



CERTIFIED TOOL & GRINDING

Leaders In

PREMIUM CUTTING TOOLS

Next Day Delivery
On In-Stock
Standards





SPECIALIZED, DEPENDABLE TOOLING

Certified Tool & Grinding is an industry leading manufacturer of cutting tools. We offer diverse services developed to support customers with quality job completion.

Our team of specialists are in touch with you and provide a custom service tailored to your individual needs.

PREMIUM CUTTING TOOLS

When you need repeatable precision, not just any tool will do. You need a premium cutting tool and service that guarantees accuracy.

CUSTOM TOOLS

PRECISION REGRINDS

HIGH PERFORMANCE STANDARDS

PCD AND INDEXABLE TOOLING

SURFACE PREPARATION

REPETITIVE, LOW VOLUME MACHINING

Our comprehensive offerings for CNC machining and autoloader grinding can provide custom machining solutions or regular services with fast turnaround times that don't compromise quality.

5 AXIS MACHINING

SURFACE GRINDING

OD GRINDING

ENGINEERING SOLUTIONS

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HIGH PERFORMANCE ENDMILLS



CERTIFIED BLUE LINE

LONGER TOOL LIFE

- Reduces friction, improves lubricity
- Easier to use than conventional diamond coated endmills
- Lower cutting force maximizes tool life



CERTIFIED GREEN LINE

BETTER PERFORMANCE

- Optimizes MRR, allows higher feed rates
- Deep polished flutes optimizes chip ejections
- Super-High transverse rupture operational performance



CERTIFIED RED LINE

Unparalleled Results

- Offset angles break up harmonics / optimize product performance
- Reduces tool wear
- Exclusive flute design improves chip ejection
- Lower cutting force maximizes tool life
- Ideal for finishing

At **Certified Tool & Grinding**, our team of engineers have developed a full line of specialized, high-performance endmills.

Each tool is designed and manufactured with the type of material, sizing and number of flutes needed for job-specific applications. In addition, CTG proprietary endmills are in-house coated with specially engineered PVD coatings to improve lubricity, add hardness, and reduce friction.

All CTG endmills, standard or custom, are designed to exceed industry standards in both wear resistance and repeatability.

Which line is best for your application?

BLUE LINE

Graphite

Steel

Cast Iron

GREEN LINE

Aluminum

Non-Ferrous Materials

RED LINE

Titanium

Stainless Steel

Tool Steel

Inconel

Our team is ready
to answer your questions

937.865.5934



Contact us for a quote

info@webctg.com

937.865.5934

CERTIFIED BLUE LINE - 4 FL

FLUTE DIAMETER	FLUTE LENGTH	SHANK DIAMETER	OVERALL LENGTH	PART NUMBER
1/4	5/8	1/4	2-1/2	74220
5/18	13/18	5/18	2-1/2	74280
3/8	8/8	3/8	2-1/2	74300
8/18	1	8/18	2-3/4	74340
1/2	1	1/2	3	74380
9/18	1-1/4	9/18	3-1/2	74390
5/8	1-1/2	5/8	3-1/2	74400
3/4	1-1/2	3/4	4	74420
8/8	1-1/2	8/8	4	74430
1	1-1/2	1	4	74440

CERTIFIED GREEN LINE - 3 FL

FLUTE DIAMETER	FLUTE LENGTH	SHANK DIAMETER	OVERALL LENGTH	PART NUMBER
1/4	5/8	1/4	2-1/2	64220
5/18	13/18	5/18	2-1/2	64280
3/8	8/8	3/8	2-1/2	64300
8/18	1	8/18	2-3/4	64340
1/2	1	1/2	3	64380
9/18	1-1/4	9/18	3-1/2	64390
5/8	1-1/2	5/8	3-1/2	64400
3/4	1-1/2	3/4	4	64420
8/8	1-1/2	8/8	4	64430
1	1-1/2	1	4	64440

CERTIFIED RED LINE - 5 FL

FLUTE DIAMETER	FLUTE LENGTH	SHANK DIAMETER	OVERALL LENGTH	PART NUMBER
1/4	5/8	1/4	2-1/2	84220
5/18	13/18	5/18	2-1/2	84260
3/8	8/8	3/8	2-1/2	84300
8/18	1	8/18	2-3/4	84340
1/2	1	1/2	3	84380
9/18	1-1/4	9/18	3-1/2	84390
5/8	1-1/2	5/8	3-1/2	84400
3/4	1-1/2	3/4	4	84420
8/8	1-1/2	8/8	4	84430
1	1-1/2	1	4	84440

STANDARD TOOLING

24 Hour

Quote Turnaround

SQUARE END Standard Length

FLUTE DIAMETER	FLUTE LENGTH	SHANK DIAMETER	OVERALL LENGTH	PART NUMBER
1/16	1/4	1/8	1 1/2	00100
5/64	1/4	1/8	1 1/2	00110
3/32	3/8	1/8	1 1/2	00120
7/64	3/8	1/8	1 1/2	00130
1/8	1/2	1/8	1 1/2	00140
9/64	9/16	3/16	2	00150
5/32	9/16	3/16	2	00160
11/64	9/16	3/16	2	00170
3/16	5/8	3/16	2	00180
13/64	5/8	1/4	2 1/2	00190
7/32	5/8	1/4	2 1/2	00200
1/4	3/4	1/4	2 1/2	00220
9/32	7/8	5/16	2 1/2	00240
5/16	7/8	5/16	2 1/2	00260
11/32	7/8	3/8	2 1/2	00280
3/8	7/8	3/8	2 1/2	00300
13/32	7/8	7/16	2 3/4	00320
7/16	1	7/16	2 3/4	00340
15/32	1	1/2	3	00360
1/2	1	1/2	3	00380
9/16	1 1/4	9/16	3	00390
5/8	1 1/4	5/8	3 1/2	00400
11/16	1 1/2	3/4	4	00410
3/4	1 1/2	3/4	4	00420
7/8	1 1/2	7/8	4	00430
1	1 1/2	1	4	00440

SQUARE END Extra Length

FLUTE DIAMETER	FLUTE LENGTH	SHANK DIAMETER	OVERALL LENGTH	PART NUMBER
1/8	3/4	1/8	3	11110
3/16	1	3/16	3	11130
3/16	1	3/16	4	11150
1/4	1	1/4	4	11170
1/4	1 1/2	1/4	4	11180
1/4	1 1/2	1/4	6	11190
5/16	1 1/4	5/16	4	11210
5/16	1 1/2	5/16	6	11230
3/8	1	3/8	4	11250
3/8	2	3/8	4	11260
3/8	1 1/2	3/8	6	11270
3/8	3	3/8	6	11280
1/2	1	1/2	4	11330
1/2	2	1/2	4	11340
1/2	1 1/2	1/2	6	11350
1/2	3	1/2	6	11360
5/8	2	5/8	6	11390
5/8	3	5/8	6	11400
3/4	2	3/4	6	11410
3/4	3	3/4	6	11420
3/4	4	3/4	7	11425
1	2	1	6	11430
1	3	1	6	11440
1	4	1	7	11445



We guarantee lot control and understand the value of tooling tolerances. All of our tools are 100% inspected pre and post production.

FLUTE DIAMETER	FLUTE LENGTH	SHANK DIAMETER	OVERALL LENGTH	PART NUMBER
1/16	1/4	1/8	1 1/2	00110
5/64	1/4	1/8	1 1/2	01110
3/32	3/8	1/8	1 1/2	01120
7/64	3/8	1/8	1 1/2	01130
1/8	1/2	1/8	1 1/2	01140
9/64	9/16	3/16	2	01150
5/32	9/16	3/16	2	01160
11/64	9/16	3/16	2	01170
3/16	5/8	3/16	2	01180
13/64	5/8	1/4	2 1/2	01190
7/32	5/8	1/4	2 1/2	01200
1/4	3/4	1/4	2 1/2	01220
9/32	7/8	5/16	2 1/2	01240
5/16	7/8	5/16	2 1/2	01260
11/32	7/8	3/8	2 1/2	01280
3/8	7/8	3/8	2 1/2	01300
13/32	7/8	7/16	2 3/4	01320
7/16	1	7/16	2 3/4	01340
15/32	1	1/2	3	01360
1/2	1	1/2	3	01380
9/16	1 1/4	9/16	3	01390
5/8	1 1/4	5/8	3 1/2	01400
11/16	1 1/2	3/4	4	01410
3/4	1 1/2	3/4	4	01420
7/8	1 1/2	7/8	4	01430
1	1 1/2	1	4	01440

BALLNOSE Standard Length

FLUTE DIAMETER	FLUTE LENGTH	SHANK DIAMETER	OVERALL LENGTH	PART NUMBER
1/8	3/4	1/8	3	12110
3/16	1	3/16	3	12130
3/16	1	3/16	4	12150
1/4	1	1/4	4	12170
1/4	1 1/2	1/4	4	12180
1/4	1 1/2	1/4	6	12190
5/16	1	5/16	4	12210
5/16	1 5/8	5/16	4	12220
3/8	1	3/8	4	12250
3/8	2	3/8	4	12260
3/8	1 1/2	3/8	6	12270
3/8	3	3/8	6	12280
1/2	1	1/2	4	12330
1/2	2	1/2	4	12340
1/2	1 1/2	1/2	6	12350
1/2	3	1/2	6	12360
5/8	2	5/8	6	12390
5/8	3	5/8	6	12400
3/4	2	3/4	6	12410
3/4	3	3/4	6	12420
1	2	1	6	12430
1	3	1	6	12440

BALLNOSE Extra Length

STANDARD TOOLING - CONTINUED

HOGMILL ROUGHERS

with TiAlN Coating

FLUTE DIAMETER	NUMBER OF FLUTES	FLUTE LENGTH	PART NUMBER
1/4	3	7/8	15120-03
5/16	3	7/8	15130-03
3/8	4	1	15140-04
7/16	4	1	15150-04
1/2	4	1 1/4	15160-04
5/8	4	1 1/2	15170-04
3/4	4	1 5/8	15180-04
1	5	1 5/8	15190-05
1	5	2 1/4	15195-05
1	5	2 5/8	15198-05

SQUARE END, 5-FLUTED, ENDMILLS - High Helix

with TiAlN Coating

FLUTE DIAMETER	LOC	OAL	PART NUMBER
1/8	1/2	1 1/2	50125
3/16	9/16	2	50187
1/4	3/4	2 1/2	50250
5/16	13/16	2 1/2	50312
3/8	1	2 1/2	50375
1/2	1 1/4	3	50500
1/2	2	4	50525
5/8	1 5/8	3 1/2	50625
3/4	1 1/2	4	50750
1	2	4	50100

SPECIALTY TOOL PRODUCTS

Die Casting - DIE CUT

Cutting tools designed for the most demanding, tight tolerance applications allowing you to exceed normal feeds & speeds.

Aerospace - AEROCUT

Our highest performance tooling engineered with geometry, PVD coating, and surface finishes to maximize operation.

FFL & Defense - FFL MAGNUM

High Performance cutting tools specifically designed for the machining of specialized firearm alloys.

STTP - Special Tools To Print

In-house services including PVD coating and carbide tool manufacturing processed to your own design specs. Special tools from modified standards to those designed by our Engineers.

OEMR - OEM Tool Refurbishment

OEM tool refurbishment program making millions of coated tools new again on all brands, not just our own.



Poly Crystalline Diamond Tooling

A favorite tooling solution for some of the most powerful participants in the manufacturing industry, PCD Tooling is guaranteed to produce a high accuracy, extended life tool for machining non-ferrous materials. Sharp cutting edges are created by bonding carbide with diamond micro grains resulting in material stronger than natural diamond.

- Extreme Tight Tolerances
- Maximized Manufacturing Time = Less Down Time
- Engineered and Designed to Fit your Operational Needs
- Regrinding and Re-tipping options available
- Highly Abrasive, Eliminating Secondary Operations Such as Deburring and Surface Grinding

10 - 300x the extended tool life
of a standard cutting tool

Value We understand the value of tooling tolerances and work one on one with each of our customers to breakdown and solve manufacturing roadblocks.

All of our tools are 100% inspected pre and post production. We provide specialized quality procedures for you to receive the best tooling solution for your application.

INDUSTRY FOCUS

AEROSPACE

Composites and Epoxy Resins

Fiberglass, Aluminum, and Si-Aluminum

Cowlings and Wing Tips

Trim Panels, Floor Posts, and Structural Components

Ducting

AUTOMOTIVE

Breaking Systems: Master Cylinders and Break Components

Aluminum, Si-Aluminum, Plastics, and Rubber

DEFENSE

CFRP and GFRP Materials

MMC and CMC Materials

Graphite, Kevlar

Tight Tolerance Required Manufacturing

ENERGY

Carbon and Graphite

Pump Housings

Blades and Mechanical Assemblies

Valve Assemblies



Our expertise doesn't stop at cutting tools.

Certified Tool & Grinding is committed to providing the highest quality tooling for your manufacturing needs.

Our in-house Flexible Machining Capabilities, PVD Coating, and Specialized Surface Treatments are just a few of our supporting divisions available to ensure you receive a product tailored to your individual process.

Your Success is Our Success.

CNC MILL & LATHE

- Carbide Tipped Tooling
- Machining Fixtures and Steel Parts
- Lathe Capabilities up to: Ø8", 10" OAL
- Mill Capabilities up to: 30" x 16"



CNC OD GRINDING

- Capabilities up to: Ø6", 12" OAL
- 3 Axis Precision Grinding
- Tolerance of .0001"
- Improved Concentricity
- Reduced Cycle Times

CNC SURFACE GRINDING

Our surface grinding equipment and experienced technicians complete precision surface grinding with accurate parallel edges and smooth surfaces.

Contact us for a detailed machining quote.



PVD COATING

IN-HOUSE COATING AND SURFACE PREPARATION

Our custom engineered processes result in superior adhesion through effective surface treatment solutions - before and after coating.

Diverse Services: Edge Preparation, Heat Treating, Polishing, Lubricants, Process Specifications for Regulatory Submissions, and Other Custom Engineered Solutions.

	TiN	TiCN	TiAlN	AlTiN	TiAlSiN	ZrN	CrN	AlCrN	AlCrN-HC
	Titanium Nitride	Titanium Carbon Nitride	Titanium Aluminum Nitride	Aluminum Titanium Nitride	Titanium Aluminum Silicon Nitride	Zirconium Nitride	Chromium Nitride	Aluminum Chromium Nitride	Aluminum Chromium Nitride - High Compression
COATING COLOR	Gold	Rose	Dark Gray	Dark Gray	Gray	Pale Gold	Silver	Blue - Gray	Blue - Gray
HARDNESS (HV)	2300 - 2500	2800 - 3200	2900 - 3100	3000 - 3400	3200 - 3500	2300 - 2500	1800 - 2100	3000 - 3200	3000 - 3200
COATING THICKNESS (μ = microns)	Industry Standard:	2.2μ - 3.2μ	2.5μ - 3.5μ	1.8μ - 3.2μ	1.8μ - 3.2μ	1.8μ - 3.2μ	2.2μ - 3.8	2.2μ - 3.8	1.8μ - 3.2μ
	Maximum Range:	1 - 8μ	1 - 8μ	1 - 5μ	1 - 5μ	1 - 4μ	1 - 5μ	1 - 5μ	1 - 5μ
	DCT Tolerance:	2.5μ ± 20%	2.8μ ± 20%	2.4μ ± 20%	2.5μ ± 20%	2.5μ ± 20%	3.0μ ± 20%	3.0μ ± 20%	2.5μ ± 20%
COEFFICIENT OF FRICTION (COF)	0.4	0.3	0.35	0.35	0.35	0.35	0.45	0.35	0.35
COMMON USE	Machining Ferrous Materials, Molding, Medical Instruments	Stamping, Punching, Blanking, Forming Tools, Tough Machining, Injection Molding	Machining Difficult Materials, Dry or High Temp Machining, Fast Feed Rate Machining, Core Pins	Dry Machining, High Temp Machining, Fast Feed Rate Machining, Hot Forging	Machining Cast Iron, Tough Applications in High Temp, High Temp Drilling	General Purpose Machining, Medical Industry Instruments	Corrosive Machining, Machining Aluminum, Copper, Metal Forming	Machining: Gear Cutting Tools, Inserts, Punching	Punches, Dies, Stamping, Coining, Beverage and Powdered Metal Industries
	Great general purpose coating for numerous applications.	Improved hardness, toughness, wear resistance over TiN coating with very low COF.	Forgiving coating with high surface hardness at elevated temps.	Versatile coating with a low COF and higher breakdown temperature than TiAlN.	Extremely hard and tough coating with a higher breakdown temperature than TiAlN / AlTiN. Excellent wear resistance when combined with DCT's post treatment process.	Exceptional abrasion resistance and lubricity.	Great sliding wear resistance, ductile and helps prevent cold welding. Similar in use to hard chrome plating.	Superb hot hardness with extra ordinary wear resistance under extreme mechanical stress.	Ideal for coating PM steels used on cold work applications. Enhances performance of precision instruments under extreme compressive loads.

Flexible Service and Supply Chain Solutions

Saving you time is important to us



PICKUP AND DELIVERY

Flexible delivery options tailored to your manufacturing schedule.

With 24 hour quote turnaround and expedited order options, we proudly provide the fastest industry turnaround.

FREE LOCAL PICKUP AND DELIVERY - Contact us today!



CARBIDE RECYCLING

We help you optimize and expand your purchasing capabilities.

Our on-site scrap carbide recycling service optimizes shop time and is an easy button for re-ordering your tool inventory.

We will place a recycling receptacle on-site for carbide collection and provide free on-site pickup to save you unnecessary management time.

After pickup, you will receive a credit that can be used on your next tool order!

JTV PROGRAM - JUST IN TIME TOOL VENDING



Standard and special tooling available at your fingertips.

We work with you to design and customize a vending machine to house the tooling you use the most, at any quantity. From standards to specials, inventory is stocked to match your production schedule eliminating the redundancy of placing repeat orders.

Vending service can be as hands on or hands off as you would like.

Contact our Sales Team for an appointment.



NO SMOKE AND MIRRORS, WE'RE HERE TO GET YOUR JOB DONE QUICKLY AND CORRECTLY

Certified Tool & Grinding and Dayton Coating Technologies are here to be your one-stop solution shop. We offer concierge service and even on-site training to make sure all of your requirements are met and your team is educated.

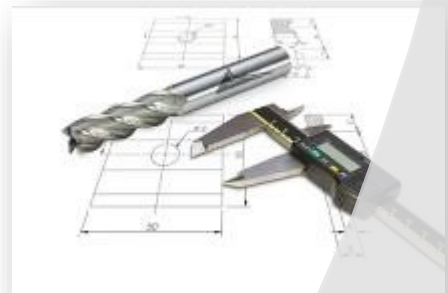


ENGINEERING SOLUTIONS

Whether you're looking for the perfect cutting tools or the correct PVD coating; we provide engineering solutions for the most challenging applications. This includes vertical integration to create rapid finished parts, special tool design, and various cost reduction programs that really create more value for you and your customer.

TOOL PART SPEC

From basic time-consuming setups to the most advanced components, our engineers can design and deliver a complete, progressive, multifunction tool package.



SURFACE PREPARATION We custom engineer surface preparations to extend tool life and improve performance for all manufacturing processes. Surface preparation is key to adhesion and adhesion is the most important step of our PVD coating process. Thickness control is critical and we are the best at repeatable coatings with $\pm 10\%$ target thickness.

Edge Prep Our proprietary surface preparation process designed to reduce surface asperity for an enhanced overall PVD coating performance.

PVD Lube A custom line of lube to enhance coated surface characteristics based on specific applications such as L36-MoS₂, L35-Teflon, etc.

REFERENCES

HIGH PERFORMANCE
FEEDS & SPEEDS CHART

Certified GREEN LINE: BETTER PERFORMANCE for aluminum and non-ferrous materials.

Certified GREEN LINE			CHIP LOAD (IPT, BASED ON CUTTER DIAMETER)							
MATERIAL	GRADE	SFM	1/8"	3/16"	1/4"	3/8"	1/2"	5/8"	3/4"	1"
Aluminum	440, 356, 380, C61300	550-1100	0.001	0.002	0.002	0.003	0.004	0.005	0.006	0.007
Aluminum	2024-T4/T6, 2014, 6061-T6/T651, 7075-T6	850-1600	0.001	0.002	0.002	0.003	0.004	0.005	0.006	0.007
Copper	C46400 Brass, High Silicon Bronze, A-17, C-17200	650-1100	0.001	0.001	0.002	0.0025	0.003	0.004	0.004	0.005
Copper	Yellow Brass, Lead Brass, Red Brass	850-1600	0.001	0.001	0.002	0.0025	0.003	0.004	0.004	0.005
Copper Alloys	Nickel Silver, Beryllium Copper, Oxygen-Free Copper, Bronze	750-1100	0.001	0.001	0.002	0.0025	0.003	0.004	0.004	0.005
Magnesium	Die-Cast, Extruded	1000-1300	0.001	0.002	0.002	0.003	0.004	0.006	0.008	0.009
Plastics	Polycarbonate	250-550	0.001	0.002	0.003	0.004	0.006	0.008	0.01	0.015
Plastics	Acrylics, Phenolics, Polysulfone	250-650	0.001	0.002	0.003	0.004	0.006	0.008	0.01	0.015

Certified RED LINE: UNPARALLELED RESULTS for high temperature alloys and titanium.

Certified RED LINE			CHIP LOAD (IPT, BASED ON CUTTER DIAMETER)							
MATERIAL	GRADE	SFM	1/8"	3/16"	1/4"	3/8"	1/2"	5/8"	3/4"	1"
Cobalt	NASA CO-W-RE, Haynes 21/36	40-80	0.0004	0.0005	0.001	0.001	0.001	0.001	0.0015	0.002
Cobalt	Stellite, HS-21, Haynes 25/188, L-605, X-40	60-100	0.0004	0.0005	0.001	0.001	0.001	0.001	0.0015	0.002
Iron	A-286, Haynes 556, Discoly, V57	50-80	0.0005	0.0005	0.001	0.0015	0.002	0.0025	0.003	0.004
Iron	Incoly 600-802	80-100	0.0005	0.0005	0.001	0.0015	0.002	0.0025	0.003	0.004
Nickel	Hastalloy-C/B/X, INCONEL 718/X/W, Waspalloy, Rene 41-95	40-60	0.0005	0.0005	0.001	0.001	0.002	0.0025	0.003	0.004
Nickel	INCONEL 600/625, Nickel 200-270, Monel 400-405	45-110	0.0005	0.0005	0.001	0.001	0.002	0.0025	0.003	0.004
Titanium	5AL-2.5Sn-Eli, 8Al-1 Mo-1V	90-130	0.0005	0.0005	0.0005	0.001	0.001	0.0015	0.002	0.004
Titanium	Pure Alloy, 6AL-4V, ASTM 1/2/3, 6AL-25N-4Zr-2Mo-Si	50-260	0.0005	0.0005	0.0005	0.001	0.001	0.0015	0.002	0.004

Certified BLUE LINE: LONGER TOOL LIFE for iron, steel, and stainless.

Certified BLUE LINE			CHIP LOAD (IPT, BASED ON CUTTER DIAMETER)							
MATERIAL	GRADE	SFM	1/8"	3/16"	1/4"	3/8"	1/2"	5/8"	3/4"	1"
Ductile Iron	Gray Cast Iron	125-450	0.0005	0.001	0.002	0.003	0.004	0.005	0.006	0.008
Ductile Iron	Ductile Cast Iron (21-36HRC)	90-150	0.0005	0.001	0.0015	0.002	0.002	0.003	0.004	0.005
Ductile Iron	Ductile Cast Iron (36+ HRC)4	120-450	0.0005	0.001	0.0015	0.002	0.002	0.003	0.004	0.005
Ductile Iron	Malleable	90-260	0.0005	0.001	0.002	0.003	0.004	0.005	0.006	0.008
Low Alloy	23XX, 31XX	120-160	0.0005	0.001	0.0015	0.002	0.003	0.004	0.005	0.006
Low Alloy	10XX, 11XX, 13XX	100-315	0.0005	0.001	0.0015	0.002	0.003	0.004	0.005	0.006
Medium Alloy	200, 250, 301	112-360	0.0005	0.0005	0.001	0.002	0.0025	0.0035	0.004	0.005
Medium Alloy	200, 250, 300	65-130	0.0005	0.0005	0.001	0.002	0.0025	0.0035	0.004	0.005
High Alloy	A-2/6/10, P-3/10, 01, 02, 06	125-275	0.0005	0.0005	0.001	0.001	0.001	0.0015	0.002	0.004
High Strength	4340M, EDT-150, HP9-430, 300M, D6-Ac, 11-10	80-180	0.0005	0.0005	0.001	0.001	0.001	0.0015	0.002	0.004
High Strength	4340, 6150, 52100, H11, H13	50-250	0.0005	0.0005	0.001	0.001	0.001	0.0015	0.002	0.004
Stainless (Austenic)	304, 310, 314, 316, 321, 330, 347, 348, 21-6-9	130-260	0.0001	0.0002	0.0005	0.001	0.0015	0.002	0.003	0.004
Stainless (Austenic)	200 Series, 302, 303, 304L, 316L	100-350	0.0001	0.0002	0.0005	0.001	0.0015	0.002	0.003	0.004
Stainless (PH)	17/4, 17/7, 15/7 Mo, 21-6-9, AF-71	95-265	0.0005	0.0005	0.001	0.001	0.002	0.002	0.004	0.006
Stainless (PH)	13/8, 15/5, AM-350/355	100-250	0.0005	0.0005	0.001	0.001	0.002	0.002	0.004	0.006
Stainless (Martensitic)	v420, 430F, 440C, 446	10-260	0.0001	0.0002	0.0005	0.0005	0.001	0.001	0.003	0.004
Stainless (Martensitic)	403, 410, 416	100-250	0.0001	0.0002	0.0005	0.0005	0.001	0.001	0.003	0.004
Carbon	Graphite	650-1000	0.004	0.004	0.006	0.008	0.01	0.01	0.015	0.02



FRACTION - DECIMAL

CONVERSION CHART

	<u>INCHES</u>	<u>MILLIMETERS</u>		<u>INCHES</u>	<u>MILLIMETERS</u>
$\frac{1}{32}$	$\frac{1}{64}$.015625	.3969	$\frac{17}{32}$	$\frac{33}{64}$.515625	13.096
$\frac{1}{16}$	.03125	.7938	$\frac{9}{16}$	.53125	13.493
$\frac{3}{32}$	$\frac{3}{64}$.046875	1.1906	$\frac{35}{64}$	.546875	13.890
$\frac{1}{8}$	.0625	1.5875	$\frac{37}{64}$	.5625	14.287
$\frac{3}{16}$	$\frac{5}{64}$.078125	1.9844	$\frac{19}{32}$	$\frac{39}{64}$.578125	14.684
$\frac{7}{32}$	$\frac{7}{64}$.109375	2.3813	$\frac{39}{64}$	.59375	15.081
$\frac{1}{4}$	.125	2.7781	$\frac{5}{8}$	.609375	15.478
$\frac{5}{16}$	$\frac{9}{64}$.140625	3.1750	$\frac{21}{32}$	.625	15.875
$\frac{3}{8}$	$\frac{11}{64}$.171875	3.5719	$\frac{41}{64}$	.640625	16.271
$\frac{7}{16}$	$\frac{13}{64}$.203125	3.9688	$\frac{43}{64}$	.65625	16.668
$\frac{1}{2}$	$\frac{15}{64}$.234375	4.3656	$\frac{11}{16}$	.671875	17.065
$\frac{5}{8}$	$\frac{17}{64}$.265625	4.7625	$\frac{23}{32}$	.6875	17.462
$\frac{3}{4}$	$\frac{19}{64}$.296875	5.1594	$\frac{45}{64}$	.703125	17.859
$\frac{7}{8}$	$\frac{21}{64}$.328125	5.5563	$\frac{47}{64}$	.71875	18.256
$\frac{15}{16}$	$\frac{23}{64}$.359375	5.9531	$\frac{49}{64}$	.734375	18.653
	$\frac{25}{64}$.390625	6.3500	$\frac{51}{64}$	.750	19.050
	$\frac{27}{64}$.421875	6.7469	$\frac{53}{64}$	.765625	19.447
	$\frac{29}{64}$.453125	7.1438	$\frac{55}{64}$	.78125	19.843
	$\frac{31}{64}$.484375	7.5406	$\frac{57}{64}$	.796875	20.240
		7.9375	$\frac{59}{64}$	.8125	20.6375
		8.3344	$\frac{61}{64}$	.828125	21.0345
		8.7313	$\frac{63}{64}$	.84375	21.431
		9.1282		.859375	21.8282
		9.5250		.875	22.2251
		9.9219		.890625	22.6220
		10.3188		.90625	23.0188
		10.7157		.921875	23.4157
		11.1125		.9375	23.8126
		11.5094		.953125	24.2095
		11.9063		.96875	24.6063
		12.3032		.984375	25.0032
		12.7001		1.000	25.4001



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