

## ILS = Tradition and Technology

ILS is based in Stützerbach, a tiny village in the beautiful forest of Thuringia, in the heart of Germany. Though small in size, Stützerbach has made its name throughout the world and can claim to a long history in glassware.



Since the first glass company was founded in 1674 Stützerbach has been a place of innovation: the German thermometer (1830), the electric bulb (1883), the vacuum flask (1895) as well as the Röntgen X-ray tube (1893) were all first developed in Stützerbach.

ILS was founded in 1992 implementing the skills and expertise of the people in



the area. More than 1,000 types and variations of microsyringes are manufactured here today. Syringes range from 1  $\mu$ l to 100 ml for precision sampling and dosage in chromatography, spectroscopy, preparation of standard solutions, for manual application, and for use in autosamplers, diluters, dispensers and other liquid handling instruments. Precision diluter valves are also available as a recent addition to the production range.

ILS shrinks its own precision bore tubing from DURAN<sup>®</sup>, a highly resistant borosilicate glass and all metal parts and PTFE-seals are made in-house. State of the art computer controlled equipment such as milling machines, lathes and glass shrinking equipment, together with years of glass working experience, guarantee the optimum quality of the products.

DURAN<sup>®</sup> is a registered trademark of SCHOTT Glaswerke AG

## Syringe Production

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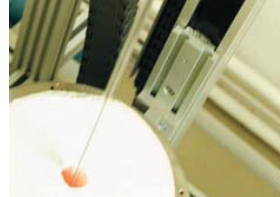
### Precision Glass Work

ILS employs experienced and skilled craftsmen to produce high quality glassware.



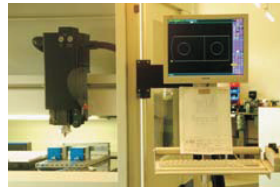
### Modern Glass Technology

Precesion machinery, mainly developed in-house, is used for the manufacturing of our syringes.



### CNC - Metal and Plastic Machining

State of the art computer controlled machines as mills, turning machines, and high precision tools guarantee the high quality of seals, plungers, fittings etc.



### Careful Assembly

Thoroughly trained personnel add the final touch to our products.



### Quality Control

Each product is meticulously checked before shipping.



## Custom Made Products

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### You name it - we make it!

Contact us for special developments. We are allways ready to break new ground and develop new products.



## Repair & Maintenance Service

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We offer an extensive maintenance and repair service for microsyringes of all brands. To ensure a safe and quick repair, the syringes should be cleaned and decontaminated carefully before sending back to us.

Please ship, freight and duty prepaid, to:

ILS Innovative Laborsysteme GmbH  
Repair Service  
Mittelstrasse 37  
98714 Stützerbach  
Germany

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## Needle Tip Styles



a

### Needle Tip "a"

This tip is designed for optimum penetration of the septa and prevents septa coring. The 17° bevel is the proven standard. In addition our electro tapered tip minimizes the necessary piercing force and diameter of the injection channel.



b

### Needle Tip "b"

This tip has a 90° bevel for precise pipetting. This design releases drops completely, for maximum reproducibility. It is widely used for HPLC sample injection.



c

### Needle Tip "c"

This tip has been specially designed for autosamplers in routine applications. The electro tapered tip and the polished 90° square end eliminate burrs. It is ideal for PTFE laminated seals and regular septas.



d

### Needle Tip "d"

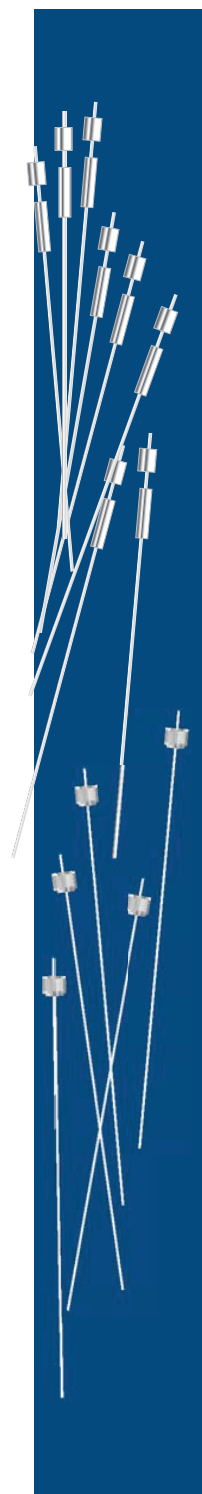
Tip "d" is equipped with a side opening for dispensing and filling. This design avoids plugging and minimizes septum damage. It is ideal for thicker septa, recommended for headspace analysis.

## Syringe Needles

### 1. Removable Needles for ILS Syringes

| O.D.<br>mm                                     | Length<br>mm | Tip<br>Style | Tapered | Volume<br>Pack | Volume  |         |                   |                     |
|--|--------------|--------------|---------|----------------|---------|---------|-------------------|---------------------|
|  |              |              |         |                | 5 µl    | 10 µl   | 25 µl -<br>100 µl | 250 µl -<br>10.0 ml |
| 0.47   | 42           | a            | yes     | 3              | 2865308 | 2865408 | -                 | -                   |
| 0.47   | 42           | c            | no      | 3              | 2834307 | 2834407 | -                 | -                   |
| 0.47   | 51           | a            | yes     | 3              | 2832301 | 2832401 | -                 | -                   |
| 0.47   | 51           | b            | no      | 3              | 2832302 | 2832402 | -                 | -                   |
| 0.47   | 51           | c            | yes     | 3              | 2832303 | 2832403 | -                 | -                   |
| 0.47   | 51           | d            | no      | 2              | 2832304 | 2832404 | -                 | -                   |
| 0.55   | 51           | a            | yes     | 3              | -       | -       | 2831013           | 2841013             |
| 0.55   | 51           | b            | no      | 3              | -       | -       | 2831014           | 2841014             |
| 0.55   | 51           | d            | no      | 2              | -       | -       | 2831015           | 2841015             |
| 0.64/0.47                                      | 42           | c            | yes     | 3              | 2834308 | 2834408 | -                 | -                   |
| 0.64   | 42           | c            | no      | 3              | 2834309 | 2834409 | -                 | -                   |
| 0.72   | 51           | a            | yes     | 3              | -       | -       | 2832501           | 2832601             |
| 0.72   | 51           | c            | yes     | 3              | -       | -       | 2832503           | 2832603             |
| 0.72   | 51           | d            | no      | 2              | -       | -       | 2832504           | 2832604             |
| 0.90   | 51           | a            | no      | 3              | -       | -       | -                 | 2831023             |
| 1.10   | 51           | a            | no      | 3              | -       | -       | -                 | 2831027             |
| 2.00   | 51           | a            | no      | 2              | -       | -       | -                 | 2831029             |
| <b>HP 7670 - 7672</b>                          |              |              |         |                |         |         |                   |                     |
| 0.47   | 51           | a            | yes     | 3              | 2860307 | 2860407 | -                 | -                   |
| <b>Waters</b>                                  |              |              |         |                |         |         |                   |                     |
| 0.50   | 50           | b            | no      | 3              | 2832306 | 2832406 | 2832506           | 2842606             |
| <b>Valco VISF-1</b>                            |              |              |         |                |         |         |                   |                     |
| 0.72   | 19           | b            | no      | 3              | 2833305 | 2833405 | -                 | 2833505             |
| <b>Rheodyne</b>                                |              |              |         |                |         |         |                   |                     |
| 0.72   | 51           | b            | no      | 3              | 2831305 | 2831405 | 2831505           | 2832602             |
| <b>Removable needles for Hamilton syringes</b> |              |              |         |                |         |         |                   |                     |
| 0.50   | 50           | b            | no      | 3              | -       | -       | 21080426          | -                   |
| 0.47   | 51           | a            | yes     | 3              | -       | -       | 21775802          | -                   |
| 0.72   | 51           | a            | yes     | 3              | -       | -       | 21777003          | 21777904            |
| 0.72   | 51           | b            | no      | 3              | -       | -       | 21777001          | 21777901            |

We can manufacture needles to your specifications.  
Please ask for a quotation. Indicate length, diameter and type!





## Syringe Needles

### 2. NLL Needles with Metal Luer-Screw

Length: 51 mm  
 Needles: CrNi 1.4301 (AISI SS 304)  
 Luer: Brass, Nickel plated



| Gauge | O.D. (mm) | I.D. (mm) | Tip Style a<br>3 Pack | Tip Style b<br>3 Pack | Tip Style d<br>2 Pack |
|-------|-----------|-----------|-----------------------|-----------------------|-----------------------|
| 33    | 0.20      | 0.11      | 2840020               | 2842020               | -                     |
| 32    | 0.25      | 0.11      | 2840025               | 2842025               | -                     |
| 30    | 0.30      | 0.15      | 2840030               | 2842030               | -                     |
| 29    | 0.35      | 0.15      | 2840035               | 2842035               | -                     |
| 27    | 0.40      | 0.20      | 2840040               | 2842040               | -                     |
| 26    | 0.45      | 0.25      | 2840045               | 2842045               | -                     |
| 26s   | 0.47      | 0.13      | 2840047               | 2842047               | -                     |
| 25    | 0.50      | 0.28      | 2840050               | 2842050               | 2843050               |
| 24    | 0.55      | 0.32      | 2840055               | 2842055               | 2843055               |
| 23    | 0.65      | 0.35      | 2840065               | 2842065               | 2843065               |
| 22    | 0.72      | 0.41      | 2840070               | 2842070               | 2843070               |
| 22s   | 0.72      | 0.20      | 2840072               | 2842072               | -                     |
| 21    | 0.80      | 0.50      | 2840080               | 2842080               | 2843080               |
| 20    | 0.90      | 0.60      | 2840090               | 2842090               | 2843090               |
|       | 1.00      | 0.68      | 2840100               | 2842100               | 2843100               |
| 19    | 1.10      | 0.80      | 2840110               | 2842110               | 2843110               |
| 18    | 1.30      | 0.90      | 2840130               | 2842130               | 2843130               |
| 17    | 1.50      | 1.10      | 2840150               | 2842150               | 2843150               |
| 16    | 1.70      | 1.20      | 2840170               | 2842170               | 2843170               |
| 15    | 1.80      | 1.40      | 2840180               | 2842180               | 2843180               |
|       | 2.00      | 1.26      | 2840200               | 2842200               | 2843200               |
| 13    | 2.40      | 1.90      | 2840240               | 2842240               | 2843240               |
| 12    | 2.80      | 2.20      | 2840280               | 2842280               | 2843280               |
|       | 3.00      | 2.06      | 2840302               | 2842302               | 2843302               |
| 11    | 3.00      | 2.40      | 2840304               | 2842304               | 2843304               |
| 10    | 3.40      | 2.70      | 2840340               | 2842340               | 2843340               |

We can manufacture needles to your specifications.  
 Please ask for a quotation. Indicate length, diameter and type!

## Syringe Needles

### 3. KNLL Needles with Plastic Luer-Screw

Length: 51 mm  
 Needles: CrNi 1.4301 (AISI SS 304)  
 Luer: Polyvinylidenfluorid (PVDF)



| Gauge | O.D. (mm) | I.D. (mm) | Tip Style a<br>3 Pack | Tip Style b<br>3 Pack | Tip Style d<br>2 Pack |
|-------|-----------|-----------|-----------------------|-----------------------|-----------------------|
| 33    | 0.20      | 0.11      | 2846020               | 2849020               | -                     |
| 32    | 0.25      | 0.11      | 2846025               | 2849025               | -                     |
| 30    | 0.30      | 0.15      | 2846030               | 2849030               | -                     |
| 29    | 0.35      | 0.15      | 2846035               | 2849035               | -                     |
| 27    | 0.40      | 0.20      | 2846040               | 2849040               | -                     |
| 26    | 0.45      | 0.25      | 2846045               | 2849045               | -                     |
| 26s   | 0.47      | 0.13      | 2846047               | 2849047               | -                     |
| 25    | 0.50      | 0.28      | 2846050               | 2849050               | 2844050               |
| 24    | 0.55      | 0.32      | 2846055               | 2849055               | 2844055               |
| 23    | 0.65      | 0.35      | 2846065               | 2849065               | 2844065               |
| 22    | 0.72      | 0.41      | 2846070               | 2849070               | 2844070               |
| 22s   | 0.72      | 0.20      | 2846072               | 2849072               | -                     |
| 21    | 0.80      | 0.50      | 2846080               | 2849080               | 2844080               |
| 20    | 0.90      | 0.60      | 2846090               | 2849090               | 2844090               |
|       | 1.00      | 0.68      | 2846100               | 2849100               | 2844100               |
| 19    | 1.10      | 0.80      | 2846110               | 2849110               | 2844110               |
| 18    | 1.30      | 0.90      | 2846130               | 2849130               | 2844130               |
| 17    | 1.50      | 1.10      | 2846150               | 2849150               | 2844150               |
| 16    | 1.70      | 1.20      | 2846170               | 2849170               | 2844170               |
| 15    | 1.80      | 1.40      | 2846180               | 2849180               | 2844180               |
|       | 2.00      | 1.26      | 2846200               | 2849200               | 2844200               |
| 13    | 2.40      | 1.90      | 2846240               | 2849240               | 2844240               |
| 12    | 2.80      | 2.20      | 2846280               | 2849280               | 2844280               |
|       | 3.00      | 2.06      | 2846302               | 2849302               | 2844302               |
| 11    | 3.00      | 2.40      | 2846304               | 2849304               | 2844304               |
| 10    | 3.40      | 2.70      | 2846340               | 2849340               | 2844340               |

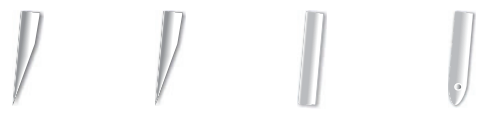
We can manufacture needles to your specifications.  
 Please ask for a quotation. Indicate length, diameter and type!

## Dosage of Liquids: Series N

### 1. Fixed Needles

**Plunger:** Stainless steel  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
**Main Use:**

- sample dosage for gas chromatography
- HPLC-valves
- autosamplers



| Volume | Needle Tip Style Length O.D. | fixed a 51 mm | fixed a 70 mm | fixed b 51 mm | fixed d 51 mm |
|--------|------------------------------|---------------|---------------|---------------|---------------|
| 5 µl   | 0.47 mm                      | 2100301       | -             | 2100302       | 2100304       |
| 10 µl  | 0.47 mm                      | 2100401       | 2100409       | 2100402       | 2100404       |
| 25 µl  | 0.72 mm                      | 2100501       | 2100509       | 2100502       | 2100504       |
| 50 µl  | 0.72 mm                      | 2100601       | 2100609       | 2100602       | 2100604       |
| 100 µl | 0.72 mm                      | 2100701       | 2100709       | 2100702       | 2100704       |
| 250 µl | 0.72 mm                      | 2100801       | -             | 2100802       | 2100804       |
| 500 µl | 0.72 mm                      | 2100901       | -             | 2100902       | 2100904       |



**Six-Pack**  
 Economic pack of 6 syringes, fixed needles, length 51 mm tip style "a"

| Volume | O.D.    |         |   |   |   |
|--------|---------|---------|---|---|---|
| 5 µl   | 0.47 mm | 2100311 | - | - | - |
| 10 µl  | 0.47 mm | 2100411 | - | - | - |

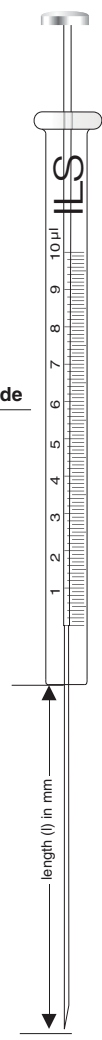
## Dosage of Liquids: Series N

### 2. Fixed Needles, Customized Length, with Guide

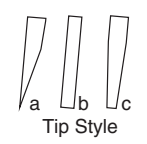
**Plunger:** Stainless steel  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
**Main Use:**

- sample dosage for gas chromatography
- HPLC-valves
- autosamplers

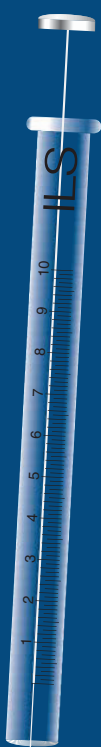
| Volume | Needle Tip Style Length O.D. | Special Length of Tip Style a or b or c | fixed Tip Style a 51 mm with Syringe Guide |
|--------|------------------------------|---|--|
| 5 µl   | 0.47 mm                      | 2110300                                 | 2170301                                    |
| 10 µl  | 0.47 mm                      | 2110400                                 | 2170401                                    |
| 25 µl  | 0.72 mm                      | 2110500                                 | 2170501                                    |
| 50 µl  | 0.72 mm                      | 2110600                                 | 2170601                                    |
| 100 µl | 0.72 mm                      | 2110700                                 | 2170701                                    |
| 250 µl | 0.72 mm                      | 2110800                                 | 2170801                                    |
| 500 µl | 0.72 mm                      | 2110900                                 | 2170901                                    |



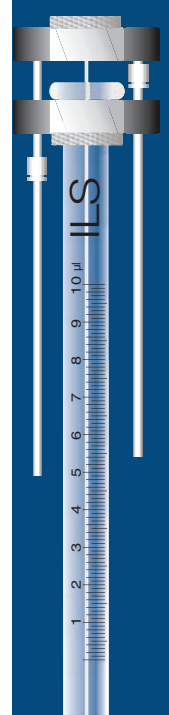
**Specify with Order**  
 1) Length in mm and  
 2) Tip Style



N-FN with Guide



N-FN



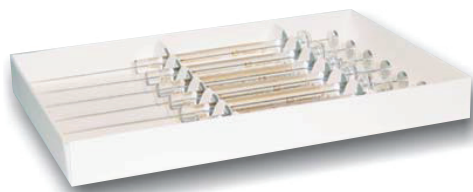
## Dosage of Liquids: Series N

### 3. Removable Needles

Plunger: Stainless steel  
 Glass Barrel: Borosilicate 3.3  
 Precision: <math>\pm 1\%</math> of the volume  
 Main Use: - sample dosage for gas chromatography  
 - HPLC-valves  
 - autosamplers



| Volume      | Needle Tip Style Length O.D. | removable a 51 mm | removable b 51 mm |
|-------------|------------------------------|-------------------|-------------------|
| 5 $\mu$ l   | 0.47 mm                      | 2100305           | 2100306           |
| 10 $\mu$ l  | 0.47 mm                      | 2100405           | 2100406           |
| 25 $\mu$ l  | 0.72 mm                      | 2100505           | 2100506           |
| 50 $\mu$ l  | 0.72 mm                      | 2100605           | 2100606           |
| 100 $\mu$ l | 0.72 mm                      | 2100705           | 2100706           |
| 250 $\mu$ l | 0.72 mm                      | 2100805           | 2100806           |
| 500 $\mu$ l | 0.72 mm                      | 2100905           | 2100906           |



#### Six-Pack

Economic pack of 6 syringes, removable needles, length 51 mm tip style "a"

| Volume     | O.D.    |         |   |
|------------|---------|---------|---|
| 10 $\mu$ l | 0.47 mm | 2100415 | - |

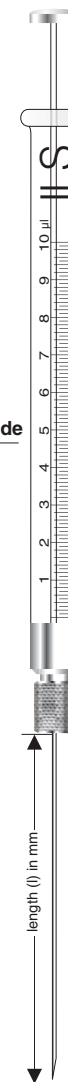
N-RN

## Dosage of Liquids: Series N

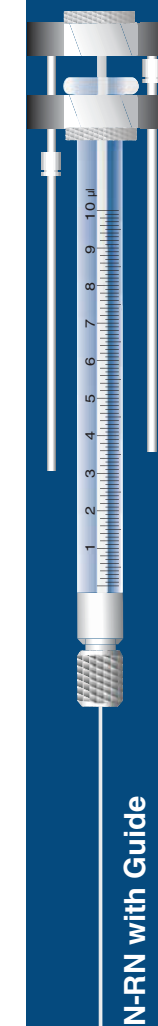
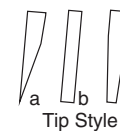
### 4. Removable Needles, Customized Length, with Guide

Plunger: Stainless steel  
 Glass Barrel: Borosilicate 3.3  
 Precision: <math>\pm 1\%</math> of the volume  
 Main Use: - sample dosage for gas chromatography  
 - HPLC-valves  
 - autosamplers

| Volume      | Needle Tip Style Length O.D. | Special Length of Tip Style a or b or c | removable a 51 mm with Syringe Guide |
|-------------|------------------------------|---|--------------------------------------|
| 5 $\mu$ l   | 0.47 mm                      | 2110301                                 | 2170305                              |
| 10 $\mu$ l  | 0.47 mm                      | 2110401                                 | 2170405                              |
| 25 $\mu$ l  | 0.72 mm                      | 2110501                                 | 2170505                              |
| 50 $\mu$ l  | 0.72 mm                      | 2110601                                 | 2170605                              |
| 100 $\mu$ l | 0.72 mm                      | 2110701                                 | 2170705                              |
| 250 $\mu$ l | 0.72 mm                      | 2110801                                 | 2170805                              |
| 500 $\mu$ l | 0.72 mm                      | 2110901                                 | 2170905                              |



Specify with Order  
 1) Length in mm  
 and  
 2) Tip Style

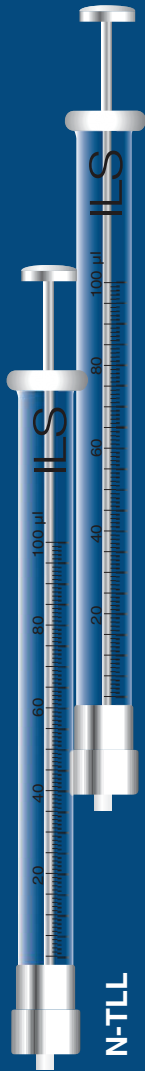


## Dosage of Liquids: Series N

### 5. TLL PTFE-Luer-Lock

**Plunger:** Stainless steel  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
**Main Use:** - sample dosage  
 - dosage of aggressive liquids

| Volume |         |
|--------|---------|
| 50 µl  | 2100611 |
| 100 µl | 2100711 |
| 250 µl | 2100811 |
| 500 µl | 2100911 |



N-TLL

## Dosage of Liquids: Series N

### 6. Super Elastic Plunger

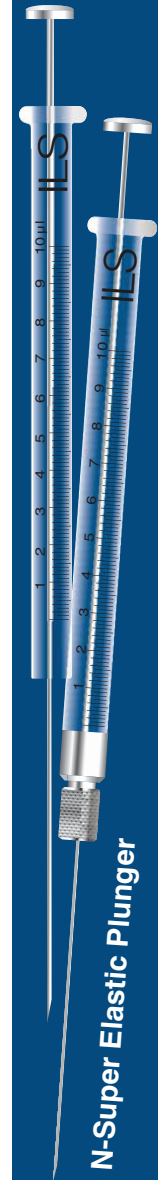
**Plunger:** Nickel titanium alloy, flexible memory metal  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
**Main Use:** - sample dosage for gas chromatography  
 - HPLC-valves  
 - autosamplers

#### Fixed Needles

| Volume | Tip Style<br>Length<br>O.D. | a       | b       | c       | d       |
|--------|-----------------------------|---------|---------|---------|---------|
|        |                             | 51 mm   | 51 mm   | 51 mm   | 51 mm   |
| 5 µl   | 0.47 mm                     | 2160301 | 2160302 | 2160303 | 2160304 |
| 10 µl  | 0.47 mm                     | 2160401 | 2160402 | 2160403 | 2160404 |

#### Removable Needles

| Volume | Tip Style<br>Length<br>O.D. | a       | b       | c       | d       |
|--------|-----------------------------|---------|---------|---------|---------|
|        |                             | 51 mm   | 51 mm   | 51 mm   | 51 mm   |
| 5 µl   | 0.47 mm                     | 2160305 | 2160306 | 2160307 | 2160308 |
| 10 µl  | 0.47 mm                     | 2160405 | 2160406 | 2160407 | 2160408 |



N-Super Elastic Plunger



## Dosage of Liquids: Series SN

### 1. With Extended Handle

- Plunger:** Stainless steel  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
**Handle:** - protects the plunger from bending  
 - prevents heat transfer from the hand to the contents of the syringe  
**Main Use:** - sample dosage for gas chromatography  
 - HPLC-valves

#### Fixed Needles

| Volume | Needle Tip Style Length O.D. | fixed a | fixed b |
|--------|------------------------------|---------|---------|
|        |                              | 51 mm   | 51 mm   |
| 5 µl   | 0.47 mm                      | 2500301 | 2500302 |
| 10 µl  | 0.47 mm                      | 2500401 | 2500402 |
| 25 µl  | 0.72 mm                      | 2500501 | 2500502 |
| 50 µl  | 0.72 mm                      | 2500601 | 2500602 |
| 100 µl | 0.72 mm                      | 2500701 | 2500702 |
| 250 µl | 0.72 mm                      | 2500801 | 2500802 |

#### Removable Needles

| Volume | Needle Tip Style Length O.D. | removable a | removable b |
|--------|------------------------------|-------------|-------------|
|        |                              | 51 mm       | 51 mm       |
| 5 µl   | 0.47 mm                      | 2500305     | 2500306     |
| 10 µl  | 0.47 mm                      | 2500405     | 2500406     |
| 25 µl  | 0.72 mm                      | 2500505     | 2500506     |
| 50 µl  | 0.72 mm                      | 2500605     | 2500606     |
| 100 µl | 0.72 mm                      | 2500705     | 2500706     |
| 250 µl | 0.72 mm                      | 2500805     | 2500806     |

## Dosage of Liquids: Series SN

### 2. With Extended Handle, Customized Length and Replacement Barrels

- Plunger:** Stainless steel  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
**Handle:** - protects the plunger from bending  
 - prevents heat transfer from the hand to the contents of the syringe  
**Main Use:** - sample dosage for gas chromatography  
 - HPLC-valves

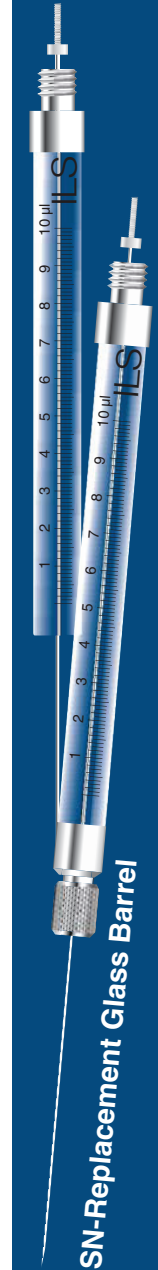
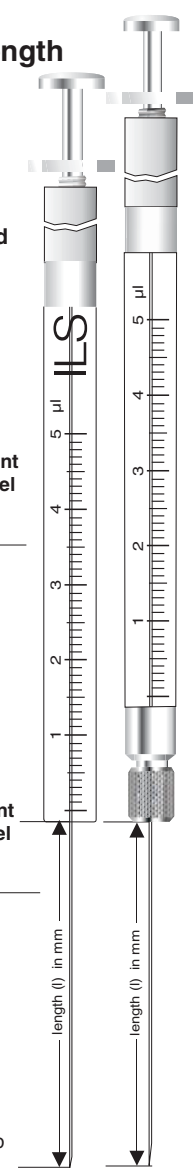
#### Fixed Needle, Special Length with Plunger

| Volume | Needle Tip Style Length O.D. | Special Length of Tip Style a or b | Replacement Glass Barrel Tip Style a or b |
|--------|------------------------------|------------------------------------|---|
|        |                              | 5 µl                               | 0.47 mm                                   |
| 10 µl  | 0.47 mm                      | 2510400                            | 2530401                                   |
| 25 µl  | 0.72 mm                      | 2510500                            | 2530501                                   |
| 50 µl  | 0.72 mm                      | 2510600                            | 2530601                                   |
| 100 µl | 0.72 mm                      | 2510700                            | 2530701                                   |
| 250 µl | 0.72 mm                      | 2510800                            | 2530801                                   |

#### Removable Needle, Special Length with Plunger

| Volume | Needle Tip Style Length O.D. | Special Length of Tip Style a or b | Replacement Glass Barrel Tip Style a or b |
|--------|------------------------------|------------------------------------|---|
|        |                              | 5 µl                               | 0.47 mm                                   |
| 10 µl  | 0.47 mm                      | 2510405                            | 2530405                                   |
| 25 µl  | 0.72 mm                      | 2510505                            | 2530505                                   |
| 50 µl  | 0.72 mm                      | 2510605                            | 2530605                                   |
| 100 µl | 0.72 mm                      | 2510705                            | 2530705                                   |
| 250 µl | 0.72 mm                      | 2510805                            | 2530805                                   |

Specify with Order  
 1) Length in mm  
 and  
 2) Tip Style



SN-Replacement Glass Barrel



## Dosage of Liquids: Series T

### 1. Zero Dead Volume Syringes

**Plunger:** Stainless steel, plunger runs inside the needle  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
**Main Use:** - sample dosage for gas chromatography  
 - dosage of small amounts of liquids  
 - for Thin Layer Chromatography (TLC)

| Volume | Tip Style Length O.D. | a<br>70 mm | b<br>70 mm | d<br>70 mm |
|--------|-----------------------|------------|------------|------------|
| 1 µl   | 0.47 mm               | 2200101    | 2200102    | 2200103    |
| 5 µl   | 0.55 mm               | 2200301    | 2200302    | 2200303    |

| Volume | Tip Style Length O.D. | a<br>80 mm | b<br>80 mm | d<br>80 mm |
|--------|-----------------------|------------|------------|------------|
| 2 µl   | 0.72 mm               | 2200201    | 2200202    | 2200203    |
| 10 µl  | 0.70 mm               | 2200401    | 2200402    | 2200403    |
| 25 µl  | 1.10 mm               | 2200501    | 2200502    | 2200503    |

## Dosage of Liquids: Series T

### 2. Replacement Parts

**Plunger:** Stainless steel, plunger runs inside the needle  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
**Main Use:** - sample dosage for gas chromatography  
 - dosage of small amounts of liquids  
 - for Thin Layer Chromatography (TLC)

#### Replacement Kit

Includes 1 needle and 1 calibrated plunger

| Volume | Tip Style Length O.D. | a<br>70 mm<br>Needle/<br>Plunger | a<br>80 mm<br>Needle/<br>Plunger | b<br>70 mm<br>Needle/<br>Plunger | b<br>80 mm<br>Needle/<br>Plunger |
|--------|-----------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| 1 µl   | 0.47 mm               | 2231101                          | -                                | 2231102                          | -                                |
| 2 µl   | 0.72 mm               | -                                | 2231201                          | -                                | 2231202                          |
| 5 µl   | 0.55 mm               | 2231301                          | -                                | 2231302                          | -                                |
| 10 µl  | 0.70 mm               | -                                | 2231401                          | -                                | 2231402                          |
| 25 µl  | 1.10 mm               | -                                | 2231501                          | -                                | 2231502                          |

#### Sealing Kit

Includes 5 seals

| Volume | O.D.    |         |
|--------|---------|---------|
| 1 µl   | 0.47 mm | 2230001 |
| 2 µl   | 0.72 mm | 2230002 |
| 5 µl   | 0.55 mm | 2230003 |
| 10 µl  | 0.70 mm | 2230004 |
| 25 µl  | 1.10 mm | 2230005 |



## Dosage of Gas and Liquids: Series H

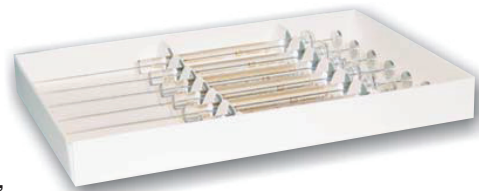
### 1. Fixed Needles

**Plunger:** Stainless steel with PTFE-seal  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
**Main Use:**

- sample dosage for gas chromatography
- HPLC-valves
- autosamplers
- dosage of aggressive fluids



| Volume  | Needle Tip Style Length O.D. | fixed a 51 mm | fixed b 51 mm | fixed d 51 mm |
|---------|------------------------------|---------------|---------------|---------------|
| 5 µl    | 0.47 mm                      | 2600301       | 2600302       | 2600304       |
| 10 µl   | 0.47 mm                      | 2600401       | 2600402       | 2600404       |
| 25 µl   | 0.72 mm                      | 2600501       | 2600502       | 2600504       |
| 50 µl   | 0.72 mm                      | 2600601       | 2600602       | 2600604       |
| 100 µl  | 0.72 mm                      | 2600701       | 2600702       | 2600704       |
| 250 µl  | 0.72 mm                      | 2600801       | 2600802       | 2600804       |
| 500 µl  | 0.72 mm                      | 2600901       | 2600902       | 2600904       |
| 1.0 ml  | 0.72 mm                      | 2600000       | 2600001       | 2600002       |
| 2.5 ml  | 0.72 mm                      | 2600020       | 2600021       | 2600022       |
| 5.0 ml  | 0.72 mm                      | 2600040       | 2600041       | 2600042       |
| 10.0 ml | 0.72 mm                      | 2600060       | 2600061       | 2600062       |



**Six-Pack**  
 Economic pack of 6 syringes, fixed needles, length 51 mm tip style "a"

| Volume | O.D.    |         |   |   |
|--------|---------|---------|---|---|
| 5 µl   | 0.47 mm | 2600311 | - | - |
| 10 µl  | 0.47 mm | 2600411 | - | - |

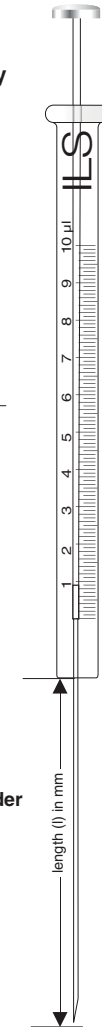
## Dosage of Gas and Liquids: Series H

### 2. Fixed Needles, Customized Length

**Plunger:** Stainless steel with PTFE-seal  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
**Main Use:**

- sample dosage for gas chromatography
- HPLC-valves
- autosamplers
- dosage of aggressive fluids

| Volume  | Needle Tip Style Length O.D. | Special Length of Tip Style a or b or c |
|---------|------------------------------|---|
| 5 µl    | 0.47 mm                      | 2610300                                 |
| 10 µl   | 0.47 mm                      | 2610400                                 |
| 25 µl   | 0.72 mm                      | 2610500                                 |
| 50 µl   | 0.72 mm                      | 2610600                                 |
| 100 µl  | 0.72 mm                      | 2610700                                 |
| 250 µl  | 0.72 mm                      | 2610800                                 |
| 500 µl  | 0.72 mm                      | 2610900                                 |
| 1.0 ml  | 0.72 mm                      | 2610000                                 |
| 2.5 ml  | 0.72 mm                      | 2610020                                 |
| 5.0 ml  | 0.72 mm                      | 2610040                                 |
| 10.0 ml | 0.72 mm                      | 2610060                                 |



**Specify with Order**  
 1) Length in mm  
 and  
 2) Tip Style



## Dosage of Gas and Liquids: Series H

### 3. Removable Needles

**Plunger:** Stainless steel with PTFE-seal  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
**Main Use:**

- sample dosage for gas chromatography
- HPLC-valves
- autosamplers
- dosage of aggressive fluids

| Volume  | Needle Tip Style Length O.D. | removable a 51 mm | removable b 51 mm | removable d 51 mm |
|---------|------------------------------|-------------------|-------------------|-------------------|
| 5 µl    | 0.47 mm                      | 2600305           | 2600306           | 2600308           |
| 10 µl   | 0.47 mm                      | 2600405           | 2600406           | 2600408           |
| 25 µl   | 0.72 mm                      | 2600505           | 2600506           | 2600508           |
| 50 µl   | 0.72 mm                      | 2600605           | 2600606           | 2600608           |
| 100 µl  | 0.72 mm                      | 2600705           | 2600706           | 2600708           |
| 250 µl  | 0.72 mm                      | 2600805           | 2600806           | 2600808           |
| 500 µl  | 0.72 mm                      | 2600905           | 2600906           | 2600908           |
| 1.0 ml  | 0.72 mm                      | 2600005           | 2600006           | 2600007           |
| 2.5 ml  | 0.72 mm                      | 2600025           | 2600026           | 2600027           |
| 5.0 ml  | 0.72 mm                      | 2600045           | 2600046           | 2600047           |
| 10.0 ml | 0.72 mm                      | 2600065           | 2600066           | -                 |

## Dosage of Gas and Liquids: Series H

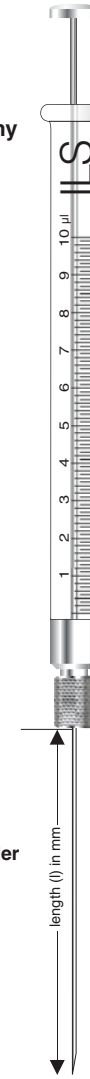
### 4. Removable Needles, Customized Length

**Plunger:** Stainless steel with PTFE-seal  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
**Main Use:**

- sample dosage for gas chromatography
- HPLC-valves
- autosamplers
- dosage of aggressive fluids

| Volume  | Needle Tip Style Length O.D. | Special Length of Tip Style a or b |
|---------|------------------------------|------------------------------------|
| 5 µl    | 0.47 mm                      | 2610309                            |
| 10 µl   | 0.47 mm                      | 2610409                            |
| 25 µl   | 0.72 mm                      | 2610509                            |
| 50 µl   | 0.72 mm                      | 2610609                            |
| 100 µl  | 0.72 mm                      | 2610709                            |
| 250 µl  | 0.72 mm                      | 2610809                            |
| 500 µl  | 0.72 mm                      | 2610909                            |
| 1.0 ml  | 0.72 mm                      | 2610007                            |
| 2.5 ml  | 0.72 mm                      | 2610027                            |
| 5.0 ml  | 0.72 mm                      | 2610047                            |
| 10.0 ml | 0.72 mm                      | 2610067                            |

**Specify with Order**  
 1) Length in mm  
 and  
 2) Tip Style



## Dosage of Gas and Liquids: Series H

### 5. LT Glass-Luer-Tip without Needle

**Plunger:** Stainless steel with PTFE-seal  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
**Main Use:**

- sample dosage
- dosage of aggressive fluids
- can be autoclaved

#### Volume

|         |         |
|---------|---------|
| 5 µl    | 2600314 |
| 10 µl   | 2600412 |
| 25 µl   | 2600511 |
| 50 µl   | 2600611 |
| 100 µl  | 2600711 |
| 250 µl  | 2600811 |
| 500 µl  | 2600911 |
| 1.0 ml  | 2600013 |
| 2.5 ml  | 2600033 |
| 5.0 ml  | 2600053 |
| 10.0 ml | 2600073 |



## Dosage of Gas and Liquids: Series H

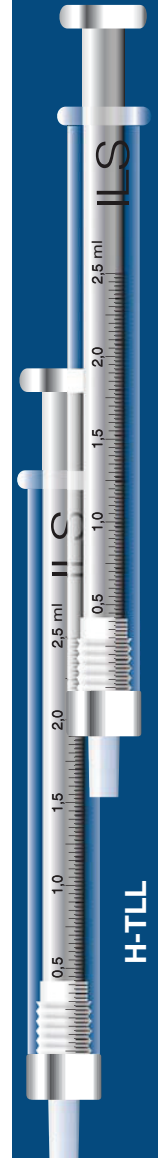
### 6. TLT PTFE-Luer-Tip without Needle

**Plunger:** Stainless steel with PTFE-seal  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
**Main Use:**

- sample dosage
- dosage of aggressive liquids

#### Volume

|         |         |
|---------|---------|
| 5 µl    | 2600313 |
| 10 µl   | 2600413 |
| 25 µl   | 2600513 |
| 50 µl   | 2600613 |
| 100 µl  | 2600713 |
| 250 µl  | 2600813 |
| 500 µl  | 2600913 |
| 1.0 ml  | 2600014 |
| 2.5 ml  | 2600034 |
| 5.0 ml  | 2600054 |
| 10.0 ml | 2600074 |



## Dosage of Gas and Liquids: Series SH

### 1. With Extended Handle

- Plunger:** PTFE-seal  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
**Handle:** - protects the plunger from bending  
 - prevents heat transfer from the hand to the contents  
**Main Use:** - sample dosage for gas chromatography  
 - HPLC-valves

| Volume | Needle Tip Style Length O.D. | Fixed Needle  |               |
|--------|------------------------------|---------------|---------------|
|        |                              | fixed a 51 mm | fixed b 51 mm |
| 5 µl   | 0.47 mm                      | 2506301       | 2506302       |
| 10 µl  | 0.47 mm                      | 2506401       | 2506402       |
| 25 µl  | 0.72 mm                      | 2506501       | 2506502       |
| 50 µl  | 0.72 mm                      | 2506601       | 2506602       |
| 100 µl | 0.72 mm                      | 2506701       | 2506702       |
| 250 µl | 0.72 mm                      | 2506801       | 2506802       |

| Volume | Needle Tip Style Length O.D. | Removable Needle |         |
|--------|------------------------------|------------------|---------|
|        |                              | a 51 mm          | b 51 mm |
| 5 µl   | 0.47 mm                      | 2506305          | 2506306 |
| 10 µl  | 0.47 mm                      | 2506405          | 2506406 |
| 25 µl  | 0.72 mm                      | 2506505          | 2506506 |
| 50 µl  | 0.72 mm                      | 2506605          | 2506606 |
| 100 µl | 0.72 mm                      | 2506705          | 2506706 |
| 250 µl | 0.72 mm                      | 2506805          | 2506806 |

## Dosage of Gas and Liquids: Series SH

### 2. With Extended Handle, Customized Length & Replacement Barrels

- Plunger:** PTFE-seal  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
**Handle:** - protects the plunger from bending  
 - prevents heat transfer from the hand to the contents of the syringe  
**Main Use:** - sample dosage for gas chromatography  
 - HPLC-valves

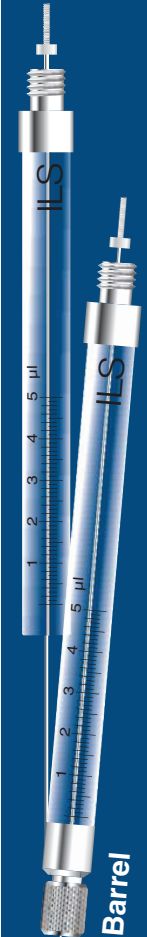
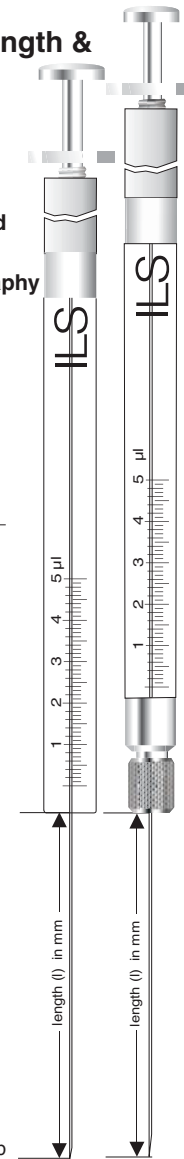
#### Fixed Needle, Special Length with Plunger

| Volume | Needle Tip Style Length O.D. | Special Length of Tip Style a or b | Replacement Glass Barrels |
|--------|------------------------------|------------------------------------|---------------------------|
|        |                              |                                    | Tip Style a or b          |
| 5 µl   | 0.47 mm                      | 2516301                            | 2536301                   |
| 10 µl  | 0.47 mm                      | 2516401                            | 2536401                   |
| 25 µl  | 0.72 mm                      | 2516501                            | 2536501                   |
| 50 µl  | 0.72 mm                      | 2516601                            | 2536601                   |
| 100 µl | 0.72 mm                      | 2516701                            | 2536701                   |
| 250 µl | 0.72 mm                      | 2516801                            | 2536801                   |

#### Removable Needle, Special Length with Plunger

| Volume | Needle Tip Style Length O.D. | Special Length of Tip Style a or b | Replacement Glass Barrel |
|--------|------------------------------|------------------------------------|--------------------------|
|        |                              |                                    | Tip Style a or b         |
| 5 µl   | 0.47 mm                      | 2516302                            | 2536305                  |
| 10 µl  | 0.47 mm                      | 2516402                            | 2536405                  |
| 25 µl  | 0.72 mm                      | 2516502                            | 2536505                  |
| 50 µl  | 0.72 mm                      | 2516602                            | 2536605                  |
| 100 µl | 0.72 mm                      | 2516702                            | 2536705                  |
| 250 µl | 0.72 mm                      | 2516802                            | 2536805                  |

Specify with Order  
 1) Length in mm  
 and  
 2) Tip Style



SH-Replacement Glass Barrel



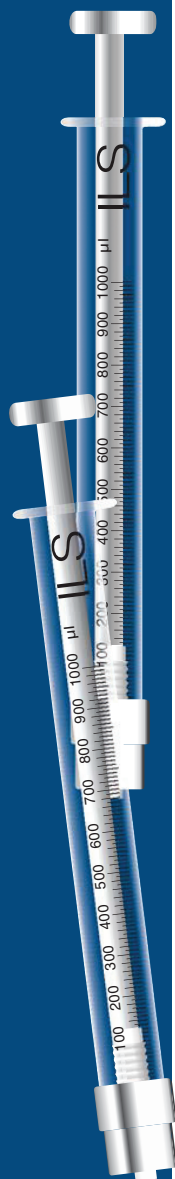
## Dosage of Gas and Liquids: Series H

### 7. TLL PTFE-Luer-Lock

Plunger: PTFE-seal  
 Glass Barrel: Borosilicate 3.3  
 Precision: <math>\pm 1\%</math> of the volume  
 Main Use: - sample dosage  
 - dosage of aggressive liquids

#### Volume

|             |         |
|-------------|---------|
| 5 $\mu$ l   | 2600309 |
| 10 $\mu$ l  | 2600409 |
| 25 $\mu$ l  | 2607509 |
| 50 $\mu$ l  | 2607609 |
| 100 $\mu$ l | 2607709 |
| 250 $\mu$ l | 2607809 |
| 500 $\mu$ l | 2607909 |
| 1.0 ml      | 2607011 |
| 2.5 ml      | 2607031 |
| 5.0 ml      | 2607051 |
| 10.0 ml     | 2607071 |
| 25.0 ml     | 2607091 |
| 50.0 ml     | 2607101 |
| 100.0 ml    | 2607121 |

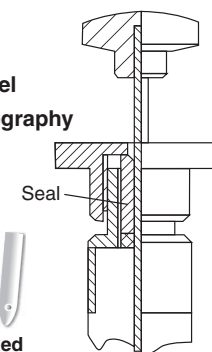


H-TLL

## Dosage of Gas and Liquids: Series G

### With Static PTFE-Seal Topping the Glass Barrel

Plunger: Stainless steel  
 Glass Barrel: Borosilicate 3.3  
 Precision: <math>\pm 1\%</math> of the volume  
 Seal: PTFE-seal at the end of glass barrel  
 Main Use: - sample dosage for gas chromatography  
 - HPLC-valves  
 - dosage with counter-pressure



#### Fixed Needles

| Volume      | Needle<br>Tip Style<br>Length<br>O.D. | fixed<br>a | fixed<br>b | fixed<br>d |
|-------------|---------------------------------------|------------|------------|------------|
|             |                                       | 51 mm      | 51 mm      | 51 mm      |
| 10 $\mu$ l  | 0.47 mm                               | 2400401    | 2400402    | 2400404    |
| 25 $\mu$ l  | 0.72 mm                               | 2400501    | 2400502    | 2400504    |
| 50 $\mu$ l  | 0.72 mm                               | 2400601    | 2400602    | 2400604    |
| 100 $\mu$ l | 0.72 mm                               | 2400701    | 2400702    | 2400704    |
| 250 $\mu$ l | 0.72 mm                               | 2400801    | 2400802    | 2400804    |
| 500 $\mu$ l | 0.72 mm                               | 2400901    | 2400902    | 2400904    |

#### Removable Needles

| Volume      | Needle<br>Tip Style<br>Length<br>O.D. | removable<br>a | removable<br>b | removable<br>d |
|-------------|---------------------------------------|----------------|----------------|----------------|
|             |                                       | 51 mm          | 51 mm          | 51 mm          |
| 10 $\mu$ l  | 0.47 mm                               | 2400405        | 2400406        | 2400408        |
| 25 $\mu$ l  | 0.72 mm                               | 2400505        | 2400506        | 2400508        |
| 50 $\mu$ l  | 0.72 mm                               | 2400605        | 2400606        | 2400608        |
| 100 $\mu$ l | 0.72 mm                               | 2400705        | 2400706        | 2400708        |
| 250 $\mu$ l | 0.72 mm                               | 2400805        | 2400806        | 2400808        |
| 500 $\mu$ l | 0.72 mm                               | 2400905        | 2400906        | 2400908        |




G

## Dosage of Gas and Liquids: Series P


### 1. With Adjustable PTFE-seal

**Plunger:** Adjustable PTFE-seal on the plunger  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
**Main Use:** - sample dosage for gas chromatography  
 - HPLC-valves  
 - dosage with counter-pressure

#### Fixed Needles

| Volume | Tip Style<br>Length<br>O.D. |  |            |            |            |
|--------|-----------------------------|---|------------|------------|------------|
|        |                             | a<br>51 mm  | b<br>51 mm | c<br>51 mm | d<br>51 mm |
| 25 µl  | 0.72 mm                     | 2300501   | 2300502    | 2300503    | 2300504    |
| 50 µl  | 0.72 mm                     | 2300601   | 2300602    | 2300603    | 2300604    |
| 100 µl | 0.72 mm                     | 2300701   | 2300702    | 2300703    | 2300704    |
| 250 µl | 0.72 mm                     | 2300801   | 2300802    | 2300803    | 2300804    |
| 500 µl | 0.72 mm                     | 2300901   | 2300902    | 2300903    | 2300904    |

#### Removable Needles

| Volume | Tip Style<br>Length<br>O.D. |  |            |            |            |
|--------|-----------------------------|--|------------|------------|------------|
|        |                             | a<br>51 mm   | b<br>51 mm | c<br>51 mm | d<br>51 mm |
| 25 µl  | 0.72 mm                     | 2300505  | 2300506    | 2300507    | 2300508    |
| 50 µl  | 0.72 mm                     | 2300605  | 2300606    | 2300607    | 2300608    |
| 100 µl | 0.72 mm                     | 2300705  | 2300706    | 2300707    | 2300708    |
| 250 µl | 0.72 mm                     | 2300805  | 2300806    | 2300807    | 2300808    |
| 500 µl | 0.72 mm                     | 2300905  | 2300906    | 2300907    | 2300908    |

## Dosage of Gas and Liquids: Series P

### 2. With Adjustable PTFE-seal, Customized Length

**Plunger:** Adjustable PTFE-seal on the plunger  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
**Main Use:** - sample dosage for gas chromatography  
 - HPLC-valves  
 - dosage under pressure

#### Fixed Needles

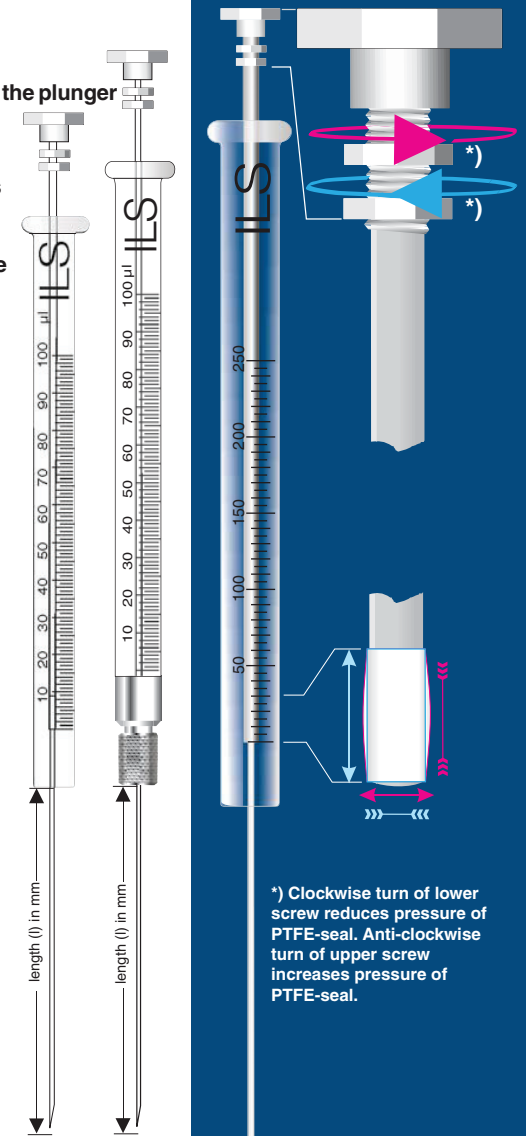
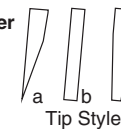
| Volume | Needle<br>Tip Style<br>Length<br>O.D. | Special<br>Length<br>Tip Style<br>a or b or c |
|--------|---------------------------------------|---|
| 25 µl  | 0.72 mm                               | 2310500                                       |
| 50 µl  | 0.72 mm                               | 2310600                                       |
| 100 µl | 0.72 mm                               | 2310700                                       |
| 250 µl | 0.72 mm                               | 2310800                                       |
| 500 µl | 0.72 mm                               | 2310900                                       |

#### Removable Needles

| Volume | Needle<br>Tip Style<br>Length<br>O.D. | Special<br>needle<br>Tip Style<br>a or b or c |
|--------|---------------------------------------|---|
| 25 µl  | 0.72 mm                               | 2310501                                       |
| 50 µl  | 0.72 mm                               | 2310601                                       |
| 100 µl | 0.72 mm                               | 2310701                                       |
| 250 µl | 0.72 mm                               | 2310801                                       |
| 500 µl | 0.72 mm                               | 2310901                                       |

Specify with Order

- Length in mm and
- Tip Style



\*) Clockwise turn of lower screw reduces pressure of PTFE-seal. Anti-clockwise turn of upper screw increases pressure of PTFE-seal.



## Syringes for Headspace Analysis

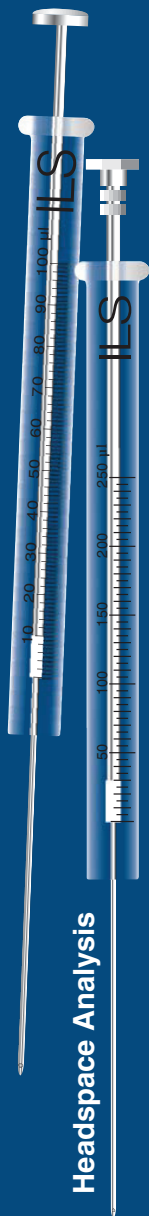
Glass Barrel: Borosilicate 3.3  
Precision: < ±1 % of the volume

### Stainless steel with PTFE-seal

| Volume | Tip Style<br>Length<br>O.D. | d<br>51 mm |
|--------|-----------------------------|------------|
| 1.0 ml | 0.72 mm                     | 2600002    |
| 2.5 ml | 0.72 mm                     | 2600022    |
| 5.0 ml | 0.72 mm                     | 2600042    |

### Plunger with adjustable PTFE-seal

| Volume | Tip Style<br>Length<br>O.D. | d<br>51 mm |
|--------|-----------------------------|------------|
| 50 µl  | 0.72 mm                     | 2300604    |
| 100 µl | 0.72 mm                     | 2300704    |
| 250 µl | 0.72 mm                     | 2300804    |
| 500 µl | 0.72 mm                     | 2300904    |



Headspace Analysis

## Syringes for On-Column Injection

Glass Barrel: Borosilicate 3.3  
Precision: < ±1% of the volume  
Needles: Stainless steel (ss), fused silica

### Fixed Needles

| Material | Tip Style | Length | O.D.    |
|----------|-----------|--------|---------|
| ss       | 45°       | 75 mm  | 0.23 mm |
| ss       | 45°       | 85 mm  | 0.23 mm |

### Special stainless steel plunger

|      |         |         |         |
|------|---------|---------|---------|
| 5 µl | 0.23 mm | 2142306 | 2142307 |
|------|---------|---------|---------|

### Removable Needles

| Material     | Tip Style | Length | O.D.    |
|--------------|-----------|--------|---------|
| ss           | 45°       | 75 mm  | 0.17 mm |
| ss           | 45°       | 85 mm  | 0.17 mm |
| ss           | 45°       | 100 mm | 0.17 mm |
| ss           | b         | 125 mm | 0.23 mm |
| fused silica | b         | 100 mm | 0.23 mm |

### Special stainless steel plunger

|       |         |         |         |         |         |         |
|-------|---------|---------|---------|---------|---------|---------|
| 5 µl  | 0.17 mm | -       | -       | -       | -       | 2142303 |
| 5 µl  | 0.23 mm | 2142313 | -       | 2142312 | -       | 2142304 |
| 10 µl | 0.17 mm | -       | -       | -       | 2142403 | -       |
| 10 µl | 0.23 mm | 2142407 | 2142408 | 2142412 | 2142406 | 2142404 |

### With PTFE-plunger tip

|       |         |   |   |   |   |         |
|-------|---------|---|---|---|---|---------|
| 10 µl | 0.17 mm | - | - | - | - | 2642401 |
| 10 µl | 0.23 mm | - | - | - | - | 2642402 |

### Replacement Needles

| Material     | Tip Style | Length | O.D.    |
|--------------|-----------|--------|---------|
| ss           | 45°       | 85 mm  | 0.17 mm |
| ss           | 45°       | 75 mm  | 0.17 mm |
| ss           | 45°       | 100 mm | 0.17 mm |
| ss           | b         | 125 mm | 0.23 mm |
| fused silica | b         | 100 mm | 0.23 mm |

|       |         |         |         |         |         |
|-------|---------|---------|---------|---------|---------|
| 5 µl  | 0.17 mm | -       | -       | -       | 2822021 |
| 5 µl  | 0.23 mm | 2822304 | 2822303 | 2822302 | -       |
| 10 µl | 0.17 mm | -       | -       | -       | 2822022 |
| 10 µl | 0.23 mm | 2822409 | -       | -       | 2822042 |



On-Column Injection

## Syringes for GC Autosampler

### 1. Dani ALS

Glass Barrel: Borosilicate 3.3  
Precision: <math>\pm 1\%</math> of the volume

| ALS 104                                       | Needle<br>Tip Style<br>Length<br>O.D. | fixed      | removable  |
|---|---------------------------------------|------------|------------|
|   |                                       | d<br>51 mm | d<br>51 mm |
| <b>Volume</b>                                 |                                       |            |            |
| <b>Special stainless steel with PTFE-seal</b> |                                       |            |            |
| 10 $\mu$ l                                    | 0.63 mm                               | 2607404    | 2607408    |
| <b>Special stainless steel plunger</b>        |                                       |            |            |
| 10 $\mu$ l                                    | 0.63 mm                               | 2107404    | 2107408    |
| <b>ALS 3841</b>                               |                                       |            |            |
|   |                                       | fixed      |            |
|   |                                       | d<br>51 mm |            |
| <b>Volume</b>                                 |                                       |            |            |
| <b>Special stainless steel plunger</b>        |                                       |            |            |
| 10 $\mu$ l                                    | 0.63 mm                               | 2107404    | -          |

## Syringes for GC Autosampler

### 2. Agilent Technologies (HP) 7670/7671/7672

Glass Barrel: Borosilicate 3.3  
Precision: <math>\pm 1\%</math> of the volume

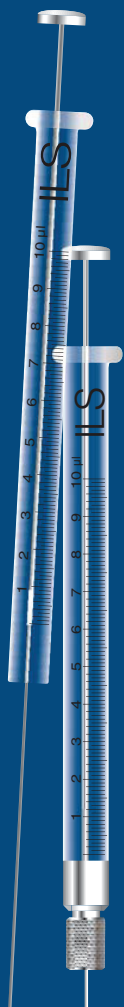
| ALS 104   | Needle<br>Tip Style<br>Length<br>O.D. | fixed      | removable  |
|---|---------------------------------------|------------|------------|
|   |                                       | a<br>51 mm | a<br>51 mm |
| <b>Volume</b>   |                                       |            |            |
| <b>Flexible plunger</b>                               |                                       |            |            |
| 5 $\mu$ l   | 0.47 mm                               | 2160301    | 2160305    |
| 10 $\mu$ l  | 0.47 mm                               | 2160401    | 2160405    |
| <b>Special stainless steel plunger</b>                |                                       |            |            |
| 5 $\mu$ l   | 0.47 mm                               | 2100301    | 2100305    |
| 10 $\mu$ l  | 0.47 mm                               | 2100401    | 2100405    |
| <b>Special stainless steel plunger with PTFE-seal</b> |                                       |            |            |
| 10 $\mu$ l  | 0.47 mm                               | 2600401    | 2600405    |

#### Six-Pack

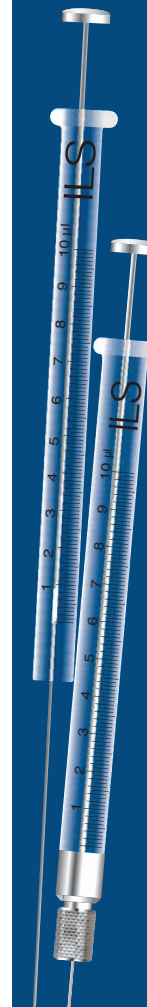
Economic pack of 6 syringes,  
fixed needles, length 51 mm  
tip style "a"



| Volume                                 | O.D.    |         |   |
|--|---------|---------|---|
| <b>Special stainless steel plunger</b> |         |         |   |
| 10 $\mu$ l                             | 0.47 mm | 2100411 | - |



Dani



Agilent

## Syringes for GC Autosampler

### 3. Agilent Technologies (HP) 7673 - 7683

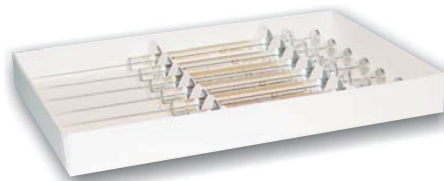
Glass Barrel: Borosilicate 3.3  
Precision: <math>\pm 1\%</math> of the volume

#### Fixed Needles

| Volume  | Tip Style Length O.D. | 42 mm   |                 | 42 mm   |                 | 42 mm   |                 |
|---|-----------------------|---------|-----------------|---------|-----------------|---------|-----------------|
|   |                       | c       | c               | c       | c               | c       | c               |
|   |                       |         | 42 mm Six-Pack* |         | 42 mm Six-Pack* |         | 42 mm Six-Pack* |
| <b>Flexible plunger</b>                               |                       |         |                 |         |                 |         |                 |
| 5 $\mu$ l   | 0.47 mm               | 2164303 | 2164313         | -       | -               | -       | -               |
| 10 $\mu$ l  | 0.47 mm               | 2164403 | 2164413         | -       | -               | -       | -               |
| 5 $\mu$ l   | 0.47/0.64 mm          | -       | -               | 2164304 | 2164314         | -       | -               |
| 10 $\mu$ l  | 0.47/0.64 mm          | -       | -               | 2164404 | 2164414         | -       | -               |
| 5 $\mu$ l   | 0.64 mm               | -       | -               | -       | -               | 2164305 | 2164315         |
| 10 $\mu$ l  | 0.64 mm               | -       | -               | -       | -               | 2164405 | 2164415         |
| <b>Special stainless steel plunger</b>                |                       |         |                 |         |                 |         |                 |
| 5 $\mu$ l   | 0.47 mm               | 2104303 | 2104313         | -       | -               | -       | -               |
| 10 $\mu$ l  | 0.47 mm               | 2104403 | 2104413         | -       | -               | -       | -               |
| 5 $\mu$ l   | 0.47/0.64 mm          | -       | -               | 2104304 | 2104314         | -       | -               |
| 10 $\mu$ l  | 0.47/0.64 mm          | -       | -               | 2104404 | 2104414         | -       | -               |
| 5 $\mu$ l   | 0.64 mm               | -       | -               | -       | -               | 2104305 | 2104315         |
| 10 $\mu$ l  | 0.64 mm               | -       | -               | -       | -               | 2104405 | 2104415         |
| <b>Special stainless steel plunger with PTFE-seal</b> |                       |         |                 |         |                 |         |                 |
| 5 $\mu$ l   | 0.47 mm               | 2604303 | 2604313         | -       | -               | -       | -               |
| 10 $\mu$ l  | 0.47 mm               | 2604403 | 2604413         | -       | -               | -       | -               |
| 5 $\mu$ l   | 0.47/0.64 mm          | -       | -               | 2604304 | 2604314         | -       | -               |
| 10 $\mu$ l  | 0.47/0.64 mm          | -       | -               | 2604404 | 2604414         | -       | -               |
| 5 $\mu$ l   | 0.64 mm               | -       | -               | -       | -               | 2604305 | 2604315         |
| 10 $\mu$ l  | 0.64 mm               | -       | -               | -       | -               | 2604405 | 2604415         |

\*Six-Pack

Economic pack of 6 syringes



## Syringes for GC Autosampler

### 3. Agilent Technologies (HP) 7673 - 7683

Glass Barrel: Borosilicate 3.3  
Precision: <math>\pm 1\%</math> of the volume

#### Removable Needles

| Volume  | Tip Style Length O.D. | 42 mm   |         | 42 mm   |       |
|---|-----------------------|---------|---------|---------|-------|
|   |                       | c       | c       | c       | c     |
|   |                       |         | 42 mm   |         | 42 mm |
| <b>Flexible plunger</b>                               |                       |         |         |         |       |
| 5 $\mu$ l   | 0.47 mm               | 2164307 | -       | -       | -     |
| 10 $\mu$ l  | 0.47 mm               | 2164407 | -       | -       | -     |
| 5 $\mu$ l   | 0.47/0.64 mm          | -       | 2164308 | -       | -     |
| 10 $\mu$ l  | 0.47/0.64 mm          | -       | 2164408 | -       | -     |
| 5 $\mu$ l   | 0.64 mm               | -       | -       | 2164309 | -     |
| 10 $\mu$ l  | 0.64 mm               | -       | -       | 2164409 | -     |
| <b>Special stainless steel plunger</b>                |                       |         |         |         |       |
| 5 $\mu$ l   | 0.47 mm               | 2104307 | -       | -       | -     |
| 10 $\mu$ l  | 0.47 mm               | 2104407 | -       | -       | -     |
| 5 $\mu$ l   | 0.47/0.64 mm          | -       | 2104308 | -       | -     |
| 10 $\mu$ l  | 0.47/0.64 mm          | -       | 2104408 | -       | -     |
| 5 $\mu$ l   | 0.64 mm               | -       | -       | 2104309 | -     |
| 10 $\mu$ l  | 0.64 mm               | -       | -       | 2104409 | -     |
| <b>Special stainless steel plunger with PTFE-seal</b> |                       |         |         |         |       |
| 5 $\mu$ l   | 0.47 mm               | 2604307 | -       | -       | -     |
| 10 $\mu$ l  | 0.47 mm               | 2604407 | -       | -       | -     |
| 5 $\mu$ l   | 0.47/0.64 mm          | -       | 2604308 | -       | -     |
| 10 $\mu$ l  | 0.47/0.64 mm          | -       | 2604408 | -       | -     |
| 5 $\mu$ l   | 0.64 mm               | -       | -       | 2604309 | -     |
| 10 $\mu$ l  | 0.64 mm               | -       | -       | 2604409 | -     |

## Syringes for GC Autosampler

### 4. LEAP Technologies, CTC, Carlo, Erba, Finsons

Glass Barrel: Borosilicate 3.3  
Precision : <math>\pm 1\%</math> of the volume

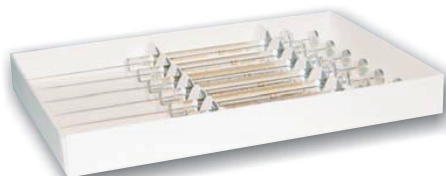
CTC A200 S  
A200 SE  
A800



| Volume  | Needle Tip Style Length O.D. | fixed a 51 mm | fixed c 51 mm | fixed c 70 mm | fixed c 80 mm | removable c 80 mm |
|---|------------------------------|---------------|---------------|---------------|---------------|-------------------|
| <b>Flexible plunger</b>                               |                              |               |               |               |               |                   |
| 5 $\mu$ l   | 0.47 mm                      | 2166301       | -             | -             | -             | -                 |
| 10 $\mu$ l  | 0.47 mm                      | 2166401       | -             | -             | -             | -                 |
| <b>Special stainless steel plunger</b>                |                              |               |               |               |               |                   |
| 5 $\mu$ l   | 0.47 mm                      | 2106301       | 2106302       | 2108302       | -             | -                 |
| 10 $\mu$ l  | 0.47 mm                      | 2106401       | 2106416       | -             | 2106412       | -                 |
| 10 $\mu$ l  | 0.72 mm                      | -             | -             | -             | 2106415       | 2106406           |
| <b>Special stainless steel plunger with PTFE-seal</b> |                              |               |               |               |               |                   |
| 10 $\mu$ l  | 0.47 mm                      | 2606401       | 2606407       | -             | -             | -                 |
| 25 $\mu$ l  | 0.47 mm                      | -             | 2620506       | -             | -             | -                 |
| 50 $\mu$ l  | 0.47 mm                      | -             | 2620606       | -             | -             | -                 |
| 100 $\mu$ l   | 0.47 mm                      | -             | 2620706       | -             | -             | -                 |
| 250 $\mu$ l   | 0.47 mm                      | -             | 2620803       | -             | -             | -                 |
| 500 $\mu$ l   | 0.47 mm                      | -             | 2620903       | -             | -             | -                 |

#### Six-Pack

Economic pack of 6 syringes, fixed needles, length 51 mm, tip style "a"



| Volume                                 | O.D.    |         |   |   |   |
|--|---------|---------|---|---|---|
| <b>Special stainless steel plunger</b> |         |         |   |   |   |
| 10 $\mu$ l                             | 0.47 mm | 2106411 | - | - | - |

## Syringes for GC Autosampler

### 5. Shimadzu AOC 14/17/20

Glass Barrel: Borosilicate 3.3  
Precision : <math>\pm 1\%</math> of the volume

AOC 14/17/20



| Volume  | Needle Tip Style Length O.D. | fixed a 42 mm | fixed c 42 mm | removable a 42 mm |
|---|------------------------------|---------------|---------------|-------------------|
| <b>Flexible plunger</b>                               |                              |               |               |                   |
| 5 $\mu$ l   | 0.47 mm                      | 2165301       | -             | 2165307           |
| 10 $\mu$ l  | 0.47 mm                      | 2165401       | -             | 2165407           |
| 5 $\mu$ l   | 0.63 mm                      | 2165302       | -             | 2165308           |
| 10 $\mu$ l  | 0.63 mm                      | 2165402       | -             | 2165408           |
| <b>Special stainless steel plunger</b>                |                              |               |               |                   |
| 5 $\mu$ l   | 0.47 mm                      | 2105301       | 2105303       | 2105307           |
| 10 $\mu$ l  | 0.47 mm                      | 2105401       | 2105403       | 2105407           |
| 5 $\mu$ l   | 0.63 mm                      | 2105302       | 2105304       | 2105308           |
| 10 $\mu$ l  | 0.63 mm                      | 2105402       | 2105404       | 2105408           |
| <b>Special stainless steel plunger with PTFE-seal</b> |                              |               |               |                   |
| 10 $\mu$ l  | 0.47 mm                      | 2605401       | -             | 2605407           |
| 10 $\mu$ l  | 0.63 mm                      | 2605402       | -             | 2605408           |

## Syringes for GC Autosampler

### 6. Perkin Elmer

Glass Barrel: Borosilicate 3.3  
Precision: < ±1% of the volume

AS 100/AS 2000, AS 3000 GC Autosystems



| Volume  | Needle Tip Style Length O.D. | fixed c 70 mm |
|---|------------------------------|---------------|
| <b>Special stainless steel plunger</b>                |                              |               |
| 5 µl  | 0.47 mm                      | 2108302       |
| 5 µl  | 0.63 mm                      | 2108303       |
| <b>Special stainless steel plunger with PTFE-seal</b> |                              |               |
| 5 µl  | 0.47 mm                      | 2608302       |
| 5 µl  | 0.63 mm                      | 2608303       |

## Syringes for GC Headspace Sampling

### ThermoQuest, Thermo Finnigan, CTC

Glass Barrel: Borosilicate 3.3  
Precision: < ±1% of the volume

HS 500



| Volume  | Needle Tip Style Length O.D. | fixed d 56 mm | without |
|---|------------------------------|---------------|---------|
| <b>Special stainless steel plunger with PTFE-seal</b> |                              |               |         |
| 1.0 ml  | 0.47 mm                      | 2620014       | -       |
| 2.5 ml  | 0.47 mm                      | 2620034       | -       |
| 5.0 ml  | 0.47 mm                      | 2620051       | -       |
| 1.0 ml  | 0.64 mm                      | 2620012       | -       |
| 2.5 ml  | 0.64 mm                      | 2620032       | -       |
| 5.0 ml  | 0.64 mm                      | 2620050       | -       |
| 1.0 ml  | 0.72 mm                      | 2620013       | -       |
| 2.5 ml  | 0.72 mm                      | 2620023       | 2620028 |
| 5.0 ml  | 0.72 mm                      | 2620049       | -       |

Perkin Elmer



CTC





## HPLC Syringes

### 1. Most Common Valves

Rheodyne, Varian, Shimadzu, Knauer, Hewlett Packard/  
Agilent, Beckmann, Valco VISF-2 and Altex valve injectors

Glass Barrel: Borosilicate 3.3  
Precision: < ±1% of the volume

| Volume  | Needle Tip Style Length O.D. | fixed b 51 mm | removable b 51 mm | TLL Luer Lock |
|---|------------------------------|---------------|-------------------|---------------|
| <b>Flexible plunger</b>                               |                              |               |                   |               |
| 5 µl  | 0.72 mm                      | 2161302       | 2161306           | -             |
| 10 µl   | 0.72 mm                      | 2161402       | 2161406           | -             |
| <b>Special stainless steel plunger</b>                |                              |               |                   |               |
| 5 µl  | 0.72 mm                      | 2101302       | 2101306           | -             |
| 10 µl   | 0.72 mm                      | 2101402       | 2101406           | -             |
| 25 µl   | 0.72 mm                      | 2101502       | 2101506           | -             |
| 50 µl   | 0.72 mm                      | 2101602       | 2101606           | 2101609       |
| 100 µl  | 0.72 mm                      | 2101702       | 2101706           | 2101709       |
| 250 µl  | 0.72 mm                      | 2101802       | 2101806           | 2101809       |
| 500 µl  | 0.72 mm                      | 2101902       | 2101906           | 2101909       |
| <b>Special stainless steel plunger with PTFE-seal</b> |                              |               |                   |               |
| 5 µl  | 0.72 mm                      | 2601302       | 2601306           | -             |
| 10 µl   | 0.72 mm                      | 2601402       | 2601406           | -             |
| 25 µl   | 0.72 mm                      | 2601502       | 2601506           | -             |
| 50 µl   | 0.72 mm                      | 2601602       | 2601606           | 2601609       |
| 100 µl  | 0.72 mm                      | 2601702       | 2601706           | 2601709       |
| 250 µl  | 0.72 mm                      | 2601802       | 2601806           | 2601809       |
| 500 µl  | 0.72 mm                      | 2601902       | 2601906           | 2601909       |
| 1.0 ml  | 0.72 mm                      | 2601001       | 2601002           | 2601003       |

## HPLC Syringes

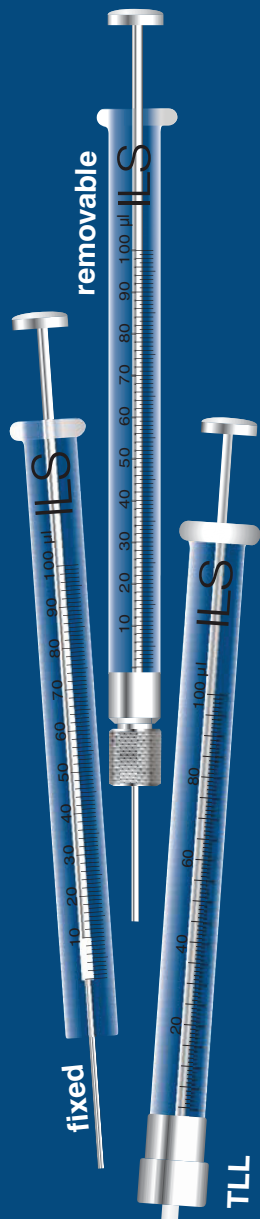
### 2. Waters Valves

Glass Barrel: Borosilicate 3.3  
Precision: < ±1% of the volume

| Volume  | Needle Tip Style Length O.D. | fixed b 50 mm | removable b 50 mm | TLL Luer Lock |
|---|------------------------------|---------------|-------------------|---------------|
| <b>Flexible plunger</b>                                     |                              |               |                   |               |
| 5 µl  | 0.50 mm                      | 2162302       | 2162306           | -             |
| 10 µl   | 0.50 mm                      | 2162402       | 2162406           | -             |
| <b>Special stainless steel plunger</b>                      |                              |               |                   |               |
| 5 µl  | 0.50 mm                      | 2102302       | 2102306           | -             |
| 10 µl   | 0.50 mm                      | 2102402       | 2102406           | -             |
| 25 µl   | 0.50 mm                      | 2102502       | 2102506           | -             |
| 50 µl   | 0.50 mm                      | 2102602       | 2102606           | 2102609       |
| 100 µl  | 0.50 mm                      | 2102702       | 2102706           | 2102709       |
| 250 µl  | 0.50 mm                      | 2102802       | 2102806           | 2102809       |
| 500 µl  | 0.50 mm                      | 2102902       | 2102906           | 2102909       |
| <b>Special stainless steel plunger with PTFE-seal</b>       |                              |               |                   |               |
| 10 µl   | 0.50 mm                      | 2602402       | 2602406           | -             |
| 25 µl   | 0.50 mm                      | 2602502       | 2602506           | -             |
| 50 µl   | 0.50 mm                      | 2602602       | 2602606           | 2602609       |
| 100 µl  | 0.50 mm                      | 2602702       | 2602706           | 2602709       |
| 250 µl  | 0.50 mm                      | 2602802       | 2602806           | 2602809       |
| 500 µl  | 0.50 mm                      | 2602902       | 2602906           | 2602909       |
| 1.0 ml  | 0.50 mm                      | 2602006       | 2602007           | 2602003       |
| 2.5 ml  | 0.50 mm                      | 2602026       | -                 | -             |
| <b>Special stainless steel plunger with extended handle</b> |                              |               |                   |               |
| 5 µl  | 0.50 mm                      | -             | 2502304           | -             |
| 10 µl   | 0.50 mm                      | -             | 2502404           | -             |
| 25 µl   | 0.50 mm                      | -             | 2502504           | -             |
| 50 µl   | 0.50 mm                      | -             | 2502604           | -             |
| 100 µl  | 0.50 mm                      | -             | 2502704           | -             |
| 250 µl  | 0.50 mm                      | -             | 2502804           | -             |







## HPLC Syringes

### 3. Valco VISF-1 Valves

Glass Barrel: Borosilicate 3.3  
Precision: < ±1% of the volume

| Volume  | Needle Tip Style Length O.D. | fixed b 19 mm | removable b 19 mm | TLL Luer-Lock |
|---|------------------------------|---------------|-------------------|---------------|
| <b>Flexible plunger</b>                               |                              |               |                   |               |
| 5 µl  | 0.72 mm                      | 2163303       | 2163307           | -             |
| 10 µl   | 0.72 mm                      | 2163403       | 2163407           | -             |
| <b>Special stainless steel plunger</b>                |                              |               |                   |               |
| 5 µl  | 0.72 mm                      | 2103303       | 2103307           | -             |
| 10 µl   | 0.72 mm                      | 2103403       | 2103407           | -             |
| 25 µl   | 0.72 mm                      | 2103503       | 2103507           | -             |
| 50 µl   | 0.72 mm                      | 2103603       | 2103607           | 2103609       |
| 100 µl  | 0.72 mm                      | 2103703       | 2103707           | 2103709       |
| 250 µl  | 0.72 mm                      | 2103803       | 2103807           | 2103809       |
| 500 µl  | 0.72 mm                      | 2103903       | 2103907           | 2103909       |
| <b>Special stainless steel plunger with PTFE-seal</b> |                              |               |                   |               |
| 10 µl   | 0.72 mm                      | 2603403       | 2603407           | -             |
| 25 µl   | 0.72 mm                      | 2603503       | 2603507           | -             |
| 50 µl   | 0.72 mm                      | 2603603       | 2603607           | 2603609       |
| 100 µl  | 0.72 mm                      | 2603703       | 2603707           | 2603709       |
| 250 µl  | 0.72 mm                      | 2603803       | 2603807           | 2603809       |
| 500 µl  | 0.72 mm                      | 2603903       | 2603907           | 2603909       |
| 1.0 ml  | 0.72 mm                      | 2603003       | 2603007           | 2603009       |

## HPLC Syringes for Autosampler

### 1. Gynkotech Dionex Gina, Agilent (HP) 1090A, Hitachi

Plunger: Special stainless steel plunger with PTFE-seal

Glass Barrel: Borosilicate 3.3  
Precision: < ±1% of the volume

#### Gynkotech Dionex Gina

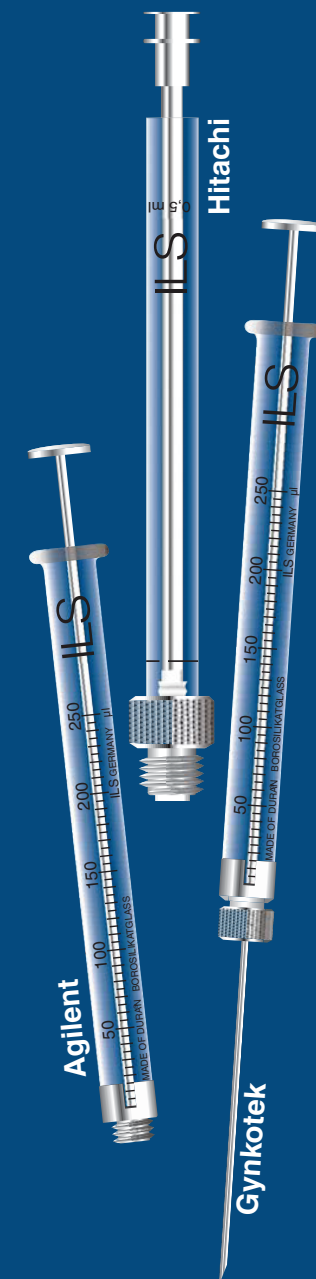
| Volume | Needle Tip Style Length Series | removable a 51 mm O.D. |         |
|--------|--------------------------------|------------------------|---------|
| 25 µl  | H                              | 0.72 mm                | 2606505 |
| 250 µl | H                              | 0.72 mm                | 2606805 |

#### Hewlett Packard 1090A/Agilent

| Volume | Series | Front Fitting |         |
|--------|--------|---------------|---------|
| 25 µl  | H      | ¼"-28UNEF     | 2606500 |
| 250 µl | H      | ¼"-28UNEF     | 2606800 |

#### Hitachi L-7200/L-7250/AS2000/AS42000

| Volume | Series | Front Fitting |         |
|--------|--------|---------------|---------|
| 100 µl | H      | M10           | 2611711 |
| 500 µl | H      | M10           | 2611911 |
| 1.0 ml | H      | M10           | 2611011 |
| 2.5 ml | H      | M10           | 2611031 |



## HPLC Syringes for Autosampler

### 2. Waters, Spark, Kontron

**Plunger:** Stainless steel with PTFE-seal

**Glass Barrel:** Borosilicate 3.3

**Precision:** < ±1% of the volume

#### Waters WISP®

plastic coated safety syringes

| Volume | Series | Front Fitting / Plunger Top |         |
|--------|--------|-----------------------------|---------|
| 25 µl  | H      | ¼"-28UNF / 4-40UNC          | 2663514 |
| 250 µl | H      | ¼"-28UNF / 4-40UNC          | 2663814 |

#### Spark

| Volume | Series | Front Fitting |         |
|--------|--------|---------------|---------|
| 25 µl  | H      | ¼"-28UNF      | 2608517 |
| 50 µl  | H      | ¼"-28UNF      | 2608617 |
| 100 µl | H      | ¼"-28UNF      | 2608717 |
| 250 µl | H      | ¼"-28UNF      | 2608817 |
| 500 µl | H      | ¼"-28UNF      | 2608917 |
| 1.0 ml | H      | ¼"-28UNF      | 2608017 |

#### Kontron

| Volume | Series | Front Fitting |         |
|--------|--------|---------------|---------|
| 250 µl | H      | M8x0.75       | 2652816 |
| 500 µl | H      | M8x0.75       | 2652916 |
| 1.0 ml | H      | M8x0.75       | 2652016 |
| 2.5 ml | H      | M8x0.75       | 2652036 |

WISP® is a registered trademark of Waters Corporation

Waters WISP®



Kontron



## HPLC Syringes for Autosampler

### 3. Perkin Elmer

Glass Barrel: Borosilicate 3.3  
Precision: <math>\pm 1\%</math> of the volume

#### Perkin Elmer Series 200 Autosampler

| Volume   | H-CX    | H-C     |
|--|---------|---------|
| Special stainless steel plunger with PTFE-seal |         |         |
| 50 $\mu$ l                                     | 2606615 | -       |
| 250 $\mu$ l                                    | 2606815 | -       |
| 500 $\mu$ l                                    | 2606915 | -       |
| 1.0 ml   | -       | 2606015 |
| 2.5 ml   | -       | 2606035 |

Plunger Top

With thread  
6-32 UNC



With thread  
6-32 UNC



Front Fitting

Screw  
 $\frac{1}{4}$ "x28 UNF



Screw  
 $\frac{1}{4}$ "x28 UNF



## HPLC Syringes for Autosampler

### 4. LEAP Technologies, CTC, Shimadzu

Glass Barrel: Borosilicate 3.3  
Precision: <math>\pm 1\%</math> of the volume

#### LEAP, CTC

| Volume                                 | Series | Gauge | Needle Tip Style Length O.D. | fixed b 51 mm |
|--|--------|-------|------------------------------|---------------|
| Stainless steel plunger                |        |       |                              |               |
| 10 $\mu$ l                             | N      | 22s   | 0.72 mm                      | 2120402       |
| Stainless steel plunger with PTFE-seal |        |       |                              |               |
| 10 $\mu$ l                             | H      | 22s   | 0.72 mm                      | 2606416       |
| 25 $\mu$ l                             | H      | 22s   | 0.72 mm                      | 2620502       |
| 50 $\mu$ l                             | H      | 22s   | 0.72 mm                      | 2620602       |
| 50 $\mu$ l                             | H      | 22    | 0.72 mm                      | 2620605       |
| 100 $\mu$ l                            | H      | 22s   | 0.72 mm                      | 2620702       |
| 100 $\mu$ l                            | H      | 22    | 0.72 mm                      | 2620705       |
| 250 $\mu$ l                            | H      | 22    | 0.72 mm                      | 2620805       |

#### Shimadzu SIL 6A

| Volume   | Series | Front Fitting          |         |
|--|--------|------------------------|---------|
| Special stainless steel plunger with PTFE-seal |        |                        |         |
| 100 $\mu$ l                                    | H      | $\frac{1}{4}$ "-28UNEF | 2606700 |



## HPLC Syringes for Autosampler

### 5. Thermo Finnigan, Thermo Separation, Varian

Plunger: Stainless steel with PTFE-seal  
 Glass Barrel: Borosilicate 3.3  
 Precision: <math>\pm 1\%</math> of the volume

Thermo Finnigan  
 Thermo Separation SP 8780/SP 8875/SP 8880  
 Thermo Separation AS 100/AS 300/AS 1000/AS 3000/AS 3500  
 Varian 9090

| Volume      | Series | Front Fitting |         |
|-------------|--------|---------------|---------|
| 100 $\mu$ l | H-C    | 1/4"-28UNF    | 2606714 |
| 250 $\mu$ l | H-C    | 1/4"-28UNF    | 2606814 |
| 500 $\mu$ l | H-C    | 1/4"-28UNF    | 2606914 |
| 1.0 ml      | H-C    | 1/4"-28UNF    | 2606015 |
| 2.5 ml      | H-C    | 1/4"-28UNF    | 2606035 |

## Syringes for TLC

### CAMAG Linomat III and IV

Glass Barrel: Borosilicate 3.3  
 Precision: <math>\pm 1\%</math> of the volume  
 Needle: especially developed for the needs of the Linomat III and IV

Main Use: Thin Layer Chromatography (TLC)

| Volume   | Needle fixed |
|--|--------------|
| Special stainless steel plunger with PTFE-seal |              |
| 100 $\mu$ l                                    | 2606702      |
| 500 $\mu$ l                                    | 2606902      |

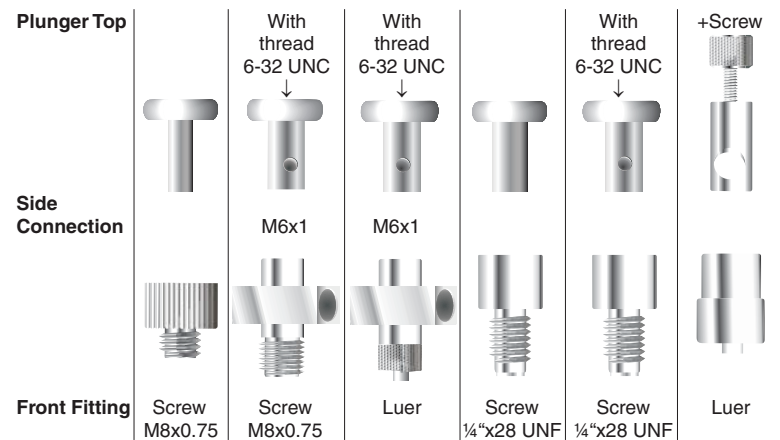


# Syringes for Automatic Liquid Handling

## 1. PTFE-Seals, Chemically Resistant Heavy Duty Syringes

Plunger: PTFE-seal  
 Glass Barrel: Borosilicate 3.3  
 Precision: < ±1% of the volume

| Volume  | AD      | DAD     | DX      | C       | CX      | RQ      |
|---------|---------|---------|---------|---------|---------|---------|
| 10 µl   | -       | -       | -       | 2606414 | 2606415 | -       |
| 25 µl   | -       | -       | 2607516 | 2606514 | 2606515 | 2607512 |
| 50 µl   | 2605613 | 2607618 | 2607616 | 2606614 | 2606615 | 2607612 |
| 100 µl  | 2605713 | 2607718 | 2607716 | 2606714 | 2606715 | 2607712 |
| 250 µl  | 2605813 | 2607818 | 2607816 | 2606814 | 2606815 | 2607812 |
| 500 µl  | 2605913 | 2607918 | 2607916 | 2606914 | 2606915 | 2607912 |
| 1.0 ml  | 2605014 | 2607018 | 2607016 | 2606015 | -       | 2607014 |
| 2.5 ml  | 2605034 | 2607038 | -       | 2606035 | -       | 2607034 |
| 5.0 ml  | 2605054 | -       | -       | 2606055 | -       | 2607054 |
| 10.0 ml | 2605074 | -       | -       | 2606075 | -       | 2607074 |
| 25.0 ml | 2605094 | -       | -       | 2606095 | -       | -       |



# Syringes for Automatic Liquid Handling

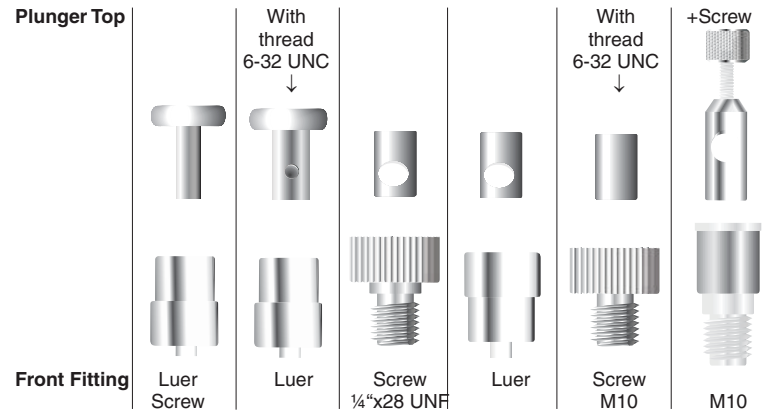
## 1. PTFE-Seals, Chemically Resistant Heavy Duty Syringes

Plunger: PTFE-seal  
 Glass Barrel: Borosilicate 3.3  
 Precision: < ±1% of the volume

| Volume   | TLL     | TLL-X   | H-KP    | XL      | H-Gi 402 | H-Gi 401 |
|----------|---------|---------|---------|---------|----------|----------|
| 25 µl    | 2607509 | 2607517 | 2608515 | 2607511 | -        | -        |
| 50 µl    | 2607609 | 2607617 | 2608615 | 2607611 | -        | -        |
| 100 µl   | 2607709 | 2607717 | 2608715 | 2607711 | 2629710  | -        |
| 250 µl   | 2607809 | 2607817 | 2608815 | 2607811 | 2629810  | -        |
| 500 µl   | 2607909 | 2607917 | 2608915 | 2607911 | 2629910  | 2629911  |
| 1.0 ml   | 2607011 | 2607017 | 2608015 | 2607013 | 2629015  | -        |
| 2.5 ml   | 2607031 | 2607037 | 2608035 | 2607033 | 2629031  | -        |
| 5.0 ml   | 2607051 | 2607057 | 2608055 | 2607053 | 2629051  | -        |
| 10.0 ml  | 2607071 | 2607077 | 2608075 | 2607073 | 2629071  | 2629073  |
| 25.0 ml  | 2607091 | -       | 2608091 | 2607096 | -        | -        |
| 50.0 ml  | 2607101 | -       | -       | 2607103 | -        | -        |
| 100.0 ml | 2607121 | -       | -       | -       | -        | -        |



TLL



TLL-X

H-KP

XL

H-Gi 402

H-Gi 401



# Syringes for Automatic Liquid Handling

## 1. PTFE-Seals, Chemically Resistant Heavy Duty Syringes

Plunger: PTFE-seal  
 Glass Barrel: Borosilicate 3.3  
 Precision: <math>\pm 1\%</math> of the volume

| Volume       | H-PD    | XE      | XP      |
|--------------|---------|---------|---------|
| 12.5 $\mu$ l | 2658415 | -       | -       |
| 25 $\mu$ l   | 2658515 | -       | 2607515 |
| 50 $\mu$ l   | 2658615 | -       | 2607615 |
| 100 $\mu$ l  | 2658715 | -       | 2607715 |
| 125 $\mu$ l  | 2658714 | -       | -       |
| 250 $\mu$ l  | 2658815 | -       | 2607815 |
| 500 $\mu$ l  | 2658915 | 2607921 | 2607915 |
| 1.0 ml       | 2658014 | 2607021 | 2607015 |
| 1.25 ml      | 2658015 | -       | -       |
| 2.5 ml       | 2658035 | 2607041 | 2607035 |
| 5.0 ml       | 2658055 | 2607061 | 2607075 |
| 12.5 ml      | 2658074 | -       | -       |



H-PD

Plunger Top

With thread  
6-32 UNC



Front Fitting



Luer



Screw  
1/4"x28 UNF



Screw  
1/4"x28 UNF



H-PD

XE

XP

XP

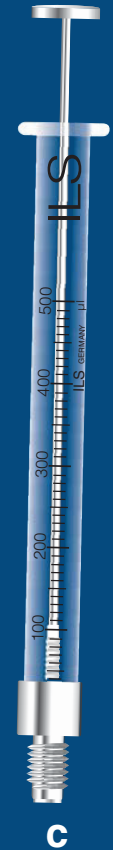
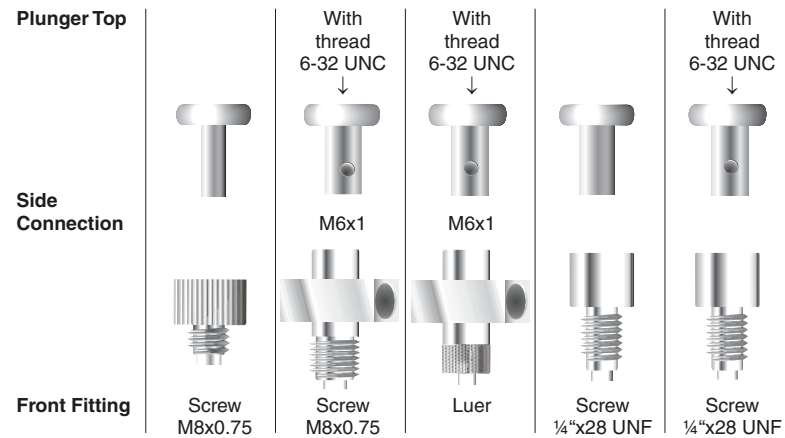
# Syringes for Automatic Liquid Handling

## 2. Modified PTFE-Seals for Buffers

Specially designed for handling of strong buffers and other aqueous solutions. The modified PTFE-seals guarantee extended lifetime under heavy duty conditions.

**Plunger:** PTFE-seal  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume

| Volume  | AD      | DAD     | DX      | C       | CX      |
|---------|---------|---------|---------|---------|---------|
| 25 µl   | -       | -       | 2627517 | 2606517 | 2606527 |
| 50 µl   | 2605617 | 2626617 | 2627617 | 2606617 | 2606627 |
| 100 µl  | 2605717 | 2626717 | 2627717 | 2606717 | 2606727 |
| 250 µl  | 2605817 | 2626817 | 2627817 | 2606817 | 2606827 |
| 500 µl  | 2605917 | 2626917 | 2627917 | 2606917 | 2606927 |
| 1.0 ml  | 2605017 | 2626017 | 2627017 | 2606017 | -       |
| 2.5 ml  | 2605037 | 2626037 | -       | 2606037 | -       |
| 5.0 ml  | 2605057 | -       | -       | 2606057 | -       |
| 10.0 ml | 2605077 | -       | -       | 2606077 | -       |



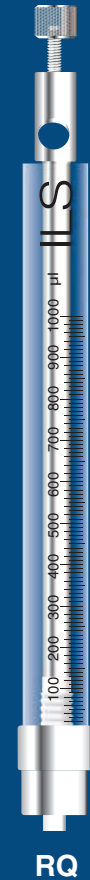
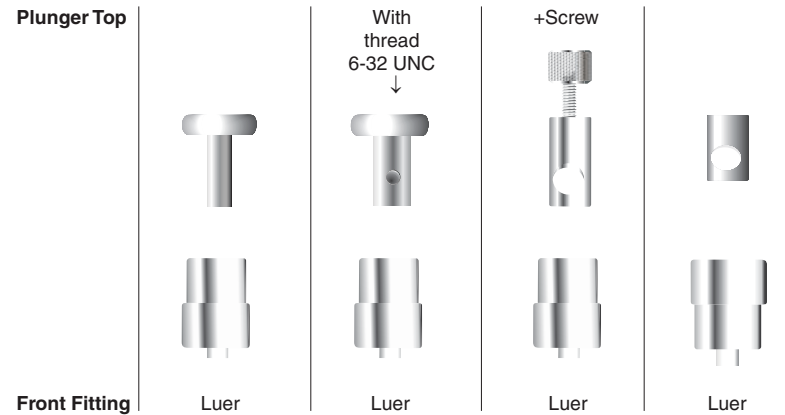
# Syringes for Automatic Liquid Handling

## 2. Modified PTFE-Seals for Buffers

Specially designed for handling of strong buffers and other aqueous solutions. The modified PTFE-seals guarantee extended lifetime under heavy duty conditions.

**Plunger:** PTFE-seal  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** <math>\pm 1\%</math> of the volume

| Volume      | TLL     | TLL-X   | RQ      | XL      |
|-------------|---------|---------|---------|---------|
| 25 $\mu$ l  | 2641517 | 2643517 | 2644517 | 2645517 |
| 50 $\mu$ l  | 2641617 | 2643617 | 2644617 | 2645617 |
| 100 $\mu$ l | 2641717 | 2643717 | 2644717 | 2645717 |
| 250 $\mu$ l | 2641817 | 2643817 | 2644817 | 2645817 |
| 500 $\mu$ l | 2641917 | 2643917 | 2644917 | 2645917 |
| 1.0 ml      | 2641017 | 2643017 | 2644017 | 2645017 |
| 2.5 ml      | 2641037 | 2643037 | 2644037 | 2645037 |
| 5.0 ml      | 2641057 | 2643057 | 2644057 | 2645057 |
| 10.0 ml     | 2641077 | 2643077 | 2644077 | 2645077 |



# Syringes for Automatic Liquid Handling

## 2. Modified PTFE-Seals for Buffers

Specially designed for handling of strong buffers and other aqueous solutions. The modified PTFE-seals guarantee extended lifetime under heavy duty conditions.

**Plunger:** PTFE-seal  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume

| Volume  | H-PD    | XE      | XP      |
|---------|---------|---------|---------|
| 12.5 µl | 2666415 | -       | -       |
| 25 µl   | 2666515 | -       | 2647517 |
| 50 µl   | 2666615 | -       | 2647617 |
| 100 µl  | 2666715 | -       | 2647717 |
| 125 µl  | 2666714 | -       | -       |
| 250 µl  | 2666815 | -       | 2647817 |
| 500 µl  | 2666915 | 2646927 | 2647917 |
| 1.0 ml  | 2666014 | 2646027 | 2647017 |
| 1.25 ml | 2666015 | -       | -       |
| 2.5 ml  | 2666035 | 2646047 | 2647037 |
| 5.0 ml  | 2666055 | 2646067 | 2647077 |
| 12.5 ml | 2666074 | -       | -       |



H-PD

Plunger Top

With thread  
6-32 UNC



Front Fitting

Luer



Screw  
¼"x28 UNF



Screw  
¼"x28 UNF



H-PD

XE

XP

XP

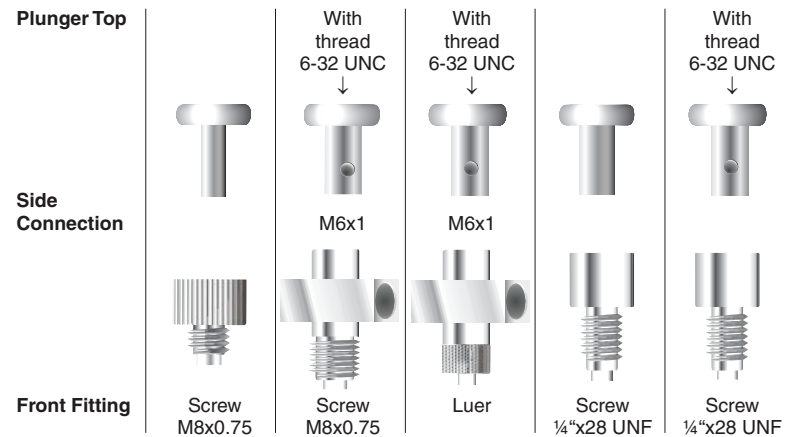
# Syringes for Automatic Liquid Handling

## 3. Special PE-Seals for Smoother Operation

Specially designed for handling of strong buffers and other aqueous solutions. The special PE-seals run smoother than conventional seals. Good resistance to buffers and aqueous solutions, long lifetime.

**Plunger:** PE-seal (Polyethylene)  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume

| Volume  | AD      | DAD     | DX      | C       | CX      |
|---------|---------|---------|---------|---------|---------|
| 50 µl   | 2605618 | 2626618 | 2627618 | 2606618 | 2606628 |
| 100 µl  | 2605718 | 2626718 | 2627718 | 2606718 | 2606728 |
| 250 µl  | 2605818 | 2626818 | 2627818 | 2606818 | 2606828 |
| 500 µl  | 2605918 | 2626918 | 2627918 | 2606918 | 2606928 |
| 1.0 ml  | 2605018 | 2626018 | 2627018 | 2606018 | -       |
| 2.5 ml  | 2605038 | 2626038 | -       | 2606038 | -       |
| 5.0 ml  | 2605058 | -       | -       | 2606058 | -       |
| 10.0 ml | 2605078 | -       | -       | 2606078 | -       |



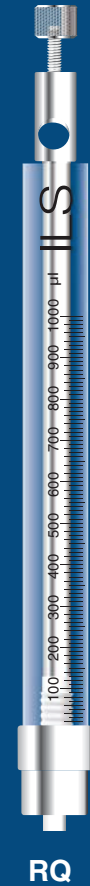
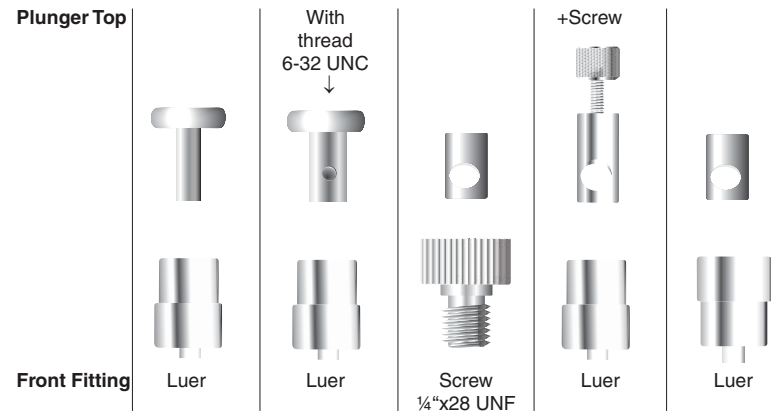
# Syringes for Automatic Liquid Handling

## 3. Special PE-Seals for Smoother Operation

Specially designed for handling of strong buffers and other aqueous solutions. The special PE-seals run smoother than conventional seals. Good resistance to buffers and aqueous solutions, long lifetime.

**Plunger:** PE-seal (Polyethylene)  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume

| Volume  | TLL     | TLL-X   | H-KP    | RQ      | XL      |
|---------|---------|---------|---------|---------|---------|
| 50 µl   | 2641618 | 2643618 | 2608616 | 2644618 | 2645618 |
| 100 µl  | 2641718 | 2643718 | 2608716 | 2644718 | 2645718 |
| 250 µl  | 2641818 | 2643818 | 2608816 | 2644818 | 2645818 |
| 500 µl  | 2641918 | 2643918 | 2608916 | 2644918 | 2645918 |
| 1.0 ml  | 2641018 | 2643018 | 2608016 | 2644018 | 2645018 |
| 2.5 ml  | 2641038 | 2643038 | 2608036 | 2644038 | 2645038 |
| 5.0 ml  | 2641058 | 2643058 | 2608056 | 2644058 | 2645058 |
| 10.0 ml | 2641078 | 2643078 | 2608076 | 2644078 | 2645078 |



# Syringes for Automatic Liquid Handling

## 3. Special PE-Seals for Smoother Operation

Specially designed for handling of strong buffers and other aqueous solutions. The special PE-seals run smoother than conventional seals. Good resistance to buffers and aqueous solutions, long lifetime.

**Plunger:** PE-seal (Polyethylene)  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume

| Volume  | H-PD    | XE      | XP      |
|---------|---------|---------|---------|
| 25 µl   | 2665515 | -       | -       |
| 50 µl   | 2665615 | -       | 2647618 |
| 100 µl  | 2665715 | -       | 2647718 |
| 125 µl  | 2665714 | -       | -       |
| 250 µl  | 2665815 | -       | 2647818 |
| 500 µl  | 2665915 | 2646928 | 2647918 |
| 1.0 ml  | 2665014 | 2646028 | 2647018 |
| 1.25 ml | 2665015 | -       | -       |
| 2.5 ml  | 2665035 | 2646048 | 2647038 |
| 5.0 ml  | 2665055 | 2646068 | 2647078 |



H-PD

Plunger Top

With thread  
6-32 UNC



Front Fitting

Luer



Screw  
¼"x28 UNF



Screw  
¼"x28 UNF



H-PD

XE

XP

XP



## Syringes for Automatic Liquid Handling

### 4. ABI, Abbott, Selectra, H-I, Varian

Plunger: Stainless steel with PTFE-seal  
 Glass Barrel: Borosilicate 3.3  
 Precision: <math>\pm 1\%</math> of the volume

#### ABI PRISM® for Genetic Analyser

| Volume | Series | Front Fitting |         |
|--------|--------|---------------|---------|
| 1 ml   | H      | ¼"-32 UNEF    | 2618011 |

#### Syringe for Abbott CELL-DYN®

| Volume | Series | Front Fitting |         |
|--------|--------|---------------|---------|
| 10 ml  | H      | TLL           | 2607081 |

#### Syringe for Selectra

| Volume | Series | Front Fitting |         |
|--------|--------|---------------|---------|
| 100 µl | H      | M8x0.75       | 2605714 |
| 500 µl | H      | M8x0.75       | 2605914 |
| 1.0 ml | H      | M8x0.75       | 2605013 |

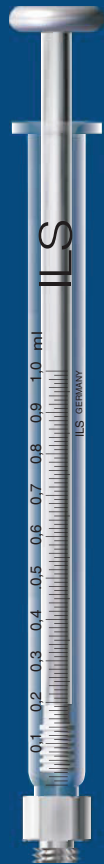
#### H-I

| Volume | Series | Front Fitting |         |
|--------|--------|---------------|---------|
| 250 µl | HI     | ¼"-28 UNEF    | 2623815 |
| 500 µl | HI     | ¼"-28 UNEF    | 2623915 |
| 1.0 ml | HI     | ¼"-28 UNEF    | 2623015 |

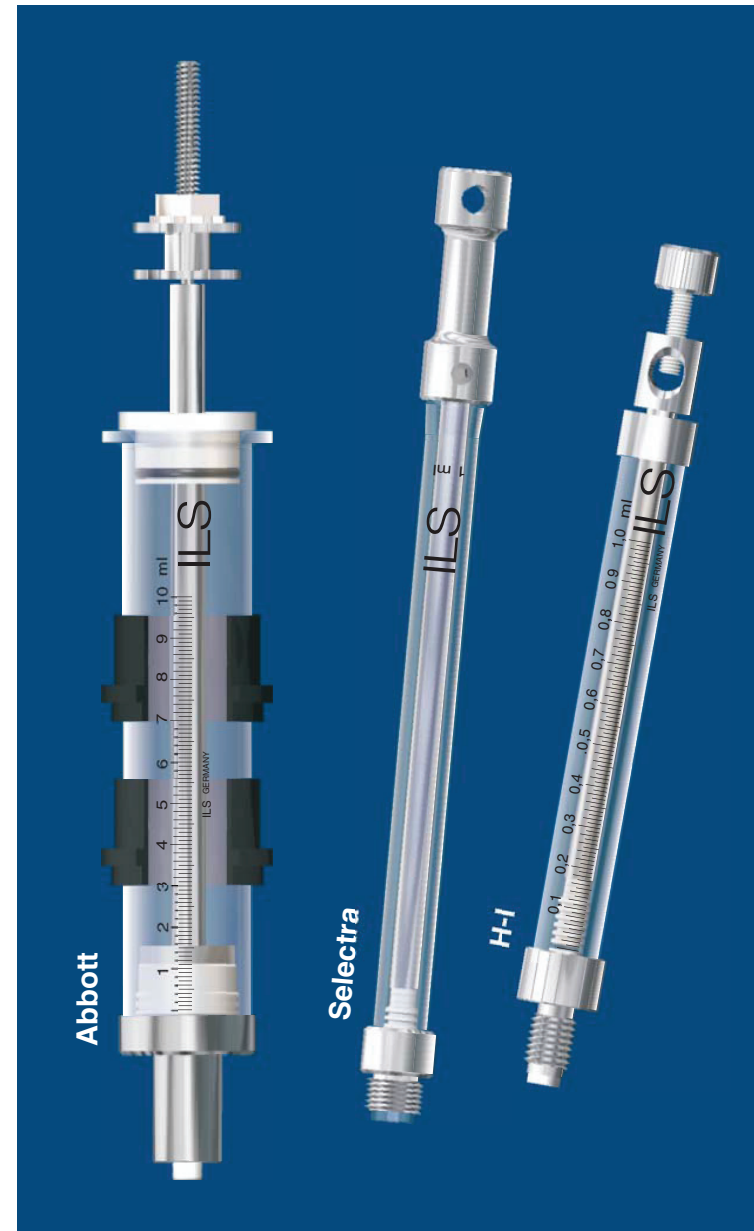
#### Varian

| Volume | Series | Front Fitting |         |
|--------|--------|---------------|---------|
| 100 µl | H      | GPC M8x1      | 2607706 |

ABI PRISM® is a registered trademark of Perkin Elmer, USA  
 CELL-DYN® is a registered trademark of Abbott Laboratories, USA



ABI



Varian

## Syringes for Robbins Hydra®

Plunger: Stainless steel with PTFE-seal  
 Glass Barrel: Borosilicate 3.3  
 Needle: PTFE coated  
 Precision: < ±1% of the volume

### Hydra® 96

| Volume | Series | Needle Tip Style O.D. x I.D. | fixed b |
|--------|--------|------------------------------|---------|
| 100 µl | H      | 0.45 x 0.25                  | 2615700 |
| 290 µl | H      | 0.7 x 0.40                   | 2615800 |
| 580 µl | H      | 0.7 x 0.40                   | 2615900 |
| 1 ml   | H      | 0.7 x 0.40                   | 2615100 |

### R/B

|        |   |            |         |
|--------|---|------------|---------|
| 290 µl | H | 1.2 x 0.80 | 2615810 |
| 580 µl | H | 1.2 x 0.80 | 2615910 |
| 1 ml   | H | 1.2 x 0.80 | 2615110 |

### Hydra® 384

|        |   |             |         |
|--------|---|-------------|---------|
| 100 µl | H | 0.45 x 0.25 | 2615760 |
|--------|---|-------------|---------|

### Hydra® 384 Glasbarrel with Metal Jacket

|        |   |             |         |
|--------|---|-------------|---------|
| 100 µl | H | 0.45 x 0.25 | 2615764 |
|--------|---|-------------|---------|

## Syringes for Robbins Hydra®

### Replacement PTFE-Tips (seals)

### Hydra® 96

| Volume | Needle Tip Style PTFE O.D. x I.D. | PTFE-Tip 10/Pack | PTFE-Tip 50/Pack | PTFE-Tip 100/Pack |
|--------|-----------------------------------|------------------|------------------|-------------------|
| 100 µl | 0.45 x 0.25                       | 2615702          | 2615705          | 2615709           |
| 290 µl | 0.7 x 0.40                        | 2615802          | 2615805          | 2615809           |
| 580 µl | 0.7 x 0.40                        | 2615902          | 2615905          | 2615909           |
| 1 ml   | 0.7 x 0.40                        | 2615102          | 2615105          | 2615109           |

### R/B

|        |            |         |         |         |
|--------|------------|---------|---------|---------|
| 290 µl | 1.2 x 0.80 | 2615812 | 2615815 | 2615819 |
| 580 µl | 1.2 x 0.80 | 2615912 | 2615915 | 2615919 |
| 1 ml   | 1.2 x 0.80 | 2615112 | 2615115 | 2615119 |

### Hydra® 384

|        |             |         |         |         |
|--------|-------------|---------|---------|---------|
| 100 µl | 0.45 x 0.25 | 2615702 | 2615705 | 2615709 |
|--------|-------------|---------|---------|---------|

Hydra® is a registered trademark of Robbins Scientific, USA

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## Syringes with PEEK-Tubing Connectors



**Plunger:** PTFE-seal  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
 - direct connection  
 - reduced dead volume  
 - totally inert, no metal contact  
 - fits any tube from 0.8 to 3.2 mm Ø  
 - highly resistant

| Volume  | Series | Connector |                  |         |
|---------|--------|-----------|------------------|---------|
| 10 µl   | H      | M6        | tubing connector | 2624414 |
| 25 µl   | H      | M6        | tubing connector | 2624514 |
| 50 µl   | H      | M6        | tubing connector | 2624614 |
| 100 µl  | H      | M6        | tubing connector | 2624714 |
| 250 µl  | H      | M6        | tubing connector | 2624814 |
| 500 µl  | H      | M6        | tubing connector | 2624914 |
| 1.0 ml  | H      | M6        | tubing connector | 2624015 |
| 2.5 ml  | H      | M6        | tubing connector | 2624035 |
| 5.0 ml  | H      | M6        | tubing connector | 2624055 |
| 10.0 ml | H      | M6        | tubing connector | 2624075 |

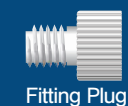
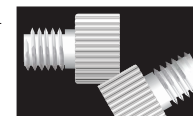
| Volume  | Series | Connector |                  |         |
|---------|--------|-----------|------------------|---------|
| 10 µl   | H      | 1/4 x 28" | tubing connector | 2624415 |
| 25 µl   | H      | 1/4 x 28" | tubing connector | 2624515 |
| 50 µl   | H      | 1/4 x 28" | tubing connector | 2624615 |
| 100 µl  | H      | 1/4 x 28" | tubing connector | 2624715 |
| 250 µl  | H      | 1/4 x 28" | tubing connector | 2624815 |
| 500 µl  | H      | 1/4 x 28" | tubing connector | 2624915 |
| 1.0 ml  | H      | 1/4 x 28" | tubing connector | 2624016 |
| 2.5 ml  | H      | 1/4 x 28" | tubing connector | 2624036 |
| 5.0 ml  | H      | 1/4 x 28" | tubing connector | 2624056 |
| 10.0 ml | H      | 1/4 x 28" | tubing connector | 2624076 |

Supplied with PEEK female screw connector, no tubing, no screw

## Accessories for Connectors

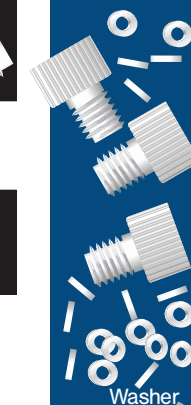
### Male Fittings, 10 per Pack

| Thread  | for Tubing with O.D. |         |
|---------|----------------------|---------|
| M 6     | 3.2 mm (1/18")       | 4130005 |
| 1/4x28" | 3.2 mm (1/18")       | 4130020 |
| M 6     | 1.6 mm (1/16")       | 4130016 |
| 1/4x28" | 1.6 mm (1/16")       | 4130019 |



### Washers, 10 per Pack

| 3.2 mm |  | 4132032 |
|--------|--|---------|
| 1.6 mm |  | 4132016 |



### Complete sets

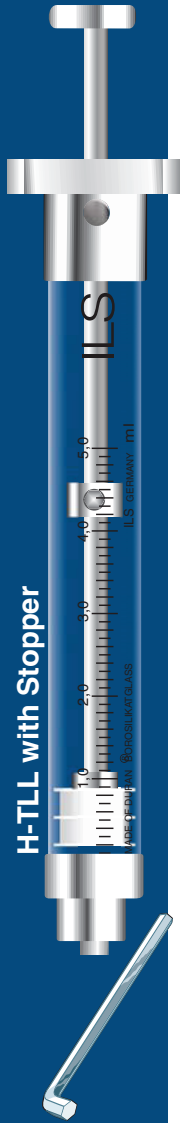
| Set size      | Description                                   |         |
|---------------|---|---------|
| Set 3.2 x 1.6 | tubing 3.2 x 1.6 + fitting M 6 + washer       | 4133032 |
| Set 3.2 x 1.6 | tubing 3.2 x 1.6 + fitting 1/4 x 28" + washer | 4133033 |
| Set 1.6 x 0.8 | tubing 1.6 x 0.8 + fitting M 6 + washer       | 4133168 |
| Set 1.6 x 0.8 | tubing 1.6 x 0.8 + fitting 1/4 x 28" + washer | 4133169 |
| Set 1.6 x 0.5 | tubing 1.6 x 0.5 + fitting M 6 + washer       | 4133165 |
| Set 1.6 x 0.5 | tubing 1.6 x 0.5 + fitting 1/4 x 28" + washer | 4133166 |

## Syringes with Adjustable Internal Stopper

**Plunger:** Stainless steel with PTFE-seal  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
 - excellent for routine dosages  
 - internal index stop is adjustable to any volume  
 - for faster work and better reproducibility

### TLL PTFE-Luer-Lock

| Volume  | Series | Description  |         |
|---------|--------|--------------|---------|
| 2.5 ml  | H-TLL  | with stopper | 2614031 |
| 5.0 ml  | H-TLL  | with stopper | 2614051 |
| 10.0 ml | H-TLL  | with stopper | 2614071 |

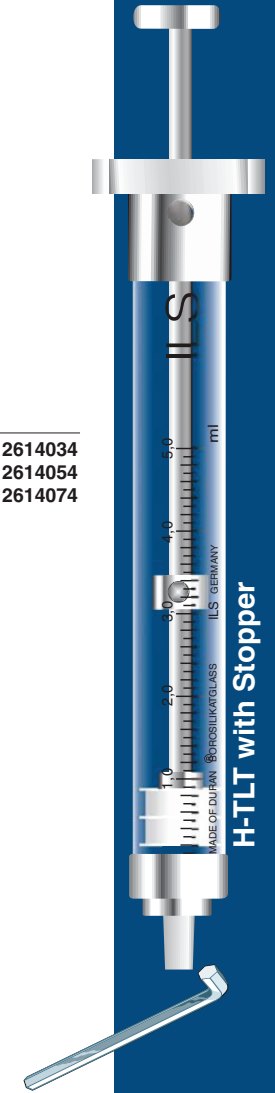


## Syringes with Adjustable Internal Stopper

**Plunger:** Stainless steel with PTFE-seal  
**Glass Barrel:** Borosilicate 3.3  
**Precision:** < ±1% of the volume  
 - excellent for routine dosages  
 - internal index stop is adjustable to any volume  
 - for faster work and better reproducibility

### TLT PTFE-Luer-Tip

| Volume  | Series | Description  |         |
|---------|--------|--------------|---------|
| 2.5 ml  | H-TLT  | with stopper | 2614034 |
| 5.0 ml  | H-TLT  | with stopper | 2614054 |
| 10.0 ml | H-TLT  | with stopper | 2614074 |

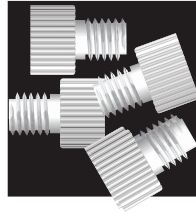


## Accessories

Fitting Plug

### Fittings, 10 per Pack

| Thread    | for Tubing with O.D. |         |
|-----------|----------------------|---------|
| M 6       | 3.2 mm (1/8")        | 4130005 |
| 1/4 x 28" | 3.2 mm (1/8")        | 4130020 |
| M 6       | 1.6 mm (1/16")       | 4130016 |
| 1/4 x 28" | 1.6 mm (1/16")       | 4130019 |
| M 6       | 2.7 mm               | 4130004 |
| 1/4 x 28" | 2.7 mm               | 4130025 |



### Washers, 10 per Pack

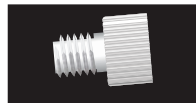
| for Tubing with O.D. |  |         |
|----------------------|--|---------|
| 3.2 mm               |  | 4132032 |
| 1.6 mm               |  | 4132016 |
| 2.7 mm               |  | 4132031 |



Washer

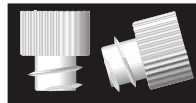
### Plugs for Valves, 10 per Pack

| Thread    |         |
|-----------|---------|
| M 6       | 4130021 |
| 1/4 x 28" | 4130022 |



### Female Luer Caps, 10 per Pack

2702206



## Syringe Guide, Rack, Cleaning Wires

### Syringe Guide

made of stainless steel and anodized aluminum

2700001

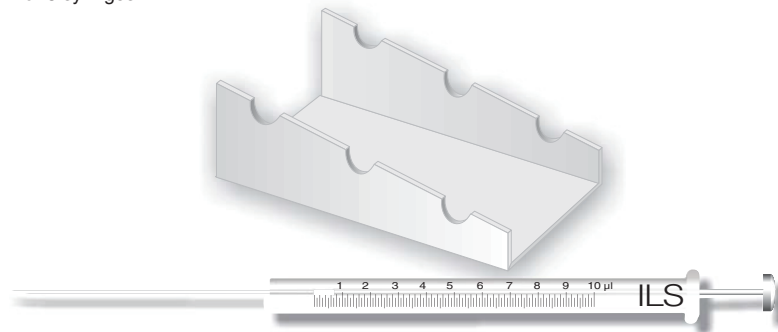
### Cleaning Wires, 12 per Pack

| Gauge            | O.D.    |          |
|------------------|---------|----------|
| 26s, 31, 33      | 0.09 mm | 21018300 |
| 22s, 25s, 28, 30 | 0.13 mm | 21018301 |
| 27               | 0.16 mm | 21018302 |
| 24, 26           | 0.20 mm | 21018303 |

### Syringe Rack

for 3 syringes

2700002



Guide

