

Grace Preparative Hardware and Slurry Packing Services

Sales Support Sheet

**purification
technologies**

Rely on Grace's Expertise for Preparative Column Packing!

- Extensive experience in development of packing methods
- Established packing methods with a wide range of resins
- Proprietary packing method delivers optimal packed bed for flanged columns
- Reduced costs and environmental impact by re-using hardware
- Sustained superior performance from post-packing compression
- Flexibility to change resins based on purification needs
- Improved Lab productivity by outsourcing column packing
- Assured quality and Certificate of Analysis provided with every column

There is a growing trend within the pharmaceutical industry for companies to turn to trusted partners for contract services in order to mitigate risk and increase productivity. With nearly 100 years of combined column packing experience, Grace is the reliable choice for your preparative column packing needs. Column packing is a labor intensive task in process purification that is part science and part art. Without an in depth understanding and experience in both, purification may become a source of variability and delays in your process manufacturing.

To avoid these kinds of productivity pitfalls, turn to Grace for preparative column packing services. Grace has established protocols for many existing resins on the market and the knowledge and expertise to



develop new methods. Grace can help improve your overall lab productivity by taking on the column packing chore, streamlining purification, and helping to ensure high quality, timeliness, and optimal results for your process purification needs. By owning the MODcol® DAC Spring® Columns or fixed-bed flanged hardware, you are investing in a flexible solution that allows you to change resins based on your needs and making an environmentally conscious choice that allows you to re-use and re-pack the column hardware as your purification needs evolve. Simply send the hardware back to Grace for disposal of your previous resin and repacking of new resin. With Grace packing your preparative columns, you will have confidence in the column performance, quality, and improved bandwidth for your laboratory staff.

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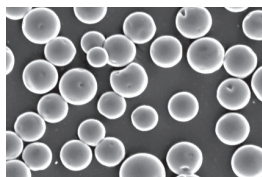
GRACE

Choose the media that best suits your purification needs!

Grace has experience packing over 100 different resins - including Grace manufactured as well as a variety of resins from other manufacturers.

Interested in learning more? Contact your Grace representative to determine existing experience with your resin or feasibility to develop a new method based on your needs. Our experience encompasses:

- Reversed-phase silica
- Normal-phase silica
- Polymeric resin
- Chiral media



Choose the column hardware format that best suits your laboratory's needs!

MODcol® Flanged Column Hardware

- Increased efficiency compared to other fixed bed columns
- Patented radial slots for even flow distribution
- Zero void endplates
- Double seal o-rings for leak proof results
- Double frits minimize pressure drop
- Rated to 2000 psi



Flanged Column Sizes

ID	Length
25mm	50mm
25mm	100mm
25mm	150mm
25mm	250mm
25mm	300mm
25mm	600mm
30mm	50mm
30mm	100mm
30mm	150mm
30mm	250mm
50mm	50mm
50mm	100mm
50mm	150mm
50mm	250mm
50mm	300mm

Flanged Column Sizes

ID	Length
76mm	100mm
76mm	150mm
76mm	250mm
76mm	300mm
101mm	100mm
101mm	150mm
101mm	250mm
101mm	500mm
101mm	600mm

MODcol® DAC Spring® Column Hardware

- State-of-the art DAC column design
- Improved performance
- Increased peak symmetry, reproducibility and efficiency
- Extended column lifetimes
- Reduced media consumption
- Greater flexibility and lab productivity
- HPLC and SFC hardware options

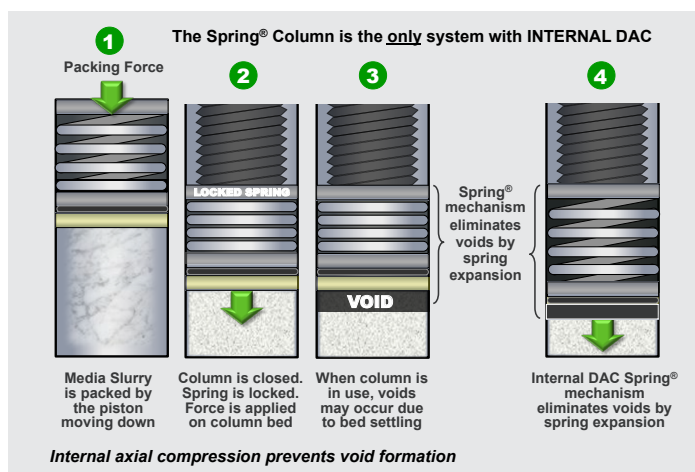


The DAC Spring® Column system has a unique portable design with patented internal dynamic axial compression (DAC) technology that gives flexible DAC performance independently of packing device. DAC actively suppresses voids and increases peak symmetry, column lifetime, reproducibility, and overall efficiency even after the column has been removed from the packing device. Other DAC hardware options do not offer this flexibility. DAC Spring® columns packed with Vydac® or Davisil® media provide a highly effective purification solution. Spring® columns can also easily be packed with most silica- and polymeric-based media on the market.

DAC Spring® Column Sizes

ID	Length	Packed Bed Length
25mm	400mm	50-150mm
25mm	700mm	150-350mm
50mm	400mm	50-150mm
50mm	700mm	150-350mm
101mm	400mm	50-150mm
101mm	700mm	150-350mm

How DAC Works:

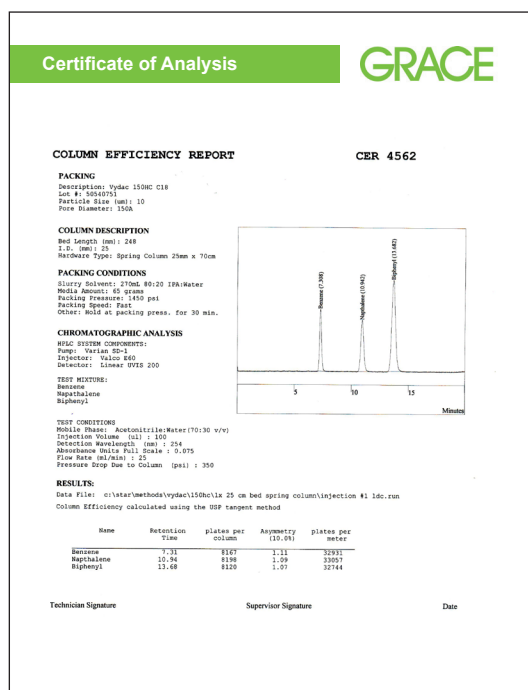


Contact Grace to discuss your packing needs, optimal solutions available, and pricing. Also, 4.6mm - 22mm ID x 250mm L threaded hardware packing services are available for your methods development work.

Experience the Benefits of Grace Packing Services:

Performance, Dependability, Peace of Mind, Flexibility, and Efficiency

- Lifetime ownership of MODcol® Flanged or Spring® Column Hardware
- Extrusion of existing media
- Hardware cleaning
- Replacement of frits and seals
- New resin packing
- Column efficiency testing
- Certificate of analysis provided
- Packing performed in ISO 9001 and ISO 13485 certified facility



Have the Internal Expertise to Pack Your Own Preparative Columns?

Consider the MODcol® Multipacker® Packing Station

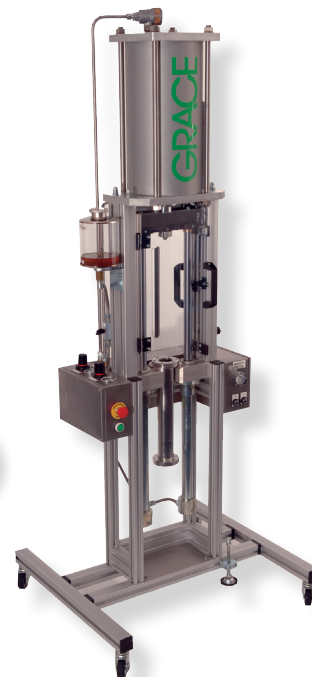
- Easy and Safe Use
- Pack Multiple Columns with One Unit
- Unprecedented Safety Features

Unlike competitive systems, the column can be removed from the MultiPacker® Packing Station and the DAC (Dynamic Axial Compression) mechanism remains contained and active within the column. This allows more flexibility for column operation in the lab and the ability to pack multiple columns with a single MultiPacker® Packing Station. This sophisticated mechanism allows very gentle packing suitable for even the most fragile media. The MultiPacker® Packing Station incorporates several safety features with redundant back-up for maximum confidence and peace of mind to perform in-house packing.

Experience the Benefits of Dynamic Axial Compression When Packing In-house

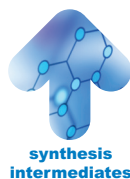


Pack multiple DAC columns and use independently of packing device!



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Materials for
Pharmaceutical
Manufacturing



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