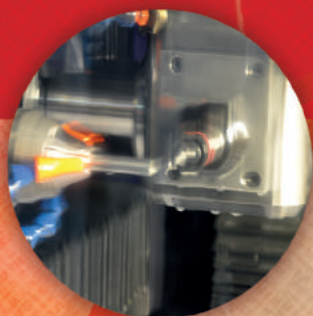




# 2015-16

WORKING FOR YOUR SUCCESS





## High Performance Cutting Tools

At HELION® we have been providing solutions in the machining field for more than 50 years. We are specialists in cutting tools. Our target is to optimize machining operations of our costumers so that they can increase productivity by reducing machining times.

At HELION®, we have our own highly qualified technical staff, which enables us to offer you what we call the integral solution: we first understand your need; we provide you with the required product and make sure it works. For whatever problem, technical and commercial advising is at your disposal. We keep innovating thanks to the ongoing formation of our engineers as well as our attendance at the most notorious international exhibitions in the field.

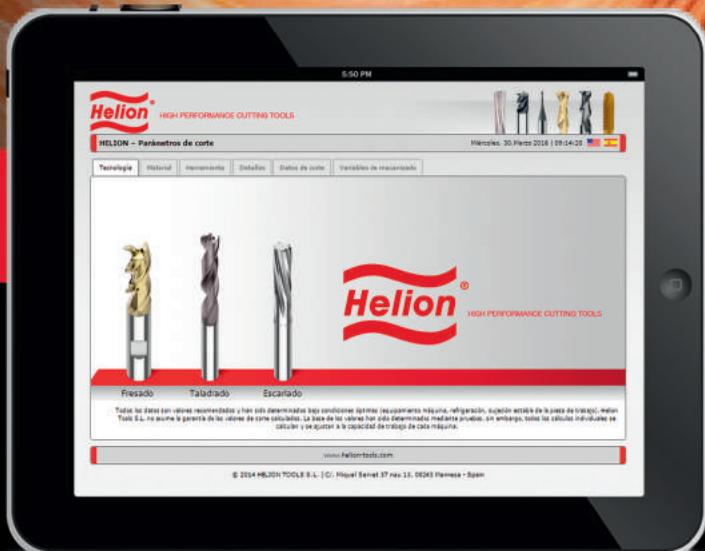
Another advantage of HELION® is the large stock of products we keep at our disposal, ready for immediate shipment, thus preventing our clients from having to keep their own stocks.

We have a price/quality ratio really competitive, just order some tools for test purposes and you will see the result.

If you have any question, please do call us. We are here to serve you!



Increase your productivity



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Calculate the cutting conditions and find the best parameters for each application.

Calcule las condiciones de corte y encuentre los parámetros para cada aplicación.



Spiral angle



Application



Coolant



Polished flutes



High Speed Cutting



High Hard Cutting



Multi Task Cutter



Shape



Point angle



Shank design



Universal application



Steel



Stainless steel



Cast Iron



Soft materials



Exotic materials  
Nickel alloys



Helion Norm



H7 tolerance



Internal Coolant



Micro Tool



# SOLID CARBIDE END MILLS

Article Nr. page Coating **UNI** **STEEL <55 HRC** **STEEL <65 HRC** **INOX** **GG(G)** **COPPER** **ALU <12% SI** **PLASTIC** **GOLD** **GFK CFK** **TITAN INCONELL** **NI ALLOYS** **HSC** **HHC** **MP** **MTC** **IC**

	80.6411	19	NACRO	•	•		•	•											•	•
	80.6430	20	TIALN	•	•		•	•	•											
	80.6433	20	TIALN	•	•		•	•	•											
	80.6415	20	TIALN	•	•		•	•	•											
	80.6401	21	TIALN	•	•		•	•	•											
	80.6403	21	TIALN	•	•		•	•	•											
	80.6405	21	TIALN	•	•		•	•	•											
	80.1572	22	TIALN PLUS		•		•	•	•	•			•		•	•	•	•		
	80.6579	22	TIALN PLUS		•		•	•	•	•					•	•				
	80.6532	23	TIALN	•	•		•	•	•	•			•		•	•				
	80.6505	23	TIALN	•	•		•	•	•	•			•		•	•				
	80.6890	24	TIALN	•	•		•								•					
	80.6682	24	TIALN	•	•		•	•	•	•			•							•
	80.6614	25	TIALN PLUS		•		•	•												•
	80.6921	26	TIALN PLUS		•		•	•							•					
	80.6613	26	TIALN		•		•	•	•									•	•	
	80.6221	27	TIALN	•	•		•	•												
	80.1602	27	TIALN PLUS	•	•		•	•												•
	80.6220	28	TIALN	•	•		•	•												
	89.6682	28	TIALN	•			•													•
	80.6601	29	TIALN	•	•		•	•	•	•			•							
	80.6925	29	TIALN	•	•		•	•	•	•					•					



# SOLID CARBIDE END MILLS

Article Nr. page Coating **UNI** **STEEL <55 HRC** **STEEL <65 HRC** **INOX** **GG(G)** **COPPER** **ALU <12% Si** **PLASTIC** **GOLD** **GFK CFK** **TITAN INCONELL** **NI ALLOYS** **HSC** **HHC** **MP** **MTC** **AL**

Image	Article Nr.	page	Coating	UNI	STEEL <55 HRC	STEEL <65 HRC	INOX	GG(G)	COPPER	ALU <12% Si	PLASTIC	GOLD	GFK CFK	TITAN INCONELL	NI ALLOYS	HSC	HHC	MP	MTC	AL
	81.1479	40	TIALN PLUS	●	●		●	●		●							●	●	●	
	81.6443	41	TIALN		●		●	●											●	
	81.5475	42		●	●		●	●		●				●	●				●	●
	81.6682	42	TIALN PLUS	●	●		●	●		●									●	●
	81.6605	43	TIALN PLUS		●		●	●						●	●				●	
	81.6609	43	TIALN PLUS		●		●	●						●	●				●	
	82.1815	44	TIALN PLUS		●	●		●								●			●	
	82.2817	46	NACO		●	●	●	●								●			●	
	82.2910	47	NACO		●	●	●	●								●				
	82.2210	47	NACO		●	●	●	●								●				
	82.2410	48	NACO		●	●	●	●								●			●	
	82.6800	48	TIALN		●	●		●								●				
	82.2450	49	NACO		●	●	●	●								●			●	
	82.1223	49	TIALN PLUS		●	●		●								●				
	82.6410	50	TIALN		●	●		●								●				
	82.6413	51	TIALN		●	●		●								●			●	
	82.6412	52	TIALN		●	●		●								●			●	
	82.6430	54	TIALN		●	●		●								●				
	82.6432	55	TIALN		●	●		●								●				
	82.6530	56	TIALN		●	●		●								●				
	82.2535	56	NACO		●	●		●								●				
	82.1510	57	TIALN PLUS		●	●		●								●				







# SOLID CARBIDE END MILLS

Article Nr. page Coating UNI STEEL <55 HRC STEEL <65 HRC INOX GG(G) COPPER ALU <3% SI PLASTIC GOLD GFK CFK TITAN INCONELL NI ALLOYS HSC HHC MP MTC 4

Image	Article Nr.	page	Coating	UNI	STEEL <55 HRC	STEEL <65 HRC	INOX	GG(G)	COPPER	ALU <3% SI	PLASTIC	GOLD	GFK CFK	TITAN INCONELL	NI ALLOYS	HSC	HHC	MP	MTC	4
	70.6460	88	TIALN	•	•	•	•	•		•	•			•						
	70.6160	88	TIALN	•	•		•	•		•	•									
	70.6490	89	TIALN	•	•	•	•	•		•	•			•						
	70.6890	89	TIALN	•	•	•	•	•		•	•			•						
	70.6045	90	TIALN	•	•	•	•	•		•	•			•						
	70.6480	90	TIALN	•	•	•	•	•		•	•			•						
	70.6030	91	TIALN	•	•		•	•		•	•			•						
	70.6010	91	TIALN	•	•	•	•	•		•	•			•						
	77.0260	92		•	•		•	•		•	•									
	77.0290	92		•	•		•	•		•	•									
	77.0212	92		•	•		•	•		•	•									
	86.8415	93	DIAMANT					•		•		•	•			•				
	86.8820	94	DIAMANT					•		•		•	•			•				
	86.8410	95	DIAMANT					•		•		•	•			•				
	86.8822	96	DIAMANT					•		•		•	•			•				
	86.8814	98	DIAMANT					•		•		•	•			•				
	85.0050	101		•	•		•	•	•	•	•					•				
	85.0051	102		•	•		•	•	•	•	•					•				

# REAMERS AND SENKERS

Article Nr. page Coating **UNI** **STEEL <55 HRC** **STEEL >55 HRC** **INOX** **GG(G)** **COPPER** **ALU <12% SI** **PLASTIC** **GOLD** **GFK CFK** **TITAN INCONELL** **NI ALLOYS** **HSC** **HHC** **MP** **MTC** **CS**

	28.1202	104		•	•		•	•		•	•			•	•						
	20.6390	104	TIALN	•	•		•	•		•	•			•	•						
	29.1502	105		•	•		•	•		•	•			•	•						
	28.6830	106	TIALN	•	•		•	•		•	•			•	•						•
	28.6840	106	TIALN	•	•		•	•		•	•			•	•						•

Helion is day by day an innovating company:  
If you miss the tool for your application do not hesitate to contact us:



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**e-mail : [info@helion-tools.com](mailto:info@helion-tools.com)**

We are glad to receive your suggestions!

# SOLID CARBIDE DRILLS

Article Nr. page Coating UNI STEEL <55 HRC STEEL <65 HRC INOX GG(G) COPPER ALU <12% Si PLASTIC GOLD GFK CFK TITAN INCONELL NI ALLOYS HSC HHC MP MTC 4

Image	Article Nr.	page	Coating	UNI	STEEL <55 HRC	STEEL <65 HRC	INOX	GG(G)	COPPER	ALU <12% Si	PLASTIC	GOLD	GFK CFK	TITAN INCONELL	NI ALLOYS	HSC	HHC	MP	MTC	4	
	50.1000	108		●	●		●	●		●											
	50.6290	108	TIALN	●	●	●	●	●		●				●							
	50.6212	109	TIALN	●	●	●	●	●		●				●							
	50.6214	109	TIALN	●	●	●	●	●		●				●							
	50.6490	110	TIALN	●	●	●	●	●		●				●							
	50.6414	110	TIALN	●	●	●	●	●		●				●							
	53.6800	111	TIALN	●	●	●	●	●		●				●							●
	58.6800	111	TIALN		●		●	●		●											
	58.6890	112	TIALN		●		●	●		●											
	57.6885	112	TIALN	●	●			●		●											●
	52.2004	113	NACO	●	●	●		●										●			
	50.6001	114	TIALN	●	●		●	●		●											
	50.6003	115	TIALN	●	●		●	●		●											
	50.6803	116	TIALN	●	●		●	●		●											●
	50.6005	117	TIALN	●	●		●	●		●											
	50.6805	118	TIALN	●	●		●	●		●											●
	51.1805	119	TIALN PLUS	●	●		●	●		●				●							●
	50.2805	120	NACO	●	●		●	●		●									●		●
	51.6805	121	TIALN	●	●		●	●		●									●		●
	57.6815	122	TIALN	●	●		●	●		●									●		●
	54.3805	123	ZrN				●			●	●								●		●
	50.6808	124	TIALN	●	●		●	●		●									●		●

## SOLID CARBIDE DRILLS

Article Nr. page Coating **UNI** **STEEL <55 HRC** **STEEL <65 HRC** **INOX** **GG(G)** **COPPER** **ALU <12% SI** **PLASTIC** **GOLD** **GFK CFK** **TITAN INCONELL** **NI ALLOYS** **HSC** **HHC** **HP** **MTC** **LC**

	50.6812 12xD	125	TIALN	●	●		●	●		●										●	●
	50.6815 15xD	126	TIALN	●	●		●	●		●										●	●
	50.6820 20xD	127	TIALN	●	●		●	●		●										●	●
	50.6825 25xD	127	TIALN	●	●		●	●		●										●	●
	50.6830 30xD	128	TIALN	●	●		●	●		●										●	●
	52.0000	128	TIN			●															
	52.6000	129	TIALN PLUS			●													●	●	
	55.0010	130								●	●		●								
	55.8040	130	DIAMANT							●	●		●								

## THREADING TOOLS

	30.0040	134		●						●	●	●									
	31.1040	134		●			●	●	●	●	●										
	30.7040	134		●				●	●	●	●										
	33.0040	135		●				●	●			●		●	●						
	33.2040	135		●				●	●			●			●						
	30.0060	136		●						●	●	●									
	30.7060	136		●					●	●	●	●								●	
	31.1060	136		●			●	●	●	●	●										
	33.0070	137		●				●	●			●		●	●					●	

Article Nr.	page	Coating	UNI	STEEL <55 HRC	STEEL <65 HRC	INOX	GG(G)	COPPER	ALU <12% SI	PLASTIC	GOLD	GFK CFK	TITAN INCONELL	NI ALLOYS	HSC	HHC	MP	MTC	IC
-------------	------	---------	-----	---------------	---------------	------	-------	--------	-------------	---------	------	---------	----------------	-----------	-----	-----	----	-----	----

	33.2070	137		●				●	●		●					●		●	
	31.1140	138		●		●	●	●	●	●									
	31.1160	138		●		●	●	●	●	●									
	31.1240	139		●		●	●	●	●	●									
	31.1260	139		●		●	●	●	●	●									
	34.0040	140							●	●	●								
	35.5040	140		●		●	●	●	●	●	●	●			●			●	
	34.0060	141							●	●	●								
	35.5060	141		●		●	●	●	●	●	●	●			●			●	
	95.4100	142	TICN		●													●	●
	91.4100	142	TICN		●													●	●



Increase your productivity with **HELION** High Performance Tools

$$n = \frac{Vc \times 1000}{\pi \times \varnothing}$$

$$Vf = fz \times z \times n$$

$$Q = \frac{ap \times ae \times Vf}{1000}$$

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cutting data calculation



SOLID CARBIDE  
END MILLS





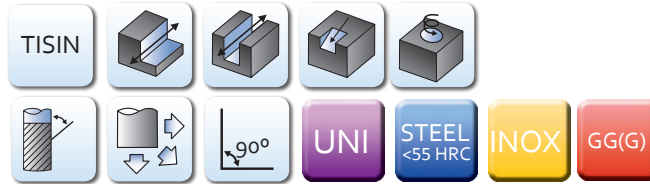


80.6702

SOLID CARBIDE END MILL 2 FLUTES < 55HRC



d1	d2	l1	l2	z	Article No.
1	3	50	3	2	80.6702 0100
2	3	50	6	2	80.6702 0200
3	3	50	8	2	80.6702 0300
4	4	50	11	2	80.6702 0400
5	6	50	13	2	80.6702 0500
6	6	50	16	2	80.6702 0600
8	8	60	20	2	80.6702 0800
10	10	75	25	2	80.6702 1000
12	12	75	32	2	80.6702 1200



solid carbide end mills

reamers and senkers

drills

threading tools



Increase your productivity with **HELION** High Performance Tools

$$n = \frac{V_c \times 1000}{\pi \times \phi}$$

$$V_f = f_z \times z \times n$$

$$Q = \frac{a_p \times a_e \times V_f}{1000}$$

[www.helioncut.com](http://www.helioncut.com)

cutting data calculation

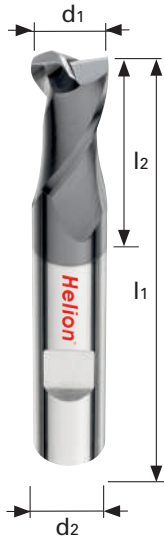
d1	d2	l1	l2	z	Article No.
0,2	4	50	0,4	2	80.6901 0020
0,3	4	50	0,6	2	80.6901 0030
0,4	4	50	0,8	2	80.6901 0040
0,5	4	50	1	2	80.6901 0050
0,6	4	50	1,2	2	80.6901 0060
0,7	4	50	1,4	2	80.6901 0070
0,8	4	50	1,6	2	80.6901 0080
0,9	4	50	1,8	2	80.6901 0090
1	4	50	3	2	80.6901 0100
1,1	4	50	3	2	80.6901 0110
1,2	4	50	3	2	80.6901 0120
1,3	4	50	3	2	80.6901 0130
1,4	4	50	3	2	80.6901 0140
1,5	4	50	4	2	80.6901 0150
1,6	4	50	4	2	80.6901 0160
1,7	4	50	4	2	80.6901 0170
1,8	4	50	4	2	80.6901 0180
1,9	4	50	4	2	80.6901 0190
2	4	50	6	2	80.6901 0200



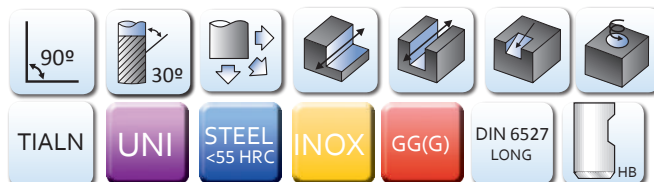
# +Productivity + Performance

PERFORMANCE TOOLS

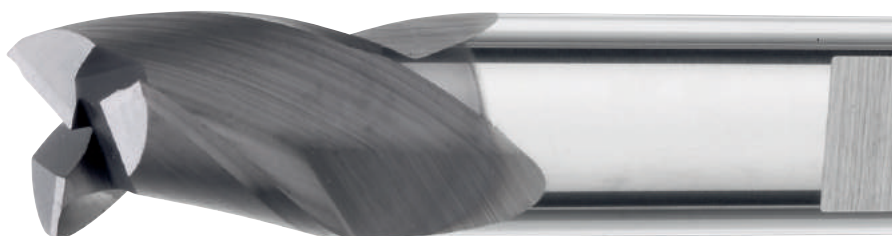
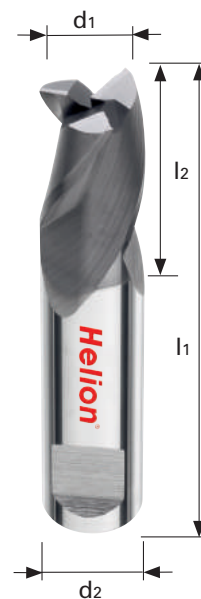
SOLID CARBIDE END MILLS - DRILLS AND REAMERS - TAPS - SPECIAL TOOLS - SOLID CARBIDE END MILLS -

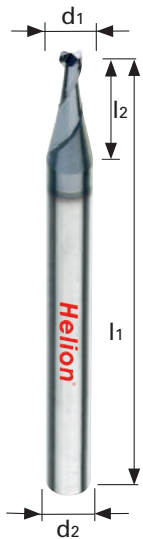
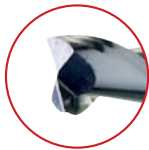
**80.6201**
**SOLID CARBIDE UNIVERSAL CUTTER**

**80.6203**


d1	d2	l2	l1	z	Article No.
1,00	3	2	38	2	80.6201 0100
1,50	3	3	38	2	80.6201 0150
2,00	3	6	38	2	80.6201 0200
2,50	3	6	38	2	80.6201 0250
2,80	3	7	38	2	80.6201 0280
3,00	3	7	38	2	80.6201 0300
3,00	3	20	75	2	80.6203 0300
3,50	6	8	57	2	80.6201 0350
4,00	6	8	57	2	80.6201 0400
4,00	4	25	75	2	80.6203 0400
4,50	6	10	57	2	80.6201 0450
4,80	6	10	57	2	80.6201 0480
5,00	6	10	57	2	80.6201 0500
5,00	5	30	75	2	80.6203 0500
5,50	6	10	57	2	80.6201 0550
5,75	6	10	57	2	80.6201 0575
6,00	6	10	57	2	80.6201 0600
6,00	6	30	75	2	80.6203 0600
6,75	8	13	63	2	80.6201 0675
7,00	8	16	63	2	80.6201 0700
7,50	8	16	63	2	80.6201 0750
7,75	8	16	63	2	80.6201 0755
8,00	8	16	63	2	80.6201 0800
8,00	8	40	100	2	80.6203 0800
8,70	10	16	72	2	80.6201 0870
9,00	10	16	72	2	80.6201 0900
9,70	10	19	72	2	80.6201 0970
10,00	10	19	72	2	80.6201 1000
10,00	10	40	100	2	80.6203 1000
11,70	12	22	83	2	80.6201 1170
12,00	12	22	83	2	80.6201 1200
12,00	12	45	150	2	80.6203 1200
13,70	14	22	83	2	80.6201 1370
14,00	14	22	83	2	80.6201 1400
14,00	14	45	150	2	80.6203 1400
15,70	16	26	92	2	80.6201 1570
16,00	16	26	92	2	80.6201 1600
16,00	16	65	150	2	80.6203 1600
18,00	18	26	92	2	80.6201 1800
18,00	18	65	150	2	80.6203 1800
20,00	20	32	104	2	80.6201 2000
20,00	20	65	150	2	80.6203 2000

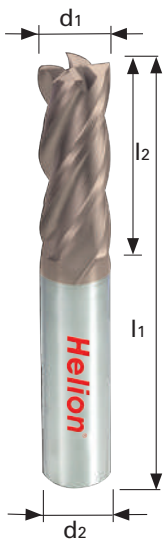


d1	d2	l2	l1	z	Chamfer	Article No.
0,30	3	1,5	38	3	0,05	80.6301 0030
0,40	3	1,5	38	3	0,05	80.6301 0040
0,50	3	1,5	38	3	0,05	80.6301 0050
0,60	3	1,5	38	3	0,05	80.6301 0060
0,80	3	2,0	38	3	0,05	80.6301 0080
1,00	6	3,0	38	3	0,05	80.6301 0100
1,20	6	3,0	38	3	0,05	80.6301 0120
1,50	6	3,0	38	3	0,05	80.6301 0150
1,80	6	3,0	38	3	0,05	80.6301 0180
2,00	6	4,0	38	3	0,05	80.6301 0200
2,50	6	5,0	38	3	0,05	80.6301 0250
3,00	6	5,0	38	3	0,05	80.6301 0300
3,50	6	6,0	38	3	0,1	80.6301 0350
4,00	6	7,0	38	3	0,1	80.6301 0400
4,50	6	8,0	38	3	0,1	80.6301 0450
5,00	6	8,0	38	3	0,1	80.6301 0500
5,50	6	8,0	38	3	0,1	80.6301 0550
5,75	6	8,0	38	3	0,1	80.6301 0575
6,00	6	8,0	38	3	0,1	80.6301 0600
6,75	8	11,0	43	3	0,1	80.6301 0675
7,00	8	11,0	43	3	0,1	80.6301 0700
7,75	8	11,0	43	3	0,1	80.6301 0775
8,00	8	11,0	43	3	0,15	80.6301 0800
8,70	10	11,0	48	3	0,15	80.6301 0870
9,00	10	11,0	48	3	0,15	80.6301 0900
9,70	10	11,0	48	3	0,15	80.6301 0970
10,00	10	13,0	50	3	0,15	80.6301 1000
12,00	12	15,0	55	3	0,2	80.6301 1200
14,00	14	15,0	58	3	0,2	80.6301 1400
16,00	16	18,0	62	3	0,2	80.6301 1600
18,00	18	20,0	70	3	0,2	80.6301 1800
20,00	20	22,0	75	3	0,3	80.6301 2000

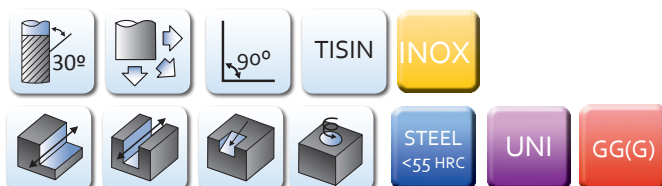


**80.6902**
**SOLID CARBIDE UNIVERSAL CUTTER**


d1	d2	l2	l1	z	Article No.
0,20	3	0,5	38	2	80.6902 0020
0,25	3	0,5	38	2	80.6902 0025
0,30	3	1,0	38	2	80.6902 0030
0,40	3	1,0	38	2	80.6902 0040
0,50	3	1,5	38	2	80.6902 0050
0,60	3	1,5	38	2	80.6902 0060
0,70	3	2,0	38	2	80.6902 0070
0,80	3	2,0	38	2	80.6902 0080
0,90	3	2,5	38	2	80.6902 0090
1,0	3	3	38	2	80.6902 0100
1,1	3	3	38	2	80.6902 0110
1,2	3	4	38	2	80.6902 0120
1,3	3	4	38	2	80.6902 0130
1,4	3	4	38	2	80.6902 0140
1,5	3	4	38	2	80.6902 0150
1,6	3	4	38	2	80.6902 0160
1,7	3	4	38	2	80.6902 0170
1,8	3	5	38	2	80.6902 0180
1,9	3	5	38	2	80.6902 0190
2,0	3	5	38	2	80.6902 0200

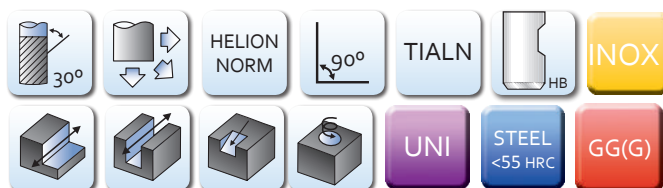

**80.6704**
**SOLID CARBIDE END MILL 4 FLUTES < 55HRC**


d1	d2	l1	l2	z	Article No.
3	4	50	8	4	80.6704 0300
4	4	50	11	4	80.6704 0400
5	6	50	13	4	80.6704 0500
6	6	50	16	4	80.6704 0600
8	8	60	20	4	80.6704 0800
10	10	75	30	4	80.6704 1000
12	12	75	32	4	80.6704 1200



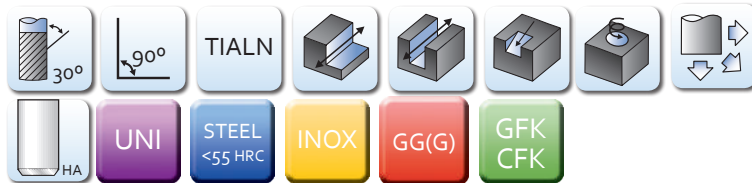
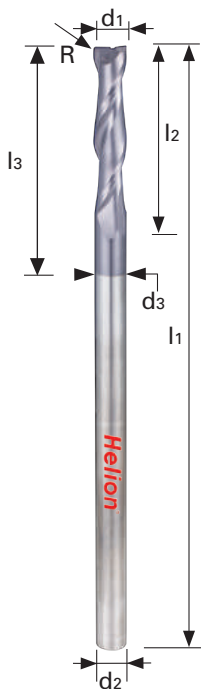
**SOLID CARBIDE END MILL 3 FLUTES < 55 HRC**
**80.6309**

d1	d2	l1	l2	z	Article No.
1,2	6	3	50	3	80.6309 0120
1,5	6	3	50	3	80.6309 0150
1,8	6	3	50	3	80.6309 0180
2,8	6	4	50	3	80.6309 0280
3,8	6	5	50	3	80.6309 0380
4,8	6	6	50	3	80.6309 0480
5,8	6	7	50	3	80.6309 0580
6,70	8	8	50	3	80.6309 0670
7,8	8	10	60	3	80.6309 0780
8,7	10	10	70	3	80.6309 0870
9,7	10	11	70	3	80.6309 0970
11,5	12	14	73	3	80.6309 1150
15,5	16	20	82	3	80.6309 1550
19,5	20	25	92	3	80.6309 1950



**80.6204**
**SOLID CARBIDE END MILL 2 FLUTES LONG < 55HRC**


d1	d2	l1	l2	z	Article No.
3	6	60	15	2	80.6204 0300
4	6	75	20	2	80.6204 0400
5	6	75	25	2	80.6204 0500
6	6	75	30	2	80.6204 0600
8	8	100	40	2	80.6204 0800
10	10	100	40	2	80.6204 1000
12	12	100	50	2	80.6204 1200
16	16	150	60	2	80.6204 1600
20	20	200	90	2	80.6204 2000

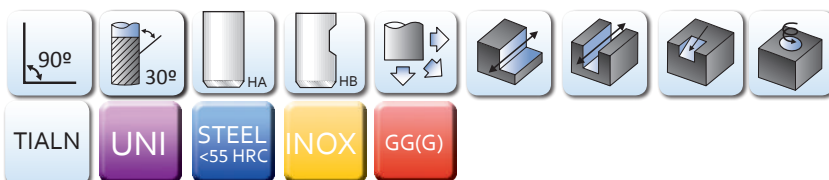

**80.6218**
**SOLID CARBIDE UNIVERSAL CUTTER WITH CORNER RADIUS EXTRA LONG**


d1	d2	l2	l1	d3	R	l3	z	Article No.
6,0	6	25	200	5,5	0,3	120	2	80.6218 0600
8,0	8	25	200	7,5	0,3	120	2	80.6218 0800
10,0	10	50	200	9,5	0,3	120	2	80.6218 1000
12,0	12	50	200	11,5	0,4	120	2	80.6218 1200
16,0	16	65	220	15,5	0,4	150	2	80.6218 1600
20,0	20	65	250	19,5	0,4	150	2	80.6218 2000

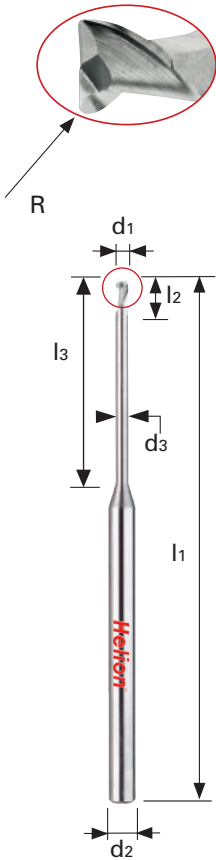


**SOLID CARBIDE UNIVERSAL CUTTER**
**80.6303**

d1	d2	l2	l1	z	Article No.
1,00	3	3	38	3	80.6303 0100
1,00	3	5	38	3	80.6304 0100
1,50	3	5	38	3	80.6303 0150
1,50	3	7	38	3	80.6304 0150
2,00	3	7	38	3	80.6303 0200
2,00	3	6	38	3	80.6304 0200
2,50	3	7	38	3	80.6303 0250
3,00	3	8	38	3	80.6303 0300
3,50	4	11	50	3	80.6303 0350
3,00	3	7	38	3	80.6304 0300
4,00	4	11	50	3	80.6303 0400
4,00	6	8	57	3	80.6304 0400
4,50	5	11	50	3	80.6303 0450
5,00	5	10	50	3	80.6303 0500
5,00	6	10	57	3	80.6304 0500
5,50	6	10	50	3	80.6303 0550
6,00	6	10	57	3	80.6303 0600
6,00	6	10	57	3	80.6304 0600
6,75	8	13	63	3	80.6303 0675
7,00	8	13	63	3	80.6303 0700
7,75	8	16	63	3	80.6303 0775
8,00	8	16	63	3	80.6303 0800
8,00	8	16	63	3	80.6304 0800
8,70	10	16	72	3	80.6303 0870
9,00	10	16	72	3	80.6303 0900
9,70	10	19	72	3	80.6303 0970
10,00	10	22	72	3	80.6303 1000
10,00	10	19	72	3	80.6304 1000
11,00	12	22	72	3	80.6303 1100
11,70	12	22	83	3	80.6303 1170
12,00	12	22	83	3	80.6303 1200
12,00	12	22	83	3	80.6304 1200
13,70	14	22	83	3	80.6303 1370
14,00	14	22	83	3	80.6303 1400
14,00	14	22	83	3	80.6304 1400
15,70	16	26	83	3	80.6303 1570
16,00	16	26	83	3	80.6303 1600
16,00	16	26	92	3	80.6304 1600
17,70	18	26	92	3	80.6303 1770
18,00	18	26	92	3	80.6303 1800
18,00	18	26	92	3	80.6304 1800
19,70	20	32	104	3	80.6303 1970
20,00	20	32	104	3	80.6303 2000
20,00	20	32	104	3	80.6304 2000


**80.6304**




**80.0810**
**SOLID CARBIDE PROFILE CUTTER WITH CORNER RADIUS**


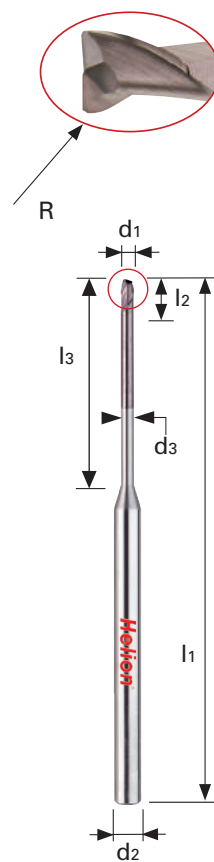
d1	d2	l2	l1	Radius rp=0/-0,005	d3	l3	Article No.
0,4	3	0,5	55	0,05	0,38	2	80.0810 0040
0,4	3	0,5	55	0,05	0,38	4	80.0810 0041
0,5	3	0,6	55	0,05	0,48	3	80.0810 0050
0,5	3	0,6	55	0,05	0,48	5	80.0810 0051
0,6	4	0,8	55	0,06	0,58	2	80.0810 0060
0,6	4	0,8	55	0,06	0,58	4	80.0810 0061
0,6	4	0,8	55	0,06	0,58	6	80.0810 0062
0,8	4	1,0	55	0,08	0,77	4	80.0810 0080
0,8	4	1,0	55	0,08	0,77	6	80.0810 0081
0,8	4	1,0	55	0,08	0,77	8	80.0810 0082
0,8	4	1,0	55	0,08	0,77	10	80.0810 0083
1,0	4	1,2	55	0,10	0,95	5	80.0810 0100
1,0	4	1,2	55	0,10	0,95	10	80.0810 0101
1,0	4	1,2	55	0,10	0,95	15	80.0810 0102
1,0	4	1,2	55	0,10	0,95	20	80.0810 0103
1,0	4	1,2	60	0,10	0,95	25	80.0810 0104
1,2	4	1,4	55	0,12	1,15	6	80.0810 0120
1,2	4	1,4	55	0,12	1,15	12	80.0810 0121
1,2	4	1,4	55	0,12	1,15	18	80.0810 0122
1,2	4	1,4	60	0,12	1,15	25	80.0810 0123
1,5	4	1,8	55	0,15	1,44	4	80.0810 0150
1,5	4	1,8	55	0,15	1,44	8	80.0810 0151
1,5	4	1,8	55	0,15	1,44	12	80.0810 0152
1,5	4	1,8	55	0,15	1,44	16	80.0810 0153
1,5	4	1,8	55	0,15	1,44	20	80.0810 0154
1,5	4	1,8	60	0,15	1,44	25	80.0810 0155
2,0	4	2	65	0,2	1,92	5	80.0810 0200
2,0	4	2	65	0,2	1,92	10	80.0810 0201
2,0	4	2	65	0,2	1,92	15	80.0810 0203
2,0	4	2	75	0,2	1,92	20	80.0810 0204
2,0	4	2	75	0,2	1,92	25	80.0810 0205
2,0	4	2	75	0,2	1,92	30	80.0810 0206
3,0	4	3	65	0,3	2,90	5	80.0810 0300
3,0	4	3	65	0,3	2,90	10	80.0810 0301
3,0	4	3	65	0,3	2,90	15	80.0810 0302
3,0	4	3	65	0,3	2,90	20	80.0810 0303
3,0	4	3	75	0,3	2,90	25	80.0810 0304
3,0	4	3	75	0,3	2,90	30	80.0810 0305
4,0	6	4	65	0,3	3,90	10	80.0810 0400
4,0	6	4	65	0,3	3,90	15	80.0810 0401
4,0	6	4	65	0,3	3,90	20	80.0810 0402
4,0	6	4	75	0,3	3,90	25	80.0810 0403
4,0	6	4	75	0,3	3,90	30	80.0810 0405
5,0	6	5	65	0,3	4,90	10	80.0810 0500
5,0	6	5	65	0,3	4,90	20	80.0810 0501
5,0	6	5	75	0,3	4,90	30	80.0810 0502
5,0	6	5	90	0,3	4,90	40	80.0810 0503
6,0	6	6	65	0,3	5,90	10	80.0810 0600
6,0	6	6	65	0,3	5,90	20	80.0810 0601
6,0	6	6	75	0,3	5,90	30	80.0810 0602
6,0	6	6	90	0,3	5,90	40	80.0810 0603
6,0	6	6	90	0,3	5,90	50	80.0810 0604

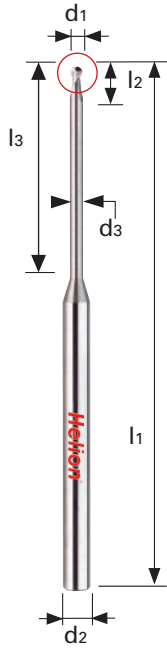


## SOLID CARBIDE PROFILE CUTTER WITH CORNER RADIUS

80.7814

d1	d2	l2	l1	Radius rp+0/-0,005	d3	l3	Article No.
0,4	3	0,5	55	0,05	0,38	2	80.7814 0040
0,4	3	0,5	55	0,05	0,38	4	80.7814 0041
0,5	3	0,6	55	0,05	0,48	3	80.7814 0050
0,5	3	0,6	55	0,05	0,48	5	80.7814 0051
0,6	4	0,8	55	0,06	0,58	2	80.7814 0060
0,6	4	0,8	55	0,06	0,58	4	80.7814 0061
0,6	4	0,8	55	0,06	0,58	6	80.7814 0062
0,8	4	1,0	55	0,08	0,77	4	80.7814 0080
0,8	4	1,0	55	0,08	0,77	6	80.7814 0081
0,8	4	1,0	55	0,08	0,77	8	80.7814 0082
0,8	4	1,0	55	0,08	0,77	10	80.7814 0083
1,0	4	1,2	55	0,10	0,95	5	80.7814 0100
1,0	4	1,2	55	0,10	0,95	10	80.7814 0101
1,0	4	1,2	55	0,10	0,95	15	80.7814 0102
1,0	4	1,2	55	0,10	0,95	20	80.7814 0103
1,0	4	1,2	60	0,10	0,95	25	80.7814 0104
1,2	4	1,4	55	0,12	1,15	6	80.7814 0120
1,2	4	1,4	55	0,12	1,15	12	80.7814 0121
1,2	4	1,4	55	0,12	1,15	18	80.7814 0122
1,2	4	1,4	60	0,12	1,15	25	80.7814 0123
1,5	4	1,8	55	0,15	1,44	4	80.7814 0150
1,5	4	1,8	55	0,15	1,44	8	80.7814 0151
1,5	4	1,8	55	0,15	1,44	12	80.7814 0152
1,5	4	1,8	55	0,15	1,44	16	80.7814 0153
1,5	4	1,8	55	0,15	1,44	20	80.7814 0154
1,5	4	1,8	60	0,15	1,44	25	80.7814 0155
2,0	4	2	65	0,2	1,92	5	80.7814 0200
2,0	4	2	65	0,2	1,92	10	80.7814 0201
2,0	4	2	65	0,2	1,92	15	80.7814 0203
2,0	4	2	75	0,2	1,92	20	80.7814 0204
2,0	4	2	75	0,2	1,92	25	80.7814 0205
2,0	4	2	75	0,2	1,92	30	80.7814 0206
3,0	4	3	65	0,3	2,90	5	80.7814 0300
3,0	4	3	65	0,3	2,90	10	80.7814 0301
3,0	4	3	65	0,3	2,90	15	80.7814 0302
3,0	4	3	65	0,3	2,90	20	80.7814 0303
3,0	4	3	75	0,3	2,90	25	80.7814 0304
3,0	4	3	75	0,3	2,90	30	80.7814 0305
4,0	6	4	65	0,3	3,90	10	80.7814 0400
4,0	6	4	65	0,3	3,90	15	80.7814 0401
4,0	6	4	65	0,3	3,90	20	80.7814 0402
4,0	6	4	75	0,3	3,90	25	80.7814 0403
4,0	6	4	75	0,3	3,90	30	80.7814 0405
5,0	6	5	65	0,3	4,90	10	80.7814 0500
5,0	6	5	65	0,3	4,90	20	80.7814 0501
5,0	6	5	75	0,3	4,90	30	80.7814 0502
5,0	6	5	90	0,3	4,90	40	80.7814 0503
6,0	6	6	65	0,3	5,90	10	80.7814 0600
6,0	6	6	65	0,3	5,90	20	80.7814 0601
6,0	6	6	75	0,3	5,90	30	80.7814 0602
6,0	6	6	90	0,3	5,90	40	80.7814 0603
6,0	6	6	90	0,3	5,90	50	80.7814 0604



**80.0820**
**SOLID CARBIDE PROFILE CUTTER WITH CORNER RADIUS UNCOATED**


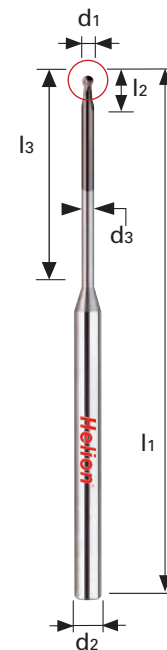
d1	d2	l2	l1	Radius rp +0/-0,005	d3	l3	Article No.
0,4	3	0,5	55	0,20	0,38	2	80.0820 0040
0,4	3	0,5	55	0,20	0,38	4	80.0820 0041
0,5	3	0,6	55	0,25	0,48	3	80.0820 0050
0,5	3	0,6	55	0,25	0,48	5	80.0820 0051
0,6	4	0,8	55	0,30	0,58	2	80.0820 0060
0,6	4	0,8	55	0,30	0,58	4	80.0820 0061
0,6	4	0,8	55	0,30	0,58	6	80.0820 0062
0,8	4	1,0	55	0,40	0,77	4	80.0820 0080
0,8	4	1,0	55	0,40	0,77	6	80.0820 0081
0,8	4	1,0	55	0,40	0,77	8	80.0820 0082
0,8	4	1,0	55	0,40	0,77	10	80.0820 0083
1,0	4	1,2	55	0,50	0,95	5	80.0820 0100
1,0	4	1,2	55	0,50	0,95	10	80.0820 0101
1,0	4	1,2	55	0,50	0,95	15	80.0820 0102
1,0	4	1,2	55	0,50	0,95	20	80.0820 0103
1,0	4	1,2	60	0,50	0,95	25	80.0820 0104
1,2	4	1,4	55	0,60	1,15	6	80.0820 0120
1,2	4	1,4	55	0,60	1,15	12	80.0820 0121
1,2	4	1,4	55	0,60	1,15	18	80.0820 0122
1,2	4	1,4	60	0,60	1,15	25	80.0820 0123
1,5	4	1,8	55	0,75	1,44	4	80.0820 0150
1,5	4	1,8	55	0,75	1,44	8	80.0820 0151
1,5	4	1,8	55	0,75	1,44	12	80.0820 0152
1,5	4	1,8	55	0,75	1,44	16	80.0820 0153
1,5	4	1,8	55	0,75	1,44	20	80.0820 0154
1,5	4	1,8	60	0,75	1,44	25	80.0820 0155
2,0	4	2	65	1,0	1,92	5	80.0820 0200
2,0	4	2	65	1,0	1,92	10	80.0820 0201
2,0	4	2	65	1,0	1,92	15	80.0820 0202
2,0	4	2	75	1,0	1,92	20	80.0820 0203
2,0	4	2	75	1,0	1,92	25	80.0820 0204
2,0	4	2	75	1,0	1,92	30	80.0820 0205
3,0	4	3	65	1,5	2,90	5	80.0820 0300
3,0	4	3	65	1,5	2,90	10	80.0820 0301
3,0	4	3	65	1,5	2,90	15	80.0820 0302
3,0	4	3	65	1,5	2,90	20	80.0820 0303
3,0	4	3	75	1,5	2,90	25	80.0820 0304
3,0	4	3	75	1,5	2,90	30	80.0820 0305
4,0	6	4	65	2,0	3,90	10	80.0820 0400
4,0	6	4	65	2,0	3,90	15	80.0820 0401
4,0	6	4	65	2,0	3,90	20	80.0820 0402
4,0	6	4	75	2,0	3,90	25	80.0820 0403
4,0	6	4	75	2,0	3,90	30	80.0820 0404
5,0	6	5	65	2,5	4,90	10	80.0820 0500
5,0	6	5	65	2,5	4,90	20	80.0820 0501
5,0	6	5	75	2,5	4,90	30	80.0820 0502
5,0	6	5	90	2,5	4,90	40	80.0820 0503
6,0	6	6	65	3,0	5,90	10	80.0820 0600
6,0	6	6	65	3,0	5,90	20	80.0820 0601
6,0	6	6	75	3,0	5,90	30	80.0820 0602
6,0	6	6	90	3,0	5,90	40	80.0820 0603
6,0	6	6	90	3,0	5,90	50	80.0820 0604



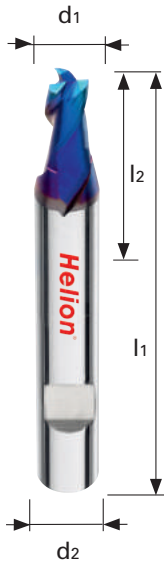
## SOLID CARBIDE PROFILE CUTTER WITH CORNER RADIUS

80.7826

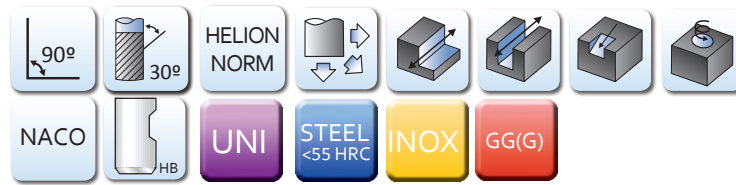
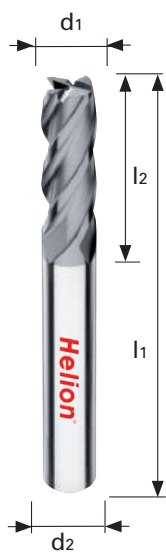
d1	d2	l2	l1	Radius r <sub>p</sub> +0/-0,005	d3	l3	Article No.
0,4	3	0,5	55	0,20	0,38	2	80.7826 0040
0,4	3	0,5	55	0,20	0,38	4	80.7826 0041
0,5	3	0,6	55	0,25	0,48	3	80.7826 0050
0,5	3	0,6	55	0,25	0,48	5	80.7826 0051
0,6	4	0,8	55	0,30	0,58	2	80.7826 0060
0,6	4	0,8	55	0,30	0,58	4	80.7826 0061
0,6	4	0,8	55	0,30	0,58	6	80.7826 0062
0,8	4	1,0	55	0,40	0,77	4	80.7826 0080
0,8	4	1,0	55	0,40	0,77	6	80.7826 0081
0,8	4	1,0	55	0,40	0,77	8	80.7826 0082
0,8	4	1,0	55	0,40	0,77	10	80.7826 0083
1,0	4	1,2	55	0,50	0,95	5	80.7826 0100
1,0	4	1,2	55	0,50	0,95	10	80.7826 0101
1,0	4	1,2	55	0,50	0,95	15	80.7826 0102
1,0	4	1,2	55	0,50	0,95	20	80.7826 0103
1,0	4	1,2	60	0,50	0,95	25	80.7826 0104
1,2	4	1,4	55	0,60	1,15	6	80.7826 0120
1,2	4	1,4	55	0,60	1,15	12	80.7826 0121
1,2	4	1,4	55	0,60	1,15	18	80.7826 0122
1,2	4	1,4	60	0,60	1,15	25	80.7826 0123
1,5	4	1,8	55	0,75	1,44	4	80.7826 0150
1,5	4	1,8	55	0,75	1,44	8	80.7826 0151
1,5	4	1,8	55	0,75	1,44	12	80.7826 0152
1,5	4	1,8	55	0,75	1,44	16	80.7826 0153
1,5	4	1,8	55	0,75	1,44	20	80.7826 0154
1,5	4	1,8	60	0,75	1,44	25	80.7826 0155
2,0	4	2	65	1,0	1,92	5	80.7826 0200
2,0	4	2	65	1,0	1,92	10	80.7826 0201
2,0	4	2	65	1,0	1,92	15	80.7826 0202
2,0	4	2	75	1,0	1,92	20	80.7826 0203
2,0	4	2	75	1,0	1,92	25	80.7826 0204
2,0	4	2	75	1,0	1,92	30	80.7826 0205
3,0	4	3	65	1,5	2,90	5	80.7826 0300
3,0	4	3	65	1,5	2,90	10	80.7826 0301
3,0	4	3	65	1,5	2,90	15	80.7826 0302
3,0	4	3	65	1,5	2,90	20	80.7826 0303
3,0	4	3	75	1,5	2,90	25	80.7826 0304
3,0	4	3	75	1,5	2,90	30	80.7826 0305
4,0	6	4	65	2,0	3,90	10	80.7826 0400
4,0	6	4	65	2,0	3,90	15	80.7826 0401
4,0	6	4	65	2,0	3,90	20	80.7826 0402
4,0	6	4	75	2,0	3,90	25	80.7826 0403
4,0	6	4	75	2,0	3,90	30	80.7826 0404
5,0	6	5	65	2,5	4,90	10	80.7826 0500
5,0	6	5	65	2,5	4,90	20	80.7826 0501
5,0	6	5	75	2,5	4,90	30	80.7826 0502
5,0	6	5	90	2,5	4,90	40	80.7826 0503
6,0	6	6	65	3,0	5,90	10	80.7826 0600
6,0	6	6	65	3,0	5,90	20	80.7826 0601
6,0	6	6	75	3,0	5,90	30	80.7826 0602
6,0	6	6	90	3,0	5,90	40	80.7826 0603
6,0	6	6	90	3,0	5,90	50	80.7826 0604



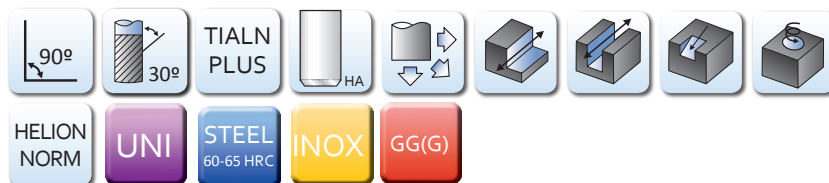
		HSC	ALU NE				
TIALCN		UNI	STEEL <55 HRC	INOX	GG(G)	HELION NORM	MICRO TOOL

**80.2306**
**SOLID CARBIDE UNIVERSAL CUTTER EXTRA SHORT**


d1	d2	l2	l1	z	Article No.
1,0	6	3	50	3	80.2306 0100
2,0	6	4	50	3	80.2306 0200
3,0	6	5	50	3	80.2306 0300
4,0	6	7	50	3	80.2306 0400
5,0	6	8	50	3	80.2306 0500
6,0	6	8	50	3	80.2306 0600
7,0	8	11	57	3	80.2306 0700
8,0	8	11	57	3	80.2306 0800
9,0	10	15	66	3	80.2306 0900
10,0	10	15	66	3	80.2306 1000
12,0	12	21	72	3	80.2306 1200


**80.1405**
**SOLID CARBIDE UNIVERSAL CUTTER**


d1	d2	l2	l1	z	Article No.
2,0	4	8	40	4	80.1405 0200
3,0	6	12	50	4	80.1405 0300
4,0	6	15	50	4	80.1405 0400
5,0	6	20	60	4	80.1405 0500
6,0	6	20	60	4	80.1405 0600
8,0	8	25	70	4	80.1405 0800
10,0	10	30	90	4	80.1405 1000
12,0	12	30	90	4	80.1405 1200
14,0	16	40	110	4	80.1405 1400
16,0	16	50	110	4	80.1405 1600
18,0	18	50	110	4	80.1405 1800
20,0	20	55	110	4	80.1405 2000
25,0	25	75	140	4	80.1405 2500



**Helion**<sup>®</sup>



Tools for happy endings...

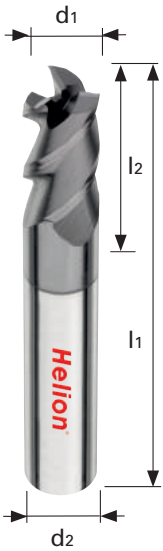
# 80.6331

## SOLID CARBIDE UNIVERSAL CUTTER



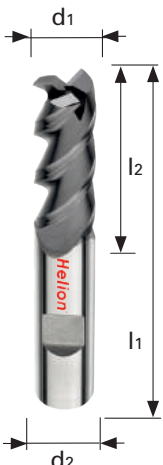
DIN 6527  
LONG

# 80.6335



HELION  
NORM

# 80.6314



HELION  
NORM



d1	d2	l2	l1	Chamfer	Z	Article No.
1,0	3	2	38	-	3	80.6331 0100
1,0	6	4	57	-	3	80.6335 0100
1,5	3	3	38	-	3	80.6331 0150
1,5	6	4	57	-	3	80.6335 0150
2,0	6	6	57	-	3	80.6331 0200
2,0	6	8	57	0,05	3	80.6314 0200
2,0	6	6	57	-	3	80.6335 0200
2,5	6	7	57	-	3	80.6331 0250
2,5	6	6	57	-	3	80.6335 0250
3,0	6	7	57	-	3	80.6331 0300
3,0	6	14	57	0,05	3	80.6314 0300
3,0	6	7	57	-	3	80.6335 0300
3,5	6	8	57	-	3	80.6335 0350
4,0	6	8	57	-	3	80.6331 0400
4,0	6	18	57	0,10	3	80.6314 0400
4,0	6	8	57	-	3	80.6335 0400
4,5	6	8	57	-	3	80.6331 0450
4,5	6	10	57	-	3	80.6335 0450.
5,0	6	10	57	-	3	80.6331 0500
5,0	6	20	57	0,10	3	80.6314 0500
5,0	6	10	57	-	3	80.6335 0500
5,5	6	10	57	-	3	80.6335 0550
6,0	6	10	57	-	3	80.6331 0600
6,0	6	22	57	0,10	3	80.6314 0600
6,0	6	10	57	-	3	80.6335 0600
6,5	8	16	63	-	3	80.6335 0650
7,0	8	13	63	-	3	80.6331 0700
7,0	8	16	63	-	3	80.6335 0700
7,5	8	19	63	-	3	80.6335 0750
8,0	8	16	63	-	3	80.6331 0800
8,0	8	30	63	0,15	3	80.6314 0800
8,0	8	19	63	-	3	80.6335 0800
9,0	10	16	72	-	3	80.6331 0900
9,0	10	19	72	-	3	80.6335 0900
10,0	10	19	72	-	3	80.6331 1000
10,0	10	33	72	0,15	3	80.6314 1000
10,0	10	19	72	-	3	80.6335 1000
12,0	12	22	83	-	3	80.6331 1200
12,0	12	34	83	0,20	3	80.6314 1200
12,0	12	22	83	-	3	80.6335 1200
14,0	14	22	83	-	3	80.6331 1400
14,0	14	22	83	-	3	80.6335 1400
16,0	16	26	92	-	3	80.6331 1600
16,0	16	38	92	0,20	3	80.6314 1600
16,0	16	26	92	-	3	80.6335 1600
18,0	18	26	92	-	3	80.6335 1800
20,0	20	32	104	-	3	80.6331 2000
20,0	20	47	104	0,30	3	80.6314 2000
20,0	20	32	104	-	3	80.6335 2000

solid carbide end mills

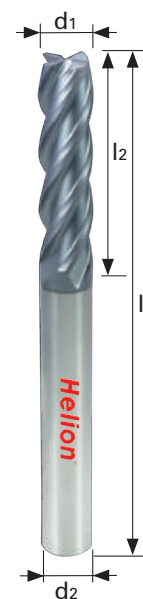
reamers and senkers

drills

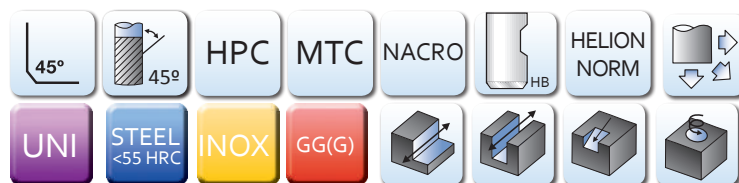
threading tools

**SOLID CARBIDE END MILL 4 FLUTES LONG**
**80.6404**

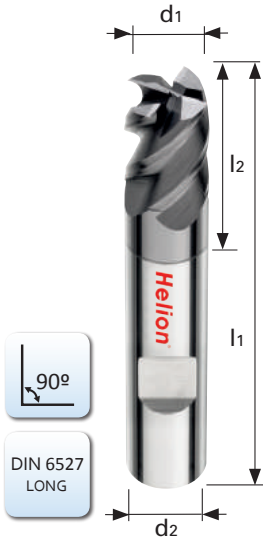
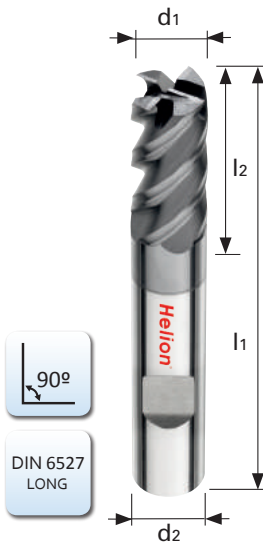
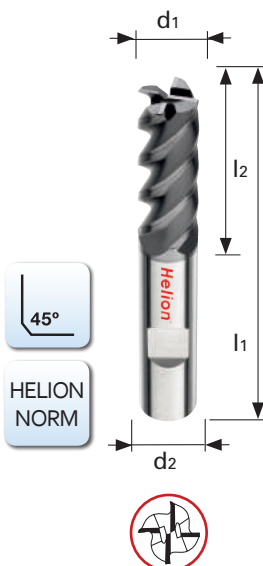
d1	d2	l1	l2	z	Article No.
6	6	75	30	4	80.6404 0600
8	8	100	40	4	80.6404 0800
10	10	100	40	4	80.6404 1000
12	12	100	50	4	80.6404 1200
16	16	150	60	4	80.6404 1600
20	20	200	90	4	80.6404 2000


**SOLID CARBIDE CUTTER**
**80.6411**

d1	d2	l2	l1	Chamfer	z	Article No.
2,80	6	3	50	0,1	3	80.6411 0280
3,00	6	3	50	0,1	3	80.6411 0300
3,80	6	4	54	0,1	3	80.6411 0380
4,00	6	4	54	0,1	3	80.6411 0400
4,80	6	5	54	0,2	3	80.6411 0480
5,00	6	5	54	0,2	3	80.6411 0500
5,75	6	6	54	0,2	4	80.6411 0575
6,00	6	6	54	0,2	4	80.6411 0600
7,75	8	8	58	0,2	4	80.6411 0775
8,00	8	8	58	0,2	4	80.6411 0800
9,70	10	10	66	0,2	4	80.6411 0970
10,00	10	10	66	0,2	4	80.6411 1000
12,00	12	12	73	0,2	4	80.6411 1200
14,00	14	14	75	0,2	4	80.6411 1400
16,00	16	16	82	0,2	4	80.6411 1600





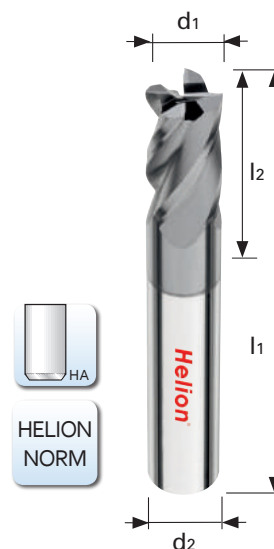
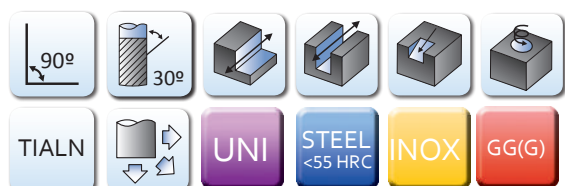
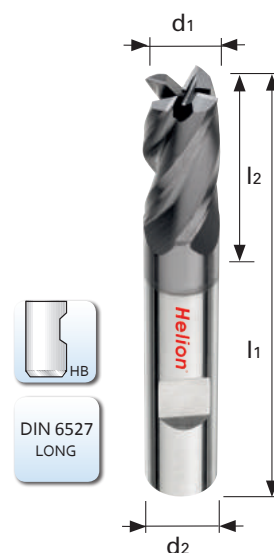
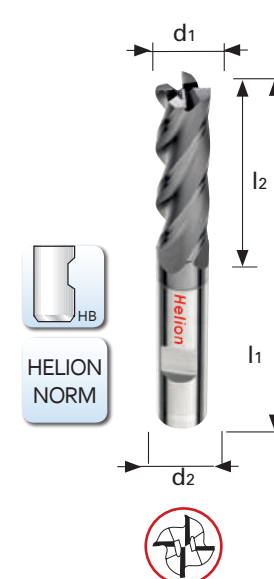
**80.6430**
**SOLID CARBIDE UNIVERSAL CUTTER**

**80.6433**

**80.6415**


d1	d2	l2	l1	Chamfer	z	Article No.
2,0	6	8	57	0,05	4	80.6415 0200
3,0	6	5	50	-	4	80.6430 0300
3,0	6	8	57	-	4	80.6433 0300
3,0	6	14	57	0,05	4	80.6415 0300
4,0	6	8	54	-	4	80.6430 0400
4,0	6	11	57	-	4	80.6433 0400
4,0	6	18	57	0,10	4	80.6415 0400
5,0	6	9	54	-	4	80.6430 0500
5,0	6	13	57	-	4	80.6433 0500
5,0	6	20	57	0,10	4	80.6415 0500
6,0	6	10	54	-	4	80.6430 0600
6,0	6	13	57	-	4	80.6433 0600
6,0	6	22	57	0,10	4	80.6415 0600
8,0	8	12	58	-	4	80.6430 0800
8,0	8	19	63	-	4	80.6433 0800
8,0	8	30	63	0,15	4	80.6415 0800
10,0	10	14	66	-	4	80.6430 1000
10,0	10	22	72	-	4	80.6433 1000
10,0	10	33	72	0,15	4	80.6415 1000
12,0	12	16	73	-	4	80.6430 1200
12,0	12	26	83	-	4	80.6433 1200
12,0	12	34	83	0,20	4	80.6415 1200
14,0	14	18	75	-	4	80.6430 1400
14,0	14	26	83	-	4	80.6433 1400
16,0	16	22	82	-	4	80.6430 1600
16,0	16	32	92	-	4	80.6433 1600
16,0	16	38	92	0,20	4	80.6415 1600
18,0	18	32	92	-	4	80.6433 1800
20,0	20	26	92	-	4	80.6430 2000
20,0	20	38	104	-	4	80.6433 2000
20,0	20	47	104	0,30	4	80.6415 2000



**SOLID CARBIDE UNIVERSAL CUTTER**
**80.6401**

d1	d2	l2	l1	z	Article No.
1,0	3	3	38	4	80.6401 0100
1,5	3	5	38	4	80.6401 0150
2,0	3	7	38	4	80.6401 0200
2,0	6	7	57	4	80.6403 0200
2,5	3	7	38	4	80.6401 0250
3,0	3	8	38	4	80.6401 0300
3,0	6	8	57	4	80.6403 0300
3,0	3	20	60	4	80.6405 0300
3,5	4	11	50	4	80.6401 0350
3,5	6	10	57	4	80.6403 0350
4,0	4	11	50	4	80.6401 0400
4,0	6	11	57	4	80.6403 0400
4,0	4	25	60	4	80.6405 0400
4,5	5	11	50	4	80.6401 0450
5,0	5	10	50	4	80.6401 0500
5,0	6	13	57	4	80.6403 0500
5,0	5	25	75	4	80.6405 0500
5,5	6	10	57	4	80.6401 0550
6,0	6	10	57	4	80.6401 0600
6,0	6	13	57	4	80.6403 0600
6,0	6	30	75	4	80.6405 0600
6,0	6	45	100	4	80.6405 0601
7,0	8	13	63	4	80.6401 0700
7,0	8	16	63	4	80.6403 0700
8,0	8	16	63	4	80.6401 0800
8,0	8	19	63	4	80.6403 0800
8,0	8	45	100	4	80.6405 0800
9,0	10	16	72	4	80.6401 0900
9,0	10	22	73	4	80.6403 0900
10,0	10	19	72	4	80.6401 1000
10,0	10	22	72	4	80.6403 1000
10,0	10	45	100	4	80.6405 1000
11,0	12	19	72	4	80.6401 1100
11,0	12	26	83	4	80.6403 1100
12,0	12	26	83	4	80.6403 1200
12,0	12	45	100	4	80.6405 1200
12,0	12	65	150	4	80.6405 1201
12,0	12	22	83	4	80.6401 1200
13,0	14	26	83	4	80.6405 1300
14,0	14	22	83	4	80.6401 1400
14,0	14	26	83	4	80.6403 1400
14,0	14	45	100	4	80.6405 1400
15,0	16	32	92	4	80.6403 1500
16,0	16	32	92	4	80.6403 1600
16,0	16	45	100	4	80.6405 1601
16,0	16	65	150	4	80.6405 1600
18,0	18	26	92	4	80.6401 1800
18,0	18	32	92	4	80.6403 1800
18,0	18	45	100	4	80.6405 1800
18,0	18	65	150	4	80.6405 1801
20,0	20	32	104	4	80.6401 2000
20,0	20	38	104	4	80.6403 2000
20,0	20	45	150	4	80.6405 2000
20,0	20	65	150	4	80.6405 2001


**80.6403**

**80.6405**


solid carbide end mills

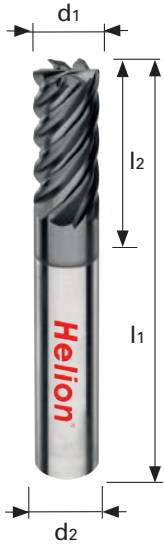
reamers and senkers

drills

threading tools

# 80.1572

## SOLID CARBIDE CUTTER S.C.SUPERFINISHING



d1	d2	l2	l1	Chamfer	z	Article No.
8,0	8	19	63	0,1	6	80.1572 0800
10,0	10	22	72	0,1	6	80.1572 1000
12,0	12	26	83	0,1	6	80.1572 1200
16,0	16	32	92	0,2	6	80.1572 1600
20,0	20	42	104	0,2	6	80.1572 2000
25,0	25	42	110	0,2	6	80.1572 2500

45°

DIN 6527 LONG

TIALN PLUS

UNI

STEEL <55 HRC

INOX

GG(G)



# 80.6579

## SOLID CARBIDE FINISHING CUTTER



d1	d2	l2	l1	z	Article No.
6,0	6	13	57	3/6	80.6579 0600
8,0	8	19	63	3/6	80.6579 0800
10,0	10	22	72	3/6	80.6579 1000
12,0	12	26	83	3/6	80.6579 1200
16,0	16	32	92	3/6	80.6579 1600
20,0	20	38	104	3/6	80.6579 2000
25,0	25	42	110	3/6	80.6579 2500

90°

HELION NORM

TIALN

UNI

STEEL <55 HRC

INOX

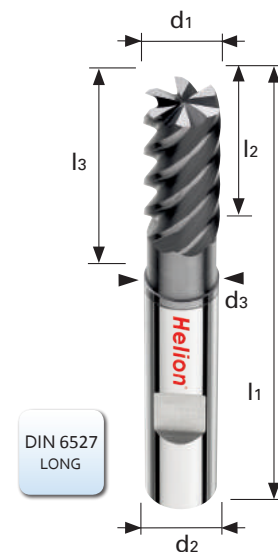
GG(G)



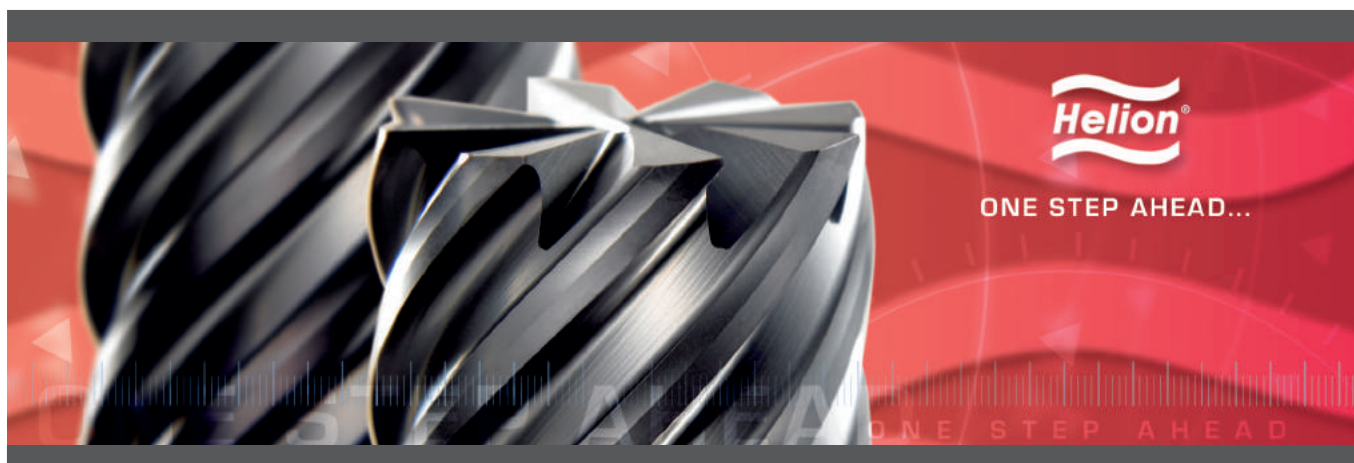
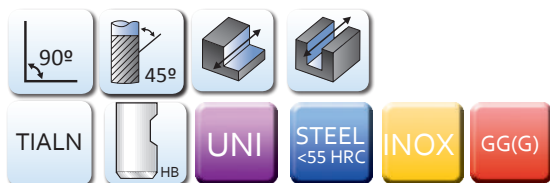
SOLID CARBIDE FINISHING CUTTER

80.6532

d1	d2	l2	l1	d3	l3	z	Article No.
3,0	6	8	57	2,7	11	6	80.6532 0300
4,0	6	11	57	3,7	16	6	80.6532 0400
5,0	6	13	57	4,6	18	6	80.6532 0500
6,0	6	13	57	5,5	18	6	80.6532 0600
8,0	8	19	63	7,5	24	6	80.6532 0800
10,0	10	22	72	9,5	32	6	80.6532 1000
12,0	12	26	83	11,5	36	6	80.6532 1200
12,0	12	40	100	-	-	6	80.6505 1200
14,0	14	26	83	13,5	36	6	80.6532 1400
16,0	16	32	92	15,5	42	6	80.6532 1600
16,0	16	60	150	-	-	6	80.6505 1600
18,0	18	32	92	17,5	42	8	80.6532 1800
20,0	20	38	104	19,5	48	8	80.6532 2000
20,0	20	80	150	-	-	8	80.6505 2000
25,0	25	45	121	24,5	65	8	80.6532 2500
25,0	25	90	150	-	-	8	80.6505 2500



80.6505

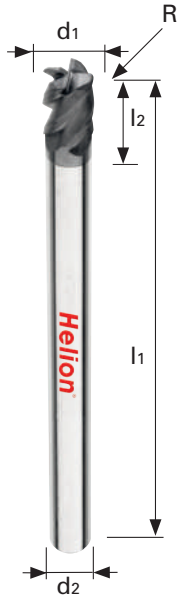


solid carbide end mills

reamers and senkers

drills

threading tools

**80.6890**
**SOLID CARBIDE PROFILE CUTTER WITH CORNER RADIUS**


d1	d2	l2	l1	R	z	Article No.
7,0	6	9	120	0,5	4	80.6890 0700
9,0	8	12	135	1,0	4	80.6890 0900
11,0	10	15	150	1,0	4	80.6890 1100
13,0	12	18	160	1,0	4	80.6890 1300
17,0	16	24	180	1,5	4	80.6890 1700


**80.6682**
**SOLID CARBIDE ROUGHING CUTTER TYP NR**

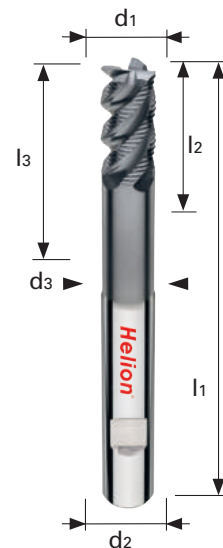

d1	d2	l2	l1	z	Article No.
6,0	6	13	57	4	80.6682 0600
8,0	8	16	63	4	80.6682 0800
10,0	10	22	72	4	80.6682 1000
12,0	12	26	83	4	80.6682 1200
16,0	16	32	92	4	80.6682 1600
20,0	20	38	104	4	80.6682 2000



SOLID CARBIDE ROUGHING CUTTER EXTRA LONG TYP NR

80.6614

d1	d2	l2	l1	d3	l3	Chamfer	z	Article No.
6,0	6	22	80	5,7	40	0,40	4	80.6614 0600
8,0	8	27	100	7,4	50	0,40	4	80.6614 0800
10,0	10	32	100	9,2	60	0,40	4	80.6614 1000
12,0	12	42	120	11,0	60	0,40	4	80.6614 1200
16,0	16	52	150	15,0	100	0,40	4	80.6614 1600
20,0	20	62	150	19,0	100	0,40	4	80.6614 2000
25,0	25	82	150	24,0	100	0,50	4	80.6614 2500

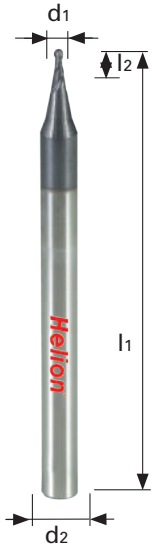
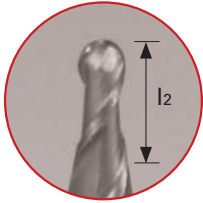


solid carbide end mills

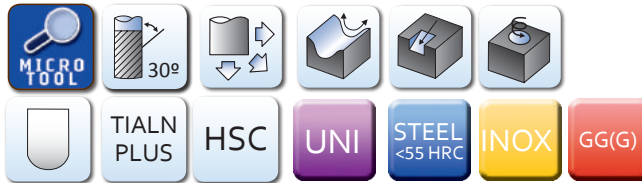
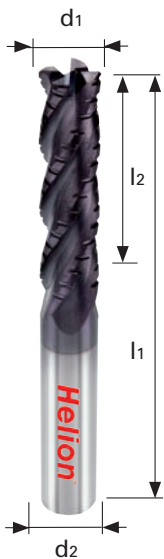
reamers and senkers

drills

threading tools

**80.6921**
**SOLID CARBIDE BALL NOSE END MILL MICRO 2 FLUTES HSC**


d1	d2	l2	l1	z	Article No.
0,3	4	0,6	50	2	80.6921 0030
0,4	4	0,8	50	2	80.6921 0040
0,5	4	1	50	2	80.6921 0050
0,6	4	1,2	50	2	80.6921 0060
0,7	4	1,4	50	2	80.6921 0070
0,8	4	1,6	50	2	80.6921 0080
0,9	4	1,8	50	2	80.6921 0090
1	4	2	50	2	80.6921 0100


**80.6613**
**SOLID CARBIDE CUTTER EXTRA LONG**


d1	d2	l2	l1	Chamfer	z	Article No.
6,0	6	24	68	0,3	4	80.6613 0600
8,0	8	38	88	0,3	4	80.6613 0800
10,0	10	45	95	0,4	4	80.6613 1000
12,0	12	53	110	0,5	4	80.6613 1200
16,0	16	63	123	0,6	4	80.6613 1600
20,0	20	75	141	0,6	4	80.6613 2000



**SOLID CARBIDE BALL NOSE END MILL 2 FLUTES HSC**
**80.6221**

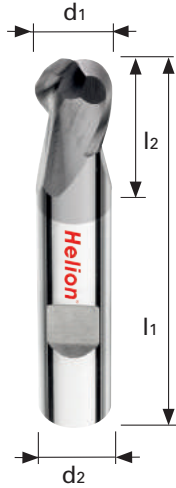
d1	d2	l1	l2	z	Article No.
1	3	50	2	2	80.6221 0100
1	4	50	2	2	80.6221 0101
1,5	4	50	3	2	80.6221 0150
2	3	50	4	2	80.6221 0200
2	4	50	4	2	80.6221 0201
2,5	4	50	5	2	80.6221 0250
3	3	50	6	2	80.6221 0300
3	4	50	6	2	80.6221 0301
4	4	50	8	2	80.6221 0400
5	6	50	10	2	80.6221 0500
6	6	50	12	2	80.6221 0600
7	8	60	14	2	80.6221 0700
8	8	60	16	2	80.6221 0800
9	10	75	18	2	80.6221 0900
10	10	75	20	2	80.6221 1000
12	12	75	24	2	80.6221 1200


**SOLID CARBIDE ROUGHING CUTTER**
**80.1602**

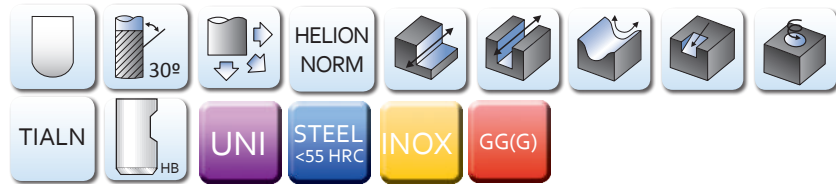
d1	d2	l2	l1	d3	l3	z	Article No.
6,0	6	13	57	5,5	21	4	80.1602 0600
8,0	8	16	63	7,5	27	4	80.1602 0800
10,0	10	22	72	9,5	32	4	80.1602 1000
12,0	12	26	83	11,5	38	4	80.1602 1200
16,0	16	32	92	15,5	44	5	80.1602 1600
20,0	20	38	104	19,5	54	5	80.1602 2000





**80.6220**
**SOLID CARBIDE BALL-NOSED UNIVERSAL CUTTER**


d1	d2	l2	l1	z	Article No.
1,0	6	3	50	2	80.6220 0100
2,0	6	4	50	2	80.6220 0200
2,5	6	4	50	2	80.6220 0250
3,0	6	5	50	2	80.6220 0300
3,5	6	5	50	2	80.6220 0350
4,0	6	6	54	2	80.6220 0400
4,5	6	6	54	2	80.6220 0450
5,0	6	7	54	2	80.6220 0500
6,0	6	9	54	2	80.6220 0600
8,0	8	12	58	2	80.6220 0800
10,0	10	14	66	2	80.6220 1000
12,0	12	14	73	2	80.6220 1200
14,0	14	16	75	2	80.6220 1400
16,0	16	18	82	2	80.6220 1600
18,0	18	20	88	2	80.6220 1800
20,0	20	22	92	2	80.6220 2000


**89.6682**
**HSS - PM - ROUGHING CUTTERIK**

POWDER METAL TECHNOLOGY

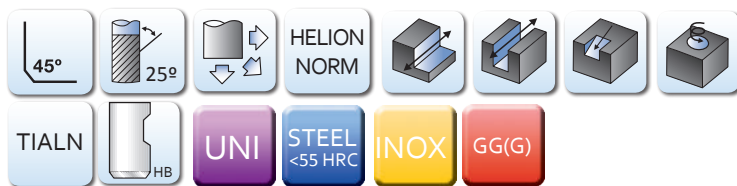


d1	d2	l2	l1	z	Article No.
16,0	16	32	92	4	89.6682 1600
18,0	16	32	92	4	89.6682 1800
20,0	20	38	104	4	89.6682 2000
25,0	25	45	121	4	89.6682 2500
30,0	25	45	121	6	89.6682 3000
32,0	32	53	133	6	89.6682 3200



**SOLID CARBIDE ROUGHING CUTTER**
**80.6601**

d1	d2	l2	l1	z	Article No.
3,0	6	6	57	4	80.6601 0300
4,0	6	8	57	4	80.6601 0400
5,0	6	10	57	4	80.6601 0500
6,0	6	13	57	4	80.6601 0600
8,0	8	16	63	4	80.6601 0800
10,0	10	22	72	4	80.6601 1000
12,0	12	26	83	4	80.6601 1200
14,0	14	26	83	4	80.6601 1400
16,0	16	32	92	4	80.6601 1600
18,0	18	32	92	4	80.6601 1800
20,0	20	38	104	4	80.6601 2000
25,0	25	45	121	4	80.6601 2500

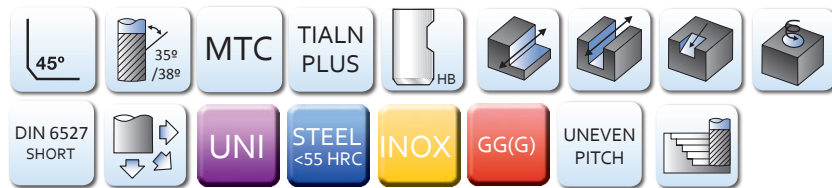

**SOLID CARBIDE BALL-NOSED UNIVERSAL CUTTER**
**80.6925**

d1	d2	l2	l1	z	Article No.
0,20	3	0,5	38	2	80.6925 0020
0,25	3	0,5	38	2	80.6925 0025
0,30	3	1,0	38	2	80.6925 0030
0,40	3	1,0	38	2	80.6925 0040
0,50	3	1,5	38	2	80.6925 0050
0,60	3	1,5	38	2	80.6925 0060
0,70	3	2,0	38	2	80.6925 0070
0,80	3	2,0	38	2	80.6925 0080
0,90	3	2,5	38	2	80.6925 0090
1,00	3	3,0	38	2	80.6925 0100
1,10	3	3,0	38	2	80.6925 0110
1,20	3	3,0	38	2	80.6925 0120
1,40	3	4,0	38	2	80.6925 0140
1,50	3	4,0	38	2	80.6925 0150
1,60	3	5,0	38	2	80.6925 0160
1,80	3	5,0	38	2	80.6925 0180
2,00	3	5,0	38	2	80.6925 0200



**81.1670**
**SOLID CARBIDE CUTTER**


d1	d2	l2	l1	Chamfer	z	Article No.
4,0	6	8	54	0,13	4	81.1670 0400
5,0	6	6	54	0,18	4	81.1670 0500
6,0	6	10	54	0,20	4	81.1670 0600
8,0	8	12	58	0,20	4	81.1670 0800
10,0	10	14	66	0,30	4	81.1670 1000
12,0	12	16	73	0,30	4	81.1670 1200
14,0	14	18	75	0,30	4	81.1670 1400
16,0	16	22	82	0,40	4	81.1670 1600
20,0	20	26	92	0,50	4	81.1670 2000


**81.1672**
**SOLID CARBIDE CUTTER**


d1	d2	l2	l1	Chamfer	z	Article No.
4,0	6	11	57	0,13	4	81.1672 0400
5,0	6	13	57	0,18	4	81.1672 0500
6,0	6	13	57	0,20	4	81.1672 0600
8,0	8	19	63	0,20	4	81.1672 0800
10,0	10	22	72	0,30	4	81.1672 1000
12,0	12	26	83	0,30	4	81.1672 1200
14,0	14	26	83	0,30	4	81.1672 1400
16,0	16	32	92	0,40	4	81.1672 1600
20,0	20	38	104	0,50	4	81.1672 2000

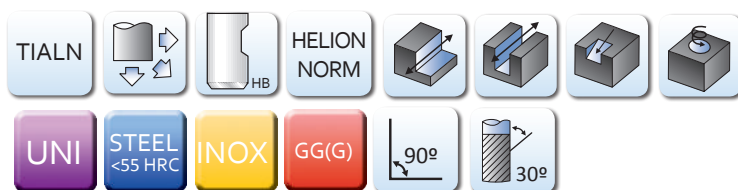


**HSS - PM - ROUGHING CUTTER**

POWDER METAL TECHNOLOGY

**89.6604**

d1	d2	l1	l2	z	Article No.
6,0	6	16	60	3	89.6604 0600
7,0	10	22	72	3	89.6604 0700
8,0	10	25	75	3	89.6604 0800
9,0	10	25	75	4	89.6604 0900
10,0	12	28	78	4	89.6604 1000
11,0	12	28	85	4	89.6604 1100
12,0	12	32	89	4	89.6604 1200
13,0	16	32	89	4	89.6604 1300
14,0	16	32	92	4	89.6604 1400
15,0	16	36	96	4	89.6604 1500
16,0	16	36	96	4	89.6604 1600
17,0	16	40	100	4	89.6604 1700
18,0	16	40	100	4	89.6604 1800
19,0	20	45	105	4	89.6604 1900
20,0	20	45	111	4	89.6604 2000
22,0	25	45	111	5	89.6604 2200
25,0	25	50	126	5	89.6604 2500
26,0	25	56	132	5	89.6604 2600
30,0	32	63	139	5	89.6604 3000
32,0	32	63	143	5	89.6604 3200
35,0	32	63	143	6	89.6604 3500
36,0	32	63	143	6	89.6604 3600

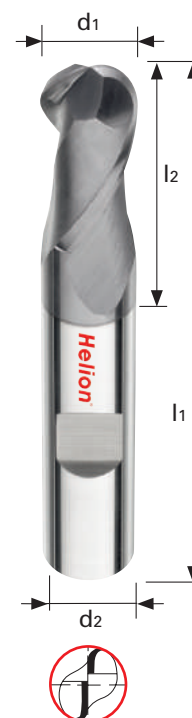


solid carbide end mills

reamers and senkers

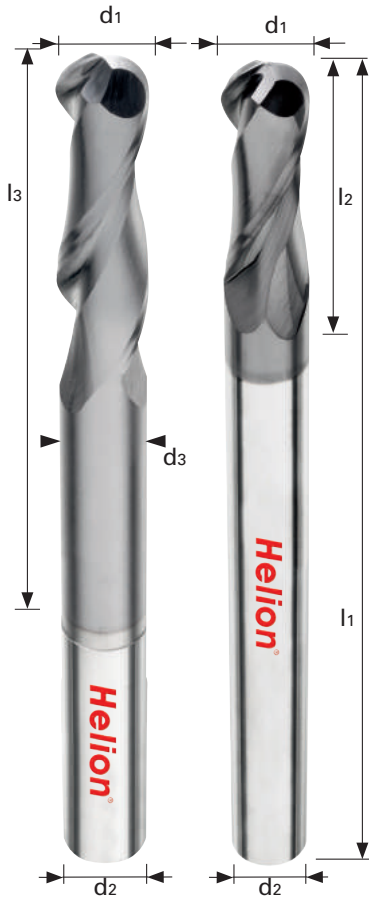
**SOLID CARBIDE BALL-NOSED UNIVERSAL CUTTER**
**80.6222**

d1	d2	l2	l1	z	Article No.
3,0	3	7	38	2	80.6222 0300
4,0	4	14	50	2	80.6222 0400
5,0	6	16	50	2	80.6222 0500
6,0	6	19	57	2	80.6222 0600
8,0	8	20	63	2	80.6222 0800
10,0	10	21	72	2	80.6222 1000
12,0	12	25	83	2	80.6222 1200
16,0	16	32	92	2	80.6222 1600
20,0	20	38	104	2	80.6222 2000

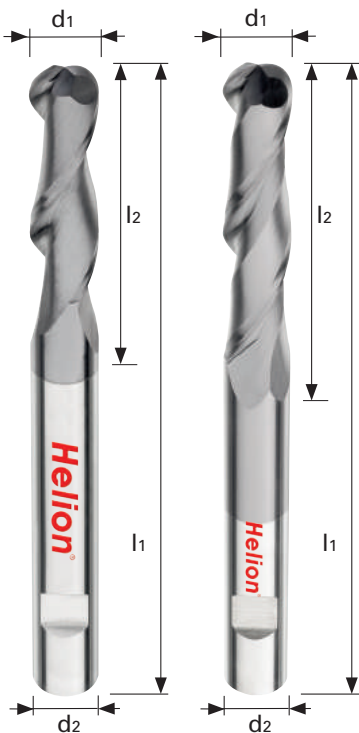


drills

threading tools

**80.6229-80.6227**
**SOLID CARBIDE BALL-NOSED UNIVERSAL CUTTER FLUTES**


d1	d2	l2	l1	l3	d3	z	Article No.
6,0	6	25	200	120	5,5	2	80.6229 0600
8,0	8	25	200	120	7,5	2	80.6229 0800
10,0	10	50	200	120	9,5	2	80.6229 1000
12,0	12	50	200	120	11,5	2	80.6229 1200
16,0	16	60	310	-	-	2	80.6227 1600
16,0	16	65	220	150	15,5	2	80.6229 1600
20,0	20	60	310	-	-	2	80.6227 2000
20,0	20	65	250	150	19,5	2	80.6229 2000
25,0	25	60	310	-	-	2	80.6227 2500
25,0	25	120	310	-	-	2	80.6227 2501
32,0	32	60	310	-	-	2	80.6227 3200


**80.6224-80.6223**


d1	d2	l2	l1	z	Article No.
3,0	3	20	60	2	80.6223 0300
4,0	4	25	60	2	80.6223 0400
5,0	5	25	75	2	80.6223 0500
6,0	6	30	75	2	80.6223 0600
6,0	6	40	150	2	80.6224 0600
8,0	8	45	100	2	80.6223 0800
8,0	8	40	150	2	80.6224 0800
10,0	10	45	100	2	80.6223 1000
10,0	10	40	150	2	80.6224 1000
12,0	12	45	100	2	80.6223 1200
12,0	12	65	150	2	80.6223 1201
12,0	12	50	150	2	80.6224 1200
16,0	16	45	100	2	80.6223 1600
16,0	16	65	150	2	80.6223 1601
16,0	16	50	150	2	80.6224 1600
20,0	20	45	100	2	80.6223 2000
20,0	20	65	150	2	80.6223 2001
20,0	20	50	150	2	80.6224 2000
25,0	25	50	150	2	80.6224 2500



## SOLID CARBIDE BALL-NOSED UNIVERSAL CUTTER

80.6427

d1	d2	l2	l1	z	Article No.
3,0	3	7	38	4	80.6425 0300
3,0	3	20	75	4	80.6427 0300
4,0	4	14	50	4	80.6425 0400
4,0	4	25	75	4	80.6427 0400
5,0	6	16	50	4	80.6425 0500
5,0	5	25	75	4	80.6427 0500
6,0	6	19	60	4	80.6425 0600
6,0	6	30	75	4	80.6427 0600
6,0	6	45	100	4	80.6427 0601
8,0	8	20	63	4	80.6425 0800
8,0	8	45	100	4	80.6427 0800
10,0	10	21	70	4	80.6425 1000
10,0	10	45	100	4	80.6427 1000
12,0	12	25	75	4	80.6425 1200
12,0	12	45	100	4	80.6427 1200
12,0	12	65	150	4	80.6427 1201
16,0	16	32	88	4	80.6425 1600
16,0	16	45	100	4	80.6427 1600
16,0	16	65	150	4	80.6427 1601
20,0	20	38	104	4	80.6425 2000
20,0	20	45	100	4	80.6427 2000
20,0	20	65	150	4	80.6427 2001



80.6425



Increase your productivity  
with HELION High  
Performance Tools

$$n = \frac{Vc \times 1000}{\pi \times \phi}$$

$$Vf = fz \times z \times n$$

$$Q = \frac{ap \times ae \times Vf}{1000}$$

[www.helioncut.com](http://www.helioncut.com)

cutting data calculation



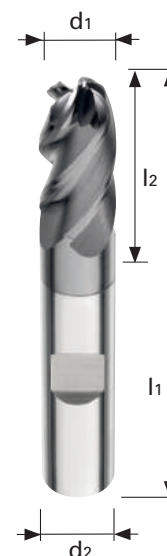
**80.2920**
**SOLID CARBIDE BALL-NOSED UNIVERSAL CUTTER**


d1	d2	l2	l1	R	Z	Article No.
0,25	4	0,5	50	0,125	2	80.2920 0025
0,30	4	1,0	50	0,150	2	80.2920 0030
0,40	4	1,0	50	0,200	2	80.2920 0040
0,50	4	1,5	50	0,250	2	80.2920 0050
0,60	4	1,5	50	0,300	2	80.2920 0060
0,70	4	2,0	50	0,350	2	80.2920 0070
0,80	4	2,0	50	0,400	2	80.2920 0080
0,90	4	2,5	50	0,450	2	80.2920 0090
1,00	4	3,0	50	0,500	2	80.2920 0100
1,10	4	3,0	50	0,550	2	80.2920 0110
1,20	4	3,0	50	0,600	2	80.2920 0120
1,40	4	4,0	50	0,700	2	80.2920 0140
1,50	4	4,0	50	0,750	2	80.2920 0150
1,60	4	5,0	50	0,800	2	80.2920 0160
1,80	4	5,0	50	0,900	2	80.2920 0180
2,00	4	5,0	50	1,000	2	80.2920 0200
2,5	4	5	50	1,25	2	80.2920 0250
3,0	6	6	50	1,5	2	80.2920 0300
4,0	6	8	54	2,0	2	80.2920 0400
5,0	6	9	54	2,5	2	80.2920 0500
6,0	6	10	54	3,0	2	80.2920 0600
8,0	8	12	58	4,0	2	80.2920 0800
10,0	10	14	66	5,0	2	80.2920 1000
12,0	12	16	73	6,0	2	80.2920 1200
14,0	14	18	75	7,0	2	80.2920 1400
16,0	16	20	82	8,0	2	80.2920 1600
20,0	20	24	92	10,0	2	80.2920 2000



**SOLID CARBIDE BALL-NOSED CUTTER**
**80.6420**

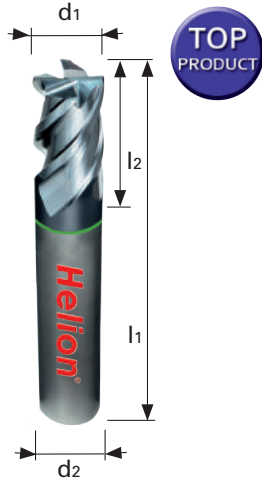
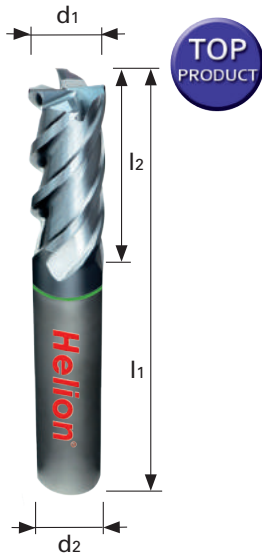
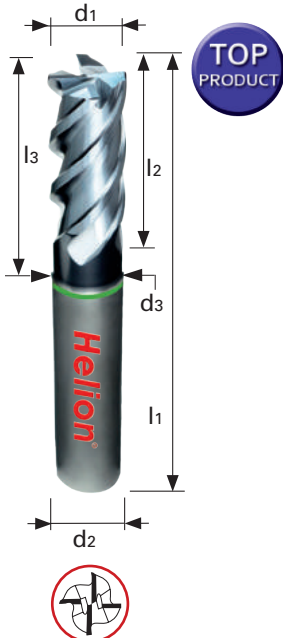
d1	d2	l2	l1	R	z	Article No.
3,0	6	8	57	1,5	4	80.6420 0300
4,0	6	10	57	2,0	4	80.6420 0400
5,0	6	13	57	2,5	4	80.6420 0500
6,0	6	13	57	3,0	4	80.6420 0600
8,0	8	16	63	4,0	4	80.6420 0800
10,0	10	22	72	5,0	4	80.6420 1000
12,0	12	26	83	6,0	4	80.6420 1200
14,0	14	26	83	7,0	4	80.6420 1400
16,0	16	32	92	8,0	4	80.6420 1600
20,0	20	38	104	10,0	4	80.6420 2000


**SOLID CARBIDE CUTTER. SPECIAL WAVE EDGE**
**80.1492**

d1	d2	l2	l1	Chamfer	z	Article No.
6,0	6	13	57	0,20	4	80.1492 0600
8,0	8	19	63	0,25	4	80.1492 0800
10,0	10	22	72	0,30	4	80.1492 1000
12,0	12	26	83	0,35	4	80.1492 1200
16,0	16	32	92	0,45	4	80.1492 1600
20,0	20	42	104	0,50	4	80.1492 2000
25,0	25	42	110	0,60	4	80.1492 2500





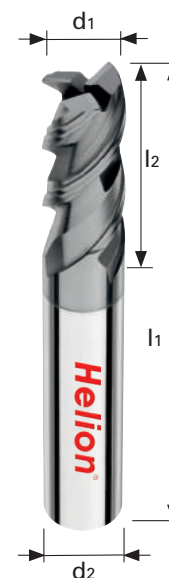
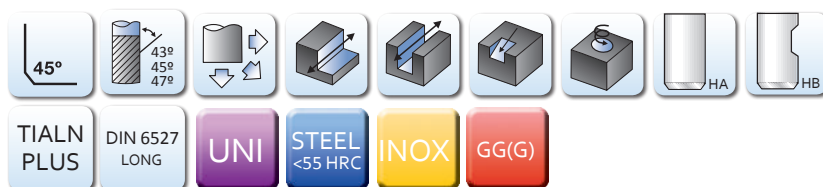
**81.5471**
**SOLID CARBIDE CUTTERS**

**81.5472**

**81.5479**


d1	d2	l2	l1	d3	l3	Chamfer	z	Article No.
3,0	6	6	54	-	-	0,10	4	81.5471 0300
3,0	6	8	57	-	-	0,10	4	81.5472 0300
3,0	6	8	57	2,8	18	0,13	4	81.5479 0300
4,0	6	8	54	-	-	0,13	4	81.5471 0400
4,0	6	11	57	-	-	0,13	4	81.5472 0400
4,0	6	11	57	3,6	21	0,18	4	81.5479 0400
5,0	6	9	54	-	-	0,18	4	81.5471 0500
5,0	6	13	57	-	-	0,18	4	81.5472 0500
5,0	6	13	57	4,6	21	0,20	4	81.5479 0500
6,0	6	10	54	-	-	0,20	4	81.5471 0600
6,0	6	13	57	-	-	0,20	4	81.5472 0600
6,0	6	13	57	5,5	21	0,20	4	81.5479 0600
7,0	8	12	58	-	-	0,20	4	81.5471 0700
7,0	8	19	63	-	-	0,20	4	81.5472 0700
7,0	8	19	63	6,5	27	0,20	4	81.5479 0700
8,0	8	12	58	-	-	0,20	4	81.5471 0800
8,0	8	19	63	-	-	0,20	4	81.5472 0800
8,0	8	19	63	7,5	27	0,20	4	81.5479 0800
9,0	10	14	66	-	-	0,30	4	81.5471 0900
9,0	10	22	72	-	-	0,30	4	81.5472 0900
9,0	10	22	72	8,5	32	0,30	4	81.5479 0900
10,0	10	14	66	-	-	0,30	4	81.5471 1000
10,0	10	22	72	-	-	0,30	4	81.5472 1000
10,0	10	22	72	9,5	32	0,30	4	81.5479 1000
11,0	12	16	73	-	-	0,30	4	81.5471 1100
11,0	12	26	83	-	-	0,30	4	81.5472 1100
11,0	12	26	83	10,5	38	0,30	4	81.5479 1100
12,0	12	16	73	-	-	0,30	4	81.5471 1200
12,0	12	26	83	-	-	0,30	4	81.5472 1200
12,0	12	26	83	11,5	38	0,30	4	81.5479 1200
13,0	14	18	75	-	-	0,30	4	81.5471 1300
13,0	14	26	83	-	-	0,30	4	81.5472 1300
13,0	14	26	83	12,5	42	0,30	4	81.5479 1300
14,0	14	18	75	-	-	0,30	4	81.5471 1400
14,0	14	26	83	-	-	0,30	4	81.5472 1400
14,0	14	26	83	13,5	42	0,30	4	81.5479 1400
16,0	16	22	82	-	-	0,40	4	81.5471 1600
16,0	16	32	92	-	-	0,40	4	81.5472 1600
16,0	16	32	92	15,5	44	0,40	4	81.5479 1600
18,0	18	24	84	-	-	0,40	4	81.5471 1800
18,0	18	32	92	-	-	0,40	4	81.5472 1800
18,0	18	32	100	17,5	50	0,40	4	81.5479 1800
20,0	20	26	92	-	-	0,50	4	81.5471 2000
20,0	20	38	104	-	-	0,50	4	81.5472 2000
20,0	20	38	104	19,5	54	0,50	4	81.5479 2000
25,0	25	32	92	-	-	0,50	4	81.5471 2500
25,0	25	38	104	-	-	0,50	4	81.5472 2500
25,0	25	42	121	24,0	65	0,50	4	81.5479 2500

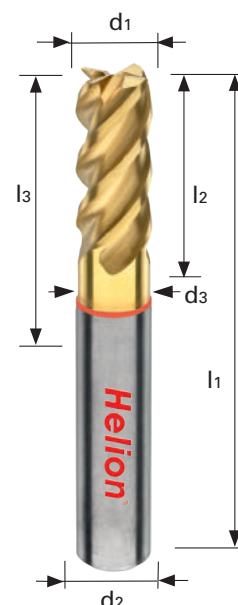


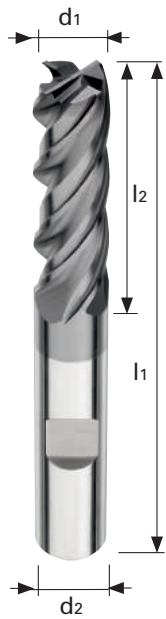
**SOLID CARBIDE CUTTER**
**81.1305**

d1	d2	l2	l1	Chamfer	z	Article No.	PRICE €
3,0	6	8	57	0,05	3	81.1305 0300	30
4,0	6	11	57	0,05	3	81.1305 0400	30
5,0	6	13	57	0,08	3	81.1305 0500	30
6,0	6	13	57	0,08	3	81.1305 0600	32
7,0	8	16	63	0,08	3	81.1305 0700	37
8,0	8	19	63	0,10	3	81.1305 0800	37
9,0	10	19	72	0,10	3	81.1305 0900	63
10,0	10	22	72	0,10	3	81.1305 1000	63
12,0	12	26	83	0,15	3	81.1305 1200	85
16,0	16	32	92	0,20	3	81.1305 1600	158
20,0	20	38	104	0,20	3	81.1305 2000	225


**SOLID CARBIDE CUTTER**
**81.4412**

d1	d2	l2	l1	d3	l3	Chamfer	z	Article No.
6,0	6,0	13,0	57	5,5	21	0,20	4	81.4412 0600
8,0	8,0	19,0	63	7,5	27	0,20	4	81.4412 0800
10,0	10,0	22,0	72	9,5	32	0,30	4	81.4412 1000
12,0	12,0	26,0	83	11,50	38	0,30	4	81.4412 1200
16,0	16,0	32,0	92	15,00	44	0,40	4	81.4412 1600
20,0	20,0	38,0	104	19,00	52	0,40	4	81.4412 2000



**81.6474**
**SOLID CARBIDE CUTTER EXTRA LONG**


d1	d2	l2	l1	Chamfer	z	Article No.
5,0	6	21	63	0,18	4	81.6474 0500
6,0	6	22	63	0,20	4	81.6474 0600
8,0	8	28	80	0,20	4	81.6474 0800
10,0	10	33	100	0,30	4	81.6474 1000
12,0	12	42	100	0,30	4	81.6474 1200
14,0	14	48	100	0,30	4	81.6474 1400
16,0	16	53	150	0,40	4	81.6474 1600
20,0	20	68	150	0,50	4	81.6474 2000
25,0	25	85	165	0,50	4	81.6474 2500


**81.1712**
**SOLID CARBIDE CUTTER**


d1	d2	l2	l1	Chamfer	z	Article No.
6,0	6	13	57	0,2	4	81.1712 0600
8,0	8	19	63	0,2	4	81.1712 0800
10,0	10	22	72	0,3	4	81.1712 1000
12,0	12	26	83	0,3	4	81.1712 1200
16,0	16	32	92	0,4	4	81.1712 1600
20,0	20	38	104	0,5	4	81.1712 2000





# THE POWER AND THE STRONG

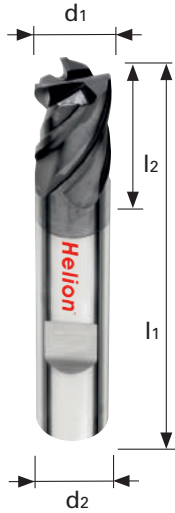
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SOLID CARBIDE CUTTERS

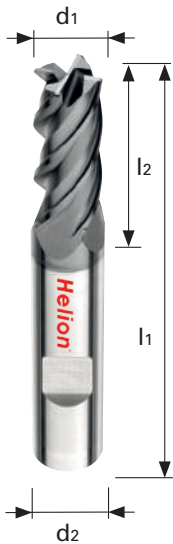


# 81.1470

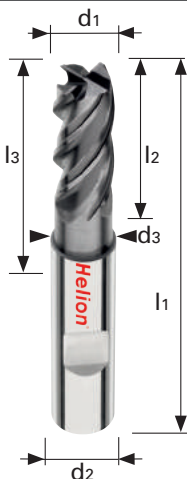
## SOLID CARBIDE CUTTERS



# 81.1471



# 81.1479



d1	d2	l2	l1	d3	l3	Chamfer	z	Article No.
3,0	6	6	54	-	-	0,10	4	81.1470 0300
3,0	6	8	57	-	-	0,13	4	81.1471 0300
3,0	6	8	57	2,8	18	0,13	4	81.1479 0300
4,0	6	8	54	-	-	0,13	4	81.1470 0400
4,0	6	11	57	-	-	0,13	4	81.1471 0400
4,0	6	11	57	3,6	21	0,18	4	81.1479 0400
5,0	6	9	54	-	-	0,18	4	81.1470 0500
5,0	6	13	57	-	-	0,18	4	81.1471 0500
5,0	6	13	57	4,6	21	0,20	4	81.1479 0500
6,0	6	10	54	-	-	0,20	4	81.1470 0600
6,0	6	13	57	-	-	0,20	4	81.1471 0600
6,0	6	13	57	5,5	21	0,20	4	81.1479 0600
7,0	8	12	58	-	-	0,20	4	81.1470 0700
7,0	8	19	63	-	-	0,20	4	81.1471 0700
7,0	8	19	63	6,5	27	0,20	4	81.1479 0700
8,0	8	12	58	-	-	0,20	4	81.1470 0800
8,0	8	19	63	-	-	0,20	4	81.1471 0800
8,0	8	19	63	7,5	27	0,20	4	81.1479 0800
9,0	10	14	66	-	-	0,30	4	81.1470 0900
9,0	10	22	72	-	-	0,30	4	81.1471 0900
9,0	10	22	72	8,5	32	0,30	4	81.1479 0900
10,0	10	14	66	-	-	0,30	4	81.1470 1000
10,0	10	22	72	-	-	0,30	4	81.1471 1000
10,0	10	22	72	9,5	32	0,30	4	81.1479 1000
11,0	12	16	73	-	-	0,30	4	81.1470 1100
11,0	12	26	83	-	-	0,30	4	81.1471 1100
11,0	12	26	83	10,5	38	0,30	4	81.1479 1100
12,0	12	16	73	-	-	0,30	4	81.1470 1200
12,0	12	26	83	-	-	0,30	4	81.1471 1200
12,0	12	26	83	11,5	38	0,30	4	81.1479 1200
13,0	14	18	75	-	-	0,30	4	81.1470 1300
13,0	14	26	83	12,5	42	0,30	4	81.1479 1300
14,0	14	18	75	-	-	0,30	4	81.1470 1400
14,0	14	26	83	-	-	0,30	4	81.1471 1400
14,0	14	26	83	13,5	42	0,30	4	81.1479 1400
16,0	16	22	82	-	-	0,40	4	81.1470 1600
16,0	16	32	92	-	-	0,40	4	81.1471 1600
16,0	16	32	92	15,5	44	0,40	4	81.1479 1600
18,0	18	24	84	-	-	0,40	4	81.1470 1800
18,0	18	32	92	-	-	0,40	4	81.1471 1800
18,0	18	32	100	17,5	50	0,40	4	81.1479 1800
20,0	20	26	92	-	-	0,50	4	81.1470 2000
20,0	20	38	104	-	-	0,50	4	81.1471 2000
20,0	20	38	104	19,5	54	0,50	4	81.1479 2000
25,0	25	32	92	-	-	0,50	4	81.1470 2500
25,0	25	42	104	-	-	0,50	4	81.1471 2500
25,0	25	42	121	24	65	0,50	4	81.1479 2500

45°

35°/38°

MTC

TIALN PLUS

HB

HELION NORM

UNEVEN PITCH

UNI

STEEL <55 HRC

INOX

GG(G)

solid carbide end mills

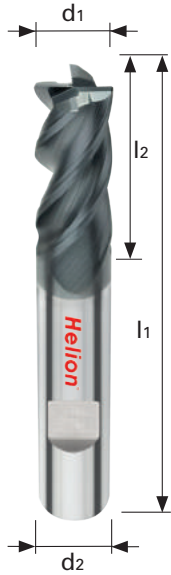
reamers and senkers

drills

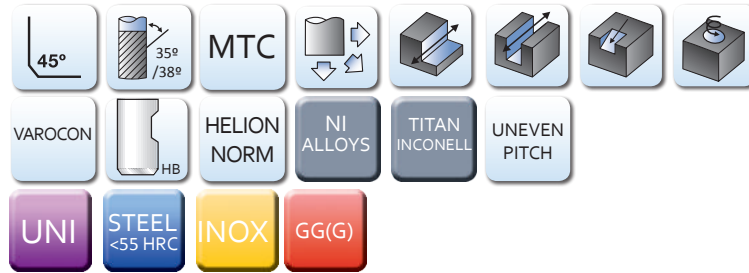
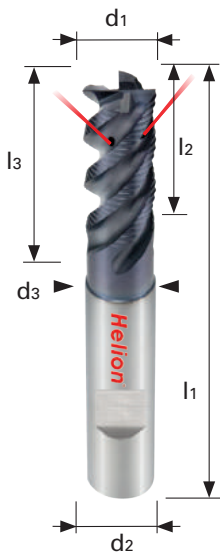
threading tools

d1	d2	l2	l1	R	z	Article No.
4,0	6	11	57	0,25	4	81.6443 0402
4,0	6	11	57	0,50	4	81.6443 0405
4,0	6	11	57	1,00	4	81.6443 0401
5,0	6	13	57	0,50	4	81.6443 0505
5,0	6	13	57	1,00	4	81.6443 0510
5,0	6	13	57	1,50	4	81.6443 0515
6,0	6	13	57	0,50	4	81.6443 0605
6,0	6	13	57	1,00	4	81.6443 0610
6,0	6	13	57	1,50	4	81.6443 0615
6,0	6	13	57	2,00	4	81.6443 0620
8,0	8	19	63	0,50	4	81.6443 0805
8,0	8	19	63	1,00	4	81.6443 0810
8,0	8	19	63	1,50	4	81.6443 0815
8,0	8	19	63	2,00	4	81.6443 0820
10,0	10	22	72	0,50	4	81.6443 1005
10,0	10	22	72	1,00	4	81.6443 1010
10,0	10	22	72	1,50	4	81.6443 1015
10,0	10	22	72	2,00	4	81.6443 1020
12,0	12	26	83	0,50	4	81.6443 1205
12,0	12	26	83	1,00	4	81.6443 1210
12,0	12	26	83	1,50	4	81.6443 1215
12,0	12	26	83	2,00	4	81.6443 1220
14,0	14	26	83	1,00	4	81.6443 1410
14,0	14	26	83	2,00	4	81.6443 1420
16,0	16	32	92	1,00	4	81.6443 1610
16,0	16	32	92	1,50	4	81.6443 1615
16,0	16	32	92	2,00	4	81.6443 1620
16,0	16	32	92	2,50	4	81.6443 1625
18,0	18	32	92	1,50	4	81.6443 1815
18,0	18	32	92	2,50	4	81.6443 1825
20,0	20	38	104	1,00	4	81.6443 2010
20,0	20	38	104	1,50	4	81.6443 2015
20,0	20	38	104	2,00	4	81.6443 2020
20,0	20	38	104	2,50	4	81.6443 2025
20,0	20	38	104	3,00	4	81.6443 2030
20,0	20	38	104	4,00	4	81.6443 2040
20,0	20	38	104	5,00	4	81.6443 2050



**81.5475**
**SOLID CARBIDE CUTTER**


d1	d2	l2	l1	Chamfer	z	Article No.
4,0	6	12	55	0,13	4	81.5475 0400
5,0	6	13	57	0,18	4	81.5475 0500
6,0	6	13	57	0,20	4	81.5475 0600
8,0	8	16	63	0,20	4	81.5475 0800
10,0	10	22	72	0,20	4	81.5475 1000
12,0	12	26	83	0,30	4	81.5475 1200
14,0	14	26	83	0,40	4	81.5475 1400
16,0	16	32	92	0,40	4	81.5475 1600
18,0	18	32	92	0,50	4	81.5475 1800
20,0	20	38	104	0,50	4	81.5475 2000
25,0	25	45	121	0,50	4	81.5475 2500

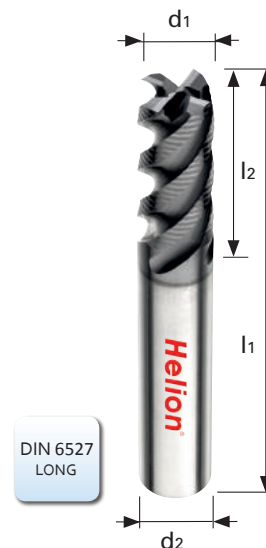
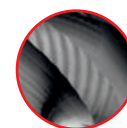
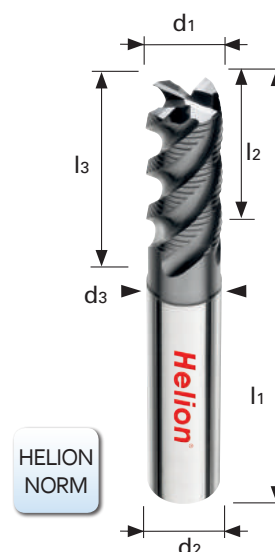

**81.6682**
**SOLID CARBIDE ROUGHING CUTTER**


d1	d2	l2	l1	z	d3	l3	Article No.
6,0	6	13	57	4	5,5	21	81.6682 0600
8,0	8	16	63	4	7,5	27	81.6682 0800
10,0	10	22	72	4	9,5	32	81.6682 1000
12,0	12	26	83	4	11,5	38	81.6682 1200
16,0	16	32	92	4	15,5	44	81.6682 1600
20,0	20	38	104	5	19,5	54	81.6682 2000

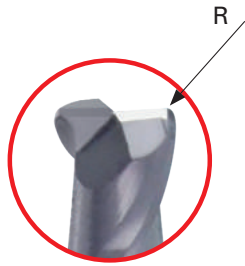


**SOLID CARBIDE ROUGHING CUTTERS**
**81.6605**

d1	d2	l2	l1	d3	l3	z	Article No.
4,0	6	11	57			3	81.6605 0400
4,0	6	11	57	3,8	18	3	81.6609 0400
5,0	6	13	57			4	81.6605 0500
5,0	6	13	57	4,7	20	4	81.6609 0500
6,0	6	16	57			4	81.6605 0600
6,0	6	16	57	5,5	20	4	81.6609 0600
7,0	8	16	63			4	81.6605 0700
7,0	8	16	63	6,5	25	4	81.6609 0700
8,0	8	16	63			4	81.6605 0800
8,0	8	16	63	7,5	26	4	81.6609 0800
9,0	10	19	72			4	81.6605 0900
9,0	10	19	72	8,5	30	4	81.6609 0900
10,0	10	22	72			4	81.6605 1000
10,0	10	22	72	9,5	31	4	81.6609 1000
12,0	12	26	83			4	81.6605 1200
12,0	12	26	83	11,5	37	4	81.6609 1200
14,0	14	26	83			5	81.6605 1400
14,0	14	26	83	13,5	42	5	81.6609 1400
16,0	16	32	92			5	81.6605 1600
16,0	16	32	100	15,5	51	5	81.6609 1600
20,0	20	38	104			6	81.6605 2000
20,0	20	38	110	19,2	59	6	81.6609 2000
25,0	25	45	121			6	81.6605 2500
25,0	25	45	121	24,0	65	6	81.6609 2500


**81.6609**




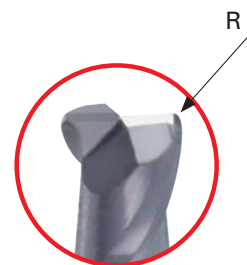


d1	d2	l2	l1	d3	l3	R	z	Article No.
0,3	6	0,45	55	0,28	1	0,05	2	82.1815 0030
0,3	6	0,45	55	0,28	2	0,05	2	82.1815 0031
0,3	6	0,45	55	0,28	3	0,05	2	82.1815 0032
0,3	6	0,45	55	0,28	5	0,05	2	82.1815 0033
0,4	6	0,60	55	0,38	2	0,05	2	82.1815 0040
0,4	6	0,60	55	0,38	4	0,05	2	82.1815 0041
0,4	6	0,60	55	0,38	6	0,05	2	82.1815 0042
0,5	6	0,70	55	0,48	2	0,05	2	82.1815 0050
0,5	6	0,70	55	0,48	4	0,05	2	82.1815 0051
0,5	6	0,70	55	0,48	6	0,05	2	82.1815 0052
0,6	6	0,90	55	0,58	2	0,06	2	82.1815 0060
0,6	6	0,90	55	0,58	4	0,06	2	82.1815 0061
0,6	6	0,90	55	0,58	6	0,06	2	82.1815 0062
0,6	6	0,90	55	0,58	8	0,06	2	82.1815 0063
0,8	6	1,20	55	0,77	2	0,08	2	82.1815 0080
0,8	6	1,20	55	0,77	4	0,08	2	82.1815 0081
0,8	6	1,20	55	0,77	6	0,08	2	82.1815 0082
0,8	6	1,20	55	0,77	8	0,08	2	82.1815 0083
0,8	6	1,20	65	0,77	10	0,08	2	82.1815 0084
1,0	6	1,60	55	1,00	3	0,10	2	82.1815 0100
1,0	6	1,60	55	0,95	4	0,10	2	82.1815 0101
1,0	6	1,60	55	1,00	5	0,10	2	82.1815 0102
1,0	6	1,60	55	1,00	6	0,10	2	82.1815 0103
1,0	6	1,60	55	1,00	8	0,10	2	82.1815 0104
1,0	6	1,60	65	0,95	10	0,10	2	82.1815 0105
1,0	6	1,60	65	0,95	12	0,10	2	82.1815 0106
1,0	6	1,60	65	0,95	15	0,10	2	82.1815 0107
1,0	6	1,60	65	0,95	20	0,10	2	82.1815 0108
1,0	6	1,60	70	0,95	25	0,10	2	82.1815 0109
1,0	6	1,60	75	0,95	30	0,10	2	82.1815 0110
1,2	6	1,90	55	1,15	4	0,12	2	82.1815 0120
1,2	6	1,90	55	1,15	6	0,12	2	82.1815 0121
1,2	6	1,90	55	1,15	8	0,12	2	82.1815 0122
1,2	6	1,90	65	1,15	10	0,12	2	82.1815 0123
1,2	6	1,90	65	1,15	12	0,12	2	82.1815 0124
1,2	6	1,90	65	1,15	15	0,12	2	82.1815 0125
1,2	6	1,90	65	1,15	20	0,12	2	82.1815 0126
1,2	6	1,90	70	1,15	25	0,12	2	82.1815 0127



**SOLID CARBIDE PROFILE CUTTER WITH CORNER RADIUS**
**82.1815**

d1	d2	l2	l1	d3	l3	R	z	Article No.
1,5	6	2,40	55	1,4	5	0,15	2	82.1815 0150
1,5	6	2,40	55	1,4	6	0,15	2	82.1815 0151
1,5	6	2,40	55	1,4	8	0,15	2	82.1815 0152
1,5	6	2,40	65	1,4	10	0,15	2	82.1815 0153
1,5	6	2,40	65	1,4	12	0,15	2	82.1815 0154
1,5	6	2,40	65	1,4	15	0,15	2	82.1815 0155
1,5	6	2,40	65	1,4	20	0,15	2	82.1815 0156
1,5	6	2,40	70	1,4	25	0,15	2	82.1815 0157
1,5	6	2,40	75	1,4	30	0,15	2	82.1815 0158
2,0	6	2,80	55	1,9	6	0,20	2	82.1815 0200
2,0	6	2,80	55	1,9	8	0,20	2	82.1815 0201
2,0	6	2,80	65	1,9	10	0,20	2	82.1815 0202
2,0	6	2,80	65	1,9	12	0,20	2	82.1815 0203
2,0	6	2,80	65	1,9	15	0,20	2	82.1815 0204
2,0	6	2,80	65	1,9	20	0,20	2	82.1815 0205
2,0	6	2,80	70	1,9	25	0,20	2	82.1815 0206
2,0	6	2,80	75	1,9	30	0,20	2	82.1815 0207
3,0	6	3,00	55	2,9	5	0,50	2	82.1815 0300
3,0	6	3,00	55	2,9	8	0,50	2	82.1815 0301
3,0	6	3,00	65	2,9	10	0,50	2	82.1815 0302
3,0	6	3,00	65	2,9	15	0,50	2	82.1815 0303
3,0	6	3,00	65	2,9	20	0,50	2	82.1815 0304
3,0	6	3,00	70	2,9	25	0,50	2	82.1815 0305
3,0	6	3,00	75	2,9	30	0,50	2	82.1815 0306
4,0	6	4,00	65	3,9	10	0,50	2	82.1815 0400
4,0	6	4,00	65	3,9	15	0,50	2	82.1815 0401
4,0	6	4,00	65	3,9	20	0,50	2	82.1815 0402
4,0	6	4,00	70	3,9	25	0,50	2	82.1815 0403
4,0	6	4,00	75	3,9	30	0,50	2	82.1815 0404
5,0	6	5,00	65	4,9	10	0,50	2	82.1815 0500
5,0	6	5,00	65	4,9	15	0,50	2	82.1815 0501
5,0	6	5,00	65	4,9	20	0,50	2	82.1815 0502
5,0	6	5,00	75	4,9	30	0,50	2	82.1815 0503
5,0	6	5,00	90	4,9	40	0,50	2	82.1815 0504
6,0	6	6,00	65	5,9	10	0,50	2	82.1815 0600
6,0	6	6,00	65	5,9	15	0,50	2	82.1815 0601
6,0	6	6,00	65	5,9	20	0,50	2	82.1815 0602
6,0	6	6,00	75	5,9	30	0,50	2	82.1815 0603
6,0	6	6,00	90	5,9	40	0,50	2	82.1815 0604
6,0	6	6,00	90	5,9	50	0,50	2	82.1815 0605



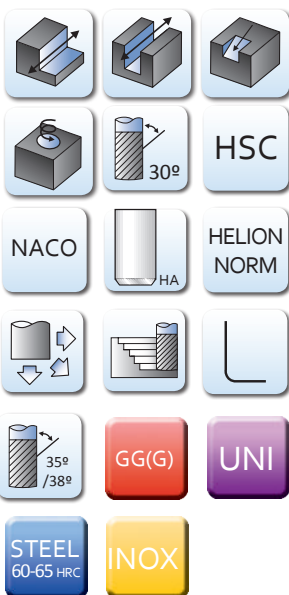
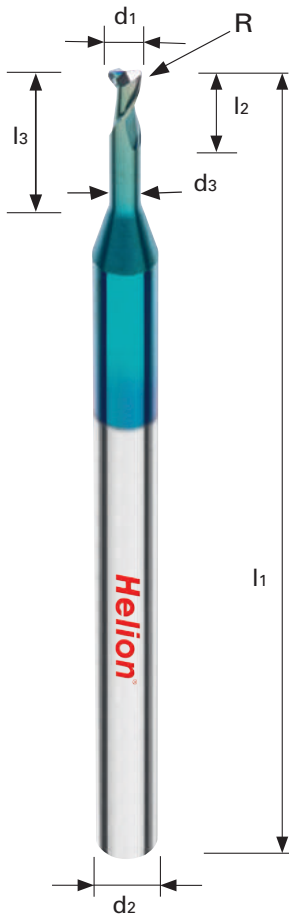
solid carbide end mills

reamers and senkers

drills

threading tools





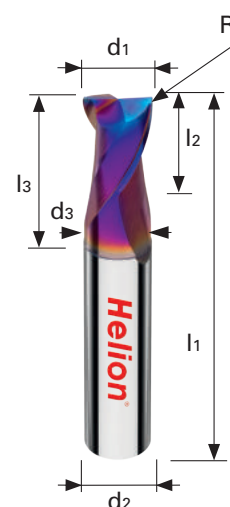
d1	d2	l2	l1	l3	d3	R	z	Article No.
0,3	6	0,45	55	1,0	0,28	0,05	2	82.2817 0030
0,3	6	0,45	55	3,0	0,28	0,05	2	82.2817 0031
0,4	6	0,60	55	2,0	0,38	0,05	2	82.2817 0040
0,4	6	0,60	55	4,0	0,38	0,05	2	82.2817 0041
0,5	6	0,70	55	2,0	0,48	0,05	2	82.2817 0050
0,5	6	0,70	55	4,0	0,48	0,05	2	82.2817 0051
0,6	6	0,90	55	2,0	0,58	0,06	2	82.2817 0060
0,6	6	0,90	55	4,0	0,58	0,06	2	82.2817 0061
0,6	6	0,90	55	6,0	0,58	0,06	2	82.2817 0062
0,8	6	1,20	55	2,0	0,77	0,08	2	82.2817 0080
0,8	6	1,20	55	4,0	0,77	0,08	2	82.2817 0081
0,8	6	1,20	55	6,0	0,77	0,08	2	82.2817 0082
0,8	6	1,20	55	8,0	0,77	0,08	2	82.2817 0083
1,0	6	1,60	55	3,0	0,95	0,10	2	82.2817 0100
1,0	6	1,60	55	4,0	0,95	0,10	2	82.2817 0101
1,0	6	1,60	55	5,0	0,95	0,10	2	82.2817 0102
1,0	6	1,60	55	6,0	0,95	0,10	2	82.2817 0103
1,0	6	1,60	55	8,0	0,95	0,10	2	82.2817 0104
1,0	6	1,60	65	10,0	0,95	0,10	2	82.2817 0105
1,0	6	1,60	65	12,0	0,95	0,10	2	82.2817 0106
1,2	6	1,90	55	4,0	1,15	0,12	2	82.2817 0120
1,2	6	1,90	55	6,0	1,15	0,12	2	82.2817 0121
1,2	6	1,90	55	8,0	1,15	0,12	2	82.2817 0122
1,2	6	1,90	65	10,0	1,15	0,12	2	82.2817 0123
1,2	6	1,90	65	12,0	1,15	0,12	2	82.2817 0124
1,2	6	1,90	65	15,0	1,15	0,12	2	82.2817 0125
1,5	6	2,40	55	6,0	1,44	0,15	2	82.2817 0150
1,5	6	2,40	55	8,0	1,44	0,15	2	82.2817 0151
1,5	6	2,40	65	10,0	1,44	0,15	2	82.2817 0152
1,5	6	2,40	65	12,0	1,44	0,15	2	82.2817 0153
2,0	6	2,80	55	6,0	1,92	0,20	2	82.2817 0200
2,0	6	2,80	55	8,0	1,92	0,20	2	82.2817 0201
2,0	6	2,80	65	10,0	1,92	0,20	2	82.2817 0202
2,0	6	2,80	65	12,0	1,92	0,20	2	82.2817 0203
2,0	6	2,80	65	15,0	1,92	0,20	2	82.2817 0204
2,0	6	2,80	65	20,0	1,92	0,2	2	82.2817 0205
3,0	6	3,00	55	8,0	2,9	0,50	2	82.2817 0300
3,0	6	3,00	65	10,0	2,9	0,50	2	82.2817 0301
3,0	6	3,00	65	15,0	2,9	1,00	2	82.2817 0302
3,0	6	3,00	65	20,0	2,9	0,50	2	82.2817 0303
4,0	6	4,00	65	10,0	3,9	1,00	2	82.2817 0400
4,0	6	4,00	65	15,0	3,9	0,50	2	82.2817 0401
4,0	6	4,00	65	20,0	3,9	0,50	2	82.2817 0402
4,0	6	4,00	70	25,0	3,9	0,50	2	82.2817 0403
4,0	6	4,00	75	30,0	3,9	0,50	2	82.2817 0404
5,0	6	5,00	65	10,0	4,9	0,50	2	82.2817 0500
5,0	6	5,00	65	15,0	4,9	1,00	2	82.2817 0501
5,0	6	5,00	65	20,0	4,9	0,50	2	82.2817 0502
6,0	6	6,00	65	10,0	5,9	0,50	2	82.2817 0600
6,0	6	6,00	65	20,0	5,9	0,50	2	82.2817 0601
6,0	6	6,00	75	30,0	5,9	1,00	2	82.2817 0602
6,0	6	6,00	90	40,0	5,9	0,50	2	82.2817 0603
6,0	6	6,00	90	50,0	5,9	1,00	2	82.2817 0604

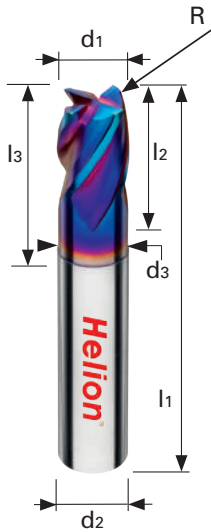
**SOLID CARBIDE PROFILE CUTTER WITH CORNER RADIUS**
**82.2910**

d1	d2	l2	l1	R	z	Article No.
0,3	6	0,45	50	-	2	82.2910 0030
0,4	6	0,60	50	-	2	82.2910 0040
0,5	6	0,70	50	0,05	2	82.2910 0050
0,6	6	0,90	50	0,05	2	82.2910 0060
0,8	6	1,20	50	0,05	2	82.2910 0080
1,0	6	1,50	50	0,10	2	82.2910 0100
1,2	6	1,80	50	0,10	2	82.2910 0120
1,5	6	2,20	50	0,15	2	82.2910 0150
2,0	6	2,20	50	0,15	2	82.2910 0200

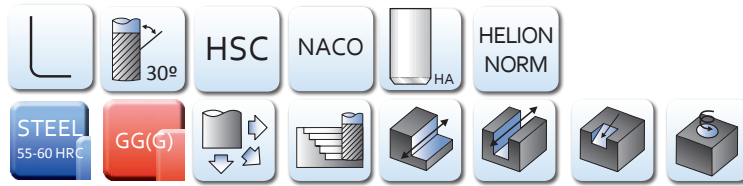
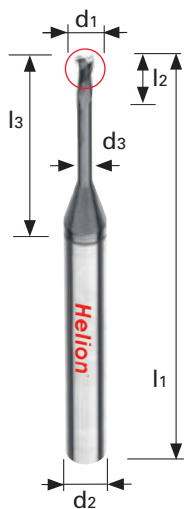
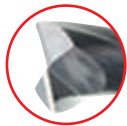

**SOLID CARBIDE PROFILE CUTTER WITH CORNER RADIUS**
**82.2210**

d1	d2	l2	l1	R	d3	l3	z	Article No.
0,3	3	0,45	40	-	-	-	2	82.2210 0030
0,4	3	0,60	40	-	-	-	2	82.2210 0040
0,5	3	0,70	40	0,05	-	-	2	82.2210 0050
0,6	3	0,90	40	0,05	-	-	2	82.2210 0060
0,8	3	1,20	40	0,05	-	-	2	82.2210 0080
1,0	3	1,50	40	0,10	-	-	2	82.2210 0100
1,5	3	2,20	40	0,10	-	-	2	82.2210 0150
2,0	3	3,00	40	0,10	1,9	6	2	82.2210 0200
2,5	3	4,00	40	0,10	2,4	6	2	82.2210 0250
3,0	6	4,00	45	0,10	2,9	7	2	82.2210 0300
3,5	6	5,00	45	0,10	3,3	9	2	82.2210 0350
4,0	6	5,00	45	0,10	3,8	9	2	82.2210 0400
4,5	6	6,00	45	0,10	4,3	10	2	82.2210 0450
5,0	6	6,00	50	0,20	4,8	11	2	82.2210 0500
6,0	6	7,00	50	0,20	5,8	14	2	82.2210 0600
8,0	8	9,00	60	0,20	7,8	18	2	82.2210 0800
10,0	10	12,00	75	0,20	9,7	25	2	82.2210 1000
12,0	12	15,00	75	0,30	11,7	30	2	82.2210 1200
16,0	16	18,00	90	0,30	15,7	38	2	82.2210 1600
20,0	20	24,00	100	0,30	19,7	45	2	82.2210 2000

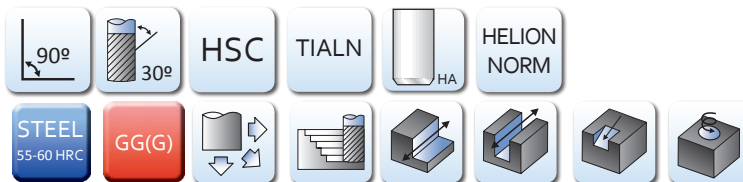


**82.2410**
**SOLID CARBIDE PROFILE CUTTER WITH CORNER RADIUS**


d1	d2	l2	l1	R	d3	l3	z	Article No.
1,0	3	1,50	40	0,1	-	-	4	82.2410 0100
1,5	3	2,20	40	0,1	-	-	4	82.2410 0150
2,0	3	3,00	40	0,1	1,9	6	4	82.2410 0200
2,5	3	4,00	40	0,1	2,4	6	4	82.2410 0250
3,0	6	4,00	45	0,1	2,9	7	4	82.2410 0300
3,5	6	5,00	45	0,1	3,3	9	4	82.2410 0350
4,0	6	5,00	45	0,1	3,8	9	4	82.2410 0400
4,5	6	6,00	45	0,1	4,3	10	4	82.2410 0450
5,0	6	6,00	50	0,2	4,8	11	4	82.2410 0500
6,0	6	7,00	50	0,2	5,8	14	4	82.2410 0600
8,0	8	9,00	60	0,2	7,8	18	4	82.2410 0800
10,0	10	12,00	75	0,2	9,7	25	4	82.2410 1000
12,0	12	15,00	75	0,3	11,7	30	4	82.2410 1200
16,0	16	18,00	90	0,3	15,7	38	4	82.2410 1600
20,0	20	24,00	100	0,3	19,7	45	4	82.2410 2000

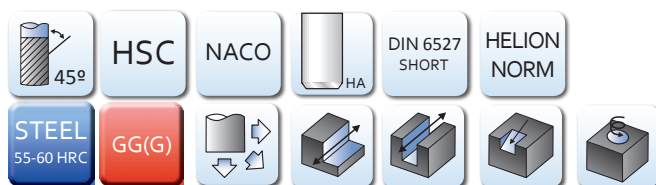

**82.6800**
**SOLID CARBIDE CUTTER**


d1	d2	l2	l1	d3	l3	z	Article No.
0,8	4	1,2	45	0,75	6	2	82.6800 0080
0,9	4	1,4	45	0,85	6	2	82.6800 0090
1,0	4	1,5	45	0,95	6	2	82.6800 0100
1,0	4	1,5	45	0,95	12	2	82.6800 0101
1,2	4	1,8	45	1,15	8	2	82.6800 0120
1,2	4	1,8	45	1,15	12	2	82.6800 0121
1,4	4	2,1	45	1,30	12	2	82.6800 0140
1,5	4	2,3	50	1,40	14	2	82.6800 0150
1,6	4	2,4	50	1,50	16	2	82.6800 0160
1,8	4	2,7	50	1,70	16	2	82.6800 0180
2,0	4	3,0	45	1,90	8	2	82.6800 0200
2,0	4	3,0	45	1,90	12	2	82.6800 0201
2,0	4	3,0	50	1,90	16	2	82.6800 0202
2,0	4	3,0	55	1,90	20	2	82.6800 0203
2,5	4	3,7	50	2,40	14	2	82.6800 0250
3,0	6	4,5	45	2,85	12	2	82.6800 0300
3,0	6	4,5	60	2,85	20	2	82.6800 0301



**SOLID CARBIDE CUTTER**
**82.2450**

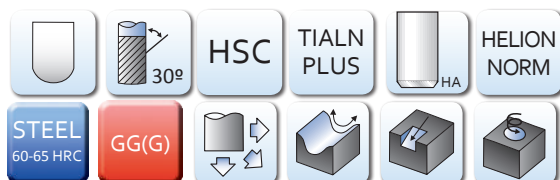
d1	d2	l2	l1	l3	z	Article No.
1,0	6	3	57	10	4	82.2450 0100
2,0	6	4	57	12	4	82.2450 0200
3,0	6	5	57	15	4	82.2450 0300
4,0	6	6	57	21	4	82.2450 0400
5,0	6	7	57	21	4	82.2450 0500
6,0	6	10	57	21	4	82.2450 0600
8,0	8	12	63	27	4	82.2450 0800
10,0	10	15	72	32	4	82.2450 1000
12,0	12	18	83	38	4	82.2450 1200
16,0	16	24	92	42	4	82.2450 1600
20,0	20	32	104	51	4	82.2450 2000

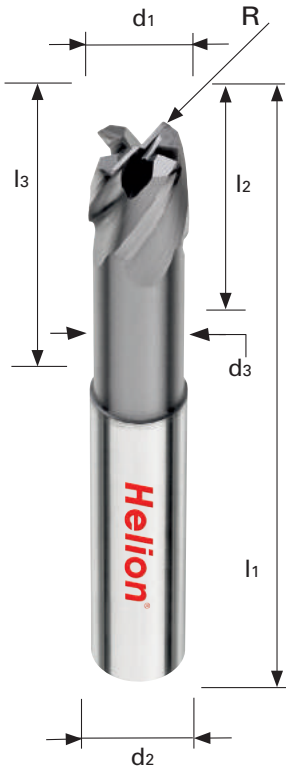

**SOLID CARBIDE BALL-NOSED CUTTER FLUTES**
**82.1223**

d1	d2	l2	l1	R	z	Article No.
1,0	6	1,5	50	0,50	2	82.1223 0100
1,5	6	2,5	50	0,75	2	82.1223 0150
2,0	6	3,0	50	1,00	2	82.1223 0200
2,5	6	4,0	50	1,25	2	82.1223 0250
3,0	6	6,0	75	1,50	2	82.1223 0300
4,0	6	8,0	75	2,00	2	82.1223 0400
5,0	6	10,0	75	2,50	2	82.1223 0500
6,0	6	12,0	100	3,00	2	82.1223 0600
8,0	8	14,0	100	4,00	2	82.1223 0800
10,0	10	18,0	100	5,00	2	82.1223 1000
12,0	12	22,0	150	6,00	2	82.1223 1200
14,0	14	26,0	150	7,00	2	82.1223 1400
16,0	16	30,0	150	8,00	2	82.1223 1600
18,0	18	34,0	150	9,00	2	82.1223 1800
20,0	20	38,0	150	10,00	2	82.1223 2000



Shank design, tolerance h5,  
rotation accuracy 0,005 mm,  
polished design





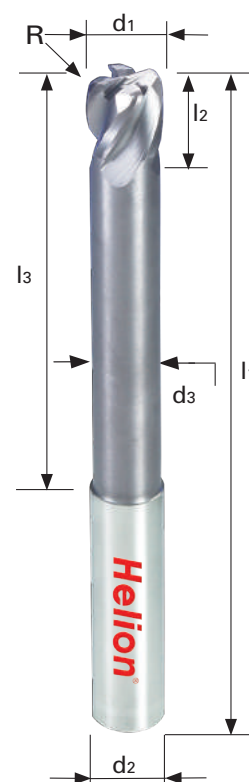
		<b>HSC</b>
<b>TIALN</b>		<b>HELION NORM</b>
<b>STEEL 60-65 HRC</b>	<b>INOX</b>	<b>UNI</b>
<b>GG(G)</b>		

d1	d2	l2	l1	d3	l3	R	z	Article No.
2,0	6	4	50	1,8	11	0,1	4	82.6410 0200
2,0	6	4	50	1,8	11	0,2	4	82.6410 0201
2,0	6	4	50	1,8	11	0,3	4	82.6410 0202
2,0	6	4	50	1,8	11	0,4	4	82.6410 0203
3,0	6	4	50	2,8	11	0,2	4	82.6410 0300
3,0	6	4	50	2,8	11	0,3	4	82.6410 0301
3,0	6	4	50	2,8	11	0,4	4	82.6410 0302
3,0	6	4	50	2,8	11	0,5	4	82.6410 0303
3,0	6	4	50	2,8	11	1,0	4	82.6410 0304
4,0	6	6	50	3,6	11	0,1	4	82.6410 0400
4,0	6	6	50	3,6	11	0,2	4	82.6410 0401
4,0	6	6	50	3,6	11	0,3	4	82.6410 0402
4,0	6	6	50	3,6	11	0,4	4	82.6410 0403
4,0	6	6	50	3,6	11	0,5	4	82.6410 0404
4,0	6	6	50	3,6	11	0,6	4	82.6410 0405
4,0	6	6	50	3,6	11	0,8	4	82.6410 0406
4,0	6	6	50	3,6	11	1,0	4	82.6410 0407
4,0	6	6	50	3,6	11	1,5	4	82.6410 0408
5,0	6	6	50	4,6	11	0,2	4	82.6410 0500
5,0	6	6	50	4,6	11	0,3	4	82.6410 0501
6,0	6	7	50	5,5	11	0,1	4	82.6410 0600
6,0	6	7	50	5,5	11	0,2	4	82.6410 0601
6,0	6	7	50	5,5	11	0,3	4	82.6410 0602
6,0	6	7	50	5,5	11	0,4	4	82.6410 0603
6,0	6	7	50	5,5	11	0,5	4	82.6410 0604
6,0	6	7	50	5,5	11	0,6	4	82.6410 0605
6,0	6	7	50	5,5	11	0,7	4	82.6410 0606
6,0	6	7	50	5,5	11	0,8	4	82.6410 0607
6,0	6	7	50	5,5	11	0,9	4	82.6410 0608
6,0	6	7	50	5,5	11	1,0	4	82.6410 0609
6,0	6	7	50	5,5	11	1,1	4	82.6410 0610
6,0	6	7	50	5,5	11	1,2	4	82.6410 0611
6,0	6	7	50	5,5	11	1,3	4	82.6410 0612
6,0	6	7	50	5,5	11	1,4	4	82.6410 0613
6,0	6	7	50	5,5	11	1,5	4	82.6410 0614
6,0	6	7	50	5,5	11	1,6	4	82.6410 0615
6,0	6	7	50	5,5	11	1,7	4	82.6410 0616
6,0	6	7	50	5,5	11	1,8	4	82.6410 0617
6,0	6	7	50	5,5	11	1,9	4	82.6410 0618
6,0	6	7	50	5,5	11	2,0	4	82.6410 0619
6,0	6	7	50	5,5	11	2,1	4	82.6410 0620
6,0	6	7	50	5,5	11	2,2	4	82.6410 0621
6,0	6	7	50	5,5	11	2,3	4	82.6410 0622
6,0	6	7	50	5,5	11	2,4	4	82.6410 0623
6,0	6	7	50	5,5	11	2,5	4	82.6410 0624
8,0	8	9	58	7,4	13	0,5	4	82.6410 0800
8,0	8	9	58	7,4	13	1,0	4	82.6410 0801
8,0	8	9	58	7,4	13	1,5	4	82.6410 0802
8,0	8	9	58	7,4	13	2,0	4	82.6410 0803
10,0	10	11	66	9,2	15	0,5	4	82.6410 1000
10,0	10	11	66	9,2	15	1,0	4	82.6410 1001
10,0	10	11	66	9,2	15	1,5	4	82.6410 1002
10,0	10	11	66	9,2	15	2,0	4	82.6410 1003

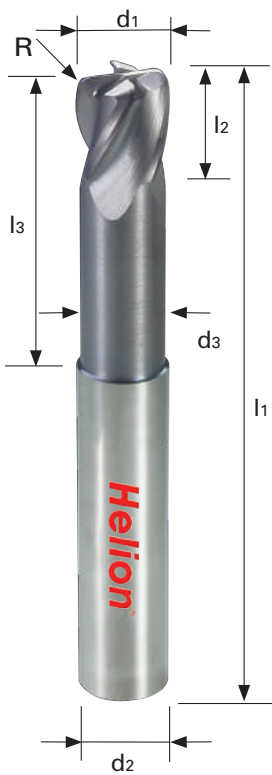
## SOLID CARBIDE PROFILE CUTTER WITH CORNER RADIUS

82.6413

d1	d2	l2	l1	d3	l3	R	z	Article No.
6,0	6	7	80	5,5	44	0,1	4	82.6413 0600
6,0	6	7	80	5,5	44	0,2	4	82.6413 0601
6,0	6	7	80	5,5	44	0,3	4	82.6413 0602
6,0	6	7	80	5,5	44	0,4	4	82.6413 0603
6,0	6	7	80	5,5	44	0,5	4	82.6413 0604
6,0	6	7	80	5,5	44	0,6	4	82.6413 0605
6,0	6	7	80	5,5	44	0,7	4	82.6413 0606
6,0	6	7	80	5,5	44	0,8	4	82.6413 0607
6,0	6	7	80	5,5	44	0,9	4	82.6413 0608
6,0	6	7	80	5,5	44	1,0	4	82.6413 0609
6,0	6	7	80	5,5	44	1,1	4	82.6413 0610
6,0	6	7	80	5,5	44	1,2	4	82.6413 0611
6,0	6	7	80	5,5	44	1,3	4	82.6413 0612
6,0	6	7	80	5,5	44	1,4	4	82.6413 0613
6,0	6	7	80	5,5	44	1,5	4	82.6413 0614
6,0	6	7	80	5,5	44	1,6	4	82.6413 0615
6,0	6	7	80	5,5	44	1,7	4	82.6413 0616
6,0	6	7	80	5,5	44	1,8	4	82.6413 0617
6,0	6	7	80	5,5	44	1,9	4	82.6413 0618
6,0	6	7	80	5,5	44	2,0	4	82.6413 0619
6,0	6	7	80	5,5	44	2,1	4	82.6413 0620
6,0	6	7	80	5,5	44	2,2	4	82.6413 0621
6,0	6	7	80	5,5	44	2,3	4	82.6413 0622
6,0	6	7	80	5,5	44	2,4	4	82.6413 0623
6,0	6	7	80	5,5	44	2,5	4	82.6413 0624
8,0	8	9	100	7,4	54	0,5	4	82.6413 0800
8,0	8	9	100	7,4	54	1,0	4	82.6413 0801
8,0	8	9	100	7,4	54	1,5	4	82.6413 0802
8,0	8	9	100	7,4	54	2,0	4	82.6413 0803
10,0	10	11	100	9,2	60	1,0	4	82.6413 1000
10,0	10	11	100	9,2	60	1,5	4	82.6413 1001
10,0	10	11	100	9,2	60	2,0	4	82.6413 1002
12,0	12	12	120	11,0	75	0,5	4	82.6413 1200
12,0	12	12	120	11,0	75	1,0	4	82.6413 1201
12,0	12	12	120	11,0	75	1,5	4	82.6413 1202
12,0	12	12	120	11,0	75	2,0	4	82.6413 1203
16,0	16	16	150	15,0	92	2,0	4	82.6413 1600







d1	d2	l2	l1	d3	l3	R	z	Article No.
2,0	6	4	57	1,8	21	0,1	4	82.6412 0201
2,0	6	4	57	1,8	21	0,2	4	82.6412 0202
2,0	6	4	57	1,8	21	0,3	4	82.6412 0203
2,0	6	4	57	1,8	21	0,4	4	82.6412 0204
2,0	6	4	57	1,8	21	0,5	4	82.6412 0205
3,0	6	6	57	2,8	21	0,1	4	82.6412 0301
3,0	6	6	57	2,8	21	0,2	4	82.6412 0302
3,0	6	6	57	2,8	21	0,3	4	82.6412 0303
3,0	6	6	57	2,8	21	0,4	4	82.6412 0304
3,0	6	6	57	2,8	21	0,5	4	82.6412 0305
3,0	6	6	57	2,8	21	1,0	4	82.6412 0310
4,0	6	6	57	3,6	21	0,1	4	82.6412 0401
4,0	6	6	57	3,6	21	0,2	4	82.6412 0402
4,0	6	6	57	3,6	21	0,3	4	82.6412 0403
4,0	6	6	57	3,6	21	0,4	4	82.6412 0404
4,0	6	6	57	3,6	21	0,5	4	82.6412 0405
4,0	6	6	57	3,6	21	0,6	4	82.6412 0406
4,0	6	6	57	3,6	21	0,7	4	82.6412 0407
4,0	6	6	57	3,6	21	0,8	4	82.6412 0408
4,0	6	6	57	3,6	21	0,9	4	82.6412 0409
4,0	6	6	57	3,6	21	1,0	4	82.6412 0410
4,0	6	6	57	3,6	21	1,1	4	82.6412 0411
4,0	6	6	57	3,6	21	1,2	4	82.6412 0412
4,0	6	6	57	3,6	21	1,3	4	82.6412 0413
4,0	6	6	57	3,6	21	1,4	4	82.6412 0414
4,0	6	6	57	3,6	21	1,5	4	82.6412 0415
5,0	6	6	57	4,6	21	0,1	4	82.6412 0501
5,0	6	6	57	4,6	21	0,2	4	82.6412 0502
5,0	6	6	57	4,6	21	0,3	4	82.6412 0503
5,0	6	6	57	4,6	21	0,4	4	82.6412 0504
5,0	6	6	57	4,6	21	0,5	4	82.6412 0505
5,0	6	6	57	4,6	21	1,0	4	82.6412 0510
5,0	6	6	57	4,6	21	1,5	4	82.6412 0515
5,0	6	6	57	4,6	21	2,0	4	82.6412 0520

solid carbide end mills

reamers and senkers

drills

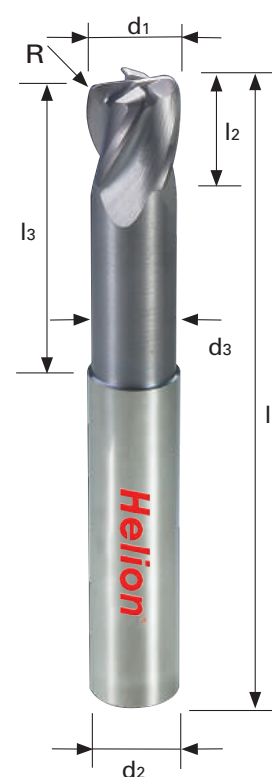
threading tools



## SOLID CARBIDE PROFILE CUTTER WITH CORNER RADIUS

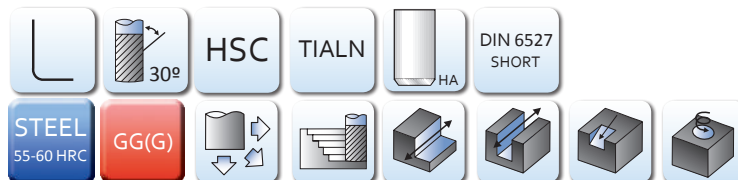
82.6412

d1	d2	l2	l1	d3	l3	R	z	Article No.
6,0	6	7	57	5,5	21	0,1	4	82.6412 0601
6,0	6	7	57	5,5	21	0,2	4	82.6412 0602
6,0	6	7	57	5,5	21	0,3	4	82.6412 0603
6,0	6	7	57	5,5	21	0,4	4	82.6412 0604
6,0	6	7	57	5,5	21	0,5	4	82.6412 0605
6,0	6	7	57	5,5	21	0,6	4	82.6412 0606
6,0	6	7	57	5,5	21	0,7	4	82.6412 0607
6,0	6	7	57	5,5	21	0,8	4	82.6412 0608
6,0	6	7	57	5,5	21	0,9	4	82.6412 0609
6,0	6	7	57	5,5	21	1,0	4	82.6412 0610
6,0	6	7	57	5,5	21	1,1	4	82.6412 0611
6,0	6	7	57	5,5	21	1,2	4	82.6412 0612
6,0	6	7	57	5,5	21	1,3	4	82.6412 0613
6,0	6	7	57	5,5	21	1,4	4	82.6412 0614
6,0	6	7	57	5,5	21	1,5	4	82.6412 0615
6,0	6	7	57	5,5	21	1,6	4	82.6412 0616
6,0	6	7	57	5,5	21	1,7	4	82.6412 0617
6,0	6	7	57	5,5	21	1,8	4	82.6412 0618
6,0	6	7	57	5,5	21	1,9	4	82.6412 0619
6,0	6	7	57	5,5	21	2,0	4	82.6412 0620
6,0	6	7	57	5,5	21	2,1	4	82.6412 0621
6,0	6	7	57	5,5	21	2,2	4	82.6412 0622
6,0	6	7	57	5,5	21	2,3	4	82.6412 0623
6,0	6	7	57	5,5	21	2,4	4	82.6412 0624
6,0	6	7	57	5,5	21	2,5	4	82.6412 0625
8,0	8	9	63	7,4	27	0,1	4	82.6412 0801
8,0	8	9	63	7,4	27	0,3	4	82.6412 0803
8,0	8	9	63	7,4	27	0,5	4	82.6412 0805
8,0	8	9	63	7,4	27	1,0	4	82.6412 0810
8,0	8	9	63	7,4	27	1,5	4	82.6412 0815
8,0	8	9	63	7,4	27	2,0	4	82.6412 0820
10,0	10	11	72	9,2	32	0,1	4	82.6412 1001
10,0	10	11	72	9,2	32	0,5	4	82.6412 1005
10,0	10	11	72	9,2	32	1,0	4	82.6412 1010
10,0	10	11	72	9,2	32	1,5	4	82.6412 1015
10,0	10	11	72	9,2	32	2,0	4	82.6412 1020
12,0	12	12	83	11,0	38	0,1	4	82.6412 1201
12,0	12	12	83	11,0	38	0,5	4	82.6412 1205
12,0	12	12	83	11,0	38	1,0	4	82.6412 1210
12,0	12	12	83	11,0	38	1,5	4	82.6412 1215
12,0	12	12	83	11,0	38	2,0	4	82.6412 1220
16,0	16	16	92	15,0	44	0,5	4	82.6412 1605
16,0	16	16	92	15,0	44	1,0	4	82.6412 1610
16,0	16	16	92	15,0	44	1,5	4	82.6412 1615
16,0	16	16	92	15,0	44	2,0	4	82.6412 1620



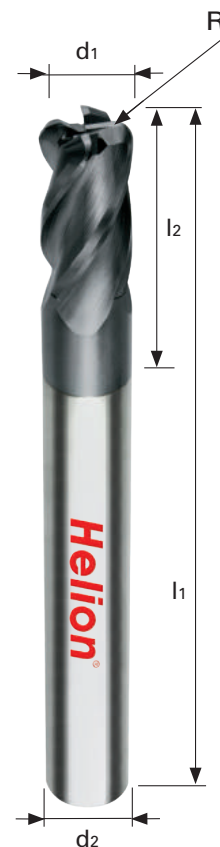


d1	d2	l2	l1	R	z	Article No.
3,0	3	6	50	0,3	4	82.6430 0303
3,0	3	6	50	0,5	4	82.6430 0305
4,0	4	8	60	0,3	4	82.6430 0403
4,0	4	8	60	0,5	4	82.6430 0405
4,0	4	8	60	1,0	4	82.6430 0410
4,0	4	8	60	1,5	4	82.6430 0415
5,0	5	10	60	0,3	4	82.6430 0503
5,0	5	10	60	0,5	4	82.6430 0505
5,0	5	10	60	1,0	4	82.6430 0510
5,0	5	10	60	1,5	4	82.6430 0515
5,0	5	10	60	2,0	4	82.6430 0520
6,0	6	12	70	0,3	4	82.6430 0603
6,0	6	12	70	0,5	4	82.6430 0605
6,0	6	12	70	1,0	4	82.6430 0610
6,0	6	12	70	1,5	4	82.6430 0615
6,0	6	12	70	2,0	4	82.6430 0620
6,0	6	12	70	2,5	4	82.6430 0625
8,0	8	16	70	0,3	4	82.6430 0803
8,0	8	16	70	0,5	4	82.6430 0805
8,0	8	16	70	1,0	4	82.6430 0810
8,0	8	16	70	1,5	4	82.6430 0815
8,0	8	16	70	2,0	4	82.6430 0820
8,0	8	16	70	2,5	4	82.6430 0825
8,0	8	16	70	3,0	4	82.6430 0830
10,0	10	20	70	0,3	4	82.6430 1003
10,0	10	20	70	0,5	4	82.6430 1005
10,0	10	20	70	1,0	4	82.6430 1010
10,0	10	20	70	1,5	4	82.6430 1015
10,0	10	20	70	2,0	4	82.6430 1020
10,0	10	20	70	2,5	4	82.6430 1025
10,0	10	20	70	3,0	4	82.6430 1030
12,0	12	24	80	0,3	4	82.6430 1203
12,0	12	24	80	0,5	4	82.6430 1205
12,0	12	24	80	1,0	4	82.6430 1210
12,0	12	24	80	1,5	4	82.6430 1215
12,0	12	24	80	2,0	4	82.6430 1220
12,0	12	24	80	2,5	4	82.6430 1225
12,0	12	24	80	3,0	4	82.6430 1230
14,0	14	28	90	0,5	4	82.6430 1405
14,0	14	28	90	1,0	4	82.6430 1410
14,0	14	28	90	1,5	4	82.6430 1415
14,0	14	28	90	2,0	4	82.6430 1420
14,0	14	28	90	2,5	4	82.6430 1425
14,0	14	28	90	3,0	4	82.6430 1430
16,0	16	32	90	1,0	4	82.6430 1610
16,0	16	32	90	2,0	4	82.6430 1620
16,0	16	32	90	3,0	4	82.6430 1630
20,0	20	40	120	1,0	4	82.6430 2010
20,0	20	40	120	2,0	4	82.6430 2020
20,0	20	40	120	3,0	4	82.6430 2030



**SOLID CARBIDE PROFILE CUTTER WITH CORNER RADIUS**
**82.6432**

d1	d2	l2	l1	R	z	Article No.
3,0	3	6	70	0,3	4	82.6432 0303
3,0	3	6	70	0,5	4	82.6432 0305
4,0	4	8	80	0,3	4	82.6432 0403
4,0	4	8	80	0,5	4	82.6432 0405
4,0	4	8	80	1,0	4	82.6432 0410
4,0	4	8	80	1,5	4	82.6432 0415
5,0	5	10	100	0,3	4	82.6432 0503
5,0	5	10	100	0,5	4	82.6432 0505
5,0	5	10	100	1,0	4	82.6432 0510
5,0	5	10	100	1,5	4	82.6432 0515
5,0	5	10	100	2,0	4	82.6432 0520
6,0	6	12	100	0,3	4	82.6432 0603
6,0	6	12	100	0,5	4	82.6432 0605
6,0	6	12	100	1,0	4	82.6432 0610
6,0	6	12	100	1,5	4	82.6432 0615
6,0	6	12	100	2,0	4	82.6432 0620
6,0	6	12	100	2,5	4	82.6432 0625
8,0	8	16	100	0,3	4	82.6432 0803
8,0	8	16	100	0,5	4	82.6432 0805
8,0	8	16	100	1,0	4	82.6432 0810
8,0	8	16	100	1,5	4	82.6432 0815
8,0	8	16	100	2,0	4	82.6432 0820
8,0	8	16	100	2,5	4	82.6432 0825
8,0	8	16	100	3,0	4	82.6432 0830
10,0	10	20	120	0,3	4	82.6432 1003
10,0	10	20	120	0,5	4	82.6432 1005
10,0	10	20	120	1,0	4	82.6432 1010
10,0	10	20	120	1,5	4	82.6432 1015
10,0	10	20	120	2,0	4	82.6432 1020
10,0	10	20	120	2,5	4	82.6432 1025
10,0	10	20	120	3,0	4	82.6432 1030
12,0	12	24	120	0,3	4	82.6432 1203
12,0	12	24	120	0,5	4	82.6432 1205
12,0	12	24	120	1,0	4	82.6432 1210
12,0	12	24	120	1,5	4	82.6432 1215
12,0	12	24	120	2,0	4	82.6432 1220
12,0	12	24	120	2,5	4	82.6432 1225
12,0	12	24	120	3,0	4	82.6432 1230
14,0	14	28	120	0,5	4	82.6432 1405
14,0	14	28	120	1,0	4	82.6432 1410
14,0	14	28	120	1,5	4	82.6432 1415
14,0	14	28	120	2,0	4	82.6432 1420
14,0	14	28	120	2,5	4	82.6432 1425
14,0	14	28	120	3,0	4	82.6432 1430
16,0	16	32	120	1,0	4	82.6432 1610
16,0	16	32	120	2,0	4	82.6432 1620
16,0	16	32	120	3,0	4	82.6432 1630
20,0	20	40	160	1,0	4	82.6432 2010
20,0	20	40	160	2,0	4	82.6432 2020
20,0	20	40	160	3,0	4	82.6432 2030

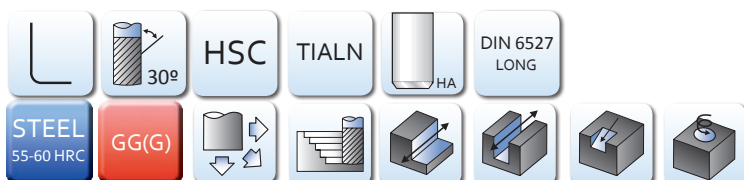


solid carbide end mills

reamers and senkers

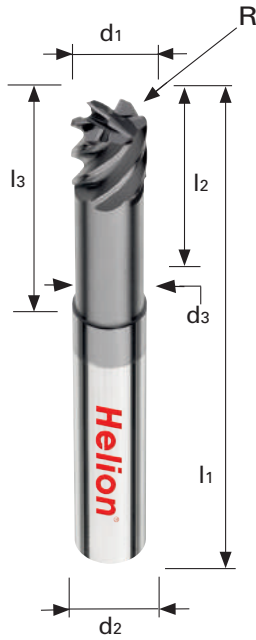
drills

threading tools

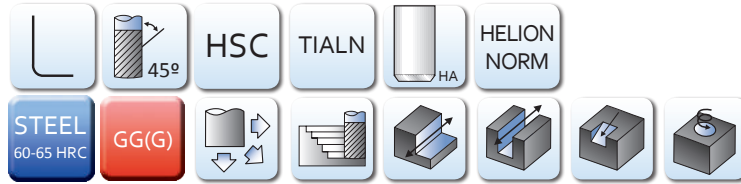


## 82.6530

### SOLID CARBIDE PROFILE CUTTER WITH CORNER RADIUS

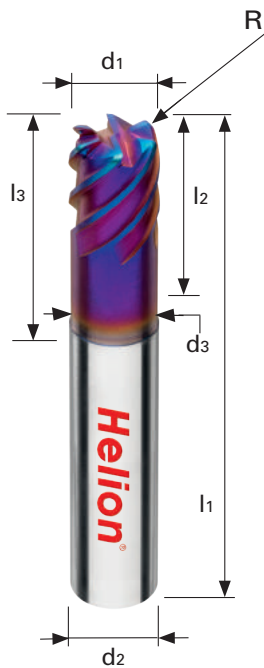


d1	d2	l2	l1	d3	l3	R	z	Article No.
3,0	6	4	50	2,7	14	0,3	4	82.6530 0303
3,0	6	4	50	2,7	14	0,5	4	82.6530 0305
4,0	6	5	54	3,7	16	0,4	4	82.6530 0400
5,0	6	6	54	4,6	18	0,5	4	82.6530 0500
6,0	6	7	65	5,5	21	0,5	6	82.6530 0605
6,0	6	7	65	5,5	21	1,0	6	82.6530 0610
8,0	8	9	70	7,4	27	0,5	6	82.6530 0805
8,0	8	9	70	7,4	27	1,0	6	82.6530 0810
10,0	10	11	80	9,2	32	0,5	6	82.6530 1005
10,0	10	11	80	9,2	32	1,0	6	82.6530 1010
10,0	10	11	80	9,2	32	1,5	6	82.6530 1015
10,0	10	11	80	9,2	32	2,0	6	82.6530 1020
12,0	12	12	93	11,0	38	0,5	6	82.6530 1205
12,0	12	12	93	11,0	38	1,0	6	82.6530 1210
12,0	12	12	93	11,0	38	1,5	6	82.6530 1215
12,0	12	12	93	11,0	38	2,0	6	82.6530 1220



## 82.2535

### SOLID CARBIDE PROFILE CUTTER WITH CORNER RADIUS

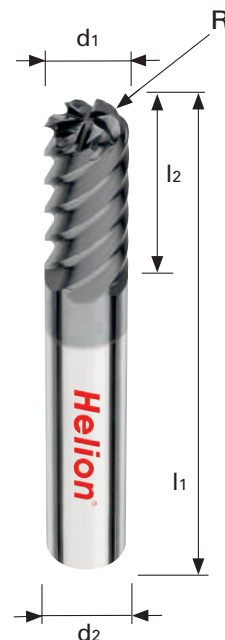
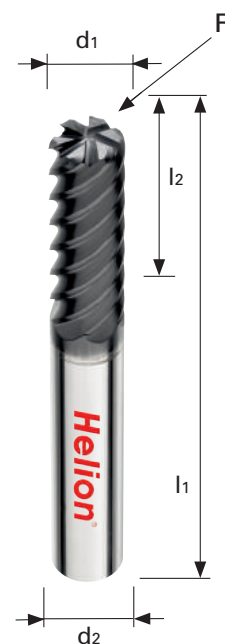


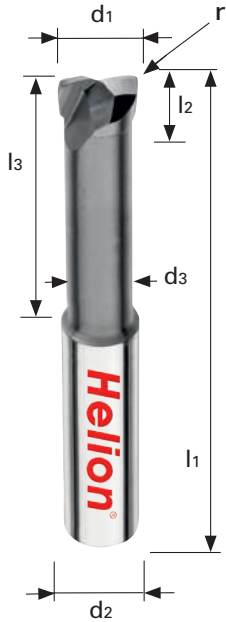
d1	d2	l2	l1	R	d3	l3	z	Article No.	PRICE €
6,0	6	6	50	0,5	5,7	14	6	82.2535 0600	28
6,0	6	13	70	0,5	-	-	6	82.2535 0601	31
6,0	6	26	70	0,5	-	-	6	82.2535 0602	37
8,0	8	8	60	0,5	7,65	24	6	82.2535 0800	39
8,0	8	19	90	0,5	-	-	6	82.2535 0801	42
8,0	8	36	90	0,5	-	-	6	82.2535 0802	48
10,0	10	10	70	1,0	9,65	30	6	82.2535 1000	53
10,0	10	22	100	0,5	-	-	6	82.2535 1001	59
10,0	10	22	100	1,0	-	-	6	82.2535 1002	59
10,0	10	46	100	1,0	-	-	6	82.2535 1003	75
12,0	12	12	75	1,0	11,6	30	6	82.2535 1200	75
12,0	12	26	110	0,5	-	-	6	82.2535 1201	80
12,0	12	26	110	1,0	-	-	6	82.2535 1202	83
12,0	12	56	110	1,0	-	-	6	82.2535 1203	109
16,0	16	32	130	1,0	-	-	6	82.2535 1600	137
16,0	16	32	130	1,5	-	-	6	82.2535 1601	149
16,0	16	66	130	1,5	-	-	6	82.2535 1602	191
20,0	20	38	140	1,0	-	-	6	82.2535 2000	218
20,0	20	38	140	1,5	-	-	6	82.2535 2001	218
20,0	20	38	140	2,0	-	-	6	82.2535 2002	218
20,0	20	76	140	2,0	-	-	6	82.2535 2003	293



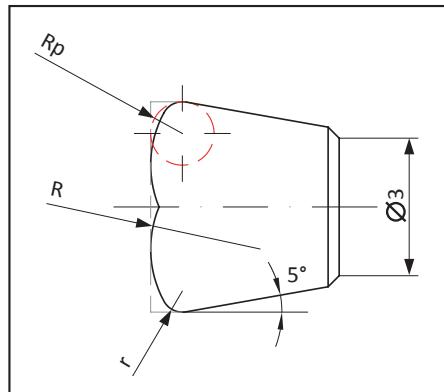
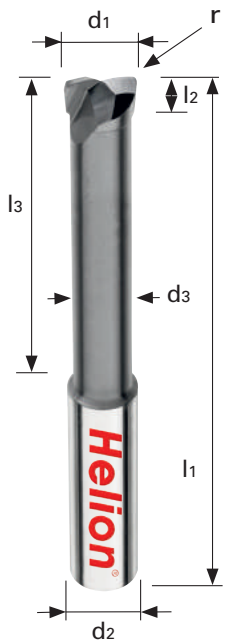
**SOLID CARBIDE CUTTER WITH CORNER RADIUS**
**82.1510**

d1	d2	l2	l1	R	z	Article No.
6,0	6	13	57	0,5	6	82.1510 0605
6,0	6	13	57	1,0	6	82.1510 0610
6,0	6	18	62	0,5	6	82.1515 0600
8,0	8	19	63	0,5	6	82.1510 0805
8,0	8	19	63	1,0	6	82.1510 0810
8,0	8	24	68	0,5	6	82.1515 0805
8,0	8	24	68	1,0	6	82.1515 0810
10,0	10	22	72	0,5	6	82.1510 1005
10,0	10	22	72	1,0	6	82.1510 1010
10,0	10	30	80	0,5	6	82.1515 1005
10,0	10	30	80	1,5	6	82.1515 1015
12,0	12	26	83	0,5	6	82.1510 1205
12,0	12	26	83	1,0	6	82.1510 1210
12,0	12	26	83	1,5	6	82.1510 1215
12,0	12	26	83	2,0	6	82.1510 1220
12,0	12	26	83	2,5	6	82.1510 1225
12,0	12	36	93	0,5	6	82.1515 1205
12,0	12	36	93	1,0	6	82.1515 1210
12,0	12	36	93	1,5	6	82.1515 1215
12,0	12	36	93	2,0	6	82.1515 1220
16,0	16	32	92	0,5	8	82.1510 1605
16,0	16	32	92	1,0	8	82.1510 1610
16,0	16	32	92	1,5	8	82.1510 1615
16,0	16	32	92	2,0	8	82.1510 1620
16,0	16	32	92	2,5	8	82.1510 1625
16,0	16	32	92	3,0	8	82.1510 1630
16,0	16	48	108	0,5	8	82.1515 1605
16,0	16	48	108	1,0	8	82.1515 1610
16,0	16	48	108	1,5	8	82.1515 1615
16,0	16	48	108	2,0	8	82.1515 1620
20,0	20	38	104	2,0	8	82.1510 2020
20,0	20	60	126	2,0	8	82.1515 2020


**82.1515**


**83.6212**
**SOLID CARBIDE PROFILE CUTTER WITH FACE RADIUS**


d1	d2	l2	l1	d3	l3	r	Rp	R	z	Article No.
4,0	6	3,7	57	3,4	20	0,33	0,40	7	2	83.6212 0400
4,0	6	3,7	80	3,4	40	0,33	0,40	7	2	83.6213 0400
5,0	6	4,0	57	4,2	20	0,35	0,50	7	2	83.6212 0500
5,0	6	4,0	80	4,2	40	0,35	0,50	7	2	83.6213 0500
6,0	6	4,0	57	5,0	25	0,42	0,55	10	2	83.6212 0600
6,0	6	4,0	80	5,0	45	0,42	0,55	10	2	83.6213 0600
8,0	8	4,0	63	6,7	25	0,52	0,80	10	2	83.6212 0800
8,0	8	4,0	90	6,7	55	0,52	0,80	10	2	83.6213 0800
10,0	10	6,0	72	8,7	35	0,64	0,90	15	2	83.6212 1000
10,0	10	6,0	100	8,7	60	0,64	0,90	15	2	83.6213 1000
12,0	12	6,0	83	10,0	40	0,75	1,10	15	2	83.6212 1200
12,0	12	6,0	110	10,0	65	0,75	1,10	15	2	83.6213 1200
16,0	16	8,0	92	13,5	45	1,06	1,45	25	2	83.6212 1600
16,0	16	8,0	130	13,5	80	1,06	1,45	25	2	83.6213 1600
20,0	20	8,3	104	17,0	55	1,25	1,65	50	2	83.6212 2000
20,0	20	8,3	150	17,0	95	1,25	1,65	50	2	83.6213 2000

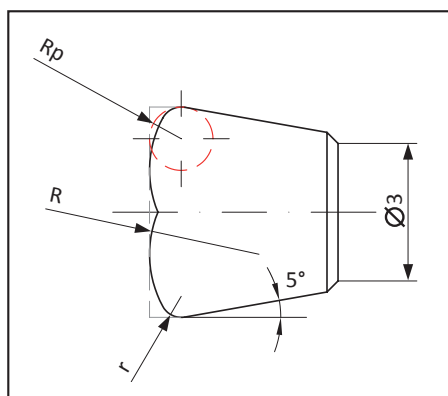
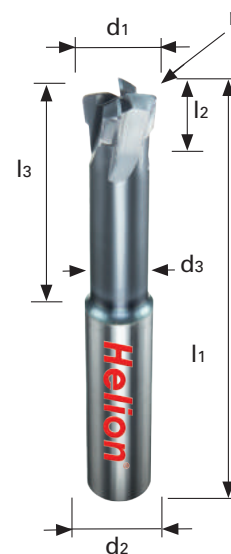
**83.6213**


Rp: Programming CNC radius

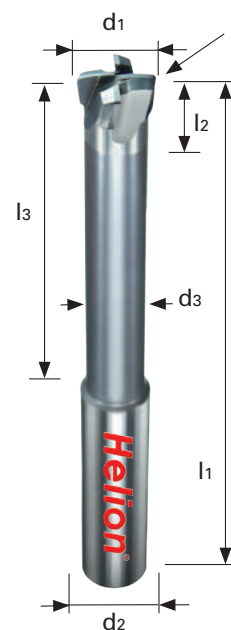


**SOLID CARBIDE PROFILE CUTTER WITH FACE RADIUS**
**83.1430**

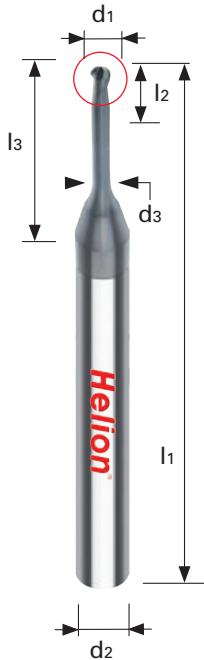
d1	d2	l2	l1	d3	l3	r	Rp	R	z	Article No.
4,0	6	3,7	57	3,4	20	0,33	0,40	7	4	83.1430 0400
4,0	6	3,7	80	3,4	40	0,33	0,40	7	4	83.1450 0400
5,0	6	4,0	57	4,2	20	0,35	0,50	7	4	83.1430 0500
5,0	6	4,0	80	4,2	40	0,35	0,50	7	4	83.1450 0500
6,0	6	4,0	57	5,0	25	0,42	0,55	10	4	83.1430 0600
6,0	6	4,0	80	5,0	45	0,42	0,55	10	4	83.1450 0600
8,0	8	4,0	63	6,7	25	0,52	0,80	10	4	83.1430 0800
8,0	8	4,0	90	6,7	55	0,52	0,80	10	4	83.1450 0800
10,0	10	6,0	72	8,7	35	0,64	0,90	15	4	83.1430 1000
10,0	10	6,0	100	8,7	60	0,64	0,90	15	4	83.1450 1000
12,0	12	6,0	83	10,0	40	0,75	1,10	15	4	83.1430 1200
12,0	12	6,0	110	10,0	65	0,75	1,10	15	4	83.1450 1200
16,0	16	8,0	92	13,5	45	1,06	1,45	25	4	83.1430 1600
16,0	16	8,0	130	13,5	80	1,06	1,45	25	4	83.1450 1600
20,0	20	8,3	104	17,0	55	1,25	1,65	50	4	83.1430 2000
20,0	20	8,3	150	17,0	95	1,25	1,65	50	4	83.1450 2000



Rp: Programming CNC radius

**83.1450**


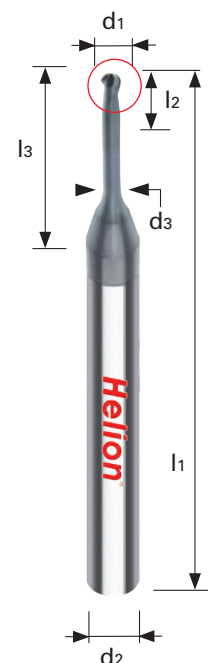




d1	d2	l2	l1	d3	l3	R	z	Article No.
0,3	6	0,25	55	0,28	1	0,15	2	82.1820 0030
0,3	6	0,25	55	0,28	2	0,15	2	82.1820 0031
0,3	6	0,25	55	0,28	3	0,15	2	82.1820 0032
0,3	6	0,25	55	0,28	5	0,15	2	82.1820 0033
0,4	6	0,30	55	0,38	2	0,20	2	82.1820 0040
0,4	6	0,30	55	0,38	4	0,20	2	82.1820 0041
0,4	6	0,30	55	0,38	6	0,20	2	82.1820 0042
0,5	6	0,40	55	0,48	2	0,25	2	82.1820 0050
0,5	6	0,40	55	0,48	4	0,25	2	82.1820 0051
0,5	6	0,40	55	0,48	6	0,25	2	82.1820 0052
0,6	6	0,50	55	0,58	2	0,30	2	82.1820 0060
0,6	6	0,50	55	0,58	4	0,30	2	82.1820 0061
0,6	6	0,50	55	0,58	6	0,30	2	82.1820 0062
0,6	6	0,50	55	0,58	8	0,30	2	82.1820 0063
0,8	6	0,60	55	0,77	4	0,40	2	82.1820 0080
0,8	6	0,60	55	0,77	6	0,40	2	82.1820 0081
0,8	6	0,60	55	0,77	8	0,40	2	82.1820 0082
0,8	6	0,60	55	0,77	10	0,40	2	82.1820 0083
1,0	6	0,80	55	0,95	4	0,50	2	82.1820 0100
1,0	6	0,80	55	0,95	6	0,50	2	82.1820 0101
1,0	6	0,80	55	0,95	8	0,50	2	82.1820 0102
1,0	6	0,80	65	0,95	10	0,50	2	82.1820 0103
1,0	6	0,80	65	0,95	12	0,50	2	82.1820 0104
1,0	6	0,80	65	0,95	15	0,50	2	82.1820 0105
1,0	6	0,80	65	0,95	20	0,50	2	82.1820 0106
1,0	6	0,80	70	0,95	25	0,50	2	82.1820 0107
1,0	6	0,80	75	0,95	30	0,50	2	82.1820 0108
1,2	6	1,00	55	1,15	5	0,60	2	82.1820 0120
1,2	6	1,00	55	1,15	6	0,60	2	82.1820 0121
1,2	6	1,00	55	1,15	8	0,60	2	82.1820 0122
1,2	6	1,00	65	1,15	10	0,60	2	82.1820 0123
1,2	6	1,00	65	1,15	12	0,60	2	82.1820 0124
1,2	6	1,00	65	1,15	15	0,60	2	82.1820 0125
1,2	6	1,00	65	1,15	20	0,60	2	82.1820 0126
1,2	6	1,00	70	1,15	25	0,60	2	82.1820 0127



d1	d2	l2	l1	d3	l3	R	z	Article No.
1,5	6	1,2	55	1,44	6	0,75	2	82.1820 0150
1,5	6	1,2	55	1,44	8	0,75	2	82.1820 0151
1,5	6	1,2	65	1,44	10	0,75	2	82.1820 0152
1,5	6	1,2	65	1,44	12	0,75	2	82.1820 0153
1,5	6	1,2	65	1,44	15	0,75	2	82.1820 0154
1,5	6	1,2	65	1,44	20	0,75	2	82.1820 0155
1,5	6	1,2	65	1,44	25	0,75	2	82.1820 0156
1,5	6	1,2	70	1,44	30	0,75	2	82.1820 0157
2,0	6	1,5	55	1,92	6	1,00	2	82.1820 0200
2,0	6	1,5	55	1,92	8	1,00	2	82.1820 0201
2,0	6	1,5	65	1,92	10	1,00	2	82.1820 0202
2,0	6	1,5	65	1,92	12	1,00	2	82.1820 0203
2,0	6	1,5	65	1,92	15	1,00	2	82.1820 0204
2,0	6	1,5	65	1,92	20	1,00	2	82.1820 0205
2,0	6	1,5	70	1,92	25	1,00	2	82.1820 0206
2,0	6	1,5	75	1,92	30	1,00	2	82.1820 0207
3,0	6	2,5	55	2,90	5	1,50	2	82.1820 0300
3,0	6	2,5	65	2,90	10	1,50	2	82.1820 0301
3,0	6	2,5	65	2,90	15	1,50	2	82.1820 0302
3,0	6	2,5	65	2,90	20	1,50	2	82.1820 0303
3,0	6	2,5	70	2,90	25	1,50	2	82.1820 0304
3,0	6	2,5	75	2,90	30	1,50	2	82.1820 0305
4,0	6	3,2	65	3,90	10	2,00	2	82.1820 0400
4,0	6	3,2	65	3,90	15	2,00	2	82.1820 0401
4,0	6	3,2	65	3,90	20	2,00	2	82.1820 0402
4,0	6	3,2	70	3,90	25	2,00	2	82.1820 0403
4,0	6	3,2	75	3,90	30	2,00	2	82.1820 0404
5,0	6	4,0	65	4,90	10	2,50	2	82.1820 0500
5,0	6	4,0	65	4,90	15	2,50	2	82.1820 0501
5,0	6	4,0	65	4,90	20	2,50	2	82.1820 0502
5,0	6	4,0	70	4,90	25	2,50	2	82.1820 0503
5,0	6	4,0	75	4,90	30	2,50	2	82.1820 0504
5,0	6	4,0	90	4,90	40	2,50	2	82.1820 0505
6,0	6	5,0	65	5,90	10	3,00	2	82.1820 0600



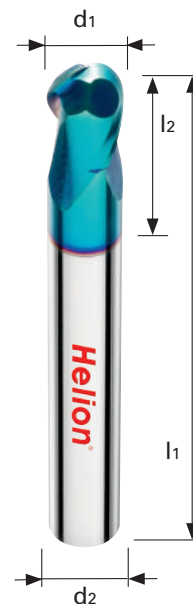


d1	d2	l2	l1	z	Article No.
0,5	3	1,5	38	2	82.2920 0050
0,6	3	1,5	38	2	82.2920 0060
0,7	3	2,0	38	2	82.2920 0070
0,8	3	2,0	38	2	82.2920 0080
0,9	3	2,5	38	2	82.2920 0090
1,0	3	2,0	50	2	82.2920 0100
1,0	6	2,0	54	2	82.2920 0101
1,1	3	3,0	50	2	82.2920 0110
1,2	3	3,0	50	2	82.2920 0120
1,4	3	3,0	50	2	82.2920 0140
1,5	3	3,0	50	2	82.2920 0150
1,5	6	3,0	54	2	82.2920 0151
1,6	3	4,0	50	2	82.2920 0160
1,8	3	4,0	50	2	82.2920 0180
2,0	3	4,0	50	2	82.2920 0200
2,0	6	4,0	54	2	82.2920 0201
2,5	3	5,0	50	2	82.2920 0250
2,5	6	5,0	54	2	82.2920 0251
3,0	3	5,0	50	2	82.2920 0300
3,0	6	5,0	54	2	82.2920 0301
4,0	4	8,0	54	2	82.2920 0400
4,0	6	8,0	54	2	82.2920 0401
5,0	5	9,0	54	2	82.2920 0500
5,0	6	9,0	54	2	82.2920 0501
6,0	6	10,0	54	2	82.2920 0600
8,0	8	12,0	58	2	82.2920 0800
10,0	10	14,0	66	2	82.2920 1000
12,0	12	16,0	73	2	82.2920 1200
14,0	14	18,0	75	2	82.2920 1400
16,0	16	22,0	82	2	82.2920 1600
20,0	20	26,0	92	2	82.2920 2000

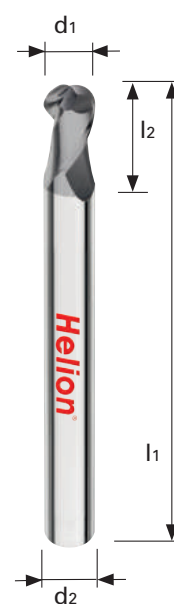


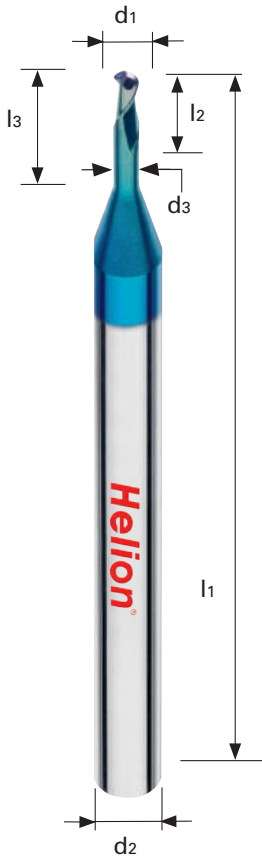
**SOLID CARBIDE BALL-NOSED CUTTER**
**82.2225**

d1	d2	l2	l1	z	Article No.
2,5	6	5	80	2	82.2225 0250
3,0	3	5	75	2	82.2225 0300
3,0	6	5	80	2	82.2225 0301
4,0	4	8	75	2	82.2225 0400
4,0	6	8	80	2	82.2225 0401
5,0	5	9	75	2	82.2225 0500
5,0	6	9	80	2	82.2225 0501
6,0	6	10	100	2	82.2225 0600
8,0	8	12	100	2	82.2225 0800
10,0	10	14	100	2	82.2225 1000
12,0	12	16	100	2	82.2225 1200
14,0	14	18	100	2	82.2225 1400
16,0	16	22	150	2	82.2225 1600
20,0	20	26	150	2	82.2225 2000


**SOLID CARBIDE BALL-NOSED CUTTER FLUTES**
**82.6225**

d1	d2	l2	l1	z	Article No.
1,0	3	1,5	50	2	82.6225 0100
1,5	3	2,5	50	2	82.6225 0150
2,0	3	3,0	50	2	82.6225 0200
2,5	3	4,0	50	2	82.6225 0250
3,0	3	6,0	75	2	82.6225 0300
4,0	4	8,0	75	2	82.6225 0400
5,0	5	10,0	75	2	82.6225 0500
6,0	6	12,0	100	2	82.6225 0600
8,0	8	14,0	100	2	82.6225 0800
10,0	10	18,0	100	2	82.6225 1000
12,0	12	22,0	150	2	82.6225 1200
14,0	14	26,0	150	2	82.6225 1400
16,0	16	30,0	150	2	82.6225 1600
18,0	18	34,0	150	2	82.6225 1800
20,0	20	38,0	150	2	82.6225 2000



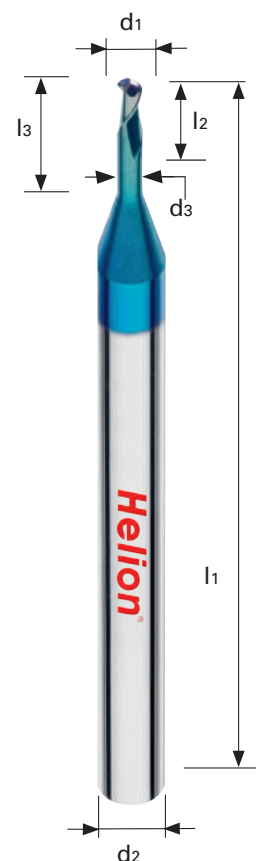


d1	d2	l2	l1	l3	d3	R	z	Article No.
0,3	6	0,25	55	1	0,28	0,15	2	82.2825 0030
0,3	6	0,25	55	2	0,28	0,15	2	82.2825 0031
0,3	6	0,25	55	3	0,28	0,15	2	82.2825 0032
0,3	6	0,25	55	5	0,28	0,15	2	82.2825 0033
0,4	6	0,30	55	2	0,38	0,20	2	82.2825 0040
0,4	6	0,30	55	4	0,38	0,20	2	82.2825 0041
0,4	6	0,30	55	6	0,38	0,20	2	82.2825 0042
0,5	6	0,40	55	2	0,48	0,25	2	82.2825 0050
0,5	6	0,40	55	4	0,48	0,25	2	82.2825 0051
0,5	6	0,40	55	6	0,48	0,25	2	82.2825 0052
0,6	6	0,50	55	2	0,58	0,30	2	82.2825 0060
0,6	6	0,50	55	4	0,58	0,30	2	82.2825 0061
0,6	6	0,50	55	6	0,58	0,30	2	82.2825 0062
0,6	6	0,50	55	8	0,58	0,30	2	82.2825 0063
0,8	6	0,60	55	4	0,77	0,40	2	82.2825 0080
0,8	6	0,60	55	6	0,77	0,40	2	82.2825 0081
0,8	6	0,60	55	8	0,77	0,40	2	82.2825 0082
0,8	6	0,60	55	10	0,77	0,40	2	82.2825 0083
1,0	6	0,80	55	4	0,95	0,50	2	82.2825 0100
1,0	6	0,80	55	6	0,95	0,50	2	82.2825 0101
1,0	6	0,80	55	8	0,95	0,50	2	82.2825 0102
1,0	6	0,80	65	10	0,95	0,50	2	82.2825 0103
1,0	6	0,80	65	12	0,95	0,50	2	82.2825 0104
1,0	6	0,80	65	15	0,95	0,50	2	82.2825 0105
1,0	6	0,80	65	20	0,95	0,50	2	82.2825 0106
1,0	6	0,80	70	25	0,95	0,50	2	82.2825 0107
1,0	6	0,80	75	30	0,95	0,50	2	82.2825 0108
1,2	6	1,00	55	5	1,15	0,60	2	82.2825 0120
1,2	6	1,00	55	6	1,15	0,60	2	82.2825 0121
1,2	6	1,00	55	8	1,15	0,60	2	82.2825 0122
1,2	6	1,00	65	10	1,15	0,60	2	82.2825 0123
1,2	6	1,00	65	12	1,15	0,60	2	82.2825 0124
1,2	6	1,00	65	15	1,15	0,60	2	82.2825 0125
1,2	6	1,00	65	20	1,15	0,60	2	82.2825 0126
1,2	6	1,00	70	25	1,15	0,60	2	82.2825 0127

Shank design, tolerance h5,  
rotation accuracy 0,005 mm,  
polished design



d1	d2	l2	l1	l3	d3	R	z	Article No.
1,5	6	1,2	55	6	1,44	0,75	2	82.2825 0150
1,5	6	1,2	55	8	1,44	0,75	2	82.2825 0151
1,5	6	1,2	65	10	1,44	0,75	2	82.2825 0152
1,5	6	1,2	65	12	1,44	0,75	2	82.2825 0153
1,5	6	1,2	65	15	1,44	0,75	2	82.2825 0154
1,5	6	1,2	65	20	1,44	0,75	2	82.2825 0155
1,5	6	1,2	65	25	1,44	0,75	2	82.2825 0156
1,5	6	1,2	70	30	1,44	0,75	2	82.2825 0157
2,0	6	1,5	55	6	1,92	1,00	2	82.2825 0200
2,0	6	1,5	55	8	1,92	1,00	2	82.2825 0201
2,0	6	1,5	65	10	1,92	1,00	2	82.2825 0202
2,0	6	1,5	65	12	1,92	1,00	2	82.2825 0203
2,0	6	1,5	65	15	1,92	1,00	2	82.2825 0204
2,0	6	1,5	65	20	1,92	1,00	2	82.2825 0205
2,0	6	1,5	70	25	1,92	1,00	2	82.2825 0206
2,0	6	1,5	75	30	1,92	1,00	2	82.2825 0207
3,0	6	2,5	55	5	2,90	1,50	2	82.2825 0300
3,0	6	2,5	65	10	2,90	1,50	2	82.2825 0301
3,0	6	2,5	65	15	2,90	1,50	2	82.2825 0302
3,0	6	2,5	65	20	2,90	1,50	2	82.2825 0303
3,0	6	2,5	70	25	2,90	1,50	2	82.2825 0304
3,0	6	2,5	75	30	2,90	1,50	2	82.2825 0305
4,0	6	3,2	65	10	3,9	2,0	2	82.2825 0400
4,0	6	3,2	65	15	3,9	2,0	2	82.2825 0401
4,0	6	3,2	65	20	3,9	2,0	2	82.2825 0402
4,0	6	3,2	70	25	3,9	2,0	2	82.2825 0403
4,0	6	3,2	75	30	3,9	2,0	2	82.2825 0404
5,0	6	4,0	65	10	4,9	2,5	2	82.2825 0500
5,0	6	4,0	65	15	4,9	2,5	2	82.2825 0501
5,0	6	4,0	65	20	4,9	2,5	2	82.2825 0502
5,0	6	4,0	70	25	4,9	2,5	2	82.2825 0503
5,0	6	4,0	75	30	4,9	2,5	2	82.2825 0504
5,0	6	4,0	90	40	4,9	2,5	2	82.2825 0505
6,0	6	5,0	65	10	5,9	3,0	2	82.2825 0600
6,0	6	5,0	65	15	5,9	3,0	2	82.2825 0601
6,0	6	5,0	65	20	5,9	3,0	2	82.2825 0602
6,0	6	5,0	70	25	5,9	3,0	2	82.2825 0603
6,0	6	5,0	75	30	5,9	3,0	2	82.2825 0604
6,0	6	5,0	90	40	5,9	3,0	2	82.2825 0605
6,0	6	5,0	90	50	5,9	3,0	2	82.2825 0606

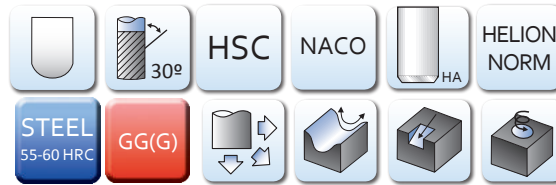
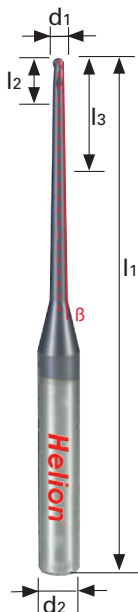


Shank design, tolerance h5,  
rotation accuracy 0,005 mm,  
polished design

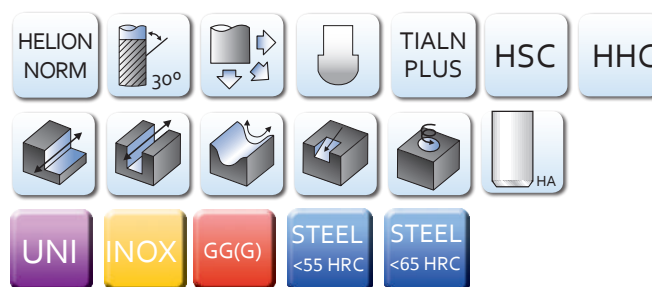


**82.2922**
**SOLID CARBIDE BALL-NOSED CUTTER**


d1	d2	l2	l1	R	z	Article No.
0,4	6	0,4	50	0,20	2	82.2922 0040
0,5	6	0,5	50	0,25	2	82.2922 0050
0,6	6	0,6	50	0,30	2	82.2922 0060
0,8	6	0,8	50	0,40	2	82.2922 0080
1,0	6	1,0	50	0,50	2	82.2922 0100
1,2	6	1,2	50	0,60	2	82.2922 0120
1,5	6	1,5	50	0,75	2	82.2922 0150
2,0	6	2,0	50	1,00	2	82.2922 0200
3,0	6	3,0	50	1,50	2	82.2922 0300
4,0	6	4,0	50	2,00	2	82.2922 0400
6,0	6	6,0	50	3,00	2	82.2922 0600

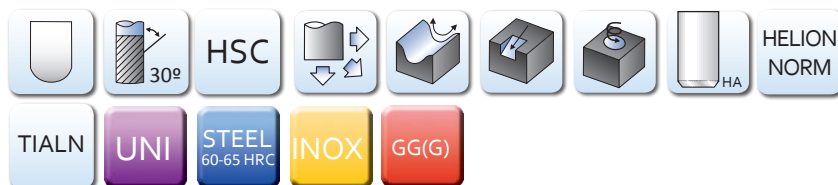

**82.6227**
**HIGH PERFORMANCE SOLID CARBIDE BALL NOSE END MILL CONICAL HSC / HHC < 65HRC**


d1	l2	l1	d2	l3	$\beta$	Article No.
1	2	75	6	20	1,5°	82.6227 0100
1,5	3	75	6	20	1,5°	82.6227 0150
2	4	75	6	25	1°	82.6227 0200
2,5	5	75	6	25	1°	82.6227 0250
3	6	75	6	30	1°	82.6227 0300
4	7	75	6	35	1°	82.6227 0400



**SOLID CARBIDE BALL-NOSED CUTTER FLUTES**
**82.6220**

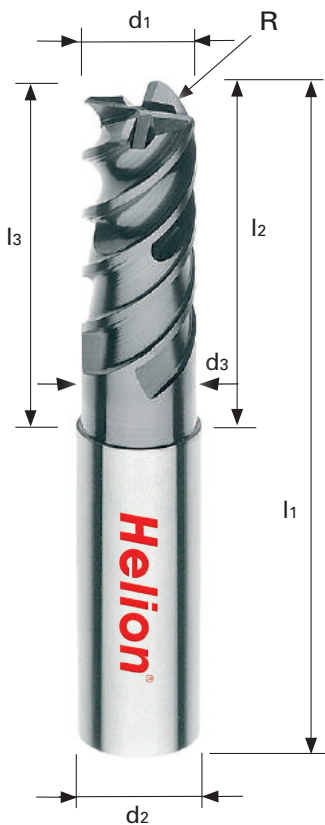
d1	d2	l2	l1	z	Article No.
3,0	3	6	50	2	82.6220 0300
4,0	4	8	54	2	82.6220 0400
5,0	5	10	54	2	82.6220 0500
6,0	6	12	54	2	82.6220 0600
8,0	8	14	58	2	82.6220 0800
10,0	10	18	66	2	82.6220 1000
12,0	12	22	73	2	82.6220 1200
14,0	14	26	75	2	82.6220 1400
16,0	16	30	82	2	82.6220 1600
18,0	18	34	84	2	82.6220 1800
20,0	20	38	92	2	82.6220 2000


**SOLID CARBIDE BALL NOSE END MILL  
2 FLUTES LONG HSC/HHC < 65HRC**
**82.6224**

d1	d2	l1	l2	z	Article No.
1	6	75	2	2	82.6224 0100
2	6	100	4	2	82.6224 0200
3	6	100	6	2	82.6224 0300
4	6	100	8	2	82.6224 0400
5	6	100	10	2	82.6224 0500
6	6	100	12	2	82.6224 0600
8	8	100	14	2	82.6224 0800
10	10	100	18	2	82.6224 1000
12	12	100	22	2	82.6224 1200



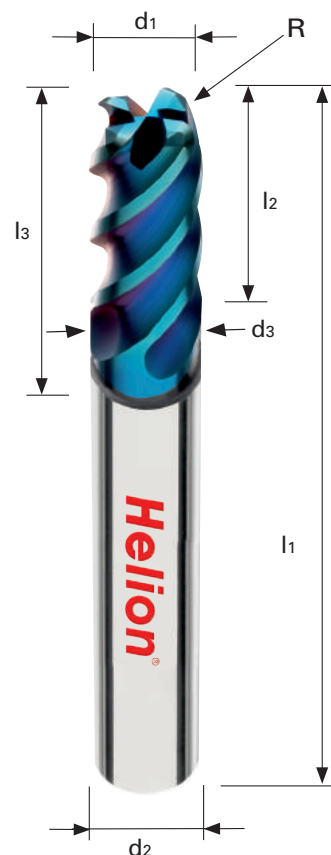




d1	d2	l2	l1	d3	l3	R	z	Article No.
3,0	6	8	57	2,9	18	0,2	3	82.1422 0302
3,0	6	8	57	2,9	18	0,5	3	82.1422 0305
4,0	6	11	57	3,8	21	0,3	4	82.1422 0403
4,0	6	11	57	3,8	21	0,5	4	82.1422 0405
4,0	6	11	57	3,8	21	1,0	4	82.1422 0410
5,0	6	13	57	4,8	21	0,3	4	82.1422 0503
5,0	6	13	57	4,8	21	0,5	4	82.1422 0505
5,0	6	13	57	4,8	21	1,0	4	82.1422 0510
6,0	6	13	57	5,8	21	0,3	4	82.1422 0603
6,0	6	13	57	5,8	21	0,5	4	82.1422 0605
6,0	6	13	57	5,8	21	1,0	4	82.1422 0610
6,0	6	13	57	5,8	21	1,5	4	82.1422 0615
6,0	6	13	57	5,8	21	2,0	4	82.1422 0620
8,0	8	19	63	7,8	27	0,5	4	82.1422 0805
8,0	8	19	63	7,8	27	1,0	4	82.1422 0810
8,0	8	19	63	7,8	27	1,5	4	82.1422 0815
8,0	8	19	63	7,8	27	2,0	4	82.1422 0820
10,0	10	22	72	9,8	32	0,5	4	82.1422 1005
10,0	10	22	72	9,8	32	1,0	4	82.1422 1010
10,0	10	22	72	9,8	32	1,5	4	82.1422 1015
10,0	10	22	72	9,8	32	2,0	4	82.1422 1020
12,0	12	26	83	11,8	38	0,5	4	82.1422 1205
12,0	12	26	83	11,8	38	1,0	4	82.1422 1210
12,0	12	26	83	11,8	38	1,5	4	82.1422 1215
12,0	12	26	83	11,8	38	2,0	4	82.1422 1220
16,0	16	32	92	15,8	44	0,5	4	82.1422 1605
16,0	16	32	92	15,8	44	1,0	4	82.1422 1610
16,0	16	32	92	15,8	44	1,5	4	82.1422 1615
16,0	16	32	92	15,8	44	2,0	4	82.1422 1620
16,0	16	32	150	15,8	44	1,0	4	82.1422 1611
20,0	20	38	92	19,8	54	0,5	4	82.1422 2005
20,0	20	38	92	19,8	54	1,0	4	82.1422 2010
20,0	20	38	92	19,8	54	1,5	4	82.1422 2015
20,0	20	38	92	19,8	54	2,0	4	82.1422 2020
20,0	20	38	150	19,8	54	1,0	4	82.1422 2011
25,0	25	38	160	24,8	54	2,0	4	82.1422 2500



d1	d2	l2	l1	l3	R	z	Article No.
2,0	6	6	57	12	0,2	1,9	4 82.2430 0202
2,0	6	6	57	12	0,3	1,9	4 82.2430 0203
3,0	6	8	57	15	0,3	2,8	4 82.2430 0303
3,0	6	8	57	15	0,5	2,8	4 82.2430 0305
4,0	6	11	57	21	0,2	3,6	4 82.2430 0402
4,0	6	11	57	21	0,3	3,6	4 82.2430 0403
4,0	6	11	57	21	0,5	3,6	4 82.2430 0405
4,0	6	11	57	21	1,0	3,6	4 82.2430 0410
5,0	6	12	57	21	0,2	4,6	4 82.2430 0502
5,0	6	12	57	21	0,5	4,6	4 82.2430 0505
5,0	6	12	57	21	1,0	4,6	4 82.2430 0510
6,0	6	12	57	21	0,1	5,5	4 82.2430 0601
6,0	6	12	57	21	0,2	5,5	4 82.2430 0602
6,0	6	12	57	21	0,3	5,5	4 82.2430 0603
6,0	6	12	57	21	0,5	5,5	4 82.2430 0605
6,0	6	12	57	21	1,0	5,5	4 82.2430 0610
6,0	6	12	57	21	2,0	5,5	4 82.2430 0620
8,0	8	15	75	27	0,3	7,5	4 82.2430 0803
8,0	8	15	75	27	0,5	7,5	4 82.2430 0805
8,0	8	15	75	27	1,0	7,5	4 82.2430 0810
8,0	8	15	75	27	1,5	7,5	4 82.2430 0815
8,0	8	15	75	27	2,0	7,5	4 82.2430 0820
10,0	10	17	80	32	0,5	9,5	4 82.2430 1005
10,0	10	17	80	32	1,0	9,5	4 82.2430 1010
10,0	10	17	80	32	1,5	9,5	4 82.2430 1015
10,0	10	17	80	32	2,0	9,5	4 82.2430 1020
12,0	12	20	100	38	0,5	11,5	4 82.2430 1205
12,0	12	20	100	38	1,0	11,5	4 82.2430 1210
12,0	12	20	100	38	1,5	11,5	4 82.2430 1215
12,0	12	20	100	38	2,0	11,5	4 82.2430 1220
16,0	16	25	110	42	1,0	15,5	4 82.2430 1610
16,0	16	25	110	42	1,5	15,5	4 82.2430 1615
16,0	16	25	110	42	2,0	15,5	4 82.2430 1620
16,0	16	25	110	42	3,0	15,5	4 82.2430 1630
20,0	20	32	125	51	1,0	19,5	4 82.2430 2010

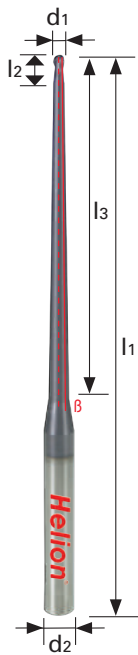


Shank design, tolerance h5,  
rotation accuracy 0,005 mm,  
polished design



**83.6225**
**SOLID CARBIDE BALL NOSE END MILL 2 FLUTES LONG HSC/HHC < 65HRC**


d1	d2	l1	l2	z	Article No.
1	6	75	3	2	83.6225 0100
2	6	75	4	2	83.6225 0200
3	6	75	5	2	83.6225 0300
4	6	75	6	2	83.6225 0400
6	6	100	9	2	83.6225 0600
8	8	100	16	2	83.6225 0800
10	10	100	20	2	83.6225 1000
12	12	100	24	2	83.6225 1200

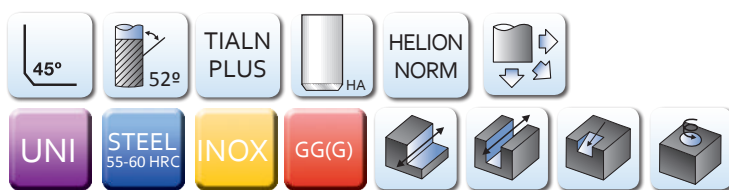
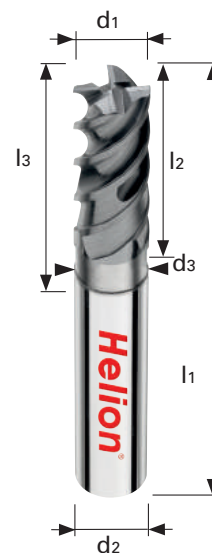

**82.6229**
**HIGH PERFORMANCE SOLID CARBIDE BALL NOSE END MILL CONICAL HSC / HHC < 65HRC**


d1	d2	l1	l2	l3	$\beta$	Article No.
2	6	100	3	60	0,5°	82.6229 0200
2	6	100	3	60	1°	82.6229 0201
2	6	100	3	60	1,5°	82.6229 0202
2	6	100	3	57	2°	82.6229 0203
3	6	100	4	60	0,5°	82.6229 0300
3	6	100	4	60	1°	82.6229 0301
3	6	100	4	57	1,5°	82.6229 0302
3	6	100	4	43	2°	82.6229 0303
4	6	100	5	60	0,5°	82.6229 0400
4	6	100	5	57	1°	82.6229 0401
4	6	100	5	38	1,5°	82.6229 0402
4	6	100	5	29	2°	82.6229 0403



**SOLID CARBIDE CUTTER**
**82.1462**

d1	d2	l2	l1	d3	l3	Chamfer	z	Article No.
2,5	6	4	57	2,3	7	0,10	3	82.1462 0250
3,0	6	5	57	2,8	7	0,10	4	82.1462 0300
4,0	6	11	57	3,8	21	0,10	4	82.1462 0400
5,0	6	13	57	4,8	21	0,10	4	82.1462 0500
6,0	6	13	57	5,8	21	0,10	4	82.1462 0600
8,0	8	19	63	7,8	27	0,15	4	82.1462 0800
10,0	10	22	72	9,8	32	0,15	4	82.1462 1000
12,0	12	26	83	11,8	38	0,20	4	82.1462 1200
14,0	14	26	83	13,8	42	0,20	4	82.1462 1400
16,0	16	32	92	15,8	44	0,20	4	82.1462 1600.
18,0	18	32	92	17,8	44	0,30	4	82.1462 1800
20,0	20	38	104	19,8	54	0,30	4	82.1462 2000



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$$n = \frac{V_c \times 1000}{\pi \times \varnothing}$$

$$V_f = f_z \times z \times n$$

$$Q = \frac{a_p \times a_e \times V_f}{1000}$$

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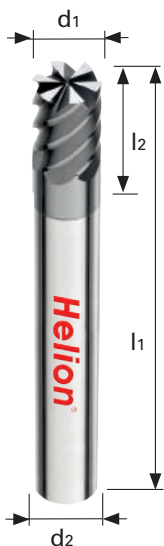
cutting data calculation

## 82.1501

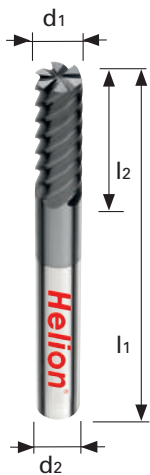
### SOLID CARBIDE FINISHING CUTTER



## 82.1503



## 82.1505

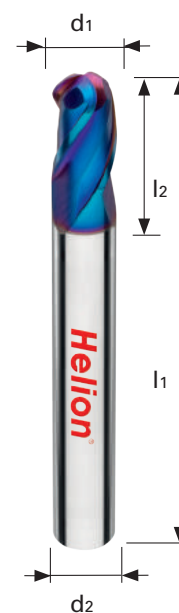


d1	d2	l2	l1	z	Article No.
3,0	6	8	57	6	82.1503 0300
4,0	6	10	54	6	82.1501 0400
4,0	6	11	57	6	82.1503 0400
5,0	6	10	54	6	82.1501 0500
5,0	6	13	57	6	82.1503 0500
6,0	6	10	54	6	82.1501 0600
6,0	6	13	57	6	82.1503 0600
6,0	6	18	57	6	82.1505 0600
7,0	8	12	58	6	82.1501 0700
8,0	8	12	58	6	82.1501 0800
8,0	8	19	63	6	82.1503 0800
8,0	8	24	63	6	82.1505 0800
9,0	10	14	66	6	82.1501 0900
10,0	10	14	66	6	82.1501 1000
10,0	10	22	72	6	82.1503 1000
10,0	10	30	75	6	82.1505 1000
12,0	12	16	73	6	82.1501 1200
12,0	12	26	83	6	82.1503 1200
12,0	12	36	83	6	82.1505 1200
12,0	12	36	150	6	82.1505 1201
14,0	14	20	82	8	82.1501 1400
14,0	14	26	83	8	82.1503 1400
16,0	16	20	82	8	82.1501 1600
16,0	16	32	92	8	82.1503 1600
16,0	16	48	104	8	82.1505 1600
16,0	16	65	150	8	82.1505 1601
18,0	18	25	92	8	82.1501 1800
18,0	18	32	92	8	82.1503 1800
20,0	20	25	92	8	82.1501 2000
20,0	20	38	104	8	82.1503 2000
20,0	20	55	110	8	82.1505 2000
20,0	20	65	150	8	82.1505 2001



**SOLID CARBIDE BALL-NOSED CUTTER**
**82.2320**

d1	d2	l2	l1	z	Article No.	
3,0	6	8,0	60	1,5	3	82.2320 0300
4,0	6	8,0	70	2,0	3	82.2320 0400
5,0	6	10,0	80	2,5	3	82.2320 0500
6,0	6	12,0	90	3,0	3	82.2320 0600
8,0	8	14,0	100	4,0	3	82.2320 0800
10,0	10	18,0	100	5,0	3	82.2320 1000
12,0	12	22,0	110	6,0	3	82.2320 1200
16,0	16	30,0	140	8,0	3	82.2320 1600
20,0	20	38,0	160	10,0	3	82.2320 2000

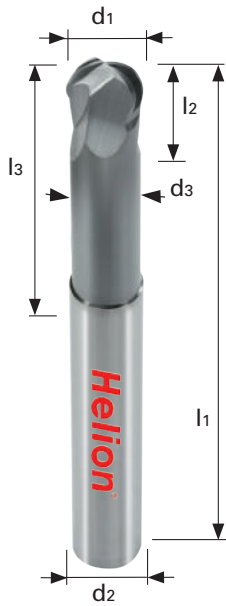


solid carbide end mills

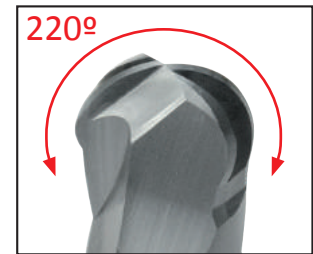
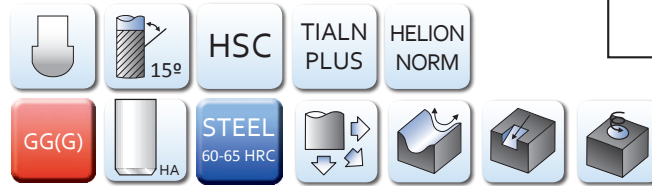
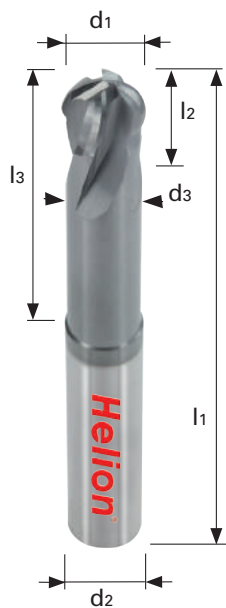
reamers and senkers

drills

threading tools

**82.1292**
**SOLID CARBIDE LOLLY CUTTER FLUTES**


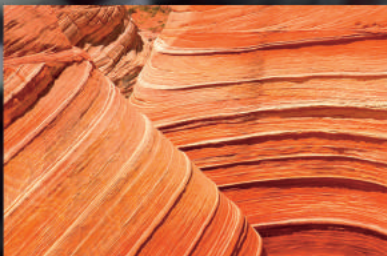
d1	d2	l1	d3	l3	z	Article No.
1,0	6	80	0,9	5	2	82.1292 0100
2,0	6	80	1,8	10	2	82.1292 0200
3,0	6	80	2,8	15	2	82.1292 0300
4,0	6	80	3,8	20	2	82.1292 0400
5,0	6	90	4,7	25	2	82.1292 0500
6,0	6	100	5,7	30	2	82.1292 0600
8,0	8	100	7,5	40	2	82.1292 0800
10,0	10	120	9,4	50	2	82.1292 1000
12,0	12	120	11,2	50	2	82.1292 1200
16,0	16	150	15,0	60	2	82.1292 1600


**82.1494**
**SOLID CARBIDE LOLLY CUTTER FLUTES**


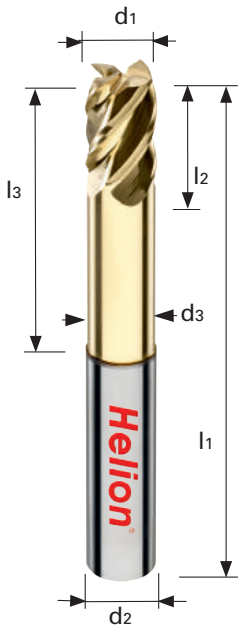
d1	d2	l1	d3	l3	z	Article No.
5,0	6	80	4,7	25	4	82.1494 0500
6,0	6	100	5,7	30	4	82.1494 0600
8,0	8	100	7,5	40	4	82.1494 0800
10,0	10	100	9,4	50	4	82.1494 1000
12,0	12	100	11,2	50	4	82.1494 1200
16,0	16	150	15,0	60	4	82.1494 1600



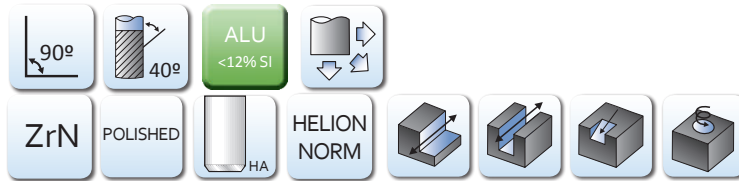
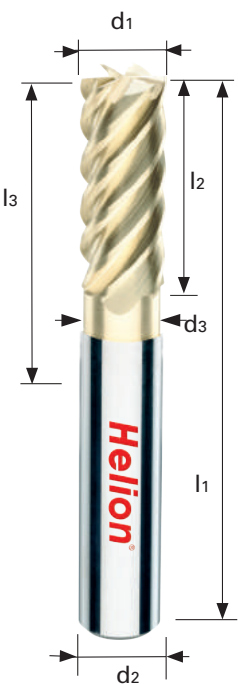
TAKE OFF WITH US...



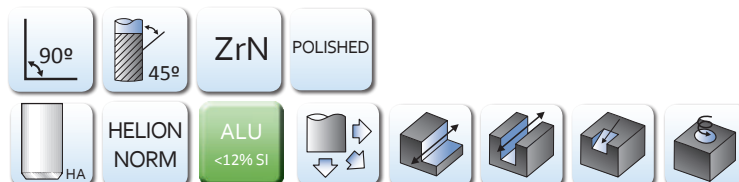


**84.3303**
**SOLID CARBIDE FINISHING CUTTER**


d1	d2	l2	l1	d3	l3	z	Article No.
3,0	6	8	70	5,7	20	3	84.3303 0300
4,0	6	11	70	5,7	25	3	84.3303 0400
5,0	6	13	70	5,7	30	3	84.3303 0500
6,0	6	13	70	5,7	30	3	84.3303 0600
8,0	8	20	80	7,4	35	3	84.3303 0800
10,0	10	22	90	9,2	45	3	84.3303 1000
12,0	12	26	100	11,0	55	4	84.3303 1200
16,0	16	36	115	15,0	65	4	84.3303 1600
20,0	20	41	125	19,0	75	4	84.3303 2000
25,0	25	52	150	24,0	95	4	84.3303 2500

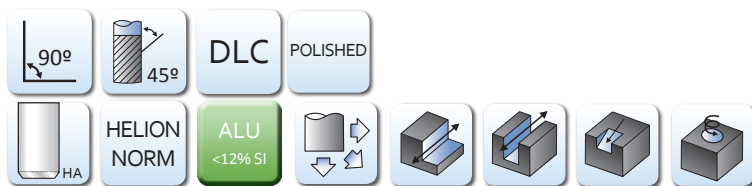

**84.3535**
**SOLID CARBIDE FINISHING CUTTER**


d1	d2	l2	l1	l3	d3	z	Article No.
6,0	6	15	57	20	5,7	6	84.3535 0600
6,0	6	15	80	43	5,7	6	84.3535 0601
8,0	8	20	63	26	7,4	6	84.3535 0800
8,0	8	20	100	62	7,4	6	84.3535 0801
10,0	10	25	73	32	9,2	6	84.3535 1000
10,0	10	25	100	58	9,2	6	84.3535 1001
12,0	12	30	83	37	11,0	6	84.3535 1200
12,0	12	30	120	73	11,0	6	84.3535 1201
16,0	16	40	93	45	15,0	6	84.3535 1600
16,0	16	40	150	100	15,0	6	84.3535 1601
20,0	20	50	104	53	19,0	6	84.3535 2000
20,0	20	50	150	100	19,0	6	84.3535 2001
25,0	25	56	150	92	24,0	6	84.3535 2500

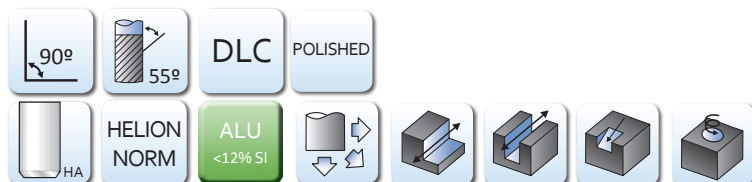
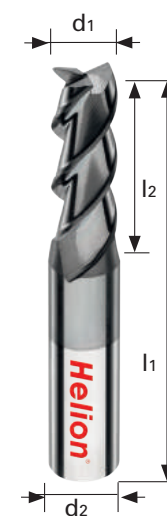


**SOLID CARBIDE FINISHING CUTTER**
**84.9200**

d1	d2	l2	l1	z	Article No.
0,5	4	1,5	50	2	84.9200 0050
0,6	4	1,5	50	2	84.9200 0060
0,8	4	2,0	50	2	84.9200 0080
1,0	6	3,0	50	2	84.9200 0100
1,2	6	4,0	50	2	84.9200 0120
1,5	6	4,0	50	2	84.9200 0150
1,8	6	5,0	50	2	84.9200 0180
2,0	6	6,0	50	2	84.9200 0200
3,0	6	8,0	50	2	84.9200 0300
4,0	6	10,0	50	2	84.9200 0400
5,0	6	13,0	50	2	84.9200 0500
6,0	6	15,0	50	2	84.9200 0600
8,0	8	20,0	60	2	84.9200 0800
10,0	10	25,0	75	2	84.9200 1000
12,0	12	30,0	75	2	84.9200 1200
16,0	16	42,0	104	2	84.9200 1600
20,0	20	52,0	104	2	84.9200 2000


**SOLID CARBIDE FINISHING CUTTER**
**84.9301**

d1	d2	l2	l1	z	Article No.
1,0	4	3	50	3	84.9301 0100
1,2	4	4	50	3	84.9301 0120
1,5	4	4	50	3	84.9301 0150
1,8	4	5	50	3	84.9301 0180
2,0	4	6	50	3	84.9301 0200
3,0	6	8	50	3	84.9301 0300
4,0	6	10	50	3	84.9301 0400
5,0	6	13	50	3	84.9301 0500
6,0	6	15	50	3	84.9301 0600
8,0	8	20	60	3	84.9301 0800
10,0	10	25	75	3	84.9301 1000
12,0	12	30	75	3	84.9301 1200
16,0	16	42	104	3	84.9301 1600
20,0	20	52	104	3	84.9301 2000
25,0	25	62	125	3	84.9301 2500



# 84.0202

## SOLID CARBIDE FINISHING CUTTER



d1	d2	l1	l2	z	Article No.
3	6	57	8	2	84.0202 0300
4	6	57	11	2	84.0202 0400
5	6	57	13	2	84.0202 0500
6	6	57	13	2	84.0202 0600
8	8	63	19	2	84.0202 0800
10	10	72	22	2	84.0202 1000
12	12	83	26	2	84.0202 1200
14	14	83	26	2	84.0202 1400
16	16	92	32	2	84.0202 1600
18	18	92	32	2	84.0202 1800
20	20	104	38	2	84.0202 2000



# 84.0301

## SOLID CARBIDE END MILL ALU-LINE FOR HIGH SPEED CUTTING



d1	d2	l2	l1	z	Article No.
6,0	6	16	60	3	84.0301 0600
8,0	8	25	78	3	84.0301 0800
10,0	10	28	78	3	84.0301 1000
12,0	12	32	89	3	84.0301 1200
14,0	14	32	89	3	84.0301 1400
16,0	16	36	96	3	84.0301 1600
20,0	20	45	110	3	84.0301 2000
25,0	25	50	120	3	84.0301 2500



solid carbide end mills

reamers and senkers

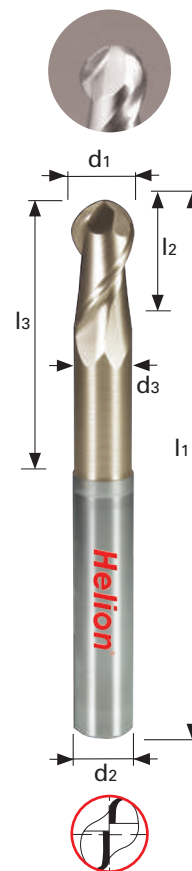
drills

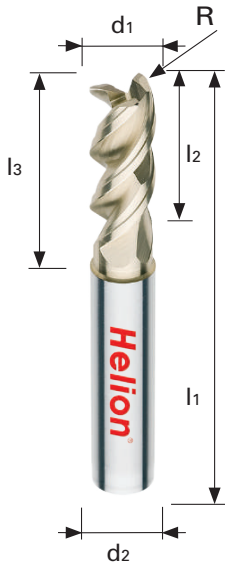
threading tools

SOLID CARBIDE BALL NOSE 3D END MILL ALU-LINE FOR HSC

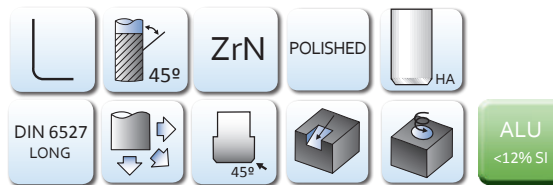
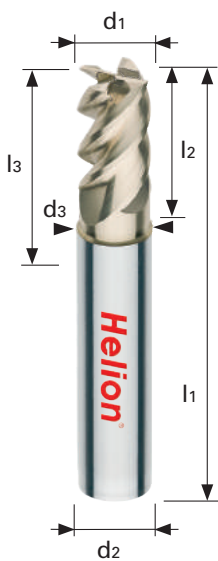
84.3223

d1	d2	d3	l1	l2	l3	z	Article No.
1	6	0,9	60	2	15	2	84.3223 0100
2	6	1,8	60	4	20	2	84.3223 0200
3	6	2,8	70	6	25	2	84.3223 0300
4	6	3,7	70	8	25	2	84.3223 0400
5	6	4,6	70	10	25	2	84.3223 0500
6	6	5,5	80	12	35	2	84.3223 0600
8	8	7,4	80	16	35	2	84.3223 0800
10	10	9,2	90	20	45	2	84.3223 1000
12	12	11	100	24	50	2	84.3223 1200
14	14	13,2	100	26	60	2	84.3223 1400
16	16	15	150	30	92	2	84.3223 1600
20	20	19	150	40	92	2	84.3223 2000

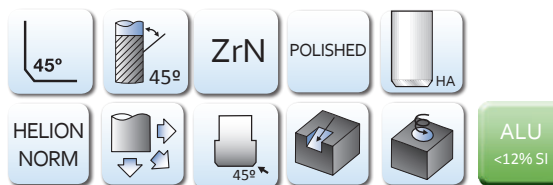


**84.3319**
**SOLID CARBIDE CUTTER WITH CORNER RADIUS**


d1	d2	l2	l1	l3	R	z	Article No.
5,0	6	13	57	18	0,5	3	84.3319 0505
5,0	6	13	57	18	1,0	3	84.3319 0510
6,0	6	13	57	18	0,5	3	84.3319 0605
6,0	6	13	57	18	1,0	3	84.3319 0610
8,0	8	21	63	25	0,5	3	84.3319 0805
8,0	8	21	63	25	1,0	3	84.3319 0810
10,0	10	22	72	30	0,5	3	84.3319 1005
10,0	10	22	72	30	1,0	3	84.3319 1010
12,0	12	26	83	36	0,5	3	84.3319 1205
12,0	12	26	83	36	1,0	3	84.3319 1210
16,0	16	36	92	42	2,0	3	84.3319 1602
16,0	16	36	92	42	4,0	3	84.3319 1604
20,0	20	41	104	52	4,0	3	84.3319 2004
25,0	25	50	121	65	5,0	3	84.3319 2505

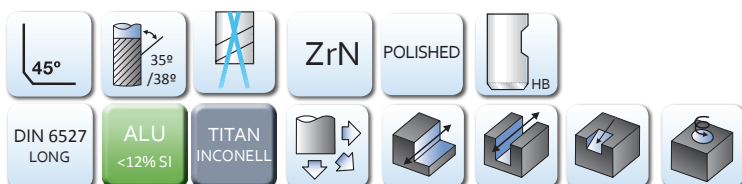
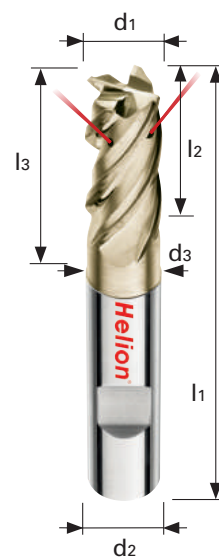

**84.3409**
**SOLID CARBIDE CUTTER**


d1	d2	l2	l1	d3	l3	Chamfer	z	Article No.
3,0	6	8	57	2,8	12	0,1	4	84.3409 0300
4,0	6	11	57	3,8	18	0,1	4	84.3409 0400
5,0	6	13	57	4,8	18	0,1	4	84.3409 0500
6,0	6	13	57	5,8	18	0,2	4	84.3409 0600
6,0	6	13	80	5,8	42	0,2	4	84.3409 0601
8,0	8	21	63	7,8	25	0,2	4	84.3409 0800
8,0	8	21	100	7,8	62	0,2	4	84.3409 0801
10,0	10	22	72	9,7	30	0,2	4	84.3409 1000
10,0	10	22	100	9,7	58	0,2	4	84.3409 1001
12,0	12	26	83	11,7	36	0,2	4	84.3409 1200
12,0	12	26	120	11,7	73	0,2	4	84.3409 1201
16,0	16	36	92	15,7	42	0,2	4	84.3409 1600
16,0	16	36	150	15,7	100	0,2	4	84.3409 1601
18,0	18	36	92	17,6	42	0,2	4	84.3409 1800
18,0	18	36	150	17,6	100	0,2	4	84.3409 1801
20,0	20	41	104	19,5	52	0,2	4	84.3409 2000
20,0	20	41	150	19,5	98	0,2	4	84.3409 2001
25,0	25	50	121	24,5	65	0,3	4	84.3409 2500

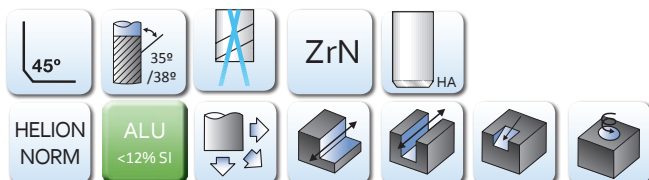
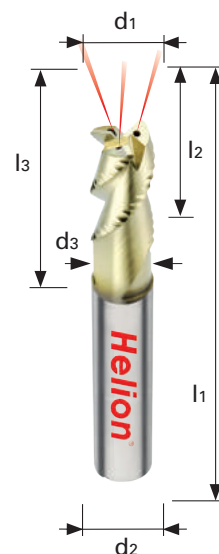


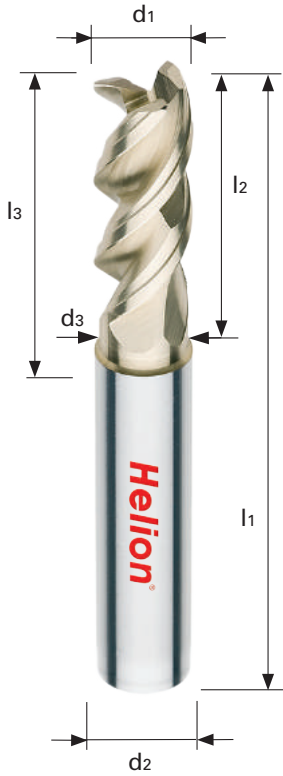
**SOLID CARBIDE CUTTER**
**84.3489**

d1	d2	l2	l1	d3	l3	Chamfer	Z	Article No.
3,0	6	11	57	2,8	18	0,10	4	84.3489 0300
4,0	6	12	57	3,6	21	0,15	4	84.3489 0400
5,0	6	15	57	4,5	21	0,18	4	84.3489 0500
6,0	6	15	57	5,5	21	0,20	4	84.3489 0600
8,0	8	21	63	7,5	28	0,20	4	84.3489 0800
10,0	10	22	72	9,5	32	0,20	4	84.3489 1000
12,0	12	28	83	11,5	38	0,20	4	84.3489 1200
14,0	14	30	83	13,5	42	0,20	4	84.3489 1400
16,0	16	35	92	15,5	45	0,20	4	84.3489 1600
20,0	20	41	104	19,5	55	0,20	4	84.3489 2000

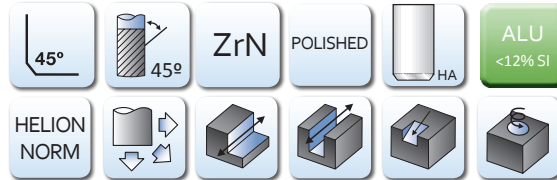

**SOLID CARBIDE CUTTER**
**84.3689**

d1	d2	l2	l1	d3	l3	Chamfer	Z	Article No.
6,0	6	13	70	5,7	18	0,4	3	84.3689 0600
8,0	8	21	80	7,4	25	0,4	3	84.3689 0800
10,0	10	22	80	9,2	30	0,4	3	84.3689 1000
12,0	12	26	90	11,0	36	0,4	3	84.3689 1200
16,0	16	36	100	15,0	42	0,4	3	84.3689 1600
20,0	20	41	120	19,0	52	0,4	3	84.3689 2000
25,0	25	50	150	24,0	75	0,5	3	84.3689 2500



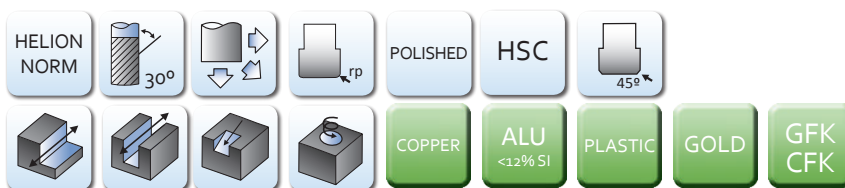
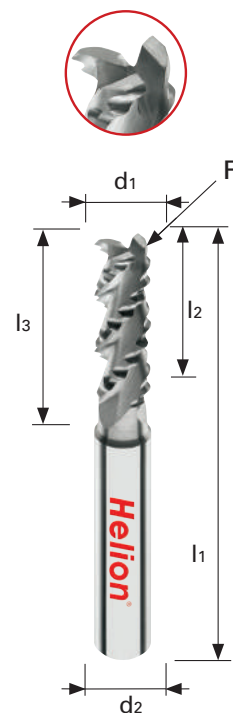


d1	d2	l2	l1	d3	l3	Chamfer	z	Article No.
3,0	6	8	57	2,8	12	0,1	3	84.3302 0300
4,0	6	11	57	3,8	18	0,1	3	84.3302 0400
5,0	6	13	57	4,8	18	0,1	3	84.3302 0500
6,0	6	13	57	5,8	18	0,2	3	84.3302 0600
6,0	6	13	80	5,8	42	0,2	3	84.3302 0601
8,0	8	21	63	7,8	25	0,2	3	84.3302 0800
8,0	8	21	100	7,8	62	0,2	3	84.3302 0801
10,0	10	22	72	9,7	30	0,2	3	84.3302 1000
10,0	10	22	100	9,7	58	0,2	3	84.3302 1001
12,0	12	26	83	11,7	36	0,2	3	84.3302 1200
12,0	12	26	120	11,7	73	0,2	3	84.3302 1201
16,0	16	36	92	15,7	42	0,2	3	84.3302 1600
16,0	16	36	150	15,7	100	0,2	3	84.3302 1601
18,0	18	36	92	17,6	42	0,2	3	84.3302 1800
18,0	18	36	150	17,6	100	0,2	3	84.3302 1801
20,0	20	41	104	19,5	52	0,2	3	84.3302 2000
20,0	20	41	150	19,5	98	0,2	3	84.3302 2001
25,0	25	50	121	24,5	65	0,3	3	84.3302 2500

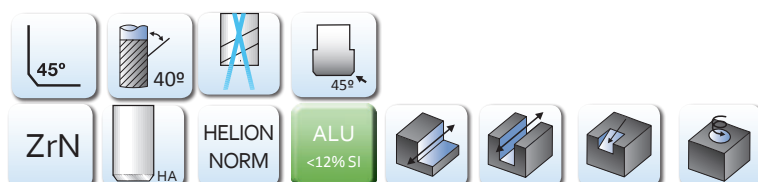
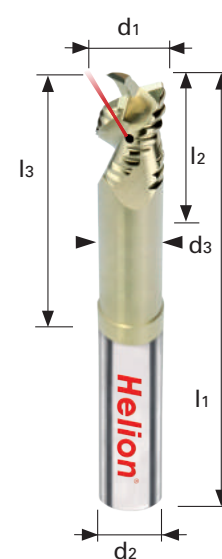


**SOLID CARBIDE CUTTER TYP WR**
**84.0604**

d1	d2	l2	l1	l3	R	Z	Article No.
6,0	6	16	60	25	0,4	3	84.0604 0600
8,0	8	25	78	33	0,5	3	84.0604 0800
10,0	10	28	78	35	0,6	3	84.0604 1000
12,0	12	32	89	40	0,8	3	84.0604 1200
14,0	14	32	89	40	1,0	3	84.0604 1400
16,0	16	36	96	45	1,0	3	84.0604 1600
20,0	20	45	110	60	1,2	3	84.0604 2000
25,0	25	50	120	65	1,5	3	84.0604 2500


**SOLID CARBIDE CUTTER TYP WR**
**84.3680**

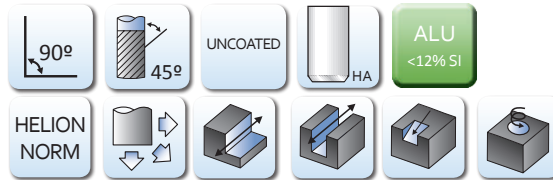
d1	d2	l2	l1	d3	l3	Chamfer	Z	Article No.
6,0	6	10	63	5,50	24	0,30	3	84.3680 0600
8,0	8	12	72	7,50	29	0,40	3	84.3680 0800
10,0	10	14	83	9,50	35	0,50	3	84.3680 1000
12,0	12	16	100	11,40	50	0,60	3	84.3680 1200
16,0	16	20	115	15,20	63	0,80	3	84.3680 1600
20,0	20	20	125	19,00	70	1,00	3	84.3680 2000
25,0	25	25	135	23,75	75	1,25	3	84.3680 2500



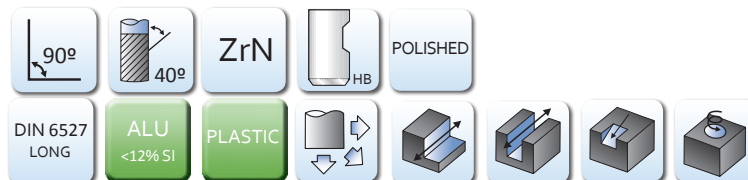


**84.0201**
**SOLID CARBIDE FINISHING CUTTER**


d1	d2	l2	l1	z	Article No.
1,5	6	3	57	2	84.0201 0150
2,0	6	6	57	2	84.0201 0200
2,5	6	7	57	2	84.0201 0250
3,0	6	7	57	2	84.0201 0300
4,0	6	8	57	2	84.0201 0400
5,0	6	10	57	2	84.0201 0500
6,0	6	10	57	2	84.0201 0600
8,0	8	16	63	2	84.0201 0800
10,0	10	19	72	2	84.0201 1000
12,0	12	22	83	2	84.0201 1200
16,0	16	26	92	2	84.0201 1600
20,0	20	32	104	2	84.0201 2000

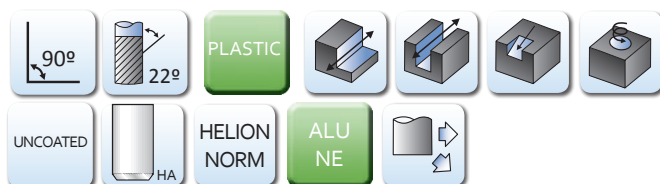

**84.3207**
**SOLID CARBIDE FINISHING CUTTER**


d1	d2	l2	l1	z	Article No.
6,0	6	13	57	2	84.3207 0600
8,0	8	19	63	2	84.3207 0800
10,0	10	22	72	2	84.3207 1000
12,0	12	26	83	2	84.3207 1200
16,0	16	32	92	2	84.3207 1600
20,0	20	42	104	2	84.3207 2000
25,0	25	42	110	2	84.3207 2500

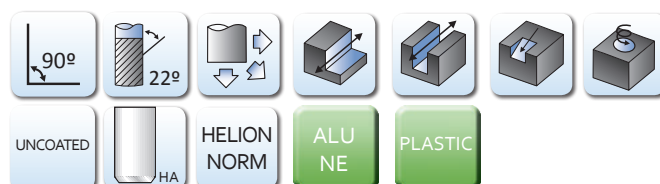
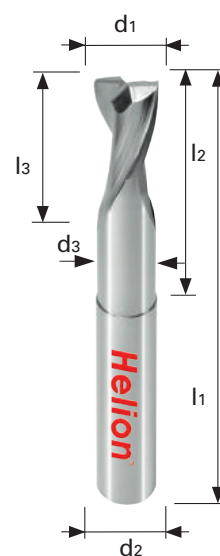


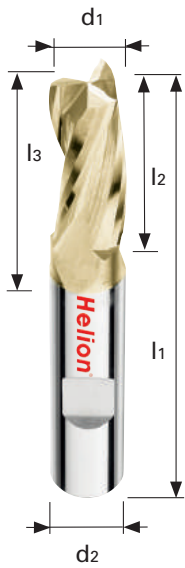
**SOLID CARBIDE FINISHING CUTTER**
**84.0200**

d1	d2	l2	l1	z	Article No.
1,5	6	3	57	2	84.0200 0150
2,0	6	6	57	2	84.0200 0200
2,5	6	7	57	2	84.0200 0250
3,0	6	7	57	2	84.0200 0300
4,0	6	8	57	2	84.0200 0400
5,0	6	10	57	2	84.0200 0500
6,0	6	10	57	2	84.0200 0600
8,0	8	16	63	2	84.0200 0800
10,0	10	19	72	2	84.0200 1000
12,0	12	22	83	2	84.0200 1200
16,0	16	26	92	2	84.0200 1600
20,0	20	32	104	2	84.0200 2000


**SOLID CARBIDE FINISHING CUTTER**
**84.0230**

d1	d2	l2	l1	l3	d3	z	Article No.
2,0	3	3	38	9	1,92	2	84.0230 0200
3,0	3	4	38	12	2,90	2	84.0230 0300
4,0	4	6	50	14	3,80	2	84.0230 0400
5,0	6	8	57	16	4,75	2	84.0230 0500
6,0	6	10	65	28	5,70	2	84.0230 0600
8,0	8	12	80	35	7,60	2	84.0230 0800
10,0	10	14	90	45	9,50	2	84.0230 1000
12,0	12	16	100	55	11,40	2	84.0230 1200
16,0	16	20	115	63	15,20	2	84.0230 1600
20,0	20	20	125	70	19,00	2	84.0230 2000





d1	d2	l2	l1	l3	z	Article No.
4,0	4	13	54	16	2	84.3307 0400
5,0	5	15	54	18	2	84.3307 0500
6,0	6	16	64	21	2	84.3307 0600
8,0	8	22	70	27	2	84.3307 0800
10,0	10	25	72	32	2	84.3307 1000
12,0	12	28	83	38	3	84.3307 2000
14,0	14	30	83	42	3	84.3307 4000
16,0	16	36	92	44	3	84.3307 6000
18,0	18	36	92	50	3	84.3307 1800
20,0	20	41	104	54	4	84.3307 2000
25,0	25	43	110	63	4	84.3307 2500



90°

20°

GFK  
CFK

ALU  
NE

ZrN

POLISHED

DIN 6527  
LONG

HB





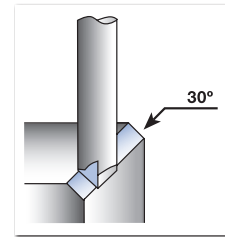
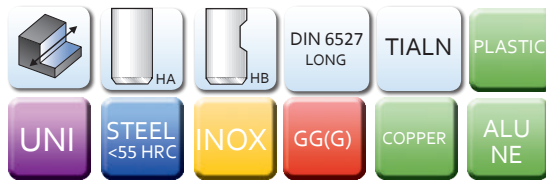
taking care of our tools...

WORKING FOR YOUR SUCCESS

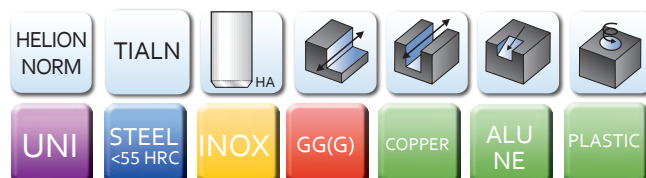


**70.6460**
**SOLID CARBIDE DEBURRING TOOL 60°**


d1	d2	l1	z	Article No.
4,0	4	54	4	70.6460 0400
6,0	6	57	4	70.6460 0600
8,0	8	63	5	70.6460 0800
10,0	10	72	6	70.6460 1000
12,0	12	83	6	70.6460 1200
16,0	16	92	6	70.6460 1600
20,0	20	104	6	70.6460 2000

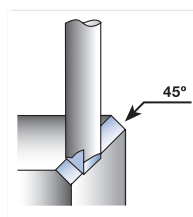
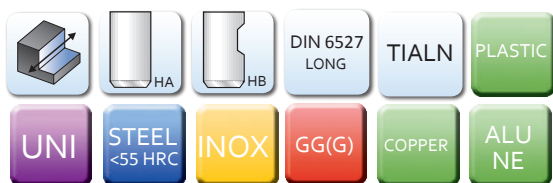

**70.6160**
**SOLID CARBIDE GRAVER 60°**


d1	d2	l2	l1	Article No.
3,0	3,0	10	40	70.6160 0300
4,0	4,0	10	40	70.6160 0400
6,0	6,0	10	50	70.6160 0600



**SOLID CARBIDE DEBURRING TOOL 90°**
**70.6490**

d1	d2	l1	z	Article No.
1,0	3	38	3	70.6490 0100
2,0	3	38	3	70.6490 0200
3,0	3	38	4	70.6490 0300
4,0	4	54	4	70.6490 0400
6,0	6	57	4	70.6490 0600
8,0	8	63	5	70.6490 0800
10,0	10	72	6	70.6490 1000
12,0	12	83	6	70.6490 1200
16,0	16	92	6	70.6490 1600
20,0	20	104	6	70.6490 2000

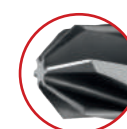


solid carbide end mills

reamers and senkers

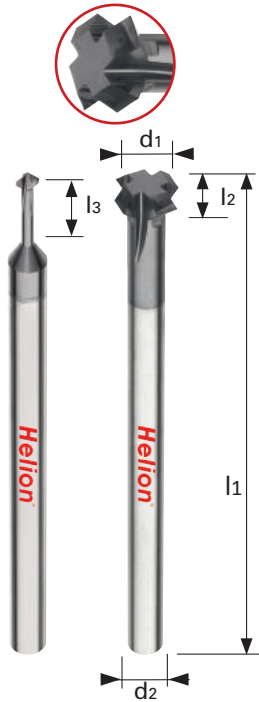
**SOLID CARBIDE CHAMFER CUTTER 90°**
**70.6890**

d1	d2	d3	l1	z	Article No.
1,0	3	0,3	40	4	70.6890 0100
2,0	3	0,6	40	4	70.6890 0200
3,0	3	1,0	50	5	70.6890 0300
4,0	4	1,5	50	6	70.6890 0400
6,0	6	2,0	50	6	70.6890 0600

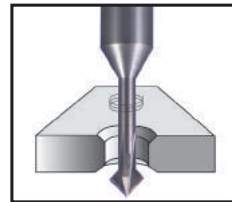


drills

threading tools

**70.6045**
**SOLID CARBIDE FORWARD AND BACKWARD DEBURRING TOOL**


d1	d2	l2	l1	l3	z	Article No.
2,0	6	1,5	100	8	4	70.6045 0200
3,0	6	1,8	100	8	4	70.6045 0300
4,0	6	3,0	100	10	4	70.6045 0400
6,0	6	4,0	100	15	4	70.6045 0600
8,0	6	3,2	100	-	4	70.6045 0800
10,0	6	4,3	100	-	4	70.6045 1000
12,0	6	5,0	100	-	4	70.6045 1200
16,0	10	8,0	100	-	4	70.6045 1600

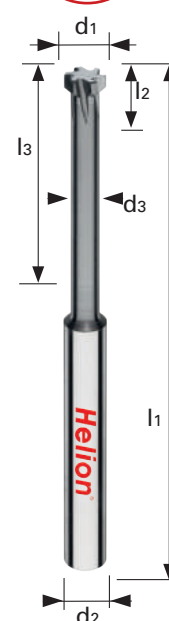
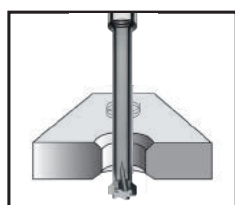

**70.6480**
**SOLID CARBIDE QUADRANT CUTTER**


R	d1	d2	l1	z	Article No.
0,2	5,6	6	58	4	70.6480 0020
0,3	5,4	6	58	4	70.6480 0030
0,4	5,2	6	58	4	70.6480 0040
0,5	7,0	8	70	4	70.6480 0050
1,0	6,0	8	70	4	70.6480 0100
1,5	7,0	10	75	4	70.6480 0150
2,0	6,0	10	75	4	70.6480 0200
2,5	7,0	12	75	4	70.6480 0250
3,0	6,0	12	75	4	70.6480 0300
3,5	9,0	16	80	4	70.6480 0350
4,0	8,0	16	80	4	70.6480 0400
4,5	7,0	16	80	4	70.6480 0450
5,0	10,0	20	80	4	70.6480 0500
6,0	8,0	20	80	4	70.6480 0600
8,0	9,0	25	100	4	70.6480 0800
10,0	5,0	25	100	4	70.6480 1000

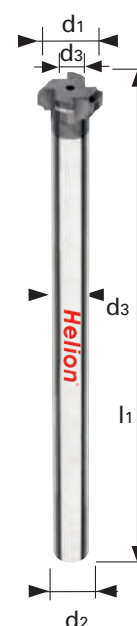
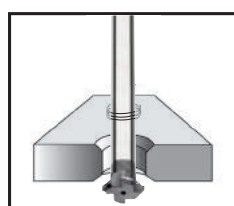


**SOLID CARBIDE BACKWARD DEBURRING TOOL**
**70.6030**

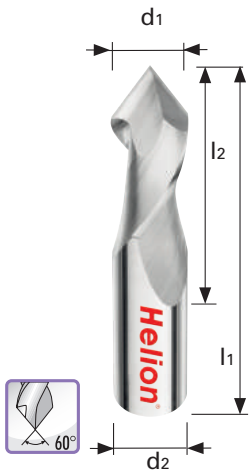
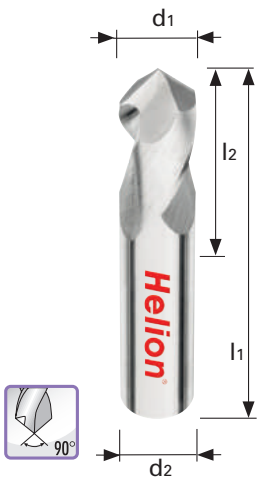
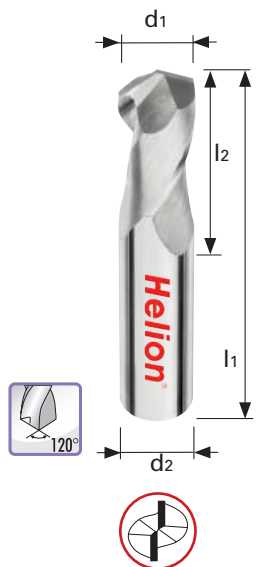
d1	d2	l2	l1	l3	d3	z	Article No.
0,36	3	0,20	50	2,44	0,22	3	70.6030 0036
0,46	3	0,25	50	3,00	0,30	3	70.6030 0046
0,65	3	0,35	50	4,20	0,40	3	70.6030 0065
0,90	4	0,50	60	6,00	0,60	4	70.6030 0090
1,40	4	0,90	60	9,00	0,95	4	70.6030 0140
1,90	4	1,00	60	12,00	1,40	5	70.6030 0190
2,90	4	1,50	70	18,00	2,10	5	70.6030 0290
3,70	4	2,00	70	24,00	2,70	5	70.6030 0370
4,70	6	2,00	80	30,00	3,30	6	70.6030 0470
5,70	6	2,00	80	36,00	4,00	6	70.6030 0570


**SOLID CARBIDE FORWARD AND BACKWARD QUADRANT CUTTER**
**70.6010**

d1	d2	l1	d3	R	z	Article No.
8,0	6	100	7,6	0,2	4	70.6010 0820
8,0	6	100	7,4	0,3	4	70.6010 0830
8,0	6	100	7,2	0,4	4	70.6010 0840
8,0	6	100	7,0	0,5	4	70.6010 0850
10,0	6	100	8,4	0,8	4	70.6010 1080
10,0	6	100	8,0	1,0	4	70.6010 1010
10,0	6	100	7,6	1,2	4	70.6010 1012
10,0	6	100	7,0	1,5	4	70.6010 1015





**77.0260**
**MULTI MILL V**

**77.0290**

**77.0212**


d1	d2	l1	l2	z	Article No.
3,0	4	6	50	2	77.0260 0300
3,0	4	6	50	2	77.0290 0300
3,0	4	6	50	2	77.0212 0300
4,0	5	8	50	2	77.0260 0400
4,0	5	8	50	2	77.0290 0400
4,0	5	8	50	2	77.0212 0400
5,0	6	10	50	2	77.0260 0500
5,0	6	10	50	2	77.0290 0500
5,0	6	10	50	2	77.0212 0500
6,0	8	12	60	2	77.0260 0600
6,0	8	12	60	2	77.0290 0600
6,0	8	12	60	2	77.0212 0600
8,0	10	16	70	2	77.0260 0800
8,0	10	16	70	2	77.0290 0800
8,0	10	16	70	2	77.0212 0800
10,0	12	18	73	2	77.0260 1000
10,0	12	18	73	2	77.0290 1000
10,0	12	18	73	2	77.0212 1000
12,0	12	20	73	2	77.0260 1200
12,0	12	20	73	2	77.0290 1200
12,0	12	20	73	2	77.0212 1200
16,0	16	26	82	2	77.0260 1600
16,0	16	26	82	2	77.0290 1600
16,0	16	26	82	2	77.0212 1600
20,0	20	32	100	2	77.0260 2000
20,0	20	32	100	2	77.0290 2000
20,0	20	32	100	2	77.0212 2000

30°

UNCOATED

HA

HELION NORM

UNI

STEEL <55 HRC

INOX

GG(G)

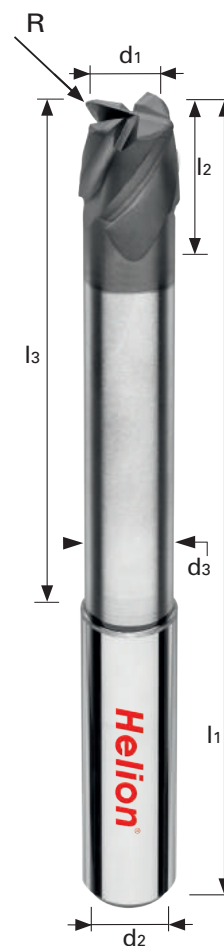
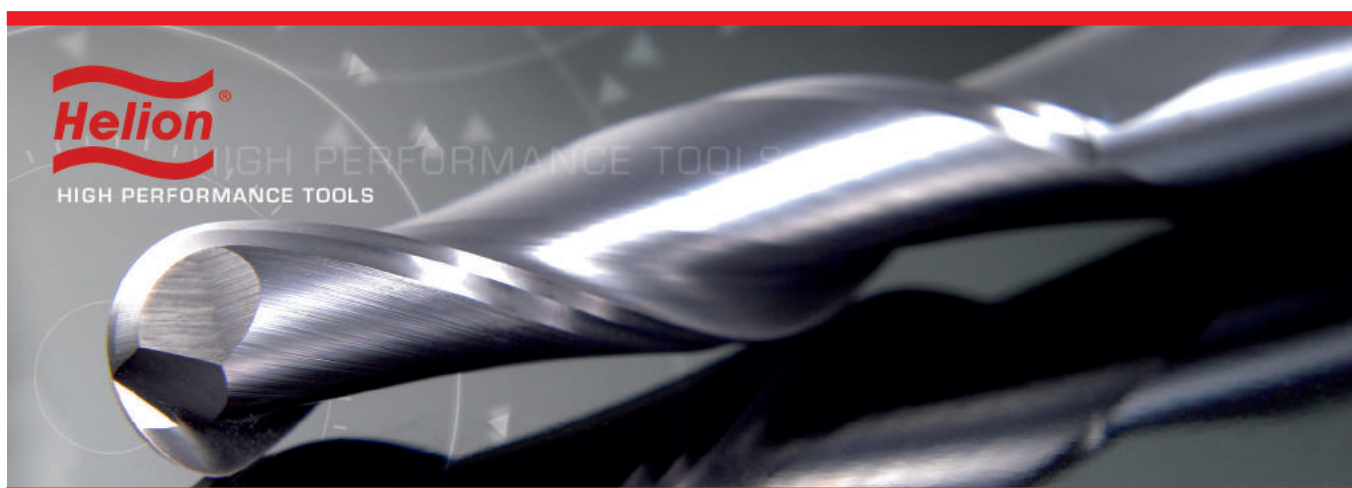
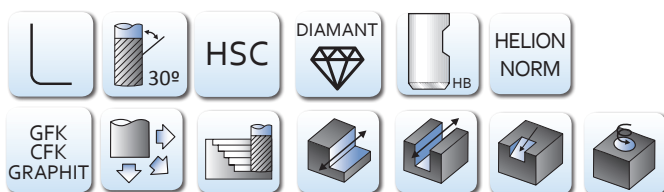
COPPER

ALU NE

PLASTIC

**SOLID CARBIDE PROFILE CUTTER WITH CORNER RADIUS**
**86.8415**

d1	d2	l2	l1	R	l3	d3	z	Article No.
3,0	3	6	80	0,3	32	2,7	4	86.8415 0303
3,0	3	6	80	0,5	32	2,7	4	86.8415 0305
3,0	3	6	80	1,0	32	2,7	4	86.8415 0310
4,0	4	8	80	0,4	36	3,7	4	86.8415 0404
4,0	4	8	80	0,5	36	3,7	4	86.8415 0405
4,0	4	8	80	1,0	36	3,7	4	86.8415 0410
5,0	5	10	80	0,5	40	4,6	4	86.8415 0505
5,0	5	10	80	1,0	40	4,6	4	86.8415 0510
6,0	6	13	90	0,5	44	5,5	4	86.8415 0605
6,0	6	13	90	1,0	44	5,5	4	86.8415 0610
6,0	6	13	90	1,5	44	5,5	4	86.8415 0615
8,0	8	15	100	0,5	54	7,4	4	86.8415 0805
8,0	8	15	100	1,0	54	7,4	4	86.8415 0810
8,0	8	15	100	1,5	54	7,4	4	86.8415 0815
8,0	8	15	100	2,0	54	7,4	4	86.8415 0820
10,0	10	18	100	0,5	60	9,2	4	86.8415 1005
10,0	10	18	100	1,0	60	9,2	4	86.8415 1010
10,0	10	18	100	1,5	60	9,2	4	86.8415 1015
10,0	10	18	100	2,0	60	9,2	4	86.8415 1020
12,0	12	26	120	0,5	75	11,0	4	86.8415 1205
12,0	12	26	120	1,0	75	11,0	4	86.8415 1210
12,0	12	26	120	1,5	75	11,0	4	86.8415 1215
12,0	12	26	120	2,0	75	11,0	4	86.8415 1220
16,0	16	32	120	0,5	85	15,0	4	86.8415 1605
16,0	16	32	120	1,0	85	15,0	4	86.8415 1610
16,0	16	32	120	1,5	85	15,0	4	86.8415 1615
16,0	16	32	120	2,0	85	15,0	4	86.8415 1620

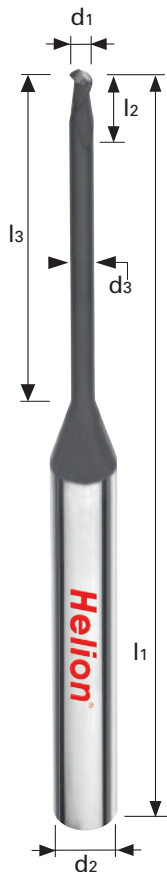

**COATING THICKNESS  
6 +2µm**


solid carbide end mills

reamers and senkers

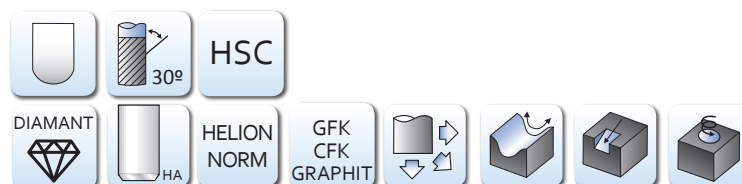
drills

threading tools



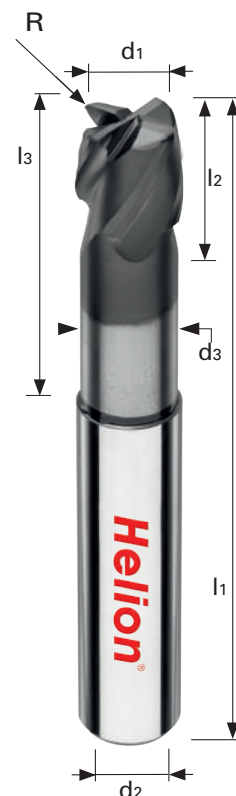
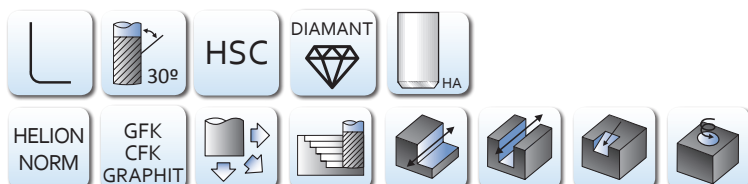
d1	d2	l2	l1	R	l3	d3	z	Article No.
0,4	3	0,4	55	0,20	4	0,35	2	86.8820 0040
0,4	3	0,4	55	0,20	6	0,35	2	86.8820 0041
0,5	3	0,5	55	0,25	5	0,45	2	86.8820 0050
0,5	3	0,5	55	0,25	10	0,45	2	86.8820 0051
0,6	3	0,8	55	0,30	6	0,56	2	86.8820 0060
0,8	3	1,0	55	0,40	8	0,75	2	86.8820 0080
0,8	3	1,0	55	0,40	12	0,75	2	86.8820 0081
1,0	3	1,0	55	0,50	5	0,90	2	86.8820 0100
1,0	3	1,0	55	0,50	10	0,90	2	86.8820 0101
1,0	3	1,0	55	0,50	15	0,90	2	86.8820 0102
1,0	3	1,0	55	0,50	20	0,90	2	86.8820 0103
1,0	6	1,0	55	0,50	15	0,90	2	86.8820 0104
1,5	3	2,0	55	0,75	10	1,40	2	86.8820 0150
1,5	3	2,0	55	0,75	15	1,40	2	86.8820 0151
1,5	3	2,0	55	0,75	25	1,40	2	86.8820 0152
1,5	6	2,0	55	0,75	15	1,40	2	86.8820 0153
2,0	3	2,0	55	1,00	10	1,90	2	86.8820 0200
2,0	3	2,0	55	1,00	15	1,90	2	86.8820 0201
2,0	3	2,0	55	1,00	20	1,90	2	86.8820 0202
2,0	3	2,0	65	1,00	25	1,90	2	86.8820 0203
2,0	3	2,0	65	1,00	30	1,90	2	86.8820 0204
2,0	6	2,0	65	1,00	20	1,90	2	86.8820 0205
2,5	6	3,0	65	1,25	20	2,40	2	86.8820 0250
3,0	4	3,0	65	1,50	15	2,90	2	86.8820 0300
3,0	4	3,0	75	1,50	30	2,90	2	86.8820 0301
3,0	6	3,0	65	1,50	20	2,90	2	86.8820 0302
3,5	6	3,0	65	1,75	20	3,40	2	86.8820 0350
4,0	5	4,0	65	2,00	20	3,90	2	86.8820 0400
4,0	5	4,0	75	2,00	30	3,90	2	86.8820 0401
6,0	6	6,0	75	3,00	30	5,90	2	86.8820 0600
6,0	6	6,0	90	3,00	50	5,90	2	86.8820 0601

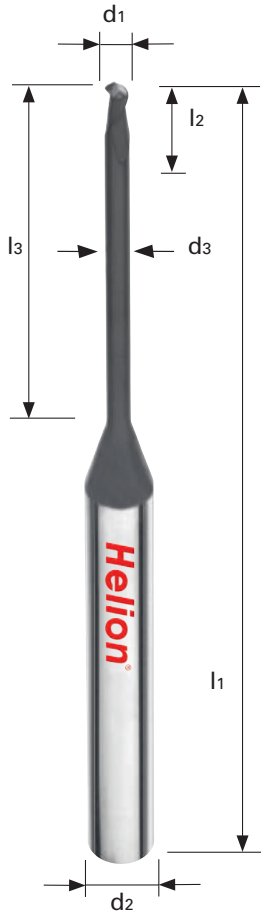
**COATING THICKNESS**  
6 +2µm



**SOLID CARBIDE PROFILE CUTTER WITH CORNER RADIUS**
**86.8410**

d1	d2	l2	l1	R	l3	d3	z	Article No.	PRICE €
3,0	3	6	50	0,3	14	2,7	4	86.8410 0303	50
3,0	3	6	50	0,5	14	2,7	4	86.8410 0305	50
3,0	3	6	50	1,0	14	2,7	4	86.8410 0310	50
4,0	4	8	50	0,4	16	3,7	4	86.8410 0404	53
4,0	4	8	50	0,5	16	3,7	4	86.8410 0405	53
4,0	4	8	50	1,0	16	3,7	4	86.8410 0410	53
5,0	5	10	54	0,5	18	4,6	4	86.8410 0505	61
5,0	5	10	54	1,0	18	4,6	4	86.8410 0510	65
6,0	6	13	57	0,5	21	5,5	4	86.8410 0605	73
6,0	6	13	57	1,0	21	5,5	4	86.8410 0610	73
6,0	6	13	57	1,5	21	5,5	4	86.8410 0615	73
8,0	8	15	63	0,5	27	7,4	4	86.8410 0805	101
8,0	8	15	63	1,0	27	7,4	4	86.8410 0810	101
8,0	8	15	63	1,5	27	7,4	4	86.8410 0815	101
8,0	8	15	63	2,0	27	7,4	4	86.8410 0820	101
10,0	10	18	72	0,5	32	9,2	4	86.8410 1005	127
10,0	10	18	72	1,0	32	9,2	4	86.8410 1010	127
10,0	10	18	72	1,5	32	9,2	4	86.8410 1015	127
10,0	10	18	72	2,0	32	9,2	4	86.8410 1020	127
12,0	12	26	83	0,5	38	11,0	4	86.8410 1205	149
12,0	12	26	83	1,0	38	11,0	4	86.8410 1210	149
12,0	12	26	83	1,5	38	11,0	4	86.8410 1215	149
12,0	12	26	83	2,0	38	11,0	4	86.8410 1220	149
16,0	16	32	92	0,5	50	15,0	4	86.8410 1605	288
16,0	16	32	92	1,0	50	15,0	4	86.8410 1610	288
16,0	16	32	92	1,5	50	15,0	4	86.8410 1615	288
16,0	16	32	92	2,0	50	15,0	4	86.8410 1620	288


**COATING THICKNESS  
6 +2µm**




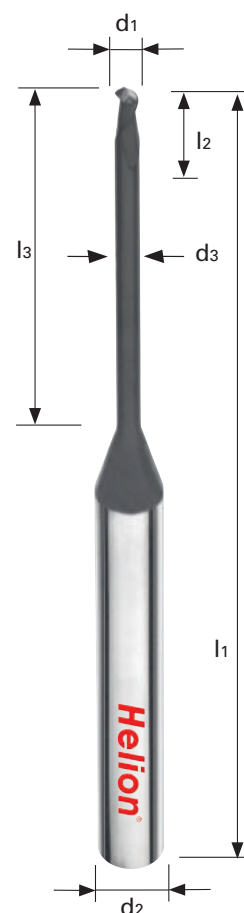
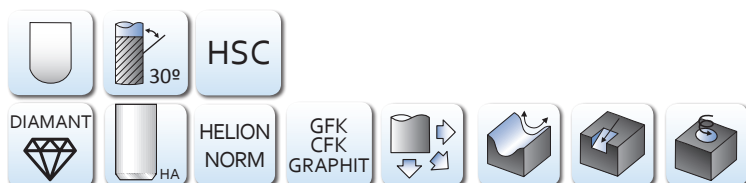
**COATING THICKNESS  
10 +2µm**



d1	d2	l2	l1	R	d3	l3	z	Article No.
0,2	3	0,2	55	0,10	0,18	1	2	86.8822 0020
0,2	4	0,2	55	0,10	0,18	1	2	86.8822 0021
0,3	3	0,3	55	0,15	0,27	1	2	86.8822 0030
0,3	4	0,3	55	0,15	0,27	1	2	86.8822 0031
0,3	3	0,3	55	0,15	0,27	3	2	86.8822 0032
0,3	4	0,3	55	0,15	0,27	3	2	86.8822 0033
0,3	3	0,3	55	0,15	0,27	5	2	86.8822 0034
0,3	4	0,3	55	0,15	0,27	5	2	86.8822 0035
0,3	3	0,3	55	0,15	0,27	8	2	86.8822 0036
0,3	4	0,3	55	0,15	0,27	8	2	86.8822 0037
0,4	3	0,4	55	0,20	0,35	4	2	86.8822 0040
0,4	4	0,4	55	0,20	0,35	4	2	86.8822 0041
0,4	3	0,4	55	0,20	0,35	6	2	86.8822 0042
0,4	4	0,4	55	0,20	0,35	6	2	86.8822 0043
0,4	3	0,4	55	0,20	0,35	8	2	86.8822 0044
0,4	4	0,4	55	0,20	0,35	8	2	86.8822 0045
0,5	3	0,5	55	0,25	0,45	5	2	86.8822 0050
0,5	4	0,5	55	0,25	0,45	5	2	86.8822 0051
0,5	3	0,5	55	0,25	0,45	10	2	86.8822 0052
0,5	4	0,5	55	0,25	0,45	10	2	86.8822 0053
0,6	3	0,8	55	0,30	0,56	6	2	86.8822 0060
0,6	4	0,8	55	0,30	0,56	6	2	86.8822 0061
0,6	3	0,8	55	0,30	0,56	9	2	86.8822 0062
0,6	4	0,8	55	0,30	0,56	9	2	86.8822 0063
0,6	3	0,8	55	0,30	0,56	12	2	86.8822 0064
0,6	4	0,8	55	0,30	0,56	12	2	86.8822 0065
0,7	3	0,9	55	0,35	0,65	7	2	86.8822 0070
0,7	4	0,9	55	0,35	0,65	7	2	86.8822 0071
0,7	3	0,9	55	0,35	0,65	14	2	86.8822 0072
0,7	4	0,9	55	0,35	0,65	14	2	86.8822 0073
0,8	3	1,0	55	0,40	0,75	8	2	86.8822 0080
0,8	4	1,0	55	0,40	0,75	8	2	86.8822 0081
0,8	3	1,0	55	0,40	0,75	12	2	86.8822 0082
0,8	4	1,0	55	0,40	0,75	12	2	86.8822 0083
0,8	3	1,0	55	0,40	0,75	16	2	86.8822 0084
0,8	4	1,0	55	0,40	0,75	16	2	86.8822 0085
1,0	3	1,0	55	0,50	0,90	5	2	86.8822 0100
1,0	4	1,0	55	0,50	0,90	5	2	86.8822 0101
1,0	3	1,0	55	0,50	0,90	10	2	86.8822 0102
1,0	4	1,0	55	0,50	0,90	10	2	86.8822 0103
1,0	3	1,0	55	0,50	0,90	15	2	86.8822 0104
1,0	4	1,0	55	0,50	0,90	15	2	86.8822 0105
1,0	3	1,0	55	0,50	0,90	20	2	86.8822 0106
1,0	4	1,0	55	0,50	0,90	20	2	86.8822 0107
1,0	3	1,0	55	0,50	0,90	25	2	86.8822 0108
1,0	4	1,0	55	0,50	0,90	25	2	86.8822 0109
1,0	3	1,0	65	0,50	0,90	30	2	86.8822 0110
1,0	4	1,0	65	0,50	0,90	30	2	86.8822 0111
1,2	3	1,5	55	0,60	1,10	5	2	86.8822 0120
1,2	4	1,5	55	0,60	1,10	5	2	86.8822 0121
1,2	3	1,5	55	0,60	1,10	10	2	86.8822 0122
1,2	4	1,5	55	0,60	1,10	10	2	86.8822 0123

**SOLID CARBIDE BALL-NOSED CUTTER**
**86.8822**

d1	d2	l2	l1	R	d3	l3	z	Article No.
1,0	6	1,0	55	0,50	0,9	15	2	86.8822 0124
1,2	3	1,5	55	0,60	1,1	15	2	86.8822 0125
1,2	4	1,5	55	0,60	1,1	15	2	86.8822 0126
1,5	3	2,0	55	0,75	1,4	5	2	86.8822 0150
1,5	4	2,0	55	0,75	1,4	5	2	86.8822 0151
1,5	3	2,0	55	0,75	1,4	10	2	86.8822 0152
1,5	4	2,0	55	0,75	1,4	10	2	86.8822 0153
1,5	3	2,0	55	0,75	1,4	15	2	86.8822 0154
1,5	4	2,0	55	0,75	1,4	15	2	86.8822 0155
1,5	3	2,0	55	0,75	1,4	20	2	86.8822 0156
1,5	4	2,0	55	0,75	1,4	20	2	86.8822 0157
1,5	3	2,0	55	0,75	1,4	25	2	86.8822 0158
1,5	4	2,0	55	0,75	1,4	25	2	86.8822 0159
1,5	6	2,0	55	0,75	1,4	15	2	86.8822 0160
1,8	3	2,0	55	0,90	1,7	10	2	86.8822 0180
1,8	4	2,0	55	0,90	1,7	10	2	86.8822 0181
1,8	3	2,0	55	0,90	1,7	20	2	86.8822 0182
1,8	4	2,0	55	0,90	1,7	20	2	86.8822 0183
2,0	3	2,0	55	1,00	1,9	10	2	86.8822 0200
2,0	4	2,0	55	1,00	1,9	10	2	86.8822 0201
2,0	3	2,0	55	1,00	1,9	15	2	86.8822 0203
2,0	4	2,0	55	1,00	1,9	15	2	86.8822 0204
2,0	3	2,0	55	1,00	1,9	20	2	86.8822 0205
2,0	4	2,0	55	1,00	1,9	20	2	86.8822 0206
2,0	6	2,0	65	1,00	1,9	20	2	86.8822 0207
2,0	3	2,0	65	1,00	1,9	25	2	86.8822 0208
2,0	4	2,0	65	1,00	1,9	25	2	86.8822 0209
2,0	3	2	65	1,00	1,9	30	2	86.8822 0210
2,0	4	2	65	1,00	1,9	30	2	86.8822 0211
2,5	6	3	65	1,25	2,4	20	2	86.8822 0250
3,0	4	3	65	1,50	2,9	10	2	86.8822 0300
3,0	4	3	65	1,50	2,9	15	2	86.8822 0301
3,0	4	3	65	1,50	2,9	20	2	86.8822 0302
3,0	4	3	75	1,50	2,9	25	2	86.8822 0303
3,0	4	3	75	1,50	2,9	30	2	86.8822 0304
3,0	6	3	65	1,50	2,9	20	2	86.8822 0305
3,5	6	3	65	1,75	3,4	20	2	86.8822 0350
4,0	6	4	65	2,00	3,9	20	2	86.8822 0400
4,0	6	4	75	2,00	3,9	30	2	86.8822 0401
4,0	6	4	90	2,00	3,9	40	2	86.8822 0402
5,0	6	5	65	2,50	4,9	20	2	86.8822 0500
5,0	6	5	75	2,50	4,9	30	2	86.8822 0501
5,0	6	5	90	2,50	4,9	40	2	86.8822 0502
5,0	6	5	90	2,50	4,9	50	2	86.8822 0503
6,0	6	6	75	3,00	5,9	30	2	86.8822 0600
6,0	6	6	90	3,00	5,9	40	2	86.8822 0601
6,0	6	6	90	3,00	5,9	50	2	86.8822 0602
6,0	6	6	100	3,00	5,9	60	2	86.8822 0603
8,0	8	8	80	4,00	7,8	30	2	86.8822 0800
8,0	8	8	100	4,00	7,8	60	2	86.8822 0801
10,0	10	10	80	5,00	9,8	30	2	86.8822 1000
10,0	10	10	100	5,00	9,8	60	2	86.8822 1001
12,0	12	12	83	6,00	11,8	30	2	86.8822 1200
12,0	12	12	100	6,00	11,8	60	2	86.8822 1201


**COATING THICKNESS  
10 +2µm**




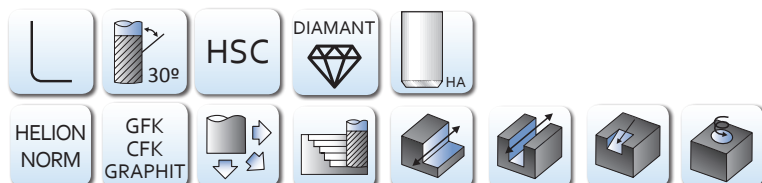
**COATING THICKNESS**  
10 +2µm

d1	d2	l2	l1	R	d3	l3	z	Article No.
0,2	3	0,2	55	0,05	0,20	1	2	86.8814 0020
0,2	4	0,2	55	0,05	0,20	1	2	86.8814 0021
0,3	3	0,3	55	0,05	0,27	1	2	86.8814 0030
0,3	4	0,3	55	0,05	0,27	1	2	86.8814 0031
0,3	3	0,3	55	0,05	0,27	3	2	86.8814 0032
0,3	4	0,3	55	0,05	0,27	3	2	86.8814 0033
0,4	3	0,4	55	0,05	0,35	2	2	86.8814 0040
0,4	4	0,4	55	0,05	0,35	2	2	86.8814 0041
0,4	3	0,4	55	0,05	0,35	4	2	86.8814 0042
0,4	4	0,4	55	0,05	0,35	4	2	86.8814 0043
0,4	3	0,4	55	0,05	0,35	8	2	86.8814 0044
0,4	4	0,4	55	0,05	0,35	8	2	86.8814 0045
0,5	3	0,5	55	0,05	0,45	2	2	86.8814 0050
0,5	4	0,5	55	0,05	0,45	2	2	86.8814 0051
0,5	3	0,5	55	0,05	0,45	5	2	86.8814 0052
0,5	4	0,5	55	0,05	0,45	5	2	86.8814 0053
0,5	3	0,5	55	0,05	0,45	10	2	86.8814 0054
0,5	4	0,5	55	0,05	0,45	10	2	86.8814 0055
0,6	3	0,8	55	0,06	0,56	3	2	86.8814 0060
0,6	4	0,8	55	0,06	0,56	3	2	86.8814 0061
0,6	3	0,8	55	0,06	0,56	6	2	86.8814 0062
0,6	4	0,8	55	0,06	0,56	6	2	86.8814 0063
0,6	3	0,8	55	0,06	0,56	9	2	86.8814 0064
0,6	4	0,8	55	0,06	0,56	9	2	86.8814 0065
0,6	3	0,8	55	0,06	0,56	12	2	86.8814 0066
0,6	4	0,8	55	0,06	0,56	12	2	86.8814 0067
0,8	3	1,0	55	0,08	0,75	4	2	86.8814 0080
0,8	4	1,0	55	0,08	0,75	4	2	86.8814 0081
0,8	3	1,0	55	0,08	0,75	8	2	86.8814 0082
0,8	4	1,0	55	0,08	0,75	8	2	86.8814 0083
0,8	3	1,0	55	0,08	0,75	12	2	86.8814 0084
0,8	4	1,0	55	0,08	0,75	12	2	86.8814 0085
0,8	3	1,0	55	0,08	0,75	16	2	86.8814 0086
0,8	4	1,0	55	0,08	0,75	16	2	86.8814 0087
1,0	3	1,0	55	0,1	0,9	5	2	86.8814 0100
1,0	4	1,0	55	0,1	0,9	5	2	86.8814 0101
1,0	3	1,0	55	0,1	0,9	10	2	86.8814 0102
1,0	4	1,0	55	0,1	0,9	10	2	86.8814 0103
1,0	3	1,0	55	0,1	0,9	15	2	86.8814 0104
1,0	4	1,0	55	0,1	0,9	15	2	86.8814 0105
1,0	3	1,0	55	0,1	0,9	20	2	86.8814 0106
1,0	4	1,0	55	0,1	0,9	20	2	86.8814 0107
1,0	3	1,0	55	0,1	0,9	25	2	86.8814 0108
1,0	4	1,0	55	0,1	0,9	25	2	86.8814 0109
1,0	6	1,0	55	0,1	0,9	15	2	86.8814 0110
1,2	3	1,5	55	0,1	1,1	5	2	86.8814 0120
1,2	4	1,5	55	0,1	1,1	5	2	86.8814 0121
1,2	3	1,5	55	0,1	1,1	10	2	86.8814 0122
1,2	4	1,5	55	0,1	1,1	10	2	86.8814 0123
1,2	3	1,5	55	0,1	1,1	15	2	86.8814 0124
1,2	4	1,5	55	0,1	1,1	15	2	86.8814 0125
1,5	3	2,0	55	0,2	1,4	5	2	86.8814 0150
1,5	4	2,0	55	0,2	1,4	5	2	86.8814 0151
1,5	3	2,0	55	0,2	1,4	8	2	86.8814 0152
1,5	4	2,0	55	0,2	1,4	8	2	86.8814 0153
1,5	3	2,0	55	0,2	1,4	10	2	86.8814 0154
1,5	4	2,0	55	0,2	1,4	10	2	86.8814 0155
1,5	3	2,0	55	0,2	1,4	15	2	86.8814 0156
1,5	4	2,0	55	0,2	1,4	15	2	86.8814 0157
1,5	3	2,0	55	0,2	1,4	20	2	86.8814 0158
1,5	4	2,0	55	0,2	1,4	20	2	86.8814 0159
1,5	3	2,0	55	0,2	1,4	25	2	86.8814 0160
1,5	4	2,0	55	0,2	1,4	25	2	86.8814 0161
1,5	6	2,0	55	0,1	1,4	15	2	86.8814 0162
1,8	3	2,0	55	0,2	1,7	10	2	86.8814 0180
1,8	4	2,0	55	0,2	1,7	10	2	86.8814 0181
1,8	3	2,0	55	0,2	1,7	20	2	86.8814 0182
1,8	4	2,0	55	0,2	1,7	20	2	86.8814 0183



**SOLID CARBIDE PROFILE CUTTER WITH CORNER RADIUS**
**86.8814**

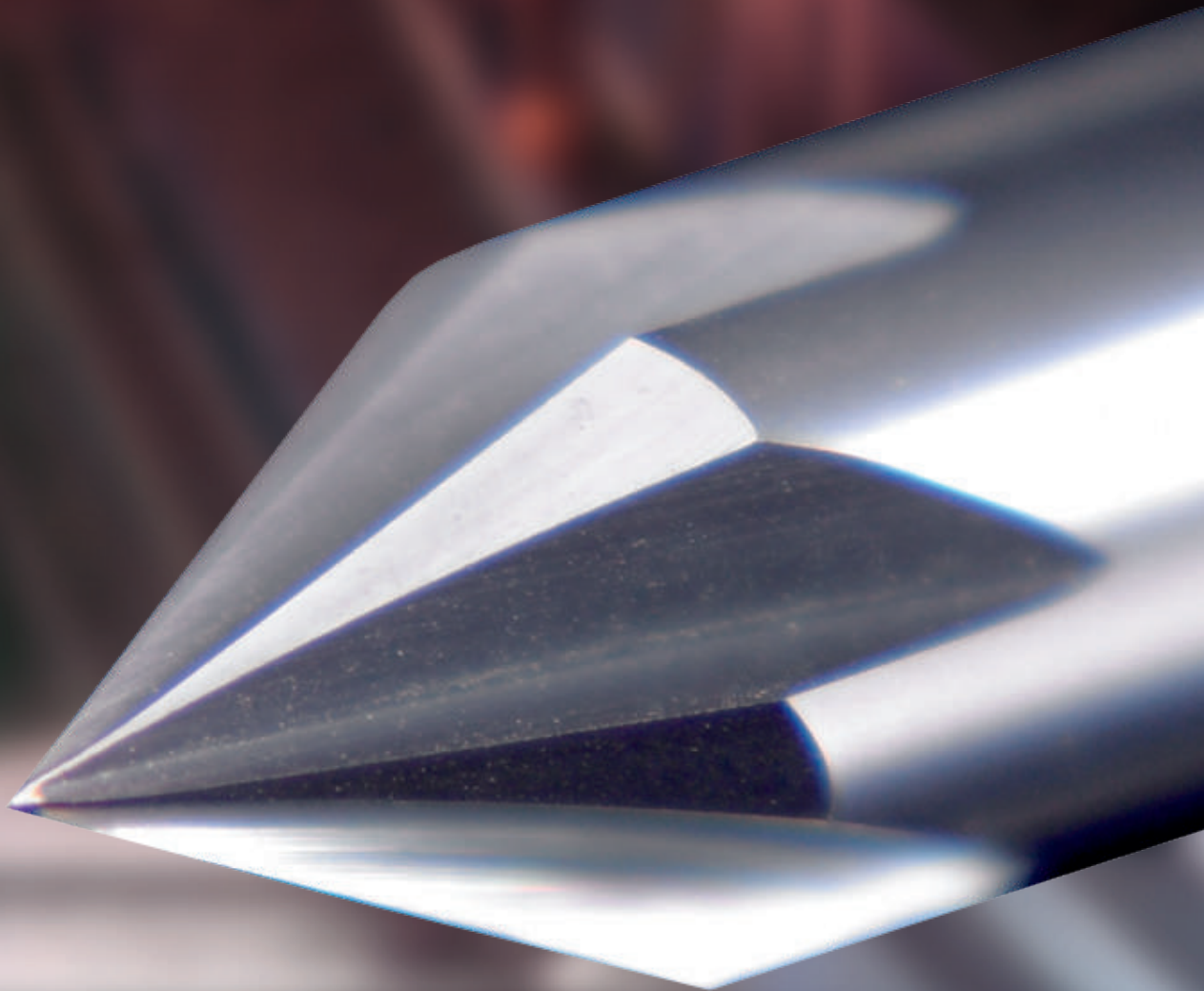
d1	d2	l2	l1	R	d3	l3	z	Article No.
2,0	3	2	65	0,2	1,9	10	2	86.8814 0200
2,0	4	2	65	0,2	1,9	10	2	86.8814 0201
2,0	3	2	65	0,2	1,9	15	2	86.8814 0202
2,0	4	2	65	0,2	1,9	15	2	86.8814 0203
2,0	3	2	65	0,2	1,9	20	2	86.8814 0204
2,0	4	2	65	0,2	1,9	20	2	86.8814 0205
2,0	6	2	65	0,2	1,9	20	2	86.8814 0206
2,0	3	2	65	0,2	1,9	25	2	86.8814 0207
2,0	4	2	65	0,2	1,9	25	2	86.8814 0208
2,0	3	2	65	0,5	1,9	10	2	86.8814 0209
2,0	4	2	65	0,5	1,9	10	2	86.8814 0210
2,0	3	2	65	0,5	1,9	15	2	86.8814 0211
2,0	4	2	65	0,5	1,9	15	2	86.8814 0212
2,0	3	2	65	0,5	1,9	20	2	86.8814 0213
2,0	4	2	65	0,5	1,9	20	2	86.8814 0214
2,0	3	2	65	0,5	1,9	25	2	86.8814 0215
2,0	4	2	65	0,5	1,9	25	2	86.8814 0216
2,5	6	3	65	0,2	2,4	20	2	86.8814 0250
3,0	4	3	65	0,3	2,9	15	2	86.8814 0300
3,0	4	3	75	0,3	2,9	25	2	86.8814 0301
3,0	4	3	65	0,5	2,9	10	2	86.8814 0302
3,0	4	3	65	0,5	2,9	15	2	86.8814 0303
3,0	4	3	65	0,5	2,9	20	2	86.8814 0304
3,0	4	3	75	0,5	2,9	25	2	86.8814 0305
3,0	4	3	75	0,5	2,9	30	2	86.8814 0306
3,0	6	4	65	0,3	3,9	15	2	86.8814 0307
3,0	6	3	65	0,5	2,9	20	2	86.8814 0308
3,5	6	3	65	0,5	3,4	20	2	86.8814 0350
4,0	6	4	65	0,4	3,9	15	2	86.8814 0400
4,0	6	4	75	0,4	3,9	25	2	86.8814 0401
4,0	6	4	65	0,5	3,9	20	2	86.8814 0402
4,0	6	4	75	0,5	3,9	30	2	86.8814 0403
4,0	6	4	90	0,5	3,9	40	2	86.8814 0404
5,0	6	5	75	0,5	4,9	20	2	86.8814 0500
5,0	6	5	75	0,5	4,9	30	2	86.8814 0501
5,0	6	5	90	0,5	4,9	40	2	86.8814 0502
5,0	6	5	90	0,5	4,9	50	2	86.8814 0503
6,0	6	6	75	0,3	5,9	30	2	86.8814 0600
6,0	6	6	75	0,5	5,9	30	2	86.8814 0601
6,0	6	6	90	0,5	5,9	40	2	86.8814 0602
6,0	6	6	90	0,5	5,9	50	2	86.8814 0603
6,0	6	6	100	0,5	5,9	60	2	86.8814 0604
6,0	6	6	75	1,0	5,9	30	2	86.8814 0605
6,0	6	6	90	1,0	5,9	40	2	86.8814 0606
8,0	8	8	80	0,5	7,8	30	2	86.8814 0800
8,0	8	8	100	0,5	7,8	60	2	86.8814 0801
8,0	8	8	80	1,0	7,8	30	2	86.8814 0802
8,0	8	8	100	1,0	7,8	60	2	86.8814 0803
10,0	10	10	80	0,5	9,8	30	2	86.8814 1000
10,0	10	10	100	0,5	9,8	60	2	86.8814 1001
10,0	10	10	80	1,0	9,8	30	2	86.8814 1002
10,0	10	10	100	1,0	9,8	60	2	86.8814 1003
12,0	12	12	80	0,5	11,8	30	2	86.8814 1200
12,0	12	12	100	0,5	11,8	60	2	86.8814 1201
12,0	12	12	80	1,0	11,8	30	2	86.8814 1202
12,0	12	12	100	1,0	11,8	60	2	86.8814 1203


**COATING THICKNESS  
10 +2µm**






... ENJOY MILLING



## SOLID CARBIDE SLITTING SAW FINE PITCH



Solid carbide slitting saws fine pitch clearance ground on both sides (secondary edges).  
Rake angle 5 degrees.

For sawing, slitting and milling of steel, cast iron, malleable cast iron, brass, alu with Si, graphite, plastics, glass- and carbon-fibre.



Fresa de disco metal duro paso fino.

Rake angle: 5°.

Para mecanizar acero, fundición gris, fundición nodular, bronce, aluminio, plásticos, fibras de carbono.



Vollhartmetall-Kreissägeblätter, feingezahnt Beidseitig hohlgeschliffen (Nebenschneiden).

Spanwinkel 5°.

Zum Sägen, Schlitzten und Fräsen von Stahl, Grauguß, Temperguß, Messing, Aluminium mit Silizium-Anteil, Graphit,

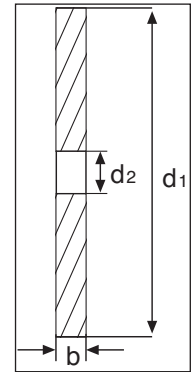


# 85.0050



d1 d2 H7 b mm	15 mm		20 mm		25 mm		30 mm		40 mm		50 mm		63 mm	
	z	5 mm	z	5 mm	z	8 mm	z	8 mm	z	10 mm	z	13 mm	z	16 mm
0,1	64		80		80		100		-		-		-	
0,2	64		80		80		100		128		128		128	
0,3	64		64		80		80		100		128		128	
0,4	64		64		64		80		100		100		128	
0,45	48		48		64		80		80		100		128	
0,5	48		48		64		80		80		100		128	
0,6	48		48		64		80		80		100		100	
0,7	48		48		48		64		80		80		100	
0,8	40		40		48		64		80		80		100	
0,9	40		40		48		64		64		80		100	
1	40		40		48		64		64		80		100	
1,1	40		40		48		48		64		80		80	
1,2	40		40		48		48		64		80		80	
1,3	40		40		40		48		64		64		80	
1,4	40		40		40		48		64		64		80	
1,5	40		40		40		48		64		64		80	
1,6	40		40		40		48		64		64		80	
1,7	40		32		40		48		48		64		80	
1,8	40		32		40		48		48		64		80	
1,9	40		32		40		48		48		64		80	
2	40		32		40		48		48		64		80	
2,5	40		32		40		40		48		64		64	
3	40		32		32		40		48		48		64	
3,5	24		24		32		40		40		48		64	
4	24		24		32		40		40		48		64	
5	24		24		32		32		40		48		48	
6	24		24		32		32		40		40		48	

d1 d2 H7 b mm	80 mm		100 mm		125 mm		150 mm		160 mm		200 mm	
	z	22 mm	z	22 mm	z	22 mm	z	32 mm	z	32 mm	z	32 mm
0,1	-		-		-		-		-		-	
0,2	-		-		-		-		-		-	
0,3	160		-		-		-		-		-	
0,4	160		-		-		-		-		-	
0,45	128		-		-		-		-		-	
0,5	128		160		-		-		-		-	
0,6	128		160		-		-		-		-	
0,7	128		128		-		-		-		-	
0,8	128		128		160		-		-		-	
0,9	100		128		160		-		-		-	
1	100		128		160		150		160		-	
1,1	100		128		128		150		160		-	
1,2	100		128		128		150		160		-	
1,3	100		100		128		-		-		-	
1,4	100		100		128		-		-		-	
1,5	100		100		128		150		160		160	
1,6	100		100		128		150		160		160	
1,7	80		100		128		-		-		-	
1,8	80		100		128		128		128		-	
1,9	80		100		128		-		-		-	
2	80		100		128		128		128		160	
2,5	80		100		100		128		128		160	
3	64		80		100		128		128		128	
3,5	64		80		100		128		128		128	
4	64		80		100		128		128		128	
5	64		80		100		-		128		-	
6	64		64		100		-		128		-	



85.0051

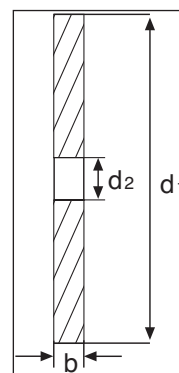


- UNI DIN 1838
- COPPER STEEL <55 HRC
- INOX ALU <12% Si
- GGG GG
- NI ALLOYS TITAN INCONEL

**SOLID CARBIDE SLITTING SAW COARSE PITCH**

- Solid carbide slitting saws coarse pitch clearance ground on both sides (secondary edges).  
Rake angle 5 degrees.  
For sawing, slitting and milling of steel, cast iron, malleable cast iron, brass, Alu with Si, graphite, plastics, glass- and carbon-fibre.
- Fresa de disco metal duro paso grueso.  
Rake angle: 5°  
Para mecanizar acero, fundición gris, fundición nodular, bronce, aluminio, plásticos, fibras de carbono.
- Vollhartmetall-Kreissägeblätter, grobgezahnt.  
Beidseitig hohlgeschliffen (Nebenschneiden).  
Spanwinkel 5°  
Zum Sägen, Schlitzten und Fräsen von Stahl, Grauguß, Temperguß, Messing, Aluminium mit Silizium-Anteil, Graphit,

d1	15 mm		20 mm		25 mm		30 mm		40 mm	
d2 H7	z	5 mm	z	5 mm	z	8 mm	z	8 mm	z	10 mm
b mm										
0,2	20		20		20		30		40	
0,3	20		20		20		30		40	
0,4	20		20		20		30		40	
0,5	20		20		20		30		40	
0,6	20		20		20		30		40	
0,7	20		20		20		30		40	
0,8	20		20		20		30		40	
1	20		20		20		24		32	
1,2	20		20		20		24		32	
1,5	20		20		20		24		32	
1,6	20		20		20		24		32	
1,8	20		20		20		24		24	
2	20		20		20		24		24	
2,5	20		20		20		24		24	
3	20		20		20		24		24	
4	20		20		20		24		20	
5	20		20		20		24		20	
6	20		20		20		24		20	



d1	50 mm		63 mm		80 mm		100 mm		125 mm	
d2 H7	z	13 mm	z	16 mm	z	22 mm	z	22 mm	z	22 mm
b mm										
0,2	-		-		-		-		-	
0,3	-		-		-		-		-	
0,4	48		64		-		-		-	
0,5	48		64		-		-		-	
0,6	48		48		64		64		-	
0,7	40		48		64		64		-	
0,8	40		48		64		64		80	
1	40		48		48		48		80	
1,2	40		40		48		48		64	
1,5	32		40		48		48		64	
1,6	32		40		48		48		64	
1,8	32		40		40		40		64	
2	32		40		40		40		64	
2,5	32		32		40		40		48	
3	24		32		40		40		48	
4	24		32		32		32		48	
5	24		24		32		32		40	
6	24		24		32		32		40	

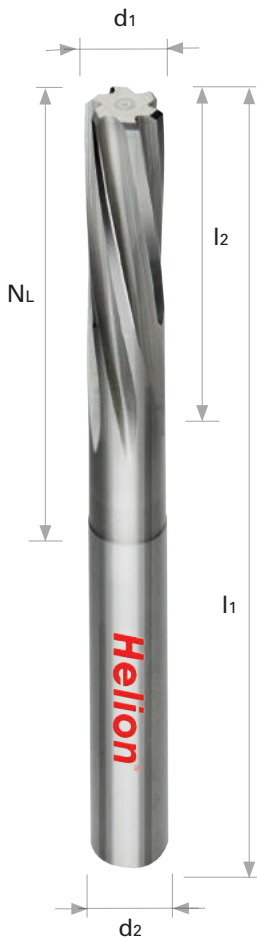


SOLID CARBIDE  
REAMERS AND  
SENKERS



## 28.1202

### SOLID CARBIDE MACHINE REAMER LONG

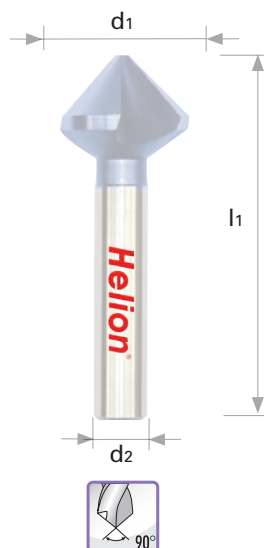


d1	d2	l2	l1	NL	z	Article No.
1,0	3	10	50	25	4	28.1202 0100
1,5	3	10	50	25	4	28.1202 0150
2,0	3	15	60	25	4	28.1202 0200
2,5	3	15	60	25	4	28.1202 0250
3,0	3	18	60	30	4	28.1202 0300
3,5	6	18	80	40	4	28.1202 0350
4,0	6	20	80	50	4	28.1202 0400
4,5	6	20	80	50	4	28.1202 0450
5,0	6	26	100	60	6	28.1202 0500
5,5	6	26	100	60	6	28.1202 0550
6,0	6	26	100	60	6	28.1202 0600
6,5	8	36	118	75	6	28.1202 0650
7,0	8	36	118	75	6	28.1202 0700
7,5	8	36	118	75	6	28.1202 0750
8,0	8	36	118	75	6	28.1202 0800
8,5	10	36	135	75	6	28.1202 0850
9,0	10	36	135	75	6	28.1202 0900
9,5	10	36	135	75	6	28.1202 0950
10,0	10	36	135	75	6	28.1202 1000
10,5	12	45	150	105	6	28.1202 1050
11,0	12	45	150	105	6	28.1202 1100
11,5	12	45	150	105	6	28.1202 1150
12,0	12	45	150	105	6	28.1202 1200
13,0	14	45	165	115	6	28.1202 1300
14,0	14	45	165	115	6	28.1202 1400
15,0	16	50	165	120	6	28.1202 1500
16,0	16	50	165	120	6	28.1202 1600
17,0	18	50	165	120	6	28.1202 1700
18,0	18	50	165	120	6	28.1202 1800
19,0	20	60	200	150	6	28.1202 1900
20,0	20	60	200	150	6	28.1202 2000



## 20.6390

### SOLID CARBIDE PERFORMANCE COUNTERSINK 90°



d1	d2	l1	z	Article No.
4,3	4	40	3	20.6390 0430
5,3	4	40	3	20.6390 0530
6,3	5	45	3	20.6390 0630
8,3	6	50	3	20.6390 0830
10,4	6	50	3	20.6390 1040
12,4	8	56	3	20.6390 1240
16,5	10	60	3	20.6390 1650
20,5	10	63	3	20.6390 2050
25,0	10	67	3	20.6390 2500

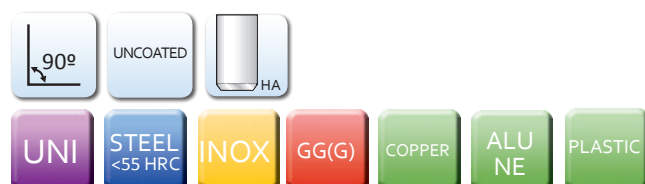


**SOLID CARBIDE MACHINE REAMER SHORT**
**29.1502**

d1	d2	l2	l1	NL	z	Article No.
0,48 - 0,53	1,5	5	35	10	4	29.1502 0048
0,54 - 0,59	1,5	5	35	10	4	29.1502 0054
0,60 - 0,69	1,5	6	35	12	4	29.1502 0060
0,70 - 0,79	1,5	6	35	12	4	29.1502 0070
0,80 - 0,90	1,5	6	35	15	4	29.1502 0080
0,91 - 1,00	1,5	8	35	15	4	29.1502 0091
1,01 - 1,20	1,5	10	35	17	4	29.1502 0101
1,21 - 1,50	1,5	12	40	23	4	29.1502 0121
1,51 - 2,00	2,0	16	45	28	4	29.1502 0151
2,01 - 2,40	2,0 - 3,0	18	50	31	4	29.1502 0201
2,41 - 2,70	3,0	20	55	34	4	29.1502 0241
2,71 - 3,10	3,0	20	60	39	4-6	29.1502 0271
3,11 - 3,70	4,0	22	60	37	6	29.1502 0311
3,71 - 4,10	4,0	24	65	40	6	29.1502 0371
4,11 - 4,60	5,0	24	65	40	6	29.1502 0411
4,61 - 4,90	5,0	26	65	38	6	29.1502 0461
4,91 - 5,20	5,0	28	75	48	6	29.1502 0491
5,21 - 5,70	5,0	28	75	48	6	29.1502 0521
5,71 - 6,20	5,0 - 6,0	28	75	48	6	29.1502 0571
6,21 - 6,60	6,0	30	80	49	6	29.1502 0621
6,61 - 6,90	6,0 - 7,0	30	80	49	6	29.1502 0661
6,91 - 7,20	7,0	35	90	59	6	29.1502 0691
7,21 - 7,70	7,0	35	90	59	6	29.1502 0721
7,71 - 8,20	7,0 - 8,0	35	95	59	6	29.1502 0771
8,21 - 8,70	8,0	35	100	64	6	29.1502 0821
8,71 - 8,90	8,0 - 9,0	35	100	64	6	29.1502 0871
8,91 - 9,20	9,0	35	100	64	6	29.1502 0891
9,21 - 9,70	9,0	35	100	64	6	29.1502 0921
9,71 - 9,90	9,0 - 10,0	35	100	64	6	29.1502 0971
9,91 - 10,70	10,0	35	100	64	6	29.1502 0991
10,71 - 10,90	10,0 - 11,0	35	100	64	6	29.1502 1071
10,91 - 11,20	11,0	35	100	64	6	29.1502 1091
11,21 - 11,70	11,0	35	100	64	6	29.1502 1121
11,71 - 11,90	11,0 - 12,0	35	100	64	6	29.1502 1171
11,91 - 12,60	12,0	35	100	64	6	29.1502 1191
12,61 - 12,90	12,0 - 13,0	35	100	64	6	29.1502 1261
12,91 - 13,52	13,0	35	100	64	6	29.1502 1291
13,90 - 14,10	14,0	35	100	64	6	29.1502 1390
14,90 - 15,10	14,0	35	100	64	6	29.1502 1490
15,90 - 16,10	16,0	35	100	64	6	29.1502 1590
17,90 - 18,10	18,0	35	100	64	6	29.1502 1790

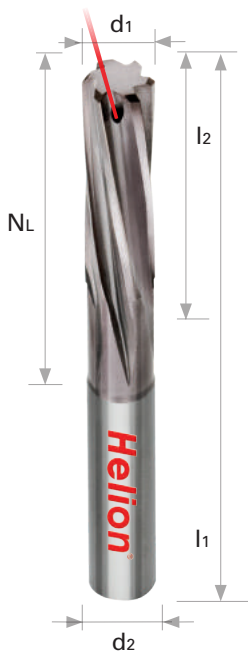


Please indicate the required diameters when you order it.



## 28.6830

### SOLID CARBIDE MACHINE REAMER LONG

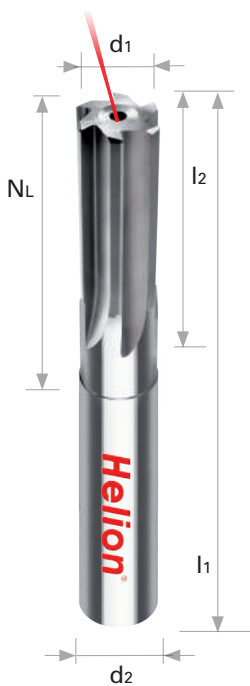


d1	d2	l2	l1	NL	z	Article No.
3,0	6	18	75	40	4	28.6830 0300
4,0	6	18	75	40	6	28.6830 0400
5,0	6	18	75	40	6	28.6830 0500
6,0	6	18	75	40	6	28.6830 0600
8,0	8	30	80	45	6	28.6830 0800
10,0	10	40	108	65	6	28.6830 1000
12,0	12	40	108	65	6	28.6830 1200
14,0	14	50	130	85	6	28.6830 1400
16,0	16	50	150	105	6	28.6830 1600
18,0	18	50	150	105	6	28.6830 1800
20,0	20	60	150	105	6	28.6830 2000



## 28.6840

### SOLID CARBIDE MACHINE REAMER LONG



d1	d2	l2	l1	NL	z	Article No.
2,95-3,05	6	22	75	40	6	28.6840 0295
3,06-3,96	6	24	75	40	6	28.6840 0306
3,97-4,05	6	24	75	40	6	28.6840 0397
4,06-4,96	6	24	75	40	6	28.6840 0406
4,97-5,05	6	24	75	40	6	28.6840 0497
5,06-5,96	6	24	75	40	6	28.6840 0506
5,97-6,05	6	30	80	45	6	28.6840 0597
6,06-6,47	6	30	80	45	6	28.6840 0606
6,48-6,96	8	30	103	63	6	28.6840 0648
6,97-7,05	8	30	103	63	6	28.6840 0697
7,06-7,96	8	30	103	63	6	28.6840 0706
7,97-8,05	8	35	103	63	6	28.6840 0797
8,06-8,47	8	35	103	63	6	28.6840 0806
8,48-8,96	10	35	103	63	6	28.6840 0848
8,97-9,05	10	35	103	63	6	28.6840 0897
9,06-9,96	10	35	103	63	6	28.6840 0906
9,97-10,05	10	35	103	63	6	28.6840 0997
10,06-10,47	10	35	103	63	6	28.6840 1006
10,48-10,96	12	40	103	63	6	28.6840 1048
10,97-11,05	12	40	103	63	6	28.6840 1097
11,06-11,96	12	40	103	63	6	28.6840 1106
11,97-12,05	12	40	103	63	6	28.6840 1197





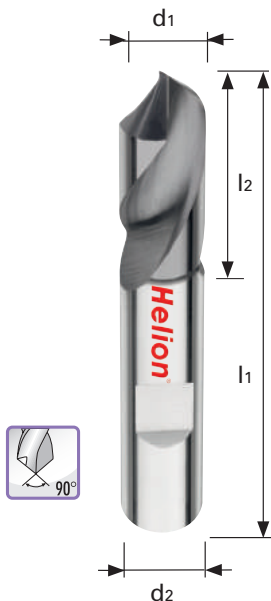
SOLID CARBIDE  
DRILLS



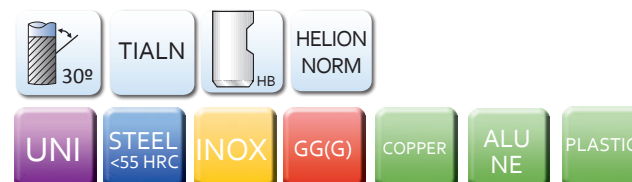


**50.1000**
**SOLID CARBIDE CENTER DRILL**


d1	d2	l2	l1	Article No.
0,50	3,15	0,8	31,5	50.1000 0050
0,80	3,15	1,1	31,5	50.1000 0080
1,00	3,15	1,3	31,5	50.1000 0100
1,25	3,15	1,6	31,5	50.1000 0125
1,60	4,00	2,0	35,5	50.1000 0160
2,00	5,00	2,5	40,0	50.1000 0200
2,50	6,30	3,1	45,0	50.1000 0250
3,15	8,00	3,9	50,0	50.1000 0315
4,00	10,00	5,0	56,0	50.1000 0400
5,00	12,50	6,3	63,0	50.1000 0500
6,30	16,00	8,0	71,0	50.1000 0630


**50.6290**
**SOLID CARBIDE SPOT DRILL**


d1	d2	l2	l1	z	Article No.
3,0	3	8,0	38	2	50.6290 0300
4,0	4	10,0	50	2	50.6290 0400
5,0	5	13,0	50	2	50.6290 0500
6,0	6	13,0	57	2	50.6290 0600
8,0	8	19,0	63	2	50.6290 0800
10,0	10	20,0	66	2	50.6290 1000
12,0	12	22,0	73	2	50.6290 1200
16,0	16	24,0	82	2	50.6290 1600
20,0	20	30,0	92	2	50.6290 2000



**SOLID CARBIDE SPOT DRILL**
**50.6212**

d1	d2	l2	l1	z	Article No.
3,0	3	8,0	38	2	50.6212 0300
4,0	4	10,0	50	2	50.6212 0400
5,0	5	13,0	50	2	50.6212 0500
6,0	6	13,0	57	2	50.6212 0600
8,0	8	19,0	63	2	50.6212 0800
10,0	10	20,0	66	2	50.6212 1000
12,0	12	22,0	73	2	50.6212 1200
16,0	16	24,0	82	2	50.6212 1600
20,0	20	30,0	92	2	50.6212 2000

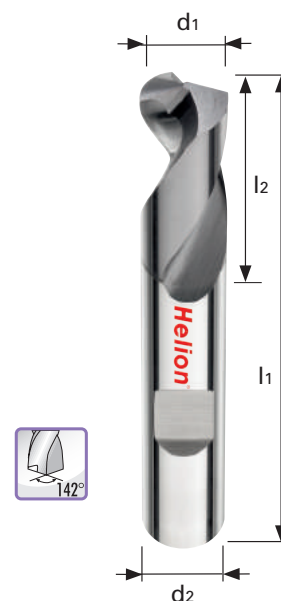
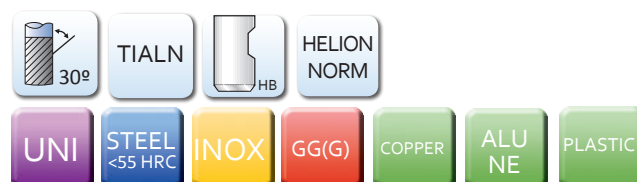


solid carbide end mills

reamers and senkers

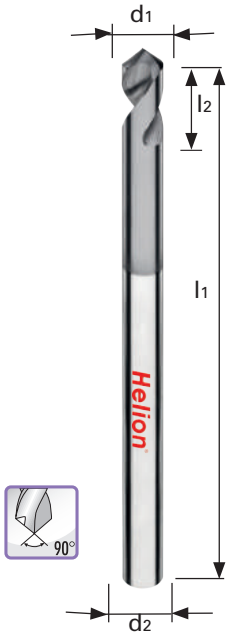
**SOLID CARBIDE SPOT DRILL EXTRA LONG**
**50.6214**

d1	d2	l2	l1	z	Article No.
3,0	3,0	8	38	2	50.6214 0300
4,0	4,0	10	50	2	50.6214 0400
5,0	5,0	13	50	2	50.6214 0500
6,0	6,0	11	57	2	50.6214 0600
8,0	8,0	19	63	2	50.6214 0800
10,0	10,0	20	66	2	50.6214 1000
12,0	12,0	22	73	2	50.6214 1200
16,0	16,0	24	82	2	50.6214 1600
20,0	20,0	30	92	2	50.6214 2000

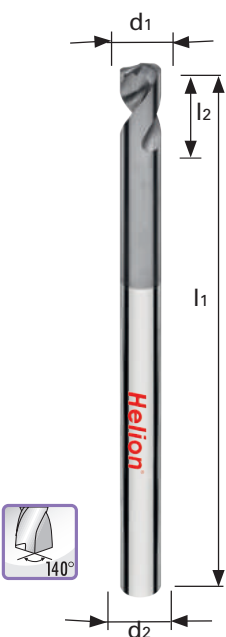


drills

threading tools

**50.6490**
**SOLID CARBIDE SPOT DRILL EXTRA LONG**


d1	d2	l2	l1	z	Article No.
4,0	6	10	120	2	50.6490 0400
5,0	6	13	132	2	50.6490 0500
6,0	6	15	139	2	50.6490 0600
8,0	8	17	165	2	50.6490 0800
10,0	10	20	184	2	50.6490 1000
12,0	12	25	205	2	50.6490 1200
16,0	16	30	230	2	50.6490 1600

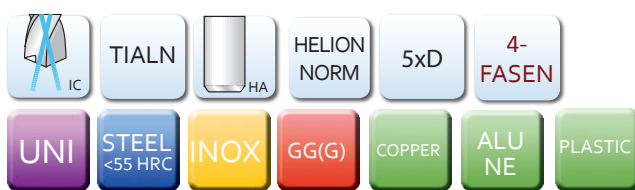
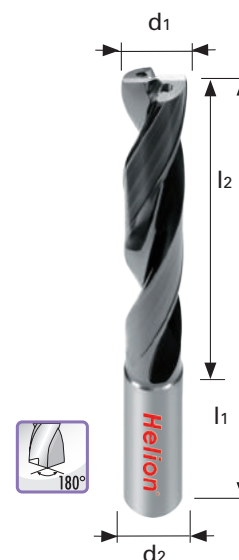

**50.6414**
**SOLID CARBIDE SPOT DRILL EXTRA LONG**


d1	d2	l2	l1	z	Article No.
4,0	6	10	120	2	50.6414 0400
5,0	6	13	132	2	50.6414 0500
6,0	6	15	139	2	50.6414 0600
8,0	8	17	165	2	50.6414 0800
10,0	10	20	184	2	50.6414 1000
12,0	12	25	205	2	50.6414 1200
16,0	16	30	230	2	50.6414 1600

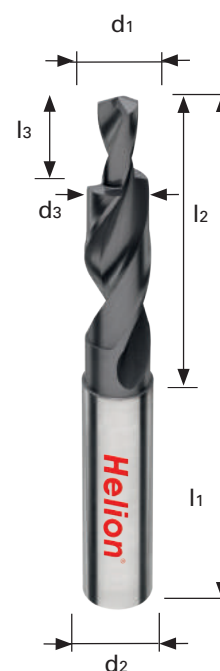


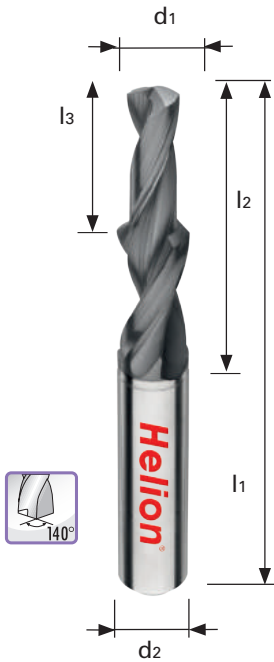
**SOLID CARBIDE FLAT DRILL**
**53.6800**

d <sub>1</sub>	d <sub>2</sub>	l <sub>2</sub>	l <sub>1</sub>	z	Article No.
8,0	8	53	91	2	53.6800 0800
9,0	9	61	103	2	53.6800 0900
10,0	10	61	103	2	53.6800 1000
11,0	12	69	116	2	53.6800 1100
15,0	16	81	131	2	53.6800 1500
18,0	18	91	141	2	53.6800 1800
20,0	20	99	151	2	53.6800 2000

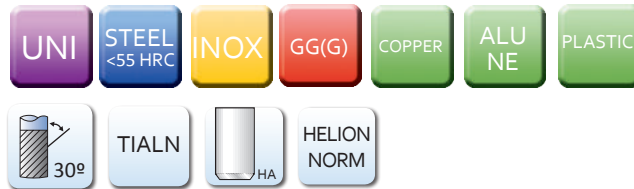
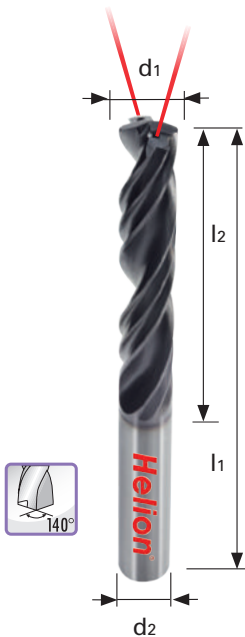

**SOLID CARBIDE STEPDRILL SHORT**
**58.6800**

d <sub>3</sub>	d <sub>1</sub>	d <sub>2</sub>	l <sub>3</sub>	l <sub>2</sub>	l <sub>1</sub>	z	Article No.
6,0	3,40	6	9	28	64	2	58.6800 0600
8,0	4,50	8	11	37	79	2	58.6800 0800
10,0	5,50	10	13	43	89	2	58.6800 1000
11,0	6,60	12	15	55	102	2	58.6800 1100
15,0	9,00	16	19	65	115	2	58.6800 1500
18,0	11,00	18	23	62	123	2	58.6800 1800

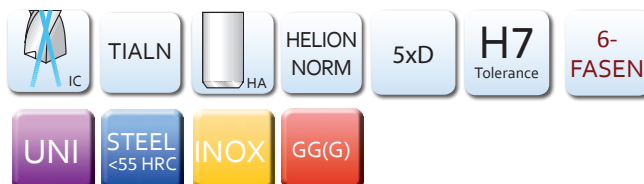


**58.6890**
**SOLID CARBIDE STEPDRILL SHORT**


d1	d2	l3	l2	l1	z	Article No.
2,50	6,0	8,8	28	66	2	58.6890 0250
3,30	6,0	11,4	28	66	2	58.6890 0330
4,20	6,0	13,6	28	66	2	58.6890 0420
5,00	8,0	16,5	41	79	2	58.6890 0500
6,80	10,0	21,0	47	89	2	58.6890 0680
8,50	12,0	25,5	55	102	2	58.6890 0850
10,20	14,0	30,0	60	107	2	58.6890 1020

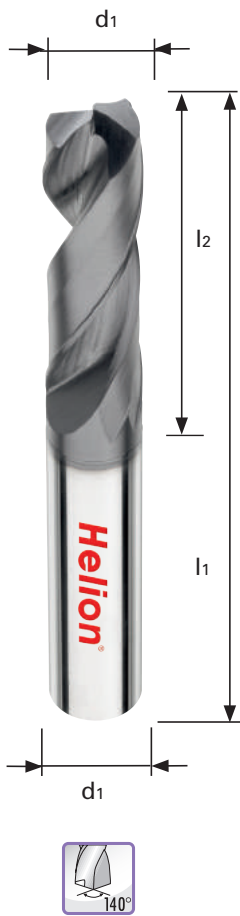

**57.6885**
**SOLID CARBIDE DRILLREAMER**


d1	d2	l2	l1	z	Article No.
5,98	6	44	81	2+4	57.6885 0598
5,99	6	44	81	2+4	57.6885 0599
6,00	6	44	81	2+4	57.6885 0600
6,01	6	44	81	2+4	57.6885 0601
6,02	6	53	91	2+4	57.6885 0602
7,98	8	53	91	2+4	57.6885 0798
7,99	8	53	91	2+4	57.6885 0799
8,00	8	53	91	2+4	57.6885 0800
8,01	8	53	91	2+4	57.6885 0801
8,02	8	53	91	2+4	57.6885 0802
9,98	10	61	103	2+4	57.6885 0998
9,99	10	61	103	2+4	57.6885 0999
10,00	10	61	103	2+4	57.6885 1000
10,01	10	61	103	2+4	57.6885 1001
10,02	10	61	103	2+4	57.6885 1002
11,98	12	71	118	2+4	57.6885 1198
11,99	12	71	118	2+4	57.6885 1199
12,00	12	71	118	2+4	57.6885 1200
12,01	12	71	118	2+4	57.6885 1201
12,02	12	71	118	2+4	57.6885 1202
14,00	14	77	124	2+4	57.6885 1400
16,00	16	83	133	2+4	57.6885 1600
18,00	18	93	143	2+4	57.6885 1800
20,00	20	101	153	2+4	57.6885 2000



d1	d2	l2	l1	Article No.
2,8	6	20	62	52.2004 0280
3,0	6	20	62	52.2004 0300
3,3	6	20	62	52.2004 0330
3,4	6	20	62	52.2004 0340
3,5	6	20	62	52.2004 0350
3,8	6	24	66	52.2004 0380
4,0	6	24	66	52.2004 0400
4,2	6	24	66	52.2004 0420
4,3	6	24	66	52.2004 0430
4,5	6	24	66	52.2004 0450
4,8	6	28	66	52.2004 0480
5,0	6	28	66	52.2004 0500
5,2	6	28	66	52.2004 0520
5,5	6	28	66	52.2004 0550
5,8	6	28	66	52.2004 0580
6,0	6	28	66	52.2004 0600
6,5	8	34	79	52.2004 0650
6,8	8	34	79	52.2004 0680
7,0	8	34	79	52.2004 0700
7,2	8	41	79	52.2004 0720
7,8	8	41	79	52.2004 0780
8,0	8	41	79	52.2004 0800
8,5	10	47	89	52.2004 0850
8,7	10	47	89	52.2004 0870
8,8	10	47	89	52.2004 0880
9,0	10	47	89	52.2004 0900
9,8	10	47	89	52.2004 0980
10,0	10	47	89	52.2004 1000
10,2	12	55	102	52.2004 1020
10,3	12	55	102	52.2004 1030
10,5	12	55	102	52.2004 1050
10,8	12	55	102	52.2004 1080
11,0	12	55	102	52.2004 1100
11,8	12	55	102	52.2004 1180
12,0	12	55	102	52.2004 1200
12,5	14	60	107	52.2004 1250
12,8	14	60	107	52.2004 1280
13,0	14	60	107	52.2004 1300
13,8	14	60	107	52.2004 1380
14,0	14	60	107	52.2004 1400
14,8	16	65	115	52.2004 1480
15,0	16	65	115	52.2004 1500
15,8	16	65	115	52.2004 1580
16,0	16	65	115	52.2004 1600





d1	l2	l1	Article No.
3,0	16	46	50.6001 0300
3,1	18	49	50.6001 0310
3,2	18	49	50.6001 0320
3,3	18	49	50.6001 0330
3,4	20	52	50.6001 0340
3,5	20	52	50.6001 0350
3,6	20	52	50.6001 0360
3,7	20	52	50.6001 0370
3,8	22	55	50.6001 0380
3,9	22	55	50.6001 0390
4,0	22	55	50.6001 0400
4,1	22	55	50.6001 0410
4,2	22	55	50.6001 0420
4,3	24	58	50.6001 0430
4,4	24	58	50.6001 0440
4,5	24	58	50.6001 0450
4,6	24	58	50.6001 0460
4,7	24	58	50.6001 0470
4,8	26	62	50.6001 0480
4,9	26	62	50.6001 0490
5,0	26	62	50.6001 0500
5,1	26	62	50.6001 0510
5,2	26	62	50.6001 0520
5,3	26	62	50.6001 0530
5,4	28	66	50.6001 0540
5,5	28	66	50.6001 0550
5,6	28	66	50.6001 0560
5,7	28	66	50.6001 0570
5,8	28	66	50.6001 0580
5,9	28	66	50.6001 0590
6,0	28	66	50.6001 0600
6,1	31	70	50.6001 0610
6,2	31	70	50.6001 0620
6,3	31	70	50.6001 0630
6,4	31	70	50.6001 0640
6,5	31	70	50.6001 0650
6,6	31	70	50.6001 0660
6,7	31	70	50.6001 0670
6,8	34	74	50.6001 0680
6,9	34	74	50.6001 0690
7,0	34	74	50.6001 0700
7,1	34	74	50.6001 0710
7,2	34	74	50.6001 0720
7,3	34	74	50.6001 0730
7,4	34	74	50.6001 0740
7,5	34	74	50.6001 0750
7,6	37	79	50.6001 0760
7,7	37	79	50.6001 0770

d1	l2	l1	Article No.
7,8	37	79	50.6001 0780
7,9	37	79	50.6001 0790
8,0	37	79	50.6001 0800
8,1	37	79	50.6001 0810
8,2	37	79	50.6001 0820
8,3	37	79	50.6001 0830
8,4	37	79	50.6001 0840
8,5	37	79	50.6001 0850
8,6	40	84	50.6001 0860
8,7	40	84	50.6001 0870
8,8	40	84	50.6001 0880
8,9	40	84	50.6001 0890
9,0	40	84	50.6001 0900
9,1	40	84	50.6001 0910
9,2	40	84	50.6001 0920
9,3	40	84	50.6001 0930
9,4	40	84	50.6001 0940
9,5	40	84	50.6001 0950
9,6	43	89	50.6001 0960
9,7	43	89	50.6001 0970
9,8	43	89	50.6001 0980
9,9	43	89	50.6001 0990
10,0	43	89	50.6001 1000
10,2	43	89	50.6001 1020
10,3	43	89	50.6001 1030
10,5	43	89	50.6001 1050
11,0	47	95	50.6001 1100
11,5	47	95	50.6001 1150
11,8	47	95	50.6001 1180
12,0	51	102	50.6001 1200
13,0	51	102	50.6001 1300
13,5	54	107	50.6001 1350
14,0	54	107	50.6001 1400
14,5	56	111	50.6001 1450
15,0	56	111	50.6001 1500
15,5	58	115	50.6001 1550
16,0	58	115	50.6001 1600
16,5	60	119	50.6001 1650
17,0	60	119	50.6001 1700
17,5	62	123	50.6001 1750
18,0	62	123	50.6001 1800
18,5	64	127	50.6001 1850
19,0	64	127	50.6001 1900
19,5	66	131	50.6001 1950
20,0	66	131	50.6001 2000



TIALN



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UNI

 STEEL  
<55 HRC


INOX



GG(G)



COPPER

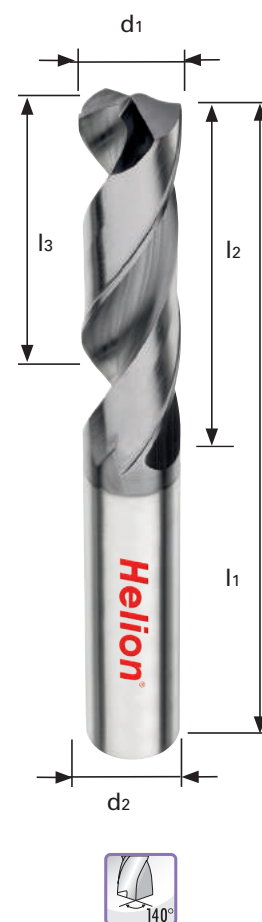

 ALU  
NE


PLASTIC

**SOLID CARBIDE DRILL EXTRA SHORT**
**50.6003**

d1	d2	l2	l1	l3	Article No.
3,0	6	20	62	14	50.6003 0300
3,1	6	20	62	14	50.6003 0310
3,2	6	20	62	14	50.6003 0320
3,3	6	20	62	14	50.6003 0330
3,4	6	20	62	14	50.6003 0340
3,5	6	20	62	14	50.6003 0350
3,6	6	20	62	14	50.6003 0360
3,7	6	20	62	14	50.6003 0370
3,8	6	24	66	17	50.6003 0380
3,9	6	24	66	17	50.6003 0390
4,0	6	24	66	17	50.6003 0400
4,1	6	24	66	17	50.6003 0410
4,2	6	24	66	17	50.6003 0420
4,3	6	24	66	17	50.6003 0430
4,4	6	24	66	17	50.6003 0440
4,5	6	24	66	17	50.6003 0450
4,6	6	24	66	17	50.6003 0460
4,7	6	24	66	17	50.6003 0470
4,8	6	28	66	20	50.6003 0480
4,9	6	28	66	20	50.6003 0490
5,0	6	28	66	20	50.6003 0500
5,1	6	28	66	20	50.6003 0510
5,2	6	28	66	20	50.6003 0520
5,3	6	28	66	20	50.6003 0530
5,4	6	28	66	20	50.6003 0540
5,5	6	28	66	20	50.6003 0550
5,6	6	28	66	20	50.6003 0560
5,7	6	28	66	20	50.6003 0570
5,8	6	28	66	20	50.6003 0580
5,9	6	28	66	20	50.6003 0590
6,0	6	28	66	20	50.6003 0600
6,1	8	34	79	24	50.6003 0610
6,2	8	34	79	24	50.6003 0620
6,3	8	34	79	24	50.6003 0630
6,4	8	34	79	24	50.6003 0640
6,5	8	34	79	24	50.6003 0650
6,6	8	34	79	24	50.6003 0660
6,7	8	34	79	24	50.6003 0670
6,8	8	34	79	24	50.6003 0680
6,9	8	34	79	24	50.6003 0690
7,0	8	34	79	24	50.6003 0700
7,1	8	41	79	29	50.6003 0710
7,2	8	41	79	29	50.6003 0720
7,3	8	41	79	29	50.6003 0730
7,4	8	41	79	29	50.6003 0740
7,5	8	41	79	29	50.6003 0750
7,6	8	41	79	29	50.6003 0760
7,7	8	41	79	29	50.6003 0770
7,8	8	41	79	29	50.6003 0780
7,9	8	41	79	29	50.6003 0790
8,0	8	41	79	29	50.6003 0800
8,1	10	47	89	35	50.6003 0810
8,2	10	47	89	35	50.6003 0820
8,3	10	47	89	35	50.6003 0830
8,4	10	47	89	35	50.6003 0840
8,5	10	47	89	35	50.6003 0850
8,6	10	47	89	35	50.6003 0860
8,7	10	47	89	35	50.6003 0870
8,8	10	47	89	35	50.6003 0880
8,9	10	47	89	35	50.6003 0890

d1	d2	l2	l1	l3	Article No.
9,0	10	47	89	35	50.6003 0900
9,1	10	47	89	35	50.6003 0910
9,2	10	47	89	35	50.6003 0920
9,3	10	47	89	35	50.6003 0930
9,4	10	47	89	35	50.6003 0940
9,5	10	47	89	35	50.6003 0950
9,6	10	47	89	35	50.6003 0960
9,7	10	47	89	35	50.6003 0970
9,8	10	47	89	35	50.6003 0980
9,9	10	47	89	35	50.6003 0990
10,0	10	47	89	35	50.6003 1000
10,1	12	55	102	40	50.6003 1010
10,2	12	55	102	40	50.6003 1020
10,3	12	55	102	40	50.6003 1030
10,4	12	55	102	40	50.6003 1040
10,5	12	55	102	40	50.6003 1050
10,6	12	55	102	40	50.6003 1060
10,7	12	55	102	40	50.6003 1070
10,8	12	55	102	40	50.6003 1080
10,9	12	55	102	40	50.6003 1090
11,0	12	55	102	40	50.6003 1100
11,1	12	55	102	40	50.6003 1110
11,2	12	55	102	40	50.6003 1120
11,3	12	55	102	40	50.6003 1130
11,4	12	55	102	40	50.6003 1140
11,5	12	55	102	40	50.6003 1150
11,6	12	55	102	40	50.6003 1160
11,7	12	55	102	40	50.6003 1170
11,8	12	55	102	40	50.6003 1180
11,9	12	55	102	40	50.6003 1190
12,0	12	55	102	40	50.6003 1200
12,3	14	60	107	43	50.6003 1230
12,5	14	60	107	43	50.6003 1250
12,8	14	60	107	43	50.6003 1280
13,0	14	60	107	43	50.6003 1300
13,5	14	60	107	43	50.6003 1350
13,8	14	60	107	43	50.6003 1380
14,0	14	60	107	43	50.6003 1400
14,2	16	65	115	45	50.6003 1420
14,5	16	65	115	45	50.6003 1450
14,8	16	65	115	45	50.6003 1480
15,0	16	65	115	45	50.6003 1500
15,5	16	65	115	45	50.6003 1550
15,8	16	65	115	45	50.6003 1580
16,0	16	65	115	45	50.6003 1600
16,5	18	73	123	51	50.6003 1650
16,8	18	73	123	51	50.6003 1680
17,0	18	73	123	51	50.6003 1700
17,5	18	73	123	51	50.6003 1750
17,8	18	73	123	51	50.6003 1780
18,0	18	73	123	51	50.6003 1800
18,5	20	79	131	55	50.6003 1850
19,0	20	79	131	55	50.6003 1900
19,5	20	79	131	55	50.6003 1950
19,8	20	79	131	55	50.6003 1980
20,0	20	79	131	55	50.6003 2000



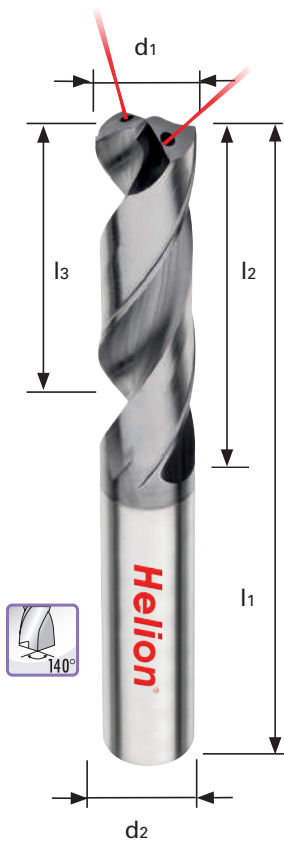
solid carbide end mills

reamers and senkers

**drills**

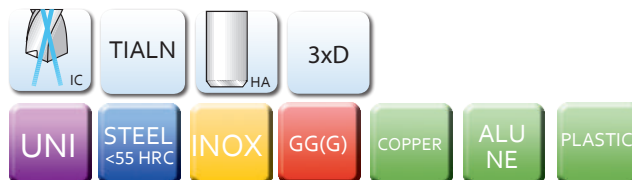
threading tools





d1	d2	l2	l1	l3	Article No.
3,0	6	20	62	14	50.6803 0300
3,1	6	20	62	14	50.6803 0310
3,2	6	20	62	14	50.6803 0320
3,3	6	20	62	14	50.6803 0330
3,4	6	20	62	14	50.6803 0340
3,5	6	20	62	14	50.6803 0350
3,6	6	20	62	14	50.6803 0360
3,7	6	20	62	14	50.6803 0370
3,8	6	24	66	17	50.6803 0380
3,9	6	24	66	17	50.6803 0390
4,0	6	24	66	17	50.6803 0400
4,1	6	24	66	17	50.6803 0410
4,2	6	24	66	17	50.6803 0420
4,3	6	24	66	17	50.6803 0430
4,4	6	24	66	17	50.6803 0440
4,5	6	24	66	17	50.6803 0450
4,6	6	24	66	17	50.6803 0460
4,7	6	24	66	17	50.6803 0470
4,8	6	28	66	20	50.6803 0480
4,9	6	28	66	20	50.6803 0490
5,0	6	28	66	20	50.6803 0500
5,1	6	28	66	20	50.6803 0510
5,2	6	28	66	20	50.6803 0520
5,3	6	28	66	20	50.6803 0530
5,4	6	28	66	20	50.6803 0540
5,5	6	28	66	20	50.6803 0550
5,6	6	28	66	20	50.6803 0560
5,7	6	28	66	20	50.6803 0570
5,8	6	28	66	20	50.6803 0580
5,9	6	28	66	20	50.6803 0590
6,0	6	28	66	20	50.6803 0600
6,1	8	34	79	24	50.6803 0610
6,2	8	34	79	24	50.6803 0620
6,3	8	34	79	24	50.6803 0630
6,4	8	34	79	24	50.6803 0640
6,5	8	34	79	24	50.6803 0650
6,6	8	34	79	24	50.6803 0660
6,7	8	34	79	24	50.6803 0670
6,8	8	34	79	24	50.6803 0680
6,9	8	34	79	24	50.6803 0690
7,0	8	34	79	24	50.6803 0700
7,1	8	41	79	29	50.6803 0710
7,2	8	41	79	29	50.6803 0720
7,3	8	41	79	29	50.6803 0730
7,4	8	41	79	29	50.6803 0740
7,5	8	41	79	29	50.6803 0750
7,6	8	41	79	29	50.6803 0760
7,7	8	41	79	29	50.6803 0770
7,8	8	41	79	29	50.6803 0780
7,9	8	41	79	29	50.6803 0790
8,0	8	41	79	29	50.6803 0800
8,1	10	47	89	35	50.6803 0810
8,2	10	47	89	35	50.6803 0820
8,3	10	47	89	35	50.6803 0830
8,4	10	47	89	35	50.6803 0840
8,5	10	47	89	35	50.6803 0850
8,6	10	47	89	35	50.6803 0860
8,7	10	47	89	35	50.6803 0870
8,8	10	47	89	35	50.6803 0880
8,9	10	47	89	35	50.6803 0890

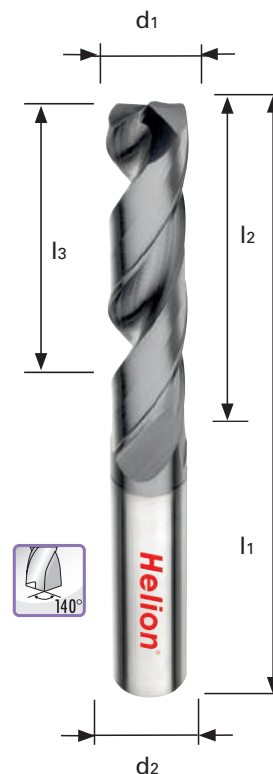
d1	d2	l2	l1	l3	Article No.
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9,2	10	47	89	35	50.6803 0920
9,3	10	47	89	35	50.6803 0930
9,4	10	47	89	35	50.6803 0940
9,5	10	47	89	35	50.6803 0950
9,6	10	47	89	35	50.6803 0960
9,7	10	47	89	35	50.6803 0970
9,8	10	47	89	35	50.6803 0980
9,9	10	47	89	35	50.6803 0990
10,0	10	47	89	35	50.6803 1000
10,1	12	55	102	40	50.6803 1010
10,2	12	55	102	40	50.6803 1020
10,3	12	55	102	40	50.6803 1030
10,4	12	55	102	40	50.6803 1040
10,5	12	55	102	40	50.6803 1050
10,6	12	55	102	40	50.6803 1060
10,7	12	55	102	40	50.6803 1070
10,8	12	55	102	40	50.6803 1080
10,9	12	55	102	40	50.6803 1090
11,0	12	55	102	40	50.6803 1100
11,1	12	55	102	40	50.6803 1110
11,2	12	55	102	40	50.6803 1120
11,3	12	55	102	40	50.6803 1130
11,4	12	55	102	40	50.6803 1140
11,5	12	55	102	40	50.6803 1150
11,6	12	55	102	40	50.6803 1160
11,7	12	55	102	40	50.6803 1170
11,8	12	55	102	40	50.6803 1180
11,9	12	55	102	40	50.6803 1190
12,0	12	55	102	40	50.6803 1200
12,3	14	60	107	43	50.6803 1230
12,5	14	60	107	43	50.6803 1250
12,8	14	60	107	43	50.6803 1280
13,0	14	60	107	43	50.6803 1300
13,5	14	60	107	43	50.6803 1350
13,8	14	60	107	43	50.6803 1380
14,0	14	60	107	43	50.6803 1400
14,5	16	65	115	45	50.6803 1450
14,8	16	65	115	45	50.6803 1480
15,0	16	65	115	45	50.6803 1500
15,5	16	65	115	45	50.6803 1550
15,8	16	65	115	45	50.6803 1580
16,0	16	65	115	45	50.6803 1600
16,5	18	73	123	51	50.6803 1650
16,8	18	73	123	51	50.6803 1680
17,0	18	73	123	51	50.6803 1700
17,5	18	73	123	51	50.6803 1750
17,8	18	73	123	51	50.6803 1780
18,0	18	73	123	51	50.6803 1800
18,5	20	79	131	55	50.6803 1850
19,0	20	79	131	55	50.6803 1900
19,5	20	79	131	55	50.6803 1950
19,8	20	79	131	55	50.6803 1980
20,0	20	79	131	55	50.6803 2000



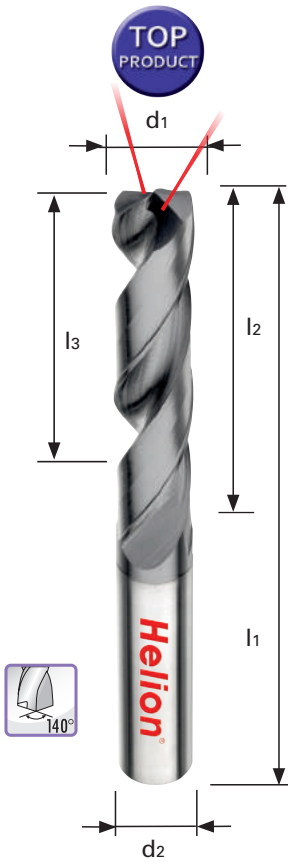
**SOLID CARBIDE DRILL**
**50.6005**

d1	d2	l2	l1	l3	Article No.
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0,60	3	10	50		50.6005 0060
0,70	3	10	50		50.6005 0070
0,80	3	10	50		50.6005 0080
0,90	3	10	50		50.6005 0090
1,00	3	10	55	7	50.6005 0100
1,10	3	12	55	10	50.6005 0110
1,20	3	12	55	10	50.6005 0120
1,30	3	12	55	10	50.6005 0130
1,40	3	12	55	10	50.6005 0140
1,50	3	12	55	10	50.6005 0150
1,60	3	16	55	13	50.6005 0160
1,70	3	16	55	13	50.6005 0170
1,80	3	16	55	13	50.6005 0180
1,90	3	16	55	13	50.6005 0190
2,00	3	21	57	16	50.6005 0200
2,10	3	21	57	16	50.6005 0210
2,20	3	21	57	16	50.6005 0220
2,30	3	21	57	16	50.6005 0230
2,40	3	21	57	16	50.6005 0240
2,50	3	21	57	16	50.6005 0250
2,60	3	21	57	19	50.6005 0260
2,70	3	21	57	19	50.6005 0270
2,80	3	21	57	19	50.6005 0280
2,90	3	21	57	19	50.6005 0290
3,00	6	28	66	23	50.6005 0300
3,10	6	28	66	23	50.6005 0310
3,20	6	28	66	23	50.6005 0320
3,30	6	28	66	23	50.6005 0330
3,40	6	28	66	23	50.6005 0340
3,50	6	28	66	23	50.6005 0350
3,60	6	28	66	23	50.6005 0360
3,70	6	28	66	23	50.6005 0370
3,80	6	36	74	29	50.6005 0380
3,90	6	36	74	29	50.6005 0390
4,00	6	36	74	29	50.6005 0400
4,10	6	36	74	29	50.6005 0410
4,20	6	36	74	29	50.6005 0420
4,30	6	36	74	29	50.6005 0430
4,40	6	36	74	29	50.6005 0440
4,50	6	36	74	29	50.6005 0450
4,60	6	36	74	29	50.6005 0460
4,65	6	36	74	29	50.6005 0465
4,70	6	36	74	29	50.6005 0470
4,80	6	44	82	35	50.6005 0480
4,90	6	44	82	35	50.6005 0490
5,00	6	44	82	35	50.6005 0500
5,10	6	44	82	35	50.6005 0510
5,20	6	44	82	35	50.6005 0520
5,30	6	44	82	35	50.6005 0530
5,40	6	44	82	35	50.6005 0540
5,50	6	44	82	35	50.6005 0550
5,60	6	44	82	35	50.6005 0560
5,70	6	44	82	35	50.6005 0570
5,80	6	44	82	35	50.6005 0580
5,90	6	44	82	35	50.6005 0590
6,00	6	44	82	35	50.6005 0600
6,10	8	53	91	43	50.6005 0610
6,20	8	53	91	43	50.6005 0620
6,30	8	53	91	43	50.6005 0630
6,40	8	53	91	43	50.6005 0640
6,50	8	53	91	43	50.6005 0650
6,60	8	53	91	43	50.6005 0660
6,70	8	53	91	43	50.6005 0670
6,80	8	53	91	43	50.6005 0680
6,90	8	53	91	43	50.6005 0690
7,00	8	53	91	43	50.6005 0700

d1	d2	l2	l1	l3	Article No.
7,10	8	53	91	43	50.6005 0710
7,20	8	53	91	43	50.6005 0720
7,30	8	53	91	43	50.6005 0730
7,40	8	53	91	43	50.6005 0740
7,50	8	53	91	43	50.6005 0750
7,60	8	53	91	43	50.6005 0760
7,70	8	53	91	43	50.6005 0770
7,80	8	53	91	43	50.6005 0780
7,90	8	53	91	43	50.6005 0790
8,00	8	53	91	43	50.6005 0800
8,10	10	61	103	49	50.6005 0810
8,20	10	61	103	49	50.6005 0820
8,30	10	61	103	49	50.6005 0830
8,40	10	61	103	49	50.6005 0840
8,50	10	61	103	49	50.6005 0850
8,60	10	61	103	49	50.6005 0860
8,70	10	61	103	49	50.6005 0870
8,80	10	61	103	49	50.6005 0880
8,90	10	61	103	49	50.6005 0890
9,00	10	61	103	49	50.6005 0900
9,10	10	61	103	49	50.6005 0910
9,20	10	61	103	49	50.6005 0920
9,30	10	61	103	49	50.6005 0930
9,40	10	61	103	49	50.6005 0940
9,50	10	61	103	49	50.6005 0950
9,60	10	61	103	49	50.6005 0960
9,70	10	61	103	49	50.6005 0970
9,80	10	61	103	49	50.6005 0980
9,90	10	61	103	49	50.6005 0990
10,00	10	61	103	49	50.6005 1000
10,10	12	71	118	56	50.6005 1010
10,20	12	71	118	56	50.6005 1020
10,30	12	71	118	56	50.6005 1030
10,40	12	71	118	56	50.6005 1040
10,50	12	71	118	56	50.6005 1050
10,60	12	71	118	56	50.6005 1060
10,70	12	71	118	56	50.6005 1070
10,80	12	71	118	56	50.6005 1080
10,90	12	71	118	56	50.6005 1090
11,00	12	71	118	56	50.6005 1100
11,10	12	71	118	56	50.6005 1110
11,20	12	71	118	56	50.6005 1120
11,30	12	71	118	56	50.6005 1130
11,40	12	71	118	56	50.6005 1140
11,50	12	71	118	56	50.6005 1150
11,60	12	71	118	56	50.6005 1160
11,70	12	71	118	56	50.6005 1170
11,80	12	71	118	56	50.6005 1180
11,90	12	71	118	56	50.6005 1190
12,00	12	71	118	56	50.6005 1200
12,20	14	77	124	60	50.6005 1220
12,30	14	77	124	60	50.6005 1230
12,50	14	77	124	60	50.6005 1250
12,80	14	77	124	60	50.6005 1280
13,00	14	77	124	60	50.6005 1300
13,50	14	77	124	60	50.6005 1350
13,80	14	77	124	60	50.6005 1380
14,00	14	77	124	60	50.6005 1400
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14,80	16	83	133	63	50.6005 1480
15,00	16	83	133	63	50.6005 1500
15,50	16	83	133	63	50.6005 1550
15,80	16	83	133	63	50.6005 1580
16,00	16	83	133	63	50.6005 1600
16,50	18	93	143	71	50.6005 1650
16,80	18	93	143	71	50.6005 1680
17,00	18	93	143	71	50.6005 1700



d1	d2	l2	l1	l3	Article No.
17,50	18	93	143	71	50.6005 1750
17,80	18	93	143	71	50.6005 1780
18,00	18	93	143	71	50.6005 1800
18,50	20	101	153	77	50.6005 1850
19,00	20	101	153	77	50.6005 1900
19,50	20	101	153	77	50.6005 1950
20,00	20	101	153	77	50.6005 2000



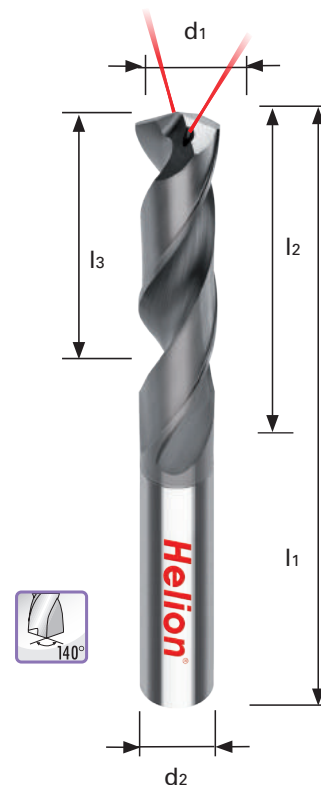
d1	d2	l2	l1	l3	Article No.
1,00	3	10	55	7	50.6805 0100
1,10	3	12	55	10	50.6805 0110
1,20	3	12	55	10	50.6805 0120
1,30	3	12	55	10	50.6805 0130
1,40	3	12	55	10	50.6805 0140
1,50	3	12	55	10	50.6805 0150
1,60	3	16	55	13	50.6805 0160
1,70	3	16	55	13	50.6805 0170
1,80	3	16	55	13	50.6805 0180
1,90	3	16	55	13	50.6805 0190

d1	d2	l2	l1	l3	Article No.
2,00	3	21	57	16	50.6805 0200
2,10	3	21	57	16	50.6805 0210
2,20	3	21	57	16	50.6805 0220
2,30	3	21	57	16	50.6805 0230
2,40	3	21	57	16	50.6805 0240
2,50	3	21	57	16	50.6805 0250
2,60	3	21	57	19	50.6805 0260
2,70	3	21	57	19	50.6805 0270
2,75	3	21	57	19	50.6805 0275
2,80	3	21	57	19	50.6805 0280
2,90	3	21	57	19	50.6805 0290
3,00	6	28	66	23	50.6805 0300
3,10	6	28	66	23	50.6805 0310
3,20	6	28	66	23	50.6805 0320
3,30	6	28	66	23	50.6805 0330
3,40	6	28	66	23	50.6805 0340
3,50	6	28	66	23	50.6805 0350
3,60	6	28	66	23	50.6805 0360
3,65	6	28	66	23	50.6805 0365
3,70	6	28	66	23	50.6805 0370
3,80	6	36	74	29	50.6805 0380
3,90	6	36	74	29	50.6805 0390
4,00	6	36	74	29	50.6805 0400
4,10	6	36	74	29	50.6805 0410
4,20	6	36	74	29	50.6805 0420
4,30	6	36	74	29	50.6805 0430
4,40	6	36	74	29	50.6805 0440
4,50	6	36	74	29	50.6805 0450
4,60	6	36	74	29	50.6805 0460
4,65	6	36	74	29	50.6805 0465
4,70	6	36	74	29	50.6805 0470
4,80	6	44	82	35	50.6805 0480
4,90	6	44	82	35	50.6805 0490
5,00	6	44	82	35	50.6805 0500
5,10	6	44	82	35	50.6805 0510
5,20	6	44	82	35	50.6805 0520
5,30	6	44	82	35	50.6805 0530
5,40	6	44	82	35	50.6805 0540
5,50	6	44	82	35	50.6805 0550
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5,65	6	44	82	35	50.6805 0565
5,70	6	44	82	35	50.6805 0570
5,80	6	44	82	35	50.6805 0580
5,90	6	44	82	35	50.6805 0590
6,00	6	44	82	35	50.6805 0600
6,10	8	53	91	43	50.6805 0610
6,20	8	53	91	43	50.6805 0620
6,30	8	53	91	43	50.6805 0630
6,40	8	53	91	43	50.6805 0640
6,50	8	53	91	43	50.6805 0650
6,60	8	53	91	43	50.6805 0660
6,70	8	53	91	43	50.6805 0670
6,80	8	53	91	43	50.6805 0680
6,90	8	53	91	43	50.6805 0690
7,00	8	53	91	43	50.6805 0700
7,10	8	53	91	43	50.6805 0710
7,20	8	53	91	43	50.6805 0720
7,30	8	53	91	43	50.6805 0730
7,40	8	53	91	43	50.6805 0740
7,50	8	53	91	43	50.6805 0750
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7,65	8	53	91	43	50.6805 0765
7,70	8	53	91	43	50.6805 0770
7,80	8	53	91	43	50.6805 0780
7,90	8	53	91	43	50.6805 0790
8,00	8	53	91	43	50.6805 0800

d1	d2	l2	l1	l3	Article No.
8,10	10	61	103	49	50.6805 0810
8,20	10	61	103	49	50.6805 0820
8,30	10	61	103	49	50.6805 0830
8,40	10	61	103	49	50.6805 0840
8,50	10	61	103	49	50.6805 0850
8,60	10	61	103	49	50.6805 0860
8,70	10	61	103	49	50.6805 0870
8,80	10	61	103	49	50.6805 0880
8,90	10	61	103	49	50.6805 0890
9,00	10	61	103	49	50.6805 0900
9,10	10	61	103	49	50.6805 0910
9,20	10	61	103	49	50.6805 0920
9,30	10	61	103	49	50.6805 0930
9,40	10	61	103	49	50.6805 0940
9,50	10	61	103	49	50.6805 0950
9,55	10	61	103	49	50.6805 0955
9,60	10	61	103	49	50.6805 0960
9,70	10	61	103	49	50.6805 0970
9,80	10	61	103	49	50.6805 0980
9,90	10	61	103	49	50.6805 0990
10,00	10	61	103	49	50.6805 1000
10,10	12	71	118	56	50.6805 1010
10,20	12	71	118	56	50.6805 1020
10,30	12	71	118	56	50.6805 1030
10,40	12	71	118	56	50.6805 1040
10,50	12	71	118	56	50.6805 1050
10,60	12	71	118	56	50.6805 1060
10,70	12	71	118	56	50.6805 1070
10,80	12	71	118	56	50.6805 1080
10,90	12	71	118	56	50.6805 1090
11,00	12	71	118	56	50.6805 1100
11,10	12	71	118	56	50.6805 1110
11,20	12	71	118	56	50.6805 1120
11,30	12	71	118	56	50.6805 1130
11,40	12	71	118	56	50.6805 1140
11,50	12	71	118	56	50.6805 1150
11,55	12	71	118	56	50.6805 1155
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11,70	12	71	118	56	50.6805 1170
11,80	12	71	118	56	50.6805 1180
11,90	12	71	118	56	50.6805 1190
12,00	12	71	118	56	50.6805 1200
12,20	14	77	124	60	50.6805 1220
12,30	14	77	124	60	50.6805 1230
12,50	14	77	124	60	50.6805 1250
12,80	14	77	124	60	50.6805 1280
13,00	14	77	124	60	50.6805 1300
13,50	14	77	124	60	50.6805 1350
13,80	14	77	124	60	50.6805 1380
14,00	14	77	124	60	50.6805 1400
14,50	16	83	133	63	50.6805 1450
14,80	16	83	133	63	50.6805 1480
15,00	16	83	133	63	50.6805 1500
15,10	16	83	133	63	50.6805 1510
15,50	16	83	133	63	50.6805 1550
15,80	16	83	133	63	50.6805 1580
16,00	16	83	133	63	50.6805 1600
16,50	18	93	143	71	50.6805 1650
16,80	18	93	143	71	50.6805 1680
17,00	18	93	143	71	50.6805 1700
17,50	18	93	143	71	50.6805 1750
17,80	18	93	143	71	50.6805 1780
18,00	18	93	143	71	50.6805 1800
18,50	20	101	153	77	50.6805 1850
19,00	20	101	153	77	50.6805 1900
19,50	20	101	153	77	50.6805 1950
20,00	20	101	153	77	50.6805 2000

d1	d2	l2	l1	l3	Article No.
1,00	3	10	55	7	51.1805 0100
1,10	3	12	55	10	51.1805 0110
1,20	3	12	55	10	51.1805 0120
1,30	3	12	55	10	51.1805 0130
1,40	3	12	55	10	51.1805 0140
1,50	3	12	55	10	51.1805 0150
1,60	3	16	55	13	51.1805 0160
1,70	3	16	55	13	51.1805 0170
1,80	3	16	55	13	51.1805 0180
1,90	3	16	55	13	51.1805 0190
2,00	3	21	57	16	51.1805 0200
2,10	3	21	57	16	51.1805 0210
2,20	3	21	57	16	51.1805 0220
2,30	3	21	57	16	51.1805 0230
2,40	3	21	57	16	51.1805 0240
2,50	3	21	57	16	51.1805 0250
2,60	3	21	57	19	51.1805 0260
2,70	3	21	57	19	51.1805 0270
2,80	3	21	57	19	51.1805 0280
2,90	3	21	57	19	51.1805 0290
3,00	6	28	66	23	51.1805 0300
3,10	6	28	66	23	51.1805 0310
3,20	6	28	66	23	51.1805 0320
3,30	6	28	66	23	51.1805 0330
3,40	6	28	66	23	51.1805 0340
3,50	6	28	66	23	51.1805 0350
3,60	6	28	66	23	51.1805 0360
3,70	6	28	66	23	51.1805 0370
3,80	6	36	74	29	51.1805 0380
3,90	6	36	74	29	51.1805 0390
4,00	6	36	74	29	51.1805 0400
4,10	6	36	74	29	51.1805 0410
4,20	6	36	74	29	51.1805 0420
4,30	6	36	74	29	51.1805 0430
4,40	6	36	74	29	51.1805 0440
4,50	6	36	74	29	51.1805 0450
4,60	6	36	74	29	51.1805 0460
4,65	6	36	74	29	51.1805 0465
4,70	6	36	74	29	51.1805 0470
4,80	6	44	82	35	51.1805 0480
4,90	6	44	82	35	51.1805 0490
5,00	6	44	82	35	51.1805 0500
5,10	6	44	82	35	51.1805 0510
5,20	6	44	82	35	51.1805 0520
5,30	6	44	82	35	51.1805 0530
5,40	6	44	82	35	51.1805 0540
5,50	6	44	82	35	51.1805 0550
5,60	6	44	82	35	51.1805 0560
5,70	6	44	82	35	51.1805 0570
5,80	6	44	82	35	51.1805 0580
5,90	6	44	82	35	51.1805 0590
6,00	6	44	82	35	51.1805 0600
6,10	8	53	91	43	51.1805 0610
6,20	8	53	91	43	51.1805 0620
6,30	8	53	91	43	51.1805 0630
6,40	8	53	91	43	51.1805 0640
6,50	8	53	91	43	51.1805 0650
6,60	8	53	91	43	51.1805 0660
6,70	8	53	91	43	51.1805 0670
6,80	8	53	91	43	51.1805 0680
6,90	8	53	91	43	51.1805 0690
7,00	8	53	91	43	51.1805 0700
7,10	8	53	91	43	51.1805 0710
7,20	8	53	91	43	51.1805 0720
7,30	8	53	91	43	51.1805 0730
7,40	8	53	91	43	51.1805 0740
7,50	8	53	91	43	51.1805 0750

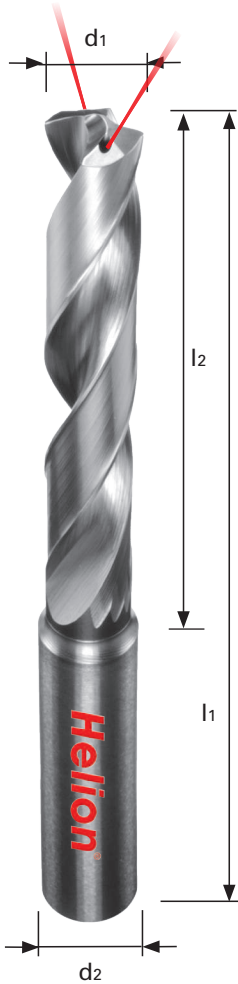
d1	d2	l2	l1	l3	Article No.
7,60	8	53	91	43	51.1805 0760
7,70	8	53	91	43	51.1805 0770
7,80	8	53	91	43	51.1805 0780
7,90	8	53	91	43	51.1805 0790
8,00	8	53	91	43	51.1805 0800
8,10	10	61	103	49	51.1805 0810
8,20	10	61	103	49	51.1805 0820
8,30	10	61	103	49	51.1805 0830
8,40	10	61	103	49	51.1805 0840
8,50	10	61	103	49	51.1805 0850
8,60	10	61	103	49	51.1805 0860
8,70	10	61	103	49	51.1805 0870
8,80	10	61	103	49	51.1805 0880
8,90	10	61	103	49	51.1805 0890
9,00	10	61	103	49	51.1805 0900
9,10	10	61	103	49	51.1805 0910
9,20	10	61	103	49	51.1805 0920
9,30	10	61	103	49	51.1805 0930
9,40	10	61	103	49	51.1805 0940
9,50	10	61	103	49	51.1805 0950
9,60	10	61	103	49	51.1805 0960
9,70	10	61	103	49	51.1805 0970
9,80	10	61	103	49	51.1805 0980
9,90	10	61	103	49	51.1805 0990
10,00	10	61	103	49	51.1805 1000
10,10	12	71	118	56	51.1805 1010
10,20	12	71	118	56	51.1805 1020
10,30	12	71	118	56	51.1805 1030
10,40	12	71	118	56	51.1805 1040
10,50	12	71	118	56	51.1805 1050
10,60	12	71	118	56	51.1805 1060
10,70	12	71	118	56	51.1805 1070
10,80	12	71	118	56	51.1805 1080
10,90	12	71	118	56	51.1805 1090
11,00	12	71	118	56	51.1805 1100
11,10	12	71	118	56	51.1805 1110
11,20	12	71	118	56	51.1805 1120
11,30	12	71	118	56	51.1805 1130
11,40	12	71	118	56	51.1805 1140
11,50	12	71	118	56	51.1805 1150
11,60	12	71	118	56	51.1805 1160
11,70	12	71	118	56	51.1805 1170
11,80	12	71	118	56	51.1805 1180
11,90	12	71	118	56	51.1805 1190
12,00	12	71	118	56	51.1805 1200
12,20	14	77	124	60	51.1805 1220
12,30	14	77	124	60	51.1805 1230
12,50	14	77	124	60	51.1805 1250
12,80	14	77	124	60	51.1805 1280
13,00	14	77	124	60	51.1805 1300
13,50	14	77	124	60	51.1805 1350
13,80	14	77	124	60	51.1805 1380
14,00	14	77	124	60	51.1805 1400
14,50	16	83	133	63	51.1805 1450
14,80	16	83	133	63	51.1805 1480
15,00	16	83	133	63	51.1805 1500
15,50	16	83	133	63	51.1805 1550
15,80	16	83	133	63	51.1805 1580
16,00	16	83	133	63	51.1805 1600
16,50	18	93	143	71	51.1805 1650
16,80	18	93	143	71	51.1805 1680
17,00	18	93	143	71	51.1805 1700
17,50	18	93	143	71	51.1805 1750
17,80	18	93	143	71	51.1805 1780
18,00	18	93	143	71	51.1805 1800
18,50	20	101	153	77	51.1805 1850
19,00	20	101	153	77	51.1805 1900



d1	d2	l2	l1	l3	Article No.
19,50	20	101	153	77	51.1805 1950
20,00	20	101	153	77	51.1805 2000

# 50.2805

## SOLID CARBIDE HIGH POWER DRILL



d1	d2	l2	l1	NL	Article No.
3,0	6	28	66	23	50.2805 0300
3,1	6	28	66	23	50.2805 0310
3,2	6	28	66	23	50.2805 0320
3,3	6	28	66	23	50.2805 0330
3,4	6	28	66	23	50.2805 0340
3,5	6	28	66	23	50.2805 0350
3,6	6	28	66	23	50.2805 0360
3,7	6	28	66	23	50.2805 0370
3,8	6	36	74	29	50.2805 0380
3,9	6	36	74	29	50.2805 0390
4,0	6	36	74	29	50.2805 0400
4,1	6	36	74	29	50.2805 0410
4,2	6	36	74	29	50.2805 0420
4,3	6	36	74	29	50.2805 0430
4,4	6	36	74	29	50.2805 0440
4,5	6	36	74	29	50.2805 0450
4,6	6	36	74	29	50.2805 0460
4,65	6	36	74	29	50.2805 0465
4,7	6	36	74	29	50.2805 0470
4,8	6	44	82	35	50.2805 0480
4,9	6	44	82	35	50.2805 0490
5,0	6	44	82	35	50.2805 0500
5,1	6	44	82	35	50.2805 0510
5,2	6	44	82	35	50.2805 0520
5,3	6	44	82	35	50.2805 0530
5,4	6	44	82	35	50.2805 0540
5,5	6	44	82	35	50.2805 0550
5,55	6	44	82	35	50.2805 0555
5,6	6	44	82	35	50.2805 0560
5,7	6	44	82	35	50.2805 0570
5,8	6	44	82	35	50.2805 0580
5,9	6	44	82	35	50.2805 0590
6,0	6	44	82	35	50.2805 0600
6,1	8	53	91	43	50.2805 0610
6,2	8	53	91	43	50.2805 0620
6,3	8	53	91	43	50.2805 0630
6,4	8	53	91	43	50.2805 0640
6,5	8	53	91	43	50.2805 0650
6,6	8	53	91	43	50.2805 0660
6,7	8	53	91	43	50.2805 0670
6,8	8	53	91	43	50.2805 0680
6,9	8	53	91	43	50.2805 0690
7,0	8	53	91	43	50.2805 0700
7,1	8	53	91	43	50.2805 0710
7,2	8	53	91	43	50.2805 0720
7,3	8	53	91	43	50.2805 0730
7,4	8	53	91	43	50.2805 0740
7,5	8	53	91	43	50.2805 0750
7,6	8	53	91	43	50.2805 0760
7,7	8	53	91	43	50.2805 0770
7,8	8	53	91	43	50.2805 0780
7,9	8	53	91	43	50.2805 0790
8,0	8	53	91	43	50.2805 0800
8,1	10	61	103	49	50.2805 0810
8,2	10	61	103	49	50.2805 0820
8,3	10	61	103	49	50.2805 0830
8,4	10	61	103	49	50.2805 0840
8,5	10	61	103	49	50.2805 0850
8,6	10	61	103	49	50.2805 0860
8,7	10	61	103	49	50.2805 0870
8,8	10	61	103	49	50.2805 0880
8,9	10	61	103	49	50.2805 0890
9,0	10	61	103	49	50.2805 0900
9,1	10	61	103	49	50.2805 0910
9,2	10	61	103	49	50.2805 0920
9,3	10	61	103	49	50.2805 0930
9,4	10	61	103	49	50.2805 0940

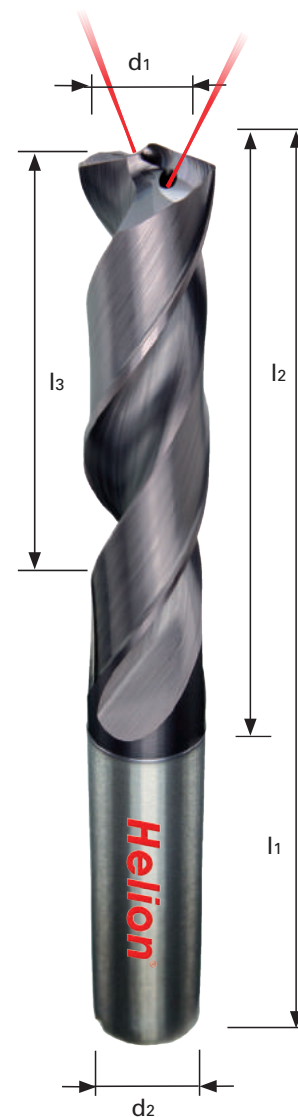
d1	d2	l2	l1	NL	Article No.
9,5	10	61	103	49	50.2805 0950
9,6	10	61	103	49	50.2805 0960
9,7	10	61	103	49	50.2805 0970
9,8	10	61	103	49	50.2805 0980
9,9	10	61	103	49	50.2805 0990
10,0	10	61	103	49	50.2805 1000
10,1	12	71	118	56	50.2805 1010
10,2	12	71	118	56	50.2805 1020
10,3	12	71	118	56	50.2805 1030
10,4	12	71	118	56	50.2805 1040
10,5	12	71	118	56	50.2805 1050
10,6	12	71	118	56	50.2805 1060
10,7	12	71	118	56	50.2805 1070
10,8	12	71	118	56	50.2805 1080
10,9	12	71	118	56	50.2805 1090
11,0	12	71	118	56	50.2805 1100
11,1	12	71	118	56	50.2805 1110
11,2	12	71	118	56	50.2805 1120
11,3	12	71	118	56	50.2805 1130
11,4	12	71	118	56	50.2805 1140
11,5	12	71	118	56	50.2805 1150
11,6	12	71	118	56	50.2805 1160
11,7	12	71	118	56	50.2805 1170
11,8	12	71	118	56	50.2805 1180
11,9	12	71	118	56	50.2805 1190
12,0	12	71	118	56	50.2805 1200
12,2	14	77	124	60	50.2805 1220
12,3	14	77	124	60	50.2805 1230
12,5	14	77	124	60	50.2805 1250
12,8	14	77	124	60	50.2805 1280
13,0	14	77	124	60	50.2805 1300
13,5	14	77	124	60	50.2805 1350
13,8	14	77	124	60	50.2805 1380
14,0	14	77	124	60	50.2805 1400
14,5	16	83	133	63	50.2805 1450
14,8	16	83	133	63	50.2805 1480
15,0	16	83	133	63	50.2805 1500
15,5	16	83	133	63	50.2805 1550
15,8	16	83	133	63	50.2805 1580
16,0	16	83	133	63	50.2805 1600
16,5	18	93	143	71	50.2805 1650
16,8	18	93	143	71	50.2805 1680
17,0	18	93	143	71	50.2805 1700
17,5	18	93	143	71	50.2805 1750
17,8	18	93	143	71	50.2805 1780
18,0	18	93	143	71	50.2805 1800
18,5	20	101	153	77	50.2805 1850
19,0	20	101	153	77	50.2805 1900
19,5	20	101	153	77	50.2805 1950
20,0	20	101	153	77	50.2805 2000

NACRO		3-FASEN
	5xD	UNI
STEEL <55 HRC	INOX	GG(G)
PLASTIC	COPPER	ALU NE

**SOLID CARBIDE HIGH POWER DRILL**
**51.6805**

d1	d2	l2	l1	l3	Article No.
3,0	6	28	66	23	51.6805 0300
3,1	6	28	66	23	51.6805 0310
3,2	6	28	66	23	51.6805 0320
3,3	6	28	66	23	51.6805 0330
3,4	6	28	66	23	51.6805 0340
3,5	6	28	66	23	51.6805 0350
3,6	6	28	66	23	51.6805 0360
3,7	6	28	66	23	51.6805 0370
3,8	6	36	74	29	51.6805 0380
3,9	6	36	74	29	51.6805 0390
4,0	6	36	74	29	51.6805 0400
4,1	6	36	74	29	51.6805 0410
4,2	6	36	74	29	51.6805 0420
4,3	6	36	74	29	51.6805 0430
4,4	6	36	74	29	51.6805 0440
4,5	6	36	74	29	51.6805 0450
4,6	6	36	74	29	51.6805 0460
4,65	6	36	74	29	51.6805 0465
4,7	6	36	74	29	51.6805 0470
4,8	6	44	82	35	51.6805 0480
4,9	6	44	82	35	51.6805 0490
5,0	6	44	82	35	51.6805 0500
5,1	6	44	82	35	51.6805 0510
5,2	6	44	82	35	51.6805 0520
5,3	6	44	82	35	51.6805 0530
5,4	6	44	82	35	51.6805 0540
5,5	6	44	82	35	51.6805 0550
5,6	6	44	82	35	51.6805 0560
5,7	6	44	82	35	51.6805 0570
5,8	6	44	82	35	51.6805 0580
5,9	6	44	82	35	51.6805 0590
6,0	6	44	82	35	51.6805 0600
6,1	8	53	91	43	51.6805 0610
6,2	8	53	91	43	51.6805 0620
6,3	8	53	91	43	51.6805 0630
6,4	8	53	91	43	51.6805 0640
6,5	8	53	91	43	51.6805 0650
6,6	8	53	91	43	51.6805 0660
6,7	8	53	91	43	51.6805 0670
6,8	8	53	91	43	51.6805 0680
6,9	8	53	91	43	51.6805 0690
7,0	8	53	91	43	51.6805 0700
7,1	8	53	91	43	51.6805 0710
7,2	8	53	91	43	51.6805 0720
7,3	8	53	91	43	51.6805 0730
7,4	8	53	91	43	51.6805 0740
7,5	8	53	91	43	51.6805 0750
7,6	8	53	91	43	51.6805 0760
7,7	8	53	91	43	51.6805 0770
7,8	8	53	91	43	51.6805 0780
7,9	8	53	91	43	51.6805 0790
8,0	8	53	91	43	51.6805 0800
8,1	10	61	103	49	51.6805 0810
8,2	10	61	103	49	51.6805 0820
8,3	10	61	103	49	51.6805 0830
8,4	10	61	103	49	51.6805 0840
8,5	10	61	103	49	51.6805 0850
8,6	10	61	103	49	51.6805 0860
8,7	10	61	103	49	51.6805 0870
8,8	10	61	103	49	51.6805 0880
8,9	10	61	103	49	51.6805 0890
9,0	10	61	103	49	51.6805 0900
9,1	10	61	103	49	51.6805 0910
9,2	10	61	103	49	51.6805 0920
9,3	10	61	103	49	51.6805 0930
9,4	10	61	103	49	51.6805 0940
9,5	10	61	103	49	51.6805 0950

d1	d2	l2	l1	l3	Article No.
9,6	10	61	103	49	51.6805 0960
9,7	10	61	103	49	51.6805 0970
9,8	10	61	103	49	51.6805 0980
9,9	10	61	103	49	51.6805 0990
10,0	10	61	103	49	51.6805 1000
10,1	12	71	118	56	51.6805 1010
10,2	12	71	118	56	51.6805 1020
10,3	12	71	118	56	51.6805 1030
10,4	12	71	118	56	51.6805 1040
10,5	12	71	118	56	51.6805 1050
10,6	12	71	118	56	51.6805 1060
10,7	12	71	118	56	51.6805 1070
10,8	12	71	118	56	51.6805 1080
10,9	12	71	118	56	51.6805 1090
11,0	12	71	118	56	51.6805 1100
11,1	12	71	118	56	51.6805 1110
11,2	12	71	118	56	51.6805 1120
11,3	12	71	118	56	51.6805 1130
11,4	12	71	118	56	51.6805 1140
11,5	12	71	118	56	51.6805 1150
11,6	12	71	118	56	51.6805 1160
11,7	12	71	118	56	51.6805 1170
11,8	12	71	118	56	51.6805 1180
11,9	12	71	118	56	51.6805 1190
12,0	12	71	118	56	51.6805 1200
12,2	14	77	124	60	51.6805 1220
12,3	14	77	124	60	51.6805 1230
12,5	14	77	124	60	51.6805 1250
12,8	14	77	124	60	51.6805 1280
13,0	14	77	124	60	51.6805 1300
13,5	14	77	124	60	51.6805 1350
13,8	14	77	124	60	51.6805 1380
14,0	14	77	124	60	51.6805 1400
14,5	16	83	133	63	51.6805 1450
14,8	16	83	133	63	51.6805 1480
15,0	16	83	133	63	51.6805 1500
15,5	16	83	133	63	51.6805 1550
15,8	16	83	133	63	51.6805 1580
16,0	16	83	133	63	51.6805 1600
16,5	18	93	143	71	51.6805 1650
16,8	18	93	143	71	51.6805 1680
17,0	18	93	143	71	51.6805 1700
17,5	18	93	143	71	51.6805 1750
17,8	18	93	143	71	51.6805 1780
18,0	18	93	143	71	51.6805 1800
18,5	20	101	153	77	51.6805 1850
19,0	20	101	153	77	51.6805 1900
19,5	20	101	153	77	51.6805 1950
20,0	20	101	153	77	51.6805 2000

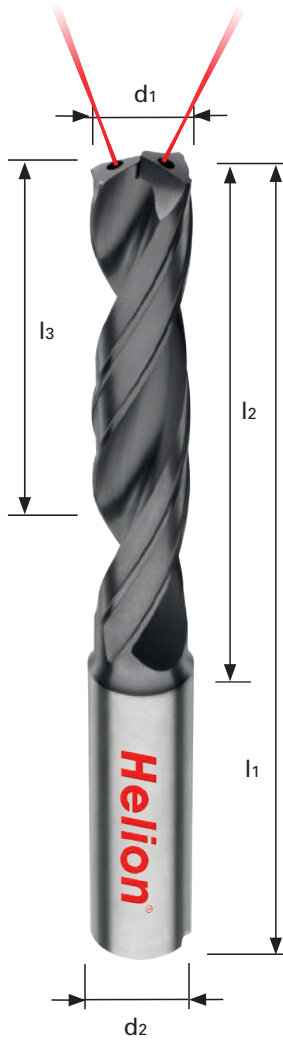


solid carbide end mills

reamers and senkers

**drills**

threading tools



d1	d2	l2	l1	l3	Article No.
3,0	6	28	66	23	57.6815 0300
3,1	6	28	66	23	57.6815 0310
3,2	6	28	66	23	57.6815 0320
3,3	6	28	66	23	57.6815 0330
3,4	6	28	66	23	57.6815 0340
3,5	6	28	66	23	57.6815 0350
3,6	6	28	66	23	57.6815 0360
3,7	6	28	66	23	57.6815 0370
3,8	6	36	74	29	57.6815 0380
3,9	6	36	74	29	57.6815 0390
4,0	6	36	74	29	57.6815 0400
4,1	6	36	74	29	57.6815 0410
4,2	6	36	74	29	57.6815 0420
4,3	6	36	74	29	57.6815 0430
4,4	6	36	74	29	57.6815 0440
4,5	6	36	74	29	57.6815 0450
4,6	6	36	74	29	57.6815 0460
4,7	6	36	74	29	57.6815 0470
4,8	6	44	82	35	57.6815 0480
4,9	6	44	82	35	57.6815 0490
5,0	6	44	82	35	57.6815 0500
5,1	6	44	82	35	57.6815 0510
5,2	6	44	82	35	57.6815 0520
5,3	6	44	82	35	57.6815 0530
5,4	6	44	82	35	57.6815 0540
5,5	6	44	82	35	57.6815 0550
5,6	6	44	82	35	57.6815 0560
5,7	6	44	82	35	57.6815 0570
5,8	6	44	82	35	57.6815 0580
5,9	6	44	82	35	57.6815 0590
6,0	6	44	82	35	57.6815 0600
6,1	8	53	91	43	57.6815 0610
6,2	8	53	91	43	57.6815 0620
6,3	8	53	91	43	57.6815 0630
6,4	8	53	91	43	57.6815 0640
6,5	8	53	91	43	57.6815 0650
6,6	8	53	91	43	57.6815 0660
6,7	8	53	91	43	57.6815 0670
6,8	8	53	91	43	57.6815 0680
6,9	8	53	91	43	57.6815 0690
7,0	8	53	91	43	57.6815 0700
7,1	8	53	91	43	57.6815 0710
7,2	8	53	91	43	57.6815 0720
7,3	8	53	91	43	57.6815 0730
7,4	8	53	91	43	57.6815 0740
7,5	8	53	91	43	57.6815 0750
7,6	8	53	91	43	57.6815 0760
7,7	8	53	91	43	57.6815 0770
7,8	8	53	91	43	57.6815 0780
7,9	8	53	91	43	57.6815 0790
8,0	8	53	91	43	57.6815 0800
8,1	10	61	103	49	57.6815 0810
8,2	10	61	103	49	57.6815 0820
8,3	10	61	103	49	57.6815 0830
8,4	10	61	103	49	57.6815 0840
8,5	10	61	103	49	57.6815 0850
8,6	10	61	103	49	57.6815 0860
8,7	10	61	103	49	57.6815 0870
8,8	10	61	103	49	57.6815 0880
8,9	10	61	103	49	57.6815 0890
9,0	10	61	103	49	57.6815 0900
9,1	10	61	103	49	57.6815 0910
9,2	10	61	103	49	57.6815 0920
9,3	10	61	103	49	57.6815 0930
9,4	10	61	103	49	57.6815 0940
9,5	10	61	103	49	57.6815 0950
9,6	10	61	103	49	57.6815 0960

d1	d2	l2	l1	l3	Article No.
9,7	10	61	103	49	57.6815 0970
9,8	10	61	103	49	57.6815 0980
9,9	10	61	103	49	57.6815 0990
10,0	10	61	103	49	57.6815 1000
10,1	12	71	118	56	57.6815 1010
10,2	12	71	118	56	57.6815 1020
10,3	12	71	118	56	57.6815 1030
10,4	12	71	118	56	57.6815 1040
10,5	12	71	118	56	57.6815 1050
10,6	12	71	118	56	57.6815 1060
10,7	12	71	118	56	57.6815 1070
10,8	12	71	118	56	57.6815 1080
10,9	12	71	118	56	57.6815 1090
11,0	12	71	118	56	57.6815 1100
11,1	12	71	118	56	57.6815 1110
11,2	12	71	118	56	57.6815 1120
11,3	12	71	118	56	57.6815 1130
11,4	12	71	118	56	57.6815 1140
11,5	12	71	118	56	57.6815 1150
11,6	12	71	118	56	57.6815 1160
11,7	12	71	118	56	57.6815 1170
11,8	12	71	118	56	57.6815 1180
11,9	12	71	118	56	57.6815 1190
12,0	12	71	118	56	57.6815 1200
12,2	14	77	124	60	57.6815 1220
12,3	14	77	124	60	57.6815 1230
12,5	14	77	124	60	57.6815 1250
12,8	14	77	124	60	57.6815 1280
13,0	14	77	124	60	57.6815 1300
13,5	14	77	124	60	57.6815 1350
13,8	14	77	124	60	57.6815 1380
14,0	14	77	124	60	57.6815 1400
14,5	16	83	133	63	57.6815 1450
14,8	16	83	133	63	57.6815 1480
15,0	16	83	133	63	57.6815 1500
15,5	16	83	133	63	57.6815 1550
15,8	16	83	133	63	57.6815 1580
16,0	16	83	133	63	57.6815 1600
16,5	18	93	143	71	57.6815 1650
16,8	18	93	143	71	57.6815 1680
17,0	18	93	143	71	57.6815 1700
17,5	18	93	143	71	57.6815 1750
17,8	18	93	143	71	57.6815 1780
18,0	18	93	143	71	57.6815 1800
18,5	20	101	153	77	57.6815 1850
19,0	20	101	153	77	57.6815 1900
19,5	20	101	153	77	57.6815 1950
20,0	20	101	153	77	57.6815 2000

TIALN	4-FASEN	5xD
IC	HA	UNI
STEEL <55 HRC	INOX	GG(G)
PLASTIC	COPPER	ALU NE

**SOLID CARBIDE HIGH POWER DRILL ALU**
**54.3805**

d1	d2	l2	l1	l3	Article No.
3,0	6	28	66	23	54.3805 0300
3,1	6	28	66	23	54.3805 0310
3,2	6	28	66	23	54.3805 0320
3,3	6	28	66	23	54.3805 0330
3,4	6	28	66	23	54.3805 0340
3,5	6	28	66	23	54.3805 0350
3,6	6	28	66	23	54.3805 0360
3,7	6	28	66	23	54.3805 0370
3,8	6	36	74	29	54.3805 0380
3,9	6	36	74	29	54.3805 0390
4,0	6	36	74	29	54.3805 0400
4,1	6	36	74	29	54.3805 0410
4,2	6	36	74	29	54.3805 0420
4,3	6	36	74	29	54.3805 0430
4,4	6	36	74	29	54.3805 0440
4,5	6	36	74	29	54.3805 0450
4,6	6	36	74	29	54.3805 0460
4,7	6	36	74	29	54.3805 0470
4,8	6	44	82	35	54.3805 0480
4,9	6	44	82	35	54.3805 0490
5,0	6	44	82	35	54.3805 0500
5,1	6	44	82	35	54.3805 0510
5,2	6	44	82	35	54.3805 0520
5,3	6	44	82	35	54.3805 0530
5,4	6	44	82	35	54.3805 0540
5,5	6	44	82	35	54.3805 0550
5,6	6	44	82	35	54.3805 0560
5,7	6	44	82	35	54.3805 0570
5,8	6	44	82	35	54.3805 0580
5,9	6	44	82	35	54.3805 0590
6,0	6	44	82	35	54.3805 0600
6,1	8	53	91	43	54.3805 0610
6,2	8	53	91	43	54.3805 0620
6,3	8	53	91	43	54.3805 0630
6,4	8	53	91	43	54.3805 0640
6,5	8	53	91	43	54.3805 0650
6,6	8	53	91	43	54.3805 0660
6,7	8	53	91	43	54.3805 0670
6,8	8	53	91	43	54.3805 0680
6,9	8	53	91	43	54.3805 0690
7,0	8	53	91	43	54.3805 0700
7,1	8	53	91	43	54.3805 0710
7,2	8	53	91	43	54.3805 0720
7,3	8	53	91	43	54.3805 0730
7,4	8	53	91	43	54.3805 0740
7,5	8	53	91	43	54.3805 0750
7,6	8	53	91	43	54.3805 0760
7,7	8	53	91	43	54.3805 0770
7,8	8	53	91	43	54.3805 0780
7,9	8	53	91	43	54.3805 0790
8,0	8	53	91	43	54.3805 0800
8,1	10	61	103	49	54.3805 0810
8,2	10	61	103	49	54.3805 0820
8,3	10	61	103	49	54.3805 0830
8,4	10	61	103	49	54.3805 0840
8,5	10	61	103	49	54.3805 0850
8,6	10	61	103	49	54.3805 0860
8,7	10	61	103	49	54.3805 0870
8,8	10	61	103	49	54.3805 0880
8,9	10	61	103	49	54.3805 0890
9,0	10	61	103	49	54.3805 0900
9,1	10	61	103	49	54.3805 0910
9,2	10	61	103	49	54.3805 0920
9,3	10	61	103	49	54.3805 0930
9,4	10	61	103	49	54.3805 0940
9,5	10	61	103	49	54.3805 0950
9,6	10	61	103	49	54.3805 0960

d1	d2	l2	l1	l3	Article No.
9,7	10	61	103	49	54.3805 0970
9,8	10	61	103	49	54.3805 0980
9,9	10	61	103	49	54.3805 0990
10,0	10	61	103	49	54.3805 1000
10,1	12	71	118	56	54.3805 1010
10,2	12	71	118	56	54.3805 1020
10,3	12	71	118	56	54.3805 1030
10,4	12	71	118	56	54.3805 1040
10,5	12	71	118	56	54.3805 1050
10,6	12	71	118	56	54.3805 1060
10,7	12	71	118	56	54.3805 1070
10,8	12	71	118	56	54.3805 1080
10,9	12	71	118	56	54.3805 1090
11,0	12	71	118	56	54.3805 1100
11,1	12	71	118	56	54.3805 1110
11,2	12	71	118	56	54.3805 1120
11,3	12	71	118	56	54.3805 1130
11,4	12	71	118	56	54.3805 1140
11,5	12	71	118	56	54.3805 1150
11,6	12	71	118	56	54.3805 1160
11,7	12	71	118	56	54.3805 1170
11,8	12	71	118	56	54.3805 1180
11,9	12	71	118	56	54.3805 1190
12,0	12	71	118	56	54.3805 1200
12,2	14	77	124	60	54.3805 1220
12,3	14	77	124	60	54.3805 1230
12,5	14	77	124	60	54.3805 1250
12,8	14	77	124	60	54.3805 1280
13,0	14	77	124	60	54.3805 1300
13,5	14	77	124	60	54.3805 1350
13,8	14	77	124	60	54.3805 1380
14,0	14	77	124	60	54.3805 1400
14,5	16	83	133	63	54.3805 1450
14,8	16	83	133	63	54.3805 1480
15,0	16	83	133	63	54.3805 1500
15,5	16	83	133	63	54.3805 1550
15,8	16	83	133	63	54.3805 1580
16,0	16	83	133	63	54.3805 1600
16,5	18	93	143	71	54.3805 1650
16,8	18	93	143	71	54.3805 1680
17,0	18	93	143	71	54.3805 1700
17,5	18	93	143	71	54.3805 1750
17,8	18	93	143	71	54.3805 1780
18,0	18	93	143	71	54.3805 1800
18,5	20	101	153	77	54.3805 1850
19,0	20	101	153	77	54.3805 1900
19,5	20	101	153	77	54.3805 1950
20,0	20	101	153	77	54.3805 2000



		5xD
ZrN	ALU NE	UNI
STEEL <55 HRC	INOX	GG(G)
PLASTIC	COPPER	ALU NE

solid carbide end mills

reamers and senkers

**drills**

threading tools





d1	d2	l2	l1	l3	Article No.
1,0	3	11	55	9	50.6808 0100
1,1	3	17	55	13,5	50.6808 0110
1,2	3	17	55	13,5	50.6808 0120
1,3	3	17	55	13,5	50.6808 0130
1,4	3	17	55	13,5	50.6808 0140
1,5	3	22	65	17,5	50.6808 0150
1,6	3	22	65	17,5	50.6808 0160
1,7	3	22	65	17,5	50.6808 0170
1,8	3	22	65	17,5	50.6808 0180
1,9	3	22	65	17,5	50.6808 0190
2,0	3	28	74	22,5	50.6808 0200
2,1	3	28	74	22,5	50.6808 0210
2,2	3	28	74	22,5	50.6808 0220
2,3	3	28	74	22,5	50.6808 0230
2,4	3	28	74	22,5	50.6808 0240
2,5	3	32	81	22,5	50.6808 0250
2,6	3	32	81	22,5	50.6808 0260
2,7	3	32	81	22,5	50.6808 0270
2,8	3	32	81	22,5	50.6808 0280
2,9	3	32	81	22,5	50.6808 0290
3,0	6	34	72	27	50.6808 0300
3,1	6	34	72	27	50.6808 0310
3,2	6	34	72	27	50.6808 0320
3,3	6	34	72	27	50.6808 0330
3,4	6	34	72	27	50.6808 0340
3,5	6	34	72	27	50.6808 0350
3,6	6	34	72	27	50.6808 0360
3,7	6	34	72	27	50.6808 0370
3,8	6	43	81	35	50.6808 0380
3,9	6	43	81	35	50.6808 0390
4,0	6	43	81	35	50.6808 0400
4,1	6	43	81	35	50.6808 0410
4,2	6	43	81	35	50.6808 0420
4,3	6	43	81	35	50.6808 0430
4,4	6	43	81	35	50.6808 0440
4,5	6	43	81	35	50.6808 0450
4,6	6	43	81	35	50.6808 0460
4,7	6	57	95	35	50.6808 0470
4,8	6	57	95	45	50.6808 0480
4,9	6	57	95	45	50.6808 0490
5,0	6	57	95	45	50.6808 0500
5,1	6	57	95	45	50.6808 0510
5,2	6	57	95	45	50.6808 0520
5,3	6	57	95	45	50.6808 0530
5,4	6	57	95	45	50.6808 0540
5,5	6	57	95	45	50.6808 0550
5,6	6	57	95	45	50.6808 0560
5,7	6	57	95	45	50.6808 0570
5,8	6	57	95	45	50.6808 0580
5,9	6	57	95	45	50.6808 0590
6,0	6	57	95	45	50.6808 0600
6,1	8	76	114	52	50.6808 0610
6,2	8	76	114	52	50.6808 0620
6,3	8	76	114	52	50.6808 0630
6,4	8	76	114	52	50.6808 0640
6,5	8	76	114	52	50.6808 0650
6,6	8	76	114	52	50.6808 0660
6,7	8	76	114	52	50.6808 0670
6,8	8	76	114	52	50.6808 0680
6,9	8	76	114	52	50.6808 0690

d1	d2	l2	l1	l3	Article No.
7,0	8	76	114	60	50.6808 0700
7,1	8	76	114	60	50.6808 0710
7,2	8	76	114	60	50.6808 0720
7,3	8	76	114	60	50.6808 0730
7,4	8	76	114	60	50.6808 0740
7,5	8	76	114	60	50.6808 0750
7,6	8	76	114	60	50.6808 0760
7,7	8	76	114	60	50.6808 0770
7,8	8	76	114	60	50.6808 0780
7,9	8	76	114	60	50.6808 0790
8,0	8	76	114	60	50.6808 0800
8,1	10	95	142	68	50.6808 0810
8,2	10	95	142	68	50.6808 0820
8,3	10	95	142	68	50.6808 0830
8,4	10	95	142	68	50.6808 0840
8,5	10	95	142	68	50.6808 0850
8,6	10	95	142	68	50.6808 0860
8,7	10	95	142	68	50.6808 0870
8,8	10	95	142	68	50.6808 0880
8,9	10	95	142	68	50.6808 0890
9,0	10	95	142	68	50.6808 0900
9,1	10	95	142	76	50.6808 0910
9,2	10	95	142	76	50.6808 0920
9,3	10	95	142	76	50.6808 0930
9,4	10	95	142	76	50.6808 0940
9,5	10	95	142	76	50.6808 0950
9,6	10	95	142	76	50.6808 0960
9,7	10	95	142	76	50.6808 0970
9,8	10	95	142	76	50.6808 0980
9,9	10	95	142	76	50.6808 0990
10,0	10	95	142	76	50.6808 1000
10,1	12	114	162	90	50.6808 1010
10,2	12	114	162	90	50.6808 1020
10,3	12	114	162	90	50.6808 1030
10,4	12	114	162	90	50.6808 1040
10,5	12	114	162	90	50.6808 1050
10,6	12	114	162	90	50.6808 1060
10,7	12	114	162	90	50.6808 1070
10,8	12	114	162	90	50.6808 1080
10,9	12	114	162	90	50.6808 1090
11,0	12	114	162	90	50.6808 1100
11,1	12	114	162	90	50.6808 1110
11,2	12	114	162	90	50.6808 1120
11,3	12	114	162	90	50.6808 1130
11,4	12	114	162	90	50.6808 1140
11,5	12	114	162	90	50.6808 1150
11,6	12	114	162	90	50.6808 1160
11,7	12	114	162	90	50.6808 1170
11,8	12	114	162	90	50.6808 1180
11,9	12	114	162	90	50.6808 1190
12,0	12	114	162	90	50.6808 1200
12,5	14	133	178	106	50.6808 1250
12,8	14	133	178	106	50.6808 1280
13,0	14	133	178	106	50.6808 1300
13,5	14	133	178	106	50.6808 1305
14,0	14	133	178	106	50.6808 1400
14,5	16	152	203	122	50.6808 1450
15,0	16	152	203	122	50.6808 1500
15,5	16	152	203	122	50.6808 1550
16,0	16	152	203	122	50.6808 1600

TIALN

4-FASEN

IC

HA

8xD

UNI

STEEL  
<55 HRC

INOX

GG(G)

COPPER

ALU  
NE

PLASTIC

**SOLID CARBIDE DRILL 12xD**
**50.6812**

d1	d2	l1	l2	l3	Article No.
1,0	3	55	15	12,0	50.6812 0100
1,1	3	55	23	18,5	50.6812 0110
1,2	3	55	23	18,5	50.6812 0120
1,3	3	55	23	18,5	50.6812 0130
1,4	3	55	23	18,5	50.6812 0140
1,5	3	55	23	18,5	50.6812 0150
1,6	3	65	30	24,0	50.6812 0160
1,7	3	65	30	24,0	50.6812 0170
1,8	3	65	30	24,0	50.6812 0180
1,9	3	65	30	24,0	50.6812 0190
2,0	3	65	30	24,0	50.6812 0200
2,1	3	74	38	30,5	50.6812 0210
2,2	3	74	38	30,5	50.6812 0220
2,3	3	74	38	30,5	50.6812 0230
2,4	3	74	38	30,5	50.6812 0240
2,5	3	81	44	35,0	50.6812 0250
2,6	3	81	44	35,0	50.6812 0260
2,7	3	81	44	35,0	50.6812 0270
2,8	3	81	44	35,0	50.6812 0280
2,9	3	81	44	35,0	50.6812 0290
3,0	6	92	54	48,0	50.6812 0300
3,1	6	92	54	48,0	50.6812 0310
3,2	6	92	54	48,0	50.6812 0320
3,3	6	92	54	48,0	50.6812 0330
3,4	6	92	54	48,0	50.6812 0340
3,5	6	92	54	48,0	50.6812 0350
3,6	6	92	54	48,0	50.6812 0360
3,7	6	92	54	48,0	50.6812 0370
3,8	6	102	64	58,0	50.6812 0380
3,9	6	102	64	58,0	50.6812 0390
4,0	6	102	64	58,0	50.6812 0400
4,1	6	102	64	58,0	50.6812 0410
4,2	6	102	64	58,0	50.6812 0420
4,3	6	102	64	58,0	50.6812 0430
4,4	6	102	64	58,0	50.6812 0440
4,5	6	102	64	58,0	50.6812 0450
4,6	6	102	64	58,0	50.6812 0460
4,7	6	102	64	58,0	50.6812 0470
4,8	6	118	78	70,0	50.6812 0480
4,9	6	118	78	70,0	50.6812 0490
5,0	6	118	78	70,0	50.6812 0500
5,1	6	118	78	70,0	50.6812 0510
5,2	6	118	78	70,0	50.6812 0520
5,3	6	118	78	70,0	50.6812 0530
5,4	6	118	78	70,0	50.6812 0540
5,5	6	118	78	70,0	50.6812 0550
5,6	6	118	78	70,0	50.6812 0560
5,7	6	118	78	70,0	50.6812 0570
5,8	6	118	78	70,0	50.6812 0580
5,9	6	118	78	70,0	50.6812 0590
6,0	6	118	78	70,0	50.6812 0600
6,1	8	146	108	94,0	50.6812 0610
6,2	8	146	108	94,0	50.6812 0620
6,3	8	146	108	94,0	50.6812 0630
6,4	8	146	108	94,0	50.6812 0640
6,5	8	146	108	94,0	50.6812 0650
6,6	8	146	108	94,0	50.6812 0660
6,7	8	146	108	94,0	50.6812 0670
6,8	8	146	108	94,0	50.6812 0680
6,9	8	146	108	94,0	50.6812 0690
7,0	8	146	108	94,0	50.6812 0700
7,1	8	146	108	94,0	50.6812 0710
7,2	8	146	108	94,0	50.6812 0720
7,3	8	146	108	94,0	50.6812 0730
7,4	8	146	108	94,0	50.6812 0740
7,5	8	146	108	94,0	50.6812 0750
7,6	8	146	108	94,0	50.6812 0760

d1	d2	l1	l2	l3	Article No.
7,7	8	146	108	94,0	50.6812 0770
7,8	8	146	108	94,0	50.6812 0780
7,9	8	146	108	94,0	50.6812 0790
8,0	8	146	108	94,0	50.6812 0800
8,1	10	162	120	110,0	50.6812 0810
8,2	10	162	120	110,0	50.6812 0820
8,3	10	162	120	110,0	50.6812 0830
8,4	10	162	120	110,0	50.6812 0840
8,5	10	162	120	110,0	50.6812 0850
8,6	10	162	120	110,0	50.6812 0860
8,7	10	162	120	110,0	50.6812 0870
8,8	10	162	120	110,0	50.6812 0880
8,9	10	162	120	110,0	50.6812 0890
9,0	10	162	120	110,0	50.6812 0900
9,1	10	162	120	110,0	50.6812 0910
9,2	10	162	120	110,0	50.6812 0920
9,3	10	162	120	110,0	50.6812 0930
9,4	10	162	120	110,0	50.6812 0940
9,5	10	162	120	110,0	50.6812 0950
9,6	10	162	120	110,0	50.6812 0960
9,7	10	162	120	110,0	50.6812 0970
9,8	10	162	120	110,0	50.6812 0980
9,9	10	162	120	110,0	50.6812 0990
10,0	10	162	120	110,0	50.6812 1000
10,1	12	204	156	142,0	50.6812 1010
10,2	12	204	156	142,0	50.6812 1020
10,3	12	204	156	142,0	50.6812 1030
10,4	12	204	156	142,0	50.6812 1040
10,5	12	204	156	142,0	50.6812 1050
10,6	12	204	156	142,0	50.6812 1060
10,7	12	204	156	142,0	50.6812 1070
10,8	12	204	156	142,0	50.6812 1080
10,9	12	204	156	142,0	50.6812 1090
11,0	12	204	156	142,0	50.6812 1100
11,1	12	204	156	142,0	50.6812 1110
11,2	12	204	156	142,0	50.6812 1120
11,3	12	204	156	142,0	50.6812 1130
11,4	12	204	156	142,0	50.6812 1140
11,5	12	204	156	142,0	50.6812 1150
11,6	12	204	156	142,0	50.6812 1160
11,7	12	204	156	142,0	50.6812 1170
11,8	12	204	156	142,0	50.6812 1180
11,9	12	204	156	142,0	50.6812 1190
12,0	12	204	156	142,0	50.6812 1200
12,5	14	230	182	166,0	50.6812 1250
12,8	14	230	182	166,0	50.6812 1280
13,0	14	230	182	166,0	50.6812 1300
13,5	14	230	182	166,0	50.6812 1350
13,8	14	230	182	166,0	50.6812 1380
14,0	14	230	182	166,0	50.6812 1400
14,5	16	260	208	192,0	50.6812 1450
14,8	16	260	208	192,0	50.6812 1480
15,0	16	260	208	192,0	50.6812 1500
15,5	16	260	208	192,0	50.6812 1550
15,8	16	260	208	192,0	50.6812 1580
16,0	16	260	208	192,0	50.6812 1600
16,5	18	285	234	216,0	50.6812 1650
16,8	18	285	234	216,0	50.6812 1680
17,0	18	285	234	216,0	50.6812 1700
17,5	18	285	234	216,0	50.6812 1750
17,8	18	285	234	216,0	50.6812 1780
18,0	18	285	234	216,0	50.6812 1800
18,5	20	310	258	238,0	50.6812 1850
18,8	20	310	258	238,0	50.6812 1880
19,0	20	310	258	238,0	50.6812 1900
19,5	20	310	258	238,0	50.6812 1950
19,8	20	310	258	238,0	50.6812 1980
20,0	20	310	258	238,0	50.6812 2000



TIALN	HA	4-FASEN
IC	12xD	UNI
STEEL <55 HRC	INOX	GG(G)
PLASTIC	COPPER	ALU NE

solid carbide end mills

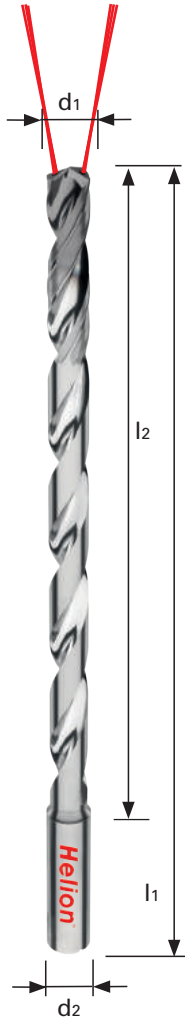
reamers and senkers

drills

threading tools

# 50.6815

## SOLID CARBIDE DRILL 15xD



d1	d2	l2	l1	Article No.
1,0	3	20	60	50.6815 0100
1,1	3	22	60	50.6815 0110
1,2	3	24	60	50.6815 0120
1,3	3	25	60	50.6815 0130
1,4	3	27	60	50.6815 0140
1,5	3	27	60	50.6815 0150
1,6	3	32	65	50.6815 0160
1,7	3	32	65	50.6815 0170
1,8	3	35	65	50.6815 0180
1,9	3	35	65	50.6815 0190
2,0	3	35	65	50.6815 0200
2,1	3	40	75	50.6815 0210
2,2	3	40	75	50.6815 0220
2,3	3	40	75	50.6815 0230
2,4	3	45	75	50.6815 0240
2,5	3	45	75	50.6815 0250
2,6	3	48	80	50.6815 0260
2,7	3	48	80	50.6815 0270
2,8	3	50	80	50.6815 0280
2,9	3	50	80	50.6815 0290
3,0	6	60	100	50.6815 0300
3,1	6	60	100	50.6815 0310
3,2	6	60	100	50.6815 0320
3,3	6	60	100	50.6815 0330
3,4	6	60	100	50.6815 0340
3,5	6	60	100	50.6815 0350
3,6	6	78	115	50.6815 0360
3,7	6	78	115	50.6815 0370
3,8	6	78	115	50.6815 0380
3,9	6	78	115	50.6815 0390
4,0	6	78	115	50.6815 0400
4,1	6	78	115	50.6815 0410
4,2	6	78	115	50.6815 0420
4,3	6	78	115	50.6815 0430
4,4	6	78	115	50.6815 0440
4,5	6	78	115	50.6815 0450
4,6	6	92	130	50.6815 0460
4,7	6	92	130	50.6815 0470
4,8	6	92	130	50.6815 0480
4,9	6	92	130	50.6815 0490
5,0	6	92	130	50.6815 0500
5,1	6	92	130	50.6815 0510
5,2	6	92	130	50.6815 0520
5,3	6	92	130	50.6815 0530
5,4	6	92	130	50.6815 0540
5,5	6	100	145	50.6815 0550

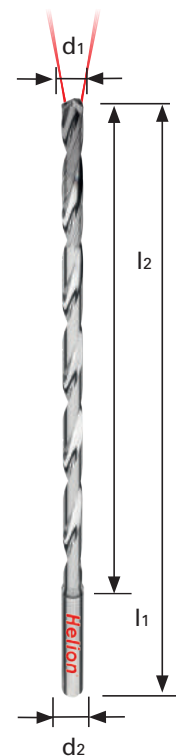
d1	d2	l2	l1	Article No.
5,6	6	100	145	50.6815 0560
5,7	6	100	145	50.6815 0570
5,8	6	100	145	50.6815 0580
5,9	6	100	145	50.6815 0590
6,0	6	100	145	50.6815 0600
6,1	8	108	145	50.6815 0610
6,2	8	108	145	50.6815 0620
6,3	8	108	145	50.6815 0630
6,4	8	108	145	50.6815 0640
6,5	8	130	170	50.6815 0650
6,6	8	130	170	50.6815 0660
6,7	8	130	170	50.6815 0670
6,8	8	130	170	50.6815 0680
6,9	8	130	170	50.6815 0690
7,0	8	130	170	50.6815 0700
7,5	8	130	170	50.6815 0750
7,8	8	130	170	50.6815 0780
8,0	8	130	170	50.6815 0800
8,5	10	163	208	50.6815 0850
8,8	10	163	208	50.6815 0880
9,0	10	163	208	50.6815 0900
9,5	10	163	208	50.6815 0950
9,8	10	163	208	50.6815 0980
10,0	10	163	208	50.6815 1000
10,2	12	195	245	50.6815 1020
10,5	12	195	245	50.6815 1050
10,8	12	195	245	50.6815 1080
11,0	12	195	245	50.6815 1100
11,2	12	195	245	50.6815 1120
11,5	12	195	245	50.6815 1150
11,8	12	195	245	50.6815 1180
12,0	12	195	245	50.6815 1200
12,5	14	230	280	50.6815 1250
13,0	14	230	280	50.6815 1300
13,8	14	230	280	50.6815 1380
14,0	14	230	280	50.6815 1400
14,8	16	260	310	50.6815 1480
15,0	16	260	310	50.6815 1500
15,8	16	260	310	50.6815 1580
16,0	16	260	310	50.6815 1600



**SOLID CARBIDE DRILL 20xD**
**50.6820**

d1	d2	l2	l1	Article No.
2,0	4	50	92	50.6820 0200
2,2	4	50	92	50.6820 0220
2,3	4	50	92	50.6820 0230
2,4	4	70	112	50.6820 0240
2,5	4	70	112	50.6820 0250
2,7	4	70	112	50.6820 0270
2,8	4	70	112	50.6820 0280
3,0	6	80	120	50.6820 0300
3,2	6	80	120	50.6820 0320
3,3	6	80	120	50.6820 0330
3,5	6	80	120	50.6820 0350
3,8	6	90	130	50.6820 0380
4,0	6	90	130	50.6820 0400
4,2	6	110	160	50.6820 0420
4,5	6	110	160	50.6820 0450
4,8	6	120	160	50.6820 0480
5,0	6	120	160	50.6820 0500
5,5	6	140	185	50.6820 0550
5,8	6	140	185	50.6820 0580

d1	d2	l2	l1	Article No.
6,0	6	140	185	50.6820 0600
6,5	8	155	210	50.6820 0650
6,8	8	160	210	50.6820 0680
7,0	8	160	210	50.6820 0700
7,5	8	180	230	50.6820 0750
7,8	8	180	230	50.6820 0780
8,0	8	180	230	50.6820 0800
8,5	10	195	260	50.6820 0850
8,8	10	230	290	50.6820 0880
9,0	10	230	290	50.6820 0900
9,8	10	230	290	50.6820 0980
10,0	10	230	290	50.6820 0100
10,2	12	270	315	50.6820 0102
10,8	12	270	315	50.6820 0108
11,8	12	270	315	50.6820 0118
12,0	12	270	315	50.6820 0120


**SOLID CARBIDE DRILL 25xD**
**50.6825**

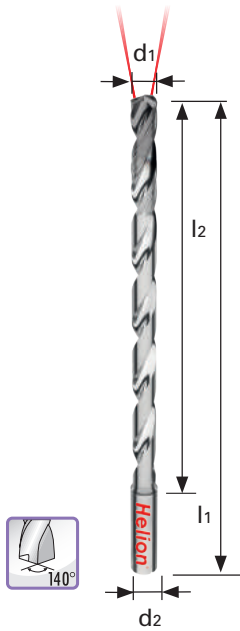
d1	d2	l2	l1	Article No.
3,0	6	98	135	50.6825 0300
3,2	6	98	135	50.6825 0320
3,3	6	110	150	50.6825 0330
3,5	6	110	150	50.6825 0350
3,8	6	120	160	50.6825 0380
4,0	6	120	160	50.6825 0400
4,2	6	120	160	50.6825 0420
4,5	6	135	180	50.6825 0450
4,8	6	135	180	50.6825 0480
5,0	6	135	180	50.6825 0500
5,5	6	168	205	50.6825 0550
5,8	6	168	205	50.6825 0580
6,0	6	168	205	50.6825 0600
6,5	8	200	240	50.6825 0650
6,8	8	200	240	50.6825 0680

d1	d2	l2	l1	Article No.
7,0	8	200	240	50.6825 0700
7,5	8	220	260	50.6825 0750
7,8	8	220	260	50.6825 0780
8,0	8	220	260	50.6825 0800
8,5	10	240	285	50.6825 0850
8,8	10	270	310	50.6825 0880
9,0	10	270	310	50.6825 0900
9,8	10	270	310	50.6825 0980
10,0	10	270	310	50.6825 1000
10,2	12	325	375	50.6825 1020
10,8	12	325	375	50.6825 1080
11,8	12	325	375	50.6825 1180
12,0	12	325	375	50.6825 1200



# 50.6830

## SOLID CARBIDE DRILL 30xD



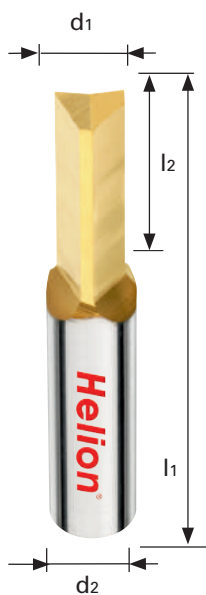
d1	d2	l2	l1	Article No.
2,0	4	70	115	50.6830 0200
2,2	4	70	115	50.6830 0220
2,3	4	70	115	50.6830 0230
2,4	4	90	138	50.6830 0240
2,5	4	90	138	50.6830 0250
2,7	4	90	138	50.6830 0270
2,8	4	90	138	50.6830 0280
3,0	6	105	150	50.6830 0300
3,2	6	105	150	50.6830 0320
3,3	6	135	185	50.6830 0330
3,5	6	135	185	50.6830 0350
3,8	6	135	185	50.6830 0380
4,0	6	135	185	50.6830 0400
4,2	6	135	185	50.6830 0420
4,5	6	165	215	50.6830 0450
4,8	6	165	215	50.6830 0480
5,0	6	165	215	50.6830 0500
5,5	6	180	230	50.6830 0550
5,8	6	180	230	50.6830 0580

d1	d2	l2	l1	Article No.
6,0	6	180	230	50.6830 0600
6,5	8	215	280	50.6830 0650
6,8	8	230	280	50.6830 0680
7,0	8	230	280	50.6830 0700
7,5	8	230	280	50.6830 0750
7,8	8	265	315	50.6830 0780
8,0	8	265	315	50.6830 0800
8,5	10	295	350	50.6830 0850
8,8	10	330	380	50.6830 0880
9,0	10	330	380	50.6830 0900
9,8	10	330	380	50.6830 0980
10,0	10	330	380	50.6830 1000

TIALN
4-FASEN
IC
HA
30xD
HELION NORM
UNI
STEEL <55 HRC
INOX
GG(G)

# 52.0000

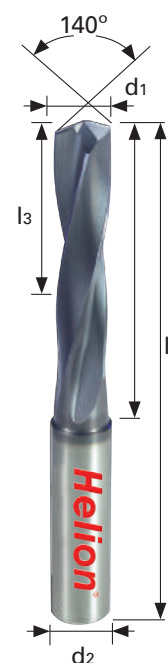
## SOLID CARBIDE THREAD CUTTER DESTROYER



d1	d2	l2	l1	Article No.
2,5	6,0	12	50	52.0000 0250
3,3	6,0	15	50	52.0000 0330
4,2	6,0	15	50	52.0000 0420
5,0	6,0	15	50	52.0000 0500
6,8	8,0	20	60	52.0000 0680
8,5	10,0	25	70	52.0000 0850
10,2	12,0	30	75	52.0000 1020
12,0	12,0	30	75	52.0000 1200
14,0	14,0	40	100	52.0000 1400
15,5	16,0	40	100	52.0000 1550
17,5	18,0	50	100	52.0000 1750

TIN
HA
HELION NORM
STEEL 60-65 HRC

d1	Application	d2	l1	l2	l3	Article No.
2,55	M3x0,5	33	44	14	6	52.6000 0255
3		44	46	16	6	52.6000 0300
3,5	M4x0,7	6	50	20	10	52.6000 0350
4		6	50	20	10	52.6000 0400
4,4	M5x0,8	6	68	28	15	52.6000 0440
4,5		6	68	28	15	52.6000 0450
5		6	72	32	18	52.6000 0500
5,20	M6x1	6	72	32	18	52.6000 0530
5,5		6	75	35	18	52.6000 0550
6		6	75	35	18	52.6000 0600
6,5		8	80	40	25	52.6000 0650
7	M8x1,25	8	85	45	30	52.6000 0700
7,1	M8x1	8	85	45	30	52.6000 0710
7,5		8	85	45	30	52.6000 0750
8		8	98	50	35	52.6000 0800
8,5		10	98	50	35	52.6000 0850
8,8	M10x1,5	10	105	57	42	52.6000 0880
8,9	GAS 1/8	10	105	57	42	52.6000 0890
9,1	M10x1	10	105	57	42	52.6000 0910
10		10	111	63	45	52.6000 1000
10,1		12	111	63	45	52.6000 1010
10,5	M12x1,75	12	111	63	45	52.6000 1050
10,6	M12x1,50	12	111	63	45	52.6000 1060
11,1	M12x1	12	119	71	50	52.6000 1110
11,9	GAS 1/4	12	119	71	50	52.6000 1190
12		12	119	71	50	52.6000 1200
12,5	M-14x2	14	125	77	55	52.6000 1250
12,6	M14x1,50	14	125	77	55	52.6000 1260
13		14	125	77	55	52.6000 1300
14		14	125	77	55	52.6000 1400
14,1	M16x2	16	133	83	60	52.6000 1410
14,5	M16x2	16	133	83	60	52.6000 1450
14,6	M16x1,50	16	133	83	60	52.6000 1460
16		16	133	83	60	52.6000 1600
16,5		18	153	93	65	52.6000 1650
17,7	M20x2,50	18	153	93	65	52.6000 1770
18,6	M20x1,50	20	153	93	65	52.6000 1860



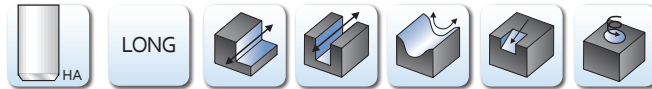
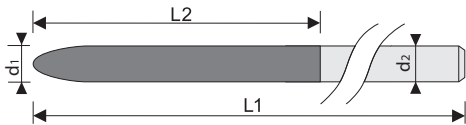
Cutting data / Condiciones de corte:

Recommended cutting data for drill HELION® 52.6000 < 68 HRC		
Hardness (HRC)	Vc(m/min)	f(mm/rpm)
50-57	15	0,05
58-68	10	0,04

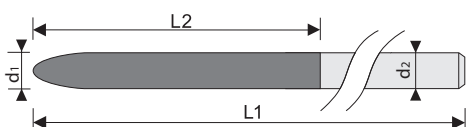


**55.0010**
**SOLID CARBIDE DRILLING AND FRICTIONAL TOOL FOR COMPOSITES**


d1	l2	l1	d2	Article No.
2,00	50	100	2,00	55.0010 0200
2,48	50	100	2,48	55.0010 0248
3,00	50	100	3,00	55.0010 0300
3,17	50	100	3,17	55.0010 0317
4,00	50	100	4,00	55.0010 0400
4,21	50	100	4,21	55.0010 0421
4,76	50	100	4,76	55.0010 0476
4,82	50	100	4,82	55.0010 0482
5,05	50	100	5,05	55.0010 0505
5,53	50	100	5,53	55.0010 0553
6,00	50	100	6,00	55.0010 0600
6,33	50	100	6,33	55.0010 0633
6,60	50	100	6,60	55.0010 0660
7,00	50	100	7,00	55.0010 0700
7,92	50	100	7,92	55.0010 0791
8,00	50	100	8,00	55.0010 0800
8,63	50	100	8,63	55.0010 0863
9,00	50	100	9,00	55.0010 0900
10,00	50	100	10,00	55.0010 1000
12,00	50	100	12,00	55.0010 1200


**55.8040**
**SOLID CARBIDE DRILLING AND FRICTIONAL TOOL FOR COMPOSITES**


d1	l2	l1	d2	Article No.
2,00	50	100	2,00	55.8040 0200
2,48	50	100	2,48	55.8040 0248
3,00	50	100	3,00	55.8040 0300
3,17	50	100	3,17	55.8040 0317
4,00	50	100	4,00	55.8040 0400
4,21	50	100	4,21	55.8040 0421
4,76	50	100	4,76	55.8040 0476
4,82	50	100	4,82	55.8040 0481
5,05	50	100	5,05	55.8040 0505
5,53	50	100	5,53	55.8040 0553
6,00	50	100	6,00	55.8040 0600
6,33	50	100	6,33	55.8040 0633
6,60	50	100	6,60	55.8040 0660
7,00	50	100	7,00	55.8040 0700
7,92	50	100	7,92	55.8040 0792
8,00	50	100	8,00	55.8040 0800
8,63	50	100	8,63	55.8040 0863
9,00	50	100	9,00	55.8040 0900
10,00	50	100	10,00	55.8040 1000
12,00	50	100	12,00	55.8040 1200





# THREADING TOOLS

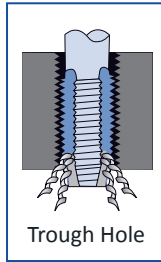




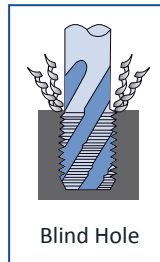
## DIN 371 / DIN 376 / DIN 374 / DIN 5156

Übersicht Maschinengewindebohrer / Schnittwertempfehlung [m/min]  
 Overview of Taps / Recommended cutting data [m/min]  
 Tabla Selección de Machos / Condiciones de corte [m/min]

Recommended max.  
depth o thread: 2xD



Profundidad máx.  
recomendada roscado: 2xD



Katalog-Nr. · Reference N <sup>o</sup> · Referencia	30.0040	30.7040	31.1140 31.1240 31.1040	30.0060
Schneidstoff · Tap Material · Material del Macho	HSSE	HSSE	HSSE	HSSE
Anschnitt · Chamfer · Entrada	B	B	B	C
Toleranz · Tolerance · Tolerancia	ISO 2 (6H)	ISO 2 (6H)	ISO 2 (6H)	ISO 2 (6H)
Beschichtung · Coating · Recubrimiento	-	TiN	VP	
Gewindeart · Type of Thread · Tipo de agujero	1	1	1	2
Werkstoffgruppen / Workpiece Material / Material a Mecanizar				
<b>Stähle · Steels · Aceros</b>				
Unalloyed Steel / Acero no aleado < 800 N/mm <sup>2</sup>	8-12	15-18	10-15	6-10
Alloyed Steel / Aceros Aleados > 800 N/mm <sup>2</sup> < 1000 N/mm <sup>2</sup>	8-10	12-15	10-12	6-8
Alloyed Steel / Aceros Aleados <1200 N/mm <sup>2</sup>			8-10	
Alloyed Steel / Aceros Aleados <1300 N/mm <sup>2</sup>			8-10	
<b>Stainless steel / Inoxidables</b>			6-8	
<b>Gusseisen · Cast iron · Fundición</b>				
Grey Cast Iron / Fundición Gris (GG)			12-15	
Nodular Cast Iron / Fundición Nodular (GGG)			10-12	
<b>Kupfer / Kupferlegierungen · Copper / Copper alloys · Cobre / Aleaciones de Cobre</b>				
Unalloyed Copper / Cobre no aleado	12-15			10-12
Copper short chipping / Cobre viruta corta	10-12		12-15	8-10
Alloyed Copper / Aleaciones de cobre < 200 HB-	10-12	15-18		8-10
Alloyed Copper / Aleaciones de cobre 200 HB - 300 HB			8-10	
Alloyed Copper / Aleaciones de cobre > 300 HB				
<b>Aluminium / Aluminiumlegierungen · Aluminium / Aluminium alloys · Aluminio / Aleaciones de Aluminio</b>				
Unalloyed Aluminium / aluminio no aleado	20-26			18-22
Alloyed Aluminium / Aluminio Aleado (2% - 10% Si)	18-22	20-26		15-18
Alloyed Aluminium / Aluminio Aleado (10% - 15% Si)				
<b>Titan / Titanlegierungen · Titanium / Titanium alloys · Titane / Aleaciones de Titánio</b>				
Pure Titanium / Titánio Puro			3-4	
Alloyed Titanium / Aleaciones de Titánio < 900 N/mm <sup>2</sup>			3-4	
Alloyed Titanium / Aleaciones de Titánio 900 N/mm <sup>2</sup> - 1500 N/mm <sup>2</sup>				
<b>Nickel / Nickellegierungen · Nickel / Nickel alloys · Niquel / Aleaciones de Niquel</b>				
Pure Nickel / Niquel Puro	3-4	4-5	3-4	2-3
Alloyed Nickel / Aleaciones de Niquel < 900 N/mm <sup>2</sup>			3-4	
Alloyed Nickel / Aleaciones de Niquel 900 N/mm <sup>2</sup> - 1500 N/mm <sup>2</sup>				
<b>Kunststoffe · Plastics · Plásticos</b>				
Thermoplastics / Termoplásticos	20-26			18-22
Thermosetting polymers and pressed materials / Duroplásticos			18-22	
Reinforced plastics / Plásticos con fibras			18-22	



<b>34.0040</b>	<b>31.1160</b> <b>31.1260</b> <b>31.1060</b>	<b>34.0060</b>	<b>33.0040</b>	<b>33.2040</b>	<b>33.0070</b>	<b>33.2070</b>	<b>35.5040</b>	<b>35.5060</b>	<b>30.7060</b>
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HSSE	HSSE	HSSE	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE
B	C	C	C	C	C	C	C	C	C
ISO 2 (6H)	ISO 2 (6H)	ISO 2 (6H)	ISO 2 (6H)	ISO 2 (6H)	ISO 2 (6H)	ISO 2 (6H)	6HX	6HX	ISO 2 (6H)
-	VP	-	-	TiCN	-	TiCN	HL	HL	
1	2	2	1	1	2	2	1	2	2

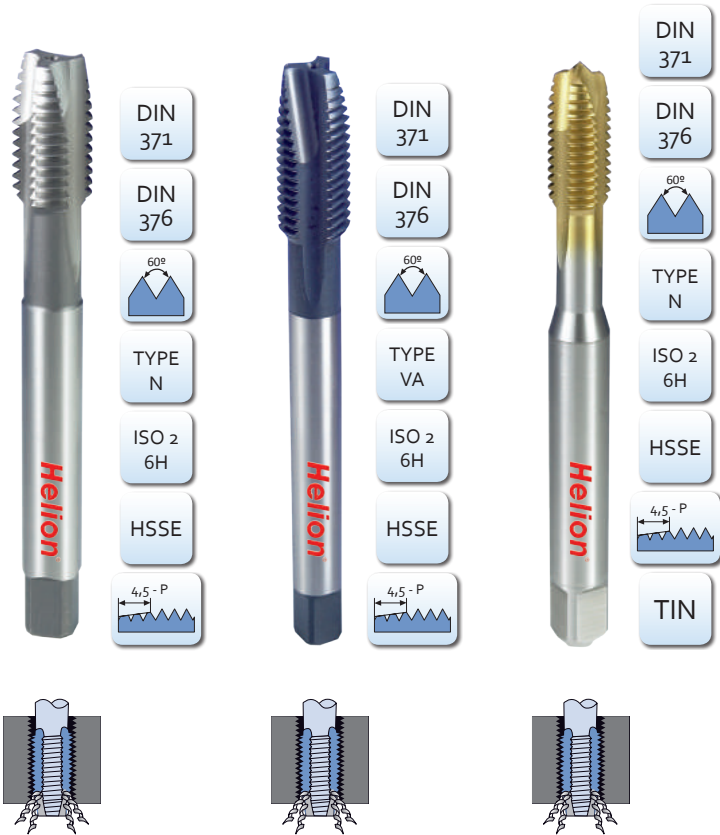
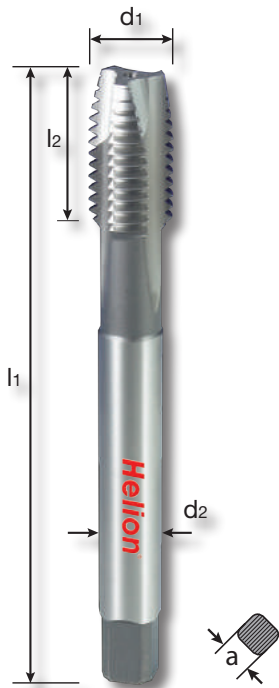
	8-12						25-30	20-25	12-15
	8-10						20-25	18-22	10-12
	6-8		12-15	15-18	10-12	12-15	15-18	12-15	
	6-8		12-15	15-18	10-12	12-15	15-18	12-15	
	5-6						12-15	10-12	
	10-12		22-26	26-32	18-22	22-26	22-26	18-22	
	8-10		18-22	22-26	15-18	18-22	18-22	15-18	
12-15		10-12					26-32	22-26	
	10-12		18-22	22-26	15-18	18-22	18-22	15-18	
							18-22	15-18	12-15
	8-10		12-15	15-18	10-12	12-15	12-15	10-12	
			10-12	12-15	8-10	10-12	10-12	8-10	
20-26		18-22					30-40	26-32	
							26-32	22-26	18-22
	12-15		22-26	26-32	18-22	22-26	22-26	18-22	
	2-3		5-6		3-5				
	2-3		5-6		3-5				
			3-5		2-4				
	2-3						6-8	5-6	3-4
	2-3						6-8	5-6	
			3-4	4-5	2-3	3-4			
20-26		18-22					30-40	26-32	
	15-18		26-32	30-40	22-26	26-32	26-32	22-26	
	15-18		26-32	30-40	22-26	26-32			

## MACHINE TAPS FOR THROUGH HOLES

Machine Taps for through holes; for metric ISO-thread according to DIN 13.

Macho recto de máquina, Métrica ISO DIN 13.

Durchgangsloch-Maschinengewindebohrer, metrisches ISO-Regelgewinde DIN 13.



30.0040	31.1040	30.7040
<ul style="list-style-type: none"> <li>STEEL &gt;800 N/m<sup>2</sup></li> <li>COPPER</li> <li>PLASTIC</li> <li>ALU &lt;12% SI</li> <li>UNI</li> </ul>	<ul style="list-style-type: none"> <li>INOX</li> <li>STEEL &gt;800 N/m<sup>2</sup></li> <li>STEEL &gt;1000 N/m<sup>2</sup></li> <li>ALU &lt;12% SI</li> <li>GGG</li> <li>COPPER</li> </ul>	<ul style="list-style-type: none"> <li>STEEL &gt;800 N/m<sup>2</sup></li> <li>STEEL &gt;1000 N/m<sup>2</sup></li> <li>ALU &lt;12% SI</li> <li>COPPER</li> <li>GGG</li> </ul>

d1	P	l1	l2	d2	a	z	Drilling ø
M 3	0,5	56	11	3,5	2,7	3	2,5
M 4	0,7	63	13	4,5	3,4	3	3,3
M 5	0,8	70	16	6	4,9	3	4,2
M 6	1	80	19	6	4,9	3	5
M 8	1,25	90	22	8	6,2	3	6,8
M 10	1,5	100	24	10	8	3	8,5
M 12	1,75	110	28	9	7	3	10,2
M 14	2	110	30	11	9	3	12
M 16	2	110	32	12	9	3	14
M 18	2,5	125	34	14	11	3	15,5
M 20	2,5	140	34	16	12	3	17,5

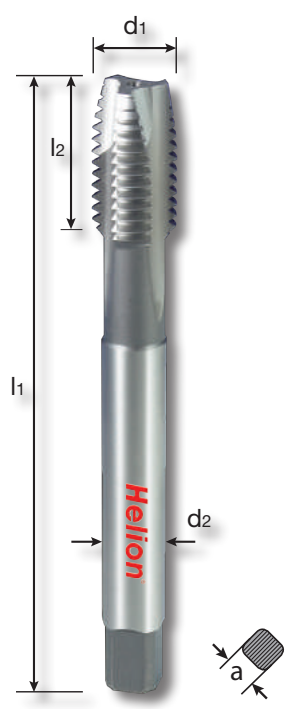
DIN 371 M3-M10  
DIN 376 ≥M12

**MACHINE TAPS FOR THROUGH HOLE**

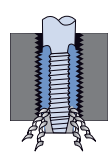
Machine Taps for through holes; for metric ISO-thread according to DIN 13.

Macho recto de máquina, Métrica ISO DIN 13.

Durchgangsloch-Maschinengewindebohrer, metrisches ISO-Regelgewinde DIN 13.



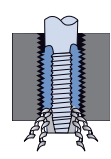
- DIN 371
- DIN 376
- 60°
- TYPE H
- ISO 2 6H
- HSSE PM
- 4,5-P


**33.0040**

- STEEL >1000 N/m<sup>2</sup>
- STEEL >1200 N/m<sup>2</sup>
- BRONZE
- PLASTIC
- TITAN INCONELL
- NI ALLOYS
- GGG



- DIN 371
- DIN 376
- 60°
- TYPE H
- ISO 2 6H
- HSSE PM
- 4,5-P
- TiCN


**33.2040**

- STEEL >1000 N/m<sup>2</sup>
- STEEL >1200 N/m<sup>2</sup>
- BRONZE
- PLASTIC
- NI ALLOYS
- GGG

d1	P	l1	l2	d2	a	z	Drilling ø
M 3	0,5	56	11	3,5	2,7	3	2,5
M 4	0,7	63	13	4,5	3,4	3	3,3
M 5	0,8	70	16	6	4,9	3	4,2
M 6	1	80	19	6	4,9	3	5
M 8	1,25	90	22	8	6,2	3	6,8
M 10	1,5	100	24	10	8	3	8,5
M 12	1,75	110	28	9	7	3	10,2

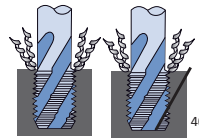
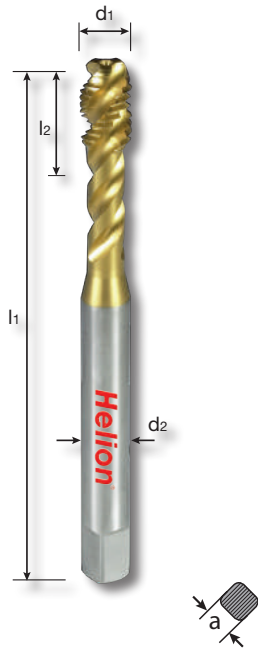
DIN 371 M3-M10  
DIN 376 ≥M12

## MACHINE TAPS FOR BLIND HOLES

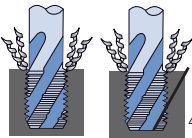
Machine Taps for blind holes; for metric ISO-thread according to DIN 13.

Macho helicoidal de máquina, Métrica ISO, DIN 13.

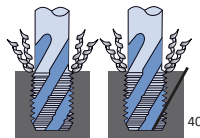
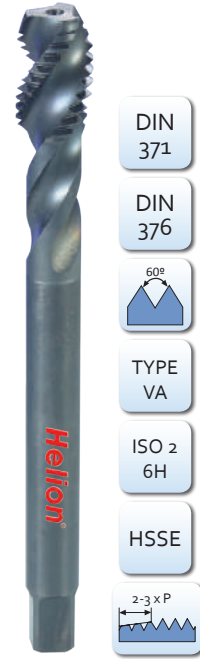
Sackloch-Maschinengewindebohrer, metrisches ISO-Regelgewinde DIN 13.



**30.0060**



**30.7060**



**31.1060**



d1	P	l1	l2	d2	a	z	Drilling $\phi$
M 3	0,5	56	5	3,5	2,7	3	2,5
M 4	0,7	63	7	4,5	3,4	3	3,3
M 5	0,8	70	8	6	4,9	3	4,2
M 6	1	80	10	6	4,9	3	5
M 8	1,25	90	13	8	6,2	3	6,8
M 10	1,5	100	15	10	8	3	8,5
M 12	1,75	110	18	9	7	3	10,2
M 14	2	110	20	11	9	3	12
M 16	2	110	20	12	9	3	14
M 18	2,5	125	25	14	11	3	15,5
M 20	2,5	140	25	16	12	3	17,5

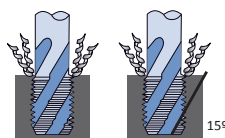
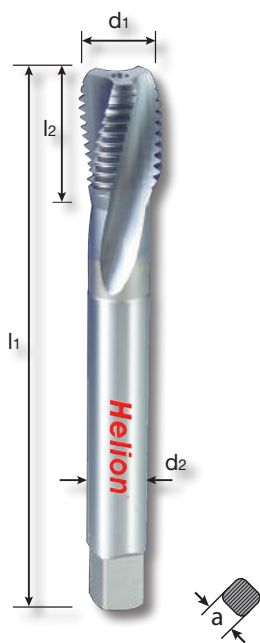
DIN 371 M3-M10  
DIN 376  $\geq$ M12

## MACHINE TAPS FOR THROUGH/BLIND HOLE

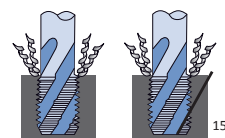
Machine Taps for blind holes; for metric ISO-thread according to DIN 13.

Macho helicoidal de máquina, Métrica ISO, DIN 13.

Sackloch-Maschinengewindebohrer, metrisches ISO-Regelgewinde DIN 13.



**33.0070**



**33.2070**



d1	P	l1	l2	d2	a	z	Drilling $\phi$
M 3	0,5	56	5	3,5	2,7	3	2,5
M 4	0,7	63	7	4,5	3,4	3	3,3
M 5	0,8	70	8	6	4,9	3	4,2
M 6	1	80	10	6	4,9	3	5
M 8	1,25	90	13	8	6,2	3	6,8
M 10	1,5	100	15	10	8	3	8,5
M 12	1,75	110	18	9	7	3	10,2

DIN 371 M3-M10  
DIN 376  $\geq$ M12

## MACHINE TAPS - METRIC FINE

Machine Taps for through holes; for metric fine -thread according to DIN 13.

Macho recto de máquina, Métrica fina DIN 13.

Durchgangsloch-Maschinengewindebohrer, metrisches ISO-Regelgewinde DIN 13.



MF

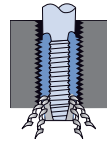
DIN 374



TYPE VA

ISO 2 6H

HSSE



**31.1140**



MF

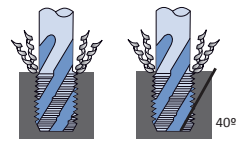
DIN 374



TYPE VA

ISO 2 6H

HSSE



**31.1160**



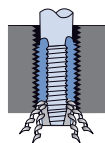
d1	P	l1	l2	d2	a	z	Drilling $\phi$
M 6x	0,75	80	5	4,5	3,4	3	5,2
M 8x	1	90	10	6	4,9	3	7
M 10x	1	90	12	7	5,5	3	9
M 12x	1,5	100	14	9	7	3	10,5
M 16x	1,5	100	16	12	9	3	14,5
M 20x	1,5	125	20	16	12	3	18,5

## MACHINE TAPS - GAS

Machine Taps DIN 5156; for Whitworth-pipe-thread according to DIN ISO 228.

Macho de máquina DIN 5156 DIN ISO 228/BSP (GAS).

Maschinengewobrer, DIN 5156, für Whitworth-Rohrgewinde nach DIN ISO 228/BSP.



**31.1240**

**31.1260**



d1	P	d	l1	l2	d2	a	z	Drilling $\phi$
G 1/8	28	9,73	90	20	7	5,5	3	8,8
G 1/4	19	13,16	100	22	11	9	3	11,8
G 3/8	19	16,66	100	22	12	9	3	15,25
G 1/2	14	20,96	125	25	16	12	3	19
G 3/4	14	26,44	140	28	20	16	4	24,5
G 1	11	33,25	160	30	25	20	4	30,75

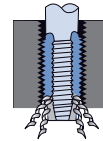
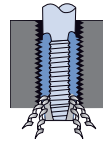
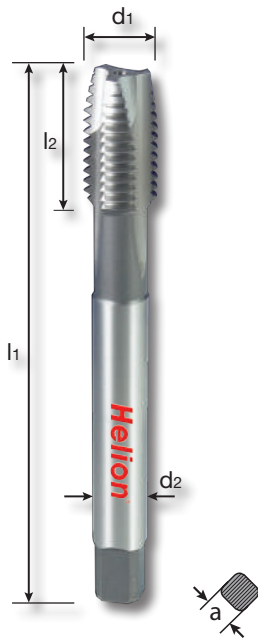


## MACHINE TAPS FOR THROUGH HOLES

Machine Taps for through holes; for metric -thread according to DIN 13.

Macho recto de máquina, Métrica DIN 13.

Durchgangsloch-Maschinengewindebohrer, metrisches ISO-Regelgewinde DIN 13.



**34.0040**

**35.5040**

COPPER PLASTIC ALU <math><12\%</math> SI

BRONZE STEEL >800 N/mm<sup>2</sup> STEEL >1000 N/mm<sup>2</sup> STEEL >1200 N/mm<sup>2</sup>  
 UNI INOX GGG NI ALLOYS  
 GOLD PLASTIC ALU <math><12\%</math> SI COPPER

d1	P	l1	l2	d2	a	z	Drilling $\phi$
M 3	0,5	56	11	3,5	2,7	3	2,5
M 4	0,7	63	13	4,5	3,4	3	3,3
M 5	0,8	70	16	6	4,9	3	4,2
M 6	1	80	19	6	4,9	3	5
M 8	1,25	90	22	8	6,2	3	6,8
M 10	1,5	100	24	10	8	3	8,5
M 12	1,75	110	28	9	7	3	10,2
M 16	2	110	32	12	9	3	14
M 20	2,5	140	34	16	12	3	17,5

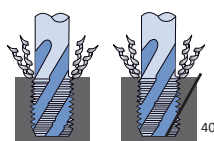
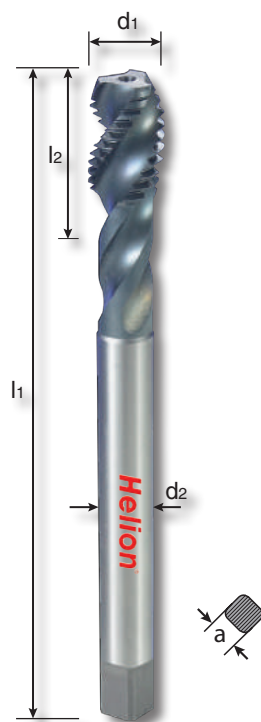
DIN 371 M3-M10  
 DIN 376  $\geq$ M12

## MACHINE TAPS FOR BLIND HOLES

Machine Taps for blind holes; for metric ISO-thread according to DIN 13.

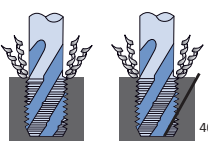
Macho helicoidal de máquina, Métrica ISO, DIN 13.

Sackloch-Maschinengewindebohrer, metrisches ISO-Regelgewinde DIN 13.



**34.0060**

COPPER PLASTIC ALU <math>\leq 12\% Si</math>



**35.5060**

BRONZE STEEL >800 N/m<sup>2</sup> STEEL >1000 N/m<sup>2</sup> STEEL >1200 N/m<sup>2</sup>  
 UNI INOX GGG NI ALLOYS  
 GOLD PLASTIC ALU <math>\leq 12\% Si</math> COPPER

d1	P	l1	l2	d2	a	z	Drilling $\phi$
M 3	0,5	56	5	3,5	2,7	2	2,5
M 4	0,7	63	7	4,5	3,4	2	3,3
M 5	0,8	70	8	6	4,9	2	4,2
M 6	1	80	10	6	4,9	2	5
M 8	1,25	90	13	8	6,2	2	6,8
M 10	1,5	100	15	10	8	2	8,5
M 12	1,75	110	18	9	7	2	10,2
M 16	2	110	20	12	9	2	14
M 20	2,5	140	25	16	12	3	17,5

DIN 371 M3-M10  
 DIN 376



## TAPS FOR HARDENED MATERIALS (BLIND/THROUGH)

HHC- high-hard-cutting- PM 105 Machine Tap / 42 < 54 HRC with TiCN coating.

Good application on: Ampco hart, Hardox 400, Hardox 500, X165 Cr MoV 12, 1.2344, 1.2311. It is an alternative to electro erosion. To drill before using this tap you can use our drill Art.-Nr. 50.6005 < 55 HRC. Cutting data for our drill with materials: (Vc: 15m/min, fv: 0,04mm/U)

HHC-high-hard-cutting. Macho PM105 especial para materiales duros 42 < 54 HRC recubierta con TiCN. Buena aplicación en: Ampco hart, Hardox 400, Hardox 500, X165 Cr MoV 12, 1.2344, 1.2311. Es una alternativa a la electro erosión. Para taladrar antes de usar este macho puedes utilizar nuestra broca Art.-Nr. 50.6005 < 55 HRC. Condiciones de corte para esta broca: (Vc: 15m/min, fv: 0,04mm/U).

HHC- High-Hard-Cutting- PM105 Maschinengewindebohrer 42<54 HRC. HHC High hard cutting / Gewindebohren in gehärteten stahl von 42 < 54 HRC. z.B. Ampco hart, Hardox 400, Hardox 500, X165 Cr MoV 12 usw., 1.2344, 1.2311. Die wirtschaftliche Alternative zum Erodieren. Für das Vorbohren der Gewindelöcher empfehlen wir Ihnen HHC- VHM Hochleistungsbohrer < 55 HRC / Art.-Nr. 50.6005 (Vc: 15m/min, fv: 0,04mm/U).



HHC- high-hard-cutting. Solid carbide Machine Tap / 48 < 63 HRC with TiCN coating.

Good application on: Ampco hart, Hardox 400, Hardox 500, X165 Cr MoV 12, 1.2379 58-62HRC. It is an alternative instead of electro erosion. To drill before using this tap you can use our drill Art.-Nr. 52.6000 < 68 HRC Cutting data for our drill with materials: (Vc: 15m/min, fv: 0,04mm/U).

HHC-high-hard-cutting. Macho Metal duro especial para materiales duros 48 < 63 HRC recubierta con TiCN. Buena aplicación en: Ampco hart, Hardox 400, Hardox 500, X165 Cr MoV 12, 1.2379 58-62HRC. Es una alternativa a la electro erosión. Para taladrar antes de usar este macho puedes utilizar nuestra broca Art.-Nr. 52.6000 < 68 HRC. Condiciones de corte para esta broca: (Vc: 15m/min, fv: 0,04mm/U).

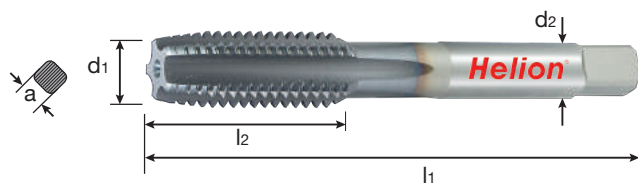
HHC-High-Hard-Cutting- WHM Maschinengewindebohrer in gehärteten stahl von 48 < 63 HRC. z.B. Ampco hart, Hardox 400, Hardox 500, X165 Cr MoV 12 usw., 1.2379 58-62HRC. Die wirtschaftliche Alternative zum Erodieren. Für das Vorbohren der Gewindelöcher empfehlen wir Ihnen HHC-VHM Hochleistungsbohrer 52.6000 < 68 HRC (Vc: 15m/min, fv: 0,04mm/U).

### 95.4100 42-54 HRC

Cutting data for TAP HELION® PM105: Prerequisite are stable machines. Absolutely no manual use. Only with machine. We recommend Synchronspindel. Use high density oil.

Materials	Vc (m/min)	fv (mm/U)
42-54 HRC	2,5	= pitch

d1	P	l1	l2	d2	a	z	Drilling ø
M3	0,5	46	11	3,5	2,7	4	2,55
M4	0,7	52	13	4,5	3,4	4	3,5
M5	0,8	60	16	6	4,9	4	4,4
M6	1	62	19	6	4,9	4	5,3
M8	1,25	70	22	6	4,9	5	7,1
M10	1,5	75	24	7	5,5	5	8,8
M12	1,75	82	29	9	7	5	10,5
M16	2	95	32	12	9	5	14,1
M20	2,5	105	37	16	12	5	17,7



Recommended max. depth of thread: 1,5xD

Profundidad máx. recomendada roscado: 1,5xD



### 91.4100 48-63 HRC

Cutting data for solid carbide TAPS HELION®: Prerequisite are stable machines. Absolutely no manual use. Only with machine. We recommend Synchron-spindel. Use high density oil.

Materials	Vc (m/min)	fv (mm/U)
48-54 HRC	2,5	= pitch
55-59 HRC	2,0	= pitch
60-63 HRC	1,8	= pitch

d1	P	l1	l2	d2	a	z	Drilling ø
M3	0,5	46	11	4	3	4	2,55
M3,5	0,6	46	13	4	3	4	3
M4	0,7	52	13	4,5	3,4	4	3,5
M5	0,8	60	16	5,5	4,3	4	4,4
M6	1	62	19	6	4,9	5	5,3
M8	1,25	70	22	6	4,9	5	7,1
M8	1	70	22	6	4,9	5	7,3
G1/8	0,91	63	18	7	5,5	5	8,9
M10	1,5	75	24	7	5,5	5	8,8
M10	1	75	24	7	5,5	5	9,1
M12	1,75	82	29	9	7	5	10,5
M12	1	82	29	9	7	5	11,1
M12	1,5	82	29	9	7	5	10,60
G1/4	1,34	70	20	11	9	5	11,9
M14	2	88	30	11	9	6	12,5
M14	1,5	88	30	11	9	6	12,6
M16	2	95	32	12	9	6	14,5
M16	1,5	95	32	12	9	6	14,6
M20	2,5	105	37	16	12	6	17,7
M20	1,5	105	37	16	12	6	18,6

# special tools

## WHAT IS IT WE CAN DO FOR YOU?

HELION® develops tools and tooling-systems for the worldwide market always working together with its partners:

Your competent partner in the precision tool technology:

- Solid Carbide Tools for milling, drilling, countersinking and reaming.
- HSS and Solid Carbide Taps for all types of materials.
- PCD for high aluminium productions, for drilling and countersinking, for milling and for precise machining.
- Project Planning and Project Engineering.
- Solutions and Innovative products focussed on automotive and aerospace industry and their suppliers.

## HOW FAST?

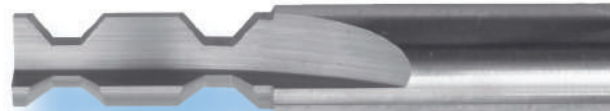
Our standard delivery time is 4-6 weeks for special tools. In case of urgent issues we have the flexibility to produce special tools really fast; we can produce solid carbide tools plus coating with just 2-3 weeks.

## Our philosophy:

The success of our partners is our main target by working together face to face and learning day by day.

Please, send us your inquiry and we will provide you with the best and fastest solution:

For special tools and special applications please do not hesitate to contact our technical department.



Special Tools














### SPECIAL TOOL REQUEST FORM

Please, send us the following information by Fax:  
We are here to serve you.

+ 34 93 874 78 10












Production Forecast (units)	Order <input type="checkbox"/>	Offer <input type="checkbox"/>		
Type of tool	End mill <input type="checkbox"/>	Drill <input type="checkbox"/>	Step Drill <input type="checkbox"/>	
	Reamer <input type="checkbox"/>	Countersink <input type="checkbox"/>	Tap <input type="checkbox"/>	
Specifications	Uncoated <input type="checkbox"/>	TiN <input type="checkbox"/>	TiCN <input type="checkbox"/>	TiAlN <input type="checkbox"/>
	Polished <input type="checkbox"/>	Diamond <input type="checkbox"/>	Other <input type="checkbox"/>	.....
  Internal Coolant	<input type="checkbox"/>	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Workpiece Material	 <input type="checkbox"/>	 <input type="checkbox"/>	 <input type="checkbox"/>	 <input type="checkbox"/>
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Drawing/Dibujo	HELION NORM
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For special tools and special applications please do not hesitate to contact our technical department.



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## SALES TERM

- **Payment:**

Payment shall be made in accordance with terms and conditions notified to the buyer. In default of payment of delivered goods Helion may charge the buyer interest on overdue accounts and shall be entitled to take the necessary steps in order to ensure the collection of these payments.

- **Passing of property:**

The property of the goods does not pass to the buyer until it becomes entirely his payment

The Company reserves the right to repossess any goods in respect on which payment is overdue and the buyer shall co-operate in the event of the Company notifying its intentions of repossess.

- **Transport and insurance:**

Will be payed by the buyer

The merchandise always travels at the risk of the buyer being responsible for the cost of insurance if requested.

- **Claims:**

Claims will only registered if received within 30 days of the receipt of goods .

- **Return of goods:**

Goods returned will only be accepted by the Company provided prior arrangements have been made. The value of the returned goods will be the purchase value. The delivery note has to be handed in with the returned goods, as well as the acceptance document of the quality control department.

In case of return of standard tools, Helion Tools reserve the right to charge 15% of the selling price in concept of handling and control.

In case of special tools, accepted in advance, Helion Tools will not accept the return.

- **Technical features:**

Technical specifications can be found in the catalog. Helion reserve the right to change some of these specifications without prior notice.

- **Warranty:**

We warranty the quality of our tools is so far as manufacture and materials are concerned, but not against inadequate handling or modification of the original geometry.

The warranty excludes liability for damage and his consequences.

- **Delivery:**

Any delivery date is calculated by Helion as short as possible but no guarantee as to the date of delivery is given or implied.

In case of delay, Helion will not accept any claim or annulations of special tools produced following customer request.

- **Jurisdiction:**

In case of dispute the customer will be subject to the jurisdiction of the courts of Manresa



## CONDICIONES DE VENTA

- Pago:

El pago se efectuará de conformidad con los términos y condiciones notificadas al comprador. Por impago de los bienes entregados, Helion puede cobrar el interés legal de demora en las cuentas vencidas y tendrá derecho a tomar las medidas necesarias a fin de garantizar el cobro de estos pagos.

- Reserva de dominio:

La propiedad de los bienes no se transmitirá al comprador hasta que se haga efectivo por completo su pago. La Empresa se reserva el derecho de tomar posesión de los bienes respecto de los cuales mora en el pago

- Transporte y seguro:

Será pagada por el comprador.

La mercancía siempre viaja por cuenta y riesgo del comprador y será a su cargo la prima del seguro en caso de que el cliente lo solicite.

- Reclamaciones:

Las reclamaciones sólo serán tramitadas si se reciben dentro de los 30 días siguientes a la recepción de las mercancías.

- Retorno de bienes:

Productos devueltos sólo serán aceptados por Helion previo acuerdo expreso y por escrito. El valor de las mercancías de retorno será el valor de la compra. El albarán de entrega tiene que ser entregado con las mercancías de retorno, así como el documento de aceptación del departamento de control de calidad.

En caso de devolución de herramientas estándar, salvo en condiciones de garantía, se cobrará el 15% del precio en concepto de manipulación y control.

En ningún caso se aceptara la devolución de herramientas especiales producidos por petición del cliente.

- Características técnicas:

Las especificaciones técnicas se pueden encontrar en el catálogo. Helion reserva el derecho de cambiar algunas de estas especificaciones sin previo aviso.

- Garantía:

Garantizamos la calidad de nuestras herramientas en cuanto a fabricación y materiales se refiere, pero no en caso de manipulación inadecuada o modificación de la geometría original.

La garantía excluye totalmente la responsabilidad por daños y sus consecuencias.

- Entrega:

Cualquier fecha de entrega se calcula lo más corto posible, pero solo a título orientativo.

En caso de retraso Helion no acepta ninguna reclamación o anulaciones de herramientas especiales producidos por petición del cliente.

- Jurisdicción:

En caso de litigio, el cliente estará sujeto a la jurisdicción de los Tribunales de Manresa.



**HELION TOOLS**

Polígon Industrial Bufalvent · C/ Miquel Servet 37, nau 13  
08243 · Manresa · BARCELONA · SPAIN  
Phone: +34 93 877 08 69 · Fax: +34 93 874 78 10

[info@helion-tools.com](mailto:info@helion-tools.com)

[www.helion-tools.com](http://www.helion-tools.com)