



Fig.1. SU-BPX™ Columns

Features and Merits of SU-BPX™ Columns

SU-BPX™ Series High Precision Columns은 다양한 사용자 요구를 반영하여 조작이 쉽고 25bars 이상의 고압에서 운전이 가능하도록 탄탄하게 설계되었습니다. 특히, SU06HP와 SU13HP 고압용 컬럼은 60bars 이상의 고압에서도 안정적으로 사용이 가능합니다.

SU-BPX™ Series High Precision Columns은 해외 경쟁사의 Tricorn™ column 또는 Hi-scale™ column과 대등한 성능을 내면서 XK column보다 훨씬 경제적인 가격으로 공급됩니다. SU-BPX™ High Precision Columns의 주요 특징과 장점은 다음과 같습니다 :

SU-BPX™ Series High Precision Columns incorporate the user friendliness and the easy manipulation, and are designed rigorously to be operated under high pressure above 25bars. Especially, SU06HP and SU13HP columns can be safely operated above even 60bars.

SU-BPX™ Series High Precision Columns beat the competitor's products like as Tricorn™, Hi-scale™, or XK column in view of performance and price. Main characteristics of SU-BPX™ High Precision Columns are as follows :

- High Pressure, High Performance, Durability, & Reproducibility for Chromatography works
- Free length of glass column with much longer adjustable adaptor :
- 15/25/40cm as standard length & 10cm~1.5m as ordered
- Reliable high precision borosilicate glass (DURAN) column
- Broad range of column diameters : ID 5.6/6/13/17/22mmΦ
- Enabled adjusting bed height of column during operation (even under pressure)
- Stainless steel 316L sintered wire mesh(5μm) or Porous polyethylene disc(avg. 15μm) adaptor filters : select one
- Fully compatible materials to USP class VI, 21CFR Part 177
- 10-32 coned finger tight connector or M6 union connector interchangeable



Fig.2. Glass Tube (DURAN)

The Design of SU-BPX™ columns

SU-BPX™ Series High Precision Columns 부품은 Glass column, Adaptor head, Adaptor rod, Adaptor base, Adaptor ring, 그리고 tubing으로 구성되어 있습니다. 시료 및 버퍼와 접하는 wet part 컬럼을 구성하는 부품은 생물의약품 제조를 위한 FDA의 기준에 맞는 재질이 사용되었으며, Dry part는 고압에 견딜 수 있는 내구성 재료로 제작되었습니다. 특히, 5 μ m 필터인 stainless steel 316L sintered wire mesh filter를 채택하여 플라스틱 필터에서 발생할 수 있는 트러블을 근본적으로 제거하였기 때문에 경쟁사 제품에 비하여 훨씬 안정적인 운전이 가능합니다.

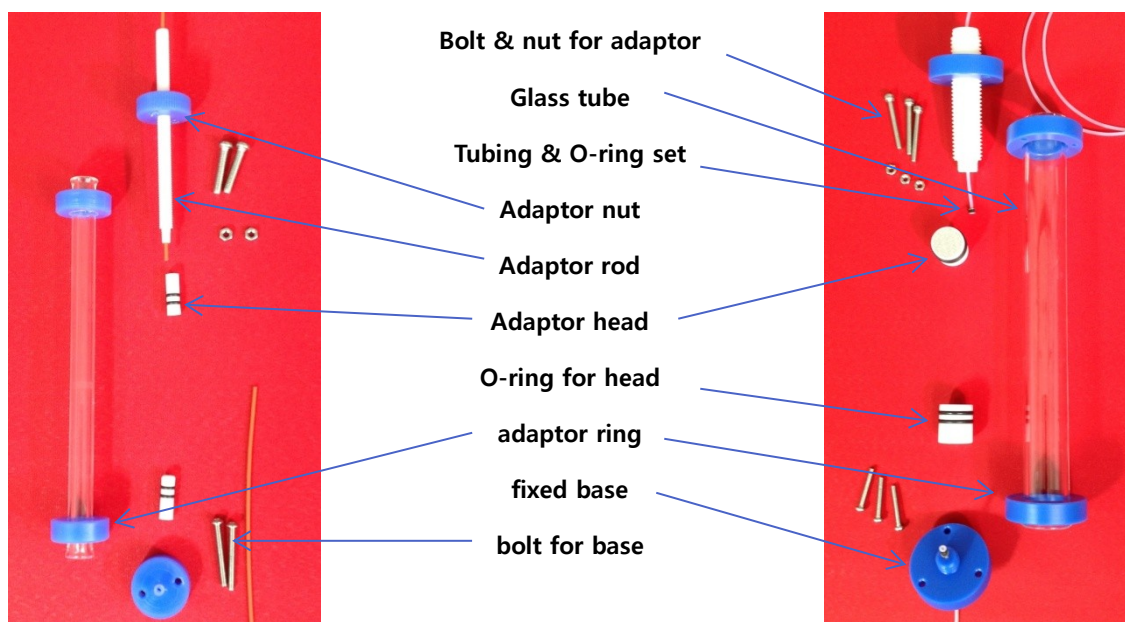
만일 컬럼운전에 1N HCl 이상의 강산을 사용하는 경우나 금속재질을 피하고 싶은 경우에는 폴리에틸렌 다공판 필터(두께 1.5mm, avg. 15 μ m 필터 다공판)를 선택할 수 있습니다.

SU-BPX™ Series High Precision Columns consist of glass column, adaptor head, adaptor rod, adaptor base, adaptor ring, and tubings. The wet parts contacting products and buffers fully comply with the guideline of FDA material compliance for pharmaceutical manufacturing. The dry parts consist of durable materials for high pressure operation. Especially, the stainless steel 316L wire mesh filter are adapted in order to prevent any faults or troubles occurred by the intrinsic properties of plastic net filter.

If the strong acid like as 1N HCl should be used for chromatographic operation, the porous polyethylene disc filter(thickness 1.5mm, avg. 15 μ m opening) can be selected instead of stainless steel 316L wire mesh filter.

● Technical specifications :

- Materials : Borosilicate glass, PTFE, PEEK, VITON O-ring, Acetal as adaptor rod, Nylon66 as adaptor base and rings, Stainless steel 304 as bolts & nuts
- Filter : 5 μ m for stainless steel 316L sintered wire mesh filter(1.7mm thickness) and avg. 15 μ m for porous polyethylene disc filter(1.5mm thickness)
- Tubing : PEEK for SU6HP & SU13HP and PTFE for the others
- Working temperature : 2~40°C (Heating is strictly prohibited)
- Working pressure : upto 25~30bars for SU06/SU13/SU17/SU22, and upto 60bars for SU06HP & SU13HP
- Length of column : 15, 25, or 40cm as standard length and upto 1.5m as ordered



Bed Heights and Column Volumes(CV)

Type	ID ¹⁾ (mm)	Vol. (ml/cm)	Bed height ⁴⁾ / length (cm)	CV ²⁾ (ml)	Adaptor ³⁾	Catalog No. ⁵⁾
SU06HP/15 SU06HP/25	5.6	0.246	2~11 / 15 4~21 / 25	0.5~2.7 1~5.2	1 2	SU06HP15-1 SU06HP25-2
SU13HP/15 SU13HP/25 SU13HP/40	13.0	1.327	4~10 / 15 6~20 / 25 12~35 / 40	6~13 8~27 16~46	1 2 4	SU13HP15-1 SU13HP25-2 SU13HP40-4
SU06/15 SU06/25	6.0	0.283	3~11 / 15 4~21 / 25	0.9~3.1 1.2~5.9	1 2	SU0615-1 SU0625-2
SU13/15 SU13/25 SU13/40	13.0	1.327	4~10 / 15 6~20 / 25 12~35 / 40	6~13 8~27 16~46	1 2 4	SU1315-1 SU1325-2 SU1340-4
SU17/15 SU17/25 SU17/40	17.0	2.270	4~10 / 15 6~20 / 25 12~35 / 40	10~23 14~45 28~79	1 2 4	SU1715-1 SU1725-2 SU1740-4
SU22/15 SU22/25 SU22/40	22	3.941	3~10 / 15 6~20 / 25 12~35 / 40	12~39 24~79 48~138	1 2 4	SU2215-1 SU2225-2 SU2240-4

1) ID, internal diameter of glass column

2) CV, column volume of packing

3) Adaptor 1, adjustable adaptor & fixed base

2, two adjustable adaptors

4, "2" & one extension rod

4) Bed height means the actual height of packing material in column. Length means the

actual length of glass tube. Standard columns are 15, 25, or 40cm of glass tube. Arbitrary length of glass column can be ordered in the range of 10cm ~ 1.5m max.

5) Filter type should be designated : "SS" for 5μm 316L or "PE" for avg. 15μm

Applications for Scale-up

최소의 비용으로 생산공정을 모사할 수 있는 정확한 scale-down 실험을 실시하는 것은 scale-up 상용화를 위한 첫 걸음입니다. 대형 컬럼 운전조건을 확립할 수 있는 scale-down 연구용 소형컬럼으로서 SU-BPX™ Series High Precision Columns은 고압 및 고속운전이 가능한 매우 유용한 컬럼이며 여기서 얻어진 운전데이터는 BPX™ columns 운전 시 그대로 linear scale-up이 가능합니다.

A robust scalable process development by scale-down experiment at the lowest cost is the first step for commercialization. SU-BPX™ Series High Precision Columns are very efficient for high speed scale-down experiment under even high pressure, and the scale-up data obtained from SU-BPX™ columns can be directly applicable to the operation of large-scale BPX™ column chromatography.

Chemical Resistance

SU-BPX™ Series High Precision Columns은 크로마토그래피에서 사용하는 대부분의 유기용매를 사용할 수 있습니다. 주의하여 사용해야 할 유기용매는 클로로포름 등 할로젠화 유기용매, 아세톤 & 케톤류, 1N 이상의 염산 등으로서 이들을 사용할 때는 단시간 또는 저 농도에서 사용해야 하며 사용 후 반드시 증류수로 세척해야 합니다.

SU-BPX™ Series High Precision Columns can be used with nearly all organic solvents commonly used in liquid chromatography. But, some of chemicals or organic solvents like as chlorinated hydrocarbons, acetone and ketones, strong acids higher than 1N HC should be used with extreme care, and the columns shall be washed thoroughly with distilled water after use.

Ordering Information

SU-BPX™ Series High Precision Columns은 주문에 따라서 즉시 사용이 가능하도록 조립되어 공급됩니다. 컬럼 본체와 함께 소모품과 밸브를 포함한 startup kit가 기본 제공됩니다. 주문 시 카다로그 번호로 규격을 지정하든지 또는 상세옵션을 선택하여 주문할 수 있습니다. 지정할 수 있는 옵션 사양은 아래와 같습니다 :

SU-BPX™ Series High Precision Columns are supplied as assembled in ready-to-use according to the order. The startup kit is normally enclosed in main column set, including valve and spare parts. You can order the columns by catalog number only, or designate the optional specifications in detail as follows :

- **SU[A]-[B]-[C]-[D] :**

- [A] : Internal diameter. Select one among 06, 06HP, 13, 13HP, 17, or 22.
- [B] : Length of glass tube. Select one among 15, 25, or 40. Otherwise, enter value in the range of 15~150cm as a multiple of integer 5. "15" is default value.
- [C] : Type of column adaptors.
 - "1" (Default adaptors = a fixed base + an adjustable adaptor),
 - "2" (2 adjustable adaptor),
 - "3" (Default adaptors + one extension rod),
 - "E" (2 adjustable adaptors + 1~2 extension rod),Note that fixed base is 2~3cm in length, adjustable adaptor and extension rod are 10cm each in length.
- [D] : Type of filter. "SS"(default) for 5μm stainless steel 316L sintered wire mesh filter, or "PE" for avg. 15μm porous polyethylene disc.

- **Order examples :**

- (1) ID 6mmΦ, 30cm glass tube, 5μm filter, and default adaptors
→ **SU06-30-1-SS**
- (2) High pressure column ID 5.6mmΦ, 15cm glass tube, 5μm filter, 2 adjustable adaptors
→ **SU06HP-15-2-SS**
- (3) ID 17mmΦ, 60cm glass tube, avg. 15μm filter, default adaptors & one extension rod
→ **SU17-60-3-PE**
- (4) ID 22mmΦ, 90cm glass tube, 316L 5μm filter, 2 adjustable adaptors & one extension rod
→ **SU22-60-E-SS**