

3M Science.
Applied to Life.™

CUNO™ CTG-Klean System

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 labor 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

Applications

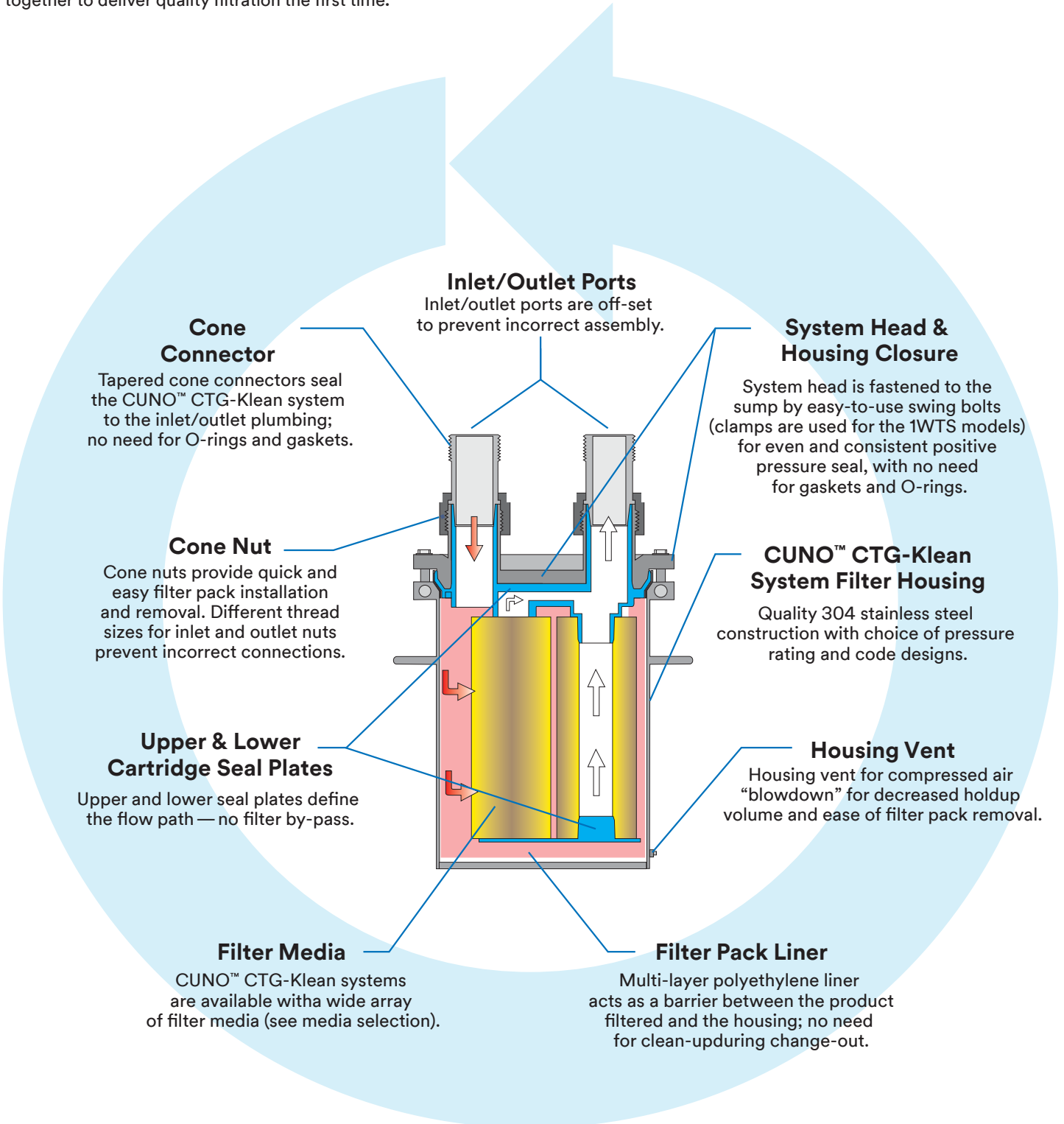
CUNO™ CTG-Klean totally enclosed, factory-sealed filter system addresses the needs of manufacturers in:

Automotives	Paint Manufacturing, Assembly Plants, Coil Coatings
Inks & Printing	Ink Production, Printing Press Protection, Plating Processes
Chemicals	High Quality Chemicals, Hazardous Chemicals



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 labor 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.

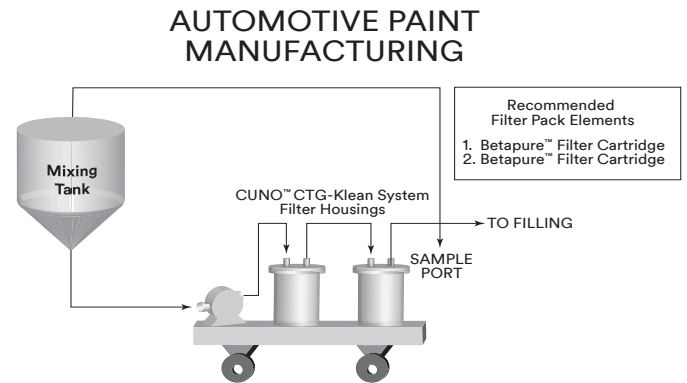
The CUNO™ CTG-Klean System Applications

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 labor, 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 color changes.

CUNO™ CTG-Klean System Advantages:

- Facilitates 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

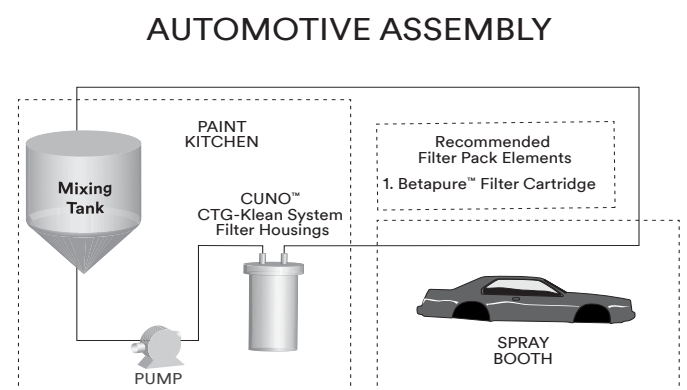


Automotive Assembly Plants

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 provides a positive seal, avoiding filter by-pass and providing quality product. The combination of the CUNO CTG-Klean 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



The CUNO™ CTG-Klean System Applications

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 color 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 labor between color 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%
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The CUNO™ CTG-Klean System Applications

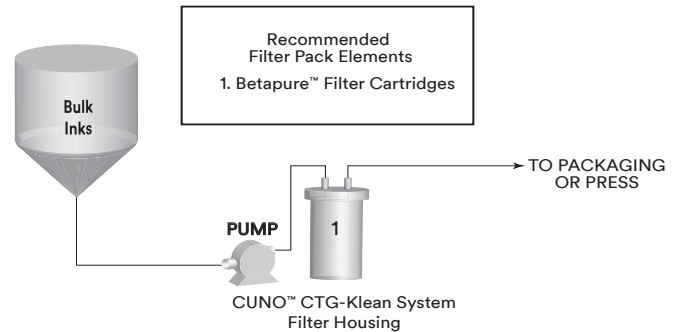
Ink Manufacturing and Printing

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 color change-out reducing downtime and labor 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 reducing cleaning time and operator exposure to cleaning solvents

INK MANUFACTURING & PRINTING PRESS PROTECTION



CUNO™ CTG-Klean System Pack Filter Media

The CUNO™ CTG-Klean filter pack can accommodate a wide variety of 3M Purification Inc. 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 fiber depth filter, available in absolute ratings from 2 to 190 microns, manufactured using the most advanced fiber technology to provide the ultimate in consistent classifying filtration performance. For more information about Betapure filters, ask your local 3M Purification distributor for literature number 70-0201-8690-7.

- Excellent classification characteristics
- Rigid non-deformable structure to withstand high pressure drops
- Bonded rigid structure prevents fiber 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 distributor for literature number 70-0201-8723-6.

- 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



CUNO™ CTG-Klean Filter Pack Media



Betafine™ DP and Betafine™ XL Filters

The Betafine™ family of industrial filter cartridges are pleated polypropylene available with absolute ratings from 0.2 to 70 microns. For more information, ask your local 3M Purification distributor for literature number 70-0201-8617-0 (Betafine™ DP filters) and 70-0201-8686-5 (Betafine™ XL filters).

- 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. For more information, ask your local 3M Purification distributor for literature number 70-0201-8720-2.

- 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 2-1/2 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. For more information about Micro-Klean D series filters, ask your local 3M Purification distributor for literature number 70-0201-8716-0.

- 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 Inc. 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 distributor.

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.

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.



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 CTG-Klean 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).

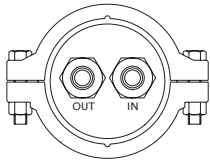


Tilting Device

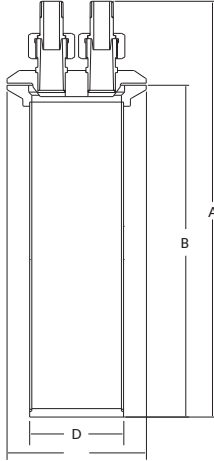
The tilting mechanism allows for greater ease of use and the recovery of up to 95% of the hold-up volume from the filter pack. In addition, the tilting device reduces lifting the potentially heavy used filter pack for safe and easy reduction. The durable stainless steel construction makes the tilting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



CUNO™ CTG-Klean System Dimensions



1WTSH – 250 psi Clamp

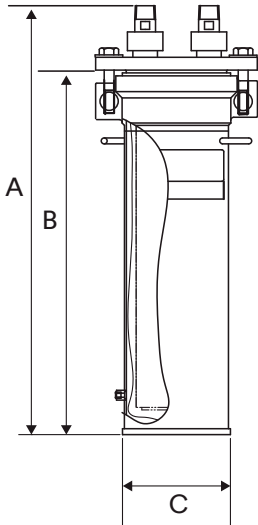
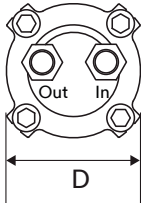


Model 3M™ 1WTS (1 Around x 10" or 20" Cartridge)

Model	1 WTSH1	1WTSH2
Part Number	47900-01	47900-02
Dimensions		
A. Overall Height	15-9/16" (39.5cm)	25-19/32" (65cm)
B. Vessel Height	12-13/32" (31.5cm)	22-7/16" (57cm)
C. Vessel Diameter	3-1/2" (8.9cm)	3-1/2" (8.9cm)
D. Without Clamp	5-3/16" (13.2cm)	5-3/16" (13.2cm)
Other Information		
Connection Thread	1/2" NPT	
Weight	13 lb. (5.9 Kg)	15 lb. (6.9 Kg)
System Flow Rate	9 gpm (34 lpm*)	
Max Operating Pressure	250 psig (17.2 bar)	250 psig (17.2 bar)
Max Operating Temperature	160°F (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™ 3WTS (3 Around x 10" or 20" Cartridge)



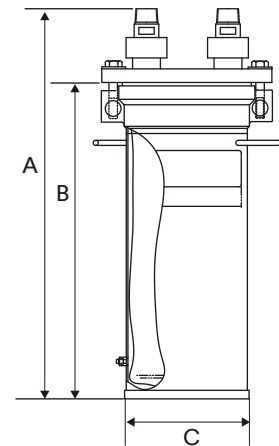
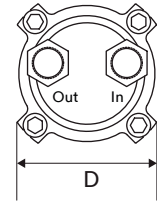
Model	3WTS1	3WTS2	3WTS3
Dimensions			
A. Overall Height	17" (43.18cm)	27" (68.58cm)	37" (93.98cm)
B. Vessel Height	12-3/4" (32.38cm)	22-3/4" (57.78cm)	32-3/4" (83.18cm)
C. Vessel Diameter	6-5/8" (16.83cm)	6-5/8" (16.83cm)	6-5/8" (16.83cm)
D. Overall Diameter	8-1/2" (21.59cm)	8-1/2" (21.59cm)	8-1/2" (21.59cm)
Other Information			
Connection Thread	1" NPT		
Approximate Shipping Weight	35 lb. (16 Kg)	53 lb. (24 Kg)	62 lb. (28 Kg)
Closure Torque	30 ft./lbs. (40.7 Nm)		
System Flow Rate	24 gpm (91 lpm*)		
150 lb. ASME Code Housings Part Number	47514-01	47514-02	47514-03
Max Operating Pressure	150°F (10°C)		
Max Operating Temperature	160°F (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.

CUNO™ CTG-Klean System Dimensions

Model 3M™ 7WTS (7 Around x 10", 20", or 30" Cartridge)

Model	3WTS1	3WTS2	3WTS3
Dimensions			
A. Overall Height	18-1/2" (46.99cm)	28-1/2" (72.39cm)	38-1/2" (97.79cm)
B. Vessel Height	13" (33.02cm)	23" (58.42cm)	33" (83.82cm)
C. Vessel Diameter	8-7/8" (22.54cm)	8-7/8" (22.54cm)	8-7/8" (22.54cm)
D. Overall Diameter	10-1/4" (26.04cm)	10-1/4" (26.04cm)	10-1/4" (26.04cm)
Other Information			
Connection Thread	1-1/4" NPT		
Approximate Shipping Weight	66 lb. (30 Kg)	82 lb. (37 Kg)	96 lb. (43 Kg)
Closure Torque	30 ft./lbs. (40.7 Nm)		
System Flow Rate	34 gpm (128 lpm*)		
150 lb. ASME Code Housings Part Number	47517-01	47517-02	47517-03
Max Operating Pressure	150°F (10°C)		
Max Operating Temperature	160°F (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.

Ordering CUNO™ CTG-Klean systems

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

Ordering Cuno CTG-Klean Systems

Housing Model	Number of Equivalent single-length cartridges		
	1-High Filter Pack	2-High Filter Pack	3-High Filter Pack
1WTS1	1		
1WTS2		2	
3WTS1	3		
3WTS2	3*	6	
3WTS3		6*	9
7WTS1	7		
7WTS2	7*	14	
7WTS3		14*	21

*Use with optional volume reducer.

Ordering CUNO™ CTG-Klean Systems — Ordering Guide for Filter Packs

Betapure™ Filter Pack – Z Grades

Number of Cartridges Around	Pack Designation	Cartridge Length	Cartridge Type	Insert Media Type	Grade Designation	
					Code	Absolute Rating (micron)
1 3 7	GPK – CUNO™ CTG-Klean Pack	1 – 1 High 2 – 2 High 3 – 3 High	AU – Betapure™	Z13 – Polyolefin/ Glass	020	2
					030	3
					050	5
				Z11 – Polyolefin	060	6
					070	7
					100	10
					120	12
					150	15

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 3 7	GPK – CUNO™ CTG-Klean Pack	1 – 1 High 2 – 2 High 3 – 3 High	AU – Betapure™	09	B	5	20
					C	10	30
					E	20	40
					G	30	70
					L	50	90
					Q	75	100
					V	100	140
					W	150	160
X	175	190					

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 3 7	GPK – CUNO™ CTG-Klean Pack	1 – 1 High 2 – 2 High 3 – 3 High	D	PP – Polypropylene CC – Cotton	P – Polypropylene	Z	0.5
						Y	1
						A	3
						B	5
						C	10
						F	25
						L	50
						Q	75
V	100						
W	350						

PLEASE NOTE: The Ordering Guide above is for reference only. Not all combinations are available. Please consult with your 3M Representative to determine the appropriate part number for your application.

Ordering CUNO™ CTG-Klean Systems — Ordering Guide for Filter Packs

Betapure™ NT-T Filter Pack

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

Betafine™ DP & Betafine™ XL Filter Packs

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

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 3 7	GPK – CUNO™ CTG-Klean Pack	1 – 1 High 2 – 2 High 3 – 3 High	RT – Micro-Klean RT	Y	1	16 – Polypropylene	G – Grooved
				B	5		
				C	10		
				F	25		
				L	50		
				Q	75		

PLEASE NOTE: The Ordering Guide above is for reference only. Not all combinations are available. Please consult with your 3M Representative to determine the appropriate part number for your application.

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

Housing Model	Catalog Number	Inlet/Outlet	Material	Maximum Operating Pressure & Temperature	Filter Pack Configuration	Nominal Cartridge Length (Inches)
Standard Design						
1WTSH1	47900-01	1/2" NPT	304 S.S.	250 psi @ 140°F (9.8 bar @ 60°C)	1 Cartridge by 1 High	10
1WTSH2	47900-02				1 Cartridge by 2 High	20
150 lb. ASME Code Designed and "U" Stamped						
3WTS1	47514-01	1" NPT	304 S.S.	150 psi @ 160°F (10 bar @ 71°C)	3 Cartridge by 1 High	10
3WTS2	47514-02				3 Cartridge by 2 High	20
3WTS3	47514-03	304 S.S.			3 Cartridge by 3 High	30
7WTS1	47517-01				7 Cartridge by 1 High	10
7WTS2	47517-02				7 Cartridge by 2 High	20
7WTS3	47517-03	1-1/4" NPT			7 Cartridge by 3 High	30

Ordering CUNO™ CTG-Klean Systems — Accessories

Plumbing Kit Ordering Guide

Hose Length	Pressure Gauge	Material	Catalog Number	
			for 3WTS	for 7WTS
6 ft.	200 psi	Stainless Steel	86938-03	86938-06

Tilting Device Ordering Guide

Housing Model	Tilting Device Catalog Number
3WTS1, 3WTS2, 3WTS3	67994-01
7WTS1, 7WTS2, 7WTS3	67995-01

Volume Reducer Ordering Guide

Housing Model	For Use When...	Catalog Number
3WTS2	Reducing 2-High to 1-High	47335-01
3WTS3	Reducing 3-High to 2-High	
7WTS2	Reducing 2-High to 1-High	47270-01
7WTS3	Reducing 3-High to 2-High	

Flushing Elbow Ordering Guide

Model	Catalog Number
3WTS	73570-02
7WTS	73570-03

PLEASE NOTE: The Ordering Guide above is for reference only. Not all combinations are available. Please consult with your 3M Representative to determine the appropriate part number for your application.

Intended Use: 3M™ CUNO™ CTG-Klean system are intended for use in industrial filtration applications of aqueous fluids in accordance with the applicable product instructions and specifications. 3M CUNO CTG-Klean system are also intended for use with non-aqueous fluids where materials of construction are compatible. Since there are many factors that can affect a product's use, the customer and user remain responsible for determining whether the 3M product is suitable and appropriate for the user's specific application, including user conducting an appropriate risk assessment and evaluating the 3M product in user's application.

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