

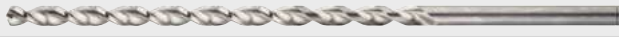
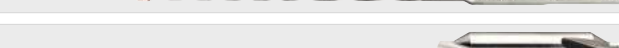
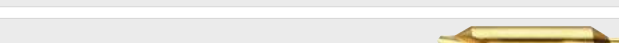
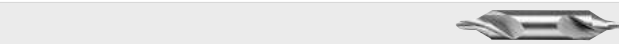
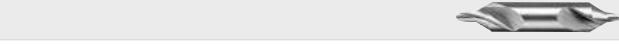
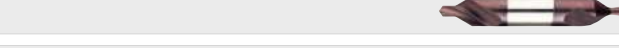
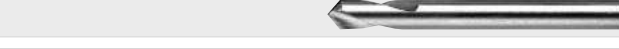
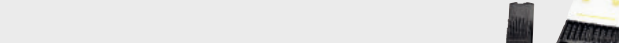
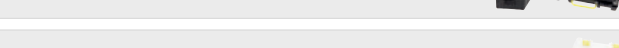
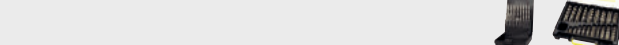
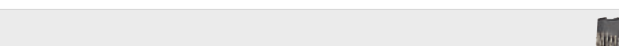
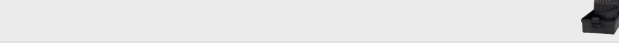
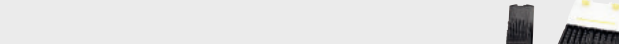
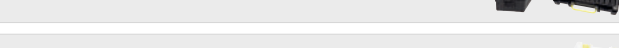
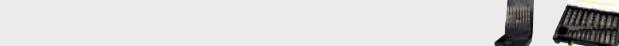
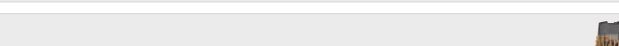
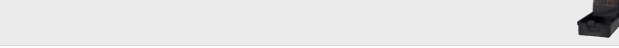
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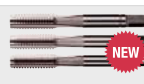
P **K** Bij uitstek geschikt
H **N** Très approprié
M **S** Muy adecuado
Ideal geeignet
Very adequate

P **K** Beperkt geschikt
H **N** Approprié
M **S** Adequado
Eingeschränkt geeignet
Adequate

P= pagina
P= page
P= página
P= Seite

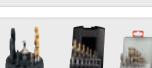
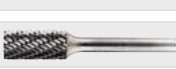
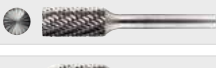
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> 11.145	Phantom	HSS	NORM		P	M	K	N			P. 12
> 11.150	INTERNATIONAL TOOLS	HSS-E	DIN 1897	ECO PRO	P	M	K	N			P. 12
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> 11.413	INTERNATIONAL TOOLS	HSS	Ø13	ECO	P		K				P. 15
> 11.415	INTERNATIONAL TOOLS	HSS-E	Ø13	ECO PRO	P	M	K	N			P. 15
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> 11.443	Phantom	HSS			P	M	K	N			P. 20
> 11.445	Phantom	HSS-E			P	M	K	N			P. 21
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> 11.447	Phantom	HSS-E			P	M	K	N		 NEW	P. 22
> 11.450	Phantom	HSS	DIN 338		P	M	K	N			P. 22
> 11.451	Phantom	HSS	DIN 338		P	M	K	N			P. 23
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> 11.500	Phantom	HSS-E	DIN 338		P	M	K	N			P. 26
> 11.506	Phantom	HSS-E	DIN 338		P	M	K	N			P. 27
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> 11.860	Phantom	HSS	DIN 340	TS	P	K	N		P. 30	
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> 11.900	Phantom	HSS	DIN 1869		P	K	N		P. 31	
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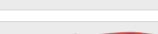
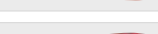


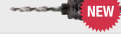
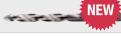
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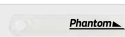
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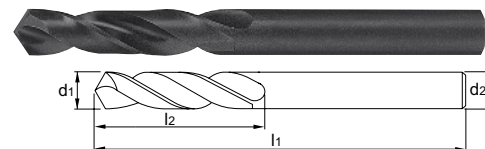
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> 49.414	Phantom	HSS	TiAlN		P	M	K	N		P. 94	
> 51.110	Phantom	HSS	DIN 206-B	H7	P	K	N			P. 95	
> 51.320	Phantom	HSS-E	DIN 212-B	H7	P	M	K	N	S		P. 95
> 51.350	Phantom	HSS-E	DIN 212-B	x0,01	P	M	K	N	S		P. 96
> 51.520	Phantom	HSS-E	DIN 208-B	H7	P	M	K	N	S		P. 96
> 61.090	INTERNATIONAL TOOLS	BIM 8% Co			P	M	K	N		P. 98	
> 61.105	Phantom	BIM 8% Co			P	M	K	N		P. 99	
> 61.110	Phantom	BIM 8% Co			P	M	K	N		P. 99	
> 61.135	INTERNATIONAL TOOLS									 P. 99	
> 61.137	INTERNATIONAL TOOLS									 P. 99	
> 61.140	Phantom									 P. 100	
> 61.142	Phantom									 P. 100	
> 61.145	INTERNATIONAL TOOLS									 P. 100	
> 61.147	INTERNATIONAL TOOLS									 P. 100	
> 61.148	INTERNATIONAL TOOLS									 P. 100	
> 61.150	Phantom									P. 101	
> 61.170	Phantom									 P. 101	
> 61.180	Phantom									 P. 101	
> 61.630	Phantom	HM-TIP		0,5-5 mm	P	M	K	N		P. 102	
> 61.670	Phantom	HM-TIP		0,5-12 mm	P	M	K	N		P. 102	
> 61.680	Phantom	HM-TIP		0,5-12 mm	P	M	K	N		P. 103	

> 62.100	Phantom	HSS-EX		P	K	N			P. 103	
> 62.122	Phantom	HSS-EX	 NIT.	P	M	K	N		P. 104	
> 62.150	Phantom	HSS-EX		P		K	N		P. 105	
> 62.162	Phantom	HSS-EX	 NIT.	P	M	K	N		P. 105	
> 62.180	Phantom	HSS-EX		P		K	N		P. 106	
> 62.200	Phantom	HM-TIP		P	M	K	N	H		P. 107
> 62.250	Phantom	HSS-EX	 Ø18 FEIN QUICKIN	P	M	K	N		P. 108	
> 62.300	Phantom								P. 109	
> 62.350	Phantom								P. 110	
> 63.210	Phantom	HSS	+GF+ 	P	M	K	N		P. 111	
> 63.400	Phantom	HSS	OX. 	P		K	N		P. 111	
> 63.401	Phantom	HSS	TiN 	P		K	N		P. 112	
> 63.420	Phantom	HSS-E	OX. 	P	M	K	N		P. 112	
> 63.424	Phantom	HSS-E	TiAIN 	P	M	K	N		P. 113	
> 64.150	Phantom	HSS-Co	300mm 12" 					 Phantom HSS-Co 64.150.2400 300 x 13 x 0,65/24 24	P. 113	
> 64.460	Phantom	HSS	300mm 12" 						P. 113	
> 64.500	Phantom							 Phantom HM T75-1.1 INOX	P. 114	
> 64.600	Phantom							 Phantom BIM R230-1,8	P. 116	
> 66.450	Phantom	BIM 8% Co	 	P	M	K	N	S		P. 118
> 66.460	Phantom	BIM 8% Co	 	P	M	K	N			P. 118
> 66.580	Phantom	BIM 10% Co	 	P	M			S		P. 119
> 66.700	Phantom	BIM 8% Co	 	P	M	K	N	S		P. 119
> 69.090	INTERNATIONAL TOOLS	BIM 8% Co		P	M	K	N	 NEW	P. 120	
> 69.111	Phantom	BIM 8% Co		P	M	K	N		P. 120	
> 69.114	Phantom	BIM 8% Co		P	M	K	N	 NEW	P. 121	
> 69.210	Phantom	HSS-EX		P		K	N		P. 121	
> 81.180	Phantom								P. 122	
> 81.181	Phantom								P. 122	
> 81.200	Phantom	TYPE A							P. 122	
> 81.700	INTERNATIONAL TOOLS	 C T 							P. 123	
> 81.710	INTERNATIONAL TOOLS								P. 123	
> 81.900									P. 123	
> 81.905									P. 124	



> 81.910						P. 124
> 81.930						P. 124
> 84.100	INTERNATIONAL TOOLS	DIN 2185				P. 125
> 84.110	INTERNATIONAL TOOLS	DIN 2187				P. 125
> 84.170	INTERNATIONAL TOOLS	DIN 238				P. 125
> 84.872	Phantom	DIN 172-A	n6	F7		P. 126
> 84.873	Phantom	DIN 172-A	n6	F7		P. 126
> 84.874	Phantom	DIN 172-A	n6	F7		P. 126
> 84.879	Phantom	DIN 179-A	n6	F7		P. 127
> 84.880	Phantom	DIN 179-A	n6	F7		P. 127
> 84.881	Phantom	DIN 179-A	n6	F7		P. 127
> 88.152	INTERNATIONAL TOOLS					P. 128
> 88.440	TORAX					P. 128
> 88.900	TORAX					P. 129
> 88.910	TORAX					P. 129
> 88.928	TORAX					P. 130
> 90.105	Phantom	UNI				NEW P. 131
> 90.110	Phantom	UNI				P. 131
> 90.130	Phantom	INOX				P. 131
> 90.140	Phantom	UNI				P. 131
> 90.145	Phantom	UNI				P. 132
> 90.150	Phantom	INOX				P. 132
> 90.170	Phantom	UNI				P. 132
> 90.180	Phantom	UNI				P. 132
> 90.210	Phantom	UNI				P. 133



> 11.110 INTERNATIONAL TOOLS

NL ECO HSS Spiraalboor
FR Foret HSS ECO
ES Broca HSS ECO
DE ECO HSS Spiralbohrer
EN ECO HSS Twist drill

HSS	DIN 1897	N		 >3	 118°	ECO		
P 11 ≤800 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	M 21 INOX ≤850 N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27	22-30	15-20	8-12	15-20	25-30	45-50	25-40	22-28

Ref.	d1	d2	l1	l2	€
11.110.0100	1	1	26	6	0,58
11.110.0150	1.5	1.5	32	9	0,58
11.110.0200	2	2	38	12	0,46
11.110.0250	2.5	2.5	43	14	0,54
11.110.0300	3	3	46	16	0,92
11.110.0320	3.2	3.2	49	18	1,10
11.110.0330	3.3	3.3	49	18	1,10
11.110.0350	3.5	3.5	52	20	1,10
11.110.0400	4	4	55	22	1,14
11.110.0410	4.1	4.1	55	22	1,34
11.110.0420	4.2	4.2	55	22	1,34

Ref.	d1	d2	l1	l2	€
11.110.0450	4.5	4.5	58	24	1,34
11.110.0490	4.9	4.9	62	26	1,39
11.110.0500	5	5	62	26	1,39
11.110.0510	5.1	5.1	62	26	1,70
11.110.0520	5.2	5.2	62	26	1,70
11.110.0550	5.5	5.5	66	28	1,70
11.110.0580	5.8	5.8	66	28	1,95
11.110.0600	6	6	66	28	2,07
11.110.0650	6.5	6.5	70	31	2,20
11.110.0700	7	7	74	34	2,64
11.110.0750	7.5	7.5	74	34	3,10

Ref.	d1	d2	l1	l2	€
11.110.0800	8	8	79	37	3,53
11.110.0850	8.5	8.5	79	37	3,91
11.110.0900	9	9	84	40	4,72
11.110.0950	9.5	9.5	84	40	4,93
11.110.1000	10	10	89	43	5,61
11.110.1050	10.5	10.5	89	43	6,38
11.110.1100	11	11	95	47	7,30
11.110.1150	11.5	11.5	95	47	7,67
11.110.1200	12	12	102	51	8,52
11.110.1250	12.5	12.5	102	51	9,20
11.110.1300	13	13	102	51	9,62

> 11.120 INTERNATIONAL TOOLS

NL ECO HSS Spiraalboor met 1/4" (6,35 mm)-zeskant bitopname
FR Foret HSS ECO avec queue hexagonale 1/4" (6,35 mm)
ES Broca HSS ECO con sujeción 1/4" (6,35 mm) bit
DE ECO HSS Spiralbohrer mit 1/4" (6,35 mm) Hexa-Bit Aufnahme
EN ECO HSS Twist drill with hexagonal shank 1/4" (6,35 mm)

HSS	N				ECO				
P 11	P 12	P 13	K 31	K 32	N 41	N 42	N 51	N 61	
≤800 N/mm²	≤850 N/mm²	≤1000 N/mm²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	PVC	
25-27	22-30	15-20	15-20	25-30	45-50	35-40	25-40	22-28	

Ref.	d1	l1	l2	€
11.120.0200	2	34	12	4,11
11.120.0250	2.5	36	14	4,11
11.120.0300	3	38	16	4,11
11.120.0330	3.3	40	18	4,11
11.120.0350	3.5	40	18	4,11
11.120.0400	4	44	20	4,24
11.120.0420	4.2	45	20	4,24

Ref.	d1	l1	l2	€
11.120.0450	4.5	46	24	4,33
11.120.0500	5	50	26	4,33
11.120.0550	5.5	50	26	4,33
11.120.0600	6	50	26	4,33
11.120.0650	6.5	50	30	4,33
11.120.0680	6.8	50	30	4,33
11.120.0700	7	50	30	4,33

Ref.	d1	l1	l2	€
11.120.0750	7.5	51	32	4,33
11.120.0800	8	51	32	4,86
11.120.0850	8.5	53	33	4,86
11.120.0900	9	53	33	4,95
11.120.0950	9.5	54	38	4,95
11.120.1000	10	54	38	4,95
11.120.1020	10.2	54	38	4,95

NIEUW / NOUVEAU / NUEVO / NEU

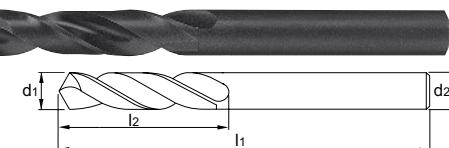
> 11.130 Phantom

NL HSS Spiraalboor
FR Foret HSS
ES Broca HSS
DE HSS Spiralbohrer
EN HSS Twist drill

HSS	OX.	DIN 1897	N					
P 11	P 12	P 13	M 21	K 31	K 32	N 42	N 51	N 61
≤800 N/mm²	≤850 N/mm²	≤1000 N/mm²	INOX ≤850N/mm²	GG	GGG GTS-GTW	Alu Si>10%	Cu	PVC
25-27	22-30	15-20	8-12	15-20	25-30	45-50	25-40	22-28

Ref.	d1	d2	l1	l2	€
11.130.0100	1	1	26	6	2,15
11.130.0110	1.1	1.1	28	7	2,52
11.130.0120	1.2	1.2	30	8	2,52
11.130.0130	1.3	1.3	30	8	2,52
11.130.0140	1.4	1.4	32	9	2,52
11.130.0150	1.5	1.5	32	9	2,19
11.130.0160	1.6	1.6	34	10	2,52
11.130.0170	1.7	1.7	34	10	2,52
11.130.0180	1.8	1.8	36	11	2,52
11.130.0190	1.9	1.9	36	11	2,52
11.130.0200	2	2	38	12	1,89

Ref.	d1	d2	l1	l2	€
11.130.0210	2.1	2.1	38	12	1,63
11.130.0220	2.2	2.2	40	13	1,56
11.130.0230	2.3	2.3	40	13	1,56
11.130.0240	2.4	2.4	43	14	1,56
11.130.0250	2.5	2.5	43	14	1,42
11.130.0260	2.6	2.6	43	14	1,76
11.130.0270	2.7	2.7	46	16	1,76
11.130.0280	2.8	2.8	46	16	1,76
11.130.0290	2.9	2.9	46	16	1,76
11.130.0300	3	3	46	16	1,77
11.130.0310	3.1	3.1	49	18	1,77



Ref.	d1	d2	l1	l2	€
11.130.0320	3.2	3.2	49	18	1,77
11.130.0330	3.3	3.3	49	18	1,89
11.130.0340	3.4	3.4	52	20	1,89
11.130.0350	3.5	3.5	52	20	1,89
11.130.0360	3.6	3.6	52	20	1,89
11.130.0370	3.7	3.7	52	20	1,89
11.130.0380	3.8	3.8	55	22	2,18
11.130.0390	3.9	3.9	55	22	2,18
11.130.0400	4	4	55	22	2,18
11.130.0410	4.1	4.1	55	22	2,34
11.130.0420	4.2	4.2	55	22	2,34

11.160 Phantom

NL HSS-E Spiraalboor
FR Foret HSS-E
ES Broca HSS-E
DE HSS-E Spiralbohrer
EN HSS-E Twist drill



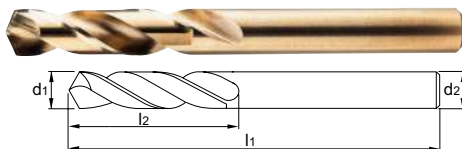
HSS-E	DIN 1897	N	22	135°
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P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 51	N 52
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28-35 E	30-36 E	20-27 E	12-20 D	14-18 D	10-15 C	30-35 F	24-30 F	30-40 E	8-15 C
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Ref.	d1	d2	l1	l2	€
11.160.0100	1	1	26	6	2,77
11.160.0120	1.2	1.2	30	8	2,82
11.160.0150	1.5	1.5	32	9	2,82
11.160.0160	1.6	1.6	34	10	2,82
11.160.0200	2	2	38	12	2,38
11.160.0210	2.1	2.1	38	12	2,06
11.160.0220	2.2	2.2	40	13	2,02
11.160.0230	2.3	2.3	40	13	2,12
11.160.0240	2.4	2.4	43	14	2,12
11.160.0250	2.5	2.5	43	14	1,88
11.160.0260	2.6	2.6	43	14	2,27
11.160.0270	2.7	2.7	46	16	2,27
11.160.0280	2.8	2.8	46	16	2,27
11.160.0290	2.9	2.9	46	16	2,27
11.160.0300	3	3	46	16	2,27
11.160.0310	3.1	3.1	49	18	2,29
11.160.0320	3.2	3.2	49	18	2,29
11.160.0330	3.3	3.3	49	18	2,45
11.160.0340	3.4	3.4	52	20	2,45
11.160.0350	3.5	3.5	52	20	2,48
11.160.0360	3.6	3.6	52	20	2,48
11.160.0370	3.7	3.7	52	20	2,48

Ref.	d1	d2	l1	l2	€
11.160.0380	3.8	3.8	55	22	2,75
11.160.0390	3.9	3.9	55	22	2,75
11.160.0400	4	4	55	22	2,75
11.160.0410	4.1	4.1	55	22	2,98
11.160.0420	4.2	4.2	55	22	2,94
11.160.0430	4.3	4.3	58	24	3,13
11.160.0440	4.4	4.4	58	24	3,13
11.160.0450	4.5	4.5	58	24	3,13
11.160.0460	4.6	4.6	58	24	3,50
11.160.0470	4.7	4.7	58	24	3,50
11.160.0480	4.8	4.8	62	26	3,50
11.160.0490	4.9	4.9	62	26	3,50
11.160.0500	5	5	62	26	3,50
11.160.0510	5.1	5.1	62	26	3,50
11.160.0520	5.2	5.2	62	26	3,50
11.160.0530	5.3	5.3	62	26	3,87
11.160.0540	5.4	5.4	66	28	3,87
11.160.0550	5.5	5.5	66	28	4,00
11.160.0560	5.6	5.6	66	28	4,04
11.160.0570	5.7	5.7	66	28	4,04
11.160.0580	5.8	5.8	66	28	4,06
11.160.0590	5.9	5.9	66	28	4,04



Ref.	d1	d2	l1	l2	€
11.160.0600	6	6	66	28	4,18
11.160.0610	6.1	6.1	70	31	4,53
11.160.0620	6.2	6.2	70	31	4,67
11.160.0640	6.4	6.4	70	31	4,72
11.160.0650	6.5	6.5	70	31	4,66
11.160.0670	6.7	6.7	70	31	4,88
11.160.0680	6.8	6.8	74	34	5,22
11.160.0700	7	7	74	34	5,35
11.160.0750	7.5	7.5	74	34	6,82
11.160.0800	8	8	79	37	7,34
11.160.0850	8.5	8.5	79	37	8,39
11.160.0900	9	9	84	40	9,31
11.160.0950	9.5	9.5	84	40	9,97
11.160.1000	10	10	89	43	10,73
11.160.1020	10.2	10.2	89	43	11,92
11.160.1050	10.5	10.5	89	43	14,17
11.160.1100	11	11	95	47	15,82
11.160.1150	11.5	11.5	95	47	18,58
11.160.1200	12	12	102	51	21,64
11.160.1250	12.5	12.5	102	51	23,00
11.160.1300	13	13	102	51	23,68

11.161 Phantom

NL HSS-E Spiraalboor TiN
FR Foret HSS-E TiN
ES Broca HSS-E TiN
DE HSS-E Spiralbohrer TiN
EN HSS-E Twist drill TiN



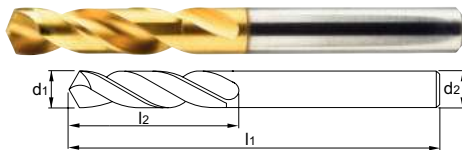
HSS-E	TiN	DIN 1897	N	22	135°
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P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 51	N 52
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32-40 E	35-40 E	25-32 E	12-20 D	15-20 D	10-15 C	30-35 F	24-30 F	30-40 E	8-15 C
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Ref.	d1	d2	l1	l2	€
11.161.0100	1	1	26	6	5,57
11.161.0110	1.1	1.1	28	7	5,65
11.161.0120	1.2	1.2	30	8	5,65
11.161.0130	1.3	1.3	30	8	5,65
11.161.0140	1.4	1.4	32	9	5,65
11.161.0150	1.5	1.5	32	9	5,65
11.161.0160	1.6	1.6	34	10	5,65
11.161.0170	1.7	1.7	34	10	5,65
11.161.0180	1.8	1.8	36	11	5,65
11.161.0190	1.9	1.9	36	11	5,65
11.161.0200	2	2	38	12	5,22
11.161.0210	2.1	2.1	38	12	5,22
11.161.0220	2.2	2.2	40	13	5,22
11.161.0230	2.3	2.3	40	13	5,22
11.161.0240	2.4	2.4	43	14	5,22
11.161.0250	2.5	2.5	43	14	4,89
11.161.0260	2.6	2.6	43	14	5,49
11.161.0270	2.7	2.7	46	16	5,49
11.161.0280	2.8	2.8	46	16	5,49
11.161.0290	2.9	2.9	46	16	5,49
11.161.0300	3	3	46	16	5,49
11.161.0310	3.1	3.1	49	18	5,86

Ref.	d1	d2	l1	l2	€
11.161.0320	3.2	3.2	49	18	5,86
11.161.0330	3.3	3.3	49	18	5,86
11.161.0340	3.4	3.4	52	20	5,86
11.161.0350	3.5	3.5	52	20	5,86
11.161.0360	3.6	3.6	52	20	5,86
11.161.0370	3.7	3.7	52	20	5,86
11.161.0380	3.8	3.8	55	22	6,52
11.161.0390	3.9	3.9	55	22	6,52
11.161.0400	4	4	55	22	6,52
11.161.0410	4.1	4.1	55	22	7,04
11.161.0420	4.2	4.2	55	22	6,78
11.161.0430	4.3	4.3	58	24	7,04
11.161.0440	4.4	4.4	58	24	7,04
11.161.0450	4.5	4.5	58	24	7,04
11.161.0460	4.6	4.6	58	24	7,55
11.161.0470	4.7	4.7	58	24	7,55
11.161.0480	4.8	4.8	62	26	7,55
11.161.0490	4.9	4.9	62	26	7,55
11.161.0500	5	5	62	26	7,29
11.161.0510	5.1	5.1	62	26	7,55
11.161.0520	5.2	5.2	62	26	7,55
11.161.0530	5.3	5.3	62	26	8,54



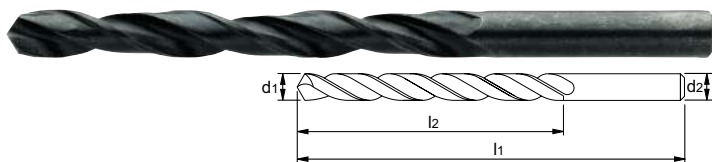
Ref.	d1	d2	l1	l2	€
11.161.0550	5.5	5.5	66	28	8,28
11.161.0570	5.7	5.7	66	28	8,78
11.161.0580	5.8	5.8	66	28	8,78
11.161.0600	6	6	66	28	8,78
11.161.0620	6.2	6.2	70	31	9,28
11.161.0650	6.5	6.5	70	31	9,42
11.161.0680	6.8	6.8	74	34	10,03
11.161.0700	7	7	74	34	11,30
11.161.0750	7.5	7.5	74	34	12,55
11.161.0800	8	8	79	37	14,07
11.161.0850	8.5	8.5	79	37	16,56
11.161.0900	9	9	84	40	18,33
11.161.0950	9.5	9.5	84	40	19,45
11.161.1000	10	10	89	43	19,20
11.161.1050	10.5	10.5	89	43	22,15
11.161.1100	11	11	95	47	23,23
11.161.1150	11.5	11.5	95	47	26,45
11.161.1200	12	12	102	51	27,60
11.161.1250	12.5	12.5	102	51	30,15
11.161.1300	13	13	102	51	31,35

> 11.400 INTERNATIONAL TOOLS

NL ECO HSS Spiraalboor gewalst
FR Foret HSS ECO lamine
ES Broca HSS ECO laminada
DE ECO HSS Spiralbohrer Gewalzt
EN ECO HSS Twist drill roll-forged



20-25 €	20-25 €	15-20 €	15-20 €	25-30 €
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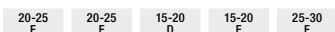
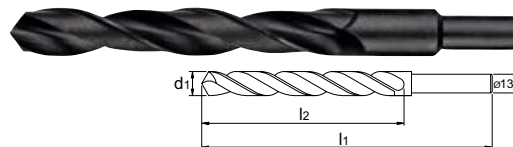
Ref.	d1	d2	l1	l2	€
11.400.0100	1	1	34	12	0,18
11.400.0110	1.1	1.1	36	14	0,18
11.400.0120	1.2	1.2	38	16	0,18
11.400.0130	1.3	1.3	38	16	0,18
11.400.0140	1.4	1.4	40	18	0,18
11.400.0150	1.5	1.5	40	18	0,18
11.400.0160	1.6	1.6	43	20	0,25
11.400.0170	1.7	1.7	43	20	0,25
11.400.0180	1.8	1.8	46	22	0,25
11.400.0190	1.9	1.9	46	22	0,25
11.400.0200	2	2	49	24	0,25
11.400.0210	2.1	2.1	49	24	0,31
11.400.0220	2.2	2.2	53	27	0,31
11.400.0230	2.3	2.3	53	27	0,33
11.400.0240	2.4	2.4	57	30	0,33
11.400.0250	2.5	2.5	57	30	0,28
11.400.0260	2.6	2.6	57	30	0,40
11.400.0270	2.7	2.7	61	33	0,40
11.400.0280	2.8	2.8	61	33	0,40
11.400.0290	2.9	2.9	61	33	0,40
11.400.0300	3	3	61	33	0,36
11.400.0310	3.1	3.1	65	36	0,40
11.400.0320	3.2	3.2	65	36	0,40
11.400.0330	3.3	3.3	65	36	0,40
11.400.0340	3.4	3.4	70	39	0,40
11.400.0350	3.5	3.5	70	39	0,37
11.400.0360	3.6	3.6	70	39	0,40
11.400.0370	3.7	3.7	70	39	0,40
11.400.0380	3.8	3.8	75	43	0,40
11.400.0390	3.9	3.9	75	43	0,40
11.400.0400	4	4	75	43	0,40
11.400.0410	4.1	4.1	75	43	0,54
11.400.0420	4.2	4.2	75	43	0,54
11.400.0430	4.3	4.3	80	47	0,54
11.400.0440	4.4	4.4	80	47	0,54
11.400.0450	4.5	4.5	80	47	0,51
11.400.0460	4.6	4.6	80	47	0,65
11.400.0470	4.7	4.7	80	47	0,65
11.400.0480	4.8	4.8	86	52	0,65
11.400.0490	4.9	4.9	86	52	0,65
11.400.0500	5	5	86	52	0,63
11.400.0510	5.1	5.1	86	52	0,85
11.400.0520	5.2	5.2	86	52	0,85
11.400.0530	5.3	5.3	86	52	0,85
11.400.0540	5.4	5.4	93	57	0,85

Ref.	d1	d2	l1	l2	€
11.400.0550	5.5	5.5	93	57	0,83
11.400.0560	5.6	5.6	93	57	0,94
11.400.0570	5.7	5.7	93	57	0,94
11.400.0580	5.8	5.8	93	57	0,94
11.400.0590	5.9	5.9	93	57	0,94
11.400.0600	6	6	93	57	0,86
11.400.0610	6.1	6.1	101	63	1,05
11.400.0620	6.2	6.2	101	63	1,05
11.400.0630	6.3	6.3	101	63	1,05
11.400.0640	6.4	6.4	101	63	1,05
11.400.0650	6.5	6.5	101	63	1,00
11.400.0660	6.6	6.6	101	63	1,28
11.400.0670	6.7	6.7	101	63	1,28
11.400.0680	6.8	6.8	109	69	1,28
11.400.0690	6.9	6.9	109	69	1,28
11.400.0700	7	7	109	69	1,24
11.400.0710	7.1	7.1	109	69	1,49
11.400.0720	7.2	7.2	109	69	1,49
11.400.0730	7.3	7.3	109	69	1,49
11.400.0740	7.4	7.4	109	69	1,49
11.400.0750	7.5	7.5	109	69	1,46
11.400.0760	7.6	7.6	117	75	1,78
11.400.0770	7.7	7.7	117	75	1,78
11.400.0780	7.8	7.8	117	75	1,78
11.400.0790	7.9	7.9	117	75	1,78
11.400.0800	8	8	117	75	1,71
11.400.0810	8.1	8.1	117	75	2,03
11.400.0820	8.2	8.2	117	75	2,03
11.400.0830	8.3	8.3	117	75	2,03
11.400.0840	8.4	8.4	117	75	2,03
11.400.0850	8.5	8.5	117	75	1,90
11.400.0860	8.6	8.6	125	81	2,40
11.400.0870	8.7	8.7	125	81	2,40
11.400.0880	8.8	8.8	125	81	2,40
11.400.0890	8.9	8.9	125	81	2,40
11.400.0900	9	9	125	81	2,27
11.400.0910	9.1	9.1	125	81	2,56
11.400.0920	9.2	9.2	125	81	2,56
11.400.0930	9.3	9.3	125	81	2,56
11.400.0940	9.4	9.4	125	81	2,56
11.400.0950	9.5	9.5	125	81	2,54
11.400.0960	9.6	9.6	133	87	2,87
11.400.0970	9.7	9.7	133	87	2,87
11.400.0980	9.8	9.8	133	87	2,87
11.400.0990	9.9	9.9	133	87	2,87

Ref.	d1	d2	l1	l2	€
11.400.1000	10	10	133	87	2,81
11.400.1010	10.1	10.1	133	87	3,07
11.400.1020	10.2	10.2	133	87	3,07
11.400.1030	10.3	10.3	133	87	3,07
11.400.1040	10.4	10.4	133	87	3,07
11.400.1050	10.5	10.5	133	87	3,07
11.400.1060	10.6	10.6	133	87	3,60
11.400.1070	10.7	10.7	142	94	3,60
11.400.1080	10.8	10.8	142	94	3,60
11.400.1090	10.9	10.9	142	94	3,60
11.400.1100	11	11	142	94	3,60
11.400.1110	11.1	11.1	142	94	3,85
11.400.1120	11.2	11.2	142	94	3,85
11.400.1130	11.3	11.3	142	94	3,85
11.400.1140	11.4	11.4	142	94	3,85
11.400.1150	11.5	11.5	142	94	3,79
11.400.1160	11.6	11.6	142	94	4,47
11.400.1170	11.7	11.7	142	94	4,47
11.400.1180	11.8	11.8	142	94	4,47
11.400.1190	11.9	11.9	151	101	4,47
11.400.1200	12	12	151	101	4,41
11.400.1210	12.1	12.1	151	101	4,72
11.400.1220	12.2	12.2	151	101	4,72
11.400.1230	12.3	12.3	151	101	4,72
11.400.1240	12.4	12.4	151	101	4,72
11.400.1250	12.5	12.5	151	101	4,83
11.400.1260	12.6	12.6	151	101	5,14
11.400.1270	12.7	12.7	151	101	5,14
11.400.1280	12.8	12.8	151	101	5,14
11.400.1290	12.9	12.9	151	101	5,14
11.400.1300	13	13	151	101	5,06
11.400.1350	13.5	13.5	160	108	6,80
11.400.1400	14	14	160	108	7,04
11.400.1450	14.5	14.5	169	114	8,26
11.400.1500	15	15	169	114	8,57
11.400.1550	15.5	15.5	178	120	9,86
11.400.1600	16	16	178	120	10,20
11.400.1650	16.5	16.5	184	125	11,75
11.400.1700	17	17	184	125	11,75
11.400.1750	17.5	17.5	191	130	13,46
11.400.1800	18	18	191	130	13,94
11.400.1850	18.5	18.5	198	135	15,05
11.400.1900	19	19	198	135	15,05
11.400.1950	19.5	19.5	205	140	17,60
11.400.2000	20	20	205	140	17,60

> 11.413 INTERNATIONAL TOOLS

NL ECO HSS Spiraalboor gewalst, schacht 13 mm
FR Foret HSS ECO laminé, queue 13 mm
ES Broca HSS ECO laminada, mango 13 mm
DE ECO HSS Spiralbohrer Gewalzt, Schaft 13 mm
EN ECO HSS Twist drill roll-forged, shank 13 mm



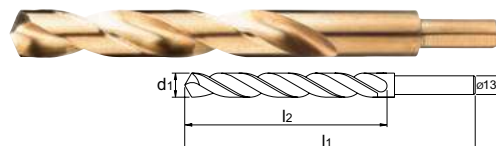
Ref.	d1	l1	l2	€
11.413.1350	13.5	160	108	12,46
11.413.1400	14	160	108	12,46
11.413.1450	14.5	169	114	14,64
11.413.1500	15	169	114	14,13
11.413.1550	15.5	178	120	15,76
11.413.1600	16	178	120	16,33
11.413.1650	16.5	184	125	19,53
11.413.1700	17	184	125	19,53

Ref.	d1	l1	l2	€
11.413.1750	17.5	191	130	21,72
11.413.1800	18	191	130	21,72
11.413.1850	18.5	198	135	25,45
11.413.1900	19	198	135	22,15
11.413.1950	19.5	205	140	28,10
11.413.2000	20	205	140	28,10
11.413.2100	21	208	145	38,50
11.413.2200	22	208	150	40,50

Ref.	d1	l1	l2	€
11.413.2300	23	213	155	41,10
11.413.2400	24	222	160	52,00
11.413.2500	25	222	160	62,00
11.413.2600	26	227	165	66,20
11.413.2700	27	232	170	67,20
11.413.2800	28	232	170	68,75
11.413.2900	29	237	175	74,25
11.413.3000	30	237	175	81,30

> 11.415 INTERNATIONAL TOOLS

NL ECO PRO HSS-E Spiraalboor met drievlaks schacht 13 mm
FR Foret HSS-E ECO PRO à 3 méplats 13 mm
ES Broca HSS-E ECO PRO con 3 chaflanes 13 mm
DE ECO PRO HSS-E Spiralbohrer mit drei platten Flächen 13 mm
EN ECO PRO HSS-E Twist drill with 3 flat surfaces 13 mm



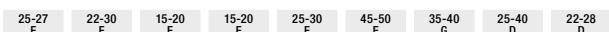
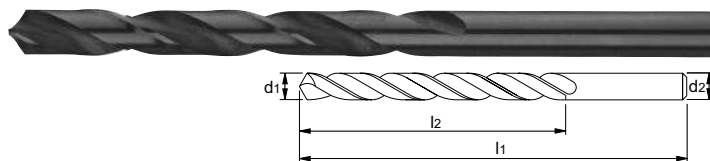
Ref.	d1	l1	l2	€
11.415.1350	13.5	160	108	25,75
11.415.1400	14	160	108	28,30
11.415.1450	14.5	169	114	31,35
11.415.1500	15	169	114	33,50
11.415.1550	15.5	178	120	35,60
11.415.1600	16	178	120	38,70
11.415.1650	16.5	184	125	42,70

Ref.	d1	l1	l2	€
11.415.1700	17	184	125	45,15
11.415.1750	17.5	191	130	49,15
11.415.1800	18	191	130	53,25
11.415.1850	18.5	198	135	56,85
11.415.1900	19	198	135	60,15
11.415.1950	19.5	205	140	64,20
11.415.2000	20	205	140	66,60

Ref.	d1	l1	l2	€
11.415.2100	21	208	145	72,90
11.415.2200	22	208	150	77,40
11.415.2300	23	213	155	84,05
11.415.2400	24	222	160	99,85
11.415.2500	25	222	160	110,75

> 11.416 INTERNATIONAL TOOLS

NL ECO HSS Spiraalboor
FR Foret HSS ECO
ES Broca HSS ECO
DE ECO HSS Spiralbohrer
EN ECO HSS Twist drill



Ref.	d1	d2	l1	l2	€
11.416.0100	1	1	34	12	0,24
11.416.0110	1.1	1.1	36	14	0,25
11.416.0120	1.2	1.2	38	16	0,25
11.416.0130	1.3	1.3	38	16	0,25
11.416.0140	1.4	1.4	40	18	0,25
11.416.0150	1.5	1.5	40	18	0,25
11.416.0160	1.6	1.6	43	20	0,30
11.416.0170	1.7	1.7	43	20	0,30
11.416.0180	1.8	1.8	46	22	0,30
11.416.0190	1.9	1.9	46	22	0,30
11.416.0200	2	2	49	24	0,31
11.416.0210	2.1	2.1	49	24	0,39
11.416.0220	2.2	2.2	53	27	0,39
11.416.0230	2.3	2.3	53	27	0,39

Ref.	d1	d2	l1	l2	€
11.416.0240	2.4	2.4	57	30	0,39
11.416.0250	2.5	2.5	57	30	0,35
11.416.0260	2.6	2.6	57	30	0,55
11.416.0270	2.7	2.7	61	33	0,55
11.416.0280	2.8	2.8	61	33	0,55
11.416.0290	2.9	2.9	61	33	0,55
11.416.0300	3	3	61	33	0,53
11.416.0310	3.1	3.1	65	36	0,65
11.416.0320	3.2	3.2	65	36	0,65
11.416.0330	3.3	3.3	65	36	0,65
11.416.0340	3.4	3.4	70	39	0,65
11.416.0350	3.5	3.5	70	39	0,65
11.416.0360	3.6	3.6	70	39	0,72
11.416.0370	3.7	3.7	70	39	0,72

Ref.	d1	d2	l1	l2	€
11.416.0380	3.8	3.8	75	43	0,72
11.416.0390	3.9	3.9	75	43	0,72
11.416.0400	4	4	75	43	0,72
11.416.0410	4.1	4.1	75	43	0,77
11.416.0420	4.2	4.2	75	43	0,77
11.416.0430	4.3	4.3	80	47	0,81
11.416.0440	4.4	4.4	80	47	0,81
11.416.0450	4.5	4.5	80	47	0,81
11.416.0460	4.6	4.6	80	47	0,90
11.416.0470	4.7	4.7	80	47	0,90
11.416.0480	4.8	4.8	86	52	0,90
11.416.0490	4.9	4.9	86	52	0,90
11.416.0500	5	5	86	52	0,90
11.416.0510	5.1	5.1	86	52	1,04

> 11.416 INTERNATIONAL TOOLS

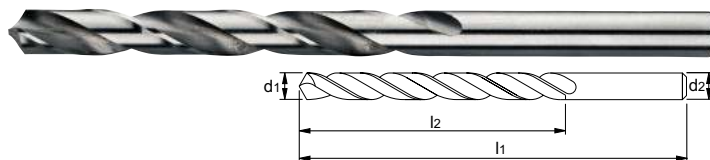
Ref.	d1	d2	l1	l2	€
11.416.0520	5.2	5.2	86	52	1,04
11.416.0530	5.3	5.3	86	52	1,04
11.416.0540	5.4	5.4	93	57	1,04
11.416.0550	5.5	5.5	93	57	1,04
11.416.0560	5.6	5.6	93	57	1,13
11.416.0570	5.7	5.7	93	57	1,13
11.416.0580	5.8	5.8	93	57	1,13
11.416.0590	5.9	5.9	93	57	1,13
11.416.0600	6	6	93	57	1,13
11.416.0610	6.1	6.1	101	63	1,30
11.416.0620	6.2	6.2	101	63	1,30
11.416.0630	6.3	6.3	101	63	1,30
11.416.0640	6.4	6.4	101	63	1,31
11.416.0650	6.5	6.5	101	63	1,31
11.416.0660	6.6	6.6	101	63	2,16
11.416.0670	6.7	6.7	101	63	1,53
11.416.0680	6.8	6.8	109	69	1,53
11.416.0690	6.9	6.9	109	69	2,16
11.416.0700	7	7	109	69	1,53
11.416.0710	7.1	7.1	109	69	1,80
11.416.0720	7.2	7.2	109	69	1,80
11.416.0730	7.3	7.3	109	69	1,80
11.416.0740	7.4	7.4	109	69	2,61
11.416.0750	7.5	7.5	109	69	1,80
11.416.0760	7.6	7.6	117	75	3,15
11.416.0770	7.7	7.7	117	75	3,15
11.416.0780	7.8	7.8	117	75	2,03

Ref.	d1	d2	l1	l2	€
11.416.0790	7.9	7.9	117	75	2,03
11.416.0800	8	8	117	75	2,03
11.416.0810	8.1	8.1	117	75	3,42
11.416.0820	8.2	8.2	117	75	2,25
11.416.0830	8.3	8.3	117	75	2,25
11.416.0840	8.4	8.4	117	75	2,25
11.416.0850	8.5	8.5	117	75	2,25
11.416.0860	8.6	8.6	125	81	3,96
11.416.0870	8.7	8.7	125	81	2,70
11.416.0880	8.8	8.8	125	81	3,96
11.416.0890	8.9	8.9	125	81	2,70
11.416.0900	9	9	125	81	2,70
11.416.0910	9.1	9.1	125	81	4,41
11.416.0920	9.2	9.2	125	81	4,41
11.416.0930	9.3	9.3	125	81	4,41
11.416.0940	9.4	9.4	125	81	4,41
11.416.0950	9.5	9.5	125	81	2,88
11.416.0960	9.6	9.6	133	87	5,04
11.416.0970	9.7	9.7	133	87	5,04
11.416.0980	9.8	9.8	133	87	5,04
11.416.0990	9.9	9.9	133	87	5,04
11.416.1000	10	10	133	87	3,15
11.416.1010	10.1	10.1	133	87	5,40
11.416.1020	10.2	10.2	133	87	3,60
11.416.1030	10.3	10.3	133	87	5,40
11.416.1040	10.4	10.4	133	87	5,40
11.416.1050	10.5	10.5	133	87	3,60

Ref.	d1	d2	l1	l2	€
11.416.1060	10.6	10.6	133	87	7,20
11.416.1070	10.7	10.7	142	94	7,20
11.416.1080	10.8	10.8	142	94	7,20
11.416.1090	10.9	10.9	142	94	7,20
11.416.1100	11	11	142	94	4,05
11.416.1110	11.1	11.1	142	94	7,20
11.416.1120	11.2	11.2	142	94	7,20
11.416.1130	11.3	11.3	142	94	7,20
11.416.1140	11.4	11.4	142	94	7,20
11.416.1150	11.5	11.5	142	94	4,23
11.416.1160	11.6	11.6	142	94	7,92
11.416.1170	11.7	11.7	142	94	7,92
11.416.1180	11.8	11.8	142	94	7,92
11.416.1190	11.9	11.9	151	101	7,92
11.416.1200	12	12	151	101	4,77
11.416.1210	12.1	12.1	151	101	8,55
11.416.1220	12.2	12.2	151	101	8,55
11.416.1230	12.3	12.3	151	101	8,55
11.416.1240	12.4	12.4	151	101	8,55
11.416.1250	12.5	12.5	151	101	5,22
11.416.1260	12.6	12.6	151	101	8,91
11.416.1270	12.7	12.7	151	101	8,91
11.416.1280	12.8	12.8	151	101	8,91
11.416.1290	12.9	12.9	151	101	8,91
11.416.1300	13	13	151	101	5,40

> 11.420 INTERNATIONAL TOOLS

NL ECO PRO HSS Spiraalboor
FR Foret HSS ECO PRO
ES Broca HSS ECO PRO
DE ECO PRO HSS Spiralbohrer
EN ECO PRO HSS Twist drill



HSS	DIN 338	N	118°	ECO PRO
P 11 ≤500 N/mm ²	P 12 ≤550 N/mm ²	P 13 ≤1000 N/mm ²	K 31 GG	K 32 GGG GTS-GTW
25-27 F	22-30 F	15-20 E	15-20 E	25-30 E
				45-50 E
				35-40 G
				25-40 D
				22-28 D

Ref.	d1	d2	l1	l2	€
11.420.0100	1	1	34	12	0,38
11.420.0110	1.1	1.1	36	14	0,38
11.420.0120	1.2	1.2	38	16	0,38
11.420.0130	1.3	1.3	38	16	0,38
11.420.0140	1.4	1.4	40	18	0,38
11.420.0150	1.5	1.5	40	18	0,38
11.420.0160	1.6	1.6	43	20	0,42
11.420.0170	1.7	1.7	43	20	0,42
11.420.0180	1.8	1.8	46	22	0,42
11.420.0190	1.9	1.9	46	22	0,42
11.420.0200	2	2	49	24	0,45
11.420.0210	2.1	2.1	49	24	0,52
11.420.0220	2.2	2.2	53	27	0,52
11.420.0230	2.3	2.3	53	27	0,52
11.420.0240	2.4	2.4	57	30	0,52
11.420.0250	2.5	2.5	57	30	0,52
11.420.0260	2.6	2.6	57	30	0,72
11.420.0270	2.7	2.7	61	33	0,72
11.420.0280	2.8	2.8	61	33	0,72
11.420.0290	2.9	2.9	61	33	0,72
11.420.0300	3	3	61	33	0,72
11.420.0310	3.1	3.1	65	36	0,80
11.420.0320	3.2	3.2	65	36	0,80
11.420.0330	3.3	3.3	65	36	0,80
11.420.0340	3.4	3.4	70	39	0,80
11.420.0350	3.5	3.5	70	39	0,80
11.420.0360	3.6	3.6	70	39	0,90
11.420.0370	3.7	3.7	70	39	0,90
11.420.0380	3.8	3.8	75	43	0,90
11.420.0390	3.9	3.9	75	43	0,90
11.420.0400	4	4	75	43	0,90
11.420.0410	4.1	4.1	75	43	1,02
11.420.0420	4.2	4.2	75	43	1,02
11.420.0430	4.3	4.3	80	47	1,15
11.420.0440	4.4	4.4	80	47	1,15
11.420.0450	4.5	4.5	80	47	1,15
11.420.0460	4.6	4.6	80	47	1,28

Ref.	d1	d2	l1	l2	€
11.420.0470	4.7	4.7	80	47	1,28
11.420.0480	4.8	4.8	86	52	1,28
11.420.0490	4.9	4.9	86	52	1,28
11.420.0500	5	5	86	52	1,28
11.420.0510	5.1	5.1	86	52	1,72
11.420.0520	5.2	5.2	86	52	1,72
11.420.0530	5.3	5.3	86	52	1,72
11.420.0540	5.4	5.4	93	57	1,72
11.420.0550	5.5	5.5	93	57	1,72
11.420.0560	5.6	5.6	93	57	1,98
11.420.0570	5.7	5.7	93	57	1,98
11.420.0580	5.8	5.8	93	57	1,98
11.420.0590	5.9	5.9	93	57	1,98
11.420.0600	6	6	93	57	1,98
11.420.0610	6.1	6.1	101	63	2,40
11.420.0620	6.2	6.2	101	63	2,40
11.420.0630	6.3	6.3	101	63	2,40
11.420.0640	6.4	6.4	101	63	2,42
11.420.0650	6.5	6.5	101	63	2,42
11.420.0660	6.6	6.6	101	63	2,85
11.420.0670	6.7	6.7	101	63	2,85
11.420.0680	6.8	6.8	109	69	2,85
11.420.0690	6.9	6.9	109	69	2,85
11.420.0700	7	7	109	69	2,85
11.420.0710	7.1	7.1	109	69	3,20
11.420.0720	7.2	7.2	109	69	3,20
11.420.0730	7.3	7.3	109	69	3,20
11.420.0740	7.4	7.4	109	69	3,20
11.420.0750	7.5	7.5	109	69	3,20
11.420.0760	7.6	7.6	117	75	3,80
11.420.0770	7.7	7.7	117	75	3,80
11.420.0780	7.8	7.8	117	75	3,80
11.420.0790	7.9	7.9	117	75	3,80
11.420.0800	8	8	117	75	3,80
11.420.0810	8.1	8.1	117	75	4,15
11.420.0820	8.2	8.2	117	75	4,15
11.420.0830	8.3	8.3	117	75	4,15

Ref.	d1	d2	l1	l2	€
11.420.0840	8.4	8.4	117	75	4,15
11.420.0850	8.5	8.5	117	75	4,15
11.420.0860	8.6	8.6	125	81	4,90
11.420.0870	8.7	8.7	125	81	4,90
11.420.0880	8.8	8.8	125	81	4,90
11.420.0890	8.9	8.9	125	81	4,90
11.420.0900	9	9	125	81	4,90
11.420.0910	9.1	9.1	125	81	5,40
11.420.0920	9.2	9.2	125	81	5,40
11.420.0930	9.3	9.3	125	81	5,40
11.420.0940	9.4	9.4	125	81	5,40
11.420.0950	9.5	9.5	125	81	5,40
11.420.0960	9.6	9.6	133	87	6,15
11.420.0970	9.7	9.7	133	87	6,15
11.420.0980	9.8	9.8	133	87	6,15
11.420.0990	9.9	9.9	133	87	6,15
11.420.1000	10	10	133	87	6,15
11.420.1010	10.1	10.1	133	87	6,65
11.420.1020	10.2	10.2	133	87	6,65
11.420.1030	10.3	10.3	133	87	6,65
11.420.1040	10.4	10.4	133	87	6,65
11.420.1050	10.5	10.5	133	87	6,65
11.420.1060	10.6	10.6	133	87	7,92
11.420.1070	10.7	10.7	142	94	7,92
11.420.1080	10.8	10.8	142	94	7,92
11.420.1090	10.9	10.9	142	94	7,92
11.420.1100	11	11	142	94	7,92
11.420.1110	11.1	11.1	142	94	8,40
11.420.1120	11.2	11.2	142	94	8,50
11.420.1130	11.3	11.3	142	94	8,50

> 11.420 INTERNATIONAL TOOLS

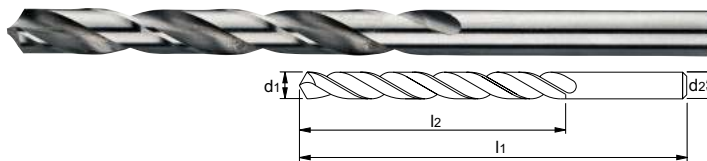
Ref.	d1	d2	I1	I2	€
11.420.1210	12.1	12.1	151	101	10,30
11.420.1220	12.2	12.2	151	101	10,30
11.420.1230	12.3	12.3	151	101	10,30
11.420.1240	12.4	12.4	151	101	10,30

Ref.	d1	d2	I1	I2	€
11.420.1250	12.5	12.5	151	101	10,30
11.420.1260	12.6	12.6	151	101	11,20
11.420.1270	12.7	12.7	151	101	11,20
11.420.1280	12.8	12.8	151	101	11,20

Ref.	d1	d2	I1	I2	€
11.420.1290	12.9	12.9	151	101	11,20
11.420.1300	13	13	151	101	11,20

> 11.423 INTERNATIONAL TOOLS

NL ECO HSS Spiraalboor Kruisaanslijping, blank
 FR Foret HSS ECO Affûtage en croix, finition polie
 ES Broca HSS ECO Afilado en cruz, blanca
 DE ECO HSS Spiralbohrer Kreuzanschliff, blank
 EN ECO HSS Twist drill Split point, bright finish



P 11 ≤500 N/mm²	P 12 ≤550 N/mm²	P 13 ≤1000 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
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25-27 F	22-30 F	15-20 E	15-20 E	25-30 E	35-40 G	25-40 D	22-28 D
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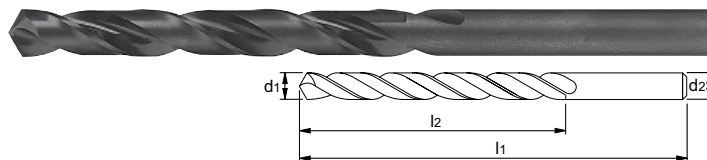
Ref.	d1	d2	I1	I2	€
11.423.0100	1	1	34	12	0,28
11.423.0150	1.5	1.5	40	18	0,28
11.423.0200	2	2	49	24	0,35
11.423.0250	2.5	2.5	57	30	0,42
11.423.0300	3	3	61	33	0,62
11.423.0310	3.1	3.1	65	36	0,72
11.423.0320	3.2	3.2	65	36	0,72
11.423.0330	3.3	3.3	65	36	0,72
11.423.0350	3.5	3.5	70	39	0,72
11.423.0380	3.8	3.8	75	43	0,80
11.423.0400	4	4	75	43	0,80
11.423.0410	4.1	4.1	75	43	0,85
11.423.0420	4.2	4.2	75	43	0,85
11.423.0450	4.5	4.5	80	47	0,90

Ref.	d1	d2	I1	I2	€
11.423.0480	4.8	4.8	86	52	1,00
11.423.0490	4.9	4.9	86	52	1,00
11.423.0500	5	5	86	52	1,00
11.423.0510	5.1	5.1	86	52	1,15
11.423.0520	5.2	5.2	86	52	1,15
11.423.0550	5.5	5.5	93	57	1,15
11.423.0570	5.7	5.7	93	57	1,25
11.423.0580	5.8	5.8	93	57	1,25
11.423.0600	6	6	93	57	1,25
11.423.0620	6.2	6.2	101	63	1,44
11.423.0650	6.5	6.5	101	63	1,45
11.423.0680	6.8	6.8	109	69	1,70
11.423.0700	7	7	109	69	1,70
11.423.0750	7.5	7.5	109	69	2,00

Ref.	d1	d2	I1	I2	€
11.423.0800	8	8	117	75	2,25
11.423.0850	8.5	8.5	117	75	2,50
11.423.0900	9	9	125	81	3,00
11.423.0950	9.5	9.5	125	81	3,20
11.423.1000	10	10	133	87	3,50
11.423.1020	10.2	10.2	133	87	4,00
11.423.1050	10.5	10.5	133	87	4,00
11.423.1100	11	11	142	94	4,50
11.423.1150	11.5	11.5	142	94	4,70
11.423.1200	12	12	151	101	5,30
11.423.1250	12.5	12.5	151	101	5,80
11.423.1300	13	13	151	101	6,00

> 11.426 INTERNATIONAL TOOLS

NL ECO HSS Spiraalboor Kruisaanslijping
 FR Foret HSS ECO Affûtage en croix
 ES Broca HSS ECO Afilado en cruz
 DE ECO HSS Spiralbohrer Kreuzanschliff
 EN ECO HSS Twist drill Split point



P 11 ≤500 N/mm²	P 12 ≤550 N/mm²	P 13 ≤1000 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
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25-27 F	22-30 F	15-20 E	15-20 E	25-30 E	35-40 G	25-40 D	22-28 D
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Ref.	d1	d2	I1	I2	€
11.426.0100	1	1	34	12	0,28
11.426.0110	1.1	1.1	36	14	0,28
11.426.0120	1.2	1.2	38	16	0,28
11.426.0130	1.3	1.3	38	16	0,28
11.426.0140	1.4	1.4	40	18	0,28
11.426.0150	1.5	1.5	40	18	0,28
11.426.0160	1.6	1.6	43	20	0,32
11.426.0170	1.7	1.7	43	20	0,32
11.426.0180	1.8	1.8	46	22	0,32
11.426.0190	1.9	1.9	46	22	0,32
11.426.0200	2	2	49	24	0,35
11.426.0210	2.1	2.1	49	24	0,42
11.426.0220	2.2	2.2	53	27	0,42
11.426.0230	2.3	2.3	53	27	0,42
11.426.0240	2.4	2.4	57	30	0,42
11.426.0250	2.5	2.5	57	30	0,42
11.426.0260	2.6	2.6	57	30	0,62
11.426.0270	2.7	2.7	61	33	0,62
11.426.0280	2.8	2.8	61	33	0,62
11.426.0290	2.9	2.9	61	33	0,62
11.426.0300	3	3	61	33	0,62
11.426.0310	3.1	3.1	65	36	0,72
11.426.0320	3.2	3.2	65	36	0,72
11.426.0330	3.3	3.3	65	36	0,72
11.426.0340	3.4	3.4	70	39	0,72

Ref.	d1	d2	I1	I2	€
11.426.0350	3.5	3.5	70	39	0,72
11.426.0360	3.6	3.6	70	39	0,80
11.426.0370	3.7	3.7	70	39	0,80
11.426.0380	3.8	3.8	75	43	0,80
11.426.0390	3.9	3.9	75	43	0,80
11.426.0400	4	4	75	43	0,80
11.426.0410	4.1	4.1	75	43	0,85
11.426.0420	4.2	4.2	75	43	0,85
11.426.0430	4.3	4.3	80	47	0,90
11.426.0440	4.4	4.4	80	47	0,90
11.426.0450	4.5	4.5	80	47	0,90
11.426.0460	4.6	4.6	80	47	1,00
11.426.0470	4.7	4.7	80	47	1,00
11.426.0480	4.8	4.8	86	52	1,00
11.426.0490	4.9	4.9	86	52	1,00
11.426.0500	5	5	86	52	1,00
11.426.0510	5.1	5.1	86	52	1,15
11.426.0520	5.2	5.2	86	52	1,15
11.426.0530	5.3	5.3	86	52	1,15
11.426.0540	5.4	5.4	93	57	1,15
11.426.0550	5.5	5.5	93	57	1,15
11.426.0560	5.6	5.6	93	57	1,25
11.426.0570	5.7	5.7	93	57	1,25
11.426.0580	5.8	5.8	93	57	1,25
11.426.0590	5.9	5.9	93	57	1,25

Ref.	d1	d2	I1	I2	€
11.426.0600	6	6	93	57	1,25
11.426.0610	6.1	6.1	101	63	1,44
11.426.0620	6.2	6.2	101	63	1,44
11.426.0630	6.3	6.3	101	63	1,44
11.426.0640	6.4	6.4	101	63	1,45
11.426.0650	6.5	6.5	101	63	1,45
11.426.0660	6.6	6.6	101	63	2,40
11.426.0670	6.7	6.7	101	63	1,70
11.426.0680	6.8	6.8	109	69	1,70
11.426.0690	6.9	6.9	109	69	2,40
11.426.0700	7	7	109	69	1,70
11.426.0710	7.1	7.1	109	69	2,00
11.426.0720	7.2	7.2	109	69	2,00
11.426.0730	7.3	7.3	109	69	2,00
11.426.0740	7.4	7.4	109	69	2,90
11.426.0750	7.5	7.5	109	69	2,00
11.426.0760	7.6	7.6	117	75	3,50
11.426.0770	7.7	7.7	117	75	3,50
11.426.0780	7.8	7.8	117	75	2,25
11.426.0790	7.9	7.9	117	75	2,25
11.426.0800	8	8	117	75	2,25
11.426.0810	8.1	8.1	117	75	3,80
11.426.0820	8.2	8.2	117	75	2,50
11.426.0830	8.3	8.3	117	75	2,50
11.426.0840	8.4	8.4	117	75	2,50

> 11.426 INTERNATIONAL TOOLS

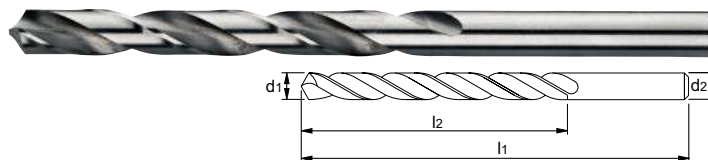
Ref.	d1	d2	l1	l2	€
11.426.0850	8.5	8.5	117	75	2,50
11.426.0860	8.6	8.6	125	81	4,40
11.426.0870	8.7	8.7	125	81	3,00
11.426.0880	8.8	8.8	125	81	4,40
11.426.0890	8.9	8.9	125	81	3,00
11.426.0900	9	9	125	81	3,00
11.426.0910	9.1	9.1	125	81	4,90
11.426.0920	9.2	9.2	125	81	4,90
11.426.0930	9.3	9.3	125	81	4,90
11.426.0940	9.4	9.4	125	81	4,90
11.426.0950	9.5	9.5	125	81	3,20

Ref.	d1	d2	l1	l2	€
11.426.0960	9.6	9.6	133	87	5,60
11.426.0970	9.7	9.7	133	87	5,60
11.426.0980	9.8	9.8	133	87	5,60
11.426.0990	9.9	9.9	133	87	5,60
11.426.1000	10	10	133	87	3,50
11.426.1010	10.1	10.1	133	87	6,00
11.426.1020	10.2	10.2	133	87	4,00
11.426.1040	10.4	10.4	133	87	6,00
11.426.1050	10.5	10.5	133	87	4,00
11.426.1060	10.6	10.6	133	87	8,00
11.426.1070	10.7	10.7	142	94	8,00

Ref.	d1	d2	l1	l2	€
11.426.1080	10.8	10.8	142	94	8,00
11.426.1090	10.9	10.9	142	94	8,00
11.426.1100	11	11	142	94	4,50
11.426.1120	11.2	11.2	142	94	8,00
11.426.1150	11.5	11.5	142	94	4,70
11.426.1180	11.8	11.8	142	94	8,80
11.426.1200	12	12	151	101	5,30
11.426.1220	12.2	12.2	151	101	9,50
11.426.1250	12.5	12.5	151	101	5,80
11.426.1280	12.8	12.8	151	101	9,90
11.426.1300	13	13	151	101	9,90

> 11.430 INTERNATIONAL TOOLS

NL ECO PRO HSS Spiraalboor Kruisaanslijping
FR Foret HSS ECO PRO Affûtage en croix
ES Broca HSS ECO PRO Afilado en cruz
DE ECO PRO HSS Spiralbohrer Kreuzanschliff
EN ECO PRO HSS Twist drill Split point



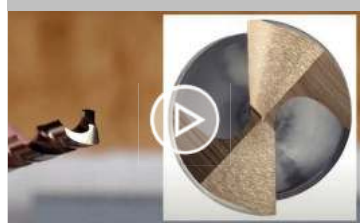
P 11 ≤500 N/mm²	P 12 ≤550 N/mm²	P 13 ≤1000 N/mm²	K 31 GG	K 32 GG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
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25-27 F	22-30 F	15-20 E	15-20 E	25-30 E	35-40 G	25-40 D	22-28 D
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Ref.	d1	d2	l1	l2	€
11.430.0100	1	1	34	12	0,44
11.430.0110	1.1	1.1	36	14	0,44
11.430.0120	1.2	1.2	38	16	0,44
11.430.0130	1.3	1.3	38	16	0,44
11.430.0140	1.4	1.4	40	18	0,44
11.430.0150	1.5	1.5	40	18	0,44
11.430.0160	1.6	1.6	43	20	0,50
11.430.0170	1.7	1.7	43	20	0,50
11.430.0180	1.8	1.8	46	22	0,50
11.430.0190	1.9	1.9	46	22	0,50
11.430.0200	2	2	49	24	0,55
11.430.0210	2.1	2.1	49	24	0,62
11.430.0220	2.2	2.2	53	27	0,62
11.430.0230	2.3	2.3	53	27	0,62
11.430.0240	2.4	2.4	57	30	0,62
11.430.0250	2.5	2.5	57	30	0,62
11.430.0260	2.6	2.6	57	30	0,85
11.430.0270	2.7	2.7	61	33	0,85
11.430.0280	2.8	2.8	61	33	0,85
11.430.0290	2.9	2.9	61	33	0,85
11.430.0300	3	3	61	33	0,85
11.430.0310	3.1	3.1	65	36	1,20
11.430.0320	3.2	3.2	65	36	1,20
11.430.0330	3.3	3.3	65	36	1,20
11.430.0340	3.4	3.4	70	39	1,20
11.430.0350	3.5	3.5	70	39	1,20
11.430.0360	3.6	3.6	70	39	1,36
11.430.0370	3.7	3.7	70	39	1,36
11.430.0380	3.8	3.8	75	43	1,36
11.430.0390	3.9	3.9	75	43	1,36
11.430.0400	4	4	75	43	1,36
11.430.0410	4.1	4.1	75	43	1,52
11.430.0420	4.2	4.2	75	43	1,52
11.430.0430	4.3	4.3	80	47	1,65
11.430.0440	4.4	4.4	80	47	1,65
11.430.0450	4.5	4.5	80	47	1,65
11.430.0460	4.6	4.6	80	47	1,78
11.430.0470	4.7	4.7	80	47	1,78
11.430.0480	4.8	4.8	86	52	1,78
11.430.0490	4.9	4.9	86	52	1,78
11.430.0500	5	5	86	52	1,78

Ref.	d1	d2	l1	l2	€
11.430.0510	5.1	5.1	86	52	2,22
11.430.0520	5.2	5.2	86	52	2,22
11.430.0530	5.3	5.3	86	52	2,22
11.430.0540	5.4	5.4	93	57	2,22
11.430.0550	5.5	5.5	93	57	2,22
11.430.0560	5.6	5.6	93	57	2,48
11.430.0570	5.7	5.7	93	57	2,48
11.430.0580	5.8	5.8	93	57	2,48
11.430.0590	5.9	5.9	93	57	2,48
11.430.0600	6	6	93	57	2,48
11.430.0610	6.1	6.1	101	63	2,90
11.430.0620	6.2	6.2	101	63	2,90
11.430.0630	6.3	6.3	101	63	2,90
11.430.0640	6.4	6.4	101	63	2,92
11.430.0650	6.5	6.5	101	63	2,92
11.430.0660	6.6	6.6	101	63	3,35
11.430.0670	6.7	6.7	101	63	3,35
11.430.0680	6.8	6.8	109	69	3,35
11.430.0690	6.9	6.9	109	69	3,35
11.430.0700	7	7	109	69	3,35
11.430.0710	7.1	7.1	109	69	3,70
11.430.0720	7.2	7.2	109	69	3,70
11.430.0730	7.3	7.3	109	69	3,70
11.430.0740	7.4	7.4	109	69	3,70
11.430.0750	7.5	7.5	109	69	3,60
11.430.0760	7.6	7.6	117	75	4,30
11.430.0770	7.7	7.7	117	75	4,30
11.430.0780	7.8	7.8	117	75	4,30
11.430.0790	7.9	7.9	117	75	4,30
11.430.0800	8	8	117	75	4,30
11.430.0810	8.1	8.1	117	75	4,65
11.430.0820	8.2	8.2	117	75	4,65
11.430.0830	8.3	8.3	117	75	4,65
11.430.0840	8.4	8.4	117	75	4,65
11.430.0850	8.5	8.5	117	75	4,65
11.430.0860	8.6	8.6	125	81	5,40
11.430.0870	8.7	8.7	125	81	5,40
11.430.0880	8.8	8.8	125	81	5,40
11.430.0890	8.9	8.9	125	81	5,40
11.430.0900	9	9	125	81	5,40
11.430.0910	9.1	9.1	125	81	5,90

Ref.	d1	d2	l1	l2	€
11.430.0920	9.2	9.2	125	81	5,90
11.430.0930	9.3	9.3	125	81	5,90
11.430.0940	9.4	9.4	125	81	5,90
11.430.0950	9.5	9.5	125	81	5,90
11.430.0960	9.6	9.6	133	87	6,65
11.430.0970	9.7	9.7	133	87	6,65
11.430.0980	9.8	9.8	133	87	6,65
11.430.0990	9.9	9.9	133	87	6,65
11.430.1000	10	10	133	87	6,65
11.430.1010	10.1	10.1	133	87	7,15
11.430.1020	10.2	10.2	133	87	7,15
11.430.1030	10.3	10.3	133	87	7,15
11.430.1040	10.4	10.4	133	87	7,15
11.430.1050	10.5	10.5	133	87	7,15
11.430.1060	10.6	10.6	133	87	8,42
11.430.1070	10.7	10.7	142	94	8,42
11.430.1080	10.8	10.8	142	94	8,42
11.430.1090	10.9	10.9	142	94	8,42
11.430.1100	11	11	142	94	8,42
11.430.1120	11.2	11.2	142	94	9,00
11.430.1150	11.5	11.5	142	94	9,00
11.430.1180	11.8	11.8	142	94	10,00
11.430.1200	12	12	151	101	10,25
11.430.1220	12.2	12.2	151	101	10,80
11.430.1250	12.5	12.5	151	101	10,80
11.430.1280	12.8	12.8	151	101	11,70
11.430.1300	13	13	151	101	11,70
11.430.1350	13.5	13.5	160	108	21,00
11.430.1400	14	14	160	108	23,00
11.430.1450	14.5	14.5	169	114	28,00
11.430.1500	15	15	169	114	30,00
11.430.1550	15.5	15.5	178	120	33,00
11.430.1600	16	16	178	120	35,00
11.430.1650	16.5	16.5	184	125	37,00
11.430.1700	17	17	184	125	39,00
11.430.1750	17.5	17.5	191	130	42,00
11.430.1800	18	18	191	130	47,00
11.430.1850	18.5	18.5	198	135	49,00
11.430.1900	19	19	198	135	51,00
11.430.1950	19.5	19.5	205	140	54,00
11.430.2000	20	20	205	140	56,00



NL Standaardpunt vs splitpoint
FR Affûtage standard versus un affûtage en croix
ES Afilado normal o Afilado en cruz
DE Kegelmantelanschliff gegen Kreuzanschliff
EN Traditional vs splitpoint drill bit

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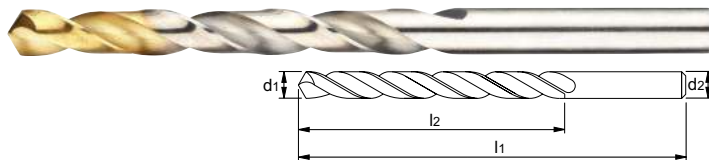


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> 11.431

INTERNATIONAL
TOOLS

NL ECO PRO HSS Spiraalboor TiN-tip
FR Foret HSS ECO PRO avec revêtement TiN sur la partie utile
ES Broca HSS ECO PRO con punta TiN
DE ECO PRO HSS Spiralbohrer TiN-Tip
EN ECO PRO HSS Twist drill TiN coated tip



HSS	TiN	DIN 338	N			118°	ECO PRO		
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
27-30	25-28	17-22	10-14	20-33	20-28	50-80	45-70	40-65	25-36

Ref.	d1	d2	l1	l2	€
11.431.0100	1	1	34	12	0,56
11.431.0110	1.1	1.1	36	14	0,60
11.431.0120	1.2	1.2	38	16	0,62
11.431.0130	1.3	1.3	38	16	0,64
11.431.0140	1.4	1.4	40	18	0,65
11.431.0150	1.5	1.5	40	18	0,67
11.431.0160	1.6	1.6	43	20	0,77
11.431.0170	1.7	1.7	43	20	0,79
11.431.0180	1.8	1.8	46	22	0,81
11.431.0190	1.9	1.9	46	22	0,82
11.431.0200	2	2	49	24	0,84
11.431.0210	2.1	2.1	49	24	0,96
11.431.0220	2.2	2.2	53	27	1,08
11.431.0230	2.3	2.3	53	27	1,13
11.431.0240	2.4	2.4	57	30	1,15
11.431.0250	2.5	2.5	57	30	1,17
11.431.0260	2.6	2.6	57	30	1,42
11.431.0270	2.7	2.7	61	33	1,44
11.431.0280	2.8	2.8	61	33	1,46
11.431.0290	2.9	2.9	61	33	1,48
11.431.0300	3	3	61	33	1,51
11.431.0310	3.1	3.1	65	36	1,82
11.431.0320	3.2	3.2	65	36	1,84
11.431.0330	3.3	3.3	65	36	1,86
11.431.0340	3.4	3.4	70	39	2,02
11.431.0350	3.5	3.5	70	39	1,90
11.431.0360	3.6	3.6	70	39	2,11
11.431.0370	3.7	3.7	70	39	2,13
11.431.0380	3.8	3.8	75	43	2,15
11.431.0390	3.9	3.9	75	43	2,31
11.431.0400	4	4	75	43	2,19
11.431.0410	4.1	4.1	75	43	2,34
11.431.0420	4.2	4.2	75	43	2,36
11.431.0430	4.3	4.3	80	47	2,43
11.431.0440	4.4	4.4	80	47	2,45
11.431.0450	4.5	4.5	80	47	2,47
11.431.0460	4.6	4.6	80	47	2,92

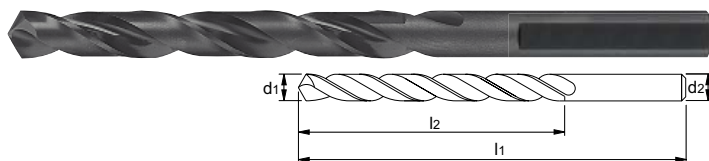
Ref.	d1	d2	l1	l2	€
11.431.0470	4.7	4.7	80	47	2,94
11.431.0480	4.8	4.8	86	52	2,83
11.431.0490	4.9	4.9	86	52	2,85
11.431.0500	5	5	86	52	2,87
11.431.0510	5.1	5.1	86	52	3,09
11.431.0520	5.2	5.2	86	52	3,11
11.431.0530	5.3	5.3	86	52	3,12
11.431.0540	5.4	5.4	93	57	3,36
11.431.0550	5.5	5.5	93	57	3,16
11.431.0560	5.6	5.6	93	57	3,43
11.431.0570	5.7	5.7	93	57	3,45
11.431.0580	5.8	5.8	93	57	3,47
11.431.0590	5.9	5.9	93	57	3,69
11.431.0600	6	6	93	57	3,50
11.431.0610	6.1	6.1	101	63	3,93
11.431.0620	6.2	6.2	101	63	4,15
11.431.0630	6.3	6.3	101	63	3,97
11.431.0640	6.4	6.4	101	63	4,15
11.431.0650	6.5	6.5	101	63	3,97
11.431.0660	6.6	6.6	101	63	4,38
11.431.0670	6.7	6.7	101	63	4,67
11.431.0680	6.8	6.8	109	69	4,41
11.431.0690	6.9	6.9	109	69	4,42
11.431.0700	7	7	109	69	4,44
11.431.0710	7.1	7.1	109	69	5,07
11.431.0720	7.2	7.2	109	69	4,82
11.431.0730	7.3	7.3	109	69	5,10
11.431.0740	7.4	7.4	109	69	5,12
11.431.0750	7.5	7.5	109	69	4,73
11.431.0760	7.6	7.6	117	75	5,47
11.431.0770	7.7	7.7	117	75	5,49
11.431.0780	7.8	7.8	117	75	5,85
11.431.0790	7.9	7.9	117	75	5,87
11.431.0800	8	8	117	75	5,53
11.431.0810	8.1	8.1	117	75	6,17
11.431.0820	8.2	8.2	117	75	5,93
11.431.0830	8.3	8.3	117	75	6,20

Ref.	d1	d2	l1	l2	€
11.431.0840	8.4	8.4	117	75	6,22
11.431.0850	8.5	8.5	117	75	5,98
11.431.0860	8.6	8.6	125	81	7,05
11.431.0870	8.7	8.7	125	81	7,07
11.431.0880	8.8	8.8	125	81	7,08
11.431.0890	8.9	8.9	125	81	7,10
11.431.0900	9	9	125	81	6,78
11.431.0910	9.1	9.1	125	81	7,69
11.431.0920	9.2	9.2	125	81	7,71
11.431.0930	9.3	9.3	125	81	7,72
11.431.0940	9.4	9.4	125	81	7,33
11.431.0950	9.5	9.5	125	81	7,35
11.431.0960	9.6	9.6	133	87	8,53
11.431.0970	9.7	9.7	133	87	8,55
11.431.0980	9.8	9.8	133	87	8,57
11.431.0990	9.9	9.9	133	87	8,58
11.431.1000	10	10	133	87	8,12
11.431.1010	10.1	10.1	133	87	9,05
11.431.1020	10.2	10.2	133	87	8,61
11.431.1030	10.3	10.3	133	87	9,08
11.431.1040	10.4	10.4	133	87	9,10
11.431.1050	10.5	10.5	133	87	8,66
11.431.1060	10.6	10.6	133	87	9,96
11.431.1070	10.7	10.7	142	94	10,50
11.431.1080	10.8	10.8	142	94	10,52
11.431.1090	10.9	10.9	142	94	10,53
11.431.1100	11	11	142	94	10,02
11.431.1120	11.2	11.2	142	94	10,66
11.431.1150	11.5	11.5	142	94	10,70
11.431.1180	11.8	11.8	142	94	13,40
11.431.1200	12	12	151	101	13,04
11.431.1220	12.2	12.2	151	101	14,10
11.431.1250	12.5	12.5	151	101	15,03
11.431.1280	12.8	12.8	151	101	16,56
11.431.1300	13	13	151	101	16,08

> 11.440

Phantom

NL HSS Spiraalboor met drievlaks schacht
FR Foret HSS à 3 méplats
ES Broca HSS con 3 chaflanes
DE HSS Spiralbohrer mit drei platten Flächen
EN HSS Twist drill with 3 flat surfaces



HSS	OX.	DIN 338	N					
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si >10%	N 51 Cu	N 61 PVC
25-27	22-30	15-20	8-12	15-20	25-30	45-50	25-40	22-28

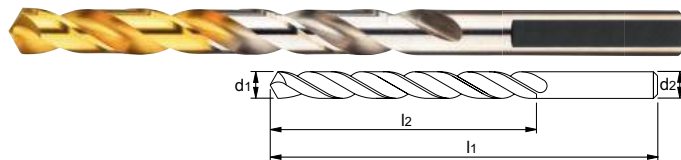
Ref.	d1	d2	l1	l2	€
11.440.0400	4	4	75	43	2,26
11.440.0420	4.2	4.2	75	43	2,66
11.440.0450	4.5	4.5	80	47	2,53
11.440.0500	5	5	86	52	2,92
11.440.0550	5.5	5.5	93	57	3,25
11.440.0600	6	6	93	57	3,61
11.440.0650	6.5	6.5	101	63	4,20
11.440.0680	6.8	6.8	109	69	5,54

Ref.	d1	d2	l1	l2	€
11.440.0700	7	7	109	69	4,76
11.440.0750	7.5	7.5	109	69	5,25
11.440.0800	8	8	117	75	6,36
11.440.0850	8.5	8.5	117	75	7,22
11.440.0900	9	9	125	81	8,33
11.440.0950	9.5	9.5	125	81	9,18
11.440.1000	10	10	133	87	10,07
11.440.1020	10.2	10.2	133	87	12,64

Ref.	d1	d2	l1	l2	€
11.440.1050	10.5	10.5	133	87	10,95
11.440.1100	11	11	142	94	11,21
11.440.1150	11.5	11.5	142	94	12,20
11.440.1200	12	12	151	101	14,58
11.440.1250	12.5	12.5	151	101	15,78
11.440.1300	13	13	151	101	16,30

> 11.441 Phantom

NL HSS Spiraalboor TiN-tip, met drievlaks schacht, (handgebruik)
 FR Foret HSS avec revêtement TiN sur la partie utile, à 3 méplats, (usage à la main)
 ES Broca HSS con punta TiN, con 3 chaflanes, (uso manual)
 DE HSS Spiralbohrer TiN-Tip, mit drei platten Flächen, (handgebrauch)
 EN HSS Twist drill TiN coated tip, with 3 flat surfaces, (handuse)



									
									
5600 N/mm ²	5850 N/mm ²	≤1000 N/mm ²	INOX ≤850N/mm ²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	PVC
27-30 F	25-28 F	17-22 E	10-14 D	20-33 E	20-28 E	50-80 E	45-70 G	40-65 D	25-36 D

Ref.	d1	d2	l1	l2	€
11.441.0400	4	4	75	43	2,80
11.441.0410	4.1	4.1	75	43	3,16
11.441.0420	4.2	4.2	75	43	3,16
11.441.0430	4.3	4.3	80	47	3,18
11.441.0450	4.5	4.5	80	47	3,16
11.441.0470	4.7	4.7	80	47	3,55
11.441.0480	4.8	4.8	86	52	3,55
11.441.0490	4.9	4.9	86	52	3,55
11.441.0500	5	5	86	52	3,78
11.441.0510	5.1	5.1	86	52	3,84
11.441.0520	5.2	5.2	86	52	3,84
11.441.0530	5.3	5.3	86	52	4,48

Ref.	d1	d2	l1	l2	€
11.441.0550	5.5	5.5	93	57	4,53
11.441.0570	5.7	5.7	93	57	4,59
11.441.0580	5.8	5.8	93	57	4,59
11.441.0600	6	6	93	57	5,24
11.441.0610	6.1	6.1	101	63	5,22
11.441.0620	6.2	6.2	101	63	5,22
11.441.0630	6.3	6.3	101	63	5,26
11.441.0650	6.5	6.5	101	63	5,35
11.441.0670	6.7	6.7	101	63	5,53
11.441.0680	6.8	6.8	109	69	5,87
11.441.0700	7	7	109	69	6,42
11.441.0750	7.5	7.5	109	69	6,81

Ref.	d1	d2	l1	l2	€
11.441.0800	8	8	117	75	8,14
11.441.0850	8.5	8.5	117	75	9,92
11.441.0900	9	9	125	81	10,83
11.441.0950	9.5	9.5	125	81	12,03
11.441.1000	10	10	133	87	12,59
11.441.1020	10.2	10.2	133	87	13,51
11.441.1050	10.5	10.5	133	87	13,66
11.441.1100	11	11	142	94	14,25
11.441.1150	11.5	11.5	142	94	17,30
11.441.1200	12	12	151	101	17,56
11.441.1250	12.5	12.5	151	101	20,73
11.441.1300	13	13	151	101	21,45



NL De boor bij uitstek voor handgebruik
 FR Le foret idéalement adapté pour l'utilisation manuelle
 ES La broca por excelencia para uso manual
 DE Der Spitzenbohrer für den Handgebrauch
 EN The drill of choice for manual use

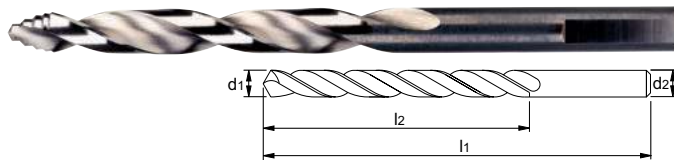
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> 11.443 Phantom

NL HSS Spiraalboor Step-point, met drievlaks schacht
 FR Foret à pointe étagée HSS Step-point, à 3 méplats
 ES Broca HSS Step-point, con 3 chaflanes
 DE HSS Spiralbohrer Step-point, mit drei platten Flächen
 EN HSS Stub Drill Step-point, with 3 flat surfaces



HSS	OX.	DIN 338	N	≥4	≥2.5		118°	
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27 F	22-30 F	15-20 E	8-12 D	15-20 E	25-30 E	45-50 G	25-40 D	22-28 D

Ref.	d1	d2	l1	l2	€
11.443.0100	1	1	34	12	2,81
11.443.0150	1.5	1.5	40	18	3,00
11.443.0200	2	2	49	24	3,22
11.443.0250	2.5	2.5	57	30	3,92
11.443.0300	3	3	61	33	4,42
11.443.0320	3.2	3.2	65	36	4,33
11.443.0330	3.3	3.3	65	36	4,42
11.443.0350	3.5	3.5	70	39	4,59
11.443.0400	4	4	75	43	4,91
11.443.0410	4.1	4.1	75	43	5,22
11.443.0420	4.2	4.2	75	43	5,22
11.443.0450	4.5	4.5	80	47	5,40

Ref.	d1	d2	l1	l2	€
11.443.0490	4.9	4.9	86	52	5,58
11.443.0500	5	5	86	52	6,47
11.443.0510	5.1	5.1	86	52	6,97
11.443.0520	5.2	5.2	86	52	7,27
11.443.0550	5.5	5.5	93	57	7,27
11.443.0600	6	6	93	57	8,26
11.443.0650	6.5	6.5	101	63	8,93
11.443.0680	6.8	6.8	109	69	9,42
11.443.0700	7	7	109	69	9,50
11.443.0750	7.5	7.5	109	69	10,71
11.443.0800	8	8	117	75	12,18
11.443.0850	8.5	8.5	117	75	12,60

Ref.	d1	d2	l1	l2	€
11.443.0900	9	9	125	81	14,16
11.443.0950	9.5	9.5	125	81	14,73
11.443.1000	10	10	133	87	17,36
11.443.1020	10.2	10.2	133	87	18,66
11.443.1050	10.5	10.5	133	87	19,07
11.443.1100	11	11	142	94	22,10
11.443.1150	11.5	11.5	142	94	22,77
11.443.1200	12	12	151	101	25,85
11.443.1250	12.5	12.5	151	101	29,35
11.443.1300	13	13	151	101	30,25



NL Step-point spiraalboor in actie
 FR Regardez le foret à pointe étagée Step-point en action
 ES Broca escalonada en acción
 DE Spiralbohrer mit Stufenspitze in Aktion
 EN Step-Point Stub Drill in Action

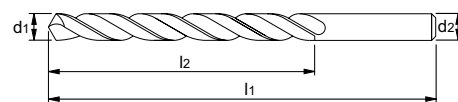
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> 11.445 Phantom

NL HSS-E Spiraalboor met drievlaks schacht
FR Foret HSS-E à 3 méplats
ES Broca HSS-E con 3 chaflanes
DE HSS-E Spiralbohrer mit drei platten Flächen
EN HSS-E Twist drill with 3 flat surfaces



P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 51	N 52
≤800 N/mm ²	≤850 N/mm ²	≤1000 N/mm ²	≤1400 N/mm ²	INOX ≤850N/mm ²	INOX >850N/mm ²	GG	GGG GTS-GTW	Cu	CuAlFe

28-35 E	30-36 E	20-27 E	12-20 D	14-18 D	10-15 C	30-35 F	24-30 F	30-40 E	8-15 C
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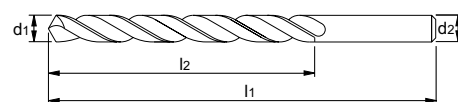
Ref.	d1	d2	l1	l2	€
11.445.0400	4	4	75	43	3,24
11.445.0420	4.2	4.2	75	43	4,23
11.445.0450	4.5	4.5	80	47	3,55
11.445.0500	5	5	86	52	4,01
11.445.0550	5.5	5.5	93	57	4,71
11.445.0600	6	6	93	57	5,33
11.445.0650	6.5	6.5	101	63	6,42
11.445.0680	6.8	6.8	109	69	9,11

Ref.	d1	d2	l1	l2	€
11.445.0700	7	7	109	69	7,40
11.445.0750	7.5	7.5	109	69	8,43
11.445.0800	8	8	117	75	9,28
11.445.0850	8.5	8.5	117	75	11,13
11.445.0900	9	9	125	81	12,14
11.445.0950	9.5	9.5	125	81	13,44
11.445.1000	10	10	133	87	15,63
11.445.1020	10.2	10.2	133	87	19,47

Ref.	d1	d2	l1	l2	€
11.445.1050	10.5	10.5	133	87	17,56
11.445.1100	11	11	142	94	18,65
11.445.1150	11.5	11.5	142	94	21,80
11.445.1200	12	12	151	101	21,90
11.445.1250	12.5	12.5	151	101	24,29
11.445.1300	13	13	151	101	24,15

> 11.446 Phantom

NL HSS-E Spiraalboor TiN-tip, met drievlaks schacht, (handgebruik)
FR Foret HSS-E avec revêtement TiN sur la partie utile, à 3 méplats, (usage à la main)
ES Broca HSS-E con punta TiN, con 3 chaflanes, (uso manual)
DE HSS-E Spiralbohrer TiN-Tip, mit drei platten Flächen, (handgebrauch)
EN HSS-E Twist drill TiN coated tip, with 3 flat surfaces, (handuse)



P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 51	N 52
≤800 N/mm ²	≤850 N/mm ²	≤1000 N/mm ²	≤1400 N/mm ²	INOX ≤850N/mm ²	INOX >850N/mm ²	GG	GGG GTS-GTW	Cu	CuAlFe

32-40 E	35-40 E	25-32 E	12-20 D	15-20 D	10-15 C	30-35 F	24-30 F	30-40 E	8-15 C
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Ref.	d1	d2	l1	l2	€
11.446.0400	4	4	75	43	3,59
11.446.0410	4.1	4.1	75	43	4,30
11.446.0420	4.2	4.2	75	43	3,87
11.446.0430	4.3	4.3	80	47	5,42
11.446.0450	4.5	4.5	80	47	3,87
11.446.0470	4.7	4.7	80	47	7,18
11.446.0480	4.8	4.8	86	52	5,65
11.446.0490	4.9	4.9	86	52	5,65
11.446.0500	5	5	86	52	4,37
11.446.0510	5.1	5.1	86	52	7,56
11.446.0520	5.2	5.2	86	52	7,56
11.446.0530	5.3	5.3	86	52	7,56

Ref.	d1	d2	l1	l2	€
11.446.0550	5.5	5.5	93	57	5,14
11.446.0570	5.7	5.7	93	57	7,77
11.446.0580	5.8	5.8	93	57	7,77
11.446.0600	6	6	93	57	5,95
11.446.0610	6.1	6.1	101	63	9,91
11.446.0620	6.2	6.2	101	63	9,91
11.446.0630	6.3	6.3	101	63	9,91
11.446.0650	6.5	6.5	101	63	7,10
11.446.0670	6.7	6.7	101	63	11,58
11.446.0680	6.8	6.8	109	69	8,13
11.446.0700	7	7	109	69	8,13
11.446.0750	7.5	7.5	109	69	9,29

Ref.	d1	d2	l1	l2	€
11.446.0800	8	8	117	75	10,15
11.446.0850	8.5	8.5	117	75	12,23
11.446.0900	9	9	125	81	13,34
11.446.0950	9.5	9.5	125	81	14,81
11.446.1000	10	10	133	87	17,07
11.446.1020	10.2	10.2	133	87	19,01
11.446.1050	10.5	10.5	133	87	19,01
11.446.1100	11	11	142	94	19,63
11.446.1150	11.5	11.5	142	94	23,02
11.446.1200	12	12	151	101	23,63
11.446.1250	12.5	12.5	151	101	26,10
11.446.1300	13	13	151	101	26,75



NL Effect toerental boor op RVS
FR Effet de la vitesse de rotation d'un foret sur le perçage d'inox
ES Efecto de las revoluciones de la broca en inox
DE Effekt Drehzahl Spiralbohrer auf Rostfreien Stahl
EN Effect off revolutions drillbit on stainless steel

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> 11.447 Phantom

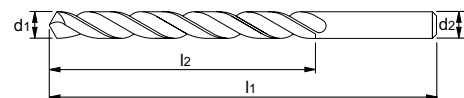
NL HSS-E Spiraalboor Step-point, met drievlaks schacht

FR Foret HSS-E Step-point, à 3 méplats

ES Broca HSS-E Step-point, con 3 chaflanes

DE HSS-E Spiralbohrer Step-point, mit drei platten Flächen

EN HSS-E Twist drill Step-point, with 3 flat surfaces



HSS-E	OX.	DIN 338	>N	 ≥4	 ≥2.5	 118°			
P 11 ≤600 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	P 14 ≤1400 N/mm ²	M 21 INOX ≤850 N/mm ²	M 22 INOX >850 N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 51 Cu	N 52 CuAlFe
28-35	30-36	20-27	12-20	14-18	10-15	30-35	24-30	30-40	8-15

NIEUW NOUVEAU NUEVO NEU

Ref.	d1	d2	l1	l2	€
11.447.0100	1	1	34	12	3,36
11.447.0150	1.5	1.5	40	18	3,57
11.447.0200	2	2	49	24	3,86
11.447.0250	2.5	2.5	57	30	4,71
11.447.0300	3	3	61	33	5,30
11.447.0320	3.2	3.2	65	36	5,20
11.447.0330	3.3	3.3	65	36	5,30
11.447.0350	3.5	3.5	70	39	5,52
11.447.0400	4	4	75	43	5,90
11.447.0410	4.1	4.1	75	43	6,27
11.447.0420	4.2	4.2	75	43	6,27
11.447.0450	4.5	4.5	80	47	6,48

Ref.	d1	d2	l1	l2	€
11.447.0490	4.9	4.9	86	52	6,69
11.447.0500	5	5	86	52	7,76
11.447.0510	5.1	5.1	86	52	8,36
11.447.0520	5.2	5.2	86	52	8,73
11.447.0550	5.5	5.5	93	57	8,73
11.447.0600	6	6	93	57	9,90
11.447.0650	6.5	6.5	101	63	10,71
11.447.0680	6.8	6.8	109	69	11,31
11.447.0700	7	7	109	69	11,40
11.447.0750	7.5	7.5	109	69	12,85
11.447.0800	8	8	117	75	14,61
11.447.0850	8.5	8.5	117	75	15,12

Ref.	d1	d2	l1	l2	€
11.447.0900	9	9	125	81	16,99
11.447.0950	9.5	9.5	125	81	17,68
11.447.1000	10	10	133	87	20,83
11.447.1020	10.2	10.2	133	87	22,40
11.447.1050	10.5	10.5	133	87	22,89
11.447.1100	11	11	142	94	26,50
11.447.1150	11.5	11.5	142	94	27,35
11.447.1200	12	12	151	101	31,00
11.447.1250	12.5	12.5	151	101	35,25
11.447.1300	13	13	151	101	36,30



NL Step-point spiraalboor in actie
FR Regardez le foret à pointe étagée Step-point en action
ES Broca escalonada en acción
DE Spiralbohrer mit Stufenspitze in Aktion
EN Step-Point Stub Drill in Action

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> 11.450 Phantom

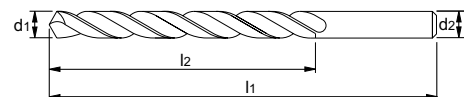
NL HSS Spiraalboor

FR Foret HSS

ES Broca HSS

DE HSS Spiralbohrer

EN HSS Twist drill



HSS	OX.	DIN 338	N					
P 11	P 12	P 13	M 21	K 31	K 32	N 42	N 51	N 61
≤600 N/mm ²	≤850 N/mm ²	≤1000 N/mm ²	INOX ≤850N/mm ²	GG	GGG GTS-GTW	Alu Si>10%	Cu	PVC
25-27	22-30	15-20	8-12	15-20	25-30	45-50	25-40	22-28

Ref.	d1	d2	l1	l2	€
11.450.0020	0.2	0.2	19	2.5	5,57
11.450.0025	0.25	0.25	19	3	5,47
11.450.0030	0.3	0.3	19	3	4,67
11.450.0035	0.35	0.35	19	4	5,17
11.450.0040	0.4	0.4	20	5	4,86
11.450.0045	0.45	0.45	20	5	4,88
11.450.0050	0.5	0.5	22	6	4,29
11.450.0055	0.55	0.55	24	7	4,26
11.450.0060	0.6	0.6	24	7	3,84
11.450.0065	0.65	0.65	26	8	3,93
11.450.0070	0.7	0.7	28	9	3,07
11.450.0075	0.75	0.75	28	9	3,07
11.450.0080	0.8	0.8	30	10	3,07
11.450.0085	0.85	0.85	30	10	3,07
11.450.0090	0.9	0.9	32	11	3,07
11.450.0095	0.95	0.95	32	11	3,07
11.450.0100	1	1	34	12	1,75
11.450.0105	1.05	1.05	34	12	2,66
11.450.0110	1.1	1.1	36	14	2,03
11.450.0115	1.15	1.15	36	14	2,26
11.450.0120	1.2	1.2	38	16	2,03
11.450.0125	1.25	1.25	38	16	2,18
11.450.0130	1.3	1.3	38	16	2,03
11.450.0135	1.35	1.35	40	18	2,57
11.450.0140	1.4	1.4	40	18	2,03
11.450.0145	1.45	1.45	40	18	2,26

Ref.	d1	d2	l1	l2	€
11.450.0150	1.5	1.5	40	18	1,94
11.450.0155	1.55	1.55	43	20	2,08
11.450.0160	1.6	1.6	43	20	1,88
11.450.0165	1.65	1.65	43	20	2,08
11.450.0170	1.7	1.7	43	20	1,94
11.450.0175	1.75	1.75	46	22	2,15
11.450.0180	1.8	1.8	46	22	2,06
11.450.0185	1.85	1.85	46	22	2,84
11.450.0190	1.9	1.9	46	22	2,06
11.450.0195	1.95	1.95	49	24	2,15
11.450.0200	2	2	49	24	1,73
11.450.0205	2.05	2.05	49	24	1,89
11.450.0210	2.1	2.1	49	24	1,78
11.450.0215	2.15	2.15	53	27	1,89
11.450.0220	2.2	2.2	53	27	1,72
11.450.0225	2.25	2.25	53	27	1,86
11.450.0230	2.3	2.3	53	27	1,72
11.450.0235	2.35	2.35	53	27	1,86
11.450.0240	2.4	2.4	57	30	1,72
11.450.0245	2.45	2.45	57	30	1,86
11.450.0250	2.5	2.5	57	30	1,44
11.450.0255	2.55	2.55	57	30	2,18
11.450.0260	2.6	2.6	57	30	1,98
11.450.0265	2.65	2.65	57	30	2,18
11.450.0270	2.7	2.7	61	33	1,98
11.450.0275	2.75	2.75	61	33	2,18

Ref.	d1	d2	l1	l2	€
11.450.0280	2.8	2.8	61	33	1,98
11.450.0285	2.85	2.85	61	33	2,18
11.450.0290	2.9	2.9	61	33	1,98
11.450.0295	2.95	2.95	61	33	2,18
11.450.0300	3	3	61	33	1,93
11.450.0305	3.05	3.05	65	36	2,18
11.450.0310	3.1	3.1	65	36	2,08
11.450.0315	3.15	3.15	65	36	2,18
11.450.0320	3.2	3.2	65	36	2,08
11.450.0325	3.25	3.25	65	36	2,18
11.450.0330	3.3	3.3	65	36	2,08
11.450.0335	3.35	3.35	65	36	2,18
11.450.0340	3.4	3.4	70	39	2,08
11.450.0345	3.45	3.45	70	39	2,18
11.450.0350	3.5	3.5	70	39	1,93
11.450.0355	3.55	3.55	70	39	2,22
11.450.0360	3.6	3.6	70	39	2,18
11.450.0365	3.65	3.65	70	39	2,22
11.450.0370	3.7	3.7	70	39	2,18
11.450.0375	3.75	3.75	70	39	2,45
11.450.0380	3.8	3.8	75	43	2,21
11.450.0385	3.85	3.85	75	43	2,59
11.450.0390	3.9	3.9	75	43	2,21
11.450.0395	3.95	3.95	75	43	2,59
11.450.0400	4	4	75	43	2,02
11.450.0405	4.05	4.05	75	43	2,73

> 11.450 Phantom

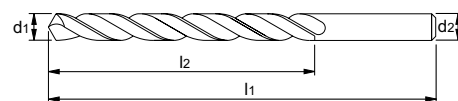
Ref.	d1	d2	l1	l2	€
11.450.0410	4.1	4.1	75	43	2,37
11.450.0415	4.15	4.15	75	43	2,73
11.450.0420	4.2	4.2	75	43	2,37
11.450.0425	4.25	4.25	75	43	2,73
11.450.0430	4.3	4.3	80	47	2,37
11.450.0435	4.35	4.35	80	47	2,73
11.450.0440	4.4	4.4	80	47	2,37
11.450.0445	4.45	4.45	80	47	2,73
11.450.0450	4.5	4.5	80	47	2,26
11.450.0455	4.55	4.55	80	47	3,05
11.450.0460	4.6	4.6	80	47	2,82
11.450.0465	4.65	4.65	80	47	3,05
11.450.0470	4.7	4.7	80	47	2,82
11.450.0475	4.75	4.75	80	47	3,05
11.450.0480	4.8	4.8	86	52	2,82
11.450.0485	4.85	4.85	86	52	3,05
11.450.0490	4.9	4.9	86	52	2,82
11.450.0495	4.95	4.95	86	52	3,05
11.450.0500	5	5	86	52	2,63
11.450.0510	5.1	5.1	86	52	3,07
11.450.0520	5.2	5.2	86	52	3,07
11.450.0525	5.25	5.25	86	52	3,25
11.450.0530	5.3	5.3	86	52	3,26
11.450.0540	5.4	5.4	93	57	3,26
11.450.0550	5.5	5.5	93	57	2,91
11.450.0555	5.55	5.55	93	57	3,43
11.450.0560	5.6	5.6	93	57	3,43
11.450.0570	5.7	5.7	93	57	3,43
11.450.0575	5.75	5.75	93	57	4,36
11.450.0580	5.8	5.8	93	57	3,43
11.450.0590	5.9	5.9	93	57	3,43
11.450.0600	6	6	93	57	3,23
11.450.0610	6.1	6.1	101	63	4,07
11.450.0620	6.2	6.2	101	63	4,07
11.450.0625	6.25	6.25	101	63	4,62
11.450.0630	6.3	6.3	101	63	4,07
11.450.0635	6.35	6.35	101	63	4,62
11.450.0640	6.4	6.4	101	63	4,07
11.450.0650	6.5	6.5	101	63	3,76
11.450.0660	6.6	6.6	101	63	4,88
11.450.0670	6.7	6.7	101	63	4,88
11.450.0675	6.75	6.75	109	69	4,95
11.450.0680	6.8	6.8	109	69	4,95
11.450.0690	6.9	6.9	109	69	4,95
11.450.0700	7	7	109	69	4,27
11.450.0710	7.1	7.1	109	69	5,28
11.450.0720	7.2	7.2	109	69	5,28
11.450.0725	7.25	7.25	109	69	5,77
11.450.0730	7.3	7.3	109	69	5,28
11.450.0740	7.4	7.4	109	69	5,49

Ref.	d1	d2	l1	l2	€
11.450.0750	7.5	7.5	109	69	4,71
11.450.0760	7.6	7.6	117	75	6,05
11.450.0770	7.7	7.7	117	75	6,13
11.450.0775	7.75	7.75	117	75	6,13
11.450.0780	7.8	7.8	117	75	6,13
11.450.0790	7.9	7.9	117	75	6,13
11.450.0800	8	8	117	75	5,70
11.450.0810	8.1	8.1	117	75	6,77
11.450.0820	8.2	8.2	117	75	6,77
11.450.0825	8.25	8.25	117	75	7,08
11.450.0830	8.3	8.3	117	75	6,92
11.450.0840	8.4	8.4	117	75	6,92
11.450.0850	8.5	8.5	117	75	6,37
11.450.0860	8.6	8.6	125	81	8,19
11.450.0870	8.7	8.7	125	81	8,19
11.450.0875	8.75	8.75	125	81	8,96
11.450.0880	8.8	8.8	125	81	8,19
11.450.0890	8.9	8.9	125	81	8,19
11.450.0900	9	9	125	81	7,44
11.450.0910	9.1	9.1	125	81	9,03
11.450.0920	9.2	9.2	125	81	9,03
11.450.0925	9.25	9.25	125	81	9,54
11.450.0930	9.3	9.3	125	81	9,03
11.450.0940	9.4	9.4	125	81	9,03
11.450.0950	9.5	9.5	125	81	8,18
11.450.0960	9.6	9.6	133	87	9,96
11.450.0970	9.7	9.7	133	87	9,96
11.450.0975	9.75	9.75	133	87	9,90
11.450.0980	9.8	9.8	133	87	9,96
11.450.0990	9.9	9.9	133	87	9,96
11.450.1000	10	10	133	87	9,02
11.450.1010	10.1	10.1	133	87	11,33
11.450.1020	10.2	10.2	133	87	11,33
11.450.1025	10.25	10.25	133	87	11,74
11.450.1030	10.3	10.3	133	87	11,74
11.450.1040	10.4	10.4	133	87	11,74
11.450.1050	10.5	10.5	133	87	9,81
11.450.1060	10.6	10.6	133	87	13,01
11.450.1070	10.7	10.7	142	94	13,01
11.450.1075	10.75	10.75	142	94	13,01
11.450.1080	10.8	10.8	142	94	13,01
11.450.1090	10.9	10.9	142	94	13,01
11.450.1100	11	11	142	94	10,06
11.450.1110	11.1	11.1	142	94	14,72
11.450.1120	11.2	11.2	142	94	14,72
11.450.1125	11.25	11.25	142	94	14,72
11.450.1130	11.3	11.3	142	94	14,72
11.450.1140	11.4	11.4	142	94	14,72
11.450.1150	11.5	11.5	142	94	10,79
11.450.1160	11.6	11.6	142	94	15,12

Ref.	d1	d2	l1	l2	€
11.450.1170	11.7	11.7	142	94	15,12
11.450.1175	11.75	11.75	142	94	15,12
11.450.1180	11.8	11.8	142	94	15,12
11.450.1190	11.9	11.9	151	101	15,12
11.450.1200	12	12	151	101	13,13
11.450.1210	12.1	12.1	151	101	16,10
11.450.1220	12.2	12.2	151	101	16,10
11.450.1225	12.25	12.25	151	101	16,10
11.450.1230	12.3	12.3	151	101	16,10
11.450.1240	12.4	12.4	151	101	16,72
11.450.1250	12.5	12.5	151	101	14,07
11.450.1260	12.6	12.6	151	101	17,33
11.450.1270	12.7	12.7	151	101	17,33
11.450.1275	12.75	12.75	151	101	17,33
11.450.1280	12.8	12.8	151	101	17,33
11.450.1290	12.9	12.9	151	101	17,33
11.450.1300	13	13	151	101	14,57
11.450.1310	13.1	13.1	151	101	25,70
11.450.1320	13.2	13.2	151	101	25,70
11.450.1325	13.25	13.25	160	108	25,70
11.450.1330	13.3	13.3	160	108	25,70
11.450.1340	13.4	13.4	160	108	25,70
11.450.1350	13.5	13.5	160	108	22,54
11.450.1360	13.6	13.6	160	108	25,70
11.450.1370	13.7	13.7	160	108	25,70
11.450.1375	13.75	13.75	160	108	25,70
11.450.1380	13.8	13.8	160	108	25,70
11.450.1390	13.9	13.9	160	108	25,70
11.450.1400	14	14	160	108	23,02
11.450.1425	14.25	14.25	169	114	39,70
11.450.1450	14.5	14.5	169	114	35,15
11.450.1475	14.75	14.75	169	114	39,70
11.450.1500	15	15	169	114	35,20
11.450.1510	15.1	15.1	178	120	41,65
11.450.1525	15.25	15.25	178	120	42,40
11.450.1550	15.5	15.5	178	120	38,30
11.450.1575	15.75	15.75	178	120	43,80
11.450.1580	15.8	15.8	178	120	43,80
11.450.1600	16	16	178	120	39,25
11.450.1650	16.5	16.5	184	125	44,30
11.450.1690	16.9	16.9	184	125	44,60
11.450.1700	17	17	184	125	44,95
11.450.1750	17.5	17.5	191	130	48,20
11.450.1800	18	18	191	130	54,95
11.450.1850	18.5	18.5	198	135	58,40
11.450.1890	18.9	18.9	198	135	59,35
11.450.1900	19	19	198	135	60,30
11.450.1950	19.5	19.5	205	140	63,50
11.450.2000	20	20	205	140	65,55

> 11.451 Phantom

NL HSS Spiraalboor TiN-tip
FR Foret HSS avec revêtement TiN sur la partie utile
ES Broca HSS con punta TiN
DE HSS Spiralbohrer TiN-Tip
EN HSS Twist drill TiN coated tip



HSS	TiN	DIN 338	N	≥1,6	118°
P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850 N/mm²	K 31 GG	K 32 GGG GTS-GTW
27-30 F	25-28 F	17-22 E	10-14 D	20-33 E	20-28 E
				50-80 E	45-70 G
					40-65 D
					25-36 D

Ref.	d1	d2	l1	l2	€
11.451.0100	1	1	34	12	1,80
11.451.0110	1.1	1.1	36	14	2,07
11.451.0120	1.2	1.2	38	16	2,07
11.451.0130	1.3	1.3	38	16	2,07
11.451.0140	1.4	1.4	40	18	2,07
11.451.0150	1.5	1.5	40	18	2,07
11.451.0160	1.6	1.6	43	20	2,15
11.451.0170	1.7	1.7	43	20	2,15
11.451.0180	1.8	1.8	46	22	2,15
11.451.0190	1.9	1.9	46	22	2,15
11.451.0200	2	2	49	24	2,15
11.451.0210	2.1	2.1	49	24	2,15
11.451.0220	2.2	2.2	53	27	2,07
11.451.0230	2.3	2.3	53	27	2,07

Ref.	d1	d2	l1	l2	€
11.451.0240	2.4	2.4	57	30	2,07
11.451.0250	2.5	2.5	57	30	2,07
11.451.0260	2.6	2.6	57	30	2,15
11.451.0270	2.7	2.7	61	33	2,15
11.451.0280	2.8	2.8	61	33	2,15
11.451.0290	2.9	2.9	61	33	2,15
11.451.0300	3	3	61	33	2,15
11.451.0310	3.1	3.1	65	36	2,33
11.451.0320	3.2	3.2	65	36	2,33
11.451.0330	3.3	3.3	65	36	2,33
11.451.0340	3.4	3.4	70	39	2,33
11.451.0350	3.5	3.5	70	39	2,33
11.451.0360	3.6	3.6	70	39	2,53
11.451.0370	3.7	3.7	70	39	2,53

Ref.	d1	d2	l1	l2	€
11.451.0380	3.8	3.8	75	43	2,53
11.451.0390	3.9	3.9	75	43	2,53
11.451.0400	4	4	75	43	2,58
11.451.0410	4.1	4.1	75	43	2,92
11.451.0420	4.2	4.2	75	43	2,92
11.451.0430	4.3	4.3	80	47	2,92
11.451.0440	4.4	4.4	80	47	2,92
11.451.0450	4.5	4.5	80	47	2,92
11.451.0460	4.6	4.6	80	47	3,31
11.451.0470	4.7	4.7	80	47	3,31
11.451.0480	4.8	4.8	86	52	3,31
11.451.0490	4.9	4.9	86	52	3,31
11.451.0500	5	5	86	52	3,50
11.451.0510	5.1	5.1	86	52	3,56

> 11.451 Phantom

Ref.	d1	d2	l1	l2	€
11.451.0520	5.2	5.2	86	52	3,56
11.451.0530	5.3	5.3	86	52	4,22
11.451.0540	5.4	5.4	93	57	4,22
11.451.0550	5.5	5.5	93	57	4,22
11.451.0560	5.6	5.6	93	57	4,22
11.451.0570	5.7	5.7	93	57	4,22
11.451.0580	5.8	5.8	93	57	4,22
11.451.0590	5.9	5.9	93	57	4,22
11.451.0600	6	6	93	57	4,86
11.451.0610	6.1	6.1	101	63	4,86
11.451.0620	6.2	6.2	101	63	4,86
11.451.0630	6.3	6.3	101	63	4,86
11.451.0640	6.4	6.4	101	63	4,86
11.451.0650	6.5	6.5	101	63	4,92
11.451.0660	6.6	6.6	101	63	5,00
11.451.0670	6.7	6.7	101	63	5,09
11.451.0680	6.8	6.8	109	69	5,44
11.451.0690	6.9	6.9	109	69	5,44
11.451.0700	7	7	109	69	5,97
11.451.0710	7.1	7.1	109	69	6,28
11.451.0720	7.2	7.2	109	69	6,28
11.451.0730	7.3	7.3	109	69	6,28
11.451.0740	7.4	7.4	109	69	6,28
11.451.0750	7.5	7.5	109	69	6,28
11.451.0760	7.6	7.6	117	75	6,28
11.451.0770	7.7	7.7	117	75	6,80
11.451.0780	7.8	7.8	117	75	6,80

Ref.	d1	d2	l1	l2	€
11.451.0790	7.9	7.9	117	75	6,80
11.451.0800	8	8	117	75	7,52
11.451.0810	8.1	8.1	117	75	8,43
11.451.0820	8.2	8.2	117	75	8,43
11.451.0830	8.3	8.3	117	75	9,07
11.451.0840	8.4	8.4	117	75	9,07
11.451.0850	8.5	8.5	117	75	9,07
11.451.0860	8.6	8.6	125	81	9,97
11.451.0870	8.7	8.7	125	81	9,97
11.451.0880	8.8	8.8	125	81	9,97
11.451.0890	8.9	8.9	125	81	9,97
11.451.0900	9	9	125	81	9,97
11.451.0910	9.1	9.1	125	81	10,43
11.451.0920	9.2	9.2	125	81	10,43
11.451.0930	9.3	9.3	125	81	11,09
11.451.0940	9.4	9.4	125	81	11,09
11.451.0950	9.5	9.5	125	81	11,09
11.451.0960	9.6	9.6	133	87	11,34
11.451.0970	9.7	9.7	133	87	11,34
11.451.0980	9.8	9.8	133	87	11,48
11.451.0990	9.9	9.9	133	87	11,48
11.451.1000	10	10	133	87	11,60
11.451.1010	10.1	10.1	133	87	12,22
11.451.1020	10.2	10.2	133	87	12,44
11.451.1030	10.3	10.3	133	87	12,58
11.451.1040	10.4	10.4	133	87	12,58
11.451.1050	10.5	10.5	133	87	12,58

Ref.	d1	d2	l1	l2	€
11.451.1060	10.6	10.6	133	87	14,21
11.451.1070	10.7	10.7	142	94	14,21
11.451.1080	10.8	10.8	142	94	14,21
11.451.1090	10.9	10.9	142	94	14,21
11.451.1100	11	11	142	94	13,16
11.451.1110	11.1	11.1	142	94	15,95
11.451.1120	11.2	11.2	142	94	15,95
11.451.1130	11.3	11.3	142	94	15,95
11.451.1140	11.4	11.4	142	94	15,95
11.451.1150	11.5	11.5	142	94	15,95
11.451.1160	11.6	11.6	142	94	16,46
11.451.1170	11.7	11.7	142	94	16,46
11.451.1180	11.8	11.8	142	94	16,46
11.451.1190	11.9	11.9	151	101	16,46
11.451.1200	12	12	151	101	16,21
11.451.1210	12.1	12.1	151	101	18,01
11.451.1220	12.2	12.2	151	101	18,01
11.451.1230	12.3	12.3	151	101	18,01
11.451.1240	12.4	12.4	151	101	18,14
11.451.1250	12.5	12.5	151	101	19,12
11.451.1260	12.6	12.6	151	101	20,27
11.451.1270	12.7	12.7	151	101	20,27
11.451.1280	12.8	12.8	151	101	20,27
11.451.1290	12.9	12.9	151	101	20,27
11.451.1300	13	13	151	101	19,84

> 11.461 Phantom



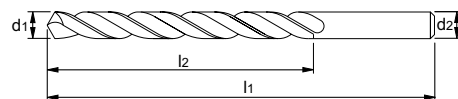
NL HSS Spiraalboor TiN-tip, (handgebruik)

FR Foret HSS avec revêtement TiN sur la partie utile, (usage à la main)

ES Broca HSS con punta TiN, (uso manual)

DE HSS Spiralbohrer TiN-Tip, (handgebrauch)

EN HSS Twist drill TiN coated tip, (handuse)



HSS	TiN	DIN 338	>N	 ≥1,6	 118°				
P 11 ≤500 N/mm ²	P 12 ≤550 N/mm ²	P 13 ≤1000 N/mm ²	M 21 INOX ≤850N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
27-30 F	25-28 F	17-22 E	10-14 D	20-33 E	20-28 E	50-80 E	45-70 G	40-65 D	25-36 D

Ref.	d1	d2	l1	l2	€
11.461.0100	1	1	34	12	1,80
11.461.0110	1.1	1.1	36	14	2,07
11.461.0120	1.2	1.2	38	16	2,07
11.461.0130	1.3	1.3	38	16	2,07
11.461.0140	1.4	1.4	40	18	2,07
11.461.0150	1.5	1.5	40	18	2,07
11.461.0160	1.6	1.6	43	20	2,15
11.461.0170	1.7	1.7	43	20	2,15
11.461.0180	1.8	1.8	46	22	2,15
11.461.0190	1.9	1.9	46	22	2,15
11.461.0200	2	2	49	24	2,15
11.461.0210	2.1	2.1	49	24	2,15
11.461.0220	2.2	2.2	53	27	2,06
11.461.0230	2.3	2.3	53	27	2,06
11.461.0240	2.4	2.4	57	30	2,06
11.461.0250	2.5	2.5	57	30	2,06
11.461.0260	2.6	2.6	57	30	2,15
11.461.0270	2.7	2.7	61	33	2,15
11.461.0280	2.8	2.8	61	33	2,15
11.461.0290	2.9	2.9	61	33	2,15
11.461.0300	3	3	61	33	2,15
11.461.0310	3.1	3.1	65	36	2,33
11.461.0320	3.2	3.2	65	36	2,33
11.461.0330	3.3	3.3	65	36	2,33
11.461.0340	3.4	3.4	70	39	2,33
11.461.0350	3.5	3.5	70	39	2,33
11.461.0360	3.6	3.6	70	39	2,53
11.461.0370	3.7	3.7	70	39	2,53
11.461.0380	3.8	3.8	75	43	2,53
11.461.0390	3.9	3.9	75	43	2,53
11.461.0400	4	4	75	43	2,57
11.461.0410	4.1	4.1	75	43	2,91
11.461.0420	4.2	4.2	75	43	2,91
11.461.0430	4.3	4.3	80	47	2,91
11.461.0440	4.4	4.4	80	47	2,91
11.461.0450	4.5	4.5	80	47	2,91
11.461.0460	4.6	4.6	80	47	3,28

Ref.	d1	d2	l1	l2	€
11.461.0470	4.7	4.7	80	47	3,28
11.461.0480	4.8	4.8	86	52	3,28
11.461.0490	4.9	4.9	86	52	3,28
11.461.0500	5	5	86	52	3,50
11.461.0510	5.1	5.1	86	52	3,53
11.461.0520	5.2	5.2	86	52	3,53
11.461.0530	5.3	5.3	86	52	4,17
11.461.0540	5.4	5.4	93	57	4,17
11.461.0550	5.5	5.5	93	57	4,17
11.461.0560	5.6	5.6	93	57	4,22
11.461.0570	5.7	5.7	93	57	4,22
11.461.0580	5.8	5.8	93	57	4,22
11.461.0590	5.9	5.9	93	57	4,22
11.461.0600	6	6	93	57	4,86
11.461.0610	6.1	6.1	101	63	4,82
11.461.0620	6.2	6.2	101	63	4,82
11.461.0630	6.3	6.3	101	63	4,86
11.461.0640	6.4	6.4	101	63	4,86
11.461.0650	6.5	6.5	101	63	4,92
11.461.0660	6.6	6.6	101	63	5,00
11.461.0670	6.7	6.7	101	63	5,09
11.461.0680	6.8	6.8	109	69	5,41
11.461.0690	6.9	6.9	109	69	5,41
11.461.0700	7	7	109	69	5,97
11.461.0710	7.1	7.1	109	69	6,23
11.461.0720	7.2	7.2	109	69	6,23
11.461.0730	7.3	7.3	109	69	6,23
11.461.0740	7.4	7.4	109	69	6,28
11.461.0750	7.5	7.5	109	69	6,28
11.461.0760	7.6	7.6	117	75	6,28
11.461.0770	7.7	7.7	117	75	6,76
11.461.0780	7.8	7.8	117	75	6,76
11.461.0790	7.9	7.9	117	75	6,76
11.461.0800	8	8	117	75	7,52
11.461.0810	8.1	8.1	117	75	8,37
11.461.0820	8.2	8.2	117	75	8,37
11.461.0830	8.3	8.3	117	75	9,07

Ref.	d1	d2	l1	l2	€
11.461.0840	8.4	8.4	117	75	9,07
11.461.0850	8.5	8.5	117	75	9,07
11.461.0860	8.6	8.6	125	81	9,97
11.461.0870	8.7	8.7	125	81	9,97
11.461.0880	8.8	8.8	125	81	9,97
11.461.0890	8.9	8.9	125	81	9,97
11.461.0900	9	9	125	81	9,97
11.461.0910	9.1	9.1	125	81	10,43
11.461.0920	9.2	9.2	125	81	10,43
11.461.0930	9.3	9.3	125	81	11,09
11.461.0940	9.4	9.4	125	81	11,09
11.461.0950	9.5	9.5	125	81	11,09
11.461.0960	9.6	9.6	133	87	11,25
11.461.0970	9.7	9.7	133	87	11,25
11.461.0980	9.8	9.8	133	87	11,48
11.461.0990	9.9	9.9	133	87	11,48
11.461.1000	10	10	133	87	11,60
11.461.1010	10.1	10.1	133	87	12,22
11.461.1020	10.2	10.2	133	87	12,44
11.461.1030	10.3	10.3	133	87	12,58
11.461.1040	10.4	10.4	133	87	12,58
11.461.1050	10.5	10.5	133	87	12,58
11.461.1060	10.6	10.6	133	87	14,21
11.461.1070	10.7	10.7	142	94	14,21
11.461.1080	10.8	10.8	142	94	14,21
11.461.1090	10.9	10.9	142	94	14,21
11.461.1100	11	11	142	94	13,16
11.461.1110	11.1	11.1	142	94	15,95
11.461.1120	11.2	11.2	142	94	15,95
11.461.1130	11.3	11.3	142	94	15,95
11.461.1140	11.4	11.4	142	94	15,95
11.461.1150	11.5	11.5	142	94	15,95
11.461.1160	11.6	11.6	142	94	16,46
11.461.1170	11.7	11.7	142	94	16,46
11.461.1180	11.8	11.8	142	94	16,46
11.461.1190	11.9	11.9	151	101	16,46
11.461.1200	12	12	151	101	16,21

> 11.461

Phantom

Ref.	d1	d2	l1	l2	€
11.461.1210	12.1	12.1	151	101	18,01
11.461.1220	12.2	12.2	151	101	18,01
11.461.1230	12.3	12.3	151	101	18,01
11.461.1240	12.4	12.4	151	101	18,14

Ref.	d1	d2	l1	l2	€
11.461.1250	12.5	12.5	151	101	19,12
11.461.1260	12.6	12.6	151	101	20,27
11.461.1270	12.7	12.7	151	101	20,27
11.461.1280	12.8	12.8	151	101	20,27

Ref.	d1	d2	l1	l2	€
11.461.1290	12.9	12.9	151	101	20,27
11.461.1300	13	13	151	101	19,84

> 11.490

INTERNATIONAL TOOLS

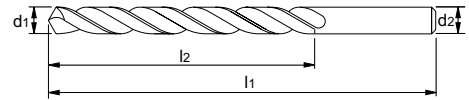
NL ECO PRO HSS-E Spiraalboor

FR Foret HSS-E ECO PRO

ES Broca HSS-E ECO PRO

DE ECO PRO HSS-E Spiralbohrer

EN ECO PRO HSS-E Twist drill



P 11 ≤500 N/mm²	P 12 ≤550 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 51 Cu	N 52 CuAlFe
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28-35 E	30-36 E	20-27 E	14-18 D	30-35 F	24-30 F	30-40 E	8-15 C
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Ref.	d1	d2	l1	l2	€
11.490.0100	1	1	34	12	0,65
11.490.0110	1.1	1.1	36	14	0,70
11.490.0120	1.2	1.2	38	16	0,70
11.490.0130	1.3	1.3	38	16	0,70
11.490.0140	1.4	1.4	40	18	0,70
11.490.0150	1.5	1.5	40	18	0,70
11.490.0160	1.6	1.6	43	20	0,75
11.490.0170	1.7	1.7	43	20	0,75
11.490.0180	1.8	1.8	46	22	0,75
11.490.0190	1.9	1.9	46	22	0,75
11.490.0200	2	2	49	24	0,80
11.490.0210	2.1	2.1	49	24	0,85
11.490.0220	2.2	2.2	53	27	0,85
11.490.0230	2.3	2.3	53	27	0,85
11.490.0240	2.4	2.4	57	30	0,85
11.490.0250	2.5	2.5	57	30	0,95
11.490.0260	2.6	2.6	57	30	1,10
11.490.0270	2.7	2.7	61	33	1,10
11.490.0280	2.8	2.8	61	33	1,10
11.490.0290	2.9	2.9	61	33	1,10
11.490.0300	3	3	61	33	1,15
11.490.0310	3.1	3.1	65	36	1,35
11.490.0320	3.2	3.2	65	36	1,35
11.490.0330	3.3	3.3	65	36	1,45
11.490.0340	3.4	3.4	70	39	1,45
11.490.0350	3.5	3.5	70	39	1,50
11.490.0360	3.6	3.6	70	39	1,80
11.490.0370	3.7	3.7	70	39	1,80
11.490.0380	3.8	3.8	75	43	1,80
11.490.0390	3.9	3.9	75	43	1,80
11.490.0400	4	4	75	43	1,50
11.490.0410	4.1	4.1	75	43	2,00
11.490.0420	4.2	4.2	75	43	2,00

Ref.	d1	d2	l1	l2	€
11.490.0430	4.3	4.3	80	47	2,00
11.490.0440	4.4	4.4	80	47	2,00
11.490.0450	4.5	4.5	80	47	1,70
11.490.0460	4.6	4.6	80	47	2,50
11.490.0470	4.7	4.7	80	47	2,50
11.490.0480	4.8	4.8	86	52	2,50
11.490.0490	4.9	4.9	86	52	2,50
11.490.0500	5	5	86	52	2,09
11.490.0510	5.1	5.1	86	52	2,95
11.490.0520	5.2	5.2	86	52	2,95
11.490.0530	5.3	5.3	86	52	2,95
11.490.0540	5.4	5.4	93	57	2,95
11.490.0550	5.5	5.5	93	57	2,61
11.490.0560	5.6	5.6	93	57	3,49
11.490.0570	5.7	5.7	93	57	3,49
11.490.0580	5.8	5.8	93	57	2,82
11.490.0590	5.9	5.9	93	57	3,49
11.490.0600	6	6	93	57	2,82
11.490.0610	6.1	6.1	101	63	4,26
11.490.0620	6.2	6.2	101	63	4,26
11.490.0630	6.3	6.3	101	63	4,26
11.490.0640	6.4	6.4	101	63	4,26
11.490.0650	6.5	6.5	101	63	3,52
11.490.0660	6.6	6.6	101	63	5,49
11.490.0670	6.7	6.7	101	63	5,76
11.490.0680	6.8	6.8	109	69	4,92
11.490.0690	6.9	6.9	109	69	5,76
11.490.0700	7	7	109	69	4,13
11.490.0710	7.1	7.1	109	69	6,57
11.490.0720	7.2	7.2	109	69	6,12
11.490.0730	7.3	7.3	109	69	6,21
11.490.0740	7.4	7.4	109	69	6,21
11.490.0750	7.5	7.5	109	69	4,68

Ref.	d1	d2	l1	l2	€
11.490.0760	7.6	7.6	117	75	7,83
11.490.0770	7.7	7.7	117	75	8,19
11.490.0780	7.8	7.8	117	75	6,56
11.490.0790	7.9	7.9	117	75	6,56
11.490.0800	8	8	117	75	5,86
11.490.0810	8.1	8.1	117	75	8,74
11.490.0820	8.2	8.2	117	75	8,82
11.490.0830	8.3	8.3	117	75	8,82
11.490.0840	8.4	8.4	117	75	8,74
11.490.0850	8.5	8.5	117	75	6,62
11.490.0860	8.6	8.6	125	81	10,44
11.490.0870	8.7	8.7	125	81	9,90
11.490.0880	8.8	8.8	125	81	9,90
11.490.0890	8.9	8.9	125	81	9,90
11.490.0900	9	9	125	81	7,43
11.490.0910	9.1	9.1	125	81	11,07
11.490.0920	9.2	9.2	125	81	11,07
11.490.0930	9.3	9.3	125	81	11,70
11.490.0940	9.4	9.4	125	81	11,07
11.490.0950	9.5	9.5	125	81	8,35
11.490.0960	9.6	9.6	133	87	13,68
11.490.0970	9.7	9.7	133	87	12,96
11.490.0980	9.8	9.8	133	87	12,29
11.490.0990	9.9	9.9	133	87	12,29
11.490.1000	10	10	133	87	9,77
11.490.1020	10.2	10.2	133	87	10,37
11.490.1050	10.5	10.5	133	87	10,37
11.490.1100	11	11	142	94	12,05
11.490.1150	11.5	11.5	142	94	13,00
11.490.1200	12	12	151	101	15,17
11.490.1250	12.5	12.5	151	101	15,88
11.490.1300	13	13	151	101	17,17

> 11.500 Phantom

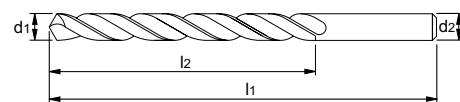
NL HSS-E Spiraalboor

FR Foret HSS-E

ES Broca HSS-E

DE HSS-E Spiralbohrer

EN HSS-E Twist drill



P 11 ≤600 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	P 14 ≤1400 N/mm ²	M 21 INOX ≤850 N/mm ²	M 22 INOX >850 N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 51 Cu	N 52 CuAlFe
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28-35 E	30-36 E	20-27 E	12-20 D	14-18 D	10-15 C	30-35 F	24-30 F	30-40 E	8-15 C
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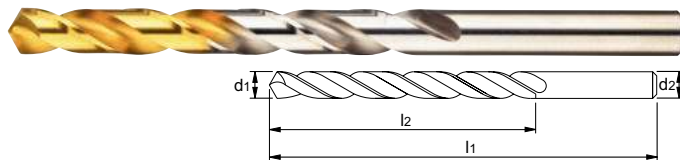
Ref.	d1	d2	l1	l2	€
11.500.0020	0.2	0.2	19	2.5	3,70
11.500.0025	0.25	0.25	19	3	3,65
11.500.0030	0.3	0.3	19	3	3,34
11.500.0040	0.4	0.4	20	5	2,91
11.500.0045	0.45	0.45	20	5	2,87
11.500.0050	0.5	0.5	22	6	2,76
11.500.0060	0.6	0.6	24	7	2,64
11.500.0065	0.65	0.65	26	8	2,64
11.500.0070	0.7	0.7	28	9	2,64
11.500.0075	0.75	0.75	28	9	2,64
11.500.0080	0.8	0.8	30	10	2,52
11.500.0090	0.9	0.9	32	11	2,39
11.500.0095	0.95	0.95	32	11	2,39
11.500.0100	1	1	34	12	2,39
11.500.0110	1.1	1.1	36	14	2,85
11.500.0120	1.2	1.2	38	16	2,85
11.500.0125	1.25	1.25	38	16	2,85
11.500.0130	1.3	1.3	38	16	2,85
11.500.0140	1.4	1.4	40	18	2,85
11.500.0150	1.5	1.5	40	18	2,39
11.500.0160	1.6	1.6	43	20	2,96
11.500.0170	1.7	1.7	43	20	2,96
11.500.0175	1.75	1.75	46	22	2,96
11.500.0180	1.8	1.8	46	22	2,96
11.500.0190	1.9	1.9	46	22	2,96
11.500.0200	2	2	49	24	2,22
11.500.0205	2.05	2.05	49	24	3,98
11.500.0210	2.1	2.1	49	24	3,98
11.500.0220	2.2	2.2	53	27	3,98
11.500.0225	2.25	2.25	53	27	3,98
11.500.0230	2.3	2.3	53	27	3,98
11.500.0240	2.4	2.4	57	30	3,98
11.500.0250	2.5	2.5	57	30	2,25
11.500.0260	2.6	2.6	57	30	4,52
11.500.0270	2.7	2.7	61	33	4,52
11.500.0275	2.75	2.75	61	33	4,52
11.500.0280	2.8	2.8	61	33	3,48
11.500.0290	2.9	2.9	61	33	3,48
11.500.0300	3	3	61	33	2,45
11.500.0310	3.1	3.1	65	36	2,89
11.500.0320	3.2	3.2	65	36	2,89
11.500.0325	3.25	3.25	65	36	2,91
11.500.0330	3.3	3.3	65	36	2,89
11.500.0340	3.4	3.4	70	39	4,17
11.500.0350	3.5	3.5	70	39	2,85
11.500.0360	3.6	3.6	70	39	3,48
11.500.0370	3.7	3.7	70	39	3,48
11.500.0375	3.75	3.75	70	39	3,53
11.500.0380	3.8	3.8	75	43	3,80
11.500.0390	3.9	3.9	75	43	3,80
11.500.0400	4	4	75	43	3,00
11.500.0410	4.1	4.1	75	43	3,88
11.500.0420	4.2	4.2	75	43	3,88
11.500.0425	4.25	4.25	75	43	3,88

Ref.	d1	d2	l1	l2	€
11.500.0430	4.3	4.3	80	47	4,60
11.500.0440	4.4	4.4	80	47	4,60
11.500.0450	4.5	4.5	80	47	3,26
11.500.0460	4.6	4.6	80	47	5,49
11.500.0465	4.65	4.65	80	47	5,59
11.500.0470	4.7	4.7	80	47	5,49
11.500.0475	4.75	4.75	80	47	5,49
11.500.0480	4.8	4.8	86	52	4,35
11.500.0490	4.9	4.9	86	52	4,35
11.500.0500	5	5	86	52	3,65
11.500.0510	5.1	5.1	86	52	5,48
11.500.0520	5.2	5.2	86	52	5,48
11.500.0525	5.25	5.25	86	52	5,48
11.500.0530	5.3	5.3	86	52	5,48
11.500.0540	5.4	5.4	93	57	5,48
11.500.0550	5.5	5.5	93	57	4,33
11.500.0555	5.55	5.55	93	57	5,97
11.500.0560	5.6	5.6	93	57	5,97
11.500.0570	5.7	5.7	93	57	5,97
11.500.0575	5.75	5.75	93	57	5,97
11.500.0580	5.8	5.8	93	57	5,97
11.500.0590	5.9	5.9	93	57	5,97
11.500.0600	6	6	93	57	4,85
11.500.0610	6.1	6.1	101	63	7,74
11.500.0620	6.2	6.2	101	63	7,74
11.500.0625	6.25	6.25	101	63	7,88
11.500.0630	6.3	6.3	101	63	7,88
11.500.0635	6.35	6.35	101	63	7,88
11.500.0640	6.4	6.4	101	63	7,88
11.500.0650	6.5	6.5	101	63	5,88
11.500.0660	6.6	6.6	101	63	9,41
11.500.0670	6.7	6.7	101	63	9,41
11.500.0675	6.75	6.75	109	69	9,41
11.500.0680	6.8	6.8	109	69	8,38
11.500.0690	6.9	6.9	109	69	9,41
11.500.0700	7	7	109	69	6,80
11.500.0710	7.1	7.1	109	69	14,45
11.500.0720	7.2	7.2	109	69	14,45
11.500.0725	7.25	7.25	109	69	13,57
11.500.0730	7.3	7.3	109	69	13,57
11.500.0740	7.4	7.4	109	69	13,57
11.500.0750	7.5	7.5	109	69	7,77
11.500.0760	7.6	7.6	117	75	15,03
11.500.0770	7.7	7.7	117	75	15,03
11.500.0775	7.75	7.75	117	75	10,95
11.500.0780	7.8	7.8	117	75	10,95
11.500.0790	7.9	7.9	117	75	10,95
11.500.0800	8	8	117	75	8,48
11.500.0810	8.1	8.1	117	75	14,45
11.500.0820	8.2	8.2	117	75	14,45
11.500.0825	8.25	8.25	117	75	14,06
11.500.0830	8.3	8.3	117	75	14,06
11.500.0840	8.4	8.4	117	75	14,06
11.500.0850	8.5	8.5	117	75	10,25

Ref.	d1	d2	l1	l2	€
11.500.0860	8.6	8.6	125	81	18,00
11.500.0870	8.7	8.7	125	81	18,00
11.500.0875	8.75	8.75	125	81	18,00
11.500.0880	8.8	8.8	125	81	18,00
11.500.0890	8.9	8.9	125	81	18,00
11.500.0900	9	9	125	81	11,27
11.500.0910	9.1	9.1	125	81	20,55
11.500.0920	9.2	9.2	125	81	20,55
11.500.0925	9.25	9.25	125	81	20,55
11.500.0930	9.3	9.3	125	81	20,55
11.500.0940	9.4	9.4	125	81	20,55
11.500.0950	9.5	9.5	125	81	12,43
11.500.0960	9.6	9.6	133	87	23,76
11.500.0970	9.7	9.7	133	87	23,76
11.500.0975	9.75	9.75	133	87	17,80
11.500.0980	9.8	9.8	133	87	17,80
11.500.0990	9.9	9.9	133	87	17,80
11.500.1000	10	10	133	87	14,34
11.500.1010	10.1	10.1	133	87	17,80
11.500.1020	10.2	10.2	133	87	17,80
11.500.1025	10.25	10.25	133	87	18,05
11.500.1030	10.3	10.3	133	87	17,80
11.500.1050	10.5	10.5	133	87	16,18
11.500.1080	10.8	10.8	142	94	16,18
11.500.1100	11	11	142	94	17,23
11.500.1110	11.1	11.1	142	94	20,04
11.500.1120	11.2	11.2	142	94	20,04
11.500.1150	11.5	11.5	142	94	20,04
11.500.1175	11.75	11.75	142	94	19,32
11.500.1180	11.8	11.8	142	94	19,32
11.500.1200	12	12	151	101	20,14
11.500.1220	12.2	12.2	151	101	21,66
11.500.1250	12.5	12.5	151	101	22,23
11.500.1300	13	13	151	101	22,10
11.500.1310	13.1	13.1	151	101	37,45
11.500.1350	13.5	13.5	160	108	37,45
11.500.1400	14	14	160	108	38,85
11.500.1450	14.5	14.5	169	114	45,15
11.500.1500	15	15	169	114	48,95
11.500.1510	15.1	15.1	178	120	52,60
11.500.1550	15.5	15.5	178	120	52,60
11.500.1600	16	16	178	120	52,60
11.500.1650	16.5	16.5	184	125	57,15
11.500.1690	16.9	16.9	184	125	56,05
11.500.1700	17	17	184	125	56,05
11.500.1750	17.5	17.5	191	130	59,45
11.500.1800	18	18	191	130	63,50
11.500.1850	18.5	18.5	198	135	75,30
11.500.1890	18.9	18.9	198	135	73,80
11.500.1900	19	19	198	135	73,80
11.500.1950	19.5	19.5	205	140	80,30
11.500.2000	20	20	205	140	87,35

> 11.506 Phantom

NL HSS-E Spiraalboor TiN-tip, (handgebruik)
 FR Foret HSS-E avec revêtement TiN sur la partie utile, (usage à la main)
 ES Broca HSS-E con punta TiN, (uso manual)
 DE HSS-E Spiralbohrer TiN-Tip, (handgebrauch)
 EN HSS-E Twist drill TiN coated tip, (handuse)



HSS-E	TiN	DIN 338	>N						
				≥1,6	118°				
P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 51	N 52
≤800 N/mm²	≤850 N/mm²	≤1000 N/mm²	≤1400 N/mm²	INOX ≤850N/mm²	INOX >850N/mm²	GG	GGG GTS-GTW	Cu	CuAlFe
32-40 E	35-40 E	25-32 E	12-20 D	15-20 D	10-15 C	30-35 F	24-30 F	30-40 E	8-15 C

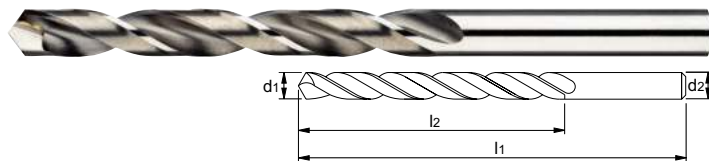
Ref.	d1	d2	l1	l2	€
11.506.0100	1	1	34	12	2,72
11.506.0120	1.2	1.2	38	16	3,41
11.506.0150	1.5	1.5	40	18	2,72
11.506.0160	1.6	1.6	43	20	3,49
11.506.0200	2	2	49	24	2,47
11.506.0210	2.1	2.1	49	24	4,19
11.506.0220	2.2	2.2	53	27	4,19
11.506.0230	2.3	2.3	53	27	4,19
11.506.0240	2.4	2.4	57	30	4,19
11.506.0250	2.5	2.5	57	30	2,60
11.506.0260	2.6	2.6	57	30	5,05
11.506.0270	2.7	2.7	61	33	5,05
11.506.0280	2.8	2.8	61	33	3,89
11.506.0290	2.9	2.9	61	33	3,89
11.506.0300	3	3	61	33	2,84
11.506.0310	3.1	3.1	65	36	3,21
11.506.0320	3.2	3.2	65	36	3,23
11.506.0330	3.3	3.3	65	36	3,23
11.506.0340	3.4	3.4	70	39	4,83
11.506.0350	3.5	3.5	70	39	3,25

Ref.	d1	d2	l1	l2	€
11.506.0360	3.6	3.6	70	39	3,92
11.506.0370	3.7	3.7	70	39	3,92
11.506.0380	3.8	3.8	75	43	3,92
11.506.0390	3.9	3.9	75	43	3,92
11.506.0400	4	4	75	43	3,35
11.506.0410	4.1	4.1	75	43	4,04
11.506.0420	4.2	4.2	75	43	3,60
11.506.0430	4.3	4.3	80	47	5,06
11.506.0450	4.5	4.5	80	47	3,60
11.506.0470	4.7	4.7	80	47	6,70
11.506.0480	4.8	4.8	86	52	5,28
11.506.0490	4.9	4.9	86	52	5,28
11.506.0500	5	5	86	52	4,10
11.506.0510	5.1	5.1	86	52	7,03
11.506.0520	5.2	5.2	86	52	7,03
11.506.0530	5.3	5.3	86	52	7,03
11.506.0550	5.5	5.5	93	57	4,76
11.506.0570	5.7	5.7	93	57	7,27
11.506.0580	5.8	5.8	93	57	7,27
11.506.0600	6	6	93	57	5,59

Ref.	d1	d2	l1	l2	€
11.506.0610	6.1	6.1	101	63	9,21
11.506.0620	6.2	6.2	101	63	9,21
11.506.0630	6.3	6.3	101	63	9,21
11.506.0650	6.5	6.5	101	63	6,66
11.506.0670	6.7	6.7	101	63	10,80
11.506.0680	6.8	6.8	109	69	7,65
11.506.0700	7	7	109	69	7,68
11.506.0750	7.5	7.5	109	69	8,77
11.506.0800	8	8	117	75	9,55
11.506.0850	8.5	8.5	117	75	11,40
11.506.0900	9	9	125	81	12,52
11.506.0950	9.5	9.5	125	81	13,88
11.506.1000	10	10	133	87	16,04
11.506.1020	10.2	10.2	133	87	17,93
11.506.1050	10.5	10.5	133	87	17,90
11.506.1100	11	11	142	94	18,50
11.506.1150	11.5	11.5	142	94	21,60
11.506.1200	12	12	151	101	22,21
11.506.1250	12.5	12.5	151	101	24,42
11.506.1300	13	13	151	101	25,05

> 11.600 Phantom

NL HM-tip Spiraalboor
 FR Foret à plaquette carbure
 ES Broca punta MD
 DE HM-Schneiden Spiralbohrer
 EN Carbide Tipped Twist drill



HM-TIP	DIN 338	N											
P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	H 15 HRC	M 21 INOX ≤850N/mm²	M 22 INOX >850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 52 CuAlFe	N 62 GFK/CFK	S 71 Ni/Co	S 72 Ti
75-85	60-70	55-65	30-40	10-20	20-35	18-30	70-85	60-75	120-150	35-40	70-130	25-30	30-35

Ref.	d1	d2	l1	l2	€
11.600.0200	2	2	49	24	20,50
11.600.0210	2.1	2.1	49	24	20,50
11.600.0220	2.2	2.2	53	27	20,50
11.600.0230	2.3	2.3	53	27	20,50
11.600.0240	2.4	2.4	57	30	20,50
11.600.0250	2.5	2.5	57	30	20,50
11.600.0260	2.6	2.6	57	30	20,50
11.600.0270	2.7	2.7	61	33	20,50
11.600.0280	2.8	2.8	61	33	20,50
11.600.0290	2.9	2.9	61	33	20,50
11.600.0300	3	3	61	33	18,92
11.600.0310	3.1	3.1	65	36	20,50
11.600.0320	3.2	3.2	65	36	20,50
11.600.0330	3.3	3.3	65	36	20,50
11.600.0340	3.4	3.4	70	39	20,50
11.600.0350	3.5	3.5	70	39	19,28
11.600.0360	3.6	3.6	70	39	20,50
11.600.0370	3.7	3.7	70	39	20,50
11.600.0380	3.8	3.8	75	43	20,50
11.600.0390	3.9	3.9	75	43	20,50
11.600.0400	4	4	75	43	18,46
11.600.0410	4.1	4.1	75	43	20,50
11.600.0420	4.2	4.2	75	43	20,50
11.600.0430	4.3	4.3	80	47	20,50
11.600.0440	4.4	4.4	80	47	20,50
11.600.0450	4.5	4.5	80	47	18,92
11.600.0460	4.6	4.6	80	47	20,50
11.600.0470	4.7	4.7	80	47	20,50

Ref.	d1	d2	l1	l2	€
11.600.0480	4.8	4.8	86	52	20,50
11.600.0490	4.9	4.9	86	52	20,50
11.600.0500	5	5	86	52	18,46
11.600.0510	5.1	5.1	86	52	22,19
11.600.0520	5.2	5.2	86	52	22,19
11.600.0530	5.3	5.3	86	52	22,19
11.600.0540	5.4	5.4	93	57	22,19
11.600.0550	5.5	5.5	93	57	19,72
11.600.0560	5.6	5.6	93	57	22,59
11.600.0570	5.7	5.7	93	57	22,59
11.600.0580	5.8	5.8	93	57	22,59
11.600.0590	5.9	5.9	93	57	22,59
11.600.0600	6	6	93	57	20,87
11.600.0610	6.1	6.1	101	63	23,12
11.600.0620	6.2	6.2	101	63	23,12
11.600.0630	6.3	6.3	101	63	23,12
11.600.0640	6.4	6.4	101	63	22,89
11.600.0650	6.5	6.5	101	63	21,17
11.600.0660	6.6	6.6	101	63	25,30
11.600.0670	6.7	6.7	101	63	25,30
11.600.0680	6.8	6.8	109	69	25,30
11.600.0690	6.9	6.9	109	69	25,30
11.600.0700	7	7	109	69	23,66
11.600.0710	7.1	7.1	109	69	26,60
11.600.0720	7.2	7.2	109	69	26,60
11.600.0730	7.3	7.3	109	69	26,60
11.600.0740	7.4	7.4	109	69	26,60
11.600.0750	7.5	7.5	109	69	24,90

Ref.	d1	d2	l1	l2	€
11.600.0760	7.6	7.6	117	75	28,20
11.600.0770	7.7	7.7	117	75	28,20
11.600.0780	7.8	7.8	117	75	28,20
11.600.0790	7.9	7.9	117	75	28,20
11.600.0800	8	8	117	75	26,60
11.600.0810	8.1	8.1	117	75	29,10
11.600.0820	8.2	8.2	117	75	29,10
11.600.0830	8.3	8.3	117	75	29,10
11.600.0840	8.4	8.4	117	75	29,10
11.600.0850	8.5	8.5	117	75	27,85
11.600.0860	8.6	8.6	125	81	32,00
11.600.0870	8.7	8.7	125	81	32,00
11.600.0880	8.8	8.8	125	81	32,00
11.600.0890	8.9	8.9	125	81	32,00
11.600.0900	9	9	125	81	30,70
11.600.0910	9.1	9.1	125	81	35,30
11.600.0920	9.2	9.2	125	81	35,30
11.600.0930	9.3	9.3	125	81	35,30
11.600.0940	9.4	9.4	125	81	35,30
11.600.0950	9.5	9.5	125	81	34,50
11.600.0960	9.6	9.6	133	87	37,70
11.600.0970	9.7	9.7	133	87	37,70
11.600.0980	9.8	9.8	133	87	37,70
11.600.0990	9.9	9.9	133	87	37,70
11.600.1000	10	10	133	87	35,75
11.600.1020	10.2	10.2	133	87	41,85
11.600.1050	10.5	10.5	133	87	40,35
11.600.1100	11	11	142	94	42,80

> 11.600 Phantom

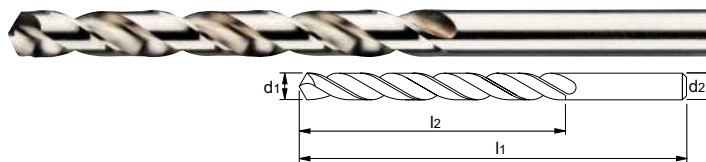
Ref.	d1	d2	l1	l2	€
11.600.1150	11.5	11.5	142	94	45,70
11.600.1200	12	12	151	101	49,40
11.600.1250	12.5	12.5	151	101	52,90
11.600.1300	13	13	151	101	57,65

Ref.	d1	d2	l1	l2	€
11.600.1350	13.5	13.5	160	108	62,85
11.600.1400	14	14	160	108	64,40
11.600.1450	14.5	14.5	169	114	71,45
11.600.1500	15	15	169	114	79,50

Ref.	d1	d2	l1	l2	€
11.600.1550	15.5	15.5	178	120	88,60
11.600.1600	16	16	178	120	92,35

> 11.760 Phantom

NL HSS-E Spiraalboor roestvaststaal
FR Foret HSS-E Inox
ES Broca HSS-E acero inoxidable
DE HSS-E Spiralbohrer rostfreien Stahl
EN HSS-E Twist drill stainless steel



HSS-E DIN 338 >N 130° INOX

P 14 ≤1400 N/mm ²	M 21 INOX ≤850 N/mm ²	M 22 INOX >850 N/mm ²	S 71 Ni/Co	S 72 Ti
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12-16 E	14-18 D	12-16 C	6-8 A	6-10 B
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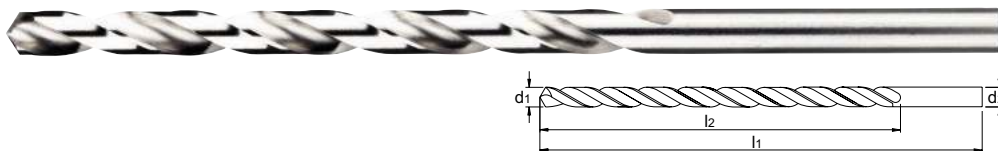
Ref.	d1	d2	l1	l2	€
11.760.0100	1	1	34	12	4,39
11.760.0110	1.1	1.1	36	14	3,62
11.760.0120	1.2	1.2	38	16	3,62
11.760.0130	1.3	1.3	38	16	3,62
11.760.0140	1.4	1.4	40	18	3,62
11.760.0150	1.5	1.5	40	18	3,62
11.760.0160	1.6	1.6	43	20	3,62
11.760.0170	1.7	1.7	43	20	3,62
11.760.0180	1.8	1.8	46	22	3,69
11.760.0190	1.9	1.9	46	22	3,88
11.760.0200	2	2	49	24	3,23
11.760.0210	2.1	2.1	49	24	3,40
11.760.0220	2.2	2.2	53	27	3,53
11.760.0230	2.3	2.3	53	27	3,53
11.760.0240	2.4	2.4	57	30	3,75
11.760.0250	2.5	2.5	57	30	3,53
11.760.0260	2.6	2.6	57	30	3,78
11.760.0270	2.7	2.7	61	33	3,88
11.760.0280	2.8	2.8	61	33	3,78
11.760.0290	2.9	2.9	61	33	3,78
11.760.0300	3	3	61	33	3,53
11.760.0310	3.1	3.1	65	36	3,99
11.760.0320	3.2	3.2	65	36	3,80
11.760.0330	3.3	3.3	65	36	3,80
11.760.0340	3.4	3.4	70	39	3,99
11.760.0350	3.5	3.5	70	39	3,75
11.760.0360	3.6	3.6	70	39	4,02
11.760.0370	3.7	3.7	70	39	4,16
11.760.0380	3.8	3.8	75	43	4,27
11.760.0390	3.9	3.9	75	43	4,40
11.760.0400	4	4	75	43	4,13
11.760.0410	4.1	4.1	75	43	4,39
11.760.0420	4.2	4.2	75	43	4,39
11.760.0430	4.3	4.3	80	47	4,79
11.760.0440	4.4	4.4	80	47	5,04
11.760.0450	4.5	4.5	80	47	4,57
11.760.0460	4.6	4.6	80	47	5,27
11.760.0470	4.7	4.7	80	47	5,03
11.760.0480	4.8	4.8	86	52	5,22

Ref.	d1	d2	l1	l2	€
11.760.0490	4.9	4.9	86	52	5,27
11.760.0500	5	5	86	52	4,74
11.760.0510	5.1	5.1	86	52	5,36
11.760.0520	5.2	5.2	86	52	5,54
11.760.0530	5.3	5.3	86	52	5,66
11.760.0540	5.4	5.4	93	57	6,45
11.760.0550	5.5	5.5	93	57	6,40
11.760.0560	5.6	5.6	93	57	6,71
11.760.0570	5.7	5.7	93	57	6,71
11.760.0580	5.8	5.8	93	57	6,71
11.760.0590	5.9	5.9	93	57	6,71
11.760.0600	6	6	93	57	6,40
11.760.0610	6.1	6.1	101	63	7,65
11.760.0620	6.2	6.2	101	63	7,65
11.760.0630	6.3	6.3	101	63	7,65
11.760.0640	6.4	6.4	101	63	7,90
11.760.0650	6.5	6.5	101	63	7,65
11.760.0660	6.6	6.6	101	63	8,03
11.760.0670	6.7	6.7	101	63	8,15
11.760.0680	6.8	6.8	109	69	8,53
11.760.0690	6.9	6.9	109	69	9,17
11.760.0700	7	7	109	69	8,66
11.760.0710	7.1	7.1	109	69	9,46
11.760.0720	7.2	7.2	109	69	10,42
11.760.0730	7.3	7.3	109	69	10,42
11.760.0740	7.4	7.4	109	69	9,96
11.760.0750	7.5	7.5	109	69	9,37
11.760.0760	7.6	7.6	117	75	11,41
11.760.0770	7.7	7.7	117	75	11,64
11.760.0780	7.8	7.8	117	75	10,80
11.760.0790	7.9	7.9	117	75	11,60
11.760.0800	8	8	117	75	9,76
11.760.0810	8.1	8.1	117	75	12,18
11.760.0820	8.2	8.2	117	75	11,58
11.760.0830	8.3	8.3	117	75	12,15
11.760.0840	8.4	8.4	117	75	12,55
11.760.0850	8.5	8.5	117	75	11,37
11.760.0860	8.6	8.6	125	81	14,48
11.760.0870	8.7	8.7	125	81	14,48

Ref.	d1	d2	l1	l2	€
11.760.0880	8.8	8.8	125	81	14,48
11.760.0890	8.9	8.9	125	81	15,16
11.760.0900	9	9	125	81	14,48
11.760.0910	9.1	9.1	125	81	15,16
11.760.0920	9.2	9.2	125	81	15,16
11.760.0930	9.3	9.3	125	81	15,16
11.760.0940	9.4	9.4	125	81	15,99
11.760.0950	9.5	9.5	125	81	15,29
11.760.0960	9.6	9.6	133	87	16,88
11.760.0970	9.7	9.7	133	87	17,25
11.760.0980	9.8	9.8	133	87	18,10
11.760.0990	9.9	9.9	133	87	18,46
11.760.1000	10	10	133	87	16,42
11.760.1020	10.2	10.2	133	87	18,59
11.760.1040	10.4	10.4	133	87	21,72
11.760.1050	10.5	10.5	133	87	19,68
11.760.1070	10.7	10.7	142	94	29,80
11.760.1100	11	11	142	94	23,27
11.760.1120	11.2	11.2	142	94	27,15
11.760.1150	11.5	11.5	142	94	25,85
11.760.1200	12	12	151	101	29,00
11.760.1210	12.1	12.1	151	101	37,85
11.760.1230	12.3	12.3	151	101	37,85
11.760.1250	12.5	12.5	151	101	31,90
11.760.1300	13	13	151	101	35,70
11.760.1350	13.5	13.5	160	108	41,10
11.760.1400	14	14	160	108	44,85
11.760.1450	14.5	14.5	169	114	47,45
11.760.1500	15	15	169	114	52,65
11.760.1550	15.5	15.5	178	120	54,30
11.760.1600	16	16	178	120	61,10
11.760.1650	16.5	16.5	184	125	96,10
11.760.1700	17	17	184	125	94,25
11.760.1750	17.5	17.5	191	130	99,60
11.760.1800	18	18	191	130	89,70
11.760.1900	19	19	198	135	127,00
11.760.2000	20	20	205	140	157,75

> 11.813 INTERNATIONAL TOOLS

NL ECO PRO HSS Spiraalboor
FR Foret HSS ECO PRO
ES Broca HSS ECO PRO
DE ECO PRO HSS Spiralbohrer
EN ECO PRO HSS Twist drill



P 11 ≤800 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
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25-27 F	22-30 F	15-20 E	15-20 E	25-30 E	45-50 G	25-40 D	22-28 D
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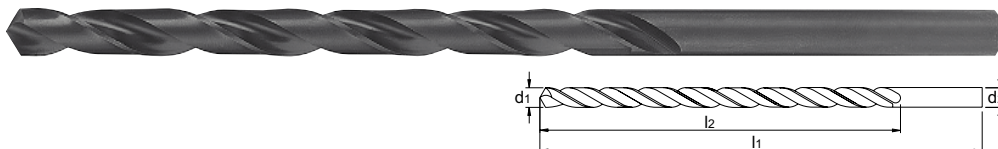
Ref.	d1	d2	l1	l2	€
11.813.0100	1	1	56	33	1,18
11.813.0110	1.1	1.1	60	37	1,18
11.813.0120	1.2	1.2	65	41	1,18
11.813.0130	1.3	1.3	65	41	1,18
11.813.0140	1.4	1.4	70	45	1,18
11.813.0150	1.5	1.5	70	45	1,22
11.813.0160	1.6	1.6	76	50	1,22
11.813.0170	1.7	1.7	76	50	1,22
11.813.0180	1.8	1.8	80	53	1,22
11.813.0190	1.9	1.9	80	53	1,22
11.813.0200	2	2	85	56	1,77
11.813.0210	2.1	2.1	85	56	1,86
11.813.0220	2.2	2.2	90	59	1,86
11.813.0230	2.3	2.3	90	59	1,86
11.813.0240	2.4	2.4	95	62	1,86
11.813.0250	2.5	2.5	95	62	1,86
11.813.0260	2.6	2.6	95	62	1,86
11.813.0270	2.7	2.7	100	66	1,86
11.813.0280	2.8	2.8	100	66	1,86
11.813.0290	2.9	2.9	100	66	1,86
11.813.0300	3	3	100	66	1,86
11.813.0310	3.1	3.1	106	69	2,48
11.813.0320	3.2	3.2	106	69	2,48

Ref.	d1	d2	l1	l2	€
11.813.0330	3.3	3.3	106	69	2,48
11.813.0340	3.4	3.4	112	73	2,48
11.813.0350	3.5	3.5	112	73	2,10
11.813.0360	3.6	3.6	112	73	2,63
11.813.0370	3.7	3.7	112	73	2,63
11.813.0380	3.8	3.8	119	78	2,63
11.813.0390	3.9	3.9	119	78	2,63
11.813.0400	4	4	119	78	2,24
11.813.0410	4.1	4.1	119	78	2,63
11.813.0420	4.2	4.2	119	78	2,63
11.813.0430	4.3	4.3	126	82	2,63
11.813.0440	4.4	4.4	126	82	2,63
11.813.0450	4.5	4.5	126	82	2,43
11.813.0460	4.6	4.6	126	82	3,04
11.813.0470	4.7	4.7	126	82	3,04
11.813.0480	4.8	4.8	132	87	3,04
11.813.0490	4.9	4.9	132	87	3,04
11.813.0500	5	5	132	87	3,04
11.813.0510	5.1	5.1	132	87	3,70
11.813.0520	5.2	5.2	132	87	3,70
11.813.0530	5.3	5.3	132	87	3,70
11.813.0540	5.4	5.4	139	91	3,70
11.813.0550	5.5	5.5	139	91	3,70

Ref.	d1	d2	l1	l2	€
11.813.0560	5.6	5.6	139	91	4,04
11.813.0570	5.7	5.7	139	91	4,04
11.813.0580	5.8	5.8	139	91	4,04
11.813.0590	5.9	5.9	139	91	4,04
11.813.0600	6	6	139	91	4,04
11.813.0650	6.5	6.5	148	97	4,71
11.813.0680	6.8	6.8	156	102	5,39
11.813.0700	7	7	156	102	5,39
11.813.0750	7.5	7.5	156	102	6,74
11.813.0800	8	8	165	109	8,08
11.813.0850	8.5	8.5	165	109	9,43
11.813.0900	9	9	175	115	10,76
11.813.0950	9.5	9.5	175	115	11,44
11.813.1000	10	10	184	121	13,11
11.813.1020	10.2	10.2	184	121	14,80
11.813.1050	10.5	10.5	184	121	14,80
11.813.1100	11	11	195	128	16,81
11.813.1150	11.5	11.5	195	128	18,16
11.813.1200	12	12	205	134	19,50
11.813.1250	12.5	12.5	205	134	21,53
11.813.1300	13	13	205	134	22,88

> 11.815 Phantom

NL HSS Spiraalboor
FR Foret HSS
ES Broca HSS
DE HSS Spiralbohrer
EN HSS Twist drill



P 11 ≤800 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	M 21 INOX ≤850N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
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25-27 F	22-30 F	15-20 E	8-12 D	15-20 E	25-30 E	45-50 G	25-40 D	22-28 D
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Ref.	d1	d2	l1	l2	€
11.815.0100	1	1	56	33	3,21
11.815.0110	1.1	1.1	60	37	5,56
11.815.0120	1.2	1.2	65	41	5,31
11.815.0130	1.3	1.3	65	41	4,89
11.815.0140	1.4	1.4	70	45	4,52
11.815.0150	1.5	1.5	70	45	4,21
11.815.0160	1.6	1.6	76	50	4,49
11.815.0170	1.7	1.7	76	50	4,49
11.815.0180	1.8	1.8	80	53	4,49
11.815.0190	1.9	1.9	80	53	4,49
11.815.0200	2	2	85	56	3,48
11.815.0210	2.1	2.1	85	56	3,97
11.815.0220	2.2	2.2	90	59	3,39
11.815.0230	2.3	2.3	90	59	3,62
11.815.0240	2.4	2.4	95	62	3,39
11.815.0250	2.5	2.5	95	62	2,69
11.815.0260	2.6	2.6	95	62	3,42
11.815.0270	2.7	2.7	100	66	3,86
11.815.0280	2.8	2.8	100	66	3,48
11.815.0290	2.9	2.9	100	66	4,08
11.815.0300	3	3	100	66	3,23
11.815.0310	3.1	3.1	106	69	3,76
11.815.0320	3.2	3.2	106	69	3,40
11.815.0330	3.3	3.3	106	69	3,64

Ref.	d1	d2	l1	l2	€
11.815.0340	3.4	3.4	112	73	4,12
11.815.0350	3.5	3.5	112	73	3,64
11.815.0360	3.6	3.6	112	73	4,03
11.815.0370	3.7	3.7	112	73	4,08
11.815.0380	3.8	3.8	119	78	3,99
11.815.0390	3.9	3.9	119	78	4,20
11.815.0400	4	4	119	78	3,86
11.815.0410	4.1	4.1	119	78	4,32
11.815.0420	4.2	4.2	119	78	3,86
11.815.0430	4.3	4.3	126	82	4,52
11.815.0440	4.4	4.4	126	82	4,70
11.815.0450	4.5	4.5	126	82	4,32
11.815.0460	4.6	4.6	126	82	4,89
11.815.0470	4.7	4.7	126	82	4,98
11.815.0480	4.8	4.8	132	87	4,98
11.815.0490	4.9	4.9	132	87	4,98
11.815.0500	5	5	132	87	4,45
11.815.0510	5.1	5.1	132	87	5,13
11.815.0520	5.2	5.2	132	87	4,98
11.815.0530	5.3	5.3	132	87	5,21
11.815.0540	5.4	5.4	139	91	6,39
11.815.0550	5.5	5.5	139	91	4,98
11.815.0560	5.6	5.6	139	91	6,20
11.815.0570	5.7	5.7	139	91	6,14

Ref.	d1	d2	l1	l2	€
11.815.0580	5.8	5.8	139	91	5,81
11.815.0590	5.9	5.9	139	91	6,64
11.815.0600	6	6	139	91	5,51
11.815.0620	6.2	6.2	148	97	9,51
11.815.0650	6.5	6.5	148	97	7,14
11.815.0680	6.8	6.8	156	102	8,92
11.815.0700	7	7	156	102	7,85
11.815.0750	7.5	7.5	156	102	9,34
11.815.0780	7.8	7.8	165	109	10,67
11.815.0800	8	8	165	109	9,61
11.815.0850	8.5	8.5	165	109	11,04
11.815.0880	8.8	8.8	175	115	14,50
11.815.0900	9	9	175	115	12,58
11.815.0950	9.5	9.5	175	115	14,26
11.815.0980	9.8	9.8	184	121	17,16
11.815.1000	10	10	184	121	13,87
11.815.1020	10.2	10.2	184	121	26,15
11.815.1050	10.5	10.5	184	121	18,55
11.815.1100	11	11	195	128	18,17
11.815.1150	11.5	11.5	195	128	21,80
11.815.1200	12	12	205	134	23,02
11.815.1250	12.5	12.5	205	134	24,69
11.815.1300	13	13	205	134	24,41

> 11.820

Phantom

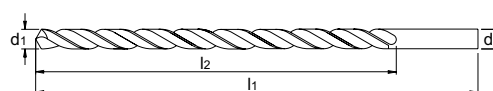
NL HSS-E Spiraalboor roestvaststaal

FR Foret HSS-E Inox

ES Broca HSS-E acero inoxidable

DE HSS-E Spiralbohrer rostfreien Stahl

EN HSS-E Twist drill stainless steel



HSS-E DIN 340 >N   INOX

P 14  M 21  M 22  S 71  S 72 

12-16 E 14-18 D 12-16 C 6-8 A 6-10 B

Ref.	d1	d2	l1	l2	€
11.820.0100	1	1	56	33	7,06
11.820.0150	1.5	1.5	70	45	6,94
11.820.0200	2	2	85	56	5,83
11.820.0250	2.5	2.5	95	62	5,94
11.820.0300	3	3	100	66	6,23
11.820.0310	3.1	3.1	106	69	7,13
11.820.0320	3.2	3.2	106	69	6,60
11.820.0350	3.5	3.5	112	73	7,09
11.820.0400	4	4	119	78	7,61
11.820.0410	4.1	4.1	119	78	8,55
11.820.0420	4.2	4.2	119	78	7,81
11.820.0450	4.5	4.5	126	82	8,82

Ref.	d1	d2	l1	l2	€
11.820.0500	5	5	132	87	9,04
11.820.0510	5.1	5.1	132	87	12,27
11.820.0520	5.2	5.2	132	87	9,98
11.820.0550	5.5	5.5	139	91	11,12
11.820.0600	6	6	139	91	11,63
11.820.0650	6.5	6.5	148	97	12,82
11.820.0670	6.7	6.7	148	97	18,47
11.820.0680	6.8	6.8	156	102	18,21
11.820.0700	7	7	156	102	14,55
11.820.0750	7.5	7.5	156	102	16,96
11.820.0800	8	8	165	109	16,96
11.820.0850	8.5	8.5	165	109	18,98

Ref.	d1	d2	l1	l2	€
11.820.0900	9	9	175	115	21,04
11.820.0950	9.5	9.5	175	115	25,05
11.820.1000	10	10	184	121	24,65
11.820.1050	10.5	10.5	184	121	33,05
11.820.1100	11	11	195	128	34,35
11.820.1110	11.1	11.1	195	128	69,35
11.820.1150	11.5	11.5	195	128	41,05
11.820.1200	12	12	205	134	42,85
11.820.1250	12.5	12.5	205	134	56,35
11.820.1300	13	13	205	134	48,50

> 11.860

Phantom

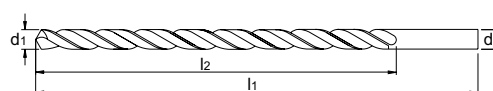
NL HSS Spiraalboor type TS

FR Foret HSS type TS

ES Broca HSS tipo TS

DE HSS Spiralbohrer Typ TS

EN HSS Twist drill type TS



HSS DIN 340 TS   

P 11  P 12  K 31  K 32  N 42  N 52  N 61 

22-24 E 14-22 E 20-25 E 18-22 E 40-45 F 30-36 E 18-21 E

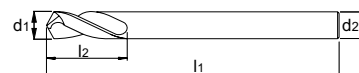
Ref.	d1	d2	l1	l2	€
11.860.0100	1	1	56	33	7,20
11.860.0150	1.5	1.5	70	45	5,35
11.860.0200	2	2	85	56	5,32
11.860.0210	2.1	2.1	85	56	5,39
11.860.0220	2.2	2.2	90	59	5,92
11.860.0230	2.3	2.3	90	59	5,92
11.860.0240	2.4	2.4	95	62	6,38
11.860.0250	2.5	2.5	95	62	5,47
11.860.0260	2.6	2.6	95	62	6,31
11.860.0270	2.7	2.7	100	66	6,50
11.860.0280	2.8	2.8	100	66	6,46
11.860.0290	2.9	2.9	100	66	6,75
11.860.0300	3	3	100	66	5,85
11.860.0310	3.1	3.1	106	69	7,21
11.860.0320	3.2	3.2	106	69	6,28
11.860.0330	3.3	3.3	106	69	6,71
11.860.0340	3.4	3.4	112	73	7,70
11.860.0350	3.5	3.5	112	73	6,50
11.860.0360	3.6	3.6	112	73	8,08
11.860.0370	3.7	3.7	112	73	7,85
11.860.0380	3.8	3.8	119	78	7,86
11.860.0390	3.9	3.9	119	78	7,86
11.860.0400	4	4	119	78	7,32
11.860.0410	4.1	4.1	119	78	8,08
11.860.0420	4.2	4.2	119	78	7,72
11.860.0430	4.3	4.3	126	82	8,87

Ref.	d1	d2	l1	l2	€
11.860.0440	4.4	4.4	126	82	8,97
11.860.0450	4.5	4.5	126	82	8,31
11.860.0460	4.6	4.6	126	82	9,22
11.860.0470	4.7	4.7	126	82	9,16
11.860.0480	4.8	4.8	132	87	9,08
11.860.0490	4.9	4.9	132	87	9,90
11.860.0500	5	5	132	87	8,52
11.860.0510	5.1	5.1	132	87	9,83
11.860.0520	5.2	5.2	132	87	10,13
11.860.0530	5.3	5.3	132	87	10,27
11.860.0540	5.4	5.4	139	91	10,76
11.860.0550	5.5	5.5	139	91	10,40
11.860.0560	5.6	5.6	139	91	12,02
11.860.0570	5.7	5.7	139	91	12,39
11.860.0580	5.8	5.8	139	91	12,41
11.860.0590	5.9	5.9	139	91	13,19
11.860.0600	6	6	139	91	10,87
11.860.0610	6.1	6.1	148	97	13,78
11.860.0620	6.2	6.2	148	97	13,92
11.860.0630	6.3	6.3	148	97	14,07
11.860.0640	6.4	6.4	148	97	14,66
11.860.0650	6.5	6.5	148	97	11,65
11.860.0660	6.6	6.6	148	97	14,18
11.860.0670	6.7	6.7	148	97	15,43
11.860.0680	6.8	6.8	156	102	14,48
11.860.0690	6.9	6.9	156	102	14,38

Ref.	d1	d2	l1	l2	€
11.860.0700	7	7	156	102	13,55
11.860.0710	7.1	7.1	156	102	22,13
11.860.0720	7.2	7.2	156	102	22,88
11.860.0730	7.3	7.3	156	102	23,25
11.860.0740	7.4	7.4	156	102	23,53
11.860.0750	7.5	7.5	156	102	16,36
11.860.0760	7.6	7.6	165	109	20,83
11.860.0770	7.7	7.7	165	109	24,45
11.860.0780	7.8	7.8	165	109	22,02
11.860.0790	7.9	7.9	165	109	22,97
11.860.0800	8	8	165	109	15,68
11.860.0850	8.5	8.5	165	109	19,39
11.860.0870	8.7	8.7	175	115	35,10
11.860.0900	9	9	175	115	19,27
11.860.0950	9.5	9.5	175	115	25,05
11.860.1000	10	10	184	121	23,24
11.860.1020	10.2	10.2	184	121	29,40
11.860.1050	10.5	10.5	184	121	29,55
11.860.1100	11	11	195	128	33,05
11.860.1150	11.5	11.5	195	128	40,75
11.860.1200	12	12	205	134	41,20
11.860.1250	12.5	12.5	205	134	43,90
11.860.1300	13	13	205	134	44,85
11.860.1400	14	14	214	140	54,05
11.860.1500	15	15	220	144	321,00
11.860.1600	16	16	227	149	201,45

> 11.890 Phantom

NL HSS Dakdekkersboor
FR Foret pour couvreurs HSS
ES Broca para tejados HSS
DE HSS Blechschälbohrer
EN HSS Roofer Drill



P 11 ≤600 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	M 21 INOX ≤850 N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
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25-27 F	22-30 F	15-20 E	8-12 D	15-20 E	25-30 E	45-50 G	25-40 D	22-28 D
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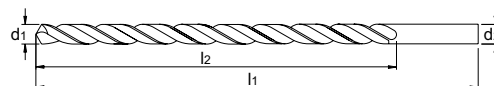
Ref.	d1	d2	l1	l2	€
11.890.5015	5	5	150	30	4,94
11.890.5021	5	5	210	30	6,92
11.890.5110	5.1	5.1	100	30	3,92
11.890.5115	5.1	5.1	150	30	5,89
11.890.5121	5.1	5.1	210	30	8,23

Ref.	d1	d2	l1	l2	€
11.890.5315	5.3	5.3	150	30	5,89
11.890.5321	5.3	5.3	210	30	8,23
11.890.5515	5.5	5.5	150	30	5,89
11.890.5715	5.7	5.7	150	30	6,82
11.890.5721	5.7	5.7	210	30	9,56

Ref.	d1	d2	l1	l2	€
11.890.5810	5.8	5.8	100	30	4,56
11.890.5815	5.8	5.8	150	30	6,82
11.890.5821	5.8	5.8	210	30	9,56

> 11.900 Phantom

NL HSS Spiraalboor
FR Foret HSS
ES Broca HSS
DE HSS Spiralbohrer
EN HSS Twist drill



P 11 ≤600 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 43 Mg	N 51 Cu
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20-25 D	15-25 D	8-20 C	18-22 E	14-20 E	35-40 F	50-55 E	20-28 D
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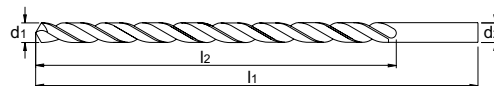
Ref.	d1	d2	l1	l2	€
11.900.0201	2	2	125	85	9,85
11.900.0251	2.5	2.5	140	95	9,26
11.900.0301	3	3	150	100	10,44
11.900.0303	3	3	190	130	13,99
11.900.0351	3.5	3.5	165	115	10,57
11.900.0353	3.5	3.5	210	145	14,89
11.900.0401	4	4	175	120	11,27
11.900.0403	4	4	220	150	15,27
11.900.0451	4.5	4.5	185	125	12,55
11.900.0453	4.5	4.5	235	160	17,87
11.900.0481	4.8	4.8	195	135	46,75
11.900.0501	5	5	195	135	13,05
11.900.0503	5	5	245	170	17,69

Ref.	d1	d2	l1	l2	€
11.900.0511	5.1	5.1	195	135	35,85
11.900.0551	5.5	5.5	205	140	15,13
11.900.0553	5.5	5.5	260	180	23,06
11.900.0581	5.8	5.8	205	140	44,65
11.900.0601	6	6	205	140	15,72
11.900.0603	6	6	260	180	23,25
11.900.0651	6.5	6.5	215	150	17,43
11.900.0653	6.5	6.5	275	190	25,70
11.900.0701	7	7	225	155	20,01
11.900.0703	7	7	290	200	28,50
11.900.0751	7.5	7.5	225	155	24,10
11.900.0753	7.5	7.5	290	200	32,70
11.900.0801	8	8	240	165	25,80

Ref.	d1	d2	l1	l2	€
11.900.0803	8	8	305	210	33,30
11.900.0851	8.5	8.5	240	165	32,30
11.900.0853	8.5	8.5	305	210	45,10
11.900.0901	9	9	250	175	35,95
11.900.0903	9	9	320	220	46,35
11.900.0951	9.5	9.5	250	175	41,20
11.900.0953	9.5	9.5	320	220	54,60
11.900.1001	10	10	265	185	39,95
11.900.1003	10	10	340	235	53,40
11.900.1101	11	11	280	195	66,95
11.900.1103	11	11	365	250	78,65
11.900.1201	12	12	295	205	75,30
11.900.1203	12	12	375	260	87,30

> 11.920 Phantom

NL HSS Spiraalboor type TS
FR Foret HSS type TS
ES Broca HSS tipo TS
DE HSS Spiralbohrer Typ TS
EN HSS Twist drill type TS



P 11 ≤500 N/mm ²	P 12 ≤550 N/mm ²	P 13 ≤1000 N/mm ²	M 21 INOX ≤850 N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 43 Mg	N 51 Cu	N 61 PVC
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20-25 D	16-25 D	16-22 C	6-10 C	18-22 E	14-20 E	35-40 F	50-55 E	20-28 D	18-30 E
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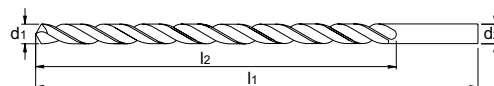
Ref.	d1	d2	l1	l2	€
11.920.0201	2	2	125	85	14,85
11.920.0251	2.5	2.5	140	95	14,12
11.920.0301	3	3	150	100	14,78
11.920.0303	3	3	190	130	22,88
11.920.0305	3	3	240	160	32,00
11.920.0351	3.5	3.5	165	115	16,07
11.920.0353	3.5	3.5	210	145	20,68
11.920.0355	3.5	3.5	265	180	30,90
11.920.0401	4	4	175	120	16,38
11.920.0403	4	4	220	150	20,68
11.920.0405	4	4	280	190	29,80
11.920.0407	4	4	400	300	147,80
11.920.0451	4.5	4.5	185	125	16,92
11.920.0453	4.5	4.5	235	160	24,15
11.920.0455	4.5	4.5	295	200	36,20
11.920.0501	5	5	195	135	18,11
11.920.0503	5	5	245	170	26,15
11.920.0505	5	5	315	210	39,30
11.920.0507	5	5	500	350	213,60
11.920.0551	5.5	5.5	205	140	19,07
11.920.0553	5.5	5.5	260	180	31,20
11.920.0557	5.5	5.5	330	225	45,15
11.920.0601	6	6	205	140	19,51

Ref.	d1	d2	l1	l2	€
11.920.0603	6	6	260	180	29,50
11.920.0605	6	6	330	225	44,25
11.920.0607	6	6	600	400	204,45
11.920.0608	6	6	500	400	68,15
11.920.0651	6.5	6.5	215	150	23,45
11.920.0653	6.5	6.5	275	190	35,60
11.920.0655	6.5	6.5	350	235	46,75
11.920.0701	7	7	225	155	25,85
11.920.0703	7	7	290	200	38,95
11.920.0705	7	7	370	250	54,30
11.920.0751	7.5	7.5	225	155	30,75
11.920.0753	7.5	7.5	290	200	43,45
11.920.0755	7.5	7.5	370	250	63,60
11.920.0801	8	8	240	165	31,75
11.920.0803	8	8	305	210	42,75
11.920.0805	8	8	390	265	59,05
11.920.0809	8	8	500	400	78,60
11.920.0851	8.5	8.5	240	165	33,75
11.920.0853	8.5	8.5	305	210	46,80
11.920.0901	9	9	250	175	45,60
11.920.0903	9	9	320	220	52,30
11.920.0905	9	9	410	280	75,55
11.920.0951	9.5	9.5	250	175	55,90

Ref.	d1	d2	l1	l2	€
11.920.0953	9.5	9.5	320	220	60,50
11.920.0955	9.5	9.5	410	280	94,75
11.920.1001	10	10	265	185	55,55
11.920.1003	10	10	340	235	61,75
11.920.1005	10	10	430	295	79,90
11.920.1008	10	10	600	500	106,25
11.920.1051	10.5	10.5	265	185	64,65
11.920.1053	10.5	10.5	340	235	68,35
11.920.1054	10.5	10.5	430	295	112,45
11.920.1101	11	11	280	195	76,35
11.920.1103	11	11	365	250	83,55
11.920.1104	11	11	455	310	118,40
11.920.1151	11.5	11.5	280	195	83,55
11.920.1153	11.5	11.5	365	250	99,50
11.920.1201	12	12	295	205	86,90
11.920.1203	12	12	375	260	99,15
11.920.1205	12	12	480	330	122,10
11.920.1206	12	12	600	500	150,10
11.920.1251	12.5	12.5	295	205	83,80
11.920.1253	12.5	12.5	375	260	91,85
11.920.1301	13	13	295	205	89,60
11.920.1303	13	13	375	260	97,10
11.920.1401	14	14	300	200	176,40

> 11.940 Phantom

NL HSS-E Spiraalboor type TS
FR Foret HSS-E type TS
ES Broca HSS-E tipo TS
DE HSS-E Spiralbohrer Typ TS
EN HSS-E Twist drill type TS



P 11 ≤500 N/mm ²	P 12 ≤550 N/mm ²	P 13 ≤1000 N/mm ²	P 14 ≤1400 N/mm ²	M 21 INOX ≤850 N/mm ²	M 22 INOX >850 N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 52 CuAlFe
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30-35 D	20-30 D	10-20 C	8-10 B	8-10 C	6-10 B	25-30 D	20-25 D	40-50 F	20-30 D	25-30 C
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Ref.	d1	d2	l1	l2	€
11.940.0301	3	3	150	100	17,86
11.940.0303	3	3	190	130	28,30
11.940.0351	3.5	3.5	165	115	19,42
11.940.0353	3.5	3.5	210	145	25,00
11.940.0355	3.5	3.5	265	180	38,25
11.940.0401	4	4	175	120	20,21
11.940.0403	4	4	220	150	25,00
11.940.0405	4	4	280	190	36,75
11.940.0451	4.5	4.5	185	125	20,46
11.940.0453	4.5	4.5	235	160	29,20
11.940.0501	5	5	195	135	22,33
11.940.0503	5	5	245	170	32,35
11.940.0505	5	5	315	210	49,50
11.940.0551	5.5	5.5	205	140	23,50

Ref.	d1	d2	l1	l2	€
11.940.0553	5.5	5.5	260	180	38,45
11.940.0601	6	6	205	140	24,06
11.940.0603	6	6	260	180	35,70
11.940.0605	6	6	330	225	54,75
11.940.0651	6.5	6.5	215	150	28,35
11.940.0653	6.5	6.5	275	190	43,05
11.940.0701	7	7	225	155	31,30
11.940.0703	7	7	290	200	48,05
11.940.0705	7	7	370	250	65,70
11.940.0751	7.5	7.5	225	155	37,25
11.940.0753	7.5	7.5	290	200	53,50
11.940.0801	8	8	240	165	38,40
11.940.0803	8	8	305	210	51,70
11.940.0805	8	8	390	265	71,30

Ref.	d1	d2	l1	l2	€
11.940.0851	8.5	8.5	240	165	40,80
11.940.0853	8.5	8.5	305	210	56,60
11.940.0901	9	9	250	175	55,15
11.940.0903	9	9	320	220	63,30
11.940.0905	9	9	410	280	91,35
11.940.0951	9.5	9.5	250	175	67,50
11.940.0953	9.5	9.5	320	220	73,20
11.940.1001	10	10	265	185	67,10
11.940.1003	10	10	340	235	74,65
11.940.1005	10	10	430	295	96,55
11.940.1101	11	11	280	195	92,35
11.940.1103	11	11	365	250	101,10
11.940.1104	11	11	455	310	143,20
11.940.1201	12	12	295	205	107,85

> 11.940 Phantom

Ref.	d1	d2	I1	I2	€
11.940.1203	12	12	375	260	119,85
11.940.1205	12	12	480	330	147,65

Ref.	d1	d2	I1	I2	€
11.940.1301	13	13	295	205	129,25
11.940.1303	13	13	375	260	143,60

Ref.	d1	d2	I1	I2	€

> 12.400 INTERNATIONAL TOOLS

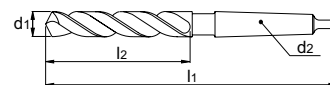
NL ECO HSS Spiraalboor gewalst, MK

FR Foret HSS ECO laminé, CM

ES Broca HSS ECO laminada, CM

DE ECO HSS Spiralbohrer Gewalzt, MK

EN ECO HSS Twist drill roll-forged, MT



Ref.	d1	d2	I1	I2	€
12.400.0800	8	MK 1	156	75	7,47
12.400.0850	8.5	MK 1	156	75	7,47
12.400.0900	9	MK 1	162	81	7,47
12.400.0950	9.5	MK 1	162	81	7,47
12.400.1000	10	MK 1	168	87	7,47
12.400.1050	10.5	MK 1	168	87	7,47
12.400.1100	11	MK 1	175	94	7,47
12.400.1150	11.5	MK 1	175	94	7,47
12.400.1200	12	MK 1	182	101	7,77
12.400.1250	12.5	MK 1	182	101	7,77
12.400.1300	13	MK 1	182	101	8,45
12.400.1350	13.5	MK 1	189	108	8,45
12.400.1400	14	MK 1	189	108	9,69
12.400.1450	14.5	MK 2	212	114	10,35
12.400.1500	15	MK 2	212	114	10,35
12.400.1550	15.5	MK 2	218	120	10,35
12.400.1600	16	MK 2	218	120	11,10
12.400.1650	16.5	MK 2	223	125	11,85
12.400.1700	17	MK 2	223	125	12,60
12.400.1750	17.5	MK 2	228	130	12,60
12.400.1800	18	MK 2	228	130	13,36
12.400.1850	18.5	MK 2	233	135	13,36
12.400.1900	19	MK 2	233	135	14,11
12.400.1950	19.5	MK 2	238	140	14,11
12.400.2000	20	MK 2	238	140	16,50
12.400.2050	20.5	MK 2	243	145	16,50
12.400.2100	21	MK 2	243	145	18,76
12.400.2150	21.5	MK 2	248	150	18,76

Ref.	d1	d2	I1	I2	€
12.400.2200	22	MK 2	248	150	19,51
12.400.2250	22.5	MK 2	253	155	19,51
12.400.2300	23	MK 2	253	155	21,77
12.400.2350	23.5	MK 3	276	155	24,34
12.400.2400	24	MK 3	281	160	24,85
12.400.2450	24.5	MK 3	281	160	24,87
12.400.2500	25	MK 3	281	160	25,60
12.400.2550	25.5	MK 3	286	165	25,60
12.400.2600	26	MK 3	286	165	29,50
12.400.2650	26.5	MK 3	286	165	30,95
12.400.2700	27	MK 3	291	170	31,20
12.400.2750	27.5	MK 3	291	170	32,00
12.400.2800	28	MK 3	291	170	32,45
12.400.2850	28.5	MK 3	296	175	34,65
12.400.2900	29	MK 3	296	175	35,70
12.400.2950	29.5	MK 3	296	175	36,20
12.400.3000	30	MK 3	296	175	40,40
12.400.3050	30.5	MK 3	301	180	42,85
12.400.3100	31	MK 3	301	180	45,60
12.400.3150	31.5	MK 3	301	180	45,95
12.400.3200	32	MK 4	334	185	58,75
12.400.3250	32.5	MK 4	334	185	61,00
12.400.3300	33	MK 4	334	185	64,80
12.400.3350	33.5	MK 4	334	185	67,05
12.400.3400	34	MK 4	339	190	67,05
12.400.3450	34.5	MK 4	339	190	70,80
12.400.3500	35	MK 4	339	190	76,85
12.400.3550	35.5	MK 4	339	190	81,35

Ref.	d1	d2	I1	I2	€
12.400.3600	36	MK 4	344	195	82,85
12.400.3650	36.5	MK 4	344	195	87,40
12.400.3700	37	MK 4	344	195	98,50
12.400.3750	37.5	MK 4	344	195	99,45
12.400.3800	38	MK 4	349	200	99,45
12.400.3850	38.5	MK 4	349	200	99,45
12.400.3900	39	MK 4	349	200	100,20
12.400.3950	39.5	MK 4	349	200	100,20
12.400.4000	40	MK 4	349	200	100,20
12.400.4050	40.5	MK 4	354	205	100,20
12.400.4100	41	MK 4	354	205	100,20
12.400.4150	41.5	MK 4	354	205	100,20
12.400.4200	42	MK 4	354	205	108,45
12.400.4250	42.5	MK 4	354	205	108,45
12.400.4300	43	MK 4	359	210	108,45
12.400.4350	43.5	MK 4	359	210	108,45
12.400.4400	44	MK 4	359	210	119,75
12.400.4450	44.5	MK 4	359	210	119,75
12.400.4500	45	MK 4	359	210	135,55
12.400.4550	45.5	MK 4	364	215	135,55
12.400.4600	46	MK 4	364	215	135,55
12.400.4650	46.5	MK 4	364	215	135,55
12.400.4700	47	MK 4	364	215	151,35
12.400.4800	48	MK 4	369	220	151,35
12.400.4850	48.5	MK 4	369	220	151,35
12.400.4900	49	MK 4	369	220	151,35
12.400.4950	49.5	MK 4	369	220	151,35
12.400.5000	50	MK 4	369	220	165,65

> 12.440 Phantom

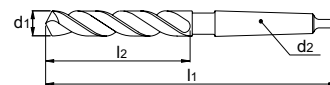
NL HSS Spiraalboor MK

FR Foret HSS CM

ES Broca HSS CM

DE HSS Spiralbohrer MK

EN HSS Twist drill MT



Ref.	d1	d2	I1	I2	€
12.440.0500	5	MK 1	133	52	52,10
12.440.0550	5.5	MK 1	138	57	58,75
12.440.0600	6	MK 1	138	57	55,00
12.440.0625	6.25	MK 1	144	63	76,60
12.440.0650	6.5	MK 1	144	63	60,70
12.440.0675	6.75	MK 1	150	69	65,40
12.440.0700	7	MK 1	150	69	62,55
12.440.0750	7.5	MK 1	150	69	64,35
12.440.0775	7.75	MK 1	156	75	51,70
12.440.0800	8	MK 1	156	75	35,90
12.440.0825	8.25	MK 1	156	75	52,10
12.440.0850	8.5	MK 1	156	75	38,80
12.440.0875	8.75	MK 1	162	81	45,55

Ref.	d1	d2	I1	I2	€
12.440.0900	9	MK 1	162	81	38,65
12.440.0925	9.25	MK 1	162	81	56,00
12.440.0950	9.5	MK 1	162	81	42,95
12.440.0975	9.75	MK 1	168	87	54,75
12.440.1000	10	MK 1	168	87	39,40
12.440.1025	10.25	MK 1	168	87	52,00
12.440.1050	10.5	MK 1	168	87	31,10
12.440.1075	10.75	MK 1	175	94	52,15
12.440.1100	11	MK 1	175	94	38,50
12.440.1125	11.25	MK 1	175	94	59,05
12.440.1150	11.5	MK 1	175	94	48,00
12.440.1175	11.75	MK 1	175	94	51,15
12.440.1200	12	MK 1	182	101	40,45

Ref.	d1	d2	I1	I2	€
12.440.1225	12.25	MK 1	182	101	50,40
12.440.1250	12.5	MK 1	182	101	34,70
12.440.1275	12.75	MK 1	182	101	48,45
12.440.1300	13	MK 1	182	101	38,20
12.440.1325	13.25	MK 1	189	108	47,75
12.440.1350	13.5	MK 1	189	108	42,75
12.440.1375	13.75	MK 1	189	108	45,55
12.440.1400	14	MK 1	189	108	40,85
12.440.1425	14.25	MK 2	212	114	53,60
12.440.1450	14.5	MK 2	212	114	47,05
12.440.1475	14.75	MK 2	212	114	57,15
12.440.1500	15	MK 2	212	114	47,05
12.440.1525	15.25	MK 2	218	120	52,95

> 12.440

Phantom

Ref.	d1	d2	l1	l2	€
12.440.1550	15.5	MK 2	218	120	50,00
12.440.1575	15.75	MK 2	218	120	53,35
12.440.1600	16	MK 2	218	120	50,00
12.440.1625	16.25	MK 2	223	125	65,15
12.440.1650	16.5	MK 2	223	125	54,85
12.440.1675	16.75	MK 2	223	125	60,65
12.440.1700	17	MK 2	223	125	56,30
12.440.1725	17.25	MK 2	228	130	63,50
12.440.1750	17.5	MK 2	228	130	60,70
12.440.1775	17.75	MK 2	228	130	66,75
12.440.1800	18	MK 2	228	130	60,70
12.440.1825	18.25	MK 2	233	135	68,95
12.440.1850	18.5	MK 2	233	135	66,45
12.440.1875	18.75	MK 2	233	135	72,60
12.440.1900	19	MK 2	233	135	66,45
12.440.1925	19.25	MK 2	238	140	77,35
12.440.1950	19.5	MK 2	238	140	74,60
12.440.1975	19.75	MK 2	238	140	78,80
12.440.2000	20	MK 2	238	140	72,30
12.440.2025	20.25	MK 2	243	145	82,10
12.440.2050	20.5	MK 2	243	145	78,50
12.440.2075	20.75	MK 2	243	145	85,50
12.440.2100	21	MK 2	243	145	80,50
12.440.2125	21.25	MK 2	248	150	88,10
12.440.2150	21.5	MK 2	248	150	84,50
12.440.2175	21.75	MK 2	248	150	90,10
12.440.2200	22	MK 2	248	150	86,95
12.440.2225	22.25	MK 2	248	150	103,30
12.440.2250	22.5	MK 2	253	155	91,60
12.440.2275	22.75	MK 2	253	155	100,70
12.440.2300	23	MK 2	253	155	96,50
12.440.2325	23.25	MK 3	276	155	128,55
12.440.2350	23.5	MK 3	276	155	101,95
12.440.2375	23.75	MK 3	281	160	120,75
12.440.2400	24	MK 3	281	160	103,90
12.440.2425	24.25	MK 3	281	160	123,15
12.440.2450	24.5	MK 3	281	160	108,60
12.440.2475	24.75	MK 3	281	160	128,50

Ref.	d1	d2	l1	l2	€
12.440.2500	25	MK 3	281	160	113,20
12.440.2525	25.25	MK 3	286	165	134,70
12.440.2550	25.5	MK 3	286	165	116,05
12.440.2575	25.75	MK 3	286	165	144,20
12.440.2600	26	MK 3	286	165	125,00
12.440.2625	26.25	MK 3	286	165	149,05
12.440.2650	26.5	MK 3	286	165	129,95
12.440.2675	26.75	MK 3	291	170	167,40
12.440.2700	27	MK 3	291	170	133,75
12.440.2725	27.25	MK 3	291	170	198,60
12.440.2750	27.5	MK 3	291	170	144,20
12.440.2775	27.75	MK 3	291	170	165,00
12.440.2800	28	MK 3	291	170	142,80
12.440.2825	28.25	MK 3	296	175	170,65
12.440.2850	28.5	MK 3	296	175	161,45
12.440.2875	28.75	MK 3	296	175	215,55
12.440.2900	29	MK 3	296	175	153,30
12.440.2925	29.25	MK 3	296	175	218,55
12.440.2950	29.5	MK 3	296	175	160,25
12.440.2975	29.75	MK 3	296	175	179,15
12.440.3000	30	MK 3	296	175	160,25
12.440.3025	30.25	MK 3	301	180	209,70
12.440.3050	30.5	MK 3	301	180	188,75
12.440.3075	30.75	MK 3	301	180	208,80
12.440.3100	31	MK 3	301	180	187,55
12.440.3125	31.25	MK 3	301	180	273,00
12.440.3150	31.5	MK 3	301	180	206,65
12.440.3200	32	MK 4	334	185	205,55
12.440.3250	32.5	MK 4	334	185	227,70
12.440.3300	33	MK 4	334	185	227,70
12.440.3350	33.5	MK 4	334	185	241,10
12.440.3400	34	MK 4	339	190	247,90
12.440.3450	34.5	MK 4	339	190	261,00
12.440.3500	35	MK 4	339	190	251,00
12.440.3550	35.5	MK 4	339	190	278,00
12.440.3600	36	MK 4	344	195	264,00
12.440.3650	36.5	MK 4	344	195	287,00
12.440.3700	37	MK 4	344	195	278,00

Ref.	d1	d2	l1	l2	€
12.440.3750	37.5	MK 4	344	195	313,00
12.440.3800	38	MK 4	349	200	299,00
12.440.3850	38.5	MK 4	349	200	359,00
12.440.3900	39	MK 4	349	200	323,00
12.440.3950	39.5	MK 4	349	200	395,00
12.440.4000	40	MK 4	349	200	340,00
12.440.4050	40.5	MK 4	354	205	515,00
12.440.4100	41	MK 4	354	205	394,00
12.440.4150	41.5	MK 4	354	205	547,00
12.440.4200	42	MK 4	354	205	391,00
12.440.4250	42.5	MK 4	354	205	570,00
12.440.4300	43	MK 4	359	210	470,00
12.440.4350	43.5	MK 4	359	210	591,00
12.440.4400	44	MK 4	359	210	481,00
12.440.4450	44.5	MK 4	359	210	621,00
12.440.4500	45	MK 4	359	210	485,00
12.440.4550	45.5	MK 4	364	215	671,00
12.440.4600	46	MK 4	364	215	524,00
12.440.4650	46.5	MK 4	364	215	665,00
12.440.4700	47	MK 4	364	215	550,00
12.440.4750	47.5	MK 4	364	215	688,00
12.440.4800	48	MK 4	369	220	561,00
12.440.4850	48.5	MK 4	369	220	714,00
12.440.4900	49	MK 4	369	220	597,00
12.440.4950	49.5	MK 4	369	220	753,00
12.440.5000	50	MK 4	369	220	592,00
12.440.5100	51	MK 5	412	225	1.154,00
12.440.5200	52	MK 5	412	225	1.134,00
12.440.5300	53	MK 5	412	225	1.408,00
12.440.5400	54	MK 5	417	230	1.300,00
12.440.5500	55	MK 5	417	230	1.240,00
12.440.5600	56	MK 5	417	230	1.486,00
12.440.5700	57	MK 5	422	235	1.543,00
12.440.5800	58	MK 5	422	235	1.353,00
12.440.5900	59	MK 5	422	235	1.490,00
12.440.6000	60	MK 5	422	235	1.365,00

> 12.500

Phantom

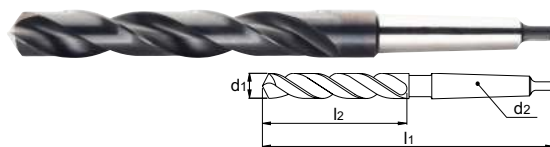
NL HSS-E Spiraalboor MK

FR Foret HSS-E CM

ES Broca HSS-E CM

DE HSS-E Spiralbohrer MK

EN HSS-E Twist drill MT



HSS-E	OX.	DIN 345	N	DIN 228-B					
P 11 S500 N/mm ²	P 12 S550 N/mm ²	P 13 S1000 N/mm ²	P 14 S1400 N/mm ²	M 21 INOX S550 N/mm ²	M 22 INOX >850 N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 51 Cu	N 52 CuAlFe
28-35 E	30-36 E	20-27 E	12-20 D	14-18 D	10-15 C	30-35 F	24-30 F	30-40 E	8-15 C

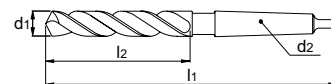
Ref.	d1	d2	l1	l2	€
12.500.0700	7	MK 1	150	69	59,45
12.500.0800	8	MK 1	156	75	54,90
12.500.0900	9	MK 1	162	81	56,00
12.500.1000	10	MK 1	168	87	54,75
12.500.1100	11	MK 1	175	94	58,40
12.500.1200	12	MK 1	182	101	57,90
12.500.1250	12.5	MK 1	182	101	61,05
12.500.1300	13	MK 1	182	101	61,35
12.500.1350	13.5	MK 1	189	108	71,80
12.500.1400	14	MK 1	189	108	67,90
12.500.1450	14.5	MK 2	212	114	80,85
12.500.1500	15	MK 2	212	114	81,40
12.500.1550	15.5	MK 2	218	120	88,80
12.500.1600	16	MK 2	218	120	81,95
12.500.1650	16.5	MK 2	223	125	88,60
12.500.1700	17	MK 2	223	125	84,50
12.500.1750	17.5	MK 2	228	130	90,95
12.500.1800	18	MK 2	228	130	88,10

Ref.	d1	d2	l1	l2	€
12.500.1850	18.5	MK 2	233	135	99,95
12.500.1900	19	MK 2	233	135	98,95
12.500.1950	19.5	MK 2	238	140	119,40
12.500.2000	20	MK 2	238	140	103,70
12.500.2050	20.5	MK 2	243	145	114,90
12.500.2100	21	MK 2	243	145	106,75
12.500.2150	21.5	MK 2	248	150	122,40
12.500.2200	22	MK 2	248	150	122,30
12.500.2250	22.5	MK 2	253	155	145,95
12.500.2300	23	MK 2	253	155	135,45
12.500.2350	23.5	MK 3	276	155	169,35
12.500.2400	24	MK 3	281	160	148,90
12.500.2450	24.5	MK 3	281	160	163,65
12.500.2500	25	MK 3	281	160	154,70
12.500.2550	25.5	MK 3	286	165	187,10
12.500.2600	26	MK 3	286	165	169,95
12.500.2650	26.5	MK 3	286	165	174,25
12.500.2700	27	MK 3	291	170	178,15

Ref.	d1	d2	l1	l2	€
12.500.2750	27.5	MK 3	291	170	207,90
12.500.2800	28	MK 3	291	170	207,45
12.500.2850	28.5	MK 3	296	175	200,75
12.500.2900	29	MK 3	296	175	191,25
12.500.2950	29.5	MK 3	296	175	206,55
12.500.3000	30	MK 3	296	175	180,85
12.500.3100	31	MK 3	301	180	251,00
12.500.3200	32	MK 4	334	185	243,80
12.500.3300	33	MK 4	334	185	255,00
12.500.3400	34	MK 4	339	190	292,00
12.500.3500	35	MK 4	339	190	308,00
12.500.3600	36	MK 4	344	195	336,00
12.500.3700	37	MK 4	344	195	339,00
12.500.3800	38	MK 4	349	200	366,00
12.500.3900	39	MK 4	349	200	411,00
12.500.4000	40	MK 4	349	200	398,00

> 12.900 Phantom

NL HSS Spiraalboor MK
FR Foret HSS CM
ES Broca HSS CM
DE HSS Spiralbohrer MK
EN HSS Twist drill MT



HSS	OX.	DIN 1870	N	DIN 228-B		118° 		
P 11 ≤500 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27 F	22-30 F	15-20 E	8-12 D	15-20 E	25-30 E	45-50 G	25-40 D	22-28 D

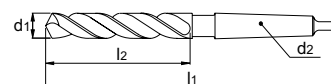
Ref.	d1	d2	l1	l2	€
12.900.1001	10	MK 1	285	185	97,25
12.900.1003	10	MK 1	360	235	136,00
12.900.1051	10.5	MK 1	285	185	101,65
12.900.1053	10.5	MK 1	360	235	170,80
12.900.1101	11	MK 1	300	195	108,35
12.900.1103	11	MK 1	375	250	223,10
12.900.1151	11.5	MK 1	300	195	116,95
12.900.1201	12	MK 1	310	205	109,55
12.900.1203	12	MK 1	395	260	206,70
12.900.1251	12.5	MK 1	310	205	117,30
12.900.1253	12.5	MK 1	395	260	207,15
12.900.1301	13	MK 1	310	205	113,35
12.900.1303	13	MK 1	395	260	192,40
12.900.1351	13.5	MK 1	325	220	133,20
12.900.1353	13.5	MK 1	410	275	239,35
12.900.1401	14	MK 1	325	220	122,45
12.900.1403	14	MK 1	410	275	196,30
12.900.1451	14.5	MK 2	340	220	131,95
12.900.1453	14.5	MK 2	425	275	260,00
12.900.1501	15	MK 2	340	220	136,90
12.900.1503	15	MK 2	425	275	215,35
12.900.1551	15.5	MK 2	355	230	144,60
12.900.1553	15.5	MK 2	445	295	273,00
12.900.1601	16	MK 2	355	230	142,70

Ref.	d1	d2	l1	l2	€
12.900.1603	16	MK 2	445	295	232,15
12.900.1651	16.5	MK 2	355	230	142,70
12.900.1653	16.5	MK 2	445	295	328,00
12.900.1701	17	MK 2	355	230	160,25
12.900.1703	17	MK 2	445	295	275,00
12.900.1751	17.5	MK 2	370	245	172,80
12.900.1753	17.5	MK 2	465	310	327,00
12.900.1801	18	MK 2	370	245	168,20
12.900.1803	18	MK 2	465	310	277,00
12.900.1851	18.5	MK 2	370	245	172,90
12.900.1853	18.5	MK 2	465	310	364,00
12.900.1901	19	MK 2	370	245	178,85
12.900.1903	19	MK 2	465	310	280,00
12.900.1951	19.5	MK 2	385	260	199,15
12.900.1953	19.5	MK 2	490	325	371,00
12.900.2001	20	MK 2	385	260	200,25
12.900.2003	20	MK 2	490	325	292,00
12.900.2051	20.5	MK 2	385	260	254,00
12.900.2053	20.5	MK 2	490	325	441,00
12.900.2101	21	MK 2	385	260	235,25
12.900.2103	21	MK 2	490	325	357,00
12.900.2201	22	MK 2	405	270	255,00
12.900.2203	22	MK 2	515	345	454,00
12.900.2301	23	MK 2	405	270	286,00

Ref.	d1	d2	l1	l2	€
12.900.2303	23	MK 2	515	345	455,00
12.900.2401	24	MK 3	440	290	314,00
12.900.2403	24	MK 3	555	365	645,00
12.900.2501	25	MK 3	440	290	322,00
12.900.2503	25	MK 3	555	365	670,00
12.900.2601	26	MK 3	440	290	346,00
12.900.2603	26	MK 3	555	365	668,00
12.900.2701	27	MK 3	460	305	411,00
12.900.2801	28	MK 3	460	305	411,00
12.900.2803	28	MK 3	580	385	793,00
12.900.2901	29	MK 3	460	305	469,00
12.900.3001	30	MK 3	460	305	438,00
12.900.3003	30	MK 3	580	385	661,00
12.900.3201	32	MK 4	505	320	576,00
12.900.3203	32	MK 4	635	410	987,00
12.900.3501	35	MK 4	530	340	635,00
12.900.3801	38	MK 4	555	360	753,00
12.900.4001	40	MK 4	555	360	814,00
12.900.4003	40	MK 4	695	460	1.198,00
12.900.4201	42	MK 4	555	360	1.073,00
12.900.4501	45	MK 4	585	385	1.330,00
12.900.4503	45	MK 4	735	490	1.568,00
12.900.5001	50	MK 4	605	405	1.547,00

> 12.910 Phantom

NL HSS Spiraalboor, XXL type TS, MK
FR Foret, XXL HSS type TS, CM
ES Broca, XXL HSS tipo TS, CM
DE HSS Spiralbohrer, XXL Typ TS, MK
EN HSS Twist drill, XXL type TS, MT



HSS	OX.	NIT. ≥ 16,0	NORM	TS	DIN 228-B		130° 	
P 11 ≤500 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27	22-30	15-20	8-12	15-20	25-30	45-50	25-40	22-28

Ref.	d1	d2	l1	l2	€
12.910.1005	10	MK 1	500	420	209,50
12.910.1205	12	MK 1	500	420	204,55
12.910.1405	14	MK 1	500	420	298,00
12.910.1407	14	MK 1	650	500	419,00
12.910.1505	15	MK 2	600	475	453,00
12.910.1507	15	MK 2	750	650	566,00
12.910.1605	16	MK 2	600	500	472,00
12.910.1705	17	MK 2	600	500	559,00
12.910.1805	18	MK 2	600	500	538,00
12.910.1905	19	MK 2	600	500	543,00
12.910.2005	20	MK 2	600	500	545,00

Ref.	d1	d2	l1	l2	€
12.910.2105	21	MK 2	600	500	612,00
12.910.2205	22	MK 2	600	500	646,00
12.910.2305	23	MK 2	600	500	668,00
12.910.2405	24	MK 3	600	475	686,00
12.910.2505	25	MK 3	600	475	740,00
12.910.2605	26	MK 3	600	475	845,00
12.910.2805	28	MK 3	600	475	872,00
12.910.3005	30	MK 3	600	475	812,00
12.910.3503	35	MK 4	600	450	866,00
12.910.3803	38	MK 4	600	450	1.022,00



> 13.740 Phantom



NL SDS-PLUS HM-tip Hamerboor met 2 snijkanten
FR Foret Béton SDS-PLUS à plaquette carbure à 2 taillants
ES Broca martillo SDS-PLUS punta MD con 2 labios
DE SDS-PLUS HM-Schneiden Hammerbohrer mit 2 Schneiden
EN SDS-PLUS Carbide Tipped Hammer Drill with 2 flutes



Z=2

HM



Ref.	d1	l1	l2	€
13.740.0411	4	110	50	5,67
13.740.0511	5	110	50	4,31
13.740.0516	5	160	100	4,98
13.740.0551	5.5	110	50	4,69
13.740.0552	5.5	160	100	5,47
13.740.0611	6	110	50	4,40
13.740.0616	6	160	100	4,89
13.740.0621	6	210	150	6,61
13.740.0626	6	260	200	10,07
13.740.0631	6	310	250	13,76
13.740.0651	6.5	110	50	4,97
13.740.0652	6.5	160	100	5,77
13.740.0711	7	110	50	5,98
13.740.0716	7	160	100	6,59
13.740.0721	7	210	150	8,13
13.740.0811	8	110	50	4,93
13.740.0816	8	160	100	5,36
13.740.0821	8	210	150	6,86
13.740.0826	8	260	200	8,85
13.740.0831	8	310	250	13,04
13.740.0846	8	450	400	16,16
13.740.0916	9	160	100	7,94
13.740.0921	9	210	150	8,35
13.740.1011	10	110	50	5,94
13.740.1016	10	160	100	6,18

Ref.	d1	l1	l2	€
13.740.1021	10	210	150	7,37
13.740.1026	10	260	200	9,87
13.740.1031	10	310	250	13,25
13.740.1046	10	450	400	18,49
13.740.1116	11	160	100	8,80
13.740.1216	12	160	100	7,71
13.740.1221	12	210	150	9,91
13.740.1226	12	260	200	11,73
13.740.1231	12	310	250	16,04
13.740.1246	12	450	400	19,27
13.740.1316	13	160	100	10,52
13.740.1326	13	260	200	15,02
13.740.1346	13	450	400	23,09
13.740.1416	14	160	100	10,35
13.740.1421	14	210	150	11,54
13.740.1426	14	260	200	13,70
13.740.1431	14	310	250	17,14
13.740.1446	14	450	400	21,19
13.740.1516	15	160	100	14,24
13.740.1521	15	210	150	17,00
13.740.1526	15	260	200	17,56
13.740.1546	15	450	400	28,25
13.740.1616	16	160	100	13,61
13.740.1621	16	210	150	14,67
13.740.1626	16	260	200	20,51

Ref.	d1	l1	l2	€
13.740.1631	16	310	250	22,80
13.740.1646	16	450	400	29,80
13.740.1660	16	600	550	34,00
13.740.1690	16	1000	950	94,40
13.740.1821	18	210	150	20,56
13.740.1826	18	260	200	24,48
13.740.1831	18	310	250	32,05
13.740.1846	18	450	400	32,30
13.740.1860	18	600	550	39,15
13.740.1890	18	1000	950	101,35
13.740.2021	20	210	150	26,55
13.740.2026	20	260	200	27,25
13.740.2031	20	310	250	34,70
13.740.2046	20	450	400	38,25
13.740.2090	20	1000	950	125,15
13.740.2226	22	260	200	40,85
13.740.2231	22	310	250	38,85
13.740.2246	22	450	400	44,75
13.740.2426	24	260	200	48,40
13.740.2446	24	450	400	57,00
13.740.2526	25	260	200	50,85
13.740.2531	25	310	250	55,85
13.740.2546	25	450	400	60,35
13.740.2590	25	1000	950	155,80

> 13.744 Phantom



NL SDS-PLUS HM-tip Hamerboor met 4 snijkanten
FR Foret Béton SDS-PLUS à plaquette carbure à 4 taillants
ES Broca martillo SDS-PLUS punta MD con 4 labios
DE SDS-PLUS HM-Schneiden Hammerbohrer mit 4 Schneiden
EN SDS-PLUS Carbide Tipped Hammer Drill with 4 flutes



Z=4

HM



Ref.	d1	l1	l2	€
13.744.0511	5	110	50	9,98
13.744.0516	5	160	100	10,69
13.744.0552	5.5	160	100	10,37
13.744.0611	6	110	50	9,80
13.744.0616	6	160	100	10,40
13.744.0621	6	210	150	13,45
13.744.0626	6	260	200	17,81
13.744.0631	6	310	250	25,45
13.744.0652	6.5	160	100	12,69
13.744.0716	7	160	100	13,08
13.744.0811	8	110	50	10,96
13.744.0816	8	160	100	11,73
13.744.0821	8	210	150	13,45
13.744.0826	8	260	200	15,79
13.744.0831	8	310	250	26,65
13.744.0846	8	450	400	38,25
13.744.0916	9	160	100	14,34

Ref.	d1	l1	l2	€
13.744.1011	10	110	50	12,02
13.744.1016	10	160	100	13,00
13.744.1021	10	210	150	14,98
13.744.1026	10	260	200	17,42
13.744.1031	10	310	250	27,40
13.744.1046	10	450	400	42,45
13.744.1216	12	160	100	14,81
13.744.1221	12	210	150	17,77
13.744.1226	12	260	200	20,38
13.744.1231	12	310	250	31,65
13.744.1246	12	450	400	46,10
13.744.1416	14	160	100	21,48
13.744.1421	14	210	150	26,85
13.744.1426	14	260	200	32,30
13.744.1431	14	310	250	36,40
13.744.1446	14	450	400	48,35
13.744.1516	15	160	100	34,95

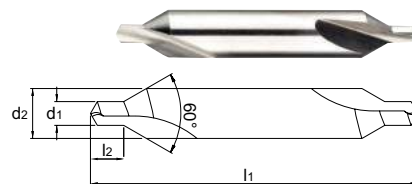
Ref.	d1	l1	l2	€
13.744.1526	15	260	200	42,90
13.744.1616	16	160	100	34,10
13.744.1621	16	210	150	38,15
13.744.1626	16	260	200	49,25
13.744.1631	16	310	250	50,85
13.744.1646	16	450	400	61,85
13.744.1660	16	600	550	97,20
13.744.1690	16	1000	950	180,75
13.744.1825	18	250	200	58,75
13.744.1846	18	450	400	68,45
13.744.2025	20	250	200	64,65
13.744.2046	20	450	400	77,70
13.744.2225	22	250	200	74,75
13.744.2246	22	450	400	92,10
13.744.2426	24	250	200	98,60
13.744.2525	25	250	200	86,85
13.744.2546	25	450	400	109,85

> 15.095 INTERNATIONAL TOOLS

NL ECO PRO HSS Centerboor 60°
FR Foret à centr HSS ECO PRO 60°
ES Broca escalonada HSS ECO PRO 60°
DE ECO PRO HSS Zentrierbohrer 60°
EN ECO PRO HSS Centre Drill 60°

HSS		DIN 333-A	NFE 66051-A	ECO PRO	h7 				
P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 43 Mg	N 51 Cu	N 61 PVC
20-25	15-25	16-22	25-30	20-25	50-60	60-70	45-50	25-40	18-28

Ref.	d1	d2	l1	l2	€
15.095.1031	1	3.15	31	1,3-1,7	3,61
15.095.1040	1	4	35	1,3-1,7	3,81
15.095.1231	1.25	3.15	31	1,6-2,0	3,61
15.095.1550	1.5	5	40	2,0-2,6	4,08
15.095.1640	1.6	4	35	2,0-2,6	3,81
15.095.2050	2	5	40	2,5-3,1	4,08
15.095.2060	2	6	45	2,5-3,1	4,46
15.095.2563	2.5	6.3	45	3,1-3,8	4,99
15.095.2580	2.5	8	50	3,1-3,8	6,36

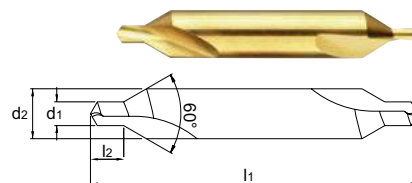


> 15.096 INTERNATIONAL TOOLS

NL ECO PRO HSS Centerboor TiN, 60°
FR Foret à centr HSS ECO PRO TiN, 60°
ES Broca escalonada HSS ECO PRO TiN, 60°
DE ECO PRO HSS Zentrierbohrer TiN, 60°
EN ECO PRO HSS Centre Drill TiN, 60°

HSS	TiN	 60°	DIN 333-A	NFE 66051-A	ECO PRO	 h7			
P 11 5000 Nmm²	P 12 5350 Nmm²	P 13 51000 Nmm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 43 Mg	N 51 Cu	N 61 PVC
20-25	15-25	16-22	25-30	20-25	50-60	60-70	45-50	25-40	18-28

Ref.	d1	d2	l1	l2	€
15.096.1040	1	4	35	1,3-1,7	6,20
15.096.1640	1.6	4	35	2,0-2,6	6,20
15.096.2050	2	5	40	2,5-3,1	6,82
15.096.2563	2.5	6.3	45	3,1-3,8	7,43



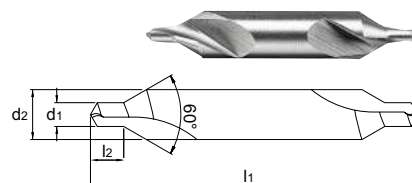
Ref.	d1	d2	l1	l2	€
15.096.3090	3	10	55	3,9-4,6	10,24
15.096.3180	3.15	8	50	3,9-4,6	5,91
15.096.3190	3.15	10	55	3,9-4,6	10,24
15.096.4010	4	10	55	5,0-5,9	8,28
15.096.4012	4	12	63	5,0-5,9	13,00
15.096.5013	5	12.5	63	6,3-7,2	13,00
15.096.6316	6.3	16	71	8,0-8,9	22,48
15.096.8020	8	20	80	10,1-11,1	34,85
15.096.9025	10	25	100	12,8-13,8	70,35

> 15.100 Phantom

NL HSS Centerboor 60°
FR Foret à centr HSS 60°
ES Broca escalonada HSS 60°
DE HSS Zentrierbohrer 60°
EN HSS Centre Drill 60°

HSS		DIN 333-A	NFE 66051-A	h7					
P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 43 Mg	N 51 Cu	N 61 PVC
20-25	15-25	16-22	25-30	20-25	50-60	60-70	45-50	25-40	18-28

Ref.	d1	d2	l1	l2	€
15.100.0531	0.5	3.15	25	0,6-0,9	7,90
15.100.0735	0.75	3.5	35	1,0-1,3	10,55
15.100.0831	0.8	3.15	25	1,0-1,3	7,90
15.100.1031	1	3.15	31	1,3-1,7	7,90
15.100.1040	1	4	35	1,3-1,7	9,36
15.100.1231	1.25	3.15	31	1,6-2,0	7,90
15.100.1240	1.25	4	35	1,6-2,0	9,56
15.100.1550	1.5	5	40	2,0-2,6	9,93
15.100.1640	1.6	4	35	2,0-2,6	7,90
15.100.1650	1.6	5	40	2,0-2,6	10,55
15.100.2050	2	5	40	2,5-3,1	9,25
15.100.2060	2	6	45	2,5-3,1	11,02
15.100.2063	2	6.3	45	2,5-3,1	11,54
15.100.2563	2.5	6.3	45	3,1-3,8	11,02
15.100.2580	2.5	8	50	3,1-3,8	12,42
15.100.3090	3	10	55	3,9-4,6	15,64



Ref.	d1	d2	l1	l2	€
15.100.3180	3.15	8	50	3,9-4,6	12,42
15.100.3190	3.15	10	55	3,9-4,6	16,06
15.100.3590	3.5	10	55	4,0-4,5	32,50
15.100.4010	4	10	55	5,0-5,9	14,45
15.100.4012	4	12	63	5,0-5,9	26,60
15.100.4013	4	12.5	63	5,0-5,9	27,25
15.100.5013	5	12.5	63	6,3-7,2	23,02
15.100.5014	5	14	69	6,3-7,2	33,45
15.100.5016	5	16	71	6,3-7,2	38,90
15.100.6018	6	18	77	8,0-8,9	53,05
15.100.6316	6.3	16	71	8,0-8,9	37,50
15.100.6320	6.3	20	80	8,0-8,9	75,90
15.100.8020	8	20	80	10,1-11,1	67,10
15.100.9025	10	25	100	12,8-13,8	125,00
15.100.9531	12.5	31.5	125	16,5-17,5	290,00

> 15.120 Phantom

NL HSS-E Centerboor 60°
FR Foret à centrer HSS-E 60°
ES Broca escalonada HSS-E 60°
DE HSS-E Zentrierbohrer 60°
EN HSS-E Centre Drill 60°

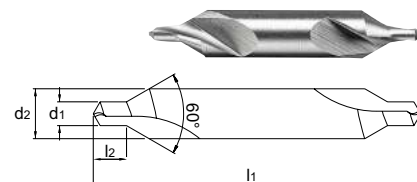


P 11	P 12	P 13	M 21	M 22	K 31	K 32	N 41	N 42	N 51	N 52	N 61
≤500 N/mm²	≤550 N/mm²	≤1000 N/mm²	INOX ≤850N/mm²	INOX >850N/mm²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	CuAlFe	PVC

25-30 E	20-40 E	16-22 F	8-10 D	6-8 C	25-30 E	20-25 D	60-70 E	50-80 E	30-40 E	10-15 D	18-21 E
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Ref.	d1	d2	l1	l2	€
15.120.0735	0.75	3.5	35	1,0-1,3	11,90
15.120.0831	0.8	3.15	25	1,0-1,3	11,90
15.120.1040	1	4	35	1,3-1,7	11,90
15.120.1231	1.25	3.15	31	1,6-2,0	12,89
15.120.1550	1.5	5	40	2,0-2,6	12,16
15.120.1640	1.6	4	35	2,0-2,6	12,89
15.120.2050	2	5	40	2,5-3,1	14,19
15.120.2060	2	6	45	2,5-3,1	13,93

Ref.	d1	d2	l1	l2	€
15.120.2563	2.5	6.3	45	3,1-3,8	16,06
15.120.2580	2.5	8	50	3,1-3,8	15,86
15.120.3090	3	10	55	5,0-4,6	22,35
15.120.3180	3.15	8	50	3,9-4,6	18,03
15.120.4010	4	10	55	5,0-5,9	20,42
15.120.4012	4	12	63	5,0-5,9	36,50
15.120.5013	5	12.5	63	6,3-7,2	36,50
15.120.5014	5	14	69	6,3-7,2	47,70



> 15.124 Phantom

NL HSS-E Centerboor TiAlN, 60°
FR Foret à centrer HSS-E TiAlN, 60°
ES Broca escalonada HSS-E TiAlN, 60°
DE HSS-E Zentrierbohrer TiAlN, 60°
EN HSS-E Centre Drill TiAlN, 60°

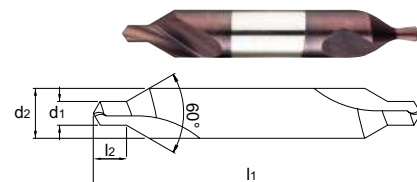


P 11	P 12	P 13	M 21	M 22	K 31	K 32	N 42	N 43	N 51	N 52	N 61
≤500 N/mm²	≤550 N/mm²	≤1000 N/mm²	INOX ≤850N/mm²	INOX >850N/mm²	GG	GGG GTS-GTW	Alu Si>10%	Mg	Cu	CuAlFe	PVC

35-45 E	25-45 E	20-25 F	10-20 D	10-15 C	40-45 E	30-40 D	75-100 E	60-80 E	40-45 D	20-25 D	18-21 E
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Ref.	d1	d2	l1	l2	€
15.124.0531	0.5	3.15	25	0,6-0,9	17,68
15.124.0831	0.8	3.15	25	1,0-1,3	17,68
15.124.1031	1	3.15	31	1,3-1,7	20,45
15.124.1040	1	4	35	1,3-1,7	20,76
15.124.1231	1.25	3.15	31	1,6-2,0	20,45
15.124.1550	1.5	5	40	2,0-2,6	23,49
15.124.1640	1.6	4	35	2,0-2,6	20,76
15.124.2050	2	5	40	2,5-3,1	23,49
15.124.2060	2	6	45	2,5-3,1	26,50

Ref.	d1	d2	l1	l2	€
15.124.2563	2.5	6.3	45	3,1-3,8	26,50
15.124.2580	2.5	8	50	3,1-3,8	31,70
15.124.3090	3	10	55	5-4,6	38,75
15.124.3180	3.15	8	50	3,9-4,6	31,70
15.124.4010	4	10	55	5,0-5,9	38,75
15.124.4012	4	12	63	5,0-5,9	56,75
15.124.5013	5	12.5	63	6,3-7,2	56,75
15.124.6316	6.3	16	71	8,0-8,9	79,95
15.124.8020	8	20	80	10,1-11,1	144,95



> 15.600 Phantom

NL HSS-E NC-Centreerboor 90°
 FR Foret à pointer NC HSS-E 90°
 ES Broca de puntear NC HSS-E 90°
 DE HSS-E NC Anbohrer 90°
 EN HSS-E NC Spotting Drill 90°

HSS-E ISO 10898 90° h6

P 11	P 12	P 13	M 21	M 22	K 31	K 32	N 41	N 42	N 43	N 51	N 52	N 61
≤600 N/mm²	≤850 N/mm²	≤1000 N/mm²	INOX ≤850 N/mm²	INOX >850 N/mm²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Mg	Cu	CuAlFe	PVC

25-30 E	20-40 E	16-22 F	8-10 D	6-8 C	25-30 E	20-25 D	60-70 E	50-80 E	45-50 E	30-40 E	10-15 D	18-28 E
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Ref.	d1	d2	l1	l2	€
15.600.0200	2	2	49	8	15,79
15.600.0300	3	3	50	10	12,83
15.600.0400	4	4	52	12	12,83
15.600.0500	5	5	60	15	13,93
15.600.0600	6	6	66	20	17,77

Ref.	d1	d2	l1	l2	€
15.600.0800	8	8	79	25	19,80
15.600.1000	10	10	89	25	26,30
15.600.1200	12	12	102	30	32,85
15.600.1400	14	14	115	35	47,40
15.600.1600	16	16	115	35	54,70

Ref.	d1	d2	l1	l2	€
15.600.1800	18	18	130	40	78,80
15.600.2000	20	20	131	40	83,00
15.600.2500	25	25	138	45	139,55



NL Verschil tussen centerboor en centreerboor
 FR La différence entre un foret à centre et un foret à pointer
 ES Diferencia entre broca de centrar y broca de puntear
 DE Unterschied zwischen Zentrierbohrer und Anbohrer
 EN The difference between centre drills and spot drills

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> 15.604 Phantom

NL HSS-E NC-Centreerboor TiAIN, 90°
 FR Foret à pointer NC HSS-E TiAIN, 90°
 ES Broca de puntear NC HSS-E TiAIN, 90°
 DE HSS-E NC Anbohrer TiAIN, 90°
 EN HSS-E NC Spotting Drill TiAIN, 90°

HSS-E ISO 10898 90° TiAIN h6

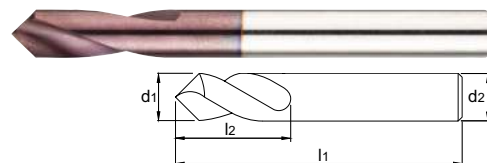
P 11	P 12	P 13	M 21	M 22	K 31	K 32	N 42	N 43	N 51	N 52
≤600 N/mm²	≤850 N/mm²	≤1000 N/mm²	INOX ≤850 N/mm²	INOX >850 N/mm²	GG	GGG GTS-GTW	Alu Si>10%	Mg	Cu	CuAlFe

35-45 E	25-45 E	20-25 F	10-20 D	10-15 C	40-45 E	30-40 D	75-100 E	60-80 E	40-45 D	20-25 D
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Ref.	d1	d2	l1	l2	€
15.604.0300	3	3	50	10	17,10
15.604.0400	4	4	52	12	18,56
15.604.0500	5	5	60	15	20,37
15.604.0600	6	6	66	20	26,25

Ref.	d1	d2	l1	l2	€
15.604.0800	8	8	79	25	30,10
15.604.1000	10	10	89	25	39,85
15.604.1200	12	12	102	30	50,75
15.604.1600	16	16	115	35	78,50

Ref.	d1	d2	l1	l2	€
15.604.1800	18	18	130	40	111,00
15.604.2000	20	20	131	40	126,30
15.604.2500	25	25	138	45	186,85



> 19.120 INTERNATIONAL TOOLS

NL ECO HSS Set Spiraalboren
FR Coffret de Forets HSS ECO
ES Estuche de brocas HSS ECO
DE ECO HSS Satz Spiralbohrer
EN ECO HSS Drill set



HSS	DIN 338	N			118° 	ECO		
P 11	P 12	P 13	K 31	K 32	N 41	N 42	N 51	N 61
≤800 N/mm²	≤850 N/mm²	≤1000 N/mm²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	PVC
25-27	22-30	15-20	15-20	25-30	45-50	35-40	25-40	22-28

Ref.	Type	Ø mm	€
19.120.1000	11.416	1-10 mm x 0,5 mm	37,40
19.120.1300	11.416	1-13 mm x 0,5 mm	68,70

Ref.	Type	Ø mm	€
19.120.6000	11.416	1-10 mm x 0,5 mm (170x)	204,70

> 19.124 INTERNATIONAL TOOLS

NL ECO PRO HSS Set Spiraalboren
FR Coffret de Forets HSS ECO PRO
ES Estuche de brocas HSS ECO PRO
DE ECO PRO HSS Satz Spiralbohrer
EN ECO PRO HSS Drill set



HSS	DIN 338	N			118° 	ECO PRO		
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27	22-30	15-20	15-20	25-30	45-50	35-40	25-40	22-28

Ref.	Type	Ø mm	€
19.124.1000	11.420	1-10 mm x 0,5 mm	55,10
19.124.1010	11.420	1-10 mm x 0,1 mm (91x)	284,00
19.124.1300	11.420	1-13 mm x 0,5 mm	110,90

Ref.	Type	Ø mm	€
19.124.6000	11.420	1-10 mm x 0,5 mm (170x)	337,00
19.124.6100	11.420	1-13 mm x 0,5 mm + 3,3 - 4,2 mm (220x)	651,00

> 19.127 INTERNATIONAL TOOLS

NL ECO HSS Set Spiraalboren Kruisaanslijping, blank
FR Coffret de Forets HSS ECO Affûtage en croix, finition polie
ES Estuche de brocas HSS ECO Afilado en cruz, blanca
DE ECO HSS Satz Spiralbohrer Kreuzanschliff, blank
EN ECO HSS Drill set Split point, bright finish



HSS	DIN 338	N		 3	118° 	ECO	
P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27	22-30	15-20	15-20	25-30	35-40	25-40	22-28

Ref.	Type	Ø mm	€
19.127.1000	11.423	1-10 mm x 0,5 mm	40,35

Ref.	Type	Ø mm	€
19.127.1300	11.423	1-13 mm x 0,5 mm	78,05

> 19.130 INTERNATIONAL TOOLS

NL ECO HSS Set Spiraalboren Kruisaanslijping
FR Coffret de Forets HSS ECO Affûtage en croix
ES Estuche de brocas HSS ECO Afilado en cruz
DE ECO HSS Satz Spiralbohrer Kreuzanschliff
EN ECO HSS Drill set Split point



P 11 ≤800 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27 F	22-30 F	15-20 E	15-20 E	25-30 E	35-40 G	25-40 D	22-28 D

Ref.	Type	Ø mm	€
19.130.1000	11.426	1-10 mm x 0,5 mm	37,55
19.130.1300	11.426	1-13 mm x 0,5 mm	75,60

Ref.	Type	Ø mm	€
19.130.6000	11.426	1-10 mm x 0,5 mm (170x)	238,90

> 19.134 INTERNATIONAL TOOLS

NL ECO PRO HSS Set Spiraalboren Kruisaanslijping
FR Coffret de Forets HSS ECO PRO Affûtage en croix
ES Estuche de brocas HSS ECO PRO Afilado en cruz
DE ECO PRO HSS Satz Spiralbohrer Kreuzanschliff
EN ECO PRO HSS Drill set Split point



P 11 ≤800 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27 F	22-30 F	15-20 E	15-20 E	25-30 E	35-40 G	25-40 D	22-28 D

Ref.	Type	Ø mm	€
19.134.1000	11.430	1-10 mm x 0,5 mm	57,70
19.134.1300	11.430	1-13 mm x 0,5 mm	125,80

Ref.	Type	Ø mm	€
19.134.6000	11.430	1-10 mm x 0,5 mm (170x)	386,00
19.134.6100	11.430	1-13 mm x 0,5 mm + 3,3 - 4,2 mm (220x)	737,00

> 19.136 INTERNATIONAL TOOLS

NL ECO PRO HSS Set Spiraalboren TiN-tip
FR Coffret de Forets HSS ECO PRO avec revêtement TiN sur la partie utile
ES Estuche de brocas HSS ECO PRO con punta TiN
DE ECO PRO HSS Satz Spiralbohrer TiN-Tip
EN ECO PRO HSS Drill set TiN coated tip



P 11 ≤800 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	M 21 INOX ≤850N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27 F	22-30 F	15-20 E	8-12 D	15-20 E	25-30 E	48-60 E	45-50 G	25-40 D	22-28 D

Ref.	Type	Ø mm	€
19.136.1000	11.431	1-10 mm x 0,5 mm	74,25

Ref.	Type	Ø mm	€
19.136.1300	11.431	1-13 mm x 0,5 mm	144,30

> 19.137 Phantom

NL HSS Set Spiraalboren met drievlaks schacht
FR Coffret de Forets HSS à 3 méplats
ES Estuche de brocas HSS con 3 chaflanes
DE HSS Satz Spiralbohrer mit drei platten Flächen
EN HSS Drill set with 3 flat surfaces



HSS	OX.	DIN 338	N	 <4	 ≥4		 118°	
P 11 ≤500 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si >10%	N 51 Cu	N 61 PVC
25-27 F	22-30 F	15-20 E	8-12 D	15-20 E	25-30 E	45-50 G	25-40 D	22-28 D

Ref.	Type	Ø mm	€
19.137.1000	11.440	1-10 mm x 0,5 mm	96,05

Ref.	Type	Ø mm	€
19.137.1300	11.440	1-13 mm x 0,5 mm	182,60

> 19.138 Phantom

NL HSS Set Spiraalboren TiN-tip, met drievlaks schacht, (handgebruik)
FR Coffret de Forets HSS avec revêtement TiN sur la partie utile, à 3 méplats, (usage à la main)
ES Estuche de brocas HSS con punta TiN, con 3 chaflanes, (uso manual)
DE HSS Satz Spiralbohrer TiN-Tip, mit drei platten Flächen, (handgebrauch)
EN HSS Drill set TiN coated tip, with 3 flat surfaces, (handuse)



HSS	TiN	DIN 338	>N	 <4	 ≥4	 ≥1,6	 118°		
P 11 ≤500 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
27-30	25-28	17-22	10-14	20-33	20-28	50-80	45-70	40-65	25-36

Ref.	Type	Ø mm	€
19.138.1000	11.441	1-10 mm x 0,5 mm	119,65

Ref.	Type	Ø mm	€
19.138.1300	11.441	1-13 mm x 0,5 mm	231,20

> 19.139 Phantom

NL HSS Set Spiraalboren Step-point, met drievlaks schacht
FR Coffret de Forets HSS Step-point, à 3 méplats
ES Estuche de brocas HSS Step-point, con 3 chaflanes
DE HSS Satz Spiralbohrer Step-point, mit drei platten Flächen
EN HSS Drill set Step-point, with 3 flat surfaces



HSS	OX.	DIN 338	N	 ≥4	 ≥2,5		 118°	
P 11 5000 Nimm²	P 12 5850 Nimm²	P 13 51000 Nimm²	M 21 INOX 5850Nimm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27 F	22-30 F	15-20 F	8-12 D	15-20 E	25-30 E	45-50 G	25-40 D	22-28 D

Ref.	Type	Ø mm	€
19.139.0310	11.443	3-10 mm x 1 mm	84,00
19.139.1000	11.443	1-10 mm x 0,5 mm	177,65

Ref.	Type	Ø mm	€
19.139.1300	11.443	1-13 mm x 0,5 mm	331,00



NL Step-point spiraalboor in actie
FR Regardez le foret à pointe étagée Step-point en action
ES Broca escalonada en acción
DE Spiralbohrer mit Stufenspitze in Aktion
EN Step-Point Stub Drill in Action

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> 19.140 Phantom

NL HSS-E Set Spiraalboren met drievlaks schacht
FR Coffret de Forets HSS-E à 3 méplats
ES Estuche de brocas HSS-E con 3 chaflanes
DE HSS-E Satz Spiralbohrer mit drei platten Flächen
EN HSS-E Drill set with 3 flat surfaces



HSS-E	DIN 338	N	 <4	 ≥4	 ≥2	 135°			
P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤850 N/mm²	M 22 INOX >850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 51 Cu	N 52 CuAlFe
28-35	30-36	20-27	12-20	14-18	10-15	30-35	24-30	30-40	8-15

Ref.	Type	Ø mm	€
19.140.1000	11.445	1-10 mm x 0,5 mm	134,50

Ref.	Type	Ø mm	€
19.140.1300	11.445	1-13 mm x 0,5 mm	264,00

> 19.141 Phantom

NL HSS-E Set Spiraalboren TiN-tip, met drievlaks schacht, (handgebruik)
FR Coffret de Forets HSS-E avec revêtement TiN sur la partie utile, à 3 méplats, (usage à la main)
ES Estuche de brocas HSS-E con punta TiN, con 3 chaflanes, (uso manual)
DE HSS-E Satz Spiralbohrer TiN-Tip, mit drei platten Flächen, (handgebrauch)
EN HSS-E Drill set TiN coated tip, with 3 flat surfaces, (handuse)



HSS-E	TiN	DIN 338	>N	<4	≥4	≥1,6	118°		
P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 51	N 52
≤800 N/mm²	≤850 N/mm²	≤1000 N/mm²	≤1400 N/mm²	INOX ≤850 N/mm²	INOX >850 N/mm²	GG	GGG GTS-GTW	Cu	CuAlFe
32-40 E	35-40 E	25-32 E	12-20 D	15-20 D	10-15 C	30-35 F	24-30 F	30-40 E	8-15 C

Ref.	Type	Ø mm	€
19.141.1000	11.446	1-10 mm x 0,5 mm	145,05

Ref.	Type	Ø mm	€
19.141.1300	11.446	1-13 mm x 0,5 mm	280,00

> 19.142 Phantom

NL HSS-E Set Spiraalboren Step-point, met drievlaks schacht
FR Coffret de Forets HSS-E Step-point, à 3 méplats
ES Estuche de brocas HSS-E Step-point, con 3 chaflanes
DE HSS-E Satz Spiralbohrer Step-point, mit drei platten Flächen
EN HSS-E Drill set Step-point, with 3 flat surfaces



HSS-E	OX.	DIN 338	N	≥4	≥2,5		118°		
P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 51	N 52
≤800 N/mm²	≤850 N/mm²	≤1000 N/mm²	≤1400 N/mm²	INOX ≤850 N/mm²	INOX >850 N/mm²	GG	GGG GTS-GTW	Cu	CuAlFe
28-35 E	30-36 E	20-27 E	12-20 D	14-18 D	10-15 C	30-35 F	24-30 F	30-40 E	8-15 C

Ref.	Type	Ø mm	€
19.142.0310	11.447	3-10 mm x 1 mm	99,00
19.142.1000	11.447	1-10 mm x 0,5 mm	190,00

Ref.	Type	Ø mm	€
19.142.1300	11.447	1-13 mm x 0,5 mm	365,00

NIEUW NOUVEAU NUEVO NEU



NL Step-point spiraalboor in actie
FR Regardez le foret à pointe étagée Step-point en action
ES Broca escalonada en acción
DE Spiralbohrer mit Stufenspitze in Aktion
EN Step-Point Stub Drill in Action

Watch me



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> 19.144 INTERNATIONAL TOOLS

NL ECO HSS Set Spiraalboren gewalst
FR Coffret de Forets HSS ECO laminé
ES Estuche de brocas HSS ECO laminada
DE ECO HSS Satz Spiralbohrer Gewalzt
EN ECO HSS Drill set roll-forged



HSS	DIN 338	N			118°	ECO
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	K 31 GG	K 32 GGG GTS-GTW		
20-25 E	20-25 E	15-20 D	15-20 E	25-30 E		

Ref.	Type	Ø mm	€
19.144.1002	11.400	1-10 mm x 0,5 mm	20,67
19.144.1302	11.400	1-13 mm x 0,5 mm	37,70

Ref.	Type	Ø mm	€
19.144.6001	11.400	1-10 mm x 0,5 mm (170x)	177,00
19.144.6100	11.400	1-13 mm x 0,5 mm + 3,3 - 4,2 mm (220x)	316,00

> 19.145 Phantom

NL HSS Set Spiraalboren
FR Coffret de Forets HSS
ES Estuche de brocas HSS
DE HSS Satz Spiralbohrer
EN HSS Drill set



HSS	OX.	DIN 338	N		118°				
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC	
25-27 F	22-25 F	15-20 E	8-12 D	15-20 E	25-30 E	45-50 G	25-40 D	22-28 D	

Ref.	Type	Ø mm	€
19.145.1000	11.450	1-10 mm x 0,5 mm	84,40
19.145.1010	11.450	1-10 mm x 0,1 mm (91x)	457,00
19.145.1150	11.450	1-10,5 mm x 0,5 mm + 3,3-4,2-6,8-10,2 mm	105,50
19.145.1300	11.450	1-13 mm x 0,5 mm	154,40

Ref.	Type	Ø mm	€
19.145.1590	11.450	1-5,9 mm x 0,1 mm	137,00
19.145.1600	11.450	6-10 mm x 0,1 mm	302,00
19.145.6000	11.450	1-10 mm x 0,5 mm (170x)	604,00
19.145.6100	11.450	1-13 mm x 0,5 mm + 3,3 - 4,2 mm (220x)	1.016,00

> 19.146 Phantom

NL HSS Set Spiraalboren TiN-tip
FR Coffret de Forets HSS avec revêtement TiN sur la partie utile
ES Estuche de brocas HSS con punta TiN
DE HSS Satz Spiralbohrer TiN-Tip
EN HSS Drill set TiN coated tip



HSS	TiN	DIN 338	N		118°				
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27 F	22-30 F	15-20 E	8-12 D	15-20 E	25-30 E	48-60 E	45-50 G	25-40 D	22-28 D

Ref.	Type	Ø mm	€
19.146.1000	11.451	1-10 mm x 0,5 mm	101,05
19.146.1010	11.451	1-10 mm x 0,1 mm (91x)	534,00

Ref.	Type	Ø mm	€
19.146.1150	11.451	1-10,5 mm x 0,5 mm + 3,3-4,2-6,8-10,2 mm	127,85
19.146.1300	11.451	1-13 mm x 0,5 mm	200,75

> 19.147 Phantom

NL HSS Set Spiraalboren TiN-tip, (handgebruik)
 FR Coffret de Forets HSS avec revêtement TiN sur la partie utile,
 (usage à la main)
 ES Estuche de brocas HSS con punta TiN, (uso manual)
 DE HSS Satz Spiralbohrer TiN-Tip, (handgebrauch)
 EN HSS Drill set TiN coated tip, (handuse)



HSS	TiN	DIN 338	>N							
P 11	P 12	P 13	M 21	K 31	K 32	N 41	N 42	N 51	N 61	
≤800 N/mm²	≤850 N/mm²	≤1000 N/mm²	INOX ≤850N/mm²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	PVC	
25-27 F	22-30 F	15-20 E	8-12 D	15-20 E	25-30 E	48-60 E	45-50 G	25-40 D	22-28 D	

Ref.	Type	Ø mm	€
19.147.1000	11.461	1-10 mm x 0,5 mm	103,65
19.147.1010	11.461	1-10 mm x 0,1 mm (91x)	533,00

Ref.	Type	Ø mm	€
19.147.1150	11.461	1-10,5 mm x 0,5 mm + 3,3-4,2-6,8-10,2 mm	151,00
19.147.1300	11.461	1-13 mm x 0,5 mm	199,30

> 19.149 INTERNATIONAL TOOLS

NL ECO PRO HSS-E Set Spiraalboren
 FR Coffret de Forets HSS-E ECO PRO
 ES Estuche de brocas HSS-E ECO PRO
 DE ECO PRO HSS-E Satz Spiralbohrer
 EN ECO PRO HSS-E Drill set



HSS-E	DIN 338	N								
P 11	P 12	P 13	M 21	K 31	K 32	N 51	N 52			
≤800 N/mm²	≤850 N/mm²	≤1000 N/mm²	INOX ≤850N/mm²	GG	GGG GTS-GTW	Cu	CuAlFe			
28-35 E	30-36 E	20-27 E	14-18 D	30-35 F	24-30 F	30-40 E	8-15 C			

Ref.	Type	Ø mm	€
19.149.1000	11.490	1-10 mm x 0,5 mm	83,65
19.149.1300	11.490	1-13 mm x 0,5 mm	175,00

Ref.	Type	Ø mm	€
19.149.6000	11.490	1-10 mm x 0,5 mm (170x)	600,00
19.149.6100	11.490	1-13 mm x 0,5 mm + 3,3 - 4,2 mm (220x)	993,00

> 19.150 Phantom

NL HSS-E Set Spiraalboren
 FR Coffret de Forets HSS-E
 ES Estuche de brocas HSS-E
 DE HSS-E Satz Spiralbohrer
 EN HSS-E Drill set



HSS-E	DIN 338	N								
P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 51	N 52	
≤800 N/mm²	≤850 N/mm²	≤1000 N/mm²	≤1400 N/mm²	INOX ≤850N/mm²	INOX >850N/mm²	GG	GGG GTS-GTW	Cu	CuAlFe	
28-35 E	30-36 E	20-27 E	12-20 D	14-18 D	10-15 C	30-35 F	24-30 F	30-40 E	8-15 C	

Ref.	Type	Ø mm	€
19.150.1000	11.500	1-10 mm x 0,5 mm	121,90
19.150.1010	11.500	1-10 mm x 0,1 mm (91x)	817,00
19.150.1150	11.500	1-10,5 mm x 0,5 mm + 3,3-4,2-6,8-10,2 mm	153,20
19.150.1300	11.500	1-13 mm x 0,5 mm	236,00

Ref.	Type	Ø mm	€
19.150.1590	11.500	1-5,9 mm x 0,1 mm	215,00
19.150.1600	11.500	6-10 mm x 0,1 mm	584,00
19.150.6000	11.500	1-10 mm x 0,5 mm (170x)	894,00
19.150.6100	11.500	1-13 mm x 0,5 mm + 3,3 - 4,2 mm (220x)	1.557,00

> 19.152 Phantom

NL HSS-E Set Spiraalboren TiN-tip, (handgebruik)
 FR Coffret de Forets HSS-E avec revêtement TiN sur la partie utile, (usage à la main)
 ES Estuche de brocas HSS-E con punta TiN, (uso manual)
 DE HSS-E Satz Spiralbohrer TiN-Tip, (handgebrauch)
 EN HSS-E Drill set TiN coated tip, (handuse)



HSS-E	TiN	DIN 338	>N						
P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 51	N 52
≤500 N/mm²	≤850 N/mm²	≤1000 N/mm²	≤1400 N/mm²	INOX ≤850 N/mm²	INOX >850 N/mm²	GG	GGG GTS-GTW	Cu	CuAlFe
32-40 E	35-40 E	25-32 E	12-20 D	15-20 D	10-15 C	30-35 F	24-30 F	30-40 E	8-15 C

Ref.	Type	Ø mm	€
19.152.1000	11.506	1-10 mm x 0,5 mm	140,10

Ref.	Type	Ø mm	€
19.152.1300	11.506	1-13 mm x 0,5 mm	273,00

> 19.176 Phantom

NL HSS-E Set Spiraalboren roestvaststaal
 FR Coffret de Forets HSS-E Inox
 ES Estuche de brocas HSS-E acero inoxidable
 DE HSS-E Satz Spiralbohrer rostfreien Stahl
 EN HSS-E Drill set stainless steel



HSS-E	DIN 338	>N				INOX
P 14	M 21	M 22	S 71	S 72		
≤1400 N/mm²	INOX ≤850 N/mm²	INOX >850 N/mm²	Ni/Co	Ti		
12-16 E	14-18 D	12-16 C	6-8 A	6-10 B		

Ref.	Type	Ø mm	€
19.176.1000	11.760	1-10 mm x 0,5 mm	154,00
19.176.1150	11.760	1-10,5 mm x 0,5 mm + 3,3-4,2-6,8-10,2 mm	215,00

Ref.	Type	Ø mm	€
19.176.1300	11.760	1-13 mm x 0,5 mm	324,00

> 19.374 Phantom

NL HM-tip Set Hamerboren, SDS-PLUS met 2 snijkanten
 FR Jeu Forets à béton, SDS-PLUS à plaquette carbure à 2 taillants
 ES Juego de brocas martillo, SDS-PLUS punta MD con 2 labios
 DE HM-Schneiden Satz Hammerbohrer, SDS-PLUS mit 2 Schneiden
 EN Carbide Tipped Hammer Drill set, SDS-PLUS with 2 flutes



	Z=2	HM	
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Ref.	Type	Ø mm	€
19.374.0512	13.740	5x110, 6x110, 8x110, 6x160, 8x160, 10x160, 12x160 mm	56,00
19.374.1000	13.740	5x110 (5x), 6x160 (5x), 8x160 (5x), 10x160 (5x), 12x160 (5x), 8x210 (5x), 10x210 (5x), 12x210 mm (5x)	297,00

> 19.376 Phantom

NL HM-tip Set Hamerboren, SDS-PLUS met 4 snijkanten
 FR Jeu Forets à béton, SDS-PLUS à plaquette carbure à 4 taillants
 ES Juego de brocas martillo, SDS-PLUS punta MD con 4 labios
 DE HM-Schneiden Satz Hammerbohrer, SDS-PLUS mit 4 Schneiden
 EN Carbide Tipped Hammer Drill set, SDS-PLUS with 4 flutes

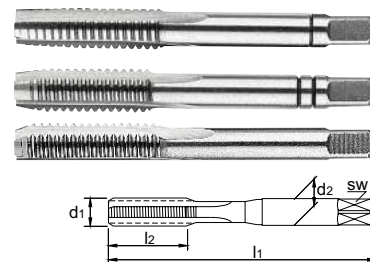
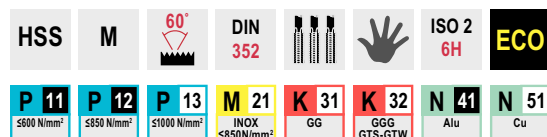


	Z=4	HM	
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Ref.	Type	Ø mm	€
19.376.0512	13.744	5x110, 6x110, 8x110, 6x160, 8x160, 10x160, 12x160 mm	99,00

> 21.140 INTERNATIONAL TOOLS

NL ECO HSS Handtappen Metrisch, set à 3 stuks
FR Tarauds à main HSS ECO Métrique, Jeu de 3 pièces
ES Machos mano HSS ECO Métrica, juego de 3 piezas
DE ECO HSS Handgewindebohrer Metrisch, Satz von 3 Stück
EN ECO HSS Hand Taps Metric Coarse, set of 3 pieces

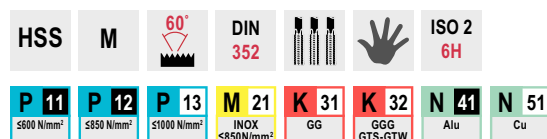


Ref.	d1	P	l1	l2	d2	sw	€
21.140.0300	M3	0.5	40	11	3.5	2.7	15,00
21.140.0400	M4	0.7	45	13	4.5	3.4	15,00
21.140.0500	M5	0.8	50	16	6	4.9	16,84
21.140.0600	M6	1	56	19	6	4.9	18,66
21.140.0800	M8	1.25	63	22	6	4.9	23,10
21.140.1000	M10	1.5	70	24	7	5.5	28,95
21.140.1200	M12	1.75	75	28	9	7	33,40
21.140.1400	M14	2	80	30	11	9	44,70

Ref.	d1	P	l1	l2	d2	sw	€
21.140.1600	M16	2	80	32	12	9	41,90
21.140.1800	M18	2.5	95	34	14	11	68,80
21.140.2000	M20	2.5	95	34	16	12	72,80
21.140.2200	M22	2.5	100	34	18	14.5	101,30
21.140.2400	M24	3	110	38	18	14.5	112,50
21.140.2700	M27	3	110	38	20	16	195,30
21.140.3000	M30	3.5	125	45	22	18	265,00

> 21.145 Phantom

NL HSS Handtappen Metrisch, set à 3 stuks
FR Tarauds à main HSS Métrique, Jeu de 3 pièces
ES Machos mano HSS Métrica, juego de 3 piezas
DE HSS Handgewindebohrer Metrisch, Satz von 3 Stück
EN HSS Hand Taps Metric Coarse, set of 3 pieces



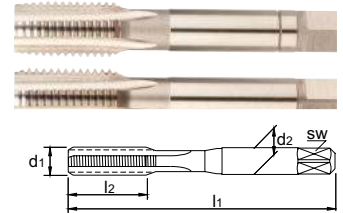
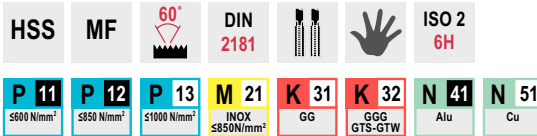
NIEUW NOUVEAU NUEVO NEU

Ref.	d1	P	l1	l2	d2	sw	€
21.145.0160	M1,6	0.35	32	8	2.5	2.1	88,00
21.145.0200	M2	0.4	36	8	2.8	2.1	28,15
21.145.0250	M2,5	0.45	40	9	2.8	2.1	32,25
21.145.0300	M3	0.5	40	11	3.5	2.7	21,43
21.145.0350	M3,5	0.6	45	12	4	3	27,85
21.145.0400	M4	0.7	45	13	4.5	3.4	21,43
21.145.0500	M5	0.8	50	16	6	4.9	24,05
21.145.0600	M6	1	56	19	6	4.9	26,65
21.145.0700	M7	1	56	19	6	4.9	40,10
21.145.0800	M8	1.25	63	22	6	4.9	33,00
21.145.0900	M9	1.25	63	22	7	5.5	49,60
21.145.1000	M10	1.5	70	24	7	5.5	41,40
21.145.1100	M11	1.5	70	24	8	6.2	59,30

Ref.	d1	P	l1	l2	d2	sw	€
21.145.1200	M12	1.75	75	28	9	7	47,70
21.145.1400	M14	2	80	30	11	9	63,85
21.145.1600	M16	2	80	32	12	9	59,80
21.145.1800	M18	2.5	95	34	14	11	120,25
21.145.2000	M20	2.5	95	34	16	12	137,40
21.145.2200	M22	2.5	100	34	18	14.5	150,95
21.145.2400	M24	3	110	38	18	14.5	160,75
21.145.2700	M27	3	110	38	20	16	279,00
21.145.3000	M30	3.5	125	45	22	18	378,00
21.145.3300	M33	3.5	125	50	25	20	374,00
21.145.3600	M36	4	150	56	28	22	398,00
21.145.3900	M39	4	150	60	32	24	497,00
21.145.4200	M42	4.5	150	60	32	24	726,00

> 21.250 Phantom

NL HSS Handtappen Metrisch Fijn, set à 2 stuks
FR Tarauds à main HSS Métrique Fin, Jeu de 2 pièces
ES Machos mano HSS Métrica Fina, juego de 2 piezas
DE HSS Handgewindebohrer Metrisch Fein, Satz von 2 Stück
EN HSS Hand Taps Metric Fine, set of 2 pieces



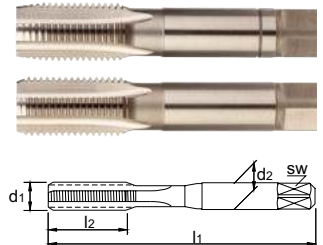
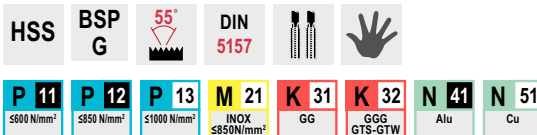
NIEUW NOUVEAU NUEVO NEU

Ref.	d1	P	l1	l2	d2	sw	€
21.250.0405	MF4	0.5	45	10	4.5	3.4	20,81
21.250.0505	MF5	0.5	52	12	6	4.9	22,59
21.250.0607	MF6	0.75	56	14	6	4.9	17,25
21.250.0810	MF8	1	63	22	6	4.9	29,90
21.250.1010	MF10	1	63	20	7	5.5	24,14
21.250.1012	MF10	1.25	70	24	7	5.5	24,14
21.250.1210	MF12	1	70	22	9	7	34,70
21.250.1212	MF12	1.25	70	22	9	7	34,30
21.250.1215	MF12	1.5	70	22	9	7	34,00
21.250.1410	MF14	1	70	22	11	9	46,85
21.250.1412	MF14	1.25	70	22	11	9	42,10

Ref.	d1	P	l1	l2	d2	sw	€
21.250.1415	MF14	1.5	70	22	11	9	37,85
21.250.1610	MF16	1	70	22	12	9	52,95
21.250.1615	MF16	1.5	70	22	12	9	42,95
21.250.1810	MF18	1	80	22	14	11	96,00
21.250.1815	MF18	1.5	80	22	14	11	86,20
21.250.2015	MF20	1.5	80	22	16	12	119,55
21.250.2020	MF20	2	80	22	16	12	113,00
21.250.2215	MF22	1.5	80	22	18	14.5	150,25
21.250.2415	MF24	1.5	90	22	18	14.5	159,45
21.250.2420	MF24	2	90	22	18	14.5	143,25

> 21.405 Phantom

NL HSS Handtappen BSP (Gasdraad), set à 2 stuks
FR Tarauds à main HSS BSP (pas gaz), Jeu de 2 pièces
ES Machos mano HSS BSP (gas), juego de 2 piezas
DE HSS Handgewindebohrer BSP (Rohrgewinde), Satz von 2 Stück
EN HSS Hand Taps BSP (G), set of 2 pieces



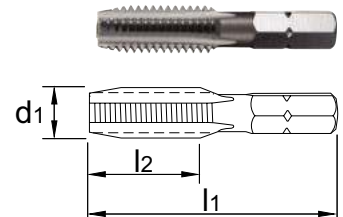
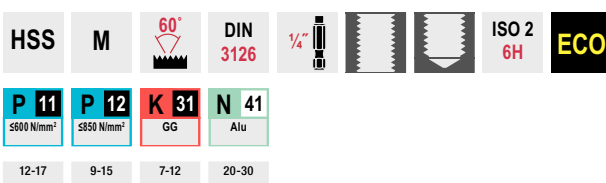
NIEUW NOUVEAU NUEVO NEU

Ref.	d1	P	l1	l2	d2	sw	€
21.405.0973	BSP 1/8	28	63	20	7	5.5	30,70
21.405.1316	BSP 1/4	19	70	22	11	9	38,25
21.405.1666	BSP 3/8	19	70	22	12	9	38,90
21.405.2096	BSP 1/2	14	80	22	16	12	48,60
21.405.2291	BSP 5/8	14	80	22	18	14.5	42,40

Ref.	d1	P	l1	l2	d2	sw	€
21.405.2644	BSP 3/4	14	90	22	20	16	88,90
21.405.3020	BSP 7/8	14	90	22	22	18	107,95
21.405.3325	BSP 1	11	100	25	25	20	141,30
21.405.4191	BSP 1.1/4	11	125	40	32	24	447,00
21.405.4780	BSP 1.1/2	11	140	40	36	29	725,00

> 22.100 INTERNATIONAL TOOLS

NL ECO HSS Machinetap Metrisch, met 1/4" (6,35 mm)-zeskant bitopname
FR Taraud machine HSS ECO Métrique, avec queue hexagonale 1/4" (6,35 mm)
ES Macho máquina HSS ECO Métrica, con sujeción 1/4" (6,35 mm) bit
DE ECO HSS Maschinengewindebohrer Metrisch, mit 1/4" (6,35 mm) Hexa-Bit Aufnahme
EN ECO HSS Machine Tap Metric Coarse, with hexagonal shank 1/4" (6,35 mm)



NIEUW NOUVEAU NUEVO NEU

Ref.	d1	P	l1	l2	€
22.100.0300	M3	0.5	33	11	5,34
22.100.0400	M4	0.7	35	12	5,34

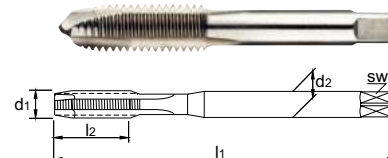
Ref.	d1	P	l1	l2	€
22.100.0500	M5	0.8	36	15	5,34
22.100.0600	M6	1	39	18	5,34

Ref.	d1	P	l1	l2	€
22.100.0800	M8	1.25	40	19	6,54
22.100.1000	M10	1.5	41	21	7,60

> 22.190

INTERNATIONAL
TOOLS

NL ECO HSS Machinetap Metrisch, kort
 FR Taraud machine HSS ECO Métrique, version courte
 ES Macho máquina HSS ECO Métrica, corto
 DE ECO HSS Maschinengewindebohrer Metrisch, kurz
 EN ECO HSS Machine Tap Metric Coarse, short



HSS	M	60°	DIN 352	3xD	Form B	3,5-6	ISO 2 6H	ECO
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P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	K 31 GG	N 41 Alu
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12-17	9-15	7-12	20-30
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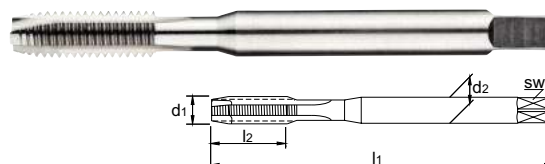
Ref.	d1	P	l1	l2	d2	sw	€
22.190.0300	M3	0.5	40	11	3.5	2.7	3,94
22.190.0400	M4	0.7	45	13	4.5	3.4	4,46
22.190.0500	M5	0.8	50	16	6	4.9	4,71
22.190.0600	M6	1	56	19	6	4.9	5,65

Ref.	d1	P	l1	l2	d2	sw	€
22.190.0800	M8	1.25	63	22	6	4.9	7,50
22.190.1000	M10	1.5	70	24	7	5.5	9,04
22.190.1200	M12	1.75	75	28	9	7	11,55

> 22.191

INTERNATIONAL
TOOLS

NL ECO HSS Machinetap Metrisch
 FR Taraud machine HSS ECO Métrique
 ES Macho máquina HSS ECO Métrica
 DE ECO HSS Maschinengewindebohrer Metrisch
 EN ECO HSS Machine Tap Metric Coarse



HSS	M	60°	DIN 371	3xD	Form B	3,5-6	ISO 2 6H	ECO
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P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	K 31 GG	N 41 Alu
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12-17	9-15	7-12	20-30
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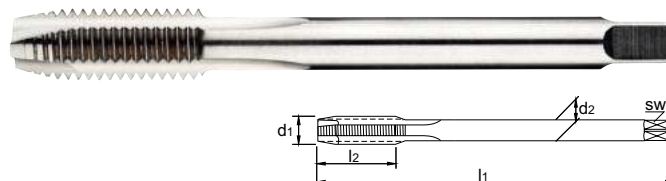
Ref.	d1	P	l1	l2	d2	sw	€
22.191.0300	M3	0.5	56	11	3.5	2.7	6,45
22.191.0400	M4	0.7	63	13	4.5	3.4	6,45
22.191.0500	M5	0.8	70	16	6	4.9	6,60

Ref.	d1	P	l1	l2	d2	sw	€
22.191.0600	M6	1	80	19	6	4.9	8,35
22.191.0800	M8	1.25	90	22	8	6.2	10,04
22.191.1000	M10	1.5	100	24	10	8	11,99

> 22.192

INTERNATIONAL
TOOLS

NL ECO HSS Machinetap Metrisch
 FR Taraud machine HSS ECO Métrique
 ES Macho máquina HSS ECO Métrica
 DE ECO HSS Maschinengewindebohrer Metrisch
 EN ECO HSS Machine Tap Metric Coarse



HSS	M	60°	DIN 376	3xD	Form B	3,5-6	ISO 2 6H	ECO
-----	---	-----	---------	-----	--------	-------	----------	-----

P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	K 31 GG	N 41 Alu
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12-17	9-15	7-12	20-30
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Ref.	d1	P	l1	l2	d2	sw	€
22.192.1200	M12	1.75	110	28	9	7	15,04

Ref.	d1	P	l1	l2	d2	sw	€

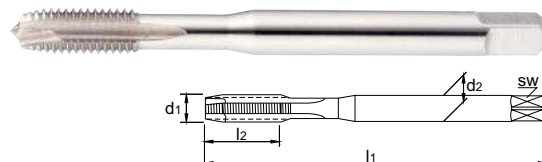
> 22.195 INTERNATIONAL TOOLS

NL ECO PRO HSS-E Machinetap Metrisch
FR Taraud machine HSS-E ECO PRO Métrique
ES Macho máquina HSS-E ECO PRO Métrica
DE ECO PRO HSS-E Maschinengewindebohrer Metrisch
EN ECO PRO HSS-E Machine Tap Metric Coarse



15-20	12-18	10-15	25-35
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Ref.	d1	P	l1	l2	d2	sw	€
22.195.0200	M2	0.4	45	8	2.8	2.1	18,94
22.195.0300	M3	0.5	56	11	3.5	2.7	11,86
22.195.0400	M4	0.7	63	13	4.5	3.4	12,13
22.195.0500	M5	0.8	70	16	6	4.9	12,80



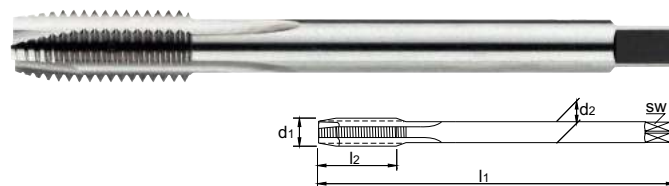
> 22.196 INTERNATIONAL TOOLS

NL ECO PRO HSS-E Machinetap Metrisch
FR Taraud machine HSS-E ECO PRO Métrique
ES Macho máquina HSS-E ECO PRO Métrica
DE ECO PRO HSS-E Maschinengewindebohrer Metrisch
EN ECO PRO HSS-E Machine Tap Metric Coarse



15-20	12-18	10-15	25-35
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Ref.	d1	P	l1	l2	d2	sw	€
22.196.1000	M10	1.5	100	24	7	5.5	17,98
22.196.1200	M12	1.75	110	28	9	7	21,96
22.196.1400	M14	2	110	30	11	9	27,25
22.196.1600	M16	2	110	32	12	9	30,60
22.196.2000	M20	2.5	140	34	16	12	45,55
22.196.2200	M22	2.5	140	34	18	14.5	63,50



Ref.	d1	P	l1	l2	d2	sw	€
22.196.2400	M24	3	160	38	18	14.5	60,30
22.196.2700	M27	3	160	38	20	16	90,55
22.196.3000	M30	3.5	180	45	22	18	109,50
22.196.3300	M33	3.5	180	50	25	20	129,80
22.196.3600	M36	4	200	56	28	22	160,85

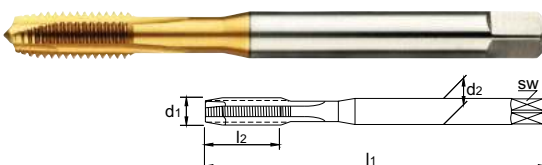
> 22.197 INTERNATIONAL TOOLS

NL ECO PRO HSS-E Machinetap Metrisch, TiN
FR Taraud machine HSS-E ECO PRO Métrique, TiN
ES Macho máquina HSS-E ECO PRO Métrica, TiN
DE ECO PRO HSS-E Maschinengewindebohrer Metrisch, TiN
EN ECO PRO HSS-E Machine Tap Metric Coarse, TiN



22-30	18-27	7-10	15-22	32-52	15-20	5-12
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Ref.	d1	P	l1	l2	d2	sw	€
22.197.0300	M3	0.5	56	11	3.5	2.7	17,19
22.197.0400	M4	0.7	63	13	4.5	3.4	16,68
22.197.0500	M5	0.8	70	16	6	4.9	18,48

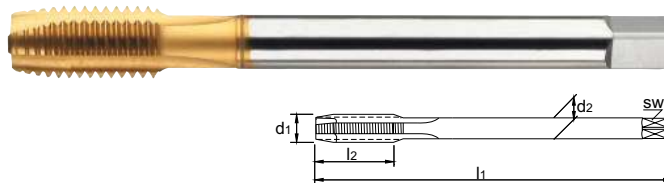


Ref.	d1	P	l1	l2	d2	sw	€
22.197.0600	M6	1	80	19	6	4.9	19,59
22.197.0800	M8	1.25	90	22	8	6.2	23,43
22.197.1000	M10	1.5	100	24	10	8	27,15

22.198

INTERNATIONAL TOOLS

NL ECO PRO HSS-E Machinetap Metrisch, TiN
FR Taraud machine HSS-E ECO PRO Métrique, TiN
ES Macho máquina HSS-E ECO PRO Métrica, TiN
DE ECO PRO HSS-E Maschinengewindebohrer Metrisch, TiN
EN ECO PRO HSS-E Machine Tap Metric Coarse, TiN



HSS-E	M	60°	TiN	DIN 376	3xD	Form B	3,5-6	ISO 2 6H	ECO PRO
P 11	P 12	M 21	K 31	N 41	N 42	N 51			
≤800 N/mm²	≤850 N/mm²	INOX ≤850N/mm²	GG	Alu	Alu Si>10%	Cu			
22-30	18-27	7-10	15-22	32-52	15-20	5-12			

Ref.	d1	P	l1	l2	d2	sw	€
22.198.1200	M12	1.75	110	28	9	7	33,65

Ref.	d1	P	l1	l2	d2	sw	€



NL Tappen van doorlopend en blind gat
FR Tarauder un trou débouchant et un trou borgne
ES Roscar un agujero pasante y ciego
DE Gewindebohrer Durchgangslotcher und Sacklocher
EN Tapping through and blind hole

Watch me

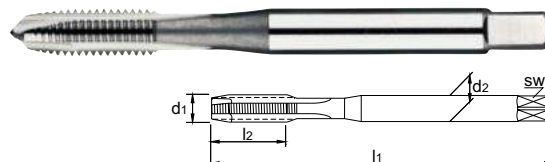


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22.200

Phantom

NL UNI HSS-E Machinetap Metrisch
FR Taraud machine HSS-E UNI Métrique
ES Macho máquina HSS-E UNI Métrica
DE UNI HSS-E Maschinengewindebohrer Metrisch
EN UNI HSS-E Machine Tap Metric Coarse



HSS-E	M		DIN 371	3xD		Form B	4-5	ISO 2 6H	UNI	
P 11	P 12	P 13	M 21	K 31	K 32	N 41	N 42	N 51	S 71	S 72
≤800 N/mm²	≤850 N/mm²	≤1000 N/mm²	INOX ≤850N/mm²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	Ni/Co	Ti
15-20	10-20	6-10	7-10	10-15	10-15	25-35	10-20	15-35	2-8	2-8

Ref.	d1	P	l1	l2	d2	sw	€
22.200.0100	M1	0.25	40	5.5	2.5	2.1	39,40
22.200.0110	M1,1	0.25	40	5.5	2.5	2.1	35,45
22.200.0120	M1,2	0.25	40	5.5	2.5	2.1	32,20
22.200.0140	M1,4	0.3	40	7	2.5	2.1	30,00
22.200.0160	M1,6	0.35	40	8	2.5	2.1	26,90
22.200.0170	M1,7	0.35	40	8	2.5	2.1	24,65
22.200.0180	M1,8	0.35	40	8	2.5	2.1	23,12
22.200.0200	M2	0.4	45	8	2.8	2.1	25,05
22.200.0220	M2,2	0.45	45	9	2.8	2.1	25,60
22.200.0230	M2,3	0.4	45	9	2.8	2.1	26,15
22.200.0250	M2,5	0.45	50	9	2.8	2.1	23,35

Ref.	d1	P	l1	l2	d2	sw	€
22.200.0260	M2,6	0.45	50	9	2.8	2.1	23,54
22.200.0300	M3	0.5	56	11	3.5	2.7	19,16
22.200.0350	M3,5	0.6	56	12	4	3	21,14
22.200.0400	M4	0.7	63	13	4.5	3.4	19,18
22.200.0450	M4,5	0.75	70	16	6	4.9	19,99
22.200.0500	M5	0.8	70	16	6	4.9	19,99
22.200.0600	M6	1	80	19	6	4.9	19,99
22.200.0700	M7	1	80	19	7	5.5	23,73
22.200.0800	M8	1.25	90	22	8	6.2	23,40
22.200.0900	M9	1.25	90	22	9	7	27,55
22.200.1000	M10	1.5	100	24	10	8	27,55



NL 80% kiest voor Phantom UNI machinetap!
FR 80% de notre clientèle choisissent un taraud machine Phantom UNI !
ES ¡El 80% elige el macho máquina Phantom UNI!
DE 80% entscheiden sich für den UNI-Maschinengewindebohrer von Phantom!
EN 80% opt for the Phantom UNI machine tap!

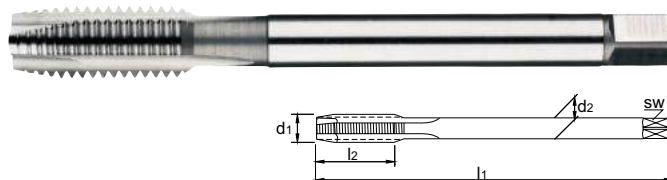
Watch me



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> 22.201 Phantom

NL UNI HSS-E Machinetap Metrisch
FR Taraud machine HSS-E UNI Métrique
ES Macho máquina HSS-E UNI Métrica
DE UNI HSS-E Maschinengewindebohrer Metrisch
EN UNI HSS-E Machine Tap Metric Coarse



HSS-E	M	 60°	DIN 376	3xD	 Form B	 4-5	ISO 2 6H	UNI		
 P 11	 P 12	 P 13	 M 21	 K 31	 K 32	 N 41	 N 42	 N 51	 S 71	 S 72
≤500 N/mm ²	≤550 N/mm ²	≤1000 N/mm ²	INOX ≤850N/mm ²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	Ni/Co	Ti
15-20	10-20	6-10	7-10	10-15	10-15	25-35	10-20	15-35	2-8	2-8

Ref.	d1	P	l1	l2	d2	sw	€
22.201.0200	M2	0.4	45	4	1.4		27,55
22.201.0250	M2,5	0.45	50	5	1.8		23,12
22.201.0300	M3	0.5	56	11	2.2		22,21
22.201.0400	M4	0.7	63	13	2.8	2.1	22,47
22.201.0500	M5	0.8	70	16	3.5	2.7	22,47
22.201.0600	M6	1	80	19	4.5	3.4	22,47
22.201.0700	M7	1	80	19	5.5	4.3	23,72
22.201.0800	M8	1.25	90	22	6	4.9	26,20
22.201.0900	M9	1.25	90	22	7	5.5	37,65
22.201.1000	M10	1.5	100	24	7	5.5	30,55
22.201.1200	M12	1.75	110	28	9	7	35,60
22.201.1400	M14	2	110	30	11	9	45,30
22.201.1600	M16	2	110	32	12	9	52,60

Ref.	d1	P	l1	l2	d2	sw	€
22.201.1800	M18	2.5	125	34	14	11	70,35
22.201.2000	M20	2.5	140	34	16	12	77,95
22.201.2200	M22	2.5	140	34	18	14.5	97,50
22.201.2400	M24	3	160	38	18	14.5	104,25
22.201.2700	M27	3	160	38	20	16	147,35
22.201.3000	M30	3.5	180	45	22	18	180,10
22.201.3300	M33	3.5	180	50	25	20	216,25
22.201.3600	M36	4	200	56	28	22	278,00
22.201.3900	M39	4	200	60	32	24	408,00
22.201.4200	M42	4.5	200	60	32	24	426,00
22.201.4500	M45	4.5	220	65	36	29	493,00
22.201.4800	M48	5	250	70	36	29	579,00
22.201.5200	M52	5	250	70	40	32	747,00



NL Test Phantom HSS-E UNI Machinetappen
FR Test de tarauds machine UNI HSS-E
ES Test Phantom HSS-E UNI Machos de rosado de máquina
DE Test Phantom HSS-E UNI Maschinengewindebohrer
EN Test Phantom HSS-E UNI Machine Taps

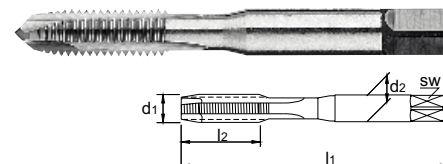
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> 22.205 Phantom

NL HSS Machinetap Metrisch
FR Taraud machine HSS Métrique
ES Macho máquina HSS Métrica
DE HSS Maschinengewindebohrer Metrisch
EN HSS Machine Tap Metric Coarse



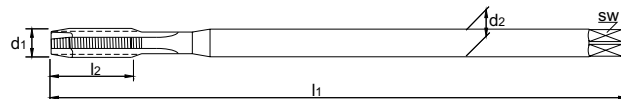
HSS	M	60°	NFE 66103	ISO 529	2xD	Form B	5	ISO 2 6H
P 11	P 12	K 31	K 32	N 41	N 52			
≤500 N/mm²	≤550 N/mm²	GG	GGG GTS-GTW	Alu	CuAlFe			
12-17	10-15	7-12	3-6	15-20	5-12			

Ref.	d1	P	l1	l2	d2	sw	€
22.205.0200	M2	0.4	41	8	2.5	2	19,64
22.205.0250	M2,5	0.45	44	9.5	2.8	2.24	17,30
22.205.0300	M3	0.5	48	11	3.15	2.5	12,97
22.205.0350	M3,5	0.6	50	13	3.55	2.8	16,47
22.205.0400	M4	0.7	53	13	4	3.15	12,97
22.205.0450	M4,5	0.75	58	16	5	4	17,26
22.205.0500	M5	0.8	58	16	5	4	13,24
22.205.0600	M6	1	66	19	6.3	5	13,43
22.205.0700	M7	1	66	19	7.1	5.6	17,36
22.205.0800	M8	1.25	72	22	8	6.3	17,36
22.205.0900	M9	1.25	72	22	9	7.1	23,43

Ref.	d1	P	l1	l2	d2	sw	€
22.205.1000	M10	1.5	80	24	10	8	21,37
22.205.1200	M12	1.75	89	29	9	7.1	27,25
22.205.1400	M14	2	95	30	11.2	9	35,40
22.205.1600	M16	2	102	32	12.5	10	44,15
22.205.1800	M18	2.5	112	37	14	11.2	56,90
22.205.2000	M20	2.5	112	37	14	11.2	65,55
22.205.2200	M22	2.5	118	38	16	12.5	84,05
22.205.2400	M24	3	130	45	18	14	96,45
22.205.2700	M27	3	135	45	20	16	123,65
22.205.3000	M30	3.5	138	48	20	16	164,45

> 22.350 Phantom

NL UNI HSS-E Machinetap Metrisch, lang
 FR Taraud machine HSS-E UNI Métrique, version longue
 ES Macho máquina HSS-E UNI Métrica, larga
 DE UNI HSS-E Maschinengewindebohrer Metrisch, lang
 EN UNI HSS-E Machine Tap Metric Coarse, long



HSS-E	M			3xD		Form B		ISO 2 6H	UNI	
										
≤800 N/mm ²	≤850 N/mm ²	≤1000 N/mm ²	INOX ≤850N/mm ²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	Ni/Co	Ti
15-20	10-20	6-10	7-10	10-15	10-15	25-35	10-20	15-35	2-8	2-8

Ref.	d1	P	l1	l2	d2	sw	€
22.350.0400	M4	0.7	126	13	4.5	3.4	46,05
22.350.0500	M5	0.8	140	15	6	4.9	49,80

Ref.	d1	P	l1	l2	d2	sw	€
22.350.0600	M6	1	160	17	6	4.9	51,40
22.350.0800	M8	1.25	180	20	8	6.2	58,25

> 22.351 Phantom

NL UNI HSS-E Machinetap Metrisch, lang
 FR Taraud machine HSS-E UNI Métrique, version longue
 ES Macho máquina HSS-E UNI Métrica, larga
 DE UNI HSS-E Maschinengewindebohrer Metrisch, lang
 EN UNI HSS-E Machine Tap Metric Coarse, long



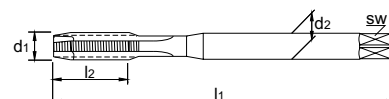
HSS-E	M			3xD		Form B		4-5	ISO 2 6H	UNI
P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	S 71 Ni/Co	S 72 Ti
15-20	10-20	6-10	7-10	10-15	10-15	25-35	10-20	15-35	8-15	2-8

Ref.	d1	P	l1	l2	d2	sw	€
22.351.0800	M8	1.25	180	20	6	4.9	56,35
22.351.1000	M10	1.5	200	22	7	5.5	68,45
22.351.1200	M12	1.75	220	24	9	7	78,95

Ref.	d1	P	l1	l2	d2	sw	€
22.351.1600	M16	2	220	32	12	9	116,40
22.351.2000	M20	2.5	280	32	16	12	163,90
22.351.2400	M24	3	320	34	18	14.5	216,80

> 22.595 INTERNATIONAL TOOLS

NL ECO PRO HSS-E Machinetap Metrisch, stoomontlaten, roestvaststaal
 FR Taraud machine HSS-E ECO PRO Métrique, vaporisé, Inox
 ES Macho máquina HSS-E ECO PRO Métrica, vaporizada, acero inoxidable
 DE ECO PRO HSS-E Maschinengewindebohrer Metrisch, dampfangelassen, rostfreien Stahl
 EN ECO PRO HSS-E Machine Tap Metric Coarse, steam oxide, stainless steel



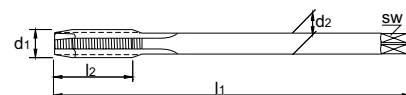
HSS-E	M	60°	OX.	DIN 371	3xD	Form B	4-6	ISO 2 6H	INOX	ECO PRO
P 11 ≤800 N/mm²	M 21 INOX ≤850 N/mm²									
15-20	7-10									

Ref.	d1	P	l1	l2	d2	sw	€
22.595.0300	M3	0.5	56	11	3.5	2.7	15,20
22.595.0400	M4	0.7	63	13	4.5	3.4	15,42
22.595.0500	M5	0.8	70	16	6	4.9	16,33

Ref.	d1	P	l1	l2	d2	sw	€
22.595.0600	M6	1	80	19	6	4.9	16,35
22.595.0800	M8	1.25	90	22	8	6.2	18,50
22.595.1000	M10	1.5	100	24	10	8	21,26

> 22.596 INTERNATIONAL TOOLS

- NL ECO PRO HSS-E Machinetap Metrisch, stoomontlaten, roestvaststaal
 FR Taraud machine HSS-E ECO PRO Métrique, vaporisé, Inox
 ES Macho máquina HSS-E ECO PRO Métrica, vaporizada, acero inoxidable
 DE ECO PRO HSS-E Maschinengewindebohrer Metrisch, dampfangelassen, rostfreien Stahl
 EN ECO PRO HSS-E Machine Tap Metric Coarse, steam oxide, stainless steel



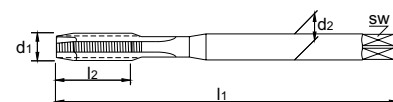
15-20 7-10

Ref.	d1	P	l1	l2	d2	sw	€
22.596.1200	M12	1.75	110	28	9	7	26,55
22.596.1600	M16	2	110	32	12	9	38,50

Ref.	d1	P	l1	l2	d2	sw	€
22.596.2000	M20	2.5	140	34	16	12	57,40

> 22.600 Phantom

- NL HSS-E PM Machinetap Metrisch, stoomontlaten, roestvaststaal
 FR Taraud machine HSS-E PM Métrique, vaporisé, Inox
 ES Macho máquina HSS-E PM Métrica, vaporizada, acero inoxidable
 DE HSS-E PM Maschinengewindebohrer Metrisch, dampfangelassen, rostfreien Stahl
 EN HSS-E PM Machine Tap Metric Coarse, steam oxide, stainless steel



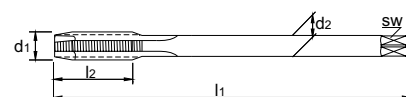
15-20 7-10 5-8

Ref.	d1	P	l1	l2	d2	sw	€
22.600.0300	M3	0.5	56	11	3.5	2.7	23,20
22.600.0400	M4	0.7	63	13	4.5	3.4	23,20
22.600.0500	M5	0.8	70	16	6	4.9	23,50

Ref.	d1	P	l1	l2	d2	sw	€
22.600.0600	M6	1	80	19	6	4.9	23,50
22.600.0800	M8	1.25	90	22	8	6.2	29,40
22.600.1000	M10	1.5	100	24	10	8	37,20

> 22.601 Phantom

- NL HSS-E PM Machinetap Metrisch, stoomontlaten, roestvaststaal
 FR Taraud machine HSS-E PM Métrique, vaporisé, Inox
 ES Macho máquina HSS-E PM Métrica, vaporizada, acero inoxidable
 DE HSS-E PM Maschinengewindebohrer Metrisch, dampfangelassen, rostfreien Stahl
 EN HSS-E PM Machine Tap Metric Coarse, steam oxide, stainless steel



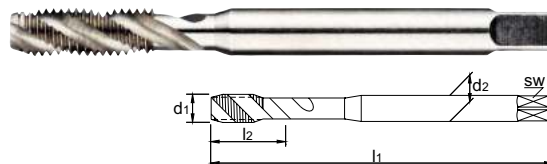
15-20 7-10 5-8

Ref.	d1	P	l1	l2	d2	sw	€
22.601.0800	M8	1.25	90	22	6	4.9	29,40
22.601.1000	M10	1.5	100	24	7	5.5	37,20
22.601.1200	M12	1.75	110	28	9	7	49,30
22.601.1400	M14	2	110	30	11	9	62,55
22.601.1600	M16	2	110	32	12	9	74,05
22.601.1800	M18	2.5	125	34	14	11	100,15

Ref.	d1	P	l1	l2	d2	sw	€
22.601.2000	M20	2.5	140	34	16	12	118,85
22.601.2200	M22	2.5	140	34	18	14.5	150,80
22.601.2400	M24	3	160	38	18	14.5	164,55
22.601.2700	M27	3	160	38	20	16	249,15
22.601.3000	M30	3.5	180	45	22	18	309,00

> 23.291 INTERNATIONAL TOOLS

NL ECO HSS Machinetap Metrisch
FR Taraud machine HSS ECO Métrique
ES Macho máquina HSS ECO Métrica
DE ECO HSS Maschinengewindebohrer Metrisch
EN ECO HSS Machine Tap Metric Coarse



HSS	M	60°	DIN 371	2xD	35°	Form C	2-3	ISO 2 6H	ECO
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P 11	P 12	K 31	N 41
≤600 N/mm²	≤850 N/mm²	GG	Alu

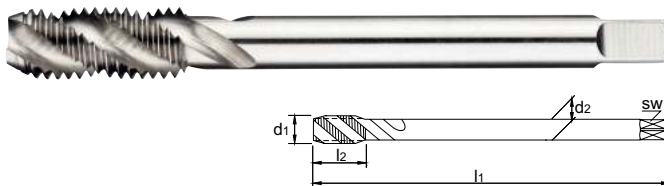
12-17	9-15	7-12	20-30
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Ref.	d1	P	l1	l2	d2	sw	€
23.291.0300	M3	0.5	56	11	3.5	2.7	6,73
23.291.0400	M4	0.7	63	13	4.5	3.4	6,86
23.291.0500	M5	0.8	70	16	6	4.9	7,00

Ref.	d1	P	l1	l2	d2	sw	€
23.291.0600	M6	1	80	19	6	4.9	8,64
23.291.0800	M8	1.25	90	22	8	6.2	11,04
23.291.1000	M10	1.5	100	24	10	8	14,15

> 23.292 INTERNATIONAL TOOLS

NL ECO HSS Machinetap Metrisch
FR Taraud machine HSS ECO Métrique
ES Macho máquina HSS ECO Métrica
DE ECO HSS Maschinengewindebohrer Metrisch
EN ECO HSS Machine Tap Metric Coarse



HSS	M	60°	DIN 376	2xD	35°	Form C	2-3	ISO 2 6H	ECO
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P 11	P 12	K 31	N 41
≤600 N/mm²	≤850 N/mm²	GG	Alu

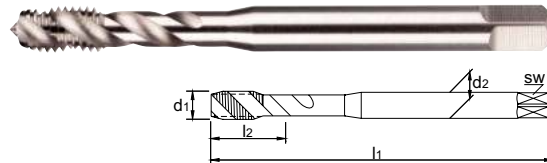
12-17	9-15	7-12	20-30
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Ref.	d1	P	l1	l2	d2	sw	€
23.292.1200	M12	1.75	110	28	9	7	15,51

Ref.	d1	P	l1	l2	d2	sw	€

> 23.295 INTERNATIONAL TOOLS

NL ECO PRO HSS-E Machinetap Metrisch
FR Taraud machine HSS-E ECO PRO Métrique
ES Macho máquina HSS-E ECO PRO Métrica
DE ECO PRO HSS-E Maschinengewindebohrer Metrisch
EN ECO PRO HSS-E Machine Tap Metric Coarse



HSS-E	M	60°	DIN 371	2xD	35°	Form C	2-3	ISO 2 6H	ECO PRO
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P 11	P 12	K 31	N 41
≤600 N/mm²	≤850 N/mm²	GG	Alu

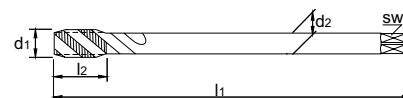
15-20	12-18	10-15	25-35
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Ref.	d1	P	l1	l2	d2	sw	€
23.295.0200	M2	0.4	45	8	2.8	2.1	18,19
23.295.0300	M3	0.5	56	11	3.5	2.7	13,02
23.295.0400	M4	0.7	63	13	4.5	3.4	13,02
23.295.0500	M5	0.8	70	16	6	4.9	13,30

Ref.	d1	P	l1	l2	d2	sw	€
23.295.0600	M6	1	80	19	6	4.9	13,76
23.295.0800	M8	1.25	90	22	8	6.2	15,76
23.295.1000	M10	1.5	100	24	10	8	18,61

> 23.296 INTERNATIONAL TOOLS

NL ECO PRO HSS-E Machinetap Metrisch
FR Taraud machine HSS-E ECO PRO Métrique
ES Macho máquina HSS-E ECO PRO Métrica
DE ECO PRO HSS-E Maschinengewindebohrer Metrisch
EN ECO PRO HSS-E Machine Tap Metric Coarse



HSS-E	M	60°	DIN 376	2xD	35°	Form C	2-3	ISO 2 6H	ECO PRO
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P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	K 31 GG	N 41 Alu
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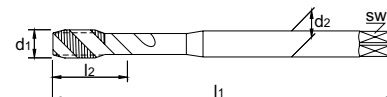
15-20	12-18	10-15	25-35
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Ref.	d1	P	l1	l2	d2	sw	€
23.296.1000	M10	1.5	100	24	7	5.5	20,59
23.296.1200	M12	1.75	110	28	9	7	24,16
23.296.1400	M14	2	110	30	11	9	30,00
23.296.1600	M16	2	110	32	12	9	33,05
23.296.2000	M20	2.5	140	34	16	12	48,60

Ref.	d1	P	l1	l2	d2	sw	€
23.296.2200	M22	2.5	140	34	18	14.5	65,40
23.296.2400	M24	3	160	38	18	14.5	62,00
23.296.2700	M27	3	160	38	20	16	94,65
23.296.3000	M30	3.5	180	45	22	18	118,95

> 23.300 Phantom

NL UNI HSS-E Machinetap Metrisch
FR Taraud machine HSS-E UNI Métrique
ES Macho máquina HSS-E UNI Métrica
DE UNI HSS-E Maschinengewindebohrer Metrisch
EN UNI HSS-E Machine Tap Metric Coarse



HSS-E	M	60°	DIN 371	2,5xD	40°	Form C	2,5	ISO 2 6H	UNI
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P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	S 71 Ni/Co	S 72 Ti
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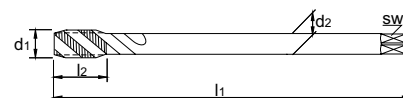
15-20	10-20	6-10	7-10	10-15	10-15	25-35	10-20	15-35	2-8	2-8
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Ref.	d1	P	l1	l2	d2	sw	€
23.300.0200	M2	0.4	45	8	2.8	2.1	25,10
23.300.0220	M2,2	0.45	45	9	2.8	2.1	31,80
23.300.0230	M2,3	0.4	45	9	2.8	2.1	32,65
23.300.0250	M2,5	0.45	50	9	2.8	2.1	23,97
23.300.0260	M2,6	0.45	50	9	2.8	2.1	28,20
23.300.0300	M3	0.5	56	11	3.5	2.7	20,25
23.300.0350	M3,5	0.6	56	12	4	3	23,03

Ref.	d1	P	l1	l2	d2	sw	€
23.300.0400	M4	0.7	63	13	4.5	3.4	20,25
23.300.0500	M5	0.8	70	16	6	4.9	20,67
23.300.0600	M6	1	80	19	6	4.9	21,45
23.300.0700	M7	1	80	19	7	5.5	27,15
23.300.0800	M8	1.25	90	22	8	6.2	25,55
23.300.1000	M10	1.5	100	24	10	8	31,35

> 23.301 Phantom

NL UNI HSS-E Machinetap Metrisch
FR Taraud machine HSS-E UNI Métrique
ES Macho máquina HSS-E UNI Métrica
DE UNI HSS-E Maschinengewindebohrer Metrisch
EN UNI HSS-E Machine Tap Metric Coarse



HSS-E	M	60°	DIN 376	2,5xD	40°	Form C	2,5	ISO 2 6H	UNI
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P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	S 71 Ni/Co	S 72 Ti
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15-20	10-20	6-10	7-10	10-15	10-15	25-35	10-20	15-35	2-8	2-8
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Ref.	d1	P	l1	l2	d2	sw	€
23.301.0600	M6	1	80	19	4.5	3.4	23,38
23.301.0800	M8	1.25	90	22	6	4.9	26,70
23.301.0900	M9	1.25	90	22	7	5.5	47,10
23.301.1000	M10	1.5	100	24	7	5.5	32,60
23.301.1200	M12	1.75	110	28	9	7	40,45
23.301.1400	M14	2	110	30	11	9	51,50
23.301.1600	M16	2	110	32	12	9	59,90
23.301.1800	M18	2.5	125	34	14	11	79,95

Ref.	d1	P	l1	l2	d2	sw	€
23.301.2000	M20	2.5	140	34	16	12	89,10
23.301.2200	M22	2.5	140	34	18	14.5	102,00
23.301.2400	M24	3	160	38	18	14.5	115,90
23.301.2700	M27	3	160	38	20	16	155,10
23.301.3000	M30	3.5	180	45	22	18	197,55
23.301.3300	M33	3.5	180	50	25	20	247,70
23.301.3600	M36	4	200	56	28	22	335,00

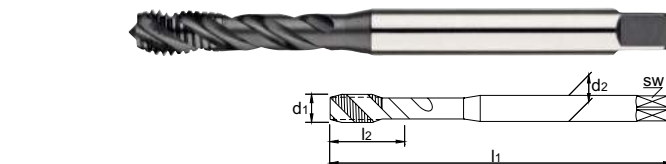
> 23.450 Phantom

NL HSS-E Machinetap Metrisch, stoomontlaten, roestvaststaal
 FR Taraud machine HSS-E Métrique, vaporisé, Inox
 ES Macho máquina HSS-E Métrica, vaporizada, acero inoxidable
 DE HSS-E Maschinengewindebohrer Metrisch, dampfangelassen, rostfreien Stahl
 EN HSS-E Machine Tap Metric Coarse, steam oxide, stainless steel



P 14 ≤1400 N/mm ²	M 21 INOX ≤850 N/mm ²	M 22 INOX >850 N/mm ²	S 71 Ni/Co
3-5	7-10	5-8	2-8

Ref.	d1	P	l1	l2	d2	sw	€
23.450.0300	M3	0.5	56	11	3.5	2.7	24,70
23.450.0400	M4	0.7	63	13	4.5	3.4	25,00
23.450.0500	M5	0.8	70	16	6	4.9	25,80



Ref.	d1	P	l1	l2	d2	sw	€
23.450.0600	M6	1	80	19	6	4.9	25,90
23.450.0800	M8	1.25	90	22	8	6.2	30,85
23.450.1000	M10	1.5	100	24	10	8	37,05

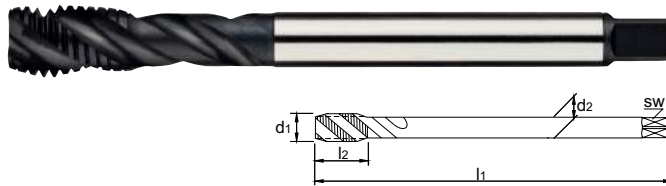
> 23.451 Phantom

NL HSS-E Machinetap Metrisch, stoomontlaten, roestvaststaal
 FR Taraud machine HSS-E Métrique, vaporisé, Inox
 ES Macho máquina HSS-E Métrica, vaporizada, acero inoxidable
 DE HSS-E Maschinengewindebohrer Metrisch, dampfangelassen, rostfreien Stahl
 EN HSS-E Machine Tap Metric Coarse, steam oxide, stainless steel



P 14 ≤1400 N/mm ²	M 21 INOX ≤850 N/mm ²	M 22 INOX >850 N/mm ²	S 71 Ni/Co
3-5	7-10	5-8	2-8

Ref.	d1	P	l1	l2	d2	sw	€
23.451.0800	M8	1.25	90	22	6	4.9	33,45
23.451.1000	M10	1.5	100	24	7	5.5	40,15
23.451.1200	M12	1.75	110	28	9	7	48,05
23.451.1400	M14	2	110	30	11	9	59,40
23.451.1600	M16	2	110	32	12	9	70,15
23.451.1800	M18	2.5	125	34	14	11	96,95
23.451.2000	M20	2.5	140	34	16	12	104,70
23.451.2200	M22	2.5	140	34	18	14.5	130,30
23.451.2400	M24	3	160	38	18	14.5	135,55



Ref.	d1	P	l1	l2	d2	sw	€
23.451.2700	M27	3	160	38	20	16	194,40
23.451.3000	M30	3.5	180	45	22	18	228,10
23.451.3300	M33	3.5	180	50	25	20	275,00
23.451.3600	M36	4	200	56	28	22	322,00
23.451.3900	M39	4	200	60	32	24	386,00
23.451.4200	M42	4.5	200	60	32	24	450,00
23.451.4500	M45	4.5	220	65	36	29	537,00
23.451.4800	M48	5	250	70	36	29	673,00

> 23.615 INTERNATIONAL TOOLS

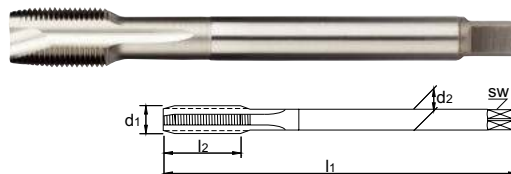
NL ECO PRO HSS-E Machinetap Metrisch Fijn
 FR Taraud machine HSS-E ECO PRO Métrique Fin
 ES Macho máquina HSS-E ECO PRO Métrica Fina
 DE ECO PRO HSS-E Maschinengewindebohrer Metrisch Fein
 EN ECO PRO HSS-E Machine Tap Metric Fine



P 11 ≤600 N/mm ²	P 12 ≤850 N/mm ²	K 31 GG	N 41 Alu
15-20	12-18	10-15	23-35

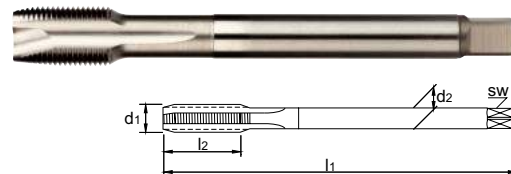
Ref.	d1	P	l1	l2	d2	sw	€
23.615.0505	MF5	0.5	70	12	3.5	2.7	21,00
23.615.0605	MF6	0.5	80	14	4.5	3.4	21,23
23.615.0607	MF6	0.75	80	14	4.5	3.4	21,08
23.615.0807	MF8	0.75	80	19	6	4.9	23,45
23.615.0810	MF8	1	90	22	6	4.9	21,23
23.615.1007	MF10	0.75	90	20	7	5.5	30,30
23.615.1010	MF10	1	90	20	7	5.5	22,22
23.615.1012	MF10	1.25	100	24	7	5.5	27,90
23.615.1210	MF12	1	100	22	9	7	25,70
23.615.1212	MF12	1.25	100	22	9	7	28,70
23.615.1215	MF12	1.5	100	22	9	7	24,29
23.615.1410	MF14	1	100	22	11	9	33,80
23.615.1412	MF14	1.25	100	22	11	9	32,45

Ref.	d1	P	l1	l2	d2	sw	€
23.615.1415	MF14	1.5	100	22	11	9	31,80
23.615.1610	MF16	1	100	22	12	9	38,30
23.615.1615	MF16	1.5	100	22	12	9	36,45
23.615.1810	MF18	1	110	25	14	11	48,85
23.615.1815	MF18	1.5	110	25	14	11	45,05
23.615.2010	MF20	1	125	25	16	12	52,75
23.615.2015	MF20	1.5	125	25	16	12	50,30
23.615.2020	MF20	2	140	25	16	12	68,70
23.615.2215	MF22	1.5	125	25	18	14.5	53,25
23.615.2415	MF24	1.5	140	28	18	14.5	58,70
23.615.2420	MF24	2	140	28	18	14.5	65,95
23.615.2515	MF25	1.5	140	28	18	14.5	105,20



> 23.620 Phantom

NL UNI HSS-E Machinetap Metrisch Fijn
FR Taraud machine HSS-E UNI Métrique Fin
ES Macho máquina HSS-E UNI Métrica Fina
DE UNI HSS-E Maschinengewindebohrer Metrisch Fein
EN UNI HSS-E Machine Tap Metric Fine



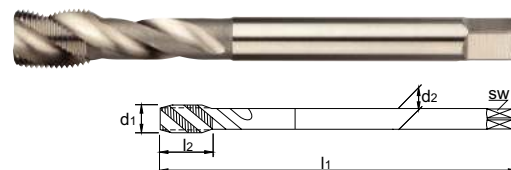
HSS-E	MF	 60°	DIN 374	3xD		Form B	 5	ISO 2 6H	UNI	
 P 11 ≤800 N/mm ²	 P 12 ≤850 N/mm ²	 P 13 ≤1000 N/mm ²	 M 21 INOX ≤850N/mm ²	 K 31 GG	 K 32 GGG GTS-GTW	 N 41 Alu	 N 42 Alu Si>10%	 N 51 Cu	 S 71 Ni/Co	 S 72 Ti
15-20	10-20	6-10	7-10	10-15	10-15	25-35	10-20	15-35	2-8	2-8

Ref.	d1	P	l1	l2	d2	sw	€
23.620.0303	MF3	0.35	56	8	2.2		30,55
23.620.0405	MF4	0.5	63	10	2.8	2.1	28,05
23.620.0505	MF5	0.5	70	11	3.5	2.7	29,05
23.620.0605	MF6	0.5	80	13	4.5	3.4	29,70
23.620.0607	MF6	0.75	80	13	4.5	3.4	29,05
23.620.0705	MF7	0.5	80	13	5.5	4.3	43,55
23.620.0707	MF7	0.75	80	13	5.5	4.3	40,95
23.620.0805	MF8	0.5	80	13	6	4.9	35,80
23.620.0807	MF8	0.75	80	13	6	4.9	34,20
23.620.0810	MF8	1	90	20	6	4.9	30,60
23.620.0907	MF9	0.75	90	20	7	5.5	41,65
23.620.0910	MF9	1	90	20	7	5.5	40,55
23.620.1005	MF10	0.5	90	16	7	5.5	44,15
23.620.1007	MF10	0.75	90	16	7	5.5	43,05
23.620.1010	MF10	1	90	16	7	5.5	33,95
23.620.1012	MF10	1.25	100	22	7	5.5	35,30
23.620.1110	MF11	1	90	20	8	6.2	50,65
23.620.1112	MF11	1.25	90	20	8	6.2	33,30
23.620.1205	MF12	0.5	100	22	9	7	44,85
23.620.1207	MF12	0.75	100	22	9	7	42,80
23.620.1210	MF12	1	100	22	9	7	36,50
23.620.1212	MF12	1.25	100	22	9	7	42,80
23.620.1215	MF12	1.5	100	22	9	7	37,70
23.620.1310	MF13	1	100	22	11	9	69,45
23.620.1410	MF14	1	100	22	11	9	52,30
23.620.1412	MF14	1.25	100	22	11	9	50,05
23.620.1415	MF14	1.5	100	22	11	9	50,05
23.620.1510	MF15	1	100	22	12	9	63,90
23.620.1515	MF15	1.5	100	22	12	9	65,65
23.620.1610	MF16	1	100	22	12	9	56,50
23.620.1612	MF16	1.25	100	22	12	9	53,25
23.620.1615	MF16	1.5	100	22	12	9	53,25
23.620.1810	MF18	1	110	25	14	11	76,50
23.620.1815	MF18	1.5	110	25	14	11	69,40
23.620.1820	MF18	2	125	30	14	11	82,40
23.620.2010	MF20	1	125	25	16	12	81,15
23.620.2015	MF20	1.5	125	25	16	12	75,35

Ref.	d1	P	l1	l2	d2	sw	€
23.620.2020	MF20	2	140	32	16	12	98,80
23.620.2210	MF22	1	125	25	18	14.5	112,50
23.620.2212	MF22	1.25	125	25	18	14.5	99,85
23.620.2215	MF22	1.5	125	25	18	14.5	86,30
23.620.2220	MF22	2	140	32	18	14.5	112,90
23.620.2410	MF24	1	140	28	18	14.5	119,95
23.620.2415	MF24	1.5	140	28	18	14.5	100,75
23.620.2420	MF24	2	140	28	18	14.5	128,35
23.620.2510	MF25	1	140	28	18	14.5	189,20
23.620.2515	MF25	1.5	140	28	18	14.5	171,95
23.620.2520	MF25	2	140	28	18	14.5	176,70
23.620.2615	MF26	1.5	140	28	18	14.5	140,45
23.620.2715	MF27	1.5	140	28	20	16	143,30
23.620.2720	MF27	2	140	28	20	16	157,65
23.620.2815	MF28	1.5	140	28	20	16	145,95
23.620.3010	MF30	1	150	28	22	18	174,60
23.620.3015	MF30	1.5	150	28	22	18	162,65
23.620.3020	MF30	2	150	28	22	18	167,60
23.620.3215	MF32	1.5	150	28	22	18	196,20
23.620.3315	MF33	1.5	160	30	25	20	265,00
23.620.3320	MF33	2	160	30	25	20	265,00
23.620.3415	MF34	1.5	170	30	28	22	271,00
23.620.3515	MF35	1.5	170	30	28	22	271,00
23.620.3615	MF36	1.5	170	30	28	22	260,00
23.620.3620	MF36	2	170	30	28	22	275,00
23.620.3630	MF36	3	200	50	28	22	291,00
23.620.3815	MF38	1.5	170	30	28	22	306,00
23.620.4015	MF40	1.5	170	30	32	24	293,00
23.620.4215	MF42	1.5	170	30	32	24	368,00
23.620.4220	MF42	2	170	30	32	24	394,00
23.620.4230	MF42	3	200	45	32	24	412,00
23.620.4515	MF45	1.5	180	32	36	29	422,00
23.620.4520	MF45	2	180	32	36	29	436,00
23.620.4815	MF48	1.5	190	32	36	29	512,00
23.620.5015	MF50	1.5	190	32	36	29	614,00
23.620.5215	MF52	1.5	190	32	40	32	633,00

> 23.835 INTERNATIONAL TOOLS

NL ECO PRO HSS-E Machinetap Metrisch Fijn
FR Taraud machine HSS-E ECO PRO Métrique Fin
ES Macho máquina HSS-E ECO PRO Métrica Fina
DE ECO PRO HSS-E Maschinengewindebohrer Metrisch Fein
EN ECO PRO HSS-E Machine Tap Metric Fine



HSS-E	MF	60°	DIN 374	2xD	35°	Form C	2-3	ISO 2 6H	ECO PRO
P 11 ≤800 N/mm ²	P 12 ≤850 N/mm ²	K 31 GG	N 41 Alu						
15-20	12-18	10-15	23-35						

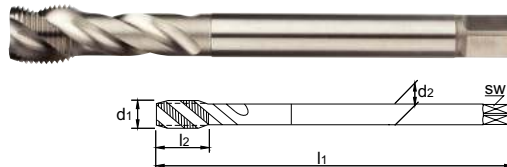
Ref.	d1	P	l1	l2	d2	sw	€
23.835.0810	MF8	1	90	10	6	4.9	22,22
23.835.1010	MF10	1	90	12	7	5.5	23,88
23.835.1012	MF10	1.25	100	12	7	5.5	32,55
23.835.1210	MF12	1	100	14	9	7	28,05
23.835.1212	MF12	1.25	100	14	9	7	36,45

Ref.	d1	P	l1	l2	d2	sw	€
23.835.1215	MF12	1.5	100	14	9	7	26,70
23.835.1415	MF14	1.5	100	16	11	9	34,55
23.835.1615	MF16	1.5	100	16	12	9	41,95
23.835.1815	MF18	1.5	110	20	14	11	47,25
23.835.2015	MF20	1.5	125	20	16	12	54,10

> 23.840

Phantom

NL UNI HSS-E Machinetap Metrisch Fijn
 FR Taraud machine HSS-E UNI Métrique Fin
 ES Macho máquina HSS-E UNI Métrica Fina
 DE UNI HSS-E Maschinengewindebohrer Metrisch Fein
 EN UNI HSS-E Machine Tap Metric Fine



HSS-E	MF	 60°	DIN 374	2,5xD	 40°		Form C	 2-3	ISO 2 6H	UNI
 P 11 ≤600 N/mm²	 P 12 ≤850 N/mm²	 P 13 ≤1000 N/mm²	 M 21 INOX ≤850N/mm²	 K 31 GG	 K 32 GGG GTS-GTW	 N 41 Alu	 N 42 Alu Si>10%	 N 51 Cu	 S 71 Ni/Co	 S 72 Ti
15-20	10-20	6-10	7-10	10-15	10-15	25-35	10-20	15-35	2-8	2-8

Ref.	d1	P	l1	l2	d2	sw	€
23.840.0405	MF4	0.5	63	10	2.8	2.1	28,15
23.840.0505	MF5	0.5	70	11	3.5	2.7	28,80
23.840.0605	MF6	0.5	80	13	4.5	3.4	28,80
23.840.0607	MF6	0.75	80	13	4.5	3.4	29,40
23.840.0807	MF8	0.75	80	13	6	4.9	34,90
23.840.0810	MF8	1	90	20	6	4.9	34,10
23.840.0910	MF9	1	90	20	7	5.5	41,25
23.840.1007	MF10	0.75	90	16	7	5.5	41,35
23.840.1010	MF10	1	90	16	7	5.5	36,70
23.840.1012	MF10	1.25	100	22	7	5.5	36,70
23.840.1110	MF11	1	90	20	8	6.2	46,10
23.840.1210	MF12	1	100	22	9	7	48,70
23.840.1212	MF12	1.25	100	22	9	7	48,90
23.840.1215	MF12	1.5	100	22	9	7	42,15
23.840.1310	MF13	1	100	22	11	9	50,55
23.840.1410	MF14	1	100	22	11	9	60,75
23.840.1412	MF14	1.25	100	22	11	9	60,75
23.840.1415	MF14	1.5	100	22	11	9	55,25
23.840.1510	MF15	1	100	22	12	9	67,25
23.840.1515	MF15	1.5	100	22	12	9	67,25
23.840.1610	MF16	1	100	22	12	9	67,25
23.840.1615	MF16	1.5	100	22	12	9	67,05
23.840.1810	MF18	1	110	25	14	11	88,35
23.840.1815	MF18	1.5	110	25	14	11	86,30
23.840.1820	MF18	2	125	30	14	11	82,95

Ref.	d1	P	l1	l2	d2	sw	€
23.840.2010	MF20	1	125	25	16	12	94,70
23.840.2015	MF20	1.5	125	25	16	12	92,90
23.840.2020	MF20	2	140	32	16	12	94,70
23.840.2210	MF22	1	125	25	18	14.5	118,70
23.840.2215	MF22	1.5	125	25	18	14.5	104,90
23.840.2220	MF22	2	140	32	18	14.5	107,55
23.840.2410	MF24	1	140	28	18	14.5	125,45
23.840.2415	MF24	1.5	140	28	18	14.5	124,10
23.840.2420	MF24	2	140	28	18	14.5	125,45
23.840.2515	MF25	1.5	140	28	18	14.5	199,80
23.840.2615	MF26	1.5	140	28	18	14.5	159,70
23.840.2715	MF27	1.5	140	28	20	16	178,15
23.840.2720	MF27	2	140	28	20	16	179,55
23.840.2815	MF28	1.5	140	28	20	16	180,95
23.840.3010	MF30	1	150	28	22	18	211,25
23.840.3015	MF30	1.5	150	28	22	18	203,60
23.840.3020	MF30	2	150	28	22	18	210,65
23.840.3215	MF32	1.5	150	28	22	18	235,60
23.840.3315	MF33	1.5	160	30	25	20	277,00
23.840.3320	MF33	2	160	30	25	20	279,00
23.840.3515	MF35	1.5	170	30	28	22	323,00
23.840.3615	MF36	1.5	170	30	28	22	290,00
23.840.3620	MF36	2	170	30	28	22	300,00
23.840.3630	MF36	3	200	50	28	22	309,00
23.840.4015	MF40	1.5	170	30	32	24	348,00

> 25.095

INTERNATIONAL TOOLS

NL ECO PRO HSS-E Machinetap BSP (Gasdraad)
 FR Taraud machine HSS-E ECO PRO BSP (pas gaz)
 ES Macho máquina HSS-E ECO PRO BSP (gas)
 DE ECO PRO HSS-E Maschinengewindebohrer BSP (Rohrgewinde)
 EN ECO PRO HSS-E Machine Tap BSP (G)



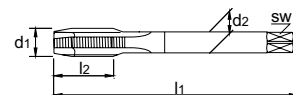
HSS-E	BSP G	55°	DIN 5156	1,5xD	Form B	3,5-6	ECO PRO
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	K 31 GG	N 41 Alu				
15-20	12-18	10-15	23-35				

Ref.	d1	P	l1	l2	d2	sw	€
25.095.0973	BSP 1/8	28	90	20	7	5.5	30,65
25.095.1316	BSP 1/4	19	100	22	11	9	41,10
25.095.1666	BSP 3/8	19	100	22	12	9	50,95

Ref.	d1	P	l1	l2	d2	sw	€
25.095.2096	BSP 1/2	14	125	25	16	12	68,70
25.095.2644	BSP 3/4	14	140	28	20	16	108,05
25.095.3325	BSP 1	11	160	30	25	20	152,35

> 25.097 Phantom

NL UNI HSS-E Machinetap BSP (Gasdraad)
FR Taraud machine HSS-E UNI BSP (pas gaz)
ES Macho máquina HSS-E UNI BSP (gas)
DE UNI HSS-E Maschinengewindebohrer BSP (Rohrgewinde)
EN UNI HSS-E Machine Tap BSP (G)



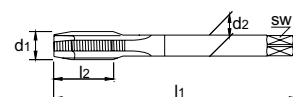
HSS-E	BSP G	55° 	DIN 5156	3xD 	 Form B	 5	UNI				
P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850N/mm²	M 22 INOX >850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	S 71 Ni/Co	S 72 Ti
15-20	10-20	6-10	7-10	4-8	10-15	10-15	25-35	10-20	15-35	2-8	2-8

Ref.	d1	P	l1	l2	d2	sw	€
25.097.0973	BSP 1/8	28	90	20	7	5.5	32,80
25.097.1316	BSP 1/4	19	100	22	11	9	44,35
25.097.1666	BSP 3/8	19	100	22	12	9	52,35
25.097.2096	BSP 1/2	14	125	25	16	12	75,25
25.097.2291	BSP 5/8	14	125	25	18	14.5	103,20
25.097.2644	BSP 3/4	14	140	28	20	16	133,50

Ref.	d1	P	l1	l2	d2	sw	€
25.097.3020	BSP 7/8	14	150	28	22	18	162,90
25.097.3325	BSP 1	11	160	30	25	20	191,75
25.097.3790	BSP 1.1/8	11	170	30	28	22	261,00
25.097.4191	BSP 1.1/4	11	170	30	32	24	300,00
25.097.4780	BSP 1.1/2	11	190	32	36	29	427,00

> 25.100 Phantom

NL HSS-E Machinetap BSP (Gasdraad)
FR Taraud machine HSS-E BSP (pas gaz)
ES Macho máquina HSS-E BSP (gas)
DE HSS-E Maschinengewindebohrer BSP (Rohrgewinde)
EN HSS-E Machine Tap BSP (G)



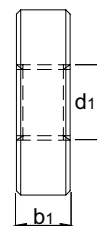
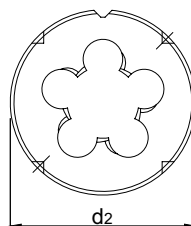
HSS-E	BSP G	55°	DIN 5156	3xD	Form B	5
P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
15-20	10-20	5-15	10-35	10-20	8-35	20-30

Ref.	d1	P	l1	l2	d2	sw	€
25.100.0973	BSP 1/8	28	90	20	7	5.5	32,80
25.100.1316	BSP 1/4	19	100	22	11	9	44,35
25.100.1666	BSP 3/8	19	100	22	12	9	52,35
25.100.2096	BSP 1/2	14	125	25	16	12	75,25
25.100.2291	BSP 5/8	14	125	25	18	14.5	95,05
25.100.2644	BSP 3/4	14	140	28	20	16	121,30

Ref.	d1	P	l1	l2	d2	sw	€
25.100.3020	BSP 7/8	14	150	28	22	18	156,70
25.100.3325	BSP 1	11	160	30	25	20	187,05
25.100.3790	BSP 1.1/8	11	170	30	28	22	255,00
25.100.4191	BSP 1.1/4	11	170	30	32	24	300,00
25.100.4780	BSP 1.1/2	11	190	32	36	29	427,00

> 27.100 INTERNATIONAL TOOLS

NL ECO PRO HSS Ronde Snijplaat Metrisch
FR Filière ronde HSS ECO PRO Métrique
ES Terraja esférica HSS ECO PRO Métrica
DE ECO PRO HSS Runde Schneideisen Metrisch
EN ECO PRO HSS Thread Die Metric Coarse



HSS	M	60°	DIN EN 22568	6g	ECO PRO
P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%

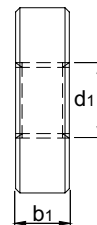
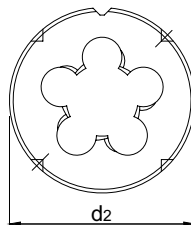
Ref.	d1	P	d2	b1	€
27.100.0200	M2	0.4	16	5	8,80
27.100.0250	M2,5	0.45	16	5	8,80
27.100.0300	M3	0.5	20	5	7,80
27.100.0400	M4	0.7	20	5	7,80
27.100.0500	M5	0.8	20	7	7,80
27.100.0600	M6	1	20	7	7,80
27.100.0700	M7	1	25	9	9,30

Ref.	d1	P	d2	b1	€
27.100.0800	M8	1.25	25	9	9,30
27.100.1000	M10	1.5	30	11	15,60
27.100.1200	M12	1.75	38	14	21,90
27.100.1400	M14	2	38	14	21,90
27.100.1600	M16	2	45	18	40,90
27.100.1800	M18	2.5	45	18	40,90
27.100.2000	M20	2.5	45	18	40,90

Ref.	d1	P	d2	b1	€
27.100.2200	M22	2.5	55	22	68,70
27.100.2400	M24	3	55	22	68,70
27.100.2700	M27	3	65	25	98,70
27.100.3000	M30	3.5	65	25	98,70
27.100.3300	M33	3.5	65	25	98,70
27.100.3600	M36	4	65	25	98,70

> 27.120 Phantom

NL HSS Ronde Snijplaat Metrisch, schilaansnijding
 FR Filière ronde HSS Métrique, coupe gun
 ES Terraja esférica HSS Métrica, entrada corregida (gun)
 DE HSS Runde Schneideisen Metrisch, Schälanschnitt
 EN HSS Thread Die Metric Coarse, gun nosed



HSS M 60° DIN EN 22568 ≥M3 6g

P 11 ≤800 N/mm² P 12 ≤850 N/mm² P 13 ≤1000 N/mm² M 21 INOX ≤850 N/mm² N 41 Alu

10-14 6-10 5-8 4-6 15-25

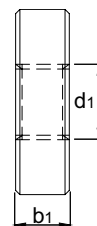
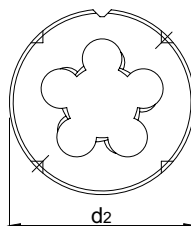
Ref.	d1	P	d2	b1	€
27.120.0100	M1	0.25	16	5	70,25
27.120.0120	M1,2	0.25	16	5	66,15
27.120.0140	M1,4	0.3	16	5	60,60
27.120.0160	M1,6	0.35	16	5	52,45
27.120.0180	M1,8	0.35	16	5	55,35
27.120.0200	M2	0.4	16	5	41,55
27.120.0220	M2,2	0.45	16	5	62,70
27.120.0230	M2,3	0.4	16	5	45,30
27.120.0250	M2,5	0.45	16	5	37,85
27.120.0260	M2,6	0.45	16	5	40,25
27.120.0300	M3	0.5	20	5	35,20
27.120.0350	M3,5	0.6	20	5	37,75

Ref.	d1	P	d2	b1	€
27.120.0400	M4	0.7	20	5	35,20
27.120.0500	M5	0.8	20	7	35,20
27.120.0600	M6	1	20	7	35,20
27.120.0700	M7	1	25	9	43,80
27.120.0800	M8	1.25	25	9	38,60
27.120.0900	M9	1.25	25	9	50,15
27.120.1000	M10	1.5	30	11	46,50
27.120.1100	M11	1.5	30	11	63,10
27.120.1200	M12	1.75	38	14	61,75
27.120.1400	M14	2	38	14	63,05
27.120.1600	M16	2	45	18	80,15
27.120.1800	M18	2.5	45	18	85,45

Ref.	d1	P	d2	b1	€
27.120.2000	M20	2.5	45	18	85,45
27.120.2200	M22	2.5	55	22	122,20
27.120.2400	M24	3	55	22	122,20
27.120.2700	M27	3	65	25	184,25
27.120.3000	M30	3.5	65	25	184,25
27.120.3300	M33	3.5	65	25	198,00
27.120.3600	M36	4	65	25	186,45
27.120.3900	M39	4	75	30	310,00
27.120.4200	M42	4.5	75	30	310,00
27.120.4500	M45	4.5	90	36	488,00
27.120.4800	M48	5	90	36	465,00
27.120.5200	M52	5	90	36	491,00

> 27.200 INTERNATIONAL TOOLS

NL ECO PRO HSS Ronde Snijplaat Metrisch Fijn
 FR Filière ronde HSS ECO PRO Métrique Fin
 ES Terraja esférica HSS ECO PRO Métrica Fina
 DE ECO PRO HSS Runde Schneideisen Metrisch Fein
 EN ECO PRO HSS Thread Die Metric Fine



HSS MF 60° DIN EN 22568 6g ECO PRO

P 11 ≤800 N/mm² P 12 ≤850 N/mm² K 31 GG K 32 GGG GTS-GTW N 41 Alu N 42 Alu Si>10%

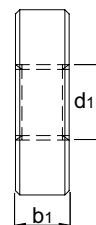
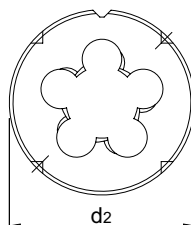
Ref.	d1	P	d2	b1	€
27.200.0403	MF4	0.35	20	5	8,50
27.200.0405	MF4	0.5	20	5	8,50
27.200.0505	MF5	0.5	20	5	8,50
27.200.0605	MF6	0.5	20	5	8,50
27.200.0607	MF6	0.75	20	7	9,30
27.200.0707	MF7	0.75	25	9	9,30
27.200.0805	MF8	0.5	25	9	9,30
27.200.0807	MF8	0.75	25	9	9,30
27.200.0810	MF8	1	25	9	9,30
27.200.0910	MF9	1	25	9	9,30
27.200.1007	MF10	0.75	30	11	15,60
27.200.1010	MF10	1	30	11	15,60

Ref.	d1	P	d2	b1	€
27.200.1012	MF10	1.25	30	11	15,60
27.200.1210	MF12	1	38	10	21,90
27.200.1212	MF12	1.25	38	10	21,90
27.200.1215	MF12	1.5	38	10	21,90
27.200.1310	MF13	1	38	10	21,90
27.200.1410	MF14	1	38	10	21,90
27.200.1412	MF14	1.25	38	10	21,90
27.200.1415	MF14	1.5	38	10	21,90
27.200.1510	MF15	1	38	10	21,90
27.200.1610	MF16	1	45	14	40,90
27.200.1615	MF16	1.5	45	14	40,90
27.200.1810	MF18	1	45	14	40,90

Ref.	d1	P	d2	b1	€
27.200.1815	MF18	1.5	45	14	40,90
27.200.2010	MF20	1	45	14	40,90
27.200.2015	MF20	1.5	45	14	40,90
27.200.2215	MF22	1.5	55	16	68,70
27.200.2220	MF22	2	55	16	68,70
27.200.2415	MF24	1.5	55	16	68,70
27.200.2420	MF24	2	55	16	68,70
27.200.2715	MF27	1.5	65	18	82,00
27.200.2720	MF27	2	65	18	82,00
27.200.3015	MF30	1.5	65	18	98,70
27.200.3020	MF30	2	65	18	98,70

> 27.220 Phantom

NL HSS Ronde Snijplaat Metrisch Fijn, schilaansnijding
FR Filière ronde HSS Métrique Fin, coupe gun
ES Terraja esférica HSS Métrica Fina, entrada corregida (gun)
DE HSS Runde Schneideisen Metrisch Fein, Schälanschnitt
EN HSS Thread Die Metric Fine, gun nosed



HSS	MF	60°	DIN EN 22568	6g
P 11 ≤500 N/mm²	P 12 ≤550 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850N/mm²	N 41 Alu
10-14	6-10	5-8	4-6	15-25

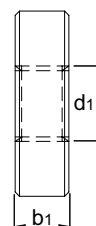
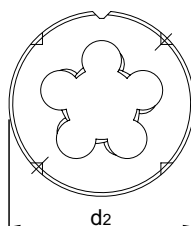
Ref.	d1	P	d2	b1	€
27.220.0303	MF3	0.35	20	5	54,70
27.220.0403	MF4	0.35	20	5	56,80
27.220.0405	MF4	0.5	20	5	45,30
27.220.0505	MF5	0.5	20	5	44,30
27.220.0605	MF6	0.5	20	5	44,30
27.220.0607	MF6	0.75	20	7	44,05
27.220.0707	MF7	0.75	25	9	49,80
27.220.0805	MF8	0.5	25	9	65,60
27.220.0807	MF8	0.75	25	9	46,80
27.220.0810	MF8	1	25	9	46,05
27.220.0907	MF9	0.75	25	9	61,55
27.220.0910	MF9	1	25	9	56,15
27.220.1005	MF10	0.5	30	11	83,10
27.220.1007	MF10	0.75	30	11	61,60
27.220.1010	MF10	1	30	11	55,60
27.220.1012	MF10	1.25	30	11	60,35
27.220.1110	MF11	1	30	11	62,10
27.220.1205	MF12	0.5	38	10	107,65
27.220.1207	MF12	0.75	38	10	82,45
27.220.1210	MF12	1	38	10	72,60
27.220.1212	MF12	1.25	38	10	75,80
27.220.1215	MF12	1.5	38	10	66,85
27.220.1310	MF13	1	38	10	77,60
27.220.1405	MF14	0.5	38	10	131,20
27.220.1407	MF14	0.75	38	10	82,10
27.220.1410	MF14	1	38	10	73,10
27.220.1412	MF14	1.25	38	10	76,35
27.220.1415	MF14	1.5	38	10	66,85

Ref.	d1	P	d2	b1	€
27.220.1510	MF15	1	38	10	76,80
27.220.1515	MF15	1.5	38	10	86,40
27.220.1607	MF16	0.75	45	14	136,85
27.220.1610	MF16	1	45	14	101,10
27.220.1612	MF16	1.25	45	14	120,10
27.220.1615	MF16	1.5	45	14	91,35
27.220.1810	MF18	1	45	14	101,10
27.220.1812	MF18	1.25	45	14	134,15
27.220.1815	MF18	1.5	45	14	91,35
27.220.1820	MF18	2	45	14	112,55
27.220.2010	MF20	1	45	14	101,10
27.220.2015	MF20	1.5	45	14	91,35
27.220.2020	MF20	2	45	14	104,65
27.220.2210	MF22	1	55	16	134,65
27.220.2215	MF22	1.5	55	16	119,90
27.220.2220	MF22	2	55	16	143,85
27.220.2410	MF24	1	55	16	134,65
27.220.2415	MF24	1.5	55	16	119,90
27.220.2420	MF24	2	55	16	133,15
27.220.2510	MF25	1	55	16	169,50
27.220.2515	MF25	1.5	55	16	142,70
27.220.2520	MF25	2	55	16	183,75
27.220.2610	MF26	1	55	16	169,50
27.220.2615	MF26	1.5	55	16	142,70
27.220.2710	MF27	1	65	18	213,50
27.220.2715	MF27	1.5	65	18	177,70
27.220.2720	MF27	2	65	18	195,75
27.220.2815	MF28	1.5	65	18	177,70

Ref.	d1	P	d2	b1	€
27.220.2820	MF28	2	65	18	234,35
27.220.3010	MF30	1	65	19	204,50
27.220.3015	MF30	1.5	65	18	177,70
27.220.3020	MF30	2	65	18	195,75
27.220.3215	MF32	1.5	65	18	181,20
27.220.3315	MF33	1.5	65	18	187,45
27.220.3320	MF33	2	65	18	195,75
27.220.3415	MF34	1.5	65	18	216,70
27.220.3515	MF35	1.5	65	18	185,45
27.220.3615	MF36	1.5	65	18	185,45
27.220.3620	MF36	2	65	18	195,75
27.220.3630	MF36	3	65	25	248,70
27.220.3815	MF38	1.5	75	20	281,00
27.220.3920	MF39	2	75	20	313,00
27.220.3930	MF39	3	75	30	338,00
27.220.4015	MF40	1.5	75	20	281,00
27.220.4020	MF40	2	75	20	313,00
27.220.4215	MF42	1.5	75	20	281,00
27.220.4220	MF42	2	75	20	313,00
27.220.4230	MF42	3	75	30	338,00
27.220.4515	MF45	1.5	90	22	378,00
27.220.4520	MF45	2	90	22	416,00
27.220.4530	MF45	3	90	22	453,00
27.220.4815	MF48	1.5	90	22	378,00
27.220.4830	MF48	3	90	22	453,00
27.220.5015	MF50	1.5	90	22	378,00
27.220.5215	MF52	1.5	90	22	378,00

> 27.500 INTERNATIONAL TOOLS

NL ECO PRO HSS Ronde Snijplaat BSP (Gasdraad)
FR Filière ronde HSS ECO PRO BSP (pas gaz)
ES Terraja esférica HSS ECO PRO BSP (gas)
DE ECO PRO HSS Runde Schneideisen BSP (Rohrgewinde)
EN ECO PRO HSS Thread Die BSP (G)



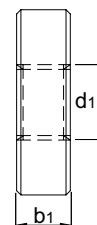
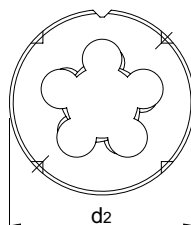
HSS	BSP G	55°	DIN EN 24231	ECO PRO
P 11 ≤500 N/mm²	P 12 ≤550 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu
				N 42 Alu Si>10%

Ref.	d1	P	d2	b1	€
27.500.0973	BSP 1/8	28	30	11	18,00
27.500.1316	BSP 1/4	19	38	10	22,00
27.500.1666	BSP 3/8	19	45	14	35,00
27.500.2096	BSP 1/2	14	45	14	35,00
27.500.2291	BSP 5/8	14	55	16	58,00
27.500.2644	BSP 3/4	14	55	16	58,00

Ref.	d1	P	d2	b1	€
27.500.3020	BSP 7/8	14	65	18	98,00
27.500.3325	BSP 1	11	65	18	98,00
27.500.4191	BSP 1.1/4	11	75	20	162,00
27.500.4780	BSP 1.1/2	11	90	22	220,00
27.500.5961	BSP 2	11	105	22	470,00

> 27.520 Phantom

NL HSS Ronde Snijplaat schilaansnijding, BSP (Gasdraad)
 FR Filière ronde HSS coupe gun, BSP (pas gaz)
 ES Terraja esférica HSS entrada corregida (gun), BSP (gas)
 DE HSS Runde Schneideisen Schälanschnitt, BSP (Rohrgewinde)
 EN HSS Thread Die gun nosed, BSP (G)



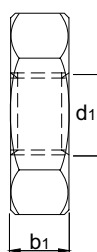
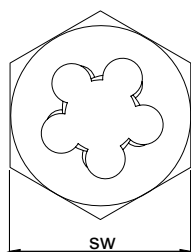
HSS	BSP G	55°	DIN EN 24231	
P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850 N/mm²	N 41 Alu
10-14	6-10	5-8	4-6	15-25

Ref.	d1	P	d2	b1	€
27.520.0973	BSP 1/8	28	30	11	64,60
27.520.1316	BSP 1/4	19	38	10	64,60
27.520.1666	BSP 3/8	19	45	14	85,80
27.520.2096	BSP 1/2	14	45	14	85,80
27.520.2291	BSP 5/8	14	55	16	131,40
27.520.2644	BSP 3/4	14	55	16	130,40
27.520.3020	BSP 7/8	14	65	18	206,00

Ref.	d1	P	d2	b1	€
27.520.3325	BSP 1	11	65	18	181,70
27.520.3790	BSP 1.1/8	11	75	20	318,00
27.520.4191	BSP 1.1/4	11	75	20	270,00
27.520.4432	BSP 1.3/8	11	90	22	440,00
27.520.4780	BSP 1.1/2	11	90	22	373,00
27.520.5375	BSP 1.3/4	11	90	22	396,00
27.520.5961	BSP 2	11	105	22	481,00

> 27.700 INTERNATIONAL TOOLS

NL ECO PRO HSS Zeskante Snijmoer Metrisch
 FR Filière hexagonale HSS ECO PRO Métrique
 ES Terraja hexagonal HSS ECO PRO Métrica
 DE ECO PRO HSS Sechskant Schneideisen Metrisch
 EN ECO PRO HSS Hexagon Die Nut Metric Coarse



HSS	M		DIN 382		6g	ECO PRO
P 11 5000 Nmm ²	P 12 5850 Nmm ²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	

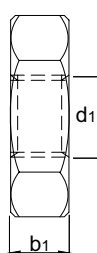
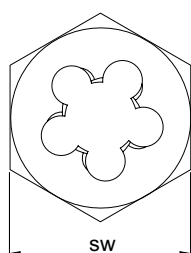
Ref.	d1	P	sw	b1	€
27.700.0300	M3	0.5	19	5	16,00
27.700.0400	M4	0.7	19	5	16,00
27.700.0500	M5	0.8	19	7	18,00
27.700.0600	M6	1	19	7	18,00
27.700.0700	M7	1	22	9	20,00
27.700.0800	M8	1.25	22	9	20,00
27.700.0900	M9	1.25	22	9	22,00
27.700.1000	M10	1.5	27	11	26,00

Ref.	d1	P	sw	b1	€
27.700.1200	M12	1.75	36	14	42,00
27.700.1400	M14	2	36	14	42,00
27.700.1600	M16	2	41	18	62,00
27.700.1800	M18	2.5	41	18	62,00
27.700.2000	M20	2.5	41	18	62,00
27.700.2200	M22	2.5	50	22	98,00
27.700.2400	M24	3	50	22	98,00
27.700.2700	M27	3	60	25	158,00

Ref.	d1	P	sw	b1	€
27.700.3000	M30	3.5	60	25	158,00
27.700.3300	M33	3.5	60	25	158,00
27.700.3600	M36	4	60	25	158,00
27.700.3900	M39	4	70	30	256,00
27.700.4200	M42	4.5	70	30	256,00
27.700.4500	M45	4.5	85	36	360,00
27.700.4800	M48	5	85	36	360,00
27.700.5200	M52	5	85	36	360,00

> 27.750 INTERNATIONAL TOOLS

NL ECO PRO HSS Zeskante Snijmoer Metrisch Fijn
 FR Filière hexagonale HSS ECO PRO Métrique Fin
 ES Terraja hexagonal HSS ECO PRO Métrica Fina
 DE ECO PRO HSS Sechskant Schneideisen Metrisch Fein
 EN ECO PRO HSS Hexagon Die Nut Metric Fine



HSS	MF	 60° 	DIN 382		6g	ECO PRO
P 11 5500 Nmm ²	P 12 5850 Nmm ²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	

Ref.	d1	P	sw	b1	€
27.750.0303	MF3	0.35	19	5	35,00
27.750.0403	MF4	0.35	19	5	35,00
27.750.0505	MF5	0.5	19	5	35,00
27.750.0605	MF6	0.5	19	5	35,00
27.750.0607	MF6	0.75	19	5	35,00
27.750.0805	MF8	0.5	22	9	38,00
27.750.0807	MF8	0.75	22	9	38,00

Ref.	d1	P	sw	b1	€
27.750.0810	MF8	1	22	9	22,50
27.750.1007	MF10	0.75	27	11	38,00
27.750.1010	MF10	1	27	11	30,00
27.750.1012	MF10	1.25	27	11	30,00
27.750.1207	MF12	0.75	36	10	53,00
27.750.1210	MF12	1	36	10	48,00
27.750.1212	MF12	1.25	36	10	48,00

Ref.	d1	P	sw	b1	€
27.750.1215	MF12	1.5	36	10	48,00
27.750.1410	MF14	1	36	10	48,00
27.750.1412	MF14	1.25	36	10	48,00
27.750.1415	MF14	1.5	36	10	48,00
27.750.1610	MF16	1	41	14	72,00
27.750.1612	MF16	1.25	41	14	74,00
27.750.1615	MF16	1.5	41	14	72,00

> 27.750

INTERNATIONAL
TOOLS

Ref.	d1	P	sw	b1	€
27.750.1810	MF18	1	41	14	72,00
27.750.1812	MF18	1.25	41	14	76,00
27.750.1815	MF18	1.5	41	14	72,00
27.750.1820	MF18	2	41	14	72,00
27.750.2010	MF20	1	41	14	72,00
27.750.2012	MF20	1.25	41	14	76,00
27.750.2015	MF20	1.5	41	14	72,00
27.750.2020	MF20	2	41	14	72,00
27.750.2212	MF22	1.25	50	16	115,50
27.750.2215	MF22	1.5	50	16	115,50
27.750.2220	MF22	2	50	16	115,50
27.750.2415	MF24	1.5	50	16	115,50
27.750.2420	MF24	2	50	16	115,50
27.750.2515	MF25	1.5	50	16	115,50
27.750.2615	MF26	1.5	50	16	169,00
27.750.2620	MF26	2	50	16	169,00
27.750.2715	MF27	1.5	60	18	169,00

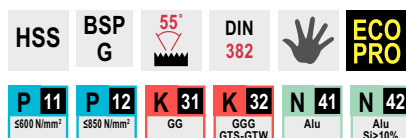
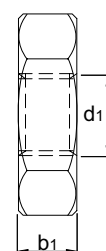
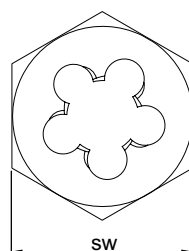
Ref.	d1	P	sw	b1	€
27.750.2720	MF27	2	60	18	169,00
27.750.2815	MF28	1.5	60	18	169,00
27.750.2820	MF28	2	60	18	181,00
27.750.3015	MF30	1.5	60	18	169,00
27.750.3020	MF30	2	60	18	169,00
27.750.3215	MF32	1.5	60	18	169,00
27.750.3220	MF32	2	60	18	181,00
27.750.3315	MF33	1.5	60	18	181,00
27.750.3515	MF35	1.5	60	18	169,00
27.750.3520	MF35	2	60	18	170,00
27.750.3615	MF36	1.5	60	18	169,00
27.750.3620	MF36	2	60	18	169,00
27.750.3630	MF36	3	60	18	169,00
27.750.3815	MF38	1.5	70	20	225,00
27.750.3820	MF38	2	70	20	317,00
27.750.4015	MF40	1.5	70	20	225,00
27.750.4020	MF40	2	70	20	298,00

Ref.	d1	P	sw	b1	€
27.750.4030	MF40	3	70	20	298,00
27.750.4215	MF42	1.5	70	20	298,00
27.750.4220	MF42	2	70	20	298,00
27.750.4230	MF42	3	70	20	298,00
27.750.4515	MF45	1.5	85	22	367,00
27.750.4530	MF45	3	85	22	427,00
27.750.4615	MF46	1.5	85	22	476,00
27.750.4815	MF48	1.5	85	22	330,00
27.750.4820	MF48	2	85	22	400,00
27.750.4830	MF48	3	85	22	419,00
27.750.5015	MF50	1.5	85	22	385,00
27.750.5020	MF50	2	85	22	400,00
27.750.5215	MF52	1.5	85	22	385,00
27.750.5220	MF52	2	85	22	400,00
27.750.6020	MF60	2	100	22	649,00

> 27.900

INTERNATIONAL
TOOLS

NL ECO PRO HSS Zeskante Snijmoer BSP (Gasdraad)
 FR Filière hexagonale HSS ECO PRO BSP (pas gaz)
 ES Terraja hexagonal HSS ECO PRO BSP (gas)
 DE ECO PRO HSS Sechskant Schneideisen BSP (Rohrgewinde)
 EN ECO PRO HSS Hexagon Die Nut BSP (G)



Ref.	d1	P	sw	b1	€
27.900.0973	BSP 1/8	28	27	11	28,00
27.900.1316	BSP 1/4	19	36	10	42,00
27.900.1666	BSP 3/8	19	41	14	56,00
27.900.2096	BSP 1/2	14	41	14	56,00
27.900.2291	BSP 5/8	14	50	16	92,00
27.900.2644	BSP 3/4	14	50	16	92,00
27.900.3020	BSP 7/8	14	60	18	142,00
27.900.3325	BSP 1	11	60	18	142,00

Ref.	d1	P	sw	b1	€
27.900.3790	BSP 1.1/8	11	70	20	199,00
27.900.4191	BSP 1.1/4	11	70	20	199,00
27.900.4432	BSP 1.3/8	11	85	22	298,00
27.900.4780	BSP 1.1/2	11	85	22	298,00
27.900.5375	BSP 1.3/4	11	85	22	494,00
27.900.5961	BSP 2	11	100	22	498,00
27.900.7518	BSP 2.1/2	11	120	22	583,00
27.900.8788	BSP 3	11	130	22	958,00

> 28.870 Phantom

NL Set Phan-Coils Metrisch
FR Jeu de Phan-Coils Métrique
ES Juego de Phan-Coils Métrica
DE Satz Phan-Coils Metrisch
EN Set Phan-Coils Metric Coarse



EG M Phan-Coil

Ref.	d1	P	Max. x d1	1	2	3	4	5	€
28.870.0040	M4	0.7	1.5	11.450.0420	21.812.0400	28.860.0025	28.865.0025	1,5xD (5), 2xD (5)	50,45
28.870.0050	M5	0.8	1.5	11.450.0525	21.812.0500	28.860.0035	28.865.0035	1,5xD (5), 2xD (5)	51,15
28.870.0060	M6	1	1.5	11.450.0630	21.812.0600	28.860.0040	28.865.0040	1,5xD (5), 2xD (5)	52,70
28.870.0080	M8	1.25	1.5	11.450.0840	21.812.0800	28.860.0055	28.865.0055	1,5xD (5), 2xD (5)	60,05
28.870.0100	M10	1.5	1.5	11.450.1050	21.812.1000	28.860.0070	28.865.0070	1,5xD (5), 2xD (5)	65,35
28.870.0120	M12	1.75	1.5	11.450.1250	21.812.1200	28.860.0080	28.865.0080	1,5xD (3), 2xD (3)	77,80
28.870.0160	M16	2	1.5	11.450.1650	21.812.1600	28.860.0095	28.865.0095	1,5xD (2), 2xD (2)	106,10



NL Schroefdraad repareren of herstellen
FR Réparer ou restaurer un filetage ?
ES ¿Reparar o restaurar roscas?
DE Gewinde reparieren oder wiederherstellen?
EN Threading – repair or restore?



> 28.880 Phantom

NL Set Phan-Coils Metrisch, (combinatie)
FR Jeu de Phan-Coils Métrique, (combinaison)
ES Juego de Phan-Coils Métrica, (combinación)
DE Satz Phan-Coils Metrisch, (Kombination)
EN Set Phan-Coils Metric Coarse, (combination)



EG M Phan-Coil

Ref.	Contents	1	2	3	4	5	€
28.880.1000	M5, M6, M8, M10, M12	11.450.0525	21.812.0500	28.860.0035	28.865.0035	M5 15xD(4) 2xD(4)	266,00
		11.450.0630	21.812.0600	28.860.0040	28.865.0040	M6 15xD(4) 2xD(4)	
		11.450.0840	21.812.0800	28.860.0055	28.865.0055	M8 15xD(4) 2xD(4)	
		11.450.1050	21.812.1000	28.860.0070	28.865.0070	M10 15xD(3) 2xD(3)	
		11.450.1250	21.812.1200	28.860.0080	28.865.0080	M12 15xD(3) 2xD(3)	

> 29.100 INTERNATIONAL TOOLS

NL ECO PRO HSS Set Draadsnijden in kunststof koffer
FR Coffret de taraudage HSS ECO PRO en coffret plastique
ES Juego de roscar HSS ECO PRO en estuche plástico
DE ECO PRO HSS Satz Gewindeschneiden in Kunststoff-Etui
EN ECO PRO HSS Set Threading Tools in plastic case



HSS M 60° ISO 2 6H ECO PRO

Ref.	Ø	1	2	3	4	5	6	7	€
29.100.1000	M3-M12	M3-4-5-6-8-10-12	M3-4-5-6-8-10-12	2,5-3,3-4,2-5-6,8-8,5-10,2	1 + 2	1 + 2	20x5, 20x7, 25x9, 30x11, 38x14	2,7-3,4-4,9-5-5-7	379,00
29.100.2000	M3-M12	M3-4-5-6-8-10-12	M3-4-5-6-8-10-12	2,5-3,3-4,2-5-6,8-8,5-10,2	1,5	1	25x9	-	256,00

> 29.120 INTERNATIONAL TOOLS

NL ECO PRO HSS Set Draadsnijden in houten cassette
FR Coffret de taraudage HSS ECO PRO en coffret bois
ES Juego de roscar HSS ECO PRO en estuche de madera
DE ECO PRO HSS Satz Gewindeschneiden in Holzkassetten
EN ECO PRO HSS Set Threading Tools in wooden case



HSS



ECO PRO

Ref.	Ø	1	2	3	4	€
29.120.0001	M3-M14	M3-4-5-6-8-10-12-14	M3-4-5-6-8-10-12-14	Nr. 2	20x5, 20x7, 25x9, 30x11, 38x14	529,00
29.120.0002	M3-M24	M3-4-5-6-8-10-12-14-16-18-20-22-24	M3-4-5-6-8-10-12-14-16-18-20-22-24	Nr. 0 + 2 + 4	20x5, 20x7, 25x9, 30x11, 38x14, 45x18, 55x22	1.557,00
29.120.0003	M5-M30	M5-6-8-10-12-14-16-18-20-22-24-27-30	M5-6-8-10-12-14-16-18-20-22-24-27-30	Nr. 1 + 3 + 5	20x7, 25x9, 30x11, 38x14, 45x18, 55x22, 65x25	2.598,00
29.120.0004	UNC1/4-1	UNC 1/4-5/16-3/8-7/16-1/2-5/8-3/4-7/8-1	UNC 1/4-5/16-3/8-7/16-1/2-5/8-3/4-7/8-1	Nr. 0 + 2 + 4	20x7, 25x9, 30x11, 38x14, 45x18, 55x22	1.836,00
29.120.0005	UNF1/4-1	UNF 1/4-5/16-3/8-7/16-1/2-5/8-3/4-7/8-1	UNF 1/4-5/16-3/8-7/16-1/2-5/8-3/4-7/8-1	Nr. 0 + 2 + 4	20x7, 25x9, 30x11, 38x10, 45x14, 55x16	1.447,00
29.120.0006	BSP1/8-1	BSP 1/8-1/4-3/8-1/2-3/4-1	BSP 1/8-1/4-3/8-1/2-3/4-1	Nr. 3 + 5	30x11, 38x10, 45x14, 55x16, 65x18	1.401,00
29.120.0007	MF6-20	MF 6x0,75-8x1-10x1-12x1,5-14x1,5-16x1,5-18x1,5-20x1,5	MF 6x0,75-8x1-10x1-12x1,5-14x1,5-16x1,5-18x1,5-20x1,5	Nr. 1 + 3	20x7, 25x9, 30x11, 38x10, 45x14	1.007,00
29.120.0009	NPT1/4-1	NPT 1/4-3/8-1/2-3/4-1	NPT 1/4-3/8-1/2-3/4-1	Nr. 3 + 5	38x14, 45x14, 45x18, 55x22, 65x25	2.247,00
29.120.1320	M3-M20	M3-4-5-6-8-10-12-14-16-18-20	M3-4-5-6-8-10-12-14-16-18-20	Nr. 1 + 3	20x5, 20x7, 25x9, 30x11, 38x14, 45x18	973,00
29.120.7225	BSW1/8-1	BSW 1/8-3/16-1/4-5/16-3/8-7/16-1/2-5/8-3/4-7/8-1	BSW 1/8-3/16-1/4-5/16-3/8-7/16-1/2-5/8-3/4-7/8-1	Nr. 0 + 2 + 4	20x5, 20x7, 25x9, 30x11, 38x14, 45x18, 55x22	1.447,00

> 29.130 INTERNATIONAL TOOLS

NL ECO PRO HSS Set Draadsnijden in stalen cassette
FR Coffret de taraudage HSS ECO PRO en coffret métal
ES Juego de roscar HSS ECO PRO en estuche metálico
DE ECO PRO HSS Satz Gewindeschneiden in Kassette aus Stahl
EN ECO PRO HSS Set Threading Tools in metal case



HSS

M



Ref.	Ø	1	2	3	4	5	€
29.130.0200	M3-M12	M3-4-5-6-8-10-12	M3-4-5-6-8-10-12	-	Nr. 1.5	25x9	301,00
29.130.1312	M3-M12	M3-4-5-6-8-10-12	M3-4-5-6-8-10-12	2,5-3,3-4,2-5-6,8-8,5-10,2	Nr. 1 + 2	20x5, 20x7, 25x9, 30x11, 38x14	305,00
29.130.1320	M3-M20	M3-4-5-6-8-10-12-14-16-18-20	M3-4-5-6-8-10-12-14-16-18-20	-	Nr. 1 + 3	20x5, 20x7, 25x9, 30x11, 38x14, 45x18	682,00

> 29.180 INTERNATIONAL TOOLS

NL ECO HSS Set Handtappen (combinatie)
FR Jeu de Tarauds à main HSS ECO (combinaison)
ES Juego de Machos mano HSS ECO (combinación)
DE ECO HSS Satz Handgewindebohrer (Kombination)
EN ECO HSS Hand tap Set (combination)



1 2

HSS

M



Ref.	1	2	€
29.180.0001	21.140 (M3-4-5-6-8-10-12)	-	167,00
29.180.0002	21.140 (M3-4-5-6-8-10-12)	11.400 (2,5-3,3-4,2-5-6,8-8,5-10,2)	177,00

> 29.185 INTERNATIONAL TOOLS

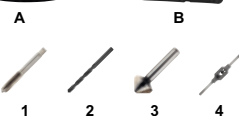
- NL ECO HSS Set Draadsnijden met 1/4" (6,35 mm)-zeskant bitopname, (combinatie)
 FR Coffret de taraudage HSS ECO avec queue hexagonale 1/4" (6,35 mm), (combinaison)
 ES Juego de roscar HSS ECO con sujeción 1/4" (6,35 mm) bit, (combinación)
 DE ECO HSS Satz Gewindeschneiden mit 1/4" (6,35 mm) Hexa-Bit aufnahme, (Kombination)
 EN ECO HSS Set Threading Tools with hexagonal shank 1/4" (6,35 mm), (combination)



Ref.	1	2	€
29.185.1310	22.100 (M3-4-5-6-8-10)	11.120 (2,5-3,3-4,2-5-6,8-8,5)	62,90

> 29.190 INTERNATIONAL TOOLS

- NL ECO Set machinetappen (combinatie)
 FR Jeu de tarauds machine ECO (combinaison)
 ES Juego de machos máquina ECO (combinación)
 DE ECO Satz Maschinengewindebohren (Kombination)
 EN ECO machine tap Set (combination)



Ref.	1	2	3	4	A, B, C	€
29.190.1000	22.191/22.192 (M3-4-5-6-8-10-12)	-	-	-	B	76,50
29.190.2000	22.191/22.192 (M3-4-5-6-8-10-12)	11.416 (2,5-4,2-5-6,8-8,5-10,2)	-	-	B	88,00
29.190.2250	22.190 (M3-4-5-6-8-10-12)	11.416 (2,5-4,2-5-6,8-8,5-10,2)	-	81.900 (Nr. 1,5)	B	80,00
29.190.3000	22.190 (M4-5-6-8-10)	11.416 (3,3-4,2-5-6,8-8,5)	42.533 (10,4 16,5)	-	A	63,45
29.190.6000	23.291/23.292 (M3-4-5-6-8-10-12)	-	-	-	B	81,35

> 29.195 INTERNATIONAL TOOLS

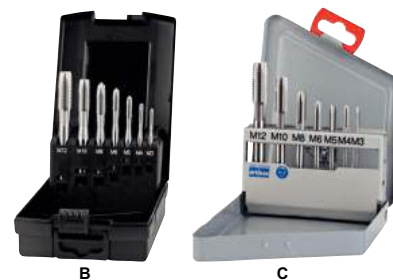
- NL ECO PRO Set machinetappen (combinatie)
 FR Jeu de tarauds machine ECO PRO (combinaison)
 ES Juego de machos máquina ECO PRO (combinación)
 DE ECO PRO Satz Maschinengewindebohren (Kombination)
 EN ECO PRO machine tap Set (combination)



Ref.	1	2	3	4	A, B, C	€
29.195.1000	22.195/22.196 (M3-4-5-6-8-10-12)	-	-	-	B	114,00
29.195.1250	22.197/22.198 (M3-4-5-6-8-10-12)	-	-	-	B	167,00
29.195.1500	22.595/22.596 (M3-4-5-6-8-10-12)	-	-	-	B	140,00
29.195.2000	22.195/22.196 (M3-4-5-6-8-10-12)	11.420 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	-	B	125,00
29.195.2250	22.195/22.196 (M3-4-5-6-8-10-12)	11.420 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	81.905 (Nr. 1,5)	B	156,00
29.195.2500	22.195/22.196 (M3-4-5-6-8-10-12)	11.490 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	-	B	145,00
29.195.3000	22.195 (M4-5-6-8-10)	11.420 (3,3-4,2-5-6,8-8,5)	42.535 (10,4 16,5)	-	A	107,00
29.195.3500	22.197 (M4-5-6-8-10)	11.431 (3,3-4,2-5-6,8-8,5)	42.536 (10,4 16,5)	-	A	168,00
29.195.4000	22.197/22.198 (M3-4-5-6-8-10-12)	11.431 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	-	B	197,00
29.195.5000	22.197/22.198 (M3-4-5-6-8-10-12)	11.490 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	-	B	198,00
29.195.6000	23.295/23.296 (M3-4-5-6-8-10-12)	-	-	-	B	122,00

> 29.250 Phantom

NL Set machinetappen
FR Jeu de tarauds machine
ES Juego de machos máquina
DE Satz Maschinengewindebohren
EN Machine tap Set



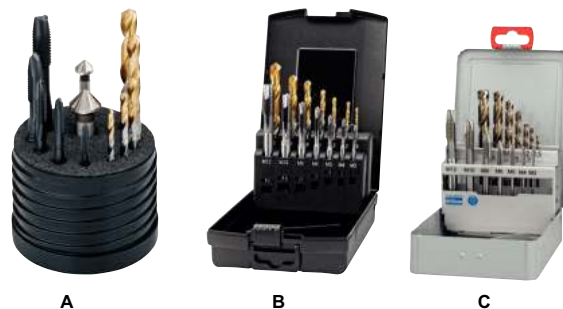
M

ISO 2
6H

Ref.	1	B, C	€
29.250.2000	22.200/22.201 (M3-4-5-6-8-10-12)	B	176,00
29.250.2100	22.201 (M3-4-5-6-8-10-12)	C	241,00
29.250.2120	22.230/22.231 (M3-4-5-6-8-10-12)	B	217,00
29.250.2150	22.205 (M3-4-5-6-8-10-12)	C	153,00
29.250.2500	22.268/22.269 (M3-4-5-6-8-10-12)	B	338,00
29.250.2600	22.600/22.601 (M3-4-5-6-8-10-12)	B	220,00
29.250.3300	23.300/23.301 (M3-4-5-6-8-10-12)	B	191,00
29.250.3450	23.450/23.451 (M3-4-5-6-8-10-12)	B	228,00

> 29.260 Phantom

NL Set machinetappen (combinatie)
FR Jeu de tarauds machine (combinaison)
ES Juego de machos máquina (combinación)
DE Satz Maschinengewindebohren (Kombination)
EN Machine tap Set (combination)



M

ISO 2
6H

Ref.	1	2	3	A, B, C	€
29.260.1980	22.200/22.201 (M3-4-5-6-8-10-12)	11.450 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	B	209,00
29.260.1990	22.200/22.201 (M3-4-5-6-8-10-12)	11.451 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	B	215,30
29.260.1995	22.200/22.201 (M3-4-5-6-8-10-12)	11.461 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	B	216,00
29.260.2000	22.200/22.201 (M3-4-5-6-8-10-12)	11.500 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	B	227,00
29.260.2100	22.201 (M3-4-5-6-8-10-12)	11.500 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	C	271,00
29.260.2120	22.230/22.231 (M3-4-5-6-8-10-12)	11.461 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	B	257,00
29.260.2200	22.220/22.221 (M3-4-5-6-8-10-12)	11.451 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	B	218,00
29.260.2240	22.220 (M4-5-6-8-10)	11.451 (3,3-4,2-5-6,8-8,5)	42.540 (10,4 16,5)	A	187,00
29.260.2500	22.268/22.269 (M3-4-5-6-8-10-12)	11.568 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	B	428,00
29.260.2600	22.600/22.601 (M3-4-5-6-8-10-12)	11.760 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	B	277,00
29.260.3340	23.300/23.301 (M3-4-5-6-8-10-12)	11.450 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	B	224,00
29.260.3350	23.300/23.301 (M3-4-5-6-8-10-12)	11.451 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	B	215,10
29.260.3355	23.300/23.301 (M3-4-5-6-8-10-12)	11.461 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	B	231,00
29.260.3360	23.300/23.301 (M3-4-5-6-8-10-12)	11.500 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	B	242,00
29.260.3450	23.450/23.451 (M3-4-5-6-8-10-12)	11.760 (2,5-3,3-4,2-5-6,8-8,5-10,2)	-	B	285,00

> 29.300

**INTERNATIONAL
TOOLS**

NL ECO Set Draadeinduithalers
FR Jeu d'extracteurs, goujons et tubes cassés ECO
ES Juego de extractores de tornillos rotos ECO
DE ECO Satz Schraubenausdreher
EN ECO Set Extractors for broken screws, bolts etc.



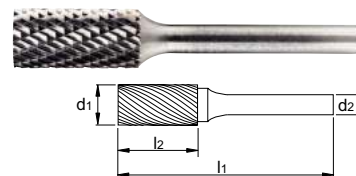
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ECO

Ref.	1	€
29.300.0100	28.800 Nr. 1-5 / M3-M18	12,00
29.300.0200	28.800 Nr. 1-6 / M3-M24	16,00
29.300.0300	28.800 Nr. 1-8 / M3-M45	38,00

> 41.410 INTERNATIONAL TOOLS

NL ECO PRO HM Stiftrees model A, cilindrisch
FR Fraise lime Carbure ECO PRO Forme A, forme cylindrique
ES Fresa rotativa MD ECO PRO forma A, cilíndrico
DE ECO PRO HM Frässtift Form A, Zylinderform
EN ECO PRO SC Burr model A, cylindrical



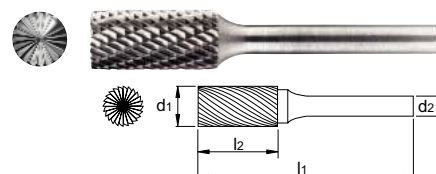
HM A Ø3 Ø6 ECO PRO

Ref.	Ø	d1	l1	l2	d2	z	€
41.410.0336	3	3	38	14	3	6-UNI	7,71
41.410.0606	6	6	50	18	6	6-UNI	12,06
41.410.0806	8	8	65	20	6	6-UNI	16,18

Ref.	Ø	d1	l1	l2	d2	z	€
41.410.1006	10	10	65	20	6	6-UNI	17,46
41.410.1206	12	12	70	25	6	6-UNI	27,45
41.410.1606	16	16	70	25	6	6-UNI	34,55

> 41.420 INTERNATIONAL TOOLS

NL ECO PRO HM Stiftrees model B, cilindrisch met kopvertanding
FR Fraise lime Carbure ECO PRO Forme B, Forme cylindrique avec denture en bout
ES Fresa rotativa MD ECO PRO forma B, cilíndrico con corte al centro
DE ECO PRO HM Frässtift Form B, Zylinderform mit Stirnverzahnung
EN ECO PRO SC Burr model B, cylindrical with End Cut



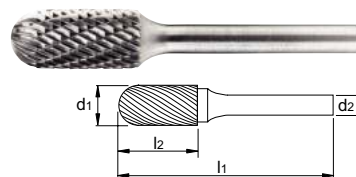
HM B Ø3 Ø6 ECO PRO

Ref.	Ø	d1	l1	l2	d2	z	€
41.420.0336	3	3	38	14	3	6-UNI	8,48
41.420.0606	6	6	50	18	6	6-UNI	12,98
41.420.0806	8	8	65	20	6	6-UNI	17,86

Ref.	Ø	d1	l1	l2	d2	z	€
41.420.1006	10	10	65	20	6	6-UNI	19,14
41.420.1206	12	12	70	25	6	6-UNI	30,40
41.420.1606	16	16	70	25	6	6-UNI	37,90

> 41.430 INTERNATIONAL TOOLS

NL ECO PRO HM Stiftrees model C, cilindrisch, ronde kop
FR Fraise lime Carbure ECO PRO Forme C, Forme cylindrique à bout arrondi
ES Fresa rotativa MD ECO PRO forma C, cilíndrico, forma semiesférica
DE ECO PRO HM Frässtift Form C, Walzenrundform
EN ECO PRO SC Burr model C, Cylindrical, ball nose



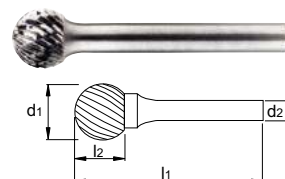
HM C Ø3 Ø6 ECO PRO

Ref.	Ø	d1	l1	l2	d2	z	€
41.430.0336	3	3	38	14	3	6-UNI	7,71
41.430.0606	6	6	50	18	6	6-UNI	13,75
41.430.0806	8	8	65	20	6	6-UNI	19,81

Ref.	Ø	d1	l1	l2	d2	z	€
41.430.1006	10	10	65	20	6	6-UNI	20,03
41.430.1206	12	12	70	25	6	6-UNI	29,55
41.430.1606	16	16	70	25	6	6-UNI	37,75

> 41.440 INTERNATIONAL TOOLS

NL ECO PRO HM Stiftrees model D, kogelvorm
FR Fraise lime Carbure ECO PRO Forme D, Forme sphérique
ES Fresa rotativa MD ECO PRO forma D, modelo esférico
DE ECO PRO HM Frässtift Form D, Kugelform
EN ECO PRO SC Burr model D, ball



HM D Ø3 Ø6 ECO PRO

Ref.	Ø	d1	l1	l2	d2	z	€
41.440.0336	3	3	38	2,5	3	6-UNI	7,71
41.440.0606	6	6	50	5	6	6-UNI	13,36
41.440.0806	8	8	52	7	6	6-UNI	14,38

Ref.	Ø	d1	l1	l2	d2	z	€
41.440.1006	10	10	54	9	6	6-UNI	16,32
41.440.1206	12	12	56	11	6	6-UNI	20,80
41.440.1606	16	16	59	14	6	6-UNI	28,90

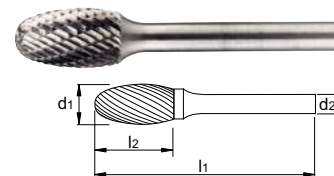
> 41.450 INTERNATIONAL TOOLS

NL ECO PRO HM Stiffrees model E, druppelvorm
 FR Fraise lime Carbure ECO PRO Forme E, Forme goutte
 ES Fresa rotativa MD ECO PRO forma E, forma oval
 DE ECO PRO HM Frässtift Form E, Tropfenform
 EN ECO PRO SC Burr model E, Oval

HM E Ø3 Ø6 ECO PRO

Ref.	Ø	d1	l1	l2	d2	z	€
41.450.0336	3	3	38	6	3	6-UNI	7,71
41.450.0606	6	6	50	10	6	6-UNI	15,30
41.450.0806	8	8	60	15	6	6-UNI	18,96

Ref.	Ø	d1	l1	l2	d2	z	€
41.450.1006	10	10	60	15	6	6-UNI	20,29
41.450.1206	12	12	65	20	6	6-UNI	29,80
41.450.1606	16	16	70	25	6	6-UNI	43,05

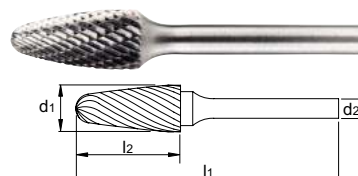
**> 41.460 INTERNATIONAL TOOLS**

NL ECO PRO HM Stiffrees model F, boomvorm met ronde kop
 FR Fraise lime Carbure ECO PRO Forme F, Forme ogive à bout arrondi
 ES Fresa rotativa MD ECO PRO forma F, forma ojival en semiesférica
 DE ECO PRO HM Frässtift Form F, Rundbogenform
 EN ECO PRO SC Burr model F, Ball nose tree

HM F Ø3 Ø6 ECO PRO

Ref.	Ø	d1	l1	l2	d2	z	€
41.460.0336	3	3	38	14	3	6-UNI	7,71
41.460.0606	6	6	50	18	6	6-UNI	15,30
41.460.0806	8	8	65	20	6	6-UNI	18,96

Ref.	Ø	d1	l1	l2	d2	z	€
41.460.1006	10	10	65	20	6	6-UNI	20,43
41.460.1206	12	12	70	25	6	6-UNI	29,80
41.460.1606	16	16	70	25	6	6-UNI	43,05

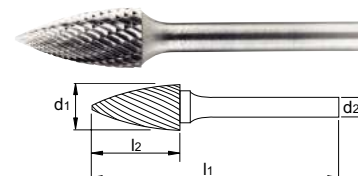
**> 41.470 INTERNATIONAL TOOLS**

NL ECO PRO HM Stiffrees model G, boomvorm spits
 FR Fraise lime Carbure ECO PRO Forme G, Forme ogive
 ES Fresa rotativa MD ECO PRO forma G, forma ojival en punta
 DE ECO PRO HM Frässtift Form G, Spitzbogenform
 EN ECO PRO SC Burr model G, pointed tree

HM G Ø3 Ø6 ECO PRO

Ref.	Ø	d1	l1	l2	d2	z	€
41.470.0336	3	3	38	14	3	6-UNI	7,71
41.470.0606	6	6	50	18	6	6-UNI	15,30
41.470.0806	8	8	65	20	6	6-UNI	19,70

Ref.	Ø	d1	l1	l2	d2	z	€
41.470.1006	10	10	65	20	6	6-UNI	19,01
41.470.1206	12	12	70	25	6	6-UNI	29,80
41.470.1606	16	16	70	25	6	6-UNI	42,85

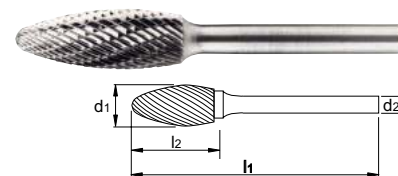
**> 41.480 INTERNATIONAL TOOLS**

NL ECO PRO HM Stiffrees model H, vlamvorm
 FR Fraise lime Carbure ECO PRO Forme H, Forme flamme
 ES Fresa rotativa MD ECO PRO forma H, forma llama
 DE ECO PRO HM Frässtift Form H, Flammenform
 EN ECO PRO SC Burr model H, flame

HM H Ø3 Ø6 ECO PRO

Ref.	Ø	d1	l1	l2	d2	z	€
41.480.0336	3	3	38	6	3	6-UNI	7,71
41.480.0606	6	6	50	14	6	6-UNI	16,69
41.480.0806	8	8	65	20	6	6-UNI	20,03

Ref.	Ø	d1	l1	l2	d2	z	€
41.480.1006	10	10	65	20	6	6-UNI	38,05
41.480.1206	12	12	75	30	6	6-UNI	37,60
41.480.1606	16	16	80	35	6	6-UNI	59,85





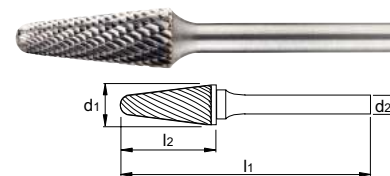
> 41.486 INTERNATIONAL TOOLS

- NL ECO PRO HM Stiftrees model L, kegelvorm, met ronde kop
 FR Fraise lime Carbure ECO PRO Forme L, Forme conique à bout arrondi
 ES Fresa rotativa MD ECO PRO forma L, forma cónica, con punta redondeada
 DE ECO PRO HM Frässtift Form L, Rundkegelform
 EN ECO PRO SC Burr model L, ball nose cone



Ref.	Ø	d1	l1	l2	d2	z	€
41.486.0336	3	3	38	14	3	6-UNI	7,71
41.486.0606	6	6	50	18	6	6-UNI	15,30
41.486.0806	8	8	70	25	6	6-UNI	21,72

Ref.	Ø	d1	l1	l2	d2	z	€
41.486.1006	10	10	65	20	6	6-UNI	23,12
41.486.1206	12	12	75	30	6	6-UNI	31,50
41.486.1606	16	16	78	33	6	6-UNI	57,30



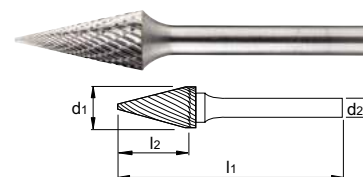
> 41.488 INTERNATIONAL TOOLS

- NL ECO PRO HM Stiftrees model M, kegelvorm, spits
 FR Fraise lime Carbure ECO PRO Forme M, Forme conique à bout pointu
 ES Fresa rotativa MD ECO PRO forma M, forma cónica, en punta
 DE ECO PRO HM Frässtift Form M, Spitzkegelform
 EN ECO PRO SC Burr model M, cone



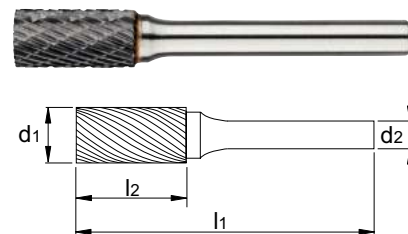
Ref.	Ø	d1	l1	l2	d2	z	€
41.488.0336	3	3	38	11	3	6-UNI	7,71
41.488.0606	6	6	50	20	6	6-UNI	15,41
41.488.0806	8	8	65	20	6	6-UNI	21,72

Ref.	Ø	d1	l1	l2	d2	z	€
41.488.1006	10	10	65	20	6	6-UNI	22,48
41.488.1206	12	12	71	26	6	6-UNI	28,75
41.488.1606	16	16	70	25	6	6-UNI	39,95



> 41.510 Phantom

NL HM Stiffrees model A, cilindrisch, schacht 6 mm
 FR Fraise lime Carbure Forme A, forme cylindrique, queue 6 mm
 ES Fresa rotativa MD forma A, cilíndrico, mango 6 mm
 DE HM Frässtift Form A, Zylinderform, Schaft 6 mm
 EN SC Burr model A, cylindrical, shank 6 mm



1-ALU	3-FINE	4-DIAMOND	6-UNI	8-STEEL	9-INOX
N	P M K S H	P M S	P M K S H	P K	M

Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
6	6	6	50	18	41.510.0601	25,75	41.510.0603	19,97	41.510.0604	21,20	41.510.0606	20,17	41.510.0608	22,24	41.510.0609	24,33
8	8	6	64	19	41.510.0801	32,65	41.510.0803	26,85	41.510.0804	28,50	41.510.0806	27,10	41.510.0808	29,90	41.510.0809	32,65
10	9,5	6	64	19	41.510.1001	35,40	41.510.1003	28,90	41.510.1004	30,60	41.510.1006	29,15	41.510.1008	32,00	41.510.1009	34,75
12	12,7	6	70	25	41.510.1201	54,90	41.510.1203	45,40	41.510.1204	47,90	41.510.1206	45,85	41.510.1208	50,10	41.510.1209	54,90
16	16	6	70	25	41.510.1601	69,05			41.510.1604	60,50	41.510.1606	57,65				
20	19	6	70	25							41.510.2006	86,90				

> 41.511 Phantom

NL HM Stiffrees model A, cilindrisch, schacht 6 mm, TiAIN
 FR Fraise lime Carbure Forme A, forme cylindrique, queue 6 mm, TiAIN
 ES Fresa rotativa MD forma A, cilíndrico, mango 6 mm, TiAIN
 DE HM Frässtift Form A, Zylinderform, Schaft 6 mm, TiAIN
 EN SC Burr model A, cylindrical, shank 6 mm, TiAIN



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
6	6	6	50	18							41.511.0606	25,70				
8	8	6	64	19							41.511.0806	32,65				
10	9,5	6	64	19							41.511.1006	37,50				
12	12,7	6	70	25							41.511.1206	57,65				

> 41.513 Phantom

NL HM Stiffrees model A, cilindrisch, schacht 3 mm
 FR Fraise lime Carbure Forme A, forme cylindrique, queue 3 mm
 ES Fresa rotativa MD forma A, cilíndrico, mango 3 mm
 DE HM Frässtift Form A, Zylinderform, Schaft 3 mm
 EN SC Burr model A, cylindrical, shank 3 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
1,5	1,5	3	38	6			41.513.0153	10,08	41.513.0154	11,11						
2	2	3	38	11							41.513.0206	10,62				
3	3	3	38	14	41.513.0301	14,59	41.513.0303	10,08	41.513.0304	11,11	41.513.0306	10,71			41.513.0309	14,59
6	6,3	3	45	12,7							41.513.0636	18,76			41.513.0639	27,45

> 41.518 Phantom

NL HM Stiffrees model A, cilindrisch, schacht 8 mm
 FR Fraise lime Carbure Forme A, forme cylindrique, queue 8 mm
 ES Fresa rotativa MD forma A, cilíndrico, mango 8 mm
 DE HM Frässtift Form A, Zylinderform, Schaft 8 mm
 EN SC Burr model A, cylindrical, shank 8 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
12	12,7	8	70	25							41.518.1286	45,85				
16	16	8	70	25	41.518.1681	69,05					41.518.1686	57,65				
20	19	8	70	25							41.518.2086	86,90				



NL Stiffrezen keuzehulp
 FR Aide à la sélection des fraises lime
 ES Ayuda para la selección de fresas rotativas
 DE Auswahlhilfe Frässtifte
 EN Selection guide for burrs

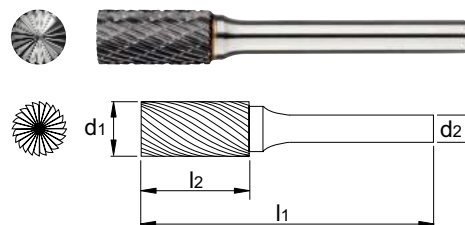
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> 41.520 Phantom

NL HM Stiffrees model B, cilindrisch met kopvertanding, schacht 6 mm
 FR Fraise lime Carbure Forme B, Forme cylindrique avec denture en bout, queue 6 mm
 ES Fresa rotativa MD forma B, cilíndrico con corte al centro, mango 6 mm
 DE HM Frässtift Form B, Zylinderform mit Stirnverzahnung, Schaft 6 mm
 EN SC Burr model B, cylindrical with End Cut, shank 6 mm



1-ALU	3-FINE	4-DIAMOND	6-UNI	8-STEEL	9-INOX
N	P M K S H	P M S	P M K S H	P K	M

Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
6	6	6	50	18	41.520.0601	27,75	41.520.0603	21,48	41.520.0604	22,93	41.520.0606	21,68	41.520.0608	24,33		
8	8	6	64	19	41.520.0801	35,85	41.520.0803	29,60	41.520.0804	31,25	41.520.0806	29,90	41.520.0808	32,65		
10	9,5	6	64	19	41.520.1001	38,20	41.520.1003	31,60	41.520.1004	33,35	41.520.1006	32,00	41.520.1008	37,80		
12	12,7	6	70	25	41.520.1201	60,50	41.520.1203	50,75	41.520.1204	53,55	41.520.1206	50,75	41.520.1208	55,60		
16	16	6	70	25			41.520.1603	63,20	41.520.1604	66,70	41.520.1606	63,20				
20	19	8	70	25							41.520.2006	90,30				

> 41.521 Phantom

NL HM Stiffrees model B, cilindrisch met kopvertanding, schacht 6 mm, TiAIN
 FR Fraise lime Carbure Forme B, Forme cylindrique avec denture en bout, queue 6 mm, TiAIN
 ES Fresa rotativa MD forma B, cilíndrico con corte al centro, mango 6 mm, TiAIN
 DE HM Frässtift Form B, Zylinderform mit Stirnverzahnung, Schaft 6 mm, TiAIN
 EN SC Burr model B, cylindrical with End Cut, shank 6 mm, TiAIN



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
6	6	6	50	18							41.521.0606	27,25				
8	8	6	64	19							41.521.0806	35,40				
10	9,5	6	64	19							41.521.1006	40,30				
12	12,7	6	70	25							41.521.1206	62,55				

> 41.523 Phantom

NL HM Stiffrees model B, cilindrisch met kopvertanding, schacht 3 mm
 FR Fraise lime Carbure Forme B, Forme cylindrique avec denture en bout, queue 3 mm
 ES Fresa rotativa MD forma B, cilíndrico con corte al centro, mango 3 mm
 DE HM Frässtift Form B, Zylinderform mit Stirnverzahnung, Schaft 3 mm
 EN SC Burr model B, cylindrical with End Cut, shank 3 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
1,5	1,5	3	38	6			41.523.0153	10,08								
2	2	3	38	11							41.523.0206	10,62				
3	3	3	38	14	41.523.0301	14,59	41.523.0303	10,08	41.523.0304	11,11	41.523.0306	10,71				
5	5	3	38	12,7							41.523.0506	30,00				
6	6,3	3	38	12,7							41.523.0636	22,24				

> 41.528 Phantom

NL HM Stiffrees model B, cilindrisch met kopvertanding, schacht 8 mm
 FR Fraise lime Carbure Forme B, Forme cylindrique avec denture en bout, queue 8 mm
 ES Fresa rotativa MD forma B, cilíndrico con corte al centro, mango 8 mm
 DE HM Frässtift Form B, Zylinderform mit Stirnverzahnung, Schaft 8 mm
 EN SC Burr model B, cylindrical with End Cut, shank 8 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
12	12,7	8	70	25							41.528.1286	50,75				
16	16	8	70	25							41.528.1686	63,20				
20	19	8	70	25							41.528.2086	90,30				

> 41.529 Phantom

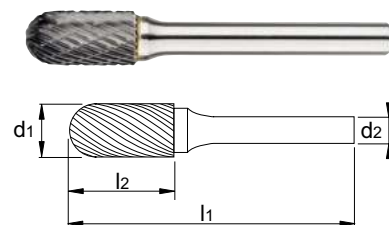
NL HM Stiffrees model B, cilindrisch met kopvertanding, schacht 6 mm, lang
 FR Fraise lime Carbure Forme B, Forme cylindrique avec denture en bout, queue 6 mm, version longue
 ES Fresa rotativa MD forma B, cilíndrico con corte al centro, mango 6 mm, larga
 DE HM Frässtift Form B, Zylinderform mit Stirnverzahnung, Schaft 6 mm, lang
 EN SC Burr model B, cylindrical with End Cut, shank 6 mm, long

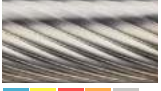
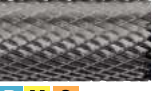
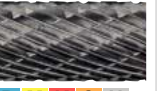
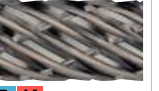


Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
6	6	6	162	12,7					41.529.0614	38,20						
10	9,5	6	170	19					41.529.1014	49,30						
12	12,7	6	175	25					41.529.1214	68,85						

> 41.530 Phantom

NL HM Stiffrees model C, cilindrisch, ronde kop, schacht 6 mm
 FR Fraise lime Carbure Forme C, Forme cylindrique à bout arrondi, queue 6 mm
 ES Fresa rotativa MD forma C, cilíndrico, forma semiesférica, mango 6 mm
 DE HM Frässtift Form C, Walzenrundform, Schaft 6 mm
 EN SC Burr model C, Cylindrical, ball nose, shank 6 mm



1-ALU	3-FINE	4-DIAMOND	6-UNI	8-STEEL	9-INOX
					
N	P M K S H	P M S	P M K S H	P K	M

Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
3	3	6	60	15							41.530.0306	29,90				
4	4	6	60	15							41.530.0406	29,90				
6	6	6	50	18	41.530.0601	29,90	41.530.0603	22,70	41.530.0604	24,33	41.530.0606	22,93	41.530.0608	25,00	41.530.0609	27,10
6	6	6	60	18							41.530.0616	30,85				
6	6	6	100	18							41.530.0636	66,75				
8	8	6	64	19	41.530.0801	39,60	41.530.0803	32,35	41.530.0804	35,40	41.530.0806	34,75	41.530.0808	38,20	41.530.0809	41,00
10	9,5	6	64	19	41.530.1001	39,70	41.530.1003	33,00	41.530.1004	35,40	41.530.1006	33,35	41.530.1008	36,85	41.530.1009	39,70
12	12,7	6	70	25	41.530.1201	61,15	41.530.1203	48,20	41.530.1204	52,15	41.530.1206	49,30	41.530.1208	54,20	41.530.1209	59,00
16	16	6	70	25	41.530.1601	77,90	41.530.1603	61,25	41.530.1604	65,60	41.530.1606	62,85				
20	19	6	70	25							41.530.2006	95,20				

> 41.531 Phantom

NL HM Stiffrees model C, cilindrisch, ronde kop, schacht 6 mm, TiAIN
 FR Fraise lime Carbure Forme C, Forme cylindrique à bout arrondi, queue 6 mm, TiAIN
 ES Fresa rotativa MD forma C, cilíndrico, forma semiesférica, mango 6 mm, TiAIN
 DE HM Frässtift Form C, Walzenrundform, Schaft 6 mm, TiAIN
 EN SC Burr model C, Cylindrical, ball nose, shank 6 mm, TiAIN



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
6	6	6	50	18							41.531.0606	29,15				
8	8	6	64	19							41.531.0806	43,70				
10	9,5	6	64	19							41.531.1006	43,15				
12	12,7	6	70	25							41.531.1206	62,40				

> 41.533 Phantom

NL HM Stiffrees model C, cilindrisch, ronde kop, schacht 3 mm
 FR Fraise lime Carbure Forme C, Forme cylindrique à bout arrondi, queue 3 mm
 ES Fresa rotativa MD forma C, cilíndrico, forma semiesférica, mango 3 mm
 DE HM Frässtift Form C, Walzenrundform, Schaft 3 mm
 EN SC Burr model C, Cylindrical, ball nose, shank 3 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
2	2	3	38	11			41.533.0203	10,08			41.533.0206	10,62				
3	3	3	38	14	41.533.0301	14,59	41.533.0303	10,08	41.533.0304	11,11	41.533.0306	10,71			41.533.0309	14,59
6	6,3	3	45	12,7			41.533.0633	18,76	41.533.0634	20,84	41.533.0636	18,76			41.533.0639	27,10

> 41.538 Phantom

NL HM Stiffrees model C, cilindrisch, ronde kop, schacht 8 mm
 FR Fraise lime Carbure Forme C, Forme cylindrique à bout arrondi, queue 8 mm
 ES Fresa rotativa MD forma C, cilíndrico, forma semiesférica, mango 8 mm
 DE HM Frässtift Form C, Walzenrundform, Schaft 8 mm
 EN SC Burr model C, Cylindrical, ball nose, shank 8 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
12	12,7	8	70	25							41.538.1286	49,30				
16	16	8	70	25							41.538.1686	62,85				
19	19	8	70	25							41.538.2086	95,20				

> 41.539 Phantom

NL HM Stiffrees model C, cilindrisch, ronde kop, schacht 6 mm, lang
 FR Fraise lime Carbure Forme C, Forme cylindrique à bout arrondi, queue 6 mm, version longue
 ES Fresa rotativa MD forma C, cilíndrico, forma semiesférica, mango 6 mm, larga
 DE HM Frässtift Form C, Walzenrundform, Schaft 6 mm, lang
 EN SC Burr model C, Cylindrical, ball nose, shank 6 mm, long

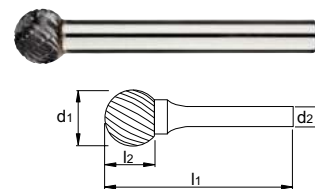


Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
6	6	6	162	12,7					41.539.0614	39,70						
10	9,5	6	170	19					41.539.1014	47,60						
12	12,7	6	175	25					41.539.1214	65,85						



> 41.540 Phantom

- NL HM Stiffrees model D, kogelvorm, schacht 6 mm
FR Fraise lime Carbure Forme D, Forme sphérique, queue 6 mm
ES Fresa rotativa MD forma D, modelo esférico, mango 6 mm
DE HM Frässtift Form D, Kugelform, Schaft 6 mm
EN SC Burr model D, ball, shank 6 mm



1-ALU	3-FINE	4-DIAMOND	6-UNI	8-STEEL	9-INOX
N	P M K S H	P M S	P M K S H	P K	M

Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
6	6	6	50	5	41.540.0601	29,15	41.540.0603	21,75	41.540.0604	23,34	41.540.0606	22,24	41.540.0608	24,33	41.540.0609	26,40
8	8	6	50	6,4	41.540.0801	30,70	41.540.0803	23,39	41.540.0804	25,35	41.540.0806	23,90	41.540.0808	26,40	41.540.0809	29,15
10	9,5	6	52	8	41.540.1001	34,05	41.540.1003	26,15	41.540.1004	28,20	41.540.1006	27,10	41.540.1008	29,90	41.540.1009	32,65
12	12,7	6	55	11	41.540.1201	44,45	41.540.1203	34,05	41.540.1204	36,50	41.540.1206	34,75	41.540.1208	38,20	41.540.1209	41,65
16	16	6	58	14	41.540.1601	57,05					41.540.1606	48,20				
20	19	6	62	16							41.540.2006	66,05				

> 41.543 Phantom

- NL HM Stiffrees model D, kogelvorm, schacht 3 mm
FR Fraise lime Carbure Forme D, Forme sphérique, queue 3 mm
ES Fresa rotativa MD forma D, modelo esférico, mango 3 mm
DE HM Frässtift Form D, Kugelform, Schaft 3 mm
EN SC Burr model D, ball, shank 3 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
2	2	3	38	1,8			41.543.0203	10,08			41.543.0206	10,62				
3	3	3	38	2,5	41.543.0301	14,59	41.543.0303	10,08	41.543.0304	11,11	41.543.0306	10,71			41.543.0309	14,59
4	4	3	38	3,4			41.543.0403	29,90			41.543.0406	32,00				
6	6,3	3	38	5	41.543.0631	25,70	41.543.0633	20,84			41.543.0636	18,76			41.543.0639	27,75

> 41.548 Phantom

- NL HM Stiffrees model D, kogelvorm, schacht 8 mm
FR Fraise lime Carbure Forme D, Forme sphérique, queue 8 mm
ES Fresa rotativa MD forma D, modelo esférico, mango 8 mm
DE HM Frässtift Form D, Kugelform, Schaft 8 mm
EN SC Burr model D, ball, shank 8 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
12	12,7	8	56	11							41.548.1286	34,75				
16	16	8	59	14							41.548.1686	47,90				
20	19	8	62	16,5							41.548.2086	64,60				

> 41.549 Phantom

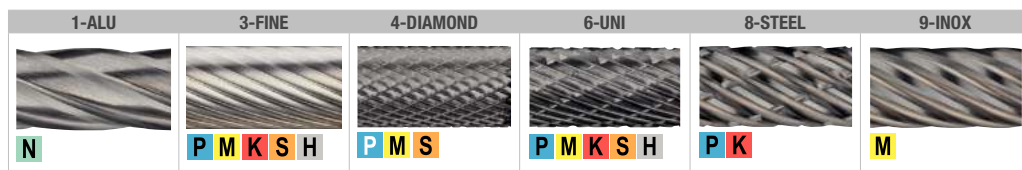
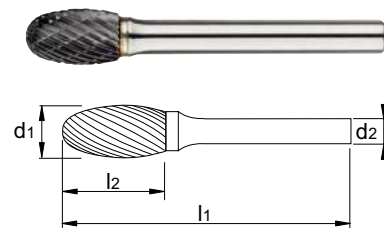
- NL HM Stiffrees model D, kogelvorm, schacht 6 mm, lang
FR Fraise lime Carbure Forme D, Forme sphérique, queue 6 mm, version longue
ES Fresa rotativa MD forma D, modelo esférico, mango 6 mm, larga
DE HM Frässtift Form D, Kugelform, Schaft 6 mm, lang
EN SC Burr model D, ball, shank 6 mm, long



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
10	9,5	6	158	8					41.549.1014	43,15						
12	12,7	6	161	11					41.549.1214	52,40						

> 41.550 Phantom

NL HM Stiffrees model E, druppelvorm, schacht 6 mm
 FR Fraise lime Carbure Forme E, Forme goutte, queue 6 mm
 ES Fresa rotativa MD forma E, forma oval, mango 6 mm
 DE HM Frässtift Form E, Tropfenform, Schaft 6 mm
 EN SC Burr model E, Oval, shank 6 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
6	6	6	50	9,5	41.550.0601	35,80					41.550.0606	27,75				
8	8	6	60	15							41.550.0806	34,05			41.550.0809	36,85
10	9,5	6	60	16	41.550.1001	44,00			41.550.1004	37,15	41.550.1006	35,80			41.550.1009	41,65
12	12,7	6	66	22	41.550.1201	62,55			41.550.1204	52,30	41.550.1206	50,20			41.550.1209	59,00
16	16	6	70	25							41.550.1606	75,65				

> 41.553 Phantom

NL HM Stiffrees model E, druppelvorm, schacht 3 mm
 FR Fraise lime Carbure Forme E, Forme goutte, queue 3 mm
 ES Fresa rotativa MD forma E, forma oval, mango 3 mm
 DE HM Frässtift Form E, Tropfenform, Schaft 3 mm
 EN SC Burr model E, Oval, shank 3 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
3	3	3	38	5,5							41.553.0306	10,71				
6	6,3	3	42	9,5							41.553.0636	18,76				

> 41.559 Phantom

NL HM Stiffrees model E, druppelvorm, schacht 6 mm, lang
 FR Fraise lime Carbure Forme E, Forme goutte, queue 6 mm, version longue
 ES Fresa rotativa MD forma E, forma oval, mango 6 mm, larga
 DE HM Frässtift Form E, Tropfenform, Schaft 6 mm, lang
 EN SC Burr model E, Oval, shank 6 mm, long



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
10	9,5	6	166	16					41.559.1014	51,05						



NL Stiffrezen keuzehulp
 FR Aide à la sélection des fraises lime
 ES Ayuda para la selección de fresas rotativas
 DE Auswahlhilfe Frässtifte
 EN Selection guide for burrs

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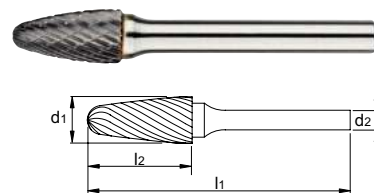


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> 41.560 Phantom

NL HM Stiftrees model F, boomvorm met ronde kop, schacht 6 mm
FR Fraise lime Carbure Forme F, Forme ogive à bout arrondi, queue 6 mm
ES Fresa rotativa MD forma F, forma oival en semiesférica, mango 6 mm
DE HM Frässtift Form F, Rundbogenform, Schaft 6 mm
EN SC Burr model F, Ball nose tree, shank 6 mm



1-ALU	3-FINE	4-DIAMOND	6-UNI	8-STEEL	9-INOX
N	P M K S H	P M S	P M K S H	P K	M

Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
6	6	6	50	18	41.560.0601	32,35	41.560.0603	24,08	41.560.0604	26,45	41.560.0606	25,45	41.560.0608	27,10	41.560.0609	29,55
8	8	6	65	20							41.560.0806	34,05	41.560.0808	33,35	41.560.0809	36,85
10	9,5	6	64	19	41.560.1001	41,30	41.560.1003	32,35	41.560.1004	35,80	41.560.1006	33,70	41.560.1008	36,85	41.560.1009	39,70
12	12,7	6	70	25	41.560.1201	57,75	41.560.1203	47,50	41.560.1204	52,30	41.560.1206	49,60	41.560.1208	53,15	41.560.1209	58,35
16	16	6	70	25	41.560.1601	82,45			41.560.1604	74,35	41.560.1606	71,55				

> 41.561 Phantom

NL HM Stiftrees model F, boomvorm met ronde kop, schacht 6 mm, TiAIN
FR Fraise lime Carbure Forme F, Forme ogive à bout arrondi, queue 6 mm, TiAIN
ES Fresa rotativa MD forma F, forma oival en semiesférica, mango 6 mm, TiAIN
DE HM Frässtift Form F, Rundbogenform, Schaft 6 mm, TiAIN
EN SC Burr model F, Ball nose tree, shank 6 mm, TiAIN



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
6	6	6	50	18							41.561.0606	31,90				
10	9,5	6	64	19							41.561.1006	42,40				
12	12,7	6	70	25							41.561.1206	61,90				

> 41.563 Phantom

NL HM Stiftrees model F, boomvorm met ronde kop, schacht 3 mm
FR Fraise lime Carbure Forme F, Forme ogive à bout arrondi, queue 3 mm
ES Fresa rotativa MD forma F, forma oival en semiesférica, mango 3 mm
DE HM Frässtift Form F, Rundbogenform, Schaft 3 mm
EN SC Burr model F, Ball nose tree, shank 3 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
3	3	3	38	12,7	41.563.0301	14,59	41.563.0303	10,08	41.563.0304	11,11	41.563.0306	10,71			41.563.0309	14,59
6	6,3	3	45	12,7	41.563.0631	25,70	41.563.0633	18,76			41.563.0636	18,76			41.563.0639	27,75

> 41.568 Phantom

NL HM Stiftrees model F, boomvorm met ronde kop, schacht 8 mm
FR Fraise lime Carbure Forme F, Forme ogive à bout arrondi, queue 8 mm
ES Fresa rotativa MD forma F, forma oival en semiesférica, mango 8 mm
DE HM Frässtift Form F, Rundbogenform, Schaft 8 mm
EN SC Burr model F, Ball nose tree, shank 8 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
12	12,7	8	70	25							41.568.1286	48,65				
16	16	8	70	25							41.568.1686	69,45				
20	19	8	82	38							41.568.2086	118,10				

> 41.569 Phantom

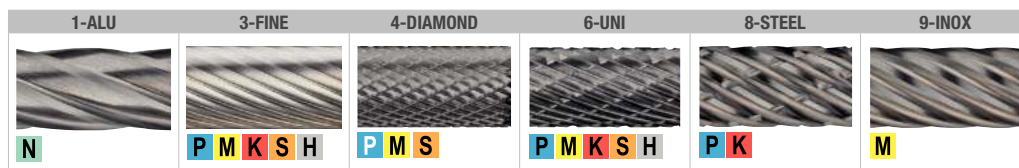
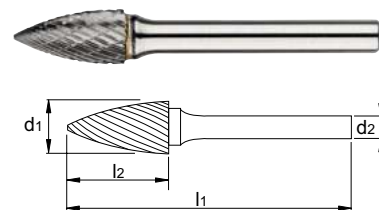
NL HM Stiftrees model F, boomvorm met ronde kop, schacht 6 mm, lang
FR Fraise lime Carbure Forme F, Forme ogive à bout arrondi, queue 6 mm, version longue
ES Fresa rotativa MD forma F, forma oival en semiesférica, mango 6 mm, larga
DE HM Frässtift Form F, Rundbogenform, Schaft 6 mm, lang
EN SC Burr model F, Ball nose tree, shank 6 mm, long



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
12	12,7	6	175	25					41.569.1214	61,15						

> 41.570 Phantom

NL HM Stiffrees model G, boomvorm spits, schacht 6 mm
 FR Fraise lime Carbure Forme G, Forme ogive, queue 6 mm
 ES Fresa rotativa MD forma G, forma ojival en punta, mango 6 mm
 DE HM Frässtift Form G, Spitzbogenform, Schaft 6 mm
 EN SC Burr model G, pointed tree, shank 6 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
6	6	6	50	18	41.570.0601	32,35	41.570.0603	24,08	41.570.0604	26,45	41.570.0606	25,45	41.570.0608	27,10	41.570.0609	29,55
8	8	6	64	19	41.570.0801	44,00	41.570.0803	32,35	41.570.0804	35,80	41.570.0806	34,40	41.570.0808	36,85	41.570.0809	40,30
10	9,5	6	64	19	41.570.1001	41,30	41.570.1003	30,25	41.570.1004	33,35	41.570.1006	31,60	41.570.1008	34,75	41.570.1009	37,50
12	12,7	6	70	25	41.570.1201	57,75	41.570.1203	47,50	41.570.1204	52,30	41.570.1206	49,60	41.570.1208	52,80	41.570.1209	58,35
16	16	6	70	25	41.570.1601	82,45	41.570.1603	67,45	41.570.1604	74,35	41.570.1606	71,55				

> 41.573 Phantom

NL HM Stiffrees model G, boomvorm spits, schacht 3 mm
 FR Fraise lime Carbure Forme G, Forme ogive, queue 3 mm
 ES Fresa rotativa MD forma G, forma ojival en punta, mango 3 mm
 DE HM Frässtift Form G, Spitzbogenform, Schaft 3 mm
 EN SC Burr model G, pointed tree, shank 3 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
3	3	3	38	10	41.573.0301	14,59	41.573.0303	10,08	41.573.0304	11,11	41.573.0306	10,71				
6	6,3	3	45	12,7			41.573.0633	18,76			41.573.0636	18,76				

> 41.578 Phantom

NL HM Stiffrees model G, boomvorm spits, schacht 8 mm
 FR Fraise lime Carbure Forme G, Forme ogive, queue 8 mm
 ES Fresa rotativa MD forma G, forma ojival en punta, mango 8 mm
 DE HM Frässtift Form G, Spitzbogenform, Schaft 8 mm
 EN SC Burr model G, pointed tree, shank 8 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
12	12,7	8	70	25							41.578.1286	48,65				
16	16	8	70	25							41.578.1686	69,45				
20	19	8	83	38							41.578.2086	118,10				

> 41.579 Phantom

NL HM Stiffrees model G, boomvorm spits, schacht 6 mm, lang
 FR Fraise lime Carbure Forme G, Forme ogive, queue 6 mm, version longue
 ES Fresa rotativa MD forma G, forma ojival en punta, mango 6 mm, larga
 DE HM Frässtift Form G, Spitzbogenform, Schaft 6 mm, lang
 EN SC Burr model G, pointed tree, shank 6 mm, long



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
6	6	6	164	12,7					41.579.0614	41,80						
10	9,5	6	170	19					41.579.1014	48,65						
12	12,7	6	175	25					41.579.1214	61,15						



NL Stiffrezen keuzehulp
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 ES Ayuda para la selección de fresas rotativas
 DE Auswahlhilfe Frässtifte
 EN Selection guide for burrs

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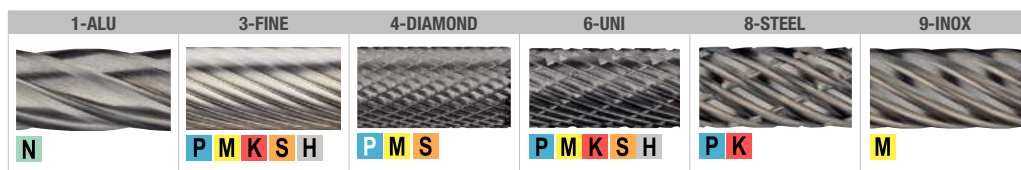
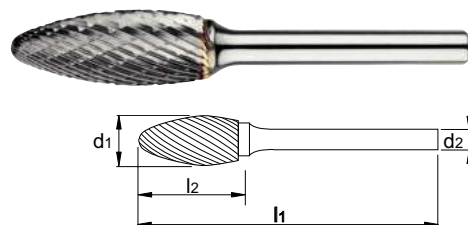


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> 41.580 Phantom

NL HM Stiftrees model H, vlamvorm, schacht 6 mm
FR Fraise lime Carbure Forme H, Forme flamme, queue 6 mm
ES Fresa rotativa MD forma H, forma llama, mango 6 mm
DE HM Frässtift Form H, Flammenform, Schaft 6 mm
EN SC Burr model H, flame, shank 6 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
6	6	6	50	9,5							41.580.0606	27,75				
8	8	6	64	19	41.580.0801	39,95	41.580.0803	32,65	41.580.0804	35,40	41.580.0806	33,35	41.580.0808	36,85	41.580.0809	40,30
10	9,5	6	65	19							41.580.1006	66,45			41.580.1009	72,25
12	12,7	6	77	32	41.580.1201	80,30	41.580.1203	61,25	41.580.1204	66,00	41.580.1206	62,55	41.580.1208	68,85	41.580.1209	75,15
16	16	6	80	36							41.580.1606	100,00				

> 41.583 Phantom

NL HM Stiftrees model H, vlamvorm, schacht 3 mm
FR Fraise lime Carbure Forme H, Forme flamme, queue 3 mm
ES Fresa rotativa MD forma H, forma llama, mango 3 mm
DE HM Frässtift Form H, Flammenform, Schaft 3 mm
EN SC Burr model H, flame, shank 3 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
3	3	3	38	6,3							41.583.0306	10,71				
6	6	3	43	10							41.583.0636	20,84				

> 41.588 Phantom

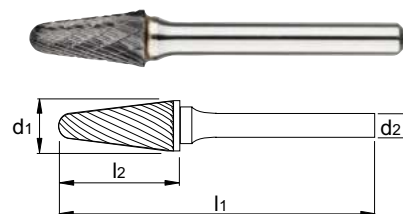
NL HM Stiftrees model H, vlamvorm, schacht 8 mm
FR Fraise lime Carbure Forme H, Forme flamme, queue 8 mm
ES Fresa rotativa MD forma H, forma llama, mango 8 mm
DE HM Frässtift Form H, Flammenform, Schaft 8 mm
EN SC Burr model H, flame, shank 8 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
12	12,7	8	77	32							41.588.1286	62,55				
16	16	8	36	81							41.588.1686	98,70				
20	19	8	86	41							41.588.2086	122,35				

> 41.620 Phantom

NL HM Stiffrees model L, kegelvorm, met ronde kop, schacht 6 mm
 FR Fraise lime Carbure Forme L, Forme conique à bout arrondi, queue 6 mm
 ES Fresa rotativa MD forma L, forma cónica, con punta redondeada, mango 6 mm
 DE HM Frässtift Form L, Rundkegelform, Schaft 6 mm
 EN SC Burr model L, ball nose cone, shank 6 mm



1-ALU	3-FINE	4-DIAMOND	6-UNI	8-STEEL	9-INOX
N	P M K S H	P M S	P M K S H	P K	M

Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
6	6	6	50	16	41.620.0601	34,40	41.620.0603	24,08	41.620.0604	26,85	41.620.0606	25,45			41.620.0809	38,20
8	8	6	70	22	41.620.0801	44,00					41.620.0806	32,35			41.620.1009	50,10
10	9,5	6	74	27	41.620.1001	52,15					41.620.1006	38,60	41.620.1008	45,85	41.620.1209	62,55
12	12,7	6	76	28	41.620.1201	63,30			41.620.1204	55,00	41.620.1206	52,30	41.620.1208	57,00		
16	16	6	77	30							41.620.1606	85,25				

> 41.623 Phantom

NL HM Stiffrees model L, kegelvorm, met ronde kop, schacht 3 mm
 FR Fraise lime Carbure Forme L, Forme conique à bout arrondi, queue 3 mm
 ES Fresa rotativa MD forma L, forma cónica, con punta redondeada, mango 3 mm
 DE HM Frässtift Form L, Rundkegelform, Schaft 3 mm
 EN SC Burr model L, ball nose cone, shank 3 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
3	3	3	38	12,7	41.623.0301	15,30	41.623.0303	10,08	41.623.0304	11,11	41.623.0306	10,71				

> 41.628 Phantom

NL HM Stiffrees model L, kegelvorm, met ronde kop, schacht 8 mm
 FR Fraise lime Carbure Forme L, Forme conique à bout arrondi, queue 8 mm
 ES Fresa rotativa MD forma L, forma cónica, con punta redondeada, mango 8 mm
 DE HM Frässtift Form L, Rundkegelform, Schaft 8 mm
 EN SC Burr model L, ball nose cone, shank 8 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
12	12,7	8	77	32							41.628.1286	50,75				
16	16	8	78	33							41.628.1686	84,75				
20	19	8	86	41							41.628.2086	132,00				

> 41.629 Phantom

NL HM Stiffrees model L, kegelvorm, met ronde kop, schacht 6 mm, lang
 FR Fraise lime Carbure Forme L, Forme conique à bout arrondi, queue 6 mm, version longue
 ES Fresa rotativa MD forma L, forma cónica, con punta redondeada, mango 6 mm, larga
 DE HM Frässtift Form L, Rundkegelform, Schaft 6 mm, lang
 EN SC Burr model L, ball nose cone, shank 6 mm, long

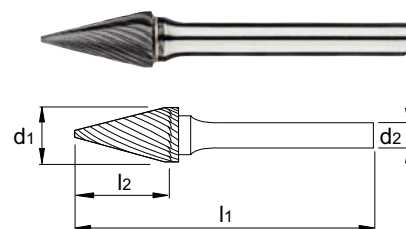


Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
12	12,7	6	178	28					41.629.1214	65,30						



> 41.630 Phantom

NL HM Stiftrees model M, kegelvorm, spits, schacht 6 mm
FR Fraise lime Carbure Forme M, Forme conique à bout pointu, queue 6 mm
ES Fresa rotativa MD forma M, forma cónica, en punta, mango 6 mm
DE HM Frässtift Form M, Spitzkegelform, Schaft 6 mm
EN SC Burr model M, cone, shank 6 mm



1-ALU	3-FINE	4-DIAMOND	6-UNI	8-STEEL	9-INOX
N	P M K S H	P M S	P M K S H	P K	M

Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
6	6	6	50	12,7	41.630.0601	31,60	41.630.0603	23,72			41.630.0606	25,70				
6	6	6	50	19	41.630.0611	33,70	41.630.0613	25,45			41.630.0616	26,40				
6	6	6	50	25	41.630.0621	36,45	41.630.0623	27,20			41.630.0626	30,95				
8	8	6	63	18							41.630.0806	37,25				
10	9,5	6	64	16	41.630.1001	49,60	41.630.1003	36,45			41.630.1006	37,20				
12	12,7	6	70	22	41.630.1201	63,30	41.630.1203	46,80			41.630.1206	47,60				
16	16	6	73	25			41.630.1603	71,55			41.630.1606	73,65				

> 41.633 Phantom

NL HM Stiftrees model M, kegelvorm, spits, schacht 3 mm
FR Fraise lime Carbure Forme M, Forme conique à bout pointu, queue 3 mm
ES Fresa rotativa MD forma M, forma cónica, en punta, mango 3 mm
DE HM Frässtift Form M, Spitzkegelform, Schaft 3 mm
EN SC Burr model M, cone, shank 3 mm



Ø	d1	d2	l1	l2	1-ALU	€	3-FINE	€	4-DIAMOND	€	6-UNI	€	8-STEEL	€	9-INOX	€
3	3	3	38	11	41.633.0301	14,59	41.633.0303	10,08			41.633.0306	10,71				



NL Stijtfrees keuzehulp
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> 42.500 Phantom

NL HSS-E Verzinkboor 90°, schuin gat
FR Fraise à chanfreiner HSS-E 90°, à trou
ES Avellanador para desbarbar HSS-E 90°, con agujero
DE HSS-E Kegelsenker 90°, Querloch
EN HSS-E Countersink 90°, through hole



P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 52 CuAlFe	N 61 PVC
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35-45 C	20-30 D	15-20 C	20-30 C	30-40 D	55-65 I	30-40 F	20-30 E	30-40 D	50-100 I
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Ref.	d1	Min-Max Ø	l1	d2	€
42.500.0500	5	2-5	45	6	23,30
42.500.1000	10	4-9	45	6	23,30
42.500.1500	15	6-14	55	8	29,80
42.500.2000	20	8-18	65	10	46,60
42.500.2500	25	10-23	78	12	64,15

Ref.	d1	Min-Max Ø	l1	d2	€
42.500.2800	28	11-26	86	12	86,20
42.500.3000	30	12-28	88	12	94,90
42.500.3500	35	14-33	116	16	143,75
42.500.4000	40	16-38	132	16	204,25
42.500.5000	50	20-48	136	16	287,00



NL Verzinken keuzehulp
FR Aide à la sélection des fraises à chanfreiner
ES Ayuda para la selección de avellanadores
DE Auswahlhilfe Kegelsenker
EN Countersink selection guide

Read me



www.phantom.eu

> 42.533 INTERNATIONAL TOOLS

NL ECO HSS Verzinkboor 90°, 3 snijkanten
FR Fraise à chanfreiner HSS ECO 90°, 3 taillants
ES Avellanador para desbarbar HSS ECO 90°, 3 labios
DE ECO HSS Kegelsenker 90°, 3 Schneiden
EN ECO HSS Countersink 90°, 3 flute

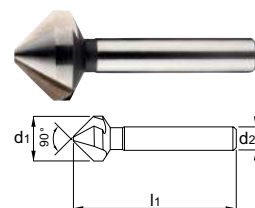


P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu
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17-22 C	10-15 D	15-20 C	20-25 D	35-45 C
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Ref.	d1	Min-Max Ø	l1	d2	€
42.533.0630	6.3	1,5-6,3	45	5	6,18
42.533.0830	8.3	2-8,3	50	6	7,49
42.533.1040	10.4	2,5-10,4	50	6	8,28
42.533.1240	12.4	2,8-12,4	56	8	9,79
42.533.1440	14.4	2,9-14,4	56	8	10,87

Ref.	d1	Min-Max Ø	l1	d2	€
42.533.1650	16.5	3,2-16,5	60	10	12,16
42.533.2050	20.5	3,5-20,5	63	10	15,58
42.533.2500	25	3,8-25	67	10	22,42
42.533.3100	31	4,2-31	71	12	32,80



> 42.535 INTERNATIONAL TOOLS

NL ECO PRO HSS Verzinkboor 90°, 3 snijkanten
FR Fraise à chanfreiner HSS ECO PRO 90°, 3 taillants
ES Avellanador para desbarbar HSS ECO PRO 90°, 3 labios
DE ECO PRO HSS Kegelsenker 90°, 3 Schneiden
EN ECO PRO HSS Countersink 90°, 3 flute

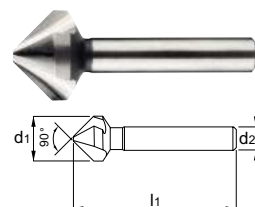


P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu
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15-20 C	8-12 D	6-10 C	10-15 D	15-20 C	30-40 D	20-25 C	15-25 C
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Ref.	d1	Min-Max Ø	l1	d2	€
42.535.0630	6.3	1,5-6,3	45	5	11,33
42.535.0830	8.3	2-8,3	50	6	13,59
42.535.1040	10.4	2,5-10,4	50	6	14,43
42.535.1240	12.4	2,8-12,4	56	8	18,40
42.535.1440	14.4	2,9-14,4	56	10	21,25

Ref.	d1	Min-Max Ø	l1	d2	€
42.535.1650	16.5	3,2-16,5	60	10	22,65
42.535.2050	20.5	3,5-20,5	63	10	26,50
42.535.2500	25	3,8-25	67	10	38,95
42.535.3100	31	4,2-31	71	12	60,60



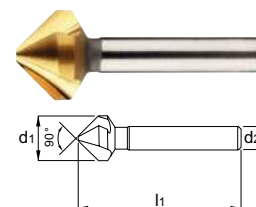
> 42.536 INTERNATIONAL TOOLS

NL ECO PRO HSS Verzinkboor 90°, TiN, 3 snijkanten
 FR Fraise à chanfreiner HSS ECO PRO 90°, TiN, 3 taillants
 ES Avellanador para desbarbar HSS ECO PRO 90°, TiN, 3 labios
 DE ECO PRO HSS Kegelsenker 90°, TiN, 3 Schneiden
 EN ECO PRO HSS Countersink 90°, TiN, 3 flute

HSS	TiN	DIN 335-C	 ³	 ³	90°			ECO PRO
P 11 ≤600 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	M 21 INOX ≤850 N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu
15-20	8-12	6-10	5-10	10-15	15-20	30-40	20-25	15-25

Ref.	d1	Min-Max Ø	l1	d2	€
42.536.0630	6.3	1,5-6,3	45	5	14,27
42.536.0830	8.3	2-8,3	50	6	16,98
42.536.1040	10.4	2,5-10,4	50	6	18,34
42.536.1240	12.4	2,8-12,4	56	8	22,42
42.536.1440	14.4	2,9-14,4	56	10	25,65

Ref.	d1	Min-Max Ø	l1	d2	€
42.536.1650	16.5	3,2-16,5	60	10	27,15
42.536.2050	20.5	3,5-20,5	63	10	34,00
42.536.2500	25	3,8-25	67	10	48,95
42.536.3100	31	4,2-31	71	12	72,20



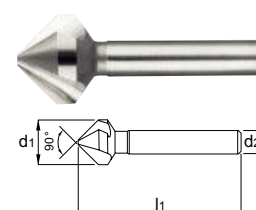
> 42.540 Phantom

NL HSS-E Verzinkboor 90°, 3 snijkanten
 FR Fraise à chanfreiner HSS-E 90°, 3 taillants
 ES Avellanador para desbarbar HSS-E 90°, 3 labios
 DE HSS-E Kegelsenker 90°, 3 Schneiden
 EN HSS-E Countersink 90°, 3 flute

HSS-E	DIN 335-C	 ³	 ³	90°									
P 11 ≤600 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	P 14 ≤1400 N/mm ²	M 21 INOX ≤850N/mm ²	M 22 INOX >850N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 52 CuAlFe	N 61 PVC	
17-22	10-15	8-12	4-8	8-12	6-10	15-20	20-25	35-45	30-40	15-25	20-30	35-70	

Ref.	d1	Min-Max Ø	l1	d2	€
42.540.0430	4.3	1,3-4,3	40	4	18,54
42.540.0530	5.3	1,5-5,3	40	4	19,03
42.540.0630	6.3	1,5-6,3	45	5	19,51
42.540.0730	7.3	1,8-7,3	50	6	19,51
42.540.0830	8.3	2-8,3	50	6	20,01
42.540.0940	9.4	2,2-9,4	50	6	21,25
42.540.1040	10.4	2,5-10,4	50	6	23,13
42.540.1240	12.4	2,8-12,4	56	8	25,35
42.540.1440	14.4	2,9-14,4	56	8	27,85

Ref.	d1	Min-Max Ø	l1	d2	€
42.540.1650	16.5	3,2-16,5	60	10	30,35
42.540.2050	20.5	3,5-20,5	63	10	46,30
42.540.2500	25	3,8-25	67	10	60,80
42.540.2800	28	4-28	71	12	82,95
42.540.3100	31	4-31	71	12	90,30
42.540.3500	35	7-35	107	16	167,80
42.540.4000	40	8-40	111	16	221,80
42.540.5000	50	10-50	120	16	312,00



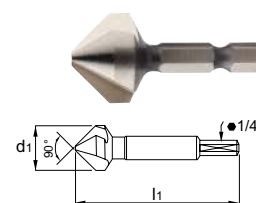
> 42.543 INTERNATIONAL TOOLS

NL ECO HSS Verzinkboor 90°, 3 snijkanten, met 1/4" (6,35 mm)-
 zeskant bitopname
 FR Fraise à chanfreiner HSS ECO 90°, 3 taillants, avec queue
 hexagonale 1/4" (6,35 mm)
 ES Avellanador para desbarbar HSS ECO 90°, 3 labios, con sujeción
 1/4" (6,35 mm) bit
 DE ECO HSS Kegelsenker 90°, 3 Schneiden, mit 1/4" (6,35 mm)
 Hexa-Bitauaufnahme
 EN ECO HSS Countersink 90°, 3 flute, with hexagonal shank 1/4"
 (6,35 mm)

HSS			90°				ECO
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu
15-20	8-12	6-10	10-15	15-20	30-40	20-25	15-25

Ref.	d1	Min-Max Ø	l1	€
42.543.0630	6.3	1,5-6,3	50	6,81
42.543.0830	8.3	2-8,3	50	8,16
42.543.1040	10.4	2,5-10,4	50	9,52

Ref.	d1	Min-Max Ø	l1	€
42.543.1240	12.4	2,8-12,4	50	11,55
42.543.1650	16.5	3,2-16,5	50	14,95
42.543.2050	20.5	3,5-20,5	50	18,34



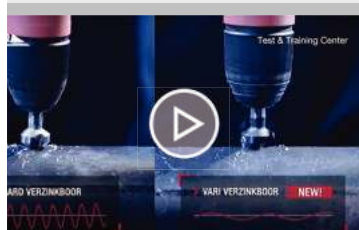
> 42.553 Phantom

NL HSS-E Vari Verzinkboor 90°, 3 snijkanten
 FR Fraise à chanfreiner Vari HSS-E 90°, 3 taillants
 ES Avellanador Vari HSS-E 90°, 3 labios
 DE HSS-E Kegelsenker ungleichteilung 90°, 3 Schneiden
 EN HSS-E Vari Countersink 90°, 3 flute



P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤850 N/mm²	M 22 INOX >850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 52 CuAlFe	N 61 PVC
17-22 C	10-15 C	8-12 B	4-8 A	8-12 B	6-10 A	15-20 C	20-25 C	35-45 D	30-40 C	15-25 D	20-30 C	35-70 I

Ref.	d1	Min-Max Ø	l1	d2	€	Ref.	d1	Min-Max Ø	l1	d2	€
42.553.0430	4.3	1,3-4,3	40	4	21,17	42.553.1240	12.4	2,8-12,4	56	8	25,85
42.553.0600	6	1,5-6	45	5	22,34	42.553.1500	15	3,2-15	60	10	30,60
42.553.0630	6.3	1,5-6,3	45	5	22,34	42.553.1650	16.5	3,2-16,5	60	10	30,60
42.553.0800	8	2-8	50	6	23,52	42.553.1900	19	3,5-19	63	10	40,00
42.553.0830	8.3	2-8,3	50	6	23,52	42.553.2050	20.5	3,5-20,5	63	10	41,15
42.553.1000	10	2,5-10	50	6	23,52	42.553.2300	23	3,8-23	67	10	50,55
42.553.1040	10.4	2,5-10,4	50	6	23,52	42.553.2500	25	3,8-25	67	10	50,55
42.553.1150	11.5	2,8-11,5	50	8	25,85	42.553.3100	31	6-31	71	12	77,60



NL Vari verzinkboren in actie
 FR Il n'y pas de limites avec notre nouvelle génération de fraise à chanfreiner
 ES Los avellanadores Vari en acción
 DE Vari-Kegelsenker in Aktion
 EN Vari-countersinks in action

**> 42.554 Phantom**

NL HSS-E Vari Verzinkboor 90°, 3 snijkanten, TiAlN
 FR Fraise à chanfreiner Vari HSS-E 90°, 3 taillants, TiAlN
 ES Avellanador Vari HSS-E 90°, 3 labios, TiAlN
 DE HSS-E Kegelsenker ungleichteilung 90°, 3 Schneiden, TiAlN
 EN HSS-E Vari Countersink 90°, 3 flute, TiAlN



P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤850 N/mm²	M 22 INOX >850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 52 CuAlFe	N 61 PVC	S 72 Ti
35-45 C	20-30 C	16-20 B	8-15 A	12-15 B	8-12 A	20-30 C	30-40 C	50-60 D	35-40 C	20-30 D	30-40 C	35-70 I	4-8 A

Ref.	d1	Min-Max Ø	l1	d2	€	Ref.	d1	Min-Max Ø	l1	d2	€
42.554.0430	4.3	1,3-4,3	40	4	24,70	42.554.1240	12.4	2,8-12,4	56	8	37,90
42.554.0600	6	1,5-6	45	5	25,85	42.554.1500	15	3,2-15	60	10	42,80
42.554.0630	6.3	1,5-6,3	45	5	25,85	42.554.1650	16.5	3,2-16,5	60	10	42,80
42.554.0800	8	2-8	50	6	29,40	42.554.1900	19	3,5-19	63	10	53,80
42.554.0830	8.3	2-8,3	50	6	29,40	42.554.2050	20.5	3,5-20,5	63	10	55,55
42.554.1000	10	2,5-10	50	6	30,60	42.554.2300	23	3,8-23	67	10	67,30
42.554.1040	10.4	2,5-10,4	50	6	30,60	42.554.2500	25	3,8-25	67	10	67,95
42.554.1150	11.5	2,8-11,5	50	8	37,90	42.554.3100	31	6-31	71	12	107,65

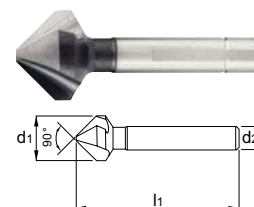


NL Dwaarsgat- eensnijder- en driesnijderverzinker
 FR Différences entre une fraise à chanfreiner à trou, une fraise à chanfreiner à 1 dent et une fraise à chanfreiner à 3 dents
 ES Avellanador con agujero, 1 labio o 3 labios
 DE Querlochsinker, Einschnidersenker, Dreischneidersenker
 EN Hole, single flute, 3 flute countersinker



> 42.556 Phantom

- NL HSS-E Vari Verzinkboor 90°, 3 snijkanten, TiAlN, met drievlaks schacht
 FR Fraise à chanfreiner Vari HSS-E 90°, 3 taillants, TiAlN, à 3 méplats
 ES Avellanador Vari HSS-E 90°, 3 labios, TiAlN, con 3 chaffanes
 DE HSS-E Kegelsenker ungleichteilung 90°, 3 Schneiden, TiAlN, mit drei platten Flächen
 EN HSS-E Vari Countersink 90°, 3 flute, TiAlN, with 3 flat surfaces

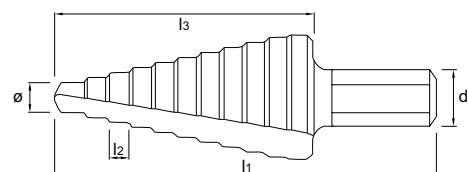


HSS-E	TiAlN	DIN 335-C	 ³	 ³	90°				 VARI				
P 11 ≤500 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤850N/mm²	M 22 INOX >850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 52 CuAlFe	N 61 PVC	S 72 Ti
35-45	20-30	16-20	8-15	12-15	8-12	20-30	30-40	50-60	35-40	20-30	30-40	35-70	4-8

Ref.	d1	Min-Max Ø	l1	d2	€	Ref.	d1	Min-Max Ø	l1	d2	€
42.556.0430	4.3	1,3-4,3	40	4	28,20	42.556.1240	12.4	2,8-12,4	56	8	40,00
42.556.0600	6	1,5-6	45	5	29,40	42.556.1500	15	3,2-15	60	10	46,50
42.556.0630	6.3	1,5-6,3	45	5	29,40	42.556.1650	16.5	3,2-16,5	60	10	46,95
42.556.0800	8	2-8	50	6	32,95	42.556.1900	19	3,5-19	63	10	57,45
42.556.0830	8.3	2-8,3	50	6	32,95	42.556.2050	20.5	3,5-20,5	63	10	59,25
42.556.1000	10	2,5-10	50	6	34,25	42.556.2300	23	3,8-23	67	10	70,95
42.556.1040	10.4	2,5-10,4	50	6	34,25	42.556.2500	25	3,8-25	67	10	72,30
42.556.1150	11.5	2,8-11,5	50	8	40,00	42.556.3100	31	6-31	71	12	113,40

> 44.100 Phantom

- NL HSS Getrapte Plaatboor stoomontlaten
 FR Foret étagé HSS vaporisé
 ES Broca escalonada HSS vaporizada
 DE HSS Stufenbohrer dampfangelassen
 EN HSS multi diameter Step Drill steam oxide

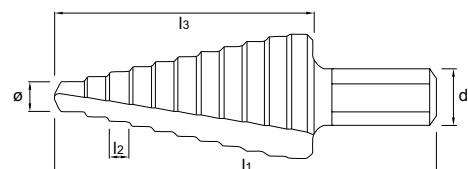


Z=2	HSS	OX.			 118°	 max. 4 mm		
P 11 ≤500 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27	22-30	15-20	8-12	15-20	25-30	45-50	25-40	22-28

Ref.	xØ	Ø mm	l1	l2	d2	l3	€
44.100.0100	9	4-5-6-7-8-9-10-11-12	64	4	10	39	55,10
44.100.0200	11	6-8-10-12-14-16-18-20-22-24-25	77	4	12	52	82,90
44.100.0300	7	6-8-10-12-14-16-18	59	4	10	34	70,90
44.100.0400	14	8-10-12-14-16-18-20-22-24-26-28-30-32-34	92	4	12	67	155,00

> 44.102 Phantom

- NL HSS Getrapte Plaatboor genitreerd
 FR Foret étagé HSS nitruré
 ES Broca escalonada HSS nitrurada
 DE HSS Stufenbohrer nitriert
 EN HSS multi diameter Step Drill nitrided



Z=2	HSS	NIT.						
P 11 5000 N/mm²	P 12 s850 N/mm²	P 13 s1000 N/mm²	M 21 INOX s850N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27	22-30	15-20	8-12	15-20	25-30	45-50	25-40	22-28

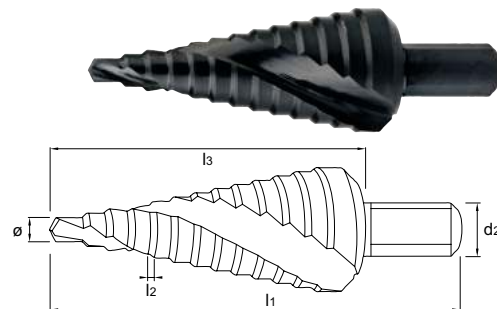
Ref.	xØ	Ø mm	l1	l2	d2	l3	€
44.102.0412	5	4-6-8-10-12	65	4	10	43	25,20
44.102.0420	9	4-6-8-10-12-14-16-18-20	69	4	12	44	54,15
44.102.0630	13	6-8-10-12-14-16-18-20-22-24-26-28-30	88	4	13	65	65,10
44.102.0638	12	6-9-13-16-19-21-23-26-29-32-35-38	87	4	13	63	89,75

> 44.130 Phantom

NL HSS Getrapte Plaatboor gespiraliseerd, genitreerd
 FR Foret étagé HSS goujure hélicoïdale, nitruré
 ES Broca escalonada HSS helicoidal, nitrurada
 DE HSS Stufenbohrer spiralförmig, nitriert
 EN HSS multi diameter Step Drill with spiral flute, nitrided

Z=2	HSS	NIT.			 118°	 max. 4 mm			
P 11 ≤800 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	M 21 INOX ≤850 N/mm ²	M 22 INOX >850 N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27	22-30	15-20	8-12	5-8	15-20	25-30	45-50	25-40	22-28

Ref.	xØ	Ø mm	l1	l2	d2	l3	€
44.130.0100	5	4-6-8-10-12	65	4	8	43	27,80
44.130.0200	9	4-6-8-10-12-14-16-18-20	75	4	10	53	42,70
44.130.0300	13	6-8-10-12-14-16-18-20-22-24-26-28-30	98	4	13	74	73,55

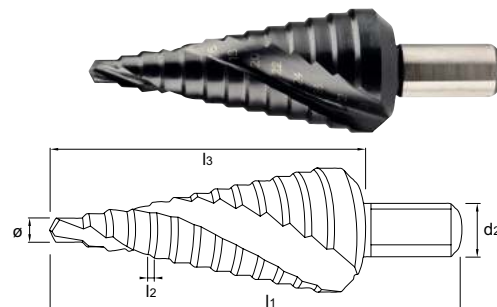


> 44.134 Phantom

NL HSS Getrapte Plaatboor gespiraliseerd, TiAlN
 FR Foret étagé HSS goujure hélicoïdale, TiAlN
 ES Broca escalonada HSS helicoidal, TiAlN
 DE HSS Stufenbohrer spiralförmig, TiAlN
 EN HSS multi diameter Step Drill with spiral flute, TiAlN

Z=2	HSS	TiAlN							
P 11 ≤800 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	M 21 INOX ≤850 N/mm ²	M 22 INOX >850 N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25-27	22-30	15-20	8-12	5-8	15-20	25-30	45-50	25-40	22-28

Ref.	xØ	Ø mm	l1	l2	d2	l3	€
44.134.0100	5	4-6-8-10-12	65	4	8	43	47,45
44.134.0200	9	4-6-8-10-12-14-16-18-20	75	4	10	53	66,00
44.134.0300	13	6-8-10-12-14-16-18-20-22-24-26-28-30	98	4	13	74	106,75



NL Trapboor vs spiraalboor
 FR Foret étagé versus foret standard cylindrique
 ES Broca escalonada o Broca cilíndrica
 DE Stufenbohrer vs Spiralbohrer
 EN Step drill vs twist drill

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> 44.200 Phantom

NL HSS Conische Plaatboor
 FR Foret conique HSS
 ES Fresa cónica HSS
 DE HSS konische Blechschälbohrer
 EN HSS Taper Sheet and Tube Drill

Z=2

HSS

P 11
≤600 N/mm²P 12
≤850 N/mm²N 41
AluN 42
Alu
Si>10%N 61
PVC

25-27

22-30

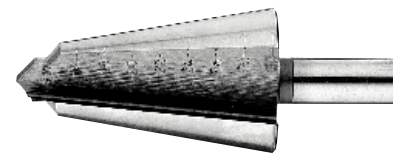
50-70

40-60

22-28

Ref.	Min-Max Ø	l1	d2	€
44.200.0100	3-14	62	6	29,85
44.200.0200	6-20	70	8	34,65
44.200.0300	16-30	75	10	65,05
44.200.0400	26-40	78	12	134,40

Ref.	Min-Max Ø	l1	d2	€
44.200.0500	36-50	78	12	209,35
44.200.0600	46-60	78	13	380,00
44.200.0700	6-30	95	10	76,55
44.200.0800	6-25,4	84	8	62,70



> 46.100 SHAVIV

NL Handgrepen en Onderdelen
FR Manches et accessoires
ES Mangos y Accesorios
DE Handgriffe und Einzelteile
EN Handles and Accessories

Ref.	Type	€	Ref.	Type	€
46.100.0010	Mango II B, C, D, E, F, Burr-Bi, M	10,84	46.100.1200	ALU B, C, D, E, F, Burr-Bi, M	18,69
46.100.1000	Classic A B, C, D, E, F, Burr-Bi, M	10,37	46.100.1300	Set HC Ø 1,0 - 8,0 mm, C55	46,60

> 46.120 SHAVIV

NL Handontbramer en mesjes type B
FR Ebavureur et lames type B
ES Desbarbador y cuchillas tipo B
DE Handentgrater und Klingen Typ B
EN Handle and blades type B

Ref.	Type					P	H	M	K	N	
46.120.0250	Mango II, B, B10, B20										28,00
46.120.0255	Mango II, B, B10, B20										16,94
46.120.0260	Mango II, B, 10x B10										37,25
46.120.0265	Mango II, B, 10x B10										24,29
46.120.0500	UB2000										21,87
46.120.1001	B										2,98
46.120.1002	B										12,96
46.120.2100	B10					P				N	2,36
46.120.2101	B10P				TiN	P		M		N	3,80
46.120.2102	B10C				VHM SC		H			N	13,09
46.120.2109	B10L					P				N	2,62
46.120.2110	B11					P				N	2,72
46.120.2120	B12					P				N	2,36
46.120.2121	B12P				TiN	P		M		N	3,90
46.120.2200	B20								K	N	2,36
46.120.2201	B20P				TiN				K	N	3,90
46.120.2250	B25					P				N	2,36
46.120.2252	B25C				VHM SC	P				N	13,09
46.120.2300	B30					P				N	3,29
46.120.2301	B30P					P		M		N	5,19
46.120.2320	B32								K	N	3,29
46.120.2500	B50					P	H	M	K	N	9,09
46.120.2600	B60					P				N	5,08
46.120.2700	B70					P	H	M	K	N	11,96



> 46.300 SHAVIV

NL Handontbramer en mesjes type E
FR Ebavureur et lames type E
ES Desbarbador y cuchillas tipo E
DE Handentgrater und Klingen Typ E
EN Handle and blades type

Ref.	Type						P	H	M	K	N	€
46.300.0250	Mango II, E, E100, E200, E300											32,30
46.300.0255	Mango IIE, E100, E200, E300											21,10
46.300.0260	Mango II, E, 10x E100											43,05
46.300.0265	Mango II, E, 10x E100											30,10
46.300.1000	SHAVIV 1, E100, E200, E300											25,90
46.300.1100	SHAVIV 1 (A)											15,71
46.300.1500	MB2000											18,69
46.300.2001	E											3,13
46.300.2002	E											12,96
46.300.2100	E100						P				N	2,82
46.300.2101	E100P					TiN	P		M		N	4,72
46.300.2102	E100C					VHM SC		H			N	15,25
46.300.2104	E100S						P		M		N	3,03
46.300.2109	E100L						P				N	2,93
46.300.2110	E110						P				N	2,93
46.300.2111	E110P					TiN	P		M		N	4,93
46.300.2150	E111						P				N	2,93
46.300.2200	E200									K	N	2,82
46.300.2201	E200P					TiN				K	N	4,72
46.300.2250	E250						P				N	2,82
46.300.2300	E300						P				N	3,29
46.300.2320	E320									K	N	3,29
46.300.2350	E350									K	N	2,82
46.300.2600	E600						P				N	5,13
46.300.2601	E601						P				N	6,52
46.300.2720	E720						P				N	3,59

> 49.140 INTERNATIONAL TOOLS

NL ECO PRO HM Set Stiffrezen
FR Jeu de Fraises limes Carbone ECO PRO
ES Juego de fresa rotativa MD ECO PRO
DE ECO PRO HM Satz Frässtifte
EN ECO PRO SC Set Burr



Ref.	Ø	z	Contents	€
49.140.0106	10	6-UNI	Form B, C, D, F, G	97,25

Ref.	Ø	z	Contents	€
49.140.0126	12	6-UNI	Form B, C, D, F, G	142,50



> 49.150 Phantom

NL HM set Stiffrezen
FR Jeu de Fraises limes Carbone
ES Juego de fresa rotativa MD
DE HM Satz Frässtifte
EN SC set Burr



Ref.	Ø	z	Contents	€
49.150.0101	10	1-ALU	Form B, C, D, F, G	195,20
49.150.0103	10	3-FINE	Form B, C, D, F, G	172,00
49.150.0104	10	4-DIAMOND	Form B, C, D, F, G	178,90
49.150.0106	10	6-UNI	Form B, C, D, F, G	161,80

Ref.	Ø	z	Contents	€
49.150.0108	10	8-STEEL	Form B, C, D, F, G	152,90
49.150.0109	10	9-INOX	Form A, C, D, F, G	159,60
49.150.0126	12	6-UNI	Form B, C, D, F, G	234,00



> 49.240 INTERNATIONAL TOOLS

NL ECO HSS Set Verzinkboren 42.533, 90°, 3 snijkanten
FR Jeu de fraises à ébavurer HSS ECO 42.533, 90°, 3 taillants
ES Juego de avellanadores HSS ECO 42.533, 90°, 3 labios
DE ECO HSS Satz Kegelsenker 42.533, 90°, 3 Schneiden
EN ECO HSS Countersink set 42.533, 90°, 3 flute



P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu
17-22	10-15	15-20	20-25	35-45

Ref.	Type	Ø mm	€
49.240.0630	42.533	6,3-8,3-10,4-12,4-16,5-20,5 mm	63,70

Ref.	Type	Ø mm	€
49.240.0631	42.533	6,3-8,3-10,4-12,4-16,5-20,5-25 mm	81,00



> 49.242 INTERNATIONAL TOOLS

NL ECO PRO HSS Set Verzinkboren 42.535, 90°, 3 snijkanten
FR Jeu de fraises à ébavurer HSS ECO PRO 42.535, 90°, 3 taillants
ES Juego de avellanadores HSS ECO PRO 42.535, 90°, 3 labios
DE ECO PRO HSS Satz Kegelsenker 42.535, 90°, 3 Schneiden
EN ECO PRO HSS Countersink set 42.535, 90°, 3 flute



P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu
15-20	8-12	6-10	10-15	15-20	30-40	20-25	15-25

Ref.	Type	Ø mm	€
49.242.0630	42.535	6,3-8,3-10,4-12,4-16,5-20,5 mm	119,15

Ref.	Type	Ø mm	€



> 49.244 INTERNATIONAL TOOLS

NL ECO PRO HSS Set Verzinkboren 42.536, 90°, 3 snijkanten, TiN
 FR Jeu de fraises à ébavurer HSS ECO PRO 42.536, 90°, 3 taillants, TiN
 ES Juego de avellanadores HSS ECO PRO 42.536, 90°, 3 labios, TiN
 DE ECO PRO HSS Satz Kegelsenker 42.536, 90°, 3 Schneiden, TiN
 EN ECO PRO HSS Countersink set 42.536, 90°, 3 flute, TiN



HSS	TiN	DIN 335-C	 3	 3	90°			ECO PRO
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	M 21 INOX ≤850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu
15-20	8-12	6-10	5-10	10-15	15-20	30-40	20-25	15-25

Ref.	Type	Ø mm	€
49.244.0630	42.536	6,3-8,3-10,4-12,4-16,5-20,5 mm	133,00

Ref.	Type	Ø mm	€

> 49.248 INTERNATIONAL TOOLS

NL ECO HSS set Verzinkboren 42.543, 90°, 3 snijkanten, met 1/4" (6,35 mm)-zeskant bitopname
 FR Jeu de fraises à ébavurer HSS ECO 42.543, 90°, 3 taillants, avec queue hexagonale 1/4" (6,35 mm)
 ES Juego de avellanadores HSS ECO 42.543, 90°, 3 labios, con sujeción 1/4" (6,35 mm) bit
 DE ECO HSS Satz Kegelsenker 42.543, 90°, 3 Schneiden, mit 1/4" (6,35 mm) Hexa-Bitaufnahme
 EN ECO HSS Countersink set 42.543, 90°, 3 flute, with hexagonal shank 1/4" (6,35 mm)



HSS		90°				ECO	
P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu
15-20	8-12	6-10	10-15	15-20	30-40	20-25	15-25

Ref.	Type	Ø mm	€
49.248.0630	42.543	6,3-8,3-10,4-12,4-16,5-20,5 mm	68,45

Ref.	Type	Ø mm	€

> 49.254 Phantom

NL HSS-E Set Verzinkboren 42.540, 90°, 3 snijkanten
 FR Jeu de fraises à ébavurer HSS-E 42.540, 90°, 3 taillants
 ES Juego de avellanadores HSS-E 42.540, 90°, 3 labios
 DE HSS-E Satz Kegelsenker 42.540, 90°, 3 Schneiden
 EN HSS-E Countersink set 42.540, 90°, 3 flute



HSS-E	DIN 335-C	 ³	 ³	90°								
P 11 ≤600 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	P 14 ≤1400 N/mm ²	M 21 INOX ≤850N/mm ²	M 22 INOX >850N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 52 CuAlFe	N 61 PVC
17-22 C	10-15 C	8-12 B	4-8 A	8-12 B	6-10 A	15-20 C	20-25 C	35-45 D	30-40 C	15-25 D	20-30 C	35-70 I

Ref.	Type	Ø mm	€
49.254.0630	42.540	6,3-8,3-10,4-12,4-16,5-20,5 mm	164,35
49.254.0631	42.540	6,3-10,4-16,5-20,5-25 mm	186,20

Ref.	Type	Ø mm	€
49.254.1040	42.540	10,4-16,5-20,5-25-31 mm	250,00

> 49.259 Phantom

NL HSS-E Set Vari Verzinkboren 42.553, 90°, 3 snijkanten
 FR Jeu de fraises à chanfreiner Vari HSS-E 42.553, 90°, 3 taillants
 ES Juego de avellanadores Vari HSS-E 42.553, 90°, 3 labios
 DE HSS-E Satz Kegelsenker ungleichteilung 42.553, 90°, 3 Schneiden
 EN HSS-E Vari Countersink set 42.553, 90°, 3 flute



HSS-E	DIN 335-C	 ³	 ³	90°								
P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 41	N 42	N 51	N 52	N 61
≤800 N/mm²	≤850 N/mm²	≤1000 N/mm²	≤1400 N/mm²	INOX ≤850N/mm²	INOX >850N/mm²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	CuAlFe	PVC
17-22	10-15	8-12	4-8	8-12	6-10	15-20	20-25	35-45	30-40	15-25	20-30	35-70

Ref.	Type	Ø mm	€
49.259.0620	42.553	6,3-8,3-10,4-12,4-16,5-20,5 mm	175,00
49.259.0625	42.553	6,3-8,3-10,4-12,4-16,5-20,5-25 mm	226,00

Ref.	Type	Ø mm	€
49.259.1020	42.553	10,4-12,4-16,5-20,5 mm	129,00
49.259.1025	42.553	10,4-12,4-16,5-20,5-25 mm	180,00

> 49.260 Phantom

NL HSS-E Set Vari Verzinkboren 42.554, 90°, 3 snijkanten, TiAIN
 FR Jeu de fraises à chanfreiner Vari HSS-E 42.554, 90°, 3 taillants, TiAIN
 ES Juego de avellanadores Vari HSS-E 42.554, 90°, 3 labios, TiAIN
 DE HSS-E Satz Kegelsenker ungleichteilung 42.554, 90°, 3 Schneiden, TiAIN
 EN HSS-E Vari Countersink set 42.554, 90°, 3 flute, TiAIN



HSS-E	TiAIN	DIN 335-C			90°								
P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 41	N 42	N 51	N 52	N 61	S 72
≤800 N/mm²	≤850 N/mm²	≤1000 N/mm²	≤1400 N/mm²	INOX ≤850N/mm²	INOX >850N/mm²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	CuAlFe	PVC	Ti
35-45	20-30	16-20	8-15	12-15	8-12	20-30	30-40	50-60	35-40	20-30	30-40	35-70	4-8

Ref.	Type	Ø mm	€
49.260.0620	42.554	6,3-8,3-10,4-12,4-16,5-20,5 mm	230,00
49.260.0625	42.554	6,3-8,3-10,4-12,4-16,5-20,5-25 mm	298,00

Ref.	Type	Ø mm	€
49.260.1020	42.554	10,4-12,4-16,5-20,5 mm	175,00
49.260.1025	42.554	10,4-12,4-16,5-20,5-25 mm	243,00

> 49.262 Phantom

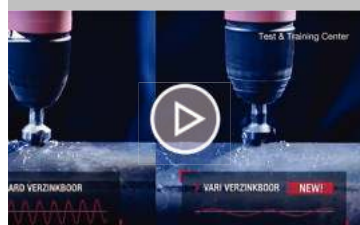
NL HSS-E Set Vari Verzinkboren 42.556, 90°, 3 snijkanten, TiAIN, met drievlaks schacht
 FR Jeu de fraises à chanfreiner Vari HSS-E 42.556, 90°, 3 taillants, TiAIN, à 3 méplats
 ES Juego de avellanadores Vari HSS-E 42.556, 90°, 3 labios, TiAIN, con 3 chaflanes
 DE HSS-E Satz Kegelsenker ungleichteilung 42.556, 90°, 3 Schneiden, TiAIN, mit drei platten Flächen
 EN HSS-E Vari Countersink set 42.556, 90°, 3 flute, TiAIN, with 3 flat surfaces



HSS-E	TiAlN	DIN 335-C			90°								
P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 41	N 42	N 51	N 52	N 61	S 72
≤800 N/mm²	≤850 N/mm²	≤1000 N/mm²	≤1400 N/mm²	INOX ≤850N/mm²	INOX >850N/mm²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	CuAlFe	PVC	Ti
35-45	20-30	16-20	8-15	12-15	8-12	20-30	30-40	50-60	35-40	20-30	30-40	35-70	4-8

Ref.	Type	Ø mm	€
49.262.0620	42.556	6,3-8,3-10,4-12,4-16,5-20,5 mm	251,00
49.262.0625	42.556	6,3-8,3-10,4-12,4-16,5-20,5-25 mm	323,00

Ref.	Type	Ø mm	€
49.262.1020	42.556	10,4-12,4-16,5-20,5 mm	189,00
49.262.1025	42.556	10,4-12,4-16,5-20,5-25 mm	261,00



NL Vari verzinkboren in actie
 FR Il n'y pas de limites avec notre nouvelle génération de fraise à chanfreiner
 ES Los avellanadores Vari en acción
 DE Vari-Kegelsenker in Aktion
 EN Vari-countersinks in action

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> 49.413 Phantom

NL HSS Set Getrapte Plaatboren gespiraliseerd, 44.130, genitreerd
 FR Jeu de forets étagé HSS goujure hélicoïdale, 44.130, nitruré
 ES Juego de brocas escalonada HSS helicoidal, 44.130, nitrurada
 DE HSS Satz Stufenbohrer spiralförmig, 44.130, nitriert
 EN HSS Set multi diameter Step Drills with spiral flute, 44.130, nitrided



HSS	NIT.	
P 11 ≤600 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²
M 21 INOX ≤850N/mm ²	M 22 INOX >850N/mm ²	K 31 GG
		K 32 GGG GTS-GTW
		N 42 Alu Si>10%
		N 51 Cu
		N 61 PVC
25-27	22-30	15-20
8-12	5-8	15-20
25-30	45-50	25-40
22-28		
Ref.	Ø mm	€
49.413.1000	4-12 mm, 4-20 mm, 6-30 mm	156,00

Ref.	Ø mm	€

> 49.414 Phantom

NL HSS Set Getrapte Plaatboren gespiraliseerd, 44.134, TiAIN
 FR Jeu de forets étagé HSS goujure hélicoïdale, 44.134, TiAIN
 ES Juego de brocas escalonada HSS helicoidal, 44.134, TiAIN
 DE HSS Satz Stufenbohrer spiralförmig, 44.134, TiAIN
 EN HSS Set multi diameter Step Drills with spiral flute, 44.134, TiAIN



HSS	TiAIN	
P 11 ≤600 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²
M 21 INOX ≤850N/mm ²	M 22 INOX >850N/mm ²	K 31 GG
		K 32 GGG GTS-GTW
		N 42 Alu Si>10%
		N 51 Cu
		N 61 PVC
25-27	22-30	15-20
8-12	5-8	15-20
25-30	45-50	25-40
22-28		
Ref.	Ø mm	€
49.414.1000	4-12 mm, 4-20 mm, 6-30 mm	220,00

Ref.	Ø mm	€

> 51.110 Phantom

NL HSS Handruimer H7
FR Alésoir à main HSS H7
ES Escariador mano HSS H7
DE HSS Handreibahle H7
EN HSS Hand Reamer H7

HSS

DIN
206-B

H7



P 11

≤600 N/mm²

P 12

≤850 N/mm²

P 13

≤1000 N/mm²

K 31

GG

K 32

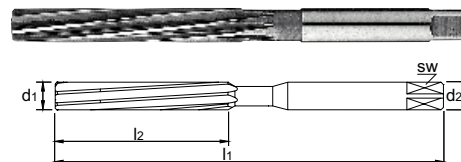
GGG
GTS-GTW

N 41

Alu

N 51

Cu



Ref.	d1	l1	l2	d2	sw	€
51.110.0200	2	50	25	2	1.6	43,75
51.110.0250	2.5	58	29	2.5	2	41,45
51.110.0300	3	62	31	3	2.24	19,32
51.110.0350	3.5	71	35	3.5	2.8	19,32
51.110.0400	4	76	38	4	3.15	17,77
51.110.0450	4.5	81	41	4.5	3.55	19,32
51.110.0500	5	87	44	5	4	19,13
51.110.0550	5.5	93	47	5.5	4.5	20,98
51.110.0600	6	93	47	6	4.5	20,61
51.110.0650	6.5	100	50	6.5	5	21,82
51.110.0700	7	107	54	7	5.6	23,18
51.110.0750	7.5	115	58	7.5	6.3	23,67
51.110.0800	8	115	58	8	6.3	25,20
51.110.0850	8.5	124	62	8.5	7.1	26,20
51.110.0900	9	124	62	9	7.1	27,65
51.110.0950	9.5	133	66	9.5	8	32,95
51.110.1000	10	133	66	10	8	30,70
51.110.1100	11	142	71	11	9	40,35

Ref.	d1	l1	l2	d2	sw	€
51.110.1200	12	152	76	12	10	44,45
51.110.1300	13	152	76	13	10	48,20
51.110.1400	14	163	81	14	11.2	54,05
51.110.1500	15	163	81	15	11.2	59,15
51.110.1600	16	175	87	16	12.5	66,50
51.110.1700	17	175	87	17	12.5	67,65
51.110.1800	18	188	93	18	14	68,45
51.110.1900	19	188	93	19	14	71,90
51.110.2000	20	201	100	20	16	84,70
51.110.2100	21	201	100	21	16	85,20
51.110.2200	22	215	107	22	18	94,80
51.110.2300	23	215	107	23	18	100,75
51.110.2400	24	231	115	24	20	116,85
51.110.2500	25	231	115	25	20	117,30
51.110.2600	26	231	115	26	20	128,35
51.110.2700	27	247	124	27	22.4	137,85
51.110.2800	28	247	124	28	22.4	152,90
51.110.2900	29	247	124	29	22.4	322,00

Ref.	d1	l1	l2	d2	sw	€
51.110.3000	30	247	124	30	22.4	167,85
51.110.3100	31	265	133	31	25	357,00
51.110.3200	32	265	133	32	25	196,90
51.110.3300	33	265	133	33	25	386,00
51.110.3400	34	284	142	34	28	227,90
51.110.3500	35	284	142	35	28	259,00
51.110.3600	36	284	142	36	28	249,55
51.110.3700	37	284	142	37	28	438,00
51.110.3800	38	305	152	38	31.5	290,00
51.110.3900	39	305	152	39	31.5	465,00
51.110.4000	40	305	152	40	31.5	316,00
51.110.4200	42	305	152	42	31.5	334,00
51.110.4400	44	326	163	44	35.5	388,00
51.110.4500	45	326	163	45	35.5	419,00
51.110.4600	46	326	163	46	35.5	572,00
51.110.4800	48	347	174	48	40	628,00
51.110.5000	50	347	174	50	40	516,00

> 51.320 Phantom

NL HSS-E Machineruimer H7
FR Alésoir machine HSS-E H7
ES Escariador máquina HSS-E H7
DE HSS-E Maschinenreibahlen H7
EN HSS-E Machine Chucking Reamer H7

HSS-E

DIN
212 B/D

h8

H7

P 11

≤600 N/mm²

P 12

≤850 N/mm²

P 13

≤1000 N/mm²

P 14

≤1400 N/mm²

M 21

INOX
≤850N/mm²

M 22

INOX
>850N/mm²

K 31

GG

K 32

GGG
GTS-GTW

N 41

Alu

N 42

Alu
Si>10%

N 51

Cu

S 71

Ni/Co

S 72

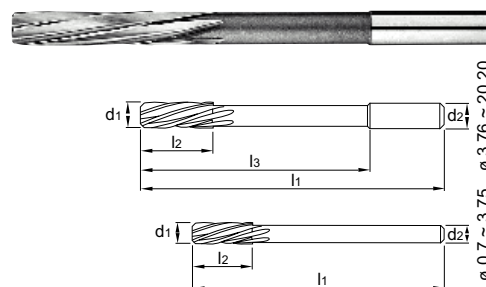
Ti

15-22
E12-17
D7-10
C5-7
B4-6
A3-5
A4-5
C6-15
D25-35
G20-30
G12-17
D2-3
A2-3
A

Ref.	d1	l1	l2	l3	d2	€
51.320.0100	1	38	5		1	33,10
51.320.0150	1.5	40	8		1.5	31,70
51.320.0200	2	49	11		2	29,55
51.320.0250	2.5	57	14		2.5	29,70
51.320.0300	3	61	15		3	29,70
51.320.0350	3.5	70	18		3.5	29,70
51.320.0400	4	75	19	47	4	33,05
51.320.0450	4.5	80	21	52	4.5	33,05
51.320.0500	5	86	23	58	5	34,25
51.320.0550	5.5	93	26	58	5.6	35,45

Ref.	d1	l1	l2	l3	d2	€
51.320.0600	6	93	26	58	5.6	35,45
51.320.0650	6.5	101	28	65	6.3	38,20
51.320.0700	7	109	31	73	7.1	38,20
51.320.0750	7.5	109	31	73	7.1	38,20
51.320.0800	8	117	33	81	8	38,20
51.320.0850	8.5	117	33	81	8	44,75
51.320.0900	9	125	36	85	9	44,75
51.320.0950	9.5	125	36	85	9	44,75
51.320.1000	10	133	38	93	10	44,75
51.320.1050	10.5	133	38	93	10	57,65

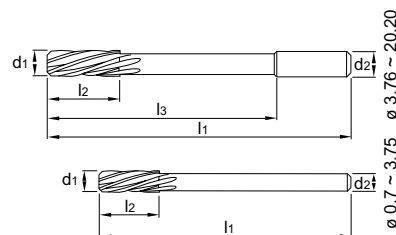
Ref.	d1	l1	l2	l3	d2	€
51.320.1100	11	142	41	102	10	57,65
51.320.1150	11.5	142	41	102	10	63,90
51.320.1200	12	151	44	111	10	63,90
51.320.1250	12.5	151	44	111	10	75,95
51.320.1300	13	151	44	111	10	75,95
51.320.1350	13.5	160	47	115	12.5	86,35
51.320.1400	14	160	47	117	12.5	86,35
51.320.1450	14.5	162	50	117	12.5	104,15
51.320.1500	15	162	50	117	12.5	104,15
51.320.1600	16	170	52	125	12.5	106,75





> 51.350 Phantom

NL HSS-E Precisie Machineruimer x 0,01 mm
FR Alésoir machine de précision HSS-E x 0,01 mm
ES Escariador máquina de precisión HSS-E x 0,01 mm
DE HSS-E Präzisions Maschinenreibahlen x 0,01 mm
EN HSS-E Precision Machine Reamer x 0,01 mm



HSS-E	DIN 212 B/D	h8	x0,01	≤ø3 -0,000 +0,003	≤ø6 -0,000 +0,004	>ø6 -0,000 +0,005
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P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤850 N/mm²	M 22 INOX >850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	S 71 Ni/Co	S 72 Ti
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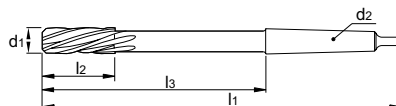
15-22 E	12-17 D	7-10 C	5-7 B	4-6 A	3-5 A	4-5 C	6-15 D	25-35 G	20-30 G	12-17 D	2-3 A	2-3 A
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Ref.	d1	l1	l2	l3	z	d2	€
51.350.0070-51.350.0079	0.7-0.79	33	5		4	0.7-0.79	57,65
51.350.0080-51.350.0089	0.8-0.89	38	5		4	0.8-0.89	51,85
51.350.0090-51.350.0096	0.90-0.96	38	5		4	0.90-0.96	37,50
51.350.0097-51.350.0105	0.97-1.05	38	5		4	0.90-1.05	35,80
51.350.0106-51.350.0132	1.06-1.32	40	5		6	1.06-1.32	32,85
51.350.0133-51.350.0150	1.33-1.5	40	8		6	1.33-1.5	32,85
51.350.0151-51.350.0170	1.51-1.7	43	9		6	1.51-1.7	32,85
51.350.0171-51.350.0179	1.71-1.79	46	10		6	1.71-1.79	32,85
51.350.0180-51.350.0190	1.80-1.9	46	10		6	1.80-1.9	30,50
51.350.0191-51.350.0212	1.91-2.12	49	11		6	1.91-2.12	30,50
51.350.0213-51.350.0236	2.13-2.36	53	12		6	2.13-2.36	30,50
51.350.0237-51.350.0265	2.37-2.65	57	14		6	2.37-2.65	30,25
51.350.0266-51.350.0300	2.66-3	61	15		6	2.66-3	30,25
51.350.0301-51.350.0329	3.01-3.29	65	16		6	3.01-3.29	30,25
51.350.0330-51.350.0335	3.30-3.35	65	16		6	3.30-3.35	30,85
51.350.0336-51.350.0375	3.36-3.75	70	18		6	3.36-3.75	30,85
51.350.0376-51.350.0425	3.76-4.25	75	19	47	6	4	32,10
51.350.0426-51.350.0475	4.26-4.75	80	21	52	6	4.5	32,10
51.350.0476-51.350.0530	4.76-5.3	86	23	58	6	5	33,30
51.350.0531-51.350.0600	5.31-6	93	26	58	6	5.6	34,65
51.350.0601-51.350.0668	6.01-6.68	101	28	65	6	6.3	34,65
51.350.0670	6.7	101	28	65	6	6.3	37,50
51.350.0671-51.350.0750	6.71-7.5	109	31	73	6	7.1	37,50

Ref.	d1	l1	l2	l3	z	d2	€
51.350.0751-51.350.0850	7.51-8.5	117	33	81	6	8	37,50
51.350.0851-51.350.0855	8.51-8.55	125	36	85	6	9	37,50
51.350.0856-51.350.0950	8.56-9.5	125	36	85	6	9	43,35
51.350.0951-51.350.0955	9.51-9.55	133	38	93	6	10	43,35
51.350.0956-51.350.1005	9.56-10.05	133	38	93	6	10	45,15
51.350.1006-51.350.1060	10.06-10.6	133	38	93	6	10	47,00
51.350.1061-51.350.1131	10.61-11.31	142	41	102	6	10	47,00
51.350.1132-51.350.1180	11.32-11.8	142	41	102	6	10	61,50
51.350.1182-51.350.1250	11.82-12.5	151	44	111	6	10	61,50
51.350.1251-51.350.1320	12.51-13.2	151	44	111	8	10	66,30
51.350.1325-51.350.1370	13.25-13.7	160	47	115	8	12.5	133,20
51.350.1397-51.350.1400	13.97-14	160	47	117	8	12.5	119,25
51.350.1401-51.350.1405	14.01-14.05	162	50	117	8	12.5	119,25
51.350.1410-51.350.1500	14.10-15	162	50	117	8	12.5	142,00
51.350.1501-51.350.1510	15.01-15.1	170	52	125	8	12.5	142,15
51.350.1515-51.350.1590	15.15-15.9	170	52	125	8	12.5	186,60
51.350.1597-51.350.1600	15.97-16	170	52	125	8	12.5	142,00
51.350.1601-51.350.1605	16.01-16.05	175	54	130	8	14	142,00
51.350.1610-51.350.1700	16.1-17	175	54	130	8	14	174,35
51.350.1701-51.350.1800	17.01-18	182	56	137	8	14	174,35
51.350.1801-51.350.1900	18.01-19	189	58	141	8	16	174,35
51.350.1901-51.350.2005	19.01-20.05	195	60	147	8	16	174,35
51.350.2010-51.350.2020	20.10-20.2	195	60	147	8	16	210,90

> 51.520 Phantom

NL HSS-E Machineruimer H7, MK
FR Alésoir machine HSS-E H7, CM
ES Escariador máquina HSS-E H7, CM
DE HSS-E Maschinenreibahlen H7, MK
EN HSS-E Machine Chucking Reamer H7, MT



HSS-E	DIN 208-B	DIN 228-B	H7
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P 11 ≤800 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤850 N/mm²	M 22 INOX >850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	S 71 Ni/Co	S 72 Ti
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15-22 E	12-17 D	7-10 C	5-7 B	4-6 A	3-5 A	4-5 C	6-15 D	25-35 G	20-30 G	12-17 D	2-3 A	2-3 A
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Ref.	d1	d2	l1	l2	l3	z	€
51.520.0400	4	MK 1	120	24	54	6	93,25
51.520.0500	5	MK 1	133	26	67	6	79,85
51.520.0600	6	MK 1	138	28	72	6	76,25
51.520.0700	7	MK 1	150	31	84	6	78,35
51.520.0800	8	MK 1	156	33	90	6	78,35
51.520.0900	9	MK 1	162	36	96	6	85,30
51.520.1000	10	MK 1	168	38	102	6	70,80
51.520.1050	10.5	MK 1	168	41	109	6	98,05
51.520.1100	11	MK 1	175	41	109	6	75,05
51.520.1150	11.5	MK 1	175	41	109	6	98,05
51.520.1200	12	MK 1	182	44	116	6	75,05
51.520.1250	12.5	MK 1	182	44	116	6	98,05
51.520.1300	13	MK 1	182	44	116	8	86,55
51.520.1350	13.5	MK 1	189	47	123	8	98,05
51.520.1400	14	MK 1	189	47	123	8	86,55
51.520.1450	14.5	MK 2	204	50	124	8	115,30
51.520.1500	15	MK 2	204	50	124	8	98,95
51.520.1550	15.5	MK 2	210	52	130	8	121,10
51.520.1600	16	MK 2	210	52	130	8	101,70
51.520.1650	16.5	MK 2	214	54	134	8	138,30

Ref.	d1	d2	l1	l2	l3	z	€
51.520.1700	17	MK 2	214	54	134	8	107,45
51.520.1750	17.5	MK 2	219	56	139	8	138,30
51.520.1800	18	MK 2	219	56	139	8	115,30
51.520.1850	18.5	MK 2	223	58	143	8	149,90
51.520.1900	19	MK 2	223	58	143	8	121,10
51.520.1950	19.5	MK 2	228	60	148	8	149,90
51.520.2000	20	MK 2	228	60	148	8	121,10
51.520.2050	20.5	MK 2	232	62	152	8	172,95
51.520.2100	21	MK 2	232	62	152	8	153,50
51.520.2150	21.5	MK 2	237	64	157	8	172,95
51.520.2200	22	MK 2	237	64	157	8	153,50
51.520.2250	22.5	MK 2	241	66	161	8	172,95
51.520.2300	23	MK 2	241	66	161	8	172,95
51.520.2400	24	MK 3	268	68	168	8	172,95
51.520.2500	25	MK 3	268	68	168	8	172,95
51.520.2600	26	MK 3	273	70	173	10	201,75
51.520.2700	27	MK 3	277	71	177	10	213,35
51.520.2800	28	MK 3	277	71	177	10	213,35
51.520.2900	29	MK 3	281	73	181	10	230,65
51.520.3000	30	MK 3	281	73	181	10	230,65

> 51.520

Phantom

Ref.	d1	d2	l1	l2	l3	z	€
51.520.3100	31	MK 3	285	77	193	10	302,00
51.520.3200	32	MK 4	317	77	193	10	324,00
51.520.3300	33	MK 4	317	77	193	10	329,00
51.520.3400	34	MK 4	321	78	197	10	329,00
51.520.3500	35	MK 4	321	78	197	10	329,00
51.520.3600	36	MK 4	325	79	201	10	404,00
51.520.3700	37	MK 4	325	79	201	10	404,00
51.520.3800	38	MK 4	329	81	205	10	404,00
51.520.3900	39	MK 4	329	81	205	12	404,00
51.520.4000	40	MK 4	329	81	205	12	404,00

Ref.	d1	d2	l1	l2	l3	z	€
51.520.4100	41	MK 4	333	82	209	12	548,00
51.520.4200	42	MK 4	333	82	209	12	548,00
51.520.4300	43	MK 4	336	83	212	12	548,00
51.520.4400	44	MK 4	336	83	212	12	548,00
51.520.4500	45	MK 4	336	83	212	12	548,00
51.520.4600	46	MK 4	340	84	216	12	664,00
51.520.4700	47	MK 4	340	84	216	12	664,00
51.520.4800	48	MK 4	344	86	220	12	692,00
51.520.4900	49	MK 4	344	86	220	12	692,00
51.520.5000	50	MK 4	344	86	220	12	692,00

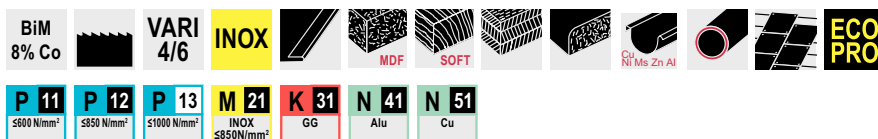


> 61.090 INTERNATIONAL TOOLS

NL ECO PRO HSS-Co 8% Bi-Metaal Gatzag
FR Scie cloche HSS-Co 8% Bi-métal ECO PRO
ES Corona Perforadora HSS-Co 8% Bi-Metal ECO PRO
DE ECO PRO HSS-Co 8% Bi-Metall Lochsäge
EN ECO PRO HSS-Co 8% Bi-Metal Hole saw



NIEUW NOUVEAU NUEVO NEU



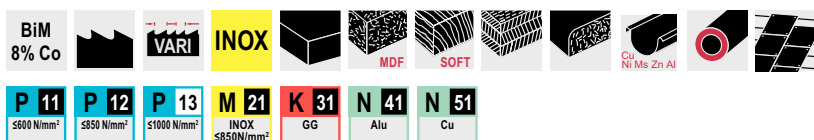
Ref.	d1	€
61.090.0014	14	6,50
61.090.0016	16	7,00
61.090.0017	17	7,00
61.090.0019	19	7,00
61.090.0020	20	7,00
61.090.0021	21	7,00
61.090.0022	22	7,00
61.090.0024	24	7,50
61.090.0025	25	8,50
61.090.0027	27	8,50
61.090.0029	29	9,00
61.090.0030	30	9,00
61.090.0032	32	9,00
61.090.0033	33	9,00
61.090.0035	35	10,50
61.090.0037	37	11,00
61.090.0038	38	11,00
61.090.0040	40	11,00

Ref.	d1	€
61.090.0041	41	11,00
61.090.0043	43	11,00
61.090.0044	44	12,00
61.090.0046	46	12,00
61.090.0048	48	12,50
61.090.0051	51	13,00
61.090.0052	52	13,50
61.090.0054	54	13,50
61.090.0057	57	14,00
61.090.0059	59	14,50
61.090.0060	60	15,00
61.090.0064	64	16,00
61.090.0065	65	16,00
61.090.0067	67	16,50
61.090.0068	68	16,50
61.090.0070	70	17,00
61.090.0073	73	18,00
61.090.0076	76	19,00

Ref.	d1	€
61.090.0079	79	19,50
61.090.0083	83	20,00
61.090.0086	86	20,50
61.090.0089	89	22,00
61.090.0092	92	22,50
61.090.0095	95	25,00
61.090.0098	98	25,00
61.090.0102	102	26,00
61.090.0105	105	26,00
61.090.0108	108	26,50
61.090.0111	111	27,50
61.090.0114	114	28,50
61.090.0121	121	30,50
61.090.0127	127	32,50
61.090.0140	140	35,00
61.090.0152	152	38,00

> 61.105 Phantom

NL HSS-Co 8% Bi-Metaal Gatzag
FR Scie cloche HSS-Co 8% Bi-métal
ES Corona Perforadora HSS-Co 8% Bi-Metal
DE HSS-Co 8% Bi-Metall Lochsäge
EN HSS-Co 8% Bi-Metal Hole saw



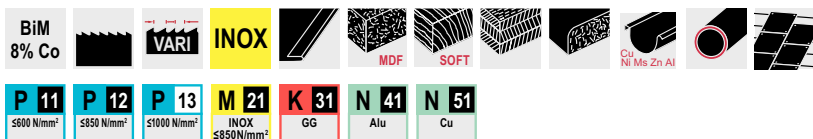
Ref.	d1	€
61.105.0014	14	10,25
61.105.0016	16	10,50
61.105.0017	17	10,50
61.105.0018	18	11,00
61.105.0019	19	11,00
61.105.0020	20	11,00
61.105.0021	21	11,00
61.105.0022	22	11,00
61.105.0024	24	11,00
61.105.0025	25	12,50
61.105.0027	27	12,50
61.105.0028	28	13,00
61.105.0029	29	13,00
61.105.0030	30	13,00
61.105.0032	32	14,00
61.105.0033	33	14,00
61.105.0034	34	14,00
61.105.0035	35	14,80
61.105.0037	37	15,50
61.105.0038	38	15,50
61.105.0040	40	16,00

Ref.	d1	€
61.105.0041	41	16,00
61.105.0043	43	17,00
61.105.0044	44	17,00
61.105.0046	46	17,50
61.105.0048	48	18,00
61.105.0049	49	18,50
61.105.0050	50	18,50
61.105.0051	51	18,50
61.105.0052	52	19,50
61.105.0054	54	20,00
61.105.0056	56	20,50
61.105.0057	57	20,50
61.105.0059	59	21,00
61.105.0060	60	21,00
61.105.0061	61	21,00
61.105.0064	64	23,50
61.105.0065	65	24,00
61.105.0067	67	24,50
61.105.0068	68	25,00
61.105.0070	70	25,00
61.105.0073	73	26,00

Ref.	d1	€
61.105.0076	76	28,50
61.105.0079	79	29,00
61.105.0083	83	29,50
61.105.0086	86	30,00
61.105.0089	89	30,50
61.105.0090	90	31,00
61.105.0092	92	31,00
61.105.0095	95	35,00
61.105.0098	98	35,50
61.105.0100	100	36,00
61.105.0102	102	37,00
61.105.0105	105	38,00
61.105.0108	108	39,00
61.105.0111	111	40,00
61.105.0114	114	41,50
61.105.0121	121	43,50
61.105.0127	127	46,50
61.105.0133	133	49,50
61.105.0140	140	50,50
61.105.0146	146	53,50
61.105.0152	152	55,00

> 61.110 Phantom

NL HSS-Co 8% Bi-Metaal Gatzaag voor dunne plaat en buizen
 FR Scie cloche HSS-Co 8% Bi-métal pour tôle fine et tube
 ES Corona Perforadora HSS-Co 8% Bi-Metal para chapa fina y tubos
 DE HSS-Co 8% Bi-Metall Lochsäge für dünne Platte und Rohren
 EN HSS-Co 8% Bi-Metal Hole saw For thin plates and tubes



Ref.	d1	€
61.110.0014	14	10,25
61.110.0016	16	10,50
61.110.0017	17	10,50
61.110.0019	19	11,00
61.110.0020	20	11,00
61.110.0021	21	11,00
61.110.0022	22	11,00
61.110.0024	24	11,00
61.110.0025	25	12,50
61.110.0027	27	12,50
61.110.0030	30	13,00
61.110.0032	32	14,00
61.110.0035	35	14,80
61.110.0038	38	15,50
61.110.0040	40	16,00
61.110.0044	44	17,00
61.110.0048	48	18,00

Ref.	d1	€
61.110.0051	51	18,50
61.110.0054	54	19,50
61.110.0057	57	20,50
61.110.0060	60	21,00
61.110.0064	64	23,50
61.110.0067	67	24,50
61.110.0068	68	25,00
61.110.0070	70	25,00
61.110.0073	73	26,00
61.110.0076	76	28,50
61.110.0079	79	29,00
61.110.0083	83	29,50
61.110.0086	86	30,00
61.110.0089	89	30,50
61.110.0090	90	31,00
61.110.0092	92	31,00
61.110.0095	95	35,00

Ref.	d1	€
61.110.0098	98	35,50
61.110.0100	100	36,00
61.110.0102	102	37,00
61.110.0105	105	38,00
61.110.0108	108	39,00
61.110.0111	111	40,00
61.110.0114	114	41,50
61.110.0121	121	43,50
61.110.0127	127	46,50
61.110.0133	133	49,50
61.110.0140	140	50,50
61.110.0152	152	55,00
61.110.0160	160	70,00
61.110.0168	168	74,00
61.110.0177	177	79,00
61.110.0210	210	94,00



NL Gatzaag vertanding
 FR Scie cloche HSS-Co Bi-métal pour tôle fine et tube vs la scie cloche standard
 ES Corona bimetalica paso grueso o Corona bimetalica paso estándar
 DE BiM Lochsäge grob gegen BiM Lochsäge standard
 EN BiM holesaw coarse vs BiM holesaw standard



Watch me

www.phantom.eu

> 61.135 INTERNATIONAL TOOLS

NL ECO PRO Universele Quick Change Houder
 FR Adaptateur à changement rapide ECO PRO
 ES Husillo de cambio rápido ECO PRO
 DE ECO PRO Universal Schnellwechselhalter
 EN ECO PRO Universal Quick Change holder



NIEUW NOUVEAU NUEVO NEU

Ref.	Ø	d2	1 incl.	2 incl.	3 incl.	4 incl.	€
61.135.1432	14-210	11mm - 7/16"	61.160.9566	61.148.0900	61.137.1401	61.137.3201	28,50

> 61.137 INTERNATIONAL TOOLS

NL ECO PRO Universele Quick Change adapter
 FR Adaptateur universel à changement rapide ECO PRO
 ES Adaptador universal de cambio rápido ECO PRO
 DE ECO PRO Universeller Schnellwechseladapter
 EN ECO PRO Universal Quick Change adapter



NIEUW NOUVEAU NUEVO NEU

Ref.	Ø	#	€	Ref.	Ø	#	€
61.137.1401	14-30	1	4,95	61.137.3201	32-210	1	4,95
61.137.1405	14-30	5	14,95	61.137.3205	32-210	5	14,95

> 61.140 **Phantom**

NL Universele Quick Change Houder
FR Adaptateur à changement rapide
ES Husillo de cambio rápido
DE Universal Schnellwechselhalter
EN Universal Quick Change holder



1 2 3 4

11

NIEUW NOUVEAU NUEVO NEU

Ref.	Ø	d2	1 incl.	2 incl.	3 incl.	4 incl.	€
61.140.1432	14-210	11mm - 7/16"	61.160.9566	61.180.0900	61.142.1401	61.142.3201	28,50

> 61.142 **Phantom**

NL Universele Quick Change adapter
FR Adaptateur universel à changement rapide
ES Adaptador universal de cambio rápido
DE Universeller Schnellwechseladapter
EN Universal Quick Change adapter



NIEUW NOUVEAU NUEVO NEU

Ref.	Ø	#	€	Ref.	Ø	#	€
61.142.1401	14-30	1	4,95	61.142.3201	32-210	1	4,95
61.142.1405	14-30	5	14,95	61.142.3205	32-210	5	14,95

> 61.145 **INTERNATIONAL TOOLS**

NL ECO PRO Houder voor Gatzaag 61.090
FR Arbre pour Scies cloches ECO PRO 61.090
ES Husillo para Corona perforadora ECO PRO 61.090
DE ECO PRO Halter für Lochsägen 61.090
EN ECO PRO Hole saw Arbor 61.090



1 2

NIEUW NOUVEAU NUEVO NEU



11

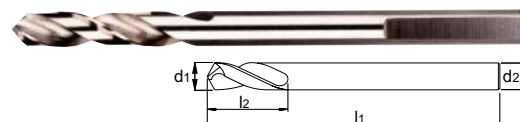
9,5

ECO PRO

Ref.	Ø	d2	1 incl.	2 incl.	€	Ref.	Ø	d2	1 incl.	2 incl.	€
61.145.0201	32-152	11mm - 7/16"	61.160.9532	61.147.0600	€ 23,40	61.145.0500	14-30	9,5mm - 3/8"	61.160.9514	61.147.0600	€ 16,20

> 61.147 **INTERNATIONAL TOOLS**

NL ECO PRO Centerboor voor Gatzaag 61.090
FR Foret à centrer ECO PRO pour Scies cloches 61.090
ES Broca escalonada ECO PRO para la Corona perforadora 61.090
DE ECO PRO Zentrierbohrer für Lochsägen 61.090
EN ECO PRO Centre Drill for 61.090



NIEUW NOUVEAU NUEVO NEU

HSS-E

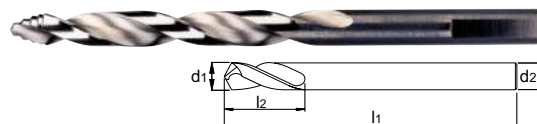


ECO PRO

Ref.	Type	d2	l1	61.0xx	€
61.147.0600	HSS-E	6.35	90	61.090	€ 5,85

> 61.148 **INTERNATIONAL TOOLS**

NL ECO PRO HSS Centerboor Step-point voor Gatzaag 61.090
FR Foret à centrer HSS ECO PRO Step-point pour Scies cloches 61.090
ES Broca escalonada HSS ECO PRO Step-point para la Corona perforadora 61.090
DE ECO PRO HSS Zentrierbohrer Step-point für Lochsägen 61.090
EN ECO PRO HSS Centre Drill Step-point for hole saws 61.090



NIEUW NOUVEAU NUEVO NEU

HSS

OX.

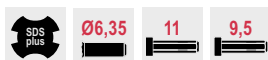


ECO PRO

Ref.	Type	d2	l1	€
61.148.0900	HSS	6.35	90	6,50

> 61.150 Phantom

NL Houder voor Gatzaag 61.105 en 61.110
 FR Arbre pour Scies cloches 61.105 et 61.110
 ES Husillo para Corona perforadora 61.105 y 61.110
 DE Halter für Lochsägen 61.105 und 61.110
 EN Hole saw Arbor 61.105 and 61.110

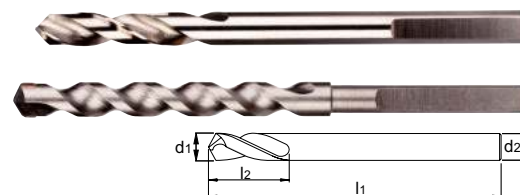

NIEUW NOUVEAU NUEVO NEU

Ref.	Ø	d2	1 incl.	2 incl.	€
61.150.0100	14-30	11mm - 7/16"	61.160.9514	61.170.0600	15,00
61.150.0201	32-210	11mm - 7/16"	61.160.9532	61.170.0600	26,00
61.150.0400	14-30	Ø 6,35mm - 1/4"	61.160.9514	61.170.0601	13,00
61.150.0500	14-30	9,5mm - 3/8"	61.160.9514	61.170.0600	18,00

Ref.	Ø	d2	1 incl.	2 incl.	€
61.150.0601	32-210	9,5mm - 3/8"	61.160.9532	61.170.0600	24,00
61.150.0800	14-30	SDS+	61.160.9514	61.170.0600	18,00
61.150.0901	32-210	SDS+	61.160.9532	61.170.0600	28,50

> 61.170 Phantom

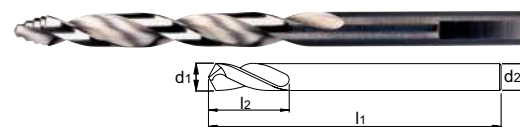
NL Centerboor voor Gatzaag 61.105, 61.110 en 61.130
 FR Foret à centrer pour Scies cloches 61.105, 61.110 et 61.130
 ES Broca escalonada para la Corona perforadora 61.105, 61.110 y 61.130
 DE Zentrierbohrer für Lochsäge 61.105, 61.110 und 61.130
 EN Centre Drill for 61.105, 61.110 and 61.130

HSS-E HM-TIP

NIEUW NOUVEAU NUEVO NEU

Ref.	Type	d2	l1	61.1xx	Nr	€
61.170.0600	HSS-E	6.35	90	61.150	1, 2, 5, 6, 8, 9	6,50
61.170.0601	HSS-E	6.35	115	61.150	4	5,79
61.170.0602	HSS-E	6.35	110	61.151	1, 2	5,56
61.170.0603	Carbide Tipped	6.35	110	61.151	1, 2	5,00

> 61.180 Phantom

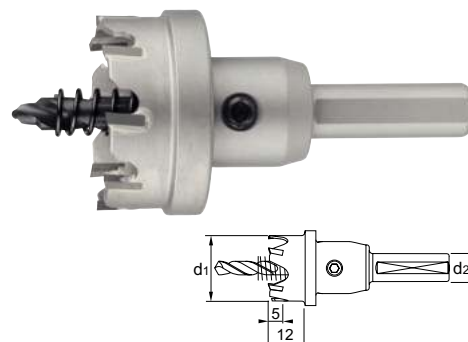
NL HSS Centerboor Step-point voor Gatzaag
 FR Foret à centrer HSS Step-point pour Scies cloches
 ES Broca escalonada HSS Step-point para la Corona perforadora
 DE HSS Zentrierbohrer Step-point für Lochsäge
 EN HSS Centre Drill Step-point for hole saws

HSS OX.

NIEUW NOUVEAU NUEVO NEU

Ref.	Type	d2	l1	€
61.180.0900	HSS	6.35	90	6,50

> 61.630 Phantom

NL HM-tip Gattrees materiaaldikte <5 mm
FR Scie trépan à plaquette carbure épaisseur <5 mm
ES Corona fresa punta MD espesor <5 mm
DE HM-Schneiden Lochfräser Materialdicke <5 mm
EN Carbide Tipped Hole saw thickness <5 mm



P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 42	N 52	N 62
≤500 N/mm ²	≤850 N/mm ²	≤1000 N/mm ²	≤1400 N/mm ²	INOX ≤850 N/mm ²	INOX >850 N/mm ²	GG	GGG GTS-GTW	Alu Si>10%	CuAlFe	GFK/CFK

36	34	30	25	20	10	60	40	90	35	30
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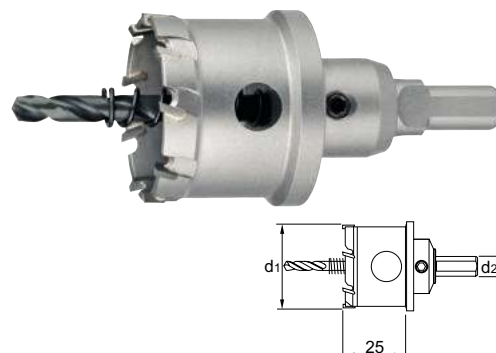
Ref.	d1	d2	z	€
61.630.0140	14	10	6	41,85
61.630.0150	15	10	6	41,85
61.630.0152	15,2	10	6	41,85
61.630.0160	16	10	6	41,85
61.630.0170	17	10	6	41,85
61.630.0180	18	10	6	41,85
61.630.0186	18,6	10	6	41,85
61.630.0190	19	10	6	41,85
61.630.0200	20	10	6	43,25
61.630.0204	20,4	10	6	43,25
61.630.0210	21	10	6	43,25
61.630.0220	22	10	6	43,25

Ref.	d1	d2	z	€
61.630.0225	22,5	10	6	44,55
61.630.0230	23	10	6	44,55
61.630.0240	24	10	6	45,10
61.630.0250	25	10	6	45,10
61.630.0260	26	10	6	47,35
61.630.0270	27	10	6	47,35
61.630.0280	28	10	6	48,60
61.630.0283	28,3	10	6	51,40
61.630.0300	30	10	6	51,40
61.630.0320	32	10	6	59,95
61.630.0350	35	13	6	61,00
61.630.0380	38	13	6	66,65

Ref.	d1	d2	z	€
61.630.0400	40	13	6	66,65
61.630.0430	43	13	6	71,20
61.630.0450	45	13	6	71,20
61.630.0480	48	13	6	78,30
61.630.0500	50	13	6	80,15
61.630.0550	55	13	6	86,10
61.630.0600	60	13	8	95,50
61.630.0700	70	13	8	108,15
61.630.0760	76	13	10	136,60
61.630.0800	80	13	12	143,85

> 61.670 Phantom

NL HM-tip Gattrees diepgat uitvoering 25 mm, materiaaldikte <12 mm
FR Scie trépan à plaquette carbure profondeur de coupe 25 mm, épaisseur <12 mm
ES Corona fresa punta MD profundidad de corte 25 mm, espesor <12 mm
DE HM-Schneiden Lochfräser Tiefloch-Ausführung 25 mm, Materialdicke <12 mm
EN Carbide Tipped Hole saw deep hole version 25 mm, thickness <12 mm



P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 42	N 52	N 62
≤500 N/mm ²	≤850 N/mm ²	≤1000 N/mm ²	≤1400 N/mm ²	INOX ≤850 N/mm ²	INOX >850 N/mm ²	GG	GGG GTS-GTW	Alu Si>10%	CuAlFe	GFK/CFK

36	34	30	25	20	10	60	40	90	35	30
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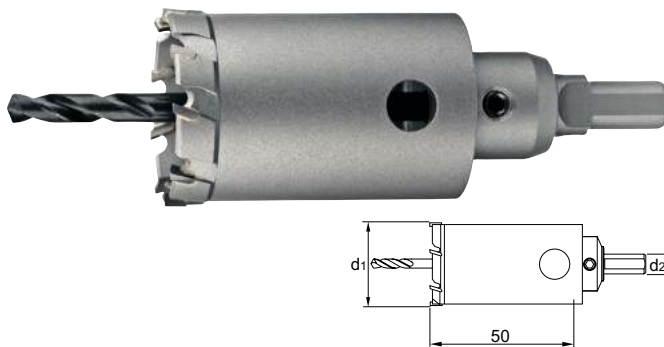
Ref.	d1	d2	z	€
61.670.0016	16	10	6	52,65
61.670.0017	17	10	6	52,65
61.670.0018	18	10	6	52,65
61.670.0019	19	10	6	52,65
61.670.0020	20	10	6	52,65
61.670.0021	21	10	6	57,05
61.670.0022	22	10	6	57,05
61.670.0023	23	10	6	57,05
61.670.0024	24	10	6	57,05
61.670.0025	25	10	6	57,05
61.670.0026	26	10	6	62,75
61.670.0027	27	10	6	62,75
61.670.0028	28	10	6	62,75
61.670.0029	29	10	6	62,75
61.670.0030	30	10	6	62,75
61.670.0031	31	10	6	67,70
61.670.0032	32	10	6	67,70
61.670.0033	33	10	6	67,70
61.670.0034	34	10	6	67,70
61.670.0035	35	10	6	67,70
61.670.0036	36	10	6	81,10
61.670.0037	37	10	6	81,10
61.670.0038	38	10	6	81,10

Ref.	d1	d2	z	€
61.670.0039	39	10	6	81,10
61.670.0040	40	10	6	81,10
61.670.0041	41	10	6	92,20
61.670.0042	42	10	6	92,20
61.670.0043	43	10	6	92,20
61.670.0044	44	10	6	92,20
61.670.0045	45	10	6	92,20
61.670.0046	46	10	6	96,70
61.670.0047	47	10	6	96,70
61.670.0048	48	10	6	96,70
61.670.0049	49	10	6	96,70
61.670.0050	50	10	6	96,70
61.670.0051	51	10	6	110,60
61.670.0052	52	10	6	110,60
61.670.0053	53	10	6	110,60
61.670.0054	54	10	6	110,60
61.670.0055	55	10	6	110,60
61.670.0056	56	10	6	135,75
61.670.0057	57	10	6	135,75
61.670.0058	58	10	6	135,75
61.670.0060	60	10	8	135,75
61.670.0061	61	10	8	148,70
61.670.0062	62	10	8	148,70

Ref.	d1	d2	z	€
61.670.0063	63	10	8	148,70
61.670.0064	64	10	8	148,70
61.670.0065	65	10	8	148,70
61.670.0066	66	10	8	168,65
61.670.0067	67	10	8	168,65
61.670.0068	68	10	8	168,65
61.670.0070	70	10	8	168,65
61.670.0072	72	10	10	184,20
61.670.0074	74	10	10	184,20
61.670.0075	75	10	10	184,20
61.670.0076	76	10	10	193,90
61.670.0077	77	10	12	193,90
61.670.0078	78	10	12	193,90
61.670.0079	79	10	12	193,90
61.670.0080	80	13	12	193,90
61.670.0082	82	13	12	210,25
61.670.0083	83	13	12	210,25
61.670.0084	84	13	12	210,25
61.670.0085	85	13	12	210,25
61.670.0090	90	13	14	226,80
61.670.0092	92	13	14	245,80
61.670.0095	95	13	14	245,80
61.670.0100	100	13	14	262,00

> 61.680 Phantom

- NL** HM-tip Gattrees lange diepgat uitvoering 50 mm, materiaaldikte <12 mm
FR Scie trépan à plaquette carbure profondeur de coupe 50 mm, épaisseur <12 mm
ES Corona fresa punta MD profundidad de corte 50 mm, espesor <12 mm
DE HM-Schneiden Lochfräser lange Tiefloch-Ausführung 50 mm, Materialdicke <12 mm
EN Carbide Tipped Hole saw long deep hole version 50 mm, thickness <12 mm



P 11 ≤600 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	P 14 ≤1400 N/mm ²	M 21 INOX ≤850N/mm ²	M 22 INOX >850N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 42 Alu Si>10%	N 52 CuAlFe	N 62 GFK/CFK
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36	34	30	25	20	10	60	40	90	35	30
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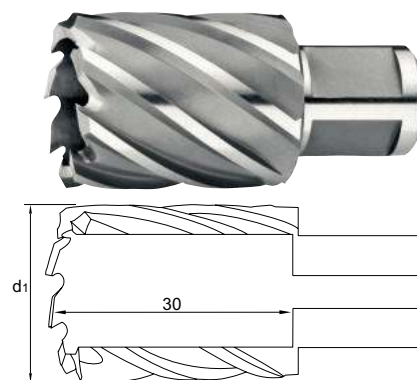
Ref.	d1	d2	z	€
61.680.0020	20	10	6	69,60
61.680.0021	21	10	6	75,45
61.680.0022	22	10	6	75,45
61.680.0023	23	10	6	75,45
61.680.0024	24	10	6	75,45
61.680.0025	25	10	6	75,45
61.680.0026	26	10	6	82,65
61.680.0027	27	10	6	82,65
61.680.0028	28	10	6	82,65
61.680.0030	30	10	6	82,65
61.680.0032	32	10	6	89,15
61.680.0033	33	10	6	89,15
61.680.0034	34	10	6	89,15
61.680.0035	35	10	6	89,15

Ref.	d1	d2	z	€
61.680.0037	37	10	6	106,70
61.680.0038	38	10	6	106,70
61.680.0039	39	10	6	106,70
61.680.0040	40	10	6	106,70
61.680.0041	41	10	6	120,95
61.680.0042	42	10	6	120,95
61.680.0043	43	10	6	120,95
61.680.0045	45	10	6	120,95
61.680.0048	48	10	6	126,65
61.680.0050	50	10	6	126,65
61.680.0051	51	10	6	145,15
61.680.0053	53	10	6	145,15
61.680.0054	54	10	6	145,15
61.680.0055	55	10	6	145,15

Ref.	d1	d2	z	€
61.680.0057	57	10	6	177,70
61.680.0060	60	10	8	177,70
61.680.0061	61	10	8	194,70
61.680.0062	62	10	8	194,70
61.680.0064	64	10	8	194,70
61.680.0065	65	10	8	194,70
61.680.0067	67	10	8	220,30
61.680.0070	70	10	8	220,30
61.680.0075	75	10	10	240,35
61.680.0076	76	10	10	253,00
61.680.0080	80	13	12	253,00
61.680.0090	90	13	14	296,00
61.680.0100	100	13	14	369,00

> 62.100 Phantom

- NL** HSS-EX Kernboor snijdiepte 30 mm
FR Fraise à carotter HSS-EX profondeur de coupe 30 mm
ES Fresa hueca HSS-EX profundidad de corte 30 mm
DE HSS-EX Kernbohr Schnittiefe 30 mm
EN HSS-EX Annular Cutter cutting depth 30 mm



P 11 ≤600 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	K 31 GG	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
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25	20	13	18	38	32	22	17
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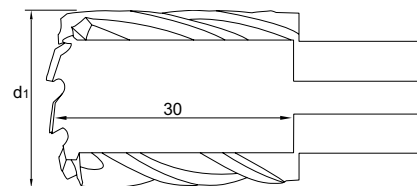
Ref.	d1	€
62.100.1200	12	25,55
62.100.1300	13	25,55
62.100.1400	14	26,85
62.100.1500	15	26,85
62.100.1600	16	28,10
62.100.1700	17	28,10
62.100.1800	18	29,35
62.100.1900	19	29,35
62.100.2000	20	31,30
62.100.2100	21	31,30
62.100.2200	22	37,10
62.100.2300	23	37,10
62.100.2400	24	40,90
62.100.2500	25	40,90
62.100.2600	26	44,10
62.100.2700	27	44,10
62.100.2800	28	46,65
62.100.2900	29	46,65

Ref.	d1	€
62.100.3000	30	51,15
62.100.3100	31	51,15
62.100.3200	32	56,85
62.100.3300	33	56,85
62.100.3400	34	60,70
62.100.3500	35	60,70
62.100.3600	36	63,30
62.100.3700	37	63,30
62.100.3800	38	67,70
62.100.3900	39	67,70
62.100.4000	40	74,75
62.100.4100	41	74,75
62.100.4200	42	82,40
62.100.4300	43	82,40
62.100.4400	44	88,80
62.100.4500	45	88,80
62.100.4600	46	93,95
62.100.4700	47	93,95

Ref.	d1	€
62.100.4800	48	99,10
62.100.4900	49	99,10
62.100.5000	50	106,10
62.100.5100	51	106,10
62.100.5200	52	115,00
62.100.5300	53	119,50
62.100.5400	54	122,70
62.100.5500	55	125,90
62.100.5600	56	130,35
62.100.5700	57	136,10
62.100.5800	58	139,30
62.100.5900	59	144,40
62.100.6000	60	149,55
62.100.6100	61	163,60
62.100.6200	62	168,70
62.100.6300	63	173,80
62.100.6400	64	178,95
62.100.6500	65	182,80

> 62.122 Phantom

NL HSS-EX Kernboor genitreeerd, snijdiepte 30 mm
 FR Fraise à carotter HSS-EX nituré, profondeur de coupe 30 mm
 ES Fresa hueca HSS-EX niturada, profundidad de corte 30 mm
 DE HSS-EX Kernbohr nitriert, Schnitttiefe 30 mm
 EN HSS-EX Annular Cutter nitrided, cutting depth 30 mm



P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 41	N 42	N 51	N 52	N 61
≤600 N/mm ²	≤850 N/mm ²	≤1000 N/mm ²	≤1400 N/mm ²	INOX ≤850 N/mm ²	INOX >850 N/mm ²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	CuAlFe	PVC
31	18	16	9	10	4	20	16	38	40	36	36	22

Ref.	d1	€
62.122.1200	12	27,80
62.122.1300	13	27,80
62.122.1400	14	30,05
62.122.1500	15	30,05
62.122.1600	16	31,00
62.122.1700	17	31,00
62.122.1800	18	32,25
62.122.1900	19	32,25
62.122.2000	20	35,05
62.122.2100	21	35,05
62.122.2200	22	41,05
62.122.2300	23	41,05
62.122.2400	24	45,50
62.122.2500	25	45,50
62.122.2600	26	48,75
62.122.2700	27	48,75
62.122.2800	28	51,25
62.122.2900	29	51,25

Ref.	d1	€
62.122.3000	30	56,90
62.122.3100	31	56,90
62.122.3200	32	62,65
62.122.3300	33	62,65
62.122.3400	34	67,00
62.122.3500	35	67,00
62.122.3600	36	70,20
62.122.3700	37	70,20
62.122.3800	38	74,60
62.122.3900	39	74,60
62.122.4000	40	82,85
62.122.4100	41	82,85
62.122.4200	42	91,65
62.122.4300	43	91,65
62.122.4400	44	98,60
62.122.4500	45	98,60
62.122.4600	46	104,30
62.122.4700	47	104,30

Ref.	d1	€
62.122.4800	48	110,05
62.122.4900	49	110,05
62.122.5000	50	117,60
62.122.5100	51	117,60
62.122.5200	52	128,95
62.122.5300	53	132,80
62.122.5400	54	136,60
62.122.5500	55	140,40
62.122.5600	56	145,40
62.122.5700	57	151,75
62.122.5800	58	155,60
62.122.5900	59	160,60
62.122.6000	60	166,90
62.122.6100	61	182,10
62.122.6200	62	187,20
62.122.6300	63	193,50
62.122.6400	64	199,80
62.122.6500	65	204,90

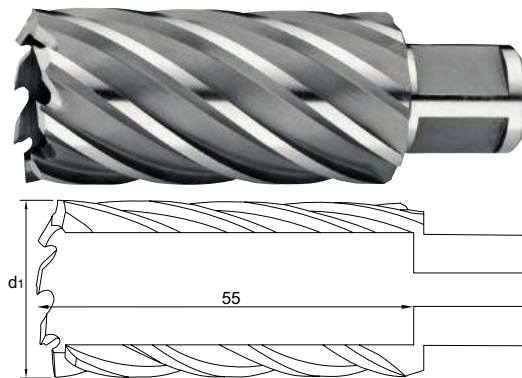


NL Kernboren keuzehulp
 FR Aide à la sélection des fraises à carotter
 ES Ayuda para la selección de fresas huecas
 DE Auswahlhilfe Kernbohrer
 EN Selection guide for annular cutters



> 62.150 Phantom

NL HSS-EX Kernboor snijdiepte 55 mm
 FR Fraise à carotter HSS-EX profondeur de coupe 55 mm
 ES Fresa hueca HSS-EX profundidad de corte 55 mm
 DE HSS-EX Kernbohr Schnittiefe 55 mm
 EN HSS-EX Annular Cutter cutting depth 55 mm



P 11 ≤600 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	K 31 GG	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
25	20	13	18	38	32	22	17

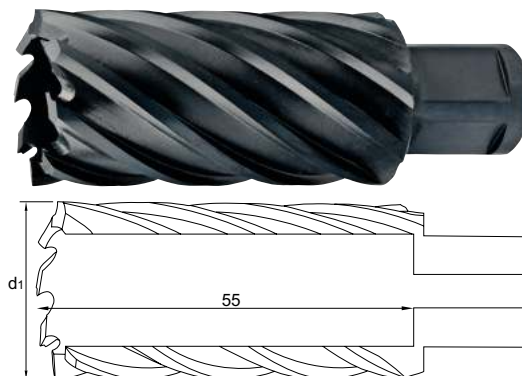
Ref.	d1	€
62.150.1200	12	33,90
62.150.1300	13	33,90
62.150.1400	14	35,15
62.150.1500	15	35,15
62.150.1600	16	36,45
62.150.1700	17	36,45
62.150.1800	18	37,70
62.150.1900	19	37,70
62.150.2000	20	40,90
62.150.2100	21	40,90
62.150.2200	22	48,55
62.150.2300	23	48,55
62.150.2400	24	53,65
62.150.2500	25	53,65
62.150.2600	26	57,50
62.150.2700	27	57,50
62.150.2800	28	60,10
62.150.2900	29	60,10

Ref.	d1	€
62.150.3000	30	67,10
62.150.3100	31	67,10
62.150.3200	32	73,50
62.150.3300	33	73,50
62.150.3400	34	78,55
62.150.3500	35	78,55
62.150.3600	36	82,40
62.150.3700	37	82,40
62.150.3800	38	88,20
62.150.3900	39	88,20
62.150.4000	40	97,15
62.150.4100	41	97,15
62.150.4200	42	107,30
62.150.4300	43	107,30
62.150.4400	44	116,35
62.150.4500	45	116,35
62.150.4600	46	122,25
62.150.4700	47	122,70

Ref.	d1	€
62.150.4800	48	129,10
62.150.4900	49	129,10
62.150.5000	50	138,05
62.150.5100	51	138,05
62.150.5200	52	150,80
62.150.5300	53	155,25
62.150.5400	54	160,40
62.150.5500	55	164,25
62.150.5600	56	170,00
62.150.5700	57	177,65
62.150.5800	58	182,80
62.150.5900	59	187,90
62.150.6000	60	194,20
62.150.6100	61	212,15
62.150.6200	62	219,80
62.150.6300	63	226,15
62.150.6400	64	232,60
62.150.6500	65	239,00

> 62.162 Phantom

NL HSS-EX Kernboor genitreed, snijdiepte 55 mm
 FR Fraise à carotter HSS-EX nituré, profondeur de coupe 55 mm
 ES Fresa hueca HSS-EX niturada, profundidad de corte 55 mm
 DE HSS-EX Kernbohr nitriert, Schnittiefe 55 mm
 EN HSS-EX Annular Cutter nitrided, cutting depth 55 mm



P 11 ≤600 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	P 14 ≤1400 N/mm ²	M 21 INOX ≤850N/mm ²	M 22 INOX >850N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 52 CuAlFe	N 61 PVC
31	18	16	9	10	4	20	16	38	40	36	36	22

Ref.	d1	€
62.162.1200	12	37,30
62.162.1300	13	37,30
62.162.1400	14	38,85
62.162.1450	14.5	46,65
62.162.1500	15	38,85
62.162.1550	15.5	48,55
62.162.1600	16	40,50
62.162.1650	16.5	48,55
62.162.1700	17	40,50
62.162.1750	17.5	50,45
62.162.1800	18	41,75
62.162.1850	18.5	50,45
62.162.1900	19	41,75
62.162.1950	19.5	54,35
62.162.2000	20	44,95
62.162.2050	20.5	54,35

Ref.	d1	€
62.162.2100	21	45,05
62.162.2200	22	53,10
62.162.2300	23	53,10
62.162.2400	24	58,80
62.162.2500	25	58,80
62.162.2600	26	63,20
62.162.2700	27	63,20
62.162.2800	28	66,40
62.162.2900	29	66,40
62.162.3000	30	73,95
62.162.3100	31	73,95
62.162.3200	32	81,55
62.162.3300	33	81,55
62.162.3400	34	87,30
62.162.3500	35	87,30
62.162.3600	36	91,10

Ref.	d1	€
62.162.3700	37	91,10
62.162.3800	38	97,35
62.162.3900	39	97,35
62.162.4000	40	107,50
62.162.4100	41	107,50
62.162.4200	42	119,55
62.162.4300	43	119,55
62.162.4400	44	128,95
62.162.4500	45	128,95
62.162.4600	46	135,30
62.162.4700	47	135,30
62.162.4800	48	142,90
62.162.4900	49	142,90
62.162.5000	50	153,00
62.162.5100	51	153,00
62.162.5200	52	166,90

> 62.162 Phantom

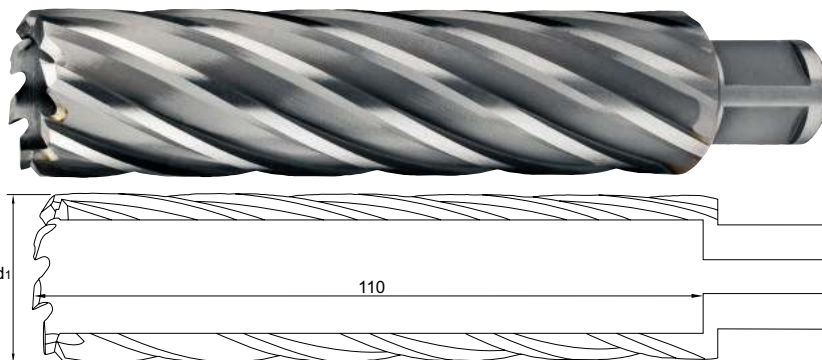
Ref.	d1	€
62.162.5300	53	172,00
62.162.5400	54	177,10
62.162.5500	55	182,10
62.162.5600	56	188,40
62.162.5700	57	197,25

Ref.	d1	€
62.162.5800	58	201,75
62.162.5900	59	208,70
62.162.6000	60	214,35
62.162.6100	61	235,85
62.162.6200	62	244,10

Ref.	d1	€
62.162.6300	63	252,00
62.162.6400	64	259,00
62.162.6500	65	265,00

> 62.180 Phantom

NL HSS-EX Kernboor snijdiepte 110 mm
 FR Fraise à carotter HSS-EX profondeur de coupe 110 mm
 ES Fresa hueca HSS-EX profundidad de corte 110 mm
 DE HSS-EX Kernbohr Schnittiefe 110 mm
 EN HSS-EX Annular Cutter cutting depth 110 mm



P 11 ≤800 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	K 31 GG	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
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25	20	13	18	38	32	22	17
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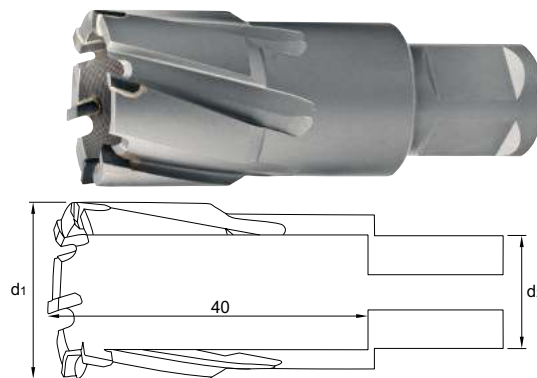
Ref.	d1	€
62.180.1800	18	77,60
62.180.1900	19	77,60
62.180.2000	20	82,20
62.180.2100	21	85,05
62.180.2200	22	97,35
62.180.2400	24	107,50

Ref.	d1	€
62.180.2500	25	107,50
62.180.2600	26	116,35
62.180.2700	27	118,90
62.180.2800	28	122,65
62.180.3000	30	136,60
62.180.3200	32	149,20

Ref.	d1	€
62.180.3400	34	164,40
62.180.3500	35	172,00
62.180.4000	40	213,70
62.180.4500	45	252,00
62.180.5000	50	324,00

62.200 Phantom

NL HM-tip Kernboor snijdiepte 40 mm
FR Fraise à carotter à plaquette carbure profondeur de coupe 40 mm
ES Fresa hueca punta MD profundidad de corte 40 mm
DE HM-Schneiden Kernbohr Schnittiefe 40 mm
EN Carbide Tipped Annular Cutter cutting depth 40 mm



P 11	P 12	P 13	P 14	H 15	M 21	M 22	K 31	K 32	N 42	N 52	N 62
≤600 N/mm²	≤850 N/mm²	≤1000 N/mm²	≤1400 N/mm²	HRC	INOX ≤850N/mm²	INOX >850N/mm²	GG	GGG GTS-GTW	Alu Si>10%	CuAlFe	GFK/CFK
36	34	30	25	20	20	10	60	40	90	35	30

Ref.	d1	€
62.200.1200	12	60,05
62.200.1300	13	60,05
62.200.1400	14	60,05
62.200.1500	15	60,05
62.200.1600	16	60,05
62.200.1700	17	60,05
62.200.1800	18	60,05
62.200.1900	19	60,05
62.200.2000	20	60,05

Ref.	d1	€
62.200.2100	21	60,05
62.200.2200	22	60,05
62.200.2300	23	59,30
62.200.2400	24	60,05
62.200.2500	25	60,05
62.200.2600	26	65,70
62.200.2700	27	65,70
62.200.2800	28	65,70
62.200.3000	30	65,70

Ref.	d1	€
62.200.3200	32	77,10
62.200.3500	35	77,10
62.200.3600	36	87,30
62.200.4000	40	87,30
62.200.4500	45	105,00
62.200.5000	50	120,10
62.200.5500	55	135,30
62.200.6000	60	149,20



NL Wanneer HM-tip kernboor gebruiken?
FR Quand utiliser une fraise à carotter à plaquette carbure ?
ES ¿Cuándo utilizar una fresa hueca con punta MD?
DE Wann kommen HM-bestückte Kernbohrer zum Einsatz?
EN When to use a carbide tipped annular cutter?

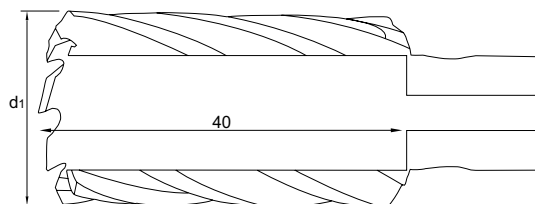
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**> 62.250 Phantom**

NL HSS-EX Kernboor met Fein QuickIN opname, snijdiepte 40 mm
 FR Fraise à carotter HSS-EX Fein QuickIN, profondeur de coupe 40 mm
 ES Fresa hueca HSS-EX con mango Fein QuickIN, profundidad de corte 40 mm
 DE HSS-EX Kernbohr mit Fein QuickIN Aufnahme, Schnitttiefe 40 mm
 EN HSS-EX Annular Cutter with Fein QuickIN, cutting depth 40 mm



HSS-EX
 Ø18
 FEIN
 QUICKIN
 0,5-40 mm

P 11	P 12	P 13	P 14	M 21	M 22	K 31	K 32	N 41	N 42	N 51	N 52	N 61
≤800 N/mm ²	≤850 N/mm ²	≤1000 N/mm ²	≤1400 N/mm ²	INOX ≤850 N/mm ²	INOX >850 N/mm ²	GG	GGG GTS-GTW	Alu	Alu Si>10%	Cu	CuAlFe	PVC
31	18	16	9	10	4	20	16	38	40	36	36	22

Ref.	d1	€
62.250.1200	12	34,10
62.250.1300	13	34,10
62.250.1400	14	34,75
62.250.1500	15	34,75
62.250.1600	16	36,70
62.250.1700	17	36,70
62.250.1800	18	38,00
62.250.1900	19	38,00
62.250.2000	20	41,05

Ref.	d1	€
62.250.2100	21	42,80
62.250.2200	22	43,95
62.250.2300	23	45,15
62.250.2400	24	46,80
62.250.2500	25	46,80
62.250.2600	26	49,95
62.250.2700	27	53,75
62.250.2800	28	56,25
62.250.2900	29	57,85

Ref.	d1	€
62.250.3000	30	61,95
62.250.3200	32	68,30
62.250.3500	35	74,70
62.250.4000	40	91,65
62.250.4500	45	110,90
62.250.5000	50	130,15
62.250.5500	55	155,50
62.250.6000	60	183,20



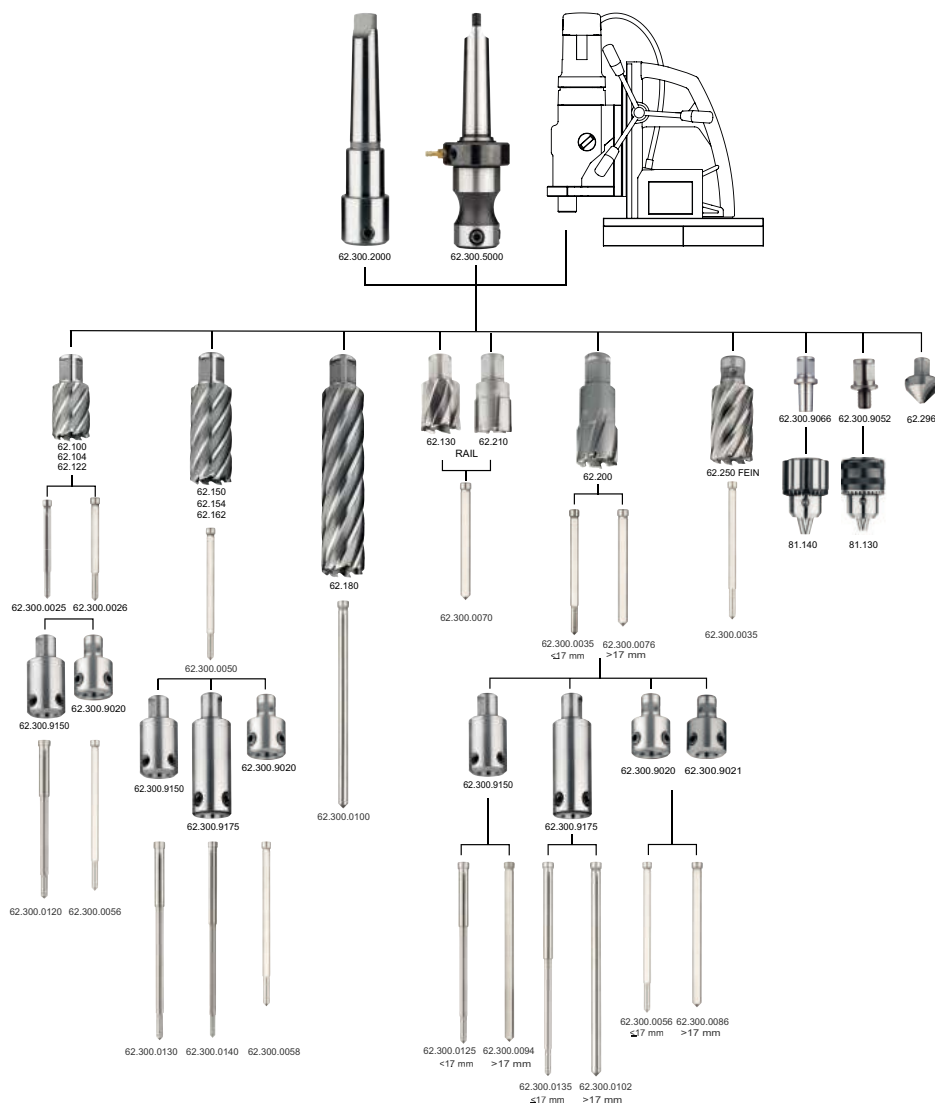
NL Kernboren keuzehulp
 FR Aide à la sélection des fraises à carotter
 ES Ayuda para la selección de fresas huecas
 DE Auswahlhilfe Kernbohrer
 EN Selection guide for annular cutters

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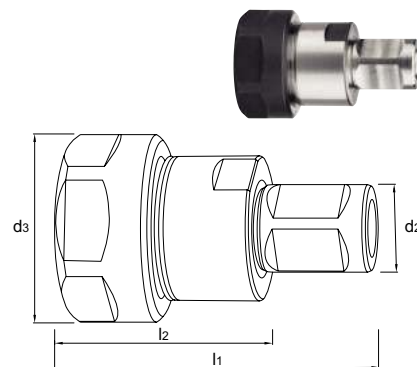
NL Toebehoren voor Kernboor
FR Accessoires pour Fraises à carotter
ES Accesorios para Fresa hueca
DE Zubehör für Kernbohrer
EN Annular Cutter Accessories



Ref.	Type	d1	l1	62.xxx	€
62.300.0025	30 mm	6,35/5,3 mm	77	62.100, 62.104, 62.122	4,43
62.300.0026	30 mm	6,35/5,3 mm	77	62.100, 62.104, 62.122	3,80
62.300.0035	40 mm	6,35/5,3 mm	90	62.200(≤17,5 mm), 62.250, 62.270	4,74
62.300.0050	55 mm	6,35/5,3 mm	102	62.150, 62.154, 62.162, 62.280	5,01
62.300.0054	55 mm	6,35/5,3 mm	106	62.220(≤17,5 mm)	4,88
62.300.0056	40 mm	6,35/5,3 mm	116	62.200(≤17,5 mm) + 62.300.9020	5,69
62.300.0058	55 mm	6,35/5,3 mm	127	62.150, 62.154, 62.162, 62.220(≤17,5 mm) + 62.300.9020	6,32
62.300.0062	110 mm	6,35/5,3 mm	160	62.240(≤17,5 mm)	10,44
62.300.0070	30 mm	7,98 mm	77	62.130, 62.210	4,43
62.300.0076	40 mm	7,98 mm	90	62.200 (>17,5 mm)	5,01
62.300.0086	40 mm	7,98 mm	118	62.200 (>17,5 mm) + 62.300.9021	6,59
62.300.0090	55 mm	7,98 mm	115	62.220 (>60 mm)	6,59
62.300.0092	55 mm	7,98 mm	130	62.220 (>17,5 mm) + 62.300.9021	8,18
62.300.0094	40 mm	7,98 mm	145	62.200 (>17,5 mm) + 62.300.9150	7,59
62.300.0100	110 mm	7,98 mm	160	62.180, 62.240 (>17,5 mm)	8,84
62.300.0102	40 mm	7,98 mm	165	62.200 (>17,5 mm) + 62.300.9175	8,84
62.300.0108	55 mm	7,98 mm	180	62.220 (>17,5 mm) + 62.300.9175	11,36
62.300.0120	30 mm	7,98/6,35/5,3 mm	127	62.100, 62.104, 62.122 + 62.300.9150	7,59
62.300.0125	40 mm	7,98/6,35/5,3 mm	140	62.200(≤17 ,5mm) + 62.300.9150	8,22
62.300.0130	55 mm	7,98/6,35/5,3 mm	153	62.150, 62.154, 62.162, 62.220(≤17,5 mm) + 62.300.9150	9,49
62.300.0135	40 mm	7,98/6,35/5,3 mm	165	62.200(≤17,5 mm) + 62.300.9175	10,01
62.300.0140	55 mm	7,98/6,35/5,3 mm	178	62.150, 62.154, 62.162, 62.220(≤17,5 mm) + 62.300.9175	11,07
62.300.1000	MK 2				117,00
62.300.2000	MK 3				130,25
62.300.3000	MK 4				132,15
62.300.4000	MK 2				177,10
62.300.5000	MK 3				187,20
62.300.6000	MK 4				196,05
62.300.9015	Fein M18 -> Weldon		43		31,60
62.300.9020	Fein QuickIn -> Weldon	6,35 mm	25		27,80
62.300.9021	Fein QuickIn -> Weldon	7,98 mm	25		27,80
62.300.9052	Weldon -> 1/2 -20 UNF				24,97
62.300.9066	Weldon -> B16				21,85
62.300.9150	Weldon -> Weldon	35 mm	74		37,30
62.300.9175	Weldon -> Weldon	35 mm	99		41,05

> 62.350 Phantom

NL Spantanghouder, voor kernboormachine ER
 FR Mandrin porte-pinces, pour carotteuse ER
 ES Portapinzas, para perforadora de núcleo ER
 DE Spannzangenfutter, für Kernbohrmaschine ER
 EN Collet Chuck, for core drilling machine ER



Ref.	d2	Type	Ø	l1	l2	d3	sw	€
62.350.1925	Ø 19 Weldon	ER25	1-20	70	46	42	38	110,25



NL Unieke spantanghouder voor kleinere diameters en kort opspannen in de kernboormachine
 FR Mandrin porte-pinces unique pour petits diamètres et serrage court pour perceuses magnétiques
 ES Porta pinzas único para diámetros pequeños y sujeción corta para taladradoras magnéticas
 DE Einzigartiges Spannzangenfutter für kleinere Durchmesser und schnelles Einspannen in die Kernbohrmaschine
 EN Unique collet chuck for smaller diameters and short clamping for magnetic drilling machines

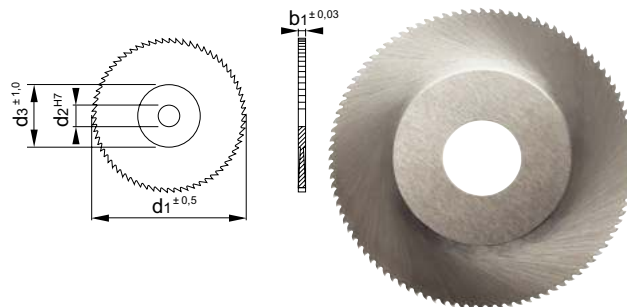
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> 63.210 Phantom

NL HSS Metaalcirkelzaag GF/Orbitalum
 FR Fraise-scie HSS GF/Orbitalum
 ES Fresa sierra circular HSS GF/Orbitalum
 DE HSS Metallkreissägeblätter GF/Orbitalum
 EN HSS Circular Saw Blade GF/Orbitalum



HSS  +GF+

P 11 ≤500 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤850 N/mm²	M 22 INOX >850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
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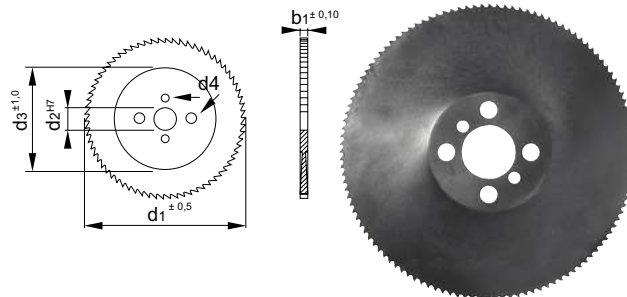
30-40	25-35	15-25	15-20	10-15	6-8	25-30	20-25	500-700	500-700	200-400	200-600
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Ref.	d1	b1	d2	d3	z	t	€
63.210.0612	63	1.2	16	36	100	2	36,25
63.210.0616	63	1.6	16	36	44	4,5	39,50
63.210.0617	63	1.6	16	36	64	3	39,50
63.210.0618	63	1.6	16	36	80	2,5	39,50
63.210.0716	68	1.6	16	42	44	4,75	42,95
63.210.0717	68	1.6	16	42	84	2,5	42,95
63.210.0718	68	1.6	16	42	72	3	42,95

Ref.	d1	b1	d2	d3	z	t	€
63.210.0719	68	1.6	16	42	64	3,25	42,95
63.210.0720	68	2	16	42	44	4,75	46,25
63.210.0814	80	1.6	16	42	44	5,75	50,85
63.210.0816	80	1.6	16	42	64	4	50,85
63.210.0818	80	1.6	16	42	80	3,25	50,85
63.210.0828	80	2	16	42	80	3,25	55,30

> 63.400 Phantom

NL HSS Afkortzaag stoomontlaten
 FR Fraise-scie à tronçonner HSS vaporisé
 ES Fresa sierra circular tronzoadora HSS vaporizada
 DE HSS Trennsägeblätter dampfangelassen
 EN HSS Circular Saw Blade steam oxide



HSS   

P 11 ≤500 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 42 Alu Si>10%	N 51 Cu	N 61 PVC
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30-40	25-35	15-25	25-30	20-25	500-700	500-700	200-400	200-600
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Ref.	d1	b1	d2	d3	z	t	d4	€
63.400.2013	200	1.8	32	90	130	5	2/8-45+2/11-63	128,55
63.400.2016	200	1.8	32	90	160	4	2/8-45+2/11-63	128,55
63.400.2018	200	1.8	32	90	180	3,5	2/8-45+2/11-63	128,55
63.400.2126	225	1.2	32	100	264	2,5	2/8-45+2/11-63+2/9-50	177,80
63.400.2209	225	2	32	90	90	8	2/8-45+2/11-63+2/9-50	129,90
63.400.2212	225	2	32	90	120	6	2/8-45+2/11-63+2/9-50	129,90
63.400.2214	225	2	32	90	140	5	2/8-45+2/11-63+2/9-50	129,90
63.400.2218	225	2	32	90	180	4	2/8-45+2/11-63+2/9-50	129,90
63.400.2222	225	2	32	90	220	3	2/8-45+2/11-63+2/9-50	129,90
63.400.2312	225	2	40	90	120	6	2/8-55+4/11-63	129,90
63.400.2318	225	2	40	90	180	4	2/8-55+4/11-63	129,90
63.400.2326	225	2	40	90	220	3	2/8-55+4/11-63	129,90
63.400.2508	250	2	32	90	80	10	2/8-45+2/11-63+2/9-50	136,75
63.400.2510	250	2	32	90	100	8	2/8-45+2/11-63+2/9-50	136,75
63.400.2512	250	2	32	90	128	6	2/8-45+2/11-63+2/9-50	136,75
63.400.2516	250	2	32	90	160	5	2/8-45+2/11-63+2/9-50	136,75
63.400.2520	250	2	32	90	200	4	2/8-45+2/11-63+2/9-50	136,75
63.400.2525	250	2	32	90	250	3	2/8-45+2/11-63+2/9-50	136,75
63.400.2566	250	2,5	32	100	160	5	2/8-45+2/11-63+2/9-50	160,30
63.400.2570	250	2,5	32	100	200	4	2/8-45+2/11-63+2/9-50	160,30
63.400.2575	250	2,5	32	100	250	3	2/8-45+2/11-63+2/9-50	160,30
63.400.2608	250	2,5	40	100	80	10	2/8-55+4/12-64	160,30
63.400.2610	250	2,5	40	100	100	8	2/8-55+4/12-64	160,30
63.400.2612	250	2,5	40	100	128	6	2/8-55+4/12-64	160,30
63.400.2616	250	2,5	40	100	160	5	2/8-55+4/12-64	160,30
63.400.2620	250	2,5	40	100	200	4	2/8-55+4/12-64	160,30
63.400.2625	250	2,5	40	100	250	3	2/8-55+4/12-64	160,30
63.400.2709	275	2,5	32	100	90	10	2/8-45+2/11-63+2/12-75	180,40
63.400.2711	275	2,5	32	100	110	8	2/8-45+2/11-63+2/12-75	180,40
63.400.2714	275	2,5	32	100	140	6	2/8-45+2/11-63+2/12-75	180,40
63.400.2718	275	2,5	32	100	180	5	2/8-45+2/11-63+2/12-75	180,40
63.400.2722	275	2,5	32	100	220	4	2/8-45+2/11-63+2/12-75	180,40
63.400.2728	275	2,5	32	100	280	3	2/8-45+2/11-63+2/12-75	180,40

Ref.	d1	b1	d2	d3	z	t	d4	€
63.400.2809	275	2,5	40	100	90	10	2/8-55+4/12-64	180,40
63.400.2811	275	2,5	40	100	110	8	2/8-55+4/12-64	180,40
63.400.2814	275	2,5	40	100	140	6	2/8-55+4/12-64	180,40
63.400.2818	275	2,5	40	100	180	5	2/8-55+4/12-64	180,40
63.400.2822	275	2,5	40	100	220	4	2/8-55+4/12-64	180,40
63.400.2828	275	2,5	40	100	280	3	2/8-55+4/12-64	180,40
63.400.3009	300	2,5	32	100	90	10	2/8-45+4/11-63	222,80
63.400.3012	300	2,5	32	100	120	8	2/8-45+4/11-63	222,80
63.400.3016	300	2,5	32	100	160	6	2/8-45+4/11-63	222,80
63.400.3018	300	2,5	32	100	180	5	2/8-45+4/11-63	222,80
63.400.3020	300	2,5	32	100	200	4	2/8-45+4/11-63	222,80
63.400.3022	300	2,5	32	100	220	4	2/8-45+4/11-63	222,80
63.400.3030	300	2,5	32	100	300	3	2/8-45+4/11-63	222,80
63.400.3059	300	3	40	100	90	10	2/8-55+4/12-64	284,00
63.400.3062	300	3	40	100	120	8	2/8-55+4/12-64	284,00
63.400.3066	300	3	40	100	160	6	2/8-55+4/12-64	284,00
63.400.3068	300	3	40	100	180	5	2/8-55+4/12-64	284,00
63.400.3072	300	3	40	100	220	4	2/8-55+4/12-64	284,00
63.400.3080	300	3	40	100	300	3	2/8-55+4/12-64	284,00
63.400.3110	315	2,5	32	100	100	10	2/8-45+4/11-63	241,05
63.400.3112	315	2,5	32	100	120	8	2/8-45+4/11-63	241,05
63.400.3116	315	2,5	32	100	160	6	2/8-45+4/11-63	241,05
63.400.3120	315	2,5	32	100	200	5	2/8-45+4/11-63	241,05
63.400.3124	315	2,5	32	100	240	4	2/8-45+4/11-63	241,05
63.400.3130	315	2,5	32	100	300	3	2/8-45+4/11-63	241,05
63.400.3160	315	2,5	40	100	100	10	2/8-55+2/12-64	241,05
63.400.3162	315	2,5	40	100	120	8	2/8-55+4/12-64	241,05
63.400.3166	315	2,5	40	100	160	6	2/8-55+4/12-64	241,05
63.400.3170	315	2,5	40	100	200	5	2/8-55+4/12-64	241,05
63.400.3174	315	2,5	40	100	240	4	2/8-55+4/12-64	241,05
63.400.3180	315	2,5	40	100	300	3	2/8-55+4/12-64	241,05
63.400.3512	350	3	32	120	120	9	2/8-45+4/11-63	347,00
63.400.3514	350	3	32	120	140	8	2/8-45+4/11-63	347,00

> 63.400

Phantom

Ref.	d1	b1	d2	d3	z	t	d4	€
63.400.3518	350	3	32	120	180	6	2/8-45+4/11-63	347,00
63.400.3522	350	3	32	120	220	5	2/8-45+4/11-63	347,00
63.400.3528	350	3	32	120	280	4	2/8-45+4/11-63	347,00
63.400.3535	350	3	32	120	350	3	2/8-45+4/11-63	347,00
63.400.3562	350	3	40	120	120	9	2/8-55+4/12-64	347,00
63.400.3564	350	3	40	120	140	8	2/8-55+4/12-64	347,00
63.400.3568	350	3	40	120	180	6	2/8-55+2/12-64	347,00
63.400.3572	350	3	40	120	220	5	2/8-55+2/12-64	347,00
63.400.3578	350	3	40	120	280	4	2/8-55+2/12-64	347,00
63.400.3585	350	3	40	120	350	3	2/8-55+4/12-64	347,00
63.400.3608	350	3	50	120	80	14	4/15-80+4/14-85	347,00

Ref.	d1	b1	d2	d3	z	t	d4	€
63.400.3612	350	3	50	120	120	9	4/15-80+4/14-85	347,00
63.400.3616	350	3	50	120	160	7	4/15-80+4/14-85	347,00
63.400.3622	350	3	50	120	220	5	4/15-80+4/14-85	347,00
63.400.3711	370	3	50	120	110	10	4/15-80+4/14-85	467,00
63.400.3716	370	3	50	120	160	7	4/15-80+4/14-85	467,00
63.400.3722	370	3	50	120	220	5	4/15-80+4/14-85	467,00
63.400.4008	400	3	50	120	80	16	4/15-80+4/14-85	479,00
63.400.4010	400	3	50	120	100	12	4/15-80+4/14-85	479,00
63.400.4012	400	3	50	120	120	10	4/15-80+4/14-85	479,00
63.400.4016	400	3	50	120	160	8	4/15-80+4/14-85	479,00
63.400.4020	400	3	50	120	200	6	4/15-80+4/14-85	479,00

> 63.401

Phantom

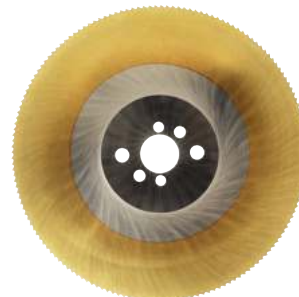
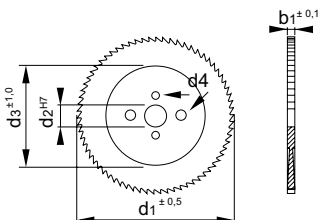
NL HSS Afkortzaag TiN

FR Fraise-scie à tronçonner HSS TiN

ES Fresa sierra circular tronzadora HSS TiN

DE HSS Trennsägeblätter TiN

EN HSS Circular Saw Blade TiN



HSS

TiN

Ts4

T≥5

BW

C

P 11

P 12

P 13

K 31

K 32

N 41

N 42

N 51

N 61

≤600 N/mm²

≤850 N/mm²

≤1000 N/mm²

GG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

30-40

25-35

15-25

25-30

20-25

500-700

500-700

200-400

200-600

Ref.	d1	b1	d2	d3	z	t	d4	€
63.401.2512	250	2	32	100	128	6	2/8-45+2/11-63+2/9-50	168,20
63.401.2516	250	2	32	100	160	5	2/8-45+2/11-63+2/9-50	168,20
63.401.2520	250	2	32	100	200	4	2/8-45+2/11-63+2/9-50	168,20
63.401.2525	250	2	32	100	250	3	2/8-45+2/11-63+2/9-50	168,20
63.401.2566	250	2.5	32	100	160	5	2/8-45+2/11-63+2/9-50	185,15
63.401.2570	250	2.5	32	100	200	4	2/8-45+2/11-63+2/9-50	185,15
63.401.2714	275	2.5	32	100	140	6	2/8-45+2/11-63+2/12-75	214,80
63.401.2718	275	2.5	32	100	180	5	2/8-45+2/11-63+2/12-75	214,80
63.401.2722	275	2.5	32	100	220	4	2/8-45+2/11-63+2/12-75	214,80
63.401.2814	275	2.5	40	100	140	6	2/8-55+4/12-64	214,80
63.401.2818	275	2.5	40	100	180	5	2/8-55+4/12-64	214,80
63.401.2822	275	2.5	40	100	220	4	2/8-55+4/12-64	214,80

Ref.	d1	b1	d2	d3	z	t	d4	€
63.401.3016	300	2.5	32	100	160	6	2/8-45+4/11-63	256,00
63.401.3018	300	2.5	32	100	180	5	2/8-45+4/11-63	256,00
63.401.3022	300	2.5	32	100	220	4	2/8-45+4/11-63	256,00
63.401.3116	315	2.5	32	100	160	6	2/8-45+4/11-63	282,00
63.401.3120	315	2.5	32	100	200	5	2/8-45+4/11-63	282,00
63.401.3124	315	2.5	32	100	240	4	2/8-45+4/11-63	282,00
63.401.3166	315	2.5	40	100	160	6	2/8-55+4/12-64	282,00
63.401.3170	315	2.5	40	100	200	5	2/8-55+4/12-64	282,00
63.401.3174	315	2.5	40	100	240	4	2/8-55+4/12-64	282,00
63.401.3518	350	3	32	100	180	6	2/8-45+4/11-63	356,00
63.401.3522	350	3	32	100	220	5	2/8-45+4/11-63	356,00

> 63.420

Phantom

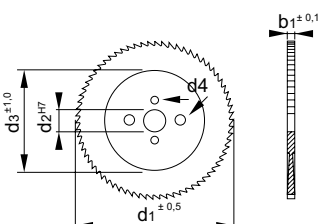
NL HSS-E Afkortzaag stoomontlaten

FR Fraise-scie à tronçonner HSS-E vaporisé

ES Fresa sierra circular tronzadora HSS-E vaporizada

DE HSS-E Trennsägeblätter dampfangelassen

EN HSS-E Circular Saw Blade steam oxide



HSS-E

OX.

Ts4

T≥5

BW

C

INOX

P 11

P 12

P 13

P 14

M 21

M 22

K 31

K 32

N 41

N 42

N 51

N 61

≤600 N/mm²

≤850 N/mm²

≤1000 N/mm²

≤1400 N/mm²

INOX

INOX

GG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

GGG

30-40

25-35

15-25

15-20

10-15

6-8

25-30

20-25

500-700

500-700

200-400

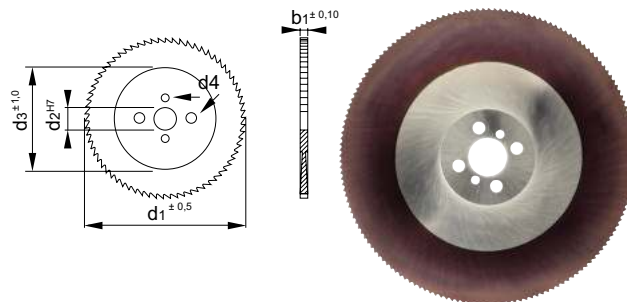
200-600

Ref.	d1	b1	d2	d3	z	t	d4	€
63.420.2218	225	2	32	90	180	4	2/8-45+2/11-63+2/9-50	211,25
63.420.2222	225	2	32	90	220	3	2/8-45+2/11-63+2/9-50	211,25
63.420.2516	250	2	32	100	160	5	2/8-45+2/11-63+2/9-50	190,65
63.420.2520	250	2	32	100	200	4	2/8-45+2/11-63+2/9-50	190,65
63.420.2525	250	2	32	100	250	3	2/8-45+2/11-63+2/9-50	190,65
63.420.2714	275	2.5	32	100	140	6	2/8-45+2/11-63+2/12-75	253,00
63.420.2718	275	2.5	32	100	180	5	2/8-45+2/11-63+2/12-75	253,00
63.420.2722	275	2.5	32	100	220	4	2/8-45+2/11-63+2/12-75	253,00
63.420.2814	275	2.5	40	100	140	6	2/8-55+4/12-64	253,00
63.420.2818	275	2.5	40	100	180	5	2/8-55+4/12-64	253,00
63.420.2822	275	2.5	40	100	220	4	2/8-55+4/12-64	253,00
63.420.3018	300	2.5	32	100	180	5	2/8-45+4/11-63	305,00

Ref.	d1	b1	d2	d3	z	t	d4	€
63.420.3020	300	2.5	32	100	200	5	2/8-45+4/11-63	305,00
63.420.3022	300	2.5	32	100	220	4	2/8-45+4/11-63	305,00
63.420.3030	300	2.5	32	100	300	3	2/8-45+4/11-63	305,00
63.420.3116	315	2.5	32	100	160	6	2/8-45+2/11-63	336,00
63.420.3120	315	2.5	32	100	200	5	2/8-45+2/11-63	336,00
63.420.3124	315	2.5	32	100	240	4	2/8-45+2/11-63	336,00
63.420.3166	315	2.5	40	100	160	6	2/8-55+4/12-64	336,00
63.420.3170	315	2.5	40	100	200	5	2/8-55+4/12-64	336,00
63.420.3174	315	2.5	40	100	240	4	2/8-55+4/12-64	336,00
63.420.3518	350	3	32	120	180	6	2/8-45+4/11-63	567,00
63.420.3522	350	3	32	120	220	5	2/8-45+4/11-63	567,00
63.420.3528	350	3	32	120	280	4	2/8-45+4/11-63	567,00

> 63.424 Phantom

NL HSS-E Afkortzaag TiAIN
FR Fraise-scie à tronçonner HSS-E TiAIN
ES Fresa sierra circular tronadora HSS-E TiAIN
DE HSS-E Trennsägeblätter TiAIN
EN HSS-E Circular Saw Blade TiAIN



HSS-E TiAIN T_{S4} BW T_{S5} C INOX

P 11 ≤800 N/mm² P 12 ≤850 N/mm² P 13 ≤1000 N/mm² P 14 ≤1400 N/mm² M 21 INOX ≤850 N/mm² M 22 INOX >850 N/mm² K 31 GG K 32 GGG GTS-GTW N 41 Alu N 42 Alu Si>10% N 51 Cu N 61 PVC

30-40 25-35 15-25 15-20 10-15 6-8 25-30 20-25 500-700 500-700 200-400 200-600

Ref.	d1	b1	d2	d3	z	t	d4	€
63.424.2822	275	2.5	40	100	220	4	2/8-55+4/12-64	302,00
63.424.3022	300	2.5	32	100	220	4	2/8-45+4/11-63	361,00
63.424.3030	300	2.5	32	100	300	3	2/8-45+4/11-63	361,00
63.424.3116	315	2.5	32	100	160	6	2/8-45+2/11-63	396,00
63.424.3120	315	2.5	32	100	200	5	2/8-45+4/11-63	396,00
63.424.3124	315	2.5	32	100	240	4	2/8-45+4/11-63	396,00

Ref.	d1	b1	d2	d3	z	t	d4	€
63.424.3166	315	2.5	40	100	160	6	2/8-55+4/12-64	396,00
63.424.3170	315	2.5	40	100	200	5	2/8-55+4/12-64	396,00
63.424.3174	315	2.5	40	100	240	4	2/8-55+4/12-64	396,00
63.424.3518	350	3	32	120	180	6	2/8-45+4/11-63	500,00
63.424.3522	350	3	32	120	220	5	2/8-45+4/11-63	500,00

> 64.150 Phantom

NL HSS-Co Bi-Metaal Handzaagblad
FR Lame de scie à main HSS-Co Bi-métal
ES Hoja de sierra manual HSS-Co Bi-metal
DE HSS-Co Bi-Metall Handsägeblätter
EN HSS-Co Bi-Metal Hand Hacksaw Blade

Phantom HSS-Co 64.150.2400 300 x 13 x 0,65/24 24

HSS-Co 300mm 12"

Ref.	T/°	t	€
64.150.1800	18	1,4	2,50
64.150.2400	24	1	2,50
64.150.3200	32	0,8	2,50

> 64.460 Phantom

NL HSS Metaalzaagbeugel robuuste uitvoering
FR Monture de scie à métaux HSS version Heavy Duty
ES Mango de sierra HSS versión macizo
DE HSS Metallsägebogen robuste Ausführung
EN HSS Hacksaw Bracket sturdy version



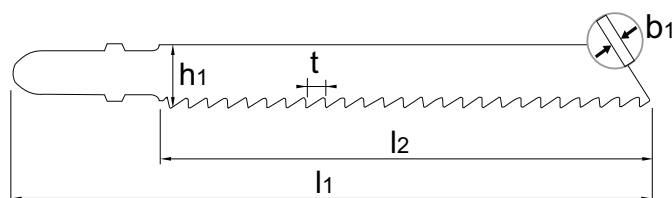
HSS 24 TPI 180KG 45-90° 300mm 12"

Ref.	Nr.	€
64.460.1001	1	62,00

> 64.500

Phantom

NL Decoupeerzaag, voor metaal
FR Lame de scie sauteuse, pour métal
ES Hojas de sierra de calar, para metal
DE Stichsägeblätter, für Metall
EN Jigsaw Blade

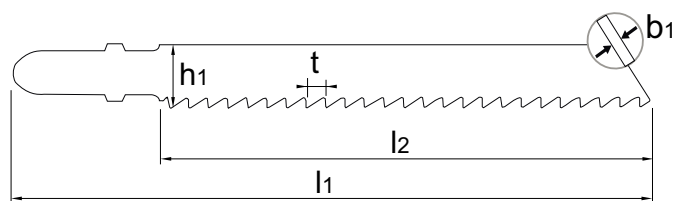


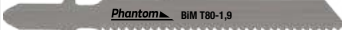
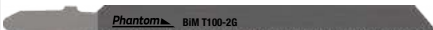
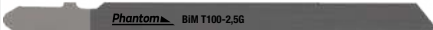
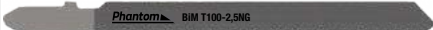
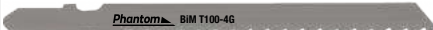
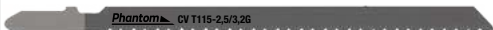
Ref.	Type	l1	l2	h1	b1	t		€
64.500.0710	T75-0,9	75	50	8,0	1,00	0,9	 	12,71
64.500.0711	T75-1,1 INOX	75	50	9,5	1,00	1,1	 	37,70
64.500.0714	T75-1,2	75	50	8,0	1,00	1,2	 	12,71
64.500.0720	T75-2	75	50	8,0	1,00	2	 	12,71
64.500.1018	T100-1,2/2,5 UNI	100	75	8,0	1,00	1,2-2,5	 	15,88
64.500.1021	T100-2	100	75	8,0	1,27	2	 	18,17
64.500.1025	T100-3	100	75	8,0	1,15	3	 	11,72
64.500.1027	T100-3C	100	75	6,2	1,15	3	 	14,43
64.500.1312	T132-1,2	132	110	8,0	1,00	1,2	 	19,06
64.500.1313	T132-1/1,6 UNI	132	110	8,0	1,00	1-1,6	 	20,75
64.500.1321	T132-1,8/2,5 UNI	132	110	8,0	1,27	1,8-2,5	 	20,75
64.500.1330	T132-2/4 UNI	132	110	8,0	1,27	2-4	 	19,86

> 64.500

Phantom

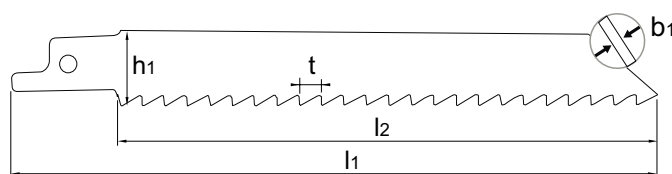
NL Decoupeerzaag, voor hout, tegels, cellenbeton en composiet
FR Lame de scie sauteuse, pour bois
ES Hojas de sierra de calar, para madera
DE Stichsägeblätter, für Holz
EN Jigsaw Blade



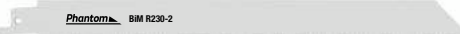
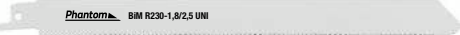
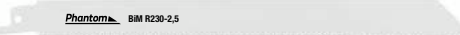
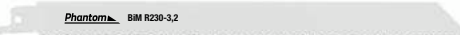
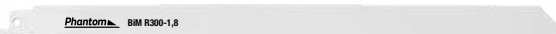
Ref.	Type	l1	l2	h1	b1	t		€
64.500.0725	T75-2C	75	50	5,4	1,25	2	 CV   	6,47
64.500.0819	T80-1,9	80	55	8,0	1,27	1,9	 BiM HSS  	16,43
64.500.1020	T100-2G	100	75	8,0	1,27	2	 BiM HSS   	18,05
64.500.1024	T100-2,5CG	100	75	8,0	1,27	2,5	 CV  	11,04
64.500.1026	T100-2,5G	100	75	8,0	1,27	2,5	 BiM HSS  	18,05
64.500.1028	T100-2,5NG	100	75	8,0	1,27	2,5	 BiM HSS  	18,05
64.500.1042	T100-4G	100	75	8,0	1,27	4	 BiM HSS   	16,25
64.500.1150	T115-2,5/3,2G	115	90	8,0	1,45	2,5-3,2	 CV   	20,18
64.500.1340	T132-4G	132	110	8,0	1,27	4	 BiM HSS   	19,86
64.500.1540	T150-4	150	130	8,0	1,25	4	 CV   	9,86
64.500.1950	T75-HM	75	50	8,0	1,00	-	 HM  	6,47
64.500.2043	T100-4,3HM	100	75	8,0	1,25	4,3	 HM   	76,25

> 64.600 Phantom

NL Reciprozaag
FR Lame de scie sabre
ES Hojas de sierra de sable
DE Säbelsägeblätter
EN Sabre Saw Blade



Ref.	Type	l1	l2	h1	b1	t		€
64.600.1510	R150-1	150	130	19,0	0,90	1	Phantom BIM R150-1 BiM HSS 0,7-3 mm	21,35
64.600.1514	R150-1,4	150	130	19,0	0,90	1,4	Phantom BIM R150-1,4 BiM HSS 1,5-4 mm INOX	21,35
64.600.1518	R150-1,8	150	130	19,0	0,90	1,8	Phantom BIM R150-1,8 BiM HSS 3-8 mm INOX	21,35
64.600.1519	R150-1,8 90°	150	130	25,4	0,90	1,8	Phantom BIM R150-1,8 90° BiM HSS 3-8 mm INOX 90°	32,30
64.600.1522	R150-1,8/2,5 UNI	150	130	19,0	1,27	1,8-2,5	Phantom BIM R150-1,8/2,5 UNI BiM HSS 3-12 mm UNI INOX 90°	29,35
64.600.1525	R150-2,5	150	130	19,0	0,90	2,5	Phantom BIM R150-2,5 BiM HSS 3-12 mm	21,35
64.600.1540	R150-4,2C	150	130	19,0	1,27	4,2	Phantom BIM R150-4,2C BiM HSS 6-100 mm	26,85
64.600.2014	R200-1,4	200	180	19,0	0,90	1,4	Phantom BIM R200-1,4 BiM HSS 1,5-4 mm INOX	27,30
64.600.2018	R200-1,8	200	180	19,0	0,90	1,8	Phantom BIM R200-1,8 BiM HSS 2-8 mm	27,30
64.600.2023	R200-1,8/2,5 UNI	200	180	19,0	1,27	1,8-2,5	Phantom BIM R200-1,8/2,5 UNI BiM HSS 3-12 mm UNI 90°	36,80
64.600.2025	R200-2,5	200	180	19,0	0,90	2,5	Phantom BIM R200-2,5 BiM HSS 3-150 mm GG	27,30
64.600.2214	R230-1,4	230	210	19,0	0,90	1,4	Phantom BIM R230-1,4 BiM 8% Co 1,5-4 mm INOX	32,30
64.600.2218	R230-1,8	230	210	19,0	0,90	1,8	Phantom BIM R230-1,8 BiM HSS 2-8 mm	31,10

Ref.	Type	l1	l2	h1	b1	t		€
64.600.2220	R230-2	230	210	19,0	1,27	2	       	37,05
64.600.2221	R230-1,8/2,5 UNI	230	210	19,0	0,90	1,8-2,5	        	33,35
64.600.2225	R230-2,5	230	210	19,0	0,90	2,5	       	32,30
64.600.2232	R230-2,2/3,2 UNI	230	210	19,0	1,27	2,2-3,2	       	38,70
64.600.2332	R230-3,2	230	210	19,0	1,57	3,2	       	53,20
64.600.2342	R230-4,2C	230	210	19,0	1,27	4,2	      	35,80
64.600.2356	R230-5/6,5	230	210	19,0	1,20	5-6,5	      	33,10
64.600.3018	R300-1,8	300	280	19,0	0,90	1,8	      	35,45
64.600.3021	R300-1,8/2,5 UNI	300	280	19,0	0,90	1,8-2,5	      	43,05
64.600.3025	R300-2,5	300	280	19,0	0,90	2,5	      	35,45
64.600.3032	R300-4,2C	300	280	19,0	1,27	4,2	      	45,10

> 66.450 Phantom

NL M42 Bi-Metaal Bandzaag voor profielmateriaal
 FR Scie à ruban Bi-métal M42 pour profilés
 ES Sierra de cinta Bimetal M42 para materiales de perfiles
 DE M42 Bi-Metall Sägebänder für Profilmaterial
 EN M42 Bi-Metal Band saw for profile material



P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤850 N/mm²	M 22 INOX >850 N/mm²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 51 Cu	S 71 Ni/Co	S 72 Ti
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50-120	35-50	30-45	30-40	30-40	10-30	30-60	30-60	80-800	50-400	10-25	10-20
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h1 x b1 (mm)	Price pr. Meter €	Welding costs €	z=5-8/''	z=6-10/''	z=8-12/''	z=10-14/''
13 x 0,65	€ 14,70	€ 11,30		66.450.07....	66.450.08....	66.450.09....
13 x 0,9	€ 15,70	€ 11,30		66.450.17....	66.450.18....	66.450.19....
20 x 0,9	€ 16,20	€ 12,65	66.450.26....	66.450.27....	66.450.28....	66.450.29....
27 x 0,9	€ 17,00	€ 13,35	66.450.36....	66.450.37....	66.450.38....	66.450.39....
34 x 1,1	€ 21,15	€ 13,85	66.450.56....	66.450.57....	66.450.58....	

> 66.460 Phantom

NL M42 Bi-Metaal Bandzaag voor grotere afmetingen
 FR Scie à ruban Bi-métal M42 pour matériaux de grandes dimensions
 ES Sierra de cinta Bi-metal M42 para materiales con dimensiones grandes
 DE M42 Bi-Metall Sägebänder größer Abmessung
 EN M42 Bi-Metal Band saw for large sizes



P 11 ≤600 N/mm²	P 12 ≤850 N/mm²	P 13 ≤1000 N/mm²	P 14 ≤1400 N/mm²	M 21 INOX ≤850 N/mm²	M 22 INOX >850 N/mm²	K 31 GG	N 41 Alu	N 42 Alu Si>10%
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50-120	35-50	30-45	30-40	30-40	10-30	30-60	80-800	80-800
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h1 x b1 (mm)	Price pr. Meter €	Welding costs €	z=2-3/''	z=3-4/''	z=4-6/''
20 x 0,9	€ 16,20	€ 12,65			66.460.25....
27 x 0,9	€ 17,00	€ 13,35	66.460.33....	66.460.34....	66.460.35....
34 x 1,1	€ 21,15	€ 13,85	66.460.53....	66.460.54....	66.460.55....
41 x 1,3	€ 30,50	€ 19,60	66.460.63....	66.460.64....	66.460.65....
54 x 1,6	€ 43,85	€ 31,15	66.450.73....	66.460.74....	

> 66.580 Phantom

- NL M51 Bi-Metal Bandzaag voor grotere afmetingen, extra slijtvast
 FR Scie à ruban Bi-métal M51 pour matériaux de grandes dimensions, très résistante à l'usure
 ES Sierra de cinta Bi-metal M51 para materiales con dimensiones grandes, extra resistente al desgaste
 DE M51 BiMetall Sägebänder größer Abmessung, besonders Verschleissfest
 EN M51 Bi-Metal Band saw for large sizes, Extra wear-resistant



P 11 ≤800 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	P 14 ≤1400 N/mm ²	M 21 INOX ≤850 N/mm ²	M 22 INOX >850 N/mm ²	S 71 Ni/Co	S 72 Ti
50-120	35-50	30-45	30-40	30-40	10-30	10-25	10-20

h1 x b1 (mm)	Price pr. Meter €	Welding costs €	z=3-4/''	z=4-6/''	z=5-8/''
27 x 0,9	€ 23,85	€ 13,35	66.580.44....	66.580.45....	66.580.46....
34 x 1,1	€ 33,05	€ 13,85	66.580.54....	66.580.55....	
41 x 1,3	€ 39,25	€ 19,60	66.580.64....	66.580.65....	

> 66.700 Phantom

- NL HP2 UNI M42 Bi-Metaal Bandzaag universele multizaag
 FR Scie à ruban Bi-métal M42 HP2 UNI scie multifonction
 ES Sierra de cinta Bimetal M42 HP2 UNI sierra universal
 DE HP2 UNI M42 Bi-Metall Sägebänder Universal-Sägeband
 EN HP2 UNI M42 Bi-Metal Band saw universal multi-saw



P 11 ≤800 N/mm ²	P 12 ≤850 N/mm ²	P 13 ≤1000 N/mm ²	P 14 ≤1400 N/mm ²	M 21 INOX ≤850 N/mm ²	M 22 INOX >850 N/mm ²	K 31 GG	K 32 GGG GTS-GTW	N 41 Alu	N 51 Cu	S 71 Ni/Co	S 72 Ti
50-120	35-50	30-45	30-40	30-40	10-30	30-60	30-60	80-800	50-400	10-25	10-20

h1 x b1 (mm)	Price pr. Meter €	Welding costs €	z=3-4/''	z=4-6/''	z=5-7/''	z=7-9/''	z=8-11/''
27 x 0,9	€ 19,55	€ 13,35	66.700.34....	66.700.35....	66.700.36....	66.700.37....	66.700.38....
34 x 1,1	€ 22,95	€ 13,85	66.700.54....	66.700.55....	66.700.56....		
41 x 1,3	€ 33,00	€ 19,60	66.700.64....	66.700.65....	66.700.66....		
54 x 1,6	€ 47,50	€ 31,15	66.700.74....				

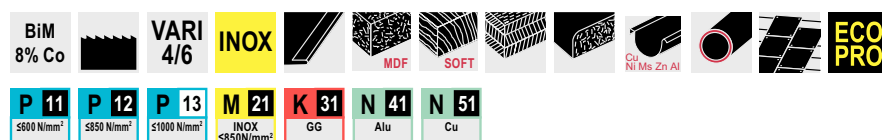
> 69.090 INTERNATIONAL TOOLS

NL ECO PRO HSS-Co 8% Bi-Metaal Set Gatzagen 61.090
FR Jeu de Scies cloches HSS-Co 8% Bi-métal ECO PRO 61.090
ES Juego de coronas perforadoras HSS-Co 8% Bi-Metal ECO PRO 61.090
DE ECO PRO HSS-Co 8% Bi-Metall Satz Lochsägen 61.090
EN ECO PRO HSS-Co 8% Bi-Metal Hole saw set 61.090



1 2 3 4

NIEUW NOUVEAU NUEVO NEU



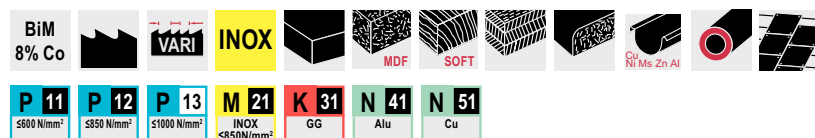
Ref.	1	2	3	4	€
69.090.1200	16, 19, 22, 25, 29, 32, 35, 38, 44, 51, 64, 76 mm	Nr. 2+5	61.147.0600	61.160.9500	180,00
69.090.1201	16, 19, 22, 25, 29, 32, 35, 38, 44, 51, 68, 76 mm	Nr. 2+5	61.147.0600	61.160.9500	180,00

> 69.111 Phantom

NL HSS-Co 8% Bi-Metaal Set Gatzagen 61.105
FR Jeu de Scies cloches HSS-Co 8% Bi-métal 61.105
ES Juego de coronas perforadoras HSS-Co 8% Bi-Metal 61.105
DE HSS-Co 8% Bi-Metall Satz Lochsägen 61.105
EN HSS-Co 8% Bi-Metal Hole saw set 61.105



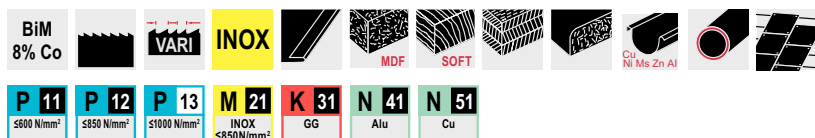
1 2 3 4



Ref.	1	2	3	4	€
69.111.0900	19, 22, 29, 35, 38, 44, 51, 57, 64 mm	Nr. 2+5	61.170.0600	61.160.9500	192,00
69.111.0901	19, 22, 29, 35, 38, 44, 51, 57, 68 mm	Nr. 2+5	61.170.0600	61.160.9500	192,00
69.111.1200	16, 19, 22, 25, 29, 32, 35, 38, 44, 51, 64, 76 mm	Nr. 2+5	61.170.0600	61.160.9500	228,00
69.111.1201	16, 19, 22, 25, 29, 32, 35, 38, 44, 51, 68, 76 mm	Nr. 2+5	61.170.0600	61.160.9500	228,00

> 69.114 Phantom

- NL HSS-Co 8% Bi-Metaal Set Gatzagen voor dunne plaat en buizen, 61.110
 FR Jeu de Scies cloches HSS-Co 8% Bi-métal pour tôle fine et tube, 61.110
 ES Juego de coronas perforadoras HSS-Co 8% Bi-Metal para chapa fina y tubos, 61.110
 DE HSS-Co 8% Bi-Metall Satz Lochsäge für dünne Platte und Rohren, 61.110
 EN HSS-Co 8% Bi-Metal Hole saw set for thin plates and tubes, 61.110



NIEUW NOUVEAU NUEVO NEU

Ref.	1	2	3	4	€
69.114.1200	16, 19, 22, 25, 29, 32, 35, 38, 44, 51, 64, 76 mm	Nr. 2+5	61.170.0600	61.160.9500	221,00
69.114.1201	16, 19, 22, 25, 29, 32, 35, 38, 44, 51, 68, 76 mm	Nr. 2+5	61.170.0600	61.160.9500	221,00



NL Gatzagen in actie
 FR Phantom Scies Cloches best of the test!
 ES Phantom Corona best of the test!
 DE Lochsäge in Aktion
 EN Phantom Hole Saw best of the test!

Read me



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> 69.210 Phantom

- NL HSS-EX Set Kernboren snijdiepte 30 mm, 62.100
 FR Jeu de Fraises à carotter HSS-EX profondeur de coupe 30 mm, 62.100
 ES Juego de Fresas huecas HSS-EX profundidad de corte 30 mm, 62.100
 DE HSS-EX Satz Kernbohrer Schnittiefe 30 mm, 62.100
 EN HSS-EX Set Annular Cutters cutting depth 30 mm, 62.100



25	20	13	18	38	32	22	17
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Ref.	Ø mm	€
69.210.0001	12-14-16-18-20-22 + 62.300.0025	201,95



NL Kernboren keuzehulp
 FR Aide à la sélection des fraises à carotter
 ES Ayuda para la selección de fresas huecas
 DE Auswahlhilfe Kernbohrer
 EN Selection guide for annular cutters

Read me



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