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# Thermo Scientific Cytomat<sup>®</sup> Automated Incubators and Storage Modules



## Technical Specifications and Options



**Thermo Scientific Cytomat modules combine proven reliability and environmental stability with worldwide service and support.**

### Environmental Specifications

Cytomat modules provide uniform and stable temperature, humidity, and atmospheric conditions. Recovery times are virtually eliminated, which helps minimize assay variance.

All Cytomat models are equipped with a small access door. Microplates enter and exit the unit in seconds, significantly minimizing disruption to the controlled environment. The system's speed 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.

#### Temperature

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

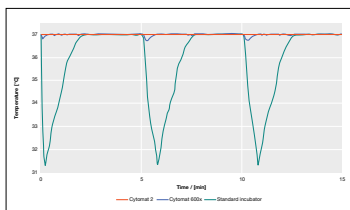
#### Humidity

A specially designed internal water reservoir results in high and stable humidity. Stackers with ventilation slots minimize evaporation and other edge effects to protect microplates.

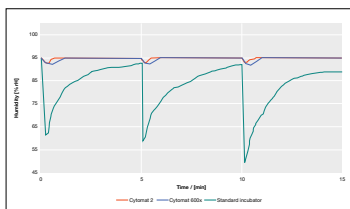
#### CO<sub>2</sub> Atmosphere

Cytomat models virtually eliminate recovery times for any gaseous atmosphere. They provide the stabilized CO<sub>2</sub> atmosphere and related pH value in the media that are essential in any cell-based application.

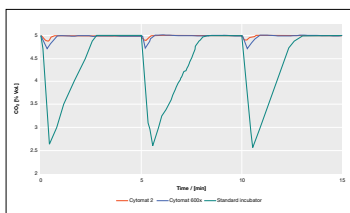
*Temperature recovery with gate in operation (gate opening every 5 minutes for 10 seconds, set temperature 37°C)*



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



*Recovery times with gate in operation (gate opening every 5 minutes for 10 seconds, set CO<sub>2</sub> 5% volume)*



## Cytomat Technical Data

| Capacity                         | 2 Stacker (42 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 |
| Version                          |  | Storage        | Incubator                 | Incubator            | High temperature          | Storage                   | Wide range                | Wide range                | Tip box         |
| Climate                          |  | Humid          |                           |                      |                           | Humid                     |                           |                           |                 |
| Microplate capacity (SBS size)   |  |                |                           |                      |                           |                           |                           |                           |                 |
| 96-well or 384-well              | pcs  | 42             | 42                        | 42                   | 42                        | 42                        | 42                        | 42                        | 42              |
| Deep-well                        | pcs  | 20             | 20                        | 20                   | 20                        | 20                        | 20                        | 20                        | 20              |
| 1536-well                        | pcs  | 56             | 56                        | 56                   | 56                        | 56                        | 56                        | 56                        | 56              |
| Temperature range                | °C   | +4 to +10      | T <sub>A</sub> + 8 to +50 | +15 to +50           | T <sub>A</sub> + 8 to +70 | +4 to +25                 | +4 to +50                 | +4 to +70                 | Ambient         |
| Temperature accuracy             |  |                |                           |                      |                           |                           |                           |                           |                 |
| Temporal                         | °C   | ± 0.3          | ± 0.1                     | ± 0.2                | ± 0.2                     | < ± 0.2                   | < ± 0.2                   | < ± 0.2                   | -               |
| Spatial                          | °C   | < ± 0.7        | < ± 0.5                   | < ± 1.0              | < ± 1.0                   | < ± 0.7                   | < ± 0.7                   | < ± 0.7                   | -               |
|                                  |  |                |                           | < ± 1.5 when cooling |                           |                           |                           |                           |                 |
| Humidity, constant, maximum      | %rH  | 75             | 95                        | 75                   | 95, up to 50°C            | 95                        | 95                        | 93                        | -               |
| CO <sub>2</sub> control          | %  | -              | 0 to 20                   | 0 to 20              | -                         | -                         | 0 to 20                   | 0 to 20, up to 50°C       | -               |
| Access time, maximum             | s  | 20             | 20                        | 20                   | 20                        | 20                        | 20                        | 20                        | 20              |
| Access mode                      |  | Random         | Random                    | Random               | Random                    | Random                    | Random                    | Random                    | Random          |
| External dimensions              |  |                |                           |                      |                           |                           |                           |                           |                 |
| W/D/H excluding transfer station | mm   | 491/530/1391   | 491/530/1101              | 585/530/1101         | 491/530/1101              | 491/592/1101 <sup>1</sup> | 491/592/1101 <sup>1</sup> | 491/592/1101 <sup>1</sup> | 368/395/771     |
| 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  |
| Weight, net                      | kg   | 110            | 80                        | 90                   | 80                        | 90                        | 90                        | 90                        | 40              |
| Heat dissipation                 | kWh/h  | 0.25           | 0.09                      | 0.39                 | 0.19                      | 0.4                       | 0.4                       | 0.4                       | 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           |
| Rated voltage                    |  | 1/PE AC, 230 V | 1/PE AC, 230 V            | 1/PE AC, 230 V       | 1/PE AC, 230 V            | 1/PE AC, 230 V            | 1/PE AC, 230 V            | 1/PE AC, 230 V            | 1/PE AC, 230 V  |
| Rated power 230 V/120 V          | kW   | 0.3            | 0.7                       | 0.9                  | 0.7                       | 0.25 + 2.3/1.4            | 0.25 + 2.3/1.4            | 0.25 + 2.3/1.4            | 0.15            |
| Rated current at 230 V           | A  | 1.3            | 3                         | 3.91                 | 3                         | 1.1 + 10                  | 1.1 + 10                  | 1.1 + 10                  | 0.65            |
| Rated current at 120 V           | A  | 2.5            | 5.83                      | 7.5                  | 5.83                      | 1.1 + 11.7                | 1.1 + 11.7                | 1.1 + 11.7                | 1.25            |

## Cytomat Options

| 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       |
|---|--|--------------|-------------|---------------|---------------|----------------|----------------|----------------|-----------------------|
| 100 V/120 V version                       |  | +            | +           | +             | +             | +              | +              | +              | S                     |
| O <sub>2</sub> control                    |  | C            | C           | C             | C             | C              | C              | C              | n/a                   |
| Barcode scanner                           |  | +            | +           | +             | C             | +              | +              | C              | +                     |
| Designed for deep-well plate handling     |  | S            | S           | S             | S             | S              | S              | S              | Tip box               |
| Tip-box handling                          |  | C            | C           | C             | C             | C              | C              | C              | S                     |
| Transfer stations                         |  |              |             |               |               |                |                |                |                       |
| Transfer station with plate sensor        |  | +            | +           | +             | +             | +              | +              | +              | +                     |
| 90° turnable, with plate sensor           |  | +            | +           | +             | +             | +              | +              | +              | +                     |
| Linear transfer station with plate sensor |  | +            | +           | +             | +             | +              | +              | +              | +                     |
| Swap station, with 2 plate sensors        |  | +            | +           | +             | +             | +              | +              | +              | +                     |
| Single point of integration               |  |              |             |               |               |                |                |                |                       |
| Positioned top left                       |  | -            | -           | -             | -             | -              | -              | -              | -                     |
| Positioned bottom right                   |  | -            | -           | -             | -             | -              | -              | -              | -                     |
| Positioned top right                      |  | -            | -           | -             | -             | -              | -              | -              | -                     |
| Positioned top                            |  | C            | C           | C             | C             | C              | C              | C              | Flexible              |
|   |  |              |             |               |               |                |                |                | face side (in middle) |

+ Available or optional    - Not applicable    n/a Not available    S Standard    C Custom    T<sub>A</sub> Ambient temperature

<sup>1</sup> Dimensions exclude thermostat

<sup>2</sup> External thermostat

| 9 Stacker (189 standard 96- or 384-well plates) |                |                          |                         |                           |                           |                |                 | 24 Stacker (504 standard 96- or 384-well plates) |                           |                           |
|---|----------------|--------------------------|-------------------------|---------------------------|---------------------------|----------------|-----------------|--|---------------------------|---------------------------|
| Cytomat 6002 D                                  | Cytomat 6003 D | Cytomat 6000             | Cytomat 6001            | Cytomat 6001 C4           | Cytomat 6070              | Cytomat 6004   | Cytomat Hotel   | Cytomat 24 C                                     | Cytomat 24 C10            | Cytomat 24 C4             |
| Storage   | Storage        | Incubator                | Incubator               | Wide range                | High temperature          | Inert gas      | Tip box         | Incubator  | Incubator                 | Wide range                |
| Dry   | Dry            |                          |                         |                           |                           |                |                 |  |                           |                           |
| 189   | 189            | 189                      | 189                     | 189                       | 189                       | 189            | 189             | 504  | 504                       | 504                       |
| 90  | 90             | 90                       | 90                      | 90                        | 90                        | 90             | 90              | 240  | 240                       | 240                       |
| 252   | 252            | 252                      | 252                     | 252                       | 252                       | 252            | 252             | 672  | 672                       | 672                       |
| + 4 to +21                                      | + 4 to +21     | T <sub>A</sub> +8 to +50 | +10 to +50 <sup>2</sup> | +4 to +50                 | T <sub>A</sub> +12 to +70 | Ambient        | Ambient         | T <sub>A</sub> +8 to +50                         | +10 to +50                | +4 to +50                 |
| ± 1.0   | ± 1.0          | ± 0.1                    | ± 0.1                   | ± 0.1                     | ± 0.1                     | -              | -               | ± 0.1  | ± 0.1                     | ± 0.1                     |
| ± 1.0   | ± 1.0          | ± 0.5                    | ± 0.5                   | ± 0.5                     | ± 0.5                     | -              | -               | ± 0.5  | ± 1                       | ± 1                       |
| 3   | 3              | 95                       | 95                      | 95                        | 95                        | 6              | -               | 93   | 93                        | 93                        |
| -   | -              | 0 to 20                  | 0 to 20                 | 0 to 20                   | -                         | -              | -               | 0 to 20  | 0 to 20                   | 0 to 20                   |
| 20  | 20             | 20                       | 20                      | 20                        | 20                        | 20             | 20              | 30   | 30                        | 30                        |
| Random  | Random         | Random                   | Random                  | Random                    | Random                    | Random         | Random          | Random   | Random                    | Random                    |
| 900/810/1300                                    | 900/810/1635   | 900/810/850              | 900/810/850             | 780/810/1085 <sup>1</sup> | 900/810/850               | 900/810/850    | 620/650/880     | 897/863/1860                                     | 897/863/1860 <sup>1</sup> | 897/863/1860 <sup>1</sup> |
| 35.4/31.9/51.2                                  | 35.4/31.9/64.4 | 35.4/31.9/33.5           | 35.4/31.9/33.5          | 30.7/31.9/42.8            | 35.4/31.9/33.5            | 35.4/31.9/33.5 | 24.4/25.6/34.65 | 35.3/33.98/73.2                                  | 35.3/33.98/73.2           | 35.3/33.98/73.2           |
| 280   | 290            | 150                      | 160                     | 170                       | 150                       | 150            | 50              | 250  | 250                       | 250                       |
| 0.33  | 0.33           | 0.09                     | 0.09                    | 0.4                       | 0.19                      | 0.01           | 0.01            | 0.18   | 0.18                      | 0.18                      |
| 1.126   | 1.126          | 307.1                    | 307.1                   | 1,364.9                   | 648.3                     | 0.034          | 0.034           | 310  | 310                       | 310                       |
| 1/PE AC, 230 V                                  | 1/PE AC, 230 V | 1/PE AC, 230 V           | 1/PE AC, 230 V          | 1/PE AC, 230 V            | 1/PE AC, 230 V            | 1/PE AC, 230 V | 1/PE AC, 230 V  | 1/PE AC, 230 V                                   | 1/PE AC, 230 V            | 1/PE AC, 230 V            |
| 1.0   | 1.0            | 1.2                      | 1.2                     | 0.4 + 2.3/1.4             | 1.2                       | 0.3            | 0.15            | 0.94   | 0.94 + 3.5/1.75           | 0.94 + 3.5/1.75           |
| 4.35  | 4.35           | 5.2                      | 5.2                     | 1.7 + 10                  | 5.2                       | 1.3            | 0.65            | 4.1  | 4.1 + 15                  | 4.1 + 15                  |
| 8.33  | 8.33           | 10                       | 10                      | 1.7 + 11.7                | 10                        | 2.5            | 1.25            | 7.9  | 7.9 + 14.5                | 7.9 + 14.5                |

| Cytomat 6002 D | Cytomat 6003 D | Cytomat 6000 | Cytomat 6001 | Cytomat 6001 C4 | Cytomat 6070 | Cytomat 6004 | Cytomat Hotel | Cytomat 24 C | Cytomat 24 C10 | Cytomat 24 C4 |
|----------------|----------------|--------------|--------------|-----------------|--------------|--------------|---------------|--------------|----------------|---------------|
| +              | +              | +            | +            | +               | +            | S            | S             | +/+          | +/+            | +/+           |
| C              | C              | +            | +            | +               | C            | C            | n/a           | +            | +              | +             |
| +              | +              | +            | +            | +               | C            | +            | +             | +            | +              | +             |
| S              | S              | S            | S            | S               | S            | S            | Tip box       | Tip box      | Tip box        | Tip box       |
| C              | C              | C            | C            | C               | C            | C            | S             | +            | +              | +             |
| +              | +              | +            | +            | +               | +            | +            | +             | +            | +              | +             |
| +              | +              | +            | +            | +               | +            | +            | +             | +            | +              | +             |
| +              | +              | +            | +            | +               | +            | +            | +             | +            | +              | +             |
| C              | C              | C            | C            | C               | C            | C            | C             | C            | C              | C             |
| C              | C              | C            | C            | C               | C            | C            | C             | C            | C              | C             |
| C              | C              | C            | C            | C               | C            | C            | C             | C            | C              | C             |
| -              | -              | -            | -            | -               | -            | -            | -             | -            | -              | -             |

Temperature

| or 384-well plates) |                         | 44 Stacker (924 standard 96- or 384-well plates) |                  |                | 48 Stacker (1008 standard 96- or 384-well plates) |                            |                            |                         |
|---------------------|-------------------------|--|------------------|----------------|---|----------------------------|----------------------------|-------------------------|
| Cytomat 24 Hotel    | Cytomat 24 Linear Hotel | Cytomat 44 D                                     | Cytomat 44 HC    | Cytomat 44 H   | Cytomat 48 C                                      | Cytomat 48 C10             | Cytomat 48 C4              | Cytomat 48 Linear Hotel |
| Tip box             | Tip box                 | Storage  | Storage          | Storage        | Incubator   | Incubator                  | Wide range                 | Tip box                 |
|                     |                         | Dry  | Humid controlled | Humid          | Double chamber                                    | Double chamber             | Double chamber             |                         |
| 504                 | 504                     | 924  | 924              | 924            | 1008  | 1008                       | 1008                       | 1008                    |
| 240                 | 240                     | 440  | 440              | 440            | 480   | 480                        | 480                        | 480                     |
| 672                 | 672                     | 1232   | 1232             | 1232           | 1344  | 1344                       | 1344                       | 1344                    |
| Ambient             | Ambient                 | -20 to +25                                       | +4 to +25        | +4 to +25      | T <sub>A</sub> +8 to +50                          | +10 to +50                 | +4 to +50                  | Ambient                 |
| -                   | -                       | ± 1  | ± 1              | ± 1            | ± 0.2   | ± 0.2                      | ± 0.2                      | -                       |
| -                   | -                       | ± 2.5  | ± 2              | ± 2            | ± 1   | ± 1                        | ± 1                        | -                       |
| -                   | -                       | 10 (35 at -20°C)                                 | 20 to 50         | 70             | 93  | 93                         | 93                         | -                       |
| -                   | -                       | -  | -                | -              | 0 to 20   | 0 to 20                    | 0 to 20                    | -                       |
| 30                  | 30                      | 60   | 60               | 60             | 30  | 30                         | 30                         | 30                      |
| Random              | Random                  | Random   | Random           | Random         | Random  | Random                     | Random                     | Random                  |
| 804/680/1471        | 770/1106/1720           | 1962/820/1982                                    | 1962/820/1982    | 1962/820/1982  | 1844/985/1675                                     | 1844/985/1675 <sup>1</sup> | 1844/985/1675 <sup>1</sup> | 770/1790/1720           |
| 31.7/26.8/58        | 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                                      | 72.5/38.8/66               | 72.5/38.8/66               | 30.3/70.5/67.7          |
| 175                 | 400                     | 700  | 700              | 700            | 500   | 500                        | 500                        | 630                     |
| 0.01                | 0.01                    |  |                  |                | 0.36  | 0.36                       | 0.36                       | 0.01                    |
| 0.034               | 0.034                   |  |                  |                | 620   | 620                        | 620                        | 0.034                   |
| 1/PE AC, 230 V      | 1/PE AC, 230 V          | 1/PE AC, 230 V                                   | 1/PE AC, 230 V   | 1/PE AC, 230 V | 2x 1/PE AC, 230 V                                 | 2x 1/PE AC, 230 V          | 2x 1/PE AC, 230 V          | 1/PE AC, 230 V          |
| 0.15                | 0.2                     | 2.3  | 2.3              | 2.3            | 2 x 0.94  | 2 x (0.94 + 3.5/1.75)      | 2 x (0.94 + 3.5/1.75)      | 0.2                     |
| 0.65                | 0.87                    | 10   | 10               | 10             | 2 x 4.1   | 2 x (4.1 + 15)             | 2 x (4.1 + 15)             | 0.87                    |
| 1.25                | 1.67                    | 11.06 at 208 V                                   | 11.06 at 208 V   | 11.06 at 208 V | 2 x 7.9   | 2 x (7.9 + 14.5)           | 2 x (7.9 + 14.5)           | 1.67                    |

| Cytomat 24 Hotel | Cytomat 24 Linear Hotel | Cytomat 44 D | Cytomat 44 HC | Cytomat 44 H | Cytomat 48 C | Cytomat 48 C10 | Cytomat 48 C4 | Cytomat 48 Linear Hotel |
|------------------|-------------------------|--------------|---------------|--------------|--------------|----------------|---------------|-------------------------|
| S                | S                       | 200-208V     | 200-208V      | 200-208V     | +/+          | +/+            | +/+           | S                       |
| n/a              | n/a                     | C            | C             | C            | +            | +              | +             | n/a                     |
| +                | +                       | +            | +             | +            | +            | +              | +             | +                       |
| Tip box          | Tip box                 | Tip box      | Tip box       | Tip box      | Tip box      | Tip box        | Tip box       | Tip box                 |
| +                | +                       | +            | +             | +            | +            | +              | +             | +                       |
| +                | +                       | C            | C             | C            | +            | +              | +             | +                       |
| +                | +                       | C            | C             | C            | +            | +              | +             | +                       |
| +                | +                       | C            | C             | C            | +            | +              | +             | +                       |
| +                | +                       | C            | C             | C            | +            | +              | +             | +                       |
| Flexible         | n/a                     | -            | -             | -            | C            | C              | C             | -                       |
| C                | n/a                     | -            | -             | -            | C            | C              | C             | -                       |
| C                | n/a                     | -            | -             | -            | C            | C              | C             | -                       |
| -                | Flexible                | Flexible     | Flexible      | Flexible     | -            | -              | -             | Flexible                |
|                  | Face side (in middle)   |              |               |              |              |                |               | Face side (in middle)   |

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Europe:  
+49 6184 906940  
Email: [info.labautomation.de@thermofisher.com](mailto:info.labautomation.de@thermofisher.com)

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Email: [info.labautomation.asia@thermofisher.com](mailto:info.labautomation.asia@thermofisher.com)



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