ThermoFisher SCIENTIFIC

Sample handling

Customized chromatography solutions for sample handling

Your partner for chromatography consumables

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Preface

Dear customer,

This catalogue provides an overview to a wide range of customized chromatography vials, caps, tools, well plates and mats offered by Thermo Fisher Scientific. These are available to channel partners who wish to develop and position their own branded portfolio offering to end point customers.

Products can be customized in several ways, including:

- Packaging
- Label customization
- Vial and cap kit combinations
- Cap and septa combinations
- Certification

Your Thermo Fisher Scientific team

How to use this catalog

You know the manufacturer/model of your customer´s instrument/autosampler

Go to the *autosampler compatibility chart* on the catalogue and look for suitable vials. The chapter and page indications will lead you to the appropriate vials. Suitable micro-inserts, seals, septa and caps for these vials will follow in the subsequent chapters. In case you don't find the model in the *autosampler compatibility chart,* please contact us. In our library we have even more information on vial suitability for the various instruments on the market.

As in headspace the correct identification of vial and closure types is extremely difficult due to the various technical designs, a special headspace compatibility chart has been created for this application in *chapter 9*. While you can take the suitable vial type for the different instrument manufacturers from the upper part of the chart, you'll find the appropriate reco mmended closures in the middle section. The various cap types that have to be considered are color-coded.

At the bottom of the page a break-down of the indicated part numbers according to the color-coded cap types and the different septa materials is listed. For better illustration of the septa type you'll find 20 mm septa for crimp caps- and 17.5 mm septa for magnetic precision thread caps- photographs and article descriptions.

You have a sample from your customer of the vial requested

Go to the actual size drawings at the end of the catalogue and look for identical vials. The chapter indication will lead you to the appropriate vials. Suitable micro-inserts, seals, septa and caps for these vials will follow in the subsequent chapters.

You know the diameter of your customer's septa, vial, seal, etc.

The first two digits of our article numbers are indications of the diameter. Go to the *numerical index* and look for articles starting with the digits of your diameter. The 3rd and 4th digits are indications of the article group, e.g. 09 for vials, 02 for septa, etc. (List of our article groups can be taken from the annex of the *numerical index*).

You know a key description of your customer's requested product

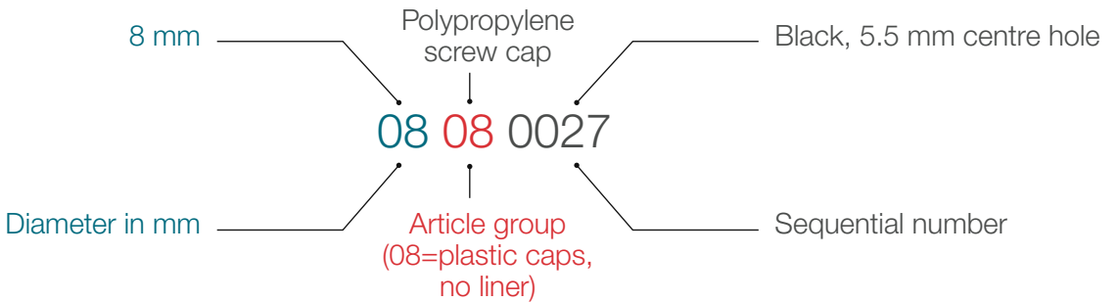
Go to the *alphabetical index* and look, if the key description is included there.

Handling of the catalogue

- Each chapter includes all products that belong together, i.e. vials (e.g. all types of short thread vials or micro-vials), suitable micro-inserts for these vials, appropriate seals for these vials (e.g. all types of short thread seals) and – if available – individual septa/caps.
- The catalogue starts with the vials that have the smallest nominal diameter, continuing with increasing nominal diameter. Other accessories like vial racks, syringe filters, GC-septa and crimpers can be found more towards the end of the catalogue.
- All kinds of listings (product names, alphabetical index, numerical index, annex of numerical index, autosampler compatibilities, actual size drawings of all standard glass articles, drawings of caps etc.) can be found at the very end of the catalogue. The only exception is the headspace compatibility chart which you can take from *chapter 9*.

Article number system

Our 8 digital article number comprises the following indications:



Company profile

Thermo Fisher Scientific offers a complete range of consumables for GC, HPLC and headspace analysis. This comprises vials, septa, seals, filters, crimpers, and other accessories. In addition to all standard items for standard instruments in the chromatography market of vials, septa and combination seals according to customer's specifications. As a DIN EN ISO 9001:2015 certified company we devote ourselves to complete customer satisfaction which we define in our business policy a follows:

- to supply continuously high quality products
- to offer cost effectiveness
- to grant consequent adherence to delivery dates.
- to develop innovative and market-orientated products
- to support promptly and efficiently our customers in all respects they may require

Quality

- DIN EN ISO 9001:2015 certified company.
- Raw materials for production of all products.
- Very strict requirements on the hygienic conditions under which the products are being manufactured.
- Opto-electronic quality controls during manufacturing process, in-process controls and final QC inspections.
- For quality control of goods received and for final QC inspection of all manufactured products state-of-the-art test control units, like profile projector and a measuring device for penetration forces for septa, are being used.
- Measuring device to determine penetration forces for septa.
- All quality controls are documented and reports can be requested in German or English.
- Batch numbers guarantee a 100% traceability.

Service

- Upon request customer specific labeling or direct deliveries.
- Cost-free samples for testing purposes.
- Annual call-off orders can be stocked for our customers.
- Pre-sealed and pre-installed combinations available.

Production

Glass production

- Vials are almost all made out of 1st hydrolytic class glass.
- Opto-electronic devices on the glass machines measure within parts of a second, whether the manufactured vial meets the specifications.
- Besides this 100% control, manual in-process controls and a final inspection according to DIN/ISO standards assure further product safety.
- Packaging of the vials in a cleanroom provides a high standard of cleanliness for chromatography which ensures a correct and reliable analysis.

High performance punching presses

- Contamination-free septa production due to precision dies working without any punching agents or lubricants and complete coverage of the punching area.
- Sensor system for detecting and isolating defects in the roll.
- Closed tunnel system ensures maximum hygiene for the ready punched septa.
- Besides high productivity and excellent raw material usage the high performance automatic punching presses offer outstanding dimensional stability as well as a continuous high quality.

High performance slitting automate

- Fully automatic slitting process with high productivity
- High performance slitting automate guarantees excellent and continuous quality of positioning the slit as well as size accuracy
- Gentle slitting process for the liner
- Opto-electronic monitoring of the complete process, automatic selection of defective parts
- Variability of the slitting geometry – different forms of slitting and diameter possible

Lining/assembling automates

- Fully automatic assembling of liners and caps.
- Various color sensors check the correct side-orientation of the liner at various stations of the assembling process, to guarantee that the PTFE lamination turns towards the sample.
- Automatic assembly prevents any contamination of the closure by skin fat or sweat, as it could happen in case of manual assembly.
- Special productions of liners and closures according to customer specifications can be carried out, as well as special packaging (e.g. other packaging quantity, further printed labels etc.).

Video inspection system

- Fully automatic inspection unit to control the assembled closures.
- 100% control of caps and liners through a highly developed high-speed-color-camera-system, defective parts are automatically separated.
- More than 1.200 closures per minute are controlled by the inspection unit according to the given article specification.
- All components of the inspection unit are made of stainless steel and guarantee a contamination-free process run.

Packaging automates

- Packaging process is done according internal defined room conditions, this means there are no wooden pallets or cardboards allowed, all employees wear specific clothing, nearly all parts of machines are under glass cover etc.
- Closures are automatically counted and packed. Counting process is done by an opto-electronic counting unit, which guarantees a 100% quantity accuracy.
- Furthermore, in process controls are done by the employees as well as quality people for further product safety. All controls are documented on the assembly forms, as well as all important dates of the production process.

Innovation

Thermo Fisher Scientific develops products that meet today's requirements of the chromatography market with regard to instrument/application suitability, convenience and price-performance ratio.

Additionally, we closely collaborate with leading instrument manufactures to innovate our product portfolio. The below sections offer a summary of our latest catalogue additions:

1.1 mL microliter vials, conical, with round glass foot, 32 x 12 mm, clear and amber

"Vase" vials are designed as alternative to fused insert and/or total recovery vials. This design offers on one hand a total max. Volume of 1.1 mL by parallel offering a very small residual volume of only 4 µL. A wide range of common sample volumes can be used without changing the vial.

- Cost efficient alternative to a total recovery vial
- Self standing conical microsampling vial
- Designed for use with nearly every autosampler on the market

Plastic vials, glass vials and Inserts with spring

1.5 mL PE and 0.6 mL micro sampling PE vials; 2.5 mL PP vials; glass insert with spring for 4 mL vials; 1.1 mL Total microliter short thread vial ND9 with patch.

- Plastic vials offer low binding for proteins and peptides and are the best choice for ion chromatography. Specially made for customers concerned about broken glass.
- New ultra low bleed PE basic resin for trouble free work, even with higher buffer concentrations or a higher polar organic solvent content
- Reduced volume 4 mL PE vial for better recovery
- Micro insert for 4 mL vials with spring for more convenience
- Total microliter vials with patch and slightly different funnel geometry for better guidance of liquid into the funnel

Well plates for low volume applications in HPLC and UHPLC and new mid height plates and mats

The first chromatography tested and certified low volume 96 well plate for low volume high resolution chromatographic applications.

- Total volume of only 100 µL, working volume from 5-80 µL, for valuable samples
- Made from ultra-low bleed PP, the plate with nearly no extractables
- new mid height plates for optimized quotient of space, height and volume
- new cost efficient mats in big packs

Caps, closures and plugs for specific applications and with outstanding features

- PP ND9 and PE 11 mm snap closures without septum but thinned penetration area, very cost efficient and tight for 100% water samples or with low organic solvent concentrations of MeOH or ACN
- Lamella plugs for 1 mL shell vials. Lamellas guarantee a perfect and tight fit for all types of 1 mL shell vials and provide a two times higher tightness due to the two sealing "rings"

Headspace septa with thinned penetration area for SPME and 20 mm bromo butyl and freeze drying rubber stopper

- Low bleed silicone/PTFE septum with thinned penetration area, where the thinned area still contains a silicone layer for resealing after needle extraction; optimized for thin needles and SPME fibres
- 20 mm bromo butyl rubber stopper with excellent resistance to permeation by water and oxygen
- 20 mm freeze drying stopper with improved geometry for reversion resistance

Wash kit for RSH or other PAL/CTC GC autosampler and new PP storage boxes for 2 mL vials for 100 vials/box in different colors; ProFill white line syringe filters in 13 and 25 mm diameter

For small sample volume filtration the new 13 mm White Line filter are ideal. They all offer a clear readable indication of the membrane and pore size and provide a high pressure stability, tested for 12 bar. Wash vials on GC autosamplers are commonly left open or have caps that are difficult to apply. Without the caps there is a risk of the solvent being lost and contamination.

- Improved sealing, less evaporation, no contamination
- Convenient “all in one” solution
- The new PP storage boxes offer for the first time a freezer friendly and stable solution for 100 1.5 mL autosampler vials, with lid and shed

PP micro and 15/50 mL centrifuge tubes

Normal centrifuge tubes are for bio samples and analytes in water only. These tubes here are chromatography certified and can be used for LC applications with ACN and MeOH without any risk for extractables.

- 0.5 mL, 1.5 mL and 2 mL with safe click close function, chromatography certified, number scale and writing patch
- 15 mL and 50 mL PP centrifuge tubes with screw cap, chromatography certified, cap centering function, number scale and writing patch

5 selection cards for 5 different fields of business

Not every chromatographer has need for the same vial and closure or the same sample handling container. The here shown selection represents the most used and helpful autosampler products for this segment of the business. The selection has been made by experts, in order to meet the special requirements of this segment and the connected challenges of the “to be analyzed” samples and molecules. It might not be complete, but represents 90% of the core products.

Technical information

Vials

In chromatography a broad variety of glass or plastic vials are used as sample containers for analysis usage. As they are mainly used within autosamplers or any other automatic instrument, strict obedience of all dimensions is crucial for a trouble-free run. Besides these physical properties the vials also have to fulfill requirements regarding inertness and cleanliness, as otherwise analysis results may be incorrect. Thermo Fisher Scientific consider the physical and chemical demands in their production process by various implementations:

The majority of our all vials are made out of 1st hydrolytic class glass. First hydrolytic class glass is very hard and has a low expansion coefficient even at high temperature variations. It shows an excellent chemical resistance to acidic and neutral solutions, and even to alkaline solutions due to its relatively low Alkali content. higher density of the glass surface offers a higher hydrolytic resistance. clear glass of 1st hydrolytic class is differentiated by 33 expansion (type 1, class A) and 51 expansion glass (Type 1, Class B), whereas amber is generally worldwide only available as 51 expansion glass. The indicated lower expansion coefficient of 33 implies that this harder clear glass has to be processed at higher temperatures. These amount to approx. 1,200°C for 33 expansion glass in comparison to only approx. 1,000°C for glass of 51 expansion. In the USA typically clear glass in 33 expansion and amber glass in 51 expansion is used, whereas in Europe solely 51 expansion glass is processed. From a quality point of view both types of glass are equally suitable for usage in chromatography, as they both are glasses of 1st hydrolytic class.

All vials that carry a CleanPack label on the front side of the PP-box have been packed in a certified cleanroom after having passed the annealing oven at approx. 600°C.

Certified vials and closures

To ensure we can offer the best possible customer experience, we have set high internal quality standards at our manufacturing site.

The below representation is design to help our customers choosing the product that best fits their needs, whilst offering an overview of our quality requirements:

Specification certified

This is obtained by the following measures:

- During the manufacturing process opto-electronic devices at the machines check within fractions of a second, if the processed vials meet the physical specifications (dimensions, etc.). In case of mismatch the vial is automatically rejected.
- 100% automatic control, manual in-process controls as well as a final inspection according to DIN/ISO standards further ensure functionality and perfect fit in the instrument.
- Regular functional tests further ensure that the vial not only fits in the instrument, but also all components that might be connected to it, such as micro-inserts, seals, etc. A correct and reproducable analysis can only be carried out, if the whole unit of the vial (micro-insert) and closure correctly match with each other and achieve a tight seal.

HPLC and GC certified kits

HPLC and GC certified kits are tested on 15 parameters. Here a HPLC/UV and GC/MS-test of the vial/closure combination on blank values and contaminations is done in a reality-near procedure.

- The batch-specific test certificate with the HPLC and GC-Chromatograms can be attached upon request.
- The HPLC and GC certified kits are delivered completely shrink-wrapped for reasons of originality, purity and transport safety. This means an additional safety for the end user.
- Available as 9 mm short thread vial in clear and amber with suitable closure.
- Upon request further HPLC and GC certified vial kits are available.

LC/MS and GC/MS certified kits

The LC/MS and GC/MS certified kits represent our premium range of certified products. Each lot of the vial/closure combination has been tested by LC/MS and GC/MS on traces of blank values and contaminations.

- Available as clear and amber 9 mm short thread vial in the SureStop version with the sure-stop function for the lowest evaporation rate of all autosampler vials.
- Additionally the glass surface of these specific SureStop vials provides very low adsorption tendencies for all types of polar compounds; in fact a lot lower as for all other vials of 1st hydrolytic class glass (without surface treatment).
- The closure contains soft ultra low bleed (Ultra high performance) silicone septum with PTFE layer, optimized for ultra trace analysis.
- The batch-specific test certificate with the MS-Chromatograms can be handed out on request.
- The LC/MS and GC/MS certified kits are delivered completely shrink wrapped in order to assure originality, purity and transport safety.
- Upon request further LC/MS and GC/MS certified vial kits are available.

In order to visualize the most important characteristics that differentiate the different types of vials, we show below some drawings helping you to identify a vial:

Design of the neck

Headspace neck (bevelled neck)

DIN crimp neck (flat crimp neck)

Special neck for SPME vial (thicker crimp neck)

Snap ring neck (can be used with snap ring caps ND11 or crimp caps ND11)

Fire-Polished Neck (shell vials)

Standard screw neck (threads run down to the shoulder of the vial)

Short thread ND9 (thread ends in the middle of the neck, so that there is still some space between the edge of the cap and shoulder of the vial for robotic arms)

Short thread ND9 (vials with sure screw-stop-function)

Precision thread ND18 for headspace and SPME

Snap cap Neck (sample storage containers, no autosampler vials)

Design of the bottom

Flat bottom

Rounded bottom (HS-bottom)

Round bottom

Conical bottom

Solid glass bottom of a microliter vial with inner cone

Conical bottom (maximum recovery)

Besides standard glass vials Thermo Fisher Scientific also supply some silanized glass products. Silanized glass products are used to reduce the adsorption of polar compounds onto the surface of the glass container (e.g. protein analysis). Some compounds like amino-acids, proteins or phenols tend to react with the glass, and the silanization process prevents this by deactivating the glass surface.

In some specific applications like atomic absorption, water and protein analysis, capillary electrophoresis, etc., even plastic vials have to be used. Thermo Fisher Scientific also offer a broad range of plastic vials and plastic micro-vials of different materials (PP, TPX).

In case the application requires pre-sealed vials (e.g. vials that are either already crimped or screwed), as for example in the tobacco industry, we can also supply you with any type of vial and closure already assembled.

However, please note that the vials have to be taken out of the CleanPack packaging for the sealing process and thus cannot be called ”cleanroom” packed anymore.

EPA vials can be supplied with or without certificate of cleanliness depending on the consumer’s requirements. Furthermore EPA vials can also be supplied pre-assembled with their seals.

Seals

Seals are the assembled combination of a cap and a septa. To carry out a correct analysis, it is important that besides the vial the seal is also inert and uncontaminated. Thermo Fisher Scientific assemble and pack their seals fully automated according to internally defined room conditions. Thus it is guaranteed that they are not contaminated by human contact as it would be in case of manual assembly. Photocells check the side-orientation of the liner, so that it is ensured that the PTFE lamination is always directed towards the sample to build an inert barrier between sample and carrier material of the septa. A gauge control ensures that not more or less than one septa is installed. The final seals are automatically counted – and not weighed – by automates to guarantee quantity obedience. They are packed in tamper-proof evident zip-lock bags that allow easy identification of the content due to the transparent PE material. The zip-lock enables resealing of the bag to avoid any contamination of the closures during consumption. The batch number of the manufactured seal is printed on each PE-bag for traceability.

UltraBond seals are closures where the cap and the septa form an inseparable unit without the use of any glue or adhesive which are not allowed in chromatography products. This firm connection is achieved by a patented process changing the molecular structure of the cap and the septa surface, so that they form a unit. This process ensures that the septa is not pushed into the vial during penetration, even if the needle is very thick and blunt. Examples for such UltraBond seals are 24 mm screw seals for EPA vials or 9 mm short thread UltraBond seals for short thread vials.

Different closure techniques and/or application requirements necessitate certain caps. In order to visualize the different types of caps, please see the photos below:

Screw caps
(open top/closed top)

Short thread caps
(open top/closed top)

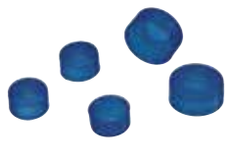
Snap ring caps
(hard or soft PE cap available)

Magnetic short thread cap
(only as open top)

Various UltraBond
seals ND9 + ND24

PE-plugs
(for shell vials;
micro-inserts can be installed in
the plug)

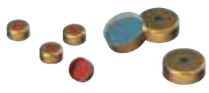
Snap caps
(for sample storage
containers)



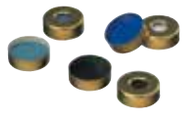
PE push-on caps
ND8 + ND11

PE caps
(for crimp necks ND8,
ND11 + ND20)

Aluminum caps,
centre hole



Magnetic crimp caps
(5 mm centre hole)



Magnetic crimp caps
(8 mm centre hole)

Magnetic screw caps
(8 mm centre hole/closed top)

Magnetic bimetal crimp cap
(8 mm centre hole)

Headspace caps
(pressure release caps)

Centre tear-off caps

Complete tear-off caps

Crimp caps with roll grove

Septa

The right choice of septa depends on the application. Almost all septa are laminated on one side with PTFE, which has a high chemical resistance and forms an inert barrier between sample and carrier material of the septa. The carrier materials have different physical and chemical properties, such as temperature resistance, resealability properties, cleanliness, hardness, thickness, etc.

The individual conditions of the customer's application aim at the specific characteristics of the carrier material, e.g.:

Multiple injection?	Temperature?			Thin, fragile needle?	Blunt, thick needle?	Critical analysis?	Low coring?
↓	↓			↓	↓	↓	↓
Good resealability properties necessary	-40°C up to 120°C	-40°C up to 110°C	-60°C up to 200°C	sSoft and thin septa required	Slit/pre-cut liner as penetration aid (HPLC)	Very clean liner required	Both sided PTFE laminated liners required
↓	↓	↓	↓	↓		↓	↓
Natural rubber/TEF	Natural rubber/TEF; butyl/PTFE	RedRubber/ PTFE	Silicone/ PTFE	e.g. silicone/PTFE		Silicone/PTFE septa	PTFE/silicone/PTFE PTFE/ butyl/PTFE

In order to visualize the most common liners on the market, please see photos below. However, please note that colors of the liners are no exact indication for the identification of a liner material.

Natural rubber/TEF

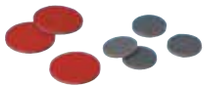
RedRubber/PTFE beige

Butyl

Butyl/PTFE

Pharma-fix-septa (Butyl/PTFE)

Silicone/aluminum foil



PTFE/silicone/PTFE PTFE/butyl/PTFE

Silicone/PTFE

Pre-cut liners silicone/PTFE

Viton

PTFE

Aluminum

Septa for Schott screw caps (silicone with slit, PTFE layer untouched)

PTFE/EPDM/PTFE

High temperature silicone/PTFE

Thinned penetration area silicone/PTFE

Environmental selection card

This selection targets one customer group with a lot of different samples in different matrices. LC and GC is used at 25% HPLC and 75% GC, with a focus on non polar solvents. They deal with small molecules chromatography and the analyte concentration varies (often very low). The matrix can be water, soil, sludge, recycling, fuel, oil, air etc.

In this chapter you will find the most important parts from the following product classes:

- Screw and crimp vials and closures
- Plastic, EPA and microsampling vials
- Headspace vials and closures
- Sample handling tools and storage

LC/MS GC/MS certified kits

11 40 3196

LC/MS and GC/MS certified vial kit:
1.5 mL short thread Thermo Scientific™ SureStop™ vial,
32 x 11.6 mm,
clear glass, wide opening,
with overwind-barrier;
ultra high performance seal:
PP short thread cap,
blue, centre hole;
silicone darkblue-translucent/PTFE natural,
35° shore A,
1.0 mm

11 40 3197

LC/MS and GC/MS certified vial kit:
1.5 mL short thread SureStop vial,
32 x 11.6 mm,
amber glass, wide opening,
with overwind-barrier;
ultra high performance seal:
PP short thread cap,
blue, centre hole;
silicone darkblue-translucent/PTFE natural,
35° shore A,
1.0 mm

11 40 2556

HPLC/GC certified vial kit:
1.5 mL short thread vial,
clear glass,
1st hydrol. class, label;
UltraClean closure:
9 mm PP short thread cap,
blue, centre hole;
Silicone white/PTFE red,
55° shore A,
1.0 mm

11 40 2557

HPLC/GC certified vial kit:
1.5 mL short thread vial,
amber glass,
1st hydrol. class, label;
UltraClean closure:
9 mm PP short thread cap,
blue, centre hole;
silicone white/PTFE red,
55° shore A,
1.0 mm

9 mm screw thread vials and closures

11 09 0519

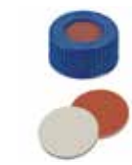
1.5 mL short thread vial,
32 x 11.6 mm,
clear glass,
1st hydrol. class,
wide opening,
label and filling lines

11 09 0520

1.5 mL short thread vial,
32 x 11.6 mm,
amber glass,
1st hydrol. class,
wide opening,
label and filling lines

11 09 2746

1.5 mL short thread SureStop vial,
32 x 11.6 mm,
clear glass,
1st hydrol. class,
wide opening,
with overwind-barrier



09 15 1819

9 mm combination seal:
PP short thread cap,
blue, with centre hole;
RedRubber/PTFE beige,
45° shore A,
1.0 mm

09 15 0838

UltraClean closure:
9 mm PP short thread cap,
blue, centre hole;
silicone white/PTFE red,
55° shore A,
1.0 mm

09 15 0869

9 mm combination seal:
PP short thread cap,
blue, centre hole;
silicone white/PTFE blue,
55° shore A,
1.0 mm,
slit

Crimp vials and closures

11 09 0476

1.5 mL crimp neck vial,
32 x 11.6 mm, clear glass,
1st hydrol. class,
wide opening,
label and filling lines

11 09 0477

1.5 mL crimp neck vial,
32 x 11.6 mm, amber glass,
1st hydrol. class,
wide opening,
label and filling lines

11 03 0209

11 mm combination seal:
aluminum cap, clear lacquered,
centre hole;
natural rubber red-orange/TEF
transparent, 60° shore A, 1.0 mm

11 03 1875

11 mm combination seal:
aluminum cap, clear lacquered,
with centre hole;
red rubber/PTFE beige,
45° shore A, 1.0 mm

11 03 0247

UltraClean closure:
11 mm aluminum cap, clear
lacquered,
centre hole;
silicone white/PTFE red,
45° shore A, 1.3 mm

Headspace vials and closures

18 09 1307

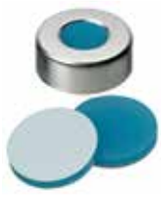
20 mLprecision thread
headspace-vial,
75.5 x 22.5 mm,
clear glass,
1st hydrol. class,
rounded bottom
(for magnetic screw caps)

18 03 1309

UltraClean closure:
18 mm magnetic
universal screw cap,
silver, centre hole;
silicone transparent blue/PTFE white,
45° shore A,
1.3 mm

20 09 0873

20 mL headspace-vial,
75.5 x 22.5 mm,
clear glass,
1st hydrol. class,
DIN crimp neck,
long neck,
rounded bottom



20 03 0142

UltraClean closure:
20 mm aluminum cap,
plain, centre hole;
silicone transparent blue/PTFE white,
45° shore A,
3.0 mm

20 03 0975

UltraClean closure:
20 mm magnetic cap,
gold lacquered, 8 mm centre hole;
silicone transparent blue/PTFE
transparent,
45° shore A,
3.0 mm

EPA/storage

24 09 0589

20 mL EPA crew neck vial,
57 x 27.5 mm,
clear glass,
1st hydrol. class

24 09 0402

40 mL EPA crew neck vial,
95 x 27.5 mm,
clear glass,
1st hydrol. class

24 15 1163

24 mm combination seal:
PP screw cap,
white, centre hole;
silicone white/PTFE beige,
45° shore A, 3.2 mm,
EPA-quality

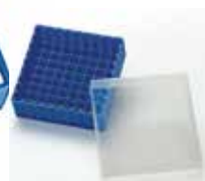
Racks/tools

11 06 0006

11 mm crimper

20 06 0008

20 mm crimper



12 21 2420

PP storage box for 1.5 mL (1.8
mL, 2 mL) vials or 2 mL shell vials,
blue, with cover (130 x 130 x 45
mm), 81 cavities with alphanumeric
coding of all 4 margins as well as
the cavities at the bottom

Plastic vials

11 19 1205

1.5 mL PP
short thread vial,
32 x 11.6 mm,
transparent,
with filling lines

11 19 1706

0.7 mL PP
short thread micro-vial,
32 x 11.6 mm,
transparent

11 19 0932

0.3 mL PP
short thread micro-vial,
32 x 11.6 mm,
transparent

Microsampling vials

11 09 2357

Short thread vial with
integrated micro-insert,
32 x 11.6 mm,
clear glass,
1st hydrol. class,
“Base bonded”

11 09 2656

Short thread vial with
integrated micro-insert,
32 x 11.6 mm,
amber glass,
1st hydrol. class,
“Base bonded”

11 09 0620

1.1 mL microliter
short thread vial ND9,
32 x 11.6 mm,
clear glass,
1st hydrol. class

1. Crimp neck ND8

The vials are preferentially used on instruments of the following manufacturers: Agilent, Beckman, Carlo Erba, CTC, Fisons, PerkinElmer, Shimadzu, Thermo Scientific, VWR (Merck)/Hitachi, etc.

Broad selection of crimp neck vials ND8 available: crimp neck vials and micro vials ND8 can be closed with 8 mm aluminum caps, 9 mm PE-caps or with 8 mm push-on caps. However, micro-vials often need an adapter to run in the autosampler.

They often have a conical bottom shape, so that they cannot stand by themselves, but need an adapter.

- with different volumes
- with flat, round or conical bottom
- in clear or amber glass
- for almost all autosamplers

1.1 Crimp neck vials and micro-vials ND8





Part. no.	08 09 0405	08 09 0406	08 09 0284	08 09 0845	08 09 0953
Description	0.7 mL crimp neck vial, 40 x 7 mm, clear glass, 1st hydrol. class	0.7 mL crimp neck vial, 40 x 7 mm, amber glass, 1st hydrol. class	0.8 mL crimp neck vial, 30 x 8.2 mm, clear glass, 1st hydrol. class	1.2 mL crimp neck vial, 40 x 8.2 mm, clear glass, 1st hydrol. class	1.2 mL crimp neck vial, 40 x 8.2 mm, amber glass, 1st hydrol. class
TFVol. (mL)	0.9	0.9	0.9	1.1	1.1
UsVol. (mL)	0.8	0.8	0.8	1.00	1.00
MWVol. (µL)	40	40	40	50	50
Res. vol. (µL)	<11	<11	<11	<20	<20
	10 x 100 pcs. per PP-box			100 pcs. per PP-box	





Part. no.	08 09 0276	08 09 0606	08 09 0305	08 09 0258	08 09 1080
Description	0.3 mL micro-vial, 31.5 x 5.5 mm, clear glass, 1st hydrol. class, round bottom	0.2 mL micro-vial, 31.5 x 5.5 mm, clear glass, 1st hydrol. class, conical	0.6 mL micro-vial, 40 x 7 mm, clear glass, 1st hydrol. class, conical	0.6 mL micro-vial, 40 x 7 mm, amber glass, 1st hydrol. class, conical	0.4 mL micro-vial, 30 x 7 mm, amber glass, 1st hydrol. class, conical
TFVol. (mL)	0.35	0.26	0.64	0.64	1.3
UsVol. (mL)	0.3	0.2	0.6	0.6	1.05
MWVol. (µL)	30	25	25	25	25
Res. vol. (µL)	<6	<3	<3	<3	<3
			10 x 100 pcs. per PP-box		

TFVol. = Total Volume/Filling Volume (mL), UsVol. = Usable Volume (mL), MWVol. = Minimum Working Volume (µL), Res. vol. = Residual Volume (µL)

1.2 Aluminum crimp seals ND8

1.2.1 Natural rubber/TEF and red rubber/PTFE seals

- Temperature resistant from -40°C up to 120°C for natural rubber resp. up to 110°C for RedRubber.
- Natural rubber harder to penetrate with more fragmentation during penetration than RedRubber.
- Natural rubber ideal for multiple injections due to high resealability, but not as clean as the synthetic RedRubber.



Part. no.	08 03 0451	08 03 1935	08 03 2042
Description cap	Aluminum cap clear lacquered, 4 mm centre hole		
Septa material	Nat. rubber red-orange/TEF transparent approved instrument manufacturer quality	Nat. rubber red-orange/TEF transparent	RedRubber/PTFE beige
Durometer	60° shore A	60° shore A	45° shore A
Thickness	1.0 mm	1.0 mm	1.0 mm
	100 pcs. per PE-bag		

1.2.2 Silicone/PTFE seals

- Temperature resistant from -60°C up to 200°C.
- Preferably only for single injections due to low resealability properties.
- Different hardnesses (durometers) to meet requirements of the needle regarding penetration.
- Much cleaner than natural rubber or RedRubber.
- Silicone liners with PTFE on both sides for less coring during penetration.





Part. no.	08 03 0249	08 03 0165	08 03 0884	08 03 0113	08 03 1156
Description cap	Aluminum cap clear lacquered, 4 mm centre hole				
Septa material	Silicone white/PTFE red UltraClean	Silicone cream/PTFE red UltraClean	Silicone dark blue/PTFE white	PTFE red/silicone white/ PTFE red	Silicone white/PTFE red, with slit
Durometer	45° shore A	55° shore A	45° shore A	45° shore A	45° shore A
Thickness	1.3 mm	1.5 mm	1.3 mm	1.0 mm	1.3 mm
	100 pcs. per PE-bag				

1.2.3 Other crimp seals

- PTFE is very inert and temperature resistant, however, problems with leakage due to the inflexibility and thinness of the material; only for single injections; nearly no press fit in caps; mainly for uncritical HPLC analysis.

Part. no.	08 03 0268
Description cap	Aluminum cap, clear lacquered, 4 mm centre hole
Septa material	PTFE virginal
Durometer	53° shore D
Thickness	0.25 mm
	100 pcs. per PE-bag

1.3 Other combination seals for crimp neck ND8

- Push-on cap (08 08 1675) with thinned penetration point made of Polyethylene for crimp neck vials and micro-vials ND8.
- Inexpensive alternative to crimp caps for uncritical analyses, as it does not contain any septa, but only has a thinner penetration point.



Part. no.	08 08 1675	09 15 0753	09 15 0756
Description cap	PE push-on cap, blue	PE-Cap, transparent, 9 x 5.9 mm, 4 mm centre hole	PE-Cap, transparent, 9 x 5.9 mm, 4 mm centre hole
Septa material	with thinned penetration point	Nat. rubber red-orange/TEF transparent	Silicone white/PTFE red
Durometer		60° shore A	45° shore A
Thickness		1.3 mm	1.3 mm
		100 pcs. per PE-bag	

Further crimp seals ND8 or combination seals for crimp neck ND8 are available upon request

2. Screw neck ND8

The vials are preferentially used on instruments of the following manufacturers: Beckman, CTC, Gilson, Knauer, Shimadzu, Spark, Varian, VWR (Merck)/Hitachi, etc.

- Standard vials for GC and HPLC.
- Specially suitable for VWR (Merck)/Hitachi instruments (Articles 11 09 0210, 11 09 0259, 05 09 0129,08 15 0460, 08 08 0027, 08 02 0177, 08 02 0039).
- Broad range of micro-inserts.
- Vials and seals also available as 2in1 kit.
- Small opening requires micro-inserts with a diameter of 5 mm.
- Micro-insert with flat bottom also available.

2.1 Crew neck vials ND8, small opening, 8-425 thread and micro-vials ND8



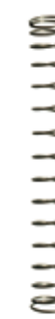


Part no.	11 09 0210	11 09 0259	11 09 0419	11 09 0382	11 09 0417
Description	1.5 mL screw neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, small opening	1.5 mL screw neck vial, 32 x 11.6 mm, amber glass, 1st hydrol. class, small opening	1.5 mL screw neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, small opening, label + filling lines	1.5 mL screw neck vial, 32 x 11.6 mm, amber glass, 1st hydrol. class, small opening, label + filling lines	1.1 mL micro-vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, conical, small opening
	SILANIZED 11 09 2175			*SILANIZED 11 09 2190*	
TFVol. (mL)	1.9	1.9	1.9	1.9	1.3
UsVol. (mL)	1.5	1.5	1.65	1.5	1.00
MWVol. (µL)	200	200	200	200	30
Res. vol. (µL)	<110	<110	<110	<110	<3
	100 pcs. per PP-box				

2.2 Micro-inserts for vials with small opening





Part no.	05 09 0129	05 09 0269	05 09 1674	05 09 0968	05 09 0279	05 13 0426
Description	0.1 mL micro-insert, 31 x 5 mm, clear glass, 1st hydrol. class, 15 mm top	0.1 mL micro-insert, 31 x 5 mm, clear glass, 1st hydrol. class, 9 mm top	0.2 mL micro-insert, 31 x 5 mm, clear glass, 1st hydrol. class, flat bottom	0.1 mL micro-insert, 29 x 5 mm, clear glass, 1st hydrol. class, with assembled plastic spring	0.1 mL micro-insert, 27.5 x 4 mm, clear glass, 1st hydrol. class *Metal spring required*	Spring 36 x 5 mm *For micro-insert 05 09 0279*
TFVol. (mL)	0.2	0.25	0.3	0.2	0.2	
UsVol. (mL)	0.15	0.2	0.26	0.15	0.11	
MWVol. (µL)	25	30	40	25	25	
Res. vol. (µL)	<1	<2	<8	<1	<1	
	10 x 100 pcs. per PP-box					100 pcs. per PE-bag

TFVol. = Total Volume/Filling Volume (mL), UsVol. = Usable Volume (mL), MWVol. = Minimum Working Volume (µL), Res. vol. = Residual Volume (µL)

2.3 PP screw seals ND8

- Ready to use combination seals; no time-consuming and “tricky” assembly.
- Available with black or white screw caps with 8-425 thread.
- Available as closed top screw seals or with centre hole.
- Now available either with natural rubber or RedRubber as cost-effective seals.

2.3.1 Natural rubber/TEF, RedRubber/PTFE and butyl/PTFE seals

- Natural rubber is ideal for multiple injections due to high resealability, but not as easy to penetrate as RR/PTFE.
- Standard, moderately priced seals for GC and HPLC.
- RR/PTFE has a better purity than NR/TEF, is softer and has less fragmentation, but doesn´t offer the same resealability as NR/TEF.
- Temperature resistant from -40°C up to 120°C for NR/TEF + butyl/PTFE resp. up to 110°C for RR/PTFE.
- Butyl as a synthetic rubber has good chemical properties (cleanliness).



Part no.	08 15 0460	08 15 1965	08 15 1637
Description cap	Polypropylene screw cap black, 5.5 mm centre hole, 8-425 thread		
Septa material	Nat. rubber red-orange/TEF transparent	RedRubber/PTFE beige	Butyl red/PTFE grey
Durometer	60° shore A	45° shore A	55° shore A
Thickness	1.3 mm	1.0 mm	1.3 mm
Further screw seals ND8 with closed/open top resp. with white caps are available upon request			
100 pcs. per PE-bag			

2.3.2 Silicone/PTFE seals

- The special, slit liner for VWR (Merck)/Hitachi is only available unassembled, as the diameter with the most optimal valve effect does not achieve any press-fit in the cap. Enlargement of the diameter is only possible with negative effects on the building up of vacuums in the vial.
- Temperature resistant from -60°C up to 200°C.
- Silicone liners with PTFE on both sides for less coring.
- Much cleaner than natural rubber, RedRubber or.
- Different hardnesses (durometers) to meet requirements of the various types of needles regarding penetration.





Part no.	08 15 0293	08 15 0427	08 15 0886	08 15 0294	08 15 1449
Description cap	Polypropylene screw cap black, 5.5 mm centre hole, 8-425 thread				
Septa material	Silicone white/PTFE red UltraClean	Silicone cream/PTFE red UltraClean	Silicone dark blue/PTFE white	PTFE red/silicone white/ PTFE red	Silicone white/PTFE red, with slit
Durometer	45° shore A	55° shore A	45° shore A	45° shore A	45° shore A
Thickness	1.3 mm	1.5 mm	1.3 mm	1.0 mm	1.3 mm
Further screw seals ND8 with closed/open top resp. with white caps are available upon request					
100 pcs. per PE-bag					

2.3.3 Natural rubber/TEF, RedRubber/PTFE, butyl/PTFE and silicone/PTFE seals, closed top




Part no.	08 15 0654	08 15 2105	08 15 1653	08 15 1040
Description cap	Polypropylene screw cap black, closed top, 8-425 thread			
Septa material	Nat. rubber red-orange/TEF transparent	RedRubber/PTFE beige	Butyl red/PTFE grey	Silicone white/PTFE red UltraClean
Durometer	60° shore A	45° shore A	55° shore A	45° shore A
Thickness	1.3 mm	1.0 mm	1.3 mm	1.3 mm
Further screw seals ND8 with closed/open top resp. with white caps are available upon request				
100 pcs. per PE-bag				

Further 8 mm srew caps with different colors are available upon request

2.4 Septa 8 mm




Part no.	08 02 0177	08 02 0232	08 02 0355	08 02 1966	08 02 1633
Description	PTFE virginal *(only unassembled)*	Nat. rubber red-orange/ TEF transparent *(only unassembled)*	Nat. rubber red-orange/ TEF transparent, *tested by VWR (Merck)/Hitachi*	RedRubber/PTFE beige	Butyl red/PTFE grey
Durometer	53° shore D	60° shore A	60° shore A	45° shore A	55° shore A
Thickness	0.25 mm	1.0 mm	1.3 mm	1.0 mm	1.3 mm
			1000 pcs. per PE-bag		





Part no.	08 02 0103	08 02 0009	08 02 0881	08 02 0039	08 02 0005
Description	Silicone white/PTFE red	Silicone cream/PTFE red	Silicone dark blue/PTFE white	Silicone white/PTFE blue, slit, rec. by VWR (Merck)/Hitachi *(only unassembled)*	PTFE red/silicone white/ PTFE red
Durometer	45° shore A	55° shore A	45° shore A	55° shore A	45° shore A
Thickness	1.3 mm	1.5 mm	1.3 mm	0.9 mm	1.0 mm
		Against a small surcharge we also sell in smaller packaging units			
		1000 pcs. per PE-bag			

2.5 PP screw caps ND8


Part no.	08 08 0027	08 08 0420	08 08 0436	08 08 0435
Cap	Polypropylene screw cap, black, 5.5 mm centre hole	Polypropylene screw cap, black, closed top	Polypropylene screw cap, white, 5.5 mm centre hole	Polypropylene screw cap, white, closed top
		100 pcs. per PE-bag		

2.6 Screw neck vials ND8, small opening, 8-425 thread with pre-screwed PP screw seals ND8 and/or pre-assembled micro-inserts for vials with small opening

- Pre-screwed vials and/or pre-assembled micro-inserts reduce the risk of contamination of vials in laboratories. Furthermore special applications could require (e.g. in the tobacco industry) a pre-screwed vial or pre-assembled inserts.
- Pre-screwed vials are available with any of the crew neck vials and any seal of your choice.

Part no.	11 14 1739	11 14 1716	11 14 1763
Description	1.5 mL crew neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, small opening (11 09 0210)	1.5 mL crew neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, small opening (11 09 0210)	1.5 mL crew neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, small opening (11 09 0210)
	pre-screwed with	*pre-screwed with*	*pre-screwed with*
Seal	Polypropylene screw cap, black, 5.5 mm centre hole (08 08 0027); silicone white/PTFE blue, 55° shore A, 0.9 mm, slit (08 02 0039), *rec. by VWR (Merck)/Hitachi*	Polypropylene screw cap black, 5.5 mm centre hole; silicone white/PTFE red, 45° shore A, 1.3 mm, (08 15 0293)	Polypropylene screw cap black, 5.5 mm centre hole; silicone white/PTFE red, slit 45° shore A, 1.3 mm, (08 15 1449)
		100 pcs. per PP-box	

Further pre-screwed and/or pre-assembled combinations upon request

2.6 Screw neck vials ND8, small opening, 8-425 thread with pre-screwed PP screw seals ND8 and/or pre-assembled micro-inserts for vials with small opening (cont.)

Part no.	11 14 1468	11 14 2319	11 14 1838
Description	1.5 mL screw neck vial, 8-425 thread; 32 x 11.6 mm, clear glass, 1st hydrol. class, small opening (11 09 0210)	1.5 mL screw neck vial, 8-425 thread, 32 x 11.6 mm, amber glass, 1st hydrol. class, small opening (11 09 0259)	1.5 mL screw neck vial, 8-425 thread, 32 x 11.6 mm, amber glass, 1st hydrol. class, small opening (11 09 0259)
	pre-screwed with	*pre-screwed with*	*pre-screwed with*
Seal	Polypropylene screw cap black, closed top, 8-425 thread; silicone white/PTFE red, 45° shore A, 1.3 mm (08 15 1040)	Polypropylene screw cap black, 5.5 mm centre hole; 8-425 thread; silicone white/PTFE red, 45° shore A, 1.3 mm, (08 15 0293)	Polypropylene screw cap black, closed top, 8-425 thread; silicone white/PTFE red, 45° shore A, 1.3 mm (08 15 1040)
	100 pcs. per PP-box		

Further pre-screwed and/or pre-assembled combinations upon request

2.7 Special 2in1 and 3in1 kits

2in1 and 3in1 kits for VWR (Merck)/Hitachi Autosampler

11 23 1047	11 09 0210	08 08 0027	08 02 0039	11 23 1144	11 23 1085
3in1 kit consisting of: 11 09 0210, 08 08 0027, 08 02 0039	1.5 mL crew neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, small opening	Polypropylene Screw cap, black, 5.5 mm centre hole	Silicone white/PTFE blue, 55° shore A, 0.9 mm, slit *rec. by VWR (Merck)/Hitachi*	Same cap + same septa in combination with 11 09 0259 *(amber glass, small opening)*	Same vial + same cap in combination with 08 02 0177 *(PTFE virginal 0.25 mm)*
11 23 1045	**11 09 0210**	**08 15 0460**		**11 23 1614**	**11 23 1499**
2in1 kit consisting of: 11 09 0210, 08 15 0460º	1.5 mL crew neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, small opening	Polypropylene screw cap, black, 5.5 mm centre hole, Nat. rubber red-orange/ TEF transparent, 60° shore A, 1.3 mm		Same seal in combination with 11 09 0259 *(amber glass, small opening)*	Same seal in combination with 11 09 0419 *(clear glass, small opening, with label + filling lines)*
100 pcs. each in one kit					

Further 2in1 and 3in1 kits are available upon request

2in1 kits for varian autosampler

11 23 1046	11 09 0210	08 15 0293	11 23 1280
2in1 kit consisting of: 11 09 0210, 08 15 0293	1.5 mL crew neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, small opening	PP screw cap, black, 5.5 mm centre hole; UltraClean silicone white/PTFE red, 45° shore A, 1.3 mm	Same seal in combination with 11 09 0419 *(clear glass, small opening, with label + filling lines)*
11 23 1098	**11 09 0259**	**08 15 0293**	**11 23 1100**
2in1 kit consisting of: 11 09 0259, 08 15 0293	1.5 mL crew neck vial, 32 x 11.6 mm, amber glass, 1st hydrol. class, small opening	PP screw cap, black, 5.5 mm centre hole; UltraClean silicone white/PTFE red, 45° shore A, 1.3 mm	Same seal in combination with 11 09 0382 *(amber glass, small opening, with label + filling lines)*
100 pcs. each in one kit			

Further 2in1 kits are available upon request

Food selection card

This selection targets more than one customer group. Food and as well pest protection customers, where LC and GC is used nearly 1:1 with polar and non-polar solvents. They all deal with small molecules chromatography, challenging matrices, many different samples and the analyte concentration varies (often very low). The matrix can be fruits, corn, meat, honey, vegetables, soil, etc.

In this chapter you will find the most important parts from the following product classes:

- Screw and crimp vials and closures
- Certified and MS certified vial kits
- Well plates and mats
- Microsampling vials

LC/MS GC/MS CERT kits and CERT kits

11 40 3196
LC/MS and GC/MS certified vial kit: 1.5 mL short thread SureStop vial, 32 x 11.6 mm, clear glass, wide opening, with overwind-barrier; ultra high performance seal: PP short thread cap, blue, centre hole; silicone darkblue-translucent/PTFE natural, 35° shore A, 1.0 mm

11 40 3197
LC/MS and GC/MS certified vial kit: 1.5 mL short thread SureStop vial, 32 x 11.6 mm, amber glass, wide opening, with overwind-barrier; ultra high performance seal: PP short thread cap, blue, centre hole; silicone darkblue-translucent/PTFE natural, 35° shore A, 1.0 mm

11 40 2556
HPLC/GC certified vial kit: 1.5 mL short thread vial, clear glass, 1st hydrol. class, label; UltraClean closure: 9 mm PP short thread cap, blue, centre hole; silicone white/PTFE red, 55° shore A, 1.0 mm

11 40 2557
HPLC/GC certified vial kit: 1.5 mL short thread vial, amber glass, 1st hydrol. class, label; UltraClean closure: 9 mm PP short thread cap, blue, centre hole; silicone white/PTFE red, 55° shore A, 1.0 mm

Thermo Scientific™ WebSeal™ plates

08 05 2926
Deep well microplate, PP, 96 positions, certified, height 14.7 mm, V-shape, 7 mm dia., 220 µL total volume *(non coated, non sterile)*

08 05 2920
Deep well microplate, PP, 96 positions, certified, height 41.6 mm, U-shape, 7 mm dia., 1000 µL total volume *(non coated, non sterile)*

08 05 2921
Square well microplate, PP, 96 positions, certified, height 44.4 mm, V-shape, 7 mm dia., 2000 µL total volume *(non coated, non sterile)*

08 29 2949
Sealmat, MicroMat CLR, clear, silicone, for 96 position deep well microplate, round well - flat base, 7 mm diameter

08 29 2933
Sealmat, blue, silicone/PTFE, for 96 position deep well microplate, round well, flat base, 7 mm diameter *(non steril)*

08 29 2939
Sealmat, MicroMat CLR, clear, silicone, for 96 position square well microplate *(non sterile)*

08 29 2938
Sealmat, blue, Silicone/PTFE, for 96 position square well microplate

Crimp vials and closures

11 09 0476
1.5 mL crimp neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening, label and filling lines

11 09 0477
1.5 mL crimp neck vial, 32 x 11.6 mm, amber glass, 1st hydrol. class, wide opening, label and filling lines

11 03 0209
11 mm combination seal: aluminum cap, clear lacquered, centre hole; natural rubber red-orange/TEF transparent, 60° shore A, 1.0 mm

11 03 1875
11 mm combination seal: aluminum cap, clear lacquered, with centre hole; red Rubber/PTFE beige, 45° shore A, 1.0 mm

11 03 0247
UltraClean closure: 11 mm aluminum cap, clear lacquered, centre hole; silicone white/PTFE red, 45° shore A, 1.3 mm

Headspace vials and closures

18 09 1307
20 mL precision thread headspace-Vial, 75.5 x 22.5 mm, clear glass, 1st hydrol. class, rounded bottom (for magnetic screw caps)

18 03 1309
UltraClean closure: 18 mm magnetic universal screw cap, silver, centre hole; Silicone transparent blue/PTFE white, 45° shore A, 1.3 mm

20 09 0873
20 mL headspace-vial, 75.5 x 22.5 mm, clear glass, 1st hydrol. class, DIN crimp neck, long neck, rounded bottom

20 03 0142
UltraClean closure: 20 mm aluminum cap, plain, centre hole; Silicone transparent blue/PTFE white, 45° shore A, 3.0 mm

20 03 0975
UltraClean closure: 20 mm magnetic cap, gold lacquered, 8 mm centre hole; Silicone transparent blue/PTFE transparent, 45° shore A, 3.0 mm

Racks/tools

11 06 0006	20 06 0008	12 21 2420
11 mm crimper	20 mm crimper	PP storage box for 1.5 mL (1.8 mL, 2 mL) vials or 2 mL shell vials, blue, with cover (130 x 130 x 45 mm), 81 cavities with alphanumeric coding of all 4 margins as well as the cavities at the bottom

Microsampling vials

11 09 2357
Short thread vial with integrated micro-insert, 32 x 11.6 mm, clear glass, 1st hydrol. class, “Base bonded”

11 09 2656
Short thread vial with integrated micro-insert, 32 x 11.6 mm, amber glass, 1st hydrol. class, “Base bonded”

11 09 0620
1.1 mL microliter Short thread vial ND9, 32 x 11.6 mm, clear glass, 1st hydrol. class

3. Short thread ND9

The vials can be used on all common autosamplers due to their technical geometry, preferentially they are found on Agilent, HTA, Shimadzu, Thermo Scientific, Varian, Waters, etc.

The universal autosampler vial

- Universally compatible on almost all autosamplers, thereby rationalization of other 1.5 mL vials, as for instance 11 mm crimp neck vials, crew neck vials 8-425 and 10-425, is possible.
- Vials with a restricted bottom part for higher recovery.
- Pre-screwed short thread vials available.

3.1 Short thread vials ND9, wide opening and micro-vials with short thread ND9

Part no.	11 09 0500	11 09 0519	11 09 0520	11 09 0999	11 09 1957	11 09 2357	11 09 2656
Description	1.5 mL short thread vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening *SILANIZED* *11 09 1241*	1.5 mL short thread vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening, label + filling lines *SILANIZED* *11 09 2131*	1.5 mL short thread vial, 32 x 11.6 mm, amber glass, 1st hydrol. class, wide opening, label + filling lines *SILANIZED* *11 09 1242*	Short thread vial with integrated 0.2 mL micro-insert, 32 x 11.6 mm, clear glass, 1st hydrol. class, label + filling lines, *"Top bonded"*	Short thread vial with integrated 0.2 mL micro-insert, 32 x 11.6 mm, amber glass, 1st hydrol. class, label + filling lines, *"Top bonded"*	Short thread vial with integrated micro-insert, 32 x 11.6 mm, clear glass, 1st hydrol. class *"Base bonded"*	Short thread vial with integrated micro-insert, 32 x 11.6 mm, amber glass, 1st hydrol.class *"Base bonded"*
TFVol. (mL)	1.85	1.85	1.85	0.34	0.34	0.4	0.4
UsVol. (mL)	1.5	1.5	1.5	0.2	0.2	0.3	0.3
MWVol. (µL)	200	200	200	25	25	30	30
Res. vol. (µL)	<120	<120	<120	<1	<1	<3	<3
	100 pcs. per PP-box						

Part. no.	11 09 0620	11 09 2275	11 09 3563	11 09 2873	11 09 3404	11 14 1189	11 14 1655
Description	1.1 mL microliter short thread vial ND9, 32 x 11.6 mm, clear glass, 1st hydrol. class *SILANIZED* *11 09 2178*	0.9 mL total microliter short thread vial ND9, 32 x 11.6 mm, clear glass, 1st hydrol. class	0.9 mL total microliter, short thread vial ND9, clear glass, 1st hydrol. class, label	1.0 mL microliter con. base, Short thread vial ND9, 32 x 11.6 mm, clear glass, 1st hydrol. class	1.0 mL microliter con. base, Short thread vial ND9, 32 x 11.6 mm, amber glass, 1st hydrol. class	TopSert TPX short thread vial, 32 x 11.6 mm, clear, with integrated 0.2 mL glass micro-insert *SILANIZED* *11 14 1265*	TopSert TPX short thread vial, 32 x 11.6 mm, amber, with integrated 0.2 mL glass micro-insert *SILANIZED* *11 14 1694*
TFVol. (mL)	1.6	1.4	1.4	1.5	1.5	0.36	0.36
UsVol. (mL)	1.5	1.1	1.1	1.3	1.3	0.2	0.2
MWVol. (µL)	30	25	25	25	25	25	25
Res. vol. (µL)	<3	<1	<1	<3	<3	<1	<1
	100 pcs. per PP-box						

Upon request we supply micro-inserts pre-assembled in vials.

TFVol. = Total Volume/Filling Volume (mL), UsVol. = Usable Volume (mL), MWVol. = Minimum Working Volume (µL), Res. vol. = Residual Volume (µL)

3.2 Short thread Thermo Scientific™ SureStop™ vials ND9


Part. no.	11 09 2746	11 09 2747	11 09 2748
Description	1.5 mL short thread SureStop vial, 32 x 11.6 mm, clear glass, wide opening, with overwind-barrier	1.5 mL short thread SureStop vial, 32 x 11.6 mm, clear glass, wide opening, label + filling lines, with overwind-barrier	1.5 mL short thread SureStop vial, 32 x 11.6 mm, amber glass, wide opening, label + filling lines, with overwind-barrier
TFVol. (mL)	1.85	1.85	1.85
UsVol. (mL)	1.5	1.5	1.5
MWVol. (µL)	200	200	200
Res. vol. (µL)	<120	<120	<120
	100 pcs. per PP-box		

1.5 mL short thread SureStop vials ND9 with with sure stop function

- The thread's additional stopring defines the ideal endpoint of the screwing process.
- This objective screwing result eliminates an user-to-user variance.
- The optimal septum compression produces a significant higher analytical reproducibility.

3.3 Micro-inserts for short thread vials ND9 with wide opening







Part. no.	06 09 0357	06 09 0669	06 09 0865	06 09 0866	06 19 2240	06 19 2241	06 19 2242
Description	0.1 mL micro-insert, 31 x 6 mm, clear glass, 1st hydrol. class, 15 mm top	0.1 mL micro-insert, 31 x 6 mm, clear glass, 1st hydrol. class, 12 mm top	0.1 mL micro-insert, 29 x 5.7 mm, clear glass, 1st hydrol. class, with assembled plastic spring	0.2 mL micro-insert, 31 x 6 mm, clear glass, 1st hydrol. class, flat bottom	0.1 mL PP micro-insert, 29 x 6 mm, clear, 10 mm top, filling lines	0.1 mL PP micro-insert, 29 x 6 mm, clear, 10 mm top, filling lines and attached plastic spring	0.2 mL PP micro-insert, 31 x 6 mm, clear, flat bottom
	SILANIZED 06 09 1240		*SILANIZED 06 09 1343*	*SILANIZED 06 09 1792*			
TFVol. (mL)	0.34	0.35	0.3	0.5	0.30	0.30	0.5
UsVol. (mL)	0.25	0.3	0.25	0.35	0.25	0.25	0.35
MWVol. (µL)	30	30	30	40	30	30	40
Res. vol. (µL)	<4	<4	<4	<8	<4	<4	<8
	10 x 100 pcs. per PP-box						

3.4 plastic vials ND9 and plastic micro-vials ND9

PP


PP

PP

PP

PE

TPX

PP


Part no.	11 19 1205	11 19 1516	11 19 1706	11 19 0932	11 19 3598	11 19 1021	11 19 1216
Description	1.5 mL PP short thread vial, transparent, filling lines, 32 x 11.6 mm, slightly concave shaped bottom *PE version 11 19 3647*	1.5 mL PP short thread vial, amber, filling lines, 32 x 11.6 mm, slightly concave shaped bottom	0.7 mL PP short thread micro-vial, transparent, 32 x 11.6 mm	0.3 mL PP short thread micro-vial, transparent, 32 x 11.6 mm	0.7 mL PE short thread micro-vial, white 32 x 11.6 mm	0.3 mL TPX short thread micro-vial, crystal clear, 32 x 11.6 mm	0.3 mL PP short thread micro-vial, amber, 32 x 11.6 mm
TFVol. (mL)	1.85	1.85	0.87	0.4	0.87	0.4	0.4
UsVol. (mL)	1.50	1.50	0.60	0.25	0.60	0.25	0.25
MWVol. (µL)	200	200	150	30	150	30	30
Res. vol. (µL)	<110	<110	<80	<4	<80	<4	<4
	100 pcs. per PE-bag						

TFVol. = Total Volume/Filling Volume (mL), UsVol. = Usable Volume (mL), MWVol. = Minimum Working Volume (µL), Res. vol. = Residual Volume (µL); *approved instrument manufacturer quality

3.5 PP short thread seals ND9

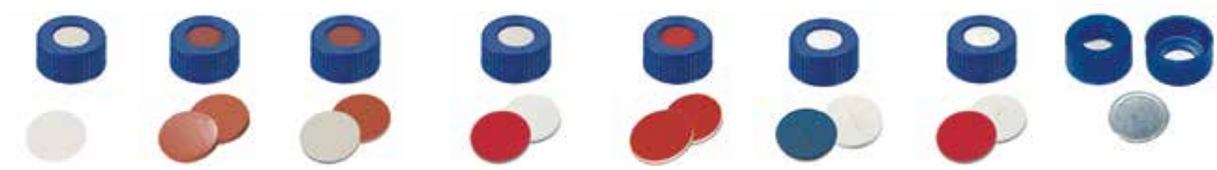
- Synthetic RedRubber/PTFE material as a cost-effective match of the instrument manufacturer quality. In contrast to natural rubber it is not suitable for multiple injections, however softer for a safe penetration.
- With pre-cut septa only the silicone material is slit in Y-shape while the PTFE lamination remains intact. This way concentration changes occuring with completely slit septa can be avoided.
- Short thread seals also available as closed top version (blue cap).
- Already assembled seal with slit liner available, in order to avoid vacuum within the vial in case of multiple injections.
- Screw cap with the design of a crimp cap; therefore suitable for robotic handling.

3.5.1 PP short thread cap transparent, 6 mm centre hole

Part no.	09 15 0981	09 15 0478	09 15 2011	09 15 0481	09 15 0480	09 15 0852	09 15 2021
Septa material	PTFE virginal	Nat. rubber red-orange/TEF transparent	RedRubber/PTFE beige *(Approved IM quality*)*	Silicone white/PTFE red UltraClean	PTFE red/silicone white/PTFE red	Silicone white/PTFE blue, with slit	Silicone white/PTFE red, pre-cut (Y)
Durometer	53° shore D	60° shore A	45° shore A	55° shore A	45° shore A	55° shore A	55° shore A
Thickness	0.2 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm
100 pcs. per PE-bag							

3.5.2.PP short thread cap blue

3.5.2.1 PP short thread cap blue, 6 mm centre hole

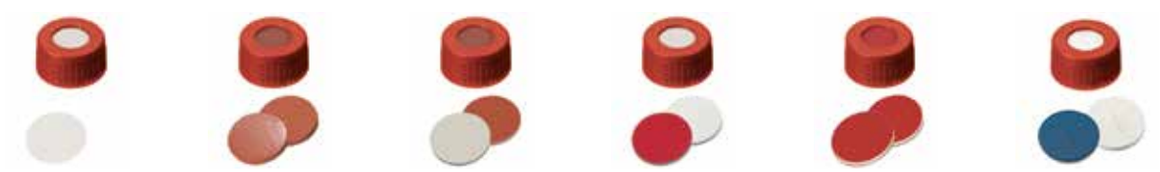


Part no.	09 15 0982	09 15 0867	09 15 1819	09 15 0838	09 15 0868	09 15 0869	09 15 2016	09 15 2487
Septa material	PTFE virginal	Nat. rubber red-orange/TEF transparent	RedRubber/PTFE beige *(Approved IM quality*)*	Silicone white/PTFE red UltraClean	PTFE red/silicone white/PTFE red	Silicone white/PTFE blue, with slit	Silicone white/ PTFE red, pre-cut (Y)	Aluminum liner
Durometer	53° shore D	60° shore A	45° shore A	55° shore A	45° shore A	55° shore A	55° shore A	
Thickness	0.2 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm	0.06 mm *(sealed by transparent flat-seal)*
100 pcs. per PE-bag								

3.5.2.2 PP short thread cap blue, closed top

Part no.	09 15 1828	09 15 1887	09 15 1799
Septa material	PTFE virginal	Nat. rubber red-orange/TEF transparent	Silicone white/PTFE red UltraClean
Durometer	53° shore D	60° shore A	55° shore A
Thickness	0.2 mm	1.0 mm	1.0 mm
100 pcs. per PE-bag			

3.5.3 PP short thread cap red, 6 mm centre hole



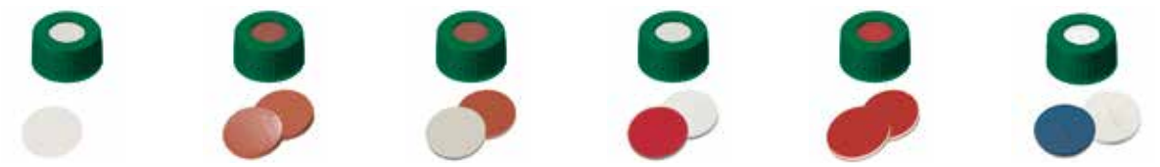
Part no.	09 15 1337	09 15 1176	09 15 2012	09 15 1178	09 15 1177	09 15 1179
Septa material	PTFE virginal	Nat. rubber red-orange/ TEF transparent	RedRubber/PTFE beige *(Approved IM quality*)*	Silicone white/PTFE red UltraClean	PTFE red/silicone white/ PTFE red	Silicone white/PTFE blue, with slit
Durometer	53° shore D	60° shore A	45° shore A	55° shore A	45° shore A	55° shore A
Thickness	0.2 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm
100 pcs. per PE-bag						

*Approved instrument manufacturer quality

3.5.4 PP short thread cap black, 6 mm centre hole

Part no.	09 15 1668	09 15 1570	09 15 2013	09 15 1572	09 15 1571	09 15 1669
Septa material	PTFE virginal	Nat. rubber red-orange/ TEF transparent	RedRubber/PTFE beige *(Approved IM quality*)*	Silicone white/PTFE red UltraClean	PTFE red/silicone white/ PTFE red	Silicone white/PTFE blue, with slit
Durometer	53° shore D	60° shore A	45° shore A	55° shore A	45° shore A	55° shore A
Thickness	0.2 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm
100 pcs. per PE-bag						

3.5.5 PP short thread cap green, 6 mm centre hole



Part no.	09 15 1539	09 15 1356	09 15 1911	09 15 1332	09 15 1485	09 15 1746
Septa material	PTFE virginal	Nat. rubber red-orange/ TEF transparent	RedRubber/PTFE beige *(Approved IM quality*)*	Silicone white/PTFE red UltraClean	PTFE red/silicone white/ PTFE red	Silicone white/PTFE blue, with slit
Durometer	53° shore D	60° shore A	45° shore A	55° shore A	45° shore A	55° shore A
Thickness	0.2 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm
100 pcs. per PE-bag						

3.5.6 PP short thread cap yellow, 6 mm centre hole

Part no.	09 15 2015	09 15 1542	09 15 2014	09 15 1527	09 15 1486	09 15 1745
Septa material	PTFE virginal	Nat. rubber red-orange/ TEF transparent	RedRubber/PTFE beige *(Approved IM quality*)*	Silicone white/PTFE red UltraClean	PTFE red/silicone white/ PTFE red	Silicone white/PTFE blue, with slit
Durometer	53° shore D	60° shore A	45° shore A	55° shore A	45° shore A	55° shore A
Thickness	0.2 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm
100 pcs. per PE-bag						

3.5.7 Magnetic short thread cap, 6 mm centre hole

(for CTC GC PAL + Thermo Scientific™ TriPlus™ Autosampler)

- More convenient and safer in handling than 11 mm magnetic crimp seals.
- Ready-to-use closures.
- Officially tested and approved by CTC.

Part no.	09 15 1907
Septa material	Silicone white/PTFE red UltraClean
Durometer	55° shore A
Thickness	1.0 mm
100 pcs. per PE-bag	

3.5.8 9 mm short thread MS cap transparent

- One component closure – no bleeding.
- Absolutely inert.
- Pierceable like a septa.
- LC/GC MS certified.
- Tight like a septa.

Part no.	09 08 2000
Septa material	With thinned penetration area and diaphragm
100 pcs. per PE-bag	

3.5.9 9 mm short thread PP cap with thinned penetration area

- Easy to penetrate.
- Cost effective closure without septum.
- Single use only.

Part no.	09 08 2771	09 08 2772
Septa material	With integral thinned PP membrane clear and blue polypropylene	
100 pcs. per PE-bag		

3.5.10 UltraBond seals ND9

(Cap + liner form an inseparable unit, so that the liner cannot be pushed into the vial even with a blunt needle)

Analogous to the LECTRABOND closure from Waters resp. the INTERSEAL closure from Agilent we also offer several UltraBond short thread seals, among others also in an *improved instrument manufacturer quality*. The new septa material is an especially pure silicone material, which optimizes the product safety even more. Further, the PTFE layer was modified, which permits an even easier penetration of the needle.

Part no.	09 04 1220	09 04 1533	09 04 1534
Description cap	PP short thread cap black, 6 mm centre hole	PP short thread cap blue, 6 mm centre hole	PP short thread cap blue, 6 mm centre hole
Septa material	Silicone white/PTFE red	Silicone beige/PTFE white *Improved IM quality**	Silicone beige/PTFE white, with slit *Improved IM quality**
Durometer	45° shoreA	45° shore A	45° shore A
Thickness	1.3 mm	1.3 mm	1.3 mm
		100 pcs. per PE-bag	

Special 2in1 kits for Waters instruments

11 24 1628	**11 09 0500**	**09 04 1533**
2in1 kit consisting of: 11 09 0500 + 09 04 1533	1.5 mL short thread vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening	9 mm UltraBond PP short thread cap, blue, centre hole; silicone beige/PTFE white, 45° shore A, 1.3 mm
11 24 1622	**11 09 0500**	**09 04 1534**
2in1 kit consisting of: 11 09 0500 + 09 04 1534	1.5 mL short thread vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening	9 mm UltraBond PP short thread cap, blue, centre hole; silicone beige/PTFE white, 45° shore A, 1.3 mm, SLIT
11 24 1859	**11 09 0519**	**09 04 1533**
2in1 kit consisting of: 11 09 0519 + 09 04 1533	1.5 mL short thread vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening, label and filling lines	9 mm UltraBond PP short thread cap, blue, centre hole; silicone beige/PTFE white, 45° shore A, 1.3 mm
11 24 1860	**11 09 0519**	**09 04 1534**
2in1 kit consisting of: 11 09 0519 + 09 04 1534	1.5 mL short thread vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening, label and filling lines	9 mm UltraBond PP short thread cap, blue, centre hole; silicone beige/PTFE white, 45° shore A, 1.3 mm, SLIT
11 24 1861	**11 09 0520**	**09 04 1533**
2in1 kit consisting of: 11 09 0520 + 09 04 1533	1.5 mL short thread vial, 32 x 11.6 mm, amber glass, 1st hydrol. class, wide opening, label and filling lines	9 mm UltraBond PP short thread cap, blue, centre hole; silicone beige/PTFE white, 45° shore A, 1.3 mm
11 24 1696	**11 09 0520**	**09 04 1534**
2in1 kit consisting of: 11 09 0520 + 09 04 1534	1.5 mL short thread vial, 32 x 11.6 mm, amber glass, 1st hydrol. class, wide opening, label and filling lines	9 mm UltraBond PP short thread cap, blue, centre hole; silicone beige/PTFE white, 45° shore A, 1.3 mm, SLIT
	100 pcs. each in one kit	

Further 2in1 kits are available upon request

3.5.11 HPLC and GC certified vial kits

(Short thread vials and short thread seals ND9)

HPLC and GC certified vial kits certifications are getting more and more important, in order to make processes more reproducible and avoid possible sources of errors from the beginning. For Thermo Fisher Scientific highest quality, consistency and quality control have always been very important and have been documented by HPLC and GC certified vials and closures.

- Each batch of HPLC and GC-certified kit is tested on 15 critical parameters. In a realistic method, an HPLC/UV and GC/MS-test of vials/closure combination of blanks and contaminations will be carried out.
- The batch-specific test certificate with the HPLC and GC-Chromatograms can be handed out upon request.
- The HPLC and GC certified kits are delivered completely shrinkwrapped for reasons of originality, purity and transport safety. This means an additional safety for the end user.

Cat. no	11 40 2556	11 40 2557
Description	HPLC/GC certified vial kit 1.5 mL short thread vial, clear glass, 1st hydrol. class, label + filling lines	HPLC/GC certified vial kit 1.5 mL short thread vial, amber glass, 1st hydrol. class, label + filling lines
Seal	UltraClean seal: 9 mm PP short thread cap, blue, centre hole; silicone white/PTFE red, 1.0 mm	UltraClean seal: 9 mm PP short thread cap, blue, centre hole; silicone white/PTFE red, 1.0 mm
100 vials and seals each in one kit		

Further certified combinations are availalbe upon request

3.5.12 LC/MS and GC/MS certified vial kits (short thread vials and short thread seals ND9)

The LC/MS and GC/MS certified kits represent our premium range of certified products. Each lot of the vial/closure combination has been tested by LC/MS and GC/MS on traces of blank values and contaminations.

- Available as clear and amber 9 mm short thread vial in the SureStop version with the sure-stop function for the lowest evaporation rate of all autosampler vials.
- Additionally the glass surface of these specific SureStop vials provides very low adsorption tendencies for all types of polar compounds; in fact a lot lower as for all other vials of 1st hydrolytic class glass (without surface treatment).
- The closure contains a very soft ultra low bleed (Ultra high performance) silicone septum with PTFE layer, optimized for ultra trace analysis.
- The batch-specific test certificate with the MS-Chromatograms can be handed out on request.
- The LC/MS and GC/MS certified kits are delivered completely shrink wrapped in order to assure originality, purity and transport safety.

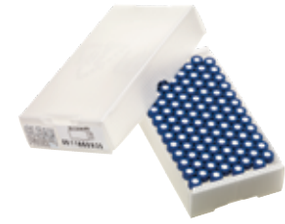
Cat. no	11 40 3196	11 40 3197
Description	LC/MS and GC/MS Certified vial kit 1.5 mL Short thread SureStop vial, 32 x 11.6 mm, clear glass, wide opening, label + filling lines with overwind-barrier	LC/MS and GC/MS Certified vial kit 1.5 mL Short thread SureStop vial, 32 x 11.6 mm, amber glass, wide opening, label + filling lines with overwind-barrier
Seal:	Ultra high performance seal: PP short thread cap, blue, centre hole; Silicone darkblue-translucent/PTFE natural, 35° shore A, 1.0 mm	Ultra high performance seal: PP short thread cap, blue, centre hole; Silicone darkblue-translucent/PTFE natural, 35° shore A, 1.0 mm
100 vials and seals each in one kit		

Further certified combinations are availalbe upon request

*Improved instrument manufacturer quality

3.6 Short thread vials ND9, wide opening with pre-screwed PP short thread seals ND9 and/or pre assembled micro-inserts with wide opening

- Pre-screwed vials reduce the risk of contamination of vials in laboratories. Furthermore special applications could require a pre-screwed vial (e.g. in the tobacco industry).
- Pre-screwed vials are available with any of the short thread vials and any seal of your choice.



Part no.	11 14 1963	11 14 1841	11 14 1867	11 14 2551
Description	1.5 mL short thread vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening (11 09 0500)	1.5 mL short thread vial, 32 x 11.6 mm, amber glass, 1st hydrol. class, wide opening, label + filling lines (11 09 0520)	1.5 mL short thread vial, 32 x 11.6 mm, amber glass, 1st hydrol. class, wide opening, label + filling lines (11 09 0520)	1.5 mL short thread vial, 32 x 11.6 mm, amber glass, 1st hydrol. class, wide opening, label + filling lines (11 09 0520)
	pre-screwed with	*pre-screwed with*	*pre-screwed with*	*pre-screwed with*
Seal	PP short thread cap blue, 6 mm centre hole, Ssilicone white/PTFE blue, with slit, 55° shore A, 1.0 mm (09 15 0869)	PP short thread cap blue, 6 mm centre hole, silicone white/PTFE blue, with slit, 55° shore A, 1.0 mm (09 15 0869)	PP UltraBond seal blue, 6 mm centre hole, silicone beige/PTFE white, with slit *(improved IM quality*),* 45° shore A, 1.3 mm (09 04 1534)	PP short thread cap transparent, centre hole, silicone white/PTFE red, 55° shore A, 1.0 mm, pre-cut (Y) (09 15 2021)
	100 pcs. per PP-box			

Further pre-screwed and/or pre-assembled combinations upon request

3.7 Special 2in1 kits

2in1 kits with short thread vials

11 24 1050	**11 09 0500**	**09 15 0838**
2in1 kit consisting of: 11 09 0500 + 09 15 0838	1.5 mL short thread vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening	PP short thread cap blue, 6 mm centre hole; UltraClean silicone white/PTFE red, 55° shore A, 1.0 mm
11 24 1051	**11 09 0500**	**09 15 0869**
2in1 kit consisting of: 11 09 0500 + 09 15 0869	1.5 mL short thread vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening	PP short thread cap blue, 6 mm centre hole; Silicone white/PTFE blue, 55° shore A, 1.0 mm, with slit
11 24 2391	**11 09 0519**	**09 15 1669**
2in1 kit consisting of: 11 09 0519 + 09 15 1669	1.5 mL short thread vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening, label and filling lines	PP short thread cap, black, 6 mm centre hole; Silicone white/PTFE blue, 55° shore A, 1.0 mm, slit
11 24 1238	**11 09 0519**	**09 15 0869**
2in1 kit consisting of: 11 09 0519 + 09 15 0869	1.5 mL short thread vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening, label and filling lines	PP short thread cap blue, 6 mm centre hole; Silicone white/PTFE blue, 55° shore A, 1.0 mm, slit
11 24 1141	**11 09 0500**	**09 15 0481**
2in1 kit consisting of: 11 09 0500 + 09 15 0481	1.5 mL short thread vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening	PP short thread cap transparent, 6 mm centre hole; UltraClean silicone white/PTFE red, 55° shore A, 1.0 mm
11 24 1091	**11 09 0520**	**09 15 0481**
2in1 kit consisting of: 11 09 0520 + 09 15 0481	1.5 mL short thread vial, 32 x 11.6 mm, amber glass, 1st hydrol. class, wide opening, label and filling lines	PP short thread cap transparent, 6 mm centre hole; UltraClean silicone white/PTFE red, 55° shore A, 1.0 mm
	100 pcs. each in one kit	

Further 2in1 kits are available upon request

*Improved instrument manufacturer quality / approved instrument manufacturer quality

4. Screw neck ND10

The vials are preferentially used on instruments of the following manufacturers: Jasco, PerkinElmer, Shimadzu, Varian, Waters, etc.

- Packed in a cleanroom which is a new hygienic standard for chromatography vials.
- Wide opening enables easy filling with viscous materials.
- Alternatively you can also look for short thread vials in chapter 3.1.
- Any combination of 1.5 mL crew neck vial 10-425 with one of our 10 mm PP screw seals can be obtained as a 2in1 kit.
- Closed top seals and replacement septa are available.
- Broad range of micro-inserts.

4.1 Screw neck vials ND10, wide opening, 10-425 thread and appropriate micro-inserts

Part no.	10 09 0743	10 09 1196	10 09 1197	06 09 0357	06 09 0669	06 09 0865	06 09 0866
Description	1.5 mL Sscrew neck vial, 10-425 thread, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening	1.5 mL sScrew neck vial, 10-425 thread, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening, label + filling lines	1.5 mL screw neck vial, 10-425 thread, 32 x 11.6 mm, amber glass, 1st hydrol. class, wide opening, label + filling lines	0.1 mL micro-insert, 31 x 6 mm, clear glass, 1st hydrol. class, 15 mm top *SILANIZED 06 09 1240*	0.1 mL micro-insert, 31 x 6 mm, clear glass, 1st hydrol. class, 12 mm top	0.1 mL Mmicro-insert, 29 x 5.7 mm, clear glass, 1st hydrol. class, with assembled plastic spring *SILANIZED 06 09 1343*	0.2 mL Mmicro-insert, 31 x 6 mm, clear glass, 1st hydrol. class, flat bottom
TFVol. (mL)	2.0	2.0	2.0	0.34	0.35	0.3	0.5
UsVol. (mL)	1.50	1.50	1.50	0.25	0.30	0.25	0.35
MWVol. (µL)	200	200	200	30	30	30	40
Res. vol. (µL)	<120	<120	<120	<4	<4	<4	<8
	100 pcs. per PP-box			10 x 100 pcs. per PP-box			

4.2 PP screw seals ND10

Part no.	10 15 1256	10 15 1257	10 15 0744	10 15 1258	10 15 1328	10 15 1905
Description cap	PP screw cap black, 7 mm centre hole	PP screw cap black, 7 mm centre hole	PP screw cap black, 7 mm centre hole	PP screw cap black, 7 mm centre hole	PP screw cap black, 7 mm centre hole	PP screw cap black, closed top
Septa material	Nat. rubber red-orange/ TEF transparent	Silicone white/PTFE red UltraClean	Silicone white/PTFE beige	PTFE red/silicone white/ PTFE red	Silicone white/PTFE blue, with slit	Nat. rubber red-orange/ TEF transparent
Durometer	60° shore A	45° shore A	45° shore A	45° shore A	55° shore A	60° shore A
Thickness	1.3 mm	1.3 mm	1.5 mm	1.0 mm	1.5 mm	1.3 mm
	Further screw seals ND10 with closed/open top resp. With white caps are available upon request					
	100 pcs. per PE-bag					

4.3 PP screw caps ND10

Part no.	10 08 0742	10 08 1899
Septa material	Polypropylene screw cap black, 7 mm centre hole	Polypropylene screw cap black, closed top
	100 pcs. per PE-bag	

TFVol. = Total Volume/Filling Volume (mL), UsVol. = Usable Volume (mL), MWVol. = Minimum Working Volume (µL), Res. vol. = Residual Volume (µL)

Academia selection card

This selection targets more than one customer group. Here we find chromatographers at universities, research centers, MPI´s, Fraunhofer institutes, etc., where both LC and GC is used nearly 1:1 with polar and non-polar solvents. They all deal with mainly small molecules chromatography, challenging matrices, many different samples and the analyte concentration varies. The matrix can be everything, as we talk about basic research here. And another challenge is the cost pressure of these institutes, which limits the access to expensive consumables from time to time.

In this chapter you will find the most important parts from the following product classes:

- Screw and crimp vials and closures
- Headspace vials and closures
- Vial racks and tools

Crimp vials and closures

11 09 0476
1.5 mL crimp neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening, label and filling lines

11 09 0477
1.5 mL crimp neck vial, 32 x 11.6 mm, amber glass, 1st hydrol. class, wide opening, label and filling lines

11 03 0209
11 mm combination seal: aluminum cap, clear lacquered, centre hole; natural rubber red-orange/TEF transparent, 60° shore A, 1.0 mm

11 03 1875
11 mm combination seal: aluminum cap, clear lacquered, with centre hole; red rubber/PTFE beige, 45° shore A, 1.0 mm

11 03 0247
UltraClean closure: 11 mm aluminum cap, clear lacquered, centre hole; slicone white/PTFE red, 45° shore A, 1.3 mm

Headspace vials and closures

18 09 1307
20 mL precision thread headspace-vial, 75.5 x 22.5 mm, clear glass, 1st hydrol. class, rounded bottom *(for magnetic screw caps)*

18 03 1309
UltraClean closure: 18 mm magnetic universal screw cap, silver, centre hole; Silicone transparent blue/PTFE white, 45° shore A, 1.3 mm

20 09 0873
20 mL headspace-vial, 75.5 x 22.5 mm, clear glass, 1st hydrol. class, DIN crimp neck, long neck, rounded bottom

20 03 0142
UltraClean closure: 20 mm aluminum cap, plain, centre hole; silicone transparent blue/PTFE white, 45° shore A, 3.0 mm

20 03 0975
UltraClean closure: 20 mm magnetic cap, gold lacquered, 8 mm centre hole; Silicone transparent blue/PTFE transparent, 45° shore A, 3.0 mm

9 mm screw thread vials and closures

11 09 0519

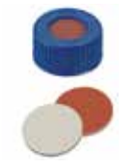
1.5 mL short thread vial,
32 x 11.6 mm,
clear glass,
1st hydrol. class,
wide opening,
label and filling lines

11 09 0520

1.5 mL short thread vial,
32 x 11.6 mm,
amber glass,
1st hydrol. class,
wide opening,
label and filling lines

11 09 2746

1.5 mL short thread
SureStop vial,
32 x 11.6 mm,
clear glass,
1st hydrol. class,
wide opening,
with overwind-barrier



09 15 1819

9 mm combination seal:
PP short thread cap,
blue, with centre hole;
RedRubber/PTFE beige,
45° shore A,
1.0 mm

09 15 0838

UltraClean closure:
9 mm PP short thread cap,
blue, centre hole;
Silicone white/PTFE red,
55° shore A,
1.0 mm

09 15 0869

9 mm combination seal:
PP short thread cap,
blue, centre hole;
silicone white/PTFE blue,
55° shore A,
1.0 mm,
slit

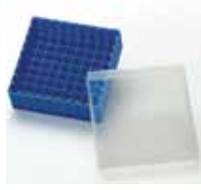
Racks/tools

11 06 0006

11 mm crimper

20 06 0008

20 mm crimper



12 21 2420

PP storage box
for 1.5 mL (1.8 mL, 2 mL)
vials or 2 mL shell vials,
blue, with cover
(130 x 130 x 45 mm),
81 cavities with alphanumeric coding of all
4 margins as well as the cavities at the bottom

5. Crimp neck ND11

The vials are preferentially used on instruments of the following manufacturers: Agilent, Carlo Erba, CTC, DANI, Fisons, Gerstel, Jasco, PerkinElmer, Shimadzu, Spark, Thermo Scientific, Varian, etc.

- Vials with integrated micro-insert are also available now in clear and amber glass.
- Use our TopSert micro-vial as a cost-effective alternative to glass vials with fused-in micro-inserts resp. to micro-insert with plastic spring! Their glass micro-insert is absolutely centered in the plastic mould and pressed fir mLy against the septa due to its slightly exceeding edges.
- Vials with a barcode label can be obtained as well as pre-crimped vials.
- Standard vials for GC and HPLC.
- Microliter vials (11 09 0619/11 09 2276) for sample preparation (reactions, concentrations) or as an alternative for conical micro-vials resp. crimp neck vials with Inserts.

5.1 Crimp neck vials ND11, wide opening and micro-vials with crimp neck ND11

Part no.	11 09 0356	11 09 0476	11 09 0477	11 09 0921	11 09 1956	11 09 2353	11 09 2786
Description	1.5 mL crimp neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening *SILANIZED* *11 09 2085*	1.5 mL crimp neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening, label + filling lines *SILANIZED* *11 09 2172*	1.5 mL crimp neck vial, 32 x 11.6 mm, amber glass, 1st hydrol. class, wide opening, label + filling lines *SILANIZED* *11 09 1767*	Crimp neck vial with integrated 0.2 mL micro-insert, 32 x 11.6 mm, clear glass, 1st hydrol. class, label + filling lines *"Top bonded"*	Crimp neck vial with integrated 0.2 mL micro-insert, 32 x 11.6 mm, amber glass, 1st hydrol. class, label + filling lines *"Top bonded"*	Snap/crimp vial ND11 with integrated micro-insert, 32 x 11.6 mm, clear glass, 1st hydrol. class *"Base bonded"*	Snap/crimp vial ND11 with integrated micro-insert, 32 x 11.6 mm, amber glass, 1st hydrol. class *"Base bonded"*
TFVol. (mL)	2.0	2.0	2.0	0.4	0.4	0.39	0.39
UsVol. (mL)	1.50	1.50	1.50	0.21	0.2	0.3	0.3
MWVol. (µL)	200	200	200	25	25	30	30
Res. vol. (µL)	<100	<100	<100	<1	<1	<3	<3
	100 pcs. per PP-box						

Part no.	11 09 0619	11 09 2276	11 09 3564	11 09 3451	11 09 2671	11 09 0415	11 09 0486	11 19 3597	11 14 1190	11 14 1656
Description	1.1 mL microliter-vial, 32 x 11.6 mm, clear glass, 1st hydrol. class *SILANIZED* *11 09 2177*	0.9 mL total microliter snap/crimp ring vial ND11, 32 x 11.6 mm, clear glass, 1st hydrol. class	0.9 mL total microliter snap/crimp vial ND11 clear glass 1st hydrol. class label	1.0 mL microliter con. base crimp neck vial 32 x 11.6 mm clear glass 1st hydrol. class	1.0 mL microliter con. base crimp neck vial, 32 x 11.6 mm, amber glass 1st hydrol. class	1.1 mL micro-vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, conical	0.9 mL micro-vial, 32 x 10 mm, clear glass, 1st hydrol. class, conical	0.7 mL PE snap/crimp vial ND11 Micro-vial white 32 x 11.6 mm	TopSert TPX snap/crimp vial ND11, 32 x 11.6 mm, clear, with integrated 0.2 mL glass micro-insert *SILANIZED* *11 14 1266*	TopSert TPX snap/crimp vial ND11, 32 x 11.6 mm, amber, with integrated 0.2 mL glass micro-insert *SILANIZED* *11 14 1695*
TFVol. (mL)	1.8	1.4	1.4	1.5	1.5	1.3	1.1	0.87	0.35	0.35
UsVol. (mL)	1.5	1.2	1.1	1.3	1.3	1.1	0.9	8.60	0.2	0.2
MWVol. (µL)	40	25	25	25	25	30	30	150	30	30
Res. vol. (µL)	<8	<1	<1	<3	<3	<4	<2	<80	<4	<4
	100 pcs. per PP-box						10 x 100 pcs. per PP-box	100 pcs. per PE-bag	100 pcs. per PP-box	

TFVol. = Total Volume/Filling Volume (mL), UsVol. = Usable Volume (mL), MWVol. = Minimum Working Volume (µL), Res. vol. = Residual Volume (µL)

5.2 Micro-inserts for crimp neck vials ND11 with wide opening





Part no.	06 09 0357	06 09 0669	06 09 0865	06 19 3973	06 09 0866
Description	0.1 mL micro-insert, 31 x 6 mm, clear glass, 1st hydrol. class, 15 mm top *SILANIZED 06 09 1240*	0.1 mL micro-insert, 31 x 6 mm, clear glass, 1st hydrol. class, 12 mm to	0.1 mL micro-insert, 29 x 5.7 mm, clear glass, 1st hydrol. class, with assembled plastic spring *SILANIZED 06 09 1343*	0.2 mL PP micro-insert, 28.3 x 5.9 mm, clear, connected plastic spring	0.2 mL micro-insert, 31 x 6 mm, clear glass, 1st hydrol. class, flat bottom *SILANIZED 06 09 1792*
TFVol. (mL)	0.34	0.35	0.3	0.2	0.5
UsVol. (mL)	0.25	0.3	0.25	0.13	0.35
MWVol. (µL)	30	30	30	40	40
Res. vol. (µL)	<4	<4	<4	<6	<8
10 x 100 pcs. per PP-box					

5.3 Aluminum crimp seals ND11

5.3.1 Natural rubber/TEF seals

- Three layer septa of natural rubber/ butyl/TEF combines the good physical properties of nat. rubber (resealability) with the good chemical properties of butyl (cleanliness).
- Temperature resistant from -40°C up to 120°C.
- Standard seal for GC and HPLC.
- Ideal for multiple injections due to high resealability.







Part no.	11 03 0209	11 03 0300	11 03 0535	11 03 0301	11 03 0302	11 03 0303	11 03 0304
Description cap	Aluminum cap clear lacquered, 5.5 mm centre hole	Aluminum cap clear lacquered, 5.5 mm centre hole	Aluminum cap clear lacquered, 5.5 mm centre hole	Aluminum cap green lacquered, 5.5 mm centre hole	Aluminum cap red lacquered, 5.5 mm centre hole	Aluminum cap blue lacquered, 5.5 mm centre hole	Aluminum cap gold lacquered, 5.5 mm centre hole
Septa material	Nat. rubber red-orange/ TEF transparent *(Approved IM quality*)*	Nat. rubber red-orange/ butyl red/TEF transparent	Nat. rubber red-orange/ TEF transparent	Nat. rubber red-orange/ butyl red/TEF transparent	Nat. rubber red-orange/ butyl red/TEF transparent	Nat. rubber red-orange/ butyl red/TEF transparent	Nat. rubbe red-orange/ butyl red/TEF transparent
Durometer	60° shore A	45° shore A	60° shore A	45° shore A	45° shore A	45° shore A	45° shore A
Thickness	1.0 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm
100 pcs. per PE-bag							

5.3.2 RedRubber/PTFE seals

- Temperature resistant from –40°C up to 110°C.
- Softer alternative to natural rubber/TEF and butyl/PTFE.
- Cleaner than natural rubber or butyl; low fragmentation.
- RedRubber is a synthetic rubber.





Part no.	11 03 1875	11 03 1984	11 03 1985	11 03 1986	11 03 1987
Description cap	Aluminum cap clear lacquered, 5.5 mm centre hole	Aluminum cap green lacquered, 5.5 mm centre hole	Aluminum cap red lacquered, 5.5 mm centre hole	Aluminum cap blue lacquered, 5.5 mm centre hole	Aluminum cap gold lacquered, 5.5 mm centre hole
Septa material	RedRubber/PTFE beige *Approved instrument manufacturer quality**				
Durometer	45° shore A	45° shore A	45° shore A	45° shore A	45° shore A
Thickness	1.0 mm	1.0 mm	1.0 mm	1.0 mm	1.0 mm
100 pcs. per PE-bag					

**Approved instrument manufacturer quality*

5.3.3 Silicone/PTFE seals

- Cross-slit liner as penetration aid and for low coring, but also for avoiding vacuum in the vial in case of multiple injections.
- Temperature resistant from -60°C up to 200°C.
- Much cleaner than natural rubber, RedRubber or butyl.

Part no.	11 03 0247	11 03 0362	11 03 0885	11 03 0196	11 03 0464	11 03 1625	11 03 0666	11 03 0667	11 03 1624
Description cap	Aluminum cap clear lacquered, 5.5 mm centre hole	Aluminum cap clear lacquered, 5.5 mm centre hole	Aluminum cap clear lacquered, 5.5 mm centre hole	Aluminum cap clear lacquered, 5.5 mm centre hole	Aluminum cap clear lacquered, 5.5 mm centre hole	Aluminum cap green lacquered, 5.5 mm centre hole	Aluminum cap red lacquered, 5.5 mm centre hole	Aluminum cap blue lacquered, 5.5 mm centre hole	Aluminum cap gold lacquered, 5.5 mm centre hole
Septa material	Silicone white/ PTFE red UltraClean	Silicone cream/ PTFE red	Silicone dark blue/PTFE white	PTFE red/ silicone white/ PTFE red	Silicone white/ PTFE blue, cross-slit	Silicone white/ PTFE red UltraClean	Silicone white/ PTFE red UltraClean	Silicone white/ PTFE red UltraClean	Silicone white/ PTFE red UltraClean
Durometer	45° shore A	55° shore A	45° shore A	45° shore A	55° shore A	45° shore A	45° shore A	45° shore A	45° shore A
Thickness	1.3 mm	1.5 mm	1.3 mm	1.0 mm	1.5 mm	1.3 mm	1.3 mm	1.3 mm	1.3 mm
100 pcs. per PE-bag									

5.3.4 Other aluminum crimp seals

- Total Phthalate Free seal (TPF seal), septa
- PTFE is very inert and high temperature resistant mainly for uncritical HPLC analysis.
- Material free of any elastomers and halogens.
- Butyl as synthetic rubber is much cleaner than nat. rubber.
- Butyl is temperature resistant from –40°C up to 120°C.

Part no.	11 03 2519	11 03 2578	11 03 0339	11 03 1641	11 03 1663
Description cap	11 mm TPF combination seal: aluminum cap, clear lacquered, 5.5 mm centre hole	11 mm combination seal: Aluminum cap, clear lacquered, 5.5 mm centre hole	Aluminum cap clear lacquered, 5.5 mm centre hole, roll grove	Aluminum cap clear lacquered, 5.5 mm centre hole	Aluminum cap c lear lacquered, 5.5 mm centre hole
Septa material	Aluminum liner, *(sealed by an additional assembled ring)*	PTFE virginal *(sealed by an additional assembled ring)*	PTFE virginal	butyl red/PTFE grey	PTFE grey/butyl red/PTFE grey
Durometer		53° shore D	53° shore D	55° shore A	55° shore A
Thickness	0.06 mm	0.25 mm	0.25 mm	1.3 mm	1.3 mm
All before-mentioned crimp seals are also available with gold, green, blue and red caps (with the exception of 11 03 0339, 11 03 2519 and 11 03 2578))					
100 pcs. in a clear crew neck vial		100 pcs. per PE-bag			

5.4 Magnetic crimp seals ND11

(for CTC PAL + TriPlus Autosampler)

Part no.	11 03 0318	11 03 0332
Description cap	Magnetic cap, gold lacquered, 5 mm centre hole	Magnetic cap, gold lacquered, 5 mm centre hole
Septa material	Silicone white/PTFE red UltraClean	PTFE red/silicone white/PTFE red
Durometer	45° shore A	45° shore A
Thickness	1.3 mm	1.0 mm
100 pcs. per PE-bag		

5.5 Other combination seals for crimp neck ND11

Part no.	13 15 0996
Description cap	PE-Cap, transparent, 13 x 7.5 mm, 4.5 mm centre hole
Septa material	Silicone white/PTFE red UltraClean
Durometer	55° shore A
Thickness	1.0 mm
100 pcs. per PE-bag	

*Approved instrument manufacturer quality

5.6 Crimp neck vials ND11, wide opening, with pre-crimped aluminum seals ND11 and/or pre-assembled micro-inserts for vials with wide opening

- Pre-crimped vials reduce the risk of contamination of vials in laboratories. Furthermore special applications could require a pre-crimped vial (e.g. in the tobacco industry).
- Pre-crimped vials are available with any of the crimp/snap neck vials and any seal of your choice.

Part no.	11 31 1469	11 31 1968	11 31 1730	11 31 1221	11 31 1596
Description vial	1.5 mL crimp neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening (11 09 0356)	1.5 mL crimp neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening (11 09 0356)	1.5 mL crimp neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening (11 09 0356)	1.5 mL crimp neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening (11 09 0356)	1.5 mL crimp neck vial, 32 x 11.6 mm, amber glass, 1st hydrol. class, wide opening, label + filling lines (11 09 0477)
	pre-crimped	*pre-crimped*	*pre-crimped*	*pre-crimped*	*pre-crimped*
Description of pre-crimped seal	Aluminum cap clear lacquered, 5.5 mm centre hole, Nat. rubber red-orange/ TEF transparent, 60° shore A, 1.0 mm (11 03 0209) *(Approved IM quality*)*	Aluminum cap clear lacquered, 5.5 mm centre hole, Nat. rubber red-orange/ TEF transparent, 60° shore A, 1.3 mm (11 03 0900)	Aluminum cap clear lacquered, 5.5 mm centre hole, Nat. rubber red-orange/ butyl red/TEF transparent, 45° shore A, 1.0 mm (11 03 0300)	Aluminum cap blue lacquered, 5.5 mm centre hole, Nat. rubber red-orange/ butyl red/TEF transparent, 45° shore A, 1.0 mm (11 03 0303)	Aluminum cap clear lacquered, 5.5 mm centre hole, Nat. rubber red-orange/ TEF transparent, 60° shore A, 1.0 mm (11 03 0209) *(Approved IM quality*)*
100 pcs. per PP-box					

Further pre-crimped and/or pre-assembled combinations upon request

5.7 Special 2in1 kits

2in1 kits with crimp neck vials ND11

11 25 1054	**11 09 0356**	**11 03 0300**
2in1 kit consisting of: 11 09 0356 + 11 03 0300	1.5 mL crimp neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening	11 mm aluminum cap, clear lacquered, centre hole; natural rubber red-orange/ butyl red/TEF transparent, 45° shore A, 1.0 mm
11 25 1053	**11 09 0356**	**11 03 0209**
2in1 kit consisting of: 11 09 0356 + 11 03 0209	1.5 mL crimp neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening	11 mm aluminum cap, clear lacquered, centre hole; natural rubber red-orange/TEF transparent, 60° shore A, 1.0 mm
11 25 2281	**11 09 0476**	**11 03 0300**
2in1 kit consisting of: 11 09 0476 + 11 03 0300	1.5 mL crimp neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening, label and filling lines	11 mm aluminum cap, clear lacquered, centre hole; natural rubber red-orange/ butyl red/TEF transparent, 45° shore A, 1.0 mm
11 25 1287	**11 09 0477**	**11 03 0300**
2in1 kit consisting of: 11 09 0477 + 11 03 0300	1.5 mL crimp neck vial, 32 x 11.6 mm, amber glass, 1st hydrol. class, wide opening, label and filling lines	11 mm aluminum cap, clear lacquered, centre hole; natural rubber red-orange/ butyl red/TEF transparent, 45° shore A, 1.0 mm
11 25 1097	**11 09 0477**	**11 03 0209**
2in1 kit consisting of: 11 09 0477 + 11 03 0209	1.5 mL crimp neck vial, 32 x 11.6 mm, amber glass, 1st hydrol. class, wide opening, label and filling lines	11 mm aluminum cap, clear lacquered, centre hole; natural rubber red-orange/TEF transparent, 60° shore A, 1.0 mm
11 25 2263	**11 09 0356**	**11 03 0535**
2in1 kit consisting of: 11 09 0356 + 11 03 0535	1.5 mL crimp neck vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening	11 mm aluminum cap, clear lacquered, centre hole; natural rubber red-orange/TEF transparent, 60° shore A, 1.0 mm
100 pcs. each in one kit		

Further 2in1 kits are available upon request

6. Snap ring ND11

The vials are preferentially used on instruments of the following manufacturers: Agilent, CTC, DANI, Dionex, Jasco, Shimadzu, Spark, Thermo Scientific, Varian, VWR (Merck)/Hitachi, Waters, etc.

- We reco mmend this vial-/closure system for HPLC applications only.
- Universally usable vials for almost all autosamplers, even for those with robotic handling.
- Micro-inserts can be delivered pre-assembled in vials.
- Vials can also be crimped with a standard 11 mm aluminum crimp seal, as the two snap ring lips have the same height as a crimp neck
- Wide opening enables easy filling with viscous materials.

6.1 Snap ring vials ND11, wide opening

Part. no.	11 09 0627	11 09 0644	11 09 0645	11 09 2276	11 09 3564	11 09 3405	11 09 3406	11 09 2353	11 09 2786
Description	1.5 mL snap ring vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening *SILANIZED 11 09 2173*	1.5 mL snap ring vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening, label + filling lines *SILANIZED 11 09 2174*	1.5 mL snap ring vial, 32 x 11.6 mm, amber glass, 1st hydrol. class, wide opening, label + filling lines *SILANIZED 11 09 2189*	0,9 mL total microliter snap ring vial ND11, 32 x 11.6 mm, clear glass, 1st hydrol. class	0.9 mL total microliter snap/crimp vial ND11 clear glass, 1st hydrol. class, label	1.0 mL microliter con. base Ssnap ring vial 32 x 11.6 mm clear glass, 1st hydrol. class	1.0 mL microliter con. base snap ring vial 32 x 11.6 mm amber glass 1st hydrol. class	Snap/crimp vial with integrated micro-insert, 32 x 11.6 mm, clear glass, 1st hydrol. class *"Base bonded"*	Snap/crimp vial with integrated micro-insert, 32 x 11.6 mm, amber glass, 1st hydrol. class *"Base bonded"*
TFVol. (mL)	1.90	1.90	1.90	1.40	1.4	1.5	1.5	0.40	
UsVol. (mL)	1.5	1.5	1.5	1.2	1.1	1.3	1.3	0.3	
MWVol. (µL)	200	200	200	25	25	25	25	30	
Res. vol. (µL)	<100	<100	<100	<1	<1	<3	<3	<3	
100 pcs. per PP-box									

6.2 Plastic snap ring micro-vials ND11

			PP	*TPX*	*PP*	*PE*	*PP*
Part. no.	11 14 1190	11 14 1656	11 19 0933	11 19 1022	11 19 1707	11 19 3597	11 19 1217
Description	TopSert TPX snap/crimp vial ND11, 32 x 11.6 mm, clear, with integrated 0.2 mL glass micro-insert *SILANIZED 11 14 1266*	TopSert TPX snap/crimp vial ND11, 32 x 11.6 mm, amber, with integrated 0.2 mL glass micro-insert *SILANIZED 11 14 1695*	0.3 mL PP snap ring Micro-vial, transparent, 32 x 11.6 mm	0.3 mL TPX snap ring micro-vial, crystal clear, 32 x 11.6 mm	0.7 mL PP snap ring micro-vial, transparent, 32 x 11.6 mm	0.7 mL PE snap/crimp vial ND11 micro-vial white 32 x 11.6 mm	0.3 mL PP snap ring micro-vial, amber, 32 x 11.6 mm
TFVol. (mL)	0.35	0.35	0.4	0.4	0.9	0.87	0.4
UsVol. (mL)	0.2	0.2	0.25	0.25	0.64	0.60	0.25
MWVol. (µL)	30	30	30	30	50	150	30
Res. vol. (µL)	<4	<4	<4	<4	<25	<80	<4
	100 pcs. per PP-box		100 pcs. per PE-bag				

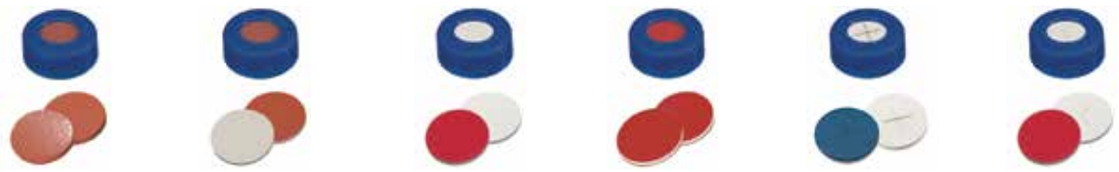
For micro Inserts please refer to chapter 5.2.

TFVol. = Total Volume/Filling Volume (mL), UsVol. = Usable Volume (mL), MWVol. = Minimum Working Volume (µL), Res. vol. = Residual Volume (µL)

6.2.1 With PE snap ring cap transparent, 6 mm centre hole, hard or soft version

Part no.	11 15 0635	11 15 2106	11 15 0637	11 15 0636	11 15 0650	11 15 2045
Part no. soft cap	11 15 1850	11 15 1983	11 15 1852	11 15 1851	11 15 1853	11 15 2046
Septa material	Nat. rubber red-orange/ TEF transparent	RedRubber/PTFE beige *Instrument manuf. quality*	Silicone white/PTFE red UltraClean	PTFE red/silicone white/ PTFE red	Silicone white/PTFE blue, cross-slit	Silicone white/PTFE red, pre-cut (Y)
Durometer	60° shore A	45° shore A	45° shore A	45° shore A	55° shore A	45° shore A
Thickness	1.0 mm	1.0 mm	1.3 mm	1.0 mm	1.0 mm	1.3 mm
100 pcs. per PE-bag						

6.2.2 With PE snap ring cap blue, 6 mm centre hole, hard or soft version

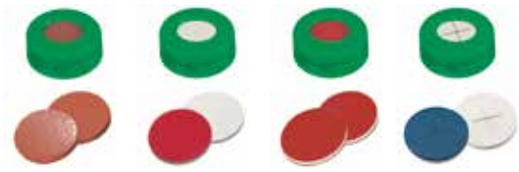


Part no.	11 15 1267	11 15 2107	11 15 1151	11 15 1268	11 15 1269	11 15 2047
Part no. soft cap	11 15 1856	11 15 1817	11 15 1854	11 15 1857	11 15 1858	11 15 2048
Septa material	Nat. rubber red-orange/ TEF transparent	RedRubber/PTFE beige, *Instrument manuf. quality*	Silicone white/PTFE red UltraClean	PTFE red/silicone white/ PTFE red	Silicone white/PTFE blue, cross-slit	Silicone white/PTFE red, pre-cut (Y)
Durometer	60° shore A	45° shore A	45° shore A	45° shore A	55° shore A	45° shore A
Thickness	1.0 mm	1.0 mm	1.3 mm	1.0 mm	1.0 mm	1.3 mm
100 pcs. per PE-bag						

6.2.3 With PE snap ring cap red, 6 mm centre hole, only hard version

Part no.	11 15 1323	11 15 1325	11 15 1324	11 15 1326
Septa material	Nat. rubber red-orange/ TEF transparent	Silicone white/ PTFE red UltraClean	PTFE red/ Silicone white/ PTFE red	Silicone white/ PTFE blue, cross-slit
Durometer	60° shore A	45° shore A	45° shore A	55° shore A
Thickness	1.0 mm	1.3 mm	1.0 mm	1.0 mm
100 pcs. per PE-bag				

6.2.4 With PE snap ring cap green, 6 mm centre hole, only hard version



Part no.	11 15 1555	11 15 2017	11 15 2018	11 15 1794
Septa material	Nat. rubber red-orange/ TEF transparent	Silicone white/ PTFE red UltraClean	PTFE red/ Silicone white/ PTFE red	Silicone white/ PTFE blue, cross-slit
Durometer	60° shore A	45° shore A	45° shore A	55° shore A
Thickness	1.0 mm	1.3 mm	1.0 mm	1.0 mm
100 pcs. per PE-bag				

6.2.5 With PE snap ring cap yellow, 6 mm centre hole, only hard version

Part no.	11 15 1556	11 15 1886	11 15 1677	11 15 1793
Septa material	Nat. rubber red-orange/TEF transparent	Silicone white/ PTFE red UltraClean	PTFE red/ silicone white/ PTFE red	Silicone white/ PTFE blue, cross-slit
Durometer	60° shore A	45° shore A	45° shore A	55° shore A
Thickness	1.0 mm	1.3 mm	1.0 mm	1.0 mm
100 pcs. per PE-bag				

Colored PE snap ring caps are also available with RedRubber/PTFE layer

6.2.6 PE snap cap for snap ring vials ND11 with thinned penetration area

Part no.	11 08 1676	11 08 3960	11 08 3961
Description cap	PE push-on cap, blue	PE Snap cap, blue	PE Snap cap, transparent
Septa material	with thinned penetration point	with thinned penetration area	with thinned penetration area
Durometer			
Thickness			
100 pcs. per PE-bag			

*Approved instrument manufacturer quality

7. Screw neck ND13

The vials are preferentially used on instruments of the following manufacturers: Dionex, Shimadzu, Spark, Varian, VWR (Merck)/Hitachi, Waters (Wisp 48 Position Carousel), etc.

- Vials are packed in a cleanroom in reclosable, tamper-proof evident PP-boxes.
- Any combination of 4 mL crew neck vial ND13 with one of our 13 mm PP screw seals can be obtained as a 2in1 kit
- Upon request barcode labelled vials can also be supplied.
- For storage purposes also available with closed top screw seals.
- Acrylic vial racks with 40 cavities for 4 mL vials

7.1 Screw neck vials ND13 and appropriate micro-inserts

Part no.	13 09 0222	13 09 1335	13 09 0280	13 09 1336	13 19 3423	40 09 0146	40 09 3970	50 13 0147
Description	4 mL screw neck vial, 45 x 14.7 mm, clear glass, 1st hydrol. class	4 mL screw neck vial, 45 x 14.7 mm, clear glass, 1st hydrol. class, label + filling lines	4 mL screw neck vial, 45 x 14.7 mm, amber glass, 1st hydrol. class	4 mL screw neck vial, 45 x 14.7 mm, amber glass, 1st hydrol. class, label + filling lines	2 mL screw neck micro-vial, 45 x 14.7 mm, clear PP	0.3 mL micro-insert, 40 x 6 mm, clear glass, 1st hydrol. class, 15 mm top *Metal spring required*	*0.8 mL micro-insert, 38 x 8 mm, clear glass, 1st hydrol. class,* *With assembled plastic spring*	Spring 50 x 7.5 mm *For micro-insert* 40 09 0146
TFVol. (mL)	5	5	5	5	2.5	0.5	0.95	
UsVol. (mL)	4.1	4.1	4.1	4.1	2	0.4	0.8	
MWVol. (µL)	800	800	800	800	150	40	40	
Res. vol. (µL)	<400	<400	<400	<400	<15	<9	<10	
	100 pcs. per PP-box				100 pcs. per PE-bag	10 x 100 pcs. per PP-box		100 pcs. per PE-bag

7.2 PP screw seals ND13

- Ready to use combination seals; no time-consuming and “tricky” assembly.
- No contamination of the liner with sweat/fat that normally is caused by manual assembly.
- Available as closed or open top screw seals with 13-425 thread.
- Tamper-proof evident and reclosable zip-lock bags ensure product safety.
- Broad variety of different septa materials for almost all applications.

Part no.	13 15 0456	13 15 1639	13 15 0815	13 15 0887	13 15 0292	13 15 1293	13 08 3971	13 15 0439	13 15 1638	13 15 0648
Description cap	Polypropylene screw cap black, 8.5 mm centre hole	Polypropylene screw cap black, 8.5 mm centre hole	Polypropylene screw cap black, 8.5 mm centre hole	Polypropylene screw cap black, 8.5 mm centre hole	Polypropylene screw cap black, 8.5 mm centre hole	Polypropylene screw cap black, 8.5 mm centre hole	Polypropylene screw cap transparent,	Polypropylene screw cap black, closed top	Polypropylene screw cap black, closed top	Polypropylene screw cap black, closed top
Septa material	Nat. rubber red-orange/ TEF transparent	Butyl red/ PTFE grey	Silicone cream/PTFE red	Silicone dark blue/PTFE white	PTFE red/ silicone white/ PTFE red	Silicone white/PTFE blue, cross-slit	With thinned Penetration area PP	Nat. rubber red-orange/ TEF transparent	Butyl red/ PTFE grey	Silicone cream/PTFE red
Durometer	60° shore A	55° shore A	55° shore A	45° shore A	45° shore A	55° shore A		60° shore A	55° shore A	55° shore A
Thickness	1.3 mm	1.3 mm	1.5 mm	1.3 mm	1.0 mm	1.5 mm	0.25 mm	1.3 mm	1.3 mm	1.5 mm
	Further screw seals ND13 with closed/open top caps are available upon request									
	100 pcs. per PE-bag									

TFVol. = Total Volume/Filling Volume (mL), UsVol. = Usable Volume (mL), MWVol. = Minimum Working Volume (µL), Res. vol. = Residual Volume (µL)

7.3 Septa 12 mm





Part no.	12 02 0168	12 02 0223	12 02 1635	12 02 0143	12 02 0463	12 02 0322
Septa material	PTFE virginal	Nat. rubber red-orange/ TEF transparent	butyl red/PTFE grey	Silicone cream/PTFE red	PTFE red/silicone white/ PTFE red	Silicone white/PTFE blue
Durometer	53° shore D	60° shore A	55° shore A	55° shore A	45° shore A	55° shore A
Thickness	0.25 mm *(only unassembled)*	1.3 mm	1.3 mm	1.5 mm	1.0 mm	1.5 mm cross-slit

Further 12 mm septa are available upon request

1000 pcs. per PE-bag

7.4 PP screw caps ND13



Part no.	13 08 0166	13 08 0336	13 08 0639	13 08 0452
Cap	Polypropylene screw cap, black, 8.5 mm centre hole	Polypropylene screw cap, black, closed top	Polypropylene screw cap, white, 8.5 mm centre hole	Polypropylene screw cap, white, closed top

100 pcs. per PE-bag

7.5 Special 2in1 kits

3in1 kits for VWR (Merck)/Hitachi and Waters autosamplers

Part no. 3in1 kit			
13 28 1071	**13 09 0222**	**13 08 0166**	**12 02 0168**
3in1 kit consisting of: 13 09 0222, 13 08 0166, 12 02 0168	4 mL crew neck vial, 45 x 14.7 mm, clear glass, 1st hydrol. class	Polypropylene screw cap, black, 8.5 mm centre hole	PTFE virginal, 53° shore D, 0.25 mm
13 28 1076	**13 09 0280**	**13 08 0166**	**12 02 0168**
3in1 kit consisting of: 13 09 0280 13 08 0166 12 02 0168	4 mL crew neck vial, 45 x 14.7 mm, amber glass, 1st hydrol. class	Polypropylene screw cap, black, 8.5 mm centre hole	PTFE virginal, 53° shore D, 0.25 mm

100 pcs. each in one kit

Other 2in1 kits

Part no. 2in1 kit			
13 28 1067	**13 09 0222**	**13 15 0456**	
2in1 kit consisting of: 13 09 0222, 13 15 0456	4 mL crew neck vial, 45 x 14.7 mm, clear glass, 1st hydrol. class	PP screw cap, black, 8.5 mm centre hole; nat. rubber red-orange/ TEF transparent, 60° shore A, 1.3 mm	
13 28 1069	**13 09 0222**	**13 15 0815**	**13 28 1074**
2in1 kit consisting of: 13 09 0222, 13 15 0815	4 mL crew neck vial, 45 x 14.7 mm, clear glass, 1st hydrol. class	PP screw cap, black, 8.5 mm centre hole; Silicone cream/PTFE red, 55° shore A, 1.5 mm	Same seal in combination with 13 09 0280 *(amber glass)*
13 28 1070	**13 09 0222**	**13 15 0292**	
2in1 kit consisting of: 13 09 0222, 13 15 0292	4 mL crew neck vial, 45 x 14.7 mm, clear glass, 1st hydrol. class	PP screw cap, black, 8.5 mm centre hole; PTFE red/silicone white/PTFE red, 45° shore A, 1.0 mm	
13 28 1541	**13 09 0222**	**13 15 1293**	
2in1 kit consisting of: 13 09 0222 13 15 1293	4 mL crew neck vial, 45 x 14.7 mm, clear glass, 1st hydrol. class	PP screw cap, black, 8.5 mm centre hole; Silicone white/PTFE blue, 55° shore A, 1.5 mm cross-slit	

100 pcs. each in one kit

Further 2in1 kits are available upon request

8. Shell vials

The vials are preferentially used on instruments of the following manufacturers: Alcott, Gilson, Shimadzu, Waters (Wisp 96 respectively 48 position carousel)

- PE-Plugs of 08 14 0513/08 14 0595; 11 14 0544/11 14 0545 and 15 14 0548/
  15 14 0562 may be used for the fixation of a micro-insert; thus no springs are required for their usage.
- For the 1 mL shell vials a plug with and one without insertion barrier for micro-inserts is available. The one without barrier shows a better valve effect with regard to the formation of a vacuum.
- Star-shaped diaphragm enables easy penetration of the PE-Plug.
- 08 14 1168 + 08 14 1169 with soft style plug for Waters and Shimadzu.
- Reco mmended for HPLC usage.
- Shell vials and the appropriate plugs can also be supplied as a 2in1 kit.
- A handy and inexpensive vial/closure combination for uncritical analyses.

8.1 Shell vials 1 mL and 4 mL and appropriate micro-inserts

Part no.	08 14 0641	08 14 3963	08 14 3964	08 14 1168*	08 14 1169*	05 09 0706	15 14 0548	15 14 0562	06 09 0651
Description	1 mL shell vial, 35 x 7.8 mm, clear glass, 1st hydrol. class, 6 mm PE-Plug, transparent, *for ALCOTT*	1 mL shell vial, 40 x 8.2 mm, clear glass, 1st hydrol. class, 8 mm PE-Lamella Plug, easy to penetrante, apply and remove, soft, without insertion barrier	1 mL shell vial, 40 x 8.2 mm, amber glass, 1st hydrol. class,, 8 mm PE-Lamella Plug, easy to penetrante, apply and remove, soft, without insertion barrier	1 mL shell vial, 40 x 8.2 mm, clear glass, 1st hydrol. class, 8 mm PE-Plug, soft, without insertion barrier for micro-insert, transparent *for Waters Wisp 96 Pos. Carousel, Shimadzu*	1 mL shell vial, 40 x 8.2 mm, amber glass, 1st hydrol. class, 8 mm PE-Plug, soft, without insertion barrier for micro-insert, transparent *for Waters Wisp 96 Pos. Carousel, Shimadzu*	0.1 mL micro-insert, 34 x 5 mm, clear glass, 1st hydrol. class, 13 mm top (only in comb. with 08 14 0513 + 08 14 0595)	4 mL shell vial, 44.6 x 14.65 mm, clear glass, 1st hydrol. class, 15 mm PE-Plug, transparent *for Waters Wisp 48 Pos. Carousel*	4 mL shell vial, 44.6 x 14.65 mm, amber glass, 1st hydrol. class, 15 mm PE-Plug, transparent *for Waters Wisp 48 Pos. Carousel*	0.3 mL micro-insert, 43.45 x 6 mm, clear glass, 1st hydrol. class, 13 mm top
TFVol. (mL)	1.1	1.4	1.4	1.4	1.4	0.2	5.5	5.5	0.4
UsVol. (mL)	0.8	1	1	1	1	0.15	4	4	0.3
MWVol. (µL)	60	100	100	100	100	25	1000	1000	50
Res. vol. (µL)	<25	<80	<80	<80	<80	<0.1	<800	<800	<8
	100 pcs. per PP-box (vials) / 100 pcs. per PE-bag (plugs)					10 x 100 pcs. per PP-box	100 pcs. per PP-box (vials) / 100 pcs. per PE-bag (plugs)		10 x 100 pcs. per PP-box

**In case a micro-insert is used in combination with the shell vial, please use 08 14 0513 respectively 08 14 0595, as they have an insertion barrier for micro-inserts. However, please note that flexibility of the plug with insertion barrier is reduced, so that pushing of the plug into the vial as well as penetration is more difficult.*

TFVol. = Total Volume/Filling Volume (mL), UsVol. = Usable Volume (mL), MWVol. = Minimum Working Volume (µL), Res. vol. = Residual Volume (µL)

8.2 Shell vials 2 mL and appropriate micro-inserts





Part no.	11 14 0544	11 14 0545	06 09 0357	06 09 0669	06 09 0866
Description	2 mL shell vial, 31.5 x 11.6 mm, clear glass, 1st hydrol. class, 12 mm PE-Plug, transparent for various instruments	2 mL shell vial, 31.5 x 11.6 mm, amber glass, 1st hydrol. class, 12 mm PE-Plug, transparent for various instruments	0.1 mL micro-insert, 31 x 6 mm, clear glass, 1st hydrol. class, 15 mm top *SILANIZED* *06 09 1240*	0.1 mL micro-insert, 31 x 6 mm, clear glass, 1st hydrol. class, 12 mm top	0.2 mL micro-insert, 31 x 6 mm, clear glass, 1st hydrol. class, flat bottom *SILANIZED* *06 09 1792*
TFVol. (mL)	2.3	2.3	0.34	0.35	0.5
UsVol. (mL)	1.5	1.5	0.25	0.30	0.35
MWVol. (µL)	200	200	30	30	40
Res. vol. (µL)	<100	<100	<4	<4	<8
	100 pcs. per PP-box (vials) / 100 pcs. per PE-bag (plugs)		10 x 100 pcs. per PP-box		

8.3 PP shell vials 1 mL, 3 mL and 4 mL



Part no.	08 34 2194	15 34 2199	15 34 2197
Description	1 mL PP shell vial, 40 x 8 mm, clear; 8 mm PE Plug, transparent	3 mL PP shell vial, 44.6 x 14.65 mm, clear, with inner cone; 15 mm PE Plug, transparent	4 mL PP shell vial, 44.6 x 14.65 mm, clear; 15 mm PE Plug, transparent
TFVol. (mL)	1.28	4.00	5.5
UsVol. (mL)	1.05	3	4
MWVol. (µL)	50	40	1000
Res. vol. (µL)	<25	<8	<800
	100 pcs. per PE-bag (vials) / 100 pcs. per PE-bag (plugs)		

TFVol. = Total Volume/Filling Volume (mL), UsVol. = Usable Volume (mL), MWVol. = Minimum Working Volume (µL), Res. vol. = Residual Volume (µL)

Industrial selection card

This selection targets more than one customer group. Petro and as well other industry customers, where LC and GC is used at 25% HPLC and 75% GC, with a focus on non polar solvents. (Exception: Ion Chromatogrphy, where only water is used as solvent) They deal with small molecules chromatography and the analyte concentration varies (often very low). The matrix can be water, soil, sludge, recycling, fuel, oil, air etc.

In this chapter you will find the most important parts from the following product classes:

- Screw and crimp vials and closures
- Plastic vials
- Headspace vials and closures
- Certified kits
- Vial storage

9 mm screw thread vials and closures

11 09 0519

1.5 mL
short thread vial,
32 x 11.6 mm,
clear glass,
1st hydrol. class,
wide opening,
label and filling lines

11 09 0520

1.5 mL
short thread vial,
32 x 11.6 mm,
amber glass,
1st hydrol. class,
wide opening,
label and filling lines

11 09 2746

1.5 mL
short thread SureStop vial,
32 x 11.6 mm,
clear glass,
1st hydrol. class,
wide opening,
with overwind-barrier

09 15 1819

9 mm combination seal:
PP short thread cap,
blue, with centre hole;
RedRubber/PTFE beige,
45° shore A,
1.0 mm

09 15 0838

UltraClean closure:
9 mm PP short thread cap,
blue, centre hole;
silicone white/PTFE red,
55° shore A,
1.0 mm

09 15 0869

9 mm combination seal:
PP short thread cap,
blue, centre hole;
silicone white/PTFE blue,
55° shore A,
1.0 mm,
slit

CERT kits

11 40 2556

HPLC/GC certified vial kit:
1.5 mL short thread vial,
clear glass,
1st hydrol. class, label;
UltraClean closure:
9 mm PP short thread cap,
blue, centre hole;
silicone white/PTFE red,
55° shore A,
1.0 mm

11 40 2557

HPLC/GC certified vial kit:
1.5 mL short thread vial,
amber glass,
1st hydrol. class, label;
UltraClean closure:
9 mm PP short thread cap,
blue, centre hole;
silicone white/PTFE red,
55° shore A,
1.0 mm

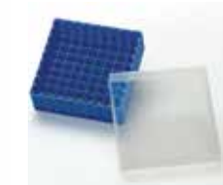
Racks/tools

11 06 0006

11 mm crimper

20 06 0008

20 mm crimper



12 21 2420

PP storage box
for 1.5 mL
1.8 mL, 2 mL)
vials or 2 mL shell vials,
blue, with cover
(130 x 130 x 45 mm),
81 cavities with
alphanumeric coding of all
4 margins as well as the
cavities at the bottom

Crimp vials and closures

11 09 0476

1.5 mL crimp neck vial,
32 x 11.6 mm, clear glass,
1st hydrol. class,
wide opening,
label and filling lines

11 09 0477

1.5 mL crimp neck vial,
32 x 11.6 mm, amber glass,
1st hydrol. class,
wide opening,
label and filling lines

11 03 0209

11 mm combination seal:
aluminum cap, clear lacquered,
centre hole;
natural rubber red-orange/TEF
transparent, 60° shore A, 1.0 mm

11 03 1875

11 mm combination seal:
aluminum cap, clear lacquered,
with centre hole;
RedRubber/PTFE beige,
45° shore A, 1.0 mm

11 03 0247

UltraClean closure:
11 mm aluminum cap,
clear lacquered,
centre hole;
silicone white/PTFE red,
45° shore A, 1.3 mm

Headspace vials and closures

18 09 1307

20 mLprecision thread
headspace-vial,
75.5 x 22.5 mm,
clear glass,
1st hydrol. class,
rounded bottom
(for magnetic screw caps)

18 03 1309

UltraClean closure:
18 mm magnetic
universal screw cap,
silver, centre hole;
silicone transparent blue/PTFE white,
45° shore A,
1.3 mm

20 09 0873

20 mL headspace-vial,
75.5 x 22.5 mm, clear
glass,
1st hydrol. class,
DIN crimp neck,
long neck,
rounded bottom

20 03 0142

UltraClean closure:
20 mm aluminum cap,
plain, centre hole;
silicone transparent blue/PTFE white,
45° shore A,
3.0 mm

20 03 0975

UltraClean closure:
20 mm magnetic cap, gold
lacquered, 8 mm centre hole;
silicone transparent blue/PTFE
transparent,
45° shore A,
3.0 mm

Plastic vials

11 19 1205

1.5 mL PP
short thread vial,
32 x 11.6 mm,
transparent,
with filling lines

11 19 1706

0.7 mL PP
short thread micro-vial,
32 x 11.6 mm,
transparent

11 19 0932

0.3 mL PP
short thread micro-vial,
32 x 11.6 mm,
transparent

EPA/storage

24 09 0589

20 mL EPA crew neck vial,
57 x 27.5 mm,
clear glass, 1st hydrol.
class

24 09 0402

40 mL EPA crew neck vial,
95 x 27.5 mm,
clear glass, 1st hydrol.
class

24 15 1163

24 mm combination seal:
PP screw cap,
white, centre hole;
Silicone white/PTFE beige,
45° shore A, 3.2 mm,
EPA-quality

9. Headspace ND20 (ND18)

Chapter 9 “Headspace” of our catalogue has been completely redesigned, in order to simplify the identification of suitable consumables for a certain instrument. Especially in headspace this is extremely difficult, as besides numerous vial types there are also different cap types required depending on the autosampler.

While you can take the suitable vial type for the different instrument manufacturers from the upper part of the double paged chart, you’ll find the appropriate reco mmended closures in the middle section.

The various cap types that have to be considered are color-coded. At the bottom of the page a break-down of the indicated part numbers according to the color-coded cap types and the different septa materials is listed. For better illustration of the septa type you’ll find on page 49 photographs and article descriptions.

Important safety tip

As headspace vials have to withstand high internal pressure, almost all vials on the next page have a wall thickness of 1.2 mm. Thus it is guaranteed that the vial will not burst. Contrary to a widely spread opinion, the seal and not the vial represents the weakest part of the whole sytem. Under pressure the septa will bulge against the aluminum cap with such a force that the cap is torn apart. By own testing we varified that e.g. our PerkinElmer vial 20 09 0297 can easily withstand 10 bars or more while the seal is torn apart at around 10 bars when no pressure release system – like our headspace cap – is used.

Headspace vials might differ in

- **Volume (5 mL, 10 mL, 20 mL)**
- **Rounded or flat bottom**

  A rounded bottom is more sturdy and thus more resistant to the high pressure within the vial during the heating process. Furthermore the vial slides more easily into the heating block when being transported by a magnet. A flat bottom might be necessary when vials have to run within the instrument on a slightly downwards tendency.
- **Bevelled top or flat DIN crimp neck/screw neck**

  A bevelled top headspace neck might be required for some special closure systems (PerkinElmer), however, a liner has more surface to lie on with a flat DIN crimp neck. The more surface for the liner to rest on, the tighter the seal.

  Length of the neck (instrument specific)
- **Clear/amber glass**
- **With/without label and filling lines**
- **Upon request with a barcode label**

Headspace closures might differ in

- **Type of cap**

  Centre hole crimp cap, headspace cap, centre tear off cap, complete tear off cap, magnetic crimp cap with 5 mm or 8 mm centre hole, bimetal cap, magnetic screw cap (with 8 mm centre hole or closed top), PP screw cap, PE Ccap. screw caps are a novelty in the crimp neck dominated headspace area. However, they represent a ready to use, convenient solution, that does not require any additional tools (crimpers, decappers). Thus samples can be taken and sealed out in the field without the necessity of sample transfer later in the lab. The magnetic screw seals can be used universally for headspace as well as for SPME.
- **Type of liner**

  Butyl, butyl/PTFE, pharma-fix-liner (butyl/PTFE), silicone/ PTFE, silicone/aluminum foil, viton, natural rubber/TEF

  Besides the material the liners may differ in thickness, hardness (° shore A), color, type of PTFE lamination, grade of silicone (UltraClean).

9.1 Headspace-vials ND20 + ND18

Part no.	20 09 0342	20 09 0801	20 09 1405 20 09 1691	20 09 0802	20 09 0795	20 09 0297 20 09 1223	20 09 0440
Description	5 mL headspace-vial, 38.2 x 22 mm, clear glass, 1st hydrol. class, rounded bottom	5 mL crimp neck vial, 38 x 20 mm, clear glass, 1st hydrol. class, flat bottom	10 mL headspace-vial, 46 x 22.5 mm, clear/amber glass, 1st hydrol. class, DIN-crimp neck, rounded bottom	10 mL crimp neck vial, 54.5 x 20 mm, clear glass, 1st hydrol. class, flat bottom	10 mL headspace-vial, 46 x 22.5 mm, clear glass, 1st hydrol. class, DIN-crimp neck, long neck, flat bottom	20 mL headspace-vial, 75.5 x 23 mm, clear/amber glass, 1st hydrol. class, rounded bottom	20 mL headspace-vial, 75.5 x 23 mm, clear glass, 1st hydrol. class, rounded bottom, label + filling lines
TFVol. (mL)	9.4	8	12.3	12.2	11.7	22	22.4
UsVol. (mL)	5	5	10	10	10	20	20
MWVol. (µL)	1500	1500	1500	1500	1500	1500	1500
Res. vol. (µL)	800	800	800	800	800	800	800
			100 pcs. per PP-box				
	Perkin Elmer	*Varian*	*Carlo Erba, CTC, Fisons, Varian (CP)*	*Varian*	*Carlo Erba, Dani, Fisons, Agilent*	*Perkin Elmer, Tekmar*	*Perkin Elmer, Tekmar*

Part no.	20 09 3175	20 09 0796	20 09 0873 20 09 1690	20 09 1222	18 09 1306 18 09 1310	18 09 1307 18 09 1311
Description	20 mL headspace-vial, 75.5 x 22.75 mm, clear glass, 1st hydrol. class, bevelled crimp neck, long neck, flat bottom	20 mL headspace-vial, 75.5 x 22.5 mm, clear glass, 1st hydrol. class, DIN-crimp neck, long neck, flat bottom	20 mL headspace-vial, 75.5 x 22.5 mm, clear/amber glass, 1st hydrol. class, DIN-crimp neck, long neck, rounded bottom	20 mL SPME vial, 75.5 x 22.5 mm, clear glass, 1st hydrol. class, rounded bottom, special crimp neck	10 mL precision thread vial ND18, 46 x 22.5 mm, clear/amber glass, 1st hydrol. class, rounded bottom	20 mL precision thread vial ND18, 75.5 x 22.5 mm, clear/amber glass, 1st hydrol. class, rounded bottom
TFVol. (mL)	21.2	21.2	20.9	21.2	10.8	20.6
UsVol. (mL)	20	20	20	20	8	18
MWVol. (µL)	1500	1500	1500	1500	1500	1500
Res. vol. (µL)	800	800	800	800	800	800
			100 pcs. per PP-box			
	Agilent	*Carlo Erba, Dani, Fisons, Agilent*	*CTC PAL (Varian, Gerstel, Atas, Shimadzu), TriPlus HS*	*SPME vial for CTC PAL*	*CTC PAL (Varian, Gerstel, Atas, Shimadzu, Agilent)*	*CTC PAL (Varian, Gerstel, Atas, Shimadzu, Agilent)*

TFVol. = Total Volume/Filling Volume (mL), UsVol. = Usable Volume (mL), MWVol. = Minimum Working Volume (µL), Res. vol. = Residual Volume (µL)

9.2 Headspace vials + closures ND20 + ND18 (Headspace compatibility chart)

Scale 1:3
Original size p.s. 95





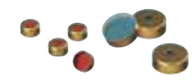

Part no.	20 09 0795	20 09 0796 20 09 3175	20 09 1405 20 09 1691	20 09 0873 20 09 1690	20 09 1222	18 09 1306 18 09 1310
Description	10 mL headspace-vial, flat bottom 46 x 22.5 mm	20 mL headspace-vial, flat bottom 75.5 x 22.5 mm	10 mL headspace-vial, rounded bottom 46 x 22.5 mm	20 mL headspace-vial, rounded bottom 75.5 x 22.5 mm	20 mL SPME vial, rounded bottom 75.5 x 22.5 mm	10 mL Precision thread vial, rounded bottom 46 x 22.5 mm
For use on instruments	Agilent, Carlo Erba, DANI, Fisons	Agilent, Carlo Erba, DANI, Fisons	Carlo Erba, CTC PAL (Varian, Gerstel, Atas, Shimadzu), Fisons, Varian, Thermo Scientific	CTC PAL (Varian, Gerstel, Atas, Shimadzu) Thermo Scientific TriPlus HS ***	SPME vial for CTC PAL	CTC Combi PAL (Varian, Gerstel, Atas, Shimadzu), PerkinElmer*, Agilent
Remarks	***not suitable for Thermo Scientific HS250/HS500					
Autosampler compatibility						
Agilent G1888A, Agilent HS 7694 (DANI HS 39.50/HS 86.50)	20 03 0030/20 03 0901 20 03 0264/20 03 0828	20 03 0030/20 03 0901 20 03 0264/20 03 0828				
Agilent CTC Combi Pal						
CTC Combi PAL (HS Mode) (Gerstel MPS 2/Varian) CTC PAL HTC-xt, CTC HTS-xt, CTC HTX-xt, CTC PAL Combi-xt liquid Mode, CTC Combi.xt HS Option, CTC GC-xt HS Option			20 03 0975 / 20 03 1536	20 03 0975 / 20 03 1536		18 03 1578/18 03 1309 18 03 1414
CTC Combi PAL (SPME Mode) (Gerstel MPS 2/Varian) CTC Combi- xt SPME Options					20 03 1246/ 20 03 1264	18 03 1578/18 03 1309 18 03 1414/18 03 2063
CTC HS 500			20 03 0665	20 03 0665		
HTA HT200H	20 03 0142/ 20 03 0901			20 03 0142/ 20 03 0901		
PerkinElmer HS6						
PerkinElmer HS40/HS100/ HS101						
TurboMatrix™ HS16/HS40/ HS40XL/HS40 Trap/HS110/ HS110 Trap						
Shimadzu AOC-5000 (HS Mode) Shimdazu SIL-30 ACMP			20 03 0975 / 20 03 1536	20 03 0975 / 20 03 1536		18 03 1578/18 03 1309 18 03 1414
Shimadzu AOC-5000 (SPME Mode)					20 03 1246/20 03 1264	18 03 1578/18 03 1309 18 03 1414/18 03 2063
Thermo Scientific HS250/HS500 (Carlo Erba/Fisons/Thermo Scientific)			20 03 0711/20 03 0665/ 20 03 0710			
Thermo Scientific HS800 (Carlo Erba/Fisons/Thermo Scientific)			20 03 0711/20 03 0665/ 20 03 0710	20 03 0711/20 03 0665/ 20 03 0710		
Thermo Scientific HS850 (Carlo Erba/ Fisons/ Thermo Scientific)			20 03 0142/20 03 0901/ 20 03 0127/20 03 0030/ 20 03 0059	20 03 0142/ 20 03 0901/20 03 0127/ 20 03 0030/20 03 0059		
Thermo Scientific HS2000, Thermo Scientific TriPlus (HS Mode), Thermo Scientific TriPlus 300, Thermo Scientific TriPlus RSH			20 03 0142/20 03 0901/ 20 03 0127/20 03 0030/ 20 03 0059	20 03 0142/20 03 0901/ 20 03 0127/20 03 0030/ 20 03 0059		
Thermo Scientific TriPlus (SPME Mode)			20 03 0142/ 20 03 0901	20 03 0142/ 20 03 0901		
Tekmar HT 3						
Varian CP-9020/9025, CP-9060 Varian Genesis		same closures for Genesis	20 03 0142/20 03 0901/ 20 03 0030/20 03 0059			

Breakdown headspace-seals

Aluminum crimp cap, plain, 10 mm centre hole

Headspace-cap, clear lacquered (pressure release cap)

Magnetic crimp cap, gold, 5 mm centre hole



20 03 0127	**20 03 0126**	**20 03 0711**
with butyl, dark grey, 55° shore A, 3.0 mm	with butyl, dark grey, 55° shore A, 3.0 mm	with butyl, dark grey, 55° shore A, 3.0 mm
20 03 0059	**20 03 0112**	**20 03 0710**
with butyl/PTFE, grey, 50° shore A, 3.0 mm	with butyl/PTFE, grey, 50° shore A, 3.0 mm	with pharma-fix-septa, butyl/PTFE, 50° shore A, 3.0 mm
20 03 0030	**20 03 0264**	**20 03 0665**
with pharma-fix-septa, butyl/PTFE, 50° shore A, 3.0 mm	with pharma-fix-septa, butyl/PTFE, 50° shore A, 3.0 mm	with silicone blue transp./PTFE transp., 45° shore A, 3.0 mm
20 03 0142	**20 03 0163**	
with silicone blue transp./PTFE white, 45° shore A, 3.0 mm	with silicone blue transp./PTFE white, 45° shore A, 3.0 mm	
20 03 0901	**20 03 0828**	
with silicone white/PTFE beige, 45° shore A, 3.2 mm	with silicone white/PTFE beige, 45° shore A, 3.2 mm	
20 03 0327	**20 03 0326**	
with silicone white/Aluminum foil silver, 50° shore A, 3.0 mm	with silicone white/aluminum foil silver, 50° shore A, 3.0 mm	





18 09 1307 18 09 1311	20 09 0342	20 09 0297 20 09 1223	20 09 0440	20 09 0801 20 09 0802
20 mL Precision thread vial, rounded bottom 75.5 x 22.5 mm	5 mL headspace-vial, rounded bottom 38.2 x 22 mm	20 mL headspace-vial, rounded bottom 75.5 x 23 mm	20 mL headspace-vial, rounded bottom 75.5 x 23 mm	5 mL/10 mL Crimp neck vial, flat bottom 38 x 20 mm/54.5 x 20 mm
CTC Combi PAL (Varian, Gerstel, Atas, Shimadzu), PerkinElmer*, Agilent	PerkinElmer**	PerkinElmer, Tekmar	PerkinElmer, Tekmar	Varian
*for TurboMatrix™ 16, 40 and 110, produced after the 01.09.2006 / ** not suitable for TurboMatrix™ 110				
Autosampler Compatibility				
18 03 1414 (only for G1888A)				
18 03 1414				
18 03 1578/18 03 1309 18 03 1414				
18 03 1578/18 03 1309 18 03 1414/18 03 2063				
	20 03 0126/20 03 0112 20 03 0264/20 03 0163 20 03 0326/20 03 0828			
	20 03 0127/20 03 0059 20 03 0030/20 03 0142 20 03 0327/20 03 0901			
	see PerkinElmer HS6	see PerkinElmer HS6	see PerkinElmer HS6	
18 03 1309/ 18 03 1416 18 03 1874	see PerkinElmer HS6	see PerkinElmer HS6	see PerkinElmer HS6	
18 03 1578/ 18 03 1309 18 03 1414				
18 03 1578/ 18 03 1309 18 03 1414/ 18 03 2063				
		20 03 0030/20 03 0059 20 03 0142/20 03 0901	20 03 0030/20 03 0059 20 03 0142/20 03 0901	

20 02 0122
Moulded septa butyl, dark grey, 55° shore A, 3.0 mm

20 10 0290
20 mm butyl Injection Stopper, grey rec. by PerkinElmer

20 02 0057
Moulded septa butyl/PTFE, grey, 50° shore A, 3.0 mm

17 02 1580
Silicone white/PTFE red, 45° shore A, 1.3 mm

20 02 0035
Pharma-Fix-Septa (butyl/PTFE), 50° shore A, 3.0 mm

17 02 1417
Silicone blue transparent/PTFE white, 45° shore A, 1.3 mm

20 02 0141
Silicone blue transp./ PTFE white, 45° shore A, 3.0 mm

17 02 1318
Silicone white/ PTFE blue, 55° shore A, 1.5 mm

20 02 2054
Silicone blue transp./ PTFE transp., 45° shore A, 3.0 mm

17 02 1415
butyl red/PTFE grey, 55° shore A, 1.6 mm

20 02 0638
Silicone white/PTFE beige, 45° shore A, 3.2 mm (HT quality)

17 02 1873
Silicone white/ aluminum foil silver, 50° shore A, 1.3 mm

20 02 0335
Silicone white/ Aluminum foil silver, 50° shore A, 3.0 mm

Vials:	100 pcs. per PP-box
Closures:	100 pcs. per PE-bag
Septa:	1.000 pcs. per PE-bag
Stoppers:	100 pcs. per PE-bag

Breakdown headspace-seals

Magnetic crimp cap, gold, 8 mm centre hole

Magnetic bimetal-cap, red/silver, 8 mm centre hole

Magn. precision thread screw cap, silver, 8 mm centre hole

20 03 0975	20 03 1536	18 03 1416
with silicone blue transp./PTFE transparent, 45° shore A, 3.0 mm	with silicone blue transparent/PTFE transparent, 45° shore A, 3.0 mm	with butyl red/PTFE grey, 55° shore A, 1.6 mm
		18 03 1309
		with silicone blue transp./PTFE white, 45° shore A, 1.3 mm
20 03 1246		18 03 1578
with silicone white/PTFE blue, 55° shore A, 1.5 mm		with silicone white/PTFE red, 45° shore A, 1.3 mm
20 03 1264		18 03 1414
with viton black, 70° shore A, 1.0 mm		with silicone white/PTFE blue, 55° shore A, 1.5 mm
		18 03 2063
		with silicone white/PTFE red, 55° shore A, 1.5 mm, pre-cut star for SPME
		18 03 1874
		Silicone white/aluminum foil silver, 50° shore A, 1.3 mm

9.3 Other crimp neck vials ND20 and crew neck vial ND18

Scale 1:2, original size: P. 95

Scale 1:2, original size: P. 95

Scale 1:2

Part no.	20 09 0289	20 09 0343	18 09 0864
Description	50 mL crimp neck vial, 101 x 31 mm, clear glass, 1st hydrol. class	100 mL crimp neck vial, 94.5 x 51.6 mm, clear glass, 3rd hydrol. class	20 mL headspace-vial, 75.5 x 23 mm, clear glass, 1st hydrol. class, rounded bottom, with screw thread ND18 *Perkin Elmer*
TFVol. (mL)	58	118.8	21.2
UsVol. (mL)	50	100	20
MWVol. (µL)	3080	10 000	1500
Res. vol. (µL)	1500	6000	800
	100 pcs. per PP-box	88 pcs. shrink-wrapped	100 pcs. per PP-box

9.4 Aluminum crimp seals ND20

Overview of the various crimp caps, which can be obtained with a broad variety of different liners

Centre hole cap	Headspace cap	Centre tear-off cap	Complete tear-off cap	Magnetic crimp cap	Magnetic crimp cap	Magnetic bimetal crimp cap
						
Plain, red, blue, gold, green 10 mm centre hole	Clear lacquered, scorelines break open at 3.0 ± 0.5 bar for pressure release	Clear lacquered, red, blue, gold, green	Clear lacquered, red, blue, gold, green	Gold, 5 mm centre hole RSH, PAL	Gold, 8 mm centre hole RSH, PAL	Red, 8 mm centre hole RSH, PAL

Any type of cap can only be obtained in combination with a liner or a stopper

9.4.1 Butyl seals

- Temperature resistant from -40°C up to 120°C.
- Due to the missing PTFE lamination only suitable for uncritical analyses.
- Low-cost product.

Part no.	20 03 0127	20 03 0126	20 03 0195	20 03 0212	20 03 0711	20 03 1157
Description cap	Aluminum cap, plain, 10 mm centre hole	Headspace cap, clear lacquered	Centre tear-off cap, clear lacquered	Complete tear-off cap, clear lacquered	Magnetic cap, gold, 5 mm centre hole	Magnetic cap, gold, 8 mm centre hole
Septa material	Chloro-butyl, dark grey					
Durometer	55° shore A					
Thickness	3.0 mm					
	100 pcs. per PE-bag					

TFVol. = Total Volume/Filling Volume (mL), UsVol. = Usable Volume (mL), MWVol. = Minimum Working Volume (µL), Res. vol. = Residual Volume (µL)

9.4.2 Butyl/PTFE seals (completely PTFE laminated)

- Temperature resistant from -40°C up to 120°C.
- Completely laminated with PTFE.

Part no.	20 03 0059	20 03 0112	20 03 0194	20 03 0186	20 03 0698	20 03 1186	20 03 1623
Description cap	Aluminum cap, plain, 10 mm centre hole	Headspace cap, clear lacquered	Centre tear-off cap, clear lacquered	Complete tear-off cap, clear lacquered	Magnetic cap, gold, 5 mm centre hole	Magnetic cap, gold, 8 mm centre hole	Magnetic bimetal cap, red, 8 mm centre hole
Septa material	Bromo-butyl/PTFE, grey						
Durometer	50° shore A						
Thickness	3.0 mm						
100 pcs. per PE-bag							

9.4.3 Pharma-fix seals (butyl/PTFE)

- Special, moulded butyl/PTFE liner that is only laminated with PTFE in the contact area towards the sample. On the glass rims the elastic butyl achieves a very tight seal.
- Temperature resistant from -40°C up to 120°C.
- Tighter alternative to the completely laminated butyl/PTFE liners (see chapter 10.3.2).

Part no.	20 03 0030	20 03 0264	20 03 0060	20 03 0061	20 03 0710	20 03 1200
Description cap	Aluminum cap, plain, 10 mm centre hole	Headspace cap, clear lacquered	Centre tear-off cap, clear lacquered	Complete tear-off cap, clear lacquered	Magnetic cap, gold, 5 mm centre hole	Magnetic cap, gold, 8 mm centre hole
Septa material	Pharma-Fix-Septa, bromo-butyl/PTFE					
Durometer	50° shore A					
Thickness	3.0 mm					
100 pcs. per PE-bag						

9.4.4 Silicone/PTFE seals (completely PTFE laminated)

- Temperature resistant from -60°C up to 200°C.
- Clean/*UltraClean* liners for sensitive analyses.
- White/beige liner corresponds to competitor HT liner.
- Completely laminated with PTFE.
- Soft liners for easy penetration.

Part no.	20 03 0142	20 03 0163	20 03 0226	20 03 0227	20 03 0665	20 03 0975	20 03 1536
Description cap	Aluminum cap, plain, 10 mm centre hole	Headspace cap, clear lacquered	Centre tear-off cap, clear lacquered	Complete tear-off cap, clear lacquered	Magnetic cap, gold, 5 mm centre hole	Magnetic cap, gold, 8 mm centre hole	Magnetic bimetal cap, red, 8 mm centre hole
Septa material	Silicone blue transparent/PTFE white UltraClean				Silicone blue transparent/PTFE transparent UltraClean		
Durometer	45° shore A				45° shore A		
Thickness	3.0 mm				3.0 mm		
100 pcs. per PE-bag							

Part no.	20 03 0901	20 03 0828	20 03 1785	20 03 1604
Description cap	Aluminum cap, plain, 10 mm centre hole	Headspace cap, clear lacquered	Magnetic cap, gold, 8 mm centre hole	Magnetic bimetal cap, red, 8 mm centre hole
Septa material	Silicone white/PTFE beige *(HT quality)*			
Durometer	45° shore A			
Thickness	3.2 mm			
100 pcs. per PE-bag				

9.4.5 Silicone/aluminum foil seals

- Temperature resistant from -60°C up to 220°C.
- Often used on PerkinElmer instruments.
- Completely laminated with aluminum foil silver.



Part no.	20 03 0327	20 03 0326	20 03 0670
Description cap	Aluminum cap, plain, 10 mm centre hole	Headspace cap, clear lacquered	Magnetic cap, gold, 5 mm centre hole
Septa material	Silicone white/aluminum foil silver		
Durometer	50° shore A		
Thickness	3.0 mm		
100 pcs. per PE-bag			

9.4.6 Ultra high temperature (UHT) seal

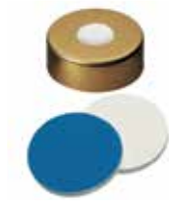
(silicone/PTFE)

- High temperature, high quality silicone/PTFE septum for less extractables at low to mid-high temperatures.
- Operation up to 300°C possible.
- Low bleeding level at high temperatures (>120°C).

Part no.	20 03 3056
Description cap	Ultra high temperature seal: 20 mm steel crimp cap, silver, with 5 mm centre hole
Septa material	Ultra high temperature septa (UHT) 20 mm silicone dark red/PTFE UltraClean
Durometer	45° shore A
Thickness	3.0 mm
100 pcs. per PE-bag	

9.4.7 Magnetic seals for SPME-vial 20 09 1222 for CTC

- Special silicone/PTFE liner with an only 0.05 mm thin casted teflon film instead of 0.13 mm skived PTFE lamination that is standard for any other 20 mm headspace liner. Thus penetration is even easier, as PTFE is the hardest part to penetrate.
- These Special products should only be used in combination with the SPME-Vial 20 09 1222 which has a much thicker crimp neck than all standard headspace vials.
- Much thinner liners for easier penetration of the sensitive phase.



Part no.	20 03 1246
Description cap	Magnetic cap, gold, 8 mm centre hole
Septa material	Silicone white/PTFE blue UltraClean
Durometer	55° shore A
Thickness	1.5 mm
100 pcs. per PE-bag	

9.4.8 Magnetic SPME seals for standard headspace-vials

- Standard 3 mm septa thickness at the crimp border for conveniant crimp process with standard headspace vials and crimper.
- With thinned penetration area in the center (still silicone faced) for easy penetration and excellent resealing.

Part no.	20 03 3467	20 03 3468
Description cap	Magnetic cap, gold, 8 mm centre hole	Magnetic bimetal cap, red, 8 mm centre hole
Septa material	Silicone white/ PTFE blue, thinned center	Silicone white/ PTFE blue, thinned center
Durometer	55° shore A	55° shore A
Thickness	3.0/1.5 mm	3.0/1.5 mm
100 pcs. per PE-bag		

9.5 Septa/stoppers 20 mm

Part no.	20 02 0122	20 02 0057	20 02 0035	20 02 0141	20 02 2054	20 02 0638
Septa material	Moulded septa butyl, dark grey,	Moulded septa butyl/PTFE, grey,	Pharma-Fix-Septa (butyl/PTFE),	Silicone blue transp./ PTFE white,	Silicone blue transp./ PTFE transparent,	Silicone white/ PTFE beige, (HT quality)
Durometer	55° shore A	50° shore A	50° shore A	45° shore A	45° shore A	45° shore A
Thickness	3.0 mm	3.0 mm	3.0 mm	3.0 mm	3.0 mm	3.2 mm
			Further 20 mm septa available upon request			
			Septa – 1000 pcs. per PE-bag /stopper – 100 pcs. per PE-bag			

Part no.	20 02 0335	20 10 0290	20 10 3972	20 10 3962
Septa material	Silicone white/ Aluminum foil silver,	20 mm butyl Injection Stopper, grey rec. by PerkinElmer	20 mm bromo butyl freeze drying stopper	20 mm bromo butyl Injection stopper, dark grey
Durometer	50° shore A			
Thickness	3.0 mm			
	Further 20 mm septa available upon request			
	Septa – 1000 pcs. per PE-bag / Stopper – 100 pcs. per PE-bag			

9.6 Other combination seals for HS-neck/crimp neck ND20

- Seals for washer bottles on the instruments.
- Now also available as PE-Cap with 8 mm hole.
- Intermediate closure when collecting samples out in the field.

Part no.	22 15 0321	22 15 1697	22 15 0712	22 15 0863	22 15 1646	22 15 1334	22 15 1824	22 15 1869
Description cap	PE-cap, transparent, 22 x 8.4 mm, 4.3 mm centre hole			PE-cap, transparent, 22 x 9.1 mm, 4.3 mm centre hole				PE-cap, transparent, 22 x 9.1 mm, 8.0 mm centre hole
Septa material	Nat. rubber red-orange/TEF transparent	butyl red/PTFE grey	Silicone blue transparent/PTFE white	Nat. rubber red-orange/TEF transparent	butyl red/PTFE grey	Silicone blue transparent/PTFE white	Silicone blue transparent/PTFE white, Y-slit	Silicone blue transparent/PTFE white, Y-slit
Durometer	60° shore A	55° shore A	45° shore A	60° shore A	55° shore A	45° shore A	45° shore A	45° shore A
Thickness	1.3 mm							
	suitable for 20 09 0297, 20 09 0342, 20 09 0440, 20 09 1223			*suitable for 20 09 0289, 20 09 0343, 20 09 0795, 20 09 0796, 20 09 0801, 20 09 0802, 20 09 0873, 20 09 1405, 20 09 1690, 20 09 1691*				
	100 pcs. per PE-bag							

9.6.1 Septa 19.5 mm

Part no.	19 02 0245	19 02 1636	19 02 0693
Septa material	Nat. rubber red-orange/ TEF transparent,	butyl red/PTFE grey,	Silicone blue transparent/ PTFE white,
Durometer	60° shore A	55° shore A	45° shore A
Thickness	1.3 mm	1.3 mm	1.3 mm
	1000 pcs. per PE-bag		

9.6.2 Headspace wash kit

- Convenient “all in one” solution for PAL autosampler.
- Reproducible syringe clean up.
- Improved sealing, less evaporation or contamination of wash solvents.
- Easy to apply caps.

Part no.	20 33 3392
	10 mL vials with easy to apply Y-slit caps
	25 pcs. vials and caps per PP Box

9.7 Magnetic universal screw seals ND18

(for precision thread vials 18 09 1306, 18 09 1310, 18 09 1307, 18 09 1311 for CTC, Agilent, Shimadzu, Varian, Gerstel, PerkinElmer etc.)

- 18 03 1309 and 18 03 1414 have been tested and approved by CTC.
- Closed top versions for sample storage.
- Precision thread vials and closures now also used on PerkinElmer TurboMatrix 16, 40 and 110 autosampler that have been constructed after 01.09.2006.
- 18 03 2063 especially suitable for SPME due to the pre-cut septa.

Part no.	18 03 1578	18 03 1309	18 03 1414	18 03 1416	18 03 2063	18 03 1666	18 03 1667
Description cap	Magnetic screw cap silver, 8 mm centre hole				Magnetic screw cap silver, 8 mm centre hole (SPME)	Magnetic screw cap silver, closed top	
Septa material	Silicone white/ PTFE red UltraClean	Silicone blue transparent/PTFE white UltraClean	Silicone white/ PTFE blue UltraClean	Butyl red/PTFE grey	Silicone white/ PTFE red, pre-cut star (*)	Silicone white/PTFE red UltraClean	Butyl red/PTFE grey
Durometer	45° shore A	45° shore A	55° shore A	55° shore A	55° shore A	45° shore A	55° shore A
Thickness	1.3 mm	1.3 mm	1.5 mm	1.6 mm	1.5 mm	1.3 mm	1.6 mm

These screw seals are not suitable for article number 18 09 0864

100 pcs. per PE-bag

9.7.1 Septa 17.5 mm for magnetic universal screw seals ND18

Part no.	17 02 1580	17 02 1417	17 02 1318	17 02 1415
Septa material	Silicone white/ PTFE red	Silicone blue transparent/PTFE white	Silicone white/ PTFE blue	butyl red/ PTFE grey
Durometer	45° shore A	45° shore A	55° shore A	55° shore A
Thickness	1.3 mm	1.3 mm	1.5 mm	1.6 mm

1000 pcs. per PE-bag

9.7.2 mMagnetic universal screw seals for SPME application

- Standard 2 mm septa thickness at the border for a tight seal with precision thread ND 18 vials.
- with thinned penetration area in the center for easy penetration and excellent resealing.

Part no.	18 03 3469
Septa material	Magnetic cap, silver, 8 mm centre hole Silicone white/PTFE blue, thinned centre
Durometer	55° shore A
Thickness	2.0/1.5 mm

1000 pcs. per PE-bag

9.8 PP screw seals ND18 for 18 09 0864

Part no.	18 15 1386	18 15 1387	18 15 1398	18 15 1544	18 15 2102	18 15 2069	18 15 0871
Description cap	Polypropylene Screw cap black, 12 mm centre hole	Polypropylene Screw cap black, closed top	Polypropylene Screw cap black, 12 mm centre hole	Polypropylene Screw cap black, closed top	Polypropylene Screw cap black, 12 mm centre hole	Polypropylene Screw cap black, closed top	Polypropylene Screw cap black, 12 mm centre hole
Septa material	Butyl red/PTFE grey				Silicone white/PTFE red		Silicone blue transparent/PTFE white
Durometer	55° shore A	55° shore A	55° shore A	55° shore A	55° shore A	55° shore A	45° shore A
Thickness	1.6 mm	1.6 mm	2.0 mm	2.0 mm	1.5 mm	1.5 mm	1.7 mm

Further screw seals ND18 with closed/open top caps are available upon request

100 pcs. per PE-bag

These screw seals are not suitable for article numbers 18 09 1306, 18 09 1307, 18 09 1310, 18 09 1311

9.8.1 Septa 16 mm

Part no.	16 02 0653	16 02 1384	16 02 1385	16 02 2068	16 02 0870	16 02 0705
Septa material	Nat. rubber red-orange/ TEF transparent	Butyl red/PTFE grey	Butyl red/PTFE grey	Silicone white/PTFE red	Silicone blue transp./ PTFE white	PTFE red/silicone white/ PTFE red
Durometer	60° shore A	55° shore A	55° shore A	55° shore A	45° shore A	45° shore A
Thickness	1.3 mm	1.6 mm	2.0 mm	1.5 mm	1.7 mm	1.0 mm

1000 pcs. per PE-bag

10. Snap cap vials ND18 + ND22

- Easy to handle and inexpensive storage vials with push-on snap caps.
- Different volumes of 5 mL, 10 mL, 15 mL and 25 mL available.
- Caps and vials separately obtainable.
- Quickly and easily to reopen and reseal.
- No liners are required in the cap.
- For storage of powders and solids.

10.1 Snap cap vials ND18/ND22 and appropriate snap caps

Part no.	18 09 0906	18 09 0907	20 09 0784	22 09 0908
Description	5 mL snap cap vial ND18, 40 x 20 mm, clear glass, 1st hydrol. class	10 mL snap cap vial ND18, 50 x 22 mm, clear glass, 1st hydrol. class	15 mL snap cap vial ND22, 48 x 26 mm, clear glass, 1st hydrol. class	25 mL snap cap vial ND22, 65 x 26 mm, clear glass, 1st hydrol. class
TFVol. (mL)	9.1	14	19.3	27
UsVol. (mL)	8	12.7	18.5	25
MWVol. (mL)	0.6	1	1	1
Res. vol. (mL)	0.3	0.5	0.6	0.6
	100 pcs. per PP-box		100 pcs. per cardboard box	100 pcs. per PP-box

Part no.	18 08 0913	18 08 0913	22 08 0794	22 08 0794
Description cap	18 mm PE cnap cap, 19.8 x 5.2 mm, transparent, closed top, for ND18	18 mm PE cnap cap, 19.8 x 5.2 mm, transparent, closed top, for ND18	22 mm PE cnap cap, 23.5 x 5.5 mm, transparent, closed top, for ND22	22 mm PE cnap cap, 23.5 x 5.5 mm, transparent, closed top, for ND22
	100 pcs. per PE-bag			

10.2 PP micro centrifuge tubes

Part no.	08 19 3967	11 19 3968	11 19 3969
Description	0.5 mL	1.5 mL	2.0 mL
	500 pcs. per PE-bag	1000 pcs. per PE-bag	500 pcs. per PE-bag

Micro centrifuge tubes with lid

- chromatography certified
- safe click close function
- transparent PP
- number scale
- writing patch

TFVol. = Total Volume/Filling Volume (mL), UsVol. = Usable Volume (mL), MWVol. = Minimum Working Volume (µL)(mL), Res. vol. = Residual Volume (mL)

11. Screw neck ND24 (EPA)

The vials are preferentially used on instruments of the following manufacturers:
Agilent, Dionex, Shimadzu, Tekmar, Thermo Scientific, Varian

- All types of EPA vials can be delivered against a small surcharge with a certificate of cleanliness that might especially be needed for TOC analysis.
  A copy of our certificate of cleanliness is shown under the point “Technical Information” on our website.
- EPA vials can be obtained with any type of screw seal ND24 already screwed on (see also chapter 11.5 “Pre-Screwed vials”).
- Broad range of EPA vials in clear and amber glass.
- Volumes of 20 mL, 30 mL, 40 mL and 60 mL available.

11.1 Screw neck vials ND24 (EPA)

Upon special request also available pre-screwed with a seal of your choice.

Part no.	24 09 0589	24 09 0927	24 09 0839	24 09 0923	24 09 0402	24 09 0928	24 09 1089	24 09 1090
Description	20 mL EPA crew neck vial, 57 x 27.5 mm, clear glass, 1st hydrol. class	20 mL EPA crew neck vial, 57 x 27.5 mm, amber glass, 1st hydrol. class	30 mL EPA crew neck vial, 72.5 x 27.5 mm, clear glass, 1st hydrol. class	30 mL EPA crew neck vial, 72.5 x 27.5 mm, amber glass, 1st hydrol. class	40 mL EPA crew neck vial, 95 x 27.5 mm, clear glass, 1st hydrol. class	40 mL EPA crew neck vial, 95 x 27.5 mm, amber glass, 1st hydrol. class	60 mL EPA crew neck vial, 140 x 27.5 mm, clear glass, 1st hydrol. class	60 mL EPA crew neck vial, 140 x 27.5 mm, amber glass, 1st hydrol. class
TFVol. (mL)	23.3	23.3	31.1	31.1	42.9	42.9	64.4	64.4
UsVol. (mL)	20	20	27.4	27.4	40	40	60	60
MWVol. (mL)	1	1	1.4	1.4	1.4	1.4	1.4	1.4
Res. vol. (mL)	0.5	0.5	0.7	0.7	0.7	0.7	0.7	0.7
	100 pcs. per PP-box							

TFVol. = Total Volume/Filling Volume (mL), UsVol. = Usable Volume (mL), MWVol. = Minimum Working Volume (µL)(mL), Res. vol. = Residual Volume (mL)

11.2 PP screw seals ND24

- Ready to use combination seals; no time-consuming and “tricky” assembly.
- No contamination of the liner with sweat/fat that normally is caused by manual assembly.
- Available as closed top screw seals or with centre hole in white 24-400 caps.
- Broad variety of different septa materials for almost all applications.
- Also UltraBond seals ND24 are offered, i.e. that the cap and the silicone/PTFE liner of these seals form an inseparable unit avoiding the problem of liners falling out of the cap. This 100% firm fit of the liner is achieved by a patented process that requires no adhesives, but instead changes the molecular structure of both components to achieve the fixation.
- Also pre-sealed vials are available!

11.2.1 PP screw seals ND24 (assembled)

Part no.	24 15 1394	24 15 1395	24 15 1163	24 15 1540	24 15 1007
Description cap	PP screw cap white, 12.5 mm centre hole	PP screw cap white, closed top	PP screw cap white, 12.5 mm centre hole	PP screw cap white, closed top	PP screw cap white, closed top
Septa material	butyl red/PTFE grey	butyl red/PTFE grey	Silicone white/PTFE beige *(EPA-quality)*	Silicone white/PTFE beige *(EPA-quality)*	PTFE/EPDM/PTFE
Durometer	55° shore A	55° shore A	45° shore A	45° shore A	65° shore A
Thickness	2.5 mm	2.5 mm	3.2 mm	3.2 mm	2.0 mm

Further screw seals ND24 with closed/open top are available upon request

100 pcs. per PE-bag

11.2.2 UltraBond seals ND24

(Cap + liner form an inseparable unit, so that the liner cannot fall out)

Part no.	24 04 0842	24 04 0841
Description cap	PP screw cap white, centre hole	PP screw cap white, closed top
Septa material	Silicone natural/PTFE beige *(EPA-quality)*	
Durometer	45° shore A	
Thickness	3.2 mm	

100 pcs. per PE-bag

11.3 Septa 22 mm

Part no.	22 02 1390	22 02 1393	22 02 1108	22 02 0409	22 02 0487
Description cap					
Septa material	butyl red/PTFE grey	butyl red/PTFE grey	Silicone white/ PTFE beige	Silicone white/ PTFE blue	Silicone white/ Aluminum foil silver
Durometer	55° shore A	55° shore A	45° shore A	55° shore A	50° shore A
Thickness	1.6 mm *(only unassembled)*	2.5 mm	3.2 mm *(EPA-quality)*	1.5 mm, cross-slit	3.0 mm

1000 pcs. per PE-bag

11.4 PP screw caps ND24

24 08 0403	24 08 0592
Polypropylene Screw cap, white, 12.5 mm centre hole	Polypropylene Screw cap, white, closed top

100 pcs. per PE-bag

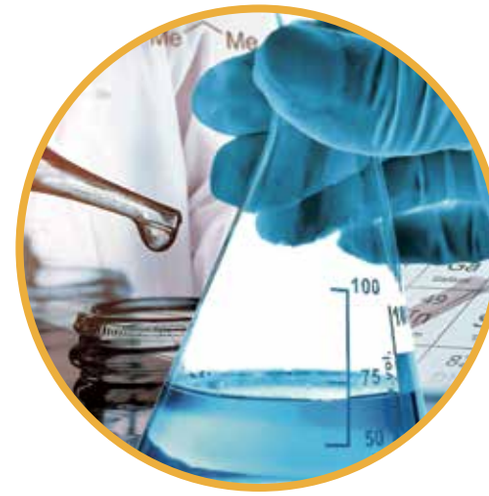
11.5 Specially assembled EPA vials with screw seals ND24

Part no.	24 14 1513	24 14 0976	24 14 1621	24 14 1538	24 14 1094	24 14 1278	24 14 1354
Description vial	20 mL EPA crew neck vial, 57 x 27.5 mm, clear glass, 1st hydrol. class, (24 09 0589)	40 mL crew neck vial, 95 x 27.5 mm, clear glass, 1st hydrol. class, EPA (24 09 0402)	40 mL crew neck vial, 95 x 27.5 mm, clear glass, 1st hydrol. class, EPA (24 09 0402)	40 mL crew neck vial, 95 x 27.5 mm, clear glass, 1st hydrol. class, EPA (24 09 0402)	40 mL crew neck vial, 95 x 27.5 mm, amber glass, 1st hydrol. class, EPA (24 09 0928)	60 mL crew neck vial, 140 x 27.5 mm, clear glass, 1st hydrol. class, EPA (24 09 1089)	60 mL crew neck vial, 140 x 27.5 mm, clear glass, 1st hydrol. class, EPA (24 09 1089)
	pre-screwed with	*pre-screwed with*	*pre-screwed with*	*pre-screwed with*	*pre-screwed with*	*pre-screwed with*	*pre-screwed with*
Description of screwed-on seal	UltraBond seal, white, centre hole, Silicone nat./PTFE beige *EPA-quality)*	PP screw cap, white, centre hole, Silicone white/PTFE beige	UltraBond seal, white, centre hole, Silicone natural/ PTFE beige *(EPA-quality)*	UltraBond seal, white, closed top, Silicone natural/ PTFE beige *(EPA-quality)*	PP screw cap, white, centre hole, Silicone white/PTFE beige	PP screw cap, white, centre hole, Silicone white/PTFE beige	UltraBond seal, white, centre hole, Silicone natural/ PTFE beige *EPA-quality)*
Durometer	45° shore A	45° shore A	45° shore A	45° shore A	45° shore A	45° shore A	45° shore A
Thickness	3.2 mm (24 04 0842)	3.2 mm (24 15 1163)	3.2 mm (24 04 0842)	3.2 mm (24 04 0841)	3.2 mm (24 15 1163)	3.2 mm (24 15 1163)	3.2 mm (24 04 0842)

Further crew neck vials ND24 with screwed-on open top/closed top screw seals are available upon request

100 pcs. per PP-box

Pharma/Biopharma selection card



This selection targets both customer groups.
The “normal” Pharma customer deals with small molecules chromatography. Small molecules are normally very stable and do not react heavily on different environments, short: easy to handle!

Bio molecules like Peptides, Proteins, etc. are Macromolecules, very sensitive to their environmental conditions (temperature, pH, solvent, etc.). They can only be analyzed via LC, GC is not possible. Solvents are normally water or water/polar solvents mixtures.

Therefore we reduced the number of products and offer the most important parts from the following product classes:

- Certified kits
- Screw, snap and crimp vials and closures
- Plastic and microsampling vials
- Well plates and mats
- Vial racks

9 mm screw thread vials and closures

11 09 0519

1.5 mL short thread vial,
32 x 11.6 mm,
clear glass,
1st hydrol. class,
wide opening,
label and filling lines

11 09 0520

1.5 mL short thread vial,
32 x 11.6 mm,
amber glass,
1st hydrol. class,
wide opening,
label and filling lines

11 09 2746

1.5 mL short thread SureStop vial,
32 x 11.6 mm,
clear glass,
1st hydrol. class,
wide opening,
with overwind-barrier

09 15 1819

9 mm combination seal:
PP short thread cap,
blue, with centre hole;
RedRubber/PTFE beige,
45° shore A,
1.0 mm

09 15 0838

UltraClean closure:
9 mm PP short thread cap,
blue, centre hole;
Silicone white/PTFE red,
55° shore A,
1.0 mm

09 15 0869

9 mm combination seal:
PP short thread cap,
blue, centre hole;
Silicone white/PTFE blue,
55° shore A,
1.0 mm,
slit

LC/MS GC/MS CERT Kkits and CERT kits

11 40 3196

LC/MS and GC/MS certified vial kit:
1.5 mL short thread SureStop vial,
32 x 11.6 mm,
clear glass, wide opening,
with overwind-barrier;
Ultra high performance seal:
PP short thread cap,
blue, centre hole;
Silicone darkblue-translucent/PTFE natural,
35° shore A,
1.0 mm

11 40 3197

LC/MS and GC/MS certified vial kit:
1.5 mL short thread SureStop vial,
32 x 11.6 mm,
amber glass, wide opening,
with overwind-barrier;
Ultra high performance seal:
PP short thread cap,
blue, centre hole;
Silicone darkblue-translucent/PTFE natural,
35° shore A,
1.0 mm

11 40 2556

HPLC/GC certified vial kit:
1.5 mL short thread vial,
clear glass,
1st hydrol. class, label;
UltraClean closure:
9 mm PP short thread cap,
blue, centre hole;
Silicone white/PTFE red,
55° shore A,
1.0 mm

11 40 2557

HPLC/GC certified vial kit:
1.5 mL short thread vial,
amber glass,
1st hydrol. class, label;
UltraClean closure:
9 mm PP short thread cap,
blue, centre hole;
Silicone white/PTFE red,
55° shore A,
1.0 mm

WebSeal







08 05 2926	08 05 2920	08 05 2921	08 29 2949	08 29 2933	08 29 2939	08 29 2938
Deep well microplate, PP, 96 positions, certified, height 14.7 mm, V-shape, 7 mm dia., 220 µL total volume *(non coated, non sterile)*	Deep well microplate, PP, 96 positions, certified, height 41.6 mm, U-shape, 7 mm dia., 1000 µL total volume *(non coated, non sterile)*	Square well microplate, PP, 96 positions, certified, height 44.4 mm, V-shape, 7 mm dia., 2000 µL total volume *(non coated, non sterile)*	Sealmat, MicroMat CLR, clear, silicone, for 96 position Deep well microplate, round well - flat base, 7 mm diameter	Sealmat, blue, silicone/PTFE, for 96 position Deep well microplate, round well, flat base, 7 mm diameter (non steril)	Sealmat, MicroMat CLR, clear, silicone, for 96 position Square well microplate *(non sterile)*	Sealmat, blue, Silicone/PTFE, for 96 position square well microplate

Plastic vials


11 19 1205	11 19 1706	11 19 0932
1.5 mL PP short thread vial, 32 x 11.6 mm, transparent, with filling lines	0.7 mL PP short thread micro-vial, 32 x 11.6 mm, transparent	0.3 mL PP short thread micro-vial, 32 x 11.6 mm, transparent

Microsampling vials



11 09 2357	11 09 2656	11 09 0620
Short thread vial with integrated micro-insert, 32 x 11.6 mm, clear glass, 1st hydrol. class, *"Base bonded"*	Short thread vial with integrated micro-insert, 32 x 11.6 mm, amber glass, 1st hydrol. class, *"Base bonded"*	1.1 mL microliter short thread vial ND9, 32 x 11.6 mm, clear glass, 1st hydrol. class

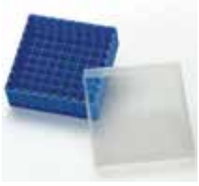
Snap vials and closures





11 09 0644	11 09 0645	11 15 2107	11 15 1151	11 15 1269
1.5 mL snap ring vial, 32 x 11.6 mm, clear glass, 1st hydrol. class, wide opening, label and filling lines	1.5 mL snap ring vial, 32 x 11.6 mm, amber glass, 1st hydrol. class, wide opening, label and filling lines	11 mm combination seal: PE-Snap ring cap, blue, with centre hole; RedRubber/PTFE beige, 45° shore A, 1.0 mm	UltraClean closure: 11 mm PE snap ring cap, blue, centre hole; Silicone white/PTFE red, 45° shore A, 1.3 mm	11 mm combination seal: PE snap ring cap, blue, centre hole; Silicone white/PTFE blue, 55° shore A, 1.0 mm, cross-slit

Racks/Tools



12 21 2420
PP storage box for 1.5 mL (1.8 mL, 2 mL) vials or 2 mL shell vials, blue, with cover (130 x 130 x 45 mm), 81 cavities with alphanumeric coding of all 4 margins as well as the cavities at the bottom

12. Standard, certified and high performance 96 and 384 position block systems

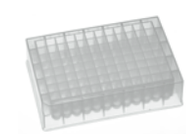
- The first complete and chromatography tested portfolio of well plates for separation science applications.
- Prepare and analyze samples in less time with less lab bench space and storage space required per sample.
- Easier and quicker filling and sealing process using multi-channel pipetting tools.
- Efficient transport of many samples in a single plate.
- SBS/ANSI standard footprint assures compatibility with all well plate capable prep stations and chromatography autosamplers.

12.1 Standard 96 block systems

(Standard well plates, plastic, non coated, non sterile, chromatography tested)







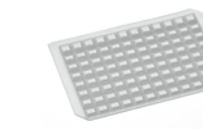

Part no.	08 05 2898	08 05 3643	08 05 2900	08 05 2901	08 05 3644	08 05 2902
Description	Micro well microplate, round opening, 96 position	Micro well microplate, round opening, 96 position	Micro well microplate, round opening, 96 position	Deep well microplate, round opening, 96 position	Square well microplate, square opening, 96 position	Square well microplate, square opening
Material	PP					
Height (mm)	14.4	26.5	31.6	44	31	44
Shape	V-shape, 8 mm diameter	U-shape, 8 mm diameter	U-shape, 8 mm diameter	U-shape, 8 mm diameter	U-shape	V-shape
TFVol. (µL)	450	1100	1300	2000	1600	2000
UsVol. (µL)	10-400	50-900	50-1000	50-2000	50-1300	50-1900
	Blocks, mats and tapes for water, water and polar solvents, polar solvents; for simple applications; high sample concentrations; non regulated labs; MS single ion mode					
	20 pieces	50 pieces	5 pieces	5 pieces	96 pieces	5 pieces

12.1.1 sealmats (WebSeals) block cover, non sterile

(for 08 05 2898, 08 05 2899, 08 05 2900 and 08 05 2901, 08 05 2902)







Part no.	08 29 3639	08 29 2929	08 29 2930	08 29 3637	08 29 3640
Description	Sealmat (block cover)	Sealmat (block cover)	Sealmat (block cover) Sealmat *(block cover), slit: 08 29 2931*	Sealmat *(block cover)*	Sealmat *(block cover)*
Color	clear	clear	blue	clear	clear
Material	Silicone	EVA	Silicone/PTFE	EVA	Silicone
Shape	round, for 8 mm diameter	round, for 8 mm diameter	round, for 8 mm diameter	square *(square well)*	square *(square well)*
	50 pieces	5 pieces	5 pieces	50 pieces	50 pieces

TFVol. = Total Volume/Filling Volume (mL), UsVol. = Usable Volume (mL), MWVol. = Minimum Working Volume (µL), Res. vol. = Residual Volume (µL)

12.2 Standard 384 block systems, square well (Standard well plates, plastic, non coated, non sterile, chromatography tested)

Part no.	08 05 2904	08 05 2906
Description	Deep well microplate square opening *(square well)*	Well microplate square opening *(square well)*
Material	PP	
Height (mm)	22	15.4
Shape	U-shape	V-shape
TFVol. (µL)	252	145
UsVol. (µL)	5-240	4-120
	Blocks, mats and tapes for water, water and polar solvents, polar solvents; for simple applications; high sample concentrations; non regulated labs; MS single ion mode	
	5 pieces	10 pieces

12.2.1 sealmats (WebSeals) block cover, non sterile (for 08 05 2904, 08 05 2905, 08 05 2906, 08 05 2903)

Part no.	08 29 2943	08 29 2950	08 29 3641
Description	Sealmat – WebSeal *(block cover)*	Sealmat – WebSeal *(block cover)*	Sealmat – WebSeal *(block cover)*
Color	clear	clear	clear
Material	Silicone	Silicone, slit	Silicone with cross
Shape	384 pos., square *(square well)*	384 pos., square *(square well)*	384 pos., square *(square well)*
	5 pieces	5 pieces	50 pieces

12.3 Standard 96 block systems, well-plate, PP, certified

(Standard well plates, plastic, non coated, non sterile)

Part no.	08 05 3646	08 05 2924	08 05 2925	08 05 2926	08 05 3645	08 05 2920	08 05 2921
Description	Low volume Micro well microplate, round opening, 96 position	Micro well microplate, round opening, 96 position	Micro well microplate, round opening, 96 position	Micro well microplate, round opening, 96 position	Micro well microplate, round opening, 96 position	Deep well microplate, round opening, 96 position	Square well microplate, square opening
Material	PP						
Height (mm)	15.0	14.7	14.7	14.7	33.0	41.6	44.4
Shape	Total V-shape, 5.6 mm diameter	Flat bottom, 7 mm diameter	U-shape, 7 mm diameter	V-shape, 7 mm diameter	U-shape, 7 mm diameter	U-shape, 7 mm diameter	V-shape
TFVol. (µL)	100	350	270	220	1000	1000	2000
UsVol. (µL)	5-80	10-300	10-250	10-190	50-900	50-900	50-1900
	Blocks, mats and tapes for water, water and polar solvents, polar solvents; for sensitive applications; lower sample concentrations; regulated labs; TIC and full chormatograms						
	50 pieces	10 pieces	10 pieces	10 pieces	96 pieces	5 pieces	5 pieces

12.3.1 Sealmats (WebSeals) block cover, silicone, non sterile

(for 08 05 2924, 08 05 2925, 08 05 2926, 08 05 2920 and 08 05 2921)

Part no.	08 29 3642	08 29 3813	08 29 2949	08 29 2933	08 29 2939	08 29 2938	08 29 3640
Description	Sealmat *(block cover)*	Sealmat *(block cover)*	Sealmat *(block cover)* Sealmat *(bock cover), 08 29 2935*	Sealmat Sealmat *(block cover), slit: 08 29 2934*	Sealmat *(block cover)* Sealmat *(block cover), slit: 08 29 2941*	Sealmat (block cover) Sealmat *(block cover), slit: 08 29 2940*	Sealmat *(block cover)*
Color	clear	clear	clear	blue	clear	blue	clear
Material	Silicone with Cross	EVA	Silicone	Silicone/PTFE	Silicone	Silicone/PTFE	Silicone with cross
Shape	round, for 5.6 mm diameter	round, for 7 mm diameter	round, flat base, step	round, for 7 mm diameter	Square *(square well)*	Square *(square well)*	Square *(square well)*
	50 pieces	100 pieces	5 pieces				50 pieces

12.4. Standard 384 block systems, microplate, PP, square opening, certified

(standard well plates, plastic, non coated, non sterile)


Part no.	08 05 2922	08 05 2923
Description	MicroWell microplate square opening 384 positions	MicroWell microplate square opening 384 positions
Material	PP	PP
Height (mm)	14.4	30.2
Shape	U-shape, square	V-shape, square
TFVol. (µL)	58	300
UsVol. (µL)	2-35	5-240
	Blocks, mats and tapes for water, water and polar solvents, polar solvents; for sensitive applications; lower sample concentrations; regulated labs; TIC and full chormatograms	
	10 pieces	6 pieces

12.4.1 sealmats (WebSeals) block cover, non sterile (for 08 05 2922 and 08 05 2923)



Part no.	08 29 2943	08 29 2942	08 29 3641
Description	Sealmat - Webseal (block cover) Sealmat *(block cover), slit: 08 29 2950*	Sealmat – WebSeal (block cover) Sealmat (block cover), slit: 08 29 2944	Sealmat – WebSeal (block cover)
Color	clear	blue	clear
Material	Silicone	Silicone/PTFE	Silicone with cross
Shape	Square *(square well)*	Square *(square well)*	384 pos., square *(square well)*
	5 pieces	5 pieces	50 pieces

12.5. Standard 96 block systems, micro-well-plate, deep well microplate, glass coated round and square opening, (chromatography tested, non sterile)





Part no.	08 05 2927	08 05 2914	08 05 2915	08 05 2916	08 05 2917
Description	Micro well microplate, round opening, 96 position	Micro well microplate, round opening, 96 position	Micro well Plate, round opening, 96 position	Deep well microplate, round opening, 96 position	Square well Plate, square opening, 96 position
Material	PP, glass coated	PP, glass coated	PP, glass coated	PP, glass coated	PP, glass coated
Height (mm)	14.6	14.6	14.6	41.5	44
Shape	U-shape, 7 mm diameter	V-shape, 7 mm diameter	Flat bottom, 7 mm diameter	U-shape	V-shape, 7 mm diameter
TFVol. (µL)	300	220	370	1.2 mL	2.4 mL
UsVol. (µL)	250	190	300	1 mL	2 mL
	Blocks, mats and Ttpes all solvents (incl. non-polar); for very sensitive applications; lowest sample concentrations; regulated labs; hydrophobic samples (Proteins); MSCERT level				
	10 pieces	10 pieces	10 pieces	10 pieces	10 pieces

12.5.1 sealmats (WebSeals) block cover, silicone/PTFE, non sterile

(for 08 05 2927, 08 05 2914, 08 05 2915, 08 05 2917 and 08 05 2916)




Part no.	08 29 3213	08 29 2932	08 29 2939	08 29 2938
Description	Sealmat *(block cover)* Sealmat *(Bbock cover), slit: 08 29 2937*	Sealmat Sealmat *(block cover), slit: 08 29 2936*	Sealmat *(block cover)* Sealmat *(block cover), slit: 08 29 2941*	Sealmat *(block cover)* Sealmat *(block cover), slit: 08 29 2940*
Color	clear	blue	clear	blue
Material	Silicone	Silicone/PTFE	Silicone	Silicone/PTFE
Shape	round, dome base	round, dome base, for 7 mm diameter	Square *(square well)*	square *(square well)*
	5 pieces	5 pieces	5 pieces	5 pieces

12.6. Standard 384 block systems, microplate, glass coated, square opening

(chromatography tested, non sterile)


Part no.	08 05 2918	08 05 2919
Description	MicroWell microplate square opening, 384 positions	MicroWell microplate square opening, 384 positions
Material	PP, glass coated	PP, glass coated
Height (mm)	14.4	22
Shape	Square *(square well)*	Square *(square well)*
TFVol. (µL)	120	240
UsVol. (µL)	90	180
	Blocks, mats and tapes all solvents (incl. non-polar); for very sensitive applications; lowest sample concentrations; regulated labs; hydrophobic samples (Proteins); MSCERT level	
	10 pieces	6 pieces

12.6.1 Sealmats (WebSeals) block cover, non sterile (for 08 05 2918 and 08 05 2919)


Part no.	08 29 2943	08 29 2942
Description	Sealmat - Webseal *(block cover)* Sealmat *(block cover), slit: 08 29 2950*	Sealmat – WebSeal *(block cover)* Sealmat *(block cover), slit:08 29 2944*
Color	clear	blue
Material	Silicone	Silicone/PTFE
Shape	Square *(square well)*	Square *(square well)*
	5 pieces	5 pieces

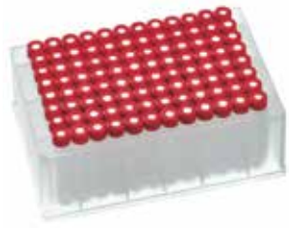
12.7 96 position block systems with glass inserts, sealed individually

- 96 position block systems (RITTER) with glass Inserts are used in combinatorial chemistry when the pure PP Block is not inert enough.
- These Inserts that are custom-tailored to fit a broad variety of 96 well Blocks. They can either be sealed individually with a PE cap seal or over the whole block with a sealmat block cover.
- The products can be obtained as individual components or as completely assembled, ready-to-use convenience blocks.

Blocks, mats and tapes for all solvents (incl. non-polar); for very sensitive applications; lowest sample concentrations; regulated labs; hydrophobic samples (Proteins);MSCERT level

12.7.1 96 position block systems with glass Inserts, sealed individually

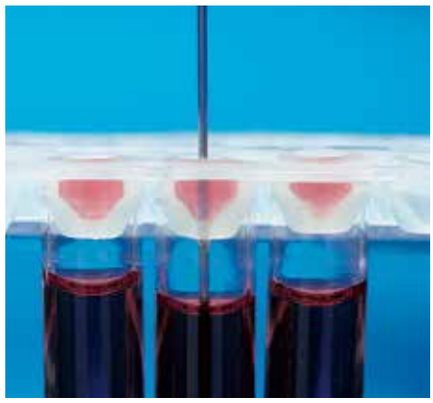
(chromatography tested, non sterile)

Part no.	08 20 0897	08 20 0911	08 20 0905	08 20 0943
Description	Deep well block 96 position	Square well block 96 position	Micro-Tube-Rack-System 96 position	Microtiter-Plate 96 position
Material	PP	PP	PP	PP
Description	filled with 0.35 mL micro-insert	filled with 1 mL micro-insert	filled with 0.8 mL micro-insert	filled with 0.1 mL micro-insert
Material	clear glass	clear glass	clear glass	clear glass
Measure	42.5 x 6 mm	49.9 x 7.6 mm	40 x 7.6 mm	15.5 x 5.7 mm
Shape	conical bottom	rounded bottom	u-shap bottom	flat bottom
TFVol. (µL)	410	1200	1020	230
UsVol. (µL)	350	1000	800	200
Description	assembled with 9 mm PE cap, red, 4 mm hole, Silicone white/PTFE red, 45° shore A, 1.9 mm, slit	assembled with 9 mm PE cap, red, 4 mm hole, Silicone white/PTFE red, 45° shore A, 1.9 mm, slit	assembled with 8 mm PE-Plug blue	assembled with 9 mm PE cap, red, 4 mm hole, Silicone white/PTFE red, 45° shore A, 1.9 mm, slit
	1 pc.			

12.8 96 position block systems with glass Inserts, sealed with a sealmat block cover

- Sealmat block covers are made out of silicone and laminated with a deep-drawn PTFE-Film – like a septa. By laminating the cover with a PTFE-Film instead of spraying it with PTFE it is ensured that a continuous and homogeneous barrier protects the sample from any contamination before, during and after the penetration process.



Part no.	08 20 1171	08 20 1181
Description	Square well block 96 position	Square well block 96 position
Material	PP	PP
Description	filled with 1 mL micro-insert	filled with 1 mL micro-insert
Material	clear glass	clear glass
Measure	45 x 7.6 mm	45 x 7.6 mm
Shape	8 mm top	8 mm top
Description	assembled with sealmat block cover *(welled plugs for easy penetration)*	assembled with sealmat block cover *(welled plugs + slit for pipettes)*
	1 pc.	

13. Syringe filters

For successful chromatography sample preparation filtration is an important step. Thermo Fisher Scientific syringe filters ensure best sample treatment in both eliminating particulates and microorganisms and providing consistent and reliable results. State of the art assembly processes – ultrasonic welding and overmolding ring (color coding) - are used to ensure safety even for high operating pressures resulting from use of small syringes.

Standard applications for the different membranes are standard HPLC samples/solvents – Nylon (PA) and Cellulose acetate (CA), standard GC samples/solvents – PTFE, UV spectrometry – PVDF, capillary electrophoresis – PES, high particulate load – glass micro fibre (GMF, filters with GMF prefilter also available!), Protein analysis – PVDF-L, trace metals – PES.

Most filters can be used up to 100°C operating temperature White line CA only 50°C and they all can be sterilized.

13.1 ProFill white line syringe filters

ProFill White Line

13.1.1 13 mm syringe filters

- For small sample volumes up to 5 mL.
- Female *Luer Lock* inlet, male *Luer Slip* outlet.
- Ultrasonic welded, print of membrane type.
- Retention volume <20 µL, operating pressure up to 12 bar.

Part no.	13 16 2968	13 16 3651	13 16 2972	13 16 3652	13 16 2976	13 16 3653
Pore size	0.2µm					
Membrane	Nylon (PA)	Cellulose acetate (CA)	PTFE (hydrophobic)	PTFE (hydrophilic)	PVDF-L (hydrophilic)	PES
Prefilter	GMF	PP	PP	PP	PP	PP
250 pcs. per PE-bag						

Part no.	13 16 2969	13 16 3654	13 16 2973	13 16 3655	13 16 2977	13 16 3656
Pore size	0.45µm					
Membrane	Nylon (PA)	Cellulose acetate (CA)	PTFE (hydrophobic)	PTFE (hydrophilic)	PVDF-L (hydrophilic)	PES
Prefilter	GMF	PP	PP	PP	PP	PP
250 pcs. per PE-bag						

13.1.2 25 mm syringe filters

- For sample volumes up to 100 mL.
- Female Luer lock inlet, male Luer slip outlet.
- Ultrasonic welded, print of membrane type.
- Retention volume <100 µL, operating pressure up to 12 bar.

Part no.	25 16 2970	25 16 3657	25 16 2974	25 16 3658	25 16 2978	25 16 3659
Pore size	0.2µm					
Membrane	Nylon (PA)	Cellulose acetate (CA)	PTFE (hydrophobic)	PTFE (hydrophilic)	PVDF-L (hydrophilic)	PES
Prefilter	PP	PP	PP	PP	PP	PP
250 pcs. per PE-bag						

Part no.	25 16 2971	25 16 3660	25 16 2975	25 16 3661	25 16 2979	25 16 3662
Pore size	0.45µm					
Membrane	Nylon (PA)	Cellulose acetate (CA)	PTFE (hydrophobic)	PTFE (hydrophilic)	PVDF-L (hydrophilic)	PES
Prefilter	PP	PP	PP	PP	PP	PP
250 pcs. per PE-bag						

ProFill white line syringe filters with other dimensions or membranes than above mentioned, e.g. PVDF (hydrophobic) or Polypropylene (PP) are available upon request.

13.2 Syringe filters with color code

13.2.1 17 mm syringe filters

- For small sample volumes up to 10 mL.
- Female *Luer Lock* inlet, male *Luer Slip* outlet.
- Retention volume <0.029 mL, operating pressure up to 7.9 bar.
- Injection moulded ring with color code, print of membrane type.

Part no.	17 16 2076	17 16 2077	17 16 2078	17 16 2079	17 16 2080	17 16 2081	17 16 2082	17 16 2083
Pore size	0.2 µm	0.45 µm	0.2 µm	0.45 µm	0.2 µm	0.45 µm	0.2 µm	0.45 µm
Membrane	PTFE	PTFE	Regenerated cellulose (RC)	Regenerated cellulose (RC)	Nylon (PA)	Nylon (PA)	PVDF	PVDF
Prefilter	no	no	no	no	no	no	yes	yes
Color code	blue	yellow	grey	brown	purple	green	black	red
100 pcs. per PE-bag, add. packed in a blue PP-box								

13.2.2 25 mm ProFill syringe filters

ProFill

- Best option for laboratories using sample sizes from 1.5 mL to 100 mL.
- Retention volume >0.1 mL, operating pressure up to 5bar.
- Female *Luer Lock* inlet, male *Luer Slip* outlet.
- Ultrasonic welded housing with color code.

Part no.	25 16 0346	25 16 0347	25 16 0348	25 16 0349	25 16 0350	25 16 0351
Pore size	0.2 µm	0.45 µm	0.2 µm	0.45 µm	0.20 µm	0.45 µm
Membrane	PTFE	PTFE	Regenerated Cellulose (RC)	Regenerated Cellulose (RC)	Nylon (PA)	Nylon (PA)
Prefilter	no	no	no	no	no	no
color code	green	natural	blue	yellow	bright blue	bright green
100 pcs. per PE-bag, add. packed in a blue PP-box						

13.2.3 30 mm Syringe filters

- Retention volume <0.137 mL, operating pressure up to 6.2 bar.
- Female *Luer Lock* inlet, male Luer slip outlet.
- Injection moulded ring with color code, print of membrane type.
- All listed filters have a glass fibre prefilter for filtration of sample with high particulate load.

Part no.	30 16 2086	30 16 2087	30 16 2088	30 16 2089
Pore size	0.2 µm	0.45 µm	0.2 µm	0.45 µm
Membrane	PTFE	PTFE	Regenerated Cellulose (RC)	Regenerated Cellulose (RC)
Prefilter	no	no	no	no
color code	blue	yellow	grey	brown
100 pcs. per PE-bag, add. packed in a blue PP-box				

Part no.	30 16 2090	30 16 2091	30 16 2092	30 16 2093	30 16 2094
Pore size	0.20 µm	0.45 µm	0.2 µm	0.45 µm	1.2 µm
Membrane	Nylon (PA)	Nylon (PA)	PVDF	PVDF	GMF
color code	purple	green	black	red	orange
100 pcs. per PE-bag, add. packed in a blue PP-box					

14. HPLC certified plastic disposable syringes with *Luer Lock* and *Luer Slip*

HPLC certified, non sterile disposable syringes made of solvent robust polypropylene for all syringe filter applications

- Each manufactured batch is HPLC controlled and supplied with an appropriate certificate upon request.
- Syringes manufactured according to ISO 13485 (Medical devices).
- *LuerLock* manufactured according to ISO 594-2/DIN EN 1707.
- *Luer Slip* manufactured according to ISO 594-1/DIN EN 20594-1.
- Free of latex, free of plasticizers, free of PVC.
- Two-part, all-plastic construction made of a chemically resistant, inert polypropylene.
- No rubber plunger seals or silicone lubricants that may cause sample contamination.
- Safe functional back-stop feature.
- Easy to read permanent graduations.
- All *Luer Lock* syringes have centered tips.
- Available with *Luer Lock* and *Luer Slip* connections.

14.1 Plastic disposable syringes with *Luer Lock*

Scale 1:2

Part no.	02 36 2399	05 36 2400	10 36 2401	20 36 2402
Description	2 mL Disposable syringe non sterile *Luer Lock*	5 mL Disposable syringe non sterile *Luer Lock*	10 mL Disposable syringe non sterile *Luer Lock*	20 mL Disposable syringe non sterile *Luer Lock*
	100 pcs. per PE-bag			

14.2 Plastic disposable syringes with *Luer Slip*

Scale 1:2

Part no.	02 36 2403	05 36 2404	10 36 2405	20 36 2406
Description	2 mL Disposable syringe non sterile *Luer Slip*	5 mL Disposable syringe non sterile *Luer Slip*	10 mL Disposable syringe non sterile *Luer Slip*	20 mL Disposable syringe non sterile *Luer Slip*
	100 pcs. per PE-bag			

15. GC injection port septa

- Good penetration and re-sealing properties (low fragmentation).
- Long lifetime.
- Ready-to-use; no further pre-treatment necessary.
- No sticking to hot surfaces, easily exchangeable.
- Standard dimensions for all common gas chromatographs.

15.1 High performance, low bleed septa

- Ultra low bleeding (release of siloxanes).
- Suitable for inlet temperatures of up to 275°-320°C.
- Packed with 50 pieces in a resealable clear crew neck vial.

07 18 3956	09 18 3985	11 18 3957	12 18 3958	17 18 3959
Shimadzu plug, blue	9.5 mm low bleed injection port septa, blue	11 mm low bleed injection port septa, blue	12.5 mm low bleed injection port septa, blue	17 mm low bleed injection port septa, blue
50 pcs. in a clear crew neck vial				

15.2 Universal, long-life GC-septa

- Suitable for inlet temperatures of up to 340°C.
- Low bleeding.
- Packed with 25 pieces in a resealable amber crew neck vial.

07 18 0935	09 18 0936	10 18 0937	11 18 0938	12 18 0939	17 18 0940
Shimadzu plug, transparent	9.5 mm universal HT injection port septa, transparent	10 mm universal HT injection port septa, transparent	11 mm universal HT injection port septa, transparent	12.5 mm universal HT injection port septa, transparent	17 mm universal HT injection port septa, transparent
25 pcs. in an amber crew neck vial					

16. GC capillary connectors

02 17 0472	02 17 0473	
Universal capillary connector for 2 columns	Universal Y-capillary connector for 3 columns	For precise connections of fused-silica capillary columns in GC Universal capillary connectors connect all columns with an inner diameter of 0.20 - 0.53 mm and an outer diameter of 0.30 - 0.75 mm
10 pcs. per PP-box	1 pc. per PP-box	

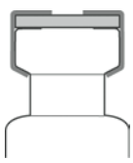
17. Crimping tools

- Easy and convenient handling.
- Chemically resistant surface finish especially designed for the application in labs.
- Hardened crimping jaws made of a special alloy that guarantees long life.
- Adjustable in crimping pressure limitation by a screw in the handle.
- Additionally 11 mm, 13 mm and 20 mm crimpers are adjustable in crimping height by screwing up or down the pressure block in the crimping head with a hexagon key.
- Repair Service for crimping tools made by Thermo Fisher Scientific.

An inappropriate crimp can be recognized by:

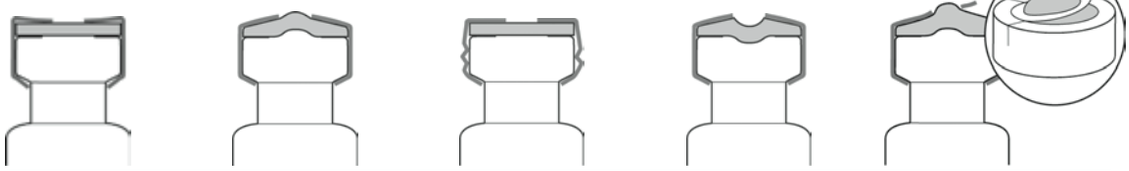
Flat cap surface

Flat septa surface



Tight fitting of the Aluminum edge

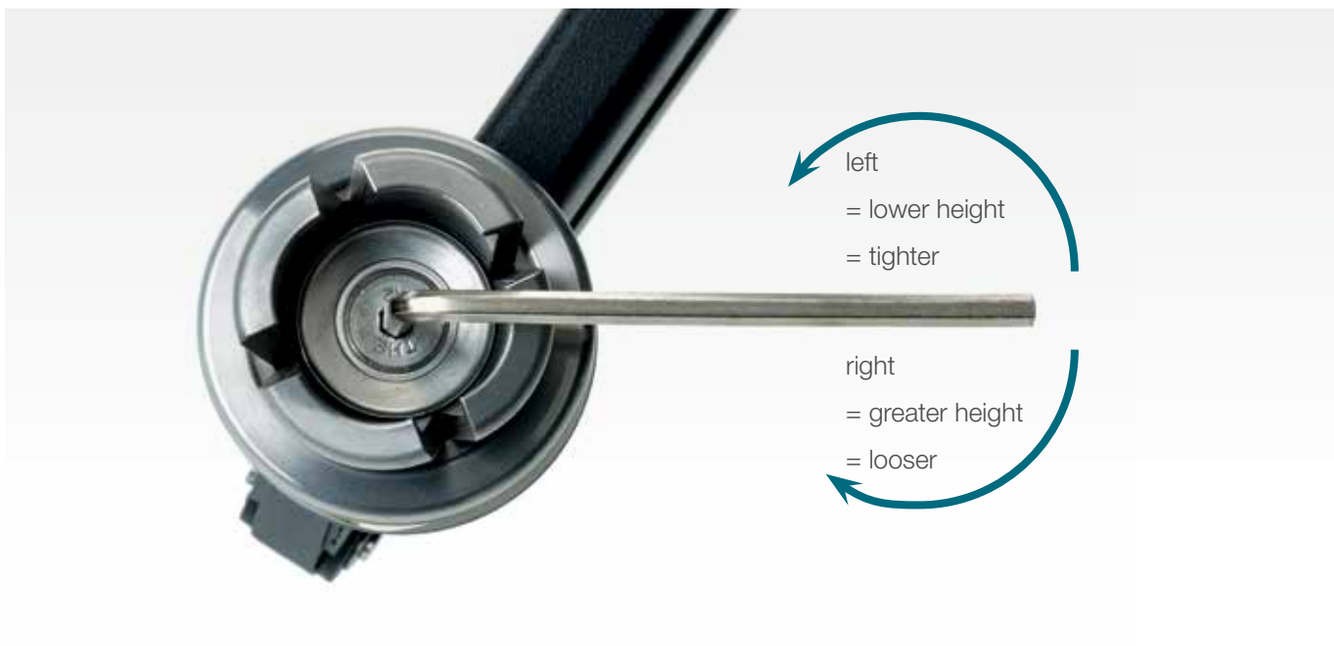
Plain + undeformed cap sides



Untight aluminum edge	Upward bulge of the crimp cap	Deformation of the crimp cap sides	Convex looking liner	Rounded edges/ upward bulge of the cap/liner
Adjust crimping pressure with the screw in the handle + Adjust crimping height with the hexogen key (s. below)	Adjust crimping pressure with the screw in the handle + Adjust crimping height with the hexogen key (s. below)	Adjust crimping height with the hexogen key (s. below)	Adjust crimping pressure with the screw in the handle	Especially with headspace caps it is important not to overcrimp them. If the aluminum is stretched too much under the crimp neck, the bridges of the scorelines suffer too much stress and can break open at even low pressure (below 3 bars) or - in worst case - can even tear apart beside the scorelines
(undercrimped)	*(overcrimped)*	*(overcrimped)*	*(overcrimped)*	*(overcrimped)*

An inappropriate crimp cannot be recognized by trying to turn the seal, as completely PTFE-laminated liners have a very slippery surface on the glass rim, which allows anyone to turn the cap, if the right torque is used.

The turning of the cap is even easier when the liner is sitting on a headspace (bevelled top) glass rim, as it then only has very small surface to rest on.



17.1 Manual crimping tools

- Crimping tools provide a reproducible, secure vial closure
- Easy and convenient handling
- High quality construction for durability and long life
- Painted, plated and coated for maximum corrosion resistance
- Textured handle surface provides an assured grip

08 06 0005	11 06 0006	13 06 0007	20 06 0008	28 06 0320	32 06 0135
Crimper for 8 mm aluminum caps	Crimper for 11 mm aluminum caps	Crimper for 13 mm aluminum caps	Crimper for 20 mm aluminum caps	Crimper for 28 mm aluminum caps	Crimper for 32 mm aluminum caps
1 pc. per PP-box					

13 06 0069	13 06 0319	20 06 0043	20 06 0170	28 06 0190	
Crimper for 13 mm flip top/flip off seals	Crimper for 13 mm flip Tear Up seals	Crimper for 20 mm flip top/flip off seals	Crimper for 20 mm flip tear up seals	Crimper for 28 mm flip top/flip off seals	Special sizes and crimpers for pump spray closures on request
1 pc. per PP-box					

17.2 Manual decapping tools

08 07 0001	11 07 0002	13 07 0003	20 07 0004	28 07 0092	32 07 0078
Decapper for 8 mm aluminum caps	Decapper for 11 mm aluminum caps	Decapper for 13 mm aluminum caps	Decapper for 20 mm aluminum caps	Decapper for 28 mm aluminum caps	Decapper for 32 mm aluminum caps
1 pc. per PP-box					

17.3 Stainless steel cleanroom crimping tools

- The crimping/decapping mechanism is corrosion and heat resistant while the stainless steel construction removes the need for any protective coating on the handle or crimp head.
- Can withstand repeated sterilization for cleanroom use without the risk of damaging the tool.
- Available in 11 mm,13 mm and 20 mm sizes.
- Crimping tools are adjustable in crimping pressure and height to offer optimal crimping results on varying vial styles.
- As no lubricant is used and the handles are from non-lacquered stainless steel, the crimper can be used in cleanroom environments without limitation.

17.3.1 Manual crimping tools

11 06 2225	13 06 2227	20 06 2229
11 mm crimper made of stainless steel, sterilizable, for cleanroom applications	13 mm crimper made of stainless steel, sterilizable, for cleanroom applications	20 mm crimper made of stainless steel, sterilizable, for cleanroom applications
1 pc. per PP-box		

Other sizes are available

17.3.2 Manual decapping tools

11 07 2226	13 07 2228	20 07 2230
11 mm decapper made of stainless steel, sterilizable, for cleanroom applications	13 mm decapper made of stainless steel, sterilizable, for cleanroom applications	20 mm decapper made of stainless steel, sterilizable, for cleanroom applications
1 pc. per PP-box		

Other sizes are available

17.4 Pneumatic AIRGO crimper

- Completely new designed ergonomic hand-held tool with easy push button for a completely joint-friendly work position.
- Unique ultra slim design of the crimping jaws is perfect for in-tray crimping of the vial.
- Slim jaw shape allows for the first time an optical control of the crimping process.
- Combines convenient large sample series processing with cleanroom usability.
- The weight of the new pneumatic hand-held tool generation is reduced by 50%.
- The optional balancer helps to save space on the lab bench and keeps the crimper clean and ready to use in reach.

00 00 3080	00 00 3081	00 00 0120
11 mm AIRGO crimper high pressure min. 5 bar/72,5 PSI stable working pressure	11 mm AIRGO crimper low pressure min. 3 bar/ 43,5PSI stable working pressure	Hanging device with balancer
1 pc. per case		1 pc. per carton

17.5 Pneumatic hand-held crimping tool

- Crimping and decapping tool, operated by compressed air (6.2 bar = 90 psi minimum net pressure).
- Easy handling; just by pushing the button the vial is crimped or decapped.
- Interchangeable “C”-Heads for crimping and decapping in various sizes (pls. see chapters 17.5.1 + 17.5.2).
- Adjustable, constant and reproducible crimping pressure.
- CE mark of conformity.
- Space-saving installation with a balancer above the working bench.
- Ergonomical handling, as the balancer compensates the weight of the pneumatic crimper and facilitates steady and precise crimping.
- Inlet air supply connector G ¼ ” thread (female); connection to be provided by customer.
- The pneumatic crimping tool can be delivered with stand and foot switch or with hanging device and trigger in the handle.

00 00 0089	00 00 0120	00 00 1898
Pneumatic basic crimping tool, including pressure regulator, safety valve and nylon (PA) twisted hose	Hanging device with balancer	Stand with foot switch for pneumatic basic crimping tool
1 pc. per carton		

17.5.1 Crimping heads for pneumatic hand-held crimping tool

08 06 0149	11 06 0150	13 06 0134	20 06 0088	32 06 0151
Crimping head for 8 mm aluminum caps	Crimping head for 11 mm aluminum caps	Crimping head for 13 mm aluminum caps	Crimping head for 20 mm aluminum caps	Crimping head for 32 mm aluminum caps
1 pc. per carton				

13 06 0091	20 06 0090	20 06 0148	28 06 0191	32 06 0192
Crimping head for 13 mm flip top/flip off seals	Crimping head for 20 mm flip top/flip off seals	Crimping head for 20 mm flip tear up seals	Crimping head for 28 mm flip top/flip off seals	Crimping head for 32 mm flip top/flip off seals
1 pc. per carton				

For professional advice in terms of crimp heads for flip top/flip off or flip tear up seals please contact our Internal Sales team.

17.5.2 Decapping heads for pneumatic hand-held crimping tool

08 07 0153	11 07 0107	13 07 0154	20 07 0155	28 07 0156	32 07 0157
Decapping head for 8 mm aluminum caps	Decapping head for 11 mm aluminum caps	Decapping head for 13 mm aluminum caps	Decapping head for 20 mm aluminum caps	Decapping head for 28 mm aluminum caps	Decapping head for 32 mm aluminum caps
1 pc. per carton					

Special sizes upon request

17.6 Electronic crimpers and decappers

- New with LCD display for convenient crimp force adjustment, fault monitoring and different languages build in.
- Electronic crimpers and decappers provide secure, reproducible crimps and quick and easy removal of aluminum seals with the push of a button.
- Ergonomic design and push button operation eliminates wrist strain.
- Built in long life lithium ion rechargeable battery.
- New with brush-less technology for a longer lifetime and less particle emission.
- Universal 100V–240V charger includes plug adaptors for most power outlets.
- Crimpers and decappers can be operated while plugged in and recharging.
- Crimp force sensing assures consistent proper sealing.

17.6.1 Electronic crimping tools

08 00 3946	11 00 3947	13 00 3948	20 00 3949
8 mm eectronic crimper, 110 - 240V	11 mm electronic crimper, 110 - 240V	13 mm electronic crimper, 110 - 240V	20 mm electronic crimper, 110 - 240V
1 pc. per carton			

17.6.2 Electronic decapping tools

11 00 3950	13 00 3951	20 00 3952
11 mm electronic decapper, 110 - 240V	13 mm electronic decapper, 110 - 240V	20 mm electronic decapper, 110 - 240V
1 pc. per carton		

17.6.3 Replacement battery for electronic crimpers and decappers

00 00 3217
Replacement battery, 6.4V lithium Ion for electronic crimpers and decapper,
1 pc. per carton

17.7 Electronic high power crimp station

- New with LCD display for convenient crimp force adjustment, fault monitoring and 8 different languages built in.
- High power, perfect for magnetic steel caps.
- Adjustable crimp settings for compatibility with most vial/septum/seal combinations including aluminum, steel and bi-metal seals.
- Exchangeable crimp and Decapping heads can be removed or installed in seconds.
- New with brush-less technology for a longer lifetime and less particle emission.
- New with brush-less technology for a longer lifetime and less particle emission.
- Crimp-force sensing automatically determines when a proper seal has been formed and opens the jaws to release the vial.

17.7.1 programmable electronic high power crimp station (basic tool)

00 00 3953
Programmable electronic high power crimp Including the basis high power crimper and the 12 volt DC supply with the power cord. *(Accessory is not included)*
1 pc. per carton

17.7.2 11 mm and 20 mm programmable electronic high power crimp station

00 00 3954	20 00 3955
Programmable electronic high power crimp station with variable accessory base, external power supply and two exchangeable jaw sets (11 mm crimp and 11 mm decrimp), 110 - 240V	Programmable electronic high power crimp station with variable accessory base, external power supply and two exchangeable jaw sets (20 mm crimp and 20 mm decrimp), 110 - 240V
1 pc. per carton	

17.7.3 crimping heads for programmable electronic high power crimp station

08 06 3200	11 06 3202	13 06 3204	20 06 3206
Crimping head for 8 mm crimp caps	Crimping head for 11 mm crimp caps	Crimping head for 13 mm crimp caps	Crimping head for 20 mm crimp caps
1 pc. per carton			

Further crimping and decapping heads upon request

17.7.4 Decapping heads for programmable electronic high power crimp station

08 07 3201	11 07 3203	13 07 3205	20 07 3207
Decapping head for 8 mm aluminum caps	Decapping head for 11 mm aluminum caps	Decapping head for 13 mm aluminum caps	Decapping head for 20 mm aluminum caps
1 pc. per carton			

18. Vial racks and storage boxes

18.1 Vial racks

- Easy handling and transportation of sample vials.
- Filling visible because of transparent acrylic material.
- Stable standing position because of solid construction.
- Stack stability because of silicone base.
- Racks for 8 mm resp. 11 mm vials can even hold conically shaped sample vials.
- Custom-tailored vial racks can be manufactured according to customer's specifications.

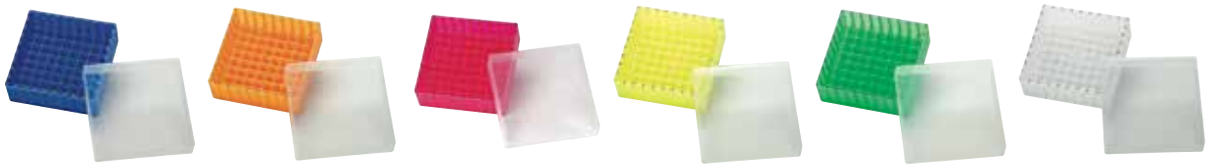
Part no.	08 21 1000	12 21 1001	15 21 1664	24 21 1002
Description	Vial rack, acrylic, 173 x 95 x 20 mm, 50 cavities with a diameter of 8.5/3 mm	Vial rack, acrylic, 173 x 95 x 20 mm, 50 cavities with a diameter of 12 mm	Vial rack, acrylic, 175.8 x 115.5 x 20 mm 40 cavities with a diameter of 15.1 mm	Vial rack, acrylic, 160 x 160 x 30 mm, 25 cavities with a diameter of 24 mm
	Conical cavity for round or conical bottom ND8 crimp vials	For 1.5 and 2 mL vials	For 4 mL vials	For EPA and storage vials
	1 pc. shrink-wrapped			

Part no.	12 21 2187	15 21 2480
Description	PP vial-rack, (200 x 105 x 17 mm), for 1.5 mL vials, 50 cavities, blue, stackable	PP vial-rack, (230 x 117 x 28 mm), for 4 mL vials, 50 cavities, blue, stackable
	5 pcs. shrink-wrapped	

18.2 PP storage boxes

- Safe standing position on the laboratory table and during transport due to specific cavities related to the vial diameter.
- Ideal for space-saving storage in fridges, as the transparent lid prevents condensations on the closures and thus avoids a possible contamination in the cooling unit.
- Temperature resistant from -80 degrees up to +100 degrees.
- Alpha numeric coding (1.5 mL, 4 mL) for clear sample identification.
- Unbreakable polypropylene bottom and lid, stackable.
- Chemically resistant and fairly robust; autoclavable.

18.2.1 PP storage boxes for 1.5 mL sample vials



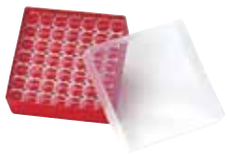
Part no.	Blue 12 21 2420	Orange 12 21 2421	Pink 12 21 2422	Yellow 12 21 2423	Green 12 21 2424	Transparent 12 21 2425
Description	PP storage box for 1.5 mL (1.8 mL, 2 mL) vials or 2 mL shell vials, with cover, (130 x 130 x 45 mm), 81 cavities with alphanumeric coding of all 4 margins as well as the cavities at the bottom					
	1 pc. per PE-bag					

Part no.	Blue 12 21 3671	Orange 12 21 3672	Pink 12 21 3673	Yellow 12 21 3674	Green 12 21 3675	Transparent 12 21 3676
Description	PP storage box for 1.5 mL (1.8 mL, 2 mL) vials or 2 mL shell vials, with cover, (130 x 130 x 45 mm), 100 cavities					
	1 pc. per PE-bag					

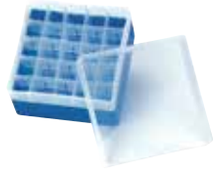
Part no.	Blue 12 21 3138	Orange 12 21 3139	Pink 12 21 2590	Yellow 12 21 3140	Green 12 21 2589	Transparent 12 21 3141
Description	PP storage box for 1.5 mL (1.8 mL, 2 mL) vials or 2 mL shell vials, with cover, (67 x 67 x 45 mm), 16 cavities					
	1 pc. per PE-bag					

Minimum order quantity: 5 pieces per color

18.2.2 PP storage boxes for 4 mL sample vials



18.2.3 PP storage boxes for 5 mL, 10 mL and 20 mL headspace vials



Part no.	Red 15 21 2426	Blue 24 21 2427
Description	PP storage box for 4 mL vials or 4 mL shell vials, red, with cover, (130 x 130 x 52 mm), 49 cavities with alphanumeric coding at the cavities	PP storage box for 5 mL, 10 mL and 20 mL headspace-vials, blue, with cover, (130 x 130 x 102 mm), 25 cavities
	1 pc. per PE-bag	

18.2.4 PP storage boxes for 20 mL, 30 mL and 40 mL EPA-vials with cover

Part no.	Violet 28 21 2428	Violet 28 21 2429
Description	PP storage box for 20 mL EPA-vials, violet, with cover, (130 x 130 x 80 mm), 16 cavities	PP storage box for 30 mL and 40 mL EPA-vials, violet, with cover, (130 x 130 x 105 mm), 10 cavities
	1 pc. per PE-bag	

19. Screw neck vials for storage purposes

- Screw neck vials for storage purposes made out of 1st hydrol. class glass.
- Vials with different volumes are available.
- Clear and amber vials.
- Seals with different septa materials.
- Barcode labelling upon request.

19.1 Screw neck vials for storage purposes

Scale 1:2

Part no.	11 09 0210	11 09 0259	13 09 0222	13 09 0280	15 09 1703 15 09 1774	15 09 1657 15 09 1800
Description	1.5 mL screw neck vial, 8-425, 32 x 11.6 mm, clear glass, 1st hydrol. class	1.5 mL screw neck vial, 8-425, 32 x 11.6 mm, amber glass, 1st hydrol. class	4 mL screw neck vial, 13-425, 45 x 14.7 mm, clear glass, 1st hydrol. class	4 mL screw neck vial, 13-425, 45 x 14.7 mm, amber glass, 1st hydrol. class	8 mL screw neck vial, 15-425, 61 x 16.6 mm, clear/amber glass, 1st hydrol. class	12 mL screw neck vial, 15-425, 66 x 18.5 mm, clear/amber glass, 1st hydrol. class
TFVol. (mL)	1.9	1.9	5	5	8.9	12
UsVol. (mL)	1.5	1.5	4.1	4.1	8	11
MWVol. (µL)	200	200	800	800	1500	1500
Res. vol. (µL)	<110	<110	<400	<400	800	800
	100 pcs. per PP-box				100 pcs. per carton	

Scale 1:2

Part no.	18 09 1704	20 09 1705	24 09 0589 24 09 0927	24 09 0839 24 09 0923	24 09 0402 24 09 0928	24 09 1089 24 09 1090
Description	16 mL screw neck vial, 18-400, 71 x 20.6 mm, clear glass, 1st hydrol. class	20 mL screw neck vial, 20-400, 86 x 22.7 mm, clear glass, 1st hydrol. class	20 mL screw neck vial, 24-400, 57 x 27.5 mm, clear/amber glass, 1st hydrol. class	30 mL screw neck vial, 24-400, 72.5 x 27.5 mm, clear/amber glass, 1st hydrol. class	40 mL screw neck vial, 24-400, 95 x 27.5 mm, clear/amber glass, 1st hydrol. class	60 mL screw neck vial, 24-400, 140 x 27.5 mm, clear/amber glass, 1st hydrol. class
TFVol. (mL)	17.4	24.5	23.3	31.1	42.9	64.4
UsVol. (mL)	16	23	20	27.4	40	60
MWVol. (µL)	1500	1500	1	1.4	1.4	1.4
Res. vol. (µL)	800	800	0.5 (mL)	0.7 (mL)	0.7 (mL)	0.7 (mL)
	100 pcs. per carton		100 pcs. per PP-box			

TFVol. = Total Volume/Filling Volume (mL), UsVol. = Usable Volume (mL), MWVol. = Minimum Working Volume (µL), Res. vol. = Residual Volume (µL)

19.2 PP screw seals for storage vials

- Corresponding centre hole versions are partially available.
- Packed with 100 pieces in tamper-proof evident zip-lock PE-bags.
- Seals with different septa material are available.

19.2.1 PP screw seals ND8

for 11 09 0210 and 11 09 0259

Part no.	08 15 0654	08 15 1653	08 15 1040
Description cap	PP screw cap black, closed top		
Septa material	Nat. rubber red-orange/TEF transparent	Butyl red/PTFE grey	Silicone white/PTFE red
Durometer	60° shore A	55° shore A	45° shore A
Thickness	1.3 mm	1.3 mm	1.3 mm
100 pcs. per PE-bag			

19.2.2 PP screw seals ND13

for 13 09 0222 and 13 09 0280

Part no.	13 15 0439	13 15 1638	13 15 0648
Description cap	PP screw cap black, closed top		
Septa material	Nat. rubber red-orange/TEF transparent	Butyl red/PTFE grey	Silicone cream/PTFE red
Durometer	60° shore A	55° shore A	55° shore A
Thickness	1.3 mm	1.3 mm	1.5 mm
100 pcs. per PE-bag			

19.2.3 PP screw seals ND15 for 15 09 1703, 15 09 1774, 15 09 1657, 15 09 1800

Part no.	15 15 0793	15 15 1748	15 15 1083	15 15 1938	15 15 1932	15 15 1989
Description cap	PP screw cap black, closed top			PP screw cap black, 9 mm centre hole		
Septa material	Nat. rubber red-orange/ TEF transparent	Butyl red/PTFE grey	Silicone white/PTFE red	Nat. rubber red-orange/ TEF transparent	Butyl red/PTFE grey	Silicone white/PTFE red
Durometer	60° shore A	55° shore A	45° shore A	60° shore A	55° shore A	45° shore A
Thickness	1.3 mm	1.6 mm	1.3 mm	1.3 mm	1.6 mm	1.3 mm
100 pcs. per PE-bag						

19.2.4 PP screw seals ND18 for 18 09 1704

Part no.	18 15 1387	18 15 1132	18 15 2069
Description cap	PP screw cap black, closed top		
Septa material	Butyl red/PTFE grey	Silicone blue transparent/PTFE white	Silicone white/PTFE red
Durometer	55° shore A	45° shore A	55° shore A
Thickness	1.6 mm	1.7 mm	1.5 mm
100 pcs. per PE-bag			

19.2.5 PP screw seals ND20 for 20 09 1705

Part no.	20 15 1803	20 15 1805	20 15 1804
Description cap	Polypropylene screw cap white, closed top		
Septa material	Nat. rubber red-orange/TEF transparent	Butyl red/PTFE grey	Silicone white/PTFE red
Durometer	60° shore A	55° shore A	45° shore A
Thickness	1.3 mm	1.3 mm	1.3 mm
100 pcs. per PE-bag			

19.2.6 PP screw seals ND24 (for 24 09 0589, 24 09 0927, 24 09 0839, 24 09 0923, 24 09 0402, 24 09 0928, 24 09 1089, 24 09 1090)

Part no.	24 15 1395	24 15 1540	24 15 1007	24 04 0841
Description cap	PP screw cap white, closed top			UltraBond seal white, closed top
Septa material	butyl red/PTFE grey	Silicone white/PTFE beige	PTFE/EPDM/PTFE	Silicone natural/PTFE beige
Durometer	55° shore A	45° shore A	65° shore A	45° shore A
Thickness	2.5 mm	3.2 mm	2.0 mm	3.2 mm
100 pcs. per PE-bag				

20. Special products

- Special products may be vials, septa, seals or any other chromatography accessories.
- Special products are non-stock items and may require a minimum order quantity.
- In the vial chapter we would like to point out our cylindrical Jars ND40 for soil samples.
- In the septa chapter we would like to draw your attention to our liners for Schott screw caps.
- In the seal chapter we have a broad variety of 13 mm crimp seals.

20.1 Special vials

Part no.	11 09 0831	13 09 0236	13 09 2574	40 09 0678
Description	2.5 mL crimp neck vial, 41 x 11.6 mm, clear glass, 1st hydrol. class, wide opening	2 mL crimp neck vial, 32 x 16 mm, clear glass, 1st hydrol. class	4 mL crimp neck vial, 45 x 14.7 mm, clear glass, 1st hydrol. class	50 mL cylindrical jar, 69.5 x 44 mm, clear glass, 3rd hydrol. class with screw neck ND40
TFVol. (mL)	2.7	3.6	5	65.5
UsVol. (mL)	2.4	3	4.1	50
MWVol. (µL)	200	800	800	5
Res. vol. (µL)	<100	<400	<400	2.5
	100 pcs. per box			125 pcs. per box

20.2 Centrifuge tubes

- Chromatography certified.
- Made of strong, highly transparent medical grade PP.
- Flat-Top caps: made of medical grade PP; easy to write on.
- Large writing area for easy marking.
- -20°C – 121°C.
- 8400 RCF stable.

Part no.	18 19 3965	30 19 3966
Description	15 mL	50 mL
	500 pcs. per PE-bag	

Centrifuge tube with blue screw cap, transparent PP, chromatography certified, scale, writing patch.

TFVol. = Total Volume/Filling Volume (mL), UsVol. = Usable Volume (mL), MWVol. = Minimum Working Volume (µL), Res. vol. = Residual Volume (µL)

20.3 Special seals

Part no.	13 03 1381	13 03 1382	13 03 0307	13 03 0308	22 15 1824	22 15 1869	40 15 0674
Description cap	13 mm aluminum cap clear lacquered, 6 mm centre hole	13 mm aluminum cap clear lacquered, complete tear off	13 mm aluminum cap clear lacquered, 6 mm centre hole	13 mm aluminum cap clear lacquered, centre tear off	PE-Cap, transparent, 22 x 9.1 mm, 4.3 mm centre hole	PE-Cap, transparent, 22 x 9.1 mm, 8.0 mm centre hole	40 mm polypropylene screw cap black, closed top
Septa material	Butyl red/PTFE grey	Butyl red/PTFE grey	Pharma-fix-septa (butyl/PTFE)	Pharma-fix-septa (butyl/PTFE)	Silicone blue transparent/PTFE white, Y-slit	Silicone blue transparent/PTFE white, Y-slit	PTFE virginal
Durometer	55° shore A	55° shore A	50° shore A	50° shore A	45° shore A	45° shore A	53° shore D
Thickness	2.0 mm	2.0 mm	2.0 mm	2.0 mm	1.3 mm	1.3 mm	0.5 mm
100 pcs. per PE-bag							

Further special seals may be available upon request

20.4 Special septa

20.4.1 Septa for Schott screw caps

Part no.	12 02 0468	16 02 0469	23 02 0470	30 02 0471	43 02 0413	43 02 2095
Septa material	12.9 mm septa, Silicone cream/ PTFE beige *for Schott Screw cap GL14*	16.8 mm septa, Silicone cream/ PTFE beige *for Schott Screw cap GL18*	23.4 mm septa, Silicone cream/ PTFE beige *for Schott Screw cap GL25*	30.3 mm septa, Silicone cream/ PTFE beige *for Schott Screw cap GL32*	43.2 mm septa, Silicone cream/ PTFE beige *for Schott Screw cap GL45*	43.2 mm septa, butyl red/ PTFE grey *for Schott Screw cap GL45*
Durometer	55° shore A	55° shore A	55° shore A	55° shore A	55° shore A	55° shore A
Thickness	3.2 mm	3.2 mm	3.2 mm	3.2 mm	3.2 mm	2.5 mm
1000 pcs. per PE-bag					500 pcs. per PE-bag	

Further septa in various materials and diameters upon request

20.4.2 Septa 13 mm

Part no.	13 02 1380	13 02 0261
Septa material	13 mm septa, butyl red/PTFE grey	13 mm septa, pharma-fix-septa (butyl/PTFE)
Durometer	55° shore A	50° shore A
Thickness	2.0 mm	2.0 mm
1000 pcs. per PE-bag		

21. Special services

Pre-screwed/pre-crimped vials

Sometimes customers wish to obtain vials which are already crimped or screwed with a seal of their choice. For example the tobacco industry analyses the smoke of a cigarette which is injected into an already crimped vial. Also a lot of EPA vials are bought with the appropriate closure alreadåy screwed on top of the vial. Thermo Fisher Scientific can provide you with any type of pre-sealed vial.

2in1 kits

To carry out an analysis, the user always needs two components at the same time: vial and closure. To fulfill this need in a convenient way Thermo Fisher Scientific offers 2in1 kits containing 100 vials and 100 seals in a blue, reclosable PP-box. All advantages of the individual items (CleanPack packaging of the vials, tamper-proof evident packaging of vials and seals, traceability through a batch numbering system, etc.) still remain. Furthermore the customer only has to reorder one article instead of two, which makes life easier. The following product lines can be obtained as a 2in1 kit:

- Screw neck vials/seals ND8
- Short thread vials/seals ND9
- Screw neck vials/seals ND10
- Crimp neck vials/seals ND11
- Snap ring vials/seals ND11
- Screw neck vials/seals ND13
- Shell vials ND8, ND11 + ND15 with PE-plugs
- 20 mL headspace vials/seals ND20 + ND18

Special production runs

We make special production runs for:

- Vials: special diameters, special designs (different threads, necks, bottoms, etc.), vials with logos printed on the glass, different glass classes, etc.
  Minimum order quantities depend very much on availability of the glass tubing, possibly necessary extra tooling and set up time for the machinery.
- Vial racks: special outer dimensions, sizes of the cavities, number of cavities, distance between each cavity Minimum order quantity: approx. 20 pieces
- Septa: special diameter, thickness or material, special form Minimum order quantity depends very much on availability of the material, punching tool and set up time for the machinery; however, normally we are fairly flexible here even for smaller order quantities
- Seals: special caps or liners Minimum order quantity depends very much on availability of the requested cap and liner
- Crimpers: for special design caps (like Pump Spray closures, for caps with special size, etc.) If technically realizable, minimum order quantity is 1 piece, however design costs may occur

Special packaging

Our standard packaging unit for seals is 100 pieces per PE-bag and for liners 1,000 pieces per PE-bag. However, our automatic counting and packaging machines are also capable to pack in any quantity a customer may request, e.g. 144 or 200 pieces per PE-bag.

Our vials are packed with 100 pieces per PP-box by standard. However, we also offer for 1.5 mL vials to additionally pack 10 boxes of 100 pieces each into an additional PP-box as a pack of 1,000 pieces.

Repair service for crimping tools

As an additional service for our customers we offer a repair service for crimping tools bought from Thermo Fisher Scientific.

Barcode labelling of vials

In cases of high sample throughput often barcoded vials are requested. Through the barcode the sample can be traced from sample preparation through the whole process of analysis and identification at any point in time. sample mix-ups should not occur and administration of the analysis data is kept down to a minimum.

We can provide you with barcode-labelled vials. The labels withstand temperatures of approx. -40°C up to 140°C and have a high chemical resistance.

Reco mmended is the so-called back side print, as the barcode is protected
by the polyester film and thereby is scratch and wiping resistant.
Furthermore the labels stand out by a high UV-stability.

Further information on length of a possible barcode (readability by the barcode reader), etc. can be obtained any time from us.

Product names, abbreviations, explanations, structure article description

Product and brand names

UltraBond

Thermo Fisher Scientific have enlarged their range of well-known and established UltraBond closures for EPA vials by various 9 mm UltraBond closures for short thread vials, among others also those in an instrument manufacturer quality. Comparable systems are offered by Agilent and Waters as so-called Interseal respectively Lectrabond closures.
The peculiarity of the UltraBond seal system is that the screw cap and the liner form an inseparable unit. Through a patented processing technique the molecular structure of the contact areas of the PP screw cap and the liner are changed in such a way that without usage of any glue or adhesive the components form a firm unit. Reasons for making such a seal instead of a just assembled cap/liner combination seal could be:

- For instruments with very thick and dull needles, in order to avoid the risk of pushing the liner into the vial (9 mm UltraBond seals for short thread vials).
- For screw caps with a wide diameter, where a liner cannot achieve any press-fit in the cap (24 mm UltraBond seals for EPA-Vials).

Pharma-fix

A pharma-fix-septa is a moulded butyl/PTFE liner. Its PTFE lamination is only in the centre of the liner where the sample can get into contact with it. However, on the glass rims the very elastic butyl achieves a very tight seal which is essential especially in headspace analysis. A completely laminated butyl/PTFE septa has a much more slippery surface on the glass rims, so that the tightness is not as good as with a pharma-fix-septa.

RedRubber

RedRubber/PTFE is a synthetic rubber which is softer than natural rubber/TEF and also shows less fragmentation. Furthermore it has a better cleanliness, even though it is not comparable with the analytical purity of silicone. RedRubber is a cost-effective septa material for routine analysis in GC + HPLC with a temperature resistance of -40°C up to 110°C. However, due to a different molecular structure it doesn't have the outstanding resealability properties like natural rubber for multiple injections.

Riplate

"riplate" is the brand name of the 96 well plates of Messrs. RITTER GmbH for which Thermo Fisher Scientific offer suitable glass micro-inserts.

Explanations

Cleanroom packed products

There are different standards of cleanroom classes globally established. When stated, our products are packed in clean rooms of the class ISO 7 or ISO 8 (acc. to ISO 14644-1) which is identical to the class 10.000 or 100K (acc. to US FED STD 209E) for particles ≥ 0.5 µm. Cleanroom classes represent a hygienic standard often found in the pharmaceutical industry. These special rooms have certified conditions for maximum particles per ft3 or m3 air. To have a comparison: The environment in a normal room contains billions of particles. The Cleanrooms are regularly measured by external authorities to guarantee the specifications. Such rooms have no windows (air-conditioned) and only material with low particle abrasion is allowed there (Plastic instead of wood or cardboard, etc.). The people have to wear special clothing.

Headspace cap

A headspace cap is a safety cap for headspace analysis, which should avoid explosion of the vial in case of too much internal pressure. The headspace cap has special score-lines with bridges that break open at an inner pressure of 3.0 ± 0.5 bar. Thus the excess pressure escapes and the risk of vial explosion is avoided.

Micro-insert

A micro-insert in contrast to a micro-vial cannot be sealed on its own. It is neckless and always has to be used within a vial. The diameter of the micro-insert is depending on the size of the vial opening. A micro-insert reduces the volume, so that a needle is capable of picking up even smallest sample quantities. The longer the top of an Insert the more the volume can be reduced.

Pre-cut septa

With slit liners used in HPLC the complete septa is cut through, in order to offer a penetration aid to the needle. In contrast to that pre-cut septa are only cut through the silicone layer, but not through the PTFE giving the same support to the needle without the risk of concentration changes due to solvent loss or contaminations from the environment.

Seal

A seal is an already assembled closure consisting of a cap and a liner.

Durometer

Durometer is the hardness of a liner and is expressed in ° shore. The higher the grade the harder the liner; the lower the grade, the softer the liner. The softest liner is 45° shore A and the hardest 70° shore A. Besides the thickness of a liner the hardness is an essential indication when deciding which liner is suitable for the penetration of a certain type of needle (fragile needles, thin or thick needles, sharp or dull needles, etc.)

Headspace neck (bevelled top)

A headspace neck or headspace vial with bevelled top has a crimp neck whose outer edges are bevelled. In contrast to a flat DIN crimp neck the liner only has a very small surface to sit on which is a disadvantage regarding tightness (except for Pharma-Fix septa). headspace necks or bevelled crimp necks are only necessary when using the patented PerkinElmer Pressure Release seal consisting of an aluminum cap with a slit, a metal star washer plate and a liner with ears. This system only releases excess pressure reliably when using a vial with such a top.

Micro-vial

Micro-vials can be sealed, but often need an adapter to run in the autosampler. In case they have a conical bottom, they cannot stand by themselves.

Silanized

Silanized vials are used to reduce the adsorption of polar compounds onto the normally polar surface of the glass container. Some compounds like amino-acids, proteins or phenols tend to react with the OH-groups of the glass, even if – as is common for chromatography – 1st hydrolytic class glass is used. Through the silanization process the glass surface is deactivated and so possible reactions between the polar compounds and the glass are eliminated.

Virginal (PTFE)

Untreated PTFE

Abbreviations

DW	Deep well (Type of 96 Position Block with round inlet holes)
EPA	Environmental Protection Association (American regulatory authority that sets up certain standards and regulations for environmental analysis)
EPDM	Ethylene Propylene Diene Monomer
EVA	Ethylene-vinyl acetate
GC	Gas Chromatography
GMF	Glass Microfibre
HPLC	High performance liquid Chromatography
HS	Headspace
MTP	Microtiter (Type of 96 Position Block which is very flat and has a low volume)
MTRS	Micro-Tube-Rack-System (Type of 96 Position Block with cover that is more a kind of rack with round inlet holes)
ND	Nominal Diameter
NR	Natural rubber
PE	Polyethylene
PP	Polyproylene
PTFE	PolyTetraFluorEthylene
PVDF	Polyvinylidenfluoride
RR	RedRubber
SPME	Solid Phase micro Extraction
SQW	Square well (Type of 96 Position Block with square inlets)
TEF	Tefzel (special type of PTFE which is a very thin casted Teflon)
TPX	TPX (Brand name of a Methylpentene Copolymere)

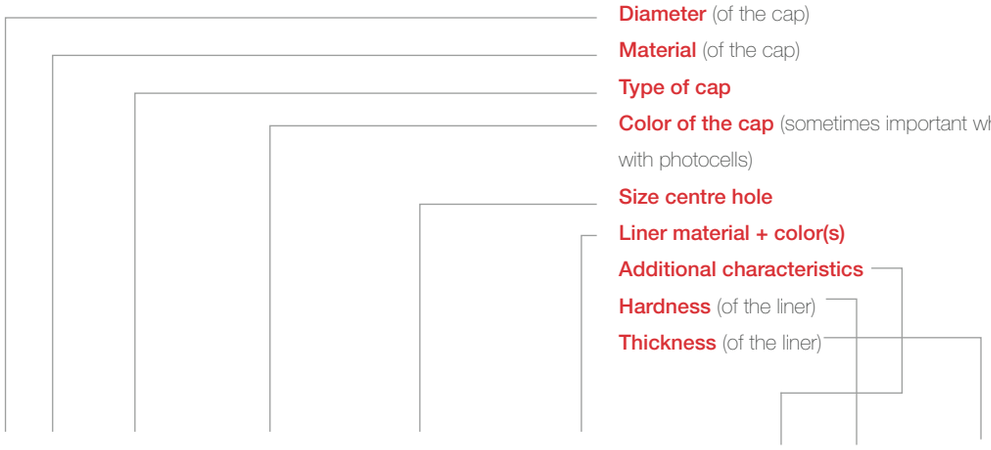
Structure article descriptions

Vials

Volume (realistically usable volume of a vial, not the max. volume that can be filled from bottom to the very top edge of the vial)
Type of vial
Dimensions (height x diameter; exact dimensions, not rounded)
Glass material
Glass class (quality)
Additional characteristics

e.g.: 1.5 mL short threadvial, 32 x 11.6 mm, clear glass, 1st hydrol. class, with label and filling lines

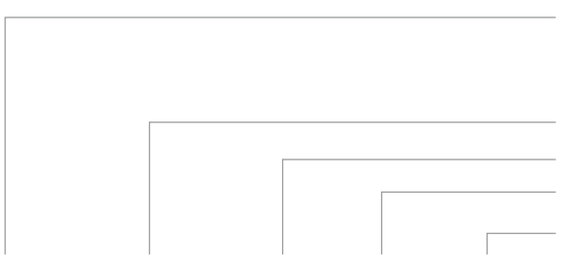
Seals



Diameter (of the cap)
Material (of the cap)
Type of cap
Color of the cap (sometimes important when using an instrument with photocells)
Size centre hole
Liner material + color(s)
Additional characteristics
Hardness (of the liner)
Thickness (of the liner)

e.g.: 11 mm PE snap ring cap transparent, 6 mm centre hole, silicone white/PTFE blue, cross-slit, 55° shore A, 1.0 mm

Septa



Carrier material + color (Important for temperature resistance, resealability in case of multiple injections, cleanliness, etc.
Type of PTFE + color
Hardness of liner (important for the penetration of the needle)
Thickness of liner (important for the penetration of the needle)
Additional remarks (to identify special liner qualities)

e.g.: silicone white/PTFE beige, 45° shore A, 3.2 mm (HT quality)

Alphabetical index

Numerical index

A list of our article groups is shown below

01 Metal crimp and screw caps (no liner)
02 Septa
03 Assembled seals of metal caps and septa
04 UltraBond seals
05 96 position blocks and plates (empty)
06 Crimping tools + crimping heads
07 Decapping tools + decapping heads
08 Plastic caps (no liner)
09 Glass articles
10 Stoppers
11 Flip top/flip off seals (only on special request)
12 Flip tear up seals (only on special request)
13 Springs
14 Combination of glass and plastic articles
15 Assembled seals of plastic caps and septa
16 Syringe filters
17 Capillary connectors
18 GC injection port septa
19 Plastic vials + micro-inserts
20 96 position blocks and plates filled with suitable inserts + seals or with inserts + block covers
21 Vial racks + storage boxes
23 2in1 kits 1.5 mL screw neck ND8
24 2in1 kits 1.5 mL short thread ND9
25 2in1 kits 1.5 mL crimp neck ND11
26 2in1 kits 1.5 mL snap ring ND11
27 2in1 kits 1 mL, 2 mL and 4 mL shell vials
28 2in1 kits 4 mL screw neck ND13
29 Block covers (Sealmat)
31 Combination of glass and metal articles (already crimped vials)
32 2in1 kits 1.5 mL screw neck ND10
33 2in1 kits 20 mL headspace ND20 + ND18
34 Plastic-/plastic combinations
36 Syringes
40 Certified vial kits
44 Assembly (tolling)
99 Others

Autosampler compatibility chart

		Crimp neck ND8	Crimp neck ND8 and 1 mL shell vials	Crimp neck ND8	Screw neck ND8 and 2 mL shell vials	Short thread ND9	Screw neck ND10	Crimp or Snap Ring neck ND11	Screw neck ND13 and 4 mL shell vials	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Screw neck ND24 (EPA)	Well Plates
		7 mm OD	8 mm OD	6 mm OD	11.6 mm OD	11.6 mm OD	11.6 mm OD	11.6 mm OD	14.7 mm OD	22 mm OD	23 mm OD	22.5 mm OD	20 mm OD	27.5 mm OD	
Agilent	1100/1200/ 1290 Infinity					X		X							X
Agilent	1260 Infinity					X		X							
Agilent	G1888A/ HS7694/ HS7694								X			X			
Agilent	7673A			X		X		X							
Agilent	7683A	X		X		X		X							
Agilent	7695A/ Tekmar SOLATek72 / Archon Pluge + Trap / AQUATek 70													X	
Agilent	79855(A)/ 5880/ 5890/ 6850 (27 Pos. Tray)/ 6890					X		X							
Agilent	CTC HTS+HTC PAL+CTC GC PAL	X		X		X		X							X
Agilent	CTC Combi PAL											X			X
Agilent	7693A		X		X			X	X						
Agilent	7697A											X			
Agilent	7650A				X	X	X	X							
Analytik Jena	multi N/C 3000 (TOC)													X	
Antec Leyden	Alexys				X	X		X							
Antec Leyden	AS 100/AS 110				X	X	X	X							
Antek	736 Unisampler/ 738				X	X	X	X							
GL Sciences/ATAS	Focus (PAL)				X	X		X							
Beckman	501/ 502/ 502e/ 507/507e			X	X	X	X	X							
Beckman	504/ Triathlon, Micro-Tray	X													
Beckman	508 (System Gold)					X						X			
Beckman	Marathon/ Promis				X	X		X							
Beckman	Triathlon,Standard Tray				X	X		X		X		X			
Beckman	Triathlon, LSV Tray			X					X						
Beckman	Triathlon, Super-LSV Tray											X			
Bruker	LC51								X						
Bruker	Mapi1														X
Ellutia/Cambridge Scientific Instruments	205 Series				X	X	X	X	X						
Ellutia/Cambridge Scientific Instruments	300 Series/ EL280T					X	X	X	X						
Ellutia/Cambridge Scientific Instruments	EL2000H									X	X	X	X		
Ellutia/Cambridge Scientific Instruments	EL3000A/ EL3100A/ EL3200A/ 500 Series				X	X	X	X	X						
CE Instruments/ Cora Erba	AS100/ AS300	X		X	X	X		X							
CE Instruments/ Cora Erba	AS200/ A200LC/ AS200S	X			X	X		X							
CE Instruments/ Cora Erba	AS800, 42 vial tray				X	X		X							
CE Instruments/ Cora Erba	AS800, 60 vial tray		X	X	X	X		X							
CE Instruments/ Cora Erba	HS250/ HS500/ HS800/ HS850											X			
CE Instruments/ Cora Erba	HT3000A/ HT4000L/ HT1500L				X	X	X	X	X						
CE Instruments/ Cora Erba	HT2000H									X	X	X	X		
Cecil Instruments	CE4800				X	X	X	X							
Cecil Instruments	AutoQuest		X				X	X	X						
CTC (LEAP)	LC PAL (216 Pos.)				X	X	X	X				X			X
CTC (LEAP)	HTX PAL, HTC PAL, HTS PAL (200 Pos. Tray)/ Combi PAL (200 Pos. Tray), GC PAL (200 Pos. Tray)	X													X
CTC (LEAP)	HTX PAL, HTC PAL, HTS PAL (54/98 Pos. Tray)			X	X	X	X	X				X			X
CTC (LEAP)	HTX PAL, HTC PAL, HTS PAL (32 Pos. Tray)/ Combi PAL (32 Pos. Tray), GC PAL (32 Pos. Tray)/ Combi PAL SPME Mode (32 Pos. Tray)											X			
CTC (LEAP)	Combi PAL (98 Pos. Tray), GC PAL (98 Pos. Tray)			X		X		X							X
CTC (LEAP)	Combi PAL SPME Mode (98 Pos. Tray)					X		X							X
CTC	PAL HPLC-Systems/ PAL Combi-xt Liqid Mode/ PAL HTC-xt	X			X	X	X	X				X			X

Autosampler compatibility chart

		Crimp neck ND8	Crimp neck ND8 and 1 mL shell vials	Crimp neck ND8	Screw neck ND8 and 2 mL shell vials	Short thread ND9	Screw neck ND10	Crimp or Snap Ring neck ND11	Screw neck ND13 and 4 mL shell vials	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Screw neck ND24 (EPA)	Well Plates
		7 mm OD	8 mm OD	6 mm OD	11.6 mm OD	11.6 mm OD	11.6 mm OD	11.6 mm OD	14.7 mm OD	22 mm OD	23 mm OD	22.5 mm OD	20 mm OD	27.5 mm OD	
CTC	Combi-xt headspace Option							X				X			
CTC	GC-xt headspace Option/ A200 LC	X			X	X	X	X				X			
CTC	Combi-xt SPME Options							X				X			X
CTC	A200S	X			X	X	X	X							
CTC	HS 500											X			
CTC	PAL RTC/ PAL RSI											X			
CTC	PAL LSI				X	X	X	X	X						X
DANI	ALS 39.80/ ALS 86.80/ ALS 1000					X		X							
DANI	HS39.50/ HS86.50											X			
DANI	Master AS					X		X				X			
DANI	Master SHS Static headspace sampler											X	X		
DANI	HSS 86.50 Plus										X	X	X		
Dionex	Gina 50		X			X		X	X						
Dimatec	Dimatoc 200/ 300/ 400													X	
ESA	542 HPLC Autosampler/ 540 HPLC Autosampler				X	X	X	X	X						
ESA	540 MicroTiter HPLC Autosampler				X	X	X	X	X						X
EST Analytical	AS 120				X	X	X	X	X						
GBC	LC 1650				X			X							
GE Healthcare	Ettan A-905							X							
GE Instruments	Sievers 900													X	
Gerstel	MPS2	X		X				X				X			X
Gilson	201/202 / 221/222 / Aspec				X	X			X						
Gilson	231/401 / 232/402 / Aspec Xli/ Aspec XL4				X	X									
Gilson	221XL/222XL	X		X (only f. 221XL)											
Gilson	223	X													
Gilson	231XL/232XL/233XL	X		X (only f. 231XL)											
Gilson	Nano Injektor				X	X									
Gilson	235/235P/SP 235/SP 235P	X			X	X									
Hach Lange	IL 550 TOC-TN													X	
HTA	HT200H											X			
HTA	HT250D/ HT280T/ HT300L				X	X	X	X				X			
HTA	HT300A/ HT310A				X	X	X	X							
HTA	HT 3000A/ HT3100A/ HT3200A				X	X	X	X	X						
HTA	HT2000H/ HT2100H/ HT2800T									X	X	X	X		
ICI	LC1600	X						X							
IMT GmbH	VSP4000													X	
IMT GmbH	PTA3000									X	X	X			
Jasco	AS 2055/AS 2055 (i) / AS 2057/AS 2057 (i)/ L4000 Series			X	X	X	X	X							
Jasco	AS 2059			X	X	X	X	X							X
Knauer	K-3800 (Basic Marathon)/ Smartline K-3950				X	X		X		X					
Knauer	PLATINblue AS-1				X	X		X							
Knauer	AS 6.1L				X	X	X	X	X						
Konik -Tech	Robokrom Static HS										X	X	X		
Konik -Tech	Robokrom HRGC		X					X							
Konik -Tech	Robokrom HPLC				X	X		X	X						
LDC	713-60		X	X											
LDC	Marathon/Promis				X	X		X							
LEAP	pls. see CTC														
O.I. Analytical	1020A/ 1088/ 1096+/ 4551A/ 1552													X	
PerkinElmer	Series 200, 25 vial tray									X					
PerkinElmer	Series 200, 85 vial tray						X	X		X					
PerkinElmer	Series 200, 81/100 vial tray						X	X							
PerkinElmer	Series 200, 205 vial tray/ ISS-225, 205 vial tray			X			X	X							
PerkinElmer	Series 200, 225 vial tray			X											
PerkinElmer	AI-1/ AS-100/AS-100B		X	X				X							
PerkinElmer	AS2000/AS2000B	X	X				X	X							
PerkinElmer	AS-300/ AS8300/ Autosystem		X	X				X							
PerkinElmer	HS 6/ ISS-225, 25 vial tray									X					

Autosampler compatibility chart

		Crimp neck ND8	Crimp neck ND8 and 1 mL shell vials	Crimp neck ND8	Screw neck ND8 and 2 mL shell vials	Short thread ND9	Screw neck ND10	Crimp or Snap Ring neck ND11	Screw neck ND13 and 4 mL shell vials	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Screw neck ND24 (EPA)	Well Plates
		7 mm OD	8 mm OD	6 mm OD	11.6 mm OD	11.6 mm OD	11.6 mm OD	11.6 mm OD	14.7 mm OD	22 mm OD	23 mm OD	22.5 mm OD	20 mm OD	27.5 mm OD	
PerkinElmer	HS40/HS100/101									X	X				
PerkinElmer	TurboMatrix HS16/HS40/HS40 XL/ HS40 Trap/HS110/ HS110 Trap									X** (not suitable for Turbomatrix™ 110)	X	X* (for Turbomatrix™ 16, 40, 110 produced after 1.9.06)			
PerkinElmer	Integral 4000/ ISS-100, 100 vial tray/ ISS-200, 100 vial tray/ ISS-225, 100 vial tray + 80 vial tray/ LC 600, 60 vial tray						X	X							
PerkinElmer	ISS-100, 85 vial tray/ ISS-200, 85 vial tray/ ISS-225, 100 vial tray + 80 vial tray						X	X		X					
PerkinElmer	ISS-200, 145 vial tray			X											
PerkinElmer	LC 600, 42 vial tray		X												
PerkinElmer	Clarus 400, 500, 600/ 590 GC, 690 GC							X							
PerkinElmer	Flexar FX-20 UHPLC;LC				X	X	X	X							
Pharmacia	LKB 2157-010, 2 mL, 11 mm crimp-Top				X	X		X							
Pharmacia	Akta A-900, 1.5 mL				X			X							
Pharmacia	LKB 2157-020	X						X							
Polymer Laboratories	GPC 110/210/ PL-AS RT				X	X	X	X	X						
Quma Elektronik	QHSS-40											X			
Selerity	3100				X			X							
Sedere						X		X							
Sepiatec															X
SGE	LS-3200	X		X				X							
Shimadzu	AOC-5000	X		X		X		X				X			
Shimadzu	AOC-14/1400 / AOC-17 / AOC-20/20i/20s 150 Pos. Tray				X	X	X	X	X			X			
Shimadzu	AOC-20/20i/20s 96 Pos. Tray/ SIL-10A/SIL-10AF/SIL-10AP/SIL-10Ai/ SIL-10AxL/Rack L 80 Pos./ SIL-10HTA/ SIL-10HTC 100 Pos. Tray/ SIL-20A/ SII-20AC (Prominence) 50 vial tray, LC2010C/LC2010A 100 Pos. Tray								X						
Shimadzu	LC-20A/ SIL-6B/SIL-7A/SIL-8A/SIL-9A/ X2 UHPLC System (Nexera) 324 - 1.5 mL vials / SIL-30ACMP/ Nexera MP (6 -1.5 vial trays				X	X	X	X	X						
Shimadzu	SIL-2AS/ SIL-6A			X	X	X	X	X	X						
Shimadzu	SIL-10A/SIL-10AF/SIL-10AP/SIL-10Ai/ SIL-10AxL/Rack S 100 Pos./ SIL-20A (Prominence) 105 vial tray/SIL-20AC (Prominence) 70 vial tray			X	X	X	X	X							
Shimadzu	SIL-10A/SIL-10AF/SIL-10AP/SIL-10Ai 5 mL/SIL-10AxL/Rack MTP2 192 Pos./ SIL-10HTA/SIL-10HTC 350 pos. Tray/ SIL-20A/SII-20AC (Prominence) 175 vial tray/ LC2010C + LC2010A 350 Pos. Tray		X												
Shimadzu	SIL-10HTA/SIL-10HTC 140 Pos. Tray/ LC2010C + LC2010A 140 Pos. Tray				X	X	X	X							
Shimadzu	SIL-10ADvp		X		X	X	X	X	X						
Shimadzu	HTA 200 H/ HSS-2B											X			
Shimadzu	LC2010C + LC2010A 100 Pos. Tray								X						
Shimadzu	ASI-V													X	
Shimadzu	SIL 30-ACMP				X	X		X							
Shimadzu	SIL-20AXR/SIL-20ACXR (Prominence) 175 (1- mL vials), 70 (1.5- mL vials), 50 (4- mL vials)/ SIL-30AC(Nexera) 175 (1- mL vials), 105 (1.5- mL vials), 50 (4- mL vials)		X		X	X		X	X						
Shimadzu	SIL-20ACHT, SIL-20AHT	X	X	X	X	X	X	X	X						X
Sievers (GE Instruments)	Sievers 900													X	
Spark	Marathon Basic, Standard 96 Pos. Tray/ Triathlon,Standard 96 Tray/ Endurance 48 Pos. Tray/ Dried Blood Spot (DBS)/ Integrity/ Optimas/ Promis				X	X		X							
Spark	Marathon Basic Präp King size 48 Pos. Tray									X					
Spark	Midas, Standard 84 Pos. Tray/ Optimas 96 Pos.(2 mL) 24 Pos.(10 mL)/ Alias				X	X		X				X			
Spark	Midas, Large capacity 96 Pos. Tray				X	X		X							

Autosampler compatibility chart

		Crimp neck ND8	Crimp neck ND8 and 1 mL shell vials	Crimp neck ND8	Screw neck ND8 and 2 mL shell vials	Short thread ND9	Screw neck ND10	Crimp or Snap Ring neck ND11	Screw neck ND13 and 4 mL shell vials	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Screw neck ND24 (EPA)	Well Plates
		7 mm OD	8 mm OD	6 mm OD	11.6 mm OD	11.6 mm OD	11.6 mm OD	11.6 mm OD	14.7 mm OD	22 mm OD	23 mm OD	22.5 mm OD	20 mm OD	27.5 mm OD	
Spark	Midas, Large Volume 24 Pos. Tray/ Triathlon, Super-LSV 32 Pos. Tray											X			
Spark	Alias				X	X		X			X				
Spark	SPH 125/ Interity					X		X							
Spark	Triathlon, LSV 72 Pos. Tray								X						
Spark	Triathlon, micro 160 Pos. Tray	X													
Spark	Reliance 48 Pos. Tray/ Integrity 108 Pos.(2 mL) 2 x Plates , IntegrityPlus 2 x 108 Pos.(2 mL) 4 x Plates				X	X		X							X
Spark	Prospekt 2							X							
Spark	Reliance/Symbiosis Pharma							X							X
Spectra-Physics	8875/ 8880				X	X		X							
Spectra-Physics	SpectraSYSTEM AS1000/ SpectraSYSTEM AS 3500	X		X	X	X		X							
Spectra-Physics	SpectraSYSTEM AS 3000	X	X	X	X	X		X							
Sykam	S 5200/ S 5300/ S 5250					X									
Talbot						X		X							
Teledyne Tekmar	7000/7000HT/7050/ AS™ F1884-04										X				
Teledyne Tekmar	AQUATek 70/SOLATek 72™/ STS 8000 TOC													X	
Teledyne Tekmar	HT3										X	X			
Thermo Scientific	Su mmit ASI 100, Micro-Tray (192 Pos.)		X												
Thermo Scientific	Su mmit ASI 100, Analytical-Tray (117 Pos.)				X	X		X							
Thermo Scientific	Su mmit ASI 100, Semiprep.-Tray (63 Pos.)								X						
Thermo Scientific	Famos (LC Packings/Dionex)/ UltiMate Analytical, cylindrical, WPS-3000 SL, 120 Pos. rack (2 mL)				X	X	X	X				X			
Thermo Scientific	UltiMate Analytical, conical, WPS-3000 SL, 120 (3x40) Pos. rack (1.1 mL=2 mL w. Inserts)							X				X			
Thermo Scientific	UltiMate Micro, conical, WPS-3000 SL, 120 (3x40) Pos. rack (250µL)			X								X			
Thermo Scientific	UltiMate Semipreparative, WPS-3000 SL, 66 (3x22) Pos. rack (4 mL)								X			X			
Thermo Scientific	UltiMate Nano/Cap/Micro, WPS-3000 SL, 216 (3x72) Pos. rack (1.2 mL)		X									X			
Thermo Scientific	ASE 200													X	
Thermo Scientific	AS 40		X						X						
Thermo Scientific	HS-HV				X										
Thermo Scientific	AS-AP (120 Pos. 1.5 mL) (3 x Plates)				X	X	X	X	X						X
Thermo Scientific	AS-DV (50 x 0.5 mL and 50 x 5.0 mL)	X	X		X	X	X	X	X			X			
Thermo Scientific	AS1000 (Trace GC)/ AS300	X		X	X	X		X							
Thermo Scientific	AS200	X			X	X		X							
Thermo Scientific	AS2000 30 vial tray/ HS250 / HS500 / HS800 / HS2000											X			
Thermo Scientific	AS2000 90 vial tray (Trace GC)		X		X	X		X							
Thermo Scientific	AI3000 (II)/AS3000 (II) AS3500 (Trace GC + Focus GC)	X		X		X		X				X			
Thermo Scientific	A200LC/ Accela Open Autosampler	X			X	X		X							
Thermo Scientific	SpectraSYSTEM AS 1000 / AS 3500/ AS100/ Accela high Speed LC Autosampler (200 Pos.	X		X	X	X		X							
Thermo Scientific	SpectraSYSTEM AS 3000	X	X	X	X	X		X							
Thermo Scientific	A200S	X			X	X		X							
Thermo Scientific	AS800, 42 vial tray				X	X		X							
Thermo Scientific	AS800, 60 vial tray		X	X	X	X		X							
Thermo Scientific	Dionex AS-AP				X	X	X	X		X					
Thermo Scientific	Dionex UltiMate WPS-3000	X	X		X	X	X	X	X	X					
Thermo Scientific	Dionex AS 40								X						
Thermo Scientific	TriPlus (=GC PAL) (AS+ Duo)	X	X	X	X	X		X				X			X
Thermo Scientific	TriPlus HS / SPME											X			
Thermo Scientific	TriPlus RSH/ Surveyor (Surveyor Plus)	X		X	X	X		X				X			X
Thermo Scientific	TriPlus 300											X			
Thermo Scientific	HiPerTOC													X	
Thermo Scientific	Trace 1300 Series/ Trace 1310 Series/ AI/AS 1310 Series/ TriPlus 100 LS				X	X	X	X		X	X	X			

Autosampler compatibility chart

		Crimp neck ND8	Crimp neck ND8 and 1 mL shell vials	Crimp neck ND8	Screw neck ND8 and 2 mL shell vials	Short thread ND9	Screw neck ND10	Crimp or Snap Ring neck ND11	Screw neck ND13 and 4 mL shell vials	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Screw neck ND24 (EPA)	Well Plates
		7 mm OD	8 mm OD	6 mm OD	11.6 mm OD	11.6 mm OD	11.6 mm OD	11.6 mm OD	14.7 mm OD	22 mm OD	23 mm OD	22.5 mm OD	20 mm OD	27.5 mm OD	
Thermo Scientific	Vanquish Split/ Vanquish Dual Split			X	X	X		X	X						X
Thermo Scientific	UltiMate WPS-3000RS/TRS / UltiMate WPS-3000TFC/TBFC / UltiMate OAS-3000TXRS/ UltiMate WPS-3000TXRS/ UltiMate WPS-3000TBRS			X	X	X	X	X							X
Tosoh	AS 8010 / TSK-6080					X		X							
Tracor	770/771/772				X	X		X							
Unicam	4247/ 4710				X	X		X							
Unicam	4700 (GC)/ S4/S8	X													
Unicam	4700 (LC)	X			X	X									
Unicam	LC-XP				X	X		X	X						
Varian	ProStar 400, Standard 96 Pos. Tray / ProStar 410, Large capacity 96 Pos. Tray/ ProStar 420, Standard 96 Pos. Tray				X	X	X	X							
Varian	ProStar 400, King size 48 Pos. Tray/ Marathon Basic, Prep, King size 48 Pos. Tray									X					
Varian	ProStar 410, Standard 84 Pos. Tray				X	X	X	X				X			
Varian	ProStar 410, Large Volume 24 Pos. Tray/ CP-9020/CP-9025/ CP-9060 / Genesis/ COMBI PAL (32 Pos. Tray) GC PAL (32 Pos. Tray)/ COMBI PAL SPME mode (32 Pos. Tray)											X			
Varian	ProStar 420, LSV 72 Pos. Tray			X					X						
Varian	ProStar 420, Super-LSV 32 Pos. Tray									X		X			
Varian	ProStar 420, micro 160 Pos. Tray	X													
Varian	ProStar 430, 48 Pos. Tray/ 8000/ 8100/ CP-910, 911, 912				X	X		X							
Varian	8035/ Marathon Basic, Standard 96 Pos. Tray/ Vista				X	X									
Varian	8400 (100 Pos.)/ 8410-Autoinjector (10 x 2 mL; 6 x 5 mL; 5 x 10 mL)				X	X		X					X		
Varian	8200				X	X	X	X							
Varian	LC 9100/LC 9095/LC 9090					X		X							
Varian	Archon													X	
Varian	COMBI PAL (200 Pos. Tray) GC PAL (200 pos. Tray)	X										X			X
Varian	COMBI PAL (98 Pos. Tray) GC PAL (98 Pos. Tray)			X		X		X				X			X
Varian	COMBI PAL SPME mode (98 Pos. Tray)					X		X				X			X
Varian	Marathon Basic, Standard 96 Pos. Tray/ CP-9010				X	X		X							
Varian	920-LC/940-LC				X										
Varian	CP-8410/8034/8035/8100/8200				X			X							
Viscotek	Vortex™													X	
Viscotek	GPC Autosampler				X	X	X								
Viscotek	GPC max, 120 vials				X	X	X	X	X						
VWR(Merck)/ Hitachi	Hitachi Chromaster				X	X		X	X						
VWR(Merck)/ Hitachi	HPLC-System Primaide				X	X	X	X	X						
VWR(Merck)/ Hitachi	L2200 (LaChrom Elite)/L2200-U (LaChrom Ultra) (200 Pos. Tray)/ L7200 (LaChrom) (80 Pos. Tray)/ L7250(LaChrom) (120 Pos. Tray)/ 655-A40 (108 Pos. Tray)/ L-9100				X	X									
VWR(Merck)/ Hitachi	L2200 (LaChrom Elite) (128 Pos. Tray)								X						
VWR(Merck)/ Hitachi	L7250 (LaChrom) (Rack Holder for combination racks)			X	X	X			X					X	
VWR(Merck)/ Hitachi	AS 2000 (50 Pos. Tray)/ AS 4000 (150 Pos. Tray)				X	X		X							
VWR(Merck)/ Hitachi	AS 4000 (198 Pos. Tray)			X											
VWR(Merck)/ Hitachi	5210 (Chromaster) 195 Pos (1 mL), 120 Pos 1.5 mL (Standard), 72 Pos. (4 mL), 2 x MTP (96,384)		X		X	X		X	X						X
VWR(Merck)/ Hitachi	AS 6000			X	X	X									
Waters	ACQUITY™ UPLC Systeme					X			X (for 24 Position Plate)						
Waters	Wisp 48 position								X						
Waters	Wisp 96 position/ 717, 96 Position Carousel		X												

Autosampler compatibility chart

		Crimp neck ND8	Crimp neck ND8 and 1 mL shell vials	Crimp neck ND8	Screw neck ND8 and 2 mL shell vials	Short thread ND9	Screw neck ND10	Crimp or Snap Ring neck ND11	Screw neck ND13 and 4 mL shell vials	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Headspace ND20 (ND18)	Screw neck ND24 (EPA)	Well Plates
		7 mm OD	8 mm OD	6 mm OD	11.6 mm OD	11.6 mm OD	11.6 mm OD	11.6 mm OD	14.7 mm OD	22 mm OD	23 mm OD	22.5 mm OD	20 mm OD	27.5 mm OD	
Waters	717 plus	X	X	X	X	X	X	X	X						
Waters	717, 48 Position Carousel								X						
Waters	Alliance					X	X	X							X
Waters	Alliance GPC 2000								X			X			
Waters	Alliance HT Syst./ Alliance 2790/2795/ Alliance 2690/2695					X	X	X							
Waters	Acquity sample Organizer/ Acquity/ CapLC/Waters/Nano Acquity					X									X
Waters	Acquity H-Class/ Alliance HTS														X
Waters	Model 2767/ Model 2707/ Model 2777					X		X							X
X**: for 24 Position Plate															

Chemical resistance reference chart

This chart provides a guideline for the chemical resistance of materials used for vials and closures.
Because so many factors can affect chemical resistance, it may be necessary to test your product under your actual conditions of use.

Plastic resin code	Description	Appereance	Temp. max °C	Temp. min °C	Autoclavable	Dry heat	Ga mma	Microwavable	Ethylene oxide	Analytical purity	Fragmentation*	Hardness†	Resealability‡
HDPE	High-density polyethylene	Opaque	120	-35	No	No	Yes	Yes	Yes	Method dependent	Medium	Hard	No resealability
EVA	Ethylene-vinyl acetate	Translucent	75	-75	No	No	Yes	No	Yes	Medium high	Low	Hard	
LDPE	Low-density polyethylene	Translucent	100	-40	No	No	Yes	Yes	Yes	Method dependent	Low	Medium hard	No resealability
TPX	Polymethylpen-tene	Transparent	175	0	Yes	No	Yes	Yes	Yes	Method dependent	Low	Very hard	N/A
PP	Polypropylene	Translucent	135	-20	Yes	No	No	Yes	Yes	Method dependent	Low	Medium hard	No resealability
PTFE	Polytetra-fluorethylene	White	260	-200	Yes	Yes	Yes	Yes	Yes	Very high	Low	Very hard (Very thin)	No resealability
RR	RedRubber/PTFE	Red/beige	110	-30	No	No	No	No	No	Medium	Medium	Medium hard	Medium
Butyl	Grey butyl	Opaque grey	125	-20	Yes	No	Yes	Yes	Yes	Method dependent	Low to medium	Soft to medium	Highly resealable
T/S	Silicone/PTFE	White/red	200	-60	Yes	Yes	Yes	Yes	Yes	High	Low to medium	Soft	Highly resealable
T/S/T	PTFE/silicone/ PTFE	Red/white/red	200	-60	Yes	Yes	Yes	Yes	Yes	High	Very low	Medium hard	Good
	Viton	Black	230	-30	Yes	Yes	Yes	Yes	Yes	Medium	Medium	Hard	Low to medium

Key to chart

E – No damage after 30 days of constant exposure.
G – Little or no damage after 30 days of constant exposure.
F – Some effect after 7 days of constant exposure.
N – I mmediate damage may occur. Not reco mmended for continous use.
S – Surface.

The first letter of each pair applies to minimum temperature conditions;
the second to maximum temperature conditions.

* Due to hardness and molecular structure (coring)
† Needle penetration
‡ In case of multiple injections

Chemical	LDPE	HDPE	PP	PTFE	TPX	Glass
1,2 Dichloroethane	NN	NN	NN	EE	NN	EE
1,2,4-Trichlorobenzene	NN	NN	NN	EE	GF	EE
1,4-Dioxane	GF	GG	GF	EE	GF	EE
2,2,4-Trimethylpentane	FN	FN	FN	EE	FN	EE
2,4 Dichlorophenol	NN	NN	NN	EE	FN	EE
2-Butanol	EE	EE	EE	EE	EG	EE
2-Methoxyethanol	EG	EE	EE	EE	EE	EE
2-Propanol	EE	EE	EE	EE	EE	EE
Acetaldehyde	GN	GF	GN	EE	GN	EE
Acetamide, sat.	EE	EE	EE	EE	EE	EE
Acetic acid, 5%	EE	EE	EE	EE	EE	EE
Acetic acid, 50%	EE	EE	EE	EE	EE	EE
Acetic acid, glacial	EG	EE	EG	EE	EG	EE
Acetic anhydride	NN	FF	GF	EE	EG	EE
Acetone	NN	NN	EG	EE	EE	EE
Acetonitrile	EE	EE	FN	EE	FN	EE
Acetophenone	NN	FF	FF	EE	GN	EE
Acrylonitrile	EE	EE	FN	EE	FN	EE
Adipic acid	EG	EE	EE	EE	EE	EE
Allyl alcohol	EE	EE	EE	EE	EG	EE
Aluminum hydroxide	EG	EE	EG	EE	EG	SS
Amino acids	EE	EE	EE	EE	EE	EE
A mmonia	EE	EE	EE	EE	EE	SS
A mmonia, 25%	EE	EE	EE	EE	EE	SS
A mmonium glycolate	EG	EE	EG	EE	EG	EE
A mmonium hydroxide, 30%	EG	EE	EG	EE	EG	SS
A mmonium hydroxide, 5%	EE	EE	EE	EE	EE	SS
A mmonium oxalate	EG	EE	EG	EE	EG	EE
A mmonium salts	EE	EE	EE	EE	EE	EE
Amyl alcohol	EE	EE	EE	EE	EE	EE
Amyl chloride	NN	FN	NN	EE	NN	EE
Aniline	EG	EG	GF	EE	GF	EE
Aqua Regia	NN	NN	NN	EE	NN	SS
Arsenic acid	GF	EG	EE	EE	EE	EE
Benzaldehyde	EG	GN	EG	EE	EG	EE
Benzenamine	EG	EG	GF	EE	GF	EE
Benzene	NN	NN	NN	EE	GF	EE
Benzoic acid, sat.	EE	EE	EG	EE	EG	EE
Benzyl acetate	EG	EE	EG	EE	EG	EE
Benzyl alcohol	NN	FN	NN	EE	NN	EE

Chemical	LDPE	HDPE	PP	PTFE	TPX	Glass
Boric acid	EE	EE	EE	EE	EE	EE
Bromine	NN	FN	NN	EE	NN	EE
Bromobenzene	NN	NN	NN	EE	NN	EE
Bromoform	NN	NN	NN	EE	NN	EE
Butadiene	NN	FN	NN	EE	NN	EE
Butyl acetate	NN	FF	FF	EE	GF	EE
Butyl chloride	NN	NN	NN	EE	FN	EE
Butyric acid	NN	FN	NN	EE	NN	EE
Calcium hydroxide	EE	EE	EE	EE	EE	SS
Calcium hypochlorite	EE	EE	EE	EE	EG	EE
Carbazole	EE	EE	EE	EE	EE	EE
Carbon disulphide	NN	NN	NN	EE	NN	EE
Carbon tetrachloride	FN	GF	GF	EE	NN	EE
Cellosolve acetate	EG	EE	EG	EE	EG	EE
Chlorine water	GN	GF	FN	EE	GF	EE
Chlorine, 10% (moist)	GN	GF	FN	EE	GN	EE
Chlorine, 10% in air	GN	EF	GN	EE	GN	EE
Chlorine, wet gas	GN	GF	FN	EE	GN	EE
Chloro acetic acid	EE	EE	EG	EE	EG	EE
Chlorobenzene	NN	NN	NN	EE	FN	EE
Chloroform	FN	FN	NN	EE	NN	EE
Chromic acid, 10%	EE	EE	EE	EE	EE	EE
Chromic acid, 20%	EE	EE	GG	EE	EE	EE
Chromic acid, 50%	EE	EE	GF	EE	GF	EE
Chromic:Surfuric acid Mixture, 96%	NN	NN	NN	EE	NN	EE
Citric acid, 10%	EE	EE	EE	EE	EE	EE
Cresol	NN	FN	GF	EE	NN	EE
Cyclohexane	FN	FN	FN	EE	NN	EE
Cyclohexanone	NN	FN	FN	EE	GF	EE
Cyclopentane	NN	FN	FN	EE	FN	EE
Decahydronaphtalene	GF	EG	GF	EE	FN	EE
Diacetone	NN	NN	GF	EE	FF	EE
Diacetone alcohol	FN	EE	EF	EE	EE	EE
Di butylphthalate	--	-N	NN	EE	GG	EE
Diethyl benzene	NN	FN	NN	EE	NN	EE
Diethyl ether	NN	FN	NN	EE	NN	EE
Diethyl ketone	NN	NN	GG	EE	GF	EE
Diethyl malonate	EE	EE	EE	EE	EG	EE
Diethylamine	NN	FN	GN	EE	FF	EE

Chemical	LDPE	HDPE	PP	PTFE	TPX	Glass
Diethylene dioxide	GF	GG	GF	EE	FN	EE
Diethylene glycol	EE	EE	EE	EE	EE	EE
Dimethyl acetamide	FN	EE	EE	EE	FG	EE
Dimethyl formamide	EE	EE	EE	EE	EE	EE
Dimethylsulphoxide (DMSO)	EE	EE	EE	EE	EE	EE
Dioxane	GF	GG	GF	EE	FN	EE
Dipropylene glycol	EE	EE	EE	EE	EE	EE
Ethanol, 40%	EG	EE	EG	EE	EG	EE
Ether	NN	FN	NN	EE	NN	EE
Ethyl acetate	EE	EE	EG	EE	FN	EE
Ethyl alcohol (absolute)	EG	EE	EG	EE	EG	EE
Ethyl alcohol, 40%	EG	EE	EE	EE	EG	EE
Ethyl alcohol, 96%	EG	EG	EE	EE	EG	EE
Ethyl benzene	NN	NN	NN	EE	NN	EE
Ethyl Benzoate	FF	GG	GF	EE	GF	EE
Ethyl Butyrate	GN	GF	GN	EE	FN	EE
Ethyl chloride	FN	FF	FN	EE	FN	EE
Ethyl chloride, liquid	FN	FF	FN	EE	FN	EE
Ethyl cyanoacetate	EE	EE	EE	EE	EE	EE
Ethyl lactate	EE	EE	EE	EE	EE	EE
Ethylene chloride	GN	GF	FN	EE	NN	EE
Ethylene glycol	EE	EE	EE	EE	EE	EE
Ethylene oxide gas	FF	GF	FF	EE	FN	EE
Ethylene oxide, 100%	FF	GF	FF	EE	FN	EE
Fatty acids	EG	EE	EG	EE	EG	EE
Fluorine	FN	GN	FN	EG	FN	EE
Formaldehyde, 10%	EE	EE	EE	EE	EG	EE
Formaldehyde, 40%	EG	EE	EG	EE	EG	EE
Formalin, 10%	EE	EE	EE	EE	EG	EE
Formalin, 40%	EG	EE	EG	EE	EG	EE
Formic acid	EG	EE	EG	EE	EF	EE
Formic acid, 100%	EG	EE	EG	EE	EF	EE
Formic acid, 3%	EG	EE	EG	EE	EG	EE
Formic acid, 50%	EG	EE	EG	EE	EG	EE
Formic acid, 85%	EE	EE	EG	EE	EF	EE
Freon TF	EG	EG	EG	EE	FN	EE
Glutaraldehyde	EG	EE	EE	EE	FF	EE
Glycerine (glycerol)	EE	EE	EE	EE	EE	EE
Hexane	NN	GF	GF	EE	FN	EE
Hydrazine	NN	NN	NN	EE	NN	EE
Hydrobromic acid, 4%	EG	EE	EG	EE	EG	EE
Hydrobromic acid, 48%	EE	EE	EE	EE	EE	EE
Hydrobromic acid, 69%	--	-N	EG	EE	EE	EE
Hydrochloric acid, 20%	EE	EE	EE	EE	EG	EE
Hydrochloric acid, 35%	EE	EE	EG	EE	EG	EE
Hydrochloric acid, 5%	EE	EE	EE	EE	EG	EE
Hydrogen peroxide, 3%	EE	EE	EE	EE	EE	EE
Hydrogen peroxide, 30%	EG	EE	EG	EE	EG	EE
Hydrogen peroxide, 90%	EG	EE	EG	EE	EG	EE
Isobutanol	EE	EE	EE	EE	EG	EE
Isopropanol, 100%	EE	EE	EE	EE	EE	EE
Isopropyl acetate	GF	EG	GF	EE	GF	EE
Isopropyl benzene	FN	GF	FN	EE	NN	EE
Isopropyl ether	NN	NN	NN	EE	EE	EE
Lactic acid, 3%	EG	EE	EG	EE	EG	EE
Lactic acid, 85%	EG	EE	EG	EE	EG	EE
Lodine crystals	NN	NN	FN	EE	GN	EE
Mercury	EE	EE	EE	EE	EE	EE
Methanol, 100%	EE	EE	EE	EE	EE	EE
Methoxyethyl oleate	EG	EE	EG	EE	EG	EE
Methyl acetate	FN	FF	GF	EE	EE	EE
Methyl ethyl ketone	NN	NN	EG	EE	NN	EE
Methyl iso butyl ketone	NN	NN	GF	EE	FF	EE
Methyl propyl ketone	GF	EG	GF	EE	FF	EE
Methylene chloride	FN	FN	FN	EE	FN	EE
Methyl-t- butyl ether	NN	FN	FN	EE	EE	EE
n-Amyl acetate	GF	EG	GF	EE	GF	EE
n-Butanol	EE	EE	EE	EE	EG	EE
n- butyl acetate	GF	EG	GF	EE	GF	EE
n-Decane	FN	FN	FN	EE	FN	EE
n-Heptane	FN	GF	FF	EE	FF	EE
Nitric acid, 10%	EE	EE	EE	EE	EE	EE
Nitric acid, 20%	EG	GF	FF	EE	GF	EE
Nitric acid, 50%	GN	GN	FN	EE	FN	EE
Nitric acid, 70%	FN	GN	NN	EE	FN	EE
Nitrobenzene	NN	FN	NN	EE	NN	EE
Nitromethane	NN	FN	FN	EE	EF	EE
n-Octane	EE	EE	EE	EE	EE	EE
o-Dichlorobenzene	FN	FF	FN	EE	FN	EE
Oil, mineral	GN	EE	EE	EE	EG	EE

Chemical	LDPE	HDPE	PP	PTFE	TPX	Glass
Oxalic acid, 10%	EE	EE	EE	EE	EE	EE
Ozone	EG	EE	EG	EE	EE	EE
p-Chloroacetophenone	EE	EE	EE	EE	EE	EE
p-Dichlorobenzene	FN	GF	GF	EE	GF	EE
Perchloric acid	GN	GN	GN	GF	GN	EE
Perchloric acid, 70%	GN	GN	GN	GF	GN	EE
Perchloroethylene	NN	NN	NN	EE	NN	EE
Phenol, 100%	NN	NN	NN	EE	NN	EE
Phenol, 50%	NN	NN	NN	EE	NN	EE
Phenol, crystals	GN	GF	GN	EE	FG	EE
Phenol, liquid	NN	NN	NN	EE	NN	EE
Phosphoric acid, 5%	EE	EE	EE	EE	EE	EE
Phosphoric acid, 85%	EE	EE	EG	EE	EG	EE
Picric acid	NN	NN	NN	EE	EE	EE
Potassium hydroxide, 1%	EE	EE	EE	EE	EE	SS
Potassium hydroxide, 30%	EE	EE	EE	EE	EE	SS
Potassium permanganate	EE	EE	EE	EE	EE	EE
Propane gas	NN	FN	NN	EE	NN	EE
Proprionic acid	FN	EF	EG	EE	EF	EE
Propylene glycol	EE	EE	EE	EE	EE	EE
Propylene oxide	EG	EE	EG	EE	EG	EE
Pyridine	NN	NN	NN	EE	NN	EE
Resorcinol, 5%	EE	EE	EE	EE	EE	EE
Resorcinol, sat.	EE	EE	EE	EE	EE	EE
Salicylaldehyde	EG	EE	EG	EE	EG	EE
Salicylic acid, sat.	EE	EE	EE	EE	EE	EE
Salt solutions, metallic	EE	EE	EE	EE	EE	SS
Silicone oil	EG	EE	EE	EE	EE	EE
Silver nitrate	EG	EE	EG	EE	EE	EE
Sodium dichromate	EE	EE	EE	EE	EE	EE
Sodium hydroxide, 50%	GG	GF	EE	EE	EE	SS
Sodium hydroxide, 1%	EE	GF	EE	EE	EE	SS
Sodium hydroxide, 10%	EE	GF	EE	EE	EE	SS
Sodium hypochlorite, 15%	EE	EE	GF	EE	EE	EE
Stearic acid	EE	EE	EE	EE	EE	EE
Sulfur dioxide	NN	FN	NN	EE	NN	EE
Sulfur dioxide, wet or dry	EE	EE	EE	EE	EE	EE
Sulfur salts	FN	GF	FN	EE	FN	EE
Sulfuric acid, (96%)	GG	GG	FN	EE	GG	EE
Sulfuric acid, 20%	EE	EE	EG	EE	EG	EE
Sulfuric acid, 30%	EE	EE	GG	EE	EG	EE
Sulfuric acid, 6%	EE	EE	EE	EE	EE	EE
Sulfuric acid, 60%	EG	EE	EG	EE	EG	EE
Sulfuric acid, 98%	GG	GG	FN	EE	GG	EE
Tartaric acid	EE	EE	EE	EE	EE	EE
Tetrahydrofuran	FN	GF	GF	EE	FF	EE
Thionyl chloride	NN	NN	NN	EE	NN	EE
Tincture of Iodine	EG	EG	GG	EE	NN	EE
Toluene	FN	FN	FN	EE	FF	EE
Tri butyl citrate	GF	EG	GF	EE	GF	EE
Trichloro acetic acid (TCA)	FN	FF	FN	EE	EE	EE
Trichloroethane	NN	FN	NN	EG	NN	EE
Trichloroethylene	NN	FN	NN	EE	NN	EE
Triethylene glycol	EE	EE	EE	EE	EE	EE
Tripropylene glycol	EE	EE	EE	EE	EE	EE
Tris buffer, solution	EG	EG	EG	EE	EG	EE
Urea	EE	EE	EE	EE	EE	EE
Xylene	GN	GF	FN	EE	NN	EE

Chemical compatibility chart for ProFill filter

	Chemicals	CA	GMF	NY	PES	PP	PTFE	PVDF	RC
Acids	Acetic, glacial	IC	C	LC	C	C	C	C	C
	Acetic, 25%	C	C	C	C	C	C	C	C
	Hydrochloric, concentrated	IC	C	IC	C	C	C	C	IC
	Hydrochloric, 25%	IC	C	IC	C	C	C	C	IC
	Sulfuric, concentrated	IC	C	IC	IC	C	C	IC	IC
	Sulfuric, 25%	IC	C	IC	C	C	C	C	LC
	Nitric, concentrated	IC	LC	IC	IC	C	C	C	IC
	Nitric, 25%	IC	LC	IC	C	C	C	C	IC
	Phosphoric, 25%	C	ND	IC	ND	C	C	ND	LC
	Formic, 25%	LC	C	IC	ND	C	C	ND	C
	Trichloroacetic, 10%	C	ND	IC	ND	C	C	ND	C
Alcohols	Methanol, 98%	C	C	C	C	C	C	C	C
	Ethanol, 98%	C	C	C	C	C	C	C	C
	Ethanol, 70%	C	C	LC	C	C	C	C	C
	Isopropanol	C	C	C	C	C	C	C	C
	n-Propanol	C	C	C	C	C	C	C	C
	Amyl alcohol (butanol)	C	C	C	C	C	C	C	C
	Benzyl alcohol	LC	IC	C	ND	C	C	C	C
	Ethylene glycol	C	C	C	C	C	C	C	C
	Propolene glycol	LC	C	C	C	C	C	C	C
	Glycerol	C	C	C	C	C	C	C	C
Amines and amides	Dimethyl formamide	IC	C	LC	IC	C	C	IC	LC
	Diethylacetamide	IC	C	C	ND	ND	C	ND	C
	Triethanolamine	C	ND	C	ND	ND	C	ND	C
	Aniline	IC	ND	ND	ND	ND	C	ND	C
	Pyridine	IC	C	C	IC	IC	C	IC	C
	Acetonitrile	IC	C	C	LC	C	C	C	C
Esters	Ethyl acetate/methyl acetate	IC	C	C	IC	LC	C	C	C
	Amyl acetate/butyl acetate	LC	C	C	IC	LC	C	IC	C
	Propyl acetate	LC	ND	C	IC	LC	C	IC	C
	Propylene glycol acetate	IC	ND	ND	IC	C	C	ND	C
	2-Ethoxyethyl acetate	LC	ND	ND	IC	ND	C	ND	C
	Methyl cellusolve	IC	C	ND	IC	C	C	ND	C
	Benzyl benzoate	C	ND	C	IC	ND	C	ND	C
	Isopropyl myristate	C	ND	C	IC	ND	C	ND	C
	Tricresyl phosphate	C	ND	ND	IC	ND	C	ND	C
Halogenated hydrocarbons	Methylene chloride	IC	C	LC	IC	LC	C	C	C
	Chloroform	IC	C	C	IC	LC	C	C	C
	Trichloroethylene	C	C	C	IC	C	C	C	C
	Chlorobenzene	C	C	C	LC	C	C	C	C
	Freon	C	C	C	LC	C	C	C	C
	Carbon tetrachloride	LC	C	C	IC	LC	C	C	C
Hydro-carbons	Hexane/xylene	C	C	C	IC	IC	C	C	C
	Toluene/benzene	C	C	C	IC	IC	C	C	C
	Kerosene/gasoline	C	ND	C	LC	LC	C	C	C
	Tetralin/decalin	C	ND	ND	ND	ND	C	C	C
Ketones	Acetone	IC	C	C	IC	C	C	IC	C
	Cyclohexanone	IC	C	C	IC	C	C	IC	C
	Methyl ethyl ketone	LC	C	C	IC	LC	C	LC	C
	Isopropylacetone	C	C	C	IC	ND	C	IC	C
	Methyl Iso butyl ketone	ND	C	ND	IC	LC	C	LC	C
Organic oxides	Ethyl ether	C	ND	C	C	LC	C	C	C
	Dioxane	IC	C	C	IC	C	C	LC	C
	Tetrahydrofuran	IC	C	C	IC	C	C	LC	C
	Triethanolamine	C	ND	C	ND	ND	C	ND	C
	Dimethylsulfoxide (DMSO)	IC	C	C	IC	C	C	IC	C
	Isopropyl ether	C	ND	ND	C	C	C	C	C
Misc.	Phenol, aqueous solution, 10%	IC	C	ND	IC	C	C	LC	IC
	Formaldehyde aqueous solution, 30%	C	C	C	C	C	C	C	LC
	Hydrogen peroxide, 30%	C	ND	C	ND	ND	C	ND	C
	Silicone oil/Mineral oil	C	C	ND	C	C	C	C	C
	A mmonium hydroxide, 25%	C	C	C	C	C	C	LC	LC
	Sodium hydroxide, 3N	IC	IC	C	C	C	C	C	LC

C - compatible
LC - limited compatible
IC - incompatible
ND - no data available

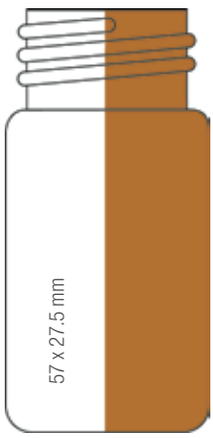
Overview on 1:1 drawings

EPA-vials ND24

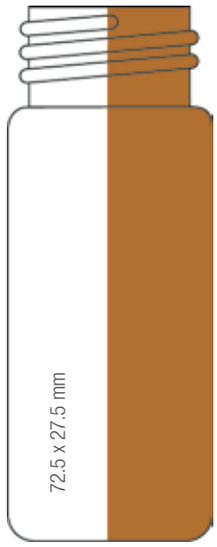
On this section you will find actual size drawings of all standard glass articles and on pages 99-100 drawings of all cap types.

All drawings of the glass articles are marked with our article number and the chapter where you can find the respective product.

The drawings of the caps are not actual size. They should only visualize the special features of certain types of caps.



24 09 0589
24 09 0927
11, 19



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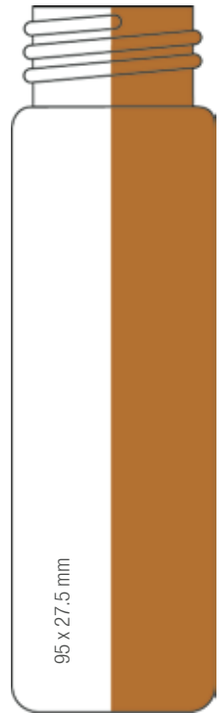
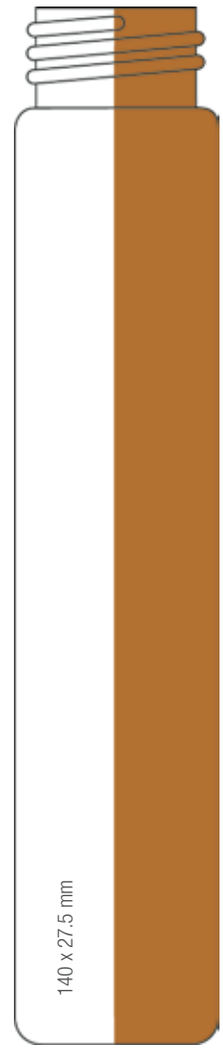


24 09 0402
24 09 0928
11, 19



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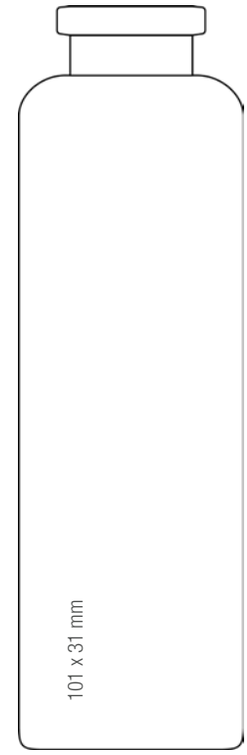
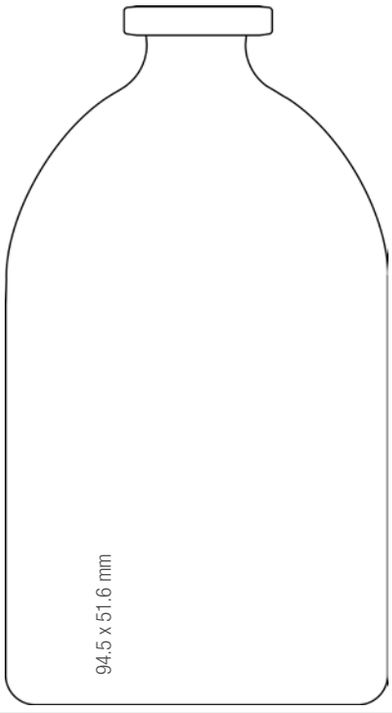


20 09 0289
9

Storage vials



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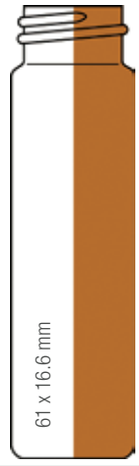

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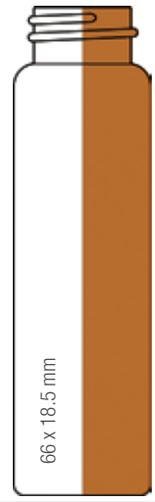

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15 09 1800
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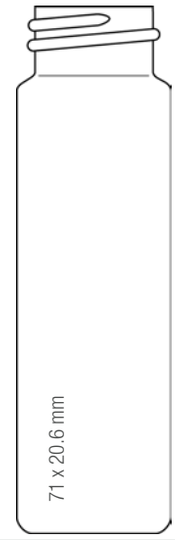

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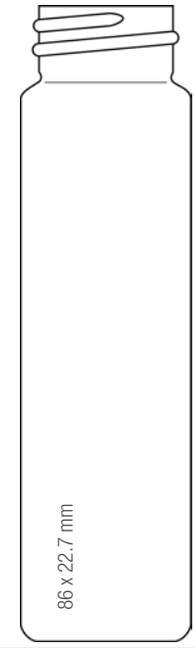

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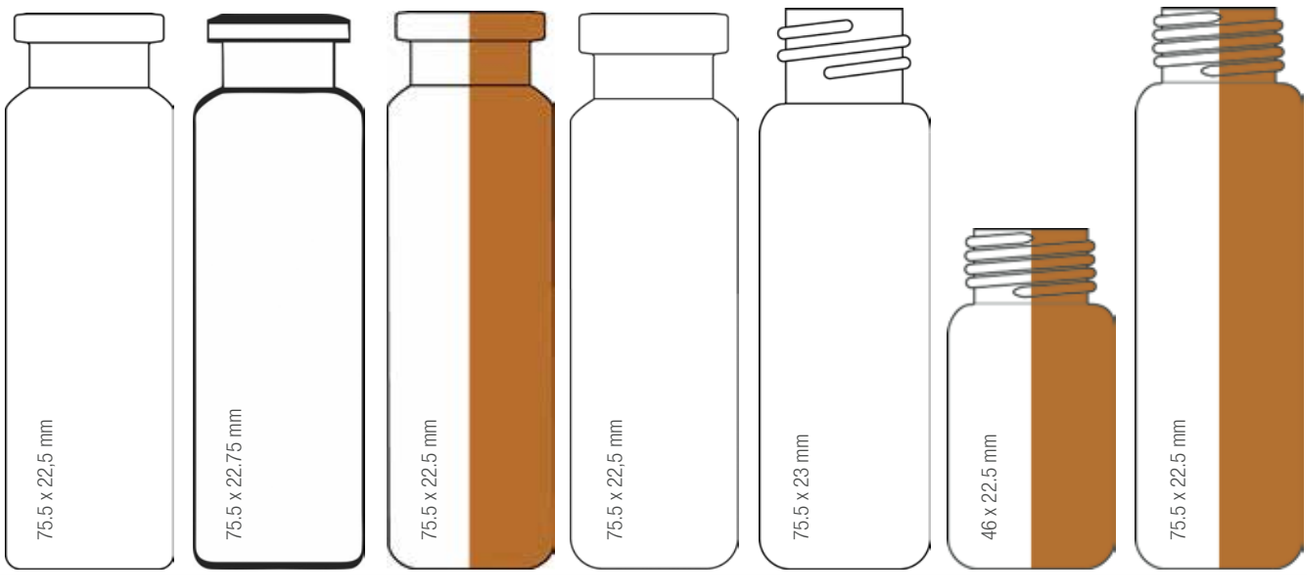
Headspace ND20

20 09 0342	20 09 0801	20 09 0802	20 09 1405 20 09 1691	20 09 0795	20 09 0297 20 09 1223	20 09 0440
9	9	9	9	9	9	9

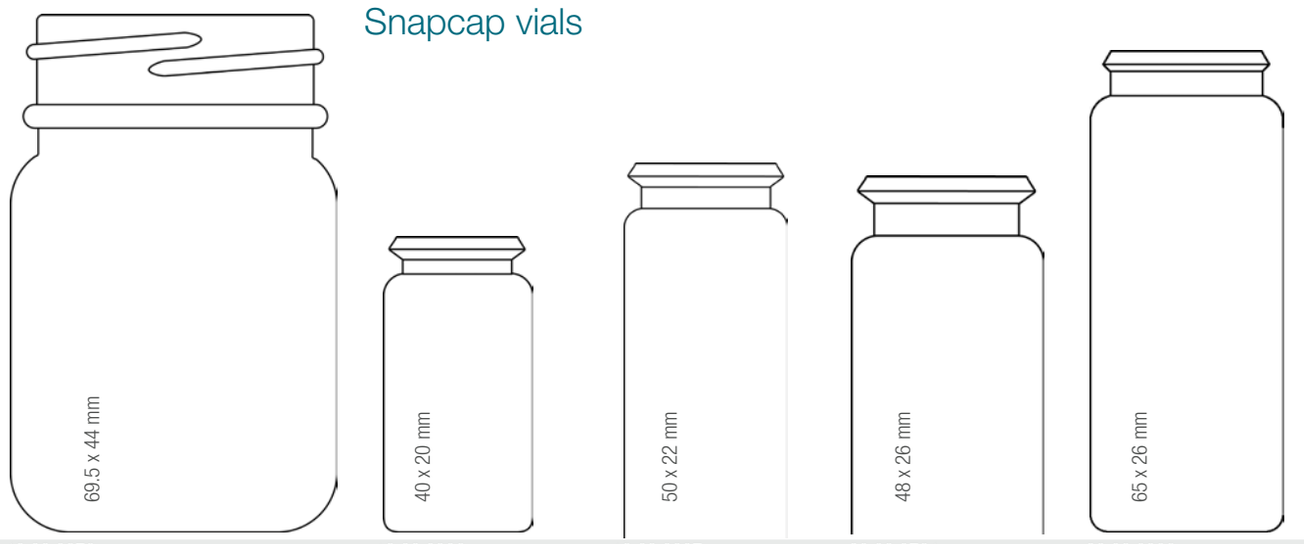
Headspace ND20

Headspace ND18



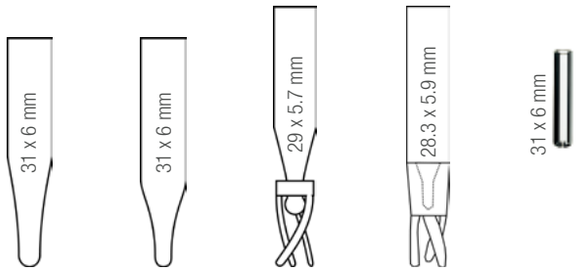
20 09 0796	20 09 3175	20 09 0873 20 09 1690	20 09 1222	18 09 0864	18 09 1306 18 09 1310	18 09 1307 18 09 1311
9	9	9	9	9	9	9

Snapcap vials



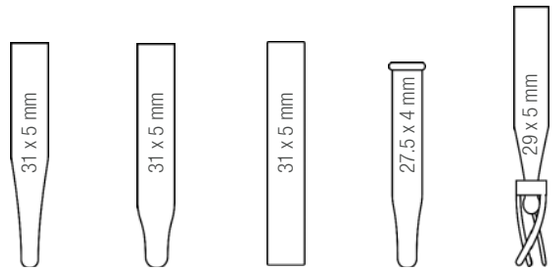
40 09 0678	18 09 0906	18 09 0907	20 09 0784	22 09 0908
20	10	10	10	10

Micro-inserts for wide opening



06 09 0357 06 09 1240 3, 4, 5, 6, 8	06 09 0669 3, 4, 5, 6, 8	06 09 0865 06 09 1343 3, 4, 5, 6	06 19 3973 3, 4, 5, 6	06 09 0866 3, 4, 5, 6, 8

Micro-inserts for small opening



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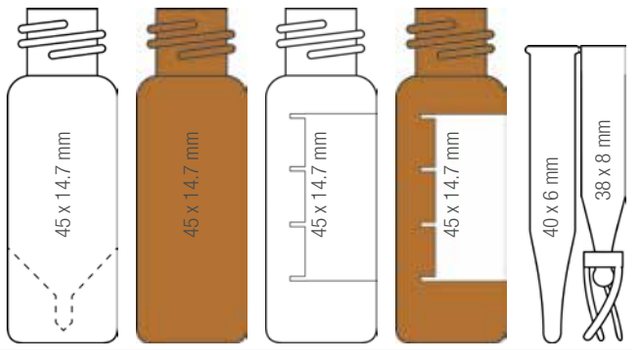
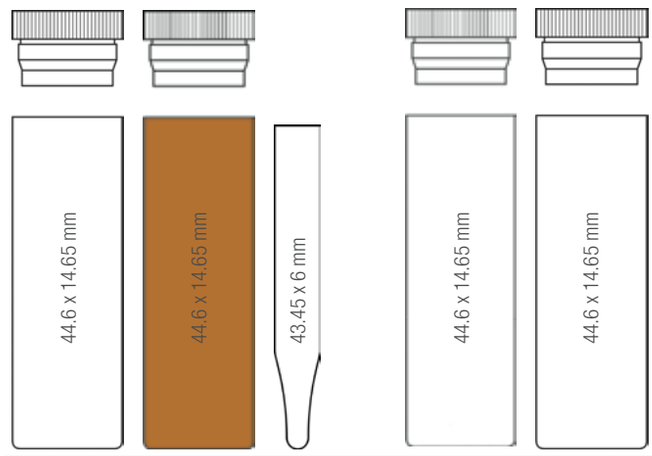
Screw neck ND13



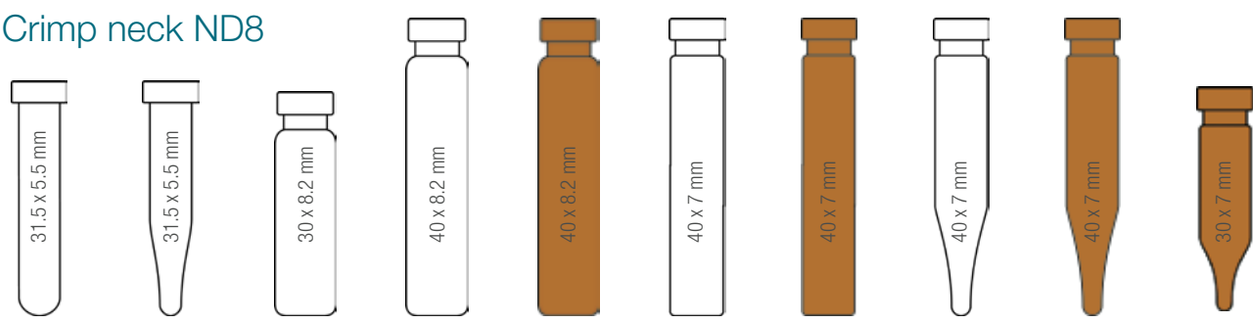
13 09 0222 13 19 3423 7, 19	13 09 0280 7, 19	13 09 1335 7	13 09 1336 7	40 09 0146 40 09 3970 7

Shell vials, 4 mL (insert)



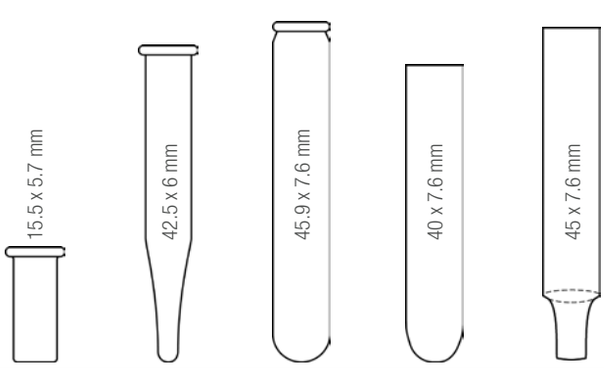
15 14 0548 8	15 14 0562 8	06 09 0651 8	15 34 2199 8	15 34 2197 8

Crimp neck ND8



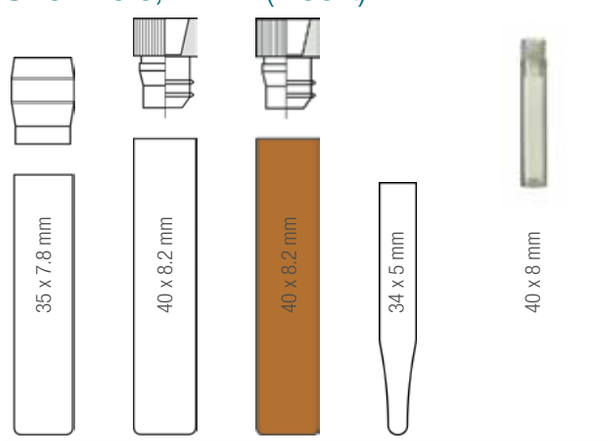
08 09 0276 1	08 09 0606 1	08 09 0284 1	08 09 0845 1	08 09 0953 1	08 09 0405 1	08 09 0406 1	08 09 0305 1	08 09 0258 1	08 09 1080 1

Inserts for 96 position blocksystems (RITTER)



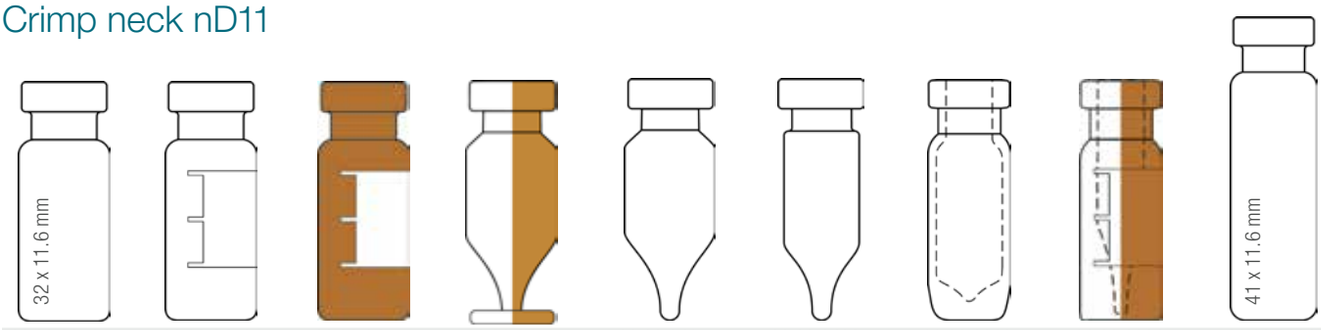
08 09 0875 (MT-Plate) 12	08 09 0888 (DW-Block) 12	08 09 0909 (SQW-Block) 12	08 09 0903 (MTRS) 12	08 09 1081 (SQW/Sealmat) 12

Shell vials, 1 mL (insert)



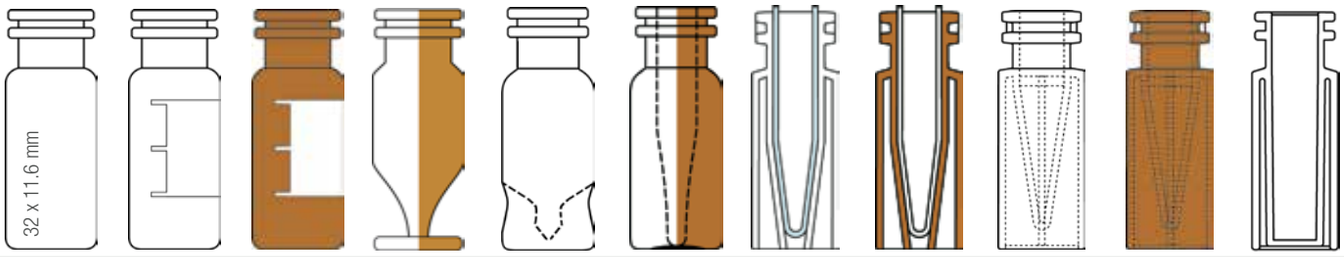
08 14 0641 8	08 14 1168 08 14 3963 8	08 14 1169 08 14 3964 8	05 09 0706 8	08 34 2194 8

Crimp neck nD11



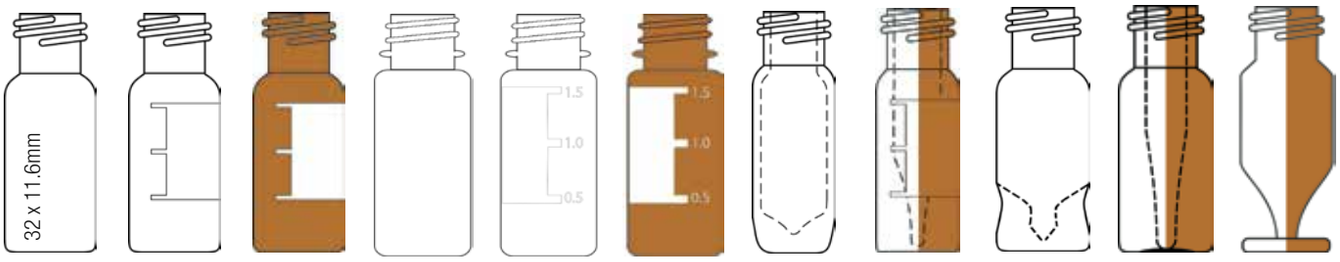
11 09 0356 11 09 2085 5	11 09 0476 5	11 09 0477 11 09 1767 5	11 09 3451 11 09 2671 5	11 09 0415 5	11 09 0486 5	11 09 0619 11 09 2177 5	11 09 0921 11 09 1956 5	11 09 0831 20

Snap ring ND11



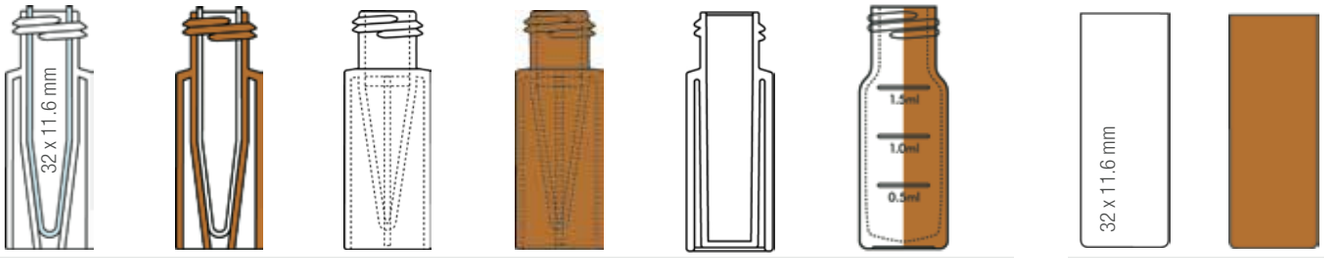
11 09 0627 11 09 2173 6	11 09 0644 6	11 09 0645 11 09 2189 6	11 09 3405 11 09 3406 6	11 09 2276 11 09 3564 5, 6	11 09 2353 11 09 2786 6	11 14 1190 11 14 1266 5, 6	11 14 1656 11 14 1695 5, 6	11 19 0933 11 19 1022 6	11 19 1217 6	11 19 1707 11 19 3597 6

Short thread ND9



11 09 0500 11 09 1241 3	11 09 0519 3	11 09 0520 11 09 1242 3	11 09 2746 3	11 09 2747 3	11 09 2748 3	11 09 0620 3	11 09 0999 11 09 1957 3	11 09 2275 11 09 3563 3	11 09 2357 11 09 2656 3	11 09 2873 11 09 3404 3

Shell vials, 2ml



11 14 1189 11 14 1265 3	11 14 1655 11 14 1694 3	11 19 0932 11 19 1021 3	11 19 1216 3	11 19 1706 11 19 3598 3	11 19 1205 11 19 1516 3	11 14 0544 8	11 14 0545 8

Screw neck ND8, small opening

Screw neck ND10, wide opening

11 09 0210 11 09 2175 2, 19	11 09 0259 2, 19	11 09 0419 2	11 09 0382 11 09 2190 2	11 09 0417 2	10 09 0743 4	10 09 1196 4	10 09 1197 4

Aluminum crimp caps, centre hole




Size	8 mm	11 mm	13 mm	20 mm
Size centre hole	4 mm centre hole	5.5 mm centre hole	6 mm centre hole	10 mm centre hole
Material	Aluminum	Aluminum	Aluminum	Aluminum
Lacquer	Clear	Clear, red, blue, green, gold	Clear, red, blue, green, gold	Plain, red, blue, green, gold

Special aluminum crimp caps






Size	11 mm	13 mm	13 mm	20 mm	20 mm	20 mm
Type of cap	Centre hole cap	Centre tear off cap	Complete tear off cap	Centre tear off cap	Complete tear off cap	Headspace cap*
Material	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
Lacquer	clear	clear, red, blue, green, gold	clear, red, blue, green, gold	clear, red, blue, green, gold	clear, red, blue, green, gold	clear
Special features	with roll grove					

**Headspace cap: This cap has the function of a pressure release cap and is designed with special scorelines whose bridges break open at an internal vial pressure of 3.0 ± 0.5 bar to let the excess pressure escape. It is comparable with the three component PerkinElmer headspace closure (Aluminum crimp cap with slits, metal star washer, liner with ears) which offers the same effect with a different technical design.*

Magnetic caps, centre hole







Size	9 mm screw cap	11 mm crimp cap	20 mm crimp cap	20mm crimp cap	20 mm bimetal crimp cap	18 mm screw cap	18 mm screw cap
Size centre hole	6 mm centre hole (GC)	5 mm centre hole (GC)	5 mm centre hole (HS)	8 mm centre hole (HS)	8 mm centre hole (HS)	8 mm centre hole (Universal) (Headspace/SPME)	Closed top Universal screw cap
Application	PP screw cap blue/ magn. overcap gold	magnetic gold	magnetic gold	magnetic gold	Alu/magnetic red	magnetic silver	silver
Material	GC PAL Thermo Scientific TriPlus	GC PAL, Thermo Scientific TriPlus	CE HS250/500/ HS800, CTC 500 Fisons HS250/500/ HS800	CTC Combi PAL	CTC Combi PAL	CTC Combi PAL PerkinElmer Agilent G1888A	
Lacquer							

PE-caps for crimp necks







Size	8 mm	9 mm	9 mm	11 mm	13 mm	22 mm	22 mm
Approp. vial Size cap	For crimp neck ND8	For 96 block Inserts	For crimp neck ND8	For crimp neck and snap ring ND11	For crimp neck ND11	For HS neck ND20 22 x 8.4mm	For crimp neck ND20 22 x 9.1 mm
Size centre hole	8 mm with thinned penetration point	9 x 5.9 mm 4mm centre hole	9 x 5.9mm 4mm centre hole	11 mm with thinned penetration point	13 x 7.5 mm 4.5mm centre hole	4.3 mm centre hole	4.3 mm centre hole or 8 mm centre hole
Material, color	PE, blue	PE, red	PE, transparent	PE, blue	PE, transparent	PE, transparent only for bevelled tops	PE, transparent only for flat DIN Crimp Necks!

Screw caps

Size	8 mm	9 mm	10 mm	13 mm	15 mm	18 mm	20 mm	24 mm
Approp. vial	Screw neck vials ND8	Short thread vials ND9	Screw neck vials ND10	Screw neck vials ND13	Screw neck vials ND15	Screw neck vials ND18	Screw neck vials ND20	Screw neck vials ND24
Thread	8-425 thread,	Short thread,	10-425 thread,	13-425 thread,	15-425 thread,	18-400 thread,	20-400 thread,	24-400 thread,
Cap design	closed or open top	closed or open top	closed or open top	closed or open top	closed or open top,	closed or open top	closed top,	closed or open top
Size centre hole	5.5 mm centre hole	6 mm centre hole	7 mm centre hole	8.5 mm centre hole	9 mm centre hole	12 mm centre hole		12.5mm centre hole
Material, color	PP, black or white, pink	PP, black, transparent, blue, red, yellow, green, pink	PP, black	PP, black, white	PP, black	PP, black	PP, white	PP, white

PE-plugs for shell vials

Size	8 mm	8 mm	8 mm	8 mm	8 mm	12 mm	15 mm
Vial/plug combination	Plug of 08 14 0641	Plug of 08 14 0904	Lamella Plug of 08 14 3963 or 08 14 3964	Plug of 08 14 0513 or 08 14 0595	Plug of 08 14 1168 or 08 14 1169	Plug of 11 14 0544 or 11 14 0545	Plug of 15 14 0548 or 15 14 0562
Plug size	6 mm	8 mm	8 mm PE,	8 mm	8 mm	12 mm	15 mm
Material, color	PE, transparent	PE, blue	transparent	PE, transparent with insertion barrier for micro-inserts	PE, transparent without insertion barrier for micro-inserts	PE, transparent	PE, transparent
Special features							

Snap ring caps

Size	11mm
Approp. vial	Snap ring vials ND11
Cap design	open top
Size	6 mm centre hole
Material	PE
Color	transparent*, blue*, red, yellow, green, pink

Snap caps

Size	18 mm	22 mm
Approp. vial	Snap cap vials ND18	Snap cap vials ND22
Cap design	closed top	closed top
Size cap	19.8 x 5.2 mm	23.5 x 5.5 mm
Material	PE	PE
Color	transparent	transparent

**Available as a hard or soft PE caps*

Hard cap: tighter, but not so easy to push on or to remove

Soft cap: convenient in handling, but not as tight

Resources for chromatographers

Chromatography resource center

Our web-based resource centers provide technical support, applications, technical tips and literature to help move your separations forward.

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Technical support

For support, please visit **thermofisher.com/chromexpert**

How to order

1974 MICROCOLUMN 50 2024

www.microcolumn.it

Minimum delivery quantities

Vials/seals/septa:	1,000 pieces
Filters/syringes:	100 pieces
GC injection port septa:	25 pieces
Capillary connectors:	10 pieces
(for connectors for 2 columns)	
(for connectors for 3 columns)	1 piece
Crimpers/decappers:	1 piece
2in1 kits:	10 pieces
Vial racks/storage boxes:	1 piece
Storage boxes (16 cavities):	5 pieces per color

The minimum order quantities are independent from the packaging units indicated underneath all products.
Minimum order value: 250.00 €
Our goods are excluded from exchange, legal regulations remain unaffected hereof.

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