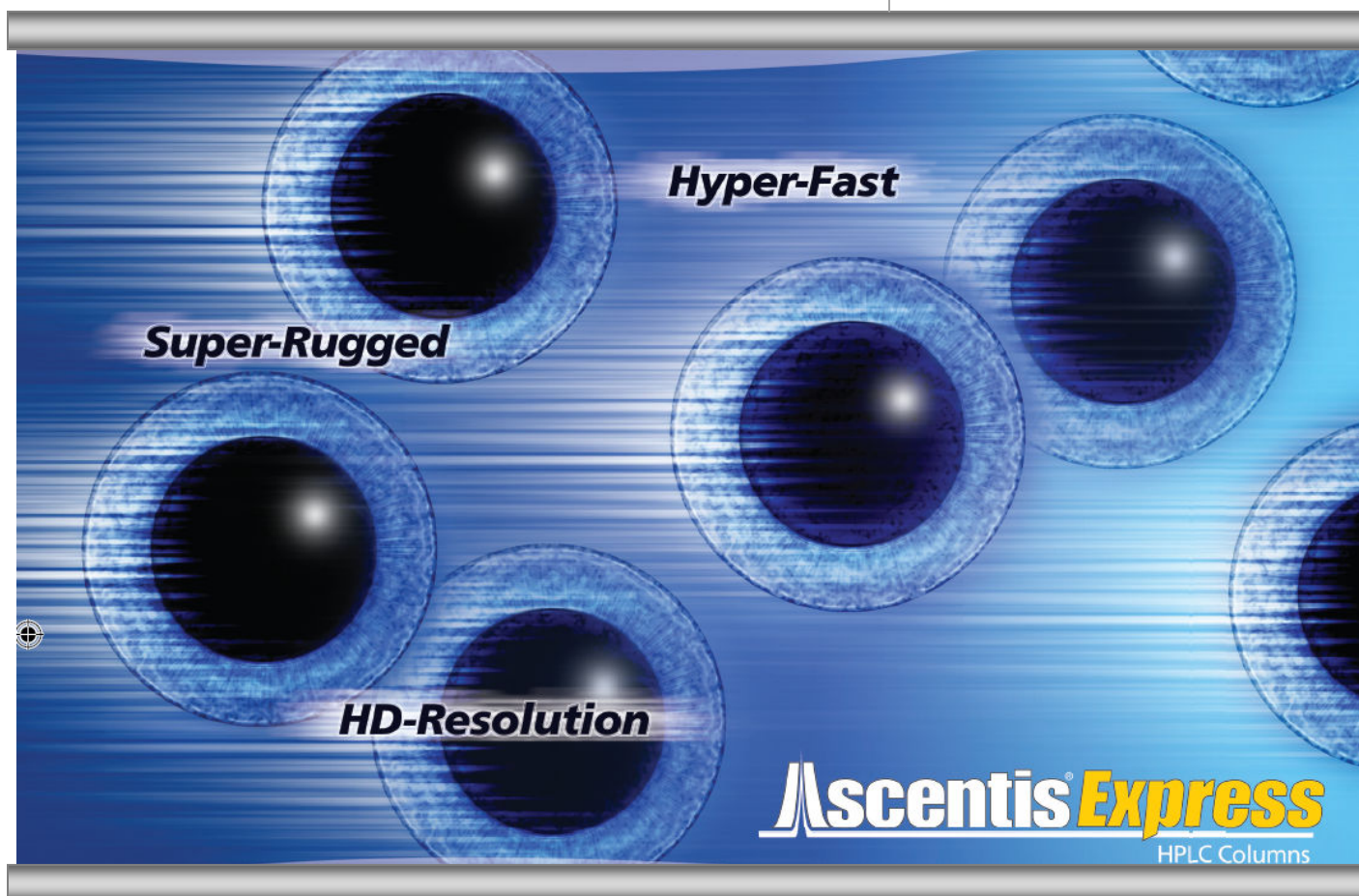


# Ascentis Express HPLC Columns with Fused-Core Technology

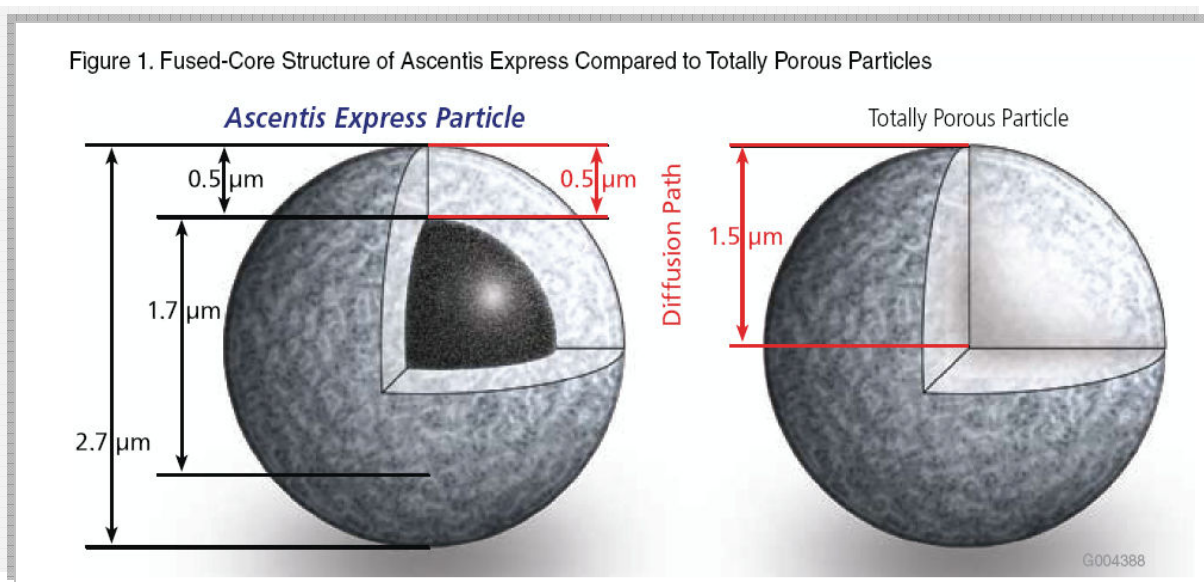
**Extreme Performance on Any LC System**



- **Twice the Speed and Efficiency**
- **Extreme Performance on ANY LC System**
- **Half the Backpressure**
- **Super-Sensitivity**
- **Super-Ruggedness**

For more details on chromatography related technical information & **Supelco** products, visit our website  
[www.sigma-aldrich.com/supelco](http://www.sigma-aldrich.com/supelco)

## A Breakthrough in HPLC Column Technology High Speed and Efficiencies with Low Backpressures



### Ascentis Express columns Breakthrough in HPLC column performance

Based on Fused-Core™ particle technology, Ascentis Express provides the benefits of high speed and high efficiencies of sub- $2\ \mu\text{m}$  particles at much lower backpressures. Due to the high efficiencies at low backpressures, Ascentis Express can benefit conventional HPLC users as well as UPLC™ or other ultra pressure system users.

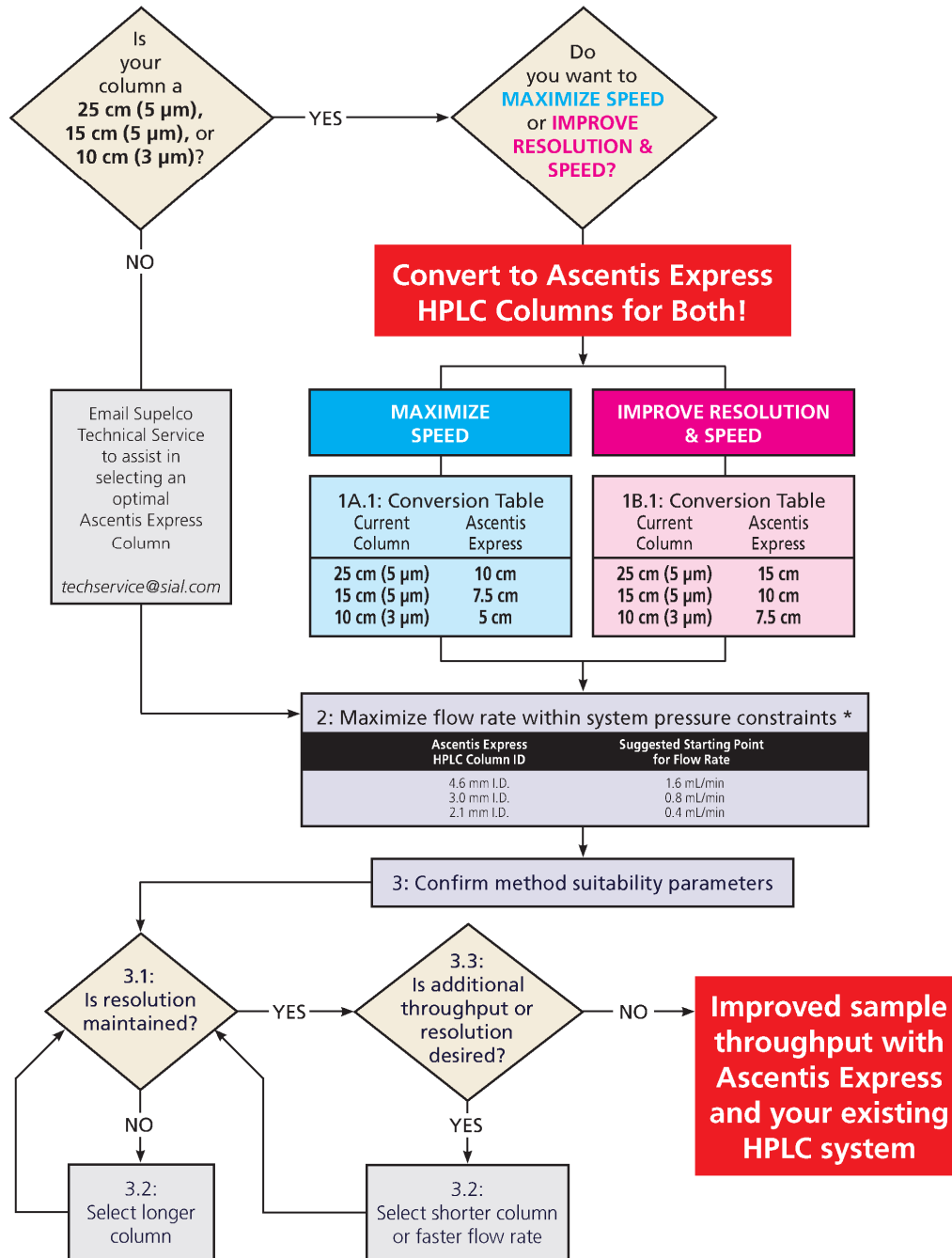
The Fused-Core particle consists of a  $1.7\ \mu\text{m}$  solid core and a  $0.5\ \mu\text{m}$  porous shell. A major benefit of the Fused Core particle is the small diffusion pathway ( $0.5\ \mu\text{m}$ ) compared to conventional fully porous particles. The shorter diffusion path reduces axial dispersion of solutes and minimizes peak broadening.

### Ascentis Express Extreme Performance benefits:

- Double the efficiencies of conventional  $3\ \mu\text{m}$  particles
- Equal efficiencies of sub- $2\ \mu\text{m}$  columns at half of the backpressure
- Rugged design capable of high pressure operation
- Faster HPLC with higher resolution chromatography

For more information on Ascentis Express HPLC Columns, call your local Sigma-Aldrich office or visit us at [sigma-aldrich.com/express](http://sigma-aldrich.com/express)

## Selecting the Optimal Ascentis Express Column



\*Read *Guidelines for Optimizing Systems for Ascentis Express Columns* (T407102) and *Guide to Dispersion Measurement* (T408143).

## Frequently Asked Questions

### 1. What phases are available in Ascentis Express?

Currently, C18, C8, RP-Amide, and HILIC (bare silica) phases are available for Ascentis Express.

### 2. When are additional phases expected?

Additional phases are being developed. The best way to track new products is to visit [sigma-aldrich.com/express](http://sigma-aldrich.com/express) for the latest updates.

### 3. Can I use Ascentis Express on any type of HPLC system?

Ascentis Express HPLC columns are capable of use on standard HPLC systems as well as UHPLC systems. Columns are packed in high pressure hardware capable of withstanding the pressures used in UHPLC systems.

### 4. Is there anything I need to do to my HPLC system to use Ascentis Express?

Nothing special is required to use Ascentis Express HPLC columns. To obtain the full benefits of Ascentis Express, one should minimize dispersion or instrument bandwidth in the HPLC system (tubing, detector flow cell) as well as confirm the detector response system is set at a fast level. For more information, request Guidelines for Optimizing Systems for Ascentis Express Columns (T407102) or visit [sigma-aldrich.com/express](http://sigma-aldrich.com/express) and download.

### 5. How can I measure my instrument bandwidth (IBW) and determine what columns can be used with minimal efficiency loss created by too much internal instrument volume?

For simple instructions on how to measure IBW, request Guide to Dispersion Measurement (T408143) or visit our website [sigma-aldrich.com/express](http://sigma-aldrich.com/express) and download.

### 6. Do I need special fittings and tubing to connect Ascentis Express columns?

While operating pressures may not exceed the 400 bar (6,000 psi) capability of your traditional instruments, sustained pressures of about 200 bar (3,000 psi) will exceed the recommended pressure for conventional PEEK tubing and fittings at the column inlet. We recommend changing to stainless steel fittings in all high pressure locations and have designed special low-dispersion connectors that will stay tight at pressures of 1,000 bar (15,000 psi) or greater, even when elevated column temperatures are employed.

### 7. Can I use Ascentis Express on a UHPLC system?

Yes. Ascentis Express columns are packed in a way making them suitable for these ultra high pressure instruments. In fact, Ascentis Express outperforms sub-2  $\mu\text{m}$  columns on many applications since Ascentis Express provides the benefits of sub-2  $\mu\text{m}$  particles but at much lower backpressure.

### 8. Can Ascentis Express columns be used for LC-MS?

Ascentis Express Fused-Core particles were designed with LC-MS in mind. Even extremely short column lengths exhibit sufficient plate counts to show high resolving power. The flat van Deemter plots permit resolution to be maintained at very high flow rates to maximize sample throughput. All Ascentis stationary phases have been evaluated for MS compatibility during their development, and the Express phases are no exception. A bonus of Ascentis Express columns for high throughput UHPLC and LC-MS is that they are extremely rugged and highly resistant to plugging, a very common failure mode for competitor columns.

### 9. What flow rate should I use with Ascentis Express columns?

Based on the minimum in the van Deemter curves, higher flows than 5  $\mu\text{m}$  particle columns are required in order to maximize Ascentis Express column efficiency.

Ascentis Express Suggested Starting Point	HPLC Column ID for Flow Rate
4.6 mm I.D.	1.6 mL/min
3.0 mm I.D.	0.8 mL/min
2.1 mm I.D.	0.4 mL/min

### 10. Are guard columns available?

Guard columns packed with Ascentis Express are currently not available. Ascentis Express columns are rugged and almost all users prefer operation of Ascentis Express columns without a guard column. If you would like to use a guard column, we recommend the Ascentis guard columns.

#### Enquiries? Contact us at:

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