



SHRINKING TECHNOLOGY

Induction shrinking stations and accessories



 **pokolm**
PREMIUMTOOLS. WE KNOW HOW.

INDUCTION SHRINKING TECHNOLOGY - COST-EFFECTIVE AND INNOVATIVE FOR THE HIGHEST REQUIREMENTS

The shrinking technology convinces with its advantages as compared to the conventional chucking methods of many users. Above all, that includes the extremely high concentricity, which simultaneously guarantees the highest precision as well as long tool lives. In addition, the shrinking technology creates an ideal, friction-locked connection between the tool and arbor and thus guarantees a high transferable torque. The suitability for maximum speed is moreover the best prerequisite for achieving an ideal surface grade thereby avoiding expensive ultrafine machining processes.

As compared to conventional tool arbors, shrinking arbors have a slimmer design so they facilitate the use of the smallest tools even at great depths - something that cannot be realised with a hydraulic expansion chuck.

At POKOLM, the customer obtains an extensive and perfectly matched range for shrinking technology from one single source:

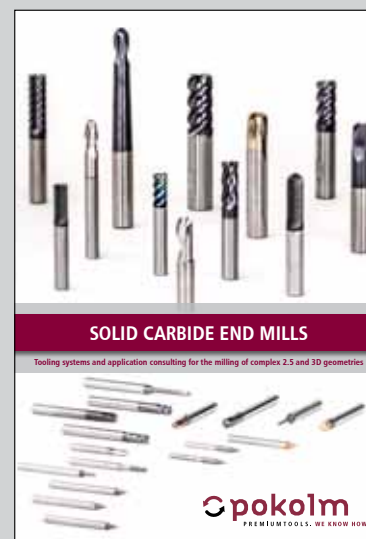
- ➔ High quality, mature induction shrinking units with extensive accessories that satisfy every demand placed on comfort and profitability
- ➔ Shrinking arbors for all common machine connections
- ➔ The **DUOPLUG®** connection system patented by POKOLM provides the greatest concentricity and maximum rigidity
- ➔ Milling cutter bodies with **DUOPLUG®** connection
- ➔ Solid carbide end mills for every application



AN EXTENSIVE AND INTEGRATED RANGE

Content	Page
<p>➔ Induction shrinking station TSI11000WK The innovative comfort package with integrated cooling equipment</p> <ul style="list-style-type: none"> - Description - Operator's controls, technical data - Accessories 	<p>4</p> <p>5</p> <p>6</p>
<p>➔ Induction shrinking unit TSI3510 The classic as an especially economical solution</p> <ul style="list-style-type: none"> - Description - Operator's controls, technical data - Accessories 	<p>7</p> <p>8</p> <p>9</p>
<p>➔ Arbors and adapters</p>	10
<p>➔ DUOPLUG® connection system for the greatest concentricity and maximum rigidity</p>	11

Diversity in the highest quality



The intelligent POKOLM tool system is composed of milling cutter bodies, arbors and adapters and solid carbide end mills together with induction shrinking units.

Through our own development and manufacturing, all products are perfectly matched to each other and can be compiled into more than 500,000 useful options. That makes the POKOLM product range the best possible combination for any application.

INDUCTION SHRINKING STATION TSI11000WK - HIGH-PERFORMANCE, SAFE, EASY-TO-USE DEVICE

The TSI11000WK induction shrinking station provides the user an 11 kW powerful, easy-to-use device that boasts the latest type of construction. It has high capacity design margins and a great number of innovative attributes.

For instance, the semi-automatic shrinking and fluid-supported cooling process is run in a single position in the unit.

A ferrite disc system prevents the tool from heating up and facilitates problem-free clamping of FHM tools and rods as well as heavy metal extensions - the hot spot is pushed into the ideal area.

Equipped with automatic water cooling, the shrinking arbor in the unit is always cooled to room temperature. Overheating and risk of burns along with damage to the tool edge are made impossible. Setup times are reduced to a minimum.

The operating concept is especially user friendly.

Comprehensive protection systems prevent damage to the arbor or the unit on top of that.



Advantages at a glance

- ➔ High-performance, easy-to-use device
- ➔ Even shorter shrinking times
- ➔ Targeted heating
- ➔ Minimised danger of burns
- ➔ Shortened setup times
- ➔ Simple operation
- ➔ Integrated water cooling
- ➔ Perfect for **DUOPLUG®**

Scope of delivery

Induction shrinking station TSI11000WK

Adapter, water cooled

The scope of delivery includes an adapter.

Please state the desired item no. in your order.
(See selection on page 6)

Ferrite discs, complete set including 4 units
3.0 - 5.9 mm; 6.0 - 12 mm; 12.1 - 22 mm; 22.1 - 32 mm

Cooling emulsion, 1l canister

Clamping ring, 1 unit

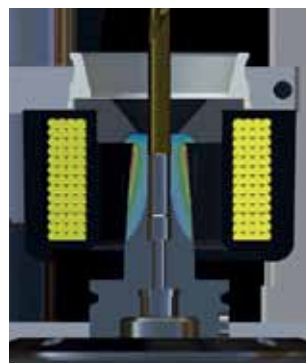
Protective gloves, 1 pair

Transport box



Water cooling system

The all-in-one solution permits the shrinking and cooling process in one position. There is no contact with the hot chuck. That excludes a danger of burns and saves time.



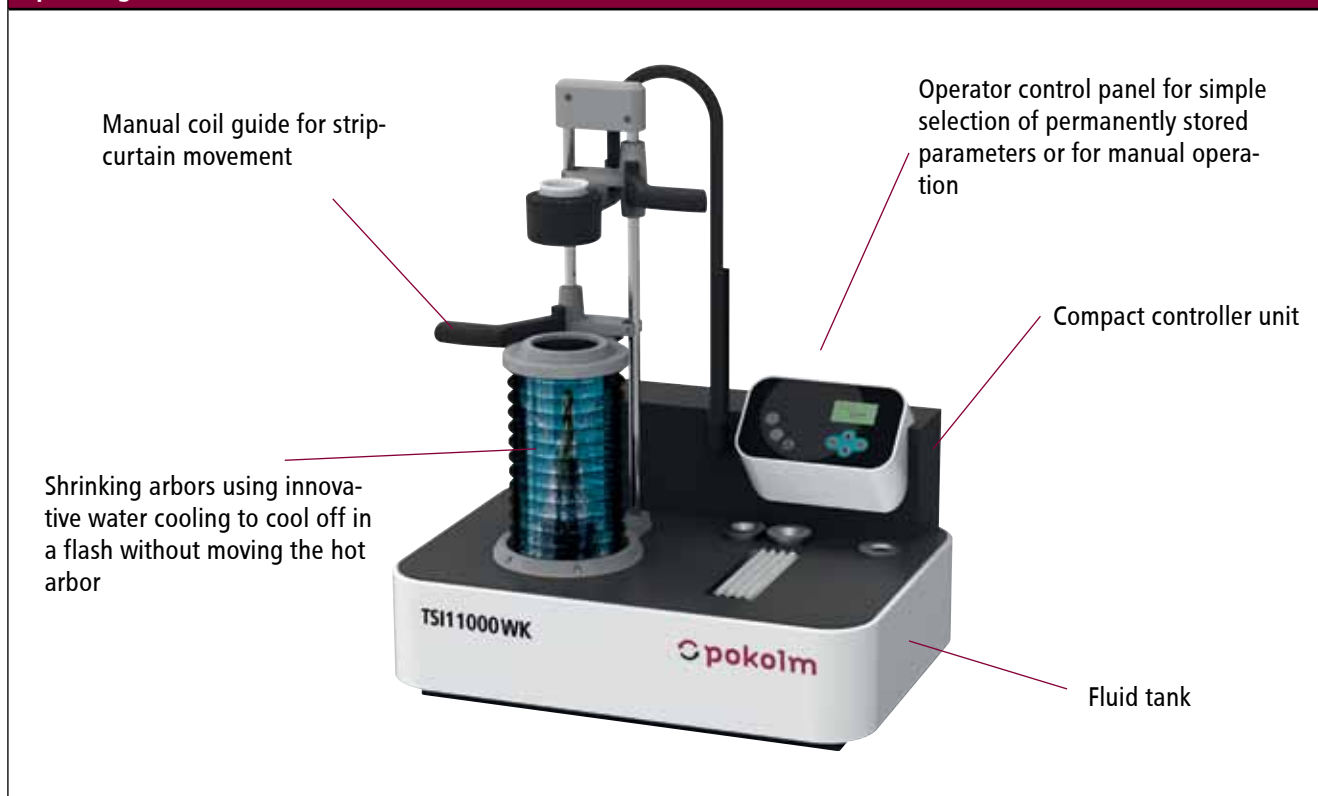
Ferrite disc changer system

Reduces tool heat-up. The hot spot is pushed into the ideal area. Adapting the magnetic alternating field increases the efficiency.

INDUCTION SHRINKING STATION TSI11000WK

OPERATOR'S CONTROLS, TECHNICAL DATA

Operating elements




Technical data

Name	TSI11000WK
Output	11 kW
System voltage	400 V, 50 Hz, 16 A
Cooling	Fluid cooling
Degree of protection	IP 40
Max. machine interface	HSK100, SK50
Contour-independent cooling	Yes
Cooling time	variably
Fluid tank	22 l
Dimensions	L 800, W 560, H 950 mm
Clamping range Solid Carbide	Ø 3 - 32 mm
Coil	fixed, Ø 54 mm
Max. tool length	400 mm in the HSK63
Max. cooling length	160 mm in the HSK63
Weight	~ 88 kg incl. packaging

On request, the induction shrinking station is also available in a version with a replaceable exchange-coil for large clamping diameters up to 50 mm.

INDUCTION SHRINKING STATION TSI11000WK - ACCESSORIES

Accessories and spare parts			Item no.
	Adapter, water cooled for correct positioning of the arbor in the shrinking unit including a rotation lock for DUOPLUG®	HSK 25	TSI11000WK-AD-HSK25
		HSK 32	TSI11000WK-AD-HSK32
		HSK 40	TSI11000WK-AD-HSK40
		HSK 50	TSI11000WK-AD-HSK50
		HSK 63	TSI11000WK-AD-HSK63
		HSK 80	TSI11000WK-AD-HSK80
		HSK 100	TSI11000WK-AD-HSK100
		ISO 30 / BT 30	TSI11000WK-AD-SK30-BT30
		ISO 40 / BT 40	TSI11000WK-AD-SK40-BT40
	Ferrite discs, for "SB arbors" and DUOPLUG®, for perfect magnetic field shielding between the coil and the tool shank	Clamp-Ø 3.0 - 5.9 mm	TSI11000WK-ZB-FSN-0
		Clamp-Ø 6.0 - 12.0 mm	TSI11000WK-ZB-FSN-1
		Clamp-Ø 12.1 - 22.0 mm	TSI11000WK-ZB-FSN-2
		Clamp-Ø 22.1 - 32.0 mm	TSI11000WK-ZB-FSN-3
	Ferrite discs, for slim "S-arbors" and COOLCAP® for perfect magnetic field shielding between the coil and the tool shank	Clamp-Ø 3 mm	TSI11000WK-ZB-FSS-03
		Clamp-Ø 4 mm	TSI11000WK-ZB-FSS-04
		Clamp-Ø 5 mm	TSI11000WK-ZB-FSS-05
		Clamp-Ø 6 mm	TSI11000WK-ZB-FSS-06
		Clamp-Ø 8 mm	TSI11000WK-ZB-FSS-08
		Clamp-Ø 10 mm	TSI11000WK-ZB-FSS-10
		Clamp-Ø 12 mm	TSI11000WK-ZB-FSS-12
		Clamp-Ø 14 mm	TSI11000WK-ZB-FSS-14
		Clamp-Ø 16 mm	TSI11000WK-ZB-FSS-16
		Clamp-Ø 18 mm	TSI11000WK-ZB-FSS-18
		Clamp-Ø 20 mm	TSI11000WK-ZB-FSS-20
		Clamp-Ø 25 mm	TSI11000WK-ZB-FSS-25
	Ferrite discs for slim „S-arbors“, a complete set in a practical storage case	with discs for Ø 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20 and 25 mm	TSI11000WK-ZB-FSS-SET
	Clamp ring, for securely fixation the ferrite disc on the coil		TSI11000WK-ZB-KR
	Cooling emulsion, for protecting the chuck from erosion	5l canister	TSI11000WK-ZB-KE
	Machine and system cleaner	5l canister	TSI11000WK-ZB-R
	Cooling plate, to store hot tools	Made of steel, with foot	TSI11000WK-ZB-KB
	Protective gloves, made of Kevlar fabric	Universal size 10	H-SCHUTZ

INDUCTION SHRINKING UNIT TSI3510 - ECONOMICAL ENTRY INTO SHRINKING TECHNOLOGY

The induction shrinking unit TSI3510 provides the user with a 3.5 kW powerful basic unit that sets itself apart with a great number of proven attributes.

The most important: short setup times. That reduces setup and conversion costs! At the same time, the arbor is heated quickly and uniformly with induction technology while the tool itself is heated up only to the minimum. The TSI3510 stands for precision and safety.

A removable hand-held unit enables flexible shrink fitting and removal of the shrunk component even directly on the machine or in the vice. An attribute that ensures time saving during conversions.

The TSI3510 does not require any installation work at all. The simple ergonomic operation, the integrated air cooling and the reliable power output of the unit create additional important deciding factors for a fast amortisation investment in induction shrinking technology.



Advantages at a glance

- ➡ Basic unit
- ➡ Simple operation
- ➡ Short shrinking times
- ➡ Removable hand part
- ➡ Integrated air cooling

Scope of delivery

Induction shrinking unit TSI3510

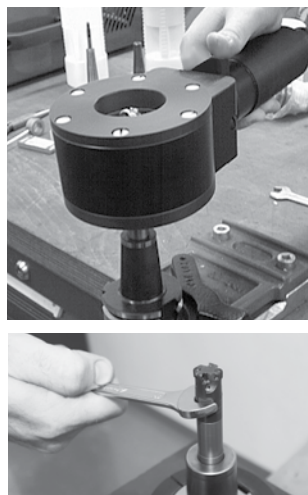
Adapter ring

The scope of delivery includes an adapter ring.
Please state the desired item no. in your order.
(See selection on page 9)

Accessories set for TSI3510

(Contents: see page 9)

Transport box

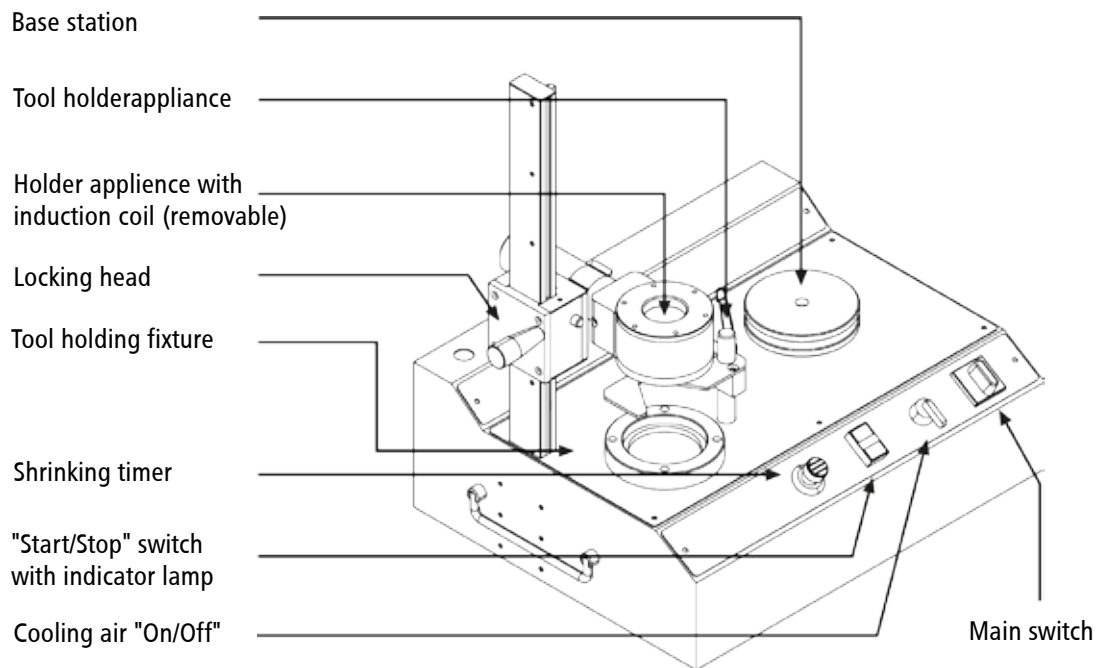


Also practical for **DUOPLUG®**

The patented POKOLM **DUOPLUG®** screw-shrink connection can even be easily shrink-fit and removed with the detachable induction coil.

INDUCTION SHRINKING UNIT TSI3510 - OPERATOR'S CONTROLS, TECHNICAL DATA






Operating elements



Technical data

Name	TSI3510
Output	3.5 kW
System voltage	230 V, 50/60 Hz, 16 A
Cooling	Air cooling
Degree of protection	IP 40
Coil diameter	45 mm
Max. operating time	Variably adjustable up to 30 sec.
Dimensions (without linear unit)	L 555, W 450, H 200 mm
Weight	~ 30 kg

INDUCTION SHRINKING UNIT TSI3510 - ACCESSORIES





Accessories and spare parts			Item no.
	Spacer rings for adjusting the desired shrink-in length, with a set-screw for fastening	Ø 03 mm	RING 3 MADS
		Ø 04 mm	RING 4 MADS
		Ø 06 mm	RING 6 MADS
		Ø 08 mm	RING 8 MADS
		Ø 10 mm	RING 10 MADS
		Ø 12 mm	RING 12 MADS
		Ø 16 mm	RING 16 MADS
		Ø 20 mm	RING 20 MADS
	Adapter rings for centring all conventional arbor systems and sizes in the unit	HSK 32	RING HSK 32
		HSK 40	RING HSK 40
		HSK 50	RING HSK 50
		HSK 63	RING HSK 63
		HSK 80	RING HSK 80
		ISO 30	RING SK 30
		ISO 40	RING SK 40
		ISO 50 / HSK 100	RING SK 50
	Pliers for safe insertion and removal of the cutter into or out of the arbor	Angled 45°	ZANGE
	Accessories set for TSI3510	Contents: - Spacer rings 06 - 20 mm - Holder for adjustment rings - Adapter ring SK 50 / HSK 100 - Pliers - Allen key 2.5 x 100 mm - Revolver holder for storing up to 20 cutters with various diameters	TSI3510 SET 1
	Protective gloves made of Kevlar fabric	Universal size 10	H-SCHUTZ

ARBORS AND ADAPTERS FROM POKOLM PERFECT FOR SHRINKING TECHNOLOGY

Milling tools or arbors and adapters - they are all manufactured according to the highest standards. Only then can they live up to the premium requirements for which the POKOLM products are famous. Accordingly, our shrinking arbors are fabricated with extreme precision and are characterised by perfect concentricity. With our own product development, design and precision manufacturing, we are able to perfectly adapt our arbors to your shrinking units down to the last detail. POKOLM shrinking arbors and shrinking units create the best-possible combination. Our shrinking arbors are available for shank diameters from 3 - 32 mm and naturally are ideal for all conventional machine connections. Fine length graduations ensure perfect stability even under difficult application conditions.



Arbors and adapters for shrinking at a glance

With steep taper shank	With hollow taper shank	With Morse taper shank	Adapters and extensions
			
ISO 30	HSK 25	CM 3	Shrinking extensions
ISO 40	HSK 32	CM 4	Extension shrinking adapter
ISO 50	HSK 40	CM 5	
BT 30	HSK 50		
BT 40	HSK 63		
BT 50	HSK 100		
Designs: SK: DIN 69871 AD BT: JIS B6339 AD	Designs: Form E, Form EC, Form A DIN 69893	Design: DIN 228 A	



You can find the complete range of the listed shrinking arbors with all the detailed technical information in our comprehensive catalogue on arbor systems or, alternatively, on our website at www.pokolm.de/en/aufnahmesysteme.

Alternatively, simply use the adjacent QR-code linked to this website.



We would also be glad to send you the printed edition of the catalogue. Just ask for it! By telephone at +49 5247 9361-0 or send an email to info@pokolm.de

DUOPLUG® - COMBINATION CLAMPING SYSTEM

THE PERFECTION OF THE SHRINK CONNECTION

In this internationally unique combination clamping system that is patented for POKOLM, the heated DUOPLUG® milling cutter body or shrinking adapter is screwed onto the special thread counterpart. The subsequent cooling off or shrinking process of the tool creates the perfect connection.

DUOPLUG® guarantees the best concentricity and rigidity - even with long shanks and roughing processes in the high-speed range.

The absolutely backlash-free and centred fittings also achieve incomparable precision in the roughing area. Naturally, this is connected to the retention forces necessary for this application area.

And that lets you easily achieve milling performance at the highest level.



Solid carbide adapters for the DUOPLUG® combination clamping system

With POKOLM solid carbide adapters, the required process reliability is always guaranteed even during unmanned operation.

Diameter:	12 mm	16 mm	20 mm	25 mm
Lengths (mm):	20, 40, 60, 80	25, 50, 75, 100, 125, 150	25, 50, 75, 100, 125, 150, 175	25, 50, 75, 100, 125, 150, 175, 200
DUOPLUG® Thread:	M 7	M 10	M 12	M 16



DUOPLUG® shrinking adapters

Shrinking adapters also put the extreme DUOPLUG® connection precision into the HSC area. They create the ideal supplement for processing deep cavities.

Diameter:	6 mm	8 mm	10 mm
Lengths (mm):	35, 45, 50	45, 50	50
DUOPLUG® Thread:	M 10, M 12, M 16	M 12, M 16	M16





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