



Keeping the Customer First

Tungaloy Report No. 15 USA

TAC Mill Series : Radial Milling Cutters

NEW

ROUNDSPLIT

TRC Shellmills / ERC Endmills

Overlapping Serrated Cutting Edge!



TRC / ERC type Radial milling cutters

Features

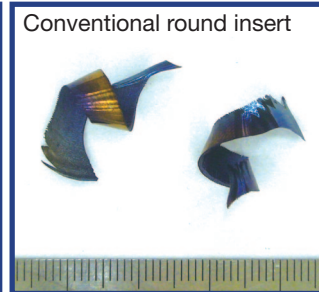
1 Anti-chatter cutter

Serrated cutting edge further assists in the breaking of chips. This provides a very low cutting force and reduces chattering for long overhang applications.



Work material : SAE 1055 (200HB)
 Cutting speed : $V_c = .500$ SFM
 Feed per tooth : $f_z = 0.020$ ipt
 Depth of cut : $a_p = 0.080$ ipt
 Width of cut : $a_e = 2.00$ "

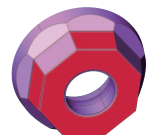
Comparison of chip shape



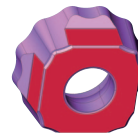
2 Serrated and round inserts are available

Unique insert boss provides a tight fit and rigid clamping.

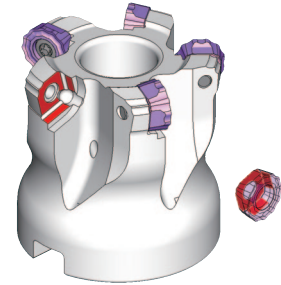
4 indexes per insert (Serration type)
 8 indexes per insert (Regular round type)
 These serrations are overlapped individually.
 When changing corners, please use the same insert pocket.
 If you change slots, you cannot use all 4 or 8 cutting edges correctly.



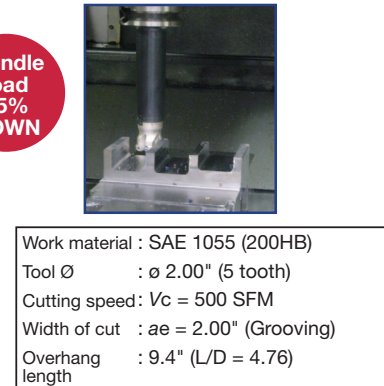
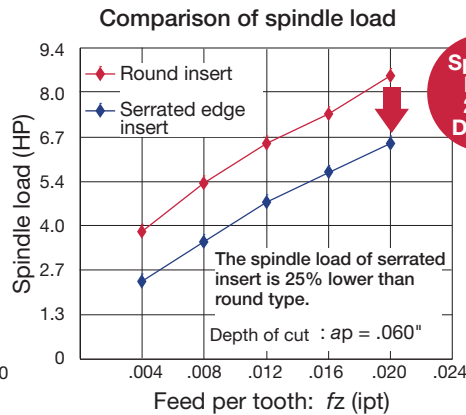
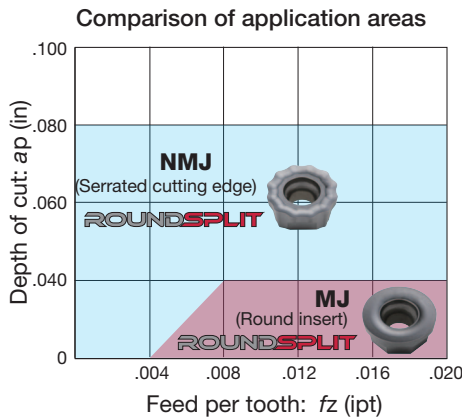
Round type
MJ type : 8 indexes



Serrated edge type
NMJ typ : 4 indexes



Cutting performance



Insert Specification

For general machining with serrated cutting edge

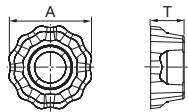


Fig. 1 NMJ

For general machining Round insert

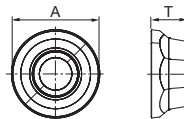


Fig. 2 MJ

For aluminium machining with serrated cutting edge

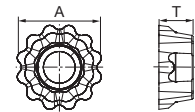
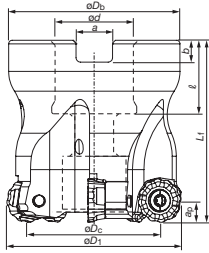


Fig. 3 NAJ

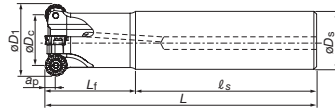
| Cat. No. | Accuracy | Honing | Stock | | | | Dimensions (in) | | Shape | Cutter |
|----------------|----------|---------|--------|-------|----------|-------|-----------------|------|--------|---------|
| | | | Coated | | Uncoated | | A | T | | |
| | | | AH725 | AH120 | AH140 | KS15F | | | | |
| RCMT1204EN-NMJ | M | with | ● | ● | ● | | 0.47 | 0.19 | Fig. 1 | E/TRC12 |
| RCMT1204EN-MJ | M | with | ● | ● | ● | | 0.47 | 0.19 | Fig. 2 | |
| RCMT1204FN-NAJ | M | without | | | | ● | 0.47 | 0.19 | Fig. 3 | |
| RCMT1606EN-NMJ | M | with | ● | ● | ● | | 0.63 | 0.26 | Fig. 1 | E/TRC16 |
| RCMT1606EN-MJ | M | with | ● | ● | ● | | 0.63 | 0.26 | Fig. 2 | |
| RCMT1606FN-NAJ | M | without | | | | ● | 0.63 | 0.26 | Fig. 3 | |

Cutter Body Specification

Bore type

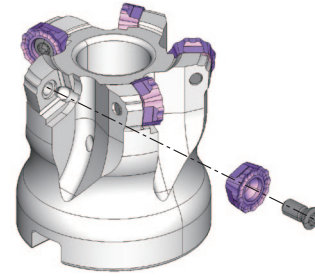


Shank type



Max. depth of cut

RCMT12 type : Max. ap = 0.236"
RCMT16 type : Max. ap = 0.315"



| Descriptions | | Replacement parts Cat. No. | |
|-------------------------------------|-------------------|----------------------------|--------------|
| Applicable cutter | TRC12R... | TRC16R125... | |
| Clamping screw | CSTB-4L090 | CSTB-5L120 | |
| Wrench | Torx Bit | BT15S | BT20M |
| | Grip | H-TBS | H-TB |
| Mono block type substitution wrench | | T-15D | T-20D |

Shell Mills

| Item No. | Stock | No. of Inserts | Dimensions (in) | | | | | | | | Coolant hole | Coolant thru center bolt (Not Included) | Inserts |
|-------------------|-------|----------------|-----------------|------------|----------|--------|-------|------|------|------|-----------------|---|---------|
| | | | ϕD_1 | ϕD_b | ϕd | ℓ | L_f | b | a | | | | |
| TRC12R200U0075A05 | ● | 5 | 2.00 | 1.85 | 0.75 | 0.75 | 1.97 | 0.20 | 0.32 | with | (C0.375x1.125H) | RCMT1204*N-*** RCMT1606*N-*** | |
| TRC12R250U0075A06 | ● | 6 | 2.50 | 2.32 | 0.75 | 0.75 | 1.97 | 0.20 | 0.32 | with | (C0.375x1.125H) | | |
| TRC12R300U0100A07 | ● | 7 | 3.00 | 2.83 | 1.00 | 1.02 | 2.48 | 0.24 | 0.37 | with | (C0.500x1.375H) | | |
| TRC16R200U0075A04 | ● | 4 | 2.00 | 1.85 | 0.75 | 0.75 | 1.97 | 0.20 | 0.32 | with | (C0.375x1.125H) | | |
| TRC16R250U0075A05 | ● | 5 | 2.50 | 2.32 | 0.75 | 0.75 | 1.97 | 0.20 | 0.32 | with | (C0.375x1.125H) | | |
| TRC16R300U0100A06 | ● | 6 | 3.00 | 2.83 | 1.00 | 1.02 | 2.48 | 0.24 | 0.37 | with | (C0.500x1.375H) | | |
| TRC16R400U0150A07 | ● | 7 | 4.00 | 3.82 | 1.50 | 1.46 | 2.48 | 0.39 | 0.63 | with | (TMBA-0.750H) | | |
| TRC16R500U0150A08 | ● | 8 | 5.00 | 3.78 | 1.50 | 1.46 | 2.48 | 0.39 | 0.63 | with | (TMBA-0.750H) | | |

Shank type

| Descriptions | | Replacement parts Cat. No. | |
|-----------------------|-----------------------|----------------------------|--|
| Applicable cutter | ERC12R... | ERC16R... | |
| Clamping screw | CSTB-4L090 | CSTB-5L120 | |
| Wrench (substitution) | T-15DB (T-15D) | T-20DB (T-20D) | |

| type | Item No. | Stock | No. of inserts | Dimensions (in) | | | | | Coolant Hole | Inserts |
|---------------------|---------------------|-------|----------------|-----------------|------------|----------|-------|-------|--------------|--------------------------------------|
| | | | | ϕD_1 | ϕD_s | ℓ_s | L_f | L | | |
| Standard | ERC12R125U0125W03 | ● | 3 | 1.25 | 1.25 | 2.25 | 2.75 | 5.00 | with | RCMT1204*N-*** RCMT1606*N-*** |
| | ERC12R150U0125W04 | ● | 4 | 1.50 | 1.25 | 2.66 | 2.34 | | with | |
| | ERC12R150U0150W04 | ● | 4 | 1.50 | 1.50 | 2.66 | 2.34 | | with | |
| | ERC16R150U0125W02 | ● | 2 | 1.50 | 1.25 | 2.66 | 2.34 | | with | |
| | ERC16R150U0150W02 | ● | 2 | 1.50 | 1.50 | 2.66 | 2.34 | | with | |
| Long | ERC12R125U0125-03L | ● | 3 | 1.25 | 1.25 | 3.75 | 2.25 | 6.00 | with | RCMT1204*N-*** RCMT1606*N-*** |
| | ERC12R125U0125-03LM | ● | 3 | 1.25 | 1.25 | 4.00 | 4.00 | 8.00 | with | |
| | ERC12R150U0150-04L | ● | 4 | 1.50 | 1.50 | 3.75 | 2.00 | 6.00 | with | |
| | ERC12R150U0125-04LM | ● | 4 | 1.50 | 1.25 | 4.00 | 4.00 | 8.00 | with | |
| | ERC12R150U0150-04LM | ● | 4 | 1.50 | 1.50 | 4.00 | 4.00 | | with | |
| | ERC16R150U0150-02L | ● | 2 | 1.50 | 1.50 | 4.00 | 2.00 | 6.00 | with | |
| | ERC16R150U0125-02LM | ● | 2 | 1.50 | 1.25 | 6.00 | 2.00 | 8.00 | with | |
| ERC16R150U0150-02LM | ● | 2 | 1.50 | 1.50 | 4.00 | 4.00 | with | | | |
| Extra Long | ERC12R125U0125-03LL | ● | 3 | 1.25 | 1.25 | 5.00 | 7.00 | 12.00 | with | RCMT1204*N-*** RCMT1606*N-*** |
| | ERC12R125U150-03LL | ● | 3 | 1.25 | 1.50 | 5.00 | 7.00 | | with | |
| | ERC12R150U150-04LL | ● | 4 | 1.50 | 1.50 | 10.00 | 2.00 | | with | |
| | ERC12R150U0125-04LX | ● | 4 | 1.50 | 1.25 | 5.00 | 7.00 | | with | |
| | ERC12R150U0150-04LX | ● | 4 | 1.50 | 1.50 | 5.00 | 7.00 | | with | |
| | ERC16R150U0125-02LL | ● | 2 | 1.50 | 1.25 | 10.00 | 2.00 | | with | |
| | ERC16R150U150-02LL | ● | 2 | 1.50 | 1.50 | 10.00 | 2.00 | | with | |
| | ERC16R150U0150-02LX | ● | 2 | 1.50 | 1.50 | 5.00 | 7.00 | | with | |

*Note: Standard length cutters come with weldon shanks, all others are cylindrical.

Standard cutting conditions

| Work material | Brinell hardness HB | Grades | Cutting Speed Vc (SFM) | Feed per tooth fz (in/t) each chipbreaker | | |
|--|---------------------|--------------|------------------------|---|--------------------|--------------------|
| | | | | NMJ | MJ | NAJ |
| Low carbon steels (S15C, SS400 etc.) | ~ 200 | AH725 | 300 - 530 - 720 | .007 - .010 - .012 | .008 - .020 - .028 | - |
| High carbon steels (S45C, S55C etc.) | 200 ~ 300 | | 300 - 500 - 650 | | | |
| Alloyed steels (SCM440, SCr415 etc.) | 150 ~ 300 | | 300 - 460 - 600 | .007 - .008 - .010 | | |
| Tool steels (SK, SKH etc.) | ~ 300 | | | | | |
| Stainless steels (SUS304, SUS316 etc.) | - | AH140 | 200 - 400 - 460 | .006 - .008 - .010 | .008 - .016 - .024 | - |
| Grey cast irons (FC250, FC300 etc.) | 150 ~ 250 | AH120 | 460 - 600 - 820 | .007 - .010 - .012 | .008 - .020 - .028 | - |
| Ductile cast irons (FCD400 etc.) | | | | | | |
| Aluminium alloys (Si < 13%) | - | KS15F | 1640 - 2600 - 4000 | - | - | .004 - .010 - .012 |
| Aluminium alloys (Si ≥ 13%) | - | | 300 - 650 - 1000 | | | |
| Heat-resisting alloy (Inconel 718, Ti-6Al-4V etc.) | - | AH725 | 65 - 115 - 160 | .006 - .008 - .010 | .008 - .016 - .024 | - |

- To remove excessive chip accumulation use an air blast.
- When chips stick to the cutting edges (aluminium machining), use a water soluble cutting fluid.

- Cutting conditions are limited by machine power and material rigidity. When the cutting width or depth is large, set Vc and fz below the recommended values and check the machine vibration and spindle load.



Tungaloy America, Inc.

1226A Michael Drive, Wood Dale, IL 60191
3726 N. Ventura Dr. Arlington Heights, IL 60004

NEW ADDRESS
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Inside Sales: 1-888-554-8394
Technical Support: 1-888-554-8391
Fax: 1-888-554-8392

Tungaloy Canada

432 Elgin Street, Unit 3, Brantford, Ontario, Canada N3S-7P7
Phone: 519-758-5779, Fax: 519-758-5791

Tungaloy de Mexico S.A.

C Los Arellano 113, Vista Alegre, Aguascalientes, AGS, Mexico 20290
Phone: 011-52-449-929-5410, Fax: 011-52-449-929-5411



www.tungaloyamerica.com



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