

# ***Titanium Nitride Coated Drill and Taps & Burs***

***Combination Drill & Taps / Spiral Point Taps / Burs***



# TiN Combination Drill & Taps



## Features

- Engineered for high-production.
- Drilling and tapping in one application.
- Ideal for use in multi-spindle heads with reversing capability and in variable speed/reverse magnetic drills when used with tapping heads.
- Tapered neck design reduces drill & tap breakage.
- 118° split point permits holes and threads to be cut at high speeds.
- Produces a class 2B fit. No special holders or collets required.

## Application

- Create holes and tap in a single operation
- No center drilling or punching required

## Uses

- Food industry plants where stainless is prevalent
- Automotive
- Industrial applications

## 6 Piece Set

P/N 61666

Includes the following:

- |         |           |          |           |           |           |
|---------|-----------|----------|-----------|-----------|-----------|
| • 8-32  | P/N 12706 | • 12-24  | P/N 12710 | • 5/16-18 | P/N 12714 |
| • 10-24 | P/N 12708 | • 1/4-20 | P/N 12712 | • 3/8-16  | P/N 12716 |

P/N	Size TPI	No. of Flutes	Drill Dia.	Overall Length	Drill Length	Tap Length
12700	4-40	2	.0910	1-7/8	1/4	3/8
12701	4-48	2	.0945	1-7/8	1/4	3/8
12702	5-40	2	.1040	1-15/16	9/32	13/32
12703	5-44	2	.1060	1-15/16	9/32	13/32
12704	6-32	2	.1115	2	5/16	7/16
12705	6-40	2	.1170	2	5/16	7/16
12706	8-32	2	.1375	2-1/8	3/8	1/2
12707	8-36	2	.1405	2-1/8	3/8	1/2
12708	10-24	2	.1545	2-3/8	13/32	5/8
12709	10-32	2	.1635	2-3/8	13/32	5/8
12710	12-24	2	.1805	2-3/8	15/32	21/32
12711	12-28	2	.1860	2-3/8	15/32	21/32
12712	1/4-20	2	.2080	2-1/2	17/32	25/32
12713	1/4-28	2	.2220	2-1/2	17/32	25/32
12714	5/16-18	2	.2660	2-27/32	11/16	15/16
12715	5/16-24	2	.2770	2-27/32	11/16	15/16
12716	3/8-16	2	.3225	3-3/8	13/16	1-1/16
12717	3/8-24	2	.3395	3-3/8	13/16	1-1/16
12718	7/16-14	2	.3770	3-3/4	1	1-1/4
12719	7/16-20	2	.3955	3-3/4	1	1-1/4
12720	1/2-13	2	.4350	4-1/16	1-1/8	1-3/8
12721	1/2-20	2	.4580	4-1/16	1-1/8	1-3/8



## Benefits of Titanium Nitride Coating (TiN)

### Thermal and Chemical Diffusion Barrier

Titanium Nitride (TiN) is an extremely fine and dense compound. This non-porosity lends to TiN to act as a chemical and thermal barrier to diffusion and fusion, which prevents the transfer of molecules from the cutting tool to the work-piece, and vice versa. This phenomena is often referred to as "work hardening" and is eliminated by TiN coating.

### High Lubricity

The coefficient of friction of TiN is lower than that of hard chrome. This provides free chip flow, reduced heat build-up, reduced adhesion and reduced built-up edge formation and cratering. In addition, the lubricious finish of TiN creates a superior work-piece finish.

### Increased Surface Hardness

TiN coating measures a hardness in excess of 80 Rockwell C. This hardness protects the cutting edge from abrasion and provides a protective shield against the damaging effects of heat generated at the cutting edge.

### Increased Durability

Applying a hard, heat resistant TiN coating to tough impact resistant high-speed steel tools prolongs sharpness. As a result, cutting tools can be run at substantially higher speeds and feed rates, thus increasing productivity

# TiN Spiral Point Taps



## Features

### • Spiral Point

The spiral point or "gun nose" ejects the chips forward. This provides cleaner threads, higher quality threads than standard hand taps. The spiral point enables faster tapping, higher speeds, and thus, higher productivity.

### • Necked Design

The recess or "neck" enables cutting fluids to reach the cutting edges and point of the tool, where the hard work is being done. The neck enables deeper tapping.

### • Three flutes

These taps all have 3-flutes instead of two flutes on many spiral point taps. This provides for easier starting, and straighter tapping. Misalignment is a common problem with taps and these taps minimize this problem. They are also excellent for tapping stainless steel.

## Application

- Permits tapping of high tensile martensitic stainless steels and titanium alloys at high speeds.

## Uses

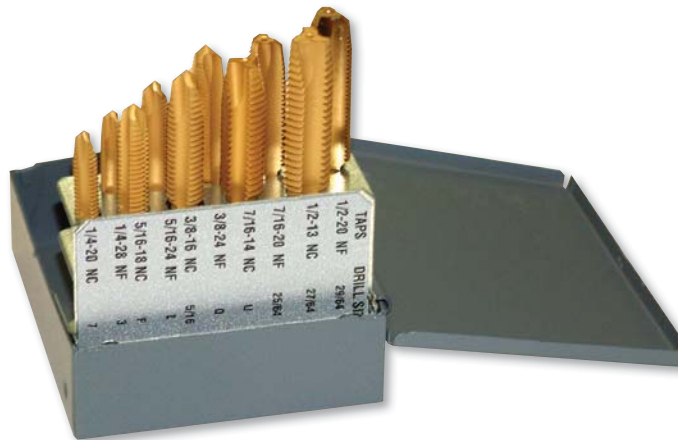
- Food industry plants where stainless is prevalent
- Automotive
- Industrial applications

## 10 Piece Set

P/N 61647

### Includes the following:

- 1/4-20 P/N 12609
- 1/4-28 P/N 12610
- 5/16-18 P/N 12611
- 5/16-24 P/N 12612
- 3/8-16 P/N 12613
- 3/8-24 P/N 12614
- 7/16-14 P/N 12615
- 7/16-20 P/N 12616
- 1/2-13 P/N 12617
- 1/2-20 P/N 12618



P/N	Size TPI	Number of Flutes	Number of Threads	Overall Length
12600	4-40	3	9/16	2
12601	6-32	3	11/16	2
12602	6-40	3	11/16	2
12603	8-32	3	3/4	2-1/8
12604	8-36	3	3/4	2-1/8
12605	10-24	3	7/8	2-3/8
12606	10-32	3	7/8	2-3/8
12607	12-24	3	15/16	2-3/8
12608	12-28	3	15/16	2-3/8
12609	1/4-20	3	1	2-1/2
12610	1/4-28	3	1-1/8	2-3/4
12611	5/16-18	3	1-1/8	2-3/4
12612	5/16-24	3	1-1/8	2-3/4
12613	3/8-16	3	1-1/4	2-15/16
12614	3/8-24	3	3/4	2-15/16
12615	7/16-14	3	1-7/16	3-5/32
12616	7/16-20	3	1-7/16	3-5/32
12617	1/2-13	3	1-21/32	3-3/8
12618	1/2-20	3	1-21/32	3-3/8
12619	5/8-11	3	1-13/16	3-13/16
12620	5/8-18	3	3-13/16	3-13/16
12621	3/4-10	3	2	4-1/4
12622	3/4-16	3	2	4-1/4



# TiN Carbide Burs

## Features

- Manufactured in the U.S.A. from C2 tungsten carbide.
- TiN carbide burs are precision machine ground using diamond wheels and automated CNC machinery.
- Producing consistent geometry, sharp cutting edges and vibration free performance.
- All burs are Titanium Nitride coated for superior surface finish and long life.
- Types Available
  - Double-cut Burs
  - Bur Sets

## Application

- TiN Carbide Burs are one of the most versatile metal working tools.
- Used in virtually every industry, burs are used in mold and pattern making, die sinking, tool making, and maintenance.

## Uses

- They are used widely in these industries:
  - Automotive
  - Aerospace
  - Foundry
  - Power station
  - Engineering

## Bur Types

### Double-Cut

- Double-cut burs have a primary and secondary cutting edge
- The primary cutting edge does the majority of cutting, while the secondary cutting edge breaks the chips into smaller pieces which are easily disposed of
- Produces a very smooth work piece finish

### Vacuum brazing

- The braze is copper, done via induction coil process
  - Very strong
  - Results in a safe bur
  - Will not lose its head under normal use
- Note: These are spinning in excess of 20,000 rpm.

## Usage Guidelines

- Do not use carbide burs in portable drill motors. Portable drill motors run at much lower speeds.

### Operating Speed Recommendations

- Slower speeds for harder materials
- Higher speeds when using small burs
- Slower speeds when using long series burs

### Cautions

- Running burs below recommended speeds may cause chipping.
- Do not use worn-out tools and collets. They will cause chipping.
- Running burs too fast will cause teeth to wear prematurely.
- Apply constant pressure and steady action.

## Application and Speed Recommendations

SOLID CARBIDE BUR APPLICATION INFORMATION			SOLID CARBIDE BUR SPEED RECOMMENDATIONS		
MATERIAL	SUITABILITY		BUR DIAMETER	Recommended Cutting Speed	Maximum Cutting Speed
Check List	Double Cut	Non-Ferrous		(RPM)	(RPM)
Aluminum	—	✓	1/16	60,000 - 90,000	100,000
Brass	✓	✓	1/8	40,000 - 70,000	90,000
Bronze	✓	—	3/16	35,000 - 60,000	80,000
Cast Iron	✓	—	1/4	30,000 - 50,000	70,000
Copper	—	✓	5/16	20,000 - 40,000	68,000
Carbon Fiber	—	✓	3/8	20,000 - 40,000	66,000
Fiberglass	✓	—	7/16	15,000 - 40,000	58,000
Inconel	✓	—	1/2	15,000 - 40,000	50,000
Magnesium	—	✓	5/8	12,000 - 25,000	40,000
Plastics	✓	—	3/4	10,000 - 20,000	33,000
Hard Rubber	✓	—	1	7,500 - 20,000	25,000
Steel - 45-55Rc	✓	—	1-1/8	7,000 - 13,000	20,000
Steel - 55-60Rc	✓	—	1-1/2	5,000 - 10,000	17,000
Steel - Carbon	✓	—	1-3/4	4,500 - 9,000	14,000
Steel - Nickel Chrome	✓	—	2	4,000 - 8,000	12,500
Steel - Stainless	✓	—			
Steel - Weldments	✓	—			
Titanium	✓	—			
Zinc	—	✓			

# TiN Carbide Burs

## 8 Piece Set

P/N 63600

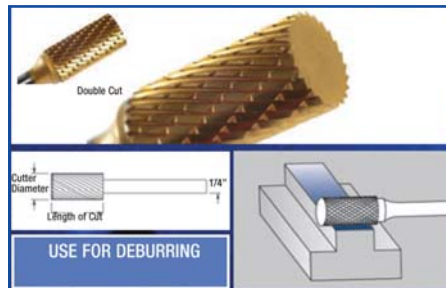
Includes the following:

• Cylinder Radius End	SC1	P/N 34399
• Ball Shape	SD1	P/N 34423
• Cylinder Shape	SA3	P/N 34359
• Cylinder Radius End	SC3	P/N 34404
• Tree Shape Radius End	SF3	P/N 34458
• Ball Shape	SD3	P/N 34427
• Cylinder Shape	SA5	P/N 34365
• Tree Shape Radius End	SF5	P/N 34463



**Note:** The application of Titanium Nitride to Chromate cutting tools is performed via physical vapor deposition process. This gives the cutting tool a bright gold color. Occasionally this process results in the discoloration of the tool shank, which has no negative effect on the tool's performance.

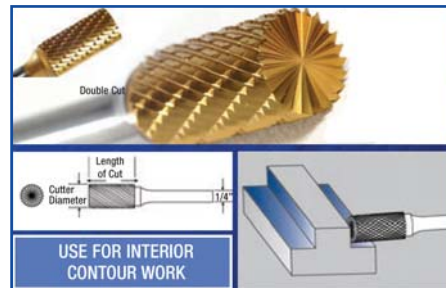
## SA - Cylinder Shape



P/N	Industry Type	Cutter Diameter	Length of Cut
34350	SA11	1/8	1/2
34351	SA12	1/8	5/8
34352	SA13	5/32	5/8
34353	SA14	3/16	5/8
34354	SA1	1/4	5/8
34355	SA1L	1/4	7/8
34358	SA2	5/16	3/4
34359	SA3	3/8	3/4
34362	SA3L	3/8	1
34363	SA3X	3/8	1-1/2
34364	SA4	7/16	1
34365	SA5	1/2	1
34368	SA6	5/8	1
34370	SA15	3/4	1/2
34371	SA16	3/4	1/2
34372	SA7	3/4	1
34375	SA8	7/8	1
34376	SA9	1	1

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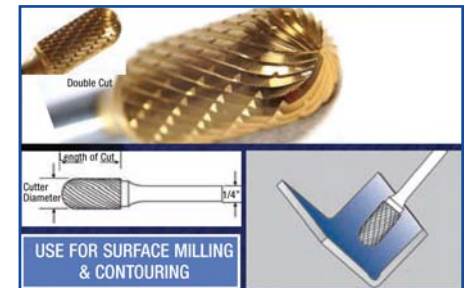
## SB - Cylinder End Cut



P/N	Industry Type	Cutter Diameter	Length of Cut
34377	SB11	1/8	1/2
34378	SB12	1/2	5/8
34379	SB13	5/32	5/8
34380	SB14	3/16	5/8
34381	SB1	1/4	5/8
34382	SB1L	1/4	1
34383	SB2	5/16	3/4
34384	SB3	3/8	3/4
34385	SB3L	3/8	1
34386	SB3X	3/8	1-1/2
34387	SB4	7/16	1
34388	SB5	1/2	1
34389	SB6	5/8	1
34390	SB15	3/4	1/2
34391	SB16	3/4	3/4
34392	SB7	3/4	1
34393	SB8	7/8	1
34394	SB9	1	1

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## SC - Cylinder Radius End

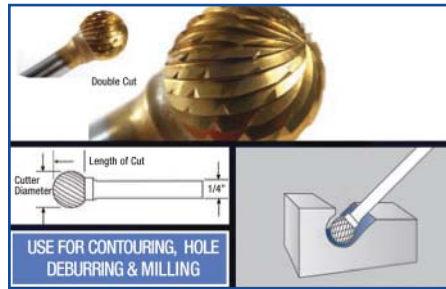


P/N	Industry Type	Cutter Diameter	Length of Cut
34395	SC11	1/8	1/2
34396	SC12	1/8	5/8
34397	SC13	5/32	5/8
34398	SC14	3/16	5/8
34399	SC1	1/4	5/8
34400	SC1L	1/4	7/8
34403	SC2	5/16	3/4
34404	SC3	3/8	3/4
34407	SC3L	3/8	1
34408	SC3X	3/8	1-1/2
34409	SC4	7/16	1
34410	SC5	1/2	1
34413	SC6	5/8	1
34415	SC15	3/4	1/2
34416	SC16	3/4	3/4
34417	SC7	3/4	1
34420	SC9	1	1

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# TiN Carbide Burs

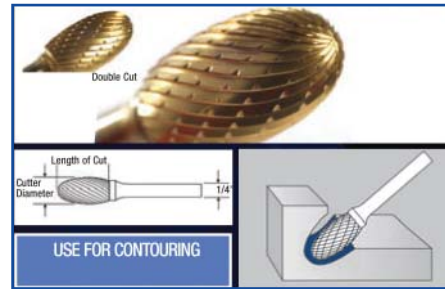
## SD - Ball Shape



P/N	Industry Type	Cutter Diameter	Length of Cut
34421	SD11	1/8	3/32
34422	SD14	3/16	1/8
34423	SD1	1/4	7/32
34426	SD2	5/16	1/4
34427	SD3	3/8	5/16
34430	SD4	7/16	3/8
34431	SD5	1/2	7/16
34434	SD6	5/8	9/16
34436	SD7	3/4	11/16
34439	SD9	1	15/16

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## SE - Oval Shape



P/N	Industry Type	Cutter Diameter	Length of Cut
34440	SE11	3/16	5/16
34441	SE1	1/4	3/8
34443	SE3	3/8	5/8
34446	SE5	1/2	7/8
34449	SE6	5/8	1
34451	SE7	3/4	1

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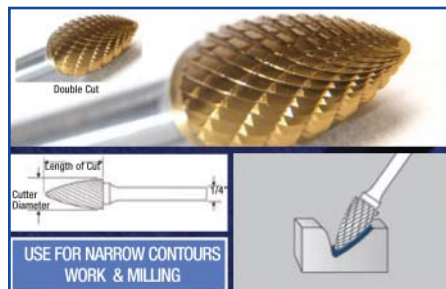
## SF - Tree Shape Radius End



P/N	Industry Type	Cutter Diameter	Length of Cut
34454	SF11	1/8	1/2
34455	SF1	1/4	3/4
34458	SF3	3/8	3/4
34461	SF4	7/16	1
34462	SF13	1/2	3/4
34463	SF5	1/2	1
34466	SF6	5/8	1
34468	SF7	3/4	1
34469	SF14	3/4	1-1/4
34472	SF15	3/4	1-1/2

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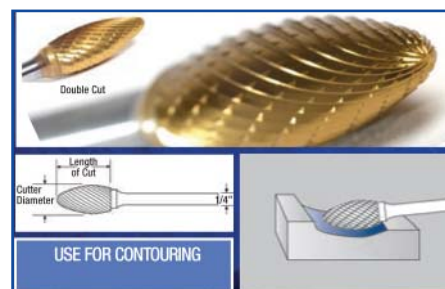
## SG - Tree Shape



P/N	Industry Type	Cutter Diameter	Length of Cut
34473	SG1	1/4	5/8
34475	SG2	5/16	3/4
34476	SG3	3/8	3/4
34478	SG13	1/2	3/4
34479	SG5	1/2	1
34481	SG6	5/8	1
34482	SG7	3/4	1
34483	SG15	3/4	1-1/2

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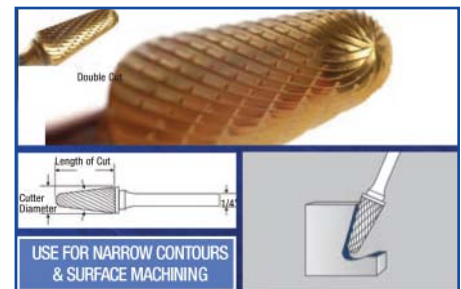
## SH - Flame Shape



P/N	Industry Type	Cutter Diameter	Length of Cut
34484	SH1	1/4	5/8
34485	SH2	5/16	3/4
34487	SH5	1/2	1-1/4
34489	SH6	5/8	1-7/16
34490	SH7	3/4	1-5/8

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## SL - 14° Taper Radius End



P/N	Industry Type	Cutter Diameter	Length of Cut
34491	SL1	1/4	5/8
34493	SL2	5/16	7/8
34494	SL3	3/8	1-1/16
34497	SL4	1/2	1-1/8
34500	SL5	5/8	1-3/16
34502	SL6	5/8	1-5/16
34504	SL7	3/4	1-1/2

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# TiN Carbide Burs

## SM - Cone Shape



P/N	Industry Type	Cutter Diameter	Length of Cut	USE FOR NARROW CONTOURS / SURFACE MACHINING
34507	<i>SM1</i>	1/4	1/2	
34508	SM2	1/4	3/4	
34509	<i>SM3</i>	1/4	1	
34510	SM4	3/8	5/8	
34511	SM5	1/2	7/8	
34512	<i>SM6</i>	5/8	1	

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## SN - Inverted Cone Shape



P/N	Industry Type	Cutter Diameter	Length of Cut	EDGE MACHINING FROM THE REAR IN HARD TO REACH AREAS
34513	<i>SN1</i>	1/4	5/16	
34514	<i>SN2</i>	3/8	3/8	
34515	<i>SN4</i>	1/2	1/2	
34516	<i>SN6</i>	5/8	3/4	
34517	<i>SN7</i>	3/4	5/8	

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## SK - 90° Cone Shape



P/N	Industry Type	Cutter Diameter	Length of Cut	MACHINING OF ACUTE ANGLE AREAS / COUNTERSINKING
34518	<i>SK1</i>	1/4	1/8	
34519	<i>SK3</i>	3/8	3/16	
34520	<i>SK5</i>	1/2	1/4	
34521	<i>SK6</i>	5/8	5/16	
34522	<i>SK7</i>	3/4	3/8	
34523	<i>SK9</i>	1	1/2	

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## SJ - 60° Cone Shape



P/N	Industry Type	Cutter Diameter	Length of Cut	MACHINING OF ACUTE ANGLE AREAS / COUNTERSINKING
34524	<i>SJ1</i>	1/4	3/16	
34525	<i>SJ3</i>	3/8	5/16	
34526	<i>SJ5</i>	1/2	7/16	
34527	<i>SJ6</i>	5/8	9/16	
34528	<i>SJ7</i>	3/4	11/16	
34529	<i>SJ9</i>	1	15/16	













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# TiN Tray Assortments

**CHROMATE INDUSTRIAL CORP.** **TiN CARBIDE BURS, 12 PIECE SET** **P/N 17680**

**FEATURES**

- Cylinder Shape (SA)
- Cylinder Radius End (SC)
- Ball Shape (SD)
- Oval Shape (SE)













 CYLINDER SHAPE SA P/N 34354	 CYLINDER RADIUS END SC P/N 34404	 BALL SHAPE SD P/N 34451	EXPANSION
 CYLINDER SHAPE SA P/N 34359	 CYLINDER RADIUS END SC P/N 34410	 OVAL SHAPE SE P/N 34441	EXPANSION
 CYLINDER SHAPE SA P/N 34365	 BALL SHAPE SD P/N 34423	 OVAL SHAPE SE P/N 34443	EXPANSION
 CYLINDER RADIUS END SC P/N 34399	 BALL SHAPE SD P/N 34427	 OVAL SHAPE SE P/N 34446	EXPANSION

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**CHROMATE INDUSTRIAL CORP.** **TiN CARBIDE BURS, 12 PIECE SET** **P/N 17681**

**FEATURES**

- Tree Shape Radius End (SF)
- Tree Shape (SG)
- 14° Taper Radius End (SL)
- Cone Shape (SM)












 TREE SHAPE RADIUS END SF P/N 34455	 TREE SHAPE SG P/N 34476	 14° TAPER RADIUS END SL P/N 34497	EXPANSION
 TREE SHAPE RADIUS END SF P/N 34458	 TREE SHAPE SG P/N 34479	 CONE SHAPE SM P/N 34508	EXPANSION
 TREE SHAPE RADIUS END SF P/N 34463	 14° TAPER RADIUS END SL P/N 34491	 CONE SHAPE SM P/N 34510	EXPANSION
 TREE SHAPE SG P/N 34473	 14° TAPER RADIUS END SL P/N 34494	 CONE SHAPE SM P/N 34511	EXPANSION

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**CHROMATE INDUSTRIAL CORP.** **TiN SPIRAL POINT TAPS, 11 PIECE SET** **P/N 17682**

**FEATURES**

- TPI Sizes: 4-40 to 1/4-28













 4-40 P/N 12600	 8-36 P/N 12604	 12-24 P/N 12608	EXPANSION
 8-32 P/N 12601	 10-24 P/N 12605	 14-20 P/N 12609	EXPANSION
 6-40 P/N 12602	 10-22 P/N 12606	 14-28 P/N 12610	EXPANSION
 8-32 P/N 12603	 10-24 P/N 12607		EXPANSION

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**CHROMATE INDUSTRIAL CORP.** **TiN SPIRAL POINT TAPS, 12 PIECE SET** **P/N 17683**

**FEATURES**

- TPI Sizes: 5/16-18 to 3/4-16













 5/16-18 P/N 12611	 7/16-14 P/N 12615	 3/8-11 P/N 12619	EXPANSION
 5/16-24 P/N 12612	 7/16-20 P/N 12616	 3/8-14 P/N 12620	EXPANSION
 3/8-16 P/N 12613	 12-13 P/N 12617	 3/4-10 P/N 12621	EXPANSION
 3/8-24 P/N 12614	 10-21 P/N 12618	 3/4-11 P/N 12621	EXPANSION

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**CHROMATE INDUSTRIAL CORP.** **TiN COMBO DRILL & TAPS, 12 PIECE SET** **P/N 17684**

**FEATURES**

- TPI Sizes: 4-40 to 12-28











 4-40 P/N 12611	 8-32 P/N 12615	 12-24 P/N 12619	EXPANSION
 4-40 P/N 12612	 8-40 P/N 12616	 10-30 P/N 12620	EXPANSION
 6-40 P/N 12613	 8-32 P/N 12617	 12-24 P/N 12621	EXPANSION
 8-44 P/N 12614	 8-36 P/N 12618	 12-28 P/N 12621	EXPANSION

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**FEATURES**

- TPI Sizes: 1/4-20 to 12-20

 1/4-20 P/N 12712	 3/8-16 P/N 12716	 12-13 P/N 12720	EXPANSION
 1/4-28 P/N 12713	 3/8-24 P/N 12717	 10-20 P/N 12721	EXPANSION
 5/16-18 P/N 12714	 7/16-14 P/N 12718		EXPANSION
 5/16-24 P/N 12715	 7/16-20 P/N 12719		EXPANSION

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