

# Coating and Surface Treatment Services (Dental)

| Service                        | Brand name          | Thickness               | Roughness ( $R_a$ )       | Porosity                                       | Adhesive strength     | Fatigue strength                | Ca/P ratio            | Hardness | Key Features  |   |
|--------------------------------|---------------------|-------------------------|---------------------------|--|-----------------------|---------------------------------|-----------------------|----------|---|---|
| Subtractive Surface Treatments | DUOTex®             | N/A                     | $1.1 \pm 0.5 \mu\text{m}$ | N/A  | N/A                   | N/A                             | N/A                   | N/A      | Microstructured, osseo-conductive surface to promote osseointegration |   |
| CaP Coatings                   | BONITex®            | $5 \pm 3 \mu\text{m}$   | N/A                       | 60 %   | $\geq 15 \text{ MPa}$ | No impact                       | $1.1 \pm 0.1$         | N/A      | Enhancement of secondary implant fixation (rapid bone ingrowth)       |   |
|                                | BONIT®              | $20 \pm 10 \mu\text{m}$ | N/A                       | 60 %   | $\geq 15 \text{ MPa}$ | No impact                       | $1.1 \pm 0.1$         | N/A      |   |   |
| PVD Coatings                   | TiN                 | N/A                     | $0.5 - 7 \mu\text{m}$     | $\leq 0.05 \mu\text{m}$                        | N/A                   | Class 0 and 1                   | No impact             | N/A      | $\sim 2,300 \text{ HV}$   | Minimizing wear<br>Reduction of ion release<br>Increase in wettability<br>Esthetic appearance |
|                                | ZrN                 | N/A                     | $0.5 - 6 \mu\text{m}$     | $\leq 0.05 \mu\text{m}$                        | N/A                   | Class 0 and 1                   | No impact             | N/A      | $\sim 2,500 \text{ HV}$   |   |
|                                | DLC                 | N/A                     | $0.5 - 2.5 \mu\text{m}$   | $\leq 0.05 \mu\text{m}$<br>on polished surface | N/A                   | HF 1 - 3<br>(HRC Test VDI 3824) | No impact             | N/A      | $\sim 700 \text{ HV}$   |   |
| Titanium Anodizing             | Type II             | DOTIZE®                 | $1 - 2 \mu\text{m}$       | $\leq 3 \mu\text{m} (R_z)$                     | N/A                   | $\geq 22 \text{ MPa}$           | $\sim 10 \%$ increase | N/A      | $\sim 25 \%$ increase   | Increase in fatigue strength<br>Reduction of fretting<br>Suppression of bone adhesion         |
|                                | Type III (Coloring) | N/A                     | $20 - 200 \text{ nm}$     | $\leq 0.05 \mu\text{m}$<br>on polished surface | N/A                   | $\geq 22 \text{ MPa}$           | No impact             | N/A      | N/A   | Improvement of implant and instrumentation identification as well as handling                 |

The values are an indication of our comprehensive offering. The coating specification is defined in accordance with the customer's requirements.