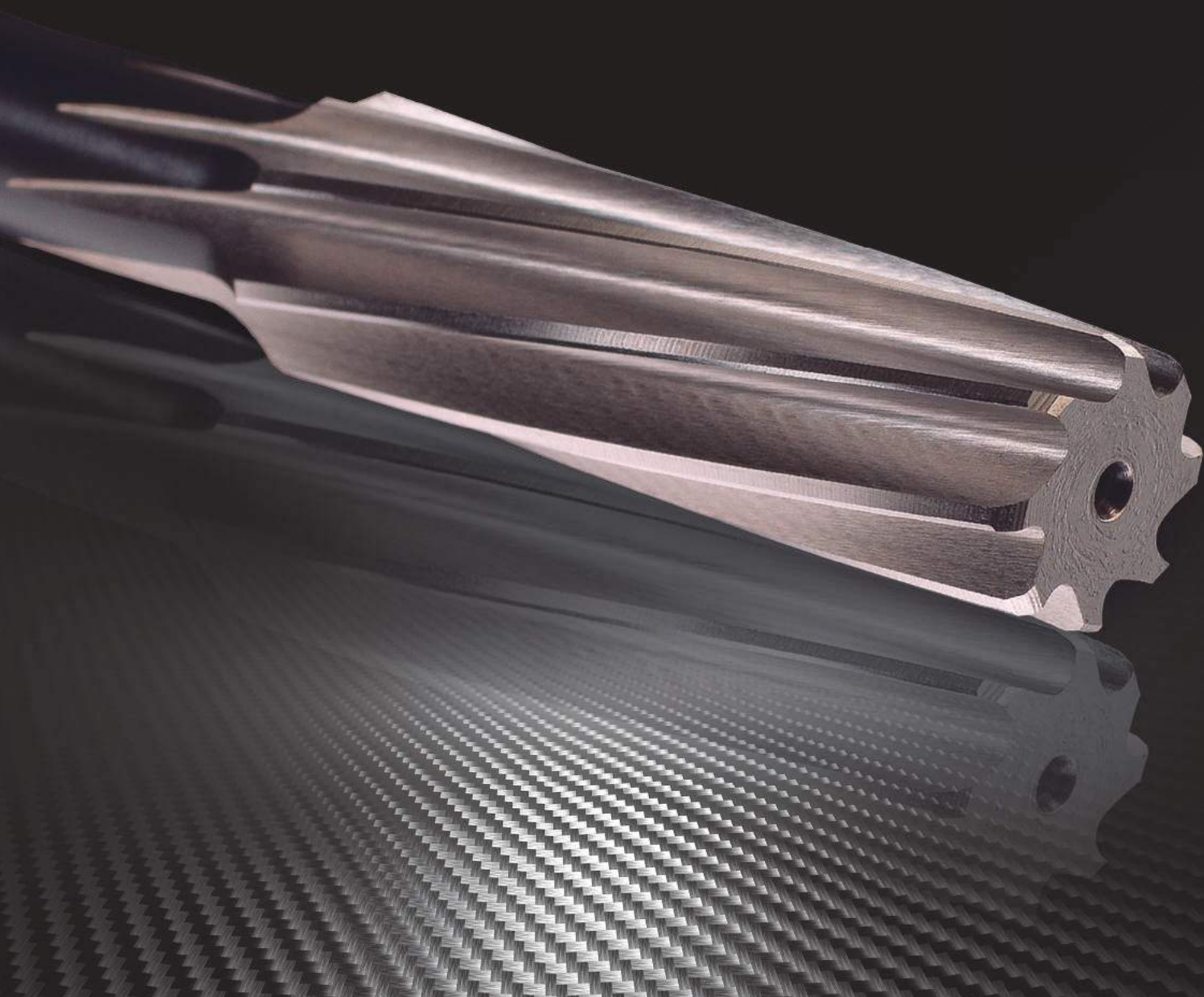
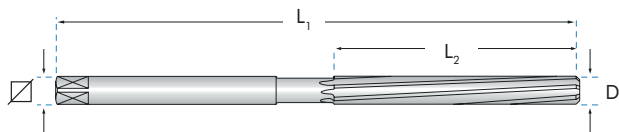


REAMERS



HSS HAND REAMERS DIN 206B

Ref. EM1



EM1					EM1					EM1					EM1				
D1 mm	L1 mm	L2 mm	∠	€	D1 mm	L1 mm	L2 mm	∠	€	D1 mm	L1 mm	L2 mm	∠	€	D1 mm	L1 mm	L2 mm	∠	€
1,50	41	20	1,12	22,50	8,75	124	62	7,10	24,80	19,50	201	100	16,00	74,89	35,00	284	142	28,00	236,68
2,00	50	25	1,60	16,96	9,00	124	62	7,10	21,60	20,00	201	100	16,00	74,89	35,50	284	142	28,00	297,43
2,25	54	27	1,80	21,46	9,25	124	62	7,10	25,96	20,50	201	100	16,00	109,21	36,00	284	142	28,00	258,66
2,50	58	29	2,00	16,96	9,50	124	62	7,10	22,53	13/16"	201	100	16,00	107,81	36,50	284	142	28,00	321,62
2,75	62	31	2,25	21,46	3/8"	133	66	8,00	29,66	21,00	201	100	16,00	87,58	37,00	284	142	28,00	299,85
3,00	62	31	2,25	16,96	9,75	133	66	8,00	25,96	21,50	215	107	18,00	108,73	37,50	284	142	28,00	344,86
1/8	66	33	2,50	24,31	10,00	133	66	8,00	22,32	22,00	215	107	18,00	90,69	38,00	305	152	31,50	299,89
3,25	66	33	2,50	21,46	10,25	133	66	8,00	32,79	7/8"	215	107	18,00	125,27	38,50	305	152	31,50	344,86
3,50	71	35	2,80	17,78	10,50	133	66	8,00	25,20	22,50	215	107	18,00	114,60	39,00	305	152	31,50	299,89
3,75	71	35	2,80	21,46	10,75	142	71	9,00	32,79	23,00	215	107	18,00	94,65	39,50	305	152	31,50	344,86
5/32"	76	38	3,15	25,45	11,00	142	71	9,00	25,17	23,50	215	107	18,00	121,89	40,00	305	152	31,50	299,89
4,00	76	38	3,15	16,96	7/16"	142	71	9,00	40,38	24,00	231	115	20,00	104,83	40,50	305	152	31,50	397,55
4,25	76	38	3,15	22,42	11,25	142	71	9,00	35,34	24,50	231	115	20,00	134,31	41,00	305	152	31,50	361,40
4,50	81	41	3,55	17,71	11,50	142	71	9,00	27,08	25,00	231	115	20,00	111,21	41,50	305	152	31,50	433,67
4,75	81	41	3,55	19,47	11,75	142	71	9,00	35,34	1"	231	115	20,00	131,25	42,00	305	152	31,50	361,40
3/16"	87	44	4,00	25,64	12,00	152	76	10,00	29,51	25,50	231	155	20,00	146,72	42,50	305	152	31,50	449,36
5,00	87	44	4,00	17,71	12,50	152	76	10,00	37,77	26,00	231	115	20,00	121,35	43,00	326	163	35,50	432,10
5,25	87	44	4,00	22,42	1/2"	152	76	10,00	39,93	26,50	231	115	20,00	158,30	43,50	326	163	35,50	548,24
5,50	93	47	4,50	17,71	13,00	152	76	10,00	37,77	27,00	247	124	22,40	132,10	44,00	326	163	35,50	432,10
5,75	93	47	4,50	22,42	13,50	163	81	11,20	40,31	27,50	247	124	22,40	162,10	44,50	326	163	35,50	548,43
6,00	93	47	4,50	17,71	14,00	163	81	11,20	40,32	28,00	247	124	22,40	136,44	45,00	326	163	35,50	457,03
6,25	100	50	5,00	22,42	9/16"	163	81	11,20	51,12	28,50	247	124	22,40	170,45	45,50	326	163	35,50	587,16
1/4"	100	50	5,00	20,08	14,50	163	81	11,20	44,03	29,00	247	124	22,40	180,03	46,00	326	163	35,50	513,26
6,50	100	50	5,00	17,71	15,00	163	81	11,20	44,04	29,50	247	124	22,40	189,24	46,50	326	163	35,50	644,99
6,75	107	54	5,60	22,42	15,50	175	87	12,50	47,92	30,00	247	124	22,40	181,02	47,00	326	163	35,50	560,87
7,00	107	54	5,60	17,71	5/8"	175	87	12,50	53,98	30,50	265	133	25,00	220,47	47,50	326	163	35,50	672,57
9/32"	107	54	5,60	28,19	16,00	175	87	12,50	47,91	31,00	265	133	25,00	191,71	48,00	347	174	40,00	612,90
7,25	107	54	5,60	23,70	16,50	175	87	12,50	57,74	31,50	265	133	25,00	238,37	48,50	347	174	40,00	691,35
7,50	107	54	5,60	18,72	17,00	175	87	12,50	57,74	32,00	265	133	25,00	218,68	49,00	347	174	40,00	625,15
7,75	115	58	6,30	23,70	17,50	188	93	14,00	64,45	32,50	265	133	25,00	251,46	49,50	347	174	40,00	718,91
5/16"	115	58	6,30	22,61	18,00	188	93	14,00	69,23	33,00	265	133	25,00	229,34	50,00	347	174	40,00	678,18
8,00	115	58	6,30	18,72	18,50	188	93	14,00	69,22	33,50	265	133	25,00	263,71					
8,25	115	58	6,30	24,85	19,00	188	93	14,00	69,22	34,00	284	142	28,00	229,33					
8,50	115	58	6,30	19,67	3/4"	201	100	16,00	79,87	34,50	284	142	28,00	272,16					

HAND REAMERS IN TENTHS

D1 mm	EM1 €
De 2,10 a 3,90	24,99
De 4,10 a 6,90	26,15
De 7,10 a 7,90	27,63
De 8,10 a 8,90	29,00
De 9,10 a 9,90	30,26
De 10,10 a 10,90	39,40
De 11,10 a 11,90	42,40
De 12,10 a 12,90	67,01

H7 TOLERANCE (in μ m)

1-3	3-6	6-10	10-18	18-30	30-50	50-80	80-120	120-180
+8	+10	+12	+15	+17	+21	+25	+29	+34
+4	+5	+6	+8	+9	+12	+14	+16	+20

FINE TOLERANCE (en μ m)

1,00-6	6,01-12
+4	+5
+0	+0



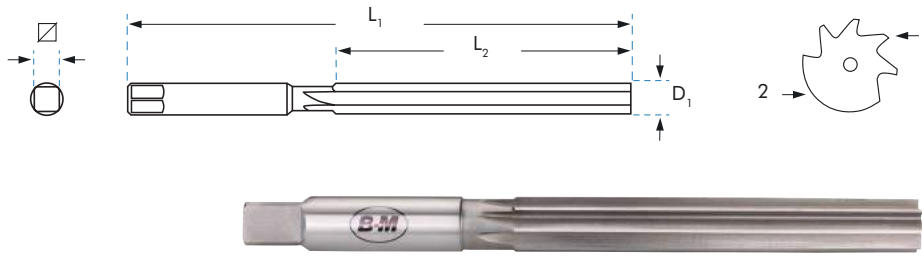
Centesimal precision reamers available on request

HSS PARIS TYPE HAND REAMERS

Ref. EMA

NFE 74112 HSS TOL K7 0°

- 1.- Straight teeth
- 2.- Support side



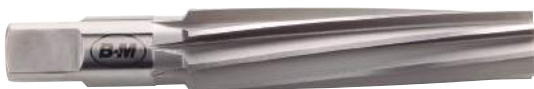
	D1 mm	L1 mm	L2 mm	∠	EMA	€
EMA0300	3,00	85	50	2,24		36,75
EMA0400	4,00	100	60	3,15		36,75
EMA0500	5,00	112	67	4,00		37,80
EMA0600	6,00	118	71	4,50		37,80
EMA0700	7,00	132	80	5,60		37,80
EMA0800	8,00	140	85	6,30		41,58
EMA0900	9,00	150	90	7,10		47,36
EMA1000	10,00	160	95	8,00		47,36
EMA1100	11,00	170	100	9,00		54,86
EMA1200	12,00	180	106	10,00		54,86
EMA1300	13,00	180	106	10,00		61,22
EMA1400	14,00	190	112	11,20		61,22
EMA1500	15,00	190	112	11,20		73,92
EMA1600	16,00	200	118	12,50		73,92
EMA1700	17,00	200	118	12,50		84,32

	D1 mm	L1 mm	L2 mm	∠	EMA	€
EMA1800	18,00	212	125	14,00		84,32
EMA1900	19,00	212	125	14,00		98,18
EMA2000	20,00	224	132	16,00		98,18
EMA2100	21,00	224	132	16,00		113,19
EMA2200	22,00	236	140	18,00		113,19
EMA2300	23,00	236	140	18,00		132,30
EMA2400	24,00	250	150	20,00		145,53
EMA2500	25,00	250	150	20,00		145,53
EMA2600	26,00	250	150	20,00		162,75
EMA2700	27,00	265	160	22,40		162,75
EMA2800	28,00	265	160	22,40		179,03
EMA2900	29,00	265	160	22,40		202,13
EMA3000	30,00	265	160	22,40		202,13
EMA3200	32,00	280	170	25,00		229,85
EMA3400	34,00	300	180	28,00		276,17

HAND REAMER FOR MORSE TAPER SHANK

Ref. ECM

DIN 204D HSS



PRIOR NPT THREADING HAND REAMER

Ref. EMNPT

1:16 HSS NPT



	MT	∅ mm min. x max.	L1 mm	L2 mm	ECM	€
ECM0	0	6,547 - 9,722	93	61		62,92
ECM1	1	9,571 - 12,863	102	66		52,92
ECM2	2	14,733 - 18,679	121	79		88,79
ECM3	3	20,010 - 24,829	146	96		139,94
ECM4	4	26,229 - 32,410	179	119		240,49
ECM5	5	37,873 - 45,767	222	150		508,62

	NPT Thread	∅ mm min. x max.	L1 mm	L2 mm	EMNPT	€
EMNPT1/16	NPT1/16	6,20	5,915 - 6,978	70	17	105,48
EMNPT1/8	NPT1/8	8,50	8,022 - 9,085	70	17	107,67
EMNPT1/4	NPT1/4	11,00	10,283 - 11,971	80	27	116,36
EMNPT3/8	NPT3/8	14,50	13,703 - 15,391	85	27	130,60
EMNPT1/2	NPT1/2	17,80	16,913 - 19,101	95	35	153,58

HSS HAND TAPER PIN REAMERS DIN 9B

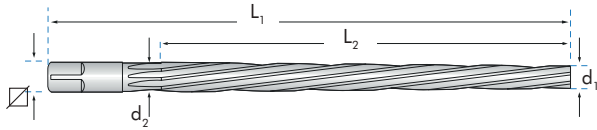
Ref. EM2

TOL
H9DIN
9B

HSS

2%
1:50

FOR TAPER PINS DIN 1



Sizes Ø 1-1,20-1,50-2 and 2,50
are manufactured with straight flutes

	D mm	Ø mm d ₁ x d ₂	L ₁ mm	L ₂ mm	∠	EM2 €
EM20100	1,00	0,95 x 1,46	46	28	2,50	50,16
EM20120	1,20	1,15 x 1,74	50	32	2,50	50,16
EM20150	1,50	1,40 x 2,14	57	37	2,50	38,02
EM20200	2,00	1,90 x 2,86	68	48	2,50	30,52
EM20250	2,50	2,40 x 3,36	68	48	2,50	30,52
EM20300	3,00	2,90 x 4,06	80	58	3,15	29,09
EM20350	3,50	3,40 x 4,66	87	63	3,15	32,07
EM20400	4,00	3,90 x 5,26	93	68	4,00	29,67
EM20450	4,50	4,40 x 5,80	95	70	4,00	29,89
EM20500	5,00	4,90 x 6,36	100	73	5,00	28,25
EM20550	5,50	5,40 x 7,20	118	90	5,00	28,45
EM20600	6,00	5,90 x 8,00	135	105	6,30	33,75
EM20650	6,50	6,40 x 8,60	140	110	6,30	34,96
EM20700	7,00	6,90 x 9,40	160	125	6,30	34,96
EM20800	8,00	7,90 x 10,80	180	145	8,00	46,22
EM21000	10,00	9,90 x 13,40	215	175	10,00	53,33
EM21200	12,00	11,80 x 16,00	255	210	11,20	68,72
EM21300	13,00	12,80 x 17,00	255	210	11,20	87,94
EM21400	14,00	13,80 x 18,00	255	210	11,20	104,29
EM21600	16,00	15,80 x 20,40	280	230	14,00	111,44
EM22000	20,00	19,80 x 24,80	310	250	18,00	204,36
EM22500	25,00	24,70 x 30,70	370	300	22,40	319,12
EM23000	30,00	29,70 x 36,10	400	320	25,00	694,97
EM24000	40,00	39,70 x 46,50	430	340	31,50	1.145,48
EM25000	50,00	49,70 x 56,90	460	360	40,00	1.790,21

HSSCo CHUCKING TAPER PIN REAMERS

Ref. EM29

TOL
H9DIN
2179E

HSSCo

2%
1:50

FOR TAPER PINS DIN1



	D ₁ mm	Ø mm min. x max.	L ₁ mm	L ₂ mm	EM29 €
EM290150	1,50	1,40 - 2,14	70	37	50,99
EM290200	2,00	1,90 - 2,86	68	48	52,01
EM290250	2,50	2,40 - 3,35	86	48	57,88
EM290300	3,00	2,90 - 4,06	100	58	46,56
EM290400	4,00	3,90 - 5,26	112	68	44,81
EM290500	5,00	4,90 - 6,36	122	73	41,93
EM290600	6,00	5,90 - 8,00	160	105	40,23
EM290700	7,00	6,90 - 9,40	160	125	64,26
EM290800	8,00	7,90 - 10,80	207	145	74,12
EM291000	10,00	9,90 - 13,40	245	175	100,77
EM291200	12,00	11,80 - 16,00	290	210	152,82

HSSCo MACHINE CHUCKING REAMERS



Ref. EM3



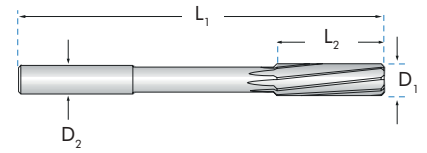
DIN 212B



Ref. EM10



DIN 212E



Reamers

Pink

				EM3	EM10					EM3	EM10					EM3	EM10	
MATERIAL				HSSCo	HSSCo	D1	L1	L2	D2	€	€	D1	L1	L2	D2	€	€	
NORM				DIN 212B	DIN 212E	mm	mm	mm	mm			mm	mm	mm	mm			
TOLERANCE				TOL H7	TOL H7													
HELIX ANGLE				8°	38°													
D1	L1	L2	D2	€	€	D1	L1	L2	D2	€	€	D1	L1	L2	D2	€	€	
mm	mm	mm	mm			mm	mm	mm	mm			mm	mm	mm	mm			
1,00	34	7	1,00	43,82		4,20	75	19	4,00	18,91		8,10	117	33	8,00	25,01		
1,20	34	7	1,20	38,94		4,30	80	21	4,50	18,91		8,20	117	33	8,00	25,01		
1,40	40	8	1,40	36,21		4,40	80	21	4,50	18,91		8,30	117	33	8,00	25,01		
1,50	40	8	1,50	18,34		4,50	80	21	4,50	17,16	24,12	8,40	117	33	8,00	25,01		
1,60	43	9	1,60	22,34		4,60	80	21	4,50	18,91		8,50	117	33	8,00	22,74	29,15	
1,70	43	9	1,70	22,16		4,70	80	21	4,50	18,91		8,60	117	33	9,00	27,56		
1,80	46	10	1,80	22,34		4,80	86	23	5,00	18,91		8,70	125	36	9,00	27,56		
1,90	46	10	1,90	22,34		4,90	86	23	5,00	18,91		8,80	125	36	9,00	27,56		
2,00	49	11	2,00	17,19		5,00	86	23	5,00	17,16	24,12	8,90	125	36	9,00	27,56		
2,10	49	11	2,10	18,88		5,10	86	23	5,00	18,91		9,00	125	36	9,00	25,12	32,15	
2,20	53	12	2,20	18,88		5,20	86	23	5,00	18,91		9,10	125	36	9,00	27,56		
2,30	53	12	2,30	18,88		5,30	86	23	5,00	18,91		9,20	125	36	9,00	27,56		
2,40	57	14	2,40	18,88		5,40	93	26	5,60	18,91		9,30	125	36	9,00	27,56		
2,50	57	14	2,50	17,19		5,50	93	26	5,60	17,16	24,12	9,40	125	36	9,00	27,56		
2,60	57	14	2,60	18,88		5,60	93	26	5,60	20,33		9,50	125	36	9,00	25,41	32,50	
2,70	61	15	2,70	18,88		5,70	93	26	5,60	20,33		9,60	125	36	10,00	27,53		
2,80	61	15	2,80	18,88		5,80	93	26	5,60	20,33		9,70	133	38	10,00	27,53		
2,90	61	15	2,90	18,88		5,90	93	26	5,60	20,33		9,80	133	38	10,00	27,53		
3,00	61	15	3,00	17,19	23,69	6,00	93	26	5,60	18,81	24,12	9,90	133	38	10,00	27,53		
3,10	65	16	3,10	18,91		6,10	101	28	6,30	20,72		10,00	133	38	10,00	25,41	33,15	
3,20	65	16	3,20	18,91		6,20	101	28	6,30	20,72		10,50	133	38	10,00	34,99		
3,30	65	16	3,30	18,91		6,30	101	28	6,30	20,72		11,00	133	38	10,00	30,04	38,60	
3,40	70	18	3,40	18,91		6,40	101	28	6,30	20,72		11,50	142	41	10,00	48,08		
3,50	70	18	3,50	17,16	23,69	6,50	101	28	6,30	18,81	24,55	12,00	151	44	10,00	29,43	41,15	
3,60	70	18	3,60	18,91		6,60	101	28	6,30	20,72		12,50	151	44	10,00	59,97		
3,70	70	18	3,70	18,91		6,70	101	28	6,30	20,72		13,00	151	44	10,00	50,46	62,15	
3,80	75	19	4,00	18,91		6,80	109	31	7,10	20,72		13,50	151	44	12,50	69,44		
3,90	75	19	4,00	18,91		6,90	109	31	7,10	20,72		14,00	160	47	12,50	48,29	65,10	
4,00	75	19	4,00	17,16	23,69	7,00	109	31	7,10	18,81	24,55	15,00	160	47	12,50	52,68	67,73	
4,10	75	19	4,00	18,91		7,10	109	31	7,10	22,27		16,00	162	50	12,50	56,41	79,25	
						7,20	109	31	7,10	22,27		17,00	170	52	14,00	65,05	95,17	
						7,30	109	31	7,10	22,27		18,00	175	54	14,00	67,83	114,38	
						7,40	109	31	7,10	22,27		19,00	182	56	16,00	72,06		
						7,50	109	31	7,10	20,46	25,90	20,00	189	58	16,00	72,58		
						7,60	117	33	8,00	22,42		21,00	195	60	18,00	105,82		
						7,70	117	33	8,00	22,42		22,00	225	60	18,00	106,81		
						7,80	117	33	8,00	22,42		23,00	230	60	18,00	116,17		
						7,90	117	33	8,00	22,42		24,00	240	60	20,00	131,10		
						8,00	117	33	8,00	20,80	26,98	25,00	245	60	20,00	148,56		

CENTESIMAL CHUCKING REAMERS

EXTRA-FINE TOLERANCE (μ m)

D1	EM3	D1	EM3	D1	EM3
mm	€	mm	€	mm	€
De 2,37 a 2,65	43,11	De 6,71 a 7,29	49,90	De 12,03 a 13,02	115,28
De 2,66 a 3,35	39,91	De 7,30 a 8,50	56,11	De 13,03 a 14,02	140,20
De 3,36 a 4,25	44,81	De 8,51 a 9,25	63,32	De 14,03 a 15,02	170,93
De 4,26 a 5,30	43,66	De 9,26 a 10,60	72,29	De 15,03 a 16,02	182,98
De 5,31 a 5,95	44,24	De 10,61 a 11,25	81,66		
De 5,96 a 6,70	45,31	De 11,26 a 12,02	83,82		

1,00-6	6,01-12
+4	+5
+0	+0

**CHUCKING REAMERS
 HSSCo & SOLID CARBIDE EXTRALONG SERIES**

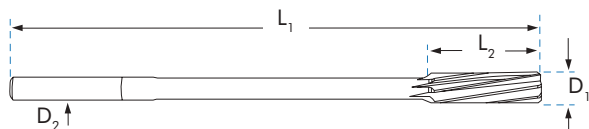
Ref. EM33

**DIN
212L**
**TOL
H7**


Ref. EM34



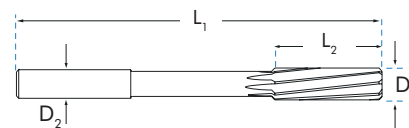
Ref. EM34



					EM33		EM34
					HSSCo		SOLID CARBIDE
D1	D2	L1	L2		€		€
mm	mm	mm	mm				
2,0	2,0	90	11	EM330200	108,86	EM340200	223,94
3,0	3,0	120	15	EM330300	108,86	EM340300	223,94
4,0	4,0	140	19	EM330400	114,80	EM340400	245,92
5,0	5,0	170	23	EM330500	117,13	EM340500	261,60
6,0	5,6	200	26	EM330600	119,32	EM340600	289,33
8,0	8,0	250	33	EM330800	169,84	EM340800	473,09
10,0	10,0	250	38	EM331000	186,56	EM341000	622,60
12,0	10,0	250	44	EM331200	224,27	EM341200	753,40

SOLID CARBIDE CHUCKING REAMERS

Ref. EM35

**DIN
8093B**
**SOLID
CARBIDE**
**TOL
H7**


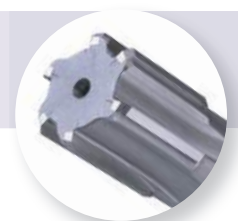
					EM35
D1	D2	L1	L2		€
mm	mm	mm	mm		
2,00	4,00	49	11		56,23
2,50	4,00	57	14		64,66
3,00	4,00	61	15		61,38
3,50	4,00	70	18		68,74
4,00	4,00	75	19		65,19
4,50	6,00	80	21		74,94
5,00	6,00	86	23		69,04
5,50	6,00	93	26		83,91
6,00	6,00	93	26		83,06
6,50	8,00	101	28		101,86
7,00	8,00	109	31		107,36
7,50	8,00	109	31		118,10
8,00	8,00	117	33		122,69
8,50	10,00	117	33		141,10
9,00	10,00	125	36		140,59
9,50	10,00	125	36		157,47
10,00	10,00	133	38		155,91
10,50	10,00	133	38		174,61
11,00	10,00	142	41		232,61
11,50	10,00	142	41		255,87
12,00	12,00	151	44		245,45



Special sizes on request

TAPER SHANK CARBIDE TIPPED REAMERS

Ref. EM38

**DIN
8051A**
**CARBIDE
TIPPED**
**TOL
H7**


					EM38
	D1	L1	L2	CM	€
	mm	mm	mm		
EM381700	17,0	214	22	2	162,27
EM381800	18,0	219	22	2	158,48
EM381900	19,0	223	22	2	166,10
EM382000	20,0	228	22	2	161,02
EM382200	22,0	237	25	2	177,63
EM382300	23,0	241	25	2	203,16
EM382400	24,0	268	25	3	229,96
EM382500	25,0	268	25	3	229,96
EM382600	26,0	273	25	3	247,91
EM382800	28,0	277	30	3	276,07
EM383000	30,0	281	30	3	291,41
EM383200	32,0	317	30	4	322,00
EM383400	34,0	321	30	4	385,73
EM383500	35,0	321	30	4	379,58
EM383600	36,0	325	30	4	422,56
EM383800	38,0	329	30	4	422,56
EM384000	40,0	329	30	4	438,57

HSSCo TAPER SHANK REAMERS



Ref. EM7



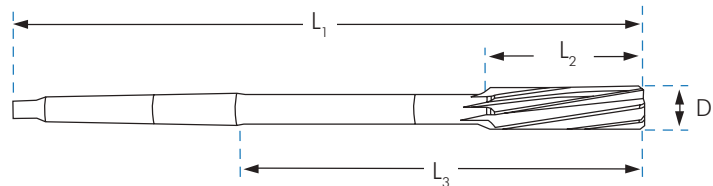
DIN 208B



Ref. EM9



DIN 208C



						EM7	EM9						EM7	EM9	
MATERIAL						HSSCo	HSSCo	D1	L2	L3	L1	CM	€	€	
NORME						DIN 208B	DIN 208C	mm	mm	mm	mm				
TOLERANCE						TOL H7	TOL H7								
HELIX						10°	38°								
D1	L2	L3	L1	CM	€	€									
mm	mm	mm	mm												
4,00	19	58	129	1	45,12										
5,00	23	62	133	1	33,51	58,62									
5,50	26	67	138	1	37,41										
6,00	26	67	138	1	31,36	58,62									
6,50	28	73	144	1	38,15										
7,00	31	79	150	1	32,07	58,62									
7,50	31	79	150	1	39,02										
8,00	33	85	156	1	33,13	58,62									
8,50	33	85	156	1	41,38										
9,00	36	91	162	1	35,34	56,50									
9,50	36	91	162	1	41,77										
10,00	38	97	168	1	34,61	56,50									
10,50	38	97	168	1	42,32										
11,00	41	104	175	1	35,26	59,00									
11,50	41	104	175	1	44,58										
12,00	44	111	182	1	35,26	59,00									
12,50	44	111	182	1	52,29										
13,00	44	111	182	1	44,58	87,75									
13,50	47	118	189	1	53,84										
14,00	47	118	189	1	45,80	90,48									
14,50	50	118	204	2	56,69										
15,00	50	118	204	2	47,30	99,07									
15,50	52	124	210	2	59,59										
16,00	52	124	210	2	51,49	103,82									
16,50	54	128	214	2	66,19										
17,00	54	128	214	2	57,99	112,41									
17,50	56	133	219	2	75,52										
							18,00	56	133	219	2	62,87	119,40		
							18,50	58	137	223	2	80,58			
							19,00	58	137	223	2	66,74	126,65		
							19,50	60	142	228	2	85,95			
							20,00	60	142	228	2	65,95	133,20		
							20,50	62	146	232	2	104,96			
							21,00	62	146	232	2	78,48	143,91		
							21,50	64	151	237	2	115,88			
							22,00	64	151	237	2	76,18	153,63		
							22,50	66	155	241	2	115,88			
							23,00	66	155	241	2	91,68	164,68		
							23,50	66	136	241	3	134,63			
							24,00	68	163	268	3	96,73	173,71		
							24,50	68	163	268	3	139,12			
							25,00	68	163	268	3	105,22	184,42		
							25,50	70	168	273	3	162,24			
							26,00	70	168	273	3	122,48	194,64		
							26,50	70	168	273	3	178,48			
							27,00	71	172	277	3	141,41	262,40		
							28,00	71	172	277	3	130,65	215,16		
							29,00	73	176	281	3	147,81	295,56		
							30,00	73	176	281	3	142,11	228,52		
							31,00	75	180	285	3	194,30			
							32,00	77	187	317	4	195,92	372,68		
							33,00	77	187	317	4	315,36			
							34,00	78	191	321	4	213,92	560,82		
							35,00	78	191	321	4	246,42			
							36,00	79	195	325	4	316,61	626,41		
							37,00	79	195	325	4	434,30			
							38,00	81	199	329	4	337,11	712,49		
							39,00	81	199	329	4	581,35			
							40,00	81	199	329	4	343,95	753,24		
							41,00	82	203	333	4	581,35			
							42,00	82	203	333	4	614,77			
							44,00	83	206	336	4	668,41			
							45,00	83	206	336	4	668,89			
							48,00	86	214	344	4	708,65			
							50,00	86	214	344	4	753,10			



Ref. 350MC.5

HSS-Co DIN 208 TAPER SHANK REAMERS DISPLAY



Content: Reamers EM7

Ø	14	15	16
Quant.	1	1	1
	17	18	19
	1	1	1
	20	22	24
	1	1	1
	25	26	28
	1	1	1



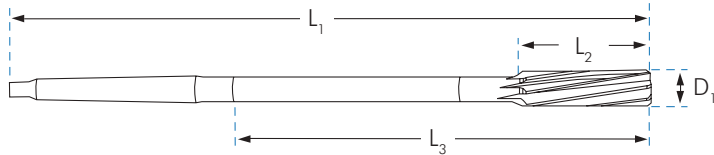
Content: Reamers EM9

Ø	14	15	16	
Quant.	1	1	1	
	17	18	19	
	1	1	1	
	20	22	24	
	1	1	1	
	25	26	28	
	1	1	1	
	25	26	28	30
	1	1	1	1

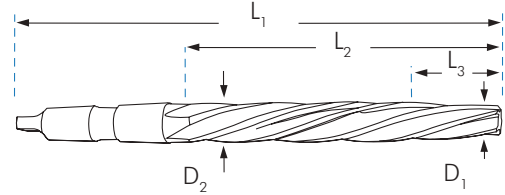
2.864,51 €

HSSCo TAPER SHANK REAMER, LONG SERIES
HSS BRIGDE REAMERS

Ref. EM41

DIN
208B/L
HSSCo
TOL
H7


Ref. EM8

DIN
311
HSS
TOL
H7
FOR BOIL WORKS
 Conicity
 1:10 on L3


						EM41
	D1 mm	L2 mm	L3 mm	L1 mm	CM	€
EM411300	13	22	180	245	1	150,35
EM411400	14	22	180	245	1	150,35
EM411500	15	25	180	260	2	158,80
EM411600	16	25	180	260	2	177,38
EM411800	18	28	180	260	2	184,14
EM412000	20	28	190	270	2	199,34
EM412200	22	32	200	280	2	224,68
EM412400	24	32	200	300	3	293,95
EM412500	25	32	220	320	3	356,45
EM412600	26	32	230	330	3	418,95
EM412800	28	36	240	340	3	422,33
EM413000	30	36	250	350	3	430,78
EM413200	32	36	250	375	4	498,35
EM413400	34	40	250	375	4	579,44
EM413600	36	40	250	375	4	616,60
EM413800	38	40	270	395	4	662,21
EM414000	40	40	270	395	4	699,38
EM414200	42	40	280	405	4	738,23
EM414500	45	45	280	405	4	866,63
EM415000	50	45	290	415	4	1.042,31

							EM8
	D2 mm	D1 mm	L1 mm	L2 mm	L3 mm	CM	€
EM81000	10,00	6,6	171	95	38	1	59,23
EM81100	11,00	7,0	176	100	40	1	60,85
EM81200	12,00	7,8	199	105	42	2	63,03
EM81300	13,00	8,8	199	105	42	2	68,62
EM81400	14,00	9,4	209	115	46	2	75,58
EM81500	15,00	10,0	219	125	50	2	79,44
EM81600	16,00	10,6	229	135	54	2	83,38
EM81700	17,00	11,6	251	135	54	3	97,83
EM81800	18,00	12,2	261	145	58	3	105,96
EM81900	19,00	13,2	261	145	58	3	114,60
EM82000	20,00	13,8	271	155	62	3	116,69
EM82100	21,00	14,8	271	155	62	3	128,38
EM82200	22,00	15,4	281	165	66	3	133,99
EM82300	23,00	16,4	281	165	66	3	143,67
EM82400	24,00	16,8	296	180	72	3	153,70
EM82500	25,00	17,8	296	180	72	3	163,83
EM82600	26,00	18,8	296	180	72	3	178,92
EM82700	27,00	19,2	311	195	78	3	192,06
EM82800	28,00	20,2	311	195	78	3	209,78
EM82900	29,00	21,2	311	195	78	3	225,18
EM83000	30,00	22,2	311	195	78	3	225,59
EM83100	31,00	23,2	326	210	78	3	229,38
EM83200	32,00	23,6	354	210	84	4	249,70
EM83300	33,00	24,6	354	210	84	4	333,30
EM83400	34,00	25,6	364	220	88	4	409,88
EM83600	36,00	27,2	364	220	88	4	430,38

SOLID CARBIDE 3 TEETH DRILL-REAMERS

Ref. BC45

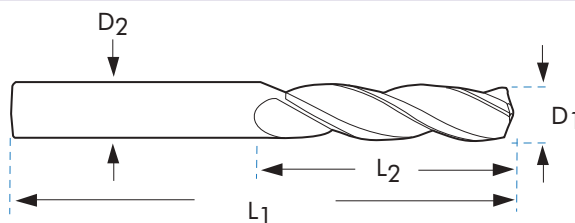
3Z

DIN 1897

SOLID CARBIDE



TOL H8



	BC45				
	D1 mm	D2 mm	L1 mm	L2 mm	€
BC450300	3,0	3,0	46	16	22,78
BC450350	3,5	3,5	52	20	24,62
BC450400	4,0	4,0	55	22	25,37
BC450450	4,5	4,5	58	24	29,26
BC450500	5,0	5,0	62	26	28,55
BC450550	5,5	5,5	66	28	36,11
BC450600	6,0	6,0	66	28	34,56
BC450650	6,5	6,5	70	31	50,00
BC450700	7,0	7,0	74	34	48,71
BC450750	7,5	7,5	74	34	55,55
BC450800	8,0	8,0	79	37	57,21
BC450850	8,5	8,5	79	37	60,62
BC450900	9,0	9,0	84	40	74,06
BC450950	9,5	9,5	84	40	78,70
BC451000	10,0	10,0	89	43	78,44
BC451050	10,5	10,5	89	43	92,88
BC451100	11,0	11,0	95	47	106,81
BC451150	11,5	11,5	95	47	110,73
BC451200	12,0	12,0	102	51	114,14
BC451250	12,5	12,5	102	51	139,98
BC451300	13,0	13,0	102	51	145,86
BC451350	13,5	13,5	104	54	185,60
BC451400	14,0	14,0	107	54	171,33
BC451450	14,5	14,5	111	56	210,80
BC451500	15,0	15,0	111	56	202,76
BC451550	15,5	15,5	115	58	297,85
BC451600	16,0	16,0	115	58	231,38
BC451650	16,5	16,5	119	60	330,67
BC451700	17,0	17,0	119	60	340,23
BC451750	17,5	17,5	123	62	348,11
BC451800	18,0	18,0	123	62	379,60
BC451850	18,5	18,5	127	64	413,69
BC451900	19,0	19,0	127	64	421,43
BC451950	19,5	19,5	131	66	452,97
BC452000	20,0	20,0	131	66	484,52

HSS DRILL REAMERS

**STRAIGHT
SHANK**
3Z
**DIN
344**
HSS

**TOL
H8**

Ref. EM22

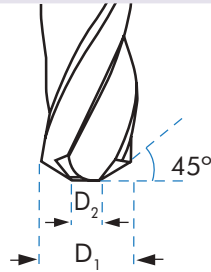
**TAPER
SHANK**
3Z
**DIN
343**
HSS

**TOL
H8**

Ref. EM23

APPLICATIONS: Specially recommended to enlarge holes and compensate non concentric holes.

The finishing obtained with 3 fluted drill reamers is better than with conventional drills which are not recommended to enlarge holes, to avoid cutting edge damage.



					EM22
	D ₁ mm	D ₂ mm	L ₁ mm	L ₂ mm	€
EM220500	5,00	3,00	108	74	28,45
EM220600	6,00	4,00	116	80	28,45
EM220700	7,00	5,00	133	93	28,45
EM220800	8,00	5,60	142	100	30,00
EM220900	9,00	6,30	151	107	33,81
EM221000	10,00	7,00	162	116	35,31
EM221100	11,00	7,70	173	125	38,94
EM221200	12,00	8,40	184	134	41,80
EM221300	13,00	9,10	184	134	53,30
EM221400	14,00	9,80	194	142	56,97
EM221500	15,00	10,50	202	147	62,19
EM221600	16,00	11,20	211	153	66,79

						EM23
	D ₁ mm	D ₂ mm	L ₁ mm	L ₂ mm	CM	€
EM230900	9,00	6,30	162	81	1	64,16
EM231000	10,00	7,00	168	87	1	60,14
EM231100	11,00	7,70	175	94	1	62,20
EM231200	12,00	8,40	182	101	1	65,01
EM231300	13,00	9,10	182	101	1	67,88
EM231400	14,00	9,80	189	108	1	71,25
EM231500	15,00	10,50	212	114	2	71,93
EM231600	16,00	11,20	218	120	2	81,76
EM231700	17,00	11,90	223	125	2	87,31
EM231800	18,00	12,60	228	130	2	94,77
EM231900	19,00	13,30	233	135	2	107,50
EM232000	20,00	14,00	238	140	2	110,11
EM232100	21,00	15,00	243	145	2	125,37
EM232200	22,00	15,50	248	150	2	128,23
EM232300	23,00	16,00	253	155	2	132,31
EM232400	24,00	17,00	281	160	3	139,81
EM232500	25,00	17,50	281	160	3	150,25
EM232600	26,00	18,00	286	165	3	161,45
EM232700	27,00	19,00	291	170	3	181,60
EM232800	28,00	19,50	291	170	3	205,93
EM233000	30,00	21,00	296	175	3	227,94
EM233200	32,00	22,00	334	185	4	286,59
EM233400	34,00	24,00	339	190	4	317,18
EM233500	35,00	25,00	339	190	4	330,51
EM233600	36,00	25,50	344	195	4	350,40
EM233800	38,00	26,50	349	200	4	392,43
EM234000	40,00	28,00	349	200	4	423,46
EM234500	45,00	31,00	359	210	4	506,62
EM235000	50,00	34,50	369	220	4	690,72

HSSCo SHELL REAMERS

TAPER SHANK ARBORS FOR SHELL REAMERS

DIN
219



Ref. EM17



Ref. EM18



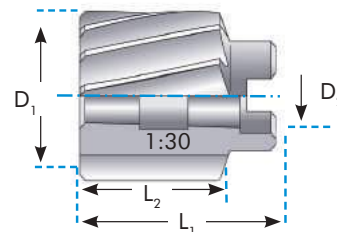
DIN
217



Ref. EM19

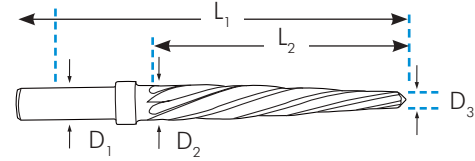
				EM17	EM18
MATERIAL				HSSCo	HSSCo
NORME				DIN 219B	DIN 219C
TOLERANCE				TOL H7	TOL H7
HELIX ANGLE				10°	38°
D1	D2	L1	L2	€	€
mm	mm	mm	mm		
25,00	13,00	45	32	EM172500 116,83	EM182500 218,52
26,00	13,00	45	32	EM172600 117,82	EM182600 220,94
27,00	13,00	45	32	EM172700 131,58	EM182700 226,89
28,00	13,00	45	32	EM172800 128,71	EM182800 231,55
30,00	13,00	45	32	EM173000 134,59	EM183000 238,04
32,00	16,00	50	36	EM173200 143,60	EM183200 245,84
34,00	16,00	50	36	EM173400 160,78	EM183400 253,92
35,00	16,00	50	36	EM173500 163,07	EM183500 278,51
36,00	19,00	56	40	EM173600 167,65	EM183600 290,91
38,00	19,00	56	40	EM173800 177,79	EM183800 306,90
40,00	19,00	56	40	EM174000 186,68	EM184000 334,53
42,00	19,00	56	40	EM174200 198,70	EM184200 361,73
45,00	22,00	63	45	EM174500 210,99	EM184500 399,42
47,00	22,00	63	45	EM174700 264,45	EM184700 466,40
48,00	22,00	63	45	EM174800 264,45	
50,00	22,00	63	45	EM175000 265,74	EM185000 483,42
52,00	27,00	71	50	EM175200 280,98	EM185200 523,44
55,00	27,00	71	50	EM175500 304,84	EM185500 582,87
58,00	27,00	71	50	EM175800 344,35	
60,00	27,00	71	50	EM176000 357,34	EM186000 649,27
62,00	32,00	80	56	EM176200 410,47	EM186200 697,65
65,00	32,00	80	56	EM176500 457,60	EM186500 708,93
70,00	32,00	80	56	EM177000 557,84	EM187000 726,43
72,00	40,00	90	63	EM177200 623,14	EM187200 770,42
75,00	40,00	90	63	EM177500 670,02	
80,00	40,00	90	63	EM178000 729,73	EM188000 912,43
85,00	40,00	90	63	EM178500 847,47	
90,00	50,00	100	71	EM179000 923,63	
95,00	50,00	100	71	EM179500 1.059,72	
100,00	50,00	100	71	EM1710000 1.208,50	

	D2	L1	CM	EM19
	mm	mm		€
EM19CM313X300	13,00	300	3	139,63
EM19CM313X400	13,00	400	3	267,69
EM19CM313X500	13,00	500	3	285,51
EM19CM316X300	16,00	300	3	155,36
EM19CM316X400	16,00	400	3	271,66
EM19CM316X500	16,00	500	3	292,14
EM19CM419X300	19,00	300	4	184,33
EM19CM419X400	19,00	400	4	285,29
EM19CM419X500	19,00	500	4	319,36
EM19CM422X300	22,00	300	4	230,84
EM19CM422X400	22,00	400	4	316,32
EM19CM422X500	22,00	500	4	355,04
EM19CM422X600	22,00	600	4	376,00
EM19CM527X350	27,00	350	5	329,21
EM19CM527X450	27,00	450	5	421,02
EM19CM527X550	27,00	550	5	486,48
EM19CM527X650	27,00	650	5	520,80
EM19CM532X350	32,00	350	5	404,74
EM19CM532X400	32,00	400	5	533,97
EM19CM532X500	32,00	500	5	567,42
EM19CM532X600	32,00	600	5	623,85
EM19CM532X700	32,00	700	5	694,86
EM19CM540X450	40,00	450	5	574,35
EM19CM540X550	40,00	550	5	670,19
EM19CM540X650	40,00	650	5	699,65
EM19CM540X750	40,00	750	5	753,56
EM19CM540X850	40,00	850	5	794,08
EM19CM540X950	40,00	950	5	851,08
EM19CM550X450	50,00	450	5	742,22
EM19CM550X550	50,00	550	5	803,88
EM19CM550X650	50,00	650	5	839,38
EM19CM550X750	50,00	750	5	879,55
EM19CM550X850	50,00	850	5	938,75
EM19CM550X950	50,00	950	5	967,33



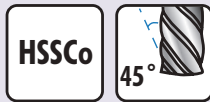
5 FLUTES HSS REAMERS
5Z

Ref. EM14



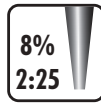
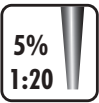
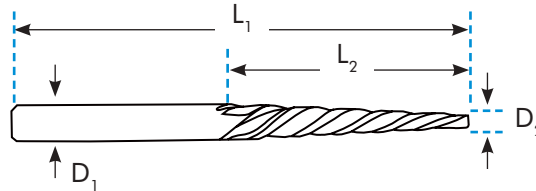
							EM14
	D2 mm	Ø mm	D1 mm	D3 mm	L1 mm	L2 mm	€
EM141000	10,00	6,00 - 10,00	9,50	5,20	127	76	114,14
EM141200	12,00	7,00 - 12,00	12,70	5,60	152	102	125,51
EM141400	14,00	9,00 - 14,00	12,70	7,80	152	102	133,11
EM141800	18,00	10,00 - 18,00	12,70	9,20	178	125	163,56
EM142200	22,00	14,00 - 22,00	12,70	13,00	184	132	193,98
EM142600	26,00	18,00 - 26,00	12,70	17,20	184	132	209,22

HSSCo SPRUE REAMERS 45° HELIX

 Ref. EM30
 Ref. EM31
 Ref. EM32


D2	D1	L1	L2
TOL ± 0,05	TOL h8	TOL ± 1	TOL ± 2

FOR MOULDS



				EM30
D1 mm	D2 mm	L1 mm	L2 mm	€
4,00	2,00	80	40	95,64
6,00	3,00	110	60	97,30
8,00	4,00	130	80	134,12
10,00	5,00	155	100	159,23
12,00	6,00	180	120	194,61
14,00	7,00	200	140	248,06

				EM31
D1 mm	D2 mm	L1 mm	L2 mm	€
8,00	3,00	110	62	97,30
10,00	4,00	130	75	127,40
12,00	5,00	150	90	147,57
14,00	6,00	160	100	214,76

				EM32
D1 mm	D2 mm	L1 mm	L2 mm	€
8,00	3,00	100	50	92,32
10,00	4,00	115	60	97,30
12,00	5,00	130	70	119,22
14,00	6,00	140	80	206,29

HSS EXTENSIBLE REAMERS

HSS WITH GUIDE



	Ø mm	Ø mm	EM4G	EM4-6C	EM4-6T
			REAMERS €	BLADES €	SCREWS €
EM4G0800	8,00	8,00 - 9,00	112,56	62,28	2,80
EM4G0900	9,00	9,00 - 10,00	112,56	62,28	2,80
EM4G1000	10,00	10,00 - 11,00	112,56	62,28	2,80
EM4G1100	11,00	11,00 - 12,00	112,56	62,28	2,80
EM4G1200	12,00	12,00 - 13,50	114,79	62,33	2,96
EM4G1350	13,50	13,50 - 15,50	119,41	62,33	2,96
EM4G1550	15,50	15,50 - 18,00	125,07	65,29	3,28
EM4G1800	18,00	18,00 - 21,00	132,94	67,56	3,28
EM4G2100	21,00	21,00 - 24,00	145,03	77,75	3,28
EM4G2400	24,00	24,00 - 27,50	162,30	81,87	3,43
EM4G2750	27,50	27,50 - 31,50	191,64	90,04	3,59
EM4G3150	31,50	31,50 - 37,00	264,36	110,76	3,59
EM4G3700	37,00	37,00 - 45,00	369,83	171,42	3,59
EM4G4500	45,00	45,00 - 55,00	530,09	263,64	3,80
EM4G5500	55,00	55,00 - 67,00	861,42	407,94	3,80
EM4G6700	67,00	67,00 - 80,00	1264,63	619,83	3,80

HSS REINFORCED



	Ø mm	Ø mm min. x max.	EM6	EM4-6C	EM4-6T
			REAMERS €	BLADES €	SCREWS €
EM60640	6,40	6,40 - 7,20	95,88		
EM60720	7,20	7,20 - 8,00	95,88		
EM60800	8,00	8,00 - 9,00	95,88	62,28	2,80
EM60900	9,00	9,00 - 10,00	95,88	62,28	2,80
EM61000	10,00	10,00 - 11,00	95,88	62,28	2,80
EM61100	11,00	11,00 - 12,00	95,88	62,28	2,80
EM61200	12,00	12,00 - 13,50	95,88	62,33	2,96
EM61350	13,50	13,50 - 15,50	95,88	62,33	2,96
EM61550	15,50	15,50 - 18,00	102,03	65,29	3,28
EM61800	18,00	18,00 - 21,00	105,63	67,56	3,28
EM62100	21,00	21,00 - 24,00	122,90	77,75	3,28
EM62400	24,00	24,00 - 27,50	133,81	81,87	3,43
EM62750	27,50	27,50 - 31,50	146,31	90,04	3,59
EM63150	31,50	31,50 - 37,00	190,73	110,76	3,59
EM63700	37,00	37,00 - 45,00	284,40	171,42	3,59
EM64500	45,00	45,00 - 55,00	409,23	263,64	3,80
EM65500	55,00	55,00 - 67,00	751,05	407,94	3,80
EM66700	67,00	67,00 - 80,00	1152,59	619,83	3,80

HSS EXTENSIBLE REAMER WITH GUIDE SET



(Reamers Ref. EM4G)



REFERENCE	EM5E8	EM5E14
QUANTITY	8	14
QUALITY	HSS	HSS
CONTENT	Ø 11 - 31,50 mm	Ø 8 - 55 mm
PRICE €	1.370,06	2.985,30

CUTTING SPEED & FEED CHART FOR REAMERS

	V/C	m/min	DIAMETER Ø (mm)											
			2	3	5	7	10	12	15	18	20	22	25	30
STEEL EM3	12	RPM	1911	1274	764	546	382	318	255	212	191	174	153	127
	mm / rev mm / min	FEED	0,10 191	0,10 127	0,11 84	0,12 66	0,15 57	0,18 56	0,20 51	0,22 47	0,23 44	0,24 42	0,25 38	0,29 37
HARDENED STEEL EM3+TiAlN	7	RPM	1115	743	446	318	223	186	149	124	111	101	89	74
	mm / rev mm / min	FEED	0,08 89	0,080 59	0,08 36	0,09 29	0,10 22	0,11 20	0,12 18	0,15 19	0,20 22	0,21 21	0,22 20	0,26 19
STAINLESS STEEL EM3+TiN	5	RPM	796	531	318	227	159	133	106	88	80	72	64	53
	mm / rev mm / min	FEED	0,08 64	0,08 42	0,09 29	0,10 23	0,10 16	0,12 16	0,14 15	0,16 14	0,18 14	0,20 14	0,21 13	0,24 13
ALUMINIUM EM3	37	RPM	5892	3928	2357	1683	1178	982	786	655	589	536	471	393
	mm / rev mm / min	FEED	0,15 884	0,16 628	0,18 424	0,20 337	0,21 247	0,23 226	0,25 196	0,28 183	0,29 171	0,30 161	0,35 165	0,38 149
CAST IRON EM3+TiCN	9	RPM	1433	955	573	409	287	239	191	159	143	130	115	96
	mm / rev mm / min	FEED	0,15 215	0,16 153	0,18 103	0,18 74	0,20 57	0,22 53	0,24 46	0,26 41	0,28 40	0,29 38	0,30 34	0,33 32
BRASS EM3	17	RPM	2707	1805	1083	773	541	451	361	301	271	246	217	180
	mm / rev mm / min	FEED	0,10 271	0,12 217	0,14 152	0,18 139	0,20 108	0,25 113	0,28 101	0,28 84	0,30 81	0,30 74	0,35 76	0,41 74

REMARKS:

- If we know the reamer size and workpiece material, the speed and feed are quickly found.
 Example;
 Material: Steel RPM= 382
 Ø reamer: 10 mm. Vf= 57 mm/min
- After several holes you must adjust the speed and feed again.

EASY USING CHART FOR DRILLING THE CORRECT HOLE BEFORE REAMING

REAMING Ø	DRILL DIAMETER		
	STEEL	STAINLESS STEEL	ALUMINIUM
1 < Ø < 10 mm	Ø final - 0,2 mm	Ø final - 0,2 mm	Ø final - 0,3 mm
11 < Ø < 20 mm	Ø final - 0,3 mm	Ø final - 0,3 mm	Ø final - 0,4 mm
21 < Ø < 30 mm	Ø final - 0,4 mm	Ø final - 0,4 mm	Ø final - 0,45 mm
Ø > 30 mm	Ø final - 0,5 mm	Ø final - 0,5 mm	Ø final - 0,6 mm