GUIDE TO OPTIMIZE FITTINGS

	OPTI-LOK™	OPTI-LOK™	OEM	OPTI-LOK™	EXP®	EXP®2
	LP Fittings	6K Fittings	Fittings	Adapters	UHPLC Fittings	UHPLC Fittings & Adapters
Maximum Pressure	LOW PRESSURE > 1000 PSI / > 70 BAR	HIGH PRESSURE 6K PSI / 400 BAR	HIGH PRESSURE 6K PSI / 400 BAR	HIGH PRESSURE 6K PSI / 400 BAR	ULTRA HIGH PRESSURE 20K+ PSI / 1400+ BAR	ULTRA HIGH PRESSURE 20K+ PSI / 1400+ BAR
Thread Type(s)	1/4 - 28 M6 Metric	10 - 32 M6 Metric	1/4 - 28 10 - 32	1/4 - 28 10 - 32 Luer M6	6 - 32 6 - 40 10 - 32	6 - 32 6 - 40 10 - 32
Compatible Tubing Sizes (OD)	1/16″ .100″ 1/8″	1/16″	1/16″	Various	360µm 1/32″ 1/16″	360µm 1/32″ 1/16″
Hand-Tight	✔	✔ Wrench-Tight Options Available	✔ Wrench-Tight Options Available	✔	✔ Wrench-Tight Options Available	✔
Products	Nuts Ferrules Unions Tees Plugs	Nuts with Integral Ferrules Nuts Ferrules Couplers Unions Tees Plugs	Nuts Ferrules Unions Compression Screws	Adapters	Nuts Ferrules Couplers	Nuts with Integral Ferrules
Materials	PEEK ETFE PTFE PCTFE Acetal	PEEK PCTFE Acetal Stainless Steel	PEEK Stainless Steel	PEEK	Titanium PEEK Stainless Steel	Titanium PEEK Stainless Steel

EXP® & EXP®2 FITTINGS

ULTRA HIGH PRESSURE
20,000+psi / 1,400+bar

ORIGINAL EXP® FITTING SYSTEM - SS TUBING

The EXP Fitting System is the premier adjustable nut and ferrule compression fitting for extreme high-pressure connections between 1/32" or 1/16" tubing and any 6-32, 6-40 or 10-32 port. EXP Fittings are simple and versatile.

The patented Titanium Hybrid Ferrule integrates the resilience of titanium with the proven sealing ability of PEEK in a superb one-piece design. The Hybrid Ferrule provides a perfect seal with every connection. The swage can be released without tools to adjust to the different port depths of various hardware. This adjustability provides value through repeated zero-dead-volume connections with any port configuration.

EXP®2 FITTING SYSTEM - SS TUBING

Optimize introduces EXP2 - the next generation of EXP UHPLC fitting technology. Featuring a small 3/16" hex head EXP2 Nut, the new EXP2 Driver and the original Titanium Hybrid Ferrule, the EXP2 Fittings offer hand-tight connections rated to 20,000+ psi. The EXP2 nuts are available with 6-32, 6-40 and 10-32 threads and are scaled down to allow for maximum working room in cramped spaces. The EXP2 Driver is a small, easy to use knurled torque driver which snaps onto the nuts for hand-tightening and loosening. The EXP2 Driver is slotted and can be removed from the nut and tubing after use.

Both the EXP and EXP2 Fitting Systems offer products which can be reused in different ports for the best possible connections. These products eliminate the need to cut off and replace swaged ferrules.

EXP® Titanium Hybrid Replacement Ferrules

SINGLES	10 PACK	
15-24-03831	**15-24-03832**	1/16" Ferrule
15-19-04242	**15-19-04243**	1/32" Nano Ferrule

Original EXP® Hand-Tight Fittings with Titanium Hybrid Ferrules

SINGLES	10 PACK	
15-20-03888	**15-20-03930**	10-32 Nut & 1/16" Ferrule
15-19-04245	**15-19-04246**	6-40 Nut & 1/32" Nano Ferrule

Original EXP® Hand-Tight Coupler

15-20-04128	1/16" OD x 0.005" ID x 5cm Stainless Steel Tubing Includes 2 Original EXP Hand-Tight Fittings

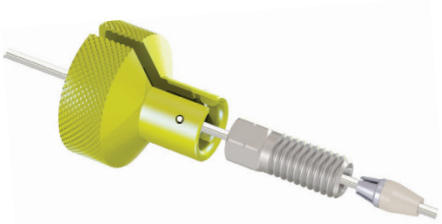
EXP® Hex Head Fittings with Titanium Hybrid Ferrules

SINGLES	10 PACK	
15-20-04120	**15-20-03834**	10-32 Standard Nut & 1/16" Ferrule
15-20-03839	**15-20-03840**	10-32 Short Nut & 1/16" Ferrule
15-20-03841	**15-20-03842**	10-32 Long Nut & 1/16" Ferrule

HAND-TIGHT

Original **EXP**® Hand-Tight

Hand-Tight to 8,700+ psi
Wrench-Tight to 20,000+ psi



EXP®**2** Hand-Tight

Hand-Tight or Wrench-Tight to 20,000+ psi

HEX HEAD

Wrench-Tight to 20,000+ psi

EXP®**2 Hand-Tight Fitting Kits with Titanium Hybrid Ferrules**

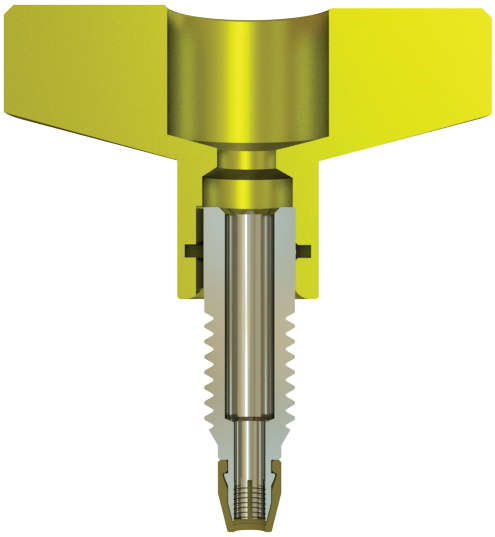
Each pack below includes 1 EXP2 Driver

SINGLES	10 PACK	
15-20-04933	**15-20-04924**	10-32 EXP2 Nut & 1/16" Ferrule
15-19-04961	**15-19-04962**	6-40 EXP2 Nut & 1/32" Nano Ferrule
15-19-04958	**15-19-04959**	6-32 EXP2 Nut & 1/32" Nano Ferrule

EXP® Fitting Advantages

- Available in standard (1/16") and nano (1/32") configurations
- Rated to 20,000+ psi (1,400+ bar)
- Tested to 30,000 psi
- Auto-adjusting zero-dead-volume connection
- Intended for many repeat uses
- Cost efficient with replaceable components

FINALLY, A REUSABLE UHPLC FITTING THAT WORKS WITH ALL TUBING MATERIALS. HASSLE FREE, NO SEPARATE FERRULE TO LOSE.



EXP®2 TI-LOK™ FITTINGS

UHP | ULTRA HIGH PRESSURE
20,000+psi / 1,400+bar

EXP®2 TI-LOK™ FITTING

The EXP2 TI-LOK Fittings offer LC connections that can be hand-tightened to 18,000+ psi (1,250+ bar). The fittings are ideal for making HPLC and UHPLC connections that easily fit into tight spaces such as injection valves, column couplers, sample loops and column ovens.

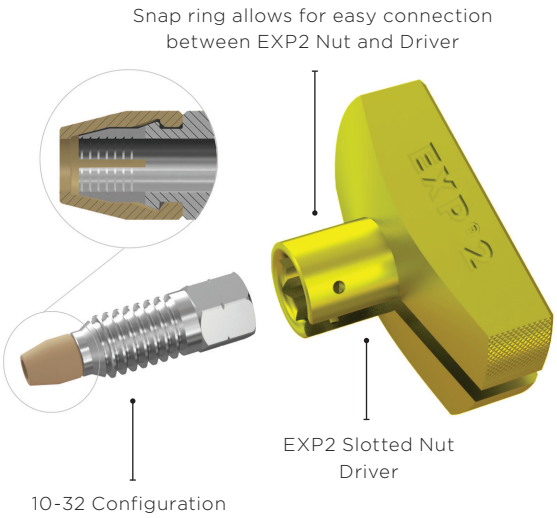
Evolving from the original Titanium Hybrid Ferrule technology, EXP2 TI-LOK Fittings feature built-in PEEK ferrules and threaded nuts precision machined from titanium. The new fittings combine the superior corrosion resistance and robustness of titanium with the sealing capability of PEEK. Utilizing a unique geometric design, the fittings firmly press tubing against the tube stop of any instrument port creating a zero-dead-volume (ZDV) connection. The ferrule does not permanently swage to the tubing, allowing for many repeat connections and the ability to adjust the tubing to different port depths. EXP2 TI-LOK Fittings are compatible with PEEK, PEEKsil, Hastelloy C and stainless steel tubing.

EXP2 TI-LOK Fittings include an EXP2 Driver – a small, easy to use knurled torque driver that snaps onto the nuts for hand-tightening and loosening. The EXP2 Driver is slotted and can be removed from the nut and tubing after use.

EXP®2 TI-LOK™ ALL-IN-ONE (AIO) FITTING

Meet the newest addition to our EXP2 Fitting line. The AIO Fitting incorporates all of the features above with one distinct difference: a permanently-fixed driver. When tight spaces are not an issue, we recommend using the AIO Fitting.

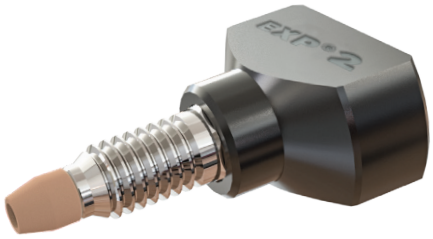
HAND-TIGHT



New **EXP®2** TI-LOK™

Hand-Tight to 8,700+ psi

Wrench-Tight to 18,000+ psi



New **EXP®2** TI-LOK™ AIO

Hand-Tight to 8,700+ psi

Wrench-Tight to 18,000+ psi

EXP®2 TI-LOK™ Hand-Tight Fittings

15-24-05204	10-32 TI-LOK Fitting, 2/Pk
15-24-05205	10-32 TI-LOK Fitting, 10/Pk

Each pack above includes 1 EXP2 Driver

EXP®2 TI-LOK™ All-In-One (AIO) Hand-Tight Fittings

15-24-05253	10-32 AIO Fitting, 1/Pk
15-24-05254	10-32 AIO Fittings, 10/Pk

KEY FEATURES

- Rated to 18,000+ psi (1,250+ bar)
- Titanium nut with integral PEEK ferrule
- One-piece fitting (no loose ferrules)
- Robust design with superior corrosion resistance
- Auto-adjusting zero-dead-volume connection
- Intended for many repeat uses
- Releases tubing for easy repositioning into different ports
- No need to cut tubing to replace a swaged ferrule
- Simple and versatile - can be used in all LC applications
- Compatible with PEEK, PEEKsil, Hastelloy C and stainless steel tubing

EXP®2 TI-LOK™ FITTINGS AND ADAPTERS

FOR ALL 1/32" TUBING AND 360µm OD FUSED SILICA TUBING

The EXP2 TI-LOK Fittings and Adapters offer capillary HPLC and UHPLC connections that seal to 20,000+ psi in any port and easily fit into tight spaces such as injection valves, column couplers, sample loops and column ovens.

The EXP2 TI-LOK range of fittings and adapters allows users the versatility to change out capillary tube ID, length or end fittings to create virtually any tube set configuration. The EXP2 TI-LOK Fittings are available with 6-32 and 6-40 threads for 1/32" ports. The EXP2 TI-LOK Adapters will allow users to connect 1/32" OD tubing directly to a standard 10-32 port designed for 1/16" tubing.

The EXP2 TI-LOK Fittings and Adapters combine the robustness of titanium and the sealing capability of PEEK. Utilizing a unique patented inverted geometric design, the fittings and adapters firmly compress the PEEK sleeve of the PEEKsil or fused silica tubing against the tube stop of any instrument port creating a zero-dead-volume (ZDV) connection without fracturing the fused silica. The titanium portion of the fitting does not permanently swage to the tubing, allowing for many repeat connections and the ability to adjust the tubing to different port depths.

Using the EXP2 Driver, the EXP2 TI-LOK Fittings and Adapters can be hand-tightened into any HPLC or UHPLC port. The EXP2 Driver is a small, easy to use knurled torque driver which snaps onto the fitting hex for hand-tightening and loosening. The EXP2 Driver is slotted and can be removed from the fitting and tubing after each installation. The EXP2 TI-LOK Fittings and Adapters are available as kits which include the EXP2 Driver. For use with 360µm fused silica; 10-32 Adapters have an integral sleeve. Simply cut fused silica to desired length, insert into adapter and tighten into port. To use 6-32 and 6-40 fittings with fused silica tubing, the purchase of 1/32" OD PEEK sleeves is required.

Additionally, the EXP2 TI-LOK 10-32 Adapters can be purchased with a 0.5µm frit embedded in the tip to create an integral filter or capillary column end-fitting in standard 1/16" tubing ports.

EXP®2 TI-LOK™ Hand-Tight Fittings

Each pack below includes 1 EXP2 Driver

2 PACK	10 PACK	
15-19-05281	**15-19-05282**	6-40 TI-LOK Fitting
15-19-05285	**15-19-05286**	6-32 TI-LOK Fitting
10-13-05320	**10-13-05321**	1/32" OPTI-PEEK Sleeves for Fused Silica Tubing

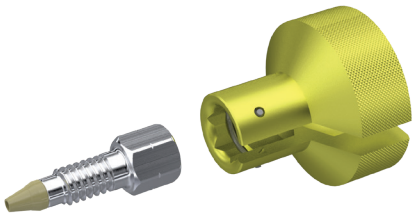
EXP®2 TI-LOK™ Hand-Tight Adapters (Adapts 1/32" Tubing and 360µm OD Fused Silica Tubing to 10-32 Ports)

Each pack below includes 1 EXP2 Driver

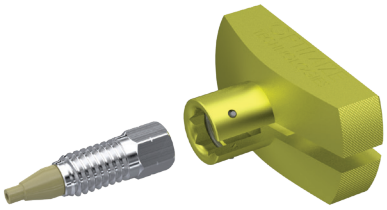
2 PACK	10 PACK	
15-24-05290	**15-24-05291**	10-32 Standard Parker-Style Adapter
15-24-05294	**15-24-05295**	10-32 Standard Parker-Style Adapter, with 0.5µm Frit
15-24-05327	**15-24-05328**	10-32 Standard Parker-Style Adapter for 360µm OD Fused Silica Tubing with Integral PEEK Sleeve
15-24-05298	**15-24-05299**	10-32 Waters-Style Port Adapter
15-24-05302	**15-24-05303**	10-32 Waters-Style Port Adapter, with 0.5µm Frit
15-24-05331	**15-24-05332**	10-32 Waters-Style Port Adapter for 360µm OD Fused Silica Tubing with Integral PEEK Sleeve

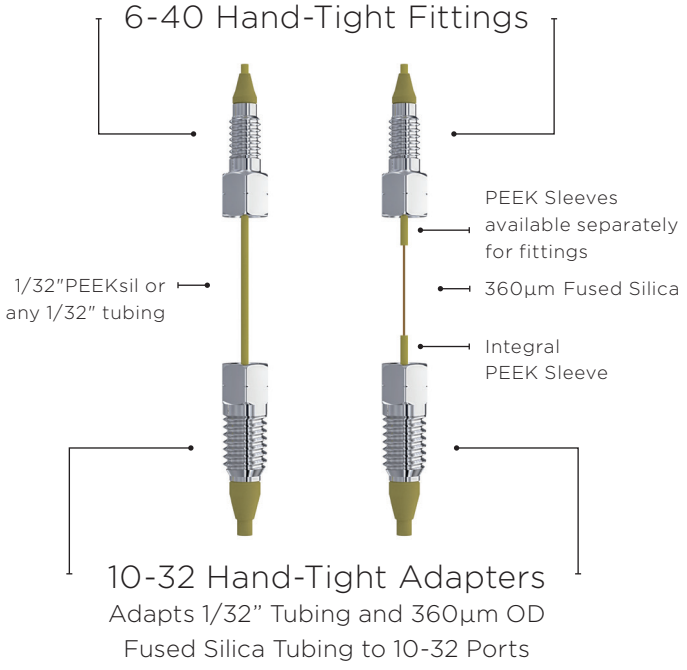
HAND-TIGHT

EXP®2 TI-LOK™ 6-40 Hand-Tight Fitting



EXP®2 TI-LOK™ Hand-Tight Adapter



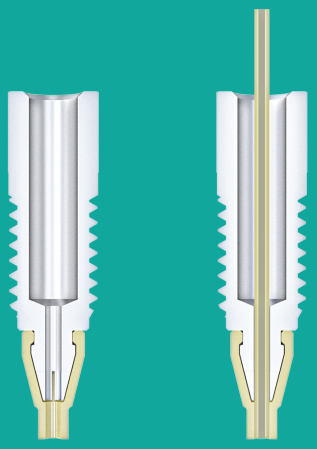


Before purchasing 10-32 Adapters, please verify your port type.

Advantages of EXP®2 Fittings and Adapters

- Rated hand-tight to 20,000+ psi (1,400+ bar)
- Auto-adjusting zero-dead-volume connection
- Extremely robust one-piece ferrule design
- Intended for many repeat uses
- Cost efficient with replaceable components
- Perfect for standard or nano UHPLC and UHPLC/MS

CROSS SECTIONS OF EXP2 10-32 ADAPTERS



Adapter for all 1/32" tubing

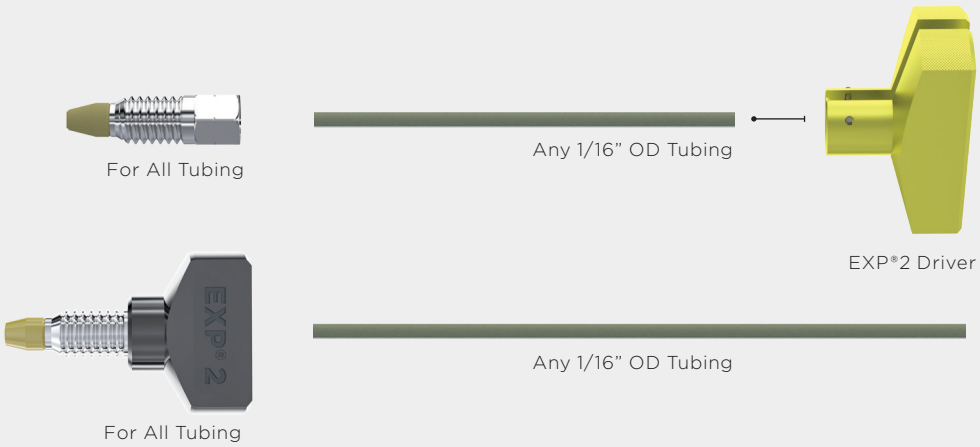
Adapter with Integral Peek Sleeve for fused silica

DIY EXP®2 TI-LOK™ FITTING & ADAPTER KITS

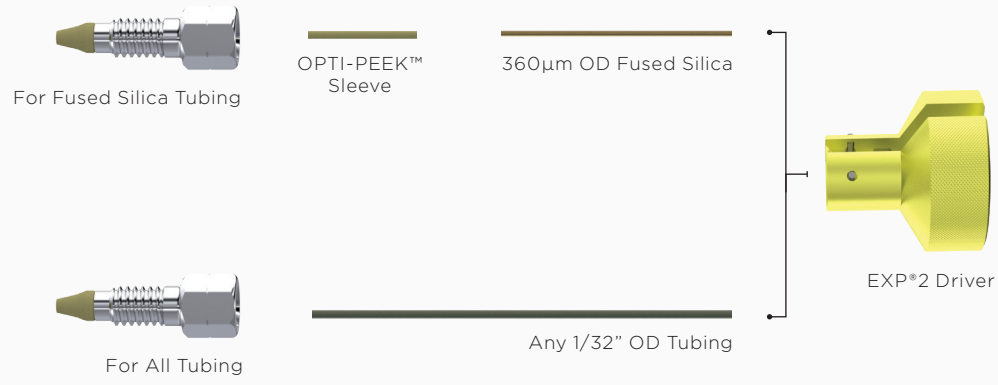
MAKE YOUR OWN HAND-TIGHT UHPLC CONFIGURATIONS

Any pressure. Any tubing. Any length. Any port. Any combination.
The possibilities are endless...

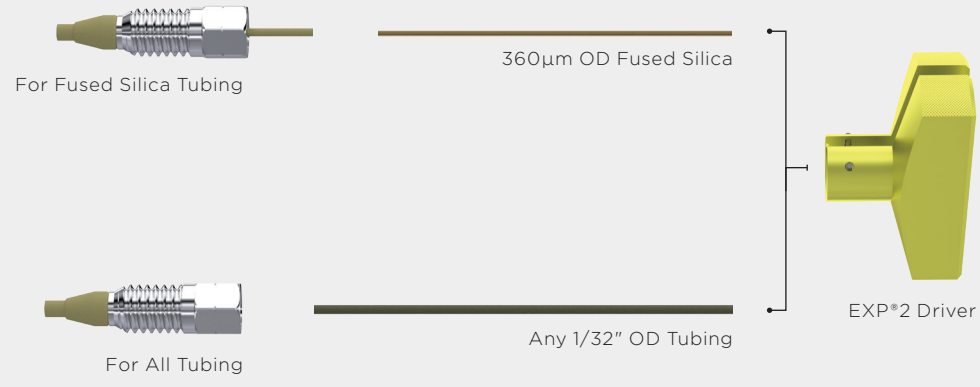
EXP®2 TI-LOK™ 10-32 FITTINGS



EXP®2 TI-LOK™ 6-32 & 6-40 FITTINGS



EXP®2 TI-LOK™ 10-32 ADAPTERS



For more applications such as sample loops and packed capillary columns, please contact Optimize for more information.