

GF Piping Systems

+GF+

# AquaTap™

Recirculating High Purity Laboratory Faucet



Featuring Exclusive Inline Flow Diverter  
(IFD) Technology (Patented)

## Laboratory faucet challenges

# Microbial Contamination

Laboratory purified water faucets are often specified for their inexpensive cost or aesthetically conforming design rather than their performance and function. The quality of water delivered through certain specified faucets or direct flow fixtures is often overlooked because of a lack of understanding of the potential water quality impact of improperly designed faucet. Many pure water laboratory faucets in the market are not produced for recirculation of the pure water flow stream.

When these faucets are not in operation, the pure water becomes stagnant and creates excellent breeding grounds where bacteria or biofilm can grow. Most laboratory faucets do not factor this in, and unknowingly taint the water quality. This potentially affects the laboratory pure water, which could in turn affect the results of experiments or tests being conducted.



## Laboratory Water

Scientists and lab professionals utilize water on a daily basis for numerous research tasks, and when pure water is contaminated results are compromised. Protocols for the operation of laboratories address quality, purity, and reliability as critical to the process. To guarantee maximum water quality, lab managers must focus on obtaining the right equipment and follow the most rigorous working standards and processes.

### Purified Water Lab Uses:

- Biological tests
- Laboratory tests
- Reagent Make-Up
- Standards preparation
- Glassware or instrument cleanup



## Differences: non-recirculating vs recirculating

# Keeping High Purity Water System Pure

One of the major concerns for engineers that design installations for high purity systems is to ensure that water keeps moving and to eliminate dead leg areas where water can get trapped and become static.

Most plumbing codes and standards (and especially ASME BPE BioProcess Equipment Standard) address dead leg concerns and many project plumbing specifications for RODI piping systems reference dead legs.

## Non-Recirculating Faucets

The installation of non-recirculating laboratory faucets will allow dead legs within the piping or tubing feeding the faucet from the main piping loop. Static water within the dead leg piping and/or faucet body is an ideal breeding ground for bacterial contaminants.

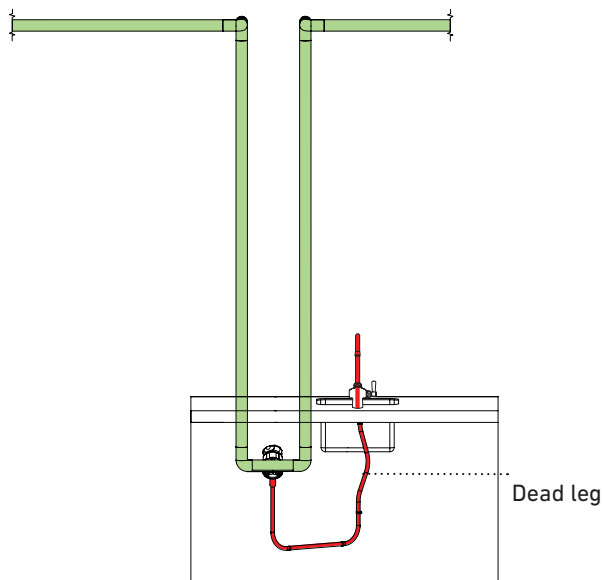
Designing a continuous piping loop for a purified water system without taking these potential dead legs into account defeats the purpose of this continuous flow design and impacts the water quality performance of the overall system.

## Recirculating Laboratory Faucets

Recirculating laboratory faucets are designed such that when the faucet is not in use, the pure water feed to the fixture continuously circulates through the feed water piping from and back to the main piping loop. This recirculating flow eliminates concerns over 'dead legs' within the pure water piping system.

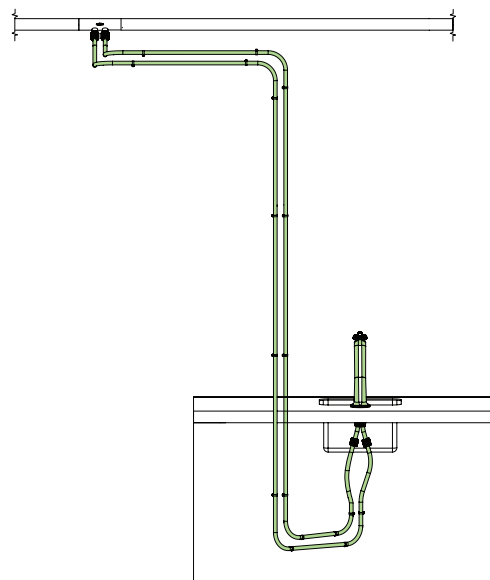
### 99.8% Less Colony Forming Units (CFU)

Lab tests have shown that AquaTap systems have 99.8% less colony forming units (CFU) when compared to non-recirculating gooseneck type laboratory faucets.



### Non-Recirculating Faucet Disadvantages

- Bacteria and biofilm growth
- Additional maintenance in pure water system
- Waste gallons of pure water during regular flushing
- Additional strain on the filtration system
- Lower performance of a pure water system



### Recirculating Faucet Advantages

- + Prevents bacteria and biofilm growth
- + Less maintenance in the pure water system
- + No need to waste water for flushing
- + Less strain on the filtration system
- + Reliable lab test results

## A complete recirculating system: Faucet and Inline Flow Diverter

# Why use AquaTap System?

GF has been a global leader in developing high purity piping systems for the last 50 years. Our focus on ensuring that water purity is maintained through all design aspects of the product from material, water flow, connections, seals, and even on the fusion machines that connect the whole system together.

We have used our decades of experience and expertise to develop the AquaTap recirculating faucet system which consists of a faucet and an inline flow diverter (IFD). Both components work in conjunction to not only continually recirculate water throughout the system, but also maintain the highest purity water throughout the process.

### Maintains Purity of Water

- Continuous recirculation from the piping loop to the faucet
- 99.8% less colony forming units than typical lab faucets
- Zero dead legs

### Lower Costs

- 30-50% lower cost of installation labor and material compared to serpentine recirculating system
- Reduce the costs of regularly flushing the lines with expensive pure water needed for non-circulating faucets
- Extend the length of time in between system sanitation/maintenance compared to non-recirculating faucets

### IFD Technology

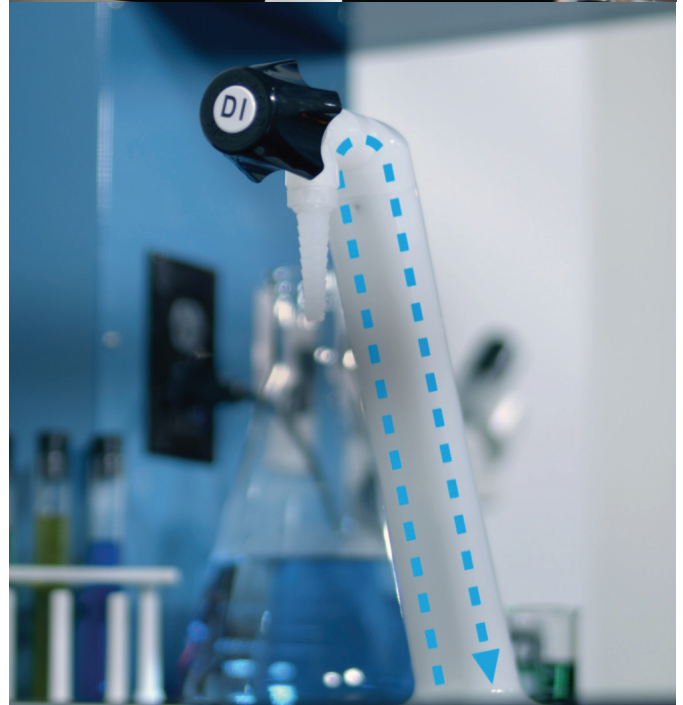
- Minimal pressure drop in the main line
- Circulates up to 50 feet away
- AquaTap Faucet with IFD technology allows for high recirculation flow rate

### High Purity Material

- Materials have low extractable properties
- Utilizes materials with antibacterial properties

### Reduce Water Waste

- Eliminate weekly flushing needed with the use of non-recirculating faucets which can save up to 105 gallons of pure water a year per faucet
- It takes about 4 gallons of water to make 1 gallon of pure water, which amounts to 420 gallons of saved water when using AquaTap recirculating system



### AquaTap Faucet Specifications

- Body Material: PVDF
- Wetted Material: PVDF and PFA tubing
- Pressure: 100 PSI max pressure
- Valve Type: Needle Valve
- Valve Cv value: .428
- Mounting hole diameter: 2"-2 1/2"
- Nozzle connection: 1/4" NPT threads
- FDA, USDA, and USP standards are either met and/or exceeded



## The benefits of a recirculating system

# Unique Inline Flow Diverter

### Patented Inline Flow Diverter (IFD)

The IFD is the "engine" that creates a constant flow of water from the main line to the AquaTap faucet outlet. The IFD is installed along the main line, acting like a "motorized" manifold distributing water to the faucets.

The IFD is uniquely engineered by applying Bernoulli's principle to create a differential pressure imbalance within the IFD which is the driving force for the water to circulate to faucet and back to the IFD.

#### IFD benefits

- The force created from the IFD can even allow the AquaTap faucets to be installed up to 50 feet away
- High speed recirculation rate, up to 2.25 GPM
- Low pressure drop, less than 1 PSI
- The IFD's can be joined together via butt fusion weld for projects where supply of multiple AquaTap faucets are required to be installed in close proximity to one another

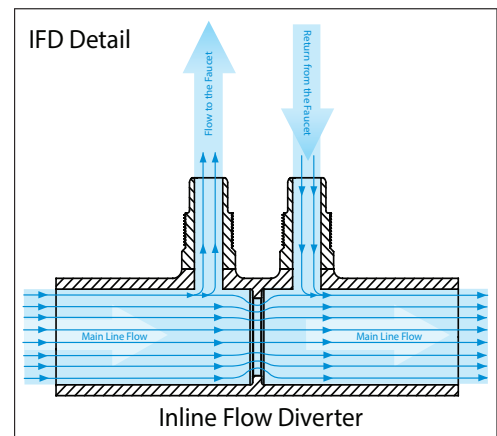
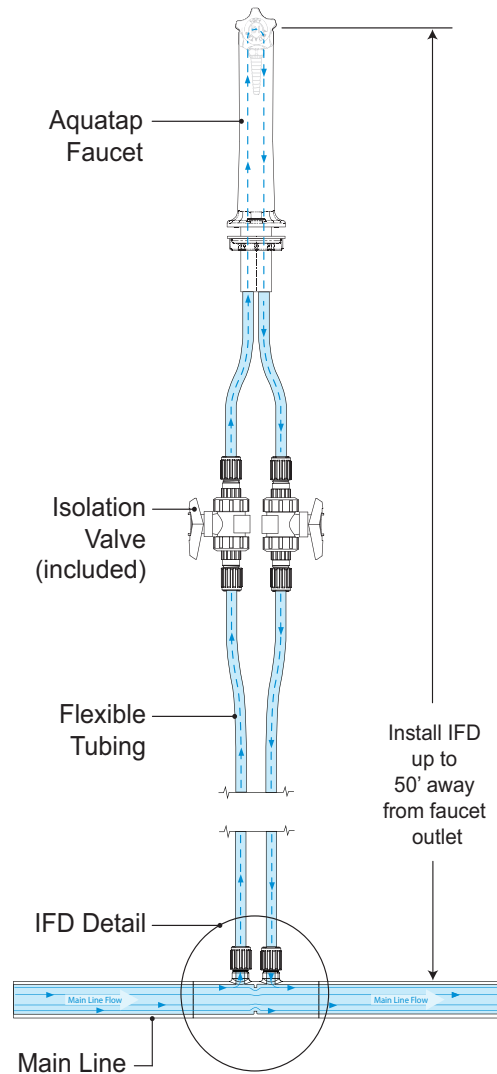
#### IFD Materials

The IFD is offered in multiple material options for welded or sanitary adapter joining:

- PROGEF Standard PP
- PROGEF Plus (cleaned and bagged)
- PROGEF Natural PP
- SYGEF Standard PVDF



For more information and video:



## High purity design

# AquaTap Faucet

The AquaTap faucet design is focused on maintaining and delivering high purity water. From the outside, the design might look simple or similar to another laboratory faucet, but our faucet internal geometry, components, and material are engineered to eliminate dead legs, maintain high recirculation flow rate, and prevent water contamination.

### Precision Metering

The PVDF needle valve maintains high purity water and allows for precise metering into laboratory test tubes and flasks.

### Removable Outlet

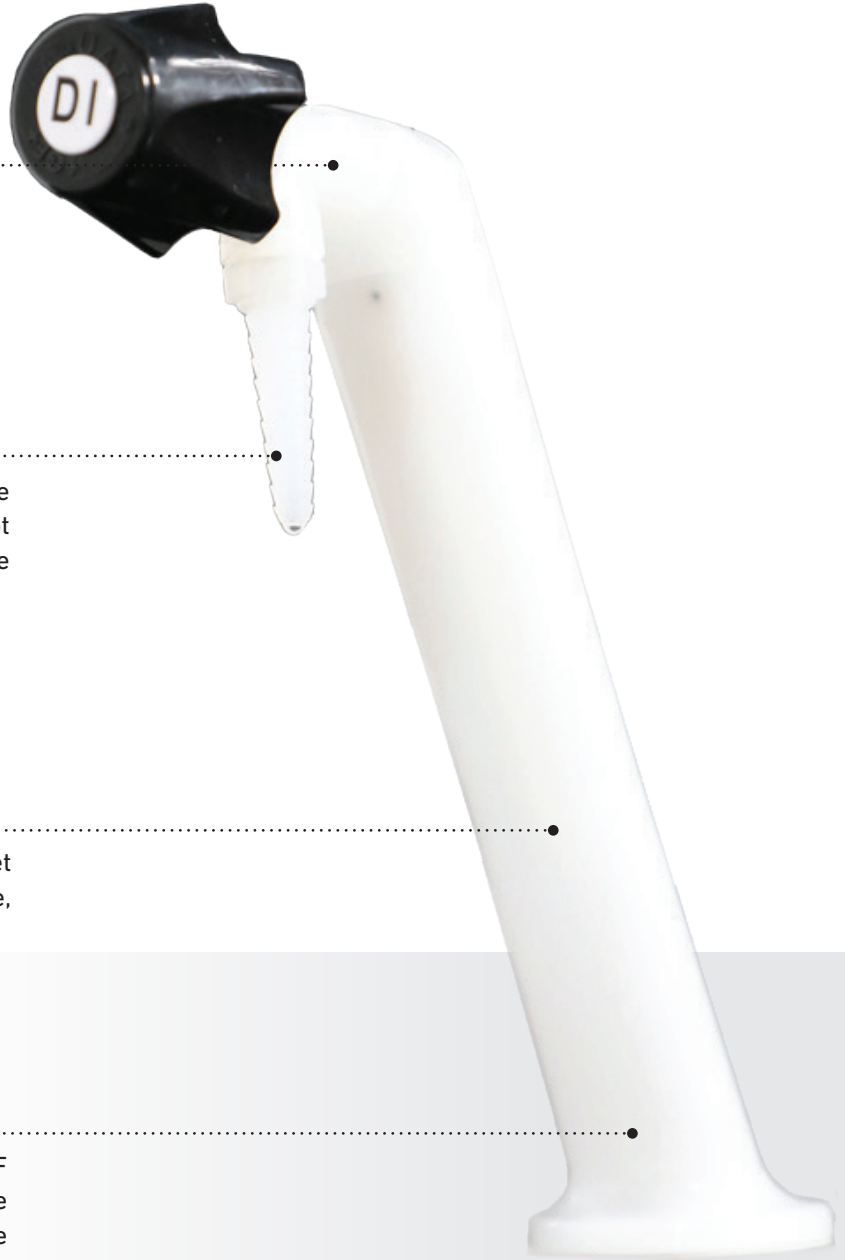
With the many options of outlet connections, the valve comes with a 1/4" FNPT designed to adapt to full flow aerators and various other tube fittings for feeding typical laboratory tools.

### Maintains Purity of Water

The AquaTap internal flow geometry and faucet shape allow unrestricted flow up to needle valve, and eliminates dead-legs.

### High Purity Materials

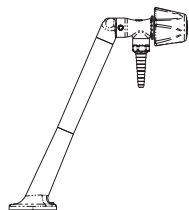
AquaTap Faucet is made of high purity PVDF material and incorporates PFA tube in the construction. Both materials have low extractable characteristics and antibacterial properties which makes them preferred materials in ultra pure water applications.



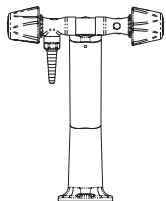
Flexible mounting options

# AquaTap Faucet Configurations

## Deck Mount Options

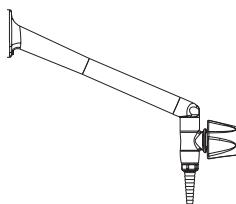


Deck Mount

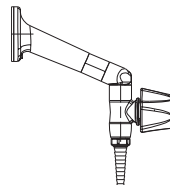


Deck Mount  
Dual Head

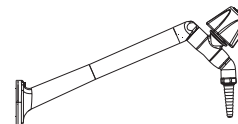
## Wall Mount Options



Wall Mount



Wall Mount  
Short Version



Wall Mount with  
elevated outlet

# Point of use Tee Valve

## Recirculating system for laboratory equipment or instruments

The Point of Use (POU) Tee Valve, when used in combination with the patented Inline Flow Diverter (IFD) technology, provides minimum dead-leg connection to laboratory and instruments that rely on pure water delivery. The POU Tee Valve provides recirculating supply and return water through the pure water flexible tubing from an IFD installed within the RO/DI wiping loop. This allows equipment such as autoclaves, bench top polishers, or water analyzing instruments can be connected with the cleanest possible water.

### POU 545 Tee Ball Valve



..... 1/2" FNPT connection

### POU Type 515 Diaphragm Valve



..... 3/4" sanitary connection

5/8" tube flare  
connection to IFD

Connects to a Point of Use  
purifier, or to other equipment

# Isolation Valves

These valves allow for isolation of flow to the faucet for routine maintenances or for renovation without interruption to the main water system.

Two PROGEF PP Isolation 546 Ball Valves are included with the AquaTap faucet:



### Other available options are:

- SYGEF PVDF Isolation 545 Ball Valve
- SYGEF PVDF Isolation 515 Diaphragm Valve
- PROGEF PPN Isolation 515 Diaphragm Valve



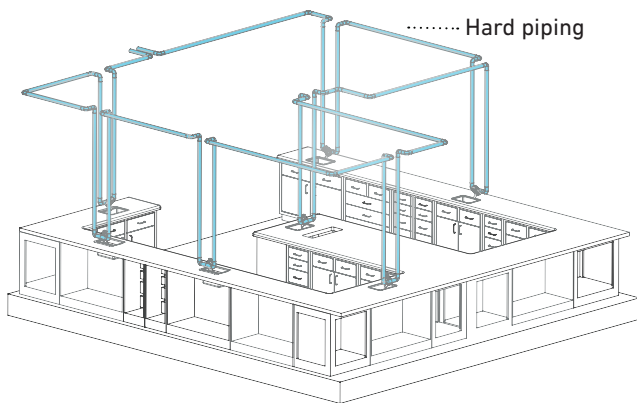
## Simplified laboratory pure water installations

# Savings on Installation and Materials

When designed per our published flow/pressure guidelines, the IFD will circulate water, through the use of flexible tubing, to an AquaTap faucet installed up to 50 feet away. This simplifies and reduces material and labor costs for pure water laboratory installations. Compared to a typical serpentine piping layout, loops where an AquaTap/IFD system is installed, will utilize less pipe and fittings.

### Typical Pure Water Installation

A serpentine design utilizes a single supply line where hard piping is zig zagging and snaking throughout the laboratory to connect to every faucet. This connect the dot plumbing design requires a fitting at every turn and multiple welds at every turn. It can become quite a labor intensive task as you run piping up and down walls for every faucet.



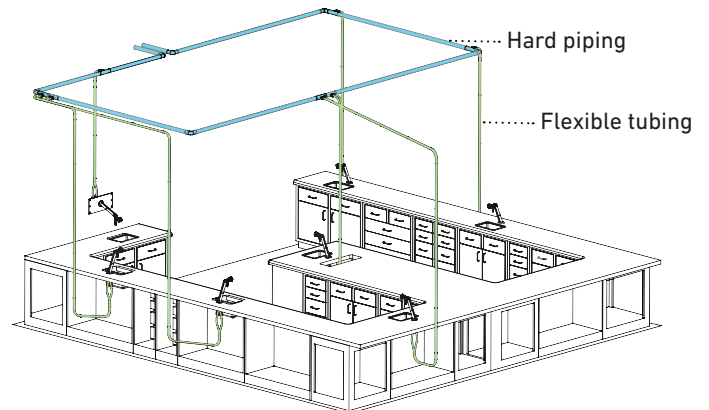
### Hard Pipe Installation

Material List Required	Labor Required
240 ft pipe	100 welds
50 x 90° elbows	
7 x Zero Static Valves	

### AquaTap Pure Water Installation

The IFD is installed within the piping loop. Flexible tubing is then connected from the IFD to the faucet and back to the IFD. This simplifies the installation by eliminating the need for hard piping from the loop to the faucet.

<b>32% Material Savings</b> Less Pipe Less Fittings	<b>66% Labor Savings</b> Less Connections Less Welds
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### AquaTap Installation

Material List Required	Labor Required
90 ft pipe	20 welds
4 x IFDs	28 flares
6 x 90° elbows	
7 x AquaTaps	
200 ft tubing	



## Choose your configuration

# Ordering Information

### AquaTap Faucets Kits

The faucet kits include two isolation 546 Pro Ball Valves.



Description	Part Number
Deck Mount	175 530 101
Deck Mount Dual Head	175 530 104
Wall Mount	175 530 102
Wall Mount Short	175 530 106
Wall Mount with hose barb at mounting level	175 530 118

Note: Other faucet versions available on request

### Inline Flow Diverter (IFD)

IR Plus®/BCF® Plus Fusion



Description	Part Number
<b>PROGEF® Standard PP</b>	
25mm IFD Standard PP BUTT PN10 (1/1)	167 530 323
32mm IFD Standard PP BUTT PN10 (1/1)	167 530 324
40mm IFD Standard PP BUTT PN10 (1/1)	167 530 325
50mm IFD Standard PP BUTT PN10 (1/1)	167 530 326
63mm IFD Standard PP BUTT PN10 (1/1)	167 530 127*

<b>PROGEF® PP Plus</b>	
25mm IFD PP Plus BUTT PN10 (1/1)	157 530 323
32mm IFD PP Plus BUTT PN10 (1/1)	157 530 324
40mm IFD PP Plus BUTT PN10 (1/1)	157 530 325
50mm IFD PP Plus BUTT PN10 (1/1)	157 530 326
63mm IFD PP Plus BUTT PN10 (1/1)	157 530 127*

<b>PROGEF® Natural PP</b>	
25mm IFD Natural PP BUTT PN10 (1/1)	168 530 323
32mm IFD Natural PP BUTT PN10 (1/1)	168 530 324
40mm IFD Natural PP BUTT PN10 (1/1)	168 530 325
50mm IFD Natural PP BUTT PN10 (1/1)	168 530 326
63mm IFD Natural PP BUTT PN10 (1/1)	168 530 127*

<b>SYGEF® Standard PVDF</b>	
25mm IFD SYGEF Standard PVDF 1/1	175 530 323
32mm IFD SYGEF Standard PVDF 1/1	175 530 324
40mm IFD SYGEF Standard PVDF 1/1	175 530 325
50mm IFD SYGEF Standard PVDF 1/1	175 530 326
63mm IFD SYGEF Standard PVDF 1/1	175 530 127*

75mm IFD size available on request.

\* Note: part numbers in size 63mm have the previous fabricated IFD

### Point of Use Valve (POU)



Description	Part Number
POU Type 546 Tee Valve (PP/EPDM)	157 320 001
POU Type 546 Tee Valve (PP/FKM)	157 321 001
POU Type 546 Tee Valve (PVDF/FKM)	155 320 001
POU Type 515 Diaphragm Valve (PVDF/EPDM)	155 320 031
POU Type 515 Diaphragm Valve (PVDF/FKM)	155 320 041

Note: Custom POU design available upon request

### Inline Flow Diverter (IFD)

Sanitary Connection



Description	Part Number
<b>PROGEF® Standard PP</b>	
1 ½" IFD PROGEF Standard PP 1/1	167 530 525
2" IFD PROGEF Standard PP 1/1	167 530 526
2 ½" IFD PROGEF Standard PP 1/1	167 530 227*

<b>PROGEF® PP Plus</b>	
1 ½" IFD PROGEF PP Plus 1/1	157 530 525
2" IFD PROGEF PP Plus 1/1	157 530 526
2 ½" IFD PROGEF PP Plus 1/1	157 530 427*

<b>PROGEF® Natural PP</b>	
1 ½" IFD PROGEF Natural PP 1/1	168 530 525
2" IFD PROGEF Natural PP 1/1	168 530 526
2 ½" IFD PROGEF Natural PP 1/1	168 530 227*

<b>SYGEF® Standard PVDF</b>	
1 ½" IFD SYGEF Standard PVDF 1/1	175 530 525
2" IFD SYGEF Standard PVDF 1/1	175 530 526
2 ½" IFD SYGEF Standard PVDF 1/1	175 530 227*

Other IFD sizes are available upon request

\* Note: part numbers in size 2 ½" have the previous fabricated IFD

### Flexible Tubing



Description	Part Number
5/8" dia x .065 wall PFA Tubing (Plain)	178 530 001
5/8" dia x .065 wall PE Tubing (Plain)	193 530 001

## AquaTap Deck Mount System Kits:

Kits include an AquaTap deck mount faucet with two isolation Pro Ball valves (PP), an AquaTap IFD and 100 feet of PE tubing (5/8" DIA x .065" wall)

PROGEF® Standard PP Kits	Part Number
<b>DECK MOUNT SYSTEM KIT_25MM IFD STD PP/PE</b> Includes: AquaTap Deck mount faucet - 175 530 101 25mm AquaTap IFD PP Butt PN10 - 167 530 323 100 feet of PE tubing (5/8" DIA x .065" wall) - 193 530 001	<b>167 530 373</b>
<b>DECK MOUNT SYSTEM KIT_32MM IFD STD PP/PE</b> Includes: AquaTap Deck mount faucet - 175 530 101 32mm AquaTap IFD PP Butt PN10 - 167 530 324 100 feet of PE tubing (5/8" DIA x .065" wall) - 193 530 001	<b>167 530 374</b>
<b>DECK MOUNT SYSTEM KIT_40MM IFD STD PP/PE</b> Includes: AquaTap Deck mount faucet - 175 530 101 40mm AquaTap IFD PP Butt PN10 - 167 530 325 100 feet of PE tubing (5/8" DIA x .065" wall) - 193 530 001	<b>167 530 375</b>
<b>DECK MOUNT SYSTEM KIT_50MM IFD STD PP/PE</b> Includes: AquaTap Deck mount faucet - 175 530 101 50mm AquaTap IFD PP Butt PN10 - 167 530 326 100 feet of PE tubing (5/8" DIA x .065" wall) - 193 530 001	<b>167 530 376</b>

PROGEF® PP Plus Kits	Part Number
<b>DECK MOUNT SYSTEM KIT_25MM IFD PP PLUS/PE</b> Includes: AquaTap Deck mount faucet - 175 530 101 25mm AquaTap IFD PP Plus Butt PN10 - 157 530 323 100 feet of PE tubing (5/8" DIA x .065" wall) - 193 530 001	<b>157 530 373</b>
<b>DECK MOUNT SYSTEM KIT_32MM IFD PP PLUS/PE</b> Includes: AquaTap Deck mount faucet - 175 530 101 32mm AquaTap IFD PP Plus Butt PN10 - 157 530 324 100 feet of PE tubing (5/8" DIA x .065" wall) - 193 530 001	<b>157 530 374</b>
<b>DECK MOUNT SYSTEM KIT_40MM IFD PP PLUS/PE</b> Includes: AquaTap Deck mount faucet - 175 530 101 40mm AquaTap IFD PP Plus Butt PN10 - 157 530 325 100 feet of PE tubing (5/8" DIA x .065" wall) - 193 530 001	<b>157 530 375</b>
<b>DECK MOUNT SYSTEM KIT_50MM IFD PP PLUS/PE</b> Includes: AquaTap Deck mount faucet - 175 530 101 50mm AquaTap IFD PP Plus Butt PN10 - 157 530 326 100 feet of PE tubing (5/8" DIA x .065" wall) - 193 530 001	<b>157 530 376</b>

PROGEF® Natural PP Kits	Part Number
<b>DECK MOUNT SYSTEM KIT_25MM IFD NAT PP/PE</b> Includes: AquaTap Deck mount faucet - 175 530 101 25mm AquaTap IFD Natural PP Butt PN10 - 168 530 323 100 feet of PE tubing (5/8" DIA x .065" wall) - 193 530 001	<b>168 530 373</b>
<b>DECK MOUNT SYSTEM KIT_32MM IFD NAT PP/PE</b> Includes: AquaTap Deck mount faucet - 175 530 101 32mm AquaTap IFD Natural PP Butt PN10 - 168 530 324 100 feet of PE tubing (5/8" DIA x .065" wall) - 193 530 001	<b>168 530 374</b>
<b>DECK MOUNT SYSTEM KIT_40MM IFD NAT PP/PE</b> Includes: AquaTap Deck mount faucet - 175 530 101 40mm AquaTap IFD Natural PP Butt PN10 - 168 530 325 100 feet of PE tubing (5/8" DIA x .065" wall) - 193 530 001	<b>168 530 375</b>
<b>DECK MOUNT SYSTEM KIT_50MM IFD NAT PP/PE</b> Includes: AquaTap Deck mount faucet - 175 530 101 50mm AquaTap IFD Natural PP Butt PN10 - 1678 530 326 100 feet of PE tubing (5/8" DIA x .065" wall) - 193 530 001	<b>168 530 376</b>

SYGEF® Standard PVDF Kits	Part Number
<b>DECK MOUNT SYSTEM KIT_25MM IFD PVDF/PFA</b> Includes: AquaTap Deck mount faucet - 175 530 101 25mm AquaTap IFD PVDF Butt PN16 - 175 530 323 100 feet of PFA tubing (5/8" DIA x .065" wall) - 193 530 001	<b>175 530 723</b>
<b>DECK MOUNT SYSTEM KIT_32MM IFD PVDF/PFA</b> Includes: AquaTap Deck mount faucet - 175 530 101 32mm AquaTap IFD PVDF Butt PN16 - 175 530 324 100 feet of PFA tubing (5/8" DIA x .065" wall) - 193 530 001	<b>175 530 724</b>
<b>DECK MOUNT SYSTEM KIT_40MM IFD PVDF/PFA</b> Includes: AquaTap Deck mount faucet - 175 530 101 40mm AquaTap IFD PVDF Butt PN16 - 175 530 325 100 feet of PFA tubing (5/8" DIA x .065" wall) - 193 530 001	<b>175 530 725</b>
<b>DECK MOUNT SYSTEM KIT_50MM IFD PVDF/PFA</b> Includes: AquaTap Deck mount faucet - 175 530 101 50mm AquaTap IFD PVDF Butt PN16 - 175 530 326 100 feet of PFA tubing (5/8" DIA x .065" wall) - 193 530 001	<b>175 530 726</b>

63 mm AquaTap Deck Mount System Kits available on request.

## Components:

### Isolation Valves

Description	Part Number
Isolation 546 PRO ball valve (PP/EPDM)	157 546 510
Isolation 546 PRO ball valve (PVDF/FKM)	175 530 032
Isolation 515 diaphragm valve (PP-N/EPDM)	157 546 515
Isolation 515 diaphragm valve (PVDF/PTFE)	157 546 516



### 5/8" Flare x 5/8" Flare Adapters

Description	Part Number
Straight Coupler (PVDF)	175 530 011
90° Elbow (PVDF)	175 530 012



### 5/8" Compression Fittings

Description	Part Number
5/8" Tube x 5/8" Tube Straight Coupler (PVDF)	175 530 013
5/8" Tube x 5/8" Tube 90° Elbow (PVDF)	175 530 014
5/8" Tube x 1/2" MNPT Tee (PVDF)	175 530 015
5/8" Tube x 1/2" NPT Male Adapter (PVDF)	175 530 016
5/8" Tube x 1/2" NPT Female Adapter (PVDF)	175 530 017



### Accessories

Description	Part Number
90° Bend Tube Protector	150 530 002
Tube Clip	150 530 003
ADA handle, 2nd Generation (black handle)	150 530 202
Aerator outlet, 2nd Generation (black handle)	150 530 204
RO Disk	150 530 206



### Tools Box Kit - 799 530 200

Description	Toolkit ID#	Part Number
Heater Plate	1	790 105 097
Heater Plate Protector	2	799 530 001
5/8" Flare-Heater Bushing	3	799 530 155
Flare Mandrel	4	799 530 156
Tubing Hex Jaw Pliers	5	799 530 157
Tube Cutter (KTS 125)	6	799 530 158
Tool Box	7	799 530 159



50 years of supplying high purity piping systems

## System solutions for Life Science

GF Piping Systems is the leading manufacturer of thermoplastic piping systems for laboratory, special waste, and process cooling water applications in the Life Sciences & Institutional markets, and the only manufacturer to offer a complete piping system product offering to specification engineers and facilities personnel, allowing for all components and joining tools of a specified system to be from a single source.

### High Purity Piping Systems



#### SYGEF Plus (PVDF HP)

- High purity (HP) piping system
- Manufactured in class 1000 clean room facility
- Double bagged

#### SYGEF Standard (PVDF)

- High performance raw material
- Low extractable/leaching characteristics
- Single bagged

#### PROGEF Plus (PP HP)

- Silicone-free and oil-free
- Cleaned and bagged to prevent contamination before installation

#### PROGEF Standard (PP Standard)

- Minimal leach out values
- Economic benefits

#### PROGEF Natural (Natural PP)

- Transparent, unpigmented polypropylene
- Bead and crevice free joining capable

### Chemical Waste Piping Systems

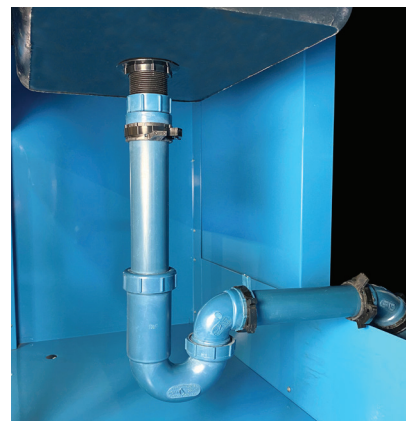
#### Fuseal

Fuseal PP is resistant to the corrosive action of alkalis, alcohols, acids, solvents and salt solutions. Dilute mineral acids and aqueous solutions of acid salts, which are destructive to most metals, have no effect on the Fuseal PP system. In general, Fuseal PP is attacked only by strong oxidizing acids and weakened by certain organic solvents and chlorinated hydrocarbons. Fuseal PP will not rust, pit, scale, corrode or be affected by electrolysis.



#### Applications

Excellent chemical and physical properties make the Fuseal PP system ideal for handling corrosive chemical waste solutions present in laboratory and industrial DWV applications. Fuseal PP is suitable for use in chemical and industrial plants as well as in food and beverage, hospital and university laboratories, anywhere mixtures of acids, bases and solvents are drained. Fuseal PP is replacing many metallic waste systems that are failing due to corrosion.



# Local support around the world

Visit our webpage to get in touch with your local specialist:  
[www.gfps.com/our-locations](http://www.gfps.com/our-locations)



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