

HPLC columns

Low-flow UHPLC-MS columns connection guide



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This connection guide describes how to connect Thermo Scientific™ low-flow chromatography columns to either a Thermo Scientific™ EASY-Spray™ or a Thermo Scientific™ Nanospray Flex™ Ion Source. Various system set-ups are included for each option.

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Introducing nanoViper column connections

nanoViper connections overview

nanoViper is a fingertight UHPLC fitting system with virtually zero-dead-volume. You'll experience successful nano LC connections the first time, giving you peace of mind.

- Carefully tighten the nut fingertight using the black knurled nut
- Do not over tighten—maximum of 1/8 turn after fingertight
- Remove the black knurled nut when tightened, after installation

Recommendation: Use the torque tool. One is provided with the Thermo Scientific™ Vanquish™ Neo UHPLC System, and is available to purchase separately.

 Learn more about tool-free LC connections for HPLC, UHPLC, and low-flow UHPLC systems.

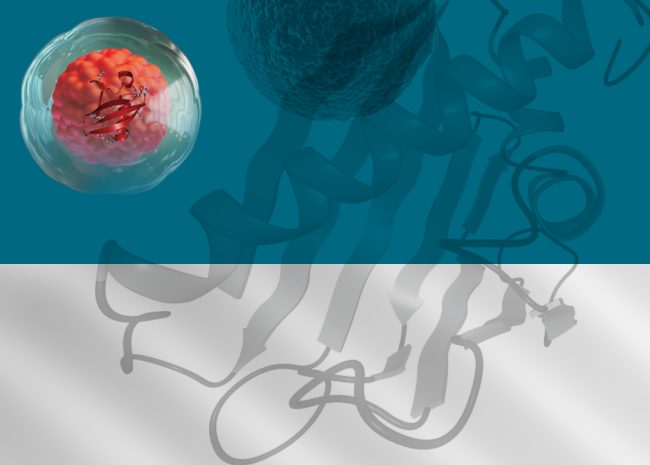


nanoViper fitting



Double nanoViper (DNV) column

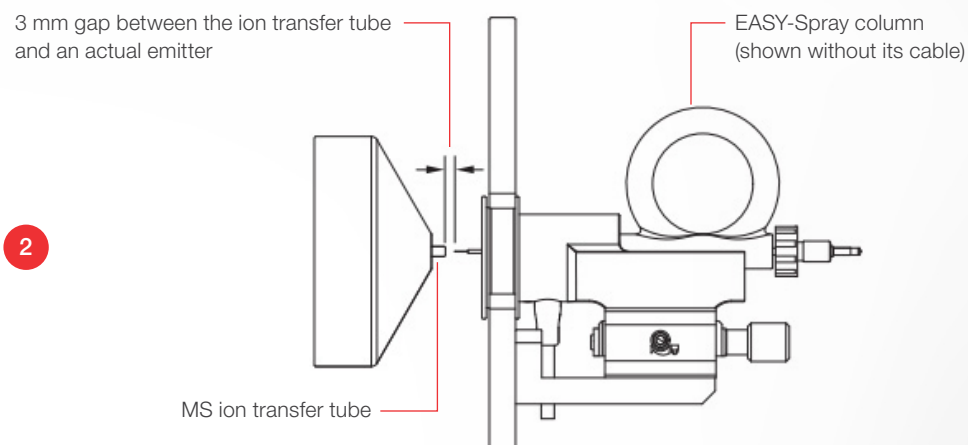
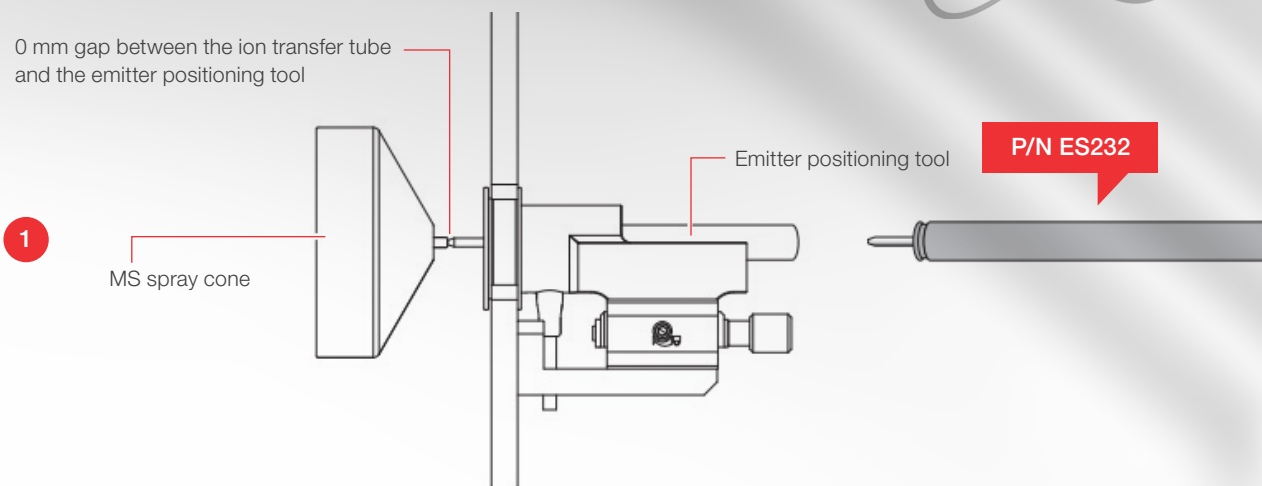
Connect EASY-Spray HPLC columns and sources



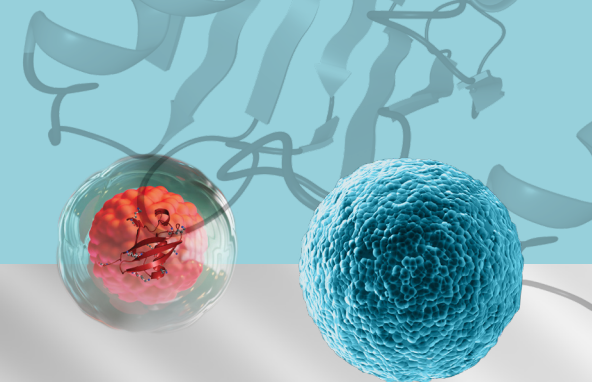
Aligning the EASY-Spray source using the emitter positioning tool

Steps required to make the connections

1. Using the emitter positioning tool, adjust the emitter position in the EASY-Spray ion source to a 0.0 mm gap
2. Mount your column. The gap between the emitter and the inlet should be 3.0 mm.



Connect EASY-Spray HPLC columns and sources



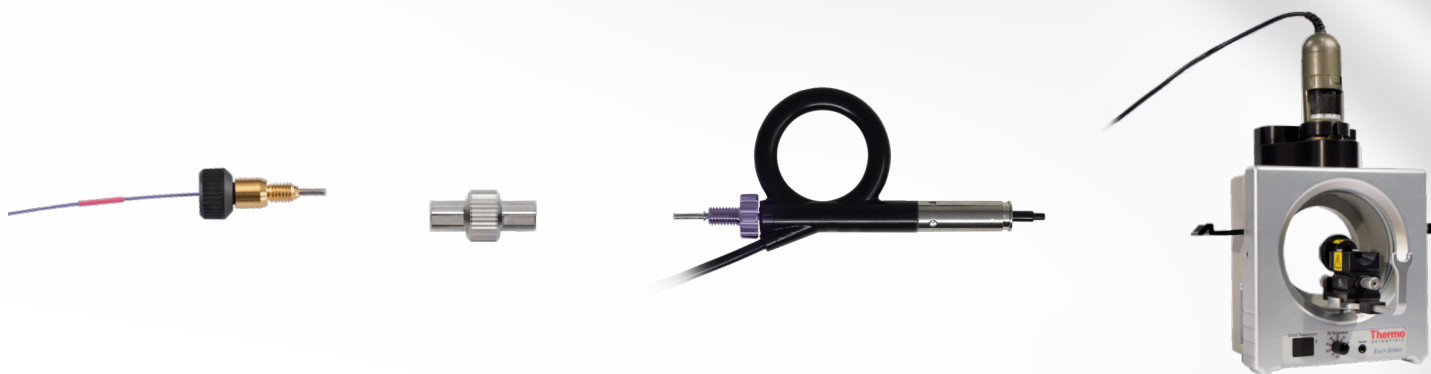
Connecting the EASY-Spray HPLC column to Vanquish Neo UHPLC and mass spectrometry (MS) systems

Steps required to make the connections

- Install the viper union to the inlet of EASY-Spray column
- Connect the transfer line coming from the Thermo™ Scientific™ Vanquish™ Neo UHPLC System autosampler valve to the viper union already attached to column. Tighten with the torque tool.
- Plug the EASY-Spray column into the EASY-Spray ion source
- Plug the temperature control cable of the EASY-Spray column into the heater port of the EASY-Spray ion source and set the temperature by the integrated temperature controller knob



Vanquish Neo UHPLC system



EASY-Spray ion source

Part name	Part number
20 µm I.D. × 550 mm nanoViper capillary	6250.5260
Thermo Scientific™ Union for Viper and nanoViper Tubing	6040.2304
EASY-Spray UHPLC column	All available EASY-Spray columns

Connect DNV column to EASY-Spray source with temperature control

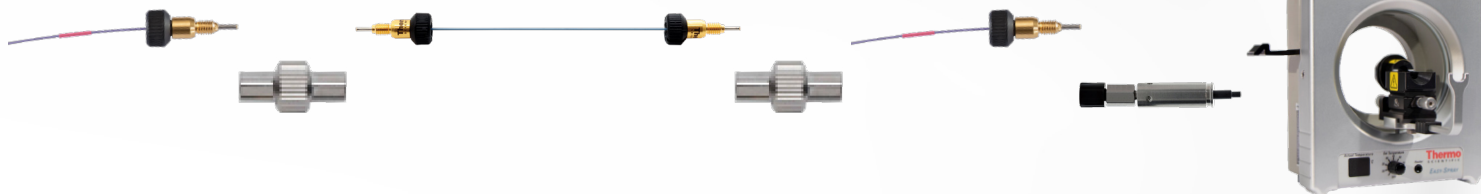
Connecting the DNV column to MS systems

Steps required to make the connections

- Install the first viper union to the inlet of the DNV column
- Connect the first transfer line coming from the Vanquish Neo UHPLC system autosampler valve to the viper union already attached to column. Tighten using the torque tool.
- Place the DNV column in the column oven
- Install the second viper union to the column outlet
- Connect the second transfer line to the column outlet through the second viper union
- Connect the second transfer line outlet to the Thermo Scientific™ EASY-Spray™ Nano Emitter
- Remove the black knurled knob from the second transfer line outlet and then plug the nano emitter into the EASY-Spray ion source



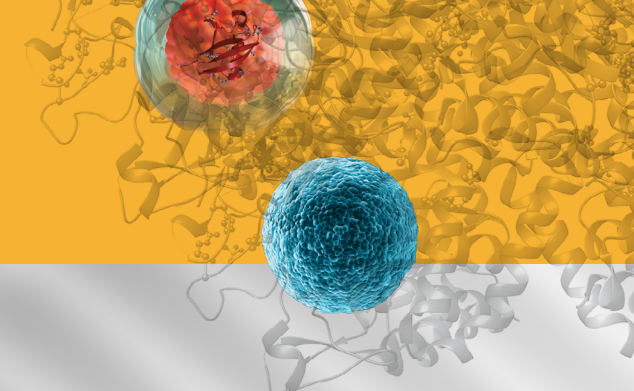
Vanquish Neo UHPLC system



EASY-Spray ion source

Part name	Part number
2 × 20 µm I.D. × 550 mm nanoViper capillary	6250.5260
2 × Union for Viper and nanoViper Tubing	6040.2304
Double nanoViper column	All available double nanoViper columns
EASY-Spray nano emitter (I.D. 10 µm)	ES993

Connect DNV column to EASY-Spray source without temperature control



Connecting the DNV column to MS systems

Steps required to make the connections

- Install the viper union to the inlet of the DNV column
- Connect the transfer line coming from the Vanquish Neo UHPLC system autosampler valve to the viper union already attached to column. Tighten using the torque tool.
- Connect the column outlet to the nano emitter
- Remove the black knurled knob from the column outlet and then plug the nano emitter into the EASY-Spray ion source



Vanquish Neo UHPLC system



EASY-Spray ion source

Part name	Part number
20 μm I.D. \times 550 mm nanoViper capillary	6250.5260
Union for Viper and nanoViper Tubing	6040.2304
Double nanoViper column	All available double nanoViper columns
EASY-Spray nano emitter (I.D. 10 μm)	ES993

Connect DNV column to Nanospray Flex ion source with temperature control

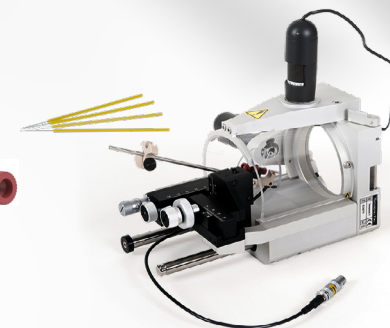
Connecting the DNV column to MS systems

Steps required to make the connections

- Install the first viper union to the inlet of the DNV column
- Connect the transfer line coming from the Vanquish Neo UHPLC system autosampler valve to the viper union already attached to column. Tighten using the torque tool.
- Place the DNV column in the column oven
- Install the second viper union to the column outlet
- Connect the second transfer line to the column outlet through the second viper union
- Assemble metal emitter to the Thermo Scientific™ MicroTight adapter 1/32" side using the plug provided to ensure a zero dead volume connection. Note: the metal emitters are supplied with the correct sleeve pre-assembled. Do not remove the sleeve supplied.
- Connect the second transfer line outlet to the 1/16" side of the MicroTight adapter already assembled with emitter
- Mount the assembled emitter into the Nanospray Flex ion source
- Adjust the emitter position



Vanquish Neo UHPLC system



Nanospray Flex ion source

Part name	Part number
2 × 20 µm I.D. × 550 mm nanoViper capillary	6250.5260
2 × Union for Viper and nanoViper Tubing	6040.2304
Double nanoViper column	All available DNV columns
MicroTight adapter for 1/16" to 1/32"	00109-02-00055 or IDEX P-881
Metal emitter, I.D. 30 µm	ES542

Connect DNV column to Nanospray Flex ion source without temperature control

Connecting the DNV column to MS systems

Steps required to make the connections

- Assemble the metal emitter to the MicroTight adapter 1/32" side using the plug provided to ensure a zero dead volume connection. Note: the metal emitters are supplied with the correct sleeve pre-assembled. Do not remove the sleeve supplied.
- Connect the DNV column outlet to the 1/16" side of the MicroTight adapter already assembled with emitter
- Mount the assembled emitter into the Nanospray Flex ion source
- Install the viper union to the inlet of the DNV column. Tighten using the torque tool.
- Connect the transfer line coming from the Vanquish Neo UHPLC system autosampler valve to the viper union already attached to column. Tighten using the torque tool.
- Adjust the emitter position



Vanquish Neo UHPLC system



Nanospray Flex ion source

Part name	Part number
20 µm I.D. × 550 mm nanoViper capillary	6250.5260
Union for Viper and nanoViper Tubing	6040.2304
Double nanoViper column	All available DNV columns
MicroTight adapter for 1/16" to 1/32"	00109-02-00055 or IDEX P-881
Metal emitter, I.D. 30 µm	ES542

Column equilibration—essential for reproducibility

Connecting the EASY-Spray column to Vanquish Neo UHPLC system and MS systems

System and column equilibration

- 5 column volumes (Vanquish Neo UHPLC system GDV < 0.5 μL in nano/capillary direct injection workflow) to equilibrate the column and LC system
- Tip: Equilibration protocols are available on the Vanquish Neo UHPLC instrument software

Length (mm)	I.D. (μm)	Column void volume (μL)	Equilibration volume (μL)
150	75	0.444	2.22
250	75	0.740	3.70
500	75	1.480	7.40
750	75	2.220	11.10
150	150	1.776	8.88



Learn more at thermofisher.com/lowflowHPLCcolumns

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