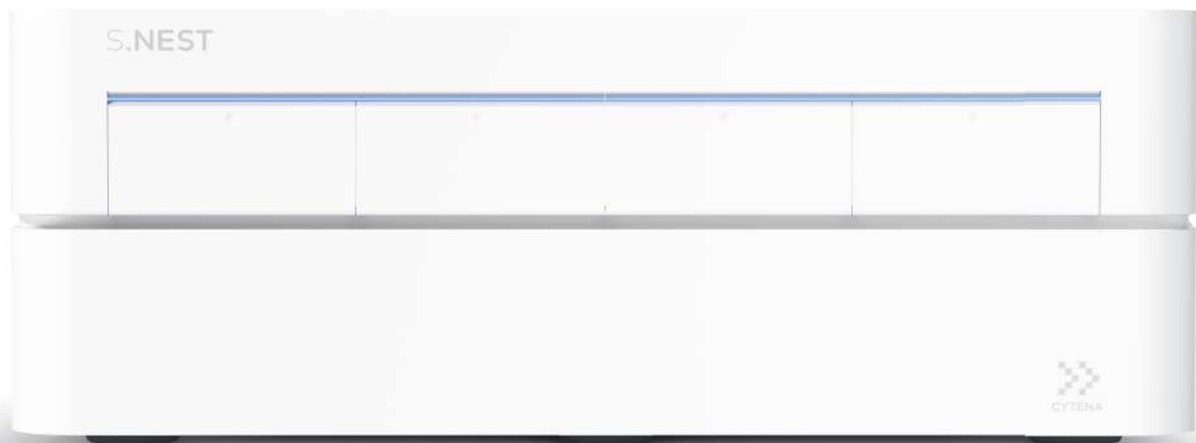


Microbioreactor System

# S.NEST™

Next-generation Microbioreactor for Cell Line Development



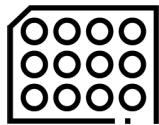
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## About the S.NEST

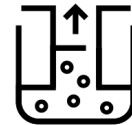
As the biopharmaceutical industry expands, companies are looking for competitive advantages in cell line development. The S.NEST, a high-throughput microbioreactor with CO<sub>2</sub> incubator functions, shortens the process time for cell upscaling, provides a better microscale environment for cell growth, and brings more efficiency to cell line selection.

# A powerful, productive, compact system



## Culture

High-throughput cultivation that enables the incubation of four 24-well plates at once.



## Optimize

Customizable mixing levels thanks to a unique fluid control system that increases cell growth.



## Analyze

Intuitive software analytics transform data into insights.



## Monitor

Real-time monitoring of pH and dissolved oxygen (DO) values during entire cell culturing process.



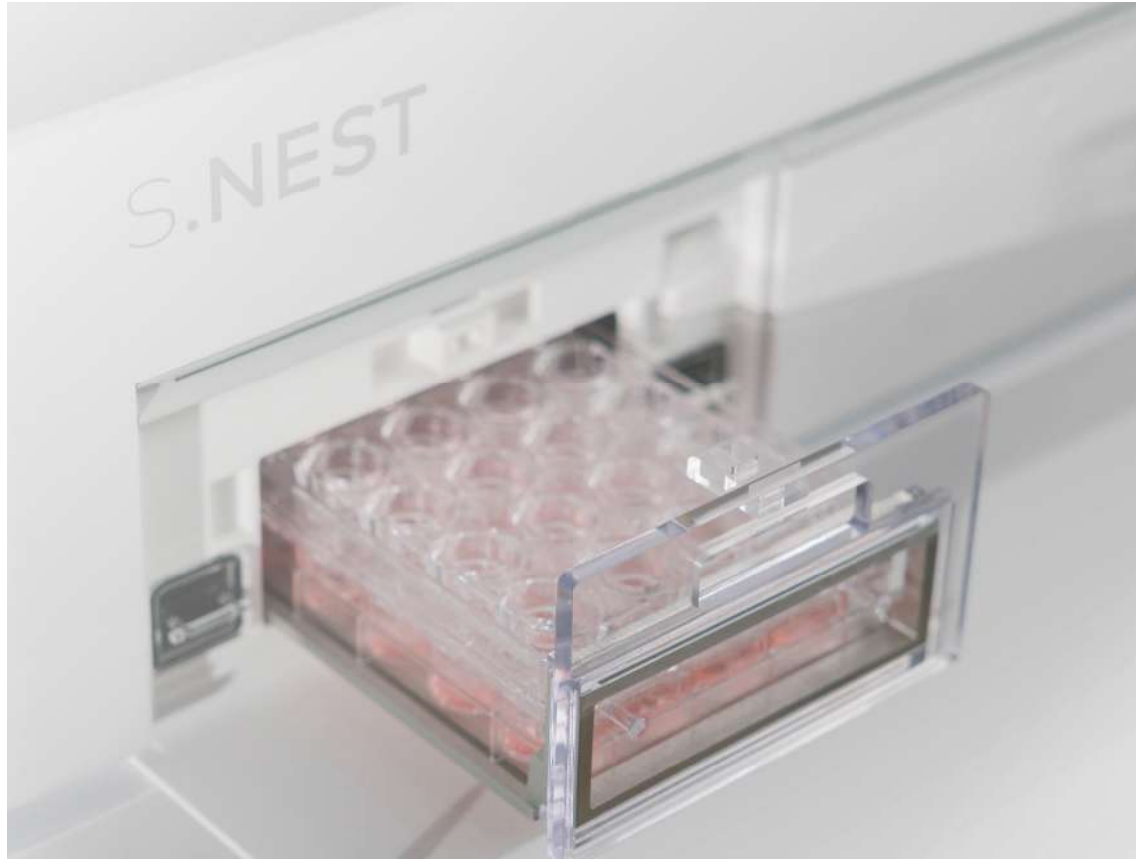
## Sterilize

Independent UV light control ensures the sterility of each chamber



## Trust

Reliable results allow you to improve your cell culture workflow.



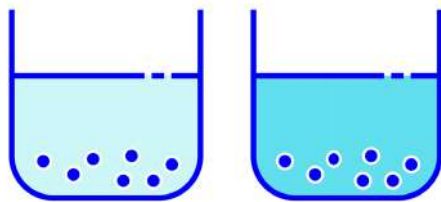
*The S.NEST increases efficiency and productivity for biologics production, drug screening and functional genomics.*



# Maximum productivity with minimum effort

The S.NEST introduces suspension culture and late-stage bioreactor conditions to the early-stage cell line development pipeline, providing more growing space and oxygen than static cultures. When using the S.NEST, cells show higher density and viability compared to normal incubation, and weeks of cell expansion are no longer necessary.

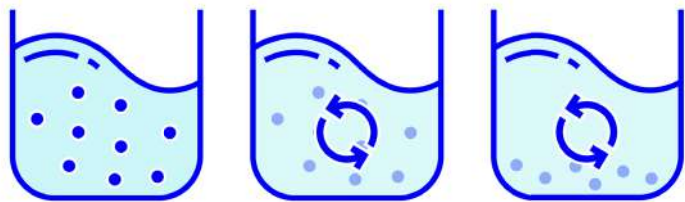
Static culture



Limited 2D  
Growing Space

Inhomogeneous  
Medium

Mixing culture



3D Growing  
Space

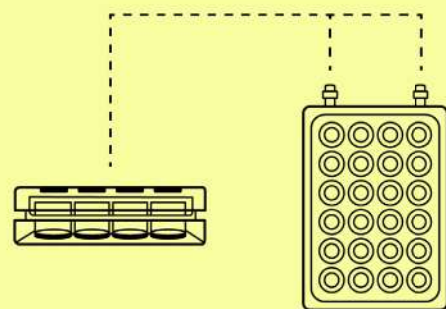
Equal Distribution  
Suspension cell lines

Medium Refresh  
Adherent cell lines

## Increased oxygen transfer

The S.NEST exerts suction or expulsion pressure through the fluidic channels to enable homogenous reciprocating mixing.

Adjustable mixing control minimizes shear rate for different cell lines. The oxygen transfer tubes connecting to the lid offer the cells a continuous oxygen supply to maintain a healthy environment.



\* 24-well lid is available for implementing mixing culture

# Designed for your needs

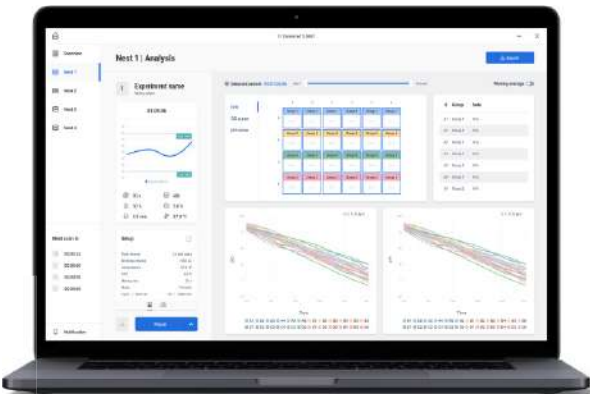
The upper section has four incubation chambers, and each includes a thermal module, water tray and air/CO<sub>2</sub> inlet port and sensor. Each chamber also has individual environmental controls and can fit one 24-well culture plate, enabling the cell culturing of as many as 96 wells at once.



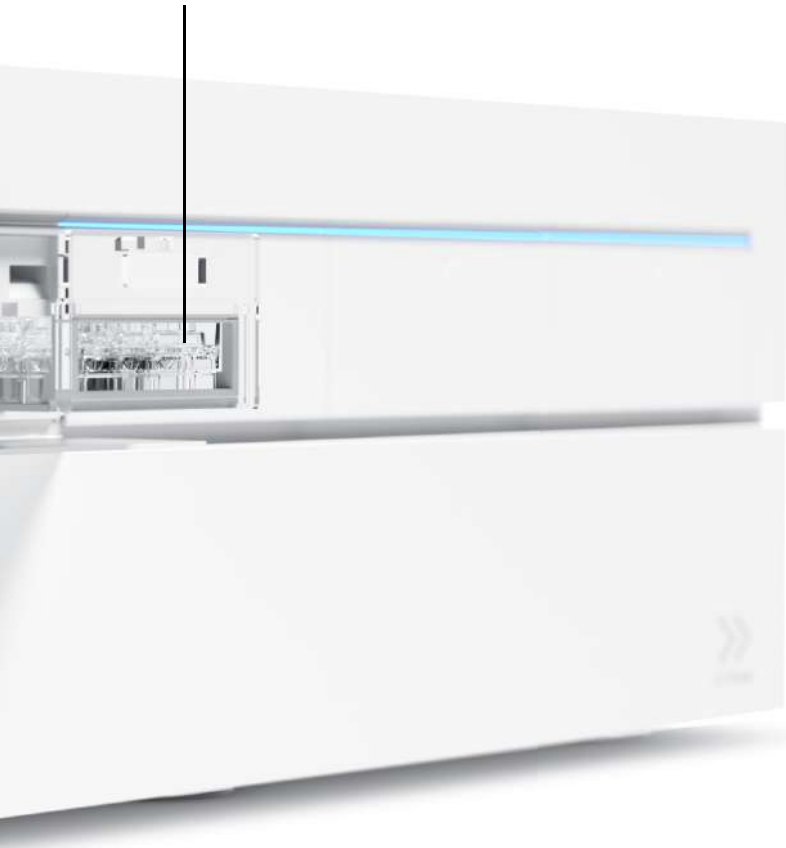
The lower section is a motion camera module that detects the optical signals from the sensors of each plate within 10 minutes and displays real-time monitoring data on the S.NEST software.

# Real-time monitoring

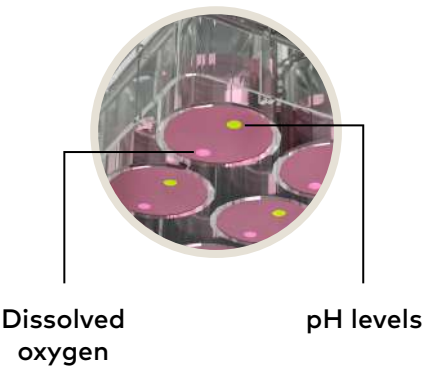
The S.NEST software displays the sensor results and allows users to adjust environmental controls.



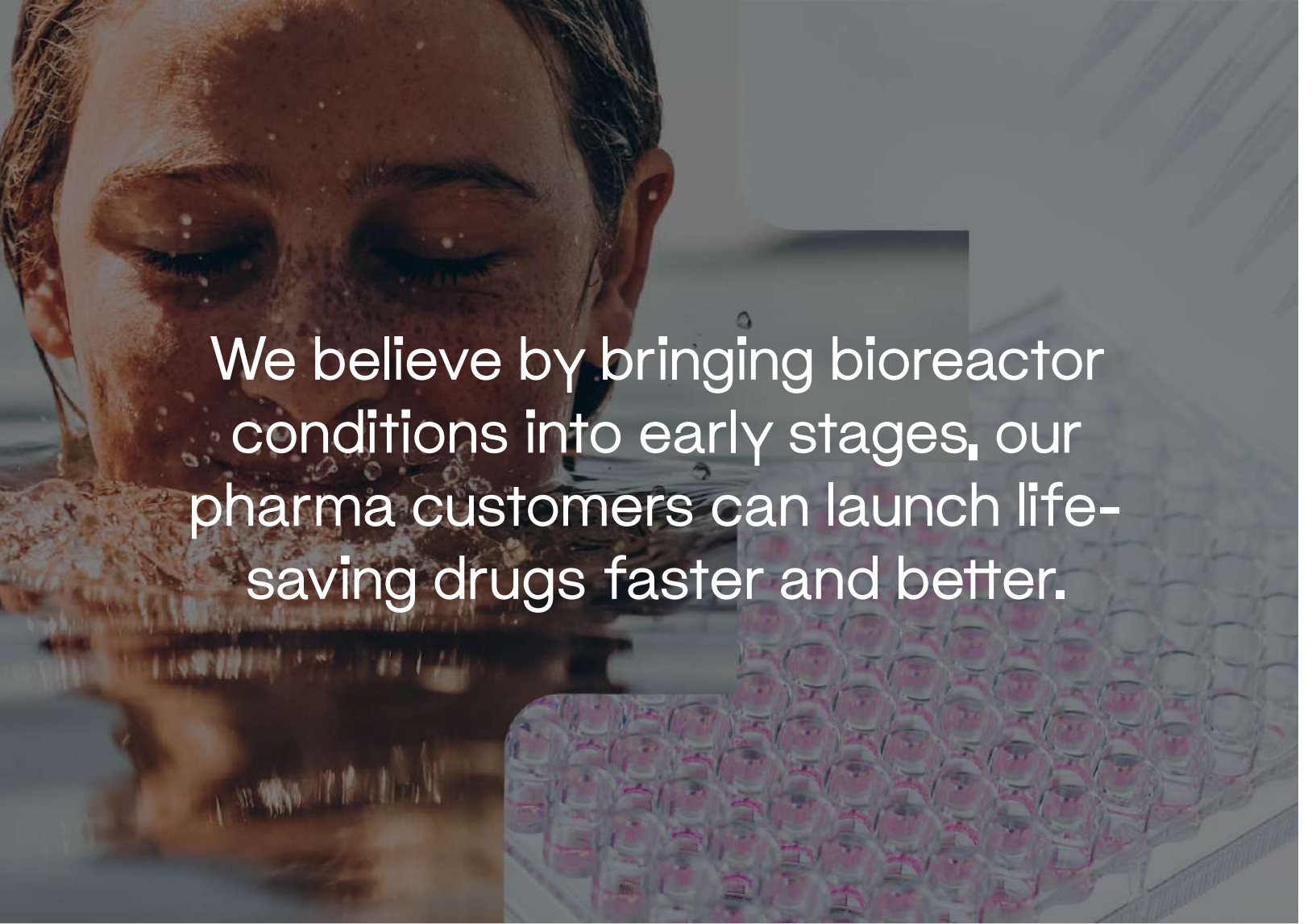
S.NEST 24-Well Plate



Optical sensors are attached to the bottom of each well to monitor the pH and DO value of all wells simultaneously.

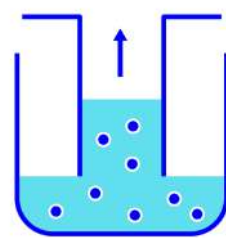




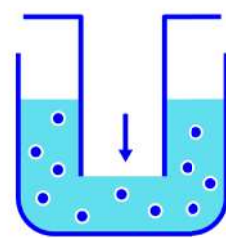


We believe by bringing bioreactor conditions into early stages, our pharma customers can launch life-saving drugs faster and better.

## Consumables for optimal cell culture



Suction pressure



Expulsion pressure

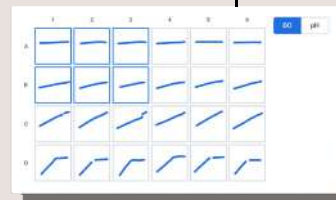
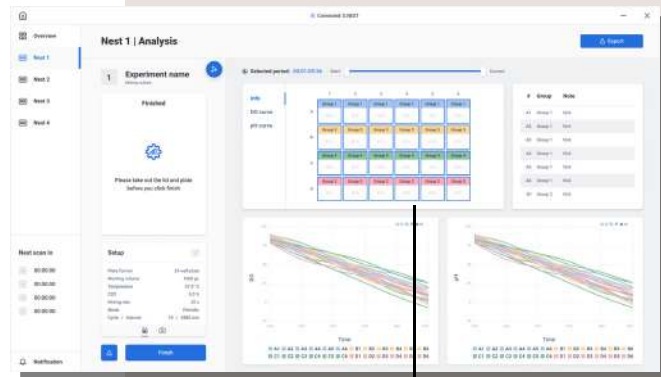
The S.NEST lid comes in 24-lidic-channel format for respective well plates.



# Intuitive software interface

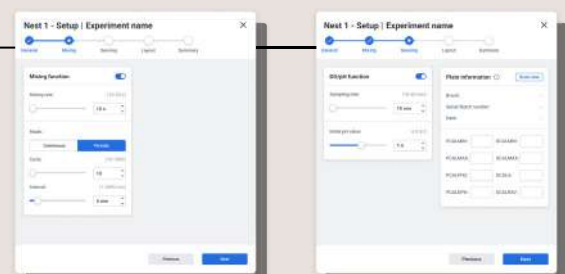
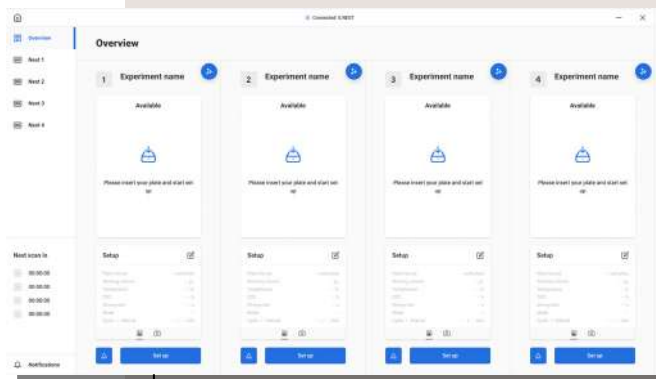
The S.NEST software provides insightful graphs from the pH and DO sensor data:

- Measurements for each well at each time interval
- Time curve table of data from selected wells



The S.NEST software provides intuitive settings for:

- Incubation chamber environment (temperature and CO<sub>2</sub> levels)
- Mixing system (mixing level and mixing mode)
- Motion camera (time interval)



# Specifications

General characteristics		
Dimensions		
Width	785	[mm]
Depth	434	[mm]
Height	288	[mm]
Weight	43	[kg]
Electrical characteristics		
Input voltage	100-240	[Vac]
Input voltage net tolerance	±10	[%]
Input voltage frequency	50/60	[Hz]
Max. input current	3.53 - 1.45	[A]
Power mains supply voltage fluctuations	±10	[%]
Installation category	CAT II	-
Input fuse type	250VAC, 16A, time-lag	-
Ambient conditions		
Min. temperature	20	[°C]
Max. temperature	30	[°C]
Min. rel. humidity (non-condensing)	20	[%]
Max. rel. humidity (non-condensing)	60	[%]
Max. altitude above normally zero for operation	2,000	[m]
Indoor use	Yes	-
Outdoor use	No	-
Pollution degree	2	-
Minimum space between the surrounding walls and instrument	100	[mm]
Transportation/storage conditions		
Min. temperature	20	[°C]
Max. temperature	30	[°C]
Min. rel. humidity (non-condensing)	20	[%]
Max. rel. humidity (non-condensing)	60	[%]
Max. altitude above normally zero for operation	2,000	[m]

Basic configuration		
Incubation conditions		
Temperature control	RT+5 – 45 ± 0.2	[°C]
CO <sub>2</sub> level control	1 – 20 ± 0.3	[%]
Humidity monitoring	0 – 100 ± 5 (at 37°C)	[%]
Culture conditions		
Mixing rate (24-well format)	10 – 50 s ± 5	[%]
Working volume (24-well format)	1,000 – 1,600	[μl]
Sensing conditions		
DO measurement	0 – 100 ± 5**	[%]
pH measurement	6 – 8 ± 0.2	-
Sampling rate	≥ 10	[min]

\* Each value above is specified with one standard deviation from its mean (M±1SD)

\*\* The variation of DO at 100% could be +/- 10% if considering the fluctuation of oxygen level in ambient air

## Ordering Information

Product No.	Product Name	Information
S.NEST Microbioreactor System		
D16110024202	S.NEST (24-well format)	<ul style="list-style-type: none"> <li>• 4 S.NEST 24-well culture chambers</li> <li>• DO/pH real-time sensing module</li> <li>• S.NEST Software</li> <li>• Standard warranty (12 months from date of installation)</li> <li>• Installation &amp; training included</li> <li>• Origin: Taiwan</li> </ul>
Recommended Consumables		
D16110024309	S.NEST Cell Culture Kit- 24-well (10 sets / 1 box)	<ul style="list-style-type: none"> <li>• 10 single-packed Greiner CELLSTAR 24-well culture multiwell plates (No. 662102) with DO/pH sensor</li> <li>• 10 single-packed S.NEST 24-well lids</li> </ul>
D16110025167	C.NEST Cell culture Kit - 24-well (20 sets/box)	<ul style="list-style-type: none"> <li>• 20 Single Packed C.NEST 24-well Lid</li> <li>• 20 Single Packed Greiner CELLSTAR 24 Well Cell Culture Multiwell Plates (No.662102/662160)</li> <li>• Applicable for D16110024202 S.NEST module when the pH/DO sensing function is deactivated</li> </ul>

Service and Warranty		
CBS10303	X.NEST System Qualification Protocol (Offsite)	<ul style="list-style-type: none"> <li>• Document material and certificate included</li> <li>• Included X.NEST Installation and Operating Qualification</li> </ul>
CBS10304	X.NEST System Qualification Protocol (EU onsite)	<ul style="list-style-type: none"> <li>• Document material and certificate included</li> <li>• Included X.NEST Installation and Operating Qualification</li> <li>• On-site assistance (1 person) for qualification protocol (EU)</li> </ul>
CBS10305	X.NEST System Qualification Protocol (Outside EU)	<ul style="list-style-type: none"> <li>• Document material and certificate included</li> <li>• Included X.NEST Installation and Operating Qualification</li> <li>• On-site assistance (1 person) for qualification protocol (Outside EU)</li> </ul>
CBS161101004	Premium Customer Care Package S.NEST – 1 year	<ul style="list-style-type: none"> <li>• Repair and spare parts</li> <li>• Control software upgrade</li> <li>• Travel to site</li> <li>• Preventive maintenance</li> <li>• Application support</li> <li>• Priority support</li> </ul>



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