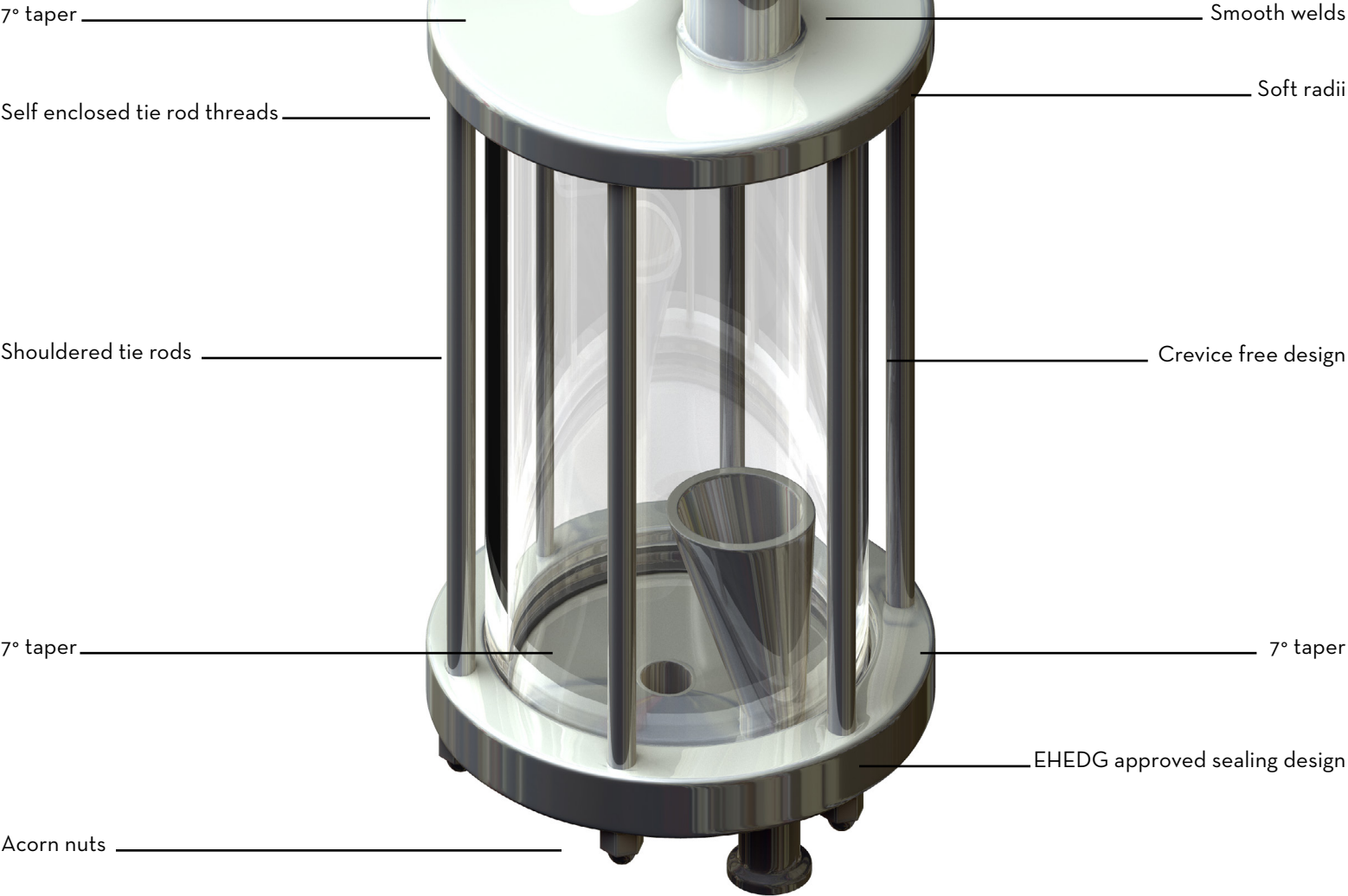


# PHARMACEUTICAL BUBBLE TRAP

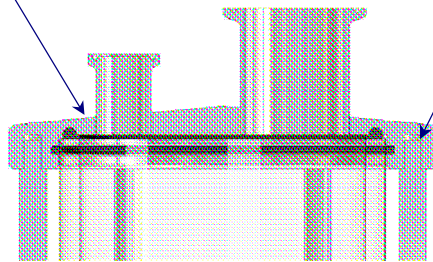
## STANDARD DESIGN FEATURES

● Mouse over for details



# PHARMACEUTICAL BUBBLE TRAP STANDARD DESIGN FEATURES

7° TAPER ON BUBBLE  
TRAP LID FOR SELF  
DRAINING EXTERIOR



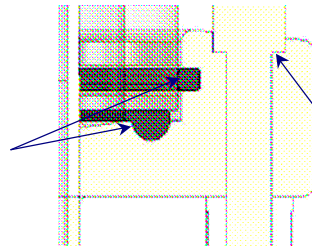
TIE ROD THREADS ARE  
SELF ENCLOSED FOR  
EASY WIPE DOWN

CREVICE FREE DESIGN ELIMINATES  
BACTERIA COLLECTION AREAS

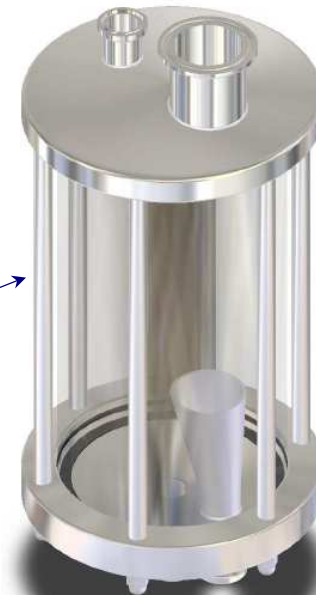
ALL SURFACES ARE ANGLED  
GUARANTEEING A SELF DRAINING  
EASILY WASHED DOWN UNIT WHEN  
INSTALLED IN THE UPRIGHT POSITION



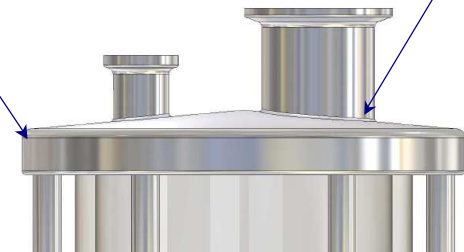
EHEDG APPROVED DESIGN  
GUARANTEES THE MOST  
HYGIENIC SEALING O-RING  
COMBINATION ON TODAY'S  
PHARMACEUTICAL MARKET



PRECISION LENGTH TIE-RODS  
GIVING CONTROLLED  
COMPRESSION TO THE  
SEALING O-RING REDUCING  
INTRUSION INTO THE VESSEL

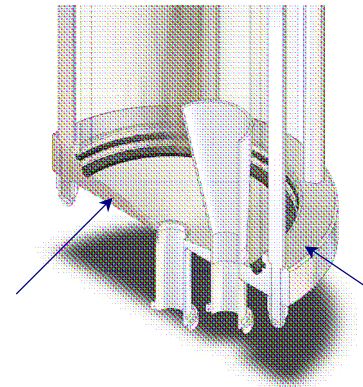


ALL CORNERS ARE BROKEN  
WITH 'SOFT' RADII

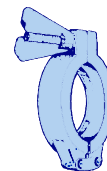


ALL WELDS ARE REMOVED,  
SMOOTHED & POLISHED

7° TAPER ON THE BASE  
GUARANTEEING A SELF DRAINING  
BUBBLE TRAP IN ACCORDANCE  
WITH ASME BPE 2007



7° TAPER FOR SELF-  
DRAINING EXTERIOR



# PHARMACEUTICAL BUBBLE TRAP SIZING GUIDE

The most important feature of any bubble trap installation is the selection of the correct size trap, there are two over-riding factors that ultimately dictate which size bubble trap you require:

- # Flow Rate (Q) - Flow Rate of the media entering the bubble trap, measured in litres per minute (LPM)
- # Operating Pressure - Pressure inside the system when entering the bubble trap

When the above two factors are known a bubble trap can easily be selected from the table below :

| BUBBLE TRAP - STANDARD SIZES DATA SHEET |                           |                                |                            |                   |                                             |      |    |        |    |                                               |      |    |        |    |                                               |      |    |        |    |
|-----------------------------------------|---------------------------|--------------------------------|----------------------------|-------------------|---------------------------------------------|------|----|--------|----|-----------------------------------------------|------|----|--------|----|-----------------------------------------------|------|----|--------|----|
| Bubble Trap Diameter (Inches)           | Rec. Fill Volume (litres) | To Suit Flow Rate (litres/min) | Operating Pressure         |                   | Base Inlet / Outlet Tri-Clamp Ferrule Sizes |      |    |        |    | Lid Controls (2 Ports) Tri-Clamp Ferrule Size |      |    |        |    | Lid Controls (3 Ports) Tri-Clamp Ferrule Size |      |    |        |    |
|                                         |                           |                                | Borosilicate 3.3 bar (psi) | Acrylic bar (psi) | 1/2"                                        | 3/4" | 1" | 1 1/2" | 2" | 1/2"                                          | 3/4" | 1" | 1 1/2" | 2" | 1/2"                                          | 3/4" | 1" | 1 1/2" | 2" |
| 4"                                      | 1                         | 4                              | 6.0 (87)                   | 7.0 (102)         | ●                                           | ●    | ●  |        |    | ●                                             | ●    | ●  | ●      |    | ●                                             | ●    | ●  |        |    |
|                                         | 2                         | 8                              |                            |                   | ●                                           | ●    | ●  |        |    | ●                                             | ●    | ●  | ●      |    | ●                                             | ●    | ●  |        |    |
|                                         | 3                         | 12                             |                            |                   | ●                                           | ●    | ●  |        |    | ●                                             | ●    | ●  | ●      |    | ●                                             | ●    | ●  |        |    |
| 6"                                      | 2                         | 8                              | 5.5 (80)                   | 6.0 (87)          |                                             | ●    | ●  | ●      |    | ●                                             | ●    | ●  | ●      | ●  | ●                                             | ●    | ●  | ●      |    |
|                                         | 3                         | 12                             |                            |                   |                                             | ●    | ●  | ●      |    | ●                                             | ●    | ●  | ●      |    | ●                                             | ●    | ●  | ●      |    |
|                                         | 4                         | 16                             |                            |                   |                                             | ●    | ●  | ●      |    | ●                                             | ●    | ●  | ●      |    | ●                                             | ●    | ●  | ●      |    |
|                                         | 6                         | 24                             |                            |                   |                                             | ●    | ●  | ●      |    | ●                                             | ●    | ●  | ●      |    | ●                                             | ●    | ●  | ●      |    |
|                                         | 8                         | 32                             |                            |                   |                                             | ●    | ●  | ●      |    | ●                                             | ●    | ●  | ●      |    | ●                                             | ●    | ●  | ●      |    |
| 8"                                      | 6                         | 24                             | 5.0 (73)                   | 5.0 (73)          |                                             |      | ●  | ●      | ●  | ●                                             | ●    | ●  | ●      | ●  | ●                                             | ●    | ●  | ●      |    |
|                                         | 8                         | 32                             |                            |                   |                                             |      | ●  | ●      | ●  | ●                                             | ●    | ●  | ●      | ●  | ●                                             | ●    | ●  | ●      |    |
|                                         | 10                        | 40                             |                            |                   |                                             |      | ●  | ●      | ●  | ●                                             | ●    | ●  | ●      | ●  | ●                                             | ●    | ●  | ●      |    |
|                                         | 12                        | 48                             |                            |                   |                                             |      | ●  | ●      | ●  | ●                                             | ●    | ●  | ●      | ●  | ●                                             | ●    | ●  | ●      |    |
| 10"                                     | 12                        | 48                             | 3.5 (51.0)                 | 4.0 (58)          |                                             |      | ●  | ●      | ●  | ●                                             | ●    | ●  | ●      | ●  | ●                                             | ●    | ●  | ●      |    |
|                                         | 16                        | 64                             |                            |                   |                                             |      | ●  | ●      | ●  | ●                                             | ●    | ●  | ●      | ●  | ●                                             | ●    | ●  | ●      |    |
|                                         | 20                        | 80                             |                            |                   |                                             |      | ●  | ●      | ●  | ●                                             | ●    | ●  | ●      | ●  | ●                                             | ●    | ●  | ●      |    |

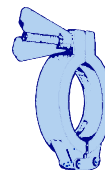
It should be noted that each separate diameter size of bubble trap overlaps the previous size, this is particularly useful as the small diameter longer length bubble trap will always have a higher pressure rating than its larger sized diameter alternative.

The above data is derived from the underlying principal that the media should remain inside the bubble trap for a minimum of 15 seconds (residence time) and is generated from the basic formula:

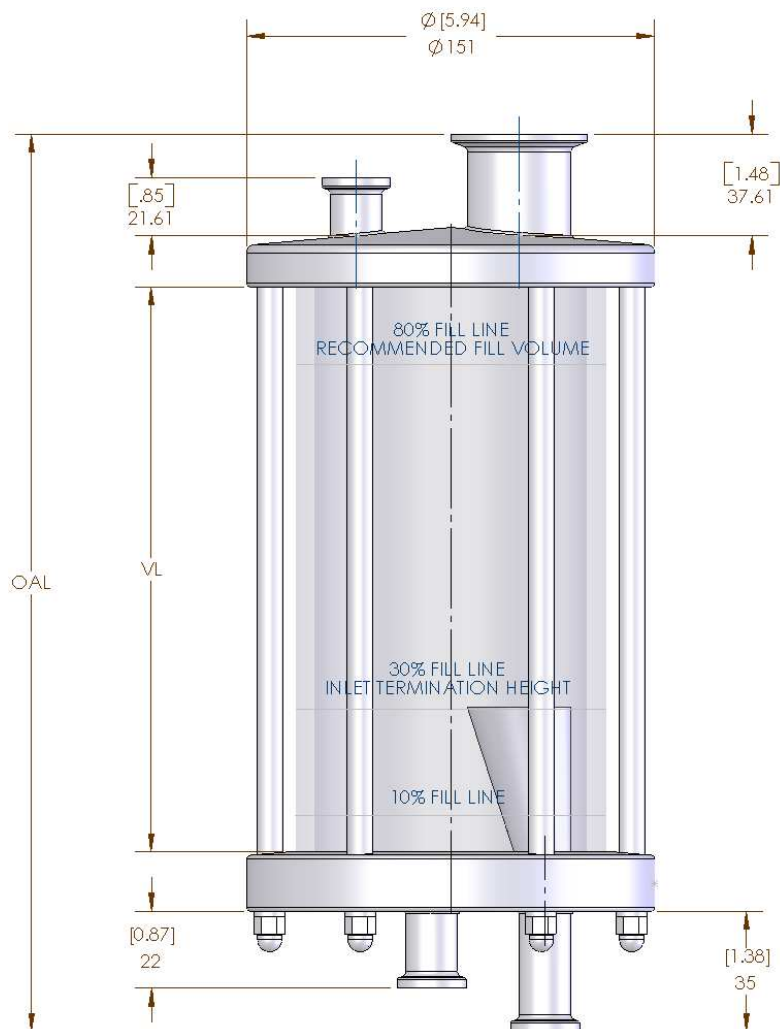
$$Rt = \frac{Rfv}{Q} \times 60$$

Rt = Residence Time (Greater Than 15 Secs)  
Rfv = Recommended Fill Volume (Litres)  
Q = Flow Rate (Litres Per Minute)

Note : If your exact flow rate is not shown on the table above, the bubble trap sized for the nearest flow rate larger / quicker than yours must be selected. This will guarantee the residence time will exceed the 15 second minimum.



# PHARMACEUTICAL BUBBLE TRAP 4" DIAMETER DATA SHEET

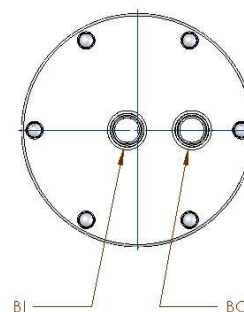


Standard Glass Size = 115.0mm OD x 101.0mm ID

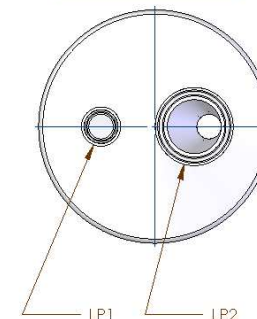
Operating Pressure = 6.0 bar (87 psi) @ 30°C (86°F)

We can offer & manufacture non-standard variations of the 4" bubble trap to meet customer requirements / specifications

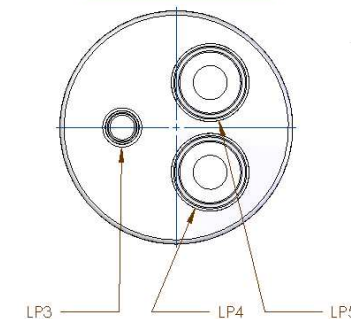
BUBBLE TRAP BASE  
INLET / OUTLET  
FERRULE OPTIONS



BUBBLE TRAP LID  
2 PORT  
FERRULE OPTIONS



BUBBLE TRAP LID  
3 PORT  
FERRULE OPTIONS

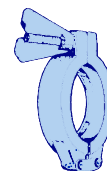


## BILL OF MATERIALS

| Components       | Qty | Standard Material | S/Finish - Grade | Alternative Options  |
|------------------|-----|-------------------|------------------|----------------------|
| Bubble Trap Lid  | 1   | 316L / 1.4404     | SF4 - 0.38Ra EP  | C22 - AL6XN          |
| Bubble Trap Base | 1   | 316L / 1.4404     | SF4 - 0.38Ra EP  | C22 - AL6XN          |
| Tie Rods         | 1   | 316L / 1.4404     | SF3 - 0.8Ra      | C22 - AL6XN          |
| M6 Domed Nut     | 6   | 316L / 1.4404     | SF3 - 0.8Ra      | C22 - AL6XN          |
| Spring Washer    | 12  | 316 / A4          | SF3 - 0.8Ra      | C22 - AL6XN          |
| Viewing Cylinder | 1   | 3.3 Borosilicate  | Flame Polished   | Acrylic USP Class VI |
| O-Rings          | 4   | EPDM              | USP Class VI     | VITON - FEP Silicone |

## 4" DIAMETER BUBBLE TRAP - STANDARD CONFIGURATIONS

| Glass Length<br>[inches] mm | Rec. Fill Volume<br>Litres | Max Fill Volume<br>Litres | OAL<br>Overall Length<br>[inches] mm | VL<br>View Length<br>[inches] mm | BI<br>Base Inlet<br>Options | BO<br>Base Outlet<br>Options | LP1<br>Lid Port 1<br>Options | LP2<br>Lid Port 2<br>Options | LP3<br>Lid Port 3<br>Options | LP4<br>Lid Port 4<br>Options | LP5<br>Lid Port 5<br>Options |
|-----------------------------|----------------------------|---------------------------|--------------------------------------|----------------------------------|-----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| [05.90] 150                 | 1                          | 1.3                       | [09.60] 244                          | [05.12] 130                      | 1/2"                        | 1/2"                         | 1/2"                         | 1/2"                         | 1/2"                         | 1/2"                         | 1/2"                         |
| [12.20] 310                 | 2                          | 2.5                       | [15.91] 404                          | [11.42] 290                      | 3/4"                        | 3/4"                         | 3/4" 1"                      | 3/4" 1"                      | 3/4"                         | 3/4"                         | 3/4"                         |
| [18.50] 470                 | 3                          | 3.8                       | [22.20] 564                          | [17.72] 450                      | 1"                          | 1"                           | 1 1/2"                       | 1 1/2"                       | 1"                           | 1"                           | 1"                           |



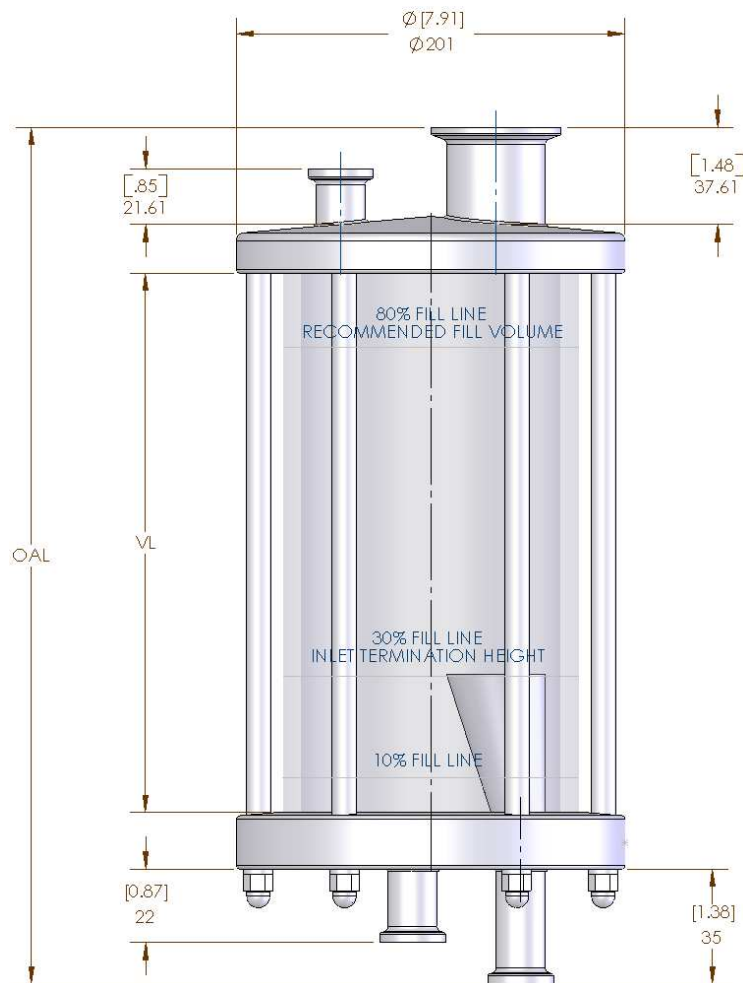
# PHARMACEUTICAL BUBBLE TRAP

## 6" DIAMETER DATA SHEET

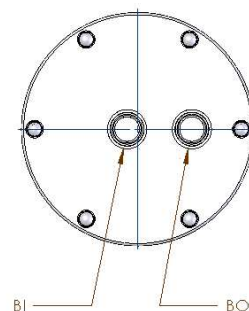
Standard Glass Size = 165.0mm OD x 151.0mm ID

Operating Pressure = 5.5 bar (80 psi) @ 30°C (86°F)

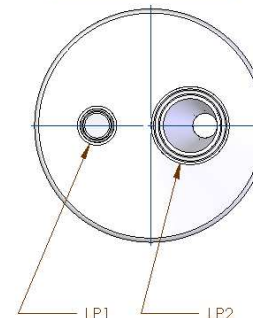
We can offer & manufacture non-standard variations of the 6" bubble trap to meet customer requirements / specifications



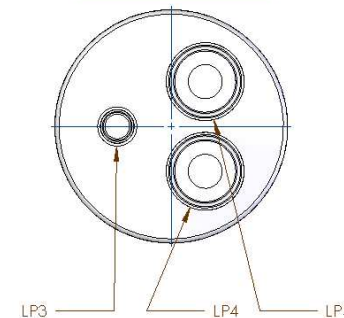
BUBBLE TRAP BASE  
INLET / OUTLET  
FERRULE OPTIONS



BUBBLE TRAP LID  
2 PORT  
FERRULE OPTIONS



BUBBLE TRAP LID  
3 PORT  
FERRULE OPTIONS

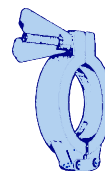


### BILL OF MATERIALS

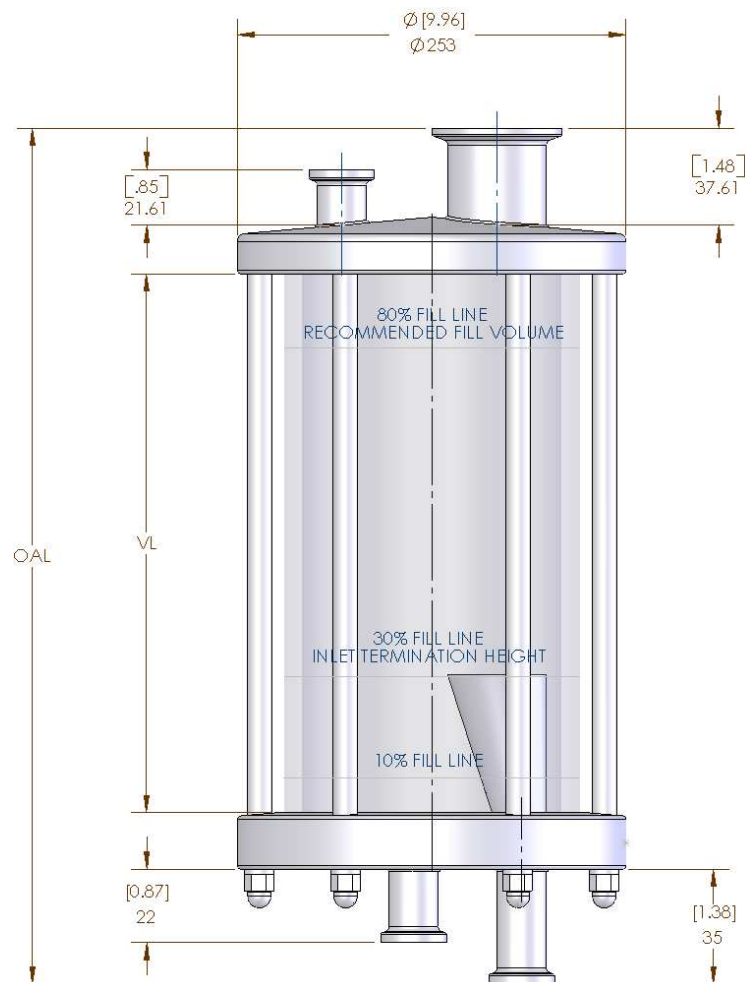
| Components       | Qty | Standard Material | S/Finish - Grade | Alternative Options  |
|------------------|-----|-------------------|------------------|----------------------|
| Bubble Trap Lid  | 1   | 316L / 1.4404     | SF4 - 0.38Ra EP  | C22 - AL6XN          |
| Bubble Trap Base | 1   | 316L / 1.4404     | SF4 - 0.38Ra EP  | C22 - AL6XN          |
| Tie Rods         | 1   | 316L / 1.4404     | SF3 - 0.8Ra      | C22 - AL6XN          |
| M6 Domed Nut     | 6   | 316L / 1.4404     | SF3 - 0.8Ra      | C22 - AL6XN          |
| Spring Washer    | 12  | 316 / A4          | SF3 - 0.8Ra      | C22 - AL6XN          |
| Viewing Cylinder | 1   | 3.3 Borosilicate  | Flame Polished   | Acrylic USP Class VI |
| O-Rings          | 4   | EPDM              | USP Class VI     | VITON - FEP Silicone |

### 6" DIAMETER BUBBLE TRAP - STANDARD CONFIGURATIONS

| Glass Length<br>[inches] mm | Rec. Fill Volume<br>Litres | Max Fill Volume<br>Litres | OAL<br>Overall Length<br>[inches] mm | VL<br>View Length<br>[inches] mm | BI<br>Base Inlet<br>Options | BO<br>Base Outlet<br>Options | LP1<br>Lid Port 1<br>Options | LP2<br>Lid Port 2<br>Options | LP3<br>Lid Port 3<br>Options | LP4<br>Lid Port 4<br>Options | LP5<br>Lid Port 5<br>Options |
|-----------------------------|----------------------------|---------------------------|--------------------------------------|----------------------------------|-----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| [05.51] 140                 | 2                          | 2.5                       | [10.00] 254                          | [04.72] 120                      | 3/4"                        | 3/4"                         | 1/2"                         | 1/2"                         | 1/2"                         | 1/2"                         | 1/2"                         |
| [08.27] 210                 | 3                          | 3.8                       | [12.76] 324                          | [07.48] 190                      |                             |                              | 3/4"                         | 3/4"                         | 1/2"                         | 1/2"                         | 1/2"                         |
| [11.02] 280                 | 4                          | 5.0                       | [15.51] 394                          | [10.24] 260                      | 1 1/2"                      | 1 1/2"                       | 1"                           | 1"                           | 3/4"                         | 3/4"                         | 3/4"                         |
| [16.54] 420                 | 6                          | 7.5                       | [21.02] 534                          | [15.74] 400                      |                             |                              | 1 1/2"                       | 1 1/2"                       | 1"                           | 1"                           | 1"                           |
| [22.05] 560                 | 8                          | 10.0                      | [26.54] 674                          | [21.26] 540                      |                             |                              | 2"                           | 2"                           | 1 1/2"                       | 1 1/2"                       | 1 1/2"                       |



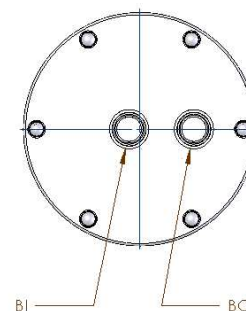
# PHARMACEUTICAL BUBBLE TRAP 8" DIAMETER DATA SHEET



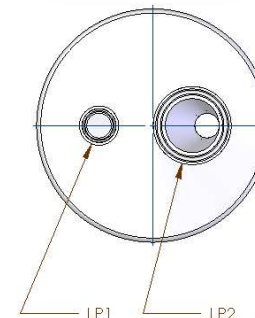
Standard Glass Size = 215.0mm OD x 197.0mm ID  
We can offer & manufacture non-standard variations of the 8" bubble trap to meet customer requirements / specifications

Operating Pressure = 5.0 bar (73 psi) @ 30°C (86°F)

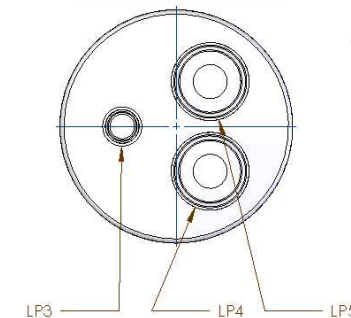
BUBBLE TRAP BASE  
INLET / OUTLET  
FERRULE OPTIONS



BUBBLE TRAP LID  
2 PORT  
FERRULE OPTIONS



BUBBLE TRAP LID  
3 PORT  
FERRULE OPTIONS

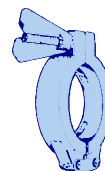


## BILL OF MATERIALS

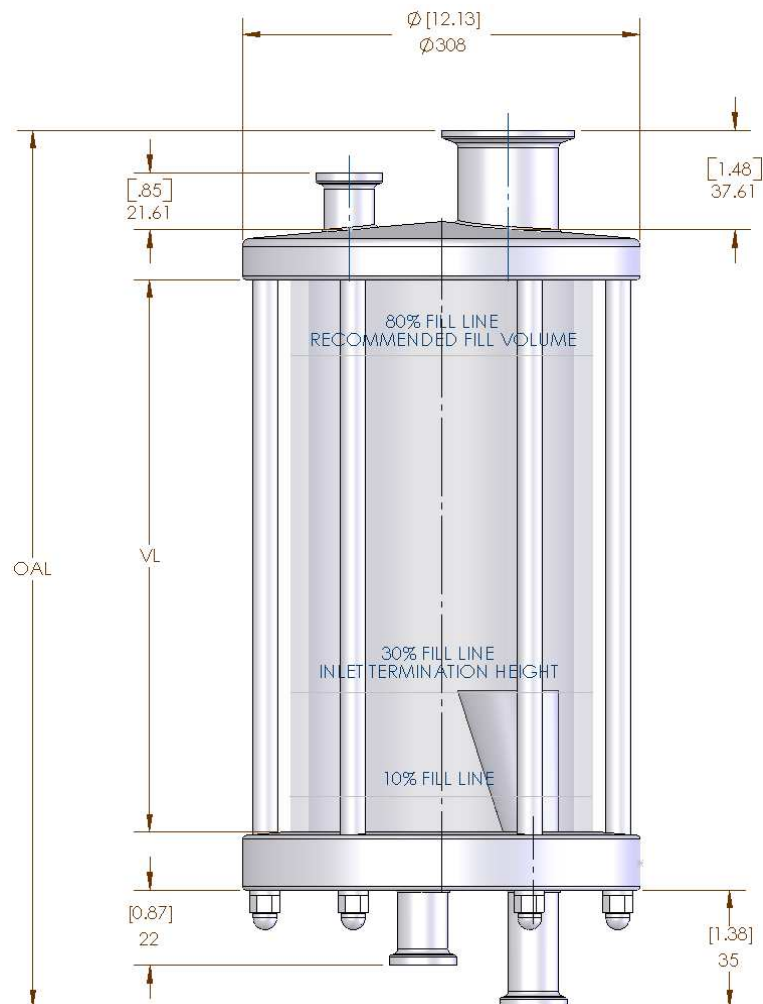
| Components       | Qty | Standard Material | S/Finish - Grade | Alternative Options  |
|------------------|-----|-------------------|------------------|----------------------|
| Bubble Trap Lid  | 1   | 316L / 1.4404     | SF4 - 0.38Ra EP  | C22 - AL6XN          |
| Bubble Trap Base | 1   | 316L / 1.4404     | SF4 - 0.38Ra EP  | C22 - AL6XN          |
| Tie Rods         | 1   | 316L / 1.4404     | SF3 - 0.8Ra      | C22 - AL6XN          |
| M8 Domed Nut     | 8   | 316L / 1.4404     | SF3 - 0.8Ra      | C22 - AL6XN          |
| Spring Washer    | 16  | 316 / A4          | SF3 - 0.8Ra      | C22 - AL6XN          |
| Viewing Cylinder | 1   | 3.3 Borosilicate  | Flame Polished   | Acrylic USP Class VI |
| O-Rings          | 4   | EPDM              | USP Class VI     | VITON - FEP Silicone |

## 8" DIAMETER BUBBLE TRAP - STANDARD CONFIGURATIONS

| Glass Length<br>[inches] mm | Rec. Fill Volume<br>Litres | Max Fill Volume<br>Litres | OAL<br>Overall Length<br>[inches] mm | VL<br>View Length<br>[inches] mm | BI<br>Base Inlet<br>Options | BO<br>Base Outlet<br>Options | LP1<br>Lid Port 1<br>Options | LP2<br>Lid Port 2<br>Options | LP3<br>Lid Port 3<br>Options | LP4<br>Lid Port 4<br>Options | LP5<br>Lid Port 5<br>Options |
|-----------------------------|----------------------------|---------------------------|--------------------------------------|----------------------------------|-----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| [09.45] 240                 | 6                          | 7.5                       | [13.94] 354                          | [08.66] 220                      | 1"                          | 1"                           | 1/2"                         | 1/2"                         | 1/2"                         | 1/2"                         | 1/2"                         |
| [12.99] 330                 | 8                          | 10.0                      | [17.48] 444                          | [12.20] 310                      | 1 1/2"                      | 1 1/2"                       | 3/4" 1"                      | 3/4" 1"                      | 3/4"                         | 3/4"                         | 3/4"                         |
| [16.14] 410                 | 10                         | 12.5                      | [20.63] 524                          | [15.35] 390                      | 2"                          | 2"                           | 1 1/2"                       | 1 1/2"                       | 1"                           | 1"                           | 1"                           |
| [19.29] 490                 | 12                         | 15.0                      | [23.78] 604                          | [18.50] 470                      |                             |                              | 2"                           | 2"                           | 1 1/2"                       | 1 1/2"                       | 1 1/2"                       |



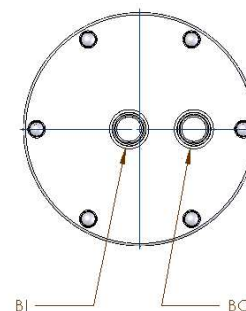
# PHARMACEUTICAL BUBBLE TRAP 10" DIAMETER DATA SHEET



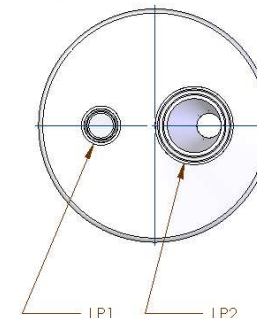
Standard Glass Size = 270.0mm OD x 252.0mm ID  
We can offer & manufacture non-standard variations of the 10" bubble trap to meet customer requirements / specifications

Operating Pressure = 3.5 bar (51 psi) @ 30°C (86°F)

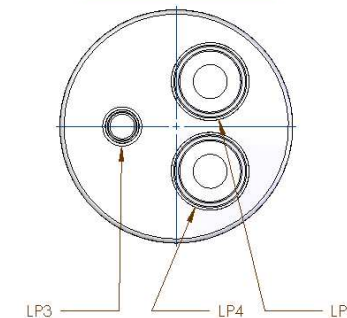
BUBBLE TRAP BASE  
INLET / OUTLET  
FERRULE OPTIONS



BUBBLE TRAP LID  
2 PORT  
FERRULE OPTIONS



BUBBLE TRAP LID  
3 PORT  
FERRULE OPTIONS



## BILL OF MATERIALS

| Components       | Qty | Standard Material | S/Finish - Grade | Alternative Options  |
|------------------|-----|-------------------|------------------|----------------------|
| Bubble Trap Lid  | 1   | 316L / 1.4404     | SF4 - 0.38Ra EP  | C22 - AL6XN          |
| Bubble Trap Base | 1   | 316L / 1.4404     | SF4 - 0.38Ra EP  | C22 - AL6XN          |
| Tie Rods         | 1   | 316L / 1.4404     | SF3 - 0.8Ra      | C22 - AL6XN          |
| M8 Domed Nut     | 8   | 316L / 1.4404     | SF3 - 0.8Ra      | C22 - AL6XN          |
| Spring Washer    | 16  | 316 / A4          | SF3 - 0.8Ra      | C22 - AL6XN          |
| Viewing Cylinder | 1   | 3.3 Borosilicate  | Flame Polished   | Acrylic USP Class VI |
| O-Rings          | 4   | EPDM              | USP Class VI     | VITON - FEP Silicone |

## 10" DIAMETER BUBBLE TRAP - STANDARD CONFIGURATIONS

| Glass Length<br>[inches] mm | Rec. Fill Volume<br>Litres | Max Fill Volume<br>Litres | OAL<br>Overall Length<br>[inches] mm | VL<br>View Length<br>[inches] mm | BI<br>Base Inlet<br>Options | BO<br>Base Outlet<br>Options | LP1<br>Lid Port 1<br>Options | LP2<br>Lid Port 2<br>Options | LP3<br>Lid Port 3<br>Options | LP4<br>Lid Port 4<br>Options | LP5<br>Lid Port 5<br>Options |
|-----------------------------|----------------------------|---------------------------|--------------------------------------|----------------------------------|-----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| [11.81] 300                 | 12                         | 15.0                      | [16.30] 414                          | [11.02] 280                      | 1"                          | 1"                           | 1/2" 3/4"                    | 1/2" 3/4"                    | 1/2" 3/4"                    | 1/2" 3/4"                    | 1/2" 3/4"                    |
| [15.75] 400                 | 16                         | 20.0                      | [20.24] 514                          | [14.96] 380                      | 1 1/2"                      | 1 1/2"                       | 3/4" 1 1/2"                  | 3/4" 1 1/2"                  | 3/4" 1 1/2"                  | 3/4" 1 1/2"                  | 3/4" 1 1/2"                  |
| [19.69] 500                 | 20                         | 25.0                      | [24.17] 614                          | [18.90] 480                      | 2"                          | 2"                           | 2"                           | 2"                           | 2"                           | 2"                           | 2"                           |

