



BRAND

Your Partner in the Lab. Worldwide

► Introduction PLT unit



ISO DIN 8655

EUROPÄISCHE NORM
EUROPEAN STANDARD
NORME EUROPÉENNE

EN ISO 8655-2

September 2002

ICS 17.060

Deutsche Fassung

Volumenmessgeräte mit Hubkolben - Teil 2: Kolbenhubpipetten
(ISO 8655-2:2002)

Piston-operated volumetric apparatus - Part 2: Piston
pipettes (ISO 8655-2:2002)

Appareils volumétriques à piston - Partie 2: Pipettes à
piston (ISO 8655-2:2002)

Diese Europäische Norm wurde vom CEN am 13. Juli 2002 angenommen.

Die CEN-Mitglieder sind gehalten, die CENELEC-Geschäftsordnung zu erfüllen, in der die Bedingungen festgelegt sind, unter denen dieser Europäischen Norm ohne jede Änderung der Status einer nationalen Norm zu geben ist. Auf dem letzten Stand befindliche Listen dieser nationalen Normen mit ihren bibliographischen Angaben sind beim Management-Zentrum oder bei jedem CEN-Mitglied auf Anfrage erhältlich.

Diese Europäische Norm besteht in drei offiziellen Fassungen (Deutsch, Englisch, Französisch). Eine Fassung in einer anderen Sprache, die von einem CEN-Mitglied in eigener Verantwortung durch Übersetzung in seine Landessprache gemacht und dem Management-Zentrum mitgeteilt worden ist, hat den gleichen Status wie die offiziellen Fassungen.

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EUROPÄISCHES KOMITEE FÜR NORMUNG
EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION

Management-Zentrum: rue de Stassart, 36 B-1050 Brüssel

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Ref. Nr.: EN ISO 8655-2:2002 D

How often have measuring instruments to be checked?



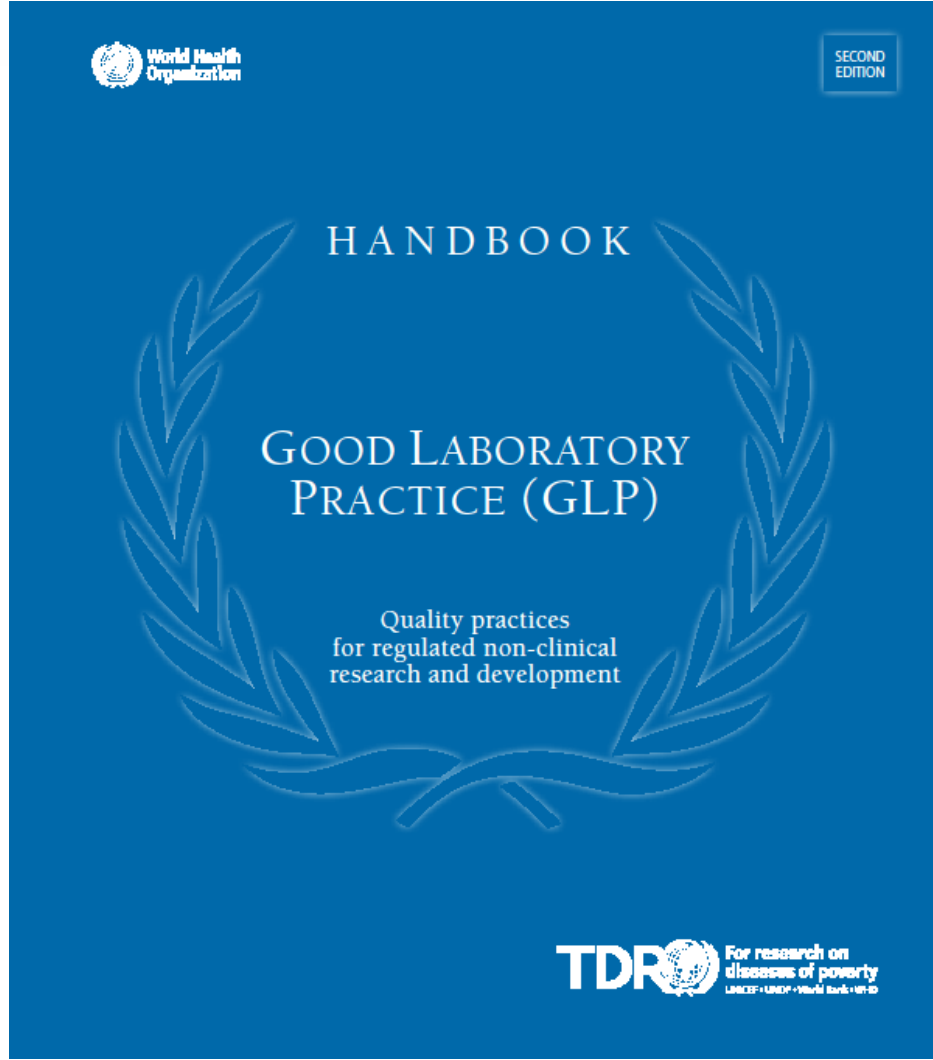
- Measuring instruments have to be tested at regular intervals
- We recommend about 3 to 12 month for Liquid Handling instruments.
- According to DIN ISO 10012 (Quality assurance requirements for measuring equipment) the confirmation interval depends on the individual applications.



GLP



GLP guidelines



Maintenance, calibration, testing and validation

Equipment shall be adequately inspected, cleaned, and maintained. Equipment used for generation, measurement, or assessment of data shall be adequately tested, calibrated and/or standardized.

Time interval for calibration, re-validation and testing


The frequency for calibration, re-validation and testing (performance verification) depends on the instrument itself, the recommendations from manufacturers of equipment, laboratory experience, and the extent of use.



but....

Every certificate represents the result of a calibration at a specific time only.

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Qualitätszertifikat/Certificate of Performance Certificat de qualité/Certificado de calidad			BH
Transferpette® electronic		LH 165973 Anl	
Nennvolumen/Nominal volume: Volume nominal/Volumen nominal:	10.0 µl	Prüfer/Operator Vérificateur/Comprobador:	0074
Serien-Nr./Serial-no.: Número de série/Número de serie:	04J74946	Ausstellungsdatum/Date of issue: Date de délivrance/Fecha de exposición:	2011-04-18
Gemessene Richtigkeit (R): Measured Accuracy (A): Exactitude (E) mesuré: Exactitud (E) medida:	0.57 %	Prüfmittel/Testing devices/Instruments de contrôle/ Instrumentos de medición:	Waage/Balance: 300400-24, 220g/0,00001 Balance/Balanza: Die Kalibrierung erfolgt alle 3 Monate./The calibration is effected every 3 months./ Le calibrage est effectué tous les 3 mois./El calibrado se efectua cada tres meses.
Gemessener Variationskoeffizient (VK): Measured Coefficient of variation (CV): Coefficient de variation mesuré (CV): Coeficiente de variación medido (CV):	0.17 %	Gewichte/Weights/Poids/Peso:	800033-1, F1 (2011, DKD11801, Nr.G2-445)
<p><small>Diese Endprüfwerte sind bezogen auf das Nennvolumen bei 20 °C. Die Prüfung erfolgte gemäß ISO 8655. Die verwendeten Normale sind an die Normale der PTB angeschlossen. Fehlergrenzen für Richtigkeit (R) und Variationskoeffizient (VK) können der Gebrauchsanleitung entnommen werden.</small></p> <p><small>These final test values refer to nominal volume at 20° C. The test was effected according to ISO 8655. The used standards are connected with the standards of the PTB (German Federal Institute of Physics and Metrology). Tolerances for Accuracy (A) and Coefficient of Variation (CV) are listed in the operating manual.</small></p> <p><small>Ces valeurs finales se réfèrent au volume nominal à 20° C. Le test a été effectué selon ISO 8655. Les étalons utilisés sont liés aux étalons du PTB (Institut Fédéral Physico-Technique Allemand). Pour les limites d'erreur de Exactitude (E) et Coefficient de variation (CV) consulter le mode d'emploi.</small></p> <p><small>Estos valores de control final se refieren al volumen nominal a 20° C. El control se efectuó de acuerdo con ISO 8655. Los patrones utilizados son ligados a los patrones del PTB (Organismo oficial alemán de calibrado y standards). Los límites de error para Exactitud (E) y Coeficiente de variación (CV) se pueden obtener de las instrucciones de manejo.</small></p>			
		Thermometer/Thermometer: Thermomètre/Termómetro:	351000-65, 0-30°C/0,1°C (2017, EA Darmst., Nr.2446)
		ISO 9001-14001 CERTIFIED	
		BRAND GMBH + CO KG Postfach/P.O. Box 1155 97877 Wertheim/Main Germany www.brand.de	BRAND

Did you know?

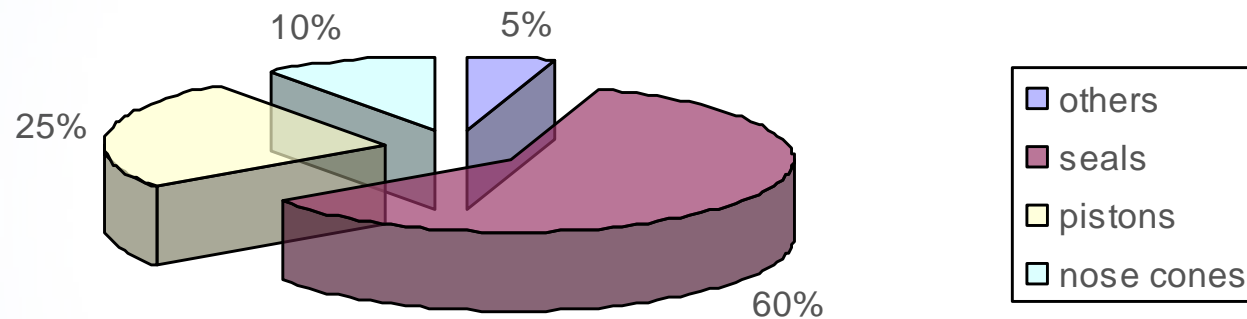


- Most pipettes, independently from the manufacturer, fail over time
- ~ 95 % of failures are related to leakage of the pipetting system, leading to the aspiration of wrong volumes (to low!)
- Adjusting the pipette does not solve the problem!
- Failures often occur between calibration intervals.

Did you know?



Typical failure rates for air-interface pipettes



Undetected or difficult to detect leakage leads to:

- Questionable results
- Waste of time to identify during gravimetric calibration cause and effect of the failure of the pipette
- Selection of shorter calibration intervals to be on the safe side
- Increasing of costs due to the shorter calibration intervals.



What is the PLT unit?



PLT unit stands for **P**ipette **L**eak **T**esting unit.

The BRAND leak testing instrument is a differential pressure measuring instrument for determining the leakage rate of air-displacement pipettes.

A low pressure (vacuum) is generated using a vacuum pump and the increase of pressure in a certain time interval is measured. The changes of the pressure in the time interval leads to a leakage rate. The leakage rate corresponds to a certain volume.

What is the PLT unit?



The leak tester cannot substitute the gravimetric testing for the monitoring of measuring instruments. The instrument should be used to check pipettes on a daily basis as a safeguard for the periods between calibrations.



With or without?



Test with or without pipette tip?

The test can take place **with or without** the pipette **tip**. We recommend that the test be performed with a mounted, unused tip so that the entire pipette system is tested.

When a leak has been identified, the test can be repeated without a tip to determine whether the leak arises from the tip cone/tip coupling region.

Dynamic or static?



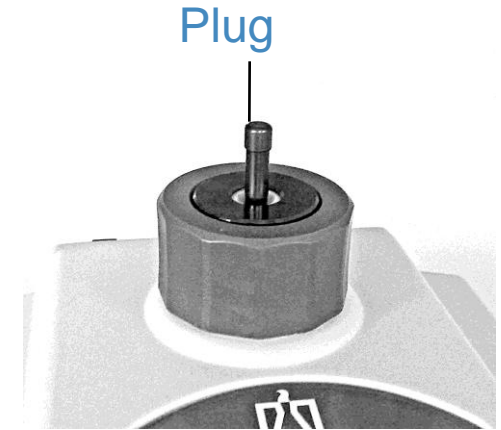
Dynamic or static test?

In the **static test** the pipette button is not pressed during the test procedure, i.e. the piston doesn't move.

With the **dynamic test**, in addition to the detection of static leaks, one can also determine whether a defective piston (contamination, scratches) has caused a leak. During the measurement time, the pipette button must be pressed down completely and evenly 2-3 times.

We recommend the dynamic test.

Operating elements



Adapters



Single channel with tip



Single channel without tip

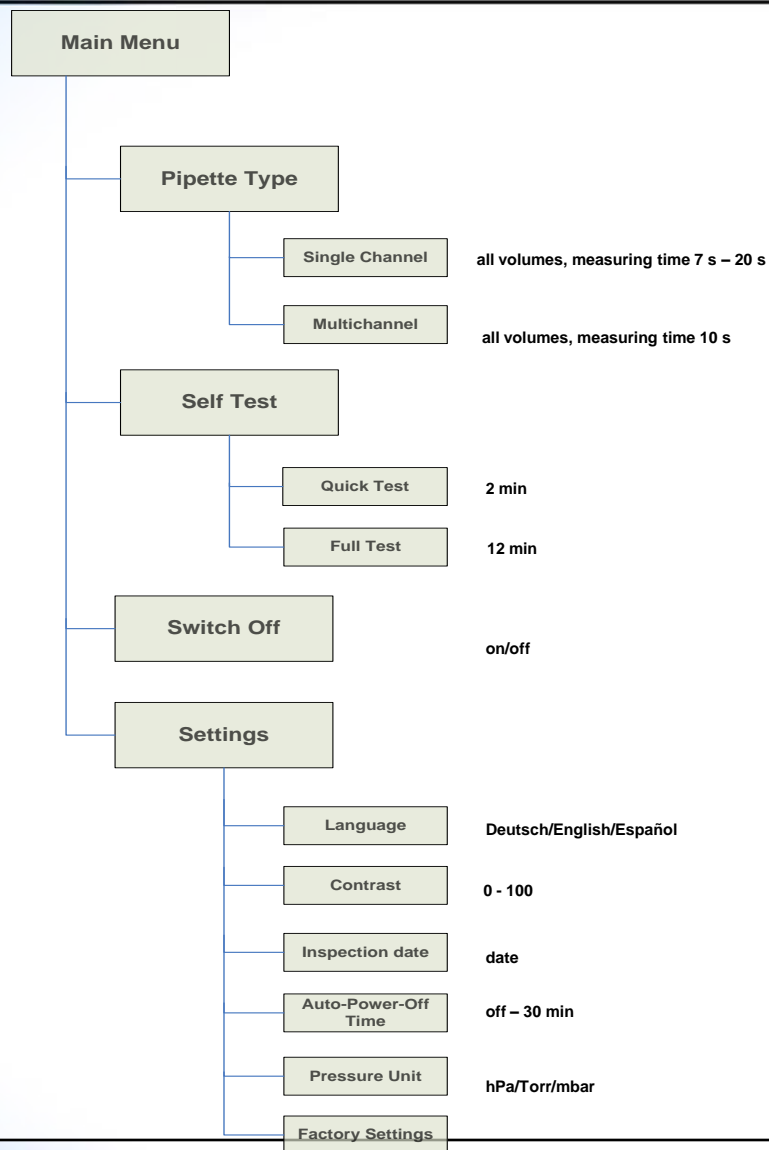


Multichannel with or without tip



PE filter

Flow chart





Flow chart



Main Menu

Pipette Type

Self Test

Switch OFF

Settings...

select | back

Main Menu

Piipette Type

Self Test

Switch OFF

Settings...

select | back

Self Test

Quick Test

Full Test

select | back

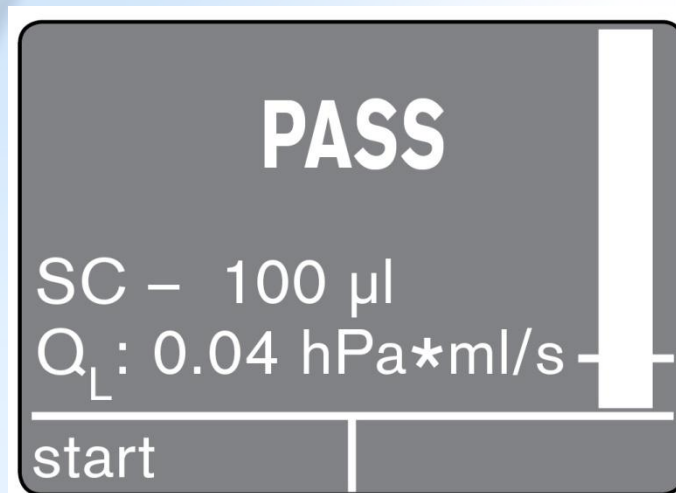
Self Test

Quick Test

Full Test

select | back

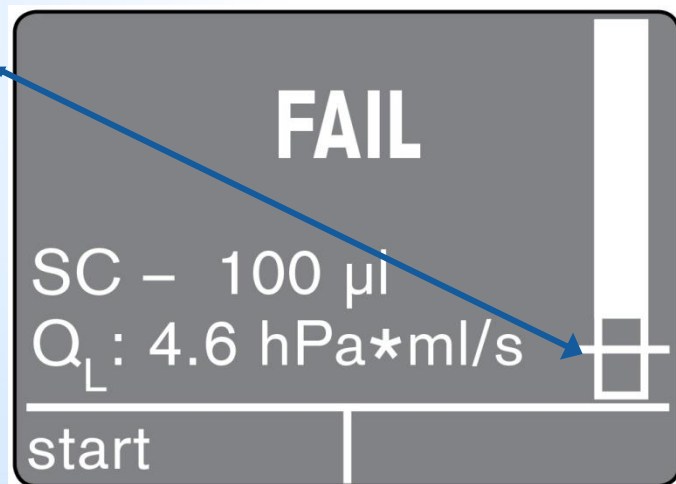
Results



- The leakage rate limits are warning limits!
- Warning limits for all pipettes are stored.

•If the warning limit is reached (display shows FAIL, red light flashing) the missing volume is gravimetrically detectable.

•This corresponds to 25 % of tolerance in the ISO 8655-2.

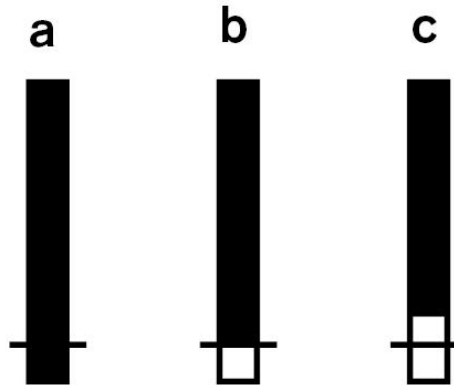


Limit

•The leak volume limit for a pipette can be calculated from the leakage rate Q_L , considering the dead volume and the aspiration characteristics of the pipette.

•When a pipette is clean, mechanically error-free and passes the test with the PLT unit, the instrument is within the ISO tolerances.

Results



- a) The progress bar is completely filled in to the bottom: The pipette is leaktight
- b) The progress bar is filled in from the top only down to the limit value region: We recommend that a gravimetric test be performed.
- c) The progress bar is filled in to a point well above the limit value: The pipette leaks. A gravimetric test should be performed, and if necessary the unit should be sent for repair.

Target customers



“BRAND” Repair Service Companies (~ 100 companies had repair trainings at BRAND)

External Repair Service Companies in general, like TSL, biomedis, TTE etc.
(PL possible)

QC departments calibrating and repairing pipettes

End-users especially in segments like

- Health care

- Pharmaceutical industry

- Food industry