



TRADITION - PRECISION - QUALITY
FROM SWITZERLAND 



biOMETRIC

POLYMERS & COMPOSITES
COMPASS
EDITION II

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

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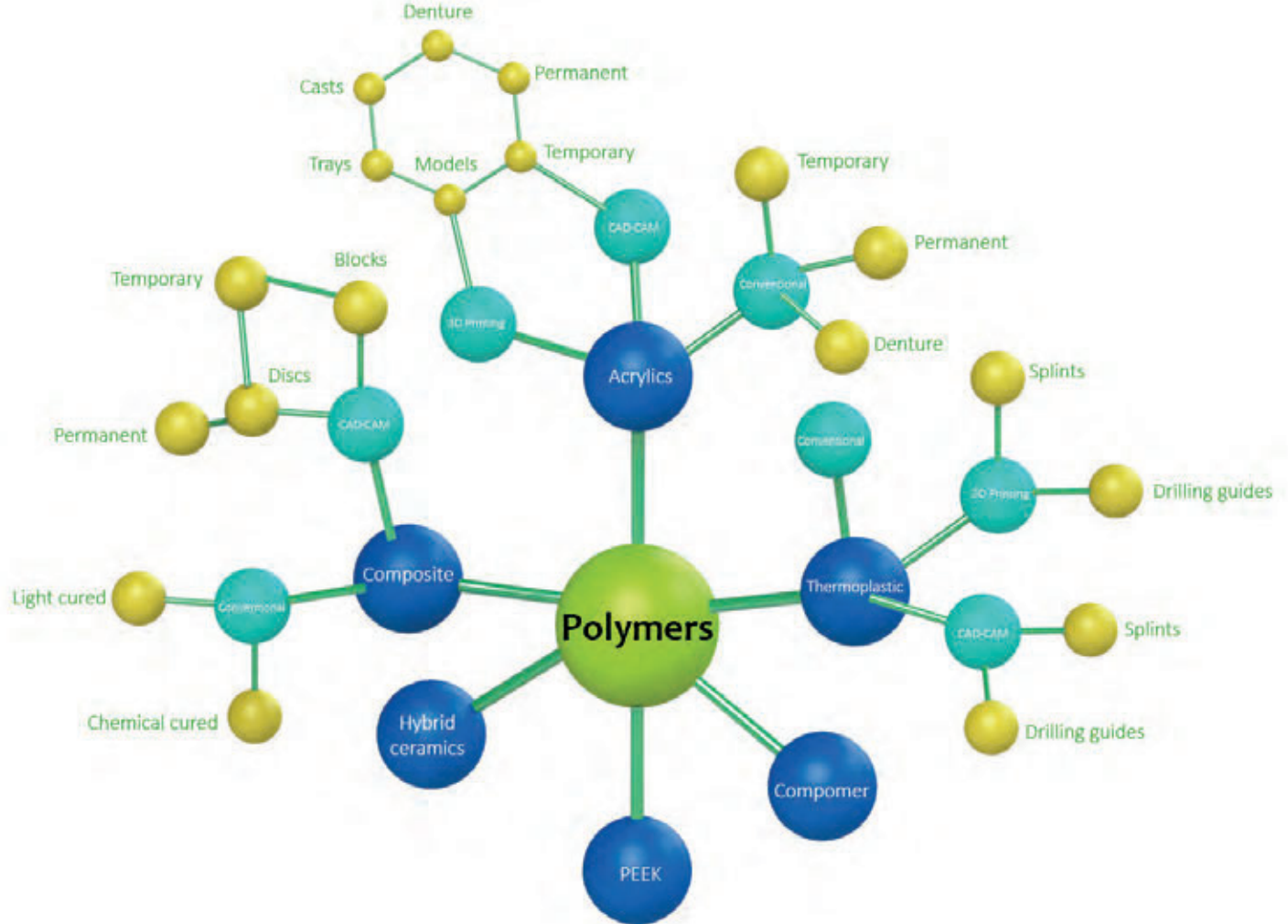
DENTAL POLYMERS

Dental polymers and composites were developed around 80 years ago. There are different types of composites, and these can be classified according to particle size, type of matrix, polymerisation methods and consistency. Resin composite materials are available with various filler types that affect their handling characteristics and physical properties. However, nano-filled and micro-filled light-cured composites are the most commonly used. Composites can be used for conventional fillings and indirect CAD/CAM restoration.

Dental polymers include acrylic, thermoplastic, and high-performance polymers. The three main methods for polymer restoration processing are **conventional, 3D printing, and CAD milling**. One of the main disadvantages associated with traditional processing methods is the limitation of their physical and mechanical properties. Factors such as dimensional changes, susceptibility to fracture, presence of residual monomer, and increased risk of infection reduce aesthetic and hygienic results.^{6,7}

New materials appear on the market every year. With the development of computer technology, CAD/CAM dental polymers are becoming increasingly popular. **CAD/CAM** technology refers to digital design and manufacture. CAD software recognizes the geometry of an object, while CAM software is used for manufacturing. The CAD/CAM materials can be either additive (3D printing) or subtractive (computer numerical control (CNC) machining; milling).⁴ The following pages provide an overview of some of the well-known **subtractive and additive polymers** on the dental market.

CAD/CAM materials have better mechanical and biological properties than traditional acrylic materials.^{3,4} Moreover, they increase the efficiency, automaticity, and accuracy of the entire treatment flow. Some researchers have reported that CAD/CAM dental polymers **decrease the risk of microorganism** colonization on the surfaces and consequent infection.^{1,2} Milling polymers have **favourable biocompatibility** because of lower residual monomer and **lower shrinkage**.^{4,5}



SUBTRACTIVE CAM MATERIALS

	Splints	Temporary solutions	Permanent solutions	Models	Dentures	Trays	Casts
AMANNGIRRBACH	Ceramill A-Splint	Ceramill A-Temp Ceramill A-Temp multilayer		Ceramill M-Plast			Ceramill A-Cast
ARGEN	ArgenP PMMA clear	ArgenP PMMA multi					
BEGO	Bego PMMA Splint E						
BREDENT GROUP		BioniCut ACE snap	breCAM. mono-com breCAM.mul-ticom				
COLTENE			Brilliant Crios Disc; Brilliant Crios Blocks				
DENTAL DIREKT	DDBio Splint FLEX	DDprovi PHI			DDbase PHI		
DENTONA ®	optimill memo-splint; optimill crystalign	optimill temp ML					
EISENBACHER DENTALWAREN	Kera starSplint Bio						

	Splints	Temporary solutions	Permanent solutions	Models	Dentures	Trays	Casts
HENRY SCHEIN DENTAL	Zirlux Splint Transparent						
IVOCLAR	ProArt CAD Splint	Telio CAD	Tetric CAD Telio CAD		Ivotion Ivotion Dent Multi Ivotion Dent Ivotion Base	ProArt CAD Try-in	
MERZ DENTAL	M-PM crystal	M-PM Disc	M-PM Disc		BDLoad		
PRIMOTEC ®	Premiotemp Clear Flex	Premiotemp Multi					
PRITIDENTA ®	CORITEC splint basic; CORITEC splint comfort	CORITEC temp PMMA disc					
SCHÜTZ DENTAL	Tizian Blank PMMA Splint	Tizian Blank Polycarbonat					
VOCO			Structur CAD		CediTEC DB CediTEC DT		
ZIRKONZAHN®	Therapon Transpa				Abro Basic Mono/Abro Basic Multistra- tum; Denture Gingiva basic		

GENERAL

ADDITIVE PRINTING MATERIALS

	Splints	Transfer & Drilling Guides	Temporary solutions	Permanent solutions	Models	Dentures & Gingiva & Try-in	Trays	Casts
BEGO		VarseoWax Surgical Guide	VarseoSmile Temp	VarseoSmile Crown ^{plus}	VarseoWax Model gray		VarseoWax Tray	VarseoWax CAD/Cast
DentaFab		PowerResins SG	PowerResins Temp		PowerResins Dental Model; PowerResins Ortho Model	PowerResins Denture; PowerResins Gingiva		PowerResins Castable Burn
DENTONA ®	optiprint clara		optiprint lumina	optiprint lumina		optiprint laviva		optiprint zero; optiprint cast
DESKTOP HEALTH	SmileGuard; E-Guard	E-Guide			E-Aqua Model; E-Dens-tone; E-Orthosha-pe; Model X; Model Z	Flexcera Smile Ultra+; Flex-cera™ Base; Flexcera™ Smile	E-Tray	E-Partial; Press E-Cast
DETAX	Freeprint ortho; Freeprint splint 2.0; Freeprint splintmaster	Freeprint IBT; Freeprint ortho	Freeprint temp; Freeprint crown	Freeprint crown	Freeprint model/model T	Freeprint denture; Freeprint gingiva; Freeprint try in	Freeprint tray 2.0	Freeprint cast 2.0
DMG	LuxaPrint Ortho Flex; LuxaPrint Ortho Plus	LuxaPrint Ortho; LuxaPrint Ortho Flex			LuxaPrint Model	LuxaPrint Gingiva	LuxaPrint Tray	LuxaPrint Cast
EISENBACHER DENTALWAREN					Kera MODEL 3D			Kera CAST 3D

	Splints	Transfer & Drilling Guides	Temporary solutions	Permanent solutions	Models	Dentures & Gingiva & Try-in	Trays	Casts
FORMLABS	Dental LT Clear Resin	IBT Resin ; Surgical Guide Resin	Temporary CB Resin	Permanent Crown Resin	Draft Resin; Model V3 Resin	Denture Base; Denture Teeth; Soft Tissue Resin	Custom Tray Resin	castable Wax Resin
GC			Temp Print					
KULZER	dima Print Splint clear; dima Print Mouthguard	dimaPrint Guide & Tray	Temp Print; dima Print C&B temp; dima Print Teeth & Temp		dima Print Stone teal/ beige/gray	dimaPrint Gingiva Mask; dima Print Denture Base; dima Print Denture Teeth; dima Print Denture Base Try-in	dimaPrint Guide & Tray	dima Print Cast ruby
MERZ DENTAL	M-Print Splint flex				M-Print Model			M-Print Cast
SAREMCO				saremco print CROWNT-EC™		saremco print DENTURE-TEC		
SCHEU	Imprimo LC Splint flex; Imprimo LC MJF; Imprimo LC Splint	Imprimo LC IBT; Imprimo LC Splint	Imprimo LC Temp It; Imprimo LC Temp	Imprimo LC Temp It; Imprimo LC Temp	Imprimo LC Model	Imprimo LC Denture; Imprimo LC Gingiva; Imprimo LC Try-In	Imprimo LC Impression	Imprimo LC Cast
VOCO	V-Print Splint comfort; V-Print Splint	V-Print SG			V-Print Model 2.0; V-Print Model fast	V-Print dent-base; V-Print Try-In	V-Print tray	V-Print Cast

COMPOSITE FINISHING INSTRUMENTS

The smooth surface of composite restorations is decisive for **aesthetic reasons, biological aspects, and longevity**. The threshold surface roughness for bacterial retention is 0.2 μm , below which no further reduction in bacterial accumulation can be expected.⁸ An increase in the roughness of the restoration may lead to an increase in plaque and tactile perception, an increase in abrasion, and the risk of secondary caries and periodontitis.⁹

Finishing is the gross contouring of restoration to obtain the desired anatomy and texture, while polishing refers to reducing roughness, removing scratches, and producing high gloss.¹⁰ Rotary instruments for finishing should provide sufficient cutting efficacy for the removal of excess composite material and occlusal adjustment. On the other hand, finishing should not leave the surface in a rough condition, because subsequent polishing measures will be impaired. For this reason, finishing is an important prerequisite for the success of final polishing techniques. Finishing is therefore an important requirement for the success of the final polishing techniques.¹⁹

Reduced surface roughness and increased gloss are necessary to achieve a superior **aesthetic outcome, improved soft-tissue health, and marginal integrity of restorations**.¹¹

Jota offers three types of rotary instruments for finishing and contouring the surface of composite restorations: **Arkansas** white stones, and **diamond** and **carbide burs**, each of which has its advantages and disadvantages. The literature has reported that, at a lower speed, **carbide burs with 30 blades** create the best surface finish.^{12,13,14} Jung has concluded that because of the low cutting efficiency of finishing carbides, such instruments are best suited for finishing and smoothing hybrid composites.¹⁵

Diamonds appear to have a deleterious effect on surface roughness.¹⁵ But diamond burs have a more **anatomical shapes** than tungsten carbide burs and **better cutting efficiency**.¹⁵ Therefore, diamonds are recommended for gross removal and contouring.

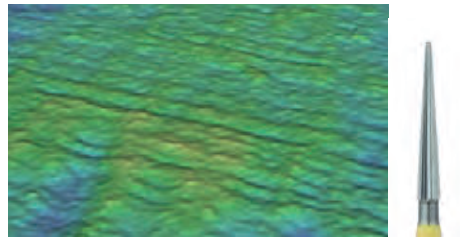
Drall carbide burs (with two rings), recently introduced by Jota, have a unique blade shape that creates **the smoothest composite surface**. See pictures below.

Arkansas stones are among the most **cost-effective** substitutes for carbide burs, and have different shapes to contour and finish composite restorations. Finishing stones are much more efficient than carbides at removing material from the surface of composites, and their cutting efficiency can be ranked somewhere between finishing carbides and diamonds.¹⁶

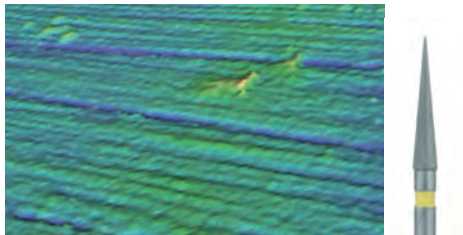
DRALL CARBIDE FINISHERS $R_A = 0.37 \mu\text{m}$



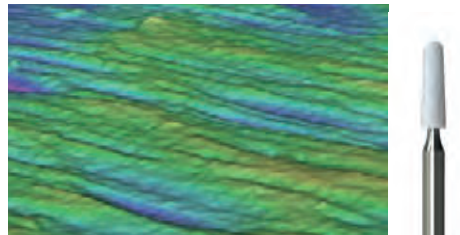
YELLOW CARBIDE FINISHERS $R_A = 0.6 \mu\text{m}$



YELLOW DIAMOND FINISHERS $R_A = 0.88 \mu\text{m}$



ARKANSAS STONE FINISHERS $R_A = 0.7 \mu\text{m}$



COMPOSITE CONTOURING AND FINISHING

JOTA DIAMONDS

Diamond burs are among the **most effective instruments** for contouring the surface of restorations. Jota manufactures diamond burs made from **natural diamond grit**, which are more efficient and durable than others on the market. Red diamonds are recommended for **contouring**, and yellow diamonds for **finishing**.

Diamond burs are shaped especially for **anatomical corrections** of different tooth surfaces, both anterior and posterior. You can create any occlusal profile, gently remove any excess from the interdental spaces, and contour the vestibular surface of your restorations. After finishing, polishing takes much less time. Your fillings look like natural teeth.

Specially selected fine and extra-fine diamonds for contouring and finishing of composite are also available in **Kit 1326**. See the following page and the video on YouTube.

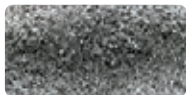
COMPOSITE BURNISHING AND CONTOURING

Red ring

fine

F

Grit size 38 - 45 μm



COMPOSITE FINISHING

Yellow ring

extra fine

EF

Grit size 20 - 30 μm



KIT 1326

DIAMOND COMPOSITE FINISHING



Video about Kit 1326 on YouTube

COMPOSITE BURNISHING AND CONTOURING

Vestibular and straight surfaces

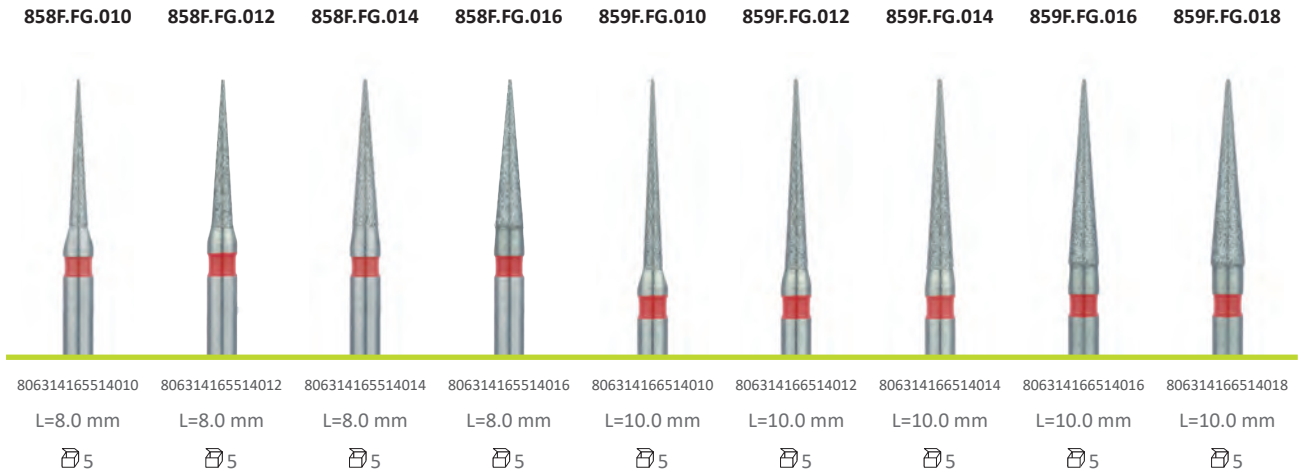




Photo by Dr. Renato Voss

COMPOSITE BURNISHING AND CONTOURING

Vestibular and straight surfaces

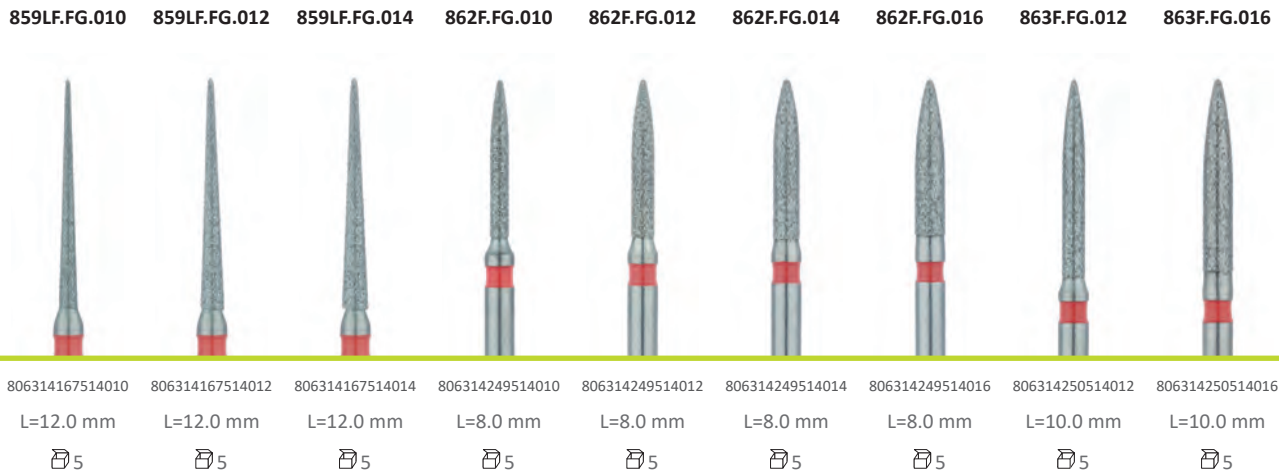
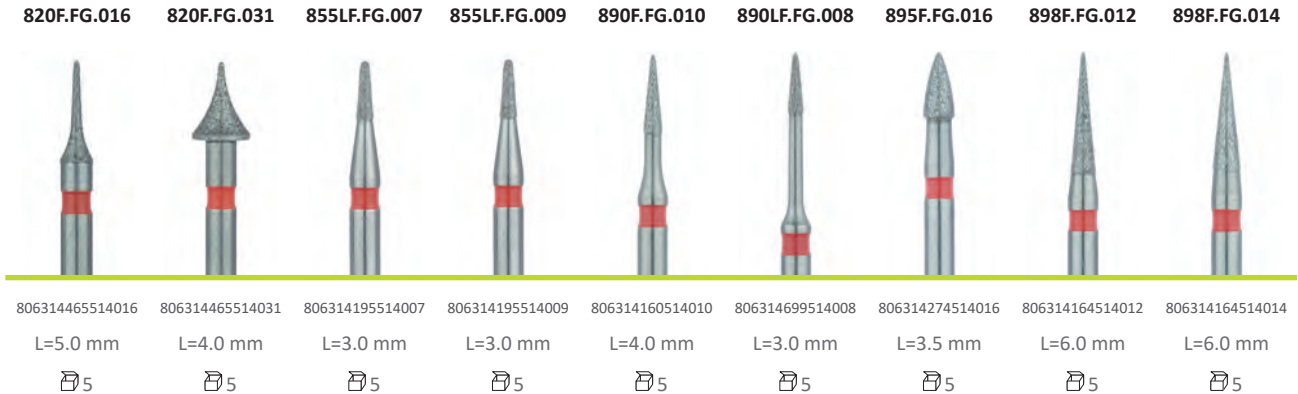




Photo by Dr. Ubiracy Gaião / Leonardo Cunha

COMPOSITE BURNISHING AND CONTOURING

Occlusal and approximal surfaces





COMPOSITE BURNISHING AND CONTOURING

Occlusal and approximal surfaces

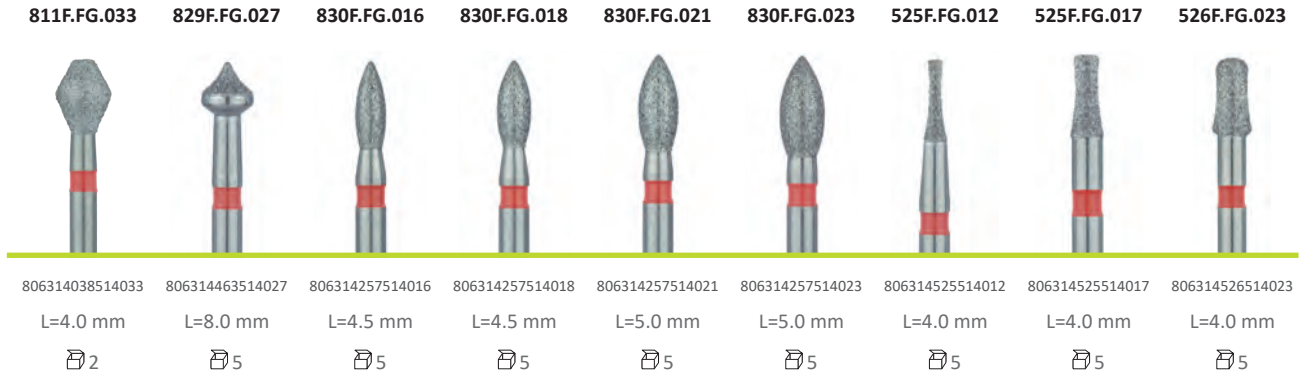
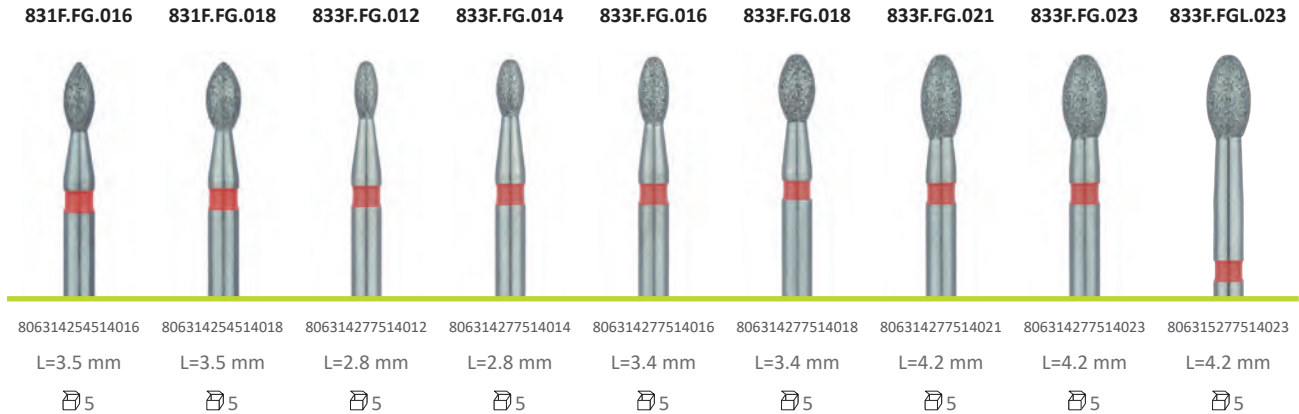




Photo by Dr. Daniel Rosa

COMPOSITE BURNISHING AND CONTOURING

Palatal and lingual surfaces



833F.FGL.023

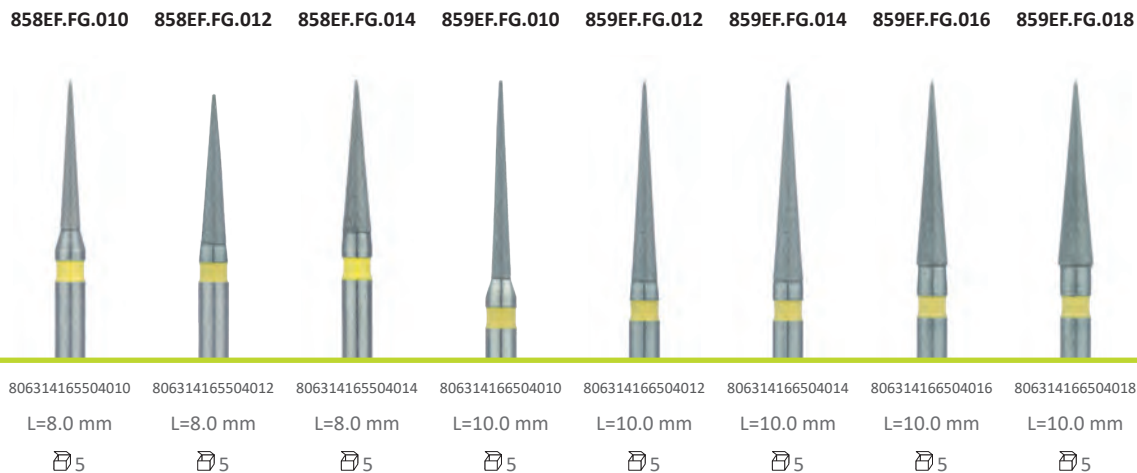


833F.FG.023



COMPOSITE FINISHING

Vestibular and straight surfaces





COMPOSITE FINISHING

Vestibular and straight surfaces

859LEF.FG.010 859LEF.FG.012 859LEF.FG.014 862EF.FG.010 862EF.FG.012 862EF.FG.014 862EF.FG.016 863EF.FG.012 863EF.FG.016



806314167504010 806314167504012 806314167504014 806314249504010 806314249504012 806314249504014 806314249504016 806314250504012 806314250504016

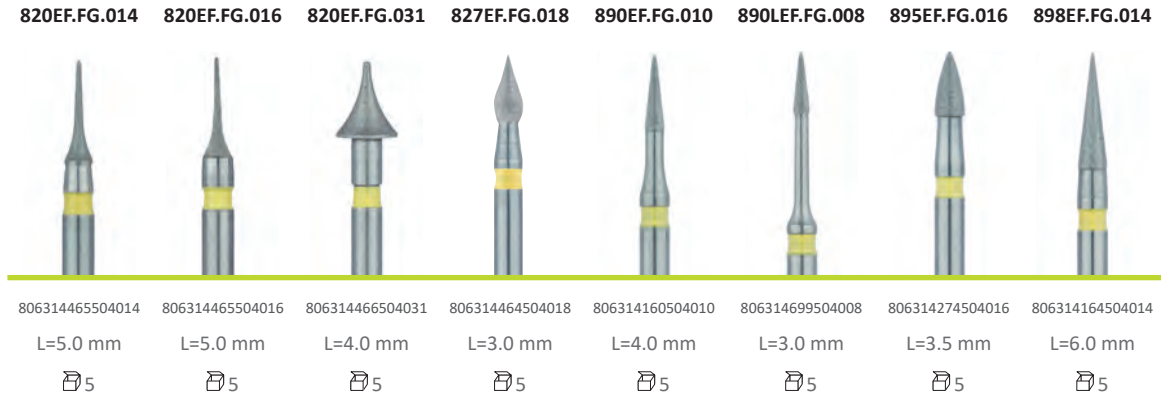
L=12.0 mm L=12.0 mm L=12.0 mm L=8.0 mm L=8.0 mm L=8.0 mm L=8.0 mm L=10.0 mm L=10.0 mm





COMPOSITE FINISHING

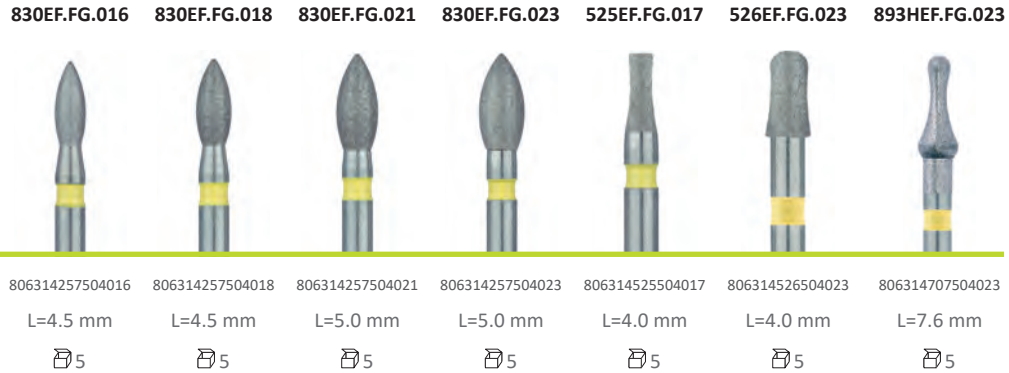
Occlusal and approximal surfaces





COMPOSITE FINISHING

Occlusal and approximal surfaces





COMPOSITE FINISHING

Palatal and lingual surfaces

831EF.FG.016 831EF.FG.018 833EF.FG.014 833EF.FG.016 833EF.FG.018 833EF.FG.023



806314254504016 806314254504018 806314277504014 806314277504016 806314277504018 806314277504023

L=3.5 mm

L=3.5 mm

L=2.8 mm

L=3.4 mm

L=3.4 mm

L=4.2 mm





COMPOSITE CONTOURING AND FINISHING

JOTA CARBIDES

In many studies it has been proven that, at a lower speed, **carbide burs** create the **smoothest surface** of composite restorations.^{12,13,14,15} After finishing with carbides burs, polishing your restorations takes half the time, and the pre-polishing step can be skipped. In addition, all carbides are much more durable than diamond burs. Carbide finishers have 3 degrees of smoothness: fine (8–12 blades, orange), extra fine (16–20 blades, yellow), and ultra-fine (30 blades, white).

Recently, Jota has developed an additional new type of finisher: the **DRALL FINISHER**. Thanks to the innovative design of the toothings, DRALL FINISHERS smooth the surface better than yellow diamond burs (see page 8). The unique cutting edges guarantee vibration-free running so that the instruments cut much more finely than standard carbide finishing burs. They do not leave marks on the surface and achieve perfect, extremely smooth results. Drall Finishers are also available in **Kit 1327**.

KIT 1327

CARBIDE COMPOSITE FINISHING

Video about Kit 1327 on YouTube



COMPOSITE BURNISHING AND CONTOURING

Without ring fine C- 8-12 blades



COMPOSITE FINISHING

Yellow ring extra fine C-F 16-20 blades



White ring ultra fine C-U 30 blades



DRILL FINISHERS

Orange ring fine CD- 8-12 blades



Yellow/ Orange ring extra fine CD-F 16-20 blades



White/ Orange ring ultra fine CD-U 30 blades



COMPOSITE BURNISHING AND CONTOURING

Vestibular and straight surfaces

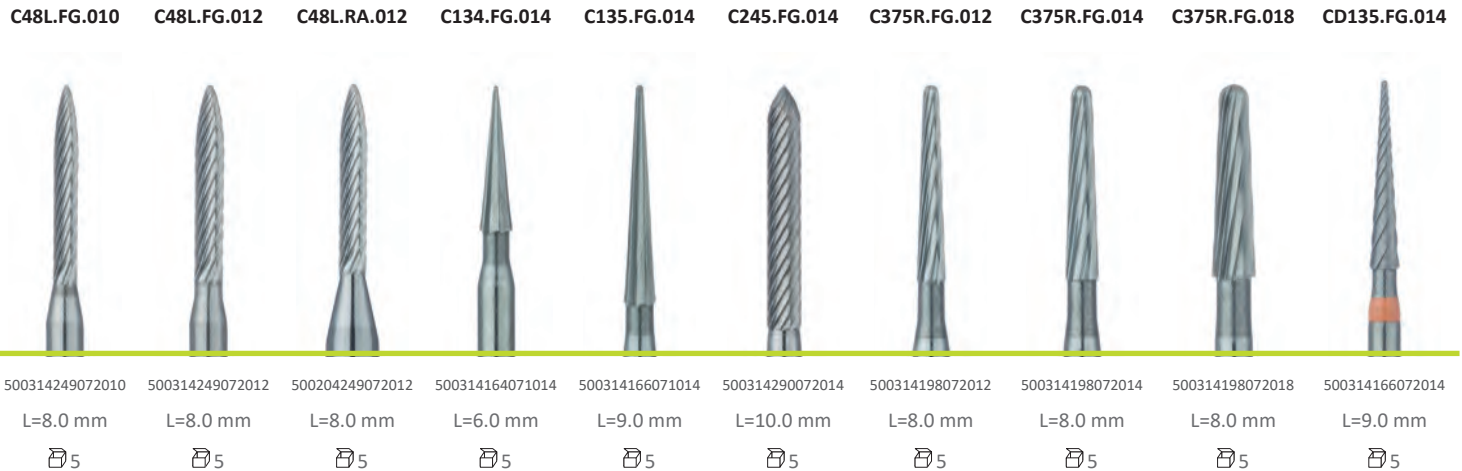




Photo by Dr. Renato Voss

COMPOSITE BURNISHING AND CONTOURING

Occlusal and approximal surfaces

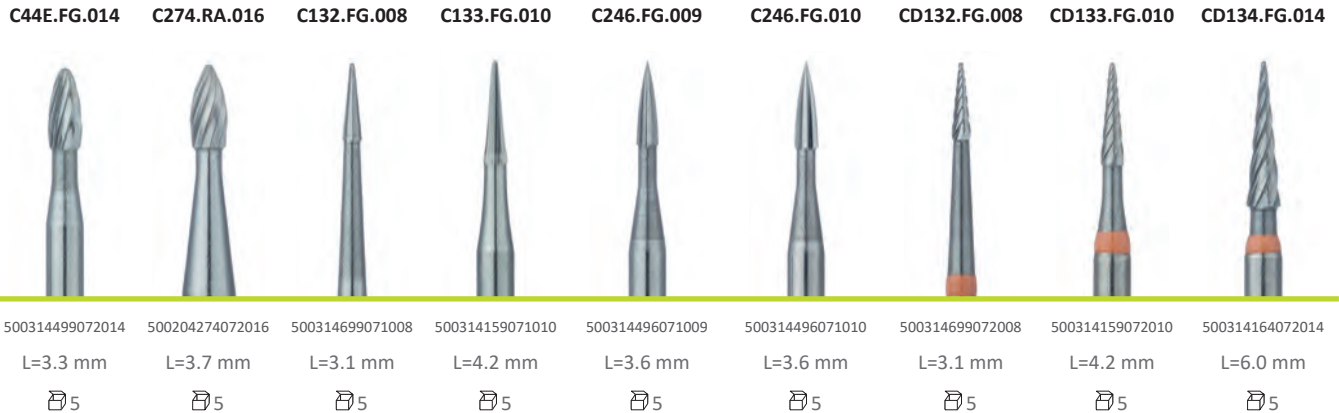




Photo by Dr. Daniel Rosa

COMPOSITE BURNISHING AND CONTOURING

Palatal and lingual surfaces





COMPOSITE FINISHING

Vestibular and straight surfaces

C48LF.FG.012 C134F.FG.014 C135F.FG.014 CD135F.FG.014 C48LU.FG.012 C134U.FG.014 C135U.FG.014 CD135U.FG.014

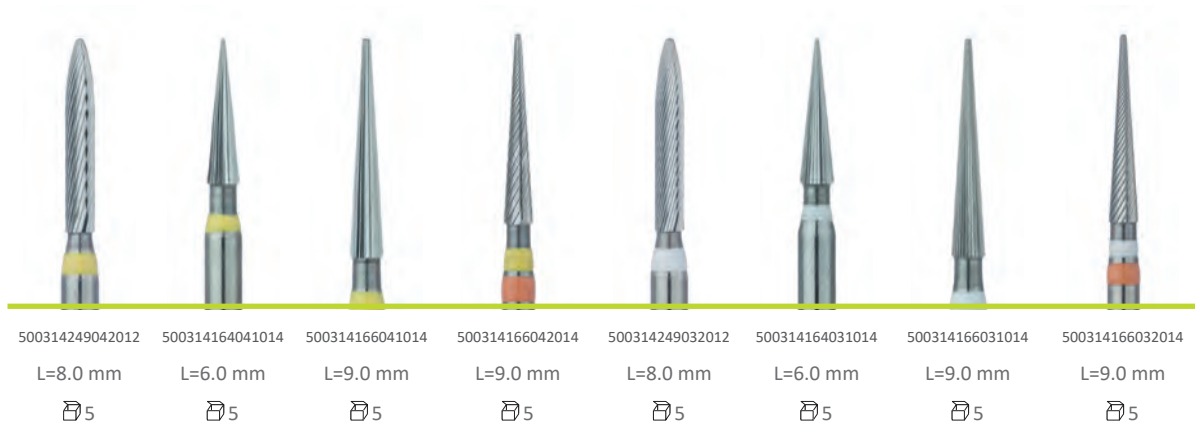


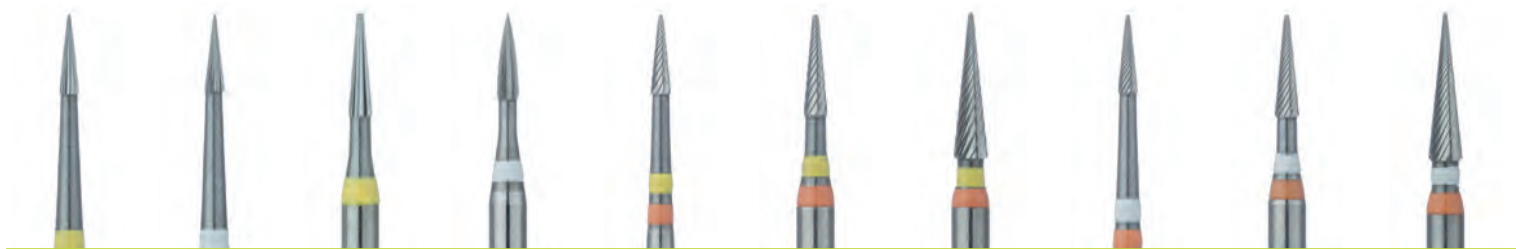


Photo by Dr. Daniel Rosa

COMPOSITE FINISHING

Occlusal and approximal surfaces

C132F.FG.008 C132U.FG.008 C133F.FG.010 C246U.FG.009 CD132F.FG.008 CD133F.FG.010 CD134F.FG.014 CD132U.FG.008 CD133U.FG.010 CD134U.FG.014



500314699041008	500314699031008	500314159041010	500314496031009	500314699042008	500314159042010	500314164042014	500314699032008	500314159032010	500314164032014
L=3.1 mm	L=3.1 mm	L=4.2 mm	L=3.6 mm	L=3.1 mm	L=4.2 mm	L=6.0 mm	L=3.1 mm	L=4.2 mm	L=6.0 mm
Ø5	Ø5	Ø5	Ø5	Ø5	Ø5	Ø5	Ø5	Ø5	Ø5



COMPOSITE FINISHING

Palatal and lingual surfaces

C274U.FG.016 C379F.FG.018 C379F.FG.023 C379U.FG.018 C379U.FG.023 CD379F.FG.018 CD379F.FG.023 CD379U.FG.018 CD379U.FG.023



500314274032016 500314277042018 500314277042023 500314277032018 500314277032023 500314277942018 500314277942023 500314277932018 500314277932023

L=3.7 mm

L=3.5 mm

L=4.2 mm

L=3.5 mm

L=4.2 mm

L=3.5 mm

L=4.2 mm

L=3.5 mm

L=4.2 mm





COMPOSITE CONTOURING AND FINISHING

JOTA ARKANSAS STONES

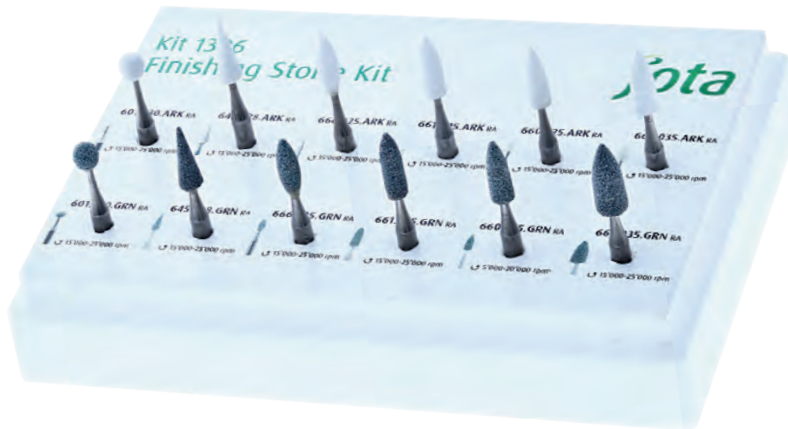
Arkansas stones are effective in the finishing of composite restorations. Arkansas stones are among the **most cost-effective substitutes** for carbide burs, which have different shapes to contour and finish composite restorations. Finishing stones are much **more efficient** than carbides at removing material from the surface of composites,¹⁶ and finishing surface roughness can be put between finishing carbides and diamonds. See page 8.

Also, Arkansas stones are ideal instruments for finishing a preparation, smoothing enamel prisms, and removing material residues after braces. Three **Arkansas Prep** stones have been developed to provide an optimal workflow, with their shapes matching the shape of common preparation diamonds. The angle and geometry are identical so that the basic preparation carried out with diamonds (shoulder, bevel or chamfer) is preserved and at the same time made more precise.

Recommended speed: for RA instruments 15,000–25,000 rpm
for FG instruments 80,000–100,000 rpm

KIT 1396

FINISHING STONE



COMPOSITE FINISHING

601.FG.030.ARK 638.FG.025.ARK 645.FG.028.ARK 649.FG.025.ARK 660.FG.025.ARK 661.FG.025.ARK 662.FG.030.ARK 666.FG.025.ARK



635314001505030

L=3.0 mm



6353141110505025

L=6.0 mm



635314161505028

L=7.0 mm



635314171505025

L=6.0 mm



635314297505025

L=7.0 mm



635314288505025

L=7.0 mm



635314297505030

L=7.0 mm



635314257505025

L=6.5 mm



ARKANSAS PREP

6172.FG.023.ARK

6198.FG.023.ARK

6298.FG.023.ARK



635314172505023

L=8.0 mm



635314198505023

L=8.0 mm



635314298505023

L=8.0 mm



Photo by Dr. Daniel Rosa

COMPOSITE FINISHING

601.RA.030.ARK 638.RA.025.ARK 645.RA.028.ARK 649.RA.025.ARK 660.RA.025.ARK 661.RA.025.ARK 662.RA.030.ARK 666.RA.025.ARK



635204001505030

L=3.0 mm



635204110505025

L=6.0 mm



635204161505028

L=7.0 mm



635204171505025

L=6.0 mm



635204297505025

L=7.0 mm



635204288505025

L=7.0 mm



635204297505030

L=7.0 mm



635204257505025

L=6.5 mm



ARKANSAS PREP

6172.RA.023.ARK 6198.RA.023.ARK 6298.RA.023.ARK



635204172505023

L=8.0 mm

Ø5



635204198505023

L=8.0 mm

Ø5



635204298505023

L=8.0 mm

Ø5



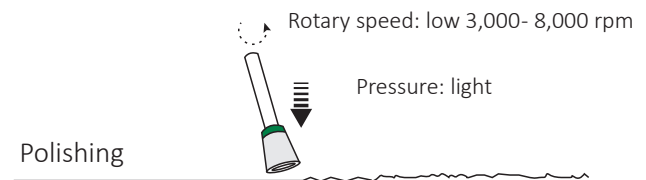
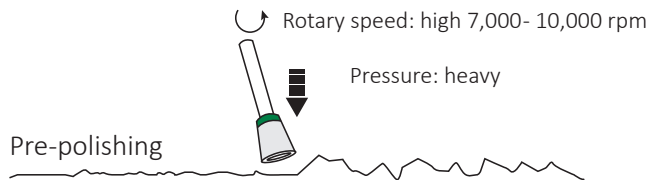
Photo by Dr. Daniel Rosa

COMPOSITE POLISHING

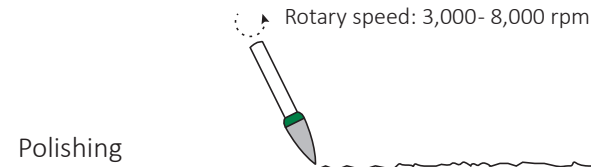
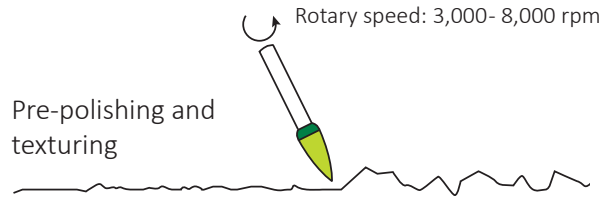
JOTA EASY & PROFESSIONAL

Polishers interspersed with diamond grit are indispensable for polishing composites to a professional, high quality with optimal results. **Diamond polishers** give shine and **reduce the clinical time** spent finishing the restoration, because they can be used to develop a **high lustre**, and contouring finishing and polishing procedures can be completed using a single instrument.¹⁰ The one-step diamond polishing systems were found to be as good as or even superior to multistep polishers.^{17,18}

Using the composite polishing system **JOTA EASY** after finishing with tungsten carbide allows the polishing process to be reduced to just one step. The polishers are made from temperature-resistant materials and are therefore suitable for the **autoclave**. The JOTA EASY is a polisher with interspersed diamonds developed for **all composite** materials. This one-step polishing system is particularly suitable for smoothing and subsequent gloss polishing, without the need for paste. The degree of removal is controlled by adjusting the pressure applied.



JOTA PROFESSIONAL is a two-step diamond polishing system for finishing and gloss polishing of **all composites**. The JOTA PROFESSIONAL green polisher is used as a first step before the JOTA EASY grey polisher. In a second step, JOTA EASY is used with 3,000–8,000 rpm for the gloss polishing. The best aesthetic professional results.



KIT 1393 DIAMOND POLISHER KIT „JOTA EASY“



KIT 1394 DIAMOND POLISHER KIT „JOTA PROFESSIONAL“



POLISHERS



Photo by Dr. Daniel Rosa

COMPOSITE

JOTA PROFESSIONAL STEP 1

9825.RA.030



803204243525030

L=6.5 mm



↻ 3'000 - 10'000
rpm

9828.RA.040



803204243525040

L=10.0 mm



↻ 3'000 - 10'000
rpm

9826.RA.060



803204030525060

L=6.5 mm



↻ 3'000 - 10'000
rpm

POLISHING

DIAMOND POLISHERS

9827.RA.100



803204304525100

L=0.7 mm

2



3'000 - 10'000 rpm

9765M.RA.055



803 204 000 525

L=8.8 mm

2



3'000 - 10'000 rpm

9829.RA.110/140



803 204 543 525

L=1.6 mm

2



3'000 - 10'000 rpm



Photo by Dr. Ubiracy Gaião / Leonardo Cunha

COMPOSITE POLISHING

JOTA PROFESSIONAL STEP 2 DIAMOND POLISHERS

9831.RA.030



803204243502030

L=6.5 mm



3'000 - 10'000
rpm

9832.RA.060



803204030502060

L=6.5 mm



3'000 - 10'000
rpm

9833.RA.100



803204304502100

L=0.7 mm



3'000 - 10'000
rpm

9834.RA.040



803204243502040

L=10.0 mm



3'000 - 10'000
rpm

9765F.RA.055



803 204 000 502

L=8.8 mm



3'000 - 10'000
rpm

9837.RA.110/140



803 204 543 503

L=1.6 mm



3'000 - 10'000
rpm



Photo by Dr. Daniel Rosa

COMPOSITE POLISHING

JOTA SWIVELS

The two-step polisher system **JOTA SWIVELS** is suitable for polishing all composites. Very simple yet extremely efficient. With only two polishers and no paste or brushes, all surfaces of a composite filling can be polished.

SWIVEL POLISHERS FOR COMPOSITE

- For all types of composite and nano/hybrid ceramics.
- No need for polishing pastes.
- Excellent aesthetic results very quickly.
- Adaptable to any anatomical surface.
- Incomparable durability.



INSTRUCTIONS OF USE

Correct direction of rotation:
Counterclockwise



Use the polisher at low speed (7,000 to 9,000 RPM)



Apply light pressure during polishing



Use water irrigation whenever possible intraoral



KIT 1921 PROFESSIONAL POLISHING COMPOSITE



Video about Kit 1921 on YouTube

KIT 1939 EXTENDED POLISHING COMPOSITE KIT



Video about Kit 1939 on YouTube

KIT 1439 NANO CERAMIC CHAIRSIDE POLISHING



Video about Kit 1439 on YouTube

POLISHERS

COMPOSITE

JOTA

PRE-POLISHING

9829.RA.110/140

9150.RA.140



803 204 543 525

652204546503140

L=1.6 mm

L=1.6 mm



3'000 - 10'000 rpm



7'000 - 12'000 rpm

POLISHING

SWIVELS

HIGH-GLOSS POLISHING

9837.RA.140

9837.RA.110



803204543503140

803204543503110

L=1.6 mm

L=1.6 mm

2



2



3'000 - 8'000 rpm

3'000 - 8'000 rpm

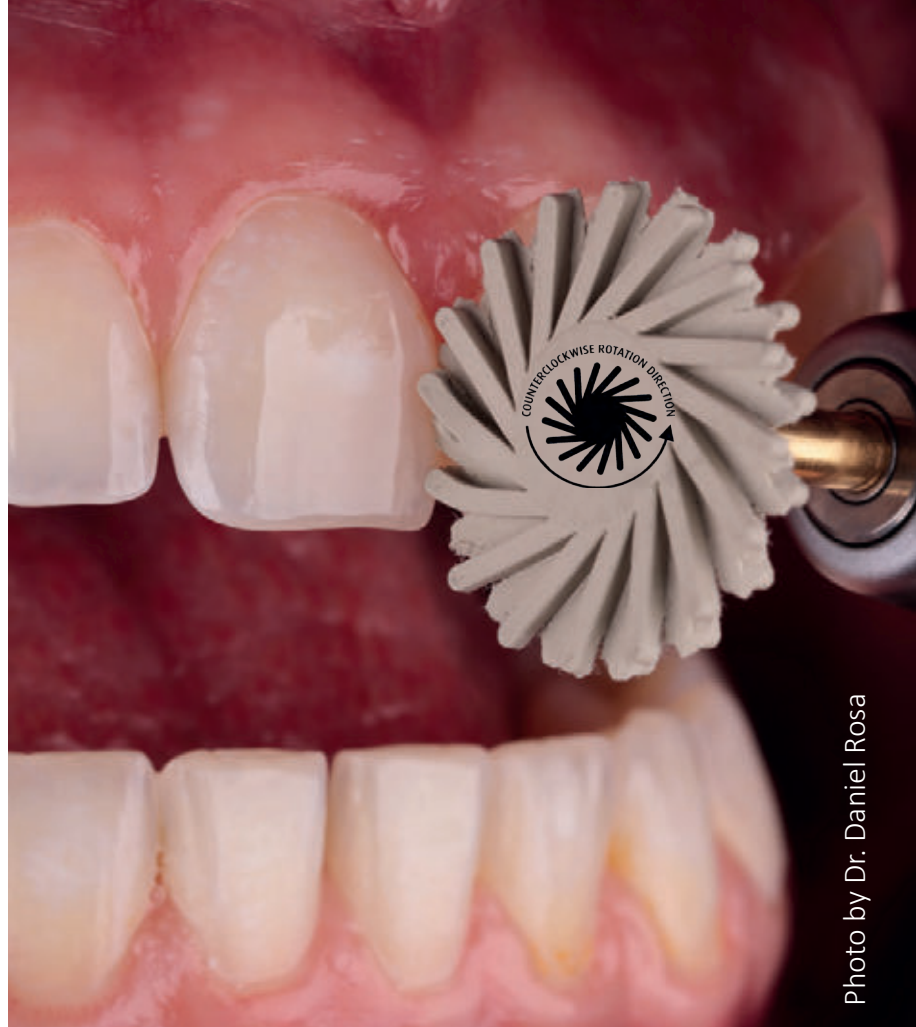


Photo by Dr. Daniel Rosa

COMPOSITE POLISHING

JOTA OCCLUPOL

Occlupol polishers have been developed especially for polishing the **occlusal surface** of teeth. The innovative shape helps to polish the **deepening of the fissures** and the **interdental spaces and cusps**. The **micro-diamond** grit in the composition makes composite restorations shine within a short time. Pastes and brushes are not necessary for polishing – **one shape** cares for all surfaces of chewing teeth. In addition, it is **sterilizable** and very **durable**.



Video about Occlupol on YouTube

PRE-POLISHING

9765M.RA.055



803204000525055

L=8.8 mm

2



3'000 - 8'000 rpm

HIGH-GLOSS POLISHING

9765F.RA.055



803204000525055

L=8.8 mm

2



3'000 - 8'000 rpm

Photo by Dr. Daniel Rosa

Jota



Photo by Dr. Gabriel Braganca



Photo by Dr. Gabriel Braganca

COMPOSITE POLISHING

JOTA SILICONE POLISHERS

The two-step polishing system is developed for **cost-efficient** polishing and pre-polishing of composites. These polishers contain silicon carbide grit, which is hard-bonded for **high durability**. Blue polishers pre-polish composite surfaces, and yellow polishers are intended for gloss polishing. Silicone polishers are also available in Kit 1899.

KIT 1899

SILICONE POLISHERS FOR COMPOSITE





COMPOSITE POLISHING

SILICONE PRE - POLISHERS

9121M.RA.050



685204243522050

L=10.0 mm



↻ 5'000 - 10'000 rpm

9122M.RA.030



685204243522030

L=7.5 mm



↻ 5'000 - 10'000 rpm

9123M.RA.070



685204030522070

L=10.0 mm



↻ 5'000 - 10'000 rpm

9124M.RA.110



685204304522110

L=2.5 mm



↻ 5'000 - 10'000 rpm

SILICONE POLISHERS

9121F.RA.050



685204243512050

L=10.0 mm



⌚ 5'000 - 10'000 rpm

9122F.RA.030



685204243512030

L=7.5 mm



⌚ 5'000 - 10'000 rpm

9123F.RA.070



685204030512070

L=10.0 mm



⌚ 5'000 - 10'000 rpm

9124F.RA.110



685204304512110

L=2.5 mm



⌚ 5'000 - 10'000 rpm

COMPOSITE POLISHING

IMPREGNATED BRUSHES

Impregnated brushes are developed for polishing composite, compomer, glass ionomer, or hybrid ceramic restorations in just **one step**. The filaments of the brushes contain silicon carbide grit; therefore, no paste is needed. Brushes are heat resistant and can be sterilized and reused.

Save time and money by trying abrasive-impregnated brushes!



Video about brushes on YouTube

1110.RA.070



655204010504070

L=5.5 mm



5'000 rpm

1111.RA.050



655204010504050

L=6.5 mm



5'000 rpm

1112.RA.050



655204131504050

L=6.5 mm



5'000 rpm



Photo by Dr. Ubiracy Gaião / Leonardo Cunha

LABORATORY INSTRUMENTS FOR DENTAL POLYMERS

In the laboratory there are many polymers, and these can be classified by different manufacturing processes, namely *conventional*, *additive*, and *subtractive*. See pages 3–6 for additive and subtractive materials.

Polymers have a wide range of applications in dentistry, such as *permanent and temporary restorations, dentures and teeth, splints and guides, orthodontic devices, models, and trays and casts*.

According to the specification of the American Dental Association, denture base polymers are classified into several types, depending on the polymerization activation reaction and their composition: *thermopolymerizable, self-curing and thermoplastic*.²⁰

Polymers are widely used on account of their **easy handling**, **reparation**, and **polishing** properties, and they are both **aesthetic** and **stable**. But there are also disadvantages, such as polymerization shrinkage, allergies to the components, poor wear resistance, and low fracture and flexural strength. Among the main disadvantages of PMMA denture polymer obtained by conventional processing methods are dimensional changes, residual monomer, and porosity.²¹ Therefore, 3D-printed materials and CAM-manufactured materials are increasing yearly. The literature has reported that CAD/CAM dental polymers have **lower residual monomer**, **lower shrinkage**, and can be produced **easily** and **quickly**.^{4,5,21}

Among the material properties, **surface roughness** is a factor of clinical importance because it affects the retention of microbial plaque, increasing the risk of surface fatigue and reducing biocompatibility.²¹ Appropriate finishing and polishing procedures are crucial for good clinical results.

The finishing and polishing processes can be performed in four distinct steps: *coarse adjusting* and *excess removal*, *contouring*, *soft finishing*, and *polishing*. The next chapter will present different HP shank instruments for these purposes. The laboratory instruments with the HP shank can be used by the dental technician for adjusting and polishing acrylic, thermoplastic and composite restorations, as well as by the dentist extraorally.

Jota has four types of instruments for dental polymers: **diamond burs** and **discs**, **carbide burs**, **abrasives**, and **polishers**.

- Diamond fine burs are used for **adjusting** and **finishing** composite and hybrid ceramics. **Diamond discs** can be used for **detaching** restorations from the CAD-CAM block and also for **teeth separation** of acrylic dentures and provisional restorations.
- **Carbide burs** are mainly used for **coarse** and **fine adjusting** of all acrylic dentures and thermoplastic aligners. Specific fissure carbide burs on page 79 are used for **detaching** the acrylic base from the blank, **cutting thermoplastic** materials from the plaster model, and **minor adjustments**.
- **Arkansas and white stones** can be used to **adjust** and **smooth** composite and provisional restorations.
- Various **silicone** and **diamond polishers** create smooth and gloss surfaces for all dental polymers. A very high gloss can be achieved with special **emulsion** together with brushes.

COMPOSITE CONTOURING AND FINISHING

JOTA DIAMOND BURS

801F.HP.016	801F.HP.023	801F.HP.033	830F.HP.023	852F.HP.023	859F.HP.018	859LF.HP.014	859LF.HP.018	882F.HP.018
								
806104001514016	806104001514023	806104001514033	806104257514023	806104199514023	806104166514018	806104167514014	806104167514018	806104142514018
L=1.6 mm	L=2.3 mm	L=3.3mm	L=5.0 mm	L=10.0 mm	L=10.0 mm	L=12.0 mm	L=12.0 mm	L=10.0 mm
Ø5	Ø5	Ø2	Ø5	Ø5	Ø5	Ø5	Ø5	Ø5



COMPOSITE AND ACRYLICS DETACHING & SEPARATION

JOTA DIAMOND DISCS

918D



932D



FIGURE	SHANK	REF	Ø	L mm	FIGURE	SHANK	REF	Ø	L mm
918D	HP	806104335524	220	0.50	932D	HP	806104350524	190	220
			1					1	0.30



COMPOSITE AND ACRYLICS SEPARATION

JOTA DIAMOND DISCS

911D



935D



FIGURE	SHANK	REF	Ø	L mm	FIGURE	SHANK	REF	Ø	L mm
911D	HP	806104332524	220	0.50	935D	HP	806104340524	190	220
911DF	HP	806104332514	220	0.45	935DF	HP	806104340514	190	220
1					1				

1

1

1



COMPOSITE AND ACRYLICS SEPARATION

JOTA DIAMOND DISCS

915D



FIGURE	SHANK	REF	Ø	L mm	Ø	L mm	Ø	L mm
915D	HP	806104355524	100	0.20	190	0.25	220	0.25
915DF	HP	806104355514	100	0.15	190	0.20	220	0.20

Ø 1

Ø 1

Ø 1

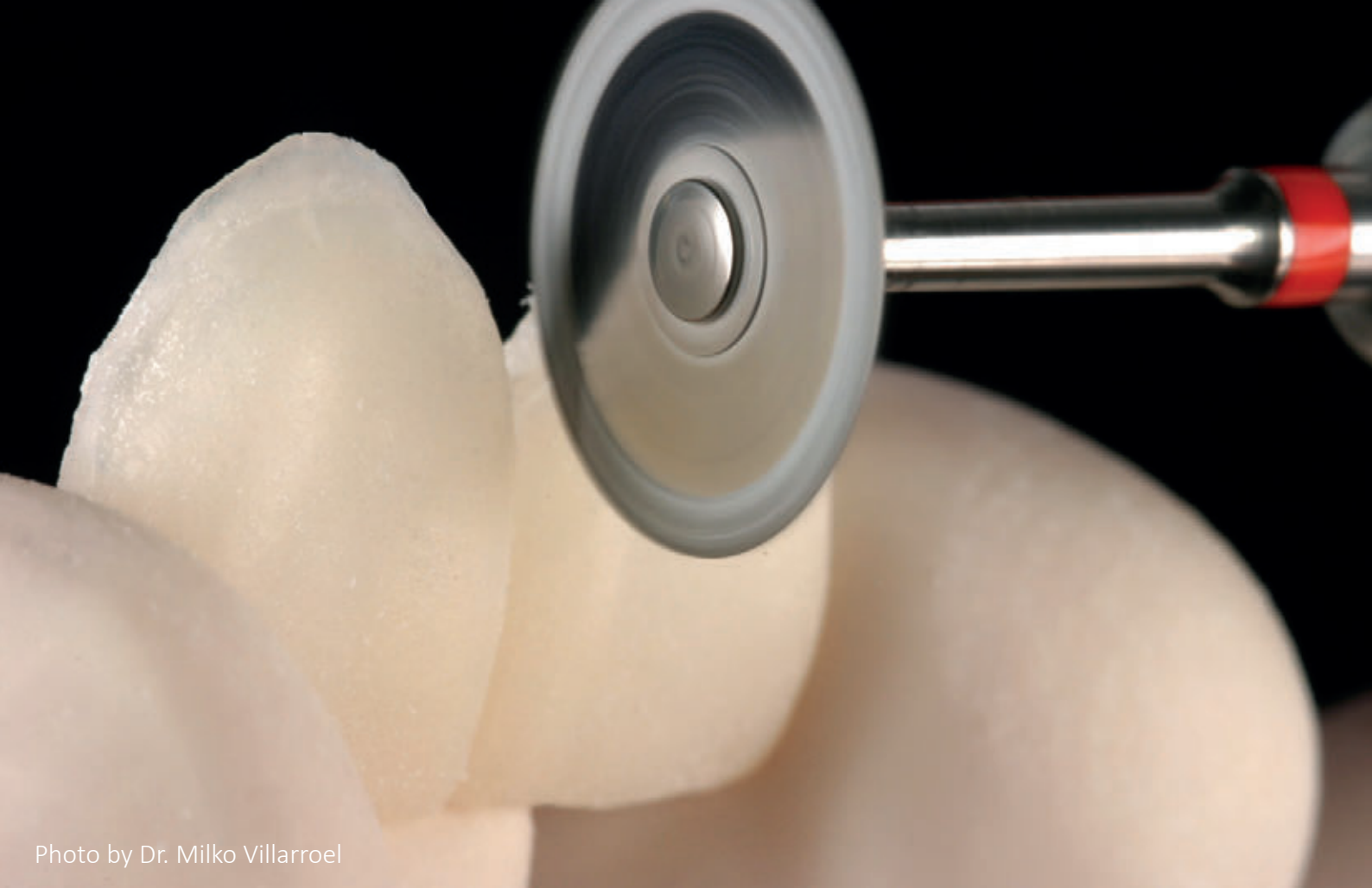
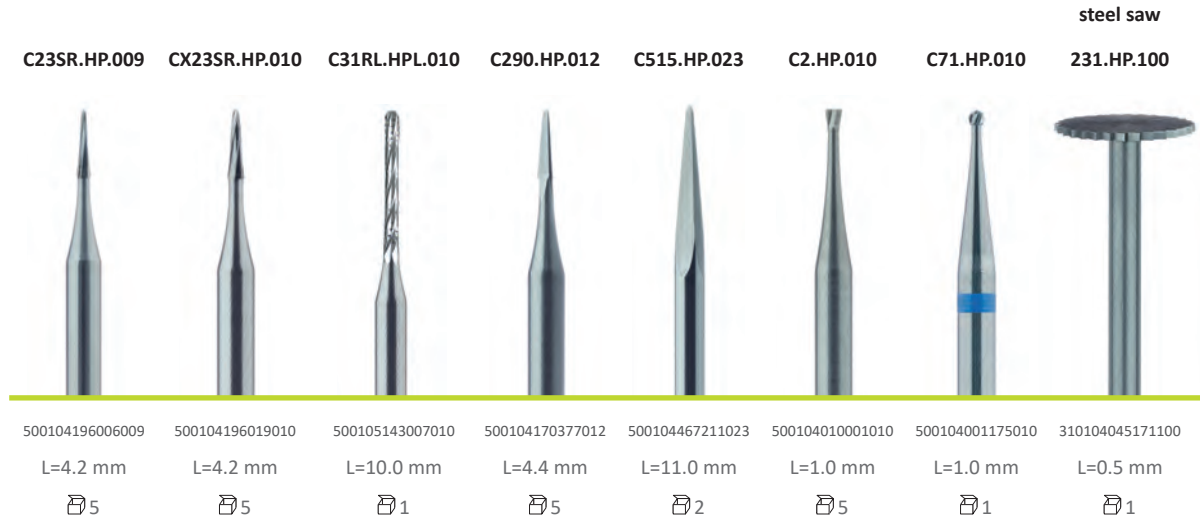


Photo by Dr. Milko Villarroel

ACRYLICS SMALL ADJUSTING & DETACHING CARBIDES

- Carbide burs C31RL, C290, and C515 are used for **detaching** the acryl base or restorations from the CAD-CAM disc.
- C290, C515, and a steel saw are recommended for **cutting** thermoplastic materials from the plaster model.
- C23SR, CX23SR, C2, and C71 are used for **minor adjustments**.





ACRYLICS ROUGH PREPARATION

X-CUT, COARSE

CX75G.HP.060 CX79G.HP.040 CX79G.HP.045 CX79G.HP.060 CX251G.HP.060



500104260220060

L=12.0mm

Ø 1

500104194220040

L=14.2 mm

Ø 1

500104194220045

L=12.7 mm

Ø 1

500104194220060

L=12.7 mm

Ø 1

500104274220060

L=14.7 mm

Ø 1



ACRYLICS TRIMMING

X-CUT, MEDIUM

CX71.HP.050	CX72.HP.060	CX73.HP.060	CX75.HP.060	CX77.HP.060	CX78.HP.060	CX79.HP.040	CX79.HP.045	CX79.HP.060
								
500104001190050	500104137190060	500104277190060	500104260190060	500104237190060	500104257190060	500104194190040	500104194190045	500104194190060
L=4.5 mm	L=13.7 mm	L=10.7 mm	L=12.0 mm	L=11.7 mm	L=12.7 mm	L=14.2 mm	L=12.7 mm	L=12.7 mm
Ø1	Ø1	Ø1	Ø1	Ø1	Ø1	Ø1	Ø1	Ø1

CX251.HP.060 CX416.HP.060



500104274190060

500104201190060

L=14.7 mm

L=14.7 mm

☐ 1

☐ 1



CARBIDE

ACRYLICS TRIMMING

X-CUT, MEDIUM , MINIS

CX23.HP.023 CX75.HP.040 CX138.HP.023 CX139.HP.023 CX251.HP.040 CX460.HP.023 CX486.HP.023 CX487.HP.023 CX30M.HP.023 CX77M.HP.023





ACRYLICS ADJUSTING

X-CUT, FINE

CX23F.HP.023 CX72F.HP.060 CX75F.HP.060 CX77F.HP.060 CX79F.HP.040 CX79F.HP.045 CX79F.HP.060 CX251F.HP.040 CX251F.HP.060



500104199140023 500104137140060 500104260140060 500104237140060 500104194140040 500104194140045 500104194140060 500104274140040 500104274140060

L=11.5 mm

L=13.7 mm

L=12.0 mm

L=11.7 mm

L=14.2 mm

L=12.7 mm

L=12.7 mm

L=9.3 mm

L=14.7 mm

Ø1

Ø1

Ø1

Ø1

Ø1

Ø1

Ø1

Ø1

Ø1



ACRYLICS ADJUSTING

X-CUT, FINE, MINIS

CX138F.HP.023 CX489F.HP.023 CX486F.HP.023 CX487F.HP.023 CX488F.HP.016 CX23MF.HP.014 CX30MF.HP.023 CX77MF.HP.023 CX78MF.HP.023



500104198140023

L=8.0 mm



500104187140023

L=15.0 mm



500104137140023

L=14.0 mm



500104292140023

L=14.0 mm



500104184140016

L=8.0 mm



500104196140014

L=4.8 mm



500104225140023

L=5.5 mm



500104237140023

L=5.5 mm



500104257140023

L=5.5 mm





Photo by Dr. Milko Villarroel

ACRYLICS PREPARATION & SMOOTHING

CROSS-CUT, MEDIUM & FINE

CQ75.HP.060



500104260176060

L=12.0 mm



CQ79.HP.040



500104194176040

L=14.2 mm



CQ251.HP.060



500104274176060

L=14.7 mm



C251QX.HP.060



500104274160060

L=14.7 mm



CQ79F.HP.040



500104194134040

L=14.2 mm



CQ251F.HP.060



500104274134060

L=14.7 mm





ACRYLICS & COMPOSITE ADJUSTING

JOTA WHITE STONES

White stones contain high-grade corundum. White stones are suitable for attachment point grinding and adjusting of composites, and for provisional acrylic restorations

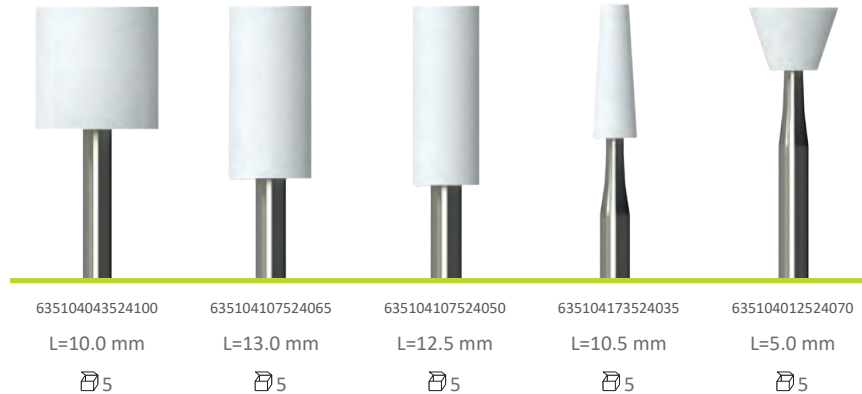
453.HP.100.WHI

731.HP.065.WHI

732.HP.050.WHI

733.HP.035.WHI

735S.HP.070.WHI





ACRYLICS & COMPOSITE FINISHING

JOTA ARKANSAS STONES

Arkansas stones are suitable for finishing, contouring of composites, and temporary acrylic restorations.

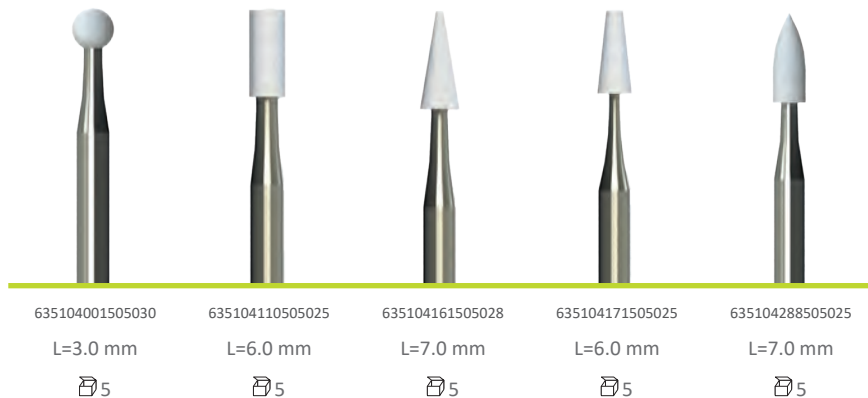
601.HP.030.ARK

638.HP.025.ARK

645.HP.028.ARK

649.HP.025.ARK

661.HP.025.ARK





ACRYLICS POLISHING

JOTA SILICONE POLISHERS

MATERIAL REMOVAL & SMOOTHING

9571G.HP.100

9572G.HP.100

9573G.HP.150

9574G.HP.055

9571M.HP.100

9572M.HP.100

9573M.HP.150

9574M.HP.055



658104300533100

658104275533100

658104201533150

658104243533055

658104300523100

658104275523100

658104201523150

658104243523055

L=20.0 mm

L=24.0 mm

L=17.0 mm

L=16.0 mm

L=20.0 mm

L=24.0 mm

L=17.0 mm

L=16.0 mm



5'000 - 7'000 rpm



5'000 - 7'000 rpm



5'000 - 7'000 rpm



5'000 - 7'000 rpm

POLISHING

9571F.HP.100

9572F.HP.100

9573F.HP.150

9574F.HP.055



658104300513100

658104275513100

658104201513150

658104243513055

L=20.0 mm

L=24.0 mm

L=17.0 mm

L=16.0 mm



5'000 - 7'000 rpm



5'000 - 7'000 rpm



COMPOSITE & ACRYLICS POLISHING

PRE-POLISHING & HIGH-GLOSS POLISHING

9310F.HP.055



653 104 292 513

L=16 mm



9160.HP.140



652104546503140

L=1.6 mm



9835.HP.050



803104292502050

L=16.0 mm



9840.HP.140



803104543503140

L=1.6 mm



9840.HP.170



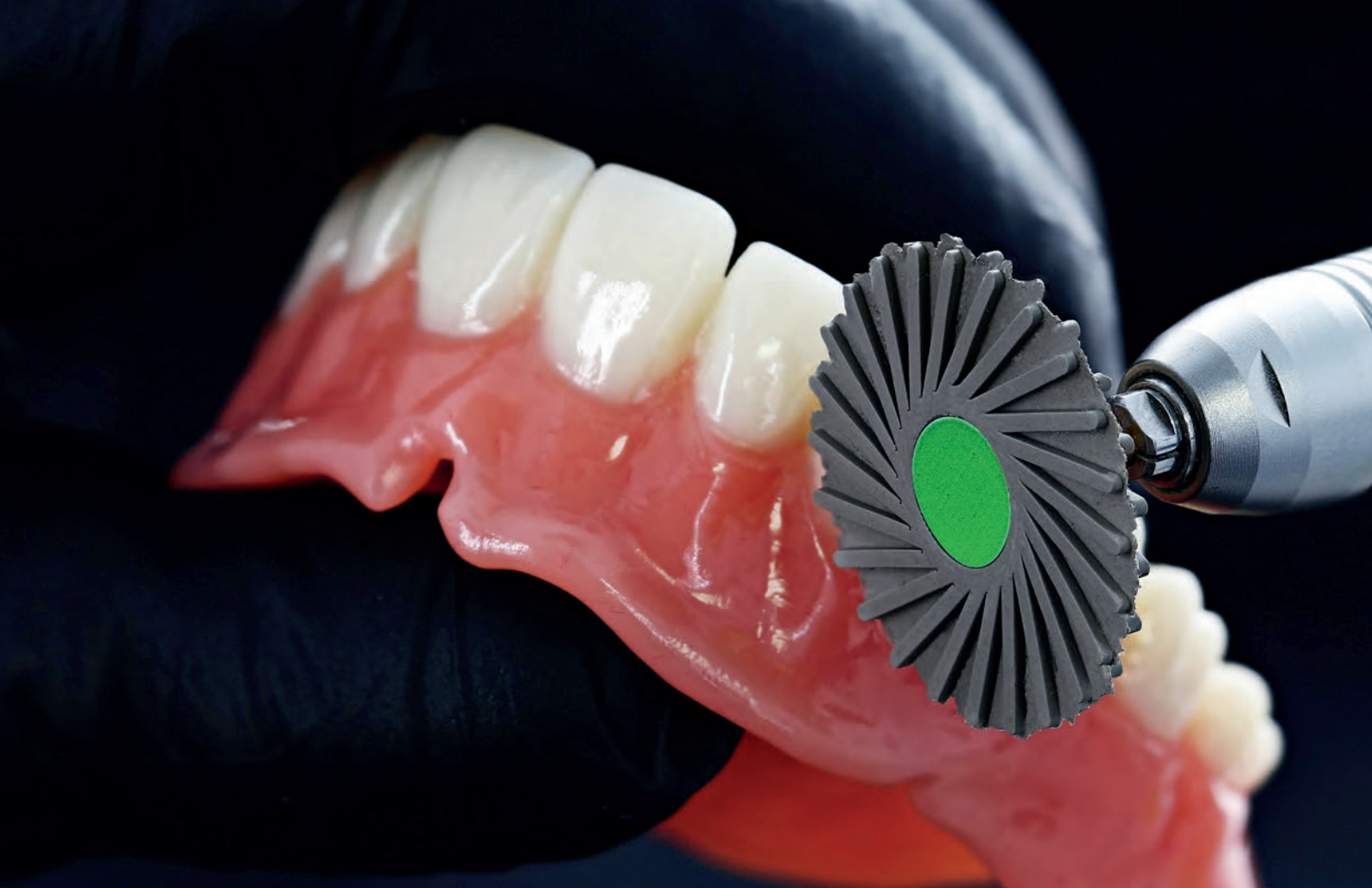
803104543503170

L=1.6 mm



↻ 7'500 - 12'000 rpm

↻ 3'000 - 10'000 rpm



ACRYLICS POLISHING

HIGH - GLOSS POLISHING

1121.HP.210 1125.HP.220 1147M.HP.250 1147MS.HP.250 1147F.HP.250 1163.HP.220 1164.HP.240 1166.HP.220 1170.HP.190



090104543000210	100104543000220	030104045003250	030104045002250	030104045001250	960104045000220	080104045004240	950104549000220	623104543533190
L=2.0 mm	L=2.0 mm	L=12.0 mm	L=8.0 mm	L=12.0 mm	-	-	-	L=1.0 mm
⌀5	⌀5	⌀5	⌀5	⌀5	⌀5	⌀5	⌀5	⌀1
↻ 10'000 rpm		↻ 10'000 rpm	↻ 7'000 rpm	↻ 10'000 rpm	↻ 10'000 rpm		↻ 10'000 rpm	



1550



Emulsion

50 ml



Photo by Dr. Daniel Rosa

HYBRIDE CERAMICS / COMPOSITE PROCESSING

KIT 1451

Kit 1451 contains fine-grained diamond instruments for cutting and contouring restorations, plus Arkansas stones for grinding and finishing. A two-stage Swivel polishing system completes this kit.

SHAPE	FIGURE	SHANK	REF	SIZE	PIECES
	859F	HP	806 104 166 514	018	1
	882F	HP	806 104 142 514	018	1
	732.WHI	HP	635 104 107 524	050	1
	733.WHI	HP	635 104 173 524	035	1
	9160	HP	652 104 546 503	140	1
	9840	HP	803 104 543 503	140	1



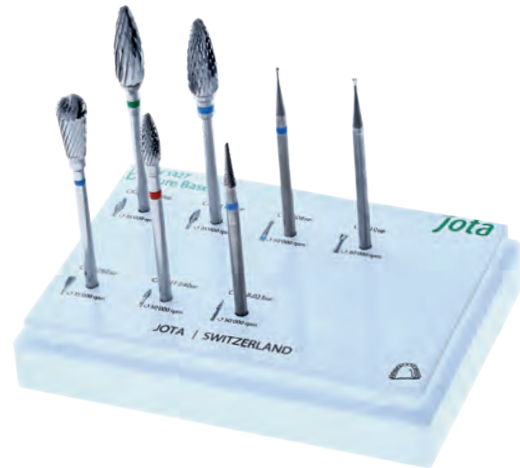
JOTA DENTURE BASE

KITS

KIT 1427

Kit 1427 contains carbide burs for roughing and finishing the base of acrylic dentures; they assist in finishing undercuts and detailing acrylic teeth.

SHAPE	FIGURE	SHANK	REF	SIZE	PIECES
	CX251G	HP	500 104 274 220	60	1
	CX251	HP	500 104 274 190	060	1
	CX77	HP	500 104 237 190	060	1
	CX138	HP	500 104 198 190	023	1
	C71	HP	500 104 001 175	010	1
	CX251F	HP	500 104 274 140	040	1
	C2	HP	500 104 010 001	010	1



JOTA DENTURE POLISHING

KIT 1401

The Denture Polishing Kit offers comprehensive instruments for systematic and easy polishing of acrylic dentures and denture teeth. For best results, Kit 1401 should be combined with Jota's High Gloss Emulsion, item number 1550.

SHAPE	FIGURE	SHANK	REF	SIZE	PIECES
	1166	HP	950 104 549 000	220	1
	1121	HP	090 104 543 000	210	1
	1170	HP	623 104 543 533	190	1
	9108G	HP	658 900 133 533	060	1
	9574G	HP	658 104 243 533	055	1
	9571G	HP	658 104 300 533	100	1

SHAPE	FIGURE	SHANK	REF	SIZE	PIECES
	1147M	HP	030 104 045 003	250	1
	1147F	HP	030 104 045 001	250	1



JOTA DENTURE POLISH

KITS

KIT 1877

Denture Polish Kit 1877 is a practical polishing system for all types of acrylic dentures: it is easy to use, fast, and gives excellent results. The kit consists of a 3-step polishing system and complementary brushes. For best results, Kit 1877 should be combined with Jota's high-gloss emulsion (article number 1550).

SHAPE	FIGURE	SHANK	REF	SIZE	PIECES
	9572G	HP	658 104 275 533	100	1
	9574G	HP	658 104 243 533	055	1
	9572M	HP	658 104 275 523	100	1
	9574M	HP	658 104 243 523	055	1
	9572F	HP	658 104 275 513	100	1
	9574F	HP	658 104 243 513	055	1
	1164	HP	080 104 045 004	240	1

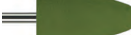
SHAPE	FIGURE	SHANK	REF	SIZE	PIECES
	1170	HP	623 104 543 533	190	1



KIT DIGITAL DENTURE

KIT 1888

Modern technologies in the manufacture of removable dentures using computer design require appropriate techniques for finishing and polishing. Digital Denture Kit 1888 enables the processing, separating, and polishing of CAD/CAM- and 3D-manufactured dentures made of reinforced PMMA, PMMA, composite, and bis-acryl.

SHAPE	FIGURE	SHANK	REF	SIZE	PIECES
	C71	HP	500 104 001 175	010	1
	CX251F	HP	500 104 274 140	060	1
	C515	HP	500 104 467 211	023	1
	915DF	HP	806 104 355 514	190	1
	9572G	HP	658 104 275 533	100	1
	9840	HP	803 104 543 503	260	1

SHAPE	FIGURE	SHANK	REF	SIZE	PIECES
	1121	HP	090 104 543 000	210	1
	1163	HP	960 104 045 000	220	1



B.E.F. KIT 1833

KITS

ACC. DR.MILKO VILLARROEL

This kit was developed together with opinion leader Dr. Milko Villarroel. By following three simple steps, you can achieve the desired results in PMMA or Bis-Acrylic. A fine-cut tungsten carbide instrument removes more significant excesses and designs a proper margin fit. The super-flexible diamond disc is coated on one side and used to separate and customize elements. Universal polisher and impregnated brush are used for pre-polishing. A soft goat hairbrush and a fine fabric disc together with polishing paste provide the perfect polishing.

SHAPE	FIGURE	SHANK	REF	SIZE	PIECES
	CX78MF	HP	500 104 257 140	023	1
	915DF	HP	806 104 355 514	100	1
	1121	HP	090 104 543 000	210	1
	1163	HP	960 104 045 000	220	1

SHAPE	FIGURE	SHANK	REF	SIZE	PIECES
	1170	HP	623 104 543 533	190	1
	9108G	HP	658 900 133 533	060	1



PROVISIONAL ADJUSTMENT AND POLISHING

KIT 1840

SHAPE	FIGURE	SHANK	REF	SIZE	PIECES
	733.PNK	HP	625 104 173 523	035	1
	9571G	HP	658 104 300 533	100	1
	9571M	HP	658 104 300 523	100	1
	9571F	HP	658 104 300 513	100	1
	1170	HP	623 104 543 533	190	1
	1121	HP	090 104 543 000	210	1

JOTA Kit 1840 is designed for processing and polishing temporaries.



PEEK PROFI

KITS

KIT 1445

The kit contains the instruments necessary for fitting, grinding, and polishing resin restorations made of high-performance polymers such as PEEK/PEKK/PAEK. In prosthetics, these high-performance polymers have been established as a popular framework material, especially for superstructures. The material can be milled and pressed and is then fine-machined and polished with the Peek Profi Set 1445.

SHAPE	FIGURE	SHANK	REF	SIZE	PIECES
	CQ79F	HP	500 104 194 134	040	1
	CX488F	HP	500 104 184 140	016	1
	732.PNK	HP	625 104 107 523	050	1
	9574M	HP	658 104 243 523	055	1
	9805F	HP	803 104 543 514	140	1



HARD SPLINT KIT – PRECISION AND EFFICIENCY FOR HARD SPLINTS

KIT 1560

SHAPE	FIGURE	SHANK	REF	SIZE	PIECES
	C515	HP	500 104 467 211	023	1
	C251QX	HP	500 104 274 160	060	1
	9607M	UM	658 900 303 525	220	1
	303	HP	312 104 603 391	050	1
	1147MS	HP	030 104 045 002	250	1
	1123	HP	100 104 543 001	210	1

The HARD SPLINT KIT provides dental professionals with a perfectly matched selection of instruments for the precise processing of thermoformed splints. From the initial trimming of excess foil to the final high-gloss polish, this set ensures efficient processing with outstanding surface quality.



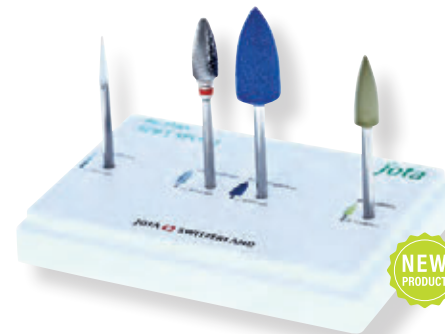
SOFT SPLINT KIT – PRECISION AND EFFICIENCY FOR SOFT SPLINTS

KITS

KIT 1561

SHAPE	FIGURE	SHANK	REF	SIZE	PIECES
	C515	HP	500 104 467 211	023	1
	CX251F	HP	500 104 274 140	060	1
	B751.BLU	HP	635 104 273 534	100	1
	9574F	HP	658 104 243 513	055	1

The SOFT SPLINT KIT provides dental professionals with a perfectly matched selection of instruments specifically designed for the precise processing of thermoplastic splints. These instruments ensure effortless and accurate adjustments while providing optimal surface quality. They support all processing steps – from coarse pre-finishing to the finest detailing.



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