

Hitachi Koki
HITACHI



CS150NX

himac

Micro Ultracentrifuges



CS-FNX SERIES



Sales and Support in the US and CA by:
NuAire, Inc. | 2100 Fernbrook Lane | Plymouth, MN 55447
763.553.1270 | WWW.NUAIRE.COM/HITACHI



himac CS-FNX SERIES

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



himac CS 150NX

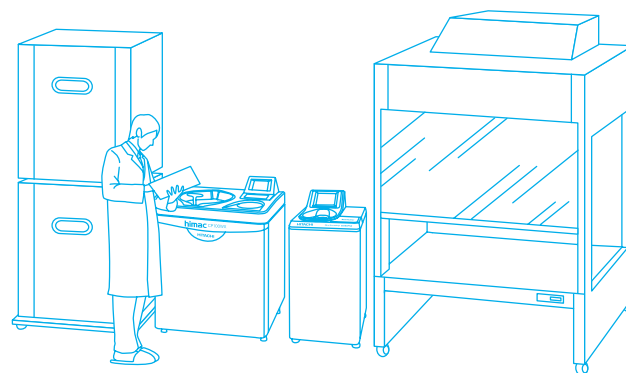
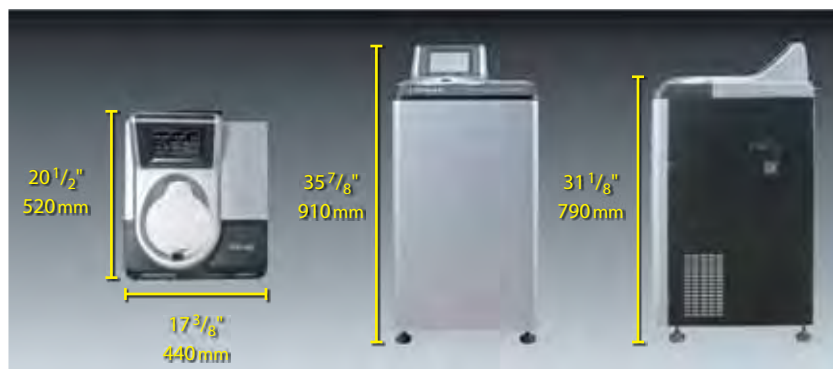
CS-FNX SERIES Micro Ultracentrifuge

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 - 45 dBA*
- 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.



Now you have a choice!!

CS150NX 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* 23 1/4" (W) x 23" (D) x 16" (H) [590 x 582 x 408 mm] saves laboratory space. The CS150NX offers the following features:

CS150NX offers following attractive features and useful functions:

- The Greatest Performance*
- The Quietest Operating Sound - 45 dBA*
- 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 ultracentrifuges in this class, as of Jun. 2012

Features & Functions

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

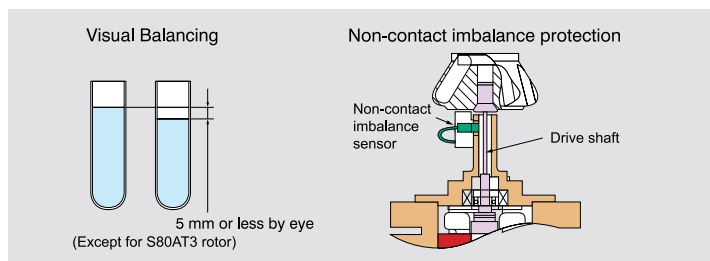
himac state-of-art technology allows the greatest performance and the quietest operating sound (45 dBA) in the most compact body*. Separate and purify protein, lipoprotein, cell organelles, DNA and RNA, as well as carbon nano tubes and other nano-sized particles, more efficiently than ever.

The Most Reliable Drive Unit

The CS150FNX and CS150NX take only 90 seconds to reach the world's fastest speed of 150,000 rpm using the 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 5 mm by visual check only. A non-contact imbalance sensor 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 once the 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. (compared to 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.

Easy Operation with Touch-Sensitive LCD

A high-resolution touch-sensitive LCD with GUI (graphic user interface) icons on a high-contrast black background enables users to easily operate the system. Operation status is continually visible while the centrifuge is in use.



Quiet Operating Sound - 45 dBA

This unusually quiet operating sound was realized by newly developed rigid-control drive system and sound absorbing structure. The operating noise does not disturb research, even when installed near a work space.



Easy Timer Setting and Actual Run Timer

himac original RTC (real-time control) function makes timer setting easy (PAT.), simply set the start 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

A USB port is standard equipment on the CS150FNX and CS150NX. 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. An optional LAN board is also available for the CS150FNX and CS150NX, facilitating a link to a 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. 3.1 for Windows® (Network Edition)

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, 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.

- Optional log management software



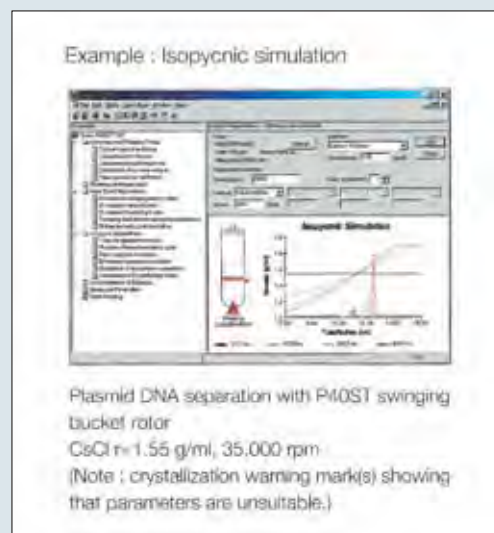
himac ASSIST

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

- Optional centrifugation simulation software



Rotors

Self-locking rotor system

The himac "self-locking rotor system" is a simple and effective system to place the rotor onto the drive shaft. Once the rotor is placed on the drive shaft it is locked automatically by centrifugal force. 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 market.



Larger Volume Rotors

S50A



Maximum nominal capacity is 30 ml x 6 tubes, it is one of the largest capacity rotors for micro ultracentrifuges. It is easy to open and close the cover using the T-shaped handle. The newly introduced 30 mm tubes series and himac original S-cap can be used with the 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 swinging bucket prevents from wrong setting the bucket. Maximum nominal capacity is 7 ml x 4 tubes, it is the largest capacity for micro ultracentrifuges. New 7 ml series tubes 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

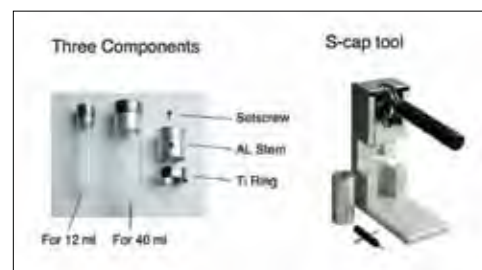
S-cap series

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	
	S80AT3	9024331K	80,000	415,000	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
Neo angle	S140NT ●	9024223K	140,000	752,000	6	2.0 x 8	*3 2.0 x 8
	S120NT ●	9024303K	120,000	586,000	9	2.0 x 8	*3 2.0 x 8
	S100NT ●	9024313K	100,000	479,000	12	4.0 x 8	*3 4.0 x 8
Swinging bucket	S55S ●	9024281K	55,000	259,000	44	2.2 x 4	2.2 x 4
	S52ST	9024341K	52,000	276,000	79	5.0 x 4	5.0 x 4
	S50ST	9024401K	50,000	253,000	77	7.0 x 4	*1 7.0 x 4
Vertical	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.

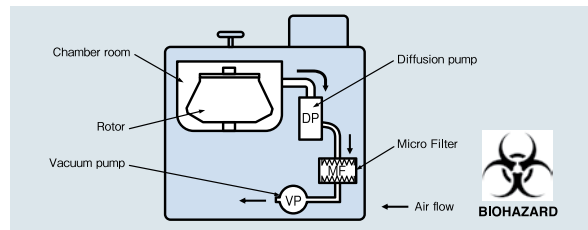
Tubes

Rotor	Tube ● indicates standard tube for rotor		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			
	345319A	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	
S100AT3	339133A	0.23 PC tube ●	0.23	φ 7 x 21	PC	100,000	100			
	339675A	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			
	345319A	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			
S80AT3	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			
	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
S70AT	S302371A	0.5 PC tube (B) ●	0.5	φ 7 x 56	PC	70,000	100			
S58A	345320A	12PA seal tube*		φ 16 x 78	PA		50	Multi rack x 1		C2 space cap x 8
	329606A	12PA tube		φ 16 x 76	PA		50			C-TI cap ass'y x 8
	325470A	12PE tube		φ 16 x 76	PE		50			C-TI cap ass'y x 8
	325751A	12PC tube		φ 16 x 76	PC		50			C-TI cap ass'y x 8
	326010A	12SS tube		φ 16 x 76	SS	30,000	2			C-TI cap ass'y x 8
						35,000				
	338455A	10PC thick-walled tube ●		φ 16 x 76	PC	58,000	10			
	338456A	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			
	325952A	10PC bottle ass'y.		φ 16 x 82	PC	55,000	10			
	334105A	10PA bottle ass'y.		φ 16 x 82	PA	50,000	10			
	329445A	6.5PA tube		φ 13 x 64	PA	38,000	50		6.5A12 adapter	B-AL cap ass'y x 8
	326415A	6.5PC tube		φ 13 x 64	PC	38,000	50		6.5A12 adapter	B-AL cap ass'y x 8
	332245A	5PA tube	5.0	φ 13 x 52	PA	38,000	50		5A12 adapter	B-AL cap ass'y x 8
	S303141A	4.7PC thick-walled tube	4.7	φ 13 x 64	PC	38,000	50		6.5A12 adapter	
	329561A	4PA tube	4.0	φ 11 x 60	PA	38,000	50		4A12 adapter	A3-AL cap ass'y
	336708A	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	0.9	φ 8 x 50	PC	42,000	50		2A12 adapter	
S55A2	S308892A	1.5 micro tube ●	1.5	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			
S52ST	332245A	5PA tube ●	4.9	φ 13 x 52	PA	52,000	50			
	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 adaptors are necessary; therefore, please order separately. 3. Caps marked with *** are standard accessory.

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 (W x D x H)	17 1/4 x 20 1/2 x 35 3/4 in. (height to table 31 in.) [(440 x 520 x 910 mm) height to table 790 mm]	
Floor Area	5.63 ft ² (29 1/2 x 27 1/2 in.) [0.53 m ² (750 x 700 mm)]	
Weight	232 lbs. (105 kg)	
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 (W x D x H)	22 1/4 x 23 x 16 in. (590 x 582 x 408 mm)
Floor Area	5.4 ft ² (33 1/2 x 23 1/4 in.) [0.50m ² (850 x 590 mm)]
Weight	214 lbs. (97 kg)
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.

Manufacturer:

Hitachi Koki Co., Ltd. Life-Science Instruments Division

1-8-12 Shiba-Kouen, Minato
Tokyo 105-0011 JAPAN
TEL : +81-3-5733-0206
FAX : +81-3-5733-0207

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



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



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

* All specifications are subject to change without advanced notice.
* Actual color may vary from the color of the photos in this catalogue, due to printing conditions.
* Due to safety reasons, installation environments, operating environments and conditions may be restricted.
* Unless specially mentioned, products and/or operation panel of the photos are standard specification.
* For further information, please contact your nearest Hitachi Koki's representative.



Distributed in the US and CA by:

NuAire, Inc. | 2100 Fernbrook Lane | Plymouth, MN 55447
tf: 800.328.3352 | ph: 763.553.1270 | fx: 763.553.0459

Learn more at nuaire.com/hitachi