

# SURFACE TREATMENTS

SURFACE TREATMENT	THREDFOER TAPS		THREDSHAVER TAPS		THREAD GAGES	
	EDP SUFFIX	ADVANTAGE	EDP SUFFIX	ADVANTAGES	EDP SUFFIX	ADVANTAGES
<b>NITRIDE*</b>	1	Lubricity and Wear	1	Cutting Edge Wear	–	N/A
<b>STEAM OXIDE*</b>	2	Toughness and Lubricity	5	TOUGHNESS	–	N/A
<b>NITRIDE/STEAM OXIDE*</b>	6	Combined Properties	6	Combined Properties	–	N/A
<b>CHROME PLATE</b>	3	Lubricity	3	Lubricity	–	N/A
<b>NITRIDE CHROME PLATE</b>	7	Lubricity and Wear	–	N/A	–	N/A
<b>BALWEAR</b>	4	Recommended for Copper	4	N/A	–	N/A
<b>BALUBE</b>	5	Recommended for Brass	5	Lubricity	–	N/A
<b>TITANIUM NITRIDE</b>	T	Lubricity and Wear	T	Lubricity and Wear	T/G**	WEAR
<b>SUPER TIN</b>	U	Wear Resistance	–	N/A	–	N/A
<b>TITANIUM CARBONITRIDE</b>	C	Wear	C	Wear	–	N/A
<b>TITANIUM ALUMINUM NITRIDE</b>	A	Lubricity and Wear	A	Wear and Heat Resistance	–	N/A
<b>BAL-PLUS</b>	L	Anti-Galling and Wear	L	Lubricity	–	N/A

\* Not for shiny wrought aluminum, i.e. 6061T6, etc.

\*\*TiN coating on “GO” members of sets.

**Nitride** – Salt bath case hardening process to increase wear resistance. Resist “galling or pickup” when tapping mild steels. Provides abrasion resistance when tapping diecast alloys containing silicon.

**Steam Oxide** – Dark blue tool finish that increases the lubricity of the tool surface. May assist in lubricating deep hole tapping in ferrous materials. Sometimes called black oxide, is well suited for use with oil lubricants during cold form tapping. Steam oxide can be applied over a nitride surface.

**Hard Chrome Plate** – Bright shiny chrome plating provides lubricity and increased wear resistance. Used during tapping brass, aluminum, and other softer alloys to prevent pickup or galling.

**Balwear** – Special form of chrome plating that is used to resist “pickup” and abrasion during cold form tapping on pure or high copper content alloys.

**Balube** – Soft chromium deposition which serves a similar purpose as steam oxide in ferrous materials. On cold forming taps Balube can be applied over a nitride surface.

**Titanium Nitride (TiN)** – Shiny gold colored thin film coating formed in a low temperature physical vapor deposition process. Provides added lubricity for most cold forming applications using water soluble coolants. Adds wear resistance and lubricity for most cutting tap applications.

**Super Titanium Nitride (Super TiN)** – Multi-layer coating that improves the titanium nitride performance for very abrasive cold form tapping applications.

**Titanium Carbonitride (TiCN)** – Blue-gray colored thin film coating formed in a low temperature, physical vapor deposition process. May provide better wear resistance than TiN for cutting tap applications. Has higher surface hardness than titanium nitride, may lack lubricity necessary for some cold forming applications. Best used for extending cutting edge life in cutting taps.

**Titanium Aluminum Nitride (TiAlN)** – Violet-gray colored thin film coating formed in a low temperature, physical vapor deposition process. May provide added lubricity for cold forming taps when poor lubricity is encountered. May provide added lubricity and wear in cutting tap applications where heat generation is a problem.

**Bal-Plus** – Shiny gold colored thin-film coating that provides anti-galling and extra wear resistance when cold form tapping wrought aluminum such as 6061 and in most diecast aluminums. May provide added lubricity and wear in cutting applications where galling is a problem.