CRITERION ALLIED, INC.

Modular Boring Systems

Catalog 2013

www.alliedmachine.com

Made in the U.S.A.

Represented by:

Allied Machine & Engineering Corp is Registered by U.L. to ISO 9001:2008

CRITERION ALLIED, INC.

For over 75 years, Criterion Allied, Inc., formerly Criterion Machine Works, has supplied a variety of industries with boring tool products that have increased productivity and improved precision. With the introduction of Criterion's revolutionary CBER® Boring System, manufacturers eliminate the need for special holders for precision boring heads.

Our focus on product excellence and service to the customer enable us to deliver outstanding results in a diverse range of manufacturing, production and process engineering industries. As a result, Allied's high performance tooling is helping countless businesses across the world to produce better products with greater accuracy, increased speed, and higher quality.

Precision, performance, and productivity are core features of Allied tooling. Our commitment to innovation in all aspects of hole making technology means we continually set new industry standards in production efficiency, tool life, and manufacturing cost improvements.

This product catalog provides detailed information on products in a comprehensive, easy to use, and informative single source reference guide. However, we recognize that every company's needs are unique, which is why our customer service and technical support teams are always available to provide help and advice, should you need it.

Whatever you need, Criterion Allied, Inc. delivers high performance tooling on the cutting edge.

⚠ WARNING

Tool failure during use can cause serious injury. Follow safety precautions and instructions that accompany machinery and all tools.

Wear safety glasses and appropriate safety equipment at all times when machinery is operating.

Contents

This catalog contains important messages that pertain to proper use of the products shown in this catalog. Always read and follow all precautions that use these words.

NOTICE means that failure to follow the precautions in this message could result in damage to the tool or machine but not result in personal injury

NOTE and **IMPORTANT** are also used. These are important that you read and follow but are not safety-related.

Visit www.alliedmachine.com for the most up-to-date information and procedures.

Services and Support

AMEC's success is not just a result of our quality products and high performance solutions, but also the level of technical support and expertise we provide on a constant basis to all of our customers through a range of dedicated services.

Online Services

AMEC's website hosts a number of key features for distributors, one being our online ordering service that simplifies and speeds up the ordering process and can also be used for checking inventory and pricing. Available to distributors and end-users is our fast response **Insta-Quote**™ online quoting system that provides quotes and drawings for special purpose tooling online in a matter of minutes.

All of our case studies, product literature, industry sector information and a wealth of other data is also available through our website, which is constantly updated with the latest details to ensure up-to-date information is available for download. Visit **www.alliedmachine.com**.

Technical Support

Our technical department is staffed by AMEC experts who have years of experience in helping customers meet demanding application challenges with high performance AMEC tooling. They are also able to provide technical support on a wide range of industry sectors via our technical helpline, which can help customers save time and money when a solution is needed quickly.

We also have an excellent and unique reference library of technical case studies and cutting data, which is compiled from information and experience gained from our global applications base. The chances are that if you have an application issue or problem, we've probably already solved it somewhere in the world.

External Support

Our Field Sales Engineers (FSE's) provide a constant "on-the-ground" support network, helping solve manufacturing problems on site and provide the most effective solutions.

Customer Service

The most important aspect of our business is our customers. Our customer care processes and support operations are vital and integral parts of our commitment to customers.

Sometimes, all that's needed is a helpful and friendly voice at the end of a telephone to check an order, answer a query, or just point you in the right direction, and our fully trained team is always available to help. No matter what your requirement, we'll have someone who can handle your question quickly and effectively.

Training

AMEC holds regular Technical Education Seminar (TES) training courses in our training facility in Dover, Ohio. These classes allow customers to experience the advanced AMEC hole-making solutions and gain deeper knowledge on their applications. The seminars cover technical data, cutting technology, tool application, and benefits of all AMEC products as well as extensive and detailed on-machine training to demonstrate the tools in action. Details and listings for TES courses can be found at **www.alliedmachine.com/TES.aspx**.

TES
Technical Education Seminar

Boring Heads

CONTENTS

NOTE:
If service or repair is required, these heads should be returned to your distributor or our factory.

Features & Benefits

- **Large mounting surface for rigidity and stability**
- **Standard adjustment .001" on diameter**
- **Micro-adjustment .00005" on diameter**
- **Large boring ranges**
- **Dials are direct diameter movement**

Modular Boring System Ranges

Cri-Twin® Modular Boring System

Description	Min. Bore Dia.	Max. Bore Dia.
CT1000	1.100	1.500
CT1250	1.400	1.900
CT1500	1.600	2.500
CT2000	2.100	3.100
CT3000	3.100	5.000

Cri-Bore Modular Boring System

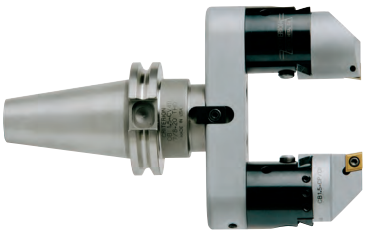
Description	Min. Bore Dia.	Max. Bore Dia.
CB1000	1.050	1.320
CB1250	1.300	1.600
CB1500	1.585	2.700
CB2000	2.060	3.320
CB3000	3.065	5.065
CB4000	4.180	7.380

Cri-Tip Boring System

Description	Min. Bore Dia.	Max. Bore Dia.
Big® Kaiser® Connection	.050	5.125
Komet® ABS® Connection	.050	5.125

Large Cri-Bore System

Description	Min. Bore Dia.	Max. Bore Dia.
O.D. Boring	.710	7.830
I.D. Boring	5.000	12.125



CB Boring Heads

Description	Center Hole		Outboard Hole		Cross Hole	
	Min Dia.	Max Dia.	Min Dia.	Max Dia.	Min Dia.	Max Dia.*
CB-1500B	.050	1.625	–	–	–	–
CB-2375A	.050	1.625	1.000	2.500	–	–
CB-202	.050	1.750	1.312	3.000	2.875	6.687
CB-203	.500	3.250	2.000	5.125	4.937	11.000
CB-204	.500	4.500	3.000	7.000	5.625	13.437
CB-206	1.750	5.750	5.500	9.500	9.093	21.500
CB-1500AMA	.050	1.625	1.000	2.500	–	–
CB-2500MA	.050	1.750	1.312	3.000	–	–
CB-3000MA	.050	3.250	2.375	5.125	–	–

***NOTICE:** Maximum bore diameter based upon CHB bars being secured in the bar holder with at least 2 set screws

Boring & Facing Heads

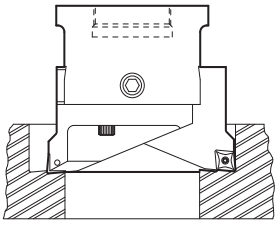
Description	Center Hole		Outboard Hole		Cross Hole	
	Min Dia.	Max Dia.	Min Dia.	Max Dia.	Min Dia.	Max Dia.*
BF M/C-3000	.500	2.875	2.375	4.750	4.937	10.625

***NOTICE:** Maximum bore diameter based upon CHB bars being secured in the bar holder with at least 2 set screws

Cri-Twin® Boring Heads

Standard Adjusting

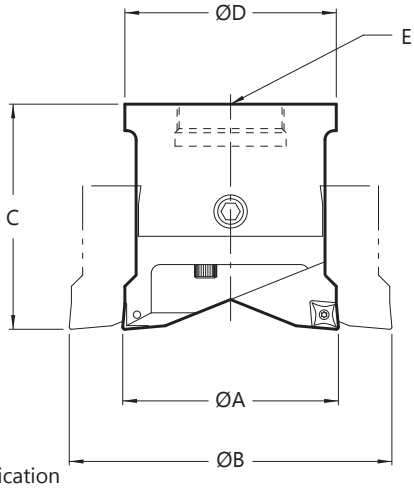
- Remove twice the amount of material with a standard and short insert holder
- Rough and finish in the same operation with a standard and short insert holder
- Remove material twice as fast with two insert holders of the same length



CTXXXX-0 units have a 0° lead angle so they produce a flat bottom

CTXXXX-1 and 2 units have a 5° lead angle

CTXXXX-2 units can be offset to remove twice the amount of material as illustrated



See page 63 for choosing the correct insert holder length for your application

Inch

.001" Adjustment on Diameter

Part No.	Bore Diameter		C	ØD	E	Insert			Insert Holder Type	
	MIN ØA	MAX ØB				I.C.	Thickness	Shape/Style	Side 1	Side 2
CT1000-0	1.100	1.500	1.870	1.00	7/8-20	.250	.094	CP or CC	Zero Lead	Zero Lead
CT1000-1	1.100	1.500	1.900	1.00	7/8-20	.250	.094	CP or CC	Standard	Standard
CT1000-2	1.100	1.500	1.900	1.00	7/8-20	.250	.094	CP or CC	Standard	Short
CT1250-0	1.400	1.900	1.870	1.25	7/8-20	.250	.094	CP or CC	Zero Lead	Zero Lead
CT1250-1	1.400	1.900	1.900	1.25	7/8-20	.250	.094	CP or CC	Standard	Standard
CT1250-2	1.400	1.900	1.900	1.25	7/8-20	.250	.094	CP or CC	Standard	Short
CT1500-0	1.600	2.500	2.570	1.50	7/8-20	.375	.156	CP or CC	Zero Lead	Zero Lead
CT1500-1	1.600	2.500	2.600	1.50	7/8-20	.375	.156	CP or CC	Standard	Standard
CT1500-2	1.600	2.500	2.600	1.50	7/8-20	.375	.156	CP or CC	Standard	Short
CT2000-0	2.100	3.100	2.500	2.00	7/8-20	.375	.156	CP or CC	Zero Lead	Zero Lead
CT2000-1	2.100	3.100	2.500	2.00	7/8-20	.375	.156	CP or CC	Standard	Standard
CT2000-2	2.100	3.100	2.500	2.00	7/8-20	.375	.156	CP or CC	Standard	Short
CT3000-0	3.100	5.000	3.170	3.00	1-1/2-18	.375	.156	CP or CC	Zero Lead	Zero Lead
CT3000-1	3.100	5.000	3.200	3.00	1-1/2-18	.375	.156	CP or CC	Standard	Standard
CT3000-2	3.100	5.000	3.200	3.00	1-1/2-18	.375	.156	CP or CC	Standard	Short

Metric

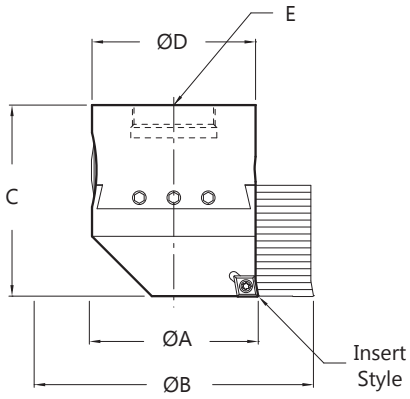
.025mm Adjustment on Diameter

Part No.	Bore Diameter		C	ØD	E	Insert			Insert Holder Type	
	MIN ØA	MAX ØB				I.C.	Thickness	Shape/Style	Side 1	Side 2
CT025M-0	28	38	48	25	7/8-20	6,35	2,39	CP or CC	Zero Lead	Zero Lead
CT025M-1	28	38	48	25	7/8-20	6,35	2,39	CP or CC	Standard	Standard
CT025M-2	28	38	48	25	7/8-20	6,35	2,39	CP or CC	Standard	Short
CT032M-0	28	38	48	32	7/8-20	6,35	2,39	CP or CC	Zero Lead	Zero Lead
CT032M-1	36	48	48	32	7/8-20	6,35	2,39	CP or CC	Standard	Standard
CT032M-2	36	48	48	32	7/8-20	6,35	2,39	CP or CC	Standard	Short
CT038M-0	41	63	66	38	7/8-20	9,53	3,96	CP or CC	Zero Lead	Zero Lead
CT038M-1	41	63	66	38	7/8-20	9,53	3,96	CP or CC	Standard	Standard
CT038M-2	41	63	66	38	7/8-20	9,53	3,96	CP or CC	Standard	Short
CT050M-0	54	78	64	50	7/8-20	9,53	3,96	CP or CC	Zero Lead	Zero Lead
CT050M-1	54	78	64	50	7/8-20	9,53	3,96	CP or CC	Standard	Standard
CT050M-2	54	78	64	50	7/8-20	9,53	3,96	CP or CC	Standard	Short
CT076M-0	79	127	81	76	1-1/2-18	9,53	3,96	CP or CC	Zero Lead	Zero Lead
CT076M-1	79	127	81	76	1-1/2-18	9,53	3,96	CP or CC	Standard	Standard
CT076M-2	79	127	81	76	1-1/2-18	9,53	3,96	CP or CC	Standard	Short

Cri-Bore Boring Heads

Standard Adjusting

- Excellent for finish boring



Inch

.001" Adjustment on Diameter

Part No.	Bore Diameter		C	ØD	E	Insert		
	MIN ØA	MAX ØB				I.C.	Thickness	Shape/Style
CB1000-TP	1.050	1.320	1.980	1.000	7/8-20	.250	.094	TP
CB1000-CP	1.050	1.320	1.980	1.000	7/8-20	.250	.094	CP or CC
CB1250-TP	1.300	1.600	2.210	1.250	7/8-20	.250	.094	TP
CB1250-CP	1.300	1.600	2.210	1.250	7/8-20	.250	.094	CP or CC
▶CB1500-TP	1.585	2.700	2.480	1.500	7/8-20	.375	.125	TP
▶CB1500-CP	1.585	2.700	2.480	1.500	7/8-20	.375	.156	CP or CC
CB2000-TP	2.060	3.320	2.735	2.000	7/8-20	.375	.125	TP
CB2000-CP	2.060	3.320	2.735	2.000	7/8-20	.375	.156	CP or CC
CB3000-TP	3.065	5.065	3.465	3.000	1-1/2-18	.375	.125	TP
CB3000-CP	3.065	5.065	3.465	3.000	1-1/2-18	.375	.156	CP or CC
CB4000-TP	4.100	7.300	3.970	4.000	1-1/2-18	.375	.125	TP
CB4000-CP	4.180	7.380	3.970	4.000	1-1/2-18	.500	.188	CC

▶ **Can be used with Large Cri-Bore extender bar (see page 49) and shanks (page 26)**

Metric

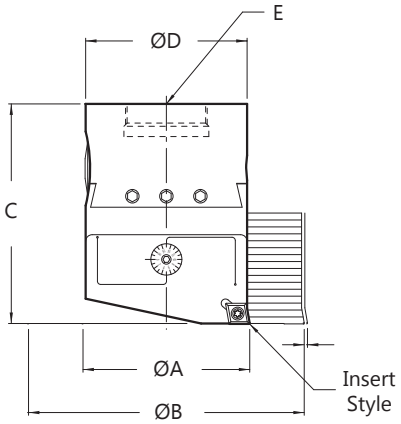
.025mm Adjustment on Diameter

Part No.	Bore Diameter		C	ØD	E	Insert		
	MIN ØA	MAX ØB				I.C.	Thickness	Shape/Style
CB-025M-TP	27	33	50	25	7/8-20	6,35	2,39	TP
CB-025M-CP	27	33	50	25	7/8-20	6,35	2,39	CP or CC
CB-032M-TP	33	41	56	32	7/8-20	6,35	2,39	TP
CB-032M-CP	33	41	56	32	7/8-20	6,35	2,39	CP or CC
CB-038M-TP	41	68	63	38	7/8-20	9,53	3,18	TP
CB-038M-CP	41	68	63	38	7/8-20	9,53	3,96	CP or CC
CB-050M-TP	53	84	69	50	7/8-20	9,53	3,18	TP
CB-050M-CP	53	84	69	50	7/8-20	9,53	3,96	CP or CC
CB-076M-TP	78	128	88	76	1-1/2-18	9,53	3,18	TP
CB-076M-CP	78	128	88	76	1-1/2-18	9,53	3,96	CP or CC
CB-101M-TP	104	185	101	101	1-1/2-18	9,53	3,18	TP
CB-101M-CP	106	187	101	101	1-1/2-18	12,70	4,76	CC

Cri-Bore Boring Heads

Micro Adjusting

- Excellent for close tolerance boring
- Total range of micro adjustment is .006" (.150mm) on diameter



Inch

.00005" Adjustment on Diameter

Part No.	Bore Diameter		C	ØD	E	Insert		
	MIN ØA	MAX ØB				I.C.	Thickness	Shape/Style
CB1000-TPMA	1.050	1.320	2.580	1.000	7/8-20	.250	.094	TP
CB1000-CPMA	1.050	1.320	2.580	1.000	7/8-20	.250	.094	CP or CC
CB1250-TPMA	1.300	1.600	2.810	1.250	7/8-20	.250	.094	TP
CB1250-CPMA	1.300	1.600	2.810	1.250	7/8-20	.250	.094	CP or CC
▶ CP1500-TPMA	1.585	2.700	3.180	1.500	7/8-20	.375	.125	TP
▶ CP1500-CPMA	1.585	2.700	3.180	1.500	7/8-20	.375	.156	CP or CC
CB2000-TPMA	2.060	3.320	3.530	2.000	7/8-20	.375	.125	TP
CB2000-CPMA	2.060	3.320	3.530	2.000	7/8-20	.375	.156	CP or CC
CB3000-TPMA	3.065	5.065	4.090	3.000	1-1/2-18	.375	.125	TP
CB3000-CPMA	3.065	5.065	4.090	3.000	1-1/2-18	.375	.156	CP or CC

▶ **Can be used with Large Cri-Bore extender bar (see page 49) and shanks (page 26)**

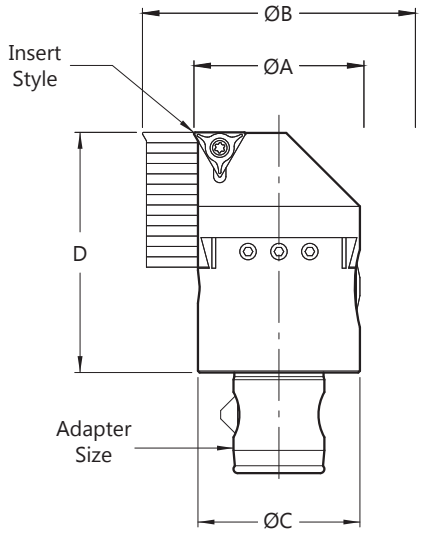
Metric

.0012mm Adjustment on Diameter

Part No.	Bore Diameter		C	ØD	E	Insert		
	MIN ØA	MAX ØB				I.C.	Thickness	Shape/Style
CB-025M-TPMA	27	33	65	25	7/8-20	6,35	2,39	TP
CB-025M-CPMA	27	33	65	25	7/8-20	6,35	2,39	CP or CC
CB-032M-TPMA	33	41	71	32	7/8-20	6,35	2,39	TP
CB-032M-CPMA	33	41	71	32	7/8-20	6,35	2,39	CP or CC
CB-038M-TPMA	41	68	81	38	7/8-20	9,53	3,18	TP
CB-038M-CPMA	41	68	81	38	7/8-20	9,53	3,96	CP or CC
CB-050M-TPMA	53	84	90	50	7/8-20	9,53	3,18	TP
CB-050M-CPMA	53	84	90	50	7/8-20	9,53	3,96	CP or CC
CB-076M-TPMA	78	128	104	76	1-1/2-18	9,53	3,18	TP
CB-076M-CPMA	78	128	104	76	1-1/2-18	9,53	3,96	CP or CC

Komet® ABS® Connection

Standard Adjusting



Inch

.001" Adjustment on Diameter

Part No.	Bore Diameter		ØC	D	Insert			Adapter Size
	MIN ØA	MAX ØB			I.C.	Thickness	Shape/Style	
CTP1500-A40TP	1.585	2.700	1.500	2.305	.375	.125	TP	A40
CTP1500-A40CP	1.585	2.700	1.500	2.305	.375	.156	CP or CC	A40
CTP1500-A50TP	1.585	2.700	1.500	2.305	.375	.125	TP	A50
CTP1500-A50CP	1.585	2.700	1.500	2.305	.375	.156	CP or CC	A50
CTP2000-A50TP	2.060	3.320	2.000	2.740	.375	.125	TP	A50
CTP2000-A50CP	2.060	3.320	2.000	2.740	.375	.156	CP or CC	A50
CTP3000-A80TP	3.065	5.065	3.000	3.937	.375	.125	TP	A80
CTP3000-A80CP	3.065	5.060	3.000	3.937	.375	.156	CP or CC	A80

Metric

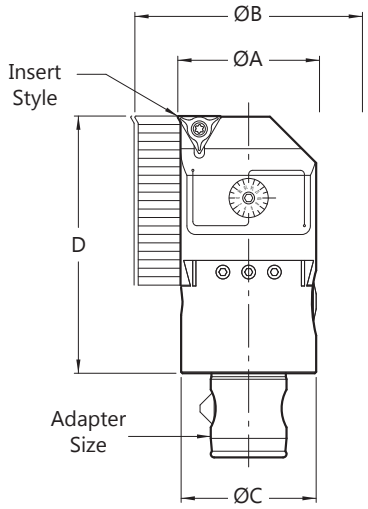
.025mm Adjustment on Diameter

Part No.	Bore Diameter		ØC	D	Insert			Adapter Size
	MIN ØA	MAX ØB			I.C.	Thickness	Shape/Style	
CTP038M-A40TP	1.585	2.700	1.500	2.305	9,53	3,18	TP	A40
CTP038M-A40CP	1.585	2.700	1.500	2.305	9,53	3,96	CP or CC	A40
CTP038M-A50TP	1.585	2.700	1.500	2.305	9,53	3,18	TP	A50
CTP038M-A50CP	1.585	2.700	1.500	2.305	9,53	3,96	CP or CC	A50
CTP050M-A50TP	2.060	3.320	2.000	2.740	9,53	3,18	TP	A50
CTP050M-A50CP	2.060	3.320	2.000	2.740	9,53	3,96	CP or CC	A50
CTP076M-A80TP	3.065	5.065	3.000	3.937	9,53	3,18	TP	A80
CTP076M-A80CP	3.065	5.060	3.000	3.937	9,53	3,96	CP or CC	A80

Komet® ABS® Connection

Micro Adjusting

- Total range of micro adjustment is .006" (.150mm) on diameter



Inch

.00005" Adjustment on Diameter

Part No.	Bore Diameter		ØC	D	Insert			Adapter Size
	MIN ØA	MAX ØB			I.C.	Thickness	Shape/Style	
CTP1500-A40TPMA	1.585	2.700	1.500	2.305	.375	.125	TP	A40
CTP1500-A40CPMA	1.585	2.700	1.500	2.305	.375	.156	CP or CC	A40
CTP1500-A50TPMA	1.585	2.700	1.500	2.305	.375	.125	TP	A50
CTP1500-A50CPMA	1.585	2.700	1.500	2.305	.375	.156	CP or CC	A50
CTP2000-A50TPMA	2.060	3.320	2.000	2.740	.375	.125	TP	A50
CTP2000-A50CPMA	2.060	3.320	2.000	2.740	.375	.156	CP or CC	A50
CTP3000-A80TPMA	3.065	5.065	3.000	3.937	.375	.125	TP	A80
CTP3000-A80CPMA	3.065	5.060	3.000	3.937	.375	.156	CP or CC	A80

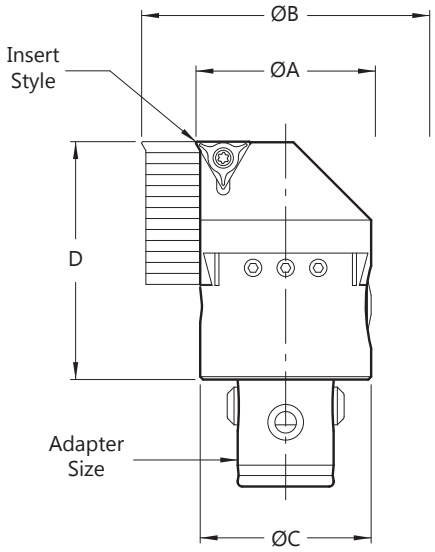
Metric

.0012mm Adjustment on Diameter

Part No.	Bore Diameter		ØC	D	Insert			Adapter Size
	MIN ØA	MAX ØB			I.C.	Thickness	Shape/Style	
CTP038M-A40TPMA	41	68	38	58	9,53	3,18	TP	A40
CTP038M-A04CPMA	41	68	38	58	9,53	3,96	CP or CC	A40
CTP038M-A50TPMA	41	68	38	58	9,53	3,18	TP	A50
CTP038M-A50CPMA	41	68	38	58	9,53	3,96	CP or CC	A50
CTP050M-A50TPMA	53	84	50	69	9,53	3,18	TP	A50
CTP050M-A50CPMA	53	84	50	69	9,53	3,96	CP or CC	A50
CTP076M-A80TPMA	78	128	76	99	9,53	3,18	TP	A80
CTP076M-A80CPMA	78	128	76	99	9,53	3,96	CP or CC	A80

Big® Kaiser® Connection

Standard Adjusting



Inch

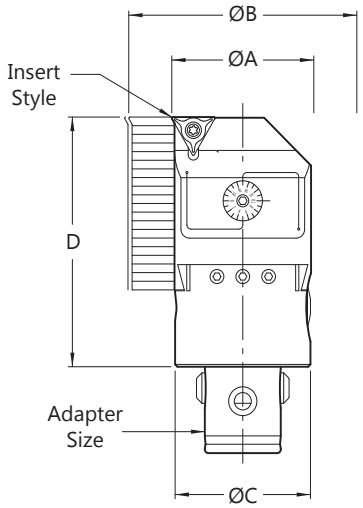
.001" Adjustment on Diameter

Part No.	Bore Diameter		ØC	D	Insert			Adapter Size
	MIN ØA	MAX ØB			I.C.	Thickness	Shape/Style	
CTP1500-K4TP	1.585	2.700	1.500	2.305	0.375	0.125	TP	KA4
CTP1500-K4CP	1.585	2.700	1.500	2.305	0.375	0.156	CP or CC	KA4
CTP1500-K5TP	1.585	2.700	1.500	2.305	0.375	0.125	TP	KA5
CTP1500-K5CP	1.585	2.700	1.500	2.305	0.375	0.156	CP or CC	KA5
CTP2000-K5TP	2.060	3.320	2.000	2.740	0.375	0.125	TP	KA5
CTP2000-K5CP	2.060	3.320	2.000	2.740	0.375	0.156	CP or CC	KA5
CTP3000-K7TP	3.065	5.065	3.000	3.937	0.375	0.125	TP	KA7
CTP3000-K7CP	3.065	5.060	3.000	3.937	0.375	0.156	CP or CC	KA7

Metric

.025mm Adjustment on Diameter

Part No.	Bore Diameter		ØC	D	Insert			Adapter Size
	MIN ØA	MAX ØB			I.C.	Thickness	Shape/Style	
CTP1500-K4TPMA	1.585	2.700	1.500	2.305	9,53	3,18	TP	KA4
CTP1500-K4CPMA	1.585	2.700	1.500	2.305	9,53	3,96	CP or CC	KA4
CTP1500-K5TPMA	1.585	2.700	1.500	2.305	9,53	3,18	TP	KA5
CTP1500-K5CPMA	1.585	2.700	1.500	2.305	9,53	3,96	CP or CC	KA5
CTP2000-K5TPMA	2.060	3.320	2.000	2.740	9,53	3,18	TP	KA5
CTP2000-K5CPMA	2.060	3.320	2.000	2.740	9,53	3,96	CP or CC	KA5
CTP3000-K7TPMA	3.065	5.065	3.000	3.937	9,53	3,18	TP	KA7
CTP3000-K7CPMA	3.065	5.060	3.000	3.937	9,53	3,96	CP or CC	KA7



- Total range of micro adjustment is .006" (.150mm) on diameter

Inch

.00005" Adjustment on Diameter

Part No.	Bore Diameter		ØC	D	Insert			Adapter Size
	MIN ØA	MAX ØB			I.C.	Thickness	Shape/Style	
CTP038M-K4TP	1.585	2.700	1.500	2.305	0.375	0.125	TP	KA4
CTP038M-K4CP	1.585	2.700	1.500	2.305	0.375	0.156	CP or CC	KA4
CTP038M-K5TP	1.585	2.700	1.500	2.305	0.375	0.125	TP	KA5
CTP038M-K5CP	1.585	2.700	1.500	2.305	0.375	0.156	CP or CC	KA5
CTP050M-K5TP	2.060	3.320	2.000	2.740	0.375	0.125	TP	KA5
CTP050M-K5CP	2.060	3.320	2.000	2.740	0.375	0.156	CP or CC	KA5
CTP076M-K7TP	3.065	5.065	3.000	3.937	0.375	0.125	TP	KA7
CTP076M-K7CP	3.065	5.060	3.000	3.937	0.375	0.156	CP or CC	KA7

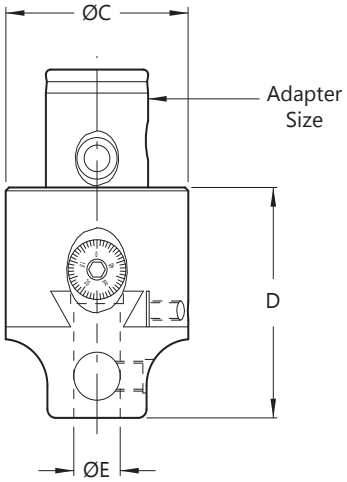
Metric

.0012mm Adjustment on Diameter

Part No.	Bore Diameter		ØC	D	Insert			Adapter Size
	MIN ØA	MAX ØB			I.C.	Thickness	Shape/Style	
CTP038M-K4TPMA	41	68	38	58	9,53	3,18	TP	KA4
CTP038M-K4CPMA	41	68	38	58	9,53	3,96	CP or CC	KA4
CTP038M-K5TPMA	41	68	38	58	9,53	3,18	TP	KA5
CTP038M-K5CPMA	41	68	38	58	9,53	3,96	CP or CC	KA5
CTP050M-K5TPMA	53	84	50	69	9,53	3,18	TP	KA5
CTP050M-K5CPMA	53	84	50	69	9,53	3,96	CP or CC	KA5
CTP076M-K7TPMA	78	128	76	99	9,53	3,18	TP	KA7
CTP076M-K7CPMA	78	128	76	99	9,53	3,96	CP or CC	KA7

Cri-Tip

CB Style

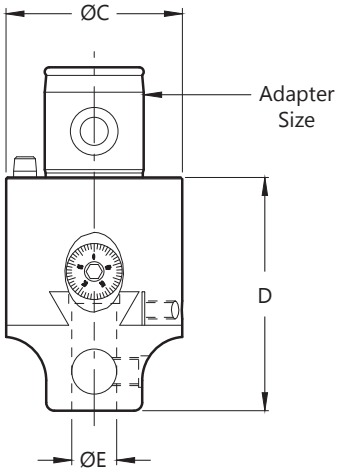


Big® Kaiser® Connection

.001" Adjustment on Diameter

Part No.	Bore Diameter		ØC	D	ØE	Off Set	Adapter Size
	MIN ØA	MAX ØB					
CTP1500-K4002	0.050	1.625	1.500	2.280	.500	.562	KA4
CTP1500-K4152	0.050	2.500	1.500	2.280	.375	.562	KA4
CTP1500-K5002	0.050	1.625	1.500	2.530	.500	.562	KA5
CTP1500-K5152	0.050	2.500	1.500	2.530	.375	.562	KA5
CTP2000-K5202A	0.050	6.687	2.000	2.405	.375	.625	KA5
CTP2000-K5202B	0.050	6.687	2.000	2.405	.500	.625	KA5
CTP3000-K7203C	0.250	11.000	3.000	3.625	.625	1.000	KA7
CTP3000-K7203D	0.500	11.000	3.000	3.625	.750	1.000	KA7
*CTP3000-K7300MA	0.050	5.125	3.000	3.855	.750	1.000	KA7

*Micro adjusting



Komet® ABS® Connection

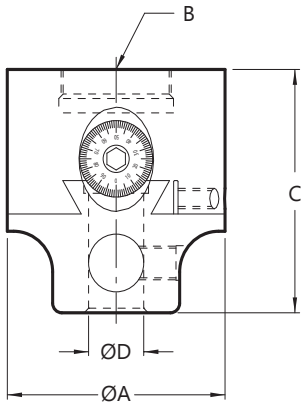
.001" Adjustment on Diameter

Part No.	Bore Diameter		ØC	D	ØE	Off Set	Adapter Size
	MIN ØA	MAX ØB					
CTP1500-A40002	0.050	1.625	1.500	2.250	.500	.562	A40
CTP1500-A40152	0.050	2.500	1.500	2.250	.375	.562	A40
CTP1500-A55002	0.050	1.625	1.500	2.780	.500	.562	A50
CTP1500-A50152	0.050	2.500	1.500	2.780	.375	.562	A50
CTP2000-A50202A	0.050	6.687	2.000	2.600	.375	.625	A50
CTP2000-A50202B	0.050	6.687	2.000	2.600	.500	.625	A50
CTP3000-A80203C	0.250	11.000	3.000	3.945	.625	1.000	A80
CTP3000-A80203D	0.500	11.000	3.000	3.945	.750	1.000	A80
*CTP3000-A8030MA	0.050	5.125	3.000	4.165	.750	1.000	A80

*Micro adjusting

CB Style Boring Heads

Standard Adjusting



Inch

.001" Adjustment on Diameter

Part No.	ØA	B	C	ØD	Off Set	Bore Diameter					
						Center Hole		Outboard Hole		Cross Hole	
						MIN	MAX	MIN	MAX	MIN	MAX*
CB-1500B	1.500	7/8-20	2.500	.500	.562	.050	1.625	–	–	–	–
CB-2375A	1.500	7/8-20	2.500	.375	.562	.050	1.625	1.000	2.500	–	–
CB-202A	2.000	7/8-20	2.406	.375	.625	.050	1.750	1.312	3.000	2.875	6.687
CB-202B	2.000	7/8-20	2.406	.500	.625	.050	1.750	1.312	3.000	2.875	6.687
CB-203C	3.000	1-1/2-18	3.156	.625	1.000	.500	2.625	2.000	4.500	4.937	11.000
CB-203D	3.000	1-1/2-18	3.156	.750	1.000	.500	3.250	2.375	5.125	4.937	11.000
CB-204E	4.000	1-1/2-18	3.867	1.000	1.625	.500	4.500	3.000	7.000	5.625	13.437
CB-206F	6.000	2-1/4-10	5.500	1.500	2.000	1.750	5.750	5.500	9.500	9.093	21.500

***NOTICE:** Maximum bore diameter based upon CHB bars being secured in the bar holder with at least 2 set screws

Metric

.025mm Adjustment on Diameter

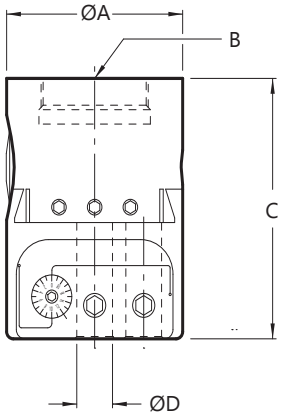
Part No.	ØA	B	C	ØD	Off Set	Bore Diameter					
						Center Hole		Outboard Hole		Cross Hole	
						MIN	MAX	MIN	MAX	MIN	MAX*
CB-038MB	38	7/8-20	63	12	14	3	40	–	–	–	–
CB-038MA	38	7/8-20	63	10	14	3	40	25	62	–	–
CB-050MB	50	7/8-20	61	12	16	3	44	35	76	122	218
CB-076MD	76	1-1/2-18	80	20	25	12	70	60	130	166	292
CB-101ME	101	1-1/2-18	95	25	41	12	113	76	178	168	301

***NOTICE:** Maximum bore diameter based upon CHB bars being secured in the bar holder with at least 2 set screws

CB Style Boring Heads

Micro Adjusting

- Excellent for close tolerance bores
- Total range of micro adjustment is .006" (.150mm) on diameter



Inch

.00005" Adjustment on Diameter

Part No.	ØA	B	C	ØD	Off Set	Bore Diameter			
						Center Hole		Outboard Hole	
						MIN	MAX	MIN	MAX
CB-1500AMA	1.500	7/8-20	3.000	.375	.562	.050	1.625	1.000	2.500
CB-2500BMA	2.500	1-1/2-18	3.375	.500	.687	.050	1.875	1.500	3.250
CB-3000DMA	3.000	1-1/2-18	3.375	.750	1.000	.050	3.250	2.375	5.125

Metric

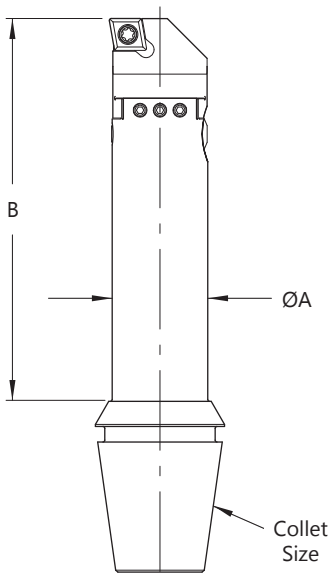
.0012mm Adjustment on Diameter

Part No.	ØA	B	C	ØD	Off Set	Bore Diameter			
						Center Hole		Outboard Hole	
						MIN	MAX	MIN	MAX
CB-064MBMA	64	7/8-20	86	12	20	3	42	34	73
CB-076MDMA	76	1-1/2-18	86	20	25	12	73	60	130

Standard Adjusting

.001" Adjustment on Diameter

Part No.	Bore Diameter		ØA	B	Collet Size	Insert		
	MIN	MAX				I.C.	Thickness	Shape/Style
CBER16S-CP	.672	.944	.625	1.500	ER16	.250	.094	CP or CC
CBER16-CP	.672	.944	.625	2.500		.250	.094	CP or CC
CBER16S-TP	.672	.944	.625	1.500		.250	.094	TP
CBER16-TP	.672	.944	.625	2.500		.250	.094	TP
CBER20S-CP	.672	.944	.625	1.500	ER20	.250	.094	CP or CC
CBER20-CP	.672	.944	.625	2.500		.250	.094	CP or CC
CBER20S-TP	.672	.944	.625	1.500		.250	.094	TP
CBER20-TP	.672	.944	.625	2.500		.250	.094	TP
CBER25S-CP	.825	1.087	.750	1.500	ER25	.250	.094	CP or CC
CBER25-CP	.825	1.087	.750	3.000		.250	.094	CP or CC
CBER25S-TP	.825	1.087	.750	1.500		.250	.094	TP
CBER25-TP	.825	1.087	.750	3.000		.250	.094	TP
CBER32S-CP	1.050	1.320	1.000	2.000	ER32	.250	.094	CP or CC
CBER32-CP	1.050	1.320	1.000	4.000		.250	.094	CP or CC
CBER32S-TP	1.050	1.320	1.000	2.000		.250	.094	TP
CBER32-TP	1.050	1.320	1.000	4.000		.250	.094	TP
CBER40S-CP	1.300	1.600	1.250	2.500	ER40	.250	.094	CP or CC
CBER40-CP	1.300	1.600	1.250	5.000		.250	.094	CP or CC
CBER40S-TP	1.300	1.600	1.250	2.500		.250	.094	TP
CBER40-TP	1.300	1.600	1.250	5.000		.250	.094	TP



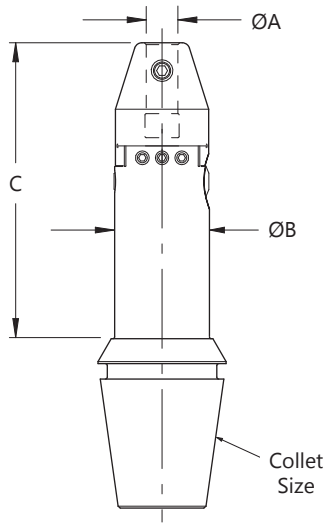
Micro Adjusting

.00005" Adjustment on Diameter

Part No.	Bore Diameter		ØA	B	Collet Size	Insert		
	MIN	MAX				I.C.	Thickness	Shape/Style
CBER32S-CPMA	1.050	1.320	1.000	2.700	ER32	.250	.094	CP or CC
CBER32-CPMA	1.050	1.320	1.000	4.700		.250	.094	CP or CC
CBER32S-TPMA	1.050	1.320	1.000	2.700		.250	.094	TP
CBER32-TPMA	1.050	1.320	1.000	4.700		.250	.094	TP
CBER40S-CPMA	1.300	1.600	1.250	3.200	ER40	.250	.094	CP or CC
CBER40-CPMA	1.300	1.600	1.250	5.700		.250	.094	CP or CC
CBER40S-TPMA	1.300	1.600	1.250	3.200		.250	.094	TP
CBER40-TPMA	1.300	1.600	1.250	5.700		.250	.094	TP

SGL Style

Part No.	Bore Diameter		ØA	ØB	C	Collet Size
	MIN	MAX				
CBER16S-SG	.050	.380	.125	.625	1.500	ER16
CBER16-SG	.050	.380			2.500	
CBER20S-SG	.050	.380			1.500	ER20
CBER20-SG	.050	.380			2.500	
CBER25S-SH	.050	.470	.250	.750	1.687	ER25
CBER25-SH	.050	.470			3.187	
CBER32S-SA	.120	.645	.375	1.000	2.437	ER32
CBER32-SA	.120	.645			4.437	
CBER40S-SB	.250	.800	.500	1.250	2.781	ER40
CBER40-SB	.250	.800			5.281	

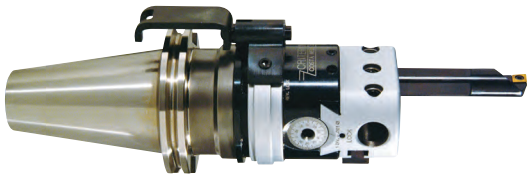


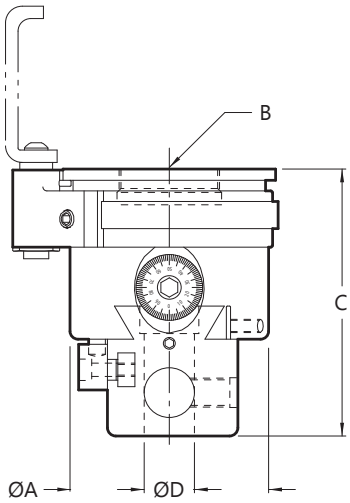
Boring & Facing Heads

CNC

IMPORTANT: Stop arm required (see page 50)

- Boring, facing, grooving, backfacing, and counterboring operations
- Available in .003" per revolution or fine feed .0015" per revolution
- Clutch automatically disengages drive when preset stops are contacted
- Head feeds in both directions





Inch

.001" Adjustment on Diameter

Part No.	ØA	B	C	ØD	Off Set	Bore Diameter					
						Center Hole		Outboard Hole		Cross Hole	
						MIN	MAX	MIN	MAX	MIN	MAX*
BFC-300D	3.000	1-1/2-18	3.875	.750	.812	.500	2.875	2.375	4.750	4.937	10.625
BFC-300DFF	3.000	1-1/2-18	3.875	.750	.812	.500	2.875	2.375	4.750	4.937	10.625

***NOTICE:** Maximum bore diameter based upon CHB bars being secured in the bar holder with at least 2 set screws

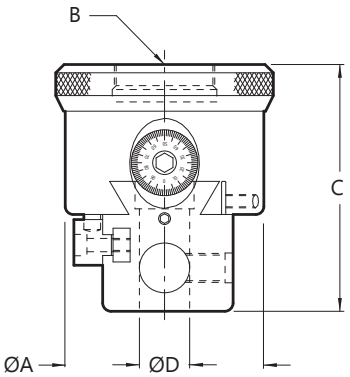
Metric

.025mm Adjustment on Diameter

Part No.	ØA	B	C	ØD	Off Set	Bore Diameter					
						Center Hole		Outboard Hole		Cross Hole	
						MIN	MAX	MIN	MAX	MIN	MAX*
BFC-076MD	76	1-1/2-18	98	20	22	12	76	60	124	166	288
BFC-076MDFF	76	1-1/2-18	98	20	22	12	76	60	124	166	288

***NOTICE:** Maximum bore diameter based upon CHB bars being secured in the bar holder with at least 2 set screws

- Boring, facing, grooving, backfacing, and counterboring operations
- Available in .003" per revolution or fine feed .0015" per revolution
- Clutch automatically disengages drive when preset stops are contacted
- Head feeds in both directions



Inch
.001" Adjustment on Diameter

Part No.	ØA	B	C	ØD	Off Set	Bore Diameter					
						Center Hole		Outboard Hole		Cross Hole	
						MIN	MAX	MIN	MAX	MIN	MAX*
BFM-300D	3.000	1-1/2-18	3.875	.750	.812	.500	2.875	2.375	4.750	4.937	10.625
BFM-300DFF	3.000	1-1/2-18	3.875	.750	.812	.500	2.875	2.375	4.750	4.937	10.625

***NOTICE:** Maximum bore diameter based upon CHB bars being secured in the bar holder with at least 2 set screws

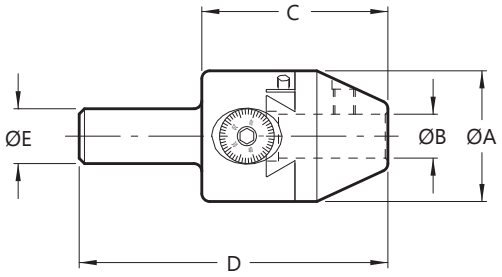
Metric
.025mm Adjustment on Diameter

Part No.	ØA	B	C	ØD	Off Set	Bore Diameter					
						Center Hole		Outboard Hole		Cross Hole	
						MIN	MAX	MIN	MAX	MIN	MAX*
BFM-076MD	76	1-1/2-18	98	20	22	12	76	60	124	166	288
BFM-076MDFF	76	1-1/2-18	98	20	22	12	76	80	124	166	288

***NOTICE:** Maximum bore diameter based upon CHB bars being secured in the bar holder with at least 2 set screws

Boring Heads

Tiny Mite



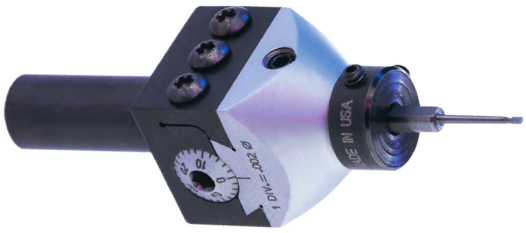
MB002 Style

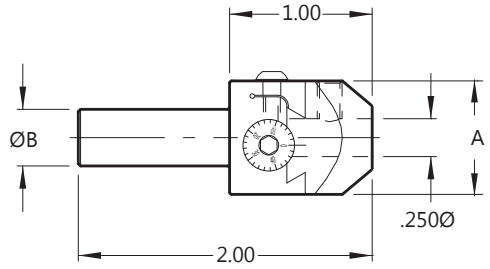
002 & 152 Style

.001" Adjustment on Diameter

Part No.	ØA	ØB	C	D	ØE	Off Set	Bore Diameter			
							Center Hole		Outboard Hole	
							MIN	MAX	MIN	MAX
MB002-500	1.50	.500	2.125	3.500	.500	.562	.050	1.625	–	–
MB002-625	1.50	.500	2.125	3.500	.625	.562	.050	1.625	–	–
MB002-750	1.50	.500	2.125	3.500	.750	.562	.050	1.625	–	–
MB152-500	1.50	.375	2.125	3.500	.500	.562	.050	1.625	1.000	2.500
MB152-625	1.50	.375	2.125	3.500	.625	.562	.050	1.625	1.000	2.500
MB152-750	1.50	.375	2.125	3.500	.750	.562	.050	1.625	1.000	2.500

- Effective in limited space applications
- Second hole for a greater boring range



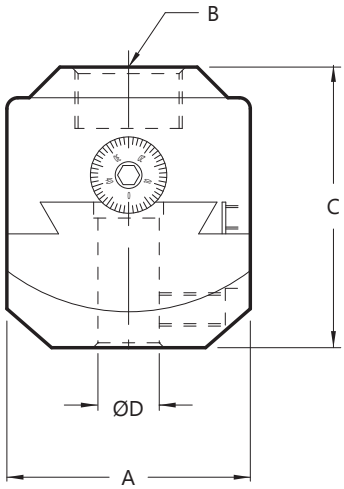


TMT Style

.001" Adjustment on Diameter

Part No.	A	ØB	Bore Diameter			
			Center Hole		Outboard Hole	
			MIN	MAX	MIN	MAX
TMT-0750H	.750	.375	.050	.580	–	–
TMT-1000H	1.000	.500	.050	1.100	.670	1.730

- Small and compact design

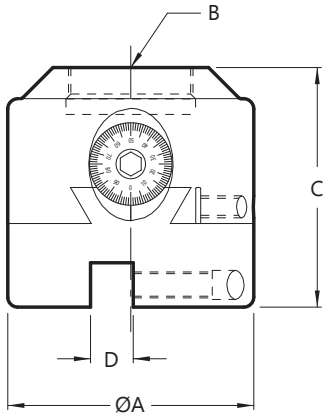


Square

.001" Adjustment on Diameter

Part No.	A	B	C	ØD	Off Set	Bore Diameter	
						MIN	MAX
SQ-1500B	1.50 SQ	7/8-20	2.250	.500	.562	.050	1.625
SQ-2000B	2.00 SQ	7/8-20	2.250	.500	.938	.050	2.375
SQ-3000D	3.00 SQ	1-1/2-18	2.937	.750	1.500	.500	4.250
SQ-3000E	3.00 SQ	1-1/2-18	2.937	1.000	1.500	.500	4.250

- Square design allows large offset
- Tapered nose design to facilitate coolant



Slotted

.001" Adjustment on Diameter

Part No.	ØA	B	C	D	Off Set
CSL-202	2.00	7/8-20	2.406	.375	.625
CSL-203	3.00	7/8-20	2.875	.500	1.000
CSL-204	4.00	1-1/2-18	3.375	.750	1.625

- Slotted boring heads can enter the hole being bored

Notes

Shanks

CONTENTS

Features & Benefits

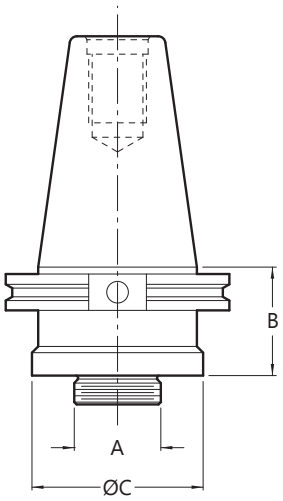
- **CNC holders ground to AT3 taper tolerance**
- **Large selection of holders for CNC and Manual Milling Machines**
- **Large mounting surface on CNC holders for rigidity and stability**
- **All CNC holders are through the spindle coolant capable**

Shanks

V-Flange

Part No.	Taper	A	B	ØC
CB1500-CV40	40	7/8-20	1.75	1.50
CB1500-CV50	50	7/8-20	1.75	1.50
CB2000-CV40	40	7/8-20	1.88	2.00
CB2000-CV50	50	7/8-20	1.88	2.00
CB3000-CV40	40	1-1/2-18	1.88	3.00
CB3000-CV50	50	1-1/2-18	1.88	3.00
CB6000-CV50	50	2-1/4-10	2.13	3.38

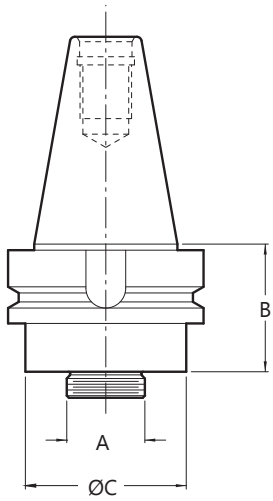
- Taper ground to AT3 tolerance



BT-Flange

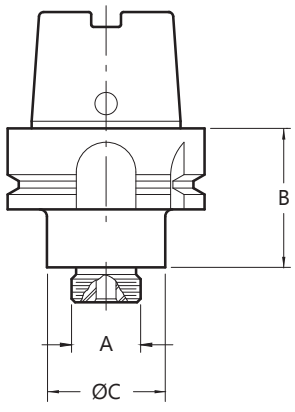
Part No.	Taper	A	B	ØC
CB1500-BT30	30	7/8-20	1.75	1.50
CB1500-BT40	40	7/8-20	1.75	1.50
CB1500-BT50	50	7/8-20	1.75	1.50
CB2000-BT40	40	7/8-20	1.56	2.00
CB2000-BT50	50	7/8-20	1.56	2.00
CB3000-BT40	40	1-1/2-18	2.06	3.00
CB3000-BT50	50	1-1/2-18	2.06	3.00
CB6000-BT50	50	2-1/4-10	2.13	3.38

- Taper ground to AT3 tolerance



HSK

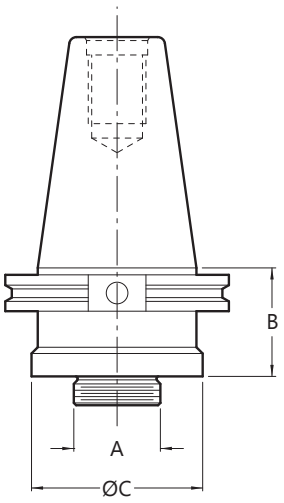
Part No.	Taper	A	B	ØC
CB1500-HSK63A	63A	7/8-20	1.750	1.500
CB1500-HSK100A	100A	7/8-20	1.750	1.500
CB2000-HSK63A	63A	7/8-20	1.750	2.000
CB2000-HSK100A	100A	7/8-20	2.250	2.000
CB3000-HSK63A	63A	1-1/2-18	2.250	3.000
CB3000-HSK100A	100A	1-1/2-18	2.250	3.000



DIN 69871A

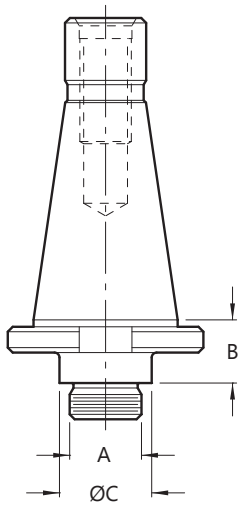
Part No.	Taper	A	B	ØC
CB038M-DIN40	40	7/8-20	38,4	38
CB038M-DIN50	50	7/8-20	38,4	38
CB050M-DIN40	40	7/8-20	41,5	50
CB050M-DIN50	50	7/8-20	41,5	50
CB076M-DIN40	40	1-1/2-18	48	76
CB076M-DIN50	50	1-1/2-18	48	76

- Taper ground to AT3 tolerance



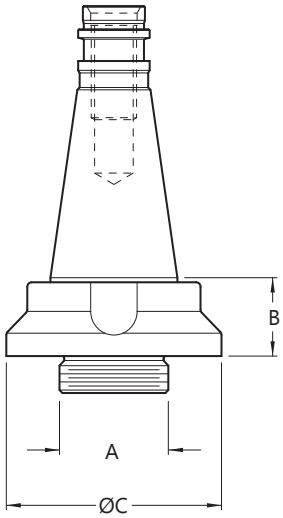
NMTB Taper

Part No.	Taper	A	B	ØC
NMTB30-087520	30	7/8-20	.78	1.11
NMTB40-087520	40	7/8-20	.77	1.11
NMTB30-150018	30	1-1/2-18	1.05	1.86
NMTB40-150018	40	1-1/2-18	1.04	1.86
NMTB50-150018	50	1-1/2-18	1.25	1.86
NMTB50-225010	50	2-1/4-10	1.25	3.38



DIN 2080

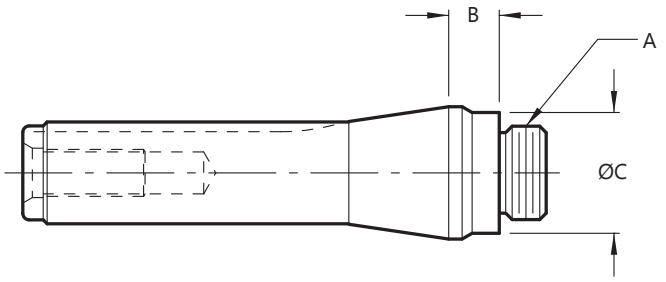
Part No.	Taper	A	B	ØC
CB038M-ISO30	SK-30	7/8-20	19,6	38
CB038M-ISO40	SK-40	7/8-20	21,1	38
CB038M-ISO50	SK-50	7/8-20	39,4	38
CB050M-ISO30	SK-30	7/8-20	25,7	50
CB050M-ISO40	SK-40	7/8-20	27,7	50
CB050M-ISO50	SK-50	7/8-20	39,4	50
CB076M-ISO40	SK-40	1-1/2-18	27,7	76
CB076M-ISO50	SK-50	1-1/2-18	39,4	76



Shanks

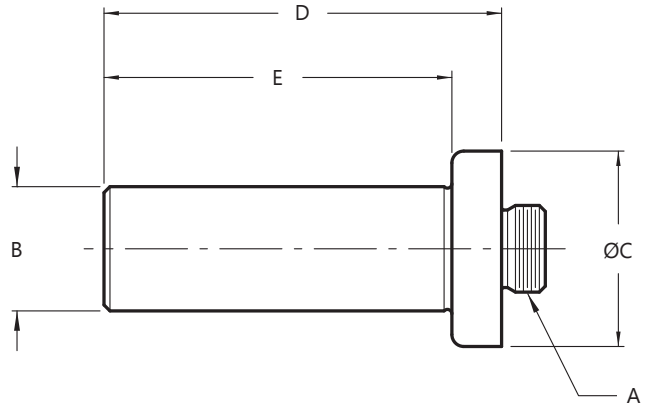
R-8 Shanks

Part No.	A	B	ØC
R8-087520	7/8-20	.47	1.11
R8-150018	1-1/2-18	.37	1.86



Straight Shanks

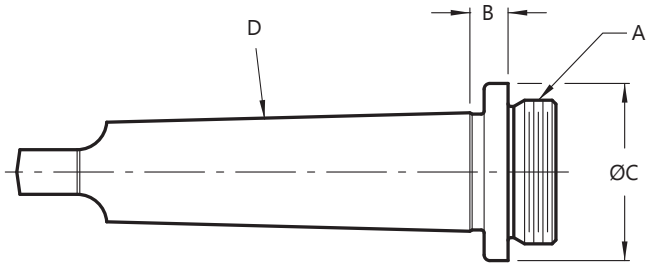
Part No.	A	ØB	ØC	D	E
SS0500-087520	7/8-20	.500	1.11	2.69	2.00
SS0625-087520	7/8-20	.625	1.11	3.06	2.37
SS0750-087520	7/8-20	.750	1.11	3.44	2.75
SS0875-087520	7/8-20	.875	1.11	3.81	3.12
SS1000-087520	7/8-20	1.000	1.11	3.81	3.12
SS1000-150018	1-1/2-18	.750	1.86	3.87	3.12
SS0750-150018	1-1/2-18	1.000	1.86	3.87	3.12
SS1250-150018	1-1/2-18	1.250	1.86	4.63	3.87
SS1500-150018	1-1/2-18	1.500	1.86	5.38	4.64
SS2000-150018	1-1/2-18	2.000	1.86	6.88	6.38



Morse Taper Shanks

Part No.	A	B	ØC	D
* MT2-375THD87520	7/8-20	.44	1.11	2
MT2-087520	7/8-20	.44	1.11	2
MT3-087520	7/8-20	.44	1.11	3
MT4-087520	7/8-20	.25	1.11	4
MT3-150018	1-1/2-18	.44	1.86	3
MT4-150018	1-1/2-18	.50	1.86	4
MT5-150018	1-1/2-18	.62	1.86	5

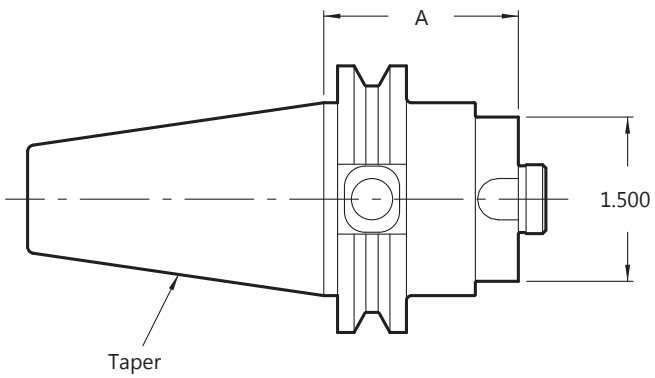
*Features a 3/8-16 Thread instead of tang



Large Cri-Bore System Shanks

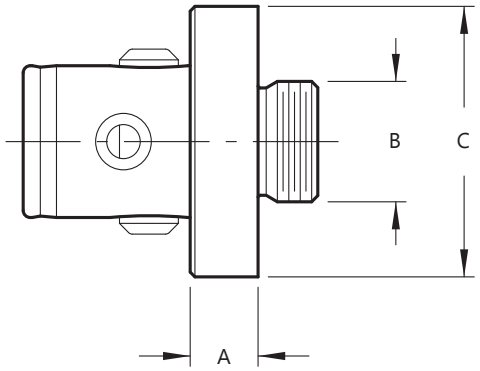
Part No.	Taper	A
LCB1500-CV40	40 V-Flange	1.75
LCB1500-CV50	50 V-Flange	1.75
LCB1500-BT40	40 BT-Flange	1.75
LCB1500-HSK63A	HSK63A	1.75

- See pages 8-9 for Cri-Bore heads
- See page 49 for Large Cri-Bore extender bars



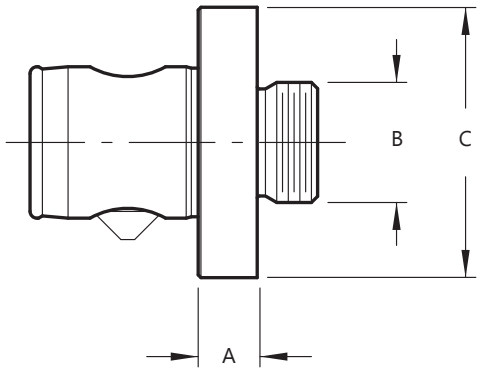
Big® Kaiser®

Part No.	A	B	ØC	Adapter Size
CTP1500-K408752	0.500	7/8-20	1.500	KA4
CTP2000-K508752	0.500	7/8-20	2.000	KA5
CTP3000-K715001	0.750	1-1/2-18	3.000	KA7



Komet® ABS®

Part No.	A	B	ØC	Adapter Size
CTP1500-A400875	0.430	7/8-20	1.500	A40
CTP2000-A500875	0.430	7/8-20	2.000	A50
CTP3000-A801500	1.050	1-1/2-18	3.000	A80



Notes

Criterion Allied, Inc. (800) 854-7441 (949) 631-4923 www.criterionmachineworks.com

Bars & Tools

CONTENTS

Features & Benefits

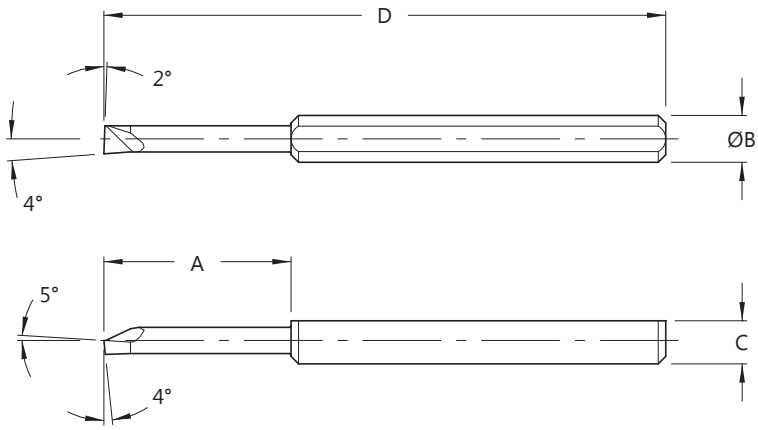
- **All boring bar and boring tool cutting edges are designed to be on center**
- **All micro grain carbide**
- **Designed for use in Boring Heads**
- **All boring tools are ground concentric to tool shank**

Carbide Boring Tools

Solid Carbide

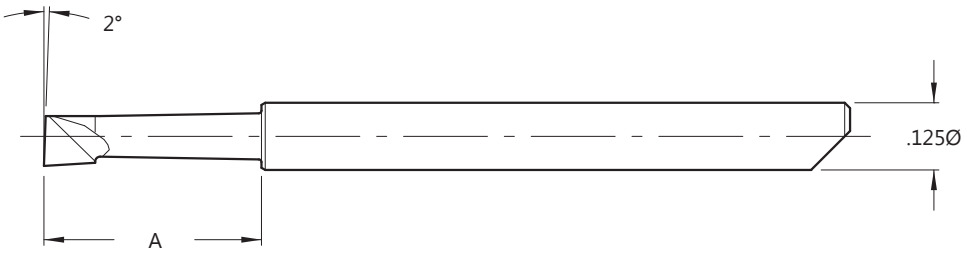
Part No.	Min Bore Dia.	A	ØB	C	D
CBT-00500150G	.050	.150	.125	.115	1.500
CBT-00500300G		.300			
CBT-00500400G		.400			
CBT-00600150G	.060	.150			
CBT-00600300G		.300			
CBT-00600500G		.500			
CBT-00800150G	.080	.150			
CBT-00800300G		.300			
CBT-00800500G		.500			
CBT-01000200G	.100	.200			
CBT-01000400G		.400			
CBT-01000600G		.600			
CBT-01000700G		.700			
CBT-01100200G	.110	.200			
CBT-01100400G		.400			
CBT-01100600G		.600			
CBT-01100700G		.700			
CBT-01200250H	.120	.250	.250	.230	2.500
CBT-01200375H		.375			
CBT-01200500H		.500			
CBT-01200625H		.625			
CBT-01200750H		.750			
CBT-01400250H	.140	.250			
CBT-01400375H		.375			
CBT-01400500H		.500			
CBT-01400625H		.625			
CBT-01400750H		.750			
CBT-01600375H	.160	.375			
CBT-01600500H		.500			
CBT-01600625H		.625			
CBT-01600750H		.750			
CBT-01600875H		.875			
CBT-01800500H	.180	.500			
CBT-01800625H		.625			
CBT-01800750H		.750			
CBT-01800875H		.875			
CBT-01801000H		1.000			
CBT-01801125H		1.125			
CBT-02000500H	.200	.500			
CBT-02000625H		.625			
CBT-02000750H		.750			
CBT-02000875H		.875			
CBT-02001000H		1.000			
CBT-02001250H		1.250			

- Micro grain carbide
- Uncoated



Qualified Length Tools

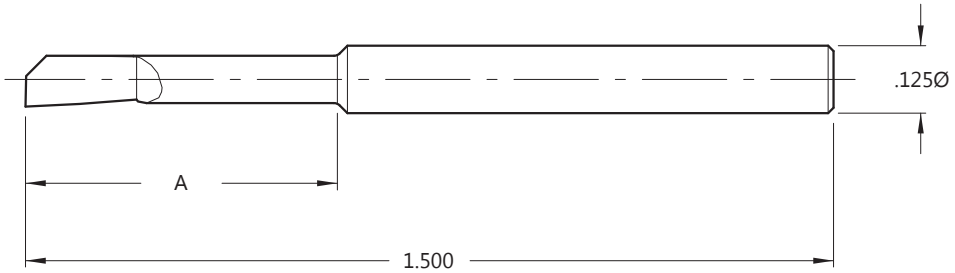
Part No.	Min Bore Dia.	A
CBT-00500150GQL	.050	.150
CBT-00500300GQL		.300
CBT-00500400GQL		.400
CBT-00600150GQL	.060	.150
CBT-00600300GQL		.300
CBT-00600500GQL		.500
CBT-00800150GQL	.080	.150
CBT-00800300GQL		.300
CBT-00800500GQL		.500
CBT-01000200GQL	.100	.200
CBT-01000400GQL		.400
CBT-01000600GQL		.600
CBT-01000700GQL		.700
CBT-01100200GQL	.110	.200
CBT-01100400GQL		.400
CBT-01100600GQL		.600
CBT-01100700GQL		.700



- Micro grain carbide
- Uncoated
- Length repeatability ±.001"
- See adapters on page 52

Helical Back Rake Carbide Boring Tools

Part No.	Min Bore Dia.	A
CBT-00350125GHB	.035	.125
CBT-00350187GHB		.187
CBT-00400187GHB	.040	.187
CBT-00400250GHB		.250
CBT-00500312GHB	.050	.312
CBT-00600375GHB	.060	.375
CBT-00700437GHB	.070	.437
CBT-00800500GHB	.080	.500
CBT-00900500GHB	.090	.500
CBT-01000562GHB	.100	.562
CBT-01200625GHB	.120	.625
CBT-01201000GHB		1.000



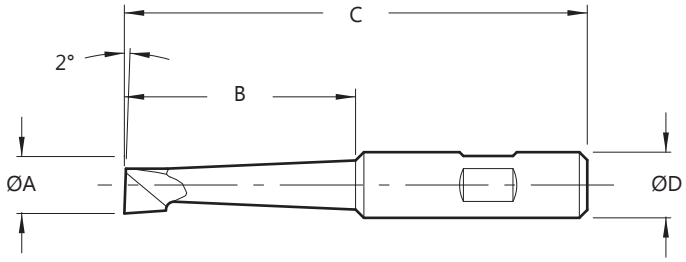
- Micro grain carbide
- Uncoated
- Helical ground top rake for better chip control

Carbide Boring Tools

Round Shanks (Inch)

Part No.	Min Bore ØA	B	C	ØD
SBT-00620250A	.062	.250	1.590	3/8"
SBT-00930375A	.093	.375	1.750	
SBT-01250500A	.125	.500	1.875	
SBT-01870812A	.187	.812	2.156	
SBT-02501125A	.250	1.125	2.468	
SBT-03121500A	.312	1.500	2.812	
SBT-03751875A	.375	1.875	3.187	
SBT-05002312A	.500	2.312	3.500	
SBT-00620250B	.062	.250	1.590	1/2"
SBT-00930375B	.093	.375	1.750	
SBT-01250250B	.125	.250	1.656	
SBT-01250500B	.125	.500	1.875	
SBT-01870312B	.187	.312	1.812	
SBT-01870812B	.187	.812	2.156	
SBT-02500437B	.250	.437	2.000	
SBT-02501125B	.250	1.125	2.468	
SBT-03120562B	.312	.562	2.187	
SBT-03121500B	.312	1.500	2.812	
SBT-03750687B	.375	.687	2.375	
SBT-03751750B	.375	1.750	3.187	
SBT-05000812B	.500	.812	2.562	
SBT-05002187B	.500	2.187	3.500	
SBT-01250500C	.125	.500	2.250	5/8"
SBT-01870812C	.187	.812	2.562	
SBT-02501125C	.250	1.125	2.875	
SBT-03751750C	.375	1.750	3.500	
SBT-05002125C	.500	2.125	3.812	
SBT-06252500C	.625	2.500	4.125	
SBT-05001312D	.500	1.312	2.937	3/4"
SBT-05002187D	.500	2.187	3.945	
SBT-06252750D	.625	2.750	4.468	
SBT-07501531D	.750	1.531	3.156	
SBT-07503000D	.750	3.000	4.687	
SBT-10001750D	1.000	1.750	3.375	
SBT-10003500D	1.000	3.500	5.125	
SBT-12504000D	1.250	4.000	5.562	
SBT-05002375E	.500	2.375	4.250	1"
SBT-06252625E	.625	2.625	4.468	
SBT-07501531E	.750	1.531	3.156	
SBT-07502875E	.750	2.875	4.687	
SBT-10001750E	1.000	1.750	3.375	
SBT-10003500E	1.000	3.500	5.125	
SBT-12501968E	1.250	1.968	3.593	
SBT-12503875E	1.250	3.875	5.562	

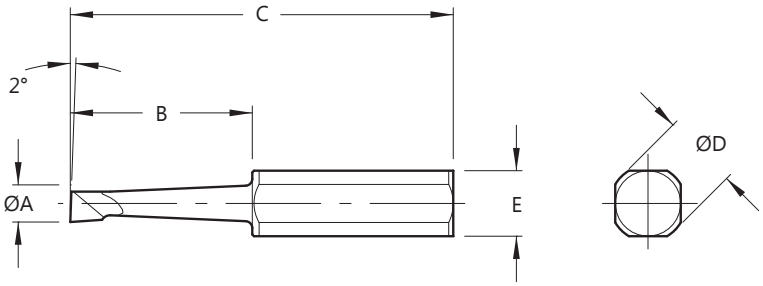
- Micro grain carbide
- Uncoated
- Tools with a minimum bore diameter of .250" or less are solid carbide; otherwise, the tool has a brazed tip



Square Shank (Inch)

Part No.	Min Bore ØA	B	C	ØD	E
SBT-00620250BS	.062	.250	1.590	1/2"	.437
SBT-00930375BS	.093	.375	1.750		
SBT-01250250BS	.125	.250	1.656		
SBT-01250500BS	.125	.500	1.875		
SBT-01870312BS	.187	.312	1.812		
SBT-01870812BS	.187	.812	2.156		
SBT-02500437BS	.250	.437	2.000		
SBT-02501125BS	.250	1.125	2.468		
SBT-03120562BS	.312	.562	2.187		
SBT-03121500BS	.312	1.500	2.812		
SBT-03750687BS	.375	.687	2.375		
SBT-03751750BS	.375	1.750	3.187		
SBT-05000812BS	.500	.812	2.562		
SBT-05002187BS	.500	2.187	3.500		

- Micro grain carbide
- Uncoated
- Tools with a minimum bore diameter of .250"/6mm or less are solid carbide; otherwise, the tool has a brazed tip

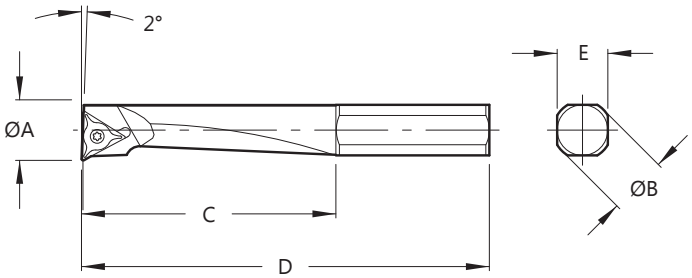


Square Shank (Metric)

Part No.	Min Bore ØA	B	C	ØD	E
SBT-03012MA	3	12	48	10	8
SBT-04020MA	4	20	55		
SBT-06028MA	6	28	62		
SBT-08037MA	8	37	71		
SBT-10048MA	10	48	81		
SBT-12055MA	12	55	90		
SBT-03012MB	3	12	48	12	10
SBT-04020MB	4	20	55		
SBT-06028MB	6	28	62		
SBT-08037MB	8	37	71		
SBT-10048MB	10	48	81		
SBT-12055MB	12	55	90		
SBT-12063MD	12	63	107	20	18
SBT-16071MD	16	71	113		
SBT-19078MD	19	78	119		
SBT-25090MD	25	90	130		
SBT-32100MD	32	100	141		
SBT-12060ME	12	60	107	25	22
SBT-16067ME	16	67	113		
SBT-19074ME	19	74	119		
SBT-25089ME	25	89	130		
SBT-32100ME	32	100	141		

TA Boring Bars

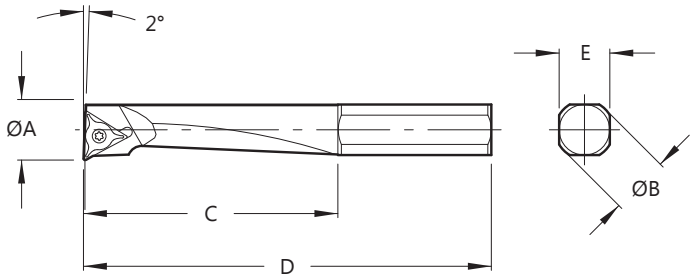
- 4 flat design allows clamping in round holes as well as turret post holders



Inch

Part No.	Min Bore ØA	ØB	C	D	E	Insert		
						I.C.	Thickness	Shape/Style
TA-02501062A	.250	.375	1.062	2.437	.310	.156	.063	WCMT
TA-03121437A	.312		1.437	2.750		.156	.078	TC
TA-03751750A	.375		1.750	3.062		.156	.078	TC
TA-02501062B	.250	.500	1.062	2.437	.437	.156	.063	WCMT
TA-03121437B	.312		1.437	2.750		.156	.078	TC
TA-03751750B	.375		1.750	3.062		.156	.078	TC
TA-04372062B	.437		2.062	3.375		.250	.094	TP
TA-05002187B	.500		2.187	3.500		.250	.094	TP
TA-03751750C	.375	.625	1.750	3.062	.531	.156	.078	TC
TA-05002187C	.500		2.187	3.500		.250	.094	TP
TA-06252750C	.625		2.750	4.390		.250	.094	TP
TA-05002500D	.500	.750	2.500	4.250	.641	.250	.094	TP
TA-07503000D	.750		3.000	4.687		.375	.125	TP
TA-10003500D	1.000		3.500	5.125		.375	.125	TP
TA-12504000D	1.250		4.000	5.562		.375	.125	TP
TA-05002375E	.500	1.000	2.375	4.250	.859	.250	.094	TP
TA-07502875E	.750		2.875	4.687		.375	.125	TP
TA-10003500E	1.000		3.500	5.125		.375	.125	TP
TA-12503875E	1.250		3.875	5.562		.375	.125	TP

- 4 flat design allows clamping in round holes as well as turret post holders

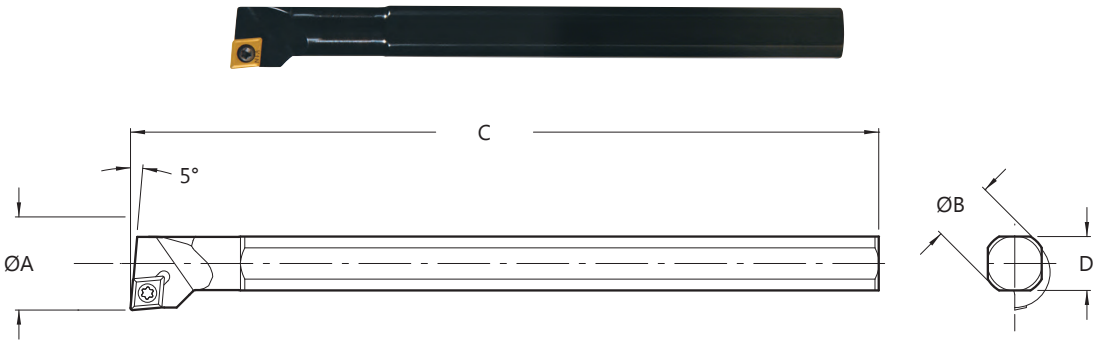


Metric

Part No.	Min Bore ØA	ØB	C	D	E	Insert		
						I.C.	Thickness	Shape/Style
TAS-06M012A	6	10	12	47	8	3,97	1,60	WCMT
TA-06M027A	6		27	62		3,97	1,60	WCMT
TAS-08M016A	8		16	50		3,97	1,98	TC
TA-08M036A	8		36	70		3,97	1,98	TC
TAS-10M020A	10		20	54		3,97	1,98	TC
TA-10M045A	10		45	78		3,97	1,98	TC
TAS-06M012B	6	12	12	47	10	3,97	1,60	WCMT
TA-06M027B	6		27	63		3,97	1,60	WCMT
TAS-08M016B	8		16	50		3,97	1,98	TC
TA-08M036B	8		36	71		3,97	1,98	TC
TAS-10M020B	10		20	54		3,97	1,98	TC
TA-10M045B	10		45	80		3,97	1,98	TC
TAS-12M024B	12		24	57		6,35	2,39	TC
TA-12M054B	12		54	86		6,35	2,39	TC
TAS-10M020D	10	20	20	67	18	3,97	1,98	TC
TA-10M045D	10		45	92		3,97	1,98	TC
TAS-12M024D	12		24	70		6,35	2,39	TC
TA-12M054D	12		54	100		6,35	2,39	TC
TAS-16M032D	16		32	76		9,53	3,96	TC
TA-16M072D	16		72	116		6,35	2,39	TC
TAS-20M040D	20		40	82		6,35	2,39	TC
TA-20M090D	20		90	131		9,53	3,96	TC
TAS-10M020E	10	25	20	69	23	9,53	1,98	TC
TA-10M045E	10		45	94		9,53	1,98	TC
TAS-12M024E	12		24	73		6,35	2,39	TC
TA-12M054E	12		54	102		6,35	2,39	TC
TAS-16M032E	16		32	78		9,53	3,96	TC
TA-16M072E	16		72	118		9,53	3,96	TC
TAS-20M040E	20		40	85		9,53	3,96	TC
TA-20M090E	20		90	135		9,53	3,96	TC
TAS-25M050E	25		50	92		9,53	3,96	TC
TA-25M113E	25		113	155		9,53	3,96	TC

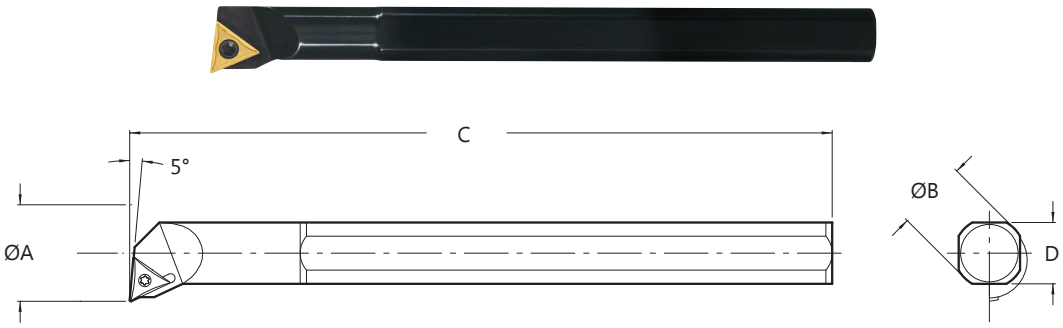
Steel Boring Bars

- Bore depths up to 4x bar diameter
- 4 flat design allows clamping in round holes as well as turret post holders



CFX Boring Bars with 80° Diamond Style Insert

Part No.	Min Bore ØA	ØB	C	D	Insert		
					I.C.	Thickness	Shape/Style
CFX-0500	.75	.500	6.00	.43	.250	.094	CP or CC
CFX-0750	1.00	.750	8.00	.66	.375	.156	CP or CC
CFX-1000	1.38	1.000	10.00	.88	.375	.156	CP or CC
CFX-1500	1.76	1.500	10.60	1.31	.500	.188	CC



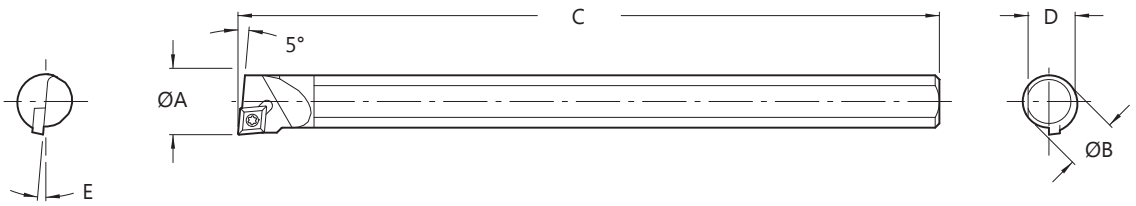
TFX Boring Bars with Triangle Style Insert

Part No.	Min Bore ØA	ØB	C	D	Insert		
					I.C.	Thickness	Shape/Style
TFX-0500	.75	.500	6.00	.43	.250	.094	TP
TFX-0750	1.00	.750	8.00	.66	.375	.125	TP
TFX-1000	1.38	1.000	10.00	.88	.375	.125	TP

Heavy Metal Boring Bars

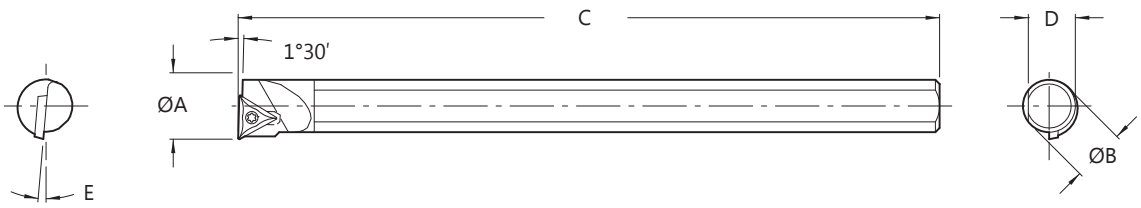
NOTICE: Heavy metal boring bars can cause increased imbalance. Do not operate the boring system at RPMs that cause excessive machine vibration. This vibration is likely to occur at spindle speeds above 1000 RPM and is more likely to occur when using the boring system at its maximum diameter.

- Bore depths up to 6x bar diameter
- Good vibration dampening characteristics



Heavy Metal Boring Bars with 80° Diamond Style Insert

Part No.	Min Bore ØA	ØB	C	D	E	Insert		
						I.C.	Thickness	Shape/Style
CFX-0187HM	.197	.187	3.0	.180	0°	.156	.040	CD
CFX-0250HM	.260	.250	3.0	.230	0°	.156	.040	CD
CFX-0312HM	.365	.312	4.0	.290	10°	.250	.094	CP or CC
CFX-0375HM	.425	.375	4.0	.340	10°	.250	.094	CP or CC
CFX-0500HM	.550	.500	6.0	.455	5°	.250	.094	CP or CC
CFX-0625HM	.688	.625	8.0	.565	8°	.375	.156	CP or CC
CFX-0750HM	.832	.750	10.0	.680	8°	.375	.156	CP or CC



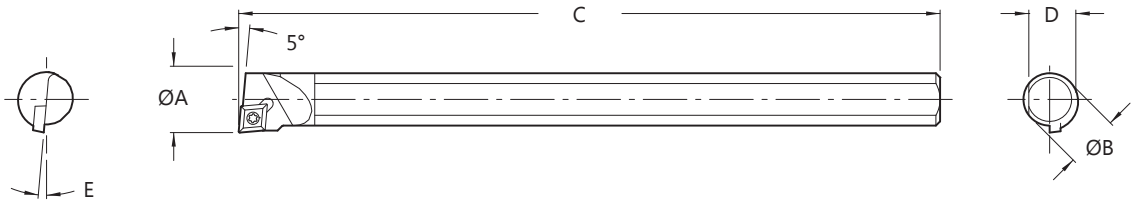
Heavy Metal Boring Bars with Triangle Style Insert

Part No.	Min Bore ØA	ØB	C	D	E	Insert		
						I.C.	Thickness	Shape/Style
TFX-0375HM	.425	.375	4.00	.340	8°	.219	.094	TC
TFX-0500HM	.550	.500	6.00	.455	5°	.250	.094	TC

Carbide Shank Boring Bars

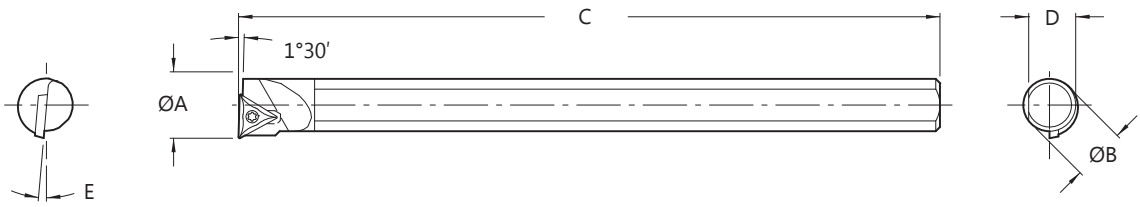
NOTICE: Carbide shank boring bars can cause increased imbalance. Do not operate the boring system at RPMs that cause excessive machine vibration. This vibration is likely to occur at spindle speeds above 1000 RPM and is more likely to occur when using the boring system at its maximum diameter.

- Bore depths up to 8x bar diameter
- Maximum rigidity and depth



Carbide Shank Boring Bars with 80° Diamond Style Insert

Part No.	Min Bore ØA		ØB	C	D	E	Insert		
	CP	CC					I.C	Thickness	Shape/Style
CFX-0375CS	.500	.750	.375	6.00	.34	0°	.250	.094	CP or CC
CFX-0500CS	.625	.750	.500	8.00	.47	0°	.250	.094	CP or CC
CFX-0625CS	.750	.750	.625	10.00	.59	0°	.250	.094	CP or CC
CFX-0750CS	.875	1.230	.750	10.00	.70	0°	.375	.156	CP or CC

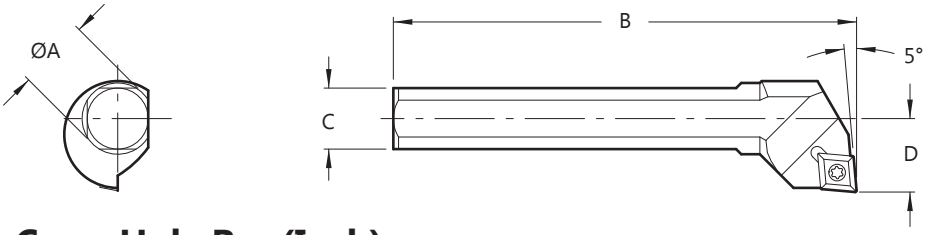


Carbide Shank Boring Bars with Triangle Style Insert

Part No.	Min Bore ØA	ØB	C	D	E	Insert		
						I.C.	Thickness	Shape/Style
TFX-0375CS	.500	.375	6.00	.34	0°	.250	.094	TP
TFX-0500CS	.625	.500	8.00	.47	0°	.250	.094	TP
TFX-0625CS	.750	.625	10.00	.59	0°	.375	.125	TP
TFX-0750CS	.875	.750	10.00	.70	0°	.375	.125	TP

Miscellaneous Boring Bars

- Designed to be used in CB and DBL style boring heads
- Cross hole bars can also be used as right hand turn bars



Cross Hole Bar (Inch)

Part No.	ØA	B	C	D	Bore Diameter		Insert			Use With
					MIN	MAX*	I.C.	Thickness	Shape/Style	
CHB-0500	.500	2.75	.43	.53	2.85	6.69	.250	.094	◇ CP or CC	CB-202/DBL-202
CHB-0750	.750	4.75	.64	.77	4.89	11.00	.375	.156	◇ CP or CC	CB-203/DBL-203
CHB-1000	1.000	5.31	.85	.87	5.61	13.44	.375	.156	◇ CP or CC	CB-204E/DBL-204E
CHB-1500	1.500	9.00	1.31	1.17	9.08	21.50	.500	.188	◇ CP or CC	DBL-206F

***NOTICE:** Maximum bore diameter based upon CHB bars being secured in the bar holder with at least 2 set screws

Cross Hole Bar (Metric)

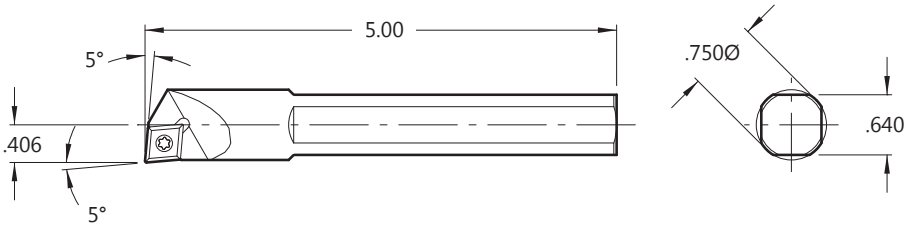
Part No.	ØA	B	C	D	Bore Diameter		Insert			Use With
					MIN	MAX*	I.C.	Thickness	Shape/Style	
CHB-012M	12	72	10	13	73	173	6,35	2,39	◇ CP or CC	DBL-50MB
CHB-020M	20	123	18	19	125	279	9,53	3,96	◇ CP or CC	DBL-76MD/76F-HBMD
CHB-025M	25	134	23	22	143	341	9,53	3,96	◇ CP or CC	DBL-101ME

***NOTICE:** Maximum bore diameter based upon CHB bars being secured in the bar holder with at least 2 set screws

Boring & Facing Bar

Part No.	Insert		
	I.C.	Thickness	Shape/Style
BFB-075D	.375	.156	◇ CP or CC

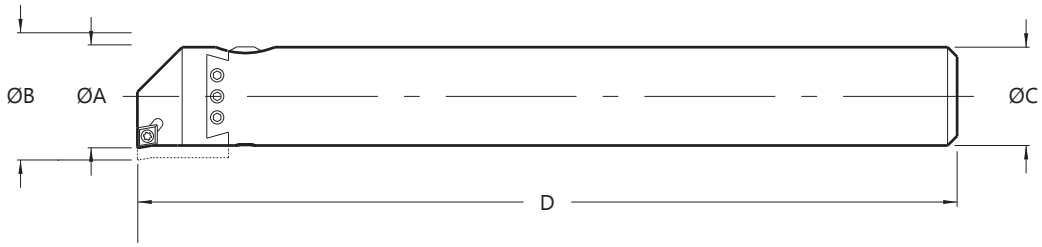
- Designed with the proper clearance to bore or face with both of the 3F-HBD heads
- See pages 18-19



Cri-Bar Adjustable Boring Bars

Round Shank

- Ideally suited for use in collet or shrink-fit holders



Standard Adjusting

.001" Adjustment on Diameter

Part No.	Min Bore ØA	Max Bore ØB	ØC	D	Insert		
					I.C.	Thickness	Shape/Style
* CBR-0625CP	.672	.944	.625	5.25	.250	.094	CP or CC
CBR-0625TP	.672	.944		5.25	.250	.094	TP
CBR-0750CP	.825	1.087	.750	6.31	.250	.094	CP or CC
CBR-0750TP	.825	1.087		6.31	.250	.094	TP
CBR-1000CP	1.050	1.320	1.000	8.25	.250	.094	CP or CC
CBR-1000TP	1.050	1.320		8.25	.250	.094	TP
CBR-1250CP	1.300	1.600	1.250	10.31	.250	.094	CP or CC
CBR-1250TP	1.300	1.600		10.31	.250	.094	TP

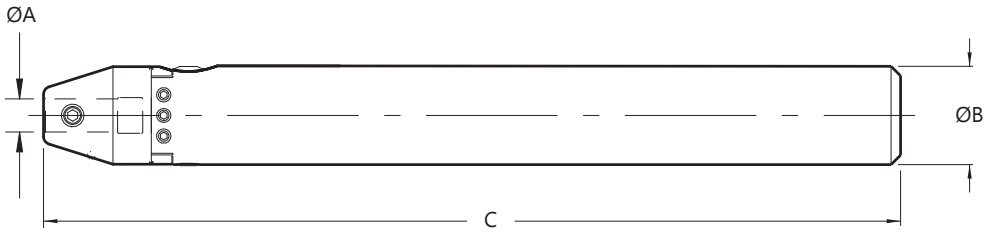
*CBR-0625 style boring system's minimum bore diameter when using a CC style insert is .750" in diameter

Micro Adjusting

0.00005" Adjustment on Diameter

Part No.	Min Bore ØA	Max Bore ØB	ØC	D	Insert		
					I.C.	Thickness	Shape/Style
CBR-1000CPMA	1.050	1.320	1.000	8.95	.250	.094	CP or CC
CBR-1000TPMA	1.050	1.320		8.95	.250	.094	TP
CBR-1250CPMA	1.300	1.600	1.250	11.00	.250	.094	CP or CC
CBR-1250TPMA	1.300	1.600		11.00	.250	.094	TP

- The total movement of the micro adjusting dial is .006" (.150mm) on diameter



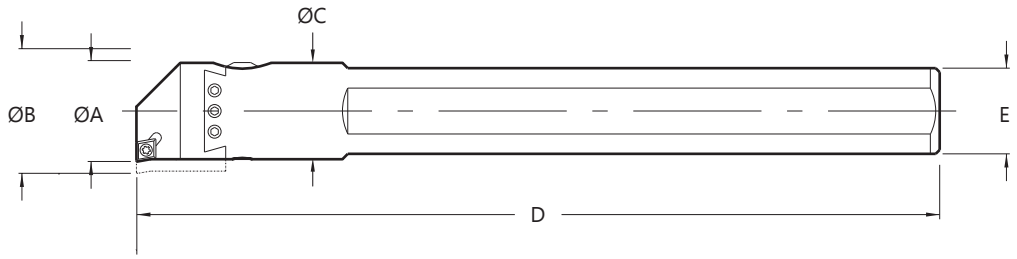
SGL Style

Part No.	Min Bore Dia.	Max Bore Dia.	ØA	ØB	C
CBR-0625SG	.050	.380	.125	.625	5.25
CBR-0750SH	.050	.470	.250	.750	6.50
CBR-1000SA	.120	.640	.375	1.000	8.69
CBR-1250SB	.250	.800	.500	1.250	10.60

Cri-Bore Adjustable Boring Bars

Square Shanks

- Ideally suited for use in side lock end mill holders



Standard Adjusting

.001" Adjustment on Diameter

Part No.	Min Bore ØA	Max Bore ØB	ØC	D	E	Insert		
						I.C.	Thickness	Shape/Style
*CBS-0625CP	.672	.944	.625	5.25	.541	.250	.094	CP or CC
CBS-0625TP	.672	.944		5.25	.541	.250	.094	TP
CBS-0750CP	.825	1.087	.750	6.31	.660	.250	.094	CP or CC
CBS-0750TP	.825	1.087		6.31	.660	.250	.094	TP
CBS-1000CP	1.050	1.320	1.000	8.25	.883	.250	.094	CP or CC
CBS-1000TP	1.050	1.320		8.25	.883	.250	.094	TP
CBS-1250CP	1.300	1.600	1.250	10.31	1.100	.250	.094	CP or CC
CBS-1250TP	1.300	1.600		10.31	1.100	.250	.094	TP

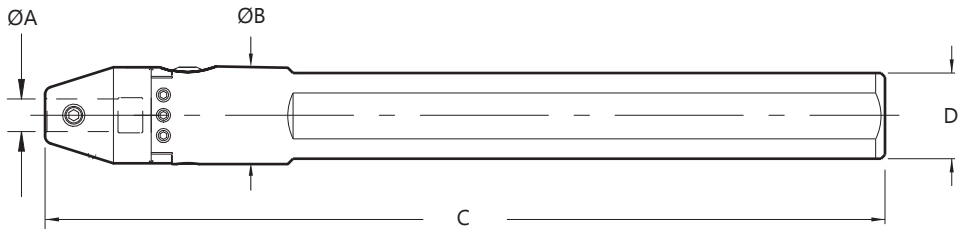
*CBS-0625 style boring system's minimum bore diameter when using a CC style insert is .750" in diameter

Micro Adjusting

0.00005" Adjustment on Diameter

Part No.	Min Bore ØA	Max Bore ØB	ØC	D	E	Insert		
						I.C.	Thickness	Shape/Style
CBS-1000CPMA	1.050	1.320	1.000	8.95	.883	.250	.094	CP or CC
CBS-1000TPMA	1.050	1.320		8.95	.883	.250	.094	TP
CBS-1250CPMA	1.300	1.600	1.250	11.00	1.100	.250	.094	CP or CC
CBS-1250TPMA	1.300	1.600		11.00	1.100	.250	.094	TP

- The total movement of the micro adjusting dial is .006" (.150mm) on diameter



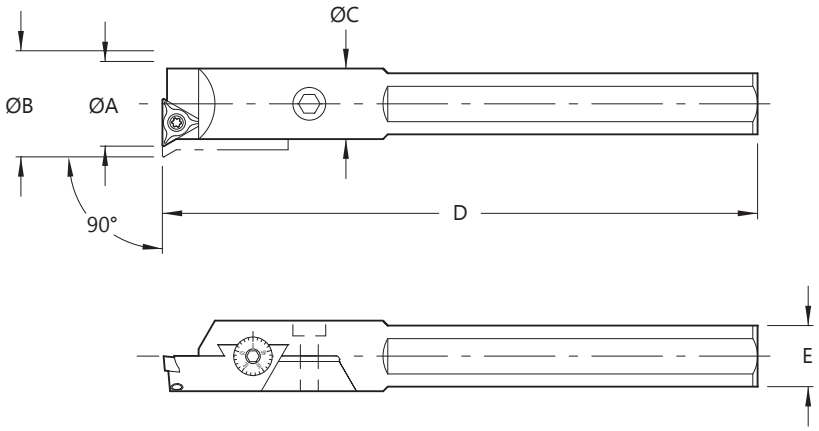
SGL Style

Part No.	Min Bore Dia.	Max Bore Dia.	ØA	ØB	C	D
CBS-0625SG	.050	.380	.125	.625	5.25	.541
CBS-0750SH	.050	.470	.250	.750	6.50	.660
CBS-1000SA	.120	.640	.375	1.000	8.69	.883
CBS-1250SB	.250	.800	.500	1.250	10.60	1.100

MD Adjustable Boring Bars

Square Shanks

- Unique cantilevered design results in exceptional rigidity
- Ideally suited for use in CNC Mills



Inch

.001" Adjustment on Diameter

Part No.	Bore Diameter		ØC	D	E	Insert		
	MIN ØA	MAX ØB				I.C.	Thickness	Shape/Style
*MDB-0625CP	.700	.960	.625	5.25	.541	.250	.094	CP or CC
MDB-0625TP	.710	.960		5.25	.541	.250	.094	TP
MDB-0750CP	.850	1.200	.750	6.31	.660	.375	.156	CP or CC
MDB-0750TP	.850	1.280		6.31	.660	.375	.125	TP
MDB-1000CP	1.100	1.670	1.000	8.25	.883	.375	.156	CP or CC
MDB-100OTP	1.130	1.650		8.25	.883	.375	.125	TP
MDB-1250CP	1.370	2.330	1.250	10.31	1.100	.375	.156	CP or CC
MDB-1250TP	1.400	2.370		10.31	1.100	.375	.125	TP

*MDB-0625CP style boring system's minimum bore diameter when using a CC style insert is .750" in diameter

Metric

.025mm Adjustment on Diameter

Part No.	Bore Diameter		ØC	D	E	Insert		
	MIN ØA	MAX ØB				I.C.	Thickness	Shape/Style
MDB-16MT	18	27	16	133	14	6,35	2,39	TP
MDB-20MT	22	33	20	160	18	9,53	3,96	TP
MDB-25MT	27	42	25	210	23	9,53	3,96	TP
MDB-32MT	33	60	32	260	28	9,53	3,96	TP

Inserts

CONTENTS

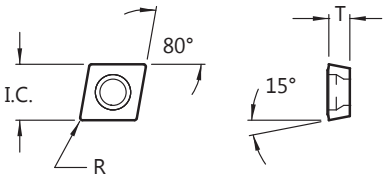
Features & Benefits

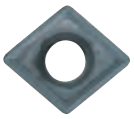
- **Meet ANSI / ISO standards**
- **Selected especially for boring applications**
- **C-2 for non-ferrous materials**
- **C-6 for ferrous applications**

Inserts

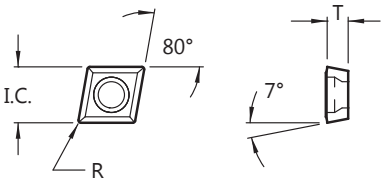
80° Diamond

CDCD

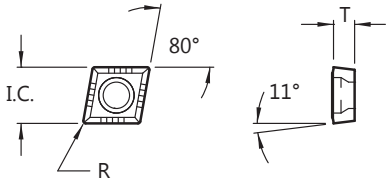




CCMT

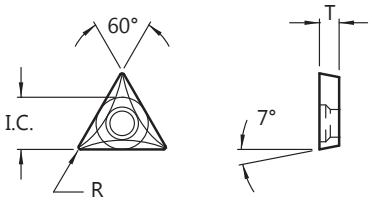


CPMT

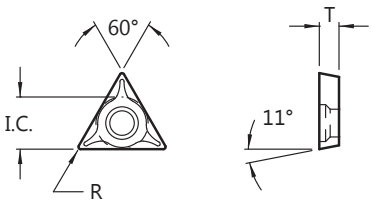


Style	ISO Description	Insert I.C./Size	T	R	Item No. (10 Piece Packs)				Insert Screw (10 pk)
					C-2 Uncoated	C-2 TiN	C-6 Uncoated	C-6 TiN	
CDCD	–	.156	.040	.002	CDCD513002C2	CDCD513002C2T	CDCD513002C6	CDCD513002C6T	TXS-001-10
		3,97	1,02	0,05					
	–	.156	.040	.007	CDCD513007C2	CDCD513007C2T	CDCD513007C6	CDCD513007C6T	TXS-001-10
		3,97	1,02	0,18					
CCMT	060202	.250	.094	.008	CCMT2150C2	CCMT2150C2T	CCMT2150C6	CCMT2150C6T	TXS-116-10
		6,35	2,39	0,20					
	060204	.250	.094	.016	CCMT2151C2	CCMT2151C2T	CCMT2151C6	CCMT2151C6T	TXS-116-10
		6,35	2,39	0,40					
	09T302	.375	.156	.008	CCMT3250C2	CCMT3250C2T	CCMT3250C6	CCMT3250C6T	TXS-009-10
		9,53	3,96	0,20					
	09T304	.375	.156	.016	CCMT3251C2	CCMT3251C2T	CCMT3251C6	CCMT3251C6T	TXS-009-10
		9,53	3,96	0,40					
	09T308	.375	.156	.031	CCMT3252C2	CCMT3252C2T	CCMT3252C6	CCMT3252C6T	TXS-009-10
		9,53	3,96	0,79					
	120408	.500	.188	.031	–	–	–	CCMT432C6T	TXS-119-10
		12,70	4,76	0,79					
CPMT	060202	.250	.094	.008	–	CPMT2150C2T	–	CPMT2150C6T	TXS-116-10
		6,35	2,39	0,20					
	060204	.250	.094	.016	–	CPMT2151C6T	–	CPMT2151C6T	TXS-116-10
		6,35	2,39	0,40					
	09T304	.375	.156	.016	CPMT3251C2	CPMT3251C2T	–	CPMT3251C6T	TXS-009-10
		9,53	3,96	0,40					
	09T308	.375	.156	.031	CPMT3252C2	CPMT3252C2T	–	CPMT3252C6T	TXS-009-10
		9,53	3,96	0,79					

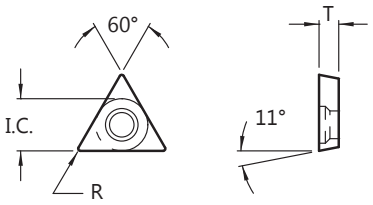
TCMT



TPGW



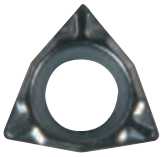
TPGT



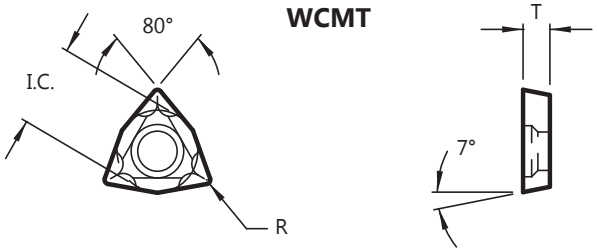
Style	ISO Description	Insert I.C./Size	T	R	Item No. (10 Piece Packs) C-2 Uncoated	C-2 TiN	C-6 Uncoated	C-6 TiN	Insert Screw (10 pk)
TCMT	06T104	.156	.078	.016	TCMT12121C2	TCMT12121C2T	–	TCMT12121C6T	TXS-028-10
		3,97	1,98	0,40					
	06T108	.156	.078	.031	TCMT12122C2	TCMT12122C2T	–	TCMT12122C6T	TXS-028-10
		3,97	1,98	0,79					
	090202	.219	.094	.008	TCMT18150C2	TCMT18150C2T	TCMT18150C6	TCMT18150C6T	TXS-116-10
		5,56	2,39	0,20					
	110202	.250	.094	.008	TCMT2150C2	TCMT2150C2T	TCMT2150C6	TCMT2150C6T	TXS-116-10
		6,35	2,39	0,20					
	110204	.250	.094	.016	TCMT2151C2	TCMT2151C2T	TCMT2151C6	TCMT2151C6T	TXS-116-10
		6,35	2,39	0,40					
	16T304	.375	.156	.016	–	–	TCMT3251C6	TCMT3251C6T	TXS-100-10
		9,53	3,96	0,40					
TPGT	110204	.250	.094	.016	TPGT2151C2	TPGT2151C2T	TPGT2151C6	TPGT2151C6T	TXS-116-10
		6,35	2,39	0,40					
	110208	.250	.094	.031	TPGT2152C2	TPGT2152C2T	TPGT2152C6	TPGT2152C6T	TXS-116-10
		6,35	2,39	0,79					
	160304	.375	.125	.016	TPGT321C2	TPGT321C2T	TPGT321C6	TPGT321C6T	TXS-100-10
		9,53	3,18	0,40					
	160308	.375	.125	.031	TPGT322C2	TPGT321C2T	TPGT322C6	TPGT322C6T	TXS-100-10
		9,53	3,18	0,79					
	16T304	.375	.156	.016	TPGT3251C2	TPGT3251C2T	TPGT3251C6	TPGT3251C6T	TXS-100-10
		9,53	3,96	0,40					
	16T308	.375	.156	.031	TPGT3252C2	TPGT3252C2T	TPGT3252C6	TPGT3252C6T	TXS-100-10
		9,53	3,96	0,79					
TPGW	1102V5	.250	.094	.002	TPGW2150C2	TPGW2150C2T	TPGW2150C6	TPGW2150C6T	TXS-116-10
		6,35	2,39	0,05					
	110204	.250	.094	.016	TPGW2151C2	TPGW2151C2T	TPGW2151C6	TPGW2151C6T	TXS-116-10
		6,35	2,39	0,40					
	110208	.250	.094	.031	TPGW2152C2	TPGW2152C2T	TPGW2152C6	TPGW2152C6T	TXS-116-10
		6,35	2,39	0,79					
	1603V5	.375	.125	.002	TPGW320C2	TPGW320C2T	TPGW320C6	TPGW320C6T	TXS-100-10
		9,53	3,18	0,05					
	160304	.375	.125	.016	TPGW321C2	TPGW321C2T	TPGW321C6	TPGW321C6T	TXS-100-10
		9,53	3,18	0,40					
	160308	.375	.125	.031	TPGW322C2	TPGW322C2T	TPGW322C6	TPGW322C6T	TXS-100-10
		9,53	3,18	0,79					
	16T3V5	.375	.156	.002	TPGW3250C2	TPGW3250C2T	TPGW3250C6	TPGW3250C6T	TXS-100-10
		9,53	3,96	0,05					
	16T304	.375	.156	.016	TPGW3251C2	TPGW3251C2T	TPGW3251C6	TPGW3251C6T	TXS-100-10
		9,53	3,96	0,40					
	16T308	.375	.156	.031	TPGW3252C2	TPGW3252C2T	TPGW3252C6	TPGW3252C6T	TXS-100-10
		9,53	3,96	0,79					

Inserts

Trigon



WCMT



Style	ISO Description	Insert I.C./Size	T	R	Item No. (10 Piece Packs)				Insert Screw (10 pk)
					C-2 Uncoated	C-2 TiN	C-6 Uncoated	C-6 TiN	
WCMT	020102	.156	.063	.008	WCMT020102C2	WCMT020102C2T	WCMT020102C6	WCMT020102C6T	TXS-028-10
		3,97	1,60	0,20					
	020104	.156	.063	.016	WCMT020104C2	WCMT020104C2T	WCMT020104C6	WCMT020104C6T	TXS-028-10
		3,97	1,60	0,40					

Torx Screw Reference

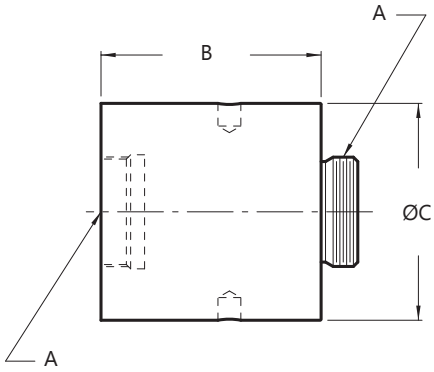
Insert Screw	Torx Size
TXS-001	T6
TXS-009	T15
TXS-028	T6
TXS-100	T20
TXS-116	T7
TXS-119	T15

Accessories

CONTENTS

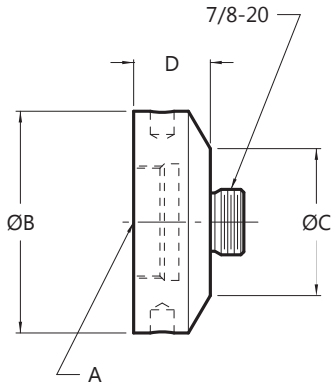
Modular Adapters

IMPORTANT: The extensions and reducers below increase the number of connections in your modular boring system and may adversely affect performance. Factory technical assistance is available through our Application Engineering department.



Extensions

Part No.	A	B	ØC
CB1000-IA1000	7/8-20	1.00	1.00
CB1000-IA2000	7/8-20	2.00	1.00
CB1250-IA1250	7/8-20	1.25	1.25
CB1250-IA2500	7/8-20	2.50	1.25
CB1500-IA1500	7/8-20	1.50	1.50
CB1500-IA3000	7/8-20	3.00	1.50
CB2000-IA2000	7/8-20	2.00	2.00
CB2000-IA4000	7/8-20	4.00	2.00
CB3000-IA3000	1-1/2-18	3.00	3.00
CB3000-IA6000	1-1/2-18	6.00	3.00



Reducers

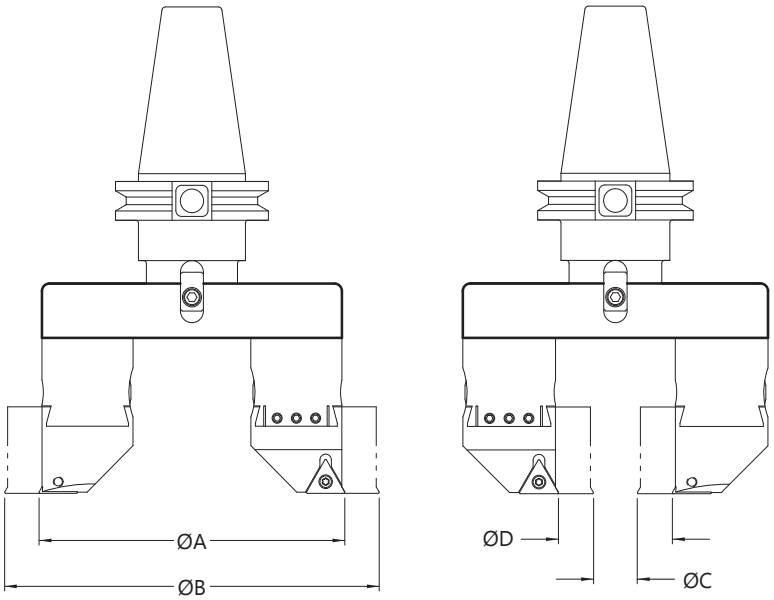
Part No.	A	ØB	ØC	D
CB1500-IRCB1000	7/8-20	1.50	1.00	1.00
CB1500-IRCB1250	7/8-20	1.50	1.25	1.00
CB2000-IRCB1000	7/8-20	2.00	1.00	1.00
CB2000-IRCB1250	7/8-20	2.00	1.25	1.00
CB2000-IRCB1500	7/8-20	2.00	1.50	1.00
CB3000-IRCB1000	1-1/2-18	3.00	1.00	1.25
CB3000-IRCB1250	1-1/2-18	3.00	1.25	1.25
CB3000-IRCB1500	1-1/2-18	3.00	1.50	1.25
CB3000-IRCB2000	1-1/2-18	3.00	2.00	1.25

LCB1500 Extender Bars

Part No.	ØA	ØB	ØC	ØD
LCB1500-56EBK	5.000	6.125	0.710	1.830
LCB1500-67EBK	6.000	7.125	1.710	2.830
LCB1500-78EBK	7.000	8.125	2.710	3.830
LCB1500-89EBK	8.000	9.125	3.710	4.830
LCB1500-910EBK	9.000	10.125	4.710	5.830
LCB1500-1011EBK	10.000	11.125	5.710	6.830
LCB1500-1112EBK	11.000	12.125	6.710	7.830

Hardware included for mounting.

- LCB1500 Modular Boring System has interchangeable Extender Bars
- Extender Bars are through coolant capable
- Extender Bars are designed to be used with standard CB1500 Boring Heads
- Utilizes LCB Shanks (see page 26)

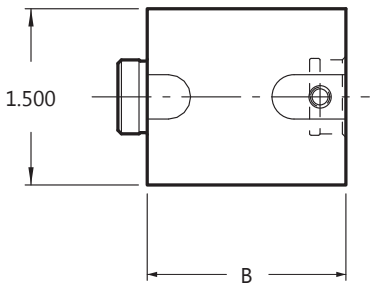


LCB1500 Extensions

Part No.	B
LCB1500-IA1500	1.50
LCB1500-IA3000	3.00
LCB1500-IA4500	4.50

Hardware included for mounting.

NOTE: Extensions cannot be combined. They must be used separately



LCB1500 Optional Parts

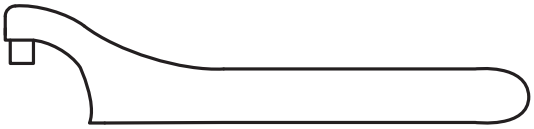
NOTICE: The Large Cri-Bore System can be used with a single Cri-Bore Boring Head. This configuration would result in increased imbalance and would affect the tool's performance and/or spindle damage. A counterbalance weight is recommended to balance the tool. Factory technical assitance is available through our Application Engineering department.

Part No.	Description	Notes
LCB1500-CBW	Counterbalance weight	Recommended when using a single CB1500 Boring Head
LCB1500-CBWTA	Counterbalance weight	Recommended when using a single CB1500-TA Boring Head
LCB1500-HA	Height adapter	Required when using a CB1500 and CB1500-TA Boring Head in combination

Miscellaneous Accessories

Pin Spanner Wrenches

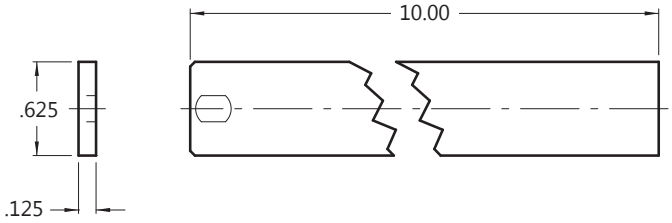
Part No.	Descriptions
CB-1000-PSW	Dedicated to 1.000" Body Diameter
CB-1250-PSW	Dedicated to 1.250" Body Diameter
CB-1500-PSW	Dedicated to 1.500" Body Diameter
CB-2000-PSW	Dedicated to 2.000" Body Diameter
CB-3000-PSW	Dedicated to 3.000" Body Diameter
CB-4000-PSW	Dedicated to 4.000" Body Diameter



Fadal BT Stop Arm

HAAS BT Stop Arm

Blank Stop Arm



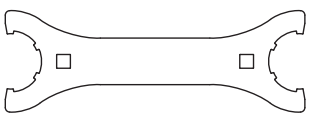
Stop Arms

To be used with CNC Boring & Facing Heads (see page 18)

Part No.	Descriptions
BFC-300DSAB	Blank Stop Arm
BFC-300DSAFV40	Fadal V-40 Stop Arm
BFC-300DSAHV40	HAAS V-40 Stop Arm
BFC-300DSAFB40	Fadal BT-40 Stop Arm
BFC300DSAHB40	HAAS BT-40 Stop Arm

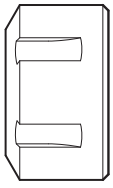
CBER® Accessories

Part No.
CBER16-NUTW
CBER20-NUTW
CBER25-NUTW
CBER32-NUTW
CBER40-NUTW

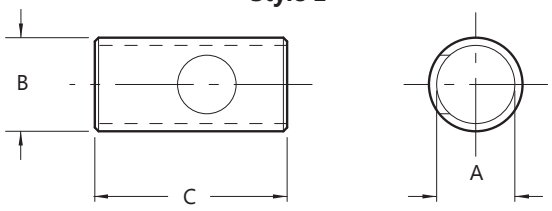


Part No.
CBER20-NUT
CBER25-NUT
CBER32-NUT
CBER30-NUT

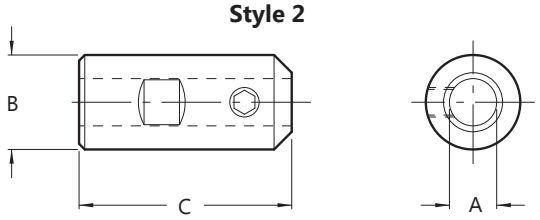
Does not include retaining ring



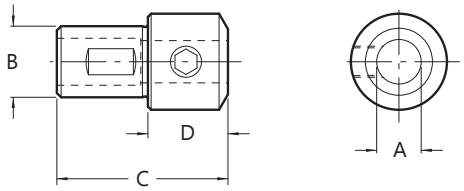
Style 1



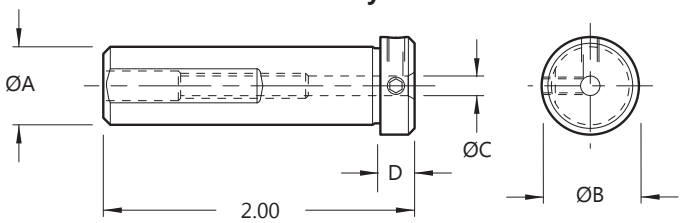
Style 2



Style 3



Style 4



Back-up screw for length adjustment

Inch

Part No.	ØA	ØB	ØC	D	Style
BTH-01250250	.125	0.250	0.695	0.200	3
BTH-01250375		0.375	2.000	0.220	4
BTH-01250500		0.500	2.000	0.220	4
BTH-01250625		0.625	2.000	0.220	4
BTH-01250750		0.750	2.000	0.220	4
BTH-01870375	.187	0.375	1.312	–	1
BTH-01870500		0.500	1.312	–	1
BTH-02500375	.250	0.375	1.312	–	1
BTH-02500500		0.500	1.312	–	1
BTH-03120375	.312	0.375	1.312	–	1
BTH-03120500		0.500	1.312	–	1
BTH-03750750	.375	0.750	2.406	–	2
BTH-03751000		1.000	2.250	–	2
BTH-05000750	.500	0.750	2.406	0.910	3
BTH-05001000		1.000	2.250	–	2
BTH-06250750	.625	0.750	1.500	–	1
BTH-06251000		1.000	2.406	1.120	3
BTH-07501000	0.750	1.000	2.406	1.120	3
BTH-10001500	1.000	1.500	3.000	1.000	3

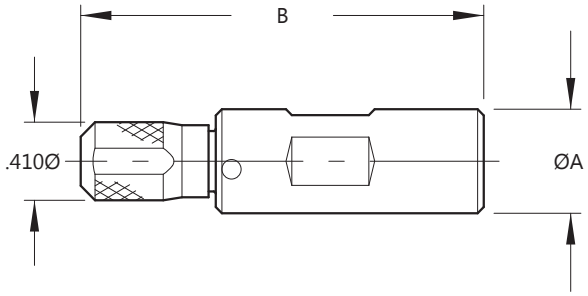
Metric

Part No.	ØA	B	C	D	Style
BTH-10M12M	10	12	32	–	1
BTH-10M20M		20	65	24	3
BTH-10M25M		25	65	–	2
BTH-12M20M	12	20	65	24	3
BTH-12M25M		25	65	–	2
BTH-20M25M	20	25	70	28	3

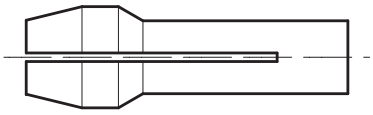
Qualified Length Tool Holder

To be used with Qualified Length Boring Tools (see page 31)

Part No.	ØA	B
CHD-0250QL	.250	1.150
CHD-0375QL	.375	1.970
CHD-0500QL	.500	1.970
CHD-0625QL	.625	2.300
CHD-0750QL	.750	2.300



Part No.	Description
CHD-125C	.125Ø Collet
CHD-125CNW	Collet Nut Wrench
CHD-0250CN	Collet Nut



CHD-125C

Kits & Sets

CONTENTS

CB Kits

Carbide Boring Tools

Inch

Part No.	Parts Included in Set				
	Boring Head	Shank	Boring Bars / Tools / Adapters		
KIT-202BR8SBT	CB-202B	R-8 Shank	SBT-01250500B SBT-03121500B	SBT-01870812B SBT-03751750B	SBT-02501125B SBT-05002187B
KIT-203DR8SBT	CB-203D	R-8 Shank	SBT-05002187D SBT-10003500D	SBT-06252750D SBT-12504000D	SBT-07503000D –
KIT-203DR8SBTBD	CB-203D	R-8 Shank	SBT-01250500B SBT-03121500B SBT-10003500D –	SBT-01870812B SBT-03751750B SBT-06252750D SBT-12504000D	BTH-05000750 SBT-02501125B SBT-05002187B SBT-07503000D

Metric

Part No.	Parts Included in Set				
	Boring Head	Shank	Boring Bars / Tools / Adapters		
KIT-CB038MASBT	CB-038MA	–	SBT-03012MA SBT-04020MA	SBT-06028MA BT-08037MA	SBT-10048MA SBT-12055MA
KIT-CB050MBSBT	CB-050MB	–	SBT-03012MB SBT-04020MB CHB-012M	SBT-06028MB SBT-08037MB –	SBT-10048MB SBT-12055MB –
KIT-CB076MDSBT	CB-076M	–	SBT-12063MD SBT-16071MD	SBT-19078MD SBT-25090MD	SBT-32100MD CHB-020M

Inch

Part No.	Parts Included in Set				
	Boring Head	Shank	Boring Bars / Tools / Adapters		
KIT-202BR8TA	CB-202B	R-8 Shank	TA-02501062B TA-04372062B	TA-03121437B TA-05002187B	TA-03751750B –
KIT-203DR8TA	CB-203D	R-8 Shank	TA-05002500D TA-12504000D	TA-07503000D –	TA-10003500D –
KIT-203DR8TABD	CB-203D	R-8 Shank	TA-02501062B TA-04372062B TA-07503000D –	TA-03121437B TA-10003500D – –	BTH-05000750 TA-03751750B TA-05002500D TA-12504000D

Metric

Part No.	Parts Included in Set				
	Boring Head	Shank	Boring Bars / Tools / Adapters		
KIT-CB038MATA	CB-038MA	–	TA-06M027A	TA-08M036A	TA-10M045A
KIT-CB050MBTA	CB-050M	–	TA-06M027B TA-08M036B	TA-10M045B TA-12M054B	CHB-012M –
KIT-CB076MDTA	CB-076M	–	TA-10M045D TA-20M090D	TA-12M054D CHB-020M	TA-16M072D –
KIT-CB038MATAS	CB-038MA	–	TAS-06M012A	TAS-08M016A	TAS-10M020A
KIT-CB050MBTAS	CB-050MB	–	TAS-06M012B TAS-12M024B	TAS-08M016B CHB-012M	TAS-10M020B –
KIT-CB076MDTAS	CB-076MD	–	TAS-10M020D TAS-20M040D	TAS-12M024D CHB-020M	TAS-16M032D –

CB202B Balance Kit

IMPORTANT: Using the 202B Balancing Kit with the CB202B Boring Head helps the boring system to be balanced, which will improve performance. Having the CB202B boring system in balance will allow you to operate at optimum speeds. Follow the Speed & Feed chart on pages 60-61.

Part No.	Kit/Set Contains
KIT-202BBAL	**Shafts:** S-1, S-2, S-3, S-4, S-5, S-6 **Weights:** W-1, W-2, W-3, W-4
KIT-202BTABAL	**Shafts:** S-1, S-2, S-3, S-4, S-5, S-6 **Weights:** W-1, W-2, W-3, W-4 **Boring Bars:** TA-02501062B, TA-03121437B, TA-03751750B, TA-04372062B, TA-05002187B
KIT-202BR8BAL	**Shafts:** S-1, S-2, S-3, S-4, S-5, S-6 **Weights:** W-1, W-2, W-3, W-4 **Boring Bars:** TA-02501062B, TA-03121437B, TA-03751750B, TA-04372062B, TA-05002187B **Boring Head:** CB-202B **Shank:** R8-087520
KIT-202BNT40BAL	**Shafts:** S-1, S-2, S-3, S-4, S-5, S-6 **Weights:** W-1, W-2, W-3, W-4 **Boring Bars:** TA-02501062B, TA-03121437B, TA-03751750B, TA-04372062B, TA-05002187B **Boring Head:** CB-202B **Shank:** NMTB40-087520
KIT-202BCV40BAL	**Shafts:** S-1, S-2, S-3, S-4, S-5, S-6 **Weights:** W-1, W-2, W-3, W-4 **Boring Bars:** TA-02501062B, TA-03121437B, TA-03751750B, TA-04372062B, TA-05002187B **Boring Head:** CB-202B **Shank:** CB2000-CV40
KIT-202BBT40BAL	**Shafts:** S-1, S-2, S-3, S-4, S-5, S-6 **Weights:** W-1, W-2, W-3, W-4 **Boring Bars:** TA-02501062B, TA-03121437B, TA-03751750B, TA-04372062B, TA-05002187B **Boring Head:** CB-202B **Shank:** CB2000-BT40
KIT-CTP202K5BAL	**Shafts:** S-1, S-2, S-3, S-4, S-5, S-6 **Weights:** W-1, W-2, W-3, W-4 **Boring Bars:** TA-02501062B, TA-03121437B, TA-03751750B, TA-04372062B, TA-05002187B **Boring Head:** CTP2000-K5202B
KIT-CTP202A5BAL	**Shafts:** S-1, S-2, S-3, S-4, S-5, S-6 **Weights:** W-1, W-2, W-3, W-4 **Boring Bars:** TA-02501062B, TA-03121437B, TA-03751750B, TA-04372062B, TA-05002187B **Boring Head:** CTP2000-A50202B

All sets include a case for easy storage and selection of components

KIT-202BT40BAL

- Bores up to 8x faster
- Fits all 202B style boring heads
- Improves bore finish, concentricity, and productivity
- Simple to use

U.S. Patent No.: 7,309,194

Boring Tool Sets

- Micro grain carbide
- Uncoated

Inch

Part No.	Shank Dia.	Boring Tools Included in the Set		
SET-SBTA	.375	SBT-01250500A SBT-03121500A	SBT-01870812A SBT-03751750A	SBT-02501125A SBT-05002312A
SET-SBTB	.500	SBT-01250500B SBT-03121500B	SBT-01870812B SBT-03751750B	SBT-02501125B SBT-05002187B
SET-SBTBS	*.500	SBT-01250500BS SBT-03121500BS	SBT-01870812BS SBT-03751750BS	SBT-02501125BS SBT-05002187BS
SET-SBTD	.750	SBT-05002187D SBT-10003500D	SBT-06252750D SBT-12504000D	SBT-07503000D –
SET-SBTE	1.000	SBT-05002375E SBT-12503875E	SBT-07502875E SBT-06252625E	SBT-10003500E –

*Denotes square shank

Metric

Part No.	Shank Dia	Boring Tools Included in Set		
SET-SBTMA	*10	SBT-03012MA SBT-08037MA	SBT-04020MA SBT-10048MA	SBT-06028MA SBT-12055MA
SET-SBTMB	*12	SBT-03012MB SBT-08037MB	SBT-04020MAB SBT-10048MB	SBT-06028MB SBT-12055MB
SET-SBTMD	*20	SBT-12063MD SBT-25090MD	SBT-16071MD SBT-32100MD	SBT-19078MD –
SET-SBTME	*25	SBT-12060ME SBT-25089ME	SBT-16067ME SBT-32100ME	SBT-19074ME –

*Denotes square shank

Stubby Carbide Boring Tool Sets

Part No.	Shank Dia.	Boring Tools Included in Set		
SET-SBTBSHT	.500	SBT-01250250B SBT-03120562B	SBT-01870312B SBT-03750687B	SBT-02500437B SBT-05000812B
SET-SBTDSHT	.750	SBT-05001312D –	SBT-07501531D –	SBT-10001750D –

TA Boring Bar Sets

Inch

Part No.	Shank Dia.	Boring Tools Included in Set		
SET-TAB	.500	TA-02501062B TA-04372062B	TA-03121437B TA-05002187B	TA-03751750B –
SET-TAD	.750	TA-05002500D TA-12504000D	TA-07503000D –	TA-10003500D –
SET-TAE	1.000	TA-05002500E TA-12503875E	TA-07502875E –	TA-10003500E –

Metric

Part No.	Shank Dia.	Boring Tools Included in Set		
SET-TAMA	10	TA-06M027A	TA-08M036A	TA-10M045A
SET-TASMA	10	TAS-06M012A	TAS-08M016A	TAS-10M020A
SET-TAMB	12	TA-06M027B TA-12M054B	TA-08M036B –	TA-10M045B –
SET-TASMB	12	TAS-06M012B TAS-12M024B	TAS-08M016B –	TAS-10M020B –
SET-TAMD	20	TA-10M045D TA-20M090D	TA-12M054D –	TA-16M072D –
SET-TASMD	20	TAS-10M020D TAS-20M040D	TAS-12M024D –	TAS-16M032D –
SET-TAME	25	TA-10M045E TA-20M090E	TA-12M054E TA-25M113E	TA-16M072E –
SET-TASME	25	TAS-10M020E TAS-20M040E	TAS-12M024E TAS-25M050E	TAS-16M032E –

Technical

CONTENTS

Recommended Speeds & Feeds

Inch

IMPORTANT: The speeds and feeds below are a general starting point for all applications. Factory technical assistance is available through our Application Engineering department.

Material	Hardness (BHN)	**Finish Boring** (Cri-Bore, CB, CBER)			**Rough Boring** (Cri-Twin®) *		
		Speed		Feed	Speed		Feed
		Uncoated	TiN		Uncoated	TiN	
		SFM		IPR	SFM		IPR
Free Machining Steel 1118, 1215, 12L14, etc.	100-250	350-700	450-800	.003-.005	450-800	450-1000	.006-.016
Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85-275	350-700	450-800	.002-.004	450-800	450-1000	.006-.016
Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125-325	400-700	500-800	.002-.004	450-800	450-1000	.006-.016
Alloy Steel 4140, 5140, 8640, etc.	125-375	300-600	400-700	.002-.004	450-800	450-1000	.006-.016
High Strength Alloy 4340, 4330V, 300M, etc.	225-400	300-600	350-650	.002-.004	400-700	450-800	.006-.016
Tool Steel H-13, H-21, A-4, O-2, 5-3, etc.	150-250	300-600	350-700	.002-.004	400-700	400-700	.006-.010
High Temp Alloy Hastelloy B, Inconel 600, etc.	140-310	100-250	150-300	.002-.004	100-250	150-300	.006-.010
Stainless Steel 400 Series 416, 420	185-350	350-600	400-650	.002-.004	400-600	400-700	.006-.012
Stainless Steel 300 Series 304, 316, 17-4PH	135-275	350-600	400-650	.002-.004	400-600	400-700	.006-.012
Super Duplex Stainless Steel	135-275	350-600	400-650	.002-.004	400-600	400-700	.006-.012
Nodular, Grey, Ductile Cast Iron	120-320	400-600	500-700	.002-.004	400-600	500-700	.006-.012
Cast Aluminum	30-180	750-1000	800-1100	.002-.004	750-1000	800-1100	.006-.016
Wrought Aluminum	30-180	750-1000	750-1000	.002-.004	750-1000	750-1000	.006-.016
Brass	100	700-950	750-1000	.002-.004	700-950	750-1000	.006-.016

*See page 63 for instructions on applying Cri-Twin® boring head in different configurations

NOTICE: The modular boring system's configuration, including the length of boring bar, boring head off set, and amount of extensions and/or reducers may all affect performance of boring systems. All of these factors may increase imbalance of the modular boring system. Imbalance at excessive RPM will cause vibration in the machine tool, which can cause damage to the machine tool; in particular the spindle. This vibration may occur at spindle speeds above 1000 RPM. If vibration is present, reduce spindle speed.

Recommended Speeds & Feeds

Metric

IMPORTANT: The speeds and feeds below are a general starting point for all applications. Factory technical assistance is available through our Application Engineering department.

Material	Hardness (BHN)	**Finish Boring** (Cri-Bore, CB, CBER)			**Rough Boring** (Cri-Twin®) *		
		Speed		Feed	Speed		Feed
		Uncoated	TiN		Uncoated	TiN	
		M/min		mm/rev	M/min		mm/rev
Free Machining Steel 1118, 1215, 12L14, etc.	100 - 250	107 - 213	137 - 244	.076 - .127	137 - 244	137 - 305	.152 - .406
Low Carbon Steel 1010, 1020, 1025, 1522, 1144, etc.	85 - 275	107 - 213	137 - 244	.051 - .102	137 - 244	137 - 305	.152 - .406
Medium Carbon Steel 1030, 1040, 1050, 1527, 1140, 1151, etc.	125 -325	122 - 213	152- 244	.051 - .102	137 - 244	137 - 305	.152 - .406
Alloy Steel 4140, 5140, 8640, etc.	125 - 375	91 - 182	122 - 213	.051 - .102	137 - 244	137 - 305	.152 - .406
High Strength Alloy 4340, 4330V, 300M, etc.	225 - 400	91 - 182	107 - 198	.051 - .102	122 - 213	137 - 244	.152 - .406
Tool Steel H-13, H-21, A-4, O-2, 5-3, etc.	150 - 250	91 - 182	107 - 213	.051 - .102	122 - 213	122 - 213	.152 - .254
High Temp Alloy Hastelloy B, Inconel 600, etc.	140 - 310	30 - 76	46 - 91	.051 - .102	30 - 76	46 - 91	.152 - .254
Stainless Steel 400 Series 416, 420	185 - 350	107 - 182	122 - 198	.051 - .102	122 - 182	122 - 213	.152 - .305
Stainless Steel 300 Series 304, 316, 17-4PH	135 - 275	107 - 182	122 - 198	.051 - .102	122 - 182	122 - 213	.152 - .305
Super Duplex Stainless Steel	135 - 275	107 - 182	122 - 198	.051 - .102	122 - 182	122 - 213	.152 - .305
Nodular, Grey, Ductile Cast Iron	120 - 320	122-182	152 - 213	.051 - .102	122 - 182	152 - 213	.152 - .305
Cast Aluminum	30 - 180	229 - 305	244- 335	.051 - .102	229 - 305	244- 335	.152 - .406
Wrought Aluminum	30 - 180	229 - 305	229 - 305	.051 - .102	229 - 305	229 - 305	.152 - .406
Brass	100	213 - 290	229 - 305	.051 - .102	213 - 290	229 - 305	.152 - .406

*See page 63 for instructions on applying Cri-Twin® boring head in different configurations

NOTICE: The modular boring system's configuration, including the length of boring bar, boring head off set, and amount of extensions and/or reducers may all affect performance of boring systems. All of these factors may increase imbalance of the modular boring system. Imbalance at excessive RPM will cause vibration in the machine tool, which can cause damage to the machine tool; in particular the spindle. This vibration may occur at spindle speeds above 1000 RPM. If vibration is present, reduce spindle speed.

Set-up Instructions

General Information

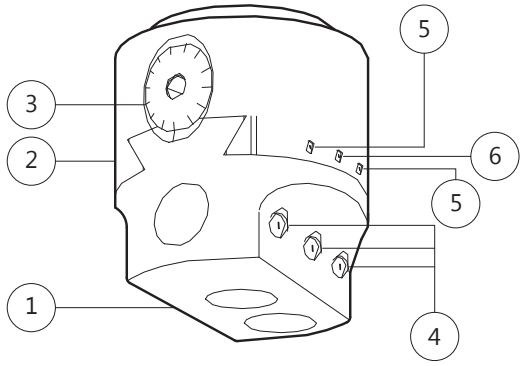
General Boring Head Information

Criterion Allied Boring Heads have three major components: the boring head body (#2), bar holder/insert holder (#1), and dial screw (#3).

The boring head body (#2) has a black oxide finish for rust prevention. The bar holder or insert holder (#1) has been satin chromed for wear resistance. The dial screw (#3) has been precision ground to give accurate movement of the bar holder/insert holder in the dove tail slide.

The gib tension has been preset at the factory. The two gib screws (#5) should not be loosened to make size adjustments. These screws are for adjusting the gib pressure only and are filled with red wax to prevent accidental adjustment.

The locking screw (#6) is the only screw that needs to be loosened to make size changes to the boring head.



1. Bar/Insert Holder
2. Boring Head Body
3. Dial Screw
4. Bar Holder Set Screws
5. Gib Screws
6. Locking Screw

Diameter Adjustment

Adjusting Standard Boring Heads (see figure above)

To adjust the diameter of a Criterion Allied standard boring head:

1. Loosen the locking screw (#6)
2. Turn the dial screw (#3) clockwise to increase the diameter and counterclockwise to decrease the diameter
3. Tighten the locking screw (#6)

IMPORTANT: Do not loosen the gib screws (#5). It can cause poor performance when making diameter adjustments.

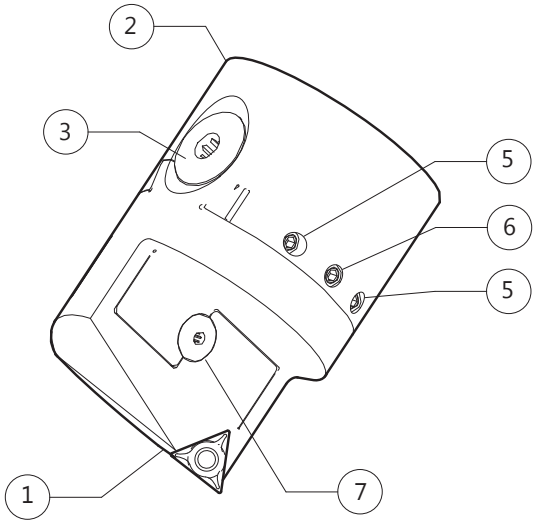
NOTE: To machine a smaller bore diameter, turn dial screw (3) counter-clockwise one full turn minimum to remove any backlash and then adjust to smaller size.

Adjusting Micro Adjusting Setting Boring Heads

Adjusting micro adjusting setting boring heads is just as easy as adjusting standard boring heads. First, you adjust your boring head using the .001" adjustment (#3) and you make your final adjustment with the .0001" adjustment (#7).

1. Loosen the lock screw (#6)
2. Turn the dial screw (#3) clockwise to increase the diameter and counterclockwise to decrease the diameter
3. Tighten the lock screw (#6)
4. Turn the .0001" dial screw (#7) clockwise to increase the diameter and counterclockwise to decrease the diameter. No locking of the .0001" dial screw (#7) is required.

NOTE: The micro adjusting boring heads only have a total range of .006" (.150mm) on diameter.



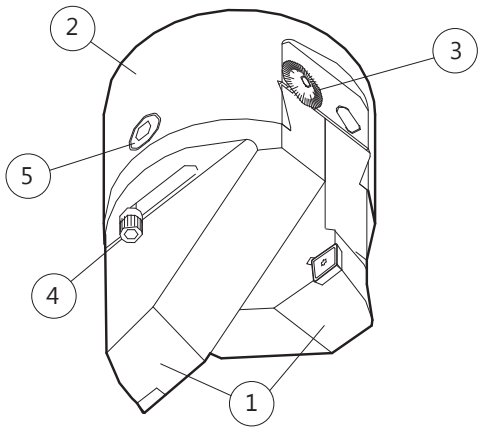
1. Bar/Insert Holder
2. Boring Head Body
3. Dial Screw
4. Bar Holder Set Screws
5. Gib Screws
6. Locking Screw
7. Micro Adjusting Dial Screw

Cri-Twin® Modular Boring Heads

Procedure for Adjusting Cri-Twin® Modular Boring Heads

1. Loosen the insert holder lock screw (#4) on the insert holder to be adjusted and re-snug lightly, using light finger pressure only. Only one insert holder should be adjusted at a time. The other insert holder should remain locked.
2. Loosen and re-snug the body clamp bolt (#5) so a small amount of tension is felt when adjusting the dial screw.
3. Turn dial screw (#3) clockwise to increase the diameter and counter-clockwise to decrease the diameter.
4. Tighten the insert holder locking screw (#4).
5. Rotate the boring head 180°.
6. Repeat steps 1, 3, and 4.
7. Tighten the body clamp bolt (#5).

NOTE: To machine a smaller bore diameter, turn dial screw (3) counter-clockwise one full turn minimum to remove any backlash and then adjust to smaller size.



1. Insert Holders
2. Boring Head Body
3. Dial Screw
4. Insert Holder Locking Screw
5. Body Clamp Bolt

The Cri-Twin® Modular Boring System is one of the most versatile boring systems available today. You can, with a combination of insert holders, perform different types of boring operations. The Cri-Twin® System can double your feed rate, double the material removed, or rough and finish in the same operation.

- **Double Feed Rate Operations:** This requires using two "standard length" or two "zero lead" insert holders and setting the cutting tips of both insert holders to bore the same diameter. The inserts will make equal cuts in the bore so you can double your feed rate and reduce the cycle time to bore your hole. Utilizing the Cri-Twin® System in this manner may leave tool retraction marks in the finish bore. For best results, you should bore into and out of the hole.

  NOTICE: Use rough boring feed recommendations from Speeds & Feeds charts on pages 60-61.

- **Double Material Removed:** This requires using a standard and a short length insert holder. The standard length insert holder enters the cut first so it needs to be set to remove one-half of the material to be bored from the hole. The short insert holder is then set to the finish bore diameter. Remember, when doubling the material removed, each cutting edge is working separately, and you should not double your feed rate.

  NOTICE: Use finish boring feed recommendations from Speeds & Feeds charts on pages 60-61.

- **Roughing and Finishing:** This requires using a standard and a short length insert holder. The standard length insert holder will be set to the rough bore diameter and then the short length insert holder will be set to the finish bore diameter. Utilizing the Cri-Twin® System in this manner may leave tool retraction marks in the finish bore. For best results, you will want to consider boring into and out of the hole.

  NOTICE: Use finish boring feed recommendations from Speeds & Feeds charts on pages 60-61.

Set-up Instructions

Manual Boring and Facing Head

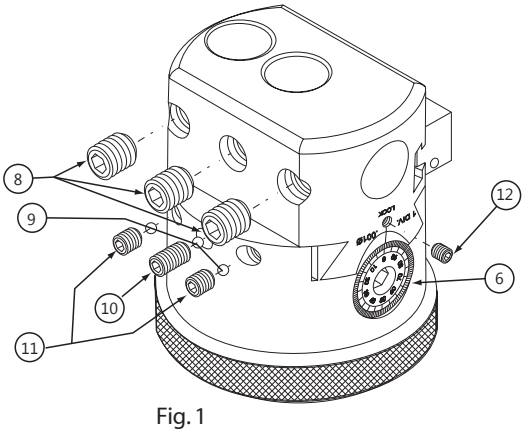


Fig. 1

1. Bar Holder
2. Left Dog Stop
3. Stop Pin
4. Right Dog Stop
5. Body
6. Dial Screw
7. Facing Ring
8. Bar Holder Set Screws
9. Steel Balls
10. Locking Screw
11. Gib Screws
12. Dial Screw Lock
13. Fine Adjusting Screws
14. Top Cap
15. Reversing Lock Screw

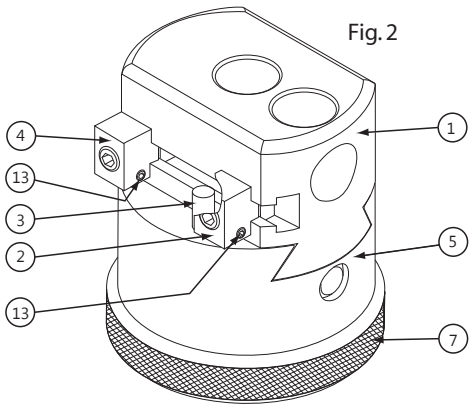


Fig. 2

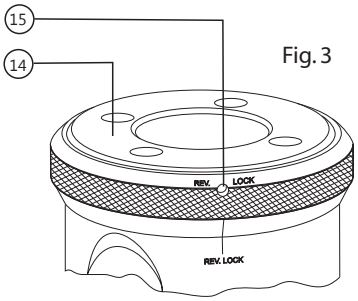


Fig. 3

For General Boring:

When no lateral movement is required, the Manual Boring and Facing Head can be used for standard boring operations. Adjustments are made by placing a hex wrench in the end of the dial screw and dialing off the required amount. Each graduation on the dial represents .001" on the bore diameter.

1. Loosen locking screw (10).
2. Turn the dial screw (#6) clockwise to increase the diameter and counterclockwise to decrease the diameter
3. Tighten the locking screw (#10)
4. To readjust for the next cut, repeat steps 1, 2, and 3.

NOTE: To machine a smaller bore diameter, turn dial screw (6) counterclockwise one full turn minimum to remove any backlash and then adjust to smaller size.

For Facing in the Reverse Direction

Manual Boring & Facing Head is capable of reverse feed by running the spindle in reverse. To set the head for feeding in clockwise and counter-clockwise direction, screw the head on your desired shank. Align the "Rev. Lock" mark on the facing ring (7) with the "Rev. Lock" mark on the body (5) (see Figure 3). Insert a 3/32" hex wrench through the hole in the facing ring and tighten the reversing lock screw (15) (see Figure 3) in the top cap. This prevents the head from unscrewing during reverse (counter-clockwise) operation.

NOTICE: To run the spindle in reverse, the head must be locked onto the shank. Please follow the directions above carefully.

For Facing, Grooving, and Undercutting

To assure yourself free lateral movement, loosen gib screws (11), then re-tighten just enough to create a slight drag when turning the dial screw. This snug, but free, feeling can best be felt when turning the dial screw by hand using a hex wrench.

NOTICE: While machining either right or left hand, the bar holder (1) should never extend past the body (5) on the dial screw face side. This would result in tool damage due to the boring head rubbing inside of the bored hole.

Set-up Instructions:

1. Make sure the dial screw lock (12) is loose.
2. Insert a hex wrench in the dial screw and position the tool at the start of the cut. To simplify a return to this position, set left* dog stop (2) against the stop pin (3).
3. Determine the length of cut required and with the aid of a gauge block, set the right* dog stop (4) against the stop pin (3).
4. Remove gauge block and lower the spindle to the proper depth.
5. Tighten the dial screw lock (12).
6. As the spindle turns, hold on to the facing ring (7). The tool will feed out at the rate of .003 per revolution (fine feed, .0015) until the right* dog stop strikes the stop pin. At this point, the clutch will disengage. Although the facing ring will continue to revolve, the tool will not advance.
7. For fine adjustments: after setting for facing mode with gauge block, the fine adjusting screws (13) may be utilized to aid in the adjustment of the dog stops (2) and (4).
8. To return the tool to the starting position, place a hex wrench in the dial screw (6) and turn counterclockwise until left* dog stop (2) contacts the stop pin (3) or (see note below) while holding onto the facing ring, reverse the spindle and the tool will go back to the starting position.

*Instructions are based on right hand cutting. If application requires left hand cutting, please reverse dog stop instructions listed above.

For CNC Operations, Horizontal or Vertical

To set the head for CNC tool change operations, first refer to the "For Facing, Grooving, and Undercutting" and "For Facing in the Reverse Direction" instructions on page 64 and set the gib, stop dogs, and thread lock as described.

Install the head in the machine spindle and ensure the spindle is in its "home" or "tool change" position. Take note of the position of the anti-rotation device on your machine in relation to the key slot in the taper shank. Remove the head from the machine. Using the two #10-32 cap screws supplied, attach the plunger housing (16) to the facing ring (7). Note that the lock ring (18) should be loose and turn freely. Align the 1/8" dowel pin in the plunger with the slot in the lock ring. Attach the stop arm (19) to the plunger (17) using the #10-32 button head screw provided. At this time, the facing ring should turn with slight resistance. Rotate the facing ring so that the stop arm is in the approximate position relative to the key slot in the taper shank, noted previously.

Install the head in the spindle, taking care to set the stop arm in its proper position relative to the anti-rotation device on your machine.

IMPORTANT: Stop arm is required.

With the head in the machine's spindle at its "home" or "tool change" position, clamp the lock ring (20) in position using the two #4-40 set screws on the periphery of the lock ring. The head is now ready for use.

NOTICE: Damage to the Boring & Facing Head's clutch and gear mechanism may result if operated above 700 RPM. Because the head is not connected to, or controlled by, the machine's CNC control, allowances must be made in the machine's program to allow the head enough time to make its cut (and return). To accomplish this, a dwell must be inserted in the program. To calculate the dwell time, use the following formula.

(D/.0015) / (RPM/60) = T

WHERE:
- **RPM** is the spindle speed
- **60** = seconds
- **D** is the distance from the dog stop to the stop pin
- **.0015"** = radial feed per revolution
- **T** is the dwell time in seconds

EXAMPLE:
The cut is .500" change in diameter. The radial distance (the distance the dog stop is away from the stop pin) is .250". This is your D. The spindle speed is determined to be 500 RPM. Therefore, the formula is now:

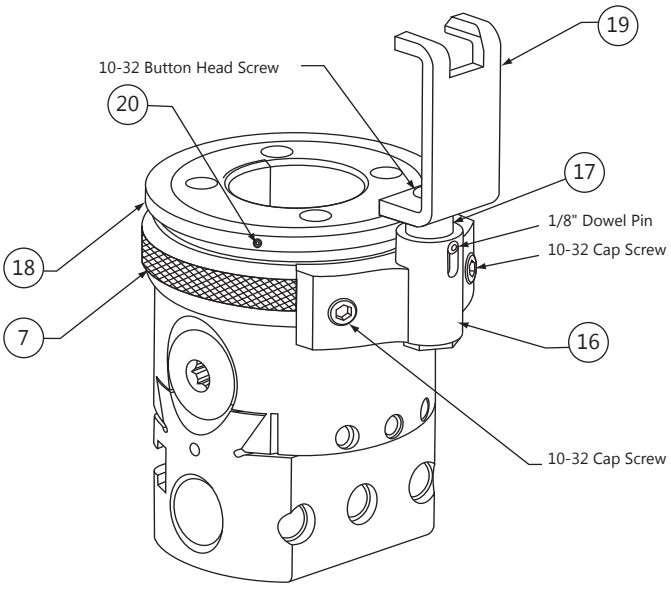
(.250/.0015) / (500/60) = T

20 seconds = T

As a matter of practice, the dwell time will almost always be a few seconds longer than "T" to allow the head to come firmly against the stop and force the clutch to slip. This will allow the tool to come to a constant size (spring cut). This may take some test cuts to determine the necessary additional time.

Use the information above to face a bottom bore and cut an internal relief groove. Call up the head in the CNC program. DO NOT START THE SPINDLE. Center the head over the bore to enter. Enter the holder in Z axis so that the groove tool is properly placed to begin cutting. In the program, set the RPM to be 500 as calculated from example. NOW START THE SPINDLE and set a dwell time of, say, 22 seconds. At the end of this dwell, stop the spindle and set another dwell time of 22 seconds. At the end of this dwell, stop the spindle and retract the head. You now have a faced surface with an undercut.

If the tool is free of cutting on the return stroke, the head may be increased to the maximum of 700 RPM to speed the return as long as the dwell time is reduced accordingly so as not to slip the clutch unnecessarily. Excessive dwell time has the effect of "impact hammering" the feed mechanism against the dog stop and should be avoided.



Guaranteed Test/Demo Application Form

Distributor PO # _____

The following must be filled out completely before test will be considered

Distributor:		End User:	
Contact:		Contact:	
Account Number:		Industry:	
Phone:		Phone:	
Email:		Email:	

Current Process
List all tooling, coatings, substrates, speeds and feeds, tool life and any problems

Test Objective
List what would make this a successful test (i.e. Penetration Rate, Finish, Tool Life, Hole Size, etc.)

Application Information

Finish Bore Diameter: _____ in/mm Tolerance: _____ Material: _____ (4150/A36/Cast Iron/etc.)

Pre-existing Diameter: _____ in/mm Depth of Bore: _____ in/mm Hardness: _____ (BHN/Rc)

State: _____ (Casting/Hot Rolled/Forging)

Machine Information

Machine Type: _____ (Lathe/Screw Machine/Machine Center, etc.) Builder: _____ (Haas/Mori Seiki, etc.) Model#: _____

Shank Required: _____ (CAT50, Morse Taper, etc.)

Rigidity: ☐ Excellent ☐ Good ☐ Poor

Tool Rotating: ☐ Yes ☐ No

Power: _____ HP/KW

Thrust: _____ Lbs./N

Orientation: ☐ Vertical ☐ Horizontal

Using Canned Boring Cycle: ☐ Yes ☐ No

Coolant Information

Coolant Delivery: _____ (Through Tool/Flood) Coolant Pressure: _____ PSI/bar

Coolant Type: _____ (Air Mist/Oil/Synthetic/Water Soluble, etc.) Coolant Volume: _____ GPM/LPM

Requested Tooling

QTY	Item Number

QTY	Item Number

Criterion Allied, Inc.
Telephone: (949) 631-5444
Toll Free USA & Canada: (800) 854-7441
Fax: (949) 631-4923

Warranty

Allied Machine & Engineering Corp. warrants to original equipment manufacturers, distributors, industrial and commercial users of its products that each new product manufactured or supplied by Allied Machine shall be free from defects in material and workmanship.

Allied's obligation under this warranty is limited to furnishing without additional charge a replacement or, at its option repairing or issuing credit for any product which shall within one year from the date of sale be returned freight prepaid to the plant designated by an Allied representative and which upon inspection is determined by Allied to be defective in materials or workmanship.

Complete information as to operating conditions, machine, set-up, and application of cutting fluid should accompany any product returned for inspection. The provisions of this warranty shall not apply to any Allied products which have been subjected to misuse, improper operating conditions, machine set-up or application of cutting fluid or which have been repaired or altered if such repair or alteration in the judgment of Allied would adversely affect performance of the product.

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Allied Drilling Products

Allied Drilling Products are designed and manufactured by Allied Machine & Engineering Corp. The combination of premium materials, along with unique geometry and coatings allows for the finest drilling systems in the metal cutting industry, resulting in the lowest cost per hole.

Literature Order Number: ADP

AccuThread 856®

AccuThread 856® specific Thread Mills conform with J1926 and SAE AS5202 and have a thicker core and a helical flute which offers increased strength and rigidity when cutting forces are applied. AccuThread 856® provides superior thread forms compared to other competitive thread mills and taps.

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High Performance & Universal

This catalog lists the widest variety of spade drills and holders in our industry. Our TiN, TiAlN, and TiCN coated high performance spade drills (31/32" to 5") offer a 100% to 500% increase in productivity and an extended tool life of 3 to 20 times over uncoated tools.

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Custom indexable drill/form tool system that allows you to design forms for any style hole with increased productivity in mind.

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