

# SO and SOE

quick • uncomplicated • precise

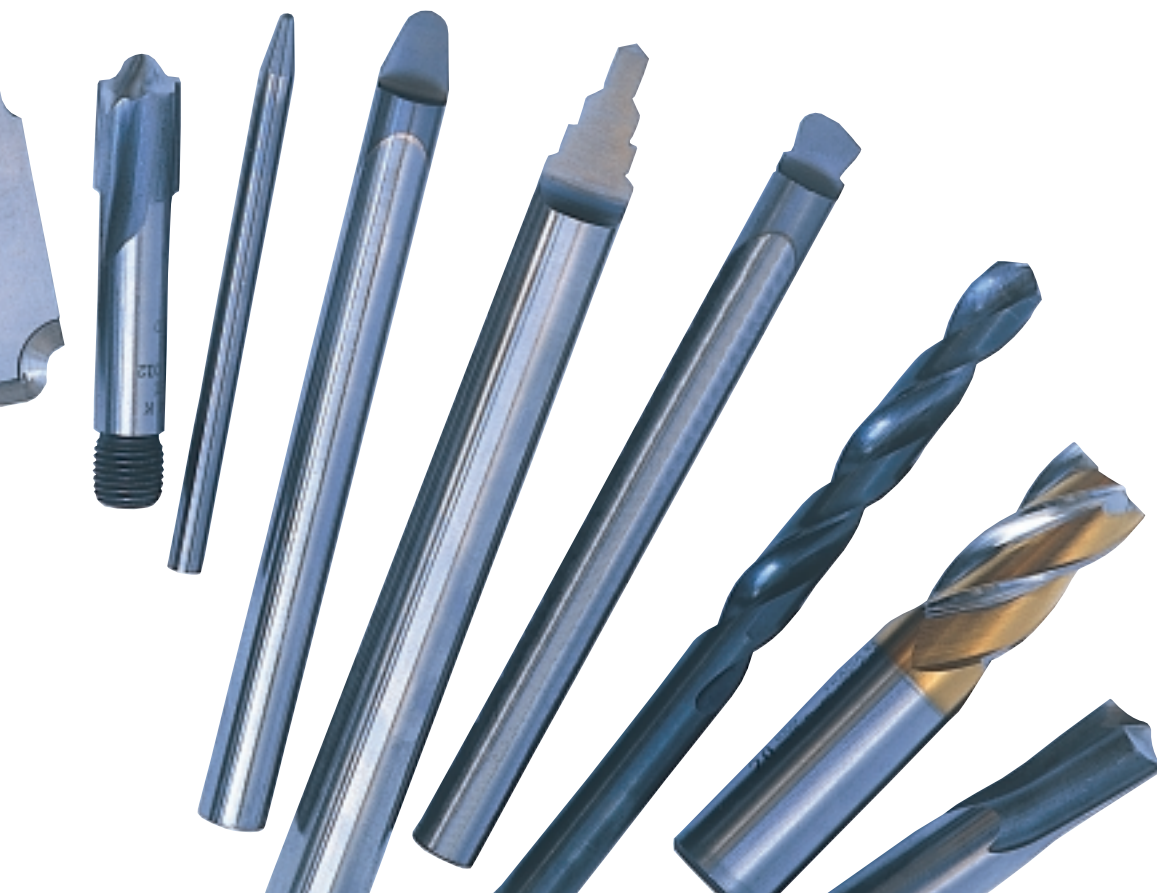
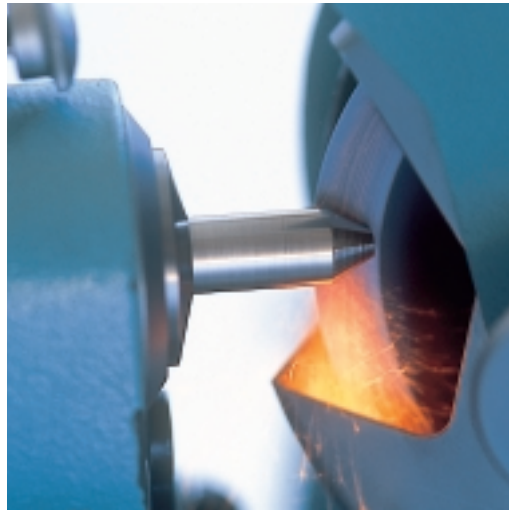


MICHAEL DECKEL

**SO/SOE**

# Time-proven, sturdy and versatile

For applications that require the grinding of engraving tools, die sinking cutters or other tools necessary for processing complicated work piece shapes with a high degree of surface finish, the high powered DECKEL S0 and S0E single lip cutter grinders are the Solution.

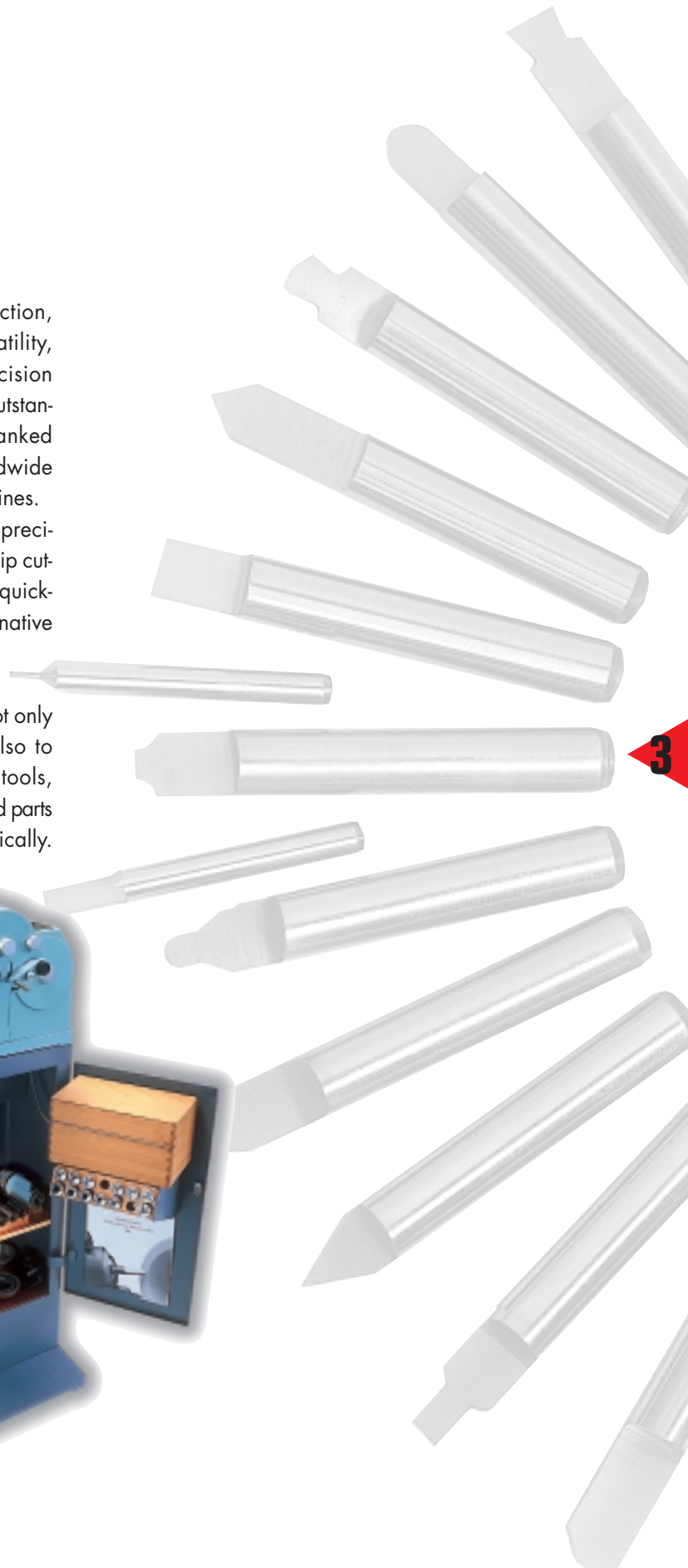




Durable construction, amazing versatility, exceptional precision and quality. These outstanding features have ranked

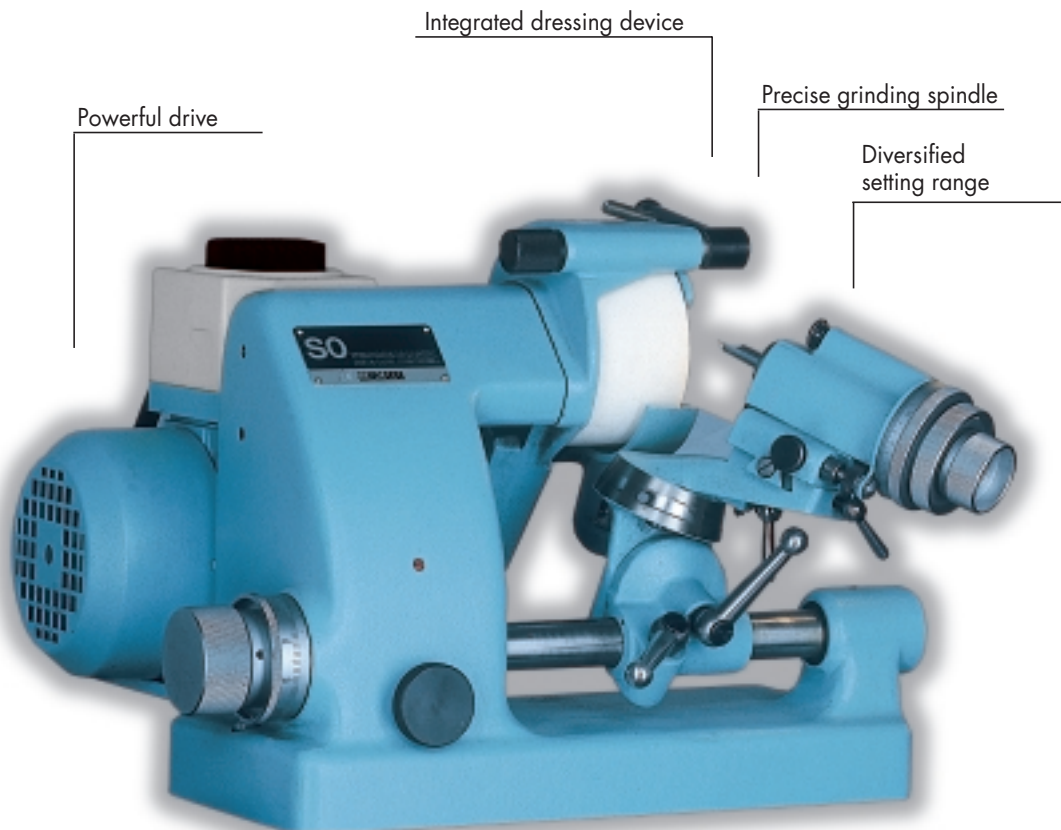
the DECKEL S0 and S0E as the worldwide leader in single-lip cutter grinding machines. Whether the application calls for high precision grinding, producing superior single-lip cutters, making complicated edge shapes quickly or regrinding rapidly, there is no alternative to the DECKEL S0 and S0E.

The S0 and S0E offer the versatility to not only grind accurate single-lip cutters but also to produce stamps, cutting and shaping tools, tracer pins and centering points. Other round parts also are prepared quickly and economically. Even drills, straight-fluted radius cutters and the end faces of end mills can be made razor sharp again.



S0

## Power packed



The S0 is our time-proven basic model. Its ingenious construction and fundamental design with nearly unlimited setting choices, make the DECKEL S0 an indispensable machine necessary for every business. With the S0 you perform your daily grinding tasks with style.

The DECKEL S0 has often been copied, but never equalled in terms of quality and reliability. Our meticulous machining and assembly guaranty long-term precision, even after many years of rugged use in the workshop. DECKEL precision and quality, combined with proper machine maintenance, make the S0 an unbeatable investment.







## AN INGENIOUS CONCEPT

The unique capabilities of the S0 are based on its universal capacity for swivelling and setting. This forms the basis for the variety of shapes that can be achieved.

All controls are easily accessible because they are located on the front of the machine. The heart of the S0, the index-head, is positioned so that it is not only adjustable longitudinally, but also can be swivelled on two levels vertical to each other. With these capabilities, tools up to 18.0 mm ( $11/16$ ") diameter can be held and adjusted for grinding **uncomplicated working** eccentric radii transversely to the vertical swivelling axis. As an option, other tool holders are available for square or rectangular shaped tools or for tools with larger diameter **extremely flexible** (see pages 8 and 9).

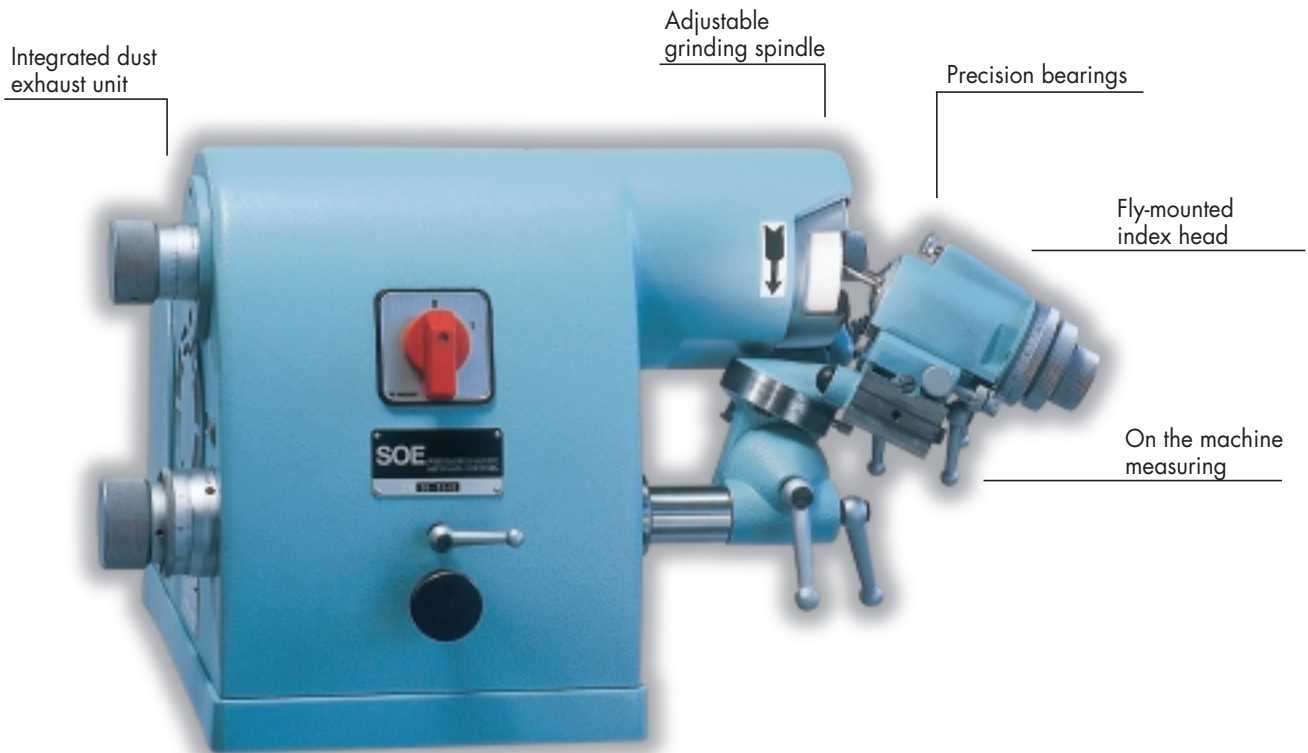


The grinding spindle is preclamped and precision mounted in bearings. This means that it is free of play and allows the operator to grind without vibration thereby eliminating chatter marks. Additionally, **consistent quality** the precision craftsmanship ensures proper sealing to protect against wheel swarf and dirt, guaranteeing quality work for many years. Dressing the grinding wheel on the S0 also is effortless. The standard dressing device with its fine-adjustment **quick & practical** screw is integrated in the safety cover of the grinding wheel and with one movement can be brought to its working position. Another standard feature, the dust cover, allows a dust extractor unit to be easily attached.

The S0 is available either as a bench model or on a sturdy pedestal, which the machine is positioned at an ergonomic height. In addition, the pedestal features a handy tool tray and a lockable cabinet door for convenient storage. Collets and other accessories are easily accessible on the specially designed shelves.



# The Competitive Edge



Demanding jobs – The SOE gives you the competitive edge. When specifications require high degrees of precision, complex cuts or large quantity runs, the SOE's features provide the advantages that help you outperform the competition.

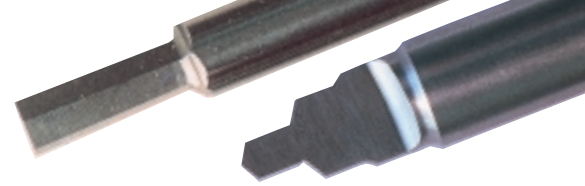
The SOE adds another dimension to single-lip cutter grinding. The SOE advances the capabilities of the S0 with a totally enclosed housing, built-in drive system, a fly-mounted tool holder, an axially adjustable grinding spindle, more powerful motor and built-in dust exhaust unit.



Unique : The optional measuring projector or microscope, that allow for on the machine measuring, are only available with the DECKEL SOE. High precision tools can be set more rapidly and more accurately (see page 10).

As with the S0, bench or pedestal versions are available.





## GREATER ACCURACY AND FLEXIBILITY

The fly-mounted index head allows for a greater range of movements and quicker handling during set-up and grinding. **higher flexibility** The tool holder is slid into an approximate position axially. To adjust the tool to the grinding wheel or to advance it a fine adjustment is made in hundredths of a mm (thousandths of an inch), with the fine adjustment screw.

As with the S0, two swivel bearings enable the tool to be swivelled on dual levels vertical to each other. Since the vertical swivel bearings is encased in needle bearings, a higher degree of accuracy can be **greater accuracy** obtained.

The index head slide can be adjusted with the vernier over a 10 mm (0.4") range on both



sides of the guide way. Therefore, with the SOE you can grind eccentric radii which are greater than half the tool diameter.

## INGENIOUS DESIGN

The axially adjustable grinding spindle simplifies adjustments, minimises errors and saves time. On adjusting, the **axially adjustable grinding spindle** grinding wheel moves toward the dressing diamond. Thus, the grinding wheel always remains in exactly the same position to the clamped tool.

An eccentric disc limits the swivel motion of the dressing diamond, in such a way that a



small lip remains on the wheel face. This prevents overheating the cutting tool during grinding.

## ENVIRONMENTAL FRIENDLY

With the SOE, the dust exhaust unit is integrated within the housing making it particularly effective. Since the grinding wheel is almost completely protected by a rotating cover, wheel swarf is safely caught in the dust extractor filter during the grinding operation. **healthier work place**

# Accessories S0 and SOE

## Exciting extras

In the following pages a wide range of accessories are offered that can increase the scope of application of your S0 and SOE and make your machine even more versatile and economic. For ease of identification, indispensable accessories are marked with a red triangle (▲), while a black triangle (▲) designates parts that can be re-equipped at any time.

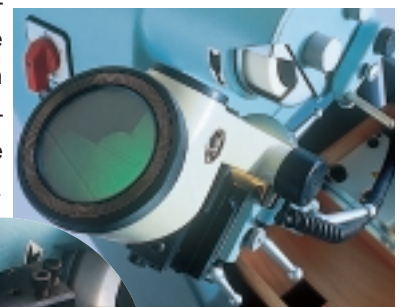


DUST EXHAUST UNIT FOR THE S0 ▲

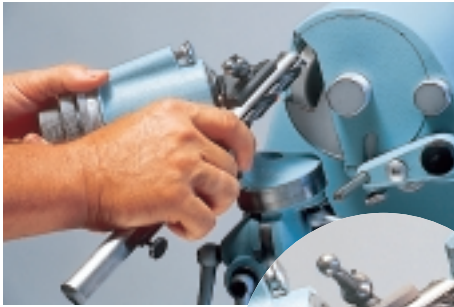
The standard dust protection cover makes it possible to equip the S0 with an external dust exhaust unit. Two types are available, a standard unit or the Category H style, which is approved for harmful environments with carcinogenic dusts of Group I and II.

TOOL HOLDER FOR S0 AND SOE ▲

For reconditioning and manufacturing of rectangular or square turning and forming tools with any desired profile or for grinding radii on reversible carbide tips up to 20 mm (0.78") height. In conjunction with the SOE's projector or microscope, you can gauge radii and profiles up to the height of 8 mm (0.31") in mere seconds and drastically reduce set-up times.







#### TWIST DRILL GRINDING ATTACHMENT FOR S0 AND S0E ▲

A useful device for grinding twist drills with diameters from 3.0 to 18.0 mm ( $1/8"$  to  $11/16"$ ) and point angles from  $90^\circ$  to approx.  $120^\circ$ . The relief angle can be set as required.



#### SPECIAL CUTTER LOCATION FIXTURE FOR S0 AND S0E ▲

This increases the clamping range of the S0 and S0E up to 25 mm (1") shank diameter and Morse taper 1 to 3, through bore 25 mm (1") diameter.



#### Collets for S0 and S0E ▲

The standard "DECKEL" style with a 20 mm shaft diameter and a 20 X 2 mm buttres mounting thread; clamping range 0.5 to 18.0 mm ( $1/32"$  to  $11/16"$ ) diameter. Also available in MT1 and MT2 version and square tools in metric or inch sizes.

#### MACHINE LAMP FOR S0 AND S0E (NOT ILLUSTRATED) ▲

A flexible arm and halogen light source makes this option the ideal lighting for performing all your grinding operations.



#### OTHER ACCESSORIES



- ▲ Measuring projector or microscope for S0E (see next page)
- ▲ Grinding wheels
- ▲ Grinding wheel mounts (also available in balancing version)
- ▲ Dressing diamond
- ▲ Diamond hand lapper
- ▲ Collet stop
- ▲ Spindle location fixture for locating spindle assembly of DECKEL G1L, G1U and GK12 engraving machines
- ▲ Spare filters for dust exhaust unit
- ▲ Grinding grease
- ▲ Main power cable with plug

## Precise setting – Perfect measuring

The manufacture and re-grinding of tools for delicate and intricate engraving or complex milling within strict tolerances require both skill and a trained eye. For this precise reason the MEASURING PROJECTOR and the MICROSCOPE are available for the DECKEL SOE.

### THE MEASURING PROJECTOR



For setting and measuring, the measuring projector is simply placed on the SOE index head. It automatically adjusts so that the projector scale center is in exact alignment with the swivel axis of the tool holder. Thus, the blank is set quickly and precisely.

After grinding you can measure and check accuracy to hundredths of a mm (thousandths of an inch) without removing the tool. Since the tool remains in the holder during this procedure, refinishing can be done without having to reset the tool. Simple, reliable and time saving.

With the 8 X magnification of the workpiece silhouette and a built-in reticule, all radii and lengths can be read easily at a glance. A

second reticule which can be rotated 90°, precisely measures angles.

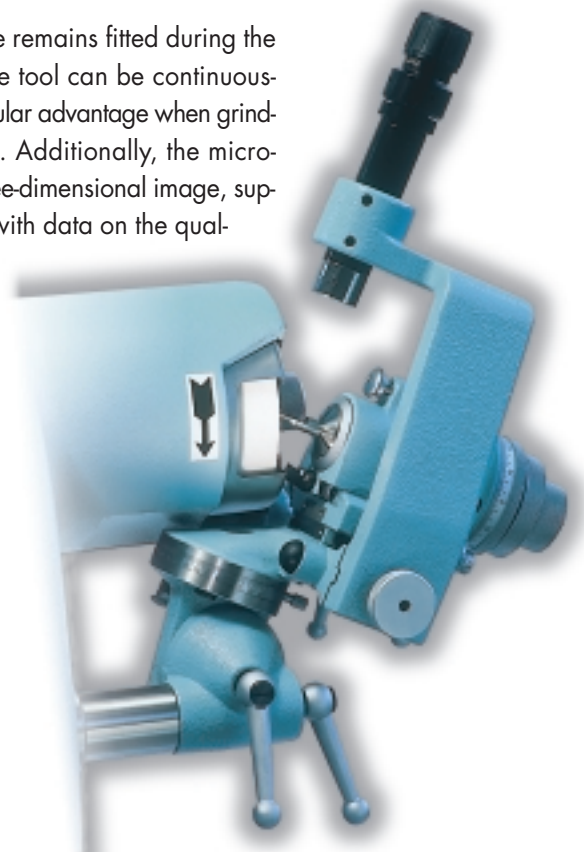


### THE MICROSCOPE

An exciting alternative for measuring on the SOE or a logical addition to the measuring projector. With a field vision imaging 6 mm ( $\frac{1}{4}$ " ) diameter and magnification of 1:20, the microscope is ideal for small tools with intricate shapes and strict tolerances.

Since the microscope remains fitted during the grinding process, the tool can be continuously monitored, a particular advantage when grinding complex shapes. Additionally, the microscope provides a three-dimensional image, supplying the operator with data on the quality of the cutter's surface. The microscope is indispensable in micro engraving.

The measuring projector and microscope can be retrofitted easily.



# Technical Specifications

**S0**

**S0E**

## Grinding motor/spindle

▶ Power rating	0.25 kW (0.34 hp)	0.55 kW (0.75 hp)
▶ Motor speed	2800 rpm	2800 rpm
▶ Spindle speed	4500 rpm	4500 rpm

## Tool holder

▶ Tool diameter with collets	0.5 to 18.0 mm ( $1/32$ to $11/16$ in.)	0.5 to 18.0 mm ( $1/32$ to $11/16$ in.)
▶ Tool diameter with special tool holder	16-18-20-25 mm ( $5/8$ to 1 in.)	16-18-20-25 mm ( $5/8$ to 1 in.)
▶ Taper collets	MT1, MT2, GA	MT1, MT2, GA
▶ Taper adapters	MT1, MT2, MT3	MT1, MT2, MT3

## Tool holder settings

▶ Lateral adjustment	10.0 mm (0.4 in.)	10.0 mm (0.4 in.) both ways
▶ Longitudinal adjustment	40 mm (1.6 in.)	40 mm (1.6 in.)
▶ Maximum relief angle	45°	45°
▶ Fine adjustment of indexing head relative to spindle	15 mm (0.6 in.)	15 mm (0.6 in.)
▶ Number of registers on index plate	12	12

## Dimensions

▶ Length	510 mm (20 in.)	660 mm (27 in.)
▶ Width	565 mm (23 in.)	570 mm (23 in.)
▶ Height	290 mm (12 in.)	325 mm (13 in.)
▶ Height of machine pedestal	915 mm (36 in.)	865 mm (34 in.)

## Weight

▶ Table model	32 kg (70 lb.)	65 kg (145 lb.)
▶ Pedestal model	67 kg (150 lb.)	125 kg (275 lb.)

## Standard accessories

Wheel mount for cup grinding wheel  
 Extractor nut for wheel mount  
 100 x 50 x 20 mm cup grinding wheel for HSS tools  
 Tool set (8 wrenches)

## Paintwork, structure

▶ Machine	Pastel turquoise RAL 6034	Pastel turquoise RAL 6034
▶ Pedestal	Blue grey RAL 7031	Blue grey RAL 7031

Each machine is supplied with a detailed set of operating instructions and a spare parts list with instructions on removing and fitting

<http://www.michael-deckel.de>

At [www.michael-deckel.de](http://www.michael-deckel.de) you can now find on the internet information on new products, current dates for trade fairs and a lot more

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# Michael Deckel – Tool sharpening with precision, world-wide



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