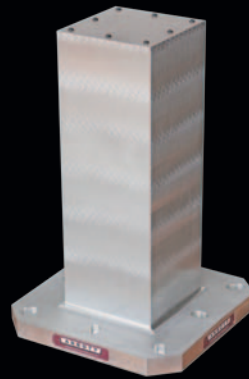
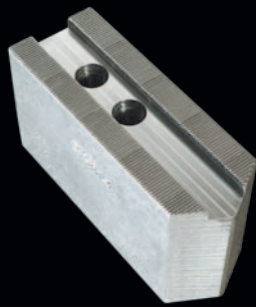


ABBOTT

WORKHOLDING PRODUCTS

GENERAL CATALOG

METRIC



The Complete Solution

Pie Jaws® Soft Jaws Tooling Columns Master Plates
Sub Plates Hammers Turn Key Solutions

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



Made in U.S.A.
Since 1954

Company History

Proud of the Past, Prepared for the Future

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

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

Spurred on by cost-cutting techniques, an expanding product line and rapidly increasing acceptance of its Pie Jaw® innovation, Abbott emerged into national prominence in the early 1960s. By 1968 the company

name had changed to Abbott Aluminum Chuck Jaws, a division of How-Mil Enterprises, Inc. With the advent of CNC machines, the product line was further expanded to include tooling columns, tooling blocks, master plates and segments, angle plates and parallels.

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

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

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

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



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

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

1. Concentricities and close tolerances are easily and consistently maintained.
Production quality standards are significantly improved.
2. Gripping and holding of material is positive and effective without distorting thin-walled materials.
3. Machine and tool life are drastically extended due to more effective application of coolants.
4. Substantially lighter-weight jaws enhance operation utilization and shop efficiency.

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

It is the dawn of a new era at Abbott Workholding Products. We are extremely proud of our

past accomplishments and industry heritage. We will continue to provide the guaranteed quality products and personalized service that have helped us earn our enviable reputation as the industry leader for over 50 years.

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

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

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

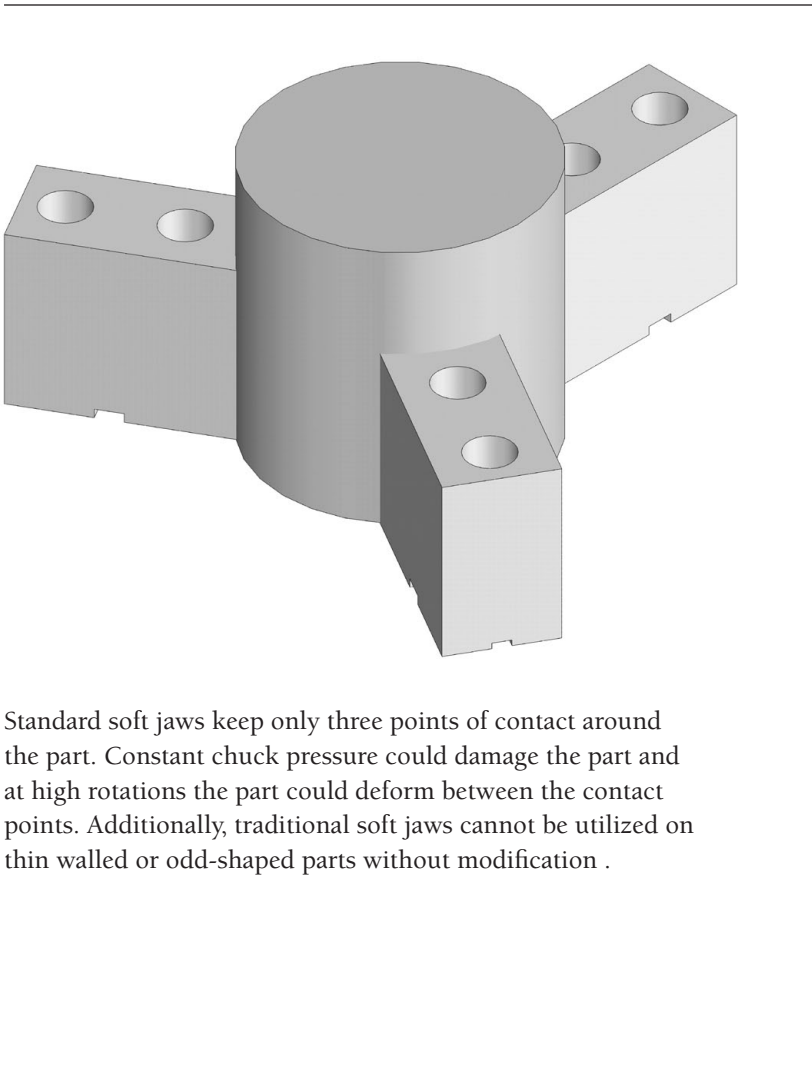
Chuck	Jaw Interface Type	Style(s) Soft / Pie
MATSUMOTO	1.5mm x 60° Serrated 3mm x 60° Serrated	P/Q H/S
MICROCENTRIC	Microcentric Air Chuck	R/M
MMK	1.5mm x 60° Serrated 3mm x 60° Serrated	P/Q H/S
NIKKO	1.5 mm x 60° Serrated	P/Q
NOBEL	Am. Std. Tongue & Groove	A/D
NORTHFIELD	Northfield Air Chuck	R/M
POWERHOLD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

Pie Jaw® Advantages

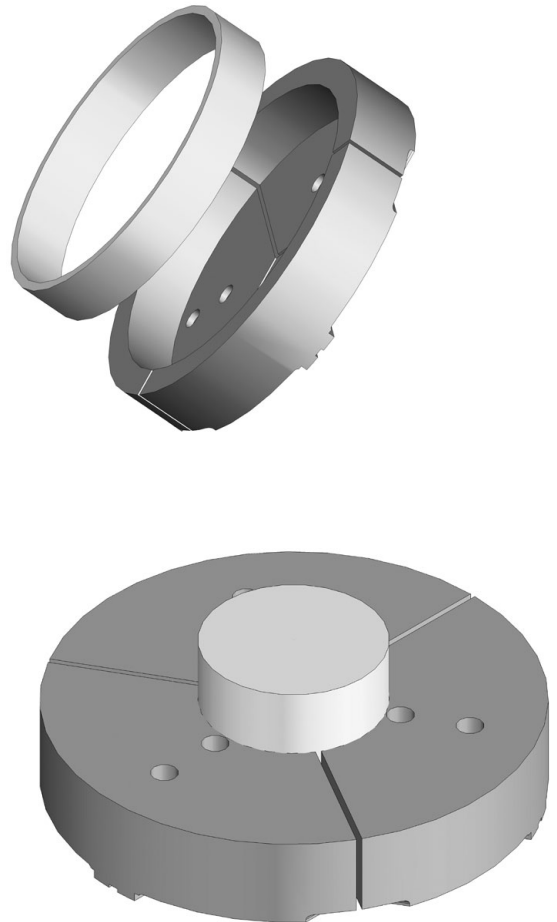
Abbott Workholding Products invented the lightweight aluminum Pie Jaw®.

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

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

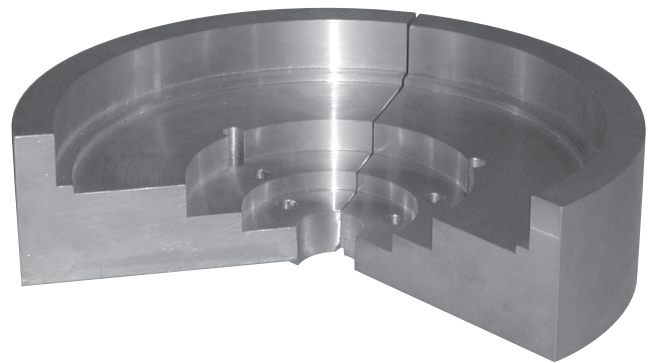


Standard soft jaws keep only three points of contact around the part. Constant chuck pressure could damage the part and at high rotations the part could deform between the contact points. Additionally, traditional soft jaws cannot be utilized on thin walled or odd-shaped parts without modification .



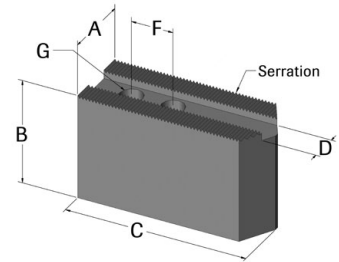


Most of our Pie Jaws® are made from aerospace aluminum alloys. The light weight of the aluminum Pie Jaws® enables you to rotate your chuck faster than before, so you can turn parts faster with less wear and tear on your machine. Substantially lighter weight jaws enhance operation utilization and shop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



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

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

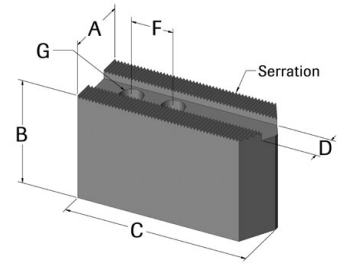


1.5mm X 60° Serrated Soft Jaws — Style P

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

Dimensions in mm 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	
100	KTT4A	KTT4S	25.4	25.4	50.8	8.0	15.0	6	
	KTT4A1	KTT4S1	25.4	50.8	50.8	8.0	15.0	6	
	KW4A	KW4S	25.4	38.1	50.8	10.0	14.0	8	
	KW4A1	KW4S1	25.4	76.2	50.8	10.0	14.0	8	
125	KTT5A	KTT5S	25.4	38.1	63.5	10.0	18.0	8	
	KTT5A1	KTT5S1	25.4	76.2	63.5	10.0	18.0	8	
	HAR5MSHA	HAR5MSHS	25.4	31.8	70.4	10.0	18.0	8	
	HOW5A	HOW5S	25.4	38.1	63.5	10.0	19.0	8	
	HOW5A1	HOW5S1	25.4	76.2	63.5	10.0	19.0	8	
	SUG5ASTS	SUG5SSTS	25.4	38.1	63.5	11.0	17.0	8	
165	HOW6A	HOW6S	31.8	38.1	76.2	11.0	20.0	10	
	HOW6A1	HOW6S1	31.8	76.2	76.2	11.0	20.0	10	
	SUG6ASTS	SUG6SSTS	31.8	38.1	76.2	11.0	25.0	8	
	SUG6A1STS	SUG6S1STS	31.8	50.8	76.2	11.0	25.0	8	
	SUG6A2STS	SUG6S2STS	31.8	76.2	76.2	11.0	25.0	8	
	KTT6A	KTT6S	31.8	38.1	76.2	12.0	20.0	10	
	KTT6ASQ	KTT6SSQ	31.8	38.1	76.2	12.0	20.0	10	
	KTT6A1	KTT6S1	31.8	50.8	76.2	12.0	20.0	10	
	KTT6A1SQ	KTT6S1SQ	31.8	50.8	76.2	12.0	20.0	10	
	KTT6A2	KTT6S2	31.8	76.2	76.2	12.0	20.0	10	
	KTT6A2SQ	KTT6S2SQ	31.8	76.2	76.2	12.0	20.0	10	
	HAR6MSHA	HAR6MSHS	31.8	38.1	78.5	12.0	20.0	10	
	210	KTT8A	KTT8S	38.1	50.8	101.6	14.0	25.0	12
		KTT8ASQ	KTT8SSQ	38.1	50.8	101.6	14.0	25.0	12
KTT8A1		KTT8S1	38.1	76.2	101.6	14.0	25.0	12	
KTT8A1SQ		KTT8S1SQ	38.1	76.2	101.6	14.0	25.0	12	
KTT8A2		KTT8S2	38.1	101.6	101.6	14.0	25.0	12	
KTT8A2SQ		KTT8S2SQ	38.1	101.6	101.6	14.0	25.0	12	
HAR8MSHA		HAR8MSHS	38.1	50.8	95.5	14.0	25.0	12	
SUG8ASTS		SUG8SSTS	38.1	50.8	101.6	14.0	30.0	10	
SUG8A1STS		SUG8S1STS	38.1	76.2	101.6	14.0	30.0	10	
HOW27M88A		HOW27M88S	38.1	50.8	101.6	16.0	25.0	12	
HOW27M88ASQ		HOW27M88SSQ	38.1	50.8	101.6	16.0	25.0	12	
HOW27M88A1		HOW27M88S1	38.1	76.2	101.6	16.0	25.0	12	
HOW27M88A1SQ		HOW27M88S1Q	38.1	76.2	101.6	16.0	25.0	12	
250		KTT10A	KTT10S	38.1	50.8	114.3	16.0	30.0	12
		KTT10ASQ	KTT10SSQ	38.1	50.8	114.3	16.0	30.0	12
		KTT10A1	KTT10S1	38.1	76.2	114.3	16.0	30.0	12
	KTT10A1SQ	KTT10S1SQ	38.1	76.2	114.3	16.0	30.0	12	
	KTT10A3	KTT10S3	50.8	76.2	139.7	16.0	30.0	12	
	KTT10A4	KTT10S4	38.1	101.6	114.3	16.0	30.0	12	
	KTT10A4SQ	KTT10S4SQ	38.1	101.6	114.3	16.0	30.0	12	
	KTT10A6	KTT10S6	38.1	152.4	114.3	16.0	30.0	12	
	HAR10MSHA	HAR10MSHS	38.1	50.8	115.8	16.0	30.0	12	
	MTT10A	MTT10S	38.1	50.8	114.3	16.0	32.0	12	
	MTT10A1	MTT10S1	38.1	76.2	114.3	16.0	32.0	12	
	HOW27M10A	HOW27M10S	38.1	50.8	114.3	18.0	30.0	14	
	HOW27M10A1	HOW27M10S1	38.1	76.2	114.3	18.0	30.0	14	



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 mm 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
315	KTT12A	KTT12S	50.8	50.8	139.7	18.0	30.0	14
	KTT12ASQ	KTT12SSQ	50.8	50.8	139.7	18.0	30.0	14
	KTT12A1	KTT12S1	50.8	76.2	139.7	18.0	30.0	14
	KTT12A1SQ	KTT12S1SQ	50.8	76.2	139.7	18.0	30.0	14
	KTT12A4	KTT12S4	50.8	101.6	139.7	18.0	30.0	14
	KTT12A4SQ	KTT12S4SQ	50.8	101.6	139.7	18.0	30.0	14
	KTT12A6	KTT12S6	50.8	152.4	139.7	18.0	30.0	14
	SEIKI12A	SEIKI12S	38.1	50.8	108.0	18.0	32.0	14
	SEIKI12A1	SEIKI12S1	38.1	76.2	108.0	18.0	32.0	14
	SUG12ASTM	SUG12SSTM	50.8	50.8	139.7	20.0	35.0	12
	KTTB212A	KTTB212S	50.8	50.8	139.7	21.0	30.0	16
	KTTB212ASQ	KTTB212SSQ	50.8	50.8	139.7	21.0	30.0	16
	KTTB212A1	KTTB212S1	50.8	76.2	139.7	21.0	30.0	16
	KTTB212A1SQ	KTTB212S1SQ	50.8	76.2	139.7	21.0	30.0	16
	KTTB212A4	KTTB212S4	50.8	101.6	139.7	21.0	30.0	16
	KTTB212A4SQ	KTTB212S4SQ	50.8	101.6	139.7	21.0	30.0	16
	KTTB212A6	KTTB212S6	50.8	152.4	139.7	21.0	30.0	16
	HOW27M12A	HOW27M12S	50.8	50.8	139.7	21.0	35.0	16
	HOW27M12A1	HOW27M12S1	50.8	76.2	139.7	21.0	35.0	16
	356	SUG14ASTG	SUG14SSTG	50.8	76.2	160.3	21.0	45.0
381-457	KTT15A	KTT15S	63.5	76.2	165.1	22.0	43.0	20
	KTT15ASQ	KTT15SSQ	63.5	76.2	165.1	22.0	43.0	20
	KTT15A1	KTT15S1	63.5	101.6	165.1	22.0	43.0	20
	KTT15A1SQ	KTT15S1SQ	63.5	101.6	165.1	22.0	43.0	20
	KTT15A6	KTT15S6	63.5	152.4	165.1	22.0	43.0	20
	KTTB215A	KTTB215S	63.5	76.2	165.1	25.5	43.0	20
	KTTB215ASQ	KTTB215SSQ	63.5	76.2	165.1	25.5	43.0	20
	KTTB215A1	KTTB215S1	63.5	101.6	165.1	25.5	43.0	20
	KTTB215A1SQ	KTTB215S1SQ	63.5	101.6	165.1	25.5	43.0	20
	KTTB215A6	KTTB215S6	63.5	152.4	165.1	25.5	43.0	20

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

Made with 319 cast aluminum, cast iron, 1018 steel or A36 steel

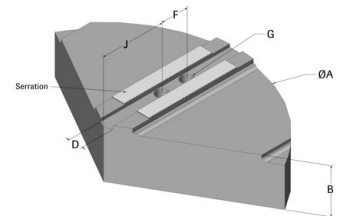
Add CI prefix to aluminum part # for cast iron jaws

Add ST prefix to aluminum part # for steel jaws

Cast iron version weight is approximately 2.6 times that of aluminum

Steel version weight is approximately 2.8 times that of aluminum

Dimensions in mm unless otherwise noted • Weights in kgs. • Custom configurations available



CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT
100	KTT4P	152.4	50.8	8.0	15.0	6	25.4	2.6
	KTT4P1	152.4	101.6	8.0	15.0	6	25.4	4.9
	KW4P	152.4	50.8	10.0	14.0	6	25.4	2.6
	KW4P1	152.4	101.6	10.0	14.0	8	25.4	4.9
125	KTT5P	152.4	50.8	10.0	18.0	8	28.6	2.6
	KTT5P1	152.4	101.6	10.0	18.0	8	28.6	4.9
	HAR5MSHP	152.4	50.8	10.0	18.0	8	42.9	2.6
	HAR5MSHP1	152.4	101.6	10.0	18.0	8	42.9	4.9
	HOW5P	152.4	50.8	10.0	19.0	8	25.4	2.6
	HOW5P1	152.4	101.6	10.0	19.0	8	25.4	4.9
	SUG5PSTS	152.4	50.8	11.0	17.0	8	46.8	2.6
	165	SUG6PSTS	152.4	50.8	11.0	25.0	8	34.9
SUG6P1STS		152.4	101.6	11.0	25.0	8	34.9	4.9
KTT6P		152.4	50.8	12.0	20.0	10	42.1	2.6
KTT6P1		152.4	101.6	12.0	20.0	10	42.1	4.9
KTT86P		203.2	50.8	12.0	20.0	10	42.1	4.6
KTT86P1		203.2	101.6	12.0	20.0	10	42.1	9.0
KTT106P		254.0	50.8	12.0	20.0	10	42.1	7.4

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

– continued

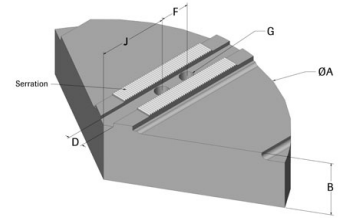
Made with 319 cast aluminum, cast iron, 1018 steel or A36 steel

Add CI prefix to aluminum part # for cast iron jaws

Add ST prefix to aluminum part # for steel jaws

Cast iron version weight is approximately 2.6 times that of aluminum

Steel version weight is approximately 2.8 times that of aluminum



Dimensions in mm unless otherwise noted • Weights in kgs. • Custom configurations available

CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT	
210	KTT8P	203.2	50.4	14.0	25.0	12	50.8	4.6	
	KTT8P1	203.2	101.6	14.0	25.0	12	50.8	9.0	
	KTT8P6	203.2	152.4	14.0	25.0	12	50.8	13.4	
	KTT108P	254.0	50.4	14.0	25.0	12	50.8	7.4	
	KTT108P1	254.0	101.6	14.0	25.0	12	50.8	14.3	
	KTT128P	304.8	50.4	14.0	25.0	12	50.8	10.6	
	KTT128P1	304.8	101.6	14.0	25.0	12	50.8	20.6	
	HAR8MSHP	203.2	50.4	14.0	25.0	12	57.5	4.6	
	HAR8MSHP1	203.2	101.6	14.0	25.0	12	57.5	9.0	
	SUG8PST5	203.2	50.4	14.0	30.0	10	46.8	4.6	
	SUG8P1ST5	203.2	101.6	14.0	30.0	10	46.8	9.0	
	HOW27M88P	203.2	50.4	16.0	25.0	12	50.8	4.6	
	HOW27M88P1	203.2	101.6	16.0	25.0	12	50.8	9.0	
	AUTOBHM8P	203.2	50.4	17.0	23.0	12	63.5	4.6	
	AUTOBHM8P1	203.2	101.6	17.0	23.0	12	63.5	9.0	
	250	KTT10P	254.0	50.8	16.0	30.0	12	63.5	7.4
		KTT10P1	254.0	101.6	16.0	30.0	12	63.5	14.3
		KTT10P6	254.0	152.4	16.0	30.0	12	63.5	21.3
KTT1210P		304.8	50.8	16.0	30.0	12	63.5	10.6	
KTT1210P1		304.8	101.6	16.0	30.0	12	63.5	20.6	
KTT1510P		381.0	76.2	16.0	30.0	12	63.5	24.4	
KTT1510P1		381.0	101.6	16.0	30.0	12	63.5	32.2	
KTT1810P		457.2	76.2	16.0	30.0	12	63.5	35.3	
KTT1810P1		457.2	101.6	16.0	30.0	12	63.5	46.6	
HAR10MSHP		254.0	50.8	16.0	30.0	12	69.9	7.4	
HAR10MSHP1		254.0	101.6	16.0	30.0	12	69.9	14.3	
MTT10P		254.0	50.8	16.0	32.0	12	73.0	7.4	
MTT10P1		254.0	101.6	16.0	32.0	12	73.0	14.3	
HOW27M10P		254.0	50.8	18.0	30.0	14	76.2	7.4	
HOW27M10P1		254.0	101.6	18.0	30.0	14	76.2	14.3	
315		KTT12P	304.8	50.8	18.0	30.0	14	88.9	10.6
		KTT12P1	304.8	101.6	18.0	30.0	14	88.9	20.6
		KTT12P6	304.8	152.4	18.0	30.0	14	88.9	30.5
	KTT1512P	381.1	76.2	18.0	30.0	14	88.9	24.4	
	KTT1512P1	381.1	50.8	18.0	30.0	14	88.9	32.2	
	KTT1812P	457.2	76.2	18.0	30.0	14	88.9	35.3	
	KTT1812P1	457.2	50.8	18.0	30.0	14	88.9	46.6	
	KTT2112P2	533.4	50.8	18.0	30.0	14	88.9	32.5	
	KTT2112P	533.4	76.2	18.0	30.0	14	88.9	47.7	
	KTT2112P1	533.4	50.8	18.0	30.0	14	88.9	63.3	
	SEIK112P	304.8	50.8	18.0	32.0	14	79.4	10.6	
	SUG12PSTM	304.8	50.8	20.0	35.0	12	87.3	10.6	
	SUG12P1STM	304.8	50.8	20.0	35.0	12	87.3	20.6	
	KTTB212P	304.8	50.8	21.0	30.0	16	88.9	10.6	
	KTTB212P1	304.8	50.8	21.0	30.0	16	88.9	20.6	
	KTTB212P6	304.8	152.4	21.0	30.0	16	88.9	30.5	
	KTT15B212P	381.1	76.2	21.0	30.0	16	88.9	24.4	
	KTT15B212P1	381.1	101.6	21.0	30.0	16	88.9	32.2	
	KTT18B212P	457.2	76.2	21.0	30.0	16	88.9	35.3	
	KTT18B212P1	457.2	50.8	21.0	30.0	16	88.9	46.6	
	KTT21B212P2	533.4	50.8	21.0	30.0	16	88.9	32.5	
	KTT21B212P	533.4	76.2	21.0	30.0	16	88.9	47.6	
	KTT21B212P1	533.4	101.6	21.0	30.0	16	88.9	63.1	
	HOW27M12P	304.8	50.8	21.0	35.0	16	69.9	10.6	
HOW27M12P1	304.8	50.8	21.0	35.0	16	69.9	20.6		
355	SUG14PSTG	381.0	76.2	21.0	45.0	16	106.4	24.4	

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

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Made with 319 cast aluminum, cast iron, 1018 steel or A36 steel

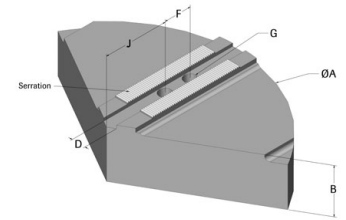
Add CI prefix to aluminum part # for cast iron jaws

Add ST prefix to aluminum part # for steel jaws

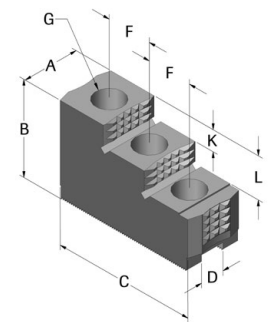
Cast iron version weight is approximately 2.6 times that of aluminum

Steel version weight is approximately 2.8 times that of aluminum

Dimensions in mm unless otherwise noted • Weights in kgs. • Custom configurations available



CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT
381	KTT15P2	381.0	50.8	22.0	43.0	20	109.5	16.6
	KTT15P	381.0	76.2	22.0	43.0	20	109.5	24.4
	KTT15P1	381.0	101.6	22.0	43.0	20	109.5	32.2
	KTT15P6	381.0	152.4	22.0	43.0	20	109.5	47.7
	KTT15P8	381.0	203.2	22.0	43.0	20	109.5	62.7
	KTT1815P	457.2	76.2	22.0	43.0	20	109.5	35.3
	KTT1815P1	457.2	101.6	22.0	43.0	20	109.5	46.6
	KTT2115P2	533.4	50.8	22.0	43.0	20	109.5	32.5
	KTT2115P	533.4	76.2	22.0	43.0	20	109.5	47.7
	KTT2115P1	533.4	101.6	22.0	43.0	20	109.5	63.3
	KTT2415P2	609.6	50.8	22.0	43.0	20	109.5	42.3
	KTT2415P	609.6	76.2	22.0	43.0	20	109.5	62.7
	KTT2415P1	609.6	101.6	22.0	43.0	20	109.5	82.9
	KTTB215P2	381.0	50.8	25.5	43.0	20	109.5	16.6
	KTTB215P	381.0	76.2	25.5	43.0	20	109.5	24.4
	KTTB215P1	381.0	101.6	25.5	43.0	20	109.5	32.2
	KTTB215P6	381.0	152.4	25.5	43.0	20	109.5	47.7
	KTTB215P8	381.0	203.2	25.5	43.0	20	109.5	62.7
	KTT18B215P	457.2	76.2	25.5	43.0	20	109.5	35.3
	KTT18B215P1	457.2	101.6	25.5	43.0	20	109.5	46.6
	KTT21B215P2	533.4	50.8	25.5	43.0	20	109.5	32.5
	KTT21B215P	533.4	76.2	25.5	43.0	20	109.5	47.7
	KTT21B215P1	533.4	101.6	25.5	43.0	20	109.5	63.3
	KTT24B215P2	609.6	50.8	25.5	43.0	20	109.5	42.3
KTT24B215P	609.6	76.2	25.5	43.0	20	109.5	62.7	
KTT24B215P1	609.6	101.6	25.5	43.0	20	109.5	82.9	
450	KTT18P	457.2	76.2	25.5	43.0	20	127.0	35.3
	KTT18P1	457.2	101.6	25.5	43.0	20	127.0	46.6
	KTT2118P2	533.4	50.8	25.5	43.0	20	127.0	32.5
	KTT2118P	533.4	76.2	25.5	43.0	20	127.0	47.7
	KTT2118P1	533.4	101.6	25.5	43.0	20	127.0	63.3
	KTT2418P2	609.6	50.8	25.5	43.0	20	127.0	42.3
	KTT2418P	609.6	76.2	25.5	43.0	20	127.0	62.7
	KTT2418P1	609.6	101.6	25.5	43.0	20	127.0	82.9

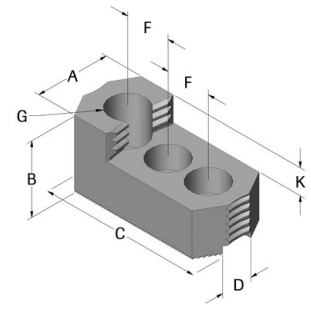


1.5mm X 60° Serrated Hard Jaws

Made with 1018 case hardened steel

Dimensions in mm 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
165	KTT6HJDS	28.7	43.9	72.4	12.0	20.0	10	10.7	21.8
210	KTT8HJDS	38.1	56.6	80.5	14.0	25.0	12	16.0	31.8
250	KTT10HJDS	38.1	69.3	101.3	16.0	30.0	12	19.1	31.8
315	KTT12HJDS	50.8	63.0	105.7	18.0	30.0	14	17.3	34.5
	KTTB212HJDS	50.8	69.9	104.9	21.0	30.0	16	19.1	19.1
381	KTT15HJDS	63.5	75.7	149.4	22.0	43.0	20	19.1	39.1
	KTTB215HJDS	63.5	75.7	149.4	25.5	43.0	20	19.1	39.1

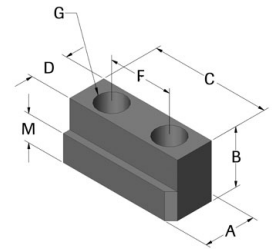


1.5mm X 60° Serrated Single Step Hard Jaws

Made with 1018 case hardened steel

Dimensions in mm 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
165	KTT6HJSS	28.7	38.1	72.4	12.0	20.0	10	12.2
210	KTT8HJSS	38.1	50.3	80.3	14.0	25.0	12	19.1
250	KTT10HJSS	38.1	50.3	101.3	16.0	30.0	12	19.3
315	KTT12HJSS	50.8	50.3	105.7	18.0	30.0	14	21.1
381	KTT15HJSS	63.5	63.0	149.4	22.0	43.0	20	23.6

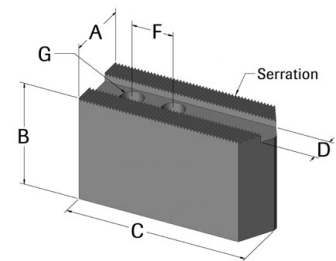


Jaw Nuts For 1.5mm X 60° Serrated Chucks

Made with 4140 steel

Dimensions in mm unless otherwise noted • Custom configurations available

CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	D TONGUE	F HOLE SPACING	G BOLT SIZE	M FLANGE
165	KTT6JN	17.5	22.1	36.6	12.0	20.0	10	7.5
210	KTT8JN	20.3	25.4	47.5	14.0	25.0	12	8.5
	KTTB208JN	20.6	20.6	46.5	14.0	25.0	12	8.5
	HOW27M88JN	24.9	25.4	50.8	16.0	25.0	12	9.5
250	KTT10JN	22.1	25.4	52.1	16.0	30.0	12	8.5
	KTTB210JN	22.6	21.6	51.1	16.0	30.0	12	8.5
315	KTT12JN	26.4	33.0	57.2	18.0	30.0	14	13.5
	KTTB212JN	29.5	27.7	55.6	21.0	30.0	16	11.4
381	KTT15JN	33.5	45.5	80.0	22.0	43.0	20	16.5



3mm X 60° Serrated Soft Jaws — Style H

Made with 6061 T-6 condition aluminum or 1018 steel

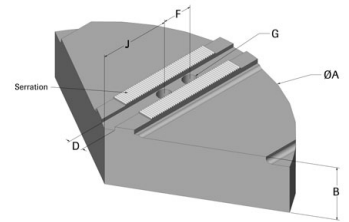
Add SQ suffix to part # for square nosed version

Dimensions in mm 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
210	HOW8A	HOW8S	38.1	50.8	101.6	14.0	25.0	12
	HOW8A1	HOW8S1	38.1	76.2	101.6	14.0	25.0	12
250	HOW10A	HOW10S	38.1	50.8	114.3	16.0	30.0	12
	HOW10A1	HOW10S1	38.1	76.2	114.3	16.0	30.0	12
	HOW10A4	HOW10S4	38.1	101.6	114.3	16.0	30.0	12
315	HOW12A	HOW12S	50.8	50.8	139.7	18.0	30.0	14
	HOW12A1	HOW12S1	50.8	76.2	139.7	18.0	30.0	14
381	HOW7MA15A	HOW7MA15S	50.8	63.5	127.0	21.0	40.0	16
	MTT15A	MTT15S	63.5	76.2	165.1	22.0	50.0	20
	MTT15A1	MTT15S1	63.5	101.6	165.1	22.0	50.0	20
	HOW27M15A	HOW27M15S	63.5	76.2	165.1	26.0	42.0	20
	HOW15A	HOW15S	63.5	76.2	165.1	26.0	50.0	20
	HOW15A1	HOW15S1	63.5	101.6	165.1	26.0	50.0	20
530-609	KTT21A	KTT21S	63.5	76.2	209.6	25.0	60.0	20
	KTT21A1	KTT21S1	63.5	101.6	209.6	25.0	60.0	20
	KTT21A5	KTT21S5	63.5	127.0	209.6	25.0	60.0	20

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

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



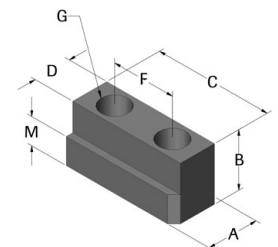
Dimensions in mm unless otherwise noted • Weights in kgs. • Custom configurations available

CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT
210	HOW8P	203.2	50.8	14.0	25.0	12	50.8	4.6
	HOW8P1	203.2	101.6	14.0	25.0	12	50.8	9.0
250	HOW10P	254.0	50.8	16.0	30.0	12	76.2	7.4
	HOW10P1	254.0	101.6	16.0	30.0	12	76.2	14.3
315	HOW12P	304.8	50.8	18.0	30.0	14	92.1	10.6
	HOW12P1	304.8	101.6	18.0	30.0	14	92.1	20.6
	HOW1512P	381.0	76.2	18.0	30.0	14	92.1	24.4
	HOW1812P	457.2	76.2	18.0	30.0	14	92.1	35.3
381	HOW7MA15P	381.0	76.2	21.0	40.0	16	104.8	24.4
	HOW7MA15P1	381.0	101.6	21.0	40.0	16	104.8	32.2
	MTT15P	381.0	76.2	22.0	50.0	20	104.8	24.4
	MTT15P1	381.0	101.6	22.0	50.0	20	104.8	32.2
	MTT15P6	381.0	152.4	22.0	50.0	20	104.8	47.7
	MTT1815P	457.2	76.2	22.0	50.0	20	104.8	35.3
	MTT1815P1	457.2	101.6	22.0	50.0	20	104.8	46.6
	MTT2115P	533.4	76.2	22.0	50.0	20	104.8	47.7
	MTT2115P1	533.4	101.6	22.0	50.0	20	104.8	63.3
	HOW27M15P	381.0	76.2	26.0	42.0	20	109.5	24.4
	HOW15P	381.0	76.2	26.0	50.0	20	69.9	24.4
	HOW15P1	381.0	101.6	26.0	50.0	20	69.9	32.2
	530	KTT1821P	457.2	76.2	25.0	60.0	20	120.7
KTT1821P1		457.2	101.6	25.0	60.0	20	120.7	46.6
KTT21P2		533.4	50.8	25.0	60.0	20	120.7	32.5
KTT21P		533.4	76.2	25.0	60.0	20	120.7	47.7
KTT21P1		533.4	101.6	25.0	60.0	20	120.7	63.3
KTT2421P2		609.6	50.8	25.0	60.0	20	120.7	42.3
KTT2421P		609.6	76.2	25.0	60.0	20	120.7	62.7
KTT2421P1		609.6	101.6	25.0	60.0	20	120.7	82.9
KTT2821P		711.2	76.2	25.0	60.0	20	120.7	84.5
KTT2821P1		711.2	101.6	25.0	60.0	20	120.7	113.5
610		KTT24P2	609.6	50.8	25.0	60.0	20	190.5
	KTT24P	609.6	76.2	25.0	60.0	20	190.5	62.7
	KTT24P1	609.6	101.6	25.0	60.0	20	190.5	82.9
	KTT2824P	711.2	76.2	25.0	60.0	20	190.5	84.5
	KTT2824P1	711.2	101.6	25.0	60.0	20	190.5	113.5

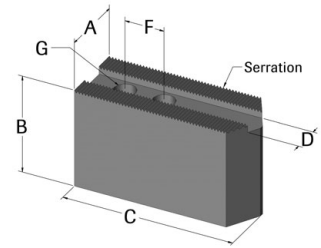
Jaw Nuts For 3mm X 60° Serrated Chucks

Made with 4140 steel

Dimensions in mm unless otherwise noted • Custom configurations available



CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	D TONGUE	F HOLE SPACING	G BOLT SIZE	M FLANGE
381	MTT15JN	33.8	38.1	88.0	22.0	50.0	3/4"	19.1



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

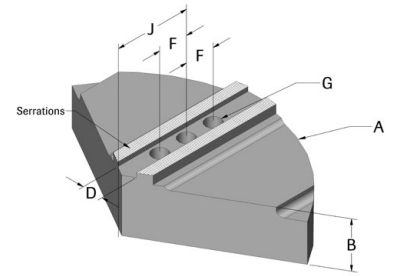
Made with 6061 T-6 condition aluminum or 1018 steel
Add SQ suffix to part # for square nosed version

Dimensions in mm 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	
125	HAR5ESHA	HAR5ESHS	25.4	31.8	63.5	11.0	18.0	5/16"	
165	PH6A	PH6S	31.8	38.1	76.2	11.0	18.3	5/16"	
	PH6A1	PH6S1	31.8	50.8	76.2	11.0	18.3	5/16"	
	PH6A2	PH6S2	31.8	76.2	76.2	11.0	18.3	5/16"	
	HAR6ESHA	HAR6ESHS	31.8	38.1	78.5	14.0	20.0	3/8"	
	HAR6ESHA1	HAR6ESHS1	31.8	50.8	78.5	14.0	20.0	3/8"	
	HAR6ESHA2	HAR6ESHS2	31.8	76.2	78.5	14.0	20.0	3/8"	
	PH6.5A	PH6.5S	31.8	38.1	76.2	14.0	18.3	3/8"	
	SMW6.5A	SMW6.5S	31.8	38.1	76.2	14.0	16.5	10	
	SMW6.5A1	SMW6.5S1	31.8	50.8	76.2	14.0	16.5	10	
	SMW6.5A2	SMW6.5S2	31.8	76.2	76.2	14.0	16.5	10	
210	ATS8A	ATS8S	38.1	50.8	101.6	17.0	22.2	1/2"	
	ATS8A1	ATS8S1	38.1	76.2	101.6	17.0	22.2	1/2"	
	HAR8ESHA	HAR8ESHS	38.1	50.8	93.5	17.0	22.4	7/16"	
	SMW8A	SMW8S	38.1	50.8	101.6	17.0	23.0	12	
	SMW8A1	SMW8S1	38.1	76.2	101.6	17.0	23.0	12	
	HOW12MA8A	HOW12MA8S	38.1	50.8	101.6	17.0	25.0	12	
250	PH10A	PH10S	38.1	50.8	114.3	14.0	22.2	3/8"	
	PH10A1	PH10S1	38.1	76.2	114.3	14.0	22.2	3/8"	
	SMW10A	SMW10S	38.1	50.8	114.3	21.0	30.0	16	
	SMW10A1	SMW10S1	38.1	76.2	114.3	21.0	30.0	16	
	ATS10A	ATS10S	38.1	50.8	114.3	21.0	30.1	1/2"	
	ATS10A1	ATS10S1	38.1	76.2	114.3	21.0	30.1	1/2"	
	HAR10ESHA	HAR10ESHS	38.1	50.8	114.3	21.0	30.1	5/8"	
	315	PH12A	PH12S	50.8	50.8	139.7	20.0	30.1	1/2"
PH12A1		PH12S1	50.8	76.2	139.7	20.0	30.1	1/2"	
PH12A2		PH12S2	50.8	101.6	139.7	20.0	30.1	1/2"	
SMW12A		SMW12S	50.8	50.8	139.7	21.0	30.0	16	
SMW12A1		SMW12S1	50.8	76.2	139.7	21.0	30.0	16	
SMW12A2		SMW12S2	50.8	101.6	139.7	21.0	30.0	16	
ATS12A		ATS12S	50.8	50.8	139.7	21.0	30.1	1/2"	
ATS12A1		ATS12S1	50.8	50.8	139.7	21.0	30.1	1/2"	
381		PH15A	PH15S	63.5	76.2	165.1	21.0	39.7	5/8"
		PH15A1	PH15S1	63.5	101.6	165.1	21.0	39.7	5/8"
	PH15A5	PH15S5	63.5	127.0	165.1	21.0	39.7	5/8"	

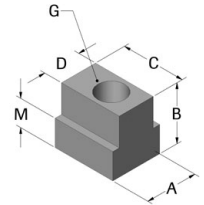
1/16" X 90° Serrated Pie Jaws® — Style K

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



Dimensions in mm unless otherwise noted • Weights in kgs. • Custom configurations available

CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT	
125	HAR5ESH	152.4	50.8	11.0	18.0	5/16"	43.3	2.6	
165	PH6P	152.4	50.8	11.0	18.3	5/16"	36.5	2.6	
	PH6P1	152.4	101.6	11.0	18.3	5/16"	36.5	4.9	
	HAR6ESH	152.4	50.8	14.0	20.0	3/8"	36.5	2.6	
	HAR6ESH1	152.4	101.6	14.0	20.0	3/8"	36.5	4.9	
	PH6.5P	152.4	50.8	14.0	18.3	3/8"	46.7	2.6	
	PH6.5P1	152.4	101.6	14.0	18.3	3/8"	46.7	4.9	
	SMW6.5P	152.4	50.8	14.0	17.4	10	50.8	2.6	
	SMW6.5P1	152.4	101.6	14.0	17.4	10	50.8	4.9	
	210	ATS8P	203.2	50.8	17.0	22.2	1/2"	63.5	4.6
ATS8P1		203.2	101.6	17.0	22.2	1/2"	63.5	9.0	
HAR8ESH		203.2	50.8	17.0	22.4	7/16"	58.3	4.6	
HAR8ESH1		203.2	101.6	17.0	22.4	7/16"	58.3	9.0	
SMW8P		203.2	50.8	17.0	23.0	12	63.5	4.6	
SMW8P1		203.2	101.6	17.0	23.0	12	63.5	9.0	
HOW12MA8P		203.2	50.8	17.0	25.0	12	50.8	4.6	
HOW12MA8P1		203.2	101.6	17.0	25.0	12	50.8	9.0	
250		PH810P	203.2	50.8	14.0	22.2	3/8"	68.3	4.6
	PH810P1	203.2	101.6	14.0	22.2	3/8"	68.3	9.0	
	PH10P	254.0	50.8	14.0	22.2	3/8"	88.9	7.4	
	PH10P1	254.0	101.6	14.0	22.2	3/8"	88.9	14.3	
	SMW10P	254.0	50.8	21.0	30.0	16	76.2	7.4	
	SMW10P1	254.0	101.6	21.0	30.0	16	76.2	14.3	
	SMW1210P	304.8	50.8	21.0	30.0	16	76.2	10.6	
	SMW1510P	381.0	76.2	21.0	30.0	16	76.2	24.4	
	SMW1810P	457.2	76.2	21.0	30.0	16	76.2	35.3	
	ATS10P	254.0	50.8	21.0	30.1	1/2"	96.8	7.4	
	ATS10P1	254.0	101.6	21.0	30.1	1/2"	96.8	14.3	
	HAR10ESH	254.0	50.8	21.0	30.1	5/8"	69.9	7.4	
	HAR10ESH1	254.0	101.6	21.0	30.1	5/8"	69.9	14.3	
	315	PH1012P	254.0	50.8	20.0	30.1	1/2"	55.6	7.4
		PH1012P1	254.0	101.6	20.0	30.1	1/2"	55.6	14.3
PH12P		304.8	50.8	20.0	30.1	1/2"	101.6	10.6	
PH12P1		304.8	101.6	20.0	30.1	1/2"	101.6	20.6	
PH1512P		381.0	76.2	20.0	30.1	1/2"	101.6	24.4	
SMW12P		304.8	50.8	21.0	30.0	16	101.6	10.6	
SMW12P1		304.8	101.6	21.0	30.0	16	101.6	20.6	
ATS12P		304.8	50.8	21.0	30.1	1/2"	96.8	10.6	
ATS12P1		304.8	101.6	21.0	30.1	1/2"	96.8	20.6	
381	PH15P	381.0	76.2	21.0	39.7	5/8"	127.0	24.4	
	PH15P1	381.0	101.6	21.0	39.7	5/8"	127.0	32.2	
	PH1815P	457.2	76.2	21.0	39.7	5/8"	127.0	35.3	
	PH1815P1	457.2	101.6	21.0	39.7	5/8"	127.0	46.6	
	PH2115P	533.4	76.2	21.0	39.7	5/8"	127.0	47.7	
	PH2415P	609.6	76.2	21.0	39.7	5/8"	127.0	62.7	

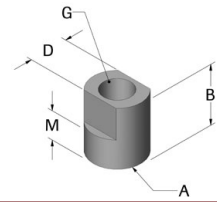


Jaw Nuts For 1/16" X 90° Serrated Chucks

Made with 4140 steel

Dimensions in mm unless otherwise noted • Custom configurations available

CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	D TONGUE	G BOLT SIZE	M FLANGE
250	PH10JN	19.1	15.5	19.1	14.0	3/8"	6.4
315	PH12JN	25.4	21.6	25.4	20.0	1/2"	8.3
381	PH15JN	25.4	25.4	28.7	21.0	5/8"	10.9



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

Made with 4140 steel

Dimensions in mm unless otherwise noted • Custom configurations available

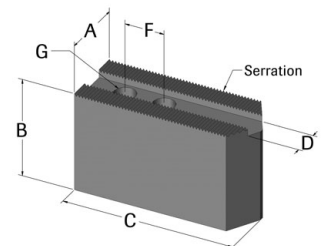
CHUCK	PART#	A DIAMETER	B HEIGHT	C LENGTH	D TONGUE	G BOLT SIZE	M FLANGE
250	ATS10JN	29.7	27.9	M/A	21.0	1/2"	10.7

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 mm unless otherwise noted • Custom configurations available

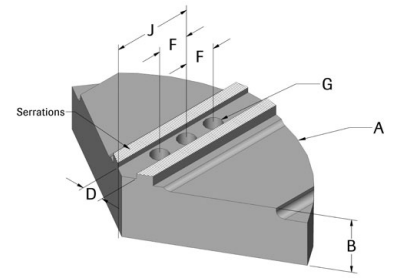


CHUCK	ALUMINUM PART#	STEEL PART#	A WIDTH	B HEIGHT	C LENGTH	D SLOT	F HOLE SPACING	G BOLT SIZE
400	SMW16A	SMW16S	63.5	76.2	165.1	25.5	38.0	20
	SMW16A1	SMW16S1	63.5	101.6	165.1	25.5	38.0	20
	ATS16A	ATS16S	63.5	76.2	165.1	25.5	39.7	3/4"
450	AUTO18A1	AUTO18S1	63.5	101.6	254.0	28.0	68.6	3/4"
	SMW20A	SMW20S	63.5	76.2	209.6	25.5	38.0	20
500	SMW20A1	SMW20S1	63.5	101.6	209.6	25.5	38.0	20
	ATS20A	ATS20S	63.5	76.2	209.6	25.5	39.7	3/4"
	ATS20A1	ATS20S1	63.5	101.6	209.6	25.5	39.7	3/4"
	AB20A	AB20S	63.5	63.5	170.2	28.0	75.9	3/4"
	AB20A1	AB20S1	63.5	101.6	170.2	28.0	75.9	3/4"
630	SMW25A	SMW25S	76.2	101.6	279.4	25.5	38.0	20
	ATS25A	ATS25S	76.2	101.6	279.4	30.0	63.5	1"

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

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

Dimensions in mm unless otherwise noted • Weights in kgs. • Custom configurations available

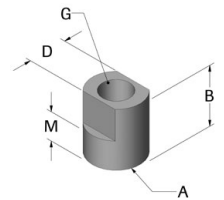


CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT
400	SMW1516P	381.0	76.2	25.5	38.0	20	123.8	24.4
	SMW1516P1	381.0	101.6	25.5	38.0	20	123.8	32.2
	SMW1816P	457.2	76.2	25.5	38.0	20	123.8	35.3
	SMW1816P1	457.2	101.6	25.5	38.0	20	123.8	46.6
	ATS1516P	381.0	76.2	25.5	39.7	3/4"	115.9	24.4
	ATS1516P1	381.0	101.6	25.5	39.7	3/4"	115.9	32.2
	ATS1816P	457.2	76.2	25.5	39.7	3/4"	115.9	35.3
	ATS1816P1	457.2	101.6	25.5	39.7	3/4"	115.9	46.6
	500	SMW1820P	457.2	76.2	25.5	38.0	20	165.1
SMW1820P1		457.2	101.6	25.5	38.0	20	165.1	46.6
SMW2120P		533.4	76.2	25.5	38.0	20	165.1	47.7
SMW2120P1		533.4	101.6	25.5	38.0	20	165.1	63.3
ATS1820P		457.2	76.2	25.5	39.7	3/4"	169.9	35.3
ATS1820P1		457.2	101.6	25.5	39.7	3/4"	169.9	46.6
ATS2120P		533.4	76.2	25.5	39.7	3/4"	169.9	47.7
ATS2120P1		533.4	101.6	25.5	39.7	3/4"	169.9	63.3
630		SMW2425P	609.6	76.2	25.5	38.0	20	200.0
	SMW2425P1	609.6	101.6	25.5	38.0	20	200.0	82.9
	SMW2825P	711.2	76.2	25.5	38.0	20	200.0	84.5
	SMW2825P1	711.2	101.6	25.5	38.0	20	200.0	113.5
	ATS2425P	609.6	76.2	30.0	63.5	1"	206.4	62.7
	ATS2425P1	609.6	101.6	30.0	63.5	1"	206.4	82.9
	ATS2825P	711.2	76.2	30.0	63.5	1"	206.4	84.5
	ATS2825P1	711.2	101.6	30.0	63.5	1"	206.4	113.5

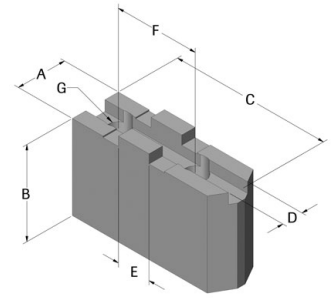
Jaw Nuts For 3/32" X 90° Serrated Chucks

Made with 4140 steel

Dimensions in mm unless otherwise noted • Custom configurations available



CHUCK	PART#	A DIAMETER	B HEIGHT	C LENGTH	D TONGUE	G BOLT SIZE	M FLANGE
400-500	ATS16JN	34.0	34.0	N/A	25.5	3/4"	14.5



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 mm 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
100	TG4MDA	TG4MDS	25.4	38.1	50.8	6.4	11.1	30.2	1/4"
125	TG5MDA	TG5MDS	25.4	38.1	63.5	7.9	12.7	31.8	5/16"
165	TG6MDA	TG6MDS	31.8	38.1	76.2	7.9	12.7	38.1	3/8"
	TG6MDASQ	TG6MDS5SQ	31.8	38.1	76.2	7.9	12.7	38.1	3/8"
	TG6MDA1	TG6MDS1	31.8	50.8	76.2	7.9	12.7	38.1	3/8"
	TG6MDA2	TG6MDS2	31.8	76.2	76.2	7.9	12.7	38.1	3/8"
	TG6MDA2SQ	TG6MDS2SQ	31.8	76.2	76.2	7.9	12.7	38.1	3/8"
	TG6HDA	TG6HDS	31.8	38.1	76.2	7.9	12.7	38.1	7/16"
	TG6HDASQ	TG6HDS5SQ	31.8	38.1	76.2	7.9	12.7	38.1	7/16"
	TG6HDA1	TG6HDS1	31.8	50.8	76.2	7.9	12.7	38.1	7/16"
	TG6HDA2	TG6HDS2	31.8	76.2	76.2	7.9	12.7	38.1	7/16"
	TG6HDA2SQ	TG6HDS2SQ	31.8	76.2	76.2	7.9	12.7	38.1	7/16"
210	TG8MDA	TG8MDS	38.1	50.8	101.6	7.9	12.7	44.5	3/8"
	TG8MDASQ	TG8MDS5SQ	38.1	50.8	101.6	7.9	12.7	44.5	3/8"
	TG8MDA1	TG8MDS1	38.1	76.2	101.6	7.9	12.7	44.5	3/8"
	TG8MDA2	TG8MDS2	38.1	101.6	101.6	7.9	12.7	44.5	3/8"
	TG8MDA2SQ	TG8MDS2SQ	38.1	101.6	101.6	7.9	12.7	44.5	3/8"
	TG8HDA	TG8HDS	38.1	50.8	101.6	7.9	12.7	44.5	1/2"
	TG8HDASQ	TG8HDS5SQ	38.1	50.8	101.6	7.9	12.7	44.5	1/2"
	TG8HDA1	TG8HDS1	38.1	76.2	101.6	7.9	12.7	44.5	1/2"
	TG8HDA2	TG8HDS2	38.1	101.6	101.6	7.9	12.7	44.5	1/2"
	TG8HDA2SQ	TG8HDS2SQ	38.1	101.6	101.6	7.9	12.7	44.5	1/2"
250	TG10MDA	TG10MDS	38.1	50.8	114.3	12.7	19.1	54.0	1/2"
	TG10MDASQ	TG10MDS5SQ	38.1	50.8	114.3	12.7	19.1	54.0	1/2"
	TG10MDA1	TG10MDS1	38.1	76.2	114.3	12.7	19.1	54.0	1/2"
	TG10MDA2	TG10MDS2	38.1	101.6	114.3	12.7	19.1	54.0	1/2"
	TG10MDA2SQ	TG10MDS2SQ	38.1	101.6	114.3	12.7	19.1	54.0	1/2"
	TG10HDA	TG10HDS	38.1	50.8	114.3	12.7	19.1	54.0	5/8"
	TG10HDASQ	TG10HDS5SQ	38.1	50.8	114.3	12.7	19.1	54.0	5/8"
	TG10HDA1	TG10HDS1	38.1	76.2	114.3	12.7	19.1	54.0	5/8"
	TG10HDA2	TG10HDS2	38.1	101.6	114.3	12.7	19.1	54.0	5/8"
	TG10HDA2SQ	TG10HDS2SQ	38.1	101.6	114.3	12.7	19.1	54.0	5/8"
315	TG12MDA	TG12MDS	50.8	50.8	139.7	12.7	19.1	63.5	1/2"
	TG12MDASQ	TG12MDS5SQ	50.8	50.8	139.7	12.7	19.1	63.5	1/2"
	TG12MDA1	TG12MDS1	50.8	76.2	139.7	12.7	19.1	63.5	1/2"
	TG12MDA2	TG12MDS2	50.8	101.6	139.7	12.7	19.1	63.5	1/2"
	TG12MDA2SQ	TG12MDS2SQ	50.8	101.6	139.7	12.7	19.1	63.5	1/2"
	TG12MDA5	TG12MDS5	50.8	127.0	139.7	12.7	19.1	63.5	1/2"
	TG12HDA	TG12HDS	50.8	50.8	139.7	12.7	19.1	63.5	5/8"
	TG12HDASQ	TG12HDS5SQ	50.8	50.8	139.7	12.7	19.1	63.5	5/8"
	TG12HDA1	TG12HDS1	50.8	76.2	139.7	12.7	19.1	63.5	5/8"
	TG12HDA2	TG12HDS2	50.8	101.6	139.7	12.7	19.1	63.5	5/8"
TG12HDA2SQ	TG12HDS2SQ	50.8	101.6	139.7	12.7	19.1	63.5	5/8"	
TG12HDA5	TG12HDS5	50.8	127.0	139.7	12.7	19.1	63.5	5/8"	
381-457	TG15MDA	TG15MDS	63.5	76.2	165.1	12.7	19.1	76.2	5/8"
	TG15MDASQ	TG15MDS5SQ	63.5	76.2	165.1	12.7	19.1	76.2	5/8"
	TG15MDA1	TG15MDS1	63.5	101.6	165.1	12.7	19.1	76.2	5/8"
	TG15MDA1SQ	TG15MDS1SQ	63.5	101.6	165.1	12.7	19.1	76.2	5/8"
	TG15MDA5	TG15MDS5	63.5	127.0	165.1	12.7	19.1	76.2	5/8"
	TG15HDA	TG15HDS	63.5	76.2	165.1	12.7	19.1	76.2	3/4"
	TG15HDASQ	TG15HDS5SQ	63.5	76.2	165.1	12.7	19.1	76.2	3/4"
	TG15HDA1	TG15HDS1	63.5	101.6	165.1	12.7	19.1	76.2	3/4"
	TG15HDA1SQ	TG15HDS1SQ	63.5	101.6	165.1	12.7	19.1	76.2	3/4"
	TG15HDA5	TG15HDS5	63.5	127.0	165.1	12.7	19.1	76.2	3/4"
533-610	TG21MDA	TG21MDS	63.5	76.2	209.5	12.7	19.1	76.2	5/8"
	TG21MDA1	TG21MDS1	63.5	101.6	209.5	12.7	19.1	76.2	5/8"
	TG21MDA5	TG21MDS5	63.5	127.0	209.5	12.7	19.1	76.2	5/8"
	TG21HDA	TG21HDS	63.5	76.2	209.5	12.7	19.1	76.2	3/4"
	TG21HDA1	TG21HDS1	63.5	101.6	209.5	12.7	19.1	76.2	3/4"
	TG21HDA5	TG21HDS5	63.5	127.0	209.5	12.7	19.1	76.2	3/4"

American Standard Tongue & Groove Pie Jaws® — Style D

Made with 319 cast aluminum, cast iron, 1018 steel or A36 steel

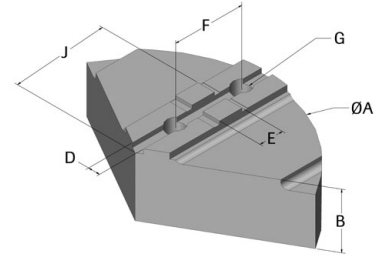
Add CI prefix to aluminum part # for cast iron jaws

Add ST prefix to aluminum part # for steel jaws

Cast iron version weight is approximately 2.6 times that of aluminum

Steel version weight is approximately 2.8 times that of aluminum

Dimensions in mm unless otherwise noted • Weights in kgs. • Custom configurations available

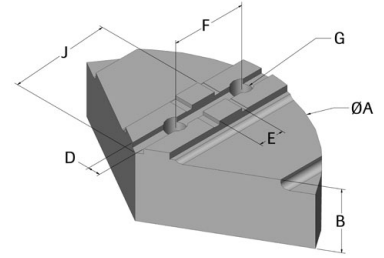


CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	E TONGUE	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT	
125	TG5MDP	152.4	50.8	7.9	12.7	31.8	5/16"	38.1	2.6	
165	TG6MDP	152.4	50.8	7.9	12.7	38.1	3/8"	50.8	2.6	
	TG6MDP1	152.4	101.6	7.9	12.7	38.1	3/8"	50.8	4.9	
	TG86MDP	203.2	50.8	7.9	12.7	38.1	3/8"	50.8	4.6	
	TG86MDP1	203.2	101.6	7.9	12.7	38.1	3/8"	50.8	9.0	
	TG6HDP	152.4	50.8	7.9	12.7	38.1	7/16"	50.8	2.6	
	TG6HDP1	152.4	101.6	7.9	12.7	38.1	7/16"	50.8	4.9	
	TG86HDP	203.2	50.8	7.9	12.7	38.1	7/16"	50.8	4.6	
	TG86HDP1	203.2	101.6	7.9	12.7	38.1	7/16"	50.8	9.0	
	210	TG8MDP	203.2	50.8	7.9	12.7	44.5	3/8"	69.9	4.6
		TG8MDP1	203.2	101.6	7.9	12.7	44.5	3/8"	69.9	9.0
TG8MDP6		203.2	152.4	7.9	12.7	44.5	3/8"	69.9	13.4	
TG108MDP		254.0	50.8	7.9	12.7	44.5	3/8"	69.9	7.4	
TG108MDP1		254.0	101.6	7.9	12.7	44.5	3/8"	69.9	14.3	
TG128MDP		304.8	50.8	7.9	12.7	44.5	3/8"	69.9	10.6	
TG128MDP1		304.8	101.6	7.9	12.7	44.5	3/8"	69.9	20.6	
TG8HDP		203.2	50.8	7.9	12.7	44.5	1/2"	69.9	4.6	
TG8HDP1		203.2	101.6	7.9	12.7	44.5	1/2"	69.9	9.0	
TG8HDP6		203.2	152.4	7.9	12.7	44.5	1/2"	69.9	13.4	
TG108HDP		254.0	50.8	7.9	12.7	44.5	1/2"	69.9	7.4	
TG108HDP1		254.0	101.6	7.9	12.7	44.5	1/2"	69.9	14.3	
TG128HDP		304.8	50.8	7.9	12.7	44.5	1/2"	69.9	10.6	
TG128HDP1		304.8	101.6	7.9	12.7	44.5	1/2"	69.9	20.6	
250	TG10MDP	254.0	50.8	12.7	19.1	54.0	1/2"	88.9	7.4	
	TG10MDP1	254.0	101.6	12.7	19.1	54.0	1/2"	88.9	14.3	
	TG10MDP6	254.0	152.4	12.7	19.1	54.0	1/2"	88.9	21.3	
	TG1210MDP	304.8	50.8	12.7	19.1	54.0	1/2"	88.9	10.6	
	TG1210MDP1	304.8	101.6	12.7	19.1	54.0	1/2"	88.9	20.6	
	TG1510MDP	381.0	76.2	12.7	19.1	54.0	1/2"	88.9	24.4	
	TG1510MDP1	381.0	101.6	12.7	19.1	54.0	1/2"	88.9	32.2	
	TG1810MDP	457.2	76.2	12.7	19.1	54.0	1/2"	88.9	35.3	
	TG1810MDP1	457.2	101.6	12.7	19.1	54.0	1/2"	88.9	46.6	
	TG10HDP	254.0	50.8	12.7	19.1	54.0	5/8"	88.9	7.4	
	TG10HDP1	254.0	101.6	12.7	19.1	54.0	5/8"	88.9	14.3	
	TG10HDP6	254.0	152.4	12.7	19.1	54.0	5/8"	88.9	21.3	
	TG1210HDP	304.8	50.8	12.7	19.1	54.0	5/8"	88.9	10.6	
	TG1210HDP1	304.8	101.6	12.7	19.1	54.0	5/8"	88.9	20.6	
	TG1510HDP	381.0	76.2	12.7	19.1	54.0	5/8"	88.9	24.4	
	TG1510HDP1	381.0	101.6	12.7	19.1	54.0	5/8"	88.9	32.2	
	TG1810HDP	457.2	76.2	12.7	19.1	54.0	5/8"	88.9	35.3	
	TG1810HDP1	457.2	101.6	12.7	19.1	54.0	5/8"	88.9	46.6	
	315	TG12MDP	304.8	50.8	12.7	19.1	63.5	1/2"	108.0	10.6
		TG12MDP1	304.8	101.6	12.7	19.1	63.5	1/2"	108.0	20.6
TG12MDP6		304.8	152.4	12.7	19.1	63.5	1/2"	108.0	30.5	
TG1512MDP		381.0	76.2	12.7	19.1	63.5	1/2"	108.0	24.4	
TG1512MDP1		381.0	101.6	12.7	19.1	63.5	1/2"	108.0	32.2	
TG1812MDP		457.2	76.2	12.7	19.1	63.5	1/2"	108.0	35.3	
TG1812MDP1		457.2	101.6	12.7	19.1	63.5	1/2"	108.0	46.6	
TG2112MDP2		533.4	50.8	12.7	19.1	63.5	1/2"	108.0	32.5	
TG2112MDP		533.4	76.2	12.7	19.1	63.5	1/2"	108.0	47.7	
TG2112MDP1		533.4	101.6	12.7	19.1	63.5	1/2"	108.0	63.3	
TG12HDP		304.8	50.8	12.7	19.1	63.5	5/8"	108.0	10.6	
TG12HDP1		304.8	101.6	12.7	19.1	63.5	5/8"	108.0	20.6	
TG12HDP6		304.8	152.4	12.7	19.1	63.5	5/8"	108.0	30.5	
TG1512HDP		381.0	76.2	12.7	19.1	63.5	5/8"	108.0	24.4	
TG1512HDP1		381.0	101.6	12.7	19.1	63.5	5/8"	108.0	32.2	
TG1812HDP		457.2	76.2	12.7	19.1	63.5	5/8"	108.0	35.3	
TG1812HDP1		457.2	101.6	12.7	19.1	63.5	5/8"	108.0	46.6	
TG2112HDP2		533.4	50.8	12.7	19.1	63.5	5/8"	108.0	32.5	
TG2112HDP		533.4	76.2	12.7	19.1	63.5	5/8"	108.0	47.7	
TG2112HDP1		533.4	101.6	12.7	19.1	63.5	5/8"	108.0	63.3	

American Standard Tongue & Groove Pie Jaws® — Style D

– continued

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



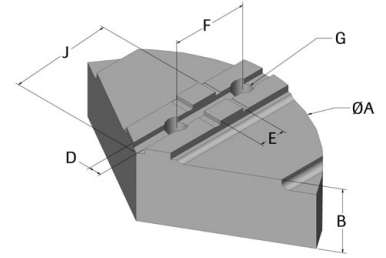
Dimensions in mm unless otherwise noted • Weights in kgs. • Custom configurations available

CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	E TONGUE	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT	
381	TG15MDP2	381.0	50.8	12.7	19.1	76.2	5/8"	133.4	16.6	
	TG15MDP	381.0	76.2	12.7	19.1	76.2	5/8"	133.4	24.4	
	TG15MDP1	381.0	101.6	12.7	19.1	76.2	5/8"	133.4	32.2	
	TG15MDP6	381.0	152.4	12.7	19.1	76.2	5/8"	133.4	40.2	
	TG1815MDP	457.2	76.2	12.7	19.1	76.2	5/8"	133.4	35.3	
	TG1815MDP1	457.2	101.6	12.7	19.1	76.2	5/8"	133.4	46.6	
	TG2115MDP2	533.4	50.8	12.7	19.1	76.2	5/8"	133.4	32.5	
	TG2115MDP	533.4	76.2	12.7	19.1	76.2	5/8"	133.4	47.7	
	TG2115MDP1	533.4	101.6	12.7	19.1	76.2	5/8"	133.4	63.3	
	TG2415MDP2	609.6	50.8	12.7	19.1	76.2	5/8"	133.4	42.3	
	TG2415MDP	609.6	76.2	12.7	19.1	76.2	5/8"	133.4	62.7	
	TG2415MDP1	609.6	101.6	12.7	19.1	76.2	5/8"	133.4	82.9	
	TG15HDP2	381.0	50.8	12.7	19.1	76.2	3/4"	133.4	16.6	
	TG15HDP	381.0	76.2	12.7	19.1	76.2	3/4"	133.4	24.4	
	TG15HDP1	381.0	101.6	12.7	19.1	76.2	3/4"	133.4	32.2	
	TG15HDP6	381.0	152.4	12.7	19.1	76.2	3/4"	133.4	40.2	
	TG1815HDP	457.2	76.2	12.7	19.1	76.2	3/4"	133.4	35.3	
	TG1815HDP1	457.2	101.6	12.7	19.1	76.2	3/4"	133.4	46.6	
	TG2115HDP2	533.4	50.8	12.7	19.1	76.2	3/4"	133.4	32.5	
	TG2115HDP	533.4	76.2	12.7	19.1	76.2	3/4"	133.4	47.7	
	TG2115HDP1	533.4	101.6	12.7	19.1	76.2	3/4"	133.4	63.3	
	TG2415HDP2	609.6	50.8	12.7	19.1	76.2	3/4"	133.4	42.3	
	TG2415HDP	609.6	76.2	12.7	19.1	76.2	3/4"	133.4	62.7	
	TG2415HDP1	609.6	101.6	12.7	19.1	76.2	3/4"	133.4	82.9	
	450	TG18MDP	457.2	76.2	12.7	19.1	76.2	5/8"	165.1	35.3
		TG18MDP1	457.2	101.6	12.7	19.1	76.2	5/8"	165.1	46.6
TG18MDP8		457.2	203.2	12.7	19.1	76.2	5/8"	165.1	92.3	
TG2118MDP2		533.4	50.8	12.7	19.1	76.2	5/8"	165.1	32.5	
TG2118MDP		533.4	76.2	12.7	19.1	76.2	5/8"	165.1	47.7	
TG2118MDP1		533.4	101.6	12.7	19.1	76.2	5/8"	165.1	63.3	
TG2418MDP2		609.6	50.8	12.7	19.1	76.2	5/8"	165.1	42.3	
TG2418MDP		609.6	76.2	12.7	19.1	76.2	5/8"	165.1	62.7	
TG2418MDP1		609.6	101.6	12.7	19.1	76.2	5/8"	165.1	82.9	
TG2818MDP		711.2	76.2	12.7	19.1	76.2	5/8"	165.1	84.5	
TG2818MDP1		711.2	101.6	12.7	19.1	76.2	5/8"	165.1	113.5	
TG3018MDP1		762.0	101.6	12.7	19.1	76.2	5/8"	165.1	130.2	
TG322418MDP1		812.8	101.6	12.7	19.1	76.2	5/8"	165.1	147.5	
TG362418MDP1		914.4	101.6	12.7	19.1	76.2	5/8"	165.1	187.5	
TG18HDP		457.2	76.2	12.7	19.1	76.2	3/4"	165.1	35.3	
TG18HDP1		457.2	101.6	12.7	19.1	76.2	3/4"	165.1	46.6	
TG18HDP8		457.2	203.2	12.7	19.1	76.2	3/4"	165.1	92.3	
TG2118HDP2		533.4	50.8	12.7	19.1	76.2	3/4"	165.1	32.5	
TG2118HDP		533.4	76.2	12.7	19.1	76.2	3/4"	165.1	47.7	
TG2118HDP1		533.4	101.6	12.7	19.1	76.2	3/4"	165.1	63.3	
TG2418HDP2		609.6	50.8	12.7	19.1	76.2	3/4"	165.1	42.3	
TG2418HDP		609.6	76.2	12.7	19.1	76.2	3/4"	165.1	62.7	
TG2418HDP1		609.6	101.6	12.7	19.1	76.2	3/4"	165.1	82.9	
TG2818HDP		711.2	76.2	12.7	19.1	76.2	3/4"	165.1	84.5	
TG2818HDP1		711.2	101.6	12.7	19.1	76.2	3/4"	165.1	113.5	
TG3018HDP1		762.0	101.6	12.7	19.1	76.2	3/4"	165.1	130.2	
TG322418HDP1		812.8	101.6	12.7	19.1	76.2	3/4"	165.1	147.5	
TG362418HDP1		914.4	101.6	12.7	19.1	76.2	3/4"	165.1	187.5	

American Standard Tongue & Groove Pie Jaws® — Style D

– continued

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



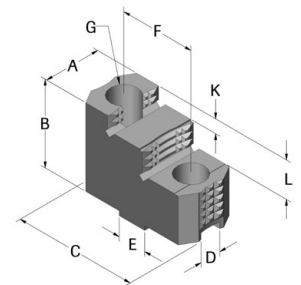
Dimensions in mm unless otherwise noted • Weights in kgs. • Custom configurations available

CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	E TONGUE	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT	
533	TG21MDP	533.4	76.2	12.7	19.1	76.2	5/8"	196.9	47.6	
	TG21MDP1	533.4	101.6	12.7	19.1	76.2	5/8"	196.9	63.1	
	TG2421MDP	609.6	76.2	12.7	19.1	76.2	5/8"	196.9	62.6	
	TG2421MDP1	609.6	101.6	12.7	19.1	76.2	5/8"	196.9	72.7	
	TG2821MDP	711.2	76.2	12.7	19.1	76.2	5/8"	196.9	84.4	
	TG2821MDP1	711.2	101.6	12.7	19.1	76.2	5/8"	196.9	113.2	
	TG21HDP	533.4	76.2	12.7	19.1	76.2	3/4"	196.9	47.6	
	TG21HDP1	533.4	101.6	12.7	19.1	76.2	3/4"	196.9	63.1	
	TG2421HDP	609.6	76.2	12.7	19.1	76.2	3/4"	196.9	62.6	
	TG2421HDP1	609.6	101.6	12.7	19.1	76.2	3/4"	196.9	72.7	
	TG2821HDP	711.2	76.2	12.7	19.1	76.2	3/4"	196.9	84.4	
	TG2821HDP1	711.2	101.6	12.7	19.1	76.2	3/4"	196.9	113.2	
	610+	TG24MDP2	609.6	50.8	12.7	19.1	76.2	5/8"	241.3	42.3
		TG24MDP	609.6	76.2	12.7	19.1	76.2	5/8"	241.3	62.7
TG24MDP1		609.6	101.6	12.7	19.1	76.2	5/8"	241.3	82.9	
TG2824MDP		711.2	76.2	12.7	19.1	76.2	5/8"	241.3	84.5	
TG2824MDP1		711.2	101.6	12.7	19.1	76.2	5/8"	241.3	113.5	
TG2824MDP6		711.2	152.4	12.7	19.1	76.2	5/8"	241.3	165.5	
TG322418MDP1		812.8	101.6	12.7	19.1	76.2	5/8"	241.3	147.5	
TG362418MDP1		914.4	101.6	12.7	19.1	76.2	5/8"	241.3	187.5	
TG422418MDP1		1066.8	101.6	12.7	19.1	76.2	5/8"	241.3	255.4	
TG24HDP2		609.6	50.8	12.7	19.1	76.2	3/4"	241.3	43.2	
TG24HDP		609.6	76.2	12.7	19.1	76.2	3/4"	241.3	62.7	
TG24HDP1		609.6	101.6	12.7	19.1	76.2	3/4"	241.3	82.9	
TG2824HDP		711.2	76.2	12.7	19.1	76.2	3/4"	241.3	84.5	
TG2824HDP1		711.2	101.6	12.7	19.1	76.2	3/4"	241.3	113.5	
TG2824HDP6		711.2	152.4	12.7	19.1	76.2	3/4"	241.3	165.5	
TG322418HDP1		812.8	101.6	12.7	19.1	76.2	3/4"	241.3	147.5	
TG362418HDP1		914.4	101.6	12.7	19.1	76.2	3/4"	241.3	187.5	
TG422418HDP1		1066.8	101.6	12.7	19.1	76.2	3/4"	241.3	255.4	

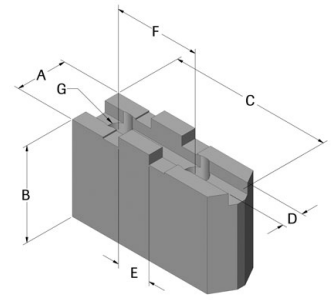
American Standard Tongue & Groove Hard Jaws

Made with 1018 case hardened steel

Dimensions in mm 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
210	TG8MDHJDS	31.8	50.8	90.2	7.9	12.7	44.5	3/8"	49.2	15.2	26.4
250	TG10MDHJDS	44.5	63.5	95.8	12.7	19.1	54.0	1/2"	55.6	17.3	35.1
	TG10HHDHJDS	44.5	63.5	95.8	12.7	19.1	54.0	5/8"	55.6	17.3	35.1
315	TG12MDHJDS	44.5	63.5	114.3	12.7	19.1	63.5	1/2"	61.9	17.3	35.1
	TG12HHDHJDS	44.5	63.5	114.3	12.7	19.1	63.5	5/8"	61.9	17.3	35.1
381	TG15MDHJDS	63.5	88.9	140.0	12.7	19.1	76.2	5/8"	79.3	22.4	44.5
	TG15HHDHJDS	63.5	88.9	140.0	12.7	19.1	76.2	3/4"	79.3	22.4	44.5



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

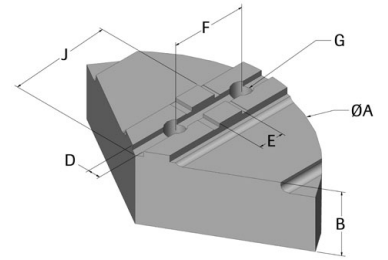
Dimensions in mm unless otherwise noted • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A WIDTH	B HEIGHT	C LENGTH	D SLOT	E TONGUE	F HOLE SPACING	G BOLT SIZE
165	MTG6MDA	MTG6MDS	31.8	38.1	76.2	8.0	18.0	32.0	8
	MTG6MDA1	MTG6MDS1	31.5	50.8	76.2	8.0	18.0	32.0	8
210	MTG8MDA	MTG8MDS	38.1	50.8	101.6	10.0	20.0	40.0	8
	MTG8MDA1	MTG8MDS1	38.1	76.2	101.6	10.0	20.0	40.0	8
250	MTG10MDA	MTG10MDS	38.1	50.8	114.3	12.0	20.0	40.0	12
	MTG10MDA1	MTG10MDS1	38.1	76.2	114.3	12.0	20.0	40.0	12
315	MTG12MDA	MTG12MDS	50.8	50.8	139.7	12.0	20.0	40.0	12
	MTG12MDA1	MTG12MDS1	50.8	76.2	139.7	12.0	20.0	40.0	12
406	MTG16MDA	MTG16MDS	63.5	76.2	165.1	12.0	26.0	54.0	12
	MTG16MDA1	MTG16MDS1	63.5	101.6	165.1	12.0	26.0	54.0	12
508	MTG20MDA	MTG20MDS	63.5	76.2	209.6	18.0	30.0	60.0	16
	MTG20MDA1	MTG20MDS1	63.5	101.6	209.6	18.0	30.0	60.0	16

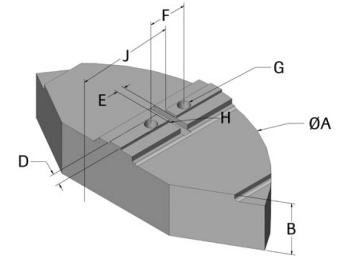
Metric Tongue & Groove Pie Jaws® — Style D

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

Dimensions in mm unless otherwise noted • Weights in kgs. • Custom configurations available



CHUCK	ALUMINUM PART#	A DIAMETER	B HEIGHT	D SLOT	E TONGUE	F HOLE SPACING	G BOLT SIZE	J DIM	WEIGHT
165	MTG6MDP	152.4	50.8	8.0	18.0	32.0	8	58.7	2.6
	MTG6MDP1	152.4	101.6	8.0	18.0	32.0	8	58.7	4.9
	MTG86MDP	203.2	50.8	8.0	18.0	32.0	8	58.7	4.6
210	MTG8MDP	203.2	50.8	10.0	20.0	40.0	8	76.2	4.6
	MTG8MDP1	203.2	101.6	10.0	20.0	40.0	8	76.2	9.0
	MTG108MDP	254.0	50.8	10.0	20.0	40.0	8	76.2	7.4
250	MTG10MDP	254.0	50.8	12.0	20.0	40.0	12	101.6	7.4
	MTG10MDP1	254.0	101.6	12.0	20.0	40.0	12	101.6	14.3
315	MTG12MDP	304.8	50.8	12.0	20.0	40.0	12	127.0	10.6
	MTG12MDP1	304.8	101.6	12.0	20.0	40.0	12	127.0	20.6
406	MTG1516MDP	304.8	76.2	12.0	26.0	54.0	12	152.4	24.4
	MTG1516MDP1	304.8	101.6	12.0	26.0	54.0	12	152.4	32.2
	MTG1816MDP	457.2	76.2	12.0	26.0	54.0	12	152.4	35.3
	MTG1816MDP1	457.2	101.6	12.0	26.0	54.0	12	152.4	46.6
	MTG1816MDP6	457.2	152.4	12.0	26.0	54.0	12	152.4	70.2
508	MTG1820MDP	457.2	76.2	18.0	30.0	60.0	16	123.0	35.3
	MTG1820MDP1	457.2	101.6	18.0	30.0	60.0	16	123.0	46.6
	MTG2120MDP	533.4	76.2	18.0	30.0	60.0	16	123.0	47.7
	MTG2120MDP1	533.4	101.6	18.0	30.0	60.0	16	123.0	63.1
	MTG2420MDP	609.6	76.2	18.0	30.0	60.0	16	123.0	62.7
635	MTG2420MDP1	609.6	101.6	18.0	30.0	60.0	16	123.0	82.7
	MTG2125MDP	533.4	76.2	18.0	30.0	60.0	16	190.5	47.7
	MTG2125MDP1	533.4	101.6	18.0	30.0	60.0	16	190.5	63.1
	MTG2425MDP	609.6	76.2	18.0	30.0	60.0	16	190.5	62.7
	MTG2425MDP1	609.6	101.6	18.0	30.0	60.0	16	190.5	82.7

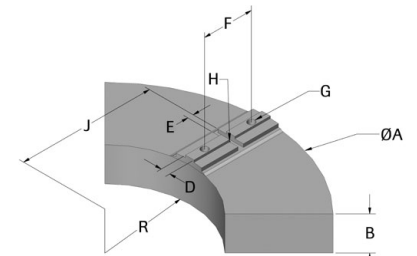


Bullard Style Pie Jaws® — Style W

Made with 319 cast aluminum

Dimensions in mm unless otherwise noted • Weights in kgs. • Custom configurations available

CHUCK	PART #	A DIAMETER	B HEIGHT	D TONGUE	E SLOT	F HOLE SPACING	G BOLT SIZE	J DIM	GAP	WEIGHT
610	24BULLARD	609.6	101.6	25.4	15.9	76.2	7/8"	203.2	6.4	72.3
762	30BULLARD	762.0	101.6	25.4	15.9	76.2	7/8"	228.6	6.4	115.9
914	36BULLARD	914.4	101.6	25.4	15.9	76.2	7/8"	304.8	6.4	144.5
1016	40BULLARD	1016.0	101.6	25.4	15.9	76.2	7/8"	304.8	6.4	188.2
1219	48BULLARD	1219.2	101.6	25.4	15.9	76.2	7/8"	406.4	6.4	240.0
1422	56BULLARD	1422.4	101.6	25.4	15.9	76.2	7/8"	584.2	6.4	288.2



4 Jaw Bullard Style Pie Jaws® — Style W

Made with 319 cast aluminum

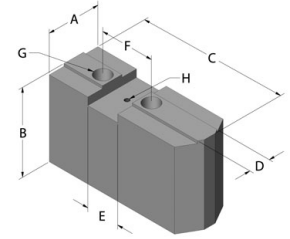
Dimensions in mm unless otherwise noted • Weights in kgs. • Custom configurations available

CHUCK	PART #	A DIAMETER	B HEIGHT	D TONGUE	E SLOT	F HOLE SPACING	G BOLT SIZE	J DIM	GAP	WEIGHT	R RADIUS
500	20BULLARD-4J	508.0	101.6	25.4	15.9	101.6	3/4"	185.7	25.4	41.8	101.6
711	28BULLARD-4J	711.2	101.6	25.4	15.9	139.7	3/4"	261.9	25.4	82.7	152.4
965	38BULLARD-4J	965.2	101.6	25.4	15.9	139.7	3/4"	376.2	25.4	141.8	254.0

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 mm unless otherwise noted • Custom configurations available

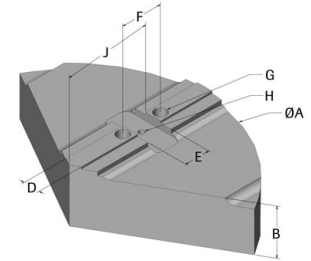


CHUCK	ALUMINUM PART#	STEEL PART#	A WIDTH	B HEIGHT	C LENGTH	D TONGUE	E SLOT	F HOLE SPACING	G BOLT SIZE	H TAPPED HOLE
210	8LPA	8LPS	38.1	50.8	82.6	16.9	15.3	31.8	1/2"	10-32
	8LPA1	8LPS1	38.1	76.2	82.6	16.9	15.3	31.8	1/2"	10-32
250	10A04A	10A04S	50.8	50.8	114.3	19.1	26.2	44.5	1/2"	5/16"-18
	10A04A1	10A04S1	50.8	76.2	114.3	19.1	26.2	44.5	1/2"	5/16"-18
	10A04A2	10A04S2	50.8	101.6	114.3	19.1	26.2	44.5	1/2"	5/16"-18
315	12A04A	12A04S	50.8	50.8	139.7	22.2	26.2	50.8	5/8"	5/16"-18
	12A04A1	12A04S1	50.8	76.2	139.7	22.2	26.2	50.8	5/8"	5/16"-18
	12A04A2	12A04S2	50.8	101.6	139.7	22.2	26.2	50.8	5/8"	5/16"-18
381-450	15A04A	15A04S	63.5	76.2	165.1	25.4	38.9	63.5	3/4"	3/8"-16
	15A04A1	15A04S1	63.5	101.6	165.1	25.4	38.9	63.5	3/4"	3/8"-16
530-610	21A04A	21A04S	76.2	76.2	209.6	31.8	38.9	76.2	7/8"	3/8"-16
	21A04A1	21A04S1	76.2	101.6	209.6	31.8	38.9	76.2	7/8"	3/8"-16

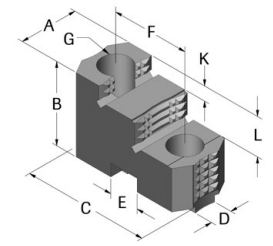
Acme Serrated Key Pie Jaws® — Style L

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

Dimensions in mm unless otherwise noted • Weights in kgs. • 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
210	8LPP	203.2	50.8	16.9	15.3	31.8	1/2"	10-32	81.0	4.6
	8LPP1	203.2	101.6	16.9	15.3	31.8	1/2"	10-32	81.0	9.0
250	10A04P	254.0	50.8	19.1	26.2	44.5	1/2"	5/16"-18	95.3	7.4
	10A04P1	254.0	101.6	19.1	26.2	44.5	1/2"	5/16"-18	95.3	14.3
	1210A04P	304.8	50.8	19.1	26.2	44.5	1/2"	5/16"-18	95.3	10.6
	1210A04P1	304.8	101.6	19.1	26.2	44.5	1/2"	5/16"-18	95.3	20.6
315	12A04P	304.8	50.8	22.2	26.2	50.8	5/8"	5/16"-18	120.7	10.6
	12A04P1	304.8	101.6	22.2	26.2	50.8	5/8"	5/16"-18	120.7	20.6
	12A04P6	304.8	152.4	22.2	26.2	50.8	5/8"	5/16"-18	120.7	29.5
	1512A04P	381.0	76.2	22.2	26.2	50.8	5/8"	5/16"-18	120.7	24.4
	1512A04P1	381.0	101.6	22.2	26.2	50.8	5/8"	5/16"-18	120.7	32.2
	1812A04P1	457.2	101.6	22.2	26.2	50.8	5/8"	5/16"-18	120.7	46.6
381	15A04P	381.0	76.2	25.4	38.9	63.5	3/4"	3/8"-16	152.4	224.4
	15A04P1	381.0	101.6	25.4	38.9	63.5	3/4"	3/8"-16	152.4	32.2
	15A04P5	381.0	127.0	25.4	38.9	63.5	3/4"	3/8"-16	152.4	35.0
	15A04P6	381.0	152.4	25.4	38.9	63.5	3/4"	3/8"-16	152.4	47.7
	15A04P8	381.0	203.2	25.4	38.9	63.5	3/4"	3/8"-16	152.4	62.7
	1815A04P	457.2	76.2	25.4	38.9	63.5	3/4"	3/8"-16	152.4	35.3
	1815A04P1	457.2	101.6	25.4	38.9	63.5	3/4"	3/8"-16	152.4	46.6
	2115A04P1	533.4	101.6	25.4	38.9	63.5	3/4"	3/8"-16	152.4	63.3
450	18A54P1	457.2	101.6	31.8	38.9	76.2	7/8"	3/8"-16	184.2	45.5
500	20A54P4	508.0	101.6	31.8	38.9	76.2	7/8"	3/8"-16	204.8	56.6
610	1824A54P1	457.2	101.6	31.8	38.9	76.2	7/8"	3/8"-16	174.6	46.6
	2124A54P1	533.4	101.6	31.8	38.9	76.2	7/8"	3/8"-16	203.2	60.7
	2124A54P5	533.4	127.0	31.8	38.9	76.2	7/8"	3/8"-16	203.2	76.2
	24A54P1	609.6	101.6	31.8	38.9	76.2	7/8"	3/8"-16	204.8	82.9
711	28A54P1	711.2	101.6	31.8	38.9	76.2	7/8"	3/8"-16	257.2	113.5
813+	32A54P1	812.8	101.6	31.8	38.9	76.2	7/8"	3/8"-16	257.2	147.5
	32A54P6	812.8	152.4	31.8	38.9	76.2	7/8"	3/8"-16	257.2	221.7
	42A54P1	1066.8	101.6	31.8	38.9	76.2	7/8"	3/8"-16	257.2	255.4

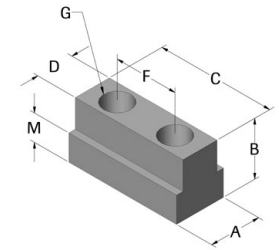


Acme Serrated Key Hard Jaws

Made with 1018 case hardened steel

Dimensions in mm 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
250	10A04HJDS	44.5	63.5	105.4	19.1	26.2	44.5	1/2"	5/16"-18	63.8	15.7	31.8
315	12A04HJDS	44.5	63.5	132.3	22.2	26.2	50.8	5/8"	5/16"-18	85.1	13.0	28.7
381	15A04HJDS	63.5	88.9	153.2	25.4	38.9	63.5	3/4"	3/8"-16	89.3	20.6	40.6



Jaw Nuts For Acme Serrated Key Chucks

Made with 4140 steel

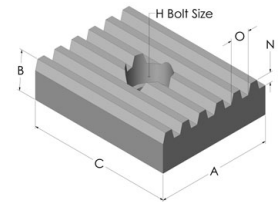
Dimensions in mm unless otherwise noted • Custom configurations available

CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	D TONGUE	F HOLE SPACING	G BOLT SIZE	M FLANGE
250	10A04JN	23.9	16.3	63.5	17.2	44.5	1/2"	9.7
315	12A04JN	26.9	19.3	76.2	20.4	50.8	5/8"	11.2
381	15A04JN	31.8	23.6	88.9	23.7	63.5	3/4"	14.0

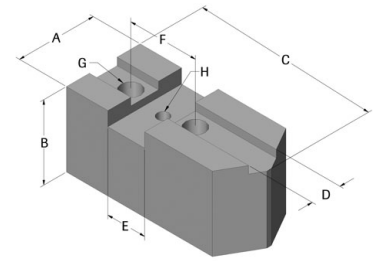
Acme Serrated Master Keys

Made with 4140 steel

Dimensions in mm unless otherwise noted • Custom configurations available



CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	H BOLT SIZE	N DEPTH	O PITCH
250-315	12A04MK	26.2	12.7	42.9	5/16"	3.3	6.4
381-450	15A04MK	38.9	12.7	62.0	3/8"	3.3	6.4
530-610	21A04MK	38.9	12.7	73.2	3/8"	3.3	6.4



Square Serrated Key Soft Jaws — Style B

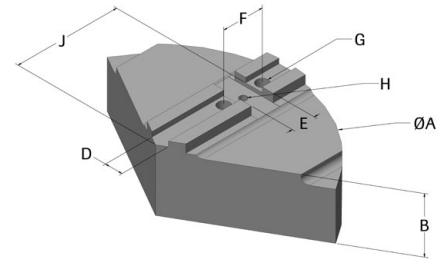
Made with 6061 T-6 condition aluminum or 1018 steel
Add SQ suffix to part # for square nosed version

Dimensions in mm 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
65	6A	6S	31.8	38.1	76.2	18.7	9.6	42.9	5/16"	N/A
	6A1	6S1	31.8	50.8	76.2	18.7	9.6	42.9	5/16"	N/A
190	7.5A	7.5S	38.1	50.8	101.6	22.0	9.6	42.9	5/16"	N/A
	7.5A1	7.5S1	38.1	76.2	101.6	22.0	9.6	42.9	5/16"	N/A
210	8A	8S	38.1	50.8	101.6	12.7	18.9	36.5	3/8"	1/4"-20
	8A1	8S1	38.1	76.2	101.6	12.7	18.9	36.5	3/8"	1/4"-20
250-315	12A	12S	50.8	50.8	139.7	19.1	25.2	44.5	1/2"	5/16"-18
	12A1	12S1	50.8	76.2	139.7	19.1	25.2	44.5	1/2"	5/16"-18
	12A-5-8	12S-5-8	50.8	50.8	139.7	19.1	25.2	44.5	5/8"	5/16"-18
	12A1-5-8	12S1-5-8	50.8	76.2	139.7	19.1	25.2	44.5	5/8"	5/16"-18
381	15A	15S	63.5	76.2	165.1	25.4	37.8	63.5	3/4"	3/8"-16
	15A1	15S1	63.5	101.6	165.1	25.4	37.8	63.5	3/4"	3/8"-16

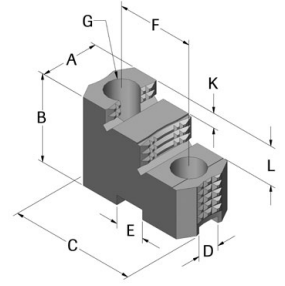
Square Serrated Key Pie Jaws® — Style E

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



Dimensions in mm unless otherwise noted • Weights in kgs. • 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	
165	6P	152.4	50.8	18.7	9.6	42.9	5/16"	N/A	46.0	2.6	
	6P1	152.4	101.6	18.7	9.6	42.9	5/16"	N/A	46.0	4.9	
190	7.5P	203.2	50.8	22.0	9.6	42.9	5/16"	N/A	46.0	4.6	
210	8P	203.2	50.8	12.7	18.9	36.5	3/8"	1/4"-20	76.2	4.6	
	8P1	203.2	101.6	12.7	18.9	36.5	3/8"	1/4"-20	76.2	9.0	
250	10P	254.0	50.8	19.1	25.2	44.5	1/2"	5/16"-18	95.3	7.4	
	10P1	254.0	101.6	19.1	25.2	44.5	1/2"	5/16"-18	95.3	14.3	
	10P6	254.0	152.4	19.1	25.2	44.5	1/2"	5/16"-18	95.3	21.3	
	1210P	304.8	50.8	19.1	25.2	44.5	1/2"	5/16"-18	95.3	10.6	
	1510P	381.0	76.2	19.1	25.2	44.5	1/2"	5/16"-18	95.3	24.4	
	1810P	457.2	76.2	19.1	25.2	44.5	1/2"	5/16"-18	95.3	35.3	
	10P-5-8	254.0	50.8	19.1	25.2	44.5	5/8"	5/16"-18	95.3	7.4	
	10P1-5-8	254.0	101.6	19.1	25.2	44.5	5/8"	5/16"-18	95.3	14.3	
	10P6-5-8	254.0	152.4	19.1	25.2	44.5	5/8"	5/16"-18	95.3	21.3	
	1210P-5-8	304.8	50.8	19.1	25.2	44.5	5/8"	5/16"-18	95.3	10.6	
315	1510P-5-8	381.0	76.2	19.1	25.2	44.5	5/8"	5/16"-18	95.3	24.4	
	1810P-5-8	457.2	76.2	19.1	25.2	44.5	5/8"	5/16"-18	95.3	35.3	
	12P	304.8	50.8	19.1	25.2	44.5	1/2"	5/16"-18	117.5	10.6	
	12P1	304.8	101.6	19.1	25.2	44.5	1/2"	5/16"-18	117.5	20.6	
	12P-5-8	304.8	50.8	19.1	25.2	44.5	5/8"	5/16"-18	117.5	10.6	
	12P1-5-8	304.8	101.6	19.1	25.2	44.5	5/8"	5/16"-18	117.5	20.6	
	381	15P	381.0	76.2	25.4	37.8	63.5	3/4"	3/8"-16	146.1	24.4
		15P1	381.0	101.6	25.4	37.8	63.5	3/4"	3/8"-16	146.1	32.3
	450	18P	457.2	76.2	25.4	37.8	63.5	3/4"	3/8"-16	181.0	35.3
		18P1	457.2	101.6	25.4	37.8	63.5	3/4"	3/8"-16	181.0	16.6

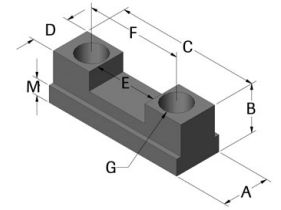


Square Serrated Key Hard Jaws

Made with 1018 case hardened steel

Dimensions in mm 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
250-315	12HJDS	44.5	63.5	96.0	19.1	25.2	44.5	1/2"	5/16"-18	54.8	16.0	31.8
	12HJDS-5-8	44.5	63.5	96.0	19.1	25.2	44.5	5/8"	5/16"-18	54.8	16.0	31.8
381	15HJDS	57.2	76.2	120.7	25.4	37.8	63.5	3/4"	3/8"-16	76.5	19.1	38.1

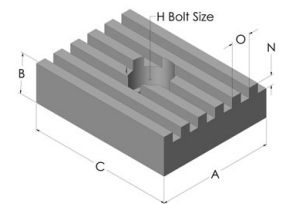


Jaw Nuts For Square Serrated Key Chucks

Made with 4140 steel

Dimensions in mm 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
250-315	12JN	25.4	25.4	62.0	19.1	25.3	44.5	1/2"	9.5
	12JN-5-8	25.4	25.4	63.5	19.1	25.3	44.5	5/8"	9.5
381	15JN	31.8	31.8	95.3	25.4	37.8	63.5	3/4"	11.1

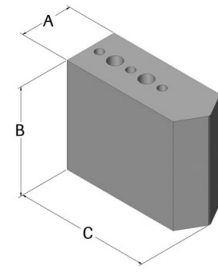


Square Serrated Master Keys

Made with 4140 steel

Dimensions in mm unless otherwise noted • Custom configurations available

CHUCK	PART#	A WIDTH	B HEIGHT	C LENGTH	H BOLT SIZE	N DEPTH	O PITCH
250-315	12MK	25.2	12.7	42.9	5/16"	3.3	6.4
381-450	15MK	37.8	12.7	57.2	3/8"	3.3	6.4
530-610	21MK	37.8	12.7	63.5	3/8"	3.3	6.4

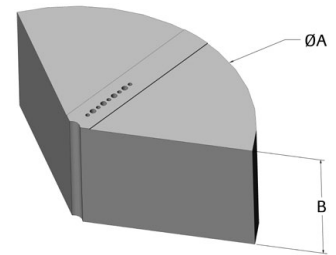


Northfield Air Chuck Soft Jaws — Style R

Made with 2024 aluminum or 1018 steel

Dimensions in mm unless otherwise noted • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A WIDTH	B HEIGHT	C LENGTH	CHUCKING RANGE	
						INTERNAL	EXTERNAL
100	AL14.75	ST14.75	19.1	19.1	48.1	6.4-95.3	3.3-95.3
	AL141.5	ST141.5	19.1	38.1	48.1	6.4-95.3	3.3-95.3
	AL143	ST143	19.1	76.2	48.1	6.4-95.3	3.3-95.3
165	AL161	ST161	25.4	25.4	73.5	6.4-146.1	3.3-146.1
	AL161.5	ST161.5	25.4	38.1	73.5	6.4-146.1	3.3-146.1
	AL162	ST162	25.4	50.8	73.5	6.4-146.1	3.3-146.1
	AL163	ST163	25.4	76.2	73.5	6.4-146.1	3.3-146.1
210	AL182	ST182	50.8	50.8	93.6	25.4-196.9	19.1-196.9
	AL183	ST183	50.8	76.2	93.6	25.4-196.9	19.1-196.9
	AL184	ST184	50.8	101.6	93.6	25.4-196.9	19.1-196.9
250	AL1102	ST1102	50.8	50.8	119.0	25.4-247.7	19.1-247.7
	AL1103	ST1103	50.8	76.2	119.0	25.4-247.7	19.1-247.7
	AL1104	ST1104	50.8	101.6	119.0	25.4-247.7	19.1-247.7
315	AL1123	ST1123	50.8	76.2	144.4	25.4-298.45	19.1-298.45

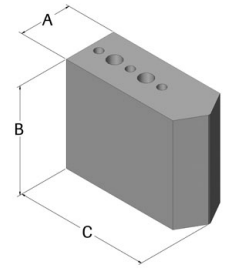


Northfield Air Chuck Pie Jaws® — Style M

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

Dimensions in mm unless otherwise noted • Weights in kgs. • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A DIAMETER	B HEIGHT	CHUCKING RANGE		ALUMINUM WEIGHT	STEEL WEIGHT
					INTERNAL	EXTERNAL		
100	AL342	ST342	99.6	50.8	19.1-95.3	19.1-95.3	0.9	2.7
	AL343	ST343	99.6	76.2	19.1-95.3	19.1-95.3	1.4	4.1
165	AL362	ST362	150.4	50.8	19.1-146.1	19.1-146.1	2.4	6.5
	AL363	ST363	150.4	76.2	19.1-146.1	19.1-146.1	3.4	9.7
	AL364	ST364	150.4	101.6	19.1-146.1	19.1-146.1	4.8	12.8
178	AL372	ST372	175.8	50.8	25.4-171.5	19.1-171.5	3.4	9.0
	AL373	ST373	175.8	76.2	25.4-171.5	19.1-171.5	5.1	13.4
210	AL382	ST382	201.2	50.8	25.4-196.9	19.1-196.9	4.8	11.9
	AL383	ST383	201.2	76.2	25.4-196.9	19.1-196.9	5.7	17.7
	AL384	ST384	201.2	101.6	25.4-196.9	19.1-196.9	8.9	23.7
250	AL3102	ST3102	252.0	50.8	25.4-247.7	19.1-247.7	6.8	18.7
	AL3103	ST3103	252.0	76.2	25.4-247.7	19.1-247.7	10.2	28.1
	AL3104	ST3104	252.0	101.6	25.4-247.7	19.1-247.7	13.6	37.5
315	AL3122	ST3122	302.8	50.8	25.4-298.5	19.1-298.5	10.1	25.5
	AL3123	ST3123	302.8	76.2	25.4-298.5	19.1-298.5	15.1	38.2
	AL3124	ST3124	302.8	101.6	25.4-298.5	19.1-298.5	20.1	50.9

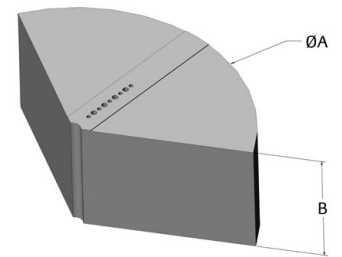


Microcentric Air Chuck Soft Jaws — Style R

Made with 2024 aluminum or 1018 steel

Dimensions in mm unless otherwise noted • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A WIDTH	B HEIGHT	C LENGTH	CHUCKING RANGE	
						INTERNAL	EXTERNAL
100	MC4150A	MC4150S	19.1	38.1	49.0	6.4-95.3	3.3-95.3
	MC4300A	MC4300S	19.1	76.2	49.0	6.4-95.3	3.3-95.3
165	MC6200A	MC6200S	25.4	50.8	75.1	6.4-146.1	3.3-146.1
	MC6300A	MC6300S	25.4	76.2	75.1	6.4-146.1	3.3-146.1
210	MC8200A	MC8200S	38.1	50.8	95.3	25.4-196.9	19.1-196.9
	MC8300A	MC8300S	38.1	76.2	95.3	25.4-196.9	19.1-196.9
	MC8400A	MC8400S	38.1	101.6	95.3	25.4-196.9	19.1-196.9
250	MC10200A	MC10200S	38.1	50.8	120.7	25.4-247.7	19.1-247.7
	MC10300A	MC10300S	38.1	76.2	120.7	25.4-247.7	19.1-247.7
	MC10400A	MC10400S	38.1	101.6	120.7	25.4-247.7	19.1-247.7



Microcentric Air Chuck Pie Jaws® — Style M

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

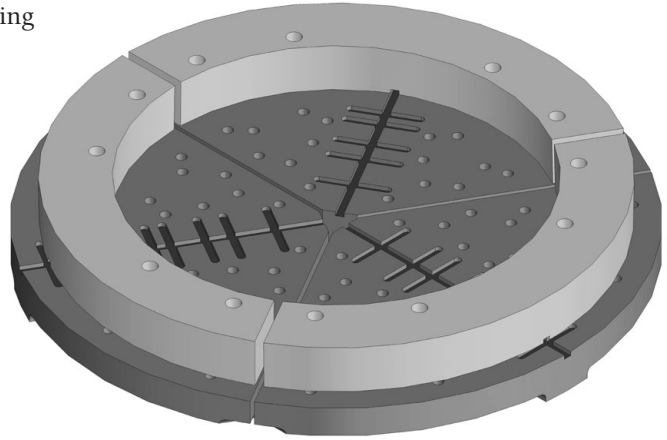
Dimensions in mm unless otherwise noted • Weights in kgs. • Custom configurations available

CHUCK	ALUMINUM PART#	STEEL PART#	A DIAMETER	B HEIGHT	CHUCKING RANGE		ALUMINUM WEIGHT	STEEL WEIGHT
					INTERNAL	EXTERNAL		
100	MC341	STMC341	99.6	25.4	19.1-95.3	19.1-95.3	0.5	1.4
	MC342	STMC342	99.6	50.8	19.1-95.3	19.1-95.3	0.9	2.7
	MC343	STMC343	99.6	76.2	19.1-95.3	19.1-95.3	1.4	4.1
165	MC361.5	STMC361.5	150.4	38.1	19.1-146.1	19.1-146.1	1.8	4.9
	MC362	STMC362	150.4	50.8	19.1-146.1	19.1-146.1	2.4	6.5
	MC363	STMC363	150.4	76.2	19.1-146.1	19.1-146.1	3.4	9.7
	MC364	STMC364	150.4	101.6	19.1-146.1	19.1-146.1	4.8	13.0
210	MC382	STMC382	201.2	50.8	25.4-196.9	19.1-196.9	4.8	11.9
	MC383	STMC383	201.2	76.2	25.4-196.9	19.1-196.9	5.7	17.9
	MC384	STMC384	201.2	101.6	25.4-196.9	19.1-196.9	8.9	23.7
250	MC3102	STMC3102	252.0	50.8	25.4-247.7	19.1-247.7	6.8	18.4
	MC3103	STMC3103	252.0	76.2	25.4-247.7	19.1-247.7	10.2	27.5
	MC3104	STMC3104	252.0	101.6	25.4-247.7	19.1-247.7	13.6	36.5
315	MC3122	STMC3122	304.8	50.8	25.4-298.5	19.1-298.5	10.1	27.3

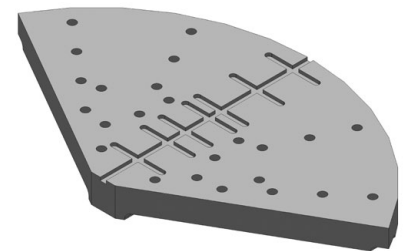
Master Plates

Abbott's master plate and segment system is a great choice for turning larger diameter work pieces. The system consists of an aluminum master plate, similar to a thin Pie Jaw®, which is pre-drilled and keyed to accommodate Abbott's standard, off-the-shelf segment rings. Plates are available in various diameters from 381 to 1524 mm and can be mounted on 200-1524 mm diameter chucks, effectively increasing the holding capability of smaller chucks. The master plate can be custom machined to fit any model chuck, making it a permanent universal fixture on any machine.

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



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

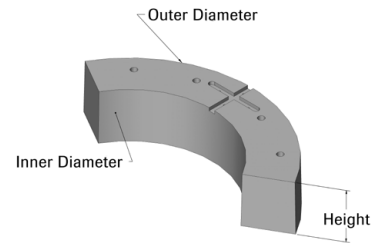


Master Plates — Style N

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in mm unless otherwise noted • Weights in kgs. • Custom configurations available

CHUCK RANGE	BASE PART#	DIAMETER	SEGMENT DIAMETER RANGE	WEIGHT
200+	15MP	381.0	0 I.D. UP TO 406.4 O.D.	16.4
250+	18MP	457.2	0 I.D. UP TO 558.8 O.D.	22.8
315+	21MP	533.4	0 I.D. UP TO 558.8 O.D.	30.7
315+	24MP	609.6	0 I.D. UP TO 660.4 O.D.	40.0
381+	30MP	762.0	0 I.D. UP TO 812.8 O.D.	63.0
450+	36MP	914.4	0 I.D. UP TO 1016.0 O.D.	90.4
610+	48MP	1219.2	0 I.D. UP TO 1371.6 O.D.	159.0
762+	60MP	1524.0	0 I.D. UP TO 1524.0 O.D.	248.7



Segments For Master Plates — Style O

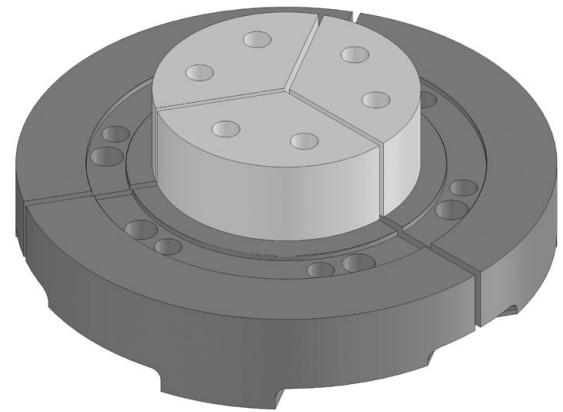
Made with 319 cast aluminum

Dimensions in mm unless otherwise noted • Weights in kgs. • Custom configurations available

PLATE SIZE	ALUMINUM PART#	A OUTSIDE DIAMETER	B INSIDE DIAMETER	C HEIGHT	WEIGHT	
381+	10SP2	254.0	N/A	50.8	7.0	
	10SP4	254.0	N/A	101.6	13.9	
	10SP6	254.0	N/A	152.4	21.4	
	10SP8	254.0	N/A	203.2	28.9	
	111SP2.5	279.4	25.4	63.5	10.5	
	121SP2.5	304.8	25.4	63.5	12.7	
	131SP2.5	330.2	25.4	63.5	14.9	
	144SP3	355.6	101.6	76.2	19.2	
	145SP3	355.6	127.0	76.2	18.3	
	157SP2	381.0	177.8	50.8	12.5	
	157SP4	381.0	177.8	101.6	25.2	
	157SP6	381.0	177.8	152.4	38.3	
	159SP2	381.0	228.6	50.8	10.2	
	159SP4	381.0	228.6	101.6	20.7	
	159SP6	381.0	228.6	152.4	31.5	
	159SP7	381.0	228.6	177.8	37.0	
	161SP4	406.4	25.4	101.6	36.7	
167SP3	406.4	177.8	76.2	22.2		
457+	1812SP2	457.2	304.8	50.8	12.4	
	1812SP4	457.2	304.8	101.6	25.4	
	1812SP6	457.2	304.8	152.4	38.5	
	1812SP8	457.2	304.8	203.2	52.0	
	199SP3	482.6	228.6	76.2	29.7	
	2112SP2	533.4	304.8	50.8	21.0	
	2210SP2	558.8	254.0	50.8	27.2	
	2210SP3	558.8	254.0	76.2	41.0	
	533+	2216SP2	558.8	406.4	50.8	16.1
2216SP4		558.8	406.4	101.6	32.5	
610+	2415SP2	609.6	381.0	50.8	25.0	
	2415SP4	609.6	381.0	101.6	50.2	
	2418SP2	609.6	457.2	50.8	17.9	
	2418SP4	609.6	457.2	101.6	36.0	
	2418SP6	609.6	457.2	152.4	54.5	
	2618SP2	660.4	457.2	50.8	25.1	
	2618SP4	660.4	457.2	101.6	50.5	
762+	3024SP2	762.0	609.6	50.8	23.0	
	3024SP4	762.0	609.6	101.6	46.6	
	3024SP6	762.0	609.6	152.4	70.8	
	3226SP4	812.8	660.4	101.6	50.2	
914+	3628SP4	914.4	711.2	101.6	73.9	
	3628SP6	914.4	711.2	152.4	112.0	
	3630SP2	914.4	762.0	50.8	28.4	
	3630SP4	914.4	762.0	101.6	57.3	
	3830SP4	965.2	762.0	101.6	78.7	
	4030SP2	1016.0	762.0	50.8	50.3	
	4030SP4	1016.0	762.0	101.6	101.2	
	1219+	4032SP4	1016.0	812.8	101.6	83.3
4232SP4		1066.8	812.8	101.6	107.0	
4236SP2		1066.8	914.4	50.8	33.5	
4236SP4		1066.8	914.4	101.6	67.9	
4434SP2		1117.6	863.6	50.8	56.0	
4434SP4		1117.6	863.6	101.6	112.9	
4838SP2		1219.2	965.2	50.8	61.9	
4842SP2		1219.2	1066.8	50.8	38.9	
4842SP4		1219.2	1066.8	101.6	88.5	
5040SP2		1270.0	1016.0	50.8	64.8	
5040SP4		1270.0	1016.0	101.6	130.5	
5440SP2		1371.6	1016.0	50.8	94.8	
1524		6050SP2	1524.0	1270.0	50.8	79.4

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 203, 254 and 305 mm diameters and can be mounted on 102-305 mm 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 mm unless otherwise noted • Weights in kgs. • Custom configurations available

CHUCK RANGE	BASE PART#	DIAMETER	SEGMENT DIAMETER RANGE	WEIGHT
102+	8MMP-P	203.2	0mm I.D. UP TO 202.2mm O.D.	4.5
127+	10MMP-P	254.0	0mm I.D. UP TO 253.0mm O.D.	7.0
152+	12MMP-P	304.8	0mm I.D. UP TO 303.8mm O.D.	10.3

Segments For Precision Master Plates — Style O

Made with 6061 T-6 condition aluminum

Dimensions in mm unless otherwise noted • Weights in kgs. • Custom configurations available

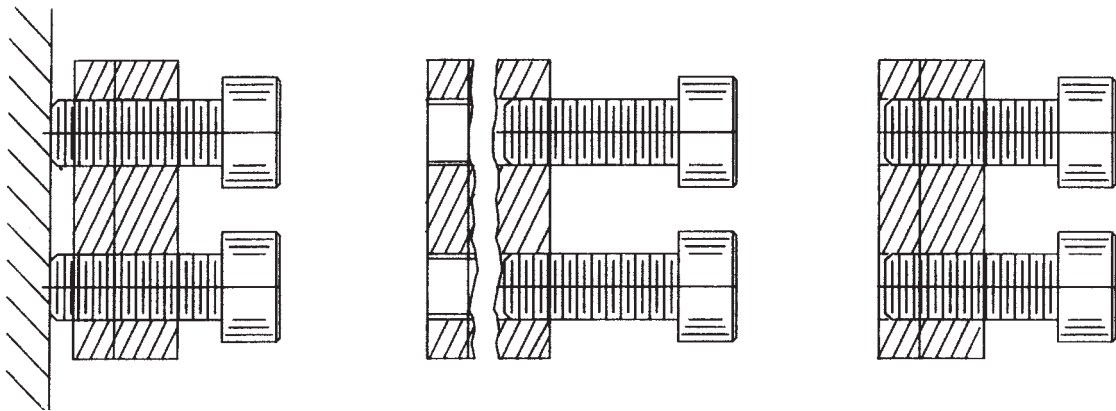
PLATE SIZE	ALUMINUM PART#	A OUTSIDE DIAMETER	B INSIDE DIAMETER	C HEIGHT	WEIGHT
203-305	6SP2M-P	151.4	N/A	50.8	2.3
	6SP4M-P	151.4	N/A	101.6	4.5
	8SP2M-P	202.2	N/A	50.8	4.0
	8SP4M-P	202.2	N/A	101.6	8.2
254-305	10SP2M-P	253.0	N/A	50.8	6.5
	10SP4M-P	253.0	N/A	101.6	12.9
	12SP2M-P	303.8	N/A	50.8	9.5
	12SP4M-P	303.8	N/A	101.6	19.1

Mounting Top Jaws

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

Now carefully mate the top jaw to the master jaw, making sure of a proper fit between all components. Insert jaw mounting bolts and tighten them evenly and firmly. Use

only high quality fasteners. CAUTION: IT IS CRITICAL THAT THE BOLTS BE OF PROPER LENGTH FOR THE PARTICULAR TOP JAWS BEING USED - see illustration below. Bolts that are TOO LONG will extend through the jaw nut, bottom out, and give the appearance of being properly torqued while not actually securing the top jaw in place. Bolts that are TOO SHORT will have insufficient thread engagement in the jaw nut, and could result in the jaw nut fracturing. Ensure that the master jaw still moves without binding.



Incorrect
Bolts too long

Incorrect
Bolts too short

Correct
Full engagement

Boring Soft Jaws

The accuracy and concentricity of the soft top jaws is established by precisely boring, or turning, the jaws while mounted on the chuck, in the gripping position. Always carry out this operation with the chuck jaws under pressure, in the same direction as they will be used. For external applications, load the chuck by gripping on a plug and bore the jaws to the dimension of the workpiece. For internal

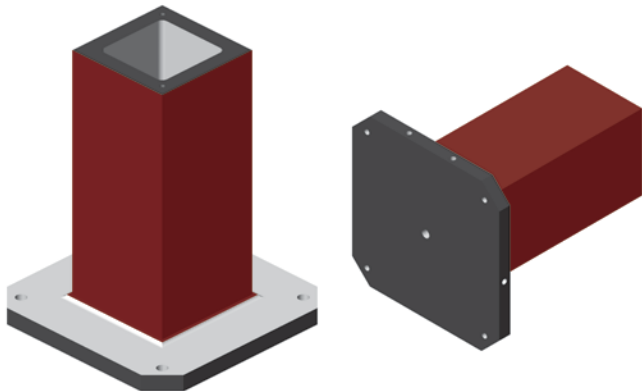
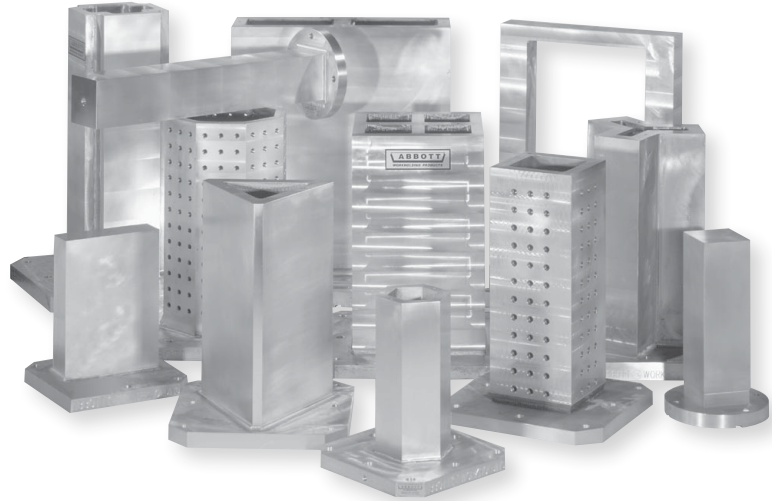
work, load the chuck by opening against a ring or band and turn the gripping surface to the dimension of the workpiece. The pre-loading operation can also be quickly and effectively done with a boring ring. Effective contact between the gripping surface of the jaws and the workpiece may be confirmed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

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

Tooling Columns

Tenzaloy™ Tooling Columns

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



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

Standard tooling column configurations

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

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

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

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

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

713 (Tenzaloy™)

General Advantages and Characteristics

High Strength

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

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

Elimination of Heat Treatment

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

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

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

Stress-free, Full-strength Castings

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

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

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

Dimensional Stability

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

Machinability

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

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

Anodizing

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

Brazing

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

Corrosion Resistance

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

General Applications

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

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

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

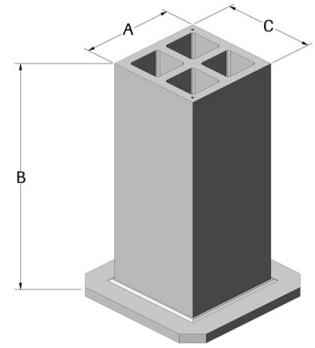
The ability to be brazed has resulted in the widespread use of Tenzaloy™ (cast by all methods) for such things as radar wave guide, plumbing and gasoline pump fittings.

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

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

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

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

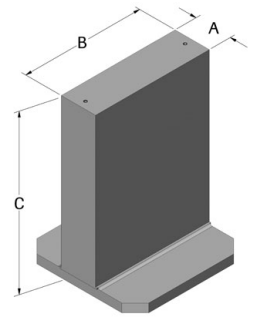


Square Tooling Columns

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in mm unless otherwise noted • Raw casting weights in kgs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
N426-400	102.0	660.0	102.0	400mm X 38mm	45
N518-400	127.0	457.0	127.0	400mm X 38mm	36
N522-400	127.0	559.0	127.0	400mm X 38mm	39
N618-400	152.0	457.0	152.0	400mm X 38mm	39
N626-400	152.0	660.0	152.0	400mm X 38mm	45
N818-400	203.0	457.0	203.0	400mm X 38mm	55
N824-400	203.0	610.0	203.0	400mm X 38mm	66
N828-400	203.0	711.0	203.0	400mm X 38mm	74
N828-500	203.0	711.0	203.0	500mm X 38mm	86
N1018-400	254.0	457.0	254.0	400mm X 38mm	70
N1024-400	254.0	610.0	254.0	400mm X 38mm	86
N1024-500	254.0	610.0	254.0	500mm X 38mm	98
N1028-400	254.0	711.0	254.0	400mm X 38mm	98
N1028-500	254.0	711.0	254.0	500mm X 38mm	110
N1034-500	254.0	864.0	254.0	500mm X 38mm	127
N1034-630	254.0	864.0	254.0	630mm X 38mm	145
N1218-400	305.0	457.0	305.0	400mm X 38mm	81
N1218-500	305.0	457.0	305.0	500mm X 38mm	92
N1224-400	305.0	610.0	305.0	400mm X 38mm	101
N1224-500	305.0	610.0	305.0	500mm X 38mm	113
N1228-400	305.0	711.0	305.0	400mm X 38mm	115
N1228-500	305.0	711.0	305.0	500mm X 38mm	127
N1232-500	305.0	813.0	305.0	500mm X 38mm	141
N1232-630	305.0	813.0	305.0	630mm X 38mm	160
NR1325-500	330.0	635.0	330.0	500mm X 38mm	155
NR1430-630	356.0	762.0	356.0	630mm X 44mm	220
N1525IB	384.0	635.0	384.0	INTERNAL BASE X 50mm	160
NR1624-500	406.0	610.0	406.0	500mm X 38mm	182
NR1628-500	406.0	711.0	406.0	500mm X 38mm	208
NR1628-630	406.0	711.0	406.0	630mm X 38mm	227
NR1638-630	406.0	965.0	406.0	630mm X 38mm	292
NR1828-630	457.0	711.0	457.0	630mm X 38mm	252
NR1838-630	457.0	965.0	457.0	630mm X 38mm	326
N2033IB	508.0	838.0	508.0	INTERNAL BASE X 44mm	231
N2236IB	559.0	914.0	559.0	INTERNAL BASE X 50mm	343
NR2238-630	559.0	965.0	559.0	630mm X 50mm	489
NR2438-800	610.0	965.0	610.0	800mm X 50mm	573
NR2442-800	610.0	1066.8	610.0	800mm X 50mm	625
NR2450-800	610.0	1270.0	610.0	800mm X 50mm	728
NR2946IB	730.0	1168.4	730.0	INTERNAL BASE X 57mm	863
NR3253-1000	813.0	1346.2	813.0	1000mm X 50mm	1258
NR3753-1000	940.0	1346.2	940.0	1000mm X 63mm	1144

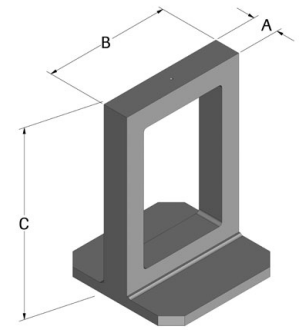


Two-Sided Tooling Columns

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in mm unless otherwise noted • Raw casting weights in kgs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
D31620-400	76.0	400.0	495.0	400mm X 38mm	71
D31311OF-300	89.0	330.0	279.0	300mm X 38mm	37
D4820-400	102.0	203.0	495.0	400mm X 38mm	54
D41218-400	102.0	305.0	457.0	400mm X 38mm	65
D41620-400	102.0	400.0	508.0	400mm X 38mm	85
D41624-400	102.0	400.0	610.0	400mm X 38mm	101
D41624OF-400	102.0	400.0	610.0	400mm X 38mm	99
D41624-500	102.0	406.0	610.0	500mm X 50mm	120
D42532-630	102.0	430.0	813.0	630mm X 50mm	226
D52234-550	127.0	551.0	876.0	550mm X 38mm	228
D61218-400	152.0	305.0	457.0	400mm X 38mm	85
D61628-400	152.0	400.0	711.0	400mm X 38mm	104
D61820-400	152.0	457.0	508.0	400mm X 38mm	97
D62028-500	152.0	500.0	711.0	500mm X 38mm	200
D62530-630	152.0	630.0	762.0	630mm X 50mm	285
D62835-630	152.0	711.0	899.0	630mm X 50mm	289
D63638-630	152.0	914.0	965.0	630mm X 50mm	465
D63753-1000	152.0	940.0	1346.2	1000mm X 50mm	746
D81624-400	203.0	400.0	610.0	400mm X 38mm	108
D81626-500	203.0	406.0	660.0	500mm X 63mm	142
D81628-400	203.0	400.0	711.0	400mm X 63mm	129
D82024-500	203.0	500.0	610.0	500mm X 38mm	130
D82029-500	203.0	500.0	737.0	500mm X 38mm	158
D82029-630	203.0	508.0	737.0	630mm X 38mm	171
D82035-500	203.0	500.0	889.0	500mm X 38mm	180
D82530-630	203.0	630.0	762.0	630mm X 38mm	231
D82634-630	203.0	660.0	864.0	630mm X 50mm	286
D83240	203.0	660.0	1016.0	813mm X 635mm X 50mm	338
D102029-500	254.0	500.0	737.0	500mm X 44mm	201
D102530-630	254.0	630.0	762.0	630mm X 50mm	258
D102536-630	254.0	630.0	914.0	630mm X 50mm	301
D102542-630	254.0	630.0	1066.8	630mm X 50mm	344
D103036-800	254.0	762.0	914.0	800mm X 50mm	372
D103042-800	254.0	762.0	1066.8	800mm X 50mm	422
D121521-500	305.0	381.0	533.0	500mm X 38mm	125
D122033-630	305.0	508.0	838.0	630mm X 38mm	213
D144949	356.0	1250.0	1250.0	1250mm X 700mm X 76mm	1147
D144949-X1	356.0	1250.0	1250.0	1000mm X 800mm X 76mm	1180

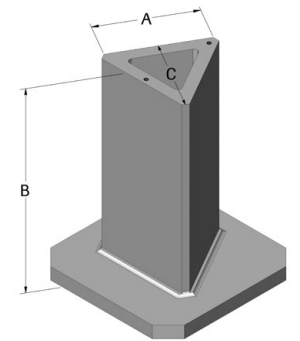


Window Tooling Columns

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in mm unless otherwise noted • Raw casting weights in kgs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
W31628-400	76.0	400.0	711.0	400mm X 38mm	61
W41620-400	102.0	100.0	508.0	400mm X 38mm	65
W42026OF-500	102.0	500.0	660.0	500mm X 44mm	88
W42029-500	102.0	500.0	737.0	500mm X 38mm	89
W42537-630	102.0	630.0	940.0	630mm X 50mm	160
W42633-500	102.0	660.0	838.0	500mm X 57mm	157
W43434-630	102.0	864.0	864.0	630mm X 50mm	169

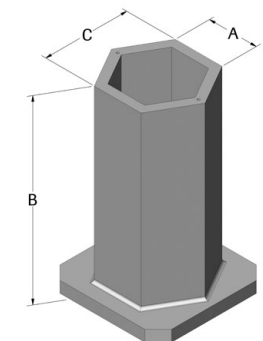


Triangle Tooling Columns

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in mm unless otherwise noted • Raw casting weights in kgs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
T6237-400	152.0	584.0	150.0	400mm X 50mm	74
T6287-400	152.0	711.0	180.0	400mm X 50mm	84
T6287-500	152.0	711.0	180.0	500mm X 50mm	100
T8288-400	213.0	711.0	206.0	400mm X 50mm	80
T10269-500	254.0	660.0	234.0	500mm X 44mm	91
T122611-500	300.0	660.0	277.0	500mm X 44mm	103
T142813-630	368.0	711.0	335.0	630mm X 44mm	148
T143813-630	368.0	965.2	335.0	630mm X 44mm	180

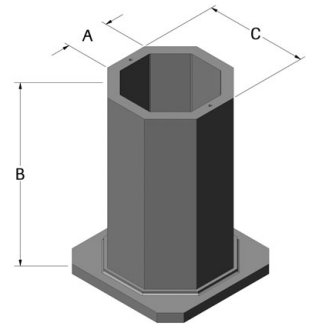


Hexagon Tooling Columns

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in mm unless otherwise noted • Raw casting weights in kgs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
H4187-400	102.0	457.0	178.0	400mm X 38mm	42
H5249-400	127.0	610.0	221.0	400mm X 38mm	69
H82414-500	203.0	610.0	353.0	500mm X 38mm	104
H82814-500	203.0	711.0	353.0	500mm X 38mm	116
H82814-630	203.0	711.0	353.0	630mm X 38mm	135
H92816-630	229.0	711.0	396.0	630mm X 44mm	166
H93616-630	229.0	914.0	396.0	630mm X 44mm	198
H165028-800	406.4	1270.0	706.1	800mm X 50mm	696

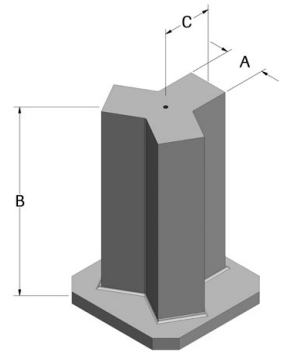


Octagon Tooling Columns

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in mm unless otherwise noted • Raw casting weights in kgs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
O42011-400	117.0	508.0	279.0	400mm X 38mm	65
O42811-400	117.0	711.0	279.0	400mm X 38mm	83
O42811-500	117.0	711.0	279.0	500mm X 38mm	95
O52312-500	127.0	584.0	307.0	500mm X 38mm	98
O52812-500	127.0	711.2	307.0	500mm X 38mm	112
O62416-500	165.0	610.0	399.0	500mm X 38mm	135
O62816-630	165.0	711.0	399.0	630mm X 38mm	173
O63616-500	165.0	914.4	399.0	500mm X 38mm	190
O63616-630	165.0	914.4	399.0	630mm X 38mm	209
O124229-1000	305.0	1066.8	737.0	1000mm X 50mm	547

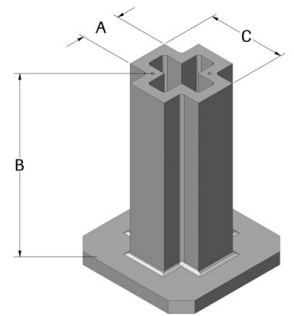


Y-Shaped Tooling Columns

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in mm unless otherwise noted • Raw casting weights in kgs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
Y3286-500	79.0	711.0	152	500mm X 38mm	101
Y5286-400	127.0	711.0	160	400mm X 38mm	130
Y5286-500	127.0	711.0	160	500mm X 38mm	141
Y6288-500	152.0	711.0	198	500mm X 50mm	149
Y6288-630	152.0	711.0	198	630mm X 50mm	172
Y7289-500	191.0	711.0	224	500mm X 50mm	140
Y7289-630	191.0	711.0	224	630mm X 50mm	171



X-Shaped Tooling Columns

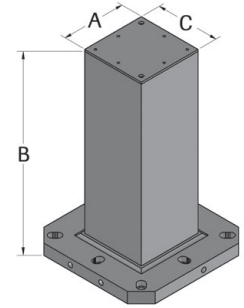
Made with 713 Tenzaloy™ aluminum alloy

Dimensions in mm unless otherwise noted • Raw casting weights in kgs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
X42812-500	102.0	711.0	305.0	500mm X 38mm	138
X4248-300	114.0	610.0	203.0	300mm X 38mm	72
X62812-500	152.0	711.0	305.0	500mm X 50mm	128
X62812-630	152.0	711.0	305.0	630mm X 50mm	152
X63412-500	152.0	864.0	305.0	500mm X 50mm	147
X63812-630	152.0	965.0	305.0	630mm X 50mm	184
X62810-400	165.0	711.0	254.0	400mm X 44mm	121
X62810-500	165.0	711.0	254.0	500mm X 44mm	135
X82812-500	203.0	711.0	305.0	500mm X 50mm	135
X83812-630	203.0	965.0	305.0	630mm x 50mm	195
XR83620-630	203.0	914.0	508.0	630mm X 50mm	342
XR103620-630	254.0	914.0	508.0	630mm X 50mm	316

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.

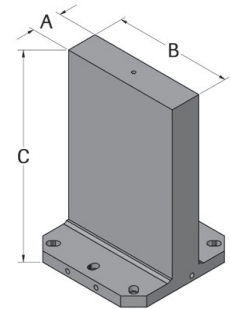


Square Configurations

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in mm unless otherwise noted • Finished weight in kgs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
N824-400UM	203.0	610.0	203.0	400mm x 38mm	53
N1028-400UM	254.0	711.2	254.0	400mm x 38mm	81
N1028-500UM	254.0	711.0	254.0	500mm x 38mm	90
N1232-500UM	305.0	813.0	905.0	500mm x 38mm	117



Two-Sided Configurations

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in mm unless otherwise noted • Finished weight in kgs. • Custom configurations available

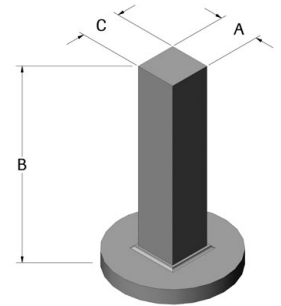
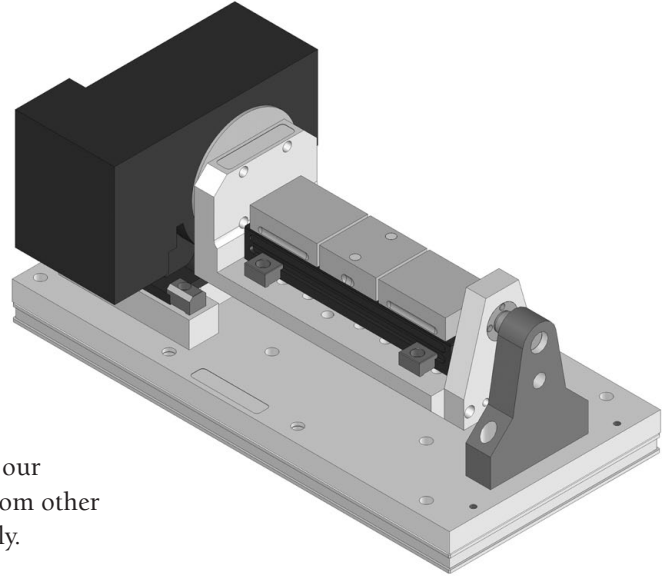
PART NUMBER	A	B	C	BASE SIZE	WEIGHT
D41624-400UM	102.0	400.0	508.0	400mm X 38mm	82
D62028-500UM	152.0	500.0	711.2	500mm x 38mm	172

4th Axis/Indexer Fixturing

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

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

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



Round Base Tooling Columns

Made with 713 Tenzaloy™ aluminum alloy

Dimensions in mm unless otherwise noted • Raw casting weights in kgs. • Custom configurations available

PART NUMBER	A	B	C	BASE SIZE	WEIGHT
D3621-6RB	76.0	533.0	152.0	165mm DIA X 38mm	24
N412-6RB	102.0	305.0	102.0	150mm DIA X 25mm	13
N420-12RB	102.0	508.0	102.0	300mm DIA X 38mm	28
N428-15RB	102.0	711.0	102.0	380mm DIA X 38mm	41
N620-12RB	152.0	508.0	152.0	300mm DIA X 38mm	47
N628-12RB	152.0	711.2	152.0	300mm DIA X 38mm	63
N637-12RB	152.0	940.0	152.0	300mm DIA X 38mm	80
N675-9RB	152.0	1905.0	152.0	228mm DIA X 38mm	150

Standard tooling column configurations

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

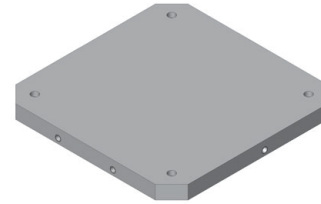
BO (base only)—tooling column with overall height machined, base machined to fit pallet and sides as cast

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

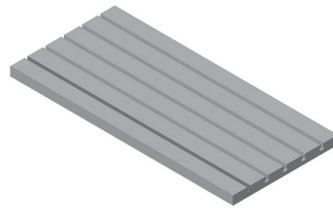
- Add "BO" or "BS" to end of part number to denote base only or base & sides configurations
- Columns are designed to be machined to listed nominal dimensions
- As cast areas have additional stock
- Larger & smaller size bases available upon request

Sub Plates

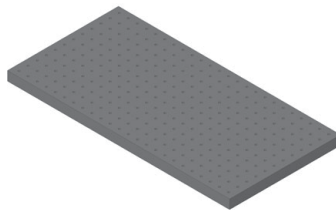
Generally manufactured from MIC6 cast aluminum tooling plate or A36 steel plate, custom sub plates can be made to any thickness, length and width required. They can be machined with custom grid patterns, T-slots and other features to customer specifications and are available with or without any required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



Sub Plate — Plain



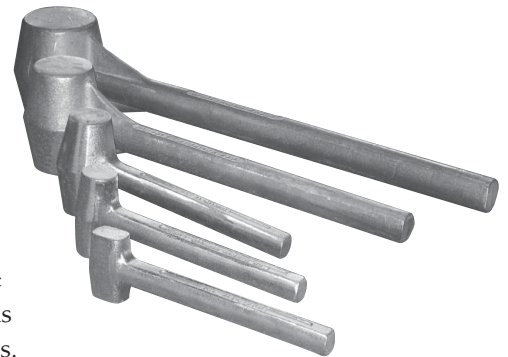
Sub Plate — T-Slot



Sub Plate — Grid Pattern

Aluminum Hammers

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



Aluminum Hammers

Dimensions in mm unless otherwise noted • Weights in kgs. • Custom configurations available

PART #	ALLOY	FACE SIZE	LENGTH	WEIGHT
0HAMMER	A100	25.4mm X 41.3mm	304.8	0.6
1HAMMER	A100	41.3mm DIA	304.8	0.8
2HAMMER	A100	50.8mm DIA	330.2	1.5
5HAMMER	713	76.2mm DIA	558.8	4.1
10HAMMER	713	101.6mm DIA	736.6	7.4

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.

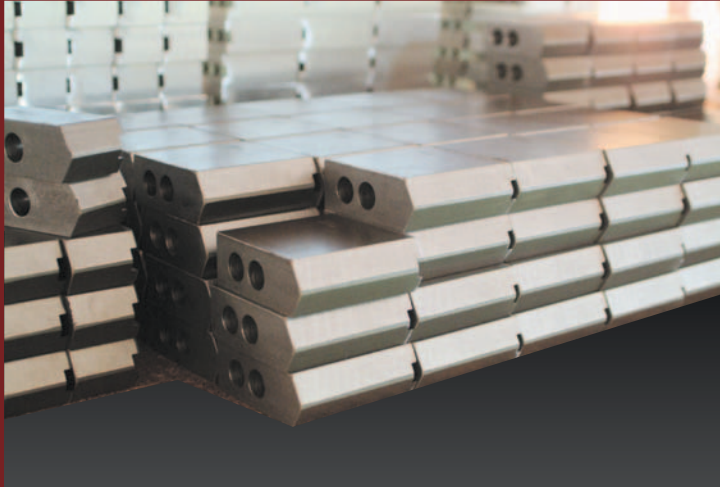
After 6 months from invoice date, goods may not be returned unless special circumstances exist and return is approved by Abbott.

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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Since 1954