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INSIDE

COVER STORY

Green Cleaning

page 53

Features

Metalworking Adds Flexibility

page 32

Switches and Switching Devices

page 38

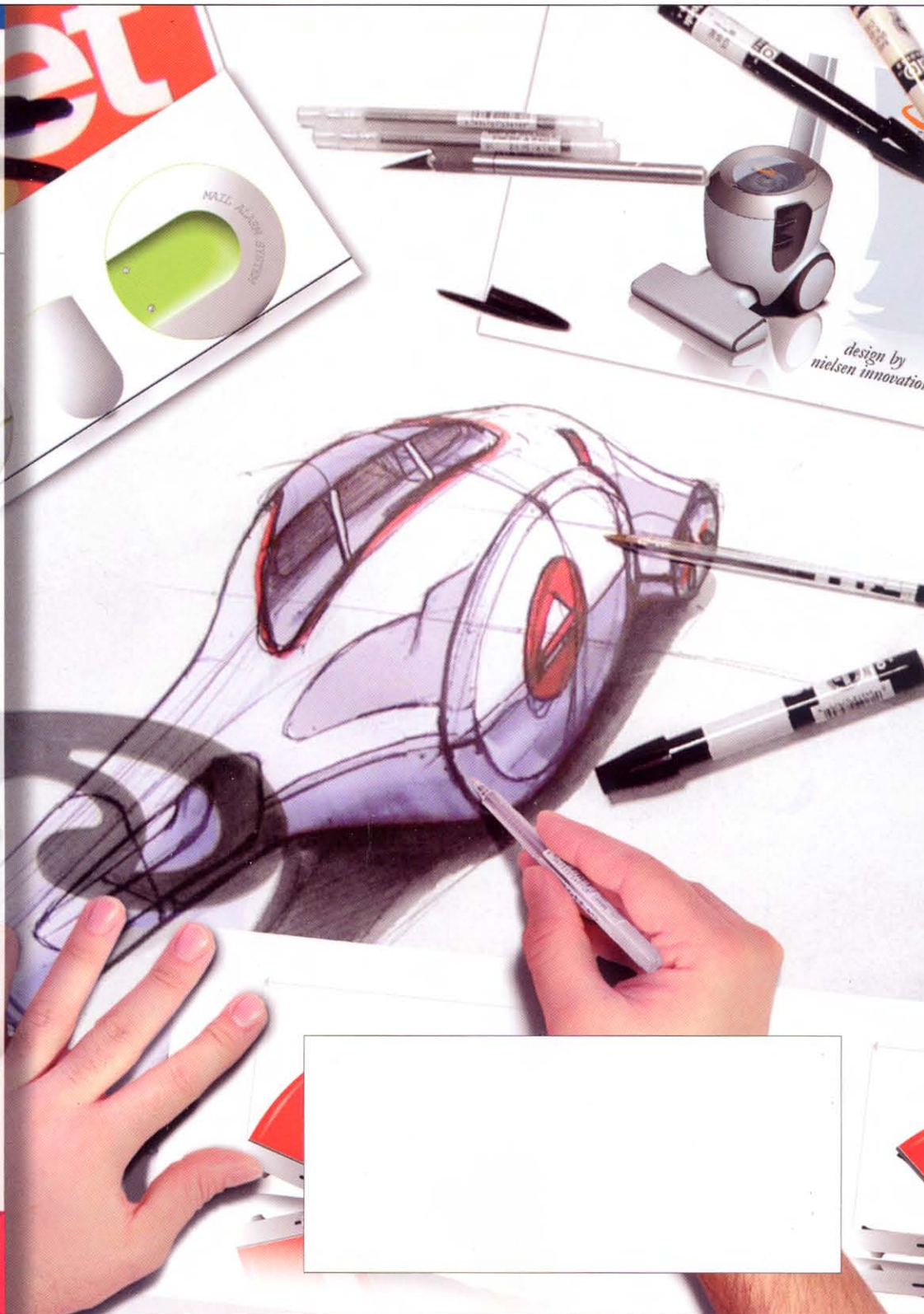
Appliance International: Portrait of the Japanese Appliance Industry

page 46

Supplier Solutions: Plastics Materials, Equipment & Parts

page 54

APPLIANCE
ENGINEER[®] page 23



Appliance®

Serving the Producers of Consumer, Commercial, Business, and Medical Appliances Worldwide

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Features



On the Cover

With an optimized suction system, Nielsen Innovation and the Tsann Kuen Group hope to bring powerful, energy-efficient vacuum cleaners to consumers around the world. The companies developed a line of vacuum cleaners said to achieve the same cleaning efficiency as a traditional 1,500-W canister with only a fraction of the energy consumed. Circle No. 317

32

Metalworking Ages Gracefully

by David Simpson

Metalworking equipment suppliers keep up with the times by offering more flexibility.

38

Switches and Switching Devices

38 Adapting Electromechanical Switches to Meet an Application

Sometimes off-the-shelf switch products require mechanical and/or electrical modification.

40 Touch Chips Yield Prize-Winning Appliances at Gorenje

The Pininfarina series' slick image is comprised in part by the use of touch controls.

41

Quick Vend

by Erin Biesen

Vending machines offer instant gratification to consumers with cashless payment options and the ability to vend a wider array of products.

46

Appliance International: Portrait of the Japanese Appliance Industry

54

Supplier Solutions: Plastics Materials, Equipment & Parts



Engineering/Design

23

APPLIANCE ENGINEER®: The Open Door: A Matter of Ethics

by Tim Brooks, APPLIANCE Engineering Advisory Board

24

APPLIANCE ENGINEER®: Choosing a Temperature Sensor

by Merle Tingelstad, global marketing manager for Flexible Circuits and the Medical Implant Industry, Minco

28

APPLIANCE ENGINEER®: Technology Report (28); Electronics Report (29); Motor Technology (30)



Design

53

Green Cleaning

by Steve Wichelecki

COVER STORY: Nielsen Innovation and the Tsann Kuen Group hope to bring powerful, energy-efficient vacuum cleaners to consumers around the world.

Cover Story

by Steve Wichelecki, Assistant Editor

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Green Cleaning

Tsann Kuen Group is making good use of Nielsen Innovation's understanding of European culture, as well as the design firm's engineering advances, to help it develop highly efficient vacuum cleaners for global markets.

▶ After more than 5 years of development, France-based Nielsen Innovation, a product development company, was ready to bring its Wi-Flow® vacuum cleaner technology to the consumer appliance market. Wi-Flow technology is an optimized suction system for vacuum cleaners, employing solutions that favor high airflow instead of high vacuum to produce the same cleaning power as a traditional 1,500-W canister vacuum cleaner with only a fraction of the energy consumed—100 W for cordless models, and 150 W for corded.

In the development of the Wi-Flow technology, Nielsen Innovation challenged the very concept of how a vacuum cleaner should function; every aspect, from the nozzle and air ducts, to the filter and motor, was overhauled to reduce pressure drop and increase airflow. Henrik Nielsen, founder of Nielsen Innovation, tells APPLIANCE, "What I often find in mature industries is that people forget to ask themselves why a system actually works, thus preventing them from challenging the basic technology. It is more difficult to imagine that something could be done differently in the beginning than finding the right technical solution for improvement."

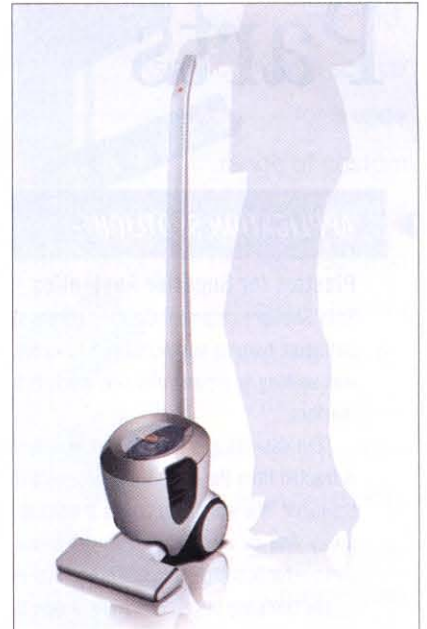
Wi-Flow technology was subjected to independent design tests by SLG in Germany according to IEC60312, *Vacuum cleaners for household use—Methods of measuring the performance*. The tests confirmed that a 100-W Wi-Flow vacuum cleaner achieves the same pickup performance as a 1,500-W corded canister vacuum on most carpet types, with results surpassing those of the traditional canister when tested against pet hairs, fibers and threads. With Wi-Flow technology conserving approximately 90 percent of the electricity

used to run typical vacuum cleaners, the company estimates that this could hypothetically save more than 5 billion kWh for Europe alone.

A former colleague put Nielsen in contact with the Tsann Kuen Group (Tainan, Taiwan), a mainly private-label manufacturer and developer of small consumer appliances. The former colleague had worked with Nielsen when he had held a position at France-based Moulinex/Krups, one of Tsann Kuen's customers. That contact helped start a relationship between Nielsen and Tsann Kuen, and the appliance maker eventually agreed to buy the license agreement for the vacuum cleaner technology.

The partnership required an intimate level of cooperation, with Nielsen Innovation supplying the technology as well as aesthetic and critical parts design, while Tsann Kuen's engineers handled development, prototyping and manufacturing of the plastic parts. First, Tsann Kuen asked Nielsen Innovation to design a prototype that employed Wi-Flow technology. After the success of this vacuum, dubbed the Libero®, Tsann Kuen had Nielsen Innovation design a line of prototype vacuums that would allow it to demonstrate the technology to appliance OEMs around the world.

Kota Chang, vice president, Tsann Kuen Group, says the greatest development challenge was the transfer of technology. Since Wi-Flow is proprietary technology, much time and energy had to be put into educating the research and development engineers at Tsann Kuen. "The transfer of technology requires a lot of discussion and testing; everything must be communicated clearly between the designer, engineer and manufacturer," he tells APPLIANCE. A similar learning curve was required for the appli-



With the utilization of patented Wi-Flow technology, Nielsen Innovation and the Tsann Kuen Group developed a line of vacuum cleaners that achieve the same cleaning efficiency as a traditional 1,500-W canister with only a fraction of the energy consumed.

ance maker to integrate Nielsen Innovation design concepts, as well as for the integration of Wi-Flow technology into those design concepts.

Chang believes the benefits of the partnership go beyond the new vacuum technology. "A European design firm reflects European culture; they know better than we do in Asia the habits and culture of their market. This way, we can better appeal to our wide customer base."

At the moment, a Nielsen Innovation-designed line of Tsann Kuen vacuum cleaners with the new cleaning technology is being prepared for the manufacturing testing phase. Appliance OEMs from all over the world have been approached with the prototypes.

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