



## LRC Chromatography Columns for Laboratory Applications



***Empty glass columns accommodate sorbent volumes up to 900 mL for preparative and process optimization applications***

### **Robust Design**

- ▶ Tubing connections for the inlet and outlet are on the column exterior to provide instant visual confirmation of integrity, and permit quick change of tubing and fittings.
- ▶ The frits provide even flow distribution across the bed with no hold-up volume behind the frits.
- ▶ High pressure resistance across the range of column diameters.

### **Precise Piston Adjustment**

- ▶ Screw-lock system allows rapid coarse adjustment followed by precise fine adjustment of the piston.
- ▶ Piston motion is completely linear and provides true axial compression without torsional damage to the top of the column bed.
- ▶ Piston adjustment with the screw-lock system does not twist tubing or cause damage to the tubing connections.

### **Ease of Use**

- ▶ Use of one or two adjustable pistons gives coverage of the complete range of bed heights from 0 to 750 mm.
- ▶ 1/4-28 UNF fittings are compatible with or adaptable to any liquid chromatography system.
- ▶ Column end couplings permit easy disassembly of end fittings for unpacking and cleaning operations.
- ▶ Frit replacement is quick and easy.
- ▶ Reservoir available for packing operations where slurry volume exceeds the column volume.

### **Broad Capabilities**

- ▶ Extended pressure capabilities. (See Table 1.)
- ▶ Temperature range: 4 – 40 °C.

## Applications

LRC empty glass columns allow researchers and process developers to quickly and easily evaluate different sorbents early in the drug development process to obtain necessary scale-up data.

## Description

Four internal diameters from 10 to 50 mm and four lengths provide a range of column volumes up to 900 mL and bed heights up to 750 mm.

Column tubes are made of borosilicate glass. They are equipped with one adjustable and one fixed piston, and a screw-lock system to allow rapid adjustment of the piston. To allow a broader range of packed bed heights and volumes, the fixed piston may be replaced by a second adjustable piston. Spare adjustable pistons are available for each column diameter from 10 to 50 mm. Reservoirs (consisting of a column coupler and a glass tube) are available for packing.

Each column is supplied assembled and ready for use, with tubing and fittings to connect the column to a chromatography system.

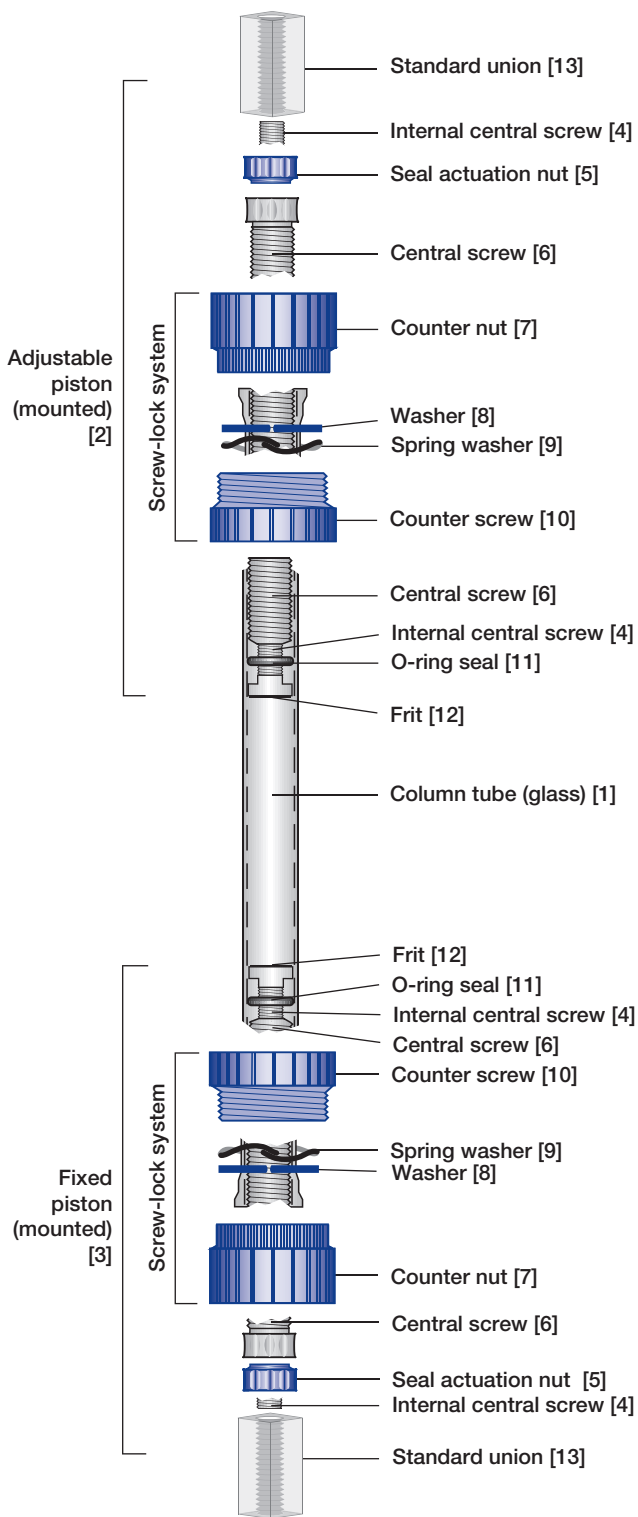


**Table 1**

*LRC Column Specifications*

LRC Column	ID (mm)	Equipped with 1 Adjustable Piston		Equipped with 2 Adjustable Pistons		Maximum Pressure Tested	
		Bed Height (mm) min – max	Volume (mL) min – max	Bed Height (mm) min – max	Volume (mL) min – max	(bar)	(psi)
LRC Column 10/0 – 120	10	0 – 120	0 – 9	0 – 120	0 – 9	30	435
LRC Column 10/80 – 200	10	80 – 200	6 – 16	0 – 200	0 – 16	30	435
LRC Column 10/330 – 450	10	330 – 450	26 – 35	210 – 450	17 – 35	30	435
LRC Column 15/80 – 200	15	80 – 200	14 – 35	0 – 200	0 – 35	25	360
LRC Column 15/330 – 450	15	330 – 450	58 – 80	210 – 450	37 – 80	25	360
LRC Column 15/630 – 750	15	630 – 750	111 – 133	510 – 750	90 – 133	25	360
LRC Column 25/80 – 200	25	80 – 200	39 – 98	0 – 200	0 – 98	15	215
LRC Column 25/330 – 450	25	330 – 450	162 – 221	210 – 450	103 – 221	15	215
LRC Column 25/630 – 750	25	630 – 750	309 – 368	510 – 750	250 – 368	15	215
LRC Column 50/80 – 200	50	80 – 200	157 – 393	0 – 200	0 – 393	10	145
LRC Column 50/330 – 450	50	330 – 450	648 – 884	210 – 450	412 – 884	10	145

**Figure 1**  
Detail of a Pall LRC Column



## Column Components and Materials of Construction

Description	Materials of Construction
Column Tube [1]	Borosilicate glass
Pistons: 1 adjustable [2] and 1 fixed [3]	
Each with:	
- Internal central screw [4]	POM <sup>a</sup>
- Seal actuation nut [5]	POM
- Central screw [6]	POM
- Counter nuts [7] and screw [10]	POM
- Washer [8]	POM
- Spring washer [9]	Steel
- O-ring seal [11]	FPM <sup>b</sup>
- 10 µm frit (pressed into column piston) [12]	Sintered glass
- Standard union (1/4-28 UNF both sides) [13], <sup>c</sup>	Polypropylene

### Parts Included in Column Package

Quantity	Description	Materials of Construction
2	Fitting (ferrule with nut)	POM and Tefzel <sup>♦</sup>
1	Connection tubing (1/16 in. or 1/8 in. OD)	FEPP <sup>d</sup>
1	Frit ejector	POM and steel
1	User Guide No. USD 2482	—

a. POM: Polyoxymethylene (acetal)

b. Fluoroelastomer polymer

c. Only on columns of ID 10 and 15 mm

d. Fluorinated ethylene propylene



## Ordering Information

### Columns

Part Number	Description
LRC10x000-120V01	LRC Column 10/0 – 120
LRC10x080-200V01	LRC Column 10/80 – 200
LRC10x330-450V01	LRC Column 10/330 – 450
LRC15x080-200V01	LRC Column 15/80 – 200
LRC15x330-450V01	LRC Column 15/330 – 450
LRC15x630-750V01	LRC Column 15/630 – 750
LRC25x080-200V01	LRC Column 25/80 – 200
LRC25x330-450V01	LRC Column 25/330 – 450
LRC25x630-750V01	LRC Column 25/630 – 750
LRC50x080-200V01	LRC Column 50/80 – 200
LRC50x330-450V01	LRC Column 50/330 – 450

### Spare Part Kits<sup>1</sup>

Part Number	Description
LRC10 KITV01	LRC Spare Part Kit for Column ID10
LRC15 KITV01	LRC Spare Part Kit for Column ID15
LRC25 KITV01	LRC Spare Part Kit for Column ID25
LRC50 KITV01	LRC Spare Part Kit for Column ID50

### Glass Tubes

Part Number	Description
LRC10XTUBE000-120	LRC Glass Tube 10/0 – 120
LRC10XTUBE080-200	LRC Glass Tube 10/80 – 200
LRC10XTUBE330-450	LRC Glass Tube 10/330 – 450
LRC15XTUBE080-200	LRC Glass Tube 15/80 – 200
LRC15XTUBE330-450	LRC Glass Tube 15/330 – 450
LRC15XTUBE630-750	LRC Glass Tube 15/630 – 750
LRC25XTUBE080-200	LRC Glass Tube 25/80 – 200
LRC25XTUBE330-450	LRC Glass Tube 25/330 – 450
LRC25XTUBE630-750	LRC Glass Tube 25/630 – 750
LRC50XTUBE080-200	LRC Glass Tube 50/80 – 200
LRC50XTUBE330-450	LRC Glass Tube 50/330 – 450

### Column Couplers<sup>2</sup>

Part Number	Description
LRC10XCOUPLERV01	Column Coupler for LRC Column 10
LRC15XCOUPLERV01	Column Coupler for LRC Column 15
LRC25XCOUPLERV01	Column Coupler for LRC Column 25
LRC50XCOUPLERV01	Column Coupler for LRC Column 50

### Adjustable Pistons





Part Number	Description
LRC10ADJPLUNGERV01	LRC Adjustable Piston ID10
LRC15ADJPLUNGERV01	LRC Adjustable Piston ID15
LRC25ADJPLUNGERV01	LRC Adjustable Piston ID25
LRC50ADJPLUNGERV01	LRC Adjustable Piston ID50

<sup>1</sup> One spare kit includes: 4 O-rings, 4 frits of 10 µm, 1 m tubing.

<sup>2</sup> For a reservoir: order a glass tube and a column coupler.

**UpScale<sup>SM</sup> ScaleUp** Pall offers a comprehensive line of chromatography columns for lab to process scale.

The diagram illustrates a product line of chromatography columns. It starts with PRC Columns (1-5 mL) for fast selectivity screening, moving to LRC Columns (5-900 mL) for preparative and process optimization. From there, it branches into Resolute Columns (50-1500 L) for large-scale production and Resolute® Columns (6-300 L) for pilot and small-scale production. Arrows indicate the flow and relationships between these product categories.

 <b>PRC Columns</b> 1 – 5 mL (prepacked) <i>Fast selectivity screening</i>	 <b>LRC Columns</b> 5 – 900 mL <i>Preparative and process optimization</i>
 <b>Resolute Columns</b> 50 – 1500 L <i>Large-scale production</i>	 <b>Resolute® Columns</b> 6 – 300 L <i>Pilot and small-scale production</i>



Life Sciences

#### United States

800.717.7255 toll free (USA)  
 516.484.5400 phone  
 516.801.9548 fax  
 biotech@pall.com e-mail

#### Europe

+44 (0)23 9230 3303 phone  
 +44 (0)23 9230 2506 fax  
 BioPharmUK@europe.pall.com e-mail

Filtration. Separation. Solution.<sup>SM</sup>


Visit us on the Web at [www.pall.com/biopharm](http://www.pall.com/biopharm)

e-mail us at [biotech@pall.com](mailto:biotech@pall.com)

#### International Offices

Pall Corporation has offices and plants throughout the world in locations such as: Argentina, Australia, Austria, Belgium, Brazil, Canada, China, France, Germany, India, Indonesia, Ireland, Italy, Japan, Korea, Malaysia, Mexico, the Netherlands, New Zealand, Norway, Poland, Puerto Rico, Russia, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, the United Kingdom, the United States, and Venezuela. Distributors in all major industrial areas of the world.

The information provided in this literature was reviewed for accuracy at the time of publication. Product data may be subject to change without notice. For current information consult your local Pall distributor or contact Pall directly.

© 2009, Pall Corporation. Pall, , and Resolute are trademarks of Pall Corporation. ® indicates a trademark registered in the USA. Filtration. Separation. Solution.<sup>SM</sup> and UpScale are service marks of Pall Corporation. \*Tezel is a trademark of of E.I. du Pont de Nemours and Company.

10/09, 5k, GN09.2992

USD 2480a