



REAM

LINE

REAM

LINE

# REAM LINE







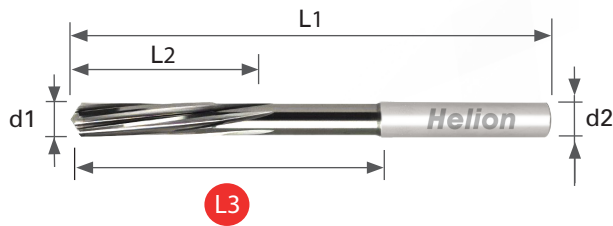
Ø range	3 - 12	0,98 - 12,05	3,80 - 20	4 - 20
Code	28.1202	29.1502	25.0200	25.1500
Page	195	196	198	200
Type	HM	HM	HSS	HSS
Coating	Bright	Bright	Bright	Bright
Tolerance	H7	H7	H7	H7
Technology	UNI	UNI	UNI	Gammon
Coolant	-	-	-	-
Shape	45°	45°	45°	45°
Shank design	HA	HA	HA	HA
Steel 55 HRC	●	●		
Steel 600-1400 N/mm <sup>2</sup>			●	●
Pulvimetallurgic	○			
Stainless steel	●	●	●	●
Cast iron	●	●	●	●
Plastic			●	●
GFK-CFK	●	●	○	●
ALU-NE	○	○	○	●
NI ALLOYS	●	●	○	●
TITAN INCONELL	●	●	○	●

● First choice ○ Suitable

## SOLID CARBIDE REAMER CNC MACHINE DIN 212-2

# 28.1202

-  Escariador de máquina CNC de metal duro integral DIN 212-2
-  Alesoir machine CNC carbure monobloc DIN 212-2
-  Alesatore per macchina CNC in metallo duro DIN 212-2
-  Машинные цельные твердосплавные развертки DIN 212-2



H7  
tolerance

55  
HRC

UNI

INOX

GG(G)

PLASTIC

NI  
ALLOYS

TITAN  
INCONELL

BRIGHT

HA

45°





p-201

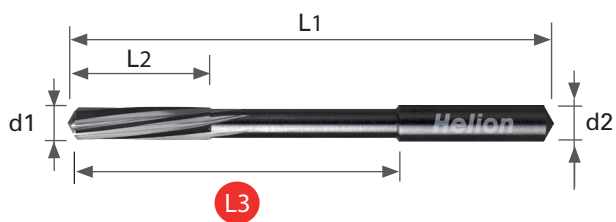
Cod.	d1	d2	L1	L2	L3	Price €	Cod.	d1	d2	L1	L2	L3	Price €
2812020300	3,00	4,00	64	24	36		2812020750	7,50	8,00	109	43	69	
2812020350	3,50	4,00	74	28	46		2812020800	8,00	8,00	117	46	75	
2812020400	4,00	6,00	82	32	50		2812020900	9,00	10,00	125	49	81	
2812020450	4,50	6,00	82	32	50		2812020950	9,50	10,00	125	49	81	
2812020500	5,00	6,00	93	35	59		2812021000	10,00	10,00	133	51	87	
2812020550	5,50	6,00	93	35	57		2812021050	10,50	10,00	133	51	87	
2812020600	6,00	6,00	93	38	57		2812021100	11,00	10,00	142	55	96	
2812020650	6,50	8,00	101	38	63		2812021200	12,00	12,00	151	58	105	
2812020700	7,00	8,00	109	43	69								














## 29.1502

### SOLID CARBIDE REAMER CNC MACHINE



-  Escariador de máquina CNC de metal duro integral
-  Alesoir machine CNC carbure monobloc
-  Alesatore per macchina CNC in metallo duro
-  Машинные цельные твердосплавные развертки



						
						
			p-201			

Tolerance	Diameter range
- 0 / + 0,004	Ø < 5,50 mm
- 0 / + 0,005	Ø ≥ 5,50 mm

Ø > 3,75 mm unequal division





Cod.	d1	d2	L1	L2	L3	Z	Price €
2915020098	0,98	4	50	6	22	3	
2915020099	0,99	4	50	6	22	3	
2915020100	1,00	4	50	6	22	3	
2915020101	1,01	4	50	6	22	3	
2915020102	1,02	4	50	6	22	3	
2915020103	1,03	4	50	9	22	3	
2915020148	1,48	4	50	9	22	3	
2915020149	1,49	4	50	9	22	3	
2915020150	1,50	4	50	9	22	3	
2915020151	1,51	4	50	9	22	3	
2915020152	1,52	4	50	9	22	3	
2915020153	1,53	4	50	9	22	3	
2915020198	1,98	4	50	12	22	4	
2915020199	1,99	4	50	12	22	4	
2915020200	2,00	4	50	12	22	4	
2915020201	2,01	4	50	12	22	4	
2915020202	2,02	4	50	12	22	4	
2915020203	2,03	4	50	12	22	4	
2915020248	2,48	4	60	16	32	4	
2915020249	2,49	4	60	16	32	4	
2915020250	2,50	4	60	16	32	4	
2915020251	2,51	4	60	16	32	4	
2915020252	2,52	4	60	16	32	4	
2915020253	2,53	4	60	16	32	4	
2915020297	2,97	4	64	17	36	6	
2915020298	2,98	4	64	17	36	6	
2915020299	2,99	4	64	17	36	6	
2915020300	3,00	4	64	17	36	6	
2915020301	3,01	4	64	17	36	6	
2915020302	3,02	4	64	17	36	6	
2915020303	3,03	4	64	17	36	6	
2915020397	3,97	4	77	21	45	6	
2915020398	3,98	4	77	21	45	6	
2915020399	3,99	4	77	21	45	6	
2915020400	4,00	4	77	21	45	6	
2915020401	4,01	4	77	21	45	6	
2915020402	4,02	4	77	21	45	6	
2915020403	4,03	4	77	21	45	6	
2915020497	4,97	6	93	26	59	6	
2915020498	4,98	6	93	26	59	6	

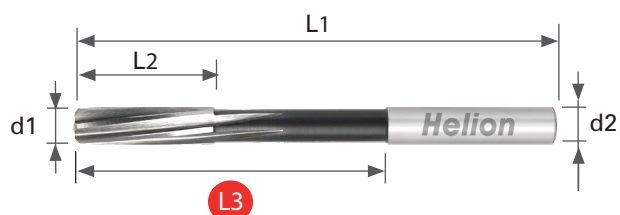
Cod.	d1	d2	L1	L2	L3	Z	Price €
2915020499	4,99	6	93	26	59	6	
2915020500	5,00	6	93	26	59	6	
2915020501	5,01	6	93	26	59	6	
2915020502	5,02	6	93	26	59	6	
2915020503	5,03	6	93	26	59	6	
2915020597	5,97	6	93	26	57	6	
2915020598	5,98	6	93	26	57	6	
2915020599	5,99	6	93	26	57	6	
2915020600	6,00	6	93	26	57	6	
2915020601	6,01	6	93	26	57	6	
2915020602	6,02	6	93	26	57	6	
2915020603	6,03	6	93	26	57	6	
2915020700	7,00	8	109	31	69	6	
2915020797	7,97	8	117	33	75	6	
2915020798	7,98	8	117	33	75	6	
2915020799	7,99	8	117	33	75	6	
2915020800	8,00	8	117	33	75	6	
2915020801	8,01	8	117	33	75	6	
2915020802	8,02	8	117	33	75	6	
2915020803	8,03	8	117	33	75	6	
2915020804	8,04	8	117	33	75	6	
2915020900	9,00	10	125	36	81	6	
2915020997	9,97	10	133	38	87	6	
2915020998	9,98	10	133	38	87	6	
2915020999	9,99	10	133	38	87	6	
2915021000	10,00	10	133	38	87	6	
2915021001	10,01	10	133	38	87	6	
2915021002	10,02	10	133	38	87	6	
2915021003	10,03	10	133	38	87	6	
2915021004	10,04	10	133	38	87	6	
2915021005	10,05	10	133	38	87	6	
2915021197	11,97	12	151	44	105	6	
2915021198	11,98	12	151	44	105	6	
2915021199	11,99	12	151	44	105	6	
2915021200	12,00	12	151	44	105	6	
2915021201	12,01	12	151	44	105	6	
2915021202	12,02	12	151	44	105	6	
2915021203	12,03	12	151	44	105	6	
2915021204	12,04	12	151	44	105	6	
2915021205	12,05	12	151	44	105	6	

## 25.0200

### HSS REAMER CNC MACHINE DIN 212-2



-  Escariador de máquina HSS-E DIN 212-2
-  Alesoir machine DIN 212-2 acier HSS-E
-  Alesatore per macchina HSS-E DIN 212-2
-  Машинные развертки HSS DIN 212-2



<b>H7</b> tolerance	<b>600</b> <b>1400</b> N/mm <sup>2</sup>	<b>INOX</b>	<b>GG(G)</b>	<b>PLASTIC</b>	<b>BRIGHT</b>	<b>UNI</b>
<b>HA</b>	<b>45°</b>					
	 <b>p-202</b>					





Cod.	d1	d2	L1	L2	L3	Price €
2502000380	3,80	4,00	75	19	47	
2502000390	3,90	4,00	75	19	47	
2502000400	4,00	4,00	75	19	47	
2502000410	4,10	4,00	75	19	47	
2502000420	4,20	4,00	75	19	47	
2502000430	4,30	4,50	80	21	52	
2502000440	4,40	4,50	80	21	52	
2502000450	4,50	4,50	80	21	52	
2502000460	4,60	4,50	80	21	52	
2502000470	4,70	4,50	80	21	52	
2502000480	4,80	5,00	86	23	58	
2502000490	4,90	5,00	86	23	58	
2502000500	5,00	5,00	86	23	58	
2502000510	5,10	5,00	86	23	58	
2502000520	5,20	5,00	86	23	58	
2502000530	5,30	5,00	86	23	58	
2502000540	5,40	5,60	93	26	57	
2502000550	5,50	5,60	93	26	57	
2502000560	5,60	5,60	93	26	57	
2502000570	5,70	5,60	93	26	57	
2502000580	5,80	5,60	93	26	57	
2502000590	5,90	5,60	93	26	57	
2502000600	6,00	5,60	93	26	57	
2502000610	6,10	6,30	101	28	65	
2502000620	6,20	6,30	101	28	65	
2502000630	6,30	6,30	101	28	65	
2502000640	6,40	6,30	101	28	65	
2502000650	6,50	6,30	101	28	65	
2502000660	6,60	6,30	101	28	65	
2502000670	6,70	6,30	101	28	65	
2502000680	6,80	7,10	109	31	73	
2502000690	6,90	7,10	109	31	73	
2502000700	7,00	7,10	109	31	73	
2502000710	7,10	7,10	109	31	73	
2502000720	7,20	7,10	109	31	73	
2502000730	7,30	7,10	109	31	73	
2502000740	7,40	7,10	109	31	73	
2502000750	7,50	7,10	109	31	73	
2502000760	7,60	8,00	117	33	81	
2502000770	7,70	8,00	117	33	81	
2502000780	7,80	8,00	117	33	81	
2502000790	7,90	8,00	117	33	81	

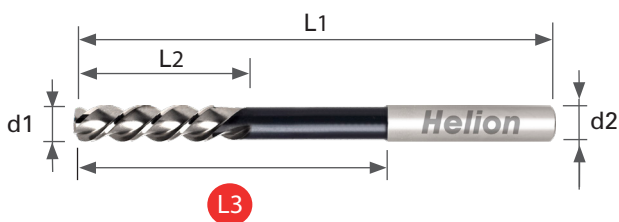
Cod.	d1	d2	L1	L2	L3	Price €
2502000800	8,00	8,00	117	33	81	
2502000810	8,10	8,00	117	33	81	
2502000820	8,20	8,00	117	33	81	
2502000830	8,30	8,00	117	33	81	
2502000840	8,40	8,00	117	33	81	
2502000850	8,50	8,00	117	33	81	
2502000860	8,60	9,00	125	36	85	
2502000870	8,70	9,00	125	36	85	
2502000880	8,80	9,00	125	36	85	
2502000890	8,90	9,00	125	36	85	
2502000900	9,00	9,00	125	36	85	
2502000910	9,10	9,00	125	36	85	
2502000920	9,20	9,00	125	36	85	
2502000930	9,30	9,00	125	36	85	
2502000940	9,40	9,00	125	36	85	
2502000950	9,50	9,00	125	36	85	
2502000960	9,60	10,00	133	38	93	
2502000970	9,70	10,00	133	38	93	
2502000980	9,80	10,00	133	38	93	
2502000990	9,90	10,00	133	38	93	
2502001000	10,00	10,00	133	38	93	
2502001010	10,10	10,00	133	38	93	
2502001020	10,20	10,00	133	38	93	
2502001030	10,30	10,00	133	38	93	
2502001040	10,40	10,00	133	38	93	
2502001050	10,50	10,00	133	38	93	
2502001060	10,60	10,00	133	38	93	
2502001070	10,70	10,00	142	41	102	
2502001080	10,80	10,00	142	41	102	
2502001090	10,90	10,00	142	41	102	
2502001100	11,00	10,00	142	41	102	
2502001150	11,50	10,00	142	41	102	
2502001190	11,90	10,00	151	44	111	
2502001200	12,00	10,00	151	44	111	
2502001300	13,00	10,00	151	44	111	
2502001400	14,00	12,50	160	47	115	
2502001500	15,00	12,50	162	50	117	
2502001600	16,00	12,50	170	52	125	
2502001700	17,00	14,00	175	54	130	
2502001800	18,00	14,00	182	56	137	
2502001900	19,00	16,00	189	58	141	
2502002000	20,00	16,00	195	60	147	

## 25.1500

### HSS REAMER CNC MACHINE DIN 212-E GAMMON



-  Escariador de máquina DIN 212-E GAMMON
-  Alesoir machine DIN 212-E "GAMMON" acier HSS-E
-  Alesatore per macchina HSS-E DIN 212-E GAMMON
-  Машинные развертки HSS DIN 212-E "GAMMON"



H7  
tolerance

600  
1400  
N/mm<sup>2</sup>

GG(G)

INOX

PLASTIC

ALU  
NE

BRIGHT

NI  
ALLOYS

HA





 p-202

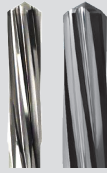
Cod.	d1	d2	L1	L2	L3	Price €
2515000400	4,00	4,00	75	19	47	
2515000450	4,50	4,50	80	21	52	
2515000500	5,00	5,00	86	23	58	
2515000550	5,50	5,60	93	26	57	
2515000600	6,00	5,60	93	26	57	
2515000650	6,50	6,30	101	28	65	
2515000700	7,00	7,10	109	31	73	
2515000800	8,00	8,00	117	33	81	
2515000850	8,50	8,00	117	33	81	
2515000900	9,00	9,00	125	36	85	

Cod.	d1	d2	L1	L2	L3	Price €
2515001000	10,00	10,00	133	38	93	
2515001100	11,00	10,00	142	41	102	
2515001200	12,00	10,00	151	44	111	
2515001300	13,00	10,00	151	44	111	
2515001400	14,00	12,50	160	47	115	
2515001500	15,00	12,50	162	50	117	
2515001600	16,00	12,50	170	52	125	
2515001700	17,00	14,00	175	54	130	
2515001800	18,00	14,00	182	56	137	
2515002000	20,00	16,00	195	60	147	



## CUTTING CONDITIONS SOLID CARBIDE

28.1202  
29.1502





		Vc m/min	Feed OPTION
Steel	General steels <500 N/mm <sup>2</sup> (<150 HB)	18	<b>22</b>
	General steels <700 N/mm <sup>2</sup> (<205 HB)	16	<b>22</b>
	General steels <850 N/mm <sup>2</sup> (<25 HRC)	16	<b>21</b>
	General steels <1000 N/mm <sup>2</sup> (<32 HRC)	14	<b>21</b>
	General steels <1400 N/mm <sup>2</sup> (<44 HRC)	12	<b>21</b>
	Tempering steel <850 N/mm <sup>2</sup> (<25 HRC)	16	<b>21</b>
	Tempering steel <1000 N/mm <sup>2</sup> (<32 HRC)	14	<b>21</b>
	Tempering steel <1400 N/mm <sup>2</sup> (<44 HRC)	12	<b>21</b>
	Tempering steel >1400 N/mm <sup>2</sup> (>44 HRC)	10	<b>21</b>
Inox	INOX Stainless steel <700 N/mm <sup>2</sup> (<205 HB)	8	<b>21</b>
	INOX Stainless steel >700 N/mm <sup>2</sup> (>205 HB)	6	<b>21</b>
	Titanium, Ti-99.5	10	<b>21</b>
	Ti 1 / Ti Al6V4	10	<b>21</b>
Cast Iron	Cast iron <180HB	20	<b>21</b>
	Malleable cast iron GTW - GTS	18	<b>21</b>
	Nodular cast iron GG - GGG	18	<b>21</b>
Non ferrous	Aluminium and AL-alloyed <6 % S	30	<b>23</b>
	Aluminium and AL-alloyed 6%-12% S	40	<b>22</b>
	Aluminium alloyed over >12% S	30	<b>23</b>
	Copper, long chips	25	<b>22</b>
	Brass, bronze, short chips	35	<b>22</b>
	Brass, bronze, long chips	30	<b>22</b>

## Feed rate mm/U

D1	Feed OPTION		
	21	22	23
1,00	0,080	0,100	0,125
2,00	0,080	0,100	0,125
2,50	0,080	0,100	0,125
3,00	0,080	0,100	0,125
4,00	0,100	0,130	0,160
5,00	0,100	0,123	0,160
6,00	0,130	0,160	0,200
8,00	0,160	0,200	0,250
10,00	0,200	0,250	0,300
12,00	0,200	0,250	0,300
16,00	0,250	0,300	0,400
20,00	0,320	0,400	0,500

CONDITIONS OF WORK GUIDELINES. MAY VARY ON EACH CONCRETE CASE.  
CONDICIONES DE TRABAJO ORIENTATIVAS. PUEDEN VARIAR EN FUNCION DE CADA CASO CONCRETO.

## CUTTING CONDITIONS HSS

		25.0200		25.1500	
					
		Vc m/min	Feed OPTION	Vc m/min	Feed OPTION
Steel	General steels <500 N/mm <sup>2</sup> (<150 HB)	16	<b>22</b>	16	<b>23</b>
	General steels <700 N/mm <sup>2</sup> (<205 HB)	12	<b>22</b>	12	<b>23</b>
	General steels <850 N/mm <sup>2</sup> (<25 HRC)	10	<b>22</b>	10	<b>23</b>
	General steels <1000 N/mm <sup>2</sup> (<32 HRC)	10	<b>22</b>	10	<b>23</b>
	General steels 1400 N/mm <sup>2</sup> (<44 HRC)	8	<b>21</b>	10	<b>23</b>
	Tempering steel <850 N/mm <sup>2</sup> (<25 HRC)	10	<b>22</b>	10	<b>23</b>
	Tempering steel <1000 N/mm <sup>2</sup> (<32 HRC)	10	<b>22</b>	10	<b>23</b>
	Tempering steel <1400 N/mm <sup>2</sup> (<44 HRC)	8	<b>21</b>	10	<b>23</b>
Inox	INOX Stainless steel <700 N/mm <sup>2</sup> (<205 HB)	6	<b>22</b>	6	<b>22</b>
	INOX Stainless steel >700 N/mm <sup>2</sup> (>205 HB)	4	<b>22</b>	4	<b>22</b>
	Titanium, Ti-, Ni-, Co- alloy (Inconel, Stellite...)	4	<b>21</b>	4	<b>22</b>
	Ti 1 / Ti Al6V4	6	<b>21</b>	5	<b>21</b>
Cast Iron	Cast iron <180HB	14	<b>21</b>		
	Malleable cast iron GTW - GTS	12	<b>21</b>		
	Nodular cast iron GG - GGG	10	<b>21</b>		
Non ferrous	Aluminium and AL-alloyed <6 % S	18	<b>23</b>	22	<b>23</b>
	Aluminium and AL-alloyed 6%-12% S	20	<b>23</b>	20	<b>23</b>
	Aluminium alloyed over >12% S	18	<b>22</b>	22	<b>23</b>
	Copper, long chips	18	<b>22</b>		
	Brass, bronze, short chips	20	<b>22</b>	18	<b>23</b>
	Brass, bronze, long chips	18	<b>22</b>		

## Feed rate mm/U

D1	Feed OPTION		
	<b>21</b>	<b>22</b>	<b>23</b>
1,00	0,080	0,100	0,125
2,00	0,080	0,100	0,125
2,50	0,080	0,100	0,125
3,00	0,080	0,100	0,125
4,00	0,100	0,130	0,160
5,00	0,100	0,123	0,160
6,00	0,130	0,160	0,200
8,00	0,160	0,200	0,250
<b>10,00</b>	0,200	0,250	<b>0,300</b>
12,00	0,200	0,250	0,300
16,00	0,250	0,300	0,400
20,00	0,320	0,400	0,500

CONDITIONS OF WORK GUIDELINES. MAY VARY ON EACH CONCRETE CASE.  
CONDICIONES DE TRABAJO ORIENTATIVAS. PUEDEN VARIAR EN FUNCION DE CADA CASO CONCRETO.