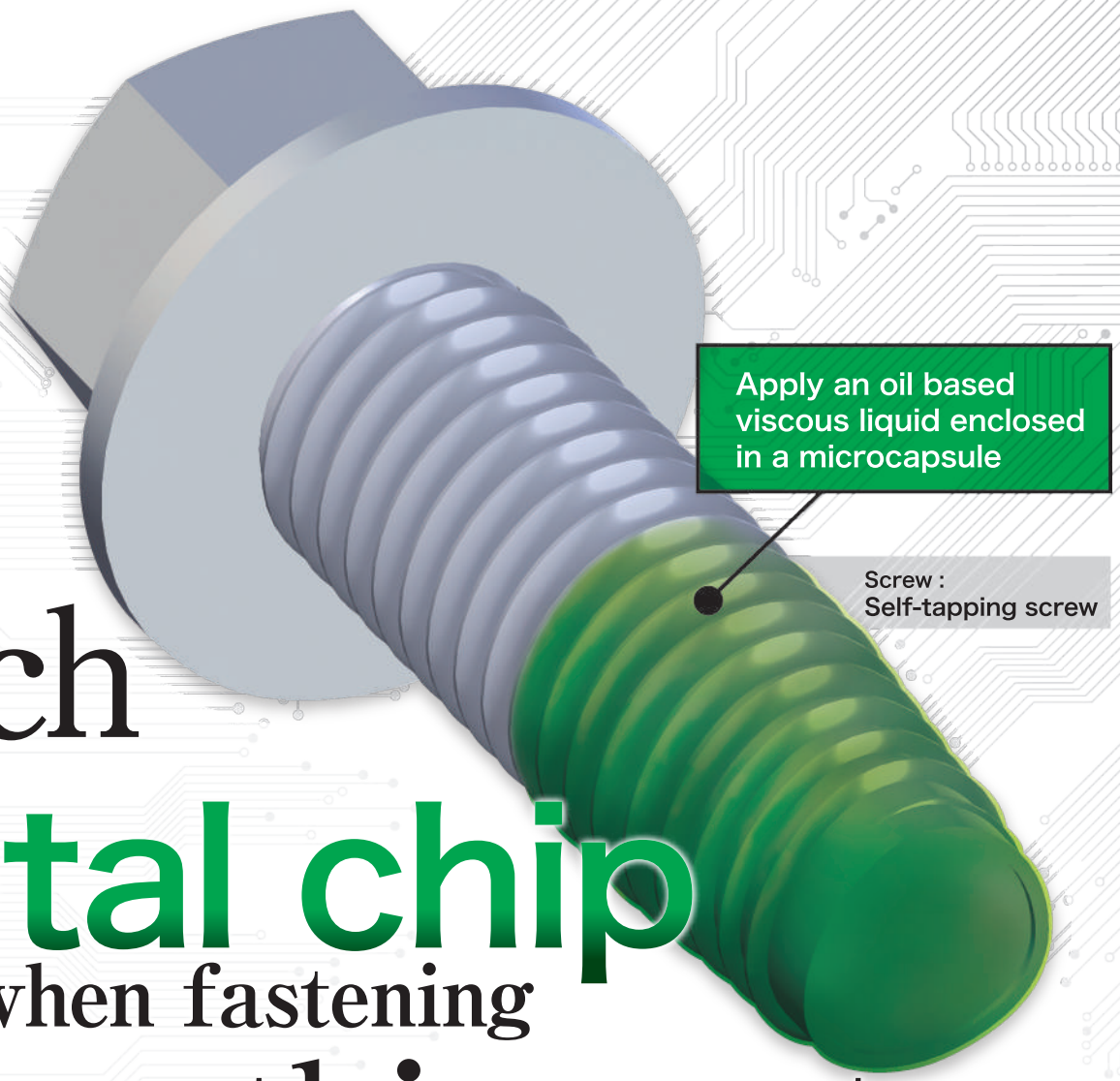
NITTOSEIKO

IS-F-3-E_CP



Catch the metal chip when fastening ⊕ Something extra

Solution for metal dust falling

CP-GRIP®

☑ Adhere the metal chip & dust that is generated by fastening

➔ Prevent falling of metal chip & dust

☑ Reduce the friction with workpiece by coating applied

➔ Reduce the torque to form female thread and realize fastening by low torque

➔ Proper tightening torque is stable even when the pilot hole is unstable

➔ Prevent adhesive phenomenon with workpiece

Solution for
metal dust falling

CP-GRIP®

The oil based viscous liquid which is enclosed in a microcapsule is applied on the screw point. (Self-tapping screw, Machine screw, Bolt, etc) We term these applied screws "CP-GRIP".

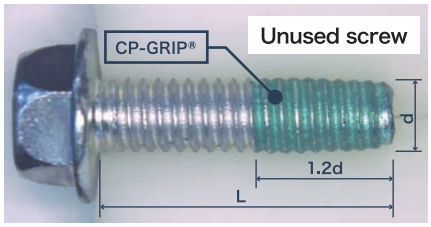
Self-tapping to the circuit board

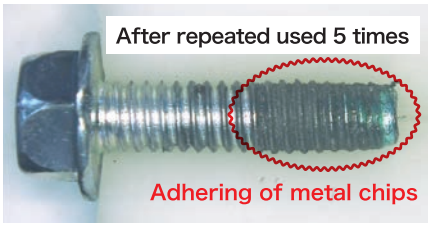
Self-tapping had been thought unfit to the circuit board due to a problem of metal chips but it can be realized. It will contribute total cost reduction, weight saving and thinning.

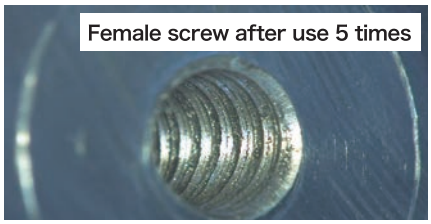
TECHNICAL REPORT 01 Prevent falling of metal chip & dust

■ Testing machine
Torque test machine AX-500
(Manufactured by NITTOSEIKO Co., Ltd.)
Rotation speed 300rpm
Thrust 70.5N

■ Fastening condition
- Workpiece material ADC12 Through-hole
- Screw : Self-tapping screw ϕ6x20





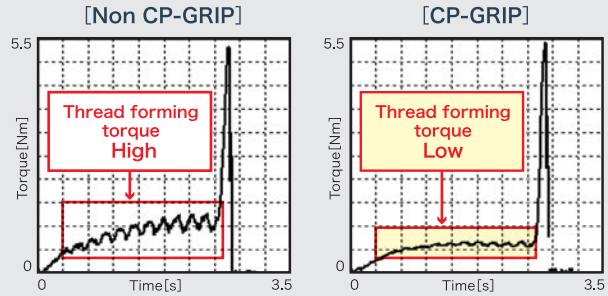


TECHNICAL REPORT 02 Reduction of friction resistance

■ Testing machine
Torque test machine AX-200
(Manufactured by NITTOSEIKO Co., Ltd.)
Rotation speed 300rpm
Thrust 68.6N

■ Fastening condition
- Workpiece material ADC12
  Pilot hole diameter ϕ3.68
  Drilled hole
- Screw : Self-tapping screw ϕ4

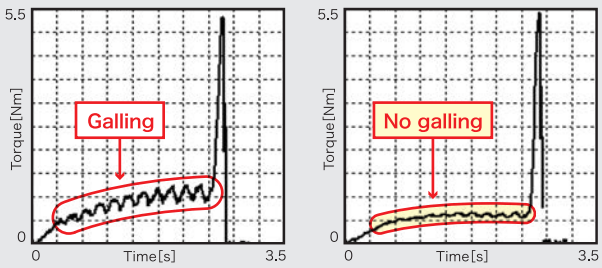
Comparison of thread forming torque



Thread forming torque TS	1.406	40% Down	Thread forming torque TS	0.762
Drive-to-Strip torque ratio (k)	3.63		Drive-to-Strip torque ratio (k)	6.83

※Drive-to-Strip torque ratio (k)--- k = Stripping torque Min. / Thread forming torque Max.

Comparison of performance of preventing adhesive phenomenon



When the waveform amplitude grow bigger, the galling tend to be higher.

TECHNICAL REPORT 03 Adaptivity against unstable pilot hole diameter

■ Testing machine
Torque test machine AX-50
(Manufactured by NITTOSEIKO Co., Ltd.)
Rotation speed 300rpm
Thrust 69.0N

■ Fastening condition
- Workpiece material ADC12
  Pilot hole dia (As below) Drillined hole
- Fastening object material : Automotive parts
- Screw : ALUMITITE ϕ2x8

Without CP-GRIP	Pilot hole dia	Proper tightening torque	Drive-to-Strip torque ratio (k)
	ϕ1.77	0.27~0.38N·m	3.28
	ϕ1.79	0.31~0.37N·m	2.76
	ϕ1.81	0.29~0.37N·m	3.05
	ϕ1.83	0.27~0.37N·m	3.22
	ϕ1.85	0.21~0.36N·m	4.00

With CP-GRIP	Pilot hole dia	Proper tightening torque	Drive-to-Strip torque ratio (k)
	ϕ1.77	0.23~0.40N·m	4.13
	ϕ1.79	0.21~0.38N·m	4.21
	ϕ1.81	0.18~0.39N·m	5.00
	ϕ1.83	0.21~0.39N·m	4.29
	ϕ1.85	0.21~0.39N·m	4.29

NITTOSEIKO CO.,LTD.

Fastener Division
Global Sales Section

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