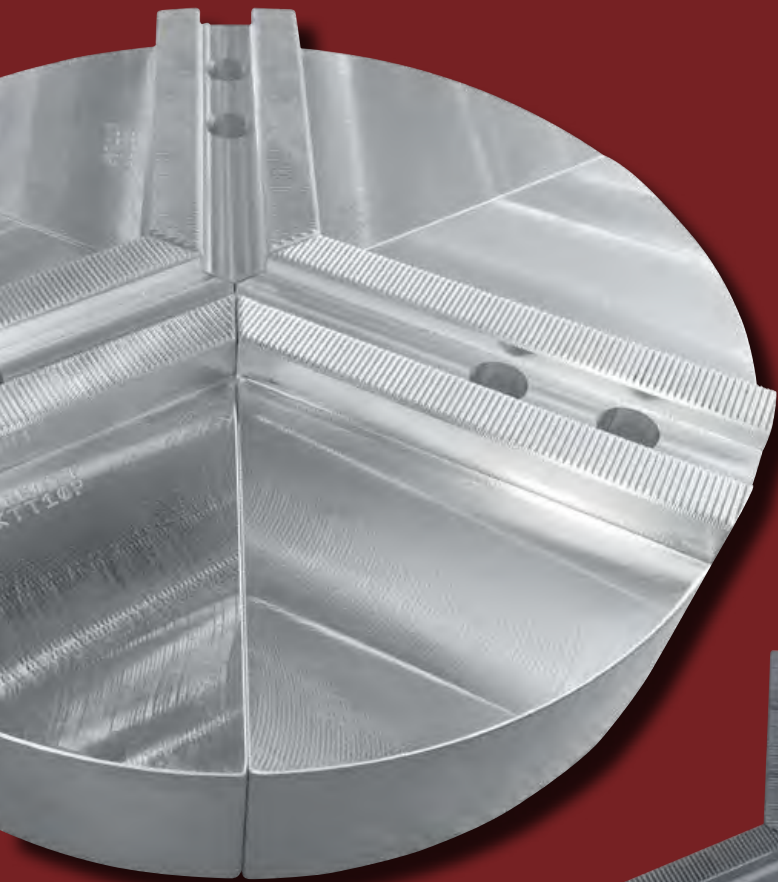
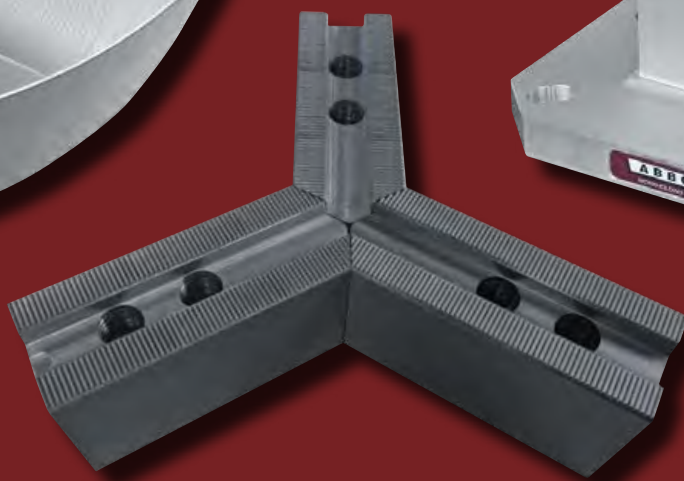
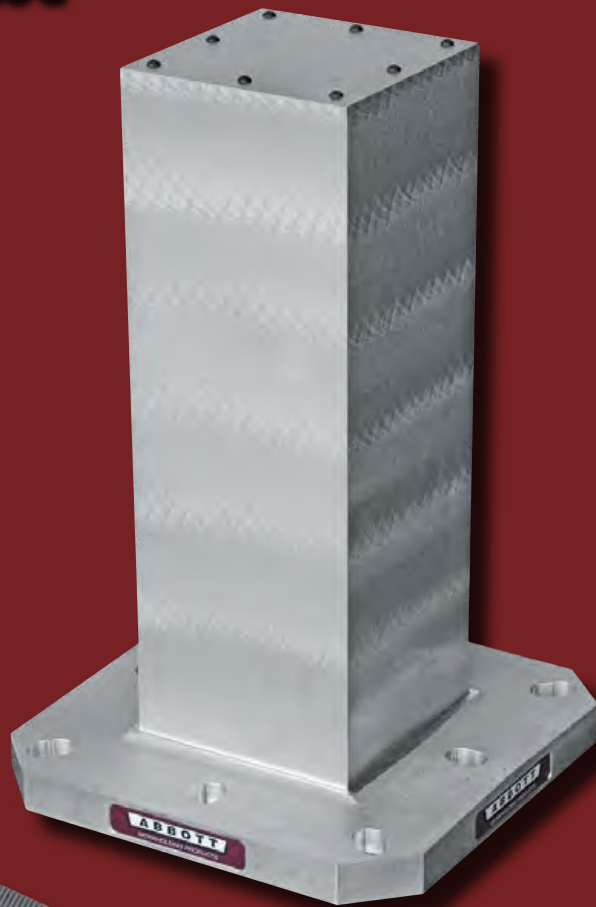




WORKHOLDING PRODUCTS

GENERAL CATALOG



SOFT JAWS

PIE JAWS®

MASTER PLATES

TOOLING COLUMNS

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 6061 T-6 or 319 cast



aluminum. All tooling columns (CNC tombstones) are made of 713 (Tenzaloy™) aged to T-6 condition.

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 60 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.

Pie Jaw® is a registered trademark of Abbott Aluminum Inc.
Tenzaloy™ is a registered trademark of Federated Metals Div., American Smelting and Refining Co.



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.

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Chuck Reference

Chuck	Jaw Interface Type	Style(s) Soft / Pie
ATS	1/16" x 90° Serrated 3/32" x 90° Serrated	J/K J/K
ATLAS	Am. Std. Tongue & Groove	A/D
AUTO-STRONG	1.5mm x 60° Serrated 3mm x 60° Serrated Am. Std. Tongue & Groove	P/Q H/S A/D
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	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
KITAGAWA	1.5mm x 60° Serrated 3mm x 60° Serrated	P/Q H/S
LMC	1.5mm x 60° Serrated 3mm x 60° Serrated Am. Std. Tongue & Groove Acme Serrated Key Square Serrated Key	P/Q H/S A/D C/L B/E
MATSUMOTO	1.5mm x 60° Serrated 3mm x 60° Serrated	P/Q H/S

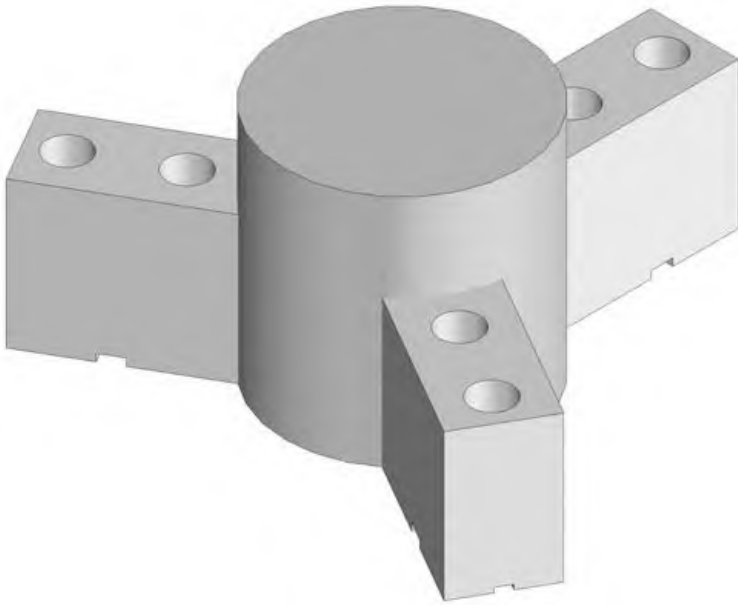
Chuck	Jaw Interface Type	Style(s) Soft / Pie
MICROCENTRIC	Pin Locator	R/M
MMK	1.5mm x 60° Serrated 3mm x 60° Serrated	P/Q H/S
NIKKO	1.5 mm x 60° Serrated	P/Q
NOBEL	Am. Std. Tongue & Groove	A/D
NORTHFIELD	Pin Locator	R/M
POWERHOLD	1/16" x 90° Serrated	J/K
PRATT BURNERD	1.5mm x 60° Serrated Am. Std. Tongue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

Pie Jaw® Advantages

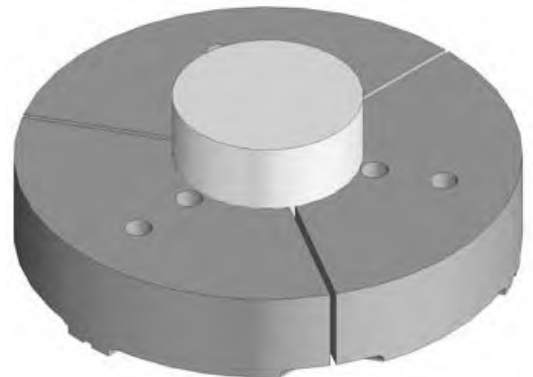
Abbott Workholding Products invented the lightweight aluminum Pie Jaw®.

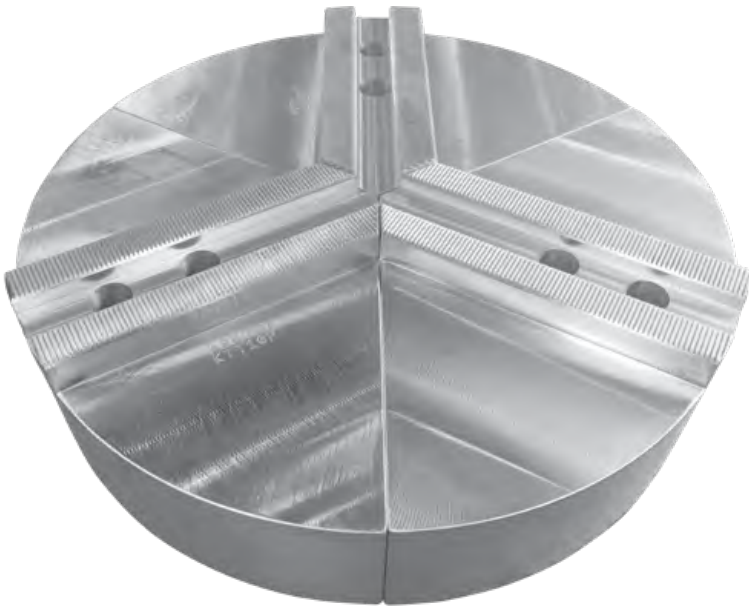
The Abbott Pie Jaw® offers you the ability to make more accurate parts faster than you ever have before.

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.

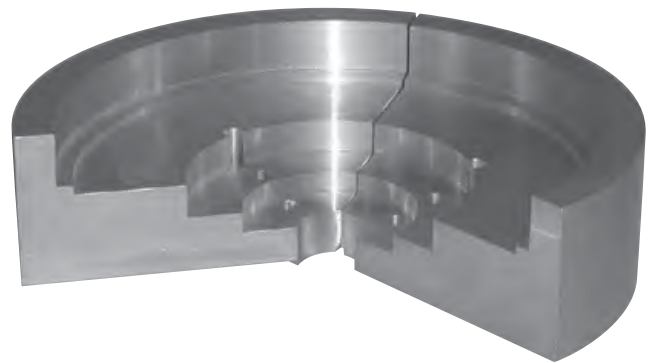


Standard soft jaws keep only three points of contact around the part. Constant chuck pressure could damage the part and at high rotations the part could deform between the contact points. Additionally, traditional soft jaws cannot be utilized on thin walled or odd-shaped parts without modification .



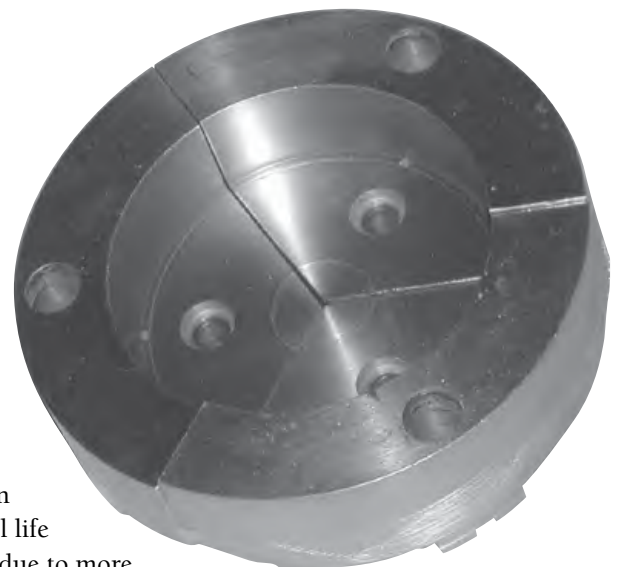


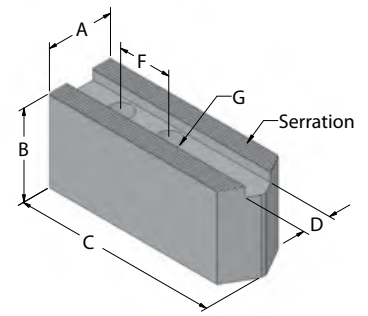
Most of our Pie Jaws® are made from aerospace aluminum alloys. The light weight of the aluminum Pie Jaws® enables you to rotate your chuck faster than before, so you can turn parts faster with less wear and tear on your machine. Substantially lighter weight jaws enhance operation utilization and shop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





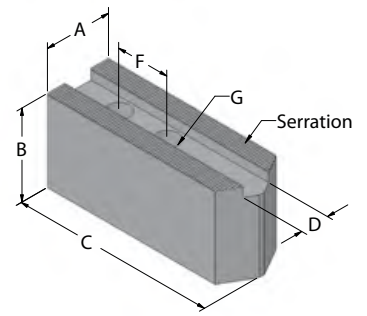
1.5mm X 60° Serrated Soft Jaws — Style P

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	M6
	KW4A	KW4S	1	1 1/2	2	0.394	0.551	M8
	KW4A1	KW4S1	1	3	2	0.394	0.551	M8
5	KTTB205A	KTTB205S	1	1 1/2	2 1/2	0.394	0.551	M8
	KTTB205A1	KTTB205S1	1	3	2 1/2	0.394	0.551	M8
	KTT5A	KTT5S	1	1 1/2	2 1/2	0.394	0.709	M8
	KTT5A1	KTT5S1	1	3	2 1/2	0.394	0.709	M8
	HOW5A	HOW5S	1	1 1/2	2 1/2	0.394	0.748	M8
	HOW5A1	HOW5S1	1	3	2 1/2	0.394	0.748	M8
	SUG5ASTS	SUG5SSTS	1	1 1/2	2 1/2	0.433	0.669	M8
6	HOW6A	HOW6S	1 1/4	1 1/2	3	0.433	0.787	M10
	HOW6A1	HOW6S1	1 1/4	3	3	0.433	0.787	M10
	SUG6ASTS	SUG6SSTS	1 1/4	1 1/2	3	0.433	0.984	M8
	SUG6A1STS	SUG6S1STS	1 1/4	2	3	0.433	0.984	M8
	SUG6A2STS	SUG6S2STS	1 1/4	3	3	0.433	0.984	M8
	KTT6A	KTT6S	1 1/4	1 1/2	3	0.472	0.787	M10
	KTT6ASQ	KTT6SSQ	1 1/4	1 1/2	3	0.472	0.787	M10
	KTT6A1	KTT6S1	1 1/4	2	3	0.472	0.787	M10
	KTT6A1SQ	KTT6S1SQ	1 1/4	2	3	0.472	0.787	M10
	KTT6A2	KTT6S2	1 1/4	3	3	0.472	0.787	M10
	KTT6A2SQ	KTT6S2SQ	1 1/4	3	3	0.472	0.787	M10
	KTT6A4	KTT6S4	1 1/4	4	3	0.472	0.787	M10
	KTT6A4SQ	KTT6S4SQ	1 1/4	4	3	0.472	0.787	M10
8	KTT8A	KTT8S	1 1/2	2	4	0.551	0.984	M12
	KTT8ASQ	KTT8SSQ	1 1/2	2	4	0.551	0.984	M12
	KTT8A1	KTT8S1	1 1/2	3	4	0.551	0.984	M12
	KTT8A1SQ	KTT8S1SQ	1 1/2	3	4	0.551	0.984	M12
	KTT8A2	KTT8S2	1 1/2	4	4	0.551	0.984	M12
	KTT8A2SQ	KTT8S2SQ	1 1/2	4	4	0.551	0.984	M12
	KTT8A6	KTT8S6	1 1/2	6	4	0.551	0.984	M12
	KTT8A6SQ	KTT8S6SQ	1 1/2	6	4	0.551	0.984	M12
	SUG8ASTS	SUG8SSTS	1 1/2	2	4	0.551	1.181	M10
	SUG8A1STS	SUG8S1STS	1 1/2	3	4	0.551	1.181	M10
	HOW27M88A	HOW27M88S	1 1/2	2	4	0.630	0.984	M12
	HOW27M88A1	HOW27M88S1	1 1/2	3	4	0.630	0.984	M12
10	KTT10A	KTT10S	1 1/2	2	4 1/2	0.630	1.181	M12
	KTT10ASQ	KTT10SSQ	1 1/2	2	4 1/2	0.630	1.181	M12
	KTT10A1	KTT10S1	1 1/2	3	4 1/2	0.630	1.181	M12
	KTT10A1SQ	KTT10S1SQ	1 1/2	3	4 1/2	0.630	1.181	M12
	KTT10A3	KTT10S3	2	3	5 1/2	0.630	1.181	M12
	KTT10A4	KTT10S4	1 1/2	4	4 1/2	0.630	1.181	M12
	KTT10A4SQ	KTT10S4SQ	1 1/2	4	4 1/2	0.630	1.181	M12
	KTT10A6	KTT10S6	1 1/2	6	4 1/2	0.630	1.181	M12
	KTT10A6SQ	KTT10S6SQ	1 1/2	6	4 1/2	0.630	1.181	M12
	MTT10A	MTT10S	1 1/2	2	4 1/2	0.630	1.260	M12
	MTT10A1	MTT10S1	1 1/2	3	4 1/2	0.630	1.260	M12
	HOW27M10A	HOW27M10S	1 1/2	2	4 1/2	0.709	1.181	M14
	HOW27M10A1	HOW27M10S1	1 1/2	3	4 1/2	0.709	1.181	M14



1.5mm X 60° Serrated Soft Jaws — Style P

— continued

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	M14
	KTT12ASQ	KTT12SSQ	2	2	5 1/2	0.709	1.181	M14
	KTT12A1	KTT12S1	2	3	5 1/2	0.709	1.181	M14
	KTT12A1SQ	KTT12S1SQ	2	3	5 1/2	0.709	1.181	M14
	KTT12A4	KTT12S4	2	4	5 1/2	0.709	1.181	M14
	KTT12A4SQ	KTT12S4SQ	2	4	5 1/2	0.709	1.181	M14
	KTT12A6	KTT12S6	2	6	5 1/2	0.709	1.181	M14
	KTT12A6SQ	KTT12S6SQ	2	6	5 1/2	0.709	1.181	M14
	SEIKI12A	SEIKI12S	1 1/2	2	4 1/4	0.709	1.260	M14
	SUG12ASTM	SUG12SSTM	2	2	5 1/2	0.788	1.378	M12
	KTTB212A	KTTB212S	2	2	5 1/2	0.827	1.181	M16
	KTTB212ASQ	KTTB212SSQ	2	2	5 1/2	0.827	1.181	M16
	KTTB212A1	KTTB212S1	2	3	5 1/2	0.827	1.181	M16
	KTTB212A1SQ	KTTB212S1SQ	2	3	5 1/2	0.827	1.181	M16
	KTTB212A4	KTTB212S4	2	4	5 1/2	0.827	1.181	M16
	KTTB212A4SQ	KTTB212S4SQ	2	4	5 1/2	0.827	1.181	M16
	KTTB212A6	KTTB212S6	2	6	5 1/2	0.827	1.181	M16
	KTTB212A6SQ	KTTB212S6SQ	2	6	5 1/2	0.827	1.181	M16
	HOW27M12A	HOW27M12S	2	2	5 1/2	0.827	1.378	M16
	HOW27M12A1	HOW27M12S1	2	3	5 1/2	0.827	1.378	M16
15-18	KTT15A	KTT15S	2 1/2	3	6 1/2	0.866	1.693	M20
	KTT15ASQ	KTT15SSQ	2 1/2	3	6 1/2	0.866	1.693	M20
	KTT15A1	KTT15S1	2 1/2	4	6 1/2	0.866	1.693	M20
	KTT15A1SQ	KTT15S1SQ	2 1/2	4	6 1/2	0.866	1.693	M20
	KTT15A6	KTT15S6	2 1/2	6	6 1/2	0.866	1.693	M20
	KTT15A6SQ	KTT15S6SQ	2 1/2	6	6 1/2	0.866	1.693	M20
	KTT18A	KTT18S	2 1/2	3	7 1/2	0.866	1.693	M20
	KTT18A1	KTT18S1	2 1/2	4	7 1/2	0.866	1.693	M20
	KTTB215A	KTTB215S	2 1/2	3	6 1/2	1.004	1.693	M20
	KTTB215ASQ	KTTB215SSQ	2 1/2	3	6 1/2	1.004	1.693	M20
	KTTB215A1	KTTB215S1	2 1/2	4	6 1/2	1.004	1.693	M20
	KTTB215A1SQ	KTTB215S1SQ	2 1/2	4	6 1/2	1.004	1.693	M20
	KTTB215A6	KTTB215S6	2 1/2	6	6 1/2	1.004	1.693	M20
	KTTB215A6SQ	KTTB215S6SQ	2 1/2	6	6 1/2	1.004	1.693	M20
	KTTB218A	KTTB218S	2 1/2	3	7 1/2	1.004	1.693	M20
	KTTB218A1	KTTB218S1	2 1/2	4	7 1/2	1.004	1.693	M20

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

Made with 6061 T-6 condition aluminum, 319 cast aluminum, cast iron, 1018 steel or A36 steel

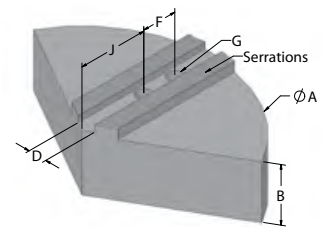
Add CI prefix to aluminum part # for cast iron jaws

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	M6	1	5.7
	KTT4P1	6	4	0.315	0.591	M6	1	10.8
	KW4P	6	2	0.394	0.551	M8	1	5.7
	KW4P1	6	4	0.394	0.551	M8	1	10.8
5	KTTB205P	6	2	0.394	0.551	M8	1 1/2	5.7
	KTTB205P1	6	4	0.394	0.551	M8	1 1/2	10.8
	KTT5P	6	2	0.394	0.709	M8	1 1/8	5.7
	KTT5P1	6	4	0.394	0.709	M8	1 1/8	10.8
	HOW5P	6	2	0.394	0.748	M8	1	5.7
	HOW5P1	6	4	0.394	0.748	M8	1	10.8
	SUG5PSTS	6	2	0.433	0.669	M8	1 27/32	5.7

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

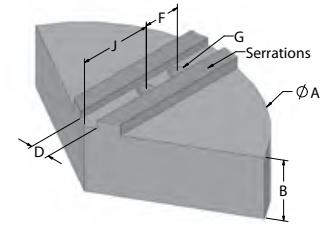
Made with 6061 T-6 condition aluminum, 319 cast aluminum, cast iron, 1018 steel or A36 steel

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
6	SUG6PSTS	6	2	0.433	0.984	M8	1 3/8	5.7
	SUG6P1STS	6	4	0.433	0.984	M8	1 3/8	10.8
	KTT6P	6	2	0.472	0.787	M10	1 21/32	5.7
	KTT6P3	6	3	0.472	0.787	M10	1 21/32	8.1
	KTT6P1	6	4	0.472	0.787	M10	1 21/32	10.8
	KTT86P	8	2	0.472	0.787	M10	1 21/32	10.2
	KTT86P1	8	4	0.472	0.787	M10	1 21/32	19.8
	KTT106P	10	2	0.472	0.787	M10	1 21/32	16.2
8	KTT8P	8	2	0.551	0.984	M12	2 5/16	10.2
	KTT8P3	8	3	0.551	0.984	M12	2 5/16	14.7
	KTT8P1	8	4	0.551	0.984	M12	2 5/16	19.8
	KTT8P6	8	6	0.551	0.984	M12	2 5/16	29.4
	KTT108P	10	2	0.551	0.984	M12	2 5/16	16.2
	KTT108P1	10	4	0.551	0.984	M12	2 5/16	31.5
	KTT128P	12	2	0.551	0.984	M12	2 5/16	23.4
	KTT128P1	12	4	0.551	0.984	M12	2 5/16	45.3
	SUG8PSTS	8	2	0.551	1.181	M10	1 27/32	10.2
	SUG8P1STS	8	4	0.551	1.181	M10	1 27/32	19.8
	HOW27M88P	8	2	0.630	0.984	M12	2	10.2
	HOW27M88P1	8	4	0.630	0.984	M12	2	19.8
	AUTOBHM8P	8	2	0.669	0.906	M12	2 1/2	10.2
	AUTOBHM8P1	8	4	0.669	0.906	M12	2 1/2	19.8
10	KTT10P	10	2	0.630	1.181	M12	2 7/8	16.2
	KTT10P3	10	3	0.630	1.181	M12	2 7/8	24.0
	KTT10P1	10	4	0.630	1.181	M12	2 7/8	31.5
	KTT10P6	10	6	0.630	1.181	M12	2 7/8	46.8
	KTT1210P	12	2	0.630	1.181	M12	2 7/8	23.4
	KTT1210P1	12	4	0.630	1.181	M12	2 7/8	45.3
	KTT1510P	15	3	0.630	1.181	M12	2 7/8	53.7
	KTT1510P1	15	4	0.630	1.181	M12	2 7/8	70.8
	KTT1810P	18	3	0.630	1.181	M12	2 7/8	77.7
	KTT1810P1	18	4	0.630	1.181	M12	2 7/8	102.6
	MTT10P	10	2	0.630	1.260	M12	2 7/8	16.2
	MTT10P1	10	4	0.630	1.260	M12	2 7/8	31.5
	HOW27M10P	10	2	0.709	1.181	M14	3	16.2
	HOW27M10P1	10	4	0.709	1.181	M14	3	31.5
12	KTT12P	12	2	0.709	1.181	M14	3 1/2	23.4
	KTT12P3	12	3	0.709	1.181	M14	3 1/2	34.2
	KTT12P1	12	4	0.709	1.181	M14	3 1/2	45.3
	KTT12P6	12	6	0.709	1.181	M14	3 1/2	67.2
	KTT1512P	15	3	0.709	1.181	M14	3 1/2	53.7
	KTT1512P1	15	4	0.709	1.181	M14	3 1/2	70.8
	KTT1812P	18	3	0.709	1.181	M14	3 1/2	77.7
	KTT1812P1	18	4	0.709	1.181	M14	3 1/2	102.6
	KTT2112P2	21	2	0.709	1.181	M14	3 1/2	71.4
	KTT2112P	21	3	0.709	1.181	M14	3 1/2	105.0
	KTT2112P1	21	4	0.709	1.181	M14	3 1/2	139.2
	SEIKI12P	12	2	0.709	1.260	M14	3 1/8	23.4
	SUG12PSTMT	12	2	0.788	1.378	M12	3 7/16	23.4
	KTTB212P	12	2	0.827	1.181	M16	3 1/2	23.4
	KTTB212P3	12	3	0.827	1.181	M16	3 1/2	34.2
	KTTB212P1	12	4	0.827	1.181	M16	3 1/2	45.3
	KTTB212P6	12	6	0.827	1.181	M16	3 1/2	67.2
	KTT15B212P	15	3	0.827	1.181	M16	3 1/2	53.7
	KTT15B212P1	15	4	0.827	1.181	M16	3 1/2	70.8
	KTT18B212P	18	3	0.827	1.181	M16	3 1/2	77.7
	KTT18B212P1	18	4	0.827	1.181	M16	3 1/2	102.6
	KTT21B212P2	21	2	0.827	1.181	M16	3 1/2	71.4
	KTT21B212P	21	3	0.827	1.181	M16	3 1/2	105.0
	KTT21B212P1	21	4	0.827	1.181	M16	3 1/2	139.2
	HOW27M12P	12	2	0.827	1.378	M16	2 3/4	23.4
	HOW27M12P1	12	4	0.827	1.378	M16	2 3/4	45.3

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

– continued

Made with 6061 T-6 condition aluminum, 319 cast aluminum, cast iron, 1018 steel or A36 steel

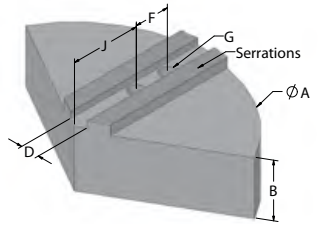
Add CI prefix to aluminum part # for cast iron jaws

Add ST prefix to aluminum part # for steel jaws

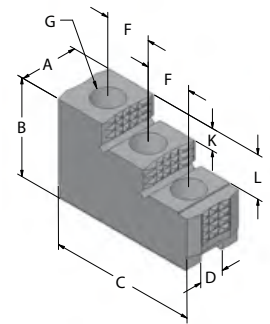
Cast iron version weight is approximately 2.6 times that of aluminum

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	KTT15P	15	3	0.866	1.693	M20	4 5/16	53.7
	KTT15P1	15	4	0.866	1.693	M20	4 5/16	70.8
	KTT15P6	15	6	0.866	1.693	M20	4 5/16	105.0
	KTT15P8	15	8	0.866	1.693	M20	4 5/16	138.0
	KTT1815P	18	3	0.866	1.693	M20	4 5/16	77.7
	KTT1815P1	18	4	0.866	1.693	M20	4 5/16	102.6
	KTT2115P	21	3	0.866	1.693	M20	4 5/16	105.0
	KTT2115P1	21	4	0.866	1.693	M20	4 5/16	139.2
	KTT2415P	24	3	0.866	1.693	M20	4 5/16	138.0
	KTT2415P1	24	4	0.866	1.693	M20	4 5/16	182.4
	KTTB215P	15	3	1.004	1.693	M20	4 5/16	53.7
	KTTB215P1	15	4	1.004	1.693	M20	4 5/16	70.8
	KTTB215P6	15	6	1.004	1.693	M20	4 5/16	105.0
	KTTB215P8	15	8	1.004	1.693	M20	4 5/16	138.0
	KTT18B215P	18	3	1.004	1.693	M20	4 5/16	77.7
	KTT18B215P1	18	4	1.004	1.693	M20	4 5/16	102.6
	KTT21B215P	21	3	1.004	1.693	M20	4 5/16	105.0
	KTT21B215P1	21	4	1.004	1.693	M20	4 5/16	139.2
	KTT24B215P	24	3	1.004	1.693	M20	4 5/16	138.0
	KTT24B215P1	24	4	1.004	1.693	M20	4 5/16	182.4
18	KTT18P	18	3	0.866	1.693	M20	5	77.7
	KTT18P1	18	4	0.866	1.693	M20	5	102.6
	KTT2118P	21	3	0.866	1.693	M20	5	105.0
	KTT2118P1	21	4	0.866	1.693	M20	5	139.2
	KTT2418P	24	3	0.866	1.693	M20	5	138.0
	KTT2418P1	24	4	0.866	1.693	M20	5	182.4
	KTTB218P	18	3	1.004	1.693	M20	5 1/2	77.7
	KTTB218P1	18	4	1.004	1.693	M20	5 1/2	102.6
	KTT21B218P	21	3	1.004	1.693	M20	5 1/2	105.0
	KTT21B218P1	21	4	1.004	1.693	M20	5 1/2	139.2
	KTT24B218P	24	3	1.004	1.693	M20	5 1/2	138.0
	KTT24B218P1	24	4	1.004	1.693	M20	5 1/2	182.4

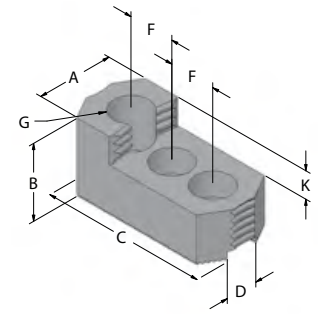


1.5mm X 60° Serrated Hard Jaws

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	M10	0.42	0.86
8	KTT8HJDS	1.50	2.23	3.17	0.551	0.984	M12	0.63	1.25
10	KTT10HJDS	1.50	2.73	3.99	0.630	1.181	M12	0.75	1.50
12	KTT12HJDS	2.00	2.48	4.16	0.709	1.181	M14	0.68	1.36
	KTTB212HJDS	2.00	2.75	4.13	0.827	1.181	M16	0.75	0.75
15	KTT15HJDS	2.50	2.98	5.88	0.866	1.693	M20	0.75	1.54
	KTTB215HJDS	2.50	2.98	5.88	1.004	1.693	M20	0.75	1.54

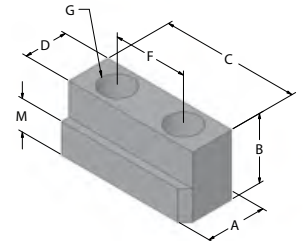


1.5mm X 60° Serrated Single Step Hard Jaws

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	M10	0.48
8	KTT8HJSS	1.50	1.98	3.16	0.551	0.984	M12	0.75
10	KTT10HJSS	1.50	1.98	3.99	0.630	1.181	M12	0.76
12	KTT12HJSS	2.00	1.98	4.16	0.709	1.181	M14	0.83
15	KTT15HJSS	2.50	2.48	5.88	0.866	1.693	M20	0.93
	KTTB215HJSS	2.50	2.48	5.88	1.004	1.693	M20	0.93

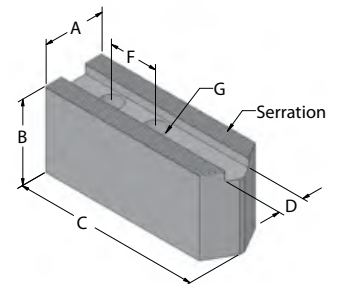


1.5mm X 60° Serrated Jaw Nuts

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	M10	0.295
	KTTB206JN	0.69	0.72	1.44	0.472	0.787	M10	0.295
8	KTT8JN	0.80	1.00	1.87	0.551	0.984	M12	0.335
	KTTB208JN	0.81	0.81	1.83	0.551	0.984	M12	0.335
	HOW27M88JN	0.98	1.00	2.00	0.630	0.984	M12	0.375
10	KTT10JN	0.87	1.00	2.05	0.630	1.181	M12	0.335
	KTTB210JN	0.89	0.85	2.01	0.630	1.181	M12	0.335
12	KTT12JN	1.04	1.30	2.25	0.709	1.181	M14	0.530
	KTTB212JN	1.16	1.09	2.19	0.827	1.181	M16	0.450
15	KTT15JN	1.32	1.79	3.15	0.866	1.693	M20	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	M12
	HOW8A1	HOW8S1	1 1/2	3	4	0.551	0.984	M12
10	HOW10A	HOW10S	1 1/2	2	4 1/2	0.630	1.181	M12
	HOW10A1	HOW10S1	1 1/2	3	4 1/2	0.630	1.181	M12
12	HOW12A	HOW12S	2	2	5 1/2	0.709	1.181	M14
	HOW12A1	HOW12S1	2	3	5 1/2	0.709	1.181	M14
15	HOW7MA15A	HOW7MA15S	2	2 1/2	5	0.827	1.575	M16
	MTT15A	MTT15S	2 1/2	3	6 1/2	0.866	1.969	M20
	MTT15A1	MTT15S1	2 1/2	4	6 1/2	0.866	1.969	M20
	HOW27M15A	HOW27M15S	2 1/2	3	6 1/2	1.024	1.654	M20
	HOW15A	HOW15S	2 1/2	3	6 1/2	1.024	1.969	M20
	HOW15A1	HOW15S1	2 1/2	4	6 1/2	1.024	1.969	M20
18	MTT18A	MTT18S	2 1/2	3	8 1/4	0.866	1.969	M20
	MTT18A1	MTT18S1	2 1/2	4	8 1/4	0.866	1.969	M20

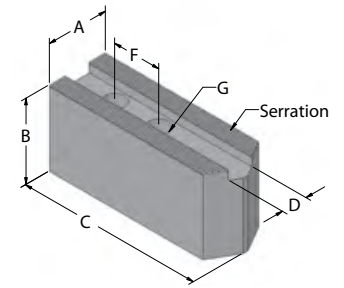
3mm X 60° Serrated Soft Jaws — Style H

— continued

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
21-24	KTT21A	KTT21S	2 1/2	3	8 1/4	0.984	2.362	M20
	KTT21ASQ	KTT21SSQ	2 1/2	3	8 1/4	0.984	2.362	M20
	KTT21A1	KTT21S1	2 1/2	4	8 1/4	0.984	2.362	M20
	KTT21A1SQ	KTT21S1SQ	2 1/2	4	8 1/4	0.984	2.362	M20
	KTT21A5	KTT21S5	2 1/2	5	8 1/4	0.984	2.362	M20
	KTT21A5SQ	KTT21S5SQ	2 1/2	5	8 1/4	0.984	2.362	M20
	KTT21A6	KTT21S6	2 1/2	6	8 1/4	0.984	2.362	M20
	KTT21A6SQ	KTT21S6SQ	2 1/2	6	8 1/4	0.984	2.362	M20

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

Made with 6061 T-6 condition aluminum, 319 cast aluminum, cast iron, 1018 steel or A36 steel

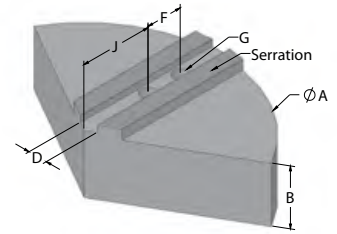
Add CI prefix to aluminum part # for cast iron jaws

Add ST prefix to aluminum part # for steel jaws

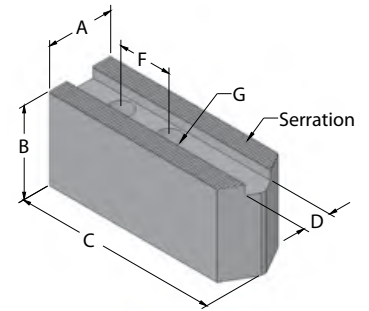
Cast iron version weight is approximately 2.6 times that of aluminum

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	M12	2	10.2
	HOW8P1	8	4	0.551	0.984	M12	2	19.8
10	HOW10P	10	2	0.630	1.181	M12	3	16.2
	HOW10P1	10	4	0.630	1.181	M12	3	31.5
12	HOW12P	12	2	0.709	1.181	M14	3 5/8	23.4
	HOW12P1	12	4	0.709	1.181	M14	3 5/8	45.3
	HOW1512P	15	3	0.709	1.181	M14	3 5/8	53.7
15	HOW7MA15P	15	3	0.827	1.575	M16	4 1/8	53.7
	MTT15P	15	3	0.866	1.969	M20	4 1/8	53.7
	MTT15P1	15	4	0.866	1.969	M20	4 1/8	70.8
	MTT15P6	15	6	0.866	1.969	M20	4 1/8	105.0
	MTT1815P	18	3	0.866	1.969	M20	4 1/8	77.7
	MTT1815P1	18	4	0.866	1.969	M20	4 1/8	102.6
	MTT2115P	21	3	0.866	1.969	M20	4 1/8	105.0
	MTT2115P1	21	4	0.866	1.969	M20	4 1/8	139.2
	HOW27M15P	15	3	1.024	1.654	M20	4 5/16	53.7
	HOW15P	15	3	1.024	1.969	M20	2 3/4	53.7
18	HOW15P1	15	4	1.024	1.969	M20	2 3/4	70.8
	MTT18P	18	3	0.866	1.969	M20	5 3/8	77.7
	MTT18P1	18	4	0.866	1.969	M20	5 3/8	102.6
	MTT2118P	21	3	0.866	1.969	M20	5 3/8	105.0
	MTT2118P1	21	4	0.866	1.969	M20	5 3/8	139.2
	MTT2418P	24	3	0.866	1.969	M20	5 3/8	138.0
21	MTT2418P1	24	4	0.866	1.969	M20	5 3/8	182.4
	KTT1821P	18	3	0.984	2.362	M20	5 3/4	77.7
	KTT1821P1	18	4	0.984	2.362	M20	5 3/4	102.6
	KTT21P2	21	2	0.984	2.362	M20	5 3/4	71.4
	KTT21P	21	3	0.984	2.362	M20	5 3/4	105.0
	KTT21P1	21	4	0.984	2.362	M20	5 3/4	139.2
	KTT2421P	24	3	0.984	2.362	M20	5 3/4	138.0
	KTT2421P1	24	4	0.984	2.362	M20	5 3/4	182.4
	KTT2821P	28	3	0.984	2.362	M20	5 3/4	186.0
	KTT2821P1	28	4	0.984	2.362	M20	5 3/4	249.6
24	KTT24P2	24	2	0.984	2.362	M20	7 1/2	93.0
	KTT24P	24	3	0.984	2.362	M20	7 1/2	138.0
	KTT24P1	24	4	0.984	2.362	M20	7 1/2	182.4
	KTT2824P	28	3	0.984	2.362	M20	7 1/2	186.0
	KTT2824P1	28	4	0.984	2.362	M20	7 1/2	249.6

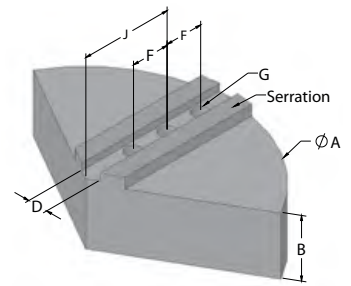


1/16" X 90° Serrated Soft Jaws — Style J

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
	SMW6.5A	SMW6.5S	1 1/4	1 1/2	3	0.551	0.650	M10
	SMW6.5A1	SMW6.5S1	1 1/4	2	3	0.551	0.650	M10
	SMW6.5A2	SMW6.5S2	1 1/4	3	3	0.551	0.650	M10
	PH6.5A	PH6.5S	1 1/4	1 1/2	3	0.551	0.719	3/8
	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
8	HAR6ESHA2	HAR6ESHS2	1 1/4	3	3.09	0.551	0.787	3/8
	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	M12
	SMW8A1	SMW8S1	1 1/2	3	4	0.669	0.906	M12
	SMW8A2	SMW8S2	1 1/2	4	4	0.669	0.906	M12
10	HOW12MA8A	HOW12MA8S	1 1/2	2	4	0.669	0.984	M12
	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	M16
	SMW10A1	SMW10S1	1 1/2	3	4 1/2	0.827	1.181	M16
	SMW10A2	SMW10S2	1 1/2	4	4 1/2	0.827	1.181	M16
	ATS10A	ATS10S	1 1/2	2	4 1/2	0.827	1.187	1/2
12	HAR10ESHA	HAR10ESHS	1 1/2	2	4.72	0.827	1.187	5/8
	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	M16
	SMW12A1	SMW12S1	2	3	5 1/2	0.827	1.181	M16
	SMW12A2	SMW12S2	2	4	5 1/2	0.827	1.181	M16
15	ATS12A	ATS12S	2	2	5 1/2	0.827	1.187	1/2
	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 6061 T-6 condition aluminum, 319 cast aluminum, cast iron, 1018 steel or A36 steel

Add CI prefix to aluminum part # for cast iron jaws

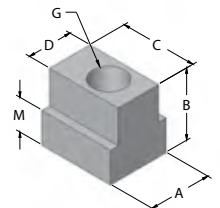
Add ST prefix to aluminum part # for steel jaws

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	HAR5ESH	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
	SMW6.5P	6	2	0.551	0.650	M10	2	5.7
	SMW6.5P1	6	4	0.551	0.650	M10	2	10.8
	PH6.5P	6	2	0.551	0.719	3/8	1 7/8	5.7
	HAR6ESH	6	2	0.551	0.787	3/8	1 31/32	5.7
	HAR6ESH1	6	4	0.551	0.787	3/8	1 31/32	10.8
8	HAR8ESH	8	2	0.669	0.880	7/16	2 19/64	10.2
	HAR8ESH1	8	4	0.669	0.880	7/16	2 19/64	19.8
	SMW8P	8	2	0.669	0.906	M12	2 1/2	10.2
	SMW8P1	8	4	0.669	0.906	M12	2 1/2	19.8
	HOW12MA8P	8	2	0.669	0.984	M12	2	10.2
	HOW12MA8P1	8	4	0.669	0.984	M12	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	M16	3	16.2
	SMW10P1	10	4	0.827	1.181	M16	3	31.5
	SMW1210P	12	2	0.827	1.181	M16	3	23.4
	HAR10ESH	10	2	0.827	1.187	5/8	2 3/4	16.2
	HAR10ESH1	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
	SMW12P	12	2	0.827	1.181	M16	4	23.4
	SMW12P1	12	4	0.827	1.181	M16	4	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

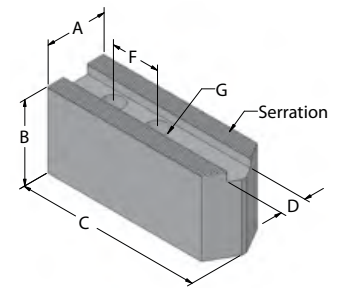
CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	D TONGUE	G BOLT SIZE	M FLANGE
10	PH10JN	0.75	0.61	0.75	0.551	3/8	0.252
12	PH12JN	1.00	0.85	1.00	0.787	1/2	0.325
15	PH15JN	1.00	1.00	1.13	0.827	5/8	0.430

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	M20
	SMW16ASQ	SMW16SSQ	2 1/2	3	6 1/2	1.004	1.496	M20
	SMW16A1	SMW16S1	2 1/2	4	6 1/2	1.004	1.496	M20
	SMW16A1SQ	SMW16S1SQ	2 1/2	4	6 1/2	1.004	1.496	M20
20	SMW20A	SMW20S	2 1/2	3	8 1/4	1.004	1.496	M20
	SMW20ASQ	SMW20SSQ	2 1/2	3	8 1/4	1.004	1.496	M20
	SMW20A1	SMW20S1	2 1/2	4	8 1/4	1.004	1.496	M20
	SMW20A1SQ	SMW20S1SQ	2 1/2	4	8 1/4	1.004	1.496	M20
25	SMW25A	SMW25S	3	4	11	1.004	1.496	M20
	SMW25ASQ	SMW25SSQ	3	4	11	1.004	1.496	M20
	ATS25A	ATS25S	3	4	11	1.181	2.500	M24
	ATS25ASQ	ATS25SSQ	3	4	11	1.181	2.500	M24

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

Made with 6061 T-6 condition aluminum, 319 cast aluminum, cast iron, 1018 steel or A36 steel

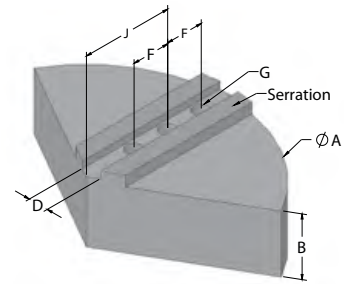
Add CI prefix to aluminum part # for cast iron jaws

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



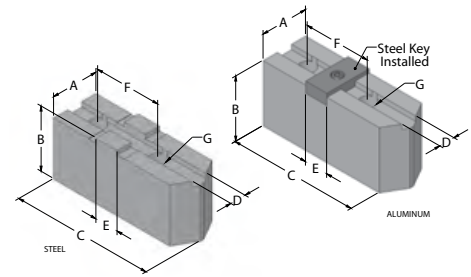
CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT
16	SMW1516P	15	3	1.004	1.496	M20	4 7/8	53.7
	SMW1516P1	15	4	1.004	1.496	M20	4 7/8	70.8
	SMW1816P	18	3	1.004	1.496	M20	4 7/8	77.7
	SMW1816P1	18	4	1.004	1.496	M20	4 7/8	102.6
20	SMW1820P	18	3	1.004	1.496	M20	6 1/2	77.7
	SMW1820P1	18	4	1.004	1.496	M20	6 1/2	102.6
	SMW2120P	21	3	1.004	1.496	M20	6 1/2	105.0
	SMW2120P1	21	4	1.004	1.496	M20	6 1/2	139.2
25	SMW2425P	24	3	1.004	1.496	M20	7 7/8	138.0
	SMW2425P1	24	4	1.004	1.496	M20	7 7/8	182.4
	SMW2825P	28	3	1.004	1.496	M20	7 7/8	186.0
	SMW2825P1	28	4	1.004	1.496	M20	7 7/8	249.6
	ATS2425P	24	3	1.181	2.500	M24	8 1/8	138.0
	ATS2425P1	24	4	1.181	2.500	M24	8 1/8	182.4
	ATS2825P	28	3	1.181	2.500	M24	8 1/8	186.0
	ATS2825P1	28	4	1.181	2.500	M24	8 1/8	249.6

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
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	TG6HDS5Q	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 [M12]
	TG8HDASQ	TG8HDS5Q	1 1/2	2	4	0.313	0.500	1.750	1/2 [M12]
	TG8HDA1	TG8HDS1	1 1/2	3	4	0.313	0.500	1.750	1/2 [M12]
	TG8HDA2	TG8HDS2	1 1/2	4	4	0.313	0.500	1.750	1/2 [M12]
	TG8HDA2SQ	TG8HDS2SQ	1 1/2	4	4	0.313	0.500	1.750	1/2 [M12]
10	TG10MDA	TG10MDS	1 1/2	2	4 1/2	0.500	0.750	2.125	1/2 [M12]
	TG10MDASQ	TG10MDSSQ	1 1/2	2	4 1/2	0.500	0.750	2.125	1/2 [M12]
	TG10MDA1	TG10MDS1	1 1/2	3	4 1/2	0.500	0.750	2.125	1/2 [M12]
	TG10MDA2	TG10MDS2	1 1/2	4	4 1/2	0.500	0.750	2.125	1/2 [M12]
	TG10MDA2SQ	TG10MDS2SQ	1 1/2	4	4 1/2	0.500	0.750	2.125	1/2 [M12]
	TG10HDA	TG10HDS	1 1/2	2	4 1/2	0.500	0.750	2.125	5/8 [M16]
	TG10HDASQ	TG10HDS5Q	1 1/2	2	4 1/2	0.500	0.750	2.125	5/8 [M16]
	TG10HDA1	TG10HDS1	1 1/2	3	4 1/2	0.500	0.750	2.125	5/8 [M16]
	TG10HDA2	TG10HDS2	1 1/2	4	4 1/2	0.500	0.750	2.125	5/8 [M16]
	TG10HDA2SQ	TG10HDS2SQ	1 1/2	4	4 1/2	0.500	0.750	2.125	5/8 [M16]
12	TG12MDA	TG12MDS	2	2	5 1/2	0.500	0.750	2.500	1/2 [M12]
	TG12MDASQ	TG12MDSSQ	2	2	5 1/2	0.500	0.750	2.500	1/2 [M12]
	TG12MDA1	TG12MDS1	2	3	5 1/2	0.500	0.750	2.500	1/2 [M12]
	TG12MDA2	TG12MDS2	2	4	5 1/2	0.500	0.750	2.500	1/2 [M12]
	TG12MDA2SQ	TG12MDS2SQ	2	4	5 1/2	0.500	0.750	2.500	1/2 [M12]
	TG12MDA5	TG12MDS5	2	5	5 1/2	0.500	0.750	2.500	1/2 [M12]
	TG12HDA	TG12HDS	2	2	5 1/2	0.500	0.750	2.500	5/8 [M16]
	TG12HDASQ	TG12HDS5Q	2	2	5 1/2	0.500	0.750	2.500	5/8 [M16]
	TG12HDA1	TG12HDS1	2	3	5 1/2	0.500	0.750	2.500	5/8 [M16]
	TG12HDA2	TG12HDS2	2	4	5 1/2	0.500	0.750	2.500	5/8 [M16]
	TG12HDA2SQ	TG12HDS2SQ	2	4	5 1/2	0.500	0.750	2.500	5/8 [M16]
	TG12HDA5	TG12HDS5	2	5	5 1/2	0.500	0.750	2.500	5/8 [M16]
15-18	TG15MDA	TG15MDS	2 1/2	3	6 1/2	0.500	0.750	3.000	5/8 [M16]
	TG15MDASQ	TG15MDSSQ	2 1/2	3	6 1/2	0.500	0.750	3.000	5/8 [M16]
	TG15MDA1	TG15MDS1	2 1/2	4	6 1/2	0.500	0.750	3.000	5/8 [M16]
	TG15MDA1SQ	TG15MDS1SQ	2 1/2	4	6 1/2	0.500	0.750	3.000	5/8 [M16]
	TG15MDA5	TG15MDS5	2 1/2	5	6 1/2	0.500	0.750	3.000	5/8 [M16]
	TG15HDA	TG15HDS	2 1/2	3	6 1/2	0.500	0.750	3.000	3/4
	TG15HDASQ	TG15HDS5Q	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
	TG15HDA-M20	TG15HDS-M20	2 1/2	3	6 1/2	0.500	0.750	3.000	M20
	TG15HDASQ-M20	TG15HDS5Q-M20	2 1/2	3	6 1/2	0.500	0.750	3.000	M20
	TG15HDA1-M20	TG15HDS1-M20	2 1/2	4	6 1/2	0.500	0.750	3.000	M20
	TG15HDA1SQ-M20	TG15HDS1SQ-M20	2 1/2	4	6 1/2	0.500	0.750	3.000	M20
	TG15HDA5-M20	TG15HDS5-M20	2 1/2	5	6 1/2	0.500	0.750	3.000	M20
21-24	TG21MDA	TG21MDS	2 1/2	3	8 1/4	0.500	0.750	3.000	5/8 [M16]
	TG21MDA1	TG21MDS1	2 1/2	4	8 1/4	0.500	0.750	3.000	5/8 [M16]
	TG21MDA5	TG21MDS5	2 1/2	5	8 1/4	0.500	0.750	3.000	5/8 [M16]
	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
	TG21HDA-M20	TG21HDS-M20	2 1/2	3	8 1/4	0.500	0.750	3.000	M20
	TG21HDA1-M20	TG21HDS1-M20	2 1/2	4	8 1/4	0.500	0.750	3.000	M20
	TG21HDA5-M20	TG21HDS5-M20	2 1/2	5	8 1/4	0.500	0.750	3.000	M20

American Standard Tongue & Groove Pie Jaws® — Style D

Made with 6061 T-6 condition aluminum, 319 cast aluminum, cast iron, 1018 steel or A36 steel

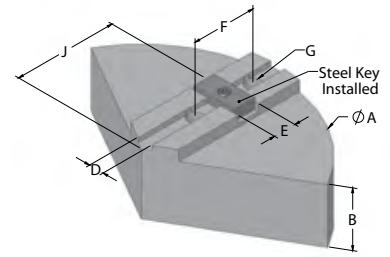
Add CI prefix to aluminum part # for cast iron jaws

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 [M12]	2 3/4	10.2
	TG8HDP1	8	4	0.313	0.500	1.750	1/2 [M12]	2 3/4	19.8
	TG8HDP6	8	6	0.313	0.500	1.750	1/2 [M12]	2 3/4	29.4
	TG108HDP	10	2	0.313	0.500	1.750	1/2 [M12]	2 3/4	16.2
	TG108HDP1	10	4	0.313	0.500	1.750	1/2 [M12]	2 3/4	31.5
	TG128HDP	12	2	0.313	0.500	1.750	1/2 [M12]	2 3/4	23.4
	TG128HDP1	12	4	0.313	0.500	1.750	1/2 [M12]	2 3/4	45.3
10	TG10MDP	10	2	0.500	0.750	2.125	1/2 [M12]	3 1/2	16.2
	TG10MDP1	10	4	0.500	0.750	2.125	1/2 [M12]	3 1/2	31.5
	TG10MDP6	10	6	0.500	0.750	2.125	1/2 [M12]	3 1/2	46.8
	TG1210MDP	12	2	0.500	0.750	2.125	1/2 [M12]	3 1/2	23.4
	TG1210MDP1	12	4	0.500	0.750	2.125	1/2 [M12]	3 1/2	45.3
	TG1510MDP	15	3	0.500	0.750	2.125	1/2 [M12]	3 1/2	53.7
	TG1510MDP1	15	4	0.500	0.750	2.125	1/2 [M12]	3 1/2	70.8
	TG1810MDP	18	3	0.500	0.750	2.125	1/2 [M12]	3 1/2	77.7
	TG1810MDP1	18	4	0.500	0.750	2.125	1/2 [M12]	3 1/2	102.6
	TG10HDP	10	2	0.500	0.750	2.125	5/8 [M16]	3 1/2	16.2
	TG10HDP1	10	4	0.500	0.750	2.125	5/8 [M16]	3 1/2	31.5
	TG10HDP6	10	6	0.500	0.750	2.125	5/8 [M16]	3 1/2	46.8
	TG1210HDP	12	2	0.500	0.750	2.125	5/8 [M16]	3 1/2	23.4
	TG1210HDP1	12	4	0.500	0.750	2.125	5/8 [M16]	3 1/2	45.3
	TG1510HDP	15	3	0.500	0.750	2.125	5/8 [M16]	3 1/2	53.7
	TG1510HDP1	15	4	0.500	0.750	2.125	5/8 [M16]	3 1/2	70.8
	TG1810HDP	18	3	0.500	0.750	2.125	5/8 [M16]	3 1/2	77.7
	TG1810HDP1	18	4	0.500	0.750	2.125	5/8 [M16]	3 1/2	102.6
12	TG12MDP	12	2	0.500	0.750	2.500	1/2 [M12]	4 1/4	23.4
	TG12MDP1	12	4	0.500	0.750	2.500	1/2 [M12]	4 1/4	45.3
	TG12MDP6	12	6	0.500	0.750	2.500	1/2 [M12]	4 1/4	67.2
	TG1512MDP	15	3	0.500	0.750	2.500	1/2 [M12]	4 1/4	53.7
	TG1512MDP1	15	4	0.500	0.750	2.500	1/2 [M12]	4 1/4	70.8
	TG1812MDP	18	3	0.500	0.750	2.500	1/2 [M12]	4 1/4	77.7
	TG1812MDP1	18	4	0.500	0.750	2.500	1/2 [M12]	4 1/4	102.6
	TG2112MDP	21	2	0.500	0.750	2.500	1/2 [M12]	4 1/4	71.4
	TG2112MDP1	21	3	0.500	0.750	2.500	1/2 [M12]	4 1/4	105.0
	TG2112MDP1	21	4	0.500	0.750	2.500	1/2 [M12]	4 1/4	139.2
	TG12HDP	12	2	0.500	0.750	2.500	5/8 [M16]	4 1/4	23.4
	TG12HDP1	12	4	0.500	0.750	2.500	5/8 [M16]	4 1/4	45.3
	TG12HDP6	12	6	0.500	0.750	2.500	5/8 [M16]	4 1/4	67.2
	TG1512HDP	15	3	0.500	0.750	2.500	5/8 [M16]	4 1/4	53.7
	TG1512HDP1	15	4	0.500	0.750	2.500	5/8 [M16]	4 1/4	70.8
	TG1812HDP	18	3	0.500	0.750	2.500	5/8 [M16]	4 1/4	77.7
	TG1812HDP1	18	4	0.500	0.750	2.500	5/8 [M16]	4 1/4	102.6
	TG2112HDP2	21	2	0.500	0.750	2.500	5/8 [M16]	4 1/4	71.4
	TG2112HDP	21	3	0.500	0.750	2.500	5/8 [M16]	4 1/4	105.0
	TG2112HDP1	21	4	0.500	0.750	2.500	5/8 [M16]	4 1/4	139.2

American Standard Tongue & Groove Pie Jaws® — Style D

— continued

Made with 6061 T-6 condition aluminum, 319 cast aluminum, cast iron, 1018 steel or A36 steel

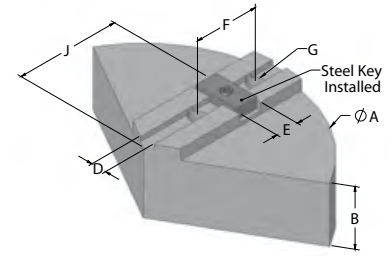
Add CI prefix to aluminum part # for cast iron jaws

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	TG15MDP	15	3	0.500	0.750	3.000	5/8 [M16]	5 1/4	53.7
	TG15MDP1	15	4	0.500	0.750	3.000	5/8 [M16]	5 1/4	70.8
	TG15MDP6	15	6	0.500	0.750	3.000	5/8 [M16]	5 1/4	105.0
	TG1815MDP	18	3	0.500	0.750	3.000	5/8 [M16]	5 1/4	77.7
	TG1815MDP1	18	4	0.500	0.750	3.000	5/8 [M16]	5 1/4	102.6
	TG2115MDP	21	3	0.500	0.750	3.000	5/8 [M16]	5 1/4	105.0
	TG2115MDP1	21	4	0.500	0.750	3.000	5/8 [M16]	5 1/4	139.2
	TG2415MDP	24	3	0.500	0.750	3.000	5/8 [M16]	5 1/4	138.0
	TG2415MDP1	24	4	0.500	0.750	3.000	5/8 [M16]	5 1/4	182.4
	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	105.0
	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
	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
	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
	TG15HDP-M20	15	3	0.500	0.750	3.000	M20	5 1/4	53.7
	TG15HDP1-M20	15	4	0.500	0.750	3.000	M20	5 1/4	70.8
	TG15HDP6-M20	15	6	0.500	0.750	3.000	M20	5 1/4	105.0
	TG1815HDP-M20	18	3	0.500	0.750	3.000	M20	5 1/4	77.7
	TG1815HDP1-M20	18	4	0.500	0.750	3.000	M20	5 1/4	102.6
	TG2115HDP-M20	21	3	0.500	0.750	3.000	M20	5 1/4	105.0
	TG2115HDP1-M20	21	4	0.500	0.750	3.000	M20	5 1/4	139.2
	TG2415HDP-M20	24	3	0.500	0.750	3.000	M20	5 1/4	138.0
	TG2415HDP1-M20	24	4	0.500	0.750	3.000	M20	5 1/4	182.4
18	TG18MDP	18	3	0.500	0.750	3.000	5/8 [M16]	6 1/2	77.7
	TG18MDP1	18	4	0.500	0.750	3.000	5/8 [M16]	6 1/2	102.6
	TG18MDP6	18	6	0.500	0.750	3.000	5/8 [M16]	6 1/2	153.3
	TG2118MDP	21	3	0.500	0.750	3.000	5/8 [M16]	6 1/2	105.0
	TG2118MDP1	21	4	0.500	0.750	3.000	5/8 [M16]	6 1/2	139.2
	TG2418MDP	24	3	0.500	0.750	3.000	5/8 [M16]	6 1/2	138.0
	TG2418MDP1	24	4	0.500	0.750	3.000	5/8 [M16]	6 1/2	182.4
	TG2818MDP	28	3	0.500	0.750	3.000	5/8 [M16]	6 1/2	186.0
	TG2818MDP1	28	4	0.500	0.750	3.000	5/8 [M16]	6 1/2	249.6
	TG3018MDP1	30	4	0.500	0.750	3.000	5/8 [M16]	6 1/2	286.5
	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
	TG18HDP6	18	6	0.500	0.750	3.000	3/4	6 1/2	153.3
	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
	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
	TG18HDP-M20	18	3	0.500	0.750	3.000	M20	6 1/2	77.7
	TG18HDP1-M20	18	4	0.500	0.750	3.000	M20	6 1/2	102.6
	TG18HDP6-M20	18	6	0.500	0.750	3.000	M20	6 1/2	153.3
	TG2118HDP-M20	21	3	0.500	0.750	3.000	M20	6 1/2	105.0
	TG2118HDP1-M20	21	4	0.500	0.750	3.000	M20	6 1/2	139.2
	TG2418HDP-M20	24	3	0.500	0.750	3.000	M20	6 1/2	138.0
	TG2418HDP1-M20	24	4	0.500	0.750	3.000	M20	6 1/2	182.4
	TG2818HDP-M20	28	3	0.500	0.750	3.000	M20	6 1/2	186.0
	TG2818HDP1-M20	28	4	0.500	0.750	3.000	M20	6 1/2	249.6
	TG3018HDP1-M20	30	4	0.500	0.750	3.000	M20	6 1/2	286.5

American Standard Tongue & Groove Pie Jaws® — Style D

– continued

Made with 6061 T-6 condition aluminum, 319 cast aluminum, cast iron, 1018 steel or A36 steel

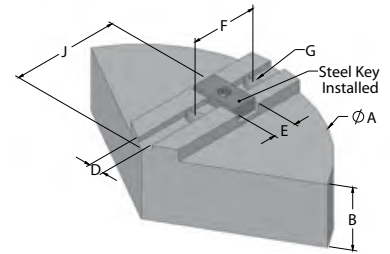
Add CI prefix to aluminum part # for cast iron jaws

Add ST prefix to aluminum part # for steel jaws

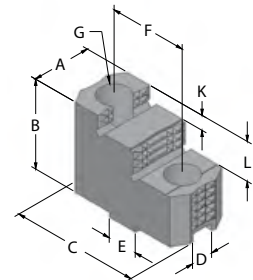
Cast iron version weight is approximately 2.6 times that of aluminum

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 [M16]	7 3/4	105.0
	TG21MDP1	21	4	0.500	0.750	3.000	5/8 [M16]	7 3/4	139.2
	TG2421MDP	24	3	0.500	0.750	3.000	5/8 [M16]	7 3/4	138.0
	TG2421MDP1	24	4	0.500	0.750	3.000	5/8 [M16]	7 3/4	182.4
	TG2821MDP	28	3	0.500	0.750	3.000	5/8 [M16]	7 3/4	186.0
	TG2821MDP1	28	4	0.500	0.750	3.000	5/8 [M16]	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
	TG21HDP-M20	21	3	0.500	0.750	3.000	M20	7 3/4	105.0
	TG21HDP1-M20	21	4	0.500	0.750	3.000	M20	7 3/4	139.2
	TG2421HDP-M20	24	3	0.500	0.750	3.000	M20	7 3/4	138.0
	TG2421HDP1-M20	24	4	0.500	0.750	3.000	M20	7 3/4	182.4
	TG2821HDP-M20	28	3	0.500	0.750	3.000	M20	7 3/4	186.0
	TG2821HDP1-M20	28	4	0.500	0.750	3.000	M20	7 3/4	249.6
24+	TG24MDP2	24	2	0.500	0.750	3.000	5/8 [M16]	9 1/2	93.0
	TG24MDP	24	3	0.500	0.750	3.000	5/8 [M16]	9 1/2	138.0
	TG24MDP1	24	4	0.500	0.750	3.000	5/8 [M16]	9 1/2	182.4
	TG2824MDP	28	3	0.500	0.750	3.000	5/8 [M16]	9 1/2	186.0
	TG2824MDP1	28	4	0.500	0.750	3.000	5/8 [M16]	9 1/2	249.6
	TG322418MDP1	32	4	0.500	0.750	3.000	5/8 [M16]	9 1/2	324.6
	TG362418MDP1	36	4	0.500	0.750	3.000	5/8 [M16]	9 1/2	412.5
	TG422418MDP1	42	4	0.500	0.750	3.000	5/8 [M16]	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
	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
	TG24HDP2-M20	24	2	0.500	0.750	3.000	M20	9 1/2	93.0
	TG24HDP-M20	24	3	0.500	0.750	3.000	M20	9 1/2	138.0
	TG24HDP1-M20	24	4	0.500	0.750	3.000	M20	9 1/2	182.4
	TG2824HDP-M20	28	3	0.500	0.750	3.000	M20	9 1/2	186.0
	TG2824HDP1-M20	28	4	0.500	0.750	3.000	M20	9 1/2	249.6
	TG322418HDP1M20	32	4	0.500	0.750	3.000	M20	9 1/2	324.6
	TG362418HDP1M20	36	4	0.500	0.750	3.000	M20	9 1/2	412.5
	TG422418HDP1M20	42	4	0.500	0.750	3.000	M20	9 1/2	561.9

**American Standard Tongue & Groove Hard Jaws**

Made with 1018 case hardened steel

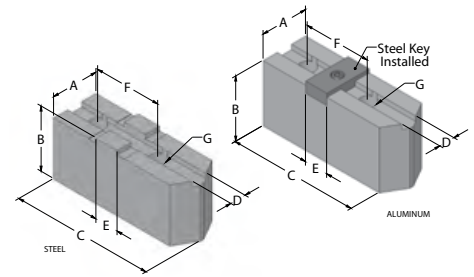
Dimensions in inches unless otherwise noted • Custom configurations available

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 [M12]	2.198	0.68	1.38
	TG10HDHJDS	1.75	2.50	3.77	0.500	0.750	2.125	5/8 [M16]	2.198	0.68	1.38
12	TG12MDHJDS	1.75	2.50	4.50	0.500	0.750	2.500	1/2 [M12]	2.436	0.68	1.38
	TG12HDHJDS	1.75	2.50	4.50	0.500	0.750	2.500	5/8 [M16]	2.436	0.68	1.38
15	TG15MDHJDS	2.50	3.50	5.51	0.500	0.750	3.000	5/8 [M16]	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

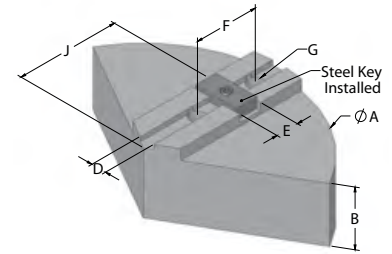


CHUCK	ALUMINUM PART#	STEEL PART#	A WIDTH	B HEIGHT	C LENGTH	D SLOT	E TONGUE	F HOLE SPACING	G BOLT SIZE
6	MTG6MDA	MTG6MDS	1 1/4	1 1/2	3	0.315	0.709	1.260	M8
	MTG6MDA1	MTG6MDS1	1 1/4	2	3	0.315	0.709	1.260	M8
8	MTG8MDA	MTG8MDS	1 1/2	2	4	0.394	0.787	1.575	M8
	MTG8MDA1	MTG8MDS1	1 1/2	3	4	0.394	0.787	1.575	M8
	MTG8MDA2	MTG8MDS2	1 1/2	4	4	0.394	0.787	1.575	M8
10	MTG10MDA	MTG10MDS	1 1/2	2	4 1/2	0.472	0.787	1.575	M12
	MTG10MDA1	MTG10MDS1	1 1/2	3	4 1/2	0.472	0.787	1.575	M12
	MTG10MDA2	MTG10MDS2	1 1/2	4	4 1/2	0.472	0.787	1.575	M12
12	MTG12MDA	MTG12MDS	2	2	5 1/2	0.472	0.787	1.575	M12
	MTG12MDA1	MTG12MDS1	2	3	5 1/2	0.472	0.787	1.575	M12
	MTG12MDA2	MTG12MDS2	2	4	5 1/2	0.472	0.787	1.575	M12
16	MTG16MDA	MTG16MDS	2 1/2	3	6 1/2	0.472	1.024	2.126	M12
	MTG16MDA1	MTG16MDS1	2 1/2	4	6 1/2	0.472	1.024	2.126	M12
20-25	MTG20MDA	MTG20MDS	2 1/2	3	8 1/4	0.709	1.181	2.362	M16
	MTG20MDA1	MTG20MDS1	2 1/2	4	8 1/4	0.709	1.181	2.362	M16

Metric Tongue & Groove Pie Jaws® — Style D

Made with 6061 T-6 condition aluminum, 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



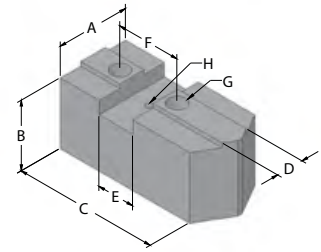
CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	E TONGUE	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT
6	MTG6MDP	6	2	0.315	0.709	1.260	M8	2 5/16	5.7
	MTG6MDP1	6	4	0.315	0.709	1.260	M8	2 5/16	10.8
	MTG86MDP	8	2	0.315	0.709	1.260	M8	2 5/16	10.2
8	MTG8MDP	8	2	0.394	0.787	1.575	M8	3	10.2
	MTG8MDP1	8	4	0.394	0.787	1.575	M8	3	19.8
	MTG108MDP	10	2	0.394	0.787	1.575	M8	3	10.2
10	MTG10MDP	10	2	0.472	0.787	1.575	M12	4	16.2
	MTG10MDP1	10	4	0.472	0.787	1.575	M12	4	31.5
12	MTG12MDP	12	2	0.472	0.787	1.575	M12	5	23.4
	MTG12MDP1	12	4	0.472	0.787	1.575	M12	5	45.3
16	MTG1516MDP	15	3	0.472	1.024	2.126	M12	6	53.7
	MTG1516MDP1	15	4	0.472	1.024	2.126	M12	6	70.8
	MTG1816MDP	18	3	0.472	1.024	2.126	M12	6	77.7
	MTG1816MDP1	18	4	0.472	1.024	2.126	M12	6	102.6
20	MTG1816MDP6	18	6	0.472	1.024	2.126	M12	6	154.5
	MTG1820MDP	18	3	0.709	1.181	2.362	M16	4 27/32	77.7
	MTG1820MDP1	18	4	0.709	1.181	2.362	M16	4 27/32	102.6
	MTG2120MDP	21	3	0.709	1.181	2.362	M16	4 27/32	105.0
	MTG2120MDP1	21	4	0.709	1.181	2.362	M16	4 27/32	139.2
	MTG2420MDP	24	3	0.709	1.181	2.362	M16	4 27/32	138.0
	MTG2420MDP1	24	4	0.709	1.181	2.362	M16	4 27/32	182.4
25	MTG2125MDP	21	3	0.709	1.181	2.362	M16	7 1/2	105.0
	MTG2125MDP1	21	4	0.709	1.181	2.362	M16	7 1/2	139.2
	MTG2425MDP	24	3	0.709	1.181	2.362	M16	7 1/2	138.0
	MTG2425MDP1	24	4	0.709	1.181	2.362	M16	7 1/2	182.4

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
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 6061 T-6 condition aluminum, 319 cast aluminum, cast iron, 1018 steel or A36 steel

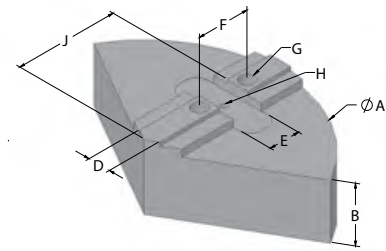
Add CI prefix to aluminum part # for cast iron jaws

Add ST prefix to aluminum part # for steel jaws

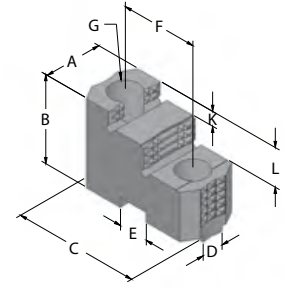
Cast iron version weight is approximately 2.6 times that of aluminum

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
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
	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
15-18	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
	15A04P6	15	6	1.000	1.530	2.500	3/4	3/8-16	6	105.0
	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
21-24	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
	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
	32A54P1	32	4	1.250	1.530	3.000	7/8	3/8-16	10 1/8	324.6
	36A54P1	36	4	1.250	1.530	3.000	7/8	3/8-16	10 1/8	412.5
	42A54P1	42	4	1.250	1.530	3.000	7/8	3/8-16	10 1/8	561.9

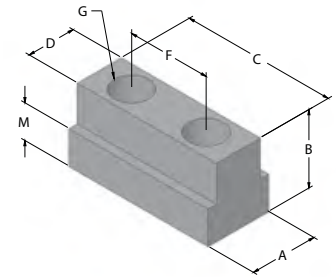


Acme Serrated Key Hard Jaws

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

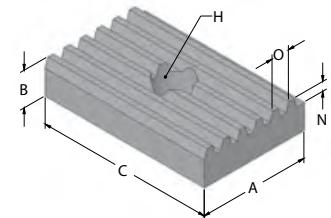


Jaw Nuts For Acme Serrated Key Chucks

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

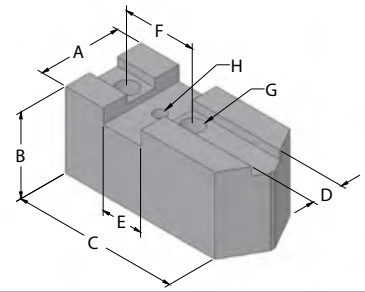


Acme Serrated Key Master Keys

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
	6ASQ	6SSQ	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
	6A1SQ	6S1SQ	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 6061 T-6 condition aluminum, 319 cast aluminum, cast iron, 1018 steel or A36 steel

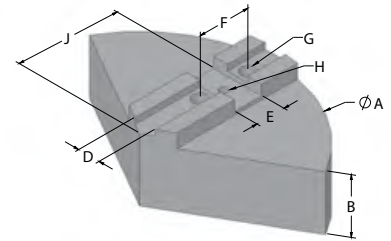
Add CI prefix to aluminum part # for cast iron jaws

Add ST prefix to aluminum part # for steel jaws

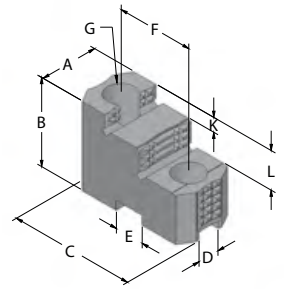
Cast iron version weight is approximately 2.6 times that of aluminum

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
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

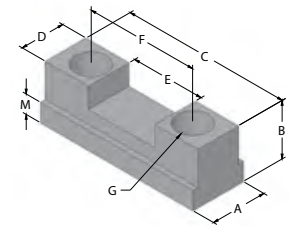


Square Serrated Key Hard Jaws

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

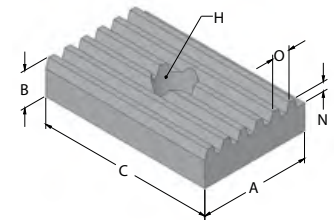


Jaw Nuts For Square Serrated Key Chucks

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

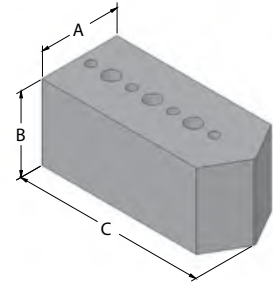


Square Serrated Key Master Keys

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

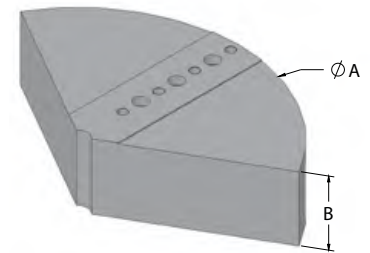


Pin Locator Soft Jaws — Style R

Made with 6061-T6 aluminum or 1018 steel

Dimensions in inches unless otherwise noted • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A WIDTH	B HEIGHT	C LENGTH	# PINS	# HOLES	HOLE SPACING
4	AL141.5	ST141.5	3/4	1 1/2	1.895	3	2	.500
	AL143	ST143	3/4	3	1.895	3	2	.500
	MC4150A	MC4150S	3/4	1 1/2	1.930	3	2	.500
6	AL161.5	ST161.5	1	1 1/2	2.895	5	4	.500
	AL162	ST162	1	2	2.895	5	4	.500
	AL163	ST163	1	3	2.895	5	4	.500
	MC6200A	MC6200S	1	2	2.955	3	4	.500
8	AL182	ST182	2	2	3.687	3	2	1.100
	AL183	ST183	2	3	3.687	3	2	1.100
	AL184	ST184	2	4	3.687	3	2	1.100
	MC8200A	MC8200S	1 1/2	2	3.867	3	2	1.250
10	AL1102	ST1102	2	2	4.687	4	3	1.100
	AL1103	ST1103	2	3	4.687	4	3	1.100
	AL1104	ST1104	2	4	4.687	4	3	1.100
	MC10200A	MC10200S	1 1/2	2	4.899	3	3	1.250
12	AL1123	ST1123	2	3	5.688	2	2	2.000

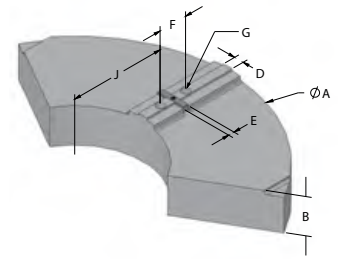


Pin Locator Pie Jaws® — Style M

Made with 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	# PINS	# HOLES	HOLE SPACING	ALUMINUM WEIGHT	STEEL WEIGHT
4	AL342	ST342	3.92	2	3	2	.500	2.0	6.0
	AL343	ST343	3.92	3	3	2	.500	3.0	9.0
	MC342	STMC342	3.92	2	3	2	.500	2.0	6.0
6	AL362	ST362	5.92	2	5	4	.500	5.3	14.4
	AL363	ST363	5.92	3	5	4	.500	7.5	21.3
	AL364	ST364	5.92	4	5	4	.500	10.5	28.2
	MC362	STMC362	5.92	2	3	4	.500	5.3	14.4
7	AL372	ST372	6.92	2	3	2	1.100	7.5	19.8
	AL373	ST373	6.92	3	3	2	1.100	11.3	29.4
8	AL382	ST382	7.92	2	3	2	1.100	10.5	26.1
	AL383	ST383	7.92	3	3	2	1.100	12.5	39.0
	AL384	ST384	7.92	4	3	2	1.100	19.5	52.2
	MC382	STMC382	7.92	2	3	2	1.250	10.5	26.1
10	AL3102	ST3102	9.92	2	4	3	1.100	15.0	41.1
	AL3103	ST3103	9.92	3	4	3	1.100	22.5	61.8
	AL3104	ST3104	9.92	4	4	3	1.100	30.0	82.5
	MC3102	STMC3102	9.92	2	3	3	1.250	15.0	41.1
12	AL3122	ST3122	11.92	2	2	2	2.000	22.3	56.1
	AL3123	ST3123	11.92	3	2	2	2.000	33.3	84.0
	AL3124	ST3124	11.92	4	2	2	2.000	44.3	111.9



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

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 #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 356-T6 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

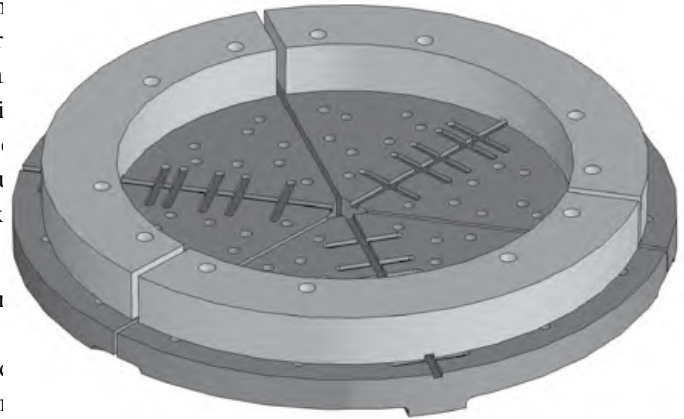
Dimensions in inches unless otherwise noted • Weights in lbs. • Custom configurations available

PART #	ALLOY	FACE SIZE	LENGTH	WEIGHT
1HAMMER	A100	1 5/8" DIA	12	1.8
2HAMMER	A100	2" DIA	13	3.3
5HAMMER	356-T6	3" DIA	22	9.1
10HAMMER	356-T6	4" DIA	29	16.3

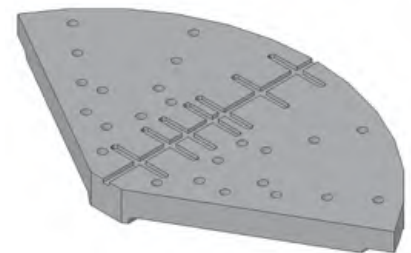
Master Plates

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

When using this system, the transition from one job to the next si requires bolting on a new size or configuration of segments before with the next production run. For repeat jobs, machine operators c nate job specific tooling, allowing them to setup in minutes by usi 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

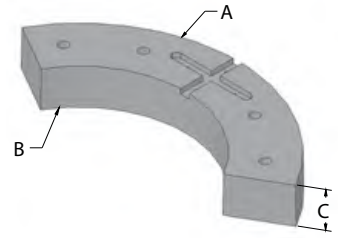


Master Plates — Style N

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+	15 MP	15	0" I.D. UP TO 16" O.D.	36.0
10+	18 MP	18	0" I.D. UP TO 22" O.D.	50.1
12+	21 MP	21	0" I.D. UP TO 22" O.D.	67.5
12+	24 MP	24	0" I.D. UP TO 26" O.D.	87.9
15+	30 MP	30	0" I.D. UP TO 32" O.D.	138.6
18+	36 MP	36	0" I.D. UP TO 40" O.D.	198.9
24+	48 MP	48	0" I.D. UP TO 54" O.D.	349.8
30+	60 MP	60	0" I.D. UP TO 60" O.D.	547.2



Segments For Master Plates — Style O

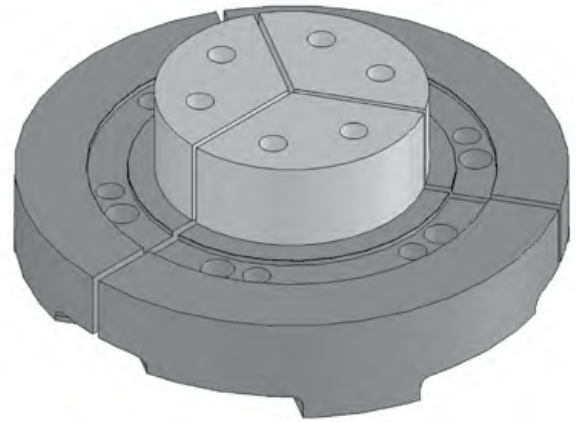
Made with 6061 T-6 condition aluminum or 319 cast aluminum

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
	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
	199SP3	19	9	3	65.4
	2112SP2	21	12	2	46.2
	2112SP4	21	12	4	93.0
	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
	2618SP6	26	18	6	168.0
	3015SP4	30	15	4	213.6
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

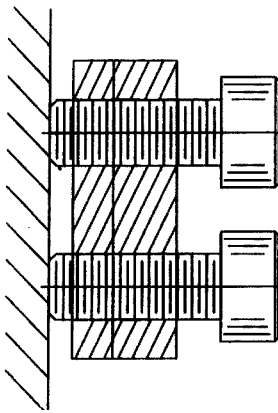
PLATE SIZE	ALUMINUM PART#	A OUTSIDE DIAMETER	B INSIDE DIAMETER	C HEIGHT	WEIGHT
8-12	6SP2M-P	5.96	N/A	2	5.1
	6SP3M-P	5.96	N/A	3	7.5
	6SP4M-P	5.96	N/A	4	9.9
	8SP2M-P	7.96	N/A	2	9.0
	8SP3M-P	7.96	N/A	3	13.8
	8SP4M-P	7.96	N/A	4	18.0
10-12	10SP2M-P	9.96	N/A	2	14.4
	10SP3M-P	9.96	N/A	3	21.9
	10SP4M-P	9.96	N/A	4	28.4
	12SP2M-P	11.96	N/A	2	21.0
	12SP3M-P	11.96	N/A	3	31.8
	12SP4M-P	11.96	N/A	4	42.0

Mounting Top Jaws

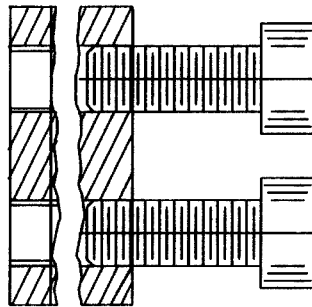
Safe and effective use of top jaws requires strict adherence to established safety guidelines. Consult the machine and chuck manufacturer's operating manual for safe use and limitations. In preparation, wipe the mounting face of each master jaw, and each top jaw, clean off all dirt and chips. Inspect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

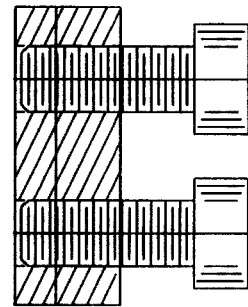
only high quality fasteners. CAUTION: IT IS CRITICAL THAT THE BOLTS BE OF PROPER LENGTH FOR THE PARTICULAR TOP JAWS BEING USED - see illustration below. Bolts that are TOO LONG will extend through the jaw nut, bottom out, and give the appearance of being properly torqued while not actually securing the 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

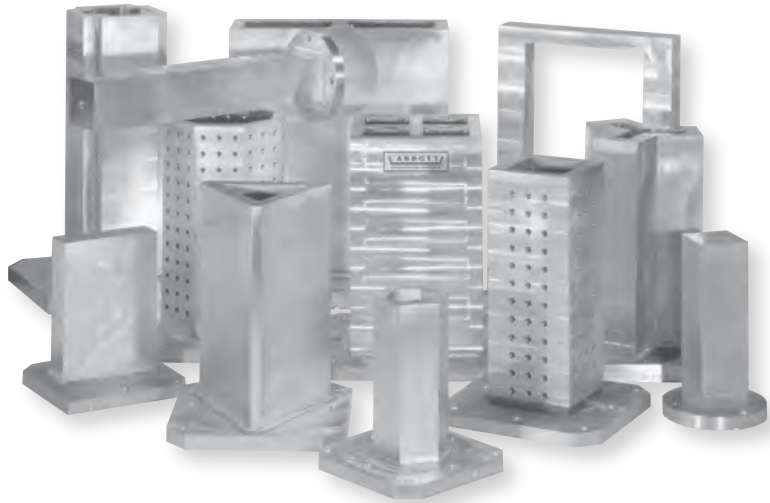
work, load the chuck by opening against a ring or band and turn the gripping surface to the dimension of the workpiece. The pre-loading operation can also be quickly and effectively done with a boring ring. Effective contact between the gripping surface of the jaws and the workpiece may be confirmed 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.

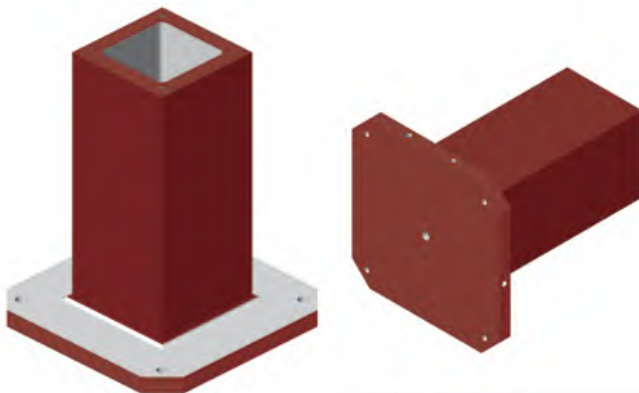


Tooling Columns:

- 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 BS Configuration

Standard tooling column configuration

BS (base & sides)—overall height machined, base machined with pallet specific mounting details and faces machined with .015" additional stock

- 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.

Universal Mount Tooling Columns

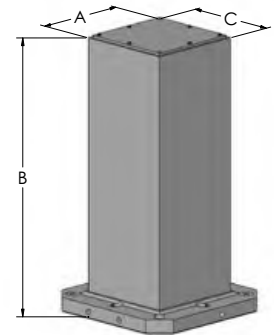
Abbott's pre-machined universal mount columns are available as a stock option to our standard made to order fixtures. Machined bases include both center and edge locating details as well as a selection of slotted mounting bolt holes, allowing them to be used on virtually any machine tool with corresponding 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 1/2-13 or M12 mounting bolts.

*UM—Overall height machined, base machined with universal mounting details and faces machined with .015" additional stock.
As cast areas have additional stock.*

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Finished weight in lbs.

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
N824-400UM	8	24	8	400mm x 1.5"	127
N1024-400UM	10	24	10	400mm x 1.5"	155
N1028-400UM	10	28	10	400mm x 1.5"	176
N1028-500UM	10	28	10	500mm x 1.5"	197
N1228-500UM	12	28	12	500mm x 1.5"	228
N1232-500UM	12	32	12	500mm x 1.5"	256
NR1638-630UM	16	38	16	630mm x 1.5"	558

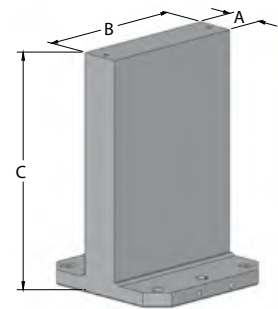


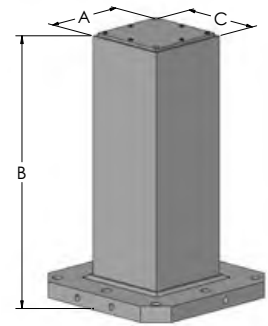
*UM—Overall height machined, base machined with universal mounting details and faces machined with .015" additional stock.
As cast areas have additional stock.*

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Finished weight in lbs.

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
D82028-500UM	8	19.7	28	500mm x 1.5"	276
D82032-500UM	8	19.7	32	500mm x 1.5"	309
D82538-630UM	8	24.8	38	630mm x 1.5"	551





Square Tooling Columns

BS (Base & Sides)–Overall height machined, base machined with pallet specific mounting details and faces machined with .015" additional stock.

As cast areas have additional stock.

Alternative heights and base sizes available.

Custom configurations quoted per request.

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Weights in lbs.

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
N424-300BS	4	24	4	300mm x 1.5"	59
N426-400BS	4	26	4	400mm x 1.5"	78
N522-400BS	5	22	5	400mm x 1.5"	65
N616-250BS	6	16	6	250mm x 1.5"	57
N626-300BS	6	26	6	300mm x 1.5"	91
N626-400BS	6	26	6	400mm x 1.5"	106
N824-300BS	8	24	8	300mm x 1.5"	113
N824-400BS	8	24	8	400mm x 1.5"	128
N828-400BS	8	28	8	400mm x 1.5"	145
N828-500BS	8	28	8	500mm x 1.5"	166
N832-500BS	8	32	8	500mm x 1.5"	182
N1024-400BS	10	24	10	400mm x 1.5"	156
N1028-400BS	10	28	10	400mm x 1.5"	178
N1028-500BS	10	28	10	500mm x 1.5"	198
N1032-500BS	10	32	10	500mm x 1.5"	220
N1036-500BS	10	36	10	500mm x 1.5"	241
N1224-400BS	12	24	12	400mm x 1.5"	199
N1228-400BS	12	28	12	400mm x 1.5"	210
N1228-500BS	12	28	12	500mm x 1.5"	231
N1232-500BS	12	32	12	500mm x 1.5"	257
N1232-630BS	12	32	12	630mm x 1.5"	292
N1236-630BS	12	36	12	630mm x 1.5"	318
NR1428-500BS	14	28	14	500mm x 1.75"	356
NR1430-630BS	14	30	14	630mm x 1.75"	418
NR1436-630BS	14	36	14	630mm x 1.75"	483
NR1628-500BS	16	28	16	500mm x 1.5"	399
NR1628-630BS	16	28	16	630mm x 1.5"	434
NR1638-630BS	16	38	16	630mm x 1.5"	562
NR1834-630BS	18	34	18	630mm x 1.5"	569
NR1838-630BS	18	38	18	630mm x 1.5"	630
NR2238-630BS	22	38	22	630mm x 2"	970
NR2438-800BS	24	38	24	800mm x 2"	1136
NR2450-800BS	24	50	24	800mm x 2"	1448
NR2946BS	28.8	46	28.8	1000mm x 800mm x 2.25"	1818
NR2946-1000BS	28.8	46	28.8	1000mm x 2.25"	1878
NR3248-1000BS	32	48	32	1000mm x 2"	2303

Two-Sided Tooling Columns

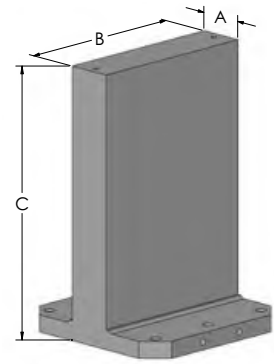
*BS (Base & Sides)–Overall height machined, base machined with pallet specific mounting details and faces machined with .015" additional stock.
As cast areas have additional stock.*

Alternative heights and base sizes available.

Custom configurations quoted per request.

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Weights in lbs.



PART NUMBER	A	B	C	BASE SIZE	WEIGHT
D31620-400BS	3	15.7	19.5	400mm x 1.5"	125
D4820-400BS	4	8	19.5	400mm x 1.5"	97
D41218-300BS	4	11.8	18	300mm x 1.5"	102
D41218-400BS	4	12	18	400mm x 1.5"	119
D41624-400BS	4	15.7	24	400mm x 1.5"	183
D41624-500BS	4	16	24	500mm x 2"	223
D61024-400BS	6	10	24	400mm x 1.5"	176
D61220-300BS	6	11.8	20	300mm x 1.5"	156
D61220-400BS	6	12	20	400mm x 1.5"	174
D61628-400BS	6	15.7	28	400mm x 1.5"	204
D62028-500BS	6	19.7	28	500mm x 1.5"	379
D62530-630BS	6	24.8	30	630mm x 2"	551
D63638-630BS	6	36	38	630mm x 2"	921
D63753-1000BS	6	37	53	1000mm x 2"	1464
D81624-400BS	8	15.7	24	400mm x 1.5"	199
D81626-500BS	8	16	26	500mm x 2.5"	266
D82028-500BS	8	19.7	28	500mm x 1.5"	277
D82032-500BS	8	19.7	32	500mm x 1.5"	310
D82538-630BS	8	24.8	38	630mm x 1.5"	553
D83440BS	8	34	40	1000mm x 800mm x 2"	816
D102536-630BS	10	24.8	36	630mm x 2"	569
D102542-630BS	10	24.8	42	630mm x 2"	652
D103046-800BS	10	30	46	800mm x 2"	877
D121521-500BS	12	15	21	500mm x 1.5"	231
D144949BS	14	49.2	49.2	1000mm x 800mm x 3"	1936
D163940BS	16	39.4	40	1000mm x 800mm x 2"	1387

Window Tooling Columns

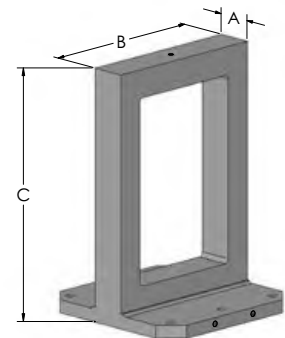
*BS (Base & Sides)–Overall height machined, base machined with pallet specific mounting details and faces machined with .015" additional stock.
As cast areas have additional stock.*

Alternative heights and base sizes available.

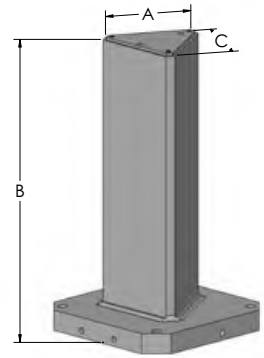
Custom configurations quoted per request.

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Weights in lbs.



PART NUMBER	A	B	C	BASE SIZE	WEIGHT
W31628-400BS	3	15.7	28	400mm x 1.5"	107
W41620-400BS	4	15.7	20	400mm x 1.5"	118
W42029-500BS	4	19.7	29	500mm x 1.5"	160
W42537-630BS	4	24.8	37	630mm x 2"	310
W43434-630BS	4	34	34	630mm x 2"	315



Triangle Tooling Columns

BS (Base & Sides)–Overall height machined, base machined with pallet specific mounting details and faces machined with .015" additional stock. As cast areas have additional stock.

Alternative heights and base sizes available.

Custom configurations quoted per request.

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Weights in lbs.

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
T6287-400BS	6	28	7.1	400mm x 2"	158
T6287-500BS	6	28	7.1	500mm x 2"	185
T8288-400BS	8.4	28	8.1	400mm x 2"	149
T10269-500BS	10	26	9.2	500mm X 1.75"	164
T122611-500BS	11.8	26	10.9	500mm x 1.75"	188
T123011-500BS	11.8	30	10.9	500mm x 1.75"	208
T142813-630BS	14.5	28	13.2	630mm x 1.75"	273
T143813-630BS	14.5	38	13.2	630mm x 1.75"	335

Hexagon Tooling Columns

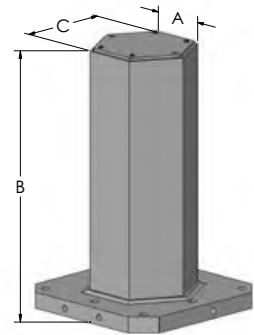
SBS (Base & Sides)–Overall height machined, base machined with pallet specific mounting details and faces machined with .015" additional stock. As cast areas have additional stock.

Alternative heights and base sizes available.

Custom configurations quoted per request.

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Weights in lbs.



PART NUMBER	A	B	C	BASE SIZE	WEIGHT
H4187-400BS	4	18	7	400mm x 1.5"	74
H5249-400BS	5	24	8.7	400mm x 1.5"	125
H82814-500BS	8	28	13.9	500mm x 1.5"	211
H92816-630BS	9	28	15.6	630mm x 1.75"	310
H93616-630BS	9	36	15.6	630mm x 1.75"	372
H165028-800BS	16	50	27.8	800mm x 2"	1368
H165028BS	16	50	27.8	1000mm x 800mm x 2"	1438

Octagon Tooling Columns

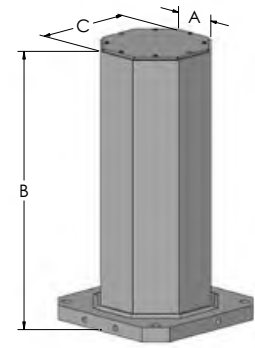
BS (Base & Sides)—Overall height machined, base machined with pallet specific mounting details and faces machined with .015" additional stock.
As cast areas have additional stock.

Alternative heights and base sizes available.
Custom configurations quoted per request.

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Weights in lbs.

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
O42811-400BS	4.6	28	11	400mm x 1.5"	149
O42811-500BS	4.6	28	11	500mm x 1.5"	170
O52812-500BS	5	28	12.1	500mm x 1.5"	200
O62816-500BS	6.5	28	15.7	500mm x 1.5"	243
O63216-500BS	6.5	32	15.7	500mm x 1.5"	284



Y-Shaped Tooling Columns

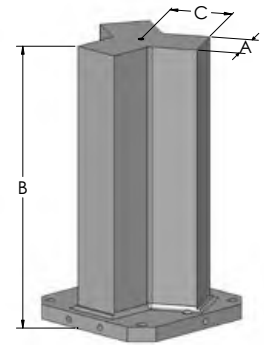
BS (Base & Sides)—Overall height machined, base machined with pallet specific mounting details and faces machined with .015" additional stock.
As cast areas have additional stock.

Alternative heights and base sizes available.
Custom configurations quoted per request.

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Weights in lbs.

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
Y3286-500BS	3.1	28	6	500mm x 1.5"	199
Y5286-400BS	5	28	6.3	400mm x 1.5"	262
Y5286-500BS	5	28	6.3	500mm x 1.5"	283
Y6288-500BS	6	28	7.8	500mm x 2"	299
Y6348-630BS	6	34	7.8	630mm x 2"	395
Y84010BS	8	40	10	1000mm x 800mm x 2"	759



X-Shaped Tooling Columns

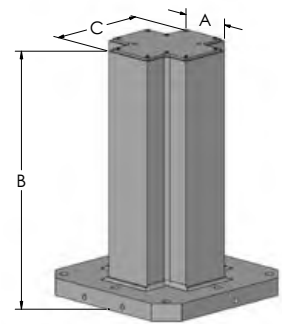
BS (Base & Sides)—Overall height machined, base machined with pallet specific mounting details and faces machined with .015" additional stock.
As cast areas have additional stock.

Alternative heights and base sizes available.
Custom configurations quoted per request.

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in inches unless otherwise noted • Weights in lbs.

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
X42812-500BS	4	28	12	500mm x 1.5"	259
X4248-400BS	4.5	24	8	400mm x 1.5"	157
X62812-500BS	6	28	12	500mm x 2"	247
X62812-630BS	6	28	12	630mm x 2"	293
X63412-500BS	6	34	12	500mm x 2"	287
X63812-630BS	6	38	12	630mm x 2"	358
X62810-400BS	6.5	28	10	400mm x 1.75"	238
X62810-500BS	6.5	28	10	500mm x 1.75"	262
X83414-630BS	8	34	14	630mm x 2"	451
X83814-630BS	8	38	14	630mm x 2"	492



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.



ABBOTT

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