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# **Instruction Manual**

**version 1.2 from 17.12.2009**

## **ZTJ 3020** **Temperature control jacket**



## Index

Exclusion.....	2
1. Safety notes.....	3
1.1 Dangers.....	3
2. Delivery of device.....	4
2.1 Damage during carriage.....	4
2.2 Extent of delivery.....	4
2.3 Optional accessories.....	4
3. Handling.....	5
4. Technical data.....	6

### Enclosure:

- Certificate of manufacturer

## Exclusion

The figures and descriptions as well as the technical data correspond to the present operating instructions at the time of printing. Changes of any type, resulting from technical progress, modified design or similar, are reserved.

The operating instructions have been prepared with the greatest care. Nevertheless, errors cannot be completely excluded. The manufacturer cannot be made liable for any errors in these operating instructions and possible damage resulting from these.

The manufacturer is always grateful for suggestions, proposals for improvement and indications of errors.

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## 1. Safety notes

### 1.1 Dangers





#### **Attention!**

This note is included in this instruction manual wherever it is warned about dangers which will arise to life and limb of persons if the apparatus is handled improperly. Observe these notes and be particularly careful in these cases. Also inform other users on all safety notes. Besides the notes in these instruction manual the generally applicable safety instructions and regulations for prevention of accidents have to be taken into account.

#### **Caution**

This note comprises instructions to be observed in order to comply with guidelines, instructions, notes and the proper procedure of the work, and to avoid damaging or destruction of the apparatus.

### 1.2 Safety notes

-  The ZTJ 3020 is exclusively intended for the determination of the scratch hardness. Any other application is not in accordance with the regulations. For damages resulting thereof the manufacturer is not liable; the risk for this is taken by the user alone.
-  Avoid any mode of operation that could affect the security working with the ZTJ 3020. Especially the determination of the scratch hardness must take place as described in this operating manual.
-  Only spare parts provided by the manufacturer may be used. When using other than by Zehntner provided parts with the ZTJ 3020, Zehntner may not be hold responsible for defects or damages.
-  Reconstruction without permission and modifications of the ZTJ 3020 are not permitted. The warranty expires therewith. For damages resulting thereof the manufacturer is not liable; the risk for this is taken by the user alone.

## 2. Delivery of device

### 2.1 Damage during carriage

During carriage the ZTJ 3020 is to be handled with the usual care. To ensure carriage without damages the device is to be transported in the original packaging and under normal freight conditions. Pushes during carriage are to be avoided.

At the destination take out the device of the packaging and check immediately for any damages from the transport; if there are any damages your authorized ZEHNTNER trader or **Zehntner GmbH Testing Instruments** directly should be informed immediately.

### 2.2 Extent of delivery

The following parts are included in the delivery:

- 1 temperature control jacket for flow cups with attachment according the order
- 1 closed double featured vessel for indirect tempering
- 2 tube accesses to temper liquids
- 1 spirit level for levelling
- 1 certificate of manufacturer

### 2.3 Optional accessories

- ACC 050 insertion thermometer up to 400°C (for fluids)
- ZFC 3010, ZFC 3011as well as ZFC 3013 Flow cups



### 3. Handling

- thanks to the adjustable feet and built-in spirit level, the temperature control jacket is easily to levelling
- put the chosen flow cup into the temperature control jacket



- for tempering you need additionally a circulation thermostat
- connect the circulation thermostat by use of two heating/cooling tubes on the tube access of the temperature control jacket so that you have a closed circuit
- adjust the required temperature at the circulation thermostat and begin with tempering
- start the viscosity determination at the required temperature in accordance to the separate instruction of the flow cup and the respecting standard
- after finishing viscosity determination, firstly remove one heating/cooling tube, cover the tube access with your thumb, remove the second heating/cooling tube and pour the temperature control liquid in the circulation thermostat

**4. Technical data**

version:	application / standards	flow cup
3020.ISZ	for cylindrical Zehntner-Flow cups according to DIN 53211 or ASTM D 1200 with adaptor for flow cups according to ISO 2431	
3020.DFK	for conical Zehntner-Flow cups according to DIN 53211 or ASTM D 1200	
3020.FDF	adaptors for flow cups of other manufactures according to DIN 53211 or ASTM D 1200	

material: aluminium, anodized

dimensions (LxWxH): 180 mm x 210 mm x 260 mm  
(7.1" x 8.3" x 10.2")

weight: 3020.DFK: 750 g (1.65 lbs),  
3020.ISZ: 800 g (1.76 lbs),  
3020.FDF: depending on adaptor;  
approx. 800 g (1.76 lbs)

warranty: 2 years