

# User Manual

# EC Selection Software

# epProSA

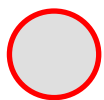
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## Nomenclature

Druck	pressure
ETA	total fan efficiency, including dynamic pressure
I (A)	current draw in amps
LwAds (dB)	A-weighted sound power, discharge side (also 'ps' for pressure side) in dB
LwAss (dB)	A-weighted sound power, suction side in dB
LpAds (dB)	A-weighted sound pressure, discharge side (also 'ps' for pressure side) in dB
LpAss (dB)	A-weighted sound pressure, suction side in dB
P1 (W)	input power in watts
PfaZul (Pa)	maximum permissible static pressure
SFP	Specific Fan Power {P1 (watts) ÷ airflow (liters/sec)}
static eff	total fan efficiency minus dynamic pressure, in percent
total eff	total fan efficiency, including dynamic pressure, in percent
Volumenstrom	flow rate

## Legend



action



result

A. Product Selection

1.5 1.1

1.2 1.3

1.4

ebm-papst EC product selector V7.7.11.1

**Search defaults**

show results

**Operating point**

Flow rate: 2000 cfm

static pressure: 2.0 IN H2O

Tolerance: 50 %

Tolerance indicate

Typ: [ ]

Axial

Radial

forward curved

backwards curved

1~

100V - 130V

200V - 277V

3~

200V - 240V

380V - 480V

**Product Data**

Product comparison Product information LCC DLL

**Fans selected**

No	Type	P1[W]	speed[rpm]	ETA[%]	I[A]	LwAss[dB]	LwAds[dB]	SFP	PfaZul[Pa]	Volumenstrom	Druck
1	R3G310AX5201	865.5	2526	60.0	1.44	77.2	83.2	0.9		3398.0 m³/h	498.2 Pa
2	R3G355AV1303	1156.2	2349	43.3	1.75	84.8	90.8	1.2		2000.0 cfm	2.000 IN H2O
3	R3G400AK5305	876.4	1813	55.5	1.37	76.3	82.0	0.9		0.9439 m³/s	
4	R3G355AX5601	783.8	1991	63.8	1.32	72.7	79.2	0.8			

no of Types: 4

**Sound**

Sound power suction-side Sound power pressure-side

act Type No Ph VAC\_VAC




<input checked="" type="checkbox"/>	R3G310AX5201	1	3~	380	480
<input checked="" type="checkbox"/>	R3G355AV1303	2	3~	380	480
<input checked="" type="checkbox"/>	R3G400AK5305	3	3~	380	480
<input checked="" type="checkbox"/>	R3G355AX5601	4	3~	380	480

## Product Selection

- 1.1 Left click on "Product comparison" to enter the fan selection screen.
- 1.2 Enter the operating point required flow rate and static pressure. Use the pull-down menus to select the flow and pressure units.
- 1.3 The tolerance entered here represents how far above the selected operating point the search results will consider a fan as meeting the selected search criteria. The larger the tolerance, the more fan P/N's that are likely to show up in the search results. Checking "tolerance indicate" (left mouse click) makes the tolerance box show up on the graph.
- 1.4 Select the boxes in this section (left mouse click) that match the fan type (axial or radial), blade type (forward curved or radial) and input power (single phase, 100-130VAC or 200-277VAC; 3-phase, 200-240VAC or 380-480VAC).
- 1.5 Clicking on "show results" brings up the fan P/N's that meet the selected criteria.



## Product Comparison

- 2A** List of fan P/N's that meet the selected criteria appear in the "search results" section.. Left clicking on the boxes will select (check mark) or deselect (no check mark) the fans that appear in the graph.
- 2B** Data on each fan selected in the "search results" section appears in tabular form here. The originally chosen operating point is shown to the right of this table.
- 2C** Air performance curves at full speed for each fan selected in the "search results" section appear in the graph. Flow in 'CFM' is shown on the top axis and static pressure in 'inches H2O' is shown on the right axis. Metric units are shown on the opposite axes.
- 2D** The tolerance box is shown in the graph if 'tolerance indicate' was selected in 1.3. In this example, the selected flow was 2000CFM and the tolerance was 50% so the horizontal side of the box runs from 2000CFM to 3000CFM (1.5 x 2000). The selected pressure was 2.0"H2O so the vertical side of the box runs from 2.0 to 3.0" H2O (1.5 x 2).
- 2E** The operating point (OP) is shown by the intersection of the vertical and horizontal dashed blue lines. To move the OP, line up the mouse crosshair until the  symbol is shown. Then hold down the left mouse button while moving the OP. It is also possible to move only the vertical line (flow) or horizontal line (pressure) individually by moving the mouse crosshair anywhere over either line until the  or  symbol appears. Then hold down the left mouse button to move the line. The data shown in the 'Fans selected' table and in the 'Sound' graph will change for each fan to reflect the changing OP.
- 2F** The acoustic sound power level in decibels - measured on either the fan suction side (LwAss) or the fan pressure side (LwAds) - can be displayed in this area for all selected fans by left clicking on either button. If the operating point is changed, the sound data shown will change for each fan to reflect the changing OP. The sound levels are shown vs octave band center frequency and also as the total A-weighted sound power level (LwA).

C. Choosing a Single Fan P/N

3.4

ebm-papst EC product selector V7.7.11.1

**Search defaults** | show results

**Operating point**

Flow rate:  cfm

static pressure:  IN H2O

Tolerance: 50 % << AP

Tolerance indicate

Typ:

Axial

Radial

forward curved

backwards curved

1~

100V - 130V

200V - 277V

3~

200V - 240V

380V - 480V

**Product Data**

Product comparison | Product information | LCC | DLL

**Fans selected**

No	Type	P1[W]	speed[rpm]	ETA[%]	I[A]	LwAss[dB]	LwAds[dB]	SFP	PfaZul[Pa]	Volumenstrom	Druck
1	R3G310AX5201	865.5	2526	60.0	1.44	77.2	83.2	0.9		3398.0 m³/h	498.2 Pa
2	R3G355AV1303	1156.2	2349	43.3	1.75	84.8	90.8	1.2		2000.0 cfm	2,000 IN H2O
3	R3G400AK5305	876.4	1813	55.5	1.37	76.3	82.0	0.9		0.9439 m³/s	
4	R3G355AX5601	783.8	1991	63.8	1.32	72.7	79.2	0.8			

no of Types: 4

**Sound**

Sound power suction-side | Sound power pressure-side

act Typ No Ph VAC\_VAC

<input checked="" type="checkbox"/>	R3G310AX5201	1	3~	380	480
<input checked="" type="checkbox"/>	R3G355AV1303	2	3~	380	480
<input checked="" type="checkbox"/>	R3G400AK5305	3	3~	380	480
<input checked="" type="checkbox"/>	R3G355AX5601	4	3~	380	480

start | Adobe Acrobat Pr... | EC Selection Soft... | epPro | 11:41 AM

3.1

3.3

3.2

### Choosing a Single Fan P/N

3.1

Clear the flow and pressure blocks.

3.2

Clear the fan type selections.

3.3

Enter the fan P/N of interest (no dashes).

3.4

Left click on 'show results' to bring up the fan data.

D. Single Fan Data

ebm-papst EC product selector V7.7.11.1

**Search defaults**

show results

**Operating point**

Flow rate:  cfm

static pressure:  IN H2O

Tolerance: 50 %

Tolerance indicate

Typ: R3G355AX5601

Axial

Radial

forward curved

backwards curved

1~

100V - 130V

200V - 277V

3~

200V - 240V

380V - 480V

Search result/Products

Product info

act	Typ	No	Ph	VAC	VAC_ma
<input checked="" type="checkbox"/>	R3G355AX5601	1	3~	380	480

**Product Data**

Product comparison | Product information | LCC | DLL

**Fans selected** ← 4B

No	Type	P1[W]	speed[rpm]	ETA[%]	I[A]	LwAss[dB]	LwAds[dB]	SFP	PfaZul[Pa]	Volumenstrom	Druck
1	R3G355AX5601	551.3	1765	62.9	0.93	70.1	76.5	0.7		2826.5 m³/h 1863.6 cfm 0.7851 m³/s	420.0 Pa 1.686 IN H2O

Sound

Sound power suction-side | Sound power pressure-side

4A

4C

4D

## Single Fan Data

4A The selected fan should show up here and the box should be checked in order to display the data.

4B Tabular data for the selected fan is shown here.

4C Air performance curve for the selected fan at full speed.

4D Acoustic sound power levels are displayed here when the data is available.

E. Getting to the Product Information Screen

ebm-papst EC product selector V7.7.11.1

**Search defaults**

show results

**Operating point**

Flow rate:  cfm

static pressure:  IN H2O

Tolerance: 50 %

Tolerance indicate

Typ: R3G355AX5601

Axial

Radial

forward curved

backwards curved

1~

100V - 130V

200V - 277V

3~

200V - 240V

380V - 480V

Search result/Products

**Product info**

act	Typ	No	Ph	VAC	VAC_ma
<input checked="" type="checkbox"/>	R3G355AX5601	1	3~	380	480

**Product Data**

Product comparison | **Product information** | LCC | DLL

**Fans selected**

No	Type	P1[W]	speed[rpm]	ETA[%]	I[A]	LwAss[dB]	LwAds[dB]	SFP	PfaZul[Pa]	Volumenstrom	Druck
1	R3G355AX5601	551.3	1765	62.9	0.93	70.1	76.5	0.7		2826.5 m³/h 1863.6 cfm 0.7851 m³/s	420.0 Pa 1.686 IN H2O

**Sound**

Sound power suction-side | Sound power pressure-side

5.1

## Getting to the Product Information Screen

5.1

Left click on 'Product info' to bring up the Product Information screen.

F. Switching to Full View in the Product Information Screen

ebm-papst EC product selector V7.7.11.1

Search defaults show results **6.1**

Vorarbeiten, Produktsuche (eingebledet)

**Operating point**

Flow rate:  m³/h

static pressure:  Pa

Tolerance: 50 % << AP

Tolerance indicate

Typ: R3G355AX5601

Axial

Radial

forward curved

backwards curved

1~

100V - 130V

200V - 277V

3~

200V - 240V

380V - 480V

Search result/Products

**Product info** →

act Typ No Ph VAC\_VAC

R3G355AX5601 1 3~ 380 480

Product Data

Product comparison Product information LCC DLL

**R3G355AX5601 EC Radial fan** ebmpapst

Air measuring data Product Technical info

Physical dimension in the operating point / Characteristics

air volume [m³/h]	static pressure [Pa]	fan speed [1/min]	input power [W]	total efficiency [%]	static efficiency [%]	current [A]	sound power ss [dBA]	sound power ps [dBA]	motor torque [Ncm]
2800.0	420.0	1760	563.5	60.9	58.0	0.95	70.0	76.4	259.60

Sound

Sound power Sound pressure

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## Switching to Full View in the Product Information Screen

6.1

Left clicking here will hide the search screen and display the complete product information screen.

G. Product Information Screen

ebm-papst EC product selector V7.7.11.1

Product Data Data sheet

Product comparison Product information LCC DLL

**R3G355AX5601** EC Radial fan ebmpapst

Air measuring data Product Technical info.

Physical dimension in the operating point / Characteristics

air volume [m³/h]	<input checked="" type="checkbox"/> static pressure [Pa]	<input type="checkbox"/> fan speed [1/min]	<input type="checkbox"/> input power [W]	<input type="checkbox"/> total efficiency [%]	<input type="checkbox"/> static efficiency [%]	<input type="checkbox"/> currend [A]	<input type="checkbox"/> sound power ss [dBA]	<input type="checkbox"/> sound power ps [dBA]	<input type="checkbox"/> motor torque [Ncm]	Volumenstrom	Druck
2800.0	420.0	1760	563.5	60.9	58.0	0.95	70.0	76.4	259.60	2800.0 m³/h 1648.0 cfm 0.7778 m³/s	420.0 Pa 1.686 IN H2O

Sound

Sound power Sound pressure

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7E

7C

7D

7A

7B




7F


## Product Information Screen

**7A** Air performance curve for the selected fan at full speed.

**7B** Air performance curve for the selected fan at the speed which runs through the chosen operating point (OP).

**7C** Square law system resistance curve.

**7D** The operating point (OP) is shown by the intersection of the vertical and horizontal dashed blue lines. To move the OP and the system resistance curve, line up the mouse crosshair until the  symbol is shown. Then hold down the left mouse button while moving the OP. It is also possible to move only the vertical line (flow) or horizontal line (pressure) individually by moving the mouse crosshair anywhere over either line until the  or  symbol appears. Then hold down the left mouse button to move the line. The data shown in the 'Fans selected' table (ref 2B & 4B) and in the 'Sound' graph (ref 2F & 4D) will change for each fan to reflect the changing OP.

Alternatively, the system resistance curve (SRC) can be kept fixed while moving the OP up or down the curve. Use the procedure above for setting the OP with the SRC running through it. Left click on ref item 6.1 to bring up the search screen. Left click on the 'AP' button to fix the SRC (the OP will show up in the flow & pressure boxes). Right click on the graph to bring up a list of options. Left click on 'connect the cursor to the resistance curve'. By holding down the left mouse button when the  symbol appears over the horizontal dashed blue line, the OP can be moved along a constant SRC. Right click on the graph and left click on 'connect the cursor to the resistance curve' to free up the SRC.

**7E** Fan data is shown in this table and changes as the OP is moved. The air flow and static pressure are shown in both metric and English units at the end of the table to the right.

**7F** The acoustic sound power levels and sound pressure levels in decibels - measured on either the fan suction side (LwAss or LpAss) or the fan pressure side (LwAps or LpAps) - can be displayed in this area for the selected fan by left clicking on either button. If the operating point is changed, the acoustic data shown will change to reflect the changing OP. The sound levels are shown vs octave band center frequency and also as the total A-weighted sound power level (LwA) or A-weighted sound pressure level (LpA).

H. Product Information Screen (continued)

ebm-papst EC product selector V7.7.11.1

Product Data Data sheet

Product comparison Product information LCC DLL

R3G355AX5601 EC Radial fan ebmpapst

Air measuring data Product Technical info.

8.5 Physical dimension in the operating point / Characteristics

air volume [m³/h]	<input checked="" type="checkbox"/> static pressure [Pa]	<input type="checkbox"/> fan speed [1/min]	<input checked="" type="checkbox"/> input power [W]	<input type="checkbox"/> total efficiency [%]	<input type="checkbox"/> static efficiency [%]	<input type="checkbox"/> currend [A]	<input type="checkbox"/> sound power ss [dBA]	<input type="checkbox"/> sound power ps [dBA]	<input type="checkbox"/> motor torque [Ncm]	Volumenstrom	Druck
2800.0	420.0	1760	563.5	60.9	58.0	0.95	70.0	76.4	259.60	2800.0 m³/h 1648.0 cfm	420.0 Pa 1.686 IN H2O

8.2 P1 [W]

8.3 p<sub>st</sub> [Pa]

8.4

Sound

Sound power Sound pressure

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## Product Information Screen (continued)

- 8.1 Any of these variables can be added to or deleted from the graph by left clicking on the check boxes. In this example, the input power has been selected. The additional y-axes and the curves in the graph are color coded the same as the check box.
- 8.2 The additional y-axis for any variables selected in 8.1 will show up here.
- 8.3 Power curve at full speed.
- 8.4 Power curve at reduced speed.
- 8.5 Left click on the folder icon to hide the data table and increase the graph size.

I. Displaying the Data Sheet

9.2

ebm-papst EC product selector V7.7.11.1

Product Data Data sheet

Product comparison Product information LCC DLL

R3G355AX5601 EC Radial fan

Vorgaben Produktsuche (ausgeblendet)

Air measuring data Product Technical info

Physical dimension in the operating point / Characteristics

air volume [m³/h]	static pressure [Pa]	fan speed [1/min]	input power [W]	total efficiency [%]	static efficiency [%]	current [A]	sound power ss [dBA]	sound power ps [dBA]	motor torque [Ncm]	Volumenstrom	Druck
3400.2	499.9	1994	811.5	61.8	58.2	1.36	72.8	79.2	330.14	3400.2 m³/h	499.9 Pa
										2001.3 cfm	2.007 IN H2O
										0.9445 m³/s	

Sound

Sound power Sound pressure

Octave band center frequency [Hz]	Sound power [dB]
125	62.3
250	70.6
500	69.1
1000	65.7
2000	65.9
4000	64.5
8000	61.1
LwA	72.8

Octave band center frequency [Hz]	Sound power [dB]
125	65.1
250	71.8
500	72.8
1000	75
2000	73
4000	69.8
8000	65.3
LwA	79.2

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## Displaying the Data Sheet

9.1

Set the desired operating point.

9.2

Left clicking on the 'Data sheet' button will call up a printable/saveable PDF data sheet in Adobe Acrobat. The data sheet will display the following info;

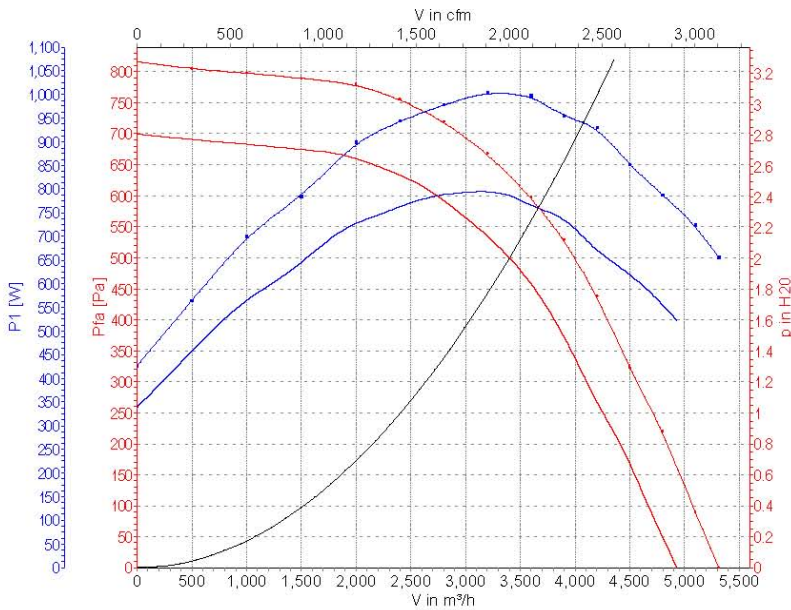
- fan type
- P/N
- nominal technical data
- listing of performance data at the selected operating point (duty point)
- graph showing (at a minimum) the full speed air performance curve, the air performance curve through the selected OP and the system resistance curve through the selected OP
- additional variables will be shown in the above graph if they were selected in the Product Information screen (ref 8.1)
- graphs showing the suction- side and pressure-side acoustic sound power levels (note that only the sound power levels will be shown on the data sheet, even if the sound pressure levels were selected in the Product Information screen)



**EC Radial fan**  
backwards curved ~ without housing  
**R3G355AX5601**

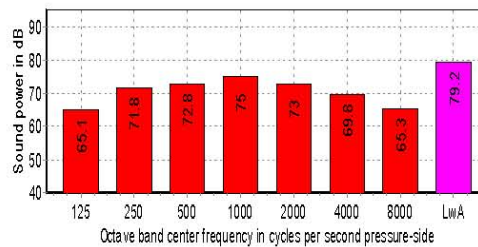
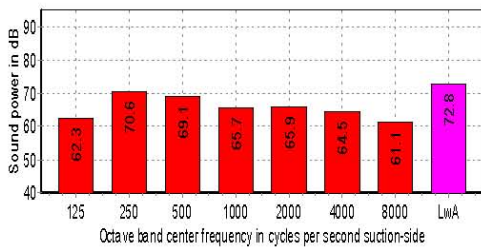
**Technical data (nominal dates)**

Voltage range 3~	[VAC]	: 380 - 480
Frequency	[Hz]	: 50/60
Fan speed	[1/min]	: 2140
Input power	[W]	: 1000
current draw	[A]	: 1.7
Mass	[kg]	: 9.1
max. ambient temp.	[°C]	: -25 - 50
Production class		: IP 54 (gemäß EN 60529)
Approvals		: VDE, UL, CSA, CCC, GOST sind vorgesehen
Mounting position		: Welle horizontal oder Rotor unten; Kondenswasserbohr
Number of blades		: 7





**Data in duty point**

air volume [m³/h]	3400.2
static pressure [Pa]	499.9
fan speed [1/min]	1994
input power [W]	811.5
total effic. [%]	61.8
static effic. [%]	58.2
current [A]	1.36
sound power ss [dBA]	72.8
sound power ps [dBA]	79.2
motor torque [Ncm]	330.14



## Other Helpful Information

- Each screen typically has different windows that can be resized as desired wherever the  or  symbol appears at the borders of these areas. The top, bottom and left edges of the graph area, for instance, can all be moved.
- Sometimes it's necessary to left mouse click on the graph or even more specifically on the crosshairs that appear over the intersection of the dashed blue lines in order to get the graph or P/N to update.
- If the vertical or horizontal dashed blue lines don't appear on the graph, try dragging the mouse across the bottom or left edge of the graph with an inward motion while holding down the left mouse button.
- Even though they appear to have the same function, clicking on the 'Product Information' button at the top of the screen doesn't always update the air performance curve for a newly selected P/N. The 'Product info' button in the 'Search result/Products' section should be used for this.
- Only sound power level (not sound pressure) information shows up in the data sheet.
- Uncheck the 'Tolerance' box in the 'Search defaults' area to remove the box from the data sheet graph or any screen graph