

Angular gearheads reinvented

Crown gearhead technology: economical and efficient

For many applications, it is necessary to transmit the force “around the corner”. Bevel and worm gears have been developed for this purpose, but they can reach their limits on account of the principles involved. In some cases, limited gear reductions, axle misalignment and lower efficiency levels must be accepted, meaning that the components have to be designed to be larger. Modern crown gearheads from ebm-papst provide a remedy for this.

Although the efficiency of standard angular gearheads is quite high, they are expensive to manufacture, which is also reflected in the price. A particularly economical and efficient angular gearhead can be realized with crown gearhead technology. In areas such as decentralized drive technology, this energy-efficient transmission has now come into renewed focus. The right combination of efficient motors, transmissions, and control systems enables high energy savings even in the power range below 250 W.

High efficiency with large gear reduction

Transmission specialist Zeitlauf, which is now part of ebm-papst, has redefined traditional crown gearhead technology with the EtaCrown series. State-of-the-art crown gearheads of various sizes cover the reductions in the single-stage range up to 10:1, two-stage to 113:1 and three-stage to 289:1. In the single-stage range, they achieve efficiency levels of more than 90% and can be manufactured more economically than bevel gears.

Hardly any friction loss

Due to the cylindrical design of the involute drive pinion and the rolling contact between the pinion and the crown gear, there is hardly any friction loss. This means that efficiency is in the range of 90% even for high gear reductions. In addition, the drive motor can often be designed smaller, saving installation space and costs. As the motor with drive pinion and the output axle are in one plane on the EtaCrown, the transmission can also be installed mirror-inverted without any problems, which reduces storage and simplifies logistics.

Advantages in application

In decentralized drive technology, crown gearhead technology can impress with its flexibility and efficiency. In addition to the high efficiency levels, typical reasons for their use are the high transmittable torque and the lack of self-locking. In the case of barriers, access control systems and door profiles, the technology is also compelling due to the offset-free design of the motor-transmission combination. In medical technology, crown gearheads excel in terms of their high reliability, smooth operation, and low heating. Other applications for the versatile angular gearboxes include pallet trucks and driverless transport systems.

Katrin Lindner
Trade press coordinator
Phone: +49 7938 81-7006
Fax: +49 7938 81-97006
Katrin.Lindner@de.ebmpapst.com

Corinna Schittenhelm
Trade press coordinator
Phone: +49 7938 81-8125
Fax: +49 7938 81-98125
Corinna.Schittenhelm@de.ebmpapst.com

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Press office contact
ebm-papst Group

Phone +49 7938 81-7105
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www.ebmpapst.com

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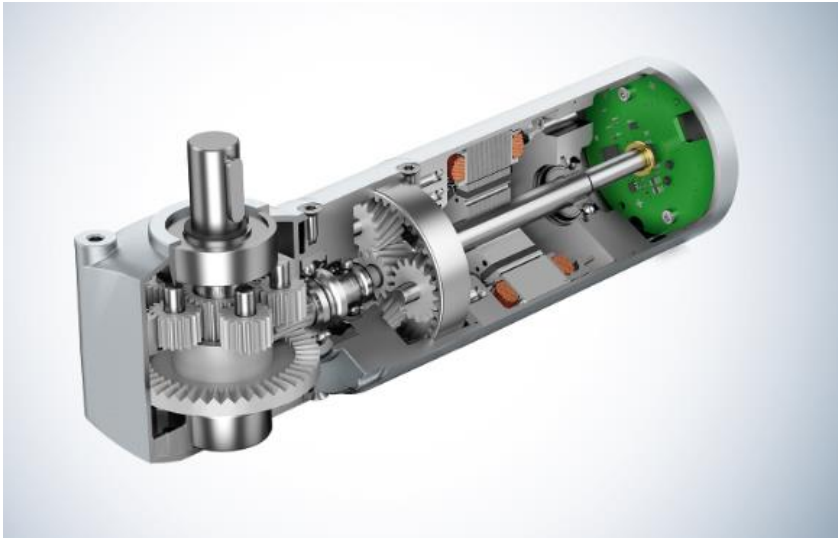


Image: Angular gearbox with crown gearhead technology: the EtaCrown series from ebm-papst.

Image: ebm-papst
Characters: approx. 2,700, including headings and sub-headings
Tags: crown gearhead, Zeitlauf, EtaCrown, smooth operation, modular drive system, motor-transmission combination, angular gearbox
Link: <http://idt.ebmpapst.com>

About ebm-papst

The ebm-papst Group, a family-owned company in Mulfingen, Germany, is the world market leader in fans and drives. Founded in 1963, the technology leader with its core competences motor technology, electronics and aerodynamics, has set international market standards ever since. With over 20,000 products, ebm-papst offers customized, energy-efficient and intelligent solutions for virtually any ventilation and drive technology requirements.

In fiscal year 2019/20, the hidden champion achieved a turnover of 2.188 billion euros and employed almost 15,000 people in 29 production sites (e.g. in Germany, China and the US) as well as in 48 sales locations. With their fan and drive solutions, ebm-papst defines and sets the benchmark in practically all industries, such as ventilation, air-conditioning and refrigeration, heating, automotive, IT, mechanical engineering, catering and household appliances, intralogistics and medical engineering.

Katrin Lindner
Trade press coordinator
Phone: +49 7938 81-7006
Fax: +49 7938 81-97006
Katrin.Lindner@de.ebmpapst.com

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Phone: +49 7938 81-8125
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