

タップの表面処理 Surface Treatment of Taps

タッピング加工は下穴内部の狭い範囲の加工で、切削油による冷却や潤滑が行われ難く、切削熱・摩擦熱等が発生するため摩耗や溶着が発生し易くなっています。又、鉄系材料の加工では、タップ材との親和性があり溶着し易くなっています。これらの問題を解決するために各種表面処理を行っております。

Tapping is limited for processing inside a hole. Since cooling and lubrication with cutting fluids are not easy, and both cutting heat and frictional heat are generated, wear and galling are likely to occur. In addition, processing steel materials may result in affinity with tap materials, so that galling is easy to occur. Various kinds of surface treatment are available to address these problems.

種類 Types	効果 Effects	色相 Shade	膜厚 Thickness	摩擦係数 Coefficient of friction	最高使用温度 Maximum temperature used	硬さ Hardness
HOMO Steam oxide treatment	多孔質酸化皮膜による溶着防止 Prevention of galling by means of porous oxide film	黒色 Black	1~3	—	—	母材硬さ Hardness of base material HV 850
窒化処理 Nitride treatment	拡散窒化層による耐摩耗、耐溶着性の向上 Improved wear resistance and galling-proofness by means of diffusing layer of nitride	灰色 Gray	10~30	—	—	HV 1000~1300
TiN	耐摩耗性、耐溶着性の向上 Improved wear resistance and galling-proofness	金色 Gold	1~5	0.4	600℃	HV 2300
TiCN	耐摩耗性、耐溶着性の向上 Improved wear resistance and galling-proofness	青灰色 Blue gray	1~5	0.4	400℃	HV 3000
C	耐摩耗性、耐熱性、耐溶着性の向上 Improved wear resistance, heat resistance and galling-proofness	金色 Gold	2~5	0.4	600℃	HV 3000
CrN	耐溶着性、耐熱性の向上 Improved heat resistance and galling-proofness	銀灰色 Silver gray	2~5	0.5	700℃	HV 1750
TiAlN	耐熱性、耐摩耗性、耐溶着性の向上 Improved wear resistance, heat resistance and galling-proofness	紫灰色 Purple gray	2~5	0.3	800℃	HV 3500
DLC	耐摩耗性、耐溶着性の向上 Improved wear resistance and galling-proofness	黒色 Black	1~4	0.1~0.2	400℃	HV 3000~5000