

# MAGNETIC LEVITATION COOLING FANS: TAKING TOMORROW OUT FOR A SPIN

Hoverboards aren't here yet, but Magnetic Levitation is the next best thing ready for your new rig

**T**HE LOWLY COOLING FAN doesn't get half the credit it deserves. There's one on almost every serious piece of hardware, and that's a good thing. Without them, your pricey CPU, laptop, or graphics card would overheat and become a paperweight in a few short minutes.

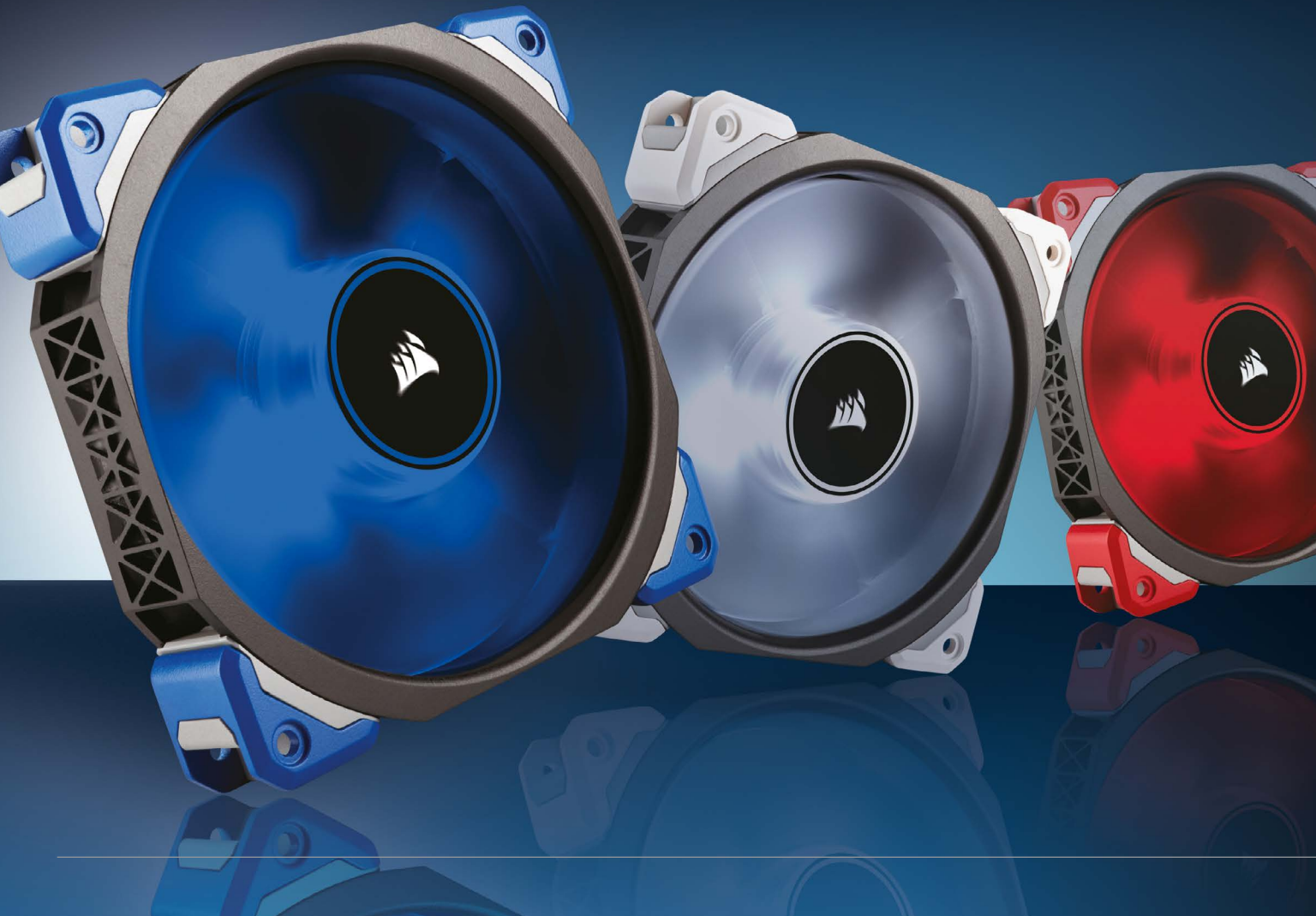
The hotter the hardware, the harder it is keep cool and quiet: competing goals that aren't easy to satisfy simultaneously.

Turn up the RPM and temperatures drop fast, but get ready for a racket; beyond 1200 RPM the noise from conventional fans goes from noticeable to noisome.

While most fans are judged by how much air they can move, measured in CFM (cubic feet per minute), there's another factor to consider. Cooling units frequently require fan installation against a radiator, heat sink, or dust screen. These obstructions slow air flow and require special fans

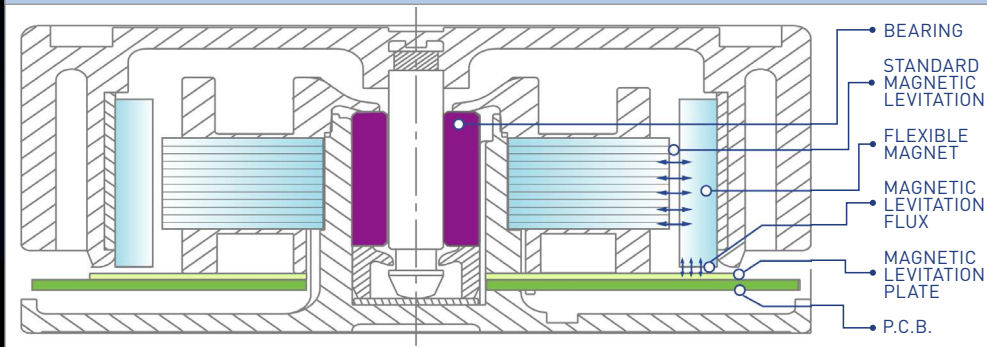
with a high static pressure to overcome the resistance they introduce.

This means not all fans are created equal. Some are made for high-volume airflow into a case through low-pressure side panel grills, while others are made to push air through dense filters and metal vanes. Moreover, excellence in one area limits performance in others, so it pays to know your fans.



## MAGNETIC LEVITATION DIAGRAM

By replacing conventional, friction-inducing fan hub components with a design that uses magnetic plates, Magnetic Levitation hubs promise next generation jumps in the speed and efficiency of cooling fan design.



### MAGNETIC LEVITATION TOMORROW'S APPROACH

**KEEPING IT QUIET** while also staying chill is a tall order, and requires going beyond any off-the-shelf solutions available today. Corsair's new 120mm and 140mm ML lineup tackles these long-standing challenges with a series of fresh rotor designs that improve pressure and air flow, but the big innovation is in the hub, which holds a surprise that ditches current mechanical paradigms and takes a page from futuristic aerospace R&D.

All current consumer cooling fan technology is based on a handful of straightforward mechanical bearing designs. No matter how smooth or well made, traditional bearings are wear items that eventually fail. Moreover, each solution has plenty of quirks.

Ball bearing fans get noisy long before it's time to replace them, making their longer lifespans a double edged sword. The sleeved bearing designs used by most of the industry have a shorter duty cycle than pure bearing solutions and prefer vertical orientations, limiting where they can be used. That's the price of moving parts and friction, especially over time.

Instead of a purely mechanical solution, Corsair employs Magnetic Levitation technology in the hub of its new ML series fans, sidestepping friction and wear problems by partially suspending the rotor within a magnetic field. Because of reduced contact with other fan components, the newly designed, high-efficiency blades are free to move more quickly, quietly, and without the drag of mechanical driveline components draining power and shortening operating lifespan with every rotation.

That reduced friction also pays off with increased rotor speeds and lower decibel readings. For example, while most conventional designs top out loud and proud under 2000 RPM, ML120 series fans spin a full 20% faster, up to a heady 2400 RPM,

and with subdued sound levels older designs can't touch. ML fans also wind down to 400 RPM for a quiet mode that lives up to its name, providing a vast RPM range to play with during test and tune sessions.

The result? Enough silence, fan speed, and static pressure on tap to keep up with virtually any application.

### LOOKING GOOD MEANS MORE THAN MOVES

**A PROPERLY SORTED RIG** is about more than speed these days: fashion is also a factor. Cooling fans with plain blades and a box of screws won't cut it when you're pushing a build beyond brown-bag basics.

For a slick but subdued look, products like the ML Pro series come with a range of four colors for corner caps, matching most components and cases right out of the box

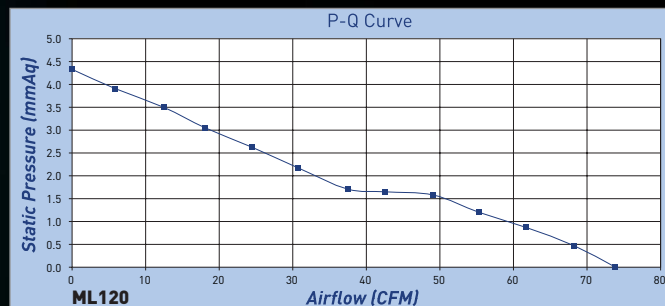
without going gaudy. Even if stealthy sleeper systems are more your style you're still good to go since black is included. Beyond good looks, the caps' soft rubber design dampens vibrations before they touch the chassis, stopping secondary sound problems before they start.

For more flash, the ML Pro LED series adds a quad-LED arrangement that diffuses hub-mounted light throughout the impeller with a layout bright enough to show

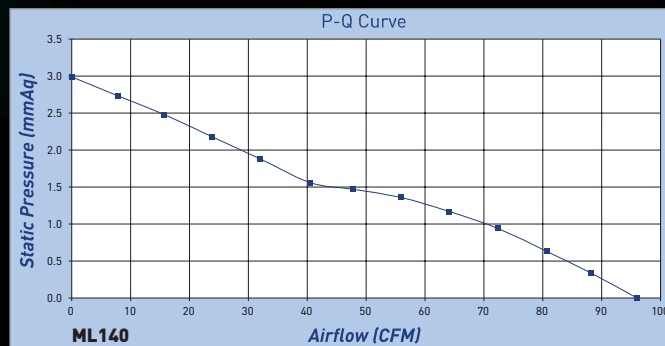
through thick metal grills, braided cables, or dark Lucite panels.

When it's time to upgrade the fans on that CLC system or huge heat sink, remember that high static pressure fan kits provide the push needed for cooling thick radiators while retaining the options found in high airflow varieties. For Corsair, this means including Magnetic Levitation hubs, interchangeable corner color caps, and even a high static air pressure led-illuminated version.

Availability in both 120mm and 140mm sizes for all models provides a solution for every case and cooling scenario. Big or small, slick or subtle; no matter what build project you've got planned, the new wave of Magnetic Levitation fans, such as Corsair's ML series, have you covered. Find out more at [corsair.com/MLSeries](http://corsair.com/MLSeries).



While popular, 120MM fans work hard to push air and make more noise than their bigger brothers. It takes a smooth design to produce high pressure, high RPM and quiet performance.



An extra 20MM may not seem like much but the numbers don't lie. With lower speeds and therefore less noise, the big blades push air much more easily. If your case has the space, go big when it comes to fan size.