



ENGINEERING
YOUR SPRAY SOLUTION



PROFESSIONAL, SUSTAINABLE CLEANING OF SPRAYER TANKS

INTERNAL CLEANING





An application result as shown on the picture should not occur in reality. Besides damages for the farmer, this influences the image of chemical plant protection in a negative way. Mostly this happens at headlands, easily observed from of public roads and by critical persons.

Professional tank cleaning should reduce residues from former applications to a minimum amount. Typical reasons for insufficient internal sprayer cleaning are:

- There are inaccessible shadow zones in the sprayer tank which were not cleaned enough
- Tank cleaning nozzles are operated at too high pressure
- Rotating cleaning nozzles don't work regularly, because they are clogged or stuck

• Target area of cleaning

The biggest surface which has to be cleaned are the inside walls of a sprayer tank. Here no dead zones should exist. Important are effective radiuses and positioning of rotating cleaning nozzles or static spray balls. For the continuous internal cleaning process, Lechler offers a range of nozzles, which are adopted in line to the total flow rate of the cleaned nozzles. The sucked portion is higher than the delivered amount of cleaning liquid at the tank bottom. This avoids an accumulation of cleaning liquid at the tank bottom. The Lechler cleaning nozzles range according to the ISO colour code norm 10625.



These ISO nozzle sizes enable you to adapt to tank size, amount of required cleaning nozzles and clean water pump output. (see also table in attached flyer)

For advanced conditions Lechler offers the rotating cleaning nozzle **MicroSpinner**. This is completely made of stainless steel and gives a robust long life solution. It can clean surfaces up to a radius of 360°.

The question, how many cleaning nozzle should be installed, depends on the effective radius of the cleaning nozzle and the shape of the tank. Internal walls can require a higher number of cleaning nozzles to eliminate uncleaned tank wall sections.

The **static spray balls** can be an alternative to the rotating nozzle systems.

Such static spray balls are very robust and reduce the input of maintenance. These balls require approx. the double water rate compared to rotating nozzles. A very precise positioning is indispensable to clean all areas of the tank walls for a sufficient and sustainable cleaning.



- **Optimal pressure range**

In practice especially the rotating cleaning nozzles are operated at too high pressure. Users compare it to a high pressure cleaner. The higher the pressure the more is the cleaning effect. This is wrong. In tanks, big droplets, mostly in the optimum pressure range of 2 – 3 bars, achieve the efficacy. Higher pressure creates more fine droplets, which decline the cleaning effect. With extremely high pressure, above 5 bars, cleaning nozzles create only fog, hence, droplets do not get in touch with the cleaning surface.

- **Elimination of disturbance**

After long period of operation, cleaning nozzles cannot work properly anymore. The reasons are sediments in their rotating axle bearings. These nozzles are submerged sometimes in spraying liquid. Especially tank mixtures with a lot of ingredients, granulates or powder, provoke this sedimentation process. The problem can only be solved by maintenance, but the access to the inside tank is difficult. See also ISO 4254-6 resp. ISO 16119. With the **CleanerFix**, Lechler offers a solution to maintain the cleaning nozzles externally without entering the sprayer tank inside.



This eases the first assembling in factory, is a tremendous support for service stuffs and enables also a farmer to do maintenance by himself. Dimensions of all cleaning nozzles fit well through the assembling drill for **CleanerFix** in sprayer tank wall.

With the **Cleanerfix extension**, cleaning nozzles can be mounted farther away from the wall to optimize cleaning nozzles radius for improved efficacy. These extensions can be combined in steps of 90 mm.

A direct positioning at the wall reduces the spray radius and declines cleaning nozzles efficacy. You can see details of mounting on a video placed on the attached USB stick.



A well performed agitation can improve spray liquid mixing and reduce sediments. Injector agitation nozzles can multiply the effect of pump capacity.

Big or enormous big agitation injector nozzles supply a homogenous tank mix, when the tank is just filled. If the tank content is kept inside for a longer period, because a farmer has to stop the application in spite of rainfall, the sediments settle down at the bottom. For these conditions we recommend assembling of a couple of smaller injector agitation nozzles. There will be no dead zones, the principle is like a high pressure cleaner: where the gun/nozzle is active the ground is clean, where is no activity the sediments remain. Only with a couple of smaller injector agitation nozzles - combined by a pipe – all sediments can be whirled up and liquid becomes homogenous. These injector agitation nozzles are available in different sizes and flow rates and also the eyelet connectors are available for different pipe diameters. One or two pipes equipped with the mentioned solution can achieve the same agitation or cleaning effect like a separate high pressure agitation implement. This can be an attractive optional equipment for big sprayer tanks. The probability of application interruption is higher regarding weather risks etc.



CanCleaner (left) is a rotating cleaning nozzle which cleans empty pesticide cans. This nozzle was optimized in technical detail to clean cans and especially can bottoms more efficiently. This means to clean with less water and in a shorter time. The **CanCleaner** nozzle can be combined with a **CanCleaner Valve** (right), completely made of stainless steel.



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The combination of **CanCleaner** with the **CanCleaner Valve** is a robust and long life version with integrated Totmann valve. With this solution, profi sprayer lines get an additional feature and value. This is one proposal to easily differentiate various product lines of one manufacturer. The chemical inductor is close to technical perfection if **CanCleaner** and **WallCleaner** work in cooperation.

The **WallCleaner** cleans the inside wall of a chemical inductor also with high powder rate. The story is to minimize all implements inside of the hopper. This reduces the potential of cleaning shadows. Further the number of coupling elements is reduced which promotes the design.



Summary

Lechler cleaning technology enables a farmer to clean his sprayer tank and chemical inductor in a reliable way. The Lechler GmbH could collect experience during a lot of decades and in other branches. Test the included sample products. If you want to optimize existing sprayers or to develop complete new ones, please feel free to get in contact with Lechler experts. The Lechler team Agriculture / tank cleaning tries to help you in the best way!

Our philosophy is: Important is that the customer comes back, not our product!



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