

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	
Customer information	
XX.XX.XX.XX	
CERTIFICATE OF CONFORMITY	
MN REF:	702713, 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" 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	
1/1	

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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 Screw N 9 – Inserts
	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®)
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 – <i>Screw N 9 – Vials</i>
	24	Inserts:	As indicated under GC – <i>Screw N 9 – Inserts</i>
	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 – <i>Crimp N 11 – Vials</i>
	29	Inserts:	As indicated under GC – <i>Screw N 9 – Inserts</i>
	31	Closures:	As indicated under GC – <i>Crimp N 11 – Closures, however, not 702146 and 702879</i>
■ 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 – <i>Screw N 9 – Inserts</i>
	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 Screw N 9 – Inserts
	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 GC – Screw N 9 – Vials
	24	Inserts:	As indicated under GC – Screw N 9 – Inserts
	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 GC – Crimp N 11 – Vials
	29	Inserts:	As indicated under GC – Screw N 9 – Inserts
	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 GC – Screw N 9 – Inserts
	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, 46	Closures:	702929, 702834
			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)
	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‡)
■ N 9 Screw (standard samples)	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)
	28	Closures:	702047 (N9306052/100), 702044 (N9306206/100), 702045, 702046 (for both see N9306205/100)
■ N 10 Screw (standard samples)	28	Vials:	702012 (N9306053/100), 702013 (N9306057/100)
	28	Inserts:	As indicated under Screw N 9 – Inserts
	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 GC – Crimp N 11, however not 702146
	34	Vials:	702714 (N9303418/100; N9307018/1000), 702713 (N9306207/100), 702712 (N9306208/100), 702709 (N9300712/100), 702708 (N9300711/100), 702134 (N9300711/100‡), 702134.1, 702334
	34	Inserts:	As indicated under Screw N 9 – Inserts
■ N 11 Snap (standard samples)	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 Screw N 9 – Inserts
	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 Screw N 9 – Inserts
	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 – Screw N 9 – Vials
	24	Inserts:	As indicated under GC – Screw N 9 – Inserts
	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 – Screw N 9 – Inserts
	28	Closures:	702045, 702046, 702047
 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:	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 – Screw N 9 – Inserts
	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 [†])
	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
 N 9 Screw (standard samples)	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 [†])
	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
 N 11 Crimp (standard samples)	29	Inserts:	As indicated under Screw N 9 – Inserts
	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 Screw N 9 – Inserts
	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 – <i>Crimp N 8 – Vials</i>
	21	Closures:	As indicated under GC – <i>Crimp N 8 – Closures</i>
 N 8 Screw (standard samples)	22	Vials:	As indicated under GC – <i>Screw N 8 – Vials</i>
	22	Inserts:	As indicated under GC – <i>Screw N 8 – Inserts</i>
	23	Closures:	As indicated under GC – <i>Screw N 8 – Closures</i> , additionally closure 702437 (→ 8010-0062/100)
 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:	As indicated under GC – <i>Screw N 9 – Closures</i> , 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 – <i>Crimp N 11 – Vials</i>
	29	Inserts:	As indicated under GC – <i>Screw N 9 – Inserts</i>
	31	Closures:	As indicated under GC – <i>Crimp N 11 – Closures</i>
 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 – <i>Screw N 9 – Inserts</i>
	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 Screw N 9 – Inserts
	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 Screw N 9 – Inserts
	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 virginal, 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)		
	70245 	702437 	702067 
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				
								
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	closed top PTFE virginal, white	53° shore D	0.25 mm	100/PE bag
  702029 702031	 702032			
N 9 PP screw cap, blue, center hole	Silicone white/ Polyimide orange (fluorine-free)	45° shore A	1.0 mm	100/PE bag
 702402				
N 9 PP screw cap, color as indicated, center hole	closed top Red Rubber / FEP colorless	45° shore A	1.0 mm	100/PE bag
       702030 702732 702080 702081 702082 702147 702033				
N 9 PP screw cap, color as indicated, center hole	closed top Silicone white/ PTFE red	45° shore A	1.0 mm	100/PE bag
       702287 702287.1 702036 702037 702038 702107 702034				
N 9 PP screw cap, color as indicated, center hole	Silicone white/ PTFE blue, slit	55° shore A	1.0 mm	100/PE bag
      702288 702288.1 702039 702040 702083 702109				
N 9 PP screw cap, color as indicated, center hole	PTFE red/ Silicone white/ PTFE red	50° shore A	1.0 mm	100/PE bag
      702286 702035 702158 702084 702085 702159				
N 9 PP screw cap, color as indicated, center hole (no liner)	–	–	–	100/PE bag
      702160 702161 702162 702163 702164 702165				

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	702716	702818 silanized 702077	702819 silanized 702818.1	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  – (septa 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

PP / Glass insert					
Polypropylene					
Polypropylene					
Polypropylene					
					
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



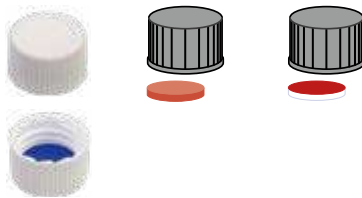
702962	702973	702972	702974
4 mL	4 mL	0.3 mL	
14.75 x 45 mm	14.75 x 45 mm	6 x 40 mm	
clear	amber	clear	
flat bottom	flat bottom	conical, metal spring required	metal spring for 702972
100 / PP box	100 / PP box	100 / PE bag	100 / PE bag

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		- (septa only)	PTFE virginal, white	53° shore D	0.25 mm	100 / PE bag
702053		- (septa only)	Red Rubber / FEP colorless	40° shore A	1.5 mm	100 / PE bag
702292		- (septa only)	Silicone white / PTFE red	40° shore A	1.3 mm	100 / PE bag

* Septum firmly connected with the cap; cannot be removed

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)

* 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*	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, center hole, Silicone white / PTFE beige, 45° shore A, 1.5 mm
100 / PE bag	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

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 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 18 PE snap cap	To be used with N 22 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



702866	702826	702826.2
10 mL	20 mL	20 mL
22.5 x 46 mm	22.5 x 75.5 mm	22.5 x 75.5 mm
clear, rounded bottom	clear, rounded bottom	amber, rounded bottom
100 / PP box	100 / PP box	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

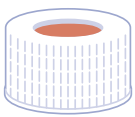
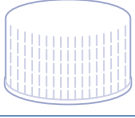
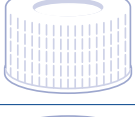
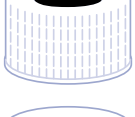
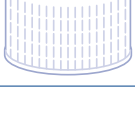
Container for screw neck vials N 24

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

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

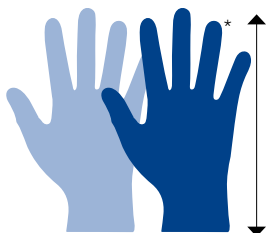


Cap sizes (N 8, N 11, N 13, N 20)

Aluminium

Bi-metal

Magnetic*



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

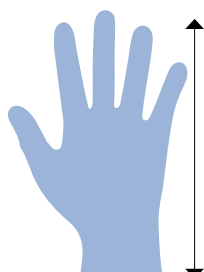
Manual crimping tool - Ergonomic



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

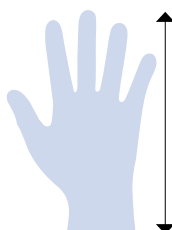
User profile

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



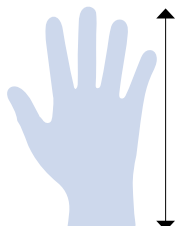
REF	Description	Pack of
Crimpers		
735511	Electronic crimper (battery-powered), for 11 mm aluminium crimp caps	1 / Box
735513	Electronic crimper (battery-powered), for 13 mm aluminium crimp caps	1 / Box
735533	Electronic crimper (battery-powered), for 13 mm Flip Top/Flip Off caps	1 / Box
735520	Electronic 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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702D20TB	 septum N 20	45
702001	 crimp closure N 11	31
702002	 crimp neck vial N 8	21
702003	 crimp neck vial N 8	21
702004	 screw neck vial N 8	22
	 screw neck vial N 8	38
702005	 insert for vials N 8	22
	 insert for vials N 11, small opening	29
702006	 screw neck vial N 9	24
702007	 screw neck vial N 9	24
702008	 screw neck vial N 9	24
702009	 screw neck vial N 9	24
70201CG	 crimp neck vial N 11	29
70201HP	 crimp neck vial N 11	29
70201HP.2	 crimp neck vial N 11	29
702010	 screw neck vial N 9	24
702011	 screw neck vial N 10	28
702012	 screw neck vial N 10	28
702013	 screw neck vial N 10	28
702014	 crimp neck vial N 11	30
702015	 crimp neck vial N 11	30
702016	 crimp neck vial N 11	30
702017	 shell vial N 8	40
702018	 shell vial N 12	40
702019	 snap cap vial N 22	40
70202.1	 shell vial N 8	40
702020	 crimp neck vial N 20	42
702021	 screw neck vial N 24	47
702022	 screw neck vial N 24	47
702023	 screw neck vial N 24	47
702024	 screw neck vial N 24	47
702025	 crimp closure N 8	21
702026	 bonded screw closure N 9	26
702027	 bonded screw closure N 9	26
702028	 bonded screw closure N 9	26
702029	 screw closure N 9	25
70203	 crimp neck vial N 13	36
702030	 screw closure N 9	25
702031	 screw closure N 9	25
702032	 screw closure N 9	25
	 screw closure N 9	38
702033	 screw closure N 9	25
	 screw closure N 9	38
702034	 screw closure N 9	25
	 screw closure N 9	38
702035	 screw closure N 9	25
702036	 screw closure N 9	25
702037	 screw closure N 9	25
702038	 screw closure N 9	25
702039	 screw closure N 9	25
70204.36	crimp neck vial N 20	42
702040	screw closure N 9	25
702041	septum N 9	26
702042	septum N 9	26
702043	septum N 9	26

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702044	 bonded screw closure N 10	28
702045	 bonded screw closure N 10	28
702046	 bonded screw closure N 10	28
702047	 bonded screw closure N 10	28
702048	 screw closure N 10	28
702049	 screw cap N 10	28
70205.36	 crimp neck vial N 20	42
702050	 screw closure N 13	37
702051	 screw closure N 13	37
	 screw closure N 13	38
702052	 screw closure N 13	37
	 screw closure N 13	38
702053	 septum N 12	37
702054	 PE Plug N 12	40
702055	 magnetic screw closure N 18	41
702056	 crimp closure N 20	44
702057	 septum N 20	45
702058	 bonded screw closure N 24	48
702059	 bonded screw closure N 24	48
70206.36	 crimp neck vial N 20	42
702060	 screw cap N 24	48
702061	 screw cap N 24	48
702062	 septum N 22	48
702063	 snap ring closure N 11	35
702063.2080	 snap ring closure N 11	35
702064	 snap ring closure N 11	35
702066	 screw closure N 8	23
	 screw closure N 8	38
702067	 screw closure N 8	23
702068	 screw closure N 8	23
	 screw closure N 8	38
702069	 screw closure N 8	23
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702071	 crimp closure N 20	44
702072	 magnetic screw closure N 18	41
702073	 bonded screw closure N 24	48
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702075	 crimp neck vial N 11	29
702076	 crimp neck vial N 11	29
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702078	 screw neck vial N 9	24
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702079	 screw neck vial N 9	24
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70208.36	 crimp neck vial N 20	43
702080	 screw closure N 9	25
702081	 screw closure N 9	25
702082	 screw closure N 9	25
702083	screw closure N 9	25
702084	screw closure N 9	25
702085	screw closure N 9	25
702086	crimp neck vial N 20	42
702088	screw neck vial N 9	24

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702091	 crimp closure N 20	44
702093	 crimp closure N 20	44
702094	 crimp closure N 20	44
702095	 snap ring closure N 11	35
702096	 screw neck vial N 15	39
702097	 screw neck vial N 15	39
702098	 screw neck vial N 18	39
702099	 screw neck vial N 20	39
70210.36	 crimp neck vial N 20	43
702101	 septum N 20	45
702101HP	 pre-sealed vial-closure combination N 11	33
702102	 screw closure N 24	48
702107	 screw closure N 9	25
702108	 snap ring closure N 11	35
702109	 screw closure N 9	25
702110	 septum N 18	41
702112	 crimp cap N 20	44
702113	 screw closure N 13	37
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702114	 screw closure N 15	39
702115	 screw closure N 18	39
702116	 screw closure N 20	39
70212.1	 crimp neck vial N 8	21
702128	 PE cap N 20	46
702129	 PE cap N 20	46
70213	 screw neck vial N 8	22
	 screw neck vial N 8	38
70213.2	 screw neck vial N 8	22
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702130	 screw closure N 24	48
702131	 screw neck vial N 24	47
702132	 screw neck vial N 24	47
702133	 screw neck vial N 24	47
702134	 crimp neck vial N 11	30
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702135	 screw neck vial N 9	24
702136	 magnetic screw closure N 18	41
702137	 magnetic screw closure N 18	41
702138	 septum N 18	41
702139	 magnetic screw closure N 18	41
70214CG	 crimp neck vial N 11	29
702140	 magnetic screw closure N 18	41
702141	 crimp neck vial N 11	30
702142	 snap ring closure N 11	35
702143	 snap ring closure N 11	35
702144	 septum N 19	46
702145	 crimp closure N 20	44
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702148	 septum N 9	26
70215.36	 crimp neck vial N 20	42
702155	 magnetic screw closure N 9	25
702156	 magnetic screw closure N 9	25
702158	 screw closure N 9	25
702159	 screw closure N 9	25

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702165	 screw cap N 9	25
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70217.36	 crimp neck vial N 20	42
702170	 vial-insert combination N 11	34
702171	 screw closure N 24	48
702172	 screw neck vial N 9	24
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702174	 snap ring vial N 11	34
702175	 crimp closure N 11	31
702176	 vial-insert combination N 11	34
702177	 vial-insert combination N 9	24
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702179	 vial-insert combination N 9	24
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702208	 Vial Kit screw neck N 9	26
702209	 Vial Kit screw neck N 9	26
702211	 Vial Kit screw neck N 9	26
702212	 Vial Kit screw neck N 9	26
702213	 Vial Kit screw neck N 9	26
702214	 Vial Kit screw neck N 9	26
702215	 Vial Kit crimp neck N 11	32
702216	 Vial Kit crimp neck N 11	32
702217	 Vial Kit crimp neck N 11	32
702218	 Vial Kit crimp neck N 11	32
702219	 Vial Kit crimp neck N 11	32
702221	 Vial Kit crimp neck N 11	32
702222	 Vial Kit crimp neck N 11	32
702223	 Vial Kit crimp neck N 11	32
702224	 Vial Kit crimp neck N 11	32
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702233	 Vial Kit snap ring N 11	35
702234	 Vial Kit snap ring N 11	35
702235	 Vial Kit snap ring N 11	35
702236	 Vial Kit snap ring N 11	35
702237	 Vial Kit snap ring N 11	35

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702244	 Vial Kit screw neck N 9	26
702246	 Vial Kit screw neck N 8	23
702247	 Vial Kit screw neck N 8	23
702248	 Vial Kit screw neck N 8	23
702249	 Vial Kit screw neck N 8	23
702251	 Vial Kit screw neck N 8	23
702253	 Vial Kit crimp neck N 11	32
702254	 Vial Kit crimp neck N 11	32
702261	 crimp neck vial N 20	42
702263	 crimp neck vial N 20	42
702263.2	 crimp neck vial N 20	42
702282	 screw neck vial N 9	24
	 screw neck vial N 9	38
702283	 screw neck vial N 9	24
	 screw neck vial N 9	38
702284	 screw neck vial N 9	24
	 screw neck vial N 9	38
702286	 screw closure N 9	25
702287	 screw closure N 9	25
702287.1	 screw closure N 9	25
702288	 screw closure N 9	25
702288.1	 screw closure N 9	25
702292	 septum N 12	37
702293	 screw neck vial N 9	24
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70231	 crimp closure N 11	31
70231.1	 crimp closure N 11	31
70231.2	 crimp closure N 11	31
70231.3	 crimp closure N 11	31
702311	 screw neck vial N 15	39
70232	 crimp closure N 13	36
70233	 crimp closure N 20	45
702334	 crimp neck vial N 11	30
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702335	 screw neck vial N 9	24
70234	 crimp closure N 20	44
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70240	 PE cap N 20	46
702401	 PE cap N 11	32
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702402	 screw closure N 9	25
70242	 PE cap N 20	46
702437	 screw closure N 8	23
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702481	 septum N 8	23
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702516	 container for vials N 18, N 20	46
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702517	 container for vials N 24	47
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702518	 container for vials N 15	38
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70252.1	 crimp closure N 8	21
70254	 crimp neck vial N 20	42
702540	 crimp neck vial N 20	42
70256	 crimp closure N 11	31
70257	 crimp closure N 13	36
70260	 septum N 12	37
702602	 GC injection port septum	50
702604	 GC injection port septum	50
702605	 GC injection port septum	50
702606	 GC injection port septum	50
702609	 GC injection port septum	50
70261	 septum N 8	23
702610	 GC injection port septum	50
702611	 GC injection port septum	50
702612	 GC injection port septum	50
702613	 GC injection port septum	50
702619	 GC injection port septum	50
70262	 septum N 11	32
702620	 GC injection port septum	50
702621	 GC injection port septum	50
702622	 GC injection port septum	50
702623	 GC injection port septum	50
702625	 GC injection port septum	50
702626	 GC injection port septum	50
702627	 GC injection port septum	50
702628	 GC injection port septum	50
702632	 GC injection port septum	50
702646	 GC injection port septum	50
702647	 GC injection port septum	50
702648	 GC injection port septum	50
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702661	 GC injection port septum	50
702662	 GC injection port septum	50
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702716	 insert for vials N 9	24
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702717.2080	 snap ring closure N 11	35
702718	 snap ring closure N 11	35
702718.1	 snap ring closure N 11	35
702718.2080	 snap ring closure N 11	35
702719	 vial kit snap ring N 11	35
70272	 snap cap vial N 18	40
70273	 snap cap vial N 22	40
702730	 crimp closure N 11	31
702730.1	 crimp closure N 11	31
702730.2	 crimp closure N 11	31
702730.3	 crimp closure N 11	31
702731	 snap ring closure N 11	35
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702736	 crimp closure N 11	31
70274	 PE snap cap N 18	40
70275	 PE snap cap N 22	40
70277	 septum N 20	45
702773	 crimp closure N 20	44
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702775	 crimp closure N 20	44
70278	 septum N 20	45
702780	 septum N 20	45
702791	 septum N 22	48
702799	 crimp cap N 20	44
702800	 crimp cap N 8	21
702801	 crimp cap N 11	32
702802	 crimp cap N 13	36
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702809	 snap ring vial N 11	34
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702818	 insert for vials N 9	24
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70282	 crimp neck vial N 8	21
702823	 crimp closure N 11	31
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702825	 screw neck vial N 9	24
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702826	 headspace screw neck vial N 18	41
702826.2	 headspace screw neck vial N 18	41
702827	 magnetic screw closure N 18	41
702829	 crimp closure N 20	44
70283	 crimp closure N 8	21
702831	 pre-sealed vial-closure combination N 24	49
702833	 crimp cap N 20	45
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702835	 crimp closure N 20	44
702836	 crimp closure N 20	44
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70284	 crimp closure N 11	31
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702857	 pre-sealed vial-closure combination N 9	27
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702863	 pre-sealed vial-closure combination N 9	27
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702865	 pre-sealed vial-closure combination N 24	49
702866	 headspace screw neck vial N 18	41
702867	 pre-sealed vial-closure combination N 11	33
702873	 pre-sealed vial-closure combination N 9	27
702874	 pre-sealed vial-closure combination N 9	27
702877	 pre-sealed vial-closure combination N 24	49
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702879	 crimp closure N 11	31
70288	 crimp closure N 11	31
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70289	 crimp closure N 8	21
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702892	 crimp neck vial N 11	29
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702904	 septum N 19	46
702917	 crimp neck vial N 20	42
702918	 crimp neck vial N 20	42
702924	 crimp neck vial N 20	42
702926	 screw closure N 13	37
702927	 crimp closure N 20	44
702928	 crimp closure N 20	45
702928.9	 crimp closure N 20	45
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702931.1	 stopper N 20	46
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702962	 screw neck vial N 13	37
	 screw neck vial N 13	38
702963	 screw cap N 13	37
702966	 screw cap N 13	37
702968	 insert for vials N 8	22
	 insert for vials N 11, small opening	29
702968.1	 insert for vials N 8	22
	 insert for vials N 11, small opening	29
702972	 insert for vials N 13	37
702973	 screw neck vial N 13	37
	 screw neck vial N 13	38
702974	 metal spring for insert 702972	37
702974.1	 metal spring for insert 702968	22
702981	 septum N 18	41
702995	 crimp closure N 11	31
702995.1	 crimp closure N 11	31
702995.2	 crimp closure N 11	31
702995.3	 crimp closure N 11	31
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735111	 standard manual crimper N 11	30
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735113	 standard manual crimper N 13	36
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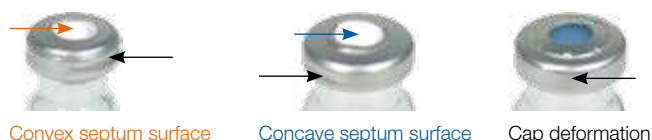
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Tips for correct crimping

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.

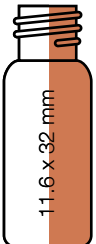
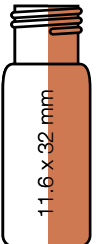
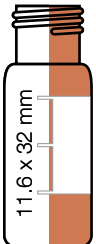
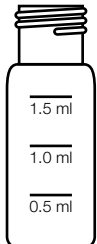
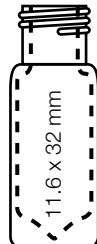
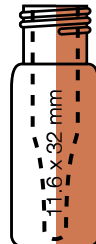
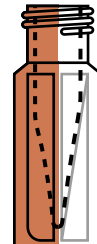
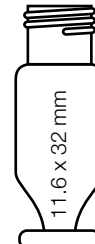
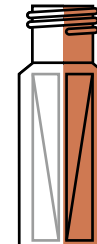
Our program comprises the following types of crimping tools:

- 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.

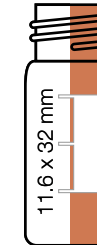
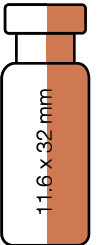
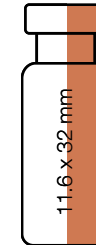
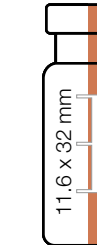
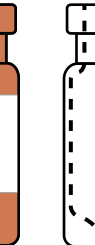
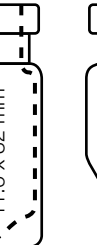
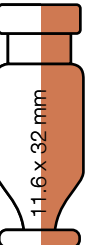
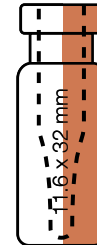
These products are listed in the chapter of the respective crimp neck diameter as well as in the chapter "Vial accessories and other consumables for chromatography" starting on page 51.

Real size drawings

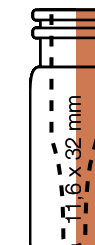
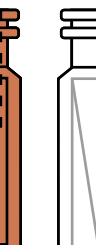
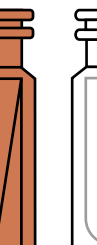
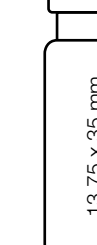
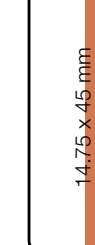
Screw neck vials N 8 Screw neck vials N 9

Page 22			Page 24									
												
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	1.5 ml 1.0 ml 0.5 ml	11.6 x 32 mm	11.6 x 32 mm	PP / Glass	11.6 x 32 mm	Poly-propylene	Poly-propylene	
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

Page 28		Pages 29, 30							
									
11.6 x 32 mm	11.6 x 32 mm	small opening 11.6 x 32 mm	wide opening 11.6 x 32 mm	wide opening 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	PP / Glass
702011	702012 702013	70201CG 70214CG	70201HP 70201HP.2	702885 702892	702888	702141	702015 702016	702891 702014	702134 702334

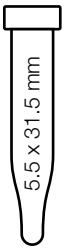
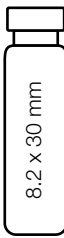
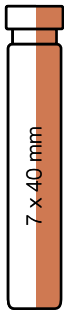
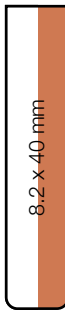
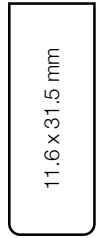
Snap ring vials N 11 Crimp and screw neck vials N 13

Page 34						Page 36	Page 37
							
11.6 x 32 mm	11.6 x 32 mm	11.6 x 32 mm	PP / Glass	Poly-propylene	Poly-propylene	13.75 x 35 mm	14.75 x 45 mm
702714	702713 702712	702709 702708	702134 702334	702809 702173	702174	70203	702962 702973
							
							6 x 40 mm

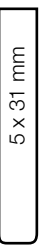
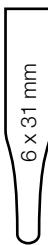
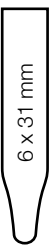
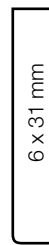
Real size drawings

Crimp neck vials N 8

Shell vials

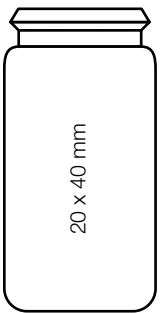
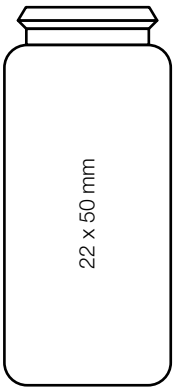
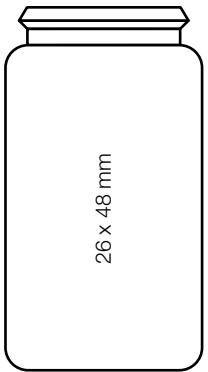
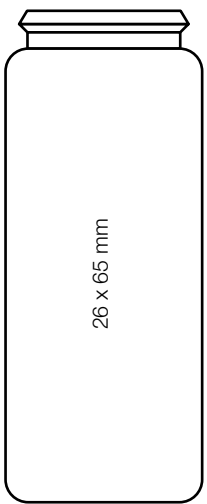
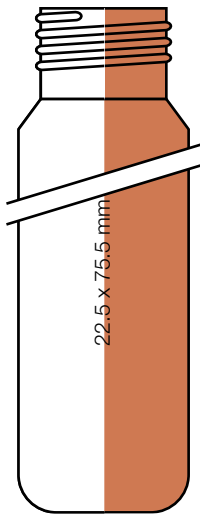
Page 21					Page 40	
						
70286	70282	70251	70212.1	702002 702003	70202.1 702017	702018

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

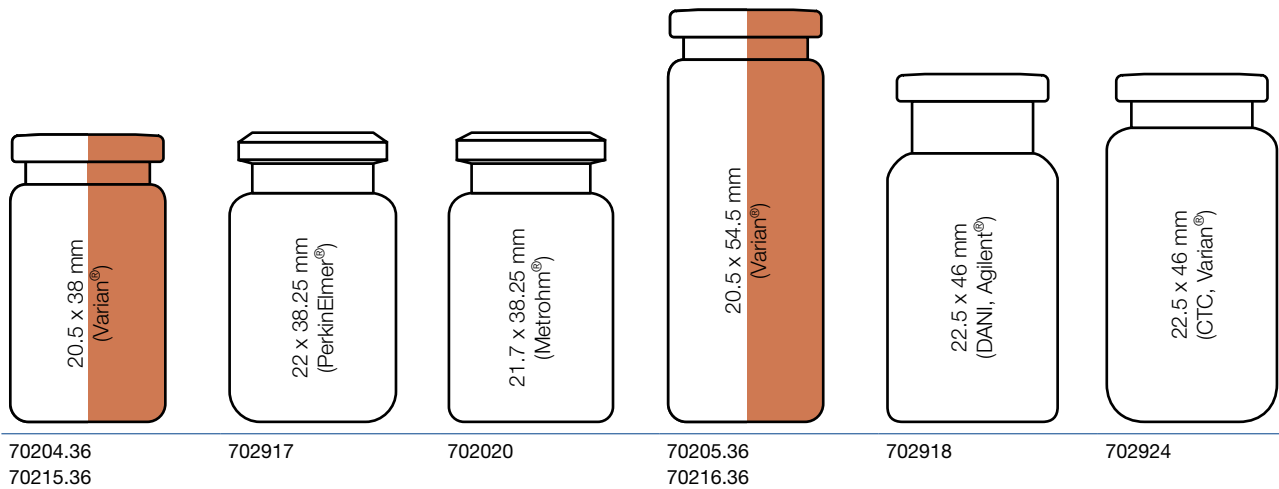
Screw neck vials N 18

Page 40				Page 41	
					
70271	70272	702019	70273	702866	702826 702826.2

Real size drawings

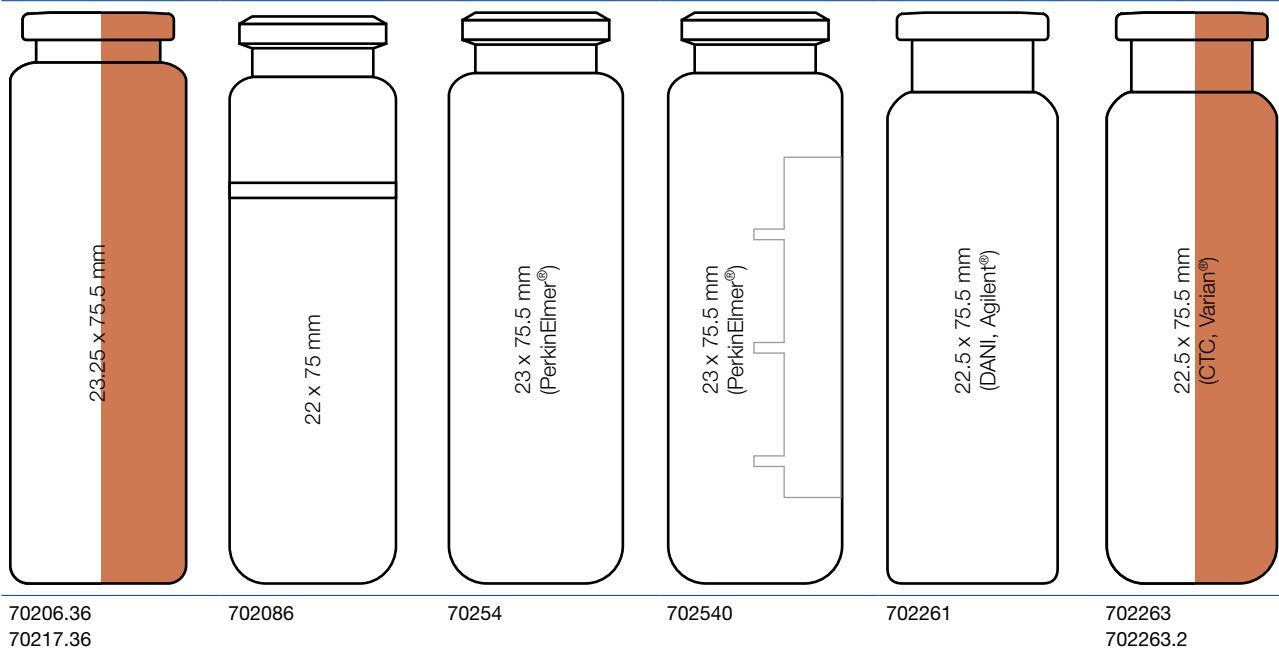
Crimp neck vials N 20: 5–10 mL

Page 42



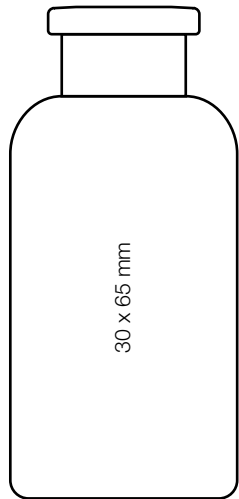
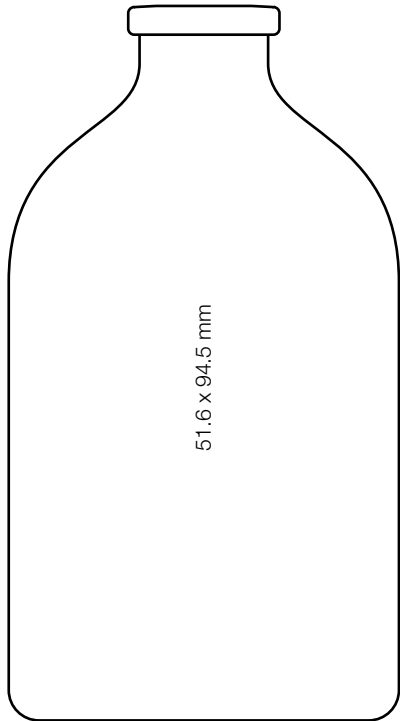
Crimp neck vials N 20: 20 mL

Page 42

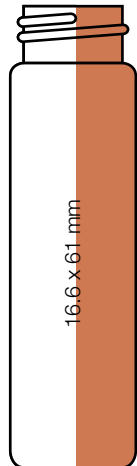
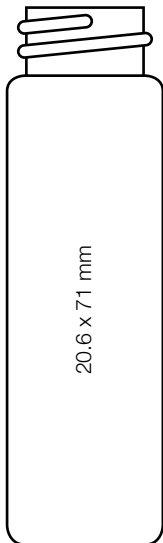


Real size drawings

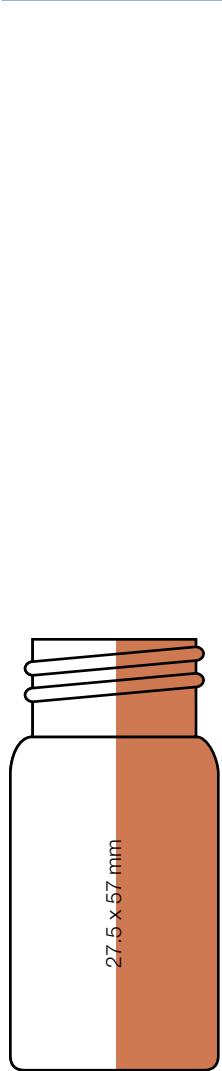
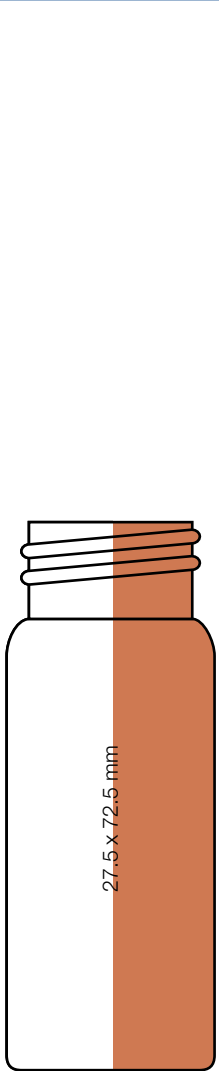
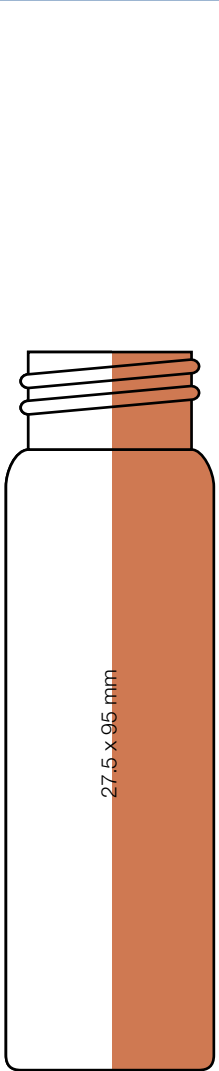
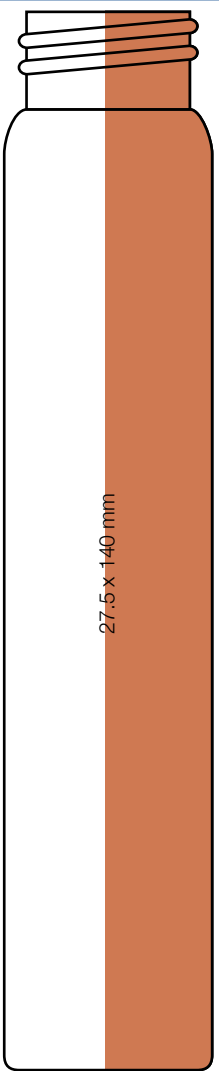
Crimp neck vials N 20: 25 mL, 50 mL, 100 mL

Page 43		
		
70210.36	70208.36	70209.1

Screw neck vials for storage of liquid samples

Page 39			
N 15		N 18	N 20
			
702096 / 702311	70285 / 702097	702098	702099

 Screw neck vials N 24

 27.5 x 57 mm	 27.5 x 72.5 mm	 27.5 x 95 mm	 27.5 x 140 mm
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).

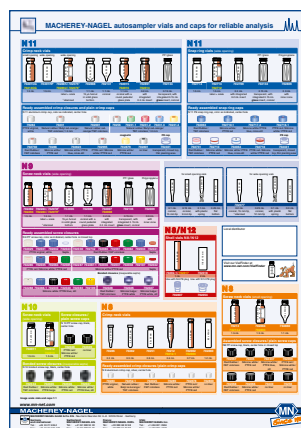
Product literature

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

Trademarks (registered and common law) of other companies

Waters®: Waters Corp (USA); TurboMatrix™: PerkinElmer® (USA); Merck®: Merck (Germany); CenterGuide™: CRS, USA; Dionex®: Dionex Corporation; Hitachi®: Hitachi, Ltd.;

Agilent®: Agilent Technologies, Inc; Shimadzu®: Shimadzu Corporation; Thermo Scientific®: Thermo Fisher Scientific Inc; Varian®: Varian, Inc.; Metrohm: Metrohm AG, Switzerland

Disclaimer

All used names and denotations can be brands, trademarks or registered labels of their respective owner – also if they do not have a special denotation. To mention products and brands is only a kind of information, i.e. it does not offend against trademarks and brands and can not be seen as a kind of recommendation or assessment.

Regarding these products or services we can not grant any guarantees regarding selection, efficiency or operation.

Product use restriction

MACHEREY-NAGEL chromatography products are intended, developed, designed and sold FOR RESEARCH AND DEVELOPMENT PURPOSES AND ANALYTICAL QUALITY CONTROL / ROUTINE MEASUREMENTS ONLY, except, however, any other function of the product being EXPRESSLY set forth in original MACHEREY-NAGEL product leaflets.

MACHEREY-NAGEL products are intended for GENERAL LABORATORY USE ONLY!

MACHEREY-NAGEL products are suited for QUALIFIED PERSONNEL ONLY !

MACHEREY-NAGEL products shall in any event be used wearing adequate PROTECTIVE CLOTHING!

MACHEREY-NAGEL products shall exclusively be used in an ADEQUATE TEST ENVIRONMENT.

MACHEREY-NAGEL does not assume any responsibility for damages due to improper application of our products in other fields of application.

The user has to ensure that the products used are suitable for the intended application.

General remarks

All information is subject to technical changes. All product data are subject to the currently valid specifications.



Other useful MACHEREY-NAGEL chromatography products from sample preparation to subsequent analysis

SPE



- Concentration and clean-up of your target compounds
- CHROMABOND® and CHROMAFIX® columns and cartridges
- Flash columns, packing material and accessories

Sample filtration



- CHROMAFIL® and CHROMAFIL® Xtra syringe filters
- Protection of sensitive and expensive laboratory equipment
- Use our online FilterFinder on www.mn-net.com/filterfinder

HPLC



- NUCLEOSIL® – the original, one of the first spherical HPLC silicas
- NUCLEODUR® – professional solutions by high purity spherical silica
- NUCLEOSHELL® – highest efficiency with core-shell HPLC columns

TLC



- Quick, easy and cost-efficient separation
- Screening applications and routine analysis
- TLC glass plates, aluminium and polyester sheets as well as accessories

GC



- Highly inert and low-bleed OPTIMA® GC capillary columns
- GC columns for routine analysis and special separations
- More than 50 stationary phases



MACHEREY-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:

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