How the performance curves work

Selecting from these graphs provides a guide only to possible selections. Basic noise level data as well as indicative power absorbed figures are incorporated on the graphs. The Fans by Fantech Product Selection Program will show other possible impeller combinations between the two illustrated here for each fan size/speed. The Selection Program will provide full performance information including air flow, pressure, noise levels, absorbed power as well as complete dimensional information.

The example shown here is for a 630mm axial flow fan (AP Series) running at 24 rev/sec in Type D installation (fully ducted). It illustrates a duty of 2.5 m³/s at 150Pa static pressure.

1 **Diameter of fan: 63cm** (630mm)

2 **Fan speed: 4 poles** (24 rev/sec)

3 **Number of blades: 5**

4 **Hub diameter: 150mm**

5 **Air volume flow: 2.5m³/s**

6 **Static pressure: 150 Pa**
no correction is required as the curve is plotted for Type D installation.

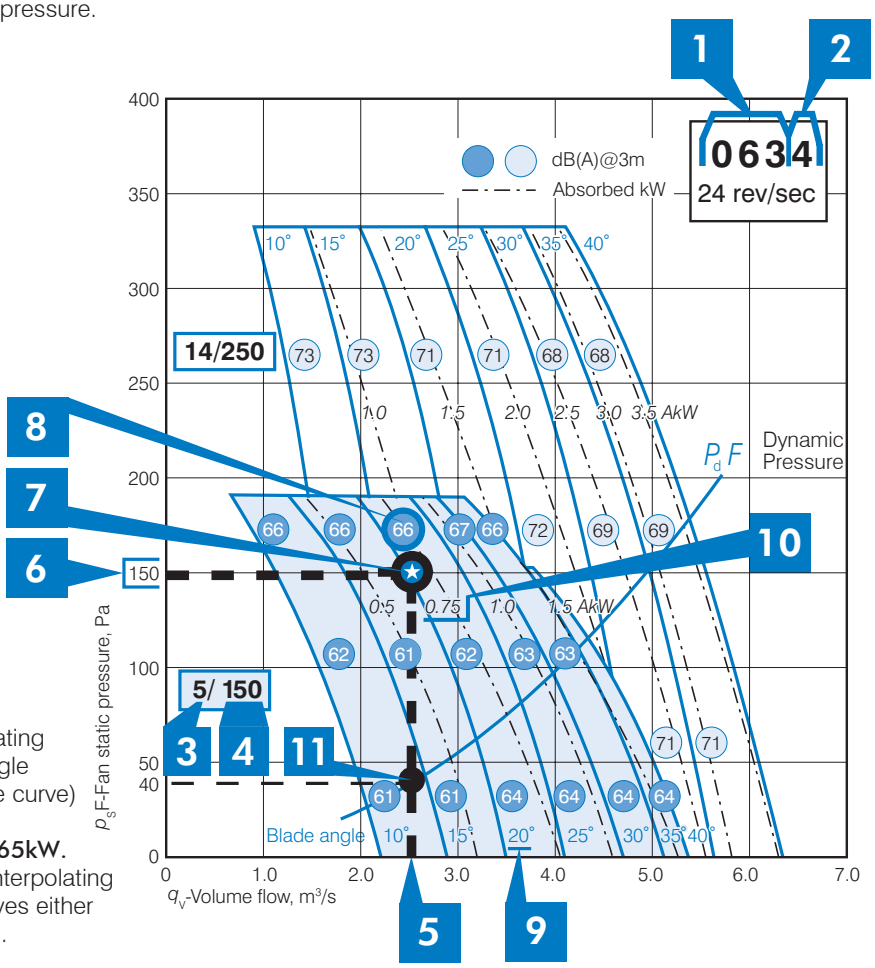
7 **Duty point:**
The point where the air volume flow line intersects with the static pressure line.

8 **Estimated sound: 66dB(A)**
Estimated sound is the value (in the circle) which is the closest to the duty point.

9 **Blade angle setting: 20°**
The blade angle is determined by interpolating a curve between the two defined blade angle curves either side of duty point. (Solid blue curve)

10 **Fan impeller absorbed power: P_R = 0.65kW.**
The fan impeller power is determined by interpolating a curve between the two defined AkW curves either side of the duty point (broken black curve).

11 **Dynamic pressure: 39Pa**
Dynamic pressure is the Y-axis value where the dynamic pressure curve intersects the vertical line between air flow and duty point.



The **Fan Total efficiency** can be calculated by using the formula:
where:

q_v = volume flow, m³/s

p_tF = fan total pressure, Pa

= $p_sF + p_dF$

P_R = fan impeller power, kW

$$\frac{q_v \times p_tF}{10P_R} = \frac{2.5 \times (150+39)}{10 \times 0.65} = 73\%$$

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