

ThermoFisher
S C I E N T I F I C

How to connect Thermo Scientific low-flow columns to EASY-Spray Transfer Lines (ES791A / ES792A)

Rev. B

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The world leader in serving science

Thermo Scientific™ EASY-Spray™ Transfer Lines



Description

- Available in nanoflow and microflow formats to meet a wider range of flow requirements
- Thermo Scientific™ nanoViper™ fitting makes installation easy
- Precision positioned glass emitter for excellent spray performance

Specifications

	ES791A nanoflow for flow rates < 1.5 µL/min Column IDs: 75 µm and below	ES792A microflow for flow rates < 10 µL/min Column IDs: from 100 to 500 µm
Length (mm)	500	500
Diameter Inner FS (µm)	20	75
Diameter Outer FS (µm)	360	360
Diameter Inner Emitter (µm)	7	20

Alternative PepMap Columns to EASY-Spray Columns

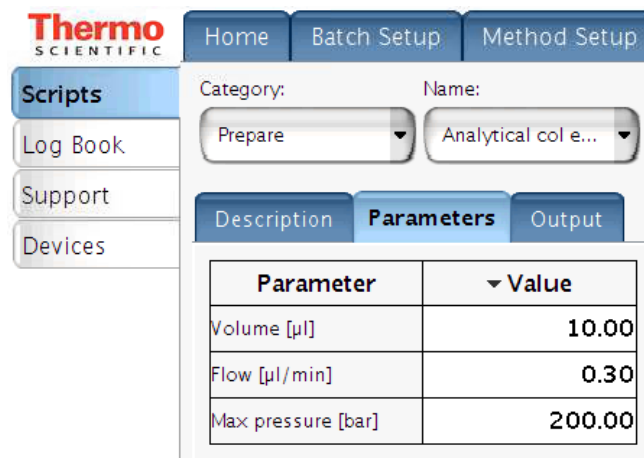
Part No.	Description	Equivalent Linear Column Part No.	Equivalent Linear Column Description
ES800A	EASY-SPRAY PEPMAP C18 3UM,15CMX75UM	164738	ACCLAIM PEPMAP 100 C18 3UM 75UM X 150MM NV FS
ES801A	EASY-SPRAY PEPMAP RSLC C182UM, 15CMX50UM	164943	PEPMAP C18 2UM 50UM X 150MM NV FS 1200BAR
ES802A	EASY-SPRAY PEPMAP RSLC C182UM, 25CMX75UM	164941	PEPMAP C18 2UM 75UM X 250MM NV FS 1200BAR
ES803A	EASY-SPRAY PEPMAP RSLC C182UM, 50CMX75UM	164942	PEPMAP C18 2UM 75UM X 500MM NV FS 1200BAR
ES804A	EASY-SPRAY PEPMAP RSLC C18 2UM 15CMX75UM	164940	PEPMAP C18 2UM 75UM X 150MM NV FS 1200BAR
ES805A	EASY-SPRAY PEPMAP RSLC C18 2UM 75CMX75UM 1200 BAR	164939*	PEPMAP C18 2UM 75UM X 750MM NV FS
ES806A	EASY-SPRAY PEPMAP RSLC C18 2UM 15CMX150UM	N/A	N/A
ES810A	EASY-SPRAY PEPWIFT 25CM X200UM	N/A	N/A
ES811A	EASY-SPRAY ACCUCORE 150-C4 2.6MM 15CMX75MM	16526-157569	ACCUCORE 150-C4 150X.075MM2.6UM NVIPER COLUMN
ES812A	EASY-SPRAY PEPMAP 300 C18 5UM 15CMX75UM	164708	PEPMAP300 C18 300A 5UM 75UMX150MM NANOVIPER

* PN 164939 - 75UM X 750MM NV FS column is packed into silica capillary with 360 µm OD; different sleeves must be used for post column connections (see below)

Conditioning the EASY-Spray Transfer Lines with an EASY-nLC

- ❑ The EASY-Spray transfer line is shipped filled with isopropanol. Immediate operation might generate a significant backpressure that will damage the emitter assembly. Please follow the instructions below to flush out the isopropanol before operation

- ❑ When using an EASY-nLC instrument:
 1. Connect the EASY-Spray transfer line directly to the venting-tee (no column installed)
 2. Select the 'Analytical Column Equilibration' script
 3. Set following parameters
 - Flow to 300 nL/min
 - Max. pressure to 200 bar
 4. Start the script
 5. Wait until the pressure drops significantly and system is running at 300 nL/min (this usually takes ca. 30 minutes)
 6. Install the analytical column and connect the EASY-Spray transfer line to the column using one of the options described below



The screenshot shows the Thermo Scientific EASY-nLC software interface. The 'Scripts' menu is open, showing options like 'Log Book', 'Support', and 'Devices'. The 'Parameters' tab is selected, displaying a table of parameters for the 'Analytical Column Equilibration' script.

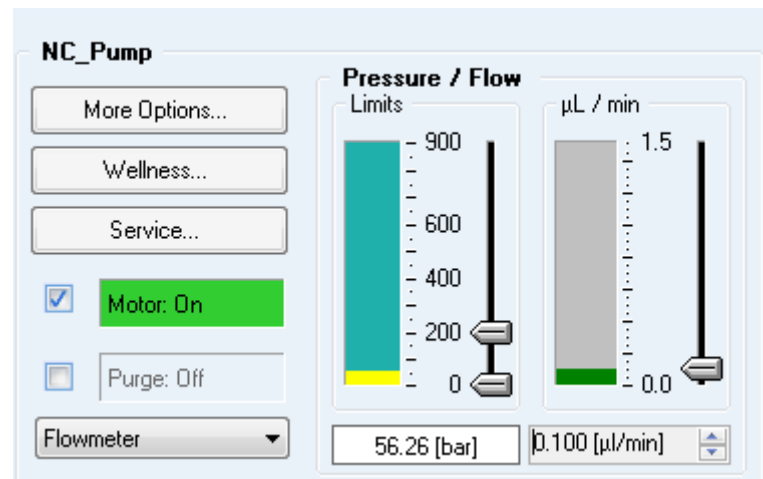
Parameter	Value
Volume [μl]	10.00
Flow [μl/min]	0.30
Max pressure [bar]	200.00

Conditioning the EASY-Spray Transfer Lines with an RSLCnano

- ❑ The EASY-Spray transfer line is shipped filled with isopropanol. Immediate operation might generate a significant backpressure that will damage the emitter assembly. Please follow the instructions below to flush out the isopropanol before operation

- ❑ When using an UltiMate 3000 RSLCnano:

1. Connect the EASY-Spray transfer line directly to the pump outlet (no column installed)
2. Set the pressure upper limit to 200 bar
3. Set the flow at 99% A to 100 nL/min
4. Start the pump
5. After the pump stops due to overpressure, clear the error, wait until pressure drops significantly and start pump again using the same settings. Repeat these steps if needed. Once the pressure at 100 nL/min is around 10 bar proceed to next step.
6. Install fluidics, analytical column and connect the EASY-Spray transfer line to the column using one of the options described below

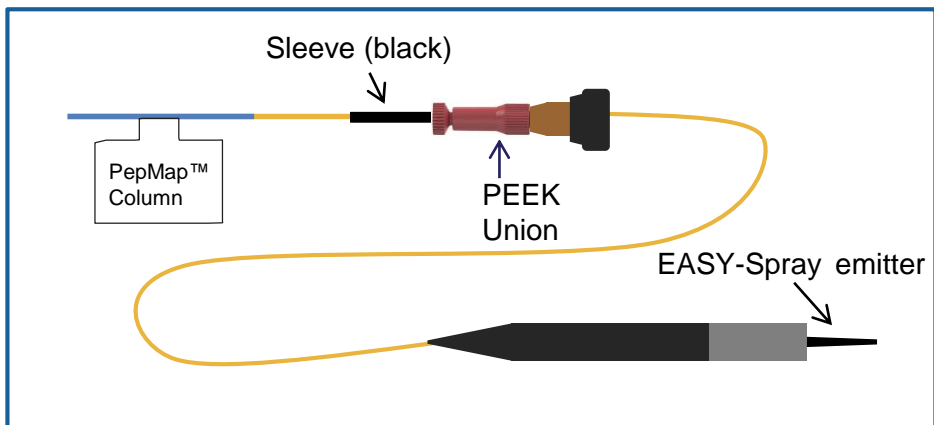


❑ Quick installation

1. Connection of 50 and 75 μm ID Acclaim™ PepMap™ Columns ([Page 7](#))
2. Connection of 75 μm x 75 cm Acclaim™ PepMap™ Column ([Page 8](#))




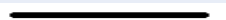
Standard Connection of 50 and 75 μm ID Acclaim™ PepMap™ Columns*

Schematic



If used with the UltiMate 3000 RSLCnano system, the PepMap™ column may be placed in the NCS-3500RS column compartment for heating/temperature stability to improve performance.

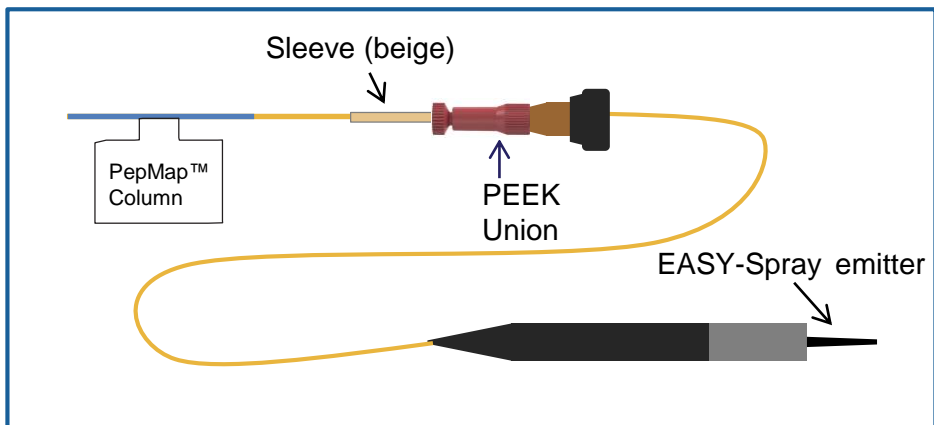
Consumables

Item	Image	P/N
Adapter to MicroTight® 1/16" to 1/32", peek union		00109-02-00055 (Thermo) or P-881 (IDEX)
EASY-Spray emitter for nanoflow. 7 μm ID emitter with a 50 cm x 20 μm ID nanoviper equipped transferline		ES791 (A)
EASY-Spray emitter for microflow. 20 μm ID emitter with 50 cm x 75 μm ID nanoviper equipped transferline		ES792 (A)
Sleeves for connecting 280 μm O.D. capillary to union		SC903

* except 75 μm x 75 cm column (see next page)





Standard Connection of 75 μm x 75 cm Acclaim™ PepMap™ Column

Schematic



*If used with the UltiMate 3000 RSLCnano system, the PepMap™ column may be placed in the NCS-3500RS column compartment for heating/temperature stability to improve performance.

Consumables

Item	Image	P/N
Adapter to MicroTight® 1/16" to 1/32", peek union		00109-02-00055 (Thermo) or P-881 (IDEX)
EASY-Spray emitter for nanoflow. 7 μm ID emitter with a 50 cm x 20 μm ID nanoviper equipped transferline		ES791 (A)
EASY-Spray emitter for microflow. 20 μm ID emitter with 50 cm x 75 μm ID nanoviper equipped transferline		ES792 (A)
Sleeves for connecting 360 μm O.D. capillary to union		SC603

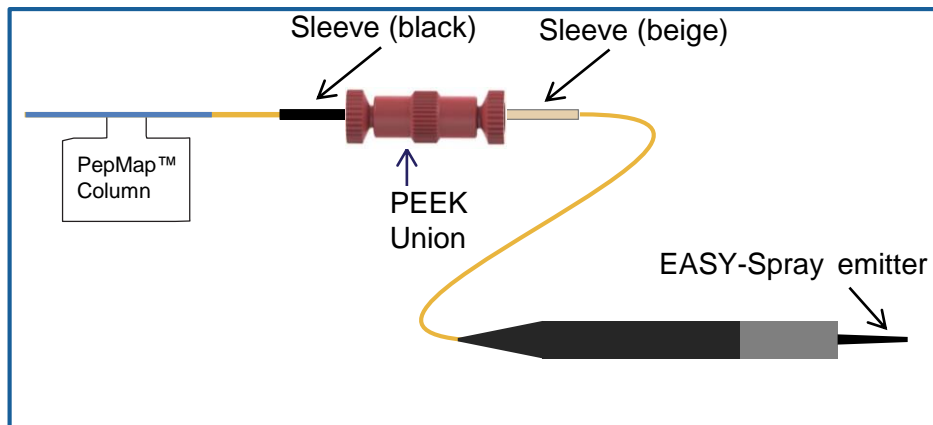
❑ Customized transfer line length to minimize post-column dispersion

1. Connection of 15 cm, 25 cm and 50 cm Acclaim™ PepMap™ Columns ([Page 10](#))
 2. Connection of 75 cm Acclaim™ PepMap™ Column ([Page 11](#))
- ✓ Use a Thermo Scientific™ Fused Silica Cutter to cut off the nanoViper Fitting for an optimized zero-dead volume connection. Leave enough length to make connection described on next page







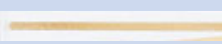
Approach to customize the transfer line length of EASY-Spray emitter

Schematic



- 1) The transfer line of the EASY-Spray emitter can be cut down to a shorter length, if the distance between the nLC and MS allows.
- 2) If used with the UltiMate 3000 RSLCnano system, the PepMap™ column may be placed in the NCS-3500RS column compartment for heating / temperature stability to improve performance.

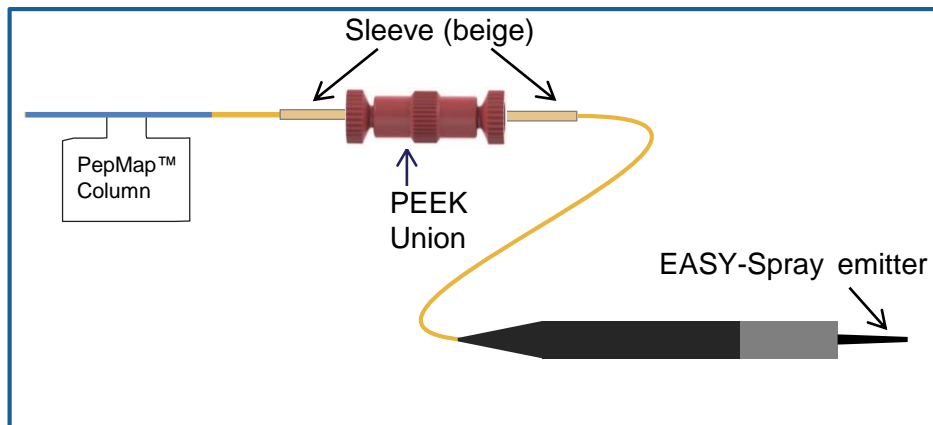
Consumables

Item	Image	P/N
Adapter to MicroTight® 1/32", peek union		G10-0035 (Thermo) or / P771 (IDEX)
EASY-Spray emitter for nanoflow. 7 μm ID emitter with a 50 cm x 20 μm ID nanoviper equipped transferline		ES791 (A)
EASY-Spray emitter for microflow. 20 μm ID emitter with 50 cm x 75 μm ID nanoviper equipped transferline		ES792 (A)
Sleeves for connecting 280 μm O.D. capillary to union		SC903
Sleeves for connecting 360 μm O.D. capillary to union		SC603

* except 75 μm x 75 cm column (see next page)





Advanced Connection of 75 μ m x 75 cm Acclaim™ PepMap™ Column

Schematic



- 1) The transfer line of the EASY-Spray emitter can be cut down to a shorter length, if the distance between the nLC and MS allows.
- 2) If used with the UltiMate 3000 RSLCnano system, the PepMap™ column may be placed in the NCS-3500RS column compartment for heating / temperature stability to improve performance.

Consumables

Item	Image	P/N
Adapter to MicroTight® 1/32", peek union		G10-0035 (Thermo) or / P771 (IDEX)
EASY-Spray emitter for nanoflow. 7 μ m ID emitter with a 50 cm x 20 μ m ID nanoviper equipped transferline		ES791 (A)
EASY-Spray emitter for microflow. 20 μ m ID emitter with 50 cm x 75 μ m ID nanoviper equipped transferline		ES792 (A)
Sleeves for connecting 360 μ m O.D. capillary to union		SC603