

## 6.3 PE Snap Ring Seals ND11

- Synthetic RedRubber/PTFE material as a cost-effective match of the Agilent quality. In contrast to Natural Rubber it is not suitable for multiple injections, however softer for a safe penetration. **NEW**
- Snap ring caps are also available in a soft quality with transparent or blue caps. Soft caps are more convenient in handling (pushing on/removal), however, they are less tight than hard caps. **NEW**
- Snap ring cap with the design of a crimp cap; therefore suitable for robotic handling
- Easy way of closing the vial: time-, cost- and energy-saving
- Vials can also be sealed with an Aluminium Crimp Seal ND11
- Blue PE Push-On Cap with thinned penetration point made of Polyethylene for Snap Ring Vials and Crimp Neck Vials ND11



### 6.3.1 With transparent cap, hard or soft version

Art. No. Hard Cap	Art. No. Soft Cap	Description Cap	Septa Material	Durometer	Thickn.
11 15 0635	11 15 1850	PE Snap Ring Cap transparent, 6mm centre hole	Nat. Rubber red-orange/TEF transparent	60° shore A	1.0mm
11 15 2106	11 15 1983	PE Snap Ring Cap transparent, 6mm centre hole	RedRubber/PTFE beige <b>Agilent Quality</b>	45° shore A	1.0mm
11 15 0637	11 15 1852	PE Snap Ring Cap transparent, 6mm centre hole	Silicone white/PTFE red <b>UltraClean</b>	45° shore A	1.3mm
11 15 0636	11 15 1851	PE Snap Ring Cap transparent, 6mm centre hole	PTFE red/Silicone white/PTFE red	45° shore A	1.0mm
11 15 0650	11 15 1853	PE Snap Ring Cap transparent, 6mm centre hole	Silicone white/PTFE blue, cross-slitted	55° shore A	1.0mm
11 15 2045	11 15 2046	PE Snap Ring Cap transparent, 6mm centre hole	Silicone white/PTFE red, pre-cut (Y)	45° shore A	1.3mm

Packaging Unit: 100 pcs. per PE-Bag

### 6.3.2 With blue cap, hard or soft version

Art. No. Hard Cap	Art. No. Soft Cap	Description Cap	Septa Material	Durometer	Thickn.
11 15 1267	11 15 1856	PE Snap Ring Cap blue, 6mm centre hole	Nat. Rubber red-orange/TEF transparent	60° shore A	1.0mm
11 15 2107	11 15 1817	PE Snap Ring Cap blue, 6mm centre hole	RedRubber/PTFE beige, <b>Agilent Quality</b>	45° shore A	1.0mm
11 15 1151	11 15 1854	PE Snap Ring Cap blue, 6mm centre hole	Silicone white/PTFE red <b>UltraClean</b>	45° shore A	1.3mm
11 15 1268	11 15 1857	PE Snap Ring Cap blue, 6mm centre hole	PTFE red/Silicone white/PTFE red	45° shore A	1.0mm
11 15 1269	11 15 1858	PE Snap Ring Cap blue, 6mm centre hole	Silicone white/PTFE blue, cross-slitted	55° shore A	1.0mm
11 15 2047	11 15 2048	PE Snap Ring Cap blue, 6mm centre hole	Silicone white/PTFE red, pre-cut (Y)	45° shore A	1.3mm

Packaging Unit: 100 pcs. per PE-Bag

### 6.3.3 With red cap, only hard version

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
11 15 1323	PE Snap Ring Cap red, 6mm centre hole	Nat. Rubber red-orange/TEF transparent	60° shore A	1.0mm
11 15 1325	PE Snap Ring Cap red, 6mm centre hole	Silicone white/PTFE red <b>UltraClean</b>	45° shore A	1.3mm
11 15 1324	PE Snap Ring Cap red, 6mm centre hole	PTFE red/Silicone white/PTFE red	45° shore A	1.0mm
11 15 1326	PE Snap Ring Cap red, 6mm centre hole	Silicone white/PTFE blue, cross-slitted	55° shore A	1.0mm

Packaging Unit: 100 pcs. per PE-Bag

### 6.3.4 With green cap, only hard version

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
11 15 1555	PE Snap Ring Cap green, 6mm centre hole	Nat. Rubber red-orange/TEF transparent	60° shore A	1.0mm
11 15 2017	PE Snap Ring Cap green, 6mm centre hole	Silicone white/PTFE red <b>UltraClean</b>	45° shore A	1.3mm
11 15 2018	PE Snap Ring Cap green, 6mm centre hole	PTFE red/Silicone white/PTFE red	45° shore A	1.0mm
11 15 1794	PE Snap Ring Cap green, 6mm centre hole	Silicone white/PTFE blue, cross-slitted	55° shore A	1.0mm

Packaging Unit: 100 pcs. per PE-Bag

### 6.3.5 With yellow cap, only hard version

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
11 15 1556	PE Snap Ring Cap yellow, 6mm centre hole	Nat. Rubber red-orange/TEF transparent	60° shore A	1.0mm
11 15 1886	PE Snap Ring Cap yellow, 6mm centre hole	Silicone white/PTFE red <b>UltraClean</b>	45° shore A	1.3mm
11 15 1677	PE Snap Ring Cap yellow, 6mm centre hole	PTFE red/Silicone white/PTFE red	45° shore A	1.0mm
11 15 1793	PE Snap Ring Cap yellow, 6mm centre hole	Silicone white/PTFE blue, cross-slitted	55° shore A	1.0mm

Packaging Unit: 100 pcs. per PE-Bag

## 6.4 Other Combination Seals for Snap Ring ND11

– Push-On caps can be used as an alternative to snap ring caps with PTFE liner

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
11 08 1676	PE Push-On Cap, blue	with thinned penetration point		

Packaging Unit: 100 pcs. per PE-Bag

## 7. Plastic Vials ND9 and Plastic Micro-Vials ND9 + ND11



- Main applications for Plastic vials are atomic absorption, water and protein analysis, capillary electrophoresis, ion chromatography, etc.
- 1.5ml Polypropylene Short Thread Vial with slightly concave shaped bottom. Usable in HPLC as a possible alternative to silanized glass vials for pH-sensitive and aqueous samples.
- TPX has a crystal clear transparency and good chemical resistance
- Any combination of our plastic vials with one of our seals can be obtained as a 2in1 KIT
- Also available our so-called TopSerts Vials: transparent and amber TPX Micro-Vials with a Glass Insert (Pages 23 and 32)
- Special Push-On Cap with thinner penetration point made of Polyethylene for Snap Ring Vials and Crimp Neck Vials ND11

### 7.1 Plastic Vials ND9 and Plastic Micro-Vials ND9 + ND11

<b>PP</b>	<b>NEW PP</b>	<b>NEW PP</b>	<b>PP</b>	<b>TPX</b>	<b>TPX</b>	<b>PP</b>	<b>PP</b>	<b>PP</b>	<b>PP</b>
11 19 1205 11 19 1516	11 19 1706	11 19 1707	11 19 1021	11 19 1022	11 19 0932	11 19 0933	11 19 1216	11 19 1217	
1.5ml PP Short Thread Vial, transparent/amber with filling lines, 32 x 11.6mm, slightly concave shaped bottom	0.7ml PP Short Thread Micro-Vial, transparent, 32 x 11.6mm	0.7ml PP Snap Ring Micro-Vial, transparent, 32 x 11.6mm	0.3ml TPX Short Thread Micro-Vial, crystal clear, 32 x 11.6mm	0.3ml TPX Snap Ring Micro-Vial, crystal clear, 32 x 11.6mm	0.3ml PP Short Thread Micro-Vial, transparent, 32 x 11.6mm	0.3ml PP Snap Ring Micro-Vial, transparent, 32 x 11.6mm	0.3ml PP Short Thread Micro-Vial, amber, 32 x 11.6mm	0.3ml PP Snap Ring Micro-Vial, amber, 32 x 11.6mm	
100 pcs. per PE-Bag	100 pcs. per PE-Bag	100 pcs. per PE-Bag	100 pcs. per PE-Bag	100 pcs. per PE-Bag	100 pcs. per PE-Bag	100 pcs. per PE-Bag	100 pcs. per PE-Bag	100 pcs. per PE-Bag	

### 7.2 Seals for Plastic Vials ND9 and Plastic Micro-Vials ND9 + ND11

Type of Seal	Chapter	Page(s)
Short Thread Seals ND9	3.5	24-26
Snap Ring Seals ND11	6.3	33
Crimp Seals ND11	5.4	30-31
11 08 1676	5.6 + 6.4	31 + 33



### 7.3 Special 2in1 KITs

#### 2in1 KITs for Waters®

Art. No. 2in1 KIT	Art. No. Vial	Art. No. Seal	Alternative 2in1 KITs	
11 24 1130	11 19 0932	09 15 0869	11 24 1476	11 24 1643
2in1 KIT consisting of: 11 19 0932, 09 15 0869	0.3ml PP Short Thread Micro-Vial, transparent, 32 x 11.6mm	PP Short Thread Cap blue, 6mm centre hole; Silicone white/PTFE blue, 55° shore A, 1.0mm, with slit	Same Vial in combination with 09 15 0838 (Silicone white/PTFE red, 55° shore A, 1.0mm)	Same Vial in combination with 09 04 1534 (UltraBond Seal, slitted)
11 24 1865	11 19 1706	09 04 1533		
2in1 KIT consisting of: 11 19 1706, 09 04 1533	0.7ml PP Short Thread Micro-Vial, transparent, 32 x 11.6mm	UltraBond Seal, blue, 6mm centre hole; Silicone beige/PTFE white, 45° shore A, 1.3mm, improved Waters® Quality		
11 24 1866	11 19 1706	09 04 1534		
2in1 KIT consisting of: 11 19 1706, 09 04 1534	0.7ml PP Short Thread Micro-Vial, transparent, 32 x 11.6mm	UltraBond Seal, blue, 6mm centre hole; Silicone beige/PTFE white, 45° shore A, 1.3mm, with slit, improved Waters® Quality		
Further 2in1 KITs are available upon request!			Packaging Unit: 100 pcs. each in one KIT	

## 8. Screw Neck ND13

The vials are preferentially used on instruments of the following manufacturers: Dionex, Shimadzu, Spark, Varian, VWR (Merck®)/Hitachi, Waters® (Wisp 48 Position Carousel), etc. (Please have a look at the autosampler compatibility chart on pages 76-85 to see on which models they can be used)

- Product line has been enlarged by clear/amber vials with label + filling lines
- Vials are packed in a cleanroom class 10,000 in recloseable, tamper-proof evident PP-Boxes
- Any combination of 4ml Screw Neck Vial ND13 with one of our 13mm PP Screw Seals can be obtained as a 2in1 KIT (see chapter 8.5)
- Upon request barcode labelled vials can also be supplied
- For storage purposes also available with closed top screw seals
- Acrylic vial racks with 40 cavities for 4ml vials (s.chapter 18.1)

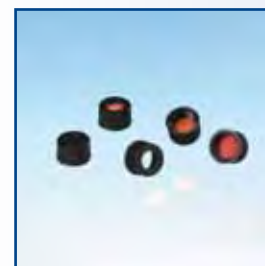


### 8.1 Screw Neck Vials ND13 and appropriate Micro-Inserts

13 09 0222	13 09 1335	13 09 0280	13 09 1336	40 09 0146	50 13 0147
4ml Screw Neck Vial, 45 x 14.7mm, clear glass, 1 <sup>st</sup> hydrol. class	4ml Screw Neck Vial, 45 x 14.7mm, clear glass, 1 <sup>st</sup> hydrol. class, label + filling lines	4ml Screw Neck Vial, 45 x 14.7mm, amber glass, 1 <sup>st</sup> hydrol. class	4ml Screw Neck Vial, 45 x 14.7mm, amber glass, 1 <sup>st</sup> hydrol. class, label + filling lines	0.3ml Micro-Insert, 40 x 6mm, clear glass, 1 <sup>st</sup> hydrol. class, 15mm top <u>Metal Spring required!</u>	Spring 50 x 7.5mm  <u>For Micro-Insert 40 09 0146!</u>
100 pcs. per PP-Box	100 pcs. per PP-Box	100 pcs. per PP-Box	100 pcs. per PP-Box	10 x 100 pcs. per PP-Box	100 pcs. per PE-Bag

### 8.2 PP Screw Seals ND13

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



Art. No.	Description Cap	Septa Material	Durometer	Thickn.
13 15 0456	Polypropylene Screw Cap black, 8.5mm centre hole	Nat. Rubber red-orange/TEF transparent	60° shore A	1.3mm
13 15 1639	Polypropylene Screw Cap black, 8.5mm centre hole	Butyl red/PTFE grey	55° shore A	1.3mm
13 15 0815	Polypropylene Screw Cap black, 8.5mm centre hole	Silicone cream/PTFE red	55° shore A	1.5mm
13 15 0887	Polypropylene Screw Cap black, 8.5mm centre hole	Silicone dark blue/PTFE white	45° shore A	1.3mm
13 15 0292	Polypropylene Screw Cap black, 8.5mm centre hole	PTFE red/Silicone white/PTFE red	45° shore A	1.0mm
13 15 1293	Polypropylene Screw Cap black, 8.5mm centre hole	Silicone white/PTFE blue, cross-slitted	55° shore A	1.5mm
13 15 0439	Polypropylene Screw Cap black, closed top	Nat. Rubber red-orange/TEF transparent	60° shore A	1.3mm
13 15 1638	Polypropylene Screw Cap black, closed top	Butyl red/PTFE grey	55° shore A	1.3mm
13 15 0648	Polypropylene Screw Cap black, closed top	Silicone cream/PTFE red	55° shore A	1.5mm

**Further Screw Seals ND13 with closed/open top caps are available upon request!**

Packaging Unit: 100 pcs. per PE-Bag



## 8.3 Septa 12mm

12 02 0168	12 02 0223	12 02 1635	12 02 0143	12 02 0608	12 02 0322	12 02 0463
PTFE virginal, 53° shore D, 0.25mm (only unassembled)	Nat. Rubber red-orange/ TEF transparent, 60° shore A, 1.3mm	Butyl red/PTFE grey, 55° shore A, 1.3mm	Silicone cream/PTFE red, 55° shore A, 1.5mm	Silicone blue transp./ PTFE white, 45° shore A, 1.3mm	Silicone white/PTFE blue, 55° shore A, 1.5mm cross-slitted	PTFE red/Silicone white/ PTFE red, 45° shore A, 1.0mm
						Packaging Unit: 1000 pcs. per PE-Bag

Further 12mm Septa are available upon request!

## 8.4 PP Screw Caps ND13

13 08 0166	13 08 0336	13 08 0639	13 08 0452
Polypropylene Screw Cap, black, 8.5mm centre hole	Polypropylene Screw Cap, black, closed top	Polypropylene Screw Cap, white, 8.5mm centre hole	Polypropylene Screw Cap, white, closed top
Packaging Unit: 100 pcs. per PE-Bag			

## 8.5 Special 2in1 KITs

### 3in1 KITs for VWR (Merck®)/Hitachi and Waters® Autosampler

Art. No. 3in1 KIT	Art. No. Vial	Art. No. Cap	Art. No. Septa
<b>13 28 1071</b>	<b>13 09 0222</b>	<b>13 08 0166</b>	<b>12 02 0168</b>
3in1 KIT consisting of: 13 09 0222, 13 08 0166, 12 02 0168	4ml Screw Neck Vial, 45 x 14.7mm, clear glass, 1 <sup>st</sup> hydrol. class	Polypropylene Screw Cap, black, 8.5mm centre hole	PTFE virginal, 53° shore D, 0.25mm
<b>13 28 1076</b>	<b>13 09 0280</b>	<b>13 08 0166</b>	<b>12 02 0168</b>
3in1 KIT consisting of: 13 09 0280, 13 08 0166, 12 02 0168	4ml Screw Neck Vial, 45 x 14.7mm, amber glass, 1 <sup>st</sup> hydrol. class	Polypropylene Screw Cap, black, 8.5mm centre hole	PTFE virginal, 53° shore D, 0.25mm
Packaging Unit: 100 pcs. each in one KIT			

### Other 2in1 KITs

Art. No. 2in1 KIT	Art. No. Vial	Art. No. Seal	Alternative 2in1 KITs
13 28 1067	13 09 0222	13 15 0456	13 28 1072
2in1 KIT consisting of: 13 09 0222, 13 15 0456	4ml Screw Neck Vial, 45 x 14.7mm, clear glass, 1 <sup>st</sup> hydrol. class	PP Screw Cap, black, 8.5mm centre hole; Nat. Rubber red-orange/ TEF transparent, 60° shore A, 1.3mm	Same Seal in combination with 13 09 0280 (amber glass)
13 28 1069	13 09 0222	13 15 0815	13 28 1074
2in1 KIT consisting of: 13 09 0222, 13 15 0815	4ml Screw Neck Vial, 45 x 14.7mm, clear glass, 1 <sup>st</sup> hydrol. class	PP Screw Cap, black, 8.5mm centre hole; Silicone cream/PTFE red, 55° shore A, 1.5mm	Same Seal in combination with 13 09 0280 (amber glass)
13 28 1070	13 09 0222	13 15 0292	13 28 1075
2in1 KIT consisting of: 13 09 0222, 13 15 0292	4ml Screw Neck Vial, 45 x 14.7mm, clear glass, 1 <sup>st</sup> hydrol. class	PP Screw Cap, black, 8.5mm centre hole; PTFE red/Silicone white/ PTFE red, 45° shore A, 1.0mm	Same Seal in combination with 13 09 0280 (amber glass)
13 28 1541	13 09 0222	13 15 1293	Further 2in1 KITs can be made according to your wishes!
2in1 KIT consisting of: 13 09 0222, 13 15 1293	4ml Screw Neck Vial, 45 x 14.7mm, clear glass, 1 <sup>st</sup> hydrol. class	PP Screw Cap, black, 8.5mm centre hole; Silicone white/PTFE blue, 55° shore A, 1.5mm cross-slitted	
Packaging Unit: 100 pcs. each in one KIT			

Further 2in1 KITs are available upon request!

**TIP**



For Vial Racks please see  
chapter 18.1 on page 57

**TIP**



Upon request vials with a  
barcode label are available

**TIP**



Any combination of 4ml Vials with  
one of the appropriate seals can  
be supplied as 2in1 KIT!

**TIP**



For HPLC Syringe Filters and HPLC Syringe  
Filters with Glass Fibre Prefilter please see  
chapter 14 on pages 52 and 53

## 9. Shell Vials

The vials are preferentially used on instruments of the following manufacturers: Alcott, Gilson, Shimadzu, Waters® (Wisp 96 respectively 48 Position Carousel) (Please have a look at the autosampler compatibility chart on pages 76-85 to see on which models they can be used)

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








### 9.1 Shell Vials 1ml and 4ml and appropriate Micro-Inserts

08 14 0641	08 14 1168*	08 14 1169*	05 09 0706	15 14 0548	15 14 0562	06 09 0651
1ml Shell Vial, 35 x 7.8mm, clear glass, 1 <sup>st</sup> hydrol. class, 6mm PE-Plug, transparent, for ALCOTT	1ml Shell Vial, 40 x 8.2mm, clear glass, 1 <sup>st</sup> hydrol. class, 8mm PE-Plug, soft, without insertion barrier for Micro-Insert, transparent for Waters® Wisp 96 Pos. Carousel, Shimadzu	1ml Shell Vial, 40 x 8.2mm, amber glass, 1 <sup>st</sup> hydrol. class, 8mm PE-Plug, soft, without insertion barrier for Micro-Insert, transparent for Waters® Wisp 96 Pos. Carousel, Shimadzu	0.1ml Micro-Insert, 34 x 5mm, clear glass, 1 <sup>st</sup> hydrol. class, 13mm top (only in comb. with 08 14 0513 + 08 14 0595)	4ml Shell Vial, 44.6 x 14.65mm, clear glass, 1 <sup>st</sup> hydrol. class, 15mm PE-Plug, transparent for Waters® Wisp 48 Pos. Carousel	4ml Shell Vial, 44.6 x 14.65mm, amber glass, 1 <sup>st</sup> hydrol. class, 15mm PE-Plug, transparent for Waters® Wisp 48 Pos. Carousel	0.3ml Micro-Insert, 43.45 x 6mm, clear glass, 1 <sup>st</sup> hydrol. class, 13mm top
100 pcs. per PP-Box (Vials)	100 pcs. per PP-Box (Vials)	100 pcs. per PP-Box (Vials)	10 x 100 pcs. per PP-Box	100 pcs. per PP-Box (Vials)	100 pcs. per PP-Box (Vials)	10 x 100 pcs. per PP-Box
100 pcs. per PE-Bag (Plugs)	100 pcs. per PE-Bag (Plugs)	100 pcs. per PE-Bag (Plugs)		100 pcs. per PE-Bag (Plugs)	100 pcs. per PE-Bag (Plugs)	

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

## 9.2 Shell Vials 2ml and appropriate Micro-Inserts

				
<b>11 14 0544</b>	<b>11 14 0545</b>	<b>06 09 0357</b>	<b>06 09 0669</b>	<b>06 09 0866</b>
2ml Shell Vial, 31.5 x 11.6mm, clear glass, 1 <sup>st</sup> hydrol. class, 12mm PE-Plug, transparent	2ml Shell Vial, 31.5 x 11.6mm, amber glass, 1 <sup>st</sup> hydrol. class, 12mm PE-Plug, transparent	0.1ml Micro-Insert, 31 x 6mm, clear glass, 1 <sup>st</sup> hydrol. class, 15mm top	0.1ml Micro-Insert, 31 x 6mm, clear glass, 1 <sup>st</sup> hydrol. class, 12mm top	0.2ml Micro-Insert, 31 x 6mm, clear glass, 1 <sup>st</sup> hydrol. class, flat bottom
for various instruments	for various instruments	<b>SILANIZED: 06 09 1240</b>		
100 pcs. per PP-Box (Vials)	100 pcs. per PP-Box (Vials)	10 x 100 pcs. per PP-Box	10 x 100 pcs. per PP-Box	10 x 100 pcs. per PP-Box
100 pcs. per PE-Bag (Plugs)	100 pcs. per PE-Bag (Plugs)			

## 9.3 Special 2in1 KITs

Art. No. 2in1 KIT	Art. No. Vial	Art. No. Plug
<b>08 27 1670</b>	<b>08 09 0483</b>	<b>08 08 0488</b>
2in1 KIT consisting of: 08 14 0513	1ml Shell Vial, 40 x 8.2mm, clear glass, 1 <sup>st</sup> hydrol. class	8mm PE-Plug, transparent (with insertion barrier)
<b>08 27 1671</b>	<b>08 09 0484</b>	<b>08 08 0488</b>
2in1 KIT consisting of: 08 14 0595	1ml Shell Vial, 40 x 8.2mm, amber glass, 1 <sup>st</sup> hydrol. class	8mm PE-Plug, transparent (with insertion barrier)
<b>08 27 1672</b>	<b>08 09 0483</b>	<b>08 08 1167</b>
2in1 KIT consisting of: 08 14 1168	1ml Shell Vial, 40 x 8.2mm, clear glass, 1 <sup>st</sup> hydrol. class	8mm PE-Plug, transparent (without insertion barrier)
<b>08 27 1673</b>	<b>08 09 0484</b>	<b>08 08 1167</b>
2in1 KIT consisting of: 08 14 1169	1ml Shell Vial, 40 x 8.2mm, amber glass, 1 <sup>st</sup> hydrol. class	8mm PE-Plug, transparent (without insertion barrier)
<b>11 27 1063</b>	<b>11 09 0537</b>	<b>12 08 0546</b>
2in1 KIT consisting of: 11 14 0544	2ml Shell Vial, 31.5 x 11.6mm, clear glass, 1 <sup>st</sup> hydrol. class	12mm PE-Plug, transparent
<b>11 27 1064</b>	<b>11 09 0538</b>	<b>12 08 0546</b>
2in1 KIT consisting of: 11 14 0545	2ml Shell Vial, 31.5 x 11.6mm, amber glass, 1 <sup>st</sup> hydrol. class	12mm PE-Plug, transparent
<b>15 27 1065</b>	<b>15 09 0539</b>	<b>15 08 0547</b>
2in1 KIT consisting of: 15 14 0548	4ml Shell Vial, 44.6 x 14.65mm, clear glass, 1 <sup>st</sup> hydrol. class	15mm PE-Plug, transparent
<b>15 27 1066</b>	<b>15 09 0540</b>	<b>15 08 0547</b>
2in1 KIT consisting of: 15 14 0562	4ml Shell Vial, 44.6 x 14.65mm, amber glass, 1 <sup>st</sup> hydrol. class	15mm PE-Plug, transparent

Packaging Unit: 100 pcs. each in one KIT

TIP



Any combination of 1ml Shell Vials  
with one of the appropriate PE-Plugs can  
be supplied as 2in1 KIT!

TIP



Any combination of 2ml or 4ml Shell Vials  
with one of the appropriate PE-Plugs can  
be supplied as 2in1 KIT!

## 10. Headspace ND20 (ND18)

Chapter 10 "Headspace" of our catalogue has been completely redesigned, in order to simplify the identification of suitable consumables for a certain instrument. Especially in Headspace this is extremely difficult, as besides numerous vial types there are also different cap types required depending on the autosampler.

While you can take the suitable vial type for the different instrument manufacturers from the upper part of the double paged chart, you'll find the appropriate recommended closures in the middle section. The various cap types that have to be considered are colour-coded. At the bottom of the page a break-down of the indicated part numbers according to the colour-coded cap types and the different septa materials is listed. For better illustration of the septa type you'll find at the left side of page 40 (20mm septa for crimp caps) resp. at the right side of page 41 (17.5mm septa for magnetic Precision Thread Caps) photographs and article descriptions of them. Of course you can also take appropriate recommendations from our Quick-Reference-Charts on pages 70 to 75.



### IMPORTANT SAFETY TIP:

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

### Headspace Vials might differ in:

- **Volume (5ml, 10ml, 20ml)**
- **Rounded or flat bottom**  
A rounded bottom is more sturdy and thus more resistant to the high pressure within the vial during the heating process. Furthermore the vial slides more easily into the heating block when being transported by a magnet.
- **A flat bottom might be necessary when vials have to run within the instrument on a slightly downwards tendency.**
- **Bevelled top or flat DIN Crimp Neck / Screw Neck**  
A bevelled top Headspace Neck might be required for some special closure systems (PerkinElmer), however, a liner has more surface to lie on with a flat DIN Crimp Neck. The more surface for the liner to rest on, the tighter the seal.
- **Length of the Neck (instrument specific)**
- **Clear / Amber Glass**
- **With / without label and filling lines**
- **Upon request with a barcode label**

### Headspace Closures might differ in:

- **Type of Cap**  
Centre Hole Crimp Cap, Headspace Cap, Centre Tear Off Cap, Complete Tear Off Cap, Magnetic Crimp Cap with 5mm or 8mm centre hole, Bimetal Cap, Magnetic Screw Cap (with 8mm centre hole or closed top), PP Screw Cap, PE Cap.  
Screw Caps are a novelty in the crimp neck dominated Headspace area. However, they represent a ready to use, convenient solution, that does not require any additional tools (crimpers, decappers). Thus samples can be taken and sealed out in the field without the necessity of sample transfer later in the lab. The magnetic Screw Seals can be used universally for Headspace as well as for SPME.
- **Type of Liner**  
Butyl, Butyl/PTFE, Pharma-Fix-Liner (Butyl/PTFE), Silicone/PTFE, Silicone/Aluminium foil, Viton, Natural Rubber/TEF  
Besides the material the liners may differ in thickness, hardness (° shore A), colour, type of PTFE lamination, grade of Silicone (UltraClean).



## 10.1 Headspace Vials + Closures ND20 + ND18 (Headspace Compatibility Chart)




 <b>20 02 0122</b> Moulded Septa Butyl, dark grey, 55° shore A, 3.0mm	Scale 1:3 Original size p.s. 94					
 <b>20 02 0057</b> Moulded Septa Butyl/PTFE, grey, 50° shore A, 3.0mm	<b>Article-No.</b>	<b>20 09 0795</b>	<b>20 09 0796</b>	<b>20 09 1405 20 09 1691</b>	<b>20 09 0873 20 09 1690</b>	<b>20 09 1222</b>
 <b>20 02 0035</b> Pharma-Fix-Septa (Butyl/PTFE), 50° shore A, 3.0mm	<b>Description</b>	10ml Headspace-Vial, flat bottom 46 x 22.5mm	20ml Headspace-Vials, flat bottom 75.5 x 22.5mm	10ml Headspace-Vial, rounded bottom 46 x 22.5mm	20ml Headspace-Vial, rounded bottom 75.5 x 22.5mm	20ml SPME Vial, rounded bottom 75.5 x 22.5mm
 <b>20 02 0141</b> Silicone blue transp./ PTFE white, 45° shore A, 3.0mm	<b>For use on instruments</b>	Agilent, Carlo Erba, DANI, Fisons	Agilent, Carlo Erba, DANI, Fisons	Carlo Erba, CTC PAL (Varian, Gerstel, Atas, Shimadzu), Fisons, Varian, Thermo Scientific	CTC PAL (Varian, Gerstel, Atas, Shimadzu) Thermo Scientific TriPlus HS ***	SPME Vial for CTC PAL
 <b>20 02 0254</b> Silicone blue transp./ PTFE transp., 45° shore A, 3.0mm	<b>Remarks</b>	*** not suitable for Thermo Scientific HS250/HS500				
 <b>20 02 0638</b> Silicone white/PTFE beige, 45° shore A, 3.2mm (Agilent HT Quality)	<b>Autosampler Compatibility</b>					
 <b>20 02 0335</b> Silicone white/ Aluminium foil silver, 50° shore A, 3.0mm	Agilent G1888A, Agilent HS 7694 (DANI HS 39.50/HS 86.50)	20 03 0030/20 03 0901 20 03 0264/20 03 0828	20 03 0030/20 03 0901 20 03 0264/20 03 0828			
 <b>20 10 0290</b> 20mm Butyl Injection Stopper, grey rec. by PerkinElmer	Agilent CTC Combi Pal					
	CTC Combi PAL (HS Mode) (Gerstel MPS 2/Varian)			20 03 0975	20 03 1536	20 03 0975 20 03 1536
	CTC Combi PAL (SPME Mode) (Gerstel MPS 2/Varian)					20 03 1246/20 03 1264
	CTC HS 500			20 03 0665	20 03 0665	
	HTA HT200H	20 03 0142/20 03 0901			20 03 0142/20 03 0901	
	PerkinElmer HS6					
	PerkinElmer HS40 / HS100 / HS101					
	TurboMatrix™ HS16 /HS40 / HS40XL / HS40 Trap / HS110 / HS110 Trap					
	Shimadzu AOC-5000 (HS Mode)			20 03 0975	20 03 1536	20 03 0975 20 03 1536
	Shimadzu AOC-5000 (SPME Mode)					20 03 1246/20 03 1264
	Thermo Scientific HS250/HS500 (Carlo Erba/Fisons/Thermo Scientific)			20 03 0711/20 03 0665/ 20 03 0710		
	Thermo Scientific HS800 (Carlo Erba/Fisons/Thermo Scientific)			20 03 0711/20 03 0665/ 20 03 0710	20 03 0711/20 03 0665/ 20 03 0710	
	Thermo Scientific HS850 (Carlo Erba/ Fisons/ Thermo Scientific)			20 03 0142/20 03 0901/ 20 03 0127/20 03 0030/ 20 03 0059	20 03 0142/20 03 0901/ 20 03 0127/20 03 0030/ 20 03 0059	
	Thermo Scientific HS2000, Thermo Scientific TriPlus (HS Mode)			20 03 0142/20 03 0901/ 20 03 0127/20 03 0030/ 20 03 0059	20 03 0142/20 03 0901/ 20 03 0127/20 03 0030/ 20 03 0059	
	Thermo Scientific TriPlus (SPME Mode)			20 03 0142/20 03 0901	20 03 0142/20 03 0901	
	Tekmar HT 3					
	Varian CP-9020/9025, CP-9060 Varian Genesis		same closures for Genesis	20 03 0142/20 03 0901/ 20 03 0030/20 03 0059		

Break-down Headspace-Seals					
Aluminium Crimp Cap, plain, 10mm centre hole		Headspace-Cap, clear lacquered (pressure release cap)		Magnetic Crimp Cap, gold, 5mm centre hole	
<b>20 03 0127</b>		<b>20 03 0126</b>		<b>20 03 0711</b>	
with Butyl, dark grey, 55° shore A, 3.0mm		with Butyl, dark grey, 55° shore A, 3.0mm		with Butyl, dark grey, 55° shore A, 3.0mm	
<b>20 03 0059</b>		<b>20 03 0112</b>		<b>20 03 0710</b>	
with Butyl/PTFE, grey, 50° shore A, 3.0mm		with Butyl/PTFE, grey, 50° shore A, 3.0mm		with Pharma-Fix-Septa, Butyl/PTFE, 50° shore A, 3.0mm	
<b>20 03 0030</b>		<b>20 03 0264</b>		<b>20 03 0665</b>	
with Pharma-Fix-Septa, Butyl/PTFE, 50° shore A, 3.0mm		with Pharma-Fix-Septa, Butyl/PTFE, 50° shore A, 3.0mm		with Silicone blue transp./PTFE transp., 45° shore A, 3.0mm	
<b>20 03 0142</b>		<b>20 03 0163</b>			
with Silicone blue transp./PTFE white, 45° shore A, 3.0mm		with Silicone blue transp./PTFE white, 45° shore A, 3.0mm			
<b>20 03 0901</b>		<b>20 03 0828</b>			
with Silicone white/PTFE beige, 45° shore A, 3.2mm		with Silicone white/PTFE beige, 45° shore A, 3.2mm			
<b>20 03 0327</b>		<b>20 03 0326</b>			
with Silicone white/Aluminium foil silver, 50° shore A, 3.0mm		with Silicone white/Aluminium foil silver, 50° shore A, 3.0mm			



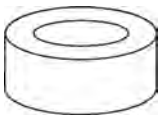
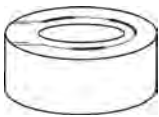

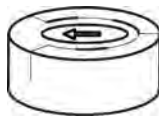





## 10.2 Other Crimp Neck Vials ND20 + Screw Neck Vials ND18

<b>20 09 0289</b>	 Scale 1:2, Original size: P. 93	<b>20 09 0343</b>	 Scale 1:2, Original size: P. 93	<b>18 09 0864</b>	 Scale 1:2, Original size: P. 94
50ml Crimp Neck Vial, 101 x 31mm, clear glass, 1 <sup>st</sup> hydrol. class		100ml Crimp Neck Vial, 94.5 x 51.6mm, clear glass, 3 <sup>rd</sup> hydrol. class		20ml Headspace-Vial, 75.5 x 23mm, clear glass, 1 <sup>st</sup> hydrol. class, rounded bottom, with screw thread ND18  (for PP Screw Neck ND18, s. Chap. 10.7/Page 45)	
100 pcs. per PP-Box		88 pcs. shrink-wrapped		100 pcs. per PP-Box	

## 10.3 Aluminium Crimp Seals ND20

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

Centre Hole Cap	Headspace Cap	Centre Tear-Off Cap	Complete Tear-Off Cap	Magnetic Crimp Cap	Magnetic Crimp Cap	Magnetic Bimetal Crimp Cap
						
Plain, red, blue, gold, green 10mm centre hole	Clear lacquered, scorelines break open at 3.0 ± 0.5 bar for pressure release	Clear lacquered, red, blue, gold, green	Clear lacquered, red, blue, gold, green	Gold, 5mm centre hole CE HS500/HS800, CTC 500, Fisons HS500/HS800	Gold, 8mm centre hole CTC Combi PAL	Red, 8mm centre hole CTC Combi PAL

Any type of cap can **ONLY** be obtained in combination with a liner or a stopper!

### 10.3.1 Butyl Seals

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

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
<b>20 03 0127</b>	Aluminium Cap, plain, 10mm centre hole	Butyl, dark grey	55° shore A	3.0mm
<b>20 03 0126</b>	Headspace Cap, clear lacquered	Butyl, dark grey	55° shore A	3.0mm
<b>20 03 0195</b>	Centre Tear-Off Cap, clear lacquered	Butyl, dark grey	55° shore A	3.0mm
<b>20 03 0212</b>	Complete Tear-Off Cap, clear lacquered	Butyl, dark grey	55° shore A	3.0mm
<b>20 03 0711</b>	Magnetic Cap, gold, 5mm centre hole	Butyl, dark grey	55° shore A	3.0mm
<b>20 03 1157</b>	Magnetic Cap, gold, 8mm centre hole	Butyl, dark grey	55° shore A	3.0mm

Packaging Unit: 100 pcs. per PE-Bag

The liner can also be obtained assembled in any of the (coloured) caps mentioned on top of page 42.

### 10.3.2 Butyl/PTFE Seals (completely PTFE laminated)

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

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
<b>20 03 0059</b>	Aluminium Cap, plain, 10mm centre hole	Butyl/PTFE, grey	50° shore A	3.0mm
<b>20 03 0112</b>	Headspace Cap, clear lacquered	Butyl/PTFE, grey	50° shore A	3.0mm
<b>20 03 0194</b>	Centre Tear-Off Cap, clear lacquered	Butyl/PTFE, grey	50° shore A	3.0mm
<b>20 03 0186</b>	Complete Tear-Off Cap, clear lacquered	Butyl/PTFE, grey	50° shore A	3.0mm
<b>20 03 0698</b>	Magnetic Cap, gold, 5mm centre hole	Butyl/PTFE, grey	50° shore A	3.0mm
<b>20 03 1186</b>	Magnetic Cap, gold, 8mm centre hole	Butyl/PTFE, grey	50° shore A	3.0mm
<b>20 03 1623</b>	Magnetic Bimetal Cap, red, 8mm centre hole	Butyl/PTFE, grey	50° shore A	3.0mm

Packaging Unit: 100 pcs. per PE-Bag

The liner can also be obtained assembled in any of the (coloured) caps mentioned on top of page 42.

### 10.3.3 Pharma-Fix Seals (Butyl/PTFE)

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

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
20 03 0030	Aluminium Cap, plain, 10mm centre hole	Pharma-Fix-Septa, Butyl/PTFE	50° shore A	3.0mm
20 03 0264	Headspace Cap, clear lacquered	Pharma-Fix-Septa, Butyl/PTFE	50° shore A	3.0mm
20 03 0060	Centre Tear-Off Cap, clear lacquered	Pharma-Fix-Septa, Butyl/PTFE	50° shore A	3.0mm
20 03 0061	Complete Tear-Off Cap, clear lacquered	Pharma-Fix-Septa, Butyl/PTFE	50° shore A	3.0mm
20 03 0710	Magnetic Cap, gold, 5mm centre hole	Pharma-Fix-Septa, Butyl/PTFE	50° shore A	3.0mm
20 03 1200	Magnetic Cap, gold, 8mm centre hole	Pharma-Fix-Septa, Butyl/PTFE	50° shore A	3.0mm

Packaging Unit: 100 pcs. per PE-Bag

The liner can also be obtained assembled in any of the (coloured) caps mentioned on top of page 42.

### 10.3.4 Silicone/PTFE Seals (completely PTFE laminated)

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

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
20 03 0142	Aluminium Cap, plain, 10mm centre hole	Silicone blue transparent/PTFE white <i>UltraClean</i>	45° shore A	3.0mm
20 03 0163	Headspace Cap, clear lacquered	Silicone blue transparent/PTFE white <i>UltraClean</i>	45° shore A	3.0mm
20 03 0226	Centre Tear-Off Cap, clear lacquered	Silicone blue transparent/PTFE white <i>UltraClean</i>	45° shore A	3.0mm
20 03 0227	Complete Tear-Off Cap, clear lacquered	Silicone blue transparent/PTFE white <i>UltraClean</i>	45° shore A	3.0mm
20 03 0665	Magnetic Cap, gold, 5mm centre hole	Silicone blue transparent/PTFE transparent <i>UltraClean</i>	45° shore A	3.0mm
20 03 0975	Magnetic Cap, gold, 8mm centre hole	Silicone blue transparent/PTFE transparent <i>UltraClean</i>	45° shore A	3.0mm
20 03 1536	Magnetic Bimetal Cap, red, 8mm centre hole	Silicone blue transparent/PTFE transparent <i>UltraClean</i>	45° shore A	3.0mm
20 03 0901	Aluminium Cap, plain, 10mm centre hole	Silicone white/PTFE beige ( <i>Agilent HT Quality</i> )	45° shore A	3.2mm
20 03 0828	Headspace Cap, clear lacquered	Silicone white/PTFE beige ( <i>Agilent HT Quality</i> )	45° shore A	3.2mm
20 03 1785	Magnetic Cap, gold, 8mm centre hole	Silicone white/PTFE beige ( <i>Agilent HT Quality</i> )	45° shore A	3.2mm
20 03 1604	Magnetic Bimetal Cap, red, 8mm centre hole	Silicone white/PTFE beige ( <i>Agilent HT Quality</i> )	45° shore A	3.2mm

Packaging Unit: 100 pcs. per PE-Bag

NEW  
NEW

The liners can also be obtained assembled in any of the (coloured) caps mentioned on top of page 42.

### 10.3.5 Silicone/Aluminium foil Seals

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

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
20 03 0327	Aluminium Cap, plain, 10mm centre hole	Silicone white/Aluminium foil silver	50° shore A	3.0mm
20 03 0326	Headspace Cap, clear lacquered	Silicone white/Aluminium foil silver	50° shore A	3.0mm
20 03 0670	Magnetic Cap, gold, 5mm centre hole	Silicone white/Aluminium foil silver	50° shore A	3.0mm

Packaging Unit: 100 pcs. per PE-Bag

The liner can also be obtained assembled in any of the (coloured) caps mentioned on top of page 42.

### 10.3.6 Magnetic Seals for SPME-Vial 20 09 1222 for CTC

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



Art. No.	Description Cap	Septa Material	Durometer	Thickn.
20 03 1246	Magnetic Cap, gold, 8mm centre hole	Silicone white/PTFE blue <i>UltraClean</i>	55° shore A	1.5mm
20 03 1264	Magnetic Cap, gold, 8mm centre hole	Viton black	70° shore A	1.0mm

Packaging Unit: 100 pcs. per PE-Bag

## 10.4 Septa/Stoppers 20mm

							
20 02 0122	20 02 0057	20 02 0035	20 02 0141	20 02 2054	20 02 0638	20 02 0335	20 10 0290
Moulded Septa Butyl, dark grey, 55° shore A, 3.0mm	Moulded Septa Butyl/PTFE, grey, 50° shore A, 3.0mm	Pharma-Fix-Septa (Butyl/PTFE), 50° shore A, 3.0mm	Silicone blue transp./PTFE white, 45° shore A, 3.0mm	Silicone blue transp./PTFE transparent, 45° shore A, 3.0mm	Silicone white/PTFE beige, 45° shore A, 3.2mm (Agilent HT Quality)	Silicone white/Aluminium foil silver, 50° shore A, 3.0mm	20mm Butyl Injection Stopper, grey, rec. by PerkinElmer

Further 20mm Septa available upon request!

Packaging Unit: Septa – 1000 pcs. per PE-Bag  
Stopper – 100 pcs. per PE-Bag

## 10.5 Other Combination Seals for HS-Neck/Crimp Neck ND20

- Seals for washer bottles on the instruments
- Intermediate closure when collecting samples out in the field
- Now also available as PE-Cap with 6mm hole

**NEW**

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
22 15 0321	PE-Cap, transparent, 22 x 8.4mm, 4.3mm centre hole	Nat. Rubber red-orange/TEF transparent	60° shore A	1.3mm
22 15 1697	PE-Cap, transparent, 22 x 8.4mm, 4.3mm centre hole	Butyl red/PTFE grey	55° shore A	1.3mm
22 15 0712	PE-Cap, transparent, 22 x 8.4mm, 4.3mm centre hole	Silicone blue transparent/PTFE white	45° shore A	1.3mm
<i>suitable for 20 09 0297, 20 09 0342, 20 09 0440, 20 09 1223</i>				
22 15 0863	PE-Cap, transparent, 22 x 9.1mm, 4.3mm centre hole	Nat. Rubber red-orange/TEF transparent	60° shore A	1.3mm
22 15 1646	PE-Cap, transparent, 22 x 9.1mm, 4.3mm centre hole	Butyl red/PTFE grey	55° shore A	1.3mm
22 15 1334	PE-Cap, transparent, 22 x 9.1mm, 4.3mm centre hole	Silicone blue transparent/PTFE white	45° shore A	1.3mm
22 15 1824	PE-Cap, transparent, 22 x 9.1mm, 4.3mm centre hole	Silicone blue transparent/PTFE white, Y-slitted	45° shore A	1.3mm
22 15 1869	PE-Cap, transparent, 22 x 9.1mm, 6mm centre hole	Silicone blue transparent/PTFE white, Y-slitted	45° shore A	1.3mm
<i>suitable for 20 09 0289, 20 09 0343, 20 09 0795, 20 09 0796, 20 09 0801, 20 09 0802, 20 09 0873, 20 09 1405, 20 09 1690, 20 09 1691</i>				

Packaging Unit: 100 pcs. per PE-Bag

**NEW**

**NEW**

**NEW**

**NEW**

### 10.5.1 Septa 19.5mm

19 02 0245	19 02 1636	19 02 0693
Nat. Rubber red-orange/TEF transparent, 60° shore A, 1.3mm	Butyl red/PTFE grey, 55° shore A, 1.3mm	Silicone blue transp./PTFE white, 45° shore A, 1.3mm

**NEW**

Packaging Unit: 1000 pcs. per PE-Bag



### 10.5.2 PE-Caps 22mm

22 08 0340	22 08 0257	22 08 1868
22mm PE-Cap, transparent, 4.3mm centre hole, skirt height 8.4mm	22mm PE-Cap, transparent, 4.3mm centre hole, skirt height 9.1mm	22mm PE-Cap, transparent, 6mm centre hole, skirt height 9.1mm

**NEW**

Packaging Unit: 100 pcs. per PE-Bag

## 10.6 Magnetic Universal Screw Seals ND18 for Precision Thread Vials

18 09 1306, 18 09 1310, 18 09 1307, 18 09 1311

for CTC, Agilent, Shimadzu, Varian, Gerstel, PerkinElmer etc.

**NEW**

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

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
18 03 1578	Magnetic Screw Cap silver, 8mm centre hole	Silicone white/PTFE red <i>UltraClean</i>	45° shore A	1.3mm
18 03 1309	Magnetic Screw Cap silver, 8mm centre hole	Silicone blue transparent/PTFE white <i>UltraClean</i>	45° shore A	1.3mm
18 03 1414	Magnetic Screw Cap silver, 8mm centre hole	Silicone white/PTFE blue <i>UltraClean</i>	55° shore A	1.5mm
18 03 1416	Magnetic Screw Cap silver, 8mm centre hole	Butyl red/PTFE grey	55° shore A	1.6mm
18 03 1874	Magnetic Screw Cap silver, 8mm centre hole	Silicone white/Aluminium foil silver	50° shore A	1.3mm
18 03 2063	Magnetic Screw Cap silver, 8mm centre hole (SPME)	Silicone white/PTFE red, pre-cut star (*)	55° shore A	1.5mm
18 03 1666	Magnetic Screw Cap silver, closed top	Silicone white/PTFE red <i>UltraClean</i>	45° shore A	1.3mm
18 03 1667	Magnetic Screw Cap silver, closed top	Butyl red/PTFE grey	55° shore A	1.6mm

Packaging Unit: 100 pcs. per PE-Bag

**NEW**

**NEW**

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



**10.6.1 Septa 17.5mm for Magnetic Universal Screw Seals ND18**

				
<b>17 02 1580</b>	<b>17 02 1417</b>	<b>17 02 1318</b>	<b>17 02 1415</b>	<b>17 02 1873</b>
Silicone white/PTFE red, 45° shore A, 1.3mm	Silicone blue transparent/PTFE white, 45° shore A, 1.3mm	Silicone white/PTFE blue, 55° shore A, 1.5mm	Butyl red/PTFE grey, 55° shore A, 1.6mm	Silicone white/Aluminium foil silver, 50° shore A, 1.3mm
Packaging Unit: 1000 pcs. per PE-Bag				

**10.7 PP Screw Seals ND18 for 18 09 0864**

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
<b>18 15 1386</b>	Polypropylene Screw Cap black, 12mm centre hole	Butyl red/PTFE grey	55° shore A	1.6mm
<b>18 15 1387</b>	Polypropylene Screw Cap black, closed top	Butyl red/PTFE grey	55° shore A	1.6mm
<b>18 15 1398</b>	Polypropylene Screw Cap black, 12mm centre hole	Butyl red/PTFE grey	55° shore A	2.0mm
<b>18 15 1544</b>	Polypropylene Screw Cap black, closed top	Butyl red/PTFE grey	55° shore A	2.0mm
<b>18 15 2102</b>	Polypropylene Screw Cap black, 12mm centre hole	Silicone white/PTFE red	55° shore A	1.5mm
<b>18 15 2069</b>	Polypropylene Screw Cap black, closed top	Silicone white/PTFE red	55° shore A	1.5mm
<b>18 15 0871</b>	Polypropylene Screw Cap black, 12mm centre hole	Silicone blue transparent/PTFE white	45° shore A	1.7mm
<b>18 15 1132</b>	Polypropylene Screw Cap black, closed top	Silicone blue transparent/PTFE white	45° shore A	1.7mm
<b>Further Screw Seals ND18 with closed/open top caps are available upon request!</b>				
Packaging Unit: 100 pcs. per PE-Bag				

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

**10.7.1 Septa 16mm**

<b>16 02 0653</b>	<b>16 02 1384</b>	<b>16 02 1385</b>	<b>16 02 2068</b>	<b>16 02 0870</b>	<b>16 02 0705</b>
Nat. Rubber red-orange/ TEF transparent, 60° shore A, 1.3mm	Butyl red/PTFE grey, 55° shore A, 1.6mm	Butyl red/PTFE grey, 55° shore A, 2.0mm	Silicone white/PTFE red, 55° shore A, 1.5mm	Silicone blue transp./ PTFE white, 45° shore A, 1.7mm	PTFE red/Silicone white/ PTFE red, 45° shore A, 1.0mm
Packaging Unit: 1000 pcs. per PE-Bag					

**10.7.2 PP Screw Caps ND18**

<b>18 08 0516</b>	<b>18 08 0614</b>
Polypropylene Screw Cap, black, 12mm centre hole	Polypropylene Screw Cap, black, closed top
Packaging Unit: 100 pcs. per PE-Bag	

**TIP**

For Vial Racks  
please see chapter  
18.1 on page 57



Universal Magnetic Screw  
Seals ND18 available with  
open and closed top

**TIP**

For 20mm Crimpers and  
Decappers please see  
chapter 17 on pages 55 cont.

**TIP**




Any 20ml Headspace-Vial can  
be obtained with the appropri-  
ate seal as a 2in1 KIT!

## 11. Snap Cap Vials ND18 + ND22



- Easy to handle and inexpensive storage vials with push-on Snap Caps
- Different volumes of 5ml, 10ml, 15ml and 25ml available
- Caps and Vials separately obtainable
- Quickly and easily to reopen and reseal
- No liners are required in the cap

### 11.1 Snap Cap Vials ND18 / ND22 and appropriate Snap Caps

			
<b>18 09 0906</b>	<b>18 09 0907</b>	<b>20 09 0784</b>	<b>22 09 0908</b>
5ml Snap Cap Vial ND18, 40 x 20mm, clear glass, 3 <sup>rd</sup> hydrol. class	10ml Snap Cap Vial ND18, 50 x 22mm, clear glass, 3 <sup>rd</sup> hydrol. class	15ml Snap Cap Vial ND22, 48 x 26mm, clear glass, 3 <sup>rd</sup> hydrol. class	25ml Snap Cap Vial ND22, 65 x 26mm, clear glass, 3 <sup>rd</sup> hydrol. class
100 pcs. per PP-Box	100 pcs. per PP-Box	100 pcs. per cardboard box	100 pcs. per PP-Box
			
<b>18 08 0913</b>	<b>18 08 0913</b>	<b>22 08 0794</b>	<b>22 08 0794</b>
18mm PE Snap Cap, 19.8 x 5.2mm, transparent, closed top, for ND18	18mm PE Snap Cap, 19.8 x 5.2mm, transparent, closed top, for ND18	22mm PE Snap Cap, 23.5 x 5.5mm, transparent, closed top, for ND22	22mm PE Snap Cap, 23.5 x 5.5mm, transparent, closed top, for ND22
100 pcs. per PE-Bag	100 pcs. per PE-Bag	100 pcs. per PE-Bag	100 pcs. per PE-Bag

## 12. Screw Neck ND24 (EPA)

The vials are preferentially used on instruments of the following manufacturers: **Agilent, Dionex, Shimadzu, Tekmar, Thermo Scientific, Varian** (Please have a look at the autosampler compatibility chart on pages 76-85 to see on which models they can be used)









- Broad range of EPA Vials in clear and amber glass
- Volumes of 20ml, 30ml, 40ml and 60ml available
- All types of EPA Vials can be delivered against a small surcharge with a certificate of cleanliness that might especially be needed for TOC analysis. A copy of our certificate of cleanliness is shown under the point "Technical Information" on our website.
- EPA Vials can be obtained with any type of Screw Seal ND24 already screwed on (see also chapter 12.5 + 18.2 "Pre-Screwed/Pre-Crimped Vials")

**NEW**



### 12.1 Screw Neck Vials ND24 (EPA)

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

							
<b>24 09 0589</b>	<b>24 09 0927</b>	<b>24 09 0839</b>	<b>24 09 0923</b>	<b>24 09 0402</b>	<b>24 09 0928</b>	<b>24 09 1089</b>	<b>24 09 1090</b>
20ml EPA Screw Neck Vial, 57 x 27.5mm, clear glass, 1 <sup>st</sup> hydrol. class	20ml EPA Screw Neck Vial, 57 x 27.5mm, amber glass, 1 <sup>st</sup> hydrol. class	30ml EPA Screw Neck Vial, 72.5 x 27.5mm, clear glass, 1 <sup>st</sup> hydrol. class	30ml EPA Screw Neck Vial, 72.5 x 27.5mm, amber glass, 1 <sup>st</sup> hydrol. class	40ml EPA Screw Neck Vial, 95 x 27.5mm, clear glass, 1 <sup>st</sup> hydrol. class	40ml EPA Screw Neck Vial, 95 x 27.5mm, amber glass, 1 <sup>st</sup> hydrol. class	60ml EPA Screw Neck Vial, 140 x 27.5mm, clear glass, 1 <sup>st</sup> hydrol. class	60ml EPA Screw Neck Vial, 140 x 27.5mm, amber glass, 1 <sup>st</sup> hydrol. class
100 pcs. per PP-Box	100 pcs. per PP-Box	100 pcs. per PP-Box	100 pcs. per PP-Box	100 pcs. per PP-Box	100 pcs. per PP-Box	100 pcs. per PP-Box	100 pcs. per PP-Box

## 12.2 PP Screw Seals ND24



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

### 12.2.1 PP Screw Seals ND24 (assembled)

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
24 15 1394	Polypropylene Screw Cap white, 12.5mm centre hole	Butyl red/PTFE grey	55° shore A	2.5mm
24 15 1395	Polypropylene Screw Cap white, closed top	Butyl red/PTFE grey	55° shore A	2.5mm
24 15 1163	Polypropylene Screw Cap white, 12.5mm centre hole	Silicone white/PTFE beige (EPA-Quality)	45° shore A	3.2mm
24 15 1540	Polypropylene Screw Cap white, closed top	Silicone white/PTFE beige (EPA-Quality)	45° shore A	3.2mm
24 15 1007	Polypropylene Screw Cap white, closed top	PTFE/EPDM/PTFE	65° shore A	2.0mm

**Further Screw Seals ND24 with closed/open top are available upon request!**

Packaging Unit: 100 pcs. per PE-Bag

### 12.2.2 UltraBond Seals ND24 (Cap + Liner form an inseparable unit, so that the liner cannot fall out)

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
24 04 0842	PP Screw Cap white, centre hole	Silicone natural/PTFE beige (EPA-Quality)	45° shore A	3.2mm
24 04 0841	PP Screw Cap white, closed top	Silicone natural/PTFE beige (EPA-Quality)	45° shore A	3.2mm

Packaging Unit: 100 pcs. per PE-Bag

### 12.3 Septa 22mm

22 02 1390	22 02 1393	22 02 1108	22 02 0409	22 02 0487
Butyl red/PTFE grey, 55° shore A, 1.6mm (only unassembled)	Butyl red/PTFE grey, 55° shore A, 2.5mm	Silicone white/PTFE beige, 45° shore A, 3.2mm <b>EPA-Quality</b>	Silicone white/ PTFE blue, 55° shore A, 1.5mm, cross-slitted	Silicone white/Alu- minium foil silver, 50° shore A, 3.0mm

Packaging Unit: 1000 pcs. per PE-Bag

### 12.4 PP Screw Caps ND24

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

Packaging Unit: 100 pcs. per PE-Bag

### 12.5 Specially assembled EPA Vials with Screw Seals ND24 **NEW**

Art. No.	Description Vial	Description of Screwed-on Seal
24 14 1513	20ml EPA Screw Neck Vial, 57 x 27.5mm, clear glass, 1 <sup>st</sup> hydrolytic class, (24 09 0589)	UltraBond Seal, white, centre hole, Silicone nat./PTFE beige (EPA-Quality), 45° shore A, 3.2mm (24 04 0842)
24 14 0976	40ml Screw Neck Vial, 95 x 27.5mm, clear glass, 1 <sup>st</sup> hydrolytic class, EPA (24 09 0402)	PP Screw Cap, white, centre hole, Silicone white/PTFE beige, 45° shore A, 3.2mm (24 15 1163)
24 14 1621	40ml Screw Neck Vial, 95 x 27.5mm, clear glass, 1 <sup>st</sup> hydrolytic class, EPA (24 09 0402)	UltraBond Seal, white, centre hole, Silicone natural/PTFE beige (EPA-Quality), 45° shore A, 3.2mm (24 04 0842)
24 14 1538	40ml Screw Neck Vial, 95 x 27.5mm, clear glass, 1 <sup>st</sup> hydrolytic class, EPA (24 09 0402)	UltraBond Seal, white, closed top, Silicone natural/PTFE beige (EPA-Quality), 45° shore A, 3.2mm (24 04 0841)
24 14 1094	40ml Screw Neck Vial, 95 x 27.5mm, amber glass, 1 <sup>st</sup> hydrolytic class, EPA (24 09 0928)	PP Screw Cap, white, centre hole, Silicone white/PTFE beige, 45° shore A, 3.2mm (24 15 1163)
24 14 1278	60ml Screw Neck Vial, 140 x 27.5mm, clear glass, 1 <sup>st</sup> hydrolytic class, EPA (24 09 1089)	PP Screw Cap, white, centre hole, Silicone white/PTFE beige, 45° shore A, 3.2mm (24 15 1163)
24 14 1354	60ml Screw Neck Vial, 140 x 27.5mm, clear glass, 1 <sup>st</sup> hydrolytic class, EPA (24 09 1089)	UltraBond Seal, white, centre hole, Silicone natural/PTFE beige (EPA-Quality), 45° shore A, 3.2mm (24 04 0842)

**Further Screw Neck Vials ND24 with screwed-on open top/closed top Screw Seals are available upon request!**

Packaging Unit: 100 pcs. per PP-Box



## 13. 96 Position Block Systems

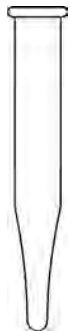







- 96 Position Block Systems (RITTER) with Glass Inserts are used in combinatorial chemistry when the pure PP Block is not inert enough.
- These Inserts that are custom-tailored to fit a broad variety of 96 Well Blocks of Messrs. RITTER can either be sealed individually with a PE Cap Seal or over the whole block with a Sealmat block cover.
- The products can be obtained as individual components or as completely assembled, ready-to-use convenience blocks.



### 13.1 96 Position Block Systems with Glass Inserts, sealed individually

<b>08 20 0897</b>	<b>08 20 0911</b>	<b>08 20 0905</b>	<b>08 20 0943</b>
Deep Well Block "riplate", PP, 96 positions (RITTER), filled with 0.35ml Micro-Insert, 42.5 x 6mm, clear glass, 1 <sup>st</sup> hydrol. class, 17mm top, with assembled 9mm PE Cap red, 9 x 5.9mm, 4mm centre hole, Silicone white/PTFE red, with slit, 45° shore A, 1.9mm	Square Well Block "riplate", PP, 96 positions (RITTER), filled with 1ml Micro-Insert, 45.9 x 7.6mm, clear glass, 1 <sup>st</sup> hydrol. class, round bottom, with assembled 9mm PE Cap red, 9 x 5.9mm, 4mm centre hole, Silicone white/PTFE red, with slit, 45° shore A, 1.9mm	Micro-Tube-Rack-System, PP, 96 positions (RITTER), filled with 0.8ml Micro-Insert, 40 x 7.6mm, clear glass, 1 <sup>st</sup> hydrol. class, U-shaped bottom, with assembled 8mm PE-Plug blue	Microtiter-Plate, PP, 96 positions (RITTER), filled with 0.1ml Micro-Insert, 15.5 x 5.7mm, clear glass, 1 <sup>st</sup> hydrol. class, flat bottom, with assembled 9mm PE Cap red, 9 x 5.9mm, 4mm centre hole, Silicone white/PTFE red, with slit, 45° shore A, 1.9mm
<b>08 05 0890 + 08 14 0889</b>	<b>08 05 0894 + 08 14 0910</b>	<b>08 05 0895 + 08 14 0904</b>	<b>08 05 0944 + 08 14 0876</b>
1 pc. shrink-wrapped	1 pc. shrink-wrapped	1 pc. shrink-wrapped	1 pc. shrink-wrapped
<b>08 14 0889</b>	<b>08 14 0910</b>	<b>08 14 0904</b>	<b>08 14 0876</b>
0.35ml DW-Micro-Insert, 42.5 x 6mm, clear glass, 1 <sup>st</sup> hydrol. class, 17mm top, with assembled 9mm PE Cap red, 9 x 5.9mm, 4mm centre hole, Silicone white/PTFE red, with slit, 45° shore A, 1.9mm	1ml SQW-Micro-Insert, 45.9 x 7.6mm, clear glass, 1 <sup>st</sup> hydrol. class, round bottom, with assembled 9mm PE Cap red, 9 x 5.9mm, 4mm centre hole, Silicone white/PTFE red, with slit, 45° shore A, 1.9mm	0.8ml MTRS-Micro-Insert, 40 x 7.6mm, clear glass, 1 <sup>st</sup> hydrol. class, U-shaped bottom, with assembled 8mm PE-Plug blue	0.1ml MTP-Micro-Insert, 15.5 x 5.7mm, clear glass, 1 <sup>st</sup> hydrol. class, flat bottom, with assembled 9mm PE Cap red, 9 x 5.9mm, 4mm centre hole, Silicone white/PTFE red, with slit, 45° shore A, 1.9mm
<b>08 09 0888 + 09 15 0763</b>	<b>08 09 0909 + 09 15 0763</b>	<b>08 09 0903 + 08 08 0902</b>	<b>08 09 0875 + 09 15 0763</b>
10 x 96 pcs. per PP-Box	10 x 96 pcs. per PP-Box	10 x 96 pcs. per PP-Box	10 x 96 pcs. per PP-Box

### 13.1 96 Position Block Systems with Glass Inserts, sealed individually (cont.)

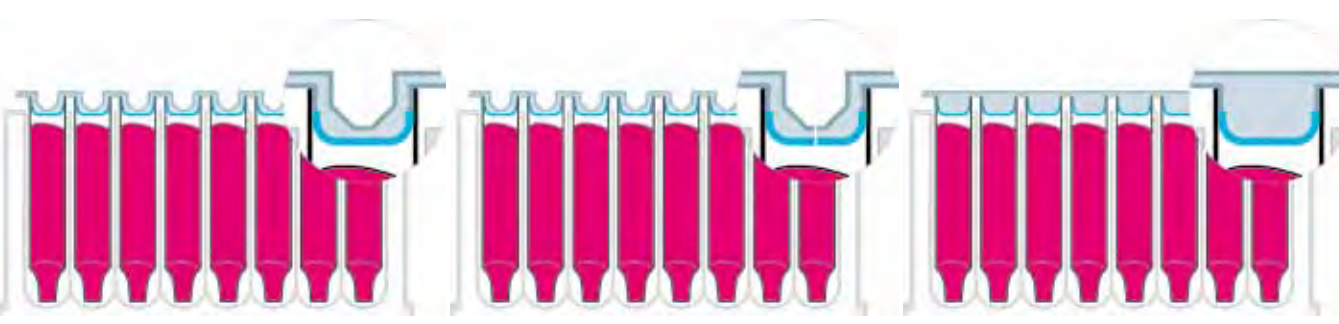
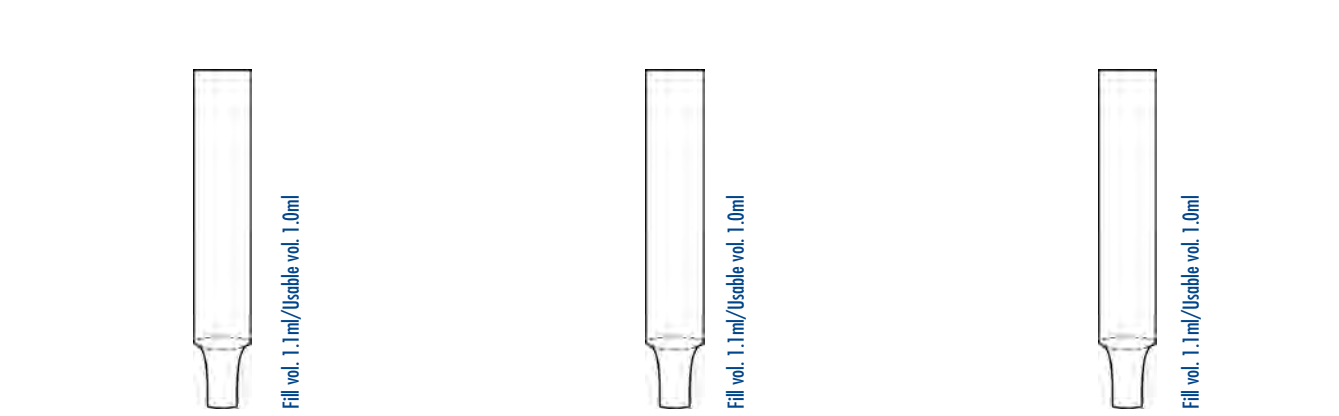
			
Fill vol. 0.45ml/Usable vol. 0.4ml	Fill vol. 1.2ml/Usable vol. 1.1ml	Fill vol. 0.9ml/Usable vol. 0.8ml	Fill vol. 0.2ml/Usable vol. 0.15ml
<b>08 09 0888</b>	<b>08 09 0909</b>	<b>08 09 0903</b>	<b>08 09 0875</b>
0.35ml DW-Micro-Insert, 42.5 x 6mm, clear glass, 1 <sup>st</sup> hydrol. class, 17mm top	1ml SQW-Micro-Insert, 45.9 x 7.6mm, clear glass, 1 <sup>st</sup> hydrol. class, round bottom	0.8ml MTRS-Micro-Insert, 40 x 7.6mm, clear glass, 1 <sup>st</sup> hydrol. class, U-shaped bottom	0.1ml MTP-Micro-Insert, 15.5 x 5.7mm, clear glass, 1 <sup>st</sup> hydrol. class, flat bottom
10 x 96 pcs. per PP-Box	10 x 96 pcs. per PP-Box	10 x 96 pcs. per PP-Box	10 x 96 pcs. per PP-Box
			
<b>09 15 0763</b>	<b>09 15 0763</b>	<b>08 08 0902</b>	<b>09 15 0763</b>
9mm PE Cap red, 9 x 5.9mm, 4mm centre hole, Silicone white/PTFE red, with slit, 45° shore A, 1.9mm	9mm PE Cap red, 9 x 5.9mm, 4mm centre hole, Silicone white/PTFE red, with slit, 45° shore A, 1.9mm	8mm PE-Plug blue	9mm PE Cap red, 9 x 5.9mm, 4mm centre hole, Silicone white/PTFE red, with slit, 45° shore A, 1.9mm
96 pcs. per PE-Bag	96 pcs. per PE-Bag	96 pcs. per PE-Bag	96 pcs. per PE-Bag
<b>08 05 0890</b>	<b>08 05 0894</b>	<b>08 05 0895</b>	<b>08 05 0944</b>
Deep Well Block "riplate", Polypropylene, 96 positions (RITTER)	Square Well Block "riplate", Polypropylene, 96 positions (RITTER)	Micro-Tube-Rack-System, Polypropylene, 96 positions (RITTER)	Microtiter-Plate, Polypropylene, 96 positions (RITTER)
10 pcs. per carton	10 pcs. per carton	10 pcs. per carton	10 pcs. per carton

### 13.2 96 Position Block Systems with Glass Inserts, sealed with a Sealmat Block Cover

- Sealmat Block covers are made out of Silicone and laminated with a deep-drawn PTFE-Film - like a septa. By laminating the cover with a PTFE-Film instead of spraying it with PTFE it is ensured that a continuous and homogeneous barrier protects the sample from any contamination before, during and after the penetration process.
- The specially designed Micro-Inserts that go along with this sealing system are a little bit higher than the block, so that they are easily exchangeable. They fit into the RITTER Square Well Block and are suitable for volumes up to 1 ml. The conical top of the Insert allows collection of even very small sample volumes by the needle. Their wide opening reduces the building of vacuum and so avoids sample loss when removing the Sealmat block cover.
- The Sealmat is available in three versions for different applications:
  - with welled plugs for easy penetration during analysis
  - with welled plugs and slit for pipettes and for avoiding vacuum in the insert in case of multiple injections
  - with solid plugs for sample storage

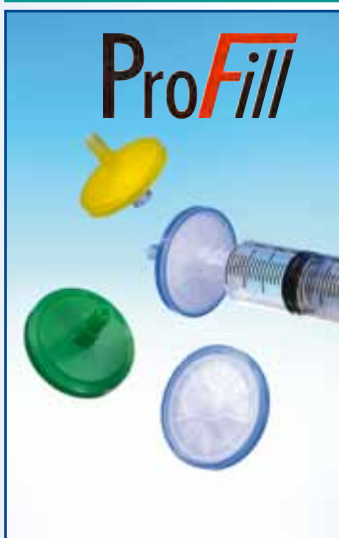


## 13.2 96 Position Block Systems with Glass Inserts, sealed with a Sealmat Block Cover (cont.)

08 20 1171	08 20 1181	08 20 1182
Square Well Block "riplate", PP, 96 positions (RITTER), filled with 1ml Micro-Insert, 45 x 7.6mm, clear glass, 1 <sup>st</sup> hydrol. class, 8mm top, covered with Sealmat 08 29 1082 (welled plugs for easy penetration)	Square Well Block "riplate", PP, 96 positions (RITTER), filled with 1ml Micro-Insert, 45 x 7.6mm, clear glass, 1 <sup>st</sup> hydrol. class, 8mm top, covered with Sealmat 08 29 1107 (welled plugs + slit for pipettes)	Square Well Block "riplate", PP, 96 positions (RITTER), filled with 1ml Micro-Insert, 45 x 7.6mm, clear glass, 1 <sup>st</sup> hydrol. class, 8mm top, covered with Sealmat 08 29 1148 (solid plugs for sample storage)
08 05 0894 + 08 09 1081 + 08 29 1082	08 05 0894 + 08 09 1081 + 08 29 1107	08 05 0894 + 08 09 1081 + 08 29 1148
1 pc. shrink wrapped	1 pc. shrink wrapped	1 pc. shrink wrapped
		
08 29 1082	08 29 1107	08 29 1148
Sealmat Block cover Silicone nat./PTFE blue transp., with welled plugs for easy penetration	Sealmat Block cover Silicone nat./PTFE blue transp., with welled plugs + slit for pipettes	Sealmat Block cover Silicone nat./PTFE blue transp., with solid plugs for sample storage
1 pc. per PE-Bag	1 pc. per PE-Bag	1 pc. per PE-Bag
		
08 09 1081	08 09 1081	08 09 1081
1ml SQW Micro-Insert, 45 x 7.6mm, clear glass, 1 <sup>st</sup> hydrol. class, 8mm top	1ml SQW Micro-Insert, 45 x 7.6mm, clear glass, 1 <sup>st</sup> hydrol. class, 8mm top	1ml SQW Micro-Insert, 45 x 7.6mm, clear glass, 1 <sup>st</sup> hydrol. class, 8mm top
10 x 96 pcs. per PP-Box	10 x 96 pcs. per PP-Box	10 x 96 pcs. per PP-Box
08 05 0894	08 05 0894	08 05 0894
Square Well Block "riplate", Polypropylene, 96 positions (RITTER)	Square Well Block "riplate", Polypropylene, 96 positions (RITTER)	Square Well Block "riplate", Polypropylene, 96 positions (RITTER)
10 pcs. per carton	10 pcs. per carton	10 pcs. per carton

## 14. ProFill 25mm HPLC Syringe Filters, 17mm HPLC Syringe Filters and 30mm HPLC Syringe Filters with Glass Fibre Prefilter

### 14.1 ProFill HPLC Syringe Filters


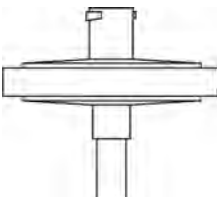


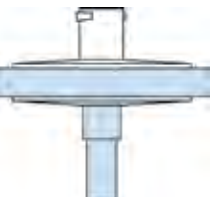



The ProFill HPLC Syringe Filters are suitable best for sample volumes of 1.5ml up to 100ml, as sample retention can be reduced down to < 0.1ml, if you press with air after filtration. The effective filter area of 3.7cm<sup>2</sup> allows a quicker filtration as for example with 13mm filters.

The ultrasonically welded Polypropylene housing of the ProFill Syringe Filters ensures high pressure resistance. The membrane is fixed in the housing in such a way that a by-passing of the sample liquid is impossible. The colour-coding enables easy identification of the filter's membrane type. Furthermore membrane type and pore size are printed onto the PE-Bag, in which the filters are tamper-proof evidently packed with 100 pieces each. An additional blue recloseable PP-Box offers further protection for the filters during transportation.

Due to their Luer-Lock-Inlet (female) an easy and safe installation of the filter on the syringe is guaranteed. The outlet is designed as Luer-Slip (male). Thorough quality controls before and after the manufacturing process guarantee a constantly high quality of the membrane material as well as of the complete filter unit.

**NEW**

					
25 16 0346	25 16 0347	25 16 0348	25 16 0349	25 16 0350	25 16 0351
<b>ProFill</b> 25mm HPLC Syringe Filter, PTFE, green, 0.20µm	<b>ProFill</b> 25mm HPLC Syringe Filter, PTFE, natural, 0.45µm	<b>ProFill</b> 25mm HPLC Syringe Filter, Regenerated Cellulose (RC), blue, 0.20µm	<b>ProFill</b> 25mm HPLC Syringe Filter, Regenerated Cellulose (RC), yellow, 0.45µm	<b>ProFill</b> 25mm HPLC Syringe Filter, Nylon (PA), bright blue, 0.20µm	<b>ProFill</b> 25mm HPLC Syringe Filter, Nylon (PA), bright green, 0.45µm
100 pcs. per PE-Bag add. packed in a blue PP-Box	100 pcs. per PE-Bag add. packed in a blue PP-Box	100 pcs. per PE-Bag add. packed in a blue PP-Box	100 pcs. per PE-Bag add. packed in a blue PP-Box	100 pcs. per PE-Bag add. packed in a blue PP-Box	100 pcs. per PE-Bag add. packed in a blue PP-Box
Hydrophobic (water repellent)	Hydrophobic (water repellent)	Hydrophilic	Hydrophilic	Hydrophilic	Hydrophilic
Sample Retention < 0.1ml Pressure Rating: 500kPa (= 5bar = 72psi) Effective Filter Area: 3.7cm <sup>2</sup> Luer-Lock-Inlet (female) Luer-Slip (male)	Sample Retention < 0.1ml Pressure Rating: 500kPa (= 5bar = 72psi) Effective Filter Area: 3.7cm <sup>2</sup> Luer-Lock-Inlet (female) Luer-Slip (male)	Sample Retention < 0.1ml Pressure Rating: 500kPa (= 5bar = 72psi) Effective Filter Area: 3.7cm <sup>2</sup> Luer-Lock-Inlet (female) Luer-Slip (male)	Sample Retention < 0.1ml Pressure Rating: 500kPa (= 5bar = 72psi) Effective Filter Area: 3.7cm <sup>2</sup> Luer-Lock-Inlet (female) Luer-Slip (male)	Sample Retention < 0.1ml Pressure Rating: 500kPa (= 5bar = 72psi) Effective Filter Area: 3.7cm <sup>2</sup> Luer-Lock-Inlet (female) Luer-Slip (male)	Sample Retention < 0.1ml Pressure Rating: 500kPa (= 5bar = 72psi) Effective Filter Area: 3.7cm <sup>2</sup> Luer-Lock-Inlet (female) Luer-Slip (male)
chemically high resistant	chemically high resistant	good moistening properties, wet durable	good moistening properties, wet durable	high mechanical stability, i.e. wet + dry durable	high mechanical stability, i.e. wet + dry durable
for organic solutions, agressive acids and bases or cryo liquids	for organic solutions, agressive acids and bases or cryo liquids	for aqueous and organic media, not suitable for agressive acids and bases	for aqueous and organic media, not suitable for agressive acids and bases	for aqueous and organic media (often used for pharmac. application)	for aqueous and organic media (often used for pharmac. application)
Acetic acid (10%/25%/100%), Acetic acid anhydride, Acetone, Aluminium chloride, Ammonia (1 M/6 M), Ammonium fluoride, Amyl acetate, Benzaldehyde, Benzoic acid, Benzol, Boric acid, Bromine, i-Butanol, n-Butanol, Butyric acid, Butyl acetate, Carbonic acid, Carbon tetrachloride, Chloramine, Chlorobenzene, Chloroacetic acid, Cresol, Chromic acid, Cyclohexane, Cyclohexanol, Cyclohexanone, Diethyl acetamide, Diethyleneglycol, Dimethyl acetamide, Dimethyl formamide, Dimethyl sulfoxide, Ethanol < 98%, Ethyl acetate, Ethylene glycol, Ethylglycol, Formaldehyde (30%), Formic acid (25%/conc.), Heptane, Hexane, 1-Hexanol, Hydrochloric acid (25%/conc.), Hydrogen peroxide (30%), Hydrogen sulphide, Magnesium hydroxide, Methanol, Methyl acetate, Methylene chloride, Methyl glycol, Nitric acid (25%), Nitrobenzene, Oleic acid, Oxalic acid, Paraffin, Pentane, Perchloroethylene, Perchloric acid (1 M), Petroleum ether, Phenol, Phosphoric acid (25%/45%/conc.), Potassium hydroxide (1 M/6 M), i-Propanol, n-Propanol, Propyl acetate, i-Propyl acetate, Propylene glycol, i-Propyl ether, Sodium hydroxide (1 M/6 M), Sodium hypochlorite (20%), Saline solutions (aqueous), Sulphuric acid (25%), Terpineol, Tetrachloroethane, Tetralin, Toluene, Trichloroacetic acid (10%), Trichloroethane, Trichloroethylene, Urea, Xylene		Acetic acid (10%/25%), Acetone, Acetonitrile, Aluminium chloride, Ammonia(1 M) Ammonium fluoride, Amyl acetate, Benzaldehyde, Benzoic acid, Benzol, Boric acid, i-Butanol, n-Butanol, Butyric acid, Butyl acetate, Butyl cellosolve, Carbonic acid, Carbon tetrachloride, Chloramine, Chlorobenzene, Chloroform, Chromic acid, Cyclohexane, Cyclohexanol, Cyclohexanone, Diethyl acetamide, Diethyleneglycol, Diethylether, Dimethyl acetamide, 1.4-Dioxan, Ethanol < 98%, Ethyl acetate, Ethylene glycol, Ethylglycol, Formic acid (25%), Heptane, Hexane, Hydrochloric acid (25%), Hydrogen peroxide (30%), Hydrogen sulphide, Methanol, Methyl acetate, Methylene chloride, Methyl glycol, Nitric acid (25%/conc.), Perchloroethylene, Perchloric acid (1 M), Phosphoric acid (25%), i-Propanol, n-Propanol, Propyl acetate, i-Propyl acetate, Propylene glycol, i-Propyl ether, Saline solutions (aqueous), Sulphuric acid (25%), Tetrachloroethane, Tetrahydrofuran, Toluene, Trichloroacetic acid (10%),Trichloroethylene, Urea, Xylene		Acetone, Acetonitrile, Ammonium hydroxide (3N/6N), Amyl acetate, Amyl alcohol, Benzol, Butanol, Butyl acetate, Chloroform, Diethyl acetamide, Diethylether, Dimethyl formamide, Dimethyl sulfoxide, 1.4-Dioxan, Ethanol, Ethyl acetate, Ethylene dichloride, Ethylene glycol, Formaldehyde (37%/4%), Glycerol, Hexane (dry), Kerosene, Methanol, Methyl acetate, Potassium hydroxide (3N), i-Propanol, i-Propylacetate, Sodium hydroxide (1N), Tetrachloro carbonide, Tetrahydrofuran, Toluene, Urea, Xylene	
The indications on chemical resistance are only empirical data without any guarantee. Substances that are not indicated are either not suitable for the membrane material or there is no empirical data available.					

The indications on chemical resistance are only empirical data without any guarantee. Substances that are not indicated are either not suitable for the membrane material or there is no empirical data available.



## 14.2 17mm HPLC Syringe Filters

- 17mm HPLC Syringe Filters for small sample volumes
- Sample Retention < 0.29ml
- Pressure Rating: 790 kPa (= 7.9 bar / = 115 psi)
- Filter Area: 1.33 cm<sup>2</sup>
- With Luer-Lock-Inlet (female) and Luer-Slip (male)



<b>17 16 2076</b>	<b>17 16 2077</b>	<b>17 16 2078</b>	<b>17 16 2079</b>	<b>17 16 2080</b>	<b>17 16 2081</b>	<b>17 16 2082</b>	<b>17 16 2083</b>
17mm HPLC Syringe Filter PTFE, 0.2µm, Injection-moulded ring blue + Print of the membrane type	17mm HPLC Syringe Filter PTFE, 0.45µm, Injection-moulded ring yellow + Print of the membrane type	17mm HPLC Syringe Filter Regenerated Cellulose (RC), 0.2µm, Injection-moulded ring grey + Print of the membrane type	17mm HPLC Syringe Filter Regenerated Cellulose (RC), 0.45µm, Injection-moulded ring brown + Print of the membrane type	17mm HPLC Syringe Filter Nylon (PA), 0.2µm, Injection-moulded ring purple + Print of the membrane type	17mm HPLC Syringe Filter Nylon (PA), 0.45µm, Injection-moulded ring green + Print of the membrane type	17mm HPLC Syringe Filter Glass Fibre Prefilter/PVDF 0.2µm, Injection-moulded ring black + Print of the membrane type	17mm HPLC Syringe Filter Glass Fibre Prefilter/PVDF 0.45µm, Injection-moulded ring red + Print of the membrane type
Hydrophobic (water repellent)	Hydrophobic (water repellent)	Hydrophilic	Hydrophilic	Hydrophilic	Hydrophilic	Hydrophilic	Hydrophilic

100 pcs. per PE-Bag, add. packed in a blue PP-Box

## 14.3 30mm HPLC Syringe Filters with Glass Fibre Prefilter

- 30mm HPLC Syringe Filters with Glass Fibre Prefilter
- Sample Retention < 1.37ml
- Pressure Rating: 620 kPa (= 6.2 bar / = 90 psi)
- Filter Area: 4.91 cm<sup>2</sup>
- With Luer-Lock-Inlet (female) and Luer-Slip (male)



<b>30 16 2086</b>	<b>30 16 2087</b>	<b>30 16 2088</b>	<b>30 16 2089</b>	<b>30 16 2090</b>	<b>30 16 2091</b>	<b>30 16 2092</b>	<b>30 16 2093</b>
30mm HPLC Syringe Filter Glass Fibre Prefilter/PTFE, 0.2µm, Injection-moulded ring blue + Print of the membrane type	30mm HPLC Syringe Filter Glass Fibre Prefilter/PTFE, 0.45µm, Injection-moulded ring yellow + Print of the membrane type	30mm HPLC Syringe Filter Glass Fibre Prefilter/Regenerated Cellulose (RC), 0.2µm, Injection-moulded ring grey + Print of the membrane type	30mm HPLC Syringe Filter Glass Fibre Prefilter/Regenerated Cellulose (RC), 0.45µm, Injection-moulded ring brown + Print of the membrane type	30mm HPLC Syringe Filter Glass Fibre Prefilter/Nylon (PA), 0.2µm, Injection-moulded ring purple + Print of the membrane type	30mm HPLC Syringe Filter Glass Fibre Prefilter/Nylon (PA), 0.45µm, Injection-moulded ring green + Print of the membrane type	30mm HPLC Syringe Filter Glass Fibre Prefilter/PVDF 0.2µm, Injection-moulded ring black + Print of the membrane type	30mm HPLC Syringe Filter Glass Fibre Prefilter/PVDF 0.45µm, Injection-moulded ring red + Print of the membrane type
Hydrophobic (water repellent)	Hydrophobic (water repellent)	Hydrophilic	Hydrophilic	Hydrophilic	Hydrophilic	Hydrophilic	Hydrophilic

100 pcs. per PE-Bag, add. packed in a blue PP-Box

Art. No.	Description Filter	Packaging Unit
<b>30 16 2094</b>	30mm HPLC Syringe Filter, Glass Fibre, 1.2 µm, Injection-moulded ring orange + print of the membrane type for the filtration of big particles	100 pcs. per PE bag, add. packed in a blue PP-Box





## 15. GC Injection Port Septa



- Universal, longlife GC-Septa
- Suitable for inlet temperatures of up to 340°C
- Low bleeding (release of Siloxanes)
- Good penetration and sealing properties (low fragmentation)
- Long lifetime
- No sticking to hot surfaces, so easily exchangeable
- Ready-to-use; no further pre-treatment necessary
- Packed with 25 pieces in a resealable amber Screw Neck Vial of 1<sup>st</sup> hydrol. class
- Available for all common gas chromatographs; compatibility as shown below

07 18 0935	09 18 0936	10 18 0937	11 18 0938	12 18 0939	17 18 0940
Shimadzu Plug, transparent	9.5mm Universal HT Injection Port Septa, transparent	10mm Universal HT Injection Port Septa, transparent	11mm Universal HT Injection Port Septa, transparent	12.5mm Universal HT Injection Port Septa, transparent	17mm Universal HT Injection Port Septa, transparent
25 pcs. in an amber Screw Neck Vial	25 pcs. in an amber Screw Neck Vial	25 pcs. in an amber Screw Neck Vial	25 pcs. in an amber Screw Neck Vial	25 pcs. in an amber Screw Neck Vial	25 pcs. in an amber Screw Neck Vial
<b>Shimadzu, all models</b>	<b>Agilent (HP),</b> 5700/5880 Series <b>Varian,</b> Injector Type: Packed Columns <b>Varian (CP),</b> all models <b>Tracor,</b> 550, 560 <b>Gow-Mac,</b> all models <b>Finnigan,</b> 9001, QCQ™, GCQ™, Trace™2000 <b>Antek</b> <b>Unicam,</b> 4600	<b>Agilent (HP),</b> 5890/6890 Series 5700/5880 Series <b>Varian,</b> Injector Type: Split/Splitless	<b>Agilent (HP),</b> 5890/6850/6890 Series, 5700/5880 Series, 5880A Series <b>Varian,</b> 3300, 3400, 3500, 3600, 3700, Vista (Split/Splitless) <b>Gow-Mac,</b> 6890 Series <b>PerkinElmer,</b> Sigma Series, 900, 990 8000 Series Autosys (XL)	<b>Tracor,</b> 220, 222	<b>Thermo Scientific</b> <b>Quest,</b> Trace <b>Fisons/Carlo Erba</b> 8000 Series <b>Finnigan,</b> GCQ w/Trace™

## 16. GC Capillary Connectors



02 17 0472		02 17 0473		
Universal Capillary Connector for 2 columns		Universal Y-Capillary Connector for 3 columns		For precise connections of Fused-Silica Capillary Columns in GC  Universal Capillary Connectors connect all columns with an inner diameter of 0.20 - 0.53mm and an outer diameter of 0.30 - 0.75mm
10 pcs. per PP-Box		1 pc. per PP-Box		

## 17. Crimping Tools

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



**An inappropriate crimp can be recognized by:**

Correct Crimp					
	Untight Aluminium edge	Upward bulge of the crimp cap	Deformation of the crimp cap sides	Convex looking liner	Rounded edges/Upward bulge of the Cap/Liner
Flat cap surface Flat septa surface  Tight fitting of the Aluminium edge Plain + undeformed cap sides	Adjust crimping pressure with the screw in the handle + Adjust crimping height with the hexogen key (s. below) (undercrimped)	Adjust crimping pressure with the screw in the handle + Adjust crimping height with the hexogen key (s. below) (overcrimped)	Adjust crimping height with the hexogen key (s. below) (overcrimped)	Adjust crimping pressure with the screw in the handle (overcrimped)	Especially with Headspace Caps it is important not to overcrimp them. If the Aluminium is stretched too much under the crimp neck, the bridges of the scorelines suffer too much stress and can break open at even low pressure (below 3 bars) or - in worst case - can even tear apart beside the scorelines (overcrimped)

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

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



### 17.1 Manual Crimping Tools

08 06 0005	11 06 0006	13 06 0007	20 06 0008	28 06 0320	32 06 0135
Crimper for 8mm Aluminium Caps	Crimper for 11mm Aluminium Caps	Crimper for 13mm Aluminium Caps	Crimper for 20mm Aluminium Caps	Crimper for 28mm Aluminium Caps	Crimper for 32mm Aluminium Caps
1 pc. per PP-Box	1 pc. per PP-Box	1 pc. per PP-Box	1 pc. per PP-Box	1 pc. per PP-Box	1 pc. per PP-Box

You can download the appropriate instruction for the adjustment of our crimpers from our Website as PDF-File. (Icon "Products"; Subchapter "Crimping Tools")

### 17.1 Manual Crimping Tools (cont.)

13 06 0069	13 06 0319	20 06 0043	20 06 0170	28 06 0190	
Crimper for 13mm Flip Top/Flip Off Seals	Crimper for 13mm Flip Tear Up Seals	Crimper for 20mm Flip Top/Flip Off Seals	Crimper for 20mm Flip Tear Up Seals	Crimper for 28mm Flip Top/Flip Off Seals	Special sizes and Crimpers for Pump Spray Closures on request!
1 pc. per PP-Box	1 pc. per PP-Box	1 pc. per PP-Box	1 pc. per PP-Box	1 pc. per PP-Box	

### 17.2 Manual Decapping Tools

08 07 0001	11 07 0002	13 07 0003	20 07 0004	28 07 0092	32 07 0078
Decapper for 8mm Aluminium Caps	Decapper for 11mm Aluminium Caps	Decapper for 13mm Aluminium Caps	Decapper for 20mm Aluminium Caps	Decapper for 28mm Aluminium Caps	Decapper for 32mm Aluminium Caps
1 pc. per PP-Box	1 pc. per PP-Box	1 pc. per PP-Box	1 pc. per PP-Box	1 pc. per PP-Box	1 pc. per PP-Box

### 17.3 Pneumatic Hand-held Crimping Tool



- Crimping and decapping tool, operated by compressed air (6.2bar = 90psi minimum net pressure)
- Easy handling; just by pushing the button the vial is crimped or decapped
- Interchangeable "K"-Heads for crimping and decapping in various sizes (pls. see chapters 17.4 + 17.5)
- Adjustable, constant and reproduceable crimping pressure
- Space-saving installation with a balancer above the working bench
- Ergonomical handling, as the balancer compensates the weight of the pneumatic crimper and facilitates steady and precise crimping
- Inlet air supply connector G 1/4 " thread (female); connection to be provided by customer
- The pneumatic crimping tool can be delivered with stand and foot switch or with hanging device and trigger in the handle
- CE mark of conformity

**NEW**

You can download the appropriate instruction for the handling of our Pneumatic Crimping Tool from our Website as PDF-File. (Icon "Products"; Subchapter "Crimping Tools")

00 00 0089	00 00 0120	00 00 1898	<b>NEW</b>
Pneumatic Basic Crimping Tool, including pressure regulator, safety valve and Nylon (PA) twisted hose	Hanging device with balancer	Stand with foot switch for pneumatic basic crimping tool	
1 pc. per carton	1 pc. per carton	1 pc. per carton	



### 17.4 Crimping Heads for Pneumatic Hand-held Crimping Tool

08 06 0149	11 06 0150	13 06 0134	20 06 0088	32 06 0151
Crimping Head for 8mm Aluminium Caps	Crimping Head for 11mm Aluminium Caps	Crimping Head for 13mm Aluminium Caps	Crimping Head for 20mm Aluminium Caps	Crimping Head for 32mm Aluminium Caps
1 pc. per carton	1 pc. per carton	1 pc. per carton	1 pc. per carton	1 pc. per carton
13 06 0091	20 06 0090	20 06 0148	28 06 0191	32 06 0192
Crimping Head for 13mm Flip Top/Flip Off Seals	Crimping Head for 20mm Flip Top/Flip Off Seals	Crimping Head for 20mm Flip Tear Up Seals	Crimping Head for 28mm Flip Top/Flip Off Seals	Crimping Head for 32mm Flip Top/Flip Off Seals
1 pc. per carton	1 pc. per carton	1 pc. per carton	1 pc. per carton	1 pc. per carton
<b>Special sizes on request!</b>				



### 17.5 Decapping Heads for Pneumatic Hand-held Crimping Tool

08 07 0153	11 07 0107	13 07 0154	20 07 0155	28 07 0156	32 07 0157
Decapping Head for 8mm Aluminium Caps	Decapping Head for 11mm Aluminium Caps	Decapping Head for 13mm Aluminium Caps	Decapping Head for 20mm Aluminium Caps	Decapping Head for 28mm Aluminium Caps	Decapping Head for 32mm Aluminium Caps
1 pc. per carton	1 pc. per carton	1 pc. per carton	1 pc. per carton	1 pc. per carton	1 pc. per carton



## 18. Other Accessories or Special Services


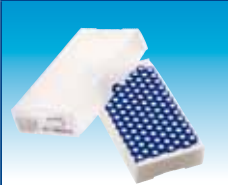
### 18.1 Vial Racks

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



08 21 1000	12 21 1001	15 21 1664	24 21 1002
Vial Rack, Acrylic, 173 x 95 x 20mm, 50 cavities with a diameter of 8.5/3mm	Vial Rack, Acrylic, 173 x 95 x 20mm, 50 cavities with a diameter of 12mm	Vial Rack, Acrylic, 175.8 x 115.5 x 20mm 40 cavities with a diameter of 15.1mm	Vial Rack, Acrylic, 160 x 160 x 30mm, 25 cavities with a diameter of 24mm
1 piece shrink-wrapped	1 piece shrink-wrapped	1 piece shrink-wrapped	1 piece shrink-wrapped
Suitable for e.g.: 08 09 0258, 08 09 0284, 08 09 0305, 08 09 0606, 08 09 0845, 08 09 0953, 08 09 1080, 08 14 0513, 08 14 0595, 08 14 0641, 08 14 1168, 08 14 1169 40 09 0146	Suitable for e.g.: 10 09 0743, 10 09 1196, 10 09 1197, 11 09 0210, 11 09 0259, 11 09 0356, 11 09 0382, 11 09 0415, 11 09 0417, 11 09 0419, 11 09 0476, 11 09 0477, 11 09 0500, 11 09 0519, 11 09 0520, 11 09 0619, 11 09 0620, 11 09 0627, 11 09 0644, 11 09 0645, 11 09 0831, 11 09 0921, 11 09 0999, 11 09 1241, 11 09 1242, 11 09 1956, 11 09 1957, 11 14 0544, 11 14 0545, 11 14 1189, 11 14 1190, 11 14 1655, 11 14 1656, 11 19 0932, 11 19 0933, 11 19 1021, 11 19 1022, 11 19 1205, 11 19 1516, 11 19 1706, 11 19 1707	Suitable for e.g.: 13 09 0222, 13 09 0280, 13 09 1335, 13 09 1336, 15 14 0548, 15 14 0562	Suitable for e.g.: 18 09 0864, 18 09 0906, 18 09 0907, 18 09 1306, 18 09 1307, 18 09 1310, 18 09 1311, 20 09 0297, 20 09 0342, 20 09 0440, 20 09 0795, 20 09 0796, 20 09 0801, 20 09 0802, 20 09 0873, 20 09 1222, 20 09 1223, 20 09 1405, 20 09 1690, 20 09 1691

### 18.2 Special Services

Barcode Labelling of Vials	
	<p>In cases of high sample throughput often barcoded vials are requested. Through the barcode the sample can be traced from sample preparation through the whole process of analysis and identification at any point of time is guaranteed. Sample mix-ups should not occur and administration of the analysis data is kept down to a minimum.</p> <p>We can provide you with barcode-labelled vials. The labels withstand temperatures of approx. -40°C up to 140 °C and have a high chemical resistance.</p> <p>Recommended is the so-called back side print, as the barcode is protected by the polyester film and thereby is scratch and wiping resistant. Furthermore the labels stand out by a high UV-stability.</p> <p>Further information on length of a possible barcode (readability by the barcode reader), etc. can be obtained any time from us.</p>
Pre-Screwed/Pre-Crimped Vials	
	<p>Sometimes customers wish to obtain vials which are already crimped or screwed with a seal of their choice. For example the tobacco industry analyses the smoke of a cigarette which is injected into an already crimped vial. Also a lot of EPA Vials are bought with the appropriate closure already screwed on top of the vial.</p> <p>La-Pha-Pack® can provide you with any type of pre-sealed vial.</p>

## 18.2 Special Services (cont.)

<b>Labelling of Products</b>	
	We can label all products you buy from us with your own label. Either you provide us with labels we should put onto the products or you give us the design of the label and we print them out here.
<b>Pre-assembled Micro-Inserts</b>	
	Upon request we can supply any type of vial with the appropriate micro-insert pre-assembled. This is time-saving and guarantees a safe and convenient handling in sample preparation. <b>NEW</b>
<b>2in1 Kits</b>	
	<p>To carry out an analysis, the user always needs two components at the same time: vial and closure. To fulfill this need in a convenient way La-Pha-Pack® offer 2in1 Kits containing 100 vials and 100 seals in a blue, recloseable PP-box. All advantages of the individual items (CleanPack packaging of the vials, tamper-proof evident packaging of vials and seals, traceability through a batch numbering system, etc.) still remain. Furthermore the customer only has to reorder one article instead of two, which makes life more easy. The following product lines can be obtained as a 2in1 KIT:</p> <ul style="list-style-type: none"> <li>Screw Neck Vials/Seals ND8 (Chapter 2, pages 20-22)</li> <li>Short Thread Vials/Seals ND9 (Chapter 3, pages 23-27)</li> <li>Screw Neck Vials/Seals ND10 (Chapter 4, page 28)</li> <li>Crimp Neck Vials/Seals ND11 (Chapter 5, pages 29-31)</li> <li>Snap Ring Vials/Seals ND11 (Chapter 6, pages 32-33)</li> <li>Plastic Vials ND9 and Plastic Micro-Vials ND9 + ND11 (Chapter 7, Page 34)</li> <li>Screw Neck Vials/Seals ND13 (Chapter 8, pages 35-36)</li> <li>Shell Vials ND8, ND11 + ND15 with PE-Plugs (Chapter 9, pages 37-38)</li> <li>20ml Headspace Vials/Seals ND20 + ND18 (Chapter 10, pages 39-45)</li> </ul>
<b>Special Packaging</b>	
	<p>Our standard packaging unit for seals is 100 pieces per PE-Bag and for liners 1,000 pieces per PE-Bag. However, our automatic counting and packaging machines are also capable to pack in any quantity a customer may request, e.g. 144 or 200 pieces per PE-Bag.</p> <p>Our vials are packed with 100 pieces per PP-box by standard. However, we also offer for 1.5ml Vials to additionally pack 10 boxes of 100 pieces each into an additional PP-box as a pack of 1,000 pieces.</p>
<b>Special Production Runs</b>	
	<p>We make special production runs for:</p> <ul style="list-style-type: none"> <li>a) Vials: special diameters, special designs (different threads, necks, bottoms, etc.), vials with logos printed on the glass, different glass classes, etc. Minimum order quantities depend very much on availability of the glass tubing, possibly necessary extra tooling and set up time for the machinery.</li> <li>b) Vial Racks: special outer dimensions, sizes of the cavities, number of cavities, distance between each cavity Minimum order quantity: approx. 20 pieces</li> <li>c) Septa: special diameter, thickness or material, special form Minimum order quantity depends very much on availability of the material, punching tool and set up time for the machinery; however, normally we are fairly flexible here even for smaller order quantities</li> <li>d) Seals: special caps or liners Minimum order quantity depends very much on availability of the requested cap and liner</li> <li>e) Crimpers: for special design caps (like Pump Spray Closures, for caps with special size, etc.) If technically realizable, minimum order quantity is 1 piece, however design costs may occur</li> </ul>
<b>Certificates, Chromatograms, QC Reports</b>	
	<p>As a DIN EN ISO 9001:2000 certified company we do a thorough quality control according to DIN/ISO standards. The results of any QC test are documented in a QC report which can be put at your disposal upon request.</p> <p>Furthermore some customers require (especially for TOC analysis) EPA Vials with a certificate of cleanliness. We have certified batches of all EPA vials on stock which have been analysed in an external lab regarding organic substances. Should you require certified EPA Vials with a print of the analysis results you have to give an appropriate indication in the order beside the article No. of the vial and we will provide you with the test results against a small surcharge. A demo version of our quality report as well as a copy of our cleanliness certificate is shown under the point "Technical Information" on our website.</p>
<b>Repair Service for Crimping Tools</b>	
	As an additional service for our customers we offer a repair service for crimping tools bought from La-Pha-Pack®.







## 19. Screw Neck Vials for Storage Purposes **NEW**

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



### 19.1 Screw Neck Vials for Storage Purposes **NEW**

 Scale 1:2, full-scale s. p. 96	 Scale 1:2, full-scale s. p. 96	 Scale 1:2, full-scale s. p. 95	 Scale 1:2, full-scale s. p. 95	 Scale 1:2, full-scale s. p. 93	 Scale 1:2, full-scale s. p. 93
<b>11 09 0210</b>	<b>11 09 0259</b>	<b>13 09 0222</b>	<b>13 09 0280</b>	<b>15 09 1703</b> <b>15 09 1774</b>	<b>15 09 1657</b> <b>15 09 1800</b>
1.5ml Screw Neck Vial 8-425, 32 x 11.6mm, clear glass, 1 <sup>st</sup> hydrol. class	1.5ml Screw Neck Vial 8-425, 32 x 11.6mm, amber glass, 1 <sup>st</sup> hydrol. class	4ml Screw Neck Vial 13-425, 45 x 14.7mm, clear glass, 1 <sup>st</sup> hydrol. class	4ml Screw Neck Vial 13-425, 45 x 14.7mm, amber glass, 1 <sup>st</sup> hydrol. class	8ml Screw Neck Vial 15-425, 61 x 16.6mm, clear/amber glass, 1 <sup>st</sup> hydrol. class	12ml Screw Neck Vial 15-425, 66 x 18.5mm, clear/amber glass, 1 <sup>st</sup> hydrol. class
100 pcs. per PP-Box	100 pcs. per PP-Box	100 pcs. per PP-Box	100 pcs. per PP-Box	100 pcs. per carton	100 pcs. per carton

 Scale 1:2, full-scale s. p. 93	 Scale 1:2, full-scale s. p. 93	 Scale 1:2, full-scale s. p. 93	 Scale 1:2, full-scale s. p. 93	 Scale 1:2, full-scale s. p. 93	 Scale 1:2, full-scale s. p. 93
<b>18 09 1704</b>	<b>20 09 1705</b>	<b>24 09 0589</b> <b>24 09 0927</b>	<b>24 09 0839</b> <b>24 09 0923</b>	<b>24 09 0402</b> <b>24 09 0928</b>	<b>24 09 1089</b> <b>24 09 1090</b>
16ml Screw Neck Vial 18-400, 71 x 20.6mm, clear glass, 1 <sup>st</sup> hydrol. class	20ml Screw Neck Vial 20-400, 86 x 22.7mm, clear glass, 1 <sup>st</sup> hydrol. class	20ml Screw Neck Vial 24-400, 57 x 27.5mm, clear/amber glass, 1 <sup>st</sup> hydrol. class	30ml Screw Neck Vial 24-400, 72.5 x 27.5mm, clear/amber glass, 1 <sup>st</sup> hydrol. class	40ml Screw Neck Vial 24-400, 95 x 27.5mm, clear/amber glass, 1 <sup>st</sup> hydrol. class	60ml Screw Neck Vial 24-400, 140 x 27.5mm, clear/amber glass, 1 <sup>st</sup> hydrol. class
100 pcs. per carton	100 pcs. per carton	100 pcs. per PP-Box	100 pcs. per PP-Box	100 pcs. per PP-Box	100 pcs. per PP-Box

**19.2 PP Screw Seals for Storage Vials****NEW**

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

**19.2.1 PP Screw Seals ND8 for 11 09 0210 and 11 09 0259**

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
08 15 0654	Polypropylene Screw Cap black, closed top	Nat. Rubber red-orange/TEF transparent	60° shore A	1.3mm
08 15 1653	Polypropylene Screw Cap black, closed top	Butyl red/PTFE grey	55° shore A	1.3mm
08 15 1040	Polypropylene Screw Cap black, closed top	Silicone white/PTFE red	45° shore A	1.3mm

Packaging Unit: 100 pcs. per PE-Bag

**19.2.2 PP Screw Seals ND13 for 13 09 0222 and 13 09 0280**

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
13 15 0439	Polypropylene Screw Cap black, closed top	Nat. Rubber red-orange/TEF transparent	60° shore A	1.3mm
13 15 1638	Polypropylene Screw Cap black, closed top	Butyl red/PTFE grey	55° shore A	1.3mm
13 15 0648	Polypropylene Screw Cap black, closed top	Silicone cream/PTFE red	55° shore A	1.5mm

Packaging Unit: 100 pcs. per PE-Bag

**19.2.3 PP Screw Seals ND15 for 15 09 1703, 15 09 1774, 15 09 1657, 15 09 1800**

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
15 15 0793	Polypropylene Screw Cap black, closed top	Nat. Rubber red-orange/TEF transparent	60° shore A	1.3mm
15 15 1748	Polypropylene Screw Cap black, closed top	Butyl red/PTFE grey	55° shore A	1.6mm
15 15 1083	Polypropylene Screw Cap black, closed top	Silicone white/PTFE red	45° shore A	1.3mm
15 15 1938	Polypropylene Screw Cap black, 9mm centre hole	Nat. Rubber red-orange/TEF transparent	60° shore A	1.3mm
15 15 1932	Polypropylene Screw Cap black, 9mm centre hole	Butyl red/PTFE grey	55° shore A	1.6mm
15 15 1989	Polypropylene Screw Cap black, 9mm centre hole	Silicone white/PTFE red	45° shore A	1.3mm

Packaging Unit: 100 pcs. per PE-Bag

**19.2.4 PP Screw Seals ND18 for 18 09 1704**

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
18 15 1387	Polypropylene Screw Cap black, closed top	Butyl red/PTFE grey	55° shore A	1.6mm
18 15 1132	Polypropylene Screw Cap black, closed top	Silicone blue transparent/PTFE white	45° shore A	1.7mm
18 15 2069	Polypropylene Screw Cap black, closed top	Silicone white/PTFE red	55° shore A	1.5mm

Packaging Unit: 100 pcs. per PE-Bag

**19.2.5 PP Screw Seals ND20 for 20 09 1705**

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
20 15 1803	Polypropylene Screw Cap white, closed top	Nat. Rubber red-orange/TEF transparent	60° shore A	1.3mm
20 15 1805	Polypropylene Screw Cap white, closed top	Butyl red/PTFE grey	55° shore A	1.3mm
20 15 1804	Polypropylene Screw Cap white, closed top	Silicone white/PTFE red	45° shore A	1.3mm

Packaging Unit: 100 pcs. per PE-Bag

**19.2.6 PP Screw Seals ND24 for 24 09 0589, 24 09 0927, 24 09 0839, 24 09 0923, 24 09 0402, 24 09 0928, 24 09 1089, 24 09 1090**

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
24 15 1395	Polypropylene Screw Cap white, closed top	Butyl red/PTFE grey	55° shore A	2.5mm
24 15 1540	Polypropylene Screw Cap white, closed top	Silicone white/PTFE beige	45° shore A	3.2mm
24 15 1007	Polypropylene Screw Cap white, closed top	PTFE/EPDM/PTFE	65° shore A	2.0mm
24 04 0841	UltraBond Seal white, closed top	Silicone natural/PTFE beige	45° shore A	3.2mm

Packaging Unit: 100 pcs. per PE-Bag







## 20. Special Products

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



### 20.1 Special Vials

			
<b>13 09 0236</b>	<b>13 09 0949</b>	<b>40 09 0678</b>	<b>20 09 1822</b>
2ml Crimp Neck Vial, 32 x 16mm, clear glass, 1 <sup>st</sup> hydrolytic class	8ml Flat-Bottom-Vial, 84 x 13.3mm, clear glass, 3 <sup>rd</sup> hydrolytical class	50ml Cylindrical Jar, 69.5 x 44mm, clear glass, 3 <sup>rd</sup> hydrolytical class with Screw Neck ND40	100ml Crimp Neck Vial, 49 x 75mm, clear glass, 1 <sup>st</sup> hydrolytical class, DIN-Crimp Neck

### 20.2 Special Seals

Art. No.	Description Cap	Septa Material	Durometer	Thickn.
<b>13 03 1381</b>	13mm Aluminium Cap clear lacquered, 6mm centre hole	Butyl red/PTFE grey	55° shore A	2.0mm
<b>13 03 1382</b>	13mm Aluminium Cap clear lacquered, complete tear off	Butyl red/PTFE grey	55° shore A	2.0mm
<b>13 03 1383</b>	13mm Aluminium Cap clear lacquered, centre tear off	Butyl red/PTFE grey	55° shore A	2.0mm
<b>13 03 0307</b>	13mm Aluminium Cap clear lacquered, 6mm centre hole	Pharma-Fix-Septa (Butyl/PTFE)	50° shore A	2.0mm
<b>13 03 0309</b>	13mm Aluminium Cap clear lacquered, complete tear off	Pharma-Fix-Septa (Butyl/PTFE)	50° shore A	2.0mm
<b>13 03 0308</b>	13mm Aluminium Cap clear lacquered, centre tear off	Pharma-Fix-Septa (Butyl/PTFE)	50° shore A	2.0mm
<b>22 15 1824</b>	PE-Cap, transparent, 22 x 9.1mm, 4.3mm centre hole	Silicone blue transparent/PTFE white, Y-slitted	45° shore A	1.3mm
<b>22 15 1869</b>	PE-Cap, transparent, 22 x 9.1mm, 6.0mm centre hole	Silicone blue transparent/PTFE white, Y-slitted	45° shore A	1.3mm
<b>40 15 0674</b>	40mm Screw Cap black, closed top	PTFE virginal	53° shore D	0.5mm

**Further Special Seals may be available upon request!**

NEW  
NEW

## 20.3 Special Septa

### 20.3.1 Septa for Schott Screw Caps

12 02 0468	16 02 0469	23 02 0470	30 02 0471	43 02 0413	43 02 2095 <span style="color: red; font-weight: bold;">NEW</span>	Further Septa in various materials and diameters upon request!
12.9mm Septa, Silicone cream/PTFE beige, 55° shore A, 3.2mm <b>for Schott Screw Cap GL14</b>	16.8mm Septa, Silicone cream/PTFE beige, 55° shore A, 3.2mm <b>for Schott Screw Cap GL18</b>	23.4mm Septa, Silicone cream/PTFE beige, 55° shore A, 3.2mm <b>for Schott Screw Cap GL25</b>	30.3mm Septa, Silicone cream/PTFE beige, 55° shore A, 3.2mm <b>for Schott Screw Cap GL32</b>	43.2mm Septa, Silicone cream/PTFE beige, 55° shore A, 3.2mm <b>for Schott Screw Cap GL45</b>	43.2mm Septa, Butyl red/PTFE grey, 55° shore A, 2.5mm <b>for Schott Screw Cap GL45</b>	
1000 pcs. per PE-Bag	1000 pcs. per PE-Bag	1000 pcs. per PE-Bag	1000 pcs. per PE-Bag	500 pcs. per PE-Bag	500 pcs. per PE-Bag	

### 20.3.2 Septa 13mm

13 02 0474	13 02 1470	13 02 1379	13 02 1380	13 02 0261
13mm Septa, Nat. Rubber red-orange/ TEF transparent, 60° shore A, 1.3mm	13mm Septa, Butyl red/PTFE grey, 55° shore A, 1.3mm	13mm Septa, Butyl red/PTFE grey, 55° shore A, 1.6mm	13mm Septa, Butyl red/PTFE grey, 55° shore A, 2.0mm	13mm Septa, Pharma-Fix-Septa (Butyl/PTFE) 50° shore A, 2.0mm
1000 pcs. per PE-Bag	1000 pcs. per PE-Bag	1000 pcs. per PE-Bag	1000 pcs. per PE-Bag	1000 pcs. per PE-Bag



*We do a lot of special production for all of the products we offer.*

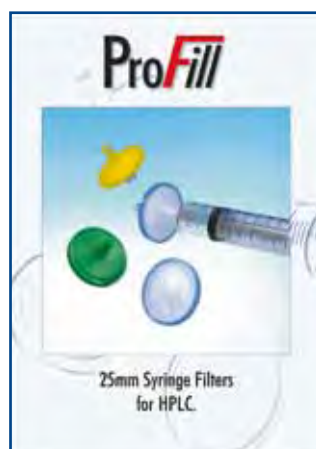
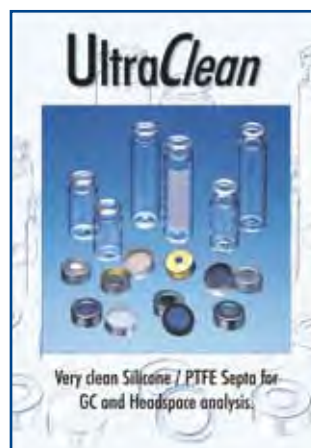
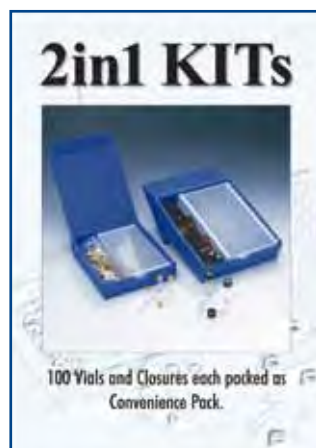
*Should you have a special request, please do not hesitate to contact us any time.*



## Product Names, Abbreviations, Explanations, Structure Article Description

### A ) Product and Brand Names

**La-Pha-Pack®**



#### UltraBond

La-Pha-Pack® have enlarged their range of well-known and established UltraBond Closures for EPA vials by various 9mm UltraBond Closures for short thread vials, among others also those in an improved Waters® quality. Comparable systems are offered by Agilent and Waters® as so-called Interseal respectively Lectrabond closures.

The peculiarity of the UltraBond Seal System is that the screw cap and the liner form an inseparable unit. Through a patented processing technique the molecular structure of the contact areas of the PP Screw Cap and the liner are changed in such a way that without usage of any glue or adhesive the components form a firm unit. Reasons for making such a seal instead of a just assembled cap/liner combination seal could be:

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

#### Pharma-Fix

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

#### RedRubber

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

#### riplate

"riplate" is the brand name of the 96 Well Plates of Messrs. RITTER for which La-Pha-Pack® offer suitable Glass Micro-Inserts.

## B ) Abbreviations

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

## C ) Explanations

### Cleanroom class 10,000

Cleanroom class 10,000 represents a hygienic standard often found in the pharmaceutical industry. These special rooms have certified conditions of 10,000 particles per m<sup>3</sup> air maximum. To have a comparison: The environment in a normal room contains millions of particles. The rooms are regularly measured by external authorities to guarantee the specifications. Such rooms have no windows (air-conditioned) and only material with low particle abrasion is allowed there (Plastic instead of wood or cardboard, etc.). The people have to wear special clothing.

### Headspace Cap

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

### Micro-Insert

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

### Durometer

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

### Headspace Neck (bevelled top)

A Headspace Neck or Headspace Vial with bevelled top has a crimp neck whose outer edges are bevelled. In contrast to a flat DIN crimp neck the liner only has a very small surface to sit on which is a disadvantage regarding tightness. Headspace Necks or bevelled crimp necks are only necessary when using the patented PerkinElmer Pressure Release Seal consisting of an Aluminium Cap with a slit, a metal star washer plate and a liner with ears. This system only releases excess pressure reliably when using a vial with such a top.

### Micro-Vial

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



## C ) Explanations (cont.)

### Pre-cut septa

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

### Seal

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

### Silanized

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

### virginal (PTFE)

Untreated PTFE

## D ) Structure Article Descriptions

### D1 ) Vials

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

e.g.: 1.5ml Short Thread Vial, 32 x 11.6mm, clear glass, 1<sup>st</sup> hydrol. class, with label and filling lines

### D2 ) Seals

**Diameter** (of the cap)  
**Material** (of the cap)  
**Type of Cap**  
**Colour of the Cap** (sometimes important when using an instrument with photocells!)  
**Size Centre Hole**  
**Liner material + colour(s)**  
**Additional characteristics**  
**Hardness** (of the liner)  
**Thickness** (of the liner)

e.g.: 11mm PE Snap Ring Cap transparent, 6mm centre hole, Silicone white/PTFE blue, cross-slitted, 55° shore A, 1.0mm

### D3 ) Septa

**Carrier Material + Colour** (Important for temperature resistance, resealability in case of multiple injections, cleanliness, etc.)  
**Type of Teflon + Colour**  
**Hardness of Liner** (important for the penetration of the needle)  
**Thickness of Liner** (important for the penetration of the needle)  
**Additional Remarks** (to identify special liner qualities)

e.g.: Silicone white/PTFE beige, 45° shore A, 3.2mm (Agilent HT Quality)

All information are subject to technical changes!

All data concerning dimensions and volumes are approximate.

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