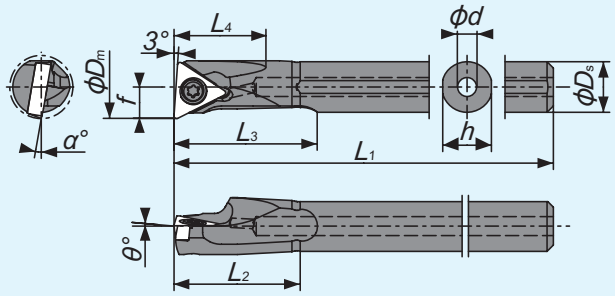
Mogul Bar for 60° Triangle (TP..73.. style)

Minimum Bore Diameter .394"(10.0㎜)

S-STUP (Coolant through)

Steel shank



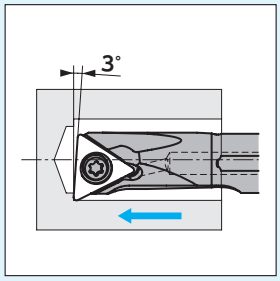
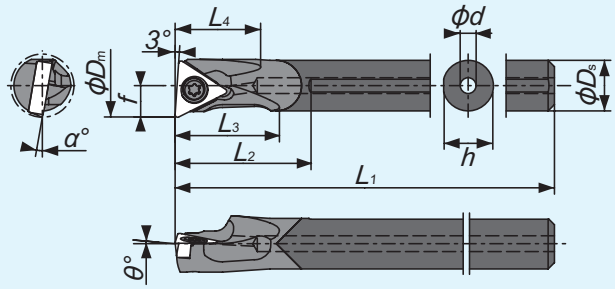


Figure-1

Right-Hand style shown

C-STUP (Coolant through)

Carbide shank



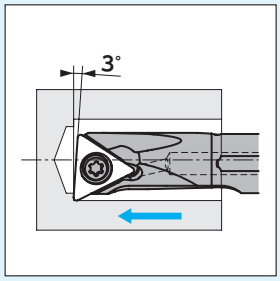
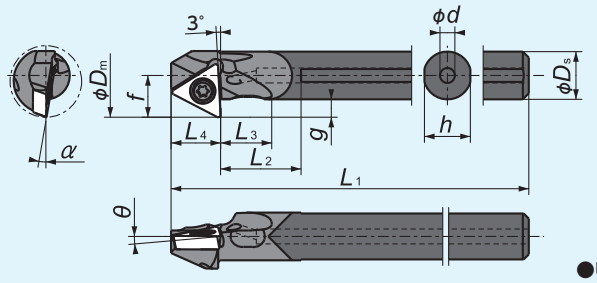


Figure-2

Right-Hand style shown

C-STZP (Coolant through)

Minimum Bore Diameter .472"(12.0㎜) Carbide shank



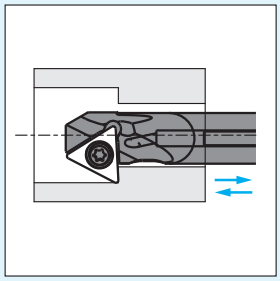


Figure-3

●Use right-hand inserts for machining backward
Use left-hand inserts for machining forward

TP..73.. style - Toolholders

Gage	Insert	Item number*	Figure	Stock R	Stock L	ϕ D_s (inch)	ϕ D_s (㎜)	Min. bore Dia. ϕ D_m (inch)	Min. bore Dia. ϕ D_m (㎜)	Max. shoulder height g (inch)	Max. shoulder height g (㎜)	h (㎜)	L_1 (㎜)	f (㎜)	L_2 (㎜)	L_3 (㎜)	L_4 (㎜)	ϕ d (㎜)	θ	α	Std. corner radius r_ε (inch)	Std. corner radius r_ε (㎜)	Clamp screw	Wrench
TP..73..		S08H-STUPR/L09D10-OH	1	●		.315	8.0	.394	10.0	—	—	7.7	100	5.0	20	22.5	14.5	3.0	+5°	−10°	.016	0.4	LR-S-2.5 × 4.8	CLR-15S
		C08K-STUPR/L09D10-OH	2	●	○	.315	8.0	.394	10.0	—	—	7.7	125	5.0	21.5	16.5	14.5	2.5	+5°	−10°	.016	0.4	LR-S-2.5 × 4.8	CLR-15S
		C08K-STZPR/L09D12-OH	3	○		.315	8.0	.472	12.0	.118	3	7.7	125	7.0	13.5	8.5	8.3	2.5	+5°	−10°	.016	0.4	LR-S-2.5 × 4.8	CLR-15S
		C10M-STZPR/L09D14-OH	3	○		.394	10.0	.551	14.0	.118	3	9.6	150	8.0	18.5	12	8.3	2.5	+5°	−7°	.118	0.4	LR-S-2.5 × 4.8	CLR-15S

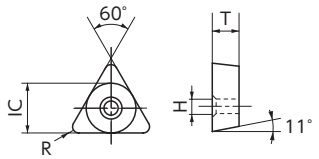
* "S" denotes steel shank, "C" denotes carbide shank

Cutting condition ➡V4

TP..73.. inserts - Carbide

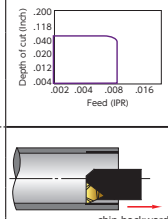
(inch)	IC	T
TP..73	7/32	3/32

● : 1st Choice ● : 2nd choice



Steel	P	●	●	●	●	●	●	●	●		
Stainless Steel	M	●	●	●	●	●	●	●	●		
Cast Iron	K									●	
Non-Ferrous Material	N					●	●	●	●		●
Heat Resistant Alloy	S	●	●	●	●	●					
Hardened Material	H	●	●	●	●						

Shape	Item Number	ISO Item Number	IC	R	Carbide: PVD Coated: ST4	DM4	DT4	QM3	TM4	VM1	ZM3	KM1	CVD: CP1	Diamond Coating: UC1
	TPGH 7308 F R/L B2	TPGH 090202 F R/L B2	7/32	.008					Ⓛ		Ⓛ			
	TPGH 731 F R/L B2	TPGH 090204 F R/L B2	7/32	.016					Ⓛ		Ⓛ			
	TPGH 732 R/L B2	TPGH 090208 F R/L B2	7/32	.031					Ⓛ		Ⓛ			
	TPGH 7304 F R/L F1	TPGH 090201 F R/L F1	7/32	.004	Ⓡ			Ⓡ	Ⓡ					
	TPGH 7308 F R/L F1	TPGH 090202 F R/L F1	7/32	.008	Ⓡ			Ⓡ	Ⓡ	Ⓡ	Ⓡ			
	TPGH 731 F R/L F1	TPGH 090204 F R/L F1	7/32	.016	Ⓡ			Ⓡ	Ⓡ	Ⓡ	Ⓡ			
	TPGH 732 F R/L F1	TPGH 090208 F R/L F1	7/32	.031	Ⓡ			Ⓡ	Ⓡ		Ⓡ			
	TPGP 7308 R/L FG	TPGH 090202 R/L FG	7/32	.008	Ⓡ			R	R					
	TPGP 731 R/L FG	TPGH 090204 R/L FG	7/32	.016	Ⓡ			R	R					
	TPGP 7308 F R/L K	TPGH 090202 F R/L K	1/4	.008					Ⓛ					
	TPGP 7318 F R/L K	TPGH 090204 F R/L K	1/4	.016					Ⓛ					
	TPGP 7328 F R/L K	TPGH 090208 F R/L K	1/4	.031					Ⓛ					

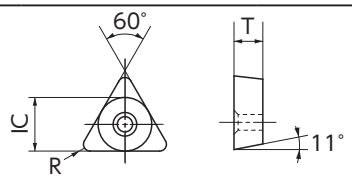


*For F05, F1 and FG chipbreaker, right-hand inserts fit to right-hand toolholder
Note: F05, F1 and FG chipbreaker evacuates chips BACKWARD

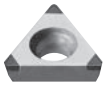
TP..73.. inserts - CBN / PCD

(inch)	IC	T
TP.. 22	1/4	1/8
TP.. 73	7/32	3/32

● : 1st Choice ● : 2nd choice



Steel	P																
Stainless Steel	M																
Cast Iron	K		●	●	●				●	●							
Non-Ferrous Material	N													●	●	●	
Heat Resistant Alloy	S	●															
Hardened Material	H		●	●	●	●	●	●									

Shape	Item Number	ISO Item Number	Edge Prep.	IC	R	No. of edge	Length of edge	BIDEMICS Coated: JP2	Solid CBN: B99	CBN (Brazed) Coated: B5K	B52	Coated: B6K	B36	B40	B23	B30	PCD: PD1	PD2	Diamond Coating: UC1
	TPGD 7308 PT S0415	TPGW 090202 PT S01015	S0415	7/32	008	3	.087				○		○						
	TPGD 7308 PT S0525	TPGW 090202 PT S01325	S0525	7/32	008	3	.087				○		○						
	TPGD 7308 PT S0635	TPGW 090202 PT S01535	S0635	7/32	008	3	.087				○		○						
	TPGD 731 PT S0415	TPGW 090204 PT S01015	S0415	7/32	.016	3	.079				○		○						
	TPGD 731 PT S0525	TPGW 090204 PT S01325	S0525	7/32	.016	3	.079				○		○						
	TPGD 731 PT S0635	TPGW 090204 PT S01535	S0635	7/32	.016	3	.079				○		○						
	TPGD 732 PT S0415	TPGW 090208 PT S01015	S0415	7/32	.031	3	.067				○		○						
	TPGD 732 PT S0525	TPGW 090208 PT S01325	S0525	7/32	.031	3	.067				○		○						
	TPGD 732 PT S0635	TPGW 090208 PT S01535	S0635	7/32	.031	3	.067				○		○						
with 3D chipbreaker	TPMT 7304 PBF	TPMT 090201 PBF	None	7/32	.004	1	—											○	
	TPMT 7308 PBF	TPMT 090202 PBF	None	7/32	.008	1	—											○	
	TPMT 731 PBF	TPMT 090204 PBF	None	7/32	.016	1	—											○	
	TPMT 7308 PF	TPMT 090202 PF	None	7/32	.008	1	—											○	
	TPMT 731 PF	TPMT 090204 PF	None	7/32	.016	1	—											○	

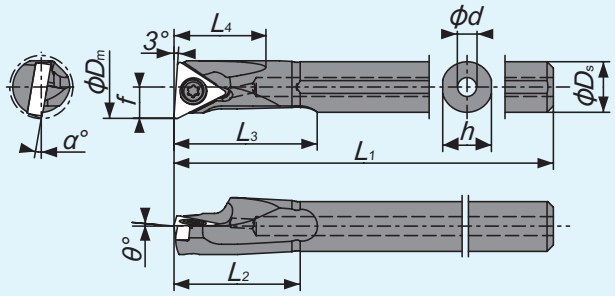
● : Stock
● : Stock (Newly added)
■ □ R L : While stocks last
R L : Stock (Right / Left-hand only)
R L : Stock (Right / Left-hand only, Newly added)
Ⓜ : Mirror finish
○ : 1-2 week delivery
○ : 1-2 week delivery (Newly added)
💧 : Coolant through
ⓇⓁ : 1-2 week delivery (Right / Left-hand only)
ⓇⓁ : 1-2 week delivery (Right / Left-hand only, Newly added)

Mogul Bar for 60° Triangle (TP..22.. style)

Minimum Bore Diameter .472"(12.0㎜)

S-STUP (Coolant through)

Steel shank



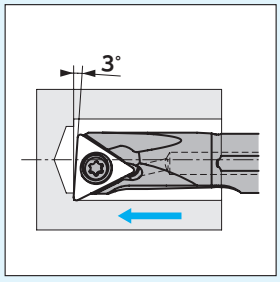
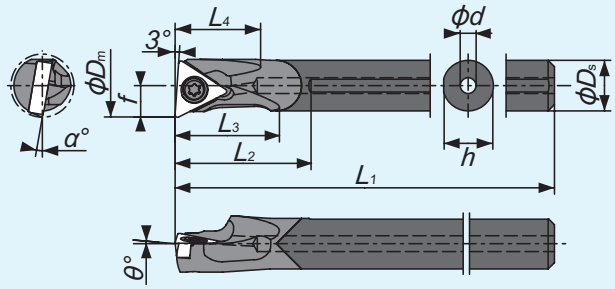


Figure-1

Right-Hand style shown

C-STUP (Coolant through)

Carbide shank



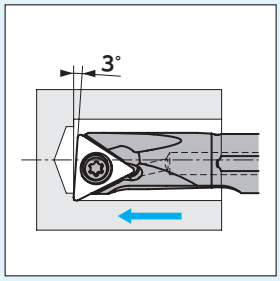
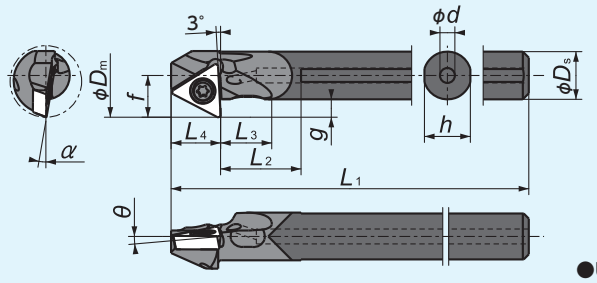


Figure-2

Right-Hand style shown

C-STZP (Coolant through)

Minimum Bore Diameter .689"(17.5㎜) Carbide shank



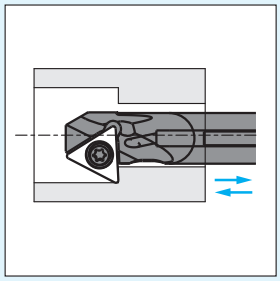


Figure-3

●Use right-hand inserts for machining backward
Use left-hand inserts for machining forward

TP..22.. style - Toolholders

Gage Insert	Item number*	Figure	Stock R	Stock L	ϕ D_s (inch)	ϕ D_s (㎜)	Min. bore Dia. ϕ D_m (inch)	Min. bore Dia. ϕ D_m (㎜)	Max. shoulder height g (inch)	Max. shoulder height g (㎜)	h (㎜)	L_1 (㎜)	f (㎜)	L_2 (㎜)	L_3 (㎜)	L_4 (㎜)	ϕ d (㎜)	θ	α	Std. corner radius r_ε (inch)	Std. corner radius r_ε (㎜)	Clamp screw	Wrench
TP..22..	S10K-STUPR/L11D12-OH	1	●		.394	10.0	.472	12.0	—	—	9.6	125	6.0	24	27.5	18.5	3.5	+5°	-7.5°	.016	0.4	LR-S-3 × 5.8	RLR-20S
	S12M-STUPR/L11D14-OH	1	●		.472	12.0	.551	14.0	—	—	11.5	150	7.0	28	32.5	22.0	4.0	+5°	-5°	.016	0.4	LR-S-3 × 5.8	RLR-20S
	S16Q-STUPR/L11D18-OH	1	●		.630	16.0	.709	18.0	—	—	15.4	180	9.0	32	42.5	28.5	5.0	+5°	-3°	.016	0.4	LR-S-3 × 5.8	RLR-20S
	S20Q-STUPR/L11D22-OH	1	●		.787	20.0	.866	22.0	—	—	19.4	180	11	40	46.0	38.0	5.0	+5°	-3°	.016	0.4	LR-S-3 × 5.8	RLR-20S
	C10M-STUPR/L11D12-OH	2	●	○	.394	10.0	.472	12.0	—	—	9.6	150	6.0	25.0	20.0	17.5	2.5	+5°	-7.5°	.016	0.4	LR-S-3 × 5.8	RLR-20S
	C12M-STUPR/L11D14-OH	2	●		.472	12.0	.551	14.0	—	—	11.5	150	7.0	29.0	23.0	21.5	3.0	+5°	-5°	.016	0.4	LR-S-3 × 5.8	RLR-20S
	C16Q-STUPR/L11D18-OH	2	●		.630	16.0	.709	18.0	—	—	15.4	180	9.0	37.0	29.0	28.0	4.0	+5°	-3°	.016	0.4	LR-S-3 × 5.8	RLR-20S
	C12M-STZPR11D175-OH	3	○		.472	12	.689	17.5	.177	4.5	11.5	150	10.5	22	14.5	9.6	3.0	+5°	-5°	.117	0.4	LR-S-3 × 5.8	RLR-20S

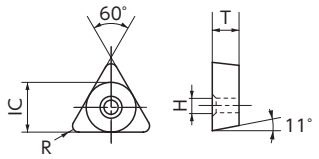
* "S" denotes steel shank, "C" denotes carbide shank

Cutting condition ➡V4

TP..22.. inserts - Carbide

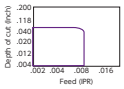
(inch)	IC	T
TP..22	1/4	1/8

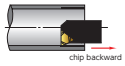
● : 1st Choice ● : 2nd choice

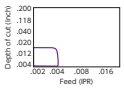


		ST4	DM4	DT4	QM3	TM4	VM1	ZM3	KM1	CP1	UC1
Steel	P	●	●	●	●	●	●	●	●		
Stainless Steel	M	●	●	●	●	●	●	●	●		
Cast Iron	K									●	
Non-Ferrous Material	N					●	●	●	●		●
Heat Resistant Alloy	S	●	●	●	●	●					
Hardened Material	H	●	●	●	●						

Shape	Item Number	ISO Item Number	IC	R	ST4	DM4	DT4	QM3	TM4	VM1	ZM3	KM1	CP1	UC1
					Carbide									
					PVD Coated								CVD	Diamond Coating
	TPGH 2208 F R/L F1	TPGH 110302 F R/L F1	1/4	.008	Ⓡ			Ⓡ	Ⓡ	Ⓡ	Ⓡ			
	TPGH 221 F R/L F1	TPGH 110304 F R/L F1	1/4	.016	Ⓡ			Ⓡ	Ⓡ	Ⓡ	Ⓡ			
	TPGH 222 F R/L F1	TPGH 110308 F R/L F1	1/4	.031	Ⓡ			Ⓡ	Ⓡ		Ⓡ			
	TPGH 2208 R/L FG	TPGH 110302 R/L FG	1/4	.008	Ⓡ			R	R					
	TPGH 221 R/L FG	TPGH 110304 R/L FG	1/4	.016	Ⓡ			R	R					



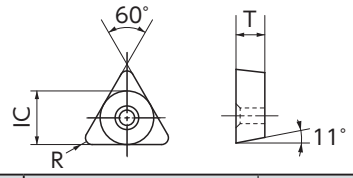




TP..22.. inserts - CBN / PCD

(inch)	IC	T
TP.. 22	1/4	1/8

● : 1st Choice ● : 2nd choice



		JP2	B99	B5K	B52	B6K	B36	B40	B23	B30	PD1	PD2	UC1
Steel	P												
Stainless Steel	M												
Cast Iron	K		●	●	●				●	●			
Non-Ferrous Material	N										●	●	●
Heat Resistant Alloy	S	●											
Hardened Material	H		●	●	●	●	●	●					

Shape	Item Number	ISO Item Number	Edge Prep.	IC	R	No. of edge	Length of edge	JP2	B99	B5K	B52	B6K	B36	B40	B23	B30	PD1	PD2	UC1
								BIDEMICS Coated	Solid CBN	CBN (Brazed) Coated		CBN (Brazed) Coated					PCD		Diamond Coating
	TPGW 2208 PT S0415	TPGW 110302 PT S01015	S0415	1/4	.008	3	.087				○		○	○					
	TPGW 2208 PT T0420	TPGW 110302 PT T01020	T0420	1/4	.008	3	.087									○			
	TPGW 2208 PT S0525	TPGW 110302 PT S01325	S0525	1/4	.008	3	.087				○		○						
	TPGW 2208 PT S0635	TPGW 110302 PT S01535	S0635	1/4	.008	3	.087				○		○	○					
	TPGW 221 PT S0415	TPGW 110304 PT S01015	S0415	1/4	.016	3	.079				○		○	○					
	TPGW 221 PT T0420	TPGW 110304 PT T01020	T0420	1/4	.016	3	.079									○			
	TPGW 221 PT S0525	TPGW 110304 PT S01325	S0525	1/4	.016	3	.079				○		○	○					
	TPGW 221 PT T0615	TPGW 110304 PT T01515	T0615	1/4	.016	3	.079								○	○			
	TPGW 221 PT S0635	TPGW 110304 PT S01535	S0635	1/4	.016	3	.079				○		○	○					
	TPGW 222 PT S0415	TPGW 110308 PT S01015	S0415	1/4	.031	3	.067				○		○	○					
	TPGW 222 PT T0420	TPGW 110308 PT T01020	T0420	1/4	.031	3	.067									○			
	TPGW 222 PT S0525	TPGW 110308 PT S01325	S0525	1/4	.031	3	.067				○		○	○					
	TPGW 222 PT T0615	TPGW 110308 PT T01515	T0615	1/4	.031	3	.067								○				
	TPGW 222 PT S0635	TPGW 110308 PT S01535	S0635	1/4	.031	3	.067				○		○	○					
	TPGW 223 PT S0415	TPGW 110312 PT S01015	S0415	1/4	.047	3	.091				○			○					
	TPGW 223 PT T0420	TPGW 110312 PT T01020	T0420	1/4	.047	3	.091									○			
	TPGW 223 PT S0525	TPGW 110312 PT S01325	S0525	1/4	.047	3	.091				○			○					
	TPGW 223 PT T0615	TPGW 110312 PT T01515	T0615	1/4	.047	3	.091								○				
	TPGW 223 PT S0635	TPGW 110312 PT S01535	S0635	1/4	.047	3	.091				○			○					
with 3D chipbreaker	TPMT 2204 PBF	TPMT 110301 PBF	None	1/4	.004	1	—											○	
	TPMT 2208 PBF	TPMT 110302 PBF	None	1/4	.008	1	—											○	
	TPMT 221 PBF	TPMT 110303 PBF	None	1/4	.016	1	—											○	
	TPMT 2208 PF	TPMT 110302 PF	None	1/4	.008	1	—											○	
	TPMT 221 PF	TPMT 110304 PF	None	1/4	.016	1	—											○	
	TPMH 2208 F R/L F1	TPMH 110302 FRF1	None	1/4	.008	3	—												Ⓡ
	TPMH 221 F R/L F1	TPMH 110304 FRF1	None	1/4	.016	3	—												Ⓡ

● : Stock
● : Stock (Newly added)
■ □ R L : While stocks last
R L : Stock (Right / Left-hand only)
R L : Stock (Right / Left-hand only, Newly added)
Ⓜ : Mirror finish
○ : 1-2 week delivery
○ : 1-2 week delivery (Newly added)
💧 : Coolant through
ⓇⓁ : 1-2 week delivery (Right / Left-hand only)
ⓇⓁ : 1-2 week delivery (Right / Left-hand only, Newly added)

Mogul Bar for 80° Diamond ("CC" style)

Minimum Bore Diameter .394"(10㎜)

S-SCLC (Coolant through)

Steel shank

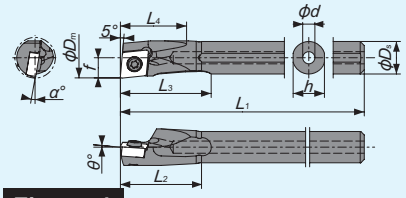
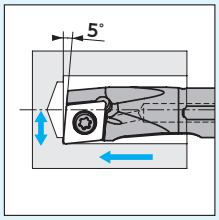


Figure-1



Right-Hand style shown

C-SCLC (Coolant through)

Carbide shank

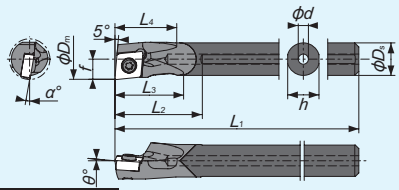
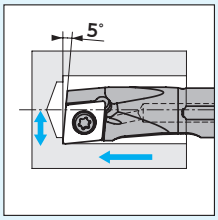


Figure-2



Right-Hand style shown

"CC" style - Toolholders

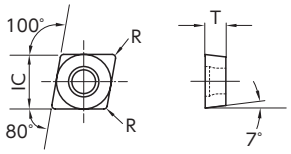
Gage Insert	Item number*	Figure	Stock R	Stock L	φDs (inch)	φDs (mm)	Min. bore Dia. φDm (inch)	Min. bore Dia. φDm (mm)	h (mm)	L1 (mm)	f (mm)	L2 (mm)	L3 (mm)	L4 (mm)	φd (mm)	θ	α	Std. corner radius rε (inch)	Std. corner radius rε (mm)	Clamp screw	Wrench
CC..21.5..	S08H-SCLCR/L06D10-OH	1	●		.315	8.0	.394	10.0	7.7	100	5.0	20.0	22.0	16.0	3.0	0°	−13°	.016	0.4	LRIS-2.5 × 5	CLR-15S
	S10K-SCLCR/L06D12-OH	1	●		.394	10.0	.472	12.0	9.6	125	6.0	24.0	27.5	20.0	3.5	0°	−11°	.016	0.4	LRIS-2.5 × 5	CLR-15S
	S12M-SCLCR/L06D14-OH	1	●		.472	12.0	.551	14.0	11.5	150	7.0	28.0	32.5	23.0	4.0	0°	−9°	.016	0.4	LRIS-2.5 × 5	CLR-15S
CC..32.5..	S16Q-SCLCR/L09D18-OH	1	●		.630	16.0	.709	18.0	15.4	180	9.0	36.0	42.5	30.0	5.0	0°	−10°	.016	0.4	LRIS-4 × 8	LLR-25S-20 × 65
CC..21.5..	C08K-SCLCR/L06D10-OH	2	●		.315	8.0	.394	10.0	7.7	125	5.0	21.5	16.5	15.0	2.5	0°	−13°	.016	0.4	LRIS-2.5 × 5	CLR-15S
	C10M-SCLCR/L06D12-OH	2	●	○	.394	10.0	.472	12.0	9.6	150	6.0	25.0	20.0	19.5	2.5	0°	−11°	.016	0.4	LRIS-2.5 × 5	CLR-15S
	C12M-SCLCR/L06D14-OH	2	●		.472	12.0	.551	14.0	11.5	150	7.0	29.0	23.5	22.5	3.0	0°	−9°	.016	0.4	LRIS-2.5 × 5	CLR-15S

* "S" denotes steel shank, "C" denotes carbide shank

CC.. inserts - Carbide

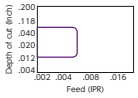
(inch)	IC	T
CC..21.5	1/4	3/32
CC..32.5	3/8	5/32

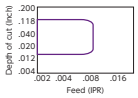
● : 1st Choice ● : 2nd choice

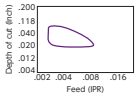


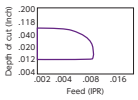
	P	M	K	N	S	H
Steel	●	●	●	●	●	●
Stainless Steel	●	●	●	●	●	●
Cast Iron						
Non-Ferrous Material				●	●	●
Heat Resistant Alloy	●	●	●	●	●	
Hardened Material	●	●	●	●		

Shape	Item Number	ISO Item Number	IC	R	ST4	DM4	DT4	QM3	TM4	VM1	ZM3	KM1	CP1	UC1
					Carbide									
					PVD Coated								CVD	Diamond Coating
	CCGT 32.501 YL	CCGT 09T300 YL	3/8	.001			●		●					
	CCGT 32.504M YL	CCGT 09T301M YL	3/8	.003	●	●	○	●	○					
	CCGT 32.508M YL	CCGT 09T302M YL	3/8	.007	●	●	○	●	○					
	CCGT 32.51M YL	CCGT 09T304M YL	3/8	.015	●	●	○	●	○					
	CCGT 32.52M YL	CCGT 09T308M YL	3/8	.031	●	●	○	●	○					
	CCGT 21.504M CL	CCGT 060201M CL	1/4	.003	○	○	●	●	●					
	CCGT 21.508M CL	CCGT 060202M CL	1/4	.007	○	○	●	●	●					
	CCGT 32.501 CL	CCGT 09T300 CL	3/8	.001			○		○					
	CCGT 32.504M CL	CCGT 09T301M CL	3/8	.003	○	○	●	●	●					
	CCGT 32.508M CL	CCGT 09T302M CL	3/8	.007	○	○	●	●	●					
	CCGT 32.51M CL	CCGT 09T304M CL	3/8	.015	○	○	●	●	●					
	CCGT 21.501 FNAM3	CCGT 060200 FNAM3	1/4	.001			●	●	○	○				
	CCGT 21.504M FNAM3	CCGT 060201M FNAM3	1/4	.003	○		●	●	○					
	CCGT 21.508M FNAM3	CCGT 060202M FNAM3	1/4	.007	○		●	●	○					
	CCGT 21.508 FNAM3	CCGT 060202 FNAM3	1/4	.008						○	○			
	CCGT 21.51M FNAM3	CCGT 060204M FNAM3	1/4	.015	○		●	●	○					
	CCGT 32.501 FNAM3	CCGT 09T300 FNAM3	3/8	.001			●	●	○	○				
	CCGT 32.504M FNAM3	CCGT 09T301M FNAM3	3/8	.003	○		●	●	○	○	○			
	CCGT 32.508M FNAM3	CCGT 09T302M FNAM3	3/8	.007	○		●	●	○	○	○			
	CCGT 32.508 FNAM3	CCGT 09T302 FNAM3	3/8	.008				●		○				
	CCGT 32.51M FNAM3	CCGT 09T304M FNAM3	3/8	.015	○		●	●	○	○	○			
	CCGT 32.51 FNAM3	CCGT 09T304 FNAM3	3/8	.016				●		○				
	CCGT 32.52 FNAM3	CCGT 09T308 FNAM3	3/8	.031				●						
	CCMT 21.508 FNAM3	CCMT 060202 FNAM3	1/4	.008		○								
	CCMT 21.51 FNAM3	CCMT 060204 FNAM3	1/4	.016		○								
	CCMT 32.508 FNAM3	CCMT 09T302 FNAM3	3/8	.008		○								
	CCMT 32.51 FNAM3	CCMT 09T304 FNAM3	3/8	.016		○								
	CCMT 32.52 FNAM3	CCMT 09T308 FNAM3	3/8	.031		○								
	CCGT 21.501 AZ7	CCGT 060200 AZ7	1/4	.001				○						
	CCGT 21.504M AZ7	CCGT 060201M AZ7	1/4	.003				○						
	CCGT 21.508M AZ7	CCGT 060202M AZ7	1/4	.007				○						
	CCGT 32.501 AZ7	CCGT 09T300 AZ7	3/8	.001		○	○	●	○		○			
	CCGT 32.504M AZ7	CCGT 09T301M AZ7	3/8	.003		○	○	●	○		○			
	CCGT 32.508M AZ7	CCGT 09T302M AZ7	3/8	.007		○	○	●	○		○			
	CCGT 32.51M AZ7	CCGT 09T304M AZ7	3/8	.015		○	○	●	○		○			





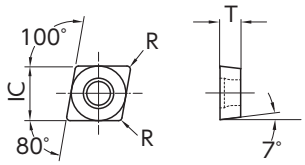




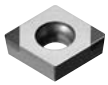
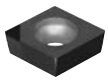
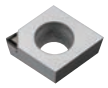
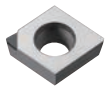
CC.. inserts - CBN / PCD

(inch)	IC	T
CC.. 21	1/4	3/32
CC.. 32	3/8	5/32

● : 1st Choice ● : 2nd choice



		JP2	B99	B5K	B52	B6K	B36	B40	B23	B30	PD1	PD2	UC1
		BIDEMICS Coated	Solid CBN	CBN (Brazed) Coated	CBN (Brazed)	CBN (Brazed) Coated	CBN (Brazed)	CBN (Brazed)	CBN (Brazed)	CBN (Brazed)	PCD	PCD	Diamond Coating
Steel	P												
Stainless Steel	M												
Cast Iron	K		●	●	●				●	●			
Non-Ferrous Material	N										●	●	●
Heat Resistant Alloy	S	●											
Hardened Material	H		●	●	●	●	●	●					

Shape	Item Number	ISO Item Number	Edge Prep.	IC	R	No. of edge	Length of edge	JP2	B99	B5K	B52	B6K	B36	B40	B23	B30	PD1	PD2	UC1
	CCGW 21.508 PD FNX	CCGW 060202 PD FNX	None	1/4	.008	2	.091				○					○			
	CCGW 21.508 PD S0415	CCGW 060202 PD S01015	S0415	1/4	.008	2	.091				○		○	○					
	CCGW 21.508 PD S0525	CCGW 060202 PD S01325	S0525	1/4	.008	2	.091				○		○						
	CCGW 21.508 PD S0635	CCGW 060202 PD S01535	S0635	1/4	.008	2	.091				○		○						
	CCGW 21.51 PD FNX	CCGW 060204 PD FNX	None	1/4	.016	2	.091									○			
	CCGW 21.51 PD S0415	CCGW 060204 PD S01015	S0415	1/4	.016	2	.091				●		○	○					
	CCGW 21.51 PD S0525	CCGW 060204 PD S01325	S0525	1/4	.016	2	.091				○		○						
	CCGW 21.51 PD S0635	CCGW 060204 PD S01535	S0635	1/4	.016	2	.091				○		○						
	CCGW 21.52 PD FNX	CCGW 060208 PD FNX	None	1/4	.031	2	.087				○								
	CCGW 21.52 PD S0415	CCGW 060208 PD S01015	S0415	1/4	.031	2	.087				○		○	○					
	CCGW 21.52 PD S0525	CCGW 060208 PD S01325	S0525	1/4	.031	2	.087				○		○	○					
	CCGW 21.52 PD T0620	CCGW 060208 PD T01520	T0620	1/4	.031	2	.087						○						
	CCGW 21.52 PD S0635	CCGW 060208 PD S01535	S0635	1/4	.031	2	.087				○		○	○					
	CCGW 32.508 PD FNX	CCGW 09T302 PD FNX	None	3/8	.008	2	.091				○					○			
	CCGW 32.508 PD S0415	CCGW 09T302 PD S01015	S0415	3/8	.008	2	.091				●		○	○					
	CCGW 32.508 PD S0525	CCGW 09T302 PD S01325	S0525	3/8	.008	2	.091				○		○	○					
	CCGW 32.508 PD S0635	CCGW 09T302 PD S01535	S0635	3/8	.008	2	.091				○		○	●					
	CCGW 32.51 PD FNX	CCGW 09T304 PD FNX	None	3/8	.016	2	.091				○					○			
	CCGW 32.51 PD S0415	CCGW 09T304 PD S01015	S0415	3/8	.016	2	.091				●		○	○					
	CCGW 32.51 PD S0525	CCGW 09T304 PD S01325	S0525	3/8	.016	2	.091				○		○	○					
	CCGW 32.51 PD S0635	CCGW 09T304 PD S01535	S0635	3/8	.016	2	.091				○		○	●					
	CCGW 32.52 PD FNX	CCGW 09T308 PD FNX	None	3/8	.031	2	.087									○			
	CCGW 32.52 PD S0415	CCGW 09T308 PD S01015	S0415	3/8	.031	2	.087				●			○					
	CCGW 32.52 PD S0525	CCGW 09T308 PD S01325	S0525	3/8	.031	2	.087				○		○	○					
	CCGW 32.52 PD S0635	CCGW 09T308 PD S01535	S0635	3/8	.031	2	.087				○		○	●					
	CCGW 32.53 PD FNX	CCGW 09T312 PD FNX	None	3/8	.047	2	.063				○								
	CCGW 32.53 PD S0415	CCGW 09T312 PD S01015	S0415	3/8	.047	2	.063				○								
	CCGW 32.53 PD S0525	CCGW 09T312 PD S01325	S0525	3/8	.047	2	.063						○						
	CCMW 32.504	CCMW 09T301	None	3/8	.004	1	—										○		
	CCMW 32.508	CCMW 09T302	None	3/8	.008	1	—										○		
	CCMW 32.51	CCMW 09T304	None	3/8	.016	1	—										○		
	CCMW 32.52	CCMW 09T308	None	3/8	.031	1	—										○		
 with 3D chipbreaker	CCMT 21.504 PBF	CCMT 060201 PBF	None	1/4	.004	1	—											○	
	CCMT 21.508 PBF	CCMT 060202 PBF	None	1/4	.008	1	—											○	
	CCMT 21.51 PBF	CCMT 060204 PBF	None	1/4	.016	1	—											○	
	CCMT 32.504 PBF	CCMT 09T301 PBF	None	3/8	.004	1	—											○	
	CCMT 32.508 PBF	CCMT 09T302 PBF	None	3/8	.008	1	—											○	
	CCMT 32.51 PBF	CCMT 09T304 PBF	None	3/8	.016	1	—											○	
 with chipbreaker	CCMT 32.508 PF	CCMT 09T302 PF	None	3/8	.008	1	—											●	
	CCMT 32.51 PF	CCMT 09T304 PF	None	3/8	.016	1	—											●	

ID boring bars ➡V30
Cutting condition ➡V4