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# PRODUCT CATALOG



***Clean Easy***



***Seal Easy***

**Contamination Control Systems**  
Hose, Tube, Pipe Cleaning & Sealing • Air Purification

## Table of Contents

### INTRODUCTION

A Word About Ultra Clean Technologies .....	3-4
Contact Information .....	5

### SECTION I: CLEAN EASY

Clean Easy Overview .....	6
Applications - Hose, Tube & Pipe Cleaning .....	7
Recommended Cleaning Procedures .....	8

#### **LAUNCHERS** (Hand Held Launchers, Kits, Nozzles & Adaptor Rings)

UC-EL1.25, 1.25" Hand Held Launcher & Kits.....	9
UC-HL2, 2" Hand Held Launcher & Kits .....	10
UC-HL3.5, 3½" Hand Held Launcher & Kits .....	11
UC-HL4.5, 4½" Hand Held Launcher .....	11
Launcher Kits Chart.....	12-13
Launcher Nozzles & Adaptor Rings.....	14-15

#### **PROJECTILES**

Projectile Types and Applications.....	16
Projectile Kits .....	17
Projectile Charts.....	17

#### **ACCESSORIES for Launchers, etc.**

Launcher Stand, Projectile Catcher Bucket, Quick Connects, Nozzle Holder .....	14
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#### **PRODUCTION EQUIPMENT**

UC-BM1.25, 1¼" Bench Mount Launcher.....	19
UC-PVS-G4 Projectile Verification System .....	20
UC-CAL Carousel AutoLoader with Verification System .....	21
Hand Held Extensions.....	22
Marking Systems .....	23-24

#### **ACCESSORIES for Production Equipment**

UC-CB-PS Containment Barrel .....	23-24
UC-D1 Super-Dry Compressed Air Dryer .....	25

#### **SIZING CHARTS**

Sizing Charts for Ultra Clean Projectiles & Nozzles (Hose, Tube, & Pipe) .....	26-29
ISO 4406 Independent Test Reports .....	30-31

### SECTION II: SEAL EASY

Clean Seal System Overview .....	32-33
Clean Seal Capsules .....	33
Clean Seal System Handguns and Accessories .....	34
Clean Seal System Parts List.....	35

## A Word About Ultra Clean Technologies and Our Products...



### *Our History*

Ultra Clean Technologies is the outgrowth of owner Bruce Riley's successful sales career within the hydraulics industry. From these humble beginnings, he and his wife and co-owner, Debby Riley, organically grew the company into a worldwide leader in hydraulic hose cleaning and sealing technologies. It was their keen interest in helping OEMs and their suppliers

meet the increasing demand for contamination-free hoses and tubes that drove the company forward as an industry innovator.

As the company blossomed, so too did the need for space. Remaining true to their roots in southern New Jersey, the couple opened its main headquarters in nearby Bridgeton. The refurbished industrial building is approximately 35,000 square feet and houses Ultra Clean Technologies' sales and administrative offices, and its manufacturing, warehousing, shipping/receiving, engineering and R&D departments. A second warehouse and shipping/receiving building is slated for construction within the year. In addition to North America, the company now operates in Europe, South America, Australia and China with additional warehousing in Europe and Asia, which facilitates global distribution of the product line.

From simple beginnings to international recognition as a leader in the hose and tube cleaning industry, Ultra Clean attributes its success to understanding the markets it serves and providing top quality care, products and innovation to its customers.

### *Our Products*

Our flagship product, the Ultra Clean System, offers advanced cleaning over traditional flushing and other methods for ridding contaminants from hose, tube and pipe assemblies. The Ultra Clean System utilizes either a Hand Held Launcher or Bench Mount Launcher to shoot Ultra Clean projectiles through hose, tube, or pipe assemblies, ensuring contaminants are thoroughly dispelled. For production environments the Projectile Verification System and the all-inclusive AutoLoader provides a unique and effective way to clean each hose or tube assembly without sacrificing quality or efficiency. Building on our core product, we offer the *Clean Seal System*, which uses a proprietary heat shrink technology with our Clean Seal Capsules to securely seal the ends of cleaned hose and tube assemblies, providing a superior alternative to traditional caps and plugs. This manual provides detailed information on these systems and associated products and parts.

Demand-driven R&D has inspired us to create these and more innovative new products, providing targeted solutions to industry-specific challenges. Our engineering team has a well-rounded and extensive understanding of hydraulics that enables us to work closely with the industries we serve, while also considering wider-use applications of our products for all industries that require contamination-free hoses and tubes in order to prevent costly equipment downtime or failure. Our products meet - and almost always exceed - ISO standards for hydraulic oil cleanliness, and are independently tested to determine the level of cleanliness to which hoses or tubes are actually cleaned.

Ultra Clean Technologies' hose and tube systems are manufactured and assembled in the U.S.A. All Ultra Clean Technologies products have a one-year Manufacturer's Warranty. The durability of our products eliminates the need to return an Ultra Clean Technologies product for in-warranty repairs.

*Private labeling is available for many of our products. If interested, ask us for details!*

### **Training & Education**

In addition to our products, Ultra Clean Technologies provides comprehensive training and education both on Contamination (what it is, where it comes from, and how it damages fluid power systems), and Contamination Control using Ultra Clean Technologies products. We provide on-site training on the use of all our systems, and will "train the trainer," or an entire team, depending on the customer's desire. Further, we certify end users, OEMs or distributors who complete the Ultra Clean Technologies webinar on Contamination Control and Clean Hydraulic Hose Assembly Procedures. Participants can also request a co-branded impact movie on contamination control.

### **Service Excellence**

Highly experienced in the Hose and Tube Cleaning industry, Ultra Clean Technologies' Customer Service team give you immediate and direct access to expert solution providers. Every salesperson has earned the Milwaukee School of Engineering's *Certificate of Contamination Control*. We share our expertise in product applications and performance over the phone and in the field.

### **Shipping & Warehousing**

To enhance our reputation for service excellence, Ultra Clean Technologies has an established global distribution network - including international distribution points in Canada, Europe, South America, Brazil, China and Australia. For our customers, this means shorter lead times and minimized shipping costs. We keep a fully stocked warehouse with same day shipping for our North American and South American customers. European customers can count on our warehouse in The Netherlands for quick order fulfillment.

***Thank you for Choosing  
Ultra Clean Technologies!***

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# ***CLEAN EASY***

## **Hose, Tube & Pipe Cleaning Systems**



Ultra Clean Technologies offers a fast, less invasive way to clean contaminated hydraulic lines by shooting a projectile through the hose or tube assembly with a pneumatic launcher. The Ultra Clean Projectile strips out internal contamination, removing dirt, gunk and oil. Now your clean oil will stay clean as it reaches expensive components, preventing failure and system downtime.

### **Hand Held Launchers & Kits Accessories**

### **Nozzles & Adapter Rings Projectiles**

### ***Production Equipment:* Bench Mount Launcher Projectile Verification System (PVS) Carousel AutoLoader Marking Systems**

### ***Clean Easy with Ultra Clean!***

ISO 18/16/13 cleanliness levels are achievable.

## Applications for Hose, Tube & Pipe Cleaning Systems



**Serving the Construction, Mining, Marine, Off-Shore, Hose and Tube Assembly markets, and many others....**

Hydraulics	Removes rubber dust and metal particles from the cutting process on hydraulic hose. Removes metal flash from the crimping process on hose and tubes. Removal of contaminated oil from hoses, tubes and pipes in hydraulic systems. (Use the Ultra Clean System to reduce downtime, extend filter life and reduce the risk of failure and premature wear due to CONTAMINATION!)
Pneumatics	Eliminates rubber contamination, metal particles, contaminated oil and moisture that causes breakdowns and inefficiency.
Heat Exchangers & Condensers	Eliminates contamination that reduces heat transfer resulting in low level performance.
Steam Boilers	Removes most scaling in steam pipes for maintenance servicing.
Air Conditioning & Refrigeration	Eliminates minute particles in copper tubes and coolant lines that affect system performance.
Oxygen & Gas	Eliminates oil, grease and other contaminants from copper or S/S tubing.
Oil, Gas & Chemical Processing	Efficient cleaning of product pipes as part of service maintenance.
Earthmoving Equipment Maintenance	Reduction in flushing time and filter usage.
Automotive & Servicing	Cleaning of fuel lines and brake lines prior to assembly and servicing of components.
Food & Beverage Product Recovery	Retrieval of product from lines. Reducing or eliminating solvents or detergents.
Gun Barrels	To remove rust, scale or powder residue much faster than brushing or swabbing.

***Specific information regarding the above applications is available upon request.***

## Recommended Cleaning Procedures

### Hose

When hydraulic hose is cut with metal-blade saws or abrasive wheels, tremendous heat is generated, causing rubber and metal particle and dust contaminants to stick to the hose or tube as they cool. It is vitally important to clean the hose immediately after the cutting process to avoid this. Fire one projectile in each direction through the length of the hose prior to installation of end connections. This will allow cleaning in the areas occupied by the insertion of the hose nozzle at either end. After crimping or swaging fittings, an Ultra Clean projectile should be fired through the entire hose assembly to remove metal flash. It is vital to apply Clean Seal Capsules to hose ends immediately after cleaning to avoid recontamination, and to protect hose threads.

### Hydraulic Hose - Internal/External Skive

Before skiving, **two** (UC) Ultra Clean projectiles should be fired in each direction through the hose. If a mandrel is inserted into the ID of the hoses or tube for skiving purposes, the mandrel and mandrel lubricants must be clean and contamination free. It may be necessary to fire one or two UC or Tube Style Projectiles through the hose after the internal skiving process to remove rubber particles and lubricants. A custom Hose Nozzle to occupy the skived area may be necessary to achieve a higher level of cleanliness. After crimping or swaging fittings, a (UC) Ultra Clean Projectile should be fired through the entire hose assembly to remove metal flash. It is vital to apply Clean Seal Capsules to end fittings immediately following the last projectile to avoid recontamination, and to protect hose threads.

### Used Hose & Tube Assemblies

Hydraulic hose and tube assemblies from systems that have experienced a failure need to have all contaminated oil removed. Disconnect each end of the assembly and secure one end into the Projectile Catcher (UC-PC). Fire air into the assembly without a projectile for several seconds to remove the excess contaminated hydraulic fluid. Fire 3 to 4 Ultra Clean Projectiles through assembly to remove particulates. Visibly check the last projectile for contamination. Repeat process until projectile has no signs of rubber or metallic particles on it. If the projectiles continue to show particles the hose may need to be replaced. This is a sign of a rubber tube that is failing.

### Tube

When tubing requires cutting, the ends should be thoroughly deburred prior to use of the cleaning system. A tube nozzle and two Ultra Clean projectiles should be used to clean the tube. If the tube contains rust, weld slag or other corrosion inside, an abrasive projectile should be used first and as many times as necessary to remove the corrosion. Follow with an Ultra Clean projectile to insure proper cleanliness. If flaring is required, do so prior to cleaning. The use of a JIC nozzle is necessary to mate properly with a flared tubing end. If special fittings are used that require crimping, the use of an Ultra Clean projectile, in addition to the procedure described above, is recommended after the assembly is complete. The tube-style projectile should be used to remove mandrel lubricants, grease or oil if encountered. Tube-style projectiles are also recommended for stainless steel tubing.

### Pipe

We recommend the Ultra Clean Scrub Projectile when rust is present, or an Abrasive Projectile for cleaning the inside of all types of carbon steel piping products. These projectiles may be used more than once if necessary, or until they wear out. After several passes with the Scrub or Abrasive Projectiles, an Ultra Clean Projectile should be fired through the pipe, removing debris left behind by previous projectiles. This can only be accomplished if the pipe has a relatively smooth surface. Our Scrub Projectiles will negotiate sweep elbows only. The Ultra Clean Projectile can also be soaked in corrosion inhibiting chemicals, effectively applying them 360 degrees to the inside surface as the projectile passes from one end to the other.

*The Ultra Clean UC-D1 Super-Dry Compressed Air Dryer is recommended for all cleaning procedures. This ensures that only clean, dry air is used to move projectiles through the hose, avoiding re-contamination from air particulates. See page 18 for details.*



## Launchers & Kits

*Our launchers enable unsurpassed cleaning and removal of contaminants from hoses, tubes or pipes! Launcher kits provide added value and cost savings!*

### Launcher Kits Details

- Launcher kits are pictured with appropriate launchers.
- Kits can be customized with approval and cost adjustments.
- See Launcher Kits Chart for details and contents of each kit, **Pages 12-13**

### Air Requirements for All Launchers

- 80 PSI (5.5 Bar) minimum to 110 PSI (7.5 Bar) maximum.
- ½" ID air hose to ensure 55 SCFM (1.6 m<sup>3</sup>/min) air flow.
- 5 micron filter and regulator with gauge are strongly suggested!
- Clean, dry air must be used to comply with the Ultra Clean Technology equipment warranty. We strongly suggest the UC-D1-Super-Dry Compressed Air Dryer **Page 25**

## UC-EL1.25 | 1¼" Economy Launcher



- Cleans ⅛" through 1¼" hose, tube or pipe.
- Quarter turn locking ring for easy nozzle change and projectile loading.
- Durable brass and aluminum internal parts, strong plastic handle and anodized aluminum firing head and locking ring.
- Effortless to operate because of its simplistic design.
- Ideal for mobile and job site applications due to size & portability.
- Nozzles smaller than ¼" are optional.
- Additional nozzles for JIC and tube applications available.
- For kits contents, see chart Pages 12-13.

### UC-EL-8 Kit

¼" - 1¼" (6mm - 32mm ID)



### UC-EL-8-DP Kit

¼" - 1¼" (6mm - 32mm ID)

*Great starter kit for applications up to 1¼" ID!*



### UC-EL-13-MT Kit

6mm - 30mm Tube



## UC-HL2 | 2" Launcher



- Cleans 1/8" through 2" hose, tube or pipe.
- Full Flow Quick Release Coupling and 360° Rotary Plug for proper air flow and non-fatigue operator use.
- Safety Release Bar locks faceplate into a closed position.
- Made of precision machined aluminum, and fully anodized for harsh environments and heavy use.
- Ideal for production hose, tube shops, mobile hose fabricators and job site applications due to simplistic design, size and portability.
- For kits contents, see chart Pages 12-13.

### UC-HL-10-2 Kit

1/4" - 2" (6mm - 50mm ID)



### UC-HL-25-2-Kit

1/4" - 2" (6mm - 50mm ID)



### UC-HL-17-2MT Kit

6mm - 50mm Tube



### UC-CAP Kit

1/4" - 2" (6mm - 50mm ID)

*Great starter kit for applications up to 2" ID!*

*UC-CAP-NH includes a UC-NH25 Nozzle Holder in place of the Carrying Case.*



## UC-HL3.5 | 3½" Launcher



- Cleans ⅛" through 3½" hose, tube or pipe.
- Full Flow Quick Release Coupling and unique 360 degree Rotary Plug for proper air flow and non-fatigue operator use.
- Launcher requires a UC-AR2 adapter ring for nozzles ⅛" through 1¼" and a UC-AR3 for nozzles 1½" and 2" The unique UC-U55/90 Universal Nozzle 2⅛" through 3½" (55mm - 90mm ID) does not require an adapter ring.
- Made from precision machined aluminum and fully anodized for harsh environments and heavy use.
- Ideal for production hose and tube shops, mobile hose fabricators and job site applications because of its simplistic design, size and portability.
- For kit contents, see chart Pages 12-13.

### UC-HL-1-3.5 Kit

2⅛" - 3½" (55mm - 90mm ID)



## UC-HL4.5 | 4½" Launcher



- Cleans ⅛" through 4½" hose, tube or pipe.
- Includes UC-4.5LN aluminum locking nozzle.
- Supplied with a -8 SAE male flare and female swivel with ½" hose barb for correct SCFM air flow requirements.
- Capable of passing 50% more SCFM than our other launchers - extremely important for applications above 3½" and long lengths of hose, tube or pipe.
- Made of precision machined aluminum and fully anodized for harsh environments and heavy use.
- Ideal for job site applications because of its simplistic design, size and portability.
- Capable of cleaning ⅛" through 3½" when combined with our adapter rings and nozzles using the UC-LR locking ring in place of the UC-4.5LN locking nozzle.
- For kit contents, see chart Pages 12-13.

### UC-HL-1-4.5 Kit

3½" - 4½" (90mm - 114mm ID)



## Launcher Kits

Part Number	Description	UC-EL-8 1/4" - 1 1/4" (6mm - 32mm ID)	UC-EL-8-DP 1/4" - 1 1/4" (6mm - 32mm ID)	UC-EL13-MT 6mm - 30mm Tube	UC-HL-10-2 1/4" - 2" (6mm - 50mm ID)	UC-HL-25-2 1/4" - 2" (6mm - 50mm ID)	UC-CAP 1/4" - 2" (6mm - 50mm ID)	UC-CAP-NH 1/4" - 2" (6mm - 50mm ID)	UC-HL-17-2MT 6mm - 50mm Tube	UC-HL-1-3.5 2 1/8" - 3 1/2" (55mm - 90mm ID)	UC-HL-1-4.5 3 1/2" - 4 1/2" (90mm - 114mm ID)
UC-CC	Carrying Case	✓	✓	✓	✓	✓	✓		✓	✓	
UC-S	FREE Launcher Stand	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
UC-NH25	Nozzle Holder							✓			
UC-EL1.25	1 1/4" (32mm) Economy Hand Held Launcher	✓	✓	✓							
UC-HL2	2" (50mm) Hand Held Launcher				✓	✓	✓	✓	✓		
UC-HL3.5	3 1/2" (90mm) Hand Held Launcher									✓	
UC-HL4.5	4 1/2" (114.3mm) Hand Held Launcher										✓
UC-AR1	Adapter Ring for UC-HL2 Launcher				✓	✓	✓	✓	✓		
UC-AR2	Adapter Ring for UC-HL3.5 Launcher									✓	✓
UC-AR3	Adapter Ring for UC-HL3.5 Launcher									✓	✓
UC-H05	Hose Nozzle 5mm (3/16")	O	O	O	O	O	O	O	O	O	O
UC-H06	Hose Nozzle 6mm (1/4")	✓	✓	O	✓	✓	✓	✓	O	O	O
UC-H08	Hose Nozzle 8mm (5/16")	✓	✓	O	✓	✓	✓	✓	O	O	O
UC-H10	Hose Nozzle 10mm (3/8")	✓	✓	O	✓	✓	✓	✓	O	O	O
UC-H13	Hose Nozzle 13mm (1/2")	✓	✓	O	✓	✓	✓	✓	O	O	O
UC-H16	Hose Nozzle 16mm (5/8")	✓	✓	O	✓	✓	✓	✓	O	O	O
UC-H19	Hose Nozzle 19mm (3/4")	✓	✓	O	✓	✓	✓	✓	O	O	O
UC-H25	Hose Nozzle 25mm (1")	✓	✓	O	✓	✓	✓	✓	O	O	O
UC-H32	Hose Nozzle 32mm (1 1/4")	✓	✓	O	✓	✓	✓	✓	O	O	O
UC-H38	Hose Nozzle 38mm (1 1/2")				✓	✓	✓	✓	O	O	O
UC-H50	Hose Nozzle 50mm (2")				✓	✓	✓	✓	O	O	O
UC-T03	Tube Nozzle 3mm (1/8")	O	O	O	O	✓	O	O	O	O	O
UC-J06	JIC Nozzle 6mm (1/4")	O	O	O	O	✓	✓	✓	O	O	O
UC-T06	Tube Nozzle 6mm (1/4")	O	O	O	O	✓	O	O	O	O	O
UC-T08	Tube Nozzle 8mm (5/16")	O	O	O	O	✓	O	O	O	O	O
UC-J10	JIC Nozzle 10mm (3/8")	O	O	O	O	✓	✓	✓	O	O	O
UC-T10	Tube Nozzle 10mm (3/8")	O	O	O	O	✓	O	O	O	O	O
UC-J13/T13	JIC/Tube Nozzle 13mm (1/2")	O	O	O	O	✓	✓	✓	O	O	O
UC-J16/T16	JIC/Tube Nozzle 16mm (5/8")	O	O	O	O	✓	✓	✓	O	O	O
UC-J19/T19	JIC/Tube Nozzle 19mm (3/4")	O	O	O	O	✓	✓	✓	O	O	O
UC-J25/T22	JIC/Tube Nozzle 25/22mm (1" & 7/8")	O	O	O	O	✓	✓		O	O	O

✓ = INCLUDED IN KIT

O = OPTIONAL

## Launcher Kits

Part Number	Description	UC-EL-8 1/4" - 1 1/4" (6mm - 32mm ID)	UC-EL-8-DP 1/4" - 1 1/4" (6mm - 32mm ID)	UC-EL13-MT 6mm - 30mm Tube	UC-HL-10-2 1/4" - 2" (6mm - 50mm ID)	UC-HL-25-2 1/4" - 2" (6mm - 50mm ID)	UC-CAP 1/4" - 2" (6mm - 50mm ID)	UC-CAP-NH 1/4" - 2" (6mm - 50mm ID)	UC-HL-17-2MT 6mm - 50mm Tube	UC-HL-1-3.5 2 1/8" - 3 1/2" (55mm - 90mm ID)	UC-HL-1-4.5 3 1/2" - 4 1/2" (90mm - 114mm ID)
UC-T32	Tube Nozzle 32mm (1 1/4")	O	O	O	O	✓	O	O	O	O	O
UC-J32/T25	JIC/Tube Nozzle 32/25mm (1 1/4" & 1")	O	O	O	O	✓	✓	✓	O	O	O
UC-J38/T38	JIC/Tube Nozzle 38mm (1 1/2")				O	✓	✓	✓	O	O	O
UC-J50/T50	JIC/Tube Nozzle 50mm (2")				O	✓	✓	✓	O	O	O
UC-4FFORX	4 Flat Face O-Ring Style Nozzle 6mm (1/4")	O	O	O	O	✓	✓	✓	O	O	O
UC-6X1.5	Tube Nozzle 6mm OD X 1.5mm Wall	O	O	✓	O	O	O	O	✓	O	O
UC-8X1.5	Tube Nozzle 8mm OD X 1.5mm Wall	O	O	✓	O	O	O	O	✓	O	O
UC-10X1.5	Tube Nozzle 10mm OD X 1.5mm Wall	O	O	✓	O	O	O	O	✓	O	O
UC-12X2.0	Tube Nozzle 12mm OD X 2.0mm Wall	O	O	✓	O	O	O	O	✓	O	O
UC-14X2.0	Tube Nozzle 14mm OD X 2.0mm Wall	O	O	✓	O	O	O	O	✓	O	O
UC-15X2.0	Tube Nozzle 15mm OD X 2.5mm Wall	O	O	✓	O	O	O	O	✓	O	O
UC-16X2.5	Tube Nozzle 16mm OD X 2.5mm Wall	O	O	✓	O	O	O	O	✓	O	O
UC-18X2.5	Tube Nozzle 18mm OD X 2.5mm Wall	O	O	✓	O	O	O	O	✓	O	O
UC-20X3.0	Tube Nozzle 20mm OD X 3.0mm Wall	O	O	✓	O	O	O	O	✓	O	O
UC-22X2.0	Tube Nozzle 22mm OD X 2.0mm Wall	O	O	✓	O	O	O	O	✓	O	O
UC-25X3.0	Tube Nozzle 25mm OD X 3.0mm Wall	O	O	✓	O	O	O	O	✓	O	O
UC-28X2.5	Tube Nozzle 28mm OD X 2.5mm Wall	O	O	✓	O	O	O	O	✓	O	O
UC-30X4.0	Tube Nozzle 30mm OD X 4.0mm Wall	O	O	✓	O	O	O	O	✓	O	O
UC-35X3.0	Tube Nozzle 35mm OD X 3.0mm Wall				O	O	O	O	✓	O	O
UC-38X5.0	Tube Nozzle 38mm OD X 5.0mm Wall				O	O	O	O	✓	O	O
UC-42X3.0	Tube Nozzle 42mm OD X 3.0mm Wall				O	O	O	O	✓	O	O
UC-50X6.0	Tube Nozzle 50mm OD X 6.0mm Wall				O	O	O	O	✓	O	O
UC-U55/90	Universal Nozzle 55mm/90mm (2 1/8" - 3 1/2")									✓	O
UC-LR	Locking Ring										✓
UC-4.5LN	114.3mm Alum Locking Nozzle (4 1/2")										✓
UC-PC	Projectile Catcher Bucket	O	✓	O	O	O	✓	✓	O	O	O
UC-P1	1 1/4" UC Clean Style Projectile Kit (11 bags)	O	✓	O	O	O	O	O	O	O	O
UC-P2	2" UC Clean Style Projectile Kit (13 bags)				O	O	✓	✓	O	O	O

✓ = INCLUDED IN KIT

O = OPTIONAL



## Nozzles & Adapter Rings

A range of nozzles are available, allowing the Ultra Clean System to be used on different sizes and types of hose, tube and pipe, as well as coupling configurations. Custom nozzles can be designed upon request.



### Hose Nozzles

The hose nozzle is inserted into the ID of the hose. Hose nozzles also work on pipe, heavy walled tubing and many coupling configurations. It is our most popular nozzle. Hose nozzles have the "UC-H" designation and are blue in color for easy identification. Aluminum, hard coat anodized nozzles are available in hose style from -4 (1/4") through -32 (2").

### Tube Nozzles (Nominal Inch)

Nominal inch tube nozzles have a stop on the inside that forms an airtight seal when the tube is fully inserted into the nozzle. Nominal inch tube nozzles are white in color and designated with a "UC-T" in the part number. Some "UC-T" nozzles may also be designated for JIC use as reflected in the part number.

The white JIC nozzles are molded with a special 37° male flare at the tip to fit the female JIC fittings on hose and tube assemblies. JIC nozzles are marked with the "UC-J" designation, followed by appropriate size.



### Tube Nozzles (Metric)

Metric tube nozzles have a stop on the inside that forms an airtight seal when the tube is fully inserted into the nozzle. Metric tube nozzles are designed to match metric tubing, and are similarly based on outside diameter (OD) x wall thickness. Metric tube nozzle designations utilize the largest wall thickness for the given OD, but fit all smaller wall thicknesses as well. Metric tube nozzles are grey in color.

### Fitting Nozzles

Special nozzles are designed to accommodate various common fittings such as the -4 Flat Face O-Ring style (also referred to as "Face Seal," "Seal Lok," or "FFORX"), or the -6 FJIC style.



## Universal Nozzle

UC-U55/90: The Universal Nozzle is similar to our hose style nozzle. It has a size range 2 1/8" - 3 1/2" (55mm - 90mm). The Universal Nozzle can be cut off in 10mm increments to suit your application.



## Aluminum Locking Nozzle

UC-4.5LN: This nozzle is supplied with the UC-HL4.5 Launcher for 3 1/2" - 4 1/2" (90mm - 115mm) applications.



## Specialty Nozzles

Ultra Clean offers custom design and production of specialty nozzles to meet your needs. Pictured is a custom tri-clover nozzle produced exclusively for an Ultra Clean distributor in the wine industry.



## Prototype 3D-Printed Nozzles

Ultra Clean engineers will help you design a custom nozzle to your specifications, then print a high quality resin prototype unit on our cutting-edge 3D printer. If interested, ask us for details!

## Adapter & Locking Rings

- UC-AR1 fits the UC-HL2 Launcher and all nozzle types from 1/8" - 1 1/4".
- UC-AR2 fits the UC-HL3.5 Launcher and all nozzle types from 1/8" through 1 1/4".
- UC-AR3 fits the UC-HL3.5 Launcher and all nozzle types from 1 1/2" through 2".
- UC-LR fits the UC-HL3.5 & UC-HL4.5 Launchers and the AR2, AR3 & UC-U55/90 nozzles.



## Projectiles Types & Applications

Projectiles clean when compressed against the internal surface of a hose, tube or pipe. Pressure is achieved as the projectile is approximately 20% to 30% larger than the internal diameter of the hose, tube or pipe. For instance, a 2" (50mm) projectile is recommended for a 1 1/2" (38mm) hose.

Individual circumstances may require a smaller or larger projectile. If too large it will not leave the nozzle, but if too small it will not clean effectively. The enormous variety in types of couplings available today could render a recommended size inappropriate. When cleaning assemblies, a reduction in projectile size may be appropriate, as all recommendations are based on the most commonly used coupling sizes. Custom projectiles can also be developed.

All Ultra Clean Projectiles are made from virgin materials with a specific cell structure and density. This ensures a quality product capable of achieving most ISO-4406-99 and ISO-4405 cleanliness levels when our cleaning procedures are followed. Ultra Clean never uses rebonded, scrap or recycled materials in our projectiles like some other manufacturers.

### Ultra Clean

Universal application for use with hose, tube, pipe and assemblies. Removes fine particles of loose contamination and can also be used for product purging.

*Size range: 2mm - 95mm.*



### Tube

For use with all types of tubing or pipes. Strongly recommended for stainless steel with mild to medium amounts of contamination, surface rust or scale build-up. Removes mandrel lubricants, grease and oil after the bending process.

*Size range: 6mm - 75mm.*



### Abrasive

For use with tubes or pipes to loosen mild to medium amounts of contamination, surface rust or scale build-up. Always follow-up with an Ultra Clean projectile to clear away loosened contaminants and verify cleanliness. Can be used multiple times.

*Size range: 6mm - 120mm.*



### Ultra Scrub

For use on wet or dry applications of tubes or pipes to loosen medium to high amounts of contamination surface rust or scale build-up. Also navigates assemblies with sweeping bends or elbows. Always follow-up with an Ultra Clean projectile to clear loosened contaminants and verify cleanliness. Can be used multiple times.

*Size range: 6mm - 60 mm.*



### Ultra Clean 100mm-150mm

Ultra Clean Projectiles 100mm and larger are provided with a laminated backer to prevent air permeation. The laminated backer should be loaded into the nozzle last so that the air is pushing against it.



### Bulk Projectiles

Ultra Clean Technologies also offers Ultra Clean & Tube style projectiles packaged in bulk quantities. The bulk projectile program complements the Bench Mount Launchers for use in a production type atmosphere.



## Projectile Kits

### UC-P1-Projectile Kit



Includes:

- 11 bags of Ultra Clean Projectiles for cleaning out hose, tube and pipe applications up to 1/4" to 1 1/4" ID.
- These projectiles also form a sub-kit that is included in the UC-EL8-DP Economy Launcher Kit.

### UC-P2-Projectile Kit



Includes:

- 13 bags of Ultra Clean Projectiles for cleaning out hose, tube and pipe applications up to 1/4" to 2" ID.
- These projectiles also form a sub-kit that is included in the UC-CAP 2" Starter Kit.

*Note: All projectile sizes are also available in bulk quantities. Ask your sales rep or call for details.*

## Projectiles Chart

Projectile Size	Bagged Qty	UC Style-Medium Density	Tube Style High Density	Abrasive **	Ultra Scrub **
2mm	100	UC02	N/A	N/A	N/A
3mm	100	UC03	N/A	N/A	N/A
4mm	100	UC04	N/A	N/A	N/A
5mm	100	UC05	N/A	N/A	N/A
6mm	100	UC06	UC06-TE	UC-A06	UC-SCR06
7mm	100	UC07	UC07-TE	UC-A07	UC-SCR07
8mm	100	UC08	UC08-TE	N/A	UC-SCR08
10mm	100	UC10	UC10-TE	UC-A10	UC-SCR10
12mm	100	UC12	UC12-TE	UC-A12	UC-SCR12
14mm	100	UC14	UC14-TE	UC-A14	UC-SCR14
16mm	100	UC16	UC16-TE	UC-A16	UC-SCR16
18mm	100	UC18	UC18-TE	UC-A18	UC-SCR18
20mm	50	UC20	UC20-TE	UC-A20	UC-SCR20
22mm	50	UC22	UC22-TE	UC-A22	UC-SCR22
24mm	50	UC24	UC24-TE	UC-A24	UC-SCR24
26mm	50	UC26	UC26-TE	UC-A26	UC-SCR26
28mm	40	UC28	UC28-TE	UC-A28	UC-SCR28
30mm	40	UC30	UC30-TE	UC-A30	UC-SCR30
33mm	40	UC33	UC33-TE	UC-A33	UC-SCR33
36mm	30	UC36	UC36-TE	UC-A36	UC-SCR36
40mm	30	UC40	UC40-TE	UC-A40	UC-SCR40
45mm	20	UC45	UC45-TE	UC-A45	UC-SCR45
50mm	20	UC50	UC50-TE	UC-A50	UC-SCR50
55mm	15	UC55	UC55-TE	UC-A55	UC-SCR55
60mm	15	UC60	UC60-TE	UC-A60	UC-SCR60
65mm	10	UC65	UC65-TE	UC-A65	UC-SCR65
70mm	10	UC70	N/A	UC-A70	N/A
75mm	10	UC75	N/A	UC-A75	N/A
80mm	10	UC80	N/A	UC-A80	N/A
85mm	10	UC85	N/A	UC-A85	N/A
90mm	10	UC90	N/A	UC-A90	N/A
95mm	10	UC95	N/A	UC-A95	N/A
100mm	10	UC100	N/A	UC-A100	N/A
110mm	10	UC110	N/A	UC-A110	N/A
120mm	10	UC120	N/A	S/O	N/A
130mm	10	UC130	N/A	S/O	N/A
140mm	10	UC140	N/A	S/O	N/A
150mm	10	UC150	N/A	S/O	N/A

↑ included in UC-P1-Projectile Kit.  
↓ included in UC-P2-Projectile Kit.

N/A = Not available  
S/O = Special order

\*\* Not to be used with UC-BM1.25  
or UC-CAL production launcher

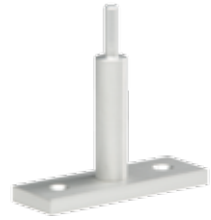
## Accessories

### UC-S Launcher Stand *An essential piece of equipment!*

- Acts as an anchor when operator needs both hands to lift hose to the nozzle.
- Prevents damage to launcher or nozzles, caused when dropped or by rough handling during routine work processes (Note: Rough handling or abuse voids all warranties).
- Provides safe, permanent storage.
- Launcher is always ready for hose, tube and pipe cleaning requirements.



The Launcher stand should be located in a convenient location for easy access when the operator needs two hands to lift the work and where he can easily pick it up and put it back down again. Many operators use the launcher stand as a permanent storage device for the launcher, rather than continually removing the launcher from the carrying case.



### UC-PC Projectile Catcher Bucket

- Prevent injury to yourself, a customer or an innocent bystander should contamination (such as steel slivers, or fragments of wire) be forcefully propelled, along with the projectile from inside the hose, tube or pipe.
- Allows you to catch and visually ascertain the contamination itself, expelled by the projectile from the hose, tube or pipe.
- Ascertain internal condition of the hose, tube or pipe by inspecting spent projectiles.
- Maintain a clean and professional work space.
- Saves time, energy and cleaning costs by eliminating mess.
- Locate in clean, practical position.

*An integral part of the  
Ultra Clean System!*



### Quick Connects *Full-flow connections which are perfect for air supply manifolds!*

	<ul style="list-style-type: none"> <li>• Size: 1/4" MNPT x Quick Connect, <a href="#">Part Number: UC-QRCP</a></li> <li>• Size: 3/8" MNPT x Quick Connect, <a href="#">Part Number: UC-QRC-30PM</a></li> <li>• Size: 1/2" MNPT x Quick Connect, <a href="#">Part Number: UC-QRC-40PM</a></li> </ul>
	<ul style="list-style-type: none"> <li>• Allows for 360° swivelling!</li> <li>• Fits at 45° angle to reduce operator fatigue</li> <li>• Size: 1/4" MNPT by Male Quick Connect</li> <li>• <a href="#">Part Number: UC-QRC-RP</a></li> </ul>
	<ul style="list-style-type: none"> <li>• Excellent general purpose coupling for connecting factory air supply to pneumatic tools</li> <li>• Size: 1/2" hose barb by Female quick-disconnect</li> <li>• <a href="#">Part Number: UC-QRC-C</a></li> </ul>

### UC-NH25 Nozzle Holder

A great alternative to leaving your nozzles in the carry case. It can be attached to a workbench and offers these additional advantages:

- Easy access during operation.
- Keeps nozzles and system visible, reminding workers of cleaning procedures.
- Becomes a promotional feature for customers.
- Accommodates 1/4" through 2" nozzles.





## Production Equipment

*Our production equipment is built specifically to keep pace with busy, high-volume production environments, while providing the same exceptional results you've come to expect from Ultra Clean in hose, tube and pipe cleaning and contamination removal.*

### Bench Mount Launcher, Projectile Verification System (PVS) & AutoLoader

- Manual and automated equipment for hose or tube assembly production lines.
- Increased production speed.
- Reduced cost.
- Reduction of unnecessary air consumption.
- Easily incorporates into existing production environment.
- Easy to operate.
- Electronically controlled.

### Air Requirements for All Production Equipment

- 80 PSI (5.5 Bar) minimum to 110 PSI (7.5 Bar) maximum.
- ½" ID air hose to ensure 38 SCFM (1.1 m<sup>3</sup>/min) at 80 PSI (5.5 Bar) air flow.
- Large industrial compressor strongly recommended.
- UC-D1 Super-Dry Compressed Air Dryer strongly recommended. **Page 25**

## UC-BM1.25 1 ¼" Bench Mount Launcher

- Capable of cleaning ⅛" - 1 ¼" hose, tube or pipe.
- Easy manual projectile loading.
- The Bench Mount Launcher is supplied with a 5 micron air filter, pneumatic foot switch with twin line air hose and your choice of 8 hose or tube nozzles ¼" - 1 ¼" (6mm - 32mm ID).
- Effortless to operate with a cycle time of 1.2 seconds.
- Ideal for production type environments because of its speed, simplicity and longevity.
- Stainless steel housing with anodized aluminum internal components.
- Works as a stand-alone unit or in conjunction with the UC-PVS Projectile Verification System.



# UC-PVS-G4 Projectile Verification System

*Guarantees a projectile is never left inside a hose or tube that has been cleaned!*



UC-PVS-G4 Control Station

Air supply for Hand Held Launcher located on right side of control station



The UC-PVS-G4 Projectile Verification System must be used with the UC-CB-PS Containment Barrel.

- Remote monitoring.
- Green light on Containment Barrel goes on and air blow automatically stops when cleaning process is complete and projectile verified.
- Electronic foot switch activates the firing sequence of the UC-BM1.25 (1/8" - 1 1/4") Bench Mount Launcher.
- The UC-HL-PVS (1/8" - 2") Electronic Hand Held Launcher can be fired by a built-in electronic trigger.
- Air supply for Hand Held Launcher is conveniently located on the right side of the control station.

- PLC/HMI Touchscreen for intuitive navigation and set-up in multiple languages.
- (3) Three Cleaning Modes with time-adjustable air blow.
- Power cable converts 240V AC (Europe) or 110V AC to 24V DC.
- Capable of capturing/transferring data such as projectile counts and faults, via a USB port to ensure no projectile is left inside a cleaned hose.

## 5 Micron Filter, Regulator, Gauge (on top of control station)

- Requires Ultra Clean UC-QRC-C quick disconnect coupling and a 1/2" I.D. (13mm) air hose to ensure correct SCFM air requirements for the Control Station.
- Incoming air is filtered to 5 micron.
- Regulator and gauge adjustment helps ensure proper operating pressure of 80 to 110 PSI maximum (5.5 to 7.5 Bar).

## Containment Barrel Connector & Foot Switch (on back of control station)

- 8-pin military-style plug secures the Containment Barrel cord to the Control Station.
- Electric Foot Switch provides hands-free operation to trigger the firing process.

## Required for Operation:

### UC-BM1.25

1/4" Bench Mount Unit



OR



### UC-HL-PVS

Hand Held Launcher

## UC-CAL Carousel AutoLoader



- Automatic projectile loading, firing, and verification.
- Removes internal contamination from hoses, tubes or pipes quickly and efficiently in a production environment.
- Ideal for high volume production cells making hose or tube assemblies.
- Fully integrates into automated tube manufacturing processes.
- Verifies projectile has exited hose, tube or pipe and entered the Containment Barrel along with expelled contamination.
- Cleans hoses, tubes and pipes with an internal diameter of 1/4" - 1" inch (6mm - 25mm).
- Easy change-out between 15 Hopper Box options, each handling one projectile size from 6mm to 33mm in diameter.
- Foot pedal firing device and/or hand held firing device options.
- Convert unit's 110V AC-60Hz or 240V AC- 50Hz to 24V DC with appropriate included electrical cord for easy installation.
- PLC/HMI Touchscreen guides operator through set-up and cleaning process.
- Projectile Counter for counting fired and verified projectiles.
- Air ionizer for removing static electricity for better orientation, loading, and firing of projectiles.
- Containment Barrel has a stainless steel chute assembly with green, yellow and red lights to indicate system and projectile mode (ready, firing, verified).
- 5 Micron Filter Regulator and Gauge for setting operating pressure at between 80 to 110 PSI (5.5 to 7.5 Bar).
- Air Supply conveniently located on the back of the control station.
- Requires clean, dry air for which the UC-D1 Super-Dry Compressed Air Dryer is strongly recommended.

### Hopper Boxes



- Clean projectile loading and storage.
- Quick change.
- Hopper boxes ordered separately based on projectile size (6mm-33mm).
- Stainless steel construction.
- Static control with built-in air ionization.
- Includes safety Lid Sensor to stop system and carousel functions until lid is closed.
- Clearly laser-marked for easy identification.

## Production Equipment Hand Held Extensions

### UC-BM-HH Hand-Held Launcher Extension

- Pneumatic hand held launcher specially designed for use with the UC-BM1.25 Bench Mount.
- Standard 6' extension hose/cable provides added mobility, allowing the user to easily take a hand held launcher directly to a hose or tube assembly.
- Easily attaches to the front of the launcher, no tools required.
- Air requirements are the same as for the Bench Mount unit.



### UC-HL-PVS Hand Held Launcher

- Electronic hand held launcher (1/8" – 2") specifically designed for use with the PVS control station.
- Fired by a built-in electronic trigger.
- Suggested only when not purchasing the UC-BM1.25 Bench Mount (Speak with your sales representative for guidance).

### UC-CAL-HH Hand Held Launcher

- Electronic hand held launcher specifically designed for use with the AutoLoader control station.
- Standard 6' extension hose/cable provides added mobility, allowing the user to easily take a hand held launcher directly to a hose or tube assembly.
- Three size launchers available to handle various projectile sizes, 1/2", 5/8", and 3/4" I.D. Hose:



PART NUMBER#	COMPATIBLE PROJECTILE SIZES
UC-CAL-HH-1/2	UC07, UC10, UC12
UC-CAL-HH-5/8	UC07, UC10, UC12, UC14
UC-CAL-HH-3/4	UC07, UC10, UC12, UC14, UC16, UC18, UC20, UC22

## Production Equipment Marking Systems

### UC-PVS-G4-MS

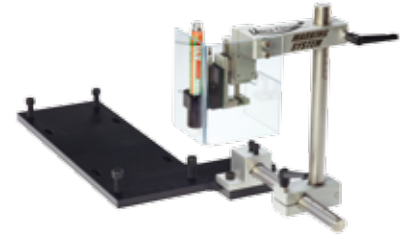
### Projectile Verification System with Marking System

All the features of UC-PVS-G4, but with Marking System capability!



- A mark is placed simultaneously only when projectile has been verified.
- 1-1/4 Bench Mount Unit specifically for use with the UC-PVS-G4-MS (Preferred in production environment)
- UC-HL-PVS Hand Held Launcher option.
- When marking system is in use, the UC-HL-PVS cannot be used.
- Marking System can be turned off or removed if desired.

### UC-PVS-MARK



- Coded Marking Systems available for the UC-PVS-G4-MS, and the UC-CAL-MS.
- Adjustable X and Y axis to precisely place a marking indicating hose has been cleaned.
- Single marking ensures proper stem depth insertion.
- May also be used to code and identify production times; and/or for other color-coding purposes.

### UC-CAL-MS

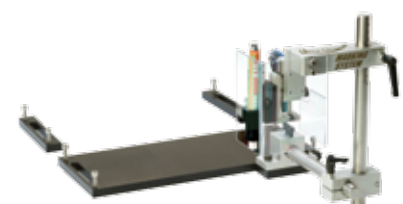
### Carousel AutoLoader with Marking System

All the features of UC-CAL, but with Marking System capability!



- Foot pedal firing device with nozzle attached directly to control station is standard and must be used when the Marking System is connected.
- UC-CAL-HH is an optional Hand Held Launcher for use when the Marking System is disconnected.
- Marking System attaches to front of Control Station.

### UC-CAL-MARK





## Production Equipment Marking Systems

### UC-MARK

- High quality paint-like markers for the UC-PVS-G4-MS and UC-CAL-MS Marking Systems.
- Available in four bright colors that are easily seen on hoses.
- Wear, fade and bleed-resistant.
- Custom holder comes with each marker to position in an upright stance when not in use.
- Tight, secure color-coded caps.

UC-Mark-Blue  
UC-Mark-Red  
UC-Mark-White  
UC-Mark-Yellow



## Production Equipment

### UC-CB-PS CONTAINMENT BARREL



- Catches and verifies that projectile and contamination have been expelled.
- Includes a wheeled dolly for ease of use.
- Large filter allows compressed air to escape while retaining contamination residue.
- Built-in sight gauge indicates when system needs emptying.
- Indicator lights signify at which stage system is operating.

*Green* = ready to launch projectile and/or has verified a caught projectile.

*Yellow* blinking = projectile has been fired and is in process in hose or tube.

*Red* = projectile not verified and may still be in the hose or launcher.

*Comes standard with...*

**UC-PVS Projectile Verification System**  
**UC-CAL Carousel AutoLoader**

## Production Equipment

### UC-D1 Super-Dry Compressed Air Dryer

Contains two highly efficient polypropylene coalescer elements at inlet and outlet ports to absorb oil and all solid air particles. Also included, one desiccant bag specifically designed to absorb water vapors and humidity from your compressed air system. The clean, dry air provided by the Super-Dry Compressed Air Dryer is highly recommended for use with the Ultra Clean Bench Mount Launcher, Projectile Verification System and AutoLoader System.

#### Standard Features & Benefits

Housings for Flows up to 300 SCFM:

- Heavy duty aluminum casting for high durability and corrosion resistance.
- Powder coated exterior for added durability.
- V-band stainless steel clamps for easy removal of cartridge replacement covers.
- Optimized air flow through housing minimizes pressure drop.
- Wall mounting brackets included.
- 3 stages in one unit; separation, filtration and drying.

#### Enhanced Performance

- Easy replaceable self-contained desiccant cartridges.
- High efficiency polypropylene coalescent elements.
- Optimum filter efficiency even at low air flows.
- 10-year manufacturer's warranty.
- Life expectancy: 25 years.
- Pressure dew point: -40° F.
- Maximum working pressure: 150 PSIG.



#### UC-D1 Super-Dry Compressed Air Dryer

- Air Flow @ 100 PSID: 70 scfm.
- Inlet/Outlet NPT: 1".
- Dimensions: 6" w, 19" h.
- Weight: 20 lbs.
- Replacement Kit: UC-ED1.
- Maximum inlet temp: 100° F (38° C).
- Maximum inlet pressure: 150 PSIG.

#### Premium Options

##### Humidity & Temperature Indicator UC-HGT

- Indicates optimum cartridge replacement based on % relative humidity.
- Relative Humidity % 10-80.
- Temperature °F: 20-100.
- Connection NPT: 1/4.



##### Automatic Timer Drain UC-TD

- Efficient drainage of condensate.
- Extends cartridge life of the dryer.
- Interval Time min.: 0.5 - 45.
- Discharge Time sec.: 0.5 - 10.
- In & Out Ports NPT: 1/4.



##### Ball Valve Strainer UC-BVS

- Isolates and protects drain.
- Inlet Port NPT: 1/2.
- Outlet Port NPT: 1/4.
- Material: Brass.



***Clean, dry air is absolutely necessary when using the Ultra Clean Bench Mount Launcher, Projectile Verification System, and the AutoLoader.***

## Recommended Sizing Chart Hose and Hose Assemblies

HOSE**			
HOSE ID		NOZZLE	ULTRA CLEAN PROJECTILE
NOM. IN.	DN MM		
3/16"	5	UC-H03	UC06
1/4"	6	UC-H06	UC10 OR UC12
5/16"	8	UC-H08	UC12 OR UC14
3/8"	10	UC-H10	UC14 OR UC16
1/2"	13	UC-H13	UC18 OR UC20
5/8"	16	UC-H16	UC22
3/4"	19	UC-H19	UC26
1"	25	UC-H25	UC33 OR UC36
1 1/4"	32	UC-H32	UC40 OR UC45
1 1/2"	38	UC-H38	UC50 OR UC55
2"	50	UC-H50	UC60 OR UC65
2 1/2"	63	UC-U55/90	UC75
3"	76	UC-U55/90	UC85
3 1/2"	89	UC-U55/90	UC100
4"	102	UC-4.5LN	UC120
4 1/2"	114	UC-4.5LN	UC130

ASSY W/FJIC		
FJIC SIZE	NOZZLE	ULTRA CLEAN PROJECTILE
DASH		
-4	UC-J06	UC06 OR UC07
-6	UC-J10	UC12
-8	UC-J13/T13	UC16
-10	UC-J16/T16	UC22
-12	UC-J19/T19	UC26
-16	UC-J25/T22	UC33
-20	UC-J32/T25	UC40
-24	UC-J38/T38	UC50
-32	UC-J50/T50	UC60

ASSY W/FFORX		
FFORX SIZE	NOZZLE	ULTRA CLEAN PROJECTILE
DASH		
-4	UC-4FFORX	UC06 OR UC07
-6	UC-H06	UC12
-8	UC-H10	UC16
-10	UC-H13	UC22
-12	UC-H16	UC26
-16	UC-H19	UC33
-20	UC-H25	UC40

ASSY W/CODE 61 & 62 FLANGES		
FLANGE SIZE	NOZZLE	ULTRA CLEAN PROJECTILE
DASH		
-8	UC-H10	UC16
-10	UC-H13	UC22
-12	UC-H16	UC26
-16	UC-H19	UC33
-20	UC-H25	UC40
-24	UC-H32	UC50
-32	UC-H38	UC60

\*\*Use larger recommended Ultra Clean Projectiles when cutting hose with an abrasive wheel. The above sizes are recommendations. Due to different manufacturers, types of fittings, and the amount of contamination in the line, the size projectile may need to be adjusted.

## Tube Sizing Chart - Nominal Inch

OD X WALL	NOZZLE	ULTRA CLEAN PROJECTILE	ABRASIVE PROJECTILE	TUBE PROJECTILE
1/8" X .030"	UC-T03	UC04	--	--
1/4" X .028"	UC-T06	UC08	UC-A07	UC07-TE
1/4" X .035"	UC-T06	UC08	UC-A07	UC07-TE
1/4" X .049"	UC-T06	UC08	UC-A07	UC06-TE
1/4" X .065"	UC-T06	UC07	--	UC06-TE
5/16" X .028"	UC-T08	UC12	UC-A10	UC10-TE
5/16" X .035"	UC-T08	UC12	UC-A10	UC07-TE
3/8" X .028"	UC-T10	UC14	UC-A12	UC10-TE
3/8" X .035"-.049"	UC-T10	UC14	UC-A12	UC10-TE
3/8" X .065"	UC-T10	UC12	UC-A10	UC10-TE
1/2" X .035"	UC-J13/T13	UC16	UC-A16	UC14-TE
1/2" X .049"	UC-J13/T13	UC16	UC-A16	UC12-TE
1/2" X .065"	UC-J13/T13	UC16	UC-A14	UC12-TE
1/2" X .083"	UC-J13/T13	UC14	UC-A12	UC12-TE
5/8" X .049"	UC-J16/T16	UC22	UC-A20	UC16-TE
5/8" X .065"	UC-J16/T16	UC20	UC-A18	UC16-TE
5/8" X .083"	UC-J16/T16	UC20	UC-A18	UC14-TE
3/4" X .049"-.065"	UC-J19/T19	UC26	UC-A24	UC20-TE
3/4" X .095"	UC-J19/T19	UC22	UC-A20	UC18-TE
7/8" X .049"	UC-J25/T22	UC33	UC-A30	UC26-TE
7/8" X .065"	UC-J25/T22	UC30	UC-A28	UC22-TE
7/8" X .095"	UC-H16	UC28	UC-A26	UC22-TE
1" X .065"	UC-J32/T25	UC33	UC-A30	UC28-TE
1" X .083"-.095"	UC-J32/T25	UC33	UC-A30	UC26-TE
1" X .120"	UC-J32/T25	UC30	UC-A28	UC26-TE
1 1/4" X .065"	UC-T32	UC40	UC-A40	UC33-TE
1 1/4" X .083"	UC-T32	UC40	UC-A36	UC33-TE
1 1/4" X .095"	UC-T32	UC40	UC-A36	UC33-TE
1 1/4" X .109"	UC-T32	UC36	UC-A36	UC33-TE
1 1/4" X .120"	UC-T32	UC36	UC-A33	UC33-TE
1 1/2" X .065"-.120"	UC-J38/T38	UC50	UC-A45	UC40-TE
1 1/2" X .134"-.148"	UC-J38/T38	UC45	UC-A40	UC40-TE
2" X .065"-.120"	UC-J50/T50	UC60	UC-A55	UC50-TE
2" X .134"-.188"	UC-J50/T50	UC55	UC-A50	UC50-TE

Tubing must be deburred prior to firing projectiles. Depending on the type of contamination present in the tube, abrasive projectiles may be used to remove rust and scale. Always use an UC projectile after the use of an abrasive projectile. Tube projectiles should be used to remove mandrel lubricants, grease and oil. If the operator is unsure which type or size projectile to use, please call us for technical assistance.

## Recommended Sizing Chart Metric Tubing

OD X WALL	NOZZLE	CLEAN PROJ.	PROJ.	
		UC	ABR.	TUBE
3 X .5	UC-T03	UC04	--	--
3 X .7	UC-T03	UC03	--	--
6 X 1.0	UC-6X1.5	UC07	UC-A06	UC06-TE
6 X 1.5	UC-6X1.5	UC07	UC-A06	--
8 X 1.0	UC-8X1.5	UC10	UC-A07	UC07-TE
8 X 1.5	UC-8X1.5	UC10	UC-A07	UC07-TE
10 X 1.0	UC-10X1.5	UC14	UC-A12	UC12-TE
10 X 1.5	UC-10X1.5	UC14	UC-A12	UC12-TE
12 X 1.0	UC-12X2.0	UC16	UC-A14	UC14-TE
12 X 1.5	UC-12X2.0	UC16	UC-A14	UC14-TE
12 X 2.0	UC-12X2.0	UC14	UC-A12	UC12-TE
14 X 1.0	UC-14X2.0	UC18	UC-A16	UC16-TE
14 X 1.5	UC-14X2.0	UC16	UC-A14	UC14-TE
14 X 2.0	UC-14X2.0	UC16	UC-A14	UC14-TE
15 X 1.0	UC-15X2.0	UC20	UC-A18	UC16-TE
15 X 1.5	UC-15X2.0	UC18	UC-A16	UC16-TE
15 X 2.0	UC-15X2.0	UC16	UC-A14	UC14-TE
16 X 1.0	UC-16X2.5	UC22	UC-A20	UC18-TE
16 X 1.5	UC-16X2.5	UC20	UC-A18	UC16-TE
16 X 2.0	UC-16X2.5	UC18	UC-A16	UC16-TE
16 X 2.5	UC-16X2.5	UC16	UC-A14	UC14-TE
18 X 1.0	UC-18X2.5	UC24	UC-A22	UC20-TE
18 X 1.5	UC-18X2.5	UC24	UC-A20	UC18-TE
18 X 2.0	UC-18X2.5	UC22	UC-A20	UC18-TE
18 X 2.5	UC-18X2.5	UC20	UC-A18	UC16-TE
20 X 1.5	UC-20X3.0	UC26	UC-A24	UC22-TE
20 X 2.0	UC-20X3.0	UC24	UC-A22	UC20-TE

OD X WALL	NOZZLE	CLEAN PROJ.	PROJ.	
		UC	ABR.	TUBE
20 X 2.5	UC-20X3.0	UC24	UC-A20	UC18-TE
20 X 3.0	UC-20X3.0	UC22	UC-A20	UC18-TE
22 X 1.0	UC-22X2.0	UC30	UC-A28	UC26-TE
22 X 1.5	UC-22X2.0	UC30	UC-A28	UC26-TE
22 X 2.0	UC-22X2.0	UC30	UC-A28	UC26-TE
25 X 2.0	UC-25X3.0	UC33	UC-A30	UC28-TE
25 X 2.5	UC-25X3.0	UC30	UC-A28	UC26-TE
25 X 3.0	UC-25X3.0	UC30	UC-A28	UC26-TE
28 X 2.0	UC-28X2.5	UC36	UC-A33	UC33-TE
28 X 2.5	UC-28X2.5	UC36	UC-A33	UC30-TE
30 X 2.0	UC-30X4.0	UC36	UC-A33	UC33-TE
30 X 2.5	UC-30X4.0	UC36	UC-A33	UC30-TE
30 X 3.0	UC-30X4.0	UC36	UC-A33	UC30-TE
30 X 4.0	UC-30X4.0	UC36	UC-A33	UC30-TE
35 X 2.0	UC-35X3.0	UC45	UC-A40	UC40-TE
35 X 3.0	UC-35X3.0	UC40	UC-A36	UC36-TE
35 X 4.0	UC-H25	UC40	UC-A36	UC33-TE
35 X 5.0	UC-H25	UC36	UC-A33	UC30-TE
38 X 2.5	UC-38X5.0	UC50	UC-A45	UC40-TE
38 X 3.0	UC-38X5.0	UC50	UC-A45	UC40-TE
38 X 4.0	UC-38X5.0	UC45	UC-A40	UC40-TE
38 X 5.0	UC-38X5.0	UC40	UC-A36	UC36-TE
42 X 2.0	UC-42X3.0	UC55	UC-A50	UC50-TE
42 X 3.0	UC-42X3.0	UC50	UC-A50	UC45-TE
50 X 3.0	UC-50X6.0	UC60	UC-A55	UC55-TE
50 X 5.0	UC-50X6.0	UC55	UC-A55	UC50-TE
50 X 6.0	UC-50X6.0	UC55	UC-A50	UC50-TE

Tubing must be deburred prior to firing projectiles. Depending on the type of contamination present in the tube, abrasive projectiles may be used to remove rust and scale. Always use an UC projectile after the use of an abrasive projectile. If the operator is unsure which type or size projectile to use, please call us for technical assistance.



## Pipe Sizing Chart

SCH 40	NOZZLE	ULTRA CLEAN PROJECTILE	ABRASIVE PROJECTILE	ULTRA SCRUB PROJECTILE
1/4"	UC-H08	UC14	UC-A12	UC-SCR12
3/8"	UC-H13	UC18	UC-A16	UC-SCR16
1/2"	UC-H16	UC20	UC-A18	UC-SCR18
3/4"	UC-H19	UC30	UC-A26	UC-SCR26
1"	UC-H25	UC36	UC-A33	UC-SCR33
1 1/4"	UC-H32	UC45	UC-A40	UC-SCR40
1 1/2"	UC-H38	UC55	UC-A50	UC-SCR50
2"	UC-H50	UC65	UC-A55 or UC-A60	UC-SCR55 or UC-SCR60
2 1/2"	UC-U55/90	UC75	UC-A70	N/A
3"	UC-U55/90	UC85	UC-A80	N/A
3 1/2"	UC-U55/90	UC100	UC-A95	N/A
4"	UC-4.5LN	UC120	UC-A110	N/A
SCH 80	NOZZLE	ULTRA CLEAN PROJECTILE	ABRASIVE PROJECTILE	ULTRA SCRUB PROJECTILE
1/4"	UC-H06	UC12	UC-A10	UC-SCR10
3/8"	UC-H10	UC16	UC-A14	UC-SCR14
1/2"	UC-H13	UC20	UC-A16 or UC-A18	UC-SCR16 or UC-SCR18
3/4"	UC-H19	UC26	UC-A22	UC-SCR22
1"	UC-H25	UC36	UC-A30	UC-SCR30
1 1/4"	UC-H32	UC45	UC-A40	UC-SCR40
1 1/2"	UC-H38	UC50	UC-A45	UC-SCR45
2"	UC-H38	UC60	UC-A55	UC-SCR55
2 1/2"	UC-H50	UC70	UC-A65	N/A
3"	UC-U55/90	UC85	UC-A80	N/A
3 1/2"	UC-U55/90	UC110	UC-A110	N/A
4"	UC-4.5LN	UC115	UC-A110	N/A
SCH 160	NOZZLE	ULTRA CLEAN PROJECTILE	ABRASIVE PROJECTILE	ULTRA SCRUB PROJECTILE
1/2"	UC-H10	UC16	UC-A14	UC-SCR14
3/4"	UC-H16	UC20	UC-A18	UC-SCR18
1"	UC-H19	UC30	UC-A26	UC-SCR26
1 1/4"	UC-H25	UC36	UC-A33	UC-SCR33
1 1/2"	UC-H32	UC45	UC-A40	UC-SCR40
2"	UC-H38	UC55	UC-A45 or UC-A50	UC-SCR45 or UC-SCR50
2 1/2"	UC-H50	UC65	UC-A60	UC-SCR55 or UC-SCR60
3"	UC-U55/90	UC75	UC-A70	Upon Request
4"	UC-U55/90	UC100	UC-A100	Upon Request

Abrasive projectiles may be used when there is a build-up of contamination, surface rust or scale. For pipe applications where there is a greater build-up of contamination, surface rust or scale, use an Ultra Scrub projectile. Pipe must be straight for this projectile. NOTE: To ensure cleanliness, an UC projectile must be used after abrasive and Ultra Scrub projectiles. Please call if you need help in sizing your application for the correct nozzles and projectiles.

# OilPure Technologies, Inc.

P.O. Box 483976 • Kansas City • Missouri • 64148 • USA

Tel: 913-906-0400 • Fax: 913-906-9815

E-mail: oilpure@earthlink.net

January 13, 2001

Bruce Riley

ULTRA CLEAN TECHNOLOGIES CORP.

746 Shiloh Pike

Bridgeton, NJ 08302

Dear Bruce:

We evaluated a hydraulic hose provided by your firm. The hydraulic hose is 1" dia. x 24" wire hydraulic hose with the use of Ultra Clean Technologies Ultra Clean Projectiles. According to the particle count testing from OilPure laboratory, we found that the Ultra Clean hose cleaning device and their Ultra Clean Projectiles are capable of providing ISO code 13/10 oil cleanliness.

## Test Procedure

1. The hose was rinsed with new hydraulic oil several times, 150 cc oil quantity in each rinse.
2. The hose is washed with the same oil quantity of new oil each time
3. New hydraulic oil is AW46 viscosity grade and filtered to ISO code 13/10 cleanliness before testing.
4. Laser light particle count is used as particle count analysis. Particle counter is made by HIAC/ROYCO and uses the ISO:4406 standard for particle count method. Special quality control for particle count testing is made to make sure that the particle count shows accurate reading.
5. All oil samples were tested twice to make sure that particle count reading confirms accuracy.

## Test Result Findings

Particle Count (in one cc)	New Oil	Ultra Clean Projectiles / Marker Saw			
		<u>1<sup>st</sup> Rinse</u>		<u>2<sup>nd</sup> Rinse</u>	
ISO Code:	13/10	13/11	13/10	13/10	13/10
>5 microns	49	53	49	63	49
>10 microns	15	26	15	12	11
>15 microns	8	16	8	7	6
>25 microns	3	8	3	3	1
>50 microns	1	2	1	1	0
>75 microns	0	0	0	0	0

The ISO code 13/10 oil cleanliness can be expected after hose is cleaned by Ultra Clean Projectiles by ULTRA CLEAN TECHNOLOGIES. We hope that this test data will provide sufficient information for ULTRA CLEAN TECHNOLOGIES' customer regarding oil cleanliness after ULTRA CLEAN hose cleaning.

Yours sincerely,

Vichai Srimongkolkul  
Technical Director

## Hose Cleanliness Evaluation Report



Company: **Ultra Clean Technologies Corp.**  
 Address: **746 Shiloh Pike**  
 City: **Bridgeton** State: **NJ** Zip: **08302**  
 Telephone: **1-800-791-9111** Fax: **856-453-4975**  
 Contact: **Bruce Riley**  
 Title: **President**  
 E-mail: **briley@ultraclean-tech.com**

Test Date: **September 5, 2006**  
 New Oil for Evaluation: **AW46 Hydraulic Oil**  
 Hose Type: **-16 1" x 28" oal, 4 spiral hyd hose assembly w 1" Male NPT EE**  
 Note:

Dear Bruce

**Test Procedure**

1. The hose was rinsed with new hydraulic oil several times with non-contact flow technique.
2. The hose is washed with the same oil quantity of new oil each time
3. New hydraulic oil is AW46 viscosity grade and filtered to a low ISO code cleanliness before testing.
4. Laser light particle count is used as particle count analysis. Particle counter is made by HIAC/ROYCO and uses the ISO:4406-99 standard for particle count method. Special quality control for particle count testing is made to make sure that the particle count shows accurate reading.
5. All oil samples were tested twice to make sure that particle count reading confirms accuracy.

We hope that this test data will provide sufficient information regarding hose cleanliness evaluation.

Yours sincerely,

Vichai Srimongkolkul  
 Technical Director

Item No.	Hose I.D.	Hose Descriptions	Solid Contamination Particle Count in 1 cc						ISO Code
			4μ	6μ	14μ	20μ	30μ	40μ	
1	NEW	New AW 46 Hydraulic Oil as base line comparison	214	64	23	9	1	0	15 / 13 / 12
2	A1	Chop saw with abrasive wheel - no cleaning	99,999	99,999	92,618	67,576	29K	15K	24 / 24 / 24
3	A2	Chop saw with abrasive wheel - 10 second air blow	96,508	52,827	4,546	1,013	53	13	24 / 23 / 19
4	A3	Chop saw with abrasive wheel - <b>Ultra Clean</b>	1,824	511	54	20	2	0	18 / 16 / 13
5	A4	Chop saw with metal scalloped blade - no cleaning	99,999	99,999	54,879	29,617	6.4K	2.5K	24 / 24 / 23
6	A5	Chop saw with metal scalloped blade - 10 second air blow	99,999	84,470	18,639	5,725	752	247	24 / 24 / 21
7	A6	Chop saw with metal scalloped blade - <b>Ultra Clean</b>	2,354	638	73	22	5	1	18 / 16 / 13

OilPure Technologies, Inc. P.O. Box 483976 • Kansas City • Missouri • 64148 • USA • Tel: 913-906-0400 • Fax: 913-906-9815 • www.oilpure.com

# ***SEAL EASY***

## **Hose, Tube and Pipe Sealing Systems**



Ultra Clean Technologies offers innovative and economical solutions to protect cleaned hoses, tubes and pipes. The **Clean Seal System** heat-shrinks a **Clean Seal Capsule** tightly around the end of a hose assembly. Seal a single hose, or multiple hoses simultaneously! Just sixteen size capsules needed for most applications. Shorter capsules available to accommodate angle/elbow (ie: 45° and 90°) fittings.



**Heat Shrink Machine**  
**Clean Seal Capsules**

**Heat Shrink Gun, Heat Diffusers, and Flexible Stand**

## Clean Seal System

The Clean Seal System utilizes heat shrink technology to encapsulate the end of a hose or tube assembly with a Clean Seal Capsule, eliminating re-contamination that is problematic with traditional capping and plugging methods. Re-contamination occurs when ill-fitting caps and plugs are forced onto assemblies, causing plastic particles to shear off into the hose or tube. Clean Seal System leaves your assemblies tightly sealed and 100% contamination free, *and* provides an easier, less costly, and more effective solution than traditional capping methods. You'll never have to deal with an excessive cap and plug inventory again.

- Preserves cleanliness.
- Easy to use heat shrink machine or heat shrink gun for low or high volume production.
- Fast and easy capsule installation.
- Universal, clean fit up to 3" (80mm).
- Seals straight and elbow couplings - shorter capsules available for angled/ elbow (i.e.: 45° and 90°) fittings.
- Eliminates cap inventory hassles.



## UC-CSC-2023 through UC-CSC-8060 Clean Seal Capsules

- Just 16 capsule sizes needed for all assemblies.
- Durable and secure.
- Quick, clean application.
- Blue color for quick and easy identification of sealed hoses.
- Easy, clean pull-tab capsule removal.
- No particulates or sticky residue left behind.
- Sold in bulk cartons or packaged quantities.
- Shipped pre-stacked to ensure cleanliness on inside.
- Private label options available.



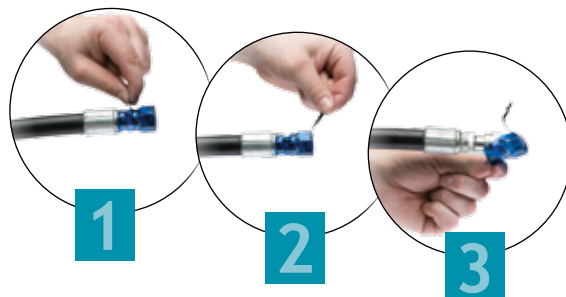
Clean Seal Capsules stack neatly for efficient shipping and storing!

### To Apply

1. **Choose** the closest fit capsule and place onto assembly end.
2. **Use** the heat shrink machine or gun to apply heat.

### To Remove

1. **Grip** the black pull tab.
2. **Rip** the pull tab upwards.
3. **Slip** the Clean Seal Capsule off the assembly.



Just seconds to apply and remove!



## UC-CSS-230V-G2 Heat Shrink Machine



*Pictured: UC-CSS-230V-HG-G2 unit with optional heat guard.*

- Seals single OR multiple hose or tube assemblies.
- Uses Clean Seal Capsules from 3/4" I.D. (20mm) through 3" I.D. (80mm) for sealing and thread protection of hose and tube ends from -4 (1/4") through -32 (2").
- White plunger provides surface to hold Clean Seal Capsule in place on fitting, including angle/elbow (ie: 45° and 90°) fittings, and aids even heat distribution for a perfect shrink-fit..
- 230V single-phase AC power at 50/60Hz draws < 5 amps.
- Customer supplies L6-15 NEMA twist lock receptacle.
- ON/Off rocker switch illuminates green when "on."
- Hot Air Blower Timer sets in 1-minute increments.
- When on, Timer Light illuminates white.
- 24/7 operating capacity.
- Pre-filtered air prohibits airborne contamination.
- Heat side of machine is fully insulated.
- Brushless internal heat source for industrial applications.
- Optional Heat Guard.
- Optional Vertical Mount.

## Available Kits (3)

*Available in North America only*

1. **UC-HL1920HK (pictured):** Hardware-only kit that includes portable heat shrink gun with case, flexible stand, 95 mm diffuser with 1 1/2" connection.
2. **UC-HL1920SK:** Hardware & Capsules Starter Kit that includes capsules listed on next page.
3. **UC-HL1920SK-2:** Hardware & Capsules Starter Kit for applications up to 2" ID that includes capsules listed on next page.



## UC-HL1920E Heat Shrink Gun

*Available in North America and Europe only*

- Variable-temperature electronic heat gun with electronic thermocouple control for flexible use and maximum reliability.
- Duratherm heating element ensures long life and even heat with a temperature range of 120°F (49°C) to 1100°F (593°C) and a built-in cool down switch.
- 120V AC power, draws 1500 watts, and can produce 17.6CFM.



*European model operates on 240V AC power and comes with european plug.*

- Capable of sealing multiple hoses simultaneously.
- Various nozzle attachments included for applications other than shrinking of Clean Seal Capsules.

## UC-1.5HD & UC-2.0HD Heat Diffusers

- Heat Diffusers enable a 360° even hot air flow to shrink the Clean Seal Capsules.
- Intended for heat guns that have a 1 1/2" (38mm) and 2" (50mm) OD on the heating element.
- UC-2.0HD is made of 304 Stainless Steel for a long contamination-free life.
- UC-1.5HD works perfectly with the UC-HL1920 Heat Gun.



## UC-1920-STAND

*Available in North America and Europe only*

- Vacuum pump stand is for hands-free operation of the UC-HL1920E heat gun.
- Adjustable to almost any position.
- Makes your job of shrinking capsules quicker and easier!



# Clean Seal System Parts List

## HEAT SHRINK SYSTEMS AND ACCESSORIES

PART NUMBER#	DESCRIPTION
<b>HEAT SHRINK MACHINE</b>	
UC-CSS-230V-G2	PRODUCTION HEAT SHRINK MACHINE with TIMER
UC-CSS-230V-HG-G2	PRODUCTION HEAT SHRINK MACHINE with TIMER and HEAT GUARD
<b>HEAT SHRINK GUNS &amp; ACCESSORIES</b>	
UC-HL1920E	ELECTRIC HEAT GUN
UC-1920-STAND	FLEX VACUUM PUMP STAND
UC-1.5HD	95MM DIFFUSER FOR 1½" CONNECTION
UC-2.0HD	95MM DIFFUSER FOR 2" CONNECTION
<b>CLEAN SEAL KITS</b>	
UC-HL1920HK (Hardware Kit)	PORTABLE HEAT SHRINK GUN WITH CASE (UC-HL1920E), FLEXIBLE STAND (UC-HG-STAND), 95 mm DIFFUSER WITH 1½" CONNECTION (UC-1.5HD)
UC-HL1920SK (Starter Kit)	INCLUDES ALL COMPONENTS OF UC-HL1920HK KIT, PLUS 1 PACKAGE OF EACH CAPSULE SIZE UC-CSC-2030P, UC-CSC-2540P, UC-CSC-2840P, UC-CSC-3140P, UC-CSC-3440P, UC-CSC-3840P, UC-CSC-4650P
UC-HL1920SK-2	INCLUDES ALL COMPONENTS OF UC-HL1920HK and UC-HL1920SK KITS, PLUS 1 PACKAGE OF EACH CAPSULE SIZE UC-CSC-5260, UC-CSC-6760, UC-CSC-860

## CLEAN SEAL CAPSULES

PACKAGED		BULK		SIZING			*FITTING	
PART NUMBER# PACKAGED	CARTON QTY PACKAGED	PART NUMBER# BULK	CARTON QTY BULK	CAPSULE SIZE Inside Diameter x Length in mm	HEX SIZES COVERED in mm	HEX SIZES COVERED in inches	STRAIGHT	ELBOW
UC-CSC-2023P	810	UC-CSC-2023B	23,400	20 X 23	12mm to 18mm	.47" to .71"		X
UC-CSC-2030P	810	UC-CSC-2030B	23,400	20 X 30	12mm to 18mm	.47" to .71"	X	
UC-CSC-2224P	810	UC-CSC-2224B	22,500	22 X 24	16mm to 21mm	.63" to .82"		X
UC-CSC-2527P	800	UC-CSC-2527B	17,600	25 X 27	18mm to 23mm	.71" to .91"		X
UC-CSC-2540P	800	UC-CSC-2540B	17,600	25 X 40	18mm to 23mm	.71" to .91"	X	
UC-CSC-2840P	720	UC-CSC-2840B	15,200	28 X 40	22mm to 26mm	.87" to 1.02"	X	
UC-CSC-3133P	640	UC-CSC-3133B	12,240	31 X 33	24mm to 29mm	.94" to 1.14"		X
UC-CSC-3140P	640	UC-CSC-3140B	12,240	31 X 40	24mm to 29mm	.95" to 1.14"	X	
UC-CSC-3440P	640	UC-CSC-3440B	10,240	34 X 40	27mm to 32mm	1.07" to 1.26"	X	
UC-CSC-3840P	560	UC-CSC-3840B	7,800	38 X 40	30mm to 36mm	1.19" to 1.42"	X	X
UC-CSC-4345P	480	UC-CSC-4345B	6,240	43 X 45	32mm to 41mm	1.26" to 1.61"	X	X
UC-CSC-4650P	480	UC-CSC-4650B	5,760	46 X 50	34mm to 44mm	1.34" to 1.73"	X	X
UC-CSC-5260P	400	UC-CSC-5260B	4,400	52 X 60	41mm to 50mm	1.62" to 1.97"	X	X
UC-CSC-5860P	400	UC-CSC-5860B	3,600	58 X 60	49mm to 56mm	1.93" to 2.20"	X	X
UC-CSC-6760P	320	UC-CSC-6760B	2,560	67 X 60	55mm to 65mm	2.16" to 2.56"	X	X
UC-CSC-8060P	420	UC-CSC-8060B	1,736	80 X 60	64mm to 78mm	2.52" to 3.07"	X	X

Grey area indicates capsule sizes included in kit UC-HL1920SK.

*\*Shorter length capsules are recommended for elbow/angled fittings (i.e. 45° and 90°).*



## ***ULTRA CLEAN TECHNOLOGIES CORP.***

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