



Certificate

The SQS herewith attests that the organisation named below has a management system that meets the requirements of the normative base mentioned.



Socorex ISBA SA
Chemin Champ-Colomb 7A
1024 Ecublens VD
Switzerland

Scope

**Development, production and distribution
of precision liquid handling instruments**

Normative base

ISO 9001:2015

Quality Management System

Reg. no. 10557
Page 1 of 1

Validity 20.07.2024 – 19.07.2027
Issue 20.07.2024



A. Grisard
A. Grisard, President SQS

F. Müller

F. Müller, CEO



Swiss Association for Quality and Management Systems (SQS)
Bernstrasse 103, 3052 Zollikofen, Switzerland





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Socorex ISBA SA
Chemin Champ-Colomb 7A
1024 Ecublens VD
Switzerland

Scope

**Development, production and distribution of
precision liquid handling instruments for medical
devices**

Normative basis

EN ISO 13485:2016 Medical devices – Quality Management System

Reg. no. 43173
Page 1 of 1

Validity 20.07.2024 – 19.07.2027
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Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Department of Economic Affairs,
Education and Research EAER
State Secretariat for Economic Affairs SECO
Swiss Accreditation Service SAS

Swiss Confederation

Based on the Accreditation and Designation Ordinance dated 17 June 1996 and on the advice of the Federal Accreditation Commission, the Swiss Accreditation Service (SAS) grants to

SOCOREX ISBA S.A.
Laboratoire d'étalonnage
Chemin Champ-Colomb 7A
1024 Ecublens/Lausanne



Period of accreditation:
18.11.2020 until 17.11.2025
(1st accreditation: 18.11.2005)

the accreditation as

Calibration laboratory for volumetric instruments (liquid handling)

International standard: ISO/IEC 17025:2017
Swiss standard: SN EN ISO/IEC 17025:2018

3003 Berne, 18.11.2020
Swiss Accreditation Service SAS

Head of SAS
Konrad Flück

SAS is a signatory of the multilateral agreements of the European co-operation for Accreditation (EA) for the fields of testing, calibration, inspection and certification of management systems, certification of personnel and certification of products, processes and services, of the International Accreditation Forum (IAF) for the fields of certification of management systems and certification of products, processes and services and of the International Laboratory Accreditation Cooperation (ILAC) for the fields of testing and calibration.

To whom it may concern

CONFORMITY STATEMENT

We, SOCOREX ISBA SA, herewith certify that the products,

Bottle-top dispensers Calibrex™ 525, 530, and relevant accessories

- laboratory dedicated instruments intended for safe and reliable liquid handling - are manufactured in our plant in Ecublens, Switzerland, under controlled conditions in accordance with ISO 9001 and ISO 13485 standards.

The manufacturing process includes functional checks and performance testing.

An individual calibration certificate, bearing the instrument's serial number and showing volumetric results, is supplied with each dispenser, to confirm the conformity with the ISO 8655 requirements.

SOCOREX ISBA S.A.



Jean-Marc Ammann
Quality System & Regulatory Affairs Manager

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Ecublens, November 21st, 2019

Chemical resistance of Socorex[®] dispensers

Calibrex[™] models 525 / 530

Bottle-top dispensers are used daily for dispensing a wide range of chemicals. Therefore, instruments have to meet various requirements assuring safety of the laboratory staff and their work. Dispensers shall not release any substances which may interfere with trace analysis, have cytotoxic properties, distort optical tests or influence chromatographic methods and residue analysis.

Materials

Special attention is given to component materials (see charts below). All parts of the Calibrex[™] dispensers in contact with the liquid are made of robust and chemically inert materials providing for long instrument life.

Parts	Calibrex [™] 525	Calibrex [™] 530
Feed tube	FEP	
Valve body	Ceramic - Aluminum oxide	
Valve balls	Ceramic - Aluminum oxide	
Valve springs	Platinum Iridium	
Plate	PTFE	
Barrel	Borosilicate glass	
Plunger	Ground Borosilicate glass	PFA coated glass
Body	ETFE	
Delivery jet	FEP / PCTFE	
Cap	ETFE	

Chemicals from A to Z

The following list includes most frequently used chemicals. It provides useful information for the safe and adequate use of Calibrex[™] 525/530 dispensers. However, safety precautions and recommendations in operating instructions must be followed carefully.

Code explanations

- ++ = Good resistance
- + = Acceptable

Chemicals A - Z	Calibrex™ 525	Calibrex™ 530
A		
Acetaldehyde (Ethanal)	++	++
Acetic acid 96%	++	+
Acetic acid 100% (Glacial)	+	+
Acetic anhydride	+	+
Acetone (Propanone)	++	++
Acetonitrile (MECN)	+	+
Acetophenone	+	+
Acetyl Chloride	+	+
Acetylacetone	++	++
Acrylic acid	++	++
Acrylonitrile	+	+
Adipic acid		++
Allyl alcohol	++	++
Aluminum chloride		++
Amino acids		++
Ammonia <20%	+	+
Ammonia 20-30%	+	+
Ammonium chloride		++
Ammonium fluoride		++
Ammonium hydroxide	+	+
Ammonium molybdate		++
Ammonium sulfate		++
Amyl alcohol (Pentanol)	++	++
Amyl chloride (Chloropentane)	+	+
Aniline	++	++
Antimony trichloride		++
Ascorbic acid		++
n-Amyl acetate	+	+
B		
Barium chloride		++
Benzaldehyde	++	++
Benzene	+	+
Benzine	++	++
Benzoyl chloride	+	+
Benzyl alcohol	++	++
Benzyl chloride	+	+
Benzylamine	+	+
Bis(2-ethylhexyl) phthalate	+	+
Boric acid 10%	+	++
Bromine		
Bromobenzene	+	+
Bromonaphtalene	++	++
Butanediol	+	++
Butanol	++	++
Butanone (MEK)		
Butyl acetate	+	+
Butyl acrylate	+	+
Butyl methyl ether	+	+
Butylamine	+	+

Chemicals A - Z	Calibrex™ 525	Calibrex™ 530
B		
Butyric acid	+	+
C		
Calcium carbonate		
Calcium chloride		++
Calcium hydroxide		+
Calcium hypochlorite		+
Carbon disulfide	+	+
Carbon tetrachloride Thertracholomethane	+	+
Chlorine dioxide	+	+
Chloronaphthalene	+	+
Chloroacetaldehyde 45%	+	++
Chloroacetic acid	+	++
Chloroacetone	+	+
Chlorobenzene	+	+
Chlorobutane	+	+
Chloroethanol	+	+
Chloroform	+	+
Chloronitric acid 100%	+	
Chlorosulfuric acid	+	+
Chlorosulfuric acid 100%	+	+
Chromic acid 100%	+	+
Chromosulfuric acid 100%		+
Citric acid	+	++
Copper fluoride		+
Copper sulfate		++
Cresol	+	++
Cumene (Isopropylbenzene)	+	+
Cyanoacrylate		
Cyclohexane	+	+
Cyclohexanone	+	+
Cyclopentane	+	+
D		
1,2-Diethylbenzene	+	+
1,4-Dioxane (Diethylene dioxide)	+	+
1-Decanol	++	++
Decane	++	++
Di-(2-ethylhexyl) peroxydicarbonate	+	+
Dibenzyl ether	+	+
Dichloroacetic acid	++	++
Dichlorobenzene	++	++
Dichloroethane (DCE)	++	++
Dichloromethane (DCM)	+	+
Dichloroethylene	+	+
Diesel oil (Heating oil)	++	++
Diethanolamine	++	++
Diethylamine	+	+
Diethylene glycol	++	++
Diethyl ether	+	+

Chemicals A - Z	Calibrex™ 525	Calibrex™ 530
D		
Dimethyl sulfoxide (DMSO)	+	+
Dimethylaniline	++	++
Dimethylformamide (DMF)	+	+
Dimethylglycol / Dimethoxyethane (DME)	+	+
Dioxide chlorine	+	+
Diphenyl ether	+	+
E		
Essentials oils	+	+
Ethanol	++	++
Ethanolamine	+	+
Ether	+	+
Ethyl acetate	+	+
Ethylbenzene	+	+
Ethylene chloride	+	+
Ethylenediamine	++	++
Ethylene glycol	++	++
F		
Fluoroacetic acid	+	+
Formaldehyde (Formalin)	++	++
Formamide	++	++
Formic acid	++	++
G		
Gamma-butyrolactone	++	++
Gasoline	+	+
Glycerin <40%	++	++
Glycolic acid <50%	+	++
H		
Heating oil (Diesel oil)	++	++
Heptane	++	++
Hexane	++	++
Hexanoic acid	+	++
Hexanol	++	++
Hydriodic acid	+	+
Hydrobromic acid	++	++
Hydrochloric acid <20% (HCL) 10 to 100 mL	++	++
Hydrochloric acid <20% (HCL) 1 to 5 mL	+	+
Hydrochloric acid 20 to 37% (HCL) 10 to 100 mL	+	+
Hydrochloric acid 20 to 37% (HCL) 1 to 5 mL	+	+
Hydrofluoric acid (HF)		
Hydrogen peroxide	++	+
I		
Iodine		+
Iodine bromide		
Iodine chloride		

Chemicals A - Z	Calibrex™ 525	Calibrex™ 530
I		
Isoamyl alcohol	++	++
Isobutanol	++	++
Isooctane	++	++
Isopropanol	++	++
Isopropyl ether	+	+
Isopropylamine	+	+
K		
Kerosene	+	+
L		
Lactic acid		++
M		
2-Methoxyethanol	++	++
Methanol	++	++
Methoxybenzene (Anisol)	+	+
Methyl benzoate	+	+
Methyl chloride (Chloromethane)	+	+
Methyl ethyl ketone peroxide (MEKP)		+
Methyl formate	++	++
Methyl iodine (Iodomethane)	+	+
Methyl methacrylate (MMA)	+	+
Methyl n-butyl keton (MEK)		
Methyl propyl ketone (2-Pentanone)	++	++
Methyl tert-butyl ether (MTBE)	+	+
Methylene chloride (Dichloromethane) (DCM)	+	+
Methylpentanone	++	++
Mineral oil (engine oil)	++	++
N		
N-Butylamine	+	+
Nitric acid <30% - 10 to 100mL	++	++
Nitric acid <30% - 1 to 5mL	+	+
Nitric acid 30-70% - 10 to 100mL	+	+
Nitric acid 30-70% - 1 to 5mL		
Nitric acid >70% - 10 to 100mL		
Nitric acid >70% - 1 to 5mL		
Nitro-hydrochloric acid (Aqua regia)	+	+
Nitrobenzene	+	+
Nitromethane	+	+
N-methyl-2-pyrrolidone (NMP)	++	++
O		
Octane	++	++
Octanol	++	++
Oil (vegetable, animal)	+	+
Oil of turpentine	+	+
Oleic acid	+	++
Oxalic acid		++

Chemicals A - Z	Calibrex™ 525	Calibrex™ 530
P		
Pentane	+	+
Peracetic acid	++	++
Perchloric acid 100%	+	+
Perchloric acid diluted	++	++
Perchloroethylene	+	+
Petroleum	+	+
Petroleum ether / spirit	+	+
Phenol	++	++
Phenylethanol (2-phenylethanol)	+	+
Phenylhydrazine	+	+
Phosphoric acid <100%	++	++
Phosphoric acid <85%	++	++
Piperidine	+	+
Potassium chloride		++
Potassium dichromate		+
Potassium fluoride		
Potassium hydroxide		++
Potassium iodide		++
Potassium permanganate		+
Potassium peroxydisulfate (Potassium persulfate)		+
Potassium sulfate		+
Propionic acid (Propanoic acid)	++	++
Propylene glycol (Propane-1,2-diol)	++	++
Propylene oxide	++	++
Picric acid (Trinitrophenol)	+	+
Pyridine	+	+
Pyruvic acid	+	++
R		
Resorcin		++
S		
Salicylaldehyde	++	++
Scintillation fluid	++	++
Silver acetate		
Silver nitrate		++
Sodium acetate		++
Sodium chloride (Kitchen salt)		++
Sodium dichromate		++
Sodium fluoride		+
Sodium hydroxide 30%		+
Sodium hypochlorite		+
Sodium thiosulfate		++
Sulfonitric acid 100%	+	+
Sulfochromic acid 100%	+	+
Sulfur dioxide	+	+
Sulfuric acid <60% - 10 to 100mL	++	++
Sulfuric acid <60% - 1 to 5mL	+	+
Sulfuric acid >60% - 10 to 100mL	+	+
Sulfuric acid >60% - 1 to 5mL	+	

Chemicals A - Z	Calibrex™ 525	Calibrex™ 530
T		
Trichlorotrifluoroethane	+	+
Terebentine oil	++	++
Tartaric acid		++
Tetrachloroethane	+	+
Tetrachloroethylene / methylene	+	+
Tetrahydrofuran (THF)	+	+
Tetramethylammonium hydroxide		+
Tetramin	++	++
TKN Digest		+
Toluene	++	++
Trichlorethylene	+	+
Trichloroacetic acid	+	+
Trichlorobenzene	+	+
Trichloroethane / Methane	+	+
Trichloromethane (Chloroform)	+	+
Triethanolamine	++	++
Triethylene glycol	++	++
Trifluoroacetic anhydride (TFAA)	+	+
Trifluoroacetic acid (TFA)	+	+
Trifluoromethane (Fluoroform)	+	+
U		
Urea		++
X		
Xylene	+	+
Z		
Zinc chloride 10%		++
Zinc sulfate 10%		++

The above guidelines have been carefully reviewed prior to publication. Should you require information on chemicals not listed or contribute to some comments, please feel free to contact us.

CALIBREX™ organo 525

CALIBREX™ solutae 530

BOTTLE-TOP DISPENSERS

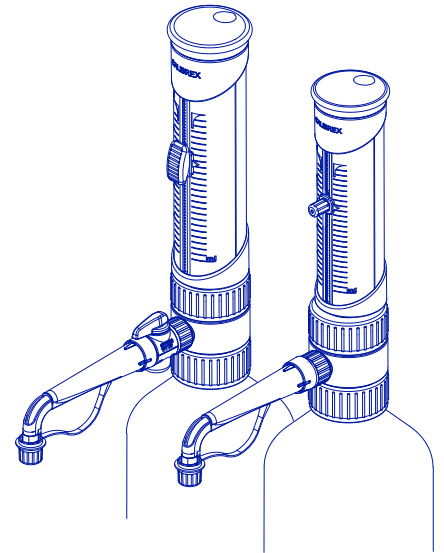
FLASCHEN-DISPENSER

DISPENSERS POUR FLAcons

OPERATING INSTRUCTIONS

BETRIEBSANLEITUNG

MODE D'EMPLOI



SAFETY PRECAUTIONS

- Read operating instructions carefully, observe manufacturer's recommendations and chemical compatibility limits.
- Refer to and follow regulations about handling of potentially hazardous reagents.
- Always control proper working, tightness and bottle stability.
- Delivery jet should never point towards a person.
- Do not activate plunger when screw-locking stopper is attached and/or flow control stopcock on STOP position.
- Seized parts should not be separated by applying force.
- When carrying instrument, set volume on LOCK position; attach locking stopper. If available, set flow control stopcock on STOP position, hold bottle firmly.
- Prime and rinse dispenser carefully before disassembling any part or prior to storing.
- Take adequate measures to avoid electrostatic discharge when dosing flammable liquids.
- When using small reagent bottles or extension tubing, use workstation to secure dispenser stability.
- Operating temperature: 15°C - 40°C (60°F - 105°F).
- Instrument should only be used for its intended purpose.

SICHERHEITSAUWEISUNGEN

- Vor Gebrauch Betriebsanleitung sorgfältig lesen. Sicherheitsanweisungen des Herstellers sowie chemische Kompatibilitätsgrenzen beachten.
- Sicherheitsvorschriften betreffen der Anwendung von gefährlichen Stoffen beachten.
- Vor jedem Gebrauch kontrollieren, ob das Gerät dicht und in perfektem Arbeitszustand ist sowie Stabilität auf der Flasche überprüfen.
- Ausstossskanüle nie gegen andere Personen richten.
- Kolben niemals mit festgeschraubter Schutzkappe und/oder mit Sperrhahn auf STOP-Position betätigen.
- Blockierte Teile niemals durch Gewaltanwendung lösen.
- Bei Transport, Volumen auf LOCK positionieren, Schutzkappe auf Ausstossskanüle festschrauben und falls vorhanden, Sperrhahn auf STOP Position stellen. Behälter festhalten.
- Vor Demontage oder Lagerung, Gerät entlüften und ausgiebig spülen.
- Jegliches Risiko elektrostatischer Entladungen beim Dosieren brennbarer Flüssigkeiten beseitigen.
- Bei Gebrauch kleiner Behälter oder mit Verlängerungsschlauch, Halterung für Stabilität des Dispensers benutzen.
- Anwendungstemperatur: 15°C - 40°C (60°F - 105°F).
- Instrument nur für dazu bestimmte Zwecke benutzen.

CONSIGNES DE SECURITE

- Avant utilisation, lire avec soin le mode d'emploi. Respecter les consignes du fabricant et les compatibilités chimiques.
- S'informer sur les règles de sécurité relatives à l'emploi de réactifs dangereux, s'y conformer au besoin.
- Contrôler avant usage le parfait état de fonctionnement, l'étanchéité et la bonne stabilité de l'instrument.
- Ne jamais pointer le bec verseur en direction d'une personne.
- Ne jamais actionner le piston avec le bouchon du bec verseur vissé et/ou le robinet en position STOP.
- En cas de pièces bloquées, ne pas utiliser la force pour les séparer.
- Pour déplacer l'instrument, régler le volume sur LOCK, visser le bouchon sur le bec verseur et, si disponible, positionner le robinet sur STOP. Tenir fermement la bouteille.
- Purger et rigoureusement rincer avant tout démontage ou stockage.
- Eliminer le risque de décharges électrostatiques lors de la distribution de liquides inflammables.
- Lors de l'usage de petits flacons ou avec la rallonge de distribution, utiliser un support pour stabiliser le dispenser.
- Température d'utilisation: 15°C - 40°C (60°F - 105°F).
- Usage de l'instrument exclusivement limité à son utilisation prévue.

DESCRIPTION

The line includes robust dosing instruments with excellent chemical resistance, high volumetry performance and simplified maintenance. Volume range stretches between 0.1 and 100 mL. Each instrument fits most laboratory bottles either directly or using adapters supplied. Flow control stopcock, when available, enables liquid priming and recycling without reagent loss or contamination.

Calibrex™ organo 525 includes ground glass or ceramic plunger, best suited for organics, non-crystallizing acid and base solutions.

Calibrex™ solutae 530 has a PFA coated plunger adequate for weak, strong acids, bases, salt and/or crystallizing solutions.

OPERATION

Installation

Screw by hand delivery jet adapter nut No. 15 (Fig. 1.1) without forcing. Optional longer delivery jet available, see page 7.

Cut feed tube No.19 according to bottle size (Fig. 1.2) and insert into body connection (Fig. 1.3). Install instrument on bottle using appropriate adapter if needed. Bottle tightness is guaranteed when neck is properly sitting in adapter. Optional telescopic tubing is available on request, see page 7.

Notes: overtightening dispenser on bottle reduces instrument rotation. Improve dispenser stability by using appropriate workstation.

BESCHREIBUNG

Robuste Instrumentenlinie mit exzellenter chemischer Beständigkeit, volumetrischer Hochleistung und komfortabler Anwendung. Volumenbereiche werden von 0.1 bis 100 ml gedeckt. Dispenser kann direkt oder mit gelieferten Adaptern auf die meisten Behälter geschraubt werden. Fluidkontroll-System mit Sperrhahn ermöglicht, sofern verfügbar, eine einfache Entlüftung ohne Verlust der Reagenzien.

Calibrex™ organo 525 verfügt über einen geschliffenen Glas-oder Keramik-Kolben und eignet sich daher bestens für organische Stoffe, nicht kristallisierende saure und basische Lösungen.

Calibrex™ solutae 530 ist mit einem PFA beschichteten Kolben versehen, adäquat für den Einsatz mit Säuren, Basen, Salzlösungen oder kristallisierende Lösungen.

INBETRIEBNAHME

Zusammensetzen

Ausstossskanüle von Hand und ohne Gewaltanwendung auf Adaptermutter Nr. 15 schrauben (Abb. 1.1). Erweiterte Länge der Ausstossskanüle als Zubehör erhältlich, siehe Seite 7.

Ansaugschlauch No. 19 auf die richtige Länge zuschneiden (Abb. 1.2) und in den Körperadapter einfügen (Abb. 1.3).

Falls nötig, den geeigneten Adapter auf den Dispenser schrauben. Dichte wird durch eine gleichmäßige Positionierung des Adapters auf den Flaschenhals garantiert. Eine Teleskopschläuche ist optional erhältlich, siehe Seite 7.

Notiz: zu strenges Anschrauben der Flasche beschränkt das Rotieren des Dispensers. Dispenserhalterung verwenden, falls der Behälter nicht genügend Stabilität gewährt.

DESCRIPTION

Dispensers robustes, avec excellente résistance chimique, hautes performance volumétriques et entretien simple. Ils permettent une distribution sûre et reproductible de réactifs dans une plage de 0.1 à 100 ml. Compatibles avec tous les flacons standards, soit directement ou en ajoutant un des adaptateurs fournis. Un robinet de contrôle du flux, selon modèle, permet la purge et le recyclage sans perte de réactif.

Calibrex™ organo 525 possède un piston en verre ou céramique, adapté à la distribution de solvants organiques et solutions non salines.

Calibrex™ solutae 530 est pourvu d'un piston en robeage PFA adéquat pour le dosage d'acides forts ou faibles, de bases, solutions salines ou cristallisantes.

MISE EN SERVICE

Assemblage

Insérer le bec verseur, visser à la main sans forcer l'écrou du raccord de bec No. 15 (Fig. 1.1). Un bec verseur plus long est disponible en option, voir page 7.

Couper le tuyau d'aspiration No.19 selon la taille de la bouteille (Fig. 1.2), l'insérer sur le connecteur d'embase (Fig 1.3).

Au besoin, visser d'abord l'adaptateur approprié sur le dispenser. L'étanchéité avec la bouteille est garantie si le goulot appuie uniformément au fond du raccord. Un tuyau d'aspiration télescopique est disponible en option, voir page 7.

Notes: visser trop fortement la bouteille limite la rotation du doseur. L'emploi d'un statif augmente la stabilité du dispenser.

Delivery jet position (Fig. 2.1)

Rotation possible over 360°. Hold connecting body only (and not delivery jet) to reach optimal position.

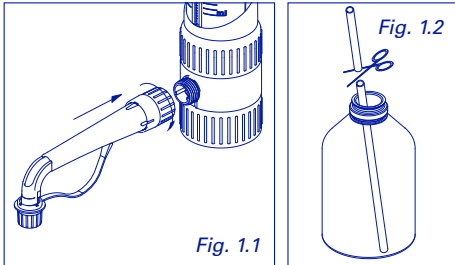
Note: flexible connection of delivery jet absorbs shocks and reduces risks of breakage (Fig. 2.2).

Extended delivery jet

Longer delivery jet installation.

- ① Screw locking stopper (No. 17)
- ② Unscrew delivery jet adapter (No.15)
- ③ Replace with extended delivery jet (Fig. 1.1)

Note: using stopcock adds another 20 mm to overall delivery jet size.



Stellung der Ausstoskanüle (Abb. 2.1)

Das Instrument ist um 360° auf dem Dispenserkörper drehbar. Gewünschte Positionierung nur durch Betätigung des Körpers (nicht durch die Ausstoskanüle) einstellen.

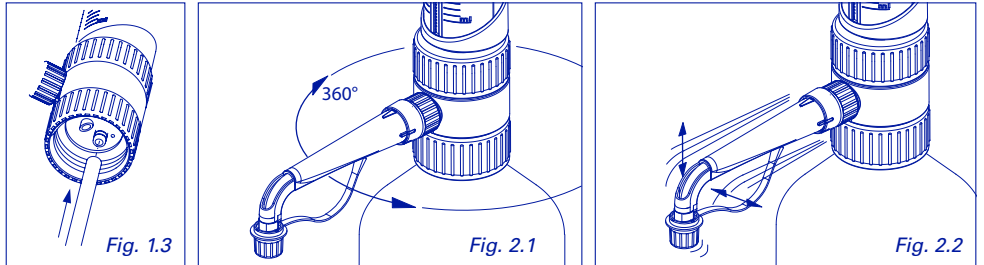
Notiz: flexible Verbindung der Ausstoskanüle reduziert Stöße und Bruchgefahr (Abb. 2.2).

Verlängerte Ausstoskanüle

Montieren der verlängerten Ausstoskanüle

- ① Schutzkappe (Nr. 17) anschrauben
- ② Adapter für Ausstoskanüle losschrauben (Nr. 15)
- ③ Durch verlängerte Ausstoskanüle ersetzen (Abb. 1.1)

Notiz: die Ausstoskanüle wird durch Hinzufügen des Sperrhahns um 20 mm verlängert.



Positionnement du bec verseur (Fig. 2.1)

L'instrument pivote sur 360°. Régler la position désirée en saisissant l'embase et non le bec verseur.

Note: la connexion souple du bec verseur absorbe les chocs et réduit le risque de casse (Fig. 2.2).

Bec verseur long

Montage du bec verseur long

- ① Visser le bouchon de protection (No.17)
- ② Dévisser et séparer le raccord de bec (No.15)
- ③ Remplacer par le bec long (Fig. 1.1)

Note: la présence du robinet ajoute 20 mm à la taille du bec verseur.

DOSING INSTRUCTIONS

Volume setting

Press with thumb and move sliding cursor (No. 8) up and down to desired volume (Fig. 3). Release to lock and prevents unwanted change. The dual graduation scale enables accurate reading from a wide angle.

Screw-type button (No. 9) available as accessory. If preferred, change button according to Fig. 9.1 and 9.2. When using screw type button, carefully align index to desired volume scale before locking. Screw tightly to avoid unwanted changes (Fig. 4).

Priming

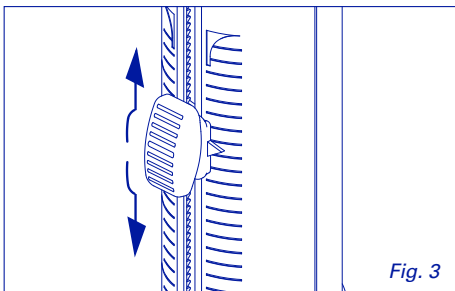
Note: before first use, carefully rinse instrument.

Model without stopcock

Remove stopper No.17 and slowly activate dispenser several times over short distance (≈ 30 mm) to eliminate any air bubble in barrel chamber and delivery jet. Avoid hitting upper and lower stops. Collect liquid in a clean vessel for recycling (Fig. 5.1).

Model with flow control stopcock

Place stopcock selector in recycle position (Fig. 5.2) and smoothly activate over a short distance (≈ 30 mm) to eliminate any air bubble in barrel chamber. The liquid is returned to bottle. Avoid hitting upper and lower stops. Thereafter, select distribution position to start dispensing.



DOSIEREN

Einstellen des Volumens

Schiebregler (Nr. 8) mit dem Daumen auf der Volumenskala auf- und abgleiten und an die gewünschte Graduierung anpassen (Abb. 3).

Die Volumeneinstellung blockiert bei nicht niedergedrückter Position des Schiebreglers. Dies verhindert unerwünschte Verstellungen. Die doppelte Skala ermöglicht die Volumenablesung unter einem grossen Blickwinkel.

Schraubregler (Nr. 9) ist als Zubehör lieferbar. Siehe Abb. 9.1 und 9.2. Um jegliche Verstellung für die Montage, Zeiger auf das gewünschte Volumen ausrichten und kräftig festziehen (Abb. 4).

Gerät entlüften

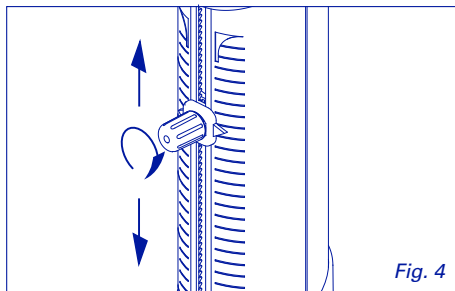
Notiz: Instrument vor dem ersten Gebrauch durch mehrmalige Dosierungen spülen.

Modell ohne Sperrhahn

Schutzkappe (Nr. 17) entfernen. Um alle Luftblasen zu entfernen, Dosiervorgang mehrmals durch kurze Bewegungen (≈ 30 mm) wiederholen. Stöße auf unteren und oberen Anschlag verhindern. Flüssigkeit für Wiederverwendung in einen sauberen Behälter sammeln (Abb. 5.1).

Modell mit Sperrhahn

Wahlschalter auf Position positionieren (Abb. 5.2). Um alle Luftblasen zu entfernen, Dosiervorgang mehrmals durch kurze Bewegungen (≈ 30 mm) wiederholen. Durch den Dosiervorgang fließt das Reagenz unmittelbar in die Flasche zurück. Stöße auf unteren und oberen Anschlag verhindern. Darnach Wahlschalter auf Verteilungsposition platzieren.



OPERATIONS DE DOSAGE

Réglage du volume

Basculer et faire glisser avec le pouce le curseur cranté (No. 8). Aligner précisément l'index sur le trait du volume désiré (Fig. 3). Relâché, le curseur se bloque et évite tout dérèglement intempestif. La double graduation permet une lecture précise du volume, quelle que soit la position du manchon.

Un bouton à vis (No. 9) est disponible en accessoire, voir Fig. 9.1 et 9.2 pour sa mise en place. En cas d'utilisation du bouton à vis, aligner l'index précisément sur le trait du volume désiré, puis serrer fortement pour éviter tout dérèglement (Fig. 4).

Purge

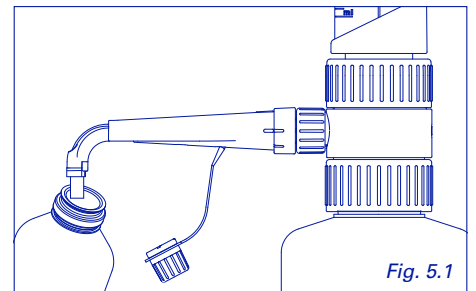
Note: avant la première utilisation, rincer le dispenser par quelques dosages.

Modèle sans robinet

Retirer le bouchon de protection (No.17), effectuer lentement quelques courts mouvements d'activation (env. 30 mm) jusqu'à élimination des bulles d'air à la sortie du bec verseur. Éviter les chocs sur les butées. Récupérer le liquide dans un récipient propre pour le recycler (Fig. 5.1).

Modèle avec robinet

Placer le sélecteur en position (Fig. 5.2), effectuer lentement quelques courts mouvements d'activation (env. 30 mm) jusqu'à élimination des bulles d'air dans le cylindre. Le liquide est recyclé directement dans la bouteille. Éviter les chocs sur les butées. Puis placer le sélecteur en position distribution.



Dispensing

Remove locking stopper (No.17). Raising plunger head fills the dispenser barrel. Depress to dispense liquid. Best results are obtained by moving the plunger gently and regularly between upper and lower stops.

Liquid density or viscosity may change dosing speed and instrument performance. Keep working without applying force.

Warning: never try to distribute liquid if stopper is screwed on delivery jet or if stopcock selector is in STOP position. Do not leave instrument unattended with liquid in barrel.

Dosiervorgang

Schutzkappe (Nr. 17) entfernen. Durch Hochziehen des Kolbens wird der Zylinder gefüllt. Beim Niederdrücken wird der Inhalt ausgestossen. Langsame, regelmässige Bewegungen zwischen oberem und unterem Anschlag ergeben die besten Resultate. Flüssigkeitsdichte und Viskosität kann Dosiervorgang und Resultat beeinflussen. Beim Arbeitsvorgang jegliche Gewaltanwendung vermeiden.

Vorsicht: Dosiervorgang niemals bei verschlossener Ausstoskanüle oder auf STOP positioniertem Sperrhahn durchführen. Instrument mit Flüssigkeit im Zylinder nicht unüberwacht lassen.

Distribution

Retirer le bouchon de protection (No. 17). Tirer le piston pour remplir le cylindre. Presser pour distribuer la dose. Des mouvements réguliers, souples et sans à-coup d'une butée à l'autre assurent des performances optimales.

La densité ou la viscosité du liquide peuvent modifier la vitesse de dosage et les performances de l'instrument. Ne pas forcer en cas de retenue.

Attention: ne jamais activer l'instrument avec le bouchon de protection vissé sur le bec verseur ou le robinet en position STOP. Ne pas laisser l'instrument sans surveillance avec du liquide dans le cylindre.

End of dosing and storing

Purge and rinse instrument carefully. Replace stopper (No. 17) on delivery jet. If available, move stopcock selector to STOP position to prevent liquid leakage (Fig. 5.3).

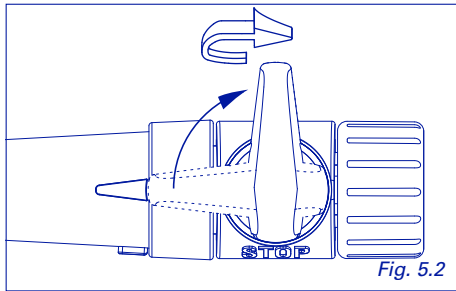


Fig. 5.2

Dosiervorgang beenden

Vor der Lagerung Gerät entlüften und ausgiebig spülen. Ausstosskanüle mit Schutzkappe (Nr. 17) verschliessen. Falls vorhanden, Sperrhahn (No. 18) auf STOP Position stellen, um unerwünschten Ausfluss zu vermeiden (Abb. 5.3).

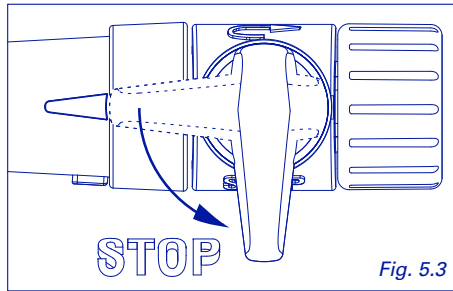


Fig. 5.3

Fin de travail et rangement

Purger et rigoureusement rincer l'instrument. Visser le bouchon de protection (No. 17) sur le bec verseur. Si disponible, positionner le robinet (No. 18) sur STOP pour éviter toute distribution intempestive de liquide (Fig. 5.3).

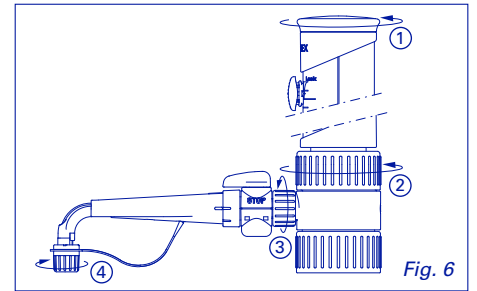


Fig. 6

MAINTENANCE

Regular maintenance substantially contributes to optimal performance and long life span. Rinse for instance when bottle is emptied or before distribution of another liquid.

Disassembling (Fig. 6)

Purge properly before removing instrument from the bottle. Pull out feed tube No. 19.

- ① Unscrew plunger head (No. 4) and remove plunger. Never apply force to avoid breakage.
- ② Unscrew connecting body nut to access glass barrel, valve body (No. 13) and plate (No. 11 – not available on 1 and 2.5 mL models). Do not misplace valve ball (No. 12).
- ③ Unscrew delivery jet nut (No. 15) and separate from dispenser.

Cleaning

Soak parts in a mild laboratory detergent. Take particular care of plunger, glass barrel and valve body. Remove dirt from valve to avoid instrument blocking. Eliminate residues on valve seat or ball with ultra-sonic bath to prevent tightness problem. Rinse with water.

Reassembling

Damaged parts must be replaced by original spare parts only. To reassemble, proceed step by step in the disassembly reverse order. The exploded view on page 8 helps positioning each part.

Make sure plunger and all connections are correctly tightened. Check for leakfree aspiration and distribution functions.

TROUBLE SHOOTING

Observation	Possible cause	Action
Liquid aspiration impaired	Plunger blocked by crystallization or dried residues.	Never apply force to resolve. Soak dispenser in warm water or mild laboratory detergent. Move parts gently.
	Aspiration valve ball blocked or missing.	Dismantle to access valve body. Use warm water or ultrasonic bath to free valve ball. Replace ball if missing.
	Feed tubing blocked.	Remove and clean feed tubing.
Erratic plunger movement	PFA coating damaged due to lack or improper cleaning.	Replace plunger. Follow cleaning instructions.
	PFA coating swalled by inappropriate chemicals.	Replace plunger. Check chemical compatibility.
	Dirty surface.	Clean plunger.
	Distortion / damage on parts resulting from improper autoclaving.	Replace parts. Respect autoclaving conditions.
Air bubbles in system	Dispenser not properly primed.	Prime according to "Dosing instructions" paragraph.
	Feed tubing improperly connected or damaged.	Connect properly or change.
	Insufficient liquid level in bottle or inadequate tubing length.	Refill bottle, replace feed tubing.
	Connecting body nut is loose	Tighten connecting body nut
No liquid distribution	Stopcock set on wrong position.	Check for correct stopcock position.
	Stopper locking delivery jet.	Remove locking stopper.
	Dispensing valve ball blocked.	Dismantle to access valve body. Use warm water or ultrasonic bath to free valve ball.
Liquid leakage	Loose connecting screws.	Tighten all connexions without excessive force.
	Glass barrel cracked or broken.	Replace part.
	Stopcock set on STOP position.	Check for correct stopcock position.
Unstable volume setting	Sliding cursor assembled upside down.	Follow assembly instructions in "Volume setting button" paragraph.
	Screw type button loose.	Tightly screw button.
Unstable performance	Uneven dosing movements.	Move plunger gently and regularly between upper and lower stops without shocks.
	Valves untight due to residues on ball or seat.	Clean valves.
	Liquid leakage.	See above.
	Liquid viscosity, density or temperature different from original calibration conditions.	Perform new calibration with liquid used or at actual temperature.

STÖRUNGEN

Problem	Mögliche Ursachen	Aktion
Flüssigkeit wird nicht aufgesaugt	Verschmutzter Kolben. Blockiertes oder fehlendes Saugventil. Ansaugschlauch verstopft.	Jegliche Gewaltanwendung unterlassen. Dispenser in warmes Wasser oder in ein dafür geeignetes Reinigungsmittel eintauchen. Teile sorgfältig hantieren. Zugriff zum Ventilkörper durch korrektes Auseinandernehmen. Ventilkörper in warmes Wasser oder in ein Ultraschallbad tauchen, um die Ventilkugel zu lösen. Fehlendes Saugventil ersetzen. Ansaugschlauch entnehmen und reinigen.
Kolben bewegt sich unregelmässig	PFA Beschichtung durch mangelnde Reinigung beschädigt. PFA Beschichtung durch ungeeignete Reagenzien angeschwollen. Verschmutzte Kolbenoberfläche. Schaden/Verformung der Teile durch unzumutbares Autoklavieren.	Kolben ersetzen. Reinigungsanleitung beachten. Kolben ersetzen. Chemische Kompatibilität prüfen. Kolben reinigen. Teile ersetzen. Autoklavieranleitung beachten.
Luftblasen im System	Mangelhafte Entlüftung. Ansaugschlauch falsch verbunden oder beschädigt. Ungenügendes Flüssigkeitsniveau im Behälter oder unpassende Schlauchlänge. Körperring locker.	Entlüftung gemäss Paragraph "Dosieren" durchführen. Ansaugschlauch richtig verbinden oder ersetzen. Behälter füllen, Ansaugschlauch ersetzen. Körperring anziehen.
Flüssigkeit wird nicht ausgegeben	Sperrhahn auf falscher Position. Kappe verschliesst die Ausstoskanüle. Ventilkugel blockiert.	Zweckmässige Position des Sperrhahns prüfen. Schraubverschluss lösen. Zugriff zum Ventilkörper durch korrektes Auseinandernehmen. Dispenser in warmes Wasser oder in ein Ultraschallbad tauchen um die Ventilkugel zu lösen.
Instrument undicht	Schraubmutter locker. Glaszylinder gerissen oder gebrochen. Sperrhahn auf STOP Position.	Alle Verbindungen ohne Kraftanwendung anziehen. Teil ersetzen. Zweckmässige Position des Sperrhahns prüfen.
Unbeständige Volumeneinstellung	Schieberegler verkehrt montiert. Schraubregler locker.	Montageanleitung gemäss Paragraph "Gebrauch von Zubehör" beachten. Schraubregler fest anziehen.
Unbeständige Leistungen	Unregelmässiges Dosieren. Ventile durch Rückstände undicht. Instrument undicht. Viskosität, Dichte oder Flüssigkeitstemperatur weichen von Kalibrationsvorschriften des Herstellers ab.	Regelmässige Bewegungen zwischen oberem und unterem Anschlag ohne Aufprall vornehmen. Ventile reinigen. Siehe oben. Neu-Kalibration mit entsprechender Flüssigkeit und gegenwärtigem Arbeitsumfeld vornehmen.

LISTE DES ANOMALIES

Observation	Cause possible	Action
Aucune aspiration du liquide	Piston bloqué par cristallisation ou résidus secs. Bille de la soupape d'aspiration bloquée ou manquant. Tuyau d'aspiration bouché.	Ne jamais employer la force pour résoudre le cas. Plonger le dispenser dans l'eau chaude ou dans un détergent approprié. Séparer délicatement les pièces Démonter pour accéder au corps de soupape. Plonger le corps de soupape dans l'eau chaude ou dans un bain à ultrasons pour libérer la bille. La remplacer si elle manque. Retirer et nettoyer le tuyau d'aspiration.
Mouvements saccadés du piston	Enrobage PFA détérioré par nettoyage insuffisant voire absence de nettoyage. Enrobage PFA gonflé à cause de réactifs chimiques inappropriés. Surface sale. Dégât / pièce déformée dû à des conditions d'autoclavage inappropriées.	Remplacer le piston. Suivre les instructions de nettoyage. Remplacer le piston. Suivre les indications sur la compatibilité chimique. Nettoyer le piston. Remplacer les pièces. Respecter les conditions d'autoclavage.
Bulles d'air dans le système	Dispenser pas amorcé correctement. Tuyau d'aspiration mal connecté ou endommagé. Niveau insuffisant de liquide dans la bouteille, longueur inadéquate du tuyau d'aspiration. Bague écrou embase libre	Amorcer selon les consignes du paragraphe «Opération de dosage». Connecter correctement ou changer. Remplir la bouteille, remplacer le tuyau d'aspiration. Resserer écrou d'embase
Aucune distribution de liquide	Robinet de contrôle sur mauvaise position. Bouchon resté sur le bec verseur. Bille de soupape collée.	Vérifier la position adéquate du robinet. Retirer le bouchon. Démonter pour accéder au corps de soupape. Plonger dans l'eau chaude ou dans un bain à ultrasons pour libérer la bille.
Fuite de liquide	Ecrous pas bien serrés. Cylindre en verre fissuré ou cassé. Robinet de contrôle sur position STOP.	Resserer toutes les connexions, mais sans forcer. Remplacer la pièce. Vérifier la position adéquate du robinet.
Volume se dérègle	Curseur cranté monté à l'envers. Bouton à vis mal serré.	Suivre les instructions de montage dans le paragraphe «Utilisation des accessoires». Bien visser le bouton.
Variation dans les performances	Mouvements de dosage irréguliers. Des résidus rendent les soupapes pas étanches. Fuite de liquide. Viscosité, densité ou température différentes du liquide des conditions originales de calibration.	Effectuer des mouvements réguliers d'une butée à l'autre sans chocs. Nettoyer les soupapes. Voir ci-dessus. Effectuer un étalonnage avec le liquide et aux conditions utilisées.

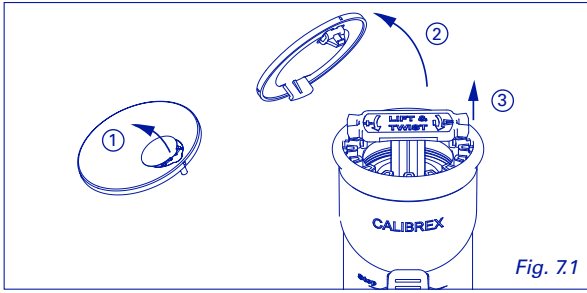


Fig. 7.1

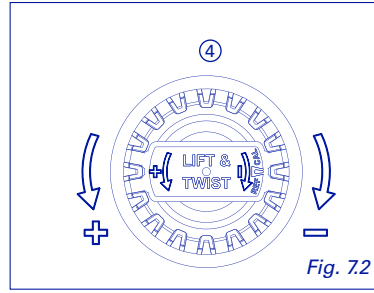


Fig. 7.2

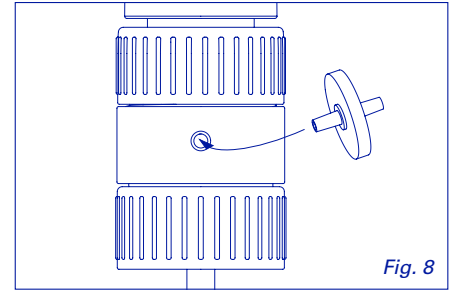


Fig. 8

Calibration (Fig. 7.1 and 7.2)

Instrument is factory calibrated and delivered with an individual QC certificate. A volumetric control is recommended at least after every 12 months of use.

Should performance no longer correspond to specifications, or if conditions of use (liquid density, temperature, etc.) require recalibration, this can be easily performed using an analytical balance.

A new calibration is also recommended when replacing either barrel/plunger assembly (No. 5), main body (No. 7) or valve body (No. 13)

- ① Remove calibration safety seal (No. 1)
- ② Remove cap (No. 2)
- ③ Lift calibration key (No. 3)
- ④ Adjust according to the +/- arrows engraved on calibration key. Each notch corresponds to a volume correction of:

Range	Correction
0.1 - 1 mL	± 0.9 µL
0.25 - 2.5 mL	± 2.3 µL
0.5 - 5 mL	± 4.6 µL
1 - 10 mL	± 9.3 µL
2.5 - 25 mL	± 17.4 µL
5 - 50 mL	± 34.7 µL
10 - 100 mL	± 52.1 µL

Replace cap (No. 2) and apply a new calibration safety seal (No. 1).

Sterilization (Fig. 6)

Instrument designed for sterilization in the autoclave at 121°C / 250°F (20 min), fully assembled. Instrument must be purged and rinsed prior autoclaving. Delivery jet parts (Nos. 15, 16, 18) must be properly mounted.

Slightly untighten connecting body nut ②, delivery jet (or stopcock) nut ③, and stopper ④. Set volume on minimal value. Place instrument horizontally in the autoclave, avoiding any direct contact with metal.

Let instrument dry and cool down to room temperature (min 2 hours) before securely re-tightening all connections (without excessive force).

Verify inaccuracy after first few autoclaving cycles to guarantee best instrument performance. Otherwise inaccuracy may drift to higher values, particularly on small volumes.

Notes: repeated autoclaving may affect some parts and material colors. Correct autoclaving and resulting sterility are the responsibility of the user.

Materials

Parts in contact with the liquid are chemically inert:

- Feed tube: PTFE (up to 10 mL) FEP (as of 25 mL)
- Valve body: Ceramic
- Valve ball: glass (up to 10 mL) or ceramic (as of 25 mL)
- Valve spring: Platinum-iridium
- Plate: PTFE (as of 5 mL)
- Barrel: Borosilicate glass
- Plunger: Glass or ceramic (Calibrex™ 525), PFA coated ceramic or glass (Calibrex™ 530)
- Connecting body: ETFE
- Delivery jet tubing: FEP/PCTFE
- Stopper: ETFE

Warning: Vapors of concentrated strong acids and some solvents may damage your instrument after some time and reduce its life span. It is recommended, not to leave the dispenser permanently on a bottle containing concentrated strong acids and to rinse it after use. To prevent long term loss of product by evaporation, the same recommendation is valid when using volatile solvents. Damages due to incompatible reagents are not covered by the warranty. The QR code printed on the instrument provides access to the latest chemical compatibility chart. In case of doubt, check for chemical compatibility or refer to manufacturer before use.

Kalibrierung (Abb. 7.1 und 7.2)

Das im Werk kalibrierte Gerät wird mit einem Kontrollzertifikat geliefert. Eine volumetrische Kontrolle wird alle 12 Monate empfohlen.

Falls die bei einer Kontrolle gemessenen Werte nicht mit den angegebenen Daten übereinstimmen, oder falls die Benützungsbedingungen (Flüssigkeitsdichte, Temperatur usw.) eine neue Kalibrierung verlangen, kann diese leicht mit der gravimetrischen Methode durchgeführt werden.

Kalibrierung ist beim Auswechseln der folgenden Ersatzteile empfohlen: Kolben/Zylinderaggregat (Nr. 5), Aussenmantel (Nr. 7) und Ventilsitz (Nr. 13).

- ① Siegeletikette (Nr. 1) abziehen.
- ② Deckel (Nr. 2) abnehmen.
- ③ Kalibrierungsschlüssel (Nr. 3) anheben
- ④ Volumen gemäss der geprägten Instruktionssymbole +/- justieren. Jedes Einrasten entspricht folgender Volumenkorrektur:

Volumen	Korrektur
0.1 - 1 ml	± 0.9 µl
0.25 - 2.5 ml	± 2.3 µl
0.5 - 5 ml	± 4.6 µl
1 - 10 ml	± 9.3 µl
2.5 - 25 ml	± 17.4 µl
5 - 50 ml	± 34.7 µl
10 - 100 ml	± 52.1 µl

Deckel (Nr. 2) nach der Kalibrierung wieder aufsetzen und neue Siegeletikette (Nr. 1) anfehlen.

Sterilisation (Abb. 6)

Instrument ist bei 121°C / 250°F (20 Min) im Autoklav komplett zusammengesetzt sterilisierbar. Vor dem Autoklavieren, Gerät zuerst sorgfältig entlüften und spülen. Prüfen ob alle Elemente der Ausstoskanüle (Nr. 15, 16, 18) fest verschraubt sind.

Körper ②, Adaptermutter (oder Sperrhahn) ③ und Schutzkappe ④ lockern. Schieberegler auf Minimalvolumen positionieren.

Instrument horizontal in den Autoklav legen, direkten Kontakt mit Metall vermeiden.

Vor Gebrauch prüfen, ob Dispenser trocken und vollständig abgekühlt ist (min. 2 Stunden). Anschliessend alle Verbindungen ohne Gewaltanwendung erneut anziehen.

Um die Leistungsdaten zu gewährleisten wird empfohlen, die Unrichtigkeit nach den ersten Autoklavierzyklen zu überprüfen. Sonst kann die Unrichtigkeit speziell auf kleinen Volumen abweichen.

Notiz: Eine Veränderung der Materialfarbe und der Justierung gewisser Teile kann nach wiederholtem Autoklavieren auftreten. Korrektes Autoklavieren und daraus resultierende Sterilität stehen unter der Verantwortung des Anwenders.

Materialien

Alle mit Flüssigkeit in Berührung kommenden Teile sind aus chemisch beständigen Materialien gefertigt:

- Ansaugschlauch: PTFE (bis 10 ml), FEP (ab 25 ml)
- Ventilkörper: Keramik
- Ventilkugeln: Glas (bis 10 ml), Keramik (ab 25 ml)
- Ventillfeder: Platin-Iridium
- Platte: PTFE (ab 5 ml)
- Zylinder: Borosilikat Glas
- Kolben: Keramik oder Glas (Calibrex™ 525), Keramik oder Glas mit PFA Beschichtung (Calibrex™ 530)
- Körper: ETFE
- Schlauch der Ausstoskanüle: FEP/PCTFE
- Schutzkappe: ETFE

Vorsicht: Dämpfe von konzentrierten, starken Säuren sowie bestimmte Lösungsmittel können langfristig Ihr Gerät beschädigen und dessen Lebensdauer verkürzen. Es wird empfohlen, den Dispenser nie längere Zeit auf einer Flasche zu lassen, welche konzentrierte starke Säuren enthält und das Gerät nach jedem Gebrauch gut zu spülen. Die Empfehlung ist ebenfalls für flüchtige Lösungsmittel gültig. Ein langfristiger Produktverlust kann dadurch verhindert werden.

Verursachte Schäden durch nicht kompatible Reagenzien sind von der Garantie ausgeschlossen. Zugriff zur Kompatibilitätstabelle dank des auf jedem Instrument aufgedruckten QR-Codes. Im Zweifelsfall muss der Anwender vor dem Einsatz die chemische Verträglichkeit überprüfen oder beim Hersteller anfragen.

Étalonnage (Fig. 7.1 et 7.2)

L'instrument est calibré en usine et livré avec son certificat individuel. Un contrôle volumétrique est recommandé au moins après 12 mois d'utilisation.

Lors de performances hors tolérances ou si les conditions d'utilisation (densité du liquide, température etc.) nécessitent un nouvel étalonnage, celui-ci sera aisément effectué avec une balance de précision.

L'étalonnage est recommandé lors du remplacement du piston/cylindre (No. 5), du manchon complet (No. 7) ou du corps de soupape (No. 13).

- ① Retirer la pastille de protection (No. 1)
- ② Retirer le capuchon (No. 2)
- ③ Soulever la clé de calibration (No. 3)
- ④ Ajuster selon les flèches +/- gravées sur la clé. Chaque encoche corrige le volume de:

Plage	Correction
0.1 - 1 ml	± 0.9 µl
0.25 - 2.5 ml	± 2.3 µl
0.5 - 5 ml	± 4.6 µl
1 - 10 ml	± 9.3 µl
2.5 - 25 ml	± 17.4 µl
5 - 50 ml	± 34.7 µl
10 - 100 ml	± 52.1 µl

Remplacer le capuchon (No. 2) et coller une nouvelle pastille de protection (No. 1).

Stérilisation (Fig. 6)

L'instrument est stérilisable sans démontage à l'autoclave, 121°C / 250°F (20 min). Il doit être complètement purgé et rincé. Le sous-ensemble bec verseur (Nos. 15, 16, 18) doit être correctement monté.

Desserrer la bague-écrou d'embase ②, l'écran du bec (ou du robinet) ③, ainsi que le bouchon de protection ④. Placer le sélecteur sur le volume minimum.

Placer l'instrument à plat dans l'autoclave en évitant tout contact direct avec des pièces métalliques. L'instrument doit être sec et complètement refroidi (environ 2 heures) avant de resserrer les raccords (sans forcer).

Vérifier la justesse après les premiers cycles d'autoclave, afin de garantir les performances indiquées. La justesse peut dériver, particulièrement sur le volume minimum.

Notes: l'autoclavage répété peut modifier à long terme l'ajustement de certaines pièces et la couleur des matériaux. L'utilisateur est responsable des bonnes conditions d'autoclavage, ainsi que de la stérilité résultante.

Matériaux

Les pièces en contact avec le liquide sont chimiquement inertes:

- Tuyau d'aspiration: PTFE (jusqu'à 10 ml), FEP (dès 25 ml)
- Corps de soupape: céramique
- Bille de soupape: verre (jusqu'à 10 ml), céramique (dès 25 ml)
- Ressort de soupape: platine-iridium
- Platine: PTFE (dès 5 ml)
- Cylindre: verre borosilicate
- Piston: céramique ou verre (Calibrex™ 525), céramique ou verre enrobé de PFA (Calibrex™ 530)
- Embase: ETFE
- Tuyau bec verseur: FEP/PCTFE
- Bouchon de protection: ETFE

Attention: Attention: les vapeurs d'acides forts et certains solvants concentrés peuvent endommager l'instrument et réduire sa durée de vie. Éviter de laisser en permanence un dispenser sur une bouteille contenant un acide fort concentré. Le rincer après emploi. Les mêmes recommandations permettent d'éviter des pertes de solvants volatils à long terme.

Les dégâts dus à l'emploi de réactifs non compatibles ne sont pas couverts par la garantie. Le code QR sur l'instrument donne accès au tableau de compatibilité chimique. En cas de doute, l'utilisateur doit s'assurer de la compatibilité chimique ou se référer au fabricant.

USE OF ACCESSORIES

Note: exclusive use of Socorex® accessories.
Verify performances after the addition of any accessories.
Purge dispenser prior to any change of accessory.

Sterile air filter (Fig. 8)

Air inlet can be enlarged to receive a membrane filter, if airborne contamination is a concern.

- ① Cut out air inlet protection cover using sharp blade
- ② Insert Luer side of filter in the opening

Remove filter prior to autoclave instrument

Volume setting button (Fig. 9.1 and 9.2)

To replace sliding cursor with screw type button:

- ① Place cursor to the bottom
- ② Unscrew plunger head (No. 4)
- ③ Remove plunger
- ④ Push body in the upper position. Remove upper apron (No. 6) by rocking toward the front side.
- ⑤ Slide cursor with thumb toward the top and remove it from the body.
- ⑥ Insert screw type button, slide it toward the bottom, and tighten the cursor to the desired volume.

Replace upper apron (No. 6), respecting the index position until it "clicks" (Fig. 9.3). Insert plunger completely and securely tighten.

Note: upon reinstalling sliding cursor, make sure the arrow is pointing up (Fig. 9.4).

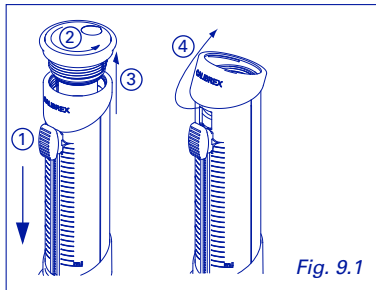


Fig. 9.1

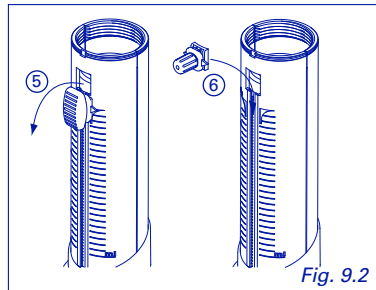


Fig. 9.2

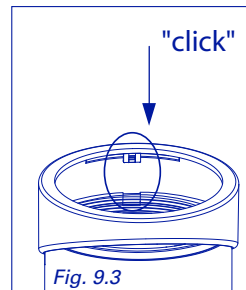


Fig. 9.3

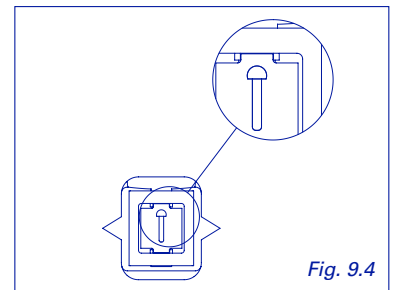


Fig. 9.4

Flow control stopcock (Fig. 10)

Accessory can be mounted and removed at anytime.

- ① Remove delivery jet (Fig. 10.1), then delivery jet adapter (Fig. 10.2) and keep for further use
- ② Mount stopcock on dispenser (Fig. 10.3)
- ③ Attach delivery jet to stopcock (Fig. 10.4)

Note: see "Dosing instructions" (Fig. 5.2 and 5.3) for proper use of flow control stopcock.

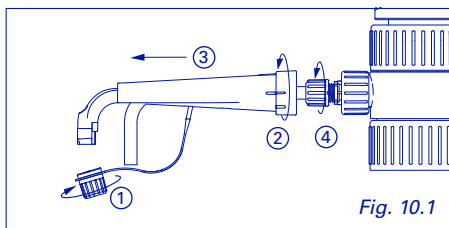


Fig. 10.1

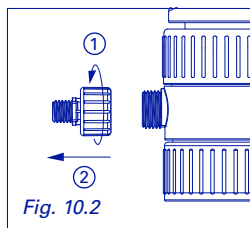


Fig. 10.2

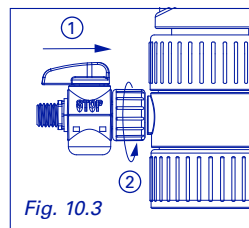


Fig. 10.3

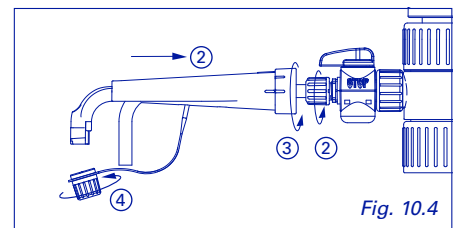


Fig. 10.4

Extension tubing (Fig. 11 and 12)

Spiral tubing and Jet pen™ can replace standard delivery jet. Fully compatible with stopcock features.

- ① Remove delivery jet (Fig. 11.1 and 12.1)
- ② Install extension tubing (Fig. 11.2 and 12.2)
- ③ Fix Jetpen™ holder (Fig. 12.3)

If required, empty Jet pen™ holder by unscrewing the reservoir holder (cap is maintained on the holder)

Materials in contact with the liquid:

- Spiral tubing: FEP
- Adapter: PCTFE
- Jet pen™ holder: PP coated glass, ETFE

GEBRAUCH VON ZUBEHÖR

Notiz: Exklusiver Gebrauch von Socorex® Zubehör empfohlen.
Leistungsdaten nach Einsetzung eines Zubehörs prüfen.
Instrument vor Auswechseln von Zubehör ausgiebig spülen.

Steriler Luftfilter (Abb. 8)

Die Öffnung der hinteren Lufteinnahme am Körper kann modifiziert werden, um einen sterilen Luftfilter einzufügen.

- ① Schutz mit einer scharfen Klinge entfernen.
- ② Luer-Anschluss des Filters in die Öffnung einstecken.

Luftfilter muss vor dem Autoklavieren entfernt werden.

Schraubregler (Abb. 9.1 und 9.2)

Umbau des Schiebreglers zum Schraubregler:

- ① Schraubregler auf unterem Anschlag positionieren
- ② Kolbenkopf (Nr. 4) losschrauben
- ③ Kolben herausziehen
- ④ Handstück auf oberem Anschlag positionieren. Obere Schürze (Nr. 6) durch frontales Anheben entfernen.
- ⑤ Schiebregler mit dem Daumen nach oben leiten und aus dem Handstück entnehmen.
- ⑥ Schraubregler einfügen und nach unten gleiten und Schraubregler auf gewünschtes Volumen blockieren.

Beide Markierungen zusammenfügen und obere Schürze (Nr. 6) wieder einklicken (Abb. 9.3). Kolben einfügen und wieder festschrauben.

Notiz: Bei Wiederverwendung des Schiebreglers, Pfeil nach oben positionieren (Abb. 9.4).

UTILISATION DES ACCESSOIRES

Note: utilisation exclusive des accessoires Socorex®.
Contrôle des performances après l'ajout d'un accessoire.
Purger rigoureusement l'instrument avant tout changement d'accessoire.

Filtre à air stérile (Fig. 8)

La prise d'air à l'arrière de l'embase peut recevoir un filtre à membrane pour protéger le contenu de la bouteille.

- ① Retirer la mince protection à l'aide d'un scalpel
- ② Insérer le côté Luer du filtre dans l'ouverture

Retirer le filtre avant autoclavage.

Bouton à vis (Fig. 9.1 et 9.2)

Echange du curseur cranté par le bouton à vis:

- ① Placer le curseur vers le bas
- ② Dévisser la tête de piston (No. 4)
- ③ Retirer le piston
- ④ Pousser le manchon vers le haut. Retirer le tablier supérieur (No. 6) en le basculant vers l'avant.
- ⑤ Glisser le curseur vers le haut avec la pouce et l'extraire du manchon.
- ⑥ Insérer le bouton à vis, le faire glisser vers le bas, et bloquer le bouton au volume désiré.

Remettre le tablier supérieur (No. 6) en plaçant l'index dans son logement jusqu'au «click» (Fig. 9.3). Insérer le piston et visser complètement.

Note: en ré-utilisant le curseur cranté, positionner la flèche vers le haut (Fig. 9.4).

Fluidkontroll-System mit Sperrhahn (Abb. 10)

Zubehör kann jederzeit montiert oder entfernt werden.

- ① Ausstoskanüle (Abb. 10.1) und Adapter für Ausstoskanüle (Abb. 10.2) entfernen und für weitere Anwendungen aufbewahren.
- ② Sperrhahn montieren (Abb. 10.3)
- ③ Ausstoskanüle einfügen (Abb. 10.4)

Notiz: Siehe Paragraph «Dosieren» (Abb. 5.2 und 5.3) für die geeignete Anwendung des Sperrhahns.

Robinet de contrôle du flux (Fig. 10)

L'accessoire peut être monté et retiré en tout temps.

- ① Retirer le bec verseur (Fig. 10.1) puis le raccord de bec (Fig. 10.2), garder pour utilisation future.
- ② Monter le robinet (Fig. 10.3)
- ③ Insérer le bec verseur (Fig. 10.4)

Note: voir paragraphe «Operations de dosage» (Fig. 5.2 et 5.3) pour l'utilisation du robinet.

Verlängerungsschlauch (Abb. 11 und 12)

Spiralschlauch und Jet-Pen™ können die Ausstoskanüle mit oder ohne Sperrhahn ersetzen.

- ① Ausstoskanüle entfernen (Abb. 11.1 und 12.1)
- ② Verlängerung montieren (Abb. 11.2 und 12.2)
- ③ Jet-Pen™ Halterung montieren (Abb. 12.3)

Jet-Pen™ Halterung entleeren: Verschlussdeckel in der Halterung lassen und Sammelbehälter abschrauben

Materialien in Kontakt mit der Flüssigkeit:

- Spiralschlauch: FEP
- Adapter: PCTFE
- Jet-Pen™ Halterung: Glas mit PP Beschichtung, ETFE

Rallonge de distribution (Fig 11 et 12)

Une rallonge peut être installée en lieu et place du bec verseur, avec ou sans le robinet.

- ① Retirer le bec verseur (Fig. 11.1 et 12.1)
- ② Monter la rallonge (Fig. 11.2 et 12.2)
- ③ Installer le support de bec (Fig. 12.3)

Pour vider le tube égouttoir, dévisser la porte réservoir, bouchon maintenu sur son support.

Matériaux en contact avec le liquide:

- Tuyau spiral: FEP
- Raccord: PCTFE
- Tube égouttoir et bouchon: verre et enveloppe PP, ETFE

Remote aspiration kit (Fig. 13)

Kit facilitates liquid intake from a drum or an other remote container (<10 m distance, <2 m elevation). It requires workstation # 320BC.100 and feed tubing set # 1.525.581 (to be ordered separately)

- ① Position ring spacer and fit with adapter (Fig. 13.1)
- ② Attach feed tubing
- ③ Place dispenser on workstation and screw the two clamps. (Fig. 13.2)

Note: accessory not compatible with recycling position of stopcock.

Entnahme aus distanzierten Behältern (Abb. 13)

Das Set erlaubt eine leichtere Entnahme aus entfernten Behältern (Distanz < 10 m, Höhe < 2 m). Dispenserhalterung (Ref. 320.BC100) und Ansaugschlauch (Ref. 1.525.581) sind separat bestellbar.

- ① Stützing positionieren und festschrauben (Abb. 13.1)
- ② Ansaugschlauch einfügen
- ③ Instrument mit Hilfe der zwei Klemmen in der Dispenserhalterung befestigen (Abb. 13.2)

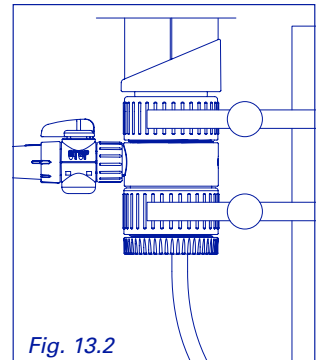
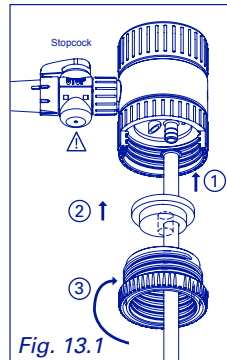
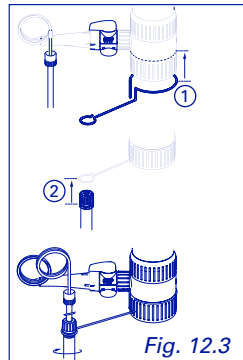
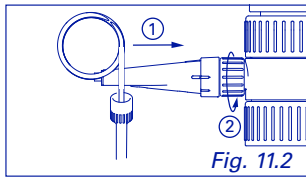
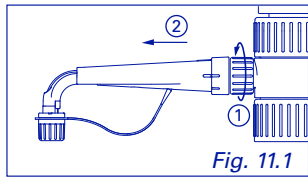
Notiz: Rückführungsposition mit diesem Zubehör verboten.

Prélèvement à distance (Fig. 13)

Le set permet l'aspiration dans des bidons ou fûts éloignés de l'instrument (distance < 10 m, hauteur < 2 m). Utilisation nécessaire du statif (ref 320.BC100) et du set tuyau d'aspiration (ref. 1.525.581), à commander séparément.

- ① Positionner la bague d'appui et visser l'adaptateur (Fig. 13.1)
- ② Insérer le tuyau d'aspiration
- ③ Fixer à l'aide des deux pinces le doseur sur le statif (Fig. 13.2)

Note: position recyclage du robinet interdite avec cet accessoire.



ORDERING INFORMATION - ACCESSORIES

BESTELLINFORMATIONEN - ZUBEHÖR

CATALOGUE - ACCESSOIRES

Description	Packaging	Cat. No.
Work station for dispenser		
Work station for dispenser stability	1 / pk	320.SB100
Remote aspiration work station and feed tubing set		
Work station for remote aspiration*	1 / pk	320.BC100
Feed tubing set, 2.5 m with connector (as of 25 mL)	1 / pk	1.525.581
* Dispenser and feed tubing / connector to be ordered separately		
Flow control stopcock		
Up to 10 mL models	1 / pk	1.525.544
As of 25 mL models	1 / pk	1.525.546
Delivery jet assembly, 90 mm		
Fits 1 mL model	1 / pk	1.525.090
Fits 2.5, 5 and 10 mL models	1 / pk	1.525.091
Delivery jet assembly, 120 mm		
Fits 25 mL model	1 / pk	1.525.120
Fits 50, 100 mL models	1 / pk	1.525.121
Delivery jet assembly, extended, 120 mm		
Fits 1 mL model	1 / pk	1.525.123
Fits 2.5, 5 and 10 mL models	1 / pk	1.525.125
Delivery jet assembly, extended, 150 mm		
Fits 25 mL model	1 / pk	1.525.150
Fits 50 and 100 mL models	1 / pk	1.525.151
Safety seal sticker		
Safety seal sticker	25 / pk	1.525.525
Safety seal sticker	100 / pk	1.525.526

Description	Packaging	Cat. No.
Extension tubing and Jet-Pen™ 600mm, int. ø 4mm		
Fits models up to 10 mL	1 / pk	1.525.610
Fits 25 mL model	1 / pk	1.525.625
Fits 50 and 100 mL models	1 / pk	1.525.650
Replacement feed tubing, int. ø 5mm		
Fits models up to 10 mL, cut, 300mm, PTFE	1/pack	511.707
Fits models up to 10 mL, by the meter, uncut, PTFE	meter	511.709
Fits models as of 25 mL, cut, 350mm, PEP	1/pack	525.350
Fits models as of 25 mL, by the meter, uncut, FEP	meter	525.706
Telescopic feed tubing, FEP		
Fits models up to 10 mL, 150 – 255 mm, ø ext 6.5 mm, ø int 5 mm	1 / pk	1.525.352
Fits models as of 25 mL, 195 – 345 mm, ø ext 8.5 mm, ø int 7 mm	1 / pk	1.530.355
Volume adjustment button		
Screw type setting button for organo model, yellow	1 / pk	1.525.918
Screw type setting button for solutae model, red	1 / pk	1.530.918
Adapter and bottles		
Threaded adapter (PP) ø 25, 28, 32, 38, 40 mm	1/pack	1.525.GLxx
Nested threaded adapter (PP) to be used with 1.525.GL32 ø 22, 30, 34, 36	1/pack	GLPxx
Amber glass reservoir (ø 32/45 mm) 250, 500, 1000, 2500 mL	1/pack	314.xxxx
Amber glass reservoir (ø 32/45 mm) 500, 1000, 2500 mL with anti-spill PE coating	1/pack	314.xxxxPE
Pyrex glass reservoir (ø 32 mm) 500 mL with side neck for filter	1/pack	314.0500P
Polyethylene reservoir (ø 32/45 mm) 250, 500, 1000, 2500 mL	1/pack	315.xxxx

Replace xx by adapter diameter and xxxx by reservoir volume

WARRANTY

Dispensers are guaranteed for a period of two years against any factory or material defect. Glass breakage, cases due to non respect of manufacturer's and safety instructions and damages due to incompatible reagents are excluded from the warranty. Repairs and changing parts do not extend the warranty period. Should regular maintenance not eliminate a detected defect, return the instrument to the dealer from whom it was purchased, after obtaining return authorization. **Purge, dry and decontaminate the instrument prior to returning it for service.**

GARANTIE

Dispenser haben für die Zeitdauer von zwei Jahren eine Garantie gegen Fabrikations- und Materialfehler. Bei Glasbruch, Schäden durch Verwendung nicht kompatibler Reagenzien oder bei Missachtung der Angaben der Betriebsanleitung und den Sicherheitsvorschriften werden sämtliche Garantieansprüche ausgeschlossen. Reparaturen und neue Ersatzteile verlängern die Garantiezeit nicht. Falls Störungen vorliegen, die nach genannten Hinweisen nicht zu beseitigen sind, senden Sie das Instrument nach Vereinbarung an Ihren Fachhändler zurück. **Das Instrument vor der Rücksendung spülen, trocknen und desinfizieren.**

GARANTIE

Les doseurs sont garantis deux ans contre tout défaut de matière ou de fabrication. Le bris de verre, les dégâts dus à l'emploi de réactifs non compatibles de même que le non-respect des instructions du fabricant et des consignes de sécurité ne sont pas couverts par cette garantie. Les réparations et changements de pièces ne prolongent pas la durée de garantie. Si l'instrument présente un défaut qui n'a pas pu être éliminé par l'entretien courant, le retourner pour réparation auprès du distributeur agréé après obtention de l'accord du revendeur. **Purger, sécher et décontaminer l'instrument avant de le retourner.**

SUPPLY CONTENT

Instrument with 45 mm base thread. Supplied with feed tubing, delivery jet with stopper, three bottle neck adapters, QC certificate and operating instructions.

Up to 2.5 mL: 300 mm feed tubing, 90 mm delivery jet, 25, 28 and 32 mm adapters.

From 5 mL to 10 mL: 300 mm feed tubing, 90 mm delivery jet, 28, 32 and 40 mm adapters.

As of 25 mL: 350 mm feed tubing, 120 mm delivery jet, 32, 38 and 40 mm adapters

PERFORMANCE DATA AND ORDERING INFORMATION

Volume mL	Increment mL	Inaccuracy (E %)			Imprecision (CV %)			Calibrex <i>organo</i> 525		Calibrex <i>solutae</i> 530	
		Min. vol.	Mid. vol.	Max. vol.	Min. vol.	Mid. vol.	Max. vol.	Cat. No.	With stopcock Cat. No.	Cat. No.	With stopcock Cat. No.
0.1 – 1	0.02	<+/- 3.0 %	<+/- 1.8 %	<+/- 0.6 %	< 1.2 %	< 0.7 %	< 0.17 %	525.001	525.001FC	530.001	530.001FC
0.25 – 2.5	0.05	<+/- 2.7 %	<+/- 1.6 %	<+/- 0.6 %	< 0.9 %	< 0.55 %	< 0.17 %	525.002.5	525.002.5FC	530.002.5	530.002.5FC
0.5 – 5	0.1	<+/- 2.0 %	<+/- 1.3 %	<+/- 0.6 %	< 0.5 %	< 0.35 %	< 0.1 %	525.005	525.005FC	530.005	530.005FC
1 – 10	0.2	<+/- 1.5 %	<+/- 1.2 %	<+/- 0.6 %	< 0.5 %	< 0.35 %	< 0.1 %	525.010	525.010FC	530.010	530.101FC
2.5 – 25	0.5	<+/- 1.5 %	<+/- 1.1 %	<+/- 0.6 %	< 0.5 %	< 0.35 %	< 0.1 %	525.025	525.025FC	530.025	530.025FC
5 – 50	1.0	<+/- 1.5 %	<+/- 1.1 %	<+/- 0.6 %	< 0.5 %	< 0.35 %	< 0.1 %	525.050	525.050FC	530.050	530.050FC
10 – 100	1.0	<+/- 1.5 %	<+/- 1.1 %	<+/- 0.6 %	< 0.5 %	< 0.35 %	< 0.1 %	525.100	525.100FC	530.100	530.100FC

- Performance values obtained by a smooth and steady movement, with bidest. water at constant temperature ($\pm 0.5^\circ\text{C}$) comprised between 20 and 25°C , in accordance with ISO 8655.
- Refer to chapter "Sterilization" when autoclaving the instrument
- Omission to untighten connecting body ring before autoclaving, and/or over-tightening ring when dispensing, may reduce performance.

Vol. (mL)	Max. cinematic viscosity (cst)	Example of liquid
1	1500	Silicone oil
2.5	1200	Silicone oil
5	1000	Pure Glycerol
10	250	SAE 20 oil

PACKUNGSMATERIAL

Instrument mit 45 mm Basisgewinde. Lieferumfang: Ansaugschlauch, Ausstosskanüle mit Schutzkappe, drei Adapter, Kontrollzertifikat sowie Bedienungsanleitung.

Bis 2.5 ml: Ansaugschlauch 300 mm, Ausstosskanüle 90 mm, 25, 28 und 32 mm Adapter.

Ab 5 ml bis 10 ml: Ansaugschlauch 300 mm, Ausstosskanüle 90 mm, 28, 32 und 40 mm Adapter.

Ab 25 ml: Ansaugschlauch 350 mm, Ausstosskanüle 120 mm, 32, 38 und 40 mm Adapter.

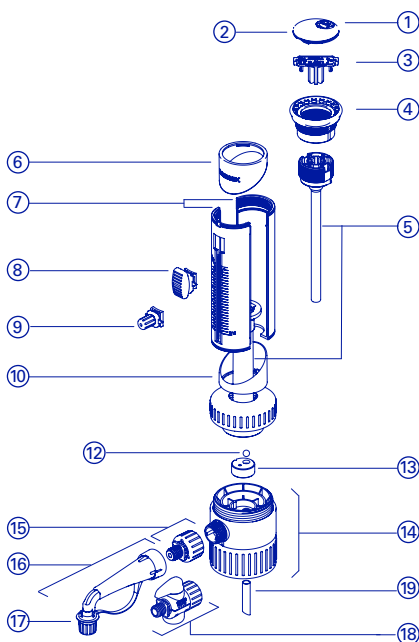
TECHNISCHE DATEN UND BESTELLINFORMATIONEN

Vol. (mL)	Max. cinematic viscosity (cst)	Example of liquid	Vol. (mL)	Max. cinematic viscosity (cst)	Example of liquid	Test conditions for all models (without stopcock)	
						Dispensing time < 10s.	Dispensing force < 3kg for 5 to 100mL, <0.5kg for 1 and 2.5mL
25	400	Silicone oil				Pressure in barrel < 3bar	
50	250	Silicone oil					
100	150	Silicone oil					

Cinematic viscosity is indicated in centistokes (cst). The dynamic viscosity in centipoises (cps) is obtained by multiplying the cinematic viscosity by the density of the liquid (kg/m^3).

SPARE PARTS

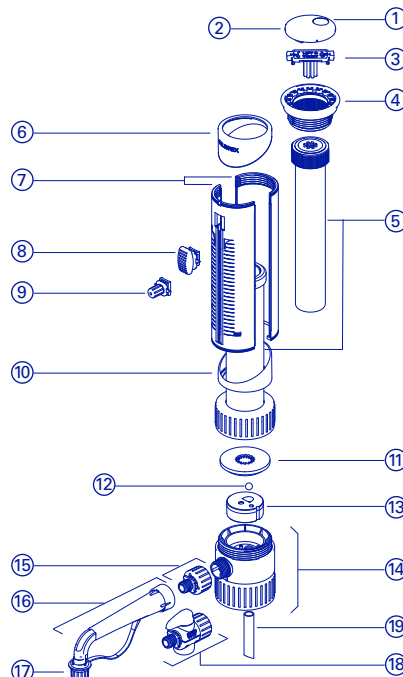
1. Calibration safety seal
2. Cap
3. Calibration key
4. Plunger head
5. Barrel/plunger assembly
6. Upper apron
7. Body
8. Sliding cursor
9. Screw type button (accessory)
10. Lower apron
11. Plate (except 1 & 2.5 mL)
12. Valve ball
13. Valve body
14. Connecting body
15. Delivery jet adapter
16. Delivery jet
17. Stopper with strap
18. Stopcock (optional)
19. Feed tube



1 and 2.5 mL

ERSATZTEILE

1. Kalibrationssiegel
2. Deckel
3. Kalibrationsschlüssel
4. Kolbenkopf
5. Kolben/Zylinder Aggregat
6. Obere Schürze
7. Aussemantel
8. Schieberegler
9. Schraubregler (Zubehör)
10. Untere Schürze
11. Platte (ausser 1 & 2.5 ml)
12. Ventilkugel
13. Ventilkörper
14. Körper
15. Adapter für Ausstosskanüle
16. Ausstosskanüle
17. Schutzkappe mit Flansch
18. Sperrhahn (Zubehör)
19. Ansaugschlauch



5 to 100 mL

CONTENU EMBALLAGE

Instrument avec embase de diamètre 45 mm. Conditionnement standard : tuyau d'aspiration, bec verseur avec bouchon, trois raccords, certificat d'étalonnage et mode d'emploi.

Jusqu'à 2.5 ml: tuyau d'aspiration 300 mm, bec 90 mm, raccords 25, 28 et 32 mm.

De 5 mL à 10 mL: tuyau d'aspiration 300 mm, bec 90 mm, raccords 28, 32 et 40 mm.

Dès 25 ml: tuyau d'aspiration 350 mm, bec 120 mm, raccords 32, 38 et 40 mm.

DONNEES TECHNIQUES ET CATALOGUE

Volume mL	Increment mL	Inaccuracy (E %)			Imprecision (CV %)			Calibrex <i>organo</i> 525		Calibrex <i>solutae</i> 530	
		Min. vol.	Mid. vol.	Max. vol.	Min. vol.	Mid. vol.	Max. vol.	Cat. No.	With stopcock Cat. No.	Cat. No.	With stopcock Cat. No.
0.1 – 1	0.02	<+/- 3.0 %	<+/- 1.8 %	<+/- 0.6 %	< 1.2 %	< 0.7 %	< 0.17 %	525.001	525.001FC	530.001	530.001FC
0.25 – 2.5	0.05	<+/- 2.7 %	<+/- 1.6 %	<+/- 0.6 %	< 0.9 %	< 0.55 %	< 0.17 %	525.002.5	525.002.5FC	530.002.5	530.002.5FC
0.5 – 5	0.1	<+/- 2.0 %	<+/- 1.3 %	<+/- 0.6 %	< 0.5 %	< 0.35 %	< 0.1 %	525.005	525.005FC	530.005	530.005FC
1 – 10	0.2	<+/- 1.5 %	<+/- 1.2 %	<+/- 0.6 %	< 0.5 %	< 0.35 %	< 0.1 %	525.010	525.010FC	530.010	530.101FC
2.5 – 25	0.5	<+/- 1.5 %	<+/- 1.1 %	<+/- 0.6 %	< 0.5 %	< 0.35 %	< 0.1 %	525.025	525.025FC	530.025	530.025FC
5 – 50	1.0	<+/- 1.5 %	<+/- 1.1 %	<+/- 0.6 %	< 0.5 %	< 0.35 %	< 0.1 %	525.050	525.050FC	530.050	530.050FC
10 – 100	1.0	<+/- 1.5 %	<+/- 1.1 %	<+/- 0.6 %	< 0.5 %	< 0.35 %	< 0.1 %	525.100	525.100FC	530.100	530.100FC

LISTE DE PIECES

1. Pastille de protection
2. Capuchon
3. Clé de calibration
4. Tête de piston
5. Piston/cylindre sous-ensemble
6. Tablier supérieur
7. Manchon
8. Curseur cranté
9. Bouton à vis (accessoire)
10. Tablier inférieur
11. Platine (sauf 1 et 2.5 ml)
12. Bille de soupape
13. Corps de soupape
14. Embase
15. Raccord de bec
16. Bec verseur
17. Bouchon de protection avec bride
18. Robinet (accessoire)
19. Tuyau d'aspiration

Chemical resistance
Scan QR code to access
chemical resistance chart.



Calibrex™

your choice for flexibility and performance

bottle-top dispensers

*additional
volumes*

The Calibrex™ line includes a large selection of robust dosing instruments with excellent chemical resistance, high performance and simplified maintenance. Intended for the safe and reproducible liquid distribution in volumes ranging from 0.1 mL to 100 mL.

Choose from three different models; whatever the application, there will be a Calibrex™ fitting your needs.

The Calibrex™ line features:

- Selection between three different models
- Colour coding identification
- Integrated calibration key
- Long lasting performance stability
- QR coded chemical compatibility
- Quick disassembling, no tool needed
- Autoclavable at 121° C fully assembled



The Calibrex™ models

520 **525** **530**
universal organo solutae

The logo for SOCOREX SWISS, featuring a blue triangle to the left of the text "SOCOREX" in a bold, blue, sans-serif font, with "SWISS" in a smaller, blue, sans-serif font below it.

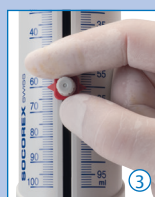
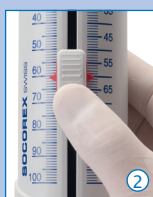
Calibrex™ *organo / solutae*

your choice for flexibility and performance



► Ease of use ①

Smooth aspiration and distribution for trouble-free routine dispensing. Dual scale enables volume reading from a wide angle.



► Volume setting

Spring loaded sliding cursor ② softly moves up and down dual scale and precisely stops at desired graduation. Easy exchange for the alternative classical screw button ③, available as accessory.



► Permanent visibility ④

Safety transparent thick sleeve around barrel and delivery jet window allow liquid flow monitoring.

► Optimal working position ⑤

The instrument rotates 360° for adequate positioning on the bottle. Freely rotating dispenser body makes volume clearly visible from any position.



► Robustness

Glass barrel with thick wall contributes to overall dispenser robustness.

Calibrex™ *organo*

Calibrex™ *organo* 525 includes a ground glass or ceramic plunger, both suited for organics and non-crystallizing acid and base solutions.

525

organo

- 0.1 - 1 mL
- 0.25 - 2.5 mL
- 0.5 - 5 mL
- 1 - 10 mL
- 2.5 - 25 mL
- 5 - 50 mL
- 10 - 100 mL



Calibration safety seal sticker
Integrated calibration key under cap

Dual graduation

Volume adjustment sliding cursor



Ground glass plunger

Disassembling nut, no tool needed

Air inlet for filter connection

Shock absorbing flexible connexion

Screw-locking stopper



Superior material selection

Parts in contact with liquid flow are chemically inert, providing for stability and long instrument life.

Parts	525 <i>organo</i>	530 <i>solutae</i>
Feed tubing 1 to 10 mL	PTFE	
Feed tubing 25 to 100 mL	FEP	
Valve body	Ceramic	
Valve balls 1 to 10 mL	Pyrex glass	
Valve balls 25 to 100 mL	Ceramic	
Valve spring	Platinum-iridium	
Valve plate	PTFE	
Barrel	Borosilicate glass	
Plunger 1 to 5 mL	Ceramic	PFA coated ceramic
Plunger 10 to 100 mL	Ground glass	PFA coated glass
Connecting body	ETFE	
Delivery jet	FEP/PCTFE	
Stopper	ETFE	

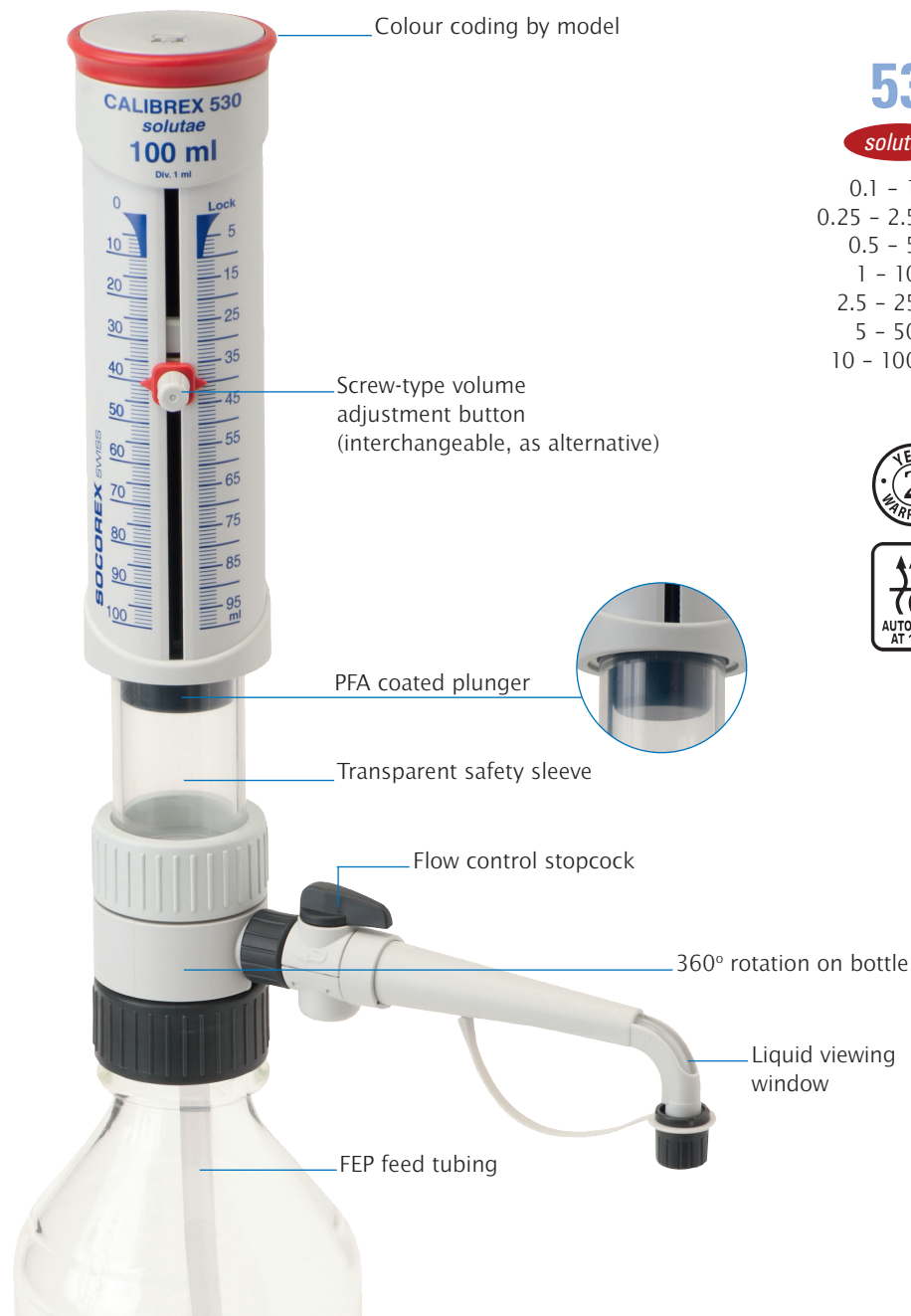


Chemical resistance ⑦

Printed QR code for instant access to chemical resistance chart.

Calibrex™ solutae

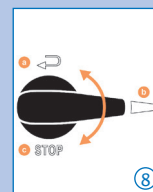
Calibrex™ solutae 530 has a glass or ceramic PFA coated plunger preventing the crystallization of chemicals. It enables trouble free distribution of salt solutions, weak and strong acids, as well as bases.



530

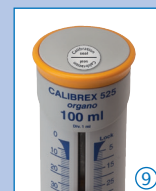
solutae

- 0.1 – 1 mL
- 0.25 – 2.5 mL
- 0.5 – 5 mL
- 1 – 10 mL
- 2.5 – 25 mL
- 5 – 50 mL
- 10 – 100 mL



► Flow control stopcock ⑧

Both 525 and 530 models are available with or without stopcock, adding flexibility to safety. Next to its dispensing position (b), device enables liquid priming and recycling (a) without reagent loss or contamination. Locking position (c) for safe dispenser transportation.



► Easy In-lab calibration ⑨

Access to mechanism protected by safety seal sticker. Integrated key located under plunger cap. Engraved +/- arrows for easy and precise setting. Spare seal stickers are available.



► Maintenance ⑩

Disassembling/reassembling facilitated by limited number of elements - no tool needed. Key parts such as valves, plunger, barrel and delivery jet are removable in seconds for cleaning. Fully autoclavable at 121°C / 250°F.



► Air filter ⑪

Air inlet can be enlarged to receive a Luer membrane filter, if airborne contamination is a concern.

Performance - Calibrex™ 525 and 530

Volume mL	Division mL	Inaccuracy (E%)			Imprecision (CV%)		
		Min. vol.	Mid. vol.	Max. vol.	Min. vol.	Mid. vol.	Max. vol.
0.1 - 1	0.02	<+/- 3.0%	<+/- 1.8%	<+/- 0.6%	< 1.2%	< 0.7%	< 0.17%
0.25 - 2.5	0.05	<+/- 2.7%	<+/- 1.6%	<+/- 0.6%	< 0.9%	< 0.55%	< 0.17%
0.5 - 5	0.1	<+/- 2.0%	<+/- 1.3%	<+/- 0.6%	< 0.5%	< 0.35%	< 0.1%
1 - 10	0.2	<+/- 1.5%	<+/- 1.2%	<+/- 0.6%	< 0.5%	< 0.35%	< 0.1%
2.5 - 25	0.5	<+/- 1.5%	<+/- 1.1%	<+/- 0.6%	< 0.5%	< 0.35%	< 0.1%
5 - 50	1.0	<+/- 1.5%	<+/- 1.1%	<+/- 0.6%	< 0.5%	< 0.35%	< 0.1%
10 - 100	1.0	<+/- 1.5%	<+/- 1.1%	<+/- 0.6%	< 0.5%	< 0.35%	< 0.1%

Performance values obtained by a smooth and steady pace movement, with bidest water at constant temperature ($\pm 0.5^\circ\text{C}$) comprised between 20 and 25°C, according to EN ISO 8655.

Warning: omission to untighten connecting body ring before autoclaving, and/or over-tightening ring when dispensing, may reduce performance.

Calibrex™ universal

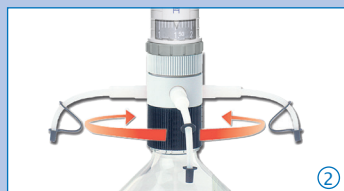
your choice for flexibility and performance



①

► Friendly volume setting ①

Fast and precise adjustment. Efficient click-stop mechanism prevents unwanted alteration. Large display is easy to read; the window adjusts to desired side of instrument body. Each step on the cylindrical cam is pre-calibrated and corresponds to one division on the volume graduation.



②

► Optimized working position ②

The instrument rotates 360° for adequate positioning on top of the bottle.

► Air filter ③

Air inlet can be enlarged to receive a Luer membrane filter, if airborne contamination is a concern.



④



⑤

► In-lab calibration ④

Dispensers are factory calibrated and can be easily recalibrated. Integrated adjustment screw bears clear setting indications.

► Easy maintenance ⑤

Disassembling/reassembling is facilitated by the limited number of elements – no tool needed. Fully autoclavable at 121°C / 250°F.

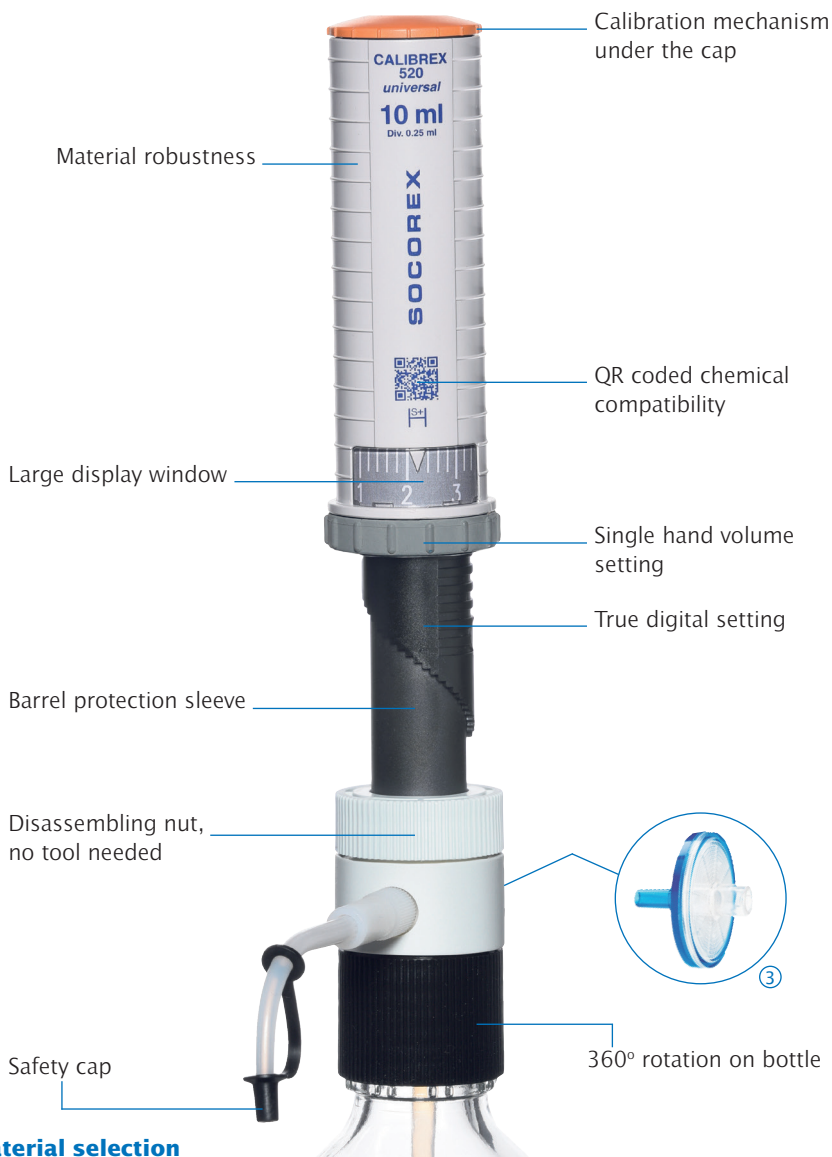
Calibrex™ universal

Calibrex™ universal 520 has a PFA coated plunger preventing the crystallization of chemicals. Made of high-tech materials, it provides for broad chemical resistance and is universally adapted for most laboratory reagents.

520

universal

0.25 – 2 mL
1 – 5 mL
1 – 10 mL



Superior material selection

Special attention is paid to component materials, providing for long instrument life. Parts coming in contact with the liquid flow are chemically inert.

Chemical resistance

Printed QR code for instant access to chemical resistance chart.



Parts	Materials
Feed tube	PTFE
Intake valve	Ceramic
Valve balls	Pyrex glass
Valve spring	Platinum-iridium
Barrel	Borosilicate glass
Barrel plate / base	PTFE
Plunger	Glass with PFA coating
Outlet valve	Ceramic
Body	ETFE
Delivery jet assembly	PTFE/ETFE

Performance – Calibrex™ 520

Volume mL	Division mL	Inaccuracy (E%)			Imprecision (CV%)		
		Min. vol.	Mid. vol.	Max. vol.	Min. vol.	Mid. vol.	Max. vol.
0.25 – 2	0.05	< ± 3.0%	< ± 1.8%	< ± 0.6%	< 0.5%	< 0.35%	< 0.1%
1 – 5	0.1	< ± 2.0%	< ± 1.3%	< ± 0.6%	< 0.5%	< 0.35%	< 0.1%
1 – 10	0.25	< ± 1.5%	< ± 1.1%	< ± 0.6%	< 0.5%	< 0.35%	< 0.1%

Performance values obtained with bidest water at constant temperature (± 0.5°C) comprised between 20 and 25°C in accordance with ISO 8655.

Accessories for Calibrex™ dispensers



Ordering information - Accessories

Description	Packaging	Cat. No.
Work station for dispenser stability ①		
Fits Calibrex™ 520 dispenser	1/pk	320.SB050
Fits Calibrex™ 525/530 dispensers	1/pk	320.SB100

Description	Packaging	Cat. No.
Remote aspiration work station and feed tubing set ②		
Fits Calibrex™ 520 dispenser*	1/pk	320.BC050
Fits Calibrex™ 525/530 dispensers* as of 25 mL	1/pk	320.BC100
Feed tubing set, 2.5 m with connector for remote aspiration, fits Calibrex™ 525/530 as of 25 mL	1/pk	1.525.581

* Dispenser and feed tubing / connector to be ordered separately

Description	Material	Length	int. Ø	Cat. No.
Extension tubing and Jet-Pen™ ③				
Fits Calibrex™ 520	PTFE	600 mm	2.2 mm	1.524
Fits Calibrex™ 525/530, up to 10 mL	FEP/PCTFE	600 mm	4 mm	1.525.610
Fits Calibrex™ 525/530, 25 mL	FEP/PCTFE	600 mm	4 mm	1.525.625
Fits Calibrex™ 525/530, 50 and 100 mL	FEP/PCTFE	600 mm	4 mm	1.525.650

Description	Packaging	Cat. No.
Flow control stopcock for Calibrex™ 525/530 ④		
Fits models up to 10 mL	1/pk	1.525.544
Fits models as of 25 mL	1/pk	1.525.546

Description	Packaging	Cat. No.
Delivery jet assembly, 90 mm, for Calibrex™ 525/530 ⑤		
Fits 1 mL model	1/pk	1.525.090
Fits 2.5, 5 and 10 mL models	1/pk	1.525.091

Description	Packaging	Cat. No.
Delivery jet assembly, 120 mm, for Calibrex™ 525/530 ⑤		
Fits 25 mL model	1/pk	1.525.120
Fits 50 and 100 mL models	1/pk	1.525.121

Description	Packaging	Cat. No.
Delivery jet assembly, extended, 120 mm, for Calibrex™ 525/530 ⑤		
Fits 1 mL models	1/pk	1.525.123
Fits 2.5, 5 and 10 mL models	1/pk	1.525.125

Description	Packaging	Cat. No.
Delivery jet assembly, extended, 150 mm, for Calibrex™ 525/530 ⑤		
Fits 25 mL models	1/pk	1.525.150
Fits 50 and 100 mL models	1/pk	1.525.151

Description	Colour	Packaging	Cat. No.
Screw type volume setting button ⑥			
Fits Calibrex™ 525 dispensers	Yellow	1/pk	1.525.918
Fits Calibrex™ 530 dispensers	Red	1/pk	1.530.918

Description	Length	int. Ø	Cat. No.
Replacement feed tubing, PTFE ⑦			
Fits Calibrex™ 520/525/530 up to 10 mL, cut	300 mm	5 mm	511.707
Fits Calibrex™ 520/525/530 up to 10 mL, by the meter, uncut	specify	5 mm	511.709

Description	Length	int. Ø	Cat. No.
Replacement feed tubing, FEP ⑦			
For Calibrex™ 525/530 as of 25 mL, cut	350 mm	7 mm	525.350
For Calibrex™ 525/530 as of 25 mL, by the meter, uncut	specify	7 mm	525.706

Description	Length	int. Ø	Cat. No.
Telescopic feed tubing, FEP ⑦			
Fits Calibrex™ 520/525/530 up to 10 mL	150 - 255 mm	1/pk	1.525.352
Fits Calibrex™ 525/530 as of 25 mL	195 - 345 mm	1/pk	1.525.355

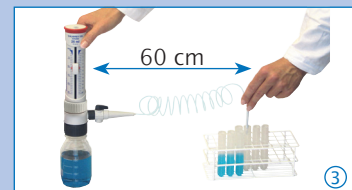
Description	Packaging	Cat. No.
Safety seal sticker		
Fits Calibrex™ 525/530 dispensers	25/pk	1.525.525
Fits Calibrex™ 525/530 dispensers	100/pk	1.525.526

► Dispenser stability ①

Stand holds dispenser when screwed on small-size bottle.

► Remote aspiration ②

Work station facilitates liquid intake from drum or other remote container (<10 m distance, <2 m elevation).



► Extension tubing ③

Spiral tubing and delivery Jet-Pen™ help dispense into vessels with maximum comfort within a 60 cm distance. No tool needed to assemble or to remove for cleaning. Autoclavable.

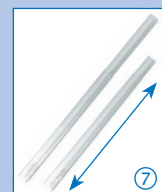


► Flow control stopcock ④

Fitting Calibrex™ 525/530 models. No tool needed to assemble or to remove for cleaning. Autoclavable.

► Delivery jet ⑤

Extended sizes exchangeable without any tool on Calibrex™ 525/530 models. Autoclavable.



► Alternative setting button ⑥

Classical screw-type button easily replaces the original sliding cursor, according to user preference.

► Standard and telescopic feed tubings ⑦

Supplied either cut to standard size or uncut, by the meter. Optional telescopic tubing for instant fitting to bottle size.

Calibrex™ universal / organo / solutae

your choice for flexibility and performance

Chemical resistance chart



Chemicals A - H	Calibrex™		
	520	525	530
Acetaldehyde (Ethanal)	A	A	A
Acetic acid 96%	A	A	B/2
Acetic acid 100% (Glacial)	A	B/4	B/2/4
Acetone (Propanone)	B/4	B/4	B/4
Acetonitrile (MECN)	A	B/4	B/4
Amino acids	A	C/1	A
Ammonium hydroxide (amonia)	A	B/4	B/4
Amyl alcohol (Pentanol)	A	A	A
Aniline	A	A	A
Ascorbic acid	A	C/1	A
Benzaldehyde	A	A	A
Benzene	B/4	B/4	B/4
Boric acid 10%	A	B/1	A
Bromine	B/2	C/4	C/2/4
Butanol	A	A	A
Butanone (MEK)	B/4	B/4	B/4
Butyl acetate	A	B/4	B/4
N-Butylamine	B/4	B/4	B/4
Calcium chloride	A	C/1	A
Calcium hydroxide	B/1	C/1	B/1
Carbon disulfide	A	B/4	B/4
Carbon tetrachloride	A	B/4	B/4
Chlorine dioxide	B/2/4	B/4	B/2/4
Chlorobenzene	A	B/4	B/4
Chlorobutane	A	B/4	B/4
Chloroethanol	A	B/4	B/4
Chloroform	B/4	B/4	B/4
Chlorosulfuric acid 100%	B/3	B/3/4	B/3/4
Chromic acid 100%	B/3	B/3/4	B/3/4
Citric acid	A	B/1	A
Cyanoacrylate	C/1	C/1	C/1
Cyclohexane	A	B/4	B/4
Cyclohexanone	A	B/4	B/4
1,4-Dioxane (Diethylene dioxide)	A	B/4	B/4
Dichlorobenzene	A	A	A
Dichloroethane (DCE)	B/4	A	A
Diesel oil (Heating oil)	A	A	A
Diethylene glycol	A	A	A
Diethylether	A	B/4	B/4
Dimethyl sulfoxide (DMSO)	A	B/1/4	B/4
Dimethylformamide (DMF)	B/4	B/4	B/4
Ethanol	A	A	A
Ether	B/4	B/4	B/4
Ethyl acetate	A	B/4	B/4
Ethylenediamine	A	A	A
Ethylene glycol	A	A	A
Formaldehyde (Formalin)	A	A	A
Formamide	A	A	A
Formic acid	A	A	A
Gamma-butyrolactone	A	A	A
Gasoline	A	B/4	B/4
Glycerin <40%	A	A	A
Heptane	A	A	A
Hexane	A	A	A
Hydrochloric acid 20%	A	A	A
Hydrochloric acid 37% (HCl)	A	B/3	B/3
Hydrofluoric acid (HF)	C/5	C/5	C/5
Hydrogen peroxide	A	A	B/2

Chemicals I - Z	Calibrex™		
	520	525	530
Iodine	A	C/1	B/1
Iodine bromide / chloride	C/2/4	C/4	C/2/4
Isooctane	A	A	A
Isopropanol	A	A	A
Isopropylamine	A	B/4	B/4
Lactic acid	A	C/1	A
2-Methoxyethanol	A	A	A
Methanol	A	A	A
Methyl chloride (Chloromethane)	A	B/4	B/4
Methyl methacrylate (MMA)	A	B/4	B/4
Methyl propyl ketone (2-Pentanone)	B/4	A	A
Methylene chloride (Dichloromethane) (DCM)	B/2/4	B/4	B/2/4
Nitric acid 100%	B/3	C/3/4	C/2/3/4
Nitric acid dil. <30%	A	B/4	B/4
Nitro-hydrochloric acid (Aqua regia)	B/3	B/4	B/2/4
N-methyl-2-pyrrolidone (NMP)	A	A	A
Octane	A	A	A
Octanol	A	A	A
Oil, mineral (engine oil)	A	A	A
Oil, vegetable, animal	A	B/4	B/4
Oil of turpentine	A	B/4	B/4
Oxalic acid	A	C/1	A
Pentane	B/4	B/4	B/4
Perchloric acid 100%	B/3	B/4	B/4
Perchloric acid diluted	A	A	A
Petroleum	A	B/4	B/4
Petroleum ether / spirit	A	B/4	B/4
Phenol	A	A	A
Phenylhydrazine	A	B/1/4	B/4
Phosphoric acid 85%	A	A	A
Potassium chloride	A	C/1	A
Potassium dichromate	A	C/1	B/1
Potassium hydroxide	B/1	C/1	A
Potassium iodide	A	C/1	A
Potassium permanganate	A	C/1	B/1
Propionic acid (Propanoic acid)	A	A	A
Propylene glycol (Propane-1,2-diol)	A	A	A
Picric acid (Trinitrophenol)	A	B/4	B/4
Pyridine	B/4	B/4	B/4
Scintillation fluid	A	A	A
Silver nitrate	B/1	C/1	A
Sodium acetate	A	C/1	A
Sodium chloride (Kitchen salt)	A	C/1	A
Sodium hydroxide 30%	B/1	C/1	A
Sodium hypochlorite (Javel water)	A	C/1	B/4
Sodium thiosulfate	A	C/1	A
Sulfonic acid 100%	B/2/3	B/3/4	B/2/3/4
Sulfuric acid 98%	B/2	B/4	B/2/4
Tetrachloroethylene	B/4	B/4	B/4
Tetrahydrofuran (THF)	B/2/4	B/4	B/2/4
Toluene	B/4	B/4	B/4
Trichlorethylene	B/4	B/4	B/4
Trichloroacetic acid	A	B/1/4	B/4
Trichloroethane	B/4	B/4	B/4
Trichloromethane (Chloroform)	B/4	B/4	B/4
Triethylene glycol	A	A	A
Trifluoroacetic acid (TFA)	B/3	B/4	B/4
Xylene	B/4	B/4	B/2/4

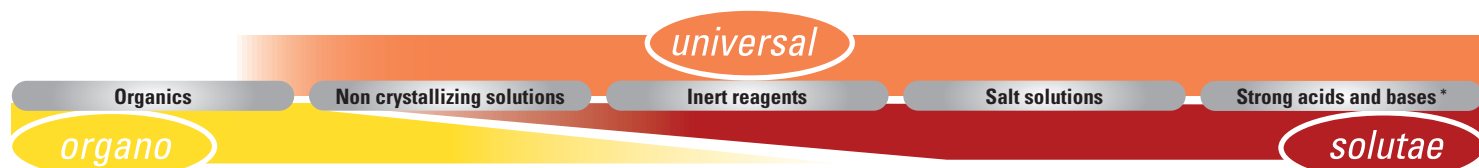
Compatibility statement

A = Good resistance - B = Acceptable with limitations - C = Not recommended

Technical risks

- 1 = Possible crystallization, valve or plunger blockage. Scratches on plunger coating if plunger/barrel dried and stick together.
- 2 = Swell of plunger coating, possible peeling.
- 3 = Release of acid vapours (risk increases with concentration). Do not leave dispenser on bottle.
- 4 = Damage, softening or discoloration of external parts through vapours. Do not leave dispenser on bottle.
- 5 = Chemical degradation of glass parts (plunger/barrel).

Model differentiation 520 / 525 / 530



* Except hydrofluoric acid (HF)



Ordering information - Instruments

Calibrex™ universal 520

32 mm base thread. Supplied with 300 mm feed tubing, 80 mm delivery jet with stopper, 28, 40, 45 mm bottle neck adapters, QC certificate and operating instructions.

Volume mL	Division mL	Cat. No. Fixed volume*	Cat. No. Adj. Volume
0.25 - 2	0.05	520.F02	520.002
1 - 5	0.1	520.F05	520.005
1 - 10	0.25	520.F10	520.010

* Specify desired fixed volume within instrument range when ordering.

Calibrex™ organo 525

45 mm base thread. Supplied with feed tubing, delivery jet with stopper, bottle neck adapters, QC certificate and operating instructions.

1 and 2.5 mL: 300 mm feed tubing, 90 mm delivery jet, 25, 28 and 32 mm adapters.

5 and 10 mL: 300 mm feed tubing, 90 mm delivery jet, 28, 32 and 40 mm adapters.

As of 25 mL: 350 mm feed tubing, 120 mm delivery jet, 32, 38 and 40 mm adapters.

Volume mL	Division mL	Cat. No. Without stopcock	Cat. No. With stopcock
0.1 - 1	0.02	525.001	525.001FC
0.25 - 2.5	0.05	525.002.5	525.002.5FC
0.5 - 5	0.1	525.005	525.005FC
1 - 10	0.2	525.010	525.010FC
2.5 - 25	0.5	525.025	525.025FC
5 - 50	1.0	525.050	525.050FC
10 - 100	1.0	525.100	525.100FC

Calibrex™ solutae 530

45 mm base thread. Supplied with feed tubing, delivery jet with stopper, bottle neck adapters, QC certificate and operating instructions.

1 and 2.5 mL: 300 mm feed tubing, 90 mm delivery jet, 25, 28 and 32 mm adapters.

5 and 10 mL: 300 mm feed tubing, 90 mm delivery jet, 28, 32 and 40 mm adapters.

As of 25 mL: 350 mm feed tubing, 120 mm delivery jet, 32, 38 and 40 mm adapters.

Volume mL	Division mL	Cat. No. Without stopcock	Cat. No. With stopcock
0.1 - 1	0.02	530.001	530.001FC
0.25 - 2.5	0.05	530.002.5	530.002.5FC
0.5 - 5	0.1	530.005	530.005FC
1 - 10	0.2	530.010	530.010FC
2.5 - 25	0.5	530.025	530.025FC
5 - 50	1.0	530.050	530.050FC
10 - 100	1.0	530.100	525.100FC



①



②

► Bottle-neck adapters

Each Calibrex™ dispenser comes along with three additional PP material bottle neck adapters. To fit additional bottle neck diameter, order the appropriate adapter size or combine two adapters to reach the adequate solution.

Type	Ext. Ø of bottle neck	Cat. No.
Adapters for Calibrex™ 525/530 ①		
Threaded, PP	32 - 25 mm	1.525.GL25
Threaded, PP	32 - 28 mm	1.525.GL28
Threaded, PP	45 - 32 mm	1.525.GL32
Threaded, PP	45 - 38 mm	1.525.GL38
Threaded, PP	45 - 40 mm	1.525.GL40
Adapters for Calibrex™ universal 520 ②		
Threaded, PP	22, 25, 28, 30, 34, 36, 38, 40, 45 mm	GLP + Ø
Threaded, PTFE	36, 38, 40, 45 mm	GLT + Ø
Tapered, PP	18.8, 24, 29.2, 45 mm	NSP + Ø
Tapered, PTFE	18.8, 24, 29.2 mm	NST + Ø

bottle-top dispensers



Reagent bottles

Glass and polyethylene reagent bottles supplied with its PP screw cap. Suitable for all bottle top dispensers. Corresponding neck adapters supplied with the dispensers.

Shape	Volume	Neck, ext. Ø	Cat. No.
Amber glass¹⁾ ①			
Square	100 mL	32 mm	314.0100
Square	250 mL	32 mm	314.0250
Square	500 mL	32 mm	314.0500
Square	1000 mL	45 mm	314.1000
Round	2500 mL	45 mm	314.2500
Amber glass, with handle¹⁾ ②			
Round	2500 mL	45 mm	314.2500H
PE coated amber glass²⁾ ③			
Square	500 mL	32 mm	314.0500PE
Square	1000 mL	45 mm	314.1000PE
Round	2500 mL	45 mm	314.2500PE
Clear borosilicate glass¹⁾ ④			
Round	250 mL	45 mm	314.0250C
Round	500 mL	45 mm	314.0500C
Round	1000 mL	45 mm	314.1000C
Round	2000 mL	45 mm	314.2000C
Clear Pyrex glass, with connection neck¹⁾ ⑤			
Round	500 mL	32 mm	314.0500P
Polyethylene²⁾ ⑥			
Square	250 mL	25 mm	315.0250
Square	500 mL	25 mm	315.0500
Square	1000 mL	32 mm	315.1000
Square	2500 mL	45 mm	315.2500

¹⁾ autoclavable, ²⁾ not autoclavable

Safety first

Refer to package inserts for safety precautions, operating instructions and warranty terms.

Mind risks involved in handling hazardous liquids with respect to personal, third party and environmental protection and safety.

QC and warranty

The Calibrex™ line is manufactured and tested to fully comply with current regulations. Each instrument bears its own serial number and passes strict performance control attested by an individual QC certificate. Products and specifications are subject to change without prior notice.



US Patent pending

www.socorex.com/patents-en.html



Accredited calibration laboratory
ISO / IEC 17025



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