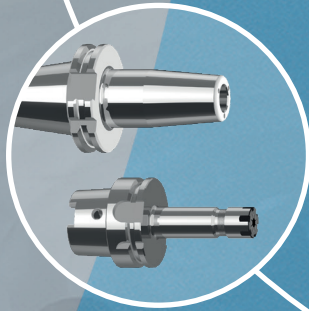
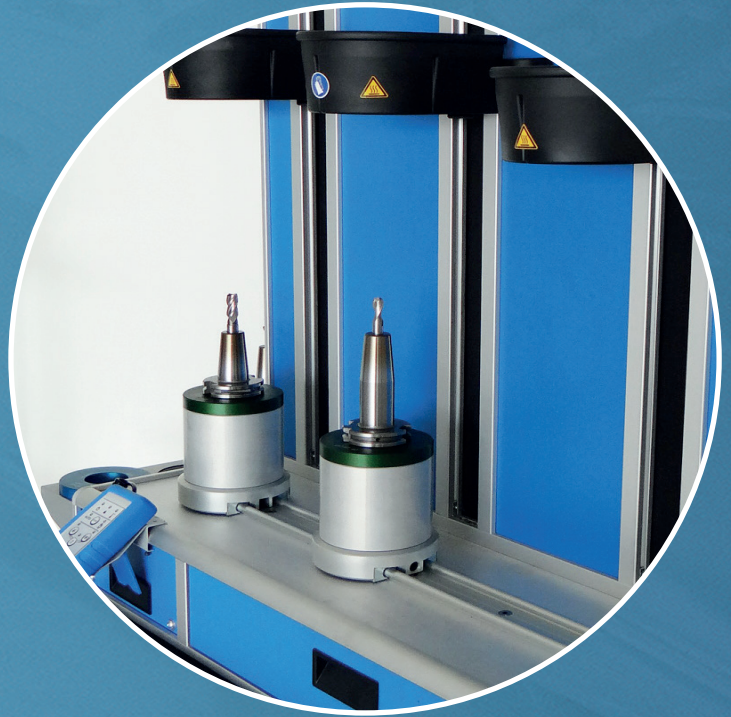
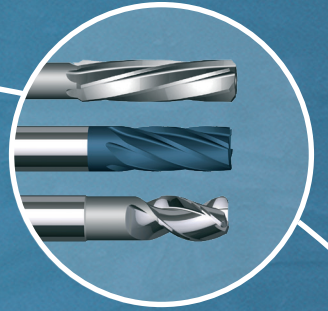


elco

Key provider of machining
solutions since 1906



SHRINKING EQUIPMENTS

KEY PROVIDER OF

CUTTING TOOLS CARBIDE / HSS



high performance reamers with coolant through, available to \varnothing and tolerances on request.



Reamers covering a wide range of boring diameters.



Routers for plastics for industrial robots or specific machines.



End-mills for light alloys intended for highly engineered parts.



High performance end-mills double helix Corner radius - multi-purpose.



End-mills for titanium alloys high chip removal or finishing end-mills.



2, 3 or 4 flutes end-mills multiple lengths facilitating the machining of difficult access.



Finishing end-mills for tempered steels machining after heat treatment.



Taps for different thread (M, BSP, UNC...), universal or for specific material.

SPECIAL TOOLS



Carbide or HSS special tools with several possible coatings to best meet your industrial needs.



Discover our User Support Service dedicated to the development of these tools.



MACHINING SOLUTIONS

SHRINK FIT HOLDERS HSK - ISO - BT

Standard



For molds & dies applications



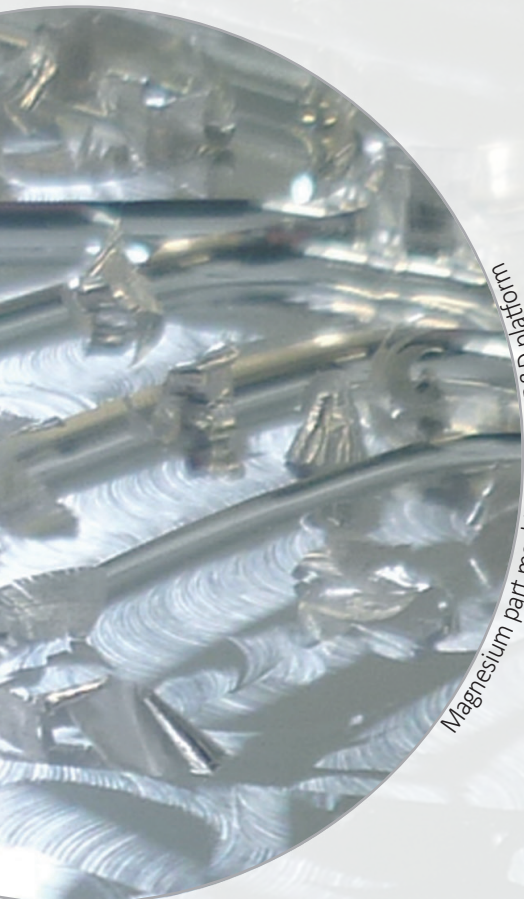
Compact



With face cooling



Shrink fit extensions & reductions



Magnesium part machined by our R&D platform



Tool presetter

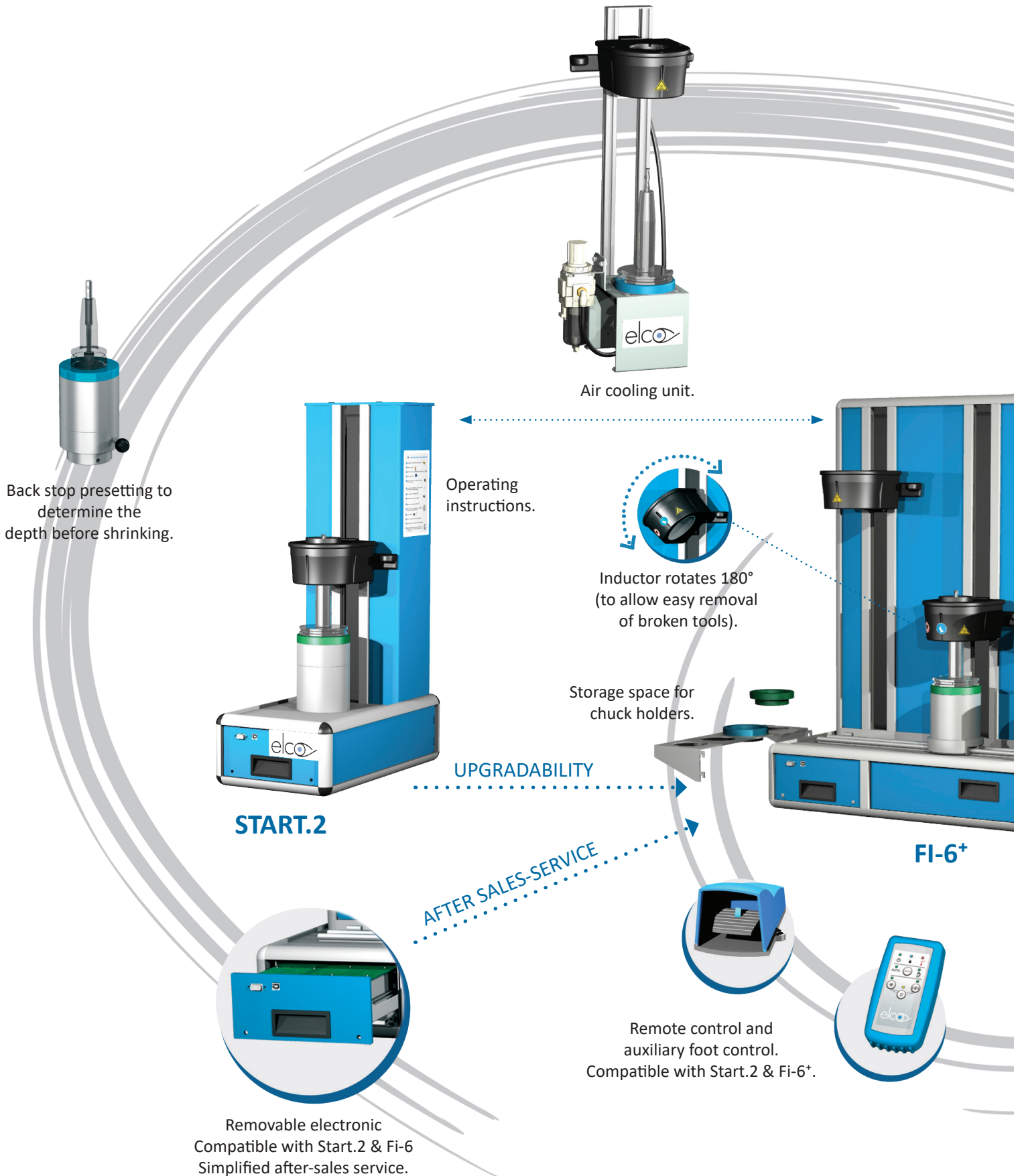


Shrink fit unit
START.2



Shrink fit unit
FI-6+

UNITS & ACCESSORIES



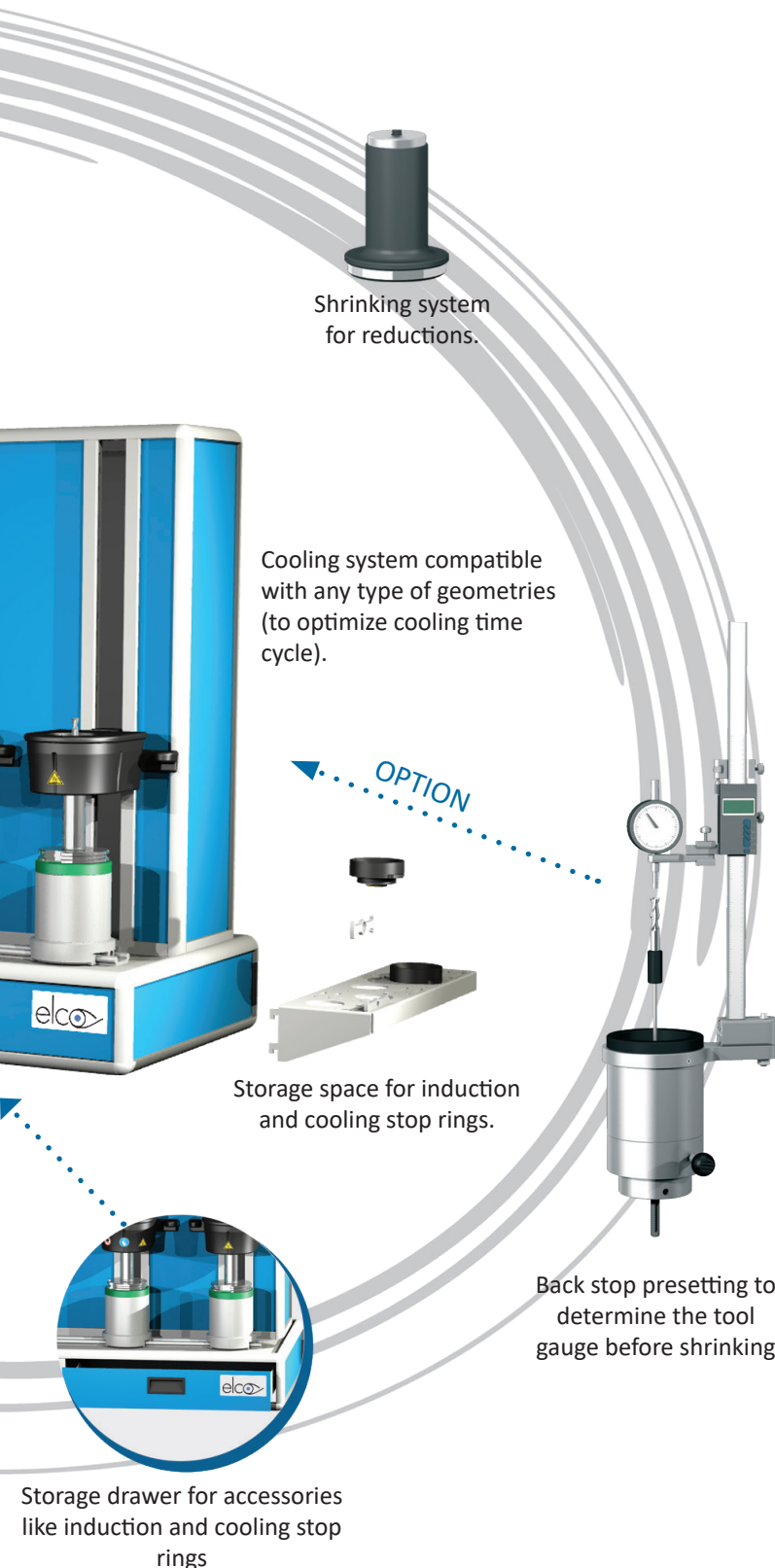
& PERFORMANCES

SHRINKING ADAPTED TO YOUR NEED

- Shrinking and unshrinking of **any type of tools** : steel, HSS, carbide, tool-inserts, hard metals, denal, shrink fit extensions and reductions, tool shank h6.
- Shrinking $\varnothing 2$ to $\varnothing 40$ with the same inductor, upper \varnothing on request :
 - from $\varnothing 2$ for carbide
 - from $\varnothing 6$ for HSS tools.
- Self-regulated power thanks to a microprocessor.
- Shrinking time cycle from 2 to 7 seconds.
- Cooling time cycle from 1 minute 30 seconds to 3 minutes (depending on the geometry).
- Air **cooling** unit compatible with **any type of external geometries** (3° slope, 4.5° slope, cylindrical...).
- Specially designed ergonomics with remote control.
- Removable electronic to allow easy, quick and economical after-sales service.

INTERESTS OF SHRINKING

- Longer tool life.
- Better roughness on machined workpiece.
- Very important clamping torque.
- High rigidity.
- Better run-out.
- Faster tools changes.



START.2 SHRINK FIT UNIT



- Easy to use.
- Provided with accessories for shrinking \varnothing 6 to \varnothing 20, (other \varnothing , optional).
- Shrink fit unit to be placed on a workbench or fixed trolley.
- Cooling without contact with the cooling unit: FG500.1150
Possibility to use several cooling units.
- Dimensions: Length = 255 mm x Depth = 490mm x Height = 755mm.
- Weight (options excluded) 19 kgs.

COOLING UNIT



FG500.1150

- Air cooling unit.
- Provided with accessories for cooling \varnothing 6 to \varnothing 20, (other \varnothing , optional).
- Compressed air supply : 4-6 bars.
- Equipped with a filter and a pressure-reducing gauge to regulate the pressure and the air flow.
- To be placed on a trolley or workbench.
- Can be used as a supplement with the Fi-6+.
- Dimensions :
L=220 mm x P=190 mm x H= 615 mm.
- Weight: 5 kg.



FJ120.0100

- To determine depth before shrinking.
- Accuracy : \pm 0,250mm.
- Capability : tool shank \varnothing 6 to 32.

PRESETTING UNIT



FJ160.0100

- For presetting the tool gauge or tool output before shrinking.
- For Fi-6+ shrink fit unit only.
- Accuracy : \pm 0,050mm.
- Repeatability : \pm 0,020mm.
- Capability : tool shank \varnothing 6 to 32.

FI-6+ SHRINK FIT UNIT



- Shrink fit unit with 2 integrated cooling units.
- The electronic board is cooled to allow highspeed shrinking.
- Provided with accessories for shrinking & cooling \varnothing 2 to \varnothing 32 (other \varnothing , optional).
- Handling without touching the tool-holders between shrinking time cycle and cooling time cycle.
- To be placed on a workbench.
- Dimensions : Length = 785mm x Depth = 510mm x Height = 875mm.
- Weight (options excluded) : 65 kg

Registered models – Registered patents. Subject to modifications of the design in the technical interest progress.

SPECIFICATIONS & EQUIPMENTS

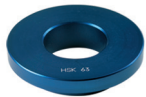


SPECIFICATIONS	START.2	FI-6 ⁺
Self-regulated power thanks to a microprocessor: Detection of Ø, automatic configuration of the heating power and heating cut-off.	●	●
Heating located on the tool holder, no deterioration of the tool and tool holder.	●	●
Self-regulated heating depending on parameters detected.	●	●
Automatic or manual shrinking cycle time.	●	●
Shrinking Ø 2 to 40mm with the same inductor.	●	●
Inductor entry diameter: 64 mm.	●	●
Designed ergonomics with remote control.	●	●
Advanced concentrators of magnetic fields allow shrinking of tools provided with a coding chip.	●	●
Removable electronic and inductor allow after-sales service within 24 hours (10 minutes depending on selected option).	●	●
Inductor rotates 180° without disassembling.	●	●
Cooling system for the electronic board to allow high-speed shrinking.		●
Power supply 3x380/480V – 16A 50/60 Hz - 14 kW	●	●
Power supply 3x200/240V – 32A 50/60 Hz - 14 kW	●	●
Compressed air supply 4-6 bars.	Start.2J	FI-6J ⁺

EQUIPMENTS	START.2	FI-6 ⁺
1 air cooling unit.	○	
2 air cooling units.	○	●
Storage drawer		●
Shrinking of cutting diameters higher than shank diameters.	○	○
Shrinking system for reductions.	○	○
Back stop presetting unit.	○	○
Storage space for chuck holders.	○	○
Storage space for inductor stop rings and cooling stop rings.	○	○
Auxiliary foot control	○	○

● : Standard

○ : Option


CHUCK HOLDERS


For HSK 25 A-C-E / HSK 32 B-D-F chuck	FP100.1025	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For HSK 32 A-C-E / HSK 40 B-D-F chuck	FP100.1032	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For HSK 40 A-C-E / HSK 50 B-D-F chuck	FP100.1040	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For HSK 50 A-C-E / HSK 63 B-D-F chuck	FP100.1050	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For HSK 63 A-C-E / HSK 80 B-D-F chuck	FP100.1063	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For HSK 80 A-C-E / HSK 100 B-D-F chuck	FP100.1080	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For HSK 100 A-C-E / HSK 125 B-D-F chuck	FP100.1100	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For ISO / BT 30 chuck	FP100.2030	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For ISO / BT 40 chuck	FP100.2040	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For ISO / BT 45 chuck	FP100.2045	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For ISO / BT 50 chuck	FP100.2050	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For ISO / BT 50 chuck with pull stud	FP100.4050	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For PSC63 chuck	FP100.5063	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

STANDARD INDUCTOR STOP RINGS

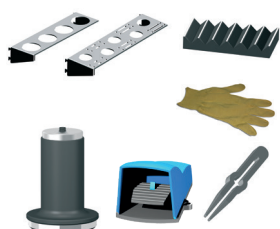

Ø 2 to Ø 5	FE100.020.050	<input type="radio"/>	<input checked="" type="radio"/>
Ø 6 to Ø 12	FE100.060.120	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Ø 14 to Ø 20	FE100.140.200	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Ø 25 & 32	FE100.250.320	<input type="radio"/>	<input checked="" type="radio"/>
Ø 40	FE100.400.400	<input type="radio"/>	<input type="radio"/>

SPLIT INDUCTOR STOP RINGS


Ø 2 to Ø 5	FE200.020.050	<input type="radio"/>	<input type="radio"/>
Ø 6 to Ø 12	FE200.060.120	<input type="radio"/>	<input type="radio"/>
Ø 14 to Ø 20	FE200.140.200	<input type="radio"/>	<input type="radio"/>
Ø 25 & 32	FE200.250.320	<input type="radio"/>	<input type="radio"/>
Ø 40	FE200.400.400	<input type="radio"/>	<input type="radio"/>

COOLING STOP RINGS


Ø 2 to Ø 5	FR500.050	<input checked="" type="radio"/>	x2	<input type="radio"/>
Ø 6 to Ø 12	FR500.120	<input checked="" type="radio"/>	x2	<input checked="" type="radio"/>
Ø 14 to Ø 20	FR500.200	<input checked="" type="radio"/>	x2	<input checked="" type="radio"/>
Ø 25 & 32	FR500.320	<input checked="" type="radio"/>	x2	<input type="radio"/>
Ø 40	FR500.400	<input type="radio"/>		<input type="radio"/>

VARIOUS ACCESSORIES


Storage space for tools	FT150.0100	<input type="radio"/>	<input type="radio"/>
Storage space for chuck holders	FT250.0100	<input type="radio"/>	<input type="radio"/>
Storage space for inductor & cooling stop rings	FT350.0100	<input type="radio"/>	<input type="radio"/>
A pair of Kevlar gloves	FX100.0100	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Plier for gripping small diameters	FX200.0100	<input type="radio"/>	<input type="radio"/>
Reduction support	FL100.0800	<input type="radio"/>	<input type="radio"/>
Auxiliary foot control	FY200.050	<input type="radio"/>	<input type="radio"/>

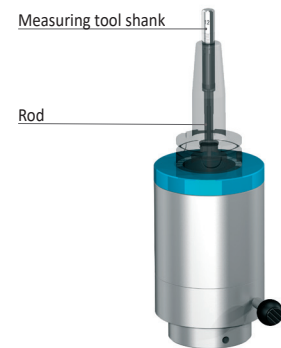
ELECTRONIC COMPONENTS


Inductor v.5 - Ø 64 (cutting Ø ≤ 64 - tool shank Ø ≤ 40)	FA100.0564	<input type="radio"/>	<input type="radio"/>
Mother board 380 / 480 V	FC100.0500	<input type="radio"/>	<input type="radio"/>
Mother board 200 / 240 V	FC100.0501	<input type="radio"/>	<input type="radio"/>
Remote control	FY100.050	<input type="radio"/>	<input type="radio"/>

● : Accessories delivered with ○ : Option ○ : Replacement part

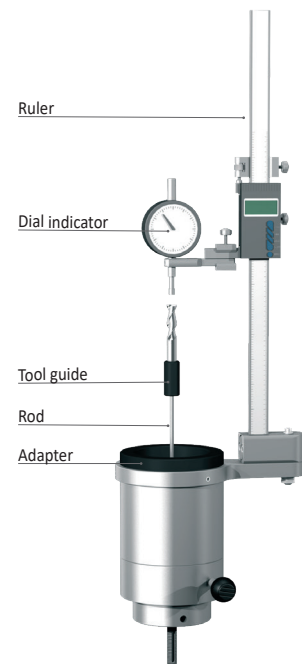
ACCESSORIES FOR START.2 PRESETTING UNITS

Presetting unit + 4 rods	FJ120.0100	
Measuring tool shank Ø 6	FJ120.5060	○
Measuring tool shank Ø 8	FJ120.5080	○
Measuring tool shank Ø 10	FJ120.5100	○
Measuring tool shank Ø 12	FJ120.5120	○
Measuring tool shank Ø 14	FJ120.5140	○
Measuring tool shank Ø 16	FJ120.5160	○
Measuring tool shank Ø 18	FJ120.5180	○
Measuring tool shank Ø 20	FJ120.5200	○
Measuring tool shank Ø 25	FJ120.5250	○
Measuring tool shank Ø 32	FJ120.5320	○



ACCESSORIES FOR FI-6+ PRESETTING UNITS

Presetting unit + 4 rods + ruler + indicator + one set of guides and guides holder	FJ160.0100	
Presetting guides holder	FJ150.8000	●
Adapter for ISO / BT30 presetting	FJ150.2030	○
Adapter for ISO / BT40 presetting	FJ150.2040	○
Adapter for ISO / BT45 presetting	FJ150.2045	○
Adapter for ISO / BT50 presetting	FJ150.2050	○
Tool guide Ø 6	FJ150.6060	●
Tool guide Ø 8	FJ150.6080	●
Tool guide Ø 10	FJ150.6100	●
Tool guide Ø 12	FJ150.6120	●
Tool guide Ø 14	FJ150.6140	○
Tool guide Ø 16	FJ150.6160	●
Tool guide Ø 18	FJ150.6180	○
Tool guide Ø 20	FJ150.6200	●
Tool guide Ø 25	FJ150.6250	○
Tool guide Ø 32	FJ150.6320	○
Ruler 300 mm	FJ150.9990	●
Dial indicator	FJ150.9991	●



COMMON SPARE PARTS

«Compact» rod	FT500.110	○
«Standard» & «for molds range» rod	FT500.120	○
Rod «length 120 mm»	FT500.125	○
Rod «length 160 mm»	FT500.130	○

● : Accessories delivered with ○ : Option ○ : Replacement part

«STANDARD» RANGE HSK - ISO - BT - PSC

- Features : Tolerance of the bore : $\pm 1,5\mu\text{m}$.
 Cooling by the face : References : HA015 - IS015 - BT015.
- Application : Compatible with tool shanks made of steel, HSS or CARBIDE in tolerance h6.



«COMPACT» RANGE HSK - ISO - BT

- Features : Tolerance of the bore : $\pm 1,5\mu\text{m}$.
 Reinforced walls for better rigidity.
- Application : Compatible with tool shanks made of steel, HSS or CARBIDE in tolerance h6.



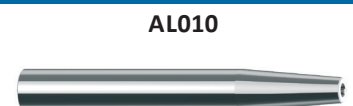
«MOLDS» RANGE HSK - ISO - BT

- Features : Tolerance of the bore : $\pm 1,5\mu\text{m}$.
 Small tool holder for difficult access.
- Application : Compatible with tool shanks made of steel, HSS or CARBIDE in tolerance h6.



SHRINK FIT EXTENSIONS

- Features : Tolerance h6 over the whole length.
- Application : Small footprint for difficult access machining.

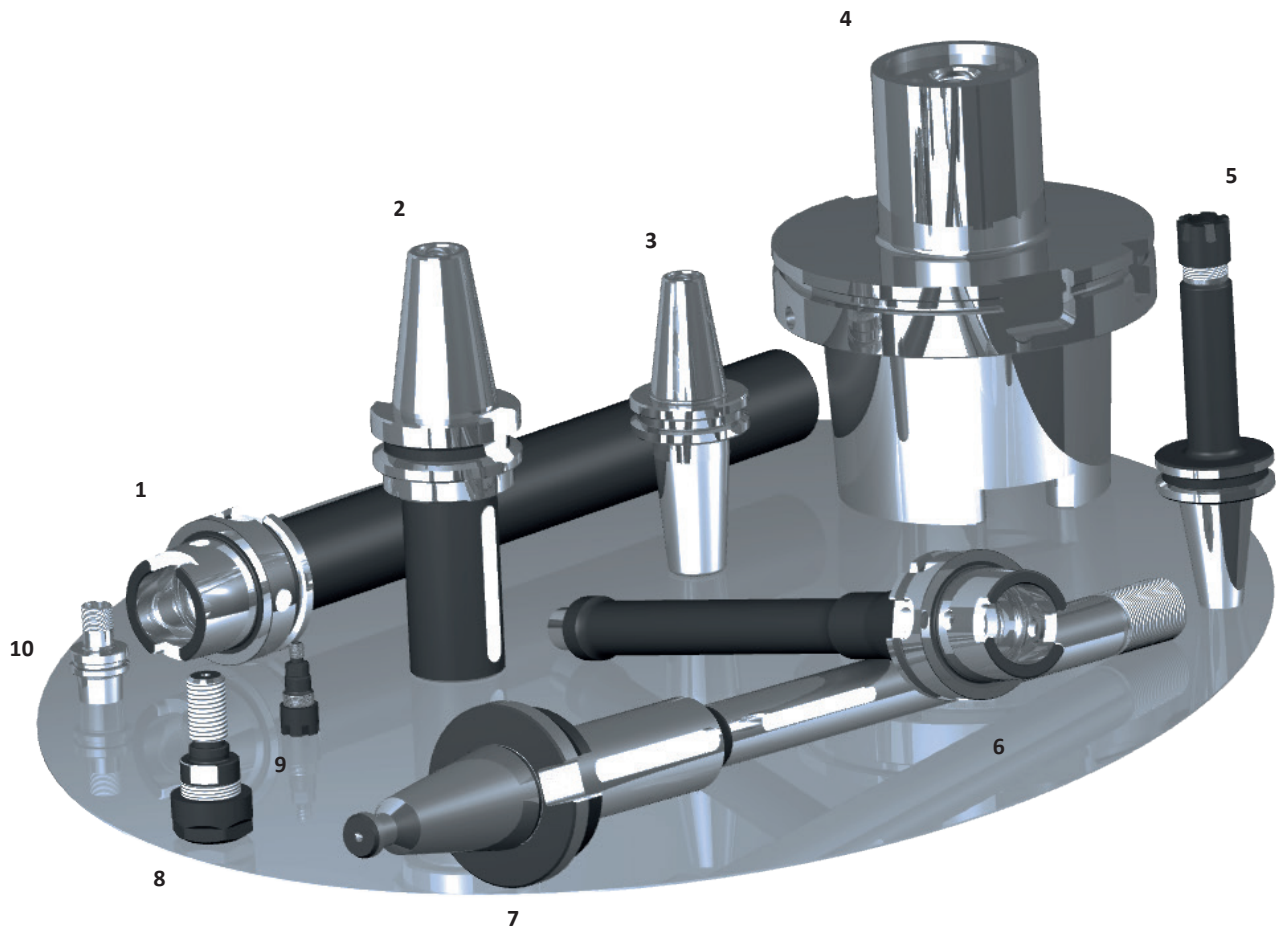


SHRINK FIT REDUCTIONS

- Features : With or without face cooling.
- Application : Allows multiple \varnothing 's to be shrinked with the same base chuck.



Some machining constraints require tool holders with complex geometry, special materials or specific heat treatments. Elco offers you specific solutions for your tool holders.



- 1 Test arbor HSK-A63 \varnothing 40 length A=350mm, straightness 0.005, circularity 0.005
- 2 Grinding wheel holder BT 40 \varnothing 40
- 3 Shrink fit holder ISO 30 without notches \varnothing 12 length A=80mm
- 4 Holder HSK-A 160 \varnothing 60 H5 length A=100mm and 2 holes \varnothing 10.1
- 5 Collets chuck ISO 30 without notches ER16M
- 6 Grinding wheel holder HSK-63A \varnothing 18 length 330
- 7 Cutter arbor SA40 \varnothing 27 length 550mm
- 8 ER20 collets chuck with M16 threaded shank and pilot \varnothing 17
- 9 Collets chuck ER11M whit 1/4 - 28UNF threaded shank and with 120° taper
- 10 Collets chuck HSK-E25 ER11M length A=35mm whit M8 thread for cooling tube



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solutions since 1906**



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