

Product Data Sheet ACi 4420 HHU

ebm**papst**

The engineer's choice



ACi 4420 HHU

INDEX

1	General	3
2	Mechanics	3
2.1	General.....	3
2.2	Connections.....	3
3	Operating Data	4
3.1	Electrical Interface - Input.....	4
3.2	Electrical Operating Data	5
3.3	Electrical Features	5
3.4	Aerodynamics.....	6
3.5	Sound Data.....	8
4	Environment.....	8
4.1	General.....	8
4.2	Climatic Requirements	9
5	Safety.....	9
5.1	Electrical Safety	9
5.2	Approval Tests.....	9
6	Reliability.....	10
6.1	General.....	10

1 General

Fan type	Fan
Rotating direction looking at rotor	Clockwise
Airflow direction	Air outlet over struts
Bearing system	Ball bearing
Mounting position - shaft	Any

2 Mechanics

2.1 General

Width	120,0 mm	
Height	120,0 mm	
Depth	38,0 mm	
Diameter	0,0 mm	
Mass	0,275 kg	
Housing material	Plastic	
Impeller material	Plastic	
Max. torque when mounted across both mounting flanges	Wire outlet corner: 50 Ncm Remaining corners: 80 Ncm	
Screw size	ISO 4762 - M4 degreased, without an additional brace and without washer	
Rotor protrusion max.	0,6 mm	

2.2 Connections

Electrical connection	Cable	
Lead wire length	L = 310 mm	
Tolerance	+ - 20 mm	
Tube length	See drawing	
Tolerance		
Wire size (AWG)	20	
Insulation diameter		
Plug	See drawing	
Contact	See drawing	



Wire	Color	Operation
1	black	N
2	brown	L

3 Operating Data

3.1 Electrical Interface - Input

External voltage supply for input and output signals must be SELV conform.

3.2 Electrical Operating Data

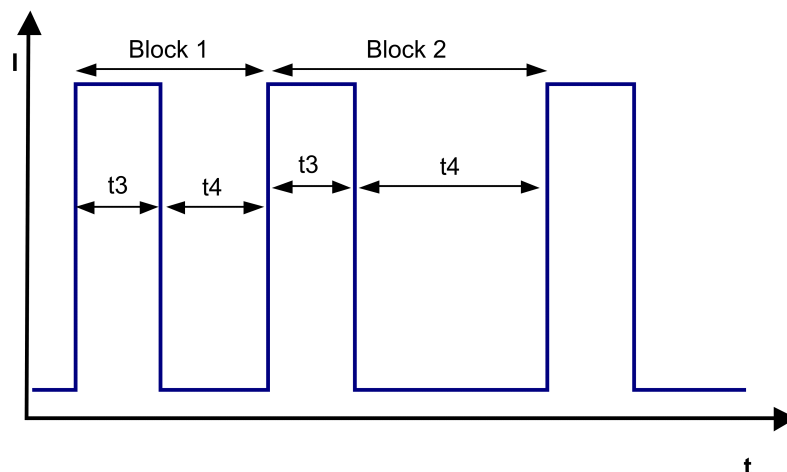
Measurement conditions: Normal air density = 1,2 kg/m³; Temperature 23°C +/- 3°C; Motor axis horizontal; warm-up time before measuring 5 minutes (unless otherwise specified). In the intake and outlet area should not be any solid obstruction within 0,5 m.

$\Delta p = 0$: corresp. to free air flow (see chapter aerodynamics)
 I : corresp. to arithm. mean current value

Features	Condition	Symbol	Values			
Voltage range Tolerance		U				
Nominal voltage		U_N		230 V	230 V	
Frequency		f	50 Hz / 60 Hz			
Power consumption Tolerance	$\Delta p = 0$	P	4,6 W +/- 20 %			
Current consumption Tolerance	$\Delta p = 0$	I_{RMS}		34 mA +/- 20 %	34 mA +/- 20 %	
Speed Tolerance	$\Delta p = 0$	n	3.300 1/min +/- 10 %			

3.3 Electrical Features

Electronic function	Speed-Controlled	
Locked rotor protection	Auto restart	



3.4 Aerodynamics

Measurement conditions: Measured with a double chamber intake rig acc. to DIN EN ISO 5801.
 Normal air density = 1,2 kg/m³; Temperature 23°C +/- 3°C;
 In the intake and outlet area should not be any solid obstruction within 0,5 m. Motor shaft horizontal.
 The information is only valid under the specified test conditions and may be changed by the installation conditions. If there are deviations from the standard test conditions, the characteristic values must be checked under the installed conditions.

a) Operation condition:

3.300 1/min at free air flow

Frequency: 50 Hz

Nominal voltage: 230 V

Max. free-air flow ($\Delta p = 0$ / $\dot{v} = \max.$)	175,0 m ³ /h
Max. static pressure ($\Delta p = \max.$ / $\dot{v} = 0$)	78 Pa

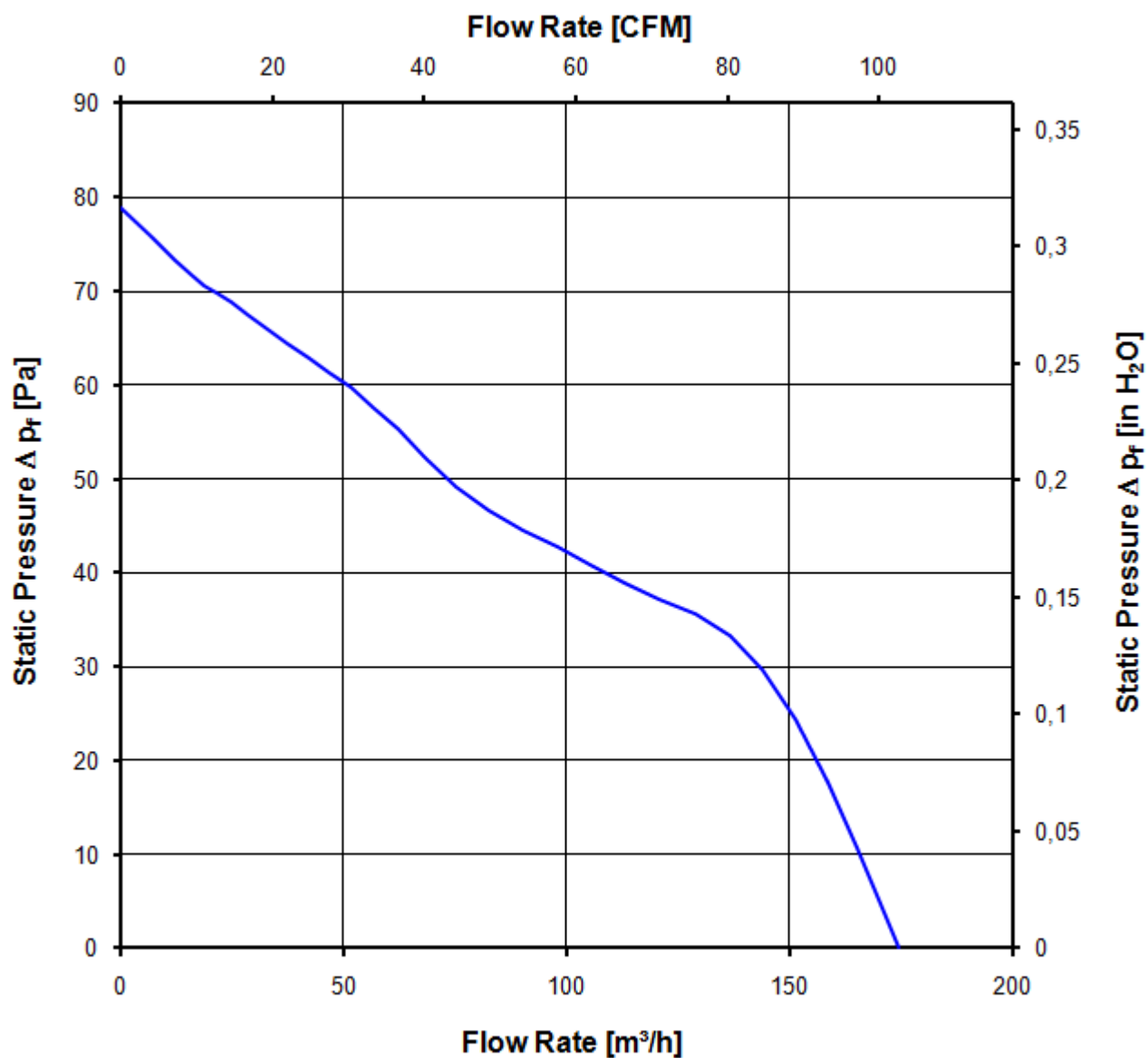
b) Operation condition:

3.300 1/min at free air flow

Frequency: 50 Hz

Nominal voltage: 230 V

Max. free-air flow ($\Delta p = 0$ / $\dot{v} = \max.$)	
Max. static pressure ($\Delta p = \max.$ / $\dot{v} = 0$)	



3.5 Sound Data

Measurement conditions: Sound pressure level: 1 meter distance between microphone and the air intake.
 Sound power level: Acc. to DIN 45635 part 38 (ISO 10302)
 Measured in a semianchoic chamber with a background noise level of $L_p(A) < 5 \text{ dB(A)}$
 For further measurement conditions see chapter aerodynamics.

a) Operation condition:

3.300 1/min at free air flow

Frequency: 50 Hz

Nominal voltage: 230 V

Optimal operating point	142,0 m ³ /h @ 27 Pa	
Sound power level at the optimal operating point	5,5 bel(A)	
Sound pressure level at free air flow, measured in rubber bands	43,0 dB(A)	

b) Operation condition:

3.300 1/min at free air flow

Frequency: 50 Hz

Nominal voltage: 230 V

Optimal operating point		
Sound power level at the optimal operating point		
Sound pressure level at free air flow, measured in rubber bands		

4 Environment

4.1 General

Min. permitted ambient temperature TU min.	-40 °C	
Max. permitted ambient temperature TU max.	75 °C	
Min. permitted storage temperature TL min.	-40 °C	
Max. permitted storage temperature TL max.	80 °C	

4.2 Climatic Requirements

IP-protection type (certified)	IP 65 (for fan only, not for connector if applicable) **)	
Humidity requirements	humid temperature, cyclic; according to DIN EN 60068-2-38, 10 cycle and condensation water check; according to DIN EN ISO 6270-2, 14 days	
Salt fog requirements	salt fog, cyclic, in operation; according to DIN EN 60068-2-52, 3 cycle	

Permitted application area:

The product is for the use in open and unsheltered areas. Direct exposure to water as well as saline ambient conditions are allowed provided that this does not prevent the normal operation.

Pollution degree 3 (according DIN EN 60664-1)

It occurs conductive pollution or dry non-conductive pollution which becomes conductive due to condensation.

**) The specification of the IP protection refers to the conditions mentioned in certification of the fan. The above mentioned short description of the protection scope is not final. For detailed information of the respective protection scope and definitions, see certification as well as DIN EN 60529 (protection by housings) and ISO 20653 (for vehicles) with the letter K.

Short description of the IP-protection type:

Solid particle Protection: Dust tight.

Protection against deliberate contact: Protected against contact to hazardous parts with a wire.

Protection against water: Protected against water jets.

5 Safety

5.1 Electrical Safety

A verification of thermal conditions (normal and abnormal operation) as well as the protection against electric shock, ingress of solid foreign objects and water has to be done in conjunction with the appliance.

Test voltage HV type test	3000 V
Unit test voltage	VAC
Time type test HV	1 s
Insulation resistance	RI > 10 MOhm
Protection class	built-in fan

5.2 Approval Tests

CE	EC Declaration of Conformity	Yes
EAC	Eurasian Conformity	Yes
UL	Underwriters Laboratories	Yes / UL507, Electric Fans
VDE	Association for Electrical, Electronic and Information Technologies	Yes / Approval acc. to EN 60950 (VDE 0805) - Information technology equipment
CSA	Canadian Standards Association	Yes / C22.2 No. 113 Fans and Ventilators
CCC	China Compulsory Certification	Yes / GB 12350 Safety Requirements for small Power Motors

6 Reliability

6.1 General

Life expectancy L10 at TU = 40 °C	65.000 h	
Life expectancy L10 at TU max.	30.000 h	
Life expectancy L10 acc. to IPC 9591 at TU = 40 °C	110. 000 h	

