

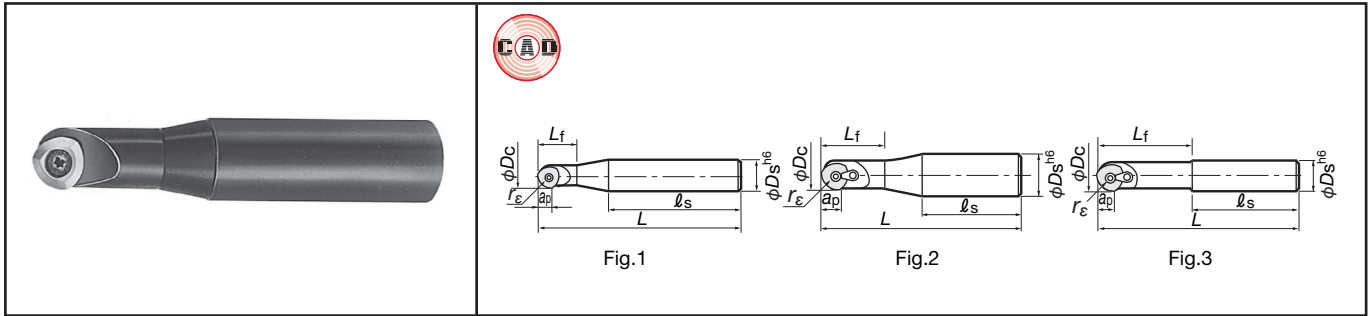
# TAC ball endmills

# TBN1000

Diameter  $\phi 10\sim 30\text{mm}$



For medium to finish engraving of steel and cast iron dies



Cat. No.	Stock	Applicable insert	Dimensions (mm)							Clamping type	Clamping screw	Clamp	Clamp screw	Wrench
			$\phi D_c$	$r_e$	L	$a_p$	$L_f$	$l_s$	$\phi D_s$					
TBN1100S	●	ZNCA1002FN2	10	5	90	5	15	60	16	Fig.1	CSTB-2.5B CSTB-3S CSTB-4S	-	-	T-8D T-9D T-15D
TBN1120S	●	ZNCA1203FN	12	6	110	6	20	70						
TBN1160S	●	ZNCA1603FN	16	8	130	8	25	85						
TBN1200S	●	ZNCA2004FN ZNMM2004EN	20	10	160	10	35	100	25	Fig.2	CSTA-5S	CP536	DS-6T	T-15D
TBN1250S	●	ZNCA2505FN ZNMM2505EN	25	12.5	175	12.5	45	100	32					
TBN1300S	●	ZNCA3005FN ZNMM3005EN	30	15	190	15	90	100	32					

## Inserts

Type A

Type B

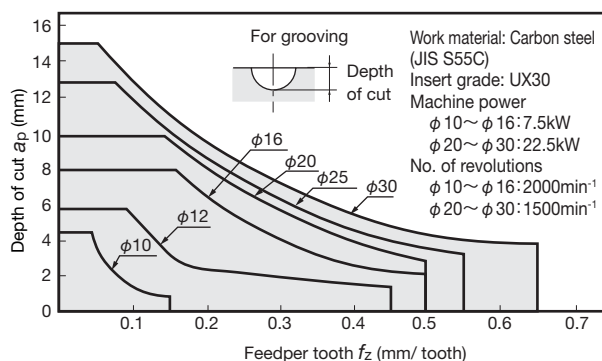
Type C

Note : Type B inserts, used for the cutter smaller than  $\phi 16\text{ mm}$ , are single-sided type.

Cat. No. (Metric system)	Accuracy	Grade		Dimensions(mm)		No. of cutting edges per insert	Type	Application
		Uncoated		A	s			
		TH10	UX30					
ZNCA1002FN2	C	●	●	7.958	2.5	2	C	UX30 grade for steels TH10 grade for cast irons and light alloys
ZNCA1203FN		●	●	9.735	3			
ZNCA1603FN		●	●	12.772	3.5			
ZNCA2004FN		●	●	15.862	4	6	B	
ZNCA2505FN		●	●	19.826	5			
ZNCA3005FN		●	●	23.618	5.5			
ZNMM2004EN	M		●	15.862	4	3	A	
ZNMM2505EN			●	19.826	5			
ZNMM3005EN			●	23.618	5.5			

Note : M-class inserts are mainly used for medium finishing and C-class inserts are best suitable for finishing.

## Guidelines for selecting depth of cut and feed



- No. of revolutions ( $\text{min}^{-1}$ ) = Cutting speed  $\times 1000 \div 3.14 \div$  Cutter diameter
- Table feed ( $\text{mm/min}$ ) = No. of revolutions  $\times$  Feed per tooth  $\times$  No. of inserts

## Standard cutting conditions for finishing

Work materials: Cast iron, carbon steels and alloy steels

Cat. No.	Insert grades	No. of rev. $n$ ( $\text{min}^{-1}$ )	Pick feed $\rho_f$ (mm)	Table feed $V_f$ ( $\text{mm/min}$ )
TBN1100S	UX30 TH10	3200	0.3	480
TBN1120S		2700		540
TBN1160S		2000	0.5	650
TBN1200S		1600		700
TBN1250S		1300		580
TBN1300S		1100		550

Note: For die steels, reduce the spindle speed to 80% and the feed to 75-85% respectively of the values shown above.

● : Stocked in Japan.