

CONTENT

SELECTION GUIDE

System Overview	105
PC Connection	106
Small Diameter & Finish Boring	107
Rough Boring Head Systems	108
Large Diameter Boring System	109-111
Insert Information	112-115

COMMON COMPONENTS

Modular Shanks	
Shanks	116-120
Ring Holders & Adapters	121
Modular Components	
Extensions	122
Reductions & PC Screws	123

PRECISION FINISH BORING

Small Diameter Boring	
Boring Heads	124-125
Boring Bars	126-127
Inserts	128-129
Large Diameter Boring	
Boring Heads (Inch & Metric)	130-131
Boring Heads (Large Diameter)	132-133
Insert Holders & Blanks	134-135
Inserts	136
Components	137

TWIN BORE ROUGHING

Boring Heads - .95" to 6.00"	138
Boring Heads- 6.00" to 8.27"	139
Boring Heads - 5.94" to 21.89"	140
Insert Holders	141
Inserts	142-144
Components	145

MODULAR TOOLHOLDING

Collet Chucks & Morse Tapers	146
End Mill & Shell Mill Holders	147

TECHNICAL INFORMATION

Operating Instructions	
Twin Cutter	148
Balanced Cutting	149
Stepped Cutting	150
Recommended	
Roughing Speeds	151
Rough Boring Feed Rates & Machining Allowance	152
Rough Boring Chip Formation	153

Operating Instructions

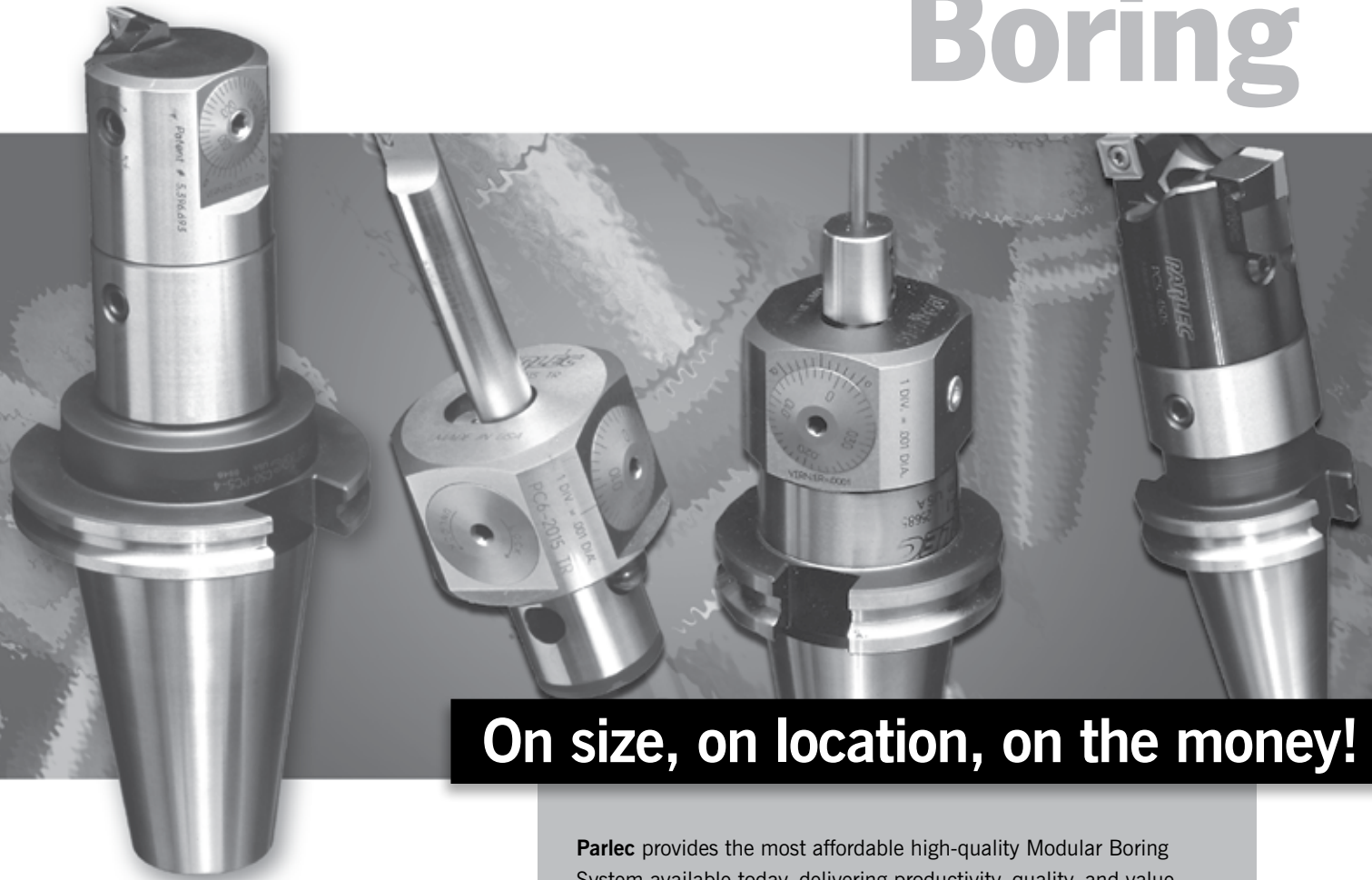
Finish Boring	154-155
Finish Boring Speeds	156
Finish Boring Feeds	157

QUOTATION REQUEST SHEET

	189
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Boring



On size, on location, on the money!

Parlec provides the most affordable high-quality Modular Boring System available today, delivering productivity, quality, and value.

Parlec's Modular Boring System delivers versatility when and where you need it – just what you would expect from the worldwide leader in tooling, workholding, and presetting solutions.

■ **Capacity**

Boring range from .078" to 22" standard.

■ **Flexibility**

Individually adjustable roughing system.

■ **Repeatable Precision**

Finish precision to .0001" at a .001" price.

■ **Standard Specifications**

We offer ANSI/ISO standard inserts throughout the system.

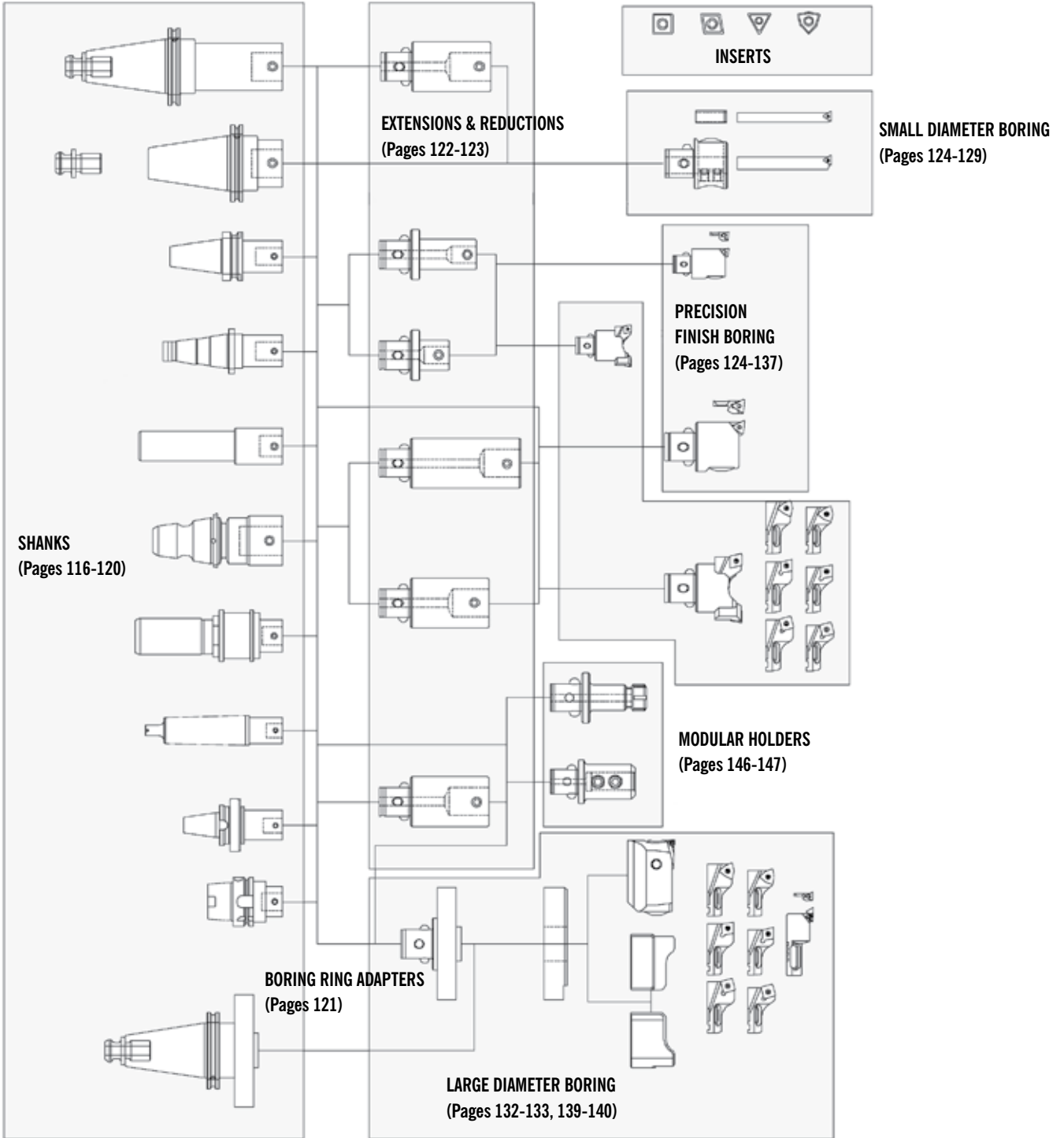
■ **Modular Design**

Our modular design helps you reduce tool inventories.

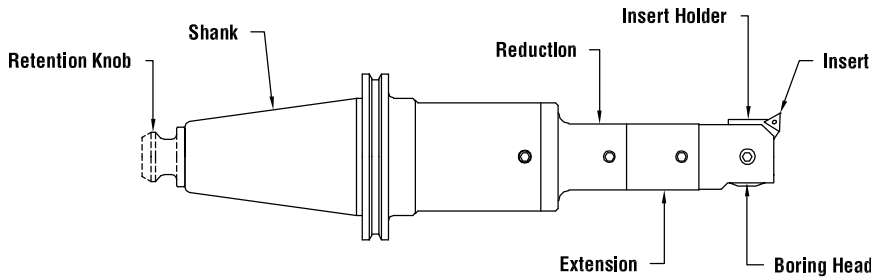
■ **Guaranteed Availability**

Complicated assemblies are available from stock.





BORING



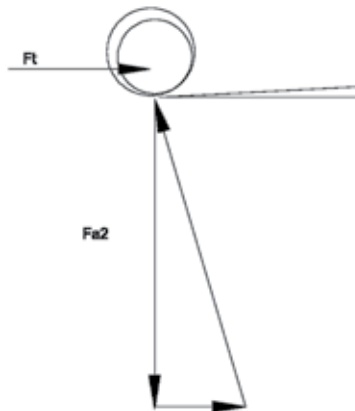
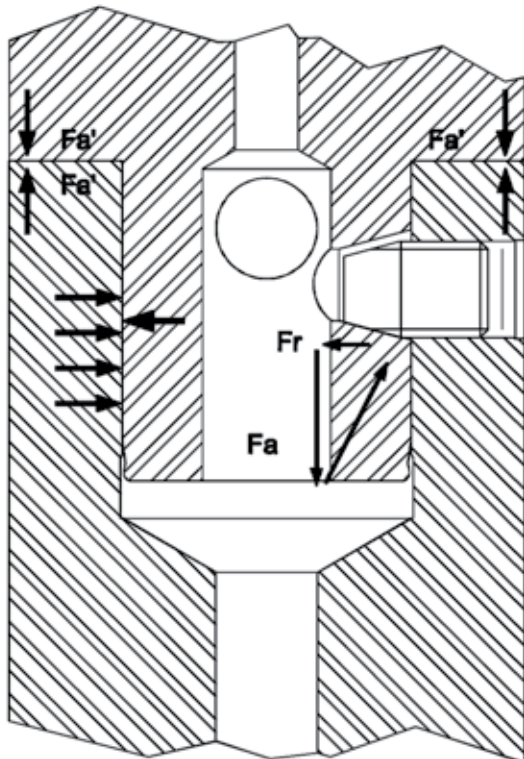
The force F_r is created by tightening the PC screw. This results in line contact seating with high repeatable precision (.0002 on diameter). The geometry of the screw and mating hole in the male pilot creates the resultant force F_a .

$$F_a = 3.7 \times F_r$$

The face to face clamping forces $F_{a'}$ are equal to the axial force F_a .

The torsional cutting forces are primarily transmitted by the friction between the mating faces. Any remaining torque will result in an additional wedge action between the locking screw and the inner member. Due to the very small resulting wedge angle any increased torsional force F_t will be transformed into a very strong axial clamping force F_{a2} .

The cross pin (not shown) helps in alignment of the PC screw and transmits extreme forces.

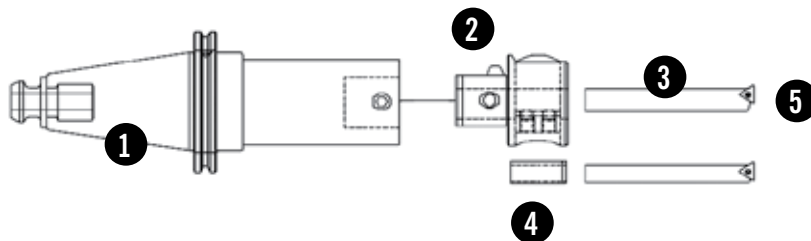


CONNECTION DIAMETER

PC	Diameter
PC2	.94
PC3	1.22
PC4	1.54
PC5	1.97
PC6	2.52
PC7	3.54



SELECTING A SMALL DIAMETER SYSTEM (.188" TO 1.342"*)



- STEP 1.** Select shank based on machine taper, projection and PC connection (identified in Step 2).
- STEP 2.** Select boring head based on diameter range.
- STEP 3.** Select boring bar based on bore diameter.
- STEP 4.** Select reduction bushing (if required) based on boring head and boring bar.
- STEP 5.** Select insert based on bar geometry, work piece material and finish required.

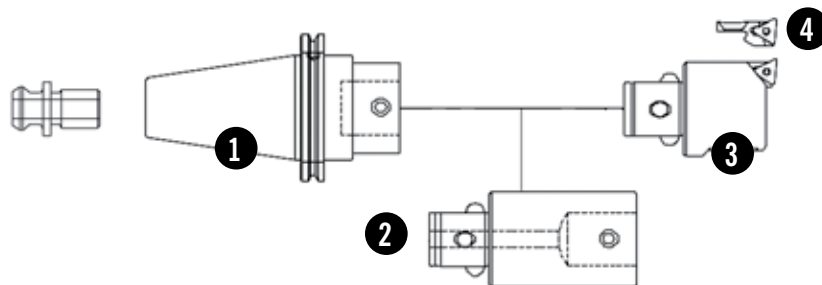
CONNECTION DIAMETER

#	Ordering Example	Page #
1	C40-PC6-4	116
2	PC6-2015P	124
3	CB50-59T107	127
4	62RB-500	127
5	TP110715TR6	129

*.984" recommended for production

BORING

SELECTING A FINISH BORING SYSTEM (.984" TO 6.000")



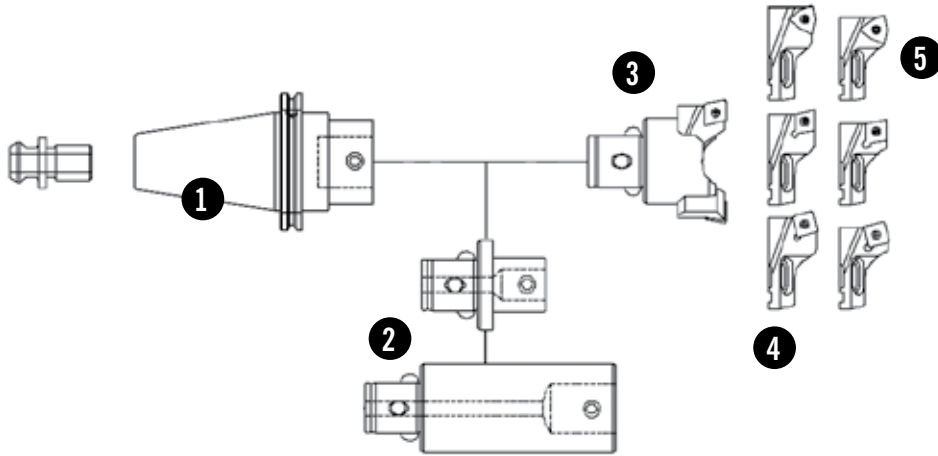
- STEP 1.** Select shank based on machine taper, projection and PC connection (identified in Step 3).
- STEP 2.** Select extensions and/or reductions based on projection required and diameter to length ratio.
- STEP 3.** Select finish boring head based on bore diameter.
- STEP 4.** Select insert based on bar geometry, work piece material and finish required.

CONNECTION DIAMETER

#	Ordering Example	Page #
1	C40-PC6-4	116
2	PC6-PC6e2	122
3	PC6-2615	130
4	T111615TTp	136



SELECTING A ROUGH BORING SYSTEM (.984" TO 6.000")

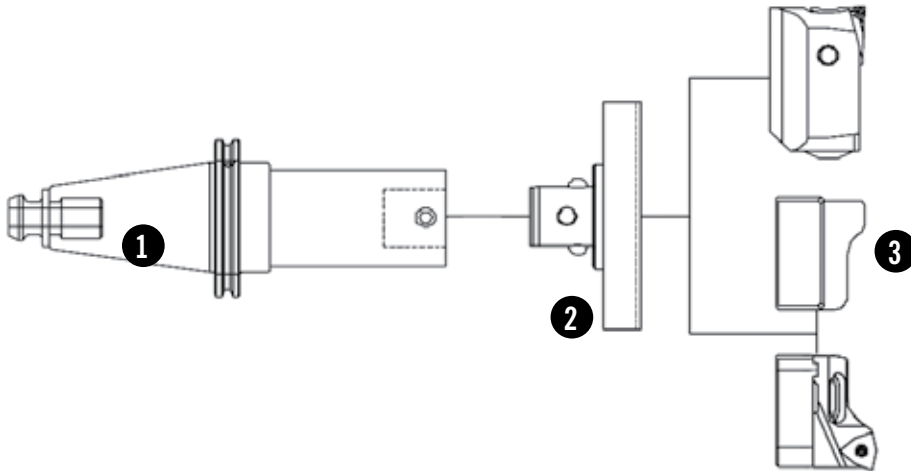


- STEP 1.** Select shank based on machine taper, projection and PC connection (identified in Step 3).
- STEP 2.** Select extensions and/or reductions based on projection required and diameter to length ratio.
- STEP 3.** Select boring head based on boring range.
- STEP 4.** Select insert holder pair based on geometry and diameter range.
- STEP 5.** Select insert based on bar geometry, work piece material and finish required.

CONNECTION DIAMETER

#	Ordering Example	Page #
1	C50-PC6-4	116
2	PC6-PCAR1	123
3	PC4-4405	145
4	4405-41C09	141
5	C091615TTP(2)	143

SELECTING A ROUGH AND FINISH SYSTEM (5.95" TO 8.27"*)



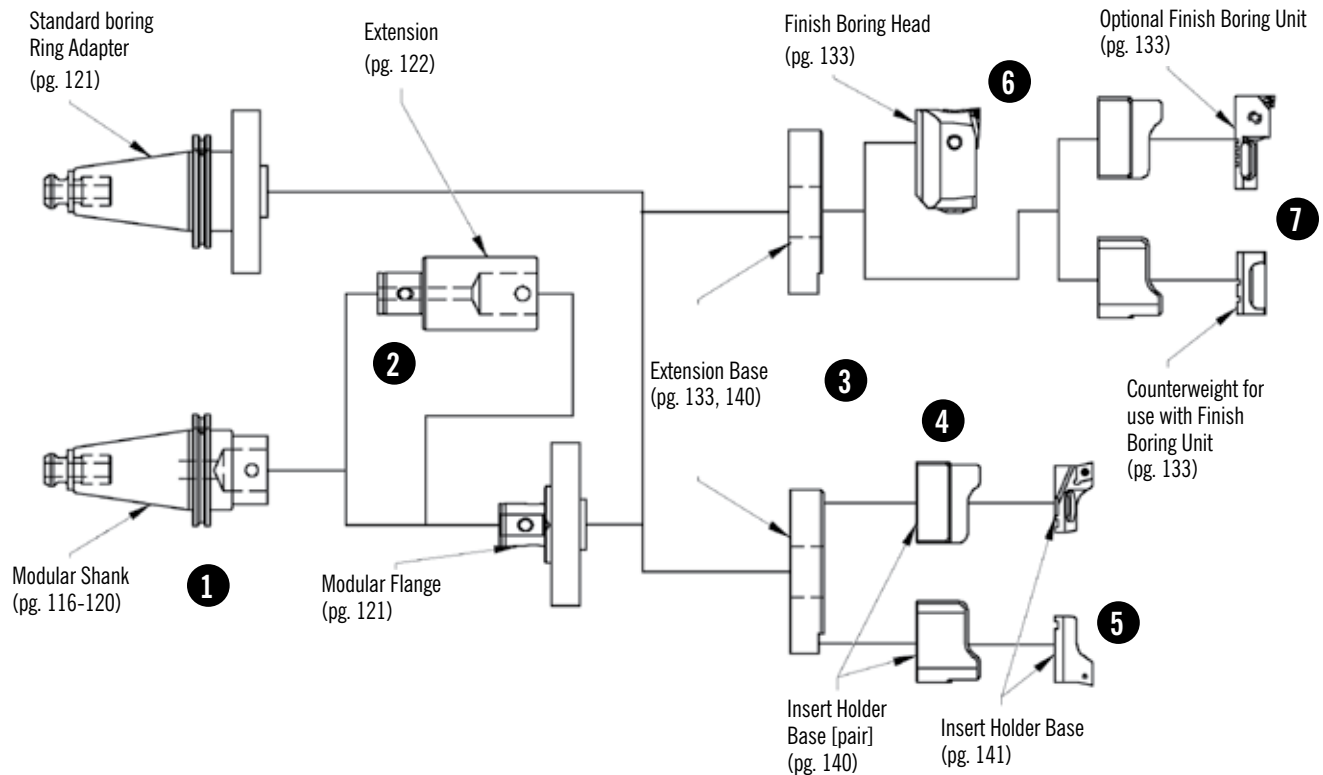
- STEP 1.** Select shank (PC6 size) based on machine taper and projection required.
- STEP 2.** Select PC6-7108.
- STEP 3.** Select boring components using Steps 4-7 on following page.

CONNECTION DIAMETER

#	Ordering Example	Page #
1	C50-PC6-4	116
2	PC6-7108	132, 139
3	7100-2816	133

BORING

SELECTING A LARGE DIAMETER SYSTEM (ABOVE 6" 152.4MM)



- STEP 1.** Select taper shank or boring ring holder based on machine taper and bore projection.
- STEP 2.** Select extension and/or modular flange based on taper and/or projection required.
- STEP 3.** Select extension base based on bore diameter.
- STEP 4.** Select finish head or roughing system.
- STEP 5.** Rough boring only. Select rough insert holder based on insert geometry and bore diameter.
- STEP 6.** Select finish boring head (recommended) or optional finish boring unit (use when counterbalance is required).
- STEP 7.** Select insert based on insert holder, work-piece material and finish.

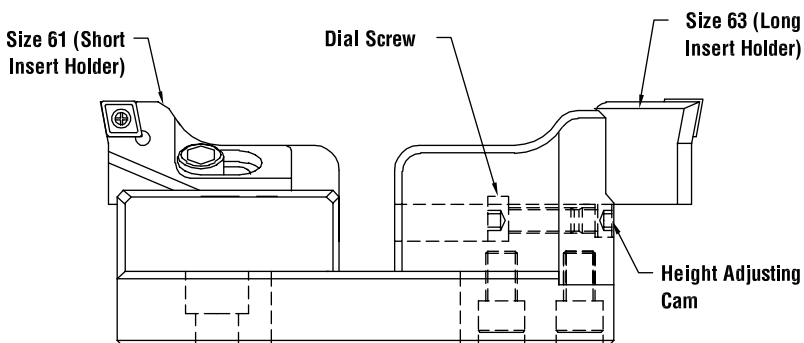


ROUGH BORING UNITS



Extension Base 17BR-7112 shown here with insert holders.

- Independent height and diameter setting permit balanced cutting resulting in almost perfectly round holes from the beginning, irrespective of core shifts.
- Two height balanceable cutting edges with metal removal at rates almost 4 times that of a single cutter.
- Height adjustments are made with a cam that supports the insert holder where needed, at the furthest radial point.
- Each insert holder can be adjusted individually in diameter with a dial screw for fast, easy set-up operations.
- Balanced or stepped cutting can be done with the same set of insert holders permitting heavy stock removal and eliminating the need to purchase two sets of insert holders.
- ISO standard inserts eliminates the need for special expensive inserts.
- Mounting flange provides two orientation positions at 90° to one another, thus eliminating the need to purchase special components to clear the tool chain.



ORDERING EXAMPLE

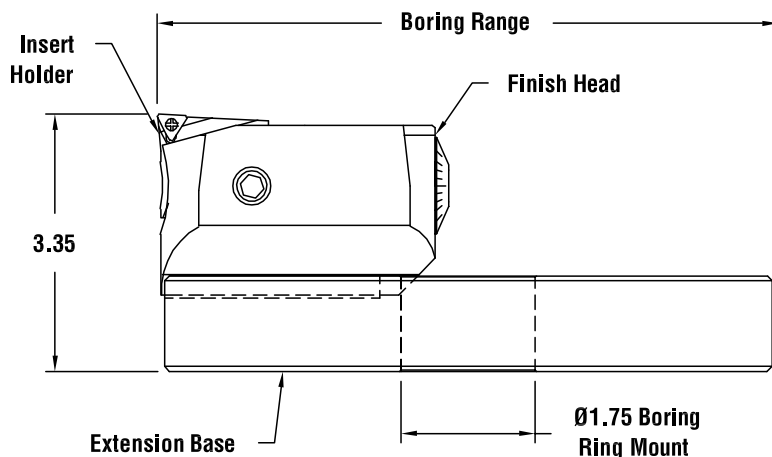
Part Number	Page #
C50-17BR2	121
17BR-7110	140
7100-B460	140
5605-61C12	141
INSERTS	142-144



FINISH HEAD



Finish Head attached to Extension Base shown here.

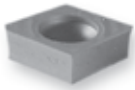


- A .0001" vernier is standard on all heads eliminating the need to buy expensive .0001" heads.
- Micrometer spindle provides .001" per dial graduation for fast, accurate set up and adjustment, and reduced scrap.
- No movement between lock and unlock eliminates settling errors common to other systems.
- Well balanced, fully encased in head tool carrier can be run at high speeds.
- Through-spindle coolant capability is standard.
- Replacement insert holder allows for inexpensive pocket replacement and changing of pocket geometry.

ORDERING EXAMPLE

Part Number	Page #
C50-17BR2	121
17BR-7110	133
7100-2816	133
INSERTS	142-144

BORING

**SHAPE:****SQUARE**

- For rough boring through holes and castings to avoid exit hole breakout.
- Four usable edges for maximum insert life.

**80° DIAMOND**

- For rough boring to a shoulder or deep bore depths where maximum rigidity of the bar is required.
- For finishing small diameters where maximum edge strength is required.

**TRIANGLE**

- For finishing with three corners for maximum insert life.

**TRIGON**

- For rough boring when large depth of cut is required or when extreme core shift is experienced.

CARBIDE GRADE:

Select the proper insert grade from pages 114-115. Material type, machine capabilities and type of hole, i.e., Interrupted Cut, can affect the grade of carbide used.

Coated

- Longer service life at higher speeds.

Uncoated

- Less expensive and effective in materials for which coatings do not add any benefit.

Cermet

- Yields the highest speed and durability for selected materials.

RADIUS:

Finish, bar rigidity, insert life, and engineering features of the workpiece all contribute to choosing the proper insert radius.

Larger

- Better surface finish and longer insert life.

Smaller

- Less cutting pressures, in extreme conditions, reduced bar flex and chatter.

PERIPHERY:**Pressed**

- Utility grade for general purpose. Longer tool life.

Ground

- Better for finishing where tight bore tolerances are required.



WARNING

The use of carbide in cutting is generally a safe and reasonable practice. When used properly, these products are designed to be safe and without risk to health and property. Please review the recommended use and pay particular attention to insure the tooling is used within its designed speed ranged and operating forces. Misuse may represent a hazard to people and property.

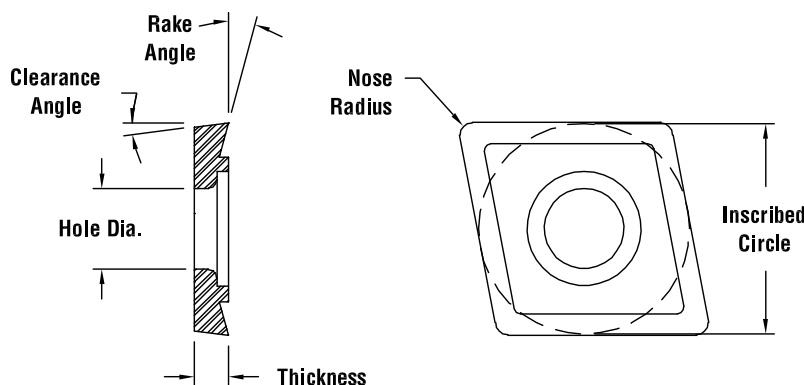
These products use materials which are classified as hazardous by OSHA. This may include one or more of the following carbide, titanium carbide, chromium carbide, chromium cadmium, cobalt, and nickel.

Carbide is a material which is brittle in nature. It will fracture from shock or impact which may cause pieces to detach at high velocities. Carbides should not be hammered or fitted with undo force. Suitable eye protection should be worn during all processes.

Carbide grinding may release dangerous levels of cobalt. Conventional precautions related to the operations of safe grinding should always be observed.

Additional information and material safety data sheets are available on request.

DIAGRAM DESCRIPTION



PART NUMBER EXPLANATION

EXAMPLE: T111615TNP

(T)	Size (11)	Radius (16)	Rake Angle (15)	Grade (TN)	Periphery (P)
T=TRIANGULAR	05,06,09,11	08=.008	00=0°	See Carbide	-
S=SQUARE	09,12	12=.016	06=6°	Grade	P=Pressed
C=80° DIAMOND	05,06,09,12	06=.016	15=15°	Section	G=Ground
W=TRIGON	03,04,05,08	31=.031	20=20°	Pages	-
-	-	47=.047	23=23°	114-115	-



		ISO	ANSI		
P STEELS, CAST STEELS, STAINLESS STEELS, AND LONG CHIPPING CAST IRON.	01	C8		CT	
	10				AL
	20	C7		CR	C7
	30	C6	SN		CM
	40			TT	
	50	C5			
M STEEL, CAST STEEL, MANGANESE STEELS AND HEAT RESISTANT ALLOYS.	10			TE	CT C7
	20		TT	C2	
	30		VN		
	40				
K CAST IRON, ALUMINUM, NON-FERROUS METALS.	01	C4		TE	AL CT
	10	C3	AS		
	20	C2		C2	
	30	C1		C1	

BORING



UNCOATED GRADES

- C1** ■ Is a strong micro grain carbide which resists chipping, breaking, and edge build-up. Great for roughing at high feed rates on interrupted cuts. Use for titanium, high temperature alloys, inconel, and hastalloy.
- C2** ■ Is a relatively fine grain grade on a WC-CO base. It has very good toughness and good rake angle resistance to abrasive wear. Applications include stainless steels, cast irons, non-ferrous metals, and most high temperature alloys.
- C7** ■ Finish and light roughing non-coated grade for steel and steel castings. Performs best in favorable conditions. High speeds and moderate feeds.

TITANIUM COATED GRADES

- TN** ■ Discontinued, replaced by TT.
- TT** ■ Is a very tough grade with a triple coating of Tin, TiC, and TiN. It is a good grade for roughing and finishing in less than ideal conditions. Used in machining steels and stainless steels at low speeds.
- TE** ■ Is a carbide grade with a PVD coating. It is used for machining aerospace materials, high temperature alloys, and stainless steels.
- TR** ■ Is a PVD coated micro grain carbide. Performs well in alloy steels, nickel-based materials, and heat-treated materials up to RC 40.
- SN** ■ Delivers outstanding performance in moderate-roughing to semi-finishing operations, especially in interrupted cuts. An advanced multi-layer coating (TiCN/Al₂O₃/TiN), applied over a cobalt enriched substrate, gives SN a near optimum balance of toughness, surface lubricity, and resistance to metal build-up to yield excellent wear resistance throughout its application range.
- VN** ■ Is a micro-grained grade with an excellent balance of toughness and wear resistance. Coated with PVD TiN for improved lubricity and wear resistance with up-sharp cutting edges, VN excels in light roughing to high-speed finishing of high-temperature alloys, stainless steels, cast iron, aluminum, and non-ferrous materials.

CERMET GRADES

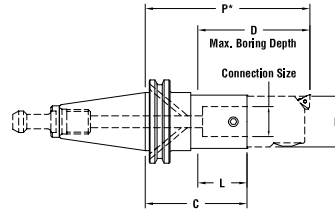
- CT** ■ Is a cermet grade of TiC and TiN particles in a nickel cobalt binder. It is used in finishing steels at high cutting speeds.
- CM** ■ Is a cermet grade. It is slightly less hard than CT and can be used in less favorable conditions.
- CR** ■ Is a titanium nitride cermet which combines toughness and edge wear. Use on steels up to RC 35.
- CC** ■ A titanium coated cermet for better wear resistance.

CERMET GRADES

- AL** ■ Is an Al₂O₃ coated insert. Its application is machining cast iron and steels at moderately high speeds.



50 Taper C50-PC6-6 shown here.



Order Retention Knob
separately (see pages 98-100).

40 TAPER

Part Number	Connection Size	Flange Coolant***	B	C	D	L	P*	Weight (lbs.)
C40-PC2-2	PC2	-	.944	2.07	2.00	.56	3.54	2.4
C40-PC2-3	PC2	-	.944	3.33	3.15	1.95	4.80	2.5
C40-PC2-4	PC2	-	.944	4.11	3.94	2.74	5.59	2.6
C40-PC3-3	PC3	-	1.22	3.15	3.20	1.78	4.76	2.6
C40-PC3-5	PC3	-	1.22	5.12	5.57	3.74	6.73	3.3
C40-PC4-1	PC4	-	1.75	1.38	1.75	-	3.23	2.2
C40-PC4-3	PC4	C40B-PC4-3	1.54	2.87	3.15	1.50	4.72	2.7
C40-PC4-6	PC4	-	1.54	6.02	6.30	4.26	7.87	4.3
C40-PC5-3	PC5	-	1.97	2.48	3.15	1.11	4.72	2.8
C40-PC5-6	PC5	-	1.97	5.63	6.30	4.26	7.87	5.5
C40-PC6-3**	PC6	C40B-PC6-3	2.52	2.00	3.42	.63	4.80	3.1
C40-PC6-4	PC6	C40B-PC6-4	2.52	2.72	3.94	1.34	5.51	3.3
C40-PC6-6	PC6	-	2.52	5.08	6.30	3.70	7.87	6.3

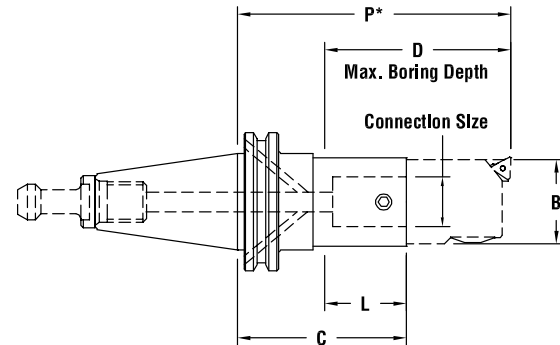
50 TAPER

Part Number	Connection Size	Flange Coolant***	B	C	D	L	P*	Weight (lbs.)
C50-PC2-2	PC2	-	.94	2.07	2.00	.56	3.54	7.0
C50-PC2-4	PC2	-	.94	4.11	3.94	2.74	5.59	7.0
C50-PC2-5	PC2	-	.94	5.29	5.12	3.92	6.77	7.3
C50-PC3-4	PC3	-	1.22	3.94	4.39	2.56	5.55	7.7
C50-PC3-5	PC3	-	1.22	5.12	5.57	3.74	6.73	7.7
C50-PC3-6	PC3	-	1.22	6.30	6.13	4.30	7.91	8.1
C50-PC4-4	PC4	C50B-PC4-4	1.54	3.61	3.94	2.24	5.46	7.6
C50-PC4-6	PC4	-	1.54	6.02	6.30	4.65	7.87	8.7
C50-PC4-8	PC4	-	1.54	7.60	7.88	6.22	9.45	9.5
C50-PC5-4	PC5	-	1.97	3.27	3.94	1.89	5.51	7.8
C50-PC5-6	PC5	-	1.97	5.63	6.30	4.26	7.87	9.7
C50-PC5-8	PC5	-	1.97	7.20	7.88	5.83	9.45	10.9
C50-PC5-10	PC5	-	1.97	9.57	10.24	8.19	11.81	12.8
C50-PC6-4	PC6	C50B-PC6-4	2.52	2.72	3.94	1.34	5.51	7.7
C50-PC6-6	PC6	-	2.52	5.08	6.30	3.70	7.87	10.8
C50-PC6-8	PC6	-	2.52	6.65	7.88	5.28	9.45	12.8
C50-PC6-10	PC6	-	2.52	9.02	10.24	7.64	11.81	15.9
C50-PC6-12	PC6	-	2.52	11.38	12.60	10.00	14.17	19.1
C50-PC7-6	PC7	-	3.54	3.27	6.30	1.89	7.87	10.0
C50-PC7-8	PC7	-	3.54	5.27	8.30	3.89	9.87	15.3
C50-PC7-10	PC7	-	3.54	7.20	10.24	5.83	11.81	20.3

60 TAPER

Part Number	Connection Size	B	C	D	L	P*	Weight (lbs.)
C60-PC6-4	PC6	2.52	3.10	4.20	1.60	5.90	22.6
C60-PC6-12	PC6	2.52	11.10	12.20	9.60	13.90	34.0
C60-PC7-10	PC7	3.54	7.30	10.22	5.80	11.91	35.2

Part numbers in **bold face** are in-stock items * Compute "P" dimensions by adding "C" dimensions of all components used. Maximum bore depth "D" may be increased by using extension adapters. *** Other sizes available on request.



Form B Coolant can be closed with a screw for through spindle coolant applications.

DIN 40 TAPER

Part Number	Connection Size	P*	B	C	L	D	Weight (lbs.)
D40-PC2-80	PC2	4.72	.94	3.34	1.93	3.15	2.4
D40-PC3-80	PC3	4.72	1.22	3.15	1.77	3.19	2.6
D40-PC4-50	PC4	3.23	1.54	1.38	-	1.85	2.2
D40-PC4-80	PC4	4.72	1.54	2.87	1.50	3.15	2.8
D40-PC4-160	PC4	7.87	1.54	6.02	4.25	6.30	4.4
D40-PC5-80	PC5	4.72	1.97	2.48	1.10	3.15	2.8
D40-PC6-80	PC6	4.80	2.52	2.00	0.63	3.43	3.0
D40-PC6-100	PC6	5.51	2.52	2.72	1.34	3.94	3.3
D40-PC6-160	PC6	7.87	2.52	5.08	3.70	6.30	6.4

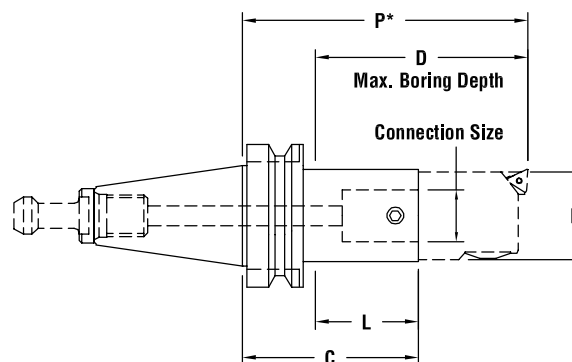
DIN 50 TAPER

Part Number	Connection Size	P*	B	C	L	D	Weight (lbs.)
D50-PC2-100	PC2	5.51	.94	4.09	2.76	3.94	7.0
D50-PC2-130	PC2	6.69	.94	5.27	3.90	5.12	7.2
D50-PC3-110	PC3	5.51	1.22	3.94	2.56	4.37	7.7
D50-PC3-160	PC3	7.87	1.22	6.30	4.29	5.91	8.1
D50-PC4-100	PC4	5.51	1.54	3.58	2.20	3.94	7.7
D50-PC4-160	PC4	7.87	1.54	6.02	4.65	6.30	8.8
D50-PC4-200	PC4	9.45	1.54	7.60	6.22	7.87	9.5
D50-PC5-100	PC5	5.51	1.97	3.27	1.89	3.94	7.7
D50-PC5-160	PC5	7.87	1.97	5.63	4.25	6.30	9.7
D50-PC6-100	PC6	5.51	2.52	2.71	1.34	3.94	7.7
D50-PC6-160	PC6	7.87	2.52	5.08	3.70	6.30	10.8
D50-PC6-200	PC6	9.45	2.52	6.65	5.28	7.87	12.8
D50-PC6-260	PC6	11.81	2.52	9.01	7.64	10.24	15.8
D50-PC6-320	PC6	14.17	2.52	11.37	10.00	12.60	19.2

Part numbers in **bold face** are in-stock items

* Compute "P" dimension by adding "C" dimensions of all components used. Maximum bore depth "D" may be increased by using extension adapters.

*** Other sizes available on request.



Order Retention Knob separately
(see pages 98-100).

40 Taper B40-PC6-4 shown here

40 TAPER

Part Number	Connection Size	B	C	D	L	P*	Weight (lbs.)
B40-PC2-4	PC2	.94	3.80	4.12	2.64	5.28	2.5
B40-PC3-4	PC3	1.22	3.70	4.15	2.54	5.31	2.6
B40-PC3-5	PC3	1.22	4.80	5.25	3.64	6.41	3.2
B40-PC4-3	PC4	1.54	2.56	3.25	1.40	4.41	2.8
B40-PC4-5	PC4	1.54	4.53	5.21	3.36	6.38	3.6
B40-PC5-3	PC5	1.97	2.16	3.24	1.00	4.40	2.8
B40-PC5-5	PC5	1.97	4.13	5.21	2.97	6.37	4.2
B40-PC6-4	PC6	2.52	2.40	3.91	1.12	5.19	3.1

50 TAPER

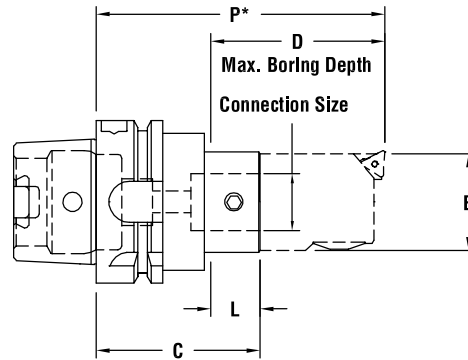
Part Number	Connection Size	B	C	D	L	P*	Weight (lbs.)
B50-PC2-4	PC2	.94	4.15	4.03	2.54	5.63	7.7
B50-PC3-4	PC3	1.22	4.00	4.03	2.40	5.63	7.7
B50-PC4-4	PC4	1.54	3.78	4.03	2.18	5.63	8.1
B50-PC5-4	PC5	1.97	3.38	4.03	1.79	5.63	8.1
B50-PC6-4	PC6	2.52	2.84	4.03	1.24	5.63	8.8
B50-PC6-10	PC6	2.52	9.00	10.19	7.40	11.79	15.8

Part numbers in **bold face** are in-stock items

*Compute "P" dimensions by adding "C" dimensions of all components used. Maximum bore depth "D" may be increased by using extension adapters.



H100A-PC6-4 shown here.



HSK 63A

Part Number	Connection Size	B	C	D	L	P*	Weight (lbs.)
H63A-PC2-73	PC2	.94	3.52	3.74	2.26	5.00	2.0
H63A-PC3-103	PC3	1.22	3.94	4.29	2.68	5.55	2.2
H63A-PC4-65	PC4	1.54	2.50	3.09	1.24	4.35	2.3
H63A-PC4-178	PC4	1.54	6.00	6.59	4.74	7.85	4.0
H63A-PC5-105	PC5	1.97	3.26	4.25	2.01	5.50	3.1
H63A-PC6-100	PC6	2.52	3.25	4.78	1.99	6.04	3.4
H63A-PC6-147	PC6	2.52	5.13	6.65	3.86	7.92	6.0

HSK 100A

Part Number	Connection Size	B	C	D	L	P*	Weight (lbs.)
H100A-PC2-107	PC2	.94	4.51	4.61	3.13	5.98	2.0
H100A-PC3-122	PC3	1.22	4.92	5.16	3.54	6.53	6.4
H100A-PC4-65	PC4	1.54	2.50	2.97	1.12	4.35	6.2
H100A-PC4-182	PC4	1.54	7.00	7.48	5.63	8.85	8.4
H100A-PC5-122	PC5	1.97	4.25	5.12	2.87	6.49	7.7
H100A-PC6-100	PC6	2.52	3.25	4.67	1.87	6.04	7.2
H100A-PC6-190	PC6	2.52	6.69	8.11	5.31	9.48	11.9

HSK 63A (METRIC)

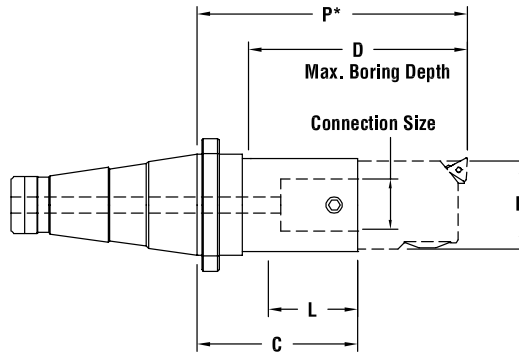
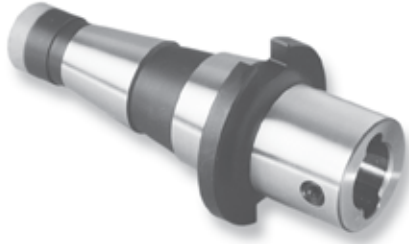
Part Number	C	D	L	P
H63A-PC2-73	89.5	95	57.5	127
H63A-PC3-103	100	109	68	141
H63A-PC4-65	63.5	78.5	31.5	110.5
H63A-PC4-178	152.4	167.4	120.4	199.4
H63A-PC5-105	83	108	51	140
H63A-PC6-100	82.5	121.5	50.5	153.5
H63A-PC6-147	130	169	98	201

HSK 100A (METRIC)

Part Number	C	D	L	P
H100A-PC2-107	114.5	117	79.5	152
H100A-PC3-122	125	131	90	166
H100A-PC4-65	63.5	75.5	28.5	110.5
H100A-PC4-182	178	190	143	225
H100A-PC5-122	108	130	73	165
H100A-PC6-100	82.5	118.5	47.5	153.5
H100A-PC6-190	170	206	135	241

Part numbers in **bold face** are in-stock items. Other shank configurations available upon request

* Compute "P" dimensions by adding "C" dimensions of all components used. Maximum bore depth "D" may be increased by using extension adapters.



40 Taper N40-PC4-3 shown here.

30 TAPER

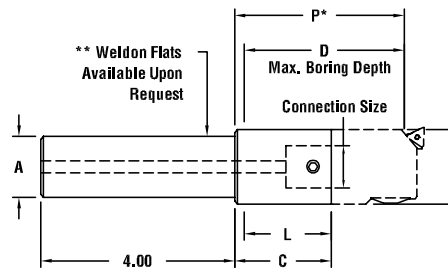
Part Number	Connection Size	B	C	D	L	P*	Weight (lbs.)
N30-PC4-4	PC4	1.54	2.64	3.94	1.82	4.49	1.5

40 TAPER

Part Number	Connection Size	B	C	D	L	P*	Weight (lbs.)
N40-PC4-3	PC4	1.54	1.93	3.20	1.35	3.78	2.1
N40-PC6-4	PC6	2.52	2.17	4.14	1.34	4.97	6.4

50 TAPER

Part Number	Connection Size	B	C	D	L	P*	Weight (lbs.)
N50-PC4-4	PC4	1.54	2.87	3.94	2.09	4.72	6.4
N50-PC4-6	PC4	1.54	5.24	6.30	4.45	7.09	7.6
N50-PC5-4	PC5	1.97	2.48	3.94	1.70	4.72	6.6
N50-PC5-8	PC5	1.97	6.42	7.88	5.63	8.66	10.6
N50-PC6-4	PC6	2.52	1.93	3.94	1.15	4.72	6.4
N50-PC6-8	PC6	2.52	5.86	7.88	5.08	8.65	12.9
N50-PC6-12	PC6	2.52	10.59	12.60	9.81	13.38	17.8
N50-PC7-6	PC7	3.54	2.48	5.87	1.26	7.09	8.1



S20-PC6-4 shown here.

STRAIGHT SHANKS

Part Number	Connection Size	A	B	C	D	L	P*	Weight (lbs.)
S12-PC4-3	PC4	1.25	1.54	2.00	3.75	1.90	3.85	2.0
S20-PC4-3	PC4	2.00	1.54	2.00	3.75	1.90	3.85	4.2
S12-PC6-4	PC6	1.25	2.52	2.00	4.70	1.90	4.80	3.1
S20-PC6-4	PC6	2.00	2.52	2.00	4.70	1.90	4.80	5.2

Part numbers in **bold face** are in-stock items.

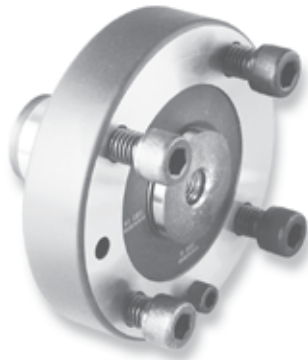
*Compute "P" dimensions by adding "C" dimensions of all components used.

Maximum bore depth "D" may be increased by using extension adapters.

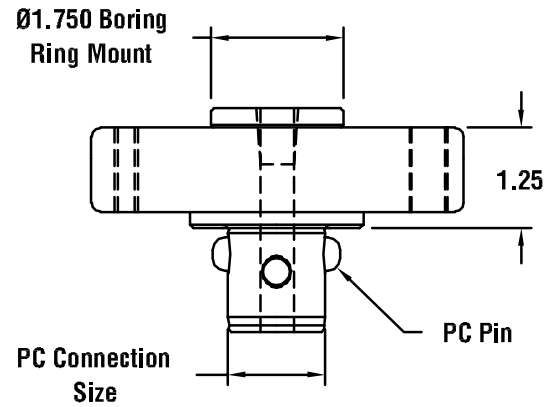
**For Weldon flats, add "W" after SXX, i.e., S12W-PC4-3. Other shank configurations available on request.



MODULAR BORING RING HOLDERS



Boring Ring Holder PC7-17BR2 shown here.



MODULAR BORING RING HOLDERS

Part Number	PC Connection	Weight (lbs.)
PC6-17BR2	PC6	6.5
PC7-17BR2	PC7	7.1

BORING RING ADAPTERS

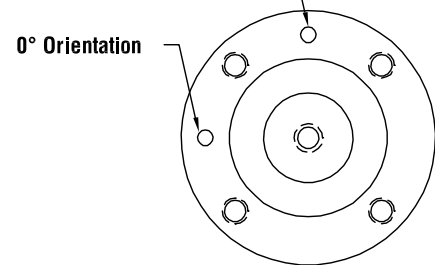
- Integral shank for non-modular applications.



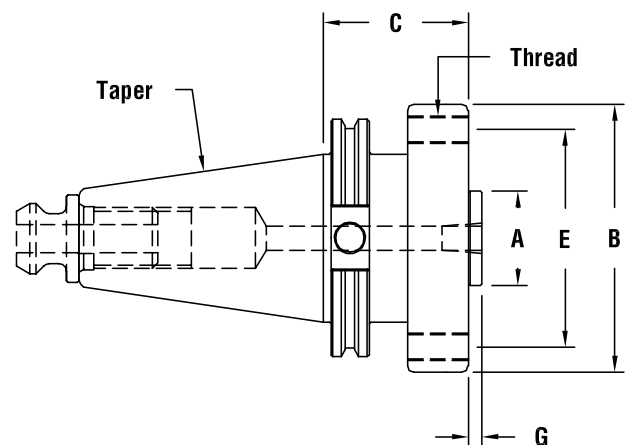
Boring Ring Holder PC7-17BR2 shown here.

90° Orientation

0° Orientation



Order Retention Knob Separately (see pages 98-100)



BORING RING ADAPTERS

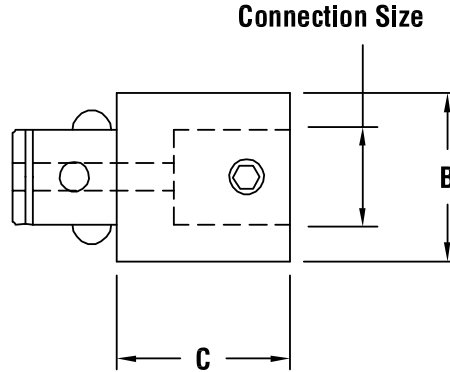
Part Number	A (Dia.)	B (Dia.)	C	E	G	Thread	No. of Threads	Weight (lbs.)
C50-17BR2*	1.750	4.94	2.50	4.00	.250	1/2-13	4	13.7
C50-17BR5*	1.750	4.94	5.00	4.00	.250	1/2-13	4	21.9
N50-17BR2	1.750	4.94	2.00	4.00	.250	1/2-13	4	12.1

Part numbers in **bold face** are in-stock items.

*Includes 90° tool tip orientation for clearance of oversize boring tools in carousels.



EXTENSIONS

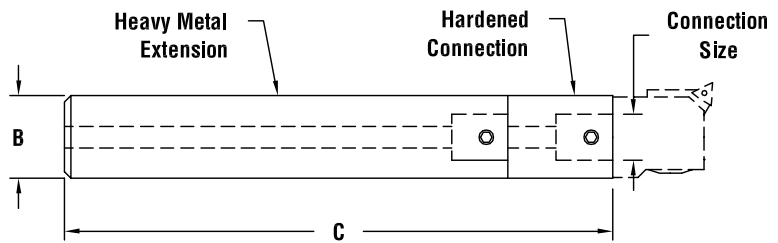


Extension PC4-PC4E1 shown here.

EXTENSIONS

Part Number	Connection Size	B	C	Weight (lbs.)
PC2-PC2E1	PC2	.94	1.18	.3
PC2-PC2E2	PC2	.94	1.77	.4
PC3-PC3E1	PC3	1.22	1.18	.4
PC3-PC3E2	PC3	1.22	1.77	.5
PC4-PC4E1	PC4	1.54	1.57	.8
PC4-PC4E2	PC4	1.54	2.36	1.1
PC5-PC5E2	PC5	1.97	2.36	1.9
PC5-PC5E3	PC5	1.97	3.54	2.8
PC6-PC6E2	PC6	2.52	2.36	3.0
PC6-PC6E4	PC6	2.52	3.94	5.0
PC7-PC7E4	PC7	3.54	3.94	9.9
PC7-PC7E6	PC7	3.54	6.30	17.0

HEAVY METAL EXTENSIONS*



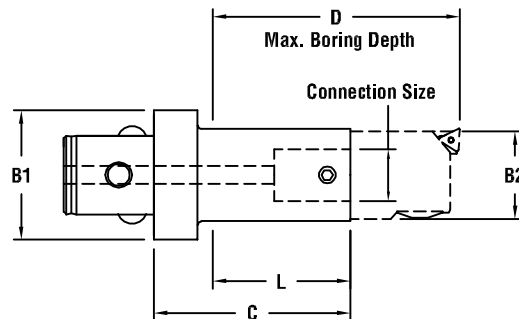
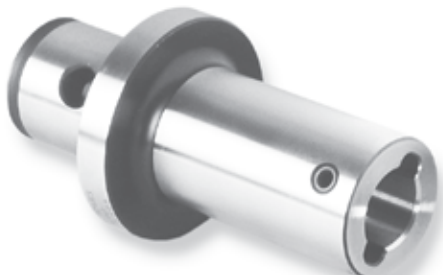
Heavy Metal Extension PC4-150HM15 shown here.

HEAVY METAL EXTENSIONS

Part Number	Connection Size	B	C	Weight (lbs.)
PC2-094HM11	PC2	.937	11.42	3.9
PC3-125HM14	PC3	1.250	13.78	9.0
PC4-150HM15	PC4	1.500	14.75	13.0

Part numbers in **bold face** are in-stock items.

*Not recommended for use on lathes with twin bore units. Consult Parlec's Applications department.



Reduction PC60PC4R3 shown here.

REDUCTIONS

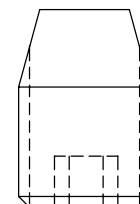
Part Number	A (Connection)	E (Connection)	B1	C	D	L (Max.)	M (Min.)	P*	Weight	B2
PC3-PC2R1	PC3	PC2	1.22	1.36	2.36	.965	.39	2.83	.4	.945
PC4-PC2R2	PC4	PC2	1.54	2.03	2.95	1.56	.47	3.50	.6	.945
PC4-PC3R2	PC4	PC3	1.54	1.85	2.95	1.38	.47	3.46	1.0	1.220
PC5-PC2R2	PC5	PC2	1.97	2.03	2.76	1.36	.67	3.50	.8	.945
PC5-PC2R3	PC5	PC2	1.97	3.21	3.94	2.54	.67	4.69	1.1	.945
PC5-PC3R1	PC5	PC3	1.97	1.85	2.76	1.18	.67	3.46	1.0	1.220
PC5-PC3R3	PC5	PC3	1.97	3.03	3.94	2.36	.67	4.65	1.3	1.220
PC5-PC4R1	PC5	PC4	1.97	1.57	2.76	.91	.67	3.43	1.1	1.535
PC5-PC4R2	PC5	PC4	1.97	2.76	3.94	2.09	.67	3.61	1.6	1.535
PC6-PC2R2	PC6	PC2	2.52	2.38	3.15	1.75	.63	3.85	1.5	.945
PC6-PC2R3	PC6	PC2	2.52	3.76	4.53	3.13	.63	5.24	1.8	.945
PC6-PC3R2	PC6	PC3	2.52	2.20	3.15	1.58	.63	3.82	1.7	1.220
PC6-PC3R3	PC6	PC3	2.52	3.58	4.53	2.95	.63	5.20	2.1	1.220
PC6-PC3R5	PC6	PC3	2.52	5.35	6.30	4.72	.63	6.97	2.6	1.220
PC6-PC4R1	PC6	PC4	2.52	1.93	3.15	1.30	.63	3.78	1.7	1.535
PC6-PC4R3	PC6	PC4	2.52	3.31	4.53	2.68	.63	5.16	1.3	1.535
PC6-PC4R5	PC6	PC4	2.52	5.08	6.30	4.45	.63	6.93	3.0	1.535
PC6-PC5R1	PC6	PC5	2.52	1.54	3.15	.91	.63	3.78	1.8	1.969
PC6-PC5R3	PC6	PC5	2.52	2.91	4.53	2.28	.63	5.16	2.8	1.969
PC6-PC5R4	PC6	PC5	2.52	4.69	6.30	4.06	.63	6.93	4.1	1.969
PC7-PC6R4	PC7	PC6	3.54	4.18	6.30	3.50	.70	6.97	7.0	2.52

PC SCREWS

Part Number	Connection Size	Wrench	Tightening Torque
880-002	PC2	018-102	25 IN. LBS.
880-003	PC3	018-103	42 IN. LBS.
880-004	PC4	018-104	84 IN. LBS.
880-005	PC5	018-105	168 IN. LBS.
880-006	PC6	018-106	336 IN. LBS.
880-007	PC7	018-107	840 IN. LBS.

Part numbers in **bold face** are in-stock items.
 *Compute "P" dimensions by adding "C" dimensions of all components used.
 Maximum bore depth "D" may be increased by using extension adapters.

PC SCREWS



PC Screw 880-006 shown here.

BORING



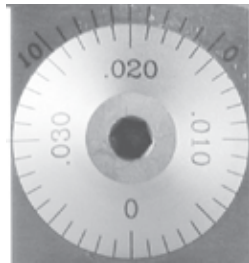
SMALL DIAMETER BORING HEADS FOR TOOL ROOM OR PRODUCTION



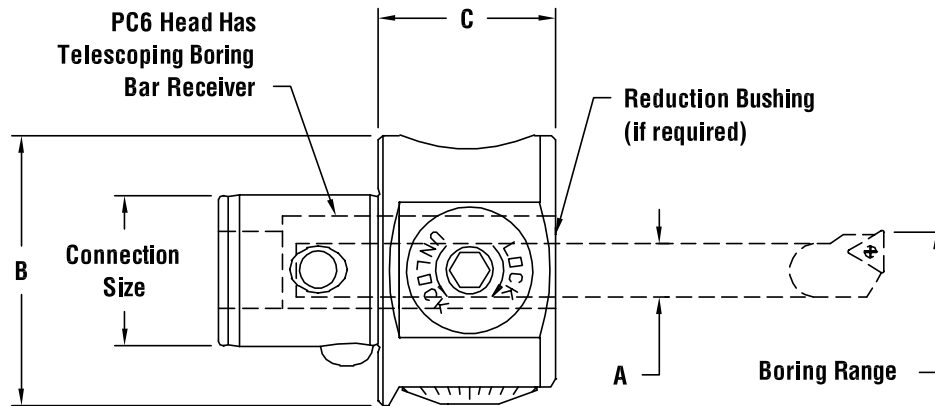
PC6-2015TR shown here.

Recommended up to .984 for production

- A .0001" vernier is standard on all heads eliminating the need to purchase expensive .0001" heads.
- Micrometer spindle provides .001" per dial graduation for fast, accurate set-up and adjustment, and reduced scrap.
- No movement between lock and unlock eliminates setting errors common to other systems.
- Well balanced, fully encased in head tool carrier can be run at high speeds.
- Bored-through tool receiver (TR only) allows the boring tool to be telescoped for optimum rigidity.
- All system components with through-hole permits through-spindle coolant.



Vernier Scale with reference marks. (See page 145).



INCH GRADUATED UNITS (.001" Per dial graduation with .0001" Vernier)

Part Number	Bore Range Min.	Bore Range Max.	Connection Size	A	B	C	Radial Adjust.	Weight (lbs.)
PC4-2015	.078	.790	PC4	.500	2.00	1.50	.100	1.0
PC6-2015P	.078	.984	PC6	.625	2.52	1.65	.100	2.8
PC6-2015TR	.078	1.342	PC6	.625	2.52	1.65	.312	2.4

METRIC GRADUATED UNITS (.02mm Per dial graduation with .002mm Vernier)

Part Number	Bore Range Min.	Bore Range Max.	Connection Size	A	B	C	Radial Adjust.	Weight (lbs.)
PC4-2005	2	20	PC4	12.7	50.8	38.1	2.5	1.0
PC4-201205	2	20	PC4	12	50.8	38.1	2.5	.5
PC6-2005P	2	25	PC6	15.875	64	42	2.5	2.8
PC6-2005TR	2	34	PC6	15.875	64	42	7.92	2.4
PC6-201605	2	34	PC6	16	64	42	7.92	2.4

Part numbers in **bold face** are in-stock items.

*Range can be extended by using boring bars not available in this catalog.

To establish maximum diameter for each boring bar: Boring bar minimum diameter + 2x adjustment.



SMALL DIAMETER BORING HEAD



Wrench 018-105 shown here.



Vernier
Scale Side



Slide Lock
Screw Side



Clamp
Screw Side



Oil side

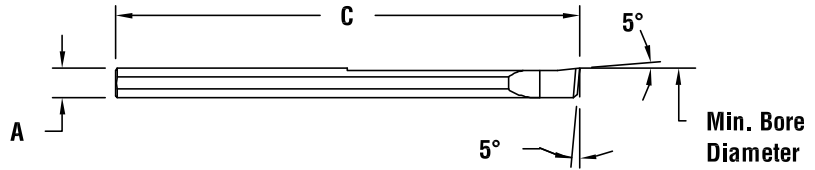
SMALL DIAMETER BORING HEAD

Part Number	Boring Bar Holder Screw	Slide Lock Screw	Wrench	PC Pin
PC4-2015	029-517	029-018	018-105	PCP-004
PC6-2015 (X)	029-089	029-089	018-105	PCP-S06

Part numbers in **bold face** are in-stock items.



BORING BARS

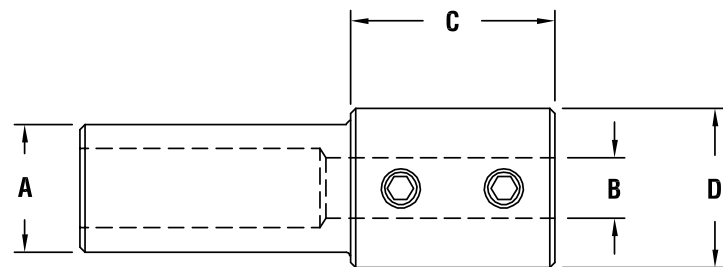


Boring Bar CB2-0778-393-KW10 shown here.

BORING BARS .118" - .315" DIAMETER

Part Number	Bore Dia. Min.	Bore Dia. Max.	Boring Bar Holder	Max. Bore Depth	A (Dia.)	C Length	Grade
CB2-078-393-KW10	.078 (2)	.118 (3)	50RBX-02MM	.393 (10)	.078 (2)	1.97 (50)	CARBIDE
CB3-118-590-KW10	.118 (3)	.157 (4)	50RBX-03MM	.590 (15)	.118 (3)	1.97 (50)	CARBIDE
CB4-157-787-KW10	.157 (4)	.196 (5)	50RBX-04MM	.787 (20)	.157 (4)	2.36 (60)	CARBIDE
CB4-157-787-TC60	.157 (4)	.196 (5)	50RBX-04MM	.787 (20)	.157 (4)	2.36 (60)	CERMET
CB5-196-984-KW10	.196 (5)	.236 (6)	50RBX-05MM	.984 (25)	.196 (5)	2.76 (70)	CARBIDE
CB5-196-984-TC60	.196 (5)	.236 (6)	50RBX-05MM	.984 (25)	.196 (5)	2.76 (70)	CERMET
CB6-236-1180-KW10	.236 (6)	.275 (7)	50RBX-06MM	1.180 (30)	.236 (6)	2.76 (70)	CARBIDE
CB6-236-1180-TC60	.236 (6)	.275 (7)	50RBX-06MM	1.180 (30)	.236 (6)	2.76 (70)	CERMET
CB7-275-1377-KW10	.275 (7)	.315 (8)	50RBX-07MM	1.377 (35)	.275 (7)	3.15 (80)	CARBIDE
CB7-275-1377-TC60	.275 (7)	.315 (8)	50RBX-07MM	1.377 (35)	.275 (7)	3.15 (80)	CERMET

METRIC BORING BAR HOLDER



Boring Bar 50RBX-02MM shown here.

BORING BAR HOLDER

Part Number	A	B	C	D
50RBX-02MM	.500	2MM	.62	.62
50RBX-03MM	.500	3MM	.62	.62
50RBX-04MM	.500	4MM	.62	.62
50RBX-05MM	.500	5MM	.62	.62
50RBX-06MM	.500	6MM	.62	.62
50RBX-07MM	.500	7MM	.62	.62

Part numbers in **bold face** are in-stock items.

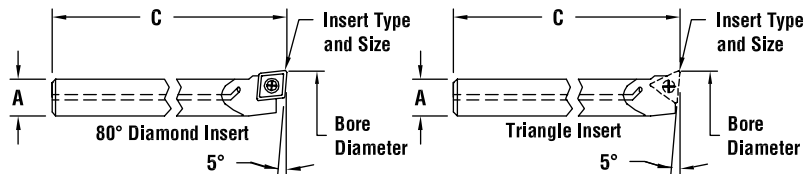
BORING



BORING BARS



Boring Bar SB37-43T105 shown here.



BORING BARS .188" - 1.000" DIAMETER

Part Number	Coolant Part Number	Bore Dia. Min.	Bore Dia. Max.	Reduction Bushing	Max. Bore Depth	A (Dia.)	C	Bar Material	Insert Type/Size	Insert Screw	Insert Screw Wrench
CB15-18C056	CB15-18C056C	.188	.218	XXRB-156	1.50	.156	6.00	CARBIDE	CDCD 05	028-919	018-002
SB18-18C052	—	.188	.218	XXRB-187	.50	.187	2.50	STEEL	CDCD 05	028-919	018-002
CB18-21C054	—	.218	.232	XXRB-187	2.00	.187	4.00	CARBIDE	CDCD 05	028-919	018-002
SB18-23C052	—	.232	.300	XXRB-187	1.00	.187	2.50	STEEL	CDCD 05	028-919	018-002
CB18-23C054	CB18-23C054C	.232	.300	XXRB-187	2.00	.187	4.00	CARBIDE	CDCD 05	028-919	018-002
SB18-28T053	—	.280	.300	XXRB-187	1.00	.187	3.50	STEEL	TDAB 05	028-920	018-007
CB18-29T054	CB18-29T054C	.290	.310	XXRB-187	2.00	.187	4.00	CARBIDE	TDAB 05	028-920	018-007
SB25-29C053	—	.290	.310	XXRB-250	1.25	.250	3.00	STEEL	CDCD 05	028-919	018-002
SB25-30T054	—	.300	.362	XXRB-250	1.25	.250	4.00	STEEL	TDAB 05	028-920	018-007
CB25-30C054	CB25-30C054C	.300	.362	XXRB-250	2.50	.250	4.00	CARBIDE	CDCD 05	028-919	018-002
CB25-31T054	CB25-31T054C	.310	.372	XXRB-250	2.50	.250	4.00	CARBIDE	TDAB 05	028-920	018-007
SB31-36T054	—	.362	.430	XXRB-312	1.75	.312	4.00	STEEL	TDAB 05	028-920	018-007
CB31-37T056	CB31-37T056C	.372	.440	XXRB-312	3.25	.312	6.00	CARBIDE	TDAB 05	028-920	018-007
SB37-43T105	SB37-43T105C	.430	.580	XXRB-375	2.00	.375	5.00	STEEL	TPGH 11	028-921	018-003
CB37-44T107	CB37-44T107C	.440	.590	XXRB-375	4.00	.375	7.00	CARBIDE	TPGH 11	028-921	018-003
SB50-58T106	SB50-58T106C	.580	.717	XXRB-500	2.50	.500	5.00	STEEL	TPGH 11	028-921	018-003
CB50-59T107	CB50-59T107C	.590	.717	XXRB-500	5.00	.500	7.00	CARBIDE	TPGH 11	028-921	018-003
SB62-71T117	SB62-71T117C	.717	1.000	—	3.50	.625	7.00	STEEL	TPGH 11	028-921	018-003
CB62-71T118	CB62-71T118C	.717	1.000	—	6.00	.625	8.00	CARBIDE	TPGH 11	028-921	018-003
—	CB62-83T117C	.83	1.45	—	3.50	.625	7.00	CARBIDE	TPGH 11	028-921	018-003
—	SB62-83T114C	.83	1.45	—	2.50	.625	4.00	STEEL	TPGH 11	028-921	018-003

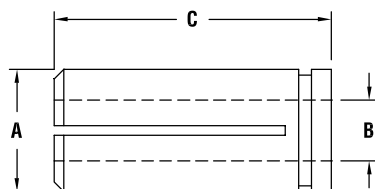
Part numbers in **bold face** are in-stock items.

*Recommended for Production. For maximum range, see page 124. Minimum bore diameter above is based on a gage insert with .016" nose radius.

REDUCTION BUSHINGS



Reduction Bushing 62RB-250 shown here.

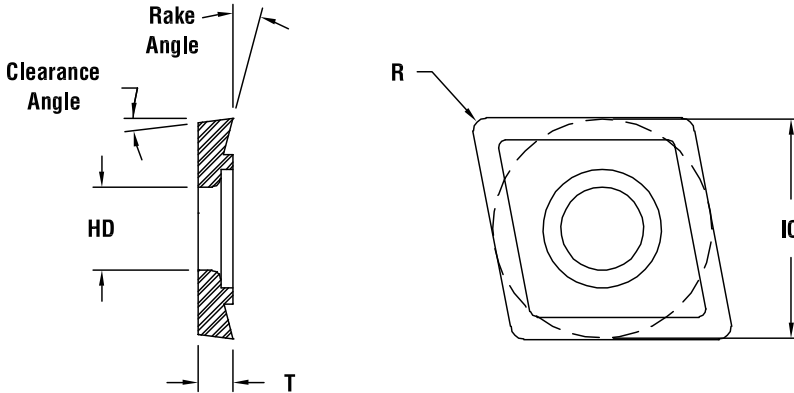


REDUCTION BUSHINGS

Part Number	A	B	C	Weight (lbs.)
50RB-156	.500	.156	1.18	.1
50RB-187	.500	.187	1.18	.1
50RB-250	.500	.250	1.18	.1
50RB-312	.500	.312	1.18	.1
50RB-375	.500	.375	1.18	.1
62RB-08MM	.625	8MM	1.42	.1
62RB-10MM	.625	10MM	1.42	.1
62RB-12MM	.625	12MM	1.42	.1
62RB-156	.625	.156	1.42	.1
62RB-187	.625	.187	1.42	.1
62RB-219	.625	.219	1.42	.1
62RB-250	.625	.250	1.42	.1
62RB-312	.625	.312	1.42	.1
62RB-375	.625	.375	1.42	.1
62RB-438	.625	.438	1.42	.1
62RB-500	.625	.500	1.42	.1



80° Diamond Insert
C050700C1G shown here.

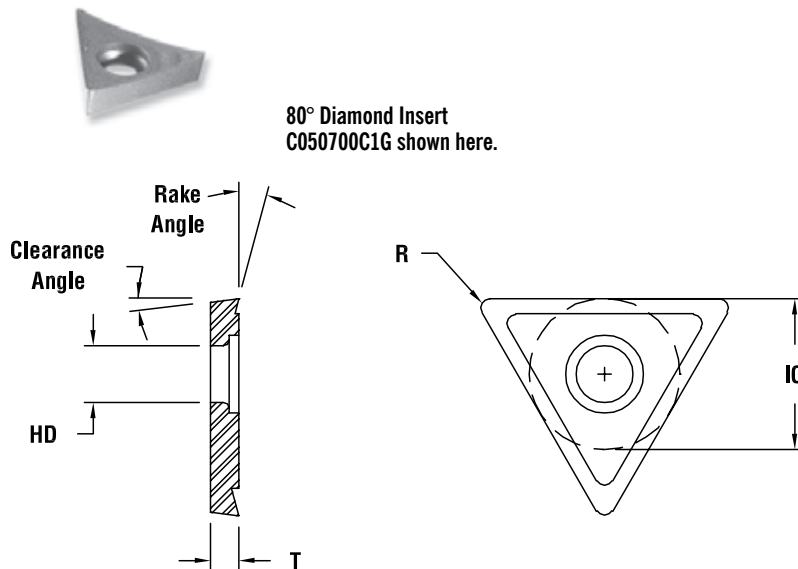


At Parlec, the phrase “measurably better” isn’t just a slogan. It’s a commitment to you. Our philosophy of providing “measurably better” products to our customers guarantees that you will be able to meet all of your quality, cost and delivery requirements.

SIZE CDCD 05

Part Number	IC	Clearance Angle	R	T	Rake Angle	HD	Grade	Type	Periphery
C050700C1G	.156	15°	.007	.040	0°	.084	C1	UNCOATED	GROUND
C051600C1G	.156	15°	.016	.040	0°	.084	C1	UNCOATED	GROUND
C050700C2G	.156	15°	.007	.040	0°	.084	C2	UNCOATED	GROUND
C051600C2G	.156	15°	.016	.040	0°	.084	C2	UNCOATED	GROUND
C050700CRG	.156	15°	.007	.040	0°	.084	CR	CERMET	GROUND
C051600CRG	.156	15°	.016	.040	0°	.084	CR	CERMET	GROUND
C050700TRG	.156	15°	.007	.040	0°	.084	TR	COATED	GROUND
C051600TRG	.156	15°	.016	.040	0°	.084	TR	COATED	GROUND
C050700ALG	.156	15°	.007	.040	0°	.084	AL	COATED	GROUND
C051600ALG	.156	15°	.016	.040	0°	.084	AL	COATED	GROUND
C050700PCD	.156	15°	.007	.040	0°	.084	PCD	DIAMOND	GROUND
C051600PCD	.156	15°	.016	.040	0°	.084	PCD	DIAMOND	GROUND

Part numbers in **bold face** are in-stock items.



SIZE TDAB 05

Part Number	IC	Clearance Angle	R	T	Rake Angle	HD	Grade	Type	Periphery
T050700C1G	.160	15°	.007	.047	0°	.094	C1	UNCOATED	GROUND
T051600C1G	.160	15°	.016	.047	0°	.094	C1	UNCOATED	GROUND
T050700C2G	.160	15°	.007	.047	0°	.094	C2	UNCOATED	GROUND
T051600C2G	.160	15°	.016	.047	0°	.094	C2	UNCOATED	GROUND
T050700CRG	.160	15°	.007	.047	0°	.094	CR	CERMET	GROUND
T051600CRG	.160	15°	.016	.047	0°	.094	CR	CERMET	GROUND
T050700TRG	.160	15°	.007	.047	0°	.094	TR	COATED	GROUND
T051600TRG	.160	15°	.016	.047	0°	.094	TR	COATED	GROUND
T051600ALG	.160	15°	.016	.047	0°	.094	AL	COATED	GROUND
T050700ALG	.160	15°	.007	.047	0°	.094	AL	COATED	GROUND
T050700PCD	.160	15°	.007	.047	0°	.094	PCD	DIAMOND	GROUND
T051600PCD	.160	15°	.016	.047	0°	.094	PCD	DIAMOND	GROUND

SIZE TPGH 11

Part Number	IC	Clearance Angle	R	T	Rake Angle	HD	Grade	Type	Periphery
TP110715C1G	.250	11°	.007	.096	15°	.130	C1	UNCOATED	GROUND
TP111615C1G	.250	11°	.016	.096	15°	.130	C1	UNCOATED	GROUND
TP110715C2G	.250	11°	.007	.096	15°	.130	C2	UNCOATED	GROUND
TP111615C2G	.250	11°	.016	.096	15°	.130	C2	UNCOATED	GROUND
TP110715CRG	.250	11°	.007	.096	15°	.130	CR	CERMET	GROUND
TP111615CRG	.250	11°	.016	.096	15°	.130	CR	CERMET	GROUND
TP110715TRG	.250	11°	.007	.096	15°	.130	TR	COATED	GROUND
TP111615TRG	.250	11°	.016	.096	15°	.130	TR	COATED	GROUND
TP110715ALG	.250	11°	.007	.096	15°	.130	AL	COATED	GROUND
TP111615ALG	.250	11°	.016	.096	15°	.130	AL	COATED	GROUND
TP110700PCD	.250	11°	.007	.096	0°	.130	PCD	DIAMOND	GROUND
TP111600PCD	.250	11°	.016	.096	0°	.130	PCD	DIAMOND	GROUND

Part numbers in **bold face** are in-stock items.



PRECISION FINISH BORING HEADS WITH EXTENDED LENGTH INSERT HOLDERS

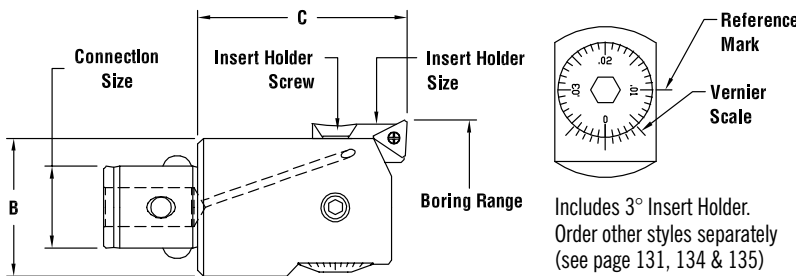


PC6-2615 Boring Head shown here.



Vernier Scale with Reference Marks. (See page 145)

- A .0001" (.002mm) vernier is standard on all heads eliminating the need to purchase expensive .0001" (.002mm) heads.
- Micrometer spindle provides .001" (.02mm) per dial graduation for fast, accurate set-up and adjustment, and reduced scrap.
- No movement between lock and unlock eliminates setting errors common to other systems.
- Well balanced, fully encased in head tool carrier can be run at high speeds.
- Through-spindle coolant capability is standard.
- Replacement insert holder allows for inexpensive pocket replacement and changing of pocket geometry.



Includes 3° Insert Holder. Order other styles separately (see page 131, 134 & 135)

STANDARD INCH

Part Number	Bore Range Min.	Bore Range Max.	Insert Holder Size	Connection Size	B (Dia.)	C	Insert Holder Screw	Insert Type and Size	Weight (lbs.)
PC2-2215	0.984	1.300	2	PC2	0.925	1.48	2215-01	TCMT 06**	0.3
PC3-2315	1.240	1.654	3	PC3	1.201	1.61	2315-01	TCMT 06**	0.5
PC4-2415	1.614	2.126	4	PC4	1.496	1.85	2415-01	TCMT 11	0.9
PC5-2515	2.087	2.756	5	PC5	1.929	2.24	2515-01	TCMT 11	1.8
PC6-2615	2.677	4.000	6	PC6	2.480	2.79	2615-01	TCMT 11	3.9
PC6-2616	3.937	6.000	7	PC6	3.740	2.79	2615-01	TCMT 11	6.5
PC7-2716	3.937	6.000	7	PC7	3.740	3.425	2615-01	TCMT 11	7.5

STANDARD METRIC

Part Number	Bore Range Min.	Bore Range Max.	Connection Size	Insert Holder Size	B (Dia.)	C	Insert Holder Screw	Insert Type and Size	Weight (lbs.)
PC2-2205	25	33	PC2	2	23.5	37.5	2215-01	TCMT 06**	0.3
PC3-2305	32	42	PC3	3	30.5	41	2315-01	TCMT 06**	0.5
PC4-2405	41	54	PC4	4	38	47	2415-01	TCMT 11	0.9
PC5-2505	53	70	PC5	5	49	57	2515-01	TCMT 11	1.8
PC6-2605	68	101.5	PC6	6	63	71	2615-01	TCMT 11	3.9
PC6-2606	100	152	PC6	7	95	71	2615-01	TCMT 11	6.5
PC7-2706	100	152	PC7	7	95	87	2615-01	TCMT 11	7.5

Part numbers in **bold face** are in-stock items.
.001" per dial graduation with .0001" Vernier.
 *3° Insert Holders are standard and are included on Boring Head. Others are optional insert holders and are purchased separately, these are not recommended for dedicated production jobs.
 ** Note: Additional clearance required for nose radius above .016".

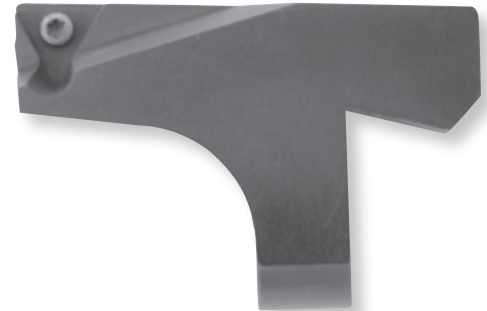
BORING



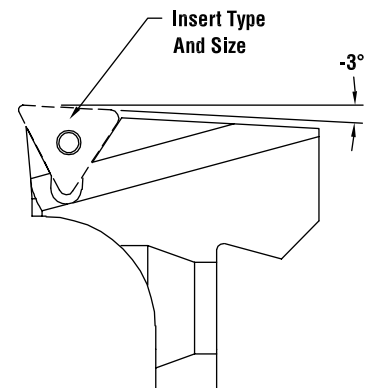
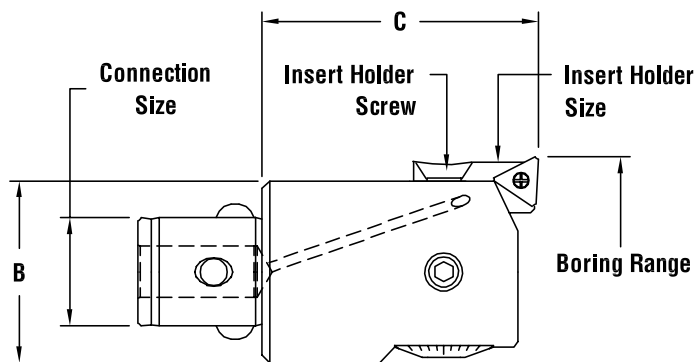
PRECISION FINISH BORING HEADS WITH EXTENDED LENGTH INSERT HOLDERS



PC6-2615 Boring Heads shown here with three different size insert holders.



Increase the range of the Precision Finish Boring head by replacing the standard 3° insert holder with an Extended Reach 3° Insert Holder.



Extend reach holder (insert not included)

OPTIONAL EXTENDED REACH INSERT HOLDERS

Part Number	Boring Range (in) Min	Boring Range (in) Max	Boring Range (mm) Min	Boring Range (mm) Max	Fits Boring Head	Insert Type and Size	Insert Holder Size
2215-T06-157	1.254	1.570	32	40	PC2-2215 / PC2-2205	TCMT 06**	2
2215-T06-185	1.534	1.850	39	47	PC2-2215 / PC2-2205	TCMC 06**	2
2315-T06-200	1.586	2.000	40.5	50.5	PC3-2315 / PC3-2305	TCMC 06**	3
2315-T06-236	1.946	2.360	50	60	PC3-2315 / PC3-2305	TCMC 06**	3
2415-T11-248	1.968	2.480	50	63	PC4-2415 / PC4-2405	TCMT 11	4
2415-T11-291	2.398	2.910	60.5	74	PC4-2415 / PC4-2405	TCMT 11	4
2515-T11-322	2.551	3.220	65	81.5	PC5-2515 / PC5-2505	TCMT 11	5
2515-T11-374	3.071	3.740	78	95	PC5-2515 / PC5-2505	TCMT 11	5
2615-T11-496	3.637	4.960	92.5	126	PC6-2615 / PC6-2605	TCMT 11	6
2615-T11-590	4.577	5.900	116.5	150	PC6-2615 / PC6-2605	TCMT 11	6
2715-T11-704	4.977	7.040	126.5	178.5	PC6-2616 / PC7-2716 PC6-2606 / PC7-2706	TCMT 11	7
2715-T11-822	6.157	8.220	156.5	208.5	PC6-2616 / PC7-2716 PC6-2606 / PC7-2706	TCMT 11	7

Part numbers in **bold face** are in-stock items.

* 3° Insert Holders are standard and are included on Boring Head. Others are optional insert holders and are purchased separately, these are not recommended for dedicated production jobs. Order other Styles separately (see page 135).

** Note: Additional clearance required for nose radius above .016"

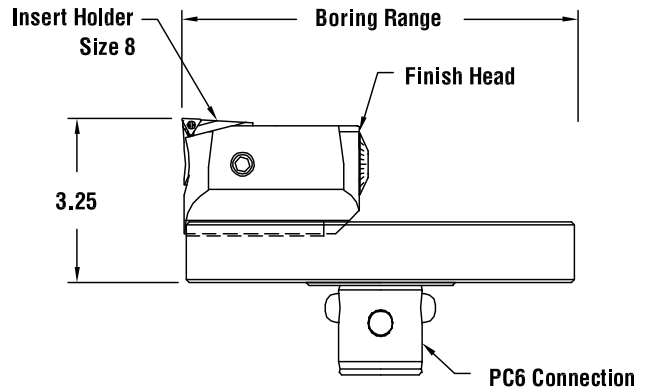


- For use on 40 tapers with 15 lb. tool change limit.
- Reduces inventory.
- Interchangeable with other sizes.

Finish Assembly PC6-7108 shown here.



Finish Assembly with attached Finish Head shown here.



BORING RANGE - INCHES

Boring Range

Min.	Max.	Extension Base	Extension Base Weight (lbs.)	Boring head
5.95	8.27	PC6-7108	7.1	7100-2816

BORING RANGE - METRIC

Boring Range

Min.	Max.	Extension Base	Extension Base Weight (lbs.)	Boring Head
151.13	210.06	PC6-7108	7.1	7100-2806

Part numbers in **bold face** are in-stock items.



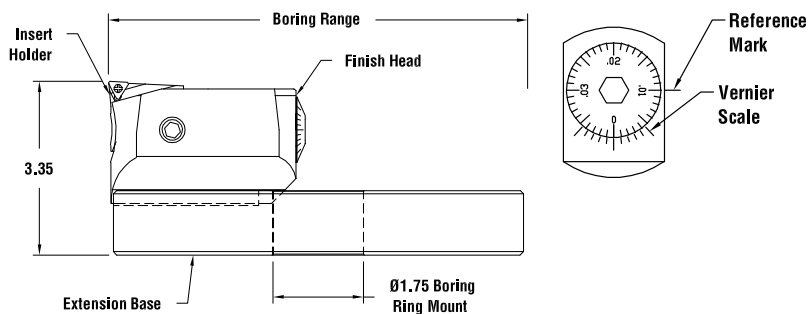
LARGE DIAMETER



Extension Base with Finish Head shown here.

Note: For ordering example, see page 111

- Finish bore full range of extension base.
- Uses modular extension base to minimize tooling inventory.
- Diameter adjustment of .0001 with Vernier scale.
- .040 per revolution, .001 (.02 mm) on diameter dial.



BORING RANGE - INCHES

Boring Range		Extension Base	Extension Base Weight (lbs.)	Boring Head
Min.	Max.			
5.95	8.27	17BR-7108	7.1	7100-2816
8.22	10.54	17BR-7110	8.8	7100-2816
10.49	12.81	17BR-7112	11.1	7100-2816
12.76	15.08	17BR-7115	14.2	7100-2816
15.03	17.35	17BR-7117	16.5	7100-2816
17.30	19.62	17BR-7119	18.8	7100-2816
19.57	21.89	17BR-7121	21.9	7100-2816

BORING RANGE - METRIC

Boring Range		Extension Base	Extension Base Weight (lbs.)	Boring Head
Min.	Max			
151.13	210.06	17BR-7108	7.1	7100-2806
208.79	267.72	17BR-7110	8.8	7100-2806
266.45	325.37	17BR-7112	11.1	7100-2806
324.10	383.03	17BR-7115	14.2	7100-2806
381.76	440.69	17BR-7117	16.5	7100-2806
439.42	498.35	17BR-7119	18.8	7100-2806
497.08	556.01	17BR-7121	21.9	7100-2806

BORING HEAD INSERT SIZE & WEIGHT

Part Number	Insert	Insert Holder Size	Weight (lbs.)
7100-2806	TCMT 11	8	4.3
7100-2816	TCMT 11	8	4.3
7100-B460	TCMT 11	-	2.8
816-009	TCMT 11	-	.7
FBU-2405	TCMT 11	4	.7
FBU-2415	TCMT 11	4	.7

Part numbers in **bold face** are in-stock items.

ALTERNATE HEAD WITH COUNTERWEIGHT*

Finish Head	Base	Counterweight
FBU-2415	7100-B460	816-009

*Alternate Head w/Counterweight is compatible with all listed items in the "Inch - Boring Range" table.

ALTERNATE HEAD WITH COUNTERWEIGHT*

Finish Head	Base	Counterweight
FBU-2405	7100-B460	816-009

*Alternate Head w/Counterweight is compatible with all listed items in the "Metric - Boring Range" table.



- Designed to allow boring into a corner. The -3° leads the insert into the workpiece with less tendency to deflect. Square shoulders, if required, are generally best produced utilizing the twin cutter with 0° lead insert holders during the roughing operation.

STYLE 1

Part Number	Insert Holder Size	Insert Type and Size	Insert Screw	Insert Screw Wrench
2215-T06	2	TCMT 06	028-910	018-002
2315-T06	3	TCMT 06	028-910	018-002
2315-T11	3*	TCMT 11	812-458	018-007
2415-T11	4	TCMT 11	812-458	018-007
2515-T11	5	TCMT 11	028-905	018-007
2615-T11	6	TCMT 11	028-905	018-007
2715-T11	7	TCMT 11	028-905	018-007
2715-T16	7	TCMT 16	028-906	018-008
2815-T11	8	TCMT 11	028-905	018-007
2815-T16	8	TCMT 16	028-906	018-008

*Changes the "C" dimension on PC3-2315 to 1.69.

- Care should be taken in applying this insert holder. Finishing to a square shoulder results in increased tool pressure which can affect finish and size.

STYLE 2

Part Number	Insert Holder Size	Insert Type and Size	Insert Screw	Insert Screw Wrench
2210-T06	2	TCMT 06	028-910	018-002
2310-T06	3	TCMT 06	028-910	018-002
2410-T11	4	TCMT 11	812-458	018-007
2510-T11	5	TCMT 11	028-905	018-007
2610-T11	6	TCMT 11	028-905	018-007
2710-T11	7	TCMT 11	028-905	018-007

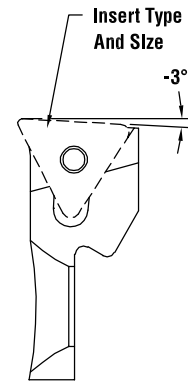
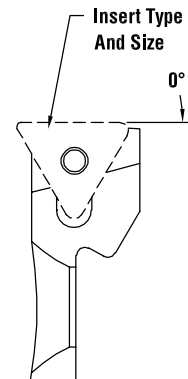
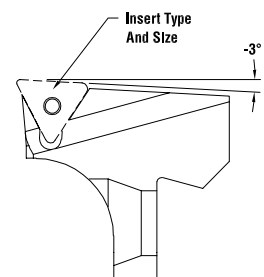
STYLE 3

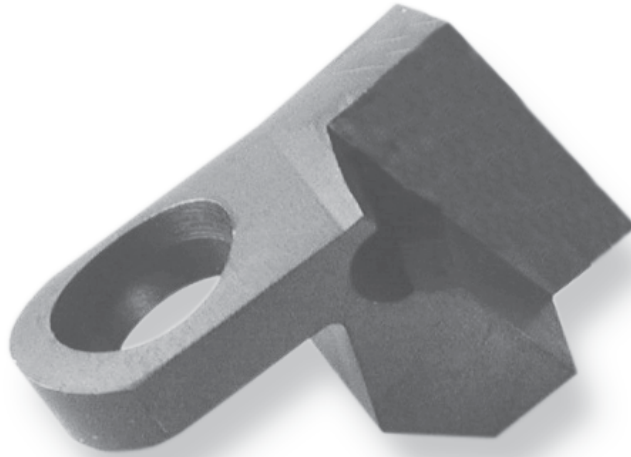
Part Number	Insert Holder Size	Insert Type and Size	Insert Screw	Insert Screw Wrench
2215-T06-157	2	TCMT 06	028-910	018-002
2215-T06-185	2	TCMT 06	028-910	018-002
2215-T06-200	3	TCMT 06	028-910	018-002
2315-T06-236	3	TCMT 06	028-910	018-002
2315-T11-248	4	TCMT 11	812-458	018-007
2415-T11-291	4	TCMT 11	812-458	018-007
2515-T11-322	5	TCMT 11	028-905	018-007
2515-T11-374	5	TCMT 11	028-905	018-007
2615-T11-374	6	TCMT 11	028-905	018-007
2615-T11-590	6	TCMT 11	-	018-007
2715-T11-704	7	TCMT 11	028-905	018-007
2715-T11-822	7	TCMT 11	028-905	018-007

Part numbers in **bold face** are in-stock items.
Order Inserts separately (see page 136).

STYLE 1: 3° INSERT HOLDERS

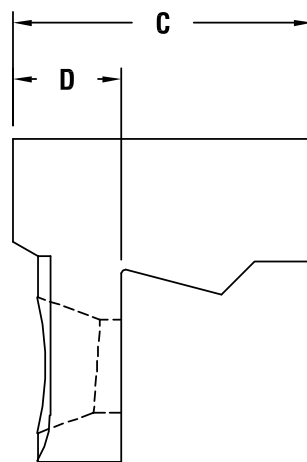
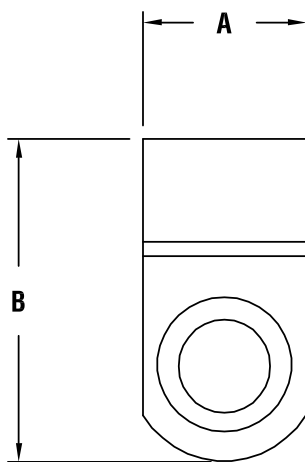
Included with Finishing Head

**STYLE 2: 0° LEAD INSERT HOLDERS****STYLE 3: 3° EXTENDED LEAD INSERT HOLDERS**



- After machining insert pocket, heat treat is recommended but not necessary. Heat treat per specifications below.
- Dimension "A" must be ground. Grind equally from both sides.
- Do not machine any of the seating surfaces.
- Insert pocket should be machined so that insert tip is .003 - .005 above center line of blank, after finish ground to "A" dimension.

Insert Holder Blank 2215-BLANK shown here.

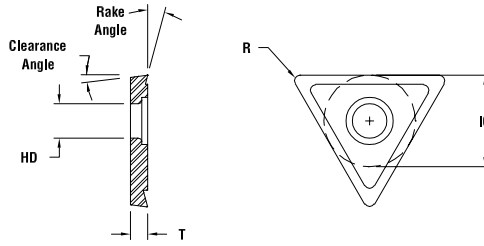
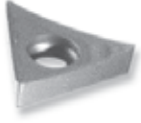


Order Inserts, Insert Screws, and Wrenches Separately.

INSERT HOLDER BLANKS

Part Number	Quantity	Size/Type	A	B	C	D	Material	Case Hardened Recommendation
2215-BLANK	SINGLE	2 FINISH	.300	.71	.35	.14	1018	RC 50-54/.010 - .015 DEEP
2315-BLANK	SINGLE	3 FINISH	.345	.78	.44	.18	1018	RC 50-54/.010 - .015 DEEP
2415-BLANK	SINGLE	4 FINISH	.440	1.01	.57	.20	1018	RC 50-54/.010 - .015 DEEP
2515-BLANK	SINGLE	5 FINISH	.550	1.21	.71	.30	1018	RC 50-54/.010 - .015 DEEP
2615-BLANK	SINGLE	6 FINISH	.710	1.35	1.00	.45	1018	RC 50-54/.010 - .015 DEEP
2715-BLANK	SINGLE	7 FINISH	.710	1.35	1.30	.47	1018	RC 50-54/.010 - .015 DEEP
2815-BLANK	SINGLE	8 FINISH	.710	1.35	1.47	.47	1018	RC 50-54/.010 - .015 DEEP

Part numbers in **bold face** are in-stock items.



Triangle Insert T061206C7G shown here.

SIZE TCMT 06

Part Number	IC	Clearance Angle	R	T	Rake Angle	HD	Grade	Type	Periphery
T061206C7G	.156	7°	.008	.078	6°	.087	C7	UNCOATED	GROUND
T061220C2G	.156	7°	.008	.078	20°	.087	C2	UNCOATED	GROUND
T060815C2P	.156	7°	.008	.078	15°	.087	C2	UNCOATED	PRESSED
T061615C2P	.156	7°	.016	.078	15°	.087	C2	UNCOATED	PRESSED
T060815TTP	.156	7°	.008	.078	15°	.087	TT	COATED	PRESSED
T061615TTP	.156	7°	.016	.078	15°	.087	TT	COATED	PRESSED
T060820CTG	.156	7°	.008	.078	20°	.087	CT	CERMET	GROUND
T061620CTG	.156	7°	.016	.078	20°	.087	CT	CERMET	GROUND
T060815CTP	.156	7°	.008	.078	15°	.087	CT	CERMET	PRESSED
T061615CTP	.156	7°	.016	.078	15°	.087	CT	CERMET	PRESSED
T061600PCD	.156	7°	.016	.078	0°	.087	PCD	DIAMOND	GROUND

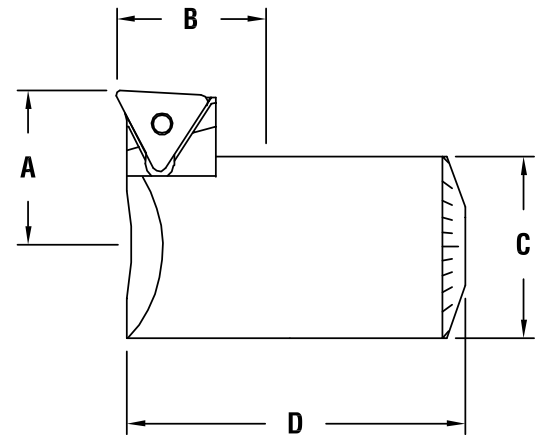
SIZE TCMT 11

Part Number	IC	Clearance Angle	R	T	Rake Angle	HD	Grade	Type	Periphery
T111615C7P	.250	7°	.016	.094	15°	.108	C7	UNCOATED	PRESSED
T111600C2P	.250	7°	.016	.094	0°	.108	C2	UNCOATED	PRESSED
T111615C2P	.250	7°	.016	.094	15°	.108	C2	UNCOATED	PRESSED
T113115C2P	.250	7°	.031	.094	15°	.108	C2	UNCOATED	PRESSED
T111620C2G	.250	7°	.016	.094	20°	.108	C2	UNCOATED	GROUND
T111600C2G	.250	7°	.016	.094	0°	.108	C2	UNCOATED	GROUND
T113120C2G	.250	7°	.031	.094	20°	.108	C2	UNCOATED	GROUND
T110815TTP	.250	7°	.008	.094	15°	.108	TT	COATED	PRESSED
T111615TTP	.250	7°	.016	.094	15°	.108	TT	COATED	PRESSED
T113115TTP	.250	7°	.031	.094	15°	.108	TT	COATED	PRESSED
T110823TEG	.250	7°	.008	.094	15°	.108	TE	COATED	GROUND
T111623TEG	.250	7°	.016	.094	23°	.108	TE	COATED	GROUND
T111615CTP	.250	7°	.016	.094	15°	.108	CT	CERMET	PRESSED
T113115CTP	.250	7°	.031	.094	15°	.108	CT	CERMET	PRESSED
T111615CMP	.250	7°	.016	.094	15°	.108	CM	CERMET	PRESSED
T111615CCP	.250	7°	.016	.094	15°	.108	CC	COATED	GROUND
T111600ASP	.250	7°	.016	.094	0°	.108	AS	COATED	PRESSED
T11800PCD	.250	7°	.008	.094	0°	.108	PCD	DIAMOND	GROUND
T111600PCD	.250	7°	.016	.094	0°	.108	PCD	DIAMOND	GROUND
T111615SNG	.250	7°	.016	.094	15°	.108	SN	COATED	GROUND
T113115SNG	.250	7°	.031	.094	15°	.108	SN	COATED	GROUND
T111615VNG	.250	7°	.016	.094	15°	.108	VN	COATED	GROUND
T113115VNG	.250	7°	.031	.094	15°	.108	VN	COATED	GROUND

Part numbers in **bold face** are in-stock items.
TN grade has been replaced by TT.



Cartridge 2415-FBC shown here.



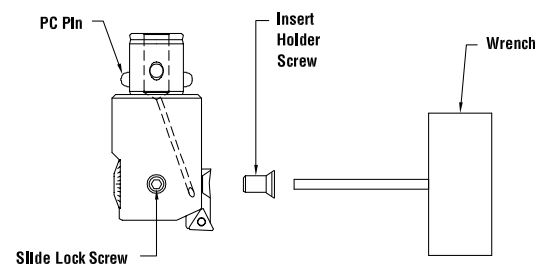
CARTRIDGES

Part Number		Size	A	B		C	D	Insert Type/Size
Inch	Metric			Minimum	Maximum			
2215-FBC	2205-FBC	2	.489 (12.4)	.492 (12.5)	.650 (16.5)	.499 (12.66)	.984 (25.0)	TCMT 06
2315-FBC	2305-FBC	3	.536 (16.0)	.630 (16.0)	.827 (21.0)	.633 (16.06)	1.260 (32.0)	TCMT 06
2415-FBC	2405-FBC	4	.665 (16.9)	.807 (20.5)	1.063 (27.0)	.788 (19.99)	1.614 (41.0)	TCMT 11
2515-FBC	2505-FBC	5	.810 (20.6)	1.044 (26.5)	1.378 (35.0)	.965 (24.48)	2.087 (53.0)	TCMT 11
2615-FBC	2605-FBC	6	.945 (24.0)	1.338 (34.0)	2.000 (50.0)	1.260 (31.98)	2.677 (53.0)	TCMT 11
2715-FBC	2705-FBC	7	.945 (24.0)	1.968 (50.0)	3.000 (75.0)	1.260 (31.98)	3.937 (100.0)	TCMT 11

Use as replacement cartridges in finish boring heads or as components of special boring bars.

FINISH BORING HEAD

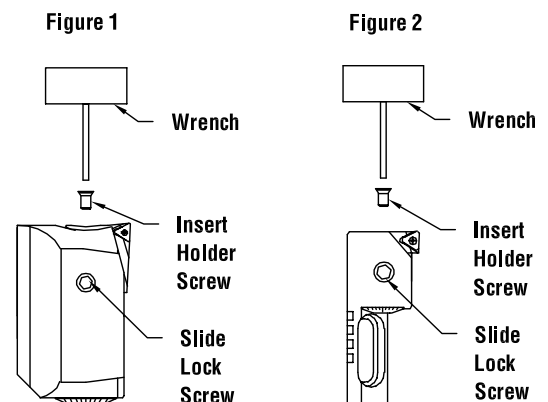
Part Number	Insert Holder Screw	Slide Lock Screw	Wrench	PC Pin
PC2-22(X)5	2215-01	029-082	018-102	PCP-002
PC3-23(X)5	2315-01	029-074	018-103	PCP-003
PC4-24(X)5	2415-01	029-091	018-104	PCP-004
PC5-25(X)5	2515-01	029-088	018-105	PCP-005
PC6-26(X)5	2615-01	029-094	018-106	PCP-006
PC6-26(X)6	2615-01	029-094	018-106	PCP-006



LARGE DIAMETER FINISHING

Part Number	Figure	Insert Holder Screw	Slide Lock Screw	Wrench
7100-28(X)6	2	2615-01	029-904	018-106
FBU-24(X)5	1	2415-01	029-091	018-104

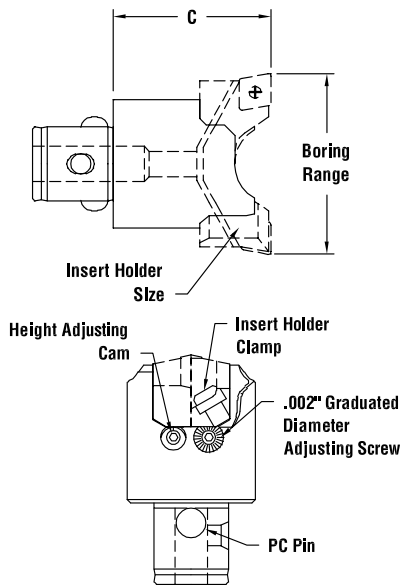
Part numbers in **bold face** are in-stock items.
(X) refers to 1 or 0 (inch or metric).



BORING



PC4-4405 shown here.



- Independent height and diameter setting permits balanced cutting with production of almost perfectly round holes from the beginning, irrespective of core shifts.
- Two height balanceable cutting edges results in metal removal at rates almost 4 times that of a single cutter.
- Height adjustments are made with a cam that supports the insert holder where needed, at the furthest radial point.
- Each insert holder can be adjusted individually in diameter with a dial screw for fast, easy set-up operations.
- Balanced or stepped cutting can be done with the same set of insert holders permitting heavy stock removal and eliminating the need to purchase two sets of insert holders.
- Standard through-spindle coolant capability cools the insert and flushes chips.
- ISO standard inserts – requires no special expensive inserts.
- Square SCMT insert holders with 6° lead for through hole boring or extreme core shifts.
- Diamond CCMT insert holders for boring to a square holder, or deep bore lengths.
- Trigon WCMT insert holders for applications requiring heavy stock removal.

TWIN BORE ROUGHING

Part Number	Bore Range Min.	Bore Range Max.	Connection Size	Insert Holder Size	Body Diameter	C	Weight (lbs.)
PC2-4205	.95 (24.1)	1.31 (33.3)	PC2	21	.91 (23)	1.39 (33.5)	.2
PC2-4205	1.13 (28.7)	1.48 (37.6)	PC2	22	.91 (23)	1.39 (33.5)	.2
PC3-4305	1.27 (32.3)	1.70 (43.2)	PC3	31	1.18 (30)	1.57 (40)	.4
PC3-4305	1.50 (38.1)	1.95 (49.5)	PC3	32	1.18 (30)	1.57 (40)	.4
PC4-4405	1.58 (40)	2.17 (55.1)	PC4	41	1.50 (38)	1.85 (47)	.7
PC4-4405	2.09 (53)	2.53 (64.3)	PC4	42	1.50 (38)	1.85 (47)	.7
PC5-4505	2.06 (52.4)	2.73 (69.3)	PC5	51	1.93 (49)	2.24 (57)	1.4
PC5-4505	2.58 (65.5)	3.30 (83.8)	PC5	52	1.93 (49)	2.24 (57)	1.4
PC6-4605	2.61 (66.3)	3.48 (88.4)	PC6	61	2.48 (63)	2.79 (71)	2.8
PC6-4605	3.36 (85.3)	4.20 (106.7)	PC6	62	2.48 (63)	2.79 (71)	2.8
PC6-4605	4.10 (104.1)	4.86 (123.4)	PC6	63	2.48 (63)	2.79 (71)	2.8
PC6-4606	3.92 (99.6)	4.84 (123)	PC6	61	3.54 (90)	2.79 (71)	3.9
PC6-4606	4.68 (119)	5.54 (140.7)	PC6	62	3.54 (90)	2.79 (71)	3.9
PC6-4606	5.44 (138)	6.20 (157.5)	PC6	63	3.54 (90)	2.79 (71)	3.9
PC7-4705	3.92 (99.6)	4.84 (122.9)	PC7	61	3.54 (90)	4.60 (117)	–
PC7-4705	4.68 (119)	5.54 (140.7)	PC7	62	3.54 (90)	4.60 (117)	–
PC7-4705	5.44 (138)	6.00 (152.4)	PC7	63	3.54 (90)	4.60 (117)	–

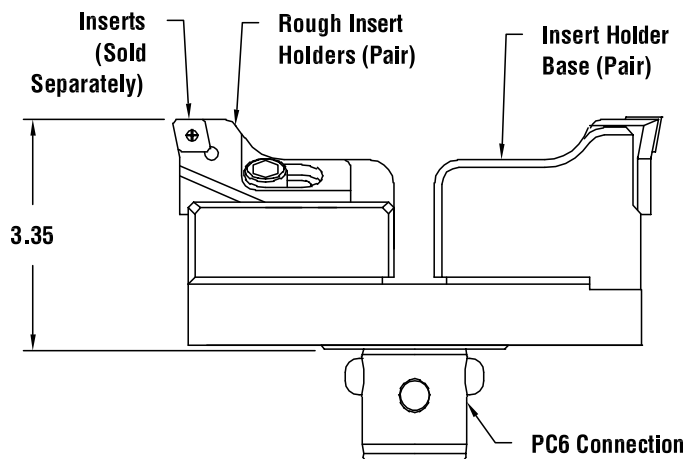
Part numbers in **bold face** are in-stock items.

For use when reduced boring shaft diameter is required for clearance. PC Connection OD should not be larger than the starting diameter of the hole.



PC6-7108 shown here.

- For use on 40 tapers with 15 lb. tool change limit.
- Reduces inventory.
- Interchangeable with other sizes.

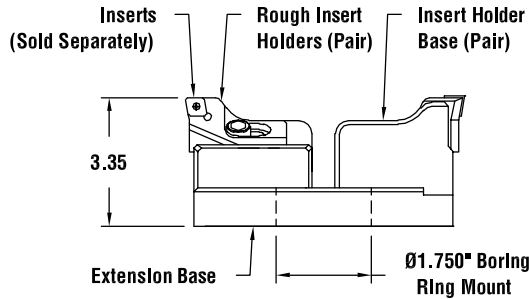


Rough Assembly with Insert Holders shown here.

TWIN BORE ROUGHING

Extension Base	Insert Holder Base	Boring Range Min.	Insert Max.	Insert Holder C	Insert Holder S	Holder W
PC6-7108	7100-B460	5.95 (151)	6.80 (172)	4605-61C12	4605-61S12	4605-61W08
PC6-7108	7100-B460	6.68 (170)	7.52 (191)	4605-62C12	4605-62S12	4605-62W08
PC6-7108	7100-B460	7.42 (189)	8.27 (210)	4606-63C12	4606-63S12	4606-63W08

Part numbers in **bold face** are in-stock items.



NOTE: For ordering example, see page 110.

WEIGHTS

Part Number	Weight (lbs.)
7100-B460	2.8
SIZE 61	.6
SIZE 62	.8
SIZE 63	1.0

INSERT HOLDER STYLES

Style	Insert Type and Size	Insert Screw	Insert Screw Wrench
C	CCMT 12	028-907	018-009
S	SCMT 12	028-907	018-009
W	WCMX 08	028-906	018-008

Extension base 17BR-7112 shown here with and without Insert Holders.

TWIN BORE ROUGHING

Extension Base	Insert Holder Base	Boring Range Min.	Boring Range Max	Insert Holder C	Insert Holder S	Insert Holder W
17BR-7108	7100-B460	5.95 (151)	6.80 (172)	4605-61C12	4605-61S12	4605-61W08
17BR-7108	7100-B460	6.68 (170)	7.52 (191)	4605-62C12	4605-62S12	4605-62W08
17BR-7108	7100-B460	7.42 (189)	8.27 (210)	4606-63C12	4606-63S12	4606-63W08
17BR-7110	7100-B460	8.22 (209)	9.07 (230)	4605-61C12	4605-61S12	4605-61W08
17BR-7110	7100-B460	8.95 (228)	9.79 (249)	4605-62C12	4605-62S12	4605-62W08
17BR-7110	7100-B460	9.69 (246)	10.54 (267)	4606-63C12	4606-63S12	4606-63W08
17BR-7112	7100-B460	10.49 (267)	11.34 (288)	4605-61C12	4605-61S12	4605-61W08
17BR-7112	7100-B460	11.22 (285)	12.07 (306)	4605-62C12	4605-62S12	4605-62W08
17BR-7112	7100-B460	11.96 (304)	12.81 (325)	4606-63C12	4606-63S12	4606-63W08
17BR-7115	7100-B460	12.76 (324)	13.61 (345)	4605-61C12	4605-61S12	4605-61W08
17BR-7115	7100-B460	13.49 (343)	14.34 (364)	4605-62C12	4605-62S12	4605-62W08
17BR-7115	7100-B460	14.23 (362)	15.08 (383)	4606-63C12	4606-63S12	4606-63W08
17BR-7117	7100-B460	15.03 (382)	15.88 (403)	4605-61C12	4605-61S12	4605-61W08
17BR-7117	7100-B460	15.75 (400)	16.61 (422)	4605-62C12	4605-62S12	4605-62W08
17BR-7117	7100-B460	16.50 (419)	17.35 (441)	4606-63C12	4606-63S12	4606-63W08
17BR-7119	7100-B460	17.30 (439)	18.15 (461)	4605-61C12	4605-61S12	4605-61W08
17BR-7119	7100-B460	18.03 (458)	18.88 (479)	4605-62C12	4605-62S12	4605-62W08
17BR-7119	7100-B460	18.77 (477)	19.62 (498)	4606-63C12	4606-63S12	4606-63W08
17BR-7121	7100-B460	19.57 (497)	20.42 (519)	4605-61C12	4605-61S12	4605-61W08
17BR-7121	7100-B460	20.29 (515)	21.15 (537)	4605-62C12	4605-62S12	4605-62W08
17BR-7121	7100-B460	21.04 (534)	21.89 (556)	4606-63C12	4606-63S12	4606-63W08

Part numbers in **bold face** are in-stock items.

BORING

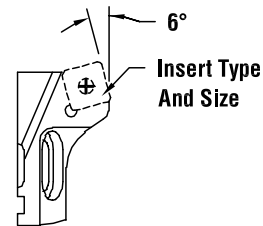


- Designed for boring through holes, particularly in castings where core shift is a problem.

Insert Holders 4405-41C09 Style 2 shown here.

STYLE 1: FOR USE WITH SCMT INSERTS.

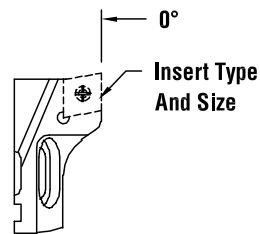
Part Number	Insert Holder Size	Insert Type and Size	Insert Screw	Insert Screw Wrench	Weight (lbs.)
4305-31S09	31	SCMT 09	028-906	018-008	.1
4405-41S09	41	SCMT 09	028-906	018-008	.2
4505-51S12	51	SCMT 12	028-907	018-009	.3
4605-61S12	61	SCMT 12	028-907	018-009	.6
4605-62S12	62	SCMT 12	028-907	018-009	.8
4606-63S12	63	SCMT 12	028-907	018-009	1.0



- Designed for boring to square shoulders and deep bores. Also used when step cutting.

STYLE 2: FOR USE WITH SCMT INSERTS.

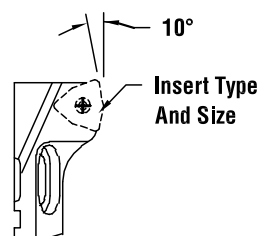
Part Number	Insert Holder Size	Insert Type and Size	Insert Screw	Insert Screw Wrench	Weight (lbs.)
4205-21C06	21	CCMT 06	028-925	018-007	.1
4205-22C06	22	CCMT 06	028-905	018-007	.1
4305-31C06	31	CCMT 06	028-905	018-007	.1
4305-32C06	32	CCMT 06	028-905	018-007	.1
4405-41C09	41	CCMT 09	028-906	018-008	.2
4405-42C09	42	CCMT 09	028-906	018-008	.2
4505-51C12	51	CCMT 12	028-907	018-009	.3
4505-52C12	52	CCMT 12	028-907	018-009	.4
4605-61C12	61	CCMT 12	028-907	018-009	.6
4605-62C12	62	CCMT 12	028-907	018-009	.8
4606-63C12	63	CCMT 12	028-907	018-009	1.0



STYLE 3: FOR USE WITH WCMX INSERTS.

Part Number	Insert Holder Size	Insert Type and Size	Insert Screw	Insert Screw Wrench	Weight (lbs.)
4205-21W03	21	WCMX 03	018-007	028-905	.1
4305-31W03	31	WCMX 03	018-007	028-905	.1
4405-41W04	41	WCMX 04	018-007	028-905	.2
4505-51W05	51	WCMX 05	018-003	028-908	.3
4605-61W08	61	WCMX 08	018-008	028-906	.6
4605-62W08	62	WCMX 08	018-008	028-906	.8
4606-63W08	63	WCMX 08	018-008	028-906	1.0

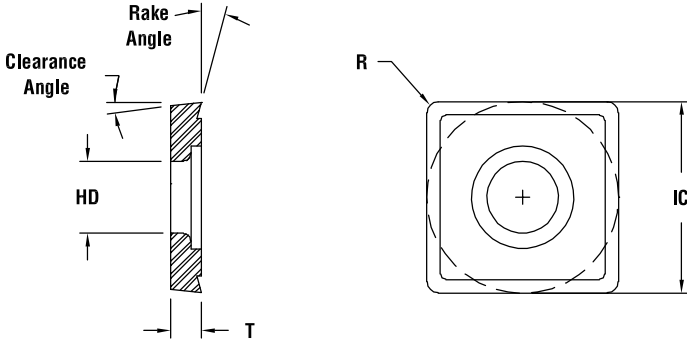
- Designed for heavy stock removal at moderate horsepower.



Part numbers in **bold face** are in-stock items.
 Rough insert holders sold in pairs. Order inserts separately (see pages 142-144).



Square Insert S091615C2P shown here.



SIZE SCMT 09

Part Number	IC	Clearance Angle	R	T	Rake Angle	HD	Grade	Type	Periphery
S091615C2P	.375	7°	.016	.156	15°	.173	C2	UNCOATED	PRESSED
S093115C2P	.375	7°	.031	.156	15°	.173	C2	UNCOATED	PRESSED
S091615TTP	.375	7°	.016	.156	15°	.173	TT	COATED	PRESSED
S093115TTP	.375	7°	.031	.156	15°	.173	TT	COATED	PRESSED
S091615CTP	.375	7°	.016	.156	15°	.173	CT	CERMET	PRESSED
S093115CTP	.375	7°	.031	.156	15°	.173	CT	CERMET	PRESSED
S093100ASP	.375	7°	.031	.156	0°	.173	AS	COATED	PRESSED
S091600C2G	.375	7°	.016	.156	0°	.173	C2	UNCOATED	PRESSED

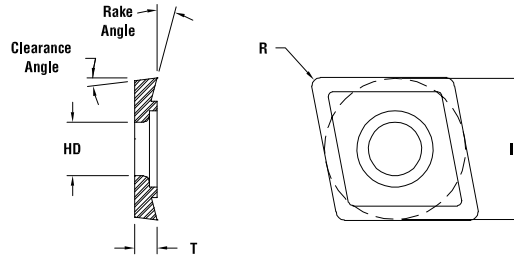
SIZE SCMT 12

Part Number	IC	Clearance Angle	R	T	Rake Angle	HD	Grade	Type	Periphery
S121615C2P	.500	7°	.016	.188	15°	.216	C2	UNCOATED	PRESSED
S123115C2P	.500	7°	.031	.188	15°	.216	C2	UNCOATED	PRESSED
S121615TTP	.500	7°	.016	.188	15°	.216	TT	COATED	PRESSED
S123115TTP	.500	7°	.031	.188	15°	.216	TT	COATED	PRESSED
S124715TTP	.500	7°	.047	.188	15°	.216	TT	COATED	PRESSED
S121615CTP	.500	7°	.016	.188	15°	.216	CT	CERMET	PRESSED
S123115CTP	.500	7°	.031	.188	15°	.216	CT	CERMET	PRESSED
S124715CTP	.500	7°	.047	.188	15°	.216	CT	CERMET	PRESSED

Part numbers in **bold face** are in-stock items.



80° Diamond Insert shown here.



SIZE CCMT 06

Part Number	IC	Clearance Angle	R	T	Rake Angle	HD	Grade	Type	Periphery
C061615C2P	.250	7°	.016	.094	15°	.110	C2	UNCOATED	PRESSED
C063115C2P	.250	7°	.031	.094	15°	.110	C2	UNCOATED	PRESSED
C061620C2G	.250	7°	.016	.094	20°	.110	C2	UNCOATED	GROUND
C061615TTP	.250	7°	.016	.094	15°	.110	TT	COATED	PRESSED
C063115TTP	.250	7°	.031	.094	15°	.110	TT	COATED	PRESSED
C061615CTP	.250	7°	.016	.094	15°	.110	CT	CERMET	PRESSED
C063115CTP	.250	7°	.031	.094	15°	.110	CT	CERMET	PRESSED
C063115SNG	.250	7°	.031	.094	15°	.110	SN	COATED	GROUND
C061615SNG	.250	7°	.016	.094	15°	.110	SN	COATED	GROUND
C061615VNG	.250	7°	.016	.094	15°	.110	VN	COATED	GROUND
C063115VNG	.250	7°	.031	.094	15°	.110	VN	COATED	GROUND
C093115VNG	.375	7°	.031	.156	15°	.173	VN	COATED	GROUND

SIZE CCMT 09

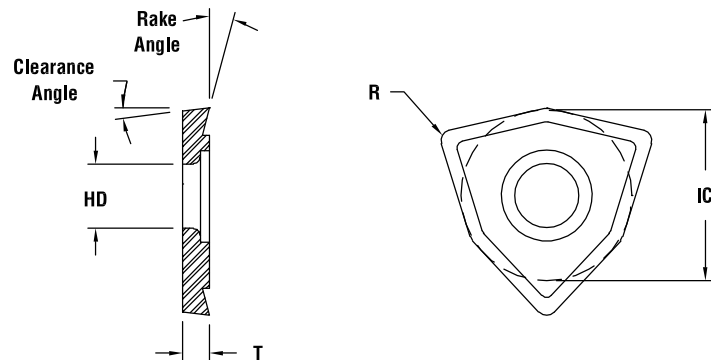
Part Number	IC	Clearance Angle	R	T	Rake Angle	HD	Grade	Type	Periphery
C091615C2P	.375	7°	.016	.156	15°	.173	C2	UNCOATED	PRESSED
C093115C2P	.375	7°	.031	.156	15°	.173	C2	UNCOATED	PRESSED
C091620C2G	.375	7°	.016	.156	20°	.173	C2	UNCOATED	GROUND
C091615TTP	.375	7°	.016	.156	15°	.173	TT	COATED	PRESSED
C093115TTP	.375	7°	.031	.156	15°	.173	TT	COATED	PRESSED
C091615CTP	.375	7°	.016	.156	15°	.173	CT	CERMET	PRESSED
C093115CTP	.375	7°	.031	.156	15°	.173	CT	CERMET	PRESSED
C091615SNG	.375	7°	.016	.156	15°	.173	SN	COATED	GROUND
C093115SNG	.375	7°	.031	.156	15°	.173	SN	COATED	GROUND
C091615VNG	.375	7°	.016	.156	15°	.173	VN	COATED	GROUND

SIZE CCMT 12

Part Number	IC	Clearance Angle	R	T	Rake Angle	HD	Grade	Type	Periphery
C121615C2P	.500	7°	.016	.188	15°	.216	C2	UNCOATED	PRESSED
C123115C2P	.500	7°	.031	.188	15°	.216	C2	UNCOATED	PRESSED
C124715C2P	.500	7°	.047	.188	15°	.216	C2	UNCOATED	PRESSED
C121620C2G	.500	7°	.016	.188	20°	.216	C2	UNCOATED	GROUND
C123120C2G	.500	7°	.031	.188	20°	.216	C2	UNCOATED	GROUND
C121615TTP	.500	7°	.016	.188	15°	.216	TT	COATED	PRESSED
C123115TTP	.500	7°	.031	.188	15°	.216	TT	COATED	PRESSED
C124715TTP	.500	7°	.047	.188	15°	.216	TT	COATED	PRESSED
C121615CTP	.500	7°	.016	.188	15°	.216	CT	CERMET	PRESSED
C123115CTP	.500	7°	.031	.188	15°	.216	CT	CERMET	PRESSED
C124715CTP	.500	7°	.047	.188	15°	.216	CT	CERMET	PRESSED
C121615SNG	.500	7°	.016	.188	15°	.216	SN	COATED	GROUND
C123115SNG	.500	7°	.031	.188	15°	.216	SN	COATED	GROUND
C121615VNG	.500	7°	.016	.188	15°	.216	VN	COATED	GROUND
C123115VNG	.500	7°	.031	.188	15°	.216	VN	COATED	GROUND



Trigon Insert W033115STTP shown here.



SIZE WCMX 03

Part Number	IC	Clearance Angle	R	T	Rake Angle	HD	Grade	Type	Periphery
W033115TTP	.218	7°	.031	.093	15°	.110	TT	COATED	PRESSED

SIZE WCMX 04

Part Number	IC	Clearance Angle	R	T	Rake Angle	HD	Grade	Type	Periphery
W043115TTP	.250	7°	.031	.093	15°	.122	TT	COATED	PRESSED

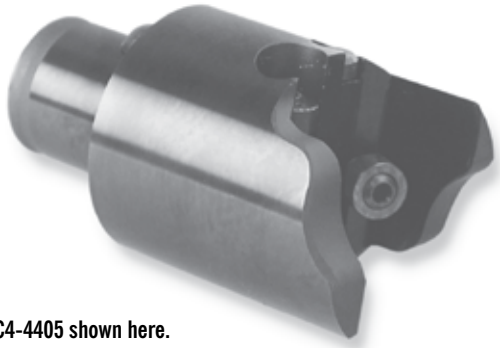
SIZE WCMX 05

Part Number	IC	Clearance Angle	R	T	Rake Angle	HD	Grade	Type	Periphery
W053115TTP	.312	7°	.031	.125	15°	.126	TT	CERMET	PRESSED

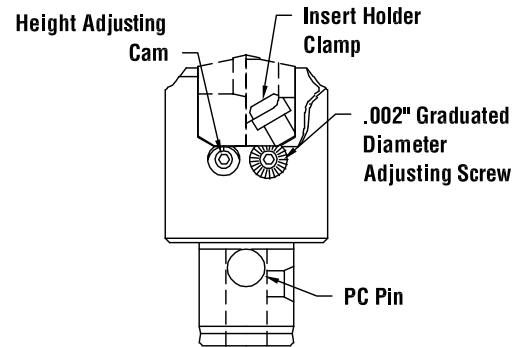
SIZE WCMX 08

Part Number	IC	Clearance Angle	R	T	Rake Angle	HD	Grade	Type	Periphery
W084715TTP	.500	7°	.047	.187	15°	.169	TT	COATED	PRESSED

Part numbers in **bold face** are in-stock items.



PC4-4405 shown here.

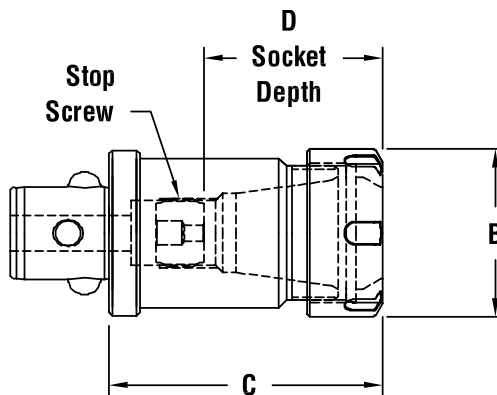


ROUGH BORING COMPONENTS

Part Number	*Diameter Adjust. Screw	*Insert Holder Clamp (Pair)	Height Adjust. Cam (Pair)	*Wrench Kit	Spare Kit	PC Pin
PC2-4205	4205-11	4205-12	4205-13	4205-14	4205-10	PCP-002
PC3-4305	4305-11	4305-12	4305-13	4305-14	4305-10	PCP-003
PC4-4405	4405-11	4405-12	4405-13	4405-14	4405-10	PCP-004
PC5-4505	4505-11	4505-12	4505-13	4505-14	4505-10	PCP-005
PC6-4605	4605-11	4605-12	4605-13	4605-14	4605-10	PCP-006
PC6-4606	4605-11	4605-12	4605-13	4605-14	4605-10	PCP-006
PC7-4705	4605-11	4605-12	4605-13	4605-14	4605-10	PCP-007
7100-B460	4605-11	4605-12	4605-13	4605-14	4605-10	-

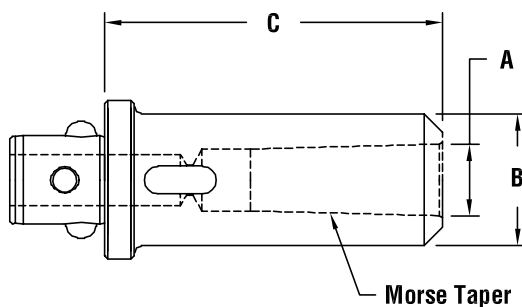
Part numbers in **bold face** are in-stock items.
 *Included in spare kit.

BORING



MODULAR COLLET CHUCK

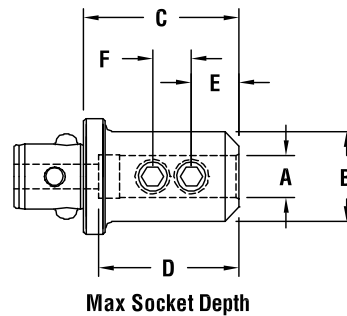
Part Number	Connection Size	Type/Size	Projection	Page #
PC4-16ER325	PC4	ER16	3.12	TH 31
PC4-18DC2	PC4	DA 180	2.28	TH 51
PC4-20ER325	PC4	ER 20	3.25	TH 31
PC4-32ER325	PC4	ER 32	3.25	TH 33
PC6-10SC3	PC6	100 PG	3.25	TH 42
PC6-18DC2	PC6	DA 180	3.43	TH 51
PC6-20ER340	PC6	ER 20	3.40	TH 31
PC6-32ER340	PC6	ER 32	3.40	TH 33



MODULAR MORSE TAPER HOLDERS

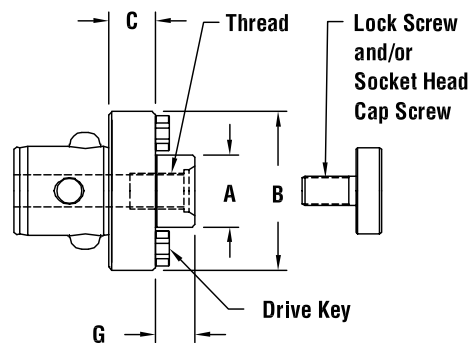
Part Number	Connection Size	Size	Projection	Page #
PC6-02MT4	PC6	#2 MT	3.91	TH 84
PC6-03MT5	PC6	#3 MT	4.78	TH 84
PC6-04MT6	PC6	#4 MT	5.53	TH 84

Part numbers in **bold face** are in-stock items.



MODULAR END MILL HOLDERS

Part Number	Connection Size	Size	Projection	Page #
PC4-50EM3	PC4	.500	3.13	TH 72
PC4-62EM3	PC4	.625	3.13	TH 73
PC4-75EM3	PC4	.750	3.13	TH 73
PC6-25EM1	PC6	.250	1.28	TH 71
PC6-37EM1	PC6	.375	1.78	TH 79
PC6-50EM2	PC6	.500	1.90	TH 72
PC6-62EM3	PC6	.625	3.03	TH 73
PC6-75EM3	PC6	.750	3.03	TH 73
PC6-87EM3	PC6	.875	3.03	TH 74
PC6-10EM3	PC6	1.000	3.28	TH 74
PC6-12EM3	PC6	1.250	3.28	TH 75



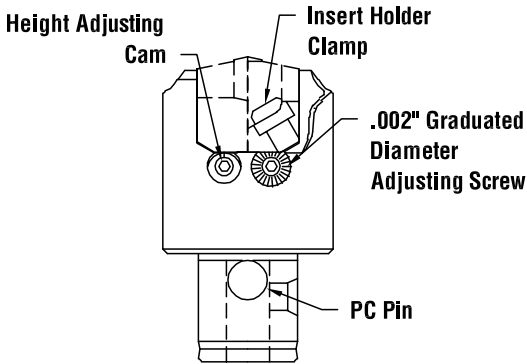
MODULAR SHELL MILL HOLDERS

Part Number	Connection Size	Size	Projection	Page #
PC4-75SM1	PC4	.750	.78	TH 78
PC6-75SM1	PC6	.750	.78	TH 78
PC6-10SM1	PC6	1.000	.78	TH 79
PC6-12SM1	PC6	1.250	1.03	TH 79
PC6-15SM2	PC6	1.500	153.00	TH 80

Part numbers in **bold face** are in-stock items.
Tapping Heads Available on request (see page 170, 171)



INSTALLING INSERT HOLDERS:

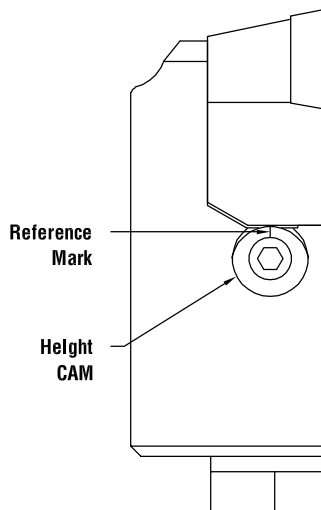


1. Remove the two insert holder clamps and set aside.
2. Place the insert holders in the head, making sure the slot in the bottom of the insert holder engages the head of the diameter adjusting screw.
3. Install the insert holder clamps (cap screw on size two). Make sure that the nut is flush with the end of the screw.
4. Snug up the insert holder clamps.

It is recommended that the Parlec twin boring heads be adjusted on a tool presetter. Refer to Parlec Presetter catalogs for more information.

(see next page)

ADJUSTING FOR BALANCED CUTTING:



Balanced cutting allows both cutting edges to work simultaneously. A properly balanced twin cutter may be fed at almost four times the rate of a single cutter. Make sure the height cam is located with the reference mark (lowest point) in the vertical position as shown.

1. Loosen the insert holder clamps. Re-tighten enough to put drag on the insert holder.
2. Adjust the diameter by turning the adjusting screw. Always adjust in the clockwise direction.
3. Tighten the insert holder clamps.
4. Repeat for the second insert holder, adjusting both to $\pm .001$ on the diameter.

(see page 150)

ADJUSTING FOR STEPPED CUTTING:

RECOMMENDED TIGHTENING TORQUE*

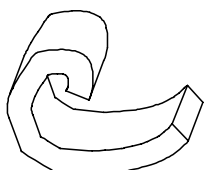
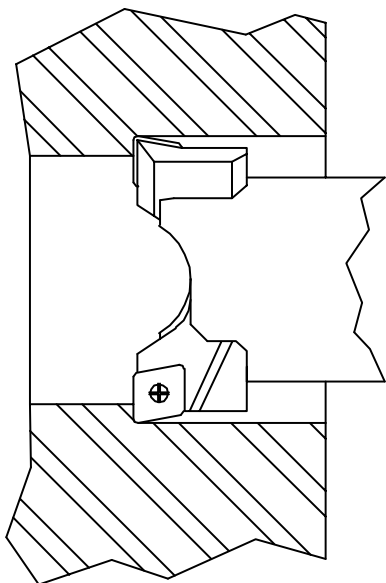
Rough Head	Insert Holder	PC Screw
PC2-4205	12	36
PC3-4305	36	48
PC4-4405	48	72
PC5-4505	72	96
PC6-4605	72	120

*weight listed is in lbs.

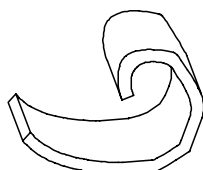
Stepped cutting allows removal of more metal since each insert is set at a different diameter.

1. Make sure the height cam is located with the reference mark in the vertical position as shown.
2. Loosen the insert holder clamps. Re-tighten enough to put drag on the insert holder.
3. Adjust the diameter by turning the adjusting screw. Always adjust in the clockwise direction. Set the diameter of each insert to remove approximately one half the material.
4. Using the cam screw, adjust the inner cutting edge so that it has a lead over the outer cutting edge. This lead should be a minimum of $11/2$ times the feed per revolution.
5. Tighten the insert holder clamps.

NOTE: When using stepped cutting, the feed rate must be that of a single cutter.



Chip A



Chip B

Balanced cutting occurs when both inserts are set to exactly the same height. This height balancing is much more important than diametric balancing. A slight difference in height, even that caused by the insert tolerance, can have a dramatic effect upon the tool's performance. This is particularly true in the case of long chipping materials.

EXAMPLE OF UNBALANCED CUT:

- Feed rate .016 IPR.
- Insert "A" is .003 higher than insert "B." (The tolerance on an M style insert is .002-.004.)
- The material removed by insert "A" is $.008" + .003" = .011"$
- The material removed by insert "B" is $.008" - .003" = .005"$
- The chip taken by insert "A" is over twice as thick as that taken by insert "B".

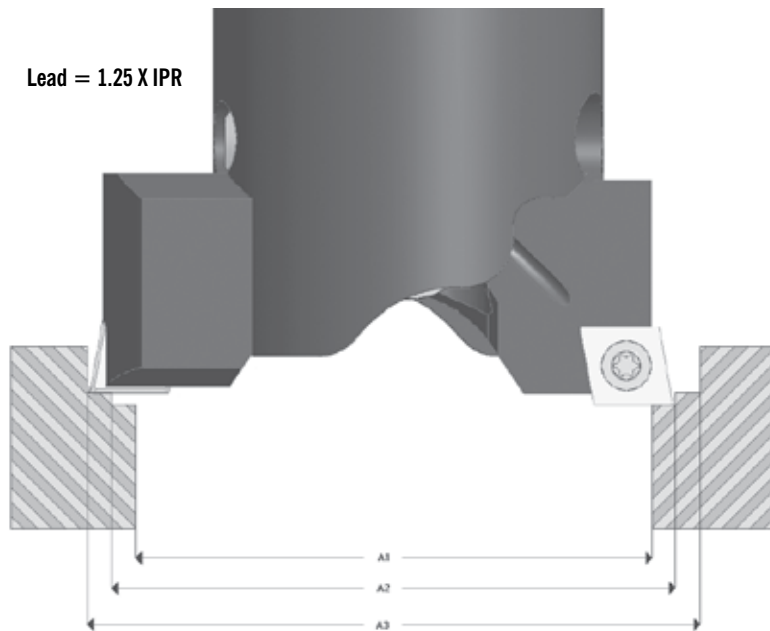
The difference in cutting forces caused by the differences in insert height illustrated above can have the following effects on the bar's performance:

1. Possible wobble or chatter; extra load on the machine tool;
2. Generally, the bore diameter becomes larger than the set diameter;
3. Uniform chip formation is not possible, making it difficult to break and clear chips.

MAXIMUM ALLOWABLE SETTING DIFFERENCE BETWEEN INSERTS FOR BEST PERFORMANCE:

MAXIMUM SETTING DIFFERENCE

Bore Diameter Range	Insert Height	Cutting Diameter
.95 – 1.31	.001	.008
1.26 – 1.74	.001	.012
1.58 – 2.17	.001	.012
2.06 – 2.83	.002	.016
2.61 – 6.00	.002	.016
6.00+	.002	.020



Stepped cutting is utilized when heavy depth of cut is required. The inserts are set at different diameters. The insert cutting the smaller diameter is given axial lead 1.25 times greater than the feed per revolution over the other insert. Use only insert holders with 0° lead. Stepped cutting allows 1.75 x the depth of cut per tables on page 144. Feed rates must be reduced to .5 x appropriate value.

RULES OF STEPPED CUTTING:

1. Use insert holders with 0° lead.
2. Set height in inner cutting edge to provide lead 1.25 times greater than the feed per revolution.
3. Feed rate as roughing with a single cutter.
4. Remove half of the material to be removed with each insert. This should be sufficient for most applications.

TO BALANCE CUTTING FORCES, USE THE FORMULA BELOW:

$$A_2 = .7071 \sqrt{A_3^2 + A_1^2}$$

A_1 – Hole starting diameter

A_2 – Inside cutter set diameter

A_3 – Outside cutter set diameter



RECOMMENDED ROUGHING SPEEDS

STEELS

Material	BHN	TT / SN	VN	CT
CARBON STEEL C = 0.15%	125	300-450	600-800	650-1000
CARBON STEEL C = 0.35%	150	300-500	600-800	625-950
CARBON STEEL C = 0.70%	180-250	250-450	550-750	500-750
ALLOY STEEL 4000	125-200	300-500	550-750	500-750
ALLOY STEEL 5000	225	200-400	350-525	300-600
ALLOY STEEL 8000	300	200-400	300-525	350-475
STAINLESS STEEL, ANNEALED 400 SERIES	150-270	250-400	400-600	475-750
STAINLESS STEEL, ANNEALED 300 SERIES	150-220	300-425	350-500	550-650
CAST STEEL, LOW CARBON	150	200-325	450-650	400-550
CAST STEEL, LOW ALLOY	150-250	200-300	250-400	300-425

All values are in SFM

OTHER MATERIALS

Material	BHN	TT / SN	AL / VN	AS	C2
MALLEABLE CAST IRON, FERRITIC	110-150	525-700	600-1000	400-900	150-350
MALLEABLE CAST IRON, PEARLITIC	150-270	250-400	400-800	300-800	100-250
GREY CAST IRON, LOW TENSILE	150-220	525-800	400-900	300-1000	200-400
GREY CAST IRON, HIGH TENSILE	200-330	350-600	400-700	300-600	150-300
NODULAR IRON, FERRITIC	125-230	300-500	400-900	450-900	150-375
NODULAR IRON, PEARLITIC	200-300	250-400	400-900	350-650	100-250
ALUMINUM ALLOYS	30-120	—	—	—	600-1200
ALUMINUM ALLOYS, CAST	100-130	—	—	—	600-1200

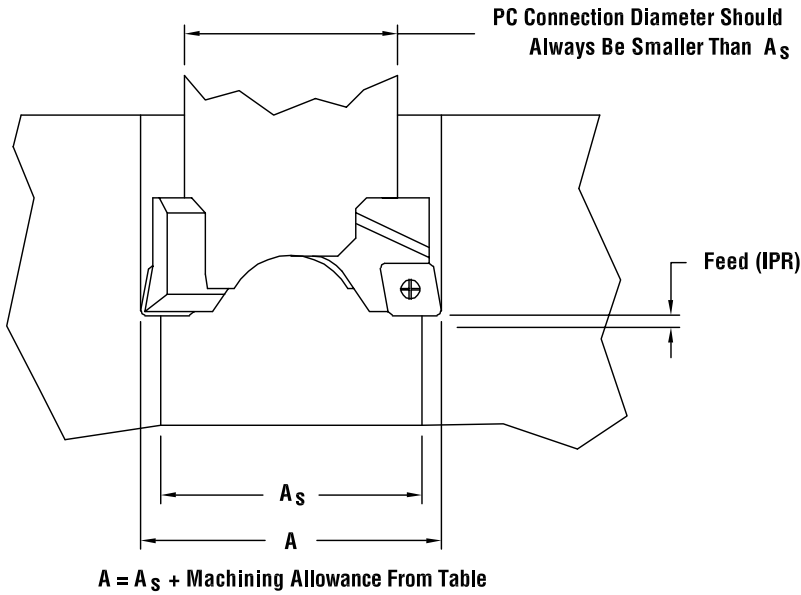
All values are in SFM.

330BHN = RC 35

250BHN = RC 24-25

220BHN = RC 20

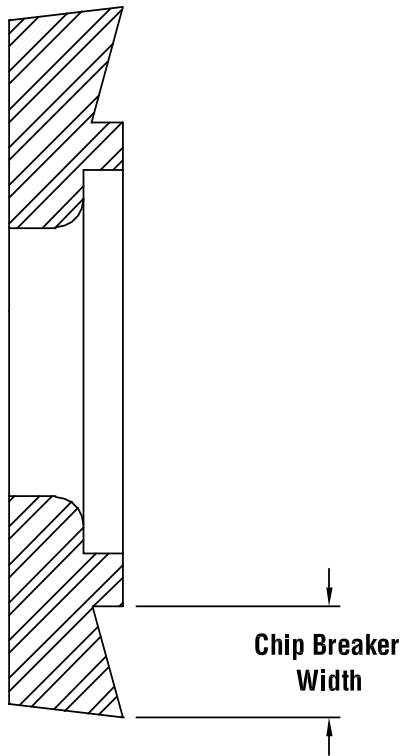
BORING



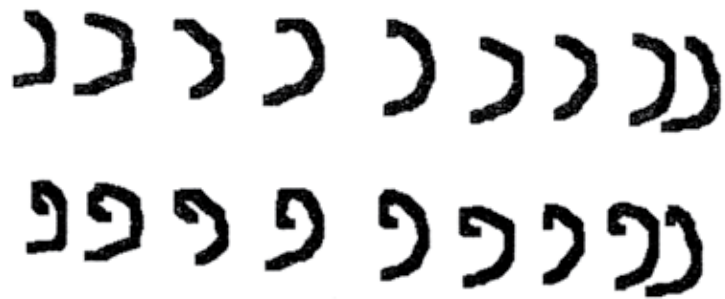
ALLOWANCE & FEED RATES

Twin Boring Head	Material	Machining Allowance on diameter (Inches) DOC			For Best Finish	Feed Rates (IPR)*	
		Optimum	Min.	Max.		Min.	Max.
PC2-4205 (0.94 – 1.34)	Steels	.10	.02	.14	.010	.008	.014
	Cast Iron	.16	.02	.24	.010	.006	.012
	Aluminum	.12	.02	.24	.010	.006	.012
PC3-4305 (1.26 – 1.70)	Steels	.12 – .14	.04	.16 – .18	.014	.012	.018
	Cast Iron	.20	.04	.28	.012	.008	.016
	Aluminum	.20	.04	.28	.014	.012	.018
PC4-4405 (1.58 – 2.17)	Steels	.14 – .16	.04	.18 – .20	.014	.012	.020
	Cast Iron	.24	.04	.31	.012	.012	.016
	Aluminum	.24	.04	.31	.014	.008	.018
PC5-4505 (2.06 – 3.30)	Steels	.24	.06	.35 – .47	.018	.012	.024
	Cast Iron	.39	.04	.55	.016	.012	.018
	Aluminum	.39	.06	.55	.018	.008	.024
PC6-4605 (2.61 – 6.00) PC6-4606 & PC7-4705	Steels	.28 – .39	.06	.35 – .47	.018	.012	.024
	Cast Iron	.47	.04	.55	.016	.008	.018
	Aluminum	.47	.04	.55	.018	.016	.024
ALL BIG BORE ABOVE 6.00	Steels	.28 – .39	.06	.35 – .47	.018	.012	.024
	Cast Iron	.47	.04	.55	.016	.008	.018
	Aluminum	.47	.04	.55	.018	.016	.024

Part numbers in **bold face** are in-stock items.
 *Feed rate is based on two cutting edges. When step cutting, multiply by .5.



Chip formation when rough boring is very important. An ideal chip should be “C” shaped or look like a six or nine. The chips should also be short as illustrated below.



Proper chip formation is a function of the feed rate and the chip breaker on the insert. Generally the feed rate should be 25% to 35% of the width of the chip breaker.

If the chip does not break, increase the feed rate provided that the following conditions exist:

- The part and the fixture are sufficiently rigid;
- The machine has sufficient horsepower;
- The machining allowance does not exceed the stated maximum;
- The tool is not overly long.

If the chip does not break with the increased feed rate, it may be necessary to change to an insert with a smaller chip breaker.

It is important to remember that the thin, wide chip produced from a low feed rate and a large machining allowance is difficult at best to break. As a general rule, the feed rate should be 10% to 30% of the machining allowance.



BORING BAR INSTALLATION

1. Loosen the clamp screws.
2. Insert boring bar and reduction bushing (if applicable) into the carrier. Align reduction bushing with slots 90° to clamp screws.
3. Adjust the boring bar to the minimum desired length.
4. Rotate the boring bar to align the insert tip to the alignment mark atop the boring head body. The bar should be above the line for best timing.

Note: We do not recommend using boring bars with flats.

Note: Adjusting the position of the insert tip adjusts the "timing" of the bar which optimizes the surface finish and performance.

5. Tighten the clamp screws.

TORQUE SPECIFICATIONS:

1. Slide Lock Screw: 10 ft. lbs.
2. Boring Bar Clamp Screw: 20 ft. lbs.

BORING HEAD ADJUSTMENT

1. Install insert using the torque wrench provided.
2. Loosen lock screw.
3. Adjust tool position by turning and reading the dial. The dial is graduated in increments of .001" per graduation on the diameter. Fine adjustments of .0001" can be made utilizing the vernier scale. Always adjust by turning the spindle in the clockwise direction.
4. Tighten the lock screw.

TORQUE SPECIFICATIONS:

Slide Lock Screw: 10 ft. lbs.

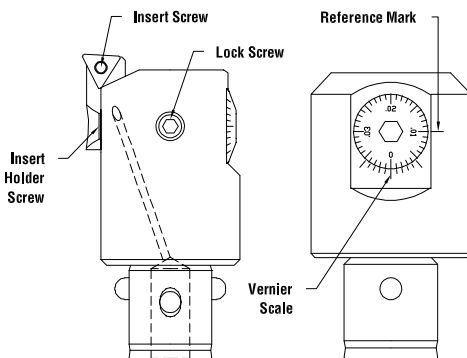


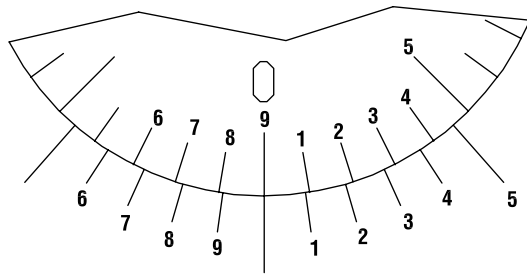
Vernier Scale Side

Slide Lock Screw Side

Clamp Screw Side

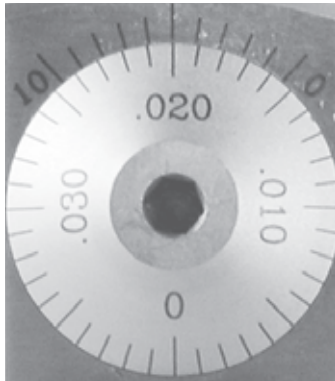
Oil Side





USING THE VERNIER

Find the line on the dial that exactly lines up with a line on the Vernier scale. This is at the zero mark on the dial. This is the reference point. Diametral increases in tenths are achieved by turning the dial clockwise until the appropriate line on the dial lines up with the appropriate line on the Vernier scale. For a .0006" adjustment, move the 6 on the dial in line with the 6 on the scale.



Rotate the dial to align these marks for .0001" adjustment.

TORQUE SPECIFICATIONS:

Slide Lock Screw: 10 ft. lbs.

Boring Bar Clamp Screw: 20 ft. lbs.

The vernier graduation is established by counting over the number of tenths adjustment desired beginning with the first graduation immediately to the right of the reference point on the vernier scale. If required, continue counting on the left side of the scale again moving counterclockwise as shown.

FINISH BORING HEAD MAINTENANCE:

The Parlec precision boring head is constructed of alloy steel, stainless steel, and a graphite-based epoxy resin. The graphite resin is self-lubricating and requires no added maintenance. To insure long service life, two to four times a year depending on the severity of conditions, the head should be adjusted to the outward end of travel (do not force beyond mechanical stop) and a light spindle or machine oil applied to the exposed section of the carrier. This will lubricate the alloy components of the head. No further maintenance should be required.

BORING



EFFECTS OF CUTTING SPEED

The effects of cutting speed are illustrated in this chart:

CUTTING SPEED EFFECTS

Variable	Low Speed	High Speed
MACHINING TIME	Longer	Shorter
SURFACE FINISH	Coarser	Finer
PROBABILITY OF VIBRATION	Lower	Higher

RECOMMENDED FINISHING SPEED FOR STEEL

Steels	BHN	TR / TT / SN	C1 / C2	AL	AS	TE
CARBON STEEL C = 0.15%	125	550-750	600-800	150-350	650-1000	950-1300
CARBON STEEL C = 0.35%	150	525-800	600-800	150-350	625-950	850-1200
CARBON STEEL C = 0.70%	180-250	425-625	550-750	150-250	500-750	750-950
ALLOY STEEL 4000	125-200	425-625	550-750	150-250	500-750	750-950
ALLOY STEEL 5000	225	250-500	350-525	150-250	300-600	400-650
ALLOY STEEL 8000	300	200-400	300-525	100-200	350-475	400-500
STAINLESS STEEL, ANNEALED 400 SERIES	150-270	400-625	400-600	150-250	475-750	425-650
STAINLESS STEEL, ANNEALED 300 SERIES	150-220	450-550	350-500	150-300	550-650	425-650
CAST STEEL, LOW CARBON	150	325-450	450-650	100-250	400-550	475-600
CAST STEEL, LOW ALLOY	150-250	250-350	250-400	100-250	300-425	400-575
CAST STEEL, HIGH ALLOY	160-250	—	250-400	75-250	—	400-500

All values are in SFM.

OTHER MATERIALS

Material	BHN	TR / TT / SN	C1 / C2	AL	AS	TE
MALLEABLE CAST IRON, FERRITIC	110-150	525-700	300-450	600-1100	700-1000	—
MALLEABLE CAST IRON, PEARLITIC	150-270	250-400	200-250	600-1000	300-750	—
GREY CAST IRON, LOW TENSILE	150-220	525-800	325-525	400-1200	600-1600	—
GREY CAST IRON, HIGH TENSILE	200-330	350-600	225-400	400-900	350-900	—
NODULAR IRON, FERRITIC	125-230	300-500	300-400	400-950	450-900	—
NODULAR IRON, PEARLITIC	200-300	250-400	200-350	400-700	350-700	—
ALUMINUM ALLOYS	30-120	—	600-3000	—	—	—
ALUMINUM ALLOYS, CAST	100-130	—	600-3000	—	—	—
EXTRA HARD STEEL	50-65RC	—	60-120	—	—	—
WASPALLOY, DISCALLOY, INCOLOY	180-250	—	50-200	—	—	150-350
MONEL, INCONEL	125-250	—	45-90	—	—	90-300
TITANIUM	100-200	—	120-250	—	—	325-500
COPPER, BRASS, ZINC	50-150	—	500-1000	—	—	50-1500

All values are in SFM

Feed rates .002 - .008 IPR. For best finish, feed rate should be approximately 25% of insert nose radius. Refer to next page.

330 BHN = RC 35







250 BHN = RC 24-25

220 BHN = RC 20



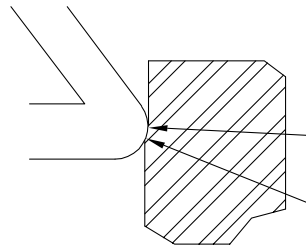
EFFECTS OF FINISH FEED RATES

The best surface finish is produced when the tool is fed at approximately 25% of the tool nose radius. The effect on chip formation of the feed rate and depth of cut is illustrated below:

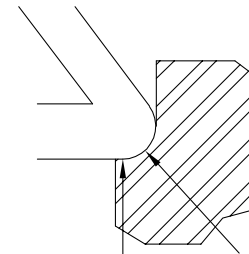
Feed Rates/Depth of Cut	Result	Chip Form	Solutions
Low	Chips Bird Nest: Difficult to Remove		1. Increase Depth of Cut 2. Increase Feed Rate
Moderately Low	Long Stringy Chips: Difficult to Remove		1. Increase Depth of Cut 2. Increase Feed Rate
Ideal	Chips Coil Like a Spring: Easy to Remove		Keep Running Make Money!
Slightly Heavy	Slight Deformation of Chip		If Finish is Bad, Decrease Speed
Heavy	Deformation of Chip Increased Cutting Forces		If Finish is Bad, Decrease Speed
Very Heavy	Severe Deformation of Chip Increased Cutting Forces Heat Build Up		If Finish is Bad, Decrease Speed Good Chip for Roughing

DEPTH OF CUT

The depth of cut must be sufficient to allow the tool to cut and not rub. Too small a cut will cause the tool to be pushed away from the workpiece by the cutting pressure. The depth of cut must be large enough to let the insert bite as it cuts. Depth of cut is a function of material and insert nose radius. **Generally, the ideal minimum diametral depth of cut is equal to the insert nose radius.**



Small Depth of Cut Allows Cutting Forces to Push Insert Out of Cut



Depth of Cut is Large Enough to Prevent Cutting Forces From Pushing Insert Out of Cut

EFFECT OF NOSE RADIUS ON SURFACE FINISH

A larger nose radius produces a better surface finish. Care must be taken not to over feed the nose radius.

■ A .016 nose radius insert fed at .004 IPR produces a finish as shown at the right:

■ A .016 nose radius insert fed at .008 IPR produces a finish as shown at the right:

■ A .016 nose radius insert fed at .016 IPR produces a finish as shown at the right:

*For best finish, generally feed at 25% of nose radius.



CONTACT INFORMATION For quick response, just photocopy this page, complete all information (please include Part Print where appropriate) and simply FAX back to Parlec at 1-800-866-5917

Company _____

Contact Name _____ Title _____

Business Address _____ City _____ State _____ Zip _____

Phone _____ Fax _____ Email _____

BORING RANGE: .188 – 30.00" (4.8 – 762MM)

A Finish Bore Diameter	A Finish Bore Tolerance	B Starting Diameter	C Gage Length	D Access Length	E Bore Depth	F Access Diameter

Workpiece Material _____ Shank Size & Type _____

Hardness _____ Machine Tool Make _____

Machine Tool Model _____

RMS

- Interrupted Cut Through-Holes Bottom-Holes

COOLANT

- Through-Spindle Flange Entry Flood

BORING