

PATENT PENDING



- **Partial and Total cage changing**
- **Well being of the operator**
- **Enhanced Efficiency**
- **Maximum Flexibility**
- **Contamination Control**
- **High Safety**



**LAMINAR FLOW**

**TECNIPLAST**  
*innovation through passion*

## 1/Increased well being of the operator

The daily routine of an animal technician involves a high percentage of repetitive movements associated with the handling of cages housing laboratory animals. These movements include the opening and closing of cage lids on individually ventilated cages (IVC's) requiring the repetitive actions of the technician's wrists and arms over large numbers of cages on a daily basis while maintaining the high standards expected of modern high health status facilities. The benefits of reducing repetitive manual handling and providing ergonomically improved working environments are well known and the development of automation is a recognized solution in a wide variety of professions. The utilization of robotics in animal facilities is now being developed beyond the hygiene areas and into the animal rooms for cage front operations. The CSM-P/T (Changing Speed Motion) undertakes the repetitive cage opening and lid handling operations for GM500 IVC's. The CSM-P/T undertakes the repetitive cage opening and lid handling operations for GM500 IVC's. Cage changing utilising the CSM reduce repeated actions and potential repetitive strain injury. The CSM reduces the individual risk exposure levels. The operator does not have to concentrate on the precision of movements required by the procedure: this results in reduced muscle and mental fatigue Technician, which means that the incidence of musculo-skeletal disorders drastically decreases (e.g. carpal tunnel syndrome).

## 2/Enhanced Efficiency

CSM - P/T(Change Speed Motion) is an automated device which opens and closes Sealsafe Plus Individually Ventilated Cages, under a laminar flow inside an ISO 5 Class CS5 Changing Station. When changing a cage, several operations are carried out: thanks to the CSM P/T, some of these are performed at the same time (e.g. clean and dirty cages are opened and closed simultaneously by the machine). This translates into a reduction of manual operations performed by the operator (time saving), which has been calculated at - 27%. Such a reduction in manual operations makes for a significant time reduction in manual operations (-50% by "CSM P/T). Repetitive operations during cage changing become automatic processes performed by "CSM P/T": this makes for increased speed and accuracy. The operator doesn't need to modify his/her manual operation procedures, but simply part of them (the most repetitive ones) are performed by the machine.

## 3/Maximum Flexibility

A sliding system, a removable gripper, an innovative cage locking system, a new electronic control board and software make the CSM P/T suitable for total cage changing or base only. The "EASY- LIFT" is a new lifter trolley which is available to allow an easy removal of the CSM P/T from the CS5 EVO working surface "one minute one person" in absolute safety thanks to toggle clamps (present on board) which fix the CSM structure on the trolley itself.. The trolley ensures a high flexibility allowing the use of, either one CSM P/T on several CS5 EVOs or the cabinet only to carry out other procedure without CSM P/T.

## 4/Contamination Control

The precision of the operations performed by the machine avoids common human mistakes like inadvertently putting bottles and cage tops outside the laminar flow area (air barrier grid) of the changing cabinet: this reduces the risk of procedural mistakes (no cross-contamination).

## 5/Reliability, Robustness, Cleanability

The CSM P/T needs no ordinary maintenance (no lubrication): it can perform more than 30,000 cycles without stopping. The system is very easy to clean, and is compatible with a variety of chemical disinfectants. Lastly, it is also very easy to remove it or lift it from the working surface: a mechanical device blocks the machine in a "cleaning" position and allows to clean the working area, or even to remove the working area panels and clean the pre-filters.

## 6/High Safety

The CSM is equipped with active safety devices in order to protect both operators and maintenance personnel and to disable the machine in the event of component failure. In case of emergency while the system is closing the cages, it possible to halt the arm movement by lowering the cage lever. The arms will automatically go to homing position. In case of collision the system automatically goes to homing position and an alarm is triggered.



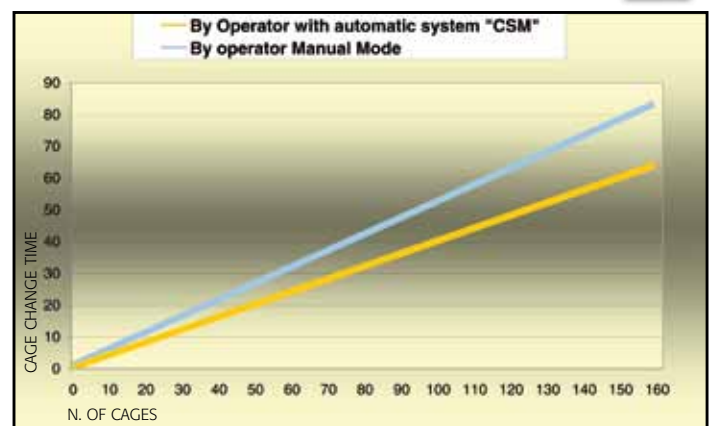
LAMINAR FLOW

## CSM P/T - Cage Changing Automation

Increased well being of the operator



Enhanced Efficiency



Δ = 20 minutes less for a 2GM160 rack.

Maximum Flexibility **3**



Contamination Control/Reliability, Robustness, Cleanability **4&5**



High Safety **6**





## Related Products

To maximise operational efficiency and learn more about these products contact your local representative.



**CS5Evo GP changing station.** Compact, ergonomic and light double-side mobile Changing Station that allows the user to easily move the cabinet inside the animal room.



**Sealsafe Plus:** high containment, certified protection from allergens, high density and practicality of use. The IVC (r)evolution.



**Logistic trolleys** offer safety and ergonomic features that enable high load-density for moving cages and bottles, crates, pallets and covers.

# TECNIPLAST

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