



# **CBU Debubbler Owner's Manual**



## **Table of Contents**

<b>1. Product Information</b>	<b>1</b>
1.1 Overview.....	1
1.2 Temperature Limits.....	1
1.3 Dimensions.....	2
1.4 Bill of Materials.....	3
<b>2. Installation Instructions</b>	<b>4</b>
<b>3. Ordering Instructions</b>	<b>5</b>
<b>4. Warranty</b>	<b>6</b>
<b>5. Service</b>	<b>7</b>





Page left intentionally blank





Dear valued customer,

Thank you for purchasing a White Knight CBU-4A debubbler.

Our dedicated team designs products to meet your exacting specifications with the highest commitment to quality.

White Knight provides the highest quality fluid handling products through controlled, consistent in-house engineering and manufacturing. Our safe, reliable products offer superior performance, optimized efficiency, and simplified maintenance. We continue to lead the industry with new technologies and products.

Our patented designs offer a variety of size and material options to meet stringent requirements of high-pressure chemical delivery systems; high-temperature re-circulation processes; chemical reclaim and bulk transport applications; as well as slurry systems.

White Knight has received many prestigious awards for innovation and manufacturing programs. We rigorously manage our quality assurance processes to ensure consistency and reliability. Our quality controls include strict cleanliness procedures and consistent manufacturing processes. For example, product assembly and testing is done in a temperature and humidity-controlled cleanroom.

Please peruse this manual before installing your White Knight product. It details installation requirements and setup instructions, and provides additional information and accessories to enhance the product's functionality.

Our team has gone to great lengths to ensure our products serve your needs and meet your requirements.

Further, we provide the highest quality products at the best value, and we back them up with excellent warranties and world class support.

Sincerely,

Tim White, President  
White Knight Fluid Handling



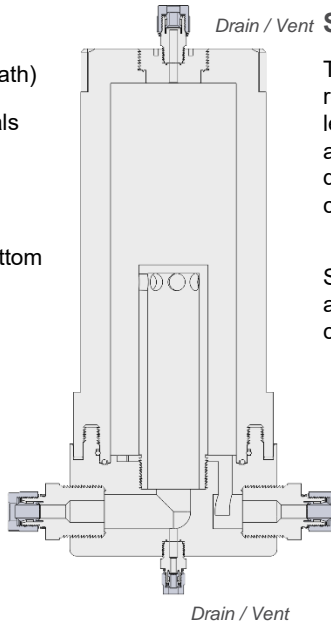
# 1. Product Information

## 1.1 Overview

The CBU-4A debubbler reduces bubbles from high-purity chemical delivery and wafer process systems. They redirect flow to the surface so that bubbles rise out of the fluid.

### Advanced Technologies

- Low pressure drop (1-in flow path)
- Reliable, adjustable O-ring seals
- Synchro-Thread™ allows for fluids up to 210°C (410°F)
- Install bowl on top; base on bottom
- Various fitting options
- Liquid level sight tube options

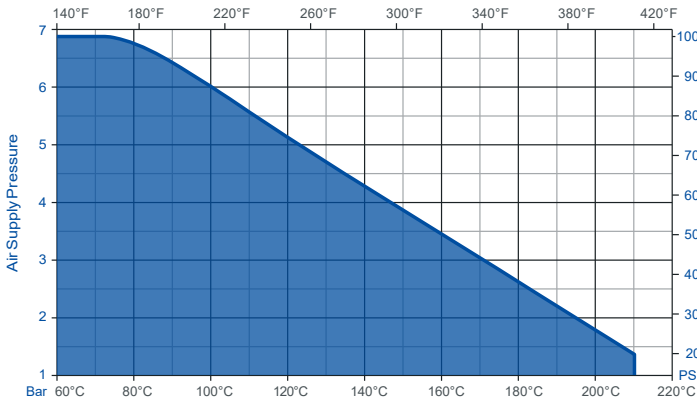


### Sealing Technology

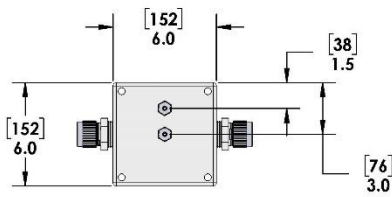
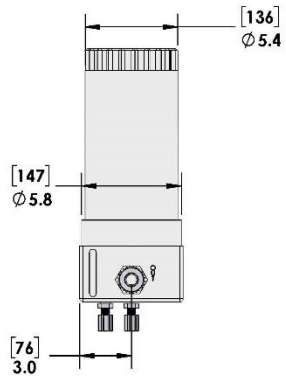
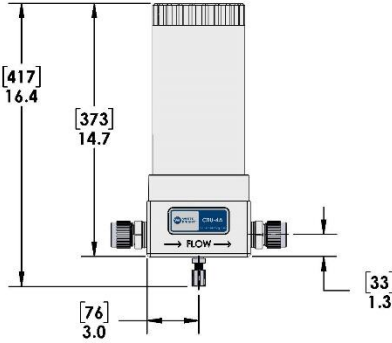
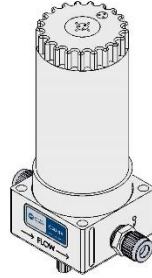
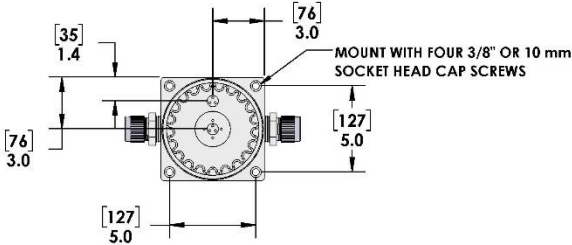
Two O-rings ensure reliable seals to prevent leaks, improve reliability, and eliminate costly downtime and expensive cleanup.

Sealing pressure is adjustable beyond initial compression loads.

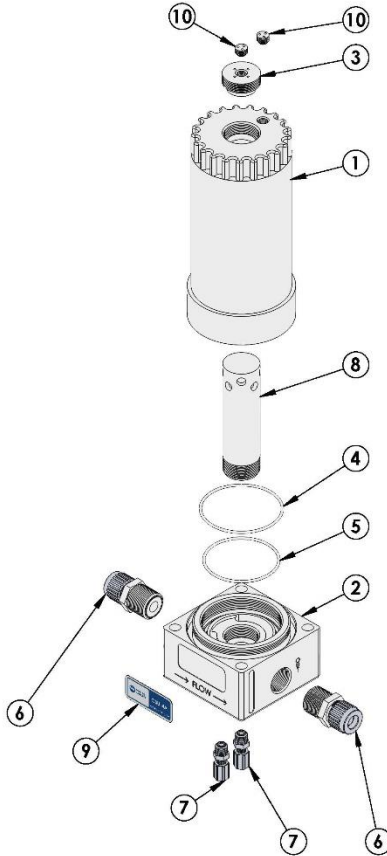
## 1.2 Temperature Limits



**1.3 Dimensions**



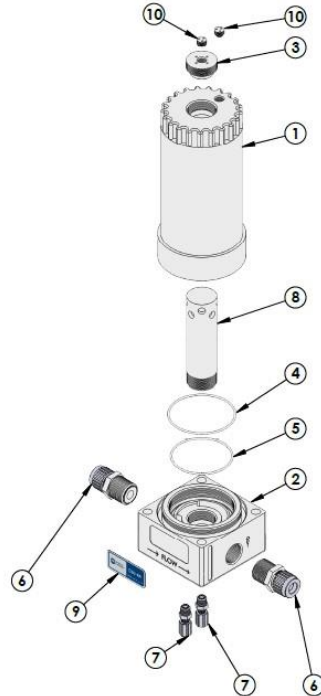
**1.4 Bill of Materials**



CBU-4 BILL OF MATERIALS			
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	11100-TE-0008	FILTER HOUSING BODY	1
2	11100-TE-0010	HIGH TEMP DEBUBBLER HOUSING	1
3	10040-TE-0032	CAP, HIGH TEMP DEBUBBLER	1
4	10080-XX-244	-244 FEP ENCAPSULATED O-RING	1
5	10080-XX-241	-241 FEP ENCAPSULATED O-RING	1
6	14530-PF-0006	30 GPM 3/4" SUPER PILLAR 300 FITTING ASSEMBLY	2
7	14510-PF-0012	1/4" FLARETEK, 04 LIQUID FITTING ASSEMBLY	2
8	7120-TE-0004	DIP TUBE, HIGH TEMP DEBUBBLER	1
9	19100-PP-0152	LABEL, PRODUCT, CBU-4A	1
10	7130-TE-0006	PLUG, FLUID PORT, 04 WK 1/4"	2

## 2. Installation Instructions

1. Prepare the cabinet wall or other mounting panel by installing inserts for 3/8-UNC or 10mm socket head cap screws into the dimensions specified on the accompanying page. The CBU-4A may only be mounted with the base on the bottom. Approximate weight of the assembly is 19 lbs. (not including liquid) so holes drilled and tapped in plastic are not sufficient.
2. Install the debubbler housing (2) by using four 3/8-UNC (or 10mm) by 5-in. (13 cm) long stainless-steel socket head cap (allen wrench type) screws (end of screws will protrude 1/2" past the housing into the inserts).
3. Hook up inlet and outlet tubing (6) and vent lines (10) as desired. If inlet and outlet tubing connectors are not of the type desired, do not attempt to modify or attempt to screw male NPT tubing connectors into the debubbler housing. Irreparable damage will occur! If a female NPT connection is desired, adapters are available from White Knight. Please contact White Knight if a different type of connection is needed.
4. Install drain line connection (7) in bottom of housing (2) as desired.
5. A sight tube can be run from the non-drain liquid fitting (7) to the unused fluid port plugged with (10).



### 3. Ordering Instructions

#### Configuration

				Top Vents		Base Vents		
<b>CBU</b>	<b>- 4A</b>	<b>- 1</b>	<b>- P12</b>	<b>P12</b>	<b>- B0</b>	<b>B0</b>	<b>- F4</b>	<b>F4</b>
0 Model	1 Diameter	2 Volume	3 Liquid Inlet	4 Liquid Outlet	5 Center Vent	6 Offset Vent	7 Pre-Dip Tube Vent	8 Post-Dip Tube Vent

#### Instructions

A selection is required for each option.  
 Contact support for revision or copy exact information.

Standard options are highlighted.

<b>0. Model</b>	
High-temp debubbler	CBU
<b>1. Diameter</b>	
4 inch	4A
<b>2. Volume</b>	
1 liter	1

	Liquid Fittings	3. Inlet	4. Outlet
	Plugged	B00	B00
 Flaretek Compatible	1/2 in.	F08	F08
	3/4 in.	F12	F12
	1 in.	F16	F16
 Pillar S-300	1-1/4 in.	F20	F20
	1/2 in.	P08	P08
	3/4 in.	P12	P12
	1 in.	P16	P16
	1-1/4 in.	P20	P20
 PrimeLock	1-1/2 in.	P24	P24
	3/4 in.	L12	L12
	1 in.	L16	L16
 FNPT	1-1/4 in.	L20	L20
	3/4 in.	N12	N12
	1 in.	N16	N16
 Tube Out	1-1/4 in.	N20	N20
	3/4 in.	T12	T12
	1 in.	T16	T16
	1-1/4 in.	T20	T20
 Weldable	1-1/2 in.	T24	T24
	3/4 in.	W12	W12
	1 in.	W16	W16
 Synchro-Flare	1/2 in.	S08	S08
	3/4 in.	S12	S12
	1 in.	S16	S16

Vent Fittings	5. Top Center Vent	6. Top Offset Vent	7. Base Pre-Dip Tube Vent	8. Base Post-Dip Tube Vent
Plugged	B0	B0	B0	B0
Flaretek Compatible	1/4 in. F4	F4	F4	F4
Pillar S-300	3/8 in. F6	F6	F6	F6
	1/8 in. P2	P2	P2	P2
PrimeLock	1/4 in. P4	P4	P4	P4
	3/8 in. P6	P6	P6	P6
FNPT	1/4 in. L4	L4	L4	L4
	3/8 in. L6	L6	L6	L6
	1/4 in. N4	N4	N4	N4
	3/8 in. N6	N6	N6	N6





## 4. Warranty

White Knight follows strict manufacturing, assembly and testing procedures to ensure consistency and reliability.

White Knight warrants CBU-4A debubblers and components are free from defects in materials and workmanship for one year from our shipment date or your installation date if provided within 90 days of shipment from our facility.

Failures due to normal wear, misuse, abuse or unauthorized disassembly nullify this warranty.

White Knight does not guarantee the suitability of products for specific applications. White Knight is not liable for any damage or expense resulting from use or misuse of its products in any application. Responsibility is limited solely to repair or replacement of defective products or components.

Prior written, faxed or emailed approval must be obtained from White Knight before returning any product or component for warranty consideration. All determinations regarding cause of failure are made by White Knight, and all decisions regarding warranty fulfillment or nullification are made by White Knight.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING ANY GUARANTEE OF SUITABILITY FOR ANY PURPOSE. NO VARIATIONS OF THIS WARRANTY SHALL BE HONORED NOR CONSIDERED LEGALLY BINDING, EXCEPT WRITTEN AGREEMENTS SIGNED BY THE CEO OF WHITE KNIGHT FLUID HANDLING.

Steve Smith, CEO  
White Knight Fluid Handling





## 5. Service

Follow decontamination instructions when returning a product for service.

**DO NOT REMOVE PAGE FROM MANUAL.**

Copy page from manual or download at <https://wkfluidhandling.com/support/rma/>.

## Decontamination Instructions

**PRINT COMPLETED DECONTAMINATION CERTIFICATION. IT MUST BE INCLUDED IN YOUR RMA SHIPMENT.**

White Knight products are designed for use with caustic and otherwise dangerous liquids. Handle every product as if it contains dangerous chemicals whether or not it actually does.

- Only those with adequate safety training should attempt to handle used products.
- Wear adequate safety gear appropriate for chemicals that have been in the product.
- Review relevant Material Safety Data Sheets (MSDS) before handling the product.
- Review emergency numbers for use in event of an accident.
- Prepare Ph papers, showers, antidotes, clean-up equipment, neutralizers, and other safety devices used to detect, neutralize or minimize effects of chemicals described in appropriate MSDS documents.

### Rinse with DI Water

Circulate DI water through product for twenty minutes before disassembly and/or double bagging for shipment. If product is nonfunctional, force DI water from inlet through outlet for 40 minutes before shipment preparations.

### Remove Product from Station:

1. Disconnect liquid tubing connectors from front of product (opposite shuttle valve).
2. Plug NPT fittings with PTFE plug, Flare fittings with flare nose cover and cap, or other plug or cap as recommended by connector supplier.
3. Disconnect air supply tubing from face of shuttle valve.
4. Loosen mount screw from base plate. (Note: do not remove screw from base plate).
5. Remove base plate using proper tool for the fastening devices (e.g. Allen wrench or screw driver). Note: Base plate may stay if needed for replacement product to be used.
6. Return all removed parts to the product.

### Return Product to White Knight:

1. Rinse product with DI water as described above after removing it from its station.
2. Drain remaining DI water from the product inlet and outlet liquid tubing connectors.
3. Plug liquid outlets as described in the Remove Product from Station section above.
4. Dry the product, double bag it, and seal it in thick polyethylene bags.
5. Return the product to its original packaging.
6. Include MSDS for the chemical that the product was handling in the box with the product.
7. Obtain RMA number from White Knight and write it on the outside of the box.
8. Ship to White Knight following all rules, regulations and laws regarding shipment of dangerous materials. Ship freight pre-paid. No collect shipments will be accepted. Unauthorized use of White Knight shipping accounts will result in the adding of freight to the bill in addition to a service charge.

### Include All Components:

Products returned to White Knight for evaluation, service or repair must be complete with all components, including but not limited to base plate, mount screws, tubing connectors, tubing connector caps, flare noses, shuttle valves, mufflers, and tubing. Missing parts will be added to the product and charged to the customer.





**DO NOT REMOVE PAGE FROM MANUAL.**

Copy page from manual or download at <https://wkfluidhandling.com/support/rma/>.

# Decontamination Certification

COMPLETE AND PRINT THIS FORM. IT MUST BE INCLUDED IN YOUR RMA SHIPMENT.

I, the undersigned employee of \_\_\_\_\_, certify that all decontamination and safety procedures described in Decontamination Instructions section have been followed for return of product below.

**RMA#:** \_\_\_\_\_

*(We cannot process returns without an RMA number.)*

**Serial#:** \_\_\_\_\_

*(We cannot process returns without a product serial number.)*

## **Metal Exposure:**

*(Check all that apply. Write in other metals if necessary.)*

Product was used in a Metal Process.     Yes     No

Product was used in a Copper Metal Process.     Yes     No

Product was used with:

- Aluminum     Cobalt     Gold     Lead     Nickel     Platinum     Silver     Tin     Titanium
- Tungsten     Zinc     Other: \_\_\_\_\_

## **Chemical Exposure:**

*(Check all that apply. Write in other chemicals if necessary.)*

Product was NOT used in chemicals (DI Water only).

Product was used in chemicals.

- Ammonia     Ammonium Hydroxide     Hydrochloric Acid     Hydrofluoric Acid     Hydrogen Peroxide     IPA
- Nitric Acid     Phosphoric Acid     Sulfuric Acid     Other: \_\_\_\_\_

## **Shipping Information:**

Please indicate metal processes to which the product has been exposed by clearly and conspicuously labeling the outside of the return package with the metal.

**Products exposed to Metal Processes must be sent to the following address:**

White Knight Fluid Handling  
187 East 670 South, Suite B  
Kamas, UT 84036

**Products NOT exposed to Metal Processes must be sent to the following address:**

White Knight Fluid Handling  
187 East 670 South, Suite C  
Kamas, UT 84036

Print Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_





**WHITE  
KNIGHT®**

..... *engineer approved™*

**White Knight Support**

187 E. 670 S.  
Kamas, UT 84036

Phone: 435.783.6040  
Toll Free: 888.796.2476  
Fax: 435.783.6128

[support@wkfluidhandling.com](mailto:support@wkfluidhandling.com)

<https://wkfluidhandling.com/support/>

