

# HCG - HORN Catalog Guide

## INTERNAL GROOVING

Bore Ø	Product line									
	217	264	S274	S223	S224	231	S229/229	S312/312	315	S316
.625" (15.87 mm)				•						
.709" ( 18 mm)				•						
.787 - 1.102" (20-28 mm)	•			•						
1.102 - 1.496" (28-38 mm)	•			•	•					
> 1.496" (38 mm)	•			•	•	•	•	•	•	
Operation Type										
Grooving	•			•	•	•	•	•	•	
Threading					•	•			•	
Profiling				•	•		•	•	•	
Width of groove inch	.022-.209			.049-.118	.079-.236	.098-.394	.098-.394	.020-.250	.049-.169	
Width of groove mm	0.56-5.3			1.25-3.0	2.0-6.0	2.5-10.0	2.5-10.0	0.5-6.35	1.25-4.29	
Chapter	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>J</b>	<b>K</b>

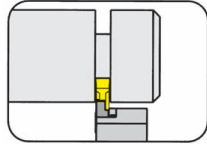
## EXTERNAL GROOVING

Depth of groove up to	Product line									
	217	264	S274	S223	S224	231	S229/229	S312/312	315	S316
.157" (4 mm)	•	•	•	•	•	•	•	•	•	•
.236" (6 mm)		•	•	•	•	•	•	•	•	•
.315" (8 mm)		•		•	•	•	•	•		•
.394" (10 mm)		•		•	•	•	•			
.433" (11 mm)		•		•	•	•	•			
.551" (14 mm)		•		•	•		•			
.630" (16 mm)		•		•	•		•			
.709" (18 mm)				•	•		•			
.984" (25 mm)				•			•			
1.000" (25.4 mm)							•			
Operation Type										
Grooving	•	•	•	•	•	•	•	•	•	•
Side Turning		•	•	•	•		•	•		
Parting Off	•	•	•	•	•		•	•		•
Threading		•	•			•	•		•	
Profiling			•		•		•	•	•	•
Axial Grooving						•			•	
Width of groove inch	.022-.209	.059-.118	.020-.118	.049-.118	.079-.236	.098-.394	.098-.394	.020-.250	.022-.169	.059-.118
Width of groove mm	0.56-5.3	1.5-3.0	0.5-3.0	1.25-3.0	2.0-6.0	2.5-10.0	2.5-10.0	0.5-6.35	0.56-4.29	1.5-3.0
Chapter	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>J</b>	<b>K</b>

Special tools upon request

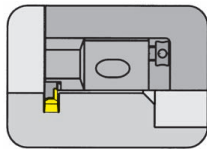
**TOOLING SYSTEMS 231** **F**

**Grooving  
- external -**



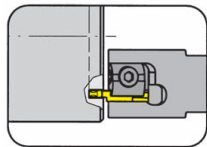
Page F2-F3

**Grooving  
- internal -**

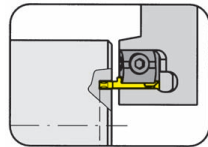


Page F4-F5

**Face Grooving**

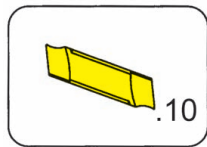


Page F8-F9



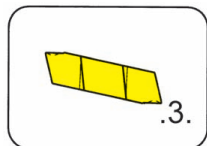
Page F10-F11

**Indexable inserts  
Type  
231**



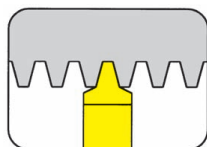
Page F6-F7

**Grooving**



Page F12

**Face Grooving**



Page F13

**metric trapezoidal thread**

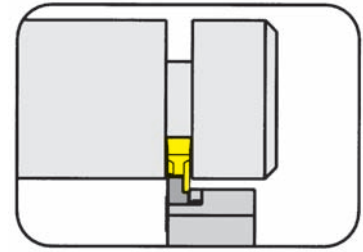
For Technical Information please see chapter Q

F

## TOOLHOLDER Type

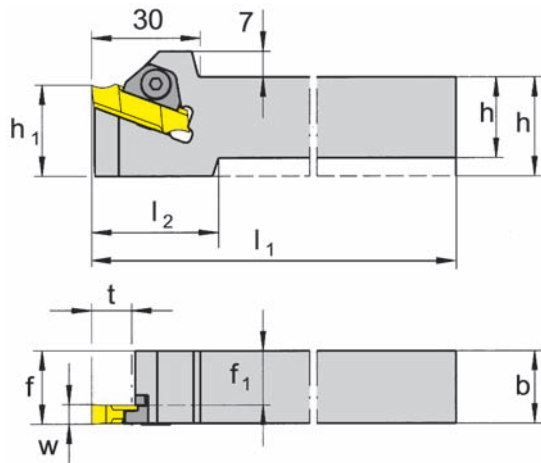
# 211

Depth of groove up to .433" (11.0 mm)  
Clamping range up to .197" (5.0 mm)



for use with Indexable insert

Type 231



R = right hand version shown

L = left hand version

Part number	h	b	$l_1$	$h_1$	$f_1$	f	$l_2$	$t_{max}$	Size	Clamping range
R/L211.2020.02	20	20	125	25	17.5		35			
R/L211.2525.02	25	25	150	25	22.5	$f_1+w-a_1$	-	11	02	2.5 - 3.0
R/L211.3232.02	32	32	170	32	29.5		-			
R/L211.2020.03	20	20	125	25	17.0		35			
R/L211.2525.03	25	25	150	25	22.0	$f_1+w-a_1$	-	11	03	3.0 - 4.0
R/L211.3232.03	32	32	170	32	29.0		-			
R/L211.2020.04	20	20	125	25	16.0		35			
R/L211.2525.04	25	25	150	25	21.0	$f_1+w-a_1$	-	11	04	4.0 - 5.0
R/L211.3232.04	32	32	170	32	28.0		-			

State R or L version

$w, a_1$  see indexable inserts

Dimensions in mm

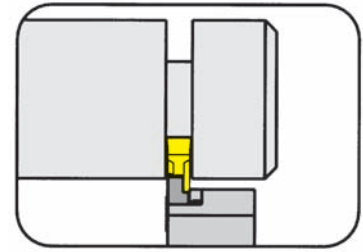
Further sizes upon request

### Spare parts

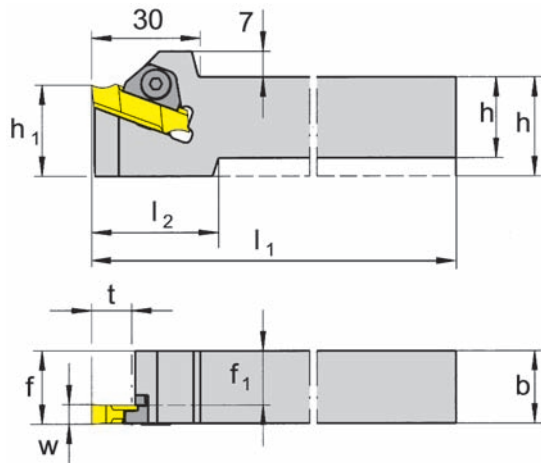
Toolholder	Clamp	Screw	Wrench
R/L211....02	2.16.2	6.19	SW3DIN911
R/L211....03	2.16.3	6.19	SW3DIN911
R/L211....04	2.16.7	6.19	SW3DIN911

## TOOLHOLDER Type

# 211



Depth of groove up to .433" (11.0 mm)  
Clamping range up to .394" (10.0 mm)



for use with Indexable insert

Type 231

F

R = right hand version shown

L = left hand version

Part number	h	b	$l_1$	$h_1$	$f_1$	f	$l_2$	$t_{max}$	Size	Clamping range
R/L211.2020.05	20	20	125	25	15		35			
R/L211.2525.05	25	25	150	25	20	$f_1+w-a_1$	-	11	05	5.0 - 6.5
R/L211.3232.05	32	32	170	32	27		-			
R/L211.2020.07	20	20	125	25	13		35			
R/L211.2525.07	25	25	150	25	18	$f_1+w-a_1$	-	11	07	6.5 - 8.5
R/L211.3232.07	32	32	170	32	25		-			
R/L211.2020.09	20	20	125	25	11		35			
R/L211.2525.09	25	25	150	25	16	$f_1+w-a_1$	-	11	09	8.5 - 10.0
R/L211.3232.09	32	32	170	32	23		-			

State R or L version

$w, a_1$  see indexable inserts

Dimensions in mm

Further sizes upon request

### Spare parts

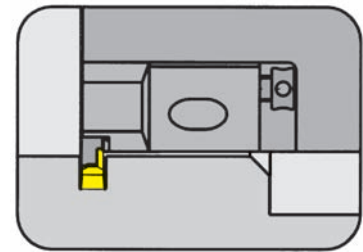
Toolholder	Clamp	Screw	Wrench
R/L211....	2.16.7	6.19	SW3DIN911

# GROOVING (internal)



CARTRIDGE Type

**208**



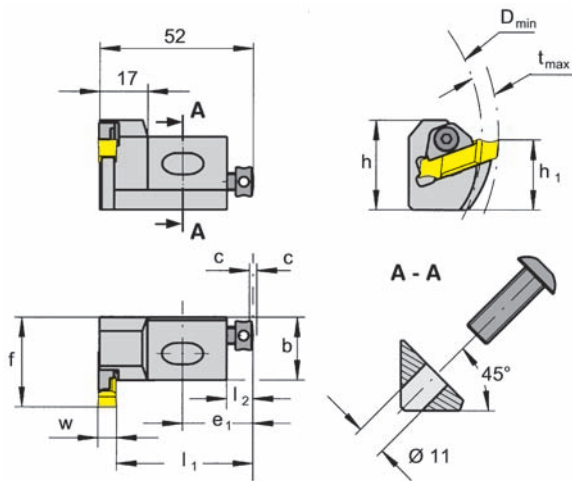
Bore Ø from 2.953" (75.0 mm)  
Clamping range up to .394" (10.0 mm)

for use with Indexable insert

Type 231

Depth of groove in relation to bore Ø

D <sub>min</sub>	t <sub>max</sub>
75	5,0
85	6,0
95	6,5
110	7,0
140	8,0
200	9,0



R = right hand version shown

L = left hand version

Part number	h <sub>1</sub>	f	h	b	l <sub>1</sub>	e <sub>1</sub>	l <sub>2</sub>	c	Size	Clamping range
R/L208.2520.04	25	32	32	20	47.8	25	9	2	04	4.0 - 5.0
R/L208.2520.05	25	32	32	20	46.8	25	9	2	05	5.0 - 6.5
R/L208.2520.07	25	32	32	20	44.8	25	9	2	07	6.5 - 8.5
R/L208.2520.09	25	32	32	20	42.8	25	9	2	09	8.5 - 10.0

State R or L version

w see indexable inserts

Dimensions in mm

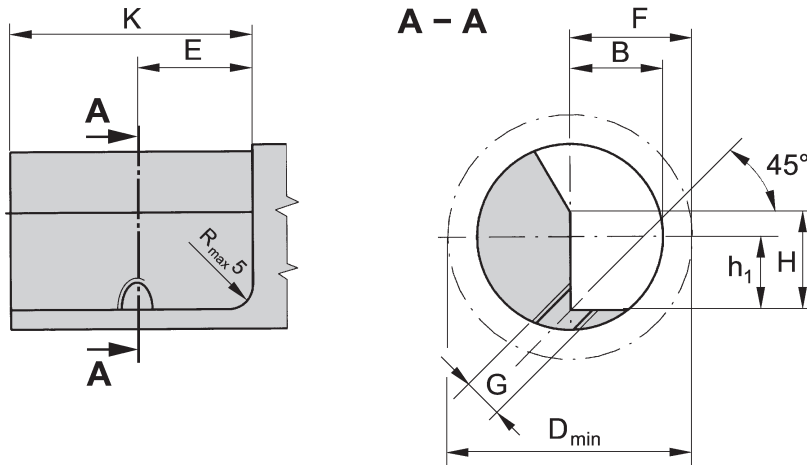
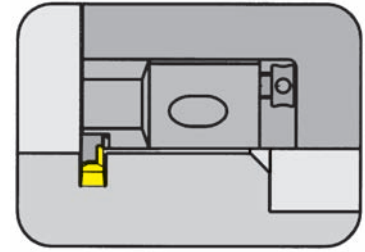
Further sizes upon request

## Spare parts

Cartridge	Clamp	Screw	Screw	Axial Setscrew	Radial Setscrew	Wrench
R/L208.2520.0...	2.16.7-K	0.30.208	6.16	6.12.020	4.08.913	SW3DIN911

F4

## SEATING DIMENSIONS CARTRIDGE Type **208**



R = right hand version shown

L = left hand version

Cartridge	F	G	H	K	E	B	h <sub>1</sub>	D <sub>min</sub>	Fastening screw
<b>R/L208.2520...</b>	32	M10	32	25	50	20	25	75	0.30.208

State R or L version

Dimensions in mm

**F**

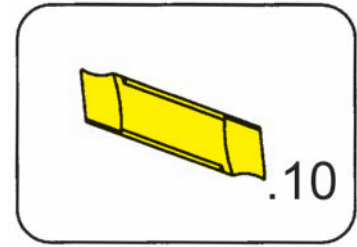
# GROOVING (external)



## INDEXABLE INSERT Type

# 231

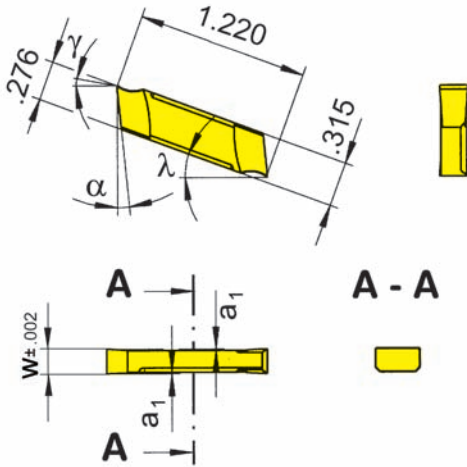
with round chip breaker



Depth of groove up to .433"  
Width of groove .098 - .118"

for use with Toolholder

Type 211



R = right hand version shown

L = left hand version

Part number	w	a <sub>1</sub>	α	γ	λ	Size	Carbide grades				
							K10	P20	TN32	TF45	TC92
R/L231.0250.10	.098	.008	6°	20°	20°	02		▲/▲	▲/▲		
R/L231.0300.10	.118	.008	6°	20°	20°	03		▲/▲			
							P	•	•		
							M				
							K				
							S				
							N				
							H				

Dimensions in inch

State R or L version

Use right hand inserts in right hand toolholders and left hand inserts in left hand toolholders

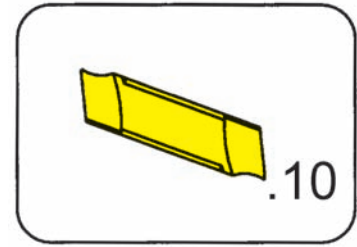
# GROOVING (external and internal)



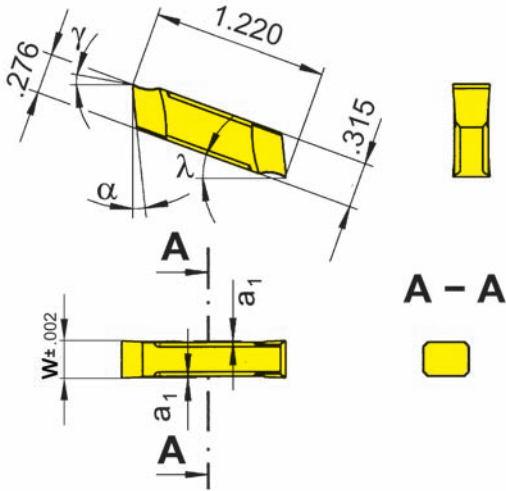
## INDEXABLE INSERT Type

# 231

with round chip breaker



Depth of groove up to .433"  
Width of groove .157 - .394"



for use with Toolholder

Type 211  
208

F

Part number	w	a <sub>1</sub>	α	γ	λ	Toolholder	Size	Carbide grades				
								K10	P20	TN32	TF45	TC92
231.0400.10	.157	.008	6°/11°	20°/15°	20°/15°	211/208	04	▲	▲	▲		▲
231.0500.10	.197	.008	6°/11°	20°/15°	20°/15°	211/208	05	▲	▲			▲
231.0600.10	.236	.008	6°/11°	20°/15°	20°/15°	211/208	05	▲	▲			▲
231.0700.10	.276	.008	6°/11°	20°/15°	20°/15°	211/208	07	▲	▲	▲		▲
231.0800.10	.315	.008	6°/11°	20°/15°	20°/15°	211/208	07	▲	▲	▲		▲
231.1000.10	.394	.008	6°/11°	20°/15°	20°/15°	211/208	09	▲	▲	▲		▲
▲ on stock Δ 4 weeks ● main recommendation ○ alternative recommendation □ uncoated grades ■ coated grades ■ brazed/Cermet								P	●	●	●	●
								M	○			
								K	●			
								S	○			
								N	●			
								H				

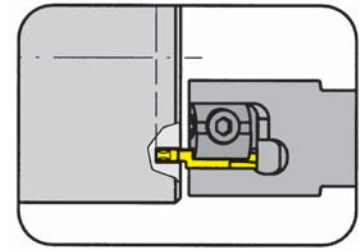
Dimensions in inch

Indexable inserts can be used in **right and left hand** toolholders.

## TOOLHOLDER Type

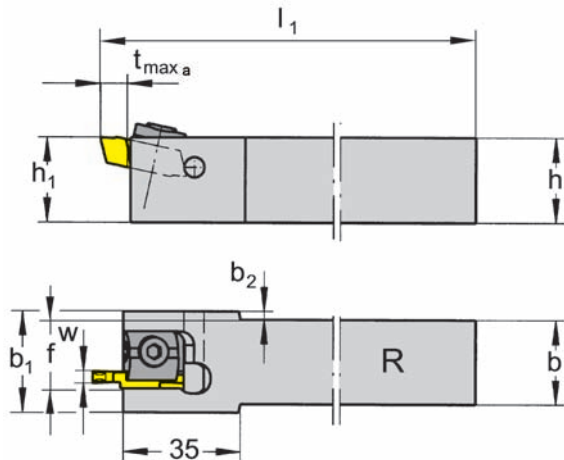
# U221

from outer groove  $\varnothing$  1.575"  
 Depth of groove up to .315"  
 Clamping range up to .394"



for use with Indexable insert

Type 231  
 N231



R = right hand version shown

L = left hand version

Part number	h	h <sub>1</sub>	l <sub>1</sub>	b	b <sub>1</sub>	b <sub>2</sub>	f	t <sub>max a</sub>	Size	Clamping range
R/LU221.0750.04	.750	.750	5.000	.750	1.102	.157	.705	.315	04	.118 - .157
R/LU221.1000.04	1.000	1.000	6.000	1.000	1.102	.059	.803	.315	04	.118 - .157
R/LU221.0750.05	.750	.750	5.000	.750	1.181	.197	.744	.315	05	.161 - .236
R/LU221.1000.05	1.000	1.000	6.000	1.000	1.181	.098	.843	.315	05	.161 - .236
R/LU221.0750.07	.750	.750	5.000	.750	1.260	.236	.783	.315	07	.240 - .315
R/LU221.1000.07	1.000	1.000	6.000	1.000	1.260	.138	.882	.315	07	.240 - .315
R/LU221.0750.09	.750	.750	5.000	.750	1.339	.275	.823	.315	09	.319 - .394
R/LU221.1000.09	1.000	1.000	6.000	1.000	1.339	.177	.921	.315	09	.319 - .394

State R or L version

w see indexable inserts

Dimensions in inch

Further sizes upon request

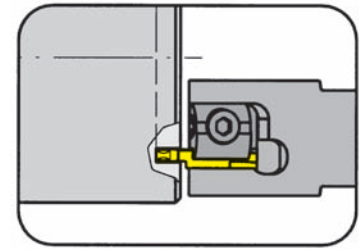
### Spare parts

Toolholder	Clamp	Screw	Position Pin
R/LU221.....	01.60.12	6.20.70	3.6.28

## TOOLHOLDER Type

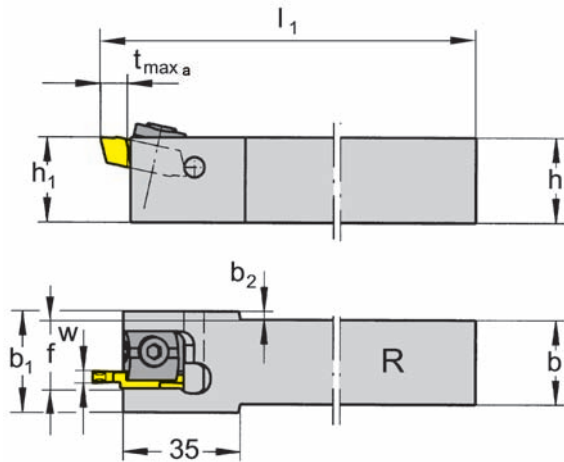
# 221

from outer groove  $\varnothing$  1.575" (40.0 mm)  
 Depth of groove up to .315" (8.0 mm)  
 Clamping range .118 - .394" (3.0 - 10.0 mm)



for use with Indexable insert

Type 231  
 N231



R = right hand version shown

L = left hand version

Part number	h	h <sub>1</sub>	l <sub>1</sub>	b	b <sub>1</sub>	b <sub>2</sub>	f	t <sub>max a</sub>	Size	Clamping range
R/L221.2020.04	20	20	125	20	28	4.0	17.9	8	04	3.0 - 4.0
R/L221.2525.04	25	25	150	25	28	1.5	20.4	8	04	3.0 - 4.0
R/L221.2020.05	20	20	125	20	30	5.0	18.9	8	05	4.1 - 6.0
R/L221.2525.05	25	25	150	25	30	2.5	21.4	8	05	4.1 - 6.0
R/L221.2020.07	20	20	125	20	32	6.0	19.9	8	07	6.1 - 8.0
R/L221.2525.07	25	25	150	25	32	3.5	22.4	8	07	6.1 - 8.0
R/L221.2020.09	20	20	125	20	34	7.0	20.9	8	09	8.1 - 10.0
R/L221.2525.09	25	25	150	25	34	4.5	23.4	8	09	8.1 - 10.0

State R or L version

w see indexable inserts

Dimensions in mm

Further sizes upon request

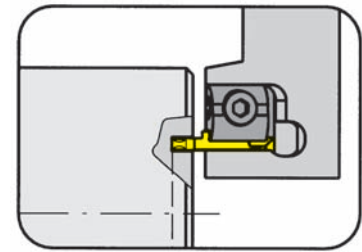
### Spare parts

Toolholder	Clamp	Screw	Position Pin
R/L221.2...	01.60.12	6.20.70	3.6.28

F

## TOOLHOLDER Type

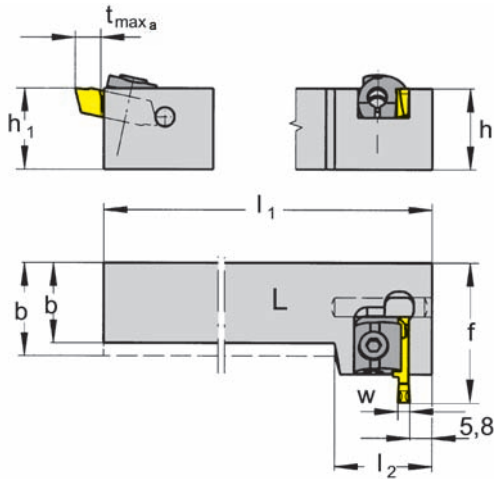
# U228



from outer groove  $\emptyset$  1.575"  
 Depth of groove up to .315"  
 Clamping range up to .394"

for use with Cassette

Type 231  
 N231



L = left hand version shown

R = right hand version

Part number	$l_1$	$l_2$	h	$h_1$	b	f	$t_{max a}$	Size	Clamping range
R/LU228.0750.04	5.000	1.398	.750	.750	.750	1.516	.315	04	.118 - .157
R/LU228.1000.04	6.000	1.398	1.000	1.000	1.000	1.516	.315	04	.118 - .157
R/LU228.0750.05	5.000	1.398	.750	.750	.750	1.516	.315	05	.161 - .236
R/LU228.1000.05	6.000	1.398	1.000	1.000	1.000	1.516	.315	05	.161 - .236
R/LU228.0750.07	5.000	1.398	.750	.750	.750	1.516	.315	07	.240 - .315
R/LU228.1000.07	6.000	1.398	1.000	1.000	1.000	1.516	.315	07	.240 - .315
R/LU228.0750.09	5.000	1.398	.750	.750	.750	1.516	.315	09	.319 - .394
R/LU228.1000.09	6.000	1.398	1.000	1.000	1.000	1.516	.315	09	.319 - .394

State R or L version

w see indexable inserts

Dimensions in inch

Further sizes upon request

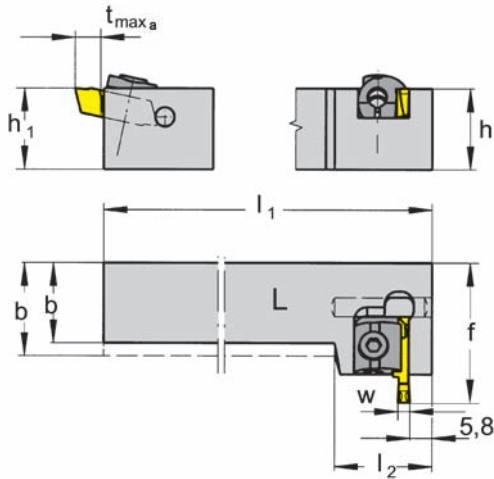
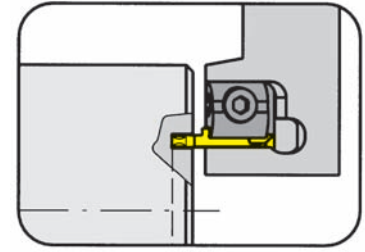
### Spare parts

Toolholder	Clamp	Screw	Position Pin
R/LU228....	01.60.12	6.20.70	3.6.28

## TOOLHOLDER Type

# 228

from outer groove  $\varnothing$  1.575" (40.0 mm)  
 Depth of groove up to .315" (8.0 mm)  
 Clamping range up to .394" (10.0 mm)



for use with Indexable insert

Type 231  
N231

F

L = left hand version shown

R = right hand version

Part number	$l_1$	$l_2$	h	$h_1$	b	f	$t_{max a}$	Size	Clamping range
R/L228.2020.04	125	35.5	20	20	20	38.5	8	04	3.0 - 4.0
R/L228.2525.04	150	35.5	25	25	25	38.5	8	04	3.0 - 4.0
R/L228.2020.05	125	35.5	20	20	20	38.5	8	05	4.1 - 6.0
R/L228.2525.05	150	35.5	25	25	25	38.5	8	05	4.1 - 6.0
R/L228.2020.07	125	35.5	20	20	20	38.5	8	07	6.1 - 8.0
R/L228.2525.07	150	35.5	25	25	25	38.5	8	07	6.1 - 8.0
R/L228.2020.09	125	35.5	20	20	20	38.5	8	09	8.1 - 10.0
R/L228.2525.09	150	35.5	25	25	25	38.5	8	09	8.1 - 10.0

State R or L version

w see indexable inserts

Dimensions in mm

Further sizes upon request

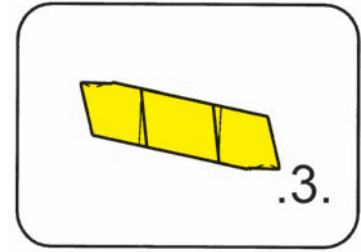
### Spare parts

Toolholder	Clamp	Screw	Position Pin
R/L228.2...	01.60.12	6.20.70	3.6.28

## INDEXABLE INSERT Type

# 231/N231

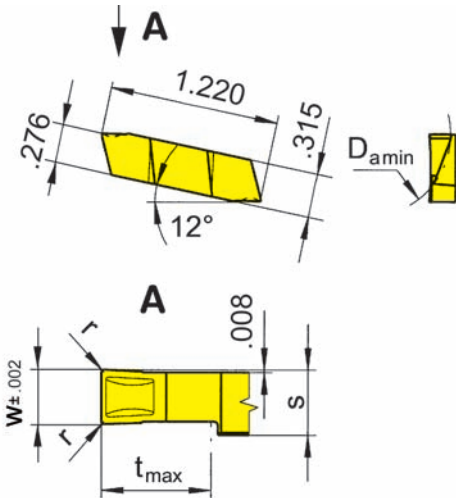
with chip former



from outer groove  $\varnothing$  1.575"  
 Depth of groove up to .315"  
 Width of groove .118 - .394"

for use with Toolholder

Type 221  
 228  
 U221  
 U228



Indexability length  
 $\pm .001"$

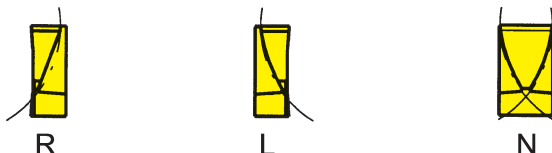
Part number	w	s	r	t <sub>max</sub>	D <sub>a min</sub>	Size	Carbide grades		
							TN32	TN35	TA45
R/L231.4030.32	.118	.150	.008	.315	1.575	04		▲/▲	
R/L231.4040.32	.157	.150	.008	.315	1.575	04		▲/▲	
R/L231.4050.34	.197	.228	.016	.315	1.575	05		▲/▲	
N231.4060.34	.236	.228	.016	.315	1.575	05		▲	
N231.4070.36	.276	.307	.024	.315	1.575	07		▲	
N231.4080.36	.315	.307	.024	.315	1.575	07		▲	
N231.4090.38	.354	.386	.031	.315	1.575	09		▲	
N231.4100.38	.394	.386	.031	.315	1.575	09		▲	
							P	•	
							M	•	
							K	•	
							S	•	
							N	•	
							H		

- ▲ on stock    Δ 4 weeks
- main recommendation
- o alternative recommendation
- uncoated grades
- coated grades
- brazed/Cermet

Dimensions in inch

State R, L or N version

Outer- $\varnothing$  of groove < 40 mm upon request.



R = right hand version    L = left hand version    N = right and left hand version

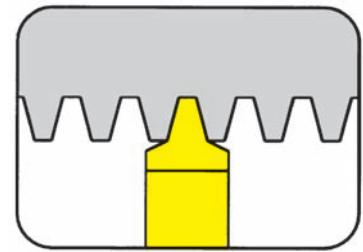
# THREADING (external) Full profile



INDEXABLE INSERT Type

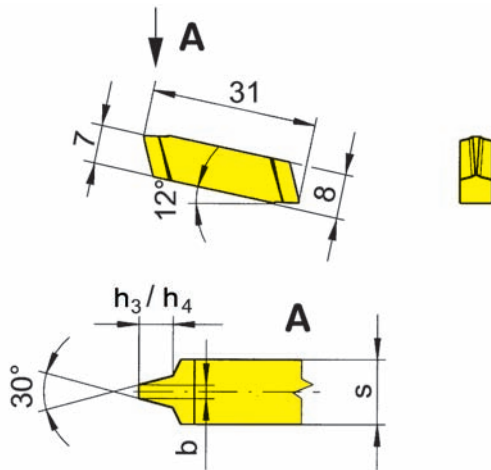
## 231

Pitch 7.0 - 12.0 mm



for use with Toolholder

Type 221  
228  
U221  
U228



Metric ISO trapezoidal thread DIN 103

F

Part number	P	b	s	h <sub>3</sub> / h <sub>4</sub>	Size	Carbide grades			
						MG12	TN35	TI25	TA45
231.4070.02	7	2.29	5.8	4.0	05		▲		
231.4580.02	8	2.66	5.8	4.5	05		▲		
231.5090.02	9	3.02	7.8	5.0	07		▲		
231.5500.02	10	3.39	7.8	5.5	07		▲		
231.6020.02	12	4.12	9.8	6.5	09		▲		
▲ on stock   Δ 4 weeks ● main recommendation ○ alternative recommendation ■ uncoated grades ■ coated grades ■ brazed/Cermet						P	●		
						M	●		
						K	●		
						S	●		
						N	●		
						H			

Dimensions in mm

No shims necessary. All HORN thread profiles are manufactured with **full ground radial clearance**.