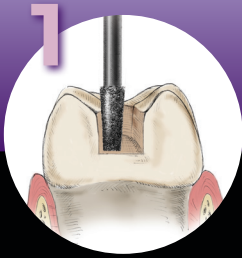# TOOTH PREPARATIONS WITH ROBOT DIAMONDS

INLAY/ONLAY

1

Figure 1
The onlay restoration, prepared with a large **Flat End Tapered Cylinder Diamond,** features rounded internal line angles and a minimum isthmus width of 2.0mm. The minimum depth is 1.5mm in thickness.
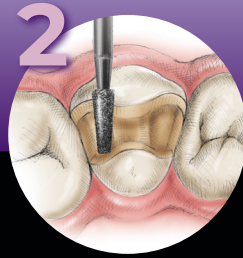
2

Figure 2
Less extensive restorations can be prepared using a smaller **Flat End Tapered Cylinder Diamond** with rounded corners.
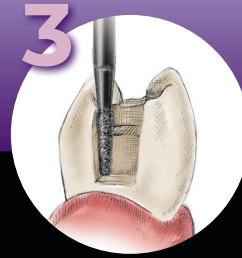
3

Figure 3
A smaller **Flat End Tapered Cylinder Diamond** is used to taper proximal areas where access is more challenging. Preservation of sound tooth structure is a requisite throughout the approach.

4

Figure 4
A smooth butt joint gingival margin should be created through the preparation sequence.

SHOULDER MARGINS

5

Figure 5
The shoulder preparation is frequently used for anterior/posterior crown and bridge indications and is characterized by its 90-degree angle.

6
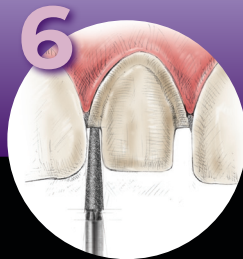
Figure 6
The facial shoulder and lingual beveled margins are rendered with a **Flat End Tapered Cylinder Diamond** and **Round End Straight Cylinder Diamond**, respectively.

7
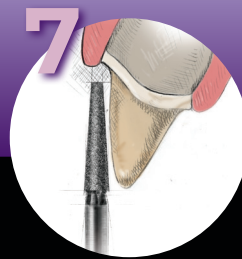
Figure 7
The incisal aspect of the tooth is prepared faciolingually using a **Flat End Tapered Cylinder Diamond** to achieve two-plane reduction and smooth, rounded line angles for the preparation.

8

Figure 8
Beveled shoulders change the finish line angle to 45-degrees, improving the fit and aesthetics for porcelain-fused-to-metal restorations.

KNIFE-EDGE MARGINS

9
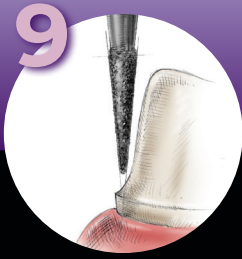
Figure 9
The knife-edge margin is often useful on the lingual surfaces of mandibular posterior teeth, on those with convex axial surfaces, and on tilted teeth.

10
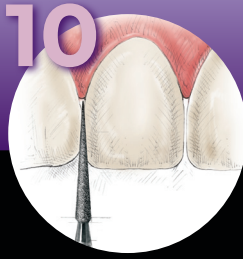
Figure 10
Preservation of the patient's existing tooth structure is priority with the knife-edge margin design.

11
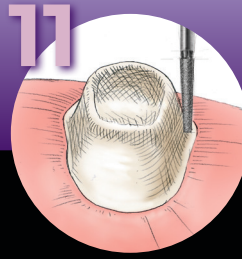
Figure 11
It is important that axial reduction yields a definitive finish line during tooth preparation.

12
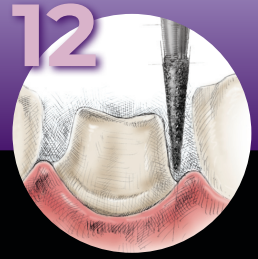
Figure 12
Achieved with the use of a **Needle Tapered Cylinder Diamond**, the knife-edge margin permits the development of an acute margin.

CHAMFER MARGINS

13
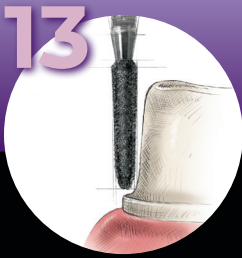
Figure 13
The chamfer margin is popular for various fixed prosthodontic restorations and is characterized by its tapered shape and smooth internal line angles.

14
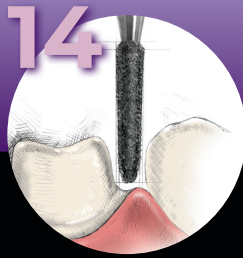
Figure 14
The facial reduction (approximately 1.2mm to 1.5mm) of the tooth surface is completed using the bullet-shaped **Round End Straight Cylinder Diamond**.

15

Figure 15
The bullet-shaped rounded cylinder **Round End Straight Cylinder Diamond** is used for more extensive reduction of the labial tooth surface. It can also be used for gingival curettage.

16

Figure 16
The occlusal or lingual reduction of 1.0mm to 1.5mm is performed using a football-shaped **Bud Diamond**. Rounded internal line angles complete the preparation design.

INLAY/ONLAY

TAPERED CYLINDER (Flat End)

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	4.0	R	0810-1	ISO 170/012	n/a	845-014	722.6	846-014
	4.4	R	0812-1	ISO 170/017	6846-012	845-016	722.8	846-016
	5.0	R	0813-1	ISO 170/017	6846-016	846-016	724.8	846-016
	5.0	R	0814-1	ISO 170/022	n/a	845-014	701.7	n/a
	7.0	R	0816-1	ISO 171/016	6847-012	847-016	703.8	847-016
	9.0	C	817C-1	ISO 172/019	5848-016	847-018	701.9	847-018
	9.0	R	0818-1	ISO 172/021	6848-023	848-018	703.8	n/a
	10.0	R	0820-1	ISO 173/017	6848-016	848-016	700.8	848-016
	10.0	F	820F-1	ISO 173/015	6848-016	848-016	700.8	848-016
	12.0	R	0822-1	ISO 174/020	n/a	848-018	798.10	848-018
	10.0	R	0824-1	ISO 173/022	6848-018	848-018	727.10	n/a

Many clinicians opt to use Corner Rounded burs for this indication; please refer to the Shoulder or...

KNIFE-EDGE MARGINS

TAPERED CYLINDER (Needle)

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	6.0	F	847F-1	ISO 164/014	8852-012	858-014	207.7	858-014
	8.0	R	0848-1	ISO 165/013	6858-014	859-014	608.9	858-014
	8.0	F	848F-1	ISO 165/012	6858-014	859-014	608.9	858-014
	10.0	R	0850-1	ISO 166/018	6859-018	859-016	207.10	859-016
	10.0	SC	850X-1	ISO 166/018	6859-018	859-016	207.10	859-016
	10.0	F	850F-1	ISO 166/015	6859-018	859-016	207.10	859-016
	10.0	R	0852-1	ISO 166/022	6859-021	859-021	209.10	n/a

TAPERED CYLINDER (Corner Round)

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	4.0	R	0789-1	ISO 544/018	846KR-016	846KR	585.5KR	n/a
	4.0	SF	789V-1	ISO 544/018	846KR-016	846KR	585.5KR	n/a
	5.0	R	0790-1	ISO 544/021	846KR-016	846KR	575.7KR	n/a
	5.0	SF	790V-1	ISO 544/021	846KR-016	846KR	575.7KR	n/a
	7.0	R	0791-1	ISO 545/018	847KR-018	847KR-018	703.8KR	n/a
	7.0	SF	791V-1	ISO 545/018	847KR-018	847KR-018	703.8KR	n/a
	10.0	R	0792-1	ISO 553/019	850KR-014	850KR-014	722.8KR	n/a
	10.0	SF	792V-1	ISO 553/019	850KR-014	850KR-014	722.8KR	n/a
	10.0	R	0793-1	ISO 553/023	850KR-018	850KR-018	588.10KR	n/a
	10.0	SF	793V-1	ISO 553/023	850KR-018	850KR-018	588.10KR	n/a
	3.5	R	0825-1	ISO 544/027	n/a	845KR-018	708.4KR	n/a
	3.5	SF	825V-1	ISO 544/027	n/a	845KR-018	708.4KR	n/a
	3.5	R	0826-1	ISO 544/031	n/a	845KR-025	708.4KR	n/a
	3.5	SF	826V-1	ISO 544/031	n/a	845KR-025	708.4KR	n/a

FLAME

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	4.0	SF	841V-1	ISO 243/009	6860-010	889-009	260.3	n/a
	7.5	R	0842-1	ISO 249/017	6862-016	863-016	260.8	862-016
	7.5	F	842F-1	ISO 249/016	6862-016	863-016	260.8	862-016
	6.0	SF	843V-1	ISO 243/012	8860-012	860-012	260.6.5	n/a
	9.0	R	0844-1	ISO 249/023	6888-012	888-012	263.8	n/a

CHAMFER MARGINS

STRAIGHT CYLINDER

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	4.0	R	0800-1	ISO 107/010	6836-012	835-010	514.3	835-008
	4.5	R	0801-1	ISO 109/013	6836-014	835-012	514.4	835-012
	7.0	R	0803-1	ISO 110/015	6837-014	836-014	514.7	837-014
	7.0	R	0805-1	ISO 110/016	6837-016	837-014	515.7	837-016
	7.0	R	0807-1	ISO 110/016	6837-016	837-016	515.8	n/a
	8.0	SF	808V-1	ISO 158/013	837KR-014	837KR-014	586.8	507

STRAIGHT CYLINDER (Round End)

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	8.0	SC	845X-1	ISO 289/016	5885-014	878-012	248.8	878K-014
	8.0	C	845C-1	ISO 289/015	5885-014	878-012	248.8	878K-014
	8.0	R	0846-1	ISO 130/016	6885-014	885-014	250.9	886-016
	8.0	F	846F-1	ISO 130/014	6885-014	885-014	250.9	886-016

TAPERED CYLINDER (Flat End)

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	5.0	R	0830-1	ISO 196/013	n/a	849-010	767.7	855-014

TAPERED CYLINDER (Round End)

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	9.0	R	0831-1	ISO 198/013	6850-014	850-014	781.8	n/a
	7.0	R	0832-1	ISO 222/016	6855-012	855-014	767.9	856-016
	7.0	SC	832X-1	ISO 222/016	6855-012	855-014	767.9	856-016
	7.0	F	832F-1	ISO 222/015	6855-012	855-014	767.9	856-016
	9.0	R	0833-1	ISO 223/017	856-014	856-014	767.8/782.8	755 (1DT)
	9.0	SF	833V-1	ISO 198/018	856-014	856-014	767.8/782.8	755 (1DT)
	10.0	R	0834-1	ISO193/018	6850-014	850-014	777.8	854-016
	9.0	R	0835-1	ISO 223/018	6850-016	850-018	770.9	856-018
	9.0	SC	835X-1	ISO 223/019	6850-016	850-018	770.9	856-018
	9.0	C	835C-1	ISO 223/018	6850-016	850-018	770.9	856-018
	9.0	F	835F-1	ISO 223/016	6850-016	850-018	770.9	856-018
	9.0	R	0836-1	ISO 198/021	856-016	856-016	770.8/767.8	775/776
	9.0	SF	836V-1	ISO 198/021	8850-016	856-018	784.10	n/a
	9.0	R	0837-1	ISO 223/023	6850-023	856-021	784.10	n/a
	11.5	R	0838-1	ISO 223/023	6850-018	856-023	799.11	854-021
	9.0	R	0839-1	ISO 198/023	856L-018	856L-018	780.9/770.8	765 (1 1/8DT)
	9.0	SF	839V-1	ISO 198/023	856L-018	856L-018	780.9/770.8	765 (1 1/8DT)

FLAME

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	7.5	R	0840-1	ISO 249/014	6862-014	862-010	261.8	n/a
	7.5	SC	840X-1	ISO 249/016	6862-014	862-010	261.8	n/a
	7.5	C	840C-1	ISO 249/015	6862-014	862-010	261.8	n/a
	7.5	F	840F-1	ISO 249/013	6862-014	862-010	261.8	n/a
	7.5	SF	840V-1	ISO 249/012	6862-014	862-010	261.8	n/a

SHOULDER MARGINS

TAPERED CYLINDER (Flat End)

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	7.0	R	0816-1	ISO 171/016	6847-012	847-016	703.8	847-016

TAPERED CYLINDER (Corner Round)

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	4.0	R	0789-1	ISO 544/018	846KR-016	846KR	585.5KR	n/a
	4.0	SF	789V-1	ISO 544/018	846KR-016	846KR	585.5KR	n/a
	5.0	R	0790-1	ISO 544/021	846KR-016	846KR	575.7KR	n/a
	5.0	SF	790V-1	ISO 544/021	846KR-016	846KR	575.7KR	n/a
	7.0	R	0791-1	ISO 545/018	847KR-018	847KR-018	703.8KR	n/a
	7.0	SF	791V-1	ISO 545/018	847KR-018	847KR-018	703.8KR	n/a
	10.0	R	0792-1	ISO 553/019	850KR-014	850KR-014	722.8KR	n/a
	10.0	SF	792V-1	ISO 553/019	850KR-014	850KR-014	722.8KR	n/a
	10.0	R	0793-1	ISO 553/023	850KR-018	850KR-018	588.10KR	n/a
	10.0	SF	793V-1	ISO 553/023	850KR-018	850KR-018	588.10KR	n/a
	3.5	R	0825-1	ISO 544/027	n/a	845KR-018	708.4KR	n/a
	3.5	SF	825V-1	ISO 544/027	n/a	845KR-018	708.4KR	n/a
	3.5	R	0826-1	ISO 544/031	n/a	845KR-025	708.4KR	n/a
	3.5	SF	826V-1	ISO 544/031	n/a	845KR-025	708.4KR	n/a

GUIDE GROOVE CUTTER

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	3.6	R	0896-1	ISO 552/026	834-016	834-016	DC0.3	n/a
	4.0	R	0897-1	ISO 552/036	834A-031	834A-031	DC0.5	n/a

MULTIPLE USE

ROUND

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	1.0	R	0872-1	ISO 001/014	6801-014	801-014	115	801-014
	1.2	R	0874-1	ISO 001/016	6801-016	801-016	120	n/a
	1.3	SF	874V-1	ISO 001/015	6801-016	801-016	120	n/a
	1.4	R	0875-1	ISO 001/018	6801-018	801-018	125	801-018
	1.4	F	875F-1	ISO 001/017	6801-018	801-018	125	801-018
	1.8	R	0876-1	ISO 001/022	6801-023	801-021	130	801-021
	1.8	SC	876X-1	ISO 001/024	6801-023	801-021	130	801-021

PEAR

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	4.5	R	0878-1	ISO 237/015	6830L-014	830L-014	362.3	n/a
	4.5	R	0879-1	ISO 237/016	6830L-016	830L-016	364.5	n/a
	6.5	R	0891-1	ISO 237/025	n/a	830-016	365.4	n/a
	5.0	R	0892-1	ISO 237/033	35010-031	830-016	287.4	n/a
	5.0	SC	892X-1	ISO 237/034	35010-031	830-016	287.4	n/a

WHEEL

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	1.4	R	0885-1	ISO 042/044	820-060	818-040	863	820-042
	0.8	R	0886-1	ISO 041/052	818-050	818-035	n/a	n/a

WHEEL (Knife Edge)

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	0.8	R	0888-1	ISO 304/028	825-023	n/a	n/a	n/a
	1.2	R	0890-1	ISO 304/050	825-050	n/a	n/a	n/a

WHEEL (Round End)

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	1.3	R	0894-1	ISO 068/034	909-040	909-037	860	909-035
	1.8	R	0895-1	ISO 068/046	6909-040	909-040	862	909-042
	1.9	SC	895X-1	ISO 068/047	6909-040	909-040	862	909-042
	1.8	C	895C-1	ISO 068/046	6909-040	909-040	862	909-042

EGG

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	4.9	R	0893-1	ISO 277/029	379-023	379-023	n/a	n/a
	4.9	SF	893V-1	ISO 277/029	38010-024	379-023	287.4	n/a

GUIDE GROOVE CUTTER

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	3.6	R	0896-1	ISO 552/026	834-016	834-016	DC0.3	n/a
	4.0	R	0897-1	ISO 552/036	834A-031	834A-031	DC0.5	n/a

CORN

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	5.0	R	0898-1	ISO 039/033	6811-033	811-033	234	n/a
	5.0	SC	898X-1	ISO 039/034	6811-033	811-033	234	n/a
	5.7	R	0899-1	ISO 031/035	n/a	n/a	n/a	n/a
	5.7	SF	899V-1	ISO 031/035	n/a	n/a	n/a	n/a

BUD

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	3.0	R	0880-1	ISO 243/017	8368-016	368-016	292.3	n/a
	3.4	SF	880V-1	ISO 243/014	8368-016	368-016	292.3	n/a
	3.5	R	0881-1	ISO 257/022	6368-016	368-018	283.4	868-024
	5.0	R	0883-1	ISO 243/022	6368-023	368-023	285.5	868-024
	5.0	SC	883X-1	ISO 243/023	6368-023	368-023	285.5	868-024
	5.0	C	883C-1	ISO 243/022	6368-023	368-023	285.5	868-024
	5.0	F	883F-1	ISO 243/020	6368-023	368-023	285.5	868-024
	5.0	SF	883V-1	ISO 243/019	6368-023	368-023	285.5	868-024

INVERTED CONE S TYPE

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	1.5	R	0855-1	ISO 032/013	6813-014	813-012	1210	n/a
	2.0	R	0856-1	ISO 032/016	6813-016	813-014	1220	n/a
	2.3	R	0858-1	ISO 032/021	6813-016	813-016	1220	n/a
	2.2	R	0859-1	ISO 019/010	806-009	806-010	n/a	n/a
	3.6	R	0860-1	ISO 019/015	806-016	806-012	n/a	n/a
	3.5	R	0861-1	ISO 019/017	806-018	806-014	1250	806-016

INVERTED CONE

DESCRIPTION	LENGTH	GRIT	SHOFU		BRASSELER	AXIS NTI	PREMIER	SS WHITE
	1.4	R	0864-1	ISO 012/014	805-016	805-010	310.1	805-016
	1.6	R	0865-1	ISO 012/016	805-018	805-012	315.1.75	n/a
	1.7	R	0866-1	ISO 013/025	805-023	805-016	324.1	n/a
	4.4	R	0868-1	ISO 225/020	807-016	807-016	n/a	n/a
	7.0	R	0870-1	ISO 226/024	807-018	807-018	n/a	n/a

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