

# SAMPLING CANNULA

## THE CANNULA

Almost every dissolution test relies on samples being taken to produce a result. It is important that the sampling method does not adversely affect the accuracy of the dissolution test. Sampling errors are very common and are often the cause of erroneous results.

**The USP defines the sampling point as:** "A zone half way between the top of the media and top of the paddle or basket not less than 1cm from the vessel wall. The sampling position is critical but so too is the type of sampling cannula (also known as a probe) used."

## KEY CONSIDERATIONS

**Sampling Position** — The sampling position is important particularly for tests with baskets as there can be a concentration profile between the bottom of the vessel and the stirring element. The sampling position is different for 500mL and 900mL tests. This can create problems for equipment that uses 'through the shaft' sampling.

**Cannula Length** — Cannula vary in length: 4.75" (120mm) is used for 900mL, 7.75" (195mm) is used for 500mL and extended lengths are normally used for "through the head sampling" whereby the cannula passes through the drive head of the dissolution bath.

**Cannula Material** — The cannula are made from either stainless steel or PEEK so that they do not absorb or interfere with the active ingredient.

**Stoppers** — Cannula can be used with stoppers during manual sampling to ensure that the sample is always taken from the same depth. Stoppers are attached to the cannula and sit in a hole in the vessel cover. If these are to be used then it is important to get the stopper and cannula to match the vessel cover type. The range of self-tightening stoppers can be installed and positioned without the need for tools such as screwdrivers. See below for more details.

## SELECTING A SELF-TIGHTENING CANNULA STOPPER

Self-tightening cannula stoppers offer a convenient method of setting the cannula sampling position in accordance with USP 711.

Adjustable cannula stoppers are available for Distek, Hanson and Agilent/VanKel cannula.

Since there are numerous configurations of cannula and dissolution instruments in common use, the specific application should be reviewed to ensure correct stopper selection.

The two factors which determine the specific stopper choice are:

- 1) Cannula Outside Diameter (OD)
- 2) Stopper Outside Diameter (OD)

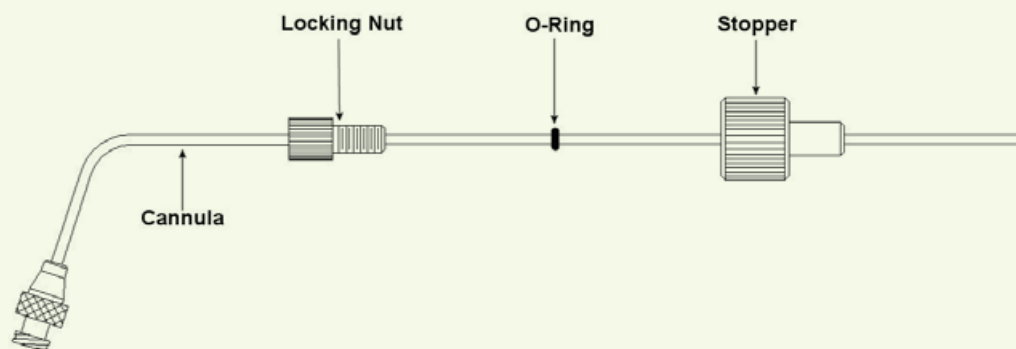
The part numbering system incorporates both cannula and stopper outside diameters.

| Cannula OD Inches | Manufacturer   | Stopper OD Inches | Manufacturer   |
|-------------------|----------------|-------------------|----------------|
| .065 (1/16")      | Distek/Hanson  | .31               | Agilent/VanKel |
| .078              | Agilent/VanKel | .44               | Hanson/Waters  |
| .125 (1/8")       | Hanson         | .53               | Distek         |
| .142              | Agilent/VanKel |                   |                |

**Part Numbering System:**

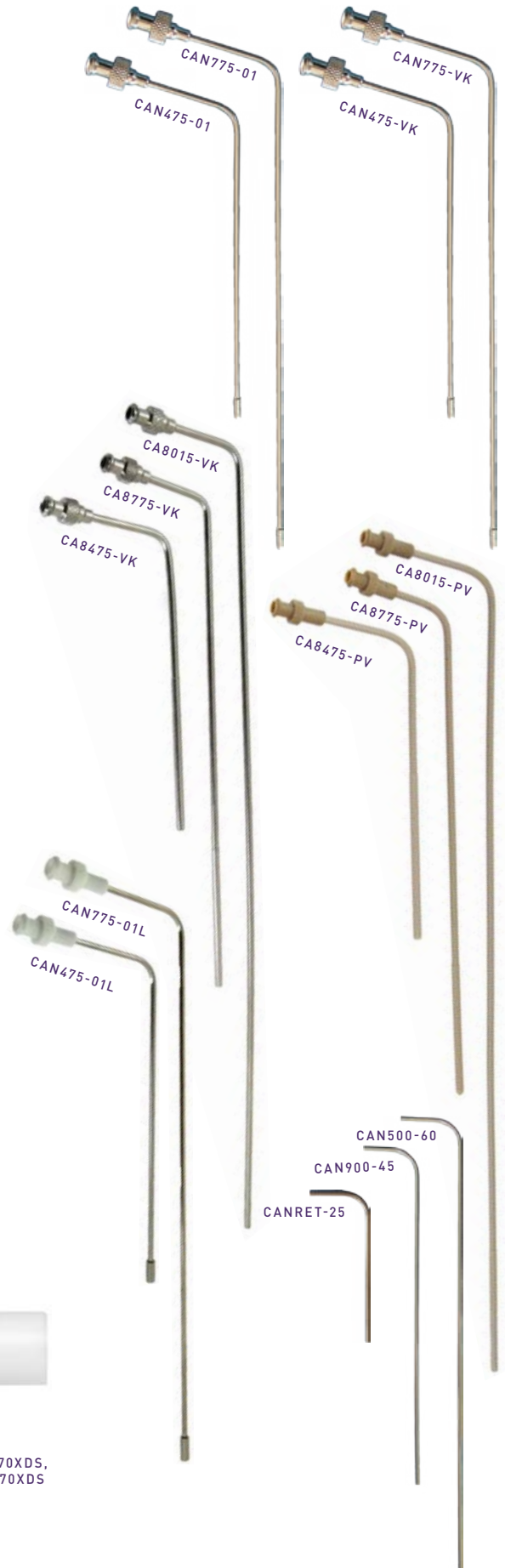
**CANSTP - 065 - 53**

Cannula OD ——— Stopper OD



**Stopper Configurations:** Common configurations are listed with the appropriate cannula. Configurations not listed are available by special order. Email [qlasales@qla-llc.com](mailto:qlasales@qla-llc.com) or contact your QLA Sales Representative.

| Part No.        | Description                                                           | OEM Ref |
|-----------------|-----------------------------------------------------------------------|---------|
| CAN475-01       | 4.75" (120mm) Bent 316 SS Cannula with SS Luer Lock & Tygon Tubing    | 12-3200 |
| CAN775-01       | 7.75"(195mm) Bent 316 SS Cannula with SS Luer Lock & Tygon Tubing     | 12-3210 |
| CAN475-VK       | 4.75" (120mm) Bent 316 SS Cannula with SS Luer Lock & Perm SS Tip     | QLA     |
| CAN775-VK       | 7.75" (195mm) Bent 316 SS Cannula with SS Luer Lock & Perm SS Tip     | QLA     |
| CA8475-VK       | 4.75" (120mm) Bent 316 SS 1/8" (3.2mm) OD Cannula with SS Luer Lock   | QLA     |
| CA8775-VK       | 7.75"(195mm) Bent 316 SS 1/8" (3.2mm) OD Cannula with SS Luer Lock    | QLA     |
| CA8015-VK       | 15" (380mm) Bent 316 SS 1/8" (3.2mm) OD Cannula with SS Luer Lock     | QLA     |
| CA8475-PV       | 4.75" (120mm) Bent PEEK 1/8" (3.2mm) OD Cannula with PEEK Luer Lock   | QLA     |
| CA8775-PV       | 7.75"(195mm) Bent PEEK 1/8" (3.2mm) OD Cannula with PEEK Luer Lock    | QLA     |
| CA8015-PV       | 15" (380mm) Bent PEEK 1/8" (3.2mm) OD Cannula with PEEK Luer Lock     | QLA     |
| CAN475-01L      | 4.75" (120mm) Bent 316 SS Cannula with Kynar Luer Lock & Tygon Tubing | QLA     |
| CAN775-01L      | 7.75" (195mm) Bent 316 SS Cannula with Kynar Luer Lock & Tygon Tubing | QLA     |
| CAN900-45       | 4.5" (115mm) Auto-Sampling Cannula for 900mL                          | 17-3300 |
| CAN500-60       | 6.5" (165mm) Auto-Sampling Cannula for 500mL                          | 17-3305 |
| CANRET-25       | 2.5" (65mm) Auto-Sampling Return Cannula                              | 17-3320 |
| PROBEX-VK       | 500mL Cannula Extension Kit                                           | 17-3306 |
| CANSTP-078-31   | VanKel Cannula Stopper for VanKel EaseAlign Cover                     | QLA     |
| CANSTP-078-53   | VanKel Cannula Stopper for Distek Cover                               | QLA     |
| CANSTP-142-31   | VanKel 1/8" (3.2mm) OD Cannula Stopper for VanKel EaseAlign Cover     | QLA     |
| CANSTP-142-53   | VanKel 1/8" (3.2mm) OD Cannula Stopper for Distek Cover               | QLA     |
| CANSTP082-70XDS | Adjustable Stopper for Agilent 708/709-DS (.082 OD)                   | QLA     |
| CANSTP125-70XDS | Adjustable Stopper for Agilent 708/709-DS (.125 OD)                   | QLA     |



PROBEX-VK



CANSTP-078-31,  
CANSTP-142-31



CANSTP-078-53,  
CANSTP-142-53



CANSTP082-70XDS,  
CANSTP125-70XDS

**DISTEK COMPATIBLE SAMPLING CANNULA**

See opposite page for Distek Sampling Probes.

| Part No.      | Description                                                               | OEM Ref   |
|---------------|---------------------------------------------------------------------------|-----------|
| CAN500-DK     | 500mL Standard Sampling Probe                                             | 2910-0500 |
| CAN900-DK     | 900mL Standard Sampling Probe                                             | 2910-0900 |
| CAN01K-DK     | 1000mL Standard Sampling Probe                                            | 2910-1000 |
| CAN02K-DK     | 2000mL Standard Sampling Probe                                            | QLA       |
| ORING-CANDK   | Silicone O-Ring for DK Series Probe (Pack/12)                             | QLA       |
| CAN500-DSH    | 500mL Sampling Probe, Solid Housing                                       | 2910-0506 |
| CAN900-DSH    | 900mL Sampling Probe, Solid Housing                                       | 2910-0906 |
| CAN01K-DSH    | 1000mL Sampling Probe, Solid Housing                                      | 2910-1006 |
| FILASY-DK     | Inline Filter Housing Assembly – Standard DK Series                       | QLA       |
| FILASY-DV     | Inline Filter Housing Assembly – DV Series                                | QLA       |
| CANRET-DK     | Return Probe, Distek                                                      | 2910-0001 |
| CANFAE-DK     | Female Luer Adapter & Elbow Assembly                                      | QLA       |
| CANFLA-DK     | Female Luer Adapter                                                       | 5720-9059 |
| CANFLE-DK     | Male to Female Elbow                                                      | 5720-9074 |
| THD90-065     | 90 degree Cannula Elbow                                                   | QLA       |
| CANSTP-065-31 | Distek/Hanson 1/16" (1.6mm) OD Cannula Stopper for VanKel EaseAlign Cover | QLA       |
| CANSTP-065-53 | Distek/Hanson 1/16" (1.6mm) OD Cannula Stopper for Distek Cover           | QLA       |



**ERWEKA COMPATIBLE SAMPLING CANNULA**

| Part No.  | Description                                                         | OEM Ref |
|-----------|---------------------------------------------------------------------|---------|
| CAN475-SH | 4.75" (120mm) Bent 316 SS 1/8" (3.2mm) OD Cannula with SS Luer Lock | QLA     |
| CAN775-SH | 7.75" (195mm) Bent 316 SS 1/8" (3.2mm) OD Cannula with SS Luer Lock | QLA     |
| CAN015-SH | 15" (380mm) Bent 316 SS 1/8" (3.2mm) OD Cannula with SS Luer Lock   | QLA     |
| CAN475-PH | 4.75" (120mm) Bent PEEK 1/8" (3.2mm) OD Cannula with PEEK Luer Lock | QLA     |
| CAN775-PH | 7.75" (195mm) Bent PEEK 1/8" (3.2mm) OD Cannula with PEEK Luer Lock | QLA     |
| CAN015-PH | 15" (380mm) Bent PEEK 1/8" (3.2mm) OD Cannula with PEEK Luer Lock   | QLA     |
| CANSTP-EW | Adjustable Cannula Stopper for Erweka                               | QLA     |



## DV SERIES HIGH CAPACITY SAMPLING PROBES (PATENT# US 7,850,919 B2)

Increased capacity for most brands of dissolution baths.

Available for 500mL, 900mL and 1000mL tests, the DV Series style sampling probe has a twist-lock housing which safely contains a standard Full Flow Filter (Agilent / QLA "01" style). This means that the same cannula filters can be used for different dissolution baths offering increased flexibility. The surface area of the Full Flow Filter is 7 times greater than the small filter discs traditionally used in the standard style resident sampling probe. It is also much easier to remove the larger Full Flow Filter from the housing after use.

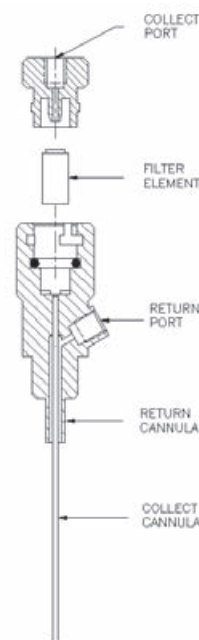
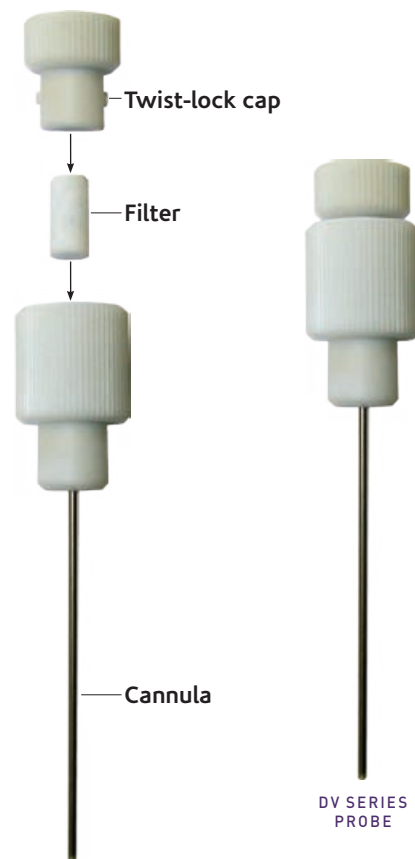
The Sampling Probe's thin low-volume stainless steel cannula can remain in the vessel throughout the dissolution test without affecting the dissolution result, removing the need for an automated cannula lift. The probe simply sits in the vessel cover and samples from the same position every time. It is the ideal solution for auto-samplers that use resident probes.

### PROBE ASSEMBLY

| Part No.    | Description                                           | OEM Ref |
|-------------|-------------------------------------------------------|---------|
| CAN500-DV   | 500mL DV Series Sampling Probe uses QLA "01" Filters  | QLA     |
| CAN900-DV   | 900mL DV Series Sampling Probe uses QLA "01" Filters  | QLA     |
| CAN01K-DV   | 1000mL DV Series Sampling Probe uses QLA "01" Filters | QLA     |
| CAN02K-DV   | 2000mL DV Series Sampling Probe uses QLA "01" Filters | QLA     |
| ORING-CANDV | Silicone O-Ring for DV Series Probe (Pack/12)         | QLA     |

### HIGH CAPACITY FILTERS

| Part No.    | Description                                               | OEM Ref |
|-------------|-----------------------------------------------------------|---------|
| FIL001-01   | 1 Micron Full Flow Filters, UHMW Polyethylene (Jar/1000)  | QLA     |
| FIL001-01-a | 1 Micron Full Flow Filters, UHMW Polyethylene (Pack/100)  | QLA     |
| FIL002-01   | 2 Micron Full Flow Filters, UHMW Polyethylene (Jar/1000)  | QLA     |
| FIL002-01-a | 2 Micron Full Flow Filters, UHMW Polyethylene (Pack/100)  | QLA     |
| FIL010-01   | 10 Micron Full Flow Filters, UHMW Polyethylene (Jar/1000) | 17-4005 |
| FIL010-01-a | 10 Micron Full Flow Filters, UHMW Polyethylene (Pack/100) | 17-4000 |
| FIL020-01   | 20 Micron Full Flow Filters, UHMW Polyethylene (Jar/1000) | QLA     |
| FIL020-01-a | 20 Micron Full Flow Filters, UHMW Polyethylene (Pack/100) | QLA     |
| FIL035-01   | 35 Micron Full Flow Filters, UHMW Polyethylene (Jar/1000) | 17-4015 |
| FIL035-01-a | 35 Micron Full Flow Filters, UHMW Polyethylene (Pack/100) | 17-4010 |
| FIL045-01   | 45 Micron Full Flow Filters, UHMW Polyethylene (Jar/1000) | QLA     |
| FIL045-01-a | 45 Micron Full Flow Filters, UHMW Polyethylene (Pack/100) | QLA     |
| FIL070-01   | 70 Micron Full Flow Filters, UHMW Polyethylene (Jar/1000) | 17-4025 |
| FIL070-01-a | 70 Micron Full Flow Filters, UHMW Polyethylene (Pack/100) | 17-4020 |



## DUAL DV SERIES HIGH CAPACITY SAMPLING PROBES

These probes offer the same features and benefits as the DV Series probes described above but with the addition of a return port. The return port provides a "return to vessel" path for Dissolution Protocols which require samples to be returned or Protocols which require media replacement. Since both the collect and return ports are integrated into a single housing only one hole in the vessel cover is used.

| Media Volume | Agilent/Vankel | Distek     | Hanson     |
|--------------|----------------|------------|------------|
| 500mL        | CAN500-DVV     | CAN500-DDV | CAN500-DHV |
| 900mL        | CAN900-DVV     | CAN900-DDV | CAN900-DHV |
| 1000mL       | CAN01K-DVV     | CAN01K-DDV | CAN01K-DHV |
| 2000mL       | CAN02K-DVV     | CAN02K-DDV | CAN02K-DHV |

**HANSON**

**COMPATIBLE SAMPLING CANNULA**

| Part No.      | Description                                                               | OEM Ref    |
|---------------|---------------------------------------------------------------------------|------------|
| CAN475-HR     | 4.75" (120mm) Bent 316 SS Cannula with SS Luer Lock & Perm SS Tip         | QLA        |
| CAN775-HR     | 7.75" (195mm) Bent 316 SS Cannula with SS Luer Lock & Perm SS Tip         | QLA        |
| CAN475-SH     | 4.75" (120mm) Bent 316 SS 1/8" (3.2mm) OD Cannula with SS Luer Lock       | 95-590-002 |
| CAN775-SH     | 7.75" (195mm) Bent 316 SS 1/8" (3.2mm) OD Cannula with SS Luer Lock       | 95-590-001 |
| CAN015-SH     | 15" (380mm) Bent 316 SS 1/8" (3.2mm) OD Cannula with SS Luer Lock         | 95-590-003 |
| CANS15-SH     | 15" (380mm) Straight 316 SS 1/8" (3.2mm) OD Cannula with SS Luer Lock     | QLA        |
| CAN475-PH     | 4.75" (120mm) Bent PEEK 1/8" (3.2mm) OD Cannula with PEEK Luer Lock       | 95-590-005 |
| CAN775-PH     | 7.75" (195mm) Bent PEEK 1/8" (3.2mm) OD Cannula with PEEK Luer Lock       | 95-590-004 |
| CAN015-PH     | 15" (380mm) Bent PEEK 1/8" (3.2mm) OD Cannula with PEEK Luer Lock         | 95-590-006 |
| CANS15-PH     | 15" (380mm) Straight PEEK 1/8" (3.2mm) OD Cannula with PEEK Luer Lock     | QLA        |
| CAN475-SHL    | 4.75" (120mm) Bent 316 SS 1/8" (3.2mm) OD Cannula with Kynar Luer Lock    | QLA        |
| CAN775-SHL    | 7.75" (195mm) Bent 316 SS 1/8" (3.2mm) OD Cannula with Kynar Luer Lock    | QLA        |
| CAN475-062L   | 4.75" (120mm) Bent 316 SS 1/16" (1.6mm) OD Cannula with Kynar Luer Lock   | QLA        |
| CAN775-062L   | 7.75" (195mm) Bent 316 SS 1/16" (1.6mm) OD Cannula with Kynar Luer Lock   | QLA        |
| CANSTP-125-31 | Hanson 1/8" (3.2mm) OD Cannula Stopper for VanKel EaseAlign Cover         | QLA        |
| CANSTP-125-53 | Hanson 1/8" (3.2mm) OD Cannula Stopper for Distek Cover                   | QLA        |
| CANSTP-065-31 | Distek/Hanson 1/16" (1.6mm) OD Cannula Stopper for VanKel EaseAlign Cover | QLA        |
| CANSTP-065-53 | Distek/Hanson 1/16" (1.6mm) OD Cannula Stopper for Distek Cover           | QLA        |
| 74-104-202    | 500mL Fixed Vessel Mount Sample Probe, 1/16" (1.6mm) OD for Vision        | 74-104-202 |
| 74-104-203    | 900mL Fixed Vessel Mount Sample Probe, 1/16" (1.6mm) OD for Vision        | 74-104-203 |
| STPR-HR       | Cannula Stopper for Vision                                                | 74-104-205 |



CANSTP-125-31,  
CANSTP-065-31



CANSTP-125-53,  
CANSTP-065-53

74-104-202

STPR-HR

**PHARMATEST** COMPATIBLE SAMPLING CANNULA

| Part No.  | Description                                                         | OEM Ref |
|-----------|---------------------------------------------------------------------|---------|
| CAN475-SH | 4.75" (120mm) Bent 316 SS 1/8" (3.2mm) OD Cannula with SS Luer Lock | QLA     |
| CAN775-SH | 7.75" (195mm) Bent 316 SS 1/8" (3.2mm) OD Cannula with SS Luer Lock | QLA     |
| CAN475-PH | 4.75" (120mm) Bent PEEK 1/8" (3.2mm) OD Cannula with PEEK Luer Lock | QLA     |
| CAN775-PH | 7.75" (195mm) Bent PEEK 1/8" (3.2mm) OD Cannula with PEEK Luer Lock | QLA     |



**SOTAX** COMPATIBLE SAMPLING CANNULA

| Part No.      | Description                                                                      | OEM Ref |
|---------------|----------------------------------------------------------------------------------|---------|
| CAN013-ST     | 13" (330mm) Bent 316 SS Cannula with SS Luer Lock (thru head mount)              | QLA     |
| CAN013-ST-5   | 13" (330mm) Bent 316 SS Cannula, Pre-set with stopper for 500mL                  | QLA     |
| CAN013-ST-9   | 13" (330mm) Bent 316 SS Cannula, Pre-set with stopper for 900mL                  | QLA     |
| CAN013-ST-5-9 | 13" (330mm) Bent 316 SS Cannula with 2 Position Stopper                          | QLA     |
| PRBFSR-5S     | 500mL Sample/Return Probe Fixed w/ Filter Housing, Stopper & Up/Down Collars     | QLA     |
| PRBFSR-9S     | 900mL Sample/Return Probe Fixed w/ Filter Housing, Stopper & Up/Down Collars     | QLA     |
| PRBFSR-ST     | Combined Sample/Return Cannula with Filter Housing                               | QLA     |
| PRBNSR-ST     | Combined Sample/Return Cannula without Filter Housing                            | QLA     |
| PRBFS10-ST    | 500/900mL 316 SS Cannula with Inline Filter Housing (125 tubing) for AT/AT7smart | QLA     |
| PRBFS10-ST82  | 500/900mL 316 SS Cannula with Inline Filter Housing (082 tubing) for AT/AT7smart | QLA     |
| 010-06-202    | 1" (25.4mm) gauge block to set stopper height for PRBFS10-ST & PRBFS10-ST82      | QLA     |
| CANSTP-ST     | Adjustable Cannula Stopper for CAN013-ST                                         | QLA     |

