Constant Grip Force™ (CGF) Chuck

Precision Workholding for High-Speed Aerospace & Medical Device Machining

THE CHALLENGE

At high spindle speeds, centrifugal force pulls a conventional chuck's jaws outward, bleeding away clamping force exactly when control matters most. Engineers compensate by over-clamping at standstill — risking deformation of thin-walled, delicate components, and often adding a grinding step afterward to correct the distortion.

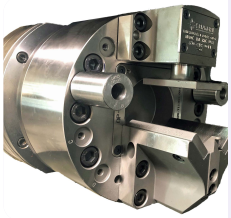
THE CGF SOLUTION

The CGF chuck is engineered to hold its clamping force through the RPM range, so a part only needs to be gripped as hard as it takes to hold it — not as hard as it takes to survive full speed. The result is less deformation, fewer corrective steps, and a repeatable datum from operation to operation.

0 in Z
NO PART MVMT IN Z-AXIS
Provides uniform load distribution

90%
GRIP FORCE RETAINED AT SPEED
Tested to 4,500 RPM

<0.005mm
REPEATABILITY & TIR
As tight as 0.003mm demonstrated



Why It Matters

- **Reduces part deformation** on delicate, thin-walled, hard-to-hold components by removing the need to over-clamp for high-RPM safety margin.
- **Eliminates the grinding step** often needed to correct distortion after machining — shortening the overall process and providing superior surface finish.
- **Holds a consistent datum** across clamping cycles, cutting the need for manual centering between operations. Repeatable to <.005mm.
- **Fits directly into first- and second-operation (OP10/OP20) machining**, where datum integrity from one operation to the next determines final part quality.
- **Delivers sub-micron surface finish** (<0.8 µm*) — often eliminating a separate finishing pass entirely.

Proven in Production

CURRENT DEPLOYMENT

50+ units in active use for **OP10 and OP20** at a major aerospace manufacturer, with an **OP30/OP40** configuration in development.

In controlled dial-indicator testing, the CGF chuck demonstrated 3-micron (0.003mm) repeatability after unclamping and re-clamping a workpiece — inside its 5-micron (0.005mm) specification.

NEXT STEP

Let's talk about whether CGF is the right fit for your application with a delicate part and a high-RPM requirement.

* Finish capability requires correct insert and tooling selection for the application.

Kenyeri Engineering & Manufacturing, LLC

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Where CGF Fits Today

Two applications where constant grip force solves a real production problem — one already proven, one a strong technical fit worth exploring.

PROVEN · IN PRODUCTION TODAY

Aerospace: Turbine & Compressor Airfoils

In active production at a major aerospace manufacturer across OP10 and OP20. CGF eliminated the corrective grinding step on high-value superalloy vane and blade components by holding constant clamping force through the full RPM range.

TARGET APPLICATION · ILLUSTRATIVE

Medical Device: Orthopedic Implants

Not yet a Kenyeri application — shown to illustrate the fit. Implant geometries like a hip stem share the same profile CGF is built for: expensive material, a distortion-sensitive shape, and a premium on surface finish. *Workholding itself carries no ISO 13485 requirement — only the part manufacturer does.*

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