

► Rooftop Air Conditioners - Heat Pump Version

HAN 10 to 31



9.8 to 31 kW



9.6 to 30.5 kW



Engineering Data Manual

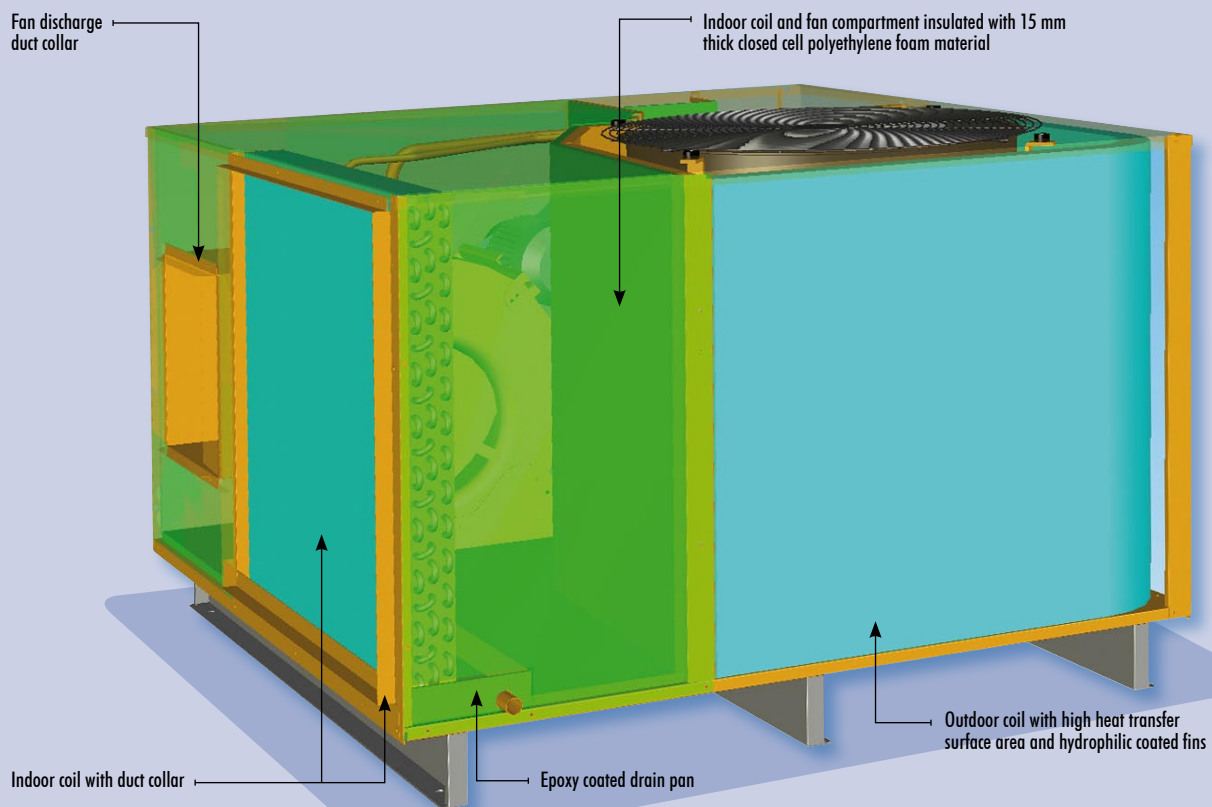
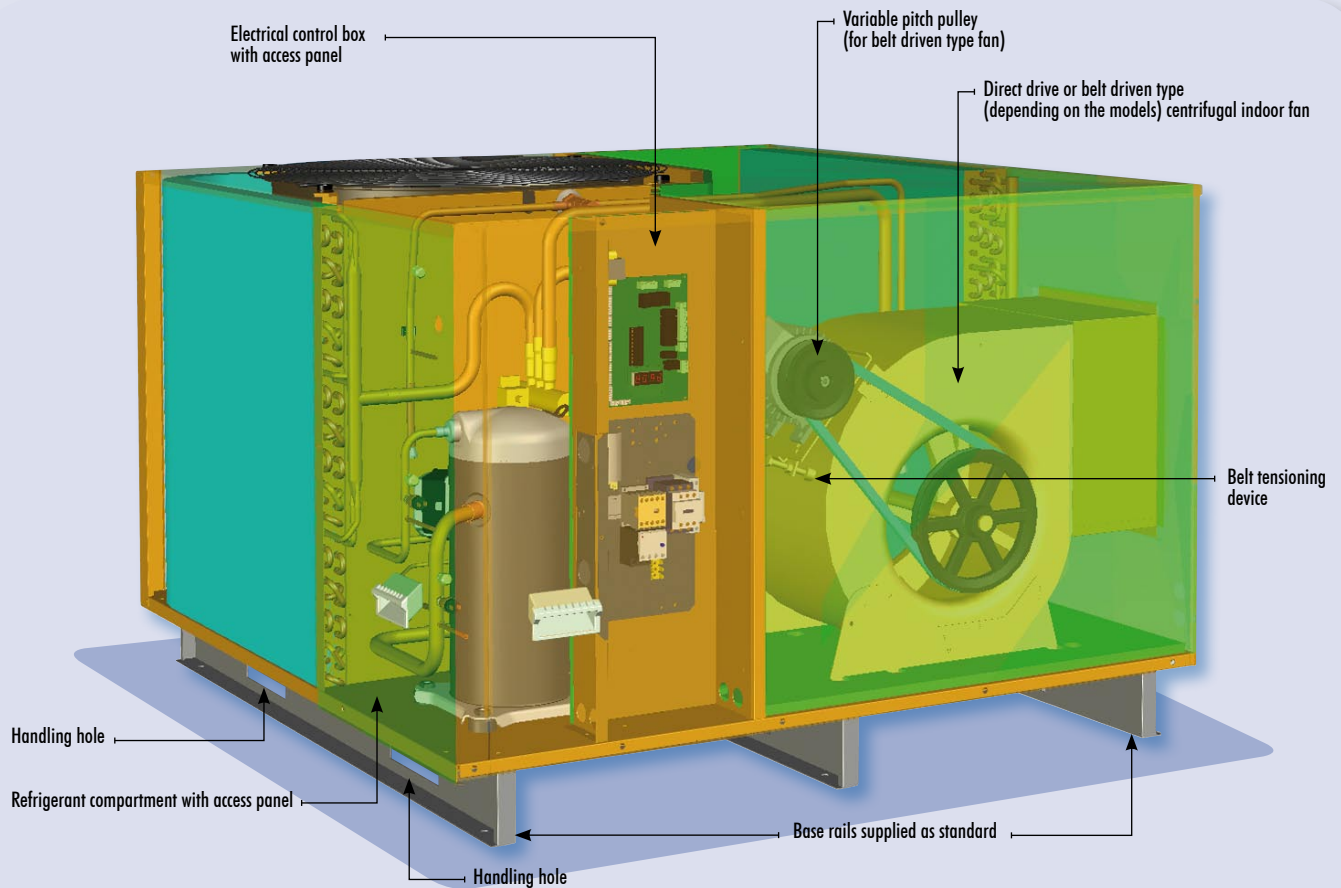
EDM HAN-A.1GB

Date : October 2008

Supersedes : None

Airwell

Unit Description



Technical Features

General

- Pre-assembled waterproof single package, designed with R410A refrigerant to save energy with high EER.
- Heat pump with additional electrical heaters as an option if necessary.
- A full run test is performed at the factory before shipping ensuring units good working order.

Cabinet

- Compact, light and single piece design.
- All panels are made of galvanized steel. External panels and drain pans are coated with powder-based epoxy paint (RAL9001) for improved weather resistance.
- Easy removable service panels for full unit access and ease of maintenance.
- Fork lift slots on the base rails to facilitate transportation and handling.
- Fully insulated air treatment compartment with M1 polyethylene foam to reduce energy loss, thermal bridge and sound disturbance.
- Weatherproof technical compartment independent from airflows such that running high and low pressures can be measured without disturbing the normal unit operation.

Refrigerant equipment

R410A benefits

- Higher heat transfer.
- Environmental friendly refrigerant with zero ODP (Ozone Depleting Potential).
- Stable composition compared to R407C (2 refrigerant mixture instead of 3 with R407C).
- Temperature glide less than 0.2 K during evaporation.
- Smaller liquid line pipe.
- Lower refrigerant charge.

Refrigerant circuit

- Reversible refrigerant circuit designed for reliable operation in both cooling and heating modes and composed of components optimized for R410A refrigerant.
- All refrigerant components are shown in the functional diagram illustrated in "Refrigerant flow diagram" section.

Compressors

- Each unit is equipped with one hermetic Scroll compressor for high efficiency and robustness.
- Compressors are mounted on rubber anti-vibration pads.
- The motors, gas cooled type, are equipped with automatic reset internal thermal protection.
- Crankcase base heater is supplied on each compressor for improved start up in winter.

Coils

- Direct expansion coil type made of seamless copper tubes arranged in a staggered row pattern. Each coil is mechanically expanded into aluminium fins with full fin collars.
- Condenser coil fins are hydrophilic coated for better water droplet removing during defrosting cycles.

Fans

- Air treatment side fans are single centrifugal wheels mounted on self-aligning bearings.
- On models 10 and 13 air treatment side fans are of multispeed direct drive type.
- On models 15 to 31 air treatment side fans are of belt driven type with variable pitch pulley.
- Available external static pressure goes up to 250 Pa (depending on models).
- On condenser side, units are equipped with direct drive propeller fans consisting of plastic or painted steel blades. They are driven by single phase motors.

Electrical box

All electrical equipment required for proper unit operation is located in a weatherproof electrical control box including :

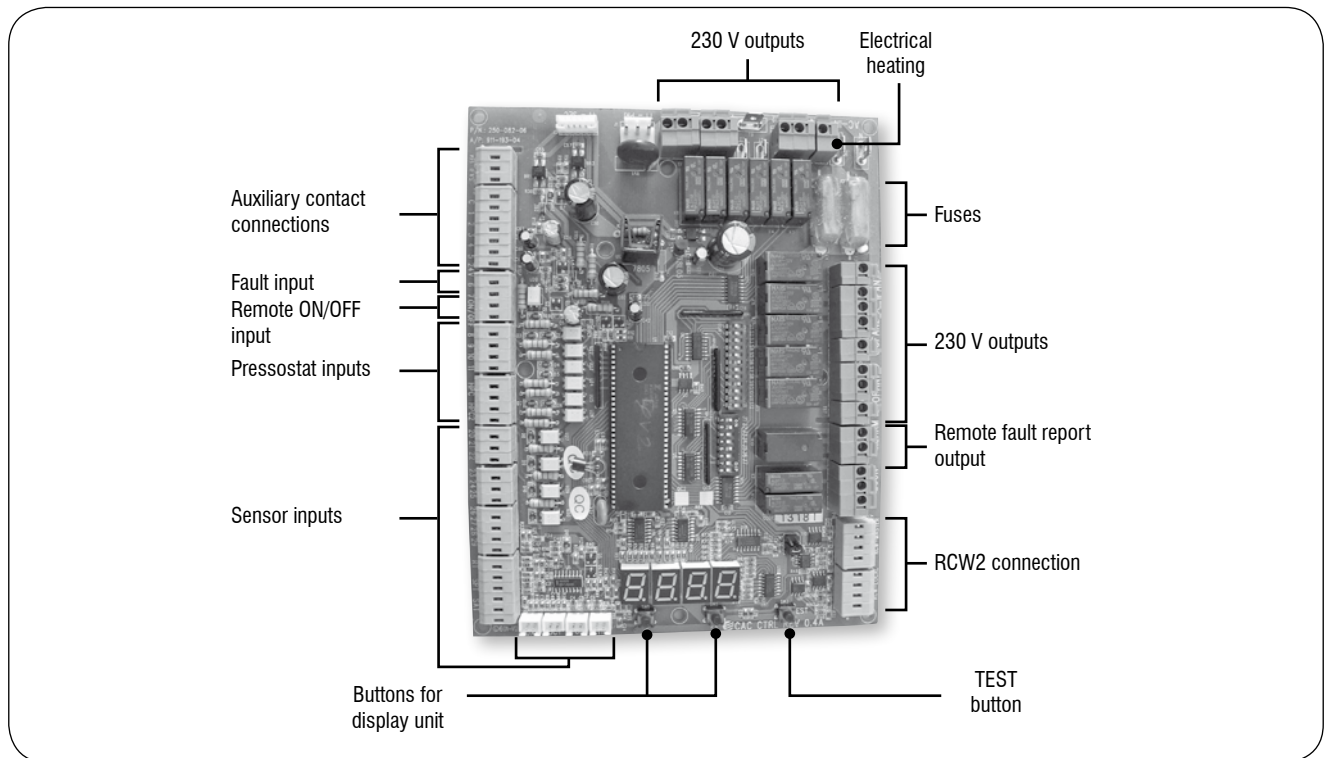
- Main disconnect switch
- Control circuit transformer
- Phase controller (rotation and missing phase control)
- Outdoor motor automatic reset thermal protection
- Indoor motor contactor and thermal relay on models 15 to 31
- Compressor contactor
- CAC controller electronic control board.

Options and accessories

- Factory fitted low ambient control to ensure cooling operation down to -10 °C outdoor temperature is available as an option.
- Synthetic media type G2 (75%-80%) M1 air filter offered as a kit for field installation.
- Additional electrical heater for indoor installation on the air duct offered as a kit for field installation.
- RCW2 electronic programmable controller.

Controls

CAC controller (standard control)

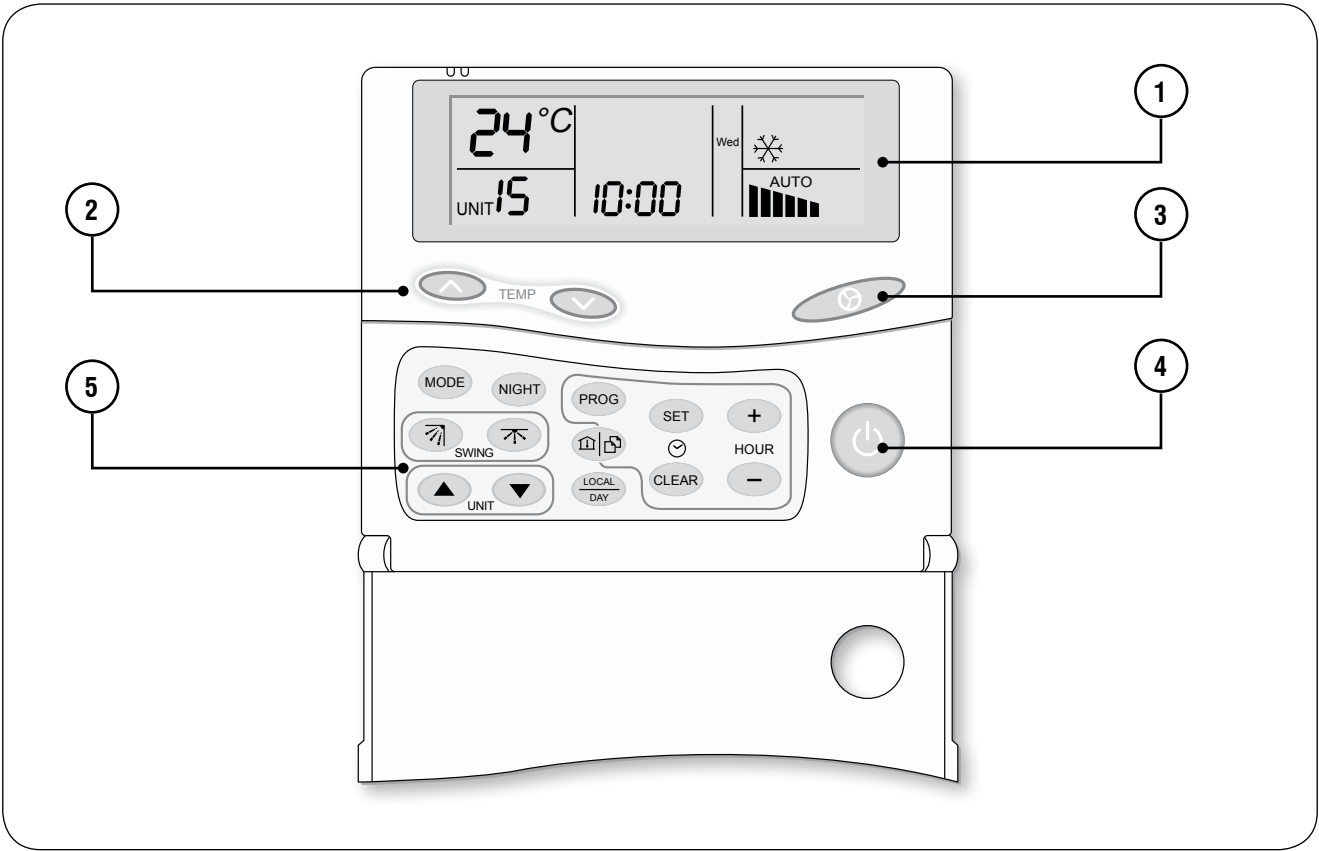


Main features :

- Intelligent microprocessor control.
- 4-digit display - shows all status, alarm and sensor information.
- PI compressor and electric heat control (two stages).
- Anti-short cycle control.
- Intelligent de-ice - automatically and continuously adjusts de-ice time to improve comfort and optimize performance under all conditions.
- Alarm log - stores 10 previous alarms even after power cut to assist diagnostics.
- Random restart after power failure - avoids simultaneous starting.
- Test mode - simple one touch control to test in all operating modes.
- Alarm output - voltage free contact for remote monitoring.
- Can be controlled by voltage free contact or electronic thermostat.

Controls (continued)

RCW2 electronic programmable controller (optional control)



Main features :

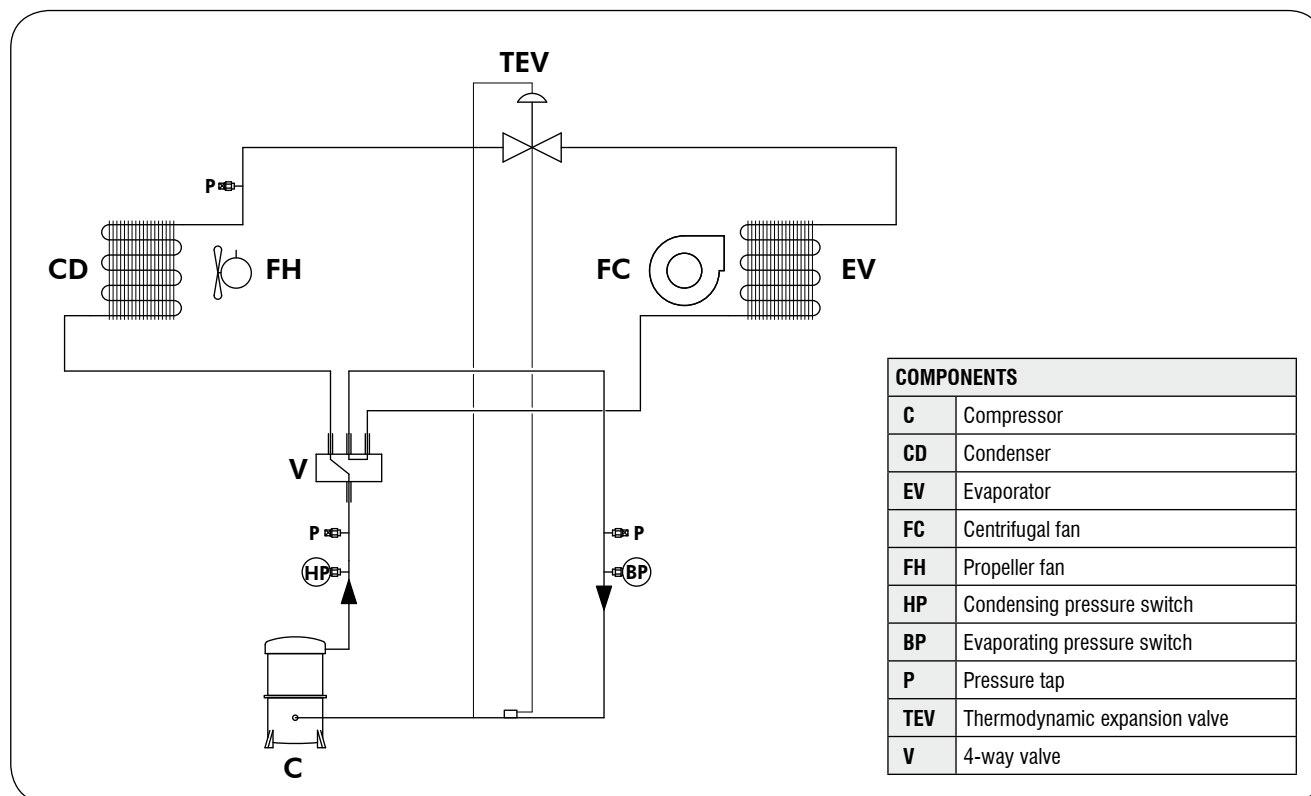
- Can be used to control up to 15 units with independent setpoints and programming.
- Additional "global control" through zone/unit "0" to control all the 15 units with the same parameters at the same time.
- 2 programmes available per day (2 "On" Times and 2 "OFF" Times).
- 7 day programming.

1	Display screen
2	Keys for raising and lowering the set temperature
3	Ventilation mode selection :  Low speed  Medium speed  High speed AUTO Automatic speed selection
4	ON/Standby

5		Accessing the time setting mode
		Advancing the time setting
		Retarding the time setting
		Clearing memory of programmed time settings in programming mode
		Day of the week selection key or sending "I feel" local temperature setting
		Programming mode key
		"Copy" key, enabling zone parameters to be duplicated for other zones
		Operating mode selection
		Inactive key
		Current zone setting : zone above
		Current zone setting : zone below
		Inactive key
		Inactive key

Note : RCW2 can be supplied only with CAC controller.

Refrigerant Flow Diagram



Operating Limits

HAN models		10	13	15	17	19	25	31
Cooling mode								
Min. outdoor temperature for standard versions	°C	15	15	15	15	15	15	15
Min. outdoor temperature with optional low ambient kit	°C	-10	-10	-10	-10	-10	-10	-10
Min. indoor temperature DB/WB	°C	21 / 15	21 / 15	21 / 15	21 / 15	21 / 15	21 / 15	21 / 15
Max. outdoor temperature	°C	50	50	50	50	50	50	50
Max. indoor temperature DB/WB	°C	32 / 23	32 / 23	32 / 23	32 / 23	32 / 23	32 / 23	32 / 23
Heating mode								
Min. outdoor temperature	°C	-10	-10	-10	-10	-10	-10	-10
Max. outdoor temperature DB	°C	24	24	24	24	24	16	24
Max. indoor temperature DB	°C	27	27	27	27	27	27	27

The low ambient kit (fan speed controller) modulates the outdoor rotational fan speed in order to allow units to operate, in cooling mode, with ambient outdoor temperature down to -10 °C.

DB : Dry bulb.

WB : Wet bulb.

Physical Data

HAN models		10	13	15	17	19	25	31
Total cooling capacity (1)	W	9800	13000	14500	16800	18900	25400	31000
Effective power input in cooling mode (1)	W	3769	4545	4949	6087	6517	8328	10000
Total heating capacity (1)	W	9600	12100	14200	15800	19000	24200	30500
Effective power input in heating mode (1)	W	3097	4321	4581	5745	6032	8800	9531
REFRIGERANT CIRCUIT								
Refrigerant type		HFC R410A						
Refrigerant charge	g	SEE UNIT NAME PLATES						
Compressor type		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Number of compressor		1	1	1	1	1	1	1
Number of refrigerant circuit		1	1	1	1	1	1	1
INDOOR FAN								
Number of fan		1	1	1	1	1	1	1
Type		Centrifugal						
Drive type		Direct			Belt / variable pitch pulley			
Motor nominal power input	kW	0.40	0.60	0.75	0.75	1.10	1.10	1.50
Power supply	V/Ph/Hz	230/1/50	230/1/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Nominal airflow	m³/h	1930	2640	2940	3190	3860	4780	5530
Available static pressure (2)	Pa	90	100	170	160	210	240	250
OUTDOOR FAN								
Number of fan		1	1	1	1	1	1	1
Type		Propeller						
Number of blades		5	3	3	3	3	5	5
Fan diameter	mm	510	610	610	610	610	710	710
Drive type		Direct						
Nominal airflow	m³/h	5200	9000	9000	9000	9000	12000	12000
Motor nominal power input	kW	0.49	0.49	0.49	0.49	0.49	0.90	0.90
Power supply	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50
DIMENSIONS & WEIGHT								
Length	mm	1150	1345	1345	1345	1345	1445	1445
Width	mm	1115	1320	1320	1320	1320	1420	1420
Height	mm	750	905	905	905	905	1320	1320
Footprint	m²	1.3	1.8	1.8	1.8	1.8	2.1	2.1
Weight	kg	165	219	223	223	243	320	343

(1) According to EN14511, including fan correction.

Cooling mode operating conditions : Indoor temperature 27 °C dry bulb / 19 °C wet bulb - Outdoor temperature : 35 °C dry bulb.

Nominal airflow rate on heat exchangers.

Heating mode operating conditions : Indoor temperature 20 °C dry bulb - Outdoor temperature : 7 °C dry bulb / 6 °C wet bulb.

(2) At nominal airflow and maximum fan speed without air filter.

Electrical Data

Units

HAN MODELS		10	13	15	17	19	25	31
Main power supply		400V / 3 Ph / 50 Hz + Neutral + Earth						
Maximum current	A	14	16	17	20	21	29	30
Total starting current	A	54	70	69	79	107	119	126
Fuse rating aM	A	16	16	20	20	25	32	32

Optional electric heater

Capacity (W)	Number of stages	Power supply cable section (400V/3Ph/50Hz+N+Earth)	Gg Protection (A)
6000	1	2.5 mm ²	10
9000	2	2.5 mm ²	16
12000	2	4 mm ²	20

Power supply for electrical heaters has to be separated from the unit power supply. Only electrical heater control is managed by the unit (see electrical wiring diagrams). Electrical heaters are for indoor installation on the air duct.

Sound Data

HAN 10	Sound power levels per octave band dB(A)						Global dB(A)
	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	
Outdoor - Configuration A	64.2	69.8	74.1	76.0	71.4	63.7	79.7
Indoor (*) - Configuration B	59.2	61.9	69.4	72.1	69.5	66.4	76.1

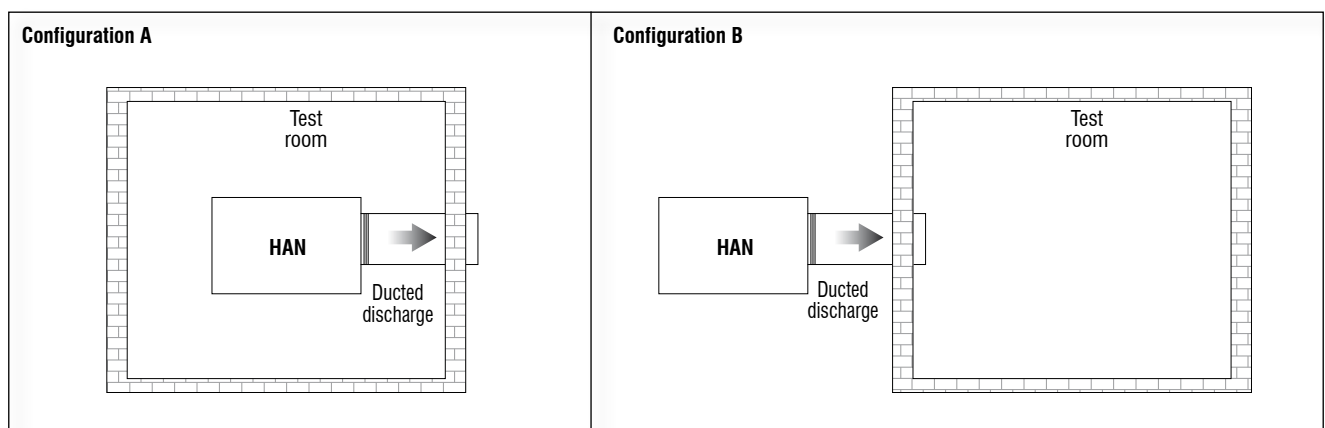
(*) Nominal airflow - High speed fan - Without air filter.

HAN 15 & 17	Sound power levels per octave band dB(A)						Global dB(A)
	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	
Outdoor - Configuration A	65.6	66.4	73.3	75.1	71.8	68.9	79.3
Indoor (*) - Configuration B	52.5	62.9	71.5	67.2	67.5	66.4	75.0

(*) Nominal airflow - Variable pitch pulley opened with 3 turns - Without air filter.

HAN 31	Sound power levels per octave band dB(A)						Global dB(A)
	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	
Outdoor - Configuration A	74.9	78.0	80.6	81.8	77.6	71.8	86.4
Indoor (*) - Configuration B	64.6	71.6	79.0	75.0	75.6	73.3	82.7

(*) Nominal airflow - Variable pitch pulley opened with 3 turns - Without air filter.



Cooling Capacity Data

HAN 10 - Nominal airflow 1930 m³/h

INDOOR AIR TEMPERATURE (°C)			OUTDOOR AIR TEMPERATURE (°C)						
			15	20	25	30	35	40	45
Wet bulb temperature = 15 °C		Total cooling capacity (kW)	10.1	9.8	9.4	9.0	8.7	8.3	7.9
		Total power input (kW)	3.0	3.1	3.3	3.5	3.7	3.9	4.0
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)	5.7	5.8	6.0	6.1	6.2	6.3	6.5
	23 °C		6.4	6.6	6.7	6.9	7.0	7.1	7.1
	25 °C		7.1	7.3	8.4	8.1	7.7	7.4	7.1
	27 °C		8.8	8.7	8.4	8.1	7.7	7.4	7.1
	29 °C		9.1	8.7	8.4	8.1	7.7	7.4	7.1
	31 °C		9.1	8.7	8.4	8.1	7.7	7.4	7.1
Wet bulb temperature = 17 °C		Total cooling capacity (kW)	10.8	10.4	10.0	9.7	9.2	8.8	8.5
		Total power input (kW)	3.0	3.2	3.3	3.5	3.7	3.9	4.1
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)	5.5	5.6	5.8	5.9	6.0	6.1	6.2
	23 °C		6.3	6.4	6.6	6.7	6.8	7.0	7.1
	25 °C		7.0	7.2	7.3	7.5	7.7	7.8	7.5
	27 °C		7.8	8.8	8.7	8.6	8.3	7.9	7.6
	29 °C		9.2	9.2	8.9	8.6	8.3	7.9	7.6
	31 °C		9.6	9.3	8.9	8.6	8.3	7.9	7.6
Wet bulb temperature = 19 °C		Total cooling capacity (kW)	11.4	11.0	10.6	10.2	9.8	9.4	9.0
		Total power input (kW)	3.0	3.2	3.4	3.6	3.8	4.0	4.2
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)	4.4	4.5	4.6	4.7	4.8	4.9	5.0
	23 °C		5.2	5.4	5.5	5.6	5.7	5.8	5.9
	25 °C		6.0	6.2	6.3	6.4	6.6	6.7	6.8
	27 °C		6.9	7.0	7.2	7.3	7.4	6.8	7.7
	29 °C		7.7	7.8	8.0	8.2	8.3	8.4	8.1
	31 °C		9.6	9.6	9.5	9.1	8.8	8.4	8.1
Wet bulb temperature = 21 °C		Total cooling capacity (kW)	12.1	11.6	11.2	10.8	10.4	10.0	9.6
		Total power input (kW)	3.1	3.3	3.5	3.7	3.9	4.1	4.3
Dry bulb temperature	23 °C	Sensible cooling capacity (kW)	4.1	4.1	4.2	4.3	4.4	4.5	4.6
	25 °C		4.9	5.0	5.1	5.2	5.3	5.4	5.5
	27 °C		5.8	5.9	6.0	6.1	6.3	6.4	6.5
	29 °C		6.6	6.8	6.9	7.1	7.2	7.3	7.5
	31 °C		7.5	7.6	7.8	8.0	8.1	8.3	8.4
	33 °C		8.3	8.5	8.7	9.7	9.5	9.3	9.0
Wet bulb temperature = 23 °C		Total cooling capacity (kW)	12.7	12.3	11.9	11.4	11.0	10.6	10.1
		Total power input (kW)	3.3	3.5	3.7	3.9	4.1	4.3	4.5
Dry bulb temperature	25 °C	Sensible cooling capacity (kW)	3.6	3.7	3.8	3.8	3.9	4.0	4.1
	27 °C		4.5	4.6	4.7	4.8	4.9	5.0	5.1
	29 °C		5.4	5.5	5.6	5.8	5.9	6.0	6.1
	31 °C		6.3	6.4	6.6	6.7	6.9	7.0	7.1
	33 °C		7.2	7.4	7.5	7.7	7.8	8.0	8.2

Cooling Capacity Data (continued)

HAN 13 - Nominal airflow 2640 m³/h

INDOOR AIR TEMPERATURE (°C)			OUTDOOR AIR TEMPERATURE (°C)							
			15	20	25	30	35	40	45	
Wet bulb temperature = 15 °C		Total cooling capacity (kW)		13.4	13.0	12.5	12.0	11.5	11.0	10.5
		Total power input (kW)		3.6	3.8	4.0	4.2	4.4	4.6	4.9
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)		7.5	7.7	7.8	8.0	8.1	8.3	8.5
	23 °C			8.4	8.6	8.8	9.0	9.2	9.3	9.3
	25 °C			9.4	9.6	11.0	10.6	10.1	9.7	9.3
	27 °C			11.5	11.4	11.0	10.6	10.1	9.7	9.3
	29 °C			11.9	11.4	11.0	10.6	10.1	9.7	9.3
	31 °C			11.9	11.4	11.0	10.6	10.1	9.7	9.3
Wet bulb temperature = 17 °C		Total cooling capacity (kW)		14.3	13.8	13.3	12.8	12.2	11.7	11.2
		Total power input (kW)		3.6	3.8	4.0	4.2	4.5	4.7	4.9
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)		7.2	7.4	7.5	7.7	7.8	8.0	8.2
	23 °C			8.2	8.4	8.6	8.8	8.9	9.1	9.3
	25 °C			9.2	9.4	9.6	9.8	10.0	10.2	9.8
	27 °C			10.2	11.5	11.4	11.3	10.8	10.4	9.9
	29 °C			12.0	12.0	11.7	11.3	10.8	10.4	9.9
	31 °C			12.5	12.2	11.7	11.3	10.8	10.4	9.9
Wet bulb temperature = 19 °C		Total cooling capacity (kW)		15.1	14.6	14.1	13.5	13.0	12.5	11.9
		Total power input (kW)		3.6	3.9	4.1	4.3	4.5	4.8	5.0
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)		5.8	5.9	6.1	6.2	6.3	6.4	6.6
	23 °C			6.9	7.0	7.2	7.3	7.5	7.6	7.8
	25 °C			7.9	8.1	8.3	8.4	8.6	8.8	9.0
	27 °C			9.0	9.2	9.4	9.6	9.8	8.9	10.1
	29 °C			10.0	10.2	10.5	10.7	10.9	11.0	10.5
	31 °C			12.5	12.5	12.4	11.9	11.5	11.0	10.5
Wet bulb temperature = 21 °C		Total cooling capacity (kW)		16.0	15.4	14.9	14.3	13.8	13.2	12.7
		Total power input (kW)		3.8	4.0	4.3	4.5	4.7	5.0	5.2
Dry bulb temperature	23 °C	Sensible cooling capacity (kW)		5.3	5.4	5.5	5.7	5.8	5.9	6.0
	25 °C			6.4	6.6	6.7	6.8	7.0	7.1	7.3
	27 °C			7.5	7.7	7.9	8.0	8.2	8.4	8.5
	29 °C			8.7	8.9	9.0	9.2	9.4	9.6	9.8
	31 °C			9.8	10.0	10.2	10.4	10.6	10.8	11.1
	33 °C			10.9	11.1	11.4	12.7	12.4	12.1	11.7
Wet bulb temperature = 23 °C		Total cooling capacity (kW)		16.9	16.3	15.7	15.2	14.6	14.0	13.4
		Total power input (kW)		4.0	4.2	4.5	4.7	5.0	5.2	5.4
Dry bulb temperature	25 °C	Sensible cooling capacity (kW)		4.7	4.8	4.9	5.0	5.1	5.2	5.3
	27 °C			5.9	6.0	6.1	6.3	6.4	6.5	6.7
	29 °C			7.1	7.2	7.4	7.5	7.7	7.8	8.0
	31 °C			8.3	8.4	8.6	8.8	9.0	9.2	9.3
	33 °C			9.4	9.6	9.8	10.1	10.3	10.5	10.7

Cooling Capacity Data (continued)

HAN 15 - Nominal airflow 2940 m³/h

INDOOR AIR TEMPERATURE (°C)			OUTDOOR AIR TEMPERATURE (°C)							
			15	20	25	30	35	40	45	
Wet bulb temperature = 15 °C		Total cooling capacity (kW)		15.0	14.4	13.9	13.4	12.8	12.3	11.7
		Total power input (kW)		3.9	4.1	4.4	4.6	4.8	5.1	5.3
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)	9.1	9.3	9.5	9.7	9.9	10.1	10.3	
	23 °C		10.3	10.5	10.7	10.9	11.2	11.4	11.3	
	25 °C		11.4	11.7	13.4	12.9	12.4	11.8	11.3	
	27 °C		14.1	13.9	13.4	12.9	12.4	11.8	11.3	
	29 °C		14.5	13.9	13.4	12.9	12.4	11.8	11.3	
	31 °C		14.5	13.9	13.4	12.9	12.4	11.8	11.3	
Wet bulb temperature = 17 °C		Total cooling capacity (kW)		15.9	15.4	14.8	14.3	13.7	13.1	12.5
		Total power input (kW)		3.9	4.1	4.4	4.6	4.9	5.1	5.4
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)	8.8	9.0	9.2	9.4	9.6	9.8	10.0	
	23 °C		10.0	10.2	10.5	10.7	10.9	11.1	11.3	
	25 °C		11.2	11.5	11.7	12.0	12.2	12.4	12.0	
	27 °C		12.4	14.1	13.9	13.7	13.2	12.6	12.1	
	29 °C		14.7	14.7	14.3	13.7	13.2	12.6	12.1	
	31 °C		15.2	14.8	14.3	13.7	13.2	12.6	12.1	
Wet bulb temperature = 19 °C		Total cooling capacity (kW)		16.9	16.3	15.7	15.1	14.5	13.9	13.3
		Total power input (kW)		4.0	4.2	4.5	4.7	4.9	5.2	5.5
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)	7.1	7.2	7.4	7.5	7.7	7.8	8.0	
	23 °C		8.4	8.5	8.7	8.9	9.1	9.3	9.5	
	25 °C		9.7	9.9	10.1	10.3	10.5	10.7	10.9	
	27 °C		10.9	11.2	11.4	11.7	11.9	10.8	12.4	
	29 °C		12.2	12.5	12.8	13.0	13.3	13.4	12.9	
	31 °C		15.2	15.2	15.1	14.6	14.0	13.4	12.9	
Wet bulb temperature = 21 °C		Total cooling capacity (kW)		17.8	17.2	16.6	16.0	15.4	14.8	14.1
		Total power input (kW)		4.1	4.4	4.7	4.9	5.2	5.4	5.7
Dry bulb temperature	23 °C	Sensible cooling capacity (kW)	6.5	6.6	6.8	6.9	7.0	7.2	7.3	
	25 °C		7.8	8.0	8.2	8.3	8.5	8.7	8.9	
	27 °C		9.2	9.4	9.6	9.8	10.0	10.2	10.4	
	29 °C		10.6	10.8	11.0	11.3	11.5	11.7	11.9	
	31 °C		11.9	12.2	12.4	12.7	13.0	13.2	13.5	
	33 °C		13.3	13.6	13.9	15.5	15.2	14.8	14.3	
Wet bulb temperature = 23 °C		Total cooling capacity (kW)		18.8	18.2	17.5	16.9	16.3	15.6	15.0
		Total power input (kW)		4.3	4.6	4.9	5.1	5.4	5.7	5.9
Dry bulb temperature	25 °C	Sensible cooling capacity (kW)	5.7	5.9	6.0	6.1	6.2	6.4	6.5	
	27 °C		7.2	7.3	7.5	7.6	7.8	8.0	8.1	
	29 °C		8.6	8.8	9.0	9.2	9.4	9.6	9.7	
	31 °C		10.1	10.3	10.5	10.7	10.9	11.2	11.4	
	33 °C		11.5	11.8	12.0	12.3	12.5	12.8	13.0	

Cooling Capacity Data (continued)

HAN 17 - Nominal airflow 3190 m³/h

INDOOR AIR TEMPERATURE (°C)			OUTDOOR AIR TEMPERATURE (°C)							
			15	20	25	30	35	40	45	
Wet bulb temperature = 15 °C		Total cooling capacity (kW)		17.4	16.7	16.1	15.5	14.8	14.2	13.6
		Total power input (kW)		4.8	5.1	5.4	5.6	5.9	6.2	6.5
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)	9.6	9.8	10.0	10.2	10.4	10.6	10.8	
	23 °C		10.7	11.0	11.2	11.4	11.7	11.9	11.8	
	25 °C		11.9	12.2	14.0	13.5	12.9	12.4	11.8	
	27 °C		14.7	14.6	14.0	13.5	12.9	12.4	11.8	
	29 °C		15.1	14.6	14.0	13.5	12.9	12.4	11.8	
	31 °C		15.1	14.6	14.0	13.5	12.9	12.4	11.8	
Wet bulb temperature = 17 °C		Total cooling capacity (kW)		18.4	17.8	17.1	16.6	15.8	15.2	14.5
		Total power input (kW)		4.8	5.1	5.4	5.7	6.0	6.3	6.6
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)	9.2	9.4	9.6	9.8	10.0	10.2	10.4	
	23 °C		10.5	10.7	10.9	11.2	11.4	11.6	11.8	
	25 °C		11.7	12.0	12.3	12.5	12.8	13.0	12.5	
	27 °C		13.0	14.7	14.6	14.3	13.8	13.2	12.6	
	29 °C		15.3	15.3	14.9	14.3	13.8	13.2	12.6	
	31 °C		15.9	15.5	14.9	14.3	13.8	13.2	12.6	
Wet bulb temperature = 19 °C		Total cooling capacity (kW)		19.5	18.8	18.2	17.5	16.8	16.1	15.4
		Total power input (kW)		4.9	5.2	5.5	5.8	6.1	6.4	6.7
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)	7.4	7.6	7.7	7.9	8.0	8.2	8.4	
	23 °C		8.7	8.9	9.1	9.3	9.5	9.7	9.9	
	25 °C		10.1	10.3	10.5	10.8	11.0	11.2	11.4	
	27 °C		11.4	11.7	11.9	12.2	12.4	11.3	12.9	
	29 °C		12.8	13.1	13.3	13.6	13.9	14.0	13.4	
	31 °C		15.9	15.9	15.8	15.2	14.6	14.0	13.4	
Wet bulb temperature = 21 °C		Total cooling capacity (kW)		20.7	20.0	19.2	18.5	17.8	17.1	16.4
		Total power input (kW)		5.1	5.4	5.7	6.0	6.3	6.7	7.0
Dry bulb temperature	23 °C	Sensible cooling capacity (kW)	6.8	6.9	7.1	7.2	7.3	7.5	7.6	
	25 °C		8.2	8.4	8.5	8.7	8.9	9.1	9.3	
	27 °C		9.6	9.8	10.0	10.2	10.4	10.7	10.9	
	29 °C		11.0	11.3	11.5	11.8	12.0	12.2	12.5	
	31 °C		12.5	12.7	13.0	13.3	13.6	13.8	14.1	
	33 °C		13.9	14.2	14.5	16.2	15.9	15.4	14.9	
Wet bulb temperature = 23 °C		Total cooling capacity (kW)		21.8	21.1	20.3	19.6	18.8	18.1	17.3
		Total power input (kW)		5.3	5.7	6.0	6.3	6.6	7.0	7.3
Dry bulb temperature	25 °C	Sensible cooling capacity (kW)	6.0	6.1	6.3	6.4	6.5	6.7	6.8	
	27 °C		7.5	7.7	7.8	8.0	8.2	8.3	8.5	
	29 °C		9.0	9.2	9.4	9.6	9.8	10.0	10.2	
	31 °C		10.5	10.8	11.0	11.2	11.4	11.7	11.9	
	33 °C		12.0	12.3	12.6	12.8	13.1	13.3	13.6	

Cooling Capacity Data (continued)

HAN 19 - Nominal airflow 3860 m³/h

INDOOR AIR TEMPERATURE (°C)			OUTDOOR AIR TEMPERATURE (°C)						
			15	20	25	30	35	40	45
Wet bulb temperature = 15 °C		Total cooling capacity (kW)	19.5	18.8	18.1	17.4	16.7	16.0	15.3
		Total power input (kW)	5.1	5.4	5.7	6.0	6.4	6.7	7.0
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)	11.6	11.9	12.1	12.4	12.6	12.9	13.1
	23 °C		13.1	13.3	13.6	13.9	14.2	14.5	14.4
	25 °C		14.5	14.8	17.0	16.4	15.7	15.1	14.4
	27 °C		17.9	17.7	17.1	16.4	15.7	15.1	14.4
	29 °C		18.4	17.7	17.1	16.4	15.7	15.1	14.4
	31 °C		18.4	17.7	17.1	16.4	15.7	15.1	14.4
Wet bulb temperature = 17 °C		Total cooling capacity (kW)	20.7	20.0	19.3	18.6	17.8	17.1	16.3
		Total power input (kW)	5.1	5.5	5.8	6.1	6.4	6.7	7.1
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)	11.2	11.4	11.7	11.9	12.2	12.4	12.7
	23 °C		12.7	13.0	13.3	13.6	13.9	14.1	14.4
	25 °C		14.3	14.6	14.9	15.2	15.5	15.8	15.2
	27 °C		15.8	17.9	17.7	17.5	16.8	16.1	15.4
	29 °C		18.6	18.6	18.1	17.5	16.8	16.1	15.4
	31 °C		19.4	18.8	18.1	17.5	16.8	16.1	15.4
Wet bulb temperature = 19 °C		Total cooling capacity (kW)	22.0	21.2	20.4	19.7	18.9	18.1	17.4
		Total power input (kW)	5.2	5.5	5.9	6.2	6.5	6.8	7.2
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)	9.0	9.2	9.4	9.6	9.8	10.0	10.2
	23 °C		10.6	10.9	11.1	11.3	11.6	11.8	12.0
	25 °C		12.3	12.5	12.8	13.1	13.3	13.6	13.9
	27 °C		13.9	14.2	14.5	14.8	15.1	13.8	15.7
	29 °C		15.5	15.9	16.2	16.6	16.9	17.1	16.4
	31 °C		19.4	19.4	19.2	18.5	17.8	17.1	16.4
Wet bulb temperature = 21 °C		Total cooling capacity (kW)	23.3	22.5	21.7	20.9	20.1	19.2	18.4
		Total power input (kW)	5.4	5.8	6.1	6.4	6.8	7.1	7.5
Dry bulb temperature	23 °C	Sensible cooling capacity (kW)	8.2	8.4	8.6	8.8	8.9	9.1	9.3
	25 °C		10.0	10.2	10.4	10.6	10.8	11.0	11.3
	27 °C		11.7	12.0	12.2	12.5	12.7	13.0	13.2
	29 °C		13.4	13.7	14.0	14.3	14.6	14.9	15.2
	31 °C		15.2	15.5	15.8	16.2	16.5	16.8	17.1
	33 °C		16.9	17.3	17.6	19.7	19.3	18.8	18.2
Wet bulb temperature = 23 °C		Total cooling capacity (kW)	24.6	23.7	22.9	22.0	21.2	20.3	19.5
		Total power input (kW)	5.7	6.1	6.4	6.7	7.1	7.4	7.8
Dry bulb temperature	25 °C	Sensible cooling capacity (kW)	7.3	7.5	7.6	7.8	7.9	8.1	8.2
	27 °C		9.1	9.3	9.5	9.7	9.9	10.1	10.3
	29 °C		11.0	11.2	11.4	11.7	11.9	12.2	12.4
	31 °C		12.8	13.1	13.4	13.6	13.9	14.2	14.5
	33 °C		14.6	15.0	15.3	15.6	15.9	16.2	16.5

Cooling Capacity Data (continued)

HAN 25 - Nominal airflow 4780 m³/h

INDOOR AIR TEMPERATURE (°C)			OUTDOOR AIR TEMPERATURE (°C)						
			15	20	25	30	35	40	45
Wet bulb temperature = 15 °C		Total cooling capacity (kW)	26.3	25.3	24.3	23.4	22.4	21.5	20.5
		Total power input (kW)	6.5	6.9	7.3	7.7	8.1	8.5	8.9
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)	15.0	15.4	15.7	16.0	16.3	16.7	17.0
	23 °C		16.9	17.3	17.6	18.0	18.4	18.8	18.6
	25 °C		18.8	19.2	22.0	21.2	20.3	19.5	18.6
	27 °C		23.2	22.9	22.1	21.2	20.3	19.5	18.6
	29 °C		23.8	22.9	22.1	21.2	20.3	19.5	18.6
	31 °C		23.8	22.9	22.1	21.2	20.3	19.5	18.6
Wet bulb temperature = 17 °C		Total cooling capacity (kW)	27.9	26.9	25.9	25.0	23.9	22.9	21.9
		Total power input (kW)	6.6	7.0	7.4	7.8	8.2	8.6	9.0
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)	14.5	14.8	15.1	15.4	15.7	16.1	16.4
	23 °C		16.5	16.8	17.2	17.6	17.9	18.3	18.6
	25 °C		18.5	18.9	19.3	19.7	20.1	20.5	19.7
	27 °C		20.5	23.2	22.9	22.6	21.7	20.8	19.9
	29 °C		24.1	24.1	23.5	22.6	21.7	20.8	19.9
	31 °C		25.1	24.4	23.5	22.6	21.7	20.8	19.9
Wet bulb temperature = 19 °C		Total cooling capacity (kW)	29.5	28.5	27.5	26.4	25.4	24.4	23.3
		Total power input (kW)	6.7	7.1	7.5	7.9	8.3	8.7	9.2
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)	11.7	11.9	12.1	12.4	12.7	12.9	13.2
	23 °C		13.8	14.1	14.4	14.7	15.0	15.3	15.6
	25 °C		15.9	16.2	16.6	16.9	17.3	17.6	18.0
	27 °C		18.0	18.4	18.8	19.2	19.6	17.8	20.3
	29 °C		20.1	20.6	21.0	21.4	21.9	22.1	21.2
	31 °C		25.1	25.1	24.9	24.0	23.0	22.1	21.2
Wet bulb temperature = 21 °C		Total cooling capacity (kW)	31.3	30.2	29.1	28.0	26.9	25.8	24.8
		Total power input (kW)	7.0	7.4	7.8	8.2	8.7	9.1	9.5
Dry bulb temperature	23 °C	Sensible cooling capacity (kW)	10.6	10.9	11.1	11.3	11.6	11.8	12.0
	25 °C		12.9	13.2	13.4	13.7	14.0	14.3	14.6
	27 °C		15.1	15.5	15.8	16.1	16.4	16.8	17.1
	29 °C		17.4	17.8	18.1	18.5	18.9	19.3	19.6
	31 °C		19.6	20.0	20.5	20.9	21.3	21.7	22.2
	33 °C		21.9	22.3	22.8	25.4	25.0	24.3	23.5
Wet bulb temperature = 23 °C		Total cooling capacity (kW)	33.0	31.9	30.7	29.6	28.5	27.3	26.2
		Total power input (kW)	7.3	7.8	8.2	8.6	9.1	9.5	9.9
Dry bulb temperature	25 °C	Sensible cooling capacity (kW)	9.4	9.6	9.9	10.0	10.3	10.5	10.7
	27 °C		11.8	12.1	12.3	12.6	12.8	13.1	13.4
	29 °C		14.2	14.5	14.8	15.1	15.4	15.7	16.0
	31 °C		16.6	16.9	17.3	17.6	18.0	18.4	18.7
	33 °C		18.9	19.3	19.7	20.2	20.6	21.0	21.4

Cooling Capacity Data (continued)

HAN 31 - Nominal airflow 5530 m³/h

INDOOR AIR TEMPERATURE (°C)			OUTDOOR AIR TEMPERATURE (°C)						
			15	20	25	30	35	40	45
Wet bulb temperature = 15 °C		Total cooling capacity (kW)	32.1	30.9	29.7	28.6	27.4	26.2	25.1
		Total power input (kW)	7.8	8.3	8.8	9.3	9.8	10.2	10.7
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)	18.3	18.7	19.2	19.5	19.9	20.3	20.7
	23 °C		20.6	21.1	21.5	22.0	22.4	22.9	22.7
	25 °C		22.9	23.4	26.8	25.9	24.8	23.8	22.7
	27 °C		28.3	28.0	26.9	25.9	24.8	23.8	22.7
	29 °C		29.1	28.0	26.9	25.9	24.8	23.8	22.7
	31 °C		29.1	28.0	26.9	25.9	24.8	23.8	22.7
Wet bulb temperature = 17 °C		Total cooling capacity (kW)	34.0	32.8	31.6	30.5	29.2	28.0	26.8
		Total power input (kW)	7.9	8.4	8.9	9.3	9.8	10.3	10.8
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)	17.7	18.1	18.5	18.8	19.2	19.6	20.0
	23 °C		20.1	20.6	21.0	21.4	21.9	22.3	22.7
	25 °C		22.5	23.0	23.5	24.0	24.5	25.0	24.0
	27 °C		25.0	28.3	28.0	27.6	26.5	25.3	24.3
	29 °C		29.4	29.4	28.6	27.6	26.5	25.3	24.3
	31 °C		30.6	29.8	28.6	27.6	26.5	25.3	24.3
Wet bulb temperature = 19 °C		Total cooling capacity (kW)	36.0	34.8	33.5	32.3	31.0	29.7	28.5
		Total power input (kW)	8.0	8.5	9.0	9.5	10.0	10.5	11.0
Dry bulb temperature	21 °C	Sensible cooling capacity (kW)	14.2	14.5	14.8	15.1	15.4	15.8	16.1
	23 °C		16.8	17.2	17.5	17.9	18.3	18.6	19.0
	25 °C		19.4	19.8	20.2	20.7	21.1	21.5	21.9
	27 °C		22.0	22.4	22.9	23.4	23.9	21.8	24.8
	29 °C		24.5	25.1	25.6	26.2	26.7	27.0	25.8
	31 °C		30.6	30.6	30.3	29.2	28.1	27.0	25.8
Wet bulb temperature = 21 °C		Total cooling capacity (kW)	38.1	36.8	35.5	34.2	32.9	31.5	30.2
		Total power input (kW)	8.4	8.9	9.4	9.9	10.4	10.9	11.5
Dry bulb temperature	23 °C	Sensible cooling capacity (kW)	13.0	13.3	13.6	13.8	14.1	14.4	14.7
	25 °C		15.7	16.1	16.4	16.7	17.1	17.4	17.8
	27 °C		18.5	18.9	19.3	19.7	20.1	20.5	20.9
	29 °C		21.2	21.7	22.1	22.6	23.0	23.5	24.0
	31 °C		23.9	24.5	25.0	25.5	26.0	26.5	27.1
	33 °C		26.7	27.3	27.8	31.0	30.5	29.6	28.7
Wet bulb temperature = 23 °C		Total cooling capacity (kW)	40.3	38.9	37.5	36.1	34.8	33.4	32.0
		Total power input (kW)	8.8	9.3	9.8	10.4	10.9	11.4	11.9
Dry bulb temperature	25 °C	Sensible cooling capacity (kW)	11.5	11.8	12.0	12.3	12.5	12.8	13.0
	27 °C		14.4	14.7	15.0	15.3	15.7	16.0	16.3
	29 °C		17.3	17.7	18.1	18.5	18.8	19.2	19.6
	31 °C		20.2	20.7	21.1	21.5	22.0	22.4	22.9
	33 °C		23.1	23.6	24.1	24.6	25.1	25.6	26.1

Heating Capacity Data

HAN 10

OUTDOOR AIR TEMPERATURE (°C)		INDOOR TEMPERATURE (°C)							
		18		20		22		24	
Dry bulb temperature	Wet bulb temperature	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)
-7.0	-8.0	6.6	2.3	6.5	2.4	6.3	2.4	6.1	2.5
-6.0	-7.0	6.7	2.4	6.6	2.4	6.4	2.5	6.2	2.5
-5.0	-6.0	6.9	2.4	6.8	2.5	6.6	2.5	6.3	2.5
-4.0	-5.0	7.1	2.5	6.9	2.5	6.7	2.5	6.5	2.6
-3.0	-4.0	7.3	2.5	7.1	2.5	6.9	2.6	6.7	2.6
-2.0	-3.0	7.4	2.5	7.3	2.6	7.1	2.6	6.9	2.7
-1.0	-2.0	7.7	2.6	7.5	2.6	7.3	2.7	7.0	2.7
0.0	-1.0	7.9	2.6	7.7	2.7	7.5	2.7	7.3	2.8
1.0	0.0	8.1	2.7	7.9	2.7	7.7	2.8	7.5	2.8
2.0	1.0	8.3	2.7	8.2	2.8	8.0	2.8	7.7	2.9
3.0	2.0	8.6	2.8	8.4	2.8	8.2	2.9	7.9	2.9
4.0	3.0	8.9	2.8	8.7	2.9	8.5	3.0	8.2	3.0
5.0	4.0	9.1	2.9	9.0	3.0	8.7	3.0	8.4	3.0
6.0	5.0	9.4	3.0	9.2	3.0	9.0	3.1	8.7	3.1
7.0	6.0	9.7	3.0	9.6	3.1	9.3	3.1	9.0	3.2
8.0	7.0	10.1	3.1	9.8	3.1	9.6	3.2	9.3	3.2
9.0	8.0	10.4	3.1	10.2	3.2	9.9	3.3	9.6	3.3
10.0	9.0	10.7	3.2	10.5	3.3	10.2	3.3	9.9	3.4
11.0	10.0	11.1	3.2	10.8	3.3	10.6	3.4	10.2	3.4
12.0	11.0	11.4	3.3	11.2	3.4	10.9	3.5	10.5	3.5
13.0	12.0	11.8	3.4	11.6	3.5	11.3	3.5	10.9	3.6
14.0	13.0	12.2	3.4	11.9	3.5	11.6	3.6	11.2	3.6
15.0	14.0	12.6	3.5	12.3	3.6	12.0	3.7	11.6	3.7
16.0	15.0	13.0	3.6	12.7	3.7	12.4	3.8	11.9	3.8
17.0	16.0	13.4	3.6	13.2	3.8	12.8	3.8	12.3	3.9
18.0	17.0	13.9	3.7	13.6	3.8	13.2	3.9	12.7	3.9
19.0	18.0	14.3	3.8	14.0	3.9	13.6	4.0	13.1	4.0
20.0	19.0	14.8	3.8	14.5	4.0	14.1	4.1	13.5	4.1

HAN 13

OUTDOOR AIR TEMPERATURE (°C)		INDOOR TEMPERATURE (°C)							
		18		20		22		24	
Dry bulb temperature	Wet bulb temperature	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)
-7.0	-8.0	8.3	3.2	8.1	3.3	7.9	3.4	7.6	3.4
-6.0	-7.0	8.5	3.3	8.3	3.4	8.1	3.4	7.8	3.5
-5.0	-6.0	8.7	3.4	8.5	3.4	8.3	3.5	8.0	3.5
-4.0	-5.0	8.9	3.4	8.7	3.5	8.5	3.6	8.2	3.6
-3.0	-4.0	9.1	3.5	9.0	3.6	8.7	3.6	8.4	3.7
-2.0	-3.0	9.4	3.5	9.2	3.6	9.0	3.7	8.6	3.7
-1.0	-2.0	9.6	3.6	9.5	3.7	9.2	3.7	8.9	3.8
0.0	-1.0	9.9	3.7	9.7	3.8	9.5	3.8	9.1	3.9
1.0	0.0	10.2	3.8	10.0	3.8	9.7	3.9	9.4	4.0
2.0	1.0	10.5	3.8	10.3	3.9	10.0	4.0	9.7	4.0
3.0	2.0	10.8	3.9	10.6	4.0	10.3	4.0	10.0	4.1
4.0	3.0	11.2	4.0	11.0	4.0	10.7	4.1	10.3	4.2
5.0	4.0	11.5	4.0	11.3	4.1	11.0	4.2	10.6	4.3
6.0	5.0	11.9	4.1	11.7	4.2	11.3	4.3	11.0	4.3
7.0	6.0	12.3	4.2	12.1	4.3	11.7	4.4	11.3	4.4
8.0	7.0	12.7	4.3	12.4	4.4	12.1	4.5	11.7	4.5
9.0	8.0	13.1	4.4	12.8	4.5	12.5	4.5	12.0	4.6
10.0	9.0	13.5	4.4	13.2	4.6	12.9	4.6	12.4	4.7
11.0	10.0	13.9	4.5	13.7	4.7	13.3	4.7	12.8	4.8
12.0	11.0	14.4	4.6	14.1	4.7	13.7	4.8	13.3	4.9
13.0	12.0	14.9	4.7	14.6	4.8	14.2	4.9	13.7	5.0
14.0	13.0	15.4	4.8	15.1	4.9	14.6	5.0	14.1	5.1
15.0	14.0	15.9	4.9	15.6	5.0	15.1	5.1	14.6	5.2
16.0	15.0	16.4	5.0	16.1	5.1	15.6	5.2	15.0	5.3
17.0	16.0	16.9	5.1	16.6	5.2	16.1	5.4	15.5	5.4
18.0	17.0	17.5	5.2	17.1	5.4	16.6	5.5	16.0	5.5
19.0	18.0	18.0	5.3	17.7	5.5	17.2	5.6	16.5	5.6
20.0	19.0	18.6	5.4	18.2	5.6	17.7	5.7	17.1	5.7

Heating Capacity Data (continued)

HAN 15

OUTDOOR AIR TEMPERATURE (°C)		INDOOR TEMPERATURE (°C)							
		18		20		22		24	
Dry bulb temperature	Wet bulb temperature	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)
-7.0	-8.0	9.8	3.4	9.6	3.5	9.3	3.6	9.0	3.6
-6.0	-7.0	10.0	3.5	9.8	3.6	9.5	3.6	9.2	3.7
-5.0	-6.0	10.2	3.6	10.0	3.6	9.7	3.7	9.4	3.8
-4.0	-5.0	10.5	3.6	10.3	3.7	10.0	3.8	9.6	3.8
-3.0	-4.0	10.7	3.7	10.5	3.8	10.2	3.8	9.9	3.9
-2.0	-3.0	11.0	3.8	10.8	3.8	10.5	3.9	10.2	4.0
-1.0	-2.0	11.3	3.8	11.1	3.9	10.8	4.0	10.4	4.0
0.0	-1.0	11.6	3.9	11.4	4.0	11.1	4.0	10.7	4.1
1.0	0.0	12.0	4.0	11.7	4.0	11.4	4.1	11.0	4.2
2.0	1.0	12.3	4.0	12.1	4.1	11.8	4.2	11.4	4.3
3.0	2.0	12.7	4.1	12.5	4.2	12.1	4.3	11.7	4.3
4.0	3.0	13.1	4.2	12.9	4.3	12.5	4.4	12.1	4.4
5.0	4.0	13.5	4.3	13.3	4.4	12.9	4.5	12.5	4.5
6.0	5.0	14.0	4.4	13.7	4.5	13.3	4.5	12.9	4.6
7.0	6.0	14.4	4.5	14.2	4.6	13.7	4.6	13.3	4.7
8.0	7.0	14.9	4.5	14.6	4.6	14.2	4.7	13.7	4.8
9.0	8.0	15.3	4.6	15.0	4.7	14.6	4.8	14.1	4.9
10.0	9.0	15.8	4.7	15.5	4.8	15.1	4.9	14.6	5.0
11.0	10.0	16.4	4.8	16.0	4.9	15.6	5.0	15.1	5.1
12.0	11.0	16.9	4.9	16.6	5.0	16.1	5.1	15.6	5.2
13.0	12.0	17.5	5.0	17.1	5.1	16.6	5.2	16.1	5.3
14.0	13.0	18.0	5.1	17.7	5.2	17.2	5.3	16.6	5.4
15.0	14.0	18.6	5.2	18.2	5.3	17.8	5.4	17.1	5.5
16.0	15.0	19.2	5.3	18.8	5.4	18.3	5.6	17.7	5.6
17.0	16.0	19.9	5.4	19.5	5.6	18.9	5.7	18.2	5.7
18.0	17.0	20.5	5.5	20.1	5.7	19.5	5.8	18.8	5.8
19.0	18.0	21.2	5.6	20.7	5.8	20.1	5.9	19.4	5.9
20.0	19.0	21.8	5.7	21.4	5.9	20.8	6.0	20.0	6.1

HAN 17

OUTDOOR AIR TEMPERATURE (°C)		INDOOR TEMPERATURE (°C)							
		18		20		22		24	
Dry bulb temperature	Wet bulb temperature	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)
-7.0	-8.0	10.9	4.3	10.6	4.4	10.3	4.5	10.0	4.6
-6.0	-7.0	11.1	4.4	10.9	4.5	10.6	4.6	10.2	4.6
-5.0	-6.0	11.4	4.5	11.1	4.6	10.8	4.6	10.4	4.7
-4.0	-5.0	11.6	4.6	11.4	4.6	11.1	4.7	10.7	4.8
-3.0	-4.0	11.9	4.6	11.7	4.7	11.4	4.8	11.0	4.9
-2.0	-3.0	12.3	4.7	12.0	4.8	11.7	4.9	11.3	5.0
-1.0	-2.0	12.6	4.8	12.3	4.9	12.0	5.0	11.6	5.1
0.0	-1.0	12.9	4.9	12.7	5.0	12.4	5.1	11.9	5.1
1.0	0.0	13.3	5.0	13.1	5.1	12.7	5.2	12.3	5.3
2.0	1.0	13.7	5.1	13.5	5.2	13.1	5.3	12.7	5.3
3.0	2.0	14.1	5.2	13.9	5.3	13.5	5.4	13.0	5.4
4.0	3.0	14.6	5.3	14.3	5.4	13.9	5.5	13.4	5.6
5.0	4.0	15.0	5.4	14.7	5.5	14.4	5.6	13.9	5.7
6.0	5.0	15.5	5.5	15.2	5.6	14.8	5.7	14.3	5.8
7.0	6.0	16.0	5.6	15.8	5.7	15.3	5.8	14.8	5.9
8.0	7.0	16.5	5.7	16.2	5.8	15.8	5.9	15.2	6.0
9.0	8.0	17.1	5.8	16.7	5.9	16.3	6.0	15.7	6.1
10.0	9.0	17.6	5.9	17.3	6.1	16.8	6.2	16.2	6.2
11.0	10.0	18.2	6.0	17.8	6.2	17.4	6.3	16.8	6.4
12.0	11.0	18.8	6.1	18.4	6.3	17.9	6.4	17.3	6.5
13.0	12.0	19.4	6.3	19.0	6.4	18.5	6.6	17.9	6.6
14.0	13.0	20.1	6.4	19.7	6.6	19.1	6.7	18.4	6.7
15.0	14.0	20.7	6.5	20.3	6.7	19.8	6.8	19.0	6.9
16.0	15.0	21.4	6.6	21.0	6.8	20.4	7.0	19.6	7.0
17.0	16.0	22.1	6.7	21.7	7.0	21.0	7.1	20.3	7.2
18.0	17.0	22.8	6.9	22.4	7.1	21.7	7.3	20.9	7.3
19.0	18.0	23.5	7.0	23.1	7.3	22.4	7.4	21.6	7.4
20.0	19.0	24.3	7.1	23.8	7.4	23.1	7.6	22.3	7.6

Heating Capacity Data (continued)

HAN 19

OUTDOOR AIR TEMPERATURE (°C)		INDOOR TEMPERATURE (°C)							
		18		20		22		24	
Dry bulb temperature	Wet bulb temperature	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)
-7.0	-8.0	13.1	4.5	12.8	4.6	12.4	4.7	12.0	4.8
-6.0	-7.0	13.3	4.6	13.1	4.7	12.7	4.8	12.3	4.9
-5.0	-6.0	13.7	4.7	13.4	4.8	13.0	4.9	12.6	4.9
-4.0	-5.0	14.0	4.8	13.7	4.9	13.4	5.0	12.9	5.0
-3.0	-4.0	14.4	4.9	14.1	5.0	13.7	5.0	13.2	5.1
-2.0	-3.0	14.7	4.9	14.4	5.1	14.1	5.1	13.6	5.2
-1.0	-2.0	15.1	5.0	14.8	5.1	14.4	5.2	14.0	5.3
0.0	-1.0	15.6	5.1	15.3	5.2	14.9	5.3	14.4	5.4
1.0	0.0	16.0	5.2	15.7	5.3	15.3	5.4	14.8	5.5
2.0	1.0	16.5	5.3	16.2	5.4	15.8	5.5	15.2	5.6
3.0	2.0	17.0	5.4	16.7	5.5	16.2	5.6	15.7	5.7
4.0	3.0	17.5	5.5	17.2	5.6	16.7	5.8	16.2	5.8
5.0	4.0	18.1	5.6	17.7	5.8	17.3	5.9	16.7	5.9
6.0	5.0	18.7	5.8	18.3	5.9	17.8	6.0	17.2	6.1
7.0	6.0	19.3	5.9	19.0	6.0	18.4	6.1	17.8	6.2
8.0	7.0	19.9	6.0	19.5	6.1	19.0	6.2	18.3	6.3
9.0	8.0	20.5	6.1	20.1	6.2	19.6	6.3	18.9	6.4
10.0	9.0	21.2	6.2	20.8	6.4	20.2	6.5	19.5	6.5
11.0	10.0	21.9	6.3	21.5	6.5	20.9	6.6	20.2	6.7
12.0	11.0	22.6	6.4	22.2	6.6	21.6	6.8	20.8	6.8
13.0	12.0	23.4	6.6	22.9	6.8	22.3	6.9	21.5	7.0
14.0	13.0	24.1	6.7	23.6	6.9	23.0	7.0	22.2	7.1
15.0	14.0	24.9	6.8	24.4	7.0	23.8	7.2	22.9	7.2
16.0	15.0	25.7	6.9	25.2	7.2	24.5	7.3	23.6	7.4
17.0	16.0	26.6	7.1	26.0	7.3	25.3	7.5	24.4	7.5
18.0	17.0	27.4	7.2	26.9	7.5	26.1	7.6	25.2	7.7
19.0	18.0	28.3	7.3	27.7	7.6	27.0	7.8	26.0	7.8
20.0	19.0	29.2	7.5	28.6	7.8	27.8	8.0	26.8	8.0

HAN 25

OUTDOOR AIR TEMPERATURE (°C)		INDOOR TEMPERATURE (°C)							
		18		20		22		24	
Dry bulb temperature	Wet bulb temperature	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)
-7.0	-8.0	16.6	6.6	16.3	6.8	15.8	6.9	15.3	7.0
-6.0	-7.0	17.0	6.7	16.6	6.9	16.2	7.0	15.6	7.1
-5.0	-6.0	17.4	6.8	17.1	7.0	16.6	7.1	16.0	7.2
-4.0	-5.0	17.8	7.0	17.5	7.1	17.0	7.2	16.4	7.3
-3.0	-4.0	18.3	7.1	17.9	7.2	17.4	7.3	16.8	7.5
-2.0	-3.0	18.8	7.2	18.4	7.4	17.9	7.5	17.3	7.6
-1.0	-2.0	19.3	7.3	18.9	7.5	18.4	7.6	17.8	7.8
0.0	-1.0	19.8	7.5	19.4	7.6	18.9	7.8	18.3	7.9
1.0	0.0	20.4	7.6	20.0	7.8	19.5	7.9	18.8	8.0
2.0	1.0	21.0	7.8	20.6	7.9	20.1	8.1	19.4	8.2
3.0	2.0	21.7	7.9	21.2	8.1	20.7	8.2	20.0	8.3
4.0	3.0	22.3	8.1	21.9	8.2	21.3	8.4	20.6	8.5
5.0	4.0	23.0	8.2	22.6	8.4	22.0	8.6	21.2	8.7
6.0	5.0	23.8	8.4	23.3	8.6	22.7	8.7	21.9	8.9
7.0	6.0	24.5	8.6	24.2	8.8	23.4	8.9	22.6	9.0
8.0	7.0	25.3	8.7	24.8	8.9	24.2	9.1	23.3	9.2
9.0	8.0	26.1	8.9	25.6	9.1	25.0	9.3	24.1	9.4
10.0	9.0	27.0	9.0	26.5	9.3	25.8	9.4	24.9	9.6
11.0	10.0	27.9	9.2	27.3	9.5	26.6	9.6	25.7	9.7
12.0	11.0	28.8	9.4	28.2	9.7	27.5	9.8	26.5	10.0
13.0	12.0	29.8	9.6	29.2	9.8	28.4	10.0	27.4	10.1
14.0	13.0	30.7	9.8	30.1	10.1	29.3	10.3	28.2	10.3
15.0	14.0	31.7	9.9	31.1	10.3	30.3	10.5	29.2	10.5
16.0	15.0	32.8	10.1	32.1	10.5	31.2	10.7	30.1	10.8
17.0	16.0	33.8	10.3	33.2	10.7	32.2	10.9	31.1	11.0
18.0	17.0	34.9	10.5	34.2	10.9	33.3	11.1	32.0	11.2
19.0	18.0	36.1	10.7	35.3	11.1	34.3	11.4	33.1	11.4
20.0	19.0	37.2	10.9	36.5	11.4	35.4	11.6	34.1	11.7

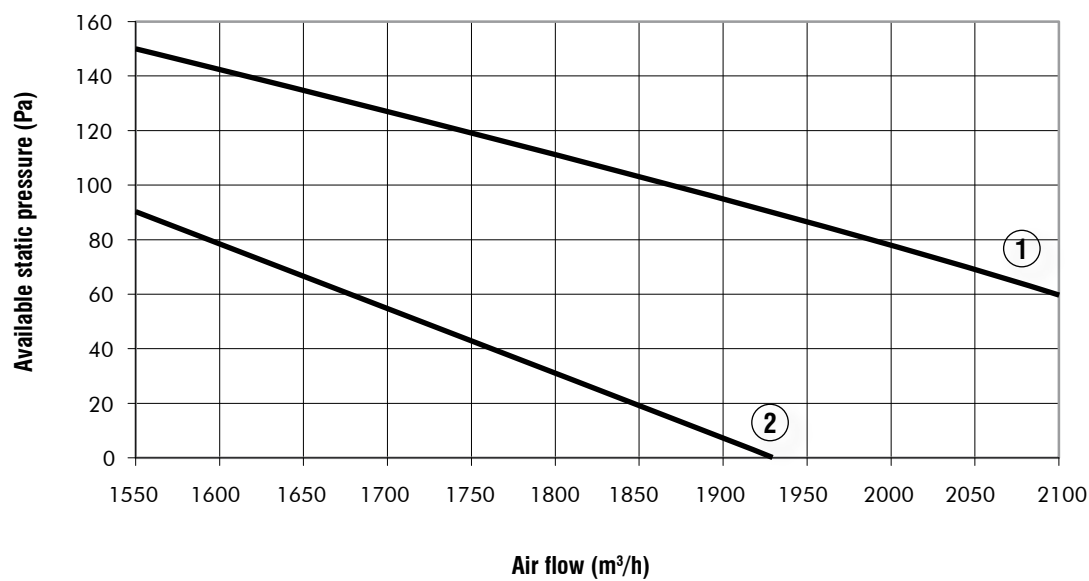
Heating Capacity Data (continued)

HAN 31

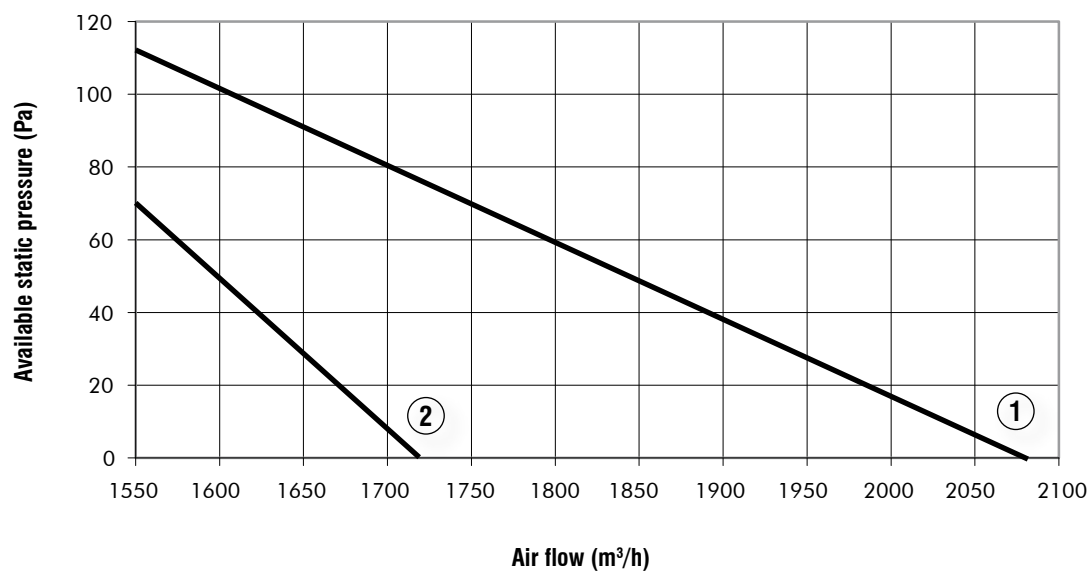
OUTDOOR AIR TEMPERATURE (°C)		INDOOR TEMPERATURE (°C)							
		18		20		22		24	
Dry bulb temperature	Wet bulb temperature	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)	Total heating capacity (kW)	Total power input (kW)
-7.0	-8.0	21.0	7.1	20.5	7.3	20.0	7.4	19.3	7.5
-6.0	-7.0	21.4	7.3	21.0	7.4	20.4	7.6	19.7	7.7
-5.0	-6.0	21.9	7.4	21.5	7.5	20.9	7.7	20.2	7.8
-4.0	-5.0	22.5	7.5	22.0	7.7	21.4	7.8	20.7	8.0
-3.0	-4.0	23.0	7.7	22.6	7.8	22.0	8.0	21.2	8.1
-2.0	-3.0	23.7	7.8	23.2	8.0	22.6	8.1	21.8	8.2
-1.0	-2.0	24.3	8.0	23.8	8.1	23.2	8.2	22.4	8.4
0.0	-1.0	25.0	8.1	24.5	8.3	23.9	8.4	23.0	8.5
1.0	0.0	25.7	8.3	25.2	8.4	24.6	8.6	23.7	8.7
2.0	1.0	26.5	8.4	26.0	8.6	25.3	8.7	24.4	8.9
3.0	2.0	27.3	8.6	26.8	8.7	26.1	8.9	25.2	9.0
4.0	3.0	28.2	8.7	27.6	8.9	26.9	9.1	26.0	9.2
5.0	4.0	29.0	8.9	28.5	9.1	27.7	9.3	26.8	9.4
6.0	5.0	30.0	9.1	29.4	9.3	28.6	9.4	27.6	9.6
7.0	6.0	30.9	9.3	30.5	9.5	29.5	9.6	28.5	9.8
8.0	7.0	31.9	9.4	31.3	9.6	30.5	9.8	29.4	10.0
9.0	8.0	33.0	9.6	32.3	9.9	31.5	10.0	30.4	10.1
10.0	9.0	34.0	9.8	33.4	10.1	32.5	10.2	31.3	10.3
11.0	10.0	35.2	10.0	34.5	10.3	33.5	10.4	32.4	10.6
12.0	11.0	36.3	10.2	35.6	10.5	34.6	10.7	33.4	10.8
13.0	12.0	37.5	10.4	36.7	10.7	35.8	10.9	34.5	11.0
14.0	13.0	38.7	10.6	38.0	10.9	36.9	11.1	35.6	11.2
15.0	14.0	40.0	10.8	39.2	11.1	38.1	11.3	36.7	11.4
16.0	15.0	41.3	11.0	40.5	11.3	39.3	11.6	37.9	11.7
17.0	16.0	42.6	11.2	41.8	11.6	40.6	11.8	39.1	11.9
18.0	17.0	44.0	11.4	43.2	11.8	41.9	12.0	40.4	12.1
19.0	18.0	45.4	11.6	44.5	12.0	43.3	12.3	41.7	12.4
20.0	19.0	46.9	11.8	45.9	12.3	44.6	12.6	43.0	12.6

Indoor Fan Curves - HAN 10 - Nominal Airflow 1930 m³/h

Without air filter



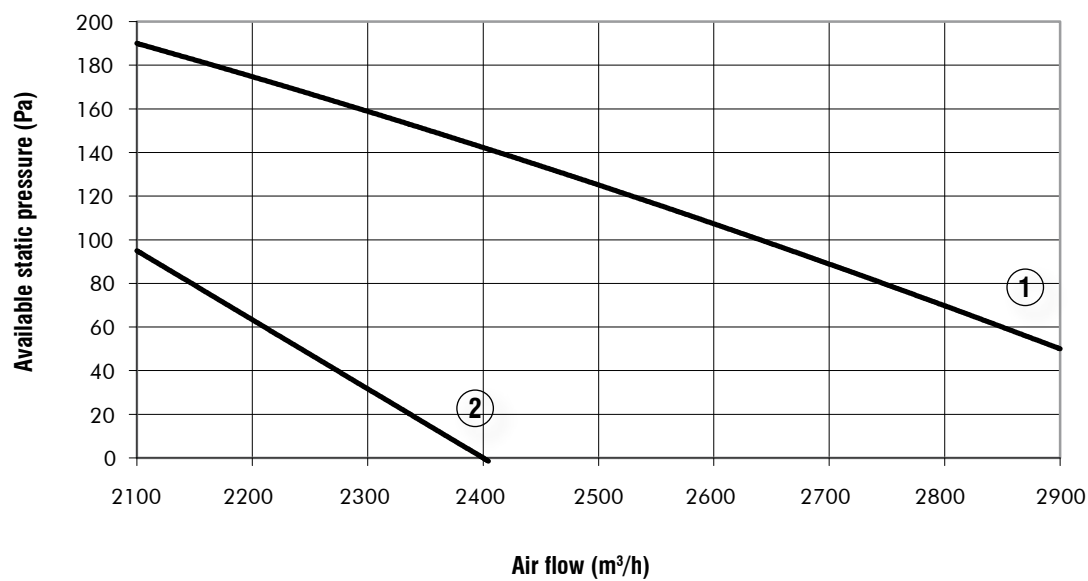
With air filter



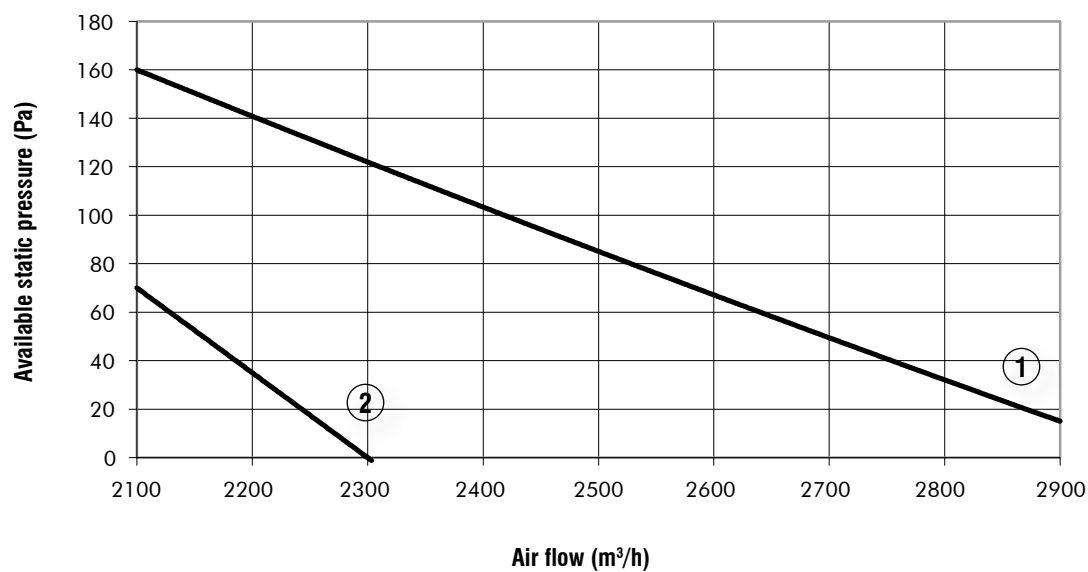
- ① High speed
- ② Low speed

Indoor Fan Curves - HAN 13 - Nominal Airflow 2640 m³/h

Without air filter



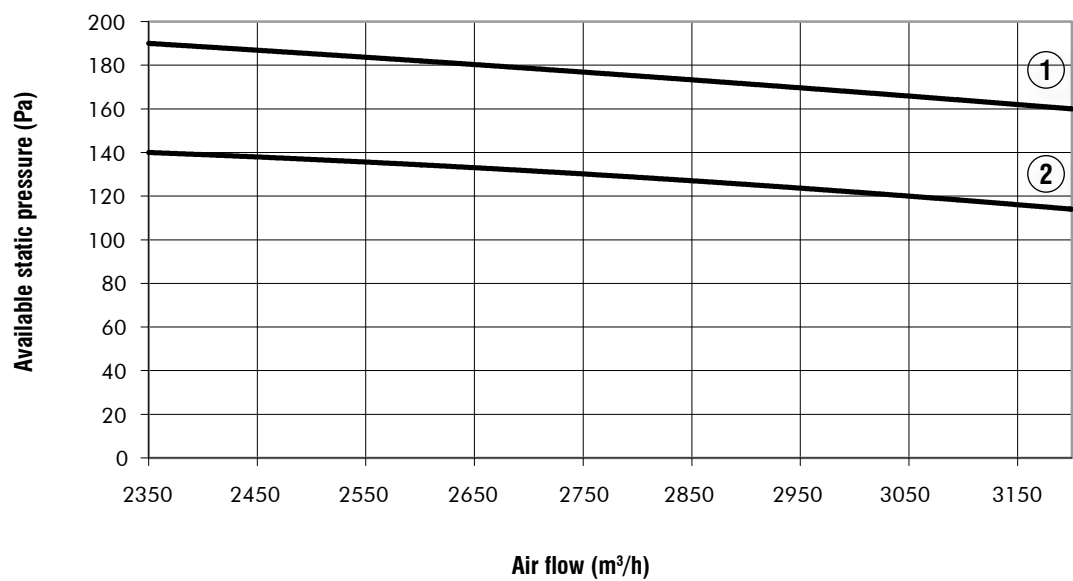
With air filter



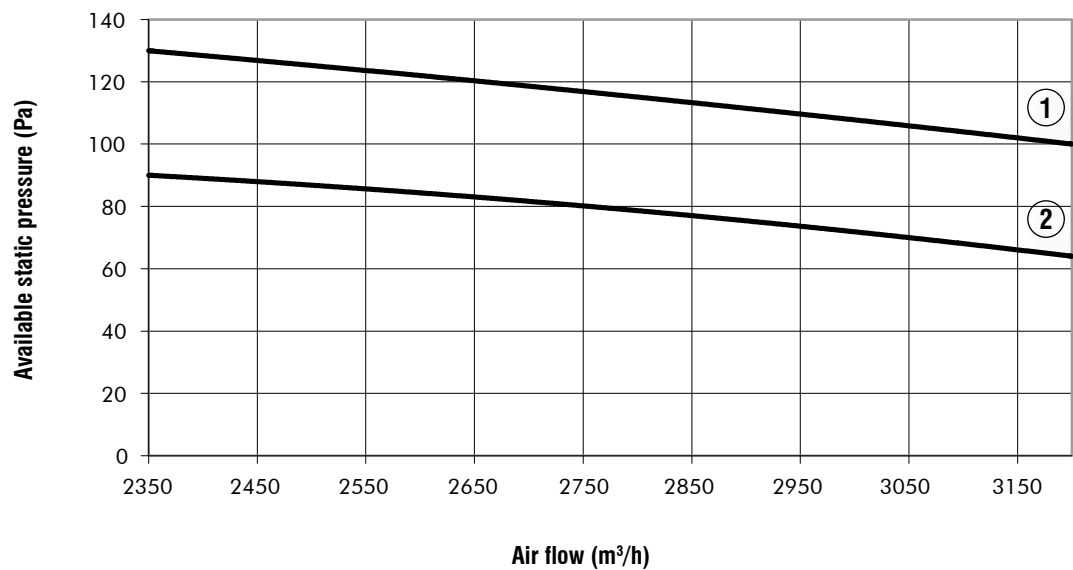
- ① High speed
- ② Low speed

Indoor Fan Curves - HAN 15 - Nominal Airflow 2940 m³/h

Without air filter



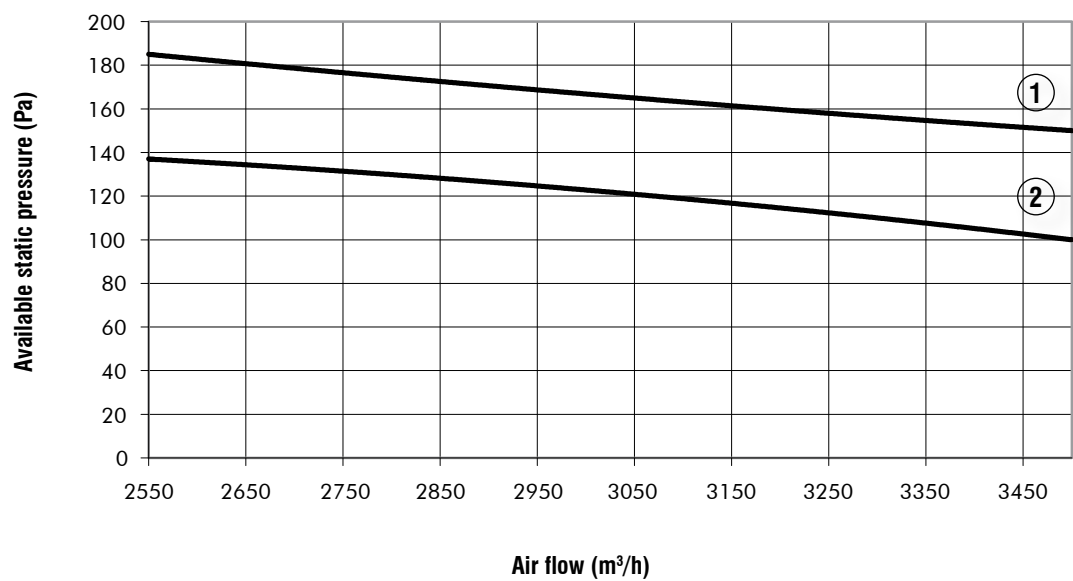
With air filter



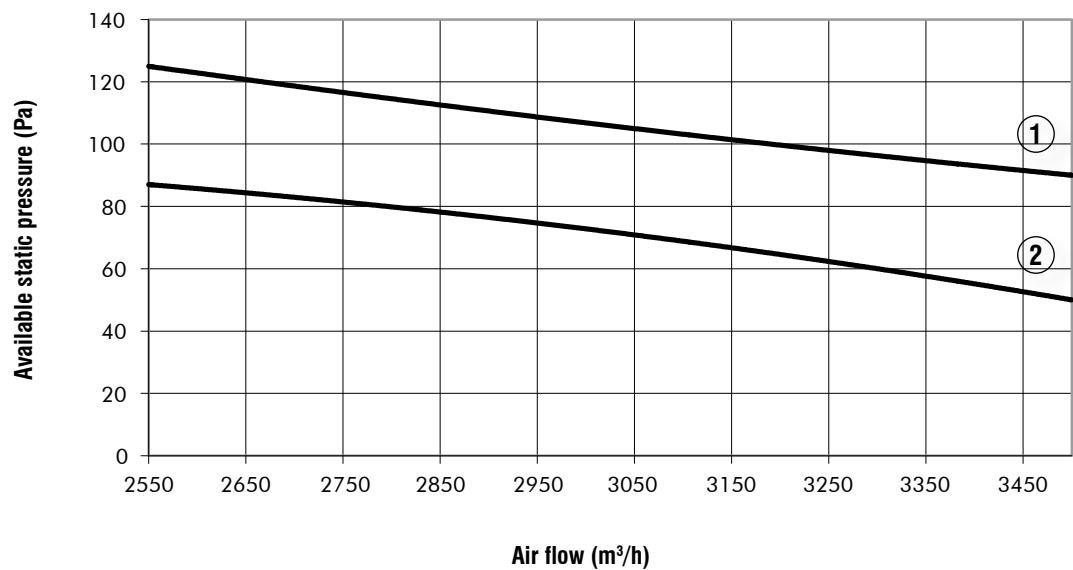
- ① Closed pulley
- ② Pulley opened with 3 turns

Indoor Fan Curves - HAN 17 - Nominal Airflow 3190 m³/h

Without air filter



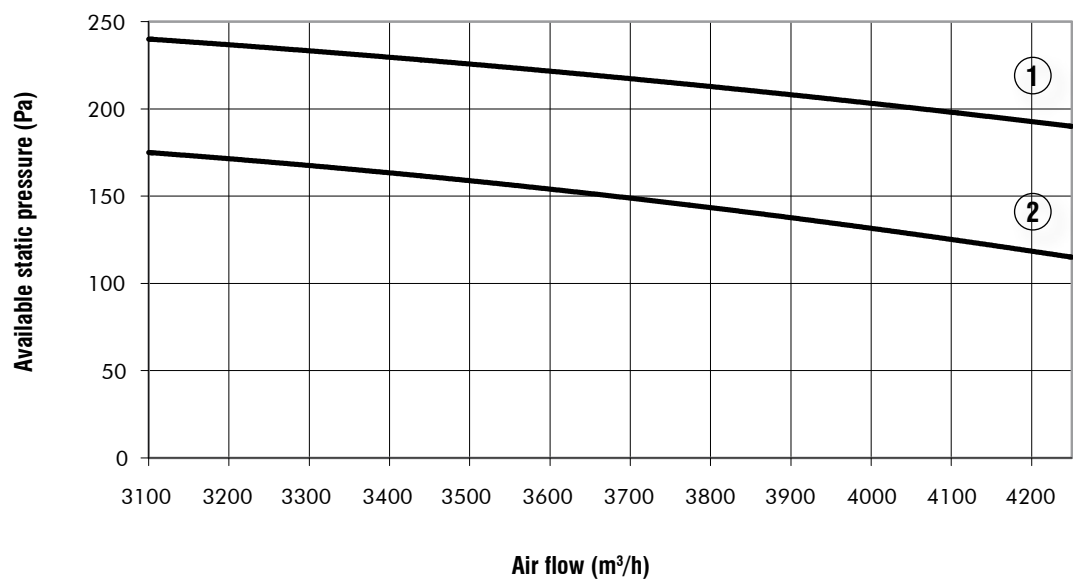
With air filter



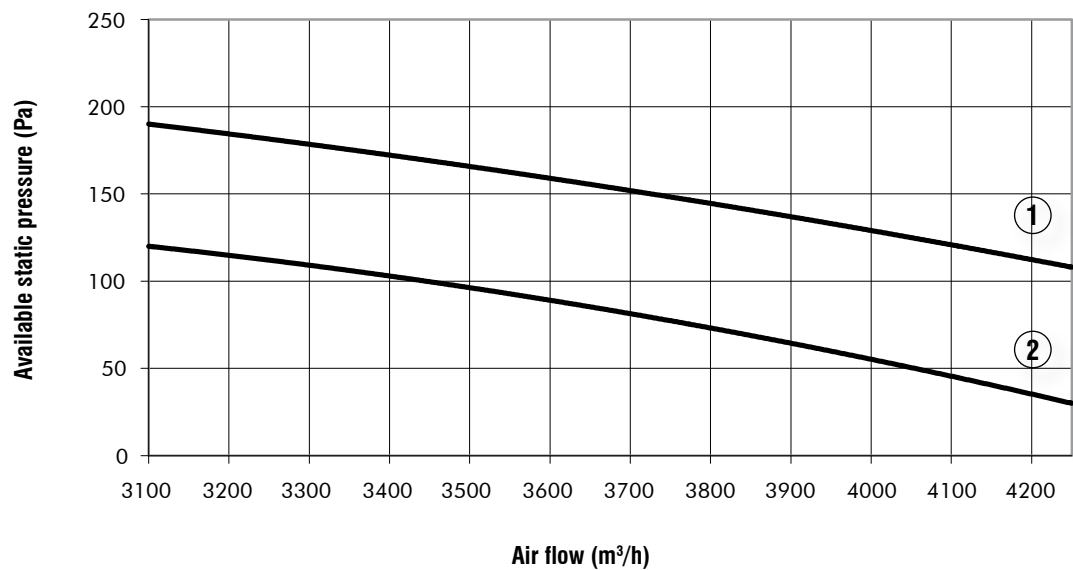
- ① Closed pulley
- ② Pulley opened with 3 turns

Indoor Fan Curves - HAN 19 - Nominal Airflow 3860 m³/h

Without air filter



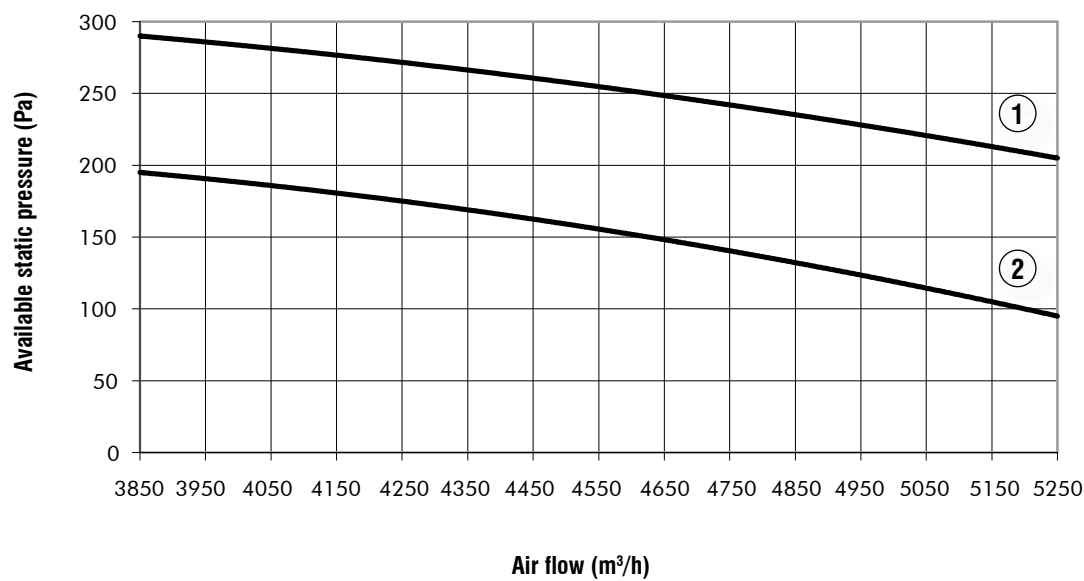
With air filter



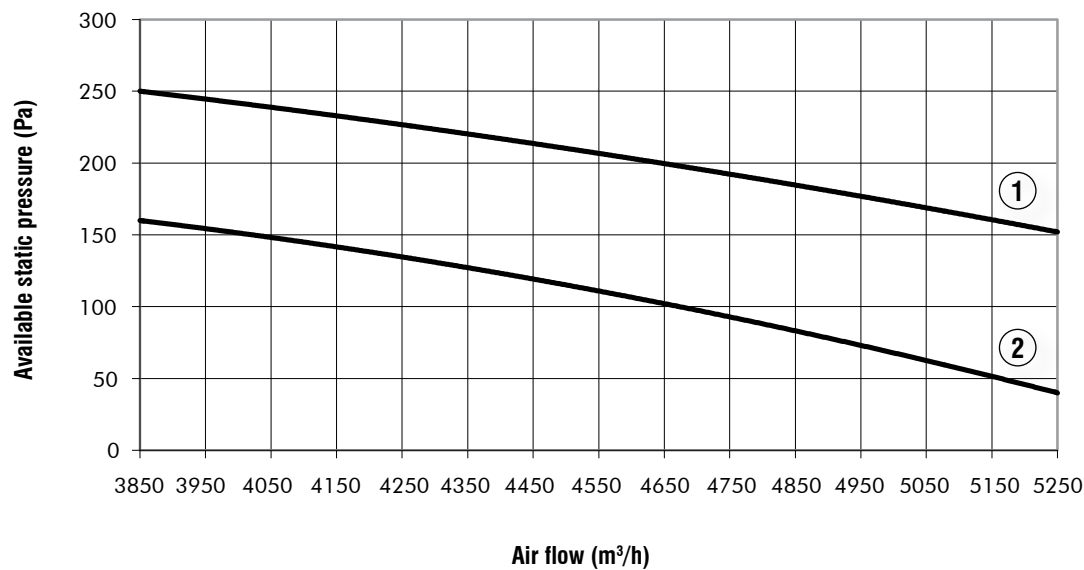
- ① Closed pulley
- ② Pulley opened with 3 turns

Indoor Fan Curves - HAN 25 - Nominal Airflow 4780 m³/h

Without air filter



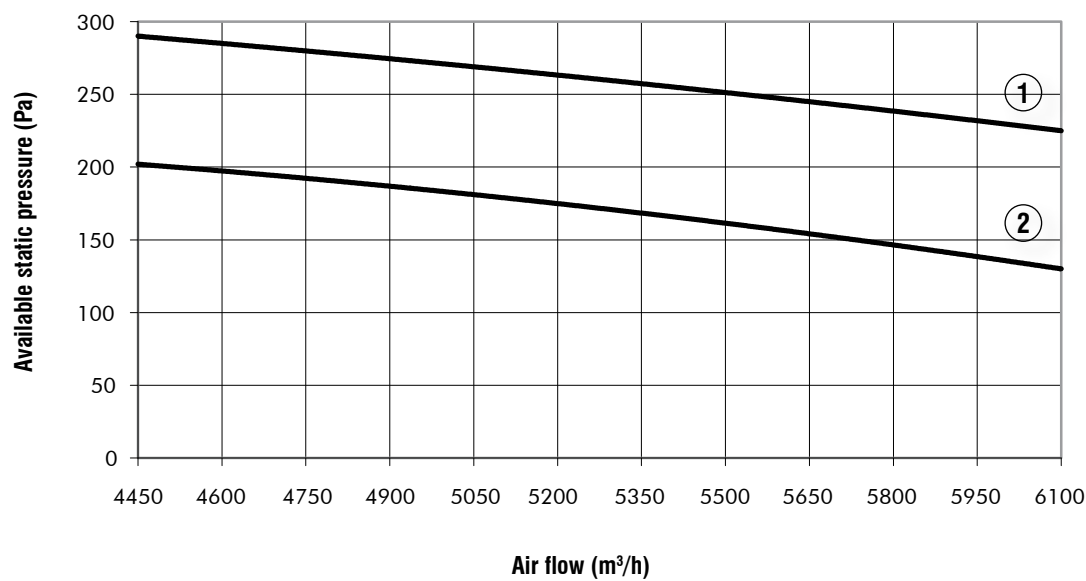
With air filter



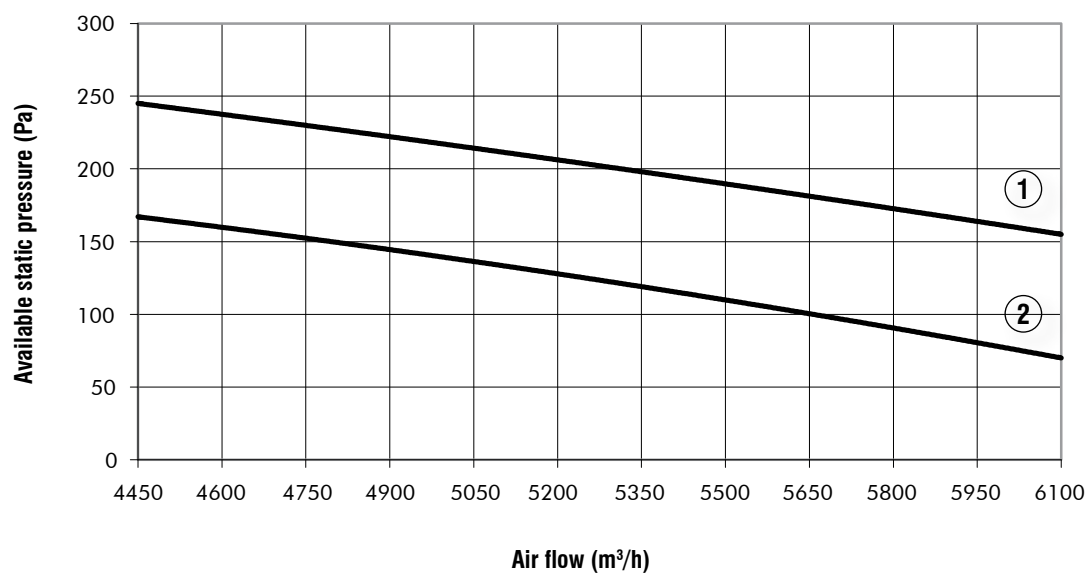
- ① Closed pulley
- ② Pulley opened with 3 turns

Indoor Fan Curves - HAN 31 - Nominal Airflow 5530 m³/h

Without air filter



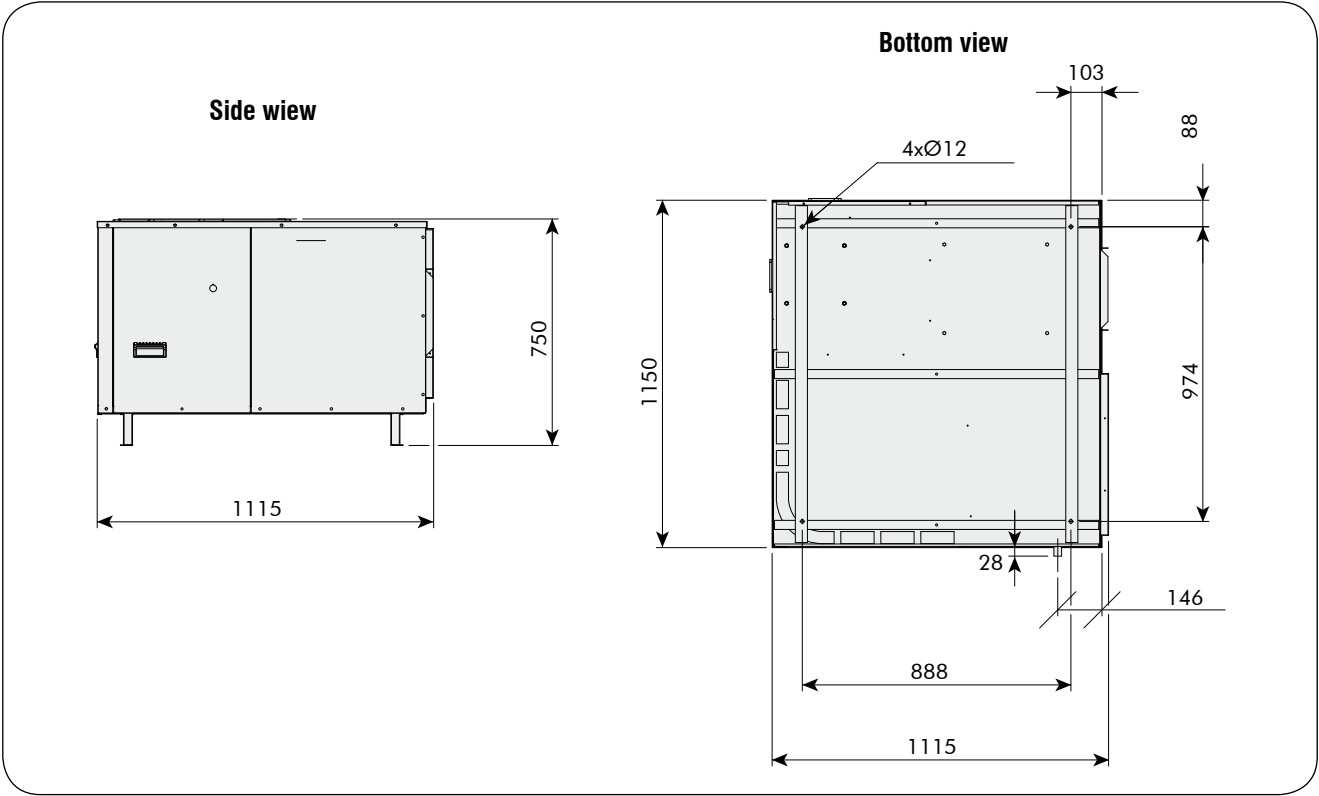
With air filter



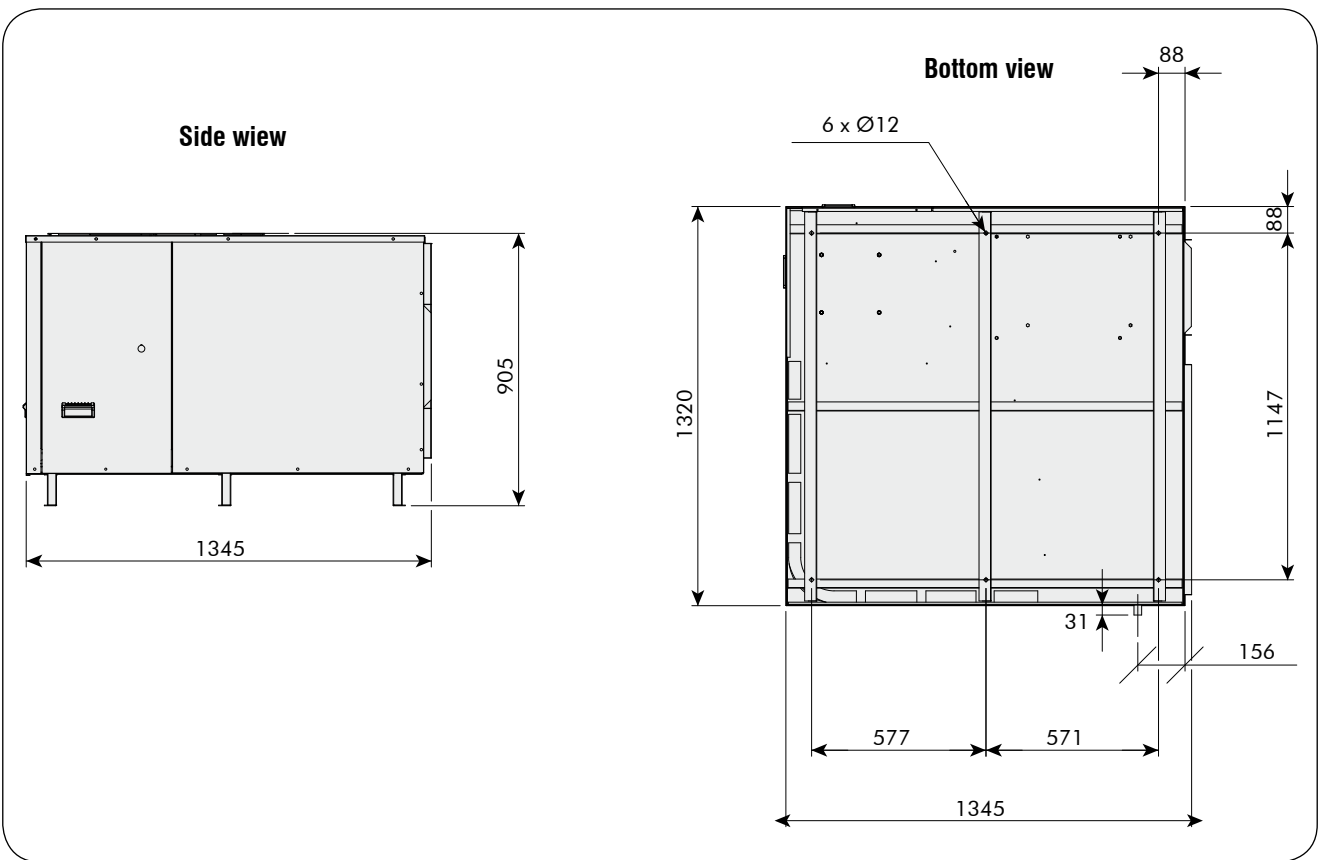
- ① Closed pulley
- ② Pulley opened with 3 turns

Dimensions (mm)

HAN 10

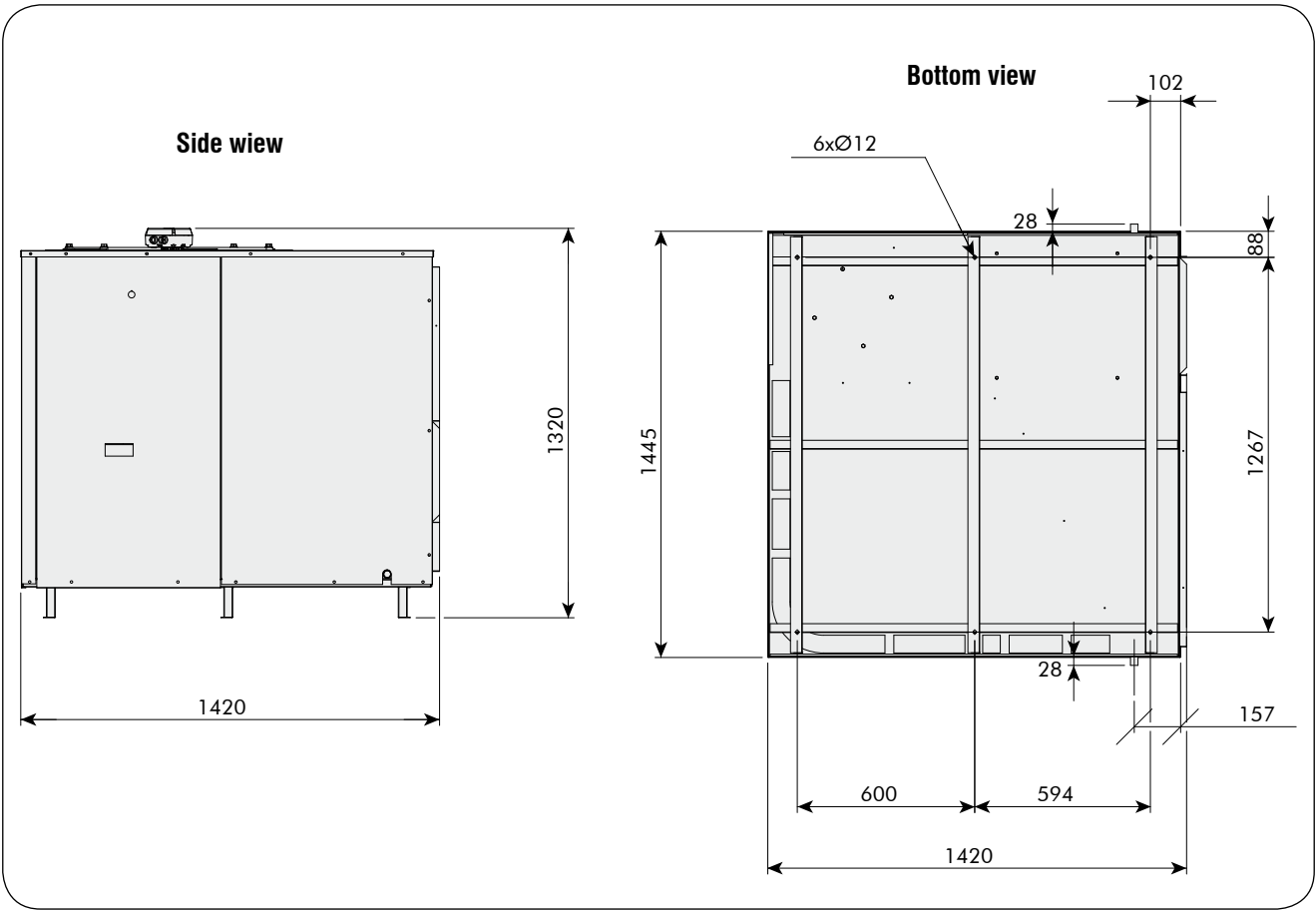


HAN 13 to 19



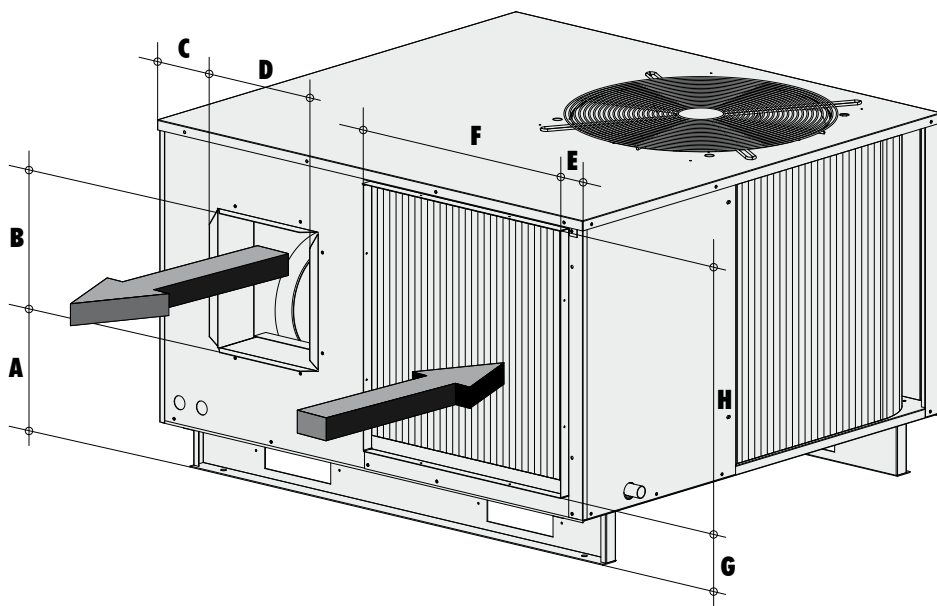
Dimensions (mm)

HAN 25 and 31



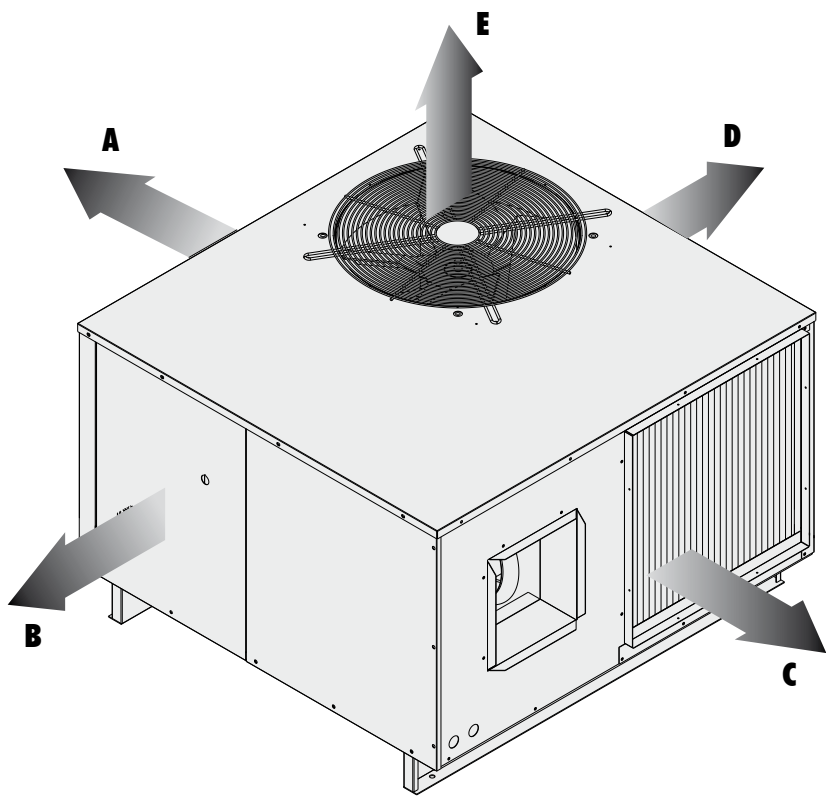
Duct Connections (mm)

Air intake and air blowing duct outlet dimensions



HAN sizes	10	13	15-17-19	25	31
A	290	290	320	320	320
B	295	295	345	345	345
C	157	110	110	137	85
D	272	272	316	316	405
E	40	35	35	35	35
F	535	765	765	860	860
G	155	155	155	155	155
H	562	712	712	1030	1030

Unit clearance requirements (mm)



HAN sizes	10	13-15-17-19	25-31
A	800	800	800
B	800	800	800
C	800	800	800
D	650	850	1000
E	3000	3000	3000

Notes

Airwell

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