

**BLUE-MASTER®**  
by *celesa*



ALESATORI



**ALESATORE A MANO FAÇON PARIS CON GUIDA**

Ref. EMA

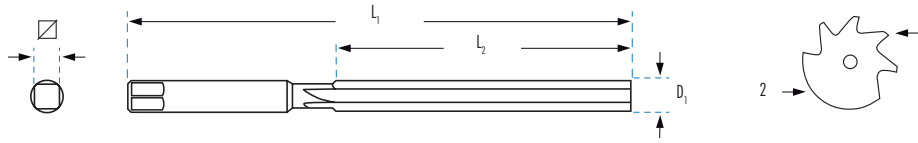
NFE  
74112

HSS

TOL  
K7



- 1.- Dentatura dritta
- 2.- Faccia di appoggio



EMA					
	D1 mm	L1 mm	L2 mm	∠	€
EMA0300	3,00	85	50	2,24	42,01 *
EMA0400	4,00	100	60	3,15	42,01 *
EMA0500	5,00	112	67	4,00	43,22 *
EMA0600	6,00	118	71	4,50	43,22 *
EMA0700	7,00	132	80	5,60	43,22 *
EMA0800	8,00	140	85	6,30	47,53 *
EMA0900	9,00	150	90	7,10	54,14 *
EMA1000	10,00	160	95	8,00	54,14 *
EMA1100	11,00	170	100	9,00	62,73 *
EMA1200	12,00	180	106	10,00	62,73 *
EMA1300	13,00	180	106	10,00	69,99 *
EMA1400	14,00	190	112	11,20	69,99 *
EMA1500	15,00	190	112	11,20	84,51 *
EMA1600	16,00	200	118	12,50	84,51 *
EMA1700	17,00	200	118	12,50	96,40 *

EMA					
	D1 mm	L1 mm	L2 mm	∠	€
EMA1800	18,00	212	125	14,00	96,40 *
EMA1900	19,00	212	125	14,00	112,24 *
EMA2000	20,00	224	132	16,00	112,24 *
EMA2100	21,00	224	132	16,00	135,17 *
EMA2200	22,00	236	140	18,00	135,17 *
EMA2300	23,00	236	140	18,00	157,98 *
EMA2400	24,00	250	150	20,00	173,77 *
EMA2500	25,00	250	150	20,00	173,77 *
EMA2600	26,00	250	150	20,00	194,35 *
EMA2700	27,00	265	160	22,40	194,35 *
EMA2800	28,00	265	160	22,40	213,78 *
EMA2900	29,00	265	160	22,40	241,36 *
EMA3000	30,00	265	160	22,40	241,36 *
EMA3200	32,00	280	170	25,00	274,46 *
EMA3400	34,00	300	180	28,00	329,79 *

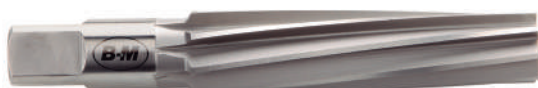
\*Fino ad esaurimento scorte.

**ALESATORE A MANO PER CONO MORSE**

Ref. ECM

DIN  
204D

HSS



**ALESATORE A MANO PRECEDENTE A MASCHIO NPT**

Ref. EMNPT

1:16

HSS

NPT



ECM					
	CM	∅ mm min. x max.	L1 mm	L2 mm	€
ECM0	0	6,547 - 9,722	93	61	90,73
ECM1	1	9,571 - 12,863	102	66	99,67
ECM2	2	14,733 - 18,679	121	79	128,03
ECM3	3	20,010 - 24,829	146	96	201,78
ECM4	4	26,229 - 32,410	179	119	346,76
ECM5	5	37,873 - 45,767	222	150	733,37

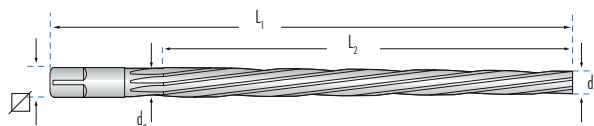
EMNPT						
	Filetto NPT	∅	∅ mm min. x max.	L1 mm	L2 mm	€
EMNPT1/16	NPT1/16	6,20	5,915 - 6,978	70	17	152,09
EMNPT1/8	NPT1/8	8,50	8,022 - 9,085	70	17	155,25
EMNPT1/4	NPT1/4	11,00	10,283 - 11,971	80	27	167,79
EMNPT3/8	NPT3/8	14,50	13,703 - 15,391	85	27	188,31
EMNPT1/2	NPT1/2	17,80	16,913 - 19,101	95	35	221,44

**ALESATORE A MANO HSS DIN9B**

Ref. EM2

**TOL  
H9**
**DIN  
9B**
**HSS**
**2%  
1:50**

SPINE CONICHE DIN 1



Le misure Ø1-1,20-1,50-2 e 2,50 mm  
si fabbricano a canali dritti.

	D mm	Ø mm d1 x d2	L1 mm	L2 mm	∠	EM2 €
EM20100	1,00	0,95 x 1,46	46	28	2,50	69,96
EM20120	1,20	1,15 x 1,74	50	32	2,50	69,96
EM20150	1,50	1,40 x 2,14	57	37	2,50	53,04
EM20200	2,00	1,90 x 2,86	68	48	2,50	43,49
EM20250	2,50	2,40 x 3,36	68	48	2,50	43,49
EM20300	3,00	2,90 x 4,06	80	58	3,15	41,46
EM20350	3,50	3,40 x 4,66	87	63	3,15	53,66
EM20400	4,00	3,90 x 5,26	93	68	4,00	42,28
EM20450	4,50	4,40 x 5,80	95	70	4,00	49,99
EM20500	5,00	4,90 x 6,36	100	73	5,00	40,26
EM20550	5,50	5,40 x 7,20	118	90	5,00	50,94
EM20600	6,00	5,90 x 8,00	135	105	6,30	51,46
EM20650	6,50	6,40 x 8,60	140	110	6,30	62,58
EM20700	7,00	6,90 x 9,40	160	125	6,30	62,58
EM20800	8,00	7,90 x 10,80	180	145	8,00	82,74
EM21000	10,00	9,90 x 13,40	215	175	10,00	95,47
EM21200	12,00	11,80 x 16,00	255	210	11,20	123,01
EM21300	13,00	12,80 x 17,00	255	210	11,20	134,11
EM21400	14,00	13,80 x 18,00	255	210	11,20	183,14
EM21600	16,00	15,80 x 20,40	280	230	14,00	185,53
EM22000	20,00	19,80 x 24,80	310	250	18,00	246,99
EM22500	25,00	24,70 x 30,70	370	300	22,40	415,08
EM23000	30,00	29,70 x 36,10	400	320	25,00	903,97
EM24000	40,00	39,70 x 46,50	430	340	31,50	1.489,95
EM25000	50,00	49,70 x 56,90	460	360	40,00	2.328,57

**ALESATORE A MACCHINA HSSCo DIN 2179E**

Ref. EM29

**TOL  
H9**
**DIN  
2179E**
**HSSCo**
**2%  
1:50**

SPINE CONICHE DIN 1



	D1 mm	D2 mm	Ø mm min. x max.	L1 mm	L2 mm	EM29 €
EM290150	1,50	2,00	1,40 - 2,14	70	37	74,92
EM290200	2,00	3,00	1,90 - 2,86	68	48	76,43
EM290250	2,50	3,00	2,40 - 3,35	86	48	85,05
EM290300	3,00	4,00	2,90 - 4,06	100	58	68,41
EM290400	4,00	5,00	3,90 - 5,26	112	68	65,85
EM290500	5,00	6,50	4,90 - 6,36	122	73	61,60
EM290600	6,00	8,00	5,90 - 8,00	160	105	59,11
EM290700	7,00	9,00	6,90 - 9,40	160	125	94,43
EM290800	8,00	10,00	7,90 - 10,80	207	145	108,91
EM291000	10,00	12,50	9,90 - 13,40	245	175	148,07
EM291200	12,00	16,00	11,80 - 16,00	290	210	224,55

**ALESATORE CILINDRICI A MACCHINA HSSCo DIN 212**

Ref. EM3

**DIN  
212B**

**HSSCo**



				EM3	
MATERIALE				HSSCo	
NORMA				DIN 212B	
TOLLERANZA				TOL H7	
ELICA				8°	
D1 mm	L1 mm	L2 mm	D2 mm	€	
1,00	34	7	1,00	66,08	
1,20	34	7	1,20	58,73	
1,40	40	8	1,40	54,61	
1,50	40	8	1,50	35,71	
1,60	43	9	1,60	35,98	
1,70	43	9	1,70	35,70	
1,80	46	10	1,80	33,69	
1,90	46	10	1,90	33,69	
2,00	49	11	2,00	25,48	
2,10	49	11	2,10	28,48	
2,20	53	12	2,20	28,48	
2,30	53	12	2,30	28,48	
2,40	57	14	2,40	28,48	
2,50	57	14	2,50	25,93	
2,60	57	14	2,60	28,48	
2,70	61	15	2,70	28,48	
2,80	61	15	2,80	28,48	
2,90	61	15	2,90	28,48	
3,00	61	15	3,00	25,48	
3,10	65	16	3,10	34,41	
3,20	65	16	3,20	34,41	
3,30	65	16	3,30	34,41	
3,40	70	18	3,40	34,41	
3,50	70	18	3,50	25,88	
3,60	70	18	3,60	34,41	
3,70	70	18	3,70	34,41	
3,80	75	19	4,00	34,41	
3,90	75	19	4,00	34,41	
4,00	75	19	4,00	25,88	
4,10	75	19	4,00	34,41	

EM3				
D1 mm	L1 mm	L2 mm	D2 mm	€
4,20	75	19	4,00	34,41
4,30	80	21	4,50	34,41
4,40	80	21	4,50	34,41
4,50	80	21	4,50	25,88
4,60	80	21	4,50	34,41
4,70	80	21	4,50	34,41
4,80	86	23	5,00	34,41
4,90	86	23	5,00	34,41
5,00	86	23	5,00	25,88
5,10	86	23	5,00	36,97
5,20	86	23	5,00	36,97
5,30	86	23	5,00	36,97
5,40	93	26	5,60	36,97
5,50	93	26	5,60	25,88
5,60	93	26	5,60	39,76
5,70	93	26	5,60	39,76
5,80	93	26	5,60	39,76
5,90	93	26	5,60	39,76
6,00	93	26	5,60	25,90
6,10	101	28	6,30	40,52
6,20	101	28	6,30	40,52
6,30	101	28	6,30	40,52
6,40	101	28	6,30	40,52
6,50	101	28	6,30	33,30
6,60	101	28	6,30	40,52
6,70	101	28	6,30	40,52
6,80	109	31	7,10	40,52
6,90	109	31	7,10	40,52
7,00	109	31	7,10	29,52
7,10	109	31	7,10	43,55
7,20	109	31	7,10	43,55
7,30	109	31	7,10	43,55
7,40	109	31	7,10	43,55
7,50	109	31	7,10	34,33
7,60	117	33	8,00	43,84
7,70	117	33	8,00	43,84
7,80	117	33	8,00	43,84
7,90	117	33	8,00	43,84
8,00	117	33	8,00	33,28

EM3				
D1 mm	L1 mm	L2 mm	D2 mm	€
8,10	117	33	8,00	48,89
8,20	117	33	8,00	48,89
8,30	117	33	8,00	48,89
8,40	117	33	8,00	48,89
8,50	117	33	8,00	35,78
8,60	117	33	9,00	53,89
8,70	125	36	9,00	53,89
8,80	125	36	9,00	53,89
8,90	125	36	9,00	53,89
9,00	125	36	9,00	37,88
9,10	125	36	9,00	53,89
9,20	125	36	9,00	53,89
9,30	125	36	9,00	53,89
9,40	125	36	9,00	53,89
9,50	125	36	9,00	44,98
9,60	125	36	10,00	54,21
9,70	133	38	10,00	54,21
9,80	133	38	10,00	54,21
9,90	133	38	10,00	54,21
10,00	133	38	10,00	38,32
10,50	133	38	10,00	66,54
11,00	142	41	10,00	45,30
11,50	142	41	10,00	88,28
12,00	151	44	10,00	46,31
12,50	151	44	10,00	90,43
13,00	151	44	10,00	66,17
13,50	151	44	12,50	122,93
14,00	160	47	12,50	67,74
15,00	160	47	12,50	69,08
16,00	162	50	12,50	73,98
17,00	170	52	14,00	85,30
18,00	175	54	14,00	97,85
19,00	182	56	16,00	103,95
20,00	189	58	16,00	104,70
21,00	195	60	18,00	159,59
22,00	225	60	18,00	161,08
23,00	230	60	18,00	175,19
24,00	240	60	20,00	197,72
25,00	245	60	20,00	224,05

**CENTESIMALI**

EM3	
D1 mm	€
2,37 - 2,65	58,38
2,66 - 3,35	54,04
3,36 - 4,25	60,68
4,26 - 5,30	60,68
5,31 - 5,95	60,78
5,96 - 6,70	61,36
6,71 - 7,29	67,58
7,30 - 8,50	75,98
8,51 - 9,25	85,76
9,26 - 10,60	97,90
10,61 - 11,25	110,58
11,26 - 12,02	113,51
12,03 - 13,02	156,12
13,03 - 14,02	189,86
14,03 - 15,02	231,47
15,03 - 16,02	247,80

TOLLERANZA STRETTA PER ALESATORI CENTESIMALI (in µ m)

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

**ALESATORI CILINDRICI A MACCHINA**
**SERIE LUNGA HSSCO**


Ref. EM44


**EM44**

	D <sub>1</sub> mm	D <sub>2</sub> mm	L <sub>1</sub> mm	L <sub>2</sub> mm	L <sub>3</sub> mm	€
EM440150	1,50	1,50	55	12	35	149,23
EM440200	2,00	2,00	65	14	45	118,05
EM440250	2,50	2,50	75	14	55	134,79
EM440300	3,00	3,00	90	14	70	103,02
EM440350	3,50	3,50	90	14	70	153,09
EM440400	4,00	4,00	105	16	80	103,02
EM440450	4,50	4,50	105	16	80	158,85
EM440500	5,00	5,00	115	16	90	108,79
EM440550	5,50	5,50	115	16	90	168,49
EM440600	6,00	6,00	130	16	100	112,63
EM440650	6,50	6,00	130	16	100	174,26
EM440700	7,00	7,00	140	18	110	121,29
EM440750	7,50	7,00	140	18	110	178,10
EM440800	8,00	8,00	160	18	130	117,44
EM440850	8,50	8,00	160	18	130	180,03
EM440900	9,00	9,00	175	18	140	132,85
EM440950	9,50	9,00	175	18	140	188,70
EM441000	10,00	10,00	190	20	150	134,79
EM441100	11,00	11,00	200	20	160	157,90
EM441200	12,00	12,00	210	20	160	149,23

**SERIE EXTRA LUNGA HSSCO**


Ref. EM33


**EM33**

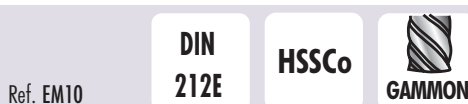
	D <sub>1</sub> mm	D <sub>2</sub> mm	L <sub>1</sub> mm	L <sub>2</sub> mm	L <sub>3</sub> mm	HSSCo €
EM330200	2,0	2,0	90	11	70	142,76
EM330300	3,0	3,0	120	15	100	142,76
EM330400	4,0	4,0	140	19	115	150,53
EM330500	5,0	5,0	170	23	140	153,60
EM330600	6,0	5,6	200	26	175	156,48
EM330700	7,0	7,0	250	35	220	189,94
EM330800	8,0	8,0	250	33	220	222,72
EM330900	9,0	9,0	250	35	220	212,45
EM331000	10,0	10,0	250	38	220	244,65
EM331200	12,0	10,0	250	44	220	294,10

**METALLO DURO INTEGRALE DIN 8093**

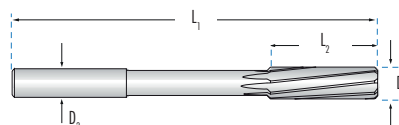

Ref. EM35


**EM35**

	D <sub>1</sub> mm	D <sub>2</sub> mm	L <sub>1</sub> mm	L <sub>2</sub> mm	€
EM350200	2,00	2,00	49	11	67,10
EM350250	2,50	2,50	57	14	77,17
EM350300	3,00	3,00	61	15	73,25
EM350350	3,50	3,50	70	18	90,16
EM350400	4,00	4,00	75	19	85,50
EM350450	4,50	4,50	80	21	98,28
EM350500	5,00	5,00	86	23	90,55
EM350550	5,50	5,50	93	26	110,05
EM350600	6,00	6,00	93	26	108,92
EM350650	6,50	6,00	101	28	133,58
EM350700	7,00	7,00	109	31	140,79
EM350750	7,50	7,00	109	31	154,87
EM350800	8,00	8,00	117	33	160,89
EM350850	8,50	8,00	117	33	185,03
EM350900	9,00	9,00	125	36	184,37
EM350950	9,50	9,00	125	36	206,50
EM351000	10,00	10,00	133	38	204,46
EM351050	10,50	10,00	133	38	228,98
EM351100	11,00	10,00	142	41	305,04
EM351150	11,50	12,00	142	41	335,53
EM351200	12,00	12,00	151	44	321,88

**HSSCo DIN 212**


Ref. EM10


**EM10**


	D <sub>1</sub> mm	D <sub>2</sub> mm	L <sub>1</sub> mm	L <sub>2</sub> mm	€
EM100300	3,00	3,00	61	15	29,52
EM100400	4,00	4,00	75	19	35,72
EM100500	5,00	5,00	86	23	36,38
EM100600	6,00	5,60	93	26	36,38
EM100700	7,00	7,10	109	31	37,03
EM100800	8,00	8,00	117	33	40,69
EM100900	9,00	9,00	125	36	48,49
EM101000	10,00	10,00	133	38	50,00
EM101100	11,00	10,00	142	41	58,21
EM101200	12,00	10,00	151	44	62,07
EM101300	13,00	10,00	151	44	85,58
EM101400	14,00	12,50	160	47	98,17
EM101500	15,00	12,50	160	47	102,13
EM101600	16,00	12,50	162	50	119,52
EM101700	17,00	14,00	170	52	143,53
EM101800	18,00	14,00	175	54	157,51



Misure speciali su richiesta.

**ALESATORI CONICI A MACCHINA HSSCo DIN 208**

**DIN 208**



Ref. EM7

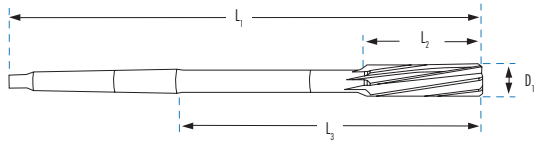


DIN 208B

Ref. EM9



DIN 208C



					EM7	EM9
MATERIALE					HSSCo	HSSCo
NORMA					DIN 208B	DIN 208C
TOLLERANZA					TOL H7	TOL H7
ELICA					10°	38°
D1 mm	L2 mm	L3 mm	L1 mm	CM	€	€
4,00	19	58	129	1	61,52	
5,00	23	62	133	1	42,02	85,37
5,50	26	67	138	1	62,61	
6,00	26	67	138	1	39,51	85,37
6,50	28	73	144	1	63,84	
7,00	31	79	150	1	40,42	85,37
7,50	31	79	150	1	65,30	
8,00	33	85	156	1	41,76	85,37
8,50	33	85	156	1	69,25	
9,00	36	91	162	1	43,20	82,29
9,50	36	91	162	1	75,08	
10,00	38	97	168	1	43,62	82,29
10,50	38	97	168	1	76,04	
11,00	41	104	175	1	44,43	85,92
11,50	41	104	175	1	80,14	
12,00	44	111	182	1	44,43	85,92
12,50	44	111	182	1	87,51	
13,00	44	111	182	1	49,44	127,79
13,50	47	118	189	1	90,10	
14,00	47	118	189	1	50,22	131,78
14,50	50	118	204	2	94,86	
15,00	50	118	204	2	60,22	144,28
15,50	52	124	210	2	99,71	
16,00	52	124	210	2	65,55	151,20
16,50	54	128	214	2	110,77	
17,00	54	128	214	2	69,08	163,71
17,50	56	133	219	2	124,02	

					EM7	EM9
D1 mm	L2 mm	L3 mm	L1 mm	CM	€	€
18,00	56	133	219	2	76,52	173,88
18,50	58	137	223	2	132,33	
19,00	58	137	223	2	78,60	184,45
19,50	60	142	228	2	141,15	
20,00	60	142	228	2	87,65	193,99
20,50	62	146	232	2	146,82	
21,00	62	146	232	2	90,03	209,58
21,50	64	151	237	2	190,30	
22,00	64	151	237	2	95,06	223,74
22,50	66	155	241	2	190,30	
23,00	66	155	241	2	96,47	239,84
23,50	66	163	241	3	221,09	
24,00	68	163	268	3	121,91	252,98
24,50	68	163	268	3	228,47	
25,00	68	163	268	3	123,33	268,58
25,50	70	168	273	3	266,43	
26,00	70	168	273	3	133,68	283,47
26,50	70	168	273	3	282,23	
27,00	71	172	277	3	160,39	382,15
28,00	71	172	277	3	158,07	313,35
29,00	73	176	281	3	186,29	377,16
30,00	73	176	281	3	168,35	285,28
31,00	75	180	285	3	230,18	
32,00	77	187	317	4	200,80	439,38
33,00	77	187	317	4	397,44	
34,00	78	191	321	4	271,97	661,18
35,00	78	191	321	4	288,00	
36,00	79	195	325	4	324,47	759,03
37,00	79	195	325	4	547,33	
38,00	81	199	329	4	345,49	863,34
39,00	81	199	329	4	732,66	
40,00	81	199	329	4	394,46	912,70
41,00	82	203	333	4	439,59	
42,00	82	203	333	4	464,86	
44,00	83	206	336	4	505,43	
45,00	83	206	336	4	505,79	
48,00	86	214	344	4	535,86	
50,00	86	214	344	4	569,48	

**ALESATORE CONICO ELICOIDALE SERIE LUNGA HSSCo**

Ref. EM41	<b>DIN 208B/L</b>	<b>HSSCo</b>	<b>TOL H7</b>
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EM41						
	D1 mm	L2 mm	L3 mm	L1 mm	CM	€
EM411300	13	22	180	245	1	<b>195,30</b>
EM411400	14	22	180	245	1	<b>195,30</b>
EM411500	15	25	180	260	2	<b>206,28</b>
EM411600	16	25	180	260	2	<b>230,41</b>
EM411800	18	28	180	260	2	<b>239,20</b>
EM412000	20	28	190	270	2	<b>258,94</b>
EM412200	22	32	200	280	2	<b>291,86</b>
EM412400	24	32	200	300	3	<b>381,83</b>
EM412500	25	32	220	320	3	<b>463,03</b>
EM412600	26	32	230	330	3	<b>544,22</b>
EM412800	28	36	240	340	3	<b>548,61</b>
EM413000	30	36	250	350	3	<b>559,59</b>
EM413200	32	36	250	375	4	<b>647,37</b>
EM413400	34	40	250	375	4	<b>752,69</b>
EM413600	36	40	250	375	4	<b>800,96</b>
EM413800	38	40	270	395	4	<b>860,20</b>
EM414000	40	40	270	395	4	<b>908,49</b>
EM414200	42	40	280	405	4	<b>958,96</b>
EM414500	45	45	280	405	4	<b>1.125,76</b>
EM415000	50	45	290	415	4	<b>1.353,96</b>

**ALESATORE CONICO ELICOIDALE SERIE EXTRA LUNGA**

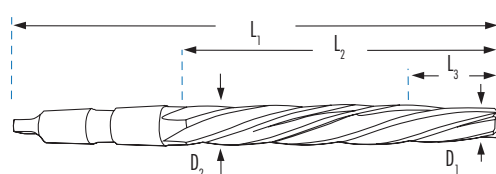
Ref. EM42	<b>DIN 208B/XL</b>	<b>HSSCo</b>	<b>TOL H7</b>
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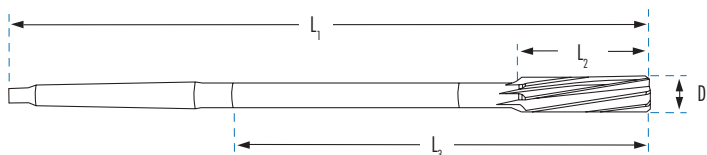
EM42						
	D1 mm	L2 mm	L3 mm	L1 mm	CM	€
EM421200	12	40	250	315	1	<b>325,79</b>
EM421400	14	40	250	315	1	<b>355,95</b>
EM421600	16	45	270	350	2	<b>372,04</b>
EM421800	18	45	270	350	2	<b>402,70</b>
EM422000	20	45	270	350	2	<b>426,34</b>
EM422200	22	45	270	350	2	<b>573,14</b>
EM422400	24	70	350	450	3	<b>653,60</b>
EM422500	25	70	350	450	3	<b>693,80</b>
EM422600	26	70	350	450	3	<b>804,42</b>
EM422800	28	70	350	450	3	<b>884,85</b>
EM423000	30	70	350	450	3	<b>955,24</b>
EM423500	35	70	350	475	4	<b>1.206,62</b>
EM424000	40	70	350	475	4	<b>1.407,73</b>

**ALESATORE CONICO DA CALDARERIA HSS DIN 311**

Ref. EM8	<b>DIN 311</b>	<b>HSS</b>	<b>TOL H7</b>	PER CALDARERIA Conicità di 1:10 in L3
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EM8							
	D2 mm	D1 mm	L1 mm	L2 mm	L3 mm	CM	€
EM81000	10,00	6,6	171	95	38	1	<b>60,09</b>
EM81100	11,00	7,0	176	100	40	1	<b>61,73</b>
EM81200	12,00	7,8	199	105	42	2	<b>65,87</b>
EM81300	13,00	8,8	199	105	42	2	<b>71,70</b>
EM81400	14,00	9,4	209	115	46	2	<b>78,97</b>
EM81500	15,00	10,0	219	125	50	2	<b>83,00</b>
EM81600	16,00	10,6	229	135	54	2	<b>87,12</b>
EM81700	17,00	11,6	251	135	54	3	<b>109,23</b>
EM81800	18,00	12,2	261	145	58	3	<b>116,42</b>
EM81900	19,00	13,2	261	145	58	3	<b>129,04</b>
EM82000	20,00	13,8	271	155	62	3	<b>131,40</b>
EM82100	21,00	14,8	271	155	62	3	<b>144,56</b>
EM82200	22,00	15,4	281	165	66	3	<b>150,88</b>
EM82300	23,00	16,4	281	165	66	3	<b>161,78</b>
EM82400	24,00	16,8	296	180	72	3	<b>173,07</b>
EM82500	25,00	17,8	296	180	72	3	<b>184,47</b>
EM82600	26,00	18,8	296	180	72	3	<b>201,46</b>
EM82700	27,00	19,2	311	195	78	3	<b>216,24</b>
EM82800	28,00	20,2	311	195	78	3	<b>236,21</b>
EM82900	29,00	21,2	311	195	78	3	<b>253,56</b>
EM83000	30,00	22,2	311	195	78	3	<b>254,03</b>
EM83100	31,00	23,2	326	210	78	3	<b>258,28</b>
EM83200	32,00	23,6	354	210	84	4	<b>281,17</b>
EM83300	33,00	24,6	354	210	84	4	<b>375,30</b>
EM83400	34,00	25,6	364	220	88	4	<b>436,58</b>
EM83600	36,00	27,2	364	220	88	4	<b>484,62</b>

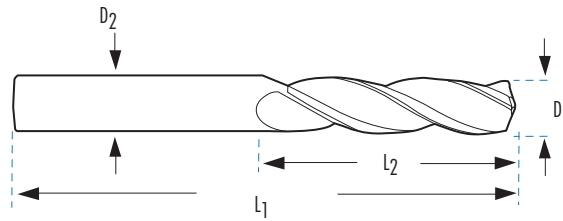




**PUNTA ALESATRICE IN METALLO DURO A 3 TAGLIANTI**

Ref. BC45

**3Z**
**DIN  
1897**
**MD**

**TOL  
H8**


<b>BC45</b>					
	<b>D1 mm</b>	<b>D2 mm</b>	<b>L1 mm</b>	<b>L2 mm</b>	<b>€</b>
BC450350	3,5	3,5	52	20	30,56 *
BC450400	4,0	4,0	55	22	36,33 *
BC450500	5,0	5,0	62	26	32,19 *
BC450550	5,5	5,5	66	28	44,83 *
BC450600	6,0	6,0	66	28	35,51 *
BC450650	6,5	6,5	70	31	62,07 *
BC450700	7,0	7,0	74	34	50,08 *
BC450800	8,0	8,0	79	37	58,81 *
BC450850	8,5	8,5	79	37	62,32 *
BC450900	9,0	9,0	84	40	91,94 *
BC451050	10,5	10,5	89	43	95,48 *
BC451100	11,0	11,0	95	47	109,80 *
BC451150	11,5	11,5	95	47	113,85 *
BC451350	13,5	13,5	104	54	234,84 *
BC451400	14,0	14,0	107	54	176,13 *
BC451450	14,5	14,5	111	56	266,73 *
BC451500	15,0	15,0	111	56	208,45 *
BC451550	15,5	15,5	115	58	376,89 *
BC451600	16,0	16,0	115	58	257,16 *
BC451650	16,5	16,5	119	60	353,51 *
BC451700	17,0	17,0	119	60	363,74 *
BC451750	17,5	17,5	123	62	372,17 *
BC451800	18,0	18,0	123	62	405,82 *
BC451850	18,5	18,5	127	64	442,28 *
BC451900	19,0	19,0	127	64	450,55 *
BC451950	19,5	19,5	131	66	484,28 *
BC452000	20,0	20,0	131	66	518,01 *

\*Fino ad esaurimento scorte.

**PUNTE ALESATRICI**

CODOLO  
CILINDRICO


**3Z**

Ref. EM22

DIN  
344

HSS

TOL  
H8



CODOLO  
CONICO


**3Z**

Ref. EM23

DIN  
343

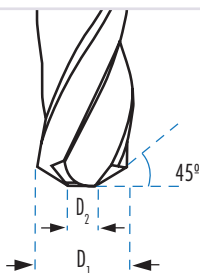
HSS

TOL  
H8



APPLICAZIONI: Particolarmente indicate per allargare fori e compensare i fori non concentrici.

Si ottiene una precisione superiore a quella delle punte convenzionali, le quali non sono raccomandate per allargare fori, siccome si spuntano a causa degli spigoli da taglio.



EM22					
	D1 mm	D2 mm	L1 mm	L2 mm	€
EM220500	5,00	3,00	108	74	39,54
EM220600	6,00	4,00	116	80	39,54
EM220700	7,00	5,00	133	93	39,54
EM220800	8,00	5,60	142	100	41,70
EM220900	9,00	6,30	151	107	48,75
EM221000	10,00	7,00	162	116	50,92
EM221100	11,00	7,70	173	125	56,15
EM221200	12,00	8,40	184	134	60,27
EM221300	13,00	9,10	184	134	76,85
EM221400	14,00	9,80	194	142	82,14
EM221500	15,00	10,50	202	147	89,68
EM221600	16,00	11,20	211	153	96,31

EM23						
	D1 mm	D2 mm	L1 mm	L2 mm	CM	€
EM230900	9,00	6,30	162	81	1	92,51
EM231000	10,00	7,00	168	87	1	83,59
EM231100	11,00	7,70	175	94	1	86,46
EM231200	12,00	8,40	182	101	1	90,35
EM231300	13,00	9,10	182	101	1	94,35
EM231400	14,00	9,80	189	108	1	99,03
EM231500	15,00	10,50	212	114	2	99,98
EM231600	16,00	11,20	218	120	2	113,64
EM231700	17,00	11,90	223	125	2	121,35
EM231800	18,00	12,60	228	130	2	131,73
EM231900	19,00	13,30	233	135	2	155,00
EM232000	20,00	14,00	238	140	2	158,75
EM232100	21,00	15,00	243	145	2	174,27
EM232200	22,00	15,50	248	150	2	184,89
EM232300	23,00	16,00	253	155	2	190,78
EM232400	24,00	17,00	281	160	3	201,59
EM232500	25,00	17,50	281	160	3	216,65
EM232600	26,00	18,00	286	165	3	232,79
EM232700	27,00	19,00	291	170	3	261,85
EM232800	28,00	19,50	291	170	3	296,93
EM233000	30,00	21,00	296	175	3	328,66
EM233200	32,00	22,00	334	185	4	413,23
EM233400	34,00	24,00	339	190	4	457,35
EM233500	35,00	25,00	339	190	4	476,56
EM233600	36,00	25,50	344	195	4	505,24
EM233800	38,00	26,50	349	200	4	565,85
EM234000	40,00	28,00	349	200	4	610,58
EM234500	45,00	31,00	359	210	4	730,50
EM235000	50,00	34,50	369	220	4	995,94

**ALESATORI A MACCHINA, MANICOTTO HSSCo**

**DIN  
219**



Ref. EM17



Ref. EM18



**CODOLO PER ALESATORI A MANICOTTO A MACCHINA**

**DIN  
217**

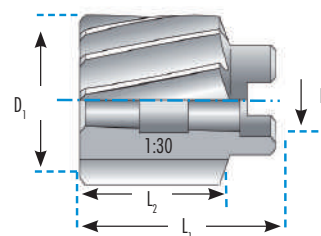


Ref. EM19

MATERIALE				EM17		EM18	
NORMA				HSSCo		HSSCo	
TOLLERANZA				DIN 219B		DIN 219C	
ELICA				TOL H7		TOL H7	
10°				38°			
D1 mm	D2 mm	L1 mm	L2 mm	€	€	€	€
25,00	13,00	45	32	EM172500	122,32	EM182500	232,89
26,00	13,00	45	32	EM172600	123,36	EM182600	235,47
27,00	13,00	45	32	EM172700	126,37	EM182700	241,80
28,00	13,00	45	32	EM172800	134,77	EM182800	246,77
30,00	13,00	45	32	EM173000	107,91	EM183000	253,69
32,00	16,00	50	36	EM173200	114,10	EM183200	262,00
34,00	16,00	50	36	EM173400	127,75	EM183400	270,62
35,00	16,00	50	36	EM173500	130,73	EM183500	296,83
36,00	19,00	56	40	EM173600	133,22	EM183600	310,03
38,00	19,00	56	40	EM173800	141,26	EM183800	327,08
40,00	19,00	56	40	EM174000	149,67	EM184000	387,02
42,00	19,00	56	40	EM174200	157,90		
45,00	22,00	63	45	EM174500	167,64	EM184500	425,68
47,00	22,00	63	45	EM174700	240,75	EM184700	497,07
48,00	22,00	63	45	EM174800	204,64		
50,00	22,00	63	45	EM175000	212,05		
52,00	27,00	71	50	EM175200	223,26	EM185200	557,85
55,00	27,00	71	50	EM175500	242,23	EM185500	621,19
58,00	27,00	71	50	EM175800	273,61		
60,00	27,00	71	50	EM176000	353,90	EM186000	691,96
62,00	32,00	80	56	EM176200	429,45	EM186200	743,52
65,00	32,00	80	56	EM176500	465,94	EM186500	755,54
70,00	32,00	80	56	EM177000	555,85	EM187000	774,19
72,00	40,00	90	63	EM177200	587,35	EM187200	821,07
75,00	40,00	90	63	EM177500	643,13		
80,00	40,00	90	63	EM178000	700,43	EM188000	972,42
85,00	40,00	90	63	EM178500	771,02		
90,00	50,00	100	71	EM179000	840,29		
95,00	50,00	100	71	EM179500	964,11		
100,00	50,00	100	71	EM1710000	1.099,47		

				EM19	
	D2 mm	L1 mm	CM	€	
EM19CM313X300	13,00	300	3	207,08	
EM19CM316X300	16,00	300	3	230,41	
EM19CM419X300	19,00	300	4	273,38	
EM19CM419X400	19,00	400	4	386,32 *	
EM19CM419X500	19,00	500	4	432,45 *	
EM19CM422X300	22,00	300	4	342,35	
EM19CM422X400	22,00	400	4	428,34 *	
EM19CM422X500	22,00	500	4	480,77 *	
EM19CM422X600	22,00	600	4	509,15 *	
EM19CM527X350	27,00	350	5	488,24	
EM19CM527X450	27,00	450	5	570,12 *	
EM19CM527X550	27,00	550	5	658,76 *	
EM19CM527X650	27,00	650	5	705,22 *	
EM19CM532X350	32,00	350	5	600,27	
EM19CM532X400	32,00	400	5	723,06 *	
EM19CM532X500	32,00	500	5	768,36 *	
EM19CM532X600	32,00	600	5	844,78 *	
EM19CM540X450	40,00	450	5	851,81	
EM19CM540X550	40,00	550	5	907,52 *	
EM19CM540X650	40,00	650	5	947,41 *	
EM19CM540X750	40,00	750	5	1.020,42 *	
EM19CM540X850	40,00	850	5	1.075,28 *	
EM19CM540X950	40,00	950	5	1.152,48 *	
EM19CM550X450	50,00	450	5	1.100,78	
EM19CM550X550	50,00	550	5	1.088,56 *	
EM19CM550X650	50,00	650	5	1.136,63 *	
EM19CM550X750	50,00	750	5	1.191,02 *	
EM19CM550X850	50,00	850	5	1.271,18 *	
EM19CM550X950	50,00	950	5	1.309,89	

\*Fino ad esaurimento scorte.



**ALESATORE A 5 CANALI HSS**

Alesatori

Rosa

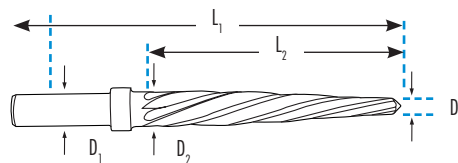
**5Z**

Ref. EM14

HSS

 10%  
 1:10

25°



							EM14
	D2 mm	Ø mm min. x max.	D1 mm	D3 mm	L1 mm	L2 mm	€
EM141000	10,00	6,00 - 10,00	9,50	5,20	127	76	164,58
EM141200	12,00	7,00 - 12,00	12,70	5,60	152	102	180,98
EM141400	14,00	9,00 - 14,00	12,70	7,80	152	102	191,94
EM141800	18,00	10,00 - 18,00	12,70	9,20	178	125	235,84
EM142200	22,00	14,00 - 22,00	12,70	13,00	184	132	279,70
EM142600	26,00	18,00 - 26,00	12,70	17,20	184	132	301,68

**ALESATORI CONICI PER STAMPI HSSCO ELICA 45°**

Ref. EM30

Ref. EM31

Ref. EM32

HSSCo



D2

D1

L1

L2

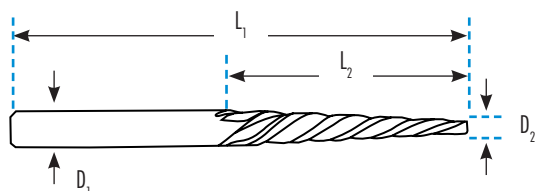
 TOL  
 ± 0,05

 TOL  
 h8

 TOL  
 ± 1

 TOL  
 ± 2

PER STAMPI


 5%  
 1:20

 8%  
 2:25

 10%  
 1:10

EM30

EM31

EM32

D1 mm	D2 mm	L1 mm	L2 mm	€
6,00	3,00	110	60	140,30
8,00	4,00	130	80	193,38
10,00	5,00	155	100	229,59
12,00	6,00	180	120	280,61
14,00	7,00	200	140	357,67

D1 mm	D2 mm	L1 mm	L2 mm	€
8,00	3,00	110	62	140,30
10,00	4,00	130	75	183,70
12,00	5,00	150	90	212,77
14,00	6,00	160	100	309,66

D1 mm	D2 mm	L1 mm	L2 mm	€
8,00	3,00	100	50	133,12
10,00	4,00	115	60	140,30
12,00	5,00	130	70	171,91
14,00	6,00	140	80	297,45

**ALESATORI REGOLABILI**
**CON GUIDA HSS**


TOL H11	Ø mm	Ø mm min. x max.	EM4G	EM4-6C	EM4-6T
			ALESATORE €	LAME €	BULLONI €
EM4G0800	8,00	8,00 - 9,00	135,35*	77,40*	3,98*
EM4G0900	9,00	9,00 - 10,00	138,38*	87,50*	3,98*
EM4G1000	10,00	10,00 - 11,00	138,38*	88,35*	3,98*
EM4G1200	12,00	12,00 - 13,50	145,78*	88,42*	4,19*

\*Fino ad esaurimento scorte.

**TIPO RINFORZATO HSS**


TOL H11	Ø mm	Ø mm min. x max.	EM6	EM4-6C	EM4-6T
			ALESATORE €	LAME €	BULLONI €
EM60640	6,40	6,40 - 7,20	136,02*		
EM60720	7,20	7,20 - 8,00	136,02*		
EM60800	8,00	8,00 - 9,00	136,02*	77,40*	3,98*
EM60900	9,00	9,00 - 10,00	136,02*	87,50*	3,98*
EM61000	10,00	10,00 - 11,00	136,02*	88,35*	3,98*
EM61100	11,00	11,00 - 12,00	136,02*	88,35*	3,60*
EM61200	12,00	12,00 - 13,50	136,02*	88,42*	4,19*
EM61350	13,50	13,50 - 15,50	136,02*	88,42*	4,19*
EM61550	15,50	15,50 - 18,00	144,75*	92,63*	4,65*
EM61800	18,00	18,00 - 21,00	149,85*	95,84*	4,21*
EM62100	21,00	21,00 - 24,00	174,35*	110,30*	4,65*
EM62400	24,00	24,00 - 27,50	189,82*	116,13*	4,87*
EM62750	27,50	27,50 - 31,50	207,56*	127,73*	5,09*
EM63150	31,50	31,50 - 37,00	270,57*	157,13*	5,09*
EM63700	37,00	37,00 - 45,00	403,45*	243,17*	5,09*
EM64500	45,00	45,00 - 55,00	580,53*	374,00*	5,40*
EM65500	55,00	55,00 - 67,00	1.065,45*	578,72*	5,40*
EM66700	67,00	67,00 - 80,00	1.635,07*	879,30*	5,40*

\*Fino ad esaurimento scorte.

**TABELLA DI FACILE CONSULTAZIONE DEI PARAMETRI DI TAGLIO E AVANZAMENTO PER ALESATORI**

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

**OSSERVAZIONI:**

- Conosciuti il diametro dell'alesatore e il materiale da alesare, la velocità e l'avanzamento si identificano velocemente.

esempio:

Materiale: Acciaio dolce

Ø dell'alesatore 10 mm

RPM=382 RPM

S=57 mm/min

- Prima di realizzare i primi fori è necessario regolare sia la velocità sia l'avanzamento.

**TABELLA DI FACILE CONSULTAZIONE DELLA PERFORAZIONE PRECEDENTE ALL'ALESATURA**
**Ø DELLA PUNTA**

Ø DELL'ALESATURA	Ø DELLA PUNTA		
	ACCIAI	ACCIAIO INOX	ALLUMINIO
1<Ø<10 mm	Ø finale - 0,2 mm	Ø finale - 0,2 mm	Ø finale - 0,3 mm
11<Ø<20 mm	Ø finale - 0,3 mm	Ø finale - 0,3 mm	Ø finale - 0,4 mm
21<Ø<30 mm	Ø finale - 0,4 mm	Ø finale - 0,4 mm	Ø finale - 0,45 mm
Ø>30 mm	Ø finale - 0,5 mm	Ø finale - 0,5 mm	Ø finale - 0,6 mm

- Per altri materiali, utilizzare come riferimento i diametri corrispondenti all'acciaio.