SCIENTIFIC REPORT

NDT – Non-Dripping Technology

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In addition to developing modern and effective dental materials, VOCO has been involved in the development of innovative application forms for many years. The patented AC capsules as well as the *SingleDose* blisters are examples. VOCO can also now present a new syringe in the field of flowable composites that can assist the dentist with the application of these materials.

A general property of syringe bodies is elastic deformation under pressure. When the plunger of the syringe is pressed, the syringe body expands slightly. When the pressure is removed from the plunger, the syringe body relaxes. The consequence: A small amount of material runs. Since flowable composites must be applied precisely, this excess material can interfere with the procedure. The new NDT-syringe from VOCO can effectively prevent running.

The operating principle of the NDT-syringe

Figure 1 shows the NDT-syringe as a cutaway model in the overview. The plunger is shown divided to better demonstrate the function. The plunger shown here in green is in the neutral position; the silicone seal is not clamped. The portion of the plunger in black shows the position of the seal if the plunger is pressed. The silicone seal becomes tight here. As soon as the pressure is removed from the plunger, the silicone seal pulls the plunger back a short distance to reliably prevent running of the syringe's contents.

Figure 1: Schematic representation of the syringe

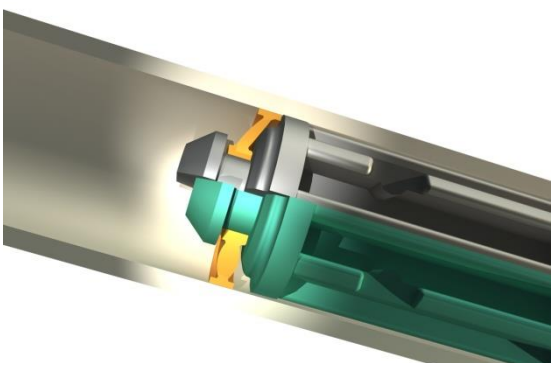

Figure 2: Principle of the expandable seal

Figure 2 shows an enlarged section of Figure 1. The difference between the clamped (black plunger) and released seal (green plunger) can easily be seen again here.

It is important that this reverse suction effect is constructively set and marginally measured so that previously contaminated material is not suctioned back into the body of the syringe. The return flow exclusive takes place within the cannula, which must be exchanged after each treatment. This is a decisive hygiene advantage in comparison to the uncontrollable, manual withdrawal of the syringe's plunger common in the dental surgery, for which contamination of the syringe's contents is pre-programmed.

The mechanism of the NTD-syringe can be considerably hindered by air bubbles in the syringe. For this reason, **it is essential that the syringe not be manually withdrawn**.

Conclusion: With the NDT-syringe, VOCO can now offer its ultramodern materials also in an ultramodern application form. Dripping and running of flowable composites thus belong to the past.