

UNIVERSIDADE DE SÃO PAULO

FACULDADE DE ODONTOLOGIA DE RIBEIRÃO PRETO

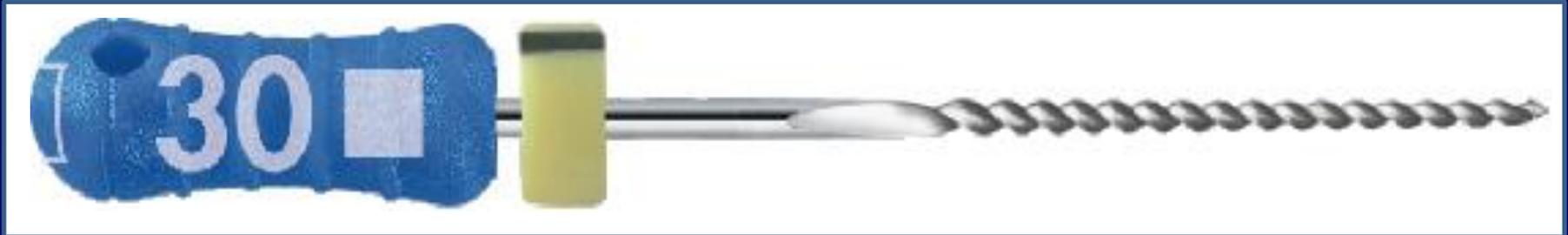
DISCIPLINA DE ENDODONTIA

**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

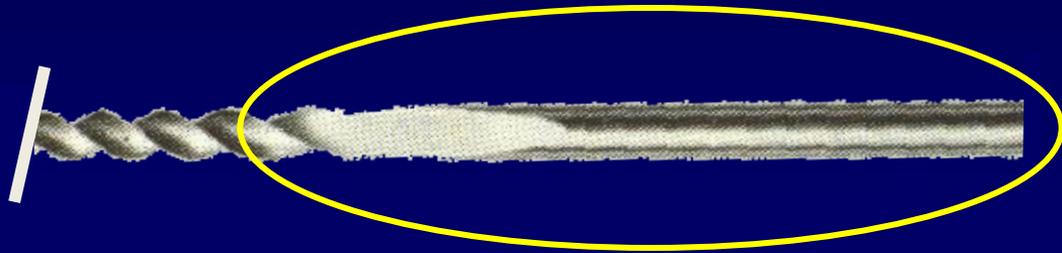
Confere comprimento ao instrumento

21 mm

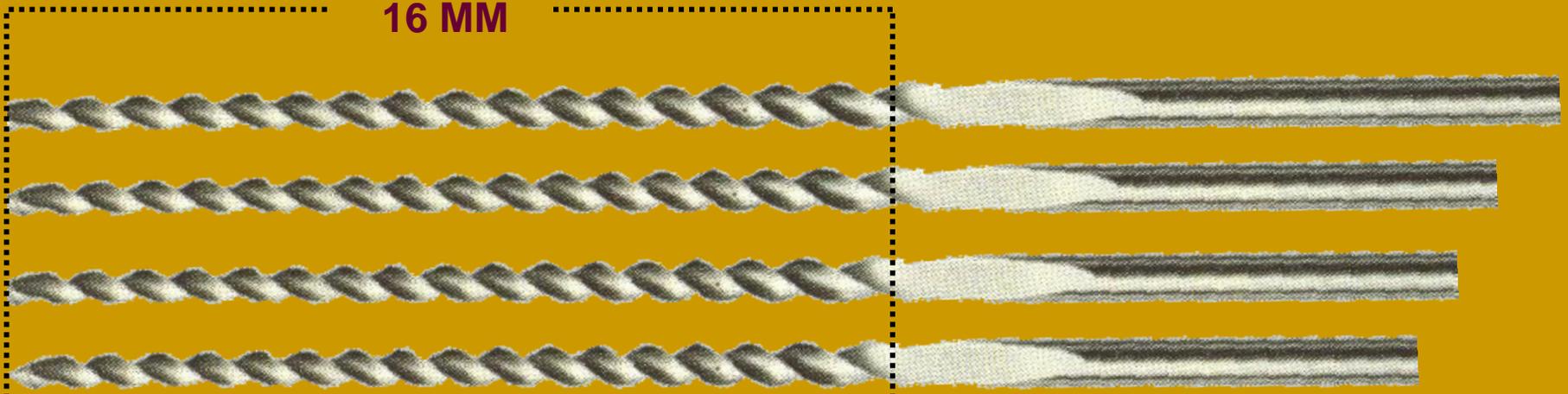
25 mm

28 mm

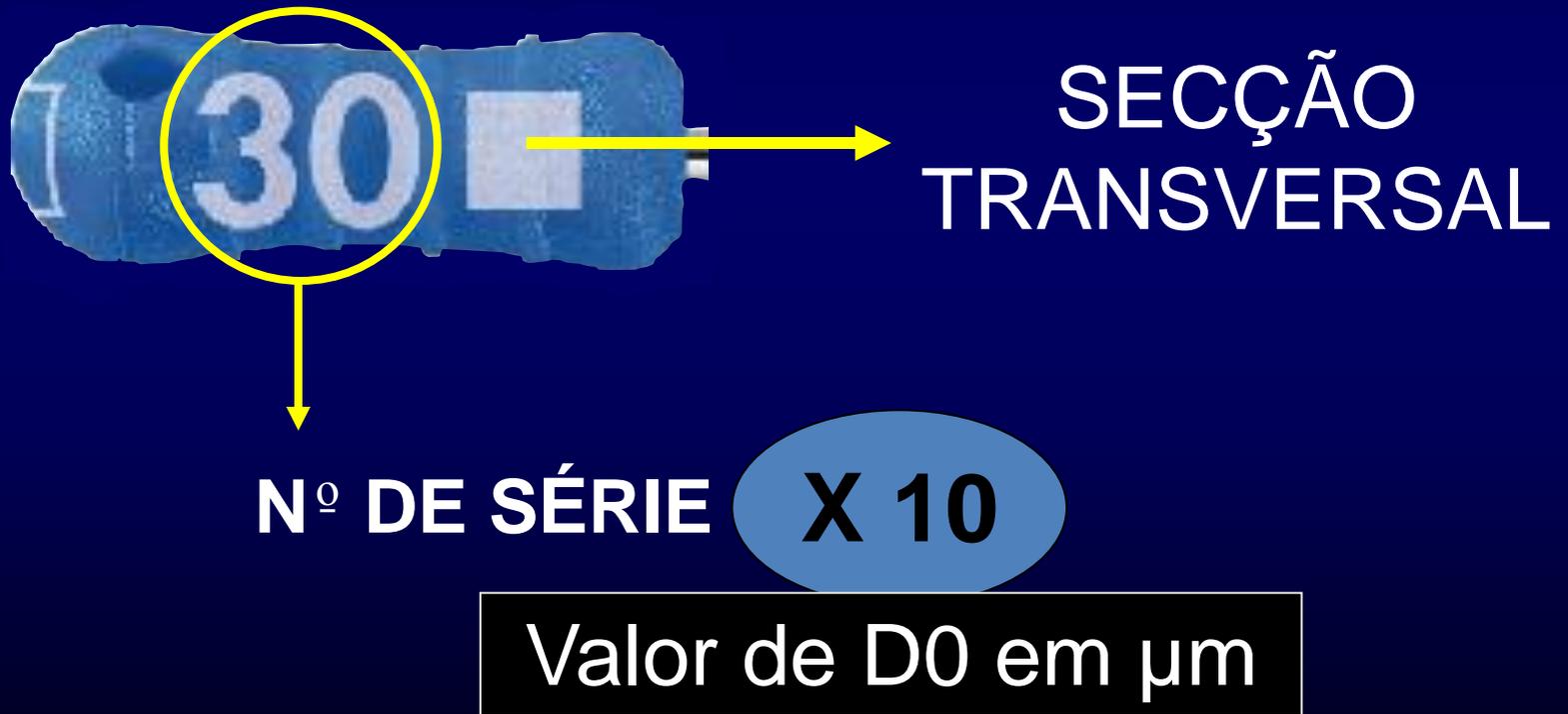
31 mm



16 MM



# CABO DO INSTRUMENTO



# 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**

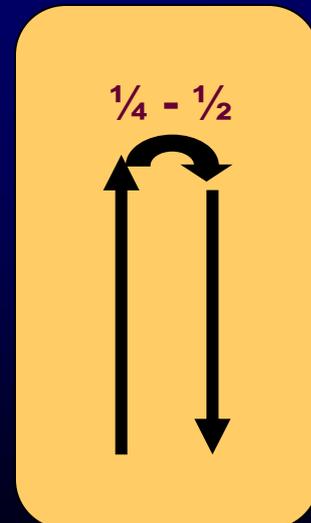
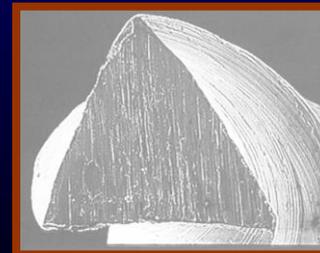
**Hedström**

# ALARGADOR



Forma da parte ativa: espirais de passo longo

Secção transversal: triangular

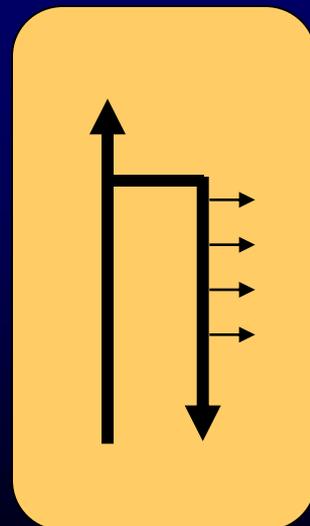
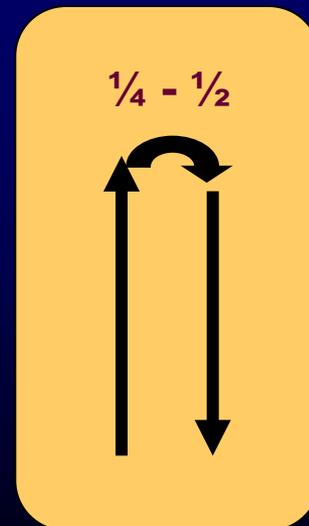
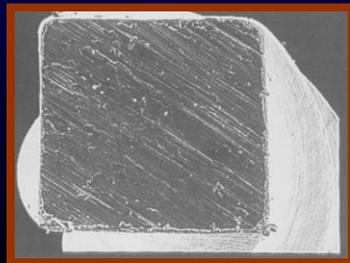


# LIMA TIPO K



**Forma da parte ativa: espirais de passo curto**

**Secção transversal: quadrangular**

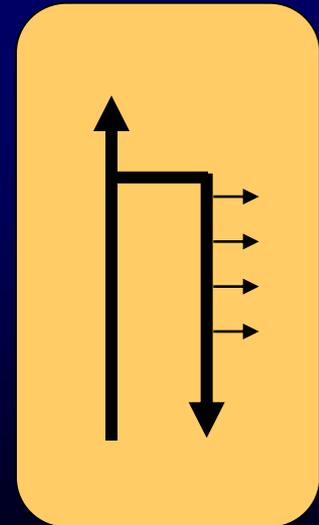
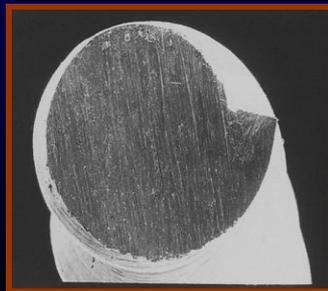


# LIMA HEDSTRÖEN



**Forma da parte ativa: cones sobrepostos**

**Secção transversal: circular ou em vírgula**



# INSTRUMENTOS MANUAIS DE Ni-Ti



Lima NitiFlex

# INSTRUMENTOS ROTATÓRIOS



**EXCLUSIVAMENTE Ni-Ti**

**Padronização INGLE e LEVINE (1958)**

Associação Americana de Endodontia (1962)

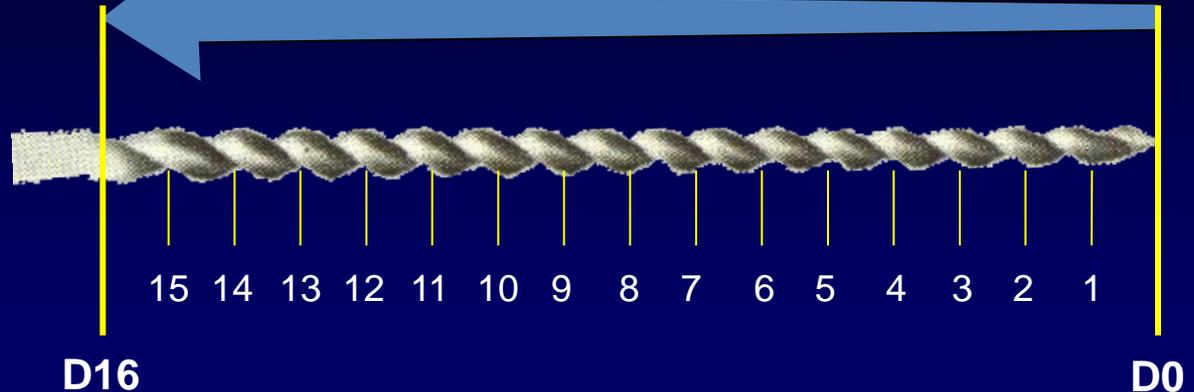
**Normas de fabricação ISO/FDI (1992)**

The International Organization for Standardização

# PARTE ATIVA

Conicidade 20 $\mu$ m ou 0,02mm

**TAPER**  
**.02**



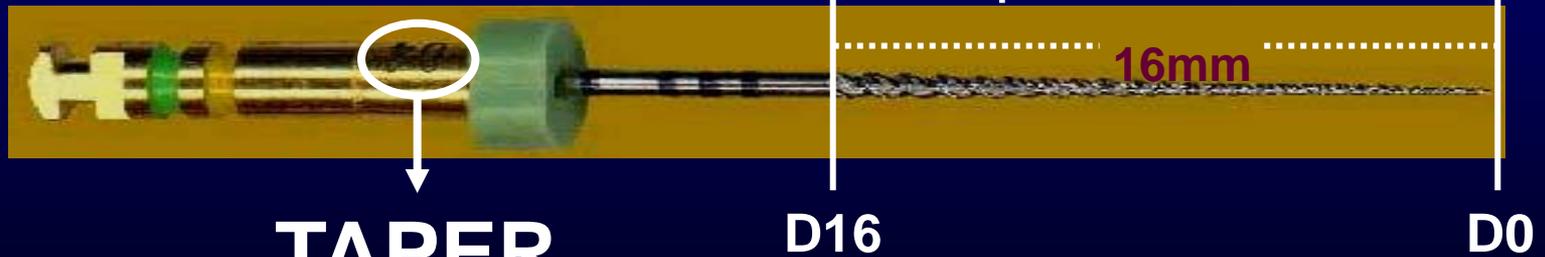
Norma 28 da ANSI/ADA (1988) e 3630/1 ISO (1992)

**Taper**

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

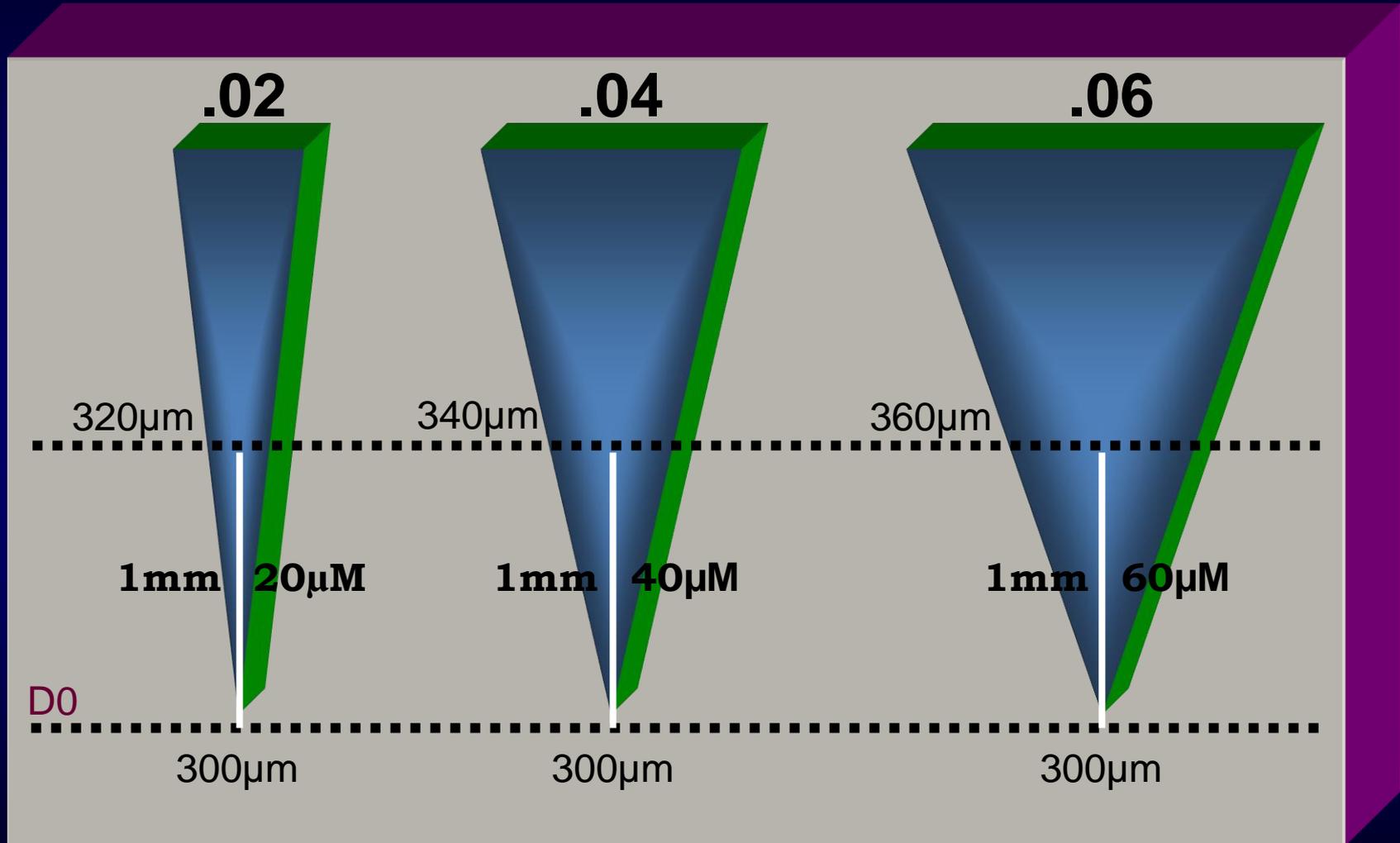
Conicidade

40 $\mu$ m ou 0,04mm



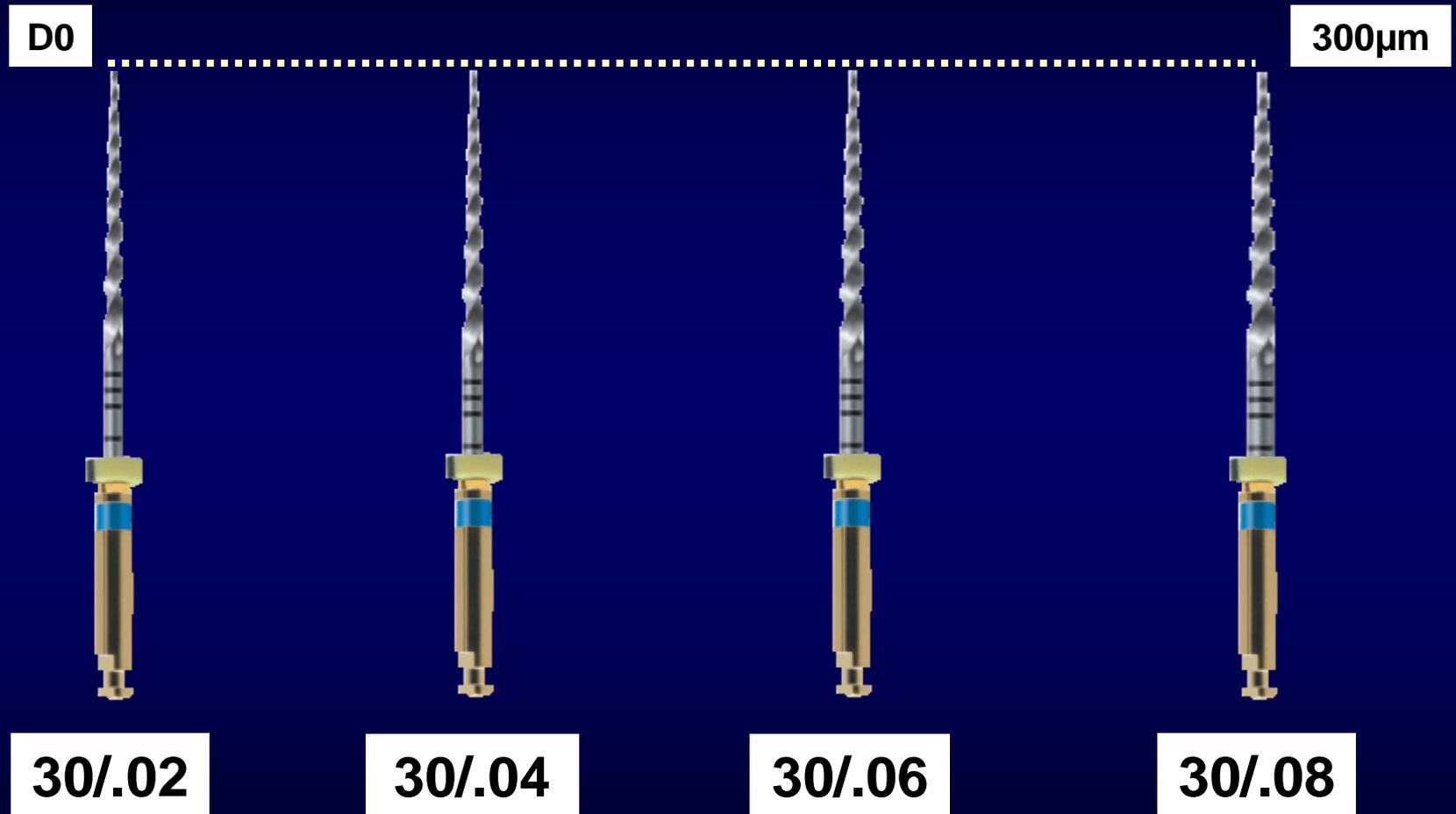
**TAPER**  
**.04**

# Instrumento #30

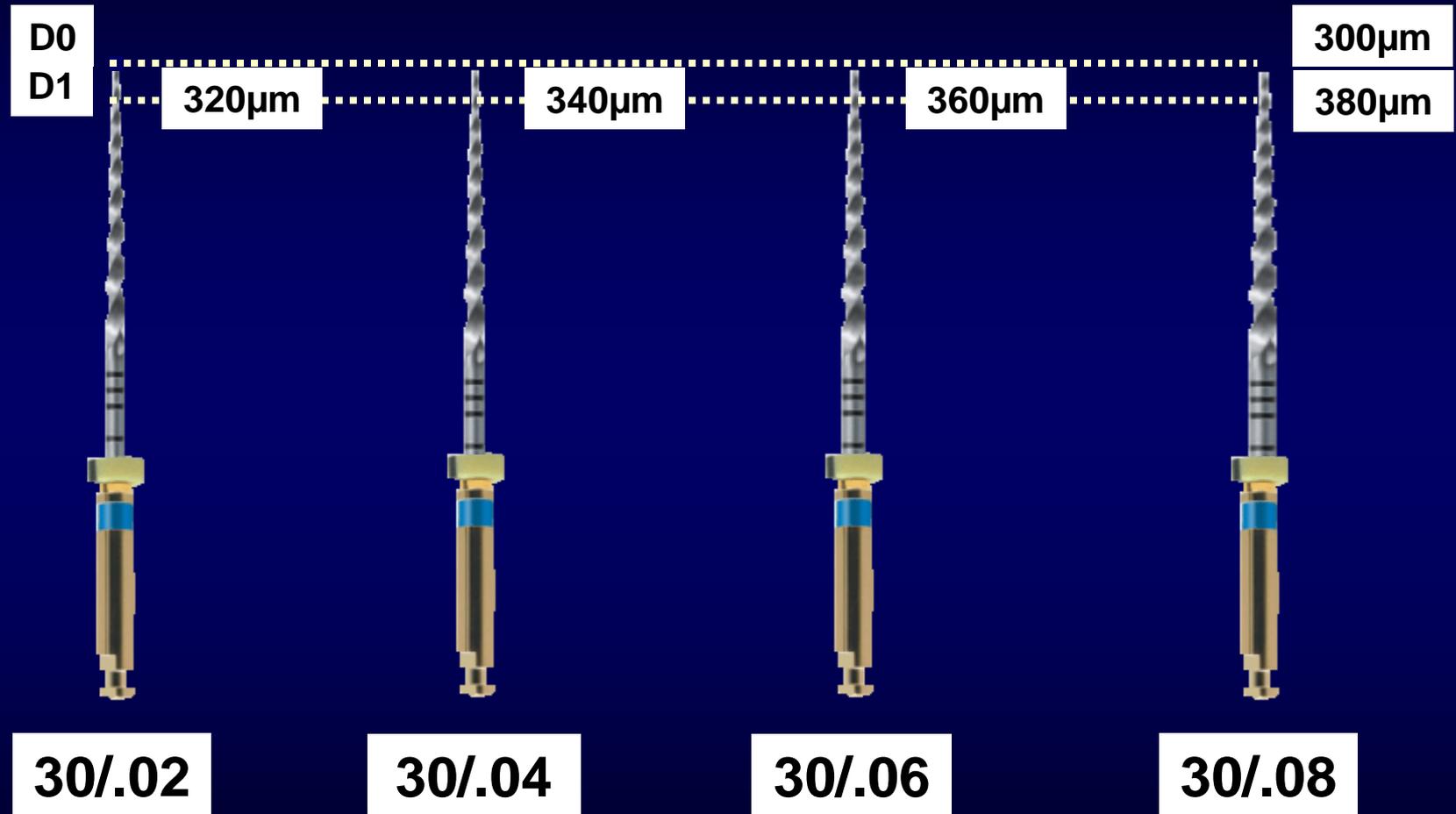


Leonardo; Leonardo (2002)

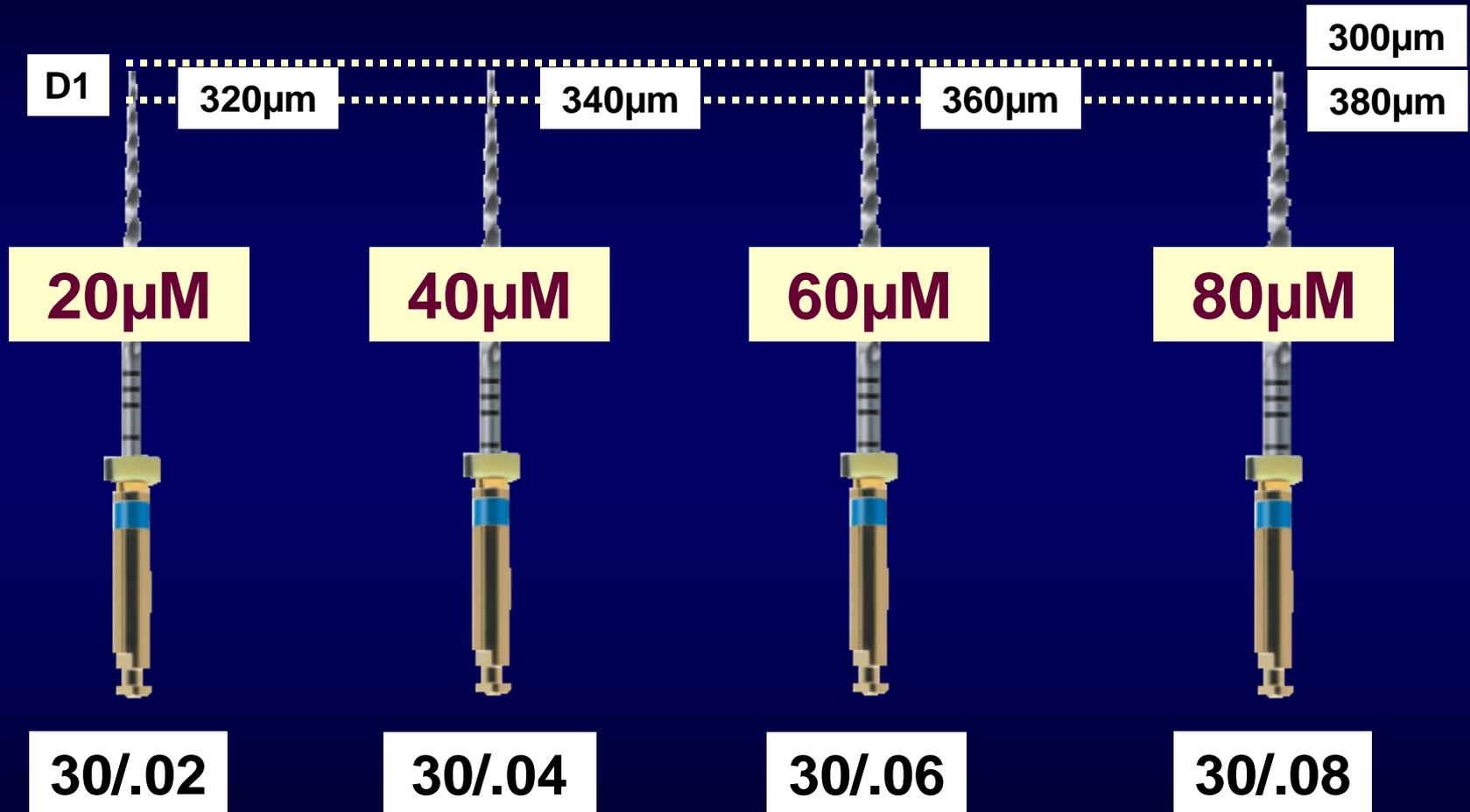
# Diferença entre instrumentos (Taper)



# Diferença entre instrumentos (Taper)



# Diferença entre instrumentos (Taper)

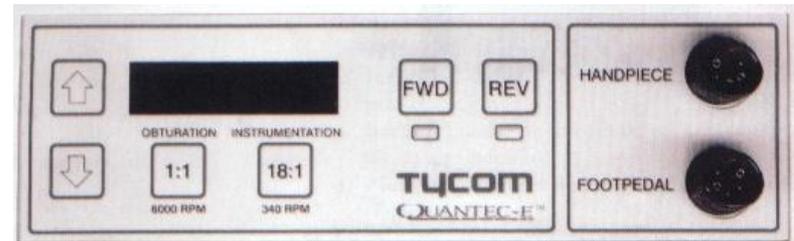


# MODO DE ACIONAMENTO

- *Motores Pneumáticos*



- *Motores Eléctricos*



# 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)

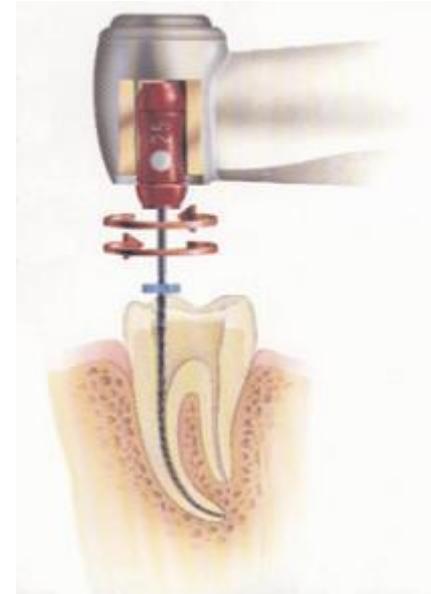
Tep-10R (NSK)

Endo Gripper (Moyco Union Broach

Contra ângulo Kavo 3 LD

Tep (Super 16)

Endo Eze (Ultradent)



# SISTEMA ROTATÓRIO

## *Sistema de rotação Contínua*

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Profile séries “29” (Dentsply/Maillefer)

Lightspeed (Lightspeed)

Pow-R (Moyco – Union Broach)

***Leonardo (2005)***

# SISTEMA RECIPROCANTE

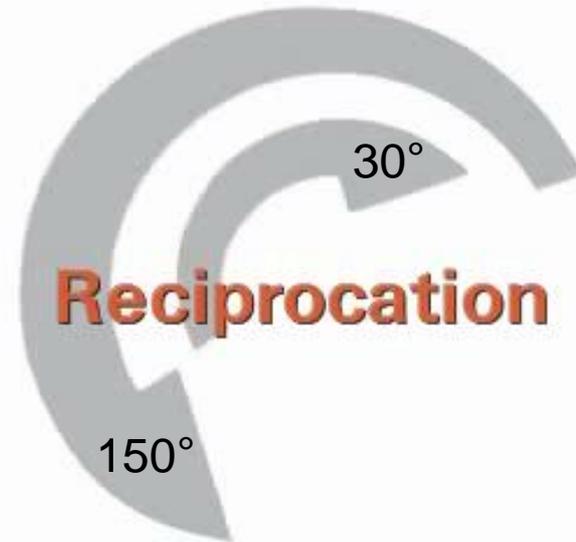
Waveone (Dentsply)

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

# k<sup>3</sup> 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

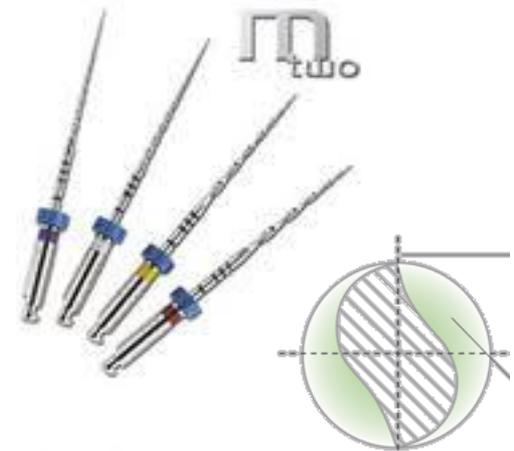


10/04 15/05 20/06 25/06

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

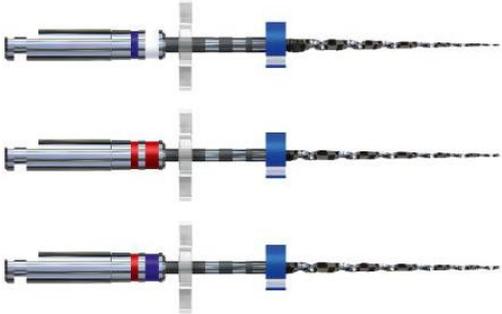


Optinal



*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)

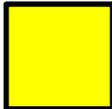
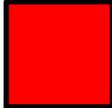
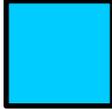
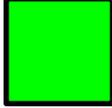
White	#15
Yellow	#20
Red	#25
Cyan	#30
Green	#35
Black	#40

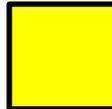
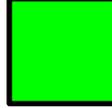
White	#45
Yellow	#50
Red	#55
Cyan	#60
Green	#70
Black	#80

# SISTEMA RACE (FKG Dentaire)

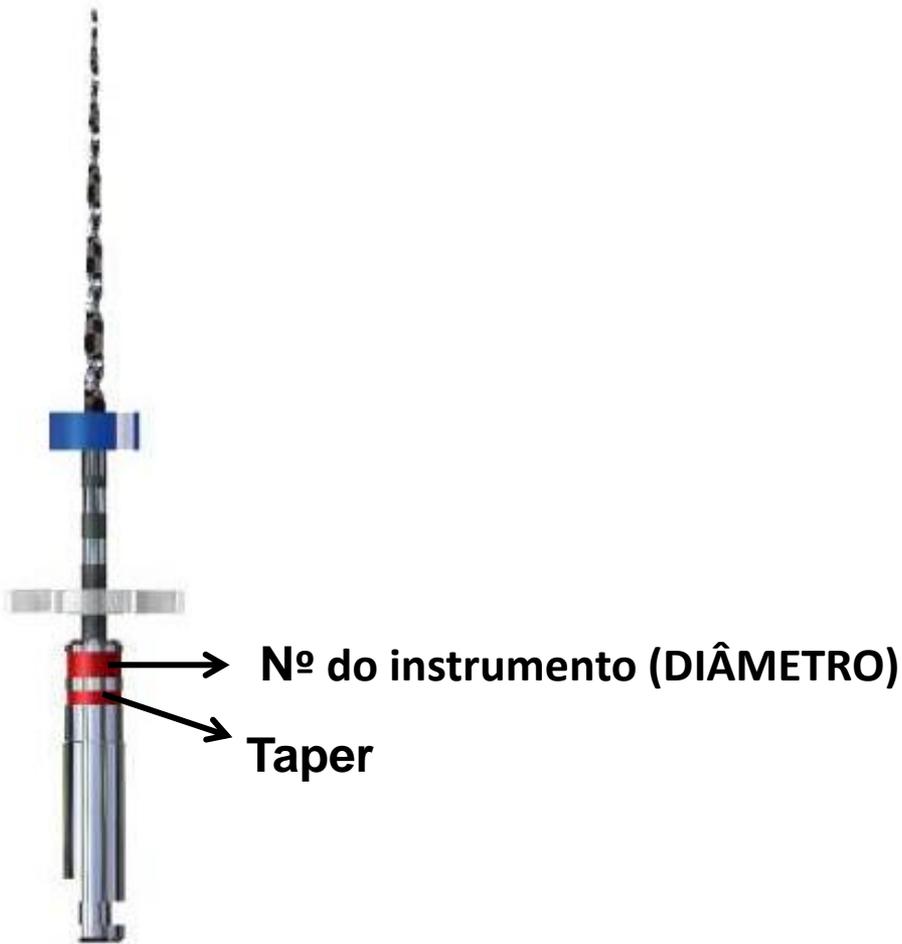


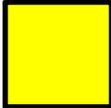
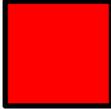
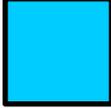
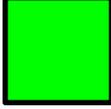
strumento (DIÂMETRO)

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

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

# SISTEMA RACE (FKG Dentaire)



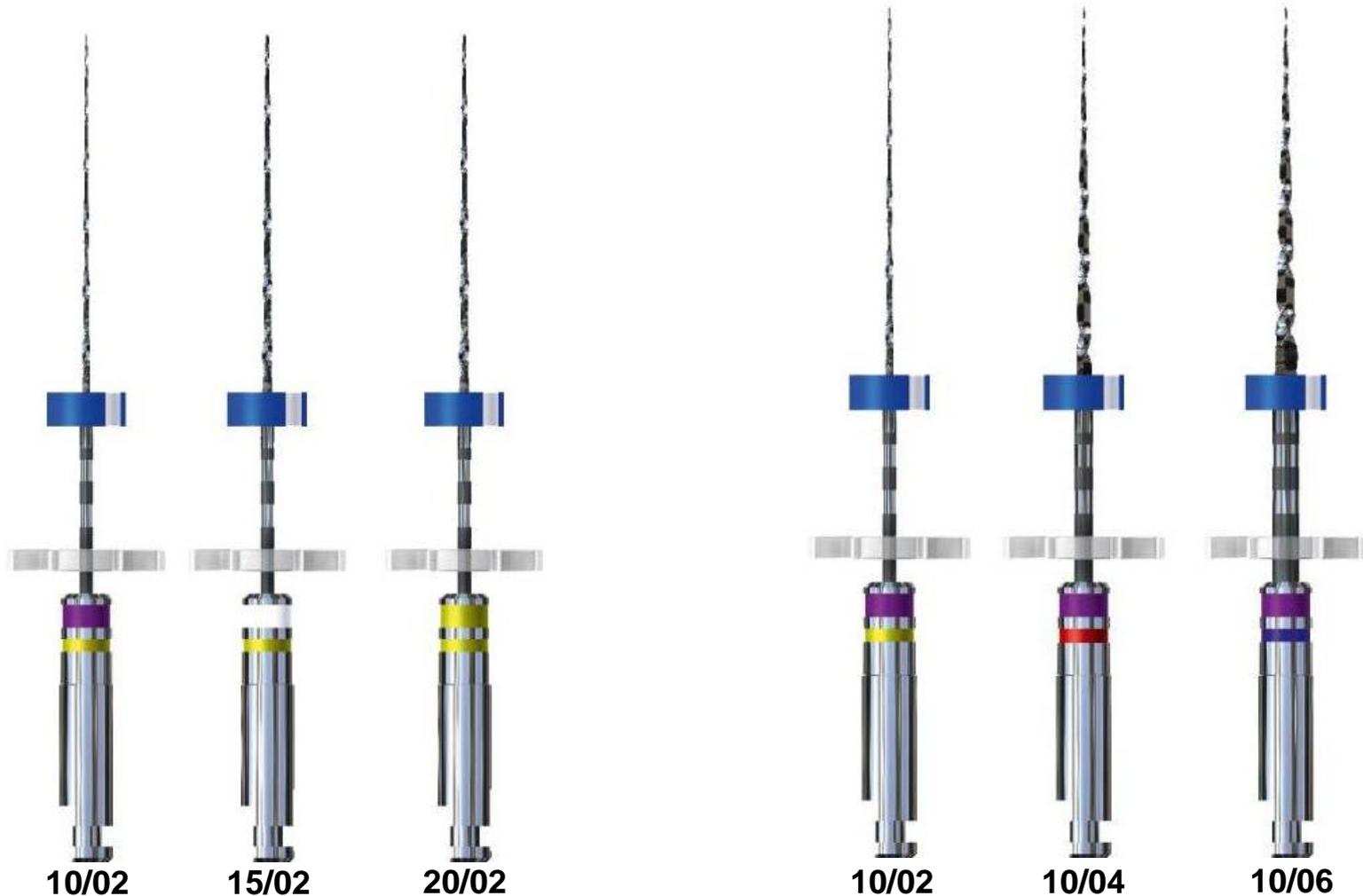
	.02
	.04
	.06
	.08
	.10



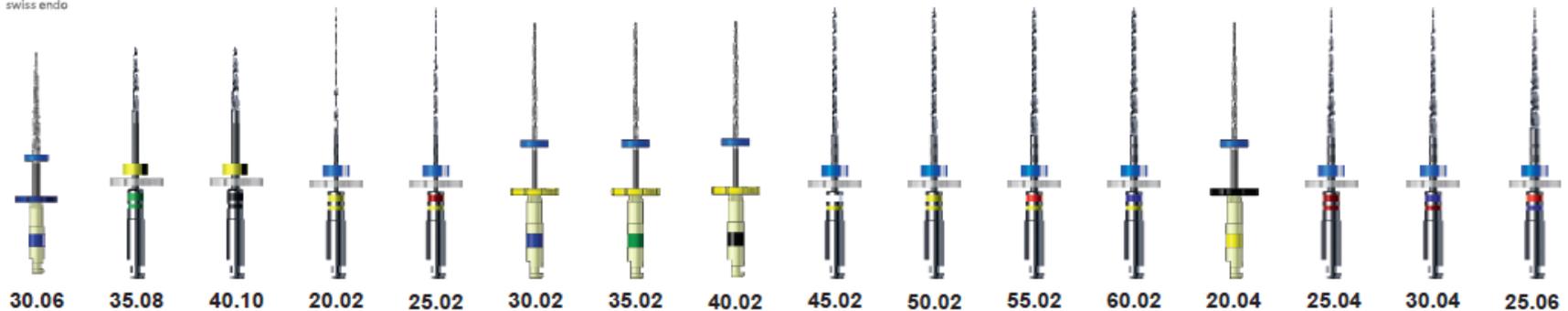
# SCOUT Race e RACE ISO 10

(FKG Dentaire)

Para realizar o *glide path*



# SISTEMA RACE (FKG Dentaire)



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

Preparo cervical

30.06

35.08

40.10

20.02

25.02

30.02

35.02

40.02

45.02

50.02

55.02

60.02

.02

20.04

25.04

30.04

25.06

.04 e .06

# Sistema rotatório com instrumento único

One Shape (Micro Mega)

F360 (KOMET)

XP Shaping (FKG)



# DIFERENÇAS BÁSICAS ENTRE INSTRUMENTOS MANUAIS E ROTATÓRIOS



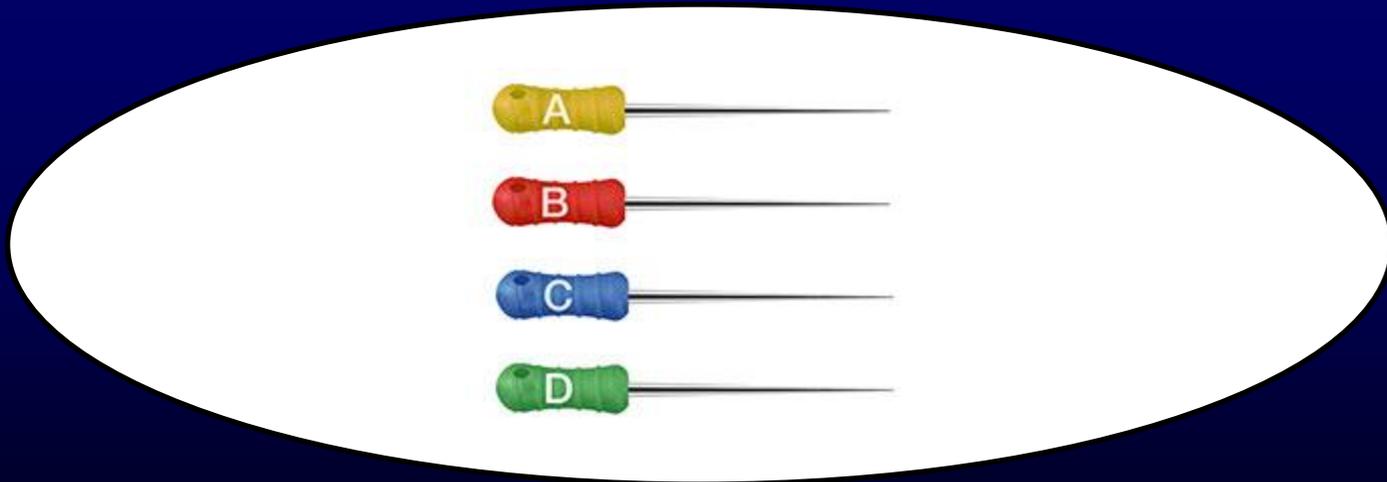
- 1- Seguem a padronização ISO.
- 2- Possuem Taper fixo (.02).
- 3- Geralmente são de aço inox.
- 4- Possuem cabo.
- 5- Não são acoplados em motores.
- 6- Não tem memória elástica .



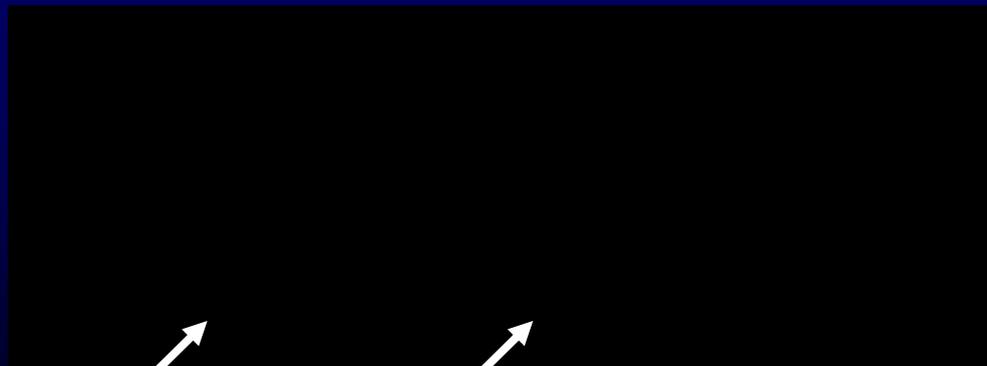
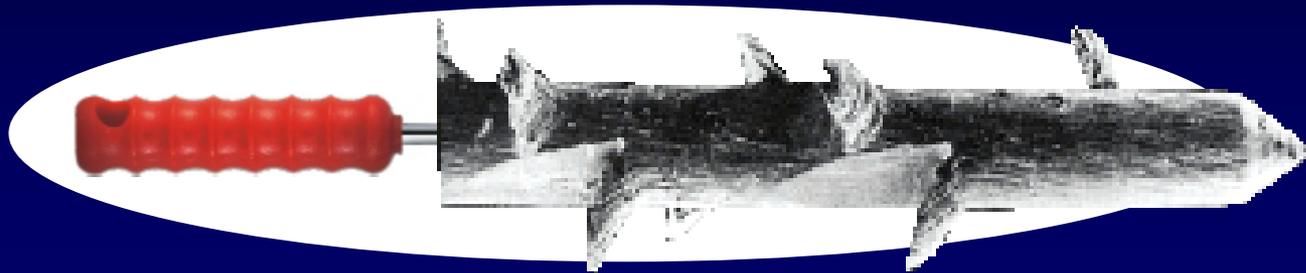
- 1- Não têm padronização.
- 2- Possuem Taper variados.
- 3- São exclusivamente de Ni-Ti.
- 4- Não possuem cabo.
- 5- São acoplados em motores elétricos ou pneumáticos.
- 6- Tem memória elástica .

**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



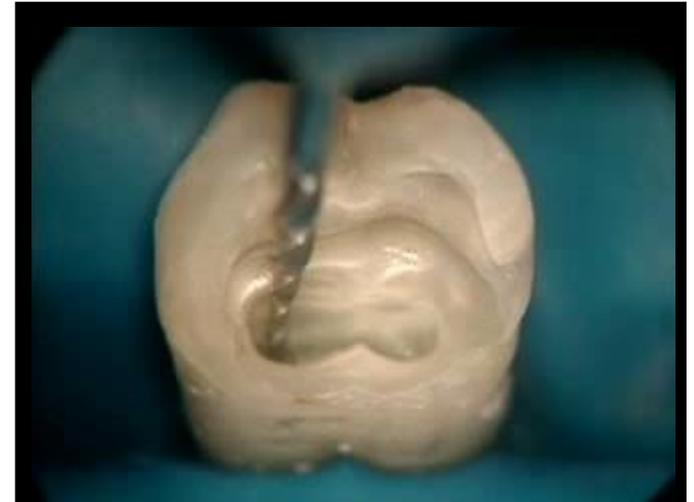
**20.06**



**35.06**

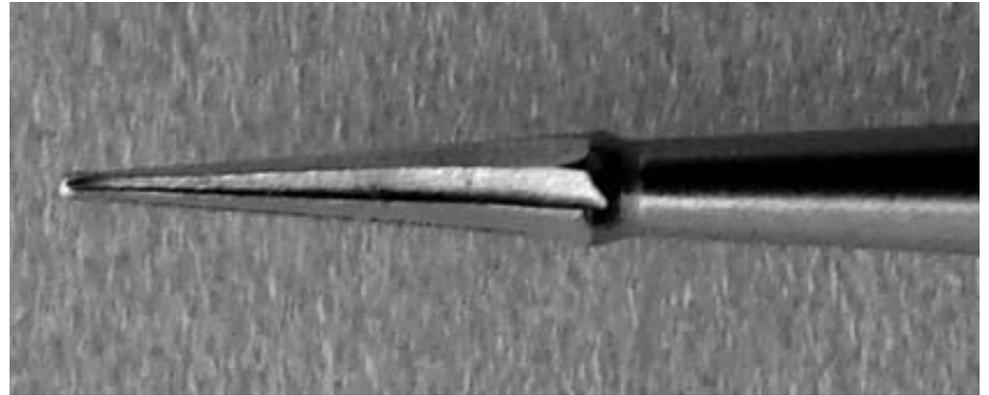
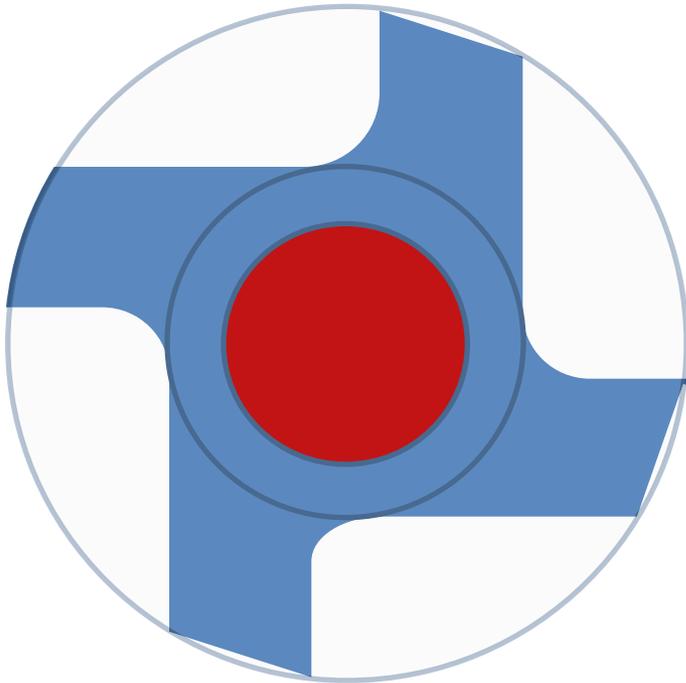


**45.06**



# BROCAS

CPDRILL®



# ***Instrumental***

## **Explorador clínico N° 5**



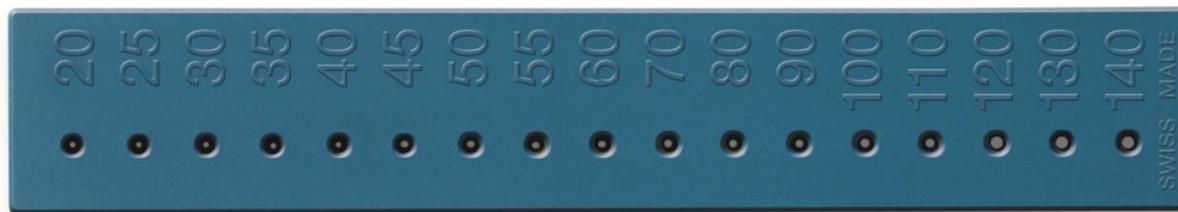
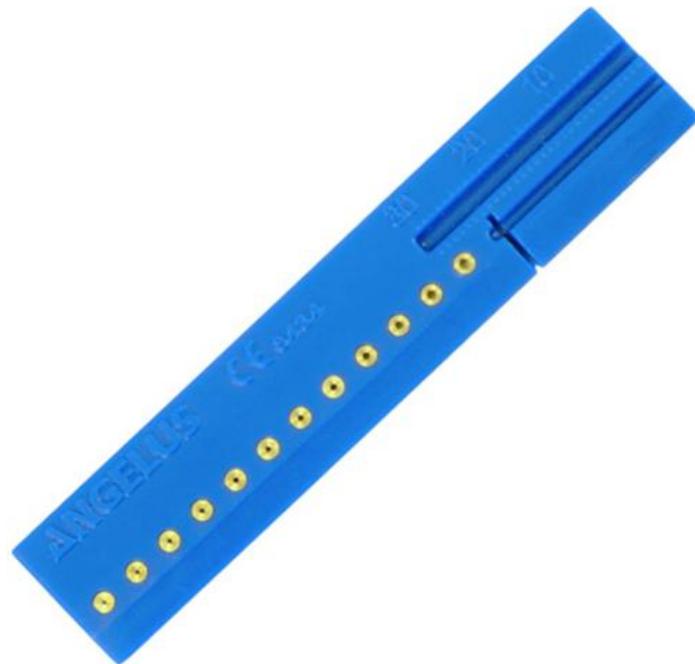
# *Instrumental*

## **Explorador de Endodontia (ponta reta)**



# Acessórios

## Régua calibradora



# Acessórios

## Porta limas



# Acessórios

## Condensadores de Paiva



# Acessórios

## Porta Guta-percha



# REFERÊNCIAS BIBLIOGRÁFICAS

LOPES, H. P., ELIAS, C. N., SIQUEIRA Jr, J. F., VIEIRA, M. V. B. Instrumentos Endodônticos. In: LOPES, H. P., SIQUEIRA Jr, J. F. **Endodontia. Biologia e Técnica**. 4 ed., Rio de Janeiro: Elsevier, 2015. Cap. 10, p. 265-353.

