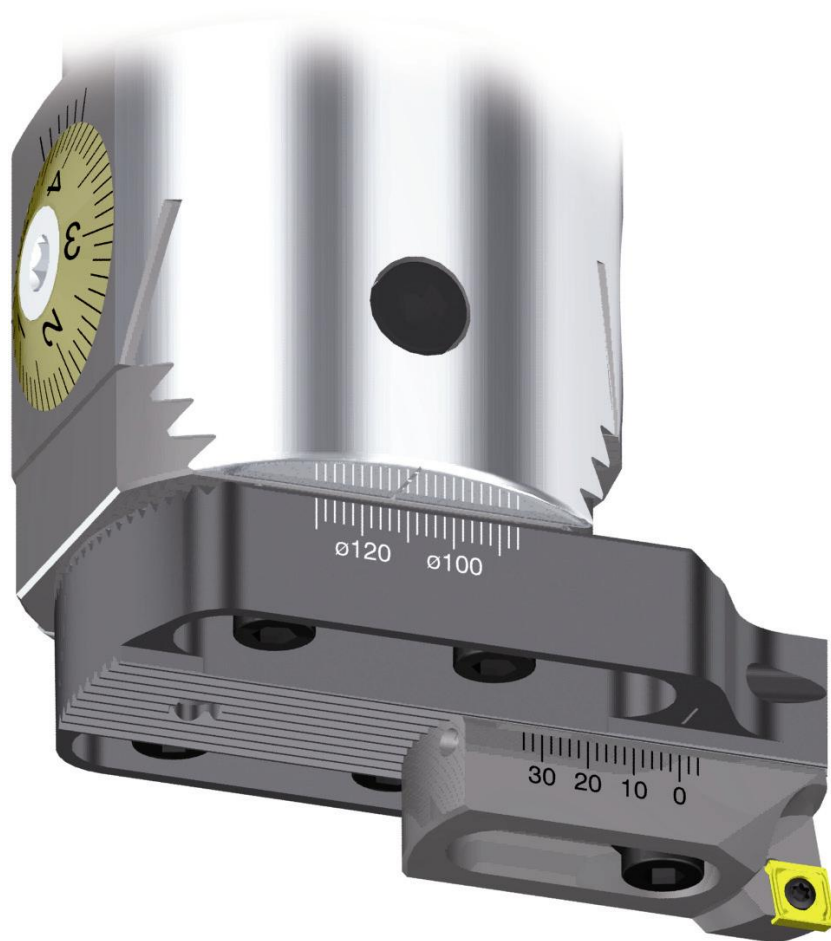


SWISS+TOOLS

Operating instructions

Fine boring head $\varnothing 3-320$ mm



1. Basic safety information



Before first use, please read the operating instructions carefully. These provide important safety information and information concerning use and maintenance of the tool.

This precision boring tool is designed for finishing bores in metallic materials.

Specific information on the machining of individual metallic materials is not the subject of these operating instructions. No other application is permitted and could be dangerous. The manufacturer cannot be held responsible for damage or injury caused by improper use. A damaged tool could endanger your safety! Decommission the tool immediately and contact your suppliers. This tool complies with the prescribed safety regulations. Repairs must be undertaken only by trained personnel. Improper repairs can represent a considerable risk for the user. Keep the Operating instructions for use in a safe place for future use.

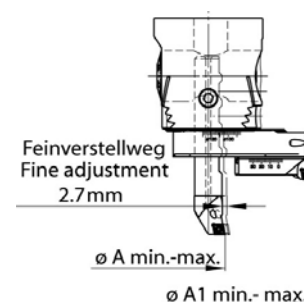
2. Application and operation

The precision boring tools are designed for precision holes from \varnothing 3 to 320 mm diameter. The diameter range could be reached with 6 boring bars and 2 aluminium bridges.

If the boring depth is increased by reducers, a smaller external reducer diameter must be selected than the machining or interference circle diameter.

3. Tool features

- manufactured from hardened and ground alloyed case-hardening steel resp. aluminium
- Main body balanced
- as monobloc- or modular tool available
- for boring bars with shank diameter 16mm and fine boring bridges
- diametrical adjustment nearly without reversal backlash
- 0.01mm diametrical adjustment resp. 0.002mm by nonius
- with inner coolant supply
- boring bar go through the head
- to reach the diameter range there is original SWISSTOOLS equipment necessary



4. Balancing

The main body of the Multi-Head series is balanced. The unbalance, which normally occurs when adjusting the blade holder, is reduced to a minimum. For machining with the aluminium bridges, a counter weight is available.

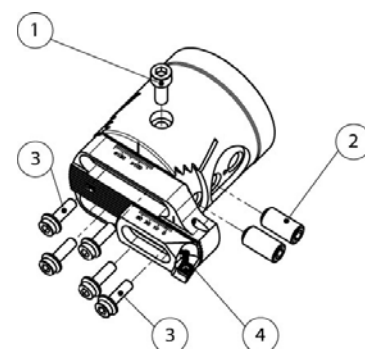
No additional balancing surfaces or holes must be added to this boring tool! Max. permitted residual imbalance of the machine manufacturer has to be observed (if necessary complete tools have to be balanced).

5. Operation

Assembling of the aluminium bridges and insert holders

The aluminium bridges and the insert holders are manufactured with a teeth profile, the parts can be assembled in a simple and fast way. The tightening torques of the fastening screws (3) see technical data. The scale values of the aluminium bridge and the insert holder have to be added.

Example: Presetting bridge \varnothing 120 + insert holder \varnothing 20 corresponds to a diameter from 140mm.




Assembling of the boring bar

The aluminium bridge and the fastening screws (3) have to be disassembled. The boring bar need a shank diameter of 16mm otherwise a reduction sleeve is needed. The boring bars are adjustable in the


length. The boring bars have to be clamped with the fastening screws (2). The tightening torques of the fastening screws (2) see technical data.

Clamping

To clamp the adjustment and slider tighten the clamping screw (1). For machining the clamping screw has to be clamped. Before every adjustment of the diameter the screw has to be released. The size of the wrench for the adjustment and clamping is the same.

 To avoid damage to parts of the adjustment mechanism, do not make any diameter adjustments in the clamped state.

Fine adjustment mechanism: The TIN coated scale screw allows a accurate adjustment. The adjustable range is blocked in both directions.

 To avoid damage to parts, never use force when carry out adjustment.

Example:

4. Open the clamping screw (1).
5. For the diameter setting, adjust the tool by turning the scale screw either
 - on a tool setting device or
 - by carrying out a trial drilling or gauge cut on the machine.

One revolution of the dial is equivalent to the adjusting bolt (and hence also the cutter on the tool) undergoing a diameter adjustment of 0.5 mm. One division on the dial corresponds to a diameter adjustment of 0.01 mm. 3. To readjust the tool (i.e. increase diameter): Readjust the scale screw by the value required. The smallest value on the scale screw will give a diameter adjustment of 0.002 mm

4. Setting the tool back (i.e. decrease diameter)
 - read off the value set on the tool
 - turn the scale screw back (i.e. anti-clock-wise) approx. half of one full turn. Left turn direction.
 - set the new (smaller) value on the scale screw.
5. Tighten the clamping screw (1). Torque for the clamping screw, see technical data

6. Service

It's not necessary to grease the tool. The teeth profile has to be cleaned before assembling. Service and repairs will be done in our company.

7. Technical Data

Diameter adjustment:

- 1 division on the scale:0.01 mm in dia.
- 1 vernier line:0.002 mm in dia.
- 1 revolution at the dial:0.5 mm in dia.

Position	Description	Tightening torque
1	Clamping screw	8 Nm
2	Fastening screw	10 Nm
3	Fastening screw	5 Nm



SWISSTOOLS tools are subject to constant further technical development. You can obtain up-to-date information from our product catalogue as well as on our website. We reserve the right to technical changes.