



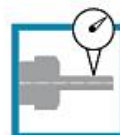
Sistema ER



REGO-FIX®



The Original – from the inventor of the ER System – only genuine with the $\triangle$ seal



Best T.I.R. on the ER market with $\leq 5 \mu\text{m}$ accuracy of the collet over its entire clamping range



Clamps all type of toolshanks and materials



The broadest ER System program in the world



High vibration dampening results in longer tool life and best surface finish



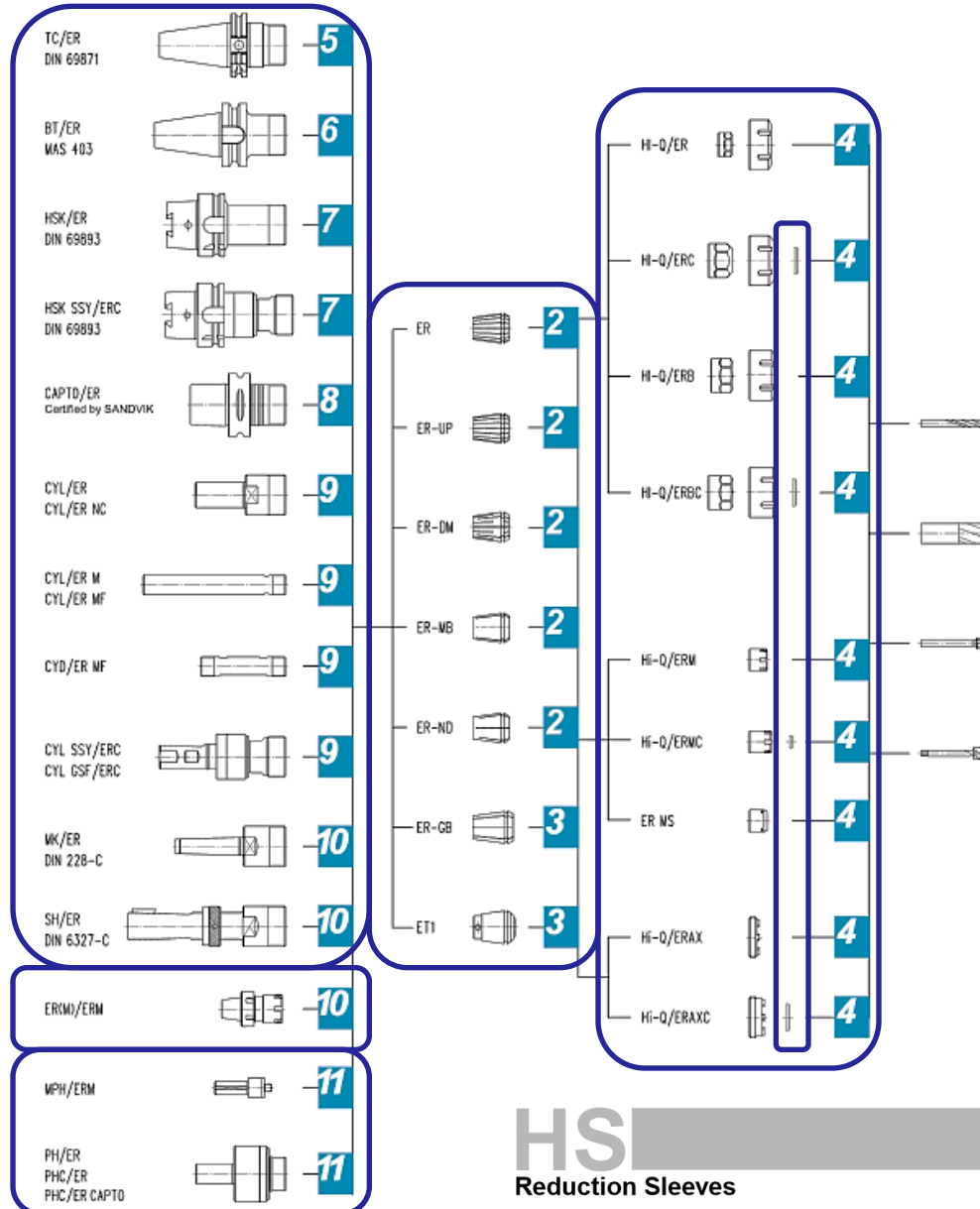
Wide clamping range for all diameters from 0.2-36 mm



Flexibility for use with all tool types



REGO-FIX®



HS
Reduction Sleeves

REGO
FIX
APP



REGO-FIX®



Swiss Quality

Made in Switzerland to ISO 9001/ISO 14001.

1 Marking

Type and size (reduced collet selection errors).

2 Traceability

Lot number marking on all products for traceability through the entire manufacturing process.

3 Original REGO-FIX®

REGO-FIX® is the inventor of the worldwide standardized ER collet system. Our extensive experience results in a well-engineered system. When buying ER collets please note the REGO-FIX® quality seal  on the front of the collet.

Wide Clamping Range

The 16-slot design allows a wide clamping range with a continued best T.I.R. (Total Indicated Runout)

Broad Range of Products

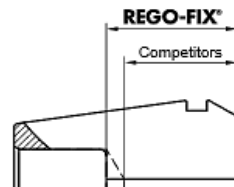
Sizes from ER 8 up to ER 50 for diameters from 0.2 mm up to 36 mm.

Worldwide Availability

With the global REGO-FIX® distribution network.

Up to 20% more Clamping Length

For small diameters, up to 20% more clamping length than the competition, which results in better run-out.



When buying ER collets please note the REGO-FIX® quality seal  on the front of the collet!

Matched Tooling System

All REGO-FIX® components such as collets, toolholders, clamping nuts and spanners are from one source. The compatibility of the whole system results in the maximum precision, balance and tool life.





REGO-FIX®

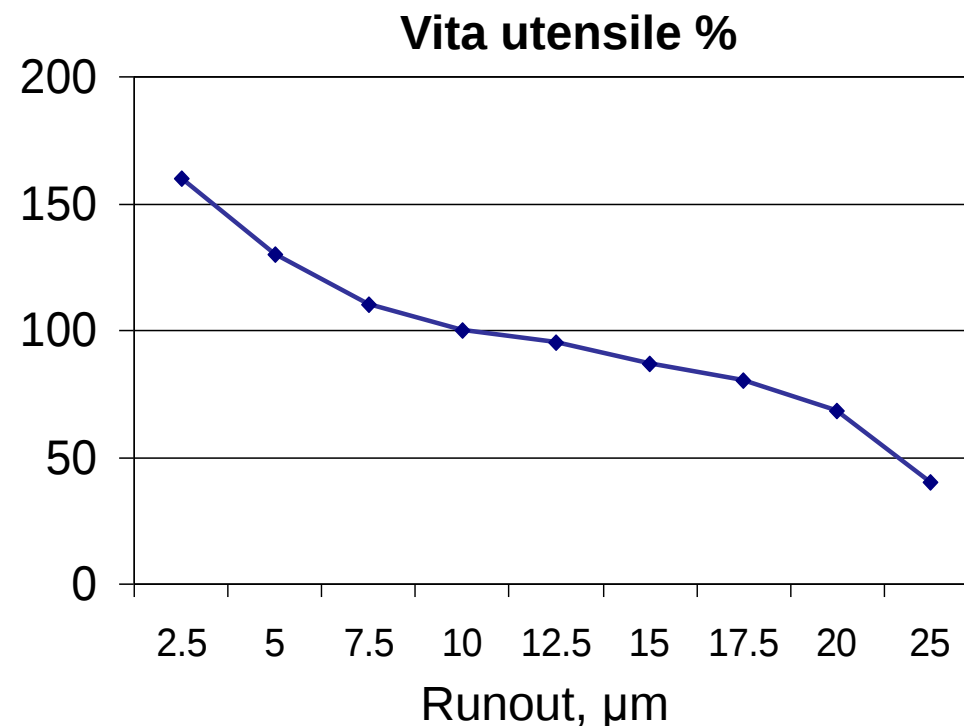


Importante per la produzione

Eccellente precisione di run-out

- Previene le vibrazioni
- Incrementa la qualità della lavorazione
- Migliora la produttività
- Estende la vita utensile riducendo i costi di produzione

Il sistema ER REGO-FIX® è sviluppato per avere il miglior run-out del mercato



Test di taglio presso Stuttgart University, Germany, 1993





REGO-FIX®



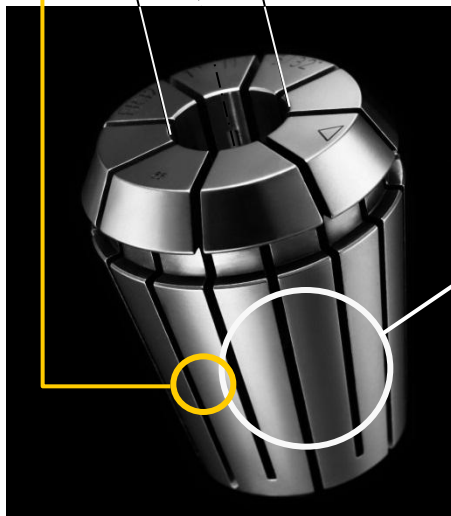
Ghiera Hi-Q



▲ Filettatura di precisione per serraggio equilibrato

Pinza

▲ T.I.R. superiore alle richieste norma DIN (vedi pagina successiva)



△ Eccellente finitura scanalature





REGO-FIX®



Collets Type ER and ER-UP

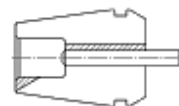
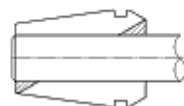
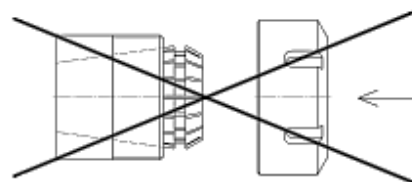
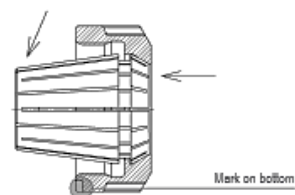
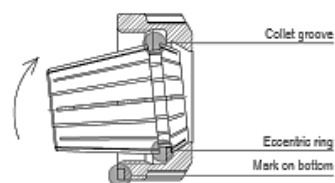
Assembling Instructions

Insert groove of collet into eccentric ring of the clamping nut at the mark on the bottom of the nut. Push collet in the direction of the arrow until it clicks in place. Screw nut with collet onto toolholder. We recommend to tighten the nut with a torque wrench.

For recommended tightening torque please refer to list on page 13.3/13.4.

Disassembly Instructions

After the nut is unscrewed from the toolholder, press on the face of the collet while simultaneously pushing sideways on the back of the collet opposite the mark until it disengages from the clamping nut.



Improper assembly can permanently damage the concentricity of the collet and may result in the destruction of the clamping nut.

Only mount clamping nuts with correctly assembled collets!

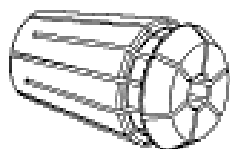
Never clamp oversized tool shanks!

E.g. never use a Ø 12–11 mm collet to clamp a Ø 12.2 mm shank. Rather use the next bigger collet (here Ø 12.5–11.5 mm or 13–12 mm collet).

Insert tool to the full length of the collet for best results if possible. However never insert the tool less than $\frac{2}{3}$ of the collet bore length. Improper tool insertion can permanently deform the collet and will result in poor runout.



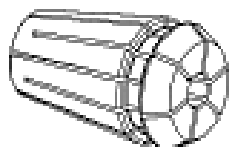
REGO-FIX®



ER Standard Collets

REGO-FIX® collets made to DIN 6499 Form B are used for drilling, milling, reaming, tapping and also for grinding.

- T.I.R. $\leq 10 \mu\text{m}$ over the entire clamping range
- Clamping range from diameter 0.2 mm up to 36 mm
- Clamping range to DIN 6499/ISO 15488 Form B
- Combining the smallest design with the highest precision



ER-UP Ultra Precision Collets

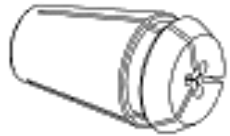
REGO-FIX® high precision collets combine the advantages of DIN 6499/ISO 15488 A + B.

These collets are primarily used for high-speed cutting applications, where best T.I.R. is required. Best T.I.R. improves tool life.

- T.I.R. $\leq 5 \mu\text{m}$ over the entire clamping range
- Clamping range from diameter 0.2 mm up to 36 mm
- Clamping range equal to the standard collets



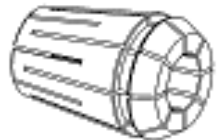
REGO-FIX®



ER-MB Microbore Collets

Microbore Collets have been developed by REGO-FIX® especially for smallest tool shank diameters.

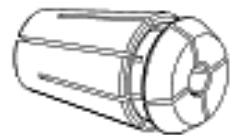
- T.I.R. $\leq 6 \mu\text{m}$
- Clamping range from diameter 0.2 mm up to 0.9 mm
- For tool shanks with nominal diameter h7 tolerance only



ER-DM Metallic Sealed Collets (pat. pend.)

REGO-FIX® metallic sealed collets made to DIN 6499/ ISO 15488 are used for drilling, milling, reaming, tapping and also for grinding.

- T.I.R. $\leq 6 \mu\text{m}$ over the entire clamping range
- Clamping range from diameter 2.75 mm up to 26 mm
- Metallic sealed up to 300 bar coolant pressure
- Clamping range smaller to the standard collets



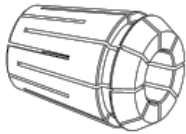
ER-ND High Precision Collets

Collets for high speed machining were developed from REGO-FIX® especially for the high precision toolholders for micromachining.

- T.I.R. $\leq 3 \mu\text{m}$
- Clamping range from diameter 3 mm up to 6 mm
- For tool shanks with nominal diameter h9 tolerance only



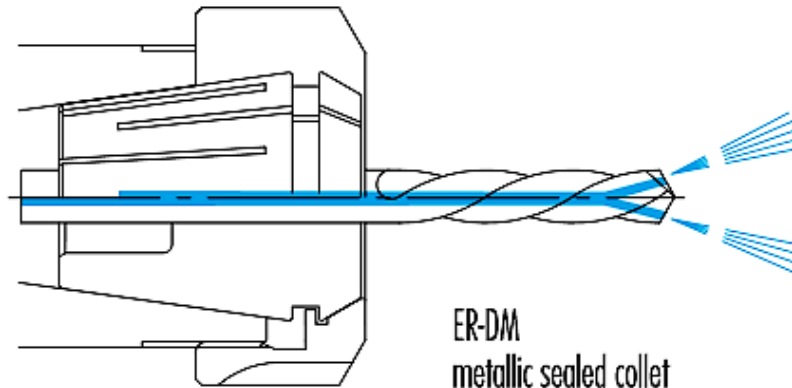
REGO-FIX®



ER-DM Metallic Sealed Collets (pat. pend.)

REGO-FIX® metallic sealed collets made to DIN 6499/ISO 15488 are used for drilling, milling, reaming, tapping and also for grinding.

- T.I.R. $\leq 6 \mu\text{m}$ over the entire clamping range
- Clamping range from diameter 2.75 mm up to 26 mm
- Metallic sealed up to 300 bar coolant pressure
- Clamping range smaller to the standard collets



The tool must be inserted at least concisely or more deeply into the collet. A minimum clamping length of 2/3 as for standard collets is not possible, otherwise the sealing function will not work.



REGO-FIX®



ER-GB Tapping Collets without Axial Compensation

These rigid tapping collets are compatible with taps per DIN, ISO, JIS and ANSI standards.

The REGO-FIX® ER-GB tapping collets are manufactured with an internal square. They are intended for use on CNC machines that have synchronized machine spindle speed and feed rate. Machines that have such «rigid» tapping capabilities require only minimal compensation.

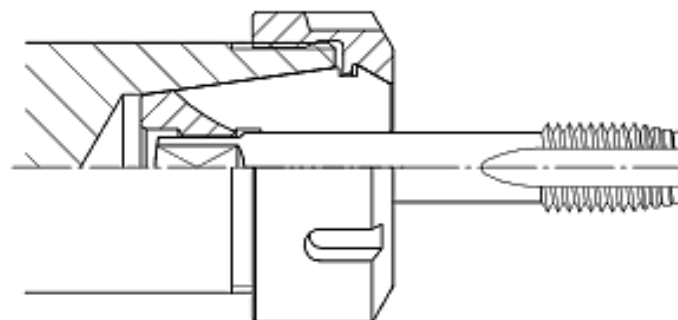
We recommend the use of our SSY Softsynchro® tapping holders. They compensate minimal synchronizing differences of CNC machines.

See chapter 7 (HSK Softsynchro® tapping toolholders), page 7.16 and chapter 9 (cylindrical Softsynchro® tapping toolholders), page 9.14.

For machines without tapping option we recommend the use of our axial compensating GSF tapping holders.

See chapter 9 (cylindrical tapping toolholders), page 9.16.

For additional technical information and dimensions of taps on ER-GB see page 13.5 and 13.13.





REGO-FIX®



ET1 Tapping Collets with Axial Compensation

PCM ET1 tapping collets with axial compensation offer a smart and cost-effective tool holding option for machines which need axial compensation for tapping.

Directions for Use

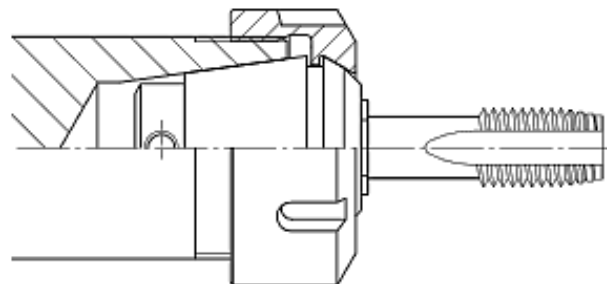
The following tapping process is recommended for tapping collets PCM ET1:

Fast approach, then tapping feed with approximately 95% of the pitch value, which uses 20-30% of the compensation stroke when the spindle rotation and the feed movement are simultaneously reversed.

Return feed must be made with 100% of the pitch, which maintains the sleeve of the tapping collet in the compensation stroke up to the tap disengagement; quick return can then be programmed with usual stroke security. The relatively long axial compensation assists easy programming.

When tapping with very high speed, an appropriate programming compensation may be necessary to balance the differences of inertia between the spindle and the feed movement on reverse. In order to not disturb the axial compensation, use external coolant supply only!

Table with current dimensions of taps on page 13.13.
Additional technical information on page 13.6.

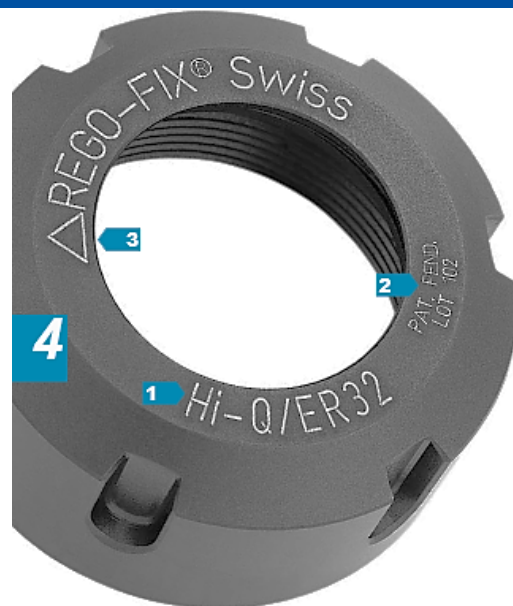


Not for coolant through tools and not for applications with sealing disks.





REGO-FIX®



Swiss Quality

Made in Switzerland to ISO9001/ISO14001.

1 Marking

With type and size (reduced selection error).

2 Product Traceability

Lot number marked on collets, therefore traceable through entire manufacturing process.

3 Original REGO-FIX®

Our extensive experience results in a well-engineered system. When buying ER clamping nuts please note the REGO-FIX® quality seal Δ on the front of the clamping nut.

Collet Locking-System (pat. pend.)

Retains collet in nut for easier assembly.

Q+® Balancing

Ideal for high-speed applications.

Higher Transferable Torque

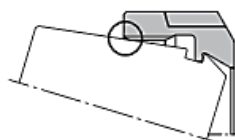
Lower frictional forces resulting in up to 80% higher gripping force over standard non-treated clamping nuts.

Protection Against Corrosion

With a special treatment of the surface for longer life.

Optimal contour

Rounded thread start prevents damaging of collets on tool changes.



Great Selection of Specific Products for Virtually any Application

- with friction bearing for higher clamping force
- with sealing disk for coolant through tools
- Mini nut with minimal external diameter
- High speed clamping nut (for high rpm)
- Externally threaded clamping nut for floating chucks, ERA Zero-Z® toolholder and live tooling

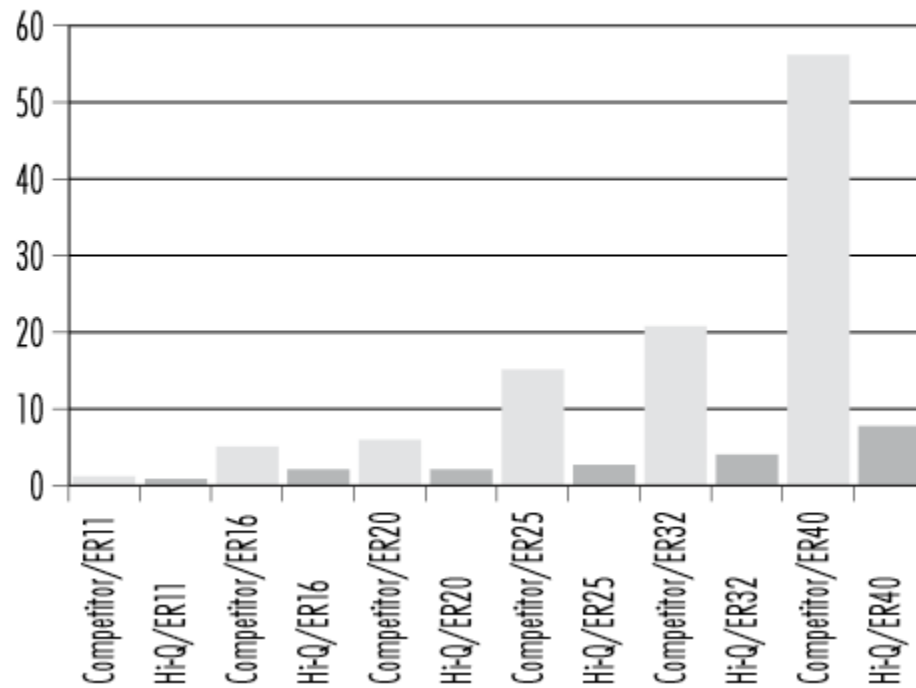




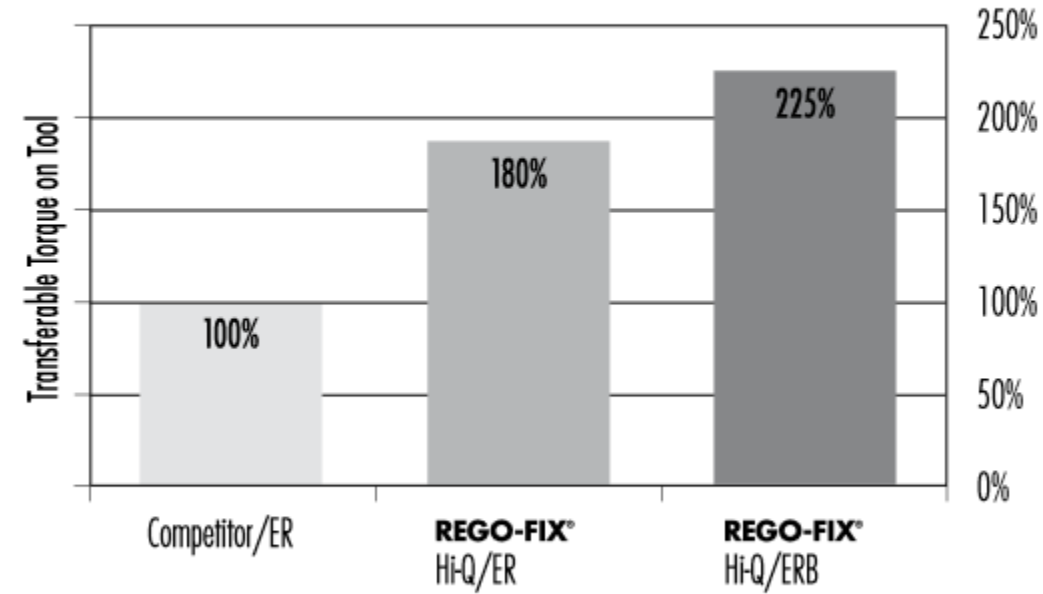
REGO-FIX®



Balancing Quality [gmm]



Torque Comparison of Clamping Nuts

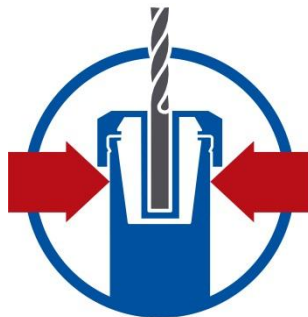




REGO-FIX®



Sistema combinato



per una tenuta superiore



▲ **Ghiera Hi-Q:**
Finitura superficiale
appositamente ingegnerizzata

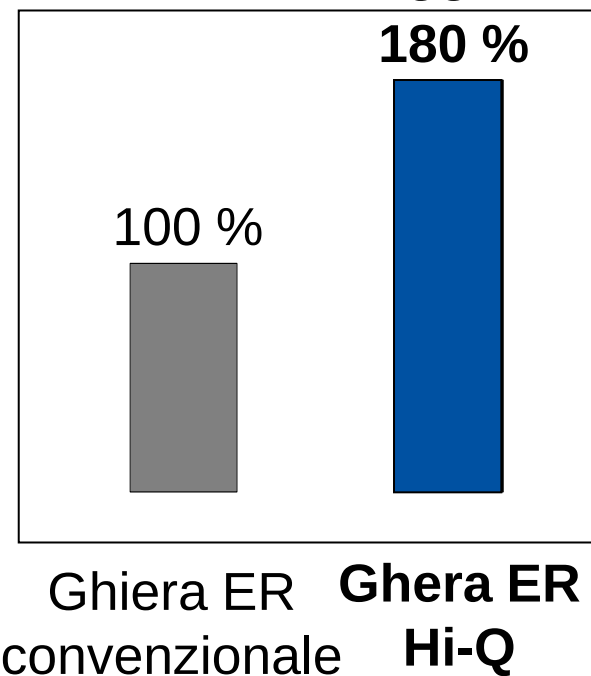


▲ **Collet:**
La superfinitura Ra 0.04
riduce la frizione e
Incrementa l'area di
contatto



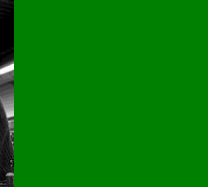
Copy

Forza serraggio

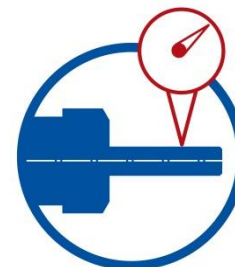




REGO-FIX®

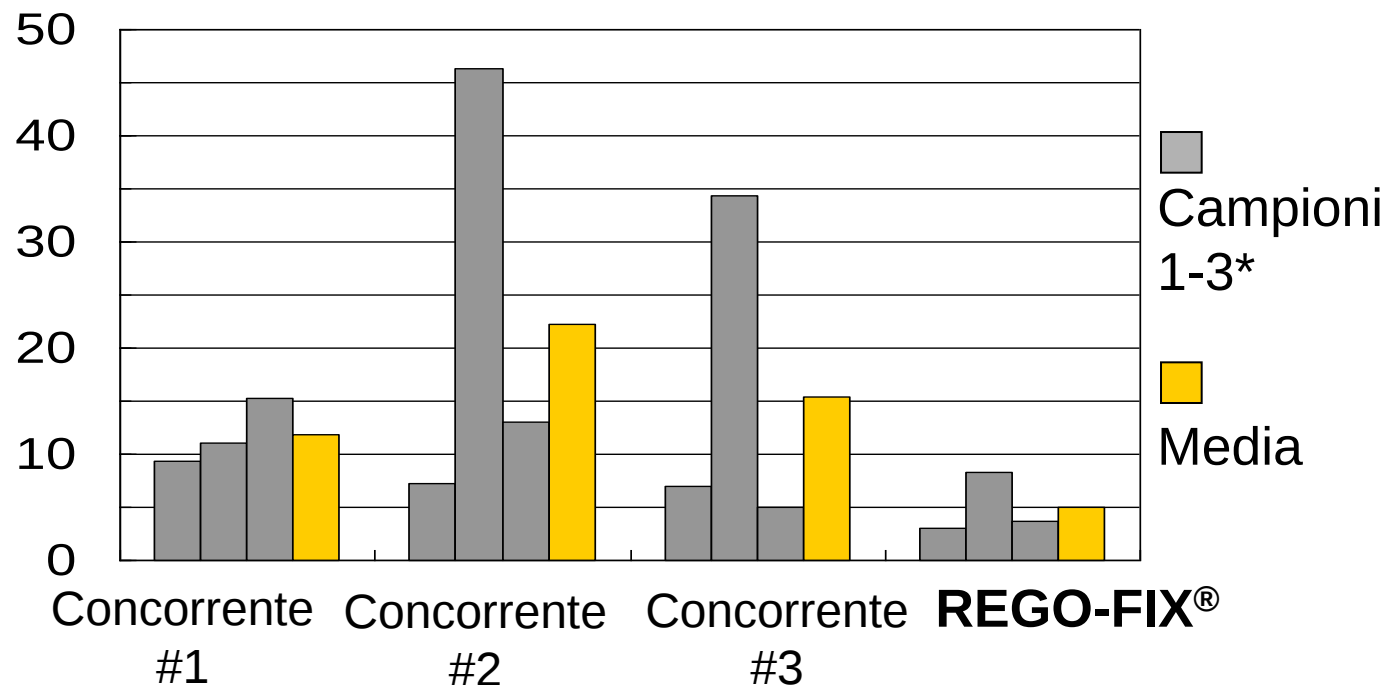


Risultati del sistema combinato:



Total system runout, μm

Test comparativo porta
pize CAT 40 / ER 32
Collet $\frac{3}{4}$ "



* Ogni campione è stato testato 3 volte. Totale 9 test per tipo.

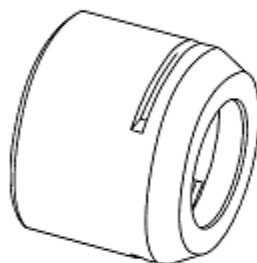




REGO-FIX®



Features | Benefits



Application

The ER MS clamping nut for highest RPM with minimal external diameter does not have the extractor ring and all the contours are ground. This provides best balancing for critical high-speed machining applications. The collet is released with the special E MS spanner. ER MS nuts are also interchangeable with the Hi-Q®/ERM and Hi®-Q/ERMC nuts.

With the ER MS clamping nuts we recommend using ER-UP (ultra-precision) collets to achieve the highest concentricity.

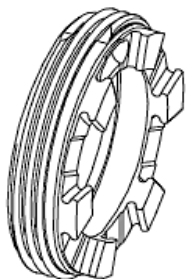
- Precision-machined contours on all sides
- Minimal residual unbalance
- For high rpm up to 80'000 min⁻¹



REGO-FIX®



1 Hi-Q®/ERAX (pat. pend.)

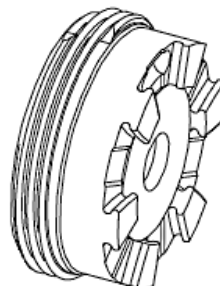


Application

For REGO-FIX® floating chucks and other ER toolholders with internal thread (such as ERA Zero-Z® collets), see page 5.4/6.4).

- Space Saving Design
- S-Profile Spanner is self centering
■ on the nut and prevents slipping off

2 Hi-Q®/ERAXC (pat. pend.)



Application with Sealing Disk / Coolant Flush Disk

The Hi-Q®/ERMC clamping nut is intended for use with the sealing disk system DS/ER and the cool flush system KS/ER. The disk system allows the use of all standard ER collets, ultra precision collets and tapping collets for coolant through tools.

For Peripheral Cooling of Non Coolant Through Tools we recommend the coolant flush disks KS/ER.

See page 4.27/4.28.

- Up to 150 bar (2000 psi) coolant pressure
- Prevents dirt and chips from entering the collet





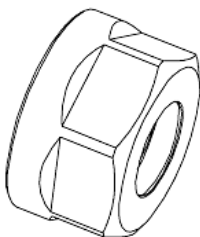
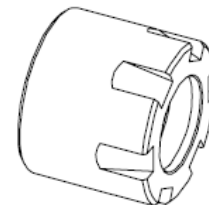
REGO-FIX®



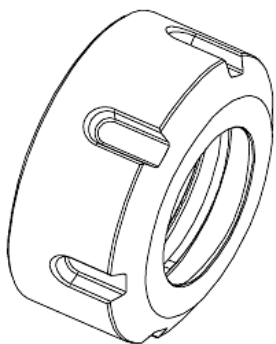
1 Hi-Q®/ER 11–ER 20

Correct values for tighten the nut?

1 Hi-Q®/ERM



2 Hi-Q®/ER 25–ER 50



Clamping Nut Type	Collet Type	Ø [mm]	Recommended Torque [Nm]		TORCO-FIX
			ER	ER-GB	
Hi-Q/ER Hi-Q/ERC	ER 11 MB	0.2–0.9	8	—	0, I
	ER 11	1.0–2.9	8	8	0, I
		3.0–7.0	24	16	0, I
	ER 16 MB	0.2–0.9	8	—	0, I
	ER 16	1.0	8	—	0, I
		1.5–3.5	20	—	0, I
		4.0–4.5	40	40	I, II
		5.0–10.0	56	44	II
	ER 20	1.0	16	—	0, I
		1.5–6.5	32	32	I, II
		7.0–13.0	80	35	I, II
	ER 25	1.0–3.5	24	—	I
		4.0–4.5	56	56	I, II
		5.0–7.5	80	80	II, III
		8.0–17.0	104	104	II, III
	ER 32	2.0–2.5	24	—	0, I
3.0–22.0		136	136	II, III	
ER 40	3.0–26.0	176	176	II, III	
ER 50	6.0–36.0	240	300	III	

Clamping Nut Type	Collet Type	Ø [mm]	Recommended Torque [Nm]		TORCO-FIX
			ER	ER-GB	
Hi-Q/ERM Hi-Q/ERMC	ER 8 MB	0.2–0.9	6	–	0
	ER 8	1.0–5.0	6	–	0
		0.2–0.9	8	–	0, I
	ER 11 MB	1.0–2.9	8	8	0, I
		3.0–7.0	16	13	0, I
	ER 16 MB	0.2–0.9	8	–	0, I
		1.0	8	–	0, I
	ER 16	1.5–3.5	20	–	0, I
		4.0–10.0	24	24	0, I, II
	ER 20	1.0	16	–	0, I
		1.5–13.0	28	28	I, II
	ER 25	1.0–3.5	24	–	0, I, II
		4.0–17.0	32	32	I, II

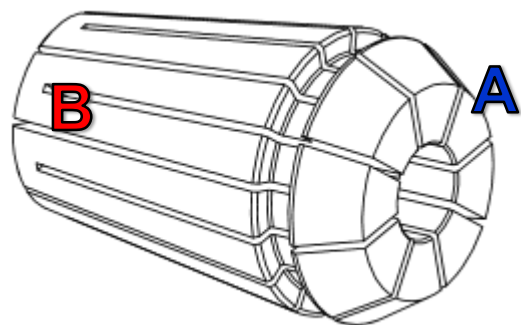


REGO-FIX®



Collet dimensions

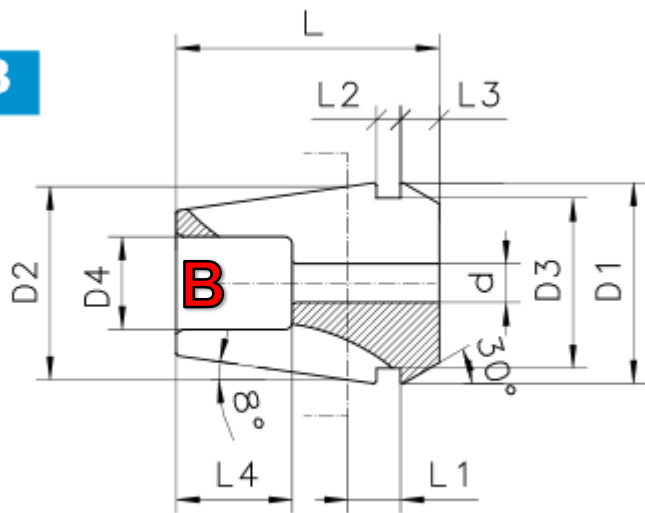
ER 20	1.0 – 1.59	21.0	20.0	17.4	9.0	31.5	6.36	2.8	4.8	16.0	3
ER 20	2.0 – 6.50	21.0	20.0	17.4	9.0	31.5	6.36	2.8	4.8	13.0	3
ER 20	7.0 – 13.00	21.0	20.0	17.4	–	31.5	6.36	2.8	4.8	–	4



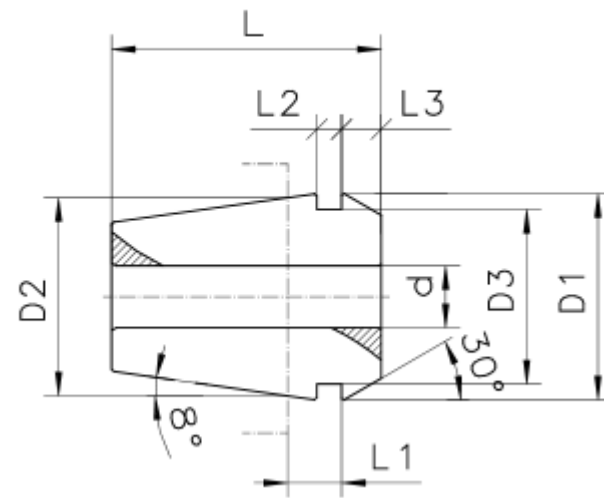
Tightening torque

ER 20	1.0	16	A	–	0, I
	1.5 – 6.5	32		32	I, II
	7.0 – 13.0	80	B	35	I, II

3



4



Errors of wrong selected tightening torque:

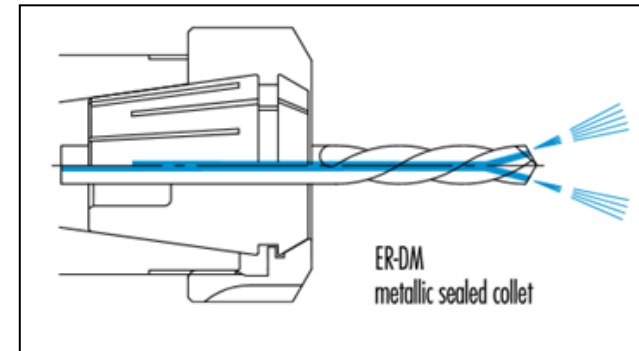
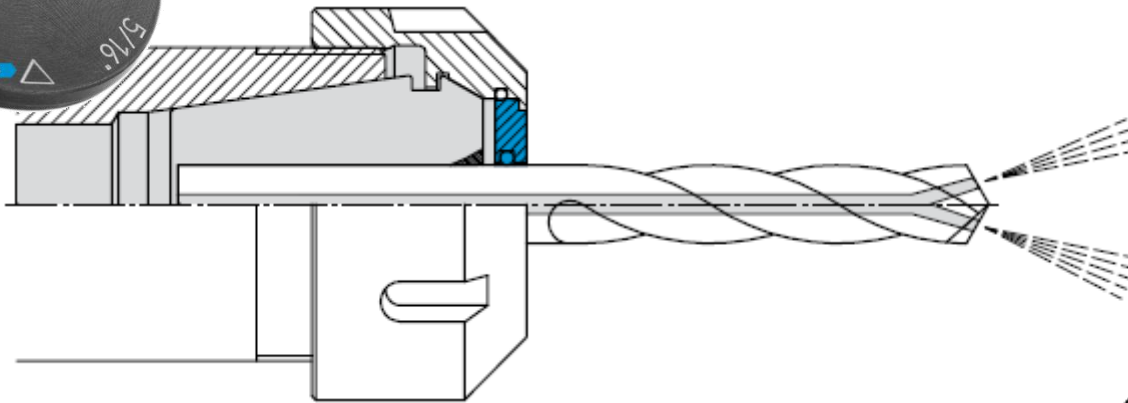
- A** Destruction of collet segments
- B** Destruction of collet because of counter bore



REGO-FIX®



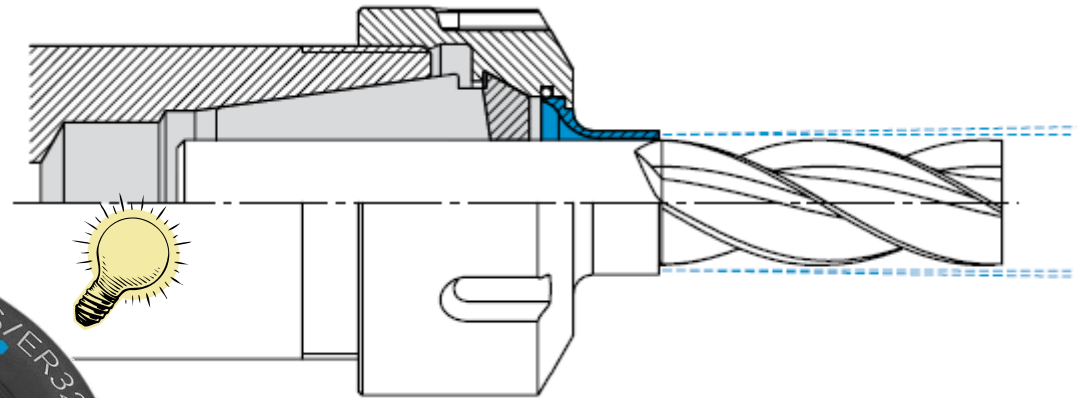
Fino a 150 bar di pressione



ER-DM
metallic sealed collet

Coolant Through

For better cooling and lubrication.
Extends tool life and supports chip removal.



Peripheral Cooling

For better cooling and lubrication.
Extends tool life and supports chip removal.

Top



 Top



REGO-FIX®



Swiss Quality

Made in Switzerland to ISO 9001/ISO 14001.

1 Marking

Type and part number.

2 Traceability

Lot number marking on all products for traceability through the entire manufacturing process.

3 Original REGO-FIX®

Our extensive experience results in a well-engineered system. Original only with the REGO-FIX® quality seal . Guarantee for best quality.

Adjustable Floating Resistance

Continuously adjustable between auto-centering and free floating. No restriction of the floating movement.

Adjustment for Tool Weight

Optimal setup by adjustment of floating resistance.

Vertical and Horizontal Application

Adjustable self-centering keeps the tool at the center of the floating chuck, even in the horizontal position.
Prevents chatter marks and extends tool life.

Combined Ball and Friction Bearing

Low load applications:

Ball bearing for easy floating.

High load applications:

Friction bearing to withstand the high pressure.

Double Sealing Against Dirt

Prevents coolant and chips from entering the floating chuck.

Excellent Bore Quality

Only parallel floatation of tool possible.





REGO-FIX®



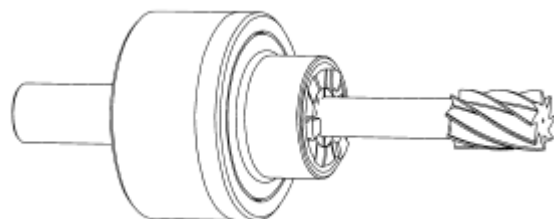
Floating Chuck PH/ER Standard

Applications

REGO-FIX® floating chucks are excellent tools for reaming and tapping. Their design is such that the tool is self-centering in the vertical and horizontal position.

The float is always parallel to the rotational axis and the rotation is both clockwise and counter clockwise.

The self-centering feature allows very precise positioning of the reaming or tapping tool. This is especially important in horizontal applications, where on ordinary floating chucks the weight of the tool tends to dislocate the tool from the rotational axis. REGO-FIX® floating chucks are a very universal and economical solution to your reaming and tapping applications.



Floating Chuck PHC/ER

For Coolant Through Tools

REGO-FIX® Floating Chucks PHC/ER for coolant through tools are especially designed for internal cooling and have the same advantages as the PH/ER Floating Chucks.



When using coolant through tools please order AXC clamping nuts and the appropriate sealing disks.

Floating Chuck MPH/ER



For Tight Space Applications

REGO-FIX® MPH/ER floating chucks are an efficient solution for tight space applications.

Floating Chuck PHC/ER REGO-FIX CAPTO

Polygon Interface

These REGO-FIX CAPTO floating chucks are manufactured with polygon interface.



Certified by Sandvik

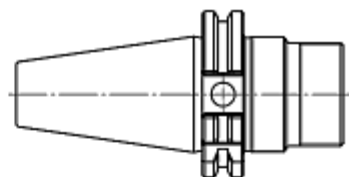




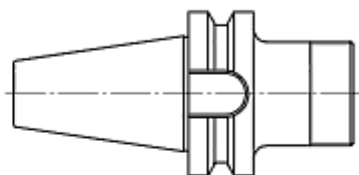
REGO-FIX®



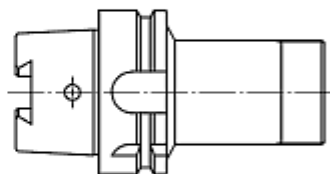
TC/ER
DIN 69871



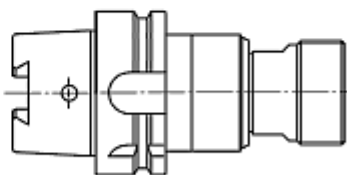
BT/ER
MAS 403



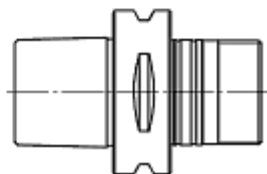
HSK/ER
DIN 69893



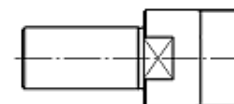
HSK SSY/ERC
DIN 69893



CAPTO/ER
Certified by SANDVIK



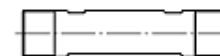
CYL/ER
CYL/ER NC



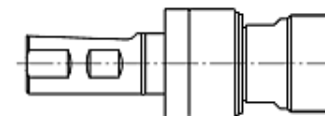
CYL/ER M
CYL/ER MF



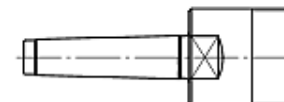
CYD/ER MF



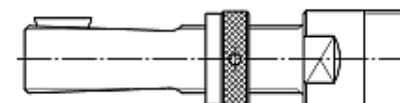
CYL SSY/ERC
CYL GSF/ERC



MK/ER
DIN 228-C



SH/ER
DIN 6327-C

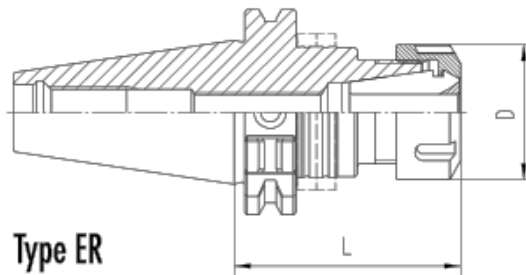




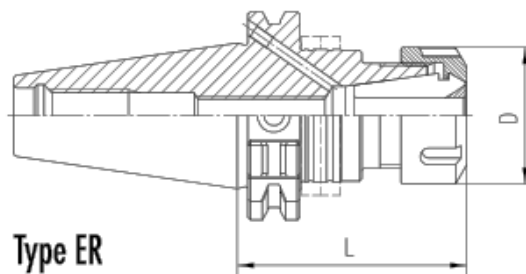
REGO-FIX®



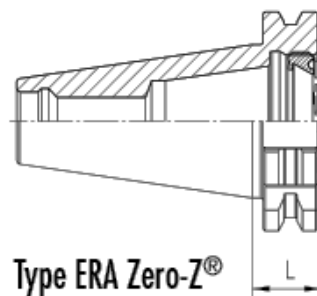
TC | ER | ERA
DIN 69871



Type ER
Form A+AD

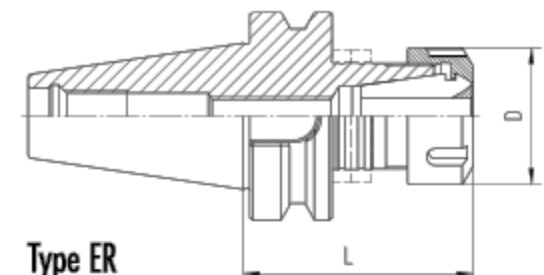


Type ER
Form AD+B

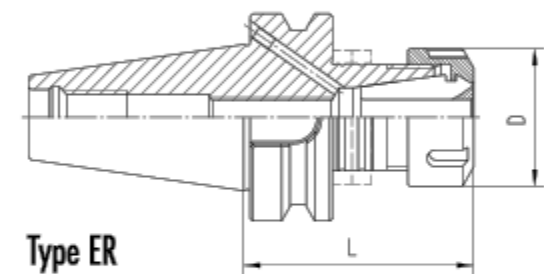


Type ERA Zero-Z®
Form A+AD

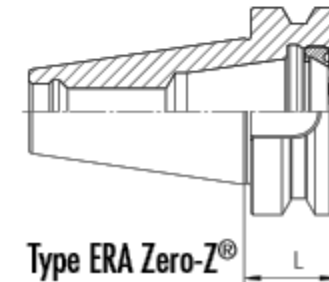
BT | ER | ERA
MAS 403/JIS B 6339



Type ER
Form A+AD



Type ER
Form AD+B



Type ERA Zero-Z®
Form A+AD



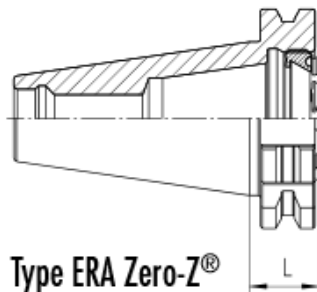


REGO-FIX®



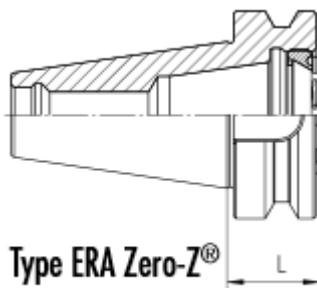
ERA Toolholder

TC | ER | ERA
DIN 69871



Type ERA Zero-Z®
Form A+AD

BT | ER | ERA
MAS 403/JIS B 6339



Type ERA Zero-Z®
Form A+AD

Applications

These collets are specially designed for mill-turning machines, multitasking machines and small vertical machining centers. They have the well known REGO-FIX surface finish, precision and thanks to their shortness a superior stiffness. ERA Zero-Z® toolholders have the shortest possible projection to increase the Z-axis travel of the machine and to allow larger work-pieces to be machined.

Balancing

REGO-FIX® Q+® System TC/ERA collets are balanced to G 2.5 @ 22'000 min⁻¹.

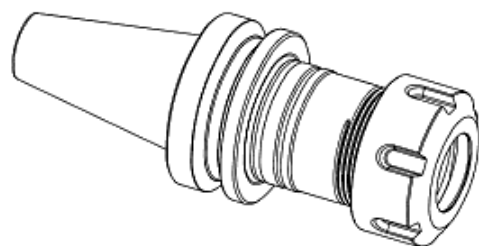


Special Features

Thanks to the built in Hi-Q®/ERAX clamping nut the transferable torque is extremely high. This clamping nut has been specially designed for applications where space is at a premium. Slippage off of the wrench is prevented by a patented design.



REGO-FIX®



ER Colletholders Type OM | ERA Zero-Z® Colletholders Type OM | Balancing Rings

Type	Form A+AD Part No.	D [mm]	L [mm]	Balancing Rings	ERA
BT-OM 30 / ER 16 x 080 H	4130.11648	28	80	FWR 285	
BT-OM 30 / ERA 20 x 022*	2130.12008	34	22	-	
BT-OM 30 / ER 25 x 060 H	4130.12528	42	62.5	FWR 325	
BT-OM 30 / ER 32 x 060*	2130.13228	50	62.5	-	

Supplied with: Colletholder with Hi-Q® clamping nut.

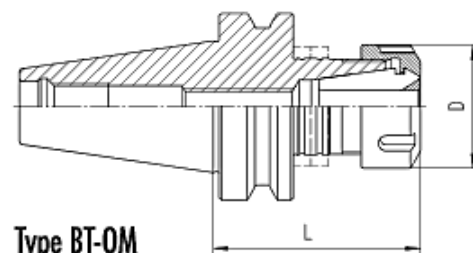
*Not for use with balancing rings.

Applications

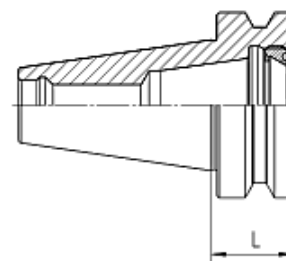
! This special colletholder without drive slots is designed for use on HAAS and HURCO CNC-machining centers.



BT-OM | ER | ERA
HAAS/HURCO



Type BT-OM
Without drive slots



Type BT-OM ERA Zero-Z®
Form A+AD

Top



REGO-FIX®



BIG PLUS SYSTEM - Licensed by BIG Daishowa
Manufactured in Switzerland under License
according to BIG-PLUS specifications.



Higher toolholder stiffness
due to taper (AT1)
and face contact



Improved machining
accuracy and
better surface finish



Form AD+B coolant
supplied as standard



Compatible with BIG-PLUS
spindles and
standard spindles

1 Taper (AT1) and face contact

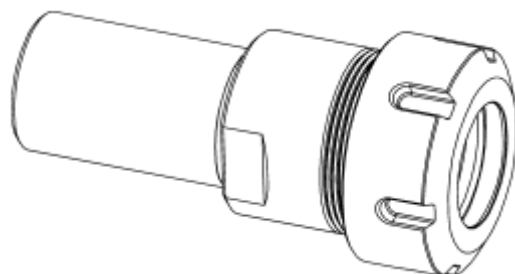
2 Coolant supply through the flange
(form B)

3 Coolant supply through the taper (form AD)



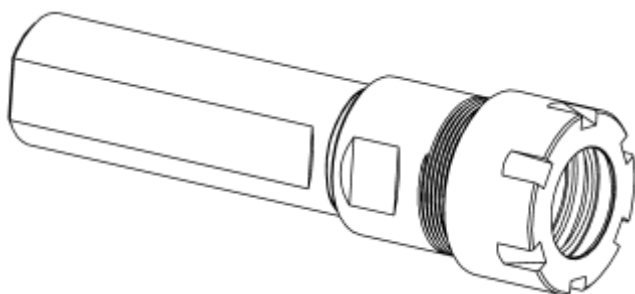


REGO-FIX®



CYL/ER

The short versions are particularly used on turret lathes where a short overhang is often required.

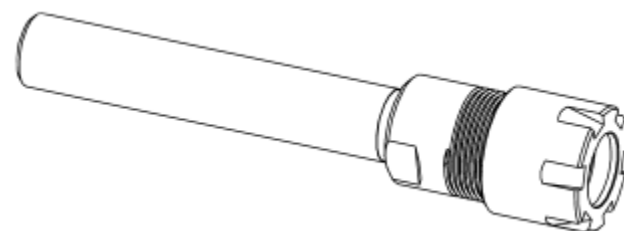


CYL/ER MF

The program of cylindrical colletholders with clamping flat is particularly designed for CNC-machines such as Citizen, Manurhin, Star and Tornos, etc.

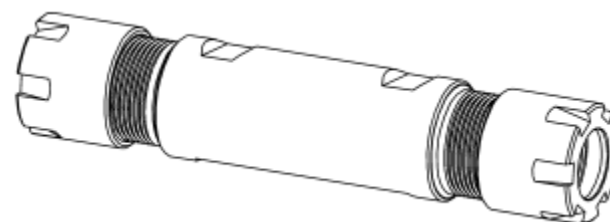
CYL/ER NC

These colletholders are particularly suitable on CNC-turning machines, but can be used on conventional turning machines as well.



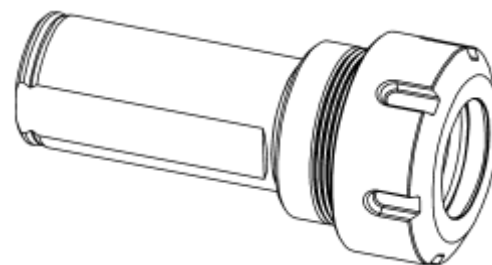
CYL/ER M

This type is suited for Swiss screw machines, machining centers and conventional machines. The shank diameter is in accordance with type F collets but is adjustable in length.



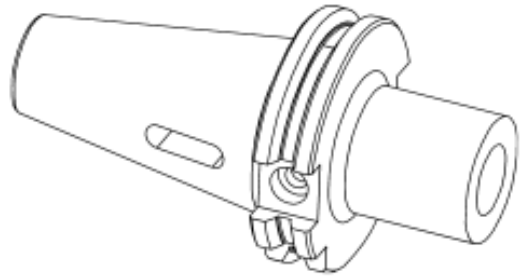
CYD/ER MF

The program of double colletholders with clamping flat has been designed for CNC-machines such as Citizen, Manurhin, Star and Tornos and offers the possibility to hold two cutting tools on the same collet holder.

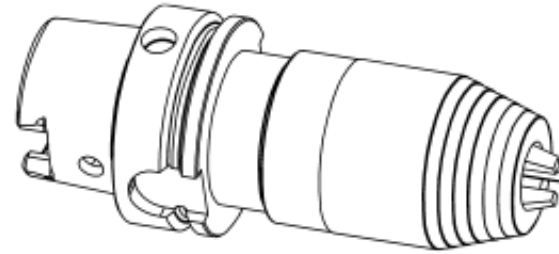




REGO-FIX®

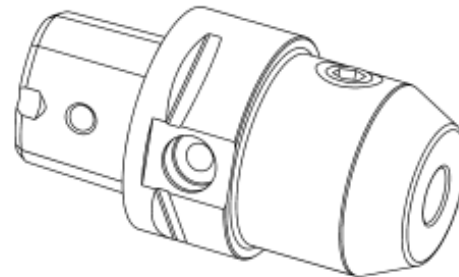


Morse Taper Holder

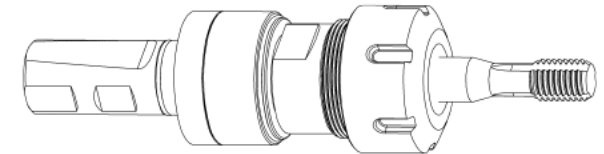


Drill Chucks

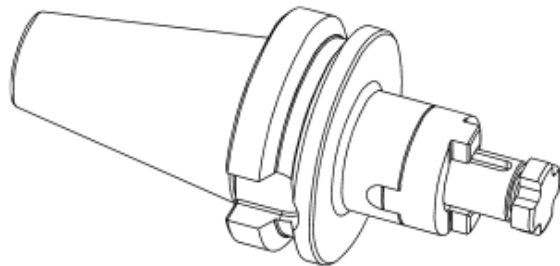
CYL SSY | ERC
DIN 1835 B+E



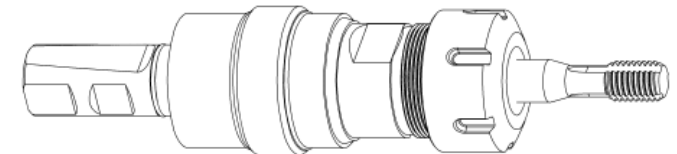
End Mill Holders (WELDON)



CYL GSF | ERC
DIN 1835 B+E



**Universal Shell Mill | Face Mill Holders
Matching Spanners**

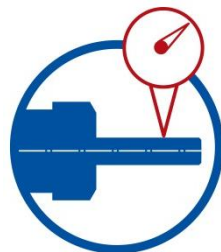




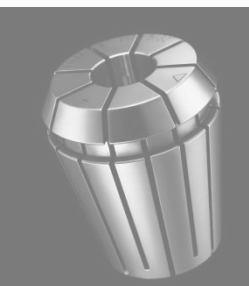
REGO-FIX®



Sistema combinato



per un miglior runout



△
Filettatura di
precisione per
un serraggio
migliore

▲
Steep taper
accuracy AT3

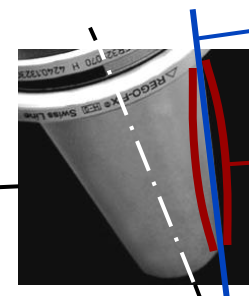
Porta utensile



T.I.R. max. 3 μ m



Controllo conicità



OK

—

Top



REGO-FIX®



Swiss Quality

Made in Switzerland to ISO9001/ISO14001.

1 Marking

With type and size (reduced collet selection error).

2 Product Traceability

Lot number marked on collets, therefore traceable through entire manufacturing process.

3 Original REGO-FIX®

When buying PG collets please note the REGO-FIX® quality seal $\triangle$ on the front of the collet.

! Precision

Highest T.I.R. (Total Indicated Runout) <3 μ m.

Flexibility

Clamping of different tool shank diameters in hydro-chucks.

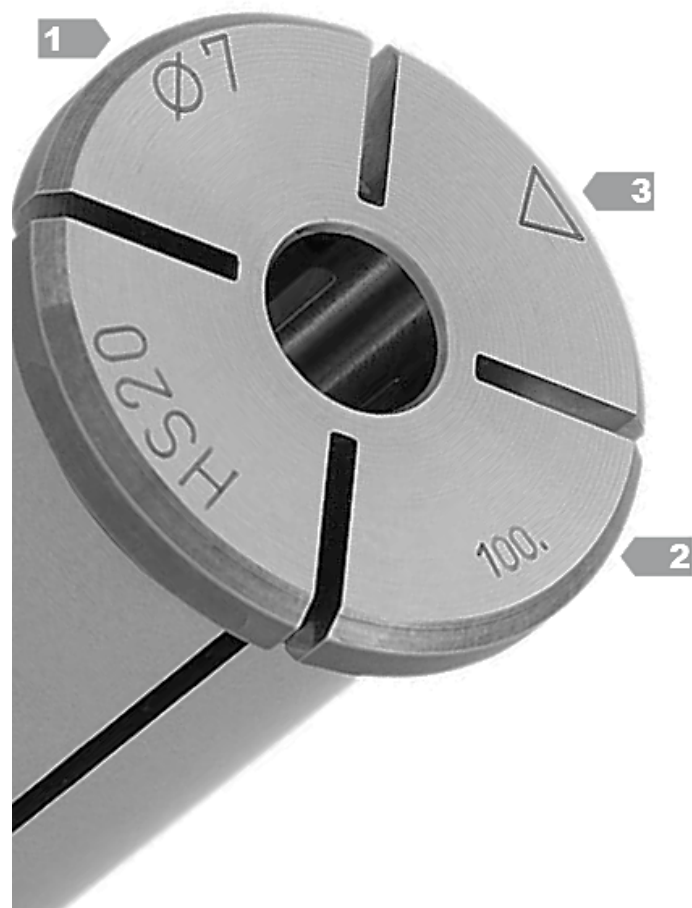
4 standard sizes: 12, 20, 25, and 32 mm

Coolant Through Tools

Metal-to-metal seal for cutting tools with internal coolant channels.

Increased Clamping Force

When using REGO-FIX® reduction sleeves the transferable torque is increased.





REGO-FIX®



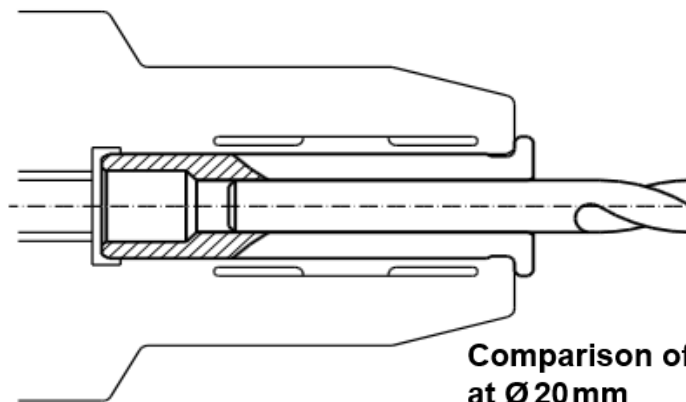
Reduction Sleeves for Hydro-Chucks

REGO-FIX® reduction sleeves are designed to fit hydro-chucks of different manufacturers. They are specially suited for high precision clamping of cylindrical tool shanks per DIN 6335 form HA, HB and HE, as well as tool shanks per DIN 1835 form B, C, D and E.

The special design of REGO-FIX® reduction sleeves allows an efficient use of coolant through cutting tools. This self-sealing system works with the most common hydraulic expansion chucks.

Concentricity (T.I.R.) of REGO-FIX® HS Type Reduction Sleeves

Clamping Diameter			T.I.R. max. [mm]
Above d [mm]	Up to d [mm]	L [mm]	
3.0	6.0	16.0	0.003
6.0	10.0	25.0	0.003
10.0	18.0	40.0	0.003
18.0	26.0	50.0	0.003



Comparison of Transferable Torque at Ø 20 mm

