



## Viper and nanoViper Fingertight Fitting system

**Universal tool-free connections  
for every LC and low-flow LC system**



# Get better LC connections

The Thermo Scientific™ Viper™ and Thermo Scientific™ nanoViper™ Fingertight Fittings provide tool-free connections designed for the entire fluidic pathway in all LC systems to improve chromatographic results.

Offering virtually dead-volume free LC connections, Viper and nanoViper fittings require no tools for installation, and combine simplicity with high performance.

## Biocompatibility

Available in biocompatible materials

## More options

A variety of materials and dimensions (length and ID) available for nearly every system and application

## High temperature

Withstands temperatures up to 120 °C

## Removable knurl

Easy to grip and easy to remove, taking up less space to fit the tightest gaps

## Id color code

Easy visualization with color-coded tags for quick ID recognition

## Fingertight

Easy installation and fingertight up to 1,500 bar

## Identification tag

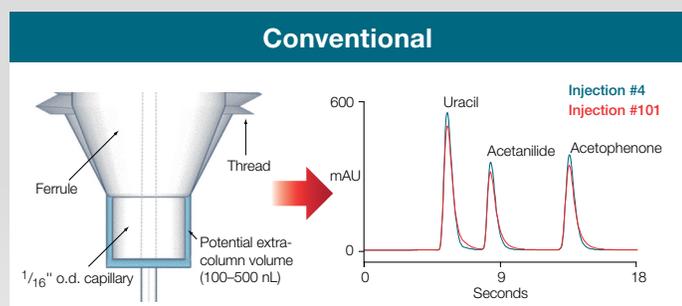
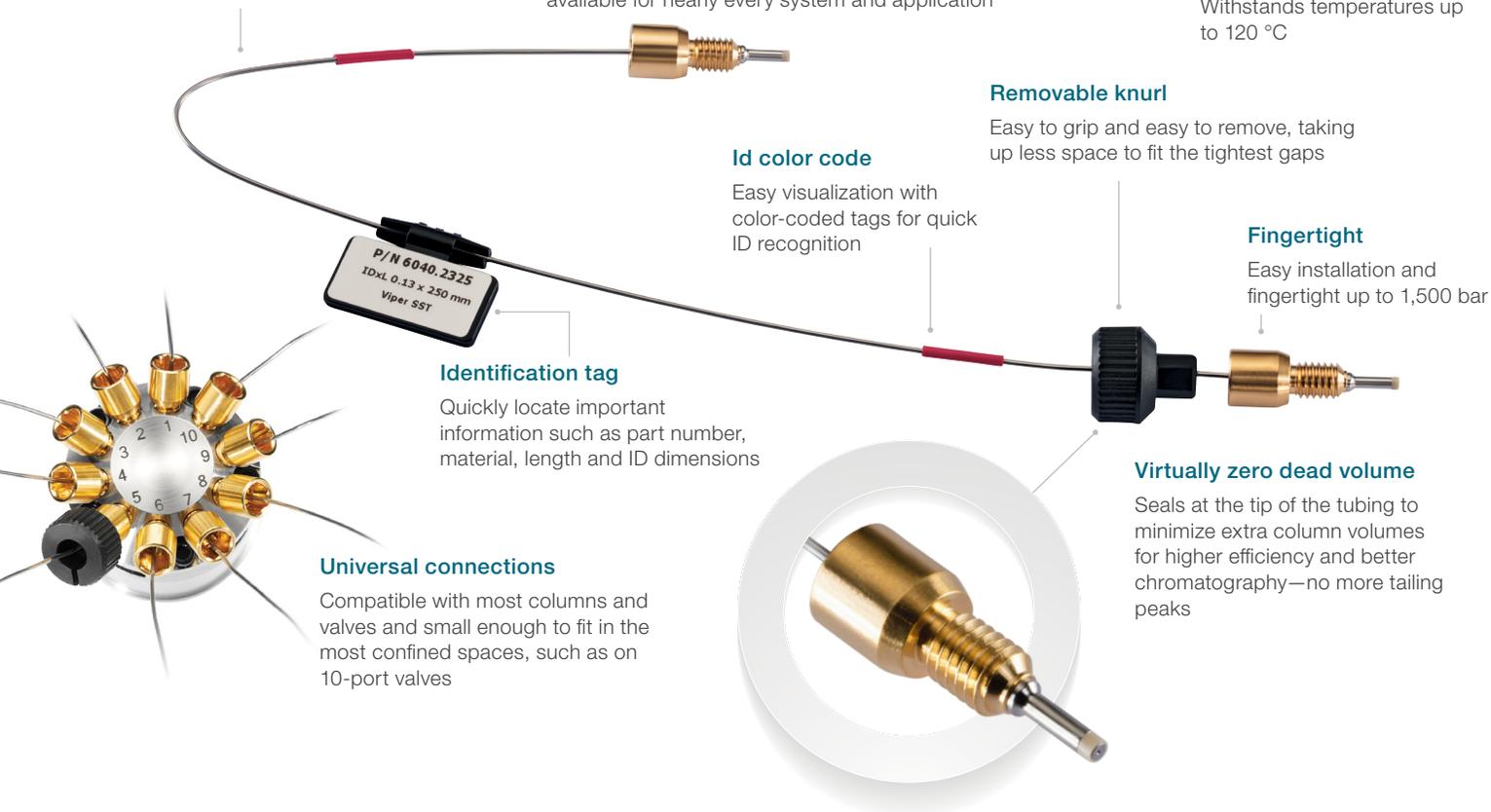
Quickly locate important information such as part number, material, length and ID dimensions

## Universal connections

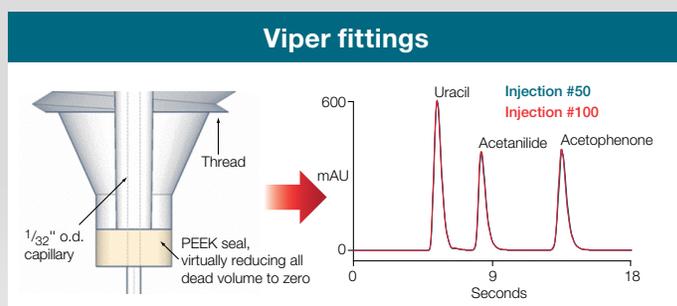
Compatible with most columns and valves and small enough to fit in the most confined spaces, such as on 10-port valves

## Virtually zero dead volume

Seals at the tip of the tubing to minimize extra column volumes for higher efficiency and better chromatography—no more tailing peaks



vs



**Conventional Fittings** often create extra-column volumes by incorrect positioning of the ferrule or by the capillary slipping through the ferrule when subjected to high pressures. The chromatogram demonstrates deteriorated peak shape caused by a slipped capillary at a backpressure of only 600 bar (8,700 psi).

**Viper Fingertight Fittings** does not use a ferrule and minimizes extra-column volume by design. The chromatogram overlay shows consistent peak shapes under identical conditions to those used with conventional fitting in the figure above.

## Troublefree low-flow connections

LC connections matter with nano, capillary, and micro-LC applications, since any dead volume can cause reduced sample throughput, peak broadening, or increased peak asymmetry.

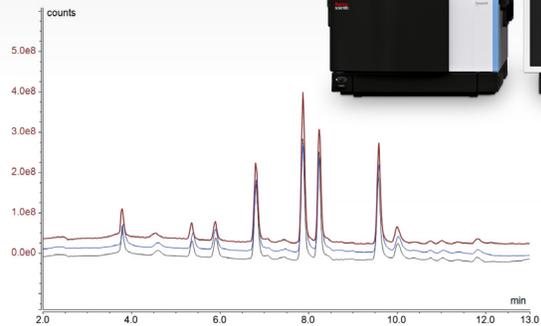
Thermo Scientific nanoViper Fingertight Fittings are designed to overcome the drawbacks of conventional fittings to ensure simplified connections for maximum performance and robustness.

### Advantages of nanoViper Fingertight fittings

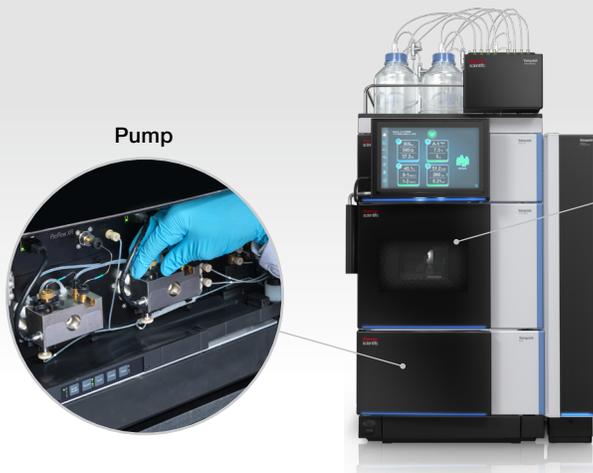
- Easy to install, even for novice users
- Custom and standard capillary lengths available
- High capillary-to-capillary reproducibility
- Dedicated MS connection kits ensure no performance is lost between the LC and the MS



Thermo Scientific™  
Vanquish™ Neo UHPLC  
system and Thermo  
Scientific™ Orbitrap  
Exploris™ 480 mass  
spectrometer



Retention time RSD < 0.2% between three nanoViper capillaries  
(RSD based on the average value of four replicates per capillary)



Autosampler

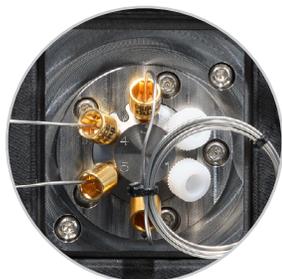
## More than just a column connection

Thermo Scientific™ Vanquish™ UHPLC and HPLC systems are equipped by default with capillaries of optimized length and inner diameter for lowest dispersion and best instrument-to-instrument reproducibility.

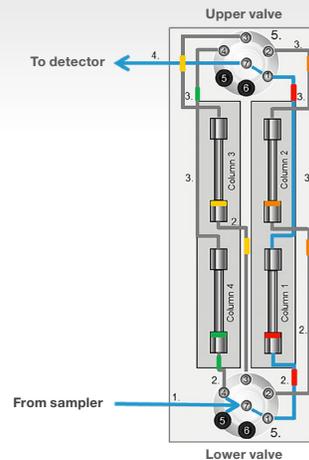
## Viper and nanoViper capillary kits

Enjoy the remarkable user-friendliness with dedicated kits for application-specific Vanquish HPLC and UHPLC systems, which contain all the capillaries needed to easily modify the systems to support:

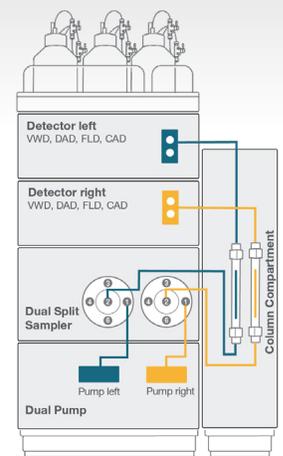
- Method transfer by adjusting gradient delay
- 2D-LC by combining multiple separation dimensions
- Method development by scouting columns
- Productivity gain facilitated by multi-channel LC systems
- Standard free quantitation by inverse gradient
- Maximize sensitivity with reliable low flow LC connections



Successful method transfer by simply adding gradient delay volume with the method transfer kit on the Thermo Scientific™ Vanquish™ Core HPLC system.



Accelerate method development by easily setting up column scouting on the Thermo Scientific™ Vanquish™ Method Development System with the Viper method scouting kit.



Double lab productivity with two identical flow paths on the Thermo Scientific™ Vanquish™ Duo for Dual LC Systems facilitated by tailored Viper capillary connections.

**Product Specifications for Viper and nanoViper Fingertight Fitting Systems**

|   | Viper   |   |   | nanoViper  |   |
|---|---|---|---|--|---|
|   | Stainless Steel                                       | Biocompatible PEEK                                    | Biocompatible MP35N                                   |  |   |
| Connection principle  | Fingertight fitting                                   |   |   |  |   |
| Tubing type   | Flexible stainless steel (SST)                        | PEEK™   | MP35N™  | PEEK-shielded fused silica blue sleeve   | PEEK-shielded fused silica, purple sleeve             |
| Wetted material   | PEEK, SST   | PEEK  | PEEK, MP35N   | PEEK, fused silica   |   |
| Maximum pressure  | 1,310 bar (19,000 psi)                                | 345 bar (5,000 psi)                                   | 1,517 bar (22,000 psi)                                | 1,200 bar (17,400 psi)   | 1,500 bar (21,750 psi)                                |
| Maximum temperature limit   | 120°C   |   |   |  |   |
| Viper nut threading   | Compatible with 10–32 threaded ports                  |   |   |  |   |
| Outer diameter (OD)   | 0.79 mm (.031")                                       |   |   |  |   |
| Inner diameter (ID)<br>ID-color code  | 100 µm (0.004")<br>130 µm (0.005")<br>180 µm (0.007") | 65 µm (0.0025")<br>90 µm (0.0035")<br>130 µm (0.005") | 100 µm (0.004")<br>130 µm (0.005")<br>180 µm (0.007") | 10 µm (0.0004")<br>20 µm (0.0008")<br>50 µm (0.0020")<br>75 µm (0.0030")<br>100 µm (0.004")<br>150 µm (0.006") | 10 µm (0.0004")<br>20 µm (0.0008")<br>50 µm (0.0020") |
| Available lengths   | 65–950 mm   | 65–850 mm   | 65–950 mm   | 70–1,100 mm  | 70–950 mm   |
| Viper and nanoViper portfolio—a wide selection of wettable materials and dimensions for any application |   |   |   |  |   |

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