



Planetary and right-angle gearheads from WITTENSTEIN alpha: more power density in the high-end segment

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At the EMO Hannover from September 18 to 23, 2017, WITTENSTEIN alpha will show the re-engineered and extended XP+ and RP+ planetary gearhead families together with their respective right-angle equivalents with beveled or hypoid teeth. Improved power transmission, significantly less torsional backlash and maximum torsional rigidity are just some of the features with which these two gearhead families redefine the state of the art in the premium segment.

WITTENSTEIN develops customized products, systems and solutions for highly dynamic motion, maximum-precise positioning and smart networking for mechatronic drive technology.

The requirements of the machine tools industry, along with increased dynamics and precision specifications as well as changing market needs regarding the efficiency of mechatronic drive solutions, were key factors in the design of these planetary and right-angle gearheads for the high-end segment which made a crucial contribution to the higher power density.



More power density in the high-end segment: XP+ and RP+ together with their respective right-angle equivalents with beveled or hypoid teeth.

XP+: More torque, more transmittable motor power

The highlight of the compact Premium XP+ gearhead is the redesigned output interface. It was developed with very high torques in mind and enables improved power transmission far exceeding the industry standard. Even high radial and axial forces can be absorbed without any problem. The XP+ is simultaneously suitable for higher input speeds, so that drive trains can now be sized even more efficiently and valuable downsizing potential is created. The gearhead kinematics and the exceptional tooth quality ensure permanently low torsional backlash of less than one arcminute. The new XP+ convinces with very high power density and is available in five different sizes. Extra versatility is provided by the new binary reduction ratios $i=8, 32$ and 64 , which extend the traditional standard ratios in line with current market demands.

RP+: Muscle packed, low-backlash and absolutely precise

Minimal torsional backlash of less than one arcminute as well as very high stiffness leading to maximum positioning accuracy – these are the hallmarks of the optimized RP+ low-backlash planetary gearheads. The ultra-precise helical teeth guarantee superior

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smooth running. The highly rigid gearhead kinematics bring about a huge increase in machine performance.

The RP+ gearheads were especially developed for linear applications with a rack and pinion – however, they are equally suited for other applications in the high performance machine tool sector where individual requirements call for efficient engineering and the highest possible power density. Each of the four available sizes offers unmatched ease of assembly – thanks, among other things, to the integrated slots, which reduce the effort for design and installation to a minimum regardless of the mounting position.

Right-angle stages open up infinite possibilities

Both Premium planetary gearheads can also be supplied in a right-angle version, so that the high power density of the XP+ and RP+ can be optimally exploited, even in confined spaces.

On the one hand, the versions with **beveled teeth** – XPC+ and RPC+ – have small reduction ratios of up to $i=2$ in the right-angle stage. The ratios achieved with the coaxial planetary gearheads can thus be exactly adopted to facilitate high movement speeds. Other ratios up to $i=55$ can likewise be realized. The thermal optimization of these right-angle versions is the next highlight. Owing to the structure of the kinematics, frictional losses – and hence frictional heat – is reduced to a minimum, resulting in optimal temperature distribution even at high speeds. The integrated metal bellows coupling moreover compensates linear thermal expansion and protects the motor mounting – for maximum positioning accuracy and durability of the gearhead solution in both cyclic and continuous operation. The two-stage XPC+ is available in five sizes with seven different reduction ratios while the three-stage RPC+ will initially be offered in three sizes with five ratios in a special HIGH TORQUE version.

The XPK+ and RPK+ right-angle versions with **hypoid teeth** are ideal whenever high moving forces have to be transmitted. It is not only possible to transmit more torque with this design than with the beveled-tooth right-angle versions; higher reduction ratios from $i=3$ to $i=10$ can also be achieved in the right-angle stage. The high power density of the Premium planetary gearheads in the right-angle version is additionally reflected in the high torsional rigidity of the kinematics, which absorb even high axial and radial forces. These right-angle versions are similarly optimized for easy assembly in rack-and-pinion applications. They impress in practical use with very high positioning accuracy and smooth running. For the market launch

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at EMO 2017, the two or three-stage XPK+ will be available in four sizes with reduction ratios from $i=12$ to $i=1000$ while the three or four-stage RPK+ will be premiered in four sizes with ratios from $i=48$ to $i=5500$.

Pictures:



01_WITTENSTEIN_Familienbild_XPC_XPK_RPC_RPK_XP_RP:
 More power density in the high-end segment: XP+ and RP+ together with their respective right-angle equivalents with beveled or hypoid teeth.

Texts and photographs in printable quality can be downloaded from presse.wittenstein.de.

WITTENSTEIN SE – one with the future

With around 2400 employees worldwide and sales of approximately €339 million in 2016/17, WITTENSTEIN SE enjoys an impeccable reputation for innovation, precision and excellence in the field of mechatronic drive technology – not just in Germany but internationally. The group comprises six pacesetting Business Units with separate subsidiaries for servo gearheads, servo actuator systems, medical technology, miniature servo units, innovative gearing technology, rotary and linear actuator systems, nano technology and electronic and software components for drive technologies. Through its 60 or so subsidiaries and agents in approximately 40 countries, WITTENSTEIN SE (www.wittenstein.de) is additionally represented in all the world's major technology and sales markets.

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