

SPX



> Marley

HP7000 Cooling Tower Fan

Take a closer look.

The differences are obvious.



Efficiency takes shape.

At first glance, you immediately notice that something is definitely different about the Marley HP7000 fan. It has a bold new look, different from other cooling tower fans you've seen. More importantly, it's a look you'll be seeing more of soon. That's because the performance of this fan design is so good, every Marley industrial cooling tower features the HP7000 fan as standard equipment. In addition, the superior performance of this fan is also available to renew and upgrade the performance of fans currently in operation. What is it about this fan that has caused such a stir?

It looks even better in operation.

- Unique flared tip design
- Optimized airfoil
- Drag loss reduced

The unique flared tip design of the HP7000 blade creates a performance advantage. The airfoil is optimized to move more air with less effort than fans equipped with straight blade tips. The flared tip aids air movement next to the fan cylinder wall. The result is one of the most efficient cooling tower fans available—the HP7000.



More efficient airfoil to use less energy.

- 8% power reduction
- Low noise operation
- Cost savings for the life of your tower

The HP7000 fan can save you money from the first rotation. The twisted, tapered airfoil and the wide-blade design is also well suited for low noise operation, delivering superior air flow and pressure capability at reduced speed. More importantly, in controlled test environments, an HP7000 achieved an 8% power reduction over the competition at the same CFM and pressure rise. Given an operating environment of 200 hp at 5 cents per kilowatt hour, that alone would provide up to \$5,000 per year in energy savings per fan unit!



A strong improvement over other blades.

- Single piece composite molding
- Strong, lightweight, easy to handle
- 8½" diameter shank extends into airfoil

As with all Marley components, the HP7000 is manufactured using the finest materials and construction techniques. Unlike some blades that are manufactured by welding, bonding or riveting the shank to the airfoil, each HP7000 fan blade is a single-piece composite molding to ensure long-life and structural integrity. It's constructed of fiberglass reinforced vinyl ester, in one continuous piece, for unobstructed distribution of load from shank to tip. The 8½" diameter shank extends into the air foil for superior stability and durability. This shank is so strong that it has withstood a crushing force test of 75 tons. And, HP7000 blades are interchangeable without the need to rebalance the fan assembly.

Durable vinyl ester and fiberglass composite

Large section properties reduce deflection, help reduce noise

Single-piece construction helps reduce blade stress by more than 30%

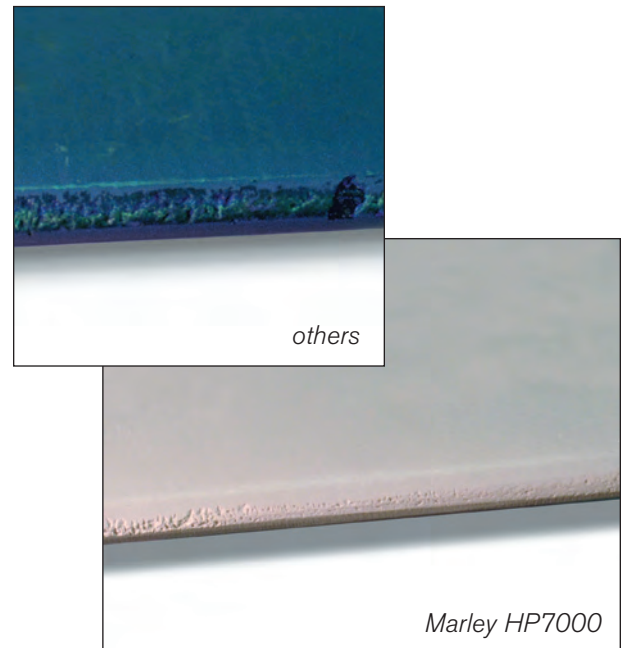
8½" diameter shank for lower operating stress



The toughest skin in the business.

- 75% better erosion rate
- Fiberglass reinforced vinyl ester laminate construction
- Molded-in nylon barrier strip

The HP7000 can stand up to harsh cooling tower environments. The skin of the HP7000 is made with top-quality fiberglass reinforced vinyl ester that is infused with pigment for even distribution across the laminate. There are multiple layers of surface veil on the blade surface leading to superior UV protection compared to fans with only a painted exterior. The HP7000 also features a nylon barrier strip molded into the leading edge for additional long-term erosion protection against the corrosive and abrasive effects of cooling tower environments.



Full scale close-up views of other manufacturer and Marley HP7000 fan blade samples after 300 hours in the same erosion test chamber.

The focus of attention.

- Dual-plate fan hub
- Superior durability and corrosion resistance

At the center of the HP7000 is the time-tested, heavy-duty, dual-plate fan hub. Hot-dipped galvanized structural steel plates and epoxy coated cast iron blade clamps provide superior durability and corrosion resistance. For particularly corrosive conditions, we coat the complete hub with “triple epoxy” paint. For the most severe environments, we offer stainless steel plates that provide exceptional resistance to rust and corrosion.



The HP7000 seal disc design helps enhance aerodynamic efficiency

It's a Marley fan. It works.

SPX Cooling Technologies is a world leader in "Total Systems" cooling tower performance. Every component is tested in the most demanding situations at the SPX Cooling Technologies Research and Development Center to ensure that it performs up to expectations. Then we evaluate the complete tower system to maximize total cooling tower performance. With every Marley fan assembly, whether for new or replacement projects, you will get exactly the type of performance you expect.

We know cooling towers.

Whether it's for power generation, industrial, refrigeration or HVAC, SPX Cooling Technologies is uniquely qualified to solve your price, quality, value, support and compliance issues. SPX Cooling Technologies offers innovative design and engineering, construction, thermal enhancement, repair and reconstruction services.



Turn up efficiency. Now.

If you're ready to save energy and improve the efficiency of your cooling system at the same time, call SPX Cooling Technologies. We have a full line of HP7000 fans readily available in sizes from 14 feet to 10-meters in diameter. Our Just-In-Time manufacturing process ensures you minimum lead time for delivery, as well as the high standard of quality the world has come to expect from all Marley mechanical equipment.

Whether you need a new installation or need to upgrade your current structure, it's the right environment for Marley. Trust us to have the industrial cooling tower fans you need to meet the most demanding specs, anywhere in the world.

Specifications

Fan Designation

- HP7000 fans are available in diameters from 168 inches to 10 Meters and may be purchased having 5 through 14 blades per fan. Identify the fan with its correct description. For example, a fan of 336 inches diameter with 8 blades would be called: **HP7336-8**. Or, for a fan with ten blades, use the suffix -10 instead of -8. The digits after the "7" designate the fan diameter.

Suggested Specifications

Fan Blades:

- Fan blades shall be constructed with vinyl ester resin and directional fiberglass cloth, be twisted and tapered from shank to tip to provide maximum efficiency and hollow for light weight.
- Fan blade shall incorporate pigment resin and multiple surface veil layers for maximum UV protection.
- Fan blade shall have a molded in $\frac{1}{8}$ " thick nylon barrier strip along the outer portion of the blade for leading edge erosion prevention.
- Molded blades shall be of one-piece construction with no glued or mechanical connections joining portions of the blade.
- A metallic end cap covering the shank opening shall be installed on each blade for an identification nameplate and to provide a method to prevent debris entering the hollow interior.
- Blades shall be of equal moment weight for direct interchangeability.
- Each blade shall have a molded safety shoulder at the end of the shank for retention.
- Each blade shall have factory installed drain holes at the tip to prevent water accumulation during operation.

Fan Hub:

- The fan hub shall be made of fabricated ASTM A-36 steel plates and iron castings. The steel plates shall be hot dip galvanized after fabrication. If additional epoxy coating is required, it shall be applied over the galvanized surface.
- Cast iron blade clamps and center hub shall be coated with two coats of epoxy paint. Blade clamps shall be manufactured to be equal in weight for balance and easy replacement. Hub plates and center hub shall be statically balanced as an assembly.
- Fan hub bolts and self-locking nuts shall be 300 series stainless steel. Hardware of 316 stainless steel or Monel shall be provided when specified.

Fan Performance:

- Fan blades shall be capable of manual pitch adjustment.
- Fan performance curves shall be provided which correlate fan horsepower, static pressure, and blade pitch across the full range of fan capability. Stall line shall be clearly identified.
- Fan performance shall be based on tests of the full scale or modeled fan at actual installed conditions, not on idealized laboratory tests with invalidated correction factors.



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