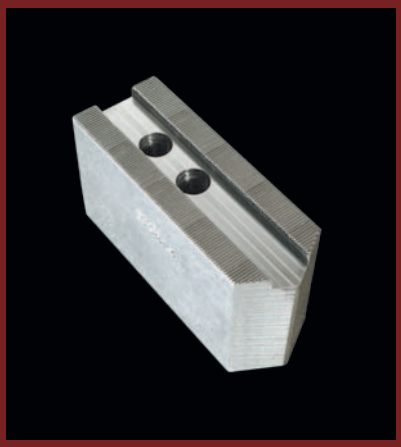
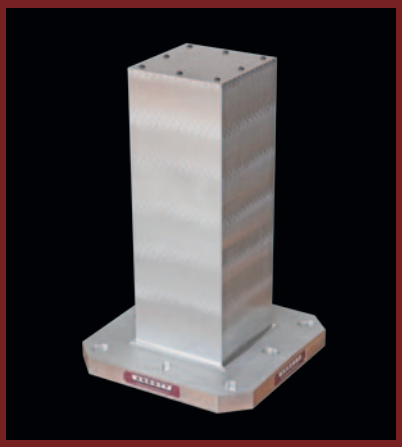
ABBOTT
WORKHOLDING PRODUCTS

GENERAL CATALOG


The Complete Solution

Pie Jaws® Soft Jaws Tooling Columns Master Plates

Sub Plates Hammers Turn Key Solutions

430 McCall Road • Manhattan, Kansas 66502
785.776.8555 • 800.528.6459 • Fax 785.587.0004
www.abbottworkholding.com

Made in U.S.A.
Since 1954

Company History

Proud of the Past, Prepared for the Future

In 1954, Abbott Engineering and Manufacturing Co. began producing soft jaws and specialized tooling on a sub-contract basis in Phoenix, AZ. The business initially consisted of one employee operating out of a rented Quonset hut, but quickly matured into a dynamic, profitable corporation.

In 1955, Abbott built the nation's first Pie Jaw® brand chuck jaw. This new type of jaw eliminated the problems inherent in rectangular jaws. Drawing on their experience and expertise, Abbott began testing their concept thoroughly. The prototype set consisted of three aluminum circular segmented jaws that were machined out of an aluminum billet. Shortly after that, the first order was placed for the new, innovative product.

Spurred on by cost-cutting techniques, an expanding product line and rapidly increasing acceptance of its Pie Jaw® innovation, Abbott emerged into national prominence in the early 1960s. By 1968 the company name had changed to Abbott Aluminum Chuck Jaws, a division of How-Mil Enterprises, Inc. With the advent of CNC machines, the product line was further expanded to include tooling columns, tooling blocks, master plates and segments, angle plates and parallels.

In early 1990, Carl Reed joined Abbott Aluminum Chuck Jaws as President and Chief Executive Officer. Since then, many changes have taken place within Abbott, resulting in dramatic improvements in the quality, availability and affordability of an expanded line of products. However, the biggest change occurred in August 1993.

After 40 years of operating a business in Phoenix, Arizona, Abbott Aluminum elected to move its entire operation to Manhattan, Kansas. In concert with the relocation, Abbott further expanded its line of workholding products to include an extensive inventory of steel and aluminum straight jaws, cast iron and steel Pie Jaws® and a very comprehensive inventory of aluminum tooling columns, sub-plates and associated fixturing.

As a direct result of the increased manufacturing capabilities, Abbott changed its name to Abbott Workholding Products, which more accurately described the multiple product lines being manufactured in the 37,000 square foot Kansas facility.

Abbott is the originator of and industry leader in aluminum chuck jaws and other lightweight products. We use certified (99.8%) pure aluminum in our hammers to avoid material contaminations when utilized on exotic high-temperature metals. Abbott Pie Jaw® brand chuck jaws are made of 319 cast aluminum. All

other CNC tooling products (angle plates, parallels and tooling columns, etc) are made of 713 (Tenzaloy™) aged to T-6 condition.

LIGHTWEIGHT chuck jaws

IMPROVED QUALITY AND increased speed in lathe operations are moneysaving reasons for the use of aluminum chuck jaws developed by Abbott Engineering & Manufacturing Co., P. O. Box 10301, Phoenix, Ariz.

The Abbott chuck jaws, machined from Alcoa aluminum bar stock, minimize the possibility of scratching or marking parts being lathed. In addition, the company has found that they have as much as five times the grip of comparable steel chucks.

Because of aluminum's light weight, wear on spindle bearings is cut down, in turn permitting fast spindle speeds and feeds. Other advantages of the aluminum chucks include ease in handling and quick "set-up" time.

Abbott's line of chuck jaws and chuck pot fixtures covers practically any need in secondary machine operations.

As significant as any other single technological advancement in precision toolmaking, our revolutionary Pie Jaw® brand chuck jaws technology has benefited manufacturers in a host of industries by enabling them to drastically increase their productivity, quality and profits while reducing production costs. Pie Jaws® can be used in place of rectangular jaws in more than 75% of all machine tool applications. In most cases, manufacturers quickly realize the many inherent benefits they offer.

1. Concentricities and close tolerances are easily and consistently maintained.

   Production quality standards are significantly improved.

2. Gripping and holding of material is positive and effective without distorting thin-walled materials.

3. Machine and tool life are drastically extended due to more effective application of coolants.

4. Substantially lighter-weight jaws enhance operation utilization and shop efficiency.

Today, Abbott manufactures more than 4,000 aluminum, steel and cast iron straight and Pie Jaw® brand chuck jaws, as well as master plates, segments, tooling columns, sub plates, and a variety of accessories. The significant weight and cost advantages of aluminum tooling columns and fixtures have necessitated the emergence of the product line for Abbott with over 120 different sizes and configurations currently in production. Skilled technicians allow Abbott to service requests for special orders that require precise customer specifications. Currently, Abbott's products are achieving greater industry acceptance than ever before. We have established customers all across North America as well as internationally. With more than $4 million in inventory, Abbott can provide fast, reliable, overnight delivery to most U.S. and international cities.

It is the dawn of a new era at Abbott Workholding Products. We are extremely proud of our past accomplishments and industry heritage. We will continue to provide the guaranteed quality products and personalized service that have helped us earn our enviable reputation as the industry leader for over 50 years.

Although we view our yesterdays as stepping stones to tomorrow, Abbott is preparing for the future today by adding technologically advanced equipment and expanding our production facilities. What's more, we intend to create new products and opportunities that capitalize on our extensive Workholding experience, expertise and manufacturing capabilities.

However, while achieving our new milestones, one thing will never change—Abbott's unwavering commitment to develop more effective ways to increase your productivity and profitability.

Table of Contents

Chuck Reference

Chuck	Jaw Interface Type	Style(s) Soft / Pie
ATS	1.5mm x 60° Serrated	P/Q
ATLAS	Am. Std. Tongue & Groove	A/D
AUTOBLOK	1.5mm x 60° Serrated 1/16" x 90° Serrated 3/32" x 90° Serrated Acme Serrated Key	P/Q J/K J/K C/L
BISON/ BERGMAN	Am. Std. Tongue & Groove	A/D
BTC	1.5mm x 60° Serrated	P/Q
BUCK	Am. Std. Tongue & Groove Square Serrated Key	A/D B/E
BULLARD	Bullard Style Jaws	C/W
CADILLAC	Am. Std. Tongue & Groove	A/D
CUSHMAN	Am. Std. Tongue & Groove Acme Serrated Key	A/D C/L
ERICSON	1/16" x 90° Serrated	J/K
FORKARDT	1/16" x 90° Serrated 3/32" x 90° Serrated Metric Tongue & Groove	J/K J/K A/D
FUJI	3mm x 60° Serrated	H/S
GAMET	1/16" x 90° Serrated	J/K
GISHOLT	Square Serrated Key	B/E
HARDINGE	1.5mm x 60° Serrated 1/16" x 90° Serrated	P/Q J/K
HOWA	1.5mm x 60° Serrated 3mm x 60° Serrated 1/16" x 90° Serrated Acme Serrated Key	P/Q H/S J/K C/L
HURON	Am. Std. Tongue & Groove	A/D
JAPANESE	1.5mm x 60° Serrated 3mm x 60° Serrated	P/Q H/S
KITAGAWA	1.5mm x 60° Serrated 3mm x 60° Serrated	P/Q H/S
LOGANSPORT	3mm x 60° Serrated Am. Std. Tongue & Groove Acme Serrated Key Square Serrated Key	H/S A/D C/L B/E

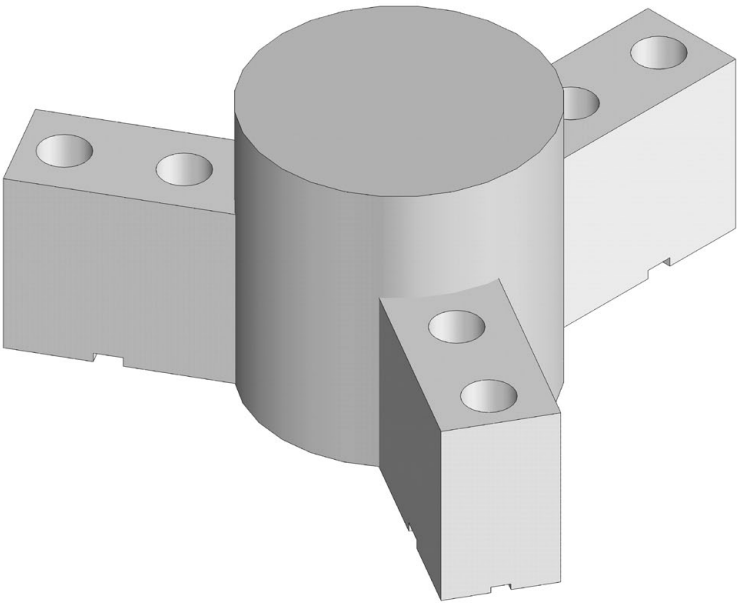
Chuck	Jaw Interface Type	Style(s) Soft / Pie
MATSUMOTO	1.5mm x 60° Serrated 3mm x 60° Serrated	P/Q H/S
MICROCENTRIC	Microcentric Air Chuck	R/M
MMK	1.5mm x 60° Serrated 3mm x 60° Serrated	P/Q H/S
NIKKO	1.5 mm x 60° Serrated	P/Q
NOBEL	Am. Std. Tongue & Groove	A/D
NORTHFIELD	Northfield Air Chuck	R/M
POWERHOLD	1/16" x 90° Serrated	J/K
PRATT BURNERD	1.5mm x 60° Serrated Am. Std. Tongue & Groove Acme Serrated Key	P/Q A/D C/L
ROHM	1/16" x 90° Serrated Am. Std. Tongue & Groove Metric Tongue & Groove	J/K A/D A/D
SCA	Am. Std. Tongue & Groove	A/D
S-P	Am. Std. Tongue & Groove Square Serrated Key	A/D B/E
SCHUNK	1.5mm x 60° Serrated 1/16" x 90° Serrated Metric Tongue & Groove	P/Q J/K A/D
SEIKI	1.5mm x 60° Serrated 3mm x 60° Serrated	P/Q H/S
SKINNER	Am. Std. Tongue & Groove	A/D
SMW	1.5mm x 60° Serrated 1/16" x 90° Serrated 3/32" x 90° Serrated Metric Tongue & Groove	P/Q J/K J/K A/D
STRONG	1.5mm x 60° Serrated	P/Q
WARNER/ SWASEY	Am. Std. Tongue & Groove Square Serrated Key	A/D B/E
YUASA	Am. Std. Tongue & Groove	A/D

Pie Jaw® Advantages

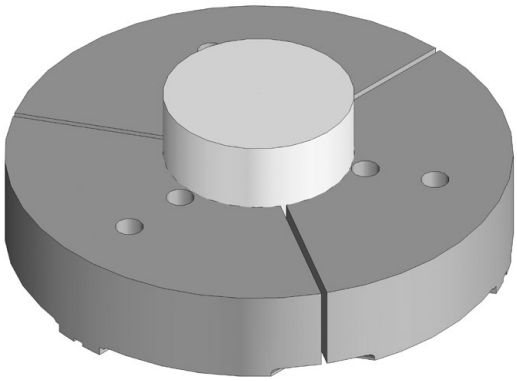
Abbott Workholding Products invented the lightweight aluminum Pie Jaw®.

The Abbott Pie Jaw® offers you the ability to make more accurate parts faster than you ever have before.

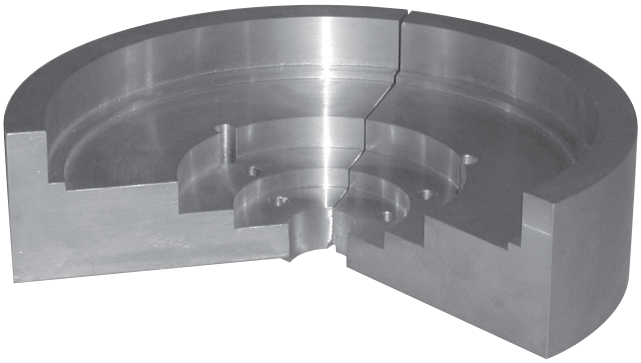
The Abbott Pie Jaw® maintains 360 degrees of contact, so parts cannot deform, giving you a greater degree of accuracy. Our Pie Jaws® are designed to grip the part more effectively without distorting thin walled or odd-shaped parts.

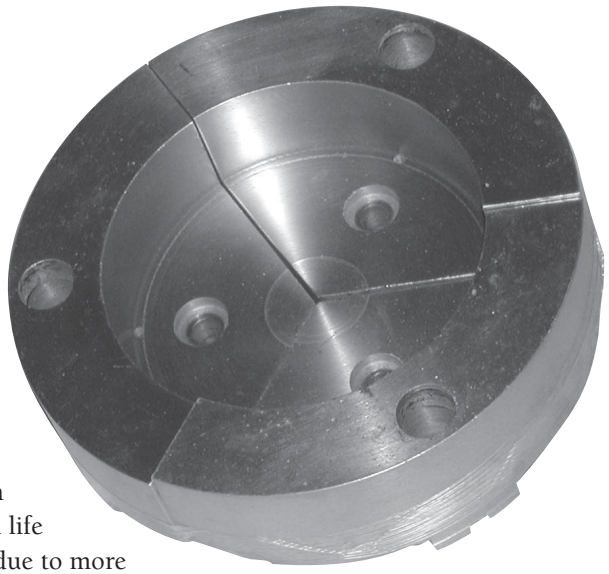


Standard soft jaws keep only three points of contact around the part. Constant chuck pressure could damage the part and at high rotations the part could deform between the contact points. Additionally, traditional soft jaws cannot be utilized on thin walled or odd-shaped parts without modification .



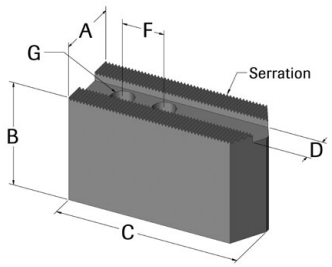
Most of our Pie Jaws® are made from aerospace aluminum alloys. The light weight of the aluminum Pie Jaws® enables you to rotate your chuck faster than before, so you can turn parts faster with less wear and tear on your machine. Substantially lighter weight jaws enhance operation utilization and shop efficiency.





Concentricities and close tolerances are easily and consistently maintained. In addition, machine and tool life are significantly extended due to more effective application of coolants.

In fact, Pie Jaws® can be used in over three-quarters of all your turning operations.

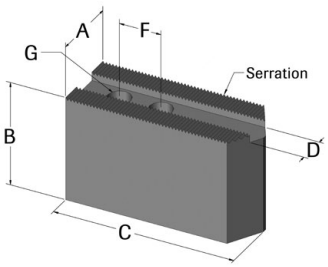


1.5mm X 60° Serrated Soft Jaws — Style P

Made with 6061 T-6 condition aluminum or 1018 steel
Add SQ suffix to part # for square nosed version

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A WIDTH	B HEIGHT	C LENGTH	D SLOT	F HOLE SPACING	G BOLT SIZE
4	KTT4A	KTT4S	1	1	2	0.315	0.591	6mm
	KTT4A1	KTT4S1	1	2	2	0.315	0.591	6mm
	KW4A	KW4S	1	1 1/2	2	0.394	0.551	8mm
	KW4A1	KW4S1	1	3	2	0.394	0.551	8mm
5	KTT5A	KTT5S	1	1 1/2	2 1/2	0.394	0.709	8mm
	KTT5A1	KTT5S1	1	3	2 1/2	0.394	0.709	8mm
	HAR5MSHA	HAR5MSHS	1	1 1/4	2.77	0.394	0.709	8mm
	HOW5A	HOW5S	1	1 1/2	2 1/2	0.394	0.748	8mm
	HOW5A1	HOW5S1	1	3	2 1/2	0.394	0.748	8mm
	SUG5ASTS	SUG5SSTS	1	1 1/2	2 1/2	0.433	0.669	8mm
6	HOW6A	HOW6S	1 1/4	1 1/2	3	0.433	0.787	10mm
	HOW6A1	HOW6S1	1 1/4	3	3	0.433	0.787	10mm
	SUG6ASTS	SUG6SSTS	1 1/4	1 1/2	3	0.433	0.984	8mm
	SUG6A1STS	SUG6S1STS	1 1/4	2	3	0.433	0.984	8mm
	SUG6A2STS	SUG6S2STS	1 1/4	3	3	0.433	0.984	8mm
	KTT6A	KTT6S	1 1/4	1 1/2	3	0.472	0.787	10mm
	KTT6ASQ	KTT6SSQ	1 1/4	1 1/2	3	0.472	0.787	10mm
	KTT6A1	KTT6S1	1 1/4	2	3	0.472	0.787	10mm
	KTT6A1SQ	KTT6S1SQ	1 1/4	2	3	0.472	0.787	10mm
	KTT6A2	KTT6S2	1 1/4	3	3	0.472	0.787	10mm
	KTT6A2SQ	KTT6S2SQ	1 1/4	3	3	0.472	0.787	10mm
	HAR6MSHA	HAR6MSHS	1 1/4	1 1/2	3.09	0.472	0.787	10mm
8	KTT8A	KTT8S	1 1/2	2	4	0.551	0.984	12mm
	KTT8ASQ	KTT8SSQ	1 1/2	2	4	0.551	0.984	12mm
	KTT8A1	KTT8S1	1 1/2	3	4	0.551	0.984	12mm
	KTT8A1SQ	KTT8S1SQ	1 1/2	3	4	0.551	0.984	12mm
	KTT8A2	KTT8S2	1 1/2	4	4	0.551	0.984	12mm
	KTT8A2SQ	KTT8S2SQ	1 1/2	4	4	0.551	0.984	12mm
	HAR8MSHA	HAR8MSHS	1 1/2	2	3.76	0.551	0.984	12mm
	SUG8ASTS	SUG8SSTS	1 1/2	2	4	0.551	1.181	10mm
	SUG8A1STS	SUG8S1STS	1 1/2	3	4	0.551	1.181	10mm
	HOW27M88A	HOW27M88S	1 1/2	2	4	0.630	0.984	12mm
	HOW27M88ASQ	HOW27M88SSQ	1 1/2	2	4	0.630	0.984	12mm
	HOW27M88A1	HOW27M88S1	1 1/2	3	4	0.630	0.984	12mm
	HOW27M88A1SQ	HOW27M88S1Q	1 1/2	3	4	0.630	0.984	12mm
10	KTT10A	KTT10S	1 1/2	2	4 1/2	0.630	1.181	12mm
	KTT10ASQ	KTT10SSQ	1 1/2	2	4 1/2	0.630	1.181	12mm
	KTT10A1	KTT10S1	1 1/2	3	4 1/2	0.630	1.181	12mm
	KTT10A1SQ	KTT10S1SQ	1 1/2	3	4 1/2	0.630	1.181	12mm
	KTT10A3	KTT10S3	2	3	5 1/2	0.630	1.181	12mm
	KTT10A4	KTT10S4	1 1/2	4	4 1/2	0.630	1.181	12mm
	KTT10A4SQ	KTT10S4SQ	1 1/2	4	4 1/2	0.630	1.181	12mm
	KTT10A6	KTT10S6	1 1/2	6	4 1/2	0.630	1.181	12mm
	HAR10MSHA	HAR10MSHS	1 1/2	2	4.56	0.630	1.181	12mm
	MTT10A	MTT10S	1 1/2	2	4 1/2	0.630	1.260	12mm
	MTT10A1	MTT10S1	1 1/2	3	4 1/2	0.630	1.260	12mm
	HOW27M10A	HOW27M10S	1 1/2	2	4 1/2	0.709	1.181	14mm
	HOW27M10A1	HOW27M10S1	1 1/2	3	4 1/2	0.709	1.181	14mm



1.5mm X 60° Serrated Soft Jaws — Style P

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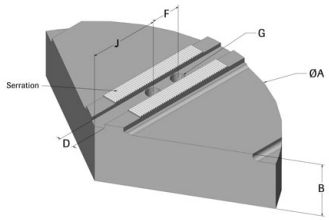
Made with 6061 T-6 condition aluminum or 1018 steel
Add SQ suffix to part # for square nosed version

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A WIDTH	B HEIGHT	C LENGTH	D SLOT	F HOLE SPACING	G BOLT SIZE
12	KTT12A	KTT12S	2	2	5 1/2	0.709	1.181	14mm
	KTT12ASQ	KTT12SSQ	2	2	5 1/2	0.709	1.181	14mm
	KTT12A1	KTT12S1	2	3	5 1/2	0.709	1.181	14mm
	KTT12A1SQ	KTT12S1SQ	2	3	5 1/2	0.709	1.181	14mm
	KTT12A4	KTT12S4	2	4	5 1/2	0.709	1.181	14mm
	KTT12A4SQ	KTT12S4SQ	2	4	5 1/2	0.709	1.181	14mm
	KTT12A6	KTT12S6	2	6	5 1/2	0.709	1.181	14mm
	SEIKI12A	SEIKI12S	1 1/2	2	4 1/4	0.709	1.260	14mm
	SEIKI12A1	SEIKI12S1	1 1/2	3	4 1/4	0.709	1.260	14mm
	SUG12ASTM	SUG12SSTM	2	2	5 1/2	0.788	1.378	12mm
	KTTB212A	KTTB212S	2	2	5 1/2	0.827	1.181	16mm
	KTTB212ASQ	KTTB212SSQ	2	2	5 1/2	0.827	1.181	16mm
	KTTB212A1	KTTB212S1	2	3	5 1/2	0.827	1.181	16mm
	KTTB212A1SQ	KTTB212S1SQ	2	3	5 1/2	0.827	1.181	16mm
	KTTB212A4	KTTB212S4	2	4	5 1/2	0.827	1.181	16mm
	KTTB212A4SQ	KTTB212S4SQ	2	4	5 1/2	0.827	1.181	16mm
	KTTB212A6	KTTB212S6	2	6	5 1/2	0.827	1.181	16mm
	HOW27M12A	HOW27M12S	2	2	5 1/2	0.827	1.378	16mm
	HOW27M12A1	HOW27M12S1	2	3	5 1/2	0.827	1.378	16mm
14	SUG14ASTG	SUG14SSTG	2	3	6 5/16	0.827	1.772	16mm
15-18	KTT15A	KTT15S	2 1/2	3	6 1/2	0.866	1.693	20mm
	KTT15ASQ	KTT15SSQ	2 1/2	3	6 1/2	0.866	1.693	20mm
	KTT15A1	KTT15S1	2 1/2	4	6 1/2	0.866	1.693	20mm
	KTT15A1SQ	KTT15S1SQ	2 1/2	4	6 1/2	0.866	1.693	20mm
	KTT15A6	KTT15S6	2 1/2	6	6 1/2	0.866	1.693	20mm
	KTTB215A	KTTB215S	2 1/2	3	6 1/2	1.004	1.693	20mm
	KTTB215ASQ	KTTB215SSQ	2 1/2	3	6 1/2	1.004	1.693	20mm
	KTTB215A1	KTTB215S1	2 1/2	4	6 1/2	1.004	1.693	20mm
	KTTB215A1SQ	KTTB215S1SQ	2 1/2	4	6 1/2	1.004	1.693	20mm
	KTTB215A6	KTTB215S6	2 1/2	6	6 1/2	1.004	1.693	20mm

1.5mm X 60° Serrated Pie Jaws® — Style Q



Made with 319 cast aluminum, cast iron, 1018 steel or A36 steel
Add CI prefix to aluminum part # for cast iron jaws
Add ST prefix to aluminum part # for steel jaws
Cast iron version weight is approximately 2.6 times that of aluminum
Steel version weight is approximately 2.8 times that of aluminum

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT
4	KTT4P	6	2	0.315	0.591	6mm	1	5.7
	KTT4P1	6	4	0.315	0.591	6mm	1	10.8
	KW4P	6	2	0.394	0.551	8mm	1	5.7
	KW4P1	6	4	0.394	0.551	8mm	1	10.8
5	KTT5P	6	2	0.394	0.709	8mm	1 1/8	5.7
	KTT5P1	6	4	0.394	0.709	8mm	1 1/8	10.8
	HAR5MSHP	6	2	0.394	0.709	8mm	1 11/16	5.7
	HAR5MSHP1	6	4	0.394	0.709	8mm	1 11/16	10.8
	HOW5P	6	2	0.394	0.748	8mm	1	5.7
	HOW5P1	6	4	0.394	0.748	8mm	1	10.8
	SUG5PSTS	6	2	0.433	0.669	8mm	1 27/32	5.7
6	SUG6PSTS	6	2	0.433	0.984	8mm	1 3/8	5.7
	SUG6P1STS	6	4	0.433	0.984	8mm	1 3/8	10.8
	KTT6P	6	2	0.472	0.787	10mm	1 21/32	5.7
	KTT6P1	6	4	0.472	0.787	10mm	1 21/32	10.8
	KTT86P	8	2	0.472	0.787	10mm	1 21/32	10.2
	KTT86P1	8	4	0.472	0.787	10mm	1 21/32	19.8
	KTT106P	10	2	0.472	0.787	10mm	1 21/32	16.2

1.5mm X 60° Serrated Pie Jaws® — Style Q
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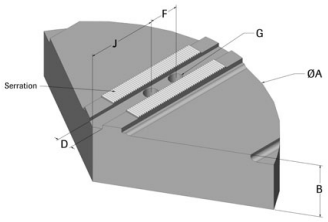


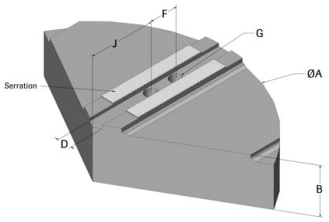
Made with 319 cast aluminum, cast iron, 1018 steel or A36 steel
Add CI prefix to aluminum part # for cast iron jaws
Add ST prefix to aluminum part # for steel jaws
Cast iron version weight is approximately 2.6 times that of aluminum
Steel version weight is approximately 2.8 times that of aluminum

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT
8	KTT8P	8	2	0.551	0.984	12mm	2	10.2
	KTT8P1	8	4	0.551	0.984	12mm	2	19.8
	KTT8P6	8	6	0.551	0.984	12mm	2	29.4
	KTT108P	10	2	0.551	0.984	12mm	2	16.2
	KTT108P1	10	4	0.551	0.984	12mm	2	31.5
	KTT128P	12	2	0.551	0.984	12mm	2	23.4
	KTT128P1	12	4	0.551	0.984	12mm	2	45.3
	HAR8MSHP	8	2	0.551	0.984	12mm	2 17/64	10.2
	HAR8MSHP1	8	4	0.551	0.984	12mm	2 17/64	19.8
	SUG8PSTS	8	2	0.551	1.181	10mm	1 27/32	10.2
	SUG8P1STS	8	4	0.551	1.181	10mm	1 27/32	19.8
	HOW27M88P	8	2	0.630	0.984	12mm	2	10.2
	HOW27M88P1	8	4	0.630	0.984	12mm	2	19.8
	AUTOBHM8P	8	2	0.669	0.906	12mm	2 1/2	10.2
	AUTOBHM8P1	8	4	0.669	0.906	12mm	2 1/2	19.8
10	KTT10P	10	2	0.630	1.181	12mm	2 1/2	16.2
	KTT10P1	10	4	0.630	1.181	12mm	2 1/2	31.5
	KTT10P6	10	6	0.630	1.181	12mm	2 1/2	46.8
	KTT1210P	12	2	0.630	1.181	12mm	2 1/2	23.4
	KTT1210P1	12	4	0.630	1.181	12mm	2 1/2	45.3
	KTT1510P	15	3	0.630	1.181	12mm	2 1/2	53.7
	KTT1510P1	15	4	0.630	1.181	12mm	2 1/2	70.8
	KTT1810P	18	3	0.630	1.181	12mm	2 1/2	77.7
	KTT1810P1	18	4	0.630	1.181	12mm	2 1/2	102.6
	HAR10MSHP	10	2	0.630	1.181	12mm	2 3/4	16.2
	HAR10MSHP1	10	4	0.630	1.181	12mm	2 3/4	31.5
	MTT10P	10	2	0.630	1.260	12mm	2 7/8	16.2
	MTT10P1	10	4	0.630	1.260	12mm	2 7/8	31.5
	HOW27M10P	10	2	0.709	1.181	14mm	3	16.2
	HOW27M10P1	10	4	0.709	1.181	14mm	3	31.5
12	KTT12P	12	2	0.709	1.181	14mm	3 1/2	23.4
	KTT12P1	12	4	0.709	1.181	14mm	3 1/2	45.3
	KTT12P6	12	6	0.709	1.181	14mm	3 1/2	67.2
	KTT1512P	15	3	0.709	1.181	14mm	3 1/2	53.7
	KTT1512P1	15	4	0.709	1.181	14mm	3 1/2	70.8
	KTT1812P	18	3	0.709	1.181	14mm	3 1/2	77.7
	KTT1812P1	18	4	0.709	1.181	14mm	3 1/2	102.6
	KTT2112P2	21	2	0.709	1.181	14mm	3 1/2	71.4
	KTT2112P	21	3	0.709	1.181	14mm	3 1/2	105.0
	KTT2112P1	21	4	0.709	1.181	14mm	3 1/2	139.2
	SEIKI12P	12	2	0.709	1.260	14mm	3 1/8	23.4
	SUG12PSTM	12	2	0.788	1.378	12mm	3 7/16	23.4
	SUG12P1STM	12	4	0.788	1.378	12mm	3 7/16	45.3
	KTTB212P	12	2	0.827	1.181	16mm	3 1/2	23.4
	KTTB212P1	12	4	0.827	1.181	16mm	3 1/2	45.3
	KTTB212P6	12	6	0.827	1.181	16mm	3 1/2	67.2
	KTT15B212P	15	3	0.827	1.181	16mm	3 1/2	53.7
	KTT15B212P1	15	4	0.827	1.181	16mm	3 1/2	70.8
	KTT18B212P	18	3	0.827	1.181	16mm	3 1/2	77.7
	KTT18B212P1	18	4	0.827	1.181	16mm	3 1/2	102.6
	KTT21B212P2	21	2	0.827	1.181	16mm	3 1/2	71.4
	KTT21B212P	21	3	0.827	1.181	16mm	3 1/2	105.0
	KTT21B212P1	21	4	0.827	1.181	16mm	3 1/2	139.2
	HOW27M12P	12	2	0.827	1.378	16mm	2 3/4	23.4
	HOW27M12P1	12	4	0.827	1.378	16mm	2 3/4	45.3
14	SUG14PSTG	15	3	0.827	1.772	16mm	4 3/16	53.7

1.5mm X 60° Serrated Pie Jaws® — Style Q

– continued

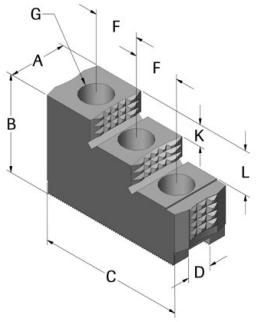


Made with 319 cast aluminum, cast iron, 1018 steel or A36 steel
Add CI prefix to aluminum part # for cast iron jaws
Add ST prefix to aluminum part # for steel jaws
Cast iron version weight is approximately 2.6 times that of aluminum
Steel version weight is approximately 2.8 times that of aluminum

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT
15	KTT15P2	15	2	0.866	1.693	20mm	4 5/16	36.6
	KTT15P	15	3	0.866	1.693	20mm	4 5/16	53.7
	KTT15P1	15	4	0.866	1.693	20mm	4 5/16	70.8
	KTT15P6	15	6	0.866	1.693	20mm	4 5/16	105.0
	KTT15P8	15	8	0.866	1.693	20mm	4 5/16	138.0
	KTT1815P	18	3	0.866	1.693	20mm	4 5/16	77.7
	KTT1815P1	18	4	0.866	1.693	20mm	4 5/16	102.6
	KTT2115P2	21	2	0.866	1.693	20mm	4 5/16	71.4
	KTT2115P	21	3	0.866	1.693	20mm	4 5/16	105.0
	KTT2115P1	21	4	0.866	1.693	20mm	4 5/16	139.2
	KTT2415P2	24	2	0.866	1.693	20mm	4 5/16	93.0
	KTT2415P	24	3	0.866	1.693	20mm	4 5/16	138.0
	KTT2415P1	24	4	0.866	1.693	20mm	4 5/16	182.4
	KTTB215P2	15	2	1.004	1.693	20mm	4 5/16	36.6
	KTTB215P	15	3	1.004	1.693	20mm	4 5/16	53.7
	KTTB215P1	15	4	1.004	1.693	20mm	4 5/16	70.8
	KTTB215P6	15	6	1.004	1.693	20mm	4 5/16	105.0
	KTTB215P8	15	8	1.004	1.693	20mm	4 5/16	138.0
	KTT18B215P	18	3	1.004	1.693	20mm	4 5/16	77.7
	KTT18B215P1	18	4	1.004	1.693	20mm	4 5/16	102.6
	KTT21B215P2	21	2	1.004	1.693	20mm	4 5/16	71.4
	KTT21B215P	21	3	1.004	1.693	20mm	4 5/16	105.0
	KTT21B215P1	21	4	1.004	1.693	20mm	4 5/16	139.2
	KTT24B215P2	24	2	1.004	1.693	20mm	4 5/16	93.0
	KTT24B215P	24	3	1.004	1.693	20mm	4 5/16	138.0
	KTT24B215P1	24	4	1.004	1.693	20mm	4 5/16	182.4
18	KTT18P	18	3	0.866	1.693	20mm	5	77.7
	KTT18P1	18	4	0.866	1.693	20mm	5	102.6
	KTT2118P2	21	2	0.866	1.693	20mm	5	71.4
	KTT2118P	21	3	0.866	1.693	20mm	5	105.0
	KTT2118P1	21	4	0.866	1.693	20mm	5	139.2
	KTT2418P2	24	2	0.866	1.693	20mm	5	93.0
	KTT2418P	24	3	0.866	1.693	20mm	5	138.0
	KTT2418P1	24	4	0.866	1.693	20mm	5	182.4

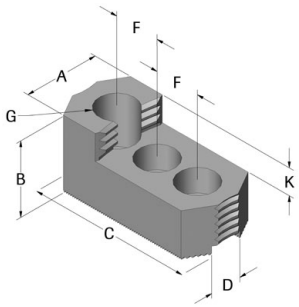
1.5mm X 60° Serrated Hard Jaws



Made with 1018 case hardened steel

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	D SLOT	F HOLE SPACING	G BOLT SIZE	K STEP 1	L STEP 2
6	KTT6HJDS	1.13	1.73	2.85	0.472	0.787	10mm	0.42	0.86
8	KTT8HJDS	1.50	2.23	3.17	0.551	0.984	12mm	0.63	1.25
10	KTT10HJDS	1.50	2.73	3.99	0.630	1.181	12mm	0.75	1.50
12	KTT12HJDS	2.00	2.48	4.16	0.709	1.181	14mm	0.68	1.36
	KTTB212HJDS	2.00	2.75	4.13	0.827	1.181	16mm	0.75	0.75
15	KTT15HJDS	2.50	2.98	5.88	0.866	1.693	20mm	0.75	1.54
	KTTB215HJDS	2.50	2.98	5.88	1.004	1.693	20mm	0.75	1.54

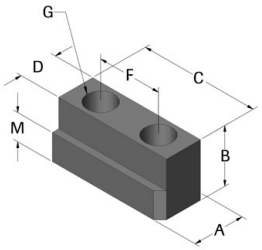


1.5mm X 60° Serrated Single Step Hard Jaws

Made with 1018 case hardened steel

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	D SLOT	F HOLE SPACING	G BOLT SIZE	K STEP 1
6	KTT6HJSS	1.13	1.50	2.85	0.472	0.787	10mm	0.48
8	KTT8HJSS	1.50	1.98	3.16	0.551	0.984	12mm	0.75
10	KTT10HJSS	1.50	1.98	3.99	0.630	1.181	12mm	0.76
12	KTT12HJSS	2.00	1.98	4.16	0.709	1.181	14mm	0.83
15	KTT15HJSS	2.50	2.48	5.88	0.866	1.693	20mm	0.93

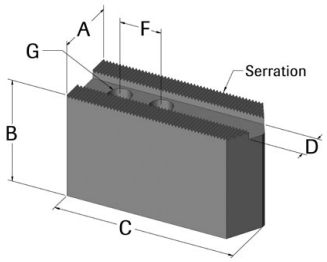


Jaw Nuts For 1.5mm X 60° Serrated Chucks

Made with 4140 steel

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	D TONGUE	F HOLE SPACING	G BOLT SIZE	M FLANGE
6	KTT6JN	0.69	0.87	1.44	0.472	0.787	10mm	0.295
8	KTT8JN	0.80	1.00	1.87	0.551	0.984	12mm	0.335
	KTTB208JN	0.81	0.81	1.83	0.551	0.984	12mm	0.335
	HOW27M88JN	0.98	1.00	2.00	0.630	0.984	12mm	0.375
10	KTT10JN	0.87	1.00	2.05	0.630	1.181	12mm	0.335
	KTTB210JN	0.89	0.85	2.01	0.630	1.181	12mm	0.335
12	KTT12JN	1.04	1.30	2.25	0.709	1.181	14mm	0.530
	KTTB212JN	1.16	1.09	2.19	0.827	1.181	16mm	0.450
15	KTT15JN	1.32	1.79	3.15	0.866	1.693	20mm	0.650



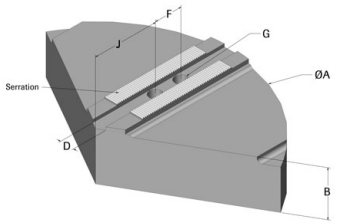
3mm X 60° Serrated Soft Jaws — Style H

Made with 6061 T-6 condition aluminum or 1018 steel
Add SQ suffix to part # for square nosed version

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A WIDTH	B HEIGHT	C LENGTH	D SLOT	F HOLE SPACING	G BOLT SIZE
8	HOW8A	HOW8S	1 1/2	2	4	0.551	0.984	12mm
	HOW8A1	HOW8S1	1 1/2	3	4	0.551	0.984	12mm
10	HOW10A	HOW10S	1 1/2	2	4 1/2	0.630	1.181	12mm
	HOW10A1	HOW10S1	1 1/2	3	4 1/2	0.630	1.181	12mm
	HOW10A4	HOW10S4	1 1/2	4	4 1/2	0.630	1.181	12mm
12	HOW12A	HOW12S	2	2	5 1/2	0.709	1.181	14mm
	HOW12A1	HOW12S1	2	3	5 1/2	0.709	1.181	14mm
15	HOW7MA15A	HOW7MA15S	2	2 1/2	5	0.827	1.575	16mm
	MTT15A	MTT15S	2 1/2	3	6 1/2	0.866	1.969	20mm
	MTT15A1	MTT15S1	2 1/2	4	6 1/2	0.866	1.969	20mm
	HOW27M15A	HOW27M15S	2 1/2	3	6 1/2	1.024	1.654	20mm
	HOW15A	HOW15S	2 1/2	3	6 1/2	1.024	1.969	20mm
	HOW15A1	HOW15S1	2 1/2	4	6 1/2	1.024	1.969	20mm
21-24	KTT21A	KTT21S	2 1/2	3	8 1/4	0.984	2.362	20mm
	KTT21A1	KTT21S1	2 1/2	4	8 1/4	0.984	2.362	20mm
	KTT21A5	KTT21S5	2 1/2	5	8 1/4	0.984	2.362	20mm

3mm X 60° Serrated Pie Jaws® — Style S

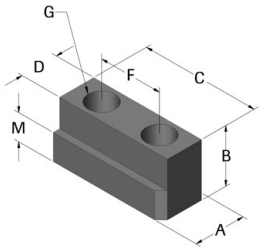


Made with 319 cast aluminum, cast iron, 1018 steel or A36 steel
Add CI prefix to aluminum part # for cast iron jaws
Add ST prefix to aluminum part # for steel jaws
Cast iron version weight is approximately 2.6 times that of aluminum
Steel version weight is approximately 2.8 times that of aluminum

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT
8	HOW8P	8	2	0.551	0.984	12mm	2	10.2
	HOW8P1	8	4	0.551	0.984	12mm	2	19.8
10	HOW10P	10	2	0.630	1.181	12mm	3	16.2
	HOW10P1	10	4	0.630	1.181	12mm	3	31.5
12	HOW12P	12	2	0.709	1.181	14mm	3 5/8	23.4
	HOW12P1	12	4	0.709	1.181	14mm	3 5/8	45.3
	HOW1512P	15	3	0.709	1.181	14mm	3 5/8	53.7
	HOW1812P	18	3	0.709	1.181	14mm	3 5/8	77.7
15	HOW7MA15P	15	3	0.827	1.575	16mm	4 1/8	53.7
	HOW7MA15P1	15	4	0.827	1.575	16mm	4 1/8	70.8
	MTT15P	15	3	0.866	1.969	20mm	4 1/8	53.7
	MTT15P1	15	4	0.866	1.969	20mm	4 1/8	70.8
	MTT15P6	15	6	0.866	1.969	20mm	4 1/8	105.0
	MTT1815P	18	3	0.866	1.969	20mm	4 1/8	77.7
	MTT1815P1	18	4	0.866	1.969	20mm	4 1/8	102.6
	MTT2115P	21	3	0.866	1.969	20mm	4 1/8	105.0
	MTT2115P1	21	4	0.866	1.969	20mm	4 1/8	139.2
	HOW27M15P	15	3	1.024	1.654	20mm	4 5/16	53.7
	HOW15P	15	3	1.024	1.969	20mm	2 3/4	53.7
	HOW15P1	15	4	1.024	1.969	20mm	2 3/4	70.8
18	KTT1821P	18	3	0.984	2.362	20mm	4 3/4	77.7
	KTT1821P1	18	4	0.984	2.362	20mm	4 3/4	102.6
	KTT21P2	21	2	0.984	2.362	20mm	4 3/4	71.4
	KTT21P	21	3	0.984	2.362	20mm	4 3/4	105.0
	KTT21P1	21	4	0.984	2.362	20mm	4 3/4	139.2
	KTT2421P2	24	2	0.984	2.362	20mm	4 3/4	93.0
	KTT2421P	24	3	0.984	2.362	20mm	4 3/4	138.0
	KTT2421P1	24	4	0.984	2.362	20mm	4 3/4	182.4
	KTT2821P	28	3	0.984	2.362	20mm	4 3/4	186.0
	KTT2821P1	28	4	0.984	2.362	20mm	4 3/4	249.6
24	KTT24P2	24	2	0.984	2.362	20mm	7 1/2	93.0
	KTT24P	24	3	0.984	2.362	20mm	7 1/2	138.0
	KTT24P1	24	4	0.984	2.362	20mm	7 1/2	182.4
	KTT2824P	28	3	0.984	2.362	20mm	7 1/2	186.0
	KTT2824P1	28	4	0.984	2.362	20mm	7 1/2	249.6

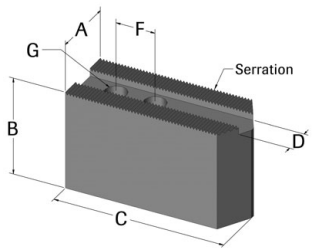
Jaw Nuts For 3mm X 60° Serrated Chucks



Made with 4140 steel

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	D TONGUE	F HOLE SPACING	G BOLT SIZE	M FLANGE
15	MTT15JN	1.33	1.50	3.15	0.866	1.969	3/4	0.750



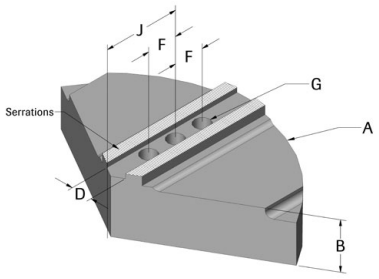
1/16" X 90° Serrated Soft Jaws — Style J

Made with 6061 T-6 condition aluminum or 1018 steel
Add SQ suffix to part # for square nosed version

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A WIDTH	B HEIGHT	C LENGTH	D SLOT	F HOLE SPACING	G BOLT SIZE
5	HAR5ESHA	HAR5ESHS	1	1 1/4	2 1/2	0.433	0.709	5/16
6	PH6A	PH6S	1 1/4	1 1/2	3	0.433	0.719	5/16
	PH6A1	PH6S1	1 1/4	2	3	0.433	0.719	5/16
	PH6A2	PH6S2	1 1/4	3	3	0.433	0.719	5/16
	HAR6ESHA	HAR6ESHS	1 1/4	1 1/2	3.09	0.551	0.787	3/8
	HAR6ESHA1	HAR6ESHS1	1 1/4	2	3.09	0.551	0.787	3/8
	HAR6ESHA2	HAR6ESHS2	1 1/4	3	3.09	0.551	0.787	3/8
6.5	PH6.5A	PH6.5S	1 1/4	1 1/2	3	0.551	0.719	3/8
	SMW6.5A	SMW6.5S	1 1/4	1 1/2	3	0.551	0.650	10mm
	SMW6.5A1	SMW6.5S1	1 1/4	2	3	0.551	0.650	10mm
	SMW6.5A2	SMW6.5S2	1 1/4	3	3	0.551	0.650	10mm
8	ATS8A	ATS8S	1 1/2	2	4	0.669	0.875	1/2
	ATS8A1	ATS8S1	1 1/2	3	4	0.669	0.875	1/2
	HAR8ESHA	HAR8ESHS	1 1/2	2	3.68	0.669	0.880	7/16
	SMW8A	SMW8S	1 1/2	2	4	0.669	0.906	12mm
	SMW8A1	SMW8S1	1 1/2	3	4	0.669	0.906	12mm
	HOW12MA8A	HOW12MA8S	1 1/2	2	4	0.669	0.984	12mm
10	PH10A	PH10S	1 1/2	2	4 1/2	0.551	0.875	3/8
	PH10A1	PH10S1	1 1/2	3	4 1/2	0.551	0.875	3/8
	SMW10A	SMW10S	1 1/2	2	4 1/2	0.827	1.181	16mm
	SMW10A1	SMW10S1	1 1/2	3	4 1/2	0.827	1.181	16mm
	ATS10A	ATS10S	1 1/2	2	4 1/2	0.827	1.187	1/2
	ATS10A1	ATS10S1	1 1/2	3	4 1/2	0.827	1.187	1/2
	HAR10ESHA	HAR10ESHS	1 1/2	2	4.72	0.827	1.187	5/8
12	PH12A	PH12S	2	2	5 1/2	0.787	1.187	1/2
	PH12A1	PH12S1	2	3	5 1/2	0.787	1.187	1/2
	PH12A2	PH12S2	2	4	5 1/2	0.787	1.187	1/2
	SMW12A	SMW12S	2	2	5 1/2	0.827	1.181	16mm
	SMW12A1	SMW12S1	2	3	5 1/2	0.827	1.181	16mm
	SMW12A2	SMW12S2	2	4	5 1/2	0.827	1.181	16mm
	ATS12A	ATS12S	2	2	5 1/2	0.827	1.187	1/2
	ATS12A1	ATS12S1	2	3	5 1/2	0.827	1.187	1/2
15	PH15A	PH15S	2 1/2	3	6 1/2	0.827	1.562	5/8
	PH15A1	PH15S1	2 1/2	4	6 1/2	0.827	1.562	5/8
	PH15A5	PH15S5	2 1/2	5	6 1/2	0.827	1.562	5/8

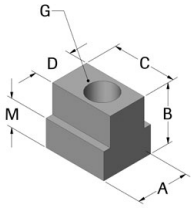
1/16" X 90° Serrated Pie Jaws® — Style K



Made with 319 cast aluminum, cast iron, 1018 steel or A36 steel
Add CI prefix to aluminum part # for cast iron jaws
Add ST prefix to aluminum part # for steel jaws
Cast iron version weight is approximately 2.6 times that of aluminum
Steel version weight is approximately 2.8 times that of aluminum

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT
5	HAR5ESHP	6	2	0.433	0.709	5/16	1 45/64	5.7
6	PH6P	6	2	0.433	0.719	5/16	1 7/16	5.7
	PH6P1	6	4	0.433	0.719	5/16	1 7/16	10.8
	HAR6ESHP	6	2	0.551	0.787	3/8	1 31/32	5.7
	HAR6ESHP1	6	4	0.551	0.787	3/8	1 31/32	10.8
6.5	PH6.5P	6	2	0.551	0.719	3/8	1 7/8	5.7
	PH6.5P1	6	4	0.551	0.719	3/8	1 7/8	10.8
	SMW6.5P	6	2	0.551	0.650	10mm	2	5.7
	SMW6.5P1	6	4	0.551	0.650	10mm	2	10.8
8	ATS8P	8	2	0.669	0.875	1/2	2 1/2	10.2
	ATS8P1	8	4	0.669	0.875	1/2	2 1/2	19.8
	HAR8ESHP	8	2	0.669	0.880	7/16	2 19/64	10.2
	HAR8ESHP1	8	4	0.669	0.880	7/16	2 19/64	19.8
	SMW8P	8	2	0.669	0.906	12mm	2 1/2	10.2
	SMW8P1	8	4	0.669	0.906	12mm	2 1/2	19.8
	HOW12MA8P	8	2	0.669	0.984	12mm	2	10.2
	HOW12MA8P1	8	4	0.669	0.984	12mm	2	19.8
10	PH810P	8	2	0.551	0.875	3/8	2 11/16	10.2
	PH810P1	8	4	0.551	0.875	3/8	2 11/16	19.8
	PH10P	10	2	0.551	0.875	3/8	3 1/2	16.2
	PH10P1	10	4	0.551	0.875	3/8	3 1/2	31.5
	SMW10P	10	2	0.827	1.181	16mm	3	16.2
	SMW10P1	10	4	0.827	1.181	16mm	3	31.5
	SMW1210P	12	2	0.827	1.181	16mm	3	23.4
	SMW1510P	15	3	0.827	1.181	16mm	3	53.7
	SMW1810P	18	3	0.827	1.181	16mm	3	77.7
	ATS10P	10	2	0.827	1.187	1/2	3 13/64	16.2
	ATS10P1	10	4	0.827	1.187	1/2	3 13/64	31.5
	HAR10ESHP	10	2	0.827	1.187	5/8	2 3/4	16.2
	HAR10ESHP1	10	4	0.827	1.187	5/8	2 3/4	31.5
12	PH1012P	10	2	0.787	1.187	1/2	2 3/16	16.2
	PH1012P1	10	4	0.787	1.187	1/2	2 3/16	31.5
	PH12P	12	2	0.787	1.187	1/2	4	23.4
	PH12P1	12	4	0.787	1.187	1/2	4	45.3
	PH1512P	15	3	0.787	1.187	1/2	4	53.7
	SMW12P	12	2	0.827	1.181	16mm	4	23.4
	SMW12P1	12	4	0.827	1.181	16mm	4	45.3
	ATS12P	12	2	0.827	1.187	1/2	3 13/16	23.4
	ATS12P1	12	4	0.827	1.187	1/2	3 13/16	45.3
15	PH15P	15	3	0.827	1.562	5/8	5	53.7
	PH15P1	15	4	0.827	1.562	5/8	5	70.8
	PH1815P	18	3	0.827	1.562	5/8	5	77.7
	PH1815P1	18	4	0.827	1.562	5/8	5	102.6
	PH2115P	21	3	0.827	1.562	5/8	5	105.0
	PH2415P	24	3	0.827	1.562	5/8	5	138.0

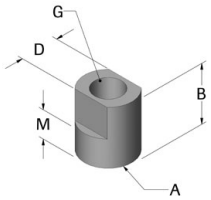


Jaw Nuts For 1/16" X 90° Serrated Chucks

Made with 4140 steel

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	D TONGUE	G BOLT SIZE	M FLANGE
10	PH10JN	0.75	0.61	0.75	0.551	3/8	0.252
12	PH12JN	1.00	0.85	1.00	0.787	1/2	0.325
15	PH15JN	1.00	1.00	1.13	0.827	5/8	0.430

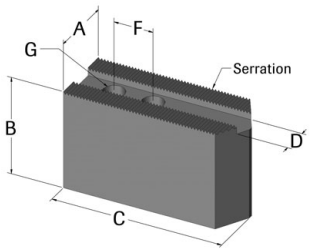


Jaw Nuts For 1/16" X 90° Serrated Chucks

Made with 4140 steel

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	PART#	A DIAMETER	B HEIGHT	C LENGTH	D TONGUE	G BOLT SIZE	M FLANGE
10	ATS10JN	1.17	1.10	N/A	0.827	1/2	0.420



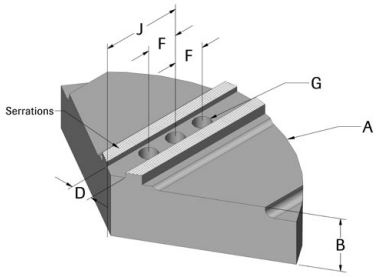
3/32" X 90° Serrated Soft Jaws — Style J

Made with 6061 T-6 condition aluminum or 1018 steel
Add SQ suffix to part # for square nosed version

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A WIDTH	B HEIGHT	C LENGTH	D SLOT	F HOLE SPACING	G BOLT SIZE
16	SMW16A	SMW16S	2 1/2	3	6 1/2	1.004	1.496	20mm
	SMW16A1	SMW16S1	2 1/2	4	6 1/2	1.004	1.496	20mm
	ATS16A	ATS16S	2 1/2	3	6 1/2	1.004	1.562	3/4
	ATS16A1	ATS16S1	2 1/2	4	6 1/2	1.004	1.562	3/4
18	AUTO18A1	AUTO18S1	2 1/2	4	10	1.102	2.700	3/4
20	SMW20A	SMW20S	2 1/2	3	8 1/4	1.004	1.496	20mm
	SMW20A1	SMW20S1	2 1/2	4	8 1/4	1.004	1.496	20mm
	ATS20A	ATS20S	2 1/2	3	8 1/4	1.004	1.562	3/4
	ATS20A1	ATS20S1	2 1/2	4	8 1/4	1.004	1.562	3/4
	AB20A	AB20S	2 1/2	2 1/2	6.7	1.102	2.990	3/4
	AB20A1	AB20S1	2 1/2	4	6.7	1.102	2.990	3/4
25	SMW25A	SMW25S	3	4	11	1.004	1.496	20mm
	ATS25A	ATS25S	3	4	11	1.181	2.500	1

3/32" X 90° Serrated Pie Jaws® — Style K

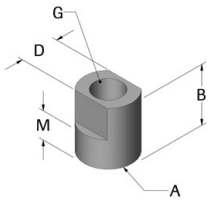


Made with 319 cast aluminum, cast iron, 1018 steel or A36 steel
Add CI prefix to aluminum part # for cast iron jaws
Add ST prefix to aluminum part # for steel jaws
Cast iron version weight is approximately 2.6 times that of aluminum
Steel version weight is approximately 2.8 times that of aluminum

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT
16	SMW1516P	15	3	1.004	1.496	20mm	4 7/8	53.7
	SMW1516P1	15	4	1.004	1.496	20mm	4 7/8	70.8
	SMW1816P	18	3	1.004	1.496	20mm	4 7/8	77.7
	SMW1816P1	18	4	1.004	1.496	20mm	4 7/8	102.6
	ATS1516P	15	3	1.004	1.562	3/4	4 9/16	53.7
	ATS1516P1	15	4	1.004	1.562	3/4	4 9/16	70.8
	ATS1816P	18	3	1.004	1.562	3/4	4 9/16	77.7
	ATS1816P1	18	4	1.004	1.562	3/4	4 9/16	102.6
20	SMW1820P	18	3	1.004	1.496	20mm	6 1/2	77.7
	SMW1820P1	18	4	1.004	1.496	20mm	6 1/2	102.6
	SMW2120P	21	3	1.004	1.496	20mm	6 1/2	105.0
	SMW2120P1	21	4	1.004	1.496	20mm	6 1/2	139.2
	ATS1820P	18	3	1.004	1.562	3/4	6 11/16	77.7
	ATS1820P1	18	4	1.004	1.562	3/4	6 11/16	102.6
	ATS2120P	21	3	1.004	1.562	3/4	6 11/16	105.0
	ATS2120P1	21	4	1.004	1.562	3/4	6 11/16	139.2
25	SMW2425P	24	3	1.004	1.496	20mm	7 7/8	138.0
	SMW2425P1	24	4	1.004	1.496	20mm	7 7/8	182.4
	SMW2825P	28	3	1.004	1.496	20mm	7 7/8	186.0
	SMW2825P1	28	4	1.004	1.496	20mm	7 7/8	249.6
	ATS2425P	24	3	1.181	2.500	1	8 1/8	138.0
	ATS2425P1	24	4	1.181	2.500	1	8 1/8	182.4
	ATS2825P	28	3	1.181	2.500	1	8 1/8	186.0
	ATS2825P1	28	4	1.181	2.500	1	8 1/8	249.6

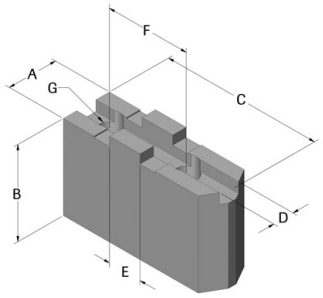
Jaw Nuts For 3/32" X 90° Serrated Chucks



Made with 4140 steel

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	PART#	A DIAMETER	B HEIGHT	C LENGTH	D TONGUE	G BOLT SIZE	M FLANGE
16-20	ATS16JN	1.34	1.34	N/A	1.004	3/4	0.570



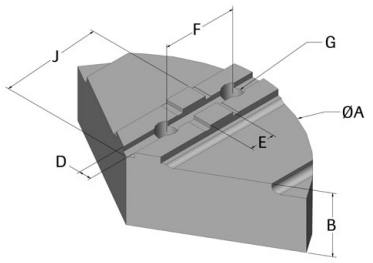
American Standard Tongue & Groove Soft Jaws — Style A

Made with 6061 T-6 condition aluminum or 1018 steel
Add SQ suffix to part # for square nosed version

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A WIDTH	B HEIGHT	C LENGTH	D SLOT	E TONGUE	F HOLE SPACING	G BOLT SIZE
4	TG4MDA	TG4MDS	1	1 1/2	2	0.250	0.438	1.188	1/4
5	TG5MDA	TG5MDS	1	1 1/2	2 1/2	0.313	0.500	1.250	5/16
6	TG6MDA	TG6MDS	1 1/4	1 1/2	3	0.313	0.500	1.500	3/8
	TG6MDASQ	TG6MDSSQ	1 1/4	1 1/2	3	0.313	0.500	1.500	3/8
	TG6MDA1	TG6MDS1	1 1/4	2	3	0.313	0.500	1.500	3/8
	TG6MDA2	TG6MDS2	1 1/4	3	3	0.313	0.500	1.500	3/8
	TG6MDA2SQ	TG6MDS2SQ	1 1/4	3	3	0.313	0.500	1.500	3/8
	TG6HDA	TG6HDS	1 1/4	1 1/2	3	0.313	0.500	1.500	7/16
	TG6HDASQ	TG6HDSSQ	1 1/4	1 1/2	3	0.313	0.500	1.500	7/16
	TG6HDA1	TG6HDS1	1 1/4	2	3	0.313	0.500	1.500	7/16
	TG6HDA2	TG6HDS2	1 1/4	3	3	0.313	0.500	1.500	7/16
	TG6HDA2SQ	TG6HDS2SQ	1 1/4	3	3	0.313	0.500	1.500	7/16
8	TG8MDA	TG8MDS	1 1/2	2	4	0.313	0.500	1.750	3/8
	TG8MDASQ	TG8MDSSQ	1 1/2	2	4	0.313	0.500	1.750	3/8
	TG8MDA1	TG8MDS1	1 1/2	3	4	0.313	0.500	1.750	3/8
	TG8MDA2	TG8MDS2	1 1/2	4	4	0.313	0.500	1.750	3/8
	TG8MDA2SQ	TG8MDS2SQ	1 1/2	4	4	0.313	0.500	1.750	3/8
	TG8HDA	TG8HDS	1 1/2	2	4	0.313	0.500	1.750	1/2
	TG8HDASQ	TG8HDSSQ	1 1/2	2	4	0.313	0.500	1.750	1/2
	TG8HDA1	TG8HDS1	1 1/2	3	4	0.313	0.500	1.750	1/2
	TG8HDA2	TG8HDS2	1 1/2	4	4	0.313	0.500	1.750	1/2
	TG8HDA2SQ	TG8HDS2SQ	1 1/2	4	4	0.313	0.500	1.750	1/2
10	TG10MDA	TG10MDS	1 1/2	2	4 1/2	0.500	0.750	2.125	1/2
	TG10MDASQ	TG10MDSSQ	1 1/2	2	4 1/2	0.500	0.750	2.125	1/2
	TG10MDA1	TG10MDS1	1 1/2	3	4 1/2	0.500	0.750	2.125	1/2
	TG10MDA2	TG10MDS2	1 1/2	4	4 1/2	0.500	0.750	2.125	1/2
	TG10MDA2SQ	TG10MDS2SQ	1 1/2	4	4 1/2	0.500	0.750	2.125	1/2
	TG10HDA	TG10HDS	1 1/2	2	4 1/2	0.500	0.750	2.125	5/8
	TG10HDASQ	TG10HDSSQ	1 1/2	2	4 1/2	0.500	0.750	2.125	5/8
	TG10HDA1	TG10HDS1	1 1/2	3	4 1/2	0.500	0.750	2.125	5/8
	TG10HDA2	TG10HDS2	1 1/2	4	4 1/2	0.500	0.750	2.125	5/8
	TG10HDA2SQ	TG10HDS2SQ	1 1/2	4	4 1/2	0.500	0.750	2.125	5/8
12	TG12MDA	TG12MDS	2	2	5 1/2	0.500	0.750	2.500	1/2
	TG12MDASQ	TG12MDSSQ	2	2	5 1/2	0.500	0.750	2.500	1/2
	TG12MDA1	TG12MDS1	2	3	5 1/2	0.500	0.750	2.500	1/2
	TG12MDA2	TG12MDS2	2	4	5 1/2	0.500	0.750	2.500	1/2
	TG12MDA2SQ	TG12MDS2SQ	2	4	5 1/2	0.500	0.750	2.500	1/2
	TG12MDA5	TG12MDS5	2	5	5 1/2	0.500	0.750	2.500	1/2
	TG12HDA	TG12HDS	2	2	5 1/2	0.500	0.750	2.500	5/8
	TG12HDASQ	TG12HDSSQ	2	2	5 1/2	0.500	0.750	2.500	5/8
	TG12HDA1	TG12HDS1	2	3	5 1/2	0.500	0.750	2.500	5/8
	TG12HDA2	TG12HDS2	2	4	5 1/2	0.500	0.750	2.500	5/8
	TG12HDA2SQ	TG12HDS2SQ	2	4	5 1/2	0.500	0.750	2.500	5/8
	TG12HDA5	TG12HDS5	2	5	5 1/2	0.500	0.750	2.500	5/8
15-18	TG15MDA	TG15MDS	2 1/2	3	6 1/2	0.500	0.750	3.000	5/8
	TG15MDASQ	TG15MDSSQ	2 1/2	3	6 1/2	0.500	0.750	3.000	5/8
	TG15MDA1	TG15MDS1	2 1/2	4	6 1/2	0.500	0.750	3.000	5/8
	TG15MDA1SQ	TG15MDS1SQ	2 1/2	4	6 1/2	0.500	0.750	3.000	5/8
	TG15MDA5	TG15MDS5	2 1/2	5	6 1/2	0.500	0.750	3.000	5/8
	TG15HDA	TG15HDS	2 1/2	3	6 1/2	0.500	0.750	3.000	3/4
	TG15HDASQ	TG15HDSSQ	2 1/2	3	6 1/2	0.500	0.750	3.000	3/4
	TG15HDA1	TG15HDS1	2 1/2	4	6 1/2	0.500	0.750	3.000	3/4
	TG15HDA1SQ	TG15HDS1SQ	2 1/2	4	6 1/2	0.500	0.750	3.000	3/4
	TG15HDA5	TG15HDS5	2 1/2	5	6 1/2	0.500	0.750	3.000	3/4
21-24	TG21MDA	TG21MDS	2 1/2	3	8 1/4	0.500	0.750	3.000	5/8
	TG21MDA1	TG21MDS1	2 1/2	4	8 1/4	0.500	0.750	3.000	5/8
	TG21MDA5	TG21MDS5	2 1/2	5	8 1/4	0.500	0.750	3.000	5/8
	TG21HDA	TG21HDS	2 1/2	3	8 1/4	0.500	0.750	3.000	3/4
	TG21HDA1	TG21HDS1	2 1/2	4	8 1/4	0.500	0.750	3.000	3/4
	TG21HDA5	TG21HDS5	2 1/2	5	8 1/4	0.500	0.750	3.000	3/4

American Standard Tongue & Groove Pie Jaws® — Style D



Made with 319 cast aluminum, cast iron, 1018 steel or A36 steel
Add CI prefix to aluminum part # for cast iron jaws
Add ST prefix to aluminum part # for steel jaws
Cast iron version weight is approximately 2.6 times that of aluminum
Steel version weight is approximately 2.8 times that of aluminum

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	E TONGUE	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT
5	TG5MDP	6	2	0.313	0.500	1.250	5/16	1 1/2	5.7
6	TG6MDP	6	2	0.313	0.500	1.500	3/8	2	5.7
	TG6MDP1	6	4	0.313	0.500	1.500	3/8	2	10.8
	TG86MDP	8	2	0.313	0.500	1.500	3/8	2	10.2
	TG86MDP1	8	4	0.313	0.500	1.500	3/8	2	19.8
	TG6HDP	6	2	0.313	0.500	1.500	7/16	2	5.7
	TG6HDP1	6	4	0.313	0.500	1.500	7/16	2	10.8
	TG86HDP	8	2	0.313	0.500	1.500	7/16	2	10.2
	TG86HDP1	8	4	0.313	0.500	1.500	7/16	2	19.8
8	TG8MDP	8	2	0.313	0.500	1.750	3/8	2 3/4	10.2
	TG8MDP1	8	4	0.313	0.500	1.750	3/8	2 3/4	19.8
	TG8MDP6	8	6	0.313	0.500	1.750	3/8	2 3/4	29.4
	TG108MDP	10	2	0.313	0.500	1.750	3/8	2 3/4	16.2
	TG108MDP1	10	4	0.313	0.500	1.750	3/8	2 3/4	31.5
	TG128MDP	12	2	0.313	0.500	1.750	3/8	2 3/4	23.4
	TG128MDP1	12	4	0.313	0.500	1.750	3/8	2 3/4	45.3
	TG8HDP	8	2	0.313	0.500	1.750	1/2	2 3/4	10.2
	TG8HDP1	8	4	0.313	0.500	1.750	1/2	2 3/4	19.8
	TG8HDP6	8	6	0.313	0.500	1.750	1/2	2 3/4	29.4
	TG108HDP	10	2	0.313	0.500	1.750	1/2	2 3/4	16.2
	TG108HDP1	10	4	0.313	0.500	1.750	1/2	2 3/4	31.5
	TG128HDP	12	2	0.313	0.500	1.750	1/2	2 3/4	23.4
	TG128HDP1	12	4	0.313	0.500	1.750	1/2	2 3/4	45.3
10	TG10MDP	10	2	0.500	0.750	2.125	1/2	3 1/2	16.2
	TG10MDP1	10	4	0.500	0.750	2.125	1/2	3 1/2	31.5
	TG10MDP6	10	6	0.500	0.750	2.125	1/2	3 1/2	46.8
	TG1210MDP	12	2	0.500	0.750	2.125	1/2	3 1/2	23.4
	TG1210MDP1	12	4	0.500	0.750	2.125	1/2	3 1/2	45.3
	TG1510MDP	15	3	0.500	0.750	2.125	1/2	3 1/2	53.7
	TG1510MDP1	15	4	0.500	0.750	2.125	1/2	3 1/2	70.8
	TG1810MDP	18	3	0.500	0.750	2.125	1/2	3 1/2	77.7
	TG1810MDP1	18	4	0.500	0.750	2.125	1/2	3 1/2	102.6
	TG10HDP	10	2	0.500	0.750	2.125	5/8	3 1/2	16.2
	TG10HDP1	10	4	0.500	0.750	2.125	5/8	3 1/2	31.5
	TG10HDP6	10	6	0.500	0.750	2.125	5/8	3 1/2	46.8
	TG1210HDP	12	2	0.500	0.750	2.125	5/8	3 1/2	23.4
	TG1210HDP1	12	4	0.500	0.750	2.125	5/8	3 1/2	45.3
	TG1510HDP	15	3	0.500	0.750	2.125	5/8	3 1/2	53.7
	TG1510HDP1	15	4	0.500	0.750	2.125	5/8	3 1/2	70.8
	TG1810HDP	18	3	0.500	0.750	2.125	5/8	3 1/2	77.7
	TG1810HDP1	18	4	0.500	0.750	2.125	5/8	3 1/2	102.6
12	TG12MDP	12	2	0.500	0.750	2.500	1/2	4 1/4	23.4
	TG12MDP1	12	4	0.500	0.750	2.500	1/2	4 1/4	45.3
	TG12MDP6	12	6	0.500	0.750	2.500	1/2	4 1/4	67.2
	TG1512MDP	15	3	0.500	0.750	2.500	1/2	4 1/4	53.7
	TG1512MDP1	15	4	0.500	0.750	2.500	1/2	4 1/4	70.8
	TG1812MDP	18	3	0.500	0.750	2.500	1/2	4 1/4	77.7
	TG1812MDP1	18	4	0.500	0.750	2.500	1/2	4 1/4	102.6
	TG2112MDP2	21	2	0.500	0.750	2.500	1/2	4 1/4	71.4
	TG2112MDP	21	3	0.500	0.750	2.500	1/2	4 1/4	105.0
	TG2112MDP1	21	4	0.500	0.750	2.500	1/2	4 1/4	139.2
	TG12HDP	12	2	0.500	0.750	2.500	5/8	4 1/4	23.4
	TG12HDP1	12	4	0.500	0.750	2.500	5/8	4 1/4	45.3
	TG12HDP6	12	6	0.500	0.750	2.500	5/8	4 1/4	67.2
	TG1512HDP	15	3	0.500	0.750	2.500	5/8	4 1/4	53.7
	TG1512HDP1	15	4	0.500	0.750	2.500	5/8	4 1/4	70.8
	TG1812HDP	18	3	0.500	0.750	2.500	5/8	4 1/4	77.7
	TG1812HDP1	18	4	0.500	0.750	2.500	5/8	4 1/4	102.6
	TG2112HDP2	21	2	0.500	0.750	2.500	5/8	4 1/4	71.4
	TG2112HDP	21	3	0.500	0.750	2.500	5/8	4 1/4	105.0
	TG2112HDP1	21	4	0.500	0.750	2.500	5/8	4 1/4	139.2

American Standard Tongue & Groove Pie Jaws® — Style D
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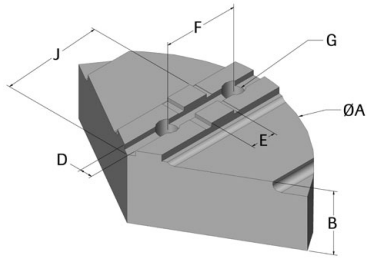

Made with 319 cast aluminum, cast iron, 1018 steel or A36 steel
Add CI prefix to aluminum part # for cast iron jaws
Add ST prefix to aluminum part # for steel jaws
Cast iron version weight is approximately 2.6 times that of aluminum
Steel version weight is approximately 2.8 times that of aluminum

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	E TONGUE	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT
15	TG15MDP2	15	2	0.500	0.750	3.000	5/8	5 1/4	36.6
	TG15MDP	15	3	0.500	0.750	3.000	5/8	5 1/4	53.7
	TG15MDP1	15	4	0.500	0.750	3.000	5/8	5 1/4	70.8
	TG15MDP6	15	6	0.500	0.750	3.000	5/8	5 1/4	88.5
	TG1815MDP	18	3	0.500	0.750	3.000	5/8	5 1/4	77.7
	TG1815MDP1	18	4	0.500	0.750	3.000	5/8	5 1/4	102.6
	TG2115MDP2	21	2	0.500	0.750	3.000	5/8	5 1/4	71.4
	TG2115MDP	21	3	0.500	0.750	3.000	5/8	5 1/4	105.0
	TG2115MDP1	21	4	0.500	0.750	3.000	5/8	5 1/4	139.2
	TG2415MDP2	24	2	0.500	0.750	3.000	5/8	5 1/4	93.0
	TG2415MDP	24	3	0.500	0.750	3.000	5/8	5 1/4	138.0
	TG2415MDP1	24	4	0.500	0.750	3.000	5/8	5 1/4	182.4
	TG15HDP2	15	2	0.500	0.750	3.000	3/4	5 1/4	36.6
	TG15HDP	15	3	0.500	0.750	3.000	3/4	5 1/4	53.7
	TG15HDP1	15	4	0.500	0.750	3.000	3/4	5 1/4	70.8
	TG15HDP6	15	6	0.500	0.750	3.000	3/4	5 1/4	88.5
	TG1815HDP	18	3	0.500	0.750	3.000	3/4	5 1/4	77.7
	TG1815HDP1	18	4	0.500	0.750	3.000	3/4	5 1/4	102.6
	TG2115HDP2	21	2	0.500	0.750	3.000	3/4	5 1/4	71.4
	TG2115HDP	21	3	0.500	0.750	3.000	3/4	5 1/4	105.0
	TG2115HDP1	21	4	0.500	0.750	3.000	3/4	5 1/4	139.2
	TG2415HDP2	24	2	0.500	0.750	3.000	3/4	5 1/4	93.0
	TG2415HDP	24	3	0.500	0.750	3.000	3/4	5 1/4	138.0
	TG2415HDP1	24	4	0.500	0.750	3.000	3/4	5 1/4	182.4
18	TG18MDP	18	3	0.500	0.750	3.000	5/8	6 1/2	77.7
	TG18MDP1	18	4	0.500	0.750	3.000	5/8	6 1/2	102.6
	TG18MDP8	18	8	0.500	0.750	3.000	5/8	6 1/2	203.1
	TG2118MDP2	21	2	0.500	0.750	3.000	5/8	6 1/2	71.4
	TG2118MDP	21	3	0.500	0.750	3.000	5/8	6 1/2	105.0
	TG2118MDP1	21	4	0.500	0.750	3.000	5/8	6 1/2	139.2
	TG2418MDP2	24	2	0.500	0.750	3.000	5/8	6 1/2	93.0
	TG2418MDP	24	3	0.500	0.750	3.000	5/8	6 1/2	138.0
	TG2418MDP1	24	4	0.500	0.750	3.000	5/8	6 1/2	182.4
	TG2818MDP	28	3	0.500	0.750	3.000	5/8	6 1/2	186.0
	TG2818MDP1	28	4	0.500	0.750	3.000	5/8	6 1/2	249.6
	TG3018MDP1	30	4	0.500	0.750	3.000	5/8	6 1/2	286.5
	TG322418MDP1	32	4	0.500	0.750	3.000	5/8	6 1/2	324.6
	TG362418MDP1	36	4	0.500	0.750	3.000	5/8	6 1/2	412.5
	TG18HDP	18	3	0.500	0.750	3.000	3/4	6 1/2	77.7
	TG18HDP1	18	4	0.500	0.750	3.000	3/4	6 1/2	102.6
	TG18HDP8	18	8	0.500	0.750	3.000	3/4	6 1/2	203.1
	TG2118HDP2	21	2	0.500	0.750	3.000	3/4	6 1/2	71.4
	TG2118HDP	21	3	0.500	0.750	3.000	3/4	6 1/2	105.0
	TG2118HDP1	21	4	0.500	0.750	3.000	3/4	6 1/2	139.2
	TG2418HDP2	24	2	0.500	0.750	3.000	3/4	6 1/2	93.0
	TG2418HDP	24	3	0.500	0.750	3.000	3/4	6 1/2	138.0
	TG2418HDP1	24	4	0.500	0.750	3.000	3/4	6 1/2	182.4
	TG2818HDP	28	3	0.500	0.750	3.000	3/4	6 1/2	186.0
	TG2818HDP1	28	4	0.500	0.750	3.000	3/4	6 1/2	249.6
	TG3018HDP1	30	4	0.500	0.750	3.000	3/4	6 1/2	286.5
	TG322418HDP1	32	4	0.500	0.750	3.000	3/4	6 1/2	324.6
	TG362418HDP1	36	4	0.500	0.750	3.000	3/4	6 1/2	412.5

American Standard Tongue & Groove Pie Jaws® — Style D

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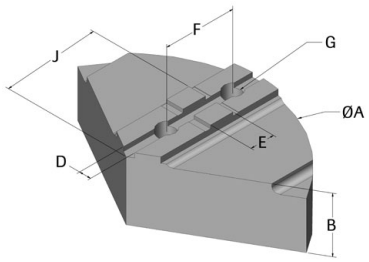
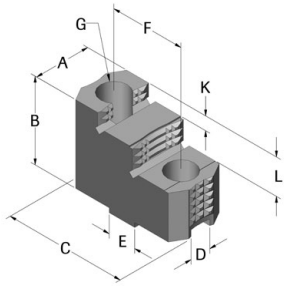


Made with 319 cast aluminum, cast iron, 1018 steel or A36 steel
Add CI prefix to aluminum part # for cast iron jaws
Add ST prefix to aluminum part # for steel jaws
Cast iron version weight is approximately 2.6 times that of aluminum
Steel version weight is approximately 2.8 times that of aluminum

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	E TONGUE	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT
21	TG21MDP	21	3	0.500	0.750	3.000	5/8	7 3/4	105.0
	TG21MDP1	21	4	0.500	0.750	3.000	5/8	7 3/4	139.2
	TG2421MDP	24	3	0.500	0.750	3.000	5/8	7 3/4	138.0
	TG2421MDP1	24	4	0.500	0.750	3.000	5/8	7 3/4	182.4
	TG2821MDP	28	3	0.500	0.750	3.000	5/8	7 3/4	186.0
	TG2821MDP1	28	4	0.500	0.750	3.000	5/8	7 3/4	249.6
	TG21HDP	21	3	0.500	0.750	3.000	3/4	7 3/4	105.0
	TG21HDP1	21	4	0.500	0.750	3.000	3/4	7 3/4	139.2
	TG2421HDP	24	3	0.500	0.750	3.000	3/4	7 3/4	138.0
	TG2421HDP1	24	4	0.500	0.750	3.000	3/4	7 3/4	182.4
	TG2821HDP	28	3	0.500	0.750	3.000	3/4	7 3/4	186.0
	TG2821HDP1	28	4	0.500	0.750	3.000	3/4	7 3/4	249.6
24+	TG24MDP2	24	2	0.500	0.750	3.000	5/8	9 1/2	93.0
	TG24MDP	24	3	0.500	0.750	3.000	5/8	9 1/2	138.0
	TG24MDP1	24	4	0.500	0.750	3.000	5/8	9 1/2	182.4
	TG2824MDP	28	3	0.500	0.750	3.000	5/8	9 1/2	186.0
	TG2824MDP1	28	4	0.500	0.750	3.000	5/8	9 1/2	249.6
	TG2824MDP6	28	6	0.500	0.750	3.000	5/8	9 1/2	364.2
	TG322418MDP1	32	4	0.500	0.750	3.000	5/8	9 1/2	324.6
	TG362418MDP1	36	4	0.500	0.750	3.000	5/8	9 1/2	412.5
	TG422418MDP1	42	4	0.500	0.750	3.000	5/8	9 1/2	561.9
	TG24HDP2	24	2	0.500	0.750	3.000	3/4	9 1/2	93.0
	TG24HDP	24	3	0.500	0.750	3.000	3/4	9 1/2	138.0
	TG24HDP1	24	4	0.500	0.750	3.000	3/4	9 1/2	182.4
	TG2824HDP	28	3	0.500	0.750	3.000	3/4	9 1/2	186.0
	TG2824HDP1	28	4	0.500	0.750	3.000	3/4	9 1/2	249.6
	TG2824HDP6	28	6	0.500	0.750	3.000	3/4	9 1/2	364.2
	TG322418HDP1	32	4	0.500	0.750	3.000	3/4	9 1/2	324.6
	TG362418HDP1	36	4	0.500	0.750	3.000	3/4	9 1/2	412.5
	TG422418HDP1	42	4	0.500	0.750	3.000	3/4	9 1/2	561.9

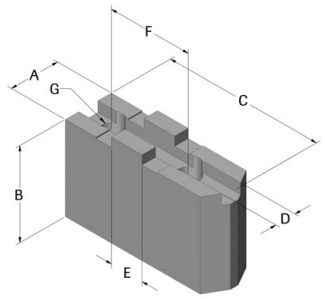
American Standard Tongue & Groove Hard Jaws



Made with 1018 case hardened steel

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	D SLOT	E TONGUE	F HOLE SPACING	G BOLT SIZE	J DIM	K STEP 1	L STEP 2
8	TG8MDHJDS	1.25	2.00	3.55	0.313	0.500	1.750	3/8	1.937	0.60	1.04
10	TG10MDHJDS	1.75	2.50	3.77	0.500	0.750	2.125	1/2	2.198	0.68	1.38
	TG10HDHJDS	1.75	2.50	3.77	0.500	0.750	2.125	5/8	2.198	0.68	1.38
12	TG12MDHJDS	1.75	2.50	4.50	0.500	0.750	2.500	1/2	2.436	0.68	1.38
	TG12HDHJDS	1.75	2.50	4.50	0.500	0.750	2.500	5/8	2.436	0.68	1.38
15	TG15MDHJDS	2.50	3.50	5.51	0.500	0.750	3.000	5/8	3.124	0.88	1.75
	TG15HDHJDS	2.50	3.50	5.51	0.500	0.750	3.000	3/4	3.124	0.88	1.75

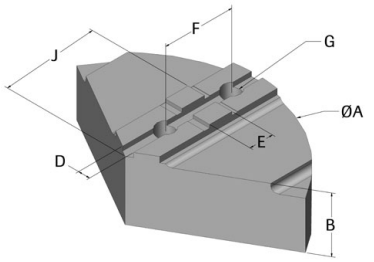


Metric Tongue & Groove Soft Jaws — Style A

Made with 6061 T-6 condition aluminum or 1018 steel
Add SQ suffix to part # for square nosed version

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A WIDTH	B HEIGHT	C LENGTH	D SLOT	E TONGUE	F HOLE SPACING	G BOLT SIZE
6	MTG6MDA	MTG6MDS	1 1/4	1 1/2	3	0.315	0.709	1.260	8mm
	MTG6MDA1	MTG6MDS1	1 1/4	2	3	0.315	0.709	1.260	8mm
8	MTG8MDA	MTG8MDS	1 1/2	2	4	0.394	0.787	1.575	8mm
	MTG8MDA1	MTG8MDS1	1 1/2	3	4	0.394	0.787	1.575	8mm
10	MTG10MDA	MTG10MDS	1 1/2	2	4 1/2	0.472	0.787	1.575	12mm
	MTG10MDA1	MTG10MDS1	1 1/2	3	4 1/2	0.472	0.787	1.575	12mm
12	MTG12MDA	MTG12MDS	2	2	5 1/2	0.472	0.787	1.575	12mm
	MTG12MDA1	MTG12MDS1	2	3	5 1/2	0.472	0.787	1.575	12mm
16	MTG16MDA	MTG16MDS	2 1/2	3	6 1/2	0.472	1.024	2.126	12mm
	MTG16MDA1	MTG16MDS1	2 1/2	4	6 1/2	0.472	1.024	2.126	12mm
20	MTG20MDA	MTG20MDS	2 1/2	3	8 1/4	0.709	1.181	2.362	16mm
	MTG20MDA1	MTG20MDS1	2 1/2	4	8 1/4	0.709	1.181	2.362	16mm

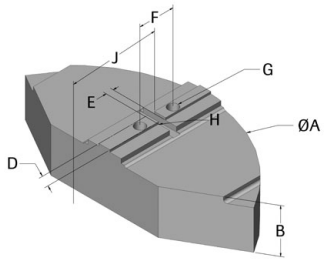


Metric Tongue & Groove Pie Jaws® — Style D

Made with 319 cast aluminum, cast iron, 1018 steel or A36 steel
Add CI prefix to aluminum part # for cast iron jaws
Add ST prefix to aluminum part # for steel jaws
Cast iron version weight is approximately 2.6 times that of aluminum
Steel version weight is approximately 2.8 times that of aluminum

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	E TONGUE	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT
6	MTG6MDP	6	2	0.315	0.709	1.260	8mm	2 5/16	5.7
	MTG6MDP1	6	4	0.315	0.709	1.260	8mm	2 5/16	10.8
	MTG86MDP	8	2	0.315	0.709	1.260	8mm	2 5/16	10.2
8	MTG8MDP	8	2	0.394	0.787	1.575	8mm	3	10.2
	MTG8MDP1	8	4	0.394	0.787	1.575	8mm	3	19.8
	MTG108MDP	10	2	0.394	0.787	1.575	8mm	3	10.2
10	MTG10MDP	10	2	0.472	0.787	1.575	12mm	4	16.2
	MTG10MDP1	10	4	0.472	0.787	1.575	12mm	4	31.5
12	MTG12MDP	12	2	0.472	0.787	1.575	12mm	5	23.4
	MTG12MDP1	12	4	0.472	0.787	1.575	12mm	5	45.3
16	MTG1516MDP	15	3	0.472	1.024	2.126	12mm	6	53.7
	MTG1516MDP1	15	4	0.472	1.024	2.126	12mm	6	70.8
	MTG1816MDP	18	3	0.472	1.024	2.126	12mm	6	77.7
	MTG1816MDP1	18	4	0.472	1.024	2.126	12mm	6	102.6
	MTG1816MDP6	18	6	0.472	1.024	2.126	12mm	6	154.5
20	MTG1820MDP	18	3	0.709	1.181	2.362	16mm	4 27/32	77.7
	MTG1820MDP1	18	4	0.709	1.181	2.362	16mm	4 27/32	102.6
	MTG2120MDP	21	3	0.709	1.181	2.362	16mm	4 27/32	105.0
	MTG2120MDP1	21	4	0.709	1.181	2.362	16mm	4 27/32	139.2
	MTG2420MDP	24	3	0.709	1.181	2.362	16mm	4 27/32	138.0
	MTG2420MDP1	24	4	0.709	1.181	2.362	16mm	4 27/32	182.4
25	MTG2125MDP	21	3	0.709	1.181	2.362	16mm	7 1/2	105.0
	MTG2125MDP1	21	4	0.709	1.181	2.362	16mm	7 1/2	139.2
	MTG2425MDP	24	3	0.709	1.181	2.362	16mm	7 1/2	138.0
	MTG2425MDP1	24	4	0.709	1.181	2.362	16mm	7 1/2	182.4

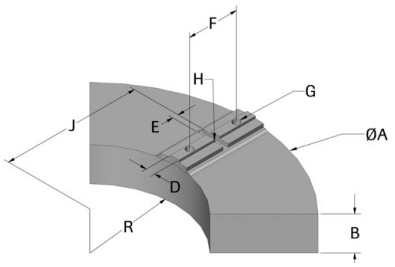


Bullard Style Pie Jaws® — Style W

Made with 319 cast aluminum

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

CHUCK	PART #	A DIAMETER	B HEIGHT	D TONGUE	E SLOT	F HOLE SPACING	G BOLT SIZE	J DIM	GAP	WEIGHT
24	24BULLARD	24	4	1.000	0.625	3.000	7/8	8	1/4	159.0
30	30BULLARD	30	4	1.000	0.625	3.000	7/8	9	1/4	255.0
36	36BULLARD	36	4	1.000	0.625	3.000	7/8	12	1/4	318.0
40	40BULLARD	40	4	1.000	0.625	3.000	7/8	12	1/4	414.0
48	48BULLARD	48	4	1.000	0.625	3.000	7/8	16	1/4	528.0
56	56BULLARD	56	4	1.000	0.625	3.000	7/8	23	1/4	634.0

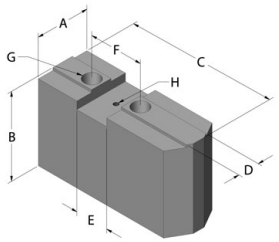


4 Jaw Bullard Style Pie Jaws® — Style W

Made with 319 cast aluminum

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

CHUCK	PART #	A DIAMETER	B HEIGHT	D TONGUE	E SLOT	F HOLE SPACING	G BOLT SIZE	J DIM	GAP	WEIGHT	R RADIUS
20	20BULLARD-4J	20	4	1.000	0.625	4.000	3/4	7 5/16	1	92.0	4
28	28BULLARD-4J	28	4	1.000	0.625	5.500	3/4	10 5/16	1	182.0	6
38	38BULLARD-4J	38	4	1.000	0.625	5.500	3/4	14 13/16	1	312.0	10

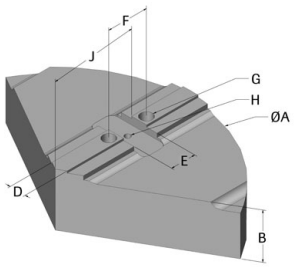


Acme Serrated Key Soft Jaws — Style C

Made with 6061 T-6 condition aluminum or 1018 steel
Add SQ suffix to part # for square nosed version

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A WIDTH	B HEIGHT	C LENGTH	D TONGUE	E SLOT	F HOLE SPACING	G BOLT SIZE	H TAPPED HOLE
8	8LPA	8LPS	1 1/2	2	3 1/4	0.667	0.601	1.250	1/2	10-32
	8LPA1	8LPS1	1 1/2	3	3 1/4	0.667	0.601	1.250	1/2	10-32
10	10A04A	10A04S	2	2	4 1/2	0.750	1.030	1.750	1/2	5/16-18
	10A04A1	10A04S1	2	3	4 1/2	0.750	1.030	1.750	1/2	5/16-18
	10A04A2	10A04S2	2	4	4 1/2	0.750	1.030	1.750	1/2	5/16-18
12	12A04A	12A04S	2	2	5 1/2	0.875	1.030	2.000	5/8	5/16-18
	12A04A1	12A04S1	2	3	5 1/2	0.875	1.030	2.000	5/8	5/16-18
	12A04A2	12A04S2	2	4	5 1/2	0.875	1.030	2.000	5/8	5/16-18
15-18	15A04A	15A04S	2 1/2	3	6 1/2	1.000	1.530	2.500	3/4	3/8-16
	15A04A1	15A04S1	2 1/2	4	6 1/2	1.000	1.530	2.500	3/4	3/8-16
21-24	21A04A	21A04S	3	3	8 1/4	1.250	1.530	3.000	7/8	3/8-16
	21A04A1	21A04S1	3	4	8 1/4	1.250	1.530	3.000	7/8	3/8-16

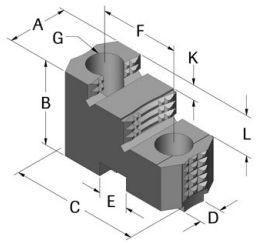


Acme Serrated Key Pie Jaws® — Style L

Made with 319 cast aluminum, cast iron, 1018 steel or A36 steel
Add CI prefix to aluminum part # for cast iron jaws
Add ST prefix to aluminum part # for steel jaws
Cast iron version weight is approximately 2.6 times that of aluminum
Steel version weight is approximately 2.8 times that of aluminum

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D TONGUE	E SLOT	F HOLE SPACING	G BOLT SIZE	H TAPPED HOLE	J DIM	WEIGHT
8	8LPP	8	2	0.667	0.601	1.250	1/2	10-32	3 3/16	10.2
	8LPP1	8	4	0.667	0.601	1.250	1/2	10-32	3 3/16	19.8
10	10A04P	10	2	0.750	1.030	1.750	1/2	5/16-18	3 3/4	16.2
	10A04P1	10	4	0.750	1.030	1.750	1/2	5/16-18	3 3/4	31.5
	1210A04P	12	2	0.750	1.030	1.750	1/2	5/16-18	3 3/4	22.3
	1210A04P1	12	4	0.750	1.030	1.750	1/2	5/16-18	3 3/4	45.3
12	12A04P	12	2	0.875	1.030	2.000	5/8	5/16-18	4 3/4	23.4
	12A04P1	12	4	0.875	1.030	2.000	5/8	5/16-18	4 3/4	45.3
	12A04P6	12	6	0.875	1.030	2.000	5/8	5/16-18	4 3/4	64.8
	1512A04P	15	3	0.875	1.030	2.000	5/8	5/16-18	4 3/4	53.7
	1512A04P1	15	4	0.875	1.030	2.000	5/8	5/16-18	4 3/4	70.8
	1812A04P1	18	4	0.875	1.030	2.000	5/8	5/16-18	4 3/4	102.6
15	15A04P	15	3	1.000	1.530	2.500	3/4	3/8-16	6	53.7
	15A04P1	15	4	1.000	1.530	2.500	3/4	3/8-16	6	70.8
	15A04P5	15	5	1.000	1.530	2.500	3/4	3/8-16	6	77.1
	15A04P6	15	6	1.000	1.530	2.500	3/4	3/8-16	6	105.0
	15A04P8	15	8	1.000	1.530	2.500	3/4	3/8-16	6	138.0
	1815A04P	18	3	1.000	1.530	2.500	3/4	3/8-16	6	77.7
	1815A04P1	18	4	1.000	1.530	2.500	3/4	3/8-16	6	102.6
	2115A04P1	21	4	1.000	1.530	2.500	3/4	3/8-16	6	139.2
18	18A54P1	18	4	1.250	1.530	3.000	7/8	3/8-16	7 1/4	100.2
20	20A54P4	20	4	1.250	1.530	3.000	7/8	3/8-16	8 1/16	124.5
24	1824A54P1	18	4	1.250	1.530	3.000	7/8	3/8-16	6 7/8	102.6
	2124A54P1	21	4	1.250	1.530	3.000	7/8	3/8-16	8	133.5
	2124A54P5	21	5	1.250	1.530	3.000	7/8	3/8-16	8	167.7
	24A54P1	24	4	1.250	1.530	3.000	7/8	3/8-16	8 1/16	182.4
28	28A54P1	28	4	1.250	1.530	3.000	7/8	3/8-16	10 1/8	249.6
32+	32A54P1	32	4	1.250	1.530	3.000	7/8	3/8-16	10 1/8	324.6
	32A54P6	32	6	1.250	1.530	3.000	7/8	3/8-16	10 1/8	487.8
	42A54P1	42	4	1.250	1.530	3.000	7/8	3/8-16	10 1/8	561.9

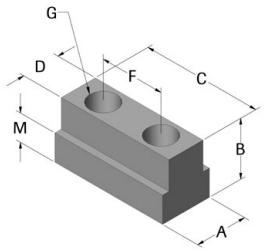


Acme Serrated Key Hard Jaws

Made with 1018 case hardened steel

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	D TONGUE	E SLOT	F HOLE SPACING	G BOLT SIZE	H TAPPED HOLE	J DIM	K STEP 1	L STEP 2
10	10A04HJDS	1.75	2.50	4.15	0.750	1.030	1.750	1/2	5/16-18	2.513	0.62	1.25
12	12A04HJDS	1.75	2.50	5.21	0.875	1.030	2.000	5/8	5/16-18	3.351	0.51	1.13
15	15A04HJDS	2.50	3.50	6.03	1.000	1.530	2.500	3/4	3/8-16	3.515	0.81	1.60

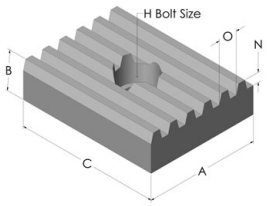


Jaw Nuts For Acme Serrated Key Chucks

Made with 4140 steel

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	D TONGUE	F HOLE SPACING	G BOLT SIZE	M FLANGE
10	10A04JN	0.94	0.64	2.50	0.678	1.750	1/2	0.381
12	12A04JN	1.06	0.76	3.00	0.802	2.000	5/8	0.440
15	15A04JN	1.25	0.93	3.50	0.933	2.500	3/4	0.550

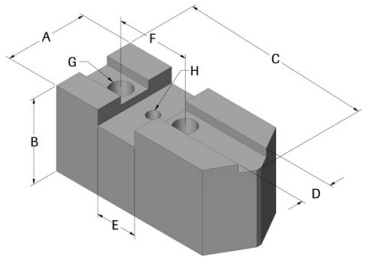


Acme Serrated Master Keys

Made with 4140 steel

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	H BOLT SIZE	N DEPTH	O PITCH
10-12	12A04MK	1.030	0.50	1.69	5/16	0.13	0.25
15-18	15A04MK	1.530	0.50	2.44	3/8	0.13	0.25
21-24	21A04MK	1.530	0.50	2.88	3/8	0.13	0.25

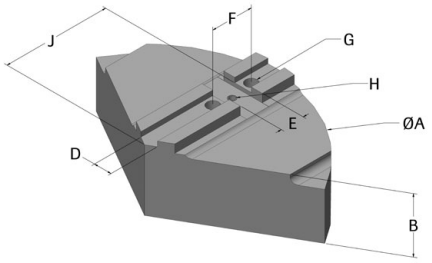


Square Serrated Key Soft Jaws — Style B

Made with 6061 T-6 condition aluminum or 1018 steel
Add SQ suffix to part # for square nosed version

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A WIDTH	B HEIGHT	C LENGTH	D SLOT	E SLOT	F HOLE SPACING	G BOLT SIZE	H TAPPED HOLE
6	6A	6S	1 1/4	1 1/2	3	0.738	0.377	1.688	5/16	N/A
	6A1	6S1	1 1/4	2	3	0.738	0.377	1.688	5/16	N/A
7.5	7.5A	7.5S	1 1/2	2	4	0.866	0.377	1.688	5/16	N/A
	7.5A1	7.5S1	1 1/2	3	4	0.866	0.377	1.688	5/16	N/A
8	8A	8S	1 1/2	2	4	0.500	0.744	1.438	3/8	1/4-20
	8A1	8S1	1 1/2	3	4	0.500	0.744	1.438	3/8	1/4-20
10-12	12A	12S	2	2	5 1/2	0.750	0.993	1.750	1/2	5/16-18
	12A1	12S1	2	3	5 1/2	0.750	0.993	1.750	1/2	5/16-18
	12A-5-8	12S-5-8	2	2	5 1/2	0.750	0.993	1.750	5/8	5/16-18
	12A1-5-8	12S1-5-8	2	3	5 1/2	0.750	0.993	1.750	5/8	5/16-18
15	15A	15S	2 1/2	3	6 1/2	1.000	1.487	2.500	3/4	3/8-16
	15A1	15S1	2 1/2	4	6 1/2	1.000	1.487	2.500	3/4	3/8-16

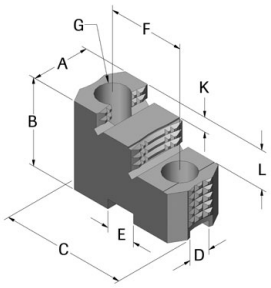


Square Serrated Key Pie Jaws® — Style E

Made with 319 cast aluminum, cast iron, 1018 steel or A36 steel
Add CI prefix to aluminum part # for cast iron jaws
Add ST prefix to aluminum part # for steel jaws
Cast iron version weight is approximately 2.6 times that of aluminum
Steel version weight is approximately 2.8 times that of aluminum

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	E SLOT	F HOLE SPACING	G BOLT SIZE	H TAPPED HOLE	J DIM	WEIGHT
6	6P	6	2	0.738	0.377	1.688	5/16	N/A	1 13/16	5.7
	6P1	6	4	0.738	0.377	1.688	5/16	N/A	1 13/16	10.8
7.5	7.5P	8	2	0.866	0.377	1.688	5/16	N/A	1 13/16	10.2
8	8P	8	2	0.500	0.744	1.438	3/8	1/4-20	3	10.2
	8P1	8	4	0.500	0.744	1.438	3/8	1/4-20	3	19.8
10	10P	10	2	0.750	0.993	1.750	1/2	5/16-18	3 3/4	16.2
	10P1	10	4	0.750	0.993	1.750	1/2	5/16-18	3 3/4	31.5
	10P6	10	6	0.750	0.993	1.750	1/2	5/16-18	3 3/4	46.8
	1210P	12	2	0.750	0.993	1.750	1/2	5/16-18	3 3/4	23.4
	1510P	15	3	0.750	0.993	1.750	1/2	5/16-18	3 3/4	53.7
	1810P	18	3	0.750	0.993	1.750	1/2	5/16-18	3 3/4	77.7
	10P-5-8	10	2	0.750	0.993	1.750	5/8	5/16-18	3 3/4	16.2
	10P1-5-8	10	4	0.750	0.993	1.750	5/8	5/16-18	3 3/4	31.5
	10P6-5-8	10	6	0.750	0.993	1.750	5/8	5/16-18	3 3/4	46.8
	1210P-5-8	12	2	0.750	0.993	1.750	5/8	5/16-18	3 3/4	23.4
	1510P-5-8	15	3	0.750	0.993	1.750	5/8	5/16-18	3 3/4	53.7
	1810P-5-8	18	3	0.750	0.993	1.750	5/8	5/16-18	3 3/4	77.7
12	12P	12	2	0.750	0.993	1.750	1/2	5/16-18	4 5/8	23.4
	12P1	12	4	0.750	0.993	1.750	1/2	5/16-18	4 5/8	45.3
	12P-5-8	12	2	0.750	0.993	1.750	5/8	5/16-18	4 5/8	23.4
	12P1-5-8	12	4	0.750	0.993	1.750	5/8	5/16-18	4 5/8	45.3
15	15P	15	3	1.000	1.487	2.500	3/4	3/8-16	5 3/4	53.7
	15P1	15	4	1.000	1.487	2.500	3/4	3/8-16	5 3/4	70.8
18	18P	18	3	1.000	1.487	2.500	3/4	3/8-16	7 1/8	77.7
	18P1	18	4	1.000	1.487	2.500	3/4	3/8-16	7 1/8	102.6

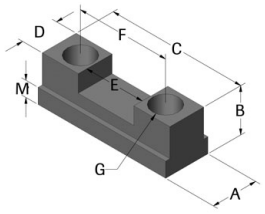


Square Serrated Key Hard Jaws

Made with 1018 case hardened steel

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	D SLOT	E SLOT	F HOLE SPACING	G BOLT SIZE	H TAPPED HOLE	J DIM	K STEP 1	L STEP 2
10-12	12HJDS	1.75	2.50	3.78	0.750	0.993	1.750	1/2	5/16-18	2.159	.063	1.25
	12HJDS-5-8	1.75	2.50	3.78	0.750	0.993	1.750	5/8	5/16-18	2.159	.063	1.25
15	15HJDS	2.25	3.00	4.75	1.000	1.487	2.500	3/4	3/8-16	3.013	.075	1.50

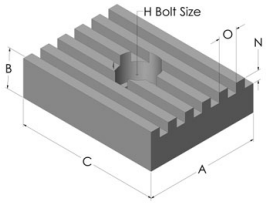


Jaw Nuts For Square Serrated Key Chucks

Made with 4140 steel

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	D TONGUE	E SLOT	F HOLE SPACING	G BOLT SIZE	M FLANGE
10-12	12JN	1.00	1.00	2.44	0.750	0.996	1.750	1/2	0.375
	12JN-5-8	1.00	1.00	2.50	0.750	0.996	1.750	5/8	0.375
15	15JN	1.25	1.25	3.75	1.000	1.489	2.500	3/4	0.438

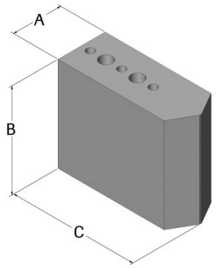


Square Serrated Master Keys

Made with 4140 steel

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	H BOLT SIZE	N DEPTH	O PITCH
10-12	12MK	0.993	0.50	1.69	5/16	0.13	0.25
15-18	15MK	1.487	0.50	2.25	3/8	0.13	0.25
21-24	21MK	1.487	0.50	2.50	3/8	0.13	0.25

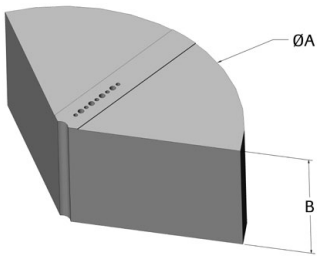


Northfield Air Chuck Soft Jaws — Style R

Made with 2024 aluminum or 1018 steel

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A WIDTH	B HEIGHT	C LENGTH	CHUCKING RANGE INTERNAL	CHUCKING RANGE EXTERNAL
4	AL14.75	ST14.75	0.750	0.750	1.895	.250-3.750	.130-3.750
	AL141.5	ST141.5	0.750	1.500	1.895	.250-3.750	.130-3.750
	AL143	ST143	0.750	3.000	1.895	.250-3.750	.130-3.750
6	AL161	ST161	1.000	1.000	2.895	.250-5.750	.130-5.750
	AL161.5	ST161.5	1.000	1.500	2.895	.250-5.750	.130-5.750
	AL162	ST162	1.000	2.000	2.895	.250-5.750	.130-5.750
	AL163	ST163	1.000	3.000	2.895	.250-5.750	.130-5.750
8	AL182	ST182	2.000	2.000	3.687	1.000-7.750	.750-7.750
	AL183	ST183	2.000	3.000	3.687	1.000-7.750	.750-7.750
	AL184	ST184	2.000	4.000	3.687	1.000-7.750	.750-7.750
10	AL1102	ST1102	2.000	2.000	4.687	1.000-9.750	.750-9.750
	AL1103	ST1103	2.000	3.000	4.687	1.000-9.750	.750-9.750
	AL1104	ST1104	2.000	4.000	4.687	1.000-9.750	.750-9.750
12	AL1123	ST1123	2.000	3.000	5.687	1.000-11.750	.750-11.750

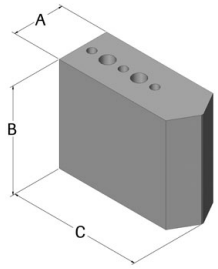


Northfield Air Chuck Pie Jaws® — Style M

Made with 2024 aluminum, 6061 T-6 aluminum or 1018 steel

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A DIAMETER	B HEIGHT	CHUCKING RANGE INTERNAL	CHUCKING RANGE EXTERNAL	ALUMINUM WEIGHT	STEEL WEIGHT
4	AL342	ST342	3.92	2	.750-3.750	.750-3.750	2.0	5.0
	AL343	ST343	3.92	3	.750-3.750	.750-3.750	3.0	9.0
6	AL362	ST362	5.92	2	.750-5.750	.750-5.750	5.3	14.4
	AL363	ST363	5.92	3	.750-5.750	.750-5.750	7.5	21.3
	AL364	ST364	5.92	4	.750-5.750	.750-5.750	10.5	28.2
7	AL372	ST372	6.92	2	1.000-6.750	.750-6.750	7.5	19.8
	AL373	ST373	6.92	3	1.000-6.750	.750-6.750	11.3	29.4
8	AL382	ST382	7.92	2	1.000-7.750	.750-7.750	10.5	26.1
	AL383	ST383	7.92	3	1.000-7.750	.750-7.750	12.5	39.0
	AL384	ST384	7.92	4	1.000-7.750	.750-7.750	19.5	52.2
10	AL3102	ST3102	9.92	2	1.000-9.750	.750-9.750	15.0	41.1
	AL3103	ST3103	9.92	3	1.000-9.750	.750-9.750	22.5	61.8
	AL3104	ST3104	9.92	4	1.000-9.750	.750-9.750	30.0	82.5
12	AL3122	ST3122	11.92	2	1.000-11.750	.750-11.750	22.3	56.1
	AL3123	ST3123	11.92	3	1.000-11.750	.750-11.750	33.3	84.0
	AL3124	ST3124	11.92	4	1.000-11.750	.750-11.750	44.3	111.9

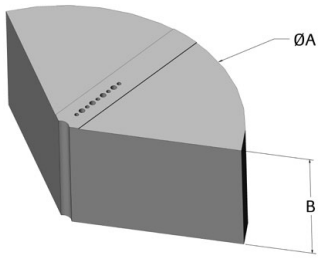


Microcentric Air Chuck Soft Jaws — Style R

Made with 2024 aluminum or 1018 steel

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A WIDTH	B HEIGHT	C LENGTH	CHUCKING RANGE INTERNAL	CHUCKING RANGE EXTERNAL
4	MC4150A	MC4150S	0.750	1.500	1.930	.250-3.750	.130-3.750
	MC4300A	MC4300S	0.750	3.000	1.930	.250-3.750	.130-3.750
6	MC6200A	MC6200S	1.000	2.000	2.955	.250-5.750	.130-5.750
	MC6300A	MC6300S	1.000	3.000	2.955	.250-5.750	.130-5.750
8	MC8200A	MC8200S	1.500	2.000	3.750	1.000-7.750	.750-7.750
	MC8300A	MC8300S	1.500	3.000	3.750	1.000-7.750	.750-7.750
	MC8400A	MC8400S	1.500	4.000	3.750	1.000-7.750	.750-7.750
10	MC10200A	MC10200S	1.500	2.000	4.750	1.000-9.750	.750-9.750
	MC10300A	MC10300S	1.500	3.000	4.750	1.000-9.750	.750-9.750
	MC10400A	MC10400S	1.500	4.000	4.750	1.000-9.750	.750-9.750



Microcentric Air Chuck Pie Jaws® — Style M

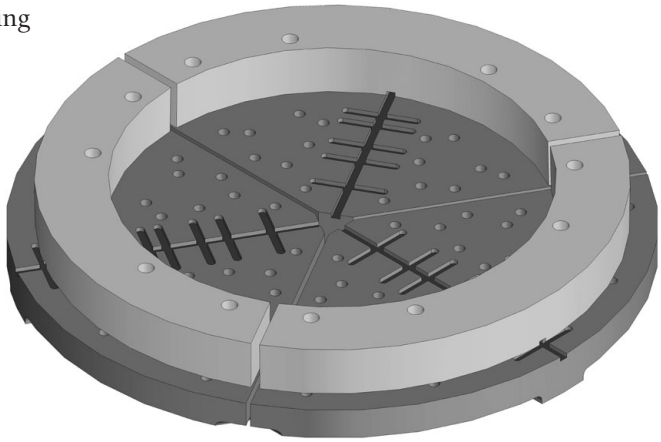
Made with 2024 aluminum, 6061 T-6 aluminum or 1018 steel

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A DIAMETER	B HEIGHT	CHUCKING RANGE INTERNAL	CHUCKING RANGE EXTERNAL	ALUMINUM WEIGHT	STEEL WEIGHT
4	MC341	STMC341	3.92	1	.750-3.750	.750-3.750	1.2	3.0
	MC342	STMC342	3.92	2	.750-3.750	.750-3.750	2.0	6.0
	MC343	STMC343	3.92	3	.750-3.750	.750-3.750	3.0	9.0
6	MC361.5	STMC361.5	5.92	1 1/2	.750-5.750	.750-5.750	3.9	10.8
	MC362	STMC362	5.92	2	.750-5.750	.750-5.750	5.3	14.4
	MC363	STMC363	5.92	3	.750-5.750	.750-5.750	7.5	21.3
	MC364	STMC364	5.92	4	.750-5.750	.750-5.750	10.5	28.5
8	MC382	STMC382	7.92	2	1.000-7.750	.750-7.750	10.5	26.1
	MC383	STMC383	7.92	3	1.000-7.750	.750-7.750	12.5	39.3
	MC384	STMC384	7.92	4	1.000-7.750	.750-7.750	19.5	52.2
10	MC3102	STMC3102	9.92	2	1.000-9.750	.750-9.750	15.0	40.5
	MC3103	STMC3103	9.92	3	1.000-9.750	.750-9.750	22.5	60.6
	MC3104	STMC3104	9.92	4	1.000-9.750	.750-9.750	30.0	80.4
12	MC3122	STMC3122	12.00	2	1.000-11.750	.750-11.750	22.3	60.0

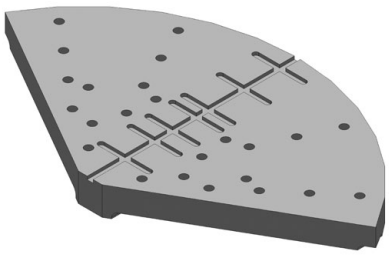
Master Plates

Abbott's master plate and segment system is a great choice for turning larger diameter work pieces. The system consists of an aluminum master plate, similar to a thin Pie Jaw®, which is pre-drilled and keyed to accommodate Abbott's standard, off-the-shelf segment rings. Plates are available in various diameters from 15 to 60 inches and can be mounted on 8-60 inch diameter chucks, effectively increasing the holding capability of smaller chucks. The master plate can be custom machined to fit any model chuck, making it a permanent universal fixture on any machine.



When using this system, the transition from one job to the next simply requires bolting on a new size or configuration of segments before continuing with the next production run. For repeat jobs, machine operators can designate job specific tooling, allowing them to setup in minutes by using pre-machined segments from a previous run. Segments are available in specific ID/OD ranges, allowing machining time to be spent on making production parts instead of boring out excess jaw material. The master plate and segment system maximizes flexibility between machines because segments can be used to run jobs on any machine that has been fitted with a master plate, regardless of machine or chuck type. In addition to reduced setup and tool preparation time the system enables material and shipping cost savings as well.

- **Universal quick change system for any chuck**
- **Reduce setup and changeover times by up to 80%**
- **Ideal for machining larger diameter thin walled parts**
- **Eliminate out of round conditions and concentricity problems**
- **Effectively double the holding capacity of any chuck without eliminating the ability to hold small parts**

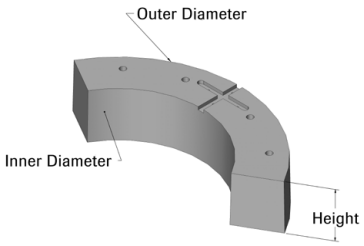


Master Plates — Style N

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

CHUCK RANGE	BASE PART#	DIAMETER	SEGMENT DIAMETER RANGE	WEIGHT
8+	15MP	15	0" I.D. UP TO 16" O.D.	36.0
10+	**18MP**	**18**	**0" I.D. UP TO 22" O.D.**	**50.1**
12+	21MP	21	0" I.D. UP TO 22" O.D.	67.5
12+	24MP	24	0" I.D. UP TO 26" O.D.	87.9
15+	30MP	30	0" I.D. UP TO 32" O.D.	138.6
18+	36MP	36	0" I.D. UP TO 40" O.D.	198.9
24+	48MP	48	0" I.D. UP TO 54" O.D.	349.8
30+	60MP	60	0" I.D. UP TO 60" O.D.	547.2



Segments For Master Plates — Style O

Made with 319 cast aluminum

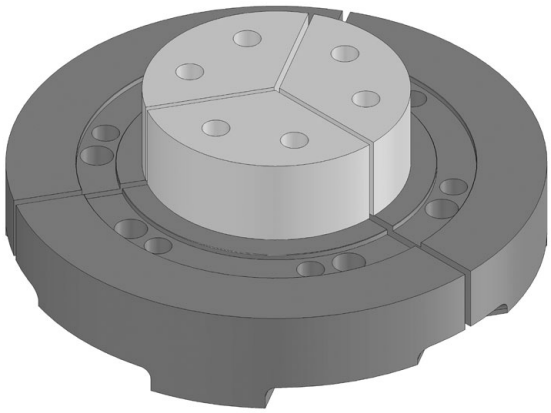
Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

PLATE SIZE	ALUMINUM PART#	A OUTSIDE DIAMETER	B INSIDE DIAMETER	C HEIGHT	WEIGHT
15+	10SP2	10	N/A	2	15.3
	10SP4	10	N/A	4	30.6
	10SP6	10	N/A	6	47.1
	10SP8	10	N/A	8	63.6
	111SP2.5	11	1	2 1/2	23.1
	121SP2.5	12	1	2 1/2	27.9
	131SP2.5	13	1	2 1/2	32.7
	144SP3	14	4	3	42.3
	145SP3	14	5	3	40.2
	157SP2	15	7	2	27.6
	157SP4	15	7	4	55.5
	157SP6	15	7	6	84.3
	159SP2	15	9	2	22.5
	159SP4	15	9	4	45.6
	159SP6	15	9	6	69.3
	159SP7	15	9	7	81.3
	161SP4	16	1	4	80.7
	167SP3	16	7	3	48.8
18+	1812SP2	18	12	2	27.6
	1812SP4	18	12	4	55.8
	1812SP6	18	12	6	84.6
	1812SP8	18	12	8	114.3
	199SP3	19	9	3	65.4
	2112SP2	21	12	2	46.2
	2210SP2	22	10	2	60.0
	2210SP3	22	10	3	90.1
21+	2216SP2	22	16	2	35.4
	2216SP4	22	16	4	71.4
24+	2415SP2	24	15	2	54.9
	2415SP4	24	15	4	110.4
	2418SP2	24	18	2	39.3
	2418SP4	24	18	4	79.2
	2418SP6	24	18	6	120.0
	2618SP2	26	18	2	55.2
	2618SP4	26	18	4	111.0
30+	3024SP2	30	24	2	50.7
	3024SP4	30	24	4	102.6
	3024SP6	30	24	6	155.7
	3226SP4	32	26	4	110.4
36+	3628SP4	36	28	4	162.6
	3628SP6	36	28	6	246.3
	3630SP2	36	30	2	62.4
	3630SP4	36	30	4	126.0
	3830SP4	38	30	4	173.1
	4030SP2	40	30	2	110.7
	4030SP4	40	30	4	222.6
48+	4032SP4	40	32	4	183.3
	4232SP4	42	32	4	235.5
	4236SP2	42	36	2	73.8
	4236SP4	42	36	4	149.4
	4434SP2	44	34	2	123.3
	4434SP4	44	34	4	248.4
	4838SP2	48	38	2	136.2
	4842SP2	48	42	2	85.5
	4842SP4	48	42	4	194.7
	5040SP2	50	40	2	142.5
	5040SP4	50	40	4	287.1
	5440SP2	54	40	2	208.5
60	6050SP2	60	50	2	174.6

Precision Master Plates

When it comes to turning/holding smaller diameter parts Abbott's precision master plate and segment system is an ideal choice for high changeover and short running jobs. Due to the system's high repeatability, it is an excellent alternative to more expensive quick change chucks. The system consists of an aluminum master plate, similar to a thin Pie Jaw®, which is bored and bushed to accommodate Abbott's standard, off-the-shelf pinned segments. Plates are available in 8, 10 and 12 inch diameters and can be mounted on 4-12 inch diameter chucks. The master plate can be custom machined to fit any model chuck, making it a permanent universal fixture on any machine.

When using this system, the transition from one job to the next simply requires bolting on a new size or configuration of segments before continuing with the next production run. For repeat jobs, machine operators can designate job specific tooling, allowing them to setup in minutes by using pre-machined segments from a previous run. The master plate and segment system maximizes flexibility between machines because segments can be used to run jobs on any machine that has been fitted with a master plate, regardless of machine or chuck type.



- Universal quick change system for any chuck
- Reduce setup and changeover times by up to 80%
- Eliminate out of round conditions and concentricity problems
- Repeatability < 0.001" TIR

Precision Master Plates — Style N

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

CHUCK RANGE	BASE PART#	DIAMETER	SEGMENT DIAMETER RANGE	WEIGHT
4+	8MMP-P	8	0" I.D. UP TO 7.96" O.D.	9.9
5+	10MMP-P	10	0" I.D. UP TO 9.96" O.D.	15.6
6+	12MMP-P	12	0" I.D. UP TO 11.96" O.D.	22.8

Segments For Precision Master Plates — Style O

Made with 6061 T-6 condition aluminum

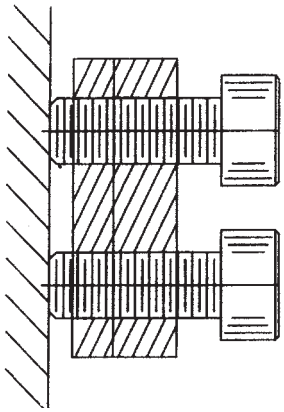
Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

PLATE SIZE	ALUMINUM PART#	A OUTSIDE DIAMETER	B INSIDE DIAMETER	C HEIGHT	WEIGHT
8-12	6SP2M-P	5.96	N/A	2	5.1
	6SP4M-P	5.96	N/A	4	9.9
	8SP2M-P	7.96	N/A	2	9.0
	8SP4M-P	7.96	N/A	4	18.0
10-12	10SP2M-P	9.96	N/A	2	14.4
	10SP4M-P	9.96	N/A	4	28.4
	12SP2M-P	11.96	N/A	2	21.0
	12SP4M-P	11.96	N/A	4	42.0

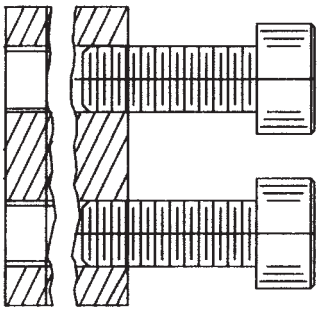
Mounting Top Jaws

Safe and effective use of top jaws requires strict adherence to established safety guidelines. Consult the machine and chuck manufacturer's operating manual for safe use and limitations. In preparation, wipe the mounting face of each master jaw, and each top jaw, clean off all dirt and chips. Inspect each top jaw before mounting to verify a good material condition.

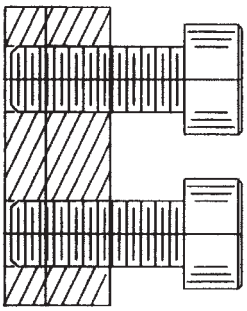
Now carefully mate the top jaw to the master jaw, making sure of a proper fit between all components. Insert jaw mounting bolts and tighten them evenly and firmly. Use only high quality fasteners. CAUTION: IT IS CRITICAL THAT THE BOLTS BE OF PROPER LENGTH FOR THE PARTICULAR TOP JAWS BEING USED - see illustration below. Bolts that are TOO LONG will extend through the jaw nut, bottom out, and give the appearance of being properly torqued while not actually securing the top jaw in place. Bolts that are TOO SHORT will have insufficient thread engagement in the jaw nut, and could result in the jaw nut fracturing. Ensure that the master jaw still moves without binding.



Incorrect
Bolts too long



Incorrect
Bolts too short



Correct
Full engagement

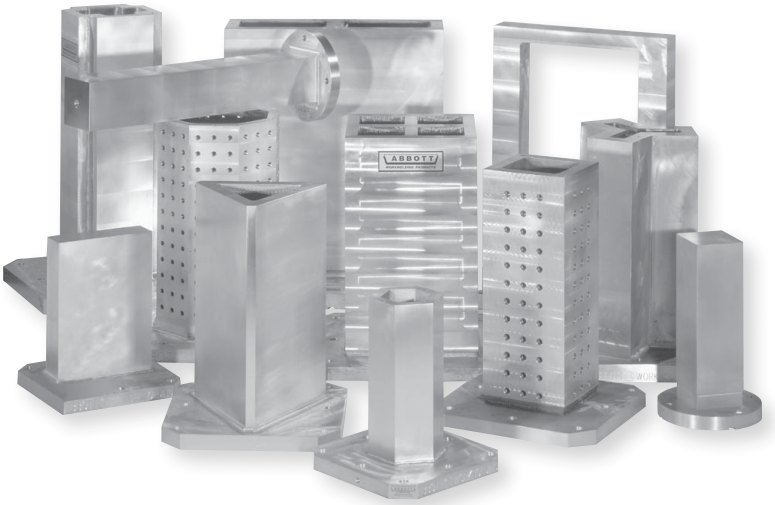
Boring Soft Jaws

The accuracy and concentricity of the soft top jaws is established by precisely boring, or turning, the jaws while mounted on the chuck, in the gripping position. Always carry out this operation with the chuck jaws under pressure, in the same direction as they will be used. For external applications, load the chuck by gripping on a plug and bore the jaws to the dimension of the workpiece. For internal work, load the chuck by opening against a ring or band and turn the gripping surface to the dimension of the workpiece. The pre-loading operation can also be quickly and effectively done with a boring ring. Effective contact between the gripping surface of the jaws and the workpiece may be confirmed by inserting pieces of tissue paper, and then applying chuck pressure.

Always ensure that you have a balanced combination of chuck, jaws, and workpiece. Special care should be given when using oversized jaws. Consult your chuck manual to help determine the maximum safe operating speed for your application. Use of a grip-force analyzer is also recommended.

Tooling Columns

Tenzaloy™ Tooling Columns



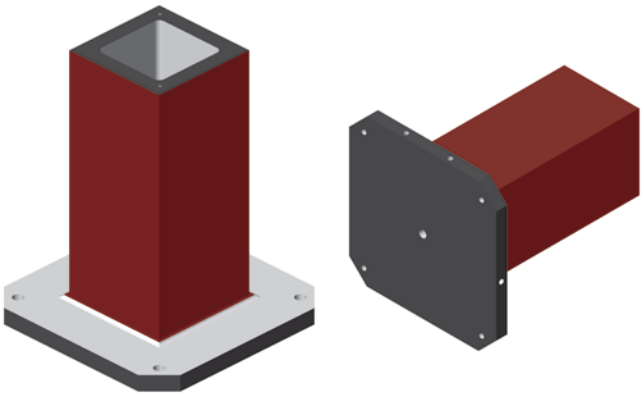
Abbott tooling columns, made of Tenzaloy™ naturally aged to T-6 condition, provide a practical, inexpensive and lightweight means of holding work accurately in a vertical or horizontal plane for CNC machining operations. They can be mounted directly on a machine table/pallet or used in conjunction with a rotary table. Standard Abbott tooling columns are available in multiple configurations built to any height, width and thickness dimensions required for your application. In addition, base sizes can be customized to fit any machine pallet. Many columns are also available in cast iron and/or steel.

Tooling Columns:

- Strong, Rigid & Lightweight
- Vibration Dampening
- Corrosion Resistant
- Excellent Machinability
- Custom Sizes and Configurations Available

Turn Key Solutions:

- In House Design Engineering
- Custom Fixturing



- Unmachined Surface
- Machined Surface on BO and BS Configurations
- Machined Surface on BS Configuration

Standard tooling column configurations

RAW—tooling column with overall height as cast, base as cast and sides as cast

BO (base only)—tooling column with overall height machined, base machined to fit pallet and sides as cast

BS (base & sides)—tooling column with overall height machined, base machined to fit pallet and sides machined to nominal dimension + .015" additional stock

- Add "BO" or "BS" to end of part number to denote base only or base & sides configurations
- Columns are designed to be machined to listed nominal dimensions
- As cast areas have additional stock
- Larger & smaller size bases available upon request

713 (Tenzaloy™)

General Advantages and Characteristics

High Strength

Tenzaloy™ is a high-strength aluminum casting alloy that has tensile yield and elongation properties equivalent to the common heat treated alloys such as 195T6, 355T6 and 319T6. The impact strength of Tenzaloy™ is greater than any of these alloys, and in several instances the elongation is higher.

Tenzaloy™ attains its strength by a natural aging process that gradually takes place at room temperature. The typical properties are reached after 10-14 days, and when testing for specification purposes, a 21-day period is used. Some slight further aging and strengthening takes place up to six months, at which time the alloy is stable and no further change of any kind takes place. Test bars held for six years at room temperature have shown that the properties remain constant.

Elimination of Heat Treatment

Because Tenzaloy™ is self-aging, no heat treatment is required. The first and most obvious advantage gained is the saving of the cost of the treatment and the extra freight often involved if the heat treating is being done outside the foundry. The process of heat treatment is far from a fool-proof operation, and is subject to many errors and failures (both man and machine).

The solution heat treatment is carried out at as high a temperature as possible for maximum efficiency. This temperature is just below the melting point, and a common cause of difficulty is overheating due to faulty temperature control or hot spots in the furnace. This overheating often results in warped, cracked and, occasionally, melted castings, which are then a complete loss.

The quenching operation which follows solution heat treatment can cause substantial problems with regard to warpage and cracking. When distortion occurs, the castings must be straightened—a troublesome operation which must be performed within a short time after quenching, while the castings are soft.

Stress-free, Full-strength Castings

If Tenzaloy™ is given a simple heat treatment of six hours at 468° C. and allowed to air cool (not quenched) it will age normally and result in a stress-free, full-strength casting. This is not possible with any heat treated alloy.

All castings of any alloy will contain internal stresses as a result of the casting process. The solution heat treatment cycle of the heat treated alloys will eliminate these cast stresses, but the quenching operation introduced much greater ones. Conventional T6 aging treatments do not relieve these stresses. Aging treatments which do relieve these quenching stresses (such as T71) result in inferior properties. The cast stresses can be relieved by a simple, one-step aging treatment (T5) but here again inferior properties result.

Thus, through the use of Tenzaloy™, it is possible to obtain castings that have their full strength and yet are stress-free. This is important for uses where close dimensional and straightness tolerances must be maintained, especially where the castings are extensively machined.

Dimensional Stability

Tenzaloy™ is dimensionally stable and does not grow or increase in size as do the heat treatable alloys. Actually, fully aged Tenzaloy™ shows a very slight decrease in length of less than 0.025mm per 25.4mm. In contrast to this, heat treated alloys can increase in size as much as 0.10% to 0.15% (0.025mm to 0.038mm per 25.4mm).

Machinability

The machinability of Tenzaloy™ is exceptionally good—equal to the very best of aluminum alloys, such as the aluminum-magnesium types. The machinability is greater than the common aluminum-copper or aluminum-silicon heat-treatable alloys. Often it will be found that several machining steps can be eliminated because Tenzaloy™ attains a fine finish with fewer cuts. Also, Tenzaloy™ may be machined at the highest possible speeds. As can be seen from the mechanical property tables and aging curves, immediately after casting, the alloy is relatively soft and ductile. If machined at this point the castings will give the impression of being gummy. Even though many machining operations are performed soon after casting, best results will be obtained if the castings are allowed to age about five days. Although the typical properties are not reached until ten to fourteen days, sufficient hardening will have taken place in five days to materially improve machinability.

Tenzaloy™ is readily polished to a high luster with a silvery-white color. The time when the ability to be polished will be best will vary somewhat with the preferences of the polisher. One who prefers a soft metal, easily smeared, will like to polish soon after casting. One who prefers a hard metal easily cut, will prefer a casting that has aged and hardened.

Anodizing

Tenzaloy™ can be readily anodized by standard procedures and will produce a white color superior to alloys containing copper and/or silicon. The anodized coating may be dyed any available color. It should be emphasized that the surfaces of sand castings in any alloy are prone toward porosity of many kinds, and that if coloring is being considered, the surfaces must contain a minimum of porosity for satisfactory dye application.

Brazing

Because of its high melting range of 607-652° C., Tenzaloy™ is one of the few casting alloys which can be brazed at temperatures of 552-607° C. Conventional techniques may be used, such as oven, torch or flux-bath dip methods. Tenzaloy™ can be brazed to itself, to extruded aluminum sections, or to other forms of the proper alloys.

Corrosion Resistance

Tenzaloy™ has excellent corrosion resistance, equivalent to the aluminum-silicon alloys. Tenzaloy™ compares favorably with other high strength alloys in that the alloy is not susceptible to acceleration of corrosion by stress (below 80% of the yield strength) nor to stress corrosion cracking. The alloy exhibited a negligible loss of mechanical properties after immersion in aerated 3% water solution of sodium chloride for ninety days, and the small surface attack that was present was found to be uniform without pitting. This uniformity of resistance is not encountered with the aluminum-silicon alloys commonly considered to be corrosion resistant.

General Applications

Since Tenzaloy™ has mechanical properties equivalent to the common heat-treated alloys, it may be substituted in applications where a heat-treated alloy is presently being used. Tenzaloy™ is used in any high strength application where load carrying capacity and impact strength is desired. This may be almost any type of casting of this nature, including frames, brackets, levers, bases, housing, heavy duty fan blades, etc. The high machinability and fine finishes obtainable have been sufficient reason alone for the use of Tenzaloy™ in many instances.

Tenzaloy™ has often been used for the production of large, high strength castings where heat-treated alloys could not be used because of the lack of sufficiently large heat treating facilities.

The dimensional stability, ease of machining, and the ability to make stress-free castings is of great value in applications where strength and close tolerances are essential, such as instrument frames, housings and components.

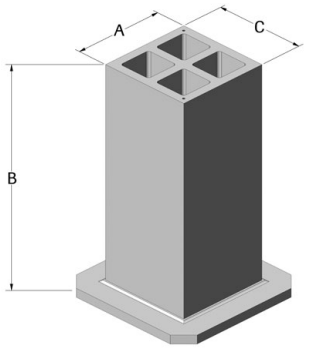
The ability to be brazed has resulted in the widespread use of Tenzaloy™ (cast by all methods) for such things as radar wave guide, plumbing and gasoline pump fittings.

The ease of polishing and brilliant surface obtainable make it ideal for castings requiring this type of finish.

Tenzaloy™ has been successfully used in applications involving pressure tightness. In such applications, as with all aluminum alloys, particular attention must be given to gating and risering to insure proper feeding of the casting.

Tenzaloy™ has replaced malleable iron in many applications, often with no changes in design. In other instances, the change has been made with but minor changes in design to compensate for the lower modulus of elasticity of aluminum as compared to iron base alloys. Many small brackets, levers, and particularly anything that must be carried, lifted, or shipped long distances, can be advantageously converted to Tenzaloy™ alloy.

Tenzaloy™ is most easily welded by the insert gas shielded arc process using 43S or similar filler rod. By this means, excellent welds may be obtained between Tenzaloy™ components and between Tenzaloy™ and most other aluminum shapes, cast or wrought. High strength welds can be obtained with the use of Tenzaloy™ filler, but greater skill is necessary.

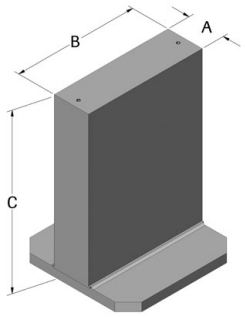


Square Tooling Columns

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Raw casting weights in lbs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
N426-400	4	26	4	400mm X 1.5"	99
N518-400	5	18	5	400mm X 1.5"	79
N522-400	5	22	5	400mm X 1.5"	86
N618-400	6	18	6	400mm X 1.5"	99
N626-400	6	26	6	400mm X 1.5"	124
N818-400	8	18	8	400mm X 1.5"	120
N824-400	8	24	8	400mm X 1.5"	146
N828-400	8	28	8	400mm X 1.5"	163
N828-500	8	28	8	500mm X 1.5"	189
N1018-400	10	18	10	400mm X 1.5"	153
N1024-400	10	24	10	400mm X 1.5"	190
N1024-500	10	24	10	500mm X 1.5"	216
N1028-400	10	28	10	400mm X 1.5"	215
N1028-500	10	28	10	500mm X 1.5"	241
N1034-500	10	34	10	500mm X 1.5"	279
N1034-630	10	34	10	630mm X 1.5"	320
N1218-400	12	18	12	400mm X 1.5"	178
N1218-500	12	18	12	500mm X 1.5"	203
N1224-400	12	24	12	400mm X 1.5"	223
N1224-500	12	24	12	500mm X 1.5"	249
N1228-400	12	28	12	400mm X 1.5"	254
N1228-500	12	28	12	500mm X 1.5"	280
N1232-500	12	32	12	500mm X 1.5"	310
N1232-630	12	32	12	630mm X 1.5"	353
NR1325-500	13	25	13	500mm X 1.5"	342
NR1430-630	14	30	14	630mm X 1.75"	485
N1525IB	15.1	25	15.1	INTERNAL BASE X 2"	352
NR1624-500	16	24	16	500mm X 1.5"	401
NR1628-500	16	28	16	500mm X 1.5"	458
NR1628-630	16	28	16	630mm X 1.5"	499
NR1638-630	16	38	16	630mm X 1.5"	643
NR1828-630	18	28	18	630mm X 1.5"	554
NR1838-630	18	38	18	630mm X 1.5"	718
N2033IB	20	33	20	INTERNAL BASE X 1.75"	508
N2236IB	22	36	22	INTERNAL BASE X 2"	754
NR2238-630	22	38	22	630mm X 2"	1076
NR2438-800	24	38	24	800mm X 2"	1261
NR2442-800	24	42	24	800mm X 2"	1374
NR2450-800	24	50	24	800mm X 2"	1600
NR2946IB	28.8	46	28.8	INTERNAL BASE X 2.25"	1899
NR3253-1000	32	53	32	1000mm X 2"	2765
NR3753-1000	37	53	37	1000mm X 2.5"	2517

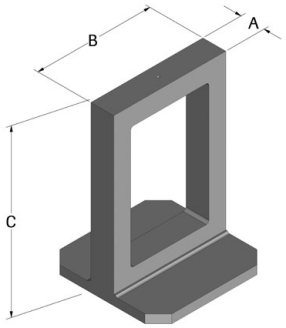


Two-Sided Tooling Columns

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Raw casting weights in lbs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
D31620-400	3	15.7	19.5	400mm X 1.5"	157
D31311OF-300	3.5	13	11	300mm X 1.5"	81
D4820-400	4	8	19.5	400mm X 1.5"	119
D41218-400	4	12	18	400mm X 1.5"	144
D41620-400	4	15.7	20	400mm X 1.5"	188
D41624-400	4	15.7	24	400mm X 1.5"	222
D41624OF-400	4	15.7	24	400mm X 1.5"	217
D41624-500	4	16	24	500mm X 2"	263
D42532-630	4	24.8	32	630mm X 2"	498
D52234-550	5	21.7	34.5	550mm X 1.5"	502
D61218-400	6	12	18	400mm X 1.5"	187
D61628-400	6	15.7	28	400mm X 1.5"	239
D61820-400	6	18	20	400mm X 1.5"	213
D62028-500	6	19.7	28	500mm X 1.5"	439
D62530-630	6	24.8	30	630mm X 2"	628
D62835-630	6	28	35	630mm X 2"	636
D63638-630	6	36	38	630mm X 2"	1024
D63753-1000	6	37	53	1000mm X 2"	1642
D81624-400	8	15.7	24	400mm X 1.5"	237
D81626-500	8	16	26	500mm X 2.5"	313
D81628-400	8	15.7	28	400mm X 2.5"	284
D82024-500	8	19.7	24	500mm X 1.5"	287
D82029-500	8	19.7	29	500mm X 1.5"	348
D82029-630	8	20	29	630mm X 1.5"	376
D82035-500	8	19.7	35	500mm X 1.5"	397
D82530-630	8	24.8	30	630mm X 1.5"	509
D82634-630	8	26	34	630mm X 2"	629
D83240	8	32	40	32" X 25" X 2"	744
D102029-500	10	19.7	29	500mm X 1.75"	443
D102530-630	10	24.8	30	630mm X 2"	568
D102536-630	10	24.8	36	630mm X 2"	663
D102542-630	10	24.8	42	630mm X 2"	757
D103036-800	10	30	36	800mm X 2"	820
D103042-800	10	30	42	800mm X 2"	928
D121521-500	12	15	21	500mm X 1.5"	275
D122033-630	12	20	33	630mm X 1.5"	469
D144949	14	49.2	49.2	1250mm X 700mm X 3"	2528
D144949-X1	14	49.2	49.2	1000mm X 800mm X 3"	2601

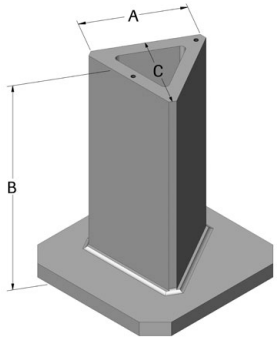


Window Tooling Columns

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Raw casting weights in lbs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
W31628-400	3	15.7	28	400mm X 1.5"	134
W41620-400	4	15.7	20	400mm X 1.5"	144
W42026OF-500	4	19.7	26	500mm X 1.75"	194
W42029-500	4	19.7	29	500mm X 1.5"	196
W42537-630	4	24.8	37	630mm X 2"	352
W42633-500	4	26	33	500mm X 2.25"	346
W43434-630	4	34	34	630mm X 2"	372

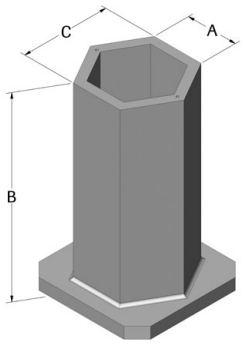


Triangle Tooling Columns

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Raw casting weights in lbs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
T6237-400	6	23	7.1	400mm X 2"	162
T6287-400	6	28	7.1	400mm X 2"	185
T6287-500	6	28	7.1	500mm X 2"	219
T8288-400	8.4	28	8.1	400mm X 2"	177
T10269-500	10	26	9.2	500mm X 1.75"	200
T122611-500	11.8	26	10.9	500mm X 1.75"	227
T142813-630	14.5	28	13.2	630mm X 1.75"	324
T143813-630	14.5	38	13.2	630mm X 1.75"	395

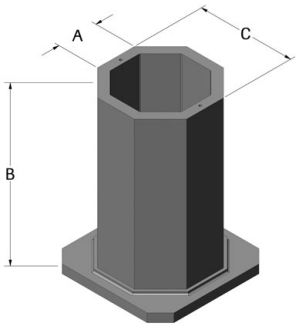


Hexagon Tooling Columns

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Raw casting weights in lbs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
H4187-400	4	18	7	400mm X 1.5"	93
H5249-400	5	24	8.7	400mm X 1.5"	151
H82414-500	8	24	13.9	500mm X 1.5"	228
H82814-500	8	28	13.9	500mm X 1.5"	255
H82814-630	8	28	13.9	630mm X 1.5"	296
H92816-630	9	28	15.6	630mm X 1.75"	365
H93616-630	9	36	15.6	630mm X 1.75"	435
H165028-800	16	50	27.8	800mm X 2"	1533

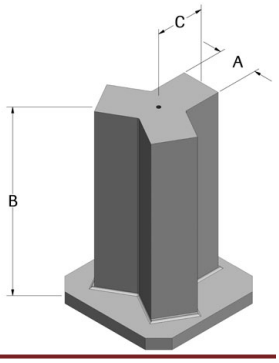


Octagon Tooling Columns

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Raw casting weights in lbs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
O42011-400	4.6	20	11	400mm X 1.5"	143
O42811-400	4.6	28	11	400mm X 1.5"	183
O42811-500	4.6	28	11	500mm X 1.5"	210
O52312-500	5	23	12.1	500mm X 1.5"	215
O52812-500	5	28	12.1	500mm X 1.5"	247
O62416-500	6.5	24	15.7	500mm X 1.5"	298
O62816-630	6.5	28	15.7	630mm X 1.5"	381
O63616-500	6.5	36	15.7	500mm X 1.5"	417
O63616-630	6.5	36	15.7	630mm X 1.5"	460
O124229-1000	12	42	29	1000mm X 2"	1203

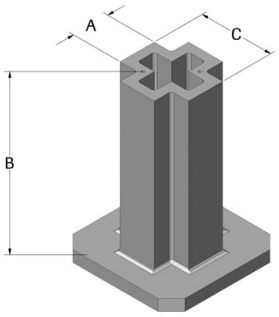


Y-Shaped Tooling Columns

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Raw casting weights in lbs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
Y3286-500	3.1	28	6	500mm X 1.5"	222
Y5286-400	5	28	6.3	400mm X 1.5"	286
Y5286-500	5	28	6.3	500mm X 1.5"	311
Y6288-500	6	28	7.8	500mm X 2"	327
Y6288-630	6	28	7.8	630mm X 2"	379
Y7289-500	7.5	28	8.8	500mm X 2"	308
Y7289-630	7.5	28	8.8	630mm X 2"	377



X-Shaped Tooling Columns

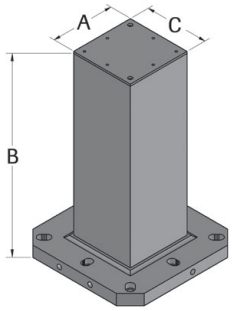
Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Raw casting weights in lbs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
X42812-500	4	28	12	500mm X 1.5"	303
X4248-300	4.5	24	8	300mm X 1.5"	158
X62812-500	6	28	12	500mm X 2"	281
X62812-630	6	28	12	630mm X 2"	334
X63412-500	6	34	12	500mm X 2"	324
X63812-630	6	38	12	630mm X 2"	405
X62810-400	6.5	28	10	400mm X 1.75"	267
X62810-500	6.5	28	10	500mm X 1.75"	296
X82812-500	8	28	12	500mm X 2"	298
X83812-630	8	38	12	630mm X 2"	428
XR83620-630	8	36	20	630mm X 2"	753
XR103620-630	10	36	20	630mm X 2"	696

Universal Mount Tooling Columns

Abbott's pre-machined universal mount columns are available as a stock option to our standard made to order fixtures. Machined bases include both center and edge locating details as well as a selection of slotted mounting bolt holes, allowing them to be used on virtually any machine tool with corresponding pallet size. In addition to the universal base machining, the faces are machined per "BS" specifications and a top plate is provided when applicable. An adaptor washer kit is provided for use with ½-13 or M12 mounting bolts.

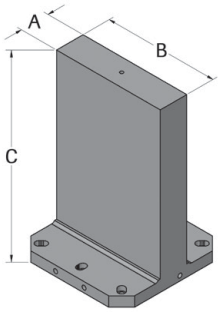


Square Configurations

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Finished weight in lbs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
N824-400UM	8	24	8	400mm X 1.5"	117
N1028-400UM	10	28	10	400mm X 1.5"	178
N1028-500UM	10	28	10	500mm X 1.5"	198
N1232-500UM	12	32	12	500mm X 1.5"	257



Two-Sided Configurations

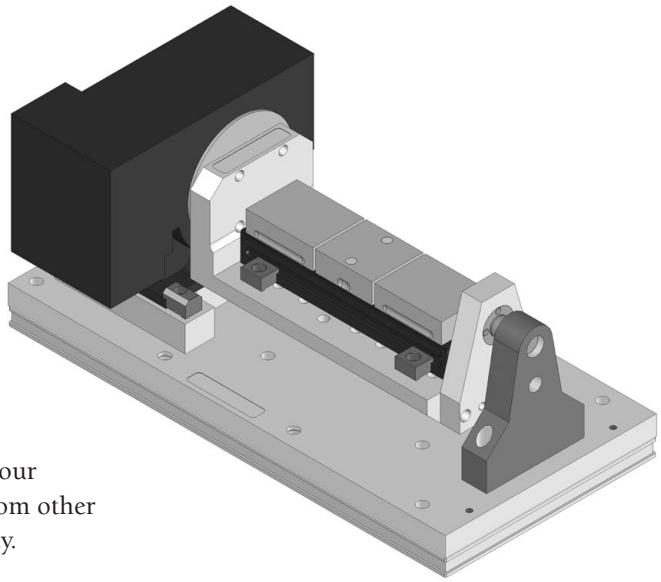
Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Finished weight in lbs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
D41624-400UM	4	15.7	24	400mm X 1.5"	182
D62028-500UM	6	19.7	28	500mm X 1.5"	379

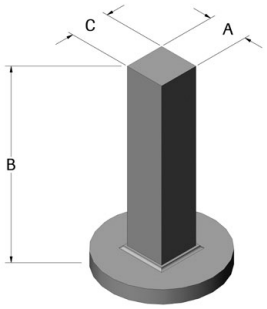
4th Axis/Indexer Fixturing

Abbott's round base tooling columns are designed for use with an indexer or 4th axis rotary table in vertical machining environments. They can be purchased as raw castings or with any level of machining desired.



Standard machined versions include holes in the base for mounting to the indexer table and a standard 60° tailstock center hole, for use with a live or dead center. For heavy duty applications where a shaft style tail support is used, adaptor plates, locating plugs and other custom components can be manufactured to provide a complete turnkey workholding solution.

Additionally, Abbott can design assemblies that integrate our columns with vises, clamps and workholding products from other manufacturers, providing a seamlessly integrated assembly.



Round Base Tooling Columns

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Raw casting weights in lbs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
D3621-6RB	3	21	6	6.5" DIA X 1.5"	52
N412-6RB	4	12	4	6" DIA X 1"	28
N420-12RB	4	20	4	12" DIA X 1.5"	61
N428-15RB	4	28	4	15" DIA X 1.5"	90
N620-12RB	6	20	6	12"DIA X 1.5"	103
N628-12RB	6	28	6	12" DIA X 1.5"	138
N637-12RB	6	37	6	12" DIA X 1.5"	177
N675-9RB	6	75	6	9" DIA X 1.5"	331

Standard tooling column configurations

RAW—tooling column with overall height as cast, base as cast and sides as cast

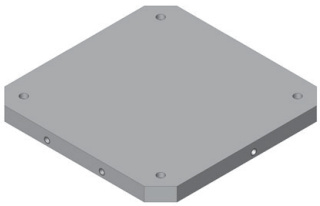
BO (base only)—tooling column with overall height machined, base machined to fit pallet and sides as cast

BS (base & sides)—tooling column with overall height machined, base machined to fit pallet and sides machined to nominal dimension + .015" additional stock

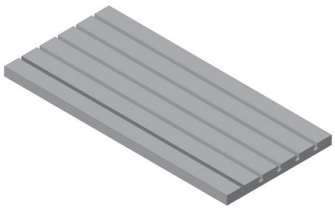
- Add "BO" or "BS" to end of part number to denote base only or base & sides configurations
- Columns are designed to be machined to listed nominal dimensions
- As cast areas have additional stock
- Larger & smaller size bases available upon request

Sub Plates

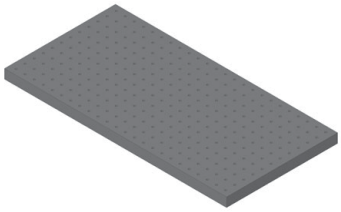
Generally manufactured from MIC6 cast aluminum tooling plate or A36 steel plate, custom sub plates can be made to any thickness, length and width required. They can be machined with custom grid patterns, T-slots and other features to customer specifications and are available with or without any required hardware.



Sub Plate — Plain



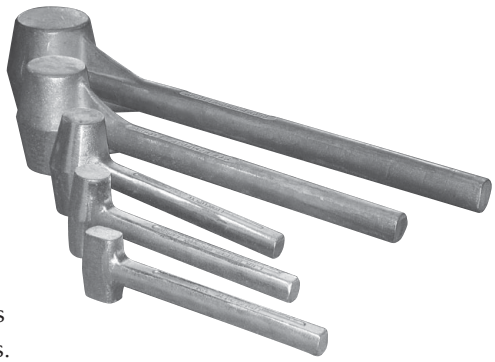
Sub Plate — T-Slot



Sub Plate — Grid Pattern

Aluminum Hammers

Abbott aluminum hammers are the perfect alternative to lead, brass and plastic tipped hammers. Single piece cast construction gives maximum solidity and guarantees safety because head cannot separate from handle. The hammers are non-sparking, non-marring and have excellent vibration dampening characteristics that allow the handle to absorb impact forces instead of your hand. Abbott #0, #1 & #2 hammers are made from certified pure A100 aluminum, which makes them non-contaminating when working with exotic high temperature metals. Abbott #5, & #10 hammers are made from 713 Tenzaloy™ aluminum alloy, making them the perfect choice for heavy work where a more durable and forceful hammer is preferred, without sacrificing non-sparking and non-marring characteristics.



Aluminum Hammers

Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

PART #	ALLOY	FACE SIZE	LENGTH	WEIGHT
0HAMMER	A100	1" X 1 5/8"	12	1.4
1HAMMER	A100	1 5/8" DIA	12	1.8
2HAMMER	A100	2" DIA	13	3.3
5HAMMER	713	3" DIA	22	9.1
10HAMMER	713	4" DIA	29	16.3

Warranty

ABBOTT warrants that its goods will conform to the description and specifications as set forth in the latest ABBOTT product catalog or in purchase orders received and accepted by ABBOTT.

ABBOTT further warrants that the goods shall be free from defects in material and workmanship. Minor surface porosity is not to be considered a defect for purposes of this warranty.

This warranty is expressly made in lieu of any and all other warranties, expressed or implied, including the warranties of merchantability and fitness. There are no other warranties which extend beyond the description in this agreement.

Limitations of Remedies

The exclusive remedy in the event that any of the goods do not conform to the description of ABBOTT's standard warranty shall be replacement or repair of the goods at the option of ABBOTT.

Except as otherwise agreed upon herein, ABBOTT shall not be liable for special or consequential damages, such as, but not limited to, damage or loss of other property or equipment, loss of profits or revenue, loss of use of power system, cost of capital, cost of purchased or replacement parts or claims of third persons or parties.

The remedies set forth herein are exclusive and the liability of ABBOTT with respect to goods sold or ancillary claims arising from the use of any goods manufactured by ABBOTT, whether such remedies are based on contract, tort, strict liability or other warranty theories, shall not, except as expressly provided for herein, exceed the price of the goods or the part or portion of the goods on which such liability or claim is based.

All goods claimed to be non-conforming must be shipped to MANUFACTURER's Manhattan, Kansas plant at MANUFACTURER's expense. Such goods will be repaired or replaced within a reasonable time. ABBOTT's acceptance of any goods so shipped shall not be deemed an admission that the goods are non-conforming, and if ABBOTT finds that any goods returned are not defective, such goods will be re-shipped to purchaser and purchaser will be charged all shipping charges incurred by ABBOTT.

Return Policy

Standard Chuck Jaws

All standard chuck jaws may be returned to Abbott within 6 months of invoice/shipping date.

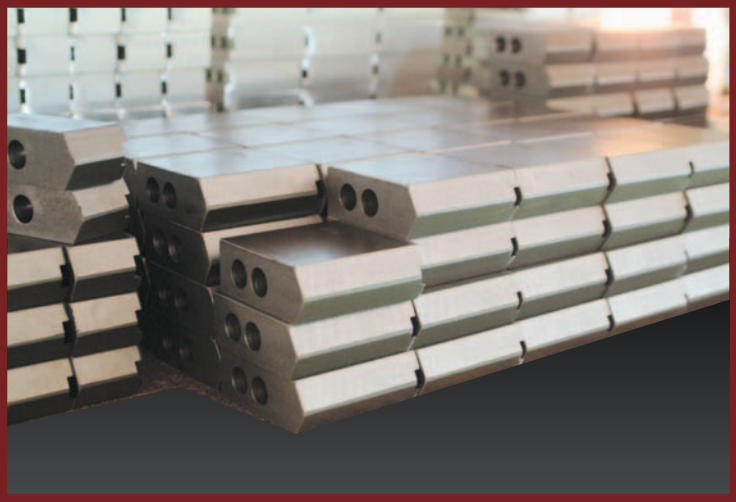
After 6 months from invoice date, goods may not be returned unless special circumstances exist and return is approved by Abbott.

All returned goods must be assigned an RMA number by Abbott prior to being returned. All returned goods must be inspected by Abbott and accepted into inventory prior to credit being applied.

All returned goods are subject to a 15% restocking fee unless Abbott is at fault due to inaccurate order processing or incorrect manufacturing.

Made to order chuck jaws, master plates and fixtures

All made to order products, including special chuck jaws, master plates and fixtures, may not be returned unless special circumstances exist and return is approved by Abbott.



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