

TORRENTO® AT SERIES FILTERS

Advanced 15 and 20 nm filters enabling superior particle protection and ultra cleanliness in advanced wet, etch and clean applications



ultimate particle retention with ultra-high flow rate performance

Overview

Torrento® AT series filters provide the ultimate particle retention with ultra-high flow rate performance using an advanced nondewetting PTFE membrane. Torrento filters are specially designed to meet the critical customer demands for advanced technology during wet, etch and cleaning processes. These filters provide high-yield, rapid bath cleanup cycles, extended filter life, fast changeouts and cleanliness — all in a prewet package for ease of use.

Advanced Retention Membrane Technology

Torrento filters use an applications-optimized filter membrane that provides an ultra-high flow rate at the specified retention rating. The combination of high flow and retention performance provides an optimal bath cleanup profile to minimize particle-related wafer defects and reduce process cycle time. The capability to maintain flow rate at an extremely small pore size in outgassing chemistries such as SPM, SC1 and SC2 ensures the stable processing conditions needed for the high CpK results demanded at advanced technology nodes.

Cost-minimized Performance

Incorporating Entegris' advanced device construction technology, Torrento AT3 and ATE filters provide more surface area in each filter, leading to extended filter lifetime. The membrane also reduces overall maintenance and replacement costs related to wet bench pumps. This is because the low filter resistance design reduces pump strokes, thereby reducing wear and tear.

Rapid Changeouts and Safety

Torrento filters come in a wide variety of cartridge and disposable formats to maximize installation flexibility and upgrades. Torrento ATE and AT3 cartridges and disposable filters are designed for recirculation bath applications, while Torrento 1500/3000 disposables are targeted to single wafer processing.

The disposable filters eliminate operator handling of the filter element, thus minimizing contamination risk. The disposable design also reduces the potential for operator exposure to chemicals during installation and disposal.

Ultra Cleanliness

Torrento 15 nm and 20 nm filters include both standard and ultra-clean metallics (UCM) cleanliness options. The Torrento P1500 and P3000 small disposables come standard with UCM specifications. Torrento 20 nm ATE filters are offered with UCM cleanliness as an option.

Use of UCM ultra-low extractable products will ensure bath cleanliness for critical cleaning processes, like SC1. These filters are certified to low cleanliness limits.

Applications

- Semiconductor technologies
- Bulk chemical delivery systems (BCDS)
- Wet etch and clean (WEC)

Features and Benefits

Features	Benefits
High-performance membrane	Low membrane resistance design allows high particle retention with high flow
Nondewetting PTFE membrane	Eliminates prewetting and flushing cycle
filter in a prewet package	High-purity, clean, ready-to-use filter
	Excellent performance in outgassing chemistries
Minimized cost of ownership	ATE and AT3 designs incorporate more membrane for ultra-high flow and extended filter lifetime
	Nondewetting membrane enables rapid filter changeout to maximize process uptime
	Reduced wear and tear of wet bench pumps minimizes maintenance and replacement costs
Disposable filter options	Requires less space for changeout
	Allows quick installation and minimizes downtime while limiting the handling and exposure to hazardous chemicals
UCM option	Ensures bath cleanliness for sensitive wet cleaning processes
Applications-optimized chemical compatibility	Recommended for aqueous-based chemicals at ambient temperatures (including $\rm H_2SO_4$, $\rm H_3PO_4$, $\rm HNO_3$, $\rm HCL$, $\rm NH_4F$, $\rm H_2O_2$, $\rm TMAH$, $\rm NH_4OH$ and ozonated water) and elevated temperature applications (including SC1, SC2, SPM, nitride etch, metal etch and various other resist stripping chemistries)

Specifications

		Torrento ATE/AT3	Torrento 1500/3000
Materials:	Membrane	Prewet, nondewetting PTFE	
	Supports	PF	
	Cartridge o-ring options	E-FKM, Chemraz® or Kalrez®, Viton® Extreme™ ETP	-
	Disposable shell	PF	-A
Retention rating:		15 nm	15 nm
		20 nm	_
Membrane area:		ATE 10": 2 m² (21 ft²)	1500 type: 0.19 m² (2.05 ft²)
		ATE 20": 4 m ² (42 ft ²)	3000 type: 0.44 m ² (4.74 ft ²)
		AT3 10": 3 m² (32 ft²)	_
		AT3 20": 6 m² (64 ft²)	_
Maximum operating conditions:	Maximum operating pressure	0.58 MPa (5.8 bar; 84 psi) @ 25°C (77°F)	0.44 MPa (4.4 bar; 64 psi) @ 25°C (77°F)
		0.097 MPa (0.97 bar; 14 psi) @ 180°C (356°F)	0.19 MPa (1.9 bar; 28 psi) @ 95°C (203°F)
	Maximum forward differential pressure	0.44 MPa (4.4 bar; 64 psi) @ 25°C (77°F)	0.39 MPa (3.9 bar; 57 psi) @ 25°C (77°F)
		0.05 MPa (0.52 bar; 7.5 psi) @ 180°C (356°F)	0.19 MPa (1.9 bar; 28 psi) @ 95°C(203°F)
	Maximum reverse pressure	0.34 MPa (3.5 bar; 50 psi) @ 25°C (77°F)	0.29 MPa (2.9 bar; 42 psi) @ 25°C (77°F)
	Maximum operating temperature	180°C (356°F)	95°C (203°F)
Metallic	Standard	Testing conducte	ed for 12 metals
extractables:	UCM	Testing conducte	ed for 16 metals
Particle shedding cleanliness:		<15 particles/10 mL ≥0.2 µm @ 5 L/min DI water flow	<10 particles/10 mL ≥0.2 µm @ 5 L/min DI water flow

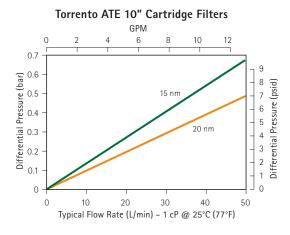
^{*} Per 10" cartridge equivalent

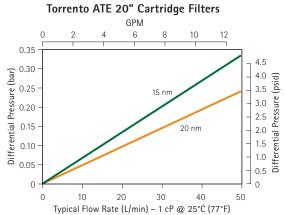
Torrento AT Series Cartridge Filters (15 nm and 20 nm)

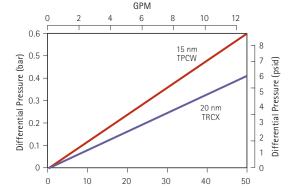
Dimensions ## 045.1 mm (1.76") ## 082.0 mm (3.23") | Rey adds 5.0 mm (1.97") to length

Length	A (Overall)	B (Control)	C (Shoulder)
10"	244.0 mm (9.61")	227.0 mm (8.94")	225.0 mm (8.86")
20"	471.0 mm (18.54")	454.0 mm (17.87")	452.0 mm (17.80")

Performance Data







Typical Flow Rate (L/min) – 1 cP @ 25°C (77°F)

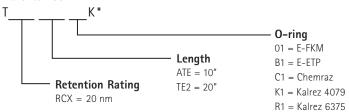
Torrento AT3 10" Cartridge Filters

Ordering Information

This information serves as a guide. Please contact your local representative to confirm part numbers.

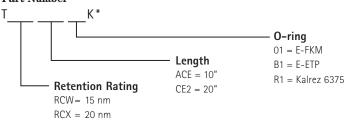
Torrento ATE Cartridge Filter STANDARD CLEAN

Part Number



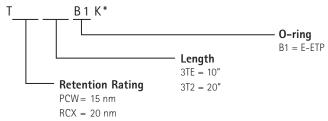
Torrento ATE Cartridge Filter UCM CLEAN

Part Number



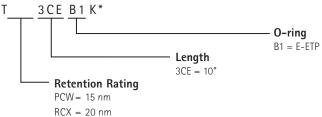
Torrento AT3 Cartridge Filter STANDARD CLEAN

Part Number



Torrento AT3 Cartridge Filter **UCM CLEAN**

Part Number



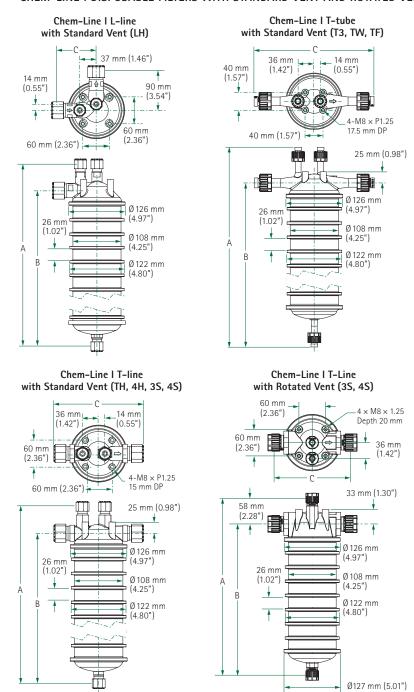
*Optional Chemlock key attached to cartridge for use with Chemlock housing ONLY.

Torrento AT Series Chem-Line $^{\scriptscriptstyle{\text{TM}}}$ I and Chem-Line II Disposable Filters

Dimensions

The following drawings in this section represent the broad range of Torrento AT Series Chem-Line I and Chem-Line II disposable filters. Refer to the accompanying tables for dimensional information pertaining to each category and type.

CHEM-LINE I DISPOSABLE FILTERS WITH STANDARD VENT AND ROTATED VENT



Nominal Dimensions for Chem-Line I with Standard Vent - L-Line

Disposable Type	Configuration	Length A (Overall Height)	Length B (Bottom Fitting to Centerline Fitting)	Length C (Inlet to Outlet)
LH: 3/4" inlet/outlet; 1/2" vent/drain; Super Type Pillar® fittings	ATE, AT3 10"	395 mm (15.56")	334 mm (13.15")	90 mm (3.54")

Nominal Dimensions for Chem-Line I with Standard Vent — T-Line

Disposable Type	Configuration	Length A (Overall Height)	Length B (Bottom Fitting to Centerline Fitting)	Length C (Inlet to Outlet)
TH: 3/4" inlet/outlet; 1/2" vent/drain; Super Type Pillar fittings	ATE, AT3 10"	396 mm (15.58")	335 mm (13.19")	180 mm (7.09")
4H: 1" inlet/outlet; ½" vent/drain; Super Type Pillar fittings	ATE, AT3 10"	402 mm (15.82")	341 mm (13.43")	188 mm (7.40")

Nominal Dimensions for Chem-Line I with Standard Vent — T-Tube

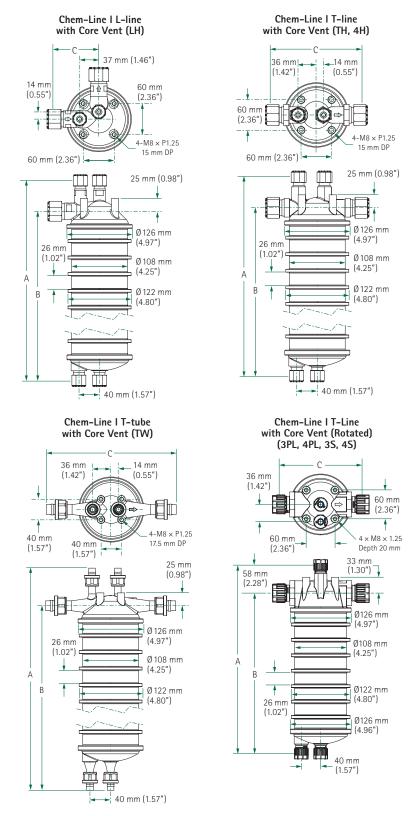
Disposable Type	Configuration	Length A (Overall Height)	Length B (Bottom Fitting to Centerline Fitting)	Length C (Inlet to Outlet)
TW: 3/4" inlet/outlet; 1/2" vent/drain; Flowell™ 20 Series fittings	ATE, AT3 10"	436 mm (17.17")	363 mm (14.29")	252 mm (9.92")
T3: 3/4" inlet/outlet; 1/2" vent/drain; Super Type Pillar fittings	ATE, AT3 10"	449 mm (17.69")	369 mm (14.53)	268 mm (10.55")
TF: 3/4" inlet/outlet; 1/2" vent/drain; FlareLock® II fittings	ATE, AT3 10"	436 mm (17.17")	363 mm (14.29")	252 mm (9.92")

Nominal Dimensions for Chem-Line I with Rotated Vent — T-Line

Disposable Type	Configuration	Length A (Overall Height)	Length B (Bottom Fitting to Centerline Fitting)	Length C (Inlet to Outlet)
3S: 3/4" inlet/outlet; 1/2" vent/drain; Super 300 Type Pillar fittings	ATE, AT3 10"	399 mm (15.70")	341 mm (13.43")	172 mm (6.77")
4S: 1" inlet/outlet; 1/2" vent/drain; Super 300 Type Pillar fittings	ATE, AT3 10"	399 mm (15.70")	341 mm (13.43")	182 mm (7.17")

CHEM-LINE I DISPOSABLE FILTERS WITH CORE VENT AND CORE VENT (ROTATED)

This drawing represents the Chem-Line I disposable filters with Core Vent and Core Vent (Rotated). Refer to the accompanying tables for specific dimensional information.



Nominal Dimensions for Chem-Line I with Core Vent — L-Line

Disposable Type	Configuration	Length A (Overall Height)	Length B (Bottom Fitting to Centerline Fitting)	Length C (Inlet to Outlet)
LH: 3/4" inlet/outlet; 1/2" vent/drain; Super Type Pillar fittings	ATE, AT3 10"	387 mm (15.24")	326 mm (12.83")	90 mm (3.54")

Nominal Dimensions for Chem-Line I with Core Vent — T-Line

Disposable Type	Configuration	Length A (Overall Height)	Length B (Bottom Fitting to Centerline Fitting)	Length C (Inlet to Outlet)
TH: 3/4" inlet/outlet; 1/2" vent/drain; Super Type Pillar fittings	ATE, AT3 10"	388 mm (15.26")	327 mm (12.87")	180 mm (7.09")
4H: 3/4" inlet/outlet; 1" vent/drain; Super Type Pillar fittings	ATE, AT3 10"	394 mm (15.49")	333 mm (13.11")	188 mm (7.40")

Nominal Dimensions for Chem-Line I with Core Vent - T-Tube

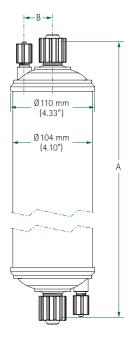
Disposable Type	Configuration	Length A (Overall Height)	Length B (Bottom Fitting to Centerline Fitting)	Length C (Inlet to Outlet)
TW: 3/4" inlet/outlet; 1/2" vent/drain;	ATE, AT3	436 mm	363 mm	252 mm
Flowell 20 Series fittings	10"	(17.17")	(14.29")	(9.92")

Nominal Dimensions for Chem-Line I with Core Vent (Rotated) - T-Line

Disposable Type	Configuration	Length A (Overall Height)	Length B (Bottom Fitting to Centerline Fitting)	Length C (Inlet to Outlet)
3PL: 3/4" inlet/outlet; 1/2" vent/drain; PrimeLock® fittings	ATE, AT3 10"	424 mm (16.68")	349 mm (13.74")	215 mm (8.48")
4PL: 1" inlet/outlet; ½" vent/drain; PrimeLock fittings	ATE, AT3 10"	424 mm (16.68")	349 mm (13.74")	243 mm (9.58")
3S: 3/4" inlet/outlet; 1/2" vent/drain; Super 300 Type Pillar fittings	ATE, AT3 10"	391 mm (15.37")	333 mm (13.11")	172 mm (6.77")
4S: 1" inlet/outlet; ½" vent/drain; Super 300 Type Pillar fittings	ATE, AT3 10"	391 mm (15.37")	333 mm (13.11")	182 mm (7.17")

Chem-Line II Disposable Filters

This drawing represents the Chem-Line II disposable filters. Refer to the accompanying tables for specific dimensional information.



NOMINAL DIMENSIONS FOR CHEM-LINE II DISPOSABLE FILTERS

retek® Fitt	ings – Male				
Inlet/	Vent/	10" Filter			
Outlet	Drain	Α	В		
3/8"	1/4"	343 mm (13.50")	37 mm (1.46")		
1/2"	1/4"	356 mm (14.03")	37 mm (1.46")		
3/4"	1/4"	359 mm (14.13")	37 mm (1.46")		
1"	1/4"	368 mm (14.47")	37 mm (1.46")		
3/4"	1/2"	363 mm (14.30")	41 mm (1.63")		
1"	1/2"	376 mm (14.82")	41 mm (1.63")		

Flowell 60 Series Fittings – Male			
Inlet/ Outlet	Vent/ Drain	10" Filter	
		Α	В
3/4"	1/4"	361 mm (14.20")	37 mm (1.46")
1"	1/4"	371 mm (14.61")	37 mm (1.46")
3/4"	1/2"	354 mm (13.94")	41 mm (1.63")
1"	1/2"	366 mm (14.41")	41 mm (1.63")

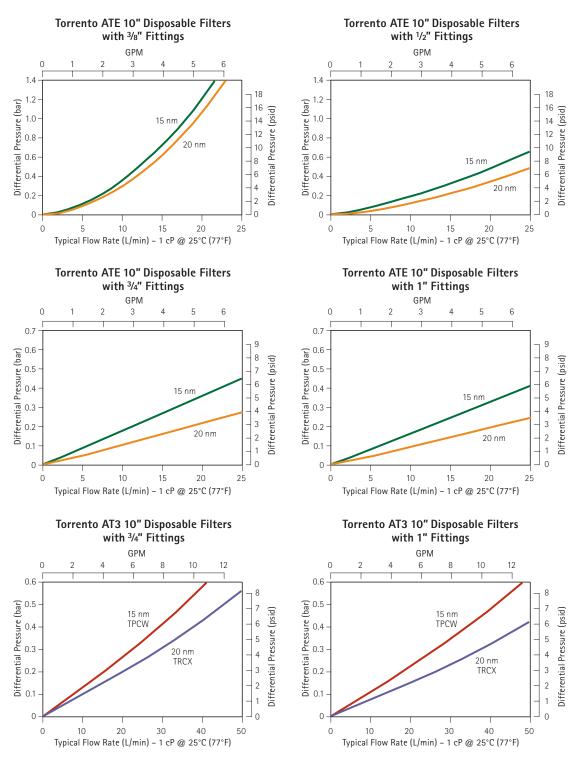
PrimeLock Fittings – Male			
Inlet/ Outlet	Vent/ Drain	10" Filter	
		Α	В
1/2"	1/4"	361 mm (14.20")	37 mm (1.46")
3/4"	1/4"	373 mm (14.68")	37 mm (1.46")
1"	1/4"	388 mm (15.24")	41 mm (1.63")

uper 300 Type Pillar Fittii		10" Filter	
Inlet/ Outlet	Vent/ Drain	А	В
1/2"	1/4"	341 mm (13.41")	37 mm (1.46")
3/4"	1/4"	350 mm (13.76")	37 mm (1.46")
1"	1/4"	383 mm (15.07")	37 mm (1.46")
3/4"	1/2"	349 mm (13.74")	41 mm (1.61")
1"	1/2"	380 mm (14.97")	41 mm (1.61")

Super 300 Type Pillar Fittings – Female				
Inlet/ Outlet	Vent/ Drain	10" Filter		
		Α	В	
3/4"	1/4"	358 mm (14.09")	37 mm (1.46")	

Performance Data

CHEM-LINE I AND CHEM-LINE II DISPOSABLE FILTERS



Ordering Information

This information serves as a guide. Please contact your local representative to confirm part numbers.

Torrento ATE Chem-Line I Disposable Filters with Standard Vent STANDARD CLEAN

Part Number TRD ATE Fitting LH= 3/4" inlet/outlet, L-line, 1/2" vent/drain, Super Type Pillar fittings TH= 3/4" inlet/outlet, T-line, 1/2" vent/drain, Super Type Pillar fittings 4H= 1" inlet/outlet, T-line, 1/2" vent/drain, Super Type Pillar fittings T3= 3/4" inlet/outlet, T-tube, 1/2" vent/drain, Super Type Pillar fittings

Flowell 20 series fittings

TF = 3/4" inlet/outlet, T-tube, 1/2" vent/drain,
FlareLock II fittings

TW=3/4" inlet/outlet, T-tube, 1/2" vent/drain,

Torrento ATE Chem-Line I Disposable Filters with Standard Vent UCM CLEAN

Part Number TRD_ACE______Fitting

Retention
Rating TH:
W = 15 nm

LH= 3/4" inlet/outlet, L-line, 1/2" vent/drain, Super Type Pillar fittings

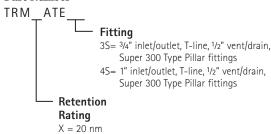
TH= 3/4" inlet/outlet, T-line, 1/2" vent/drain, Super Type Pillar fittings

X = 20 nm 4H= 1" inlet/outlet, T-line, 1/2" vent/drain, Super Type Pillar fittings

> TF = 3/4" inlet/outlet, T-tube, 1/2" vent/drain, FlareLock II fittings

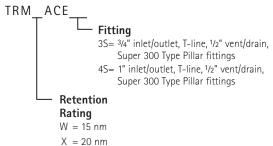
Torrento ATE Chem-Line I Disposable Filters with Modified Vent STANDARD CLEAN

Part Number



Torrento ATE Chem-Line I Disposable Filters with Modified Vent UCM CLEAN

Part Number



Torrento AT3 Chem-Line I Disposable Filters with Standard Vent STANDARD CLEAN

Part Number



Torrento AT3 Chem-Line I Disposable Filters with Standard Vent UCM CLEAN

Part Number

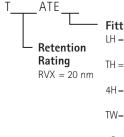


Ordering Information (continued)

This information serves as a guide. Please contact your local representative to confirm part numbers.

Torrento ATE Chem-Line I Disposable Filters with Core Vent STANDARD CLEAN

Part Number



Fitting

- LH = 3/4" inlet/outlet, L-line, 1/2" vent/drain, Super Type Pillar fittings
- $TH = \frac{3}{4}$ " inlet/outlet, T-line, $\frac{1}{2}$ " vent/drain, Super Type Pillar fittings
- 4H = 3/4" inlet/outlet, T-line, 1" vent/drain, Super Type Pillar fittings
- TW= 3/4" inlet/outlet, T-tube, 1/2" vent/drain, Flowell 20 series fittings
- $3S = \frac{3}{4}$ " inlet/outlet, T-line, $\frac{1}{2}$ " vent/drain, Super 300 Type Pillar fittings
- 4S = 1" inlet/outlet, T-line, 1/2" vent/drain, Super 300 Type Pillar fittings

Torrento AT3 Chem-Line I Disposable Filters with Core Vent

Part Number

STANDARD CLEAN

3TE

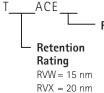


Fitting

- TH = 3/4" inlet/outlet, T-line, 1/2" vent/drain, Super Type Pillar fittings
- 4H = 1" inlet/outlet, T-line, 1/2" vent/drain, Super Type Pillar fittings
- $3S = \frac{3}{4}$ " inlet/outlet, T-line, $\frac{1}{2}$ " vent/drain, Super 300 Type Pillar fittings
- 4S = 1" inlet/outlet, T-line, 1/2" vent/drain, Super 300 Type Pillar fittings

Torrento ATE Chem-Line I Disposable Filters with Core Vent **UCM CLEAN**

Part Number



Fitting

- $TH = \frac{3}{4}$ " inlet/outlet, T-line, $\frac{1}{2}$ " vent/drain, Super Type Pillar fittings
- 4H = 1" inlet/outlet, T-line, 1/2" vent/drain, Super Type Pillar fittings
- $3S = \frac{3}{4}$ " inlet/outlet, T-line, $\frac{1}{2}$ " vent/drain, Super 300 Type Pillar fittings
- 4S = 1" inlet/outlet, T-line, 1/2" vent/drain, Super 300 Type Pillar fittings
- $3PL = \frac{3}{4}$ " inlet/outlet, T-line, $\frac{1}{2}$ " vent/drain, PrimeLock fittings
- 4PL = 1" inlet/outlet, T-line, 1/2" vent/drain, PrimeLock fittings

Torrento AT3 Chem-Line I Disposable Filters with Core Vent **UCM CLEAN**

Part Number



RVX = 20 nm

3CE

Fitting

- $TH = \frac{3}{4}$ " inlet/outlet, T-line, $\frac{1}{2}$ " vent/drain, Super Type Pillar fittings
- 4H = 1" inlet/outlet, T-line, 1/2" vent/drain, Super Type Pillar fittings
- $3S = \frac{3}{4}$ " inlet/outlet, T-line, $\frac{1}{2}$ " vent/drain, Super 300 Type Pillar fittings
- 4S = 1" inlet/outlet, T-line, 1/2" vent/drain, Super 300 Type Pillar fittings 3PL = 3/4" inlet/outlet, T-line, 1/2" vent/drain,
- PrimeLock fittings 4PL = 1" inlet/outlet, T-line, 1/2" vent/drain, PrimeLock fittings
- 4PL = 1" inlet/outlet, T-line, 1/2" vent/drain, PrimeLock fittings

Ordering Information (continued)

This information serves as a guide. Please contact your local representative to confirm part numbers.

Torrento ATE Chem-Line II Disposable Filter STANDARD CLEAN

Part Number

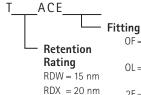


Fitting

- $OF = \frac{3}{4}$ " inlet/outlet, $\frac{1}{4}$ " vent/drain, Flaretek compatible fittings
- $1F = \frac{3}{8}$ " inlet/outlet, $\frac{1}{4}$ " vent/drain, Flaretek compatible fittings
- $2F = \frac{1}{2}$ " inlet/outlet, $\frac{1}{4}$ " vent/drain, Flaretek compatible fittings
- 4F = 1" inlet/outlet, 1/4" vent/drain, Flaretek compatible fittings
- OW = 3/4" inlet/outlet, 1/4" vent/drain, Flowell 60 series fittings
- 4W = 1" inlet/outlet, 1/4" vent/drain, Flowell 60 series fittings
- $OF2F = \frac{3}{4}$ " inlet/outlet, $\frac{1}{2}$ " vent/drain, Flaretek compatible fittings
- 4F2F = 1" inlet/outlet, 1/2" vent/drain, Flaretek compatible fittings
- OW2W = 3/4" inlet/outlet, 1/2" vent/drain, Flowell 60 series fittings
- 4W2W = 1" inlet/outlet, 1/2" vent/drain, Flowell 60 series fittings
- OP2PM= $^{3}/_{4}$ " inlet/outlet, $^{1}/_{2}$ " vent/drain, Super 300 Type Pillar fittings
- OP3PM= 3 / 4 " inlet/outlet, 1 / 4 " vent/drain, Super 300 Type Pillar fittings
- 4P2PM= 1" inlet/outlet, 1/2" vent/drain, Super 300 Type Pillar fittings
- 4P3PM= 1" inlet/outlet, 1/4" vent/drain, Super 300 Type Pillar fittings

Torrento ATE Chem-Line II Disposable Filter UCM CLEAN

Part Number



- $OF = \frac{3}{4}$ " inlet/outlet, $\frac{1}{4}$ " vent/drain, Flaretek compatible fittings
- $OL = \frac{3}{4}$ " inlet/outlet, $\frac{1}{4}$ " vent/drain, PrimeLock fittings
- 2F = 1/2" inlet/outlet, 1/4" vent/drain, Flaretek compatible fittings
- 2L = ½" inlet/outlet, ¼" vent/drain, PrimeLock fittings
- 4F = 1" inlet/outlet, 1/4" vent/drain, Flaretek compatible fittings
- $OW = \frac{3}{4}$ " inlet/outlet, $\frac{1}{4}$ " vent/drain, Flowell 60 series fittings
- 4W = 1" inlet/outlet, 1/4" vent/drain, Flowell 60 series fittings
- $OP2PM = \frac{3}{4}$ " inlet/outlet, $\frac{1}{2}$ " vent/drain, Super 300 Type Pillar fittings
- OP3PM = 3/4" inlet/outlet, 1/4" vent/drain, Super 300 Type Pillar fittings
- 2P3PM = 1/2" inlet/outlet, 1/4" vent/drain, Super 300 Type Pillar fittings
- 4L3LM = 1" inlet/outlet, 1/4" vent/drain, PrimeLock fittings
- 4P2PM = 1" inlet/outlet, 1/2" vent/drain, Super 300 Type Pillar fittings
- 4P3PM = 1" inlet/outlet, 1/4" vent/drain, Super 300 Type Pillar fittings

Torrento AT3 Chem-Line II Disposable Filter STANDARD CLEAN

Part Number



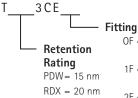
3TE

- Fittina

- $OF = \frac{3}{4}$ " inlet/outlet, $\frac{1}{4}$ " vent/drain, Flaretek compatible fittings
- $1F = \frac{3}{8}$ " inlet/outlet, $\frac{1}{4}$ " vent/drain, Flaretek compatible fittings
- $2F = \frac{1}{2}$ " inlet/outlet, $\frac{1}{4}$ " vent/drain, Flaretek compatible fittings
- 4F = 1" inlet/outlet, 1/4" vent/drain, Flaretek compatible fittings
- $OW = \frac{3}{4}$ " inlet/outlet, $\frac{1}{4}$ " vent/drain, Flowell 60 series fittings
- 4W = 1" inlet/outlet, 1/4" vent/drain, Flowell 60 series fittings

Torrento AT3 Chem-Line II Disposable Filter UCM CLEAN

Part Number



- $OF = \frac{3}{4}$ " inlet/outlet, $\frac{1}{4}$ " vent/drain, Flaretek compatible fittings
- $1F = \frac{3}{8}$ " inlet/outlet, $\frac{1}{4}$ " vent/drain, Flaretek compatible fittings
- 2F = 1/2" inlet/outlet, 1/4" vent/drain, Flaretek compatible fittings
- 4F = 1" inlet/outlet, 1/4" vent/drain, Flaretek compatible fittings
- $OW = \frac{3}{4}$ " inlet/outlet, $\frac{1}{4}$ " vent/drain, Flowell 60 series fittings
- 4W = 1" inlet/outlet, 1/4" vent/drain, Flowell 60 series fittings
- $OP3PM = \frac{3}{4}$ " inlet/outlet, $\frac{1}{4}$ " vent/drain, Super 300 Type Pillar fittings
- 4P3PM = 1" inlet/outlet, 1/4" vent/drain, Super 300 Type Pillar fittings

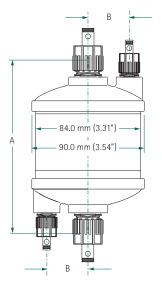
15

Torrento AT Series 1500 and 3000 15 nm Small Disposable Filters — UCM Clean

These drawings represent the small disposable filters (1500/3000). Refer to the accompanying tables for specific dimensional information.

Dimensions

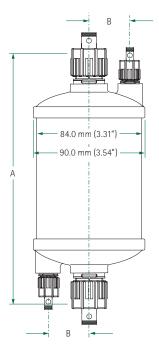
TORRENTO AT SERIES 1500 SMALL DISPOSABLE FILTERS



NOMINAL DIMENSIONS

FITTING TYPE	В	Α
8 mm Super Type Pillar fitting	32.0 mm (1.26")	140.0 mm (5.50")
³ /8" Flaretek compatible fitting	32.0 mm (1.26")	165.0 mm (6.50")
8 mm Super 300 Type Pillar fitting	31.0 mm (1.22")	135.0 mm (5.32")
³ /8" Super 300 Type Pillar fitting	31.0 mm (1.22")	141.0 mm (5.55")

TORRENTO AT SERIES 3000 SMALL DISPOSABLE FILTERS

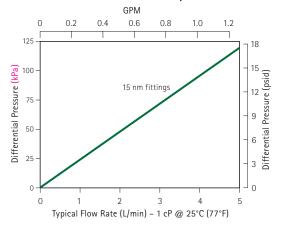


NOMINAL DIMENSIONS

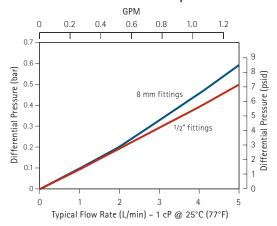
FITTING TYPE	В	Α
8 mm Super Type Pillar fitting	32.0 mm (1.26")	194 mm (7.64")
¹ /2" Super Type Pillar fitting	32.0 mm (1.26")	204 mm (8.03")
³ /8" Flaretek compatible fitting	32.0 mm (1.26")	220 mm (8.66")
8 mm Super 300 Type Pillar fitting	31.0 mm (1.22")	189 mm (7.44")
³ /8" Super 300 Type Pillar fitting	31.0 mm (1.22")	194 mm (7.64")
¹ /2" Super 300 Type Pillar fitting	31.0 mm (1.22")	199 mm (7.84")

Performance Data

Torrento 1500 15 nm Small Disposable Filters



Torrento 3000 15 nm Small Disposable Filters

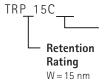


Ordering Information

This information serves as a guide. Please contact your local representative to confirm part numbers.

Torrento 15 nm Small 1500 Disposable Filters UCM CLEAN

Part Number



Fitting

- 8P = 8 mm inlet/outlet, 6 mm vent/drain, Super Type Pillar fittings
- $3S = \frac{3}{8}$ " inlet/outlet, $\frac{1}{4}$ " vent/drain, Super 300 Type Pillar fittings
- 8S = 8 mm inlet/outlet, 6 mm vent/drain, Super 300 Type Pillar fittings
- $3F = \frac{3}{8}$ " inlet/outlet, $\frac{1}{4}$ " vent/drain, Flaretek compatible fittings

Torrento 15 nm Small 3000 Disposable Filters UCM CLEAN

Part Number



W = 15 nm

- 2P = 1/2" inlet/outlet, 1/4" vent/drain, Super Type Pillar fittings
- 2S = 1/2" inlet/outlet, 1/4" vent/drain, Super 300 Type Pillar fittings 3S = 3/8" inlet/outlet, 1/4" vent/drain,
- Super 300 Type Pillar fittings

 3F = 3/6" inlet/outlet 1/4" vent/drain
- 3F = 3/8" inlet/outlet, 1/4" vent/drain, Flaretek compatible fittings
- 8S = 8 mm inlet/outlet, 6 mm vent/drain, Super 300 Type Pillar fittings
- 8P = 8 mm inlet/outlet, 6 mm vent/drain, Super Type Pillar fittings

For More Information

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