

Inserts

General turning

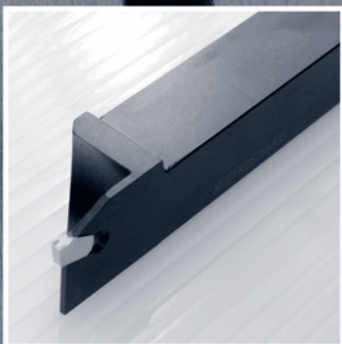
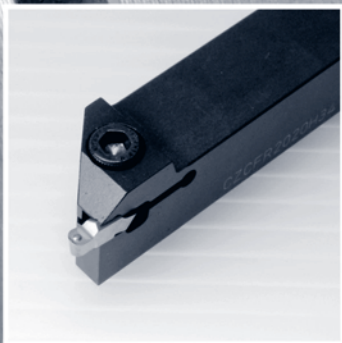
Aluminium
wheel turning

Automatic lathes

Ceramic tools

Parting and
grooving

Parting and grooving



Parting and grooving

Inserts	G.02
Applications	G.07
Toolholders	G.08
Boring bars	G.14
Tool blocks	G.16
Blades	G.17
Notch tools	G.20
Cutting data	G.24

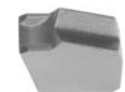
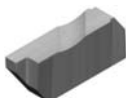
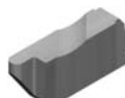
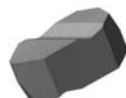
Inserts

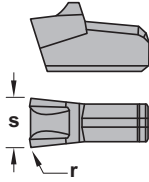
General turning

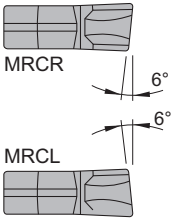
Aluminium
wheel turning

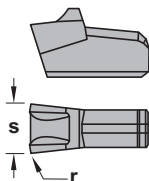
Automatic lathes

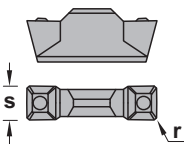
Ceramic tools

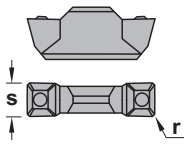
Parting and
grooving**MRCN**
 Single-ended.
 Page G.03
MRCR/L
 Single-ended.
 Page G.03
MTE
 Single-ended.
 Page G.03
MTC
 Double-ended.
 Page G.03
MTCJ
 Double-ended.
 Page G.03
MTR
 Double-ended.
 Page G.04
MTRJ
 Double-ended.
 Page G.04
PTNT
 Single ended.
 Page G.04
PTR/LT
 Single-ended.
 Page G.04
NG
 Double-ended
 For Parting
 Page G.05
NR
 Double-ended
 For Parting (radius)
 Page G.05
NT
 Double-ended
 For Threading
 Page G.06
ER/L LG
 Triangular
 negative
 Page G.06

			Normally available for immediate delivery ● Only available in a limited quantity ○									
	MRCN											
		s	r	KM15	PM25	PM40	TIN16	TIN17	TIN22	TIN32	ZR10	TL40
	MRCN 1.6	1,6	0,15	○						●		
	MRCN 2.2	2,2	0,20	○						●		○
	MRCN 3.0	3,0	0,20	○	●					●		○
	MRCN 4.0	4,0	0,20							●		○
	MRCN 5.0	5,0	0,30	○	○					●		○
	MRCN 6.0	6,0	0,40							●		○

			Normally available for immediate delivery ● Only available in a limited quantity ○									
	MRCL/L											
		s	r	KM15	PM25	PM40	TIN16	TIN17	TIN22	TIN32	ZR10	TL40
	MRCR 3.0	3,0	0,20									○
	MRCR 4.0	4,0	0,20									○
	MRCL 3.0	3,0	0,20									○
	MRCL 4.0	4,0	0,20									○

			Normally available for immediate delivery ● Only available in a limited quantity ○									
	MTE											
		s	r	KM15	PM25	PM40	TIN16	TIN17	TIN22	TIN32	ZR10	TL40
	MTE 3.0	3,0	0,20									●
	MTE 4.0	4,0	0,20									●

			Normally available for immediate delivery ● Only available in a limited quantity ○									
	MTC											
		s	r	KM15	PM25	PM40	TIN16	TIN17	TIN22	TIN32	ZR10	TL40
	MTC 3.0	3,0	0,15	●	●					○		
	MTC 4.0	4,0	0,20	●	●					●		

			Normally available for immediate delivery ● Only available in a limited quantity ○									
	MTCJ											
		s	r	KM15	PM25	PM40	TIN16	TIN17	TIN22	TIN32	ZR10	TL40
	MTCJ 3.0	3,0	0,15	●	●					●		
	MTCJ 4.0	4,0	0,20	●	●					●		

Inserts

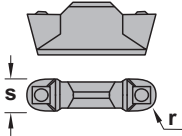
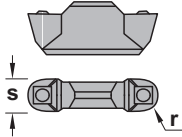
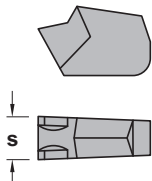
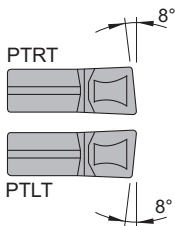
General turning

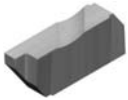
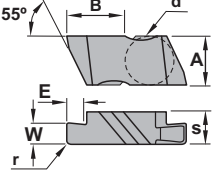
Aluminium wheel turning

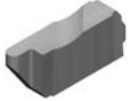
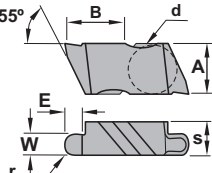
Automatic lathes

Ceramic tools

Parting and grooving

		Normally available for immediate delivery ● Only available in a limited quantity ○									
		s	r	KM15	PM25	PM40	TIN16	TIN17	TIN22	TIN32	ZR10
 	MTR										
	MTR 3.0	3,0	1,50	○	○					○	
	MTR 3.8	3,8	1,90		○					○	
 	MTRJ										
	MTRJ 3.0	3,0	1,50		○					○	
	MTRJ 3.8	3,8	1,90		○					○	
 	PTNT	s		KM15	PM25	PM40	TIN16	TIN17	TIN22	TIN32	ZR10
	PTNT 02	2,10			●	●				●	
	PTNT 03	3,10		○	●	●				●	
	PTNT 04	4,10			●	●				●	
	PTNT 05	5,10		○	○					○	
	PTNT 06	6,10			○					○	
	PTNT 08	8,10								●	
	PTNT 09	9,10			○					●	
 	PTR/LT	s		KM15	PM25	PM40	TIN16	TIN17	TIN22	TIN32	ZR10
	PTRT 03 R8	3,0								○	
	PTRT 04 R8	4,0								○	
	PTLT 03 R8	3,0								○	
	PTLT 04 R8	4,0								○	

	Normally available for immediate delivery ● Only available in a limited quantity ○																
	NG								KM15	PM25	PM40	TIN16	TIN17	TIN22	TIN32	ZR10	
	d	A	B	E	r	s	W										
	NG-2031R/L	4,76	5,56	6,86	1,27	0,05	3,81	0,79				○					
	NG-210R/L	4,76	5,56	6,86	1,27	0,05	3,81	0,99				○					
	NG2041R/L	4,76	5,56	6,86	1,27	0,05	3,81	1,04				○					
	NG2047R/L	4,76	5,56	6,86	1,27	0,05	3,81	1,19				○					
	NG2058R/L	4,76	5,56	6,86	1,27	0,05	3,81	1,47				○					
	NG2062R/L	4,76	5,56	6,86	2,79	0,05	3,81	1,57				○					
	NG220R/L	4,76	5,56	6,86	2,79	0,05	3,81	2,01				○					
	NG2094R/L	4,76	5,56	6,86	2,79	0,05	3,81	2,39				○					
	NG230R/L	4,76	5,56	6,86	2,79	0,05	3,81	3,00				○					
	NG2125R/L	4,76	5,56	6,86	2,79	0,05	3,81	3,18				○					
	NG3031R/L	9,53	8,74	10,29	1,27	0,05	4,95	0,79				○					
	NG310R/L	9,53	8,74	10,29	1,27	0,05	4,95	0,99				○					
	NG3047R/L	9,53	8,74	10,29	1,91	0,05	4,95	1,19				○					
	NG3062R/L	9,53	8,74	10,29	3,05	0,13	4,95	1,57				○					
	NG3072R/L	9,53	8,74	10,29	3,05	0,13	4,95	1,83				○					
	NG3078R/L	9,53	8,74	10,29	3,05	0,13	4,95	1,98				○					
	NG320R/L	9,53	8,74	10,29	3,05	0,13	4,95	2,01				○					
	NG3088R/L	9,53	8,74	10,29	3,05	0,13	4,95	2,24				○					
	NG3094R/L	9,53	8,74	10,29	4,57	0,13	4,95	2,39				○					
	NG3105R/L	9,53	8,74	10,29	4,57	0,13	4,95	2,67				○					
	NG3110R/L	9,53	8,74	10,29	4,57	0,13	4,95	2,79				○					
	NG330R/L	9,53	8,74	10,29	4,57	0,13	4,95	3,00				○					
	NG3122R/L	9,53	8,74	10,29	4,57	0,13	4,95	3,10				○					
	NG3125R/L	9,53	8,74	10,29	4,57	0,13	4,95	3,18				○					
	NG3142R/L	9,53	8,74	10,29	4,57	0,13	4,95	3,61				○					
	NG3156R/L	9,53	8,74	10,29	4,57	0,13	4,95	3,96				○					
	NG340R/L	9,53	8,74	10,29	4,57	0,13	4,95	4,01				○					
	NG3178R/L	9,53	8,74	10,29	4,57	0,13	4,95	4,52				○					
	NG3185R/L	9,53	8,74	10,29	4,57	0,51	4,95	4,70				○					
	NG3189R/L	9,53	8,74	10,29	4,57	0,51	4,95	4,80				○					
	NG4125R/L	9,53	11,51	16,15	6,35	0,13	6,48	3,18				○					
	NG4189R/L	9,53	11,51	16,15	6,35	0,51	6,48	4,80				○					
	NG450R/L	9,53	11,51	16,15	6,35	0,25	6,48	5,00				○					
	NG4213R/L	9,53	11,51	16,15	6,35	0,13	6,48	5,41				○					
	NG4219R/L	9,53	11,51	16,15	6,35	0,51	6,48	5,56				○					
	NG4250R/L	9,53	11,51	16,15	6,35	0,51	6,48	6,35				○					
	NG4312R/L	9,53	11,51	16,15	6,35	0,76	6,48	7,92				○					
	NG6281R/L	9,53	11,51	16,15	6,35	0,76	9,73	7,14				○					
	NG6312R/L	9,53	11,51	16,15	6,35	0,76	9,73	7,92				○					
	NG6375R/L	9,53	11,51	16,15	6,35	0,76	9,73	9,53				○					

	Normally available for immediate delivery ● Only available in a limited quantity ○																
	NR								KM15	PM25	PM40	TIN16	TIN17	TIN22	TIN32	ZR10	
	d	A	B	E	r	s	W										
	NR2031R/L	4,76	5,56	6,81	2,79	0,79	3,81	1,57				○					
	NR2047R/L	4,76	5,56	6,79	2,79	1,19	3,81	2,39				○					
	NR2062R/L	4,76	5,56	6,77	2,79	1,57	3,81	3,18				○					
	NR3031R/L	9,53	8,74	10,24	3,81	0,79	4,95	1,57				○					
	NR3047R/L	9,53	8,74	10,22	3,81	1,19	4,95	2,39				○					
	NR3062R/L	9,53	8,74	10,20	3,81	1,57	4,95	3,18				○					
	NR3078R/L	9,53	8,74	10,18	3,81	1,98	4,95	3,96				○					
	NR3094R/L	9,53	8,74	10,16	3,81	2,39	4,95	4,78				○					
	NR4062R/L	9,53	11,51	16,07	6,35	1,57	6,48	3,18				○					
	NR4094R/L	9,53	11,51	10,03	6,35	2,39	6,48	4,78				○					
	NR4125R/L	9,53	11,51	15,98	6,35	3,18	6,48	6,35				○					

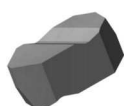
Inserts

General turning

Aluminium
wheel turning

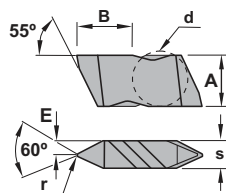
Automatic lathes

Ceramic tools

Parting and
grooving**NT**

Normally available for immediate delivery ●

Only available in a limited quantity ○

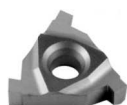


	d	A	B	E	r	s	KM15	PM25	PM40	TIN16	TIN17	TIN22	TIN32	ZR10
NT2R/L	4,76	5,56	6,76	1,91	0,08	3,81				○				
NT3R/L	9,53	8,74	10,16	2,49	0,13	4,95				○				
NT4R/L	9,53	11,51	15,98	3,25	0,13	6,48				○				

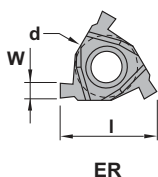
 Grooving - External inserts
Lock ring groove inserts type LG

Normally available for immediate delivery ●

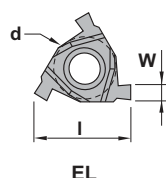
Only available in a limited quantity ○

**ER-LG****ER-LG**

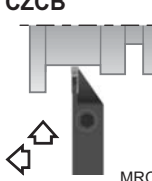
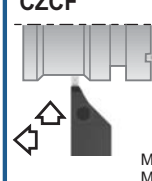
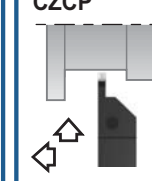
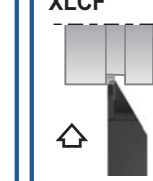
	l	d	W	KM15	PM25	TIN25	TL20
16ER-100LG	16,00	9,52	1,15				●
16ER-120LG	16,00	9,52	1,35				●
16ER-150LG	16,00	9,52	1,65				●
16ER-175LG	16,00	9,52	1,90				●
16ER-200LG	16,00	9,52	2,15				●
16ER-250LG	16,00	9,52	2,65				●

**ER****EL-LG**

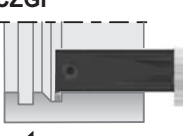
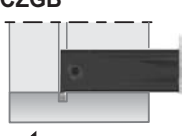
	l	d	W	KM15	PM25	TIN25	TL20
16EL-100LG	16,00	9,52	1,15				●
16EL-120LG	16,00	9,52	1,35				●
16EL-150LG	16,00	9,52	1,65				●
16EL-175LG	16,00	9,52	1,90				●
16EL-200LG	16,00	9,52	2,15				●

**EL**

Toolholders

CZGB  Page G.08 MTE 03/04 MRCN 03/04	CZFB  Page G.08 MTE 03/04 MRCN 03/04	CZCB  Page G.10 MRCN 1,6 ... MRCN 6,0	CZCF  Page G.11 MTC 3,0 MTC 4,0 MTR 3,0 MTR 3,8	CZCP  Page G.12 MTC 3,0 MTC 4,0 MTR 3,0 MTR 3,8	XLCF  Page G.13 PTNT 02 PTNT 03 PTNT 04
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Boring bars

CZGF  Page G.14 MTCJ 3,0 MTCJ 4,0 MTRJ 3,0 MTRJ 3,8	CZGB  Page G.15 MTCJ 3,0 MTCJ 4,0 MTRJ 3,0 MTRJ 3,8				
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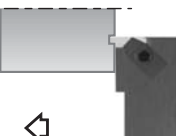
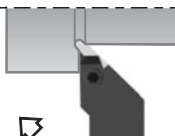
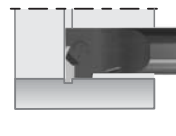
Tool blocks

CPTS  Page G.16	DPTS  Page G.16				
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Blades

CRCFN  Page G.17 MRCN 2,2 ... MRCN 6,0	XLCFN  Page G.18 PTNT 02 ... PTNT 09	XLCTN  Page G.19 PTNT 02 ... PTNT 06			
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Top Notch Tools

NE 93°  Page G.20 N.. 2 N.. 3 N.. 4	NR 45°  Page G.21 N.. 3	NS 93°  Page G.22 N.. 2 N.. 3 N.. 4	NNTO 93°  Page G.23 N.. 2 N.. 3 N.. 4		
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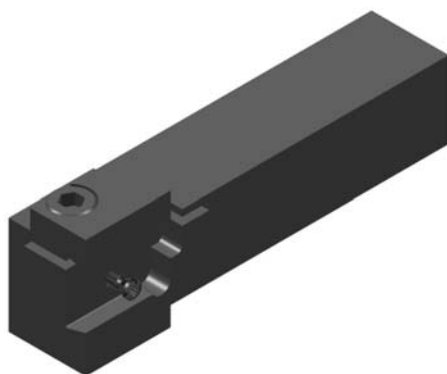
Inserts

General turning

Aluminium
wheel turning

Automatic lathes

Ceramic tools

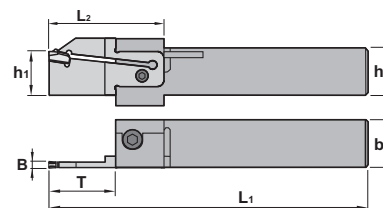
Parting and
grooving**Characteristics:**

Modular system for inserts with thickness from 3 to 4 mm.

The "V" positioning system of the pocket and the clamp integrated to the tool ensure maximum security and repetitivity on the dimensions when the insert is changed.

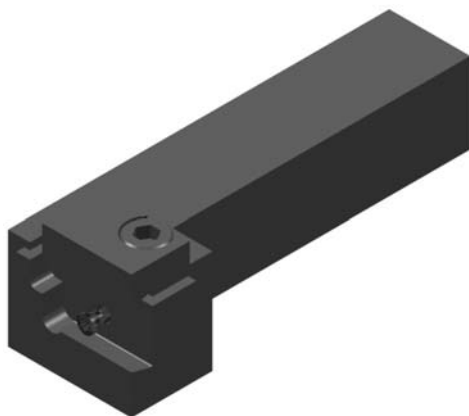
Applications:

Parting, grooving and face grooving toolholder that works well on steels, alloyed steels, stainless steels and refractories.

**CZGB**

Ref.		h	b	L1	L2	h1	B	T	Kg
	CZGB R/L 2020 M34	20	20	150	53	20	3-4	25-30	0,600
	CZGB R/L 2525 M34	25	25	150	53	25	3-4	25-30	0,750
	CZGB R/L 3232 P34	32	32	170	53	32	3-4	25-30	1,300

Ref.					
	CZGB R/L 2020 M34	1096	1240	5005	5515
	CZGB R/L 2525 M34	1096	1240	5005	5515
	CZGB R/L 3232 P34	1096	1240	5005	5515

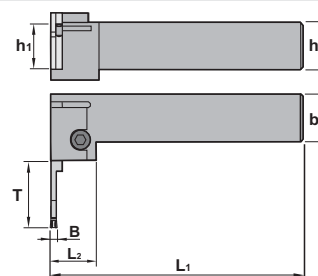
**Characteristics:**

Modular system for inserts with thickness from 3 to 4 mm.

The "V" positioning system of the pocket and the clamp integrated to the tool ensure maximum security and repetitivity on the dimensions when the insert is changed.

Applications:

Parting, grooving and face grooving toolholder that works well on steels, alloyed steels, stainless steels and refractories.

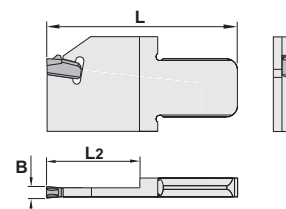
**CZFB**

Ref.		h	b	L1	L2	h1	B	T	Kg
	CZFB R/L 2525 M34	25	25	150	25	25	3-4	25-30	0,750
	CZFB R/L 3232 P34	32	32	170	25	32	3-4	25-30	1,300

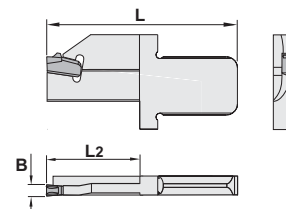
Ref.					
	CZFB R/L 2525 M34	1096	1240	5005	5515
	CZFB R/L 3232 P34	1096	1240	5005	5515

CZXB 00

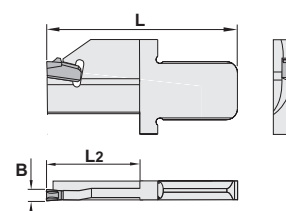
		L	L ₂	B	Insert size
Ref.	CZXB R/L 00X03	53	25	3	MRCN 03
	CZXB R/L 00X04	53	25	4	MRCN 04



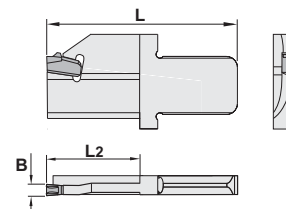
		CZXB 40-50				
		L	L ₂	B	Ø Range	Insert size
Ref.	CZXB R/L 4050X03	53	20	3	40 - 50	MTE 03
	CZXB R/L 4050X04	53	20	4	40 - 50	MTE 04



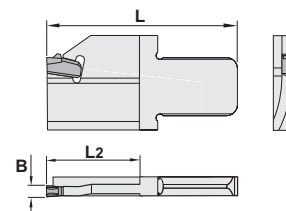
		CZXB 50-65				
		L	L ₂	B	Ø Range	Insert size
Ref.	CZXB R/L 5065X03	53	20	3	50 - 65	MTE 03
	CZXB R/L 5065X04	53	20	4	50 - 65	MTE 04



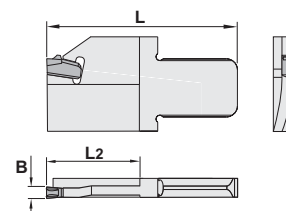
		CZXB 65-92				
		L	L ₂	B	Ø Range	Insert size
Ref.	CZXB R/L 6592X03	53	20	3	65 - 92	MTE 03
	CZXB R/L 6592X04	53	20	4	65 - 92	MTE 04



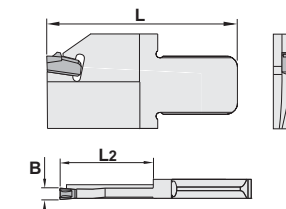
		CZXB 90-122				
		L	L ₂	B	Ø Range	Insert size
Ref.	CZXB R/L 90122X03	53	25	3	90 - 122	MTE 03
	CZXB R/L 90122X04	53	25	4	90 - 122	MTE 04

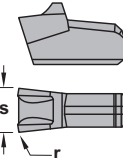


		CZXB 120-160				
		L	L ₂	B	Ø Range	Insert size
Ref.	CZXB R/L 120160X03	53	25	3	120 - 160	MTE 03
	CZXB R/L 120160X04	53	25	4	120 - 160	MTE 04



		CZXB 150-500				
		L	L ₂	B	Ø Range	Insert size
Ref.	CZXB R/L 150500X03	53	25	3	150 - 500	MTE 03
	CZXB R/L 150500X04	53	25	4	150 - 500	MTE 04



		MRCN / MTE		s		r	Single-ended insert for parting and grooving
Ref.	MRCN 03 / MTE 03			3,0		0,20	
	MRCN 04 / MTE 04			4,0		0,20	
		MRCN	MTE				For more information see page: G.03
							

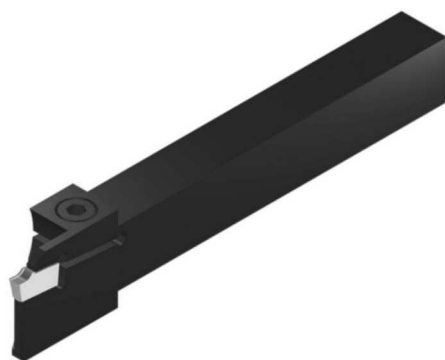
Inserts

General turning

Aluminium
wheel turning

Automatic lathes

Ceramic tools

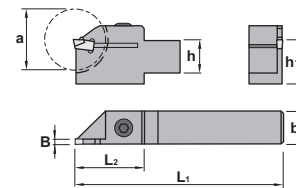
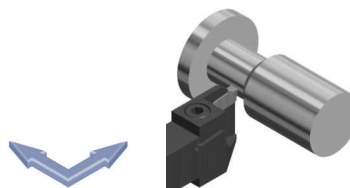
Parting and
grooving**Characteristics:**

One sided inserts with thickness from 1,6 to 6 mm.

The "V" positioning system of the pocket and the clamp integrated to the tool ensure maximum security and repetitivity on the dimensions when the insert is changed.

Applications:

Parting, grooving and side turning toolholder that works well on steels, alloyed steels, stainless steels and refractories.

**CZCB**

Ref.		h	b	L ₁	L ₂	h ₁	B	a	Insert size	Kg
	CZCB R/L 1010 J01	10	10	110	25	21	1,6	22	MRCN 1,6	0,080
	CZCB R/L 1010 J02	10	10	110	25	21	2,2	22	MRCN 2,2	0,080
	CZCB R/L 1212 J01	12	12	110	25	21	1,6	22	MRCN 1,6	0,100
	CZCB R/L 1212 J02	12	12	110	25	21	2,2	22	MRCN 2,2	0,100
	CZCB R/L 1612 J02	16	12	110	29	21	2,2	32	MRCN 2,2	0,150
	CZCB R/L 1612 J03	16	12	110	29	21	3,0	32	MRCN 3,0	0,150
	CZCB R/L 2016 K03	20	16	125	35	30	3,0	42	MRCN 3,0	0,350
	CZCB R/L 2016 K04	20	16	125	35	30	4,0	42	MRCN 4,0	0,350
	CZCB R/L 2016 K05	20	16	125	35	30	5,0	42	MRCN 5,0	0,350
	CZCB R/L 2016 K06	20	16	125	35	30	6,0	42	MRCN 6,0	0,350
	CZCB R/L 2520 M03	25	20	150	50	30	3,0	60	MRCN 3,0	0,550
	CZCB R/L 2520 M04	25	20	150	50	30	4,0	60	MRCN 4,0	0,550
	CZCB R/L 2520 M05	25	20	150	50	30	5,0	60	MRCN 5,0	0,550
	CZCB R/L 2520 M06	25	20	150	50	30	6,0	60	MRCN 6,0	0,550

Ref.		
	CZCB R/L 1010 J01	1905
	CZCB R/L 1010 J02	1905
	CZCB R/L 1212 J01	1905
	CZCB R/L 1212 J02	1905
	CZCB R/L 1612 J02	1916
	CZCB R/L 1612 J03	1916
	CZCB R/L 2016 K03	1906
	CZCB R/L 2016 K04	1906
	CZCB R/L 2016 K05	1906
	CZCB R/L 2016 K06	1906
	CZCB R/L 2520 M03	1906
	CZCB R/L 2520 M04	1906
	CZCB R/L 2520 M05	1906
	CZCB R/L 2520 M06	1906

Ref.	MRCN	s	r	Single-ended insert for parting and grooving		
	MRCN 1,6	1,6	0,15			
	MRCN 2,2	2,2	0,20			
	MRCN 3,0	3,0	0,20			
	MRCN 4,0	4,0	0,20			
	MRCN 5,0	5,0	0,30			
	MRCN 6,0	6,0	0,40			
MRCN						

For more information see page: G.03

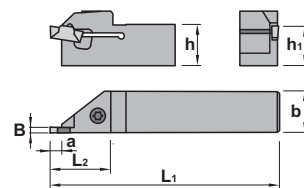
**Characteristics:**

Double sided inserts with thickness from 3 to 4 mm.

The "V" positioning system of the pocket and the clamp integrated to the tool ensure maximum security and repetitivity on the dimensions when the insert is changed.

Applications:

Face grooving and side turning toolholder that works well on steels, alloyed steels, stainless steels and refractories.

**CZCF**

Ref.		$h=h_1$	b	L_1	L_2	B	a	Insert size	Δ_{kg}
	CZCF R/L 1616 H34	16	16	100	24	3-4	4,5	MT.. 3,0-4,0	0,200
	CZCF R/L 2020 K34	20	20	125	24	3-4	4,5	MT.. 3,0-4,0	0,300
	CZCF R/L 2525 M34	25	25	150	24	3-4	4,5	MT.. 3,0-4,0	0,450

Ref.			
	CZCF R/L 1616 H34	1916	5005
	CZCF R/L 2020 K34	1906	5005
	CZCF R/L 2525 M34	1906	5005

MT..		s	r	Double-ended insert for turning and grooving.			
Ref.							
	MTC 3,0	3,0	0,15				
	MTC 4,0	4,0	0,20				
	MTR 3,0	3,0	1,50				
	MTR 3,8	3,8	1,90				
				For more information see page: G.03			
MTC		MTR					
							

Inserts

General turning

Aluminium
wheel turning

Automatic lathes

Ceramic tools

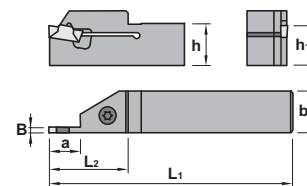
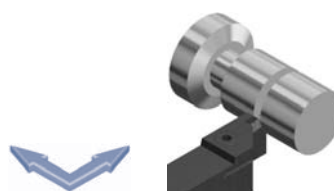
Parting and
grooving**Characteristics:**

Double sided inserts with thickness from 3 to 3,8 mm.

The "V" positioning system of the pocket and the clamp integrated to the tool ensure maximum security and repetitivity on the dimensions when the insert is changed.

Applications:

Parting, grooving and side turning toolholder that works well on steels, alloyed steels, stainless steels and refractories.

**CZCP**

Ref.		h=h ₁	b	L ₁	L ₂	B	a	Insert size	Kg
	CZCP R/L 1616 H34	16	16	100	30	3-4	12	MT.. 3,0-4,0	0,200
	CZCP R/L 2020 K34	20	20	125	30	3-4	12	MT.. 3,0-4,0	0,300
	CZCP R/L 2525 M34	25	25	150	30	3-4	12	MT.. 3,0-4,0	0,450



Ref.			
	CZCP R/L 1616 H34	1916	5005
	CZCP R/L 2020 K34	1906	5005
	CZCP R/L 2525 M34	1906	5005

MT..		s	r	Double-ended insert for turning and grooving.			
Ref.							
	MTC 3,0	3,0	0,15				
	MTC 4,0	4,0	0,20				
	MTR 3,0	3,0	1,50				
	MTR 3,8	3,8	1,90				
				For more information see page: G.03			
		MTC	MTR				

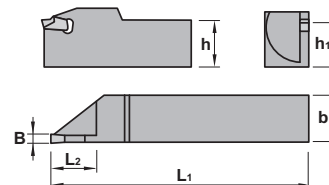
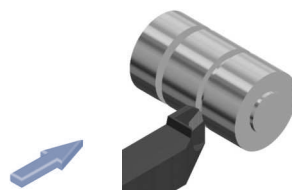
**Characteristics:**

One sided inserts with thickness from 2 to 4 mm.

The "V" positioning system of the pocket and the clamp integrated to the tool ensure maximum security and repetitivity on the dimensions when the insert is changed.

Applications:

Parting and grooving toolholder that works well on steels, alloyed steels, stainless steels and refractories.

**XLCF**

Ref.		h=h ₁	b	L ₁	L ₂	B	Insert size	Kg
	XLCF R/L 1010 J02	10	10	110	18	2	PTNT 02	0,080
	XLCF R/L 1210 J02	12	10	110	18	2	PTNT 02	0,100
	XLCF R/L 1212 J02	12	12	110	18	2	PTNT 02	0,100
	XLCF R/L 1612 J03	16	12	110	20	3	PTNT 03	0,150
	XLCF R/L 1612 J04	16	12	110	20	4	PTNT 04	0,150
	XLCF R/L 2012 K03	20	12	125	20	3	PTNT 03	0,200
	XLCF R/L 2012 K04	20	12	125	20	4	PTNT 04	0,200
	XLCF R/L 2020 K03	20	20	125	20	3	PTNT 03	0,350
	XLCF R/L 2020 K04	20	20	125	20	4	PTNT 04	0,350
	XLCF R/L 2525 M03	25	25	150	20	3	PTNT 03	0,650
	XLCF R/L 2525 M04	25	25	150	20	4	PTNT 04	0,650

Ref.	XLCF R/L 1010 J02	5732
	XLCF R/L 1210 J02	5732
	XLCF R/L 1212 J02	5732
	XLCF R/L 1612 J03	5732
	XLCF R/L 1612 J04	5732
	XLCF R/L 2012 K03	5732
	XLCF R/L 2012 K04	5732
	XLCF R/L 2020 K03	5732
	XLCF R/L 2020 K04	5732
	XLCF R/L 2525 M03	5732
	XLCF R/L 2525 M04	5732

	PTNT		s		Single-ended insert for parting and grooving.		
	Ref.						
	PTNT 02			2,10			
	PTNT 03			3,10			
	PTNT 04			4,10	For more information see page: G.04		
	PTNT						

Inserts

General turning

Aluminium
wheel turning

Automatic lathes

Ceramic tools

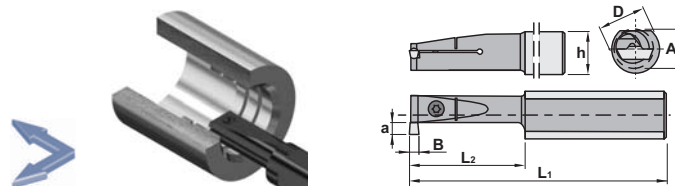
Parting and
grooving**Characteristics:**

Double sided inserts with thickness from 3 to 4 mm.

The "V" positioning system of the pocket and the clamp integrated to the tool ensure maximum security and repetitivity on the dimensions when the insert is changed.

Applications:

Grooving and internal turning toolholder that works well on steels, alloyed steels, stainless steels and refractories.

**CZGF**

Ref.		D	A	h	L1	L2	B	a	Insert size	Kg
	S20R CZGF R/L 34	20	16,5	18	200	40	3-4	5	MT.. 3,0-4,0	0,400
	S25R CZGF R/L 34	25	25,0	23	200	50	3-4	5	MT.. 3,0-4,0	0,650
	S32S CZGF R/L 34	32	30,0	30	250	60	3-4	5	MT.. 3,0-4,0	1,400

Ref.					
	S20R CZGF R/L 34	1250	5520	-	-
	S25R CZGF R/L 34	-	-	1006	5004
	S32S CZGF R/L 34	-	-	1006	5004

MT..J		s	r	Double-ended insert for turning and grooving.		
Ref.						
	MTCJ 3,0	3,0	0,15	For more information see page: G.03		
	MTCJ 4,0	4,0	0,20			
	MTRJ 3,0	3,0	1,50			
	MTRJ 3,8	3,8	1,90			
		MTCJ	MTRJ			

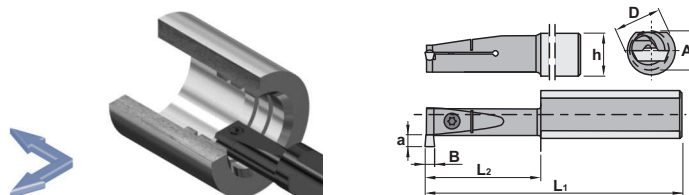
**Characteristics:**

Single sided inserts with thickness from 3 to 4 mm.

The "V" positioning system of the pocket and the clamp integrated to the tool ensure maximum security and repetitivity on the dimensions when the insert is changed.

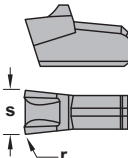
Applications:

Grooving toolholder that works well on steels, alloyed steels, stainless steels and refractories.

**CZGB**

Ref.		D	A	h	L ₁	L ₂	B	a	Insert size	 Kg
	S16M CZGB R/L 03	16	16	15	150	30	3	4	MCRN 3,0	0,180
	S20R CZGB R/L 03	20	20	18	200	40	3	6	MCRN 3,0	0,400
	S25S CZGB R/L 03	25	25	23	250	50	3	8	MCRN 3,0	0,650
	S20R CZGB R/L 04	20	20	18	200	40	4	6	MCRN 4,0	0,400
	S25S CZGB R/L 04	25	25	23	250	50	4	8	MCRN 4,0	0,650

Ref.				
S16M CZGB R/L 03	1250	5520	-	-
S20R CZGB R/L 03	1250	5520	-	-
S25S CZGB R/L 03	-	-	1006	5004
S20R CZGB R/L 04	-	-	1006	5004
S25S CZGB R/L 04	-	-	1006	5004

	MRCN			Single-ended insert for parting and grooving		
	Ref.	s	r			
	MRCN 3,0 MRCN 4,0	3,0 4,0	0,20 0,20			
	MRCN					

For more information see page: G.03

Inserts

General turning

Aluminium
wheel turning

Automatic lathes

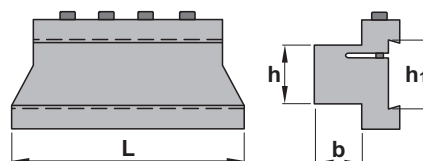
Ceramic tools

Parting and
grooving**Characteristics:**

Tool blocks manufactured with two slot-guide which allows to maintain the blade always guided.
The fixing system by flexion ensures good rigidity and security.

Applications:

Tool block for manual and C.N.C. lathes.

**CPTS**

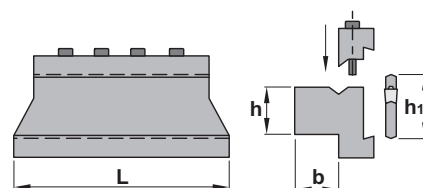
Ref.		h ₁	L	h	b	kg		
	CPTS 1916	19	76	16	16	0,300	1075	5004
	CPTS 2616	26	87	16	16	0,450	1076	5005
	CPTS 2620	26	87	20	20	0,500	1076	5005
	CPTS 2625	26	87	25	25	0,650	1076	5005
	CPTS 3220	32	100	20	20	0,700	1076	5005
	CPTS 3225	32	110	25	25	0,950	1076	5005
	CPTS 3232	32	120	32	32	1,400	1076	5005
	CPTS 5250	52	135	50	50	3,400	1078	5006

Characteristics:

Tool blocks manufactured with two slot-guide which allows to maintain the blade always guided.
Fixing system in two parts for machines with difficult access.

Applications:

Tool block for manual and C.N.C. lathes.

**DPTS**

Ref.		h ₁	L	h	b	kg			
	DPTS 1916	19	76	16	16	0,250	1075	2916	5004
	DPTS 2620	26	87	20	20	0,550	1076	2920	5005
	DPTS 2625	26	87	25	25	0,700	1076	2920	5005
	DPTS 3220	32	100	20	20	0,750	1076	2930	5005
	DPTS 3225	32	110	25	25	1,000	1076	2935	5005
	DPTS 3232	32	120	32	32	1,450	1076	2942	5005
	DPTS 5250	52	135	50	50	3,450	1078	2950	5006

Characteristics:

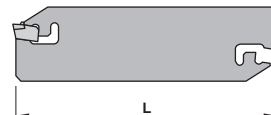
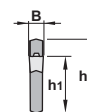
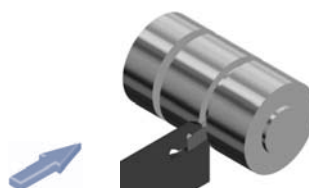
One sided inserts with thickness from 2,2 to 6 mm.

The double "V" pocket ensures a reliable and repetitive insert positioning and centering.

Available in 4 sizes (19, 26 and 32).

Applications:

Parting and grooving blade that works well on steels, alloyed steels, stainless steels and refractories.

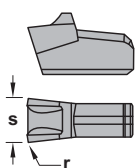
**CRCFN**

Ref.		h	L	h1	B	Insert size	 Kg
	CRCF N 1901 X02	19	86	15,4	2,2	MRCN 2,2	0,040
	CRCF N 2601 J02	26	110	21,4	2,2	MRCN 2,2	0,060
	CRCF N 2602 J03	26	110	21,4	3,0	MRCN 3,0	0,070
	CRCF N 2603 J04	26	110	21,4	4,0	MRCN 4,0	0,090
	CRCF N 2604 J05	26	110	21,4	5,0	MRCN 5,0	0,100
	CRCF N 2605 J06	26	110	21,4	6,0	MRCN 6,0	0,100
	CRCF N 3202 M03	32	150	25,0	3,0	MRCN 3,0	0,100
	CRCF N 3203 M04	32	150	25,0	4,0	MRCN 4,0	0,125
	CRCF N 3204 M05	32	150	25,0	5,0	MRCN 5,0	0,150
	CRCF N 3205 M06	32	150	25,0	6,0	MRCN 6,0	0,170



Ref.	CRCF N 1901 X02	5733
	CRCF N 2601 J02	5733
	CRCF N 2602 J03	5733
	CRCF N 2603 J04	5733
	CRCF N 2604 J05	5733
	CRCF N 2605 J06	5733
	CRCF N 3202 M03	5733
	CRCF N 3203 M04	5733
	CRCF N 3204 M05	5733
	CRCF N 3205 M06	5733

MRCN		s	r	Single-ended insert for parting and grooving			
Ref.	MRCN 2,2	2,2	0,20	For more information see page: G.03			
	MRCN 3,0	3,0	0,20				
	MRCN 4,0	4,0	0,20				
	MRCN 5,0	5,0	0,30				
	MRCN 6,0	6,0	0,40				
MRCN							
							



Inserts

General turning

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wheel turning

Automatic lathes

Ceramic tools

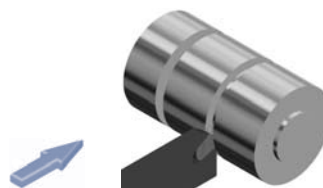
Parting and
grooving**Characteristics:**

One sided inserts with thickness from 2 to 9 mm.

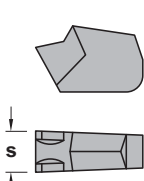
The double "V" pocket ensures a reliable and repetitive insert positioning and centering. Available in 4 sizes (19, 26, 32 and 53).

Applications:

Parting, grooving blade that works well on steels, alloyed steels, stainless steels and refractories.

**XLCFN**

Ref.		h	L	B	Insert size	 Kg	
	XLCF N 1901 X02	19	86	2,1	PTNT 02	0,040	5732
	XLCF N 2601 J02	26	110	2,1	PTNT 02	0,050	5732
	XLCF N 2602 J03	26	110	3,1	PTNT 03	0,050	5732
	XLCF N 2603 J04	26	110	4,1	PTNT 04	0,085	5732
	XLCF N 2604 J05	26	110	5,1	PTNT 05	0,095	5732
	XLCF N 2605 J06	26	110	6,1	PTNT 06	0,120	5732
	XLCF N 3201 M02	32	150	2,1	PTNT 02	0,075	5732
	XLCF N 3202 M03	32	150	3,1	PTNT 03	0,100	5732
	XLCF N 3203 M04	32	150	4,1	PTNT 04	0,130	5732
	XLCF N 3204 M05	32	150	5,1	PTNT 05	0,160	5732
	XLCF N 3205 M06	32	150	6,1	PTNT 06	0,190	5732
	XLCF N 3207 M08	32	150	8,1	PTNT 08	0,230	5732
	XLCF N 3208 M09	32	150	9,1	PTNT 09	0,270	5732
	XLCF N 5207 X08	53	190	8,1	PTNT 08	0,500	5732
	XLCF N 5208 X09	53	190	9,1	PTNT 09	0,600	5732
	XLCF N 5307 X08	53	260	8,1	PTNT 08	0,700	5732
	XLCF N 5308 X09	53	260	9,1	PTNT 09	0,800	5732

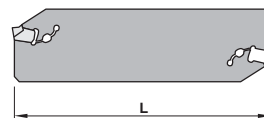
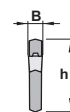
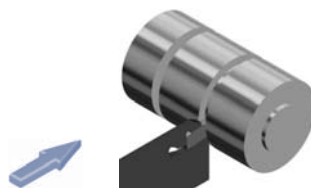
PTNT		s		Single-ended insert for parting and grooving.			
	Ref.	PTNT 02	2,10	For more information see page: G.04			
		PTNT 03	3,10				
		PTNT 04	4,10				
		PTNT 05	5,10				
		PTNT 06	6,10				
		PTNT 08	8,10				
		PTNT 09	9,10				
	PTNT						
							

Characteristics:

Positive stop blade for inserts with thickness from 2 to 6 mm.
The double "V" pocket ensures a reliable and repetitive insert positioning and centering.
Available in 4 sizes (19, 26, and 32).

Applications:

Parting, grooving blade that works well on steels, alloyed steels, stainless steels and refractories.

**XLCTN**

Ref.		h	L	B	Insert size	 Kg
	XLCT N 1901 X02	19	86	2,1	PTNT 02	0,040
	XLCT N 2601 J02	26	110	2,1	PTNT 02	0,050
	XLCT N 2602 J03	26	110	3,1	PTNT 03	0,050
	XLCT N 2603 J04	26	110	4,1	PTNT 04	0,085
	XLCT N 2604 J05	26	110	5,1	PTNT 05	0,095
	XLCT N 2605 J06	26	110	6,1	PTNT 06	0,120
	XLCT N 3201 M02	32	150	2,1	PTNT 02	0,075
	XLCT N 3202 M03	32	150	3,1	PTNT 03	0,100
	XLCT N 3203 M04	32	150	4,1	PTNT 04	0,130
	XLCT N 3204 M05	32	150	5,1	PTNT 05	0,160
	XLCT N 3205 M06	32	150	6,1	PTNT 06	0,190



Ref.	XLCT N 1901 X02	5732
	XLCT N 2601 J02	5732
	XLCT N 2602 J03	5732
	XLCT N 2603 J04	5732
	XLCT N 2604 J05	5732
	XLCT N 2605 J06	5732
	XLCT N 3201 M02	5732
	XLCT N 3202 M03	5732
	XLCT N 3203 M04	5732
	XLCT N 3204 M05	5732
	XLCT N 3205 M06	5732

PTNT		s	Single-ended insert for parting and grooving.			
Ref.						
	PTNT 02	2,10				
	PTNT 03	3,10				
	PTNT 04	4,10				
	PTNT 05	5,10				
	PTNT 06	6,10				
PTNT						
						

For more information see page: G.04

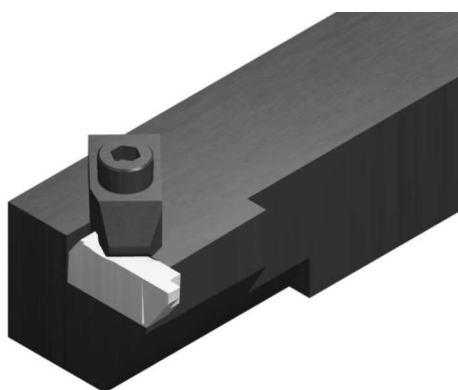
Inserts

General turning

Aluminium
wheel turning

Automatic lathes

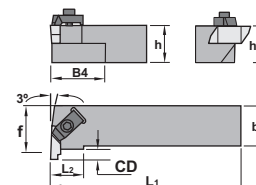
Ceramic tools

Parting and
grooving**Characteristics:**

Multipurpose grooving and threading top clamp toolholder.
 Right tools require left inserts and vice versa.
 Maximum grooving depth depending on insert.

Applications:

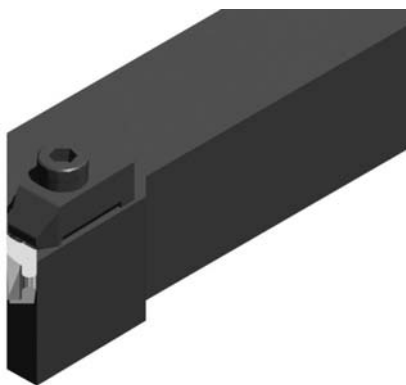
External/internal grooving toolholder.

**NE 93°**

Ref.		h=h ₁	b	L ₁	L ₂	f	Insert size	Kg
	NE R/L 1616 H02	16	16	100	25,40	20	N..2	0,200
	NE R/L 2020 K02	20	20	125	25,40	25	N..2	0,400
	NE R/L 2525 M02	25	25	150	25,40	32	N..2	0,700
	NE R/L 2525 M03	25	25	150	50,80	32	N..3	0,700
	NE R/L 3225 P03	32	25	170	50,80	32	N..3	1,000
	NE R/L 2525 M04	25	25	150	50,80	35	N..4	0,700
	NE R/L 3225 P04	32	25	170	50,80	35	N..4	1,000
	NE R/L 3232 P04	32	32	170	50,80	40	N..4	1,250

	R	L	
Ref.			
NE R/L 1616 H02	TF-75	TF-74	1494
NE R/L 2020 K02	TF-75	TF-74	1494
NE R/L 2525 M02	TF-75	TF-74	1494
NE R/L 2525 M03	TF-73	TF-72	1495
NE R/L 3225 P03	TF-73	TF-72	1495
NE R/L 2525 M04	TF-73	TF-72	1495
NE R/L 3225 P04	TF-73	TF-72	1495
NE R/L 3232 P04	TF-73	TF-72	1495

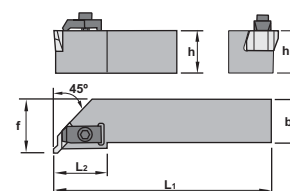
Ref.	N..	D	A	T	NG: Insert for parting NR: Insert for parting with radius NT: Insert for threading
	N.. 2	4,76	5,56	3,81	For more information see page: G.05
	N.. 3	9,53	8,74	4,95	
	N.. 4	9,53	11,51	6,48	
	NG	NR	NT		

**Characteristics:**

Specific application grooving toolholder.
Right tools require left inserts and vice versa.
Maximum grooving depth depending on insert.

Applications:

External grooving toolholder.

**NR 45°**

		$h=h_1$	b	L_1	L_2	f	Insert size	 Kg
Ref.	NR R/L 2020 K03	20	20	125	32	25	N..3	0,400
	NR R/L 2525 M03	25	25	150	32	32	N..3	0,700
	NR R/L 3225 P03	32	25	170	32	32	N..3	1,000

		 R	 L	
Ref.	NR R/L 2020 K03	TF-73	TF-72	1495
	NR R/L 2525 M03	TF-73	TF-72	1495
	NR R/L 3225 P03	TF-73	TF-72	1495

	N..				NG: Insert for parting NR: Insert for parting with radius NT: Insert for threading	
	Ref.	N.. 3	D 9,53	A 8,74		T 4,95
						
	NG	NR	NT			For more information see page: G.05
						

For more information see page: G.05

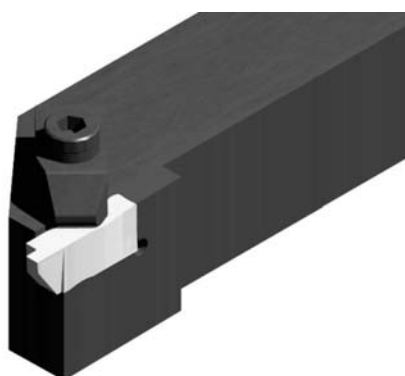
Inserts

General turning

Aluminium
wheel turning

Automatic lathes

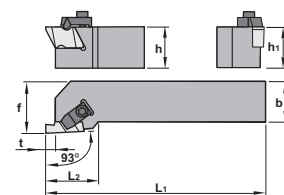
Ceramic tools

Parting and
grooving**Characteristics:**

Multipurpose grooving and threading top clamp toolholder.
Maximum grooving depth depending on insert.

Applications:

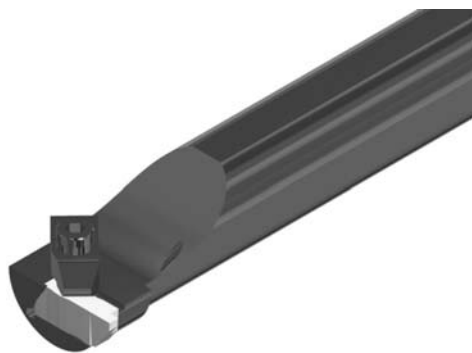
External grooving toolholder.

**NS 93°**

Ref.		h=h ₁	b	L ₁	L ₂	f	Insert size	K _g
	NS R/L 1010 E02	10	10	70	6,35	14	N..2	0,070
	NS R/L 1212 F02	12	12	80	6,35	16	N..2	0,100
	NS R/L 1616 H02	16	16	100	6,35	20	N..2	0,200
	NS R/L 2020 K02	20	20	125	6,35	25	N..2	0,400
	NS R/L 2525 M02	25	25	150	6,35	32	N..2	0,700
	NS R/L 2020 K03	20	20	125	9,65	25	N..3	0,400
	NS R/L 2525 M03	25	25	150	9,65	32	N..3	0,700
	NS R/L 3225 P03	32	25	170	9,65	32	N..3	0,900
	NS R/L 3232 P03	32	32	170	9,65	40	N..3	1,250
	NS R/L 2525 M04	25	25	150	9,65	32	N..4	0,700
	NS R/L 3225 P04	32	25	170	9,65	32	N..4	0,900
	NS R/L 3232 P04	32	32	170	9,65	40	N..4	1,250

Ref.		R	L			
	NS R/L 1010 E02	TF-74	TF-75	-	-	1494
	NS R/L 1212 F02	TF-74	TF-75	-	-	1494
	NS R/L 1616 H02	TF-74	TF-75	-	-	1494
	NS R/L 2020 K02	TF-74	TF-75	-	-	1494
	NS R/L 2525 M02	TF-74	TF-75	-	-	1494
	NS R/L 2020 K03	TF-72	TF-73	-	-	1495
	NS R/L 2525 M03	TF-72	TF-73	-	-	1495
	NS R/L 3225 P03	TF-72	TF-73	-	-	1495
	NS R/L 3232 P03	TF-72	TF-73	-	-	1495
	NS R/L 2525 M04	TF-72	TF-73	3521	1625	1495
	NS R/L 3225 P04	TF-72	TF-73	3521	1625	1495
	NS R/L 3232 P04	TF-72	TF-73	3521	1625	1495

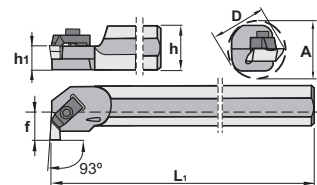
	N..				NG: Insert for parting NR: Insert for parting with radius NT: Insert for threading
Ref.	N.. 2	4,76	5,56	3,81	
	N.. 3	9,53	8,74	4,95	
	N.. 4	9,53	11,51	6,48	
					For more information see page: G.05
	NG	NR	NT		
					

**Characteristics:**

Multipurpose grooving and threading top clamp boring bar.
Right tools require left inserts and vice versa.
Maximum grooving depth depending on insert.

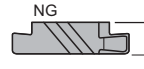
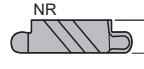
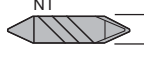
Applications:

Internal grooving toolholder.

**NNTO 93°**

Ref.		D	h	h ₁	L ₁	f	A	Insert size	kg
	A12M-NNTO R/L 02	12	11	5,5	150	11	18,5	N..2	0,150
	A16M-NNTO R/L 02	16	15	7,5	150	11	22,0	N..2	0,200
	A20Q-NNTO R/L 02	20	18	9,0	180	13	26,0	N..2	0,400
	A25R-NNTO R/L 02	25	23	11,5	200	17	34,0	N..2	0,700
	A25R-NNTO R/L 03	25	23	11,5	200	17	34,0	N..3	0,700
	A32S-NNTO R/L 03	32	30	15,0	250	22	44,0	N..3	1,400
	A40T-NNTO R/L 03	40	37	18,5	300	27	54,0	N..3	2,650
	A40T-NNTO R/L 04	40	37	18,5	300	27	54,0	N..4	2,650
	A50U-NNTO R/L 04	50	47	23,5	350	35	70,0	N..4	5,400

Ref.		 R	 L	
	A12M-NNTO R/L 02	TF-147	TF-146	1494
	A16M-NNTO R/L 02	TF-75	TF-74	1494
	A20Q-NNTO R/L 02	TF-75	TF-74	1494
	A25R-NNTO R/L 02	TF-75	TF-74	1494
	A25R-NNTO R/L 03	TF-73	TF-72	1495
	A32S-NNTO R/L 03	TF-73	TF-72	1495
	A40T-NNTO R/L 03	TF-73	TF-72	1495
	A40T-NNTO R/L 04	TF-73	TF-72	1495
	A50U-NNTO R/L 04	TF-73	TF-72	1495

  	N..				NG: Insert for parting NR: Insert for parting with radius NT: Insert for threading For more information see page: G.05
	Ref.	N.. 2	N.. 3	N.. 4	
		D	A	T	
		4,76	5,56	3,81	
  	NG	NR	NT		

Inserts

General turning

Aluminium
wheel turning

Automatic lathes

Ceramic tools

Parting and
grooving

Nominal cutting speed for parting

Material	HB	Condition		Basic qualities			Specific cutting force N/mm²
				TIN32	PM25	KM15	
				Cutting speed m/min.			
Unalloyed steel	P	125	C=0.15%	200-150	160-120		1900
		150	C=0.35%	190-140	150-110		2100
		200	C=0.60%	170-120	130-90		2250
Low alloyed steel	180	Annealed	180-130	140-100		2100	
	275	Hardened	160-110	120-80		2600	
	300	Hardened	150-100	110-70		2700	
	350	Hardened	140-90	90-60		2850	
High alloyed steel	200	Annealed	110-90	70-60		2600	
	325	Hardened	70-50	45-30		3900	
Stainless steel	200	Martensitic/Ferritic		170-120	130-90		2300
Steel	180	Unalloyed	130-90	100-60		2000	
	200	Low alloyed	115-75	90-50		2500	
	225	High alloyed	100-60	80-40		2700	
Stainless steel annealed	M	180		170-120	130-90	100-60	2450
Heat resistant alloys	200	Annealed	Iron base			50-30	3000
	280	Aged				40-20	3050
	250	Annealed	30-20			3500	
	350	Agest	20-10			4150	
	320	Cast	20-10			4150	
Titanium alloys	400	Ti				1520	
	950	Cast α , almost a and $\alpha + \beta$				1675	
	1050	Aged cast $\alpha + \beta$				1690	
Hardened steel	K	220	Hardened steel Manganese steel 12%				4500
	250						
Malleable cast iron	130	Ferritic	140-110		100-80	1100	
	230	Pearlitic	100-70				70-50
Cast iron	180	Low tensile strength	110-85		80-60	1100	
	260	High tensile strength	100-70				70-50
Nodular SG iron	160	Ferritic	100-70		70-50	1100	
	250	Pearlitic	85-60				60-40
Aluminium alloys	60	Non heat treatable	1500	1500	1000	500	
	100	Heat treatable	500	500	420	800	
Aluminium alloys (cast)	75	Non heat treatable	1500	1500	1000	750	
	90	Heat treatable	750	750	650	900	
Bronze-Brass alloys	110	Lead alloys, Pb>1%	300	300	300	700	
	90	Brass, red brass	200	200	200	750	
	100	Bronze and lead-free copper	150	150	150	1750	

Nominal cutting speed for grooving

Material	HB	Condition		External			Internal / Axial			Specific cutting force N/mm ²	
				TIN32	PM25	KM15	TIN32	PM25	KM15		
				Cutting speed m/min.							
Unalloyed steel P	125	C=0.15%		200-150	160-120		140-105	110-85		1900	
	150	C=0.35%		190-140	150-110		135-100	105-80		2100	
	200	C=0.60%		170-120	130-90		120-85	90-60		2250	
Low alloyed steel	180	Annealed		180-130	140-100		125-90	100-70		2100	
	275	Hardened		160-110	120-80		110-80	85-55		2600	
	300	Hardened		150-100	110-70		105-70	80-50		2700	
	350	Hardened		140-90	90-60		100-60	60-45		2850	
High alloyed steel	200	Annealed		110-90	70-60		80-60	50-45		2600	
	325	Hardened		70-50	45-30		80-35	32-20		3900	
Stainless steel	200	Martensitic/Ferritic		170-120	130-90		120-85	90-60		2300	
Steel	180	Unalloyed		130-90	100-60		90-60	70-45		2000	
	200	Low alloyed		115-75	90-50		80-50	60-35		2500	
	225	High alloyed		100-60	80-40		70-45	55-30		2700	
Stainless steel annealed M	180			170-120	130-90	100-60	120-85	90-60	70-45	2450	
Heat resistant alloys	200	Annealed	Iron base			50-30			50-30	3000	
	280	Aged				40-20			40-20	3050	
	250	Annealed	30-20			30-20			3500		
	350	Agest	20-10			20-10			4150		
	320	Cast	20-10			20-10			4150		
Titanium alloys	400	Ti				175				1520	
	950	Cast α , almost a and $\alpha + \beta$				72					1675
	1050	Aged cast $\alpha + \beta$				65					1690
Hardened steel K	220	Hardened steel								4500	
	250	Manganese steel 12%									
Malleable cast iron	130	Ferritic		140-110		100-80	100-80		100-80	1100	
	230	Pearlitic		100-70		70-50	70-50		70-50	1100	
Cast iron	180	Low tensile strength		110-85		80-60	80-60		80-60	1100	
	260	High tensile strength		100-70		70-50	70-50		70-50	1500	
Nodular SG iron	160	Ferritic		100-70		70-50	70-50		70-50	1100	
	250	Pearlitic		85-60		60-40	60-45		60-40	1800	
Aluminium alloys	60	Non heat treatable		1500	1500	1000	1050	1050	700	500	
	100	Heat treatable		500	500	420	350	350	300	800	
Aluminium alloys (cast)	75	Non heat treatable		1500	1500	1000	1050	1050	700	750	
	90	Heat treatable		750	750	650	525	525	460	900	
Bronze-Brass alloys	110	Lead alloys, Pb>1%		300	300	300	210	210	210	700	
	90	Brass, red brass		200	200	200	140	140	140	750	
	100	Bronze and lead-free copper		150	150	150	105	105	105	1750	

Inserts

General turning

Aluminium
wheel turning

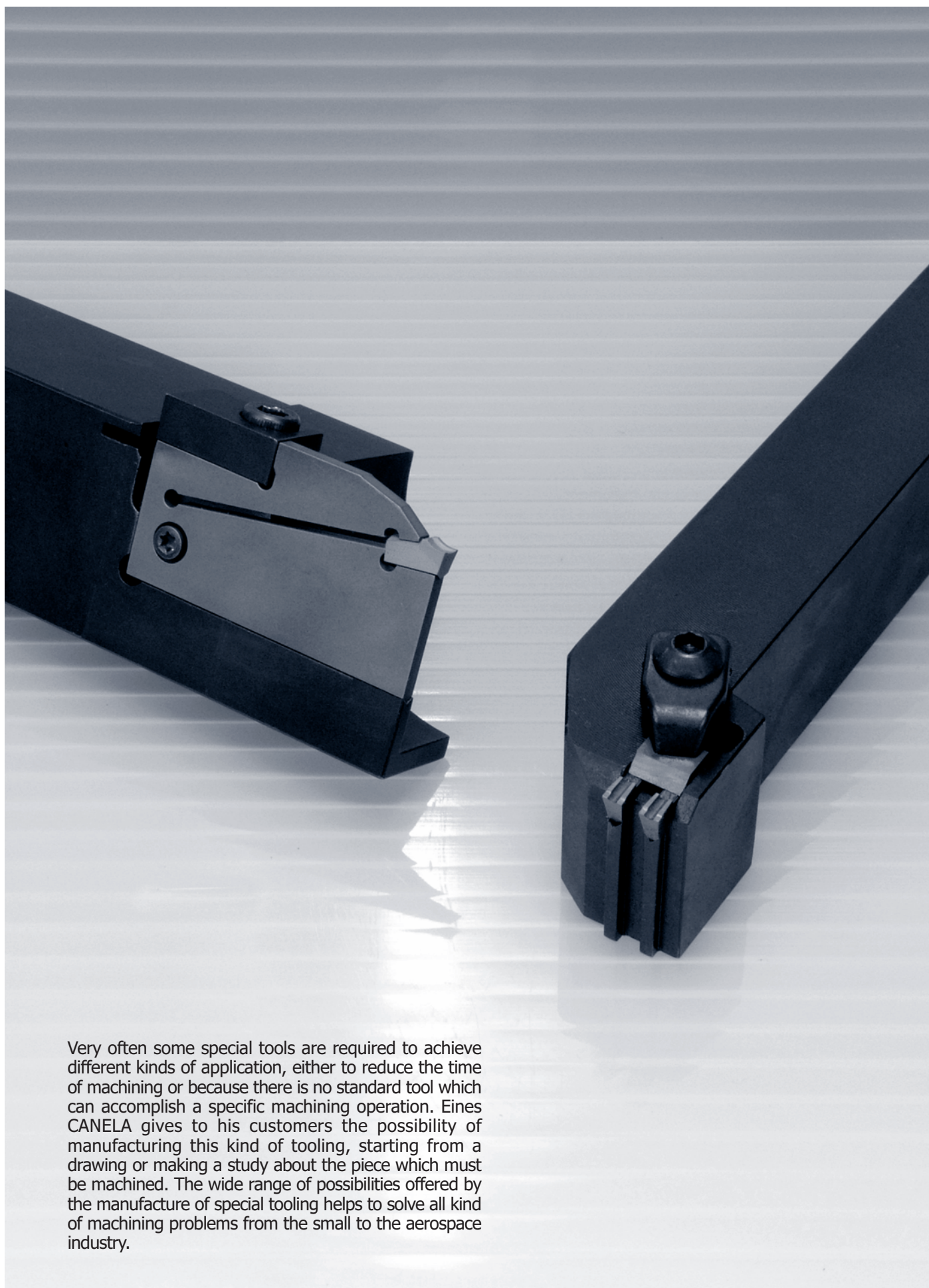
Automatic lathes

Ceramic tools

Parting and
grooving

Nominal cutting speed for profiling

Material	HB	Condition		Basic qualities			Specific cutting force N/mm²
				TIN32	PM25	KM15	
				Cutting speed m/min.			
Unalloyed steel	P	125	C=0.15%	200	160		1900
		150	C=0.35%	190	150		2100
		200	C=0.60%	170	130		2250
Low alloyed steel	180	Annealed	180	140		2100	
	275	Hardened	160	120		2600	
	300	Hardened	150	110		2700	
	350	Hardened	140	90		2850	
High alloyed steel	200	Annealed	130	100		2600	
	325	Hardened	100	60		3900	
Stainless steel	200	Martensitic/Ferritic	170	130		2300	
Steel	180	Unalloyed	130	100		2000	
	200	Low alloyed	115	90		2500	
	225	High alloyed	100	70		2700	
Stainless steel annealed	M	180		170	120	100	2450
Heat resistant alloys	200	Annealed	Iron base			60	3000
	280	Aged				50	3050
	250	Annealed	Ni or Co base			30	3500
	350	Agest				20	4150
	320	Cast				20	4150
Titanium alloys	400	Ti			175	1520	
	950	Cast α , almost a and $\alpha + \beta$			72	1675	
	1050	Aged cast $\alpha + \beta$			65	1690	
Hardened steel	K	220	Hardened steel Manganese steel 12%				4500
		250					
Malleable cast iron	130	Ferritic	140		100	1100	
	230	Pearlitic	110		70	1100	
Cast iron	180	Low tensile strength High tensile strength	110		100	1100	
	260		100		70	1500	
Nodular SG iron	160	Ferritic	100		100	1100	
	250	Pearlitic	85		70	1800	
Aluminium alloys	60	Non heat treatable Heat treatable	1500	1500	1000	500	
	100		500	500	420	800	
Aluminium alloys (cast)	75	Non heat treatable Heat treatable	1500	1500	450	750	
	90		750	750	300	900	
Bronze-Brass alloys	110	Lead alloys, Pb>1%	300	300	300	700	
	90	Brass, red brass	200	200	200	750	
	100	Bronze and lead-free copper	150	150	150	1750	



Very often some special tools are required to achieve different kinds of application, either to reduce the time of machining or because there is no standard tool which can accomplish a specific machining operation. Eines CANELA gives to his customers the possibility of manufacturing this kind of tooling, starting from a drawing or making a study about the piece which must be machined. The wide range of possibilities offered by the manufacture of special tooling helps to solve all kind of machining problems from the small to the aerospace industry.