

Simplify your search for
**COLUMN
HARDWARE**



Discover how to maximize results with Isolation Technologies column hardware and accessories that are specifically engineered to meet critical UHPLC, HPLC, and biocompatible operating requirements. You will find both PEEK-lined stainless steel hardware as well as standard ss column hardware at the below stockingstations.

IDEX
HEALTH & SCIENCE



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WHO WE ARE

The IDEX Health & Science Isolation Technologies (IT) brand provides advanced empty column hardware and accessories to the global fluidics markets. IT stainless steel columns use our exclusive Isobore™ internal surface finish, leading to an extremely smooth ($Ra \sim 8 \mu\text{in}$), flat and clean surface. This unique finish reduces the “wall effect” or drag at the column wall, significantly improving column efficiency and performance.



IT COLUMN BENEFITS

IT columns provide many benefits to customers looking to optimize their fluidic instruments:



BIO-SAFE™:

- Stable to < 8 kpsi
- Metal-free
- Precision-machined from virgin PEEK™
- Surface finish: $< 10 \mu\text{in Ra}$

COMPRESSION:

- Stable to ≤ 10 kpsi
- Non-threaded tube
- Not recommended for applications > 10 kpsi
- Drop-in frit
- Available in Isobore™ grade

MODULAR:

- Stable to ≤ 15 kpsi
- Threaded tube
- Isobore internal surface finish
- Frit-cap design

ISO-BAR:

- Stable to ≤ 20 kpsi
- Threaded tube
- Isobore internal surface finish
- Drop-in frit
- All metal design for UHPLC

COLUMN COMPONENTS

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TUBE:

- Internal diameters: 1.0-50.0 mm
- Material: Stainless steel or PEEK™
- Length: 1-30 cm
- Function: Analytical or preparatory scale

FRITS:

- Outer diameter matches tube inner diameter
- Thickness: 1/8 inch to 1/16 inch
- Porosity: 0.5 & 2.0 μm (up to 20 μm)
- Material: Stainless steel, titanium, PEEK
- Function: Retains packing media in the column

END FITTINGS:

- Port geometries; Valco, Parker, Waters
- Material: Stainless steel or PEEK to match tube
- Function: Secures frit, connects tubing



COMPRESSION COLUMN SYSTEMS

Compression hardware relies on the ferrule to swage or attach to the tubing to maintain the high pressure seal. The word “compression” is associated with this style of hardware because the swaging is achieved by physically compressing the ferrule onto the tubing by applying torque. Isolation Technologies compression systems ensure that the ferrule is properly seated on the tube and locked in place so that it does not slip off during the high-pressure packing process. Proper assembly of the tube and frit within the end fitting ensures the integrity of the flow path — improper assembly can lead to poor chromatography or loss of packing material.

Compression Columns are available in custom IDs and lengths — many sizes are available. Isolation Technologies frits for compression columns are encapsulated in a PEEK™ ring, reducing the potential for leaks and silica bypass.

- Operates at pressures up to 10,000 psi (689 bar)
 - Multiple port configurations make columns easy to use with any system
 - Leak-free frits improve system efficiency
 - Isobore™ surface finish reduces drag at the column wall and improves column efficiency and performance by providing an extremely smooth, flat, and clean surface; it also features a surface finish with typical values around 8 μin.
-



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MODULAR COLUMN SYSTEMS

Modular hardware guarantees a high-pressure seal between the tubing and end fitting, as well as a proper seating of the frit. The frit is contained in a cap that slides over the column, forming a leak-free and gap-free seal. All stainless steel modular columns use our exclusive Isobore™ internal surface finish. Modular column hardware systems include the following components: one 316 stainless steel column body, two one-piece end fittings and two frit caps containing 316 stainless steel frits in a PEEK™ cap. In addition, Modular systems are available in custom IDs and lengths — many sizes are available.

Isobore-grade surface finish reduces drag at the column wall and improves column efficiency and performance by providing an extremely smooth, flat, and clean surface; it also features a surface finish with typical values around 8 µin.

- Operates at pressures up to 15,000 psi (1034 bar)
 - Precision machined from high purity LC grade 316 stainless steel
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BIO-SAFE COLUMN SYSTEMS

Bio-Safe™ columns are biocompatible and precision-machined from virgin PEEK™ (polyetheretherketone), a strong, inert polymer material, and are metal free for biotechnology and ion chromatography applications. PEEK columns are used when analytes are sensitive to the metals in stainless steel hardware. Proteins, peptides, and ions have this susceptibility. PEEK is also compatible with most mobile phases used in HPLC. While THF will cause PEEK to swell, this is limited to PEEK capillary tubing <1.0 mm ID. Bio-Safe PEEK tubing also has superior wall thickness for strength and an ultra-smooth internal surface finish (10 µin Ra) for high efficiency.

- Completely biocompatible for optimal results in sensitive applications
 - Available with PEEK or Titanium frits (several size options available)
 - Convenient, strong threaded design that is stable at pressures up to 8,000 psi (552 bar)
 - High efficiency connections and surface finish for optimum performance
 - Bio-Safe packing adapters are available for inner diameters of 2.1 mm and 4.6 mm
-



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BIO-UHPLC COLUMN HARDWARE

BIOCOMPATIBLE PEEK-LINED STAINLESS STEEL

IDEX Health & Science introduces the NEW Isolation Technologies® PEEK-Lined Stainless Steel (PLS) Column for bio-compatible applications. The PLS column combines the strength of our stainless steel UHPLC column (IsoBar) with the chemical inertness of PEEK polymer to ensure the integrity of bio-molecules by minimizing unwanted surface interactions while also allowing operation under harsh solvent or pH conditions. This hardware has been designed for demanding applications within the UHPLC realm.

- Some suggested applications: bio-molecule analysis, low pH applications, IC, bio-inert LC, bio-purification, harsh solvents, protein characterization
- Rated to 20,000 psi (1379 bar) packing at RT/ 15,000 psi (1034 bar) operating up to 80°C
- Removable frit assemblies
- Excellent column durability over hundreds of injections
- Easy-to-pack column hardware
- Improved pressure handling capability over conventional PEEK column hardware

COMPARISON OF EFFICIENCY BETWEEN A PLS COLUMN AND A SST COLUMN

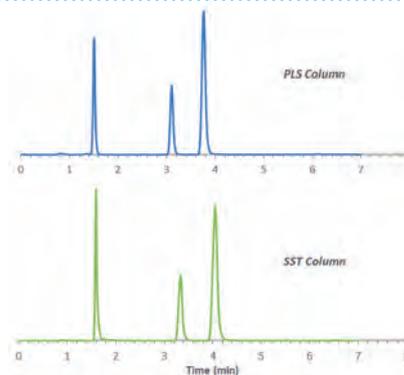


Figure 1: Chromatographic comparison of a conventional stainless steel (SST) column (top) versus the new PLS column (bottom).

Test Sample	PLS Column Efficiency (Plates/m)	SST Column Efficiency (Plates/m)
Uracil	34347	33500
Benzene	71760	51087
Ethylbenzene	72460	50907

COMPARISON OF PEPTIDE SAMPLE RECOVERY BETWEEN A PLS COLUMN AND A SST COLUMN

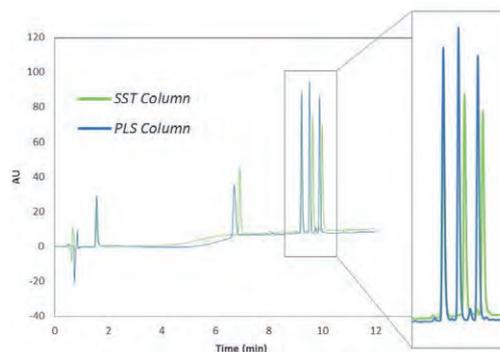


Figure 2: Overlaid chromatograms for separation of a standard peptide test mixture.



ISOBAR

COLUMN SYSTEMS

Ultra-high pressure liquid chromatography (UHPLC) decreases the time and costs associated with analytical separations. To consistently maintain these technology advantages, you need column hardware that ensures the speed and precision of your processes. The IsoBar column platform delivers a leak-proof, reliable, all-metal design with high strength threaded end fittings to meet critical system operating requirements.

- Rated up to 20,000 psi (1,379 bar) making IsoBar the perfect solution for UHPLC technology
 - Proven format for <math><2\ \mu\text{m}</math> stationary phase
 - Features Isobore™ internal surface finish, which reduces the wall effect and significantly improves column efficiency
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DURACAP™

COLUMN SYSTEMS

DuraCap™ capillary columns blend unmatched packing stability, strength, and performance in one convenient platform. These durable column systems eliminate bending, breaking, and bed disruption during the packing process and operation. DuraCap end fittings are made from stainless steel and engage with the threaded protective outer shell of the capillary column. The end fitting engages the threads and captures the frit cap to create a secure, near-zero-dead-volume connection.

- Uncompromising strength and robust capillary performance
 - Zero dead volume frits use a 316 stainless steel woven mesh screen that adds essentially no volume to the column
 - Mechanically rugged capillaries allow the column to deliver the performance of a stainless steel capillary with the strength of conventional larger inner diameter analytical column hardware
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ACCEL-X™

COLUMN SYSTEMS

Short length and narrow inner diameter make Accel-X columns ideally suited for the high-speed separations and ballistic gradients commonly used in LC/MS. Near-zero-dead-volume fittings permit Accel-X columns to achieve high efficiency and excellent peak shape.

To take advantage of the high efficiency and high speed of the Accel-X LC/MS columns, it is essential to use 0.005 inch inner diameter capillary tubing between the injector and the column and the column and the detector (or LC/MS interface). This ensures minimal band broadening (sample dilution) for sharper, more efficient peaks and lower detection levels. Reducing the tubing volume (length and inner diameter) also maintains the integrity of fast gradients.

By using Sure-fit connectors, you can reduce the potential of a poor connection that will degrade peak shape.

- Engineered for high throughput applications
 - Columns can withstand pressures up to 15,000 psi (1,034 bar)
 - IsoBore™ tubing finish provides twice the smoothness of standard LC grade
 - 80% less dead volume for enhanced sensitivity
 - Ideal for ballistic gradients
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ACCESSORIES

GUARD COLUMNS

Isolation Technologies guard cartridge holders allows rapid replacement of guard cartridges. Ideal in high-volume production, these cartridges are easy to assembly and pack. The Modular Holder attaches directly to the inlet of the Isolation Technologies Modular Columns without the need for fittings or tubing. This design offers several advantages over the conventional “stand-alone” holders, including:

- Reduced dead volume
- User-friendly, compact design
- Increased lifetime of analytical columns
- Simple to assemble and pack
- Two holder styles and designs for flexible integration



MODULAR COLUMN PACKING ADAPTERS

Isolation Technologies modular packing adapters are used to connect modular style column hardware to high pressure column packing reservoirs. The adapters feature a three-piece threaded design for safe, easy removal, and replacement of the PEEK™ sealing ring. Modular packing adapters are available for inner diameters from 2.1 mm to 21.2 mm.



PEEK™ COLUMNSAVER™ PRECOLUMN FILTER

These filters offer all the protection of conventional precolumn filters at a third of the cost. With its convenient direct connect design, changeover time is measured in seconds and no tools or wrenches are needed. The ColumnSaver PEEK body contains a HiFlo stainless steel or titanium filter element and is designed for maximum filtration of particulate matter with minimal dead volume or back pressure.

STAINLESS STEEL COLUMNSAVER PRECOLUMN FILTER

This filter offers similar benefits as the PEEK version, but it is especially designed for use in UHPLC applications. Manufactured with an all-stainless steel body and featuring a 2 µm stainless steel frit, the stainless steel ColumnSaver offers precolumn filtration protection in those applications where inline pressures can reach as high as 20,000 psi (1,379 bar). (Please Note: Because of the design of this product, it needs to be wrench-tightened in place.)

- PEEK version can be finger tightened to 6,000 psi (414 bar) without wrenches or other tools
- Lower dead volume than conventional filters with holders
- Universal connection compatible with all column manufacturers' fittings
- For PEEK or Stainless Steel tubing



ACCESSORIES

SURE-FIT™ CONNECTOR

The Sure-Fit connector gives you a perfect fit in nearly every 10-32 coned receiving port — every connection, every time. Typically leaks and dead volume are caused by an improperly plumbed system and can occur for many reasons, including switching columns. The problem occurs not only when switching from one manufacturer to another, it can also occur when changing columns from the same manufacturer. This is because internal port depths vary, even within the same manufacturing lot. Unless the connector is universal, eliminating leaks and dead volume cannot be guaranteed.

The Sure-Fit connector has a unique internal spring-tensioned mechanism that automatically self-adjusts to virtually any port depth while maintaining constant pressure on the 1/16" OD tubing. Sure-Fit connectors come with either PEEK™ tubing or stainless steel tubing, in varying lengths and internal diameters, pre-assembled for ease of use. Choose the 9502-01007-HP — a U-shaped Sure-Fit connector — for use in Agilent 1100 systems, or select the 9504-01005-050 for micro-scale applications where biocompatibility is desired.

- Self-adjusting to any port depth regardless of column manufacturer
 - Fingertight for easy assembly
 - Rated to 6,000 psi (414 bar)
 - Available in biocompatible PEEK or stainless steel
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ACCESSORIES

ISO-PREP™ GUARD

Iso-Prep Guard is a guard cartridge system designed to protect valuable prep columns. It offers superior column protection for adsorptive samples and a proven sample distribution mechanism via a precision machined holder. Iso-Prep Guard is ideal for protecting prep columns with no degradation of peak shape or plate count.

The high-performance guard protects columns in two ways. First, it acts as a filter, trapping particles in the frits. Second, when the guard cartridge is packed with the same material as the prep column, it removes compounds that irreversibly adsorb to the packing material.

- Valuable prep column protection
 - Negligible back pressures even at flows of 100 mL/min
 - High-performance sample distribution mechanism
 - Relative retention times (RRT) are virtually identical for the column with and without the guard system
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A SIMPLE PHILOSOPHY...

Biotech Sweden is a company highly specialized in chromatography accessories and consumables. Biotech is located on the Swedish Westcoast – south of Gothenburg – at the beautiful Onsala peninsula.

We at Biotech believe that value is not "the lowest price" – our customers are the reason we exist – our customers always come first.

We have not lost sight where we come from and therefore we try harder to be your partner, we're not satisfied unless you are satisfied.

Thank you for your business. I know we'll continue to grow and prosper together.

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