

Capillary and Nano Columns

- Capillary (500µm and 300µm) and nano (100µm and 75µm) dimensions
- Wide range of bonded phases available
- 100Å and 300Å pore sizes
- High efficiency, long lifetime and guaranteed reproducibility
- LC/MS and LC/MS/MS applications



Ultra Inert High Efficiency Columns

In addition to the extensive range of analytical (1.0-4.6mm i.d.) through to preparative (21.2-50mm i.d.) columns (see pages 14-17 and 24-26), ACE columns are now available in capillary (500µm and 300µm) and nano (100µm and 75µm) dimensions. ACE capillary and nano columns are available

with all ACE bonded phase chemistries in both 100Å and 300Å pore sizes. The same features that make ACE ultra-inert base deactivated columns the choice of method development chemists also make them the ideal choice for capillary and nano HPLC applications.

Improved Mass Limit of Detection

Capillary and nano HPLC is gaining acceptance for applications where limited sample amounts lead to problems in detection sensitivity. This is relevant in the areas of pharmacokinetics, trace analysis and in particular the expanding fields of bioanalytical and proteomic analysis. ACE capillary and nano columns are ideal for use with detectors requiring very low flow rates, such as electrospray LC-MS.

Table 27. Sensitivity Increase

COLUMN I.D. (mm)	TYPICAL FLOW RATE (µL/min)	THEORETICAL SENSITIVITY INCREASE ¹
4.6	1000	1
1.0	40	21
0.5	10	85
0.3	3	235
0.1	0.5	2100
0.075	0.3	3760

¹For same sample mass

ACE capillary and nano HPLC columns offer high sensitivity due to their low dispersion characteristics. Table 27 shows the theoretical sensitivity increase of each i.d. column compared with a 4.6mm i.d. analytical column and 1mm i.d. microbore column. This increase in sensitivity can be important for accurate quantitation of sample limited applications.

Trace Enrichment/Guard Columns

Capillary HPLC guard columns (5mm x 300µm or 500µm i.d.) prolong the lifetime of the capillary column. They are also suitable for trace enrichment and column switching applications, particularly for concentration of low abundance analytes or desalting of biological samples. These short columns can be used to separate analyte from matrix prior to analysis with detectors such as ESI-MS, where baseline resolution is not required.

For maximum performance, columns should be used with fully optimized HPLC systems (eg. minimize system dead volume using short lengths of <75µm connection tubing).

Column Availability

ACE capillary and nano columns are available with all bonded phase chemistries, 100Å or 300Å pore sizes and 3, 5 or 10µm particle sizes. When ordering, replace X with the appropriate material code (see page 48).

Example: 150mm x 300µm i.d. ACE 3 C18-300 column – Part Number = ACE-211-15003.

COLUMN DIAMETER		COLUMN LENGTH (mm)					GUARD COLUMN (1 pk)
µm	mm	30	50	100	150	250 ¹	
75	0.075	enquire	enquire	X-1000075	X-1500075	X-2500075	-
100	0.10	enquire	enquire	X-10001	X-15001	X-25001	-
300	0.30	X-03003	X-05003	X-10003	X-15003	X-25003	X-005003GD
500	0.50	X-03005	X-05005	X-10005	X-15005	X-25005	X-005005GD

¹250mm column length not available with 3µm particle size.