5		5.0	9.0
UNIM 225	3	16,7	14,2	11,7	57	51	40	380	1360	28	2.5	12.0	9.0		3.0	2.0		3.0	2.5	3.5	7.0
	2	14,9	12,7	10,4	62	56	44	290	1060	25		9.0	7.0								
	1	12,3	10,5	8,6	77	69	54	150	640	21		6.0	4.0								
UNIT 235	5	29,6	25,2	20,7	53	48	38	890	2680	45		23.0	18.0		6.0	3.5	3.0	6.5	2.5	7.0	13.5
	4	22,0	18,7	15,4	62	56	44	520	1570	34		14.0	10.0		3.5	2.0		3.5		4.0	8.0
UNIM 231	3	18,4	15,6	12,9	68	61	48	380	1150	30	2.5	10.0	8.0		2.5			2.5	2.5	3.0	5.5
	2	15,9	13,5	11,1	74	66	52	290	880	27		8.0	6.0								
	1	12,8	10,9	9,0	87	77	61	150	570	23		5.0	4.0								
UNIT 325	5	34,5	29,3	24,2	45	41	32	690	4190	43		29.0	22.0		7.5	4.5	4.0	8.0	2.5	9.0	16.0
	4	33,0	28,1	23,1	46	42	33	620	3850	41		26.0	20.0		6.5	4.0		7.5		8.5	15.0
UNIM 321	3	27,9	23,7	19,5	49	45	35	450	2830	34	3.0	19.0	15.0		5.0	3.0		5.5	2.5	6.0	11.0
	2	22,7	19,3	15,9	54	49	39	310	1980	29		14.0	10.0								
	1	20,0	17,0	14,0	58	52	41	160	1580	23		11.0	8.0								
UNIT 335	5	43,5	37,0	30,5	53	48	38	690	3930	45		27.0	20.0		7.0	4.0	3.5	7.5	2.5	8.5	15.0
	4	40,8	34,7	28,6	55	49	39	620	3530	42		24.0	18.0		6.0	4.0		6.5		7.5	13.5
UNIM 335	3	33,0	28,1	23,1	59	53	41	450	2560	36	3.0	18.0	13.0		4.5	3.0		5.0	2.5	5.5	10.0
	2	25,5	21,7	17,9	63	57	45	310	1770	30		12.0	9.0								
	1	18,8	16,0	13,2	70	62	49	160	1130	25		8.0	6.0								
UNIT 425	5	53,5	45,5	37,5	44	40	31	660	6740	49		38.0	29.0		8.0	7.0	4.5	9.5	2.5	11.0	19.0
	4	48,3	41,1	33,8	45	41	32	550	5780	46		33.0	25.0		7.0	6.0		8.0		9.5	16.5
UNIM 425	3	42,3	36,0	29,6	47	43	34	440	4670	41	3.0	27.0	20.0		5.5	5.0		6.5	2.5	7.5	13.5
	2	35,3	30,0	24,7	51	46	36	340	3410	38		19.0	15.0								
	1	25,9	22,0	18,1	63	57	45	180	1780	32		10.0	8.0								
UNIT 435	5	67,9	57,7	47,5	51	47	37	660	6440	51		37.0	28.0		8.0	7.0	4.0	9.0	2.5	10.5	18.5
	4	60,8	51,7	42,6	54	49	38	550	5410	47		31.0	23.0		6.5	5.5		7.5		9.0	15.5
UNIM 435	3	52,5	44,6	36,8	56	51	40	440	4330	43	3.0	25.0	19.0		5.5	4.5		6.0	2.5	7.0	12.5
	2	44,3	37,7	31,0	60	54	42	340	3340	39		19.0	14.0								
	1	27,7	23,5	19,4	73	65	51	180	1570	33		9.0	7.0								



Unit heater

Standard delivery

Fully preassembled equipment in colour 001 sandblast grey metallic
Including manual AVS-system (Code UNIT) or AVS-system modulating (Code UNIM)
Not included safety switch.

Options

Brackets and fixing set: p. 160
Air inlet / air exhaust options : p. 162
Switch boxes: p. 165

Connection options

CODE	Description
.../TS	Clamp box at the side
.../SS	Fitted safety switch 1 x 230 V at the side

Example: UNIT. 125/TS



Jaga Unit heater AVS_motor 3 400 V 3-Phase

Model Type
ORDERING CODE STANDARD: UNIT.123
MODULATING: UNIM.123

Type		Output			Air exhaust-temperature			Revolutions	Air flow	The noise level	Hot air carrying <i>Hot air carrying is an approximative value for free drawing and exhausting air Tl ca. 15 à 20K over the room temperature.</i>											
					at the heat exchanger, before the AVS-effect makes the temperature drop Tl 15°						Horizontal standard			Vertical standard		mouthpiece cone		air diffuser				
		Tv 80 Tr 60 Tl 20 ΔT=50	Tv 70 Tr 55 Tl 15 ΔT=42.5	Tv 55 Tr 45 Tl 15 ΔT=35	Tl 15° ΔT=50 ΔT=42.5 ΔT=35						 H min	 with AVS	 without AVS	 H max	 H max	 H max	 H max	 H max	 4 sides open	 2 sides open		
	Speed	kwatts	kwatts	kwatts	C°	C°	C°	RPM	m³/u	dBA	m	m	m	m	m	m	m	m	m	m	m	m
UNIT 123	5	15,8	13,4	11,1	42	38	30	1360	2190	52		24.0	18.0		8.0	5.5	3.5	9.0	2.5	6.5	12.5	
	4	14,6	12,4	10,2	45	41	32	1090	1750	45		19.0	14.0		6.5	4.5	3.5	7.5	2.5	5.0	10.0	
UNIM 123	3	13,0	11,1	9,1	48	44	34	900	1380	40	2.5	15.0	11.0		5.0	3.5		6.0		4.0	8.0	
	2	10,6	9,0	7,4	52	47	37	710	1000	35		11.0	8.0									
	1	8,0	6,8	5,6	57	51	40	450	650	29		7.0	5.0									
UNIT 133	5	20,1	17,1	14,1	50	46	36	1360	1990	53		22.0	16.0		7.5	5.0	3.0	8.5	2.5	6.0	11.5	
	4	18,5	15,7	13,0	55	50	39	1090	1570	46		17.0	13.0		6.0	4.0	3.5	6.5	2.5	4.5	9.0	
UNIM 133	3	16,7	14,2	11,7	59	53	42	900	1290	41	2.5	14.0	11.0		5.0	3.5		5.5		3.5	7.5	
	2	13,4	11,4	9,4	63	57	45	710	930	36		10.0	8.0									
	1	8,9	7,6	6,2	67	60	47	450	570	30		6.0	5.0									
UNIT 223	5	30,8	26,2	21,6	39	36	28	1390	4820	58		38.0	29.0		10.5	6.0	4.5	11.5	2.5	11.5	22.0	
	4	28,1	23,9	19,7	42	38	30	1100	3900	50		31.0	23.0		8.5	5.0	4.5	9.0	2.5	9.5	17.5	
UNIM 223	3	24,8	21,1	17,4	45	41	32	870	3000	43	2.5	24.0	18.0		6.5	4.0		7.0		7.0	13.5	
	2	21,5	18,3	15,1	48	44	34	660	2280	36		18.0	14.0									
	1	16,5	14,0	11,6	57	52	41	410	1320	29		11.0	8.0									
UNIT 233	5	36,7	31,2	25,7	45	41	32	1390	4400	59		35.0	27.0		9.5	5.5	4.0	10.5	2.5	10.5	20.0	
	4	33,6	28,6	23,5	49	45	35	1100	3460	52		28.0	21.0		7.5	4.5	4.0	8.0	2.5	8.5	16.0	
UNIM 233	3	29,5	21,2	17,4	58	52	41	870	2650	45	2.5	21.0	16.0		5.5	3.5		6.5		6.5	12.0	
	2	24,9	15,5	12,7	68	61	48	660	1960	39		16.0	12.0									
	1	18,2	33,7	27,8	40	37	29	410	1130	31		9.0	7.0									
UNIT 323	5	39,7	33,7	27,8	40	37	29	910	5790	52		37.0	28.0		10.0	6.0	5.0	11.0	3.0	12.0	21.0	
	4	35,1	29,8	24,6	44	40	32	700	4350	44		28.0	21.0		7.5	4.5	5.0	8.5	3.0	9.0	16.0	
UNIM 323	3	29,8	25,3	20,9	48	44	34	530	3190	37	3.0	21.0	16.0		5.5	3.5		6.0		6.5	11.5	
	2	25,3	21,5	17,7	52	47	37	400	2390	33		15.0	12.0									
	1	18,2	15,5	12,7	61	55	43	250	1330	27		9.0	7.0									
UNIT 333	5	50,8	43,2	35,6	49	44	35	910	5270	54		35.0	26.0		9.0	5.5	4.5	10.0	3.0	11.0	19.5	
	4	42,9	36,5	30,0	53	48	38	680	3830	45		25.0	19.0		6.5	4.0	4.5	7.5	3.0	8.0	14.0	
UNIM 333	3	35,4	30,1	24,8	57	52	41	510	2840	38	3.0	19.0	14.0		5.0	3.0		5.5		6.0	10.5	
	2	28,8	24,5	20,2	61	55	43	400	2100	34		14.0	10.0									
	1	19,2	16,3	13,4	69	62	49	250	1170	28		8.0	6.0									
UNIT 423	5	70,2	59,7	49,1	41	38	29	890	10010	58		55.0	42.0		12.0	10.5	6.0	14.0	3.0	15.5	27.5	
	4	59,3	50,4	41,5	43	39	31	660	7860	50		43.0	33.0		9.5	8.5	6.0	11.0	3.0	12.5	21.5	
UNIM 423	3	52,0	44,2	36,4	44	40	32	520	6470	45	3.0	35.0	27.0		8.0	7.0		9.0		10	18.0	
	2	44,6	37,9	31,2	46	42	33	410	5090	40		28.0	21.0									
	1	35,5	30,2	24,9	51	46	36	260	3450	35		19.0	14.0									
UNIT 433	5	81,8	69,5	57,3	47	43	34	890	8960	59		50.0	38.0		11.0	9.5	5.5	12.5	3.0	14.5	25.0	
	4	68,6	58,3	48,0	51	47	36	660	6560	51		37.0	28.0		8.0	7.0	5.5	9.0	3.0	10.5	18.5	
UNIM 433	3	59,1	50,2	41,4	54	49	38	520	5180	46	3.0	29.0	22.0		6.5	5.5		7.0		8.5	14.5	
	2	51,1	43,4	35,8	57	51	40	410	4140	42		23.0	18.0									
	1	41,5	35,3	29,1	61	55	43	260	3020	36		17.0	13.0									

Standard delivery

Fully preassembled equipment in colour 001 sandblast grey metallic
Including manual AVS-system (Code UNIT) or AVS-system modulating (Code UNIM)

Not included safety switch.

Options

Brackets and fixing set: p. 160
Air inlet / air exhaust options : p. 162
Switch boxes: p. 165

Connection options

CODE	Description
.../TS	Clamp box at the side
.../SS	Fitted safety switch 3 x 400 V at the side

Example: UNIT. 123/TS

Jaga Unit heater AVS_motor 7 400 V 3-Phase Speed Reduction

Model Type
ORDERING CODE STANDARD: UNIT.127
MODULATING: UNIM.127

Type		Output			Air exhaust-temperature			Revolutions	Air flow	The noise level	Hot air carrying								
		Tv 80 Tr 60 Tl 20 ΔT=50	Tv 70 Tr 55 Tl 15 ΔT=42.5	Tv 55 Tr 45 Tl 15 ΔT=35	at the heat exchanger, before the AVS-effect makes the temperature drop Tl 15°						Hot air carrying is an approximative value for free drawing and exhausting air Tl ca. 15 à 20K over the room temperature.								
											Horizontal standard				Vertical standard	mouthpiece	cone	air diffuser	
											H min	with AVS	without AVS		H max	H max	H max	H max	H max
											at 5m							4 sides open	2 sides open
	Speed	kwatts	kwatts	kwatts	C°	C°	C°	RPM	m³/u	dBA	m	m	m	m	m	m	m	m	m
UNIT 127	5	13,5	11,5	9,5	47	43	34	860	1490	39		16.0	12.0		5.5	4.0	3.0	6.0	2.5
	4	11,3	9,6	7,9	51	46	36	670	1100	34		12.0	9.0		4.0	3.0		4.5	2.5
UNIM 127	3	9,4	8,0	6,6	54	49	38	510	830	30	2.5	9.0	7.0		3.0	2.0		3.5	2.5
	2	7,9	6,7	5,5	57	51	40	400	640	27		7.0	5.0						4.5
	1	6,3	5,4	4,4	61	55	43	300	460	25		5.0	4.0						
UNIT 137	5	17,4	14,8	12,2	57	52	41	860	1390	40		15.0	11.0		5.0	3.5	2.5	6.0	2.5
	4	13,9	11,8	9,7	62	56	44	670	980	35		10.0	8.0		3.5	2.5		4.0	2.5
	3	11,2	9,5	7,8	65	58	46	510	750	31	2.5	8.0	6.0		3.0	2.0		3.0	2.0
UNIM 137	2	9,1	7,7	6,4	66	59	47	400	590	29		6.0	5.0						4.0
	1	6,1	5,2	4,3	68	61	48	300	380	26		4.0	3.0						2.0
UNIT 227	5	25,0	21,3	17,5	44	41	32	910	3060	44		27.0	20.0		6.5	4.0	3.5	7.5	2.5
	4	22,2	18,9	15,5	47	43	34	710	2430	38		21.0	16.0		5.0	3.0		6.0	2.5
	3	19,9	16,9	13,9	50	46	36	560	1960	33	2.5	17.0	13.0		4.0	2.5		4.5	5.0
UNIM 227	2	18,1	15,4	12,7	53	48	38	450	1620	30		14.0	11.0						10.0
	1	16,0	13,6	11,2	59	53	42	350	1230	27		11.0	8.0						
UNIT 237	5	30,5	25,9	21,4	52	47	37	910	2830	46		25.0	19.0		6.0	3.5	3.0	6.5	2.5
	4	26,7	22,7	18,7	56	51	40	710	2210	40		19.0	15.0		5.0	3.0		5.0	2.5
	3	23,3	19,8	16,3	60	54	43	560	1740	35	2.5	15.0	12.0		4.0	2.5		4.0	4.5
UNIM 237	2	20,5	17,4	14,4	64	57	45	450	1400	32		12.0	9.0						8.5
	1	17,6	15,0	12,3	70	62	49	350	1060	29		9.0	7.0						
UNIT 3270	5	34,0	28,9	23,8	45	41	32	670	4070	43		28.0	21.0		7.0	4.5	4.0	8.0	2.5
	4	29,6	25,2	20,7	48	44	34	520	3160	37		22.0	16.0		5.5	3.5		6.0	2.5
	3	25,9	22,0	18,1	51	46	36	410	2490	33	3.0	17.0	13.0		4.5	2.5		4.5	5.5
UNIM 327	2	22,4	19,0	15,7	54	49	39	320	1940	29		13.0	10.0						9.5
	1	18,0	15,3	12,6	61	55	43	210	1300	25		9.0	7.0						
UNIT 337	5	42,0	35,7	29,4	54	49	38	670	3710	44		25.0	19.0		6.5	4.0	3.5	7.0	2.5
	4	35,7	30,3	25,0	57	51	40	520	2880	39		20.0	15.0		5.0	3.0		5.5	2.5
	3	30,4	25,8	21,3	60	54	43	410	2270	34	3.0	16.0	12.0		4.0	2.5		4.5	5.0
UNIM 337	2	25,6	21,8	17,9	63	57	45	320	1770	31		12.0	9.0						8.5
	1	19,1	16,2	13,4	69	62	49	210	1160	27		8.0	6.0						
UNIT 427	5	53,2	45,2	37,2	44	40	31	660	6690	49		38.0	29.0		8.0	7.0	4.5	9.5	2.5
	4	46,2	39,3	32,3	46	42	33	520	5400	44		31.0	23.0		6.5	5.5		7.5	2.5
	3	41,1	34,9	28,8	48	43	34	450	4460	42	3.0	25.0	19.0		5.5	4.5		6.0	7.5
UNIM 427	2	35,1	29,8	24,6	51	46	36	340	3380	38		19.0	15.0						12.5
	1	25,2	21,4	17,6	66	59	46	140	1650	30		9.0	7.0						
UNIT 437	5	67,5	57,4	47,3	52	47	37	660	6380	51		36.0	28.0		8.0	6.5	4.0	9.0	2.5
	4	58,3	49,6	40,8	54	49	39	520	5070	46		29.0	22.0		6.0	5.5		7.0	2.5
	3	50,0	44,5	37,0	49	45	40	450	4340	43	3.0	25.0	19.0		5.5	4.5		6.0	7.0
UNIM 433	2	42,6	36,8	30,8	56	51	40	340	3310	39		19.0	14.0						12.5
	1	25,6	21,8	17,9	76	68	54	140	1360	32		8.0	6.0						

Standard delivery

Fully preassembled equipment in colour 001 sandblast grey metallic Including manual AVS-system (Code UNIT) or AVS-system modulating (Code UNIM)

Not included safety switch.

Options

Brackets and fixing set: p. 160

Air inlet / air exhaust options : p. 162

Switch boxes: p. 165

Connection options

CODE	Description
.../TS	Clamp box at the side
.../SS	Fitted safety switch 3 x 400 V at the side

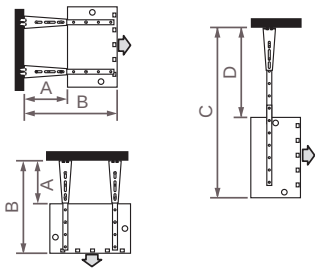
Example: UNIT. 127/TS

Jaga AVS® Unit heater_Brackets and Fixing set

Witch brackets and fixing set to use?

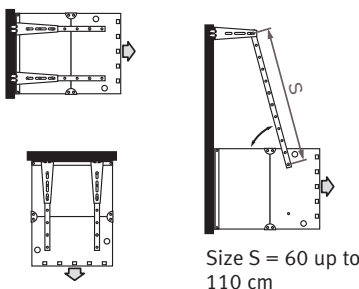
Without air inlet options

Set of brackets A



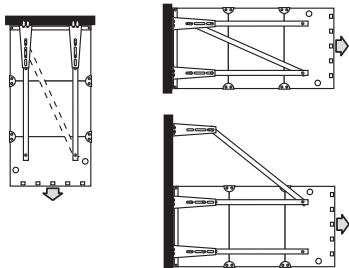
With 1 air inlet options

set of bracket A + Mounting set A



With 2 air inlet options

set of bracket B + Mounting set B



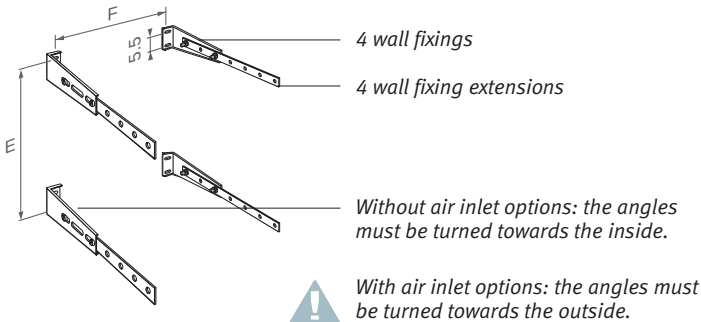
Size	A		B		C		D		E	F	G
	min.	max.	min.	max.	min.	max.	min.	max.			
000(Mini)	36	67	77	107	72.5	132.5	31.5	101.5	---	---	---
100	36	67	77	107	83.5	143.5	30.5	90.5	35.5	53	63.5
200	36	67	77	107	94.5	144.5	29.5	79.5	45.5	65	75.5
300	36	67	77	107	105.5	145.5	28.5	68.5	55.5	77	87.5
400	36	67	77	107	116.5	146.5	27.5	57.5	65.5	89	99.5

Dimensions E, F, G: see the drawings of the set of brackets.

Dimensions in cm

set of bracket A

For unit heater without or with one air inlet option.

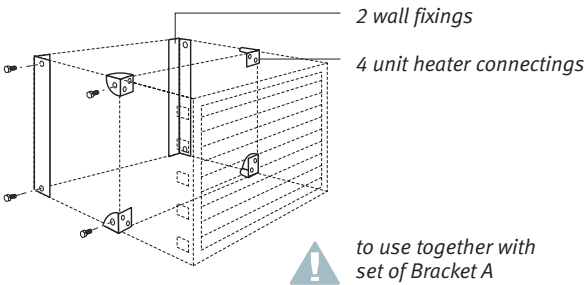


Size	CODE
identical for all sizes	8376.010100

- Carrying capacity: 150 kg
- Finish in the same colour as the unit heater (sandblast grey metallic, colour 001).
- inclusive screw bolts

Fixing set A

For mounting of 1 air inlet option



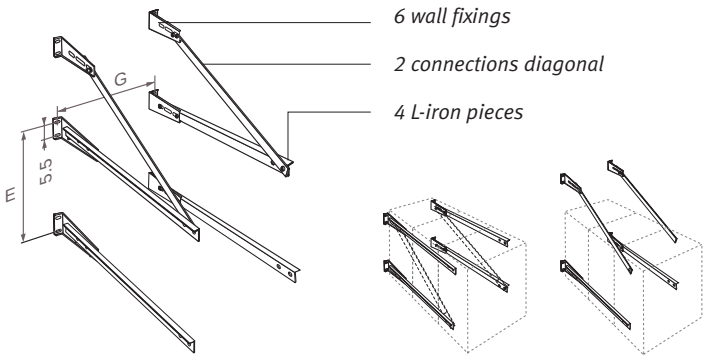
Size	CODE
100	8376.040001
200	8376.040002
300	8376.040003
400	8376.040004

- Finish in the same colour as the unit heater (sandblast grey metallic, colour 001).
- incl. bolts M 8 x 16 Din 933
- incl. spring washers M8 Din 127

Jaga AVS® Unit heater

Set of brackets B

For unit heater with two air inlet options.

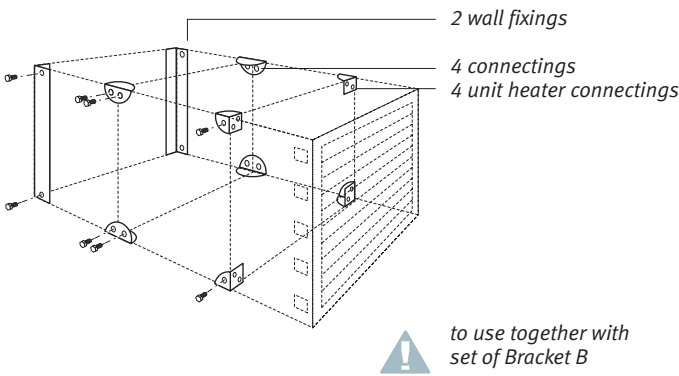


Size	CODE
100	8376.030101
200	8376.030102
300	8376.030103
400	8376.030104

- Finish in the same colour as the unit heater (sandblast grey metallic, colour 001).
- inclusive screw bolts

Fixing set B

For mounting of 2 air inlet options.



Complete set

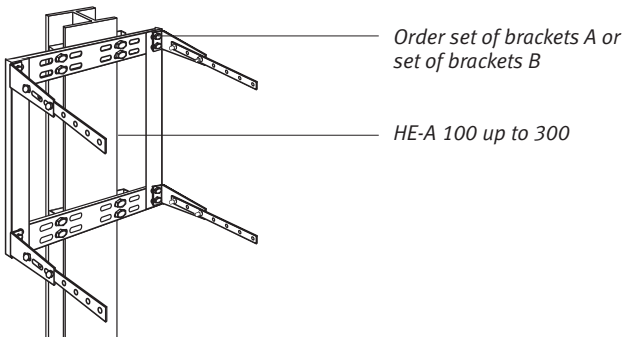
Size	CODE
100	8376.040101
200	8376.040102
300	8376.040103
400	8376.040104

Parts

Parts	Size	CODE
2 wall fixings	100	8376.040201
	200	8376.040202
	300	8376.040203
	400	8376.040204
4 connectings + 8 bolts		8376.040300
4 Unit heater connectings + 8 bolts		8376.040400

- Finish in the same colour as the unit heater (sandblast grey metallic, colour 001).
- incl. bolts M 8 x 16 Din 933
- incl. spring washers M8 Din 127

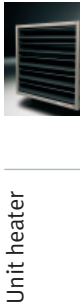
Fixing on metal construction



Fixing on metal construction

Size	CODE
100	8376.050101
200	8376.050102
300	8376.050103
400	8376.050104

- Finish in the same colour as the unit heater (sandblast grey metallic, colour 001).
- inclusive screw bolts.

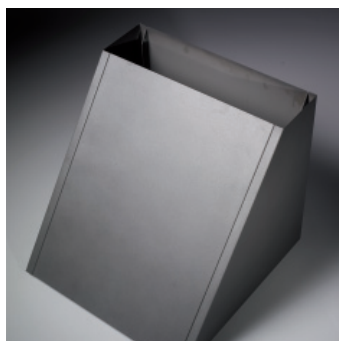
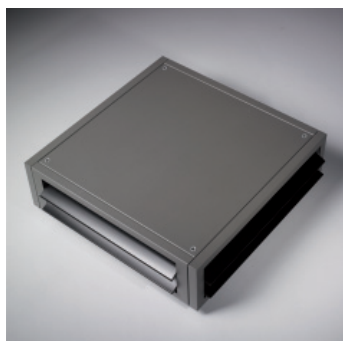


Unit heater

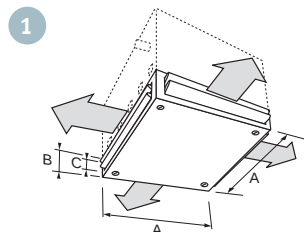
Jaga AVS® Unit heater_Air exhaust options



Unit heater

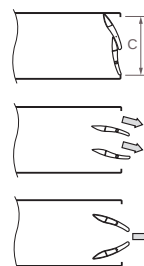


4- Sided AVS air diffuser

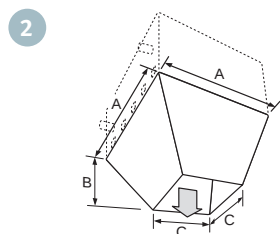


for size	CODE	A	B	C	Weight kg
000 (Mini)	8375.060100	41.0	18.8	13.8	7.2
100	8375.060101	53.0	18.8	13.8	9.2
200	8375.060102	65.0	18.8	13.8	11.8
300	8375.060103	77.0	18.8	13.8	14.6
400	8375.060104	89.0	18.8	13.8	17.7

- Order together with the unit heater. The unit heater needs to be adjusted.
- at this option has the unit heater no air exhausting grille
- will be delivered separately. Easy to mount and disassemble through click-fixing.
- finish identical to the unit heater (sandblast grey metallic, colour 001).
- aerodynamical angled louvres in satin black lacquered aluminium.
- maximum height = 2.5 m bottom end of the appliance.



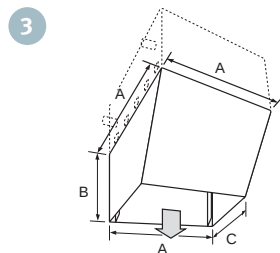
Exhaust cone



for size	CODE	A	B	C	Weight kg
100	8375.080101	53.0	43.3	22.0	8.2
200	8375.080102	65.0	46.1	32.0	10.7
300	8375.080103	77.0	55.8	37.0	14.8
400	8375.080104	89.0	64.2	43.0	18.9

- Application: to obtain higher exhaust speed, which enables fixing at a high level.
- Order together with the unit heater. The unit heater needs to be adjusted.
- Will be delivered separately. Easy to mount and disassemble through click-fixing.
- Finish identical to the unit heater (sandblast grey metallic, colour 001).

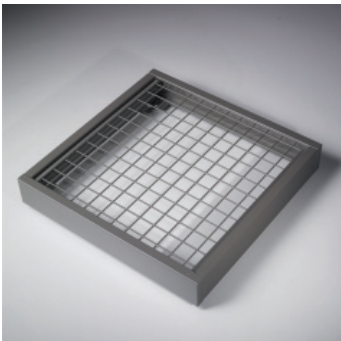
Exhaust mouth piece



for size	CODE	A	B	C	Weight kg
100	8375.070101	53.0	54.5	10.5	9.7
200	8375.070102	65.0	60.0	18.0	17.3
300	8375.070103	77.0	72.5	19.0	24.0
400	8375.070104	89.0	103.5	25.0	36.7

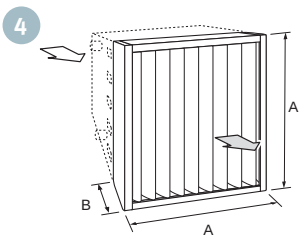
- Application: prevent cold air entering the room via the gates etc...
- Order together with the unit heater. The unit heater needs to be adjusted.
- Will be delivered separately. Easy to mount and disassemble through click-fixing.
- Finish identical to the unit heater (sandblast grey metallic, colour 001).

Jaga AVS® Unit heater_Air exhaust options



Unit heater

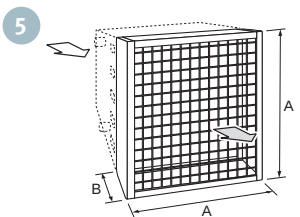
Double deflection front grille



for size	CODE	A	B	Weight kg
000 (Mini)	8375.110100	41.0	10.1	5.0
100	8375.110101	53.0	10.1	6.1
200	8375.110102	65.0	10.1	8.1
300	8375.110103	77.0	10.1	10.4
400	8375.110104	89.0	10.1	13.0

- Prevents developing too high a temperature at the opposite wall.
- Not suitable in use with the modulating version.
- Easy to mount through click-fixing at the top.
- Finish identical to the unit heater (sandblast grey metallic, colour 001).
- Aerodynamic angled louvres in satin black lacquered aluminium.

Protection grille for sport centers



for size	CODE	A	B	Weight kg
100	8375.100101	53.0	10.1	5.7
200	8375.100102	65.0	10.1	6.7
300	8375.100103	77.0	10.1	8.4
400	8375.100104	89.0	10.1	8.8

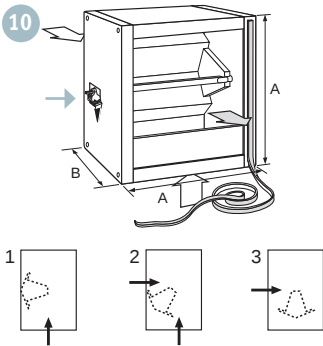
- Easy to mount trough click-fixing at the top.
- Not suitable in use with the modulating version.
- Finish identical to the unit heater (sandblast grey metallic, colour 001).

Jaga AVS® Unit heater_Air inlet options

 For losses of air flow and/or capacity when use is made of extraction appliances: see graphs pag. 178

Unit heater

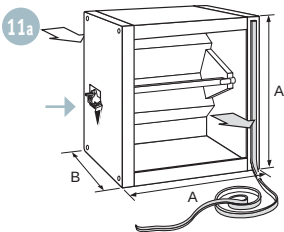
Air mixing box



for size	CODE galvanized	CODE lacquered	A	B	Weight kg
100	8375.010101	83751.010101	53.0	35.0	13.6
200	8375.010102	83751.010102	65.0	45.0	19.3
300	8375.010103	83751.010103	77.0	55.0	25.9
400	8375.010104	83751.010104	89.0	66.5	33.1

- Unlacquered galvanized steel, or lacquered in the same colour as the unit heater (sandblast grey metallic, colour 001).
- Manually adjusted.

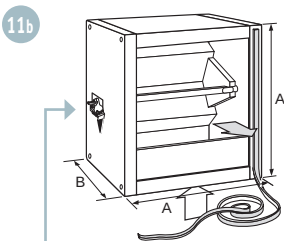
Shutter box 180°



for size	CODE galvanized	CODE lacquered	A	B	Weight kg
100	8375.020101	83751.020101	53.0	35.0	15.1
200	8375.020102	83751.020102	65.0	45.0	20.1
300	8375.020103	83751.020103	77.0	55.0	29.1
400	8375.020104	83751.020104	89.0	66.5	37.1

- Unlacquered galvanized steel, or lacquered in the same colour as the unit heater (sandblast grey metallic, colour 001).
- Manually adjusted

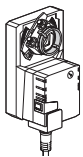
Shutter box 90°



for size	CODE galvanized	CODE lacquered	A	B	Weight kg
100	8375.020201	83751.020201	53.0	35.0	15.1
200	8375.020202	83751.020202	65.0	45.0	20.1
300	8375.020203	83751.020203	77.0	55.0	29.1
400	8375.020204	83751.020204	89.0	66.5	37.1

- Unlacquered galvanized steel, or lacquered in the same colour as the unit heater (sandblast grey metallic, colour 001).
- Manually adjusted.

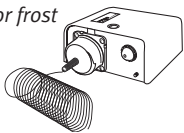
Servo motor



Switch box



Thermostat for frost protection



Jaga AVS® Unit heater_Air inlet options

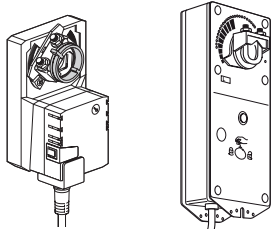
Control / protection for air mixing box and shutter box



Be assembled delivered.

The servo motor has to be ordered together with shutter box or air mixing box.
The frost protection thermostat has to be ordered together with the unit heater.

Servo motors “on/off”



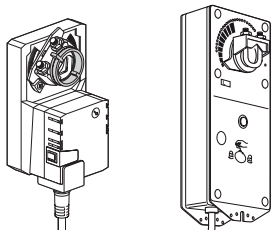
with return spring

CODE	Drawing	Description
8383.2301	1	servo motor “on/off-230 V”
8383.2302	2	servo motor “on/off-230 V” with return spring**
8383.2403	3	servo motor “on/off-24 V” with return spring**
8383.2404	4	Servo motor “on/off-24 V”

- idem for each size

- Return spring: the mixing box or the shutter box will be closed automatically in case of a power cut (frost protection).

Servo motors “modulating”



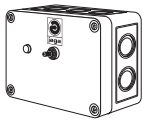
with return spring

CODE	Drawing	Description
8383.2303	5	Servo motor “modulating - 230 V”
8383.2401	6	servo motor “modulating-24 V”
8383.2402	7	servo motor “modulating-24 V” with return spring**

- idem for each size

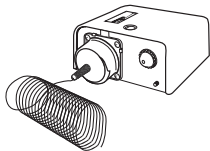
- Return spring: the mixing box or the shutter box will be closed automatically in case of a power cut (frost protection).

Switch boxes for servo motors



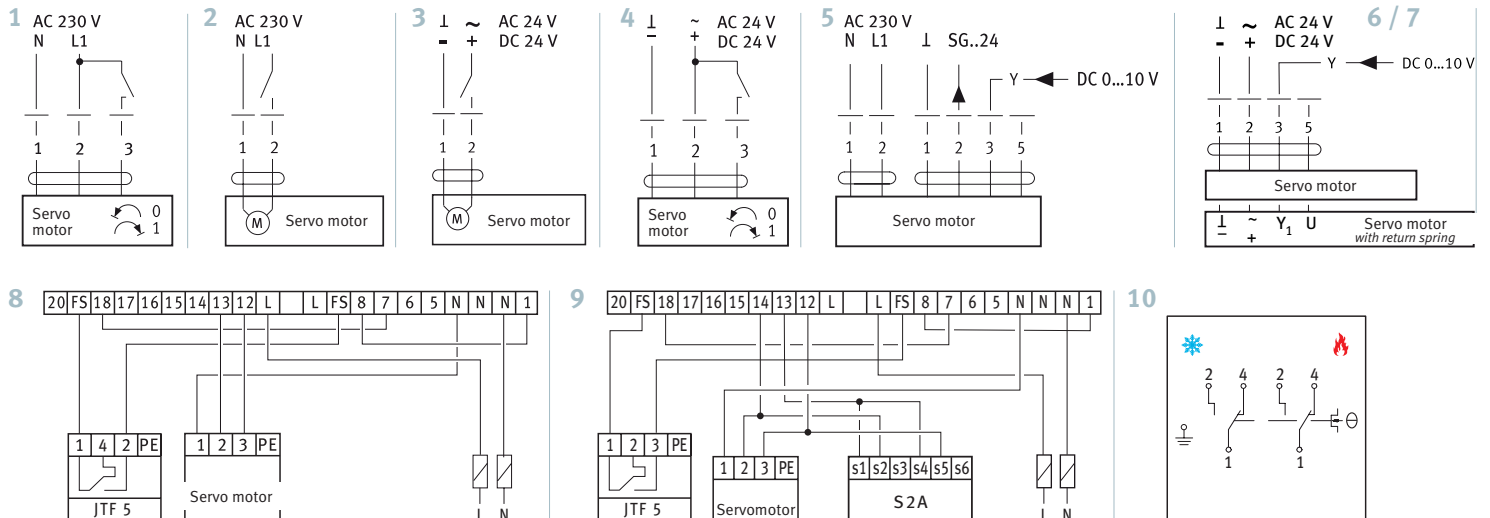
CODE	Drawing	Description
8351.070001	8	switch box open/closed for servo motor 230V 8383.2301
8351.070002	9	Switch box open/middle/closed, incl. second switch, for servo motor 230 V 8383.2301

Thermostat for frost protection



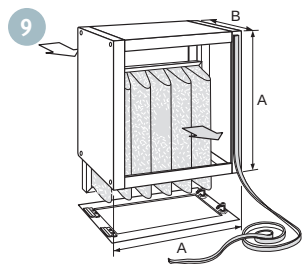
CODE	Drawing	Description	€
8384.0001	10	Thermostat for frost protection (from -10° up to +12°C)	

Diagrams



Jaga AVS® Unit heater_Air inlet options

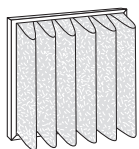
Filter box with a filter element



for size	CODE galvanized	CODE lacquered	A	B	Weight kg
100	8375.140101	83751.140101	53.0	35.0	18.1
200	8375.140102	83751.140102	65.0	45.0	22.4
300	8375.140103	83751.140103	77.0	55.0	26.7
400	8375.140104	83751.140104	89.0	66.5	31.9

- Unlacquered galvanized steel, or lacquered in the same colour as the unit heater (sandblast grey metallic, colour 001).
- when ordering a filter box it is recommended to also order a spare filter element.

Filter element



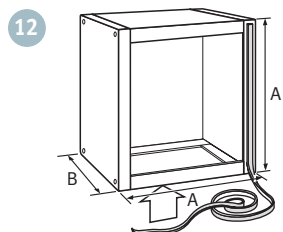
Caution!

A dirty filter will reduce the output and the air flow of the unit heater.

- partly recyclable (dependent on the application of room)
- efficiency: Ashrae-tissue 90 %
- self-extinguishable in accordance to DIN 53438-1
- heat resistant up to 100 °C
- in classified in accordance DIN EN 779

for size	CODE
100	8375.150101
200	8375.150102
300	8375.150103
400	8375.150104

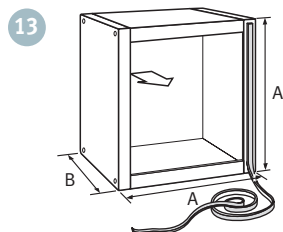
Angular box



for size	CODE galvanized	CODE lacquered	A	B	Weight kg
100	8375.030101	83751.030101	53.0	35.0	12.5
200	8375.030102	83751.030102	65.0	45.0	18.3
300	8375.030103	83751.030103	77.0	55.0	24.9
400	8375.030104	83751.030104	89.0	66.5	32.7

- Unlacquered galvanized steel, or lacquered in the same colour as the unit heater (sandblast grey metallic, colour 001).

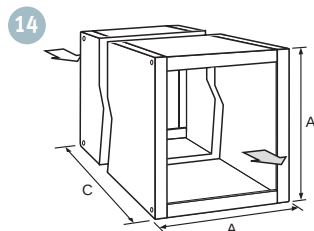
Extension box



for size	CODE galvanized	CODE lacquered	A	B	Weight kg
100	8375.040101	83751.040101	53.0	35.0	11.1
200	8375.040102	83751.040102	65.0	45.0	16.2
300	8375.040103	83751.040103	77.0	55.0	22.3
400	8375.040104	83751.040104	89.0	66.5	29.4

- Unlacquered galvanized steel, or lacquered in the same colour as the unit heater (sandblast grey metallic, colour 001).

Extention channel

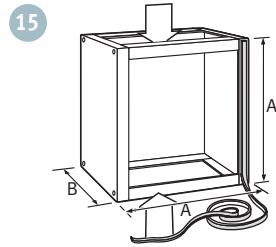


for size	CODE galvanized	CODE lacquered	A	C	Weight kg/m
100	8375.170101	83751.170101	53.0	measure C	27.3
200	8375.170102	83751.170102	65.0	per cm,	32.5
300	8375.170103	83751.170103	77.0	up to max.	37.7
400	8375.170104	83751.170104	89.0	289 cm	42.9

- Unlacquered galvanized steel, or lacquered in the same colour as the unit heater (sandblast grey metallic, colour 001).

Jaga AVS® Unit heater_Air inlet options

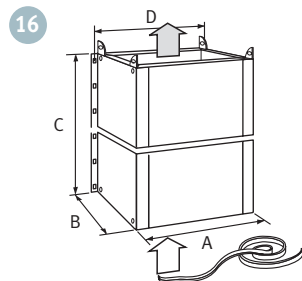
2-sided air inlet box



Size	CODE galvanized	CODE lacquered	A	B	Weight kg
100	8375.050101	83751.050101	53.0	35.0	10.8
200	8375.050102	83751.050102	65.0	45.0	15.2
300	8375.050103	83751.050103	77.0	55.0	18.7
400	8375.050104	83751.050104	89.0	66.5	26.4

- Unlacquered galvanized steel, or lacquered in the same colour as the unit heater (sandblast grey metallic, colour 001).

Wall channel box

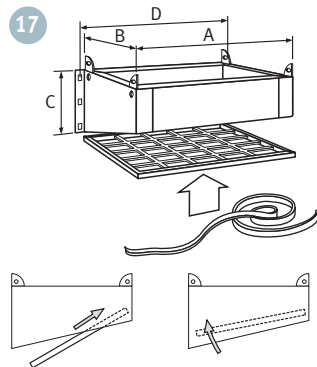


Size	CODE galvanized	CODE lacquered	A	B	C	D	kg/m
100	8375.160101	83751.160101	53.0	35.0	measure C *	56.0	26.0
200	8375.160102	83751.160102	65.0	45.0	per cm	68.0	31.2
300	8375.160103	83751.160103	77.0	55.0	up to max.	80.0	36.4
400	8375.160104	83751.160104	89.0	66.5	289 cm	92.0	41.6

(*) Longer wall channel boxes: 2 by Jaga connected boxes.

- Unlacquered galvanized steel, or lacquered in the same colour as the unit heater (sandblast grey metallic, colour 001).

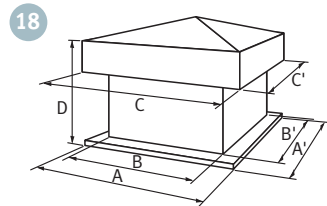
Air inlet mouth piece for wall channel box with grille



Size	CODE galvanized	CODE lacquered	A	B	C	D	kg
100	8375.180101	83751.180101	53.0	35.0	32.4	56.0	8.6
200	8375.180102	83751.180102	65.0	45.0	36.2	68.0	10.8
300	8375.180103	83751.180103	77.0	55.0	40.1	80.0	13.4
400	8375.180104	83751.180104	89.0	66.5	44.5	92.0	15.8

- Unlacquered galvanized steel, or lacquered in the same colour as the unit heater (sandblast grey metallic, colour 001).

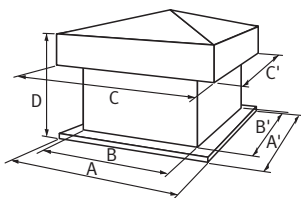
Roof rain protection cowl piece for connection on wall channel box



Size	CODE galvanized	CODE lacquered	A	A'	B	B'	C	C'	D	kg
100	8375.190101	83751.190101	64.0	46.0	54.0	36.0	74.0	56.0	45.0	14.1
200	8375.190102	83751.190102	76.0	56.0	66.0	46.0	86.0	66.0	45.0	19.4
300	8375.190103	83751.190103	88.0	66.0	78.0	56.0	98.0	76.0	55.0	31.6
400	8375.190104	83751.190104	100.0	77.5	90.0	67.5	110.0	87.5	55.0	38.3

- Unlacquered galvanized steel, or lacquered in the same colour as the unit heater (sandblast grey metallic, colour 001).

Roof rain protection cowl piece for connection on extension channel

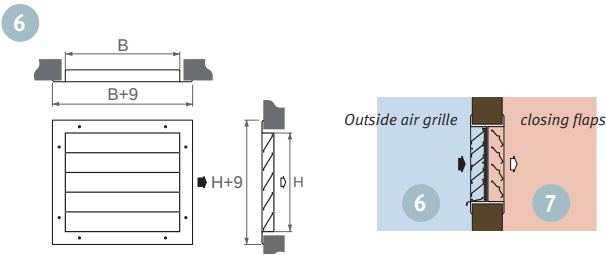


Size	CODE galvanized	CODE lacquered	A	A'	B	B'	C	C'	D	kg
100	8375.090101	83751.090101	64.0	64.0	54.0	54.0	74.0	74.0	45.0	19
200	8375.090102	83751.090102	76.0	76.0	66.0	66.0	86.0	86.0	45.0	26.2
300	8375.090103	83751.090103	88.0	88.0	78.0	78.0	98.0	98.0	55.0	42.6
400	8375.090104	83751.090104	100.0	100.0	90.0	90.0	110.0	110.0	55.0	51.7

- Unlacquered galvanized steel, or lacquered in the same colour as the unit heater (sandblast grey metallic, colour 001).

Jaga AVS® Unit heater_Air inlet options

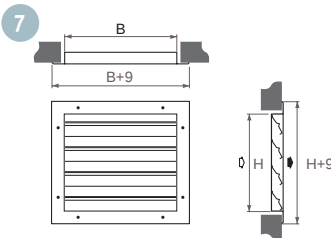
Outside air grille



for size	CODE	B	H
100	8375.120101	40.0	34.5
200	8375.120102	60.0	34.5
300	8375.120103	60.0	51.0
400	8375.120104	80.0	51.0

- Protection against rain
- With fine structured metal anti-vermin grille
- Galvanized.

Automatic closing flaps for the outside air grille

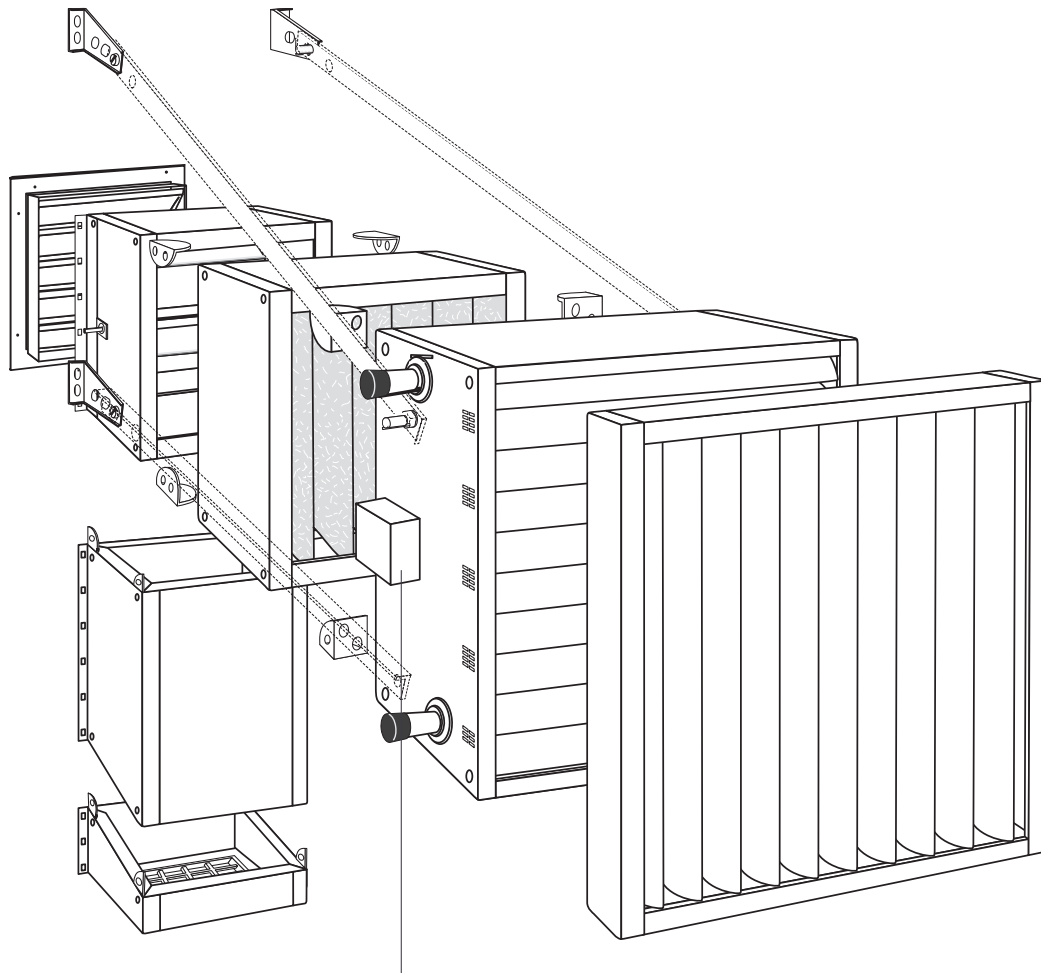


for size	CODE	B	H
100	8375.130101	40.0	34.5
200	8375.130102	60.0	34.5
300	8375.130103	60.0	51.0
400	8375.130104	80.0	51.0

- Galvanized with aluminium fins.
- To prevent warm air from flowing out of a stationary ventilator.



Example combination possibilities



*Terminal at the side end
When using air inlet options, it is
possible to order the unit heater with
the terminal at the side instead of on
the engine box.
See price tables.p. 156 up to 159.*

Jaga AVS® Unit heater

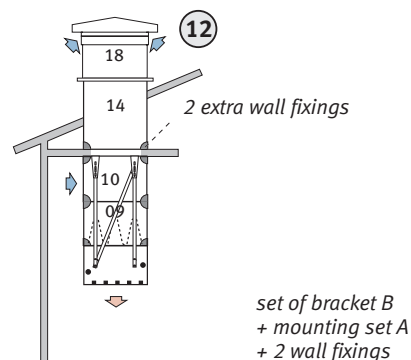
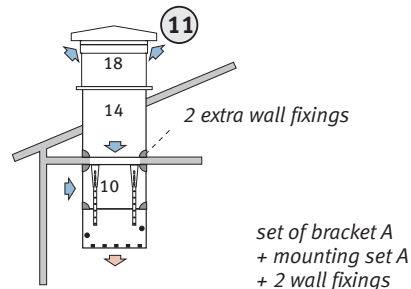
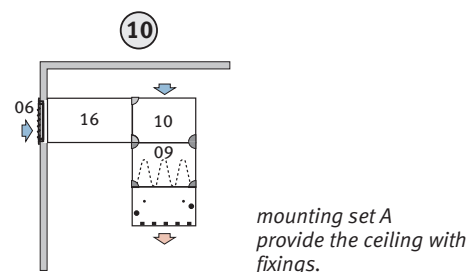
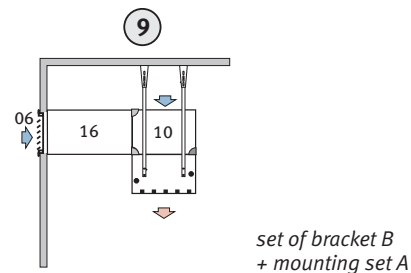
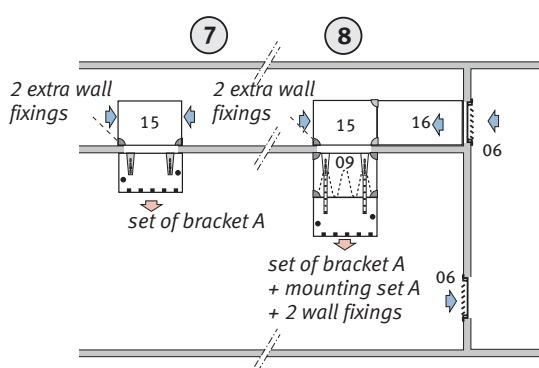
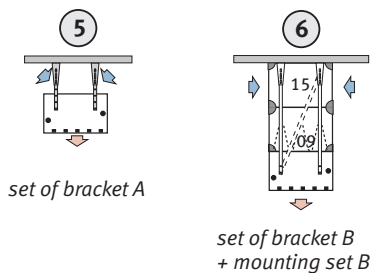
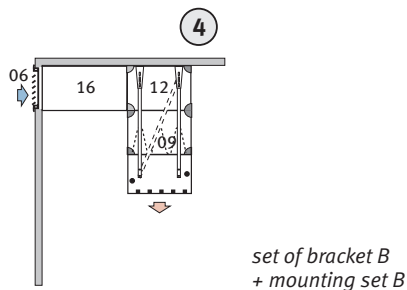
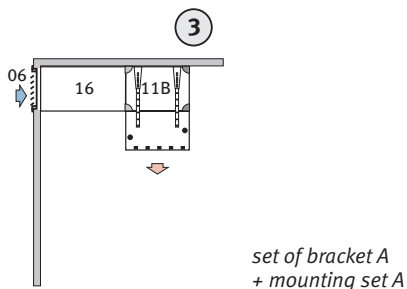
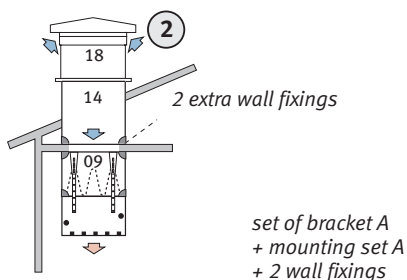
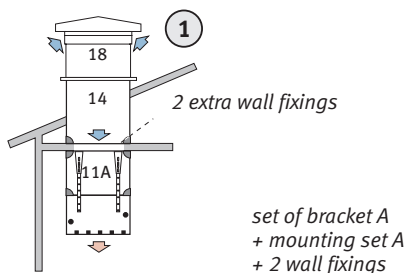
Combination examples for ceiling mounted fixings

! All air inlets should be installed by means of a fixing set. For additional safety, the entire assembly have to be consolidated by the brackets. (not for MINI UH)

With 100% external air

With 100% ambient air

With mixed air



Jaga AVS® Unit heater

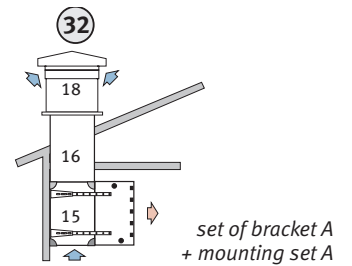
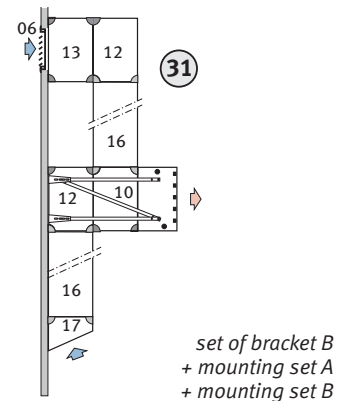
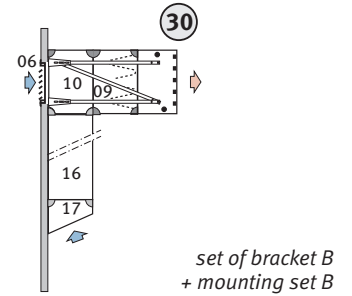
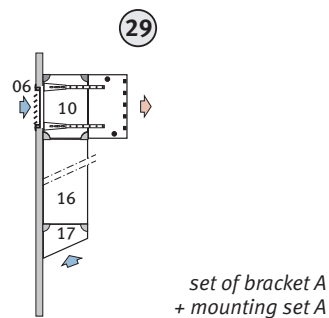
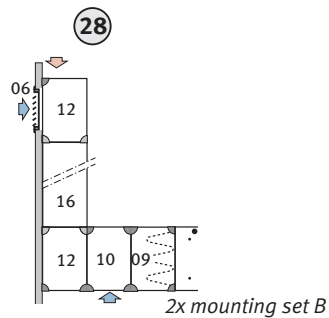
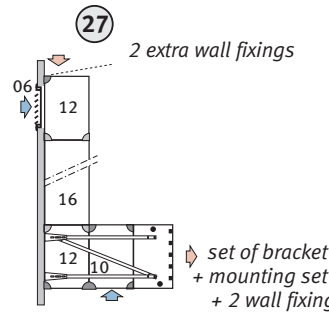
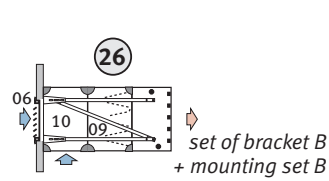
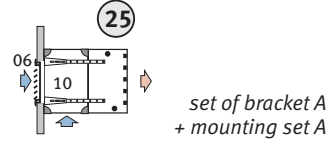
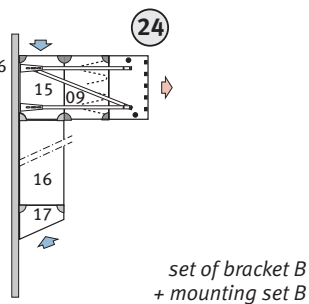
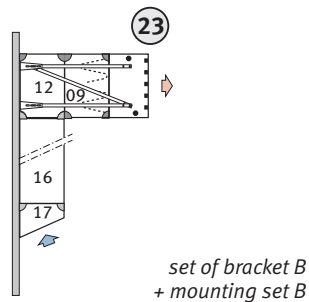
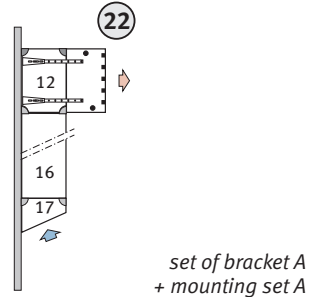
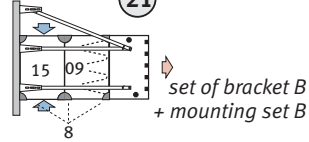
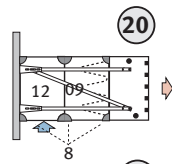
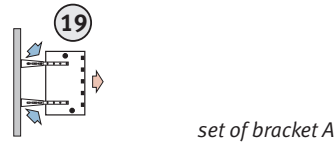
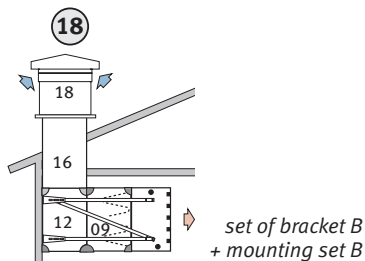
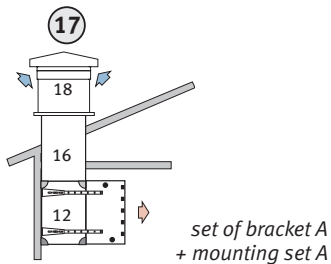
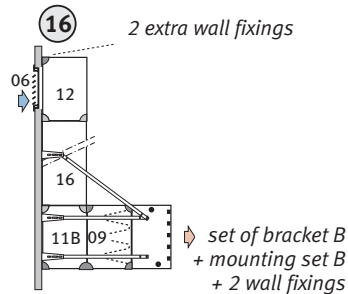
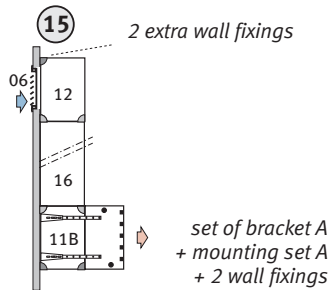
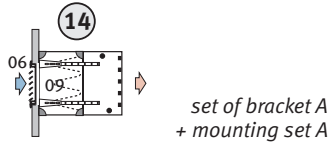
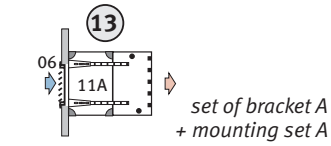
Combination examples for wall mounted fixings

! All air inlets should be installed by means of a fixing set. For additional safety, the entire assembly have to be consolidated by the brackets. (not for MINI UH)

With 100% external air

With 100% ambient air

With mixed air

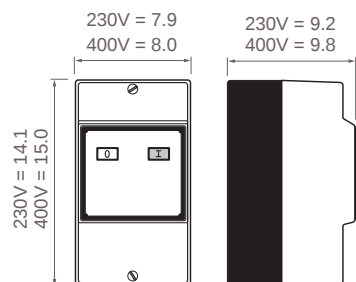


Jaga AVS® Unit heater_Electric connection

Work safety switch

CODE	Description
8351.050001	1 x 230V
8351.050002	3 x 400V

Can be delivered mounted see price tables pag. 155 -159



Application:

when each individual unit heater requires an operating switch and a thermal protection as thermal protection and operating switch in case switches without thermocontacts are being used (TK)

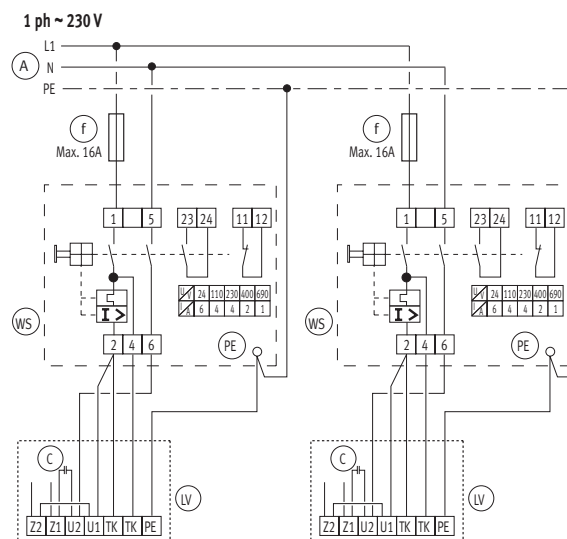
How to fit:

At the side of the unit heater.

Electrical scheme available on request:

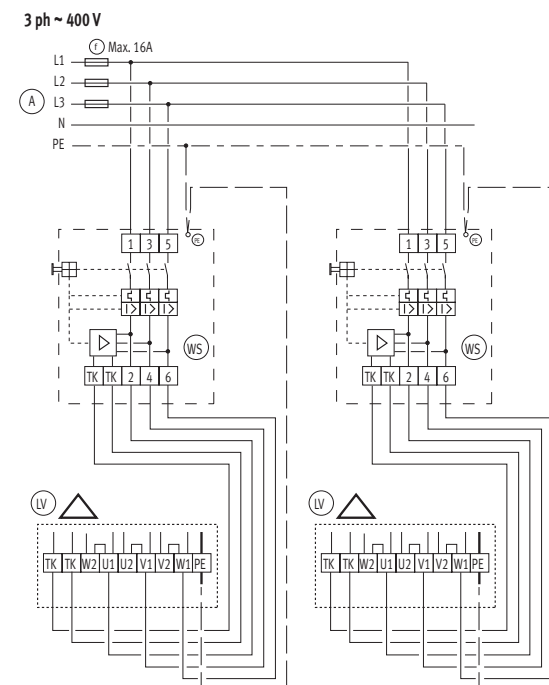
- A0 230V mono, (mini unit heater)
- A1 230V mono, standard
- A2 230V mono, with safety switch
- A3 230V mono, with modulating motor and control
- A4 230V mono, with safety switch, modulating motor and control
- B1 3x400V mono, standard
- B2 3x400V mono, with safety switch
- B3 3x400V mono, with modulating motor and control
- B4 3x400V mono, with safety switch, modulating motor and control

Work safety switch 1 x 230V



The thermal protection inside the switch box must be by passed in case a Jaga safety switch has been used - see n° 4 page 175

Work safety switch 3 x 400V



- Y connection = see drawing n° 3 page 175
 - The thermal protection inside the switch box must be by passed in case a Jaga safety switch has been used - see n° 4 page 175

Jaga AVS® Unit heater_Electric connection

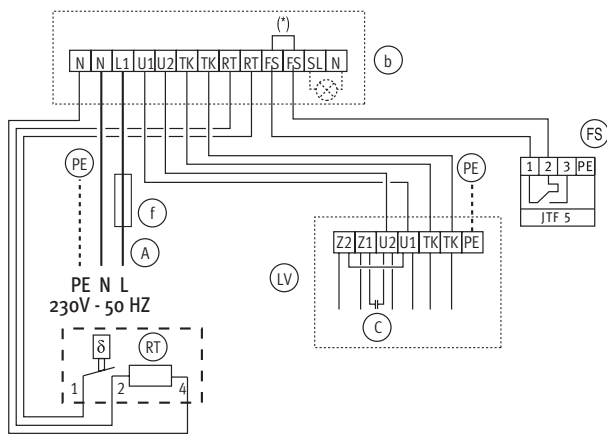
5 speeds switch box

230 V mono - for motor 1 and 5



CODE	Amp.
8351.040131	2.2
8351.040132	3.4
8351.040133	5.2
8351.040134	7.2
8351.040135	13.6

Connection possibility for room thermostat, thermocontact (TK), frost protection and external failure signal (SL).



- A

mains connection
- RT

room thermostat
- b

terminals
- PE

aerth terminal
- FS

frost protection
- LV

unit heater
- C

capacitor
- f

fuse
- TK

integrated motor

- (*) By pass when not using the frost protection.
- When connecting several unit heaters to 1 switch box, the thermal protection should be linked up in series - see drawing n° 1 page 175.
 - When using a Jaga safety switch, the thermal protection inside the switch box must be by passed - see drawing n° 4 page 175.
 - Drawing safety switch: see page 172.

Electrical output for 5 speed switch box

Position switch	Electrical output
0	0
1	85
2	105
3	130
4	160
5	230

Total numbers of unit heaters per switch box

Size	000*	100	200	300	400
Switch box 2.2A					
motor 1	4	2	0	0	0
motor 5	-	4	2	1	0
Switch box 3.4A					
motor 1	6	3	1	1	0
motor 5	-	6	3	2	1
Switch box 5.2A					
motor 1	9	5	2	2	1
motor 5	-	10	5	4	2
Switch box 7.2A					
motor 1	13	7	3	2	2
motor 5	-	14	8	6	3
Switch box 13.6A					
motor 1	25	14	5	5	3
motor 5	-	27	15	11	5

000* = Mini unit heater

Jaga AVS® Unit heater_Electric connection

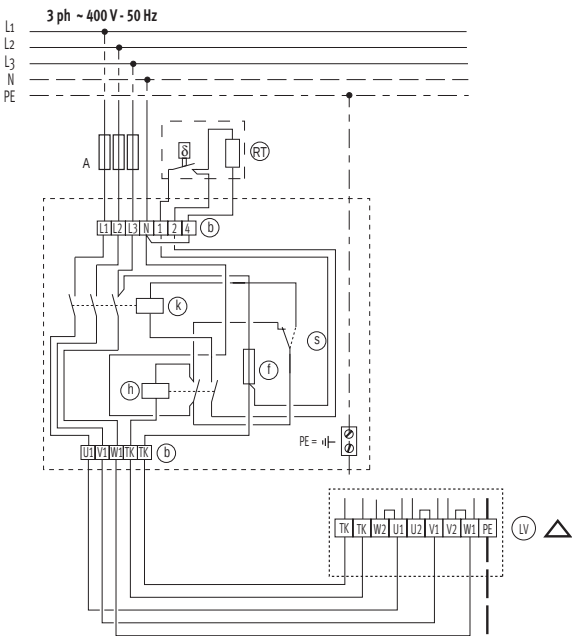
1 speed switch box

3-phase / 400 V_ for motor 3 and 7



CODE	Amp.
8351.021205	10.0

-Connection possibility for room thermostat and thermocontact (TK)



- A: mains connection
safety fuse max. 10A

RT: room thermostat

b: terminals

k: line contactor

s: operating switch
- h: auxiliary contactor

f: control fuse 2A

PE: earth terminal

TK: integrated motor protection

LV: unit heater

- Star-connection: see drawing n° 3 page 175.
- When connecting several unit heaters to 1 switch box, the thermal protection should be linked up in series - see drawing n° 2 of 5 page 175.
- When using a Jaga safety switch, the thermal protection inside the switch box must be by passed - see drawing n° 4 page 175.
- Drawing safety switch: see page 172.

Total numbers of unit heaters per switch box

Size	100	200	300	400
motor 3	40	11	10	5
motor 7	100	20	25	10

- Y Connections = Speed 4
- Δ Connections = Speed 5
- depending on choice of UH motor

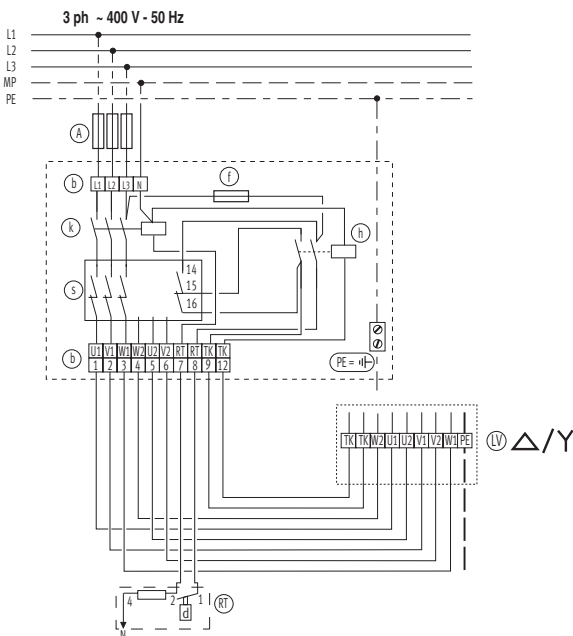
2 speeds switch box

3-phase / 400 V_ for motor 3 and 7



CODE	Amp.
8351.022205	10.0

-Connection possibility for room thermostat and thermocontact (TK)



- A: mains connection
safety fuse max. 10A

RT: room thermostat

b: terminals

k: line contactor

s: operating switch
- h: auxiliary contactor

f: control fuse 2A

PE: earth terminal

TK: integrated motor protection

LV: unit heater

- When connecting several unit heaters to 1 switch box, the thermal protection should be linked up in series - see drawing n° 6 p. 175.
- Remove the connecting wires at the fan motor when using a 2 speed switch box: see drawing n° 6 p. 175.



Never use this switch box in combination with a Jaga safety switch!

Electrical output for 2 speed switch boxn

Position switch	Electrical output
Y	230V
Δ	400V

Total numbers of unit heaters per switch box

Size	100	200	300	400
motor 3	40	11	10	5
motor 7	100	20	25	10

- Y Connections = Speed 4
- Δ Connections = Speed 5
- depending on connection of UH motor



Jaga AVS® Unit heater_Electric connection

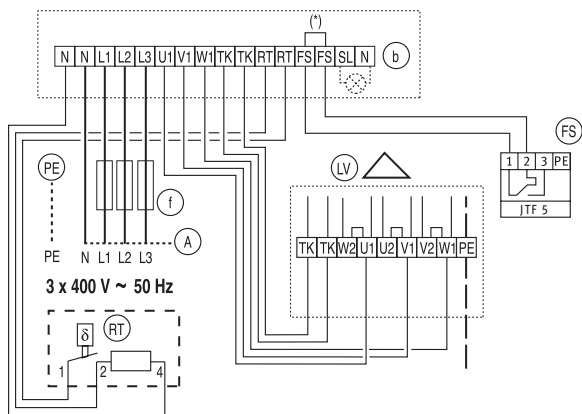
5 speeds switch box

3-phase / 400 V _ for motor 3 and 7



CODE	Amp.
8351.025401	2.0
8351.025403	4.0
8351.025404	7.0

Connection possibility for room thermostat, thermocontact (TK), frost protection and external failure signal (SL).



- A: mains connection

RT: room thermostat

b: terminals

PE: earth terminal

TK: integrated motor protection
- SL: external failure signal

FS: frost protection

f: fuses

LV: unit heater

- Always Δ or Y connection
- (*) Bypass when not using the frost protection.
- when connecting several unit heaters to 1 switch box, the thermal protection should be linked up in series - see drawing n° 2 alongside.
 - when using a Jaga safety switch, the thermal protection inside the switch box must be by passed - see drawing n° 4 alongside.
 - drawing safety switch, see p. 172.

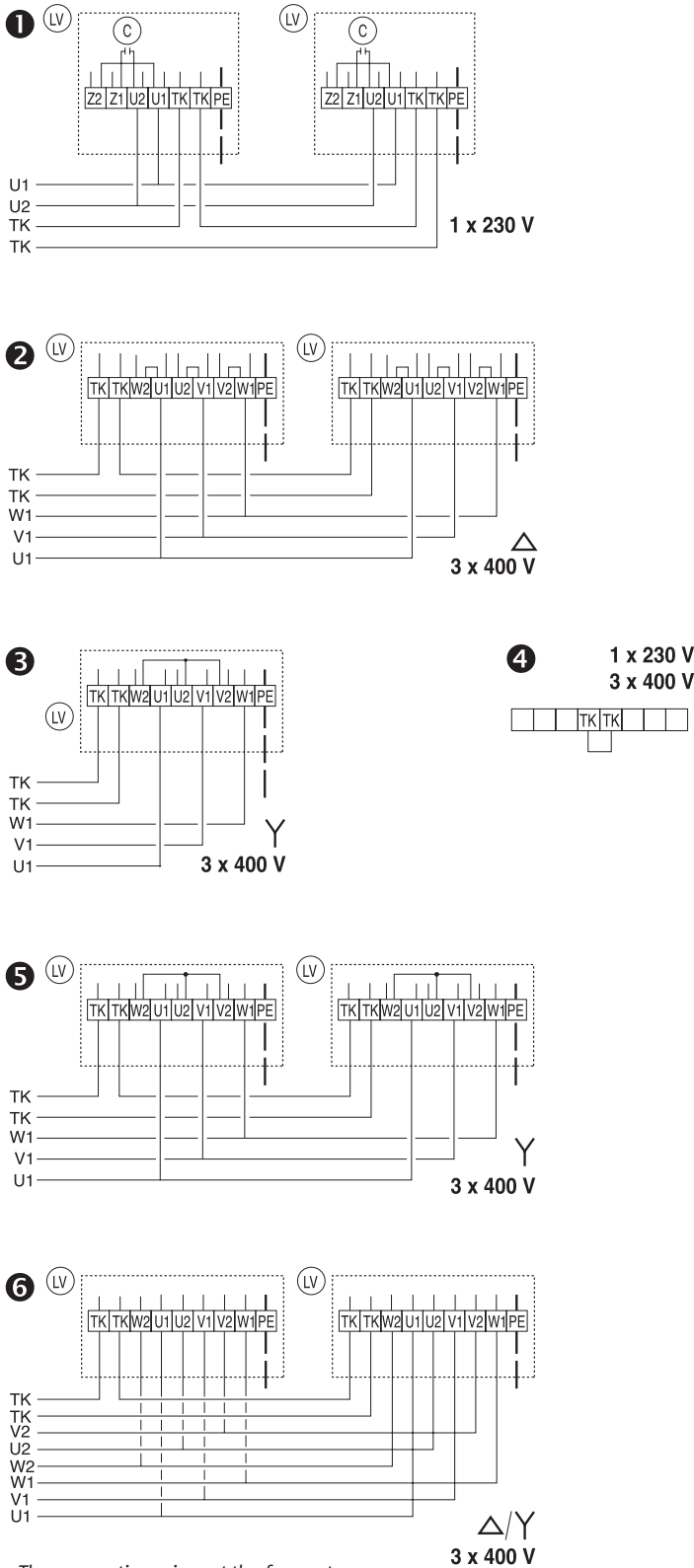
Total numbers of unit heaters per switch box

Size	100	200	300	400
Switch box 2A				
motor 3	8	2	2	1
motor 7	20	4	5	2
Switch box 4A				
motor 3	15	4	4	2
motor 7	40	8	10	4
Switch box 7A				
motor 3	28	7	7	4
motor 7	70	14	17	8

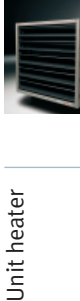
Electrical output for 5 speed switch box

Position switch	Electrical output
0	0
1	90
2	140
3	180
4	230
5	400

Additional drawings



The connecting wires at the fan motor have been removed.



Unit heater

Jaga AVS® Unit heater_Correction factors

Correction factors (cf) in function of ΔT

(ΔT = average water temperature - room temperature).

ΔT	Factor	ΔT	Factor	ΔT	Factor
30	0,60	49	0,98	68	1,36
31	0,62	50	1,00	69	1,38
32	0,64	51	1,02	70	1,40
33	0,66	52	1,04	71	1,42
34	0,68	53	1,06	72	1,44
35	0,70	54	1,08	73	1,46
36	0,72	55	1,10	74	1,48
37	0,74	56	1,12	75	1,50
38	0,76	57	1,14	76	1,52
39	0,78	58	1,16	77	1,54
40	0,80	59	1,18	78	1,56
41	0,82	60	1,20	79	1,58
42	0,84	61	1,22	80	1,60
43	0,86	62	1,24	81	1,62
44	0,88	63	1,26	82	1,64
45	0,90	64	1,28	83	1,66
46	0,92	65	1,30	84	1,68
47	0,94	66	1,32	85	1,70
48	0,96	67	1,34	86	1,72



Unit heater

Calculation

Calculation for other temperatures.

T_v = Flow temperature
 T_r = return temperature
 T_l = room temperature
 Q_v = Requested capacities

Calculation example

70 °C
 50 °C
 18 °C
 25 kwatts

$$\Delta T = \frac{70^\circ\text{C} + 50^\circ\text{C}}{2} - 18^\circ\text{C} = 42$$

↓

0.84

1. ΔT Calculation:

$$\Delta T = \frac{T_v + T_r}{2}$$



correction factor Cf

2. Calculation imaginary output (Q_f):

$$Q_f = \frac{Q_v}{C_f}$$

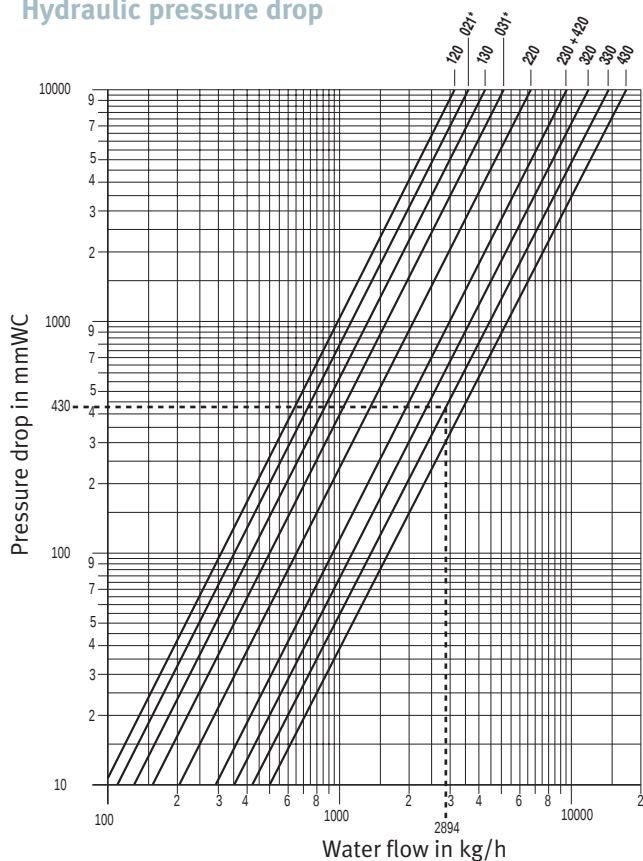
$$Q_f = \frac{25 \text{ kwatts}}{0.84} = 29.76 \text{ kwatts}$$

3. Choice unit heater:

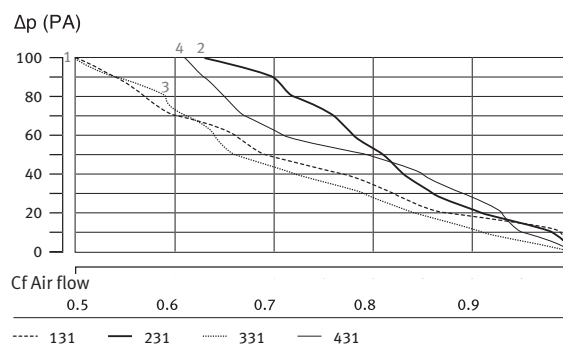
Select in table A=50 a unit heater with an imaginary output of 29.76 kwatt (Q_f).

This unit heater will provide the requested output (Q_v) of 25 kwatt at a water temperature $T_v - T_r$ (70°C/50°C) and a room temperature T_l (18°C).

Hydraulic pressure drop

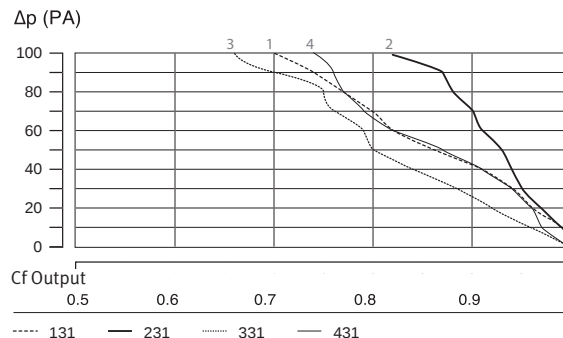


Air flow / correction factor for the air flow (Pressure drop with air inlet options).



Thermal output / correction factors for the heating loss of output

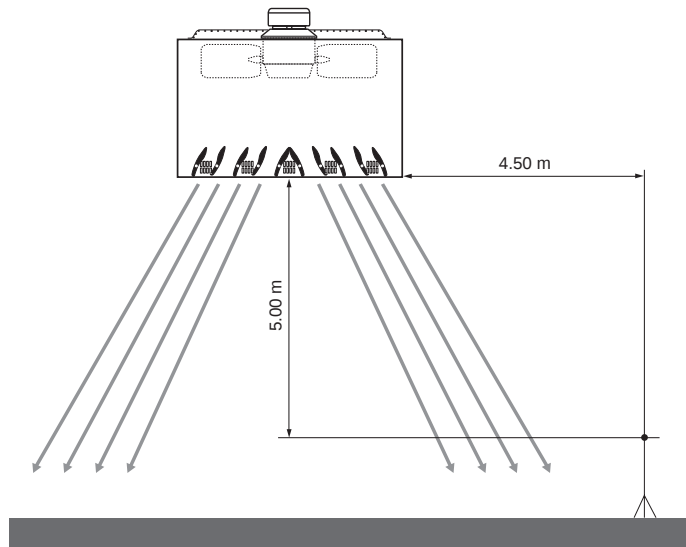
(Pressure drop with air inlet options).



Jaga AVS® Unit heater_Correction factors sound

Noise sources

The noise level



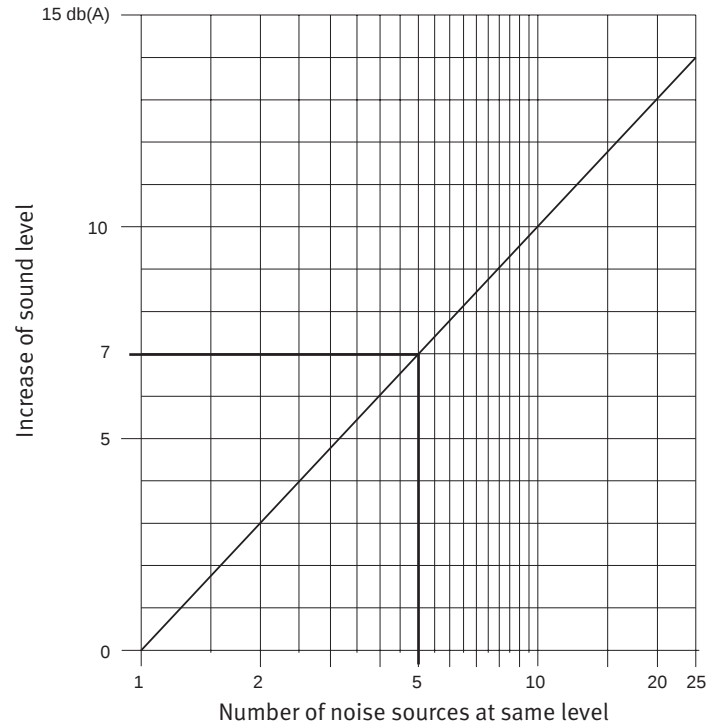
Sound measuring in a room in accordance to (DIN) EN 23741 and 23742

The information regarding the noise level of the unit heaters is applicable in case of a full air flow at a distance of 5 m high and 4.5 m sideways from the equipment, in a room without reflection, in accordance to DIN 23741 and 23742.

These values are approximate values for a free air inlet and outlet flow, which may be strongly influenced by the conditions of the installation of the equipment and the heated room.

ex.: the value of a room with partial reflection is around 4 dbA higher.

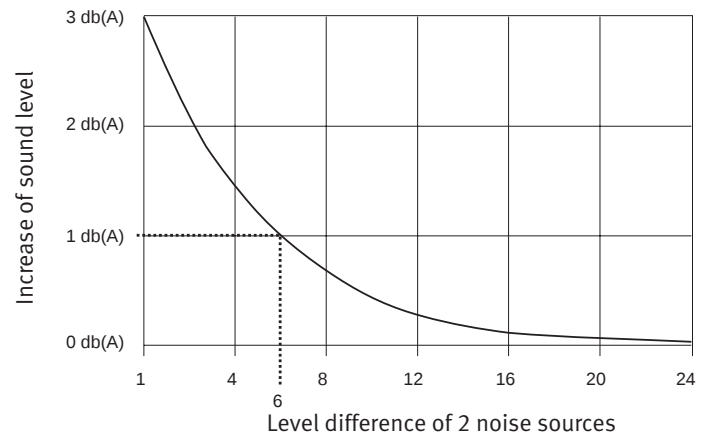
Combination of different noise sources at the same sound level



Example:

- given: 5 sound sources of each 53 db(A)
- asked: the total sound intensity
- the total sound intensity: 53 db(A) + 7 db(A) = 60 db(A)

Combination of different noise sources with different sound levels



Example:

- given: 2 sound sources 53 dbA and 59 db(A)
- difference = 6 db(A)
- asked: the total sound intensity
- the total sound intensity : 59 db(A) plus 1 db(A) = 60 db(A)

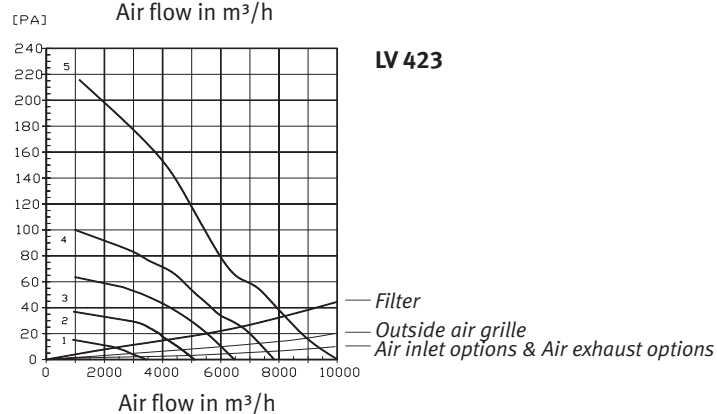
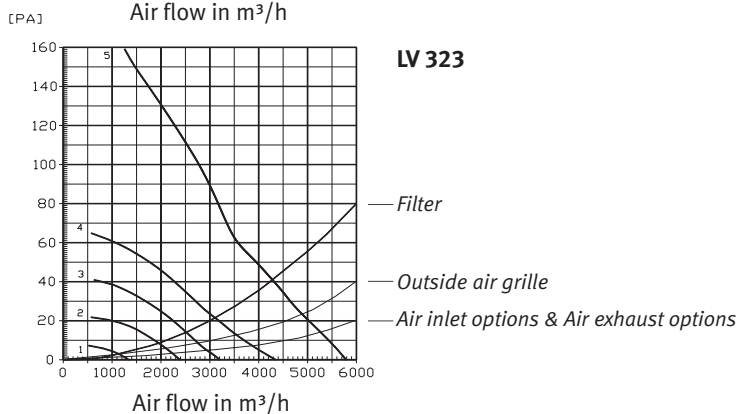
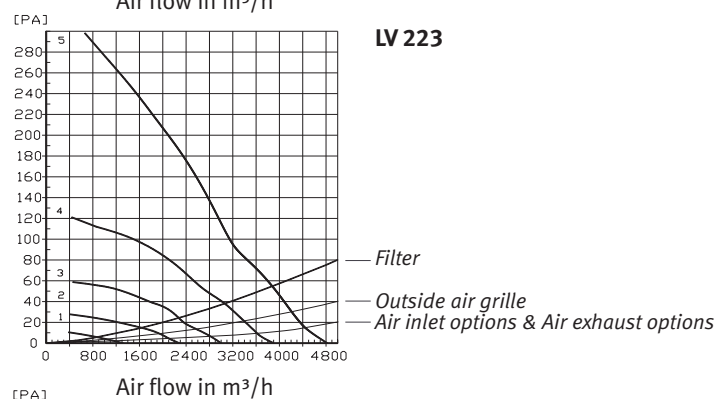
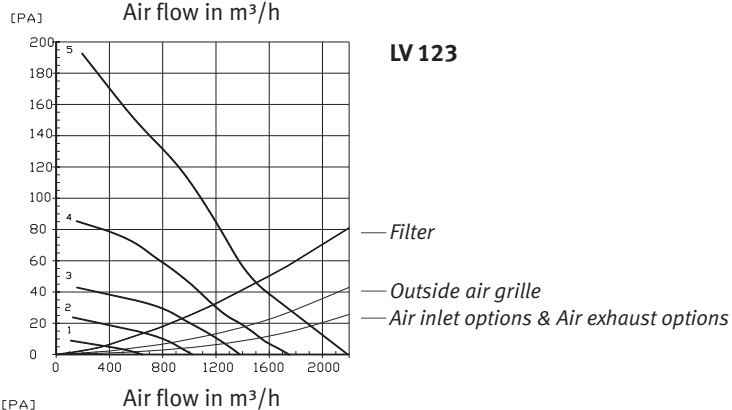
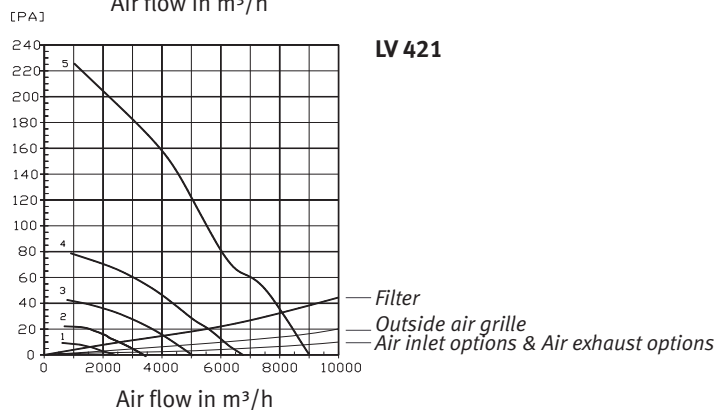
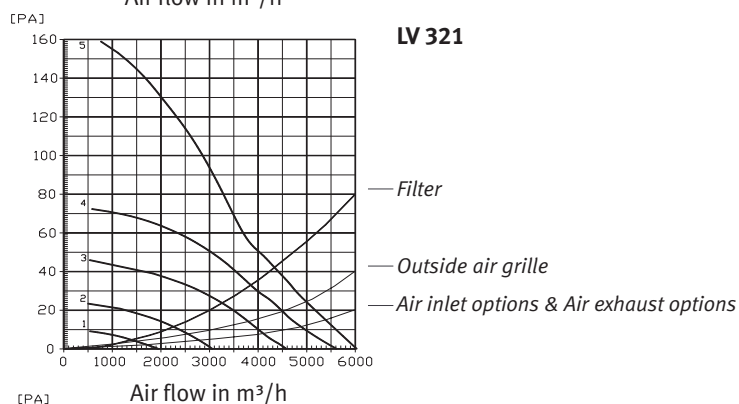
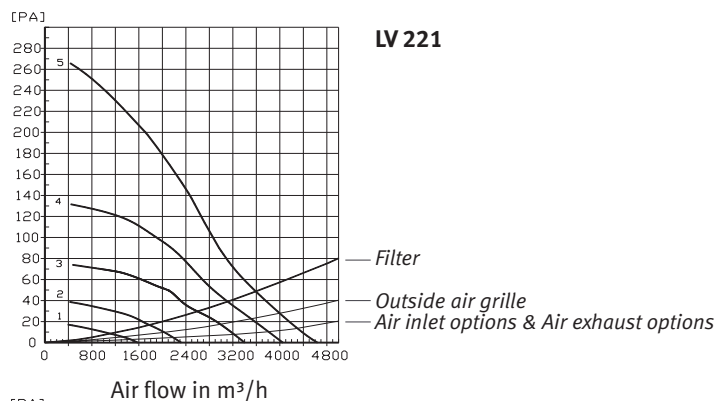
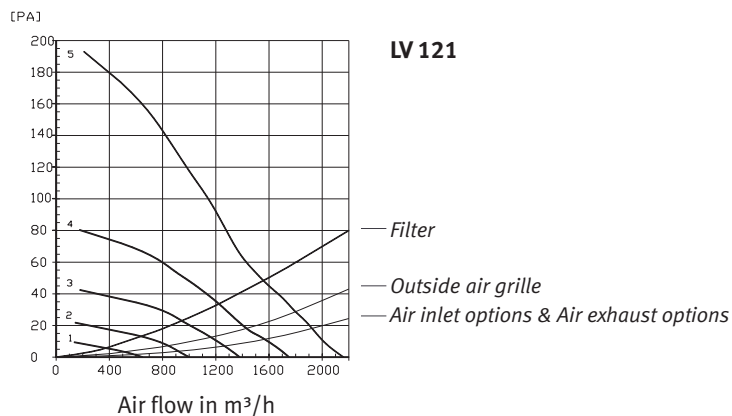


Unit heater

Jaga AVS® Unit heater_Air flow with options

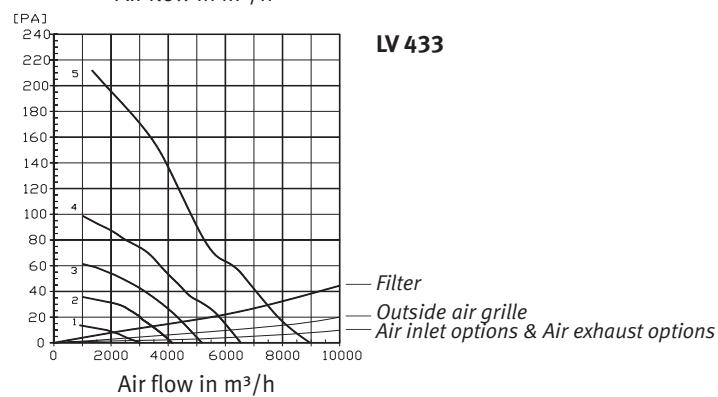
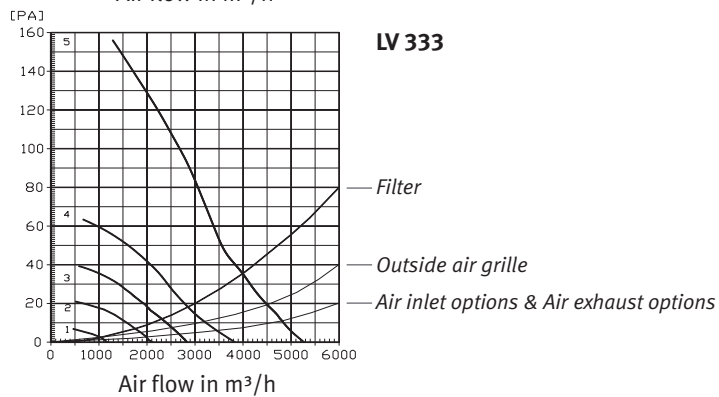
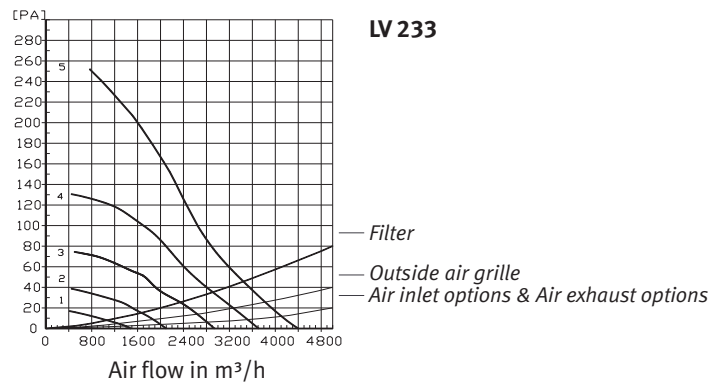
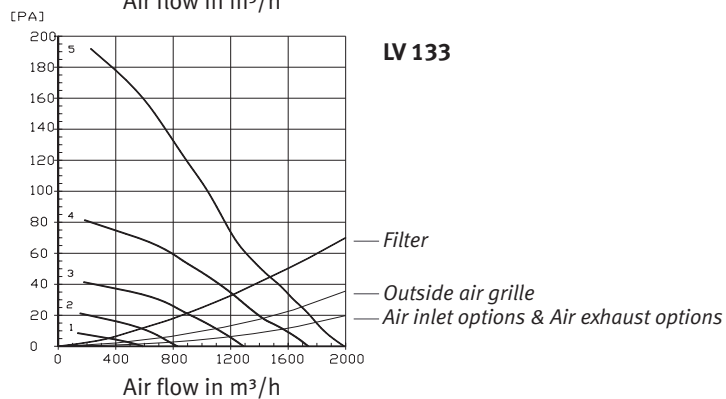
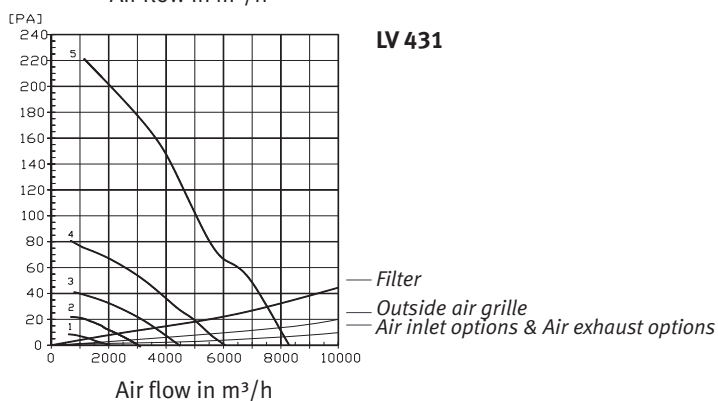
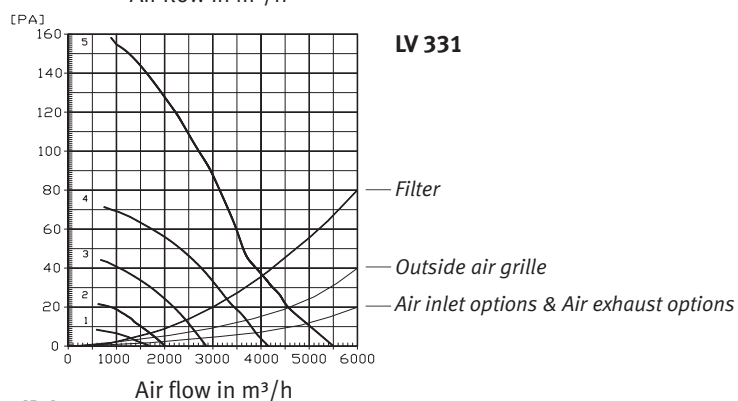
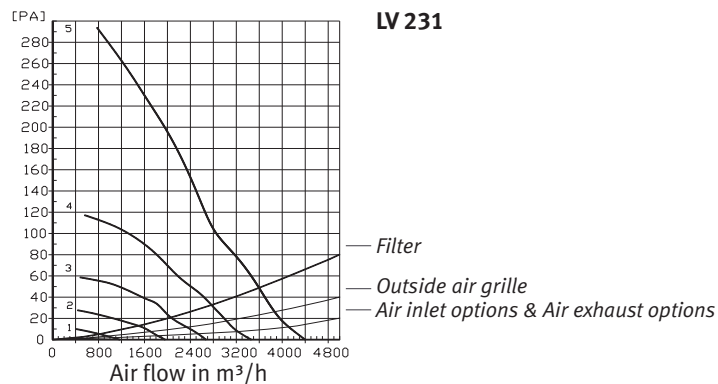
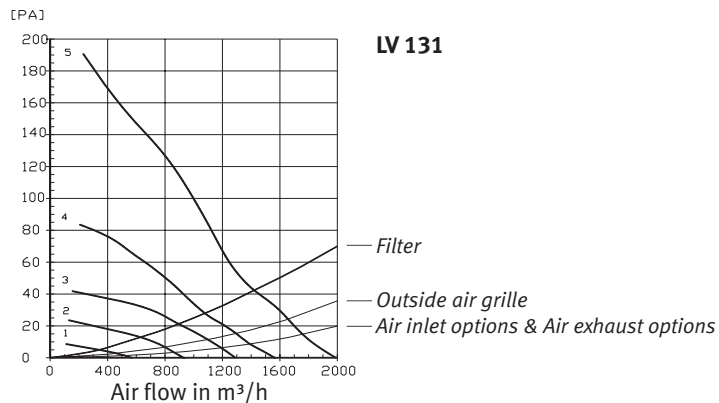


Unit heater



The calculations for unit heaters at speed reductions (motor 005 and 007) are available on demand.

Jaga AVS® Unit heater_Air flow with options



The calculations for unit heaters at speed reductions (motor 005 and 007) are available on demand.



Unit heater

Jaga AVS® Unit heater_Parts

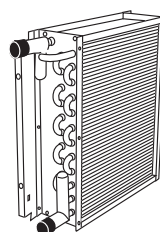
Parts: motor and heat exchanger

Motor

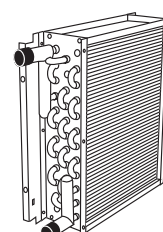
	for size	CODE
motor 1 Standard speed 1 x 230 V	000*	24502.02200100
	100	24502.02200101
	200	24502.02200201
	300	24502.02200301
	400	24502.02200401
motor 3 Standard speed 3 x 400 V	100	24506.33800103
	200	24506.33800203
	300	24506.33800303
	400	24506.33800403
motor 5 Speed reduction 1 x 230 V	100	24531.02200105
	200	24531.02200205
	300	24531.02200305
	400	24531.02200405
motor 7 Speed reduction 3 x 400 V	100	24536.33800107
	200	24536.33800207
	300	24536.33800307
	400	24536.33800407

Heat exchanger

	for size	CODE
<i>Low-H2O heat exchanger with 2 rows of pipes</i>	000 (Mini)	8393.010105
	100	8393.010101
	200	8393.010102
	300	8393.010103
	400	8393.010104
<i>Low-H2O heat exchanger with 3 rows of pipes</i>	000 (Mini)	8393.020105
	100	8393.020101
	200	8393.020102
	300	8393.020103
	400	8393.020104



Low-H2O heat exchanger with 2 rows of pipes



Low-H2O heat exchanger with 3 rows of pipes

technical data: motor and heat exchanger

Type	Output			Current			Water-Content °C	Max. Air inlet T°:
	Δ	kwatts	Y	Δ	A Y	L		
021 - 031*	---	0.10	---	---	0.52	---	0.9 - 1.3	55
121 - 131	---	0.24	---	---	0.89	---	1.8 - 2.6	50
221 - 231	---	0.60	---	---	2.10	---	3.6 - 4.2	60
321 - 331	---	0.65	---	---	2.30	---	4.0 - 5.8	55
421 - 431	---	0.72	---	---	3.20	---	5.5 - 8.9	50
123 - 133	0.13	---	0.08	0.25	---	0.14	1.8 - 2.6	70
223 - 233	0.45	---	0.34	0.88	---	0.60	3.6 - 4.2	45
323 - 333	0.39	---	0.20	0.92	---	0.48	4.0 - 5.8	50
423 - 433	0.75	---	0.47	1.65	---	0.90	5.5 - 8.9	40
125 - 135	---	0.12	---	---	0.47	---	1.8 - 2.6	70
225 - 235	---	0.21	---	---	0.83	---	3.6 - 4.2	60
325 - 335	---	0.30	---	---	1.10	---	4.0 - 5.8	70
425 - 435	---	0.43	---	---	2.20	---	5.5 - 8.9	50
127 - 137	0.05	---	0.03	0.10	---	0.05	1.8 - 2.6	70
227 - 237	0.17	---	0.11	0.48	---	0.25	3.6 - 4.2	70
327 - 337	0.16	---	0.10	0.39	---	0.21	4.0 - 5.8	70
427 - 437	0.38	---	0.25	0.90	---	0.48	5.5 - 8.9	50

motor with integrated thermocontact and fitted thermal box: insulation range B / IP 54
working pressure max. 11 bar at 130 °C
pressure tested: 25 bar

* Mini unit heater