Press Release

# TPM+ power – more powerful, more compact and smoother than ever

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**New servo actuator from WITTENSTEIN motion control GmbH**

**WITTENSTEIN motion control's TPM+ distinguished product family recently acquired a new member. The TPM+ dynamic, which has meanwhile been available in the market for some time and already successfully mastered more than 25,000 drive tasks, will in future be partnered by the TPM+ power – conceived as a very large-scale integrated product with superior power density. The outstanding advantages of the TPM+ power servo actuator are its very high torque and exceptionally compact length. The total length saving is around fifty percent compared to conventional gearhead motors.**

The TPM+ power is available in a single-stage version – an especially attractive alternative for linear rack-and-pinion applications – or as a two-stage actuator for rotary drive tasks. The reduction ratio steps are relatively small to facilitate an actuator design characterised by optimal energy efficiency and dynamics. The decision to employ helical toothing in the gearhead permits significantly smoother running at the output. The influence of meshing frequencies is minimised and the overall noise level is 6 dB lower than with the straight-toothed predecessor gearhead series.

The permanent magnet synchronous motors developed by WITTENSTEIN motion control offer remarkable power density. In addition to the use of rare earth magnet material, this is mainly due to the higher pole number and the copper fill factor in the slots. At the same time, the high quality of the thin sheets in the stacks helps optimise the power balance by limiting losses due to eddy currents. Cogging – in other words, the permanent magnet detent toque between the rotor magnets and the stator pole shoes – is scarcely noticeable thanks to special geometric measures.

As far as the feedback systems are concerned, Igersheim drive specialist WITTENSTEIN trusts in the tried-and-tested technology of rugged resolvers and the precision of optical encoders using the



TPM+ power

**WITTENSTEIN AG**

Walter-Wittenstein-Straße 1
97999 Igersheim · Germany

**Contact: Sabine Maier**
Manager Press Relations
Tel. +49 7931 493-10399
Fax +49 7931 493-10301
E-Mail:s.maier@wittenstein.de
**www.wittenstein.de**

EnDat and Hiperface protocols. A backlash-free permanent magnet brake is optionally available.

The new TPM$^+$ power hails from the same creative stable as the TPM$^+$ dynamic. In addition to a surface that is less sensitive to dirt than ever before, its tremendously powerful build clearly emphasises the product's impressive features.

The new product makes a perfect complement to the proven TPM$^+$ dynamic, which accomplishes its predominantly rotary drive tasks in robotics and packaging systems with admirable efficiency. The TPM$^+$ power is set to leave a deep mark not only in highly dynamic, linear applications such as rack-and-pinions or ball screws but also as a rotary actuator in automation and machining plants, where it is required to handle heavy masses and high disturbance forces.

**Technical specifications of the new TPM$^+$ power at a glance**

| TPM$^+$ power sizes | 004 | 010 | 025 | 050 | 110 |
|---|---|---|---|---|---|
| Max. acceleration torque [Nm] | 50 | 130 | 380 | 750 | 1600 |
| DC bus voltage [V DC] | 320, 560 | | | | |
| Overall length from [mm] | 149 | 175 | 197 | 236 | 305 |
| Max. torsional stiffness [Nm/arcmin] | 12 | 33 | 86 | 190 | 610 |
| Tilting stiffness [Nm/arcmin] | | 225 | 550 | 560 | 1452 |
| Torsional backlash, standard/reduced [arcmin] | 4/2 | 3/1 | | | |
| Reduction ratio<br>1-stage<br><br>2-stage | 4, 5, 7, 10<br>16, 20, 25, 28, 35, 40, 50, 70, 100 | | | | |
| Degree of protection | IP65 | | | | |
| Noise level [dB(A)] | <58 | <60 | <64 | <65 | <72 |

**Photos:**
1.) New power from WITTENSTEIN motion control: the TPM$^+$ power servo actuator

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



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Manager Press Relations
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E-Mail:s.maier@wittenstein.de
**www.wittenstein.de**