TSCHORN®
Mess- und Spannmittel

TSCHORN® 4.0

Made in Germany

Edge finder 3D
(Workpiece measurement)

+ Repeatab

+ cheap
cost- ben

+ Placemen
(flexible
cessing r

+ Status di
clearly v

With the help of the edge finder, you can automatically determine your workpiece position / location and check / control the accuracy of your workpiece.

Zero setter (Tool setting)

ility +/- 3 µm

efit ratio

t of the receiver
and outside the pro-
oom possible)

splay
isible to the user

With the help of the zero setter you can automatically measure tool lengths or check if the tool is broken.

The history of probing goes back over 100 years

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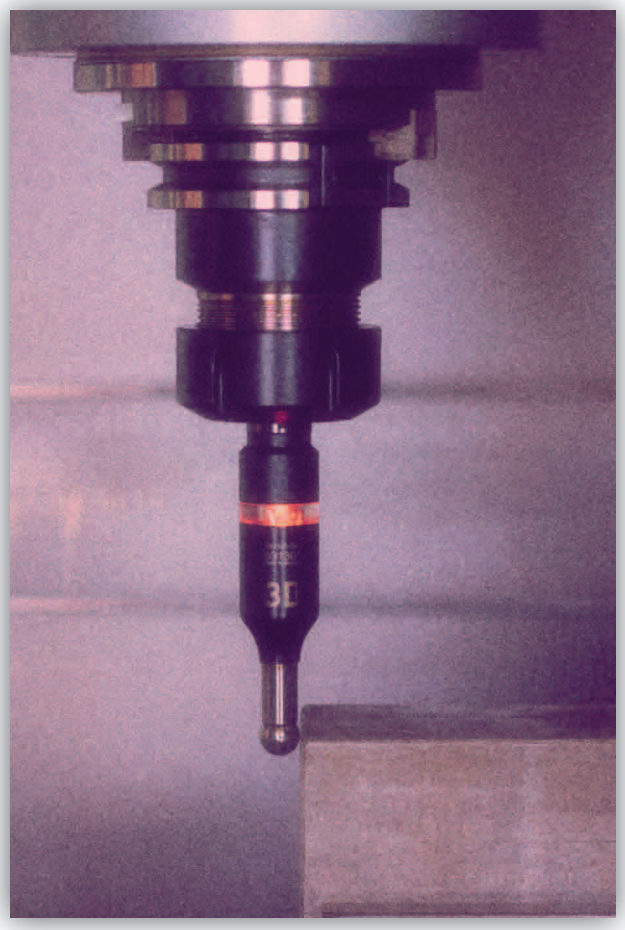
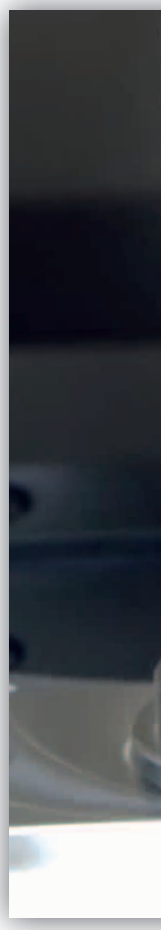
Edge finder mechanical

around 1900

Edge finder electrical



around 1990



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3D Tester

ound 2000

2017

The principle of the development

based on a common electrical edge finder
with LED

Step 1:
Removing the LED

Step 2:
Installing a radio electronics

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was born

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Please note: In this catalogue, TSCHORN 4.0 is presented using the example of the Siemens control. TSCHORN 4.0 also works on any other commercially available machine controller, provided that the control has measuring cycles included.

The functionality:

1. Probing signal = electrical contact (between shank & ball)

2. LED lights up in RED

3. At this moment, the probing signal is sent to the receiver

4. The receiver receives the signal

5. The receiver forwards the signal via cable to the machine control

Machine control

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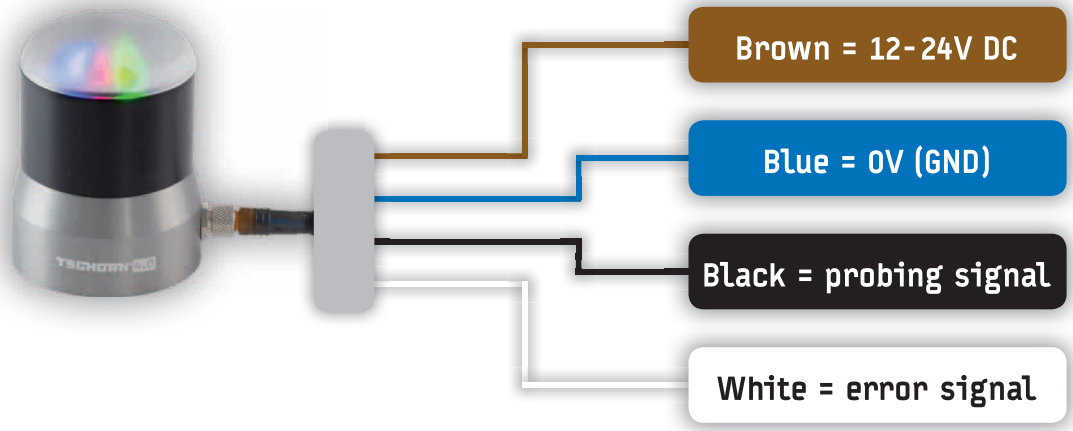
Connecting to the machine

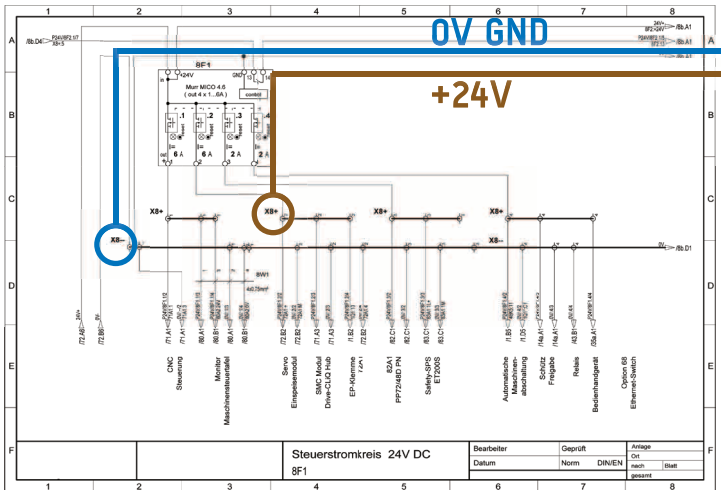
Your machine has to meet the following requirements:

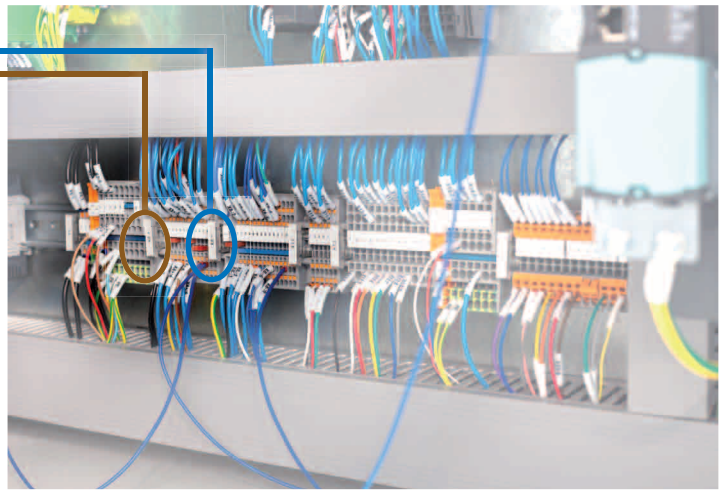
1. The machine has to have so called measuring cycles
2. You need a power supply between 12V and 24V DC
3. You need an input for the probing signal
4. You need an input for the error signal
   (Please note: the error signal is not mandatory)

You only have to connect 4 wires with the machine control:



Electrical power supply:





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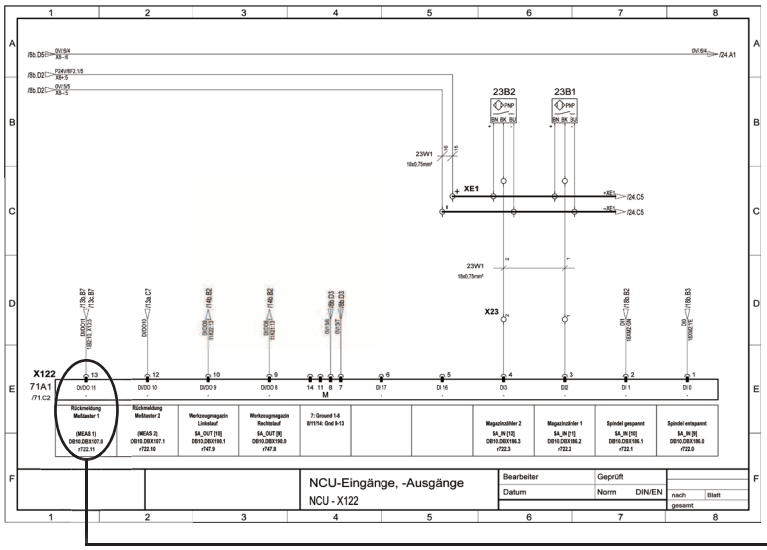

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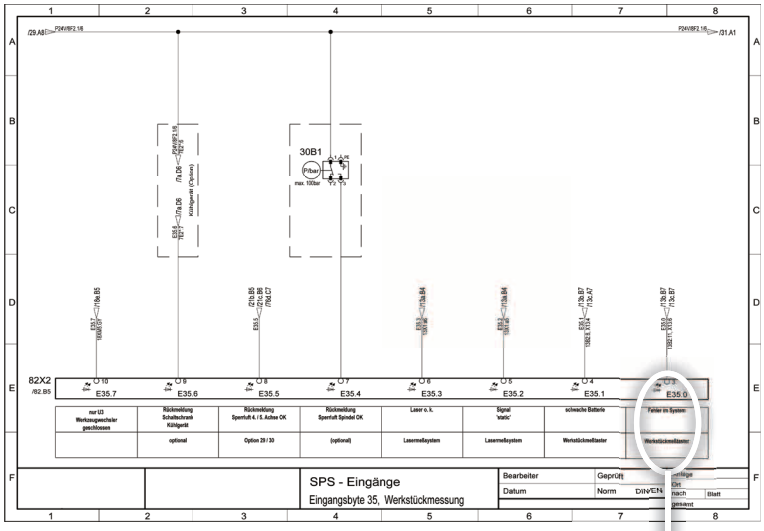
Probing signal



Error signal

Important note:
Work on the machine control should only be undertaken by specially trained qualified personnel.

Again, the example „Siemens“ was used. However, the connection is possible on any available machine control, provided that it has measuring cycles.

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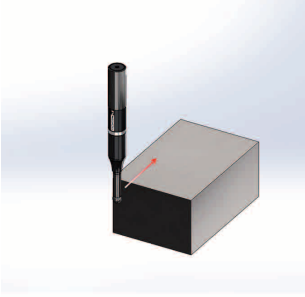
Examples of use

Probing edge in manual mode:

1. Position the probe manually in front of the edge.
2. Start the probing process.
3. The machine starts the axis movement.
4. During the movement, the control waits for the probing signal.
5. The workpiece is touched (= electrical circuit closed).
6. The probing signal is sent to the control.
7. The axis movement is stopped.
8. The actual position is written into the offset (the zero offset).
9. The tester moves to safety distance.

X axis

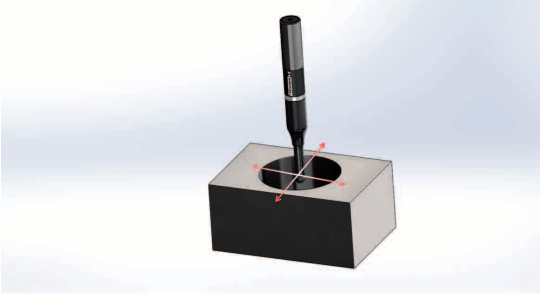


Y axis

Z axis

Probing circle in manual mode:

1. Manually position the probe near the centre of the edge.
2. Enter the circle diameter and, if necessary, the measuring depth (incrementell).
3. Start the probing process.
4. The machine independently measures 4 points and determines the circle centre.
5. The circle center (X / Y) is written into the offset.
6. The tester moves to the centre of the circle.



Bore hole

Spindle

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Align by edge or level

Align by edge

1. Position the tester manually before point 1.
2. Start: Point 1 is measured and the tester moves to safety distance.
3. Position the tester manually before point 2.
4. Start: Point 2 is measured and the tester moves to safety distance.
5. The control calculates the angle for the coordinate rotation.
6. The angle for coordinate rotation is automatically written into the offset.

Align by level

1. Position the tester manually before point 1.
2. Start: Point 1 is measured and the tester moves to safety distance.
3. Position the tester manually before point 2.
4. Start: Point 2 is measured and the tester moves to safety distance.
5. Position the tester manually before point 3.
6. Start: Point 3 is measured and the tester moves to safety distance.
7. The control calculates the angle for the coordinate rotation.
8. The angle for coordinate rotation is automatically written into the offset.

Sample applications

Measurements in automatic mode

Measurements can be integrated directly into the machining program by means of measuring cycles. Programmable measurements of various kinds are possible and open up a variety of manufacturing possibilities.

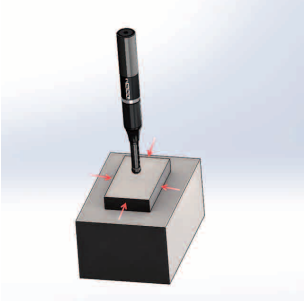
Bore hole

reference circle

Spindle

reference circle

Rectangular pocket



Rectangle

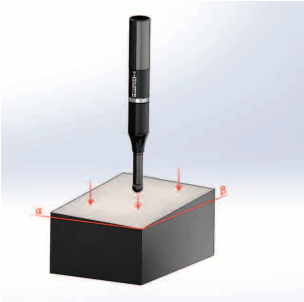
Nut

Root face

Corner outside

Corner inside

Align by edge



Align by level

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Processing the measured values

Transfer to offset

Example: You clamp your workpiece but want to check the exact position of each workpiece and adjust the machining.
This allows you to transfer the results directly to your zero offset in programmable mode.

Transfer to tool offset

Example: You mill a precise fitting bore. While processing, you can check the bore and the correction value is automatically passed to the tool offset.

Output in Excel file

Example: You check every workpiece during machining. The measured values can then be output to a file.

Decide good / bad

Example: You measure each workpiece during machining. If the measurement result is within the tolerance, the machine continues to work. If the measurement result is out of tolerance, the machine is automatically stopped.

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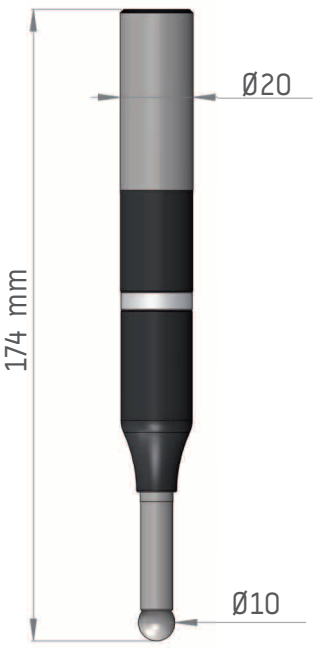
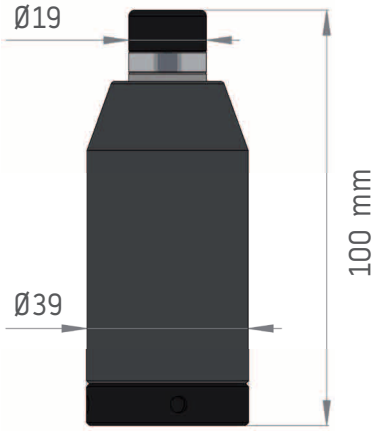
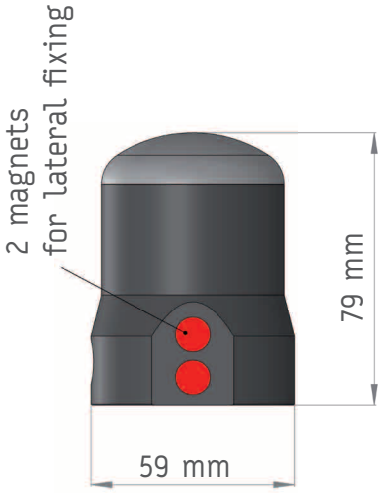
Dimensions







Complete system

The complete system contains:
- Edge finder 3D (for workpiece measurement)
- Zero setter (for tool setting)
- Receiver
- With test certificate

Art.-No.	Description	Price / pc.
00SYS1020	System TSCHORN 4.0 edge finder 3D + zero setter	2.590,00 €

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Workpiece measurement - edge finder 3D

The system contains:
- Edge finder 3D (for workpiece measurement)
- Receiver
- With test certificate

Art.-No.	Description	Price / pc.
00SYSOKT0	System TSCHORN 4.0 - edge finder 3D	1.950,00 €

Tool setting - zero setter

The system contains:
- Zero setter (for tool setting)
- Receiver
- With test certificate

Art.-No.	Description	Price / pc.
00SYSONE0	System TSCHORN 4.0 - zero setter	1.570,00 €

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ФРАКТАЛЬНІСТЬ

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