

High Efficiency in Aerospace / Turbine Manufacturing with powRgrip®

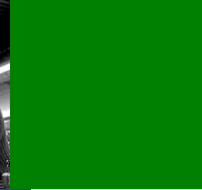
Version 090415

Increase in productivity and tool life





REGO-FIX®



Customer: MTU Aero Engines, Germany

Blisk manufacturing

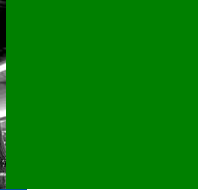
Target: Increased profitability

Increased productivity by reduced cycle time

Reduced tool cost



© MTU, Germany 2008



Innovative Turbine Blisk manufacturing with powRgrip®

Methods:

- Innovative machining path (program) designed for constant high chip load
- Choice of optimum tool and toolholder to bear the load

Critical points: Vibrations, tool pullout, lifetime of tool and holder

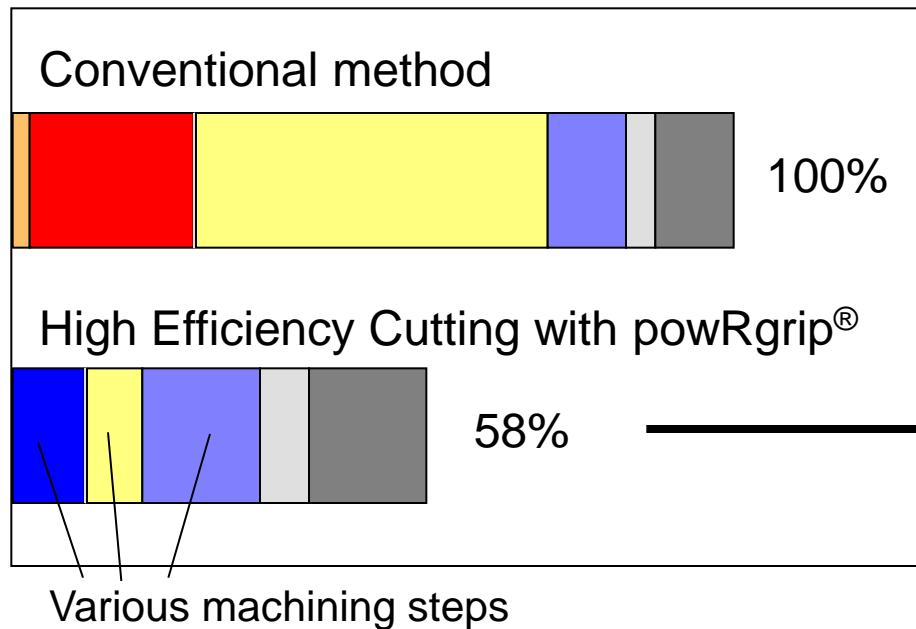


Choice after trials:
powRgrip® against
hydrochucks and
heat shrink

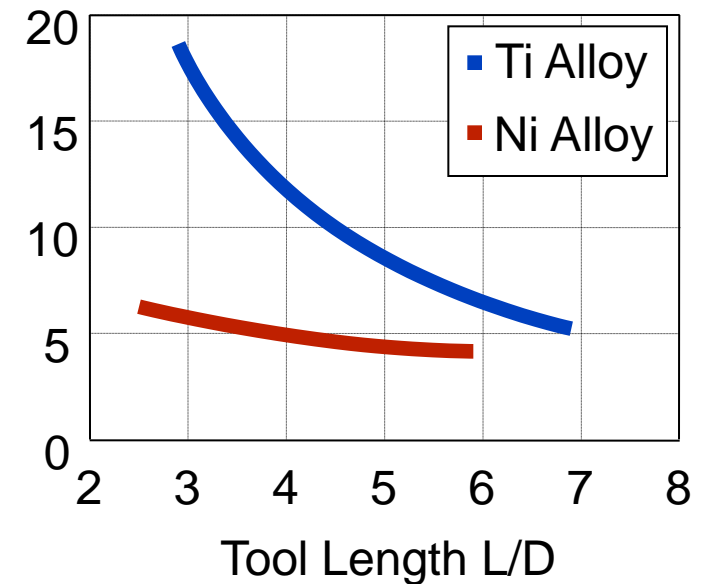


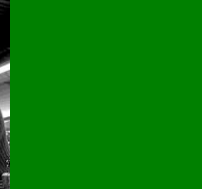
Achievement: Reduction in cycle time to 58% = Productivity increased to 172%

Cycle time



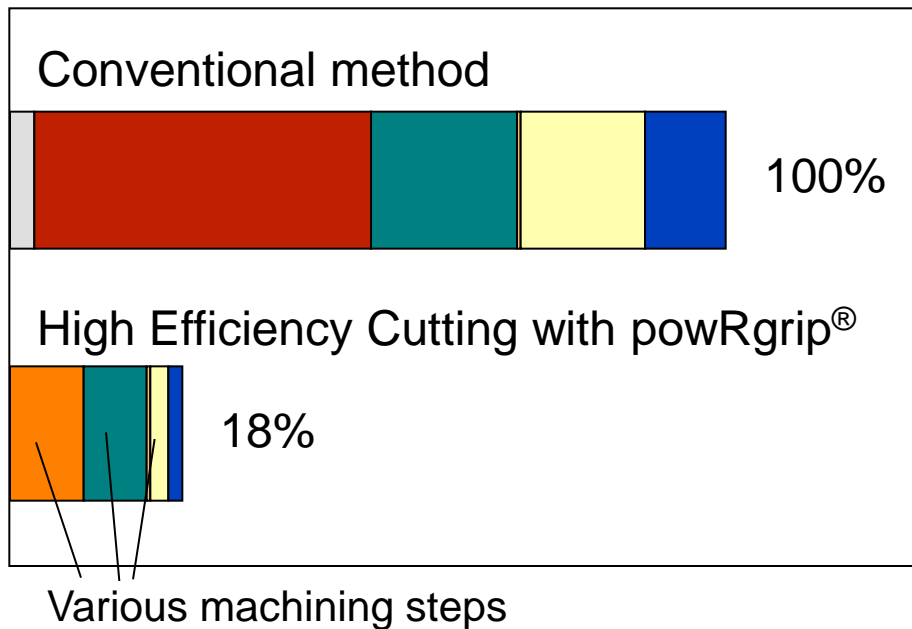
Material Removal Rate cm³/min





Achievement: Reduction in tool consumption by 82% = Tool life increased to 560%

Tool consumption



Customer quote:

„REGO-FIX powRgrip toolholders play a major role in the success of innovative machining strategies for Blisk manufacturing“



REGO-FIX®



Customer: US Aerospace manufacturer

Milling of window openings

Achievements compared to previously used toolholders:

Step 1 Tool life extended to 700%
at same cutting parameters

Step 2 Feed rate = productivity increased to 250%
(critical point were vibrations)

Tool life extended to 600%





REGO-FIX®



 **Customer: FAG Aerospace, Germany**

FAG

Manufacturing of bearings for aircraft applications

**Reasons for using
powRgrip:**

- Vibration dampening
- Tool life
- Ease of use (clamping)
- Clamping forces
- Long life of holders and collets
- Constant clamping force and runout over whole lifetime of toolholder



REGO-FIX®



Customer: Aerospace components supplier, Canada

Titanium engine components

Achievements compared to previously used toolholders:

Extension of tool life from 4 pieces per tool to 18 pieces per tool

Tool life extended to 450%



finished machining shape



Other applications at US Aerospace manufacturers

Fixation of engines

Achievements:

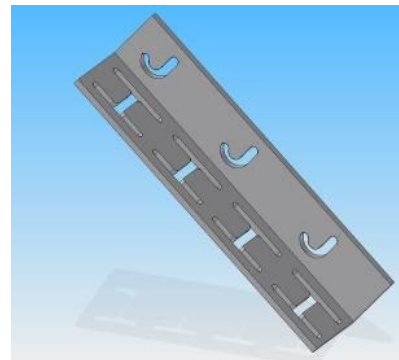
Preassembled components of different material (stainless steel, Aluminum, Titanium) are fine drilled/reamed together

powRgrip made this innovative manufacturing process work

Machining of fixation profiles

Achievements:

Vibration problems solved, productivity increased to 800-1000%





REGO-FIX®



Thank you for your kind attention!

REGO-FIX AG
Obermattweg 60
4456 Tenniken/Switzerland
Phone +41 61 976 14 66
Fax +41 61 976 14 14
rego-fix@rego-fix.ch

REGO-FIX Tool Corp.
7752 Moller Road
Indianapolis, IN46268 USA
Phone +1 317 870 59 59
Fax +1 317 870 59 55
info@rego-fix.com

Swiss REGO-FIX Shanghai Rep Office
RM317A, Tower 1, German Centre,
88 Keyuan Road, Pudong Zhangjiang Hi-Tech Park,
Shanghai, China 201203
Tel: +86 21 2898 6255
Fax: +86 21 2898 6135

www.rego-fix.com

