SARTORIUS

Application Highlight

MYCAP® CCX is a reliable aseptic cell culture expansion technology. This closed system features a revolutionary design to ensure the media feed, inoculation, sampling and transfers are done aseptically, outside a biosafety cabinet. The MYCAP® CCX cell expansion QApp software controls peristaltic pumps for automated transfer of media, inoculum or media & inoculum. The software autmatically calculates the volume(s) to be transferred, the final volume and effective cell density.

MYCAP®
CCX Processing

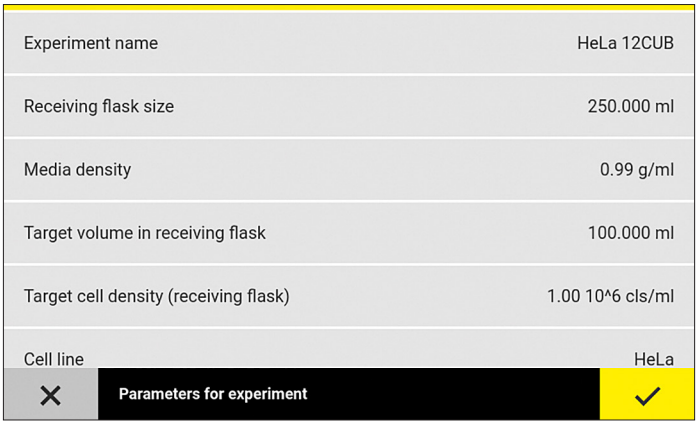
Automated Transfer of Media or Inoculum to Cell Cultures

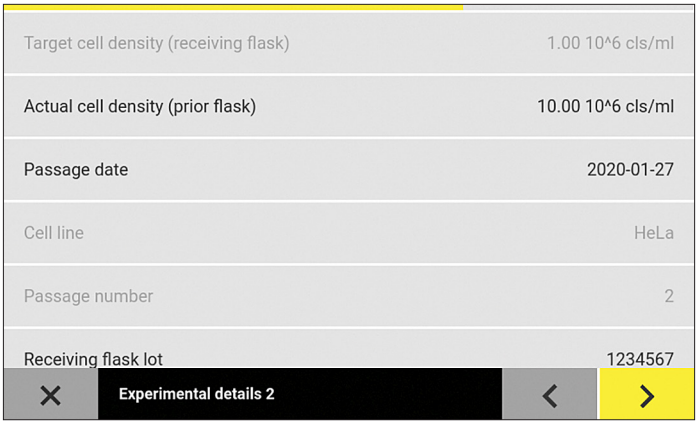
The Mycap® CCX system allows for expansion of suspension cell culture from cell banks to seed bioreactor. The expansion process is performed through multiple passages of successively larger Erlenmeyer flasks and involves the aseptic transfer of media and | or inoculum between donor and recipient flasks. Using the Mycap® CCX system for cell culture expansion eliminates the need to work in a biosafety cabinet for media or inoculum transfer since the flask's cap need not be removed for fluid transfer during passaging or sampling.

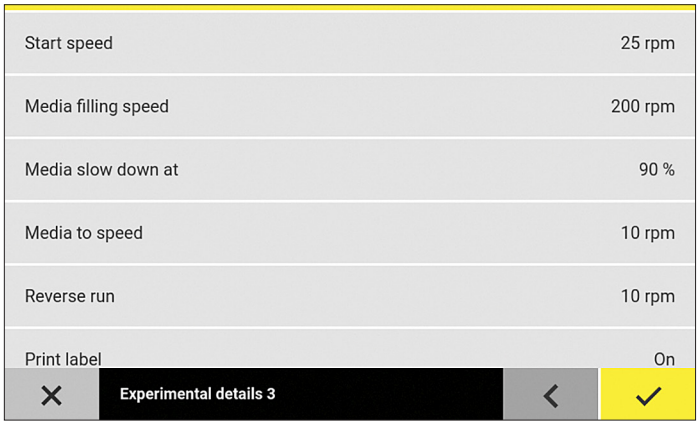
The Cubis® II software application for Mycap® CCX processing facilitates the transfer of media or inoculum between Mycap® Erlenmeyer flasks using peristaltic pumps. During the pumping process media or inoculum is transferred from a donor flask into a recipient flask and the transferred amount is gravimetrically measured. The Mycap® CCX processing application controls Watson-Marlow pump models 323Du, 530Du and 630Du via serial communication and offers a dedicated pumping process for the liquid transfer.

In general, the parameters for the Mycap® CCX expansion of cell cultures are organized in the software application in so-called “experiments”. General experiment settings are determined by users with the “Create Task” function, and process-specific experiment settings are determined by the user before the samples are processed. General settings include pump selection, definition of the experiment name, target flask volume, media density, target volume in the target flask, target cell density in the target flask, cell line, and passage number.

The process specific settings include the lot number of the medium, media volume in the target flask, cell density in the donor flask, passage date, lot number of the target flask, and number of flasks to be processed. All settings are stored in an experiment database. From the concentration and volume data, the application automatically calculates the target weight of the inoculum or media to be transferred during the transfer process and controls the peristaltic pump accordingly.

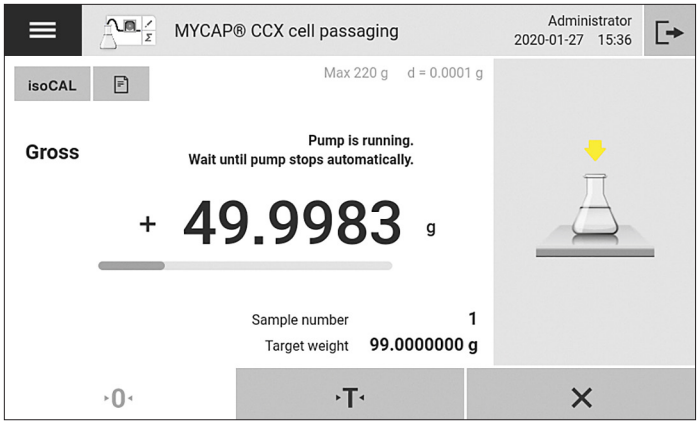






In addition to the experimental settings, the speed for all steps during the pumping procedure is defined in rpm. The pumping procedure consists of an optional priming step to get rid of air bubbles remaining in the tube, transferring medium or inoculum to a defined percentage of the target weight, running the pump at slow speed until the final target weight is reached, and an optional reverse run to remove liquid from the tube above the weighing pan that would falsify the acquired weighing result.

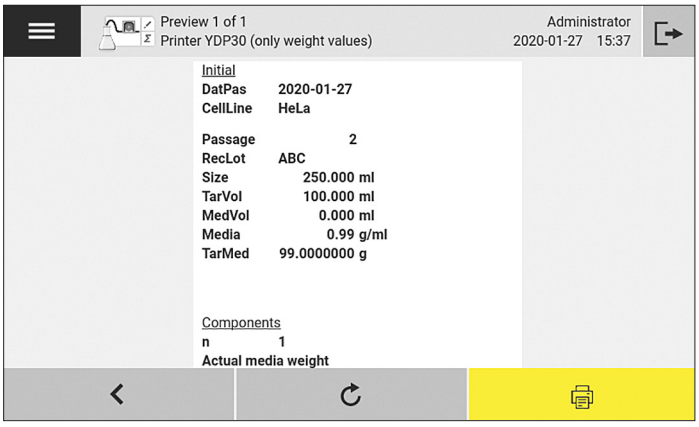
The software displays the recommended default values, depending upon the type of pump used, for all steps of the pumping procedure but these can be modified by the user as needed. Additionally, depending on the selected method (add media, add inoculum or add media and inoculum) the software displays instructive text for setup of the flasks and tubes the pumping process. The pumping procedure is repeated according to the number of flasks to be filled until all samples are processed.

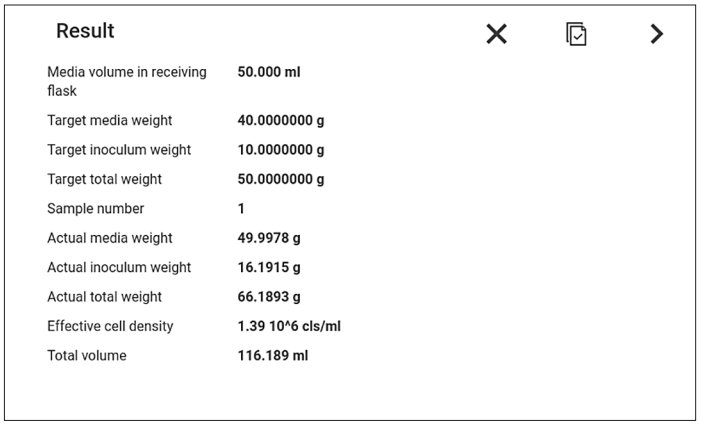


During sample processing the receiving flask is fixed on the balance weighing pan, the balance is tared and then the peristaltic pump transfers liquid from the donor flaks to the receiving flask. The volume to be transferred is automatically calculated by the software application and transformed into a target weight value using the media density.

The transferred liquid weight is measured by the balance and the pump speed is reduced at a set percentage of the target weight. The speed reduction prevents overshooting the target weight. The final weight is gravimetrically measured and the final results are calculated based on the measured weight value.

The final volume and the effective final cell density for each sample are calculated and can be documented by means of a printer connected to the balance. Labels with cell line information, lot number, passage number and date, effectively cell density, and the final media volume can optionally be printed for the receiving flasks.





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