

UNIVERSIDADE DE SÃO PAULO

FACULDADE DE ODONTOLOGIA DE RIBEIRÃO PRETO

DISCIPLINA DE ENDODONTIA

FORP - USP

Prof. Dr. ANTONIO MIRANDA DA CRUZ FILHO



INSTRUMENTOS MANUAIS



Geralmente aço inox

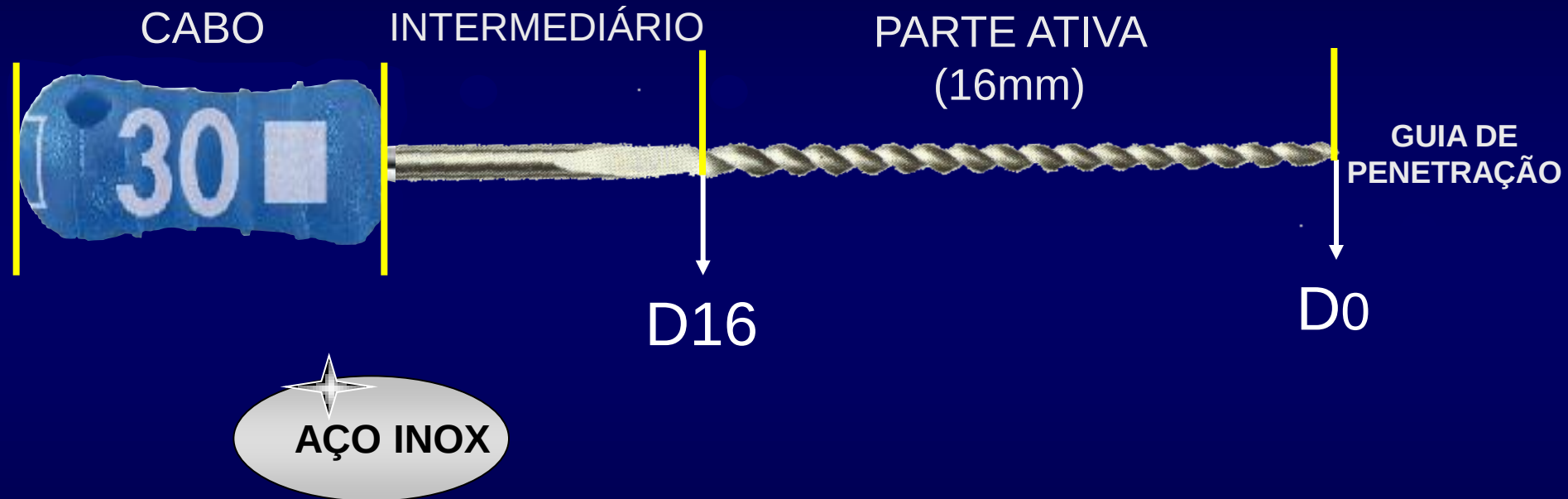
Padronização INGLE e LEVINE (1958)

Associação Americana de Endodontia (1962)

Normas de fabricação ISO/FDI (1992)

The International Organization for Standardização

COMPONENTES



Padronização INGLE e LEVINE (1958)

Associação Americana de Endodontia (1962)

PARTE ATIVA

TAPER
.02



$$D16 = D0 + 320\mu\text{m}$$

INTERMEDIÁRIO

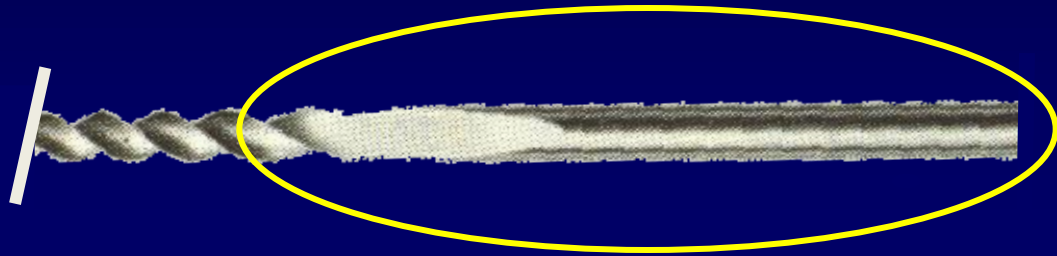
Confere comprimento ao instrumento

21 mm

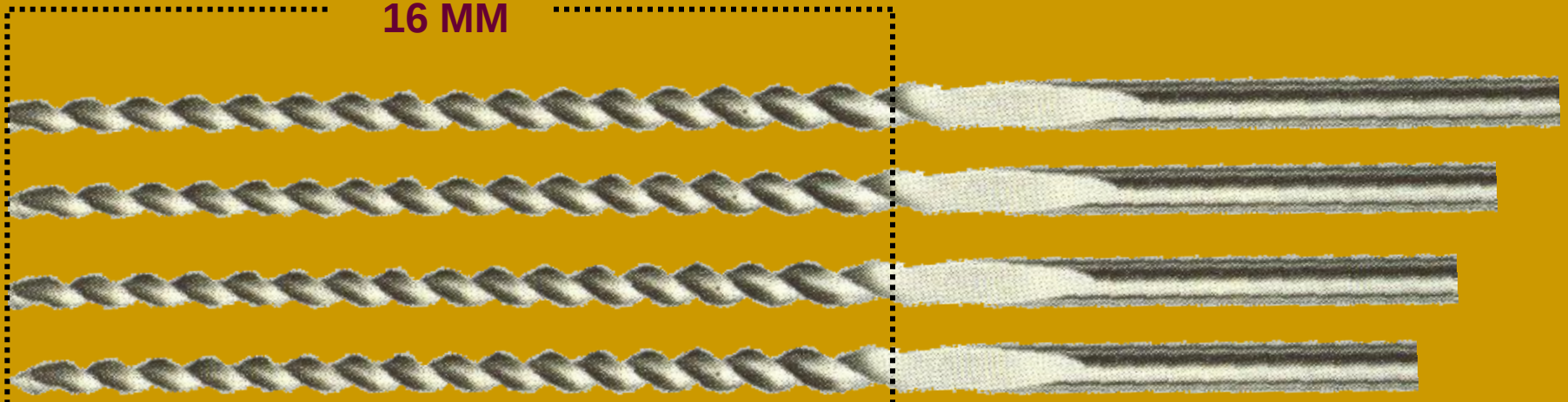
25 mm

28 mm

31 mm



16 MM



CABO DO INSTRUMENTO



SECÇÃO
TRANSVERSAL

Nº DE SÉRIE **X 10**

Valor de D0 em μm

SÉRIES DOS INSTRUMENTOS

Série Especial

06 - Rosa

08 - Cinza

10 - Roxa



SÉRIES DOS INSTRUMENTOS

1ª Série

15 - Branca

20 - Amarela

25 - Vermelha

30 - Azul

35 - Verde

40 - Preta

2ª Série

45 - Branca

50 - Amarela

55 - Vermelha

60 - Azul

70 - Verde

80 - Preta

3ª Série

90 - Branca

100 - Amarela

110 - Vermelha

120 - Azul

130 - Verde

140 - Preta

INSTRUMENTOS ENDODÔNTICOS MANUAIS

ALARGADOR

LIMAS

Tipo K

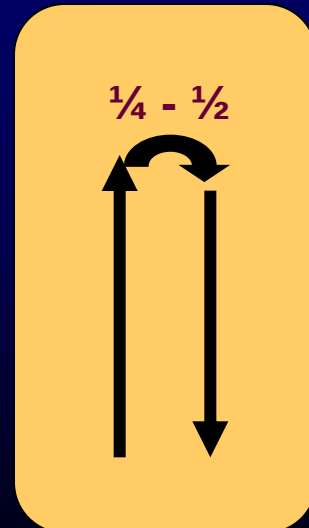
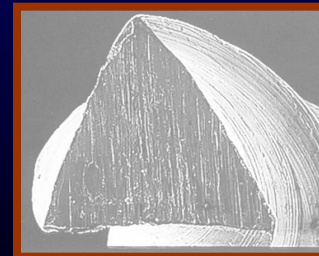
Hedströen

ALARGADOR

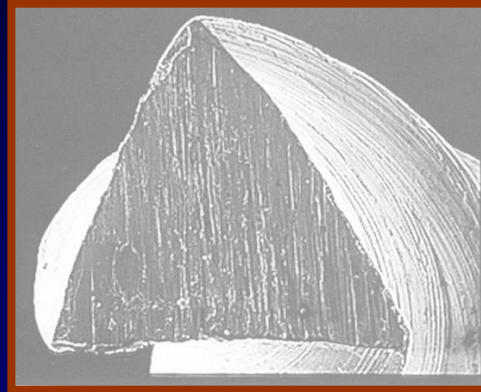
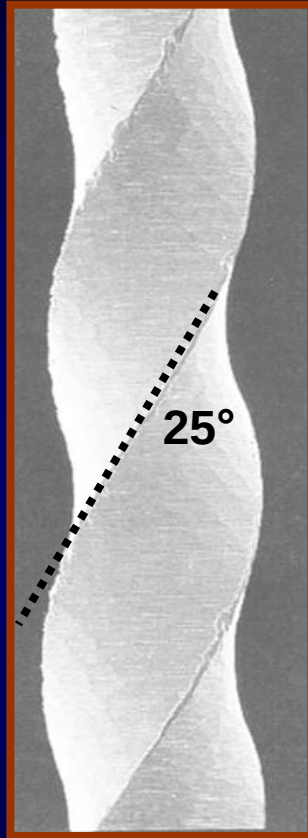


Forma da parte ativa: espirais de passo longo

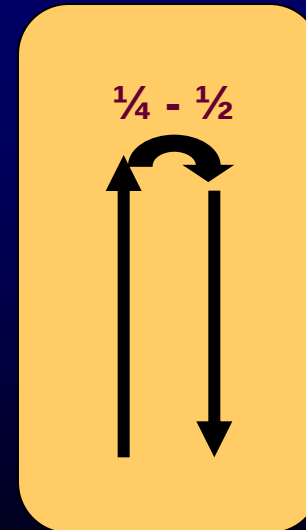
Secção transversal: triangular



ALARGADOR



CINEMÁTICA

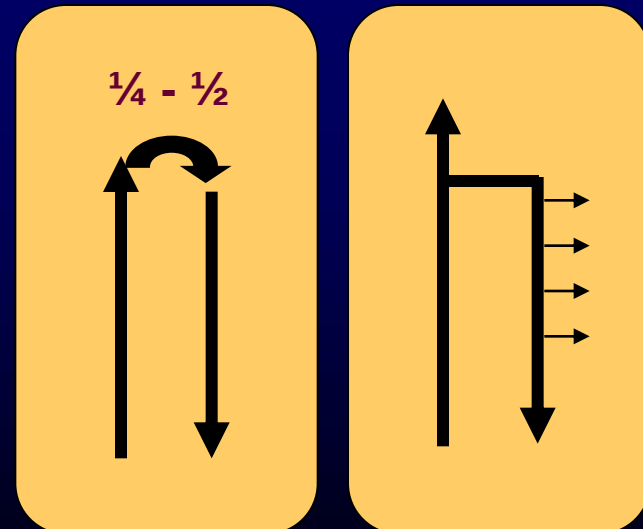
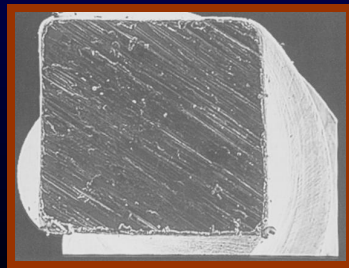


LIMA TIPO K

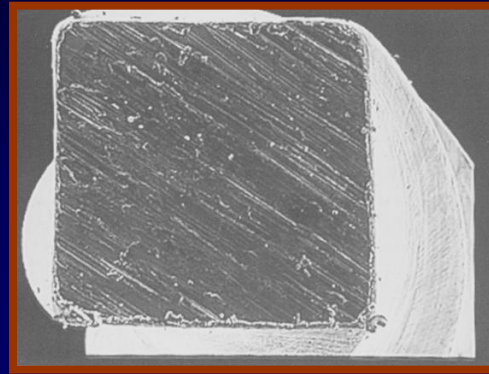
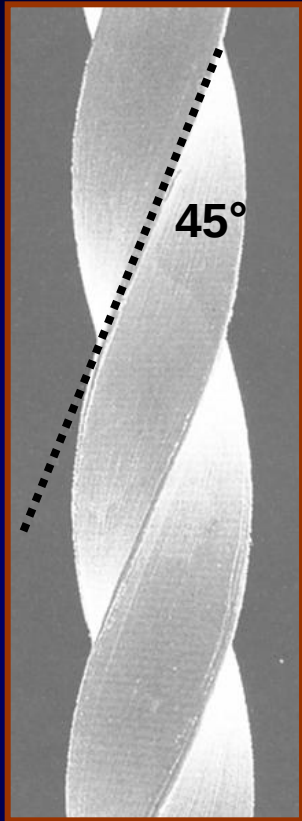


Forma da parte ativa: espirais de passo curto

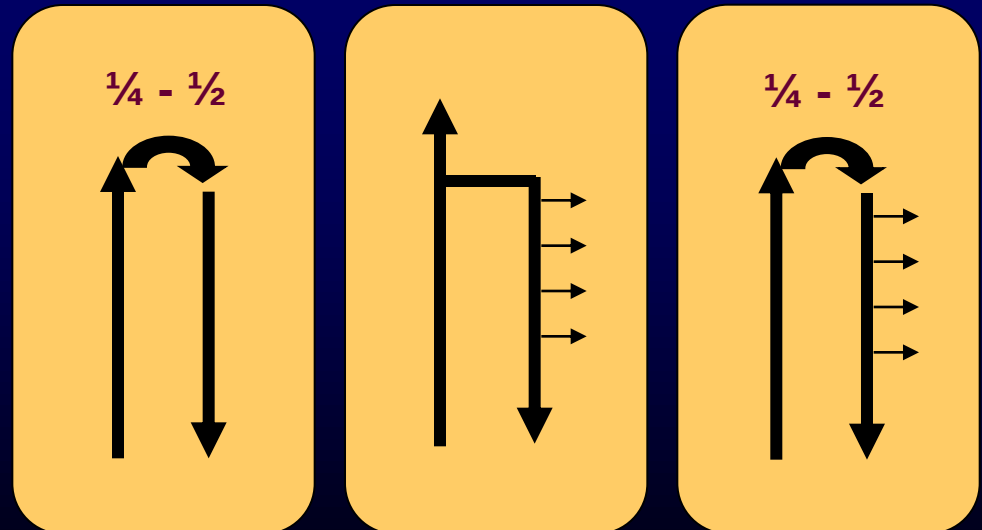
Secção transversal: quadrangular



LIMA TIPO K



CINEMÁTICA

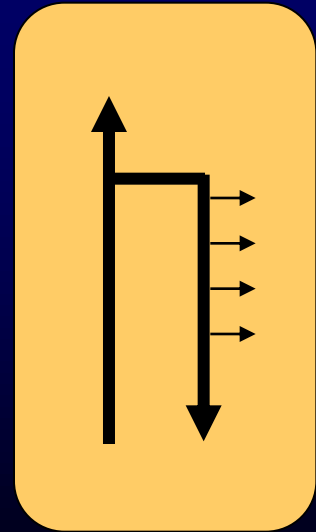
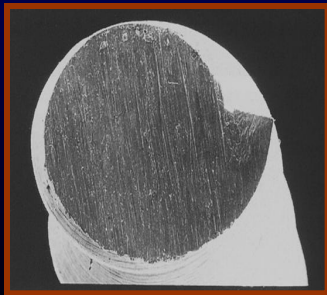


LIMA HEDSTRÖEN

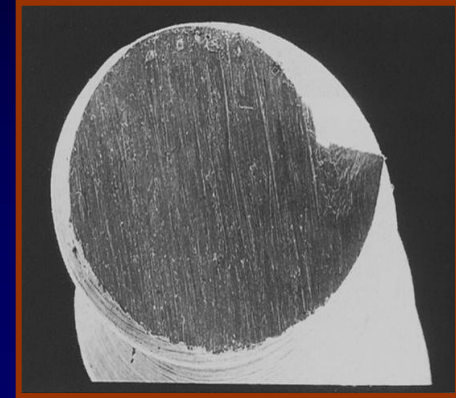
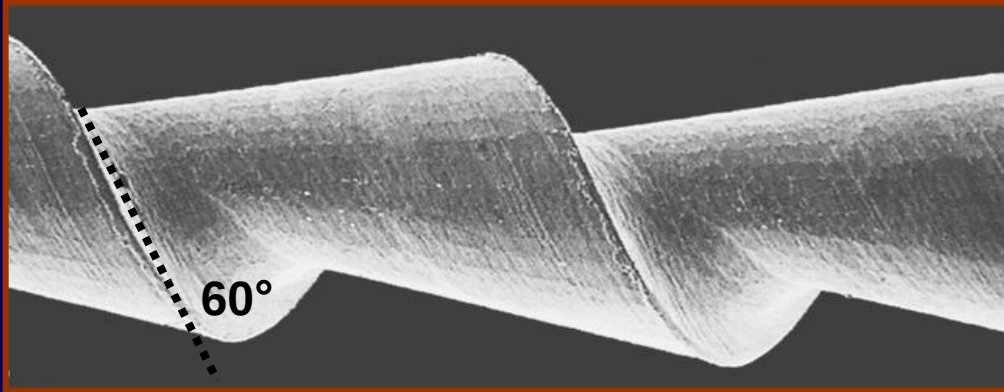


Forma da parte ativa: cones sobrepostos

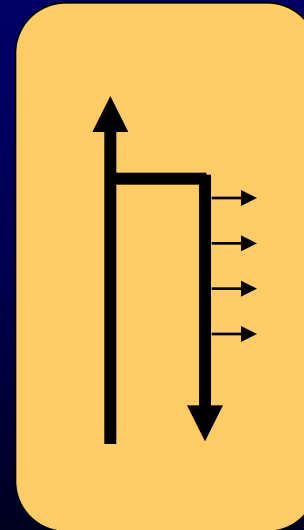
Secção transversal: circular ou em vírgula



LIMA HEDSTRÖEN



CINEMÁTICA



INSTRUMENTOS MANUAIS DE Ni-Ti



Lima NitiFlex

INSTRUMENTOS ROTATÓRIOS



EXCLUSIVAMENTE Ni-Ti

Padronização INGLE e LEVINE (1958)

Associação Americana de Endodontia (1962)

Normas de fabricação ISO/FDI (1992)

The International Organization for Standardização

PARTE ATIVA

TAPER
.02

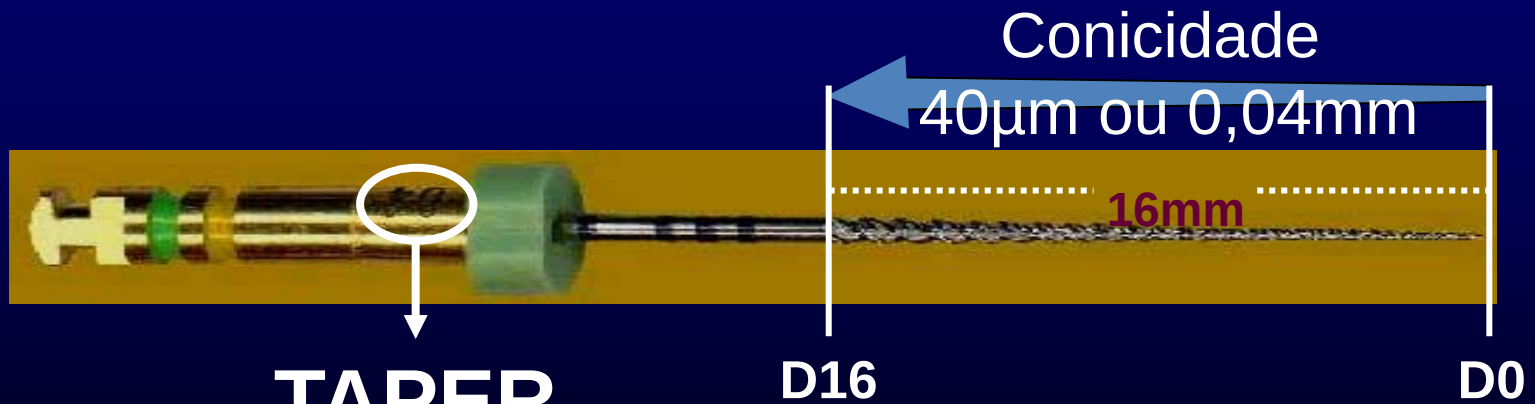


Norma 28 da ANSI/ADA (1988) e 3630/1 ISO (1992)

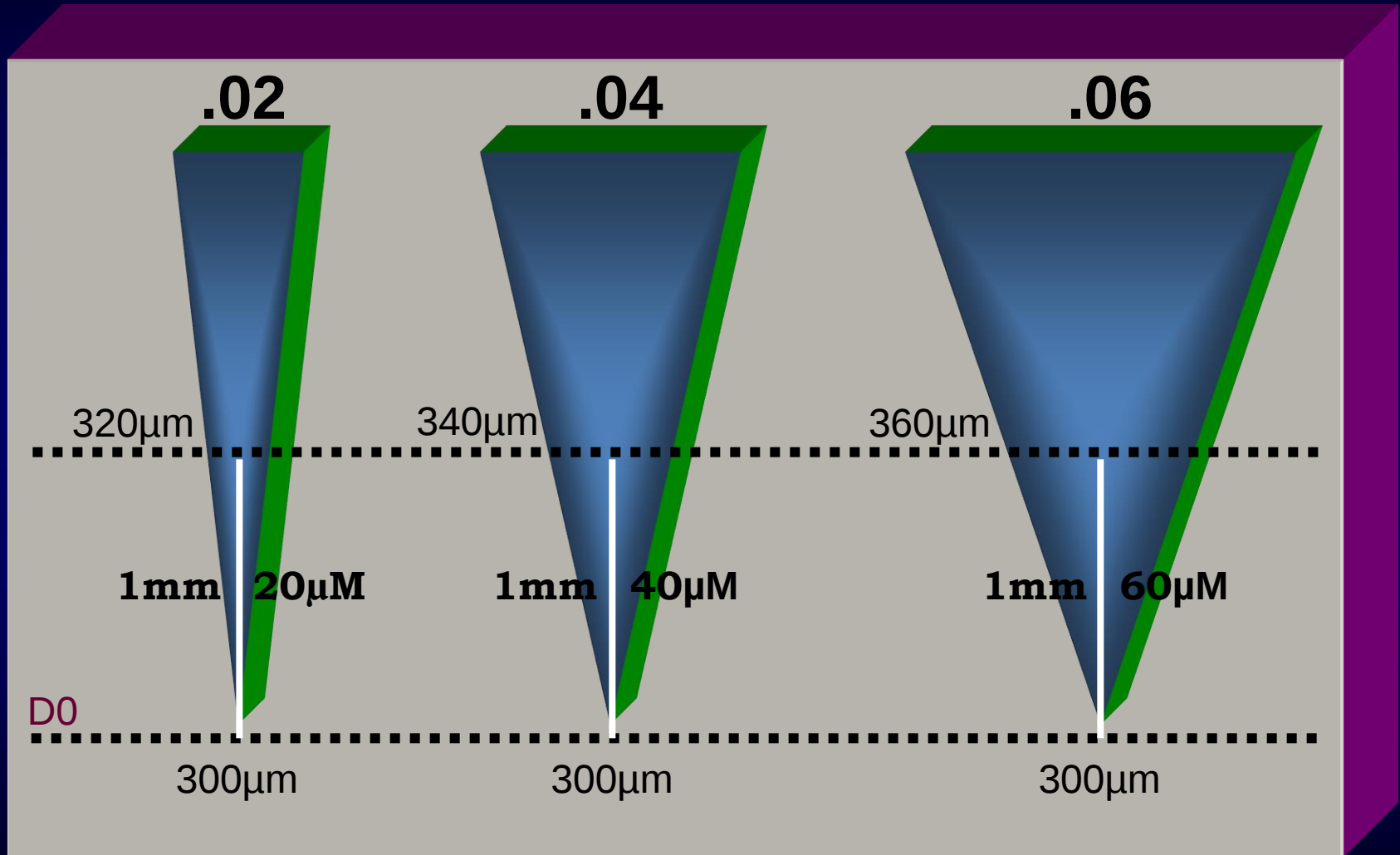
Taper

.03
.04
.05
.06
.07
.08
.10
.12

TAPER
.04

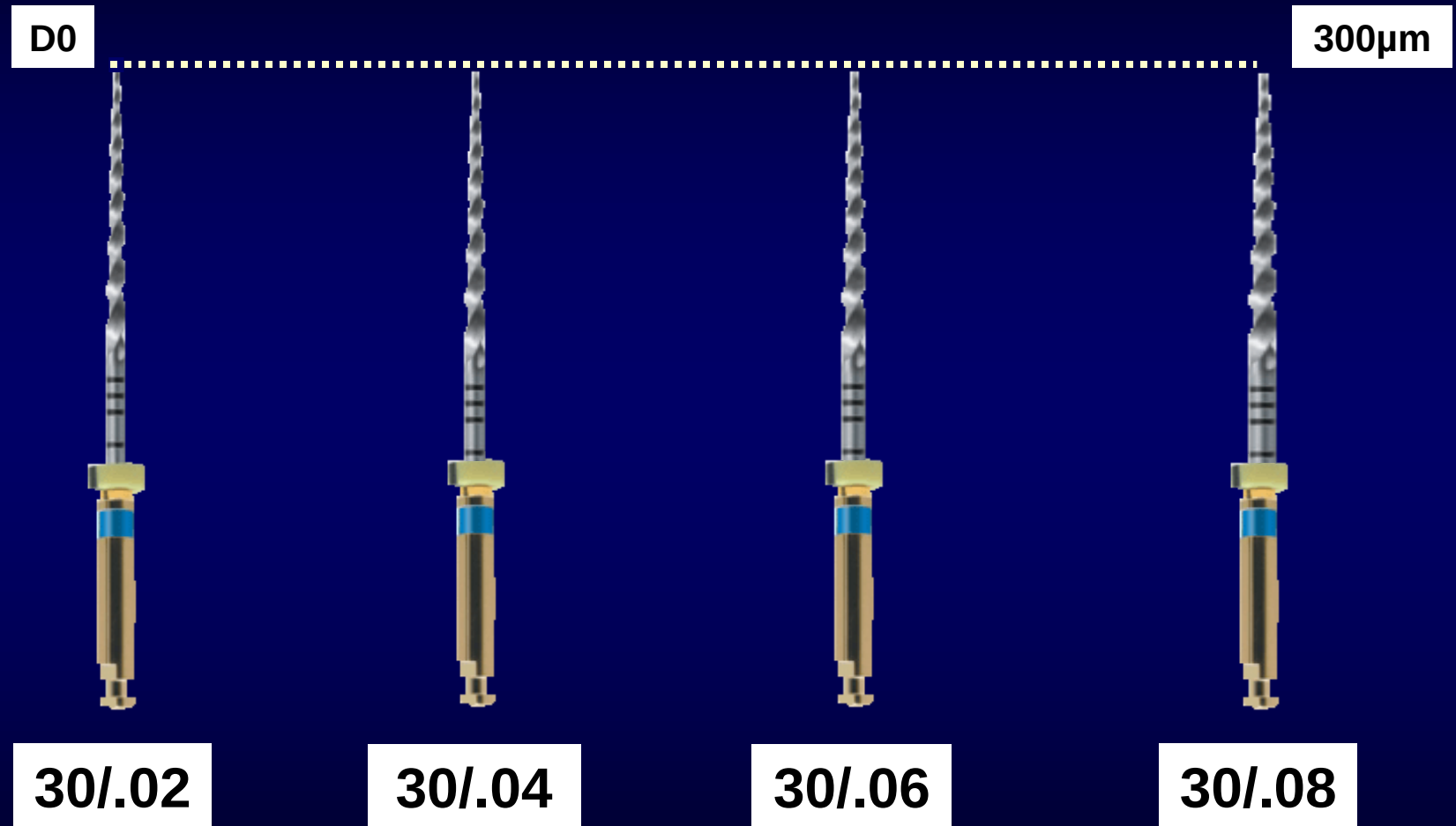


Instrumento #30

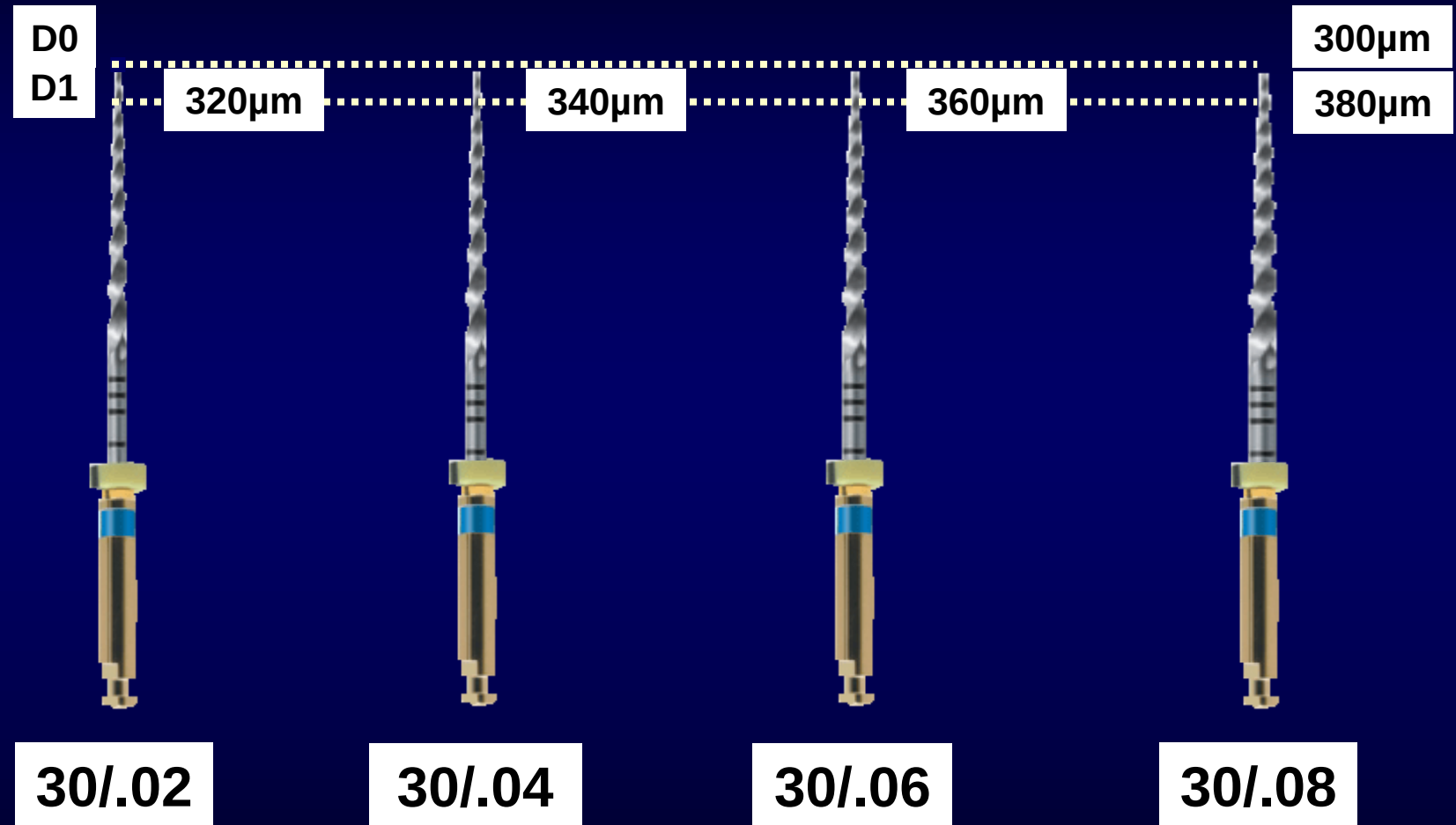


Leonardo; Leonardo (2002)

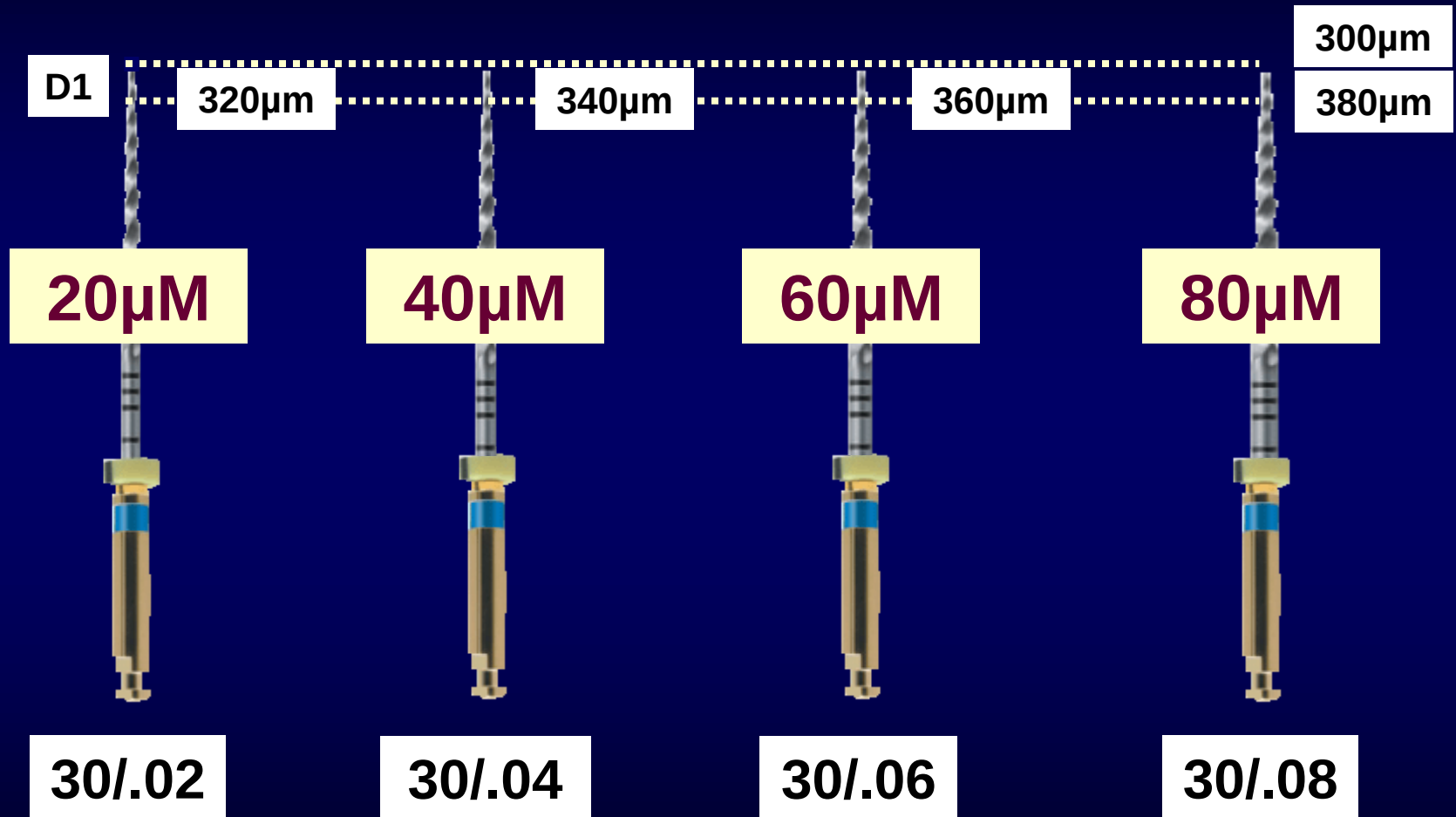
Diferença entre instrumentos (Taper)



Diferença entre instrumentos (Taper)



Diferença entre instrumentos (Taper)

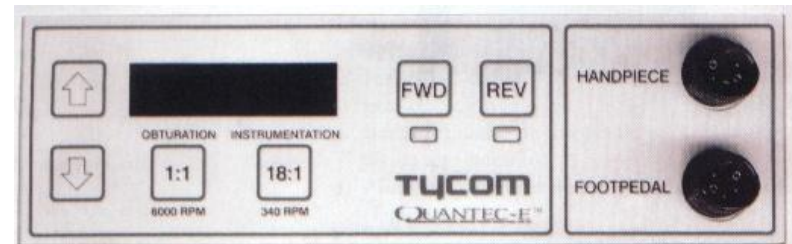


MODO DE ACIONAMENTO

•Motores Pneumáticos



•Motores Elétricos



SISTEMA ROTATÓRIO

Sistema de rotação Alternada

M4 (Kerr)

Tep-10R (NSK)

Endo Gripper (Moyco Union Broach)

Contra ângulo Kavo 3 LD

Tep (Super 16)

Endo Eze (Ultradent)

Sistema de rotação Contínua

FKG-Race (FKG Dentaire)

Protaper (Dentsply/Maillefer)

Profile (Dentsply/Maillefer)

K3 (Sybronendo-SDS-Kerr)

Hero (Micro Mega)

Quantec (Analytic Endodontics-Kerr)

Profile GT (Dentsply/Maillefer)

Profile série "29" (Dentsply/Maillefer)

Lightspeed (Lightspeed)

Pow-R (Moyco – Union Broach)



SISTEMA ROTATÓRIO

Sistema de rotação Alternada

M4 (kerr)

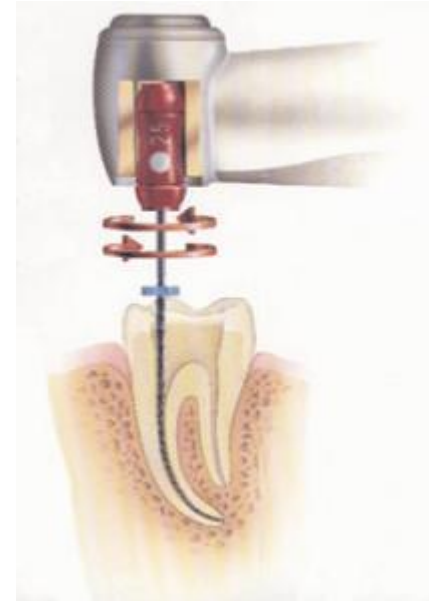
Tep-10R (NSK)

Endo Gripper (Moyco Union Broach)

Contra ângulo Kavo 3 LD

Tep (Super 16)

Endo Eze (Ultradent)



SISTEMA ROTATÓRIO

Sistema de rotação Contínua

FKG-Race (FKG Dentaire)

Protaper (Dentsply/Maillefer)

Profile (Dentsply/Maillefer)

K3 (Sybronendo-SDS-Kerr)

Hero (Micro Mega)

Quantec (Analytic Endodontics-Kerr)

Profile GT (Dentsply/Maillefer)

Profile séries “29” (Dentsply/Maillefer)

Lightspeed (Lightspeed)

Pow-R (Moyco – Union Broach)

Leonardo (2005)

SISTEMA RECIPROCANTE

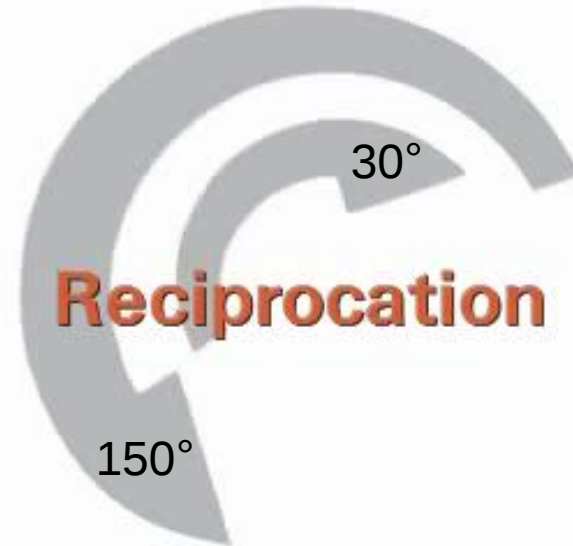
Waveone (Dentsply)

Waveone Gold (Dentsply)

Reciproc (VDW)

Prodesign R (Easy)

Unicone (Medin)



Twisted File Adaptive (TF Adaptive) (SybronEndo Kerr)

Movimento rotatório e recíprocante

Cinemática de rotação 600° (sentido horário)

Sob pressão gira 370° no sentido horário e 50° anti-horário

k³ XF (Sybronendo Kerr)

Esses instrumentos são fabricados por usinagem de um fio metálico de Ni-Ti, sendo constituído de alargadores apicais e cervicais.

Lopes; Siqueira (2010)



Alargadores cervicais

25/12

25/10

25/08

Alargadores apicais

#20 a #50 taper .04 e .06

SISTEMA Mtwo (VDW)

Sequência básica



10/04 15/05 20/06 25/06

Sequência complementar



30/05 35/04 40/04 25/07



Mtwo Taper.04 - 1 Ring
Mtwo Taper.05 - 2 Ring
Mtwo Taper.06 - 3 Ring
Mtwo Taper.07 - 4 Ring

SISTEMA PROTAPER (Dentsply Tulsa)



ProTaper Universal



PROTAPER NEXT (Dentsply Tulsa)

Confeccionada com fio de Ni-Ti M-Wire

- *Mais flexível*
- *Maior Resistência à fadiga cíclica*



Shaping Files

X1



17/04

X2



25/06

X3



30/07

Optinal

X4



40/06

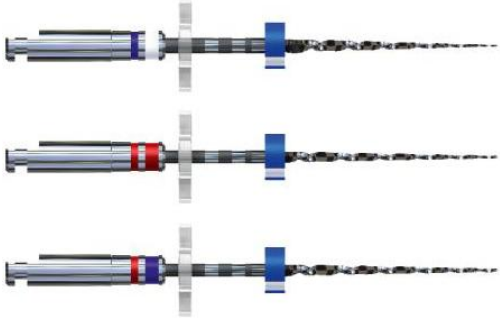
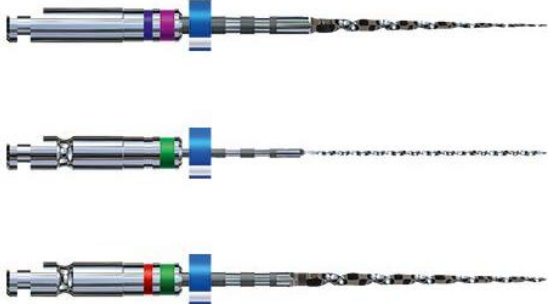
X5



50/06

ProTaper next

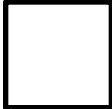
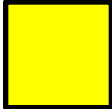
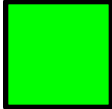
SISTEMA RACE (FKG Dentaire)

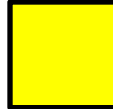
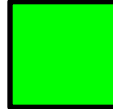
Pré-Race	30/06 35/08 40/06 40/10	
Race	10 a 60/02 10 a 40/04 e 50/04 10 a 40/06	
BT-Race	BT1 10/06 BT2 35/00 BT3 35/04 BT4 40/04 BT5 50/04	

SISTEMA RACE (FKG Dentaire)

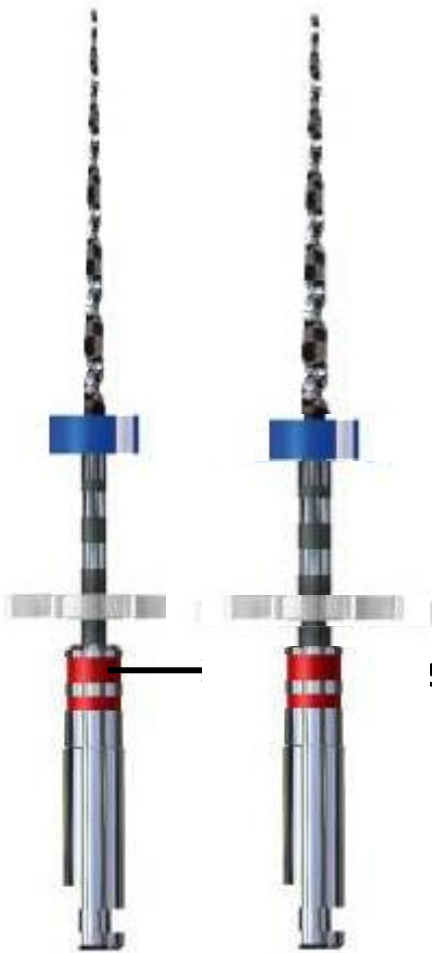


→ Nº do instrumento (DIÂMETRO)

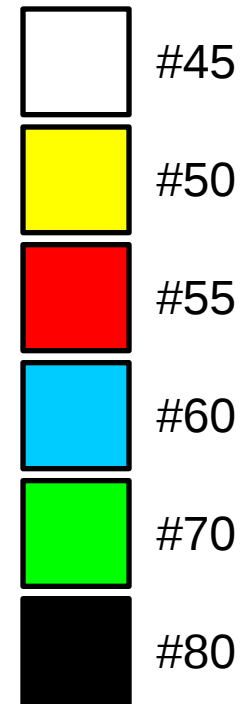
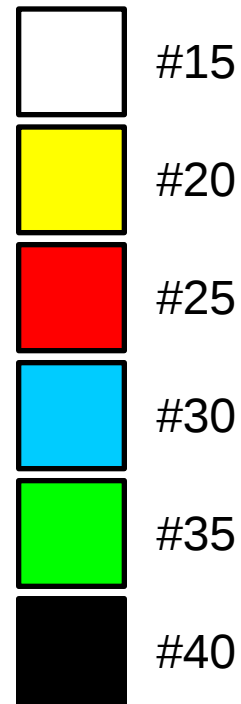
	#15
	#20
	#25
	#30
	#35
	#40

	#45
	#50
	#55
	#60
	#70
	#80

SISTEMA RACE (FKG Dentaire)



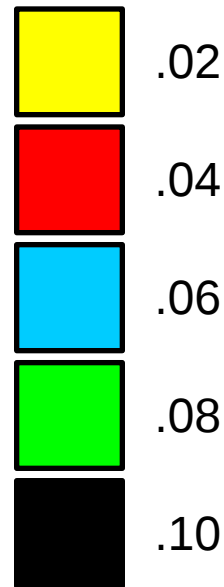
strumento (DIÂMETRO)



SISTEMA RACE (FKG Dentaire)



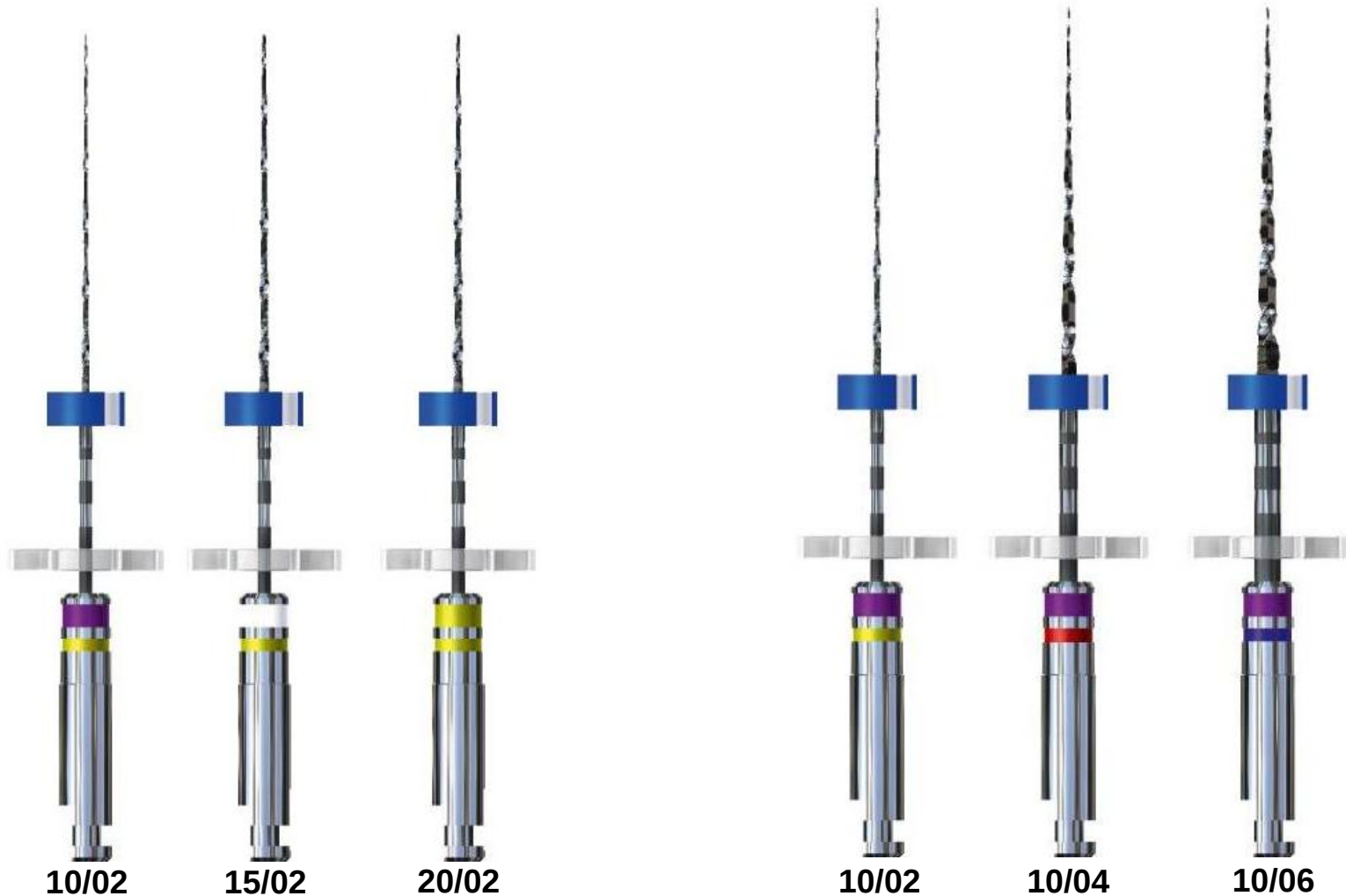
Nº do instrumento (DIÂMETRO)
Taper



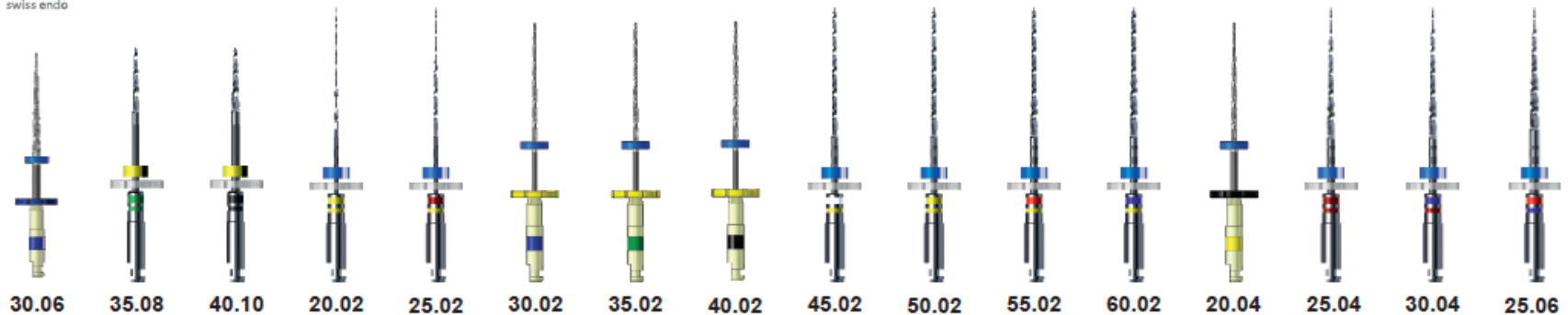
SCOUT Race e RACE ISO 10

(FKG Dentaire)

Para realizar o *glide path*

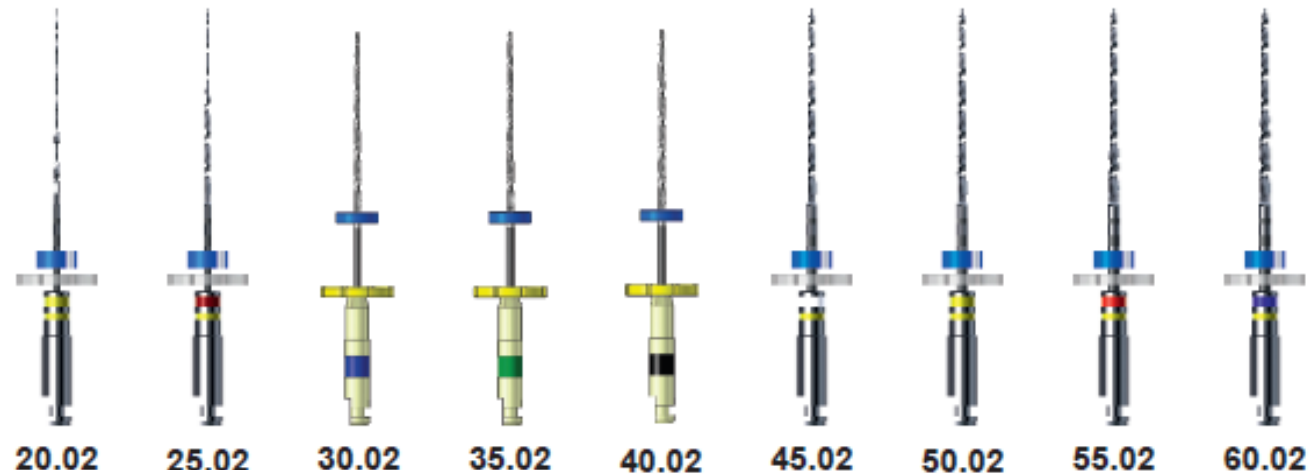
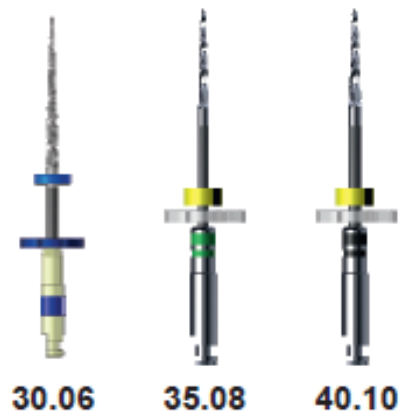


SISTEMA RACE (FKG Dentaire)

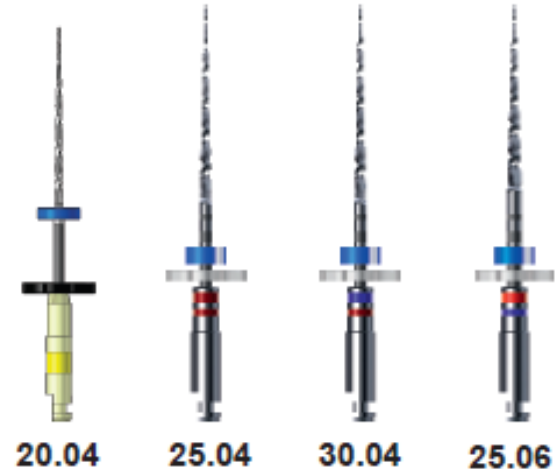


**Sequência de limas rotatórias
solicitada pela Disciplina de
Endodontia**

Preparo cervical



.02



.04 e .06

Sistema rotatório com instrumento único

One Shape (Micro Mega)

F360 (KOMET)

XP Shaping (FKG)



DIFERENÇAS BÁSICAS ENTRE INSTRUMENTOS MANUAIS E ROTATÓRIOS



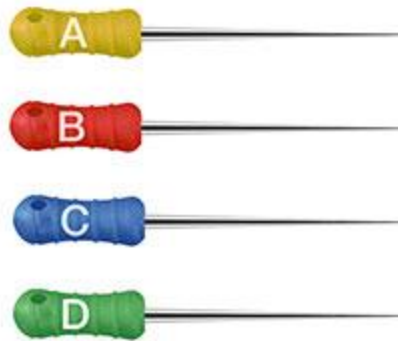
- 1- Seguem a padronização ISO.
- 2- Possuem Taper fixo (.02).
- 3- Geralmente são de aço inox.
- 4- Possuem cabo.
- 5- Não são acoplados em motores.
- 6- Não tem memória elástica .



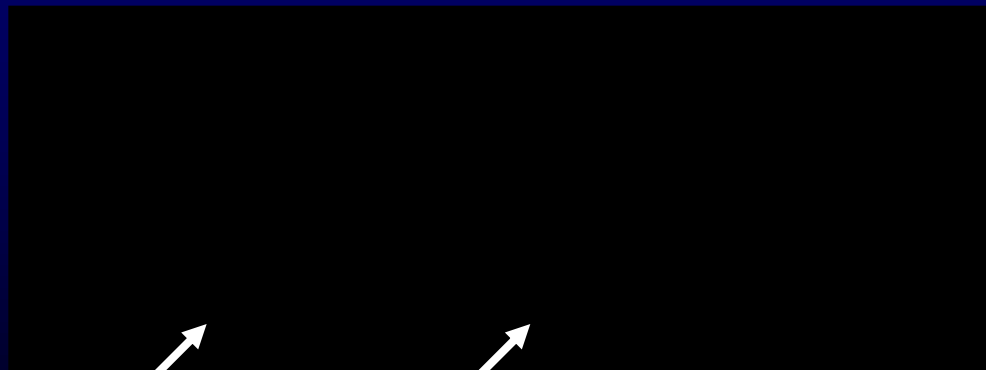
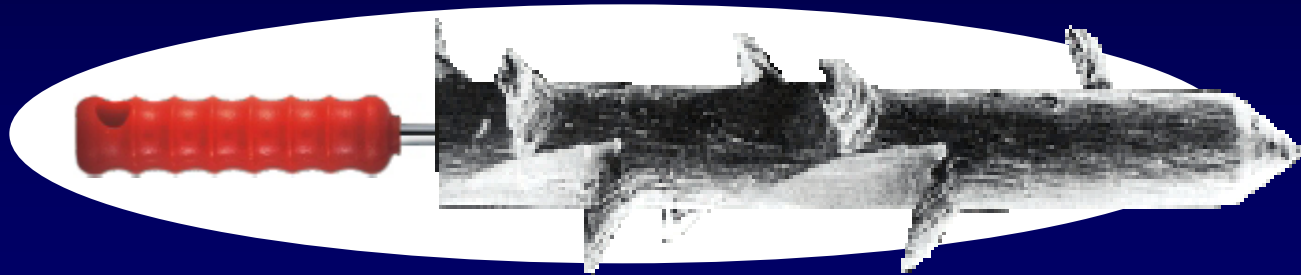
- 1- Não têm padronização.
- 2- Possuem Taper variados.
- 3- São exclusivamente de Ni-Ti.
- 4- Não possuem cabo.
- 5- São acoplados em motores elétricos ou pneumáticos.
- 6- Tem memória elástica .

INSTRUMENTAL ENDODÔNTICO AUXILIAR

ESPAÇADOR DIGITAL



EXTIRPA NERVO (POLPA)



BROCAS



Broca endo Z



Broca esférica de pescoço longo



Broca esférica diamantadas
(nº 1, 2, 3 e 4)



BROCAS

La Axxess



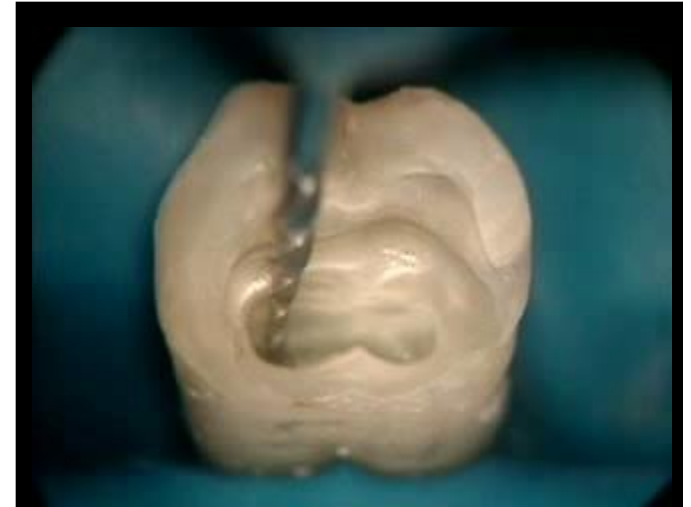
20.06



35.06

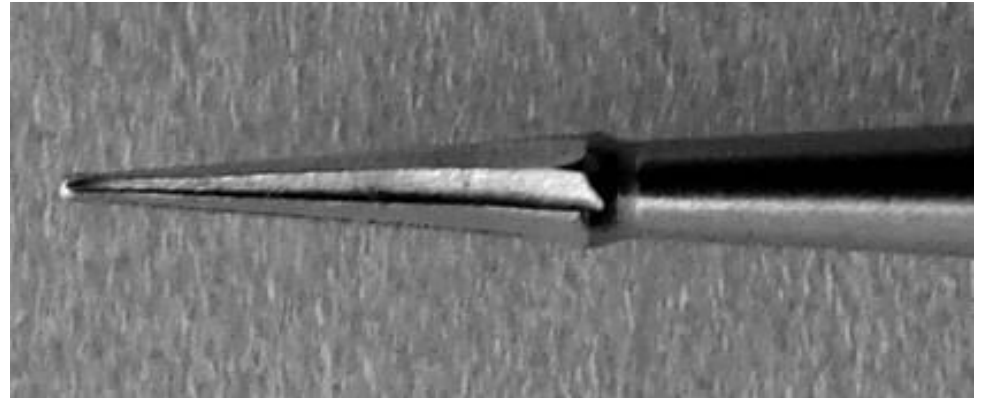
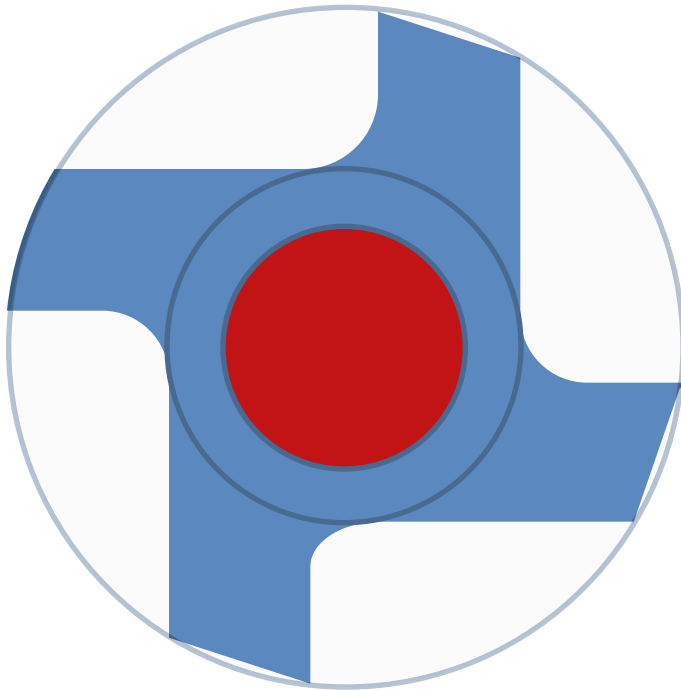


45.06



BROCAS

CPDRILL®



Instrumental

Explorador clínico N° 5



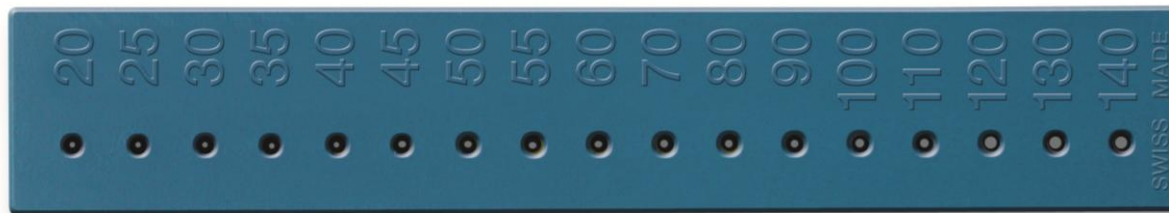
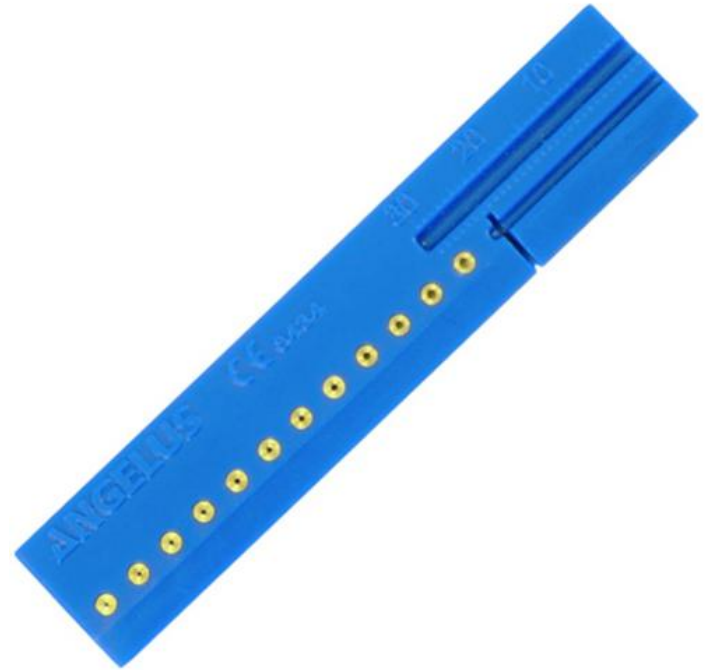
Instrumental

Explorador de Endodontia (ponta reta)



Acessórios

Régua calibradora



Acessórios

Porta limas



Acessórios

Condensadores de Paiva

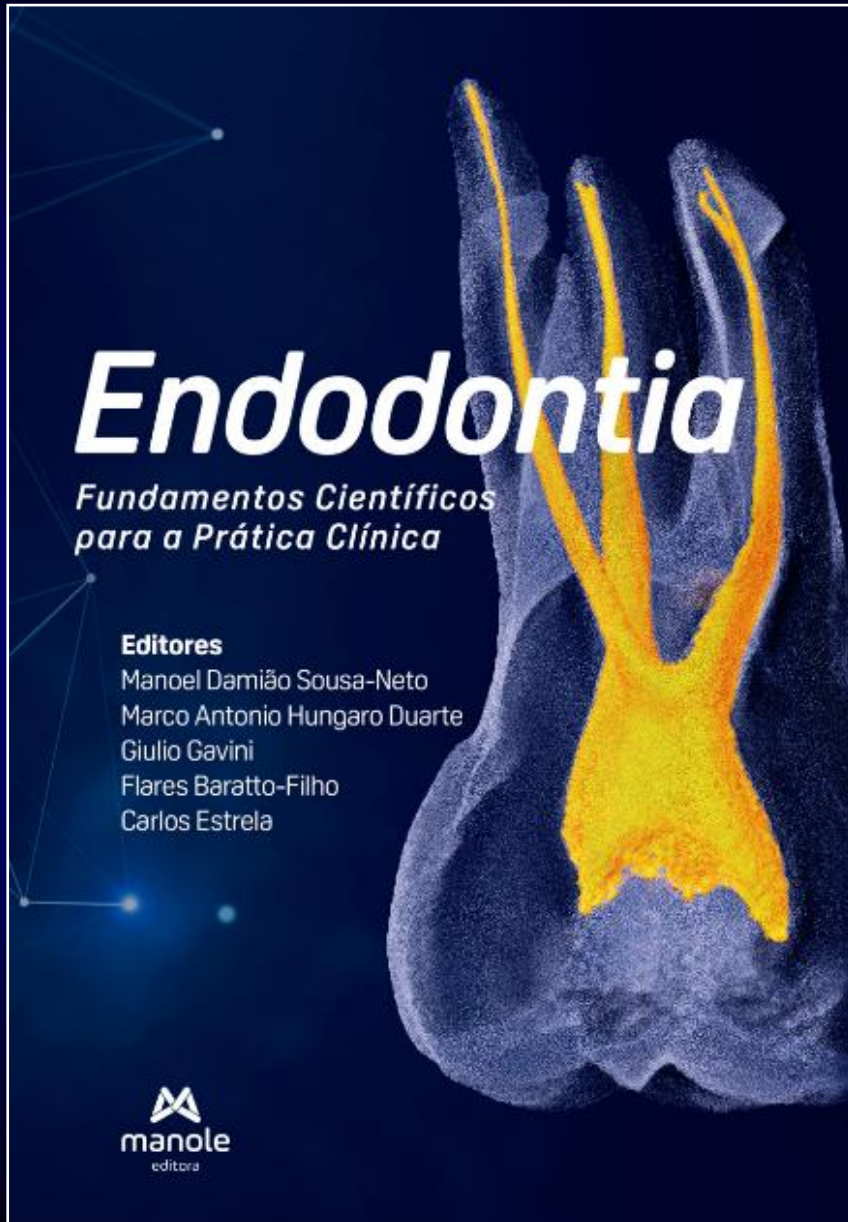


Acessórios

Porta Guta-percha



REFERÊNCIAS BIBLIOGRÁFICAS



SOUSA-NETO MD
DUARTE MAH
GAVINI G
BARATTO-FILHO F
ESTRELA C

Endodontia. Fundamentos Científicos para a Prática Clínica.

1 ed. Santana de Parnaíba:
Editora Manole. 2022.