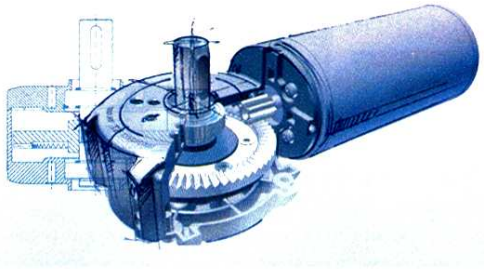
The worm **has turned**

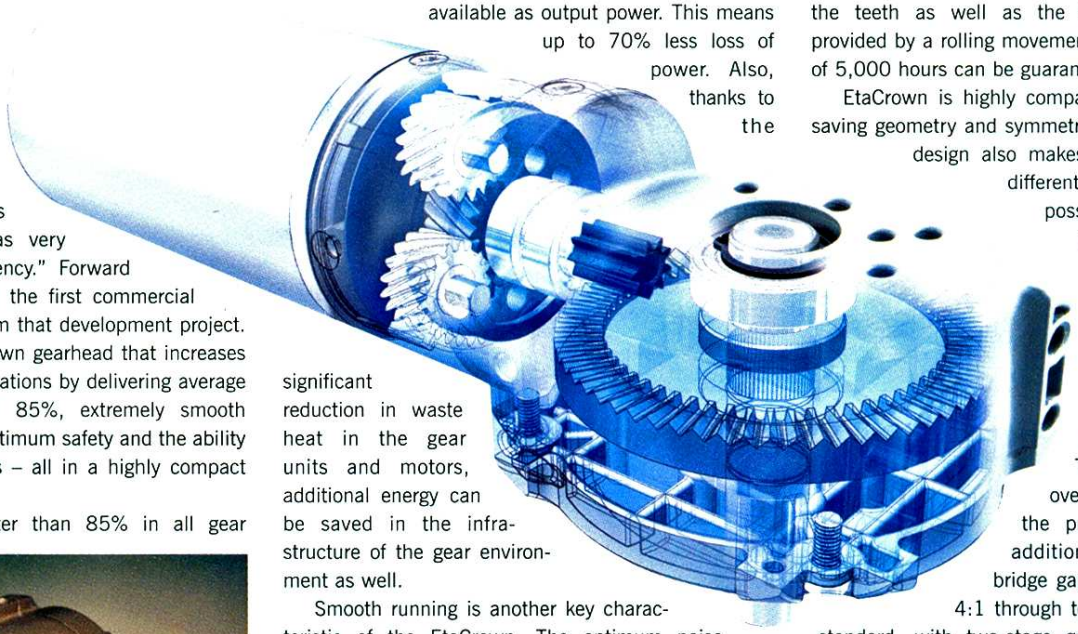
The crown gear might not immediately spring to mind as a solution for precision motion applications. But Zeitlauf says its ten year development program has revolutionised traditional crown gearheads and broken down technological barriers

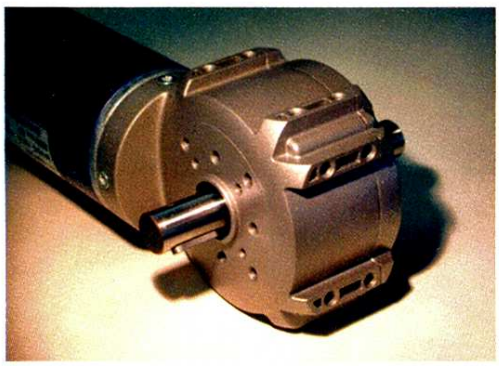


When Zeitlauf decided to revisit the concept of the crown gear, it had a clear vision of what it wanted to achieve: a significant increase in energy efficiency, flexibility and economy in production and applications, and to compress more power and dynamics in a compact design. Reportedly, two prominent doctors said that it couldn't be done.

"Zeitlauf didn't want to go down the worm gear route," says UK managing director Chris Robinson. "The focus was very much on maximum efficiency." Forward wind ten years, then, and the first commercial products have emerged from that development project. The EtaCrown is a new crown gearhead that increases the range of possible applications by delivering average efficiency of greater than 85%, extremely smooth running, quiet operation, optimum safety and the ability to handle high radial loads – all in a highly compact package.

The efficiency is greater than 85% in all gear reduction ranges. The toothed wheels of a crown gearhead roll off one another and do not slide, as is the case with a worm gear, for example. The energy loss from rolling friction is significantly lower than with sliding friction, which is why with the crown gearhead a significantly greater share of the power supplied is available as output power. This means up to 70% less loss of power. Also, thanks to the significant reduction in waste heat in the gear units and motors, additional energy can be saved in the infrastructure of the gear environment as well.





Smooth running is another key characteristic of the EtaCrown. The optimum noise reduction is ensured by the optimised bearing design and an intelligent selection of tooth materials. The design also delivers optimum safety, since gears with crown gear technology are not self-locking and thus enable the drive to be turned back without any damage. This is an important safety aspect in a wide range of applications.

The double-sided ball bearing of the drive shaft makes maximum radial loads possible independently of drive speed and service lifetime. Thanks to the high efficiency, optimised tooth gripping, the use of steel for the teeth as well as the technological advantage provided by a rolling movement, a standard service life of 5,000 hours can be guaranteed.

EtaCrown is highly compact thanks to the space-saving geometry and symmetrical design. The modular design also makes it highly flexible, with different shaft options and five possible screw attachment positions for attaching the likes of brakes and sensors. In addition, the design of the gear housing makes the integration of the EtaCrown in an overall system much easier. There is no motor overhanging, which avoids the problems of recesses or additional spacer flanges to bridge gaps. Gear reductions from 4:1 through to 113:1 are available as standard, with two-stage gear reductions of up to 170:1 available for customer-specific solutions. Further, if you need a system in a hurry, EtaCrown gears are configured from a standard modular system on demand, ready for despatch to you within 48 hours.

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