

# REAM LINE



# REAM LINE









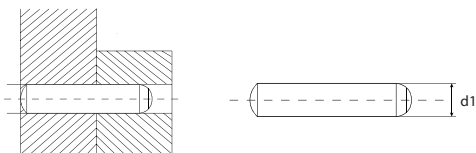
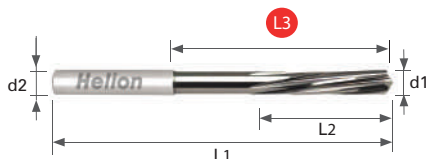
Ø range	3 - 12	0,98 - 12,05	3,80 - 20	4 - 20
Code	28.1202	29.1502	25.0200	25.1500
Page	195	196	198	200
Type	HM	HM	HSS	HSS
Coating	Bright	Bright	Bright	Bright
Tolerance	H7	H7	H7	H7
Technology	UNI	UNI	UNI	Gammon
Coolant	-	-	-	-
Shape	45°	45°	45°	45°
Shank design	HA	HA	HA	HA
Steel 55 HRC	●	●		
Steel 600-1200 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
-  Kati karbür oyunculu cnc makinası DIN 212-2
-  机加中心合金铰刀 DIN 212-2



Application example fixing pins DIN 6325 for  $d1 = 8$







Use drill D:7,80 and then reamer 28.1202 or 25.0200 D: 8 H7

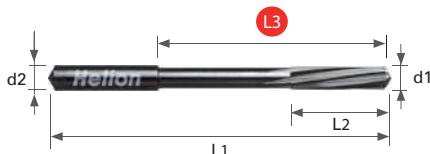
Cod.	d1	d2	L1	L2	L3
2812020300	3,00	4,00	64	24	36
2812020350	3,50	4,00	74	28	46
2812020400	4,00	6,00	82	32	50
2812020450	4,50	6,00	82	32	50
2812020500	5,00	6,00	93	35	59
2812020550	5,50	6,00	93	35	57
2812020600	6,00	6,00	93	38	57
2812020650	6,50	8,00	101	38	63
2812020700	7,00	8,00	109	43	69

Cod.	d1	d2	L1	L2	L3
2812020750	7,50	8,00	109	43	69
2812020800	8,00	8,00	117	46	75
2812020900	9,00	10,00	125	49	81
2812020950	9,50	10,00	125	49	81
2812021000	10,00	10,00	133	51	87
2812021050	10,50	10,00	133	51	87
2812021100	11,00	10,00	142	55	96
2812021200	12,00	12,00	151	58	105

## 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
-  Kati karbür reamer CNC makinasi
-  机加中心合金铰刀



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

Ø > 3,75 mm unequal division



Application example ejector pin DIN 1530 for d1 = 8  
 Use drill D:7,80 and then reamer 29.1502 D: 7,98

Cod.	d1	d2	L1	L2	L3	Z
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
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

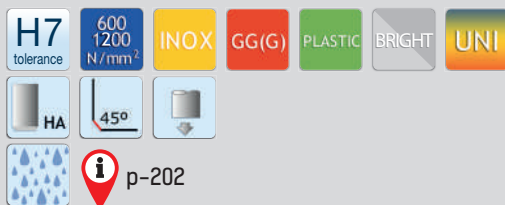
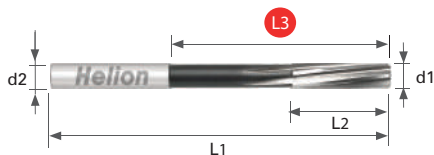
REAM LINE

## 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
-  HSS reamer cnc makinesi DIN 212-2
-  机加中心高速钢铰刀DIN212-2



Cod.	d1	d2	L1	L2	L3
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

Cod.	d1	d2	L1	L2	L3
2502000790	7,90	8,00	117	33	81
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
2502001070	10,70	10,00	142	41	102
2502001080	10,80	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







REAM LINE



## 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"
-  HSS reamer cnc makinası DIN 212-E GAMMON
-  机加中心高速钢铰刀DIN212-E GAMMON



							
							
	 p-202						

Cod.	d1	d2	L1	L2	L3
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
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 <1200 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 <1200 N/mm <sup>2</sup> (<44 HRC)	12	<b>21</b>
	Tempering steel >1200 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>

REAM  
LINE

## Feed rate mm/U

	Feed OPTION			
D1	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	

## 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 1200 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 <1200 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.