

(Bild: istockphoto\_kynny)

## Apply primer in a process-safe way

Economy, quality and health: contact dispensing vs. non-contact dispensing

**In practice, opinions differ on the use of primers - but this does not change the fact that there is currently no alternative to their use in many applications, for example in the electronics and automotive industries. However, many criticisms of primers can be invalidated with the optimum - in this case non-contact - dispensing technology.**

**Questions surrounding primer application** - In electronics manufacturing, many surfaces are pre-treated with primers. These agents improve the adhesive properties of surfaces and coatings that are subject to high stress or are difficult to bond. The improved adhesion of adhesives or coatings increases resistance to water and chemicals as well as corrosion protection and thus product quality. Classic applications include bonding glass to plastic, metal to plastic, smartphones and tablets, AR/VR lens bonding, speaker bonding, mobile device sealing and battery bonding. VHB adhesive tapes are often used for display bonding (Fig. 1). For this bonding technology, the surface must always be pre-treated with a primer. Classically, primers are applied

with a sponge, spray or by time/pressure contact metering, depending on the degree of automation of a production line. Manual application is generally not an option from a quality point of view. Since automated processes predominate in the electronics and automotive industries, the question of the optimum dispensing method arises here. Here, the solution to the most common practical problems provides the direction (Fig. 2). Ultimately, the choice of dispensing system or method also determines process reliability, economic efficiency and product quality.

**The solution - non-contact dispensing** - Application with the PDos X1 jet valve (Fig. 3) solves almost all primer problems in practice. Due to its high metering volume accuracy - the repeatability of the jet valve is usually 99% - errors caused by deviating primer quantities are excluded. Optimum material use not only saves money, but also serves to protect health. Lines are created in this dispensing process by setting one dot next to the other at a very high frequency - up to 300 Hz. Among other things, this allows easy programming of the dispensing system for ramps or curves. Jetting also eliminates the need for an adjustment stroke and the additional movement of the applicator.

### Practical tip from Julian Greiner:

*Primers attack surfaces because they may contain hydrochloric acid, zinc chloride or ammonium chloride. These substances are harmful to humans. They should therefore be handled with gloves and protective goggles and used with adequate ventilation. In the case of automated primer application, the health risk is naturally lower.*



[The system in video](#)

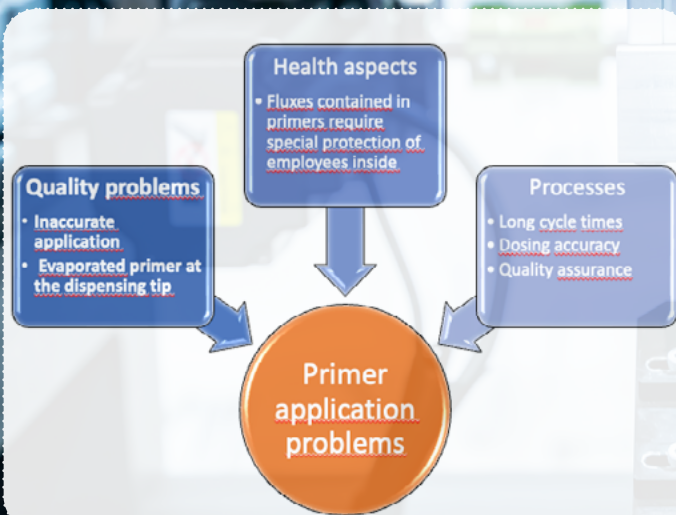
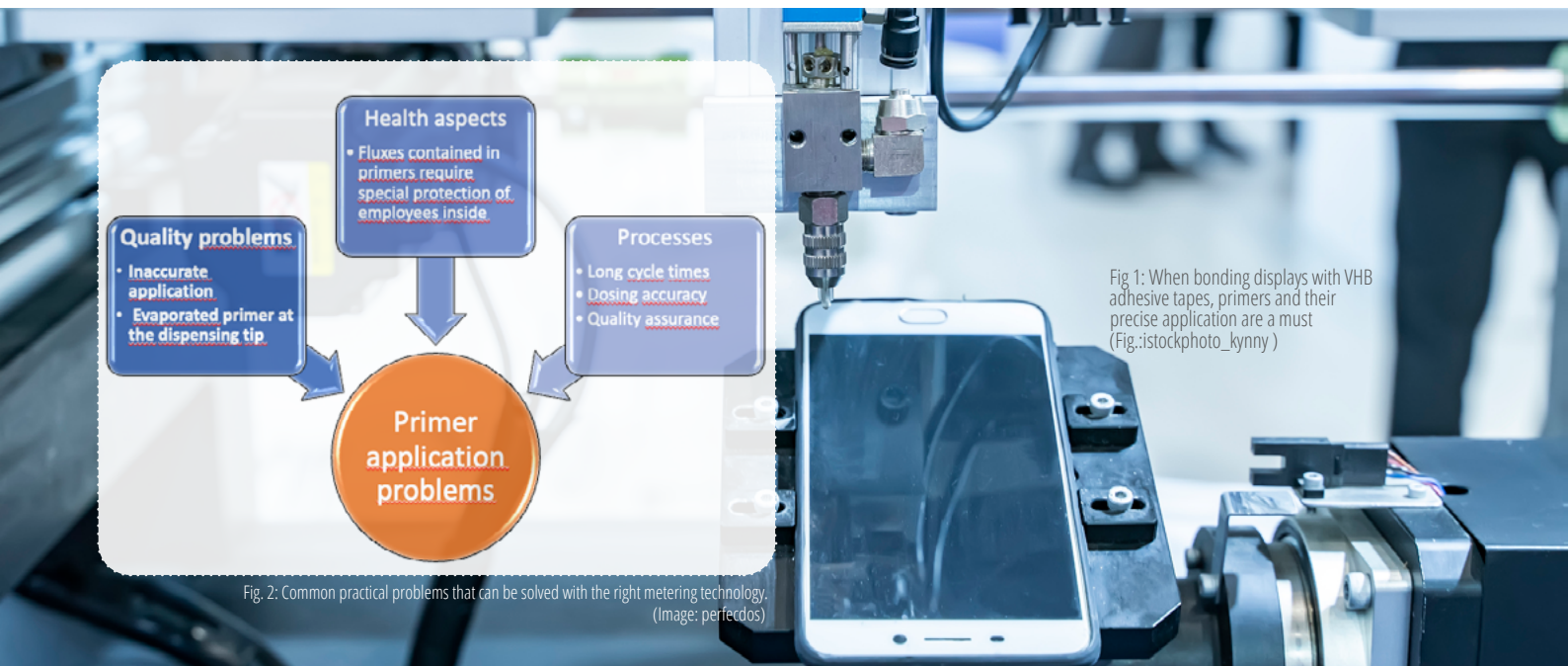


Fig. 2: Common practical problems that can be solved with the right metering technology. (Image: perfectdos)

Fig 1: When bonding displays with VHB adhesive tapes, primers and their precise application are a must (Fig.:istockphoto\_kynny)



**Fast:** 300 cycles/s

**Repeatability:** >99%

**Savings potential:** up to 30%\*

**Higher health protection**

movement of the applicator, resulting in significantly shorter cycle times than with contact dispensing. Component and position tolerances are also less critical with this process.

Since the valve can be controlled directly from the system controller, users have a high degree of flexibility with regard to the variety of assemblies to be produced. This is a key aspect, particularly in electronics manufacturing in Europe.

In the case of jetting, it is also possible to implement simple and optimum process monitoring with photoelectric sensors. This is not possible with contact dosing. There, expensive optical process control must be used. The laser light barrier from perfectdos monitors every droplet that passes the barrier - even transparent, extremely small and/or extremely fast droplets. The sensors of the light barrier are automatically cleaned so that even contamination does not cause any malfunctions.

Precise non-contact metering with the PDos X1 jet valve is a **concept that pays off**, because highly accurate non-contact dispensing applies the primer where it is ne-

ded. This saves a lot of money while increasing product quality. From a total cost of ownership point of view, 300 cycles/s enabling faster production is of interest - and also that the simpler machine design and process monitoring saves money. With this process, moreover, there is no overspray, which is not only economically advantageous but also means a lower health risk and thus lower investment in health protection.

All in all, there are many aspects in favor of this concept. Fig. 4 shows the potential of non-contact dispensing compared to contact dispensing. The values are based on practical experience. While contact dosing comes close to non-contact dosing in terms of process integration, safety and dosing results, there is considerable potential for jet technology in terms of savings, improved health protection and shorter production times.

*I will be happy to support you with your project*

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\* compared to a comparable contact dispensing solution

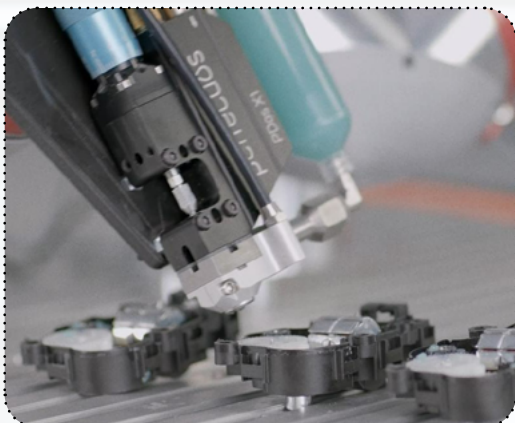


Fig. 3: With 300 Hz cycle frequency, a high dispensing frequency is achieved at a distance of 50 mm for horizontal and overhead exposures (Image: perfectdos GmbH)

Fig. 4: Contactless dispensing offers many advantages (Image: perfectdos GmbH)

