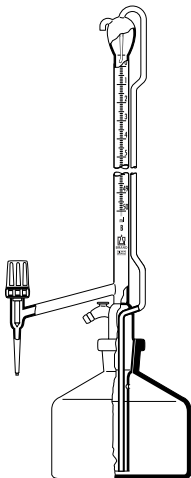


# 自动回零滴定管 Automatic Burettes



BRAND GMBH + CO KG  
Postfach 11 55  
97877 Wertheim  
Germany  
Tel.: +49 9342 808-0  
Fax: +49 9342 808-98000  
E-Mail: [info@brand.de](mailto:info@brand.de)  
Internet: [www.brand.de](http://www.brand.de)

9974 47 · Printed in Germany · 0813/8

## 操作手册

使用前请仔细阅读，并遵守所有操作和安全说明！

## Operating Manual

Please read carefully before use, and follow all operating and safety instructions!





## 目录

	页码
安全说明	4
滴定管进液	6
滴定管赶气泡	7
滴定	7
滴定之后	8
清洗	9
返修	10
建议	11
附件	11
丢弃	11
担保信息	12

## Contents

	Page
<b>Safety Instructions</b>	4
<b>Filling the burette</b>	6
<b>Priming the burette</b>	7
<b>Titrating</b>	7
<b>After the titration</b>	8
<b>Cleaning</b>	9
<b>Sending in for repair</b>	10
<b>Recommendation</b>	11
<b>Accessories</b>	11
<b>Disposal</b>	11
<b>Warranty</b>	12

使用前请仔细阅读！

## 安全说明

该设备可能与有害的物质一起使用。本手册不可能提示这些应用中所有的潜在安全风险。用户有责任在使用前咨询并建立恰当的安全与健康规程，并决定规章限制的适用性。

1. 请遵守有关危害预防和安全规定的一般原则，如：穿着防护服、眼睛防护设备和手套。
2. 请遵守试剂供应商提供的所有安全注意事项。
3. 所有用户在使用该装置之前必须阅读本操作手册。
4. 确保操作不伤害使用者或者其他人员。
5. 该装置仅可用作滴定，并且仅可在推荐的化学耐性和机械性质限制范围内使用。
6. 使用该装置时请不要过度用力。
7. 如需拧松被粘结的滴定阀或磨砂接头，请遵循清洗说明（见第9页）。

Read carefully before use!

## Safety Instructions

This instrument may be involved with hazardous materials. This Operating Manual does not purport to address all of the safety problems associated with its use. It is the responsibility of whoever uses this instrument to consult and establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.

1. Follow the general instructions for hazard prevention and safety regulations. e. g. wear protective clothing, eye protection and gloves.
2. Observe the reagent manufacturer's information.
3. Every user must read this Operating Manual before using the instrument.
4. Always work in a way which neither endangers the user nor any other person.
5. Use the instrument only for titrating, and within the recommended limits of its chemical resistance and mechanical properties.

8. 仅可使用原厂的附件及零备件。

## 准备滴定管

检查滴定阀是否容易松动，如有必要，涂抹少许专用润滑脂。用润滑脂涂抹一下滴定管适配试剂瓶的磨口或使用PTFE-磨砂接口垫片。

6. Never use force when using this instrument.
7. To loosen stuck stopcocks or ground joint connections, follow the cleaning instructions (see page 9).
8. Only use original manufacturer's accessories and spare parts.

## Preparing the burette

Check whether the stopcocks are easy to loosen and grease slightly with tap grease if necessary. Grease slightly the ground joint to the burette bottle with tap grease or use a PTFE-ground joint sleeve.

## 滴定管吸液

将滴定管安装在适配试剂瓶上。将橡胶吸球接在侧方胶管接头上。如果您的滴定管有中间阀，则须关闭中间阀。用手指封闭胶管接头上的气孔，然后挤压橡胶吸球进行吹气。当液面高于零刻度约5 mm，松开封闭气孔的手指，停止操作。滴定管会自动回零。

### 注意！

在中间滴定阀处于打开状态时，请勿为滴定管进液。若滴定管进液过多，液体将通过顶部的溢口溢出。  
(请佩戴眼睛防护装置！)

## Filling the burette

Mount the burette on the filled burette bottle. Connect the rubber bellows to the lateral tubing connector. If your burette has an intermediate stopcock, this has to be closed. Hold the vent closed with a finger and operate the bellows to fill the burette. When the liquid level is approx. 5 mm above the zero mark, lift your finger off the vent to end the filling process. The burette will automatically set to zero.

### Attention!

Never fill the burette while the intermediate stopcock is open. When the burette is overfilled, liquid will escape through the overflow at the top.  
(Wear eye protection!)

## 滴定管赶气泡

通过短暂地打开滴定阀，清除气泡。首次进液之后，滴定管滴定阀内的阀芯上可能会留有一个小气泡。如需去除该气泡，请手持滴定管倾斜一定角度，并用手持轻叩气泡所处位置。

## 滴定

为防止滴定体积出错，请始终从零开始滴定。关闭针形滴定阀时，请始终轻柔转动。用力过大会导致阀芯变形，致使意外的液柱上升（读数出错）。根据DIN ES ISO 385，AS级滴定管有30 s的等待时间要求。但B级滴定管无此要求。AS级滴定管，校准时必须执行此等待时间。但是滴定时可以略过，因为达到滴定终点的时间一般大于所需的等待时间。

## Priming the burette

Remove trapped air by shortly opening the burette stopcock. After the first filling, a small bubble may remain on the valve spindle inside the burette stopcock. To remove this bubble, hold the burette at an angle and tap a finger lightly against the location of the bubble.

## Titration

To prevent volume errors, always start titrating from zero. Always turn gently when closing the needle-valve stopcock. Excessive force may deform the valve spindle, resulting in an unwanted rise of the liquid column in the burette (reading error). According to DIN ES ISO 385, a waiting time of 30 sec is specified for Class AS burettes. There is no waiting time for Class B burettes. For Class AS burettes, this waiting time must be observed during calibration. However, the waiting time can be omitted when a titration is carried out, since the time required to reach the titration end point is generally longer than the specified waiting time.

## 滴定之后

若滴定管具有中间阀，可使滴定管内的物质回流至试剂瓶。请注意，壁上的液体残留可能会部分蒸发。为防止容量出错，请在进行下次滴定操作之前对滴定管进行一次或两次进液和排液。若滴定管数日内不再使用，应进行清洗，以防滴定阀或滴定管与试剂瓶磨口粘结。

## After the titration

If your burette has an intermediate stopcock, the contents of the burette can be allowed to run back into the reservoir. Take into consideration that the liquid residue on the wall may partly evaporate. To prevent volume errors, fill and drain the burette once or twice before the next titration. If the burette will not be used for several days, it should be cleaned to prevent the risk of stopcocks or ground joints getting stuck.



## 清洗

若滴定管不能逐滴排液，或回零过深，应清洗滴定管。清洗滴定管时，请用温和的碱性清洗液充装至其顶部。在上述浸泡时间过后，请用水反复冲洗滴定管。

滴定管清洗之后，请为滴定阀以及试剂瓶磨砂接口涂抹少许专用润滑脂。PTFE针形滴定阀（选配）和PTFE阀芯（选配）无需润滑。

若滴定管与试剂瓶磨砂接口粘结，将其完全浸入清洗液，并浸泡一晚上。请佩戴合适的防护手套，并尝试用稍大的力松动它们。若仍然无法解决问题，请送修。

### 注意！

对于粘死的滴定阀或试剂瓶磨砂接口，请不要过度用力。避免由玻璃破碎导致受伤！

## Cleaning

If the burette does not discharge without dripping, or if it does set zero to deep the burette needs cleaning. To clean the burette, fill it to the top with a mildly alkaline cleaning solution. After the prescribed soaking time, rinse the burette repeatedly with water.

After the burette is cleaned, stopcocks and ground joints are to grease slightly with tap grease. Optional PTFE needle valve stopcock and PTFE key do not require greasing.

If stopcocks or ground joints are stuck, immerse them completely in cleaning solution and allow to soak overnight. Wear suitable protective gloves and try to loosen them with somewhat more force. If this does not work, send in for repair.

### Attention!

Never use force with stuck stopcocks or ground joints. Risk of injury through breaking glass!

## 返修

### 注意：

出于安全原因，返修的仪器必须事先清洁并去除污染。

- 因此：请仔细对仪器进行清洗和去除污染。
- 填写“无健康危害申明”（向您的供应商或生产商索要此表格。此表格可在[www.brand.de](http://www.brand.de)下载）。将申明表与仪器一同寄给经销商或生厂商，准确描述故障情况与所使用的试剂。

⇒ 问题的性质

⇒ 使用的液体

相应的运输费用与风险由发送者承担。

## Return for Repair

### Attention:

For safety reasons, instruments returned for checks and repairs must be clean and decontaminated.

- Therefore: Clean and decontaminate the instrument carefully.
- Complete the “Declaration on Absence of Health Hazards” (Ask your supplier or manufacturer for the form. The form can also be downloaded from **[www.brand.de](http://www.brand.de)**) and send the instrument to the manufacturer or supplier and describe:
  - ⇒ the nature of the problem
  - ⇒ the liquids pipetted.

Return shipment has to be effected at the risk and the cost of the sender.

## 建议

我们推荐使用配有PTFE滴定阀和PTFE阀芯的滴定管，并在试剂瓶瓶颈上使用PTFE磨砂接口垫片。此种滴定阀和垫片易于松动，无需润滑。

## 附件

橡胶吸球

货号 234 00

PTFE磨口垫片

规格 29/32

(10个/包)

货号 514 22

## 丢弃

实验室玻璃器皿构成特殊，必须按照现行法规进行清洗和处置。

## Recomendaciones

Recomendamos la versión con llave de punzón de PTFE, macho de PTFE y un manguito de PTFE para esmerilados para las conexiones esmeriladas entre bureta y frasco para buretas, ya que esas llaves y conexiones se desprenden fácilmente y no es necesario el engrase.

## Accesorios

Pera de goma

Ref. 234 00

Manguito de PTFE

para esmerilado NS 29/32,

10 unidades por embalaje

Ref. 514 22

## Eliminación de desechos

Debido a la composición especial se debe eliminar los aparatos en vidrio para laboratorios y en estado limpio teniendo en cuenta las regulaciones válidas.

## 担保信息

我们不能承担由于不当拿取，使用，服务，操作或未授权的仪器维修产生的结果，我们同样不能承担由于正常易损件如活塞，密封垫圈，阀门的磨损或者玻璃破损而产生的结果，我们也不能承担由于不按照操作手册指导的操作而产生的结果。我们不能承担由于进行任何操作手册未描述的操作与使用或由于非原装配件的使用而产生的结果。

涉及技术信息修改恕不另行通知。可能包含错误。

## Warranty

We shall not be liable for the consequences of improper handling, use, servicing, operating or unauthorized repairs of the instrument or the consequences of normal wear and tear especially of wearing parts such as pistons, seals, valves and the breakage of glass as well as the failure to follow the instructions of the operating manual. We are not liable for damage resulting from any actions not described in the operating manual or if non-original spare, parts or components have been used.

Subject to technical modification without notice. Errors excepted.