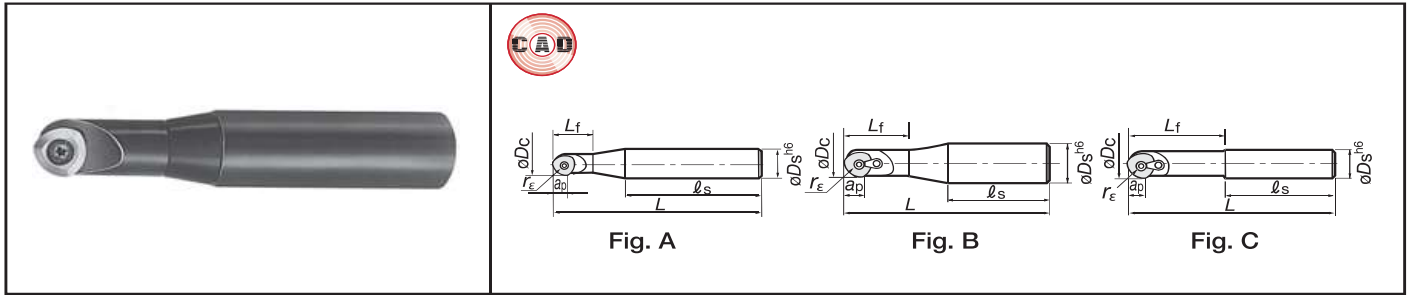


# TAC ball Endmills TBN1000



For medium to finish engraving of steel and cast iron dies



| Cat. No. | Stock | Applicable inserts       | Dimensions (mm) |       |     |       |       |       |            | Clamping Type | Clamping screw | Clamp | Clamp set | 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. A        | CSTB-2.5B      | -     | -         | T-8D   |
| TBN120S  | ○     | ZNCA1203FN               | 12              | 6     | 110 | 6     | 20    | 70    |            |               | T-9D           |       |           |        |
| TBN160S  | ○     | ZNCA1603FN               | 16              | 8     | 130 | 8     | 25    | 85    |            |               | 20             |       |           | T-15D  |
| TBN1200S | ○     | ZNCA2004FN<br>ZNMM2004EN | 20              | 10    | 160 | 10    | 35    | 100   | 25         | Fig. B        | CSTA-5S        | CP536 | DS-6T     | T-15D  |
| TBN1250S | ○     | ZNCA2505FN<br>ZNMM2505EN | 25              | 12.5  | 175 | 12.5  | 45    | 100   | 32         |               |                |       |           |        |
| TBN1300S | ○     | ZNCA3005FN<br>ZNMM3005EN | 30              | 15    | 190 | 15    | 90    | 100   | 32         |               |                |       |           | Fig. C |

## Inserts

Fig. 1

Fig. 2

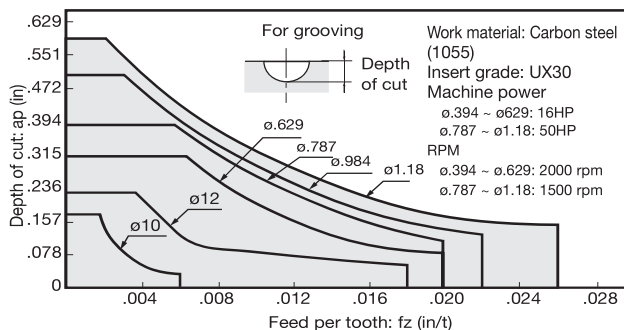
Fig. 3

Note : Type B inserts, used for cutter smaller than  $\phi 16$  in, are single-sided type.

| Cat. No.    | Accuracy | Grades   |      | Dimensions (mm) |     | No. of cutting edges per insert | Type   | Application                                |
|-------------|----------|----------|------|-----------------|-----|---------------------------------|--------|--|
|             |          | Uncoated | TH10 | UX30            | A   |                                 |        |  |
| ZNCA1002FN2 | C        | ○        | ○    | 7.958           | 2.5 | 2                               | Fig. 3 | UX30 grade for steels                      |
| ZNCA1203FN  |          | ○        | ○    | 9.735           | 3   | 3                               |        |  |
| ZNCA1603FN  |          | ○        | ○    | 12.772          | 3.5 |                                 |        |  |
| ZNCA2004FN  |          | ○        | ○    | 15.862          | 4   | 6                               | Fig. 2 |  |
| ZNCA2505FN  |          | ○        | ○    | 19.826          | 5   |                                 |        |  |
| ZNCA3005FN  | M        | ○        | ○    | 23.618          | 5.5 | 3                               | Fig. 1 | TX10 grade for cast irons and light alloys |
| ZNMM2004EN  |          | ○        | ○    | 15.862          | 4   |                                 |        |  |
| ZNMM2505EN  |          | ○        | ○    | 19.826          | 5   |                                 |        |  |
| ZNMM3005EN  |          | ○        | ○    | 23.618          | 5.5 |                                 |        |  |

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

## Guidelines for selecting depth of cut and feed



- $RPM = SFM \times 3.82 \div \text{Cutter Dia.}$
- $\text{Table feed (in/min)} = RPM \times \text{Feed per tooth} \times \text{No. of inserts}$

## Standard cutting conditions for finishing

Work materials: Cast iron, carbon steels and alloy steels

| Cat. No. | Grades       | No. of rev. $\Pi$ (min <sup>-1</sup> ) | Pick feed $P_f$ (in) | Table feed $V_f$ (in/min) |
|----------|--------------|--|----------------------|---------------------------|
| TBN1100S | UX30<br>TH10 | 3200                                   | .012                 | 19                        |
| TBN120S  |              | 2700                                   |                      | 21                        |
| TBN160S  |              | 2000                                   | .020                 | 26                        |
| TBN1200S |              | 1600                                   |                      | 28                        |
| TBN1250S |              | 1300                                   |                      | 23                        |
| TBN1300S |              | 1100                                   |                      | 22                        |

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

Most unmarked items are available on a RFQ basis, contact your sales rep for more information.

Relating pages

Technical Reference (14-1)