

# Development of Motiontite

## No. 3

Motiontite (trademark registered) does not bring flank faces of a male screw and a female screw into contact with each other in a state where they are parallel to each other. Rather, Motiontite has a structure to make the flank face of the male screw contact the flank face of the female screw gradually from the thread tip of the male screw. Thus, by slightly increasing elasticity of the thread, innovative functions such as "strong anti-loosening force, high fatigue strength, stable axial force and seizure prevention," which conventional screws could not achieve, are now brought about.

Up to now, Motiontite has exerted the anti-loosening force in the case where the material of the female screw is iron or the like. This year, we're going to test the possibility of Motiontite to exert the anti-loosening force also in the case of plastic materials such as GFRP (glass fiber reinforced plastics), CFRP (carbon fiber reinforced plastics) and the like, which are indispensable for weight reduction. It has been pointed out that tightening of a bolt to FRP has a defect that FRP degrades when temperature increases, thereby causing extreme lowering of the axial force. Regarding this, we estimate that such extreme lowering of the axial force would not occur if surface pressure could be reduced by optimizing a contact area of the thread and by increasing the elasticity of the thread.

Every year, new challenges arise. Loosening of the screw (lowering of axial force) can be caused not only by slipshod tightening management but also by just small environmental changes. There are lots of causes for the loosening such as changes in frictional coefficients due to differences in the material of the male screw, the material of the female screw and surface treatment. Development of Motiontite goes on, aiming at "the screw that can suppress the loosening by easy tightening by anybody."

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