

MACHEREY-NAGEL

Vials and caps



For reliable analysis



MACHEREY-NAGEL

www.mn-net.com



Quality since 1911

Since 1911 MACHEREY-NAGEL and their products stand for high quality, innovation and reliability in chemical and bio-molecular analysis. Nowadays we offer an extensive product portfolio in the areas of filtration, rapid tests, water analysis, chromatography and bio analysis. MACHEREY-NAGEL is a family-owned company having the mission to fulfill the versatile requirements of our customers in an optimal way. Personal and competent advice as well as customer-friendly support belong to our philosophy as does the high quality of our products.

With approx. 600 employees and 40 labs we serve our customers all around the world, either directly or indirectly through our distribution channels in more than 150 countries. Our main headquarter is located in Düren (Germany) with subsidiaries in France, Switzerland and in the USA.



Filtration



Rapid Tests



Water Analysis



Chromatography



Bioanalysis

Chromatography with MACHEREY-NAGEL – Complete solutions for analysis

MACHEREY-NAGEL has a long-term expertise in chromatography, as we have been involved in this business right from its beginnings. Today we are a supplier for all kinds of chromatography consumables, from sample preparation to final analysis. Our product range includes HPLC and GC columns as well as syringe filters, SPE cartridges or TLC plates.

Of course we also offer a comprehensive delivery program of autosampler vials and closures along with some accessories, like e.g. crimping tools.



HPLC



GC



TLC



SPE and Flash



Syringe filters



Vials and caps

Vials and caps

MACHEREY-NAGEL offers a wide product range of vials, caps and accessories for chromatography. You can find for almost all autosamplers and applications the right product in our delivery program. In order to facilitate the correct selection of products, we have implemented some useful tools in the catalog (pls. see Autosampler Compatibility Charts starting on page 8 and Real Size Drawings starting on page 61) as well as on our website.

MACHEREY-NAGEL Vials and caps for



GC and HPLC



Headspace

Production

All our products are manufactured under strict hygienic conditions. Opto-electronical supervision at the glass processing machines ensures high quality for a safe analysis. Of course additional in-process controls and a final QC inspection are also part of the measurements which we have implemented to grant a reliable product quality.

Fully automated closure manufacturing with defined production parameters avoids variations in the physical and analytical condition of the most critical component of the analysis: the cap. Strict analytical specifications on the septa material allow only processing of such septa material that passes the comprehensive analytical tests in our lab.

All vials are made from 1st hydrolytic class glass except if explicitly stated otherwise. All septa material used for the production of closures or septa has – aside from physical inspection – also been tested analytically. Upon request certificates of conformity are available for all glass products and closures. Cost-free samples of all vials and caps can be asked for at any time.



Environmental analysis (TOC/VOC)



Sample storage



Fully automated production for safe and reliable consumables for chromatography

Packaging

Vials and caps can be bought either as individual components with 100 pieces in a box respectively in a PE bag or alternatively in form of a Vial Kit as a set of 100 vials and closures in a drawer-like box. All packaging material we use is also strictly evaluated with regard to possible releases of contaminants to ensure that the products remain pure during storage for a safe and reliable analysis. We also took care that the zip lock bags for the closures as well as the boxes for the vials are resealable, so that consumers can protect the products against any contamination in the lab during consumption.

Vial Kits

Vial Kits are a convenient way to stock both components, vials and caps, in a stackable, drawer-like box. As always both items are required for an analysis, it is a handy and easy packing system, requiring less administrative effort in comparison to the individual components.

By opening and closing the drawer, vials and caps are protected against any contamination from the lab environment until they are finished.

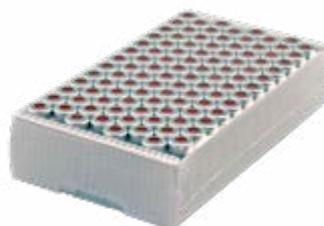
Pre-sealed vial-closure combinations

Pre-sealed vial-closure combinations of any type are available as well. You can choose any type of vial with a closure of your choice and ask for your individual quotation for a pre-sealed combination of these.

Pre-sealing is done in-house under strict hygienic conditions.

Certificate

In case you need certificates of conformity (CoC) for your ISO documentation, please do not hesitate to contact us at any time. Based on our own internal QC reports we can issue them batch related to the individual lot you bought from us. In order to give you an impression on how they look like, please see below an example of such a CoC.



| MACHEREY-NAGEL | | MN |
|--|--|------------|
| Customer information | | XX.XX.202X |
| CERTIFICATE OF CONFORMITY | | |
| MN REF: | 702715, Lot XXXXXXXXXX | |
| MN Article description: | 1.5 mL Snap Ring Vial N 11 outer diameter: 11.6 mm outer height: 32 mm clear, flat bottom, wide opening, label + scale | |
| MACHEREY-NAGEL certifies that the above mentioned products have been manufactured against standards according to the valid specification, drawing and agreed lists of defects and that the specification limits have been met. The components have been manufactured with fully approved tooling. All required inspections and tests have been performed and the items delivered conform to the specifications of the order. | | |
| MACHEREY-NAGEL furthermore confirms that the vials have been manufactured from 1 st hydrolytic class glass which meets the requirements of analytical purity and chemical resistance needed when used in chromatography applications. | | |
| MACHEREY-NAGEL is certified to EN ISO 9001:2015. A copy of this certificate can be provided upon request. | | |
| MACHEREY-NAGEL GmbH & Co. KG | | |
|  | | |
| I.A. Gisela Lanco Product Manager Vials & Caps | | |
|  | | |

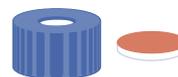
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New products

PTFE-free (flourine-free) 9 mm screw closure

- Polyimide lamination instead of PTFE
- Silicone white/Polyimide orange, 45° shore A, 1.0 mm, MN REF 702402
- For analysis of fluorinated organic compounds



Barcode labelled vials

- Custom-made to your requirements, as 1-D (ladder/fence setup) or 2-D barcode (MOQ 200 packs for 1.5 mL vials; for other sizes quantity needs to be agreed upon)
- Label with a good chemical resistance and an excellent adhesion to glass
- Color of the print is wipe and scratch resistant
- Clear identification of samples
- Traceability during the whole analysis process
- Efficient data management solution, especially with high sample throughput and progressive automation
- Safer workflow due to less errors in comparison to manual entries



2-D Barcode



1-D Barcode
(Ladder setup)

New generation of electronic crimping tools

- Model update for electronic, battery-powered crimping tools and high power crimping tools
- All electronic crimping tools have a brushless motor → longer lifetime
- OLED display → better handling, increased reproducibility
- Scroll through and selection menu for the following parameters:
 - Language (e.g. English, Chinese, Japanese, etc.)
 - Statistics (e.g. cycles since last charge, total cycles, complete charges)
 - Log data (e.g. number of cycles with a certain setting)
 - Reset (e.g. Reset home, Reset all, Battery)
- More types and sizes, as e.g. tools for 13 mm and 20 mm Flip Top/Flip Off caps



New products

Rack for crimping tools

- Rack for either two ergonomic crimpers or battery-powered crimping tools, MN REF 735509
- Safe storage of the crimpers/decappers on the lab bench
- Ready to grasp, creates order on the lab bench
- Protective foam rack

Magnetic screw closures N 18 for CTC Combi PAL® and equivalent autosamplers

- Now open and closed top screw closures N 18 with different septa materials available
- Aside from Silicone/PTFE and Red Rubber/TEF now also closures with Butyl/PTFE are for sale
- Replacement septa of almost all closures can be obtained
- Magnetic screw closures N 9 for 1.5 mL vials are also included in our delivery program



Vial rack for 10 mL and 20 mL Headspace vials (screw N 18/crimp N 20)

- For transportation and a safe standing position of the vials on the lab bench
- Made from chemically resistant polypropylene, blue
- Stackable
- For vials with a max. diameter of 23.1 mm, 36 cavities, sold in a pack of 5 pcs., MN REF 702503
- Alternatively available: MN REF 702516 as a vial container for these vials with a protective lid and 25 cavities



Autosampler compatibility and cross-references

Agilent®

| Main chapter | Pages | | Most popular MN products for use on Agilent® instruments (comparable product nos. of Agilent® in brackets) |
|--|--------|-----------|---|
| GC | | | 5880, 5890, 6850, 6890, 7650A, 7673A, 7683A, 7693A, 7696A, CTC GC PAL® (G650X Agilent® GC Injector 80/120) |
| ■ N 8 Crimp (microsampling) | 21 | Vials: | 70282 (5180-0841/500), 70286 (5180-0844/500), 702003 (5183-4487/1000; for GC PAL®) |
| | 21 | Closures: | 70289 (5180-0842/500), 702878 (5183-4490/500) |
| ■ N 9 Screw (standard samples) | 24 | Vials: | 702282 (5182-0714/100; 5183-2067/1000; 5190-6118/10.000; 5190-6125/50.000; 5185-5918/100.000), 702293 (5188-6535/100; 5188-6536/1000; 5190-6114/10.000; 5190-6121/50.000), 702283 (5182-0715/100; 5183-2068/1000; 5190-6119/10.000; 5190-6126/50.000), 702284 (5182-0716/100; 5183-2069/1000; 5190-6115/10.000; 5190-6122/50.000), 702078 (5183-2071/100; 5183-2070/100 [†]), 702079 (5183-2072/100), 702006 (5183-2030/100), 702088 (5184-3550/100), 702007 (5188-6591/100), 702008 (5188-6592/100), 702135 (5188-5390/100), 702335 , 702009 (5190-2242/100; 5190-2243/1000), 702172 , 702010 , 702500 |
| | 24 | Inserts: | 702716 (5183-2085/100), 702813 (9301-1387/500), 702077 , 702818 (5181-1270/100), 702818.1 (5181-8872/100), 702819 (5182-0549/100 [†]), 702825 (5181-3377/500) |
| | 25, 26 | Closures: | 702732 (5182-0717/100; 5185-5820/500; 5190-1599/1000; 5185-5917/50.000), 702080 (5185-5838/100), 702082 (5182-0718/100; 5185-5829/500), 702081 (5182-0719/100), 702287.1 (5182-0720/100; 5185-5863/500; 5190-4050/5.000), 702037 (5182-0722/100), 702038 (5182-0721/100; 5040-4682/250; 5185-5864/500), 702035 (5182-0723/100; 5185-5862/500), 702084 (5182-0725/100; 8010-0188/1.000), 702085 (5182-0724/100; 5185-5861/500), 702402 , 702026 (5185-5823/100), 702155 (for GC PAL®) |
| | 29, 30 | Vials: | 70201HP (5181-3375/100; 5183-4491/1000; 5185-5852/100.000), 70201HP.2 , 702885 (5182-0543/100; 5183-4492/1000), 702075 (5183-4495/100), 702892 (5181-3376/100; 5183-4493/1000), 702076 (5183-4496/100), 702888 (5182-3454/100), 702015 (5184-3551/100), 702016 (5184-3555/100), 702891 (9301-1388/100), 702014 (5188-6572/100), 702134 (9301-0977/100; 9301-0978/1000), 702334 |
| ■ N 11 Crimp (standard samples) | 29 | Inserts: | As indicated under <i>Screw N 9 – Inserts</i> |
| | 31 | Closures: | 70256 , 702001 (for all see 5181-1210/100; 5061-3370/500; 5183-4498/1000; 5190-4053/5.000; 5185-5851/100.000), 70231.3 (5181-1215/100), 70231.1 (5181-1216/100), 70231.2 (5181-1217/100), 702730 (5190-9044/100), 702730.3 (5190-9045/100), 702730.1 (5190-9046/100), 702730.2 (5190-9047/100), 70288 (5182-0552/100; 5183-4500/1000; 5190-4052/5.000; 5190-3186/10.000), 70288.1 , 70288.2 , 70288.3 , 702995 (5181-1211/100; 5183-4499/1000), 702995.1 (5190-6096/1000), 702995.2 (5190-4075/1000), 702995.3 (5190-4074/1000), 702146 (5181-1212/100), 702879 (5188-5386/100, for GC PAL®) |
| | 29, 30 | Vials: | 70201HP (5181-3375/100; 5183-4491/1000; 5185-5852/100.000), 70201HP.2 , 702885 (5182-0543/100; 5183-4492/1000), 702075 (5183-4495/100), 702892 (5181-3376/100; 5183-4493/1000), 702076 (5183-4496/100), 702888 (5182-3454/100), 702015 (5184-3551/100), 702016 (5184-3555/100), 702891 (9301-1388/100), 702014 (5188-6572/100), 702134 (9301-0977/100; 9301-0978/1000), 702334 |
| ■ N 13 Screw (only 6850, 22 Pos. Tray + 7693A) | 37 | Vials: | 702962 (5183-4448/100; 5183-4452/1000), 702973 (5183-4450/100; 5183-4453/1000) |
| | 37 | Insert: | 702972 (5183-2094/100) + spring 702974 (5183-2095/100) |
| | 37 | Closures: | 702926 (5183-4464/100) |

Autosampler compatibility and cross-references

Agilent®

| Main chapter | Pages | | Most popular MN products for use on Agilent® instruments (comparable product nos. of Agilent® in brackets) |
|--|---------------|-----------|---|
| HPLC | | | 1050 Series (79855A), 1090 Series, 1100 Series (G1313A/G1329A/G1389A/G2260A), 1200 Series (G1367B, G1367D, G1377A), 1260 Infinity Series, 1290 Infinity Series, 1290 Infinity II Multisampler (G7161B) |
| ■ N 9 Screw (standard samples) | 24 | Vials: | As indicated under GC – Screw N 9 – Vials |
| | 24 | Inserts: | As indicated under GC – Screw N 9 – Inserts |
| | 25, 26 | Closures: | 702732 (5182-0717/100; 5185-5820/500; 5190-1599/1000; 5185-5917/50.000), 702080 (5185-5838/100), 702082 (5182-0718/100; 5185-5829/500), 702081 (5182-0719/100), 702287.1 (5182-0720/100; 5185-5863/500; 5190-4050/5.000), 702037 (5182-0722/100), 702038 (5182-0721/100; 5040-4682/250; 5185-5864/500), 702084 (5182-0725/100; 8010-0188/1.000), 702035 (5182-0723/100; 5185-5862/500), 702040 (5183-2078/100), 702085 (5182-0724/100; 5185-5861/500), 702402 , 702083 (5183-2077/100), 702288.1 (5183-2076/100; 5185-5865/500), 702026 (5185-5823/100), 702027 (5185-5824/100; 5040-4649/500) |
| ■ N 11 Crimp (standard samples) | 29, 30 | Vials: | As indicated under GC – Crimp N 11 – Vials |
| | 29 | Inserts: | As indicated under GC – Screw N 9 – Inserts |
| | 31 | Closures: | As indicated under GC – Crimp N 11 – Closures, however, not 702146 and 702879 |
| ■ N 11 Snap (standard samples) | 34 | Vials: | 702714 (5182-0544/100; 5183-4504/1000; 5185-5934/50.000), 702713 (5182-0546/100; 5183-4505/1000), 702712 (5182-0545/100; 5183-4506/1000), 702709 (5188-6593/100), 702708 (5188-6594/100), 702134 (9301-0977/100; 9301-0978/1000), 702134.1 , 702334 , 702809 (5188-2788/100; 5190-3155/1000), 702173 , 702174 (5182-0567/100) |
| | 34 | Inserts: | As indicated under GC – Screw N 9 – Inserts |
| | 35 | Closures: | 702731 (5182-0550/100; 5182-0564/500), 702063 , 702063.2080 (for both see 5182-3458/100), 702710.1 , 702710.2080 (for both see 5182-0541/100; 5185-5916/500), 702064 (5183-4511/100), 702718 (5182-0566/100) |
| Headspace | | | HS7694, HS7697A, G1888A, CTC Combi PAL® |
| ■ N 18 Screw (Combi PAL®, G1888A, HS7697A) | 41 | Vials: | 702866 (5188-5392/100), 702826 (5188-2753/100), 702826.2 (5188-6537/100) |
| | 41 | Closures: | 702055 (5188-2759/100) |
| ■ N 20 Crimp | 42 | Vials: | 702918 (5182-0838/100), 702261 (5182-0837/100; 5185-5957/10.000), 702924 (5183-4475/100; 5190-6147/100 for Combi PAL®), 702263 (5183-4474/100; 5067-0235/10.000 for Combi PAL®), 702263.2 (5190-2239/100 for Combi PAL®) |
| | 44, 45, 46 | Closures: | 70234.10 , 70234 (for both see 5183-4479/100; 5190-2258/10.000), 702071 (5183-4480/100), 702094 (5183-4477/100; 5190-2257/10.000), 702835 (5183-4478/100; 5067-0236/10.000), 702931.3 (5183-4476/100) + 702804 (9301-0721/100) = 70237.2 , 702929 (5190-3987/100 for Combi PAL®), 702834 (for Combi PAL®) |
| TOC | | | AQUATek 70, AQUATek 100, SOLATek 72, Archon Purge + Trap (7695A) |
| ■ N 24 Screw | 47 | Vials: | 702023 , 702024 |
| | 48 | Closures: | 702058 (5183-4308/100), 702060 (5183-4744/24), 702062 (5190-3978/72), 702171 (5190-3978/72) |

Autosampler compatibility and cross-references

CTC

| Main chapter | Pages | | Most popular MN products for use on CTC instruments |
|---|---------|-----------|---|
| GC | | | CTC (Leap) GC PAL [®] , CTC (Leap) Combi PAL [®] (RTC/RSI/LSI) as well as the appropriate OEM autosamplers (Gerstel, Shimadzu [®] , etc.) and equivalent instruments of other manufacturers (Konik) |
| ■ N 8 Crimp (microsampling) | 21 | Vials: | 70282, 70286, 70212.1, 702002, 702003 |
| | 21 | Closures: | 70289, 702878 |
| ■ N 9 Screw (standard samples) | 24 | Vials: | 702282, 702293, 702283, 702284, 702078, 702079, 702006, 702007, 702008, 702135, 702335, 702500, 702009, 702172, 702010 |
| | 24 | Inserts: | 702716, 702813, 702077, 702818, 702818.1, 702825, 702819 |
| | 25, 26 | Closures: | 702155, 702156 (closures for liquid injection → please see HPLC) |
| ■ N 11 Crimp (standard samples) | 29, 30 | Vials: | 70201HP, 70201HP.2, 702885, 702892, 702075, 702076, 702888, 702891, 702014, 702134, 702134.1, 702334, 702809, 702173, 702174 |
| | 29 | Inserts: | As indicated under <i>Screw N 9 – Inserts</i> |
| | 31 | Closures: | 702879 (closures for liquid injection → please see HPLC) |
| HPLC | | | CTC (Leap) LC PAL [®] , HTX/HTX-xt PAL [®] , HTC /HTC-xt PAL [®] , HTS/HTS-xt PAL [®] , PAL [®] RTC, PAL [®] RSI, PAL [®] LSI, Dual Head PAL [®] as well as equivalent instruments of other manufacturers |
| ■ N 9 Screw (standard samples) | 24 | Vials: | As indicated under <i>GC – Screw N 9 – Vials</i> |
| | 24 | Inserts: | As indicated under <i>GC – Screw N 9 – Inserts</i> |
| | 25, 26 | Closures: | 702287, 702287.1, 702036, 702037, 702038, 702107, 702026, 702402, 702288, 702288.1, 702039, 702040, 702083, 702109, 702027, 702286, 702035, 702158, 702084, 702085, 702159 |
| ■ N 11 Crimp (standard samples) | 29, 30 | Vials: | As indicated under <i>GC – Crimp N 11 – Vials</i> |
| | 29 | Inserts: | As indicated under <i>GC – Screw N 9 – Inserts</i> |
| | 31 | Closures: | 70288, 70288.1, 70288.2, 70288.3, 702995, 702995.1, 702995.2, 702995.3, 702823 |
| ■ N 11 Snap (standard samples) | 34 | Vials: | 702714, 702713, 702712, 702709, 702708, 702134, 702134.1, 702334, 702809, 702173, 702174 |
| | 34 | Inserts: | As indicated under <i>GC – Screw N 9 – Inserts</i> |
| | 35 | Closures: | 702710.1, 702717.2, 702718.1, 702710, 702064, 702718, 702710.2080, 702717.2080, 702718.2080 |
| Headspace | | | CTC (Leap) Combi PAL [®] (RTC/RSI/LSI) as well as the appropriate OEM autosamplers (Gerstel, Shimadzu, etc.) and equivalent instruments of other manufacturers (Konik) |
| ■ N 18 Screw (Combi PAL [®]) | 41 | Vials: | 702866, 702826, 702826.2 |
| | 41 | Closures: | 702827, 702055 |
| ■ N 20 Crimp | 42 | Vials: | 702924, 702263, 702263.2 |
| | 44, 45, | Closures: | 702929, 702834 |
| | 46 | | For washer bottle 702924: 70267 + 702144 |

Autosampler compatibility and cross-references

Dionex® (Thermo Scientific®)

| Main chapter | Pages | | Most popular MN products for use on Dionex® instruments |
|--|--------|-----------|--|
| HPLC | | | UltiMate 3000 Basic System (ACC-3000, ACC-3000T), UltiMate 3000 Standard SD (WPS-3000TSL, WPS-3000SL), UltiMate 3000 Rapid Separation RS (WPS-3000RS, WPS-3000TRS), Biocompatible Systems (WPS-3000TBPL, WPS-3000TBRS), UltiMate 3000 RSLCnano (WPS-3000TPL RS, WPS-3000PL RS), UltiMate 3000 Semi-Preparative (WPS-3000TSL, WPS-3000SL), Autosampler with Fraction Collection (WPS-3000TFC, WPS-3000TBFC), Vanquish Systems (VF-A10-A, VH-A10-A, VH-A90-A), Summit ASI-100/ASI-100T, Gina 50 |
| IC* | | | Dionex® AS, AS-AP, AS 40, AS 50 |
| ■ N 8 Crimp (microsampling) | 21 | Vials: | 70282, 70286 |
| | 21 | Closures: | 702025, 70289 |
| ■ N 8 Screw (standard samples) | 22 | Vials: | 70213, 70213.2, 702004, 702893, 702860 |
| | 22 | Inserts: | 702968, 702968.1, 702824, 702005 |
| | 23 | Closures: | 70245, 702437 |
| ■ N 9 Screw (standard samples) | 24 | Vials: | 702282, 702293, 702283, 702284, 702078, 702079, 702007, 702008, 702135, 702335, 702006, 702009*, 702172*, 702010*, 702500* |
| | 24 | Inserts: | 702813, 702077, 702818, 702818.1, 702819*, 702825 |
| | 25, 26 | Closures: | 702287.1, 702287, 702036, 702037, 702038, 702107, 702026, 702402 702288.1*, 702288*, 702039*, 702040*, 702083*, 702109*, 702027* |
| ■ N 11 Crimp (standard samples) | 29, 30 | Vials: | 70201HP, 70201HP.2, 702885, 702892, 702075, 702076, 702888, 702891, 702014, 702134, 702134.1, 702334 |
| | 29 | Inserts: | As indicated under <i>Screw N 9 – Inserts</i> |
| | 31 | Closures: | 70288, 70288.1, 70288.2, 70288.3, 702823, 70256, 70231.1, 70231.2, 70231.3 |
| ■ N 11 Snap (standard samples) | 34 | Vials: | 702714, 702713, 702712, 702709, 702708, 702134, 702134.1, 702334, 702809, 702173, 702174 |
| | 34 | Inserts: | As indicated under <i>Screw N 9 – Inserts</i> |
| | 35 | Closures: | 702710.1, 702710, 702710.2080, 702717.2, 702064, 702717.2080 |
| ■ N 13 Screw (large sample volumes) | 37 | Vials: | 702962, 702973 |
| | 37 | Insert: | 702972 + spring 702974 |
| | 37 | Closures: | 702926 |
| ■ N 20 Crimp (large sample volumes) | 42 | Vials: | 702924 (not for Summit ASI-100/ASI-100T, Gina 50) |
| | 44 | Closures: | 702094, 702093, 702091 |
| TOC | | | ASE 200, ASE 350, AS-HV |
| ■ N 24 Screw | 47 | Vials: | 702023, 702024 (only for ASE 200 and AS-HV), 702074, 702131 |
| | 48 | Closures: | 702058 |

Autosampler compatibility and cross-references

Knauer

| Main chapter | Pages | | Most popular MN products for use on Knauer instruments |
|--|------------|-----------|--|
| HPLC | | | TRIATHLON, Knauer Smartline 3800/3950, Knauer UHPLC Version PLATINblue AS 1, Azura® AS 6.1L, Knauer Optimas |
| ■ N 8 Screw (standard samples) | 22 | Vials: | 70213, 70213.2, 702004, 702893 |
| | 22 | Inserts: | 702968, 702968.1, 702824, 702005 |
| | 23 | Closures: | 702067, 70245 |
| ■ N 9 Screw (standard samples) | 24 | Vials: | 702282, 702293, 702283, 702284, 702078, 702079, 702006, 702007, 702008, 702135, 702335, 702088, 702009, 702172, 702010, 702500 |
| | 24 | Inserts: | 702813, 702077, 702716, 702818, 702818.1, 702819, 702825 |
| | 25, 26 | Closures: | 702732, 702030, 702080, 702081, 702082, 702147, 702287.1, 702287, 702036, 702037, 702038, 702107, 702402, 702028, 702026 |
| ■ N 13 Screw (large sample volumes) (only for TRIATHLON) | 37 | Vials: | 702962, 702973 |
| | 37 | Insert: | 702972 + spring 702974 |
| | 37 | Closures: | 702926, 702050 |
| ■ N 18 Screw (large sample volumes) | 41 | Vials: | 702866 |
| | 41 | Closures: | 702072, 702055, 702827 |
| ■ N 20 Crimp (large sample volumes) | 42 | Vials: | 702918 |
| | 44, 45, 46 | Closures: | 702094, 702129 |

PerkinElmer®

| Main chapter | Pages | | Most popular MN products for use on PerkinElmer® instruments (comparable product nos. of PE in brackets) |
|------------------------------------|--------|------------|---|
| GC | | | AS 100/100B, AS 300, AS 2000/2000B, AS8300, AutoSytem, Clarus 400/480, Clarus 500/580/590, Clarus 600/680/690 (with 108-Vial Tray N6550017 for none PE-Vials screw neck vials N 9 or N 10 may be used as well → see HPLC) |
| ■ N 8 Crimp (microsampling) | 21 | Vials: | 70251 (N9301069/200), 70282, 70286 (N9302136/500) |
| | 21 | Closures: | 70252.1, 702025 (for both see 03300806/1000) |
| ■ N 11 Crimp (standard samples) | 29 | Vials:* | 70201CG (N9301385/100), 70214CG (N9302680/100) |
| | 29 | Inserts:* | 702824 (N9300705/100), 702005 (N9300706/100) |
| * small opening ** wide opening | 29, 30 | Vials:** | 70201HP (N9306231/100), 70201HP.2, 702885 (N9306223/100), 702892 (N9302679/100), 702075 (N9304135/100), 702076 (N9304136/100), 702891 (N9300709/100), 702014 (N9300710/100), 702134 (N9300709/100 [†]), 702134.1, 702334 (N9300710/100 [†]) |
| | 29 | Inserts:** | 702818 (N9300703/100), 702818.1, 702819, 702825 (N9300704/100) |
| | 31 | Closures: | 702730 (N9306230/100), 70256 (N9306015/100), 702730.1 (N9302684/100), 702730.2 (N9302685/100), 702730.3 (N9302686/100), 70288 (N9307823/100), 70288.1, 70288.2, 70288.3, 702995 (N9306229/100), 702995.1, 702995.2, 702995.3, 702146 (N9302784/100) |

† Alternative MN product

Autosampler compatibility and cross-references

PerkinElmer®

| Main chapter | Pages | | Most popular MN products for use on PerkinElmer® instruments (comparable product nos. of PE in brackets) |
|---|-----------------------------------|---------------------------------|---|
| HPLC | | | Series 200 LC, ISS 100, ISS 200, ISS 225, LC 600, Integral 4000, Altus™ UPLC, Flexar™ |
| ■ N 8 Crimp (microsampling) | 21 | Vials: | 70286 (N9302136/500) |
| | 21 | Closures: | 70252.1 , 702025 (for both see 03300806/1000) |
| ■ N 9 Screw (standard samples) | 24 | Vials: | 702282 (N9306201/100), 702293 (N9306220/100), 702283 (N9307801/100), 702078 (N9304139/100; N9307017/1000), 702079 (N9304140/100), 702284 (N9307802/100), 702009 (N9301732/100), 702172 , 702010 (N9301733/100‡), 702500 , 702007 (N9300715/100), 702008 (N9300716/100), 702135 (N9300715/100‡), 702335 (N9300716/100‡) |
| | 24 | Inserts: | 702818 (N9300703/100), 702818.1 , 702819 , 702825 (N9300704/100) |
| | 25, 26 | Closures: | 702288.1 , 702027 (for both see N9306203/100; N9306363/1000; N9306364/100; N9306365/1000), 702287.1 , 702026 (for both see N9306202/100; N9306360/100; N9306361/1000; N9306362/100), 702732 , 702028 (for both see N9306200/100) |
| ■ N 10 Screw (standard samples) | 28 | Vials: | 702012 (N9306053/100), 702013 (N9306057/100) |
| | 28 | Inserts: | As indicated under <i>Screw N 9 – Inserts</i> |
| | 28 | Closures: | 702047 (N9306052/100), 702044 (N9306206/100), 702045 , 702046 (for both see N9306205/100) |
| ■ N 11 Crimp (standard samples) | 29, 30, 31 | Vials/ Inserts/ Closures: | As indicated under <i>GC – Crimp N 11</i> , however not 702146 |
| | ■ N 11 Snap (standard samples) | 34 | Vials: |
| 34 | | Inserts: | As indicated under <i>Screw N 9 – Inserts</i> |
| 35 | | Closures: | 702064 (N9303416/100), 702710 (N9303419/100), 702718 (N9303417/100) |
| Headspace | | | HS6, HS40/HS40XL, HS100/101, TurboMatrix™ HS16, HS40/HS40 Trap/HS40 XL, HS100/HS110 Trap |
| ■ N 18 Screw (for Combi PAL® + TurboMatrix™ HS 16, 40 + 110) | 41 | Vials: | 702866 (N6356479/100), 702826 (N9306075/100; N9306078/1000), 702826.2 |
| | 41 | Closures: | 702055 (N6356476/100), 702827 (N6356475/100), 702137 (N6356477/100) |
| ■ N 20 Crimp (for Combi PAL®) | 42 | Vials: | 702924 (N6356478/100), 702263 (N6356471/100), 702263.2 |
| | 45 | Closures: | 702929 (N6356559/100; N6356558/100‡), 702834 (N6356566/100; N6356565/100‡), 702928.9 (N6356562/100), 702928 , 702774 (for both see N6356560/100) |
| ■ N 20 Crimp (for TurboMatrix™ HS 16, 40 + 110) *** not suitable for TurboMatrix™ 110 | 42 | Vials: | 702917 *** (N9302134/125), 70254 (N9306079/100; B0104236/1000; N9306216/1000), 702540 (N9303349/100; N9303348/1000) |
| | 44, 45, 46 | Closures: | 702836 , 702773 (for both see B0104239/100‡; B0104240/1000‡, B4000025/1000‡), 702829 , 70234.8 , 702775 , 70234.9 (for all see N9306264/1000‡; N9306266/100‡; N9306267/1000‡), 702835 , 702927 , 702094 , 702093 (for all see B0104241/100‡; B0104242/1000‡; B4000022/1000‡), 702145 (B0104243/100‡; B0104244/1000‡, B4000028/1000), 702931.3 (B0038137/100) + 702804 (B0099814/100), 70237.2 (B0110728/1000), 70234.10 , 70234 (for both see N9306224/1000) |
| | | | |
| TOC | | | AQUATek 100 |
| ■ N 24 Screw | 47 | Vials: | 702023 , 702024 |
| | 48 | Closures: | 702058 , 702171 , 702060 (N6352033/24‡), 702062 (N6352032/72) |

‡ Alternative MN product

Autosampler compatibility and cross-references

Shimadzu®

| Main chapter | Pages | Most popular MN products for use on Shimadzu® instruments (comparable product nos. of Shimadzu® in brackets) |
|---------------------------------------|--------|--|
| GC | | AOC-14, AOC-17, AOC20/AOC-20i/AOC-20s AOC-5000, AOC-6000 |
| ■ N 8 Crimp (microsampling) | 21 | Vials: 70282, 70286, 70212.1, 702002, 702003 |
| | 21 | Closures: 70289, 702878 |
| ■ N 9 Screw (standard samples) | 24 | Vials: 702282, 702293, 702283 (EU: 980-08337/1000), 702284, 702078, 702079, 702006, 702007, 702008, 702135, 702335, 702009, 702172, 702010, 702500 |
| | 24 | Inserts: 702716, 702813 (EU: 980-04987/100), 702077, 702825, 702818 (US: 220-91521-04/100; EU: 980-01707/1000), 702819, 702818.1 |
| | 25, 26 | Closures: 702081 (EU: 980-08339/1000), 702732, 702080, 702082, 702147, 702028 702287.1 (EU: 980-08338/1000; US: 228-45454-91/1000), 702036, 702037, 702038, 702107, 702402, 702026 702155, 702156 (for AOC-5000, AOC-6000) |
| ■ N 10 Screw (standard samples) | 28 | Vials: 702011, 702012, 702013 |
| | 28 | Inserts: As indicated under <i>Screw N 9 – Inserts</i> |
| | 28 | Closures: 702045, 702046, 702048 |
| ■ N 11 Crimp (standard samples) | 29, 30 | Vials: 70201HP (EU: 980-01705/1000), 70201HP.2, 702885, 702892, 702075, 702076, 702888, 702891, 702014, 702134, 702134.1, 702334, 702141 |
| | 29 | Inserts: As indicated under <i>Screw N 9 – Inserts</i> |
| | 31 | Closures: 70288 (EU: 980-05740/1000), 70288.1, 70288.2, 70288.3, 702995, 702995.1, 702995.2, 702995.3, 702879 (EU: 980-01706/1000 for AOC-5000, AOC-6000) |
| ■ N 13 Screw (large sample volumes) | 37 | Vials: 702962 (US: 220-90393-00/100; 221-34267-92/50), 702973 |
| | 37 | Insert: 702972 (US: 228-21285-91/100) + spring 702974 |
| | 37 | Closures: 702926 (US: 220-91521-14/1000), 702963 (US: 221-34268-92/50) + 702292 (US: 221-34266-92/50; 228-21290-91/100) |
| HPLC | | SIL-2AS, SIL-6A/Sil-6B, Sil-7A, SIL-8A, SIL-9A, SIL HTA/HTC SIL-10A/SIL-10AF/SIL-10Ai/SIL-10AP/Sil-10HTA/SIL-10HTC/SIL-10ADvp SIL-20A/SIL-20AC/SIL-20AXR/SIL-20ACXR (Prominence), SIL-30AC (Nexera), LC-2010C/LC-2010A |
| ■ N 8 Crimp (microsampling) | 21 | Vials: 70282, 70286 |
| | 21 | Closures: 70289, 702878 |
| ■ N 9 Screw (standard samples) | 24 | Vials: As indicated under GC – <i>Screw N 9 – Vials</i> |
| | 24 | Inserts: As indicated under GC – <i>Screw N 9 – Inserts</i> |
| | 25, 26 | Closures: 702287.1 (EU: 980-08338/1000; US: 228-45454-91/1000), 702036, 702037, 702038, 702107, 702026, 702039, 702040, 702083, 702288.1 (US: 220-91521-16/1000), 702109, 702027 |
| ■ N 10 Screw (standard samples) | 28 | Vials: 702011, 702012, 702013 |
| | 28 | Inserts: As indicated under GC – <i>Screw N 9 – Inserts</i> |
| | 28 | Closures: 702045, 702046, 702047 |
| ■ N 11 Crimp (standard samples) | 29, 30 | Vials: As indicated under GC – <i>Crimp N 11 – Vials</i> |
| | 29 | Inserts: As indicated under GC – <i>Screw N 9 – Inserts</i> |
| | 31 | Closures: 70288 (EU: 980-05740/1000), 70288.1, 70288.2, 70288.3, 702823 |
| ■ N 11 Snap (standard samples) | 34 | Vials: 702714, 702713, 702712, 702709, 702708, 702134, 702134.1, 702334, 702809, 702173, 702174 |
| | 34 | Inserts: As indicated under GC – <i>Screw N 9 – Inserts</i> |
| | 35 | Closures: 702710.1, 702710, 702710.2080 (for all see US: 220-91521-22/1000), 702717.2, 702064, 702717.2080 (for all see US: 220-91521-23/1000) |
| ■ N 13 Screw (large sample volumes) | 37 | Vials: 702962 (US: 220-90393-00/100; 221-34267-92/50), 702973 |
| | 37 | Insert: 702972 (US: 228-21285-91/100) + spring 702974 |
| | 37 | Closures: 702926 (US: 220-91521-14/1000), 702963 (US: 221-34268-92/50) + 702292 (US: 221-34266-92/50; 228-21290-91/100) |
| ■ N 8, Shell vials (standard samples) | 40 | Vials + Plugs: 70202.1 (US: 220-91521-06/1000; vial with plug) + 702807 (US: 220-91521-13/1000), 702017 (US: 220-91521-07/1000; vial with plug) + 702807 (US: 220-91521-13/1000) not for Sil-10/Ai/AF/AP |

‡ Alternative MN product

Autosampler compatibility and cross-references

Shimadzu®

| Main chapter | Pages | Most popular MN products for use on Shimadzu® instruments (comparable product nos. of Shimadzu® in brackets) | |
|--|---------------|---|---|
| Headspace | | | |
| AOC-5000/AOC-6000, HS-20/HS-20Trap, HSS-2B, HT200H | | | |
| ■ N 18 Screw (AOC-5000/AOC-6000) | 41 | Vials: | 702866 (US: 220-94796-07/100; EU: 980-00247/1000), 702826.2 , 702826 (US: 220-94796-01/100; EU: 961-00915/1000; EU: 961-01122/100) |
| | 41 | Closures: | 702055 (US: 220-94796-02/100; EU: 961-00914/1000; EU: 961-01123/100), 702827 (EU: 980-01708/1000) |
| ■ N 20 Crimp AOC-5000/AOC-6000) | 42 | Vials: | 702924 (EU: 980-00664/1000; US: 225-23140-11/100 [†]), 702263 (EU: 980-00111/1000; US: 225-23140-21/100 [†]), 702263.2 |
| | 44, 45, 46 | Closures: | 702929 (EU: 961-01256/1000), 702928 (EU: 980-00112/1000), 702834 (EU: 980-03372/1000), closure for washer bottle 702924 : 70267 + 702144 |
| ■ N 20 Crimp (HS-20/HS-20Trap, HT200H) | 42 | Vials: | 702924 (EU: 980-00664/1000; US: 225-23140-11/100 [†]), 70210.36 (for HSS-2B/HSS-3A only) 702263 (EU: 980-00111/1000; US: 225-23140-21/100 [†]), 702263.2 |
| | 44, 45, 46 | Closures: | 702093 (EU: 980-05338/1000), 702094 , 702091 , 702927 (US: 223-57730-13/100), 702835 (US: 223-57730-13/100 [†]) |
| TOC | | | |
| ASI-L/ASI-V | | | |
| ■ N 20 Screw | 39 | Vials: | 702099 (US: 638-41462/100) |
| | 39 | Closures: | 702181 (US: 638-20074-01/100 [†] ; US: 038-00165-61/100 [†]) |
| ■ N 24 Screw | 47 | Vials: | 702023 , 702024 |
| | 48 | Closures: | 702058 , 702171 , 702060 (US: 038-00165-40/200 [†]), 702062 (US: 038-00165-50/100) |

† Alternative MN product

Thermo Scientific®

| Main chapter | Pages | Most popular MN products for use on Thermo Scientific® instruments (comparable product nos. of Thermo Scientific® in brackets) | |
|---|--------|---|---|
| GC | | | |
| AI/AS1310, TriPlus™ RSH, TriPlus™ 100 LS, AS2000, AS1000/AS/AI3000 (II)/ AS3500 Trace GC, AS200, AS800 | | | |
| ■ N 8 Crimp (microsampling) | 21 | Vials: | 70282 , 70286 , 70251 (60180-707/1000) |
| | 21 | Closures: | 70289 (60180-525/100; 60180-709/1000), 702025 (60180-708/1000 [†]) |
| ■ N 8 Screw (standard samples) | 22 | Vials: | 70213 , 70213.2 , 702004 (60180-508/100; 60180-714/1000), 702893 (60180-560/100; 60180-715/1000) |
| | 22 | Inserts: | 702968 (60180-265/100), 702968.1 , 702824 (60180-721/1000), 702005 (60180-722/1000) |
| | 23 | Closures: | 702067 (60180-665/100; 60180-720/1000 [†]), 70245 (60180-667/100; 60180-719/1000 [†]), 702069 (60180-666/100 [†]) |
| ■ N 9 Screw (standard samples) | 24 | Vials: | 702282 (60180-723/1000), 702283 (60180-509/100), 702293 (60180-724/1000), 702284 (60180-561/100; 60180-724/1000), 702078 , 702079 , 702006 , 702007 (60180-507/100), 702008 , 702135 , 702335 , 702009 , 702172 , 702010 , 702500 |
| | 24 | Inserts: | 702716 (60180-266/100), 702813 , 702077 , 702818 (60180-734/1000), 702818.1 , 702819 , 702825 (60180-735/1000) |
| | 25, 26 | Closures: | 702732 (60180-728/1000), 702081 (60180-669/100 [†]), 702084 (60180-670/100 [†]), 702287.1 (60180-729/1000), 702037 (60180-671/100 [†]), 702402 702026 (60180-673/100 [†]) |
| ■ N 11 Crimp (standard samples) | 29, 30 | Vials: | 70201HP , 70201HP.2 , 702885 (60180-502/100; 60180-701/1000), 702892 (60180-702/1000), 702075 , 702076 , 702888 , 702891 , 702014 , 702134 , 702134.1 , 702334 |
| | 29 | Inserts: | As indicated under <i>Screw N 9 – Inserts</i> |
| | 31 | Closures: | 70256 , 702730 (for both see 60180-705/1000), 70288.3 (60180-526/100 [†]), 70288 (60180-706/1000), 70288.2 , 70288.1 |

† Alternative MN product

Autosampler compatibility and cross-references

Thermo Scientific®

| Main chapter | Pages | | Most popular MN products for use on Thermo Scientific® instruments (comparable product nos. of Thermo Scientific® in brackets) |
|---|---------------|--------------------------------|--|
| HPLC | | | AS1000, AS3000, AS3500 SpectraSYSTEM, AS100, AS300, Surveyor, Accela/Accela Open AS as well as autosamplers of Dionex® (pls. see page 10) |
| ■ N 8 Crimp (microsampling) | 21 | Vials: | 70282, 70286 |
| | 21 | Closures: | 70289 (60180-525/100; 60180-709/1000), 702025 (60180-708/1000‡) |
| ■ N 8 Screw (standard samples) | 22, 23 | Vials / Inserts / Closures: | As indicated under GC – Screw N 8 |
| ■ N 9 Screw (standard samples) | 24, 25, 26 | Vials / Inserts / Closures: | As indicated under GC – Screw N 9, additionally closures 702040 (60180-672/100‡) and 702027 (60180-674/100‡) |
| ■ N 11 Crimp (standard samples) | 29, 30, 31 | Vials / Inserts / Closures: | As indicated under GC – Crimp N 11 |
| ■ N 11 Snap (standard samples) | 34 | Vials: | 702714 (60180-710/1000), 702713, 702712 (60180-711/1000‡), 702709, 702708, 702134, 702134.1, 702334, 702809, 702173, 702174 |
| | 34 | Inserts: | As indicated under GC – Screw N 9 – Inserts |
| | 35 | Closures: | 702063.2080 (60180-676/100‡), 702063 (60180-712/1000), 702710.2080, 702710.1 (for both see 60180-713/1000), 702717.2080 (60180-678/100‡), 702710.2080 (60180-677/100‡) |
| ■ N 20 Crimp (large sample volumes) | 42 | Vials: | 702924 (60180-740/1000; 60180-504/125‡) |
| | 44 | Closures: | 702093 (60180-521/100) |
| Headspace | | | HS850, HS2000, TriPlus™ 300 HS, TriPlus™ HS/SPME, TriPlus™ RSH |
| ■ N 18 Screw (for TriPlus™ RSH/ HS/ SPME/300) | 41 | Vials: | 702866, 702826, 702826.2 |
| | 41 | Closures: | 702055, 702827 |
| ■ N 20 Crimp (for Combi PAL®) | 42 | Vials: | 702924 (60180-740/1000; 60180-504/125‡), 702263 (60180-741/1000; 60180-506/125‡), 702263.2 |
| | 44, 45, 46 | Closures: | 702775, 70234.9, 702773 (for all see 60180-513/100; 60180-746/1000), 702931.3 (60180-744/1000) + 702804 (60180-512/100) = 70237.2, 702093 (60180-521/100) |
| TOC | | | HiPerTOC |
| ■ N 24 Screw | 47 | Vials: | 702021, 702022, 702023 (B7950-VO/100), 702024 (B7951-VO/100) |
| | 48 | Closures: | 702058, 702171, 702060 (B7950-1A/100), 702062 (B7995-24/100‡) |

‡ Alternative MN product

Autosampler compatibility and cross-references

Varian® (Agilent®)

| Main chapter | Pages | | Most popular MN products for use on Varian® instruments (now Agilent®; comparable product nos. of Varian® → Agilent® CrossLab in brackets) |
|------------------------------------|--------|-----------|---|
| GC | | | 8400 / 8410, 8000 / 8035 / 8100 / 8200, CP-9010/9050, CP-910/911/912, CP940/941, Varian Vista, CTC GC/Combi PAL® |
| ■ N 8 Crimp (microsampling) | 21 | Vials: | 70282 (CP958690 → 8010-0155/500), 702002 , 70286 (CP959485 → 8010-0154/500), 702003 (→ 8010-0153/1000) |
| | 21 | Closures: | 70289 (CP959183/100), 702878 |
| ■ N 8 Screw (standard samples) | 22 | Vials: | 70213 (392611639/100; 392620550/1000; CP10271/100 → 8010-0011/100), 70213.2 (392611640/100; 392620552/1000 → 8010-0013/100), 702004 (→ 8010-0010/100), 702893 (CP959895 → 8010-0012/100) |
| | 22 | Inserts: | 702968.1 (392611593/100; 392620546/1000 → 8010-0125/100), 702824 (392611591/100; 392620548/1000 → 8010-0124/100), 702005 (→ 8010-0126/100) |
| | 23 | Closures: | 702067 (392611645/100; 392620559/1000 → 8010-0064/100‡), 70245 (392611641/100; 392620558/1000 → 8010-0054/100), 702069 (392611644/100 → 8010-0063/100‡) |
| ■ N 9 Screw (standard samples) | 24 | Vials: | 702282 (392611653/100; 392620500/1000; 392611646/100 → 8010-0015/100), 702293 (392611654/100; 392620502/1000 → 8010-0017/100), 702283 (CP10291/100; 392620500/1000 → 8010-0014/100; 8010-0175/1000), 702284 (CP10292/100 → 8010-0016/100; 8010-0176/1000), 702078 (392611655/100; 392620501/1000), 702006 (CP959946/100), 702079 (392611879/100; 392620503/1000), 702008 (→ 8010-0009/100), 702007 (392620514/100 → 8010-0008/100), 702135 (→ 8010-0162/100), 702335 , 702009 (→ 8010-0161/100; 8010-0194/1000), 702172 , 702010 , 702500 (CP14959/100) |
| | 24 | Inserts: | 702813 (392611596/100; 392620536/1000; CP10580 → 8010-0132/100), 702077 (392611855/100; 392620537/1000), 702818 (392611594/100; 392620538/1000 → 8010-0131/100), 702818.1 (392611595/100; 392620539/1000), 702825 (CP912322 → 8010-0136/500) |
| | 25, 26 | Closures: | 702732 (CP914610), 702081 , 702287.1 (CP958914 → 8010-0086/100), 702037 (392611659/100 → 8010-0088/100), 702035 (→ 8010-0087/100), 702084 (392611658 → 8010-0089/100), 702155 , 702156 (for GC PAL®) |
| ■ N 11 Crimp (standard samples) | 29, 30 | Vials: | 70201HP (392611634/100; 392620517/1000; CP10525 → 8010-0002/100), 70201HP.2 (392611635/100; 392620519/1000), 702885 (CP10601 → 8010-0001/100; 8010-0170/1000), 702892 (CP10701 → 8010-0003/100; 8010-0172/1000), 702075 , 702076 , 702888 , 702891 (392620525 → 8010-0006/100), 702014 (→ 8010-0007/100), 702134 (→ 8010-0160/100), 702134.1 , 702335 |
| | 29 | Inserts: | As indicated under <i>Screw N 9 – Inserts</i> |
| | 31 | Closures: | 70256 , 702730 (for both see 392611632/100; 392620524/1000; CP10210 → 8010-0045/100; 8010-0181/1000), 702730.1 (→ 8010-0047/100), 702730.2 (→ 8010-0048/100), 702730.3 (→ 8010-0046/100), 70288 (392611631/100; 392620523/1000, 392620521/100; 392620522/1000; CP959268 → 8010-0050/100; 8010-0183/1000), 702995 (→ 8010-0049/100; 8010-0182/1000), 702879 (MLA110040M/100 → 8010-0052/100, for GC PAL®) |

‡ Alternative MN product

Autosampler compatibility and cross-references

Varian® (Agilent®)

| Main chapter | Pages | | Most popular MN products for use on Varian® instruments (now Agilent®; comparable product nos. of Varian® → Agilent® CrossLab in brackets) |
|--|------------|-----------|---|
| HPLC | | | ProStar 400/410/420/430, Marathon Basic, Varian LC 9100/9095/9090, 920-LC/940-LC |
| ■ N 8 Crimp (microsampling) | 21 | Vials: | As indicated under GC – Crimp N 8 – Vials |
| | 21 | Closures: | As indicated under GC – Crimp N 8 – Closures |
| ■ N 8 Screw (standard samples) | 22 | Vials: | As indicated under GC – Screw N 8 – Vials |
| | 22 | Inserts: | As indicated under GC – Screw N 8 – Inserts |
| | 23 | Closures: | As indicated under GC – Screw N 8 – Closures, additionally closure 702437 (→ 8010-0062/100) |
| ■ N 9 Screw (standard samples) | 24 | Vials: | As indicated under GC – Screw N 9 – Vials |
| | 24 | Inserts: | As indicated under GC – Screw N 9 – Inserts |
| | 25, 26 | Closures: | As indicated under GC – Screw N 9 – Closures, additionally closures 702040 (392611660/100 → 8010-0082/100), 702288.1 (→ 8010-0078/100) |
| ■ N 11 Crimp (standard samples) | 29, 30 | Vials: | As indicated under GC – Crimp N 11 – Vials |
| | 29 | Inserts: | As indicated under GC – Screw N 9 – Inserts |
| | 31 | Closures: | As indicated under GC – Crimp N 11 – Closures |
| ■ N 11 Snap (standard samples) | 34 | Vials: | 702714 (CP10390/100 → 8010-0024/100), 702713 (CP10391/100 → 8010-0023/100; 8010-0177/1000), 702712 (CP10392/100 → 8010-0025/100; 8010-0178/1000), 702709, 702708, 702134 (→ 8010-0160/100), 702134.1, 702334, 702809 (392611666/100 → 8010-0158/100; 8010-0193/1000), 702173, 702174 |
| | 34 | Inserts: | As indicated under GC – Screw N 9 – Inserts |
| | 35 | Closures: | 702731 (392611871 → 8010-0104/100), 702063, 702063.2080 (for both see → 8010-0108/100), 702710 (392611873; CP10132), 702710.1, 702710.2080 (for both see → 8010-0112/100), 702064 (392611874/100; CP10130/100 → 8010-0106/100), 702717.2, 702717.2080, 702718 (392611872/100 → 8010-0105/100), 702718.1, 702718.2080 |
| Headspace | | | CP9020/9025, CP9060, Genesis, CTC Combi PAL® |
| ■ N 18 Screw (for Combi PAL®) | 41 | Vials: | 702866 (392620102/100 → 8010-0038/100), 702826 (392620202/100; CP910346/100 → 8010-0042/100), 702826.2 (392620204/100; CP911282/100 → 8010-0044/100) |
| | 41 | Closures: | 702827 (392620302/100 → 8010-0139/100), 702072, 702137 (for both pls. see 392620306/100 → 8010-0140/100†), 702055 (392620304/100; CP910347/100 → 8010-0139/100) |
| ■ N 20 Crimp (for Combi PAL®) | 42 | Vials: | 702924 (MLA201000/100 → 8010-0030/100), 702263 (MLA202100/100, 392612021/100 → 8010-0034/100), 702263.2 (392620528/100; 392620529/1000 → 8010-0036/100) |
| | 44, 45, 46 | Closures: | 702929 (MLA200051ML/100 → 8010-0165/100), 702834 (392612017/100 → 8010-0420/100) |
| ■ N 20 Crimp (CP-9020/9025, CP-9060, Genesis) | 42 | Vials: | 702924 (MLA201000/100 → 8010-0030/100), 702918 (392611677/100; CP10090/100 → 8010-0029/100; 8010-0179/1000), 702261 (392611675/100; CP10070/100 → 8010-0033/100; 8010-0180/1000) |
| | 44, 45, 46 | Closures: | 70234.10, 70234, 702775 (392611859/100; CP10213/100 → 8010-0117/100), 702094 (392611858/100 → 8010-0116/100; 8010-0191/1000), 702931.3 (5183-4476/100) + 702804 (8010-0120/100) = 70237.2 |
| TOC | | | Archon |
| ■ N 24 Screw | 47 | Vials: | 702023, 702024 |
| | 48 | Closures: | 702058, 702171, 702060, 702062 |

† Alternative MN product

Autosampler compatibility and cross-references

VWR® (Merck® / Hitachi®)

| Main chapter | Pages | Most popular MN products for use on VWR® instruments (comparable product nos. of VWR® Europe in brackets) | |
|--|--------|--|--|
| HPLC | | | AS 2000, AS 4000, AS 6000, LaChrom Elite L-2200/L-2200U, LaChrom Elite L-7200/L-7250, Chromaster HPLC 5210/5260/5280, ChromasterUltra RS UHPLC 6270, Primaide™ PM1210 / PM1210TS |
| ■ N 8 Crimp (microsampling) For AS 4000/AS 6000, LaChrom L-7200/L-7250 | 21 | Vials: | 70282 (548-0078/1000), 70286 (548-0080/1000) |
| | 21 | Closures: | 70289 (548-0040/1000; 548-3040/100), 702878 (548-0038/1000; 548-3038/100) |
| ■ N 8 Screw (standard samples) | 22 | Vials: | 70213 (548-0018/1000; 548-3018/100), 70213.2 (548-0448/1000), 702004 (548-0420/1000), 702893 (548-0019/1000; 548-3019/100), 702860 (548-0419/1000) |
| | 22 | Inserts: | 702968 (548-0020/1000), 702968.1 (548-0308/1000), 702824 (548-0083/1000), 702005 (548-0780/1000) |
| | 23 | Closures: | 70245 (548-0024/1000; 548-3024/100), 702437 (548-0834/1000; 548-1497/1000‡), 702067 (548-3322/1000; 548-1491/1000‡) |
| ■ N 9 Screw (standard samples) | 24 | Vials: | 702282 (548-0028/1000; 548-3028/100), 702293 , 702283 (548-0029/1000; 548-3029/100), 702078 (548-0426/1000‡), 702284 (548-0030/1000; 548-3030/100), 702079 (548-0427/1000), 702007 (548-0425/1000‡; 548-1442/1000‡), 702008 (548-3308/1000‡), 702006 (548-0081/1000), 702135 (548-0428/1000), 702335 (548-0791/1000), 702009 (548-0440/1000; 548-3094/100), 702172 (548-0453/1000), 702010 (548-0894/1000), 702500 (548-0452/1000) |
| | 24 | Inserts: | 702813 (548-0006/1000; 548-3006/100), 702077 (548-0311/1000), 702818 (548-0002/1000), 702818.1 (548-0812/1000), 702819 (548-1381/1000), 702716 (548-0310/1000), 702825 (548-0001/1000) |
| | 25, 26 | Closures: | 702287.1 (548-0085/1000), 702287 (548-0034/1000), 702036 (548-0786/1000), 702037 (548-0381/1000), 702038 (548-3179/1000), 702107 (548-0162/1000), 702402 , 702288.1 (548-0088/1000), 702288 (548-0084/1000), 702039 (548-0788/1000), 702040 (548-0382/1000), 702083 , 702109 (548-3182/1000), 702026 (548-0372/1000), 702027 (548-0373/1000) |
| ■ N 11 Crimp (standard samples) | 29, 30 | Vials: | 70201HP (548-0003/1000; 548-3003/100), 70201HP.2 (548-3337/1000), 702885 (548-0004/1000; 548-3004/100), 702075 (548-2088/1000; 548-1368/100‡), 702892 (548-0005/1000; 548-3005/100), 702076 (548-1364/1000), 702888 (548-0092/1000; 548-3092/100), 702891 (548-0424/1000‡), 702014 (548-3307/1000), 702134 (548-0429/1000), 702134.1 (548-0431/1000), 702334 (548-0792/1000) |
| | 29 | Inserts: | As indicated under <i>Screw N 9 – Inserts</i> |
| | 31 | Closures: | 70288 (548-0009/1000; 548 3009/100), 70288.1 (548-0848/1000), 70288.2 (548-0844/1000), 70288.3 (548-0845/1000), 702823 (548-0411/1000) |
| ■ N 11 Snap (standard samples) | 34 | Vials: | 702714 (548-0011/1000; 548-3011/100), 702713 (548-0422/1000), 702712 (548-0012/1000; 548-3012/100), 702709 (548-1441/1000‡), 702708 , 702134 (548-0429/1000), 702134.1 (548-0431/1000), 702334 (548-0792/1000), 702809 (548-0120/1000; 548-3120/100), 702173 (548-0454/1000), 702174 (548-0895/1000) |
| | 34 | Inserts: | As indicated under <i>Screw N 9 – Inserts</i> |
| | 35 | Closures: | 702710.1 (548-0432/1000), 702710 (548-0016/1000), 702710.2080 (548-3208/1000), 702717.2 (548-0435/1000), 702064 (548-0017/1000), 702717.2080 (548-3210/1000), 702718.1 (548-0434/1000), 702718 (548-0015/1000; 548-3015/100), 702718.2080 (548-3209/1000), 702063 (548-0433/1000‡), 702731 (548-3358/1000), 702063.2080 (548-3360/1000) |
| ■ N 8 Shell vials (standard samples) Only for Chromaster and LaChrom Elite L-2200/ L-2200U | 40 | Vials + plugs: | 70202.1 + 702807 (548-0352/1000; 548-0042/1000‡), 702017 + 702807 (548-0353/1000; 548-0043/1000‡) |

‡ Alternative MN product

Autosampler compatibility and cross-references

VWR® (Merck® / Hitachi®)

| Main chapter | Pages | | Most popular MN products for use on VWR® instruments (comparable product nos. of VWR® Europe in brackets) |
|--|-------|-----------|---|
| ■ N 13 Screw (large sample volumes) Not for AS 2000/AS 4000/ AS 6000 | 37 | Vials: | 702962 (548-0051/1000; 548-3051/100), 702973 (548-0052/1000; 548-3052/100) |
| | 37 | Insert: | 702972 (548-0093/1000) + spring 702974 (548-0094/1000) |
| | 37 | Closures: | 702926 (548-0054/1000; 548-3054/100), 702963 (548-0096/1000) + 70260 (548-0111/1000; 548-3111/100) |

‡ Alternative MN product

Waters®

| Main chapter | Pages | | Most popular MN products for use on Waters® instruments (comparable product nos. of Waters® in brackets) |
|--|--------|----------------|---|
| HPLC | | | WISP, 717 (Plus), GPC 2000, 2707, Alliance 2690/2695, Alliance 2790/2795, ACQUITY® UPLC/UHPLC systems, 2777 (CTC PAL®) |
| ■ N 9 Screw (standard samples) Not for WISP, 717 (Plus), GPC 2000 | 24 | Vials: | 702282 , 702293 , 702283 (186000273), 702284 (186000848), 702078 (186000273DV), 702079 (186000848DV), 702007 (186002804), 702008 (186002803), 702135 , 702335 , 702006 (186002802, not for 2690/2695), 702009 (186002626), 702172 , 702010 (186005219), 702500 |
| | 24 | Inserts: | 702818 (WAT094170), 702818.1 (WAT094170DV), 702819 |
| | 25, 26 | Closures: | 702026 (186000274), 702027 (186000305), 702287.1 (186005828), 702287 (186002456‡), 702036 (186005826), 702037 (186002129‡), 702038 (186002130‡), 702288.1 (186005829), 702288 (186002457‡), 702039 (186005827), 702040 (186002128‡), 702083 (186002127‡) |
| ■ N 10 Screw (standard samples) For Alliance 2690/2695, Alliance 2790/2795 | 28 | Vials: | 702011 (WAT063300), 702012 , 702013 |
| | 28 | Inserts: | 702818 (WAT094170), 702818.1 (WAT094170DV), 702819 |
| | 28 | Closures: | 702045 (WAT058874‡), 702046 , 702047 |
| ■ N 11 Crimp (standard samples) For Alliance 2690/2695, Alliance 2790/2795 | 29, 30 | Vials: | 70201HP (WAT094222), 70201HP.2 , 702885 , 702892 (WAT094223), 702075 (WAT094222DV), 702076 (WAT094223DV) |
| | 29 | Inserts: | 702818 (WAT094170), 702818.1 (WAT094170DV), 702819 |
| | 31 | Closures: | 70288 (PSL404219), 70288.1 , 70288.2 , 70288.3 , 702995 (PSL404231), 702995.1 , 702995.2 , 702995.3 |
| ■ N 11 Snap (standard samples) For Alliance 2690/2695, Alliance 2790/2795 | 34 | Vials: | 702714 , 702713 (WAT094219), 702712 (WAT094220), 702709 , 702708 , 702134 , 702134.1 , 702334 , 702809 (186002628), 702173 , 702174 |
| | 34 | Inserts: | 702818 (WAT094170), 702818.1 (WAT094170DV), 702819 |
| | 35 | Closures: | 702710.1 (186000303), 702095 (186002650), 702717.2 (186000304), 702143 (186002647) |
| ■ N 8 Shell Vials (standard samples) Only for WISP, 717 (Plus) | 40 | Vials + Plugs: | 70202.1 + 702807 (WAT025054C/250), 702017 + 702807 (WAT025053C/250) |
| ■ N 13 Screw (large sample volumes) Only for WISP, 717 (Plus), GPC 2000 | 37 | Vials: | 702962 (186000840; WAT072710), 702973 (186001135) |
| | 37 | Insert: | 702972 (WAT015199/144; WAT072704/100) + spring 702974 (WAT072708) |
| | 37 | Closures: | 702926 (186000841/100‡; 186000965/1000‡), 702963 (600000162) + 70260 (WAT072714/144; WAT073005/1440) |

‡ Alternative MN product

Crimp neck vials N 8

For micro sampling

| 70286 | 70282 | 70251 | 70212.1 | 702002 | 702003 |
|---------------|---------------|-------------|------------|-------------|-------------|
| 0.2 mL | 0.3 mL | 0.8 mL | 0.6 mL | 0.7 mL | 0.7 mL |
| 5.5 x 31.5 mm | 5.5 x 31.5 mm | 8.2 x 30 mm | 7 x 40 mm | 7 x 40 mm | 7 x 40 mm |
| clear | clear | clear | amber | clear | amber |
| conical | round bottom | flat bottom | conical | flat bottom | flat bottom |
| 100/PE bag | 100/PE bag | 100/PP box | 100/PE bag | 100/PE bag | 100/PE bag |

Crimping tools N 8

| REF | Type of crimping tool | Pack of |
|--------|--|---------|
| 735126 | Manual crimper (standard) for 8 mm aluminium crimp caps | 1 / Box |
| 735408 | Manual decapper (standard) for 8 mm aluminium crimp caps | 1 / Box |
| 735208 | Manual ergonomic crimper for 8 mm aluminium crimp caps | 1 / Box |



Ready assembled crimp closures N 8 and plain crimp caps N 8

| REF | (Scale 1:1.6) | Cap description | Septum description | Hardness | Thickness | Pack of |
|---------|---------------|---|---|-------------|-----------|------------|
| 70283 | | N 8 aluminium crimp cap, silver, center hole | PTFE virginal, white | 53° shore D | 0.25 mm | 100/PE bag |
| 70252.1 | | N 8 aluminium crimp cap, silver, center hole | Natural rubber / Butyl red-orange / TEF colorless | 45° shore A | 1.0 mm | 100/PE bag |
| 702025 | | N 8 aluminium crimp cap, silver, center hole | Red Rubber / FEP colorless | 45° shore A | 1.0 mm | 100/PE bag |
| 70289 | | N 8 aluminium crimp cap, silver, center hole | Silicone white / PTFE red | 45° shore A | 1.0 mm | 100/PE bag |
| 702878 | | N 8 aluminium crimp cap, silver, center hole | PTFE red / Silicone white / PTFE red | 50° shore A | 1.0 mm | 100/PE bag |
| 702800 | | N 8 aluminium crimp cap, silver, center hole (no liner) | - | - | - | 100/PE bag |

N 8 Screw neck vials, inserts and caps N 8

Screw neck vials N 8

Small opening, 8-425 thread



| 70213 | 70213.2 | 702004 | 702893 | 702860 |
|--------------|--------------|----------------------|----------------------|--------------|
| 1.5 mL | 1.5 mL | 1.5 mL | 1.5 mL | 1.1 mL |
| 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm |
| clear | amber | clear, label + scale | amber, label + scale | clear |
| flat bottom | flat bottom | flat bottom | flat bottom | conical |
| 100 / PP box | 100 / PP box | 100 / PP box | 100 / PP box | 100 / PP box |

Inserts for screw neck vials N 8 (small opening)

Inserts for small opening vials



| 702968* | 702968.1* | 702824 | 702005 |
|--------------------|-------------------|---------------------|--------------|
| 0.1 mL | 0.15 mL | 0.1 mL | 0.25 mL |
| 5 x 31 mm | 5 x 31 mm | 5 x 29 mm | 5 x 31 mm |
| clear | clear | clear | clear |
| conical, 15 mm tip | conical, 9 mm tip | with plastic spring | flat bottom |
| 100 / PE bag | 100 / PE bag | 100 / PE bag | 100 / PE bag |

* Optionally you may use metal springs 702974.1 in combination with these products to push them up in the vial (100 / PE bag).

Container for screw neck vials N 8

| REF | Description | Pack of |
|--------|---|---------|
| 702514 | 81 position container blue for screw neck vials N 8, 130 x 130 x 45 mm, coded, with transparent lid (suitable for freezers) | 1 |

Vial rack for screw neck vials N 8

| REF | Description | Pack of |
|--------|--|---------|
| 702502 | 50 position polypropylene vial rack blue for all vials 11.6 x 32 mm with flat bottom Dimensions: 190 x 100 x 22 mm, stackable | 1 |



Ready assembled screw closures N 8 and plain screw caps N 8

| REF | (Scale 1:1.6) | Cap description | Septum description | Hardness | Thickness | Pack of |
|--------|---------------|---|--------------------------------------|-------------|-----------|--------------|
| 702067 | | N 8 PP screw cap, black, center hole | Red Rubber / FEP colorless | 45° shore A | 1.3 mm | 100 / PE bag |
| 702068 | | as above, but with closed top | | | | |
| 70245 | | N 8 PP screw cap, black, center hole | Silicone white / PTFE red | 45° shore A | 1.3 mm | 100 / PE bag |
| 702066 | | as above, but with closed top | | | | |
| 702437 | | N 8 PP screw cap, black, center hole | Silicone white / PTFE blue, slit | 55° shore A | 1.0 mm | 100 / PE bag |
| 702069 | | N 8 PP screw cap, black, center hole | PTFE red / Silicone white / PTFE red | 50° shore A | 1.0 mm | 100 / PE bag |
| 70249 | | - N 8 PP screw cap, black, center hole (no liner) | - | - | - | 100 / PE bag |
| 70250 | | - N 8 PP screw cap, black, closed top (no liner) | - | - | - | 100 / PE bag |

N 8 septa for screw caps N 8

| REF | (Scale 1:1.6) | Cap description | Septum description | Hardness | Thickness | Pack of |
|--------|---------------|-----------------|----------------------------------|-------------|-----------|--------------|
| 70261 | | - (septum only) | PTFE virginial, white | 53° shore D | 0.25 mm | 100 / PE bag |
| 702070 | | - (septum only) | Red Rubber / FEP colorless | 45° shore A | 1.3 mm | 100 / PE bag |
| 70248 | | - (septum only) | Silicone white / PTFE red | 45° shore A | 1.3 mm | 100 / PE bag |
| 702481 | | - (septum only) | Silicone white / PTFE blue, slit | 55° shore A | 1.0 mm | 100 / PE bag |

Vial Kits screw neck N 8

| Vial ↓ | Closure → (Scale 1:1.6) |
|-------------------------------------|--|
| | <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>70245</p> </div> <div style="text-align: center;"> <p>702437</p> </div> <div style="text-align: center;"> <p>702067</p> </div> </div> |
| 70213: 1.5 mL, clear, flat bottom | 702238 702247 702246 |
| 70213.2: 1.5 mL, amber, flat bottom | 702249 702251 702248 |

Pack of 100 vials and 100 closures, each
Other Vial Kits on request



N9 Screw neck vials, inserts and caps N 9

Screw neck vials and inserts N 9

| Wide opening, short thread | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Polypropylene | | | | | Polypropylene | | | | |
|  |  |  |  |  |  |  |  |  |  |
| 702282 | 702293 | 702283 | 702284 | 702500 | 702813 | 702716 | 702818 | 702819 | 702825 |
| | | silanized 702078 | silanized 702079 | | silanized 702077 | | silanized 702818.1 | | |
| 1.5 mL | 1.5 mL | 1.5 mL | 1.5 mL | 1.5 mL | 0.2 mL | 0.25 mL | 0.1 mL | 0.1 mL | 0.3 mL |
| 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 6 x 31 mm | 6 x 31 mm | 5.7 x 29 mm | 5.7 x 29 mm | 6 x 31 mm |
| clear | amber | clear, label + scale | amber, label + scale | transparent, filling lines | clear | clear | clear | transparent | clear |
| flat bottom | flat bottom | flat bottom | flat bottom | flat bottom | conical, 15 mm tip | conical, 12 mm tip | with plastic spring | with integrated spring | flat bottom |
| 100 / PP box | 100 / PP box | 100 / PP box | 100 / PP box | 100 / PE bag | 100 / PE bag | 100 / PE bag | 100 / PE bag | 100 / PE bag | 100 / PE bag |

| Micro-vials N 9 for small sample volumes | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | PP/Glass insert | | PP/Glass insert | | Polypropylene | Polypropylene | Polypropylene |
|  |  |  |  |  |  |  |  |  |
| 702006 | 702007 | 702008 | 702135* | 702335* | 702088 | 702009 | 702172 | 702010 |
| 1.1 mL | 0.2 mL | 0.2 mL | 0.2 mL | 0.2 mL | 1.1 mL | 0.3 mL | 0.3 mL | 0.7 mL |
| 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm |
| clear | clear | amber | clear | amber | clear | transparent | amber | transparent |
| flat bottom, 15 µL funnel in solid glass bottom | flat bottom, with integrated 0.2 mL insert | flat bottom, with integrated 0.2 mL insert | flat bottom, with integrated 0.2 mL glass insert | flat bottom, with integrated 0.2 mL glass insert | conical with round pedestal glass plate | with inner cone | with inner cone | with round bottom insert |
| 100 / PP box | 100 / PP box | 100 / PP box | 100 / PP box | 100 / PP box | 100 / PP box | 100 / PE bag | 100 / PE bag | 100 / PE bag |

* upon request also available with an integrated silanized insert

Pre-assembled vial-insert combinations with screw neck N 9

| Vial description | Insert description | Pack of | REF |
|---|---|--------------|--------|
| Vial 702282: 1.5 mL, clear, flat bottom | with pre-assembled micro-insert 702813: 0.2 mL, conical, 15 mm tip | 100 / PP box | 702177 |
| Vial 702283: 1.5 mL, clear, flat bottom, label + scale | with pre-assembled micro-insert 702813: 0.2 mL, conical, 15 mm tip | 100 / PP box | 702178 |
| Vial 702284: 1.5 mL, amber, flat bottom, label + scale | with pre-assembled micro-insert 702813: 0.2 mL, conical, 15 mm tip | 100 / PP box | 702179 |

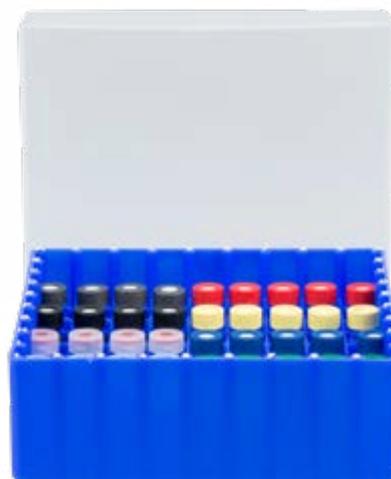
Further pre-assembled vial-insert combinations on request

Screw neck vials, inserts and caps N 9

N 9

Container for screw neck vials N 9

| REF | Description | Pack of |
|--------|---|---------|
| 702514 | 81 position container blue for screw neck vials N 9, 130 x 130 x 45 mm, coded, with transparent lid (suitable for freezers) | 1 |



Vial rack for screw neck vials N 9

| REF | Description | Pack of |
|--------|--|---------|
| 702502 | 50 position polypropylene vial rack blue for all vials 11.6 x 32 mm with flat bottom Dimensions: 190 x 100 x 22 mm, stackable | 1 |

Ready assembled screw closures, plain screw caps and single septa N 9

| Cap description (Scale 1:1.6) | Septum description | Hardness | Thickness | Pack of |
|--|---|-------------|-----------|------------|
| N 9 PP screw cap, color as indicated, center hole  702029 702031 | closed top PTFE virginal, white  | 53° shore D | 0.25 mm | 100/PE bag |
|  702032 | | | | |
| N 9 PP screw cap, blue, center hole  702402 | Silicone white/ Polyimide orange (flourine-free)  | 45° shore A | 1.0 mm | 100/PE bag |
| N 9 PP screw cap, color as indicated, center hole  702030 702732 702080 702081 702082 702147 702033 | closed top Red Rubber / FEP colorless  | 45° shore A | 1.0 mm | 100/PE bag |
| N 9 PP screw cap, color as indicated, center hole  702287 702287.1 702036 702037 702038 702107 702034 | closed top Silicone white/ PTFE red  | 45° shore A | 1.0 mm | 100/PE bag |
| N 9 PP screw cap, color as indicated, center hole  702288 702288.1 702039 702040 702083 702109 | Silicone white/ PTFE blue, slit  | 55° shore A | 1.0 mm | 100/PE bag |
| N 9 PP screw cap, color as indicated, center hole  702286 702035 702158 702084 702085 702159 | PTFE red/ Silicone white/ PTFE red  | 50° shore A | 1.0 mm | 100/PE bag |
| N 9 PP screw cap, color as indicated, center hole (no liner)  702160 702161 702162 702163 702164 702165 | - | - | - | 100/PE bag |

Ready assembled magnetic screw closures N 9

| REF | (Scale 1:1.6) | Cap description | Septum description | Hardness | Thickness | Pack of |
|--------|---|---|---------------------------------|-------------|-----------|------------|
| 702155 |  |  N 9 magnetic screw cap, silver, center hole | Silicone white/ PTFE red | 45° shore A | 1.0 mm | 100/PE bag |
| 702156 |  |  N 9 magnetic screw cap, silver, center hole | Silicone white/ PTFE blue, slit | 55° shore A | 1.0 mm | 100/PE bag |

N 9 Screw neck vials, inserts and caps N 9

N 9 septa for screw caps N 9

| REF | (Scale 1:1.6) | Cap description | Septum description | Hardness | Thickness | Pack of |
|--------|---|-----------------|----------------------------------|-------------|-----------|------------|
| 702043 |  | - (septum only) | PTFE virginal, white | 53° shore D | 0.25 mm | 100/PE bag |
| 702041 |  | - (septum only) | Red Rubber / FEP colorless | 45° shore A | 1.0 mm | 100/PE bag |
| 702042 |  | - (septum only) | Silicone white / PTFE red | 45° shore A | 1.0 mm | 100/PE bag |
| 702148 |  | - (septum only) | Silicone white / PTFE blue, slit | 55° shore A | 1.0 mm | 100/PE bag |

Bonded screw closures N 9

| REF | (Scale 1:1.6) | Cap description | Septum description | Hardness | Thickness | Pack of |
|--------|---|--|-----------------------------------|-------------|-----------|------------|
| 702028 |  | N 9 PP bonded screw cap, blue, center hole | Red Rubber / TEF colorless | 65° shore A | 1.0 mm | 100/PE bag |
| 702026 |  | N 9 PP bonded screw cap, blue, center hole | Silicone beige / PTFE white | 45° shore A | 1.3 mm | 100/PE bag |
| 702027 |  | N 9 PP bonded screw cap, blue, center hole | Silicone beige / PTFE white, slit | 45° shore A | 1.3 mm | 100/PE bag |

(Septum firmly connected with the cap; cannot be removed)

Vial Kits screw neck N 9

| Vial ↓ | Closure → (Scale 1:1.6) | | | | |
|---|---|---|---|---|---|
| | 702287.1 | 702288.1 | 702732 | 702026 | 702027 |
| |  |  |  |  |  |
| 702282: 1.5 mL, clear, flat bottom | 702201 | 702204 | 702207 | | 702244 |
| 702283: 1.5 mL, clear, flat bottom, label and scale | 702202 | 702205 | 702208 | 702211 | 702213 |
| 702284: 1.5 mL, amber, flat bottom, label and scale | 702203 | 702206 | 702209 | 702212 | 702214 |
| 702009: 0.3 mL, PP, transparent, with inner cone | | 702226 | | | |

Pack of 100 vials and 100 closures, each
Other Vial Kits on request





Pre-sealed vial-closure combinations with screw neck N 9

| Vial description | Closure description | Pack of | REF |
|--|---|---------|--------|
| Pre-sealed vials 702282 : 1.5 mL screw neck vial N 9, 11.6 x 32 mm, clear, flat bottom, wide opening | pre-screwed with 702732 : N 9 PP screw cap, blue, center hole, Red Rubber / FEP colorless, 45° shore A, 1.0 mm | 100 | 702857 |
| Pre-sealed vials 702283 : 1.5 mL screw neck vial N 9, 11.6 x 32 mm, clear, flat bottom, wide opening, label + scale | pre-screwed with 702732 : N 9 PP screw cap, blue, center hole, Red Rubber / FEP colorless, 45° shore A, 1.0 mm | 100 | 702858 |
| Pre-sealed vials 702282 : 1.5 mL screw neck vial N 9, 11.6 x 32 mm, clear, flat bottom, wide opening | pre-screwed with 702287.1 : N 9 PP screw cap, blue, center hole, Silicone white / PTFE red, 45° shore A, 1.0 mm | 100 | 702874 |
| Pre-sealed vials 702283 : 1.5 mL screw neck vial N 9, 11.6 x 32 mm, clear, flat bottom, wide opening, label + scale | pre-screwed with 702288.1 : N 9 PP screw cap, blue, center hole, Silicone white / PTFE blue, slit, 55° shore A, 1.0 mm | 100 | 702863 |
| Pre-sealed vials 702284 : 1.5 mL screw neck vial N 9, 11.6 x 32 mm, amber, flat bottom, wide opening, label + scale | pre-screwed with 702288.1 : N 9 PP screw cap, blue, center hole, Silicone white / PTFE blue, slit, 55° shore A, 1.0 mm | 100 | 702873 |
| Pre-sealed vials 702283 : 1.5 mL screw neck vial N 9, 11.6 x 32 mm, clear, flat bottom, wide opening, label + scale | pre-screwed with 702026 : N 9 PP bonded screw cap, blue, center hole, Silicone beige / PTFE white, 45° shore A, 1.3 mm | 100 | 702864 |

Other pre-sealed vial-closure combinations on request



Special vials for special applications

Silanized glass vials / Plastic vials / Plastic vials with glass insert

- Silanized glass vials

Silanized glass vials have a de-activated inner glass surface, in order to reduce adsorption of polar substances. Therefore they are often used for the analysis of proteins, phenols and amino acids, which would – without any silanization of the glass surface – react with the OH-groups of the glass and thus would stick to the normally polar glass surface. It is also recommendable to use silanized vials respectively inserts for pH-sensitive and aqueous samples.

- Plastic vials

For some applications glass vials are not suitable due their composition and their chemical properties. Amongst these are heavy metal analysis, water and protein analysis, atomic absorption, capillary electrophoresis (CE) and ion chromatography (IC). For all these cases high purity polypropylene vials with 1.5 mL, 0.3 mL and 0.7 mL volume in transparent and amber are available.

- Plastic vials with integrated glass insert

In comparison to the glass-in-glass products, glass-in-plastic systems are very robust, as the glass insert is well protected by the polypropylene outer shell. The tip of the micro-insert is centered by 100 per cent in an outlet at the bottom. The insert sits firmly in the protective PP round bottom shell and thus can easily be filled. Another advantage of these systems is their excellent tightness, as the glass insert always constantly exceeds the rim of the plastic outer vial by 0.1 mm granting a firm sealing of the sample in the insert. Upon request also a silanized insert can be integrated into the plastic shell. The high transparent polypropylene enables a good view on the filling level.



N 10 Screw neck vials, inserts and caps N 10

Screw neck vials and inserts N 10

Wide opening, 10-425 thread

Polypropylene

| | | | | | | | |
|---|---|---|---|---|--|---|---|
|  |  |  |  |  |  |  |  |
| 702011 | 702012 | 702013 | 702813 | 702716 | 702818 | 702819 | 702825 |
| 1.5 mL | 1.5 mL | 1.5 mL | silanized 702077 | | silanized 702818.1 | | |
| 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 6 x 31 mm | 6 x 31 mm | 5.7 x 29 mm | 5.7 x 29 mm | 6 x 31 mm |
| clear | clear, label + scale | amber, label + scale | clear | clear | clear | transparent | clear |
| flat bottom | flat bottom | flat bottom | conical, 15 mm tip | conical, 12 mm tip | with plastic spring | with integrated spring | flat bottom |
| 100 / PP box | 100 / PP box | 100 / PP box | 100 / PE bag | 100 / PE bag | 100 / PE bag | 100 / PE bag | 100 / PE bag |

Container for screw neck vials N 10

| REF | Description | Pack of |
|--------|--|---------|
| 702514 | 81 position container blue for screw neck vials N 10, 130 x 130 x 45 mm, coded, with transparent lid (suitable for freezers) | 1 |

Vial rack for screw neck vials N 10

| REF | Description | Pack of |
|--------|--|---------|
| 702502 | 50 position polypropylene vial rack blue for all vials 11.6 x 32 mm with flat bottom Dimensions: 190 x 100 x 22 mm, stackable | 1 |



Screw closures N 10 and plain screw caps N 10

| REF | Scale (1:1.6) | Cap description | Septum description | Hardness | Thickness | Pack of |
|--------|---|---|--------------------------------------|-------------|-----------|--------------|
| 702044 |  | N 10 PP bonded* screw cap, black, center hole | Red Rubber / TEF colorless | 65° shore A | 1.0 mm | 100 / PE bag |
| 702045 |  | N 10 PP bonded* screw cap, black, center hole | Silicone white / PTFE beige | 45° shore A | 1.5 mm | 100 / PE bag |
| 702046 |  | N 10 PP bonded* screw cap, black, center hole | Silicone white / PTFE red | 45° shore A | 1.0 mm | 100 / PE bag |
| 702047 |  | N 10 PP bonded* screw cap, black, center hole | Silicone white / PTFE blue, slit | 45° shore A | 1.5 mm | 100 / PE bag |
| 702048 |  | N 10 PP screw cap, black, center hole (ready assembled) | PTFE red / Silicone white / PTFE red | 45° shore A | 1.0 mm | 100 / PE bag |
| 702049 |  | N 10 PP screw cap, black, center hole (no liner) | - | - | - | 100 / PE bag |

* Septum firmly connected with the cap; cannot be removed

Crimp neck vials N 11

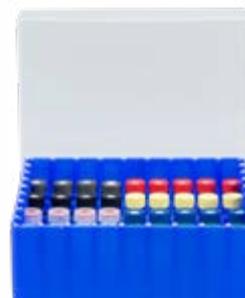
| Small opening vials | | Wide opening vials | | | |
|---|---|---|--|---|---|
|  |  |  |  |  |  |
| 70201CG | 70214CG | 70201HP | 70201HP.2 | 702885 silanized 702075 | 702892 silanized 702076 |
| 1.5 mL | 1.5 mL | 1.5 mL | 1.5 mL | 1.5 mL | 1.5 mL |
| 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm |
| clear | amber | clear | amber | clear, label + scale | amber, label + scale |
| flat bottom | flat bottom | flat bottom | flat bottom | flat bottom | flat bottom |
| 100/PP box | 100/PP box | 100/PP box | 100/PP box | 100/PP box | 100/PP box |

Inserts for crimp neck vials N 11

| Inserts for small opening vials | | | | Inserts for wide opening vials | | | | |
|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  |  |
| 702968 | 702968.1 | 702824 | 702005 | 702813 silanized 702077 | 702716 | 702818 silanized 702818.1 | 702819 Polypropylene | 702825 |
| 0.1 mL | 0.15 mL | 0.1 mL | 0.25 mL | 0.2 mL | 0.25 mL | 0.1 mL | 0.1 mL | 0.3 mL |
| 5 x 31 mm | 5 x 31 mm | 5 x 29 mm | 5 x 31 mm | 6 x 31 mm | 6 x 31 mm | 5.7 x 29 mm | 5.7 x 29 mm | 6 x 31 mm |
| clear | clear | clear | clear | clear | clear | clear | transparent | clear |
| conical, 15 mm tip | conical, 9 mm tip | with plastic spring | flat bottom | conical, 15 mm tip | conical, 12 mm tip | with plastic spring | with integrated spring | flat bottom |
| 100/PE bag | 100/PE bag | 100/PE bag | 100/PE bag | 100/PE bag | 100/PE bag | 100/PE bag | 100/PE bag | 100/PE bag |

Container for crimp neck/snap ring vials N 11

| REF | Description | Pack of |
|--------|--|---------|
| 702514 | 81 position container blue for crimp neck/snap ring vials N 11, 130 x 130 x 45 mm, coded, with transparent lid (suitable for freezers) | 1 |



Vial rack for crimp neck/snap ring vials N 11

| REF | Description | Pack of |
|--------|--|---------|
| 702502 | 50 position polypropylene vial rack blue for all vials 11.6 x 32 mm with flat bottom Dimensions: 190 x 100 x 22 mm, stackable | 1 |

N 11 Crimp neck vials, inserts and caps N 11

Crimp neck vials N 11

Micro-vials N 11 for small sample volumes

| | | | | | | PP / Glass insert | PP / Glass insert |
|---|---|---|---|---|--|---|---|
|  |  |  |  |  |  |  |  |
| 702888 | 702141 | 702015 | 702016 | 702891 | 702014 | 702134* | 702334* |
| 1.1 mL | 1.1 mL | 1.1 mL | 1.1 mL | 0.2 mL | 0.2 mL | 0.2 mL | 0.2 mL |
| 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm |
| clear | clear | clear | amber | clear | amber | clear | amber |
| flat bottom, 15 µL funnel in solid glass bottom | conical | conical with round pedestal glass plate | conical with round pedestal glass plate | flat bottom, with integrated 0.2 mL insert | flat bottom, with integrated 0.2 mL insert | flat bottom, with integrated 0.2 mL glass insert | flat bottom, with integrated 0.2 mL glass insert |
| 100 / PP box | 100 / PP box | 100 / PP box | 100 / PP box | 100 / PP box | 100 / PP box | 100 / PP box | 100 / PP box |

* upon request also available with integrated silanized insert

Crimping tools N 11

| REF | Type of crimping tool | Pack of |
|-----------|--|--------------|
| 735111 | Manual crimper (standard), height adjustable, for 11 mm aluminium crimp caps | 1 / Box |
| 735911 | Manual decapper (standard) for 11 mm aluminium crimp caps | 1 / Box |
| 735911.20 | Manual decapper (plier style, dual) for 11 mm and 20 mm aluminium crimp caps | 1 / PE Cover |
| 735211 | Ergonomic crimper for 11 mm aluminium crimp caps | 1 / Box |
| 735311 | Ergonomic decapper for 11 mm aluminium crimp caps | 1 / Box |
| 735511 | Electronic crimper for 11 mm aluminium crimp caps (battery-powered) | 1 / Box |
| 735611 | Electronic decapper for 11 mm aluminium crimp caps (battery-powered) | 1 / Box |
| 735700 | Electronic high power crimping tool with power supply | 1 / Box |
| 735711 | Crimping head for 11 mm crimp caps (aluminium, magnetic) | 1 / Box |
| 735811 | Decapping head for 11 mm crimp caps (aluminium, magnetic) | 1 / Box |



Ready assembled crimp closures, plain crimp caps and single septa N 11

| Cap description (Scale 1:1.6) | Septum description | Hardness | Thickness | Pack of |
|--|---|-------------|-----------|-----------------|
| N 11 aluminium crimp cap, color as indicated, center hole  70256 70231.1 70231.2 70231.3 | Natural rubber / Butyl red-orange / TEF colorless  | 45° shore A | 1.0 mm | 100 / PE bag |
| N 11 aluminium crimp cap, color as indicated, center hole  702730 702730.1 702730.2 702730.3 | Red Rubber / FEP colorless  | 45° shore A | 1.0 mm | 100 / PE bag |
| N 11 aluminium crimp cap, color as indicated, center hole  70288 70288.1 70288.2 70288.3 702879 (magnetic) | Silicone white / PTFE red  | 45° shore A | 1.3 mm | 100 / PE bag |
| N 11 aluminium crimp cap, color as indicated, center hole  702995 702995.1 702995.2 702995.3 | PTFE red / Silicone white / PTFE red  | 50° shore A | 1.0 mm | 100 / PE bag |
| N 11 aluminium crimp cap, silver, center hole  702823* | Silicone white / PTFE blue, cross-slit  | 55° shore A | 1.5 mm | 100 / PE bag |
| N 11 aluminium crimp cap, silver, center hole  702736* | Red Rubber / FEP colorless  | 45° shore A | 1.3 mm | 100 / PE bag |
| N 11 aluminium crimp cap, silver, center hole  702001 | Natural rubber, red-orange / TEF colorless  | 60° shore A | 1.0 mm | 100 / PE bag |
| N 11 aluminium crimp cap, silver, center hole  70231 | Natural rubber / Butyl red-orange / TEF colorless  | 45° shore A | 1.3 mm | 100 / PE bag |
| N 11 aluminium crimp cap, silver, center hole  70239 | PTFE gray / Butyl beige / PTFE gray  | 55° shore A | 1.3 mm | 100 / PE bag |
| N 11 aluminium crimp cap, silver, center hole  70284 | PTFE virginal, white  | 53° shore D | 0.25 mm | 100 / PE bag |
| N 11 aluminium crimp cap, silver, roll grove, center hole  702175 | O-ring and aluminium septa TPF (Total Phthalate Free)  | | 0.1 mm | 100 / glass jar |
| N 11 aluminium crimp cap, silver, center hole  702146 | Viton black  | 70° shore A | 1.0 mm | 100 / PE bag |

* upon request also available with a green, red or a blue crimp cap

N 11 Crimp neck vials, inserts and caps N 11

Ready assembled crimp closures, plain crimp caps and single septa N 11

| Cap description (Scale 1:1.6) | Septum description | Hardness | Thickness | Pack of |
|---|-----------------------|-------------|-----------|------------|
| N 11 aluminium crimp cap, silver, center hole (no liner) | – | – | – | 100/PE bag |
|  702801 | | | | |
| N 11 PE cap, transparent, closed top, thin piercing area | – | | | 100/PE bag |
|  702401 | | | | |
| 70262  – (septum only) | PTFE virginial, white | 53° shore D | 0.25 mm | 100/PE bag |

* upon request also available with a green, red or a blue crimp cap

Vial Kits crimp neck N 11

| Vial ↓ | Closure → (Scale 1:1.6) | | | |
|---|--|---|--|--|
| | 70288  | 702995  | 70256  | 702001  |
| 70201HP: 1.5 mL, clear, flat bottom | 702215 | 702218 | 702222 | |
| 702885: 1.5 mL, clear, flat bottom, label and scale | 702216 | 702219 | 702223 | 702253 |
| 702892: 1.5 mL, amber, flat bottom, label and scale | 702217 | 702221 | 702224 | 702254 |



Pack of 100 vials and 100 closures, each
Other Vial Kits on request



Storage of samples in the fridge or in the freezer

Useful tips for sample handling

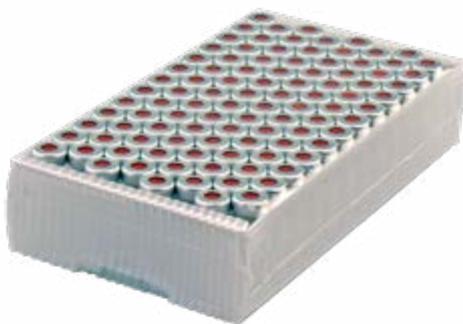
Generally sample vials should be stored in a vial container when being placed in the fridge or in the freezer, in order to avoid any condensations on the cap/septa surface that may go along with contaminations in the penetration area of the septa in the center hole. When filling the vial you have to consider the expansion rate of your sample to prevent breakage of the vial. Furthermore it is important to defreeze the sample at a later point in time very slowly (no sudden defreezing with hot water for example). With screw closures you may have to check, if restoring forces have been activated during the defreezing process and if you may have to tighten the screw closure. The choice of the correct closure (septum) depends on the storage temperature.



Pre-sealed vial-closure combinations with crimp neck N 11

| Vial description | Closure description | Pack of | REF |
|---|---|---------|----------|
| Pre-sealed vials 70201CG: 1.5 mL crimp neck vial N 11, 11.6 x 32 mm, clear, flat bottom, small opening | crimped with 70256: N 11 aluminium crimp cap, silver, center hole, Natural rubber / Butyl red-orange / TEF colorless, 45° shore A, 1.0 mm | 100 | 702881 |
| Pre-sealed vials 70201HP: 1.5 mL crimp neck vial N 11, 11.6 x 32 mm, clear, flat bottom, wide opening | crimped with 70256: N 11 aluminium crimp cap, silver, center hole, Natural rubber / Butyl red-orange / TEF colorless, 45° shore A, 1.0 mm | 100 | 702101HP |
| Pre-sealed vials 702892: 1.5 mL crimp neck vial N 11, 11.6 x 32 mm, amber, flat bottom, wide opening, label and scale | crimped with 70256: N 11 aluminium crimp cap, silver, center hole, Natural rubber / Butyl red-orange / TEF colorless, 45° shore A, 1.0 mm | 100 | 702859 |
| Pre-sealed vials 70201HP: 1.5 mL crimp neck vial N 11, 11.6 x 32 mm, clear, flat bottom, wide opening | crimped with 702995: N 11 aluminium crimp cap, silver, center hole, PTFE red / Silicone white / PTFE red, 50° shore A, 1.0 mm | 100 | 702867 |

Other pre-sealed vial-closure combinations on request



Optimal crimping

For an optimal crimp result the crimping tool needs to be adjusted to:

- Type and height of the vial's crimp neck
- Thickness and hardness of the septa
- Properties of the cap (type, material)

For doing so, please refer to the instruction manual of the individual tool.

Permanent control of the crimp result and thus of the crimping tool settings is necessary.

Incorrect crimping can be recognized by the following features:



Cap deformation



Pulled up edge of the center hole



Strong formation of wrinkles



Convex looking liner



Cap can be turned with only low expenditure of power

N 11 Snap ring vials, inserts and caps N 11

Snap ring vials and inserts N 11

Wide opening, vials can alternatively be crimped as well (see page 31)

| Polypropylene | | | | | | | |
|---|---|---|---|---|--|---|---|
|  |  |  |  |  |  |  |  |
| 702714 | 702713 | 702712 | 702813 silanized 702077 | 702716 | 702818 silanized 702818.1 | 702819 | 702825 |
| 1.5 mL | 1.5 mL | 1.5 mL | 0.2 mL | 0.25 mL | 0.1 mL | 0.1 mL | 0.3 mL |
| 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 6 x 31 mm | 6 x 31 mm | 5.7 x 29 mm | 5.7 x 29 mm | 6 x 31 mm |
| clear | clear, label + scale | amber, label + scale | clear | clear | clear | transparent | clear |
| flat bottom | flat bottom | flat bottom | conical, 15 mm tip | conical, 12 mm tip | with plastic spring | with integrated spring | flat bottom |
| 100 / PP box | 100 / PP box | 100 / PP box | 100 / PE bag | 100 / PE bag | 100 / PE bag | 100 / PE bag | 100 / PE bag |

Micro-vials N 11 for small sample volumes

| | | | | | |
|--|--|--|--|--|--|
|  |  |  |  |  |  |
| 702709/702708 | 702134* | 702334* | 702809 | 702173 | 702174 |
| 0.2 mL | 0.2 mL | 0.2 mL | 0.3 mL | 0.3 mL | 0.7 mL |
| 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm | 11.6 x 32 mm |
| clear/amber | clear | amber | transparent | amber | transparent |
| flat bottom, with integrated 0.2 mL insert | flat bottom, with integrated 0.2 mL glass insert | flat bottom, with integrated 0.2 mL glass insert | with inner cone | with inner cone | with round bottom insert |
| 100 / PP box | 100 / PP box | 100 / PP box | 100 / PE bag | 100 / PE bag | 100 / PE bag |

* upon request also available with an integrated silanized insert

Pre-assembled vial-insert combinations with snap ring N 11

| Vial description | Insert description | Pack of | REF |
|---|---|--------------|--------|
| Vial 702714: 1.5 mL, clear, flat bottom | with pre-assembled micro-insert 702813: 0.2 mL, conical, 15 mm tip | 100 / PP Box | 702170 |
| Vial 702713: 1.5 mL, clear, flat bottom, label + scale | with pre-assembled micro-insert 702813: 0.2 mL, conical, 15 mm tip | 100 / PP Box | 702176 |
| Further pre-assembled vial-insert combinations on request | | | |

Ready assembled snap ring closures N 11 (hard cap)

| Cap description (Scale 1:1.6) | Septum description | Hardness | Thickness | Pack of |
|---|---|-------------|-----------|--------------|
| N 11 PE snap ring cap, color as indicated, center hole   702731 702063 | Red Rubber / FEP colorless  | 45° shore A | 1.0 mm | 100 / PE bag |
| N 11 PE snap ring cap, color as indicated, center hole      702710 702710.1 702095 702142 702108 | Silicone white / PTFE red  | 45° shore A | 1.0 mm | 100 / PE bag |
| N 11 PE snap ring cap, color as indicated, center hole    702064 702717.2 702143 | Silicone white / PTFE blue, cross-slit  | 55° shore A | 1.0 mm | 100 / PE bag |
| N 11 PE snap ring cap, color as indicated, center hole   702718 702718.1 | PTFE red / Silicone white / PTFE red  | 50° shore A | 1.0 mm | 100 / PE bag |
| N 11 PE cap, transparent, closed top, thin piercing area  702401 | – | – | – | 100 / PE bag |

Ready assembled snap ring closures N 11 (soft cap)

| REF | (Scale 1:1.6) | Cap description | Septum description | Hardness | Thickness | Pack of |
|-------------|---|--|--|-------------|-----------|--------------|
| 702063.2080 |   | N 11 PE snap ring cap, soft, light blue, center hole | Red Rubber / FEP colorless | 45° shore A | 1.0 mm | 100 / PE bag |
| 702710.2080 |   | N 11 PE snap ring cap, soft, light blue, center hole | Silicone white / PTFE red | 45° shore A | 1.0 mm | 100 / PE bag |
| 702717.2080 |   | N 11 PE snap ring cap, soft, light blue, center hole | Silicone white / PTFE blue, cross-slit | 55° shore A | 1.0 mm | 100 / PE bag |
| 702718.2080 |   | N 11 PE snap ring cap, soft, light blue, center hole | PTFE red / Silicone white / PTFE red | 50° shore A | 1.0 mm | 100 / PE bag |

Vial Kits snap ring N 11

| Vial ↓ | Closure → (Scale 1:1.6) | | | |
|--|---|---|---|---|
| | 702710   | 702064   | 702731   | 702718   |
| 702714 1.5 mL, clear, flat bottom | 702225 | 702228 | 702232 | 702235 |
| 702713 1.5 mL, clear, flat bottom, label and scale | 702719 | 702229 | 702233 | 702236 |
| 702712 1.5 mL, amber, flat bottom, label and scale | 702227 | 702231 | 702234 | 702237 |



Pack of 100 vials and 100 closures, each
Other Vial Kits on request

N 13 Crimp neck vials and caps N 13

Crimp neck vial N 13

70203
2 mL
13.75 x 35 mm
clear, flat bottom
100 / carton



Crimping tools N 13

| REF | Type of crimping tool | Pack of |
|--------|--|---------|
| 735113 | Manual crimper (standard), height adjustable, for 13 mm aluminium crimp caps | 1 / Box |
| 735133 | Manual crimper (standard), height adjustable, for 13 mm Flip Top / Flip Off caps | 1 / Box |
| 735913 | Manual decapper (standard) for 13 mm aluminium crimp caps | 1 / Box |
| 735513 | Electronic crimper for 13 mm aluminium crimp caps (battery-powered) | 1 / Box |
| 735533 | Electronic crimper for 13 mm Flip Top / Flip Off caps (battery-powered) | 1 / Box |
| 735613 | Electronic decapper for 13 mm aluminium crimp caps (battery-powered) | 1 / Box |
| 735700 | Electronic high power crimping tool with power supply | 1 / Box |
| 735713 | Crimping head for 13 mm aluminium crimp caps | 1 / Box |
| 735733 | Crimping head for 13 mm Flip Top / Flip Off caps | 1 / Box |



Ready assembled crimp closures N 13 and plain crimp caps N 13

| REF | (Scale 1:1.6) | Cap description | Septum description | Hardness | Thickness | Pack of |
|--------|---|--|---|-------------|-----------|--------------|
| 70257 |  | N 13 aluminium crimp cap, silver, center hole | Butyl dark gray / PTFE gray (only centrally laminated with PTFE, typically called Pharma-Fix) | 50° shore A | 2 mm | 100 / PE bag |
| 70232 |  | N 13 aluminium center tear off cap, gold | Butyl dark gray / PTFE gray (only centrally laminated with PTFE, typically called Pharma-Fix) | 50° shore A | 2 mm | 100 / PE bag |
| 702802 |  | N 13 aluminium crimp cap, silver, center hole (no liner) | - | - | - | 100 / PE bag |
| 702803 |  | N 13 aluminium center tear off cap, gold (no liner) | - | - | - | 100 / PE bag |

Container for crimp and screw neck vials N 13

| REF | Description | Pack of |
|--------|---|---------|
| 702515 | 49 position container blue for crimp and screw neck vials N 13, 130 x 130 x 50 mm, with transparent lid (suitable for freezers) | 1 |



Vial rack for crimp and screw neck vials N 13

| REF | Description | Pack of |
|--------|--|---------|
| 702504 | 50 position polypropylene vial rack blue for vials with a diameter of 15 mm max. and flat bottom Dimensions: 240 x 120 x 28 mm, stackable | 1 |



Screw neck vials and insert N 13

13-425 Thread



| 702962 | 702973 | 702972 | 702974 |
|---------------|---------------|--------------------------------|-------------------------|
| 4 mL | 4 mL | 0.3 mL | |
| 14.75 x 45 mm | 14.75 x 45 mm | 6 x 40 mm | |
| clear | amber | clear | |
| flat bottom | flat bottom | conical, metal spring required | metal spring for 702972 |
| 100 / PP box | 100 / PP box | 100 / PE bag | 100 / PE bag |

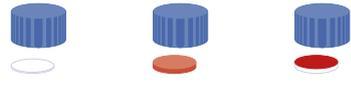
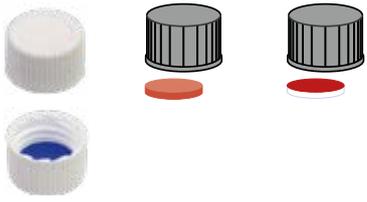
Ready assembled screw closures N 13, plain screw caps N 13, single septa N 12

| REF | (Scale 1:1.6) | Cap description | Septum description | Hardness | Thickness | Pack of |
|--------|---------------|--|----------------------------|-------------|-----------|--------------|
| 702113 | | N 13 PP bonded* screw cap, white, closed top | Silicone white / PTFE blue | 55° shore A | 1.3 mm | 100 / PE bag |
| 702050 | | N 13 PP screw cap, black, center hole | Red Rubber / FEP colorless | 40° shore A | 1.5 mm | 100 / PE bag |
| 702051 | | as above, but with closed top | | | | |
| 702926 | | N 13 PP screw cap, black, center hole | Silicone white / PTFE red | 40° shore A | 1.3 mm | 100 / PE bag |
| 702052 | | as above, but with closed top | | | | |
| 702963 | | N 13 PP screw cap, black, center hole (no liner) | - | - | - | 100 / PE bag |
| 702966 | | as above, but with closed top (no liner) | | | | |
| 70260 | | - (septum only) | PTFE virginal, white | 53° shore D | 0.25 mm | 100 / PE bag |
| 702053 | | - (septum only) | Red Rubber / FEP colorless | 40° shore A | 1.5 mm | 100 / PE bag |
| 702292 | | - (septum only) | Silicone white / PTFE red | 40° shore A | 1.3 mm | 100 / PE bag |

* Septum firmly connected with the cap; cannot be removed

DIV Diverse vials and caps

Screw neck vials and closed top screw closures for storage of liquid samples

| N 8 | | | | N 9 | | | | N 13 | | |
|--|---|-----------------------------------|-----------------------------------|---|--|---|-----------------------------------|--|---|--|
| Small opening, 8-425 thread | | | | Wide opening, short thread | | | | 13-425 thread | | |
|  | | | |  | | | |  | | |
| 70213 | 70213.2 | 702004 | 702893 | 702282 | 702293 | 702283 silanized 702078 | 702284 silanized 702079 | 702962 | 702973 | |
| 1.5 mL | 1.5 mL | 1.5 mL | 1.5 mL | 1.5 mL | 1.5 mL | 1.5 mL | 1.5 mL | 4 mL | 4 mL | |
| 11.6 x 32 mm | | | | 11.6 x 32 mm | | | | 14.75 x 45 mm | 14.75 x 45 mm | |
| clear, flat bottom | amber, flat bottom | clear, flat bottom, label + scale | amber, flat bottom, label + scale | clear, flat bottom | amber, flat bottom | clear, flat bottom, label + scale | amber, flat bottom, label + scale | clear, flat bottom | amber, flat bottom | |
| 100 / PP box | | | | 100 / PP box | | | | 100 / PP box | 100 / PP box | |
| To be used with* | | | | To be used with* | | | | To be used with* | | |
|  | | | |  | | | |  | | |
| 702068 | 702066 | | | 702032 | 702033 | 702034 | | 702113 | 702051 | 702052 |
| N 8 PP screw cap, black, closed top, Red Rubber / FEP colorless, 45° shore A, 1.3 mm | N 8 PP screw cap, black, closed top, Silicone white / PTFE red, 45° shore A, 1.3 mm | | | N 9 PP screw cap blue, closed top, PTFE virginal, white, 53° shore D, 0.25 mm | N 9 PP screw cap blue, closed top, Red Rubber / FEP colorless, 45° shore A, 1.0 mm | N 9 PP screw cap blue, closed top, Silicone white / PTFE red, 45° shore A, 1.0 mm | | N 13 PP bonded screw cap, white, closed top, Silicone white / PTFE blue, 55° shore A, 1.3 mm | N 13 PP screw cap, black, closed top, Red Rubber / FEP colorless, 40° shore A, 1.5 mm | N 13 PP screw cap, black, closed top, Silicone white / PTFE red, 40° shore A, 1.3 mm |
| 100 / PE bag | 100 / PE bag | | | 100 / PE bag | 100 / PE bag | 100 / PE bag | | 100 / PE bag | 100 / PE bag | 100 / PE bag |

* Scale (1:1.6)

Container for screw neck vials N 15

| REF | Description | Pack of |
|--------|---|---------|
| 702518 | 36 position container blue with removeable divider for screw neck vials N 15, 130 x 130 x 80 mm, with transparent lid (suitable for freezers) | 1 |



Screw neck vials and screw closures for storage of liquid samples

| N 15 | | | | N 18 | N 20 |
|--|---|--|---|--|--|
| 15-425 thread | | | | 18-400 thread | 20-400 thread |
|  |  |  |  |  |  |
| 702096 | 702311 | 70285 | 702097 | 702098 | 702099 |
| 8 mL | 8 mL | 12 mL | 12 mL | 16 mL | 24 mL |
| 16.6 x 61 mm | 16.6 x 61 mm | 18.5 x 66 mm | 18.5 x 66 mm | 20.6 x 71 mm | 22.7 x 86 mm |
| clear, flat bottom | amber, flat bot. | clear, flat bottom | amber, flat bot. | clear, flat bottom | clear, flat bottom |
| 100/PP box | 100/carton | 100/PP box | 100/carton | 100/PP box | 100/PP box |
| To be used with* | | | | To be used with* | |
|  | |  | |  |  |
| 702114 | 702180 | 702115 | 702116 | 702181 | |
| N 15 PP bonded screw cap, white, closed top, Silicone white / PTFE blue, 55° shore A, 1.3 mm | | N 15 PP bonded screw cap, black, center hole, Silicone white / PTFE beige, 45° shore A, 1.5 mm | | N 18 PP bonded screw cap, white, closed top, Silicone white / PTFE blue, 55° shore A, 1.3 mm | N 20 PP bonded screw cap, white, closed top, Silicone white / PTFE blue, 55° shore A, 1.3 mm |
| 100/PE bag | | 100/PE bag | | 100/PE bag | 100/PE bag |

* Scale (1:1.6)

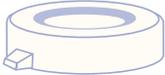
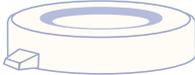
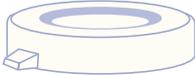
For screw neck vials with volumes larger than 24 mL please see page 47

DIV Diverse vials and caps

Shell vials N 8 + N 12

| Fire-polished neck N 8 | | Fire-polished neck N 12 |
|---|---|---|
|  |  |  |
| 70202.1 | 702017 | 702018 |
| 1 mL | 1 mL | 2 mL |
| 8.2 x 40 mm | 8.2 x 40 mm | 11.6 x 31.5 mm |
| clear, flat bottom | amber, flat bottom | clear, flat bottom |
| 100 / PP box | 100 / PP box | 100 / PP box |
| To be used with N 8 PE plugs | | To be used with N 12 PE plugs |
|  |  |  |
| 702807 | 702807 | 702054 |
| 100 / PE bag | 100 / PE bag | 100 / PE bag |

Snap cap vials (for storage of powdery samples) N 18 + N 22 with PE snap caps

| N 18 | | N 22 | |
|---|---|--|---|
|  |  |  |  |
| 70271 | 70272 | 702019 | 70273 |
| 5 mL | 10 mL | 15 mL | 25 mL |
| 20 x 40 mm | 22 x 50 mm | 26 x 48 mm | 26 x 65 mm |
| clear, 3 rd hydrol. class, flat bottom | clear, 3 rd hydrol. class, flat bottom | clear, 3 rd hydrol. class, flat bottom | clear, 3 rd hydrol. class, flat bottom |
| 100 / carton | 100 / carton | 100 / carton | 100 / carton |
| To be used with N 18 PE snap cap | | To be used with N 22 PE snap cap | |
|  |  |  |  |
| 70274 | 70274 | 70275 | 70275 |
| 100 / PE bag | 100 / PE bag | 100 / PE bag | 100 / PE bag |

Headspace screw neck vials N 18

Precision thread, not standardized



| REF | Capacity | Dimensions | Color | Packaging |
|----------|----------|----------------|-----------------------|------------|
| 702866 | 10 mL | 22.5 x 46 mm | clear, rounded bottom | 100/PP box |
| 702826 | 20 mL | 22.5 x 75.5 mm | clear, rounded bottom | 100/PP box |
| 702826.2 | 20 mL | 22.5 x 75.5 mm | amber, rounded bottom | 100/PP box |

Ready assembled, magnetic screw closures N 18

| REF | (Scale 1:1.6) | Cap description | Septum description | Hardness | Thickness | Pack of |
|--------|---------------|--|--|-------------|-----------|------------|
| 702827 | | N 18 magnetic screw cap, silver, center hole | Silicone blue transparent / PTFE white | 45° shore A | 1.5 mm | 100/PE bag |
| 702055 | | N 18 magnetic screw cap, silver, center hole | Silicone white / PTFE blue | 45° shore A | 1.5 mm | 100/PE bag |
| 702140 | | as above, but with closed top | | | | |
| 702136 | | N 18 magnetic screw cap, silver, center hole | Silicone white / PTFE blue, slit | 45° shore A | 1.5 mm | 100/PE bag |
| 702137 | | N 18 magnetic screw cap, silver, center hole | Butyl red / PTFE gray | 50° shore A | 1.5 mm | 100/PE bag |
| 702139 | | as above, but with closed top | | | | |
| 702072 | | N 18 magnetic screw cap, silver, center hole | Red Rubber / TEF colorless | 45° shore A | 1.5 mm | 100/PE bag |
| 702110 | | - (septum only) | Silicone white / PTFE blue | 45° shore A | 1.5 mm | 100/PE bag |
| 702981 | | - (septum only) | Silicone blue transparent / PTFE white | 45° shore A | 1.5 mm | 100/PE bag |
| 702138 | | - (septum only) | Butyl red / PTFE gray | 50° shore A | 1.5 mm | 100/PE bag |

N 20 Crimp neck vials and caps N 20

Crimp neck vials N 20

5–10 mL



| | | | | | |
|-------------------------------------|---------------------------------------|---------------------------------------|-------------------------------------|-------------------------------------|--|
| 70204.36 70215.36 | 702917 | 702020 | 70205.36 70216.36 | 702918 | 702924 |
| Varian® | PerkinElmer® | Metrohm® | Varian® | DANI, Agilent® | CTC, Varian® |
| 5 mL | 6 mL | 5 mL | 10 mL | 10 mL | 10 mL |
| 20.5 x 38 mm | 22 x 38.25 mm | 21.7 x 38.25 mm | 20.5 x 54.5 mm | 22.5 x 46 mm | 22.5 x 46 mm |
| clear / amber | clear | clear | clear / amber | clear | clear |
| flat bottom, flat DIN crimp neck | rounded bottom, bev. HS crimp neck | flat bottom, beveled HS crimp neck | flat bottom, flat DIN crimp neck | flat bottom, flat DIN crimp neck | rounded bottom, flat DIN crimp neck |
| 100 / PP box | 100 / PP box | 100 / PP box | 100 / PP box | 100 / PP box | 100 / PP box |

20 mL



| | | | | | |
|-------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|-------------------------------------|--|
| 70206.36 70217.36 | 702086 | 70254 | 702540 | 702261 | 702263 702263.2 |
| | | PerkinElmer® | PerkinElmer® | DANI, Agilent® | CTC, Varian® |
| 20 mL | 20 mL | 20 mL | 20 mL | 20 mL | 20 mL |
| 23.25 x 75.5 mm | 22 x 75 mm | 23 x 75.5 mm | 23 x 75.5 mm | 22.5 x 75.5 mm | 22.5 x 75.5 mm |
| clear / amber | clear, 15 mL graduation | clear | clear, with label | clear | clear / amber |
| flat bottom, flat DIN crimp neck | rounded bottom, bev. HS crimp neck | rounded bottom, bev. HS crimp neck | rounded bottom, bev. HS crimp neck | flat bottom, flat DIN crimp neck | rounded bottom, flat DIN crimp neck |
| 100 / PP box | 100 / PP box | 100 / PP box | 100 / PP box | 100 / PP box | 100 / PP box |

Crimp neck vials N 20

25 mL, 50 mL and 100 mL



| | | |
|---------------------|---------------------|---|
| 70210.36 | 70208.36 | 70209.1 |
| 25 mL | 50 mL | 100 mL |
| 30 x 65 mm | 31 x 101 mm | 51.6 x 94.5 mm |
| clear | clear | clear, 3 rd hydrolytic class |
| flat bottom | flat bottom | flat bottom |
| flat DIN crimp neck | flat DIN crimp neck | flat DIN crimp neck |
| 100 / PP box | 100 / PP box | 88 / shrink-wrapped tray |

Crimping tools N 20

| REF | Type of crimping tool | Pack of |
|-----------|--|--------------|
| 735120 | Manual crimper (standard), height adjustable, for 20 mm aluminium crimp caps | 1 / Box |
| 735132 | Manual crimper (standard), height adjustable, for 20 mm Flip Top/Flip Off caps | 1 / Box |
| 735920 | Manual decapper (standard) for 20 mm aluminium crimp caps | 1 / Box |
| 735911.20 | Manual decapper (plier style, dual) for 11 mm and 20 mm aluminium crimp caps | 1 / PE Cover |
| 735220 | Ergonomic crimper for 20 mm aluminium crimp caps | 1 / Box |
| 735320 | Ergonomic decapper for 20 mm aluminium crimp caps | 1 / Box |
| 735520 | Electronic crimper for 20 mm aluminium crimp caps (battery-powered) | 1 / Box |
| 735532 | Electronic crimper for 20 mm Flip Top/Flip Off caps (battery-powered) | 1 / Box |
| 735620 | Electronic decapper for 20 mm aluminium crimp caps (battery-powered) | 1 / Box |
| 735700 | Electronic high power crimping tool with power supply | 1 / Box |
| 735720 | Crimping head for 20 mm crimp caps (aluminium, magnetic, bi-metal) | 1 / Box |
| 735732 | Crimping head for 20 mm Flip Top/Flip Off caps | 1 / Box |
| 735820 | Decapping head for 20 mm crimp caps (aluminium, magnetic, bi-metal) | 1 / Box |



N 20 Crimp neck vials and caps N 20

Ready assembled crimp closures, plain crimp caps and single septa N 20

| REF | (Scale 1:2) | Cap description | Septum description | Hardness | Thickness | Pack of |
|---|---|---|--|-------------|-----------|--------------------|
|  | | Center hole caps | | | | |
| 702773 |  | N 20 aluminium crimp cap, silver, center hole | Butyl red / PTFE gray | 50° shore A | 3 mm | 100 / PE bag |
| 702775 |  | N 20 aluminium crimp cap, silver, center hole | Butyl light gray / PTFE dark gray | 50° shore A | 3 mm | 100 / PE bag |
| 70234.9 |  | N 20 aluminium crimp cap, silver, center hole | Molded septum Butyl / PTFE gray | 50° shore A | 3 mm | 100 / PE bag |
| 70234 |  | N 20 aluminium crimp cap, silver, center hole | Butyl dark gray / PTFE gray* | 50° shore A | 3 mm | 100 / PE bag |
| 70234.10 |  | N 20 aluminium crimp cap, silver, center hole | Butyl dark gray / PTFE gray* (high purity) | 50° shore A | 3 mm | 100 / PE bag |
| 702056 |  | N 20 aluminium crimp cap, gold, center hole |  Butyl dark gray / PTFE gray* | 50° shore A | 3 mm | 100 / PE bag |
| 70237.2 |  | N 20 aluminium crimp cap, silver, center hole | Bromobutyl stopper, gray, unassembled (separate parts) | 50° shore A | | 100 each / PE bags |
| 702093 |  | N 20 aluminium crimp cap, silver, center hole | Silicone blue transparent / PTFE colorless | 40° shore A | 3 mm | 100 / PE bag |
| 702094 |  | N 20 aluminium crimp cap, silver, center hole | Silicone white / PTFE beige | 40° shore A | 3 mm | 100 / PE bag |
| 702091 |  | N 20 aluminium crimp cap, silver, center hole | Silicone white / PTFE red (economy line) | 45° shore A | 3 mm | 100 / PE bag |
| 702145 |  | N 20 aluminium crimp cap, silver, center hole | Silicone white / FEP-/Aluminium foil silver | 45° shore A | 3 mm | 100 / PE bag |
| 702804 |  | N 20 aluminium crimp cap, silver, center hole (no liner) | - | - | - | 100 / PE bag |
| 702112 |  | N 20 aluminium crimp cap, gold, center hole (no liner) | - | - | - | 100 / PE bag |
|  | | Pressure release caps | | | | |
| 702836 |  | N 20 aluminium pressure release cap, silver, center hole | Butyl red / PTFE gray | 50° shore A | 3 mm | 100 / PE bag |
| 702829 |  | N 20 aluminium pressure release cap, silver, center hole | Butyl light gray / PTFE dark gray | 50° shore A | 3 mm | 100 / PE bag |
| 70234.8 |  | N 20 aluminium pressure release cap, silver, center hole | Molded septum Butyl / PTFE gray | 50° shore A | 3 mm | 100 / PE bag |
| 702071 |  | N 20 aluminium pressure release cap, silver, center hole | Butyl dark gray / PTFE gray* (high purity) | 50° shore A | 3 mm | 100 / PE bag |
| 702927 |  | N 20 aluminium pressure release cap, silver, center hole | Silicone blue transparent / PTFE colorless | 45° shore A | 3 mm | 100 / PE bag |
| 702835 |  | N 20 aluminium pressure release cap, silver, center hole | Silicone white / PTFE beige | 45° shore A | 3 mm | 100 / PE bag |
| 702799 |  | N 20 aluminium pressure release cap, silver, center hole (no liner) | - | - | - | 100 / PE bag |

* only centrally laminated with PTFE, typically called Pharma-Fix

 Ready assembled crimp closures, plain crimp caps and single septa N 20

| REF | (Scale 1:2) | Cap description | Septum description | Hardness | Thickness | Pack of |
|---|---|--|--|-------------|-----------|--------------|
|  Bi-metal crimp caps | | | | | | |
| 702838 |  | N 20 bi-metal crimp cap, blue/silver, center hole | Butyl light gray / PTFE dark gray | 50° shore A | 3 mm | 100 / PE bag |
| 702834 |  | N 20 bi-metal crimp cap, blue/silver, center hole | Silicone blue transparent / PTFE colorless | 40° shore A | 3 mm | 100 / PE bag |
| 702837 |  | N 20 bi-metal crimp cap, blue/silver, center hole | Silicone white / PTFE beige | 40° shore A | 3 mm | 100 / PE bag |
| 702833 |  | N 20 bi-metal crimp cap, blue/silver, center hole (no liner) | - | - | - | 100 / PE bag |
|  Magnetic crimp caps | | | | | | |
| 702774 |  | N 20 magnetic crimp cap, silver, 8 mm center hole | Butyl red / PTFE gray | 50° shore A | 3 mm | 100 / PE bag |
| 702928 |  | N 20 magnetic crimp cap, silver, 8 mm center hole | Butyl light gray / PTFE dark gray | 50° shore A | 3 mm | 100 / PE bag |
| 702928.9 |  | N 20 magnetic crimp cap, silver, 8 mm center hole | Butyl dark gray / PTFE gray* | 50° shore A | 3 mm | 100 / PE bag |
| 702929 |  | N 20 magnetic crimp cap, silver, 8 mm center hole | Silicone blue transparent / PTFE colorless | 40° shore A | 3 mm | 100 / PE bag |
| 702808 |  | N 20 magnetic crimp cap, silver, 8 mm center hole (no liner) | - | - | - | 100 / PE bag |
|  Center tear off caps | | | | | | |
| 70233 |  | N 20 aluminium center tear off cap, gold |  Butyl dark gray / PTFE gray* | 50° shore A | 3 mm | 100 / PE bag |
| 70236.1 |  | N 20 aluminium center tear off cap, silver (no liner) | - | - | - | 100 / PE bag |
|  Complete tear off caps | | | | | | |
| 70235 |  | N 20 aluminium complete tear off cap, silver | Butyl dark gray / PTFE gray* | 50° shore A | 3 mm | 100 / PE bag |
| 702839 |  | N 20 aluminium complete tear off cap, silver | Silicone white / PTFE beige | 40° shore A | 3 mm | 100 / PE bag |
| 702805 |  | N 20 aluminium complete tear off cap, silver (no liner) | - | - | - | 100 / PE bag |
|  Single septa | | | | | | |
| 70277 |  | - (septa only) | Butyl red / PTFE gray | 50° shore A | 3 mm | 100 / PE bag |
| 702057 |  | - (septa only) | Butyl light gray / PTFE dark gray | 50° shore A | 3 mm | 100 / PE bag |
| 702101 |  | - (septa only) | Molded septum Butyl / PTFE gray | 50° shore A | 3 mm | 100 / PE bag |
| 702D20TB |  | - (septa only) | Butyl dark gray / PTFE gray* | 50° shore A | 3 mm | 100 / PE bag |
| 702780 |  | - (septa only) | Silicone blue transparent / PTFE colorless | 40° shore A | 3 mm | 100 / PE bag |
| 70278 |  | - (septa only) | Silicone white / PTFE beige | 40° shore A | 3 mm | 100 / PE bag |

* only centrally laminated with PTFE, typically called Pharma-Fix

N 20 Crimp neck vials and caps N 20

Stoppers N 20

| REF | (Scale 1:2) | Cap description | Description | Hardness | Thickness | Pack of |
|----------|---|------------------|-------------------------------|-------------|-----------|------------|
| 702931.3 |  | - (stopper only) | N 20 stopper, Bromobutyl gray | 50° shore A | - | 100/PE bag |
| 702931.1 |  | - (stopper only) | N 20 stopper, Bromobutyl red | 45° shore A | - | 100/PE bag |

PE caps N 20 and suitable single septa N 19

| REF | (Scale 1:2) | Cap description | Septum description | Hardness | Thickness | Pack of |
|---|---|--|--|-------------|-----------|------------------|
| Height: 8.4 mm → for vials with beveled HS crimp neck | | | | | | |
| 70266 |  | N 20 PE cap, transparent, for beveled HS crimp neck N 20, 4.3 mm center hole | (no liner) | - | - | 100/PE bag |
| 70242 |  | cap as above | Butyl beige / PTFE gray unassembled (as separate parts) | 55° shore A | 1.3 mm | 100 each/PE bags |
| 702128 |  | cap as above | Natural rubber red-orange / TEF colorless, ready assembled | 45° shore A | 1.3 mm | 100/PE bag |
| Height: 9.1 mm → for vials with flat DIN crimp neck | | | | | | |
| 70267 |  | N 20 PE cap, transparent, for flat DIN crimp neck N 20, 4.3 mm center hole | (no liner) | - | - | 100/PE bag |
| 70240 |  | cap as above | Butyl beige / PTFE gray unassembled (as separate parts) | 55° shore A | 1.3 mm | 100 each/PE bags |
| 702129 |  | cap as above | Natural rubber red-orange / TEF colorless, ready assembled | 45° shore A | 1.3 mm | 100/PE bag |
| 70269 |  | - (septum only) | Butyl beige / PTFE gray | 55° shore A | 1.3 mm | 100/PE bag |
| 702904 |  | - (septum only) | Natural rubber red-orange / TEF colorless | 45° shore A | 1.3 mm | 100/PE bag |
| 702144 |  | - (septum only) | Silicone blue transparent / PTFE white | 45° shore A | 1.3 mm | 100/PE bag |

Container for screw neck vials N 18 and crimp neck vials N 20

| REF | Description | Pack of |
|--------|---|---------|
| 702516 | 25 position container blue for 10 mL + 20 mL screw neck vials N 18 and crimp neck vials N 20, 130 x 130 x 80 mm, with transparent lid (suitable for freezers) | 1 |



Vial rack for screw neck vials N 18 and crimp neck vials N 20

| REF | Description | Pack of |
|--------|--|------------|
| 702503 | 36 position polypropylene vial rack blue, coded, for vials with a diameter of 23.1 mm max. Dimensions: 323 x 91 x 30 mm, stackable | 5 / carton |



Screw neck vials N 24 (EPA)

For TOC/VOC analysis and sample storage



| 702021 / 702022 | 702132 / 702133 | 702023 / 702024 | 702074 / 702131 |
|----------------------------|----------------------------|----------------------------|----------------------------|
| 20 mL | 30 mL | 40 mL | 60 mL |
| 27.5 x 57 mm | 27.5 x 72.5 mm | 27.5 x 95 mm | 27.5 x 140 mm |
| clear / amber, flat bottom | clear / amber, flat bottom | clear / amber, flat bottom | clear / amber, flat bottom |
| 100 / PP box | 100 / PP box | 100 / PP box | 100 / PP box |

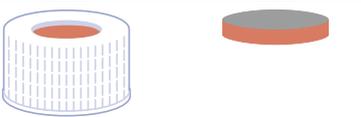
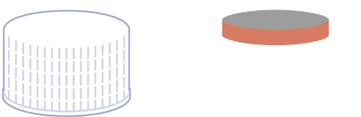
Container for screw neck vials N 24

| REF | Description | Pack of |
|--------|---|---------|
| 702517 | 16 position container blue, with removable divider for screw neck vials N 24 (20 mL, 30 mL, 40 mL) 130 x 130 x 102 mm, with transparent lid (suitable for freezers) | 1 |



N 24 Screw neck vials and caps N 24

Bonded and ready assembled screw closures + plain screw caps N 24, single septa N 22

| REF | (Scale 1:1.6) | Cap description | Septum description | Hardness | Thickness | Pack of |
|--------|---|--|-----------------------------------|-------------|-----------|--------------|
| 702058 |  | N 24 PP bonded screw cap, white, center hole | Silicone white / PTFE beige | 45° shore A | 3.2 mm | 100 / PE bag |
| 702059 |  | N 24 PP bonded screw cap, white, closed top | Silicone white / PTFE beige | 45° shore A | 3.2 mm | 100 / PE bag |
| 702073 |  | N 24 PP bonded screw cap, white, center hole | Red Rubber / TEF colorless | 45° shore A | 2.5 mm | 100 / PE bag |
| 702168 |  | N 24 PP bonded screw cap, white, center hole, with removeable protection lid | Silicone natural / PTFE colorless | 45° shore A | 3.2 mm | 100 / PE bag |
| 702130 |  | N 24 PP screw cap, white, center hole | Butyl red / PTFE gray | 50° shore A | 2.4 mm | 100 / PE bag |
| 702102 |  | N 24 PP screw cap, white, closed top | Butyl red / PTFE gray | 50° shore A | 2.4 mm | 100 / PE bag |
| 702171 |  | N 24 PP screw cap, white, center hole | Silicone white / PTFE beige | 45° shore A | 3.2 mm | 100 / PE bag |
| 702060 |  | N 24 PP screw cap, white, center hole | no liner | - | - | 100 / PE bag |
| 702061 |  | N 24 PP screw cap, white, closed top | no liner | - | - | 100 / PE bag |
| 702062 |  | - (septa only) | Silicone natural / PTFE colorless | 45° shore A | 3.2 mm | 100 / PE bag |
| 702791 |  | - (septa only) | Butyl red / PTFE gray | 50° shore A | 2.4 mm | 100 / PE bag |

Pre-sealed vial-closure combinations with screw neck N 24

| Vial description | Closure description | Pack of | REF |
|---|---|---------|--------|
| Pre-sealed vials 702021: 20 mL screw neck vial N 24, 27.5 x 57 mm, clear, flat bottom | pre-screwed with 702073: N 24 PP screw cap (bonded), white, center hole, Red Rubber / TEF colorless, 45° shore A, 2.5 mm | 100 | 702865 |
| Pre-sealed vials 702021: 20 mL screw neck vial N 24, 27.5 x 57 mm, clear, flat bottom | pre-screwed with 702059: N 24 PP screw cap (bonded), white, closed top, Silicone white / PTFE beige, 45° shore A, 3.2 mm | 100 | 702884 |
| Pre-sealed vials 702132: 30 mL screw neck vial N 24, 27.5 x 72.5 mm, clear, flat bottom | pre-screwed with 702058: N 24 PP screw cap (bonded), white, center hole, Silicone white / PTFE beige, 45° shore A, 3.2 mm | 100 | 702831 |
| Pre-sealed vials 702023: 40 mL screw neck vial N 24, 27.5 x 95 mm, clear, flat bottom | pre-screwed with 702058: N 24 PP screw cap (bonded), white, center hole, Silicone white / PTFE beige, 45° shore A, 3.2 mm | 100 | 702877 |
| Pre-sealed vials 702131: 60 mL screw neck vial N 24, 27.5 x 140 mm, amber, flat bottom | pre-screwed with 702058: N 24 PP screw cap (bonded), white, center hole, Silicone white / PTFE beige, 45° shore A, 3.2 mm | 100 | 702886 |
| Other pre-sealed vial-closure combinations on request | | | |



Vial accessories and other consumables for chromatography

GC injection port septa

Premium HT-quality – Blister packs for cleanliness and easy handling



| Septum type | BTO septa | AG3 septa | Marathon septa | |
|-------------|--------------|--|--|---|
| | | | | |
| OD | T_{max} | for highest demands in GC and GC-MS – CenterGuide™ – | with higher durability than BTO – CenterGuide™ – | with extreme durability > 400 injections – CenterGuide™ – |
| 9 mm | 400 °C | 702646 | 702656 | 702660 |
| 11 mm | 400 °C | 702647 | 702657 | 702661 |
| 11.5 mm | 400 °C | 702648 | 702658 | 702662 |
| Shimadzu® | 300 °C | 702649 | 702659 | 702663 |
| Pack of | 25 / blister | 25 / blister | 25 / blister | 25 / blister |

Standard quality

| Septum type | Standard septa (ST) | High temperature septa (HT) | Silicone septa | Silicone / PTFE septa |
|-------------|-----------------------------------|---|--------------------------------------|---|
| | | | | |
| OD | beige silicone, 60° shore A, 4 mm | red, non-bleeding silicone, 60° shore A, 3 mm (320 °C max.) | soft, transparent 3 mm (250 °C max.) | white silicone, PTFE 3 mm (200 °C max.) |
| 9 mm | 702609 | 702619 | 702602 | |
| 10 mm | 702610 | 702620 | | 702625 |
| 11 mm | 702611 | 702621 | 702604 | 702626 |
| 12 mm | 702612 | 702622 | 702605 | 702627 |
| 13 mm | 702613 | 702623 | 702606 | 702628 |
| 17 mm | | 702632 | | |
| Pack of | 50 / plastic container | 50 / plastic container | 50 / plastic container | 50 / plastic container |

Capillary connectors for GC

| REF | Capillary connector | | Pack of |
|--------|--|--|----------|
| 707971 | Universal, linear capillary connector for 2 columns with an ID of 0.20–0.53 mm | | 5 / box |
| 707972 | Universal, linear capillary connector for 2 columns with an ID of 0.20–0.53 mm | | 10 / box |
| 707973 | Universal, linear capillary connector for 3 columns with an ID of 0.20–0.53 mm, Y splitter | | 1 / box |



Manual crimping tools – Standard

User profile

Manual crimping tool - Standard

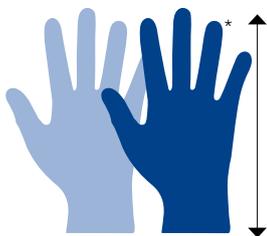


Cap sizes (N 8, N 11, N 13, N 20)

Aluminium

Bi-metal

Magnetic*



Required force

Number of crimp processes

Reproducibility

Durability

Mobility

Comfort adjust.

Convenience



| REF | Description | Pack of |
|------------------|--|---------|
| Crimpers | | |
| 735126 | Manual crimper (standard), for 8 mm crimp caps | 1 / Box |
| 735111 | Manual crimper (standard), height adjustable, for 11 mm crimp caps | 1 / Box |
| 735113 | Manual crimper (standard), height adjustable, for 13 mm crimp caps | 1 / Box |
| 735133 | Manual crimper (standard), height adjustable, for 13 mm Flip Top/Flip Off caps | 1 / Box |
| 735120 | Manual crimper (standard), height adjustable, for 20 mm crimp caps | 1 / Box |
| 735132 | Manual crimper (standard), height adjustable, for 20 mm Flip Top/Flip Off caps | 1 / Box |
| Decappers | | |
| 735408 | Manual decapper (standard), for 8 mm crimp caps | 1 / Box |
| 735911 | Manual decapper (standard), for 11 mm crimp caps | 1 / Box |
| 735913 | Manual decapper (standard), for 13 mm crimp caps | 1 / Box |
| 735920 | Manual decapper (standard), for 20 mm crimp caps | 1 / Box |



Manual decapper – Plier style, dual size

| REF | Description | Pack of |
|-----------|--|--------------|
| 735911.20 | Manual decapper (plier style, dual size), for 11 mm and 20 mm aluminium crimp caps | 1 / PE Cover |



Vial accessories and other consumables for chromatography

Manual crimping tools – Ergonomic

User profile

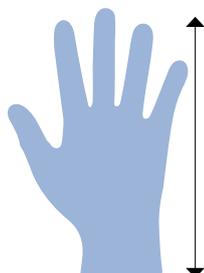
Manual crimping tool - Ergonomic



Cap sizes (N 8, N 11, N 20)

Aluminium

Bi-metal



Required force

Number of crimp processes

Reproducibility

Durability

Mobility

Comfort adjustments

Convenience



| REF | Description | Pack of |
|---|---|---------|
| Crimpers | | |
| 735208 | Manual crimper (ergonomic), adjustable, for 8 mm crimp caps | 1 / Box |
| 735211 | Manual crimper (ergonomic), adjustable, for 11 mm crimp caps | 1 / Box |
| 735220 | Manual crimper (ergonomic), adjustable, for 20 mm crimp caps | 1 / Box |
| Decappers | | |
| 735311 | Manual decapper (ergonomic), for 11 mm crimp caps | 1 / Box |
| 735320 | Manual decapper (ergonomic), for 20 mm crimp caps | 1 / Box |
| Accessories for ergonomic crimping tools | | |
| 735509 | Rack for two ergonomic crimping tools, blue, 240 x 95 x 65 mm | 1 |

Electronic crimping tools – Battery-powered

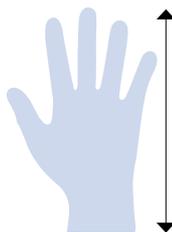
User profile

Battery-powered – electr. crimping tool



Cap sizes (N 11, N 13, N 20)

Aluminium



Required force

Number of crimp processes

Reproducibility

Durability

Mobility

Comfort adjustments

Convenience



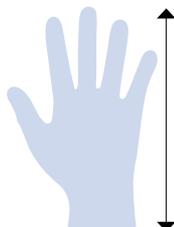
| REF | Description | Pack of |
|---|--|---------|
| Crimpers | | |
| 735511 | Electronic crimper (battery-powered), for 11 mm aluminium crimp caps | 1 / Box |
| 735513 | Electronic crimper (battery-powered), for 13 mm aluminium crimp caps | 1 / Box |
| 735533 | Electronic crimper (battery-powered), for 13 mm Flip Top/Flip Off caps | 1 / Box |
| 735520 | Electronic crimper (battery-powered), for 20 mm aluminium crimp caps | 1 / Box |
| 735532 | Electronic crimper (battery-powered), for 20 mm Flip Top/Flip Off caps | 1 / Box |
| Decappers | | |
| 735611 | Electronic decapper (battery-powered), for 11 mm aluminium crimp caps | 1 / Box |
| 735613 | Electronic decapper (battery-powered), for 13 mm aluminium crimp caps | 1 / Box |
| 735620 | Electronic decapper (battery-powered), for 20 mm aluminium crimp caps | 1 / Box |
| Accessories for battery-powered, electronic crimping tools | | |
| 735500 | Battery 6.6 Volt, 8.6 Wh | 1 / Box |
| 735509 | Rack for two electronic crimping tools, blue, 240 x 95 x 65 mm | 1 |



Electronic crimping tools – High Power crimping tool

User profile

Electronic high power crimping tool



Required force

Cap sizes (N 11, N 13, N 20)

Aluminium

Bi-metal

Magnetic

Number of crimp processes

Reproducibility

Durability

Mobility*

Comfort adjustments

Convenience



* normally stationary usage with a stand

| REF | Description | Pack of |
|---|---|---------|
| Basic high power crimping tool | | |
| 735700 | Electronic high power crimping tool with fixed power supply | 1 / Box |
| Crimping heads | | |
| 735711 | Crimping head for 735700 for 11 mm crimp caps | 1 / Box |
| 735713 | Crimping head for 735700 for 13 mm crimp caps | 1 / Box |
| 735733 | Crimping head for 735700 for 13 mm Flip Top/Flip Off caps | 1 / Box |
| 735720 | Crimping head for 735700 for 20 mm crimp caps | 1 / Box |
| 735732 | Crimping head for 735700 for 20 mm Flip Top/Flip Off caps | 1 / Box |
| Decapping heads | | |
| 735811 | Decapping head for 735700 for 11 mm crimp caps | 1 / Box |
| 735820 | Decapping head for 735700 for 20 mm crimp caps | 1 / Box |
| Accessories for high power crimping tool | | |
| 735501 | Stand for electronic crimping tools | 1 / Box |
| 735509 | Rack for two electronic HP crimping tools, blue, 240 x 95 x 65 mm | 1 |

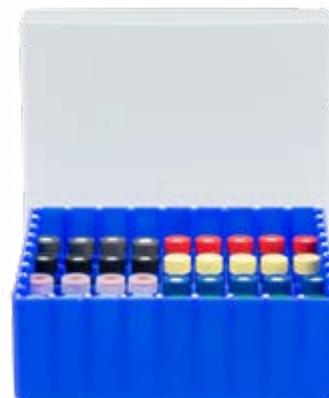
Accessories for crimping tools

| REF | Description | Pack of |
|--------|--|---------|
| 735500 | Battery 6.6 Volt, 8.6 Wh | 1 |
| 735501 | Stand for electronic crimping tools | 1 |
| 735509 | Rack for two crimping tools either type ergonomic (manual) or electronic, blue, 240 x 95 x 65 mm | 1 |



Vial containers

| REF | Description | Pack of |
|--------|--|---------|
| 702514 | 81 position container blue, with firmly integrated divider, for all vials 11.6 x 32 mm, 130 x 130 x 45 mm, coded, with transparent lid (suitable for freezers) | 1 |
| 702515 | 49 position container blue, with firmly integrated divider, for all vials N 13 with flat bottom, 130 x 130 x 50 mm, with transparent lid (suitable for freezers) | 1 |
| 702516 | 25 position container blue, with removeable divider, for all 10 mL and 20 mL screw neck vials N 18 and crimp neck vials N 20, 130 x 130 x 80 mm, with transparent lid (suitable for freezers) | 1 |
| 702518 | 36 position container blue, with removeable divider, for screw neck vials N 15 (sample storage: 702096, 702311, 70285, 702097) 130 x 130 x 80 mm, with transparent lid (suitable for freezers) | 1 |
| 702517 | 16 position container blue, with removeable divider, for all 20 mL, 30 mL and 40 mL screw neck vials N 24, 130 x 130 x 102 mm, with transparent lid (suitable for freezers) | 1 |



Vial racks

| REF | Description | Pack of |
|--------|---|------------|
| 702502 | 50 position polypropylene vial rack blue, for all vials 11.6 x 32 mm with flat bottom Dimensions: 190 x 100 x 22 mm, stackable | 1 |
| 702504 | 50 position polypropylene vial rack blue, for vials with a diameter of 15 mm max. and flat bottom Dimensions: 240 x 120 x 28 mm, stackable | 1 |
| 702503 | 36 position polypropylene vial rack blue, for vials with a diameter of 23.1 mm max. and flat bottom Dimensions: 323 x 91 x 30 mm, stackable | 5 / carton |



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| 702284 | screw neck vial N 9 | 24 |
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Tips for correct crimping

For optimal crimp results the appropriate crimping tool needs to be adjustable, as type and height of the vial's crimp neck as well as thickness and hardness of the septum are decisive factors in the crimping process. Also variances from batch to batch within the tolerance of each of the involved components may require adjustments of the tool, in order to achieve a perfect and gas-tight seal.

Basically the following recommendations can be made:

- Do not overcrimp a vial with the intention to make the vial tighter for highly volatile samples. In cases of overcrimped vials the septum is either sucked into the vial or emerging out of the cap's center hole. In both cases the septa material is drawn away from the edges towards the middle of the vial due to the high pressure, leaving the edges insufficiently sealed. Besides that, the convex / concave surface of the septum along with its surface tension may lead to penetration problems (e.g., septum being pushed into the vial by the needle during penetration, coring, etc.).



- Deformation of the cap's sides is also an indication for over-crimping with the same consequences as stated above. Another evidence for over-crimping is a clearly visible formation of wrinkles of the aluminium below the crimp neck.
- In the case of 20 mm pressure release caps the bridges of the score lines may also suffer under too much pressure and thus may burst before reaching the specified level of vial pressure, causing problems in the autosampler.
- Generally beveled top crimp necks N 20 have a lower height than the flat DIN crimp neck. In order to seal beveled top Headspace vials tightly, crimping height and crimping pressure have to be adjusted to a firmer seal.



- Decappers do not need any adjustment.
- To check the crimp result, look for the flatness of the septum and make sure that there are no cap deformations, in order to exclude any signs of over-crimping. To check whether the crimping is too loose, try to turn the cap with 2-3 fingers only. For turning, do not use the whole hand or a large amount of power, because this may lead to an impression of under-crimping which is, however, incorrect. The PTFE lamination of the septum has a very smooth surface, which may slip on the glass rim of the vial allowing to turn the cap already with a relatively low expenditure of energy and the right torque. This is even easier in the case of a beveled top Headspace crimp neck, since on the tapered edge of the rim the septum only has a small area of support.
- Re-usage of crimp neck vials is dangerous, as repeated washing along with the pressure of several crimping and decapping processes may result in neck breakage.

Our program comprises the following types of crimping tools:

- Manual crimpers and decappers (standard) for crimp caps N 8, N 11, N 13 and N 20 as well as for Flip Top/Flip Off caps N 13 and N 20
- Manual crimpers and decappers (ergonomic) for crimp caps N 8 (only crimpers), N 11 and N 20
- Electronic crimpers and decappers (battery-powered) for crimp caps N 11, N 13 and N 20 (not suitable for magnetic and bi-metal caps) as well as for Flip Top / Flip Off caps N 13 and N 20.
- Electronic high power crimping tool with power supply and with exchangeable heads for crimping and decapping of crimp caps N 11, N 13 (crimping head only) and N 20 as well as crimping heads for Flip Top / Flip Off caps N 13 and N 20.

These products are listed in the chapter of the respective crimp neck diameter as well as in the chapter "Vial accessories and other consumables for chromatography" starting on page 51.

Real size drawings

Screw neck vials N 8 Screw neck vials N 9

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| | | | | | | | | | | | | |
| 70213 70213.2 | 702004 702893 | 702860 | 702282 702293 | 702283 702284 | 702500 | 702006 | 702007 702008 | 702135 702335 | 702088 | 702009 702172 | 702010 | |

Vials N 10 Crimp neck vials N 11

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| | | | | | | | | | |
| 702011 | 702012 702013 | 70201CG 70214CG | 70201HP 70201HP.2 | 702885 702892 | 702888 | 702141 | 702015 702016 | 702891 702014 | 702134 702334 |

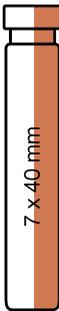
Snap ring vials N 11 Crimp and screw neck vials N 13

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| | | | | | | | | | |
| 702714 | 702713 702712 | 702709 702708 | 702134 702334 | 702809 702173 | 702174 | 70203 | 702962 702973 | 702972 | |

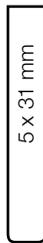
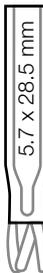
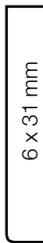
Real size drawings

Crimp neck vials N 8

Shell vials

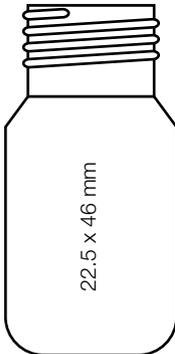
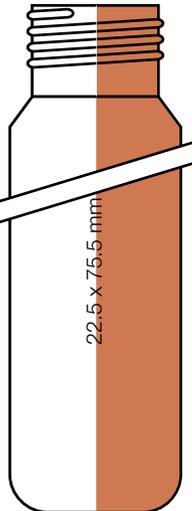
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|---|---|---|---|--|---|---|
|  |  |  |  |  |  |  |
| 70286 | 70282 | 70251 | 70212.1 | 702002 702003 | 70202.1 702017 | 702018 |

Inserts for vials N 8, N 9, N 10 and N 11

| Pages 22, 29 for small opening vials | | | | Pages 24, 28, 29, 34 for wide opening vials | | | | |
|--|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |  |
| 702968 | 702968.1 | 702824 | 702005 | 702813 702077 s | 702716 | 702818 702818.1 s | 702819 | 702825 |

Snap cap vials N 18 and N 22

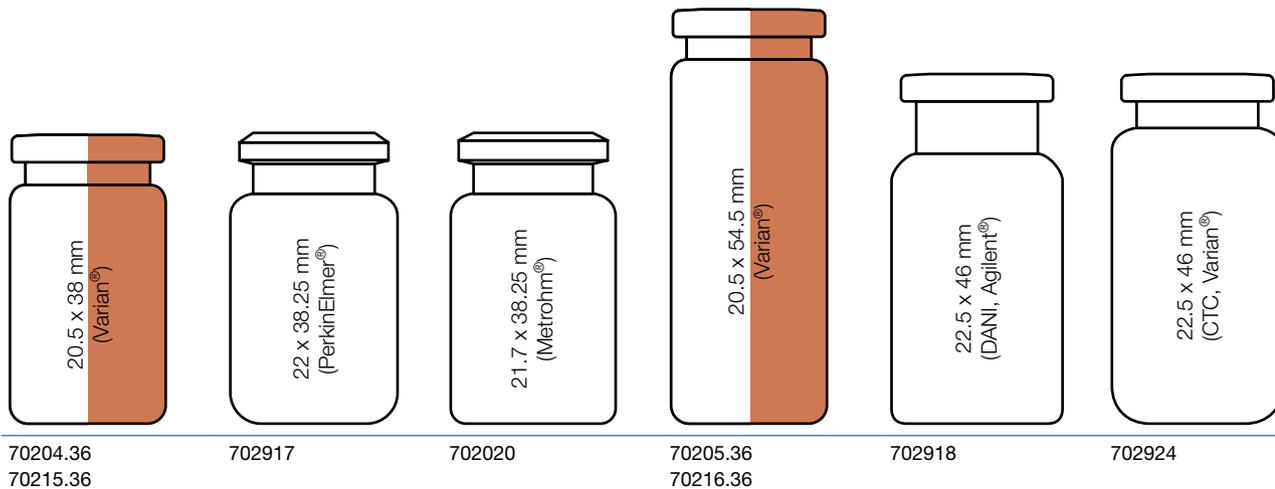
Screw neck vials N 18

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|---|---|---|---|---|---|
|  |  |  |  |  |  |
| 70271 | 70272 | 702019 | 70273 | 702866 | 702826 702826.2 |

Real size drawings

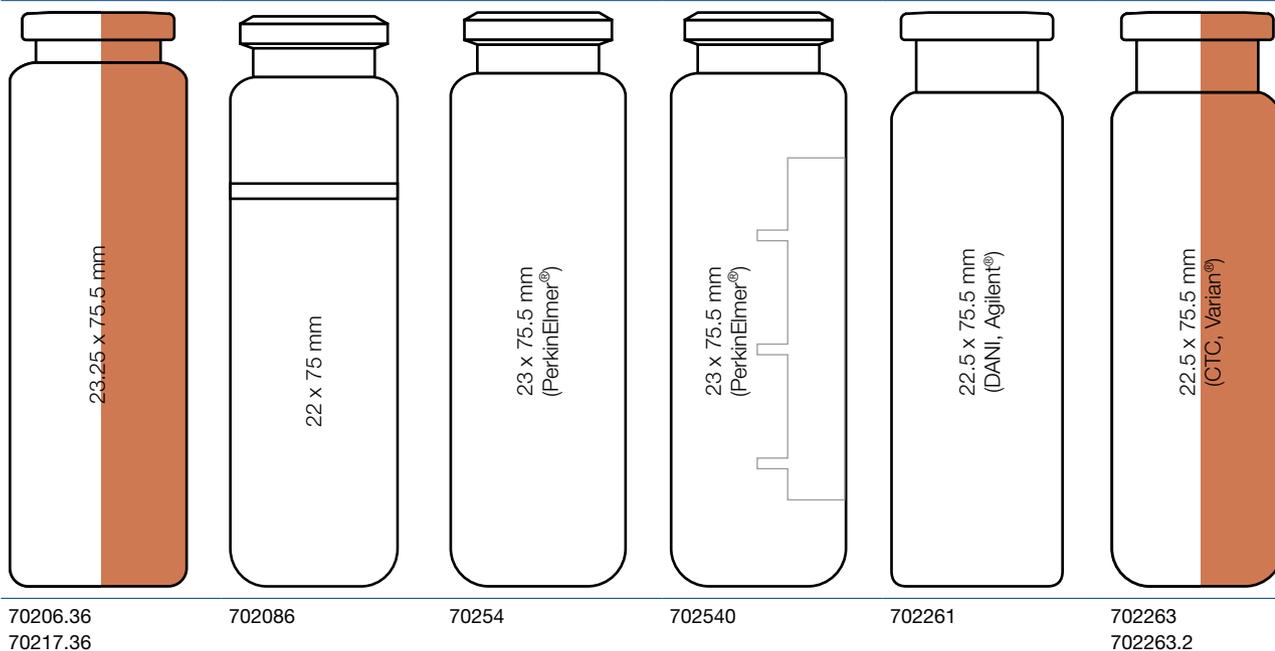
Crimp neck vials N 20: 5–10 mL

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Crimp neck vials N 20: 20 mL

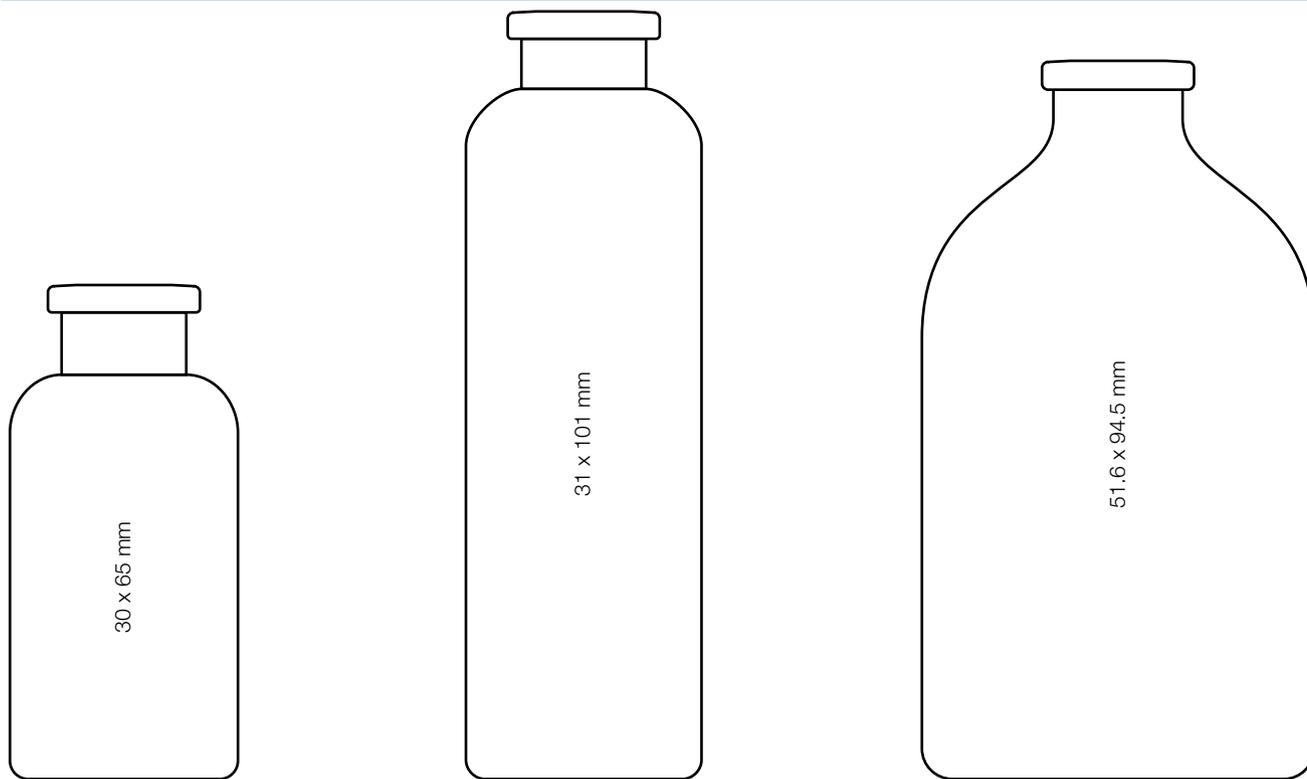
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Real size drawings

Crimp neck vials N 20: 25 mL, 50 mL, 100 mL

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70210.36

70208.36

70209.1

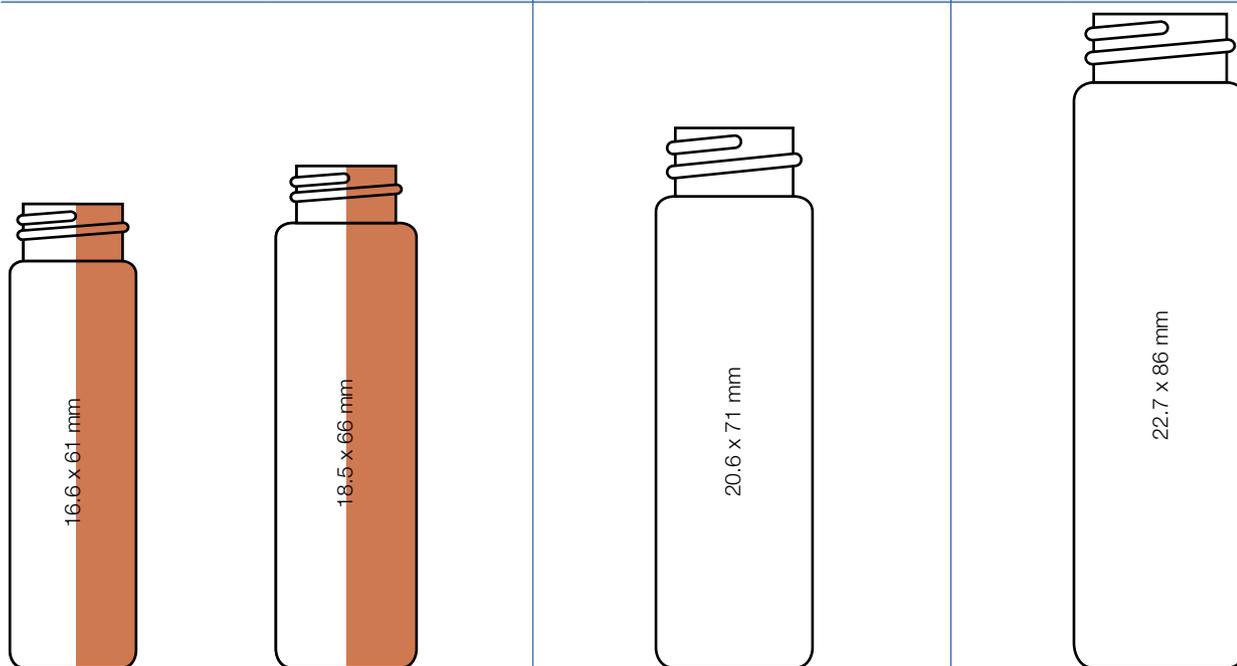
Screw neck vials for storage of liquid samples

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702098

702099



702021 / 702022

702132 / 702133

702023 / 702024

702074 / 702131

Interpretation of cross-references in the autosampler compatibility charts

Cross-references are intended for the translation of instrument manufacturers' article numbers into MACHEREY-NAGEL REF numbers. However, a 100 % match is not always possible. The indication “‡” behind a cross-reference implies that the appropriate MACHEREY-NAGEL product is an alternative product which – in spite of technical differences to the indicated product – is suitable for the application. We will be more than happy to explain to you the exact differences to the instrument manufacturer's product, in case there is any need. It may be quite possible that for one instrument manufacturer's product several MACHEREY-NAGEL products are indicated. In this case the most equivalent product is the one that has no additional re-

mark “‡” . Should the instrument manufacturer's packaging unit diverge from ours, we indicate their packaging unit behind the article number after a “/”. The same is valid, if the manufacturer has different article numbers for different packaging units of one and the same product. In case that you do not find a cross-reference, please kindly contact us under vials@mn-net.com. We will always try to find out, whether or not we can supply a similar product. We generally recommend to ask for cost-free samples for testing purposes, as even technically comparable products may differ in their optical appearance. We kindly ask for your understanding that we do not take over any guarantee for the correctness and completeness of the data indicated here.

Technical characteristics of vials and closures

Except for the snap cap vials for storage of powdery samples and the blow-molded glass 70209.1, the vials of our program are made from 1st hydrolytic class glass. The dimensions stated in this catalog with respect to vial diameter and height are exact values. Please note that other suppliers often list rounded values (e.g., 12 x 32 mm instead of 11.6 x 32 mm), the actual dimensions are, however, identical due to the required fit in

the instrument. Our data concerning the volume are defined realistically usable volumes, not calculated values. For reasons of safety we state rather low values. Here, too, deviations of data of other suppliers may occur, which either use the calculated volume (e.g., 2 mL instead of 1.5 mL) or a defined, realistically usable volume in the upper range (e.g., 1.8 mL instead of 1.5 mL).

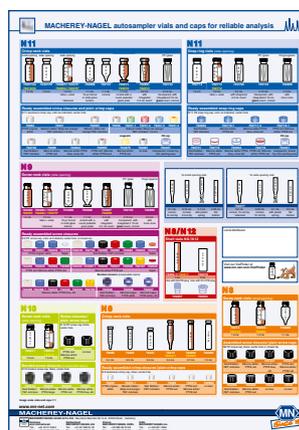
Product literature

The following literature, which contains vials and caps, can be requested free of charge under the indicated KAT no.:

- Brochure vials and caps (English): KATEN200010
- Chromatography catalog (English): KATEN200001
- Poster autosampler vials and caps (English): KATEN200086
- Brochure crimping tools (English): KATEN200100
- Poster “Optimal crimping” (German / English): KATDE/EN200153

Samples for evaluation

Sample packs of all vials and closures can be requested at any time. The sample packs contain 5 pieces of the respective product.



Closure selection in GC / HPLC

The choice of the best closure depends on certain features of the instrument (needle type / design, transportation mechanism of the autosampler, etc.) as well as on the requirements of the application (temperature, sensitivity of the analysis, single / multiple injections, etc.) and thus is more complicated and more individual than selection of the correct vial type.

Basically the following recommendations can be made:

- Due to the relatively thick and blunt HPLC needles, only Silicone / PTFE closures, either with or without slit, should be used in combination with them.
 - Screw closures N 9 are universally suitable on most autosamplers, convenient in handling and available in a broad selection of different cap colors and septa materials. They fulfill all requirements with regard to tightness and analytical purity for GC as well as for HPLC. Due to the relatively thin septa penetration is safe and easy. Crimp closures N 11 are also universally suitable with regard to autosampler compatibility, however, they are not as safe and convenient in their closing technique as the screw closures N 9.
 - Snap ring closures N 11 should only be used in HPLC, as the punctual compacting pressure of the septum against the vial rim by the four pins in the cap does not achieve the same level of tightness as the evenly applied pressure through a circular thread or by crimping.
 - For sensitive analyses only high purity Silicone / PTFE closures can be used; if additionally there is a need for minimal coring during penetration, a PTFE / Silicone / PTFE septum (sandwich septum) is recommendable.
 - Cap colors may be used for marking (sample marking / lab marking / shift marking). However, please consider that some autosamplers work with photocells which may not be able to recognize transparent caps.
- For sample storage closed top screw closures (without center hole) should be used. Generally, these also need an elastomeric liner for sealing vials with liquid samples tightly.
 - The ability to penetrate a septum depends on the hardness and the total thickness of the septum. The hardness (durometer) is indicated in "° shore" . The higher the number, the harder the septum. For easily bending needles as well as for blunt needles with penetration problems soft and preferably thin septa should be chosen. This supports needle safety (clogging/bending of the needle) as well as reliability of the analysis (no contamination of the sample due to particles generated during penetration).
 - Due to their artificially reduced cap height screw caps N 9 don't have a standardized thread design. Therefore, it is recommendable only to use vials and closures from one source of supply, in order to ensure a harmonious and tight matching of both components.
 - Replacement septa are partially available, however, in case of manual assembly you have the risk of contamination with skin fat / sweat and of a possible wrong side orientation. Therefore we highly recommend only to use ready assembled closures, where the liner perfectly matches the cap and has been automatically inserted under strict hygienic conditions.
 - Normally ready assembled closures should be suitable for all types of needles, provided the proper type of septum has been selected. Nevertheless, there might be cases where usage of bonded closures (cap and liner form an inseparable unit) can be recommendable. Example: blunt HPLC needle, however, due to the risk of sample loss / concentration changes no septa with slit can be used. In order to avoid that the unslit septum is pushed into the vial by the needle, you use a bonded closure with unslit septum.



General remarks

Septa guide

| Septa material | Temperature resistance from / to | Analytical purity | Fragmentation due to hardness and molecular structure (coring) | Hardness (needle penetration) | Resealability (in case of multiple injections) |
|------------------------|----------------------------------|-------------------|--|------------------------------------|--|
| PTFE virginal | -200 °C / +260 °C | very high | | very hard (but very thin material) | no resealability |
| Natural rubber / PTFE | -40 °C / +120 °C | low | high, big particles | very hard | high |
| Red Rubber / TEF (FEP) | -40 °C / +110 °C | medium | medium | medium hard | medium |
| Butyl | -40 °C / +120 °C | medium | medium | medium hard | medium |
| Butyl / PTFE | -40 °C / +120 °C | medium | medium | medium hard | medium |
| Silicone / PTFE | -60 °C / +200 °C | high | low to medium | soft | low to medium |
| PTFE / Silicone / PTFE | -60 °C / +200 °C | high | very low | soft | very low |

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MACHERY-NAGEL – Everything you need for successful work in your chromatography lab.

General remarks

Contacts

With vials and caps of MACHEREY-NAGEL you can trust on safe consumables for reliable analysis results. In combination with numerous other chromatography products from us you have the unique chance to buy out of one source your whole analysis requirements in a cost-effective and time saving way.

Our sales team and our partners worldwide will be more than happy to serve your chromatography needs in the best way. Our expertise and knowledge is at your disposal at any time. You can contact us or our subsidiaries as shown below:

Germany

MACHEREY-NAGEL GmbH & Co. KG
Neumann-Neander-Str. 6–8 · 52355 Düren · Germany
Tel.: +49 24 21 969-0
Fax: +49 24 21 969-199
info@mn-net.com

Switzerland

MACHEREY-NAGEL AG
Hirsackerstr. 7 · 4702 Oensingen · Switzerland
Tel.: +41 62 388 55 00
Fax: +41 62 388 55 05
sales-ch@mn-net.com

France

MACHEREY-NAGEL SARL à associé unique
1, rue Gutenberg · 67722 Hoerd · France
Tél. : +33 388 68 22 68
Fax : +33 388 51 76 88
sales-fr@mn-net.com

USA

MACHEREY-NAGEL Inc.
2850 Emrick Blvd. · Bethlehem, PA 18020 · USA
Tel.: +1 484 821 0984
Fax: +1 484 821 1272
sales-us@mn-net.com

For specific technical questions on vials and caps, please contact:

Phone: +49 24 21 969-334
e-mail: vials@mn-net.com

Vials and caps

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MACHEREY-NAGEL



MACHEREY-NAGEL GmbH & Co. KG · Neumann-Neander-Str. 6-8 · 52355 Düren · Germany

DE / International:

Tel.: +49 24 21 969-0

Fax: +49 24 21 969-199

E-mail: info@mn-net.com

CH:

Tel.: +41 62 388 55 00

Fax: +41 62 388 55 05

E-mail: sales-ch@mn-net.com

FR:

Tel.: +33 388 68 22 68

Fax: +33 388 51 76 88

E-mail: sales-fr@mn-net.com

US:

Tel.: +1 484 821 0984

Fax: +1 484 821 1272

E-mail: sales-us@mn-net.com



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