



Straight line reciprocating spray head machine reborn

In the 1950s, when leather finishing began to consider controlled automatic spraying, the reciprocating head type of machine was king. Not much later however rotating spray gun equipment took over because of better productivity capacity along with more precise control systems, soon pushing the reciprocator into a corner limiting its further development. New well-designed straight-line spraying, however, now offers advantages over the rotary systems. The French tannery machine builder Turner sas, (also known as Mercier Turner), has seen a place for it in the leather finishing industry and has launched its modern version of such a spraying machine. From a performance point of view, specifically, the spray pattern can be set accurately to result in high efficiency in the use of the spray products. The new reciprocator also employs precision programming as good as that found on rotary machines.

A reciprocating motion spray gun carriage remains the core of the new design but this is driven by an electric induction motor which provides high speed, fast smooth acceleration and direction change, important because each travel cycle involves fast acceleration – high working speed - deceleration - and reversal. This whole cycle takes place in less than a second without jerking or shock. The carriage travels on a precision rail free of vibrations and its drive is interconnected with the leather transport conveyor drive which means that, when changing leather feed speed, the spray gun carriage speed will automatically vary to maintain the same ratio.

Like many reciprocating carriage sprayers the carriage is fitted with four spray guns but the user can operate it with any number to suit particular requirements. A positive feature of the reciprocator is that each gun is separately and directly connected resulting in stability of spray compared with the central rotary gland needed with rotary systems. Each gun can be individually controlled if required. Optionally, the new machine can be fitted with an electronic device which automatically regulates spray pressure at each gun in accordance with the PLC-set program. Further, as an option it is possible to control and programme automatically the quantity of product sprayed by each gun, avoiding having to do this

manually and also telling the operator if a gun is clogged or which guns are the ones working normally.

The detection of the leather and its shape being fed in the sprayer employs a newly developed system which is not only more precise than the conventional photocell arrangement but it can also control functions such as opening and closing as well as pressure.

The spray cabin has permanent, automatically controlled, air circulation. Clean air is introduced from outside the building (automatically heated when necessary) and is ducted into the space inside the cabin enclosures and it also serves as air curtains at leather feed in and feed out points. In this manner, pollution carrying air does not spill out to the factory area and it is filtered before extraction to the outside of the building. The filters are of a new type consisting of polyester and fireproofed paper. They are not expensive and are readily replaced as they are mounted on a removable cabin door. The volume of air in circulation is automatically regulated related to the number of spray guns employed. Further, exhaust and depressurisation is controlled based on the degree of filter clogging, for example increasing exhaust volume when filters are clogging thus maintaining constant air quality, or halting air circulation altogether when no leather is entering the cabin.

This new spraying machine designated Map NR by Turner is managed, programmed and controlled by PLC using touch screen technology. A 15-inch touchscreen is mounted on the freestanding control console. Programs entered are memorised and can be applied whenever needed. The Map NR is versatile, capable of handling both small and large skins. A model wide enough to spray whole hides can also be supplied.

Turner sas, based in Annonay, France can point to many years of experience in the design and building of tannery machinery being the successor of Mercier Freres subsequently re-established as the Turner Group, a result of a merger with German company Moenus-Turner. It has also absorbed the technologies of the former French tannery machinery companies Charvo and Rouanet, as well as of Oliver Battle, Spain. 🌐



Side view of cabin showing touch screen panel for programming and control.



Carriage drive by brushless motor.



Pressure controllers for guns.



Four guns with air and product delivery connections.



Depressurisation system controller.



Reciprocator line with dryer and second sprayer.