

## Dyson Fills a Vacuum

James Dyson studied industrial design at England's Royal Academy of Art and ended up selling vacuum cleaners. But Dyson didn't leave design in the dust. He used it to draw attention to the superior features of his Dual Cyclone vacuum cleaner and create a look so futuristic and fun that home-makers love to bring it out of the closet.

### Leading by Design

*For the better part of the 20th century, the vacuum cleaner industry had used the same principle for collecting dust introduced in 1901. Only the physical look was "repackaged." It took a designer to revolutionize the technology and insist that the function drive the design.*



**Y**ou're a designer so what makes you think you know anything about manufacturing?" "You're a designer so what makes you think you know anything about marketing?" "You're a designer so what makes you think you know anything about making money?"

As James Dyson recalls it, these were the three questions he kept hearing from venture capitalists when he sought funding for his radical Dual Cyclone™ vacuum cleaner concept. Struggling against the bad reputation designers get as businessmen, he also wrestled with the challenges facing any small entrepreneur. Against the odds, Dyson proved that designers could be as effective in bringing their products to market as they are in creating them.

Today Dyson's breakthrough "bagless" vacuum cleaner commands a 50% market share in the UK and has become the model for appliance innovation. Since its launch in 1993, Dyson Appliances Ltd., located in Malmesbury, England, has generated sales of more than \$2 billion worldwide and spawned legions of imitations from the same entrenched industry players

who earlier declined to license his fledgling invention. This September Dyson will begin marketing his vacuum cleaner in America, after buying back the rights from Fantom, a U.S. licensee that has been producing an early version of Dyson's technology for the past eight years.

Dyson's foray into developing vacuum cleaner technology happened by chance.

In 1978, while renovating his 300-year-old farmhouse, Dyson became frustrated with the poor performance of his conventional vacuum. "Whenever I went to use it, there was no suck in it. One day I thought I would find out what was wrong with the design," he relates. He noted that the appliance worked by drawing air through the bag to create suction, but when even a fine layer of dust got inside, it clogged its pores, stopping the airflow and suction. He tried other brands and found they all had the same problem. "Here was a product that people used every day and it had a real Achilles heel," he says.

In his usual style of seeking solutions from unexpected sources, Dyson thought of how a nearby sawmill

*The perennial desire for a better vacuum cleaner made for comic fodder on a 1952 "I Love Lucy" episode in which a door-to-door salesman entices Lucy to buy a new vacuum. Ricky tells her the old one was good enough—obviously he never tried vacuuming!*



used a cyclone—a 30-foot-high cone that spun dust out of the air by centrifugal force—to expel waste. He reasoned that a vacuum cleaner that could separate dust by cyclonic action and spin it out of the airstream would eliminate the need for both bag and filter. Dyson set out to replicate the cyclonic system.

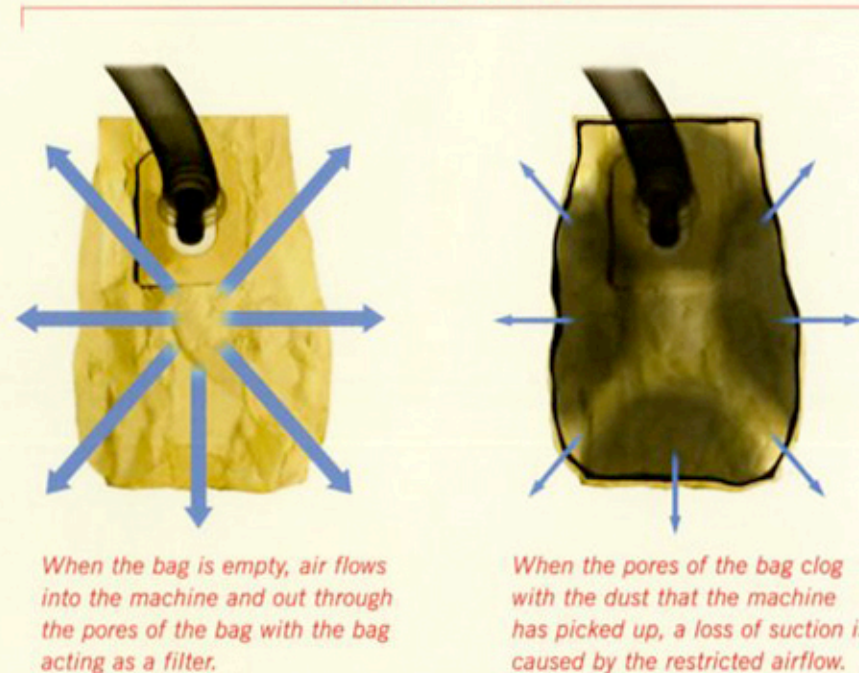
Five years and more than 5,000 prototypes later, he arrived at the Dual Cyclone machine—so-named because an outer cyclone, rotating at 200 mph, removes large debris and most dust, while an inner cyclone, rotating at 924 mph, creates an intense gravitational force to drive the finest dust, including particles of cigarette smoke, out of the air.

new technology,” concludes Dyson. “They’re quite comfortable producing the things they’ve produced for a number of years. That staggered me.”

Finally in 1985, a small company in Japan contacted him out of the blue after seeing a picture of his vacuum cleaner in a magazine. Mortgaged to the hilt and on the brink of bankruptcy, Dyson took the cheapest flight to Tokyo to negotiate a deal. The result was the G-Force vacuum cleaner, priced at \$2,000, which became the ultimate domestic appliance status symbol in Japan. “The Japanese love new technology and new design,” he observes. “It’s almost a fashion market for selling electrical goods.” Still, wanting broader distribution,

**O**utside-of-the-box thinking (or in this case, outside-of-the-bag) led James Dyson to come up with the world’s first bagless vacuum cleaner. His inspiration came from studying the 30-foot-high dust-filtration cyclone tower on a nearby sawmill and then applying the same principles on a much smaller scale.

Traditional Vacuum Bag



At first, Dyson sought funding to develop his product from the company that manufactured his successful “Ballbarrow,” (a lightweight wheelbarrow with a plastic ball for a wheel, which easily rode over ruts and broken ground without leaving marks on lawns). Even though he owned a third of the company, the board rejected his request, insisting that “if there really was a better type of vacuum cleaner then surely one of the big manufacturers would be making it.”

Over the next eight years, Dyson tried to license his Dual Cyclone concept to established vacuum manufacturers, only to be turned down. At least two of these initial contacts forced him to file patent infringement lawsuits, which he won in out-of-court and in-court settlements. “Big companies aren’t really interested in

in 1993 Dyson set up his own company in the UK to market the Dual Cyclone under his own name.

While Dyson would be the first to admit that each stage of his success was hard won, he insists that the process of producing his machines is inextricably linked to designing them. “Industry needs to give more power to designers because they know the things people want to buy and they know how to make them too,” he says, adding that designers are not used properly by manufacturers. “More often than not they are asked to repackage old technology to make it look new again. Design is not just about how something looks, but how it works. I don’t see a difference between a designer and an engineer and I don’t want to see a difference. A designer should be both.” At Dyson Appliances,

engineering and design are not viewed as separate disciplines; designers are as much involved in testing as engineers are in developing conceptual ideas.

Dyson adds, “Products can only begin to become beautiful when they work well. Then design can be different for its own sake. You can make it orange-and-red, or pink-and-lavender, or silver-and-grey.” In the early ’80s, Dyson made his first Dual Cyclone model red-and-yellow. The G-Force version was lavender-and-pink. Dyson loves the whimsy and impact of such color use. “At the time, 18-20 years ago, pink wasn’t used in domestic appliances. They were gray or brown and occasionally a primary color like red—very sober, safe

nature, counter culture. It goes against what people are currently choosing. It’s difficult to ask consumers what they think of a totally new concept because they don’t really know anything about it. They haven’t gotten used to it; they’re not familiar with it.” To Dyson, a see-through bin provided the benefit of knowing when the bin was full and seeing the cyclones in action. “You see what you’re doing; there’s a kind of delight in it.” The consumer agreed. The clear bin has become a signature of Dyson’s design.

Not one to accept the status quo, Dyson is continually trying to achieve cutting-edge improvements in household appliances that have changed little over the

Dyson's Dual Cyclone



colors. Pink was a great shock, a lot of fun,” he says. “Our color palette is influenced by how it looks as a plastic material. Some colors work as plastic, some don’t. It has to do with the way the light hits them and the kind of chrome you can get in plastic. We try to use colors that haven’t been used before and produce unusual combinations you wouldn’t expect.”

While Dyson opted to make the cyclonic system brightly colored, he insisted on keeping the dust bin itself clear, even though consumer focus groups and retailers responded in horror to the idea. Explaining why he ignored them, Dyson says, “You can use focus groups to find out what they think about what’s on the market at the moment but it really doesn’t help you make a revolution because a revolution is, by its

decades. In addition to a revolutionary new washing machine, his company is working on a robotic vacuum cleaner, equipped with sensory devices, that can navigate its way around a room, knowing which way to go, where it has cleaned and when it is finished.

“We’re not interested in just creating another designer product,” Dyson stresses. “We’re interested in doing something where we come up with breakthrough technology which makes a radical improvement in the product. It’s all about performance. We stick to things where there is fantastic improvement.” Dyson is confident that his robotic cleaner, currently in home trials, will eventually succeed. He predicts, “I think in 5-10 years time, we’ll consider it fairly unusual if we’re actually pushing a vacuum around the home.”



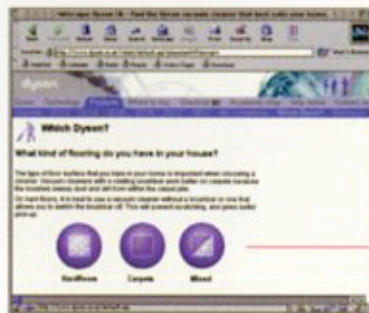


While designer/inventor/entrepreneur/provocateur James Dyson vigorously advocates designing from the “inside out,” he also likes to shake up existing thinking about appliance designs and color schemes. “Conventional looks don’t make a product more marketable. Just as the technology was different, the machine should look different because designing a new product is about surprising people, rather like a work of art.”

**Fun With Color**  
Dyson vacuums have disproved the notion that domestic appliances have to look bland to be taken seriously.



**Visible Technology**  
Instead of hiding the technology behind an opaque casing, Dyson left it exposed and used color to draw attention to it—creating the impression of fuel rockets on a spaceship launch pad.



**Website Support**  
The Dyson website uses icons to pose questions to help customers decide which model to buy.

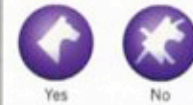
What kind of flooring do you have in your house?



Would you like the Zorb carpet cleaning facility?



Do you have pets?



Would you like a cylinder or an upright?



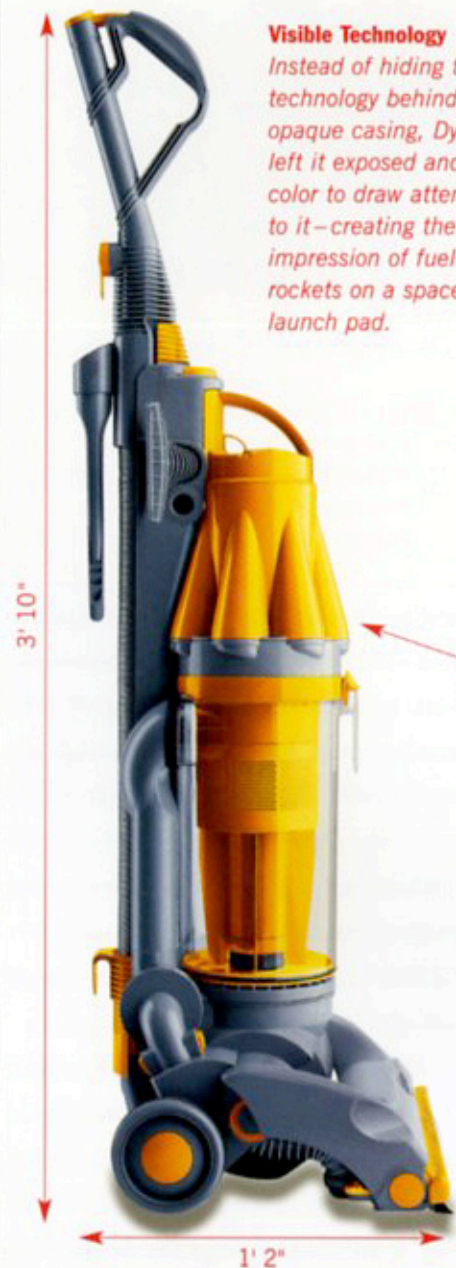
Would you like Dual or Root®Cyclone technology?



Would you like HEPA filtration?



**More Suction Power**  
The Dyson Root®Cyclone™ upright model goes a step beyond the original concept. Not only does it give constant suction, its multiple cyclones allow 45% more suction than the basic Dual Cyclone™ design. The diameter of each cyclone is scaled down by the square root of the number of cyclones—hence the name Root.



#### 10 Dyson Features

- 1 360° wand rotation
- 2 Suction release button
- 3 Tool holster
- 4 Lightweight
- 5 Retractable cord with pedal
- 6 Easy-access on/off pedal
- 7 Made from tough ABS and polycarbonate
- 8 Adjustable floor tool
- 9 Dual Cyclone technology
- 10 Clear bin

#### Robot Cleaner

Dyson continually seeks to go beyond the status quo. Home trials are under way for a new battery-operated robot vacuum, called the DC06, which will clean a room on its own.



**Accessories on Board**  
No need to return to the broom closet to retrieve cleaning attachments. Parts snap onto the hose so they are readily available when the user wants them.

“We wanted it to look like a piece of NASA technology. Its superior performance has to be visible. It has to look the business.”

#### Clear Bin

Although focus groups advised against a clear bin, Dyson believed that users enjoyed the satisfaction of seeing how much dirt the machine picked up.



#### No Empty Styling

Dyson frowns on what he calls “empty styling” and encourages designers to think in terms of improving functionality. Color is more than a design device, it serves to call out important features of the product.

#### Stair Friendly

The Dyson cylinder vacuum was designed for people who prefer to pull rather than push. The overall shape of the vacuum makes for a low center of gravity that allows the appliance to be pulled easily and sit securely on stairs.