



CENTRO | P premium CLAMPING SYSTEMS FROM FAHRION



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СХГ

CENTRO|P Tangible Benefits of the System



CENTRO|P is a high-precision system of collets, clamping nuts and chucks far superior to conventional collet chucks in all respects. The technological performance of CENTRO|P can be compared with systems such as hydraulic expansion technology, shrink-fit technology or the power chuck. CENTRO|P offers the full range of these technologies all in one system.

Precision clamping system consisting of:

- Precision Chuck CENTRO | P
- GERC-HP Precision Collet
- HPC Clamping Nut

Clamping is applied mechanically via a cone fit, which means:

- A high concentricity of < 3 μm due to special tuning of the cone tolerances
- System-based damping through the slots of the collet
- A constant clamping force, regardless of the tolerance position from bore to shaft, as the cone balances axially
- A maintenance-free solution, as neither media nor temperature are used for generating clamping force
- A long-lasting system, as neither leaks nor material changes take place



System-based damping









4 CENTRO | P premium [07/20]

CENTRO | P Proven Technology for your Benefit

The patented precision clamping system CENTRO | P offers a variety of advantages and, thanks to its highly reliable precision and quality, makes a considerable contribution to more efficient processing while also reducing production costs.

The most important design features are:

- The collet sits completely inside the cone
- A precisely ground double guide for the clamping nut
- A stable trapezoidal thread for transferring of the clamping force
- A chuck body with continuous maximum diameter



Approximate competitor's solution



Standard ER collet chuck





CENTRO | P with the same chuck body diameter throughout



Standard collet chuck



CENTRO | P A Good Tool that Saves You Money

Effect of runout on the cutting edges

Cutting edge 1 Large chip volume

Influence of collet accuracy on the life of carbide cutting tools

Tool life %



The problem

The higher the concentricity error, the greater the irregular load on the cutting edge. The consequences are increased tool wear and poorer surface finishes. For a good result, the feed must now be reduced.

Cost example for a carbide drill Ø 12 mm with collet DIN ISO 15488 - form B, type 470 E

Example 1: system concentricity ≤ 10 µm		Example 2: system concentricity ≤ 25 µm		
Cost of a carbide drill Cost FAHRION GERC32-B collet	approx. 105.00 €	Cost of a carbide drill Cost CER32-K2 collet DIN class 2	approx. 105.00 €	
with concentricity 5 µm	approx. 21.30 €	with concentricity 20 µm	approx. 12.60 €	
Cost on basis of tool life of approx. 150 % approx 126.30 €		Cost on basis of tool life of approx. 55 %approx 117.60 \in Cost for similar tool life of appprox. 150 %approx 299.00 \in More than two carbide drills necessary!		

Result: Cheap collets almost triple the cost!



CENTRO | P premium Consistently One Step Ahead



FAHRION Protect

Welcome to the world of high-precision machining with customer benefits, where we are always looking to improve.

As part of our CENTRO | P premium program, we offer you customised clamping systems, each with its own individual strengths and for a variety of applications.

Take advantage of other benefits, such as our FAHRION | Protect coating, tried and tested a million times, which is now also used on chucks and on clamping nuts. Pioneering technology that protects your complete tool clamping system and keeps it accurate and efficient for a long time.



CENTRO|P premium Overview





CENTRO | P premium



	MPC Mini Precision Page 10	DPC Dynamic Performance Page 14	UPC Ultra Power Page 18
Dimensions			
Sizes	ER 8 - ER 16	ER 16 - ER 40	ER 32- ER 40
Clamping ranges	1 - 10 mm	1 - 26 mm	2 - 26 mm
ø Clamping Nuts	10 - 24 mm	30 - 63 mm	53 - 63 mm
Lengths	35- 200 mm	50 - 200 mm	65 - 100 mm
Concentricity at 3xD			
with HP / HPD / HPDD	0.003 mm	0.003 mm	0.003 mm
with B / BD	0.006 mm	0.006 mm	0.006 mm
with W	-	0.004 mm	0.004 mm
with GBD / GBDD	0.008 mm	0.008 mm	0.008 mm
Recommended applications			
Drilling	•••	•••	•
Finishing	•••	•••	
Roughing		•	•••
HSC milling		••	
HPC milling	•	••	•••
Trochoidal milling		••	•••
Reaming			
Threads	•	••	
Lathe			











FPC Full Performance Page 22	AFC Adjustable Finishing Page 26	MPC / DPC Tool Extensions Page 28	DPC / FPC Holders NC for Lathes Page 30
ER 32 - ER 40	ER 25 - ER 40	ER 8 - ER 20	ER 25 - ER 40
2 - 26 mm	10 - 25 mm	1 - 13 mm	1 - 26 mm
so - 63 mm	40 - 63 mm	10 - 32 mm	40 - 63 mm
60 - 200 mm	ab 100 mm	80 - 350 mm	54 - 68 mm
0.003 mm	0.001 mm	0.003 mm	0.010 mm
0.006 mm	-	0.006 mm	0.015 mm
0.004 mm	-	-	0.010 mm
0.008 mm	-	0.008 mm	0.016 mm
•		•••	
	••	•••	
•••			
•••			
•••			
	•••		
			•••



For High-Speed Spindles, Tight Spaces and Deep Immersion



The **MPC Mini Precision Chucks** excel in deep cavities on high speed machines with smaller tapers. They provide excellent stability and flexibility in medical and mold making applications. But even in tool and mould making or in the production of valves or manifolds, stable tool clamping at higher immersion depths is increasingly required - classic applications for the MPC system.



Features

The MPC Mini Precision chucks are very slim precision chucks with optimal interference contour and therefore, ideal for HSC processing.



Cylindrical shafts can be reliably clamped from a shaft diameter of just 1 mm. The outer diameter starts at 10 mm.



Alternatively, MPC chucks are also available in a slightly tapered yet slim design for more stability and deep immersion in components with draft angles in tool and mould making, for example.





Variants

Coolant supply variants through the matching collet

One system, several variants. The choice of collet determines the type of coolant supply. For you this means:

- Better surface quality
- Longer tool life
- Easy chip removal
- Cooling and lubricating of the tool cutting edge



Without coolant supply GERC-HP GERC-B



Optimise your process and inquire about our collets with customised jet holes. Starting at 0.2 mm outlet diameter, jet holes can be designed for specific applications, e.g. for cryogen or aerosol cooling.

Variants with different clamping nuts for every application



Mini Clamping Nut MPC for

- Small outer diameter
- High speeds
- System accuracy up to 3 μ m



Coolant through the centre

GERC-HPD

GERC-BD

GERC-GBD

Mini Clamping Nut HSS forCollet collapse up to 0.4 mm

Mini Clamping Nut HSS tapered for

• Collet collapse up to 0.4 mm





- More stability
- High speeds
- System accuracy up to 3 μm





Peripheral cooling GERC-HPDD GERC-GBDD



More stability

Overview





DPC, DYNAMIC PERFORMANCE CHUCK For Highly Dynamic Processes



The **DPC Dynamic Performance Chucks** are real universal all-rounders for demanding tasks, especially in HDC milling, but also for trimming, finishing and roughing. DPC holders are the first choice for high removal rates on

dynamic machines with modern milling strategies, such as components for the tool and mold-making industry, automotive, machine, plant construction, high-end part suppliers, and contract manufacturers.



DPC, DYNAMIC PERFORMANCE CHUCK

Features

DPC chucks optimally combine high stability with excellent concentricity and best dynamics, preferably for drilling and milling.



The outer contour

DPC chucks have a stable, cylindrical outer contour with a maximum diameter (diameter of the clamping nut). In addition, there are also tapered versions for even more rigidity and less vibration



The inner contour

Flexibility of projection is ensured by a large through diameter.







DPC, DYNAMIC PERFORMANCE CHUCK

Variants

Coolant supply variants through the matching collet One system, several variants. The choice of collet determines the type of coolant supply. For you this means:

- Better surface quality
- Longer tool life
- Easy chip removal
- Cooling and lubricating of the tool cutting edge



Without coolant supply GERC-HP GERC-B



Optimise your process and inquire about our collets with customised jet holes. Starting at 0.2 mm outlet diameter, jet holes can be designed for specific applications, e.g. for cryogen or aerosol cooling.



Coolant through the centre GERC-HPD GERC-BD GERC-GBD



Peripheral cooling GERC-HPDD GERC-GBDD

Variants with different clamping nuts for every application



The Clamping Nut DPC

- Has a low friction coating
- Does not require grooves for the clamping wrench
- Has a stable trapezoidal thread and the FAHRION double guide for high clamping forces, optimum concentricity and minimal residual imbalance



Clamping Nut HSS for

Collet collapse up to 0.4 mm



DPC, DYNAMIC PERFORMANCE CHUCK

Overview





UPC, ULTRA POWER CHUCK For Maximum Material Removal Rates



The **UPC Ultra Power Chucks** are extremely stiff precision chucks for the most demanding tasks with predominantly radial load. This is a reinforced version with a multi-part clamping nut for optimised damping and maximum stability. The wall thickness of the chuck body was increased to resolve more radial force and suppress vibration.



UPC, ULTRA POWER CHUCK

Features

- Optimal clamping force to eliminate collet twist
- Stable construction to reduce vibration build up
- Maximum dampening for vibration suppression
- Positive locking on the weldon surface to prevent micro creep
- New reinforced clamping nut with fine trapezoidal thread for improved locking
- The UPC reinforced chuck body for high radial loads is offered in a short version only. If longer reach is required use the FPC chuck



The problem



Conventional power chuck high radial transmittable torque unstable / weakened - only limited radial load capacity

The solution



FAHRION UPC stable basic body for increased radial load and additional safety due to mechanical pull-out protection



FAHRION UPC stable basic body for increased radial load with GERC-HP collets





UPC, ULTRA POWER CHUCK

Ultra Power thanks to Angular Contact Ball Bearings and a Fine Thread

- New design of the clamping nut with an angular contact ball bearing and a compensating ring
- Special design with new trapezoidal fine thread and reinforced outer geometry for even better tightening of the clamping nut
- The ring allows clamping of the collet without radial forces. When tightening, the pressure on the collet is exerted only in the axial direction from top to bottom



- The tightening torques are identical to those of the PREMIUM DPC series
- As a result, the UPC clamping nut achieves a resultant clamping force of between 350 Nm and 380 Nm, more than sufficient, e.g. to secure a wedge collet with pull-out protection against twisting.



Conventional deep groove ball bearings: Force flow during clamping (red) or release (blue) is transmitted exclusively via balls and bearing shells

Coolant supply variants through the matching collet One system, several variants. The choice of collet determines the type of coolant supply. For you this means:



Angular contact ball bearings at UPC: Power flow during clamping (red) is transmitted via the balls, when releasing (blue) via the circlip

- Better surface quality
- Longer tool life
- Easy chip removal
- Cooling and lubricating of the tool cutting edge



Without coolant supply GERC-HP GERC-B



Process optimisation Optimise your process and inquire about our collets with customised jet holes. Starting at 0.2 mm outlet diameter, jet holes can be designed for specific applications, e.g. for cryogen or aerosol cooling.



Coolant through the centre GERC-HPD GERC-BD GERC-GBD



Peripheral cooling GERC-HPDD GERC-GBDD



UPC, ULTRA POWER CHUCK

Overview





FPC, FULL PERFORMANCE CHUCKS Higher Damping and More Holding Power



The **FPC Full Performance Chucks** are always the first choice, if the UPC cannot be used due to danger of collision.

The FPC chucks offer more holding power than the DPC and are leaner than the UPC.



FPC, FULL PERFORMANCE CHUCKS Features

FPC holders have a multi-part clamping nut for good damping properties and due to their length are particularly suitable for axial loads on stable machines with modern milling strategies, for components in the aerospace, medical, mould&die, high-end part, and contract manufacturing industries.

FPC chucks extend the range of application of the CENTRO | P chuck to heavy chipping with high axial forces. Different lengths ensure best access to the work piece, even over devices and other interference contours.

The inner contour

Flexibility of projection is ensured by a large through diameter.







FPC, FULL PERFORMANCE CHUCKS Full Performance thanks to Angular Contact Ball Bearings

- New design of the clamping nut with an angular contact ball bearing and a compensating ring
- Proven trapezoidal thread with CENTRO | P typical double guide
- The ring allows clamping of the collet without radial forces. When tightening, the pressure on the collet is exerted only in the axial direction from top to bottom
- The multi-part nut increases the vibration damping.
- The tightening torques are identical to those of the PREMIUM DPC series
- As a result, the FPC clamping nut achieves a resulting clamping force between 350 Nm and 380 Nm, which is higher than with hydraulic chucks



Conventional deep groove ball bearings: Force flow during clamping (red) or release (blue) is transmitted exclusively via balls and bearing shells

Coolant supply variants through the matching collet One system, several variants. The choice of collet determines the type of coolant supply. For you this means:



Angular contact ball bearings at FPC: Power flow during clamping (red) is transmitted via the balls, when releasing (blue) via the circlip

- Better surface quality
- Longer tool life
- Easy chip removal
- Cooling and lubricating of the tool cutting edge



Without coolant supply GERC-HP GERC-B



Process optimisation Optimise your process and inquire about our collets with customised jet holes. Starting at 0.2 mm outlet diameter, jet holes can be designed for specific applications, e.g. for cryogen or aerosol cooling.



Coolant through the centre GERC-HPD GERC-BD GERC-GBD



Peripheral cooling GERC-HPDD GERC-GBDD



FPC, FULL PERFORMANCE CHUCKS

Overview





AFC, ADJUSTABLE FINISHING CHUCKS Adjustable with Long Overhang



In order to achieve optimal machining results, e.g. during reaming, or also for other ultrafine machining, a perfect concentricity of the tool is essential. Adjustable chucks are used to eliminate concentricity errors of tool holder and machine spindle. For the first time, the **AFC Adjustable Finishing Chucks** combine all the advantages of the CENTRO|P clamping system with the possibility of precisely adjusting the concentricity over four adjusting screws around the circumference of the chuck.



AFC, ADJUSTABLE FINISHING CHUCKS Features

To ensure optimum concentricity, the AFC chuck must be adjusted in the machine spindle.

This is the only way to completely eliminate any concentricity deviations of the chuck, machine spindle, and or interface.



Coolant supply variants through the matching collet One system, several variants. The choice of collet determines the type of coolant supply. For you this means:



- Better surface quality
- Longer tool life
- Easy chip removal
- Cooling and lubricating of the tool cutting edge



Without coolant supply GERC-HP GERC-B



Optimise your process and inquire about our collets with customised jet holes. Starting at 0.2 mm outlet diameter, jet holes can be designed for specific applications, e.g. for cryogen or aerosol cooling.



Coolant through the centre GERC-HPD GERC-BD GERC-GBD



Peripheral cooling GERC-HPDD GERC-GBDD



MPC / DPC, CYLINDRICAL TOOL EXTENSIONS Slim, Long, and Accurate - the Perfect Complement to the System



MPC / DPC Cylindrical Tool Extensions are particularly suitable for precision machining in hard-to-reach places and set standards in the areas of concentricity, set-up time and flexibility.

Instead of expensive special tools, a single change in length is often sufficient, which can be clamped more or less deeply into a CENTRO | P chuck as required.



MPC / DPC, CYLINDRICAL TOOL EXTENSIONS Features

Cylindrical extensions are ideal for flexible lengths with existing holders.

This can easily save time and costs for complex special geometries.



Basically, the longer the projection the more important the damping becomes with tool holders.

Additional interfaces (extension in the basic chuck via high-precision collet chuck) mean additional damping.

However, additional interfaces also mean poorer concentricity. When using the AFC holders as a basis, the concentricity can be set and thus optimised.





DPC / FPC, PERFORMANCE HOLDERS NC FOR LATHES Versatile and Highly Precise



Versatile **DPC / FPC Performance Holders** for drilling, threading and reaming on NC lathes. The high-precision CENTRO | P chuck is clearly superior to conventional ER chucks.

The flange as a stop allows for a quick pre-setting of the cutting tool also outside the machine. The shaft can be inserted directly into the drill holder of the tool turret. This also protects the surface on the shaft.



DPC / FPC, PERFORMANCE HOLDERS NC FOR LATHES Versatile and Highly Precise

Coolant through the centre

GERC-HPD

GERC-GBD

GERC-BD

Coolant supply variants through the matching collet

One system, several variants. The choice of collet determines the type of coolant supply. For you this means:

- Better surface quality
- Longer tool life
- Easy chip removal
- · Cooling and lubricating of the tool cutting edge

Peripheral cooling

GERC-HPDD

GERC-GBDD



Without coolant supply **GERC-HP** GERC-B

NEW Process optimisation

Optimise your process and inquire about our collets with customised jet holes. Starting at 0.2 mm outlet diameter, jet holes can be designed for specific applications, e.g. for cryogen or aerosol cooling.

Variants with different clamping nuts for every application



The Clamping Nut DPC

- Has a low friction coating
- Does not require grooves for the clamping wrench
- Has a stable trapezoidal thread and the FAHRION typical double guide for high clamping forces, optimum concentricity and minimal residual imbalance



The Clamping Nut FPC

• With angular ball bearing and compression ring possesses all the characteristics of the DPC clamping nut while also increasing the vibration damping and holding force.



Clamping Nut HSS for

• Collet collapse up to 0.4 mm







DPC / FPC, PERFORMANCE HOLDERS NC FOR LATHES Overview









TAILOR MADE FAHRION Chuck Configurator

Use our special chuck configurator to significantly extend the service life of your cutting tools. Determine the optimal length and shape of your chuck. Sketch your idea and send it to us. Tapered chucks, where space allows, tend to be more stable and stiffer than cylindrical chucks (example 1). Chucks that are tapered in the rear and cylindrical in the front (example 2) or cylindrical chucks in the optimal length – as short as possible or as long as necessary.



Example 1:



MPC16T-AD40-A=125 (tapered 6°)

Example 2:



DPC25-HSK-A63-A=140 (stepped - tapered 6,5°)



Please specify the following parameters and send them to us. You will receive a non-binding offer immediately: Mail: individual@fahrion.de

Form for your individual CHUCK				
Spindle-Side Interface (see pages 170 / 171 in the Technical Section)				
Drilling for RFID chip	🗌 Yes	🗌 No		
Coolant Supply	AD central	□ B through the flange		
Shape	Cylindrical	□ tapered	stepped	
Dimension A (up to A = 300 mm)				
Clamping Nuts	D	Туре	Collet	Clamping range
	□ 10	MPC8	GERC8	1-5 mm
	☐ 16	MPC11	GERC11	1-7 mm
	22	MPC16	GERC16	1-10 mm
	24	MPC16T	GERC16	1-10 mm
	30	DPC16	GERC16	1-10 mm
	32	DPC20	GERC20	1-13 mm
	40	DPC25	GERC25	1-16 mm
	50	DPC32	GERC32	2-20 mm
	53	UPC32	GERC32	2-20 mm
	63	UPC40	GERC40	3-26 mm
	50	FPC32	GERC32	2-20 mm
	63	FPC40	GERC40	3-26 mm

Please select your desired version.

Minimum order quantity 5 pcs. under- or over-supply of up to 10% (but not less than 1 piece).



ONLINE SERVICE

Download the sketch template and the configuration form directly from our website at:

fahrion.de/downloads-en.html

