



CUNO™ CTG-Klean

Filter System



Applications

CUNO™ CTG-Klean totally enclosed, factory-sealed filter system addresses the needs of manufacturers in:

Automotives	Paint Manufacturing, Assembly Plants, Coil Coatings
Electronics	Photoresists
Inks & Printing	Ink Production, Printing Press Protection, Plating Processes
Chemicals	High Quality Chemicals, Hazardous Chemicals, Photographic Solutions,
Other Applications	Power Generation & Dielectric Oil Treatment, Lubricating & Cutting Oils, Deep Well Injection, Ceramic Slurries

The Clean, Totally Enclosed, Cost-Effective, Operator Friendly Alternative to Conventional Filter Change-Out

The CUNO™ CTG-Klean system is a totally enclosed filtration system that uses a separate pressure vessel and disposable filter pack to isolate the product to be filtered from the housing. This exclusive design reduces the extensive time and labor involved with filter change-outs and cleaning of conventional housings.

Environmental concerns and operator exposure to product cleaning solvents are substantially reduced. The streamlined system, coupled with high performance, long-life filters, make CUNO CTG-Klean systems the clear choice for safe, environment friendly, cost-effective filtration.

Features & Benefits

Totally enclosed filter pack avoids handling of used filter cartridges

- No cleaning required
- Limited operator exposure
- Reduced labour and faster turn-around
- No cross contamination of products

Design reduces gaskets, posts, spring & seal assemblies, and seal plates

- No components to clean, lose, damage, or stock
- No gaskets or O-rings to damage, swell, or replace

Filter pack can be capped and reused

- Reduces operating costs by eliminating unnecessary disposal of partially used filter cartridges

Filter packs are factory sealed

- No potential for by-pass caused by improper cartridge installation

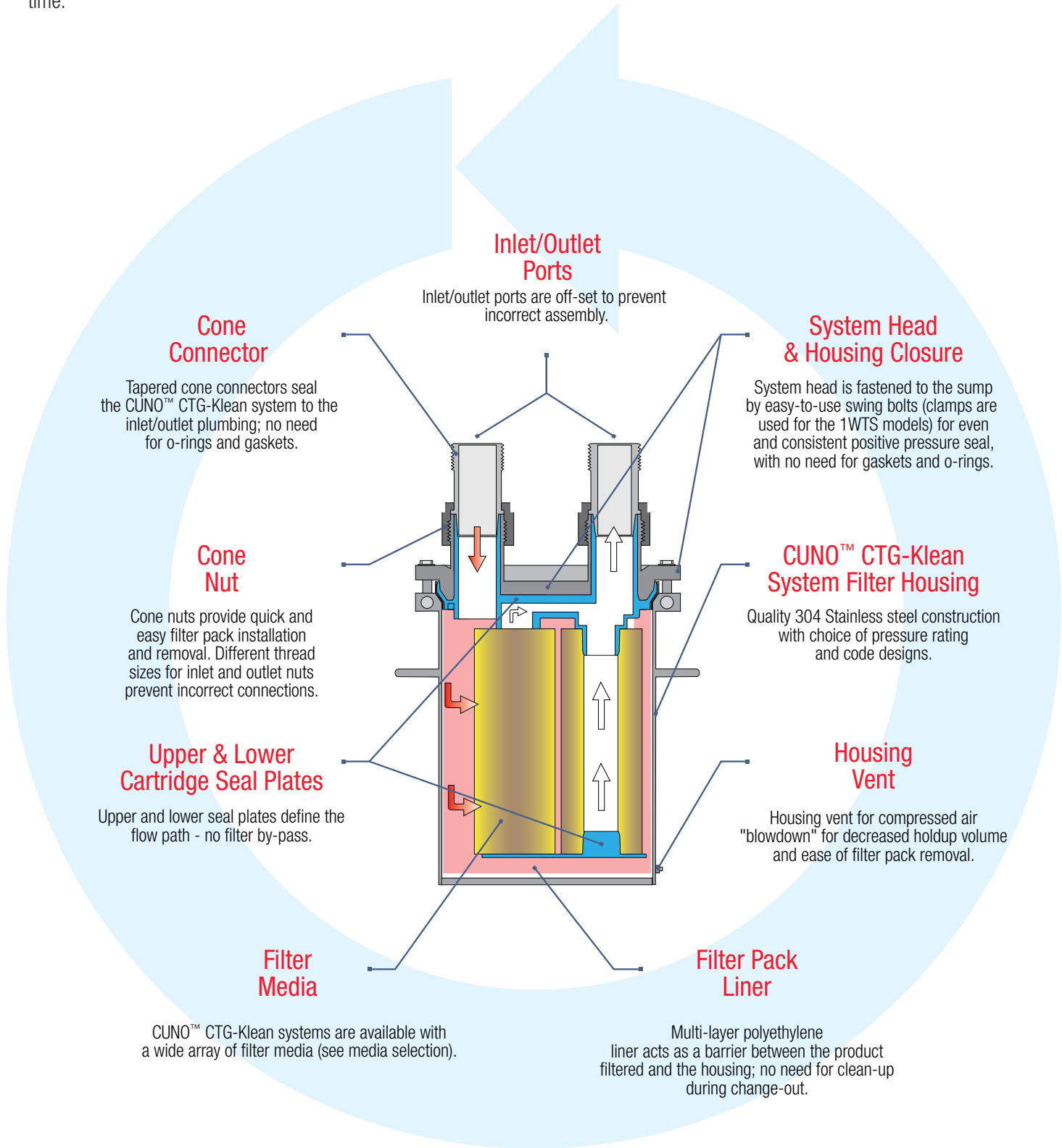
Easy to use design minimizes downtime

- Rapid filter change-out reduces labor and the need for duplex systems



The CUNO™ CTG-Klean System

The CUNO™ CTG-Klean system design is engineered to minimize operator exposure to the fluid and reduce the time and labour required for cleaning. The diagram below illustrates how the filter pack and housing work together to deliver quality filtration the first time.



How the CUNO™ CTG-Klean System Works The Ultimate in Ease-of-Use

CUNO™ CTG-Klean system are available with all of the components necessary for installation, including flexible hose, valves and gauges. Set-up and subsequent filter pack replacement take only minutes.



Step 1.

Remove the plastic inlet and outlet port caps from the filter pack. Open the housing and insert the filter pack. Place the housing head onto the filter pack.



Step 2.

Seal the housing head to the sump by tightening the bolts uniformly to the recommended torque.



Step 3.

Connect the inlet and outlet flexible lines to the inlet and outlet ports of the housing head.



Step 4.

Open the inlet and outlet valves. The system is now ready for start-up and operation.



Step 5.

To remove the filter pack: vent the system, lift the pack and head together and insert the spacer fork. Disconnect the lines. Remove the head. Cap the filter pack and remove the pack from the sump.

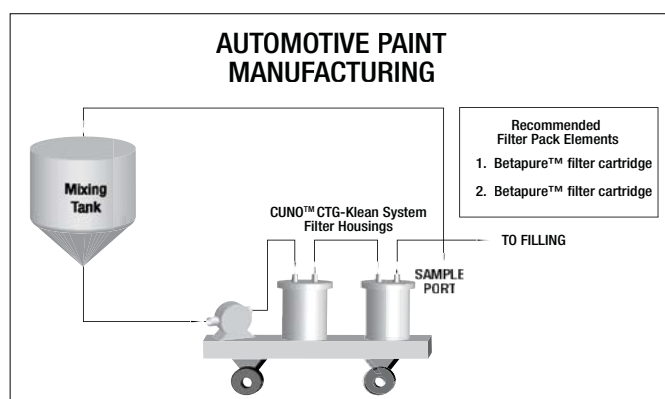
CUNO™ CTG-Klean System Applications

Automotive Paint Manufacturing

The CUNO™ CTG-Klean system provides a totally enclosed, factory sealed system addressing the needs of automotive paint producers. The design minimizes clean-up of housings and internal housing parts, reducing labour, solvent use and waste. The combination of a totally enclosed filter pack and easy-to-clean housing design reduces the opportunity for contaminants to enter the process and ensures complete cleaning from batch-to-batch colour changes.

CUNO™ CTG-Klean System Advantages:

- Ensures complete cleaning from batch-to-batch
- No housing exposure to the paint, reducing cleaning time, solvent usage and operator exposure
- Enclosed filter pack minimizes operator exposure to hazardous chemicals
- Gaskets and O-rings, posts and seal assemblies not required

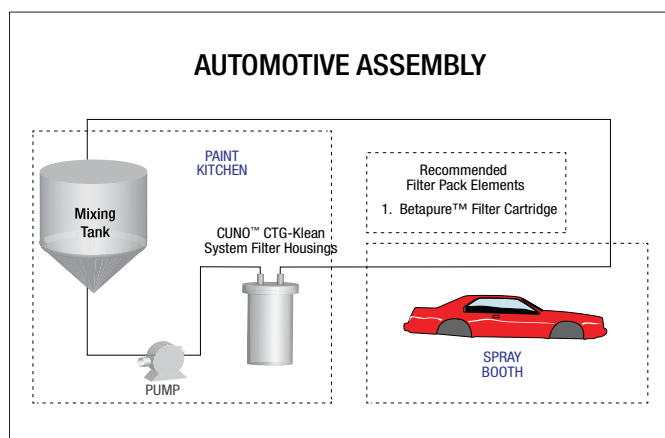


Automotive Assembly Plants

The CUNO™ CTG-Klean system design provides the cost effective solution to the growing industry concern to reduce solvent use and exposure of employees to hazardous chemicals. The factory assembled pack ensures a positive seal, avoiding filter by-pass and providing quality product. The combination of the CUNO™ CTGKlean system design and state-of-the-art Betapure™ filter cartridge provides significant cost savings through reduced rework.

CUNO™ CTG-Klean System Advantages:

- Rapid filter pack change-out; no need for duplex housing systems
- Enclosed filter pack limits operator exposure to hazardous chemicals
- No internal housing parts or O-rings minimizes cleaning, damage and stocking of replacement parts
- No housing exposure to the paint, reducing cleaning time, solvent usage and operator exposure

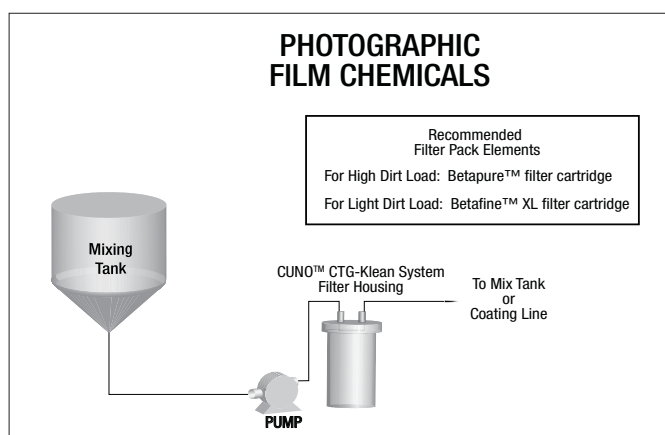


Coil Coating

Factory sealed and reusable packs prevent by-pass and provide the highest quality coating possible. The self-contained system simplifies the filter change-out process to reduce down time between colour changes. The amount of solvents typically used to flush conventional housings can be reduced by as much as 80%. Installation of the CUNO™ CTG-Klean system in place of conventional housings and cartridges significantly reduces filtration costs, enhances productivity and increases overall product quality.

CUNO™CTG-Klean System Advantages:

- Rapid filter pack change-out reduces system downtime and labour between colour or product change
- Self-contained cartridge packs can be capped and reused to avoid disposal of partially used filter cartridges
- No housing exposure to the coating, reducing solvent use by up to 80%

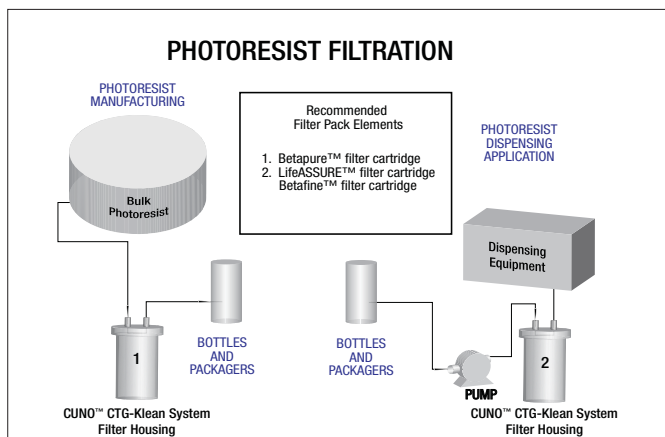


Photoresist

The totally enclosed CUNO™ CTG-Klean system pack prevents contact of photoresist and photoresist chemicals with metal housings, reducing the possibility of metal ion contamination. The factory sealed system reduces potential for by-pass associated with conventional filter housings, offering the greatest possible product quality. Filter packs are available with low extractable components.

CUNO™ CTG-Klean System Advantages:

- Prevents contact with metal components, lowering metal ion contamination
- Enclosed filter pack reduces operator exposure to hazardous chemicals
- No housing exposure to the photoresist reduces cleaning solvent use and operator exposure

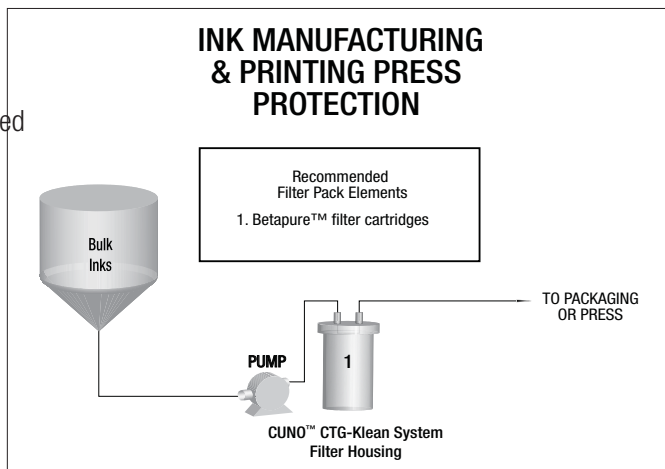


Ink Manufacturing and Printing

CUNO™ CTG-Klean system is ideal for use in the ink manufacturing industry and for printing press final quality. For both large and small volume runs, CUNO™ CTG-Klean system can provide superior quality product while increasing both filter life and filtration efficiency. In addition, up to 95 % of the hold-up volume can be recovered from the system, the used filter pack can be capped and stored for repeated use, lowering overall production/process costs

CUNO™ CTG-Klean System Advantages:

- Rapid colour change-out reducing downtime and labour for increased productivity on expensive presses
- Helps eliminate ink agglomerates for enhanced quality printing
- Self-contained cartridge packs can be capped and reused to avoid disposal of partially used filter cartridges
- Ink never contacts the housing eliminating cleaning and operator exposure to cleaning solvents



CUNO™ CTG-Klean System Pack Filter Media

The CUNO™ CTG-Klean filter pack can accommodate a wide variety of 3M Purification filter media, including bicomponent depth filters, resin bonded depth filters, polypropylene depth and surface filters and absolute rated membrane filters. This extensive offering ensures compatibility with most fluids in most applications. Each media type has a range of reduction ratings allowing for optimum filtration for all applications.



Betapure™ Filters

The Betapure™ filter is a state-of-the-art rigid, bicomponent fibre depth filter, available in absolute ratings from 2 to 190 microns, manufactured using the most advanced fibre technology to provide the ultimate in consistent classifying filtration performance. For more information about Betapure filters, ask your local 3M Purification technical representative

- Excellent classification characteristics
- Rigid non-deformable structure to withstand high pressure drops
- Bonded rigid structure prevents fibre shedding and any possible media migration
- Consistent absolute filtration - batch to batch



Micro-Klean™ RT Series Filters

Micro-Klean™ RT series filters feature all-polypropylene, rigid, thermal-bonded construction and are available with nominal ratings from 1 to 75 microns. With up to ten times the service life of competitive filter products, the economy of Micro-Klean™ RT series filters provides clear advantages. For more information about Micro-Klean RT series filters, ask your local 3M Purification Technical Representative.

- Consistent filtration throughout the life of the filter
- Up to ten or more times the service life of competitive filter
- Low operating pressure drop achieves the required flow using fewer filter elements



Betafine™ DP

The Betafine™ family of industrial filter cartridges are pleated polypropylene available with absolute ratings from 0.2 to 70 microns.

- Consistent, absolute-rated, pleated polypropylene media
- High surface area for excellent flow characteristics
- Long service life
- Excellent clarification characteristics
- Chemically and mechanically clean



Betapure™ NT-T Filters

Betapure™ NT-T filters are 100% polypropylene absolute-rated depth filters. Betapure™ NT-T filters are available with absolute reduction ratings from 0.5 to 70 microns.

- Consistent absolute-rated media
- Superior service life
- Excellent flow permitting smaller housings
- Excellent chemical compatibility
- Chemically and mechanically clean



Micro-Klean™ D Series Filters

The Micro-Klean™ D series cartridge is a “blanket” structure representing a major advance over conventional wound cartridges. The unique winding process provides up to 2 ½ times more open area than conventional wound filters for increased flow and longer service life. Micro-Klean™ D series filters are available with nominal ratings from 0.5 to 350 microns.

- Higher filtration efficiency at the selected micron rating
- Better flow characteristics than conventional wound filters
- Consistent filtration efficiency
- Long service life

Other Media Available in CUNO™ CTG-Klean Systems

3M Purification offers many of its industry-leading filter media in CUNO™ CTG-Klean systems packs, from pleated cellulose-based paper, to Nylon 66 and PTFE membrane, to economical string-wound filters — with new products constantly added. For more information about 3M Purification filter media and CUNO CTG-Klean systems in your application, consult your local 3M Purification Technical Representative.

CUNO™ CTG-Klean Systems – Hardware and Options

CUNO™ CTG-Klean systems hardware and options simplify system installation and provide flexibility. All components are manufactured from high quality stainless steel for extended service life, exceptional durability and ease of cleaning. Purification Technical Representative.

Flexible Line Plumbing Kit

The system is designed with the inlet and outlet ports on the housing head which must be reduced to allow access for installation and for removal of the pack. High pressure stainless steel flexible plumbing should be used instead of “hard” piping. 3M Purification offers a standard plumbing kit that includes the threaded hose, ball-valves, all connectors and pressure gauges.



System Flushing Elbow

Cleaning conventional filter housings requires solvent use. With the CUNO™ CTG-Klean system, the process liquid never comes in contact with the housing so it is only necessary to flush the inlet and outlet plumbing. These lines, connected by the flushing elbow, can be flushed with the CUNO™ CTG-Klean system off-line. The stainless steel flushing elbow is available for all CUNO™ CTG-Klean system filter housing configurations and is supplied with one or two fluorocarbon O-rings.



Mounting Bracket (for Model 3M™ 1WTS)

The 3M™ 1WTS series filter housing is available with an optional mounting bracket (see ordering guide). Ideal for installations using flexible hose connections.



Housing Volume Reducer

In processes where the batch size can vary or where process changes reduce the contaminant load, fewer filter cartridges could be used if a smaller housing were available. Using the CUNO™ CTGKlean system Volume Reducer drives down the cost of filtration by allowing the use of shorter filter packs to cut the total filtration cost. The volume reducer is available for the 3WTS and 7WTS configurations to allow use of a single high filter pack in the two-high housing (3WTS2 and 7WTS2), or a two-high filter pack in the three-high housing (3WTS3 and 7WTS3).



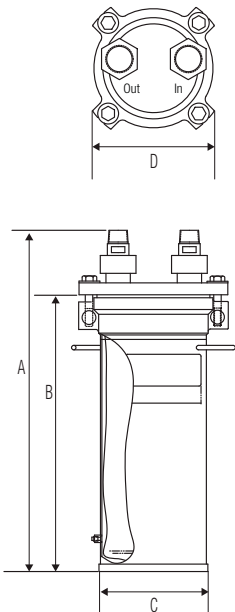
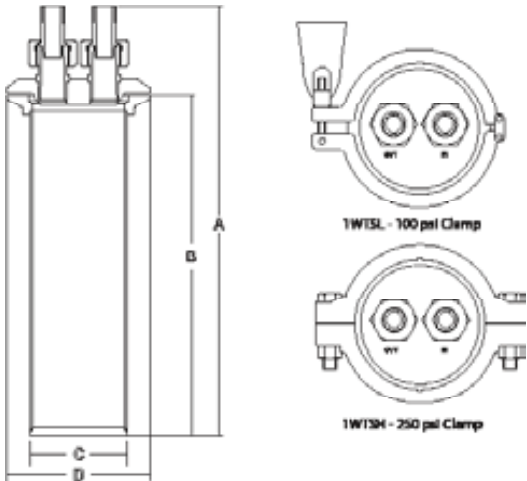
Tilting Device

The tilting mechanism allows for greater ease of use and the recovery of up to 95% of the hold-up volume from the filter pack. In addition, the tilting device reduces lifting the potentially heavy used filter pack for safe and easy reduction. The durable stainless steel construction makes the tilting device ideal for stand-alone or skid mounted service.



CUNO™ CTG-Klean Housings

CUNO™ CTG-Klean System Dimensions



Model 3M™ 1WTS (1 Around x 10" Cartridge)	
Model 1WTSH1	
Part Number	47900-01
Dimensions	
A. Overall Height	395 mm
B. Vessel Height	315 mm
C. Vessel Diameter	89 mm
D. Without Clamp	132 mm
Other Information	
Connection thread	1/2" NPT
Weight	5.6 kg
System Flow Rate	34 lpm*
Max. Operating Pressure	1723 kPa (250 psi)
Max. Operating Temperature	71°C
* Based on 10' per second velocity through the inlet and outlet fittings. System operating pressure and flow are dictated by the filter cartridge used in the filter pack	

Model 3M™ 7WTS (1 Around x 30" Cartridge)	
Model	3WTS3
Standard Housing Part No.	47516-03
150 lb ASME Code Housing Part No.	47517-03
300 lb ASME Code Housing Part No.	47518-03
Dimensions	
A. Overall Height	977.9 mm
B. Vessel Height	838.2 mm
C. Vessel Diameter	225.4 mm
D. Without Clamp	260.4 mm
Other Information	
Connection thread	1 1/4" NPT
Approx. Shipping Weight	43 kg
* Based on 10' per second velocity through the inlet and outlet fittings. System operating pressure and flow are dictated by the filter cartridge used in the filter pack	

Ordering CUNO™ CTG-Klean Systems

CUNO™ CTG-Klean systems are available in a wide range of sizes. Please consult your local 3M Purification technical specialist for other housing and pack sizes, and filter pack liner materials other than polyethylene.

Housing Model	1-High Filter Pack	2-High Filter Pack	3-High Filter Pack	Number of EQSLs**
1WTSH1 & 1WTSL1	X			1
1WTSH2 & 1WTSL2		X		2
3WTS1	X			3
3WTS2	X*	X		6
3WTS3		X*	X	9
7WTS1	X			7
7WTS2	X*	X		14
7WTS3		X*	X	21

* Use with optional volume reducer. **Equivalent single length cartridges

Ordering Guide for Filter Packs

Betapure™ Filter Pack - Standard Grades

Number of Cartridges Around	Pack Designation	Cartridge Length	Cartridge Type	Equivalent Single Length	Grade Designation		
					Code	Nominal Rating (micron)	Absolute Rating (micron)
1	GPK - CUNO™ CTG-Klean Pack	1 - 1 High	AU - Betapure™	09	B	5	20
3		2 - 2 High			C	10	30
7		3 - 3 High			E	20	40
					G	30	70
					L	50	90
					Q	75	100
					V	100	140
					W	150	160
					X	175	190

Micro-Klean™ RB Series Filter Pack

Number of Cartridges Around	Pack Designation	Cartridge Length	Surface Type	Cartridge Type	Grade Designation		Formulation
					Code	Nominal Rating (micron)	
1	GPK - CUNO™ CTG-Klean Pack	1 - 1 High	G - Grooved	78	Y	1	2 - Cellulose/Melamine*
3		2 - 2 High	U - Ungrooved		A	3	3 - Cellulose/Phenolic*
7		3 - 3 High			B	5	8 - Acrylic/Phenolic
					C	10	
					F	25	
					L	50	
					Q	75	
					V	100	
					W	125	
					X	150	

* Available in A, B, F, and L Grades

Micro-Klean™ D Series Filter Pack

Number of Cartridges Around	Pack Designation	Cartridge Length	Cartridge Type	Insert Media Type	Core Material	Grade Designation	
						Code	Nominal Rating (micron)
1	GPK - CUNO™ CTG-Klean Pack	1 - 1 High	D	PP - Polypropylene	P - Polypropylene	Z	0.5
3		2 - 2 High		CC - Cotton		Y	1
7		3 - 3 High				A	3
						B	5
						C	10
						F	25
						L	50
						Q	75
						V	100
						W	350

Betapure™ NT-T Filter Pack

Number of Cartridges Around	Pack Designation	Cartridge Length	Cartridge Type	Grade Designation	
				Code	Absolute Rating (micron)
1	GPK - CUNO™ CTG-Klean Pack	1 - 1 High	NT - Betapure™ NT-T	T005	0.5
3		2 - 2 High		T010	1
7		3 - 3 High		T020	2
				T030	3
				T050	5
				T100	10
				T200	20
				T400	40
				T500	50
				T700	70

Betafine™ DP

Number of Cartridges Around	Pack Designation	Cartridge Length	Cartridge Type	Cartridge Code	Grade Designation	
					Code	Absolute Rating (micron)
1	GPK - CUNO™ CTG-Klean Pack	1 - 1 High	DP - Betafine™ DP	09	002	0.2
3		2 - 2 High			005	0.5
7		3 - 3 High			010	1
					025	2.5
					050	5
					100	10
					200	20
					400	40
					700	70

Micro-Klean™ RT Series Filter Pack

Number of Cartridges Around	Pack Designation	Cartridge Length	Cartridge Type	Grade Designation		Material	Surface Type
				Code	Absolute Rating (micron)		
1	GPK - CUNO™ CTG-Klean Pack	1 - 1 High	RT - Micro-Klean RT	Y	1	16 - Polypropylene	G - Grooved
3		2 - 2 High		B	5		
7		3 - 3 High		C	10		
				F	25		
				L	50		
				Q	75		

Ordering CUNO™ CTG-Klean Systems – Ordering Guide for Housings

Housing Model	Inlet/Outlet	Material	Maximum Operating Pressure & Temperature	Filter Pack Configuration	Nominal Cartridge Length (Inches)
Standard Design					
1WTS1	1/2" NPT	304 S.S.	980 kPa (142 psi) @ 60°C	1 Cartridge by 1 High	10
150 lb ASME Code Designed and "U" Stamped					
7WTS3	1 1/4" NPT	304 S.S.	1000 kPa (145 psi) @ 71°C	7 Cartridge by 3 High	30

Important Notice

The information described in this literature is accurate to the best of our knowledge. A variety of factors, however, can affect the performance of the Product(s) in a particular application, some of which are uniquely within your knowledge and control. INFORMATION IS SUPPLIED UPON THE CONDITION THAT THE PERSONS RECEIVING THE SAME WILL MAKE THEIR OWN DETERMINATION AS TO ITS SUITABILITY FOR THEIR USE. IN NO EVENT WILL 3M PURIFICATION BE RESPONSIBLE FOR DAMAGES OF ANY NATURE WHATSOEVER RESULTING FROM THE USE OF OR RELIANCE UPON INFORMATION.

It is your responsibility to determine if additional testing or information is required and if this product is fit for a particular purpose and suitable in your specific application.

Limitation of Liability

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