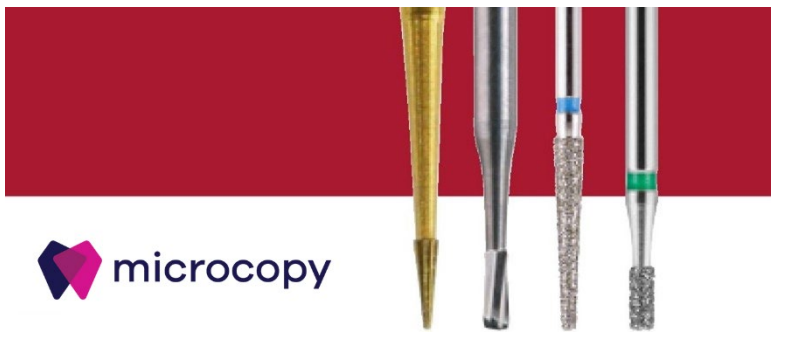


MAARTEN DE BEER, GENERAL DENTAL PRACTITIONER

In this article I want to discuss Microcopy's products on the basis of a case study. Microcopy is a leading manufacturer of dental burs, with quality & safety as two of the highest priorities in their business.

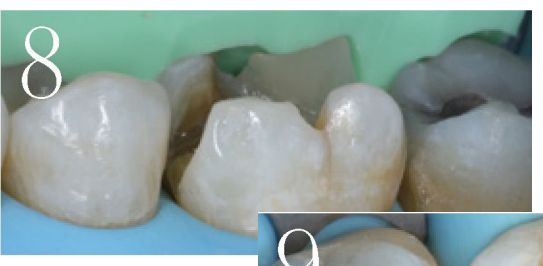
Burs from Microcopy can be divided into two product lines.

Firstly, the Neoburr line consisting of hardened steel burs. The second line is the Neodiamond line consisting of diamond burs.

The concept behind Microcopy burs is that each bur comes in sterile, individual packaging. The burs have been specially developed for single-patient-use. This means that they are ideally used on a single patient to prevent any cross-contamination and to ensure that the burs are always sharp when used. A big advantage of using a new bur is that it is always sharp and prepares the tooth as efficiently as possible. This not only saves time, but also any pressure that might be exerted on the tooth and the handpiece. In the long run, this can reduce or even prevent costly repairs to handpieces.

The burs are individually packed in a sterile pouch. They are easy to remove from the pouch and used directly on the patient.

In the case history opposite I show which burs I used.



A new patient came to our practice complaining of pain centered on tooth 16. The tooth was sensitive to hot/cold sensations and to biting. Intra-orally, an occlusal and palatal amalgam restoration was visible with clear enamel eruptions *(Fig. 1 and 2)*. When tested with a crack finder, the distopalatal cusp was painful when biting. After reviewing the complaints, it was very likely that there was a fracture in the dentin. It was agreed upon with the patient to remove the amalgam to better inspect the tooth. Taking into account the financial situation, an indirect restoration was not an option, so it was necessary to work with direct composite. I anticipated that the distopalatal cusp would have to be removed and/or capped; for this reason a putty mold was prepared in advance. This putty mold could be used to restore any cusps that need to be capped with predictable results.

The first quadrant was isolated using a rubber dam (isodam heavy, sigma dental). *(Fig. 3)*
The amalgam was removed with a new hardened steel burr ***(Neoburr FG.TC 245-008, Microcopy)*** *(Fig. 4)*. The fracture line on the mesial side seemed to run deep and it was decided to drill out this crack using a diamond bur ***(Neodiamond Flat End Cylinder, rough FG 108-010C, Microcopy)***.

In drilling out the crack, it became apparent that there was also a dentin fracture on both the mesiopalatal and distopalatal cusps *(Fig. 5 and 6)*. The cracks are drilled out as much as possible using a round diamond drill ***(Neodiamond FG 001-018F and FG 001-012M, Microcopy)***. Only at the mesiopalatal cusp was there still a small section of the dentin crack and a small section of the crack was still visible on the buccal side. I probed the dentin with a round hardened steel burr ***(Neoburr FG TC0006, Microcopy)***. All sharp edges are rounded off using an extra fine long Flat End Taper diamond bur ***(NeoDiamond FG 174-013XF, Microcopy)***. *Fig. 7*

The burs are individually packed in a sterile pouch. They are easy to remove from the pouch and can be used directly on the patient.

I often use burs with a somewhat smaller diameter because they allow me to prepare more accurately and prevent any iatrogenic damage. I also prefer to use burs with a medium or fine grit. When using coarser burs, you often see fracture lines in the enamel during preparation. By using a new (sharp) bur with a finer grit, you exert less pressure, which also reduces the risk of these fracture lines.

The tooth is sandblasted ***(AquaCare, velopex)***, etched ***(Ultra-etch, Ultradent Products)*** and a primer and bonding agent are applied ***(Optibond FL, Kerr)***. A thin layer of flowable composite ***(Majesty ES A2, Kuraray)*** is applied to the dentin and the distopalatal cusp is restored ***(Beautifill II LS A2, Shofu)*** using the previously prepared putty mold *(Fig. 8 and 9)*.

The mesial and distal margins are constructed using partial contact matrices, a wooden wedge, and a separation ring ***(Beautifill II LS A2, Shofu)*** *(Fig. 10 and 11)*. The tooth is then reconstructed cusp by cusp and the fissure is colored ***(Kolor+ brown, Kerr)***. *Fig. 12*

The excess of composite on the cusp tips was removed with a hardened steel burr ***(NeoBurrFG TC00EF3)*** and the composite was then polished with a diamond-coated polishing wheel ***(Diacomp plus twist, Eve)*** *(Fig. 13 and 14)*.

The patient agreed to make a new appointment for tooth 17, since fracture lines were already visible in the mesial margin of this tooth. The burs used in this treatment were sterilized and stored separately in sterile packaging for reuse in the treatment of tooth 17. In conclusion, I can say that I am very satisfied with the quality and sharpness of the burs. Although the burs are intended for an individual patient this does not mean that they are disposable; they can be used repeatedly on the same patient.

Maarten de Beer graduated from Radboud University in Nijmegen in 2015. He currently works on a self-employed basis at IJsselstate Dentists in Dieren and at MP3 Dentists in Apeldoorn. His main area of interest is restorative dentistry. It is his goal and passion to strive for the highest quality in every treatment and to make his restorations 'invisible' in the mouth. He makes extensive use of photography to record his work. In addition to his work in dental practices, he regularly writes columns and articles for (Dutch-language) specialist journals and is co-founder of Karma Dentistry. Want to see more of his work? He can be found on instagram and Youtube as The Dental Dutchman.