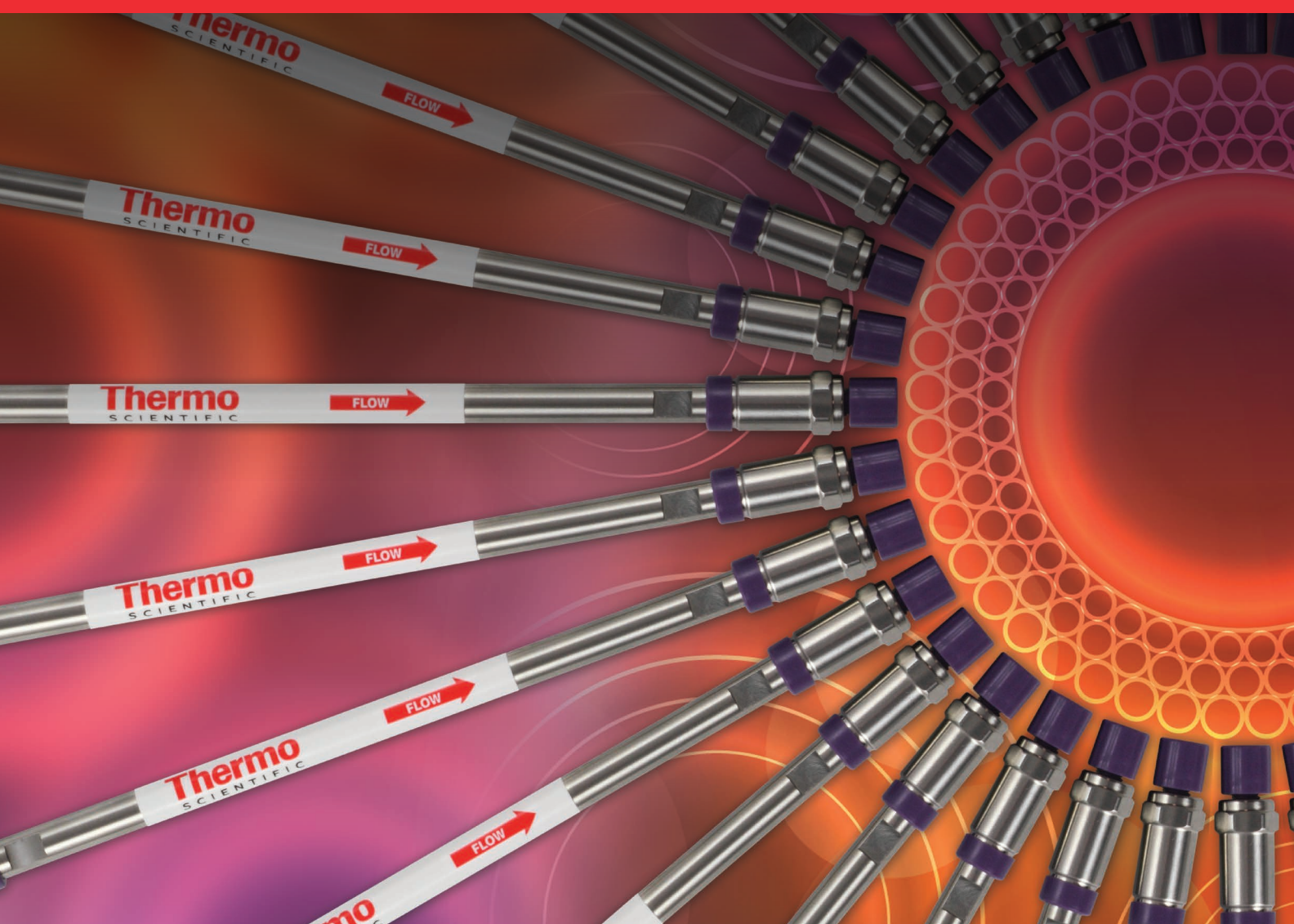


thermoscientific



# Accucore UHPLC and HPLC Columns Phase Overview

Ultimate Core Performance  
to Maximize Your Investment



**ThermoFisher**  
SCIENTIFIC

# Phase Overview

Founded on state-of-the-art solid core technology and utilizing vast experience in phase bonding and packing, Accucore UHPLC and HPLC columns provide a robust chromatography solution to enhance laboratory workflow and efficiency. Available in a wide range of stationary phase selectivities and compatible with almost any instrument, these columns provide an excellent return on investment.

## Thermo Scientific Accucore Vanquish UHPLC Columns

Using 1.5  $\mu\text{m}$  solid core particles, Thermo Scientific™ Accucore™ Vanquish™ UHPLC columns allow UHPLC users to enjoy performance benefits over columns packed with conventional sub-2  $\mu\text{m}$  fully porous particles.

## Accucore HPLC Columns

Containing solid core particles, which are engineered to a diameter of 2.6  $\mu\text{m}$  and a very narrow particle size distribution. Accucore HPLC columns allow high speed, high resolution separations.

## Accucore HPLC Columns for Biomolecules

The range of Accucore HPLC columns packed with 150 Å pore diameter particles allows biomolecule separations to benefit from the superb resolution and high speed enabled by solid core technology.

## Accucore XL HPLC Columns

Using 4  $\mu\text{m}$  solid core particles, Accucore XL HPLC columns allow users of conventional HPLC methods to enjoy performance far beyond that of columns packed with 5  $\mu\text{m}$ , 4  $\mu\text{m}$  or even 3  $\mu\text{m}$  fully porous particles.

## Phase Details

Column	Phase Name	Particle Type ( $\mu\text{m}$ )	Carbon Load (%)	USP Category
Accucore Vanquish UHPLC Columns	C18+	1.5	6.5	L1
Accucore HPLC Columns	RP-MS	2.6	7	–
	C18	2.6	9	L1
	C8	2.6	5	L7
	aQ	2.6	9	L1
	Polar Premium	2.6	8	L60
	Phenyl-Hexyl	2.6	5	L11
	PFP	2.6	5	L43
	Phenyl-X	2.6	6	–
	C30	2.6	5	L62
	HILIC	2.6	–	L3
	Urea-HILIC	2.6	–	–
	Accucore Columns for Biomolecules	150-C18	2.6	7
150-C4		2.6	2	L26
150-Amide-HILIC		2.6	–	–
Accucore XL HPLC Columns	C18	4.0	7	L1
	C8	4.0	4	L7

## Particle Details

Particle Diameter ( $\mu\text{m}$ )	Porous Layer Thickness ( $\mu\text{m}$ )	Particle Size Distribution ( $D_{90/10}$ )	Pore Diameter (Å)	Surface Area ( $\text{m}^2/\text{g}$ )
1.5	0.25	1.2	80	110
2.6	0.5	1.12	80	130
2.6	0.5	1.12	150	80
4.0	0.6	1.15	80	90

## pH Stability

Phases	pH Range
Accucore C18, 150-C18, XL C18	1 to 11
Accucore Polar Premium	1.5 to 10.5
Accucore/Accucore Vanquish RP-MS, C18+, C8, aQ, 150-C4, XL C8	2 to 9
Accucore Phenyl-Hexyl, PFP, Phenyl-X, C30, HILIC, Urea-HILIC, 150-Amide-HILIC	2 to 8

## Temperature Stability

Maximum Temperature 70 °C	Based on testing on Accucore C18
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## Flow Rate, Injection Volume and Backpressure

Columns	Column ID (mm)	Optimum Flow Rate (mL/min)	Optimum Inj Volume (µL)	Maximum Backpressure Rating (bar)
Accucore Vanquish UHPLC Columns	2.1	0.4	1	1500
Accucore HPLC Columns	2.1	0.4	1	1000
	3.0	0.8	3	1000
	4.6	1.8	5	1000
Accucore Columns for Biomolecules	0.075	0.0003	1	800
	2.1	0.4	1	1000
	3.0	0.8	3	1000
	4.6	1.8	5	1000
Accucore XL HPLC Columns	2.1	0.3	2	600
	3.0	0.6	5	600
	4.6	1.3	10	600

## Shipping Solvents

Columns	Solvent
All columns	Acetonitrile/Water

## Cleaning Procedure

Before starting ensure that the solvent in the column is miscible with the cleaning solvents. Using 50% of the working flow rate, flush the column with 20 column volumes of each of the solvents below in the order shown.

Phase Names	Solvents
RP-MS, C18, C18+, C8, aQ, Polar Premium, Phenyl-Hexyl, PFP, Phenyl-X, C30, 150-C18, 150-C4, XL C18, XL C8	<ol style="list-style-type: none"> <li>1. 90% water/10% acetonitrile (for buffer removal if required)</li> <li>2. 50% tetrahydrofuran/50% acetonitrile</li> <li>3. Acetonitrile</li> <li>4. Re-equilibrate with mobile phase</li> </ol>
HILIC, Urea-HILIC, 150-Amide-HILIC	<ol style="list-style-type: none"> <li>1. 90% water/10% acetonitrile (for buffer removal if required)</li> <li>2. 50% water/50% acetonitrile</li> <li>3. Re-equilibrate with mobile phase</li> </ol>

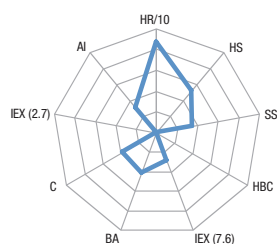
# Phase Properties and Characterization

Accucore UHPLC/HPLC columns are available in 17 different phases to provide an unrivalled range of selectivities.

Refer to the Accucore technical guide for full details, or visit: [thermofisher.com/accucore](http://thermofisher.com/accucore). The radar plots below show the results of the characterization and allow for quick and easy comparison of the phase selectivities.

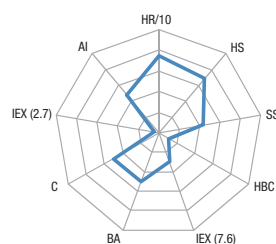
Each of the bonded phases is manufactured using our advanced bonding technology and is characterized using a detailed testing regime.

## Accucore Vanquish C18+



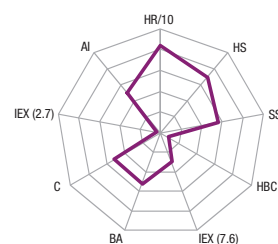
Optimum retention for non-polar analytes. Excellent combination of speed and quality of separation.

## Accucore RP-MS



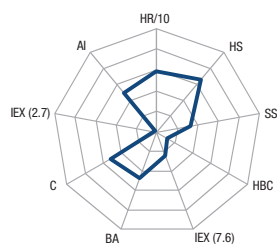
Optimized for MS detection, excellent combination of speed and quality of separation.

## Accucore C18



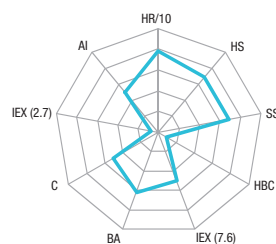
Optimum retention for non-polar analytes.

## Accucore C8



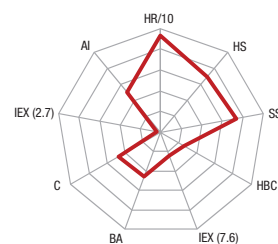
Lower hydrophobicity than C18 recommended for analytes with moderate hydrophobicity.

## Accucore aQ



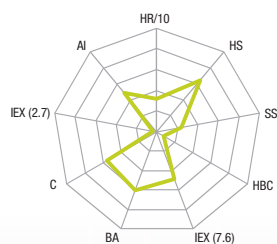
Compatible with 100% aqueous mobile phases, special selectivity for polar analytes.

## Accucore Polar Premium



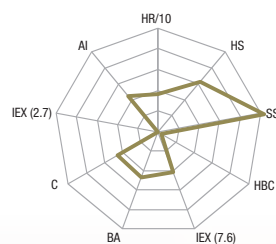
Rugged amide embedded C18 phase that offers complementary selectivity to conventional C18.

## Accucore Phenyl-Hexyl



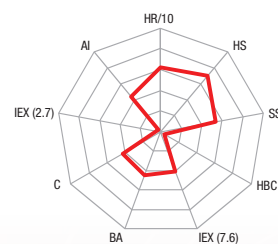
Unique selectivity for aromatic and moderately polar analytes.

## Accucore Phenyl-X



Unique reversed-phase shape selectivity with high aromatic selectivity.

## Accucore C30

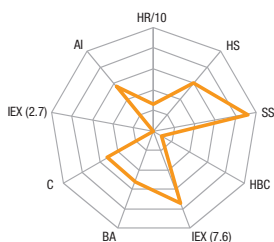


High shape selectivity for hydrophobic, long chain, structurally related isomers.





### Accucore PFP



Alternative selectivity to C18, particularly for halogenated analytes.

### Accucore HILIC

## HILIC

Enhanced Retention of polar and hydrophilic analytes.

### Accucore Urea-HILIC

## HILIC

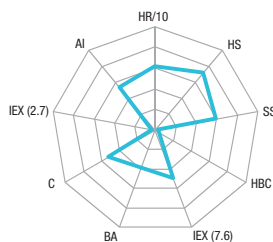
Unique HILIC selectivity and low ion exchange activity.

### Accucore 150-Amide-HILIC

## HILIC

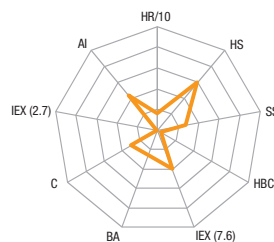
Designed for the separation of hydrophilic biomolecules in HILIC mode. An excellent choice for glycan separations.

### Accucore 150-C18



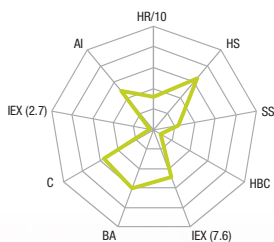
Phase designed for the separation of peptides.

### Accucore 150-C4



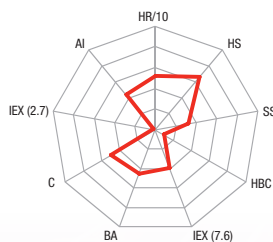
Lower hydrophobicity for optimal retention of proteins and larger peptides.

### Accucore XL C18



Compatible with conventional HPLC methods providing optimum retention for non-polar analytes.

### Accucore XL C8



Lower hydrophobicity than C18 recommended for analytes with moderate hydrophobicity and compatible with conventional HPLC methods.

# Ordering Information

## Accucore UHPLC/HPLC Columns

Description	Particle Size (µm)	Length (mm)	2.1 mm ID	3.0 mm ID	4.6 mm ID
Accucore Vanquish C18+	1.5	50	10022-582	–	–
		100	10805-174	–	–
		150	10805-176	–	–
Accucore C18	2.6	30	10038-872	10038-870	10038-866
		50	10038-868	10038-862	10038-860
		100	10038-858	10038-852	10038-848
		150	10038-850	10038-844	10038-842
Accucore RP-MS	2.6	30	10039-126	–	–
		50	10039-120	10039-118	10039-114
		100	10039-116	10039-110	10039-112
		150	10039-108	10039-104	10039-106
Accucore C8	2.6	30	10038-834	10038-830	–
		50	10038-828	10038-824	10038-826
		100	10038-822	10038-820	10038-818
		150	10038-816	10038-814	10038-812
Accucore aQ	2.6	30	10038-802	10038-804	10039-154
		50	10038-800	10039-150	10039-152
		100	10039-148	10039-146	10039-144
		150	10039-140	10039-142	10038-798
Accucore Polar Premium	2.6	50	10039-010	10039-008	10039-006
		100	10039-004	10039-002	10039-000
		150	10038-998	10038-996	10038-696
		250	10038-694	–	–
Accucore Phenyl-Hexyl	2.6	30	10039-096	–	–
		50	10038-740	10038-742	10038-716
		100	10038-714	10038-712	10038-710
		150	10038-708	10038-706	10038-704
Accucore PFP	2.6	30	10038-790	10038-788	–
		50	10038-784	10038-782	10038-780
		100	10038-778	10038-776	10038-774
		150	10038-772	10038-768	10038-770
Accucore Phenyl-X	2.6	50	10039-032	10039-030	10039-028
		100	10039-026	10039-024	10039-022
		150	10039-020	10039-018	10039-016
		250	10039-014	–	–
Accucore C30	2.6	50	10039-054	10039-052	10039-050
		100	10039-048	10039-046	10039-044
		150	10039-042	10039-040	10039-038
		250	10039-036	–	–
Accucore HILIC	2.6	30	10038-760	–	–
		50	10038-754	10038-750	10038-752
		100	10038-748	10038-746	10038-744
		150	10039-138	10039-136	10039-132
Accucore Urea-HILIC	2.6	50	10039-076	10039-074	10039-072
		100	10039-070	10039-068	10039-066
		150	10039-064	10039-062	10039-060
		250	10039-058	–	–

## Accucore HPLC Columns for Biomolecules

Description	Particle Size (µm)	Length (mm)	2.1 mm ID	3.0 mm ID	4.6 mm ID
Accucore 150-C18	2.6	30	10039-208	10039-206	10039-204
		50	10039-202	10039-200	10039-196
		100	10039-198	10039-194	10039-192
		150	10039-190	10039-188	10039-186
Accucore 150-C4	2.6	30	10039-176	10039-172	10039-168
		50	10039-170	10039-166	10039-164
		100	10039-160	10039-162	10039-158
		150	10039-156	10038-910	10038-906
Accucore 150-Amide-HILIC	2.6	50	10038-900	10038-898	10038-896
		100	10038-894	10038-892	10038-890
		150	10038-888	10038-886	10038-884
		250	10038-880	–	–

## Accucore nanoViper Columns

Description	Particle Size (µm)	Length (mm)	75 µm ID
Accucore 150-C18	2.6	150	10039-184
		500	10039-182
Accucore 150-C4	2.6	150	10038-908
		500	10038-904
Accucore 150-Amide-HILIC	2.6	150	10038-882

## Accucore XL HPLC Columns

Description	Particle Size (µm)	Length (mm)	2.1 mm ID	3.0 mm ID	4.6 mm ID
Accucore XL C18	4	50	10038-686	10038-684	10038-682
		100	10038-680	10038-678	10038-676
		150	10038-674	10038-672	10038-670
		250	10038-668	10038-666	10038-664
Accucore XL C8	4	50	10038-656	10038-654	10037-656
		100	10037-654	10037-652	10037-650
		150	10037-648	10037-646	10037-644
		250	10037-642	10037-550	10037-548

## Accucore Defender Guard Cartridges (4/pk)

Description	Particle Size (µm)	Length (mm)	2.1 mm ID	3.0 mm ID	4.6 mm ID
Accucore C18	2.6	10	10038-879	10038-876	10038-874
Accucore RP-MS	2.6	10	10039-134	10039-130	10039-128
Accucore C8	2.6	10	10038-840	10038-836	10038-838
Accucore aQ	2.6	10	10038-810	10038-808	10038-806
Accucore Polar Premium	2.6	10	10039-012	–	–
Accucore Phenyl-Hexyl	2.6	10	10039-100	10039-102	10039-098
Accucore PFP	2.6	10	10038-794	10038-796	10038-792
Accucore Phenyl-X	2.6	10	10039-034	–	–
Accucore C30	2.6	10	10039-056	–	–
Accucore HILIC	2.6	10	10038-766	10038-762	10038-764
Accucore Urea-HILIC	2.6	10	10039-078	–	–
Accucore 150-C18	2.6	10	10038-914	10038-912	10039-210
Accucore 150-C4	2.6	10	10039-180	10039-178	10039-174
Accucore 150-Amide-HILIC	2.6	10	10038-902	–	–

## Accucore XL Guard Cartridges (4/pk)

Description	Particle Size (µm)	Length (mm)	2.1 mm ID	3.0 mm ID	4.6 mm ID
Accucore XL C18	4	10	10038-692	10038-690	10038-688
Accucore XL C8	4	10	10038-692	10038-690	10038-688

## UNIGUARD Direct-Connection Guard Cartridge Holders

Description	2.1 mm ID	3.0 mm ID	4.6 mm ID
UNIGUARD Drop-In Guard Cartridge Holder	10046-748	10046-748	10046-744
Standard Replacement Tip	–	–	–

## Accucore Kits

For validation of the performance of Accucore columns or verification of the optimum selectivity for user's separations.

### Accucore Validation Kit

Validate the reproducibility of Accucore. Contains 3 Accucore C18 HPLC columns.

Description	Particle Size (µm)	Length (mm)	2.1 mm ID
Accucore Validation Kit	2.6	50	10038-864
		100	10038-854
		150	10038-846

### Accucore Narrow Selectivity Kit

Verify optimum selectivity over a narrow range. Contains 1 each of Accucore C18, RP-MS and aQ HPLC columns.

Description	Particle Size (µm)	Length (mm)	2.1 mm ID
Accucore Narrow Selectivity Kit	2.6	50	10040-766
		100	10040-776
		150	10040-784

### Accucore Wide Selectivity Kit

Verify selectivity over a wide range. Contains 1 each of Accucore C18, Phenyl-Hexyl and PFP HPLC columns.

Description	Particle Size (µm)	Length (mm)	2.1 mm ID
Accucore Wide Selectivity Kit	2.6	50	10038-864
		100	10038-854
		150	10038-846

### Accucore Polar Selectivity Kit

Verify selectivity for polar analytes. Contains 1 each of Accucore aQ, PFP and HILIC HPLC columns.

Description	Particle Size (µm)	Length (mm)	2.1 mm ID
Accucore Polar Selectivity Kit	2.6	50	–
		100	10039-086
		150	10039-080



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