



# **STEAM-IN-PLACE (SIP) TECHNOLOGY**

## WHAT IS STEAM-IN-PLACE (SIP) TECHNOLOGY?

The innovative three port design of CPC's Steam-Thru® technology enables uncomplicated actuation between the SIP steam pathway and fluid transfer (flow) pathway. This provides an easy and sterile connection between flexible single-use tubing and stainless-steel processing equipment. The Steam-Thru product lines offer versatility within your process by having connection options for 3/8" and 1/2" ID tubing on the single-use side of the connector and 3/4" and 1-1/2" sanitary connections for attachment to the stainless-steel processing equipment.



### FEATURES

- Innovative three-port design → Allows for a true steam-through SIP process to eliminate dead legs and the need for laminar flow hoods
- Intuitive valve design → Enables sterile connection/disconnection while permitting a high media flow rate
- Steam-Thru II Thumb Latch → Secures valve position, provides visual indicator of process stage
- 3/4" and 1-1/2" Sanitary Terminations → Easily connects to process equipment

### BENEFITS

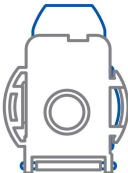
#### Additional features and benefits for the AseptiQuik Steam-Thru Combination:

- Genderless AseptiQuik → Eases single-use systems specifications with one part number for both halves
- FLIP-CLICK-PULL → Intuitive three-step connection process reduces risk of operator error
- CPC Click → Audible confirmation of assembly with no additional hardware required
- Sanitary interface between the two connectors → More secure connection than tubing with cable ties

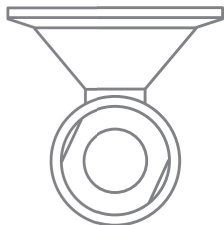
## NOMINAL FLOW PATH (NFP) SIZE



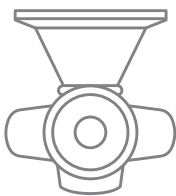
|                              | NFP      | CV RANGE  |
|------------------------------|----------|-----------|
| <b>AQS<br/>STEAM-THRU II</b> | (0.375") | 1.0 - 2.0 |



|                              | NFP    | CV RANGE  |
|------------------------------|--------|-----------|
| <b>AQG<br/>STEAM-THRU II</b> | (0.5") | 3.0 - 9.0 |



|                   | NFP    | CV RANGE  |
|-------------------|--------|-----------|
| <b>STEAM-THRU</b> | (0.5") | 4.0 - 7.0 |



|                      | NFP    | CV RANGE  |
|----------------------|--------|-----------|
| <b>STEAM-THRU II</b> | (0.5") | 3.0 - 9.0 |

Cv values represent the approximate expected flow rate in gallons per minute of water at room temperature for a 1 PSI pressure drop. The flow is generally constrained by the smallest diameter, which in some cases will be the termination diameter and not the NFP.

## STEAM-THRU CONNECTION OPTIONS

|                               | SINGLE USE<br>SYSTEM<br>TERMINATIONS |      |                 |     | EQUIPMENT<br>PORT<br>TERMINATION |        | CONDENSATE<br>PORT<br>TERMINATION |  | PRODUCT<br>FEATURES |           |                       | STERILIZATION<br>OPTIONS<br>(CHOOSE 1) |                | SIP | FLOW<br>INFORMATION |                |
|-------------------------------|--------------------------------------|------|-----------------|-----|----------------------------------|--------|-----------------------------------|--|---------------------|-----------|-----------------------|----------------------------------------|----------------|-----|---------------------|----------------|
|                               | HOSE<br>BARB                         |      | ASEPTI-<br>QUIK |     | SANITARY                         |        | SANITARY                          |  | STEAM-ON            | STEAM-OFF | THUMB LATCH ACTUATION | GAMMA COMPATIBLE                       | AUTOCLEAVEABLE |     | NOMINAL FLOW PATH   | CV VALUE RANGE |
|                               | 3/8"                                 | 1/2" | AQS             | AQG | 3/4"                             | 1-1/2" | 3/4"                              |  |                     |           |                       |                                        |                |     |                     |                |
| STEAM-THRU                    | ✓                                    | ✓    |                 |     | ✓                                | ✓      | ✓                                 |  | ✓                   |           |                       | ✓                                      | ✓              | ✓   | 1/2"                | 4.0 – 7.0      |
| STEAM-THRU II                 | ✓                                    | ✓    |                 |     | ✓                                | ✓      | ✓                                 |  | ✓                   | ✓         | ✓                     | ✓                                      | ✓              | ✓   | 1/2"                | 3.0 – 9.0      |
| ASEPTIQUIK S<br>STEAM-THRU II |                                      |      | ✓               |     | ✓                                | ✓      | ✓                                 |  | ✓                   | ✓         | ✓                     | ✓                                      | ✓              | ✓   | 3/8"                | 1.0 – 2.0      |
| ASEPTIQUIK G<br>STEAM-THRU II |                                      |      |                 | ✓   | ✓                                | ✓      | ✓                                 |  | ✓                   | ✓         | ✓                     | ✓                                      | ✓              | ✓   | 1/2"                | 3.0 – 9.0      |

## STEAM-THRU II ASSEMBLY PROCEDURE

### STEP 1



Attach the equipment port to the stainless-steel processing equipment using a sanitary gasket and sanitary tri-clamp.

### STEP 2



Attach the steam condensate line to the steam condensate port using a sanitary gasket and tri-clamp.

### STEP 3



Perform a steam-in-place sterilization per your validated parameters and allow the connector to cool to room temperature.

### STEP 4



Remove the plastic guard from above the connector thumb latch and transfer it to one of the tabs located directly above it.

### STEP 5



With the guard removed you can now press the thumb latch and actuate the connector from the steam position to the flow position.

### STEP 6



Perform fluid transfer through the connector.

### STEP 7



Press the thumb latch and actuate the connector from the flow position to the steam position, and return the guard to its original position.

### STEP 8



Perform a second steam-in-place cycle to "steam off" the connection.

# STEAM-THRU® SERIES CONNECTORS

**Steam-Thru® Connectors** allow a quick and easy sterile connection between stainless steel biopharmaceutical processing equipment and disposable bag and tube assemblies. The single-use design saves time and money by eliminating unnecessary cleaning procedures and reducing validation burden associated with reusable components.

## SPECIFICATIONS

### OPERATING CONDITIONS

(Fluid Transfer)

#### STEAM POSITION

##### Temperature:

Up to 275°F (135°C) for 60 minutes

##### Pressure:

Up to 30 psi, 2.1 bar (Steam-Thru)

Up to 35 psi, 2.4 bar (Steam-Thru II)

#### FLOW POSITION

##### Temperature:

39°F to 104°F (4°C to 40°C)

##### Pressure:

Vacuum to 20 psi, 1.4 bar

#### STERILIZATION

Full Connector Assembly:

**Gamma:** Up to 50 kGy irradiation

or

**Autoclave:** High Temp (HT) Version  
Up to 266°F (130°C) for 60 minutes  
(AQGSTC)

#### Steam-In-Place (SIP):

Up to 275°F (135°C) (~31 psi) for 60 minutes

#### TERMINATIONS

3/8" (9.5mm) to 1/2" (12.7mm) ID hose barb  
(Steam-Thru)

3/8" (9.5mm) to 1/2" (12.7mm) ID hose barb  
and 3/4" sanitary (Steam-Thru II)

#### MATERIALS

**Connection:** Polysulfone (amber tint)

**O-rings:** Silicone (clear), platinum-cured

**Removeable Sleeve:** Polycarbonate

NOTE: Steam pressures are estimated based upon information in Steam Tables found in literature



### FEATURES

Innovative three-port design →

Valve design →

Steam-Thru II thumb latch →

3/4" and 1-1/2" sanitary terminations →

### BENEFITS

Allows a true steam-through SIP process which eliminates "dead legs" and the need for laminar flow hoods

Allows sterile connection and disconnection and permits high media flow rate

Secures valve position, provides visual indicator of process stage

Easily connects to process equipment

## TYPICAL FLOW RATE

### Cv Value Range:

4.0 - 7.0 for Steam-Thru

3.0 - 9.0 for Steam-Thru II

Cv values represent the approximate expected flow rate in gallons per minute of water at room temperature for a 1 PSI pressure drop. The flow is generally constrained by the smallest diameter, which in some cases will be the termination diameter and not the Nominal Flow Path.

## NOTE

Validation and Extractables data can be requested at [cpcworldwide.com/STC](http://cpcworldwide.com/STC)

## DID YOU KNOW

Steam-Thru connectors are perfect for any hybrid processing at your facility. If using a stainless-steel bioreactor and single-use systems, easily make a sterile connection between the two systems with a Steam-Thru connector on your single-use system and mounting it directly onto your bioreactor.

Scan code to visit webpage



[cpcworldwide.com/STC](http://cpcworldwide.com/STC)

# STEAM-THRU SERIES DIMENSIONS

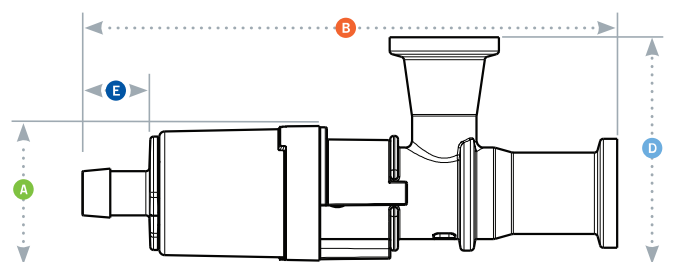
POLYSULFONE with polycarbonate sleeve



| TERMINATION                      | PART NO.   | A               | B                | C                | D               | E               |
|----------------------------------|------------|-----------------|------------------|------------------|-----------------|-----------------|
| 3/4" X 3/4" SANITARY X 1/2" HB   | STC1700000 | 1.20" (30.5 mm) | 5.09" (129.3 mm) | 4.44" (112.8 mm) | 2.00" (50.8 mm) | 0.89" (22.6 mm) |
| 3/4" X 3/4" SANITARY X 3/8" HB   | STC1700100 | 1.20" (30.5 mm) | 4.80" (121.9 mm) | 4.15" (105.4 mm) | 2.00" (50.8 mm) | 0.60" (15.2 mm) |
| 3/4" X 1-1/2" SANITARY X 1/2" HB | STC1700200 | 1.20" (30.5 mm) | 5.09" (129.3 mm) | 4.44" (112.8 mm) | 2.00" (50.8 mm) | 0.89" (22.6 mm) |
| 3/4" X 1-1/2" SANITARY X 3/8" HB | STC1700300 | 1.20" (30.5 mm) | 4.80" (121.9 mm) | 4.15" (105.4 mm) | 2.00" (50.8 mm) | 0.60" (15.2 mm) |

## STEAM-THRU CONFIGURATIONS

Steam-Thru Connection's three-port design allows steam to pass directly through the lower ports to "steam on" to stainless equipment. After the SIP cycle is completed, the connector's valve is actuated, creating a sterile flow path to single-use systems.



A = Diameter  
B = Total Length  
C = Actuated Length  
D = Height  
E = Hose Barb Length

# STEAM-THRU II SERIES DIMENSIONS

POLYSULFONE with polycarbonate sleeve

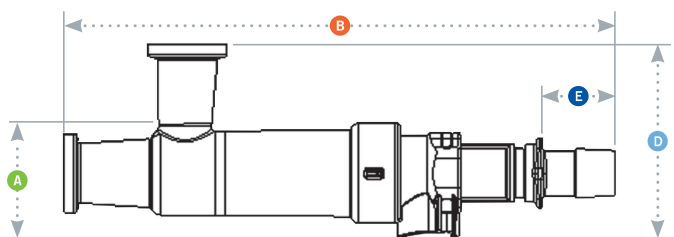


| TERMINATION                            | PART NO.   | A               | B                | C                | D               | E               |
|----------------------------------------|------------|-----------------|------------------|------------------|-----------------|-----------------|
| 3/4" X 3/4" SANITARY X 1/2" HB         | STC2020000 | 1.42" (36.1 mm) | 6.84" (173.7 mm) | 5.93" (150.6 mm) | 2.40" (61.0 mm) | 0.88" (22.4 mm) |
| 3/4" X 3/4" SANITARY X 3/8" HB         | STC2020100 | 1.42" (36.1 mm) | 6.76" (171.7 mm) | 5.93" (150.6 mm) | 2.40" (61.0 mm) | 0.80" (20.3 mm) |
| 3/4" X 1-1/2" SANITARY X 1/2" HB       | STC2020200 | 1.42" (36.1 mm) | 6.84" (173.7 mm) | 5.93" (150.6 mm) | 2.40" (61.0 mm) | 0.88" (22.4 mm) |
| 3/4" X 1-1/2" SANITARY X 3/8" HB       | STC2020300 | 1.42" (36.1 mm) | 6.76" (171.7 mm) | 5.93" (150.6 mm) | 2.40" (61.0 mm) | 0.80" (20.3 mm) |
| 3/4" X 3/4" SANITARY X 3/4" SANITARY   | STC2020900 | 1.42" (36.1 mm) | 6.60" (167.6 mm) | 5.93" (150.6 mm) | 2.40" (61.0 mm) | 0.62" (15.7 mm) |
| 3/4" X 1-1/2" SANITARY X 3/4" SANITARY | STC2021000 | 1.42" (36.1 mm) | 6.60" (167.6 mm) | 5.93" (150.6 mm) | 2.40" (61.0 mm) | 0.62" (15.7 mm) |

All measurements are in inches (millimeters) unless otherwise noted. Tubing must meet stated inside and outside diameters.

## STEAM-THRU II CONFIGURATIONS

Steam-Thru II Connections offer the flexibility of "steam on" and "steam off" functionality. The innovative design allows the valve to be returned to the steam position enabling a second SIP cycle following media transfer. The "steam off" disconnection of single-use systems minimizes cross-contamination risks associated with reusable components.



A = Diameter  
B = Total Length  
C = Actuated Length  
D = Height  
E = Hose Barb Length

# ASEPTIQUIK® STC II SERIES CONNECTORS

**AseptiQuik® STC Connectors** combine the AseptiQuik® sterile connector and the Steam-Thru® II SIP connector, giving manufacturers greater flexibility between hybrid stainless steel and single-use processing equipment.

The union of the two connectors into a single unit through a sanitary clamp allows an AseptiQuik sterile connection to be steamed on to stainless equipment via SIP. After the SIP cycle, a wide range of single-use systems can be connected.



## SPECIFICATIONS

### OPERATING CONDITIONS

(Fluid Transfer)

### STEAM POSITION

#### Temperature:

Up to 275°F (135°C) for 60 minutes

#### Pressure:

Up to 35 psi, 2.4 bar

### FLOW POSITION

#### Temperature:

39°F to 104°F (4°C to 40°C)

#### Pressure:

Up to 20 psi, 1.4 bar

### STERILIZATION

Full Connector Assembly:

**Gamma:** Up to 50 kGy irradiation

**Autoclave:** High Temp (HT) Version  
Up to 266°F (130°C) for 60 minutes  
(AQGSTC)

#### Steam-In-Place (SIP):

Up to 275°F (135°C) (~31 psi) for 60 minutes

### TERMINATIONS

3/8" (9.5mm) to 1/2" (12.7mm) ID hose barb  
(Steam-Thru)

3/8" (9.5mm) to 1/2" (12.7mm) ID hose barb  
and 3/4" sanitary (Steam-Thru II)

### MATERIALS:

#### Main Components:

**AseptiQuik** - Polycarbonate (white)

**Steam-Thru II** - Polysulfone (amber tint)

**Seals:** Silicone (clear), platinum-cured

**Removable Sleeve:** Polycarbonate (white)

#### Pull Tabs:

Polycarbonate (blue, standard version)

Polycarbonate (white, HT version)

#### Membrane:

Polyethylene (standard version)

Hydrophobic polyethersulfone (HT versions),

PTFE strip sticker

**Clamp:** Nylon 66 (white)

NOTE: Steam pressures are estimated based upon information in Steam Tables found in literature

## TYPICAL FLOW RATE

### Cv Value Range:

1 - 2 for AQSSTCII

3 - 9 for AQGSTCII

Cv values represent the approximate expected flow rate in gallons per minute of water at room temperature for a 1 PSI pressure drop. The flow is generally constrained by the smallest diameter, which in some cases will be the termination diameter and not the Nominal Flow Path.

## NOTE

Validation and Extractables data can be requested at  
[cpcworldwide.com/AseptiQuik-STC](http://cpcworldwide.com/AseptiQuik-STC)

## DID YOU KNOW

The AQSSTC provides the same sterile hybrid technology as the Steam-Thru II, but in an even more compact form. The AQSSTC has an AseptiQuik mounted on the single-use port of the Steam-Thru Connector. Meaning fewer single-use systems mounted on your bioreactor during the SIP process. Connect the other end of the AQS at any point after the SIP process and before actuating to the flow position.

Scan code to visit webpage



[cpcworldwide.com/AseptiQuik-STC](http://cpcworldwide.com/AseptiQuik-STC)

# ASEPTIQUICK STC SERIES DIMENSIONS

**COMBINATION PRODUCT** - Polycarbonate with blue pull tabs and Steam-Thru II- For gamma irradiation applications.



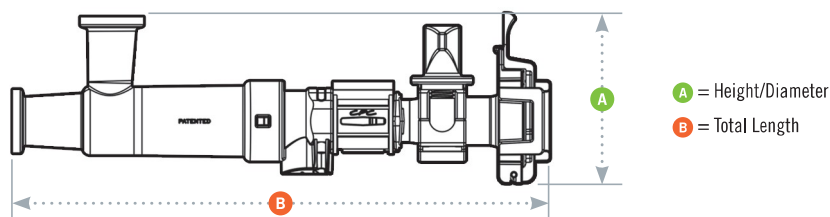
| TERMINATION                                                  | PART NO.      | A               | B                | C                |
|--------------------------------------------------------------|---------------|-----------------|------------------|------------------|
| 3/4" X 3/4" SANITARY STEAM-THRU II WITH ASEPTIQUICK G BODY   | AQGSTC2330900 | 3.05" (77.5 mm) | 8.26" (209.8 mm) | 7.36" (186.9 mm) |
| 3/4" X 1-1/2" SANITARY STEAM-THRU II WITH ASEPTIQUICK G BODY | AQGSTC2331000 | 3.05" (77.5 mm) | 8.26" (209.8 mm) | 7.36" (186.9 mm) |
| 3/4" X 3/4" SANITARY STEAM-THRU II WITH ASEPTIQUICK S BODY   | AQSSTC2330900 | 2.45" (62.2 mm) | 8.20" (208.2 mm) | 7.30" (185.4 mm) |
| 3/4" X 1-1/2" SANITARY STEAM-THRU II WITH ASEPTIQUICK S BODY | AQSSTC2331000 | 2.45" (62.2 mm) | 8.20" (208.2 mm) | 7.30" (185.4 mm) |

**COMBINATION PRODUCT** - Polycarbonate HT with white pull tabs and Steam-Thru II- For autoclave or gamma irradiation applications.



| TERMINATION                                                  | PART NO.        | A               | B                | C                |
|--------------------------------------------------------------|-----------------|-----------------|------------------|------------------|
| 3/4" X 3/4" SANITARY STEAM-THRU II WITH ASEPTIQUICK G BODY   | AQGSTC2330900HT | 3.05" (77.5 mm) | 8.26" (209.8 mm) | 7.36" (186.9 mm) |
| 3/4" X 1-1/2" SANITARY STEAM-THRU II WITH ASEPTIQUICK G BODY | AQGSTC2331000HT | 3.05" (77.5 mm) | 8.26" (209.8 mm) | 7.36" (186.9 mm) |
| 3/4" X 3/4" SANITARY STEAM-THRU II WITH ASEPTIQUICK S BODY   | AQSSTC2330900HT | 2.45" (62.2 mm) | 8.20" (208.2 mm) | 7.30" (185.4 mm) |
| 3/4" X 1-1/2" SANITARY STEAM-THRU II WITH ASEPTIQUICK S BODY | AQSSTC2331000HT | 2.45" (62.2 mm) | 8.20" (208.2 mm) | 7.30" (185.4 mm) |

## PRODUCT DIMENSIONS



## FEATURES

Genderless AseptiQuick →

FLIP-CLICK-PULL →

CPC Click →

Innovative three-port steam design →

Steam valve design →

Sanitary interface between the two connectors →

## BENEFITS

Eases single-use systems specifications with one-part number for both halves

Intuitive three-step connection process reduces risk of operator error

Audible confirmation of assembly with no additional hardware required

Allows a true steam-through SIP process which eliminates "dead legs"

Allows sterile connection and disconnection to stainless equipment and permits a high media flow rate

More secure connection than tubing with cable ties