Thermo Scientific Columns and SPE

New Thermo Scientific HPLC columns and HyperSep SPE phases with innovative hardware designs chemistries and formats.

Thermo Scientific HPLC Columns

Chromacol now offers the well known Thermo Scientific range of Hypersil classical and BDS materials and the Hypersil GOLD advanced materials in particle sizes down to 1.9µm.

Hypersil GOLD columns -
- Excellent peak shapes for all analyte types
- Improved selectivity, resolution and productivity
- Base deactivated type B silica for LC-MS and pharmaceutical applications

	Diameter µm	PD(A)	SA(m^2/g)	Carbon%	End-Capping	Column USP	Shape	Replaces HPLC Technology
Hypersil GOLD	1.9, 3, 5, 8,12	175	220	10.0	Yes	L1	spherical, silica	Techinert ODS
Hypersil GOLD C8	1.9, 3, 5	175	220	8.0	Yes	L7	spherical, silica	Techinert C8
Hypersil GOLD CN	1.9, 3, 5	175	220	4.0	Yes	L10	spherical, silica	Techinert CN
Hypersil GOLD Phenyl	1.9, 3, 5	175	220	8.5	Yes	L11	spherical, silica	

Hypersil Classical columns -
- Reliable and reproducible
- Trusted for over 30 years
- General purpose type A silica for routine analysis

Hypersil ODS	3, 5, 10	120	170	10.0	Yes	L1	spherical, silica	Techsphere ODS
Hypersil SAS	3, 5, 10	120	170	2.5	Yes	L13	spherical, silica	Techsphere C1
Hypersil MOS	3, 5, 10	120	170	6.5	No	L7	spherical, silica	Techsphere C8
Hypersil Phenyl	3, 5, 10	120	170	5.0	No	L11	spherical, silica	Techsphere Phenyl
Hypersil SAX	5	120	170	2.5	Yes	L14	spherical, silica	Techsphere SAX
Hypersil CPS	3, 5, 10	120	170	4.0	No	L10	spherical, silica	Techsphere CN
Hypersil APS-2	3, 5, 10	120	170	1.9	No	L8	spherical, silica	Techsphere Amino
Hypersil Silica	3, 5, 10	120	170			L3	spherical, silica	Techsphere Si

BioBasic columns -
- Improved performance for peptides, proteins and biomolecules
- 300Å pore size

Biobasic™ 18	5	300	100	9.0	Yes	L1	spherical, silica	Techogel 300 C18
Biobasic 4	5	300	100	4.0	Yes	L26	spherical, silica	Techogel 300 C4
Biobasic 8	5	300	100	5.0	Yes	L7	spherical, silica	Techogel 300 C8
Biobasic AX	5	300	100	3.0			spherical, silica	Techogel 300 PAX
Biobasic SCX	5	300	100	3.0		L52	spherical, silica	

Hypersil BDS columns -
- Base deactivated for reduced peak tailing
- Highly reproducible and robust with long lifetimes

Hypersil BDS C18	3, 5	130	170	11.0	Yes	L1	spherical, silica	Techsphere BDS ODS
Hypersil BDS C8	3, 5	130	170	7.0	Yes	L7	spherical, silica	Techsphere BDS C8

Hypersil Green PAH - Dedicated columns for the analysis of polyatomic hydrocarbons

Hypersil Green PAH	3, 5	120	170	13.5	Yes		spherical, silica	Techsphere PAH

Material Range Specifications

Particle Diameter

The smaller the particle size the more efficient the separation, but the greater the operating pressure.

Surface Area

The larger the surface area the greater the adsorption of the material and the higher the retention of the material. Measured as m^2/g just 1 gram of packing material has an effective surface area of hundreds of square meters.

Pore Diameter

The porosity of the particle controls the size of molecules that may be separated. The pore diameter is usually stated in Angstrom units (Å) but may also be measured in nanometers (nm). 10 Angstrom = 1 nanometer. Narrow pore materials are most common in HPLC but wide pore materials are required if larger molecules such as proteins require separation. These have pore diameters of 30nm or greater.

Carbon Load

When the surface is chemically modified the coverage is measured as the % weight for weight of organic carbon. The higher the carbon load the more efficient the coating and more retentive the material when used in Reverse Phase separations.

End-Capping

This is a chemical process carried out to remove unwanted interactions with un-reacted sites on the material surface.

Particle Shape

Most HPLC materials are composed of porous spherical particles. Older irregular materials do not pack as well and can give higher than expected operating pressures.

Silica Type

Type A Silicas have an active surface and can show extra retention of basic compounds.
Type B Silicas have a deactivated surface and can be used for analysis of basic and polar compounds.

Hypersil GOLD columns -

- Outstanding peak shape using generic gradients with C18 selectivity
- Reduced peak tailing enhances resolution and improves sensitivity

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id	1mm id
1.9	20			25002-023030	25002-022130	25002-021030
	30			25002-033030	25002-032130	25002-031030
	50			25002-053030	25002-052130	25002-051030
	100			25002-103030	25002-102130	25002-101030
	150				25002-152130	
	200				25002-202130	
3	30	25003-034630	25003-034030	25003-033030	25003-032130	25003-031030
	50	25003-054630	25003-054030	25003-053030	25003-052130	25003-051030
	100	25003-104630	25003-104030	25003-103030	25003-102130	25003-101030
	150	25003-154630	25003-154030	25003-153030	25003-152130	25003-151030
5	30	25005-034630	25005-034030	25005-033030	25005-032130	25005-031030
	50	25005-054630	25005-054030	25005-053030	25005-052130	25005-051030
	100	25005-104630	25005-104030	25005-103030	25005-102130	25005-101030
	150	25005-154630	25005-154030	25005-153030	25005-152130	25005-151030
	250	25005-254630	25005-254030	25005-253030	25005-252130	25005-251030
8	150	25008-154630				
	250	25008-254630				

Hypersil GOLD C8 columns -

- Similar selectivity but less retention than a C18 column
- Ideal when a less hydrophobic phase is required

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id	1mm id
1.9	20			25202-023030	25202-022130	25202-021030
	30			25202-033030	25202-032130	25202-031030
	50			25202-053030	25202-052130	25202-051030
	100			25202-103030	25202-102130	25202-101030
	150				25202-152130	
	200				25202-202130	
3	30	25203-034630	25203-034030	25203-033030	25203-032130	25203-031030
	50	25203-054630	25203-054030	25203-053030	25203-052130	25203-051030
	100	25203-104630	25203-104030	25203-103030	25203-102130	25203-101030
	150	25203-154630	25203-154030	25203-153030	25203-152130	25203-151030
5	30	25205-034630	25205-034030	25205-033030	25205-032130	25205-031030
	50	25205-054630	25205-054030	25205-053030	25205-052130	25205-051030
	100	25205-104630	25205-104030	25205-103030	25205-102130	25205-101030
	150	25205-154630	25205-154030	25205-153030	25205-152130	25205-151030
	250	25205-254630	25205-254030	25205-253030	25205-252130	25205-251030

Hypersil GOLD CN columns -

- Can be used for both reversed and normal phase separations
- Alternative selectivity to C18

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id	1mm id
1.9	20			25802-023030	25802-022130	25802-021030
	30			25802-033030	25802-032130	25802-031030
	50			25802-053030	25802-052130	25802-051030
	100			25802-103030	25802-102130	25802-101030
	150				25802-152130	
	200				25802-202130	
3	30	25803-034630	25803-034030	25803-033030	25803-032130	25803-031030
	50	25803-054630	25803-054030	25803-053030	25803-052130	25803-051030
	100	25803-104630	25803-104030	25803-103030	25803-102130	25803-101030
	150	25803-154630	25803-154030	25803-153030	25803-152130	25803-151030
5	30	25805-034630	25805-034030	25805-033030	25805-032130	25805-031030
	50	25805-054630	25805-054030	25805-053030	25805-052130	25805-051030
	100	25805-104630	25805-104030	25805-103030	25805-102130	25805-101030
	150	25805-154630	25805-154030	25805-153030	25805-152130	25805-151030
	250	25805-254630	25805-254030	25805-253030	25805-252130	25805-251030

Thermo Scientific HPLC Columns

Hypersil GOLD Phenyl columns -

- Ideal for mixtures with varying polarity and aromaticity
- Enhanced pi-pi interactions with aromatic molecules

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id	1mm id
1.9	20			25902-023030	25902-022130	25902-021030
	30			25902-033030	25902-032130	25902-031030
	50			25902-053030	25902-052130	25902-051030
	100			25902-103030	25902-102130	25902-101030
	150				25902-152130	
	200				25902-202130	
3	30	25903-034630	25903-034030	25903-033030	25903-032130	25903-031030
	50	25903-054630	25903-054030	25903-053030	25903-052130	25903-051030
	100	25903-104630	25903-104030	25903-103030	25903-102130	25903-101030
	150	25903-154630	25903-154030	25903-153030	25903-152130	25903-151030
5	30	25905-034630	25905-034030	25905-033030	25905-032130	25905-031030
	50	25905-054630	25905-054030	25905-053030	25905-052130	25905-051030
	100	25905-104630	25905-104030	25905-103030	25905-102130	25905-101030
	150	25905-154630	25905-154030	25905-153030	25905-152130	25905-151030
	250	25905-254630	25905-254030	25905-253030	25905-252130	25905-251030

BioBasic 18 columns -

- Outstanding separation of small to medium peptides
- High peak capacity stationary phase

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id	1mm id
5	30	72105-034630	72105-034030	72105-033030	72105-032130	72105-031030
	50	72105-054630	72105-054030	72105-053030	72105-052130	72105-051030
	100	72105-104630	72105-104030	72105-103030	72105-102130	72105-101030
	150	72105-154630	72105-154030	72105-153030	72105-152130	72105-151030
	250	72105-254630	72105-254030	72105-253030	72105-252130	72105-251030

BioBasic 8 columns -

- Ideal for the separation of a wide range of peptides
- Excellent starting column for protein and peptide separations

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id	1mm id
5	50	72205-054630	72205-054030	72205-053030	72205-052130	72205-051030
	100	72205-104630	72205-104030	72205-103030	72205-102130	72205-101030
	150	72205-154630	72205-154030	72205-153030	72205-152130	72205-151030
	250	72205-254630	72205-254030	72205-253030	72205-252130	72205-251030

BioBasic 4 columns -

- Designed for the analysis of larger peptides and proteins
- Lower carbon loading for optimal retention of larger biomolecules

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id	1mm id
5	50	72305-054630	72305-054030	72305-053030	72305-052130	72305-051030
	100	72305-104630	72305-104030	72305-103030	72305-102130	72305-101030
	150	72305-154630	72305-154030	72305-153030	72305-152130	72305-151030
	250	72305-254630	72305-254030	72305-253030	72305-252130	72305-251030

BioBasic CN columns -

- Alternative selectivity for proteins
- Offers changes in elution order

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id	1mm id
5	50	72905-054630	72905-054030	72905-053030	72905-052130	72905-051030
	100	72905-104630	72905-104030	72905-103030	72905-102130	72905-101030
	150	72905-154630	72905-154030	72905-153030	72905-152130	72905-151030
	250	72905-254630	72905-254030	72905-253030	72905-252130	72905-251030

BioBasic SCX columns -

- Strong cation exchanger based on sulphonic acid chemistry
- Separation of proteins, peptides and cationic species

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id	1mm id
5	50	73205-054630	73205-054030	73205-053030	73205-052130	73205-051030
	100	73205-104630	73205-104030	73205-103030	73205-102130	73205-101030
	150	73205-154630	73205-154030	73205-153030	73205-152130	73205-151030
	250	73205-254630	73205-254030	73205-253030	73205-252130	73205-251030

BioBasic AX columns -

- Weak polyethyleneimine anion exchanger
- Offers retention of polar analytes in HILIC mode

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id	1mm id
5	50	73105-054630	73105-054030	73105-053030	73105-052130	73105-051030
	100	73105-104630	73105-104030	73105-103030	73105-102130	73105-101030
	150	73105-154630	73105-154030	73105-153030	73105-152130	73105-151030
	250	73105-254630	73105-254030	73105-253030	73105-252130	73105-251030

Hypersil BDS C18 columns -

- Base deactiviated with minimal residual silanol activity
- Economical general purpose columns

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id
3	30	28103-034630	28103-034030	28103-033030	28103-032130
	50	28103-054630	28103-054030	28103-053030	28103-052130
	100	28103-104630	28103-104030	28103-103030	28103-102130
	150	28103-154630	28103-154030	28103-153030	28103-152130
5	50	28105-054630	28105-054030	28105-053030	28105-052130
	100	28105-104630	28105-104030	28105-103030	28105-102130
	125	28105-124630	28105-124030	28105-123030	28105-122130
	150	28105-154630	28105-154030	28105-153030	28105-152130
	200	28105-204630	28105-204030	28105-203030	28105-202130
	250	28105-254630	28105-254030	28105-253030	28105-252130

Hypersil BDS C8 columns -

- Ideal for mixtures with varying polarity and aromaticity
- Enhanced pi-pi interactions with aromatic molecules

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id
3	50	28203-054630	28203-054030	28203-053030	28203-052130
	100	28203-104630	28203-104030	28203-103030	28203-102130
	150	28203-154630	28203-154030	28203-153030	28203-152130
5	50	28205-054630	28205-054030	28205-053030	28205-052130
	100	28205-104630	28205-104030	28205-103030	28205-102130
	150	28205-154630	28205-154030	28205-153030	28205-152130
	250	28205-254630	28205-254030	28205-253030	28205-252130

Hypersil ODS (C18) columns -

- Global standard for many existing methods
- High efficiency and proven reliability

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id
3	50	30103-054630	30103-054030	30103-053030	30103-052130
	100	30103-104630	30103-104030	30103-103030	30103-102130
	125	30103-124630	30103-124030	30103-123030	30103-122130
	150	30103-154630	30103-154030	30103-153030	30103-152130
	250	30103-254630	30103-254030	30103-253030	30103-252130
5	50	30105-054630	30105-054030	30105-053030	30105-052130
	100	30105-104630	30105-104030	30105-103030	30105-102130
	125	30105-124630	30105-124030	30105-123030	30105-122130
	150	30105-154630	30105-154030	30105-153030	30105-152130
	200	30105-204630	30105-204030	30105-203030	30105-202130
	250	30105-254630	30105-254030	30105-253030	30105-252130
10	250	30110-254630			

Hypersil ODS-2 (C18) columns -

- Rugged and reliable columns
- Selectivity over a wide range of applications

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id
3	50	31603-054630	31603-054030	31603-053030	31603-052130
	100	31603-104630	31603-104030	31603-103030	31603-102130
	150	31603-154630	31603-154030	31603-153030	31603-152130
5	50	31605-054630	31605-054030	31605-053030	31605-052130
	100	31605-104630	31605-104030	31605-103030	31605-102130
	150	31605-154630	31605-154030	31605-153030	31605-152130
	250	31605-254630	31605-254030	31605-253030	31605-252130

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Hypersil MOS (C8) columns -
- Reliable columns with less retention than ODS
- Long column lifetimes, even under basic conditions

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id
3	50	30203-054630	30203-054030	30203-053030	30203-052130
	100	30203-104630	30203-104030	30203-103030	30203-102130
	150	30203-154630	30203-154030	30203-153030	30203-152130
5	50	30205-054630	30205-054030	30205-053030	30205-052130
	100	30205-104630	30205-104030	30205-103030	30205-102130
	150	30205-154630	30205-154030	30205-153030	30205-152130
	250	30205-254630	30205-254030	30205-253030	30205-252130

Hypersil MOS-2 (C8) columns - An endcapped version of Hypersil MOS

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id
3	50	30303-054630	30303-054030	30303-053030	30303-052130
	100	30303-104630	30303-104030	30303-103030	30303-102130
	150	30303-154630	30303-154030	30303-153030	30303-152130
5	50	30305-054630	30305-054030	30305-053030	30305-052130
	100	30305-104630	30305-104030	30305-103030	30305-102130
	150	30305-154630	30305-154030	30305-153030	30305-152130
	250	30305-254630	30305-254030	30305-253030	30305-252130

Hypersil SAS (C1) columns -
- Short alkyl chain reversed phase material
- Least retentive Hypersil phase

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id
3	50	30503-054630	30503-054030	30503-053030	30503-052130
	100	30503-104630	30503-104030	30503-103030	30503-102130
	150	30503-154630	30503-154030	30503-153030	30503-152130
	250	30503-254630	30503-254030	30503-253030	30503-252130
5	50	30505-054630	30505-054030	30505-053030	30505-052130
	100	30505-104630	30505-104030	30505-103030	30505-102130
	150	30505-154630	30505-154030	30505-153030	30505-152130
	250	30505-254630	30505-254030	30505-253030	30505-252130

Hypersil Phenyl columns -
- Similar retention to MOS with alternative selectivity
- Recommended for the separation of aromatic and moderately polar analytes

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id
3	50	30903-054630	30903-054030	30903-053030	30903-052130
	100	30903-104630	30903-104030	30903-103030	30903-102130
	150	30903-154630	30903-154030	30903-153030	30903-152130
5	50	30905-054630	30905-054030	30905-053030	30905-052130
	100	30905-104630	30905-104030	30905-103030	30905-102130
	150	30905-154630	30905-154030	30905-153030	30905-152130
	250	30905-254630	30905-254030	30905-253030	30905-252130

Hypersil Phenyl-2 columns - An endcapped version of Hypersil Phenyl

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id
5	50	31905-054630	31905-054030	31905-053030	31905-052130
	100	31905-104630	31905-104030	31905-103030	31905-102130
	150	31905-154630	31905-154030	31905-153030	31905-152130
	250	31905-254630	31905-254030	31905-253030	31905-252130

Hypersil CPS columns -

- Operate in both normal and reversed phase modes
- Useful to separate polar compounds

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id
3	50	30803-054630	30803-054030	30803-053030	30803-052130
	100	30803-104630	30803-104030	30803-103030	30803-102130
	150	30803-154630	30803-154030	30803-153030	30803-152130
5	50	30805-054630	30805-054030	30805-053030	30805-052130
	100	30805-104630	30805-104030	30805-103030	30805-102130
	150	30805-154630	30805-154030	30805-153030	30805-152130
	250	30805-254630	30805-254030	30805-253030	30805-252130

Hypersil CPS-2 columns - An endcapped version of Hypersil CPS

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id
5	50	31805-054630	31805-054030	31805-053030	31805-052130
	100	31805-104630	31805-104030	31805-103030	31805-102130
	150	31805-154630	31805-154030	31805-153030	31805-152130
	250	31805-254630	31805-254030	31805-253030	31805-252130

Hypersil APS-2 columns -

- Versatile amino propyl phase
- Extra sensitivity for sugar analysis

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id
3	50	30703-054630	30703-054030	30703-053030	30703-052130
	100	30703-104630	30703-104030	30703-103030	30703-102130
	150	30703-154630	30703-154030	30703-153030	30703-152130
5	50	30705-054630	30705-054030	30705-053030	30705-052130
	100	30705-104630	30705-104030	30705-103030	30705-102130
	150	30705-154630	30705-154030	30705-153030	30705-152130
	250	30705-254630	30705-254030	30705-253030	30705-252130

Hypersil Silica columns -

- Excellent batch to batch reproducibility
- Narow particle size distribution

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id
3	50	30003-054630	30003-054030	30003-053030	30003-052130
	100	30003-104630	30003-104030	30003-103030	30003-102130
	150	30003-154630	30003-154030	30003-153030	30003-152130
5	50	30005-054630	30005-054030	30005-053030	30005-052130
	100	30005-104630	30005-104030	30005-103030	30005-102130
	150	30005-154630	30005-154030	30005-153030	30005-152130
	250	30005-254630	30005-254030	30005-253030	30005-252130

Hypersil SAX columns -

- Quaternary amine ion exchange ligand
- Suitable for small organic molecules including nucleotides and organic acids

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id
5	50	34105-054630	34105-054030	34105-053030	34105-052130
	100	34105-104630	34105-104030	34105-103030	34105-102130
	150	34105-154630	34105-154030	34105-153030	34105-152130
	250	34105-254630	34105-254030	34105-253030	34105-252130

Hypersil Green PAH columns -

- Dedicated columns for the analysis of polyaromatic hydrocarbons
- Optimised for EPA method 610

Particle Size (µm)	Length (mm)	4.6mm id	4mm id	3mm id	2.1mm id
3	50	31103-054630	31103-054030	31103-053030	31103-052130
	100	31103-104630	31103-104030	31103-103030	31103-102130
	150	31103-154630	31103-154030	31103-153030	31103-152130
5	100	31105-104630	31105-104030	31105-103030	31105-102130
	150	31105-154630	31105-154030	31105-153030	31105-152130
	250	31105-254630	31105-254030	31105-253030	31105-252130

Thermo Scientific Drop-in Guard Cartridges

- Convenient, economical replacement guard cartridges
- Variety of stationary phases and particle sizes
- Fits Thermo Scientific UNIGUARD™ direct-connection and stand-alone holders

Thermo Scientific drop-in guard cartridges and holders offer convenience, economy, and effective protection for extending analytical column lifetimes. Drop-in guard cartridges are available in all popular stationary phases. The 10 mm design offers maximum protection with minimal increase in retention. For light to moderate contamination, this dimension of guard has adequate capacity to trap and retain interferences from sample injections throughout an analysis sequence. Once contaminated, they should be disposed of and replaced with a new cartridge rather than performing a clean up. This ensures that your analytical column will always perform at its optimum level and remain free from contamination. The same replaceable cartridges fit the UNIGUARD and stand-alone holders, allowing your laboratory to standardize on a single guard cartridge for multiple holder designs.

Phase	Quantity	Particle Size	Length (mm)	4.6 mm/ 4.0 mm id	3.0 mm id	2.1 mm id	1.0 mm id
Hypersil GOLD	4	3 µm	10	25003-014001	25003-013001	25003-012101	25003-011001
	4	5 µm	10	25005-014001	25005-013001	25005-012101	25005-011001
Hypersil GOLD C8	4	3 µm	10	25203-014001	25203-013001	25203-012101	25203-011001
	4	5 µm	10	25205-014001	25205-013001	25205-012101	25205-011001
Hypersil GOLD aQ™	4	3 µm	10	25303-014001	25303-013001	25303-012101	25303-011001
	4	5 µm	10	25305-014001	25305-013001	25305-012101	25305-011001
Hypersil GOLD PFP	4	3 µm	10	25403-014001	25403-013001	25403-012101	25403-011001
	4	5 µm	10	25405-014001	25405-013001	25405-012101	25405-011001
Hypersil GOLD CN	4	3 µm	10	25803-014001	25803-013001	25803-012101	25803-011001
	4	5 µm	10	25805-014001	25805-013001	25805-012101	25805-011001
Hypersil GOLD	4	3 µm	10	25903-014001	25903-013001	25903-012101	25903-011001
Phenyl	4	5 µm	10	25905-014001	25905-013001	25905-012101	25905-011001
BioBasic 18	4	5 µm	10	72105-014001	72105-013001	72105-012101	72105-011001
BioBasic 8	4	5 µm	10	72205-014001	72205-013001	72205-012101	72205-011001
BioBasic AX	4	5 µm	10	73105-014001	73105-013001	73105-012101	73105-011001
BioBasic SCX	4	5 µm	10	73205-014001	73205-013001	73205-012101	73205-011001
Hypersil BDS C18	4	3 µm	10	28103-014001	28103-013001	28103-012101	28103-011001
Hypersil BDS C18	4	5 µm	10	28105-014001	28105-013001	28105-012101	28105-011001
Hypersil BDS C8	4	5 µm	10	28205-014001	28205-013001	28205-012101	28205-011001
Hypersil ODS	4	3 µm	10	30103-014001	30103-013001	30103-012101	30103-011001
Hypersil ODS	4	5 µm	10	30105-014001	30105-013001	30105-012101	30105-011001
Hypercarb™	2	3 µm	10	35003-014001	35003-013001	35003-012101	35003-011001
Hypercarb	2	5 µm	10	35005-014001	35005-013001	35005-012101	35005-011001

**Note: 4.0 mm drop-ins are used for both 4.0 and 4.6 mm analytical columns.*

Thermo Scientific Drop-in Guard Cartridges

Thermo Scientific UNIGUARD Direct-Connection Guard Cartridge Holder

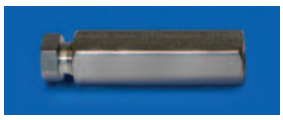
- Direct-connection design eliminates requirement for extra fittings
- Fast and simple fingertight installation on column
- Convenient replacement drop-in cartridges

The UNIGUARD holder is a convenient reusable direct-connection guard cartridge holder for 10 mm cartridges that attaches directly to the analytical column inlet. The stainless steel, fingertight direct-connection design requires no additional tubing for maximum chromatographic efficiency. The PEEK™ 1/16" male outlet fits all Thermo Scientific columns, as well as many other brands. The 1/16" female inlet connects with a standard 1/16" nut and ferrule, fingertight fitting, or Thermo Scientific SLIPFREE connector.

DESCRIPTION	4.6 mm/4.0 mm id	3.0 mm id	2.1 mm id	1.0 mm id
UNIGUARD Drop-in Holder	850-00	852-00	852-00	851-00
Standard Replacement Tip	850-RT	850-RT	850-RT	850-RT
Waters® Columns Replacement Tip	850-WT	850-WT	850-WT	850-WT

Thermo Scientific Stand-alone Guard Cartridge Holder

- Traditional in-line design is compatible with all HPLC column brands
- Convenient drop-in replacement cartridges



The stand-alone guard cartridge holder connects to the analytical column with short sections of tubing. The traditional design can be used with any brand of HPLC column, and uses the same convenient 10 mm drop-in guard cartridges as the UNIGUARD cartridge holder. When placed in-line using a short SLIPFREE connector, the stand-alone guard holder provides excellent chromatographic efficiency.

DESCRIPTION	4.6 mm/4.0 mm id	3.0 mm id	2.1 mm id	1.0 mm id
Stand-alone Guard Cartridge Holder	840-00	843-00	842-00	841-00

Thermo Scientific HyperSep SPE Products

Thermo Scientific HyperSep SPE

Solid phase extraction columns

- Unique sorbents available for normal phase, reversed phase and ion exchange extractions
- Highly reproducible and efficient phases
- Versatile and rugged sample preparation
- Available for use in biological, pharmaceutical, forensic, toxicological and environmental applications
- Consistently high recoveries free from contaminants and impurities

The manufacture of Thermo Scientific HyperSep sorbents ensures a controlled particle size distribution, providing reproducible flow characteristics and low backpressure for automation-friendly SPE columns. An even particle size distribution within the bed eliminates channeling, providing a larger surface area of sorbent available for interaction.

HyperSep solid phase extraction columns offer reproducible and reliable sample preparation in a traditional format. The polypropylene columns are chemically resistant. Two polyethylene frits are used to support the sorbent bed within the column. The columns are ideal for large samples and conform to industry standard configurations.

HyperSep columns are available in a range of bed weights to suit a wide range of applications. Samples can be processed through the columns by vacuum, by positive pressure or by centrifugation.

SORBENT	PHASE DESCRIPTION	MEAN PARTICLE SIZE (µm)	MEAN PORE SIZE (Å)	ENDCAPPED	PRIMARY RETENTION MECHANISMS
HYPERCARB	100% porous graphitic carbon stable across the entire pH range	30	250		Hydrophobic reversed phase. Normal phase adsorption. Polar retention effect on graphite (PREG)
RETAIN PEP	Polar enhanced polymer, poly-divinyl benzene with urea functionality	30-50	70	No	Hydrophobic reversed phase and hydrophilic normal phase.
RETAIN-CX	Polar enhanced polymer, poly-divinyl benzene partially functionalized with sulfonic acid	30-50	70	No	Hydrophobic reversed phase and cation exchange
RETAIN-AX	Polar enhanced polymer, poly-divinyl benzene partially functionalized with quaternary amine	30-50	70	No	Hydrophobic reversed phase and anion exchange
C18	Trifunctional octadecyl	40-60	60	No	Hydrophobic reversed phase
C8	Trifunctional octyl	40-60	60	No	Hydrophobic reversed phase
PHENYL	Trifunctional phenyl	40-60	60	No	Hydrophobic reversed phase
SILICA	Unbonded activated silica	40-60	60	No	Hydrophobic normal phase
SAX	Trifunctional quaternary amine, 0.25 mEq/g, Cl^- counter ion	40-60	60	No	Anion exchange
SCX	Trifunctional benzene sulfonic acid, 0.32 mEq/g, H^+ counter ion	40-60	60	No	Cation exchange
VERIFY™-CX	Mixed mode, containing C8 and benzene sulfonic acid	40-60	60	No	Cation exchange, non-polar
VERIFY-AX	Mixed mode, containing C8 and quaternary amine	40-60	60	No	Anion exchange, non-polar
FLORISIL	Florisil	40-60		No	Hydrophobic normal phase
AMINOPROPYL	Trifunctional aminopropyl, 0.31 mEq/g	40-60	60	No	Normal phase, weak anion exchange
CYANO	Trifunctional cyanopropyl	40-60	60	No	Polar (nonpolar organic matrix) or weak nonpolar (aqueous matrix)

Thermo Scientific HyperSep SPE Products

HyperSep SPE Column <1g

PART	DESCRIPTION	Aminopropyl	PK
SPEAPL-364	Aminopropyl 100mg/1mL		100
SPEAPL-424	Aminopropyl 50mg/1mL		100
SPEAPL-425	Aminopropyl 200mg/3mL		50
SPEAPL-518	Aminopropyl 500mg/3mL		50
SPEAPL-519	Aminopropyl 500mg/6mL		30

PART	DESCRIPTION	C18	PK
SPEC18-390	C18 50mg/1mL		100
SPEC18-302	C18 100mg/1mL		100
SPEC18-303	C18 200mg/3mL		50
SPEC18-304	C18 500mg/3mL		50
SPEC18-305	C18 500mg/6mL		30

PART	DESCRIPTION	C8	PK
SPEC8-391	C8 50mg/1mL		100
SPEC8-392	C8 100mg/1mL		100
SPEC8-393	C8 200mg/3mL		50
SPEC8-309	C8 500mg/3mL		50
SPEC8-394	C8 500mg/6mL		30

PART	DESCRIPTION	Cyano	PK
SPECN-746	Cyano 50mg/1mL		100
SPECN-745	Cyano 100mg/1mL		100
SPECN-747	Cyano 200mg/3mL		50
SPECN-748	Cyano 500mg/3mL		50
SPECN-749	Cyano 500mg/6mL		30

PART	DESCRIPTION	Florisil	PK
SPEFSIL-402	Florisil 50mg/1mL		100
SPEFSIL-403	Florisil 100mg/1mL		100
SPEFSIL-404	Florisil 200mg/3mL		50
SPEFSIL-405	Florisil 500mg/3mL		50
SPEFSIL-500	Florisil 500mg/6mL		30

PART	DESCRIPTION	Retain	PK
SPEPEP-201	Retain PEP 30mg/1mL		100
SPEPEP-202	Retain PEP 30mg/3mL		50
SPEPEP-203	Retain PEP 60mg/3mL		50
SPEPEP-204	Retain PEP 200mg/3mL		50
SPEPEP-205	Retain PEP 500mg/3mL		50
SPEPEP-206	Retain PEP 500mg/6mL		30

PART	DESCRIPTION	Hypercarb	PK
SPEPGC-301	Hypercarb 200mg/3mL		30
SPEPGC-302	Hypercarb 100mg/1mL		30
SPEPGC-303	Hypercarb 50mg/1mL		50
SPEPGC-402	Hypercarb 500mg/6mL		20

PART	DESCRIPTION	Phenyl	PK
SPEPH-516	Phenyl 50mg/1mL		100
SPEPH-386	Phenyl 100mg/1mL		100
SPEPH-387	Phenyl 200mg/3mL		50
SPEPH-388	Phenyl 500mg/3mL		50
SPEPH-389	Phenyl 500mg/6mL		30

HyperSep SPE Column >1g

PART	DESCRIPTION	Aminopropyl	PK
SPEAPL-432	Aminopropyl 1g/6mL		30
SPEAPL-738	Aminopropyl 2g/15mL		20
SPEAPL-739	Aminopropyl 5g/25mL		20
SPEAPL-740	Aminopropyl 10g/75mL		10

PART	DESCRIPTION	C18	PK
SPEC18-301	C18 1g/6mL		30
SPEC18-701	C18 2g/15mL		20
SPEC18-702	C18 5g/25mL		20
SPEC18-703	C18 10g/75mL		10

PART	DESCRIPTION	C8	PK
SPEC8-427	C8 1g/6mL		30
SPEC8-704	C8 2g/15mL		20
SPEC8-705	C8 5g/25mL		20
SPEC8-706	C8 10g/75mL		10

PART	DESCRIPTION	Cyano	PK
SPECN-750	Cyano 1g/6mL		30
SPECN-751	Cyano 2g/15mL		20
SPECN-752	Cyano 5g/25mL		20
SPECN-753	Cyano 10g/75mL		10

PART	DESCRIPTION	Florisil	PK
SPEFSIL-431	Florisil 1g/6mL		30
SPEFSIL-735	Florisil 2g/15mL		20
SPEFSIL-736	Florisil 5g/25mL		20
SPEFSIL-737	Florisil 10g/75mL		10

PART	DESCRIPTION	Hypercarb	PK
SPEPGC-403	Hypercarb 1g/6mL		10
SPEPGC-404	Hypercarb 2g/15mL		10

PART	DESCRIPTION	Phenyl	PK
SPEPH-517	Phenyl 1g/6mL		30
SPEPH-707	Phenyl 2g/15mL		20
SPEPH-708	Phenyl 5g/25mL		20
SPEPH-709	Phenyl 10g/75mL		10

Thermo Scientific HyperSep SPE Products

HyperSep SPE Column <1g (continued)

PART	DESCRIPTION	Verify-AX	PK
SPEAX-727	Verify-AX 130mg/1mL		100
SPEAX-728	Verify-AX 300mg/3mL		50
SPEAX-729	Verify-AX 500mg/3mL		50
SPEAX-730	Verify-AX 200mg/6mL		50
SPEAX-731	Verify-AX 500mg/6mL		30

PART	DESCRIPTION	Verify-CX	PK
SPECX-741	Verify-CX 50mg/1mL		100
SPECX-719	Verify-CX 130mg/1mL		100
SPECX-722	Verify-CX 200mg/6mL		50
SPECX-742	Verify-CX 200mg/10mL		50
SPECX-720	Verify-CX 300mg/3mL		50
SPECX-721	Verify-CX 500mg/3mL		50
SPECX-723	Verify-CX 500mg/6mL		30

PART	DESCRIPTION	Retain-CX	PK
SPERCX-301	Retain-CX 30mg/1mL		100
SPERCX-302	Retain-CX 30mg/3mL		50
SPERCX-303	Retain-CX 60mg/3mL		50
SPERCX-304	Retain-CX 200mg/3mL		50
SPERCX-305	Retain-CX 500mg/3mL		50
SPERCX-306	Retain-CX 500mg/6mL		30

PART	DESCRIPTION	Retain-AX	PK
SPERAX-401	Retain-AX 30mg/1mL		100
SPERAX-402	Retain-AX 30mg/3mL		50
SPERAX-403	Retain-AX 60mg/3mL		50
SPERAX-404	Retain-AX 200mg/3mL		50
SPERAX-405	Retain-AX 500mg/3mL		50
SPERAX-406	Retain-AX 500mg/6mL		30

PART	DESCRIPTION	SAX	PK
SPESAX-417	SAX 50mg/1mL		100
SPESAX-418	SAX 100mg/1mL		100
SPESAX-419	SAX 200mg/3mL		50
SPESAX-521	SAX 500mg/3mL		50
SPESAX-360	SAX 500mg/6mL		30

PART	DESCRIPTION	SCX	PK
SPESCX-420	SCX 50mg/1mL		100
SPESCX-421	SCX 100mg/1mL		100
SPESCX-422	SCX 200mg/3mL		50
SPESCX-423	SCX 500mg/3mL		50
SPESCX-520	SCX 500mg/6mL		30

PART	DESCRIPTION	Silica	PK
SPESIL-409	Silica 50mg/1mL		100
SPESIL-317	Silica 100mg/1mL		100
SPESIL-410	Silica 200mg/3mL		50
SPESIL-315	Silica 500mg/3mL		50
SPESIL-411	Silica 500mg/6mL		30

HyperSep SPE Column >1g (continued)

PART	DESCRIPTION	Verify-AX	PK
SPEAX-732	Verify-AX 1g/6mL		30

PART	DESCRIPTION	Verify-AX	PK
SPECX-724	Verify-CX 1g/6mL		30

PART	DESCRIPTION	SAX	PK
SPESAX-434	SAX 1g/6mL		30
SPESAX-713	SAX 2g/15mL		20
SPESAX-714	SAX 5g/25mL		20
SPESAX-715	SAX 10g/75mL		10

PART	DESCRIPTION	SCX	PK
SPESCX-433	SCX 1g/6mL		30
SPESCX-716	SCX 2g/15mL		20
SPESCX-717	SCX 5g/25mL		20
SPESCX-718	SCX 10g/75mL		10

PART	DESCRIPTION	Silica	PK
SPESIL-426	Silica 1g/6mL		30
SPESIL-710	Silica 2g/15mL		20
SPESIL-711	Silica 5g/25mL		20
SPESIL-712	Silica 10g/75mL		10