

Guard Columns

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Guard Column's Selection and Use

Guard columns are installed between the injector and the analytical column of a HPLC system, mainly to protect analytical columns. Guard columns are widely used as a cost effective for prolong HPLC column life. Exchangeable cartridge design and unchangeable packing design are offered.

Exchangeable cartridge design contains holder and cartridge column, and the cartridge columns are disposable, easy -to-use, and you can change the guard column in seconds.

Packed design is packed as same as analytical column, using as a guard column.

Guard column design	Description	Compatible analytical columns' ID	Guard columns' length
Exchangeable Cartridge design	Cartridge Guard Column E Page 93 First choice for Guard Column	1.0~1.5 mm	10 mm
	Cartridge Guard Column Ei Page 94 Guard column with PEEK inlet and outlet	2.1~4.6 mm	10, 20 mm
	UHPLC Guard Column Page 96 For high speed, high efficiency separations	1.0~3.0 mm	10 mm
	SILFILTER STD C18 Page 104 Almightily for various ODS columns	3.0~4.6 mm	10 mm
	GL-Cart Guard Column Page 98 Direct-Connection and Indirect-Connection designs with economic cost	4.0, 4.6 mm	5 mm
Unchangeable packed design	Packed Guard Column Page 99 Packed as same as analytical column	1.0~4.6 mm	33, 50 mm
	Packed Mini Guard Column Page 103 Short length type of packed guard column	4.0, 4.6 mm	10 mm
	Preparative Guard Column Page 114 Guard columns for preparative columns	6.0~100 mm	50 mm 75 mm (for 50 mm I.D.) 100 mm (for 100 mm I.D.)

Selecting packing material

When selecting the packing material for the guard columns, we recommend to choose the same with analytical columns'. However, SILFILTER STD C18 is a monolithic guard column, it can fit different kinds of ODS columns.

Selecting dimensions

Particle size : To not alter the chromatography of the analytical column, the packing of the guard column should be the same as the analytical column. Inner diameter : Choose a guard column with an internal diameter similar to the analytical column internal diameter.

Connectors

Universal self-adjusting connector – Column Coupler, using for when connect guard columns and analytical column.



Pre-column Coupler W (PCTFE)



Pre-column Coupler SUS

Cartridge Guard Column E



Cartridge Guard Column E

Cartridge guard column E designed with an special holder and cartridge, universal self-adjusting connections, reusable by changing cartridges.

Cartridges contain the same high performance packing material that are used in our GL Sciences analytical columns. Easy-to-use, convenient, and disposable guard columns can protect your more expensive analytical columns.

Line-up list

InertSustain® C18

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 EA.)		Cartridge E Holder/Cartridge Set (2 Cartridge E Guard Column & Holder)	
			Particle Size		Particle Size	
			3 µm	5 µm	3 µm	5 µm
1.0	10	1.0	5020-19250	5020-19249	5020-19300	5020-19299
1.5, 2.1		1.5	5020-19350	5020-19349	5020-19400	5020-19399
2.1, 3.0		3.0	5020-19150	5020-19149	5020-19200	5020-19199
4.0, 4.6		4.0	5020-19050	5020-19049	5020-19100	5020-19099
2.1, 3.0	20	3.0	5020-19550	5020-19549	5020-19600	5020-19599
4.0, 4.6		4.0	5020-19450	5020-19449	5020-19500	5020-19499

Inertsil® ODS-4

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 EA.)		Cartridge E Holder/Cartridge Set (2 Cartridge E Guard Column & Holder)	
			Particle Size		Particle Size	
			3 µm	5 µm	3 µm	5 µm
1.0	10	1.0	5020-19202	5020-19201	5020-19252	5020-19251
1.5, 2.1		1.5	5020-19302	5020-19301	5020-19352	5020-19351
2.1, 3.0		3.0	5020-19102	5020-19101	5020-19152	5020-19151
4.0, 4.6		4.0	5020-19002	5020-19001	5020-19052	5020-19051
2.1, 3.0	20	3.0	5020-19502	5020-19501	5020-19552	5020-19551
4.0, 4.6		4.0	5020-19402	5020-19401	5020-19452	5020-19451

Inertsil® ODS-3

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 EA.)			Cartridge E Holder/Cartridge Set (2 Cartridge E Guard Column & Holder)		
			Particle Size			Particle Size		
			3 µm	4 µm	5 µm	3 µm	4 µm	5 µm
1.0	10	1.0	5020-19205	5020-19204	5020-19203	5020-19255	5020-19254	5020-19253
1.5, 2.1		1.5	5020-19305	5020-19304	5020-19303	5020-19355	5020-19354	5020-19353
2.1, 3.0		3.0	5020-19105	5020-19104	5020-19103	5020-19155	5020-19154	5020-19153
4.0, 4.6		4.0	5020-19005	5020-19004	5020-19003	5020-19055	5020-19054	5020-19053
2.1, 3.0	20	3.0	5020-19505	5020-19504	5020-19503	5020-19555	5020-19554	5020-19553
4.0, 4.6		4.0	5020-19405	5020-19404	5020-19403	5020-19455	5020-19454	5020-19453

Inertsil® ODS-2

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 EA.)		Cartridge E Holder/Cartridge Set (2 Cartridge E Guard Column & Holder)	
			Particle Size		Particle Size	
			5 µm		5 µm	
1.0	10	1.0	5020-19235		5020-19285	
1.5, 2.1		1.5	5020-19335		5020-19385	
2.1, 3.0		3.0	5020-19135		5020-19185	
4.0, 4.6		4.0	5020-19035		5020-19085	
2.1, 3.0	20	3.0	5020-19535		5020-19585	
4.0, 4.6		4.0	5020-19435		5020-19485	

* All the guard columns are Waters type end-fitting.

* Recommend Max. Operating Pressure is 20 MPa.

* Other packing material of cartridge guard columns E are available, please confirm page 5-87 of each analytical columns.

Reversed Phase Columns

HILIC Columns

Normal Phase Columns

SEC Columns

Ion Exchange Columns

Application Specific Columns

Guard Columns

Preparative Columns

Capillary Columns

Applications

Cat. No. Index

Cartridge Guard Column Ei (Non-metal type)



Cartridge Guard Column Ei (Non-metal type)

Cartridge Guard column Ei is a special design for the separation which need to avoid the metal accessible surface. It is signed with a special PEEK holder and cartridge.

* Length of Cartridge Guard column Ei is 10mm

InertSustain® C18

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-19949	5020-19999
2.1	2.1	5020-19849	5020-19899
3.0	3.0	5020-19749	5020-19799
4.0, 4.6	4.0	5020-19649	5020-19699

Inertsil® ODS-3

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-19903	5020-19953
2.1	2.1	5020-19803	5020-19853
3.0	3.0	5020-19703	5020-19753
4.0, 4.6	4.0	5020-19603	5020-19653

Inertsil® ODS-SP

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-19906	5020-19956
2.1	2.1	5020-19806	5020-19856
3.0	3.0	5020-19706	5020-19756
4.0, 4.6	4.0	5020-19606	5020-19656

Inertsil® ODS-EP

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-19910	5020-19960
2.1	2.1	5020-19810	5020-19860
3.0	3.0	5020-19710	5020-19760
4.0, 4.6	4.0	5020-19610	5020-19660

Inertsil® C8-4

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-19946	5020-19996
2.1	2.1	5020-19846	5020-19896
3.0	3.0	5020-19746	5020-19796
4.0, 4.6	4.0	5020-19646	5020-19696

Inertsil® ODS-4

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-19901	5020-19951
2.1	2.1	5020-19801	5020-19851
3.0	3.0	5020-19701	5020-19751
4.0, 4.6	4.0	5020-19601	5020-19651

Inertsil® ODS-2

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-19935	5020-19985
2.1	2.1	5020-19835	5020-19885
3.0	3.0	5020-19735	5020-19785
4.0, 4.6	4.0	5020-19635	5020-19685

Inertsil® ODS-P

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-19908	5020-19958
2.1	2.1	5020-19808	5020-19858
3.0	3.0	5020-19708	5020-19758
4.0, 4.6	4.0	5020-19608	5020-19658

InertSustain® C8

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-16120	5020-16121
2.1	2.1	5020-16118	5020-16119
3.0	3.0	5020-16116	5020-16117
4.0, 4.6	4.0	5020-16114	5020-16115

Inertsil® C8-3

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-19914	5020-19964
2.1	2.1	5020-19814	5020-19864
3.0	3.0	5020-19714	5020-19764
4.0, 4.6	4.0	5020-19614	5020-19664

* All Cartridge Guard column Ei designed with 10 mm length.

* All the guard columns are Waters type end-fitting.

* Recommend Max. Operating Pressure is 20 MPa.

InertSustain® Phenyl

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-16420	5020-16421
2.1	2.1	5020-16418	5020-16419
3.0	3.0	5020-16416	5020-16417
4.0, 4.6	4.0	5020-16414	5020-16415

Inertsil® CN-3

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-19918	5020-19968
2.1	2.1	5020-19818	5020-19868
3.0	3.0	5020-19718	5020-19768
4.0, 4.6	4.0	5020-19618	5020-19668

Inertsil® Amide

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-20183	5020-20185
2.1	2.1	5020-20179	5020-20181
3.0	3.0	5020-20175	5020-20177
4.0, 4.6	4.0	5020-20171	5020-20173

InertSustain® NH2

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-16720	5020-16721
2.1	2.1	5020-16718	5020-16719
3.0	3.0	5020-16716	5020-16717
4.0, 4.6	4.0	5020-16714	5020-16715

Inertsil® Diol

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-19922	5020-19972
2.1	2.1	5020-19822	5020-19872
3.0	3.0	5020-19722	5020-19772
4.0, 4.6	4.0	5020-19622	5020-19672

Inertsil® WP300 Diol

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-19931	5020-19981
2.1	2.1	5020-19831	5020-19881
3.0	3.0	5020-19731	5020-19781
4.0, 4.6	4.0	5020-19631	5020-19681

Inertsil® Ph-3

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-19916	5020-19966
2.1	2.1	5020-19816	5020-19866
3.0	3.0	5020-19716	5020-19766
4.0, 4.6	4.0	5020-19616	5020-19666

Inertsil® WP300 C18

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-19928	5020-19978
2.1	2.1	5020-19828	5020-19878
3.0	3.0	5020-19728	5020-19778
4.0, 4.6	4.0	5020-19628	5020-19678

Inertsil® HILIC

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-19924	5020-19974
2.1	2.1	5020-19824	5020-19874
3.0	3.0	5020-19724	5020-19774
4.0, 4.6	4.0	5020-19624	5020-19674

Inertsil® NH2

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-19920	5020-19970
2.1	2.1	5020-19820	5020-19870
3.0	3.0	5020-19720	5020-19770
4.0, 4.6	4.0	5020-19620	5020-19670

Inertsil® SIL-100A

I.D. of the Analytical Column Applicable (mm)	I.D. (mm)	Replacement Cartridge Ei Guard Column (2 EA.)	Cartridge Ei Holder/ Cartridge Set (2 Cartridge Ei Guard Column & Holder)
		Particle Size	Particle Size
		5 µm	5 µm
1.0, 1.5	1.0	5020-19926	5020-19976
2.1	2.1	5020-19826	5020-19876
3.0	3.0	5020-19726	5020-19776
4.0, 4.6	4.0	5020-19626	5020-19676

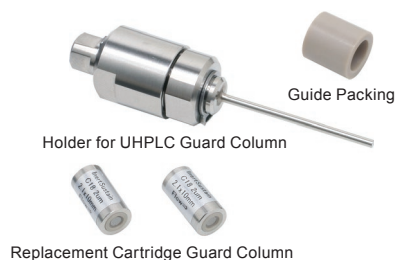
* All Cartridge Guard column Ei designed with 10 mm length.

* All the guard columns are Waters type end-fitting.

* Recommend Max. Operating Pressure is 20 MPa.

* Other packing material of cartridge guard columns Ei are available, please contact your local distributor for more information.

Guard Columns for UHPLC



Guard column for UHPLC significantly extends column lifetime of your analytical column. The replacement cartridge guard column can be exchanged easily. A 1/16 inch tube is connected at the outlet of the holder for easy installation with minimized dead volume.

Specifications

- **Silica** : High Purity Silica Gel
- **Particle Size** : 2 μm , 3 μm
- **Maximum Pressure** : 80 MPa
- **Analytical column I.D.** : 1.0 ~ 3.0 mm I.D.

InertSustain® C18

Length (mm)	I.D. (mm)	Replacement Cartridge Guard Column (2 EA)		Cartridge Guard column (2 EA) + Holder (1 EA) set	
		Particle Size		Particle Size	
		2 μm	3 μm	2 μm	3 μm
10	1.5	5020-20314	5020-20306	5020-20365	5020-20357
	2.1	5020-20331	5020-20323	5020-20382	5020-20374
	3.0	5020-20348	5020-20340	5020-20399	5020-20391

InertSustainSwift™ C18

Length (mm)	I.D. (mm)	Replacement Cartridge Guard Column (2 EA)		Cartridge Guard column (2 EA) + Holder (1 EA) set	
		Particle Size		Particle Size	
		1.9 μm	3 μm	1.9 μm	3 μm
10	1.5	5020-88238	5020-88237	5020-88244	5020-88243
	2.1	5020-88240	5020-88239	5020-88246	5020-88245
	3.0	5020-88242	5020-88241	5020-88248	5020-88247

Inertsil® ODS-4

Length (mm)	I.D. (mm)	Replacement Cartridge Guard Column (2 EA)		Cartridge Guard column (2 EA) + Holder (1 EA) set	
		Particle Size		Particle Size	
		2 μm	3 μm	2 μm	3 μm
10	1.5	5020-20309	5020-20300	5020-20360	5020-20351
	2.1	5020-20326	5020-20317	5020-20377	5020-20368
	3.0	5020-20343	5020-20334	5020-20394	5020-20385

Inertsil® ODS-3

Length (mm)	I.D. (mm)	Replacement Cartridge Guard Column (2 EA)		Cartridge Guard column (2 EA) + Holder (1 EA) set	
		Particle Size		Particle Size	
		2 μm	3 μm	2 μm	3 μm
10	1.5	5020-20311	5020-20301	5020-20362	5020-20352
	2.1	5020-20328	5020-20318	5020-20379	5020-20369
	3.0	5020-20345	5020-20335	5020-20396	5020-20386

Inertsil® ODS-SP

Length (mm)	I.D. (mm)	Replacement Cartridge Guard Column (2 EA)		Cartridge Guard column (2 EA) + Holder (1 EA) set	
		Particle Size 3 μm		Particle Size 3 μm	
		10	1.5	5020-20302	
2.1	5020-20319		5020-20370		
3.0	5020-20336		5020-20387		

InertSustain® C8

Length (mm)	I.D. (mm)	Replacement Cartridge Guard Column (2 EA)		Cartridge Guard column (2 EA) + Holder (1 EA) set	
		Particle Size		Particle Size	
		2 µm	3 µm	2 µm	3 µm
10	1.5	5020-20315	5020-20307	5020-20366	5020-20358
	2.1	5020-20332	5020-20324	5020-20383	5020-20375
	3.0	5020-20349	5020-20341	5020-20400	5020-20392

Inertsil® C8-4

Length (mm)	I.D. (mm)	Replacement Cartridge Guard Column (2 EA)		Cartridge Guard column (2 EA) + Holder (1 EA) set	
		Particle Size		Particle Size	
		2 µm	3 µm	2 µm	3 µm
10	1.5	5020-20310	5020-20305	5020-20361	5020-20356
	2.1	5020-20327	5020-20322	5020-20378	5020-20373
	3.0	5020-20344	5020-20339	5020-20395	5020-20390

Inertsil® C8-3

Length (mm)	I.D. (mm)	Replacement Cartridge Guard Column (2 EA)		Cartridge Guard column (2 EA) + Holder (1 EA) set	
		Particle Size		Particle Size	
		2 µm	3 µm	2 µm	3 µm
10	1.5	5020-20312	5020-20303	5020-20363	5020-20354
	2.1	5020-20329	5020-20320	5020-20380	5020-20371
	3.0	5020-20346	5020-20337	5020-20397	5020-20388

InertSustain® Phenyl

Length (mm)	I.D. (mm)	Replacement Cartridge Guard Column (2 EA)		Cartridge Guard column (2 EA) + Holder (1 EA) set	
		Particle Size		Particle Size	
		2 µm	3 µm	2 µm	3 µm
10	1.5	5020-20316	5020-20308	5020-20367	5020-20359
	2.1	5020-20333	5020-20325	5020-20384	5020-20376
	3.0	5020-20350	5020-20342	5020-20401	5020-20393

Inertsil® Ph-3

Length (mm)	I.D. (mm)	Replacement Cartridge Guard Column (2 EA)		Cartridge Guard column (2 EA) + Holder (1 EA) set	
		Particle Size		Particle Size	
		2 µm	3 µm	2 µm	3 µm
10	1.5	5020-20313	5020-20304	5020-20364	5020-20355
	2.1	5020-20330	5020-20321	5020-20381	5020-20372
	3.0	5020-20347	5020-20338	5020-20398	5020-20389

Holder

Description	Cat.No.
Holder for UHPLC Guard Column	5020-08630

* The tube size at the holder is 1/16 inch O.D. × 0.18 mm I.D. × 30 mm length.

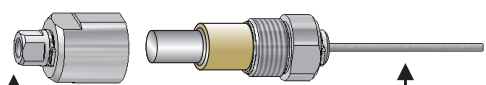
Joint

Very High Pressure Re-useable Fitting

Description	Max. Pressure	QTY	Cat.No.
VHP-300	137 MPa	1 set	6010-77001
VHP-320	172 MPa	1 set	6010-77007

* The tube size at the holder is 1/16 inch O.D. × 0.18 mm I.D. × 30 mm length.

Installation



Outlet side of the injector

1/16 inch Female (No.10-32UNF)
Tubing tip length is 2.4 mm.

Column side

Purchase a proper joint.

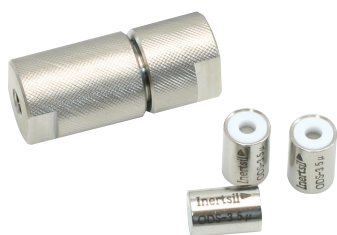


VHP-300



VHP-320

GL Cart



GL Cart

GL Cart guard column are designed as economical type to protect your expensive analytical column. GL Cart is one dimension 5mmL × 4.6mmI.D.
(Compatible analytical columns' ID is 4.0 mm, 4.6 mm.) GL Cart holder is reusable.

Packing material	Particle size (µm)	Cartridge guard column GL Cart 10 EA.(5 × 4.6 mm I.D.)	GL Cart Set (5 GL Cart cartridge + 1 holder)
		Cat. No.	Cat. No.
InertSustain C18	3	5020-20146	5020-20246
	5	5020-20145	5020-20245
Inertsil ODS-4	3	5020-20102	5020-20202
	5	5020-20101	5020-20201
Inertsil ODS-3	3	5020-20105	5020-20205
	4	5020-20104	5020-20204
	5	5020-20103	5020-20203
Inertsil ODS-2	5	5020-20135	5020-20235
Inertsil ODS-SP	3	5020-20107	5020-20207
	5	5020-20106	5020-20206
Inertsil ODS-P	3	5020-20109	5020-20209
	5	5020-20108	5020-20208
Inertsil ODS-EP	5	5020-20110	5020-20210
InertSustain C8	3	5020-16215	5020-16216
	5	5020-16122	5020-16123
Inertsil C8-4	3	5020-20144	5020-20244
	5	5020-20143	5020-20243
Inertsil C8-3	3	5020-20115	5020-20215
	5	5020-20114	5020-20214
InertSustain Phenyl	3	5020-16515	5020-16516
	5	5020-16422	5020-16423
Inertsil Ph-3	3	5020-20117	5020-20217
	5	5020-20116	5020-20216
Inertsil CN-3	3	5020-20119	5020-20219
	5	5020-20118	5020-20218
Inertsil WP300 C18	5	5020-20128	5020-20228
Inertsil WP300 C8	5	5020-20129	5020-20229
Inertsil WP300 C4	5	5020-20130	5020-20230
Inertsil Amide	3	5020-20190	5020-20248
	5	5020-20189	5020-20247
Inertsil HILIC	3	5020-20125	5020-20225
	5	5020-20124	5020-20224
InertSustain NH2	3	5020-16815	5020-16816
	5	5020-16722	5020-16723
Inertsil NH2	3	5020-20121	5020-20221
	5	5020-20120	5020-20220
Inertsil Diol	3	5020-20123	5020-20223
	5	5020-20122	5020-20222
Inertsil SIL-100A	3	5020-20127	5020-20227
	5	5020-20126	5020-20226
Inertsil SIL-150A	5	5020-20139	5020-20239
Inertsil WP300 SIL	5	5020-20132	5020-20232
Inertsil WP300 Diol	5	5020-20131	5020-20231

* All the guard columns are Waters type end-fitting.

* Recommend Max. Operating Pressure is 20 MPa.

* Other packing material of GL Cart guard columns are available , please contact your local distributor for more information.

Packed Guard Columns, Packed Mini Guard Columns



Packed Guard Column

Packed Mini Guard Column

Packed guard column and Mini guard column are designed different with cartridges' type, using a high pressure to pack it as a guard column, and also can sustain analytical column's performance.

Packed guard column has length 33 mm and 50 mm two types, and Mini guard column has length 10 mm.

Packed Guard Columns

Packing material	I.D. (mm)	Length 33 mm		Length 50 mm	
		Particle Size		Particle Size	
		3 µm	5 µm	3 µm	5 µm
InertSustain C18	1.0	5020-15996	5020-15995	5020-15896	5020-15895
	1.5	5020-15946	5020-15945	5020-15846	5020-15845
	2.1	5020-04896	5020-04895	5020-03596	5020-03595
	3.0	5020-04496	5020-04495	5020-03496	5020-03495
	4.0	5020-04296	5020-04295	5020-03396	5020-03395
Inertsil ODS-4	1.0	5020-15952	5020-15951	5020-15852	5020-15851
	1.5	5020-15902	5020-15901	5020-15802	5020-15801
	2.1	5020-04852	5020-04851	5020-03552	5020-03551
	3.0	5020-04452	5020-04451	5020-03452	5020-03451
	4.0	5020-04252	5020-04251	5020-03352	5020-03351
Inertsil ODS-3	1.0	5020-15955	5020-15953	5020-15855	5020-15853
	1.5	5020-15905	5020-15903	5020-15805	5020-15803
	2.1	5020-04855	5020-04853	5020-03555	5020-03553
	3.0	5020-04455	5020-04453	5020-03455	5020-03453
	4.0	5020-04255	5020-04253	5020-03355	5020-03353
Inertsil ODS-2	1.0	-	5020-15985	-	5020-15885
	1.5	-	5020-15935	-	5020-15835
	2.1	-	5020-04885	-	5020-03585
	3.0	-	5020-04485	-	5020-03485
	4.0	-	5020-04285	-	5020-03385
Inertsil ODS-SP	1.0	5020-15957	5020-15956	5020-15857	5020-15856
	1.5	5020-15907	5020-15906	5020-15807	5020-15806
	2.1	5020-04857	5020-04856	5020-03557	5020-03556
	3.0	5020-04457	5020-04456	5020-03457	5020-03456
	4.0	5020-04257	5020-04256	5020-03357	5020-03356
Inertsil ODS-P	1.0	5020-15959	5020-15958	5020-15859	5020-15858
	1.5	5020-15909	5020-15908	5020-15809	5020-15808
	2.1	5020-04859	5020-04858	5020-03559	5020-03558
	3.0	5020-04459	5020-04458	5020-03459	5020-03458
	4.0	5020-04259	5020-04258	5020-03359	5020-03358
Inertsil ODS-EP	1.0	-	5020-15960	-	5020-15860
	1.5	-	5020-15910	-	5020-15810
	2.1	-	5020-04860	-	5020-03560
	3.0	-	5020-04460	-	5020-03460
	4.0	-	5020-04260	-	5020-03360
	4.6	-	5020-04160	-	5020-03260

* All the guard columns are Waters type end-fitting.

* Recommend Max. Operating Pressure is 20 MPa.

Reversed Phase Columns

HILIC Columns

Normal Phase Columns

SEC Columns

Ion Exchange Columns

Application Specific Columns

Guard Columns

Preparative Columns

Capillary Columns

Applications

Cat. No. Index

Packed Guard Columns, Packed Mini Guard Columns

Packed Guard columns

Packing material	I.D. (mm)	Length 33 mm		Length 50 mm	
		Particle Size		Particle Size	
		3 µm	5 µm	3 µm	5 µm
InertSustain C8	1.0	5020-16183	5020-16054	5020-16181	5020-16052
	1.5	5020-16182	5020-16053	5020-16180	5020-16051
	2.1	5020-16167	5020-16038	5020-16162	5020-16033
	3.0	5020-16166	5020-16037	5020-16161	5020-16032
	4.0	5020-16165	5020-16036	5020-16160	5020-16031
	4.6	5020-16164	5020-16035	5020-16159	5020-16030
Inertsil C8-4	1.0	5020-15994	5020-15993	5020-15894	5020-15893
	1.5	5020-15944	5020-15943	5020-15844	5020-15843
	2.1	5020-04894	5020-04893	5020-03594	5020-03593
	3.0	5020-04494	5020-04493	5020-03494	5020-03493
	4.0	5020-04294	5020-04293	5020-03394	5020-03393
	4.6	5020-04194	5020-04193	5020-03294	5020-03293
Inertsil C8-3	1.0	5020-15965	5020-15964	5020-15865	5020-15864
	1.5	5020-15915	5020-15914	5020-15815	5020-15814
	2.1	5020-04865	5020-04864	5020-03565	5020-03564
	3.0	5020-04465	5020-04464	5020-03465	5020-03464
	4.0	5020-04265	5020-04264	5020-03365	5020-03364
	4.6	5020-04165	5020-04164	5020-03265	5020-03264
Inertsil C8	1.0	-	5020-15986	-	5020-15886
	1.5	-	5020-15936	-	5020-15836
	2.1	-	5020-04886	-	5020-03586
	3.0	-	5020-04486	-	5020-03486
	4.0	-	5020-04286	-	5020-03386
	4.6	-	5020-04186	-	5020-03286
Inertsil C4	1.0	-	5020-15988	-	5020-15888
	1.5	-	5020-15938	-	5020-15838
	2.1	-	5020-04888	-	5020-03588
	3.0	-	5020-04488	-	5020-03488
	4.0	-	5020-04288	-	5020-03388
	4.6	-	5020-04188	-	5020-03288
InertSustain Phenyl	1.0	5020-16483	5020-16354	5020-16481	5020-16352
	1.5	5020-16482	5020-16353	5020-16480	5020-16351
	2.1	5020-16467	5020-16338	5020-16462	5020-16333
	3.0	5020-16466	5020-16337	5020-16461	5020-16332
	4.0	5020-16465	5020-16336	5020-16460	5020-16331
	4.6	5020-16464	5020-16335	5020-16459	5020-16330
Inertsil Ph-3	1.0	5020-15967	5020-15966	5020-15867	5020-15866
	1.5	5020-15917	5020-15916	5020-15817	5020-15816
	2.1	5020-04867	5020-04866	5020-03567	5020-03566
	3.0	5020-04467	5020-04466	5020-03467	5020-03466
	4.0	5020-04267	5020-04266	5020-03367	5020-03366
	4.6	5020-04167	5020-04166	5020-03267	5020-03266
Inertsil Ph	1.0	-	5020-15987	-	5020-15887
	1.5	-	5020-15937	-	5020-15837
	2.1	-	5020-04887	-	5020-03587
	3.0	-	5020-04487	-	5020-03487
	4.0	-	5020-04287	-	5020-03387
	4.6	-	5020-04187	-	5020-03287

* All the guard columns are Waters type end-fitting.

* Recommend Max. Operating Pressure is 20 MPa.

Packed Guard columns

Packing material	I.D. (mm)	Length 33 mm		Length 50 mm	
		Particle Size		Particle Size	
		3 µm	5 µm	3 µm	5 µm
Inertsil CN-3	1.0	5020-15969	5020-15968	5020-15869	5020-15868
	1.5	5020-15919	5020-15918	5020-15819	5020-15818
	2.1	5020-04869	5020-04868	5020-03569	5020-03568
	3.0	5020-04469	5020-04468	5020-03469	5020-03468
	4.0	5020-04269	5020-04268	5020-03369	5020-03368
	4.6	5020-04169	5020-04168	5020-03269	5020-03268
Inertsil WP300 C18	1.0	-	5020-15978	-	5020-15878
	1.5	-	5020-15928	-	5020-15828
	2.1	-	5020-04878	-	5020-03578
	3.0	-	5020-04478	-	5020-03478
	4.0	-	5020-04278	-	5020-03378
	4.6	-	5020-04178	-	5020-03278
Inertsil WP300 C8	1.0	-	5020-15979	-	5020-15879
	1.5	-	5020-15929	-	5020-15829
	2.1	-	5020-04879	-	5020-03579
	3.0	-	5020-04479	-	5020-03479
	4.0	-	5020-04279	-	5020-03379
	4.6	-	5020-04179	-	5020-03279
Inertsil WP300 C4	1.0	-	5020-15980	-	5020-15880
	1.5	-	5020-15930	-	5020-15830
	2.1	-	5020-04880	-	5020-03580
	3.0	-	5020-04480	-	5020-03480
	4.0	-	5020-04280	-	5020-03380
	4.6	-	5020-04180	-	5020-03280
Inertsil Amide	1.0	5020-15998	5020-15997	5020-15898	5020-15897
	1.5	5020-15948	5020-15947	5020-15848	5020-15847
	2.1	5020-04898	5020-04897	5020-03598	5020-03597
	3.0	5020-04498	5020-04497	5020-03498	5020-03497
	4.0	5020-04298	5020-04297	5020-03398	5020-03397
	4.6	5020-04198	5020-04197	5020-03298	5020-03297
Inertsil HILIC	1.0	5020-15975	5020-15974	5020-15875	5020-15874
	1.5	5020-15925	5020-15924	5020-15825	5020-15824
	2.1	5020-04875	5020-04874	5020-03575	5020-03574
	3.0	5020-04475	5020-04474	5020-03475	5020-03474
	4.0	5020-04275	5020-04274	5020-03375	5020-03374
	4.6	5020-04175	5020-04174	5020-03275	5020-03274
InertSustain NH2	1.0	5020-16783	5020-16654	5020-16781	5020-16652
	1.5	5020-16782	5020-16653	5020-16780	5020-16651
	2.1	5020-16767	5020-16638	5020-16762	5020-16633
	3.0	5020-16766	5020-16637	5020-16761	5020-16632
	4.0	5020-16765	5020-16634	5020-16760	5020-16631
	4.6	5020-16764	5020-16635	5020-16759	5020-16630
Inertsil NH2	1.0	5020-15971	5020-15970	5020-15871	5020-15870
	1.5	5020-15921	5020-15920	5020-15821	5020-15820
	2.1	5020-04871	5020-04870	5020-03571	5020-03570
	3.0	5020-04471	5020-04470	5020-03471	5020-03470
	4.0	5020-04271	5020-04270	5020-03371	5020-03370
	4.6	5020-04171	5020-04170	5020-03271	5020-03270

* All the guard columns are Waters type end-fitting.
 * Recommend Max. Operating Pressure is 20 MPa.

Reversed Phase Columns
 HILIC Columns
 Normal Phase Columns
 SEC Columns
 Ion Exchange Columns
 Application Specific Columns
 Guard Columns
 Preparative Columns
 Capillary Columns
 Applications
 Cat. No. Index

Packed Guard Columns, Packed Mini Guard Columns

Packed Guard columns

Packing material	I.D. (mm)	Length 33 mm		Length 50 mm	
		Particle Size		Particle Size	
		3 µm	5 µm	3 µm	5 µm
Inertsil Diol	1.0	5020-15973	5020-15972	5020-15873	5020-15872
	1.5	5020-15923	5020-15922	5020-15823	5020-15822
	2.1	5020-04873	5020-04872	5020-03573	5020-03572
	3.0	5020-04473	5020-04472	5020-03473	5020-03472
	4.0	5020-04273	5020-04272	5020-03373	5020-03372
	4.6	5020-04173	5020-04172	5020-03273	5020-03272
Inertsil SIL-100A	1.0	5020-15977	5020-15976	5020-15877	5020-15876
	1.5	5020-15927	5020-15926	5020-15827	5020-15826
	2.1	5020-04877	5020-04876	5020-03577	5020-03576
	3.0	5020-04477	5020-04476	5020-03477	5020-03476
	4.0	5020-04277	5020-04276	5020-03377	5020-03376
	4.6	5020-04177	5020-04176	5020-03277	5020-03276
Inertsil SIL-150A	1.0	-	5020-15989	-	5020-15889
	1.5	-	5020-15939	-	5020-15839
	2.1	-	5020-04889	-	5020-03589
	3.0	-	5020-04489	-	5020-03489
	4.0	-	5020-04289	-	5020-03389
	4.6	-	5020-04189	-	5020-03289
Inertsil WP300 SIL	1.0	-	5020-15982	-	5020-15882
	1.5	-	5020-15932	-	5020-15832
	2.1	-	5020-04882	-	5020-03582
	3.0	-	5020-04482	-	5020-03482
	4.0	-	5020-04282	-	5020-03382
	4.6	-	5020-04182	-	5020-03282
Inertsil WP300 Diol	1.0	-	5020-15981	-	5020-15881
	1.5	-	5020-15931	-	5020-15831
	2.1	-	5020-04881	-	5020-03581
	3.0	-	5020-04481	-	5020-03481
	4.0	-	5020-04281	-	5020-03381
	4.6	-	5020-04181	-	5020-03281

* All the guard columns are Waters type end-fitting.

* Recommend Max. Operating Pressure is 20 MPa.

Packed Mini Guard columns

Packing material	Particle Size(μm)	I.D.(mm)	Length(mm)	Cat. No
InertSustain C18	3	4.0	10	5020-03696
	5	4.0	10	5020-03695
Inertsil ODS-4	3	4.0	10	5020-03652
	5	4.0	10	5020-03651
Inertsil ODS-3	3	4.0	10	5020-03655
	4	4.0	10	5020-03654
	5	4.0	10	5020-03653
Inertsil ODS-2	5	4.0	10	5020-03685
Inertsil ODS-SP	3	4.0	10	5020-03657
	5	4.0	10	5020-03656
Inertsil ODS-P	3	4.0	10	5020-03659
	5	4.0	10	5020-03658
Inertsil ODS-EP	5	4.0	10	5020-03660
Inertsil ODS-80A	5	4.0	10	5020-03690
InertSustain C8	3	4.0	10	5020-16163
	5	4.0	10	5020-16034
Inertsil C8-4	3	4.0	10	5020-03694
	5	4.0	10	5020-03693
Inertsil C8-3	3	4.0	10	5020-03665
	5	4.0	10	5020-03664
Inertsil C8	5	4.0	10	5020-03686
Inertsil C4	5	4.0	10	5020-03688
InertSustain Phenyl	3	4.0	10	5020-16463
	5	4.0	10	5020-16334
Inertsil Ph-3	3	4.0	10	5020-03667
	5	4.0	10	5020-03666
Inertsil Ph	5	4.0	10	5020-03687
Inertsil CN-3	3	4.0	10	5020-03669
	5	4.0	10	5020-03668
Inertsil WP300 C18	5	4.0	10	5020-03678
Inertsil WP300 C8	5	4.0	10	5020-03679
Inertsil WP300 C4	5	4.0	10	5020-03680
Inertsil Amide	3	4.0	10	5020-03698
	5	4.0	10	5020-03697
Inertsil HILIC	3	4.0	10	5020-03675
	5	4.0	10	5020-03674
InertSustain NH2	3	4.0	10	5020-16763
	5	4.0	10	5020-16634
Inertsil NH2	3	4.0	10	5020-03671
	5	4.0	10	5020-03670
Inertsil Diol	3	4.0	10	5020-03673
	5	4.0	10	5020-03672
Inertsil SIL-100A	3	4.0	10	5020-03677
	5	4.0	10	5020-03676
Inertsil SIL-150A	5	4.0	10	5020-03689
Inertsil WP300 SIL	5	4.0	10	5020-03682
Inertsil WP300 Diol	5	4.0	10	5020-03681

* All the guard columns are Waters type end-fitting.

* Recommend Max. Operating Pressure is 20 MPa.

Reversed Phase
Columns

HILIC Columns

Normal Phase
Columns

SEC Columns

Ion Exchange
ColumnsApplication
Specific Columns

Guard Columns

Preparative Columns

Capillary Columns

Applications

Cat. No. Index

SILFILTER™ STD C18

SILFILTER STD C18 is a guard column with cartridge size 3.0 mm I.D. × 10 mm. The cartridge is packed with a monolithic silica, chemically bonded with a C18 and uniquely end-capped based on our 45 years of experience. SILFILTER STD C18 can be installed and used for all C18 columns available in the market without interfering and influencing the elution or separation patterns. Also, deterioration of the packing in the cartridge can be confirmed visually.

• Feature

- Can be installed for all C18 columns available in the market .
- Deterioration of the packing in the cartridge can be confirmed visually.
- Easy to replace the cartridges.
- Effectively removes particulate and strongly retained sample compounds
- Delivers the lowest dead-volume.

• Specification

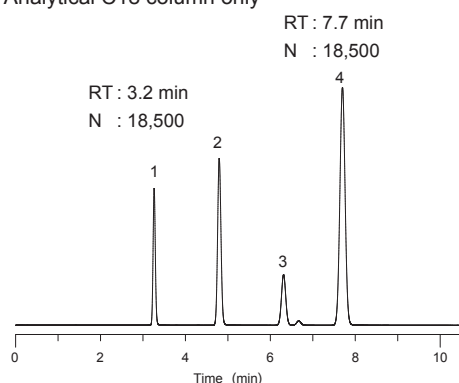
- Base Material : High Purity Monolithic Silica
- End-capping : Yes
- Max. Operating Pressure : 35 MPa (350 Bar)
- pH Range : 1~7.5
- Bonded Phase : Octadecyl Groups
- Max. Temperature : 50 °C
- Size : 10 × 3.0 mm I.D.
- Compatible analytical Columns' ID : 3.0~4.6 mm I.D.

No Sacrifice in Separation Efficiency

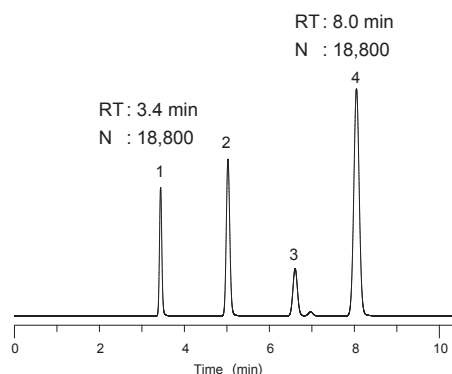
The following test was conducted to confirm the efficiency of SILFILTER STD C18.

As shown below, the efficiency didn't decrease even for those fast eluting samples when installing SILFILTER STD C18.

Analytical C18 column only

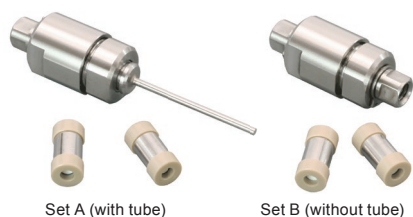


With SILFILTER STD C18



Conditions

Column : C18 Column
(3 μm, 150 × 3.0 mm I.D.)
Eluent : A) CH₃CN
B) H₂O
A/B = 65/35, v/v
Flow Rate : 0.4 mL/min
Col. Temp.: 40 °C
Detection : UV 254 nm
Sample : Acetaminophen
Benzene
Toluene
Naphthalene



Set A (with tube)

Set B (without tube)



PEEK Tough Connector

Item	Cat.No.
SILFILTER STD C18, Set A* ¹ 2 Cartridges with 1 Holder and Tubes	5020-10404
SILFILTER STD C18, Set B * ² 2 Cartridges with 1 Holder, without Tubes	5020-10405
SILFILTER(with Tubes) Holder for A type* ¹	5020-10402
SILFILTER(without Tubes) Holder for B type* ²	5020-10403
Replaceable Cartridge, 2 ea	5020-10401
PEEK Tough Connector, 5 pcs	6010-48600

* 1: Tube size is, 1/16 inch O.D. × 0.18 mm I.D. × 30 mmL

* 2: Tubing tip length is 2.4 mm

Filters, Impurity Remove Columns

Pre-Column Coupler



Pre-column Coupler W (PTFE)



Pre-column Coupler SUS

Pre-column Coupler is an easy-to-use tool to connect guard columns and analytical columns. Pre-column Coupler has two designs, one is using PCTFE material, except common organic solvents, acidic solvent and basic solvent also can be used. And another one is stainless design, it can be used as high pressure.

- **Specification**

Max. operation pressure: 14.7 MPa (PCTFE), 80 MPa (stainless)

Tube O.D.: 1/16"

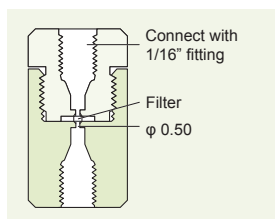
Item	Material	Connection	Cat.No.
Pre-column Coupler W	PCTFE	Waters type	6010-49211
Pre-column Coupler SUS	Stainless	-*	6010-49210

* Product Pre-column Coupler SUS do not fixed with Ferrules, therefore columns with 10-32UNF specification all can be used.

Pre-Column Filter



Pre-column filter



- **Specification**

Fit in tube O.D. : 1/16"

Screw specification : 10-32UNF

Filter pore size : 2 μm

Max. operation pressure : 41.4 MPa(SUS) 34.5 MPa(PEEK)

Item	Jacket material	P/N	Qty. (pc)	Cat.No.
Pre-column filter 2 μm	Stainless	A-315	1	6010-55100
Replacement pre-column filter 2 μm	-	A-101	1	6010-55110
PEEK pre-column filter 2 μm	PEEK	A-355	1	6010-55300
Replacement PEEK pre-column filter 2 μm	-	A-700	1	6010-55310

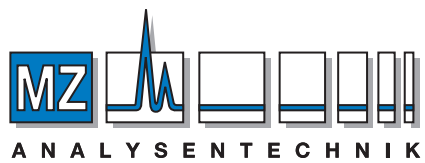
Pre-Clean ORG



Pre-clean ORG

- A guard column to install between the pump and injector, to remove the impurity in aqueous eluent.
- Protect analytical LC columns, and prolong analytical columns lifetime.
- Easy-to-replace.
- Also can be used as an in-line filter, semimicro columns are most appropriate for column clog.
- 2 types for two different flow rates.

Item	I.D.(mm)	Length(mm)	Recommend flow rate (mL/min)	Cat.No.
Pre-clean ORG replacement cartridge 2ea	7.6	30	1.0~20 mL/min	5020-12755
Pre-clean ORG holder and cartridge2ea	7.6	30	1.0~20 mL/min	5020-12760
Pre-clean ORG holder	-	-	-	5020-12750
Pre-clean ORG semi replacement cartridge 2ea	4.0	10	0.1~2.0 mL/min	5020-12780
Pre-clean ORG semi holder and cartridge2ea	4.0	10	0.1~2.0 mL/min	5020-12790
Pre-clean ORG semi holder	-	-	-	5020-12770



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