



Allied Criterion



Allied Criterion supply some of the most adjustable modular systems in the market covering diameters from 3.00 to 341.00mm with micro fine incremental adjustments of 0.0012mm on the bore diameter. Manufactured from premium alloy steels, Allied Criterion offer both single and dual insert systems providing excellent flexibility on length, diameter and shank configurations and utilise standard ISO inserts.

Features and Benefits

- Diameter range 3.00mm to 341.00mm
- Micro fine bore incremental adjustments of 0.0012mm on the bore diameter
- Fine and rough bore solutions
- Excellent flexibility in length, diameter and shank configurations
- Single and dual inserts systems for high accuracy and performance
- Utilise standard ISO inserts
- Kaiser® and Komet® Connections are available

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Boring Heads

- Cri-Bore 27.00mm – 187.00mm bore diameter
- Cri-Twin® 28.00mm – 127.00mm bore diameter
- CB Style 3.00mm – 341.00mm bore diameter
- Large mounting surface for rigidity and stability
- Standard adjustment 0.025mm on diameter
- Micro-adjustment 0.0012mm on diameter
- Dials are direct diameter movement



Shanks

- 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

CBER® Boring System

- 18.00mm – 40.00mm bore diameter
- Fits into ER16, ER20, ER25, ER32 and ER40 collet holders
- Standard adjustment 0.025mm on diameter
- Micro adjustment 0.0012mm on diameter available for ER32 & ER40 collets
- Available in standard and short length





Boring Heads



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Features and Benefits

- Large mounting surface for rigidity and stability
- Standard adjustment 0.025mm on diameter
- Micro-adjustment 0.0012mm on diameter
- Large boring ranges
- Dials are direct diameter movement



Modular Boring System Ranges

T-A & GENZ T-A

GENSYS

APX

Revolution & Core Drill

ASC 320 Solid Carbide

AccuPort 432

Criterion

Thread Milling

Special Tooling

Cri-Twin® Modular Boring System

Description	Min. Bore Dia.	Max. Bore Dia.
CT025M	28	38
CT032M	36	48
CT038M	41	63
CT050M	54	78
CT076M	79	127



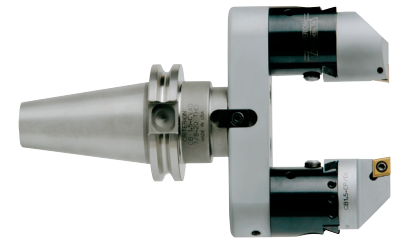
Cri-Bore Modular Boring System

Description	Min. Bore Dia.	Max. Bore Dia.
CB025M	27	33
CB032M	33	41
CB038M	41	68
CB050M	53	84
CB076M	78	128
CB101M	104	187



Large Cri-Bore System

Description	Min. Bore Dia.	Max. Bore Dia.
O.D. Boring	18	199
I.D. Boring	127	308



CB Boring Heads

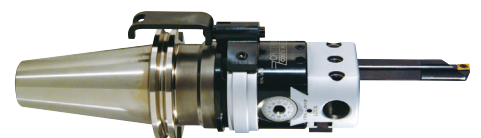
Description	Center Hole		Outboard Hole		Cross Hole	
	Min Dia.	Max Dia.	Min Dia.	Max Dia.	Min Dia.	Max Dia.*
CB-038MB	3	40	—	—	—	—
CB-038MA	3	40	25	62	—	—
CB-050MB	3	44	35	76	122	218
CB-076MD	12	70	60	130	166	292
CB-101ME	12	113	76	178	168	341
CB-064MBMA	3	42	34	73	—	—
CB-076MDMA	12	73	60	130	—	—



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

Boring & Facing Heads

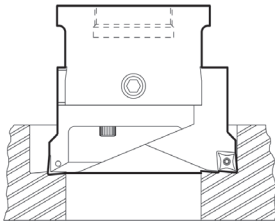
Description	Center Hole		Outboard Hole		Cross Hole	
	Min Dia.	Max Dia.	Min Dia.	Max Dia.	Min Dia.	Max Dia.*
BFC-076M	12	76	60	124	166	288



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

Cri-Twin[®] Boring Heads

Standard Adjusting



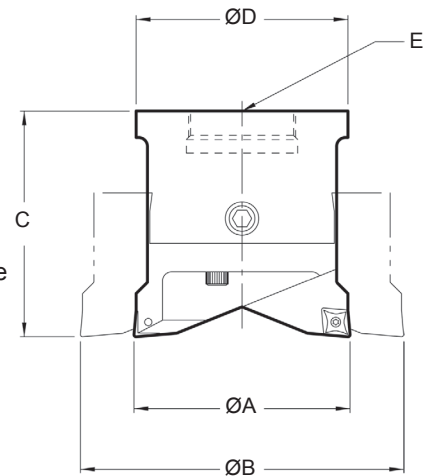
- Remove twice the amount of material with a standard and short insert holder.
- Rough and finish in the same operation with a standard and short insert holder.
- Remove material twice as fast with two insert holders of the same length.

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 257 for guidelines on choosing the correct insert holder length for your application.



Metric

.025mm Adjustment on Diameter

Through Coolant

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	36	48	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

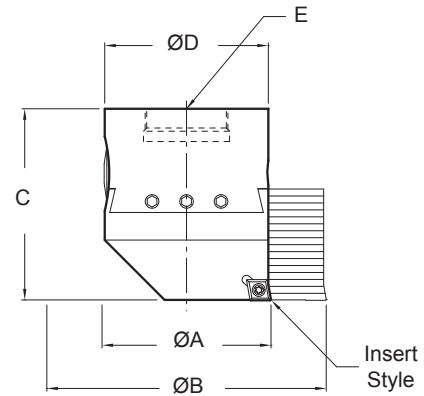


Cri-Bore Boring Heads

Standard Adjusting & Micro Adjusting

T-A & GENZ T-A
GENSYS
APX
Revolution & Core Drill
ASC 320 Solid Carbide
AccuPort 432
Criterion
Thread Milling
Special Tooling

- Excellent for finish boring



Metric - Standard Adjusting

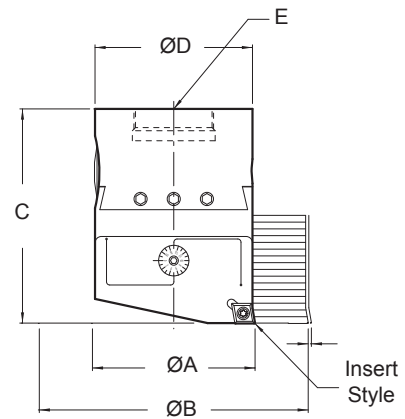
0.025mm Adjustment on Diameter

Through Coolant

Part No.	Bore Diameter		C	ØD	E	Insert		
	MIN ØA	MAX ØB				I.C.	Thickness	Shape/Style
CB025M-TP	27	33	50	25	7/8-20	6.35	2.39	▲ TP
CB025M-CP	27	33	50	25	7/8-20	6.35	2.39	◆ CP or CC
CB032M-TP	33	41	56	32	7/8-20	6.35	2.39	▲ TP
CB032M-CP	33	41	56	32	7/8-20	6.35	2.39	◆ CP or CC
▶ CB038M-TP	41	68	63	38	7/8-20	9.53	3.18	▲ TP
▶ CB038M-CP	41	68	63	38	7/8-20	9.53	3.96	◆ CP or CC
CB050M-TP	53	84	69	50	7/8-20	9.53	3.18	▲ TP
CB050M-CP	53	84	69	50	7/8-20	9.53	3.96	◆ CP or CC
CB076M-TP	78	128	88	76	1-1/2-18	9.53	3.18	▲ TP
CB076M-CP	78	128	88	76	1-1/2-18	9.53	3.96	◆ CP or CC
CB101M-TP	104	185	101	101	1-1/2-18	9.53	3.18	▲ TP
CB101M-CP	106	187	101	101	1-1/2-18	12.70	4.76	◆ CC

- ▶ Can be used with Large Cri-Bore extender bar (see page 248) and shanks (page 235)

- Excellent for close tolerance boring
- Total range of micro adjustment is 0.150mm on diameter



Metric - Micro Adjusting

0.0012mm Adjustment on Diameter

Through Coolant

Part No.	Bore Diameter		C	ØD	E	Insert		
	MIN ØA	MAX ØB				I.C.	Thickness	Shape/Style
CB025M-TPMA	27	33	65	25	7/8-20	6.35	2.39	▲ TP
CB025M-CPMA	27	33	65	25	7/8-20	6.35	2.39	◆ CP or CC
CB032M-TPMA	33	41	71	32	7/8-20	6.35	2.39	▲ TP
CB032M-CPMA	33	41	71	32	7/8-20	6.35	2.39	◆ CP or CC
▶ CB038M-TPMA	41	68	81	38	7/8-20	9.53	3.18	▲ TP
▶ CB038M-CPMA	41	68	81	38	7/8-20	9.53	3.96	◆ CP or CC
CB050M-TPMA	53	84	90	50	7/8-20	9.53	3.18	▲ TP
CB050M-CPMA	53	84	90	50	7/8-20	9.53	3.96	◆ CP or CC
CB076M-TPMA	78	128	104	76	1-1/2-18	9.53	3.18	▲ TP
CB076M-CPMA	78	128	104	76	1-1/2-18	9.53	3.96	◆ CP or CC

- ▶ Can be used with Large Cri-Bore extender bar (see page 248) and shanks (page 235)



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+44 (0)1384 400 105



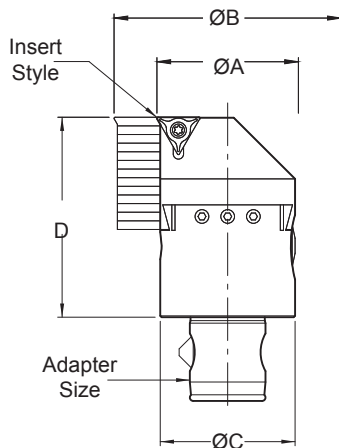
enquiries@alliedmaxcut.com



www.alliedmaxcut.com

Komet[®] ABS[®] Connection

Standard Adjusting & Micro Adjusting



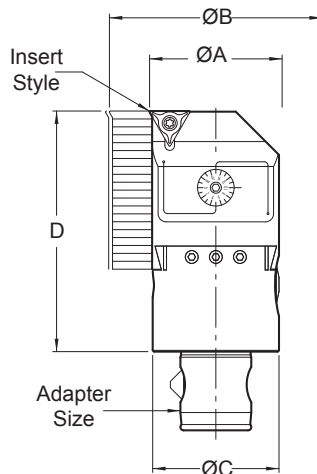
Metric - Standard Adjusting

0.025mm Adjustment on Diameter

Through Coolant

Part No.	Bore Diameter		ØC	D	Insert			Adapter Size
	MIN ØA	MAX ØB			I.C.	Thickness	Shape/Style	
CTP038M-A40TP	41	68	38	58	9.53	3.18	▲ TP	A40
CTP038M-A40CP	41	68	38	58	9.53	3.96	◆ CP or CC	A40
CTP038M-A50TP	41	68	38	58	9.53	3.18	▲ TP	A50
CTP038M-A50CP	41	68	38	58	9.53	3.96	◆ CP or CC	A50
CTP050M-A50TP	53	84	50	69	9.53	3.18	▲ TP	A50
CTP050M-A50CP	53	84	50	69	9.53	3.96	◆ CP or CC	A50
CTP076M-A80TP	78	128	76	99	9.53	3.18	▲ TP	A80
CTP076M-A80CP	78	128	76	99	9.53	3.96	◆ CP or CC	A80

- Total range of micro adjustment is 0.150mm on diameter



Metric - Micro Adjusting

0.0012mm Adjustment on Diameter

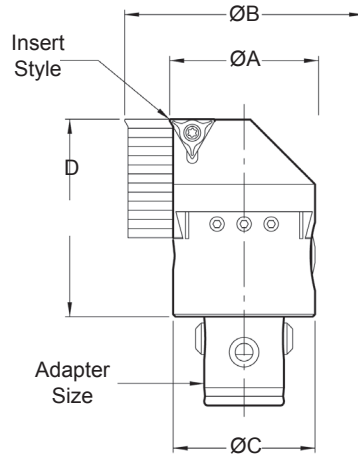
Through Coolant

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-A40CPMA	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



Kaiser[®] Connection

Standard Adjusting & Micro Adjusting

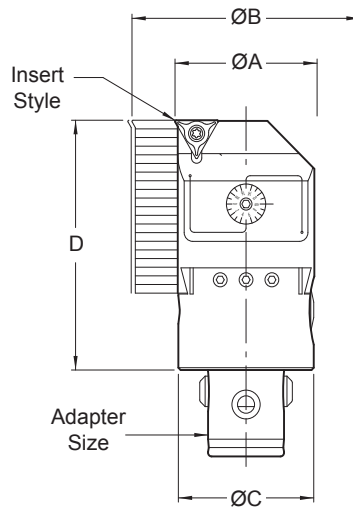


Metric - Standard Adjusting

0.025mm Adjustment on Diameter

Through Coolant

Part No.	Bore Diameter		ØC	D	Insert			Adapter Size
	MIN ØA	MAX ØB			I.C.	Thickness	Shape/Style	
CTP038M-K4TP	41	68	38	58	9.53	3.18	▲ TP	KA4
CTP038M-K4CP	41	68	38	58	9.53	3.96	◆ CP or CC	KA4
CTP038M-K5TP	41	68	38	58	9.53	3.18	▲ TP	KA5
CTP038M-K5CP	41	68	38	58	9.53	3.96	◆ CP or CC	KA5
CTP050M-K5TP	53	84	50	69	9.53	3.18	▲ TP	KA5
CTP050M-K5CP	53	84	50	69	9.53	3.96	◆ CP or CC	KA5
CTP076M-K7TP	78	128	76	99	9.53	3.18	▲ TP	KA7
CTP076M-K7CP	78	128	76	99	9.53	3.96	◆ CP or CC	KA7



- Total range of micro adjustment is 0.150mm on diameter

Metric - Micro Adjusting

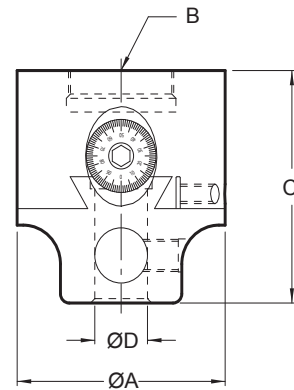
0.0012mm Adjustment on Diameter

Through Coolant

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

CB Style Boring Heads

Standard Adjusting & Micro Adjusting



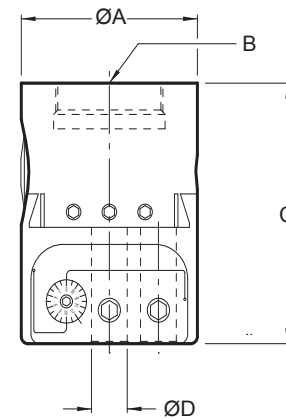
Metric - Standard Adjusting

0.025mm 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	73	169
CB-076MD	76	1-1/2-18	80	20	25	10	70	60	130	126	279
CB-101ME	101	1-1/2-18	95	25	41	10	113	76	178	143	341

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

- Excellent for close tolerance boring
- Total range of micro adjustment is 0.150mm on diameter



Metric - Micro Adjusting

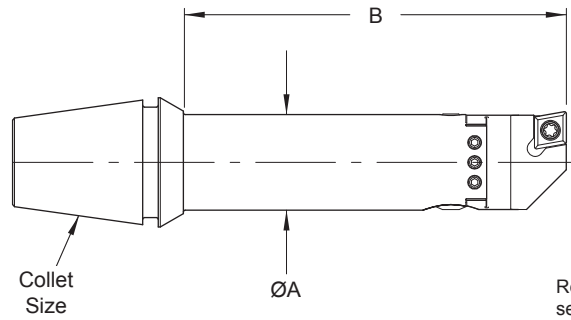
0.0012mm Adjustment on Diameter

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	10	73	60	130



CBER[®] Boring System

IMPORTANT: Stop arm required (see page 249)



Standard Adjusting

0.025mm Adjustment on Diameter

Required nut *without* retaining ring
see page 249

Part No.	Bore Diameter		ØA	B	Collet Size	Insert		
	MIN	MAX				I.C.	Thickness	Shape/Style
CBER16MS-CP	18	23	16	38	ER16	6.35	2.39	◇ CP or CC
CBER16M-CP	18	23	16	63		6.35	2.39	◇ CP or CC
CBER16MS-TP	18	23	16	38		6.35	2.39	△ TP
CBER16M-TP	18	23	16	63		6.35	2.39	△ TP
CBER20MS-CP	18	23	16	38	ER20	6.35	2.39	◇ CP or CC
CBER20M-CP	18	23	16	63		6.35	2.39	◇ CP or CC
CBER20MS-TP	18	23	16	38		6.35	2.39	△ TP
CBER20M-TP	18	23	16	63		6.35	2.39	△ TP
CBER25MS-CP	21	27	19	38	ER25	6.35	2.39	◇ CP or CC
CBER25M-CP	21	27	19	76		6.35	2.39	◇ CP or CC
CBER25MS-TP	21	27	19	38		6.35	2.39	△ TP
CBER25M-TP	21	27	19	76		6.35	2.39	△ TP
CBER32MS-CP	27	33	25	51	ER32	6.35	2.39	◇ CP or CC
CBER32M-CP	27	33	25	102		6.35	2.39	◇ CP or CC
CBER32MS-TP	27	33	25	51		6.35	2.39	△ TP
CBER32M-TP	27	33	25	102		6.35	2.39	△ TP
CBER40MS-CP	33	40	32	63	ER40	6.35	2.39	◇ CP or CC
CBER40M-CP	33	40	32	102		6.35	2.39	◇ CP or CC
CBER40MS-TP	33	40	32	63		6.35	2.39	△ TP
CBER40M-TP	33	40	32	102		6.35	2.39	△ TP

Metric - Micro Adjusting

0.0012mm Adjustment on Diameter

Part No.	Bore Diameter		ØA	B	Collet Size	Insert		
	MIN	MAX				I.C.	Thickness	Shape/Style
CBER32MS-CPMA	27	33	25	69	ER32	6.35	2.39	◇ CP or CC
CBER32M-CPMA	27	33	25	119		6.35	2.39	◇ CP or CC
CBER32MS-TPMA	27	33	25	69		6.35	2.39	△ TP
CBER32M-TPMA	27	33	25	119		6.35	2.39	△ TP
CBER40MS-CPMA	34	40	32	81	ER40	6.35	2.39	◇ CP or CC
CBER40M-CPMA	34	40	32	115		6.35	2.39	◇ CP or CC
CBER40MS-TPMA	34	40	32	81		6.35	2.39	△ TP
CBER40M-TPMA	34	40	32	115		6.35	2.39	△ TP

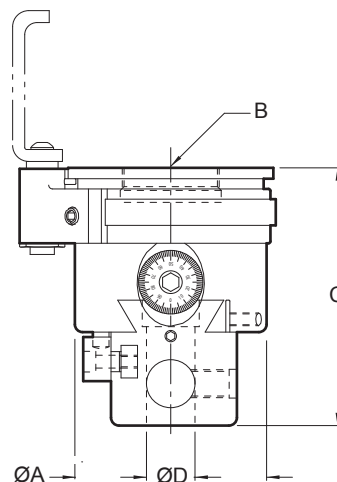
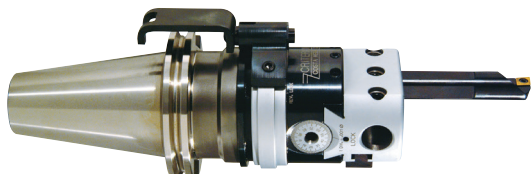
Boring & Facing Heads

CNC & Manual



IMPORTANT: Stop arm required (see page 249)

- Boring, facing, grooving, backfacing, and counterboring operations
- Available in 0.07mm per revolution or fine feed 0.03mm per revolution
- Clutch automatically disengages drive when preset stops are contacted
- Head feeds in both directions

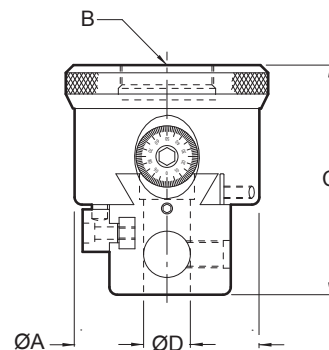


Metric CNC

0.025mm 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	10	76	60	124	166	288
BFC-076MDF	76	1-1/2-18	98	20	22	10	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



Metric Manual

0.025mm 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	10	76	60	124	166	288
BFM-076MDF	76	1-1/2-18	98	20	22	10	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



Shanks

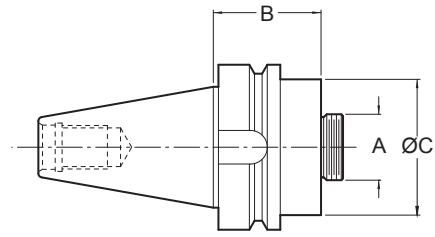
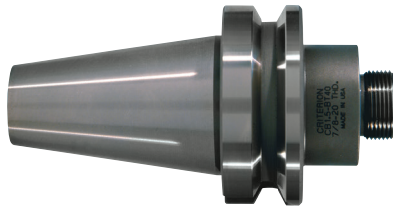


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Features and Benefits

- 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

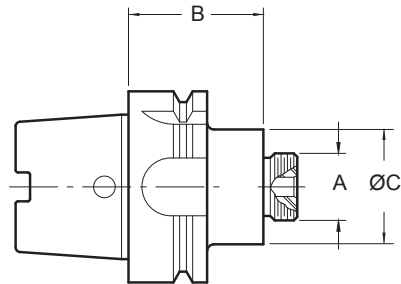


BT-Flange

Through Coolant

Part No.	Taper	A	B	ØC
CB1500-BT30	30	7/8-20	44	38
CB1500-BT40	40	7/8-20	44	38
CB1500-BT50	50	7/8-20	44	38
CB2000-BT40	40	7/8-20	40	50
CB2000-BT50	50	7/8-20	40	50
CB3000-BT40	40	1-1/2-18	52	76
CB3000-BT50	50	1-1/2-18	52	76

• Taper ground to AT3 tolerance



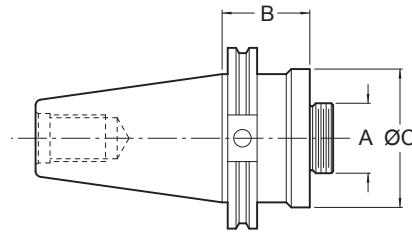
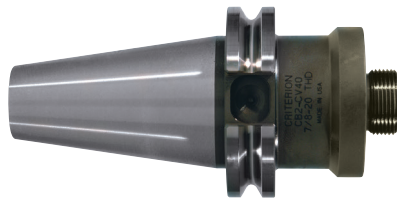
HSK-Flange

Through Coolant

Part No.	Taper	A	B	ØC
CB1500-HSK63A	63A	7/8-20	44	38
CB1500-HSK100A	100A	7/8-20	44	38
CB2000-HSK63A	63A	7/8-20	44	50
CB2000-HSK100A	100A	7/8-20	57	50
CB3000-HSK63A	63A	1-1/2-18	57	76
CB3000-HSK100A	100A	1-1/2-18	57	76



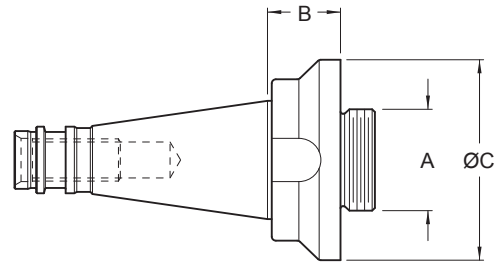
Shanks



DIN 69871A

Through Coolant

Part No.	Taper	A	B	ØC
CB038M-DIN40	40	7/8-20	38.40	38
CB038M-DIN50	50	7/8-20	38.40	38
CB050M-DIN40	40	7/8-20	41.50	50
CB050M-DIN50	50	7/8-20	41.50	50
CB076M-DIN40	40	1-1/2-18	48.00	76
CB076M-DIN50	50	1-1/2-18	48.00	76



DIN 2080

Through Coolant

Part No.	Taper	A	B	ØC
CB038M-ISO30	SK-30	7/8-20	19.60	38
CB038M-ISO40	SK-40	7/8-20	21.10	38
CB038M-ISO50	SK-50	7/8-20	39.40	38
CB050M-ISO30	SK-30	7/8-20	25.70	50
CB050M-ISO40	SK-40	7/8-20	27.70	50
CB050M-ISO50	SK-50	7/8-20	39.40	50
CB076M-ISO40	SK-40	1-1/2-18	27.70	76
CB076M-ISO50	SK-50	1-1/2-18	39.40	76

T-A & GENZ T-A

GENSSYS

APX

Revolution & Core Drill

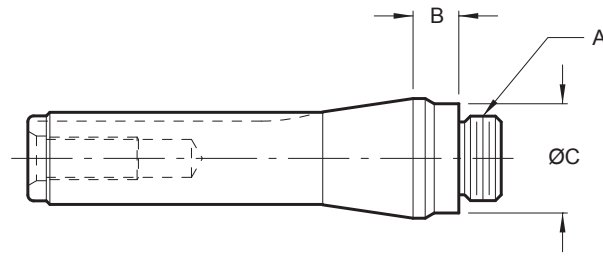
ASC 320 Solid Carbide

AccuPort 432

Criterion

Thread Milling

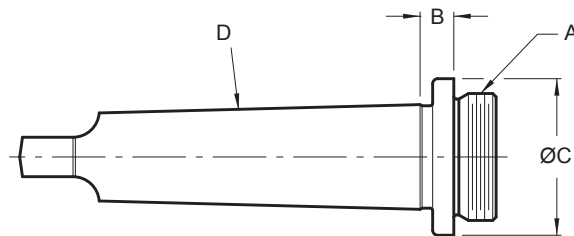
Special Tooling



R-8 Shanks

Through Coolant

Part No.	A	B	ØC
R8-087520	7/8-20	12	28
R8-150018	1-1/2-18	9	47

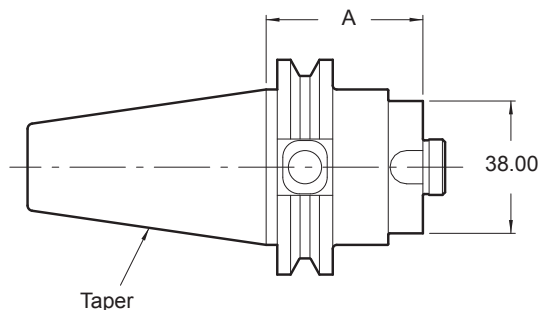


Morse Taper Shanks

Through Coolant

Part No.	A	B	ØC	D
*MT2-375THD87520	7/8-20	11	28	2
MT2-087520	7/8-20	11	28	2
MT3-087520	7/8-20	11	28	3
MT4-087520	7/8-20	6	28	4
MT3-150018	1-1/2-18	11	47	3
MT4-150018	1-1/2-18	13	47	4
MT5-150018	1-1/2-18	16	47	5

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



Large Cri-Bore System Shanks

Through Coolant

Part No.	Taper	A
LCB1500-BT40	40 BT-Flange	44
LCB1500-HSK63A	HSK63A	44

- See pages 226 for Cri-Bore heads
- See page 248 for Large Cri-Bore extender bars



Shanks

T-A & GENZ T-A

GENSSYS

APX

Revolution & Core Drill

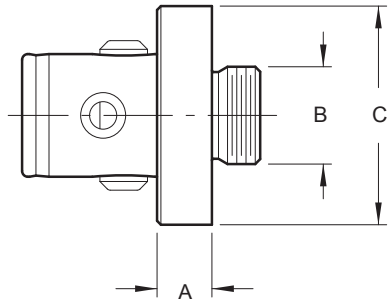
ASC 320 Solid Carbide

AccuPart 432

Criterion

Thread Milling

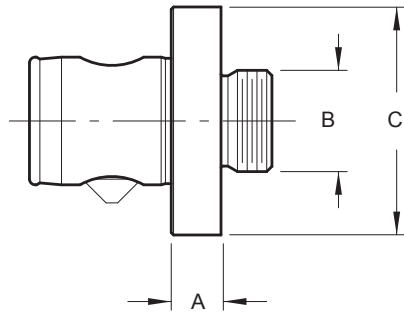
Special Tooling



Kaiser®

Through Coolant

Part No.	A	B	ØC	Adapter Size
CTP1500-K408752	0.500	7/8-20	38	KA4
CTP2000-K508752	0.500	7/8-20	50	KA5
CTP3000-K715001	0.750	1-1/2-18	76	KA7



Komet® ABS®

Through Coolant

Part No.	A	B	ØC	Adapter Size
CTP1500-A400875	0.430	7/8-20	38	A40
CTP2000-A500875	0.430	7/8-20	50	A50
CTP3000-A801500	1.050	1-1/2-18	76	A80





Bars & Tools



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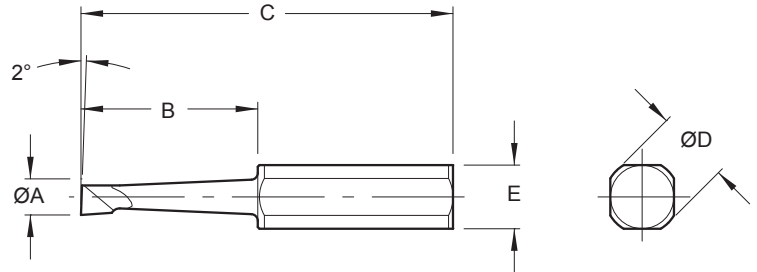
Features and Benefits

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



Carbide Boring Tools

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

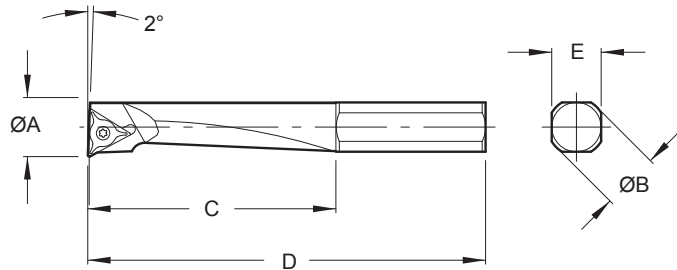


Square Shank (Metric)

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	12	10
SBT-03012MB	3	12	48		
SBT-04020MB	4	20	55		
SBT-06028MB	6	28	62		
SBT-08037MB	8	37	71		
SBT-10048MB	10	48	81	20	18
SBT-12055MB	12	55	90		
SBT-12063MD	12	63	107		
SBT-16071MD	16	71	113		
SBT-19078MD	19	78	119		
SBT-25090MD	25	90	130	25	22
SBT-32100MD	32	100	141		
SBT-12060ME	12	60	107		
SBT-16067ME	16	67	113		
SBT-19074ME	19	74	119		
SBT-25089ME	25	89	130	25	22
SBT-32100ME	32	100	141		

T-A & GENZ T-A
GENSYS
APX
Revolution & Core Drill
ASC 320 Solid Carbide
AccuPart 432
Criterion
Thread Milling
Special Tooling

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



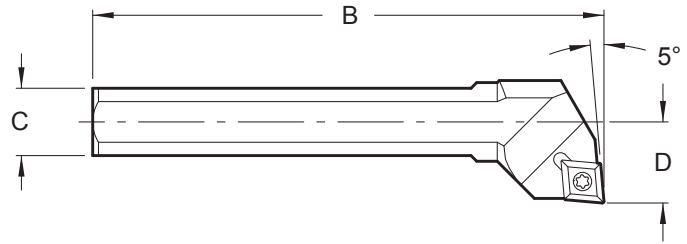
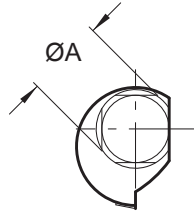
Metric

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	20	24	57	18	6.35	2.39	△ TC
TA-12M054B	12		54	86		6.35	2.39	△ TC
TAS-10M020D	10		20	67		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	25	32	76	23	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		20	69		9.53	1.98	△ TC
TA-10M045E	10		45	94		9.53	1.98	△ TC
TAS-12M024E	12	25	24	73	23	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	25	50	92	23	9.53	3.96	△ TC
TA-25M113E	25		113	155		9.53	3.96	△ TC



Miscellaneous Boring Bars

- Designed to be used in BFC/BFM/CB style boring heads
- Cross hole bars can also be used as right hand turn bars



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	169	6.35	2.39	◇ CP or CC	CB-050MB
CHB-020M	20	123	18	19	126	279	9.53	3.96	◇ CP or CC	CB-076MD/BFC/BFM
CHB-025M	25	134	23	22	143	341	9.53	3.96	◇ CP or CC	CB-101ME

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

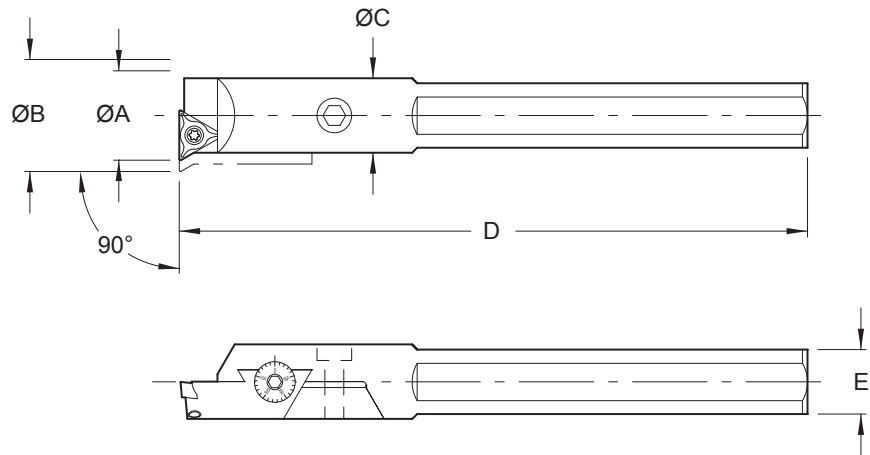
T-A & GENZ T-A
GENSYS
APX
Revolution & Core Drill
ASC 320 Solid Carbide
AccuPart 432
Criterion
Thread Milling
Special Tooling

MD Adjustable Boring Bars

Square Shanks



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



Metric - Square Shanks

.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

T-A & BENZ T-A

BENSSYS

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Thread Milling

Special Tooling



Inserts

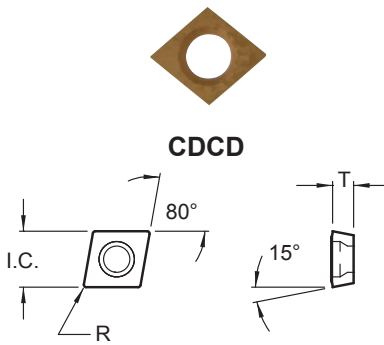


CONTENTS

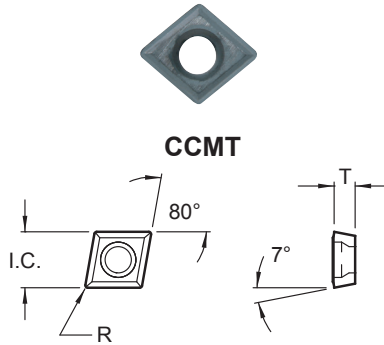
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Features and Benefits

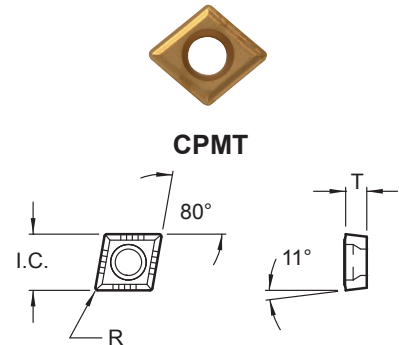
- Meet ISO / ANSI standards
- Selected especially for boring applications
- K20(C2) for non-ferrous materials
- P30(C6) for ferrous applications



CDCD



CCMT



CPMT

Style	ISO Description	Insert I.C./Size	T	R	Item No. (10 Piece Packs)				Insert Screw (10 pk)
					K20 Uncoated	K20 TiN	P30 Uncoated	P30 TiN	
CDCD	–	3.97	1.02	0.05	CD513002C2	CD513002C2T	CD513002C6	CD513002C6T	TXS-001-10
	–	3.97	1.02	0.18	CD513007C2	CD513007C2T	CD513007C6	CD513007C6T	TXS-001-10
CCMT	060202	6.35	2.39	0.20	CC2150C2	CC2150C2T	CC2150C6	CC2150C6T	TXS-116-10
	060204	6.35	2.39	0.40	CC2151C2	CC2151C2T	CC2151C6	CC2151C6T	TXS-116-10
	09T302	9.53	3.96	0.20	CC3250C2	CC3250C2T	CC3250C6	CC3250C6T	TXS-009-10
	09T304	9.53	3.96	0.40	CC3251C2	CC3251C2T	CC3251C6	CC3251C6T	TXS-009-10
	09T308	9.53	3.96	0.79	CC3252C2	CC3252C2T	CC3252C6	CC3252C6T	TXS-009-10
	120408	12.70	4.76	0.79	–	–	–	CC432C6T	TXS-119-10
CPMT	060202	6.35	2.39	0.20	–	CP2150C2T	–	CP2150C6T	TXS-116-10
	060204	6.35	2.39	0.40	–	CP2151C2T	–	CP2151C6T	TXS-116-10
	09T304	9.53	3.96	0.40	CP3251C2	CP3251C2T	–	CP3251C6T	TXS-009-10
	09T308	9.53	3.96	0.79	CP3252C2	CP3252C2T	–	CP3252C6T	TXS-009-10

T-A & BENZ T-A

BENOSYS

APX

Revolution & Core Drill

ASC 320 Solid Carbide

AccuPort 432

Criterion

Thread Milling

Special Tooling

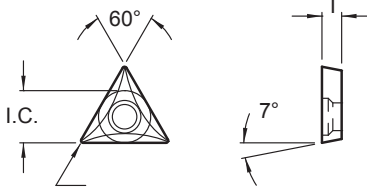


Inserts

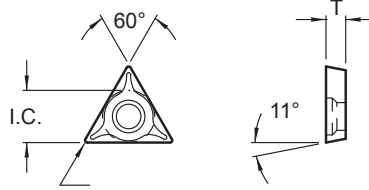
Triangle



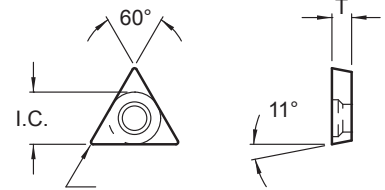
TCMT



TPGT

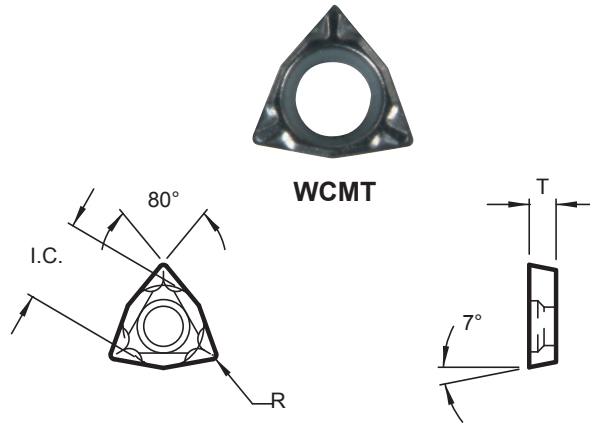


TPGW



Style	ISO Description	Insert I.C./Size	T	R	Item No. (10 Piece Packs)				Insert Screw (10 pk)
					K20 Uncoated	K20 TIN	P30 Uncoated	P30 TIN	
TCMT	06T104	3.97	1.98	0.40	TCMT12121C2	TCMT12121C2T	–	TCMT12121C6T	TXS-028-10
	06T108	3.97	1.98	0.79	TCMT12122C2	TCMT12122C2T	–	TCMT12122C6T	TXS-028-10
	090202	5.56	2.39	0.20	TCMT18150C2	TCMT18150C2T	TCMT18150C6	TCMT18150C6T	TXS-116-10
	110202	6.35	2.39	0.20	TCMT2150C2	TCMT2150C2T	TCMT2150C6	TCMT2150C6T	TXS-116-10
	110204	6.35	2.39	0.40	TCMT2151C2	TCMT2151C2T	TCMT2151C6	TCMT2151C6T	TXS-116-10
	16T304	9.53	3.96	0.40	–	–	TCMT3251C6	TCMT3251C6T	TXS-100-10
TPGT	110204	6.35	2.39	0.40	TPGT2151C2	TPGT2151C2T	TPGT2151C6	TPGT2151C6T	TXS-116-10
	110208	6.35	2.39	0.79	TPGT2152C2	TPGT2152C2T	TPGT2152C6	TPGT2152C6T	TXS-116-10
	160304	9.53	3.18	0.40	TPGT321C2	TPGT321C2T	TPGT321C6	TPGT321C6T	TXS-100-10
	160308	9.53	3.18	0.79	TPGT322C2	TPGT322C2T	TPGT322C6	TPGT322C6T	TXS-100-10
	16T304	9.53	3.96	0.40	TPGT3251C2	TPGT3251C2T	TPGT3251C6	TPGT3251C6T	TXS-100-10
	16T308	9.53	3.96	0.79	TPGT3252C2	TPGT3252C2T	TPGT3252C6	TPGT3252C6T	TXS-100-10
TPGW	1102V5	6.35	2.39	0.05	TPGW2150C2	TPGW2150C2T	TPGW2150C6	TPGW2150C6T	TXS-116-10
	110204	6.35	2.39	0.40	TPGW2151C2	TPGW2151C2T	TPGW2151C6	TPGW2151C6T	TXS-116-10
	110208	6.35	2.39	0.79	TPGW2152C2	TPGW2152C2T	TPGW2152C6	TPGW2152C6T	TXS-116-10
	1603V5	9.53	3.18	0.05	TPGW320C2	TPGW320C2T	TPGW320C6	TPGW320C6T	TXS-100-10
	160304	9.53	3.18	0.40	TPGW321C2	TPGW321C2T	TPGW321C6	TPGW321C6T	TXS-100-10
	160308	9.53	3.18	0.79	TPGW322C2	TPGW322C2T	TPGW322C6	TPGW322C6T	TXS-100-10
	16T3V5	9.53	3.96	0.05	TPGW3250C2	TPGW3250C2T	TPGW3250C6	TPGW3250C6T	TXS-100-10
	16T304	9.53	3.96	0.40	TPGW3251C2	TPGW3251C2T	TPGW3251C6	TPGW3251C6T	TXS-100-10
	16T308	9.53	3.96	0.79	TPGW3252C2	TPGW3252C2T	TPGW3252C6	TPGW3252C6T	TXS-100-10





Style	ISO Description	Insert I.C./Size	T	R	Item No. (10 Piece Packs)				Insert Screw (10 pk)
					K20 Uncoated	K20 TiN	P30 Uncoated	P30 TiN	
WCMT	020102	3.97	1.60	0.20	WCMT020102C2	WCMT020102C2T	WCMT020102C6	WCMT020102C6T	TXS-028-10
	020104	3.97	1.60	0.40	WCMT020104C2	WCMT020104C2T	WCMT020104C6	WCMT020104C6T	TXS-028-10

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



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T-A & GENZ T-A

GENSYS

APX

Revolution & Core Drill

ASC 320 Solid Carbide

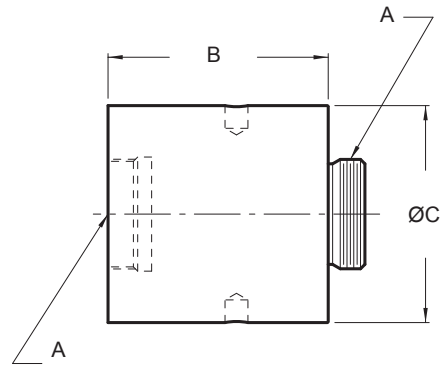
AccuPort 432

Criterion

Thread Milling

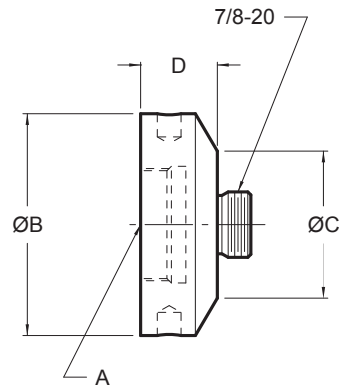
Special Tooling

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	25.40	25
CB1000-IA2000	7/8-20	50.80	25
CB1250-IA1250	7/8-20	31.75	32
CB1250-IA2500	7/8-20	63.50	32
CB1500-IA1500	7/8-20	38.10	38
CB1500-IA3000	7/8-20	76.20	38
CB2000-IA2000	7/8-20	50.80	50
CB2000-IA4000	7/8-20	101.60	50
CB3000-IA3000	1-1/2-18	76.20	76
CB3000-IA6000	1-1/2-18	152.40	76



Reducers

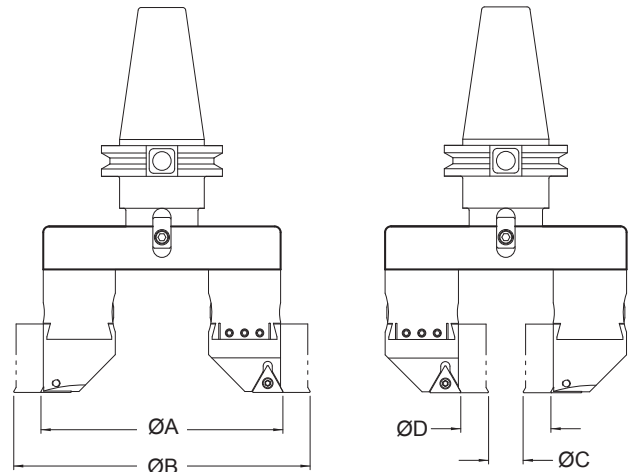
Part No.	A	ØB	ØC	D
CB1500-IRCB1000	7/8-20	38	25	25
CB1500-IRCB1250	7/8-20	38	32	25
CB2000-IRCB1000	7/8-20	50	25	25
CB2000-IRCB1250	7/8-20	50	32	25
CB2000-IRCB1500	7/8-20	50	38	25
CB3000-IRCB1000	1-1/2-18	76	25	32
CB3000-IRCB1250	1-1/2-18	76	32	32
CB3000-IRCB1500	1-1/2-18	76	38	32
CB3000-IRCB2000	1-1/2-18	76	50	32



Large Cri-Bore System

LCB1500

- LCB1500 Modular Boring System has interchangeable Extender Bars
- Extender Bars are through coolant capable
- Extender Bars are designed to be used with standard CB038M Boring Heads
- Utilizes LCB Shanks (see page 235)



LCB1500 Extender Bars

Part No.	ØA	ØB	ØC	ØD
LCB1500-56EBK	127	155	19	46
LCB1500-67EBK	153	180	44	71
LCB1500-78EBK	178	206	69	97
LCB1500-89EBK	204	231	95	122
LCB1500-910EBK	229	257	120	148
LCB1500-1011EBK	254	282	146	173
LCB1500-1112EBK	280	307	171	198

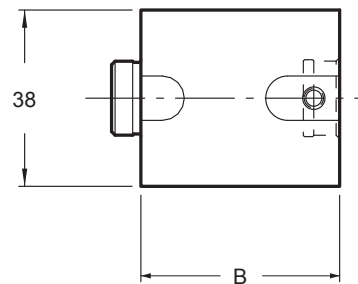
Hardware included for mounting.

LCB1500 Extensions

Part No.	B
LCB1500-IA1500	38
LCB1500-IA3000	76
LCB1500-IA4500	114

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 assistance is available through our Application Engineering department.

Part No.	Description	Notes
LCB1500-CBW	Counterbalance weight	Recommended when using a single CB038M Boring Head
LCB1500-CBWTA	Counterbalance weight	Recommended when using a single CB038M-.....MA Boring Head
LCB1500-HA	Height adapter	Required when using a CB038M and CB038M-.....MA Boring Head in combination



Pin Spanner Wrenches

Part No.	Descriptions
CB-1000-PSW	Dedicated to 25mm Body Diameter
CB-1250-PSW	Dedicated to 32mm Body Diameter
CB-1500-PSW	Dedicated to 38mm Body Diameter
CB-2000-PSW	Dedicated to 50mm Body Diameter
CB-3000-PSW	Dedicated to 76mm Body Diameter
CB-4000-PSW	Dedicated to 101mm Body Diameter

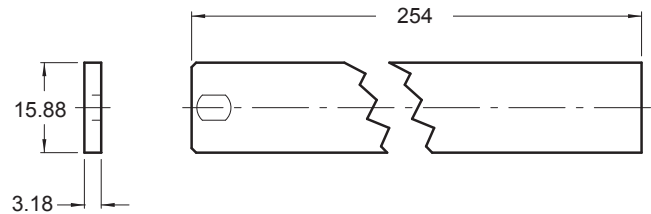
Fadal BT Stop Arm



HAAS BT Stop Arm



Blank Stop Arm



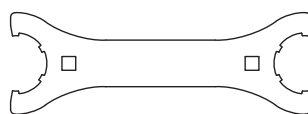
Stop Arms

To be used with CNC Boring & Facing Heads (see page 231)

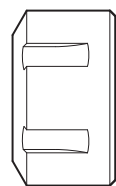
Part No.	Descriptions
BFC-300DSAB	Blank Stop Arm
BFC-300DSAFB40	Fadal BT-40 Stop Arm
BFC300DSAHB40	HAAS BT-40 Stop Arm

CBER® Accessories

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



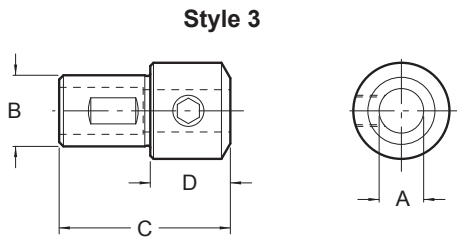
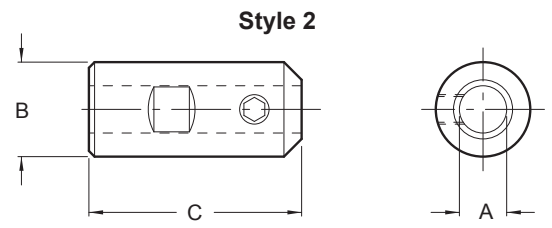
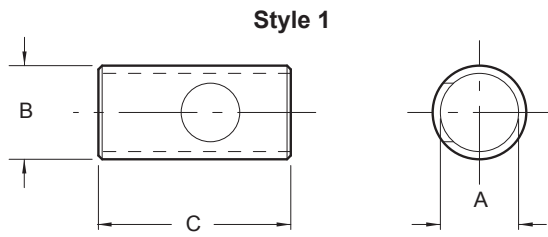
Part No.
CBER20-NUT
CBER25-NUT
CBER32-NUT
CBER40-NUT



Does not include retaining ring



Adapters



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

T-A & GENZ T-A
GENSSYS
APX
Revolution & Core Drill
ASC 320 Solid Carbide
AccuPart 432
Criterion
Thread Milling
Special Tooling



Kits & Sets



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CB Kits

Carbide & TA Boring Tools

T-A & GENZ T-A
GENSYS
APX
Revolution & Core Drill
ASC 320 Solid Carbide
AccuPart 432
Criterion
Thread Milling
Special Tooling



R-8 Shank not included

Metric - Carbide Boring Tools

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-076MD	-	SBT-12063MD SBT-16071MD	SBT-19078MD SBT-25090MD	SBT-32100MD CHB-020M



R-8 Shank not included

Metric - TA Boring Tools

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-050MB	-	TA-06M027B TA-08M036B	TA-10M045B TA-12M054B	CHB-012M -
KIT-CB076MDTA	CB-076MD	-	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



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

KIT-202BT40BAL

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 page 260.

Part No.	Kit/Set Contains	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-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-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-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-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-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-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-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



Boring Tool & TA Boring Bar Sets

- Micro grain carbide
- Uncoated



Metric - Boring Tool Sets

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



Metric - TA Boring Tool Sets

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



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Set-up Instructions

General Information

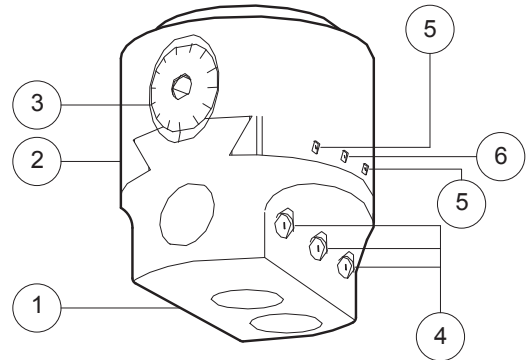
General Boring Head Information

Allied Criterion 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 Allied Criterion 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.

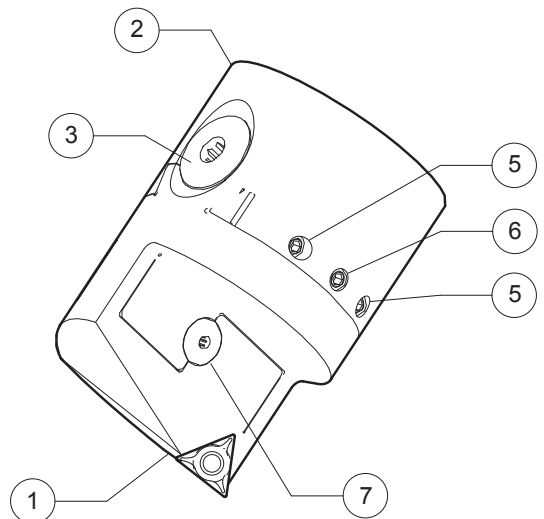
NOTE: To machine a smaller bore diameter, turn dial screw (3) counter-clockwise one full turn minimum to remove any backlash and then adjust to smaller size.

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 0.025mm adjustment (#3) and you make your final adjustment with the 0.0012mm 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 0.0012mm dial screw (#7) clockwise to increase the diameter and counterclockwise to decrease the diameter. No locking of the 0.0012mm dial screw (#7) is required.

NOTE: The micro adjusting boring heads only have a total range of 0.150mm on diameter.



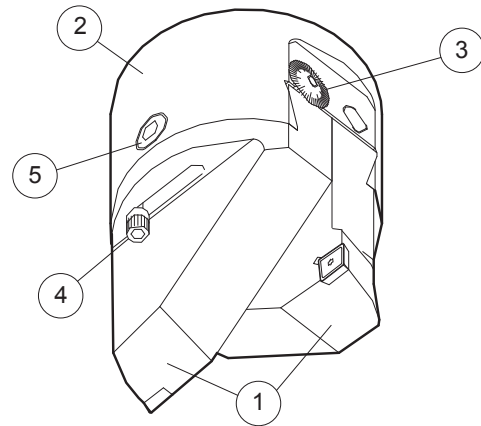
1. Bar/Insert Holder
2. Boring Head Body
3. Dial Screw
4. Bar Holder Set Screws
5. Gib Screws
6. Locking Screw
7. Micro Adjusting Dial Screw

T-A & GENZ T-A
GENSSYS
APX
Revolution & Core Drill
ASC 320 Solid Carbide
AccuPort 432
Criterion
Thread Milling
Special Tooling

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).



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

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.

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 chart on page 260.

- **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 chart on page 260.

- **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 chart on page 260.



Set-up Instructions

Manual Boring & Facing Head

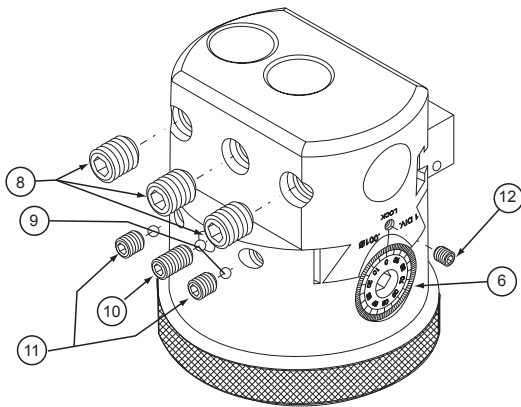


Fig. 1

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

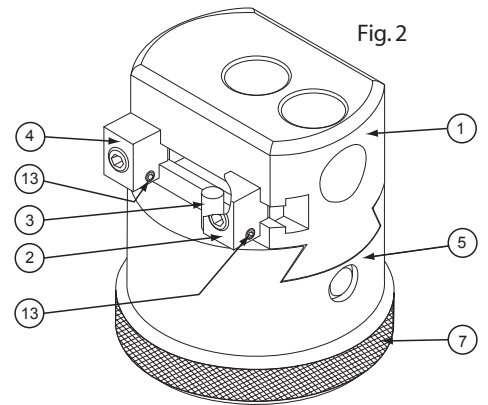


Fig. 2

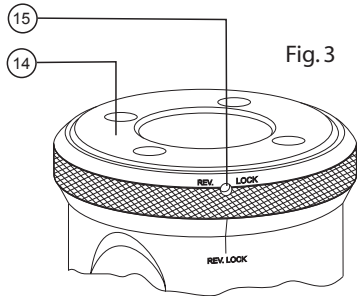


Fig. 3

For 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.

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 0.025mm 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 (counterclockwise) operation.

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

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.

Set-up Instructions

Manual Boring & Facing Head



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 258 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.

$$(D/0.038) / (RPM/60) = T$$

WHERE:

- **RPM** is the spindle speed
- **60** = seconds
- **D** is the distance from the dog stop to the stop pin
- **0.038mm** = radial feed per revolution
- **T** is the dwell time in seconds

EXAMPLE:

The cut is 12.7mm change in diameter. The radial distance (the distance the dog stop is away from the stop pin) is 6.35mm. This is your D. The spindle speed is determined to be 500 RPM. Therefore, the formula is now:

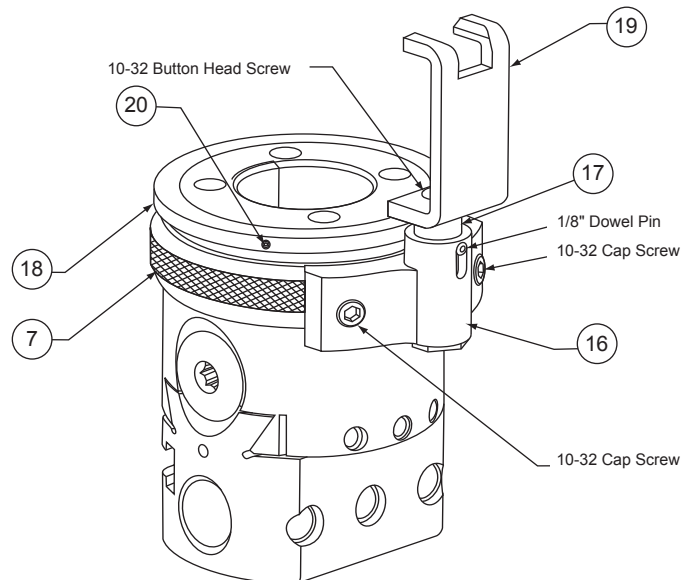
$$(6.35/0.038) / (500/60) = T$$

$$20 \text{ seconds} = T$$

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.





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			Finish Boring (Cri-Bore, CB, CBER)			Rough Boring (Cri-Twin®) *		
				Speed		Feed	Speed		Feed
	(BHN)	kg	N/mm ²	Uncoated	TiN		Uncoated	TiN	
				M/min	mm/rev	M/min	mm/rev		
Free Machining Steel	100 - 250	38 - 88	370 - 870	107 - 213	137 - 244	.076 - .127	137 - 244	137 - 305	.152 - .406
Low Carbon Steel	85 - 275	30 - 96	300 - 940	107 - 213	137 - 244	.051 - .102	137 - 244	137 - 305	.152 - .406
Medium Carbon Steel	125 - 325	46 - 111	450 - 1090	122 - 213	152 - 244	.051 - .102	137 - 244	137 - 305	.152 - .406
Alloy Steel	125 - 375	46 - 129	450 - 1265	91 - 182	122 - 213	.051 - .102	137 - 244	137 - 305	.152 - .406
High Strength Alloy	225 - 400	77 - 139	600 - 1365	91 - 182	107 - 198	.051 - .102	122 - 213	137 - 244	.152 - .406
Tool Steel	150 - 250	50 - 88	500 - 870	91 - 182	107 - 213	.051 - .102	122 - 213	122 - 213	.152 - .254
High Temp Alloy	140 - 310	49 - 101	480 - 990	30 - 76	46 - 91	.051 - .102	30 - 76	46 - 91	.152 - .254
Stainless Steel 400 Series 416, 420	185 - 350	65 - 121	640 - 1180	107 - 182	122 - 198	.051 - .102	122 - 182	122 - 213	.152 - .305
Stainless Steel 300 Series 304, 316, 17-4PH	135 - 275	49 - 96	480 - 940	107 - 182	122 - 198	.051 - .102	122 - 182	122 - 213	.152 - .305
Super Duplex Stainless Steel	135 - 275	49 - 96	480 - 940	107 - 182	122 - 198	.051 - .102	122 - 182	122 - 213	.152 - .305
Nodular, Grey, Ductile Cast Iron	120 - 320	44 - 104	430 - 1020	122-182	152 - 213	.051 - .102	122 - 182	152 - 213	.152 - .305
Cast Aluminum	30 - 180	10 - 62	100 - 600	229 - 305	244- 335	.051 - .102	229 - 305	244- 335	.152 - .406
Wrought Aluminum	30 - 180	10 - 62	100 - 600	229 - 305	229 - 305	.051 - .102	229 - 305	229 - 305	.152 - .406
Brass	100	38	370	213 - 290	229 - 305	.051 - .102	213 - 290	229 - 305	.152 - .406

*See page 257 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.

T-A & GENZ T-A

GENSSYS

APX

Revolution & Core Drill

ASC 320 Solid Carbide

AccuPort 432

Criterion

Thread Milling

Special Tooling