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the design process

Designing the Dyson Airblade™ hand dryer

The James Dyson Foundation
James Dyson

"Design and technology is about thinking big. It's about creating and making your ideas become a reality. And while it doesn't always go to plan, it's about learning from your mistakes."

James Dyson

1

first things first

New ideas come from old frustrations. Dyson engineers are always thinking about how things can be made better. The hand dryer is a classic example.

2

put pen to paper

The engineers communicate their ideas by sketching. At this stage they're just thinking about the new idea, and don't have a fully formed vision of how the product will look or work.

3

a bit of detective work

Research goes on throughout the early stages of the design process. Engineers find that existing hand dryers are too slow, unhygienic and inefficient. Dyson microbiologists spend 64 hours taking samples for bacteria and fungi in public toilets.

4

measuring stick

What's needed now is a design specification, a measuring stick for the design. Factors considered are durability, hygiene, speed, size, maintenance, and environmental standards. The whole team works towards these criteria.

5

the fun's in the model

A model can tell you so much more than any 3D drawing. Cardboard modelling is a cheap and easy way to show how something will look and work. The engineers can now experiment with new ways of solving the enduring problems of damp and dirty hands.

6

trial and error

Developments are slow but steady. An iterative approach to design is used, which means making one small change at a time. It's the only way you can know whether a modification has brought about an improvement or not. Which means...

7

1,000s of prototypes

As well as cardboard models, as the design is refined the engineers use a prototyping process called Selective Laser Sintering (SLS). Engineers' CAD drawings are sent to a kind of 3D printer that fuses nylon powder layer by layer into a fully working part.

8

testing, testing, 1, 2, 3

The Airblade™ hand dryer prototypes are tested against the specification for hygiene, efficiency, speed and noise levels. Fresh chickens are used to contaminate volunteers' hands prior to washing, drying, then microbiological skin testing.

9

and finally

The design goes into production. A process called die-casting is used to heat up aluminium to a very high temperature which is then injected into a mould to form the casing of the Airblade™ hand dryer. The parts are then assembled in a factory to make up a product that has taken three years, millions of pounds of investment and many people to develop.

How it works

Air is sucked into the Dyson Airblade™ through a filter to remove 99.9% of bacteria.

The air rushes at 400mph through a slot the width of an eyelash to wipe water from hands.

The waste water is disinfected by an iodine resin filter and released as a harmless invisible mist.

The Airblade™ hand dryer uses Dyson's Digital Motor to make it energy efficient.

www.jamesdysonfoundation.com