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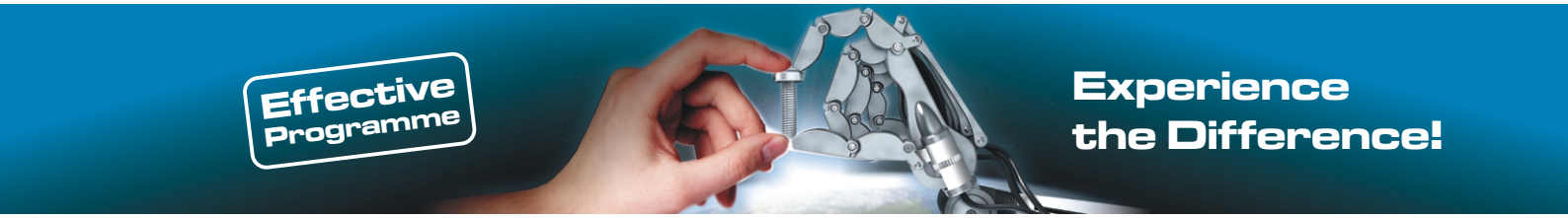


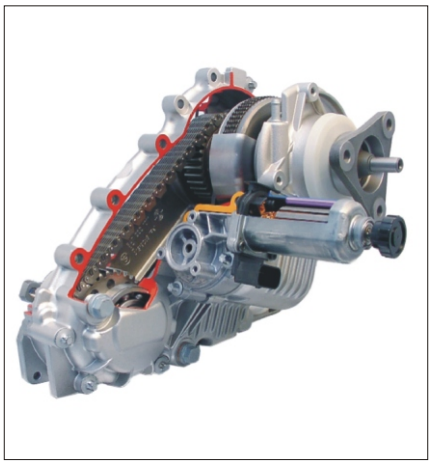
TAPTITE 2000® fastens gear housings

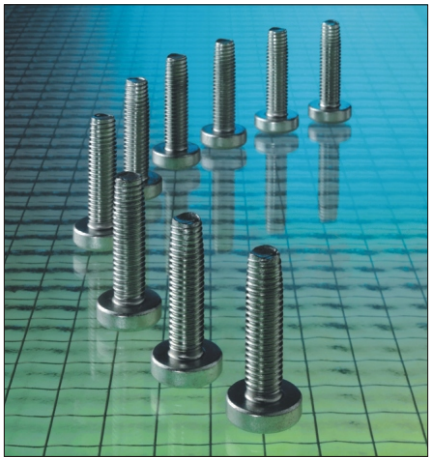
A study has shown that cost pressures in the automotive industry are presenting new opportunities for thread-forming fastening systems in light-metal housings – aluminium alloy offers optimum thread structure

(Forchtenberg). Working jointly with Magna Powertrain AG, Arnold Umformtechnik, a leading manufacturer of intelligent fastener solutions, has carried out a comprehensive study aimed at measuring the requirements of thread-forming screws combined with aluminium alloys. The world's leading manufacturer of distributor gear units has proved the capability of this screw profile in the form of Arnold's cost-busting TAPTITE 2000® when used in light-metal gear housings.

The results of the study confirm the trend that thread-forming versions will soon be strong challengers to their metric equivalents. The comprehensive screw-in tests demonstrably indicate a relatively even pre-tensioning force window for both initial and repeat screw fastenings. Even at maximum core hole tolerance the method achieves acceptable breakaway moments.

And under the effects of temperature too the thread-forming screws are able to substantiate their capability. Despite widely varying temperatures the fall in pre-tensioning force on the distributor gear unit housing remains at a low level. Furthermore, the triangular profile of the TAPTITE 2000® reduces tapping torque to a reliable 12 Newtonmeter.
According to the two people who conducted the study, Christian Hinteregger





of Magna Powertrain, and Thomas Jakob of Arnold, optimised aluminium alloys – such as GD-AlSi9Cu3 – provide an excellent thread-forming structure, which, together with the triangular shaft cross-section of the TAPTITE® system, creates low tapping torques and high overtorques. The separation achieved between these two parameters ensures high and at the same time lightly dispersed pre-tensioning forces.

The study shows that in the distributor gear unit application in question, a thread-forming Taptite 2000 screw can replace a metric screw without problem. And when it comes to assembling gear units and engines, the TAPTITE 2000® screw plays a full part in providing processing and cost benefits.

The Arnold Group is a wholly owned subsidiary of the Würth Group, which, with over 54,000 employees and with 378 companies world-wide operates on a global basis with earnings of over 7 billion euros.

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