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Find the *Thermo / Kendro / Heraeus Cytomat 6002* at our website: *Click HERE*

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CYTOMAT

Cytomat® Automated Incubators and Storage Systems

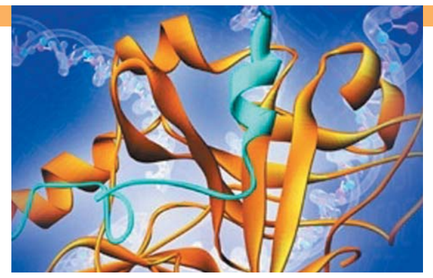


Kendro® Lab Automation

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CYTOMAT



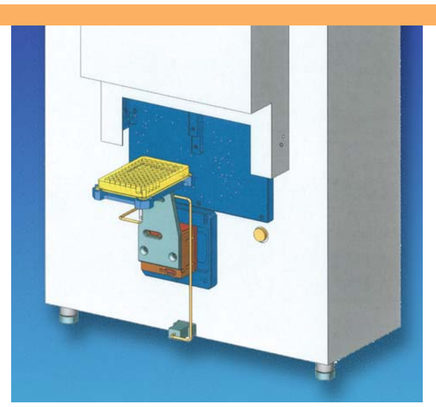
Open the door to your next **drug discovery hit**

The Cytomat® product range spans a variety of robot-accessible incubators and microplate storage modules that integrate seamlessly with all automated assay systems used for drug discovery.

Cytomat products provide superior environmental conditions for automated cell-based assays, cell cultures, bacterial and other assays requiring controlled incubation temperatures. Cytomat products also include automated storage and retrieval systems for samples used in assays, microarraying, compound libraries and other processes requiring robots. Ambient storage models are available in various sizes.

- Incorporating over 40 years of experience in CO_2 incubator technology
- Temperatures from -20°C to +70°C to cover storage, temperature and hybridization applications
- Capacities from 40 to 1,008 SBS size microplates
- Uniform, stable environmental conditions for microplates minimize assay variance
- Internally automated and with a single point of integration, modules are easily integrated with all automated assay systems
- Cytomat products accommodate all standard microplate formats, and provide a choice of temperature and humidity ranges as well as gaseous atmospheres
- Random access of individual microplates optimizes workflow. Easy to use, windows-based software allows on-site reconfiguration and testing of the system
- Cytomat Stacker System ensures optimal flexibility, enabling storage of glass slides to tip boxes and allowing on-site reconfiguration
- Systems are certified to DIN EN ISO 9001 and provided with full documentation and a quality test certificate

TRANSFER STATION
The transfer station is the single point of integration. It enables microplates to be presented to a robotic arm in portrait format. Several options for the transfer station are available, including 90° turning for presentation in a landscape format.

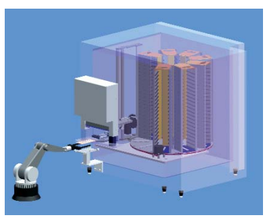


CYTOMAT® TRANSFER STATION

You define the configuration of your HTS system or workstation through a choice of microplate capacities, temperature and humidity ranges, and several gassing options to provide the right atmosphere for different screening or sample storage applications.



INTERNALLY AUTOMATED
Cytomat modules incorporate an automated storage and retrieval system within a precisely controlled environment. The Plate Shuttle™ system consists of a lift system, a handler for x/y/z axes of movement and a heated automatic access door. This system delivers the microplates to the single point of integration during unloading, and retrieves the plates from this point during loading.



ENVIRONMENTAL EXPERTISE
Cytomat incubators provide ideal environmental conditions for cell-based assays. Cooled storage systems ensure an extremely dry climate with an inert atmosphere to minimize absorption of water by DMSO, while hybridization systems create hot and humid conditions for the hybridization of primers.

Designed to help to reduce assay variance, Cytomat systems ensure excellent parameter uniformity and stability, virtually eliminating recovery times.

EASY TO INTEGRATE
With the automated Plate Shuttle™ system for internal microplate handling, a single point of integration and simple software commands, Cytomat systems integrate with any automated assay system.

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Environmental expertise **for your assays**

Cytomat® systems provide uniform and stable temperature, humidity and atmosphere conditions. Recovery times are virtually eliminated, which helps to minimize assay variance.

All models are equipped with a small access door. Microplates enter and exit the precisely controlled Cytomat environment in seconds, significantly minimizing disruption to the controlled environment.

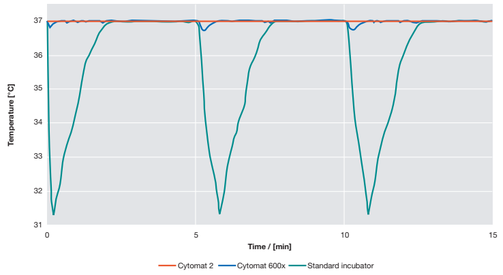
The speed of the system ensures that stored plates are maintained under uniform and stable conditions at all times, while exiting plates remain in the controlled environment until the moment they are needed.

Cytomat systems are equipped with an air-jacketed heating system, an internal water reservoir and proven sensor technology.

TEMPERATURE

Temperature stability is extremely important in achieving reproducible assay results and optimal cell growth. Cytomat models ensure optimal temperature conditions, even when in automated operation.

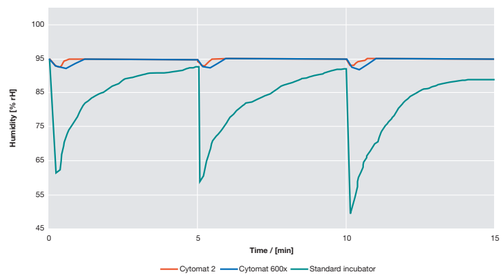
Temperature recovery with gate in operation (gate opening every 5 minutes for 10 seconds, set temperature 37°C)



HUMIDITY

Evaporation prevention is essential in cell culture applications and plate storage. High, stable humidity minimizes edge effects on cell culture assay plates. Specially designed internal water reservoirs, and stackers with ventilation slots (see page 11), minimize evaporation from microplate wells.

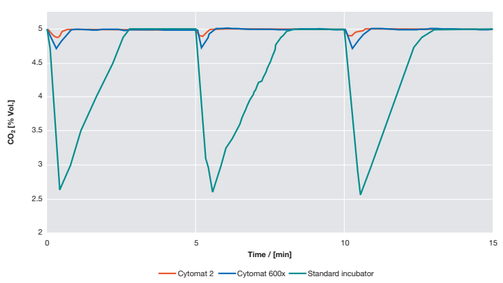
Recovery times with gate in operation (gate opening every 5 minutes for 10 seconds, 95% rH)



CO_2 ATMOSPHERE

Cytomat models virtually eliminate recovery times for any gaseous atmosphere. A stabilized CO_2 atmosphere, for example, and the related pH value in a cell or bacterial culture, is essential in any cell-based assay.

Recovery times with gate in operation (gate opening every 5 minutes for 10 seconds, set CO_2 5% volume)



Custom solutions for **specialist needs**

Customized Cytomat® systems, tailored to clients' individual needs, can be produced to meet very specific laboratory requirements. Contact your Cytomat Sales Representative to discuss the specific system needs of your personalized Cytomat.

CUSTOM CAPABILITIES

- Extended transfer reach
- Extended temperature range
- Extended capacity
- Non-standard plate sizes
- Customer-specified gassing and humidity environments
- Protected plate transportation
- Clean air equipment combinations



The **ROLLERMAT** automated CO_2 incubator offers a capacity of 40 roller bottles for cell culture applications. It is equipped with a bottle turning device and a Plate Shuttle system for automated bottle access.



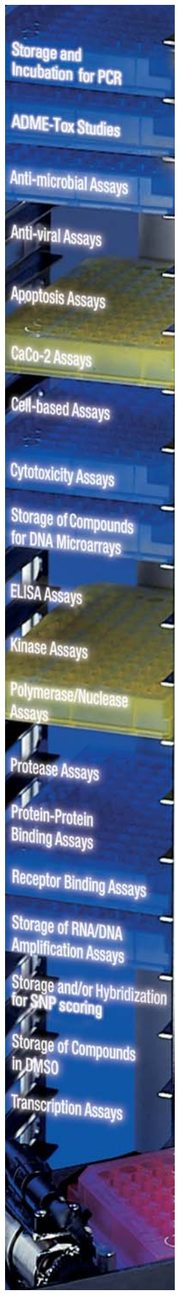
Fast defrost cycles are provided by the **CYTOMAT 24 TU** thawing unit. Features include a heating system, HEPA filter-based forced air circulation and a 504 plate capacity.



CYTOMAT 600X SYSTEMS can be stacked and configured with different transfer station positions.



Options available for the **CYTOMAT 8 LINEAR HOTEL** include orbital shaking and a dual transfer station.



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The **right solution** for your assay

CYTOMAT

A WIDE RANGE OF ENVIRONMENTAL CONDITIONS
The Cytomat® series is available in a wide range of models and sizes, with a choice of temperature and humidity ranges as well as different gassing atmospheres, providing the right automated assay conditions for incubation, storage and hybridization.



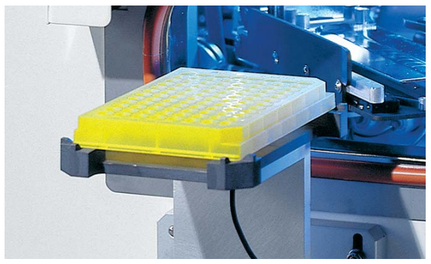
CYTOMAT 44 D/HC/H



CYTOMAT 24



CYTOMAT 2 C425/C450/C470



TRANSFER STATION



CYTOMAT 2 C/C70



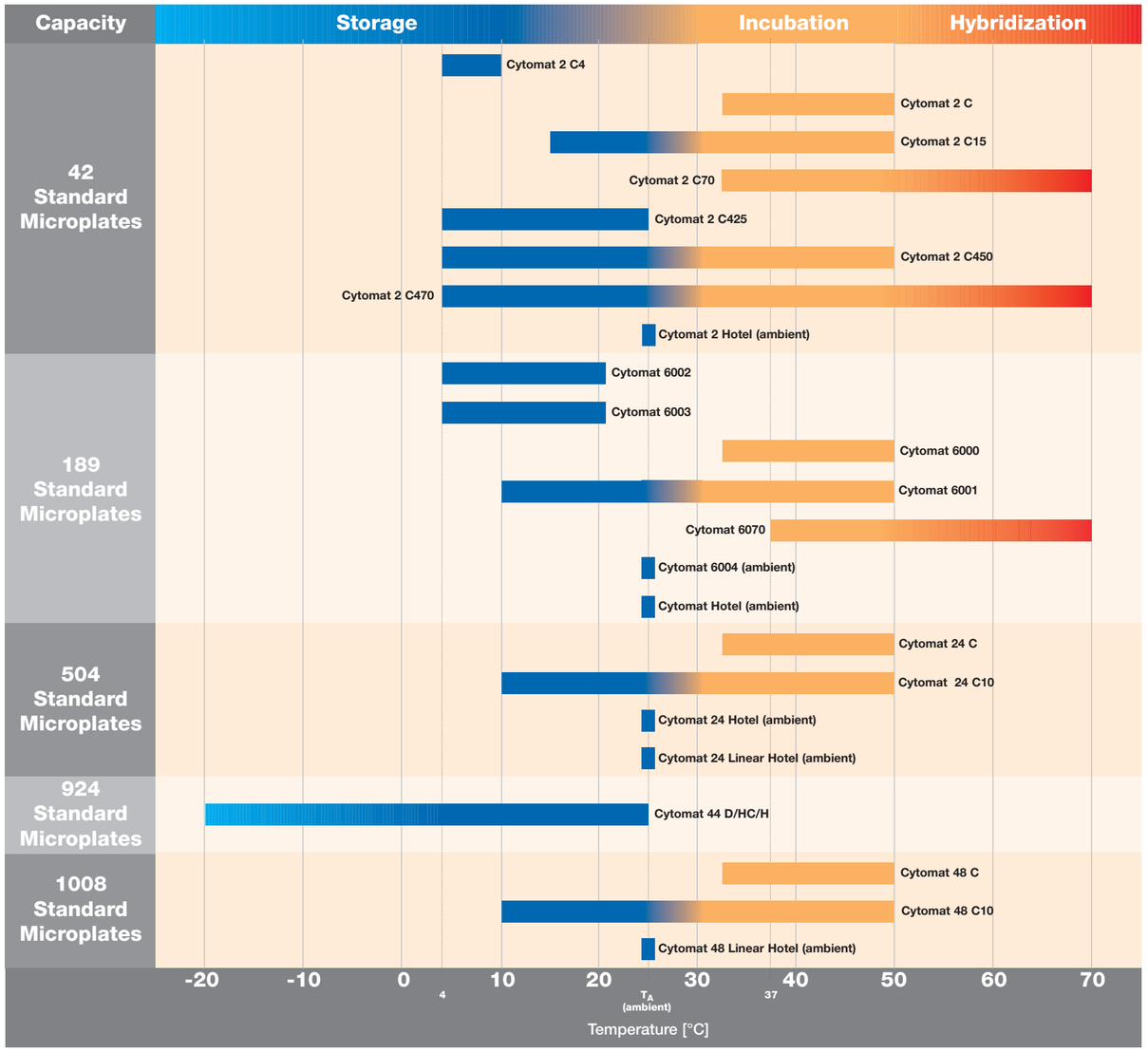
CYTOMAT HOTEL



CYTOMAT 6000/6001/ 6004/6070



CYTOMAT 6003



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Technical Specifications

Capacity		2 Stacker (42 standard 96 or 384 well plates)								9 Stacker (189 standard 96 or 384 well plates)									24 Stacker (504 standard 96 or 384 well plates)				44 Stacker (924 standard 96 or 384 well plates)			48 Stacker (1008 standard 96 or 384 well plates)		
Model		**Cytomat® 2 C4**	**Cytomat 2 C**	**Cytomat 2 C15**	**Cytomat 2 C70**	**Cytomat 2 C425**	**Cytomat 2 C450**	**Cytomat 2 C470**	**Cytomat 2 Hotel**	**Cytomat 6002**	**Cytomat 6002**	**Cytomat 6003**	**Cytomat 6003**	**Cytomat 6000**	**Cytomat 6001**	**Cytomat 6070**	**Cytomat 6004**	**Cytomat Hotel**	**Cytomat 24 C**	**Cytomat 24 C10**	**Cytomat 24 Hotel**	**Cytomat 24**	**Cytomat 44 D**	**Cytomat 44 H C**	**Cytomat 44 H**	**Cytomat 48 C**	**Cytomat 48 C 10**	**Cytomat 48**
Version		**Storage**	**Incubator**	**Incubator**	**High Temperature**	**Storage**	**Wide Range**	**Wide Range**	**Tip Box**	**Storage**	**Storage**	**Storage**	**Storage**	**Incubator**	**Incubator**	**High Temperature**	**Inert Gas**	**Tip Box**	**Incubator**	**Incubator**	**Tip Box**	**Linear Hotel**	**Storage**	**Storage**	**Storage**	**Incubator**	**Incubator**	**Linear Hotel**
		Humid climate				**Humid climate**				**Dry climate**	**Humid climate**	**Dry climate**	**Humid climate**									**Tip Box**	**Dry**	**Humid Controlled**	**Humid Climate**	**Double Chamber**	**Double Chamber**	**Tip Box**
Microplate capacity																												
96 well or 384 well	pcs	42	42	42	42	42	42	42	42	189	189	189	189	189	189	189	189	189	504	504	504	504	924	924	924	1008	1008	1008
Deepwell	pcs	20	20	20	20	20	20	20	20	90	90	90	90	90	90	90	90	90	240	240	240	240	440	440	440	480	480	480
Temperature range	°C	+4 to +10	TA+ 8 to +50	+15 to +50	TA+ 8 to +70	+4 to +25	+4 to +50	+4 to +70	Ambient	+4 to +21	+4 to +21	+4 to +21	+4 to +21	TA+ 8 to +50	+10 to +50	TA+ 12 to +70	Ambient	Ambient	TA+ 8 to +50	+10 to +50	Ambient	Ambient	-20 to +25	+4 to +25	+4 to +25	TA+ 8 to +50	+10 to +50	Ambient
Temperature accuracy																												
temporal	°C	± 0.3	± 0.1	± 0.2	± 0.2	< ± 0.2	< ± 0.2	< ± 0.2	–	± 1.0	± 1.0	± 1.0	± 1.0	± 0.1	± 0.1	± 0.1	–	–	± 0.1	± 0.1	–	–	± 1.0	± 1.0	± 1.0	± 0.2	± 0.2	–
spatial	°C	< ± 0.7	< ± 0.5	< ± 1.0 < ± 1.5 bei Kühlbetrieb	< ± 1.0	< ± 0.7	< ± 0.7	< ± 0.7	–	± 1.0	± 1.0	± 1.0	± 1.0	± 0.5	± 0.5	± 0.5	–	–	± 0.5	± 1.0	–	–	± 2.5	± 2.0	± 2.0	± 1.0	± 1.0	–
Humidity, constant, max.	%rH	75	95	75	95, up to 50°C	95	95	93	–	3	70	3	70	95	95	95	6	–	93	93	–	–	10 (35 at -20°C)	20 to 50	70	93	93	–
CO_2 control	%	–	0 to 20	0 to 20	–	–	0 to 20	0 to 20, up to 50°C	–	–	–	–	–	0 to 20	0 to 20	–	–	–	0 to 20	0 to 20	–	–	–	–	–	0 to 20	0 to 20	–
Access time, max.	s	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	30	30	30	30	60	60	60	30	30	30
Access mode		random access												random access						random access				random access				random access	
External dimensions						dimensions exclude thermostat																						
W/D/H excluding transfer station	mm	491/530/1391	491/530/1101	585/530/1101	491/530/1101	491/592/1101	491/592/1101	491/592/1101	368/395/771	900/810/1300	900/810/1300	900/810/1635	900/810/1635	900/810/850	900/810/850	900/810/850	900/810/850	620/650/880	897/863/1860	897/863/1860	804/680/1471	770/1106/1720	1962/820/1982	1962/820/1982	1962/820/1982	1840/985/1675	1840/985/1675	770/1790/1720
W/D/H excluding transfer station	inch	19.3/20.9/54.8	19.3/20.9/43.4	23.0/23.3/43.4	19.3/20.9/43.4	19.3/23.3/43.4	19.3/23.3/43.4	19.3/23.3/43.4	14.5/15.6/30.4	35.4/31.9/51.2	35.4/31.9/51.2	35.4/31.9/64.4	35.4/31.9/64.4	35.4/31.9/33.5	35.4/31.9/33.5	35.4/31.9/33.5	35.4/31.9/33.5	24.4/25.6/34.7	35.3/33.98/73.2	35.3/33.98/73.2	31.7/26.8/58.0	30.3/43.5/67.7	77.3/32.2/78.1	77.3/32.2/78.1	77.3/32.2/78.1	72.5/38.8/66.0	72.5/38.8/66.0	30.3/70.5/67.7
Weight net	kg	110	80	90	80	90	90	90	40	280	280	290	290	150	160	150	150	50	250	250	175	400	700	700	700	500	500	630
Heat dissipation	kWh/h	0.25	0.09	0.39	0.19	0.4	0.4	0.4	0.01	0.33	0.33	0.33	0.33	0.09	0.09	0.19	0.01	0.01	0.18	0.18	0.01	0.01				0.36	0.36	0.01
Heat dissipation	BTU	853.2	307.1	1,330.7	648.3	1,364.9	1,364.9	1,364.9	0.034	1,126.0	1,126.0	1,126.0	1,126.0	307.1	307.1	648.3	0.034	0.034	310	310	0.034	0.034				620	620	0.034
Rated voltage		1/PE AC, 230 V 50/60Hz								1/PE AC, 230 V 50/60Hz									1/PE AC, 230 V 50/60Hz				1/PE AC, 230 V 50/60Hz			1/PE AC, 230 V 50/60Hz		
Rated power 230 V/120 V	kW	0.3	0.7	0.9	0.7	2.45/1.55	2.45/1.55	2.45/1.55	0.15	1.0	1.0	1.0	1.0	1.0	1.0	1.2	0.3	0.15	1.2	2.45/1.55	0.15	0.2	2.3	2.3	2.3	2 x 1.2	2 x 2.45/1.55	0.2
Rated current at 230 V	A	1.3	3	3.91	3	11.74	11.74	11.74	0.65	4.35	4.35	4.35	4.35	4.35	4.35	5.2	1.3	0.65	5.2	11.74	0.65	0.87	10	10	10	2 x 5.2	2 x 11.74	0.87
Rated current at 120 V	A	2.5	5.83	7.5	5.83	12.91	12.91	12.91	1.25	8.33	8.33	8.33	8.33	8.33	8.33	10	2.5	1.25	10	12.91	1.25	1.67	11.06 at 208 V	11.06 at 208 V	11.06 at 208 V	2 x 10	2 x 12.91	1.67

Options

Capacity	2 Stacker (42 standard 96 or 384 well plates)								9 Stacker (189 standard 96 or 384 well plates)									24 Stacker (504 standard 96 or 384 well plates)				44 Stacker (924 standard 96 or 384 well plates)			48 Stacker (1008 standard 96 or 384 well plates)		
Model	**Cytomat® 2 C4**	**Cytomat 2 C**	**Cytomat 2 C15**	**Cytomat 2 C70**	**Cytomat 2 C425**	**Cytomat 2 C450**	**Cytomat 2 C470**	**Cytomat 2 Hotel**	**Cytomat 6002**	**Cytomat 6002**	**Cytomat 6003**	**Cytomat 6003**	**Cytomat 6000**	**Cytomat 6001**	**Cytomat 6070**	**Cytomat 6004**	**Cytomat Hotel**	**Cytomat 24 C**	**Cytomat 24 C10**	**Cytomat 24 Hotel**	**Cytomat 24 Linear Hotel**	**Cytomat 44 D**	**Cytomat 44 H C**	**Cytomat 44 H**	**Cytomat 48 C**	**Cytomat 48 C 10**	**Cytomat 48 Linear Hotel**
100-120 V version	+	+	+	+	+	+	+	s	+	+	+	+	+	+	+	S	S	+	+	S	S	200-208 V	200-208 V	200-208 V	+	+	S
O_2 control	C	C	C	C	C	C	C	n/a	C	C	C	C	+	+	C	C	n/a	+	+	n/a	n/a	C	C	C	+	+	n/a
Barcode scanner	+	+	+	n/a	+	+	n/a	+	+	+	+	+	+	+	n/a	+	+	+	+	+	+	+	+	+	+	+	+
Designed for deepwell plate handling	S	S	S	S	S	S	S	Tip Box	S	S	S	S	S	S	S	S	Tip Box	Tip Box	Tip Box	Tip Box	Tip Box	Tip Box	Tip Box	Tip Box	Tip Box	Tip Box	Tip Box
Stackers																											
1536 well microplates	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
384 well microplates	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
96 well microplates	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Transwell microplates	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Deepwell microplates	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Tip boxes	C	C	C	C	C	C	C	S	C	C	C	C	C	C	C	C	S	+	+	+	+	+	+	+	+	+	+
Transfer stations																											
Transfer station with plate sensor	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	C	C	C	+	+	+
90°C turnable, with plate sensor	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	C	C	C	+	+	+
Linear transfer station with plate sensor	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	C	C	C	+	+	+
Swap station, with 2 plate sensors	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	C	C	C	+	+	+
Single point of integration																											
Positioned top left	–	–	–	–	–	–	–	–	C	C	C	C	C	C	C	C	C	C	C	Flexible	n/a	–	–	–	C	C	–
Positioned bottom right	–	–	–	–	–	–	–	–	C	C	C	C	C	C	C	C	C	C	C	C	n/a	–	–	–	C	C	–
Positioned top right	–	–	–	–	–	–	–	–	C	C	C	C	C	C	C	C	C	C	C	C	n/a	–	–	–	C	C	–
Positioned top	C	C	C	C	C	C	C	flexible face side (in middle)	–	–	–	–	–	–	–	–	–	–	–	–	Flexible face side (in middle)	Flexible	Flexible	Flexible	–	–	Flexible face side (in middle)

+ available – not relevant n/a not available S standard C customized

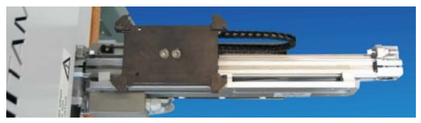
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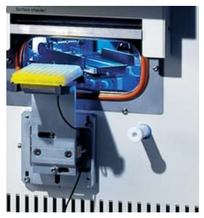
Cytomat® Options

TRANSFER STATION OPTIONS

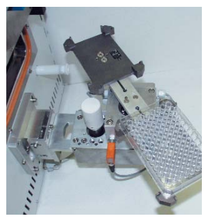
Cytomat® systems are available with different types of transfer station, including a 180° turnable Swap Station and a Linear Transfer Station.



LINEAR TRANSFER STATION



TRANSFER STATION



SWAP STATION

STACKER OPTIONS

Cytomat systems accomodate all standard microplate formats, including deepwell plates and tip boxes. Stackers are easily removed for manual loading and unloading with fixings ensuring accurate positioning.

Cytomat stackers can be autoclaved and dry heat sterilized at 180°C.



STACKER WITH VENTILATION SLOTS

STACKER OPTIONS

Microplates	Pitch in mm	Max. plate height in mm	Levels per stacker	Number of plates				
				Cytomat 2	Cytomat 600x	Cytomat 24	Cytomat 44	Cytomat 48
1536 well	17	12	28	56	252	672	1232	1344
96 or 384 well	23	18	21	42	189	504	924	1008
Roboflask	23	18	21	42	189	504	924	1008
24 insert	33	28	15	30	135	360	660	720
Deepwell	50	45	10	20	90	240	440	480
Tip box	69	64	7	14	63	168	308	336

SHAKER OPTION

The Cytomat 2 C450 is available as the 2 C450 S, which provides the option of orbital shaking for applications such as insect cell growth and gene expression, where sample agitation is required. Shaking frequency is 100-2,000 min^{-1} with an amplitude of 2 mm. Commands for shaking are included in the software protocol.

Cytomat technical drawings are available on request. For your free CD, contact your local Kendro Lab Automation Representative.

BARCODE READER

All Cytomat models are available with a barcode reader for plate or sample tracking. The barcode reader functions with standard-sized SBS microplates and reads plates both inside and outside of the controlled environment. An inventory scan function allows retrieval of information on every position, even when manually loaded.

With the barcode reader, the Cytomat 44 can function as a data bank and compound store, proving a database for sample and plate tracking.

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