

Auto Columns and Auto Packing Station

Summary

The Auto Column series are standard platform that combines the Packing Station. This Chromatography Column has motors which can control adapter height. This control is carried out from the Packing Station, it is possible to easily desired compression of the resin bed. The Auto Column series have a newly designed slurry valve. Using this valve and Packing Station you can easy packing and unpacking of the resin. It is possible to slide out to smooth the column tube with a little of the human power by the novel of the arm mechanism. Therefore, handling during maintenance of the column is a very easy and simple.

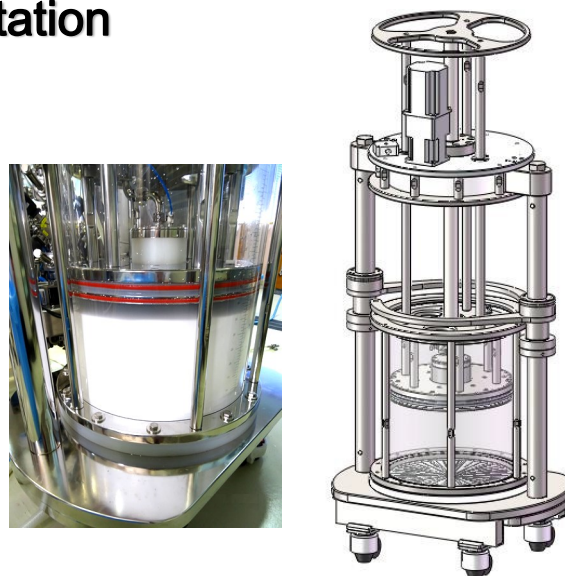


Fig.1 Auto Column 450x550

Overview

Inner diameter in the range of the Auto Column is 450mm to 800mm (Please see table 1) with the column tube made by cast acrylic. The maximum operating pressure is 0.5MPa (5bar).

On the top and bottom of the column there are valves that have port of slurry / mobile phase and its can switch between them. The valves controlled by Packing Station enables packing / unpacking in place into the assembled column.

Wetted material is electrolytic polished stainless steel 316L and FDA CFR21 Part177 certificated plastic PP, EPDM, PEEK and Acrylic. Bed supports are made by mesh of stainless steel 316L.(Please see table 2)

Table 1 Range of Auto Columns

tube size	Mini. bed height	Max. bed height	Max. pressure	inlet/ outlet	dimensions
I.D. x height mm	and volume mm & [L]	and volume mm & [L]	bar	I.D. mm	W x D x H (min-max), weight mm, Kg
450x550	50 [7.8]	480 [75]	5	10	840x620x(1850-2150), 600
450x800	300 [47]	730 [114]	5	10	840x620x(2100-2300), 640
600x550	50 [14]	480 [136]	5	10	1150x790x(1950-2350), 880
600x800	300 [85]	730 [206]	5	10	1150x790x(2200-2600), 940
800x550	50 [25]	480 [241]	5	15	1300x1060x(2000-2450), 1,600
1000x550	50 [39]	480 [377]	5	15	1540x1220x(2250-2700), 2,356

Chemical resistance

Auto Column series are stable to buffer's that are used in the process of biopharmaceuticals and biochemistry. However, contact between the stainless steel and the NaCl-containing solution should be careful. It can be used in normal operation, but not used of NaCl solution to store long-term. Chemical resistance data shown in Table 3, summarizes from the several published information.

Materials shown in Table 2 are compatible with chemicals used in common biological processes. However, contact between the stainless steel and the NaCl-containing solution should be careful. It can be used in normal operation, but not used of NaCl solution to store long-term.

*1 : Avoid contact of more than 4 hours.

*2 : Can be used in normal operation, but not used of NaCl solution to store long-term.

*Note, stainless steel will corrode by NaCl at lower than pH4 acidic environment.

*3 : Not recommended because the surface of tube is clouded by contact.

Table 2 Wetted parts materials

parts	Material
valve	PP, PEEK
column tube	Acrylic
distributor	PP
support net	Stainless steel 316L
flange	Stainless steel 316L
seals	EPDM

EPDM : Ethylene Propylene Rubber. PP : Polypropylene

PEEK : Polyether ether ketone

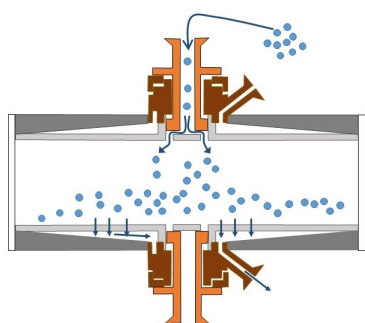
Table 3 Chemical resistance of Auto Columns

chemicals	concentration	compatibility
Hydrochloric acid	0.1M	*1
NaCl	2M	*2
NaOH	2M	ok
Acetic acid	10%	ok
Ethanol	10%	*3
Acetone	10%	*3 *4

*4 : Can be used at 1% to 2% of acetone at which to measure the HETP.

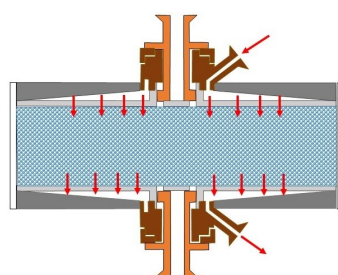
Operation principle

The column has a two position valve located in the center of the top and bottom adapter. You can easily Packing / Un-packing the resin in/out the column with the valve and Packing Station.



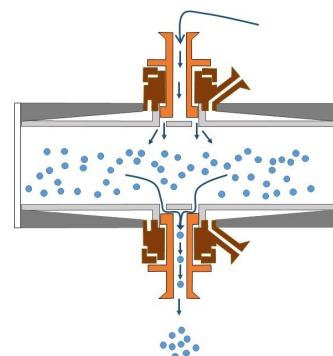
Packing

Resin is supplied from the slurry port of the valve to the inside of the Column. Excess liquid exits to the outside of the column through the net. The bed is formed on the net.



Chromatography

Slurry port close. Buffer to pass through the column via distributor and net from mobile phase port. Distributor to achieve a good chromatography to from a uniform liner flow.



Un-Packing

Resin exiting from the slurry port on the bottom of the valve. Easy to mobilization of the slurry by the motor drive top adapter. Easy cleaning inside of the column by supplying the rinse from top and bottom valve.

Fig.2 The principle of Auto Column described in the schematic diagram.

Auto Packing Station

Auto Packing Station performs the packing / unpacking of resin in the column and Auto Column controls. The slurry inlet/outlet valve on the Auto Column is air-driven that is controlled from Auto Packing Station. The height of the adapter is adjusted by controlling Auto Column motor from the Auto Packing Station. Auto Packing Station have pneumatic diaphragm pump and pneumatic valves, Packing / Unpacking is possible by controlling them. These control performed in the touch panel at the top of the Auto Packing Station.

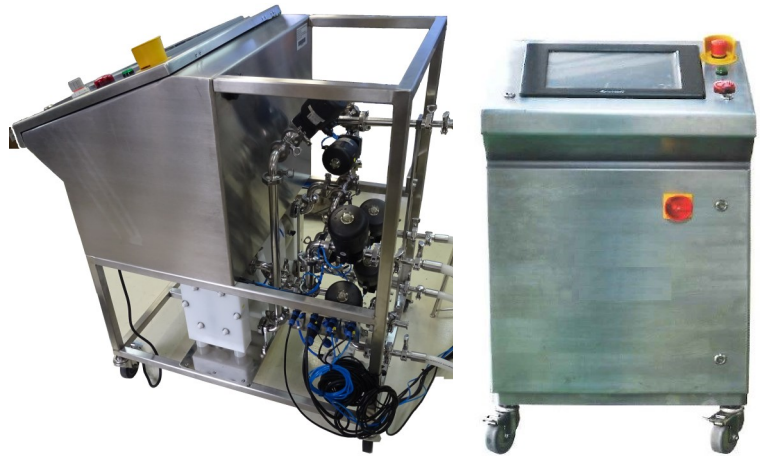


Fig.3 Auto Packing Station AS100

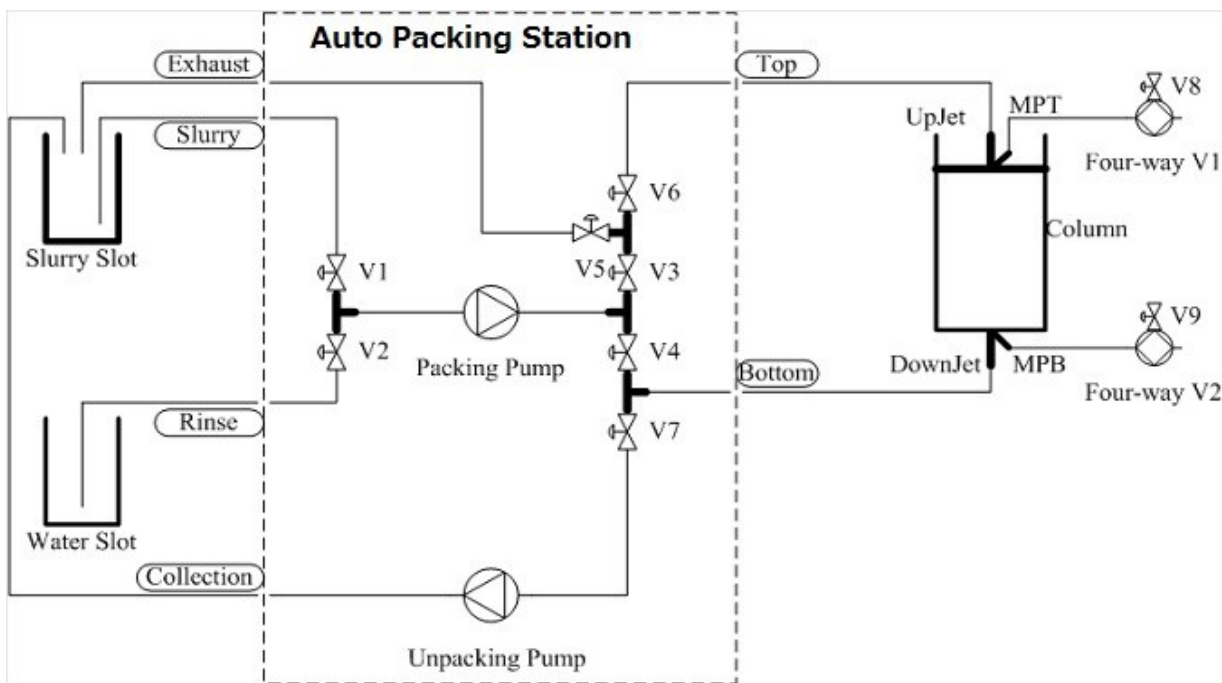


Fig.4 The PID of Auto Packing Station

Product	Air supply (bar)	Max. flow (L/h)	Inlet/outlet ID (mm)	Ferrule coupling OD	Weight (kg)	Size W x D x H (mm)
AS100	6-7	6,000	25.4	50.5	180	1050x700x1120

Ordering information

Auto Column series

tube size I.D. x height mm	Coad No.
450x550	AC0450AI0550
450x800	AC0450AI0800
630x550	AC0630AI0550
630x800	AC0630AI0800
800x550	AC0800AI0550
1000x550	AC1000AI0550

Auto Packing Station

Name	Coad No.
Auto Packing Station	AS100

Auto Column consumable parts

Parts Name	Description	Qty/pc	Parts Code No.
U-type sealing	Out edge of screen	1	407/601
U-type sealing	Center edge of screen	1	409/603
O-ring	Top adapter	2	413/415
O-ring	Bottom of flange	1	505
Sealing Kit /Slurry valve	Sealing of the slurry valve	1set	300

* Please order in column code and parts code.

Accessory

Name	Qty / pc	Code No.
Tube with sanitary fitting (2m, I.D. 6.4mm)	1	T6SF
Tube with sanitary fitting (2m, I.D. 9.5mm)	1	T10SF
Clamp 25mm	10	CLA25-10
Gasket 25mm	50	GAS25-50
4 port / 4 way valve 6mm	1	4P4W-V6

For more information please contact your local agent.

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