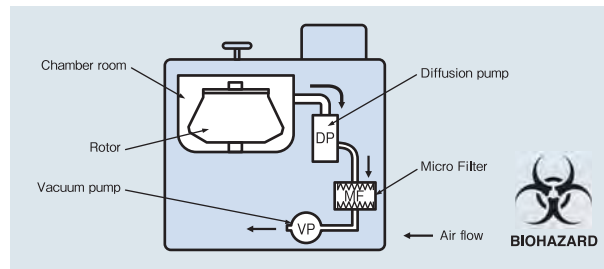


Biosafety Option

In order to prevent from exhausting bio-hazardous sample to a room, a micro filter can be assembled in a vacuum line at option.



Specifications

CS-FNX series

Model	CS150FNX	CS120FNX
Maximum speed (rpm)	150,000	120,000
Maximum RCF (xg)	1,050,000 (S140AT rotor)	771,000 (S140AT rotor)
Speed control accuracy (rpm)	±50 (5,000 to max. speed)	
Max. capacity (nominal)	30ml x 6 tubes (S50A rotor)	
Max. capacity (nominal) (Swinging bucket rotor)	7ml x 4 tubes (S50ST rotor)	
Timer	1 min. to 99 hrs. and 59 min. with HOLD and RTC (real-time control) function	
Vacuum system	Oil rotary vacuum pump and oil diffusion pump	
Rotor temp. control range (°C)	0 to +40 (1 degree increment)	
Rotor Cooling method	Thermo-module cooling system (HFC free)	
Screen display	Colour LCD (touch-sensitive)	
Rotor setting method	Self-locking rotor system (no special tool required)	
Operational noise (dB(A)*)	45 *Measured 1 meter from front	
Max. heat dissipation into room (kW)	0.7 or less	
Drive unit warranty	5 years	
Dimensions (mm)	440 (W) x 520 (D) x 910 (H), height to table 790	
Floor area (m2)	0.53 (750 x 700 mm)	
Weight (kg)	105	
Power requirements	AC 110 or 120V ±10%, 15A (50/60Hz), single phase AC 208, 220, 230, 240 V +/- 10%, 8A (50/60Hz), single phase	
Standard	IEC61010-2-020, EN61326, CE marking qualified	

Please note that LCD panel may contain a few dead or stuck pixels.

CS150NX

Model	CS150NX
Maximum speed (rpm)	150,000
Maximum RCF (xg)	1,050,000 (S140AT rotor)
Speed control accuracy (rpm)	±50 (5,000 to max. speed)
Max. capacity (nominal)	30ml x 6 tubes (S50A rotor)
Max. capacity (nominal) (Swinging bucket rotor)	7ml x 4 tubes (S50ST rotor)
Timer	1 min. to 99 hrs. and 59 min. with HOLD and RTC (real-time control) function
Vacuum system	Oil rotary vacuum pump and oil diffusion pump
Rotor temp. control range (°C)	0 to +40 (1 degree increment)
Rotor Cooling method	Thermo-module cooling system (HFC free)
Screen display	Colour LCD (touch-sensitive)
Rotor setting method	Self-locking rotor system (no special tool required)
Operational noise (dB(A)*)	45 *Measured 1 meter from front
Max. heat dissipation into room (kW)	0.7 or less
Drive unit warranty	5 years
Dimensions (mm)	590 (W) x 582 (D) x 408 (H)
Floor area (m2)	0.50 (850 x 590 mm)
Weight (kg)	97
Power requirements	AC 110 or 120V ±10%, 15A (50/60Hz), single phase AC 208, 220, 230, 240 V +/- 10%, 8A (50/60Hz), single phase
Standard	IEC61010-2-020, EN61326, CE marking qualified

Please note that LCD panel may contain a few dead or stuck pixels.

CAUTION:
For safe and proper use of your machine, carefully read and follow the instructions in the instruction manual.



Hitachi Koki Co., Ltd. is certified International Standard ISO14001 (Environmental Management System) by International Organization for Standard



Scientific Instruments Division of Hitachi Koki Co., Ltd. is certified Quality Management and Quality Assurance Standard (ISO 9001) by International Organization for Standard



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<http://centrifuges.hitachi-koki.com>

HKI-2B | 2013.07



CS150NX

himac

Micro Ultracentrifuges



CS-FNX SERIES

Hitachi Koki
HITACHI



himac **CS-FNX** SERIES

CS-FNX SERIES Micro Ultracentrifuge

This unique floor-standing model is suitable to be installed at central and/ or shared laboratory together with other expensive and large laboratory devices, so that many laboratories can share CS-FNX series.

CS-FNX offers following attractive features and useful functions;

- The Greatest Performance*
- The Quietest Operating Sound "45dBA"
- Powerful Imbalance Protection
- Stress-free Operation
- Program and Step-mode Operation
- User Lockout System
- Comprehensive Data Communication
- Self-locking Rotor System
- Larger Volume Rotors and more.

For details, please refer to following pages.



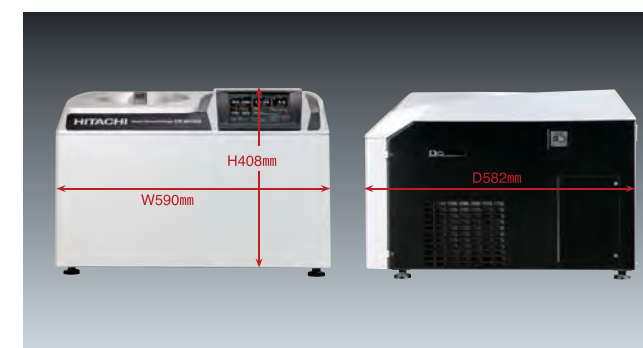
“Floor-standing model” or “Tabletop model” ?

Now you have a choice !!



himac **CS 150NX**

CS 150NX Tabletop Micro Ultracentrifuge



This tabletop micro ultracentrifuge is suitable to be installed at individual laboratories for frequent usage or routine work. The most compact body* (590(W) x 582 (D) x 408(D) mm) does not occupy a laboratory table.

CS150NX offers following attractive features and useful functions;

- The Greatest Performance*
- The Quietest Operating Sound "45dBA"
- Powerful Imbalance Protection
- Stress-free Operation
- Program and Step-mode Operation
- User Lockout System
- Comprehensive Data Communication
- Self-locking Rotor System
- Larger Volume Rotors and more.

For details, please refer to following pages.



* Versus other similar ultracentrifuge in this class, as of Jun. 2012

Features & Functions

The world's fastest speed : 150,000rpm & The world's greatest RCF : 1,050,000xg *

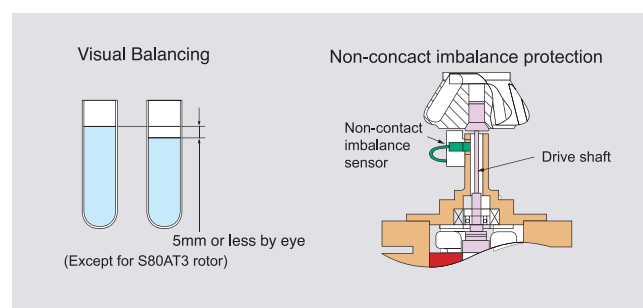
himac state-of-art technologies has realized the abovementioned greatest performance and the quietest operating sound "45dBA" in the most compact body*. Now you can separate and purify protein, lipoprotein, cell organelle, DNA and RNA, also carbon nano tubes and other nano-sized particles, more efficiently than ever.

The Most Reliable Drive Unit

CS150FNX and CS150NX take only 90 seconds to reach the world's fastest speed 150,000rpm by himac original vacuumed drive unit. Because of its high reliability, we offer 5 years warranty to the drive unit.

Powerful Imbalance Protection

Samples need to be balanced within 5mm by visual check only. Non-contact imbalance sensor always monitors vibration of the rotor and drive shaft. In case of abnormal vibration, the sensor activates and stops operation immediately.



Stress-free Operation

It takes just 8 seconds (minimum) to be ready for operation since power switch is turned on. Initial screen is displayed on the LCD panel during booting up the system. Reaching time to high-vacuum status is reduced to half by optimized control of the oil diffusion pump. (comparing with our previous model.)



Environment-friendly Design

CS-FNX series and CS150NX are designed according to Hitachi Group's "Design for Environment assessment system" and designated as Eco-Products. 60% stand-by electricity and maximum 10% operating power consumption were reduced, compared with our former models. Also over 80% materials of the product are reusable or recyclable.

* Versus other similar ultracentrifuge in this class, as of Jun. 2012

Easy Operation with Touch-Sensitive LCD

Color touch-sensitive LCD and GUI (graphic user interface) with high contrast against back screen in black color enable users to easily operate the system or select various menus and functions by touching the icon on the display. Of course, operation status is identified at a glance by intelligible screen design.



Quiet Operating Sound "45dBA"

This unusually quiet operating sound was realized by newly developed rigid-control drive system and sound absorbing structure design. It does not disturb your research works in the laboratory, even though it is installed near the working space.



Easy Timer Setting and Actual Run Timer

himac original RTC (real-time control) function makes timer setting easy (PAT.). What you need to do is simply set start time or finish time with running time. It is easier than conventional delay time setting timer. himac original Actual Run Timer starts when the set speed is attained (PAT.) and excludes acceleration time from the set time. It helps to precisely control the net run-time and obtain high-reproducibility separation. Of course, conventional run timer is selectable.

User Lockout System

You can register users to the system with different access levels and password. The system can be protected by password to enter the system. This function is very useful when you need to control users who can access the system.

Data Communication

USB port is equipped as standard specification. (CS150FNX and CS150NX only) The system records up to 100 operating histories in its memory (PAT.). So operating data can be output in CSV format through the USB port.

Optional LAN board is also available. (CS150FNX and CS150NX only) You can link CS150FNX and/or CS150NX to your PC through Ethernet or internet. Optional software "himac LogManager Ver. 3.0 (network edition)" can be installed in your PC and operating history and data of CS150FNX and/or CS150NX can be easily managed by your PC.

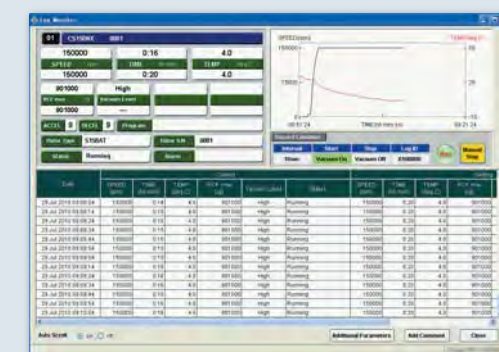
himac LogManager Ver. 3.0 for Windows® (Network Edition)

- optional log management software

himac LogManager Ver. 3.0 for Windows® (Network Edition) is useful and convenient log management software of operating histories of CS150FNX and CS150NX. Maximum 16 units can be registered to the software. As data communication between the centrifuge and PC is done via LAN or ethernet, so there is no distance limitation to establish a network. You can easily establish the network configuration and relocation with commercially available LAN devices. (Optional LAN board is required to CS150FNX and CS150NX) It means you can manage the operating log at the different location from the installation site of the centrifuges.

This software is real-time log management software, recording period is selectable from 10 seconds to 5 minutes interval. Of course, the software supports USA FDA 21 CFR Part 11, following functions are available;

- Digital Signature
- Audit Trail
- Encrypted Data Files etc.



himac ASSIST

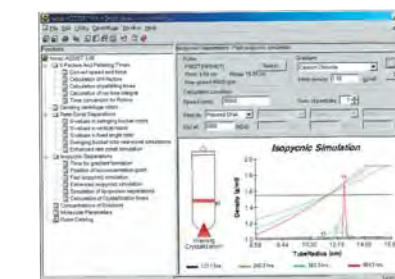
- optional centrifugation simulation software

himac ASSIST is simulation and calculation software of centrifugal condition and can be installed in your Windows®-based PC. You can simulate whether the centrifugal condition is appropriate before the centrifugation, also can simulate optimal centrifugal condition of a sample, whose centrifugal condition is unknown, based on your ultracentrifuge and rotor.

himac ASSIST has following functions;

- Calculations of K factor and pelleting time
- Calculation of the allowable rpm with high-density liquid
- Rate zonal simulation
- Isopycnic simulation
- Solvent concentration conversion
- Mutual conversion of molecular parameters
- Rotor database

Example : Isopycnic simulation



Plasmid DNA separation with P40ST swinging bucket rotor
CsCl $\rho = 1.55\text{g/ml}$, 35,000rpm
(Note : crystallization warning mark(s) showing that parameters are unsuitable.)

Rotors

Self-Locking Rotor System

himac original "self-locking rotor system" is the most simple system to set the rotor onto the drive shaft. You just simply place the rotor on the drive shaft and that's all. The rotor is locked by centrifugal force automatically. You do not need to fix the rotor by screw or push the button to lock or unlock the rotor like other models available in the markets.



Larger Volume Rotors

S50A



Maximum nominal capacity is 30ml x 6 tubes, it is one of the largest capacity rotor for micro ultracentrifuge. Also it is easy to open and close the cover by T-shape handle. Newly introduced 30m tubes series and himac original S-cap can be used for S50A.

Applicable to : CS-FNX / NX / GXII / GXL / GX series

Max. speed (rpm)	50,000
Max. RCF	210,000
K-factor	61
Standard tube capacity (ml x tubes)*1	25.0 x 6
Max. tube capacity (ml x tubes)	30.0 x 6
Part No.	9024391K

Note : *1. Nominal capacity of standard tube supplied with the rotor

S50ST



Top loading System

Top loading of swinging bucket prevents from wrong setting the bucket. Maximum nominal capacity is 7ml x 4 tubes, it is the largest capacity rotor for micro ultracentrifuge. New 7ml tubes series are also introduced.

Applicable to : CS-FNX / NX / GXII / GXL / GX series

Max. speed (rpm)	50,000
Max. RCF	253,000
K-factor	77
Standard tube capacity (ml x tubes)*1	7.0 x 4
Max. tube capacity (ml x tubes)	7.0 x 4
Part No.	9024401K

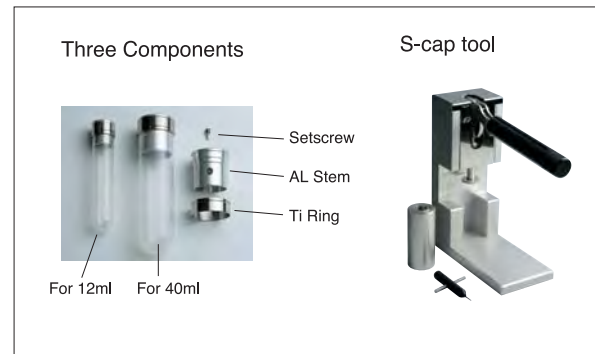
S-cap Series

himac original S-cap series offer simple and easy operation of the tube cap. This unique system requires just three components and three steps to assemble the cap to the tube.

- No consumables, such as O-ring
- Easy cleaning and no maintenance

Three assembling steps

1. Fill sample into the tube up to 80% volume and insert AL Stem into the tube by the tool.
2. Assemble Ti Ring on the tube and tighten AL Stem and Ti Ring by the tool.
3. Fill up the sample into the tube by an injector and close Setscrew.



Exclusive 1.5ml microtube (conical bottom) x 12pcs 201,000 x g has been realized !



S55A2

Protein and nucleic acid etc. are quickly separated and the pretreatment of proteomic analysis is accelerated.

1.5ml microtube (applicable to high x g)



You can use this exclusive microtube up to 201,000 x g without any adaptor in S55A2 rotor. (P/N S308420B) (300pcs/box)

For further details, please refer to himac application No. 127 available on our web site. (<http://www.hitachi-koki.com/himac>)

Type	Model	Part No.	Max. speed (rpm)	Max. RCF (xg)	K-factor	Standard tube capacity(ml x tubes)*1	Max. tube capacity (ml x tubes)
Fixed angle	S150AT	9024211K	150,000	901,000	6	1.0 x 8	*2 2.0 x 8
	S140AT	9024351K	140,000	1,050,000	5	1.0 x 10	*2 2.0 x 10
	S120AT2	9024181K	120,000	650,000	8	1.0 x 10	*2 2.0 x 10
	S120AT3	9024191K	120,000	650,000	8	0.5 x 14	0.5 x 14
	S110AT	9024411K	110,000	691,000	15	4.0 x 8	*2 5.0 x 8
	S100AT3	9024231K	100,000	436,000	7	0.23 x 20	0.23 x 20
	S100AT4	9024241K	100,000	541,000	16	3.0 x 6	*2 4.0 x 6
	S80AT2	9024251K	80,000	358,000	14	0.5 x 20	0.5 x 30
				304,000	17	0.5 x 10	
				80,000	23	6.0 x 8	*2 8.0 x 8
S70AT	9024261K	70,000	307,000	31	0.5 x 20	0.5 x 20	
S58A	9024381K	58,000	289,000	50	10.0 x 8	*2 13.5 x 8	
S55A2	9024371K	55,000	201,000	40	1.5 x 12	*4 1.5 x 12	
S50A	9024391K	50,000	210,000	61	25.0 x 6	*1 30.0 x 6	
S140NT	9024223K	140,000	752,000	6	2.0 x 8	*3 2.0 x 8	
			120,000	9	2.0 x 8	*3 2.0 x 8	
			100,000	12	4.0 x 8	*3 4.0 x 8	
S55S	9024281K	55,000	259,000	44	2.2 x 4	2.2 x 4	
			52,000	79	5.0 x 4	5.0 x 4	
			50,000	77	7.0 x 4	*1 7.0 x 4	
S50ST	9024401K	50,000	253,000	77	7.0 x 4	*1 7.0 x 4	
S120VT	9024291K	120,000	501,000	8	2.0 x 8	*3 2.0 x 8	

Notes

1. Nominal capacity of standard tube supplied with the rotor
2. Capacity indicated is when using a seal tube. Please place a separate order for STF2 tube sealer, tube rack and space cap.
3. Space cap is standard accessory.
4. Third-party 1.5ml microtubes cannot be used.
5. ● indicates a made-to-order rotor.

Tubes

Rotor	Tube		Nominal volume (ml)	Tube specifications			Supply unit (pcs/box)	Special accessories needed when using these tubes (order separately)		
	Part No.	Name		Size (mm)	Material	Max. speed (rpm)		STF2 Tube rack	Adapter	Cap
S150AT	S300535A	1PC tube ●	1.0	φ 11 x 34	PC	150,000	100			
	S300539A	1.5PA seal tube*	1.5	φ 11 x 25	PA	150,000	50	Tube rack (G2) x 1		Space cap (A4) x 8
	S300540A	2PA seal tube*	2.0	φ 11 x 32	PA	150,000	50	Tube rack (G) x 1		Space cap (A4) x 8
	S309652A	1PA Tube	1.0	φ 11 x 34	PA	86,000	100			
S140AT	S300535A	1PC tube ●	1.0	φ 11 x 34	PC	140,000	100			
	S300539A	1.5PA seal tube*	1.5	φ 11 x 25	PA	140,000	50	Tube rack (G2) x 1		Space cap (A4) x 10
	S300540A	2PA seal tube*	2.0	φ 11 x 32	PA	140,000	50	Tube rack (G) x 1		Space cap (A4) x 10
	S309652A	1PA Tube	1.0	φ 11 x 34	PA	86,000	100			
S120AT2	S300535A	1PC tube ●	1.0	φ 11 x 34	PC	120,000	100			
	S300539A	1.5PA seal tube*	1.5	φ 11 x 25	PA	120,000	50	Tube rack (G2) x 1		Space cap (A4) x 10
	S300540A	2PA seal tube*	2.0	φ 11 x 32	PA	120,000	50	Tube rack (G) x 1		Space cap (A4) x 10
	S309652A	1PA Tube	1.0	φ 11 x 34	PA	86,000	100			
S120AT3	S300533A	0.5 PC tube ●	0.5	φ 8 x 34	PC	120,000	100			
	S300534A	0.5 PA tube	0.5	φ 8 x 34	PA	80,000	100			
S110AT	S404332A	4PC tube ●	4.0	φ 13 x 6	PC	110,000	50			
	S303351A	4PA thick-walled tube			PA	80,000	50			
S100AT3	S45319A	5PA seal tube	5.0	φ 13 x 53	PA	110,000	50	Tube rack (B) x 1		B4 space cap x 8
	S308892A	1.5ml micro tube**	1.5	φ 10.9 x 40	PP	48,000	300		1.5A5 adapter x 4	
	S39133A	0.23 PC tube ●	0.23	φ 7 x 21	PC	100,000	100			
	S39675A	0.23 PA tube	0.23	φ 7 x 21	PA	80,000	100			
S100AT4	S308892A	1.5 micro tube**	1.5	φ 11 x 42	PP	50,000	300		1.5A3 adapter x 6	
	S301599A	3PC tube ●	3.0	φ 13 x 51	PC	100,000	50			
	S303694A	4PA seal tube*	4.0	φ 13 x 38	PA	100,000	50	Tube rack (B3) x 1		B4 space cap x 6
	S303350A	3PA thick-walled tube	3.0	φ 13 x 51	PA	85,000	50			
S100AT6 (Sales discontinued)	S308892A	1.5 micro tube**	1.5	φ 11 x 42	PP	47,000	300		1.5A5 adapter x 4	
	S404332A	4PC tube ●	4.0	φ 13 x 60	PC	100,000	50			
	S45319A	5PA seal tube*	5.0	φ 13 x 53	PA	100,000	50	Tube rack (B) x 1		B4 space cap x 8
	S303351A	4PA thick-walled tube	4.0	φ 13 x 60	PA	80,000	50			
S80AT2	S300533A	0.5 PC tube ●	0.5	φ 8 x 34	PC	80,000	100			
	S300534A	0.5 PA tube	0.5	φ 8 x 34	PA	80,000	100			
	S308892A	1.5 micro tube**	1.5	φ 11 x 42	PP	45,000	300		1.5A8 adapter x 8	
	S408829A	6PC thick-walled tube ●	6.0	φ 16 x 59	PC	80,000	50			
S80AT3	S408833A	6PA thick-walled tube	6.0	φ 16 x 59	PA	60,000	50			
	S408831A	8PA seal tube*	8.0	φ 16 x 53	PA	80,000	50	Tube rack (C2) x 1		Space cap (C5) x 8
	S302371A	0.5 PC tube (B) ●	0.5	φ 7 x 56	PC	70,000	100			
	S58A	S345320A	12PA seal tube*		φ 16 x 78	PA		50	Multi rack x 1	
S29606A		12PA tube		φ 16 x 76	PA		50			C-TI cap ass'y x 8
S325470A		12PE tube		φ 16 x 76	PE		50		C-TI cap ass'y x 8	
S325751A		12PC tube		φ 16 x 76	PC		50		C-TI cap ass'y x 8	
S326010A		12SS tube		φ 16 x 76	SS	30,000	2		C-TI cap ass'y x 8	
						35,000				
S338455A		10PC thick-walled tube ●		φ 16 x 76	PC	58,000	10			
S338456A		10PA thick-walled tube		φ 16 x 76	PA	50,000	10			
S303922A		10PC bottle (B) ass'y.		φ 16 x 82	PC	58,000	6			
S325952A		10PC bottle ass'y.		φ 16 x 82	PC	55,000	10			
S334105A		10PA bottle ass'y.		φ 16 x 82	PA	50,000	10			
S329445A		6.5PA tube		φ 13 x 64	PA	38,000	50		6.5A12 adapter	B-AL cap ass'y x 8
S326415A	6.5PC tube		φ 13 x 64	PC	38,000	50		6.5A12 adapter	B-AL cap ass'y x 8	
S332245A	5PA tube		φ 13 x 52	PA	38,000	50		5A12 adapter	B-AL cap ass'y x 8	
S303141A	4.7PC thick-walled tube		φ 13 x 64	PC	38,000	50		6.5A12 adapter		
S329561A	4PA tube		φ 11 x 60	PA	38,000	50		4A12 adapter	A3-AL cap ass'y	
S336708A	3PA tube		φ 11 x 47	PA	38,000	50		3A12 adapter	A3-AL cap ass'y	
S303271A	3PET tube		φ 11 x 47	PET	38,000	50		3A12 adapter	A3-AL cap ass'y	
S301599A	3PC tube		φ 13 x 51	PC	38,000	50		5A12 adapter		
S304296A	0.9PC thick-walled tube		φ 8 x 50	PC	42,000	50		2A12 adapter		
S308892A	1.5 micro tube ●		φ 11 x 42	PP	55,000	300				
S50A	S309154A	30PA tube ass'y	30.0	φ 26 x 72	PA	50,000	50			E3-AL cap ass'y x 6
										S-40AL cap ass'y x 6
	S309140A	25PC thick-walled tube ass'y●	25.0	φ 26 x 76	PC	50,000	10			
	S309155A	25PA thick-walled tube ass'y			PA	30,000	10			
S309156A	20PC bottle(C) ass'y	20.0	φ 26 x 80	PC	50,000	6				
S140NT	S300540A	2PA seal tube* ●	2.0	φ 11 x 32	PA	140,000	50	Tube rack (G) x 1		Comes with rotor
S120NT	S300540A	2PA seal tube* ●	2.0	φ 11 x 32	PA	120,000	50	Tube rack (G) x 1		Comes with rotor
S100NT	S303694A	4PA seal tube* ●	4.0	φ 13 x 38	PA	100,000	50	Tube rack (B3) x 1		Comes with rotor
S120VT	S300540A	2PA seal tube* ●	2.0	φ 11 x 32	PA	120,000	50	Tube rack (G) x 1		Comes with rotor
S55S	S300535A	1PC tube ●	1.0	φ 11 x 34	PC	55,000	100			
	S300536A	2.2PA tube ●	2.2	φ 11 x 34	PA	55,000	50			
	S300538A	2.2PET tube	2.2	φ 11 x 34	PET	55,000	50			
	S32245A	5PA tube ●	4.9	φ 13 x 52	PA	52,000	50			
S52ST	S303273A	5PET tube	5.3	φ 13 x 52	PET	52,000	50			
	S301599A	3PC tube	3.4	φ 13 x 51	PC	52,000	50			
	S304296A	0.9PC thick-walled tube	0.9	φ 8 x 50	PC	43,000	50		2S5 adapter x 4	
S50ST	S309146A	7PA tube(B)	7.0	φ 16 x 52	PA	50,000	50			
	S309167A	7PC tube(B)			PC	50,000	50			
	S309168A	7PET tube			PET	50,000	50			

Notes: 1. When using tubes marked with *, additional accessories are required (STF2 tube sealer, tube rack and space cap).

2. Tubes marked with ** are commercially available too. When using these items, 1.5A3, 1.5A5 or 1.5A8 adapters are necessary; therefore, please order separately.

3. Caps marked with*** are standard accessory.