

# ZFC 3010 – 3015

## Flow Cups / Immersion Flow Cups

### Instruction manual





Exclusion of liability.....	4
1 Description of device .....	5
2 Safety information .....	6
2.1 Symbols used.....	6
2.2 Safety notes and hints .....	6
3 Delivery of device .....	7
3.1 Damages during carriage.....	7
3.2 Shipment.....	7
3.3 Standard delivery.....	8
3.4 Options .....	8
4 Handling flow cups .....	9
5 Handling immersion flow cups .....	10
6 ACC072 three-foot stand .....	10
6.1 Standard delivery.....	10
6.2 Mounting the ACC072 three-foot stand .....	11
7 Technical specification .....	13
Glossary .....	14

## Exclusion of liability

Illustrations, descriptions as well as the technical specifications conform to the instruction manual on hand at the time of publishing or printing. However, Zehntner GmbH Testing Instruments policy is one of continuous product development. All changes resulting from technical progress, modified construction or similar are reserved without obligation for Zehntner to update.

Some of the images shown in this instruction manual may be of a preproduction model and/or are computer generated; therefore the design / features of the delivered product may differ in various aspects.

The instruction manual has been drafted with the utmost care. Nevertheless, errors cannot be entirely excluded. The manufacturer will not be liable for errors in this instruction manual or for damages resulting from any errors.

The manufacturer will be grateful at any time for suggestions, proposals for improvement and indications of errors.

## 1 Description of device

The ZFC 3010 – 3015 Flow Cups / Immersion Flow Cups are useful test devices for rapid determination of the flow time of paints, varnishes and similar liquids.

### **Application / application areas:**


- For paint and varnish manufacturers and fabricators, as well as test laboratories
- For use in laboratories and during production


In particular, this instrument has the following **features** :

- Easy to handle
- Easy to clean


## 2 Safety information


### 2.1 Symbols used


 This note comprises instructions needed to follow directions, specifications, proper working procedure and to avoid data loss, damage or destruction of the instrument.


 This note signifies a warning about dangers to life and limb 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 this instruction manual the generally applicable safety instructions and regulations for prevention of accidents must be observed.


### 2.2 Safety notes and hints

 The ZFC 3010 - 3015 is exclusively intended for rapid determination of the flow time of paints, varnishes and similar liquids. Any other use is considered as not being in accordance with the intentions of the manufacturer. The manufacturer is not liable for damage resulting from inappropriate application. The user bears the full responsibility.

 Unauthorized modifications and changes of the ZFC 3010 - 3015 are not permitted.

 Reproduction without permission is not allowed.

 **Zehntner GmbH Testing Instruments** refuses all warranty and liability claims for damages caused by usage of the ZFC 3010 – 3015 in combination with **non-original accessories**, or accessories from 3<sup>rd</sup> party suppliers.

 For the operation of the ZFC 3010 – 3015 apply all local safety regulations.

## 3 Delivery of device

### 3.1 Damages during carriage

On the receipt of the goods, check for any visible damages on the packaging. If it is undamaged you may sign the receipt of the goods. If you do suspect by your visual inspection that damage has occurred, make a note of the visible damage on the delivery receipt and request the courier to countersign it. Moreover, the courier service must be held responsible for the damage in writing.

If a hidden damage is discovered while unpacking, you have to inform and hold the courier liable immediately in the following way: "When opening the parcel we had to notice that ... etc." This superficial checking of the goods has to be done within the time limit set by the carrier, which is normally 7 days. However, the period could vary depending on the courier. Hence, it is recommended to check the exact time limit when receiving the goods.

If there are any damages also inform your authorized Zehntner agent or **Zehntner GmbH Testing Instruments** immediately.

### 3.2 Shipment

Should the device be transported again, it must be packaged properly. Preferably use the original packaging for later shipments. Additionally use filling material in the package to protect the device from any shock during carriage.





### 3.3 Standard delivery

The following parts are included in the delivery:


- flow cup / immersion flow cup
- certificate of manufacturer
- storage box

### 3.4 Options

For ZFC 3010, ZFC 3011 and ZFC 3013:

ZTJ 3020 Temperature Control Jacket	
ACC050 insertion thermometer up to 600°C (1'112°F) (for fluids)	
ACC072 three-foot stand completely made of stainless steel, levelling, adjustable feet, with spirit level, height of 260 mm (10.24")	
ACC152 glass plate	

For ZFC 3010-3015:

ACC593 calibration and certification (incl. certificate)	
--	---

**!** **Zehntner GmbH Testing Instruments** refuses all warranty and liability claims for damages caused by usage of the ZFC 3010 – 3015 in combination with **non-original accessories**, or accessories from 3<sup>rd</sup> party suppliers.



## 4 Handling flow cups

Valid for our products ZFC 3010, ZFC 3011 and ZFC 3013:

- Choose a flow cup that will give a flow time of between 30 s and 100 s (depending on the standard).
- Put the flow cup into the levelled three-foot stand.
- Have a timing-device (e.g. a stop watch) ready.
- Close the orifice of the cup by a finger and fill the cup beyond the brim with the liquid under test, avoiding the formation of air bubbles. The excess liquid will be caught by the spillover furrow.



- Slide a glass plate over the rim of the cup so that no air bubbles will be formed between the glass plate and the surface of the sample.
  - Place a suitable receiving vessel under the flow cup, so that the distance between the orifice and the vessel is at least 10 cm.
  - Remove the finger from the orifice, draw the glass plate away horizontally and simultaneously start the timing-device.
- ! Make sure that the surface of the sample is horizontal throughout the whole flow process.
- Stop the timing-device as soon as the stream of the sample breaks for the first time close to the orifice.

## 5 Handling immersion flow cups




Valid for our products ZFC 3012, ZFC 3014 and ZFC 3015:

- Immerse the immersion flow cup entirely below the surface of the liquid under test.
- Withdraw the cup vertically and simultaneously start the timing-device.
- Stop the timing-device as soon as the stream of the sample breaks for the first time close to the orifice.
- The average out of 3 measurements will give the flow time.

## 6 ACC072 three-foot stand

### 6.1 Standard delivery

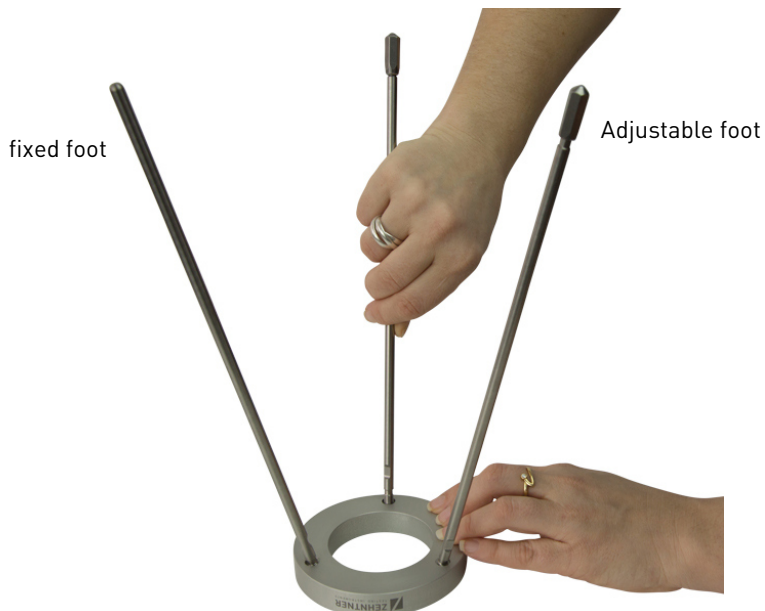
The ACC072 three-foot stand consists of the following parts:

1 holding ring – ACC1527	
2 supporting legs with adjustable feet 1 supporting leg with fixed foot	
1 combination wrench – ACC1526	

## 6.2 Mounting the ACC072 three-foot stand

Before the first use the three-foot stand has to be mounted.

- Screw the 3 supporting legs into the holding ring.



- Tighten the 3 supporting legs with the combination wrench.



- Level the stand with the 2 supporting legs with adjustable feet.



- The three-foot stand is ready to use now.

## 7 Technical specification

Version	with fixed jet No.*	Standards
ZFC 3010	1, 2, 3, 4 or 5	ASTM D1200
ZFC 3011	1, 2, 3, 4, 5, 6, 7 or 8	jet No. 4 acc. with DIN 53211 (withdrawn 1996)
ZFC 3012	1, 2, 3, 4, 5, 6, 7 or 8	based on DIN 53211 (withdrawn 1996)
ZFC 2013	3, 4, 5 or 6	ASTM D5125, EN ISO 2431, BS 3900-A6 (withdrawn 1991)
ZFC 3014	3, 4, 5 or 6	ASTM D5125, EN ISO 2431, BS 3900-A6 (withdrawn 1991)
ZFC 3015	1, 2, 3, 4 or 5	ASTM D1200

\* Please specify jet No. when ordering.

Material cup: anodised aluminium

Material jet: stainless steel

Warranty: 2 years

## Glossary

<b>A</b>		
ACC072 three-foot stand.....	10	
<b>D</b>		
Damages during carriage .....	7	
Device		
Damages .....	7	
Delivery .....	7	
Description .....	5	
Extent of delivery .....	8	
<b>E</b>		
Exclusion of liability.....	4	
Extent of delivery		
ACC072 three-foot stand .....	10	
Flow cups .....	8	
<b>F</b>		
Features.....	5	
<b>H</b>		
Handling		
Flow cups .....	9	
Immersion flow cups .....	10	
<b>I</b>		
Instrument		
Damages .....	7	
Delivery .....	7	
Description.....	5	
Extent of delivery .....	8	
<b>M</b>		
Mounting the ACC072 three-foot stand.....	11	
<b>O</b>		
Options.....	8	
<b>S</b>		
Safety information .....	6	
Shipment.....	7	
Standard delivery		
ACC072 three-foot stand .....	10	
Flow cups .....	8	
<b>T</b>		
Technical specification.....	13	
Transportation		
Damages .....	7	



