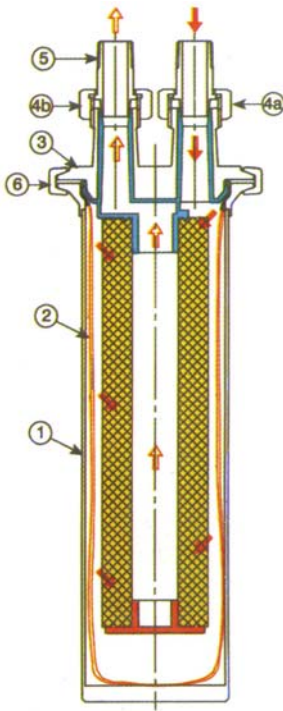




CUNO™
CTG-Klean™
Filter Systems

Clean and Economical

Figure 1 : The liquid flow principle



N°	PARTS	MATERIAL	NB
1	Sump	304L St.St.	1
2	CTG-Klean Pack	Polyethylene	1
3	Cover	304L St.St.	1
4a	Inlet cone ring nut	Brass**	1
4b	Outlet cone ring nut	Brass**	1
5	Cone thread	304L St.St.*	2
6	Clamp closing	304 St.St.	1

* PVDF optional
 ** S.S. optional

The CTG-Klean System Advantage

CTG-Klean system is a new way to reduce the labour costs and environmental/worker hazards of a filter change-out. The environmentally sealed cartridge system eliminates the cleaning time associated with standard filter and housing combinations and the hazards of handling both used filters and cleaning solvents. The system is available in a variety of configurations for the most efficient filtration. Since the CTG-Klean system is self contained, all gaskets and seals can be eliminated, further reducing overall costs.

Construction

- The CTG-Klean system consists of a pack composed of five features :
 - ⇒ A double layer liner in polyethylene (in red on the scheme).
 - ⇒ A retaining ring in polyamide (in green on the scheme).
 - ⇒ A system head in polypropylene (in blue on the scheme).
 - ⇒ An end cap in polypropylene (in orange on the scheme).
 - ⇒ 3M Purification cartridges (in yellow on the scheme).
- This pack is installed into a special housing. These WT housings are constructed from 304 stainless steel and have a maximum pressure rating design of 10 bar g and can be used in temperatures up to 90 °C.

The Cost Effective Solution

The fluid to be filtered is never in contact with the housing, the patented CTG-Klean System reduces the time and labour required for cleaning.

The Environmental Friendly Solution

This CTG-Klean System is engineered to minimise operator exposure to the fluid.

Pressure Equipment Directive 97/23/CE

WT housings are built to PED 97/23/CE Category 3.3 “Sound Engineering Practice” as standard.

ATEX Directive 94/9/CE

The WT housings are approved for use in ATEX condition 11/2/G/T5 as standard.

The user of these housings must ensure that they are used in accordance with the requirements of these PED and ATEX directives at all times. Please consult your local 3M Purification representative for any other classification or further information.

Features & Benefits

Totally enclosed system

- Eliminates handling of used cartridges and cleaning of housings

New clamp closure system

- No tool needed

No parts subject to wear compatibility issues, e.g. gaskets

- Easy to use
- Reduces costs

Cartridge filter pack is replaced easily and quickly

- Reduction of down time.
- Reduces air pollution
- Preserves the health of operators (free from solvent inhalation)

System can be equipped with most of the standard 3M Purification cartridges

- Flexibility for a wide variety of applications

Cartridges are preassembled in the pack

- Security and quality assurance

Inlet and outlet connections have different threads

- Avoids mistakes during change-outs

The CTG-Klean System Applications

CTG-Klean's unique construction provides benefits to customers in a wide range of end-use filtration applications. High quality filtration along with total filtration cost reductions are very attractive benefits to customers in diverse industries.

Automotive Plant Manufacturing

The CTG-Klean provides a totally enclosed, factory sealed system addressing the needs of automotive paint producers. The design eliminates the need to clean 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.

Automotive Assembly Plants

The environmentally friendly 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 3M Purification assembled pack ensures a positive seal eliminating filter by-pass and providing quality product. The combination of the CTG-Klean design and state-of-the-art Betapure™ filter cartridges provide significant cost savings through reduced rework.

Coil Coating

Factory sealed and reusable packs eliminate by-pass and provide the highest quality coating possible. The self contained system simplifies the filler 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 CTG-Klean in place of conventional housings and cartridges drastically reduces filtration costs, enhances productivity, and increases overall product quality.

Magnetic Media

CTG-Klean coupled with 3M Purification's high quality Betapure™ or Betapure™ NT filter packs, reduces drop-outs, increases both filter life and filtration efficiency, and lowers overall production/process costs. The CTG-Klean system simplifies change-out by eliminating clean up and reducing system downtime, therefore increasing total productivity.

Ink Manufacturing and Printing

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, CTG-Klean 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.

Photoresist

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

Other Applications

Resins, varnishes, glues
Photographic solutions
Acids and strong alkalis
Fine Chemicals
Other toxic products
Power generation and dielectric oil treatment
Lubricating and cutting oils
High quality chemicals
Contaminated water
Ceramic Slurries
Hazardous Chemicals
Deep well injection
Plating processes
CMP slurries



The CTG-Klean System Configurations

Standard Configurations

The CTG-Klean system is available in 3 basic cartridge configurations: 1, 3 and 7 round housings. This flexibility allows an easy sizing for most applications.

- The 1 round WT housing features a sanitary clamp closing. This design simplifies filter pack change out while maintaining system integrity. It includes a single cartridge pack from 5", 10" & 20" length.
- The 3 round WT housing can accept 10", 20" and 30" cartridges. The bolt closing is the standard version, but a clamp closing is also available on request.
- The 7 WT round housing is the biggest configuration allowing the packs to include 7 cartridges of 10", 20" or 30". Only the bolt closing is available.



Satisfying Special Requirements

To continue to satisfy customer needs, 3M Purification can modify the standard system design to suit specific application requirements. Examples are shown in the pictures on the right side.

3M Purification takes great pride in providing innovative solutions to customer requirements. If you have an application with special or unusual demands, we're more than ready to provide the solution!

The CTG-Klean Dimensions

CTG-Klean Specifications	REF.	01WTC05	01WTC1	01WTC2
Overall height (mm)	H	275	400	655
Vessel height (mm)	A	190	315	570
Vessel diameter (mm)	D	88.9	88.9	88.9
Connection threads Inlet/Outlet		½ BSP	½ BSP	½ BSP
Net weight (kg)		2.3	2.6	2.9
Max. operating pressure (bar)		10	10	10
Max. operating temperature (°C)***		70	70	70
Max. flow rate (m³/h)		1.9	1.9	1.9
Max. residual volume for each pack (l)		0.7	0.7	0.7

CTG-Klean Specifications	REF.	03 WTB1	03 WTB2	03 WTB3	07 WTB1	07 WTB2	07 WTB3
Overall height (mm)	H	434	690	944	475	730	980
Vessel height (mm)	A	323	579	833	325	579	830
Vessel diameter (mm)	D	168	168	168	224	224	224
Overall diameter (mm)	C	256	256	256	312	312	312
Connection thread	E	1"	1"	1"	1 ¼"	1 ¼"	1 ¼"
Net weight (kg)		14	16	18	29	33	37
Max. torque (N/m) for clamp-screws		40	40	40	40	40	40
Operating pressure* (bar)		10	10	10	10	10	10
Working temperature (°C)***		70	70	70	70	70	70
Max. flow rate** (l/min)		88	88	88	145	145	145
Max. residual volume of each pack (l)		4.4	7.7	11	7.1	12.3	17.4

* Special construction up to 30 bar
 ** Calculated with a speed of 3 m/s in the pipes
 *** Can be limited by the application or the used material of the pack

Closure schemes

Figure 4 : Clamp Closing

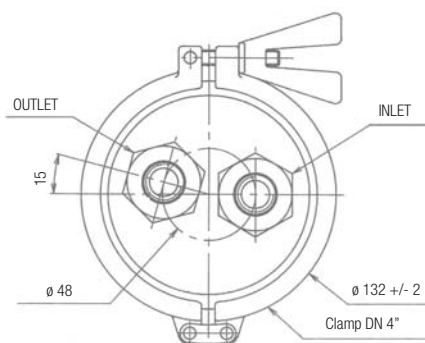


Figure 5 : Bolt Closing

03WTB Housing :
 Fixing & 3 holes (diam. 14 mm) located on diam. 230 mm

07WTB Housing:
 Fixing & 3 holes (diam. 18 mm) located on diam. 290 mm

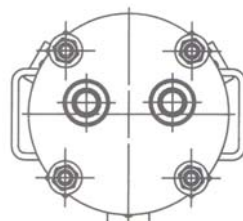


Figure 2 : 01 WTC with Clamp Closing

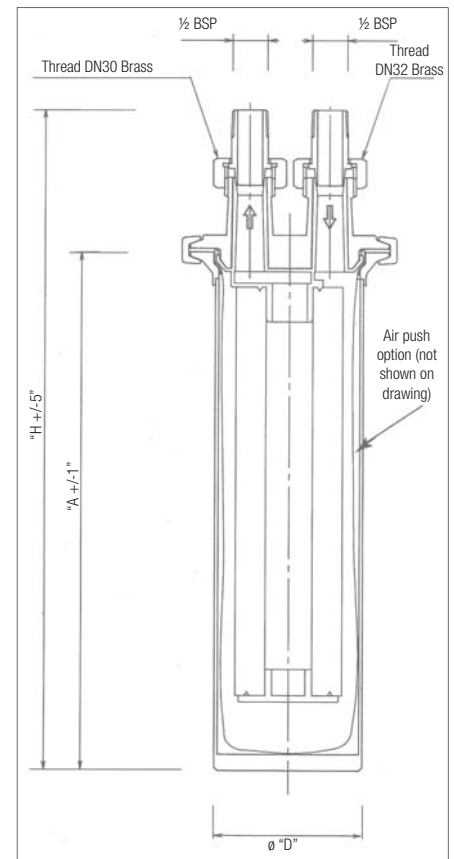
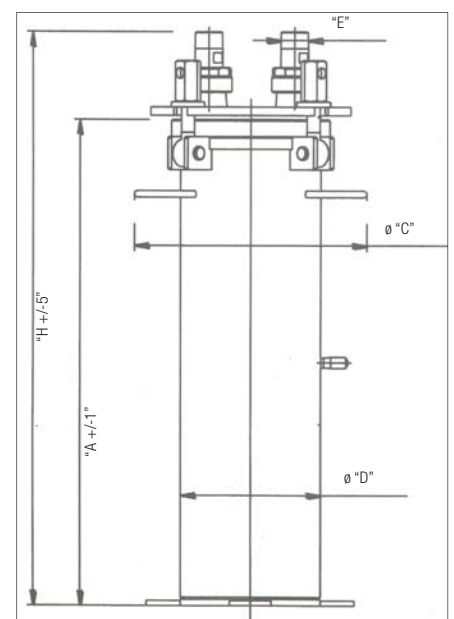


Figure 3 : 03 WTB and 07 WTB with Bolt Closing



Picture 1 : Flushing Elbow



Picture 2 : Flexible Pipe System



Picture 3 : Locating holes with locating pin



Picture 4 : Tilting Device and Volume Reducer



The CTG-Klean System Accessories

CTG-Klean 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.

Rinsing Process

The CTG-Klean system is designed with the inlet and outlet ports on housing head. 3M Purification offers a **flexible pipe system** for 1, 3 and 7 round configurations. An optional **flushing elbow** equipped with FPM gasket can be used to flush the installation while the CTG-Klean system housing is off line.

Flushing elbow part number		Flexible Pipe part number	
Model	Code Number	Model	Code Number
01 WT	39 131 100	01 WT	39 131 904
03 WT	39 131 101	03 WT	39 131 905
07 WT	39 131 102	07 WT	39 131 906

Product Recovery

The **air push device** allows to minimize the liquid part inside the pack. It allows recovery of valuable filtered product, to reduce waste treatment and to decrease used pack weight. This air injection valve kit is available for all CTG-Klean configurations.

Air injection valve kit: code number 39 131 940.

Quality Assurance

The **grade safety device** assures that the required micron rating is in place into the pack. It is designed to avoid any mistakes in the process, as only the selected pack can be mounted in the dedicated housing. A special CTG-Klean WT housing cover including a locating hole will receive a special pack including a locating pin. This option is particularly interesting in processes requiring several filtration steps where quality assurance matters. The grade safety device on request (special P/N). Option to be specified when ordering.

Ease of Use

The tilting device eliminates lifting the potentially heavy used filter pack for safe and easy removal. The durable stainless steel construction makes the tilting device ideal for stand-alone or skid mounted service. It is particularly recommended for 7 around packs in viscous product applications.

The tilting device part number for a 3WTB is 39 131 001 and for a 7WTB is 39 131 000.

Process Versatility

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 CTG-Klean **Volume Reducer** drives down the cost of filtration and allows you to easily transform a triple length WT housing into a single or double length. This option is available for 7 and 3 around configurations.

Chemical Compatibility

The environmental sealed cartridge pack system isolates the housing from the filtered product. The CTG-Klean system features a double layer liner made of polyethylene. Depending on the fluid to be filtered, a greater chemical compatibility could be necessary. 3M Purification offers optional liners made of polyamide for allowing usage in different processes.

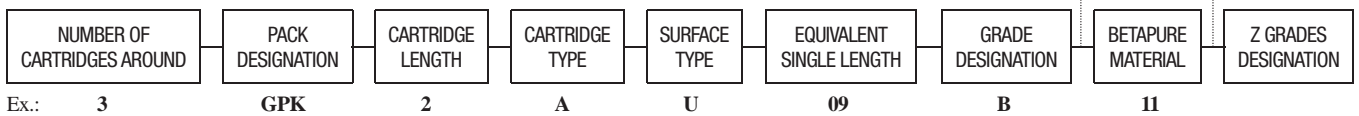
Volume Reducer part number		
Model	Height	Code Number
03 WT	10"	39 131 150
03 WT	20"	39 131 152
07 WT	10"	39 131 151
07 WT	20"	39 131 153

The CTG-Klean Pack Ordering Guide

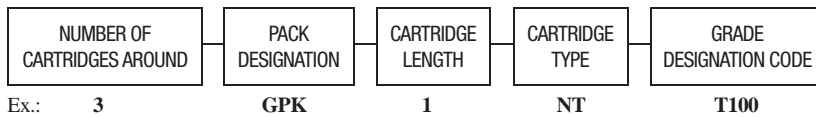
The CTG-Klean filter pack can accommodate a wide variety of 3M Purification filter media, including bi-component depth filters, resin bonded depth filters, polypropylene depth and surface filters, and absolute rated membrane filters. This extensive offering ensures compatibility with most fluids in most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

Polypropylene Cartridges

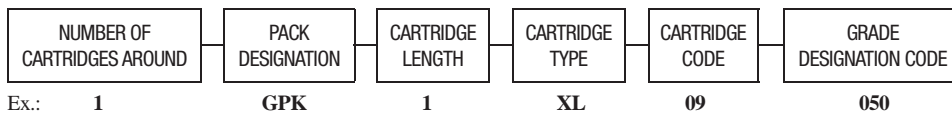
1. Betapure™ AU Series Filter Pack



2. Betapure™ NT Series Filter Pack

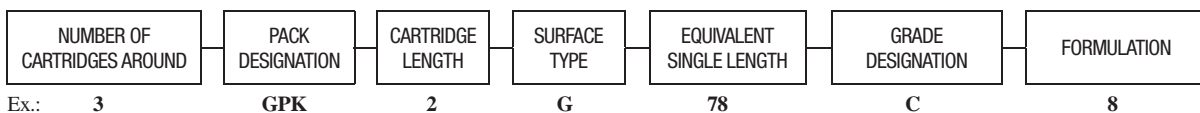


3. Betafine™ XL Series Filter Pack

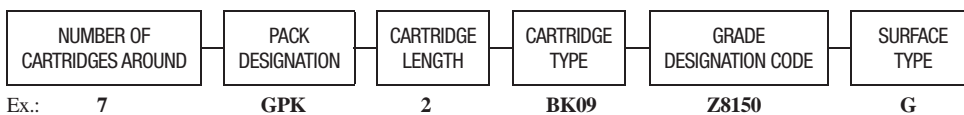


Resin Bonded Cartridges

1. Micro-Klean™ G Series Filter Pack

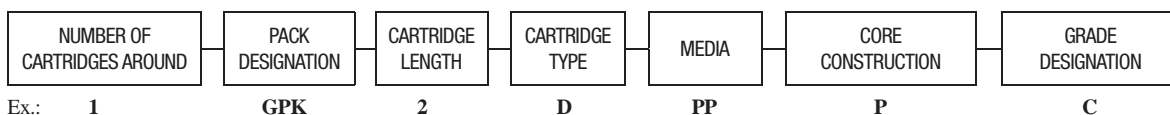


2. Betapure™ BK Series Filter Pack



Other Cartridges

1. Micro-Klean™ D Series Filter Pack



Other configurations including other cartridge types are also possible on request.

The CTG-Klean WT Housing Ordering Guide

CTG-Klean part numbers are designed for precisely describing the housing body, the inlet connection and the outlet connection. You can design your system for meeting your special requirements.

Attention: some configurations may not exist or are not available as standard.

1. WT Housing Body Description

NUMBER OF CARTRIDGES	HOUSING TYPE	CARTRIDGE HEIGHT	SURFACE FINISH	HOUSING MATERIAL	CLOSING MATERIAL
01 = 1 cart.	WTC = Clamp closing WTB = Bolt closing	05 = 5" 01 = 10" 02 = 20"	F0 = Pickled	4 = 304 St. St.	1 = Carbon Steel bichromated 4 = 304 Stainless Steel
03 = 3 cart.	WTC = Clamp closing WTB = Bolt closing	1 = 10" 2 = 20" 3 = 30"			
07 = 7 cart.	WTB = Bolt closing				

2. Inlet/Outlet Connections Description

TYPE	CONNECTION SHAPE	CONNECTION MATERIAL	CONNECTION	CONNECTION DIAMETER
P = Inlet S = Outlet	0 = Straight 1 = Elbow 2 = Elbow+valve	2 = Brass 4 = 304 St. St.	GM = BSP (ext.)	15 = 1/2" 25 = 1" 32 = 1 1/4" 40 = 1 1/2"

Examples of references:

03 WTB2 F0 41 P02 GM25 S02 GM25

01 WTC1 F0 44 P14 GM15 S14 GM15

Operating instructions

CTG-Klean systems are available with all the components necessary for installation, including flexible loses, valves and gauges.

Set up and subsequent filter pack replacement takes only minutes. For safe and effective operation, we have designed an operating instructions manual available as an animated presentation. It allows operators to be trained for a proper usage of the CTG-Klean system.

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