



powRgrip® for Aerospace manufacturing
Superior toolholding strength and accuracy

REGO-FIX 

REGO-FIX

Providing solutions for cutting-edge toolholding

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powRgrip® for Aerospace





Introduction

powRgrip® soars in aerospace manufacturing

Extraordinary reliability and outstanding quality.

Machining challenges As an aerospace shop, you face a barrage of tough machining challenges on a daily basis. And whether those are difficult-to-machine materials, aggressive metal removal requirements or long, awkward tool overhangs, your toolholding system must be able to handle them and provide the utmost in precision, performance and reliability.

Optimized machining operations Yours is an industry where you can't afford to scrap parts. Only the REGO-FIX powRgrip® (PG) toolholding system can optimize all of your aerospace/defense part machining operations, maximize your productivity, lower your cost per part and shorten your machining cycle times. But most importantly, powRgrip® gives you confidence and peace of mind in knowing that you run the best and most advanced toolholders ever made.



Swiss quality standard

Our products marked Swiss made are manufactured at our headquarters in Tenniken, Switzerland.



Features and benefits

powRgrip® toolholding outperforms all other tooling systems

Developed especially for high-speed cutting and high-performance cutting strategies, powRgrip® optimizes productivity and improves precision for fast machining of high-quality parts.

Here is what makes powRgrip® the best.

Speed/ease of use Tool change outs in less than 8 seconds and easy Z-height adjustments in any standard presetter without the need for expensive adjustment tools.

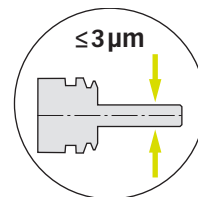
Precision Precisely engineered and balanced by design, powRgrip® delivers TIR of $3\ \mu\text{m}$ ($<0.0001''$), along with precise length adjustment repeatability of $10\ \mu\text{m}$ ($<0.0004''$).

Quality Swiss-made and with all perfectly matched components for optimal fit, accuracy and long tool life.

Performance Toolholder-to-collet and collet-to-tool shank interfaces deliver superior clamping force, high-vibration dampening and extreme precision.



Tool ready for use in less than 8 seconds.



Total system runout
TIR $\leq 3\ \mu\text{m}$ at $3 \times D$.



Strength Industry's highest clamping torque rating of up to 1,100 Nm.

Reliability Accuracy and gripping forces that continue to meet or exceed original values even after extensive cycling.

Versatility Accommodates all types of tool shanks and materials in h6 tolerance and sizes from Ø 0.2 – 25.4 mm (0.0079" – 1.0") with the same system to reduce tooling inventory. *(REGO PLUS licensed BIG PLUS® dual-contact holders also available.)

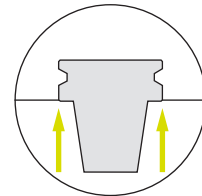
Safety Complete user safety without risk of injury from heat or pinch zones.

Warranty REGO-FIX guarantees the TIR of a properly maintained powRgrip® holder and collet will not exceed 3 µm and the impregnated surface treatment will not erode for five years or 20,000 cycles.

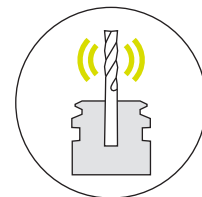
THE BIG PLUS SYSTEM—licensed by BIG Daishowa—is manufactured at REGO-FIX in Switzerland under license according to BIG PLUS specifications.

REGO-FIX CAPTO—licensed by Sandvik Coromant—is manufactured at REGO-FIX in Switzerland under license according to CAPTO specifications.

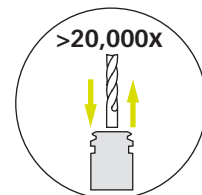
Key advantages



Higher toolholder stiffness due to taper (AT1) and face contact with REGO-PLUS holders.*



Excellent vibration dampening.



Maximum clamping force and low runout, even after 20,000 tool changes.

How powRgrip® works

powRgrip® is a unique collet-holding system that consists of three main components — press fit assembly mounting units, collets and holders — all of which work in harmony. The result is the distinctive powRgrip® toolholder-to-collet/collet-to-tool shank interfaces that give the system its extraordinary performance and holding capabilities.

Press-fit assembly mounting units Tabletop mounting units — either hydraulic manual pump style or automated — quickly press powRgrip® collets into or remove them from system toolholders with up to nine tons of force.

Collets powRgrip® collets feature high-precision tapers and a unique wear-resistant surface treatment that results in an extremely hard surface for unmatched longevity and repeatability.

Holders With equally precise tapers that match those of the collets, powRgrip® factory-balanced toolholders deliver superior runout and vibration dampening as well as provide either coolant-through or peripheral cooling capabilities.



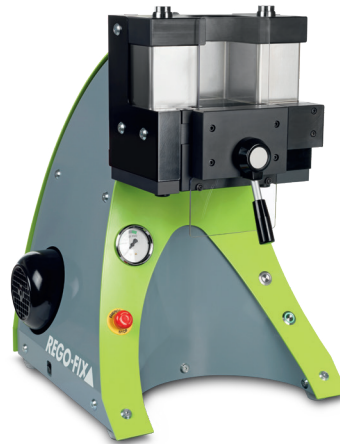
Cutting tool



powRgrip® collet



powRgrip® toolholder



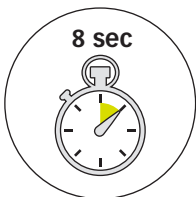
Automatic clamping unit PGU



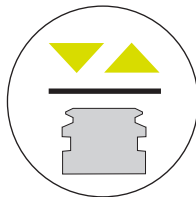
Manual clamping unit PGC



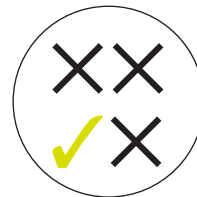
Key advantages



Clamp the tool safely and securely by pushing just one button. The clamping will take less than 8 seconds, without the use of heat.



Clamp tools with maximum clamping force and best runout in the powRgrip® collet and toolholder.



Smart System — no setting of parameters required. Clamping pressure is controlled by the insertion of the respective clamping insert (APG). There are five clamping inserts available for the clamping of different collet sizes.

powRgrip® for aerospace manufacturing

Tackle any machining challenge

Remarkable versatility Whether you machine structural, engine, landing gear or systems control parts from heat resistant super alloys, aluminum or stainless steels, the powRgrip® product line offers special ancillary technologies and accessories as well as specific sizes that will further optimize your aerospace and defense part machining operations.

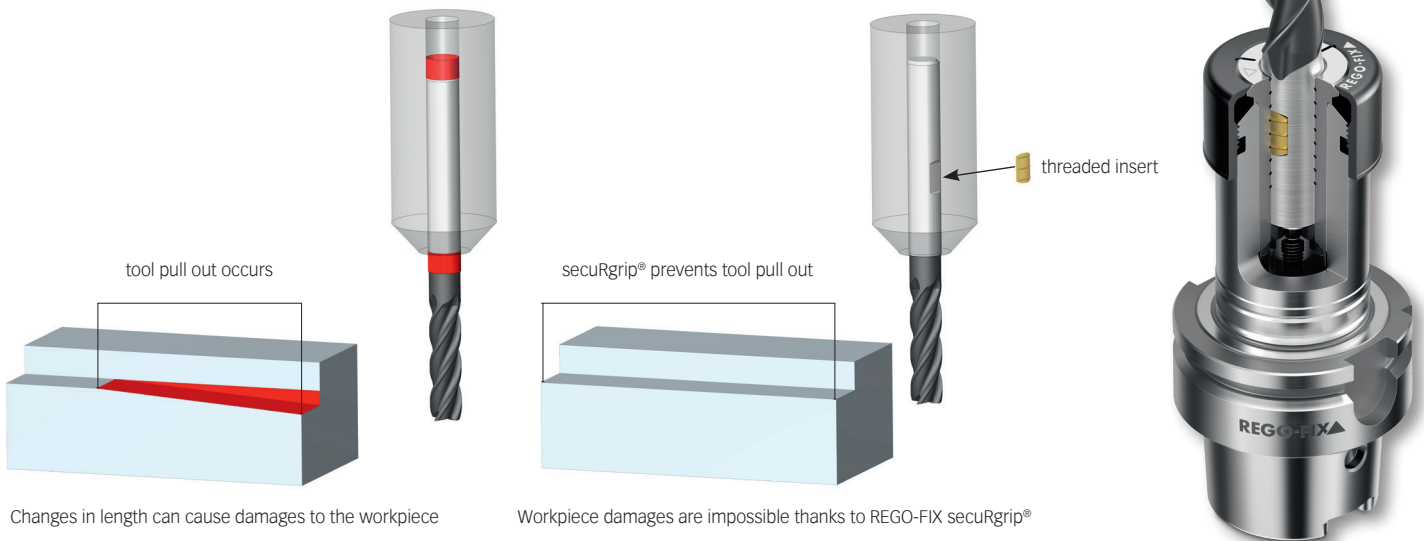
Add REGO-FIX's secuRgrip technology, Xtended Length Toolholders and PG 32 collets to your powRgrip® system and tackle any machining challenge from heavy roughing in tough materials, to high-speed machining aluminum parts, to precision profiling and finishing of composite materials, to milling of hardened steels, as well as small diameter precision drilling and reaming operations in any material.

secuRgrip® system for powRgrip®

100% process safe standard solution against tool pull out

Full protection where you need it The secuRgrip® threaded insert is designed to fit in any tool with a Weldon flat. This way you can use the tool of your choice. In combination with our PG secuRgrip® collet, we offer the ultimate tool pullout protection at a competitive price. Avoiding length alterations caused by tool pullout results in improved process reliability and ultimately improves your overall machining productivity. Our secuRgrip® solution is available for PG 15, PG 25 and PG 32 – just the right sizes when it comes to rough machining.

- // No additional costs for replacing damaged tools, thanks to PG secuRgrip®
- // No modification of the tool shank is required
- // Extra protection for worry-free machining, especially with expensive work pieces

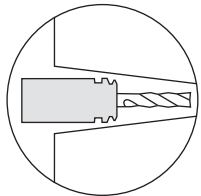


XL vibration dampening

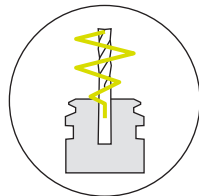
Optimize your surface finish and extend tool life by minimizing occurring vibrations during machining

Minimize tool vibrations The MICRO-FRICTION DAMPENING™ (MFD) technology (pat. pend.) by REGO-FIX allows our XL collets to dissipate vibrations faster than standard long-reach collets. Dampening the vibrations faster means that your cutting tool, part and spindle will see less vibrations resulting in better surface finishes, longer tool life and less spindle wear. All REGO-FIX XL collets are balanced to G 2.5 @ 5,000 rpm.

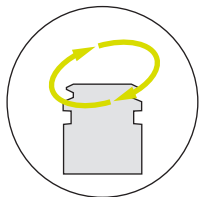
Key advantages



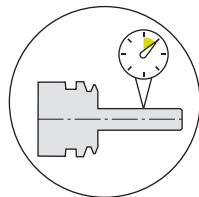
Minimal outside dimensions:
long and slim design.



Exclusive vibration-
dampening design.



Balanced by design.



Total system runout
TIR $\leq 10 \mu\text{m}$ at 3xD.



Heavy Duty secuRgrip® toolholders

The perfect solution for machining large Aerospace parts

HD-SG PG holders Heavy Duty secuRgrip® toolholders are up to two times more rigid than standard holders. And, they include secuRgrip design for 100% protection against tool pullout.

Features

- // Includes secuRgrip® design to prevent pullout
- // Most designs retain the use of balance rings
- // Fits existing powRgrip® clamping units

Key Advantages

- // Up to 2 times more rigid than standard holders
- // Increases feed rates to maximize tooling efficiency
- // Better surface finish with less deflection





[powRgrip® solutions](#)

Sizes and specifications for aerospace manufacturing

powRgrip® is available in a wide selection of holder types, lengths and diameters, including those larger toolholder-spindle interface tapers and styles typically required for aerospace applications.

powRgrip® toolholders

Sizes and styles include:

HSK 63, 80, 100 and 125

HSK-FP 80

BT 30, 40 and 50

BT+ 30, 40 and 50*

SK 30, 40 and 50

CAT 40 and 50

CAT+ 40 and 50*

CAPTO C3, C4, C5, C6 and C8**

REGO-FIX Q System PG toolholders are balanced by design to G2.5 @ 25,000 rpm for steep taper holders and up to 90,000 rpm for HSK holders. Type H toolholders are ready to accept the Hi-Q balancing system rings which allow precision balancing of the system up to 80,000 rpm, depending on the balancing rings used.

powRgrip® collets

All powRgrip® collets are precisely engineered to exact tolerances. Regardless of size or type, the collets clamp all h6 tool shanks – Cylindrical, Weldon and Whistle-Notch – in all shank materials, including Solid Carbide and High-speed Steel (HSS).

Popular sizes are:

PG 6

PG 10

PG 15

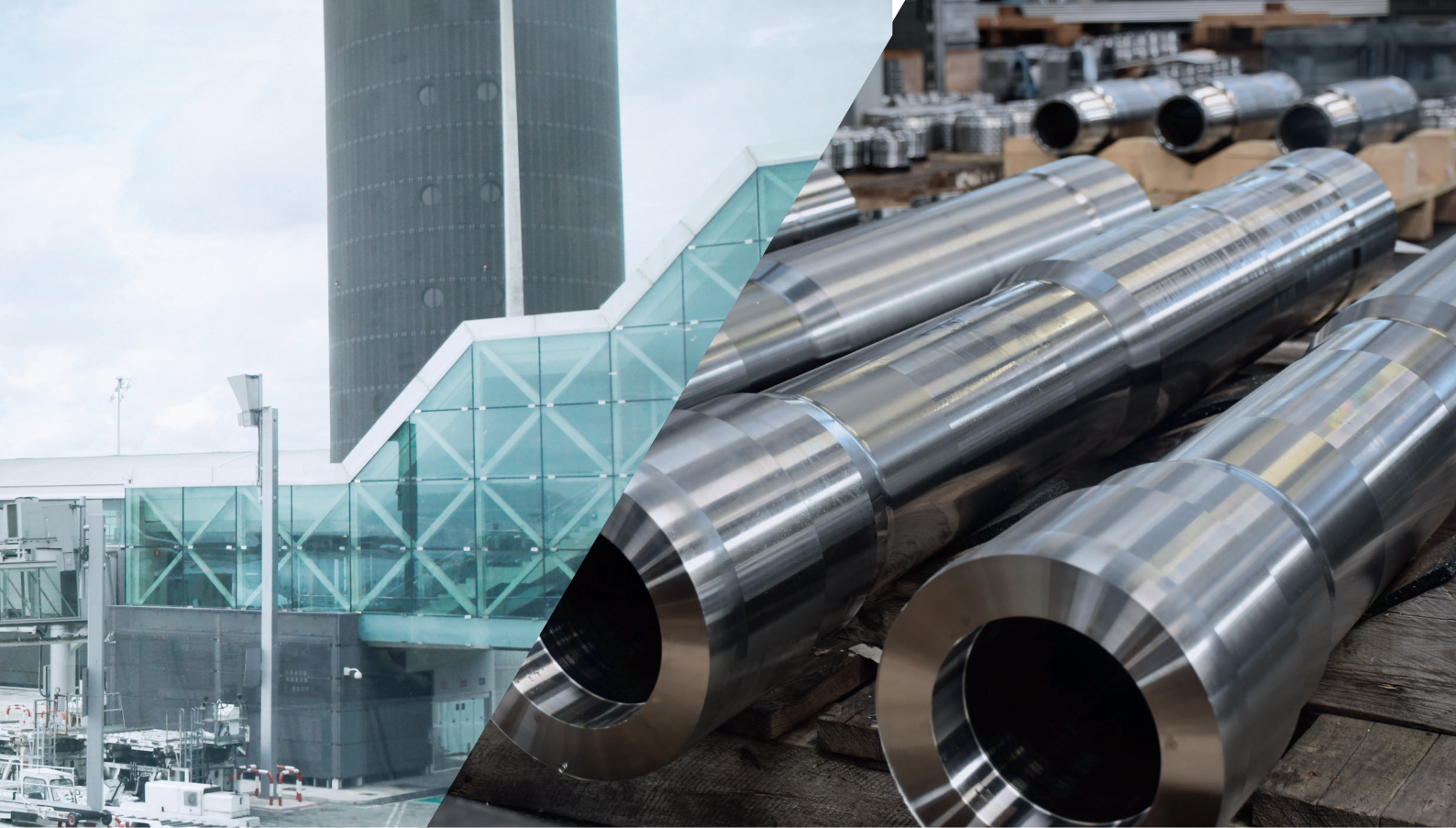
PG 25

PG 32

PG collets are available in Standard, Coolant Flush and secuRgrip versions.

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Accessories

Enhance your tool life with the correct accessories for safe tool clamping.

Presetting Tool The powRgrip® presetting tool accepts the powRgrip® collets and is inserted into the toolholder. The tool has a small thumb wheel for precise tool length adjustments and allows maximum repeatability in the toolholder assembly.

PGU Automatic Presetter Unit Ideal for aerospace production environments, the REGO-FIX fully automated powRgrip® tool presetting and measuring system virtually eliminates the need for any operator intervention and, thus, significantly increases tool presetting speed, precision and repeatability. The system provides users with safe, fast presetting and measuring of tools of all types, as well as for the clamping/unclamping, measuring and presetting of powRgrip® tools.

Within 8 Seconds, the automated presetter clamps the tool then measures its height, determines the machining offsets and sets the tool in the powRgrip® toolholder — in as little as one minute. The system works for all PG size collets and up to a 25.4mm (1") diameter tool shank and all standard taper types (HSK, SK, BT, CAT, CAPTO), forms, sizes and gage lengths.

Toolholder Taper Cleaner Special taper cleaner brush quickly and easily removes dirt and light rust from powRgrip® holder bores before insertion of a tool/collet.

Cleaning Paper Set Soft, absorbent paper specifically prepared to clean the powRgrip® holder bore. The paper is lint free, chemically neutral and for one time use only. It is packaged in containers of 250 sheets.



USER REPORT

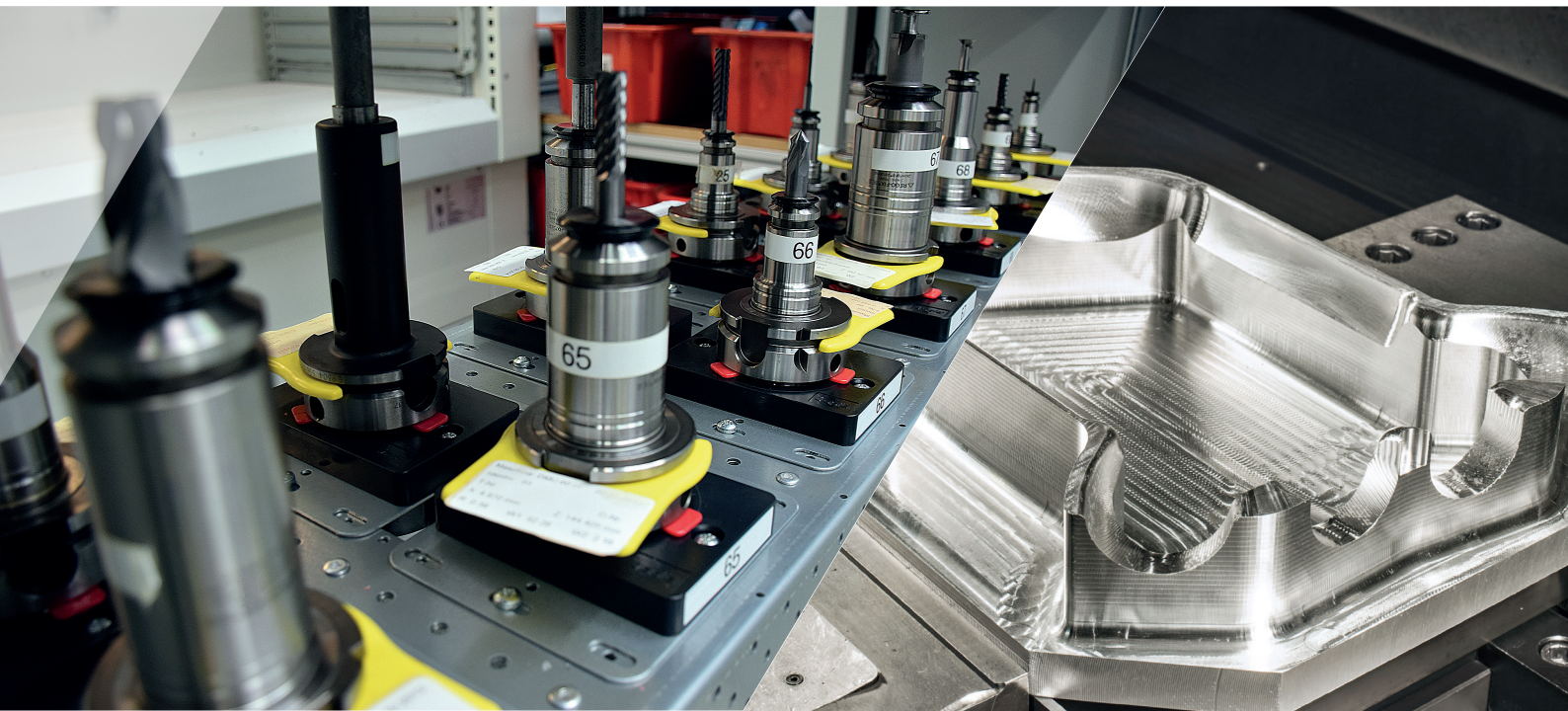
Machining Aerospace parts with reliable concentric clamping

Repairing components of aircraft makes particular demands upon the companies involved. On the one hand, customers – the world's airlines – expect maximum flexibility and the shortest possible delivery periods. On the other, the repair tasks must be carried out with extreme precision, reliability, and process stability.

Difficult-to-machine materials These demands are predominantly confronted by manufacturing companies which repair worn jet engines. Alongside components made from aluminium alloys, this primarily involves drilling, milling, and tapping workpieces made from tough, heat-resistant materials such as nickel-based alloys or titanium. For example, the worn housing and turbine blades are first built up on the contours in question, using a plasma process. Then the components are milled, drilled and tapped on machining centres, in order to restore the geometries in accordance with the original data. This demands maximum reliability, precision, and above all flexibility. Different drilling, milling, and tapping tools are reliably clamped with a high level of concentric accuracy, in quick succession. Only in this way is it possible to reliably maintain the required accuracy on the workpieces of ≤ 0.01 mm. Precise concentricity also contributes, especially when machining hard materials, to long tool life and therefore to cost-effective use of these high-quality tools. Any damage to these expensive components (which as one-off pieces cannot – at least not in the short term – be replaced) due to improperly clamped tools must be altogether avoided.

Automatically pressed-in collets After conducting an in-depth comparison of different tool-clamping systems, a German aviation maintenance company has opted for the powRgrip® clamping system from REGO-FIX. Those responsible for the decision confirm that it satisfies all the demands of the aviation industry. Tools with a diameter of 3 to 32 mm can be reliably clamped to a repeat concentric accuracy of 3 μ m in no time. To achieve this, the clamping system uses special collets with no clamping nut. They are simply pressed into the toolholders by hydraulic force. With the PGU Automatic clamping unit this occurs reliably and flawlessly, even with no special knowledge on the part of the operator.

Based on the toolholder and adapter, the clamping unit automatically detects the required clamping forces for the powRgrip® collets. This makes the clamping process extremely reliable and independent from the skill of the operator. Furthermore, it takes only 15 seconds. As reported by the aviation maintenance technician, a tool change is significantly faster and more flexible than with the shrink chuck which would otherwise be used.

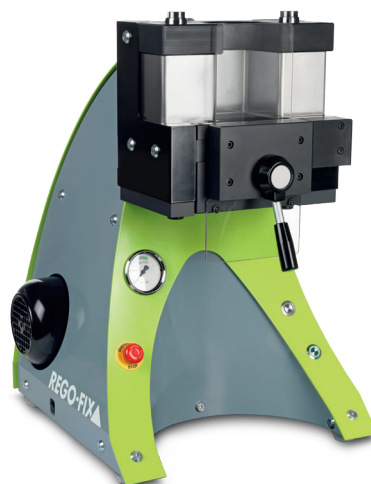


Including heating and cooling times, this would require up to 15 minutes for the tool change. On hydraulic chucks, the aviation maintenance technician finds the reliability and process stability to be lacking. During extended idle periods, the pressure in the clamping chuck can drop uncontrollably, which means that the retaining force for the tool is not available. With the mechanically pressed-in collets of the powRgrip® clamping system, on the other hand, the technician from the maintenance company reports that a constant retaining force is permanently guaranteed, regardless of the length of the idle period and the use of the tool.

Moreover, the double press fit of the collets between the toolholders and tool shafts ensures extraordinarily high damping. In addition to the precise concentricity, this contributes to long tool life. The aviation engineers benefit from these advantages on all solid carbide and HSS tools with cylindrical shanks, with tolerance h6 as well as h9 in the diameter. This means that the aviation maintenance engineer is able to pick up all of the tools which they have in circulation, including the thread cutting tap, with the same

clamping system.

Thus they achieve high levels of process stability, while also simplifying tool logistics and substantially reducing costs. The comprehensive REGO-FIX range offers all of the standard toolholders for the powRgrip® clamping system. These include HSK, SK, BT, polygon (Capto), and ISO20 (specially for Haas machining centres) as well as all + (double-contact) requirements. In addition to standard collets, PG6 to PG32, special versions for tapping and with integrated axial coolant supply are available.



"The powRgrip® System provides excellent runout, high vibration dampening as well as easy and secure handling."

Imprint

Get in touch

We love to talk to you and share our toolholding expertise to maximize your productivity.



REGO-FIX AG is ISO certified:
ISO 9001 for quality management / since 1996
ISO 14001 for environmental management / since 2007
ISO 45001 for occupational health and safety / since 2019

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