

HiQ sil™ HPLC Columns

The solution for your chromatography



KYA Technologies Coporation



KYA Technologies Corporation Japan

KYA Technologies Corporation, Tokyo, Japan was established in 1998 to develop a range of high quality HPLC products. Over the last 12 years we have developed a complete range of columns in the HiQ sil™ series which have gained a loyal following in Japan and East Asia. The latest HiQ sil HS is a high performance silica for rapid separations under normal reverse phase applications. The DiNa range of products is dedicated to NanoLC and Nano LC-MS. The DiNa™ (Direct Nano) series of instruments has become the industry standard for proteomics separations in Japan.



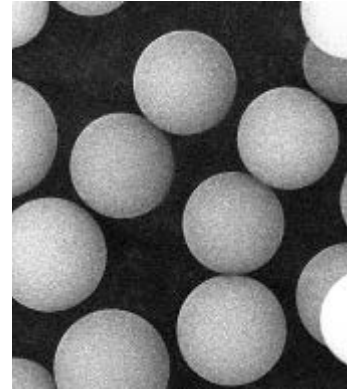
HiQ sil HPLC columns



Splitless DiNa Nano HPLC system

Introduction of HiQ sil™ series

The HiQ sil™ columns are made from an ultra pure silica gel as the starting material. The unique manufacturing process ensures high mechanical strength and a very regular size while minimizing fines. This gives a long life under the toughest conditions. The HiQ sil gel is manufactured in a range of particle sizes, pore sizes and with a variety of chemical surface bondings for reverse phase and normal phase chromatography.

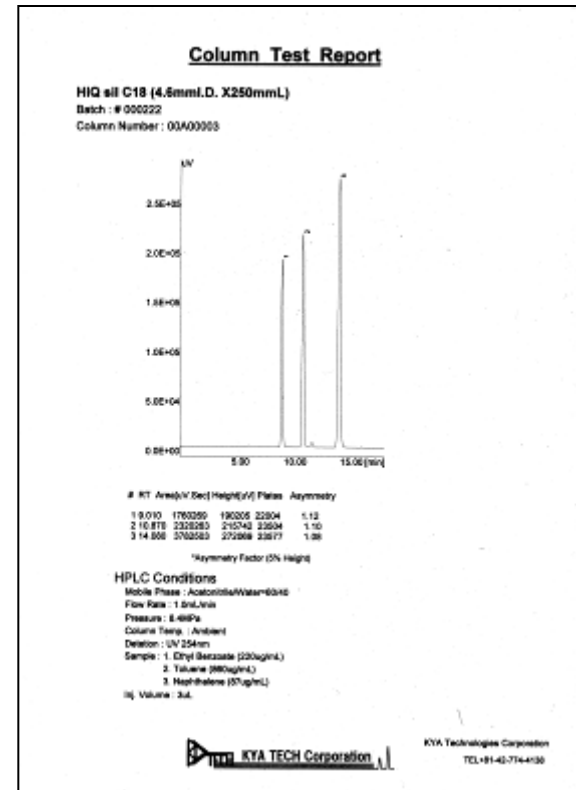


Electron micrograph of 5µm gel particle

Our Strict QA/QC(1)

Incoming material is checked in accordance with our intensive QC procedure to ensure the highest possible quality from the outset. The silica gel is subject to chemical treatment under strict conditions to ensure batch-to-batch reproducibility.

The columns are packed by trained experts under controlled conditions. Before leaving the factory each column manufactured at KYA Technologies is tested and a Column Test Report is attached to guarantee performance in your laboratory.

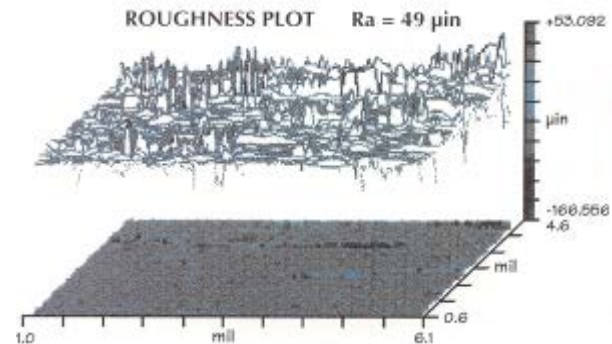
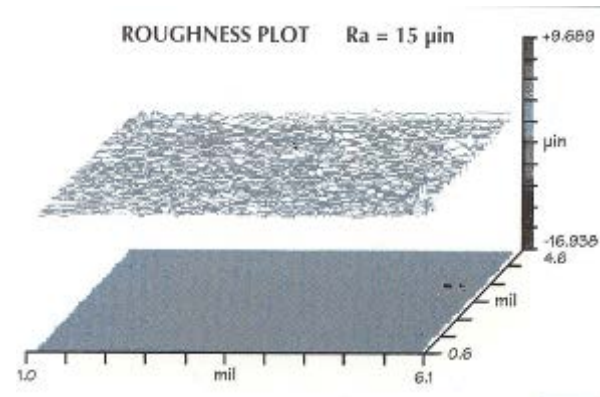


Column Test Report

Our Strict QA/QC(2)

Our attention to detail does not end with the packing material. We are also concerned with the finish of blank columns. Our column blanks are manufactured from highly polished stainless steel. - a measure of smoothness or flatness of the surface, expressed as the root average (Ra) in micro inches.

The smaller the number, the smoother or flatter the surface. The surface finish of the inner diameter of our column blanks is extremely flat to eliminate preferential flow paths and eddy spots.



HiQ sil™ for Micro to Analytical to Preparative

- ◆ New HiQ sil C18 high performance resolution analytical columns
- ◆ Capillary
- ◆ Semi-micro
- ◆ Analytical
- ◆ Preparative
- ◆ NanoLC spray columns
- ◆ DiNa trap columns



HiQ sil C18HS 21.2mmID x 150mmL

Guard column 21.2mmID x 30mmL

New HiQ C18HS sil Offers Outstanding Performance

- ◆ Outstanding loadability
- ◆ Effective end-cap to minimize residual silanol
- ◆ Outstanding acid and alkalinity resistance
- ◆ Excellent reproducibility
- ◆ Long life time – highly durable
- ◆ High pH tolerance for acid and alkali
- ◆ Good retention even with 100% aqueous eluents



Guaranteed Performance HiQ C18HS

All HiQ C18HS columns have been tested to guarantee that every column gives excellent performance at the customers' site. A validation certificate is included with every HiQ C18HS column.

CIBBS Validation certificate

Batch # 82762

Certificate of Analysis

1. Major Cell Data

Property	Result	Specification
Particle Size (nm)	4.3	4.2-4.8
Surface Area (m ² /g)	406	400-480
Pore Volume (mL/g)	1.7	1.66-1.88
Pore Size (Å)	180	85-175

2. Chemical Derivatization

Property	Result	Specification
Carbon content (%)	16.9	16.0-17.0

3. Chromatographic Results of Separation Factor (α)

Interaction	Result	Specification
1) Hydrophobic (C18)	1.86	1.6-1.8
2) Hydrogen interaction 1 (w/CAFE)	2.16	2.0-2.3
3) Hydrogen interaction 2 (w/PSD)	1.86	1.6-1.8
4) Surface polarity (w/MT)	2.66	2.0-2.3
5) Ion exchange interaction (w/PS)	2.48	2.0-2.7
6) Steric exclusion interaction (w/PS)	1.22	1.2-1.4

TEST I - Hydrophobic (C18)
 Mobile Phase: MeOH/H₂O (50/50), Flow Rate: 1 mL/min, Detection: UV 214nm, Column Temp: 40deg., Injection Volume: 10 µL, Sample: 1. 1.0mg/mL, 2. 2.0mg/mL, 3. 3.0mg/mL

TEST II - Hydrogen interaction 1 (w/CAFE)
 Mobile Phase: MeOH/H₂O (50/50), Flow Rate: 1 mL/min, Detection: UV 214nm, Column Temp: 40deg., Injection Volume: 10 µL, Sample: 1. 1.0mg/mL, 2. 2.0mg/mL, 3. 3.0mg/mL

TEST III - Hydrogen interaction 2 (w/PSD)
 Mobile Phase: MeOH/H₂O (50/50), Flow Rate: 1 mL/min, Detection: UV 214nm, Column Temp: 40deg., Injection Volume: 10 µL, Sample: 1. 1.0mg/mL, 2. 2.0mg/mL, 3. 3.0mg/mL

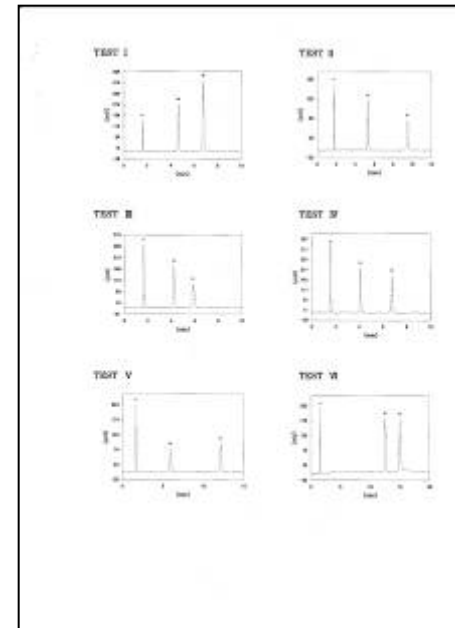
TEST IV - Surface polarity (w/MT)
 Mobile Phase: MeOH/H₂O (50/50), Flow Rate: 1 mL/min, Detection: UV 214nm, Column Temp: 40deg., Injection Volume: 10 µL, Sample: 1. 1.0mg/mL, 2. 2.0mg/mL, 3. 3.0mg/mL

TEST V - Ion exchange interaction (w/PS)
 Mobile Phase: MeOH/H₂O (50/50), Flow Rate: 1 mL/min, Detection: UV 214nm, Column Temp: 40deg., Injection Volume: 10 µL, Sample: 1. 1.0mg/mL, 2. 2.0mg/mL, 3. 3.0mg/mL

TEST VI - Steric exclusion interaction (w/PS)
 Mobile Phase: MeOH/H₂O (50/50), Flow Rate: 1 mL/min, Detection: UV 214nm, Column Temp: 40deg., Injection Volume: 10 µL, Sample: 1. 1.0mg/mL, 2. 2.0mg/mL, 3. 3.0mg/mL

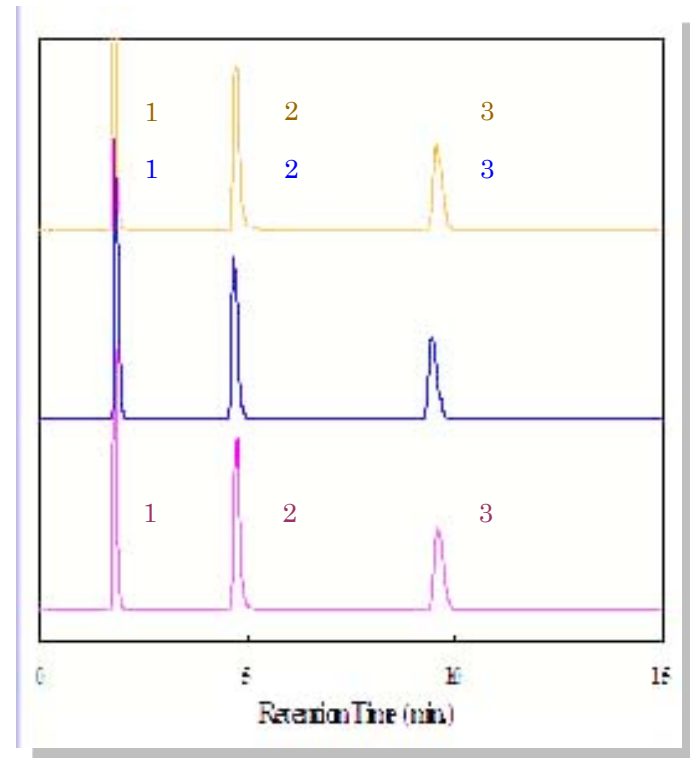
KYA TECH Corporation

R.S.A. Technology Corporation
 TEL: +81-426-24-8887
 FAX: +81-426-24-8888
 E-MAIL: kyatech@kyatech.com



EXCELLENT BATCH TO BATCH REPRODUCIBILITY

Excellent reproducibility on batch to bath productions has been realized due to our strict manufacturing control. The following data shows chromatograms of the HiQ sil C18HS columns from three different batches.

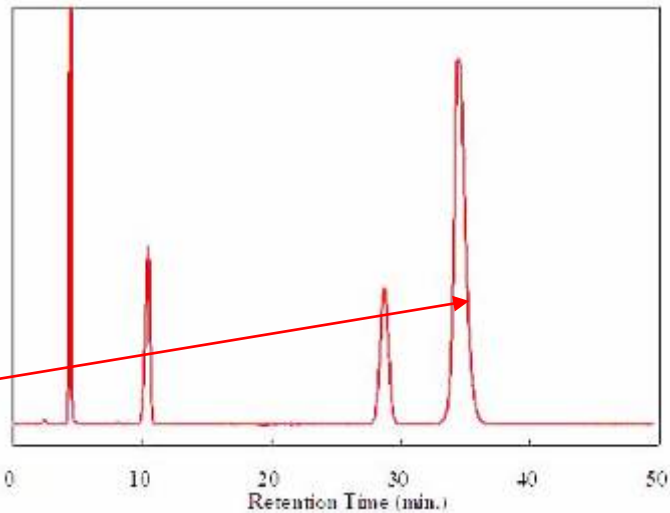
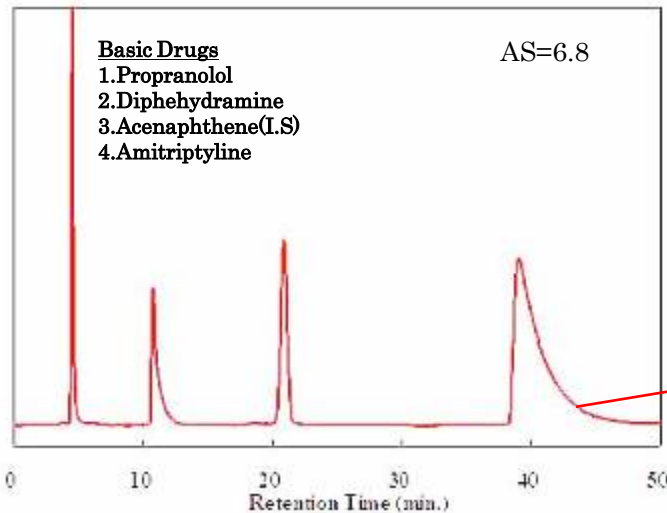


Column: HiQ sil C18HS 4.6mmID x 150mmL

EXCELLENT PEAK SHAPE

The new HiQ sil™ HS packing material has great peak symmetry characteristics. NMR data shows that the free silanol groups are completely undetectable. The carbon loading is around 17%. Even with difficult materials the new HS packing offers great resolution with virtually no tailing.

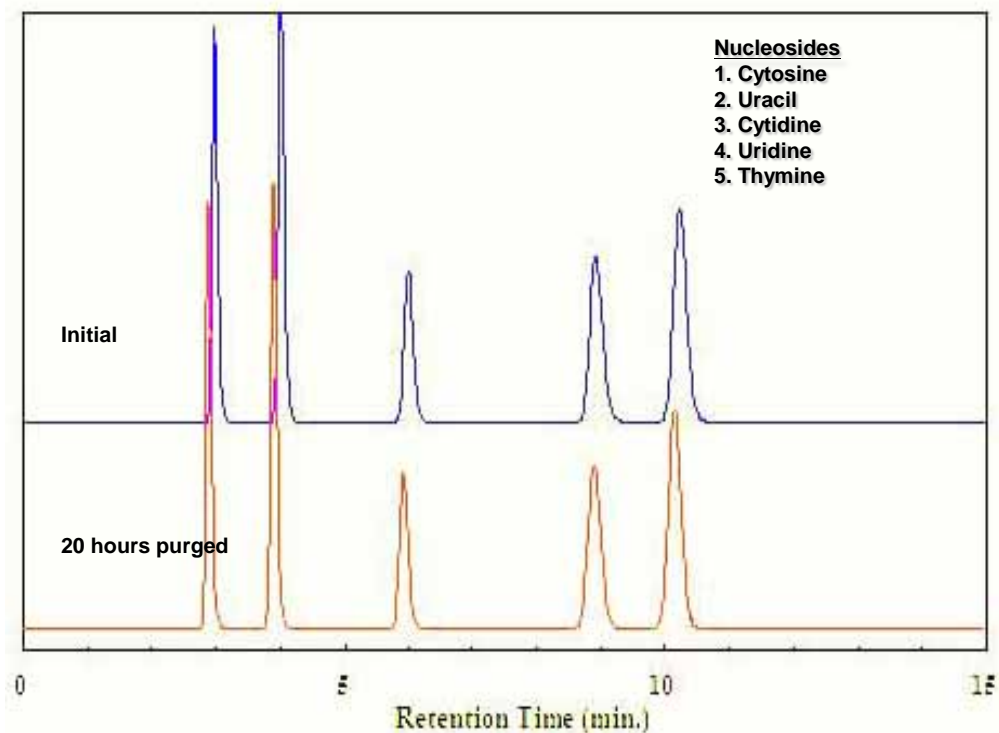
Effective newly developed high carbon loading end-capping method has drastically improved peak shape ; this is due the near absence of free silica moieties. There is virtually no tailing on the peaks and excellent symmetry peaks can be obtained from every HiQ sil™ C18HS column.



Column: HiQ sil C18HS 4.6mmID x 150mmL

Even with 100% Aqueous Mobile Phase....

Even with 100% aqueous mobile phase, the HiQ sil™ C18HS shows very good retention as shown below.



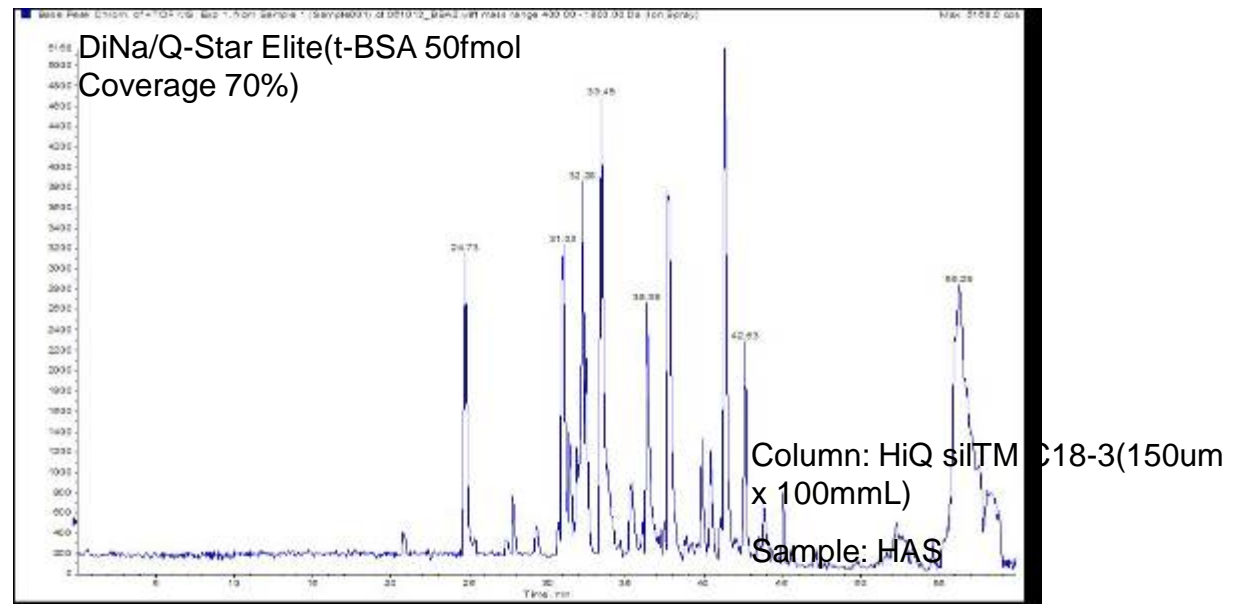
Column: HiQ sil C18HS 4.6mmID x 150mmL

SEMI-MICROAND CAPILLARY COLUMNS FOR LC-MS APPLICATIONS

The HiQ sil is packed into a range of columns for micro and semi-micro application. Starting from narrow capillaries of just 50 μ m up to 2mm ID, there is a size to suit very low flow-rate applications.

Columns for high resolution separations are packed in length of up to 250mm. For capacity the columns normally start at 75 μ lD x 45mm length for LC-MS proteomics applications.

Our 1mm columns are useful for increasing sensitivity at flow-rates in the region of 50 to 100 μ L/min while still retaining good reliability and column lifetime.



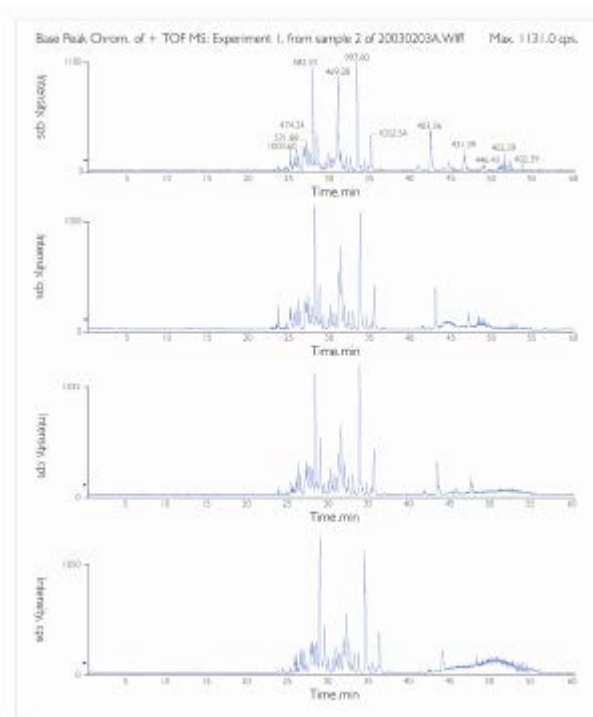
FRITLESS DIRECT ESI NANO SPRAY COLUMNS

Fritless direct ESI nano spray columns for sub-microlitre flow rates!

Easily handled with a ZDV fitting, not a connection sleeve! The metal fitting allows easy attachment to the ESI spray holder.

DiNaSpray™ columns can be used with virtually any ESI LC-MS interface.

Particle size is 3µm with a 120 Å pore size. Stationary phases are typically C8 and C18 for proteomics applications. Standard column dimensions are 150µm ID x 45mm length, but we can pack to your specific requirements from 50µm ID to 200µm ID and from 30mm to 150mm length.



HiQSiil™ PACKED TRAP COLUMNS FOR SAMPLE CLEAN-UP AND PRE-CONCENTRATION

DiNa™ Trap Columns can be used with any system. They are easy to handle and install, the outlet side is supplied with a length of pre-cut capillary.

These columns are packed in the same way as conventional columns making them more reliable and able to accept a higher sample loading than most other commercially available and home-made trap columns. Particle size is 3µm with a 120 Å pore size.

Stationary phase is C18 (other packing materials are available - C8, CN, Phenyl, Amino etc). Column dimension is 0.5mm ID x 1mm L.



Column Selection Guide

Sample characteristics		Separation mode	Product name	Base material	Functional group Particle and pore sizes
Water soluble Low polarity compounds to high polarity compounds		Reversed-phase distribution Separation by difference in polarity	HiQ sil C18HS	High purity silica gel	C18(Octadecyl)
			HiQ sil C8		C8 (Octyl)
			HiQ sil C4		C4 (Butyl)
			HiQ sil C1		C1 (Methyl)
			HiQ sil Ph		Phenyl
			HiQ sil CN		CN (Cyano)
Organic solvent soluble Low polarity compounds	Soluble in polar solvents, such as methanol or etc		HiQ sil NH ₂	High purity silica gel	NH ₂ (Amino)
			HiQ sil CN		CN (Cyano)
	Soluble in non-polar solvents, such as hexan	Normal phase distribution Separation by difference in adsorptivity	HiQ sil NH ₂		NH ₂ (Amino)
		Normal phase distribution Separation by difference in adsorptivity	HiQ sil SIL		

HiQ sil™ Product Information

Variation of Functional Groups

Product name	Particle size & pore size	Product name	Particle size and pore size
HiQ sil C18HS	5µm-100Å, 3µm-100Å, 10µm-100Å	HiQ sil C1	5µm-120Å, 10µm-120 Å
HiQ sil C18W	3µm-120Å, 5µm-120Å, 5µm-300Å, 15µm-120 Å	HiQ sil SIL	5µm-60Å, 5µm-100Å, 5µm-120Å, 10µm-120Å, 15µm-120Å
HiQ sil C8	5µm-120Å, 5µm-300Å, 10µm-120 Å	HiQ sil Ph	5µm-120Å, 10µm-120 Å
HiQ sil C4	5µm-120Å, 5µm-300Å	HiQ sil CN	5µm-120Å, 10µm-120 Å
HiQ sil NH ₂	5µm-120Å, 10µm-120 Å		

HiQ sil™ Product Information

Variation of Column Size

Column I.D	Column length	Scale
50µm,75µm,100µm,150µm	50mmL *different length is available.	LC-MS
0.3mm,0.5mm	35mmL, 50mmL, 75mmL, 100mmL, 150mmL,250mm	Micro
1.0mm,1.5mm,2.1mm	35mmL, 50mmL, 75mmL, 100mmL, 150mmL,250mm	Semi micro
4.0mm, 4.6mm	35mmL, 50mmL, 75mmL, 100mmL, 150mmL,250mmL,300mmL	Analytical
7.8mm, 10.0mm, 30.0mm, 50.0mm	250mmL	Preparative

KYA Technologies Corporation Japan

KYA contact details

General enquires

e-mail : info0829@kya-tech.co.jp

tel : 81-3-6417-3517

fax : 81-3-6417-3518

Web address

website : <http://www.kya-tech.co.jp/>

Address

KYA technologies Corporation
Meiji Yasuda Seimei Gotanda Bldg.
2-27-4 Nishigotanda Shinagawa-ku
Tokyo, Japan