

OBSERVED

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When he encountered the first technical aid his son would need, a malfunctioning wheelchair that “looked like something from the Cold War,” Tom-Arne Solhaug realized that the equipment on the market was either woefully inadequate or nonexistent.



Blazing Saddles

A Norwegian firm's rigorously engineered mobility aids are designed to excite and empower disabled children.

You've seen the pictograms: the wheelchair has become the universal symbol of disability. But not for the founders of Krabat, a Norwegian industrial-design firm that makes high-end mobility aids for kids with cerebral palsy, Down syndrome, spina bifida, and other disorders. Since 2006, Krabat has fashioned devices that embody freedom, movement, and excitement. Even the product names have a hint of boyhood swagger: the Sheriff, the Jockey, the Pilot, the Pirate. Eschewing the overly technical, clinical appearance of ordinary health-care equipment, Krabat combines meticulous engineering, carefully thought-out function, and pared-down good looks.

Take its newest product, the lightweight titanium Pirate, a flotation device and swimming aid. Part lunar lander, part lily pad, the Pirate puts inflatable water wings to shame. It gives a child the opportunity to be independent in the water while also helping to strengthen neck and back muscles. And the Pirate accommodates secondary users—friends, caregivers, loved ones—with intuitive ease of use.

Engineers by training, Tom-Arne Solhaug and Fredrik

Brodtkorb run Krabat with two in-house physical and occupational therapists and an industrial designer. Solhaug and Brodtkorb launched the company a few years after Solhaug's son, Kasper, was born with cerebral palsy. When he encountered the first technical aid his son would need, a malfunctioning wheelchair that “looked like something from the Cold War,” Solhaug realized that the equipment on the market was either woefully inadequate or nonexistent. “I think all parents of handicapped children go through some kind of grief,” he says. “Doing practical things like designing a technical aid helps me a lot in the grief process and makes it easier to see possibilities rather than problems.”

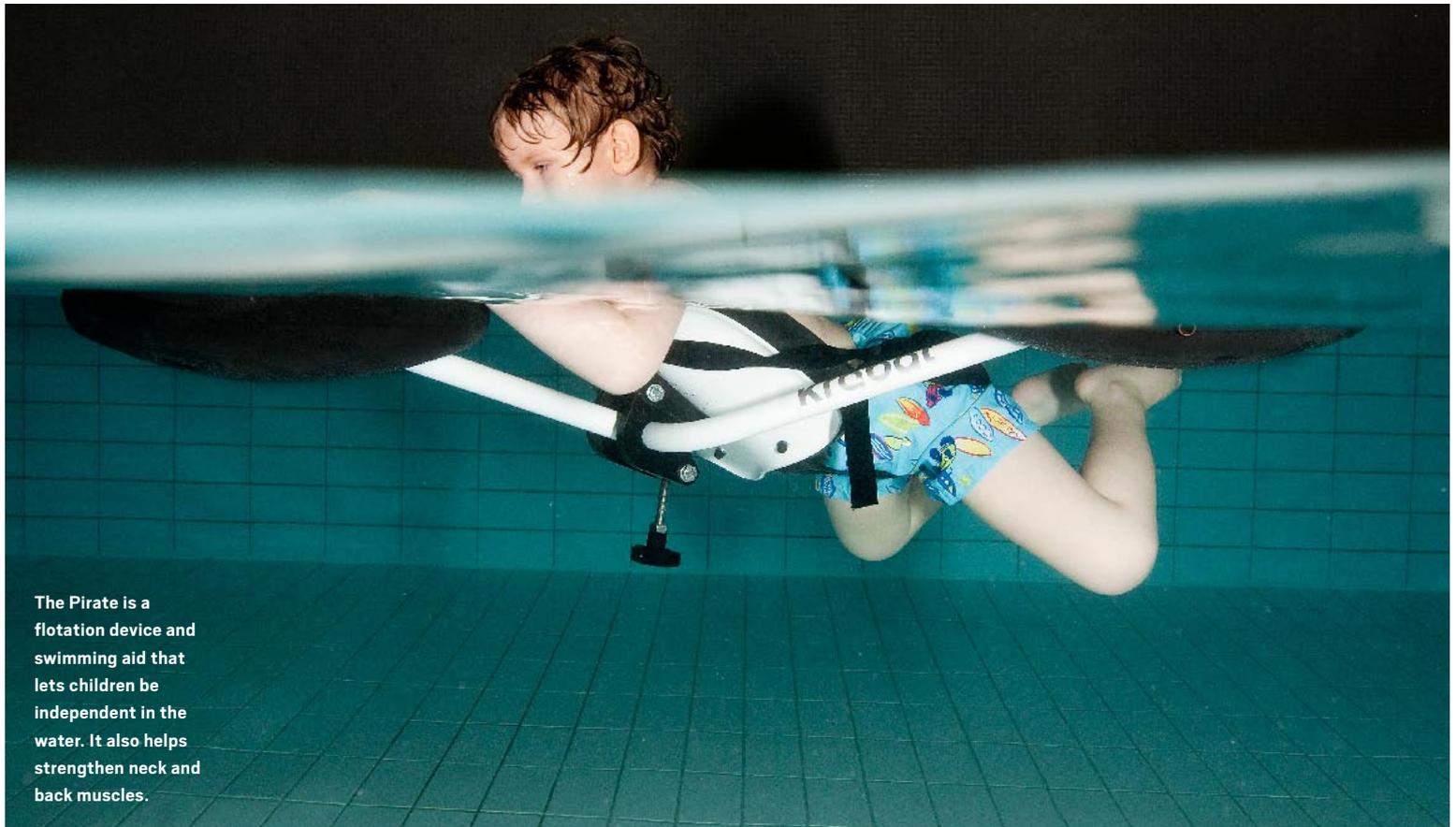
In four years, Krabat has released four products. The Red Dot award-winning Jockey active chair uses a saddlelike seating position that is better for children than the passive, slumped posture many wheelchairs foster. (The Jockey has already been added to the Museum of Modern Art's permanent collection, a rare distinction for a piece of health-care equipment.) The Sheriff, a more traditional-looking wheelchair, also employs a saddle seat, this one **continued on page 46**

The Sheriff wheelchair has a saddle seat (for better posture), a front hand brake, and thin racing-style wheels. At just under ten pounds, it is easy for children to operate and is suitable even for those with impaired arm function.

OBSERVED

BLAZING SADDLES continued from page 44

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The Pirate is a flotation device and swimming aid that lets children be independent in the water. It also helps strengthen neck and back muscles.



perched between a pair of thin, lightweight wheels that look like those found in racing wheelchairs. And the Pilot is a dynamic sling that allows children to draw their knees beneath them in preparation for crawling. It is height and weight adjustable and comes with friction knee pads, as a pair of in-line skates might.

The philosophy behind the products is simple: ugly technical devices cause embarrassment, while a pleasing, functional design increases usage, progress, and independence, helping children to take pride in being different. “The word *pride* is important to us,” Solhaug says. “The device has to stimulate the child like a toy. It might not sound like good business to design products which the child hopefully will not need after awhile, but we are not interested in making products for the storage of children.”

Of course, Krabat also does not face the same business pressures that many industrial-design firms do. The Norwegian health-care system, unlike its American counterpart, pays for the costly equipment and then lends it to those in need, sometimes permanently. (American consumers can purchase the Jockey only through Snug Seat: www.snugseat.com.) This enables Krabat to keep its focus squarely on innovation rather than cost cutting and “value engineering.” And innovation is particularly needed **continued on page 48**

OBSERVED

BLAZING SADDLES continued from page 46

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The pilot seat adjusts to four preset heights.



The Pilot lifts and supports the child's hips, creating a perfect position for crawling. Bottom left: The compact, foldable Jockey active chair offers children several seating positions and extensive freedom of movement.



Detachable saddle seat

Durable, machine-washable textiles

Integrated cup holder

Footrests can be individually adjusted.

by disabled children, who vary widely in behavior, size, and shape—backs that curve differently, atypically formed limbs, ranges of postures. This presents a myriad of mechanical-engineering challenges requiring parts be designed for form, fit, and function and to national and international standards, and necessitating extensive testing with real families in real environments like a kindergarten or a home.

Perhaps most important, however, the final product should be fun. Kids are loath to stand out from their peers, so it's crucial that a child's first wheelchair signals pleasure, freedom, and new possibilities. This is important for parents too. "Parents hate to admit that their child needs a technical aid," Solhaug says. "They hate to see their child in a wheelchair for the first time and try to postpone this as long as possible." Solhaug wants parents to experience an alternate scenario. His son, Kasper, just turned eight, and he loves his Pirate so much that when other children ask to borrow it (and they do), he tells them no. "When I hear him say this from the poolside, and see his joy, his ability to move around independently in the pool, and the pride he shows," Solhaug says, "it fills me with pride, joy, and a deep satisfaction." ■