



High Performance Cutting Tools

**MACHINING SOLUTION
FOR AEROSPACE &
DEFENCE INDUSTRIES**



IATF 16949: 2016 | ISO 9001: 2015 | AS 9100D and ISO 9001:2015



Forbes Precision Tools and Machine Parts Limited



High Performance Cutting Tools

Forbes Precision Tools and Machine Parts Limited manufacturers both carbide and high-speed steel round cutting tools under the brand 'TOTEM'.

Totem offers complete tooling solutions in Internal & External Threading, Drilling, Milling, Deburring and Reaming and as on date has over.

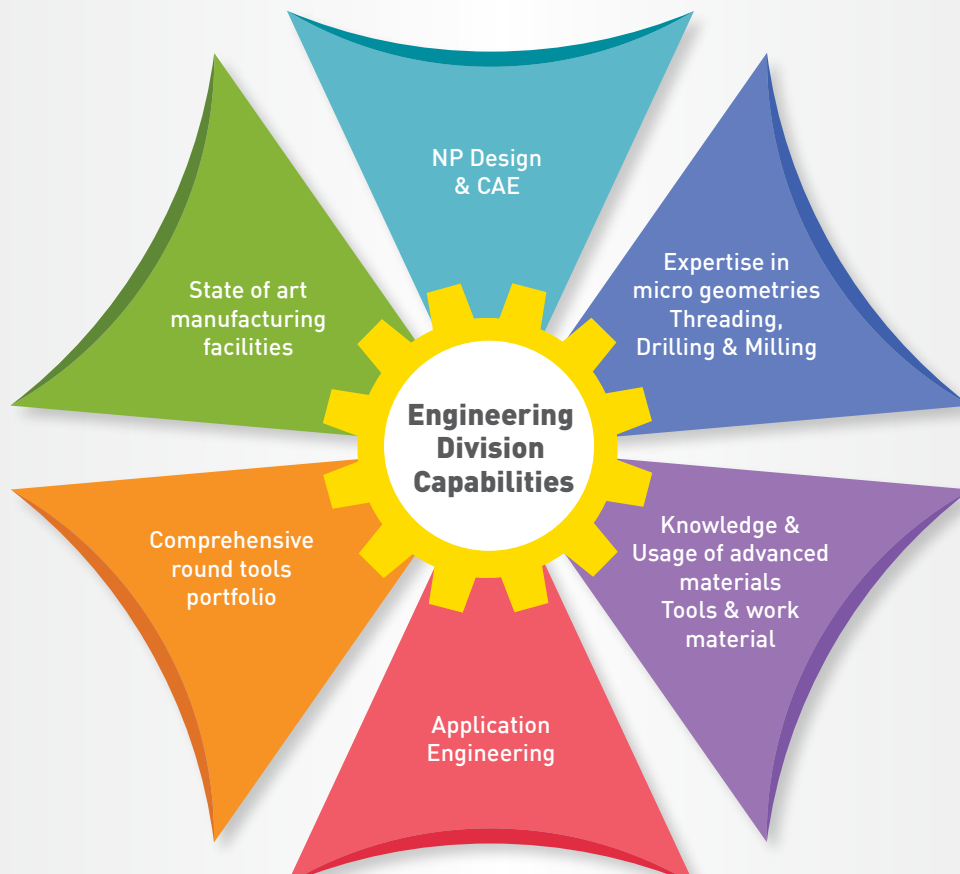
60 years of expertise of manufacturing high precision round cutting tools these tools are manufactured in a state-of-the-art manufacturing facility at Aurangabad India.

FPTMPL provides tooling solutions for a wide variety of industry sectors, including automotive, oil & gas, aerospace, defence, valve & pump, mold & die, heavy engineering, and electrical & electronics. These solutions are designed with material-specific geometries to optimize tool performance, ensuring maximum efficiency and longevity for the end-user.

Our range of products include HSS Hand and Machine Taps, Carbide Thread Mills and Taps, Solid Carbide Endmills and Drills, Tungsten Carbide Rotary Burrs, HSS Drills, Carbon Steel Taps, HSS and Carbon Steel Round and Hexagonal Dies. We are also the largest manufacturer of Spring lock washers in India serving major auto and transmission segments.



Strengths & Capabilities – Manufacturing



End Milling Solutions For Aerospace Industry & Difficult To Machine Materials



Features

- Higher productivity
- Reinforced core geometry for higher rigidity at elevated parameters
- Superior tool life
- Excellent surface finish
- High MRR

Functions & Benefits

- Variable helix angle and variable flute spacing
- Stable core geometry
- Optimized centre cutting geometry
- New generation coating
- Available in 4 flutes, 5 flutes, 6 flutes and 7 flutes
- Available in neck options



Product Range

- Turbo End Mill Range (F177TR/ NF177TR/ F178TR GOLD/ F178TR BLACK/ F179TR/ F179TRL/ F180TR/ NF180TR) for Stainless Steel/ Titanium/ Super Alloys/ Steel /Cast Iron)
- VR End Mill Range(5VR/6VR) for Trochoidal Milling for Structural parts for Titanium/ Stainless Steel/ PH/Super Alloys/ Steel)
- Roughing Chip Breaker End Mill Range (F192CB/ F193CB/NF193CB/F193CBL/F194CB) for Steel/ Stainless Steel/ Titanium/ Super Alloys)

Diameter Range

- F177TR 3mm-20mm
- NF177TR with neck- 6mm-20mm
- F179TR – Ball nose -4mm-20mm
- F179TRL – Ball nose -6mm-20mm
- F178TR BLACK 4mm-20mm
- F178TR GOLD 4mm-20mm
- F180TR 10mm-16mm
- NF180TR 10mm-16mm
- NF180TR with neck 10mm-16mm
- 5VR- 6mm-20mm
- 6VR- 6mm-20mm
- * Special as per Drawing on request



High Performance Cutting Tools

Totem leader in Threading Solutions

Advanced PVD Coating Grade over a tough wear resistant submicron substrate for internal & external thread milling of Super alloy & Hardened Material



Standard Thread milling Portfolio
Internal & External Threading -
Through & Non-through coolant

ISO Metric Thread : M5 - M27

(UNC, UNF, UNEF) unified thread : 5/16" - 1"

NPT : 1/16" - 2 1/2" - 6"

NPTF : 1/16" - 2 1/2" - 6"

BSP(G) : 1/16" - 1" - 6"

BSPT (Rc) : 1/16" - 1" - 6"

ISO Metric Thread - Hardened material :
M1.6 - M20 (2T/3T)

UNC/UNF Thread - Hardened material :
1 - 5/8" (2T/3T)

Taps for Aerospace and Defence Industries

FOR SUPER ALLOYS – TITANIUM / INCONEL / NICKEL BASED ALLOYS

Functions & Benefits

- Superior grade PM steel
- Low helix geometry with interrupted threads for hard materials
- Low rake angle and higher flank clearance to reduce friction and avoid jamming of chips
- Hard Lube coating reduces weld formation and offers wear resistance
- Edge polishing for better thread finish and higher tool life

Series

- SAI (PM) – For through hole application
- SBI (PM) – For blind hole application



FOR STAINLESS STEEL & ALUMINIUM ALLOY

Functions & Benefits

- Superior grade PM steel
- High helix with special rake angle suitable for long chipping sticky material
- Higher flank clearance to avoid jamming of chips
- Back chamfer to avoid reverse cutting
- Edge polishing for better thread finish and higher tool life

Series

- SAS – For through hole application
- SBS – For blind hole application
- SBU – For blind hole application



Case Study

SOLID CARBIDE ENDMILL - TR SERIES



COMPONENT : Engine Casing Cover
MATERIAL : Inconel 718
SOLUTION : EM 12X26FLX76
 SH12 7FL CR3 ALT
RESULT : Reduction in CPC - 30 %



CUTTING DATA
Machine : HMC
Tool Holding : HSK 63A Shrink Fit
Cutting Speed : 50m/min
Rpm : 1326
Feed : 159mm/min
Depth : Ae - 1mm, Ap - 8mm
Tool Life : 39 min

SOLID CARBIDE ENDMILL - TR SERIES



COMPONENT : Turbine Blade
MATERIAL : ST17/13 SW
SOLUTION : EM 10X22FLX89 SH10
 4FL TR ALT
RESULT : Reduction in CPC - 20 %



CUTTING DATA
Machine : Hamuer Reichenbacher
Tool Holding : HAAS VF3- VMC, Shrink fit
Cutting Speed : 50m/min
Rpm : 1590
Feed : 120 -200mm/min
Depth : Ap- 1mm Ae- 4mm
Tool Life : 60 Blades

Case Study

SOLID CARBIDE ENDMILL - TR SERIES



COMPONENT : Structural Part Aeroplane
MATERIAL : Ti6Al4V
SOLUTION : EM 16X34FLX48 X100 SH16
 5FLT CR1 ALT
RESULT : Reduction in CPC - 36 %

CUTTING DATA
Machine : Makino HMC
Tool Holding : Shrink Fit
Cutting Speed : 77m/min
Rpm : 1550
Feed : 850mm/min
Depth : Ap-22mm Ae-1.6mm
Tool Life : 305 minutes

SOLID CARBIDE ENDMILL - TR SERIES



COMPONENT : Frame to Frame Fitting
MATERIAL : Ti6Al4V
SOLUTION : EM 16X34FLX48 X100 SH16
 7FLT CR3 ALT
RESULT : Reduction in CPC - 43 %

CUTTING DATA
Machine : Mitsubshi DH80 HMC
Tool Holding : BT50 Side Lock
Cutting Speed : 60m/min
Rpm : 1200
Feed : 420mm/min
Depth : Ap-30mm Ae-4mm
Tool Life : 344 minutes



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