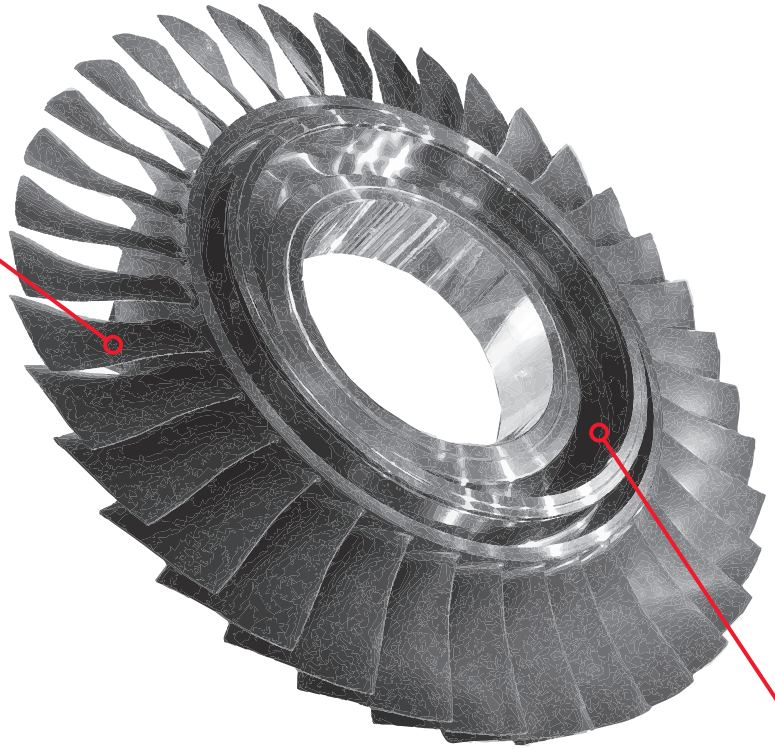

AEROSPACE
& DEFENSE
palbit
TOOLING SOLUTIONS EXPERTS
SINCE1916
SCAN ME!
Palbit cutting tools, **ready for takeoff!**

AEROSPACE & DEFENSE

Blisks are present in both cold and hot side of the engine. They are a compound of several blades and a disc all machined in a single body. In order to machine the blisk, an advanced 5-axis machining centre is required as well as knowledge on how to machine HRSA and titanium. At Palbit we provide prompt technical support to our customers and help them increase their productivity.

RAD-INTEG



GS CHIPBREAKER+PHH

(Medium to Finishing)

ENGINE - BLADES

HRSA

The manufacturing of jet engine blades is a most demanding challenge in metal cutting. The blade materials have extremely low machinability and the blade geometry is often complex.
Palbit's TURBOMILL faces this challenge with extremely heat-resistant inserts and foolproof indexation cutters making it the best solution for the rough machining.
For the machining of the foil-to-root/head a flexible endmill such as the RAD-INTEG, achieves the best productivity.

TUROMILL 33890

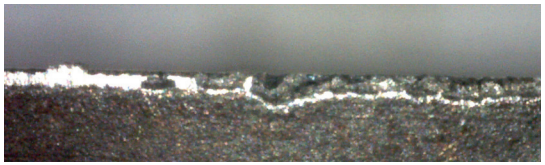
TURBOMILL 34190 | 34290

RAD-INTEG

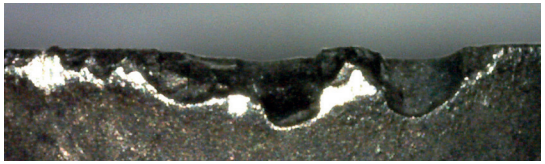
TEST REPORT

PHH
NEW
GRADE

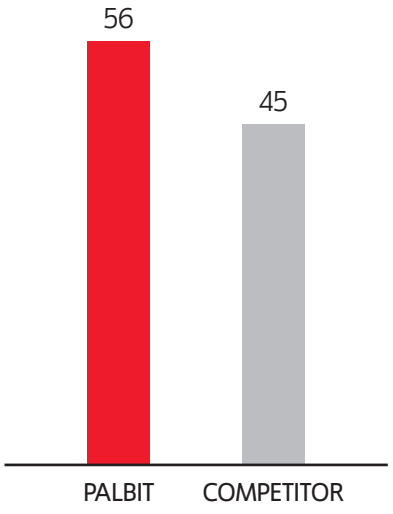
Cutter:	052A34290-05-05-022040
Insert:	RPHT 1204 M0E-LS
Grade:	PHH530



Palbit Insert



Competitor Insert



Tool life (min)

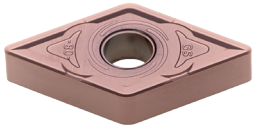
Workpiece material: AISI 316L - After 45 mins

Cutting speed: V_c	200 m/min
Feed per tooth: f_z	0,2 mm/tooth
Depth of cut: a_p	2,0 mm
Stepover : a_e	60%
Operation	Face milling
Coolant	Air

ENGINE - FAN DISK

TITANIUM ALLOYS

Fan discs are complex geometries with grooves and slots that are hard-to-reach and demand high accuracy. At Palbit we develop custom tools for every problem and deliver the highest quality products for the most demanding challenges.

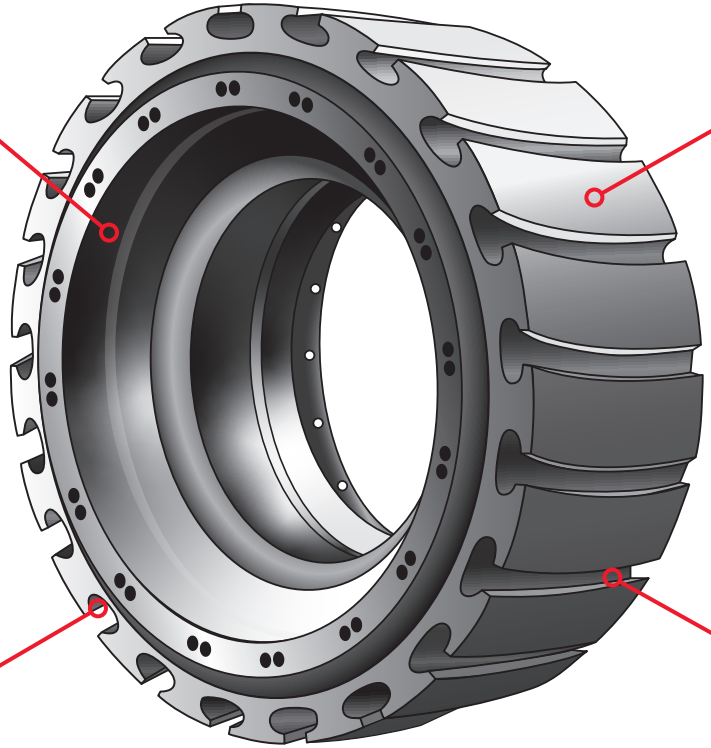


GS CHIPBREAKER+PHH

(Medium to Finishing)

DOMX

(Roughing)



INOX-INTEG

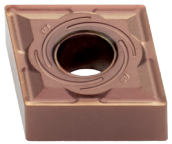
INOX-INTEG

(Roughing)

ENGINE - TURBINE DISK

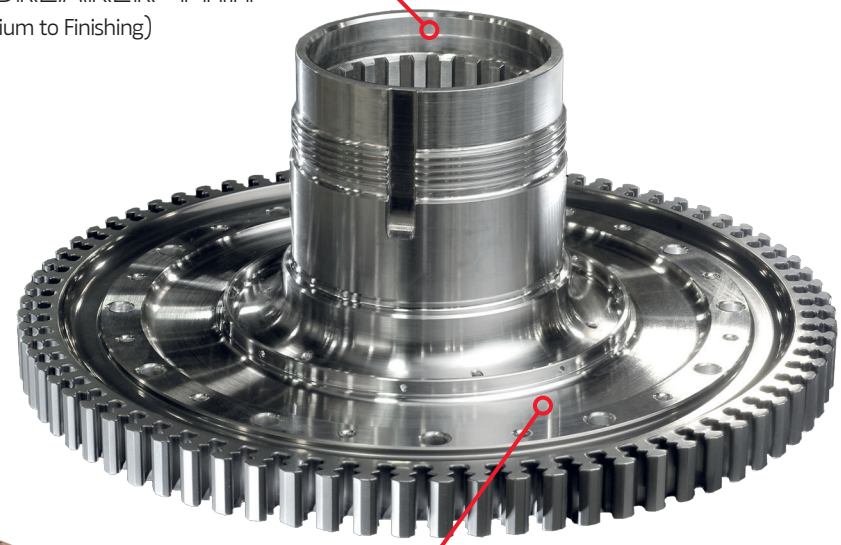
HRSA

A turbine disc has to rotate at high speed in a relatively cool environment and is subjected to large rotational stresses. The limiting factor that affects the useful disc life is its resistance to fatigue cracking. Palbit's new GS chipbreaker and DOMX insert will increase tool life during Inconel machining operations.



GS CHIPBREAKER+PHH

(Medium to Finishing)



DOMX

(Roughing)

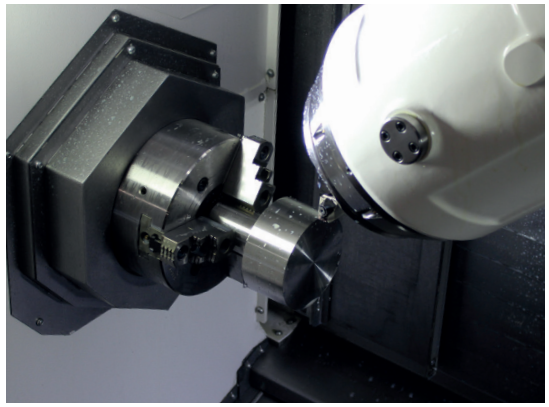
TEST REPORT

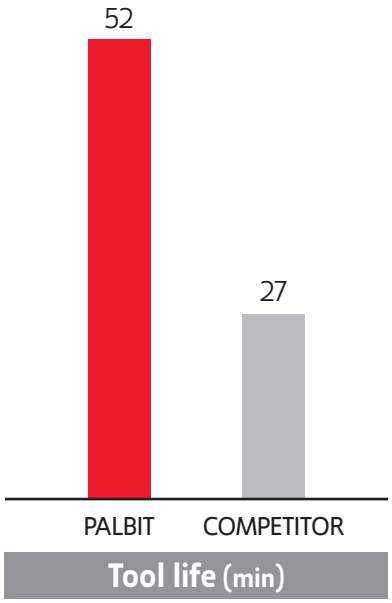
PHH NEW GRADE

Toolholder: DDJN R 2525 M15-A-DX1

Insert: DOMX 1506R1-GS

Grade: PHH910

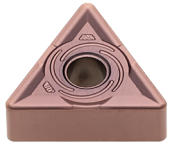




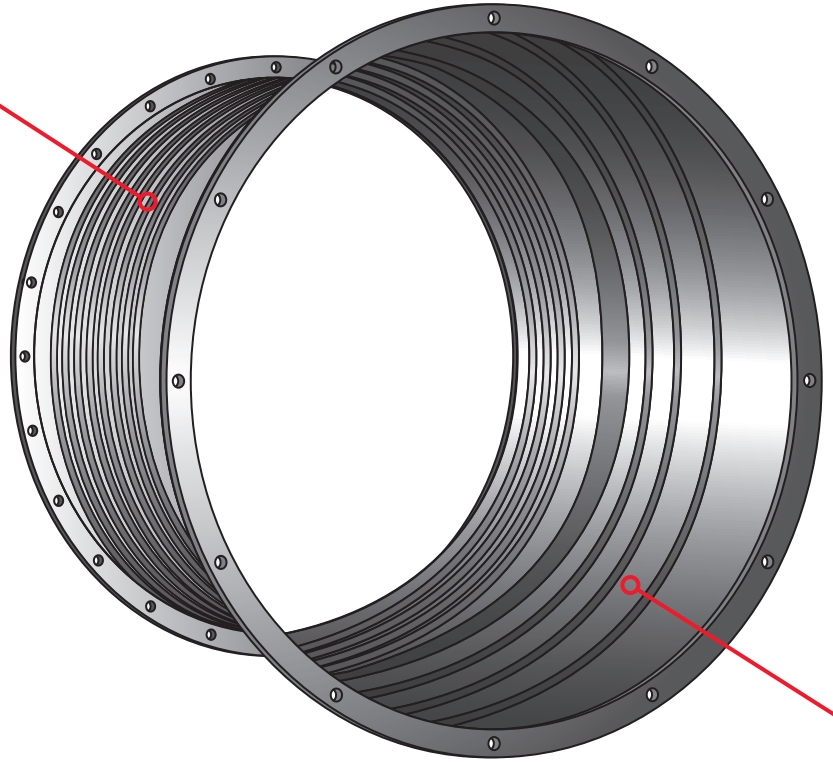
Workpiece material: Inconel 625 Alloy

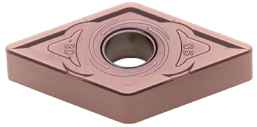
Cutting speed: V_c	70 m/min
Feed rate: f_n	0,15 mm/rev
Depth of cut: a_p	0,6 mm
Operation	External Turning
Coolant	Yes

At the exhaust, the air flows at extremely high temperatures. This calls for the use of lightweight and heat-resistant materials such as titanium aluminide or other titanium alloys. Palbit developed the new GS chipbreaker specially to machine these heat-resistant materials.



GS CHIPBREAKER+PHH
(Medium to Finishing)





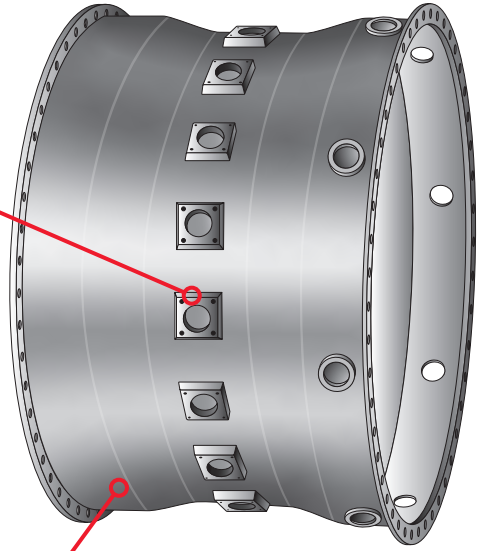
GS CHIPBREAKER+PHH
(Medium to Finishing)

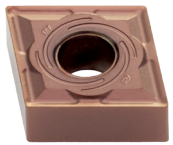
ENGINE - COMBUSTION CHAMBER

HRSA

Combustion chamber provide structural stability to the jet engine. They are a challenge for turning due to the high amount of material to be removed. With the new GS chipbreaker, all steps of turning are secured with maximum tool life.
Because of the countless matings of this part also required copious milling operations. Palbit develops custom made solutions that give the customer the perfect answer to their demands.

TOROMILL
33590 | 33690





GS CHIPBREAKER+PHH
(Medium to Finishing)

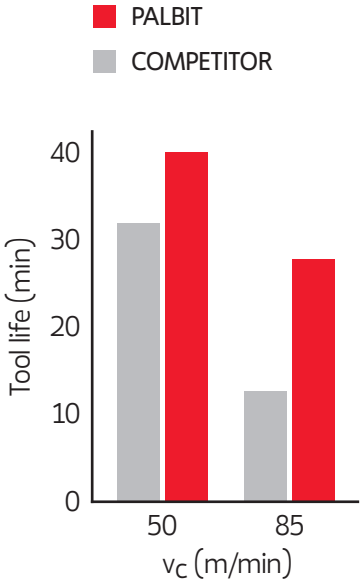
TEST REPORT

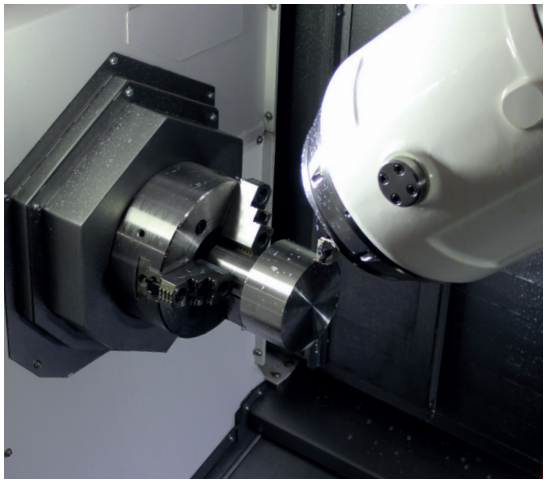
PHH
NEW
GRADE

Toolholder: DCLN L 2525 M12

Insert: CNMG 120408-GS

Grade: PHH910





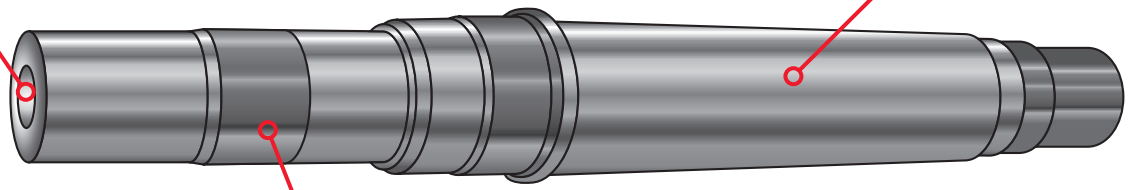
Workpiece material: Inconel 625 Alloy

Feed rate: f_n	0,12 mm/rev
Depth of cut: a_p	0,5 mm
Operation	External Turning
Coolant	Yes

The greatest challenge when machining the engine shaft is its length and hollowness. To overcome this difficulty Palbit has developed anti-vibration turning bars with up to 10 x ØD capability.

ANTI-VIBRATION TOOLHOLDERS
(Internal Turning)

RCMT-GS
(Roughing)

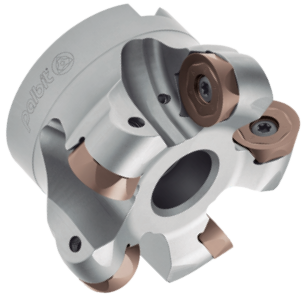


COATED PCBN INSERTS
(External Turning)

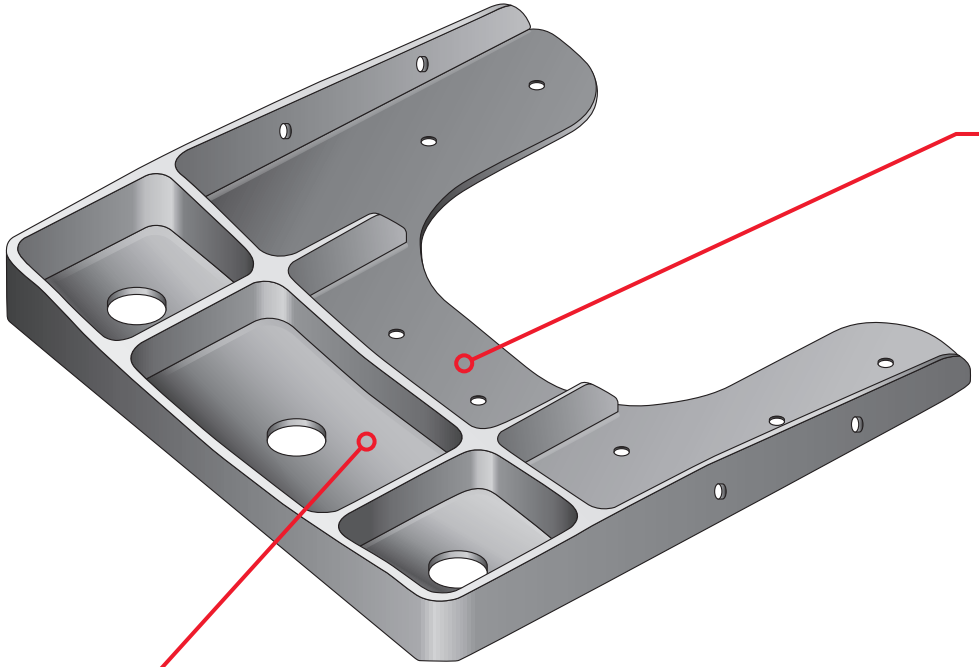
WING - PYLON

TITANIUM ALLOYS

The pylon brackets connect the wing to the jet engine, its design varies greatly for different models. The most common traits of pylons are the existence of both large plain surfaces and closed, hard-to-reach surfaces. Palbit faces this design diversity with a broad range of tooling solutions.



TOROMILL 33990



RAD-INTEG

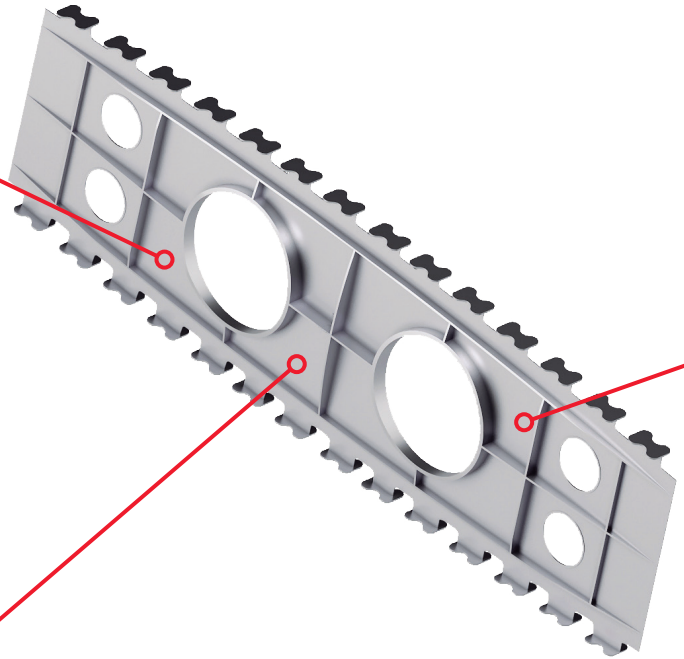
WING - RIB

ALUMINIUM

Being lightweight and structurally capable, aluminium is present in many airplane components. The milling of the wing rib balances the removal of large volumes of material and the challenges of machining thin walls.

ALUPRO 76090

(Face and Pocket Milling)



AL-INTEG

(Pocket finishing)

ALUPRO 77090

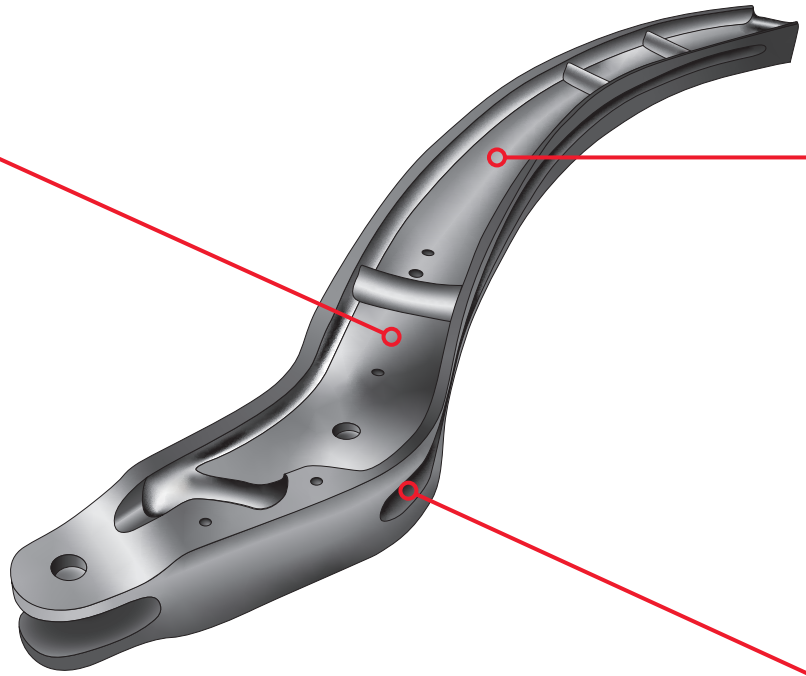
(Face and Pocket Milling)

WING - FLAP | SLAT TRACK

TITANIUM ALLOYS | TEMPERED STEELS

The machining of both flat and slat tracks consists heavily in pocket and side milling.

LINEPRO 57045
(Face Milling)



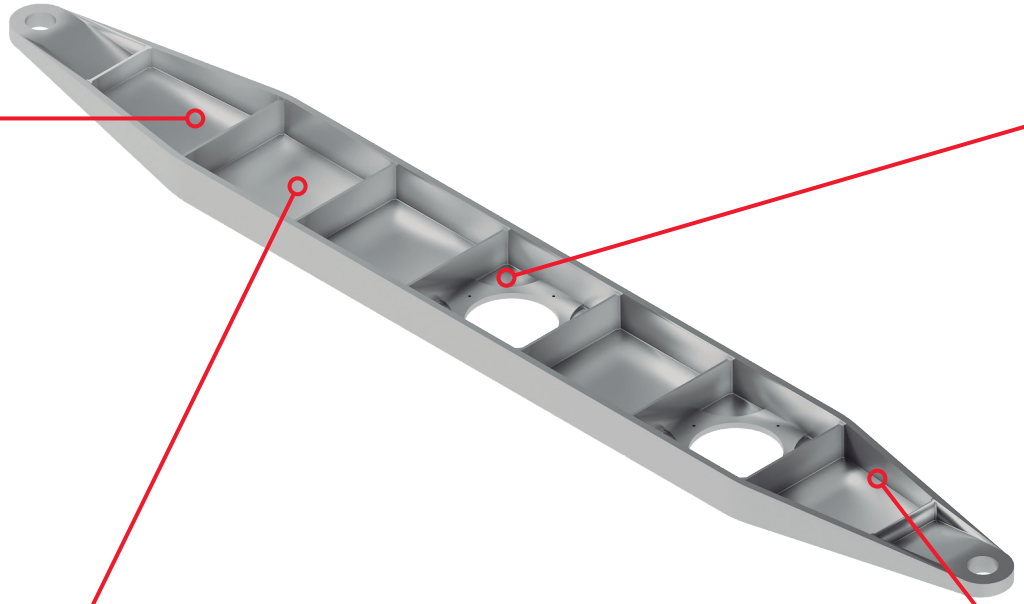
TOROMILL 33590 | 33690
(Pocket milling)

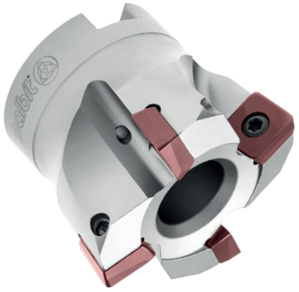
SPECIAL SLOTTING
SOLUTIONS

LANDING GEAR - BEAM

TITANIUM ALLOYS

Like in many fuselage components, the landing gear beam is produced in titanium alloys. Being such a difficult material to machine, a lot of effort/expertise is put into our tools and grades in order to overcome short tool life, chatter and many other hardships.





TETRAFEED 16320
(Ramp Down | Helical Interpolation)

TOROMILL 33690
(Pocket milling)

HIFEED 06410 | 06690 | 06815
(Ramp Down | Helical Interpolation)

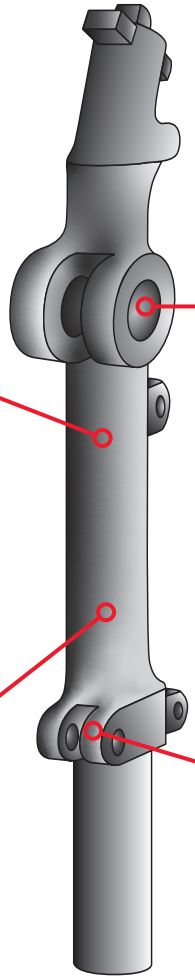
FIN-INTEG
(Side finishing)

LANDING GEAR - STRUT CYLINDER

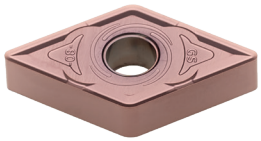
TITANIUM ALLOYS | ALLOY STEELS

The main cylinder cushions the landing impact and integrate many components. Being such a complex components it required an copious amount of operations.

DOMX
(Roughing)



TOROMILL 33690
(Pocket milling)



GS CHIPBREAKER+PHH
(Medium to Finishing)

BALLPRO 63090
(Side milling)

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ENGINE

WING

LANDING GEAR

FYMKT_37_ED01_REV00

SINCE 1916

Palbit cutting tools, **ready for takeoff!**