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User Manual

EC Selection Software

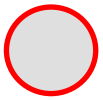
epProSA

Contents

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

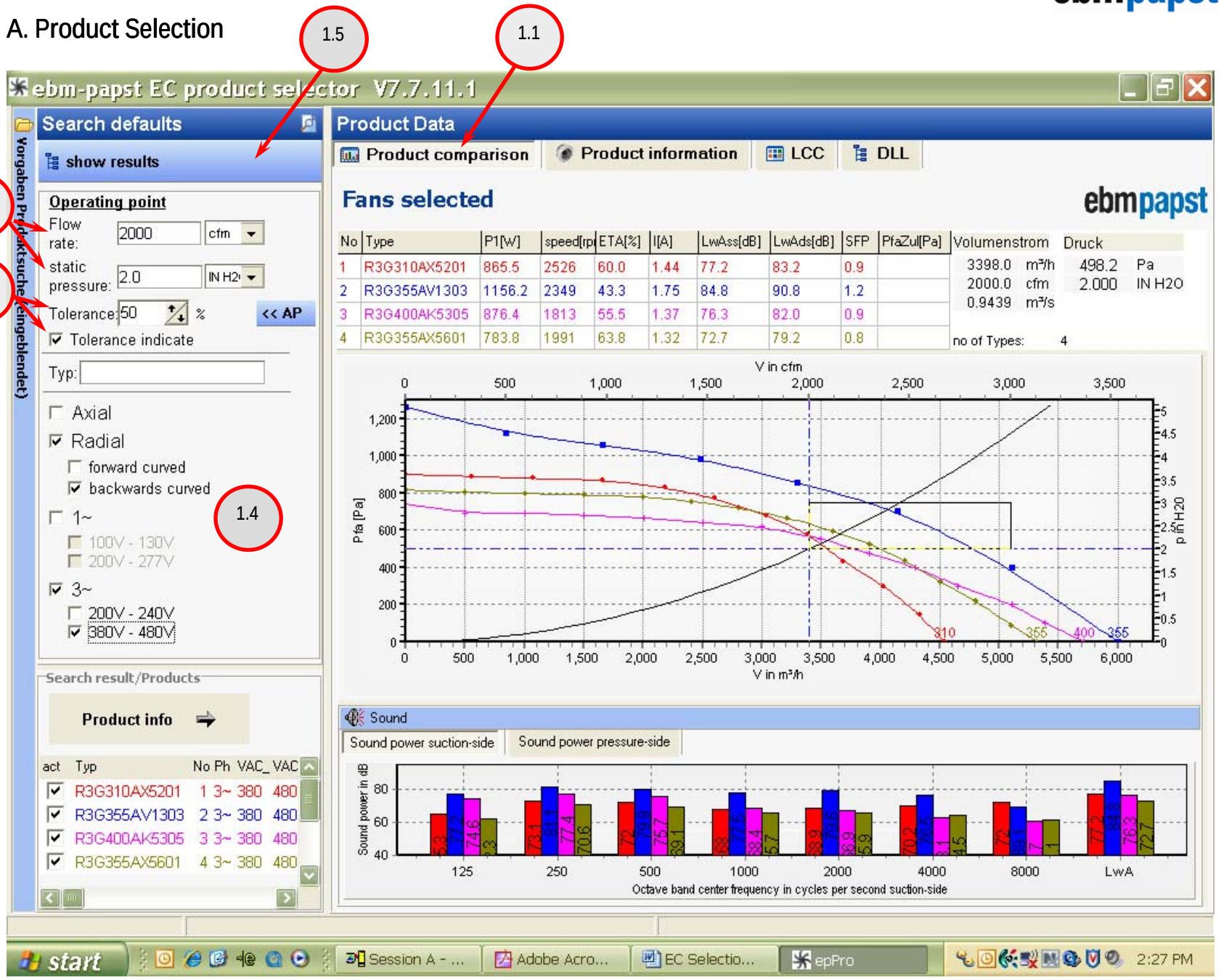
Legend



action

result

A. Product Selection



Product Selection

1.1 Left click on “Product comparison” to enter the fan selection screen.

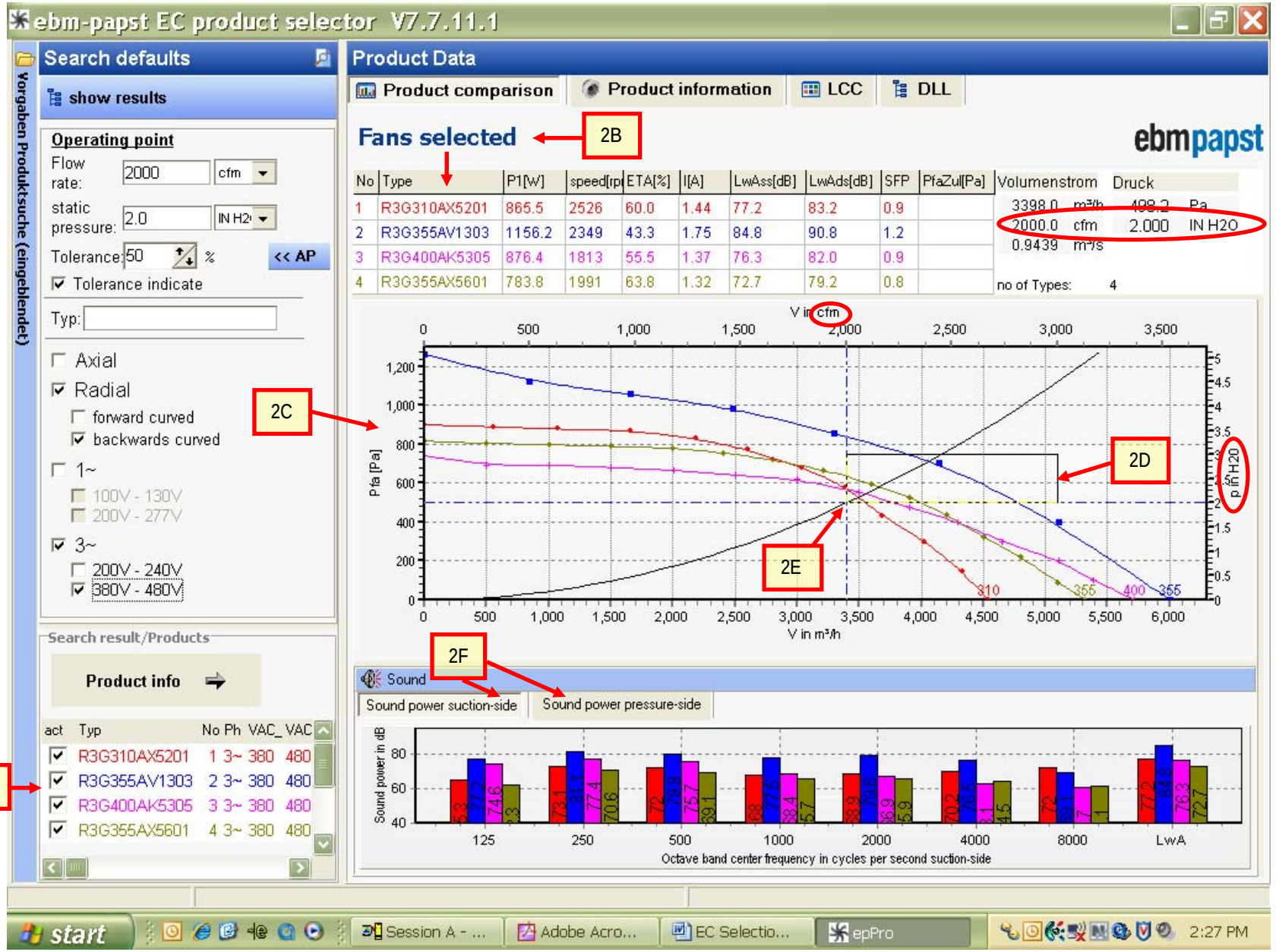
1.2 Enter the operating point required flow rate and static pressure. Use the pull-down menus to select the flow and pressure units.

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.

B. Product Comparison



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.

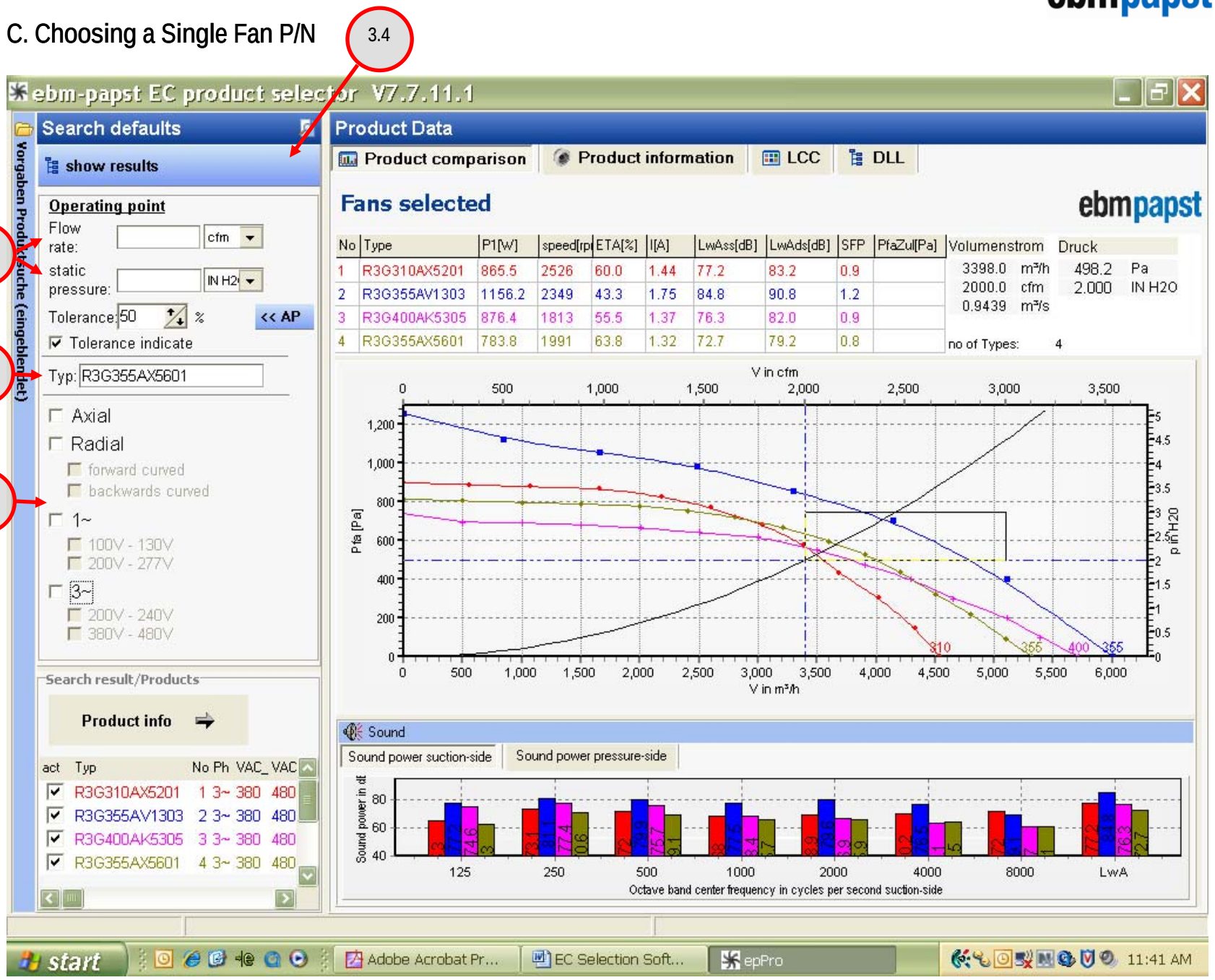
2C Air performance curves at full speed for each fan selected in the "search results" section appear in the graph. Flow in 'CFM' is shown on the top axis and static pressure in 'inches H2O' is shown on the right axis. Metric units are shown on the opposite axes.

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



Choosing a Single Fan P/N

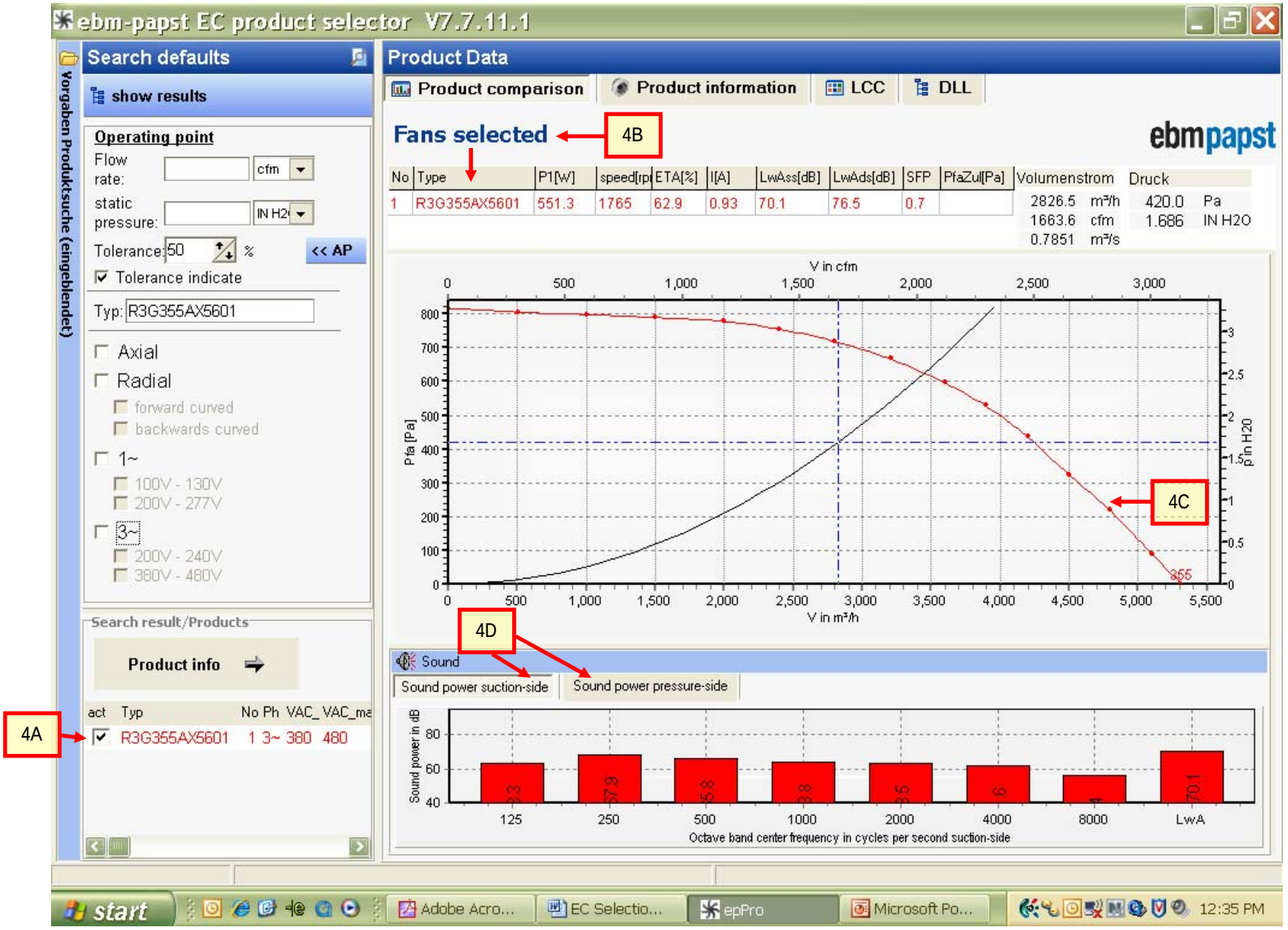
3.1 Clear the flow and pressure blocks.

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



Single Fan Data

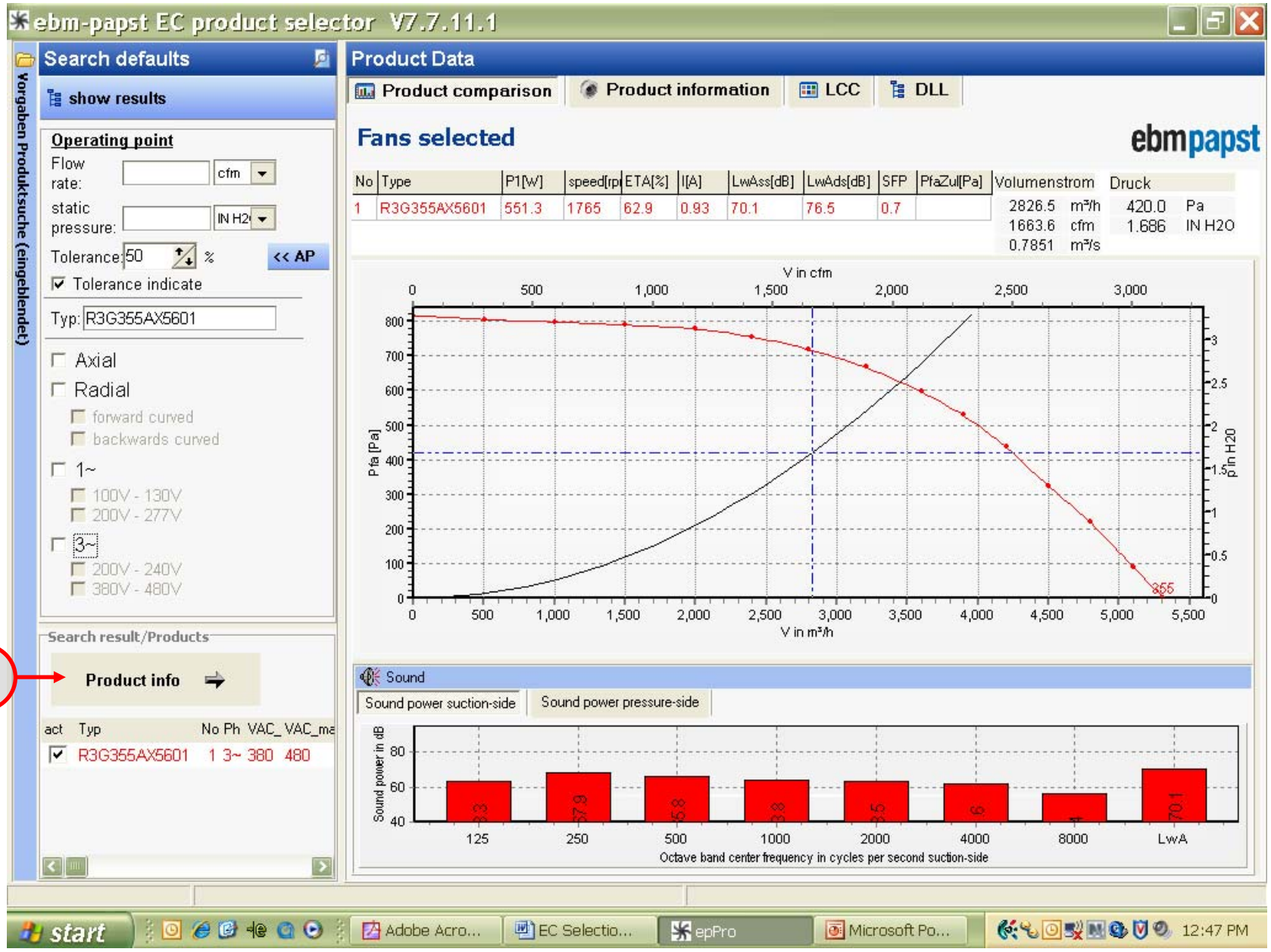
4A The selected fan should show up here and the box should be checked in order to display the data.

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.

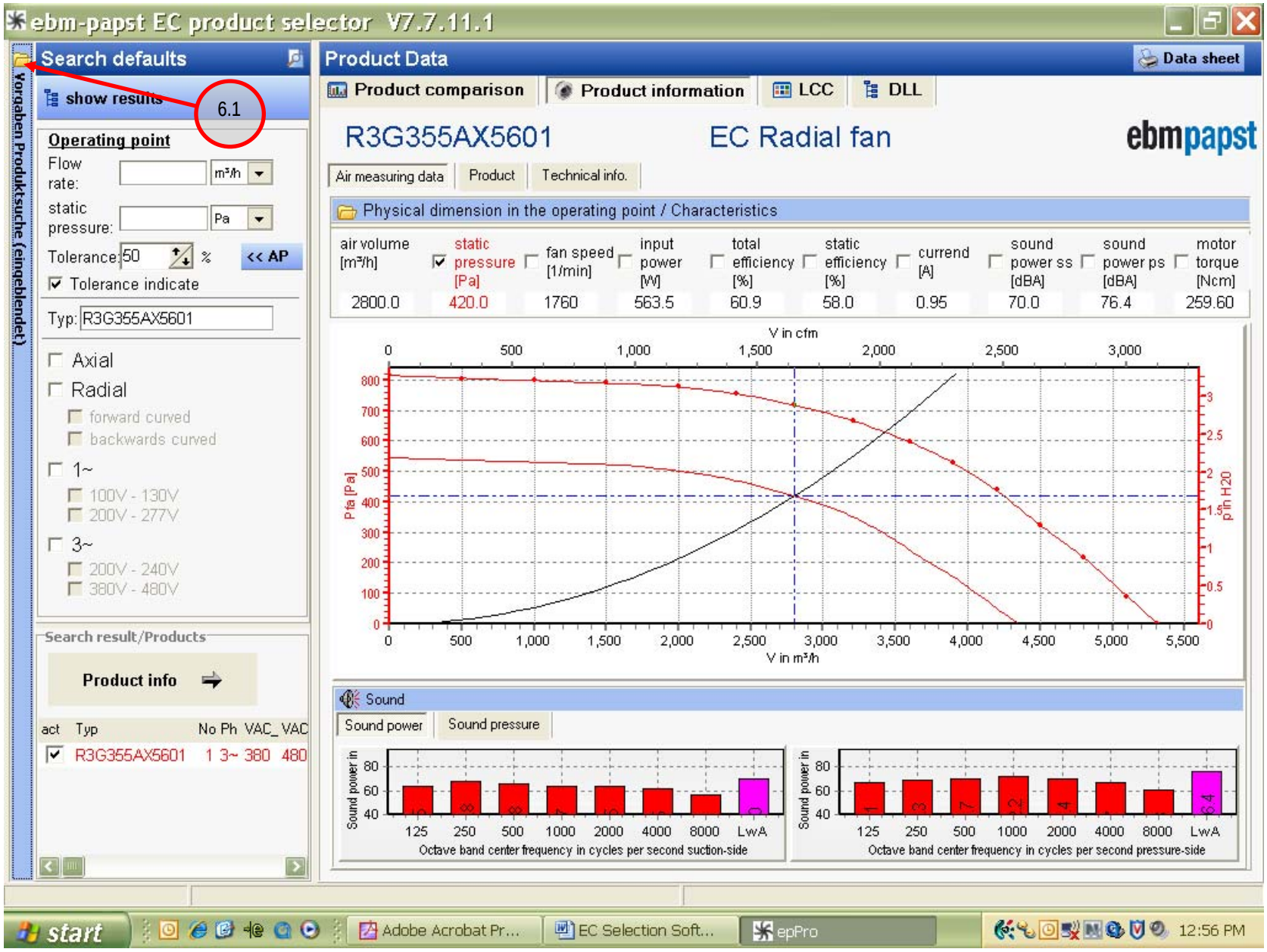
E. Getting to the Product Information Screen



Getting to the Product Information Screen

5.1 Left click on ‘Product info’ to bring up the Product Information screen.

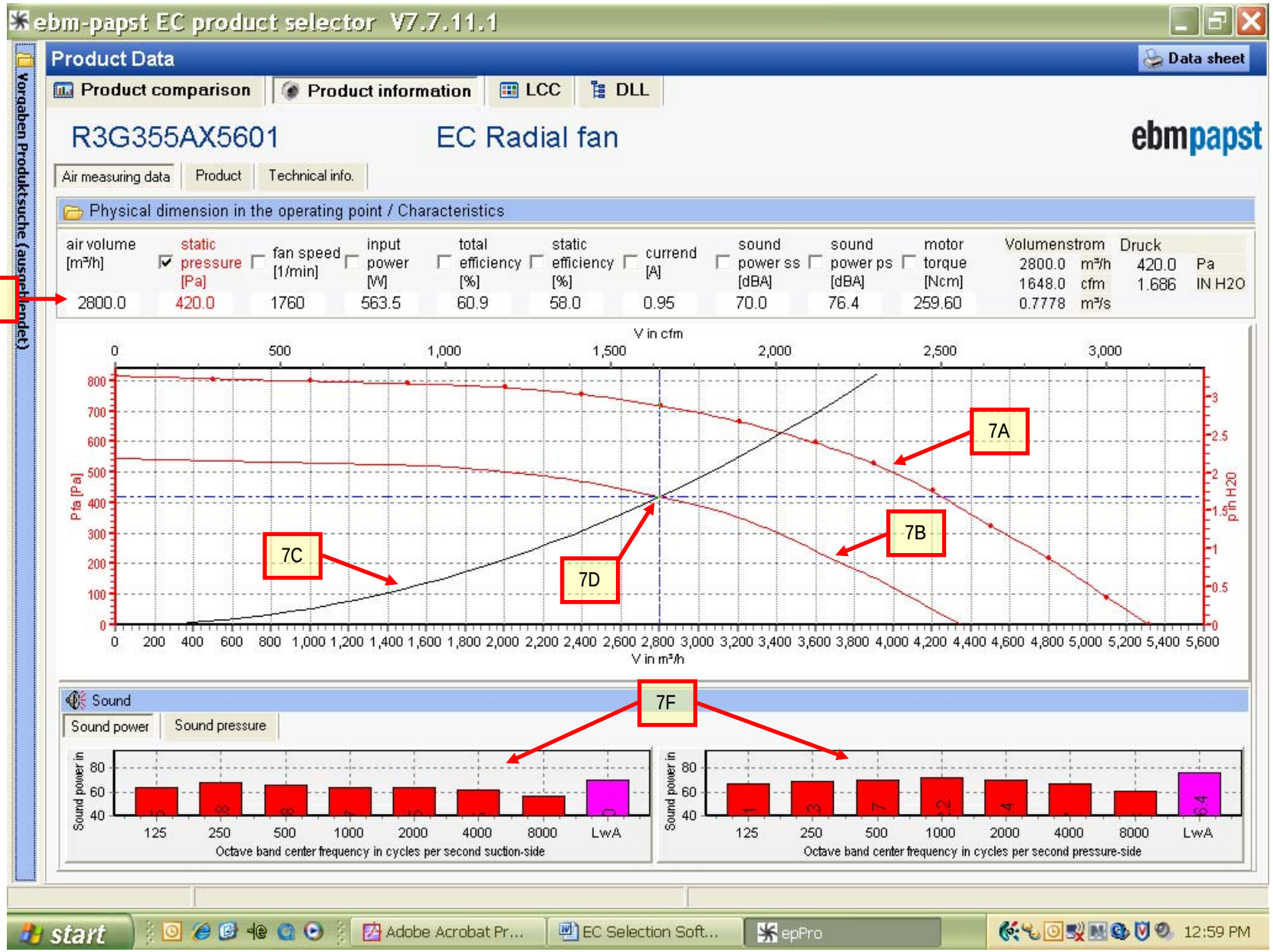
F. Switching to Full View in the Product Information Screen



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



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.

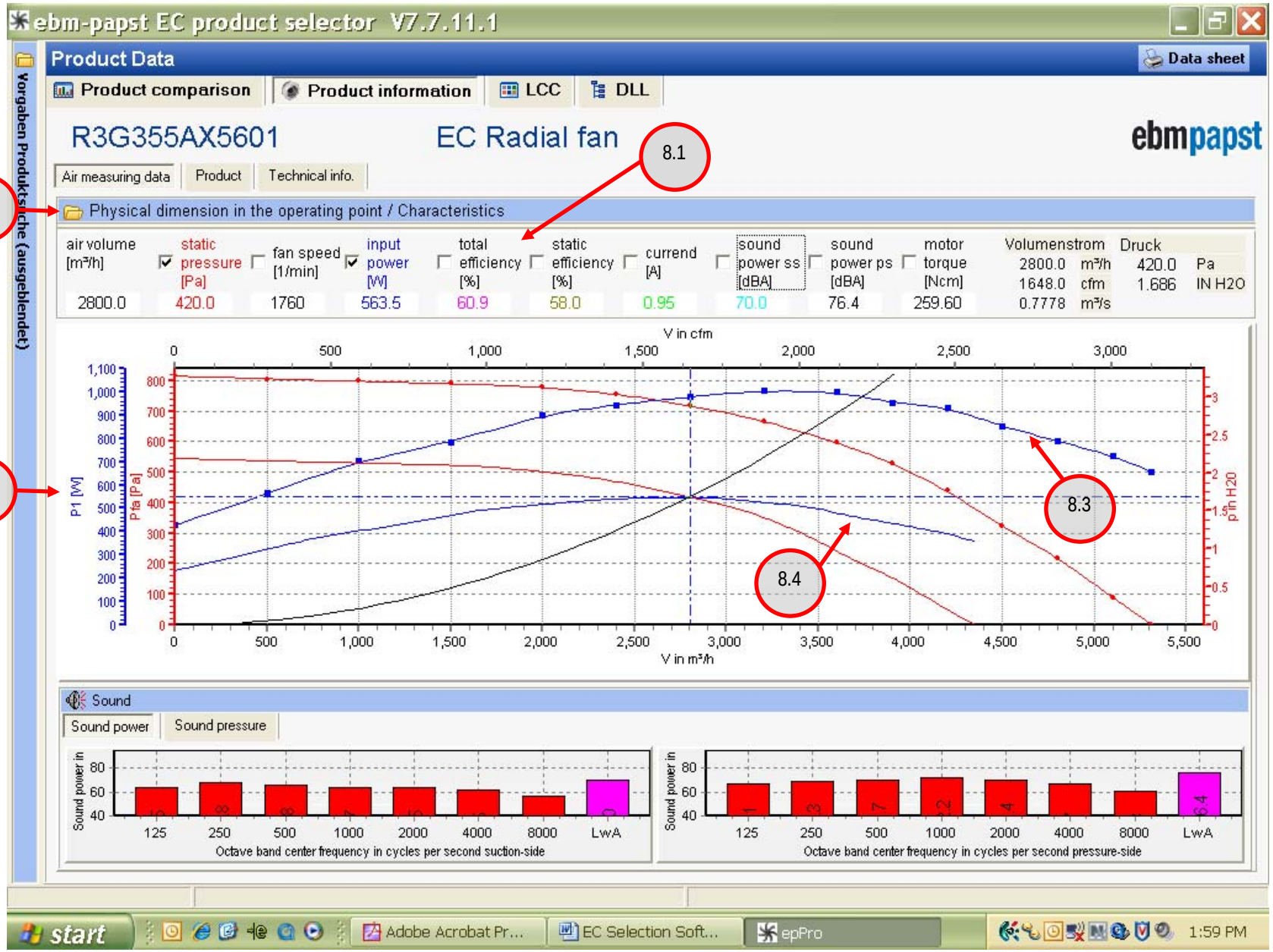
7D The operating point (OP) is shown by the intersection of the vertical and horizontal dashed blue lines. To move the OP and the system resistance curve, line up the mouse crosshair until the ◂✣▸ symbol is shown. Then hold down the left mouse button while moving the OP. It is also possible to move only 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)



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.

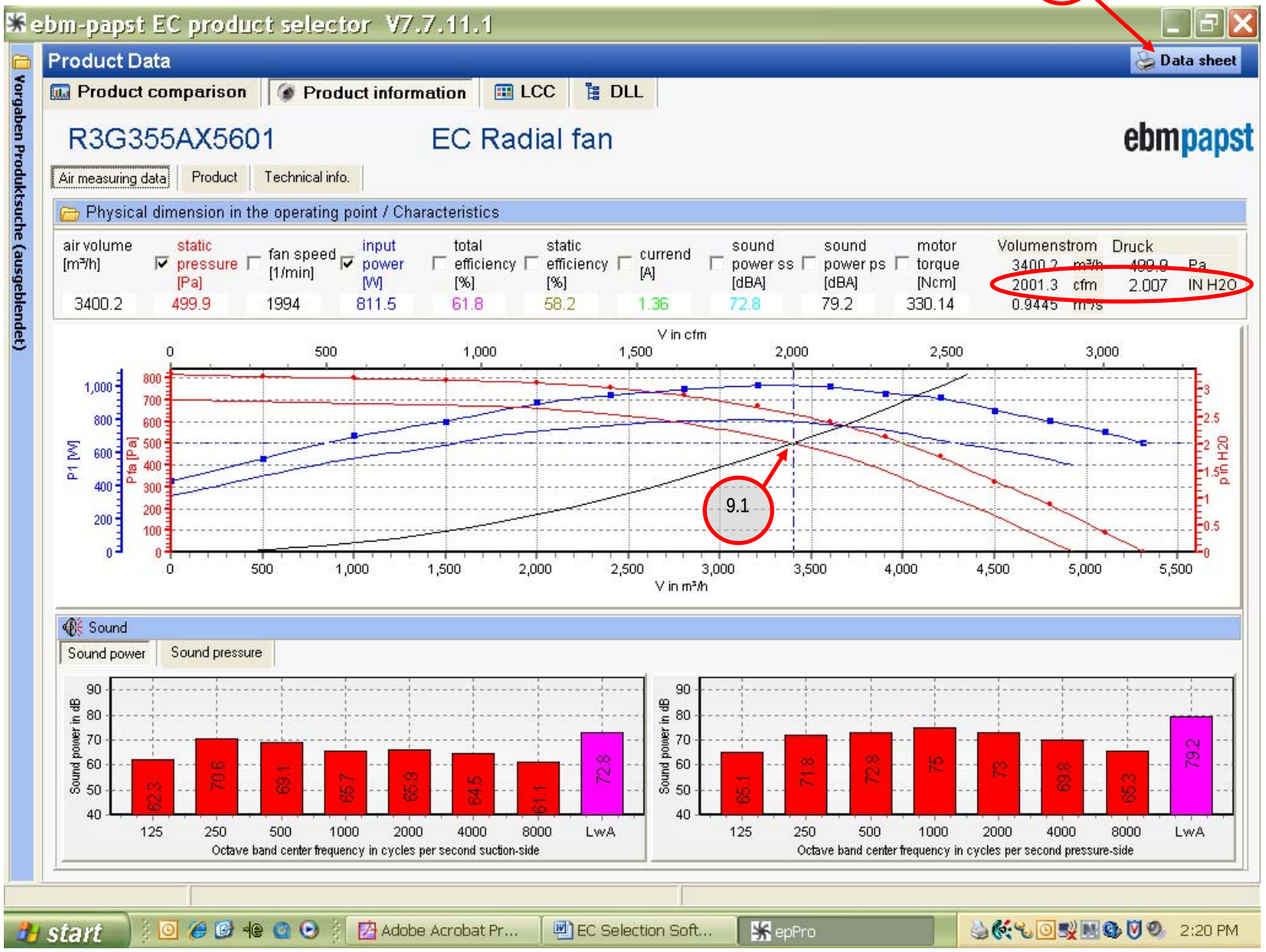
8.2 The additional y-axis for any variables selected in 8.1 will show up here.

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



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)

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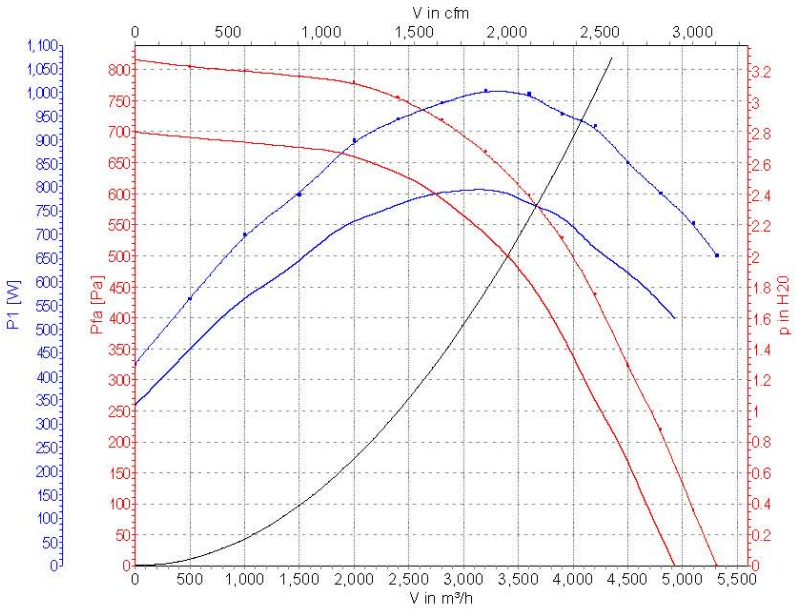
J. Data Sheet

EC Radial fan
backwards curved ~ without housing
R3G355AX5601

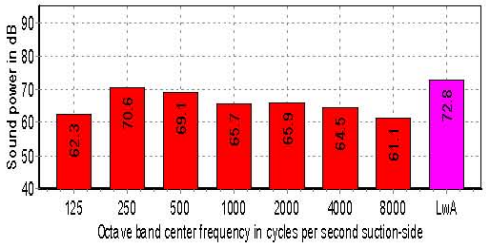
Technical data (nominal dates)

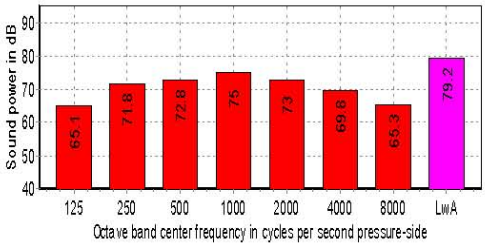
Voltage range 3~	[VAC]	: 380 - 480
Frequency	[Hz]	: 50/60
Fan speed	[1/min]	: 2140
Input power	[W]	: 1000
current draw	[A]	: 1.7
Mass	[kg]	: 9.1
max. ambient temp.	[°C]	: -25 - 50
Prodection class		: IP 54 (gemäß EN 60529)
Approvals		: VDE, UL, CSA, CCC, GOST sind vorgesehen
Mounting position		: Welle 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
currend [A]	1.36
sound power ss [dBA]	72.8
sound power ps [dBA]	79.2
motor torque [Ncm]	330.14





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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 thought 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