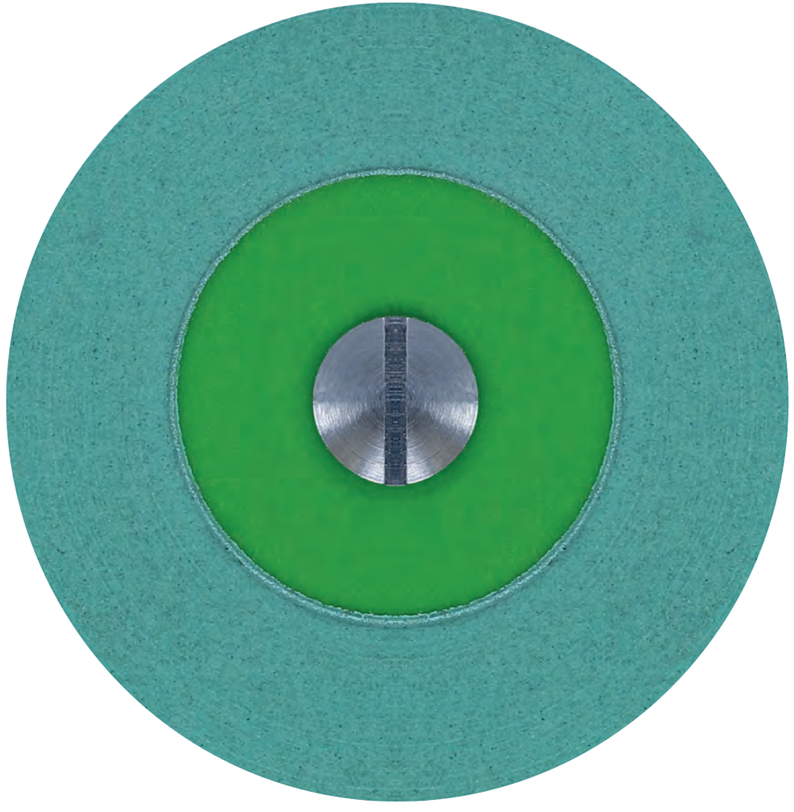
TRADITION - PRECISION - QUALITY

FROM SWITZERLAND

Jota AG Rotary Instruments
Hirschensprungstrasse 2, 9464 Rüthi, Switzerland
Phone +41 (0)71 767 79 99, info@jota.ch
www.jota.ch SWITZERLAND



ZIRCONIA POLISHING COMPASS EDITION II

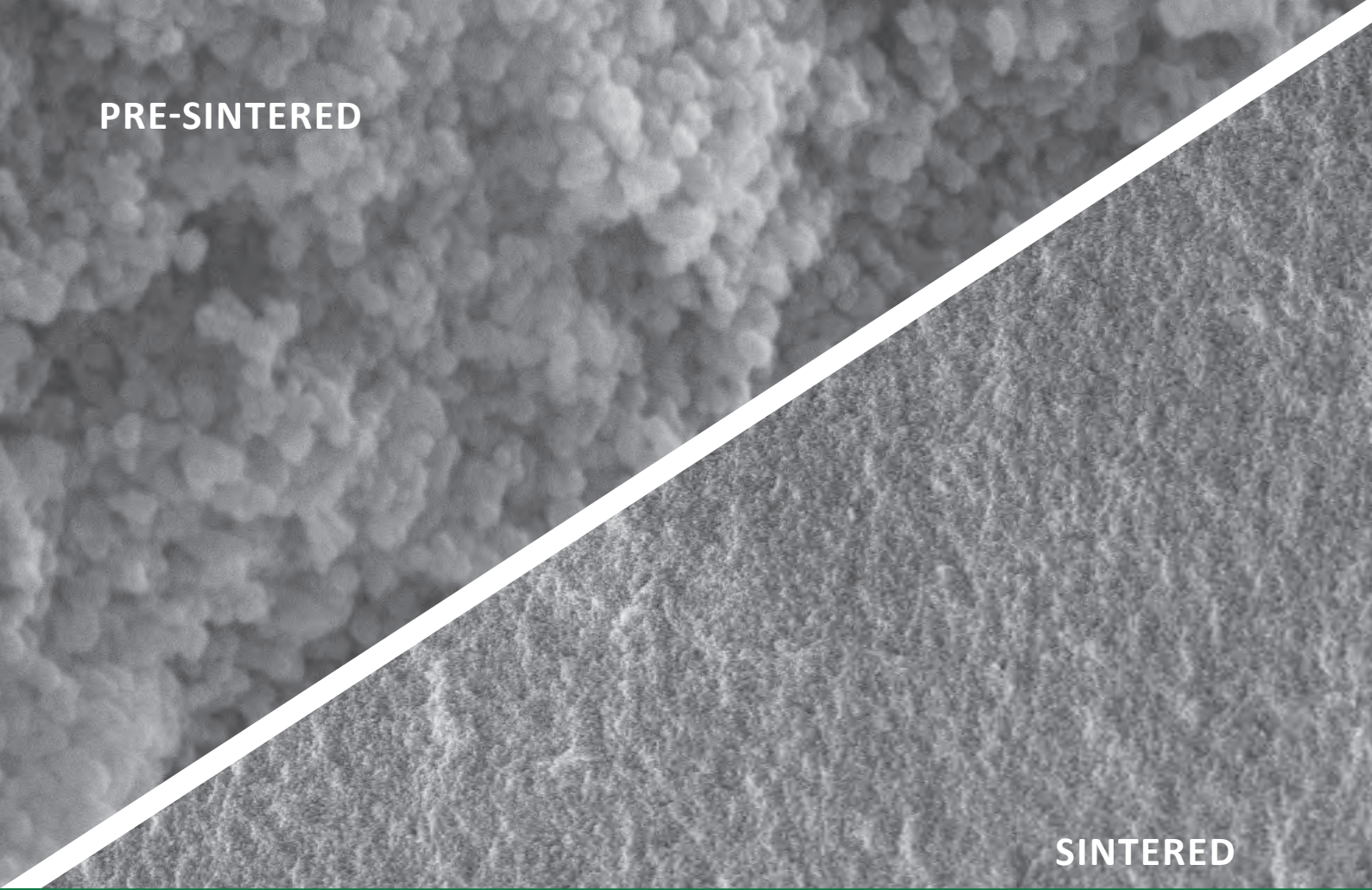
Zirconium Dioxide (ZrO_2)

Zirconia provides the ideal combination of **high strength**, **fracture toughness**, **aesthetics**, and **biocompatibility** for applications in dentistry. These unique properties are based on the mineralogical structure of the material. Zirconia has two states: pre- or un-sintered and sintered.

Pre-sintered zirconia has a loose structure, and sintered has a crystalline structure (see pictures on the right). Therefore, it is necessary to use instruments that are especially suited for these two states.[2]

To **avoid abrasion of the natural antagonist** and **reduce bacterial adhesion**, the microstructure of the zirconia surface is very important. The roughness influences the transmission, absorption, reflection, and scattering of light and therefore affects the esthetic appearance of the restorations.[10] Surface smoothness can be achieved by **polishing or glazing, or both**. Some studies showed that glazing significantly decreased the flexural strength values after grinding, but polishing did not.[4,5] Besides, the glaze layer is likely to diminish in the first 6 months after insertion of the restorations [17] or by any required adjustment, resulting in increased wear of the antagonist.[16] For these reasons, many **scientists prefer polishing** zirconia restorations.[12,13] If glazing is used to create a smooth surface, all zirconia restorations on the contact and proximal surfaces should still be polished before glazing.

Moreover, **polishing improves the durability and esthetics** of restorations by eliminating the defects caused by surface grinding.[18] Another advantage of polishing is the **reduced risk of plaque accumulation and periodontal diseases**.[18]


PRE-SINTERED
SINTERED

PRE-SINTERED ZIRCONIA PROCESSING

Separating the restoration

C31RL.HPL.010

10‘000 rpm

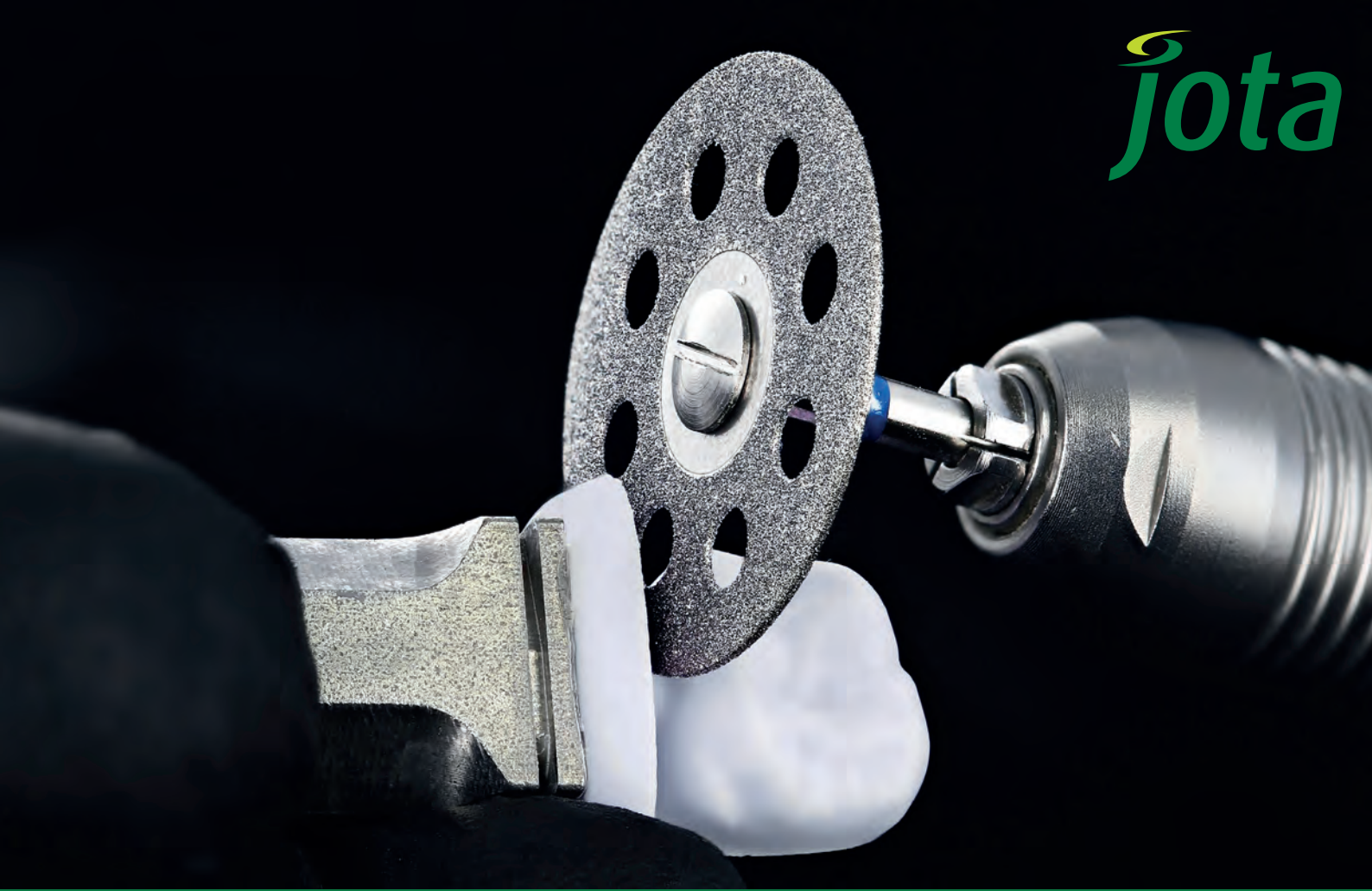
500105143007010

932D.HP.220

10‘000 rpm

806104350524220

swiss laboratory



PRE-SINTERPOL

PRE-SINTERED ZIRCONIA STEP 1 POLISHING

Developed for the lower strength of pre-sintered zirconia

ZIR9972M.HP.100	ZIR9974M.HP.055	9160.HP.140
		
4‘000-7‘000 rpm	4‘000-7‘000 rpm	7‘000-12‘000 rpm
658104275423100	658104275423055	652104546503140

swiss laboratory

Play video

PRE-SINTERED ZIRCONIA
STEP 2 POLISHING

Zirconia is not contaminated with color pigments

ZIR9972F.HP.100	ZIR9974F.HP.055	9840.HP.140	9840.HP.170
			
4‘000-7‘000 rpm	4‘000-7‘000 rpm	7‘000-12‘000 rpm	7‘000-12‘000 rpm
658104275413100	658104275413055	803104543503140	803104543503170

KIT 1936

KIT 1936 GREEN STATE REFINING

Polishing pre-sintered zirconia simplifies finishing after final sintering

Zirconia in the pre-sintered state has a **porous structure** and a **low strength**. A subsequent sintering process can not eliminate defects such as cracks and microchips developed after the manufacturing process or after shaping and structure adjusting.[11] Furthermore, polishing only at the zirconia sintering stage causes high material wear on the polishing tools and is very time-consuming. Therefore, **white-stage polishing** restoration is an essential step before the sintering process.

In a recent study, Pfefferle et al. (Munich, 2020) showed that white-stage polishing **improves the optical** and **mechanical properties** of zirconia, and **polishing after sintering takes less time** therefore, the pre-polishing step (green polisher) can thus be skipped. [15] Nevertheless, the two-steps polishing protocol increases flexural strength. Additional polishing step removes more surface defects and thus achieves a smoother surface. [15] Based on new scientific research, Jota has developed polishers **PRE-SINTERPOL** that do not change the color of the green state and improve the surface quality. It is not recommended to use polishing paste for pre-sintered zirconia polishing. Because it was shown that polishing paste could incorporate into the porous pre-sintered surface and reduce translucency of restoration. [15] Pre-sintered zirconia restorations should be polished **only in the dry state**.

Based on the new polishers **PRE-SINTERPOL**, a **KIT 1936 GREEN STATE REFINING** has been created, which includes a minimal set of instruments for detaching from the disc or block, grinding the connectors, texturing the surface, and white-stage polishing of the restoration.

swiss **laboratory**

Play video

Video about Kit 1936 on YouTube

KIT 1936

swiss laboratory

Separating

C31RL.HPL.010

10‘000 rpm

500105143007010

Connectors grinding and crown margin thinning

ZIR9972M.HP.100

4‘000-7‘000 rpm

658104275423100

KIT 1936

swiss laboratory

Fissures retightening

515L.HP.012

3‘000-7‘000 rpm

310104467211012

Surface texturing or fissures shaping

863.HP.012

50‘000 rpm

806104250524012

KIT 1936

swiss laboratory

Straight surfaces processing

882.HP.018

50‘000 rpm

806104142524018

Smoothing and polishing

9840.HP.140

7‘000-12‘000 rpm

803104543503140

9840.HP.170

7‘000-12‘000 rpm

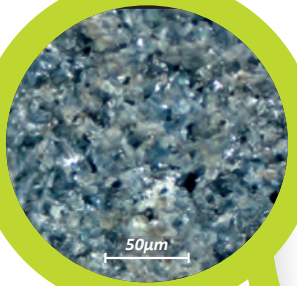
803104543503170

SINTERED ZIRCONIA PROCESSING

JOTA Zirconflex

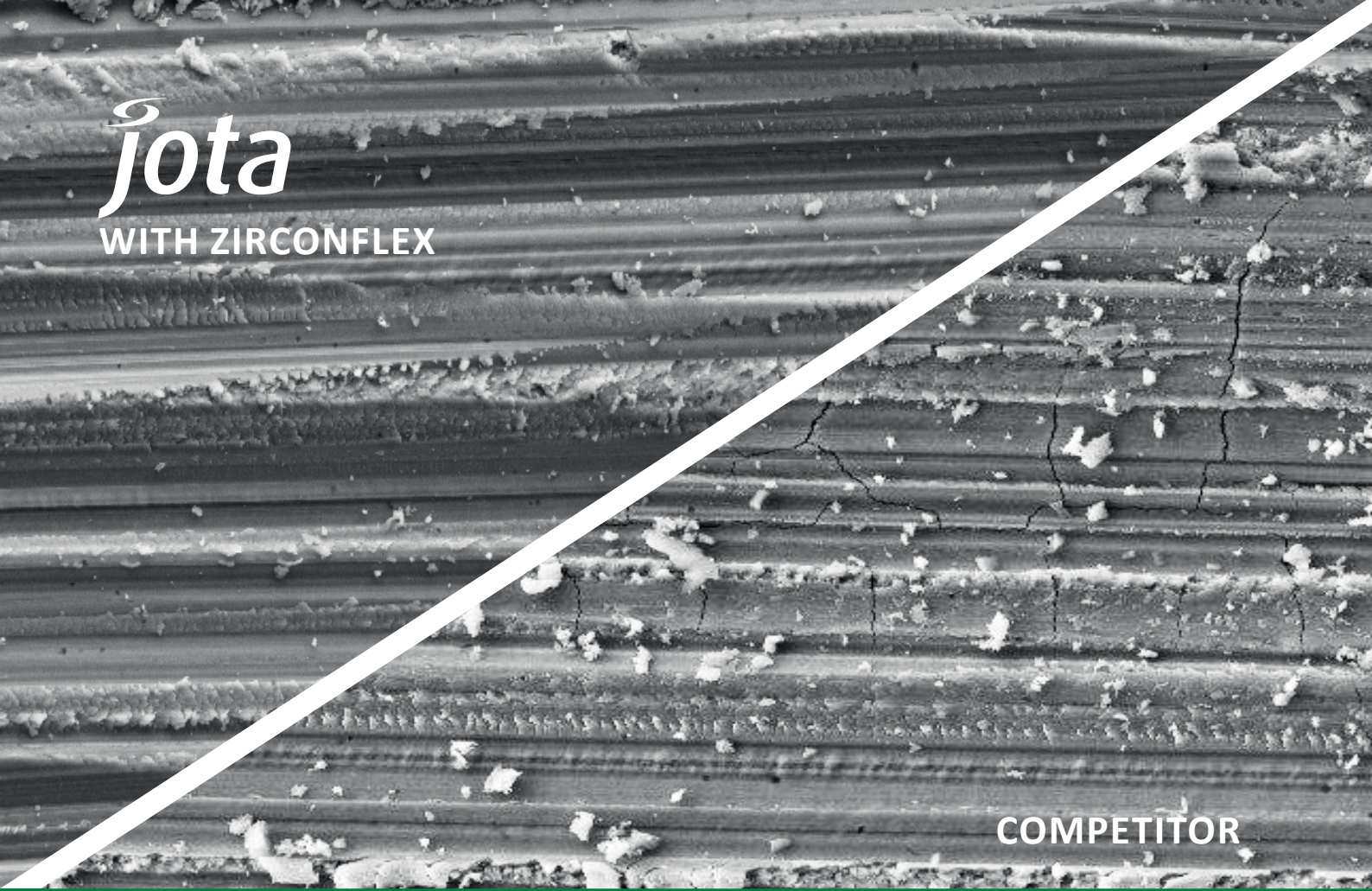
JOTA Zirconflex is the **ideal partner for the preparation of sintered zirconia**, as it was specially developed for the preparation of zirconia. No water cooling is required, yet there is only minimal heat build-up, thus avoiding phase transition, damaging the material. Material is removed rapidly using minimal grinding pressure while at the same time protecting the material properties so that the risk of microcracks is reduced to a minimum.

Right is an electron microscope image of zirconia after preparation with J**OTA Zirconflex** and a competitor's product, magnified 1000 times. The JOTA example presents a spotless, smooth surface profile without microcracks. This surface has been ideally prepared for facing with build-up material.



- Minimal heat build-up
- Non-sparking
- No water cooling required
- Minimal grinding pressure
- Minimal risk of microcracks
- Concentric, vibration-free runout
- High wear resistance

swiss laboratory


jota
WITH ZIRCONFLEX
COMPETITOR

SINTERED ZIRCONIA PROCESSING

JOTA Zirconflex

SZ722.HP.180

7‘000 rpm
655104304526180

SZ715.HP.160

7‘000 rpm
655104371526160

swiss laboratory


interdental regions adjusting

SINTERED ZIRCONIA PROCESSING

JOTA Zirconflex

SZ732.HP.050

10‘000-15‘000 rpm

655104107526050

SZ736.HP.065

10‘000-15‘000 rpm

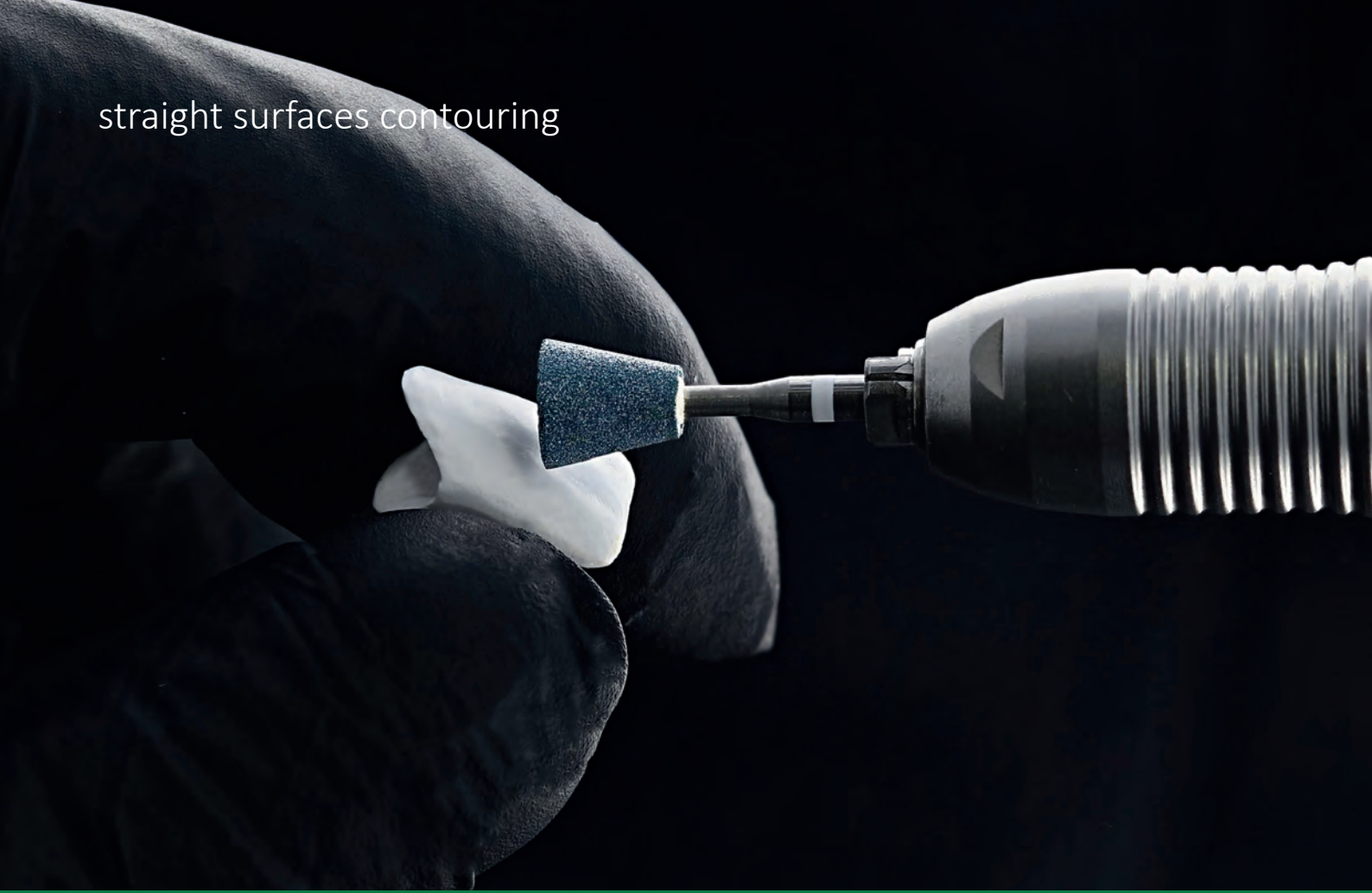
655104012526065

SZ623.HP.060

10‘000-15‘000 rpm

655104043526060

swiss laboratory


straight surfaces contouring

SINTERED ZIRCONIA PROCESSING

JOTA Zirconflex

SZ601.HP.035

10‘000-15‘000 rpm

655104001526035

SZ602.HP.040

10‘000-15‘000 rpm

655104001526040

SZ667.HP.035

10‘000-15‘000 rpm

655104257526035

swiss laboratory


palatal, lingual and occlusal
surfaces preparation

SINTERED ZIRCONIA PROCESSING

JOTA Zirconflex

SZ652R.HP.035

10‘000-15‘000 rpm

655104199526035

SZ660.HP.040

10‘000-15‘000 rpm

655104274526040

SZ638.HP.025

10‘000-15‘000 rpm

655104110526025

swiss laboratory


preparation of the margings and labial surfaces

SINTERED ZIRCONIA PROCESSING

JOTA Glaze Prep intraoral

GP662.RA.035

15‘000-25‘000 rpm

655204288526035

swiss dentistry

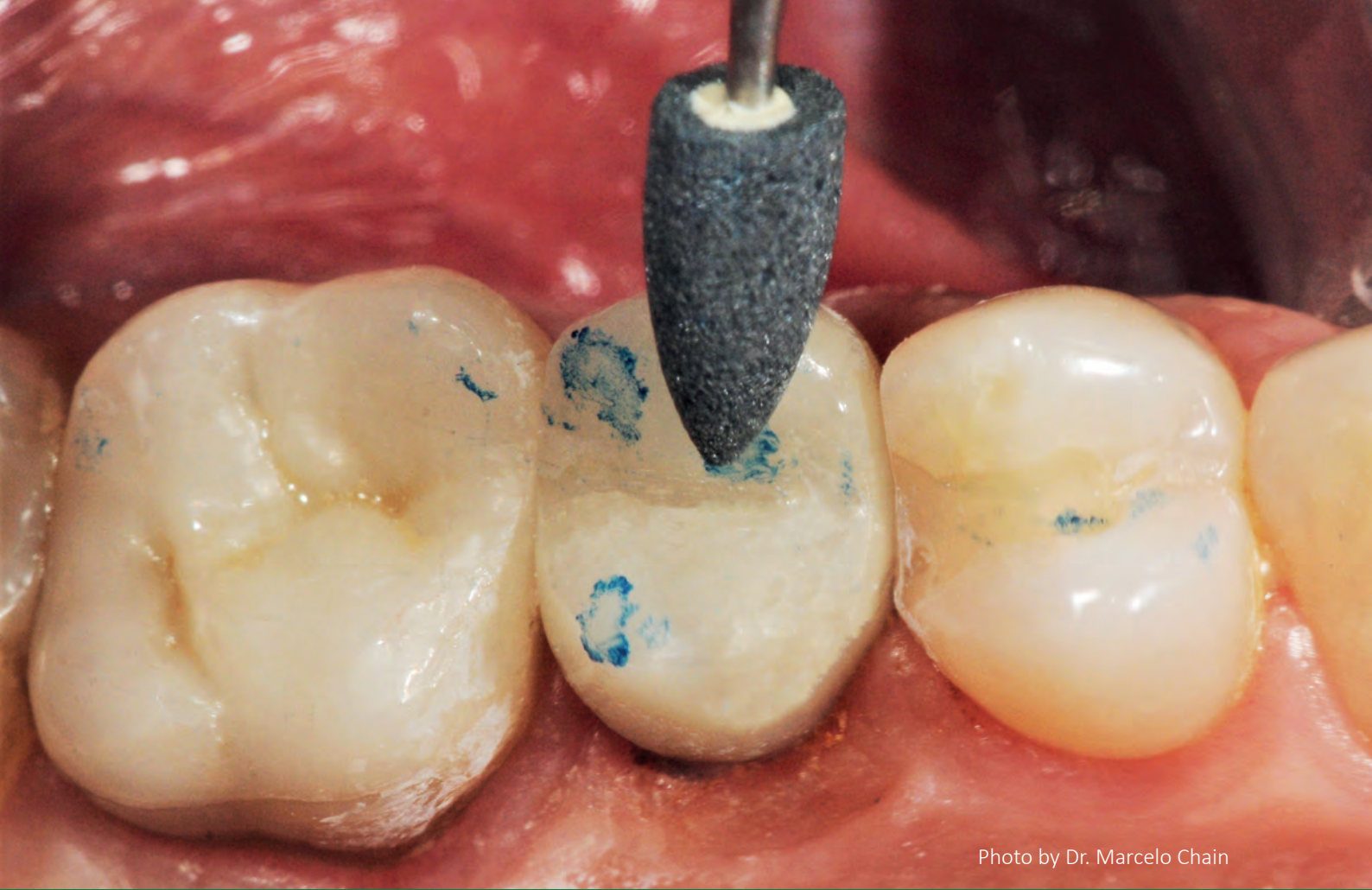


Photo by Dr. Marcelo Chain

ZirPrep

SINTERED ZIRCONIA PROCESSING

JOTA ZirPrep

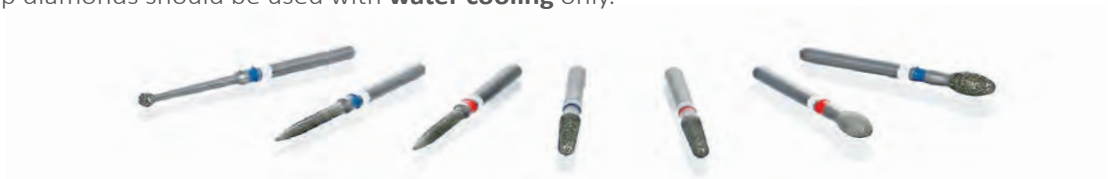
Sometimes it is necessary to adjust the early contacts after the crown has been fixed or after sintering in the laboratory. The use of coarse diamond burs can lead to micro cracks and subsequently increase the fragility of the restoration. Besides, coarse instruments remove the glazed layer and increase the surface roughness.[2] Kosmac et al. found that grinding with coarse-grit burs caused more decrease in flexural strength than grinding with fine grit.[6] The same results became Curtis at al.[7]

Grinding dental zirconia with tungsten carbide burs causes a significant reduction of the biaxial flexural strength and observed microstructural surface and subsurface damage. Tungsten carbide burs are not recommended for grinding dental zirconia.[8]

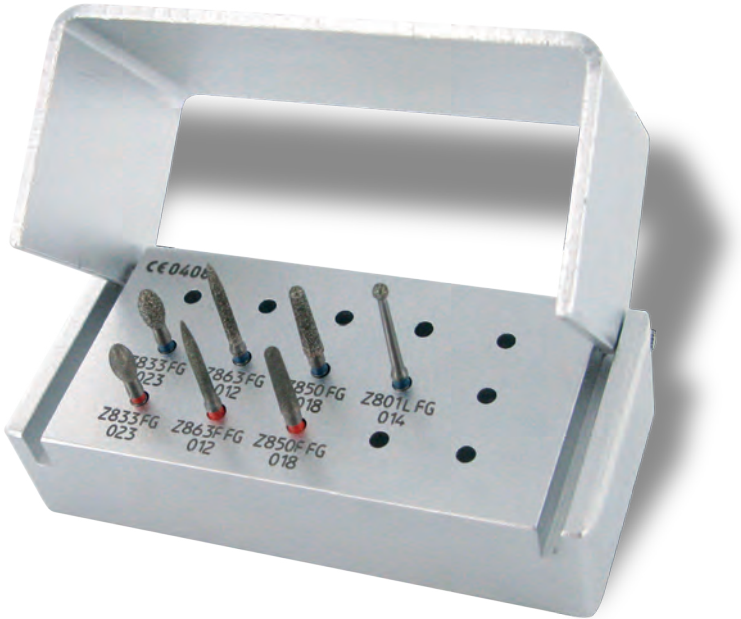
To fix these problems, Jota specifically developed **JOTA ZirPrep** diamonds with **unique diamond grains** and optimized bonding for sensitive zirconia surface preparation. ZirPrep diamonds provide **less aggressive** zirconia removal at moderate surface temperatures and no risk for micro cracks. Moreover, **durability** is outstanding thanks to specifically selected diamond grains. The additional white stripe can easily distinguish ZirPrep instruments.

Besides dental technicians can use these instruments with the laboratory turbine to correct zirconium oxide restorations or abutments, dentists may also perform reworks or fitting restorations.

JOTA ZirPrep diamonds should be used with **water cooling** only.



ZirPrep Kit 1460



All ZirPrep instruments in one Kit

ZirPrep

Z801L.FG.014

300‘000 rpm

806314697324014

Z801LF.FG.014

300‘000 rpm

806314697314014

swiss dentistry

Z833.FG.023

190‘000 rpm

806314277324023

Z833F.FG.023

190‘000 rpm

806314277314023

swiss laboratory

ZirPrep

Z863.FG.012

300‘000 rpm
806314250324012

Z863F.FG.012

300‘000 rpm
806314250314012

swiss dentistry

Z850.FG.018

250‘000 rpm

806314198324018

Z850F.FG.018

250‘000 rpm

806314198314018

swiss laboratory

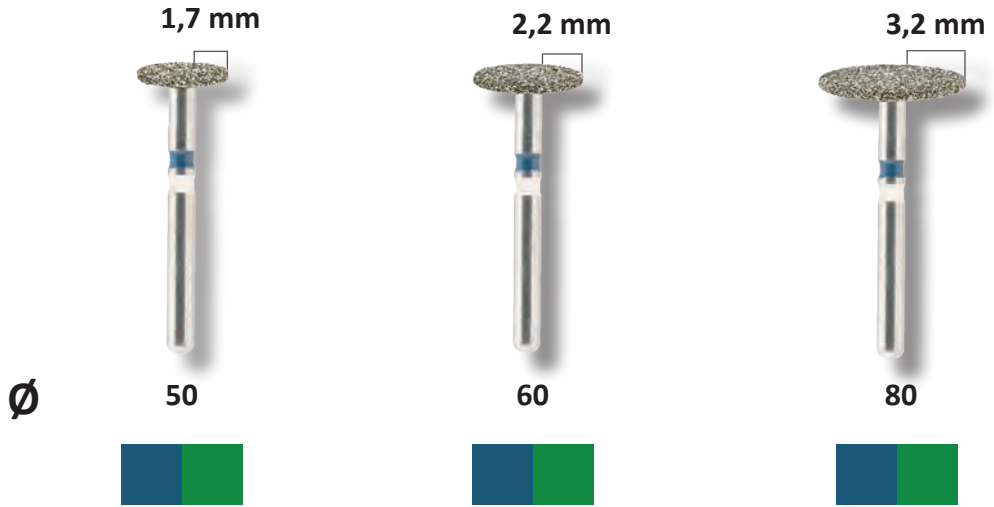
ZIRCONIA CROWN CUTTER

ZIR CUT

Retrospective clinical evaluation studies showed that zirconia restorations have about **90 % survival rate** at 3.5 years and 10 years **62.1 %**, respectively. [23,24,25] Removing in case of replacement or endodontic access through zirconia restorations is a very difficult task for rotary instruments since zirconia is one of the hardest materials used in dentistry. Only a few instruments can grind zirconia, and it takes much time to make even a small hole in the crown. For this challenging task, Jota has developed a series of **ZIR CUT** instruments that can remove zirconium oxide restorations **fast and efficiently**. ZIR CUT has diamond grain, which is perfectly adapted to this special challenge.

Jota had designed especially **diamond discs** to separate full-ceramic crowns and bridges with three different depths. Two grains are available to suit the indications. The additional white stripe can easily distinguish ZIR CUT instruments. Discs have extremely **high cutting efficiency and long service life**. Use these discs to separate zirconia and hard ceramics restoration on vestibular, occlusal surfaces and incisal edge avoiding cervical areas. **Z838L** cutter is applied at an angle of 45° to the crown surface to cut materials on the cervical area. After separation, vestibular and occlusal surfaces widening pliers can widen and break the restoration.

swiss dentistry



PERFORMANCE OF ZIRCUT

Play video

RECOMMENDATIONS FOR USE:

- follow the recommendations for optimal rotation speed
- it is recommended to use the instruments in the contra-angle with higher torque
- water cooling is always required, especially during the trepanation procedure (min. 50 ml/min.)
- apply low contact pressure (<2N) and intermittent movements
- avoid contact of diamond discs with soft tissue, risk of injury! Use rubber dam to remove restorations to prevent soft tissue damage.

ZIRCONIA CROWN CUTTER

ZIR CUT

APPLICATION MOVIE

Play video

Z818.FG.050

80‘000 rpm

806314041324050

Z818.FG.060

80‘000 rpm

806314041324060

Z818.FG.080

80‘000 rpm

806314041324080

swiss dentistry

ZIRCONIA CROWN CUTTER

ZIR CUT

APPLICATION MOVIE

Play video

Z818G.FG.050

80‘000 rpm
806314041334050

Z818G.FG.060

80‘000 rpm
806314041334060

Z818G.FG.080

80‘000 rpm
806314041334080

swiss dentistry

ZIRCONIA CROWN CUTTER

ZIR CUT

APPLICATION MOVIE

Play video

Z838L.FG.014

300‘000 rpm
806314140526014

Z801.FG.010

300‘000 rpm
806314001324010

Z801.FG.021

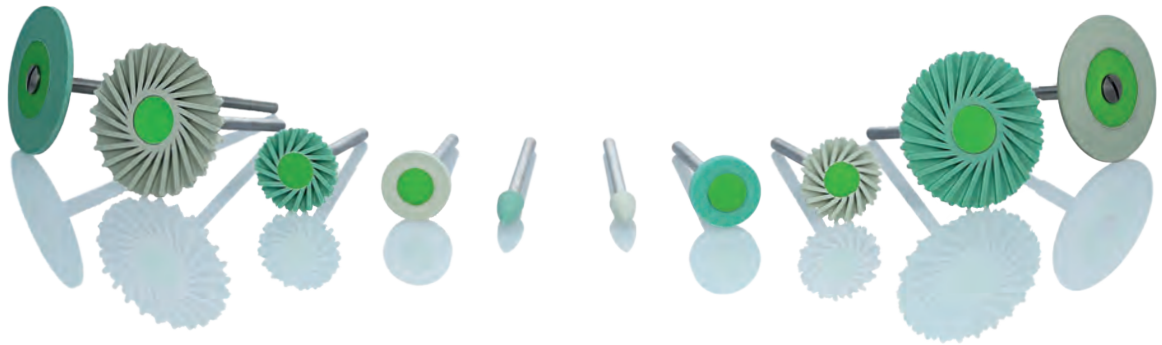
210‘000 rpm
806314001324021

swiss dentistry

SINTERED ZIRCONIA POLISHING

ZIR GLOSS

It is scientific proven that the use of diamond rubber polishers is the most suitable polishing method for zirconia ceramic restorations.[9] With the **Jota ZIR GLOSS** polishing system, we provide a precisely coordinated system for perfect high-lustre polishing of zirconium dioxide restorations. A perfect high-lustre is achieved in only **two polishing stages** using the **ZIR GLOSS** diamond polisher! The **Swivel Polishers** create a perfect high glossy surface and are ideal for polishing the occlusal areas.



swiss laboratory

ZIR GLOSS

SINTERED ZIRCONIA POLISHING

STEP 1 PRE-POLISHING

ZIR9865M.HP.260

7‘000-12‘000 rpm

803104303521260

ZIR9867M.HP.110

7‘000-12‘000 rpm

803104372521110

ZIR9867M.HP.170

7‘000-12‘000 rpm

803104372521170

swiss laboratory

all surfaces pre-polishing

ZIR GLOSS

SINTERED ZIRCONIA POLISHING

STEP 1 PRE-POLISHING

ZIR9866M.HP.040

7‘000-12‘000 rpm

803104243521040

ZIR9868M.HP.140

7‘000-12‘000 rpm

803104543521140

ZIR9868M.HP.170

7‘000-12‘000 rpm

803104543521170

swiss laboratory


occlusal surface pre-polishing

SINTERED ZIRCONIA POLISHING

STEP 2 HIGH-GLOSS POLISHING

ZIR9865F.HP.260

7‘000-12‘000 rpm

803104303511260

ZIR9867F.HP.110

7‘000-12‘000 rpm

803104372511110

ZIR9867F.HP.170

7‘000-12‘000 rpm

80310437251110

swiss laboratory

high-lustre polishing of all surfaces

SINTERED ZIRCONIA POLISHING

STEP 2 HIGH-GLOSS POLISHING

ZIR9866F.HP.040

7‘000-12‘000 rpm

803104243511040

ZIR9868F.HP.140

7‘000-12‘000 rpm

803104543511140

ZIR9868F.HP.170

7‘000-12‘000 rpm

803104543511170

swiss laboratory


high-lustre polishing of occlusal surface

SINTERED ZIRCONIA POLISHING

ZIR GLOSS INTRAORAL

Many studies showed that unpolished zirconia can lead to increased wear of opposing enamel and dental restorations [2] and biofilm accumulation on the surface. Different studies reported that polishing the zirconia specimens yielded far **smoother surface and less antagonist enamel wear** compared with glazing. [19,20,21,22] Since only polishing is allowed after cementation, selecting a suitable polishing system is important.

The specially developed two-stage **intraoral Jota ZIR GLOSS** diamond polishing system **reduces surface roughness and minimizes wear on the opposing teeth**. Also, polishing **increases the longevity and aesthetics of restorations**.[3]

swiss dentistry

STEP 1 PRE-POLISHING

ZIR9862M.RA.060

7‘000-10‘000 rpm

803204030521060

ZIR9861M.RA.040

7‘000-12‘000 rpm

803204243521040

ZIR9863M.RA.140

10‘000-12‘000 rpm

803204543521140

SINTERED ZIRCONIA POLISHING

STEP 2 HIGH-GLOSS POLISHING

ZIR9862F.RA.060

7‘000-10‘000 rpm

803204030511060

ZIR9861F.RA.040

7‘000-10‘000 rpm

803204243511040

ZIR9863F.RA.140

10‘000-12‘000 rpm

803204543511140

swiss dentistry

KIT 1446

ZIRCONIA POLISHING KIT 1446

The **KIT 1446** contains all the necessary instruments for processing and polishing various zirconium oxide restorations. **JOTA ZIRCONFLEX** for processing, adjusting and texturing surfaces. A two-stage diamond polishing system **ZIR GLOSS** allows all surfaces to be polished to a high gloss. Swivel instruments are able to penetrate with their villi into all fissures of the restoration. You don‘t need paste or water cooling to work with this kit. You get a restoration **with a better surface roughness** in just a few minutes than after glazing.

The smooth surface of the restoration provides **comfortable tactile sensation** for patients and **prevents plaque accumulation** on the surface of the restorations. In addition, it was scientifically proven that the polishing system does not change the structure of the zircon oxide and therefore provides **better micro-cracks resistance**.[1] The polished surface does not crack like glaze.

swiss laboratory

Play video

Video about Kit 1446 on YouTube

KIT 1446

swiss laboratory

additionally, connections points trimming

SZ732.HP.050

10‘000-15‘000 rpm

655104107526050

KIT 1446

Supracontact points adjusting ...

swiss laboratory

SZ667.HP.035

10‘000-15‘000 rpm

655104257526035

additionally, finishing of palatal, lingual and occlusal surfaces

KIT 1446

Interdental spaces finishing ...

swiss laboratory

and labial surface texturing and margins adjusting

SZ652R.HP.035

10‘000-15‘000 rpm

655104199526035

KIT 1446

swiss **laboratory**

All surfaces pre-polishing

ZIR9865M.HP.260

7‘000-12‘000 rpm

803104303521260

occlusal surface pre-polishing

ZIR9868M.HP.140

7‘000-12‘000 rpm

803104543521140

KIT 1446

swiss **laboratory**

High-lustre polishing
of all surfaces

ZIR9865F.HP.260

7‘000-12‘000 rpm

803104303511260

High-lustre polishing of occlusal surface

ZIR9868F.HP.140

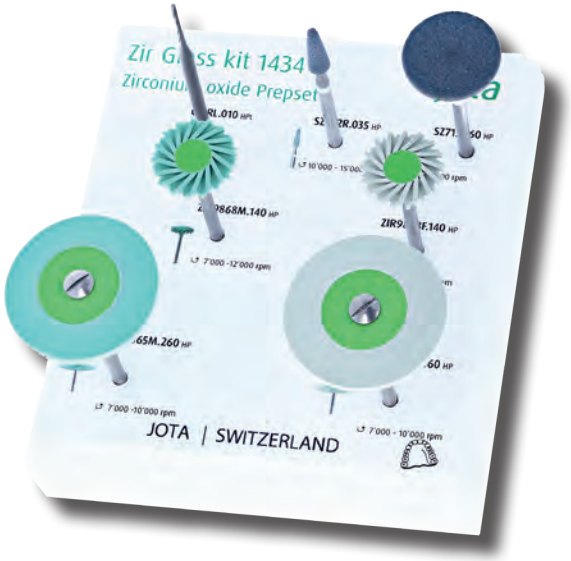
7‘000-12‘000 rpm

803104543511140

SINTERED ZIRCONIA PROCCESING

KITS LAB

ZIR Gloss Kit 1434



swiss laboratory

Jota Kit 1322
ZIRCONFLEX

Jota Kit 1358
ZIRCONPROFI

SINTERED ZIRCONIA PROCCESING

KITS CHAIR SIDE

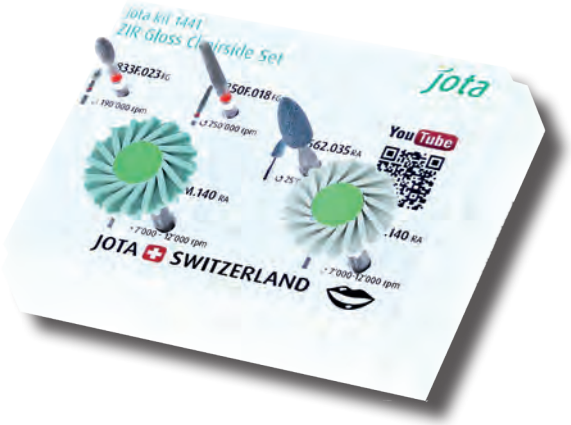
Jota Kit 1436
ZIR Gloss - Dentistry

Play video

swiss dentistry

Jota Kit 1441
ZIR Gloss Chairside Set

Play video

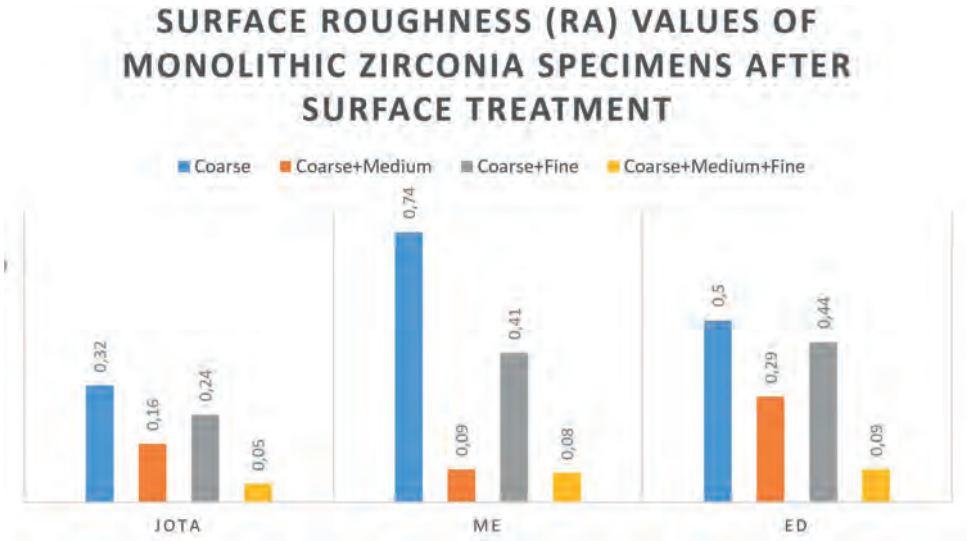


STUDY

EFFECTS OF DIFFERENT FINISHING/POLISHING PROTOCOLS AND SYSTEMS FOR MONOLITHIC ZIRCONIA ON SURFACE TOPOGRAPHY, PHASE TRANSFORMATION, AND BIOFILM FORMATION

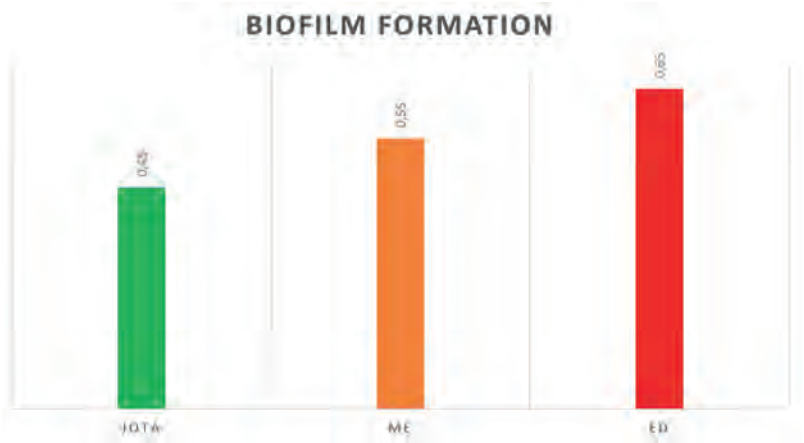
Hang-Nga Mai, Su-Hyung Hong,Sung-Hun Kim, and Du-Hyeong

JOTA Polishing Protocol has the lowest roughness Ra values and less than after glazing.[1]



Glazing and polishing are two options for surface smoothing of zirconia restorations. Although glazing is a popular method for restoring the high-gloss surface of the restoration, glazed layers can reportedly become worn within 6 months of the restoration. On the other hand, the polishing procedure does not add any layer to the surface of the monolithic zirconia restoration. The polishing alone removes the material by abrasion in which polishing abrasives transmit the mechanical energy to the material, resulting in the surface roughness changing. Moreover, this method can produce surface roughness of 0.2 µm, which is less than or equal to that achieved with glazing. Surface roughness ≤ 0.2 µm provides minimal plaque accumulation and comfortable tactile sensation. Oral bacterial biofilm formation on the surfaces of restorations lead to surface biodegradation, secondary caries, gingivitis, and mouth odor.

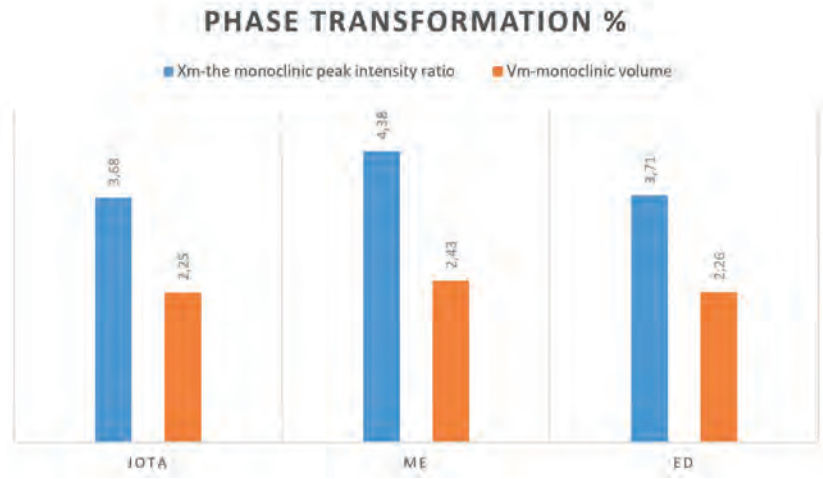
Jota Polishing Protocol showed minimal plaque accumulation on the surfaces.[1]



STUDY

Zirconium-dioxide exists in three crystalline phases. Tetragonal phase provides better mechanical properties. The tetragonal phase is only partially stabilized, unfavorable phase transformation from the tetragonal phase to the monoclinic phase may occur when external energy is provided. Shape adjustments and finishing of zirconia in the clinic provides external energy to the zirconia crystal through local generation of heat and frictional force, which causes phase transformation. As a result, the increase in the monoclinic phase caused the degradation of zirconia's mechanical properties, which compromises the predictability of longevity of the prosthetic rehabilitation.

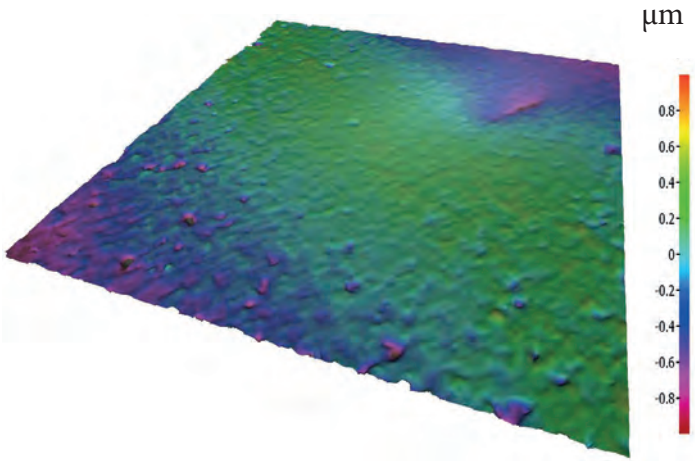
Jota Polishing Protocol showed the smallest phase transformation and therefore better crack resistance.[1]



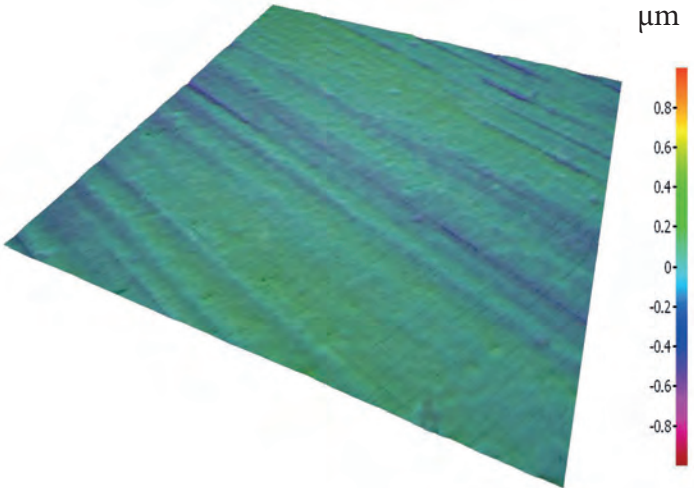
IMPORTANT!!!

All processing steps must be followed to achieve a perfectly smooth restoration surface. If the restoration has been processed with rough stones or diamond instruments, polishers cannot polish rough defects. Therefore, it is very important to use all the polishing steps. Namely, after rough processing, the mandatory use of **ZIRCONFLEX** instruments and only then polishers **ZIR GLOSS**.

Roughness after coarse grinding and polishing with ZIR GLOSS. Mean Sa=0,213 µm



Roughness after coarse grinding, pre-processing with ZIRCONFLEX and two-stage polishing with ZIR GLOSS. Mean Sa=0,067 µm



References

1. Hang-Nga Mai, Su-Hyung Hong, Sung-Hun Kim, and Du-Hyeong. Effects of different finishing/polishing protocols and systems for monolithic zirconia on surface topography, phase transformation, and biofilm formation. J Adv Prosthodont. 2019 Apr; 11(2): 81–87. Published online 2019 Apr 26. doi: 10.4047/jap.2019.11.2.81

2. Caglar I., Ates S.M., Duymus Z.Y., The effect of various polishing systems on surface roughness and phase transformation of monolithic zirconia. J Adv Prosthodont. 2018 Apr; 10(2): 132–137.

3. Preis V., Behr M., Handel G., Schneider-Feyrer S., Hahnel S., Rosentritt M. Wear performance of dental ceramics after grinding and polishing treatments. J Mech Behav Biomed Mater. 2012 Jun;10:13-22.

4. Bassir M.M. , Babasafari M., Rezvani M.B., Jamshidian M. Effect of coarse grinding, overglazing, and 2 polishing systems on the flexural strength, surface roughness, and phase transformation of yttrium-stabilized tetragonal zirconia. J Prosthet Dent. 2017 Nov;118(5):658-665.doi: 10.1016/j.prosdent.2016.12.019. Epub 2017 Apr 3.

5. Yener E.S., Ozcan M., Kazazoglu E. The effect of glazing on the biaxial flexural strength of different zirconia core materials . J Acta Odontol Latinoam. 2011; 24(2):133-40.

6. Kosmac T, Oblak C, Jevnikar P, Funduk N, Marion L. Strength and reliability of surface treated Y-TZP dental ceramics. J Biomed Mater Res A 2000;53:304-313.

7. Curtis AR, Wright AJ, Fleming GJP. The influence of surface modification techniques on the performance of a Y-TZP dental ceramic. J Dent Res 2006;34:195-206.

8. Walter Y.H., LamaHenry W.K. The adverse effects of tungsten carbide grinding on the strength of dental zirconia.J Dental Materials Volume 36, Issue 4, April 2020, Pages 560-569.

9. Leite Vila-Nova T.E., Gurgel de Carvalho I.H., Duarte Moura D.M., Dantas Batista A.U., Zhang Y., Paskocimas C.A., Bottino M.A., Assunção E Souza R.O. Effect of finishing/polishing techniques and low temperature degradation on the surface topography, phase transformation and flexural strength of ultra-translucent ZrO 2 ceramic. J Dent Mater. 2020 Apr;36(4):e126-e139.

10. Shahmiri R, Standard OC, Hart JN, Sorrell CC (2018) Optical properties of zirconia ceramics for esthetic dental restorations: a systematic review. J Prosthet Dent 119:36–46. https://doi.org/10.1016/j.prosdent.2017.07.009

11. Yin L, Nakanishi Y, Alao AR, Song XF, Abduo J, Zhang Y (2017) A review of engineered zirconia surfaces in biomedical applications. Procedia CIRP 65:284–290. https://doi.org/10.1016/j.procir. 2017.04.057

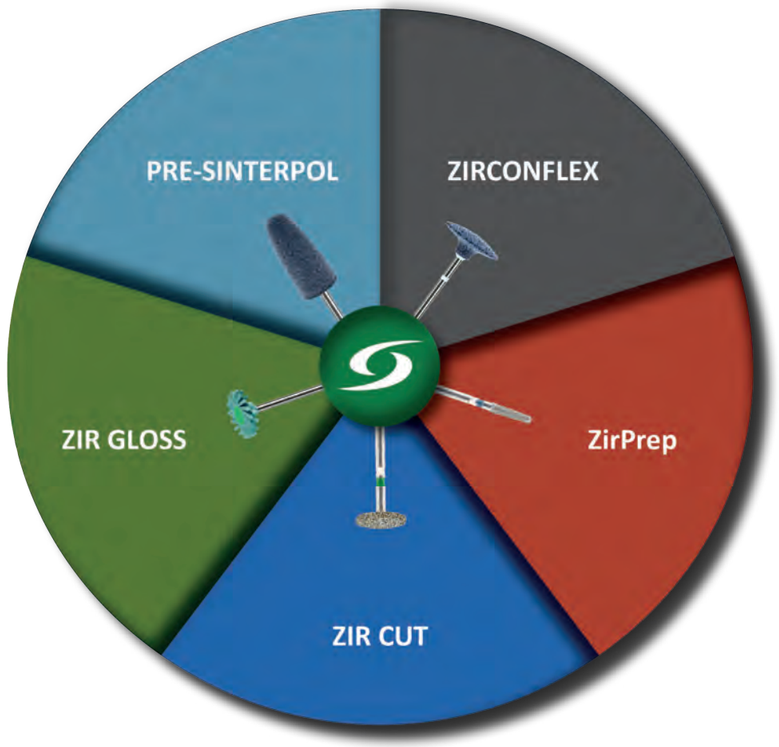
12. Preis V, Behr M, Hahnel S, Handel G, Rosentritt M (2012) In vitro failure and fracture resistance of veneered and full-contour zirconia restorations. J Dent 40:921–928. https://doi.org/10.1016/j.jdent. 2012.07.010

13. Janyavula S, Lawson N, Cakir D, Beck P, Ramp LC, Burgess JO (2013) The wear of polished and glazed zirconia against enamel. J Prosthet Dent 109:22–29. https://doi.org/10.1016/S0022-3913(13) 60005-0
14. Sabrah AH, Cook NB, Luangruangrong P, Hara AT, Bottino MC (2013) Full-contour Y-TZP ceramic surface roughness effect on synthetic hydroxyapatite wear. Dent Mater 29:666–673. https:// doi.org/10.1016/j.dental.2013.03.008
15. Pfefferle R., Lümkemann N., Wiedenmann F., Stawarczyk B. Different polishing methods for zirconia: impact on surface, optical, and mechanical properties. Clinical Oral Investigations (2020) 24:395–403
16. Rosentritt M, Preis V, Behr M et al. Two-body wear of dental porcelain and substructure oxide ceramics. Clin Oral Investig 2012; 16 (3): 935–943.
17. Etman MK, Woolford M, Dunne S. Quantitative measurement of tooth and ceramic wear:In vivo study. Int J Prosthodont. 2008;21:245–52.
18. Bollen CM, Lambrechts P, Quirynen M. Comparison of surface roughness of oral hard materials to the threshold surface roughness for bacterial plaque retention: A review of the literature. Dent Mater. 1997;13:258–69
19. Bai Y, Zhao J, Si W, Wang X. Two-body wear performance of dental colored zirconia after different surface treatments. J Prosthet Dent. 2016;116:584–90.
20. Kontos L, Schille C, Schweizer E, Geis-Gerstorfer J. Influence of surface treatment on the wear of solid zirconia. Acta Odontol Scand. 2013;71:482–7
21. Park JH, Park S, Lee K, Yun KD, Lim HP. Antagonist wear of three CAD/CAM anatomic contour zirconia ceramics. J Prosthet Dent. 2014;111:20–9
22. Giti R., Haghdoost S., Ansarifard E. Effect of different coloring techniques and surface treatment methods on the surface roughness of monolithic zirconia. Dent Res J (Isfahan). 2020 Mar-Apr; 17(2): 152–161.
23. Miura S., YamauchiS., Kasahara S., Katsuda Y., Fujisawa M., Egusa H. Clinical evaluation of monolithic zirconia crowns: a failure analysis of clinically obtained cases from a 3.5-year study, Journal of Prosthodontic Research, 2019, p. 643.
24. Miura S, Kasahara S, Yamauchi S, Okuyama Y, Izumida A, Aida J, Egusa H. Clinical evaluation of zirconia-based all-ceramic single crowns: an up to 12-year retrospective cohort study. Clin Oral Investig. 2018 Mar;22(2):697-706. doi: 10.1007/s00784-017-2142-y. Epub 2017 Jun 12. PMID: 28608051
25. Gunge H., Ogino Y., Kihara M., Tsukiyama Y., Koyano K., Retrospective clinical evaluation of posterior monolithic zirconia restorations after 1 to 3.5 years of clinical service, Journal of Oral Science, 2018, 60.

Match Code	ISO	Page
515L.HP.012	500104467211023	11
863.HP.012	806104250524012	12
882.HP.018	806104142524018	13
9160.HP.140	652104546503140	5
932D.HP.220	806104350524220	3
9840.HP.140	803104543503140	6, 14
C31RL.HPL.010	500105143007010	3, 9
GP662.RA.035	655204288526035	25
Kit 1322 Jota ZIRCONFLEX	1322	68
Kit 1358 Jota ZIRCONPROFI	1358	68
Kit 1434 Jota ZIR Gloss	1434	67
Kit 1436 Jota ZIR Gloss-Dentistry	1436	69
Kit 1441 Jota ZIR Gloss Chairside Set	1441	70
Kit 1446 ZIRCONIA POLISHING	1446	55-66
Kit 1460 ZirPrep	1460	28
Kit 1936 Green State refining	1936	7-14
SZ601.HP.035	655104001526035	21
SZ602.HP.040	655104001526040	21
SZ623.HP.060	655104043526060	19
SZ638.HP.025	655104110526025	23

Match Code	ISO	Page
SZ652R.HP.035	655104199526035	23,61,62
SZ660.HP.040	655104274526040	23
SZ667.HP.035	655104257526035	21,59,60
SZ715.HP.160	655104371526160	17
SZ722.HP.180	655104304526180	17
SZ732.HP.050	655104107526050	19,57,58
SZ736.HP.065	655104012526065	19
Z801.FG.010	806314001324010	39
Z801.FG.021	806314001324021	39
Z801L.FG.014	806314697324014	29
Z801LF.FG.014	806314697314014	29
Z818.FG.050	806314041324050	35
Z818.FG.060	806314041324060	35
Z818.FG.080	806314041324080	35
Z818G.FG.050	806314041334050	37
Z818G.FG.060	806314041334060	37
Z818G.FG.080	806314041334080	37
Z833.FG.023	806314277324023	30
Z833F.FG.023	806314277314023	30
Z838L.FG.014	806314140526014	39

Match Code	ISO	Page
Z850.FG.018	806314198324018	32
Z850F.FG.018	806314198314018	32
Z863.FG.012	806314250324012	31
Z863F.FG.012	806314250314012	31
ZIR9861F.RA.040	803204243511040	53
ZIR9861M.RA.040	803204243521040	52
ZIR9862F.RA.060	803204030511060	53
ZIR9862M.RA.060	803204030521060	52
ZIR9863F.RA.140	803204543511140	53
ZIR9863M.RA.140	803204543521140	52
ZIR9865F.HP.260	803104303511260	47,65
ZIR9865M.HP.170	803104303521170	43, 63
ZIR9866F.HP.040	803104243511040	49
ZIR9866M.HP.040	803104243521040	45,64
ZIR9867F.HP.110	803104372511110	47
ZIR9867M.HP.110	803104372521110	43
ZIR9868F.HP.140	803104543511140	49, 66
ZIR9868F.HP.170	803104543511170	49
ZIR9868M.HP.140	803104543521140	45
ZIR9868M.HP.170	803104543521170	45



Match Code	ISO	Page
ZIR9972F.HP.100	658104275513100	6
ZIR9972M.HP.100	658104275523100	5, 10
ZIR9974F.HP.055	658104234513055	6
ZIR9974M.HP.055	658104243523055	5

Jota Dealer:

Zertifiziertes QM-System mdc ISO 13485

CE 0483

SUBSCRIBE OUR CHANNELS

Play video

Follow

Like

Connect